

Annex

Fittings GJS

For Hawle Fitting

to the

ENVIRONMENTAL PRODUCT DECLARATION

as per *ISO 14025* and *EN 15804+A2*

Owner of the Declaration	E. Hawle Armaturenwerke GmbH
Declaration number	EPD-HAW-20260411-IBA1-EN
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Valid to	See EPD



General Information

This Annex contains the life cycle impact assessment results for the declared unit of **1 piece of fitting products**:

Number	Product name	Product number
1.	ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE25 IG3/4"	5005348
2.	ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE90 IG3"	5005363
3.	ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE20 IG1/2"	5005345
4.	ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE32 IG1"	5005351
5.	ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE75 IG2_1/2"	5005362
6.	ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE50 IG5/4"	5005358
7.	ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE63 IG2"	5005360
8.	ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE50 IG6/4"	5005357
9.	ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE40 IG5/4"	5005356
10.	ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE32 IG5/4"	5005354
11.	ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE32 AG6/4"	5005448
12.	ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE32 AG5/4"	5005446
13.	ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE32 AG1"	5005444
14.	ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE26,9 AG3/4"	5005442
15.	ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE25 AG1"	5005440
16.	ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE20 AG1/2"	5005433
17.	ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE50 AG6/4"	5005459
18.	ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE25 AG3/4"	5005437
19.	ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE40 AG6/4"	5005454
20.	ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE40 AG2"	5005456
21.	ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE43 AG5/4"	5005458
22.	ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE40 AG1"	5005453
23.	ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE40 AG5/4"	5005452
24.	ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE34 AG1"	5005451
25.	ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE32 AG2"	5005450
26.	ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE63 AG2"	5005463
27.	ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE63 AG5/4"	5005464
28.	ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE63 AG6/4"	5005466
29.	ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE50 AG2"	5005461
30.	ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE50 AG5/4"	5005460
31.	ISO-FITTING PN16 CONNECTOR: FIT GJS PE32 PE25	5005564
32.	ISO-FITTING PN16 CONNECTOR: FIT GJS PE32 PE20	5005563
33.	ISO-FITTING PN16 CONNECTOR: FIT GJS PE25 PE20	5005558
34.	ISO-FITTING PN16 CONNECTOR: FIT GJS PE25 PE25	5005556
35.	ISO-FITTING PN16 CONNECTOR: FIT GJS PE20 PE20	5005554
36.	ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE75 AG2"	5005469
37.	ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE60,3 AG2"	5005468
38.	ISO-FITTING PN16 CONNECTOR: FIT GJS PE75 PE75	5005576
39.	ISO-FITTING PN16 CONNECTOR: FIT GJS PE63 PE50	5005574
40.	ISO-FITTING PN16 CONNECTOR: FIT GJS PE63 PE63	5005573
41.	ISO-FITTING PN16 CONNECTOR: FIT GJS PE50 PE40	5005572
42.	ISO-FITTING PN16 CONNECTOR: FIT GJS PE50 PE50	5005570
43.	ISO-FITTING PN16 CONNECTOR: FIT GJS PE50 PE32	5005571
44.	ISO-FITTING PN16 CONNECTOR: FIT GJS PE40 PE40	5005568

45.	ISO-FITTING PN16 CONNECTOR: FIT GJS PE40 PE32	5005569
46.	ISO-FITTING PN16 CONNECTOR: FIT GJS PE90 PE75	5005581
47.	ISO-FITTING PN16 CONNECTOR: FIT GJS PE75 PE63	5005577
48.	ISO-FITTING PN16 CONNECTOR: FIT GJS PE90 PE90	5005580
49.	ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE32 ZAK-SP34	5005868
50.	ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE20 ZAK-SP34	5005862
51.	ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE25 ZAK-SP46	5005866
52.	ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE25 ZAK-SP34	5005864
53.	ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE63 ZAK-SP46	5005882
54.	ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE40 ZAK-SP34	5005874
55.	ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE50 ZAK-SP46	5005876
56.	ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE40 ZAK-SP46	5005872
57.	ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE32 ZAK-SP46	5005870
58.	ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 45 PE32 AG2"	5005901
59.	ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 45 PE32 AG1"	5005900
60.	ISO-FITTING PN16 ELBOW 45°: FIT GJS 45 PE63 PE63	5014369
61.	ISO-FITTING PN16 ELBOW 45°: FIT GJS 45 PE40 PE40	5014365
62.	ISO-FITTING PN16 ELBOW 45°: FIT GJS 45 PE50 PE50	5014367
63.	ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE40 IG5/4"	5005905
64.	ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE32 IG1"	5005904
65.	ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE25 IG1"	5005903
66.	ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE25 IG3/4"	5005902
67.	ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE20 PE20	5005980
68.	ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE25 PE25	5005981
69.	ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE63 AG2"	5005978
70.	ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE50 AG6/4"	5005976
71.	ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE40 AG5/4"	5005975
72.	ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE32 AG2"	5005974
73.	ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE32 AG5/4"	5005972
74.	ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE32 AG1"	5005970
75.	ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE25 AG1"	5005968
76.	ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE25 AG3/4"	5005966
77.	ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE63 IG2"	5005908
78.	ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE50 IG6/4"	5005906
79.	ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE40 ZAK-SP34	5006085
80.	ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE50 ZAK-SP46	5006087
81.	ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE40 ZAK-SP46	5006083
82.	ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE32 ZAK-SP46	5006081
83.	ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE25 ZAK-SP46	5006077
84.	ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE32 ZAK-SP34	5006079
85.	ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE25 ZAK-SP34	5006076
86.	ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE50 PE50	5005985
87.	ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE63 PE63	5005987
88.	ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE32 PE32	5005983
89.	ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE40 PE40	5005984
90.	ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE40 AG6/4"	5014430
91.	ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE32 AG6/4"	5014428
92.	ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE63 ZAK-SP46	5006089

93.	ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE63 ZAK-SP46 DREHBAR	5014398
94.	ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE40 ZAK-SP46 DREHBAR	5014392
95.	ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE50 ZAK-SP46 DREHBAR	5014396
96.	ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE40 ZAK-SP34 DREHBAR	5014394
97.	ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE32 ZAK-SP46 DREHBAR	5014390
98.	ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE32 ZAK-SP34 DREHBAR	5014388
99.	ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE25 ZAK-SP46 DREHBAR	5014386
100.	ZAK-REDUCER PN16 ZAK46 SPIGOT-ZAK34 SOCKET: REDUZIERUNG GJS ZAK-SP46 ZAK-MU34	5005885
101.	ZAK-ISO FITTING PN16 WITH DETACHABLE SOCKET: STECKFIT GJS PE32 ZAK-SP34 REP DEMONT	5006236
102.	ZAK-ISO FITTING PN16 WITH DETACHABLE SOCKET: STECKFIT GJS PE50 ZAK-SP46 REP DEMONT	5006241
103.	ISO-FITTING PN16 TEE: FIT GJS T PE50 PE25 PE50	5006165
104.	ISO-FITTING PN16 TEE: FIT GJS T PE63 PE63 PE63	5006166
105.	ISO-FITTING PN16 TEE: FIT GJS T PE40 PE25 PE40	5006164
106.	ISO-FITTING PN16 TEE: FIT GJS T PE32 PE25 PE32	5006160
107.	ISO-FITTING PN16 TEE: FIT GJS T PE32 PE32 PE32	5006158
108.	ISO-FITTING PN16 TEE: FIT GJS T PE40 PE40 PE40	5006162
109.	ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE63 IG2" PE63	5006099
110.	ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE50 IG6/4" PE50	5006098
111.	ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE40 IG5/4" PE40	5006097
112.	ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE32 IG1" PE32	5006095
113.	ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE25 IG3/4" PE25	5006093
114.	ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE20 IG1/2" PE20	5006092
115.	ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE50 IG2" PE50	5014377
116.	ISO-FITTING PN16 TEE: FIT GJS T PE40 PE32 PE40	5031798
117.	ISO-FITTING PN16 TEE: FIT GJS T PE63 PE50 PE63	5014426
118.	ISO-FITTING PN16 TEE: FIT GJS T PE63 PE40 PE63	5014424
119.	ISO-FITTING PN16 TEE: FIT GJS T PE63 PE32 PE63	5014422
120.	ISO-FITTING PN16 TEE: FIT GJS T PE50 PE40 PE50	5014420
121.	ISO-FITTING PN16 TEE: FIT GJS T PE50 PE32 PE50	5014418
122.	ISO-FITTING PN16 TEE: FIT GJS T PE50 PE50 PE50	5014416

This document declares the specific results according to EN 15804, EF 3.1 for the products mentioned above. It represents a complementary document to the IBU-EPD for **Hawle Fitting [declaration number EPD-HAW-20260411-IBA1-EN]**.

General Information on the product

This Annex describes the product specific results for Hawle fitting products. Further information on the LCA is provided in the complementing IBU-EPD for Hawle Fitting.

LCA: Scenarios and additional technical information

The product described in the IBU-EPD for Hawle Fitting [declaration number EPD-HAW-20260411-IBA1-EN] is one of several different design variations of fittings. These design variations can differ by nominal diameter, pipe connection type, geometry with/without change of flow direction, single/multi-way (tee) and material of housing.

In this annex only products with cast iron housing are considered. The following design variations are presented:

- Fittings with iso sockets
- Fittings with internal threads
- Fittings with external threads
- Fittings with ZAK sockets with or without ZAK swivel type
- Fittings with 45° or 90° angel
- Fittings with tee-connector geometry

Each variation has various nominal diameters (DN20 up to DN90). A combination of different variations is possible (for example: one internal and one external thread).

All fittings in this annex have a housing of cast iron, which is epoxy powder coated.

The main difference is the housing geometry which leads to different component masses. Additionally, different kinds of connection types have different components, such as:

- Products with ZAK- sockets have a POM retaining ring and two O-rings at the "male" part of the connection.
- Products with internal threads have an additional O-ring to protect the housing.
- Products with ISO sockets have a POM clamp and an O-ring in each socket and a rubber dust cap.

The following life cycle phases of the fitting products are part of the analysis:

Module A1-A3: The production stage includes the upstream burdens of raw material supply, their transports and the production of the Fitting products at E. Hawle Armaturenwerke GmbH in Vöcklabruck and Frankenmarkt.

- Module C2: Transport to recycling (50 km default-scenario)

- Module C3: Energy recovery of the polymer parts in a waste incineration plant.

- Module C4: Emissions from the disposal of the losses from waste processing (5 % of metals)

- Module D: Recycling of the recovered metals (95 % of metals) and substitution potentials from energy recovery from the incineration of the polymers.

Module C1 of Fitting products does not contain any relevant environmental impacts and is to be declared as "0".

All data collected for the LCA of the fitting declared in the IBU-EPD represent the basis for the assessment. This basis was complemented with product specific information, mainly represented by the bill of materials of the declared products. All calculations follow the same principles.

The packaging of the fittings is assumed to remain constant for all products and is represented based on a standard for shipping on the European market. Details can be found in chapter 2.9 and in chapter 4 of the main EPD.

The product specific net flow of steel scrap in Module D is declared in the results tables under "Use of secondary material (SM)" in Module D.

It should be noted that the data and methodological assumptions used for the preparation of the LCAs of the products listed comply with the requirements of *EN 15804+A2* as well as *IBU, PCR Part A* and are thus suitable for use in an EPD.

2. LCA: Results

2.1 ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE25 IG3/4"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	MNR	MNR	MNR	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE25 IG3/4" (0.32 kg/piece)

Kennindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	9.01E-01	0.00E+00	1.25E-03	4.65E-02	3.23E-04	-1.52E-01
GWP-fossil	[kg CO ₂ -Eq.]	8.84E-01	0.00E+00	1.23E-03	4.65E-02	3.21E-04	-1.53E-01
GWP-biogenic	[kg CO ₂ -Eq.]	1.38E-02	0.00E+00	2.30E-06	1.69E-06	9.89E-07	7.26E-04
GWP-luluc	[kg CO ₂ -Eq.]	2.70E-03	0.00E+00	1.29E-05	1.65E-06	1.01E-06	-4.02E-05
ODP	[kg CFC11-Eq.]	1.31E-11	0.00E+00	2.08E-16	4.91E-15	1.04E-15	3.43E-14
AP	[mol H ⁺ -Eq.]	2.63E-03	0.00E+00	4.49E-06	4.91E-06	2.00E-06	-3.54E-04
EP-freshwater	[kg P-Eq.]	5.57E-06	0.00E+00	3.38E-09	1.08E-09	4.54E-10	-4.65E-08
EP-marine	[kg N-Eq.]	7.72E-04	0.00E+00	2.13E-06	1.32E-06	4.88E-07	-5.93E-05
EP-terrestrial	[mol N-Eq.]	8.52E-03	0.00E+00	2.31E-05	2.31E-05	5.32E-06	-5.44E-04
POCP	[kg NMVOC-Eq.]	2.03E-03	0.00E+00	4.11E-06	3.75E-06	1.51E-06	-2.34E-04
ADPE	[kg Sb-Eq.]	3.94E-07	0.00E+00	8.35E-11	5.66E-11	2.18E-11	-7.78E-07
ADPF	[MJ]	1.17E+01	0.00E+00	1.61E-02	1.02E-02	5.25E-03	-1.65E+00
WDP	[m ³ world-Eq deprived]	2.35E-01	0.00E+00	5.74E-06	4.08E-03	3.75E-05	-1.09E-02

Caption: GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE25 IG3/4" (0.32 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.17E+01	0.00E+00	1.21E-03	2.67E-03	8.56E-04	-3.79E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.29E+01	0.00E+00	1.21E-03	2.67E-03	8.56E-04	-3.79E-02
PENRE	[MJ]	1.05E+01	0.00E+00	1.61E-02	6.40E-01	5.25E-03	-1.65E+00
PENRM	[MJ]	1.14E+00	0.00E+00	0.00E+00	-6.30E-01	0.00E+00	0.00E+00
PENRT	[MJ]	1.17E+01	0.00E+00	1.61E-02	1.02E-02	5.25E-03	-1.65E+00
SM	[kg]	2.38E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.89E-02
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	9.15E-03	0.00E+00	5.99E-07	9.61E-05	1.11E-06	-1.39E-02

Caption: PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE25 IG3/4" (0.32 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.32E-08	0.00E+00	6.45E-13	5.32E-12	1.13E-12	-1.04E-08
NHWD	[kg]	1.62E-01	0.00E+00	2.25E-06	2.00E-03	1.51E-02	1.64E-02
RWD	[kg]	3.57E-04	0.00E+00	3.04E-08	4.60E-07	7.28E-08	-2.10E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.78E-01	0.00E+00	0.00E+00	2.87E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Caption	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy
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RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE25 IG3/4" (0.32 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND

Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index
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The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.2 ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE90 IG3"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE90 IG3" (3.87 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.03E+01	0.00E+00	1.51E-02	3.20E-01	4.01E-03	-1.80E+00
GWP-fossil	[kg CO ₂ -Eq.]	1.01E+01	0.00E+00	1.49E-02	3.20E-01	3.98E-03	-1.81E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.57E-01	0.00E+00	2.78E-05	1.14E-05	1.23E-05	9.42E-03
GWP-luluc	[kg CO ₂ -Eq.]	3.09E-02	0.00E+00	1.56E-04	1.40E-05	1.25E-05	-3.81E-04
ODP	[kg CFC11-Eq.]	1.56E-10	0.00E+00	2.52E-15	4.16E-14	1.29E-14	1.22E-12
AP	[mol H ⁺ -Eq.]	3.00E-02	0.00E+00	5.43E-05	3.55E-05	2.48E-05	-4.29E-03
EP-freshwater	[kg P-Eq.]	6.66E-05	0.00E+00	4.09E-08	7.93E-09	5.63E-09	-4.99E-07
EP-marine	[kg N-Eq.]	8.71E-03	0.00E+00	2.58E-05	9.62E-06	6.05E-06	-7.06E-04
EP-terrestrial	[mol N-Eq.]	9.59E-02	0.00E+00	2.79E-04	1.66E-04	6.60E-05	-6.41E-03
POCP	[kg NMVOC-Eq.]	2.21E-02	0.00E+00	4.97E-05	2.74E-05	1.88E-05	-2.81E-03
ADPE	[kg Sb-Eq.]	4.77E-06	0.00E+00	1.01E-09	4.70E-10	2.70E-10	-9.62E-06
ADPF	[MJ]	1.22E+02	0.00E+00	1.95E-01	8.66E-02	6.51E-02	-1.89E+01
WDP	[m³ world-Eq deprived]	2.80E+00	0.00E+00	6.94E-05	2.86E-02	4.65E-04	-1.26E-01

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE90 IG3" (3.87 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.39E+02	0.00E+00	1.47E-02	2.20E-02	1.06E-02	1.64E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.40E+02	0.00E+00	1.47E-02	2.20E-02	1.06E-02	1.64E-02
PENRE	[MJ]	1.16E+02	0.00E+00	1.95E-01	6.67E-01	6.51E-02	-1.89E+01
PENRM	[MJ]	5.52E+00	0.00E+00	0.00E+00	-5.80E-01	0.00E+00	0.00E+00
PENRT	[MJ]	1.22E+02	0.00E+00	1.95E-01	8.66E-02	6.51E-02	-1.89E+01
SM	[kg]	2.92E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.77E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m³]	1.09E-01	0.00E+00	7.25E-06	6.75E-04	1.37E-05	-1.72E-01

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE90 IG3" (3.87 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.53E-07	0.00E+00	7.80E-12	4.42E-11	1.41E-11	-1.28E-07
NHWD	[kg]	1.99E+00	0.00E+00	2.72E-05	1.72E-02	1.87E-01	2.03E-01
RWD	[kg]	3.87E-03	0.00E+00	3.67E-07	3.53E-06	9.03E-07	-1.48E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.45E+00	0.00E+00	0.00E+00	3.56E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE90 IG3" (3.87 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.3 ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE20 IG1/2"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE20 IG1/2" (0.25 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	7.37E-01	0.00E+00	9.73E-04	4.27E-02	2.50E-04	-1.12E-01
GWP-fossil	[kg CO ₂ -Eq.]	7.24E-01	0.00E+00	9.61E-04	4.27E-02	2.48E-04	-1.12E-01
GWP-biogenic	[kg CO ₂ -Eq.]	1.12E-02	0.00E+00	1.80E-06	1.57E-06	7.64E-07	5.00E-04
GWP-luluc	[kg CO ₂ -Eq.]	2.18E-03	0.00E+00	1.01E-05	1.43E-06	7.80E-07	-3.30E-05
ODP	[kg CFC11-Eq.]	1.05E-11	0.00E+00	1.63E-16	4.25E-15	8.04E-16	-5.69E-15
AP	[mol H ⁺ -Eq.]	2.15E-03	0.00E+00	3.51E-06	4.45E-06	1.55E-06	-2.56E-04
EP-freshwater	[kg P-Eq.]	4.42E-06	0.00E+00	2.64E-09	9.76E-10	3.51E-10	-3.60E-08
EP-marine	[kg N-Eq.]	6.31E-04	0.00E+00	1.67E-06	1.20E-06	3.77E-07	-4.33E-05
EP-terrestrial	[mol N-Eq.]	6.97E-03	0.00E+00	1.80E-05	2.10E-05	4.12E-06	-3.99E-04
POCP	[kg NMVOC-Eq.]	1.68E-03	0.00E+00	3.21E-06	3.40E-06	1.17E-06	-1.69E-04
ADPE	[kg Sb-Eq.]	3.15E-07	0.00E+00	6.52E-11	4.93E-11	1.68E-11	-5.54E-07
ADPF	[MJ]	9.78E+00	0.00E+00	1.26E-02	8.87E-03	4.06E-03	-1.23E+00
WDP	[m ³ world-Eq deprived]	1.85E-01	0.00E+00	4.48E-06	3.73E-03	2.90E-05	-8.09E-03

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE20 IG1/2" (0.25 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	9.37E+00	0.00E+00	9.47E-04	2.33E-03	6.62E-04	-4.54E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.06E+01	0.00E+00	9.47E-04	2.33E-03	6.62E-04	-4.54E-02
PENRE	[MJ]	8.69E+00	0.00E+00	1.26E-02	5.89E-01	4.06E-03	-1.23E+00
PENRM	[MJ]	1.09E+00	0.00E+00	0.00E+00	-5.80E-01	0.00E+00	0.00E+00
PENRT	[MJ]	9.78E+00	0.00E+00	1.26E-02	8.87E-03	4.06E-03	-1.23E+00
SM	[kg]	1.90E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.61E-02
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	7.23E-03	0.00E+00	4.68E-07	8.78E-05	8.55E-07	-9.93E-03

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE20 IG1/2" (0.25 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.07E-08	0.00E+00	5.04E-13	4.64E-12	8.77E-13	-7.42E-09
NHWD	[kg]	1.29E-01	0.00E+00	1.75E-06	1.73E-03	1.17E-02	1.16E-02
RWD	[kg]	2.95E-04	0.00E+00	2.37E-08	4.11E-07	5.63E-08	-1.92E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.21E-01	0.00E+00	0.00E+00	2.22E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	6.82E-02	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.22E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE20 IG1/2" (0.25 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.4 ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE32 IG1"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE32 IG1" (0.49 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.35E+00	0.00E+00	1.90E-03	5.88E-02	4.98E-04	-2.31E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.33E+00	0.00E+00	1.88E-03	5.88E-02	4.95E-04	-2.32E-01
GWP-biogenic	[kg CO ₂ -Eq.]	2.06E-02	0.00E+00	3.51E-06	2.07E-06	1.53E-06	1.14E-03
GWP-luluc	[kg CO ₂ -Eq.]	4.04E-03	0.00E+00	1.97E-05	2.66E-06	1.56E-06	-5.68E-05
ODP	[kg CFC11-Eq.]	1.98E-11	0.00E+00	3.18E-16	7.91E-15	1.60E-15	8.79E-14
AP	[mol H ⁺ -Eq.]	3.95E-03	0.00E+00	6.86E-06	6.57E-06	3.09E-06	-5.42E-04
EP-freshwater	[kg P-Eq.]	9.53E-06	0.00E+00	5.17E-09	1.47E-09	7.00E-10	-6.83E-08
EP-marine	[kg N-Eq.]	1.15E-03	0.00E+00	3.26E-06	1.79E-06	7.53E-07	-9.02E-05
EP-terrestrial	[mol N-Eq.]	1.27E-02	0.00E+00	3.53E-05	3.07E-05	8.21E-06	-8.24E-04
POCP	[kg NMVOC-Eq.]	2.99E-03	0.00E+00	6.28E-06	5.08E-06	2.34E-06	-3.57E-04
ADPE	[kg Sb-Eq.]	6.09E-07	0.00E+00	1.28E-10	8.93E-11	3.36E-11	-1.20E-06
ADPF	[MJ]	1.69E+01	0.00E+00	2.46E-02	1.65E-02	8.10E-03	-2.47E+00
WDP	[m ³ world-Eq deprived]	4.64E-01	0.00E+00	8.77E-06	5.27E-03	5.79E-05	-1.64E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE32 IG1" (0.49 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.77E+01	0.00E+00	1.85E-03	4.17E-03	1.32E-03	-3.70E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.89E+01	0.00E+00	1.85E-03	4.17E-03	1.32E-03	-3.70E-02
PENRE	[MJ]	1.56E+01	0.00E+00	2.46E-02	7.99E-01	8.10E-03	-2.47E+00
PENRM	[MJ]	1.29E+00	0.00E+00	0.00E+00	-7.82E-01	0.00E+00	0.00E+00
PENRT	[MJ]	1.69E+01	0.00E+00	2.46E-02	1.65E-02	8.10E-03	-2.47E+00
SM	[kg]	3.66E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.22E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.63E-02	0.00E+00	9.16E-07	1.24E-04	1.71E-06	-2.15E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE32 IG1" (0.49 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.98E-08	0.00E+00	9.86E-13	8.38E-12	1.75E-12	-1.60E-08
NHWD	[kg]	2.49E-01	0.00E+00	3.43E-06	3.28E-03	2.33E-02	2.52E-02
RWD	[kg]	5.22E-04	0.00E+00	4.64E-08	6.61E-07	1.12E-07	-2.74E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	4.29E-01	0.00E+00	0.00E+00	4.43E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	9.78E-02	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.75E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE32 IG1" (0.49 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.5 ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE75 IG2_1/2"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE75 IG2_1/2" (3.34 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	8.86E+00	0.00E+00	1.30E-02	2.64E-01	3.46E-03	-1.55E+00
GWP-fossil	[kg CO ₂ -Eq.]	8.70E+00	0.00E+00	1.28E-02	2.64E-01	3.44E-03	-1.56E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.35E-01	0.00E+00	2.40E-05	9.36E-06	1.06E-05	8.16E-03
GWP-luluc	[kg CO ₂ -Eq.]	2.67E-02	0.00E+00	1.35E-04	1.16E-05	1.08E-05	-3.24E-04
ODP	[kg CFC11-Eq.]	1.35E-10	0.00E+00	2.17E-15	3.46E-14	1.11E-14	1.09E-12
AP	[mol H ⁺ -Eq.]	2.59E-02	0.00E+00	4.69E-05	2.93E-05	2.15E-05	-3.70E-03
EP-freshwater	[kg P-Eq.]	5.72E-05	0.00E+00	3.53E-08	6.56E-09	4.86E-09	-4.27E-07
EP-marine	[kg N-Eq.]	7.53E-03	0.00E+00	2.23E-05	7.96E-06	5.23E-06	-6.08E-04
EP-terrestrial	[mol N-Eq.]	8.29E-02	0.00E+00	2.41E-04	1.37E-04	5.71E-05	-5.52E-03
POCP	[kg NMVOC-Eq.]	1.91E-02	0.00E+00	4.29E-05	2.26E-05	1.62E-05	-2.43E-03
ADPE	[kg Sb-Eq.]	4.12E-06	0.00E+00	8.71E-10	3.91E-10	2.34E-10	-8.31E-06
ADPF	[MJ]	1.05E+02	0.00E+00	1.68E-01	7.21E-02	5.63E-02	-1.62E+01
WDP	[m ³ world-Eq deprived]	2.39E+00	0.00E+00	5.99E-05	2.36E-02	4.02E-04	-1.09E-01

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE75 IG2_1/2" (3.34 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.20E+02	0.00E+00	1.27E-02	1.83E-02	9.17E-03	3.86E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.21E+02	0.00E+00	1.27E-02	1.83E-02	9.17E-03	3.86E-02
PENRE	[MJ]	1.00E+02	0.00E+00	1.68E-01	4.27E+00	5.63E-02	-1.62E+01
PENRM	[MJ]	4.71E+00	0.00E+00	0.00E+00	-4.20E+00	0.00E+00	0.00E+00
PENRT	[MJ]	1.05E+02	0.00E+00	1.68E-01	7.21E-02	5.63E-02	-1.62E+01
SM	[kg]	2.53E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.44E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	9.30E-02	0.00E+00	6.25E-06	5.58E-04	1.19E-05	-1.49E-01

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE75 IG2_1/2" (3.34 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.32E-07	0.00E+00	6.73E-12	3.67E-11	1.22E-11	-1.10E-07
NHWD	[kg]	1.72E+00	0.00E+00	2.34E-05	1.43E-02	1.62E-01	1.76E-01
RWD	[kg]	3.35E-03	0.00E+00	3.17E-07	2.93E-06	7.80E-07	-1.22E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.98E+00	0.00E+00	0.00E+00	3.08E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	4.38E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	7.84E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE75 IG2_ 1/2" (3.34 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.6 ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE50 IG5/4"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE50 IG5/4" (1.14 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	3.10E+00	0.00E+00	4.44E-03	1.43E-01	1.16E-03	-5.41E-01
GWP-fossil	[kg CO ₂ -Eq.]	3.04E+00	0.00E+00	4.38E-03	1.43E-01	1.15E-03	-5.43E-01
GWP-biogenic	[kg CO ₂ -Eq.]	4.65E-02	0.00E+00	8.19E-06	4.95E-06	3.55E-06	2.63E-03
GWP-luluc	[kg CO ₂ -Eq.]	9.16E-03	0.00E+00	4.60E-05	7.13E-06	3.62E-06	-1.36E-04
ODP	[kg CFC11-Eq.]	4.56E-11	0.00E+00	7.42E-16	2.12E-14	3.73E-15	1.78E-13
AP	[mol H ⁺ -Eq.]	8.97E-03	0.00E+00	1.60E-05	1.64E-05	7.19E-06	-1.26E-03
EP-freshwater	[kg P-Eq.]	2.38E-05	0.00E+00	1.21E-08	3.70E-09	1.63E-09	-1.62E-07
EP-marine	[kg N-Eq.]	2.60E-03	0.00E+00	7.60E-06	4.46E-06	1.75E-06	-2.11E-04
EP-terrestrial	[mol N-Eq.]	2.86E-02	0.00E+00	8.22E-05	7.63E-05	1.91E-05	-1.93E-03
POCP	[kg NMVOC-Eq.]	6.68E-03	0.00E+00	1.46E-05	1.27E-05	5.43E-06	-8.33E-04
ADPE	[kg Sb-Eq.]	1.42E-06	0.00E+00	2.97E-10	2.37E-10	7.82E-11	-2.79E-06
ADPF	[MJ]	3.79E+01	0.00E+00	5.73E-02	4.41E-02	1.88E-02	-5.80E+00
WDP	[m ³ world-Eq deprived]	1.26E+00	0.00E+00	2.04E-05	1.29E-02	1.35E-04	-3.85E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE50 IG5/4" (1.14 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	4.06E+01	0.00E+00	4.32E-03	1.11E-02	3.07E-03	-1.03E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	4.18E+01	0.00E+00	4.32E-03	1.11E-02	3.07E-03	-1.03E-01
PENRE	[MJ]	3.56E+01	0.00E+00	5.73E-02	1.84E+00	1.88E-02	-5.80E+00
PENRM	[MJ]	2.31E+00	0.00E+00	0.00E+00	-1.80E+00	0.00E+00	0.00E+00
PENRT	[MJ]	3.79E+01	0.00E+00	5.73E-02	4.41E-02	1.88E-02	-5.80E+00
SM	[kg]	8.48E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.83E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	4.20E-02	0.00E+00	2.13E-06	3.05E-04	3.97E-06	-5.00E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE50 IG5/4" (1.14 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	4.50E-08	0.00E+00	2.30E-12	2.23E-11	4.07E-12	-3.72E-08
NHWD	[kg]	5.79E-01	0.00E+00	8.00E-06	8.83E-03	5.43E-02	5.87E-02
RWD	[kg]	1.15E-03	0.00E+00	1.08E-07	1.70E-06	2.61E-07	-6.77E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	9.97E-01	0.00E+00	0.00E+00	1.03E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.41E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	4.31E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE50 IG5/4" (1.14 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.7 ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE63 IG2"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE63 IG2" (2.07 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	5.55E+00	0.00E+00	8.06E-03	2.51E-01	2.11E-03	-9.78E-01
GWP-fossil	[kg CO ₂ -Eq.]	5.44E+00	0.00E+00	7.96E-03	2.51E-01	2.10E-03	-9.83E-01
GWP-biogenic	[kg CO ₂ -Eq.]	8.36E-02	0.00E+00	1.49E-05	8.97E-06	6.46E-06	4.82E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.65E-02	0.00E+00	8.36E-05	1.05E-05	6.59E-06	-2.40E-04
ODP	[kg CFC11-Eq.]	8.29E-11	0.00E+00	1.35E-15	3.12E-14	6.79E-15	3.74E-13
AP	[mol H ⁺ -Eq.]	1.61E-02	0.00E+00	2.90E-05	2.75E-05	1.31E-05	-2.29E-03
EP-freshwater	[kg P-Eq.]	3.78E-05	0.00E+00	2.19E-08	6.13E-09	2.96E-09	-2.89E-07
EP-marine	[kg N-Eq.]	4.66E-03	0.00E+00	1.38E-05	7.45E-06	3.19E-06	-3.82E-04
EP-terrestrial	[mol N-Eq.]	5.14E-02	0.00E+00	1.49E-04	1.29E-04	3.48E-05	-3.49E-03
POCP	[kg NMVOC-Eq.]	1.19E-02	0.00E+00	2.66E-05	2.12E-05	9.89E-06	-1.51E-03
ADPE	[kg Sb-Eq.]	2.54E-06	0.00E+00	5.40E-10	3.54E-10	1.42E-10	-5.07E-06
ADPF	[MJ]	6.75E+01	0.00E+00	1.04E-01	6.49E-02	3.43E-02	-1.05E+01
WDP	[m ³ world-Eq deprived]	1.73E+00	0.00E+00	3.71E-05	2.23E-02	2.45E-04	-6.95E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE63 IG2" (2.07 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	7.37E+01	0.00E+00	7.84E-03	1.66E-02	5.59E-03	-1.55E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	7.49E+01	0.00E+00	7.84E-03	1.66E-02	5.59E-03	-1.55E-01
PENRE	[MJ]	6.35E+01	0.00E+00	1.04E-01	4.01E+00	3.43E-02	-1.05E+01
PENRM	[MJ]	3.94E+00	0.00E+00	0.00E+00	-3.94E+00	0.00E+00	0.00E+00
PENRT	[MJ]	6.75E+01	0.00E+00	1.04E-01	6.49E-02	3.43E-02	-1.05E+01
SM	[kg]	1.54E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.15E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	6.35E-02	0.00E+00	3.88E-06	5.27E-04	7.22E-06	-9.08E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE63 IG2" (2.07 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	8.14E-08	0.00E+00	4.17E-12	3.32E-11	7.41E-12	-6.75E-08
NHWD	[kg]	1.05E+00	0.00E+00	1.45E-05	1.29E-02	9.87E-02	1.07E-01
RWD	[kg]	2.08E-03	0.00E+00	1.96E-07	2.70E-06	4.75E-07	-1.16E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.81E+00	0.00E+00	0.00E+00	1.87E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	4.13E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	7.39E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE63 IG2" (2.07 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.8 ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE50 IG6/4"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE50 IG6/4" (1.20 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	3.25E+00	0.00E+00	4.67E-03	1.45E-01	1.22E-03	-5.68E-01
GWP-fossil	[kg CO ₂ -Eq.]	3.19E+00	0.00E+00	4.61E-03	1.45E-01	1.21E-03	-5.71E-01
GWP-biogenic	[kg CO ₂ -Eq.]	4.89E-02	0.00E+00	8.62E-06	5.05E-06	3.74E-06	2.79E-03
GWP-luluc	[kg CO ₂ -Eq.]	9.64E-03	0.00E+00	4.84E-05	7.20E-06	3.82E-06	-1.41E-04
ODP	[kg CFC11-Eq.]	4.80E-11	0.00E+00	7.81E-16	2.14E-14	3.93E-15	2.05E-13
AP	[mol H ⁺ -Eq.]	9.43E-03	0.00E+00	1.68E-05	1.66E-05	7.58E-06	-1.33E-03
EP-freshwater	[kg P-Eq.]	2.46E-05	0.00E+00	1.27E-08	3.76E-09	1.72E-09	-1.69E-07
EP-marine	[kg N-Eq.]	2.73E-03	0.00E+00	8.00E-06	4.54E-06	1.85E-06	-2.22E-04
EP-terrestrial	[mol N-Eq.]	3.01E-02	0.00E+00	8.65E-05	7.76E-05	2.01E-05	-2.03E-03
POCP	[kg NMVOC-Eq.]	7.02E-03	0.00E+00	1.54E-05	1.29E-05	5.73E-06	-8.76E-04
ADPE	[kg Sb-Eq.]	1.49E-06	0.00E+00	3.13E-10	2.40E-10	8.25E-11	-2.94E-06
ADPF	[MJ]	3.97E+01	0.00E+00	6.03E-02	4.46E-02	1.99E-02	-6.08E+00
WDP	[m ³ world-Eq deprived]	1.28E+00	0.00E+00	2.15E-05	1.31E-02	1.42E-04	-4.04E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE50 IG6/4" (1.20 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	4.28E+01	0.00E+00	4.55E-03	1.12E-02	3.24E-03	-9.72E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	4.40E+01	0.00E+00	4.55E-03	1.12E-02	3.24E-03	-9.72E-02
PENRE	[MJ]	3.74E+01	0.00E+00	6.03E-02	1.24E+00	1.99E-02	-6.08E+00
PENRM	[MJ]	2.37E+00	0.00E+00	0.00E+00	-1.20E+00	0.00E+00	0.00E+00
PENRT	[MJ]	3.97E+01	0.00E+00	6.03E-02	4.46E-02	1.99E-02	-6.08E+00
SM	[kg]	8.94E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.99E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	4.32E-02	0.00E+00	2.25E-06	3.11E-04	4.18E-06	-5.27E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE50 IG6/4" (1.20 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	4.74E-08	0.00E+00	2.42E-12	2.25E-11	4.29E-12	-3.91E-08
NHWD	[kg]	6.10E-01	0.00E+00	8.42E-06	8.92E-03	5.72E-02	6.19E-02
RWD	[kg]	1.22E-03	0.00E+00	1.14E-07	1.72E-06	2.76E-07	-6.88E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.05E+00	0.00E+00	0.00E+00	1.09E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.45E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	4.39E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE50 IG6/4" (1.20 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.9 ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE40 IG5/4"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE40 IG5/4" (0.70 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.98E+00	0.00E+00	2.72E-03	9.65E-02	7.08E-04	-3.05E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.95E+00	0.00E+00	2.69E-03	9.65E-02	7.04E-04	-3.06E-01
GWP-biogenic	[kg CO ₂ -Eq.]	2.98E-02	0.00E+00	5.03E-06	3.41E-06	2.17E-06	1.43E-03
GWP-luluc	[kg CO ₂ -Eq.]	5.81E-03	0.00E+00	2.83E-05	4.26E-06	2.21E-06	-8.30E-05
ODP	[kg CFC11-Eq.]	2.89E-11	0.00E+00	4.56E-16	1.27E-14	2.28E-15	4.48E-14
AP	[mol H ⁺ -Eq.]	5.74E-03	0.00E+00	9.82E-06	1.07E-05	4.39E-06	-7.05E-04
EP-freshwater	[kg P-Eq.]	1.43E-05	0.00E+00	7.40E-09	2.40E-09	9.95E-10	-9.44E-08
EP-marine	[kg N-Eq.]	1.67E-03	0.00E+00	4.67E-06	2.91E-06	1.07E-06	-1.18E-04
EP-terrestrial	[mol N-Eq.]	1.84E-02	0.00E+00	5.05E-05	5.01E-05	1.17E-05	-1.09E-03
POCP	[kg NMVOC-Eq.]	4.32E-03	0.00E+00	8.99E-06	8.27E-06	3.32E-06	-4.65E-04
ADPE	[kg Sb-Eq.]	8.95E-07	0.00E+00	1.83E-10	1.43E-10	4.78E-11	-1.54E-06
ADPF	[MJ]	2.47E+01	0.00E+00	3.52E-02	2.64E-02	1.15E-02	-3.31E+00
WDP	[m ³ world-Eq deprived]	7.16E-01	0.00E+00	1.26E-05	8.62E-03	8.23E-05	-2.19E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE40 IG5/4" (0.70 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.57E+01	0.00E+00	2.65E-03	6.70E-03	1.88E-03	-8.94E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.69E+01	0.00E+00	2.65E-03	6.70E-03	1.88E-03	-8.94E-02
PENRE	[MJ]	2.29E+01	0.00E+00	3.52E-02	1.31E+00	1.15E-02	-3.31E+00
PENRM	[MJ]	1.79E+00	0.00E+00	0.00E+00	-1.28E+00	0.00E+00	0.00E+00
PENRT	[MJ]	2.47E+01	0.00E+00	3.52E-02	2.64E-02	1.15E-02	-3.31E+00
SM	[kg]	5.38E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.56E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	2.47E-02	0.00E+00	1.31E-06	2.04E-04	2.42E-06	-2.76E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE40 IG5/4" (0.70 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.88E-08	0.00E+00	1.41E-12	1.34E-11	2.49E-12	-2.06E-08
NHWD	[kg]	3.66E-01	0.00E+00	4.91E-06	5.24E-03	3.32E-02	3.24E-02
RWD	[kg]	7.51E-04	0.00E+00	6.64E-08	1.07E-06	1.60E-07	-4.49E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	6.31E-01	0.00E+00	0.00E+00	6.29E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.60E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.86E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE40 IG5/4" (0.70 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.10 ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE32 IG5/4"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE32 IG5/4" (0.57 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.57E+00	0.00E+00	2.22E-03	6.40E-02	5.83E-04	-2.68E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.54E+00	0.00E+00	2.19E-03	6.40E-02	5.79E-04	-2.69E-01
GWP-biogenic	[kg CO ₂ -Eq.]	2.39E-02	0.00E+00	4.09E-06	2.27E-06	1.78E-06	1.34E-03
GWP-luluc	[kg CO ₂ -Eq.]	4.69E-03	0.00E+00	2.30E-05	2.79E-06	1.82E-06	-6.39E-05
ODP	[kg CFC11-Eq.]	2.31E-11	0.00E+00	3.71E-16	8.30E-15	1.88E-15	1.19E-13
AP	[mol H ⁺ -Eq.]	4.57E-03	0.00E+00	8.00E-06	7.08E-06	3.61E-06	-6.30E-04
EP-freshwater	[kg P-Eq.]	1.06E-05	0.00E+00	6.03E-09	1.58E-09	8.19E-10	-7.81E-08
EP-marine	[kg N-Eq.]	1.33E-03	0.00E+00	3.80E-06	1.92E-06	8.81E-07	-1.05E-04
EP-terrestrial	[mol N-Eq.]	1.47E-02	0.00E+00	4.11E-05	3.32E-05	9.61E-06	-9.55E-04
POCP	[kg NMVOC-Eq.]	3.45E-03	0.00E+00	7.32E-06	5.46E-06	2.73E-06	-4.15E-04
ADPE	[kg Sb-Eq.]	7.08E-07	0.00E+00	1.49E-10	9.39E-11	3.93E-11	-1.40E-06
ADPF	[MJ]	1.94E+01	0.00E+00	2.86E-02	1.73E-02	9.47E-03	-2.85E+00
WDP	[m ³ world-Eq deprived]	4.93E-01	0.00E+00	1.02E-05	5.71E-03	6.77E-05	-1.90E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE32 IG5/4" (0.57 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.06E+01	0.00E+00	2.16E-03	4.40E-03	1.54E-03	-3.29E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.18E+01	0.00E+00	2.16E-03	4.40E-03	1.54E-03	-3.29E-02
PENRE	[MJ]	1.80E+01	0.00E+00	2.86E-02	5.87E-01	9.47E-03	-2.85E+00
PENRM	[MJ]	1.40E+00	0.00E+00	0.00E+00	-5.70E-01	0.00E+00	0.00E+00
PENRT	[MJ]	1.94E+01	0.00E+00	2.86E-02	1.73E-02	9.47E-03	-2.85E+00
SM	[kg]	4.28E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.42E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.79E-02	0.00E+00	1.07E-06	1.35E-04	2.00E-06	-2.51E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE32 IG5/4" (0.57 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.31E-08	0.00E+00	1.15E-12	8.82E-12	2.05E-12	-1.86E-08
NHWD	[kg]	2.91E-01	0.00E+00	4.00E-06	3.44E-03	2.73E-02	2.95E-02
RWD	[kg]	6.03E-04	0.00E+00	5.41E-08	7.05E-07	1.31E-07	-2.97E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	5.02E-01	0.00E+00	0.00E+00	5.18E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.06E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.89E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 INTERNAL THREAD: FIT GJS PE32 IG5/4" (0.57 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.11 ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE32 AG6/4"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE32 AG6/4" (0.56 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.57E+00	0.00E+00	2.18E-03	5.22E-02	5.77E-04	-2.44E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.55E+00	0.00E+00	2.15E-03	5.22E-02	5.73E-04	-2.45E-01
GWP-biogenic	[kg CO ₂ -Eq.]	2.41E-02	0.00E+00	4.02E-06	1.83E-06	1.77E-06	1.24E-03
GWP-luluc	[kg CO ₂ -Eq.]	4.69E-03	0.00E+00	2.26E-05	2.47E-06	1.80E-06	-5.58E-05
ODP	[kg CFC11-Eq.]	2.32E-11	0.00E+00	3.64E-16	7.33E-15	1.86E-15	1.29E-13
AP	[mol H ⁺ -Eq.]	4.61E-03	0.00E+00	7.86E-06	5.90E-06	3.58E-06	-5.77E-04
EP-freshwater	[kg P-Eq.]	1.07E-05	0.00E+00	5.92E-09	1.33E-09	8.11E-10	-6.99E-08
EP-marine	[kg N-Eq.]	1.34E-03	0.00E+00	3.73E-06	1.61E-06	8.72E-07	-9.55E-05
EP-terrestrial	[mol N-Eq.]	1.48E-02	0.00E+00	4.04E-05	2.76E-05	9.51E-06	-8.70E-04
POCP	[kg NMVOC-Eq.]	3.48E-03	0.00E+00	7.19E-06	4.57E-06	2.70E-06	-3.79E-04
ADPE	[kg Sb-Eq.]	7.16E-07	0.00E+00	1.46E-10	8.24E-11	3.89E-11	-1.29E-06
ADPF	[MJ]	1.93E+01	0.00E+00	2.81E-02	1.53E-02	9.38E-03	-2.59E+00
WDP	[m ³ world-Eq deprived]	4.95E-01	0.00E+00	1.00E-05	4.70E-03	6.70E-05	-1.72E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE32 AG6/4" (0.56 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.07E+01	0.00E+00	2.12E-03	3.85E-03	1.53E-03	-1.82E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.19E+01	0.00E+00	2.12E-03	3.85E-03	1.53E-03	-1.82E-02
PENRE	[MJ]	1.80E+01	0.00E+00	2.81E-02	7.91E-01	9.38E-03	-2.59E+00
PENRM	[MJ]	1.29E+00	0.00E+00	0.00E+00	-7.76E-01	0.00E+00	0.00E+00
PENRT	[MJ]	1.93E+01	0.00E+00	2.81E-02	1.53E-02	9.38E-03	-2.59E+00
SM	[kg]	4.35E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.31E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.79E-02	0.00E+00	1.05E-06	1.11E-04	1.98E-06	-2.30E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE32 AG6/4" (0.56 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.33E-08	0.00E+00	1.13E-12	7.74E-12	2.03E-12	-1.71E-08
NHWD	[kg]	2.95E-01	0.00E+00	3.93E-06	3.05E-03	2.70E-02	2.71E-02
RWD	[kg]	6.08E-04	0.00E+00	5.31E-08	6.02E-07	1.30E-07	-2.45E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	5.10E-01	0.00E+00	0.00E+00	5.13E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	8.74E-02	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.56E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE32 AG6/4" (0.56 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.12 ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE32 AG5/4"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE32 AG5/4" (0.39 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.11E+00	0.00E+00	1.52E-03	5.28E-02	3.95E-04	-1.78E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.09E+00	0.00E+00	1.50E-03	5.28E-02	3.93E-04	-1.79E-01
GWP-biogenic	[kg CO ₂ -Eq.]	1.68E-02	0.00E+00	2.80E-06	1.85E-06	1.21E-06	8.49E-04
GWP-luluc	[kg CO ₂ -Eq.]	3.28E-03	0.00E+00	1.57E-05	2.49E-06	1.23E-06	-4.73E-05
ODP	[kg CFC11-Eq.]	1.60E-11	0.00E+00	2.54E-16	7.41E-15	1.27E-15	3.84E-14
AP	[mol H ⁺ -Eq.]	3.23E-03	0.00E+00	5.47E-06	5.97E-06	2.45E-06	-4.15E-04
EP-freshwater	[kg P-Eq.]	8.24E-06	0.00E+00	4.12E-09	1.34E-09	5.55E-10	-5.46E-08
EP-marine	[kg N-Eq.]	9.42E-04	0.00E+00	2.60E-06	1.62E-06	5.97E-07	-6.95E-05
EP-terrestrial	[mol N-Eq.]	1.04E-02	0.00E+00	2.81E-05	2.79E-05	6.51E-06	-6.37E-04
POCP	[kg NMVOC-Eq.]	2.47E-03	0.00E+00	5.01E-06	4.62E-06	1.85E-06	-2.74E-04
ADPE	[kg Sb-Eq.]	4.95E-07	0.00E+00	1.02E-10	8.33E-11	2.67E-11	-9.10E-07
ADPF	[MJ]	1.41E+01	0.00E+00	1.96E-02	1.54E-02	6.42E-03	-1.93E+00
WDP	[m ³ world-Eq deprived]	4.30E-01	0.00E+00	6.99E-06	4.75E-03	4.59E-05	-1.28E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE32 AG5/4" (0.39 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.43E+01	0.00E+00	1.48E-03	3.89E-03	1.05E-03	-4.54E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.55E+01	0.00E+00	1.48E-03	3.89E-03	1.05E-03	-4.54E-02
PENRE	[MJ]	1.29E+01	0.00E+00	1.96E-02	6.88E-01	6.42E-03	-1.93E+00
PENRM	[MJ]	1.18E+00	0.00E+00	0.00E+00	-6.73E-01	0.00E+00	0.00E+00
PENRT	[MJ]	1.41E+01	0.00E+00	1.96E-02	1.54E-02	6.42E-03	-1.93E+00
SM	[kg]	2.95E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.24E-02
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.45E-02	0.00E+00	7.30E-07	1.12E-04	1.35E-06	-1.63E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE32 AG5/4" (0.39 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.61E-08	0.00E+00	7.86E-13	7.82E-12	1.39E-12	-1.21E-08
NHWD	[kg]	2.01E-01	0.00E+00	2.74E-06	3.08E-03	1.85E-02	1.91E-02
RWD	[kg]	4.28E-04	0.00E+00	3.70E-08	6.08E-07	8.90E-08	-2.48E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.45E-01	0.00E+00	0.00E+00	3.51E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	8.84E-02	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.58E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE32 AG5/4" (0.39 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.13 ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE32 AG1"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE32 AG1" (0.40 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.13E+00	0.00E+00	1.56E-03	5.31E-02	4.08E-04	-1.87E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.11E+00	0.00E+00	1.55E-03	5.31E-02	4.05E-04	-1.88E-01
GWP-biogenic	[kg CO ₂ -Eq.]	1.72E-02	0.00E+00	2.89E-06	1.86E-06	1.25E-06	8.96E-04
GWP-luluc	[kg CO ₂ -Eq.]	3.36E-03	0.00E+00	1.62E-05	2.51E-06	1.27E-06	-4.85E-05
ODP	[kg CFC11-Eq.]	1.64E-11	0.00E+00	2.62E-16	7.45E-15	1.31E-15	4.84E-14
AP	[mol H ⁺ -Eq.]	3.31E-03	0.00E+00	5.64E-06	6.00E-06	2.53E-06	-4.35E-04
EP-freshwater	[kg P-Eq.]	8.38E-06	0.00E+00	4.25E-09	1.35E-09	5.73E-10	-5.66E-08
EP-marine	[kg N-Eq.]	9.64E-04	0.00E+00	2.68E-06	1.63E-06	6.16E-07	-7.27E-05
EP-terrestrial	[mol N-Eq.]	1.06E-02	0.00E+00	2.90E-05	2.80E-05	6.72E-06	-6.66E-04
POCP	[kg NMVOC-Eq.]	2.52E-03	0.00E+00	5.16E-06	4.64E-06	1.91E-06	-2.87E-04
ADPE	[kg Sb-Eq.]	5.07E-07	0.00E+00	1.05E-10	8.38E-11	2.75E-11	-9.57E-07
ADPF	[MJ]	1.44E+01	0.00E+00	2.02E-02	1.55E-02	6.63E-03	-2.01E+00
WDP	[m ³ world-Eq deprived]	4.34E-01	0.00E+00	7.21E-06	4.78E-03	4.73E-05	-1.33E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE32 AG1" (0.40 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.47E+01	0.00E+00	1.52E-03	3.91E-03	1.08E-03	-4.28E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.59E+01	0.00E+00	1.52E-03	3.91E-03	1.08E-03	-4.28E-02
PENRE	[MJ]	1.32E+01	0.00E+00	2.02E-02	6.94E-01	6.63E-03	-2.01E+00
PENRM	[MJ]	1.19E+00	0.00E+00	0.00E+00	-6.78E-01	0.00E+00	0.00E+00
PENRT	[MJ]	1.44E+01	0.00E+00	2.02E-02	1.55E-02	6.63E-03	-2.01E+00
SM	[kg]	3.03E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.71E-02
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.47E-02	0.00E+00	7.53E-07	1.13E-04	1.40E-06	-1.71E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE32 AG1" (0.40 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.65E-08	0.00E+00	8.11E-13	7.86E-12	1.43E-12	-1.28E-08
NHWD	[kg]	2.06E-01	0.00E+00	2.82E-06	3.10E-03	1.91E-02	2.01E-02
RWD	[kg]	4.38E-04	0.00E+00	3.81E-08	6.11E-07	9.19E-08	-2.50E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.54E-01	0.00E+00	0.00E+00	3.62E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	8.89E-02	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.59E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE32 AG1" (0.40 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.14 ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE26,9 AG3/4"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	MNR	MNR	MNR	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE26,9 AG3/4" (0.21 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	6.27E-01	0.00E+00	8.17E-04	1.72E-02	2.17E-04	-8.96E-02
GWP-fossil	[kg CO ₂ -Eq.]	6.15E-01	0.00E+00	8.07E-04	1.72E-02	2.16E-04	-9.00E-02
GWP-biogenic	[kg CO ₂ -Eq.]	9.78E-03	0.00E+00	1.51E-06	5.94E-07	6.65E-07	4.62E-04
GWP-luluc	[kg CO ₂ -Eq.]	1.88E-03	0.00E+00	8.48E-06	8.89E-07	6.79E-07	-1.97E-05
ODP	[kg CFC11-Eq.]	8.94E-12	0.00E+00	1.37E-16	2.64E-15	6.99E-16	5.40E-14
AP	[mol H ⁺ -Eq.]	1.86E-03	0.00E+00	2.95E-06	1.99E-06	1.35E-06	-2.12E-04
EP-freshwater	[kg P-Eq.]	4.20E-06	0.00E+00	2.22E-09	4.52E-10	3.05E-10	-2.52E-08
EP-marine	[kg N-Eq.]	5.48E-04	0.00E+00	1.40E-06	5.44E-07	3.28E-07	-3.51E-05
EP-terrestrial	[mol N-Eq.]	6.05E-03	0.00E+00	1.51E-05	9.28E-06	3.58E-06	-3.19E-04
POCP	[kg NMVOC-Eq.]	1.45E-03	0.00E+00	2.70E-06	1.55E-06	1.02E-06	-1.40E-04
ADPE	[kg Sb-Eq.]	2.75E-07	0.00E+00	5.48E-11	2.95E-11	1.47E-11	-4.75E-07
ADPF	[MJ]	8.04E+00	0.00E+00	1.06E-02	5.50E-03	3.53E-03	-9.43E-01
WDP	[m ³ world-Eq deprived]	1.98E-01	0.00E+00	3.77E-06	1.56E-03	2.52E-05	-6.30E-03

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE26,9 AG3/4" (0.21 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	8.06E+00	0.00E+00	7.96E-04	1.37E-03	5.76E-04	-2.97E-03
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	9.26E+00	0.00E+00	7.96E-04	1.37E-03	5.76E-04	-2.97E-03
PENRE	[MJ]	7.27E+00	0.00E+00	1.06E-02	2.69E-01	3.53E-03	-9.43E-01
PENRM	[MJ]	7.75E-01	0.00E+00	0.00E+00	-2.64E-01	0.00E+00	0.00E+00
PENRT	[MJ]	8.04E+00	0.00E+00	1.06E-02	5.50E-03	3.53E-03	-9.43E-01
SM	[kg]	1.66E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.82E-02
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	7.09E-03	0.00E+00	3.93E-07	3.70E-05	7.44E-07	-8.50E-03

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE26,9 AG3/4" (0.21 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	9.30E-09	0.00E+00	4.23E-13	2.77E-12	7.63E-13	-6.30E-09
NHWD	[kg]	1.12E-01	0.00E+00	1.47E-06	1.10E-03	1.02E-02	1.00E-02
RWD	[kg]	2.55E-04	0.00E+00	1.99E-08	2.09E-07	4.90E-08	-8.18E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.93E-01	0.00E+00	0.00E+00	1.93E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.92E-02	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	5.23E-02	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE26,9 AG3/4" (0.21 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.15 ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE25 AG1"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE25 AG1" (0.28 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	8.23E-01	0.00E+00	1.09E-03	2.71E-02	2.88E-04	-1.17E-01
GWP-fossil	[kg CO ₂ -Eq.]	8.08E-01	0.00E+00	1.08E-03	2.71E-02	2.86E-04	-1.18E-01
GWP-biogenic	[kg CO ₂ -Eq.]	1.27E-02	0.00E+00	2.01E-06	9.66E-07	8.82E-07	5.88E-04
GWP-luluc	[kg CO ₂ -Eq.]	2.45E-03	0.00E+00	1.13E-05	1.14E-06	9.00E-07	-2.75E-05
ODP	[kg CFC11-Eq.]	1.19E-11	0.00E+00	1.82E-16	3.38E-15	9.27E-16	5.59E-14
AP	[mol H ⁺ -Eq.]	2.43E-03	0.00E+00	3.93E-06	2.97E-06	1.79E-06	-2.76E-04
EP-freshwater	[kg P-Eq.]	5.20E-06	0.00E+00	2.96E-09	6.62E-10	4.05E-10	-3.39E-08
EP-marine	[kg N-Eq.]	7.13E-04	0.00E+00	1.87E-06	8.05E-07	4.35E-07	-4.57E-05
EP-terrestrial	[mol N-Eq.]	7.87E-03	0.00E+00	2.02E-05	1.39E-05	4.75E-06	-4.17E-04
POCP	[kg NMVOC-Eq.]	1.87E-03	0.00E+00	3.59E-06	2.29E-06	1.35E-06	-1.81E-04
ADPE	[kg Sb-Eq.]	3.64E-07	0.00E+00	7.30E-11	3.84E-11	1.94E-11	-6.13E-07
ADPF	[MJ]	1.04E+01	0.00E+00	1.41E-02	7.05E-03	4.68E-03	-1.24E+00
WDP	[m ³ world-Eq deprived]	2.25E-01	0.00E+00	5.02E-06	2.41E-03	3.35E-05	-8.28E-03

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE25 AG1" (0.28 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.07E+01	0.00E+00	1.06E-03	1.80E-03	7.64E-04	-1.22E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.19E+01	0.00E+00	1.06E-03	1.80E-03	7.64E-04	-1.22E-02
PENRE	[MJ]	9.52E+00	0.00E+00	1.41E-02	4.25E-01	4.68E-03	-1.24E+00
PENRM	[MJ]	9.30E-01	0.00E+00	0.00E+00	-4.18E-01	0.00E+00	0.00E+00
PENRT	[MJ]	1.04E+01	0.00E+00	1.41E-02	7.05E-03	4.68E-03	-1.24E+00
SM	[kg]	2.22E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.23E-02
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	8.53E-03	0.00E+00	5.24E-07	5.69E-05	9.86E-07	-1.10E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE25 AG1" (0.28 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.22E-08	0.00E+00	5.65E-13	3.61E-12	1.01E-12	-8.15E-09
NHWD	[kg]	1.50E-01	0.00E+00	1.96E-06	1.40E-03	1.35E-02	1.29E-02
RWD	[kg]	3.30E-04	0.00E+00	2.66E-08	2.92E-07	6.50E-08	-1.25E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.58E-01	0.00E+00	0.00E+00	2.56E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	4.45E-02	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	7.98E-02	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE25 AG1" (0.28 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.16 ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE20 AG1/2"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE20 AG1/2" (0.16 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	5.07E-01	0.00E+00	6.23E-04	3.90E-02	1.55E-04	-6.80E-02
GWP-fossil	[kg CO ₂ -Eq.]	4.98E-01	0.00E+00	6.15E-04	3.90E-02	1.54E-04	-6.83E-02
GWP-biogenic	[kg CO ₂ -Eq.]	7.66E-03	0.00E+00	1.15E-06	1.43E-06	4.74E-07	2.56E-04
GWP-luluc	[kg CO ₂ -Eq.]	1.47E-03	0.00E+00	6.46E-06	1.32E-06	4.84E-07	-2.56E-05
ODP	[kg CFC11-Eq.]	6.89E-12	0.00E+00	1.04E-16	3.93E-15	4.99E-16	-5.09E-14
AP	[mol H ⁺ -Eq.]	1.47E-03	0.00E+00	2.24E-06	4.07E-06	9.61E-07	-1.50E-04
EP-freshwater	[kg P-Eq.]	3.21E-06	0.00E+00	1.69E-09	8.93E-10	2.18E-10	-2.49E-08
EP-marine	[kg N-Eq.]	4.34E-04	0.00E+00	1.07E-06	1.09E-06	2.34E-07	-2.61E-05
EP-terrestrial	[mol N-Eq.]	4.80E-03	0.00E+00	1.15E-05	1.92E-05	2.55E-06	-2.44E-04
POCP	[kg NMVOC-Eq.]	1.18E-03	0.00E+00	2.05E-06	3.11E-06	7.26E-07	-1.00E-04
ADPE	[kg Sb-Eq.]	2.08E-07	0.00E+00	4.17E-11	4.55E-11	1.05E-11	-3.13E-07
ADPF	[MJ]	7.14E+00	0.00E+00	8.04E-03	8.21E-03	2.52E-03	-7.82E-01
WDP	[m ³ world-Eq deprived]	1.53E-01	0.00E+00	2.87E-06	3.41E-03	1.80E-05	-5.09E-03

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE20 AG1/2" (0.16 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	6.18E+00	0.00E+00	6.06E-04	2.15E-03	4.11E-04	-5.48E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	7.38E+00	0.00E+00	6.06E-04	2.15E-03	4.11E-04	-5.48E-02
PENRE	[MJ]	6.12E+00	0.00E+00	8.04E-03	5.10E-01	2.52E-03	-7.82E-01
PENRM	[MJ]	1.01E+00	0.00E+00	0.00E+00	-5.02E-01	0.00E+00	0.00E+00
PENRT	[MJ]	7.14E+00	0.00E+00	8.04E-03	8.21E-03	2.52E-03	-7.82E-01
SM	[kg]	1.23E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.17E-02
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	5.50E-03	0.00E+00	3.00E-07	8.02E-05	5.31E-07	-5.62E-03

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE20 AG1/2" (0.16 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	7.24E-09	0.00E+00	3.23E-13	4.28E-12	5.44E-13	-4.24E-09
NHWD	[kg]	8.28E-02	0.00E+00	1.12E-06	1.60E-03	7.26E-03	6.50E-03
RWD	[kg]	2.08E-04	0.00E+00	1.52E-08	3.77E-07	3.49E-08	-1.76E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.42E-01	0.00E+00	0.00E+00	1.38E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	6.23E-02	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.12E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE20 AG1/2" (0.16 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.17 ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE50 AG6/4"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE50 AG6/4" (0.84 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	2.34E+00	0.00E+00	3.27E-03	1.31E-01	8.43E-04	-3.92E-01
GWP-fossil	[kg CO ₂ -Eq.]	2.30E+00	0.00E+00	3.23E-03	1.31E-01	8.38E-04	-3.94E-01
GWP-biogenic	[kg CO ₂ -Eq.]	3.47E-02	0.00E+00	6.03E-06	4.51E-06	2.58E-06	1.80E-03
GWP-luluc	[kg CO ₂ -Eq.]	6.81E-03	0.00E+00	3.39E-05	6.79E-06	2.63E-06	-1.11E-04
ODP	[kg CFC11-Eq.]	3.37E-11	0.00E+00	5.47E-16	2.02E-14	2.71E-15	1.94E-14
AP	[mol H ⁺ -Eq.]	6.73E-03	0.00E+00	1.18E-05	1.52E-05	5.23E-06	-9.03E-04
EP-freshwater	[kg P-Eq.]	1.98E-05	0.00E+00	8.88E-09	3.44E-09	1.19E-09	-1.24E-07
EP-marine	[kg N-Eq.]	1.95E-03	0.00E+00	5.60E-06	4.14E-06	1.27E-06	-1.52E-04
EP-terrestrial	[mol N-Eq.]	2.14E-02	0.00E+00	6.06E-05	7.06E-05	1.39E-05	-1.40E-03
POCP	[kg NMVOC-Eq.]	5.04E-03	0.00E+00	1.08E-05	1.18E-05	3.95E-06	-5.96E-04
ADPE	[kg Sb-Eq.]	1.06E-06	0.00E+00	2.19E-10	2.25E-10	5.69E-11	-1.96E-06
ADPF	[MJ]	2.92E+01	0.00E+00	4.22E-02	4.20E-02	1.37E-02	-4.28E+00
WDP	[m ³ world-Eq deprived]	1.15E+00	0.00E+00	1.51E-05	1.19E-02	9.80E-05	-2.83E-02

Caption: GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE50 AG6/4" (0.84 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	3.00E+01	0.00E+00	3.18E-03	1.05E-02	2.24E-03	-1.37E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	3.12E+01	0.00E+00	3.18E-03	1.05E-02	2.24E-03	-1.37E-01
PENRE	[MJ]	2.72E+01	0.00E+00	4.22E-02	1.56E+00	1.37E-02	-4.28E+00
PENRM	[MJ]	2.03E+00	0.00E+00	0.00E+00	-1.52E+00	0.00E+00	0.00E+00
PENRT	[MJ]	2.92E+01	0.00E+00	4.22E-02	4.20E-02	1.37E-02	-4.28E+00
SM	[kg]	6.25E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.99E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	3.63E-02	0.00E+00	1.57E-06	2.81E-04	2.89E-06	-3.52E-02

Caption: PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE50 AG6/4" (0.84 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	3.34E-08	0.00E+00	1.69E-12	2.11E-11	2.96E-12	-1.28E-07
NHWD	[kg]	4.27E-01	0.00E+00	5.89E-06	8.43E-03	3.95E-02	2.03E-01
RWD	[kg]	8.64E-04	0.00E+00	7.97E-08	1.59E-06	1.90E-07	-1.48E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	7.35E-01	0.00E+00	0.00E+00	7.49E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.22E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	3.98E-01	0.00E+00	0.00E+00

Caption: HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE50 AG6/4" (0.84 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.18 ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE25 AG3/4"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE25 AG3/4" (0.26 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	7.29E-01	0.00E+00	9.96E-04	2.83E-02	2.62E-04	-1.21E-01
GWP-fossil	[kg CO ₂ -Eq.]	7.16E-01	0.00E+00	9.84E-04	2.83E-02	2.60E-04	-1.22E-01
GWP-biogenic	[kg CO ₂ -Eq.]	1.13E-02	0.00E+00	1.84E-06	1.01E-06	8.02E-07	6.08E-04
GWP-luluc	[kg CO ₂ -Eq.]	2.20E-03	0.00E+00	1.03E-05	1.19E-06	8.18E-07	-2.85E-05
ODP	[kg CFC11-Eq.]	1.05E-11	0.00E+00	1.67E-16	3.54E-15	8.43E-16	5.69E-14
AP	[mol H ⁺ -Eq.]	2.15E-03	0.00E+00	3.59E-06	3.11E-06	1.62E-06	-2.85E-04
EP-freshwater	[kg P-Eq.]	4.72E-06	0.00E+00	2.71E-09	6.92E-10	3.68E-10	-3.51E-08
EP-marine	[kg N-Eq.]	6.32E-04	0.00E+00	1.71E-06	8.41E-07	3.96E-07	-4.74E-05
EP-terrestrial	[mol N-Eq.]	6.98E-03	0.00E+00	1.85E-05	1.45E-05	4.32E-06	-4.32E-04
POCP	[kg NMVOC-Eq.]	1.67E-03	0.00E+00	3.29E-06	2.39E-06	1.23E-06	-1.88E-04
ADPE	[kg Sb-Eq.]	3.20E-07	0.00E+00	6.68E-11	4.02E-11	1.77E-11	-6.34E-07
ADPF	[MJ]	9.38E+00	0.00E+00	1.29E-02	7.37E-03	4.26E-03	-1.29E+00
WDP	[m ³ world-Eq deprived]	2.12E-01	0.00E+00	4.59E-06	2.52E-03	3.04E-05	-8.58E-03

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE25 AG3/4" (0.26 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	9.46E+00	0.00E+00	9.70E-04	1.88E-03	6.94E-04	-1.32E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.07E+01	0.00E+00	9.70E-04	1.88E-03	6.94E-04	-1.32E-02
PENRE	[MJ]	8.48E+00	0.00E+00	1.29E-02	4.05E-01	4.26E-03	-1.29E+00
PENRM	[MJ]	9.09E-01	0.00E+00	0.00E+00	-3.97E-01	0.00E+00	0.00E+00
PENRT	[MJ]	9.38E+00	0.00E+00	1.29E-02	7.37E-03	4.26E-03	-1.29E+00
SM	[kg]	1.93E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.44E-02
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	7.88E-03	0.00E+00	4.79E-07	5.95E-05	8.97E-07	-1.14E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE25 AG3/4" (0.26 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.08E-08	0.00E+00	5.16E-13	3.77E-12	9.20E-13	-8.43E-09
NHWD	[kg]	1.31E-01	0.00E+00	1.80E-06	1.46E-03	1.23E-02	1.34E-02
RWD	[kg]	2.93E-04	0.00E+00	2.43E-08	3.06E-07	5.91E-08	-1.31E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.25E-01	0.00E+00	0.00E+00	2.33E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	4.66E-02	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	8.34E-02	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE25 AG3/4" (0.26 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.19 ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE40 AG6/4"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE40 AG6/4" (0.64 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.79E+00	0.00E+00	2.49E-03	8.80E-02	6.48E-04	-2.93E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.76E+00	0.00E+00	2.46E-03	8.80E-02	6.44E-04	-2.94E-01
GWP-biogenic	[kg CO ₂ -Eq.]	2.69E-02	0.00E+00	4.60E-06	3.09E-06	1.98E-06	1.39E-03
GWP-luluc	[kg CO ₂ -Eq.]	5.27E-03	0.00E+00	2.58E-05	4.08E-06	2.02E-06	-7.80E-05
ODP	[kg CFC11-Eq.]	2.60E-11	0.00E+00	4.17E-16	1.21E-14	2.08E-15	5.82E-14
AP	[mol H ⁺ -Eq.]	5.18E-03	0.00E+00	8.98E-06	9.90E-06	4.02E-06	-6.79E-04
EP-freshwater	[kg P-Eq.]	1.33E-05	0.00E+00	6.77E-09	2.22E-09	9.10E-10	-8.98E-08
EP-marine	[kg N-Eq.]	1.51E-03	0.00E+00	4.27E-06	2.69E-06	9.78E-07	-1.14E-04
EP-terrestrial	[mol N-Eq.]	1.66E-02	0.00E+00	4.62E-05	4.62E-05	1.07E-05	-1.04E-03
POCP	[kg NMVOC-Eq.]	3.91E-03	0.00E+00	8.22E-06	7.65E-06	3.04E-06	-4.48E-04
ADPE	[kg Sb-Eq.]	8.08E-07	0.00E+00	1.67E-10	1.37E-10	4.37E-11	-1.49E-06
ADPF	[MJ]	2.23E+01	0.00E+00	3.22E-02	2.53E-02	1.05E-02	-3.16E+00
WDP	[m ³ world-Eq deprived]	6.90E-01	0.00E+00	1.15E-05	7.90E-03	7.52E-05	-2.10E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE40 AG6/4" (0.64 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.32E+01	0.00E+00	2.42E-03	6.37E-03	1.72E-03	-7.72E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.44E+01	0.00E+00	2.42E-03	6.37E-03	1.72E-03	-7.72E-02
PENRE	[MJ]	2.07E+01	0.00E+00	3.22E-02	1.15E+00	1.05E-02	-3.16E+00
PENRM	[MJ]	1.64E+00	0.00E+00	0.00E+00	-1.13E+00	0.00E+00	0.00E+00
PENRT	[MJ]	2.23E+01	0.00E+00	3.22E-02	2.53E-02	1.05E-02	-3.16E+00
SM	[kg]	4.83E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.51E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	2.33E-02	0.00E+00	1.20E-06	1.87E-04	2.22E-06	-2.67E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE40 AG6/4" (0.64 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.59E-08	0.00E+00	1.29E-12	1.28E-11	2.27E-12	-1.99E-08
NHWD	[kg]	3.29E-01	0.00E+00	4.49E-06	5.03E-03	3.03E-02	3.13E-02
RWD	[kg]	6.77E-04	0.00E+00	6.07E-08	1.00E-06	1.46E-07	-4.13E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	5.66E-01	0.00E+00	0.00E+00	5.75E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.47E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.63E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE40 AG6/4" (0.64 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.20 ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE40 AG2"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE40 AG2" (0.72 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.98E+00	0.00E+00	2.80E-03	8.91E-02	7.33E-04	-3.38E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.94E+00	0.00E+00	2.77E-03	8.91E-02	7.28E-04	-3.39E-01
GWP-biogenic	[kg CO ₂ -Eq.]	2.99E-02	0.00E+00	5.17E-06	3.13E-06	2.24E-06	1.65E-03
GWP-luluc	[kg CO ₂ -Eq.]	5.87E-03	0.00E+00	2.91E-05	4.13E-06	2.29E-06	-8.45E-05
ODP	[kg CFC11-Eq.]	2.91E-11	0.00E+00	4.69E-16	1.23E-14	2.36E-15	1.15E-13
AP	[mol H ⁺ -Eq.]	5.75E-03	0.00E+00	1.01E-05	1.00E-05	4.54E-06	-7.89E-04
EP-freshwater	[kg P-Eq.]	1.43E-05	0.00E+00	7.61E-09	2.25E-09	1.03E-09	-1.01E-07
EP-marine	[kg N-Eq.]	1.67E-03	0.00E+00	4.80E-06	2.72E-06	1.11E-06	-1.32E-04
EP-terrestrial	[mol N-Eq.]	1.84E-02	0.00E+00	5.19E-05	4.68E-05	1.21E-05	-1.20E-03
POCP	[kg NMVOC-Eq.]	4.32E-03	0.00E+00	9.24E-06	7.75E-06	3.43E-06	-5.20E-04
ADPE	[kg Sb-Eq.]	8.98E-07	0.00E+00	1.88E-10	1.38E-10	4.94E-11	-1.74E-06
ADPF	[MJ]	2.45E+01	0.00E+00	3.62E-02	2.55E-02	1.19E-02	-3.62E+00
WDP	[m³ world-Eq deprived]	7.16E-01	0.00E+00	1.29E-05	8.00E-03	8.51E-05	-2.40E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE40 AG2" (0.72 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.59E+01	0.00E+00	2.73E-03	6.45E-03	1.94E-03	-6.17E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.71E+01	0.00E+00	2.73E-03	6.45E-03	1.94E-03	-6.17E-02
PENRE	[MJ]	2.28E+01	0.00E+00	3.62E-02	1.19E+00	1.19E-02	-3.62E+00
PENRM	[MJ]	1.68E+00	0.00E+00	0.00E+00	-1.17E+00	0.00E+00	0.00E+00
PENRT	[MJ]	2.45E+01	0.00E+00	3.62E-02	2.55E-02	1.19E-02	-3.62E+00
SM	[kg]	5.39E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.77E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m³]	2.48E-02	0.00E+00	1.35E-06	1.89E-04	2.51E-06	-3.12E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE40 AG2" (0.72 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.89E-08	0.00E+00	1.45E-12	1.30E-11	2.57E-12	-2.32E-08
NHWD	[kg]	3.67E-01	0.00E+00	5.05E-06	5.09E-03	3.43E-02	3.67E-02
RWD	[kg]	7.50E-04	0.00E+00	6.83E-08	1.01E-06	1.65E-07	-4.17E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	6.33E-01	0.00E+00	0.00E+00	6.51E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.49E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.66E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE40 AG2" (0.72 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.21 ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE43 AG5/4"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE43 AG5/4" (0.55 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.53E+00	0.00E+00	2.14E-03	8.94E-02	5.51E-04	-2.65E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.50E+00	0.00E+00	2.11E-03	8.94E-02	5.47E-04	-2.66E-01
GWP-biogenic	[kg CO ₂ -Eq.]	2.28E-02	0.00E+00	3.95E-06	3.14E-06	1.69E-06	1.21E-03
GWP-luluc	[kg CO ₂ -Eq.]	4.49E-03	0.00E+00	2.22E-05	4.15E-06	1.72E-06	-7.49E-05
ODP	[kg CFC11-Eq.]	2.20E-11	0.00E+00	3.58E-16	1.23E-14	1.77E-15	1.52E-14
AP	[mol H ⁺ -Eq.]	4.41E-03	0.00E+00	7.72E-06	1.01E-05	3.42E-06	-6.10E-04
EP-freshwater	[kg P-Eq.]	1.19E-05	0.00E+00	5.82E-09	2.26E-09	7.74E-10	-8.36E-08
EP-marine	[kg N-Eq.]	1.28E-03	0.00E+00	3.67E-06	2.73E-06	8.32E-07	-1.03E-04
EP-terrestrial	[mol N-Eq.]	1.41E-02	0.00E+00	3.97E-05	4.70E-05	9.08E-06	-9.45E-04
POCP	[kg NMVOC-Eq.]	3.34E-03	0.00E+00	7.06E-06	7.78E-06	2.58E-06	-4.03E-04
ADPE	[kg Sb-Eq.]	6.84E-07	0.00E+00	1.43E-10	1.39E-10	3.72E-11	-1.33E-06
ADPF	[MJ]	1.94E+01	0.00E+00	2.76E-02	2.57E-02	8.95E-03	-2.89E+00
WDP	[m ³ world-Eq deprived]	6.53E-01	0.00E+00	9.86E-06	8.03E-03	6.40E-05	-1.91E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE43 AG5/4" (0.55 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.97E+01	0.00E+00	2.08E-03	6.48E-03	1.46E-03	-9.13E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.08E+01	0.00E+00	2.08E-03	6.48E-03	1.46E-03	-9.13E-02
PENRE	[MJ]	1.78E+01	0.00E+00	2.76E-02	1.09E+00	8.95E-03	-2.89E+00
PENRM	[MJ]	1.58E+00	0.00E+00	0.00E+00	-1.07E+00	0.00E+00	0.00E+00
PENRT	[MJ]	1.94E+01	0.00E+00	2.76E-02	2.57E-02	8.95E-03	-2.89E+00
SM	[kg]	4.04E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	2.14E-02	0.00E+00	1.03E-06	1.90E-04	1.89E-06	-2.38E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE43 AG5/4" (0.55 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.19E-08	0.00E+00	1.11E-12	1.30E-11	1.93E-12	-1.78E-08
NHWD	[kg]	2.76E-01	0.00E+00	3.86E-06	5.11E-03	2.58E-02	2.79E-02
RWD	[kg]	5.76E-04	0.00E+00	5.22E-08	1.02E-06	1.24E-07	-4.20E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	4.74E-01	0.00E+00	0.00E+00	4.89E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.49E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.67E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE43 AG5/4" (0.55 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.22 ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE40 AG1"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE40 AG1" (0.65 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.85E+00	0.00E+00	2.53E-03	8.59E-02	6.59E-04	-2.78E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.82E+00	0.00E+00	2.50E-03	8.59E-02	6.55E-04	-2.79E-01
GWP-biogenic	[kg CO ₂ -Eq.]	2.79E-02	0.00E+00	4.67E-06	3.02E-06	2.02E-06	1.31E-03
GWP-luluc	[kg CO ₂ -Eq.]	5.43E-03	0.00E+00	2.62E-05	3.98E-06	2.06E-06	-7.51E-05
ODP	[kg CFC11-Eq.]	2.69E-11	0.00E+00	4.23E-16	1.18E-14	2.12E-15	4.69E-14
AP	[mol H ⁺ -Eq.]	5.38E-03	0.00E+00	9.12E-06	9.66E-06	4.09E-06	-6.45E-04
EP-freshwater	[kg P-Eq.]	1.36E-05	0.00E+00	6.87E-09	2.17E-09	9.26E-10	-8.59E-08
EP-marine	[kg N-Eq.]	1.56E-03	0.00E+00	4.33E-06	2.63E-06	9.96E-07	-1.08E-04
EP-terrestrial	[mol N-Eq.]	1.72E-02	0.00E+00	4.69E-05	4.51E-05	1.09E-05	-9.93E-04
POCP	[kg NMVOC-Eq.]	4.05E-03	0.00E+00	8.35E-06	7.47E-06	3.09E-06	-4.25E-04
ADPE	[kg Sb-Eq.]	8.39E-07	0.00E+00	1.70E-10	1.33E-10	4.45E-11	-1.41E-06
ADPF	[MJ]	2.31E+01	0.00E+00	3.27E-02	2.46E-02	1.07E-02	-3.01E+00
WDP	[m ³ world-Eq deprived]	6.99E-01	0.00E+00	1.17E-05	7.71E-03	7.66E-05	-2.00E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE40 AG1" (0.65 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.40E+01	0.00E+00	2.46E-03	6.22E-03	1.75E-03	-7.82E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.52E+01	0.00E+00	2.46E-03	6.22E-03	1.75E-03	-7.82E-02
PENRE	[MJ]	2.14E+01	0.00E+00	3.27E-02	1.16E+00	1.07E-02	-3.01E+00
PENRM	[MJ]	1.65E+00	0.00E+00	0.00E+00	-1.14E+00	0.00E+00	0.00E+00
PENRT	[MJ]	2.31E+01	0.00E+00	3.27E-02	2.46E-02	1.07E-02	-3.01E+00
SM	[kg]	5.03E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.43E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	2.37E-02	0.00E+00	1.22E-06	1.82E-04	2.26E-06	-2.53E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE40 AG1" (0.65 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.69E-08	0.00E+00	1.31E-12	1.25E-11	2.31E-12	-1.88E-08
NHWD	[kg]	3.42E-01	0.00E+00	4.56E-06	4.91E-03	3.09E-02	2.97E-02
RWD	[kg]	7.03E-04	0.00E+00	6.17E-08	9.79E-07	1.49E-07	-4.03E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	5.90E-01	0.00E+00	0.00E+00	5.86E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.43E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.57E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE40 AG1" (0.65 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.23 ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE40 AG5/4"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE40 AG5/4" (0.61 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.75E+00	0.00E+00	2.37E-03	8.56E-02	6.17E-04	-2.60E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.72E+00	0.00E+00	2.34E-03	8.56E-02	6.13E-04	-2.61E-01
GWP-biogenic	[kg CO ₂ -Eq.]	2.63E-02	0.00E+00	4.38E-06	3.01E-06	1.89E-06	1.20E-03
GWP-luluc	[kg CO ₂ -Eq.]	5.11E-03	0.00E+00	2.46E-05	3.97E-06	1.93E-06	-7.25E-05
ODP	[kg CFC11-Eq.]	2.53E-11	0.00E+00	3.97E-16	1.18E-14	1.98E-15	2.29E-14
AP	[mol H ⁺ -Eq.]	5.07E-03	0.00E+00	8.56E-06	9.63E-06	3.82E-06	-5.99E-04
EP-freshwater	[kg P-Eq.]	1.31E-05	0.00E+00	6.45E-09	2.16E-09	8.66E-10	-8.14E-08
EP-marine	[kg N-Eq.]	1.47E-03	0.00E+00	4.07E-06	2.62E-06	9.32E-07	-1.01E-04
EP-terrestrial	[mol N-Eq.]	1.62E-02	0.00E+00	4.40E-05	4.50E-05	1.02E-05	-9.27E-04
POCP	[kg NMVOC-Eq.]	3.82E-03	0.00E+00	7.83E-06	7.44E-06	2.89E-06	-3.96E-04
ADPE	[kg Sb-Eq.]	7.90E-07	0.00E+00	1.59E-10	1.33E-10	4.16E-11	-1.31E-06
ADPF	[MJ]	2.19E+01	0.00E+00	3.07E-02	2.46E-02	1.00E-02	-2.83E+00
WDP	[m ³ world-Eq deprived]	6.85E-01	0.00E+00	1.09E-05	7.69E-03	7.16E-05	-1.87E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE40 AG5/4" (0.61 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.26E+01	0.00E+00	2.31E-03	6.20E-03	1.63E-03	-8.49E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.38E+01	0.00E+00	2.31E-03	6.20E-03	1.63E-03	-8.49E-02
PENRE	[MJ]	2.03E+01	0.00E+00	3.07E-02	1.14E+00	1.00E-02	-2.83E+00
PENRM	[MJ]	1.63E+00	0.00E+00	0.00E+00	-1.12E+00	0.00E+00	0.00E+00
PENRT	[MJ]	2.19E+01	0.00E+00	3.07E-02	2.46E-02	1.00E-02	-2.83E+00
SM	[kg]	4.72E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.33E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	2.30E-02	0.00E+00	1.14E-06	1.82E-04	2.11E-06	-2.34E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE40 AG5/4" (0.61 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.53E-08	0.00E+00	1.23E-12	1.25E-11	2.17E-12	-1.75E-08
NHWD	[kg]	3.22E-01	0.00E+00	4.28E-06	4.89E-03	2.89E-02	2.74E-02
RWD	[kg]	6.64E-04	0.00E+00	5.79E-08	9.76E-07	1.39E-07	-4.02E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	5.54E-01	0.00E+00	0.00E+00	5.48E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.43E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.56E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE40 AG5/4" (0.61 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.24 ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE34 AG1"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE34 AG1" (0.33 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	9.76E-01	0.00E+00	1.28E-03	4.36E-02	3.35E-04	-1.38E-01
GWP-fossil	[kg CO ₂ -Eq.]	9.58E-01	0.00E+00	1.27E-03	4.36E-02	3.33E-04	-1.38E-01
GWP-biogenic	[kg CO ₂ -Eq.]	1.48E-02	0.00E+00	2.37E-06	1.53E-06	1.02E-06	6.44E-04
GWP-luluc	[kg CO ₂ -Eq.]	2.85E-03	0.00E+00	1.33E-05	2.06E-06	1.05E-06	-3.77E-05
ODP	[kg CFC11-Eq.]	1.39E-11	0.00E+00	2.15E-16	6.11E-15	1.08E-15	1.88E-14
AP	[mol H ⁺ -Eq.]	2.85E-03	0.00E+00	4.63E-06	4.93E-06	2.08E-06	-3.19E-04
EP-freshwater	[kg P-Eq.]	7.15E-06	0.00E+00	3.49E-09	1.11E-09	4.70E-10	-4.28E-08
EP-marine	[kg N-Eq.]	8.31E-04	0.00E+00	2.20E-06	1.34E-06	5.06E-07	-5.36E-05
EP-terrestrial	[mol N-Eq.]	9.17E-03	0.00E+00	2.38E-05	2.30E-05	5.51E-06	-4.92E-04
POCP	[kg NMVOC-Eq.]	2.18E-03	0.00E+00	4.24E-06	3.81E-06	1.57E-06	-2.10E-04
ADPE	[kg Sb-Eq.]	4.33E-07	0.00E+00	8.61E-11	6.88E-11	2.26E-11	-6.97E-07
ADPF	[MJ]	1.25E+01	0.00E+00	1.66E-02	1.27E-02	5.44E-03	-1.50E+00
WDP	[m ³ world-Eq deprived]	3.72E-01	0.00E+00	5.92E-06	3.92E-03	3.89E-05	-9.90E-03

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE34 AG1" (0.33 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.25E+01	0.00E+00	1.25E-03	3.21E-03	8.87E-04	-4.13E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.36E+01	0.00E+00	1.25E-03	3.21E-03	8.87E-04	-4.13E-02
PENRE	[MJ]	1.14E+01	0.00E+00	1.66E-02	5.92E-01	5.44E-03	-1.50E+00
PENRM	[MJ]	1.09E+00	0.00E+00	0.00E+00	-5.79E-01	0.00E+00	0.00E+00
PENRT	[MJ]	1.25E+01	0.00E+00	1.66E-02	1.27E-02	5.44E-03	-1.50E+00
SM	[kg]	2.59E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.07E-02
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.25E-02	0.00E+00	6.18E-07	9.27E-05	1.15E-06	-1.25E-02

Caption PERE = Use of renewable primary energy excluding non-renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE34 AG1" (0.33 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.42E-08	0.00E+00	6.65E-13	6.45E-12	1.18E-12	-9.31E-09
NHWD	[kg]	1.76E-01	0.00E+00	2.32E-06	2.54E-03	1.57E-02	1.46E-02
RWD	[kg]	3.80E-04	0.00E+00	3.13E-08	5.02E-07	7.54E-08	-2.05E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.02E-01	0.00E+00	0.00E+00	2.97E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	7.29E-02	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.31E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE34 AG1" (0.33 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.25 ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE32 AG2"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE32 AG2" (0.68 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.85E+00	0.00E+00	2.65E-03	5.77E-02	7.03E-04	-3.17E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.82E+00	0.00E+00	2.61E-03	5.77E-02	6.99E-04	-3.19E-01
GWP-biogenic	[kg CO ₂ -Eq.]	2.84E-02	0.00E+00	4.88E-06	2.02E-06	2.15E-06	1.65E-03
GWP-luluc	[kg CO ₂ -Eq.]	5.58E-03	0.00E+00	2.75E-05	2.72E-06	2.20E-06	-6.80E-05
ODP	[kg CFC11-Eq.]	2.76E-11	0.00E+00	4.43E-16	8.09E-15	2.26E-15	2.07E-13
AP	[mol H ⁺ -Eq.]	5.43E-03	0.00E+00	9.54E-06	6.52E-06	4.36E-06	-7.53E-04
EP-freshwater	[kg P-Eq.]	1.24E-05	0.00E+00	7.19E-09	1.47E-09	9.88E-10	-8.82E-08
EP-marine	[kg N-Eq.]	1.58E-03	0.00E+00	4.53E-06	1.77E-06	1.06E-06	-1.24E-04
EP-terrestrial	[mol N-Eq.]	1.74E-02	0.00E+00	4.90E-05	3.04E-05	1.16E-05	-1.13E-03
POCP	[kg NMVOC-Eq.]	4.07E-03	0.00E+00	8.73E-06	5.04E-06	3.30E-06	-4.95E-04
ADPE	[kg Sb-Eq.]	8.47E-07	0.00E+00	1.77E-10	9.10E-11	4.74E-11	-1.69E-06
ADPF	[MJ]	2.25E+01	0.00E+00	3.42E-02	1.69E-02	1.14E-02	-3.33E+00
WDP	[m ³ world-Eq deprived]	5.54E-01	0.00E+00	1.22E-05	5.19E-03	8.16E-05	-2.22E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE32 AG2" (0.68 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.46E+01	0.00E+00	2.58E-03	4.25E-03	1.86E-03	-1.47E-03
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.58E+01	0.00E+00	2.58E-03	4.25E-03	1.86E-03	-1.47E-03
PENRE	[MJ]	2.11E+01	0.00E+00	3.42E-02	8.87E-01	1.14E-02	-3.33E+00
PENRM	[MJ]	1.38E+00	0.00E+00	0.00E+00	-8.70E-01	0.00E+00	0.00E+00
PENRT	[MJ]	2.25E+01	0.00E+00	3.42E-02	1.69E-02	1.14E-02	-3.33E+00
SM	[kg]	5.15E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.72E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	2.06E-02	0.00E+00	1.27E-06	1.23E-04	2.41E-06	-3.02E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE32 AG2" (0.68 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.75E-08	0.00E+00	1.37E-12	8.54E-12	2.47E-12	-2.24E-08
NHWD	[kg]	3.51E-01	0.00E+00	4.77E-06	3.36E-03	3.29E-02	3.57E-02
RWD	[kg]	7.13E-04	0.00E+00	6.45E-08	6.64E-07	1.58E-07	-2.70E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	6.05E-01	0.00E+00	0.00E+00	6.24E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	9.65E-02	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.73E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE32 AG2" (0.68 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.26 ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE63 AG2"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE63 AG2" (1.76 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	4.74E+00	0.00E+00	6.86E-03	1.83E-01	1.81E-03	-8.22E-01
GWP-fossil	[kg CO ₂ -Eq.]	4.66E+00	0.00E+00	6.77E-03	1.83E-01	1.80E-03	-8.26E-01
GWP-biogenic	[kg CO ₂ -Eq.]	7.17E-02	0.00E+00	1.27E-05	6.41E-06	5.53E-06	4.15E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.41E-02	0.00E+00	7.11E-05	8.74E-06	5.65E-06	-1.91E-04
ODP	[kg CFC11-Eq.]	7.08E-11	0.00E+00	1.15E-15	2.60E-14	5.82E-15	4.07E-13
AP	[mol H ⁺ -Eq.]	1.38E-02	0.00E+00	2.47E-05	2.08E-05	1.12E-05	-1.94E-03
EP-freshwater	[kg P-Eq.]	3.38E-05	0.00E+00	1.86E-08	4.67E-09	2.54E-09	-2.37E-07
EP-marine	[kg N-Eq.]	4.00E-03	0.00E+00	1.17E-05	5.65E-06	2.73E-06	-3.21E-04
EP-terrestrial	[mol N-Eq.]	4.41E-02	0.00E+00	1.27E-04	9.69E-05	2.98E-05	-2.93E-03
POCP	[kg NMVOC-Eq.]	1.02E-02	0.00E+00	2.26E-05	1.61E-05	8.47E-06	-1.28E-03
ADPE	[kg Sb-Eq.]	2.19E-06	0.00E+00	4.60E-10	2.92E-10	1.22E-10	-4.31E-06
ADPF	[MJ]	5.72E+01	0.00E+00	8.86E-02	5.41E-02	2.94E-02	-8.72E+00
WDP	[m ³ world-Eq deprived]	1.62E+00	0.00E+00	3.16E-05	1.65E-02	2.10E-04	-5.81E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE63 AG2" (1.76 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	6.30E+01	0.00E+00	6.68E-03	1.36E-02	4.79E-03	-7.80E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	6.42E+01	0.00E+00	6.68E-03	1.36E-02	4.79E-03	-7.80E-02
PENRE	[MJ]	5.41E+01	0.00E+00	8.86E-02	2.59E+00	2.94E-02	-8.72E+00
PENRM	[MJ]	3.04E+00	0.00E+00	0.00E+00	-2.53E+00	0.00E+00	0.00E+00
PENRT	[MJ]	5.72E+01	0.00E+00	8.86E-02	5.41E-02	2.94E-02	-8.72E+00
SM	[kg]	1.32E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.38E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	5.75E-02	0.00E+00	3.30E-06	3.90E-04	6.19E-06	-7.72E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE63 AG2" (1.76 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	6.97E-08	0.00E+00	3.55E-12	2.74E-11	6.35E-12	-5.73E-08
NHWD	[kg]	9.04E-01	0.00E+00	1.24E-05	1.08E-02	8.46E-02	9.10E-02
RWD	[kg]	1.78E-03	0.00E+00	1.67E-07	2.12E-06	4.07E-07	-8.61E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.56E+00	0.00E+00	0.00E+00	1.61E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	3.07E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	5.50E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE63 AG2" (1.76 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.27 ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE63 AG5/4"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	MNR	MNR	MNR	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE63 AG5/4" (1.51 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	4.11E+00	0.00E+00	5.88E-03	1.82E-01	1.54E-03	-6.98E-01
GWP-fossil	[kg CO ₂ -Eq.]	4.04E+00	0.00E+00	5.80E-03	1.82E-01	1.53E-03	-7.01E-01
GWP-biogenic	[kg CO ₂ -Eq.]	6.18E-02	0.00E+00	1.08E-05	6.38E-06	4.71E-06	3.41E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.22E-02	0.00E+00	6.10E-05	8.70E-06	4.81E-06	-1.74E-04
ODP	[kg CFC11-Eq.]	6.08E-11	0.00E+00	9.83E-16	2.58E-14	4.95E-15	2.41E-13
AP	[mol H ⁺ -Eq.]	1.19E-02	0.00E+00	2.12E-05	2.07E-05	9.54E-06	-1.63E-03
EP-freshwater	[kg P-Eq.]	3.04E-05	0.00E+00	1.60E-08	4.65E-09	2.16E-09	-2.08E-07
EP-marine	[kg N-Eq.]	3.45E-03	0.00E+00	1.01E-05	5.62E-06	2.32E-06	-2.72E-04
EP-terrestrial	[mol N-Eq.]	3.80E-02	0.00E+00	1.09E-04	9.65E-05	2.54E-05	-2.49E-03
POCP	[kg NMVOC-Eq.]	8.85E-03	0.00E+00	1.94E-05	1.60E-05	7.21E-06	-1.08E-03
ADPE	[kg Sb-Eq.]	1.89E-06	0.00E+00	3.94E-10	2.90E-10	1.04E-10	-3.61E-06
ADPF	[MJ]	5.01E+01	0.00E+00	7.59E-02	5.38E-02	2.50E-02	-7.47E+00
WDP	[m ³ world-Eq deprived]	1.54E+00	0.00E+00	2.71E-05	1.64E-02	1.79E-04	-4.97E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE63 AG5/4" (1.51 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	5.41E+01	0.00E+00	5.72E-03	1.35E-02	4.08E-03	-1.26E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	5.53E+01	0.00E+00	5.72E-03	1.35E-02	4.08E-03	-1.26E-01
PENRE	[MJ]	4.72E+01	0.00E+00	7.59E-02	2.45E+00	2.50E-02	-7.47E+00
PENRM	[MJ]	2.90E+00	0.00E+00	0.00E+00	-2.39E+00	0.00E+00	0.00E+00
PENRT	[MJ]	5.01E+01	0.00E+00	7.59E-02	5.38E-02	2.50E-02	-7.47E+00
SM	[kg]	1.14E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.66E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	5.27E-02	0.00E+00	2.83E-06	3.88E-04	5.27E-06	-6.46E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE63 AG5/4" (1.51 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	5.99E-08	0.00E+00	3.04E-12	2.73E-11	5.40E-12	-4.80E-08
NHWD	[kg]	7.75E-01	0.00E+00	1.06E-05	1.07E-02	7.20E-02	7.59E-02
RWD	[kg]	1.54E-03	0.00E+00	1.43E-07	2.11E-06	3.47E-07	-8.58E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.34E+00	0.00E+00	0.00E+00	1.37E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	3.06E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	5.47E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE63 AG5/4" (1.51 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.28 ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE63 AG6/4"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE63 AG6/4" (1.45 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	4.02E+00	0.00E+00	5.64E-03	1.79E-01	1.48E-03	-6.38E-01
GWP-fossil	[kg CO ₂ -Eq.]	3.95E+00	0.00E+00	5.57E-03	1.79E-01	1.47E-03	-6.41E-01
GWP-biogenic	[kg CO ₂ -Eq.]	6.04E-02	0.00E+00	1.04E-05	6.26E-06	4.52E-06	3.07E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.18E-02	0.00E+00	5.85E-05	8.53E-06	4.61E-06	-1.65E-04
ODP	[kg CFC11-Eq.]	5.93E-11	0.00E+00	9.44E-16	2.54E-14	4.75E-15	1.74E-13
AP	[mol H ⁺ -Eq.]	1.17E-02	0.00E+00	2.03E-05	2.03E-05	9.15E-06	-1.49E-03
EP-freshwater	[kg P-Eq.]	2.99E-05	0.00E+00	1.53E-08	4.56E-09	2.07E-09	-1.93E-07
EP-marine	[kg N-Eq.]	3.38E-03	0.00E+00	9.67E-06	5.51E-06	2.23E-06	-2.49E-04
EP-terrestrial	[mol N-Eq.]	3.72E-02	0.00E+00	1.05E-04	9.46E-05	2.43E-05	-2.28E-03
POCP	[kg NMVOC-Eq.]	8.66E-03	0.00E+00	1.86E-05	1.57E-05	6.92E-06	-9.80E-04
ADPE	[kg Sb-Eq.]	1.85E-06	0.00E+00	3.78E-10	2.85E-10	9.96E-11	-3.27E-06
ADPF	[MJ]	4.91E+01	0.00E+00	7.29E-02	5.28E-02	2.40E-02	-6.87E+00
WDP	[m³ world-Eq deprived]	1.52E+00	0.00E+00	2.60E-05	1.61E-02	1.71E-04	-4.56E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE63 AG6/4" (1.45 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	5.27E+01	0.00E+00	5.49E-03	1.33E-02	3.91E-03	-1.41E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	5.39E+01	0.00E+00	5.49E-03	1.33E-02	3.91E-03	-1.41E-01
PENRE	[MJ]	4.62E+01	0.00E+00	7.29E-02	2.43E+00	2.40E-02	-6.87E+00
PENRM	[MJ]	2.89E+00	0.00E+00	0.00E+00	-2.37E+00	0.00E+00	0.00E+00
PENRT	[MJ]	4.91E+01	0.00E+00	7.29E-02	5.28E-02	2.40E-02	-6.87E+00
SM	[kg]	1.11E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.32E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m³]	5.19E-02	0.00E+00	2.71E-06	3.81E-04	5.05E-06	-5.86E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE63 AG6/4" (1.45 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	5.85E-08	0.00E+00	2.92E-12	2.67E-11	5.18E-12	-4.36E-08
NHWD	[kg]	7.57E-01	0.00E+00	1.02E-05	1.05E-02	6.91E-02	6.89E-02
RWD	[kg]	1.50E-03	0.00E+00	1.38E-07	2.07E-06	3.33E-07	-8.42E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.31E+00	0.00E+00	0.00E+00	1.31E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	3.00E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	5.37E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE63 AG6/4" (1.45 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.29 ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE50 AG2"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE50 AG2" (0.95 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	2.64E+00	0.00E+00	3.70E-03	1.30E-01	9.61E-04	-4.35E-01
GWP-fossil	[kg CO ₂ -Eq.]	2.59E+00	0.00E+00	3.65E-03	1.30E-01	9.55E-04	-4.37E-01
GWP-biogenic	[kg CO ₂ -Eq.]	3.94E-02	0.00E+00	6.82E-06	4.49E-06	2.94E-06	2.05E-03
GWP-luluc	[kg CO ₂ -Eq.]	7.72E-03	0.00E+00	3.84E-05	6.76E-06	3.00E-06	-1.17E-04
ODP	[kg CFC11-Eq.]	3.84E-11	0.00E+00	6.18E-16	2.01E-14	3.09E-15	7.95E-14
AP	[mol H ⁺ -Eq.]	7.62E-03	0.00E+00	1.33E-05	1.51E-05	5.96E-06	-1.01E-03
EP-freshwater	[kg P-Eq.]	2.14E-05	0.00E+00	1.00E-08	3.43E-09	1.35E-09	-1.34E-07
EP-marine	[kg N-Eq.]	2.21E-03	0.00E+00	6.33E-06	4.13E-06	1.45E-06	-1.69E-04
EP-terrestrial	[mol N-Eq.]	2.43E-02	0.00E+00	6.85E-05	7.04E-05	1.58E-05	-1.55E-03
POCP	[kg NMVOC-Eq.]	5.69E-03	0.00E+00	1.22E-05	1.17E-05	4.51E-06	-6.66E-04
ADPE	[kg Sb-Eq.]	1.21E-06	0.00E+00	2.48E-10	2.25E-10	6.49E-11	-2.21E-06
ADPF	[MJ]	3.26E+01	0.00E+00	4.77E-02	4.19E-02	1.56E-02	-4.71E+00
WDP	[m ³ world-Eq deprived]	1.19E+00	0.00E+00	1.70E-05	1.18E-02	1.12E-04	-3.12E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE50 AG2" (0.95 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	3.42E+01	0.00E+00	3.60E-03	1.04E-02	2.55E-03	-1.19E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	3.54E+01	0.00E+00	3.60E-03	1.04E-02	2.55E-03	-1.19E-01
PENRE	[MJ]	3.05E+01	0.00E+00	4.77E-02	1.63E+00	1.56E-02	-4.71E+00
PENRM	[MJ]	2.10E+00	0.00E+00	0.00E+00	-1.58E+00	0.00E+00	0.00E+00
PENRT	[MJ]	3.26E+01	0.00E+00	4.77E-02	4.19E-02	1.56E-02	-4.71E+00
SM	[kg]	7.15E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.24E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	3.85E-02	0.00E+00	1.78E-06	2.80E-04	3.29E-06	-3.96E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE50 AG2" (0.95 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	3.80E-08	0.00E+00	1.92E-12	2.11E-11	3.38E-12	-2.95E-08
NHWD	[kg]	4.88E-01	0.00E+00	6.67E-06	8.39E-03	4.50E-02	4.65E-02
RWD	[kg]	9.80E-04	0.00E+00	9.01E-08	1.59E-06	2.17E-07	-6.23E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	8.41E-01	0.00E+00	0.00E+00	8.54E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.21E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	3.96E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE50 AG2" (0.95 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.30 ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE50 AG5/4"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE50 AG5/4" (0.90 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	2.51E+00	0.00E+00	3.50E-03	1.30E-01	9.08E-04	-4.10E-01
GWP-fossil	[kg CO ₂ -Eq.]	2.47E+00	0.00E+00	3.46E-03	1.30E-01	9.02E-04	-4.12E-01
GWP-biogenic	[kg CO ₂ -Eq.]	3.74E-02	0.00E+00	6.46E-06	4.48E-06	2.78E-06	1.91E-03
GWP-luluc	[kg CO ₂ -Eq.]	7.33E-03	0.00E+00	3.63E-05	6.74E-06	2.84E-06	-1.13E-04
ODP	[kg CFC11-Eq.]	3.64E-11	0.00E+00	5.86E-16	2.00E-14	2.92E-15	4.78E-14
AP	[mol H ⁺ -Eq.]	7.25E-03	0.00E+00	1.26E-05	1.51E-05	5.63E-06	-9.48E-04
EP-freshwater	[kg P-Eq.]	2.07E-05	0.00E+00	9.52E-09	3.42E-09	1.28E-09	-1.28E-07
EP-marine	[kg N-Eq.]	2.10E-03	0.00E+00	6.00E-06	4.11E-06	1.37E-06	-1.59E-04
EP-terrestrial	[mol N-Eq.]	2.31E-02	0.00E+00	6.49E-05	7.01E-05	1.50E-05	-1.46E-03
POCP	[kg NMVOC-Eq.]	5.42E-03	0.00E+00	1.16E-05	1.17E-05	4.26E-06	-6.26E-04
ADPE	[kg Sb-Eq.]	1.15E-06	0.00E+00	2.35E-10	2.24E-10	6.13E-11	-2.07E-06
ADPF	[MJ]	3.12E+01	0.00E+00	4.52E-02	4.17E-02	1.48E-02	-4.46E+00
WDP	[m ³ world-Eq deprived]	1.18E+00	0.00E+00	1.61E-05	1.18E-02	1.05E-04	-2.95E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE50 AG5/4" (0.90 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	3.24E+01	0.00E+00	3.41E-03	1.04E-02	2.41E-03	-1.28E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	3.36E+01	0.00E+00	3.41E-03	1.04E-02	2.41E-03	-1.28E-01
PENRE	[MJ]	2.91E+01	0.00E+00	4.52E-02	1.60E+00	1.48E-02	-4.46E+00
PENRM	[MJ]	2.07E+00	0.00E+00	0.00E+00	-1.56E+00	0.00E+00	0.00E+00
PENRT	[MJ]	3.12E+01	0.00E+00	4.52E-02	4.17E-02	1.48E-02	-4.46E+00
SM	[kg]	6.78E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.10E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	3.75E-02	0.00E+00	1.69E-06	2.79E-04	3.11E-06	-3.71E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE50 AG5/4" (0.90 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	3.61E-08	0.00E+00	1.81E-12	2.10E-11	3.19E-12	-2.77E-08
NHWD	[kg]	4.62E-01	0.00E+00	6.32E-06	8.36E-03	4.25E-02	4.35E-02
RWD	[kg]	9.32E-04	0.00E+00	8.54E-08	1.58E-06	2.05E-07	-6.21E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	7.97E-01	0.00E+00	0.00E+00	8.07E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.21E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	3.95E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE50 AG5/4" (0.90 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.31 ISO-FITTING PN16 CONNECTOR: FIT GJS PE32 PE25

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE32 PE25 (0.52 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.50E+00	0.00E+00	2.05E-03	8.00E-02	5.31E-04	-2.39E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.47E+00	0.00E+00	2.03E-03	8.00E-02	5.28E-04	-2.40E-01
GWP-biogenic	[kg CO ₂ -Eq.]	2.24E-02	0.00E+00	3.79E-06	2.82E-06	1.63E-06	1.10E-03
GWP-luluc	[kg CO ₂ -Eq.]	4.38E-03	0.00E+00	2.13E-05	3.63E-06	1.66E-06	-6.72E-05
ODP	[kg CFC11-Eq.]	2.16E-11	0.00E+00	3.44E-16	1.08E-14	1.71E-15	1.78E-14
AP	[mol H ⁺ -Eq.]	4.33E-03	0.00E+00	7.41E-06	8.95E-06	3.29E-06	-5.52E-04
EP-freshwater	[kg P-Eq.]	1.12E-05	0.00E+00	5.58E-09	2.01E-09	7.46E-10	-7.52E-08
EP-marine	[kg N-Eq.]	1.26E-03	0.00E+00	3.52E-06	2.43E-06	8.03E-07	-9.29E-05
EP-terrestrial	[mol N-Eq.]	1.39E-02	0.00E+00	3.81E-05	4.18E-05	8.75E-06	-8.54E-04
POCP	[kg NMVOC-Eq.]	3.28E-03	0.00E+00	6.78E-06	6.91E-06	2.49E-06	-3.64E-04
ADPE	[kg Sb-Eq.]	6.70E-07	0.00E+00	1.38E-10	1.22E-10	3.58E-11	-1.20E-06
ADPF	[MJ]	1.89E+01	0.00E+00	2.65E-02	2.25E-02	8.63E-03	-2.61E+00
WDP	[m ³ world-Eq deprived]	5.94E-01	0.00E+00	9.47E-06	7.17E-03	6.17E-05	-1.72E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE32 PE25 (0.52 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.92E+01	0.00E+00	2.00E-03	5.69E-03	1.41E-03	-8.01E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.04E+01	0.00E+00	2.00E-03	5.69E-03	1.41E-03	-8.01E-02
PENRE	[MJ]	1.74E+01	0.00E+00	2.65E-02	1.03E+00	8.63E-03	-2.61E+00
PENRM	[MJ]	1.52E+00	0.00E+00	0.00E+00	-1.01E+00	0.00E+00	0.00E+00
PENRT	[MJ]	1.89E+01	0.00E+00	2.65E-02	2.25E-02	8.63E-03	-2.61E+00
SM	[kg]	3.99E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.22E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.98E-02	0.00E+00	9.89E-07	1.69E-04	1.82E-06	-2.15E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE32 PE25 (0.52 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.16E-08	0.00E+00	1.06E-12	1.14E-11	1.87E-12	-1.61E-08
NHWD	[kg]	2.71E-01	0.00E+00	3.70E-06	4.48E-03	2.49E-02	2.52E-02
RWD	[kg]	5.68E-04	0.00E+00	5.01E-08	9.01E-07	1.20E-07	-3.74E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	4.67E-01	0.00E+00	0.00E+00	4.72E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.33E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.38E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE32 PE25 (0.52 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.32 ISO-FITTING PN16 CONNECTOR: FIT GJS PE32 PE20

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE32 PE20 (0.46 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.34E+00	0.00E+00	1.79E-03	9.12E-02	4.54E-04	-2.02E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.31E+00	0.00E+00	1.77E-03	9.12E-02	4.51E-04	-2.03E-01
GWP-biogenic	[kg CO ₂ -Eq.]	1.98E-02	0.00E+00	3.30E-06	3.26E-06	1.39E-06	8.43E-04
GWP-luluc	[kg CO ₂ -Eq.]	3.86E-03	0.00E+00	1.86E-05	3.78E-06	1.42E-06	-6.66E-05
ODP	[kg CFC11-Eq.]	1.90E-11	0.00E+00	2.99E-16	1.12E-14	1.46E-15	-7.02E-14
AP	[mol H ⁺ -Eq.]	3.85E-03	0.00E+00	6.45E-06	9.97E-06	2.82E-06	-4.56E-04
EP-freshwater	[kg P-Eq.]	1.01E-05	0.00E+00	4.86E-09	2.22E-09	6.38E-10	-6.90E-08
EP-marine	[kg N-Eq.]	1.12E-03	0.00E+00	3.07E-06	2.70E-06	6.86E-07	-7.81E-05
EP-terrestrial	[mol N-Eq.]	1.23E-02	0.00E+00	3.32E-05	4.67E-05	7.48E-06	-7.24E-04
POCP	[kg NMVOC-Eq.]	2.93E-03	0.00E+00	5.91E-06	7.67E-06	2.13E-06	-3.02E-04
ADPE	[kg Sb-Eq.]	5.89E-07	0.00E+00	1.20E-10	1.28E-10	3.06E-11	-9.71E-07
ADPF	[MJ]	1.74E+01	0.00E+00	2.31E-02	2.34E-02	7.38E-03	-2.26E+00
WDP	[m ³ world-Eq deprived]	5.44E-01	0.00E+00	8.25E-06	8.10E-03	5.27E-05	-1.49E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE32 PE20 (0.46 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.69E+01	0.00E+00	1.74E-03	5.98E-03	1.20E-03	-1.16E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.81E+01	0.00E+00	1.74E-03	5.98E-03	1.20E-03	-1.16E-01
PENRE	[MJ]	1.58E+01	0.00E+00	2.31E-02	1.15E+00	7.38E-03	-2.26E+00
PENRM	[MJ]	1.64E+00	0.00E+00	0.00E+00	-1.13E+00	0.00E+00	0.00E+00
PENRT	[MJ]	1.74E+01	0.00E+00	2.31E-02	2.34E-02	7.38E-03	-2.26E+00
SM	[kg]	3.48E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.84E-02
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.80E-02	0.00E+00	8.61E-07	1.91E-04	1.55E-06	-1.74E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE32 PE20 (0.46 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.90E-08	0.00E+00	9.27E-13	1.20E-11	1.59E-12	-1.31E-08
NHWD	[kg]	2.37E-01	0.00E+00	3.23E-06	4.63E-03	2.13E-02	2.03E-02
RWD	[kg]	5.07E-04	0.00E+00	4.36E-08	9.77E-07	1.02E-07	-4.22E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	4.07E-01	0.00E+00	0.00E+00	4.03E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.50E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.68E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE32 PE20 (0.46 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.33 ISO-FITTING PN16 CONNECTOR: FIT GJS PE25 PE20

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE25 PE20 (0.30 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	8.95E-01	0.00E+00	1.17E-03	6.23E-02	2.95E-04	-1.30E-01
GWP-fossil	[kg CO ₂ -Eq.]	8.79E-01	0.00E+00	1.15E-03	6.23E-02	2.93E-04	-1.30E-01
GWP-biogenic	[kg CO ₂ -Eq.]	1.34E-02	0.00E+00	2.15E-06	2.26E-06	9.03E-07	5.29E-04
GWP-luluc	[kg CO ₂ -Eq.]	2.59E-03	0.00E+00	1.21E-05	2.32E-06	9.22E-07	-4.40E-05
ODP	[kg CFC11-Eq.]	1.26E-11	0.00E+00	1.95E-16	6.89E-15	9.49E-16	-5.62E-14
AP	[mol H ⁺ -Eq.]	2.58E-03	0.00E+00	4.21E-06	6.64E-06	1.83E-06	-2.91E-04
EP-freshwater	[kg P-Eq.]	6.13E-06	0.00E+00	3.17E-09	1.47E-09	4.14E-10	-4.49E-08
EP-marine	[kg N-Eq.]	7.54E-04	0.00E+00	2.00E-06	1.79E-06	4.46E-07	-5.00E-05
EP-terrestrial	[mol N-Eq.]	8.32E-03	0.00E+00	2.16E-05	3.12E-05	4.86E-06	-4.64E-04
POCP	[kg NMVOC-Eq.]	2.00E-03	0.00E+00	3.85E-06	5.09E-06	1.38E-06	-1.93E-04
ADPE	[kg Sb-Eq.]	3.85E-07	0.00E+00	7.83E-11	7.91E-11	1.99E-11	-6.16E-07
ADPF	[MJ]	1.19E+01	0.00E+00	1.51E-02	1.44E-02	4.79E-03	-1.46E+00
WDP	[m ³ world-Eq deprived]	3.06E-01	0.00E+00	5.38E-06	5.49E-03	3.43E-05	-9.55E-03

GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE25 PE20 (0.30 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.12E+01	0.00E+00	1.14E-03	3.73E-03	7.82E-04	-8.11E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.24E+01	0.00E+00	1.14E-03	3.73E-03	7.82E-04	-8.11E-02
PENRE	[MJ]	1.06E+01	0.00E+00	1.51E-02	8.12E-01	4.79E-03	-1.46E+00
PENRM	[MJ]	1.31E+00	0.00E+00	0.00E+00	-7.97E-01	0.00E+00	0.00E+00
PENRT	[MJ]	1.19E+01	0.00E+00	1.51E-02	1.44E-02	4.79E-03	-1.46E+00
SM	[kg]	2.28E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.25E-02
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.06E-02	0.00E+00	5.62E-07	1.29E-04	1.01E-06	-1.11E-02

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE25 PE20 (0.30 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.28E-08	0.00E+00	6.05E-13	7.43E-12	1.04E-12	-8.31E-09
NHWD	[kg]	1.55E-01	0.00E+00	2.11E-06	2.82E-03	1.38E-02	1.29E-02
RWD	[kg]	3.49E-04	0.00E+00	2.85E-08	6.31E-07	6.65E-08	-2.84E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.66E-01	0.00E+00	0.00E+00	2.62E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.01E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.80E-01	0.00E+00	0.00E+00

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE25 PE20 (0.30 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.34 ISO-FITTING PN16 CONNECTOR: FIT GJS PE25 PE25

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE25 PE25 (0.35 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.01E+00	0.00E+00	1.36E-03	5.51E-02	3.51E-04	-1.58E-01
GWP-fossil	[kg CO ₂ -Eq.]	9.91E-01	0.00E+00	1.35E-03	5.51E-02	3.49E-04	-1.59E-01
GWP-biogenic	[kg CO ₂ -Eq.]	1.52E-02	0.00E+00	2.51E-06	1.96E-06	1.08E-06	7.21E-04
GWP-luluc	[kg CO ₂ -Eq.]	2.97E-03	0.00E+00	1.41E-05	2.31E-06	1.10E-06	-4.51E-05
ODP	[kg CFC11-Eq.]	1.44E-11	0.00E+00	2.28E-16	6.87E-15	1.13E-15	5.56E-15
AP	[mol H ⁺ -Eq.]	2.93E-03	0.00E+00	4.91E-06	6.04E-06	2.18E-06	-3.63E-04
EP-freshwater	[kg P-Eq.]	7.16E-06	0.00E+00	3.70E-09	1.35E-09	4.94E-10	-5.01E-08
EP-marine	[kg N-Eq.]	8.56E-04	0.00E+00	2.33E-06	1.64E-06	5.31E-07	-6.13E-05
EP-terrestrial	[mol N-Eq.]	9.44E-03	0.00E+00	2.52E-05	2.83E-05	5.79E-06	-5.64E-04
POCP	[kg NMVOC-Eq.]	2.25E-03	0.00E+00	4.49E-06	4.65E-06	1.65E-06	-2.40E-04
ADPE	[kg Sb-Eq.]	4.44E-07	0.00E+00	9.13E-11	7.80E-11	2.37E-11	-7.90E-07
ADPF	[MJ]	1.30E+01	0.00E+00	1.76E-02	1.43E-02	5.71E-03	-1.73E+00
WDP	[m ³ world-Eq deprived]	3.61E-01	0.00E+00	6.28E-06	4.90E-03	4.08E-05	-1.14E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE25 PE25 (0.35 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.29E+01	0.00E+00	1.33E-03	3.66E-03	9.31E-04	-5.64E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.41E+01	0.00E+00	1.33E-03	3.66E-03	9.31E-04	-5.64E-02
PENRE	[MJ]	1.18E+01	0.00E+00	1.76E-02	7.22E-01	5.71E-03	-1.73E+00
PENRM	[MJ]	1.22E+00	0.00E+00	0.00E+00	-7.08E-01	0.00E+00	0.00E+00
PENRT	[MJ]	1.30E+01	0.00E+00	1.76E-02	1.43E-02	5.71E-03	-1.73E+00
SM	[kg]	2.65E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.02E-02
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.24E-02	0.00E+00	6.55E-07	1.16E-04	1.20E-06	-1.42E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE25 PE25 (0.35 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.46E-08	0.00E+00	7.06E-13	7.33E-12	1.23E-12	-1.06E-08
NHWD	[kg]	1.80E-01	0.00E+00	2.46E-06	2.84E-03	1.64E-02	1.66E-02
RWD	[kg]	3.92E-04	0.00E+00	3.32E-08	5.94E-07	7.92E-08	-2.55E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.10E-01	0.00E+00	0.00E+00	3.12E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	9.05E-02	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.62E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE25 PE25 (0.35 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.35 ISO-FITTING PN16 CONNECTOR: FIT GJS PE20 PE20

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE20 PE20 (0.26 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	7.83E-01	0.00E+00	1.01E-03	6.41E-02	2.52E-04	-1.14E-01
GWP-fossil	[kg CO ₂ -Eq.]	7.69E-01	0.00E+00	9.99E-04	6.41E-02	2.50E-04	-1.14E-01
GWP-biogenic	[kg CO ₂ -Eq.]	1.17E-02	0.00E+00	1.87E-06	2.34E-06	7.70E-07	4.34E-04
GWP-luluc	[kg CO ₂ -Eq.]	2.26E-03	0.00E+00	1.05E-05	2.18E-06	7.86E-07	-4.24E-05
ODP	[kg CFC11-Eq.]	1.09E-11	0.00E+00	1.69E-16	6.46E-15	8.10E-16	-8.07E-14
AP	[mol H ⁺ -Eq.]	2.25E-03	0.00E+00	3.65E-06	6.69E-06	1.56E-06	-2.52E-04
EP-freshwater	[kg P-Eq.]	5.08E-06	0.00E+00	2.75E-09	1.47E-09	3.53E-10	-4.15E-08
EP-marine	[kg N-Eq.]	6.58E-04	0.00E+00	1.73E-06	1.80E-06	3.80E-07	-4.39E-05
EP-terrestrial	[mol N-Eq.]	7.27E-03	0.00E+00	1.87E-05	3.15E-05	4.15E-06	-4.10E-04
POCP	[kg NMVOC-Eq.]	1.76E-03	0.00E+00	3.34E-06	5.11E-06	1.18E-06	-1.68E-04
ADPE	[kg Sb-Eq.]	3.29E-07	0.00E+00	6.78E-11	7.49E-11	1.70E-11	-5.27E-07
ADPF	[MJ]	1.07E+01	0.00E+00	1.31E-02	1.35E-02	4.09E-03	-1.31E+00
WDP	[m ³ world-Eq deprived]	2.43E-01	0.00E+00	4.66E-06	5.60E-03	2.92E-05	-8.52E-03

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE20 PE20 (0.26 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	9.72E+00	0.00E+00	9.85E-04	3.54E-03	6.67E-04	-8.93E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.09E+01	0.00E+00	9.85E-04	3.54E-03	6.67E-04	-8.93E-02
PENRE	[MJ]	9.38E+00	0.00E+00	1.31E-02	8.28E-01	4.09E-03	-1.31E+00
PENRM	[MJ]	1.33E+00	0.00E+00	0.00E+00	-8.14E-01	0.00E+00	0.00E+00
PENRT	[MJ]	1.07E+01	0.00E+00	1.31E-02	1.35E-02	4.09E-03	-1.31E+00
SM	[kg]	1.95E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.33E-02
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	8.71E-03	0.00E+00	4.87E-07	1.32E-04	8.61E-07	-9.47E-03

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE20 PE20 (0.26 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.11E-08	0.00E+00	5.24E-13	7.04E-12	8.84E-13	-7.13E-09
NHWD	[kg]	1.33E-01	0.00E+00	1.82E-06	2.63E-03	1.18E-02	1.10E-02
RWD	[kg]	3.08E-04	0.00E+00	2.47E-08	6.20E-07	5.67E-08	-2.89E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.27E-01	0.00E+00	0.00E+00	2.23E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.02E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.83E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE20 PE20 (0.26 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.36 ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE75 AG2"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE75 AG2" (2.35 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	6.31E+00	0.00E+00	9.15E-03	1.75E-01	2.44E-03	-1.09E+00
GWP-fossil	[kg CO ₂ -Eq.]	6.20E+00	0.00E+00	9.03E-03	1.75E-01	2.42E-03	-1.10E+00
GWP-biogenic	[kg CO ₂ -Eq.]	9.56E-02	0.00E+00	1.69E-05	6.02E-06	7.47E-06	5.76E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.88E-02	0.00E+00	9.49E-05	9.38E-06	7.62E-06	-2.25E-04
ODP	[kg CFC11-Eq.]	9.44E-11	0.00E+00	1.53E-15	2.79E-14	7.85E-15	7.87E-13
AP	[mol H ⁺ -Eq.]	1.83E-02	0.00E+00	3.30E-05	2.05E-05	1.51E-05	-2.60E-03
EP-freshwater	[kg P-Eq.]	4.38E-05	0.00E+00	2.48E-08	4.67E-09	3.43E-09	-2.99E-07
EP-marine	[kg N-Eq.]	5.33E-03	0.00E+00	1.57E-05	5.61E-06	3.69E-06	-4.28E-04
EP-terrestrial	[mol N-Eq.]	5.87E-02	0.00E+00	1.69E-04	9.55E-05	4.02E-05	-3.88E-03
POCP	[kg NMVOC-Eq.]	1.36E-02	0.00E+00	3.02E-05	1.60E-05	1.14E-05	-1.71E-03
ADPE	[kg Sb-Eq.]	2.93E-06	0.00E+00	6.13E-10	3.11E-10	1.65E-10	-5.86E-06
ADPF	[MJ]	7.48E+01	0.00E+00	1.18E-01	5.80E-02	3.97E-02	-1.14E+01
WDP	[m ³ world-Eq deprived]	2.03E+00	0.00E+00	4.21E-05	1.60E-02	2.83E-04	-7.64E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE75 AG2" (2.35 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	8.41E+01	0.00E+00	8.90E-03	1.44E-02	6.46E-03	3.77E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	8.53E+01	0.00E+00	8.90E-03	1.44E-02	6.46E-03	3.77E-02
PENRE	[MJ]	7.16E+01	0.00E+00	1.18E-01	2.74E+00	3.97E-02	-1.14E+01
PENRM	[MJ]	3.20E+00	0.00E+00	0.00E+00	-2.68E+00	0.00E+00	0.00E+00
PENRT	[MJ]	7.48E+01	0.00E+00	1.18E-01	5.80E-02	3.97E-02	-1.14E+01
SM	[kg]	1.78E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.95E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	7.35E-02	0.00E+00	4.40E-06	3.79E-04	8.35E-06	-1.05E-01

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE75 AG2" (2.35 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	9.30E-08	0.00E+00	4.74E-12	2.91E-11	8.57E-12	-7.76E-08
NHWD	[kg]	1.22E+00	0.00E+00	1.65E-05	1.17E-02	1.14E-01	1.24E-01
RWD	[kg]	2.36E-03	0.00E+00	2.23E-07	2.17E-06	5.50E-07	-8.38E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.10E+00	0.00E+00	0.00E+00	2.17E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	3.00E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	5.37E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE75 AG2" (2.35 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.37 ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE60,3 AG2"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE60,3 AG2" (1.55 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	4.17E+00	0.00E+00	6.03E-03	1.72E-01	1.59E-03	-7.30E-01
GWP-fossil	[kg CO ₂ -Eq.]	4.09E+00	0.00E+00	5.96E-03	1.72E-01	1.58E-03	-7.34E-01
GWP-biogenic	[kg CO ₂ -Eq.]	6.30E-02	0.00E+00	1.11E-05	6.04E-06	4.85E-06	3.65E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.24E-02	0.00E+00	6.26E-05	7.88E-06	4.95E-06	-1.73E-04
ODP	[kg CFC11-Eq.]	6.22E-11	0.00E+00	1.01E-15	2.34E-14	5.10E-15	3.30E-13
AP	[mol H ⁺ -Eq.]	1.21E-02	0.00E+00	2.17E-05	1.93E-05	9.84E-06	-1.72E-03
EP-freshwater	[kg P-Eq.]	2.94E-05	0.00E+00	1.64E-08	4.32E-09	2.23E-09	-2.12E-07
EP-marine	[kg N-Eq.]	3.51E-03	0.00E+00	1.03E-05	5.23E-06	2.40E-06	-2.85E-04
EP-terrestrial	[mol N-Eq.]	3.87E-02	0.00E+00	1.12E-04	9.00E-05	2.61E-05	-2.60E-03
POCP	[kg NMVOC-Eq.]	9.00E-03	0.00E+00	1.99E-05	1.49E-05	7.43E-06	-1.13E-03
ADPE	[kg Sb-Eq.]	1.92E-06	0.00E+00	4.04E-10	2.64E-10	1.07E-10	-3.82E-06
ADPF	[MJ]	5.05E+01	0.00E+00	7.79E-02	4.88E-02	2.58E-02	-7.77E+00
WDP	[m ³ world-Eq deprived]	1.40E+00	0.00E+00	2.78E-05	1.54E-02	1.84E-04	-5.17E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE60,3 AG2" (1.55 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	5.53E+01	0.00E+00	5.87E-03	1.23E-02	4.20E-03	-8.69E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	5.65E+01	0.00E+00	5.87E-03	1.23E-02	4.20E-03	-8.69E-02
PENRE	[MJ]	4.77E+01	0.00E+00	7.79E-02	2.39E+00	2.58E-02	-7.77E+00
PENRM	[MJ]	2.85E+00	0.00E+00	0.00E+00	-2.34E+00	0.00E+00	0.00E+00
PENRT	[MJ]	5.05E+01	0.00E+00	7.79E-02	4.88E-02	2.58E-02	-7.77E+00
SM	[kg]	1.16E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.87E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	5.01E-02	0.00E+00	2.90E-06	3.64E-04	5.43E-06	-6.83E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE60,3 AG2" (1.55 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	6.12E-08	0.00E+00	3.13E-12	2.48E-11	5.57E-12	-5.07E-08
NHWD	[kg]	7.91E-01	0.00E+00	1.09E-05	9.72E-03	7.42E-02	8.04E-02
RWD	[kg]	1.57E-03	0.00E+00	1.47E-07	1.95E-06	3.58E-07	-8.02E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.36E+00	0.00E+00	0.00E+00	1.41E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.86E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	5.12E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 EXTERNAL THREAD: FIT GJS PE60,3 AG2" (1.55 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.38 ISO-FITTING PN16 CONNECTOR: FIT GJS PE75 PE75

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE75 PE75 (3.20 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	9.02E+00	0.00E+00	1.25E-02	3.36E-01	3.28E-03	-1.35E+00
GWP-fossil	[kg CO ₂ -Eq.]	8.86E+00	0.00E+00	1.23E-02	3.36E-01	3.26E-03	-1.35E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.34E-01	0.00E+00	2.30E-05	1.15E-05	1.00E-05	6.61E-03
GWP-luluc	[kg CO ₂ -Eq.]	2.61E-02	0.00E+00	1.29E-04	1.80E-05	1.02E-05	-3.32E-04
ODP	[kg CFC11-Eq.]	1.32E-10	0.00E+00	2.08E-15	5.34E-14	1.06E-14	4.98E-13
AP	[mol H ⁺ -Eq.]	2.59E-02	0.00E+00	4.49E-05	3.94E-05	2.03E-05	-3.15E-03
EP-freshwater	[kg P-Eq.]	6.82E-05	0.00E+00	3.38E-08	8.95E-09	4.61E-09	-3.98E-07
EP-marine	[kg N-Eq.]	7.50E-03	0.00E+00	2.13E-05	1.08E-05	4.96E-06	-5.25E-04
EP-terrestrial	[mol N-Eq.]	8.26E-02	0.00E+00	2.31E-04	1.83E-04	5.41E-05	-4.80E-03
POCP	[kg NMVOC-Eq.]	1.92E-02	0.00E+00	4.11E-05	3.06E-05	1.54E-05	-2.08E-03
ADPE	[kg Sb-Eq.]	4.15E-06	0.00E+00	8.35E-10	5.96E-10	2.21E-10	-6.97E-06
ADPF	[MJ]	1.08E+02	0.00E+00	1.61E-01	1.11E-01	5.33E-02	-1.44E+01
WDP	[m ³ world-Eq deprived]	3.55E+00	0.00E+00	5.74E-05	3.07E-02	3.81E-04	-9.57E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE75 PE75 (3.20 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.17E+02	0.00E+00	1.21E-02	2.77E-02	8.69E-03	-2.23E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.18E+02	0.00E+00	1.21E-02	2.77E-02	8.69E-03	-2.23E-01
PENRE	[MJ]	1.03E+02	0.00E+00	1.61E-01	4.70E+00	5.33E-02	-1.44E+01
PENRM	[MJ]	5.10E+00	0.00E+00	0.00E+00	-4.59E+00	0.00E+00	0.00E+00
PENRT	[MJ]	1.08E+02	0.00E+00	1.61E-01	1.11E-01	5.33E-02	-1.44E+01
SM	[kg]	2.50E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.08E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.19E-01	0.00E+00	5.99E-06	7.27E-04	1.12E-05	-1.25E-01

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE75 PE75 (3.20 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.30E-07	0.00E+00	6.45E-12	5.59E-11	1.15E-11	-9.28E-08
NHWD	[kg]	1.71E+00	0.00E+00	2.25E-05	2.23E-02	1.54E-01	1.47E-01
RWD	[kg]	3.31E-03	0.00E+00	3.04E-07	4.17E-06	7.40E-07	-1.61E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.94E+00	0.00E+00	0.00E+00	2.91E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	5.75E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.03E+00	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE75 PE75 (3.20 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.39 ISO-FITTING PN16 CONNECTOR: FIT GJS PE63 PE50

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE63 PE50 (1.70 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	4.79E+00	0.00E+00	6.62E-03	3.05E-01	1.69E-03	-7.57E-01
GWP-fossil	[kg CO ₂ -Eq.]	4.71E+00	0.00E+00	6.53E-03	3.05E-01	1.68E-03	-7.60E-01
GWP-biogenic	[kg CO ₂ -Eq.]	7.02E-02	0.00E+00	1.22E-05	1.06E-05	5.17E-06	3.27E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.37E-02	0.00E+00	6.86E-05	1.51E-05	5.28E-06	-2.37E-04
ODP	[kg CFC11-Eq.]	6.88E-11	0.00E+00	1.11E-15	4.49E-14	5.44E-15	-1.57E-13
AP	[mol H ⁺ -Eq.]	1.37E-02	0.00E+00	2.39E-05	3.49E-05	1.05E-05	-1.72E-03
EP-freshwater	[kg P-Eq.]	4.14E-05	0.00E+00	1.80E-08	7.89E-09	2.37E-09	-2.52E-07
EP-marine	[kg N-Eq.]	3.94E-03	0.00E+00	1.13E-05	9.52E-06	2.55E-06	-2.93E-04
EP-terrestrial	[mol N-Eq.]	4.34E-02	0.00E+00	1.23E-04	1.63E-04	2.78E-05	-2.71E-03
POCP	[kg NMVOC-Eq.]	1.02E-02	0.00E+00	2.18E-05	2.71E-05	7.92E-06	-1.14E-03
ADPE	[kg Sb-Eq.]	2.18E-06	0.00E+00	4.43E-10	5.03E-10	1.14E-10	-3.69E-06
ADPF	[MJ]	6.00E+01	0.00E+00	8.54E-02	9.34E-02	2.75E-02	-8.41E+00
WDP	[m ³ world-Eq deprived]	2.46E+00	0.00E+00	3.05E-05	2.76E-02	1.96E-04	-5.53E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE63 PE50 (1.70 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	6.11E+01	0.00E+00	6.44E-03	2.34E-02	4.48E-03	-3.76E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	6.23E+01	0.00E+00	6.44E-03	2.34E-02	4.48E-03	-3.76E-01
PENRE	[MJ]	5.59E+01	0.00E+00	8.54E-02	3.65E+00	2.75E-02	-8.41E+00
PENRM	[MJ]	4.07E+00	0.00E+00	0.00E+00	-3.56E+00	0.00E+00	0.00E+00
PENRT	[MJ]	6.00E+01	0.00E+00	8.54E-02	9.34E-02	2.75E-02	-8.41E+00
SM	[kg]	1.28E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.75E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	7.64E-02	0.00E+00	3.18E-06	6.52E-04	5.79E-06	-6.63E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE63 PE50 (1.70 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	6.77E-08	0.00E+00	3.43E-12	4.72E-11	5.93E-12	-4.96E-08
NHWD	[kg]	8.74E-01	0.00E+00	1.19E-05	1.87E-02	7.91E-02	7.73E-02
RWD	[kg]	1.74E-03	0.00E+00	1.61E-07	3.61E-06	3.81E-07	-1.45E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.50E+00	0.00E+00	0.00E+00	1.50E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	5.15E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	9.21E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE63 PE50 (1.70 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.40 ISO-FITTING PN16 CONNECTOR: FIT GJS PE63 PE63

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	MNR	MNR	MNR	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE63 PE63 (2.80 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	7.52E+00	0.00E+00	1.09E-02	3.67E-01	2.84E-03	-1.33E+00
GWP-fossil	[kg CO ₂ -Eq.]	7.39E+00	0.00E+00	1.08E-02	3.67E-01	2.82E-03	-1.34E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.12E-01	0.00E+00	2.01E-05	1.29E-05	8.69E-06	6.43E-03
GWP-luluc	[kg CO ₂ -Eq.]	2.22E-02	0.00E+00	1.13E-04	1.75E-05	8.87E-06	-3.41E-04
ODP	[kg CFC11-Eq.]	1.11E-10	0.00E+00	1.82E-15	5.21E-14	9.14E-15	3.84E-13
AP	[mol H ⁺ -Eq.]	2.17E-02	0.00E+00	3.93E-05	4.16E-05	1.76E-05	-3.10E-03
EP-freshwater	[kg P-Eq.]	5.72E-05	0.00E+00	2.96E-08	9.38E-09	3.99E-09	-4.01E-07
EP-marine	[kg N-Eq.]	6.28E-03	0.00E+00	1.87E-05	1.13E-05	4.29E-06	-5.18E-04
EP-terrestrial	[mol N-Eq.]	6.92E-02	0.00E+00	2.02E-04	1.94E-04	4.68E-05	-4.75E-03
POCP	[kg NMVOC-Eq.]	1.61E-02	0.00E+00	3.59E-05	3.22E-05	1.33E-05	-2.05E-03
ADPE	[kg Sb-Eq.]	3.46E-06	0.00E+00	7.30E-10	5.85E-10	1.92E-10	-6.84E-06
ADPF	[MJ]	9.16E+01	0.00E+00	1.41E-01	1.09E-01	4.62E-02	-1.43E+01
WDP	[m ³ world-Eq deprived]	2.97E+00	0.00E+00	5.02E-05	3.31E-02	3.30E-04	-9.50E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE63 PE63 (2.80 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	9.91E+01	0.00E+00	1.06E-02	2.73E-02	7.53E-03	-2.83E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.00E+02	0.00E+00	1.06E-02	2.73E-02	7.53E-03	-2.83E-01
PENRE	[MJ]	8.64E+01	0.00E+00	1.41E-01	4.75E+00	4.62E-02	-1.43E+01
PENRM	[MJ]	5.15E+00	0.00E+00	0.00E+00	-4.64E+00	0.00E+00	0.00E+00
PENRT	[MJ]	9.16E+01	0.00E+00	1.41E-01	1.09E-01	4.62E-02	-1.43E+01
SM	[kg]	2.07E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.94E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.00E-01	0.00E+00	5.24E-06	7.82E-04	9.72E-06	-1.22E-01

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE63 PE63 (2.80 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.09E-07	0.00E+00	5.65E-12	5.49E-11	9.98E-12	-9.11E-08
NHWD	[kg]	1.42E+00	0.00E+00	1.96E-05	2.17E-02	1.33E-01	1.44E-01
RWD	[kg]	2.78E-03	0.00E+00	2.66E-07	4.26E-06	6.40E-07	-1.73E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.44E+00	0.00E+00	0.00E+00	2.52E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	6.16E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.10E+00	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE63 PE63 (2.80 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.41 ISO-FITTING PN16 CONNECTOR: FIT GJS PE50 PE40

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE50 PE40 (1.26 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	3.45E+00	0.00E+00	4.90E-03	2.22E-01	1.25E-03	-6.10E-01
GWP-fossil	[kg CO ₂ -Eq.]	3.39E+00	0.00E+00	4.84E-03	2.22E-01	1.25E-03	-6.13E-01
GWP-biogenic	[kg CO ₂ -Eq.]	5.07E-02	0.00E+00	9.05E-06	7.70E-06	3.84E-06	2.73E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.00E-02	0.00E+00	5.09E-05	1.10E-05	3.92E-06	-1.81E-04
ODP	[kg CFC11-Eq.]	4.98E-11	0.00E+00	8.20E-16	3.27E-14	4.04E-15	-3.34E-14
AP	[mol H ⁺ -Eq.]	9.87E-03	0.00E+00	1.77E-05	2.54E-05	7.78E-06	-1.40E-03
EP-freshwater	[kg P-Eq.]	2.97E-05	0.00E+00	1.33E-08	5.74E-09	1.76E-09	-1.97E-07
EP-marine	[kg N-Eq.]	2.85E-03	0.00E+00	8.40E-06	6.92E-06	1.90E-06	-2.37E-04
EP-terrestrial	[mol N-Eq.]	3.13E-02	0.00E+00	9.09E-05	1.18E-04	2.07E-05	-2.18E-03
POCP	[kg NMVOC-Eq.]	7.36E-03	0.00E+00	1.62E-05	1.97E-05	5.88E-06	-9.25E-04
ADPE	[kg Sb-Eq.]	1.57E-06	0.00E+00	3.29E-10	3.67E-10	8.47E-11	-3.03E-06
ADPF	[MJ]	4.32E+01	0.00E+00	6.33E-02	6.81E-02	2.04E-02	-6.71E+00
WDP	[m ³ world-Eq deprived]	1.75E+00	0.00E+00	2.26E-05	2.00E-02	1.46E-04	-4.43E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE50 PE40 (1.26 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	4.43E+01	0.00E+00	4.77E-03	1.71E-02	3.32E-03	-2.50E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	4.55E+01	0.00E+00	4.77E-03	1.71E-02	3.32E-03	-2.50E-01
PENRE	[MJ]	4.02E+01	0.00E+00	6.33E-02	2.57E+00	2.04E-02	-6.71E+00
PENRM	[MJ]	3.02E+00	0.00E+00	0.00E+00	-2.50E+00	0.00E+00	0.00E+00
PENRT	[MJ]	4.32E+01	0.00E+00	6.33E-02	6.81E-02	2.04E-02	-6.71E+00
SM	[kg]	9.18E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.07E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	5.47E-02	0.00E+00	2.36E-06	4.74E-04	4.29E-06	-5.43E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE50 PE40 (1.26 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	4.89E-08	0.00E+00	2.54E-12	3.44E-11	4.41E-12	-4.05E-08
NHWD	[kg]	6.27E-01	0.00E+00	8.84E-06	1.36E-02	5.87E-02	6.34E-02
RWD	[kg]	1.26E-03	0.00E+00	1.20E-07	2.63E-06	2.83E-07	-1.05E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.08E+00	0.00E+00	0.00E+00	1.11E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	3.74E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	6.69E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE50 PE40 (1.26 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.42 ISO-FITTING PN16 CONNECTOR: FIT GJS PE50 PE50

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE50 PE50 (1.47 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	4.15E+00	0.00E+00	5.72E-03	2.56E-01	1.46E-03	-6.58E-01
GWP-fossil	[kg CO ₂ -Eq.]	4.07E+00	0.00E+00	5.65E-03	2.56E-01	1.46E-03	-6.60E-01
GWP-biogenic	[kg CO ₂ -Eq.]	6.08E-02	0.00E+00	1.06E-05	8.84E-06	4.48E-06	2.87E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.19E-02	0.00E+00	5.93E-05	1.33E-05	4.57E-06	-2.03E-04
ODP	[kg CFC11-Eq.]	5.94E-11	0.00E+00	9.57E-16	3.95E-14	4.71E-15	-1.11E-13
AP	[mol H ⁺ -Eq.]	1.19E-02	0.00E+00	2.06E-05	2.97E-05	9.08E-06	-1.50E-03
EP-freshwater	[kg P-Eq.]	3.69E-05	0.00E+00	1.55E-08	6.74E-09	2.06E-09	-2.17E-07
EP-marine	[kg N-Eq.]	3.41E-03	0.00E+00	9.80E-06	8.12E-06	2.21E-06	-2.55E-04
EP-terrestrial	[mol N-Eq.]	3.76E-02	0.00E+00	1.06E-04	1.38E-04	2.41E-05	-2.35E-03
POCP	[kg NMVOC-Eq.]	8.81E-03	0.00E+00	1.89E-05	2.31E-05	6.86E-06	-9.92E-04
ADPE	[kg Sb-Eq.]	1.89E-06	0.00E+00	3.83E-10	4.41E-10	9.88E-11	-3.22E-06
ADPF	[MJ]	5.18E+01	0.00E+00	7.39E-02	8.23E-02	2.38E-02	-7.28E+00
WDP	[m ³ world-Eq deprived]	2.23E+00	0.00E+00	2.64E-05	2.33E-02	1.70E-04	-4.79E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE50 PE50 (1.47 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	5.28E+01	0.00E+00	5.57E-03	2.05E-02	3.88E-03	-3.12E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	5.40E+01	0.00E+00	5.57E-03	2.05E-02	3.88E-03	-3.12E-01
PENRE	[MJ]	4.84E+01	0.00E+00	7.39E-02	3.01E+00	2.38E-02	-7.28E+00
PENRM	[MJ]	3.44E+00	0.00E+00	0.00E+00	-2.93E+00	0.00E+00	0.00E+00
PENRT	[MJ]	5.18E+01	0.00E+00	7.39E-02	8.23E-02	2.38E-02	-7.28E+00
SM	[kg]	1.11E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.27E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	6.85E-02	0.00E+00	2.75E-06	5.51E-04	5.01E-06	-5.78E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE50 PE50 (1.47 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	5.85E-08	0.00E+00	2.96E-12	4.14E-11	5.14E-12	-4.32E-08
NHWD	[kg]	7.56E-01	0.00E+00	1.03E-05	1.65E-02	6.86E-02	6.74E-02
RWD	[kg]	1.50E-03	0.00E+00	1.39E-07	3.12E-06	3.30E-07	-1.23E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.30E+00	0.00E+00	0.00E+00	1.30E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	4.36E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	7.80E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE50 PE50 (1.47 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.43 ISO-FITTING PN16 CONNECTOR: FIT GJS PE50 PE32

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE50 PE32 (1.19 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	3.25E+00	0.00E+00	4.63E-03	1.86E-01	1.19E-03	-5.71E-01
GWP-fossil	[kg CO ₂ -Eq.]	3.19E+00	0.00E+00	4.57E-03	1.86E-01	1.19E-03	-5.73E-01
GWP-biogenic	[kg CO ₂ -Eq.]	4.82E-02	0.00E+00	8.55E-06	6.44E-06	3.66E-06	2.64E-03
GWP-luluc	[kg CO ₂ -Eq.]	9.51E-03	0.00E+00	4.80E-05	9.40E-06	3.73E-06	-1.60E-04
ODP	[kg CFC11-Eq.]	4.73E-11	0.00E+00	7.75E-16	2.79E-14	3.84E-15	4.96E-14
AP	[mol H ⁺ -Eq.]	9.35E-03	0.00E+00	1.67E-05	2.14E-05	7.41E-06	-1.32E-03
EP-freshwater	[kg P-Eq.]	2.72E-05	0.00E+00	1.26E-08	4.84E-09	1.68E-09	-1.79E-07
EP-marine	[kg N-Eq.]	2.70E-03	0.00E+00	7.93E-06	5.84E-06	1.80E-06	-2.22E-04
EP-terrestrial	[mol N-Eq.]	2.97E-02	0.00E+00	8.58E-05	9.97E-05	1.97E-05	-2.04E-03
POCP	[kg NMVOC-Eq.]	6.97E-03	0.00E+00	1.53E-05	1.66E-05	5.60E-06	-8.70E-04
ADPE	[kg Sb-Eq.]	1.48E-06	0.00E+00	3.10E-10	3.12E-10	8.06E-11	-2.87E-06
ADPF	[MJ]	4.04E+01	0.00E+00	5.98E-02	5.82E-02	1.94E-02	-6.22E+00
WDP	[m ³ world-Eq deprived]	1.55E+00	0.00E+00	2.13E-05	1.68E-02	1.39E-04	-4.11E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE50 PE32 (1.19 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	4.21E+01	0.00E+00	4.51E-03	1.45E-02	3.17E-03	-1.87E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	4.33E+01	0.00E+00	4.51E-03	1.45E-02	3.17E-03	-1.87E-01
PENRE	[MJ]	3.77E+01	0.00E+00	5.98E-02	2.22E+00	1.94E-02	-6.22E+00
PENRM	[MJ]	2.67E+00	0.00E+00	0.00E+00	-2.16E+00	0.00E+00	0.00E+00
PENRT	[MJ]	4.04E+01	0.00E+00	5.98E-02	5.82E-02	1.94E-02	-6.22E+00
SM	[kg]	8.75E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.91E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	4.95E-02	0.00E+00	2.23E-06	3.98E-04	4.09E-06	-5.15E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE50 PE32 (1.19 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	4.65E-08	0.00E+00	2.40E-12	2.93E-11	4.20E-12	-3.84E-08
NHWD	[kg]	5.98E-01	0.00E+00	8.35E-06	1.16E-02	5.59E-02	6.03E-02
RWD	[kg]	1.20E-03	0.00E+00	1.13E-07	2.23E-06	2.69E-07	-8.85E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.03E+00	0.00E+00	0.00E+00	1.06E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	3.14E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	5.63E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE50 PE32 (1.19 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.44 ISO-FITTING PN16 CONNECTOR: FIT GJS PE40 PE40

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE40 PE40 (1.03 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	2.82E+00	0.00E+00	4.02E-03	1.79E-01	1.03E-03	-4.99E-01
GWP-fossil	[kg CO ₂ -Eq.]	2.77E+00	0.00E+00	3.97E-03	1.79E-01	1.02E-03	-5.01E-01
GWP-biogenic	[kg CO ₂ -Eq.]	4.17E-02	0.00E+00	7.41E-06	6.29E-06	3.15E-06	2.25E-03
GWP-luluc	[kg CO ₂ -Eq.]	8.25E-03	0.00E+00	4.17E-05	8.29E-06	3.21E-06	-1.46E-04
ODP	[kg CFC11-Eq.]	4.10E-11	0.00E+00	6.72E-16	2.46E-14	3.31E-15	-1.12E-14
AP	[mol H ⁺ -Eq.]	8.11E-03	0.00E+00	1.45E-05	2.01E-05	6.38E-06	-1.14E-03
EP-freshwater	[kg P-Eq.]	2.28E-05	0.00E+00	1.09E-08	4.52E-09	1.45E-09	-1.60E-07
EP-marine	[kg N-Eq.]	2.34E-03	0.00E+00	6.88E-06	5.47E-06	1.55E-06	-1.93E-04
EP-terrestrial	[mol N-Eq.]	2.58E-02	0.00E+00	7.44E-05	9.40E-05	1.70E-05	-1.78E-03
POCP	[kg NMVOC-Eq.]	6.07E-03	0.00E+00	1.32E-05	1.56E-05	4.82E-06	-7.56E-04
ADPE	[kg Sb-Eq.]	1.28E-06	0.00E+00	2.69E-10	2.77E-10	6.94E-11	-2.48E-06
ADPF	[MJ]	3.55E+01	0.00E+00	5.19E-02	5.13E-02	1.67E-02	-5.47E+00
WDP	[m ³ world-Eq deprived]	1.27E+00	0.00E+00	1.85E-05	1.61E-02	1.19E-04	-3.61E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE40 PE40 (1.03 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	3.64E+01	0.00E+00	3.91E-03	1.30E-02	2.73E-03	-1.95E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	3.76E+01	0.00E+00	3.91E-03	1.30E-02	2.73E-03	-1.95E-01
PENRE	[MJ]	3.29E+01	0.00E+00	5.19E-02	2.15E+00	1.67E-02	-5.47E+00
PENRM	[MJ]	2.61E+00	0.00E+00	0.00E+00	-2.10E+00	0.00E+00	0.00E+00
PENRT	[MJ]	3.55E+01	0.00E+00	5.19E-02	5.13E-02	1.67E-02	-5.47E+00
SM	[kg]	7.53E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.52E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	4.12E-02	0.00E+00	1.93E-06	3.80E-04	3.52E-06	-4.45E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE40 PE40 (1.03 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	4.03E-08	0.00E+00	2.08E-12	2.60E-11	3.61E-12	-3.32E-08
NHWD	[kg]	5.14E-01	0.00E+00	7.24E-06	1.02E-02	4.82E-02	5.20E-02
RWD	[kg]	1.04E-03	0.00E+00	9.79E-08	2.04E-06	2.32E-07	-8.40E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	8.85E-01	0.00E+00	0.00E+00	9.14E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.98E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	5.34E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE40 PE40 (1.03 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.45 ISO-FITTING PN16 CONNECTOR: FIT GJS PE40 PE32

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE40 PE32 (0.79 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	2.15E+00	0.00E+00	3.07E-03	1.32E-01	7.90E-04	-3.79E-01
GWP-fossil	[kg CO ₂ -Eq.]	2.11E+00	0.00E+00	3.04E-03	1.32E-01	7.85E-04	-3.81E-01
GWP-biogenic	[kg CO ₂ -Eq.]	3.23E-02	0.00E+00	5.67E-06	4.82E-06	2.42E-06	1.75E-03
GWP-luluc	[kg CO ₂ -Eq.]	6.39E-03	0.00E+00	3.19E-05	4.54E-06	2.47E-06	-1.07E-04
ODP	[kg CFC11-Eq.]	3.17E-11	0.00E+00	5.14E-16	1.35E-14	2.54E-15	2.78E-14
AP	[mol H ⁺ -Eq.]	6.21E-03	0.00E+00	1.11E-05	1.38E-05	4.90E-06	-8.74E-04
EP-freshwater	[kg P-Eq.]	1.35E-05	0.00E+00	8.35E-09	3.03E-09	1.11E-09	-1.19E-07
EP-marine	[kg N-Eq.]	1.81E-03	0.00E+00	5.27E-06	3.71E-06	1.19E-06	-1.47E-04
EP-terrestrial	[mol N-Eq.]	1.99E-02	0.00E+00	5.70E-05	6.51E-05	1.30E-05	-1.35E-03
POCP	[kg NMVOC-Eq.]	4.69E-03	0.00E+00	1.01E-05	1.06E-05	3.70E-06	-5.77E-04
ADPE	[kg Sb-Eq.]	9.57E-07	0.00E+00	2.06E-10	1.56E-10	5.33E-11	-1.91E-06
ADPF	[MJ]	2.72E+01	0.00E+00	3.97E-02	2.81E-02	1.28E-02	-4.13E+00
WDP	[m ³ world-Eq deprived]	5.72E-01	0.00E+00	1.42E-05	1.15E-02	9.18E-05	-2.73E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE40 PE32 (0.79 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.82E+01	0.00E+00	2.99E-03	7.36E-03	2.09E-03	-1.27E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.94E+01	0.00E+00	2.99E-03	7.36E-03	2.09E-03	-1.27E-01
PENRE	[MJ]	2.50E+01	0.00E+00	3.97E-02	1.76E+00	1.28E-02	-4.13E+00
PENRM	[MJ]	2.25E+00	0.00E+00	0.00E+00	-1.74E+00	0.00E+00	0.00E+00
PENRT	[MJ]	2.72E+01	0.00E+00	3.97E-02	2.81E-02	1.28E-02	-4.13E+00
SM	[kg]	5.79E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.93E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	2.22E-02	0.00E+00	1.48E-06	2.72E-04	2.71E-06	-3.41E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE40 PE32 (0.79 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	3.14E-08	0.00E+00	1.59E-12	1.46E-11	2.78E-12	-2.55E-08
NHWD	[kg]	3.95E-01	0.00E+00	5.54E-06	5.48E-03	3.70E-02	4.00E-02
RWD	[kg]	8.21E-04	0.00E+00	7.49E-08	1.28E-06	1.78E-07	-5.94E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	6.80E-01	0.00E+00	0.00E+00	7.02E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.11E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	3.78E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE40 PE32 (0.79 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.46 ISO-FITTING PN16 CONNECTOR: FIT GJS PE90 PE75

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE90 PE75 (3.30 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	9.34E+00	0.00E+00	1.28E-02	3.70E-01	3.37E-03	-1.38E+00
GWP-fossil	[kg CO ₂ -Eq.]	9.18E+00	0.00E+00	1.27E-02	3.70E-01	3.35E-03	-1.39E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.38E-01	0.00E+00	2.37E-05	1.27E-05	1.03E-05	6.69E-03
GWP-luluc	[kg CO ₂ -Eq.]	2.69E-02	0.00E+00	1.33E-04	1.97E-05	1.05E-05	-3.52E-04
ODP	[kg CFC11-Eq.]	1.36E-10	0.00E+00	2.15E-15	5.85E-14	1.09E-14	4.17E-13
AP	[mol H ⁺ -Eq.]	2.68E-02	0.00E+00	4.63E-05	4.32E-05	2.09E-05	-3.22E-03
EP-freshwater	[kg P-Eq.]	7.19E-05	0.00E+00	3.49E-08	9.82E-09	4.74E-09	-4.15E-07
EP-marine	[kg N-Eq.]	7.75E-03	0.00E+00	2.20E-05	1.18E-05	5.10E-06	-5.38E-04
EP-terrestrial	[mol N-Eq.]	8.53E-02	0.00E+00	2.38E-04	2.01E-04	5.56E-05	-4.92E-03
POCP	[kg NMVOC-Eq.]	1.98E-02	0.00E+00	4.24E-05	3.36E-05	1.58E-05	-2.12E-03
ADPE	[kg Sb-Eq.]	4.29E-06	0.00E+00	8.61E-10	6.53E-10	2.28E-10	-7.11E-06
ADPF	[MJ]	1.13E+02	0.00E+00	1.66E-01	1.22E-01	5.48E-02	-1.48E+01
WDP	[m ³ world-Eq deprived]	3.82E+00	0.00E+00	5.92E-05	3.37E-02	3.92E-04	-9.85E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE90 PE75 (3.30 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.21E+02	0.00E+00	1.25E-02	3.03E-02	8.94E-03	-2.83E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.22E+02	0.00E+00	1.25E-02	3.03E-02	8.94E-03	-2.83E-01
PENRE	[MJ]	1.07E+02	0.00E+00	1.66E-01	5.05E+00	5.48E-02	-1.48E+01
PENRM	[MJ]	5.44E+00	0.00E+00	0.00E+00	-4.93E+00	0.00E+00	0.00E+00
PENRT	[MJ]	1.13E+02	0.00E+00	1.66E-01	1.22E-01	5.48E-02	-1.48E+01
SM	[kg]	2.58E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.21E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.27E-01	0.00E+00	6.18E-06	7.98E-04	1.16E-05	-1.27E-01

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE90 PE75 (3.30 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.34E-07	0.00E+00	6.65E-12	6.12E-11	1.18E-11	-9.47E-08
NHWD	[kg]	1.76E+00	0.00E+00	2.32E-05	2.45E-02	1.58E-01	1.50E-01
RWD	[kg]	3.41E-03	0.00E+00	3.13E-07	4.57E-06	7.60E-07	-1.77E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.04E+00	0.00E+00	0.00E+00	3.00E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	6.32E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.13E+00	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE90 PE75 (3.30 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.47 ISO-FITTING PN16 CONNECTOR: FIT GJS PE75 PE63

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE75 PE63 (3.75 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.00E+01	0.00E+00	1.46E-02	3.17E-01	3.88E-03	-1.75E+00
GWP-fossil	[kg CO ₂ -Eq.]	9.86E+00	0.00E+00	1.44E-02	3.17E-01	3.85E-03	-1.76E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.52E-01	0.00E+00	2.69E-05	1.09E-05	1.19E-05	9.09E-03
GWP-luluc	[kg CO ₂ -Eq.]	2.99E-02	0.00E+00	1.51E-04	1.70E-05	1.21E-05	-3.78E-04
ODP	[kg CFC11-Eq.]	1.50E-10	0.00E+00	2.44E-15	5.07E-14	1.25E-14	1.12E-12
AP	[mol H ⁺ -Eq.]	2.92E-02	0.00E+00	5.26E-05	3.72E-05	2.40E-05	-4.16E-03
EP-freshwater	[kg P-Eq.]	7.24E-05	0.00E+00	3.96E-08	8.45E-09	5.45E-09	-4.88E-07
EP-marine	[kg N-Eq.]	8.45E-03	0.00E+00	2.50E-05	1.02E-05	5.86E-06	-6.85E-04
EP-terrestrial	[mol N-Eq.]	9.30E-02	0.00E+00	2.70E-04	1.73E-04	6.39E-05	-6.23E-03
POCP	[kg NMVOC-Eq.]	2.15E-02	0.00E+00	4.81E-05	2.89E-05	1.82E-05	-2.73E-03
ADPE	[kg Sb-Eq.]	4.67E-06	0.00E+00	9.78E-10	5.64E-10	2.62E-10	-9.32E-06
ADPF	[MJ]	1.19E+02	0.00E+00	1.88E-01	1.05E-01	6.30E-02	-1.84E+01
WDP	[m ³ world-Eq deprived]	3.51E+00	0.00E+00	6.73E-05	2.89E-02	4.50E-04	-1.23E-01

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE75 PE63 (3.75 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.34E+02	0.00E+00	1.42E-02	2.62E-02	1.03E-02	-2.07E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.35E+02	0.00E+00	1.42E-02	2.62E-02	1.03E-02	-2.07E-02
PENRE	[MJ]	1.14E+02	0.00E+00	1.88E-01	4.66E+00	6.30E-02	-1.84E+01
PENRM	[MJ]	5.07E+00	0.00E+00	0.00E+00	-4.56E+00	0.00E+00	0.00E+00
PENRT	[MJ]	1.19E+02	0.00E+00	1.88E-01	1.05E-01	6.30E-02	-1.84E+01
SM	[kg]	2.83E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.46E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.24E-01	0.00E+00	7.02E-06	6.85E-04	1.33E-05	-1.67E-01

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE75 PE63 (3.75 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.47E-07	0.00E+00	7.56E-12	5.30E-11	1.36E-11	-1.24E-07
NHWD	[kg]	1.93E+00	0.00E+00	2.63E-05	2.12E-02	1.81E-01	1.97E-01
RWD	[kg]	3.73E-03	0.00E+00	3.56E-07	3.94E-06	8.74E-07	-1.52E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.34E+00	0.00E+00	0.00E+00	3.44E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	5.43E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	9.71E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE75 PE63 (3.75 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.48 ISO-FITTING PN16 CONNECTOR: FIT GJS PE90 PE90

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE90 PE90 (4.68 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.26E+01	0.00E+00	1.82E-02	4.70E-01	4.81E-03	-2.20E+00
GWP-fossil	[kg CO ₂ -Eq.]	1.24E+01	0.00E+00	1.80E-02	4.70E-01	4.78E-03	-2.21E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.88E-01	0.00E+00	3.36E-05	1.61E-05	1.47E-05	1.11E-02
GWP-luluc	[kg CO ₂ -Eq.]	3.71E-02	0.00E+00	1.89E-04	2.50E-05	1.50E-05	-5.06E-04
ODP	[kg CFC11-Eq.]	1.86E-10	0.00E+00	3.05E-15	7.42E-14	1.55E-14	1.13E-12
AP	[mol H ⁺ -Eq.]	3.63E-02	0.00E+00	6.57E-05	5.49E-05	2.98E-05	-5.19E-03
EP-freshwater	[kg P-Eq.]	9.43E-05	0.00E+00	4.95E-08	1.25E-08	6.75E-09	-6.31E-07
EP-marine	[kg N-Eq.]	1.05E-02	0.00E+00	3.12E-05	1.50E-05	7.26E-06	-8.59E-04
EP-terrestrial	[mol N-Eq.]	1.16E-01	0.00E+00	3.37E-04	2.55E-04	7.92E-05	-7.83E-03
POCP	[kg NMVOC-Eq.]	2.68E-02	0.00E+00	6.01E-05	4.27E-05	2.25E-05	-3.41E-03
ADPE	[kg Sb-Eq.]	5.82E-06	0.00E+00	1.22E-09	8.27E-10	3.24E-10	-1.16E-05
ADPF	[MJ]	1.51E+02	0.00E+00	2.35E-01	1.54E-01	7.81E-02	-2.33E+01
WDP	[m ³ world-Eq deprived]	4.80E+00	0.00E+00	8.39E-05	4.28E-02	5.58E-04	-1.55E-01

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE90 PE90 (4.68 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.66E+02	0.00E+00	1.77E-02	3.84E-02	1.27E-02	-1.84E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.67E+02	0.00E+00	1.77E-02	3.84E-02	1.27E-02	-1.84E-01
PENRE	[MJ]	1.44E+02	0.00E+00	2.35E-01	6.43E+00	7.81E-02	-2.33E+01
PENRM	[MJ]	6.79E+00	0.00E+00	0.00E+00	-6.28E+00	0.00E+00	0.00E+00
PENRT	[MJ]	1.51E+02	0.00E+00	2.35E-01	1.54E-01	7.81E-02	-2.33E+01
SM	[kg]	3.51E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.17E+00
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.64E-01	0.00E+00	8.76E-06	1.01E-03	1.65E-05	-2.07E-01

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE90 PE90 (4.68 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.83E-07	0.00E+00	9.44E-12	7.76E-11	1.69E-11	-1.54E-07
NHWD	[kg]	2.40E+00	0.00E+00	3.28E-05	3.10E-02	2.25E-01	2.44E-01
RWD	[kg]	4.63E-03	0.00E+00	4.44E-07	5.80E-06	1.08E-06	-2.25E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	4.14E+00	0.00E+00	0.00E+00	4.27E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	8.02E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.44E+00	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 CONNECTOR: FIT GJS PE90 PE90 (4.68 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.49 ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE32 ZAK-SP34

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE32 ZAK-SP34 (0.51 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.43E+00	0.00E+00	1.98E-03	9.60E-02	5.06E-04	-2.49E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.41E+00	0.00E+00	1.96E-03	9.60E-02	5.03E-04	-2.50E-01
GWP-biogenic	[kg CO ₂ -Eq.]	2.11E-02	0.00E+00	3.66E-06	3.24E-06	1.55E-06	1.07E-03
GWP-luluc	[kg CO ₂ -Eq.]	4.15E-03	0.00E+00	2.06E-05	4.56E-06	1.58E-06	-7.81E-05
ODP	[kg CFC11-Eq.]	2.03E-11	0.00E+00	3.32E-16	1.39E-14	1.63E-15	-5.20E-14
AP	[mol H ⁺ -Eq.]	4.12E-03	0.00E+00	7.16E-06	1.10E-05	3.14E-06	-5.66E-04
EP-freshwater	[kg P-Eq.]	1.25E-05	0.00E+00	5.39E-09	2.31E-09	7.11E-10	-8.28E-08
EP-marine	[kg N-Eq.]	1.19E-03	0.00E+00	3.40E-06	2.94E-06	7.64E-07	-9.64E-05
EP-terrestrial	[mol N-Eq.]	1.31E-02	0.00E+00	3.68E-05	5.14E-05	8.34E-06	-8.91E-04
POCP	[kg NMVOC-Eq.]	3.13E-03	0.00E+00	6.55E-06	8.40E-06	2.37E-06	-3.75E-04
ADPE	[kg Sb-Eq.]	6.40E-07	0.00E+00	1.33E-10	1.55E-10	3.41E-11	-1.21E-06
ADPF	[MJ]	1.84E+01	0.00E+00	2.56E-02	2.90E-02	8.22E-03	-2.76E+00
WDP	[m ³ world-Eq deprived]	7.51E-01	0.00E+00	9.15E-06	8.77E-03	5.88E-05	-1.82E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE32 ZAK-SP34 (0.51 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.81E+01	0.00E+00	1.93E-03	7.26E-03	1.34E-03	-1.24E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.93E+01	0.00E+00	1.93E-03	7.26E-03	1.34E-03	-1.24E-01
PENRE	[MJ]	1.68E+01	0.00E+00	2.56E-02	1.14E+00	8.22E-03	-2.76E+00
PENRM	[MJ]	1.62E+00	0.00E+00	0.00E+00	-1.11E+00	0.00E+00	0.00E+00
PENRT	[MJ]	1.84E+01	0.00E+00	2.56E-02	2.90E-02	8.22E-03	-2.76E+00
SM	[kg]	3.72E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.23E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	2.32E-02	0.00E+00	9.55E-07	2.07E-04	1.73E-06	-2.18E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE32 ZAK-SP34 (0.51 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.03E-08	0.00E+00	1.03E-12	1.46E-11	1.78E-12	-1.63E-08
NHWD	[kg]	2.54E-01	0.00E+00	3.58E-06	5.59E-03	2.37E-02	2.54E-02
RWD	[kg]	5.32E-04	0.00E+00	4.84E-08	1.12E-06	1.14E-07	-4.77E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	4.36E-01	0.00E+00	0.00E+00	4.49E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE32 ZAK-SP34 (0.51 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.50 ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE20 ZAK-SP34

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE20 ZAK-SP34 (0.33 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	9.88E-01	0.00E+00	1.28E-03	7.37E-02	3.23E-04	-1.46E-01
GWP-fossil	[kg CO ₂ -Eq.]	9.71E-01	0.00E+00	1.27E-03	7.37E-02	3.21E-04	-1.46E-01
GWP-biogenic	[kg CO ₂ -Eq.]	1.45E-02	0.00E+00	2.37E-06	2.53E-06	9.88E-07	5.60E-04
GWP-luluc	[kg CO ₂ -Eq.]	2.82E-03	0.00E+00	1.33E-05	3.02E-06	1.01E-06	-5.34E-05
ODP	[kg CFC11-Eq.]	1.37E-11	0.00E+00	2.15E-16	9.31E-15	1.04E-15	-9.72E-14
AP	[mol H ⁺ -Eq.]	2.84E-03	0.00E+00	4.63E-06	8.17E-06	2.00E-06	-3.23E-04
EP-freshwater	[kg P-Eq.]	8.01E-06	0.00E+00	3.49E-09	1.66E-09	4.54E-10	-5.26E-08
EP-marine	[kg N-Eq.]	8.24E-04	0.00E+00	2.20E-06	2.16E-06	4.88E-07	-5.60E-05
EP-terrestrial	[mol N-Eq.]	9.09E-03	0.00E+00	2.38E-05	3.82E-05	5.32E-06	-5.23E-04
POCP	[kg NMVOC-Eq.]	2.19E-03	0.00E+00	4.24E-06	6.17E-06	1.51E-06	-2.15E-04
ADPE	[kg Sb-Eq.]	4.29E-07	0.00E+00	8.61E-11	1.05E-10	2.18E-11	-6.76E-07
ADPF	[MJ]	1.31E+01	0.00E+00	1.66E-02	1.94E-02	5.25E-03	-1.66E+00
WDP	[m ³ world-Eq deprived]	4.67E-01	0.00E+00	5.92E-06	6.65E-03	3.75E-05	-1.09E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE20 ZAK-SP34 (0.33 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.22E+01	0.00E+00	1.25E-03	4.92E-03	8.56E-04	-1.11E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.34E+01	0.00E+00	1.25E-03	4.92E-03	8.56E-04	-1.11E-01
PENRE	[MJ]	1.17E+01	0.00E+00	1.66E-02	9.70E-01	5.25E-03	-1.66E+00
PENRM	[MJ]	1.42E+00	0.00E+00	0.00E+00	-9.51E-01	0.00E+00	0.00E+00
PENRT	[MJ]	1.31E+01	0.00E+00	1.66E-02	1.94E-02	5.25E-03	-1.66E+00
SM	[kg]	2.50E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.84E-02
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.47E-02	0.00E+00	6.18E-07	1.57E-04	1.11E-06	-1.21E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE20 ZAK-SP34 (0.33 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.39E-08	0.00E+00	6.65E-13	9.89E-12	1.13E-12	-9.14E-09
NHWD	[kg]	1.70E-01	0.00E+00	2.32E-06	3.66E-03	1.51E-02	1.41E-02
RWD	[kg]	3.74E-04	0.00E+00	3.13E-08	7.92E-07	7.28E-08	-3.62E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.92E-01	0.00E+00	0.00E+00	2.87E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE20 ZAK-SP34 (0.33 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.51 ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE25 ZAK-SP46

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE25 ZAK-SP46 (0.50 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.38E+00	0.00E+00	1.95E-03	6.93E-02	5.07E-04	-2.40E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.36E+00	0.00E+00	1.92E-03	6.93E-02	5.04E-04	-2.41E-01
GWP-biogenic	[kg CO ₂ -Eq.]	2.09E-02	0.00E+00	3.59E-06	2.35E-06	1.55E-06	1.13E-03
GWP-luluc	[kg CO ₂ -Eq.]	4.11E-03	0.00E+00	2.02E-05	2.67E-06	1.58E-06	-6.47E-05
ODP	[kg CFC11-Eq.]	2.02E-11	0.00E+00	3.25E-16	8.40E-15	1.63E-15	4.20E-14
AP	[mol H ⁺ -Eq.]	4.03E-03	0.00E+00	7.02E-06	7.64E-06	3.14E-06	-5.57E-04
EP-freshwater	[kg P-Eq.]	9.65E-06	0.00E+00	5.29E-09	1.47E-09	7.12E-10	-7.41E-08
EP-marine	[kg N-Eq.]	1.18E-03	0.00E+00	3.33E-06	1.99E-06	7.66E-07	-9.35E-05
EP-terrestrial	[mol N-Eq.]	1.30E-02	0.00E+00	3.61E-05	3.58E-05	8.35E-06	-8.58E-04
POCP	[kg NMVOC-Eq.]	3.07E-03	0.00E+00	6.42E-06	5.70E-06	2.38E-06	-3.68E-04
ADPE	[kg Sb-Eq.]	6.19E-07	0.00E+00	1.30E-10	9.45E-11	3.42E-11	-1.22E-06
ADPF	[MJ]	1.74E+01	0.00E+00	2.51E-02	1.75E-02	8.24E-03	-2.60E+00
WDP	[m ³ world-Eq deprived]	4.68E-01	0.00E+00	8.97E-06	6.27E-03	5.89E-05	-1.72E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE25 ZAK-SP46 (0.50 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.80E+01	0.00E+00	1.89E-03	4.46E-03	1.34E-03	-6.67E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.92E+01	0.00E+00	1.89E-03	4.46E-03	1.34E-03	-6.67E-02
PENRE	[MJ]	1.59E+01	0.00E+00	2.51E-02	9.68E-01	8.24E-03	-2.60E+00
PENRM	[MJ]	1.46E+00	0.00E+00	0.00E+00	-9.51E-01	0.00E+00	0.00E+00
PENRT	[MJ]	1.74E+01	0.00E+00	2.51E-02	1.75E-02	8.24E-03	-2.60E+00
SM	[kg]	3.72E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.24E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.65E-02	0.00E+00	9.36E-07	1.48E-04	1.74E-06	-2.19E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE25 ZAK-SP46 (0.50 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.02E-08	0.00E+00	1.01E-12	8.95E-12	1.78E-12	-1.63E-08
NHWD	[kg]	2.53E-01	0.00E+00	3.51E-06	3.19E-03	2.37E-02	2.56E-02
RWD	[kg]	5.31E-04	0.00E+00	4.74E-08	7.23E-07	1.14E-07	-3.46E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	4.36E-01	0.00E+00	0.00E+00	4.50E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.23E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.20E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE25 ZAK-SP46 (0.50 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.52 ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE25 ZAK-SP34

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE25 ZAK-SP34 (0.39 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.14E+00	0.00E+00	1.52E-03	6.87E-02	3.89E-04	-1.77E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.11E+00	0.00E+00	1.50E-03	6.87E-02	3.87E-04	-1.78E-01
GWP-biogenic	[kg CO ₂ -Eq.]	1.69E-02	0.00E+00	2.80E-06	2.31E-06	1.19E-06	7.58E-04
GWP-luluc	[kg CO ₂ -Eq.]	3.28E-03	0.00E+00	1.57E-05	3.13E-06	1.22E-06	-5.61E-05
ODP	[kg CFC11-Eq.]	1.60E-11	0.00E+00	2.54E-16	9.67E-15	1.25E-15	-4.24E-14
AP	[mol H ⁺ -Eq.]	3.28E-03	0.00E+00	5.47E-06	7.85E-06	2.41E-06	-4.01E-04
EP-freshwater	[kg P-Eq.]	9.37E-06	0.00E+00	4.12E-09	1.59E-09	5.47E-10	-5.91E-08
EP-marine	[kg N-Eq.]	9.53E-04	0.00E+00	2.60E-06	2.07E-06	5.88E-07	-6.84E-05
EP-terrestrial	[mol N-Eq.]	1.05E-02	0.00E+00	2.81E-05	3.66E-05	6.41E-06	-6.33E-04
POCP	[kg NMVOC-Eq.]	2.51E-03	0.00E+00	5.01E-06	5.93E-06	1.82E-06	-2.66E-04
ADPE	[kg Sb-Eq.]	5.03E-07	0.00E+00	1.02E-10	1.08E-10	2.63E-11	-8.60E-07
ADPF	[MJ]	1.46E+01	0.00E+00	1.96E-02	2.01E-02	6.32E-03	-1.97E+00
WDP	[m ³ world-Eq deprived]	5.44E-01	0.00E+00	6.99E-06	6.28E-03	4.52E-05	-1.29E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE25 ZAK-SP34 (0.39 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.43E+01	0.00E+00	1.48E-03	5.05E-03	1.03E-03	-9.10E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.55E+01	0.00E+00	1.48E-03	5.05E-03	1.03E-03	-9.10E-02
PENRE	[MJ]	1.33E+01	0.00E+00	1.96E-02	8.70E-01	6.32E-03	-1.97E+00
PENRM	[MJ]	1.36E+00	0.00E+00	0.00E+00	-8.50E-01	0.00E+00	0.00E+00
PENRT	[MJ]	1.46E+01	0.00E+00	1.96E-02	2.01E-02	6.32E-03	-1.97E+00
SM	[kg]	2.95E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.72E-02
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.71E-02	0.00E+00	7.30E-07	1.48E-04	1.33E-06	-1.54E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE25 ZAK-SP34 (0.39 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.61E-08	0.00E+00	7.86E-13	1.02E-11	1.37E-12	-1.16E-08
NHWD	[kg]	2.01E-01	0.00E+00	2.74E-06	3.81E-03	1.82E-02	1.80E-02
RWD	[kg]	4.29E-04	0.00E+00	3.70E-08	7.83E-07	8.77E-08	-3.45E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.45E-01	0.00E+00	0.00E+00	3.46E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.23E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.19E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE25 ZAK-SP34 (0.39 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.53 ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE63 ZAK-SP46

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	MNR	MNR	MNR	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE63 ZAK-SP46 (1.41 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	3.94E+00	0.00E+00	5.49E-03	2.18E-01	1.42E-03	-6.30E-01
GWP-fossil	[kg CO ₂ -Eq.]	3.87E+00	0.00E+00	5.42E-03	2.18E-01	1.41E-03	-6.33E-01
GWP-biogenic	[kg CO ₂ -Eq.]	5.84E-02	0.00E+00	1.01E-05	7.54E-06	4.34E-06	2.85E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.14E-02	0.00E+00	5.69E-05	9.94E-06	4.43E-06	-1.83E-04
ODP	[kg CFC11-Eq.]	5.73E-11	0.00E+00	9.18E-16	3.00E-14	4.56E-15	-3.84E-15
AP	[mol H ⁺ -Eq.]	1.13E-02	0.00E+00	1.98E-05	2.46E-05	8.79E-06	-1.45E-03
EP-freshwater	[kg P-Eq.]	3.09E-05	0.00E+00	1.49E-08	5.30E-09	1.99E-09	-2.02E-07
EP-marine	[kg N-Eq.]	3.28E-03	0.00E+00	9.40E-06	6.61E-06	2.14E-06	-2.45E-04
EP-terrestrial	[mol N-Eq.]	3.61E-02	0.00E+00	1.02E-04	1.15E-04	2.34E-05	-2.25E-03
POCP	[kg NMVOC-Eq.]	8.44E-03	0.00E+00	1.81E-05	1.88E-05	6.64E-06	-9.57E-04
ADPE	[kg Sb-Eq.]	1.79E-06	0.00E+00	3.68E-10	3.37E-10	9.57E-11	-3.14E-06
ADPF	[MJ]	4.88E+01	0.00E+00	7.09E-02	6.25E-02	2.30E-02	-6.91E+00
WDP	[m ³ world-Eq deprived]	1.68E+00	0.00E+00	2.53E-05	1.97E-02	1.65E-04	-4.56E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE63 ZAK-SP46 (1.41 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	5.09E+01	0.00E+00	5.34E-03	1.57E-02	3.76E-03	-2.40E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	5.21E+01	0.00E+00	5.34E-03	1.57E-02	3.76E-03	-2.40E-01
PENRE	[MJ]	4.55E+01	0.00E+00	7.09E-02	2.83E+00	2.30E-02	-6.91E+00
PENRM	[MJ]	3.28E+00	0.00E+00	0.00E+00	-2.76E+00	0.00E+00	0.00E+00
PENRT	[MJ]	4.88E+01	0.00E+00	7.09E-02	6.25E-02	2.30E-02	-6.91E+00
SM	[kg]	1.07E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.19E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	5.50E-02	0.00E+00	2.64E-06	4.65E-04	4.85E-06	-5.63E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE63 ZAK-SP46 (1.41 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	5.65E-08	0.00E+00	2.84E-12	3.17E-11	4.98E-12	-4.21E-08
NHWD	[kg]	7.29E-01	0.00E+00	9.89E-06	1.22E-02	6.64E-02	6.59E-02
RWD	[kg]	1.45E-03	0.00E+00	1.34E-07	2.47E-06	3.20E-07	-1.05E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.26E+00	0.00E+00	0.00E+00	1.26E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	3.73E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	6.67E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE63 ZAK-SP46 (1.41 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.54 ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE40 ZAK-SP34

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE40 ZAK-SP34 (0.72 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	2.04E+00	0.00E+00	2.81E-03	1.30E-01	7.20E-04	-3.36E-01
GWP-fossil	[kg CO ₂ -Eq.]	2.00E+00	0.00E+00	2.78E-03	1.30E-01	7.15E-04	-3.38E-01
GWP-biogenic	[kg CO ₂ -Eq.]	3.00E-02	0.00E+00	5.19E-06	4.43E-06	2.20E-06	1.46E-03
GWP-luluc	[kg CO ₂ -Eq.]	5.89E-03	0.00E+00	2.92E-05	6.07E-06	2.25E-06	-1.05E-04
ODP	[kg CFC11-Eq.]	2.91E-11	0.00E+00	4.71E-16	1.84E-14	2.32E-15	-6.17E-14
AP	[mol H ⁺ -Eq.]	5.85E-03	0.00E+00	1.01E-05	1.48E-05	4.46E-06	-7.66E-04
EP-freshwater	[kg P-Eq.]	1.71E-05	0.00E+00	7.64E-09	3.15E-09	1.01E-09	-1.11E-07
EP-marine	[kg N-Eq.]	1.69E-03	0.00E+00	4.82E-06	3.96E-06	1.09E-06	-1.30E-04
EP-terrestrial	[mol N-Eq.]	1.86E-02	0.00E+00	5.21E-05	6.89E-05	1.19E-05	-1.20E-03
POCP	[kg NMVOC-Eq.]	4.40E-03	0.00E+00	9.28E-06	1.13E-05	3.37E-06	-5.07E-04
ADPE	[kg Sb-Eq.]	9.17E-07	0.00E+00	1.89E-10	2.06E-10	4.86E-11	-1.65E-06
ADPF	[MJ]	2.58E+01	0.00E+00	3.63E-02	3.84E-02	1.17E-02	-3.73E+00
WDP	[m ³ world-Eq deprived]	1.00E+00	0.00E+00	1.30E-05	1.18E-02	8.36E-05	-2.45E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE40 ZAK-SP34 (0.72 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.59E+01	0.00E+00	2.74E-03	9.63E-03	1.91E-03	-1.62E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.71E+01	0.00E+00	2.74E-03	9.63E-03	1.91E-03	-1.62E-01
PENRE	[MJ]	2.38E+01	0.00E+00	3.63E-02	1.58E+00	1.17E-02	-3.73E+00
PENRM	[MJ]	2.06E+00	0.00E+00	0.00E+00	-1.54E+00	0.00E+00	0.00E+00
PENRT	[MJ]	2.58E+01	0.00E+00	3.63E-02	3.84E-02	1.17E-02	-3.73E+00
SM	[kg]	5.38E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.67E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	3.14E-02	0.00E+00	1.35E-06	2.78E-04	2.46E-06	-2.95E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE40 ZAK-SP34 (0.72 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.89E-08	0.00E+00	1.46E-12	1.94E-11	2.53E-12	-2.21E-08
NHWD	[kg]	3.67E-01	0.00E+00	5.07E-06	7.45E-03	3.37E-02	3.44E-02
RWD	[kg]	7.52E-04	0.00E+00	6.86E-08	1.49E-06	1.62E-07	-6.34E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	6.31E-01	0.00E+00	0.00E+00	6.39E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.25E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	4.03E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE40 ZAK-SP34 (0.72 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.55 ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE50 ZAK-SP46

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE50 ZAK-SP46 (1.08 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	3.07E+00	0.00E+00	4.20E-03	1.66E-01	1.09E-03	-4.68E-01
GWP-fossil	[kg CO ₂ -Eq.]	3.02E+00	0.00E+00	4.15E-03	1.66E-01	1.08E-03	-4.70E-01
GWP-biogenic	[kg CO ₂ -Eq.]	4.55E-02	0.00E+00	7.76E-06	5.66E-06	3.33E-06	2.09E-03
GWP-luluc	[kg CO ₂ -Eq.]	8.86E-03	0.00E+00	4.36E-05	8.01E-06	3.39E-06	-1.39E-04
ODP	[kg CFC11-Eq.]	4.43E-11	0.00E+00	7.03E-16	2.43E-14	3.50E-15	-3.15E-14
AP	[mol H ⁺ -Eq.]	8.84E-03	0.00E+00	1.52E-05	1.91E-05	6.74E-06	-1.07E-03
EP-freshwater	[kg P-Eq.]	2.51E-05	0.00E+00	1.14E-08	4.09E-09	1.53E-09	-1.51E-07
EP-marine	[kg N-Eq.]	2.56E-03	0.00E+00	7.20E-06	5.12E-06	1.64E-06	-1.81E-04
EP-terrestrial	[mol N-Eq.]	2.81E-02	0.00E+00	7.79E-05	8.89E-05	1.79E-05	-1.67E-03
POCP	[kg NMVOC-Eq.]	6.60E-03	0.00E+00	1.39E-05	1.46E-05	5.09E-06	-7.08E-04
ADPE	[kg Sb-Eq.]	1.40E-06	0.00E+00	2.82E-10	2.71E-10	7.33E-11	-2.32E-06
ADPF	[MJ]	3.81E+01	0.00E+00	5.43E-02	5.05E-02	1.77E-02	-5.15E+00
WDP	[m ³ world-Eq deprived]	1.42E+00	0.00E+00	1.94E-05	1.51E-02	1.26E-04	-3.39E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE50 ZAK-SP46 (1.08 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	3.94E+01	0.00E+00	4.09E-03	1.26E-02	2.88E-03	-1.95E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	4.06E+01	0.00E+00	4.09E-03	1.26E-02	2.88E-03	-1.95E-01
PENRE	[MJ]	3.55E+01	0.00E+00	5.43E-02	2.65E+00	1.77E-02	-5.15E+00
PENRM	[MJ]	2.60E+00	0.00E+00	0.00E+00	-2.60E+00	0.00E+00	0.00E+00
PENRT	[MJ]	3.81E+01	0.00E+00	5.43E-02	5.05E-02	1.77E-02	-5.15E+00
SM	[kg]	8.29E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.35E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	4.53E-02	0.00E+00	2.02E-06	3.58E-04	3.72E-06	-4.15E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE50 ZAK-SP46 (1.08 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	4.39E-08	0.00E+00	2.18E-12	2.55E-11	3.81E-12	-3.10E-08
NHWD	[kg]	5.65E-01	0.00E+00	7.58E-06	9.85E-03	5.09E-02	4.86E-02
RWD	[kg]	1.13E-03	0.00E+00	1.02E-07	1.95E-06	2.45E-07	-8.14E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	9.74E-01	0.00E+00	0.00E+00	9.65E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.89E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	5.17E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE50 ZAK-SP46 (1.08 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.56 ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE40 ZAK-SP46

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE40 ZAK-SP46 (0.75 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	2.16E+00	0.00E+00	2.92E-03	1.25E-01	7.51E-04	-3.21E-01
GWP-fossil	[kg CO ₂ -Eq.]	2.12E+00	0.00E+00	2.88E-03	1.25E-01	7.47E-04	-3.23E-01
GWP-biogenic	[kg CO ₂ -Eq.]	3.20E-02	0.00E+00	5.39E-06	4.28E-06	2.30E-06	1.39E-03
GWP-luluc	[kg CO ₂ -Eq.]	6.23E-03	0.00E+00	3.03E-05	5.37E-06	2.35E-06	-1.00E-04
ODP	[kg CFC11-Eq.]	3.10E-11	0.00E+00	4.88E-16	1.64E-14	2.42E-15	-6.09E-14
AP	[mol H ⁺ -Eq.]	6.22E-03	0.00E+00	1.05E-05	1.39E-05	4.66E-06	-7.31E-04
EP-freshwater	[kg P-Eq.]	1.67E-05	0.00E+00	7.93E-09	2.90E-09	1.06E-09	-1.06E-07
EP-marine	[kg N-Eq.]	1.80E-03	0.00E+00	5.00E-06	3.71E-06	1.13E-06	-1.24E-04
EP-terrestrial	[mol N-Eq.]	1.99E-02	0.00E+00	5.41E-05	6.51E-05	1.24E-05	-1.15E-03
POCP	[kg NMVOC-Eq.]	4.68E-03	0.00E+00	9.63E-06	1.06E-05	3.52E-06	-4.84E-04
ADPE	[kg Sb-Eq.]	9.71E-07	0.00E+00	1.96E-10	1.84E-10	5.07E-11	-1.57E-06
ADPF	[MJ]	2.72E+01	0.00E+00	3.77E-02	3.42E-02	1.22E-02	-3.56E+00
WDP	[m ³ world-Eq deprived]	9.06E-01	0.00E+00	1.35E-05	1.13E-02	8.72E-05	-2.34E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE40 ZAK-SP46 (0.75 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.76E+01	0.00E+00	2.84E-03	8.64E-03	1.99E-03	-1.56E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.88E+01	0.00E+00	2.84E-03	8.64E-03	1.99E-03	-1.56E-01
PENRE	[MJ]	2.51E+01	0.00E+00	3.77E-02	7.84E-01	1.22E-02	-3.56E+00
PENRM	[MJ]	2.13E+00	0.00E+00	0.00E+00	-7.50E-01	0.00E+00	0.00E+00
PENRT	[MJ]	2.72E+01	0.00E+00	3.77E-02	3.42E-02	1.22E-02	-3.56E+00
SM	[kg]	5.77E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.59E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	2.97E-02	0.00E+00	1.40E-06	2.66E-04	2.57E-06	-2.82E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE40 ZAK-SP46 (0.75 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	3.09E-08	0.00E+00	1.51E-12	1.74E-11	2.64E-12	-2.11E-08
NHWD	[kg]	3.94E-01	0.00E+00	5.26E-06	6.54E-03	3.52E-02	3.29E-02
RWD	[kg]	8.06E-04	0.00E+00	7.11E-08	1.37E-06	1.69E-07	-6.08E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	6.78E-01	0.00E+00	0.00E+00	6.67E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.16E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	3.86E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE40 ZAK-SP46 (0.75 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.57 ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE32 ZAK-SP46

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE32 ZAK-SP46 (0.58 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.62E+00	0.00E+00	2.26E-03	9.37E-02	5.82E-04	-2.74E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.59E+00	0.00E+00	2.23E-03	9.37E-02	5.79E-04	-2.75E-01
GWP-biogenic	[kg CO ₂ -Eq.]	2.42E-02	0.00E+00	4.17E-06	3.19E-06	1.78E-06	1.24E-03
GWP-luluc	[kg CO ₂ -Eq.]	4.75E-03	0.00E+00	2.34E-05	3.97E-06	1.82E-06	-8.03E-05
ODP	[kg CFC11-Eq.]	2.34E-11	0.00E+00	3.78E-16	1.23E-14	1.87E-15	-7.34E-15
AP	[mol H ⁺ -Eq.]	4.69E-03	0.00E+00	8.14E-06	1.05E-05	3.61E-06	-6.29E-04
EP-freshwater	[kg P-Eq.]	1.24E-05	0.00E+00	6.13E-09	2.12E-09	8.18E-10	-8.80E-08
EP-marine	[kg N-Eq.]	1.36E-03	0.00E+00	3.87E-06	2.77E-06	8.80E-07	-1.06E-04
EP-terrestrial	[mol N-Eq.]	1.50E-02	0.00E+00	4.18E-05	4.90E-05	9.59E-06	-9.80E-04
POCP	[kg NMVOC-Eq.]	3.55E-03	0.00E+00	7.45E-06	7.92E-06	2.73E-06	-4.16E-04
ADPE	[kg Sb-Eq.]	7.27E-07	0.00E+00	1.51E-10	1.38E-10	3.93E-11	-1.36E-06
ADPF	[MJ]	2.05E+01	0.00E+00	2.91E-02	2.56E-02	9.46E-03	-3.01E+00
WDP	[m ³ world-Eq deprived]	6.66E-01	0.00E+00	1.04E-05	8.49E-03	6.76E-05	-1.99E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE32 ZAK-SP46 (0.58 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.09E+01	0.00E+00	2.20E-03	6.46E-03	1.54E-03	-1.08E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.21E+01	0.00E+00	2.20E-03	6.46E-03	1.54E-03	-1.08E-01
PENRE	[MJ]	1.88E+01	0.00E+00	2.91E-02	1.22E+00	9.46E-03	-3.01E+00
PENRM	[MJ]	1.71E+00	0.00E+00	0.00E+00	-1.19E+00	0.00E+00	0.00E+00
PENRT	[MJ]	2.05E+01	0.00E+00	2.91E-02	2.56E-02	9.46E-03	-3.01E+00
SM	[kg]	4.32E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.38E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	2.21E-02	0.00E+00	1.09E-06	2.01E-04	1.99E-06	-2.45E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE32 ZAK-SP46 (0.58 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.33E-08	0.00E+00	1.17E-12	1.30E-11	2.04E-12	-1.83E-08
NHWD	[kg]	2.94E-01	0.00E+00	4.07E-06	4.81E-03	2.73E-02	2.86E-02
RWD	[kg]	6.11E-04	0.00E+00	5.50E-08	1.03E-06	1.31E-07	-4.64E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	5.06E-01	0.00E+00	0.00E+00	5.17E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.65E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.94E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ZAK-ISO-FITTING ADAPTOR PN16 : FIT GJS PE32 ZAK-SP46 (0.58 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.58 ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 45 PE32 AG2"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 45 PE32 AG2" (0.59 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.85E+00	0.00E+00	2.30E-03	2.69E-01	5.16E-04	-3.02E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.83E+00	0.00E+00	2.27E-03	2.69E-01	5.13E-04	-3.03E-01
GWP-biogenic	[kg CO ₂ -Eq.]	2.35E-02	0.00E+00	4.24E-06	8.79E-06	1.58E-06	6.51E-04
GWP-luluc	[kg CO ₂ -Eq.]	4.56E-03	0.00E+00	2.38E-05	1.81E-05	1.61E-06	-1.68E-04
ODP	[kg CFC11-Eq.]	2.18E-11	0.00E+00	3.84E-16	5.38E-14	1.66E-15	-6.94E-13
AP	[mol H ⁺ -Eq.]	4.95E-03	0.00E+00	8.28E-06	3.39E-05	3.20E-06	-6.11E-04
EP-freshwater	[kg P-Eq.]	3.54E-05	0.00E+00	6.24E-09	7.85E-09	7.26E-10	-1.40E-07
EP-marine	[kg N-Eq.]	1.38E-03	0.00E+00	3.93E-06	9.35E-06	7.80E-07	-1.14E-04
EP-terrestrial	[mol N-Eq.]	1.51E-02	0.00E+00	4.25E-05	1.56E-04	8.51E-06	-1.10E-03
POCP	[kg NMVOC-Eq.]	3.71E-03	0.00E+00	7.57E-06	2.66E-05	2.42E-06	-4.14E-04
ADPE	[kg Sb-Eq.]	8.31E-07	0.00E+00	1.54E-10	5.91E-10	3.48E-11	-1.14E-06
ADPF	[MJ]	2.60E+01	0.00E+00	2.97E-02	1.12E-01	8.39E-03	-3.80E+00
WDP	[m ³ world-Eq deprived]	3.02E+00	0.00E+00	1.06E-05	2.52E-02	6.00E-05	-2.42E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 45 PE32 AG2" (0.59 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.96E+01	0.00E+00	2.24E-03	2.73E-02	1.37E-03	-5.11E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.08E+01	0.00E+00	2.24E-03	2.73E-02	1.37E-03	-5.11E-01
PENRE	[MJ]	2.34E+01	0.00E+00	2.97E-02	7.02E-01	8.39E-03	-3.80E+00
PENRM	[MJ]	2.55E+00	0.00E+00	0.00E+00	-5.90E-01	0.00E+00	0.00E+00
PENRT	[MJ]	2.60E+01	0.00E+00	2.97E-02	1.12E-01	8.39E-03	-3.80E+00
SM	[kg]	3.93E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	7.66E-02	0.00E+00	1.10E-06	6.00E-04	1.77E-06	-2.07E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 45 PE32 AG2" (0.59 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.15E-08	0.00E+00	1.19E-12	5.54E-11	1.81E-12	-1.60E-08
NHWD	[kg]	2.72E-01	0.00E+00	4.14E-06	2.27E-02	2.42E-02	2.32E-02
RWD	[kg]	5.55E-04	0.00E+00	5.60E-08	3.85E-06	1.16E-07	-1.36E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	4.60E-01	0.00E+00	0.00E+00	4.59E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	4.81E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	8.60E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 45 PE32 AG2" (0.59 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.59 ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 45 PE32 AG1"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 45 PE32 AG1" (0.55 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.51E+00	0.00E+00	2.14E-03	5.37E-02	5.66E-04	-2.58E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.48E+00	0.00E+00	2.11E-03	5.37E-02	5.62E-04	-2.59E-01
GWP-biogenic	[kg CO ₂ -Eq.]	2.31E-02	0.00E+00	3.95E-06	1.88E-06	1.73E-06	1.32E-03
GWP-luluc	[kg CO ₂ -Eq.]	4.53E-03	0.00E+00	2.22E-05	2.54E-06	1.77E-06	-5.83E-05
ODP	[kg CFC11-Eq.]	2.23E-11	0.00E+00	3.58E-16	7.53E-15	1.82E-15	1.42E-13
AP	[mol H ⁺ -Eq.]	4.42E-03	0.00E+00	7.72E-06	6.07E-06	3.51E-06	-6.09E-04
EP-freshwater	[kg P-Eq.]	1.04E-05	0.00E+00	5.82E-09	1.36E-09	7.95E-10	-7.34E-08
EP-marine	[kg N-Eq.]	1.29E-03	0.00E+00	3.67E-06	1.65E-06	8.55E-07	-1.01E-04
EP-terrestrial	[mol N-Eq.]	1.42E-02	0.00E+00	3.97E-05	2.83E-05	9.32E-06	-9.18E-04
POCP	[kg NMVOC-Eq.]	3.34E-03	0.00E+00	7.06E-06	4.69E-06	2.65E-06	-4.01E-04
ADPE	[kg Sb-Eq.]	6.86E-07	0.00E+00	1.43E-10	8.47E-11	3.82E-11	-1.36E-06
ADPF	[MJ]	1.86E+01	0.00E+00	2.76E-02	1.57E-02	9.20E-03	-2.72E+00
WDP	[m ³ world-Eq deprived]	4.86E-01	0.00E+00	9.86E-06	4.83E-03	6.57E-05	-1.82E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 45 PE32 AG1" (0.55 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.99E+01	0.00E+00	2.08E-03	3.95E-03	1.50E-03	-1.61E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.11E+01	0.00E+00	2.08E-03	3.95E-03	1.50E-03	-1.61E-02
PENRE	[MJ]	1.73E+01	0.00E+00	2.76E-02	7.77E-01	9.20E-03	-2.72E+00
PENRM	[MJ]	1.27E+00	0.00E+00	0.00E+00	-7.61E-01	0.00E+00	0.00E+00
PENRT	[MJ]	1.86E+01	0.00E+00	2.76E-02	1.57E-02	9.20E-03	-2.72E+00
SM	[kg]	4.15E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.38E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.75E-02	0.00E+00	1.03E-06	1.14E-04	1.94E-06	-2.43E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 45 PE32 AG1" (0.55 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.23E-08	0.00E+00	1.11E-12	7.95E-12	1.99E-12	-1.81E-08
NHWD	[kg]	2.82E-01	0.00E+00	3.86E-06	3.13E-03	2.65E-02	2.87E-02
RWD	[kg]	5.83E-04	0.00E+00	5.22E-08	6.18E-07	1.28E-07	-2.52E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	4.87E-01	0.00E+00	0.00E+00	5.03E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	8.98E-02	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.61E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 45 PE32 AG1" (0.55 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.60 ISO-FITTING PN16 ELBOW 45°: FIT GJL 45 PE63 PE63

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 45°: FIT GJL 45 PE63 PE63 (2.62 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	7.22E+00	0.00E+00	1.02E-02	3.59E-01	2.65E-03	-1.17E+00
GWP-fossil	[kg CO ₂ -Eq.]	7.09E+00	0.00E+00	1.01E-02	3.59E-01	2.64E-03	-1.18E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.08E-01	0.00E+00	1.88E-05	1.26E-05	8.12E-06	5.53E-03
GWP-luluc	[kg CO ₂ -Eq.]	2.11E-02	0.00E+00	1.06E-04	1.71E-05	8.28E-06	-3.16E-04
ODP	[kg CFC11-Eq.]	1.06E-10	0.00E+00	1.71E-15	5.09E-14	8.53E-15	2.03E-13
AP	[mol H ⁺ -Eq.]	2.08E-02	0.00E+00	3.68E-05	4.07E-05	1.64E-05	-2.72E-03
EP-freshwater	[kg P-Eq.]	5.55E-05	0.00E+00	2.77E-08	9.16E-09	3.73E-09	-3.62E-07
EP-marine	[kg N-Eq.]	6.02E-03	0.00E+00	1.75E-05	1.11E-05	4.01E-06	-4.56E-04
EP-terrestrial	[mol N-Eq.]	6.62E-02	0.00E+00	1.89E-04	1.90E-04	4.37E-05	-4.19E-03
POCP	[kg NMVOC-Eq.]	1.54E-02	0.00E+00	3.36E-05	3.15E-05	1.24E-05	-1.79E-03
ADPE	[kg Sb-Eq.]	3.32E-06	0.00E+00	6.83E-10	5.72E-10	1.79E-10	-5.96E-06
ADPF	[MJ]	8.82E+01	0.00E+00	1.32E-01	1.06E-01	4.31E-02	-1.27E+01
WDP	[m ³ world-Eq deprived]	2.93E+00	0.00E+00	4.70E-05	3.24E-02	3.08E-04	-8.42E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 45°: FIT GJL 45 PE63 PE63 (2.62 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	9.43E+01	0.00E+00	9.93E-03	2.67E-02	7.03E-03	-3.27E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	9.55E+01	0.00E+00	9.93E-03	2.67E-02	7.03E-03	-3.27E-01
PENRE	[MJ]	8.31E+01	0.00E+00	1.32E-01	4.68E+00	4.31E-02	-1.27E+01
PENRM	[MJ]	5.09E+00	0.00E+00	0.00E+00	-4.58E+00	0.00E+00	0.00E+00
PENRT	[MJ]	8.82E+01	0.00E+00	1.32E-01	1.06E-01	4.31E-02	-1.27E+01
SM	[kg]	1.98E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.04E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	9.78E-02	0.00E+00	4.91E-06	7.65E-04	9.08E-06	-1.07E-01

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 45°: FIT GJL 45 PE63 PE63 (2.62 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.04E-07	0.00E+00	5.28E-12	5.37E-11	9.31E-12	-7.95E-08
NHWD	[kg]	1.36E+00	0.00E+00	1.84E-05	2.12E-02	1.24E-01	1.25E-01
RWD	[kg]	2.66E-03	0.00E+00	2.49E-07	4.16E-06	5.98E-07	-1.69E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.34E+00	0.00E+00	0.00E+00	2.36E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	6.02E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.08E+00	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 ELBOW 45°: FIT GJL 45 PE63 PE63 (2.62 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.61 ISO-FITTING PN16 ELBOW 45°: FIT GJS 45 PE40 PE40

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 45°: FIT GJS 45 PE40 PE40 (1.20 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	3.27E+00	0.00E+00	4.67E-03	1.79E-01	1.21E-03	-5.71E-01
GWP-fossil	[kg CO ₂ -Eq.]	3.21E+00	0.00E+00	4.61E-03	1.79E-01	1.20E-03	-5.73E-01
GWP-biogenic	[kg CO ₂ -Eq.]	4.87E-02	0.00E+00	8.62E-06	6.27E-06	3.70E-06	2.68E-03
GWP-luluc	[kg CO ₂ -Eq.]	9.62E-03	0.00E+00	4.84E-05	8.27E-06	3.78E-06	-1.55E-04
ODP	[kg CFC11-Eq.]	4.79E-11	0.00E+00	7.81E-16	2.46E-14	3.89E-15	8.75E-14
AP	[mol H ⁺ -Eq.]	9.43E-03	0.00E+00	1.68E-05	2.01E-05	7.50E-06	-1.32E-03
EP-freshwater	[kg P-Eq.]	2.51E-05	0.00E+00	1.27E-08	4.51E-09	1.70E-09	-1.77E-07
EP-marine	[kg N-Eq.]	2.73E-03	0.00E+00	8.00E-06	5.46E-06	1.83E-06	-2.22E-04
EP-terrestrial	[mol N-Eq.]	3.00E-02	0.00E+00	8.65E-05	9.38E-05	1.99E-05	-2.04E-03
POCP	[kg NMVOC-Eq.]	7.03E-03	0.00E+00	1.54E-05	1.55E-05	5.67E-06	-8.72E-04
ADPE	[kg Sb-Eq.]	1.49E-06	0.00E+00	3.13E-10	2.77E-10	8.16E-11	-2.89E-06
ADPF	[MJ]	4.05E+01	0.00E+00	6.03E-02	5.12E-02	1.96E-02	-6.19E+00
WDP	[m³ world-Eq deprived]	1.34E+00	0.00E+00	2.15E-05	1.60E-02	1.40E-04	-4.10E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 45°: FIT GJS 45 PE40 PE40 (1.20 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	4.26E+01	0.00E+00	4.55E-03	1.29E-02	3.20E-03	-1.65E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	4.38E+01	0.00E+00	4.55E-03	1.29E-02	3.20E-03	-1.65E-01
PENRE	[MJ]	3.78E+01	0.00E+00	6.03E-02	2.25E+00	1.96E-02	-6.19E+00
PENRM	[MJ]	2.71E+00	0.00E+00	0.00E+00	-2.19E+00	0.00E+00	0.00E+00
PENRT	[MJ]	4.05E+01	0.00E+00	6.03E-02	5.12E-02	1.96E-02	-6.19E+00
SM	[kg]	8.86E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.93E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m³]	4.45E-02	0.00E+00	2.25E-06	3.79E-04	4.14E-06	-5.18E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 45°: FIT GJS 45 PE40 PE40 (1.20 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	4.72E-08	0.00E+00	2.42E-12	2.60E-11	4.24E-12	-3.86E-08
NHWD	[kg]	6.05E-01	0.00E+00	8.42E-06	1.02E-02	5.66E-02	6.08E-02
RWD	[kg]	1.21E-03	0.00E+00	1.14E-07	2.03E-06	2.72E-07	-8.38E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.04E+00	0.00E+00	0.00E+00	1.07E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.98E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	5.33E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 ELBOW 45°: FIT GJS 45 PE40 PE40 (1.20 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.62 ISO-FITTING PN16 ELBOW 45°: FIT GJS 45 PE50 PE50

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 45°: FIT GJS 45 PE50 PE50 (1.89 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	5.12E+00	0.00E+00	7.36E-03	2.69E-01	1.91E-03	-9.04E-01
GWP-fossil	[kg CO ₂ -Eq.]	5.03E+00	0.00E+00	7.27E-03	2.69E-01	1.90E-03	-9.08E-01
GWP-biogenic	[kg CO ₂ -Eq.]	7.60E-02	0.00E+00	1.36E-05	9.29E-06	5.84E-06	4.27E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.50E-02	0.00E+00	7.63E-05	1.40E-05	5.96E-06	-2.42E-04
ODP	[kg CFC11-Eq.]	7.50E-11	0.00E+00	1.23E-15	4.16E-14	6.14E-15	1.70E-13
AP	[mol H ⁺ -Eq.]	1.47E-02	0.00E+00	2.65E-05	3.12E-05	1.18E-05	-2.10E-03
EP-freshwater	[kg P-Eq.]	4.24E-05	0.00E+00	2.00E-08	7.08E-09	2.68E-09	-2.78E-07
EP-marine	[kg N-Eq.]	4.26E-03	0.00E+00	1.26E-05	8.53E-06	2.88E-06	-3.52E-04
EP-terrestrial	[mol N-Eq.]	4.69E-02	0.00E+00	1.36E-04	1.45E-04	3.14E-05	-3.22E-03
POCP	[kg NMVOC-Eq.]	1.09E-02	0.00E+00	2.43E-05	2.43E-05	8.94E-06	-1.38E-03
ADPE	[kg Sb-Eq.]	2.36E-06	0.00E+00	4.93E-10	4.64E-10	1.29E-10	-4.60E-06
ADPF	[MJ]	6.28E+01	0.00E+00	9.50E-02	8.65E-02	3.10E-02	-9.78E+00
WDP	[m³ world-Eq deprived]	2.39E+00	0.00E+00	3.39E-05	2.45E-02	2.22E-04	-6.48E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 45°: FIT GJS 45 PE50 PE50 (1.89 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	6.67E+01	0.00E+00	7.16E-03	2.16E-02	5.06E-03	-2.44E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	6.79E+01	0.00E+00	7.16E-03	2.16E-02	5.06E-03	-2.44E-01
PENRE	[MJ]	5.91E+01	0.00E+00	9.50E-02	3.26E+00	3.10E-02	-9.78E+00
PENRM	[MJ]	3.69E+00	0.00E+00	0.00E+00	-3.18E+00	0.00E+00	0.00E+00
PENRT	[MJ]	6.28E+01	0.00E+00	9.50E-02	8.65E-02	3.10E-02	-9.78E+00
SM	[kg]	1.39E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.66E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m³]	7.67E-02	0.00E+00	3.54E-06	5.79E-04	6.53E-06	-8.23E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 45°: FIT GJS 45 PE50 PE50 (1.89 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	7.36E-08	0.00E+00	3.81E-12	4.35E-11	6.70E-12	-6.13E-08
NHWD	[kg]	9.53E-01	0.00E+00	1.33E-05	1.73E-02	8.93E-02	9.66E-02
RWD	[kg]	1.88E-03	0.00E+00	1.79E-07	3.28E-06	4.30E-07	-1.29E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.64E+00	0.00E+00	0.00E+00	1.70E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	4.58E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	8.19E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 ELBOW 45°: FIT GJS 45 PE50 PE50 (1.89 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.63 ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE40 IG5/4"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	MNR	MNR	MNR	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE40 IG5/4" (1.02 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	2.75E+00	0.00E+00	3.97E-03	9.98E-02	1.05E-03	-4.78E-01
GWP-fossil	[kg CO ₂ -Eq.]	2.70E+00	0.00E+00	3.92E-03	9.98E-02	1.04E-03	-4.80E-01
GWP-biogenic	[kg CO ₂ -Eq.]	4.19E-02	0.00E+00	7.33E-06	3.53E-06	3.21E-06	2.44E-03
GWP-luluc	[kg CO ₂ -Eq.]	8.26E-03	0.00E+00	4.12E-05	4.41E-06	3.28E-06	-1.08E-04
ODP	[kg CFC11-Eq.]	4.12E-11	0.00E+00	6.64E-16	1.31E-14	3.38E-15	2.66E-13
AP	[mol H ⁺ -Eq.]	8.03E-03	0.00E+00	1.43E-05	1.11E-05	6.51E-06	-1.13E-03
EP-freshwater	[kg P-Eq.]	1.84E-05	0.00E+00	1.08E-08	2.48E-09	1.47E-09	-1.36E-07
EP-marine	[kg N-Eq.]	2.34E-03	0.00E+00	6.80E-06	3.01E-06	1.59E-06	-1.87E-04
EP-terrestrial	[mol N-Eq.]	2.58E-02	0.00E+00	7.36E-05	5.19E-05	1.73E-05	-1.70E-03
POCP	[kg NMVOC-Eq.]	6.00E-03	0.00E+00	1.31E-05	8.55E-06	4.92E-06	-7.43E-04
ADPE	[kg Sb-Eq.]	1.26E-06	0.00E+00	2.66E-10	1.48E-10	7.08E-11	-2.52E-06
ADPF	[MJ]	3.34E+01	0.00E+00	5.13E-02	2.73E-02	1.71E-02	-5.05E+00
WDP	[m³ world-Eq deprived]	8.23E-01	0.00E+00	1.83E-05	8.92E-03	1.22E-04	-3.37E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE40 IG5/4" (1.02 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	3.67E+01	0.00E+00	3.86E-03	6.93E-03	2.78E-03	-2.82E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	3.79E+01	0.00E+00	3.86E-03	6.93E-03	2.78E-03	-2.82E-02
PENRE	[MJ]	3.14E+01	0.00E+00	5.13E-02	1.48E+00	1.71E-02	-5.05E+00
PENRM	[MJ]	1.96E+00	0.00E+00	0.00E+00	-1.45E+00	0.00E+00	0.00E+00
PENRT	[MJ]	3.34E+01	0.00E+00	5.13E-02	2.73E-02	1.71E-02	-5.05E+00
SM	[kg]	7.68E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.56E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m³]	3.06E-02	0.00E+00	1.91E-06	2.11E-04	3.59E-06	-4.51E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE40 IG5/4" (1.02 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	4.07E-08	0.00E+00	2.06E-12	1.39E-11	3.68E-12	-3.35E-08
NHWD	[kg]	5.23E-01	0.00E+00	7.16E-06	5.43E-03	4.91E-02	5.32E-02
RWD	[kg]	1.05E-03	0.00E+00	9.68E-08	1.11E-06	2.36E-07	-4.63E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	9.03E-01	0.00E+00	0.00E+00	9.32E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE40 IG5/4" (1.02 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.64 ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE32 IG1"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE32 IG1" (0.64 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.74E+00	0.00E+00	2.48E-03	5.88E-02	6.57E-04	-2.98E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.71E+00	0.00E+00	2.45E-03	5.88E-02	6.53E-04	-2.99E-01
GWP-biogenic	[kg CO ₂ -Eq.]	2.66E-02	0.00E+00	4.58E-06	2.07E-06	2.01E-06	1.53E-03
GWP-luluc	[kg CO ₂ -Eq.]	5.23E-03	0.00E+00	2.57E-05	2.67E-06	2.05E-06	-6.57E-05
ODP	[kg CFC11-Eq.]	2.58E-11	0.00E+00	4.15E-16	7.92E-15	2.11E-15	1.78E-13
AP	[mol H ⁺ -Eq.]	5.09E-03	0.00E+00	8.94E-06	6.58E-06	4.07E-06	-7.06E-04
EP-freshwater	[kg P-Eq.]	1.16E-05	0.00E+00	6.74E-09	1.47E-09	9.23E-10	-8.39E-08
EP-marine	[kg N-Eq.]	1.48E-03	0.00E+00	4.25E-06	1.79E-06	9.92E-07	-1.16E-04
EP-terrestrial	[mol N-Eq.]	1.64E-02	0.00E+00	4.59E-05	3.07E-05	1.08E-05	-1.06E-03
POCP	[kg NMVOC-Eq.]	3.83E-03	0.00E+00	8.18E-06	5.08E-06	3.08E-06	-4.64E-04
ADPE	[kg Sb-Eq.]	7.92E-07	0.00E+00	1.66E-10	8.94E-11	4.43E-11	-1.58E-06
ADPF	[MJ]	2.13E+01	0.00E+00	3.20E-02	1.65E-02	1.07E-02	-3.14E+00
WDP	[m³ world-Eq deprived]	5.17E-01	0.00E+00	1.14E-05	5.27E-03	7.63E-05	-2.09E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE32 IG1" (0.64 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.31E+01	0.00E+00	2.41E-03	4.18E-03	1.74E-03	-1.08E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.43E+01	0.00E+00	2.41E-03	4.18E-03	1.74E-03	-1.08E-02
PENRE	[MJ]	1.99E+01	0.00E+00	3.20E-02	5.15E-01	1.07E-02	-3.14E+00
PENRM	[MJ]	1.38E+00	0.00E+00	0.00E+00	-4.99E-01	0.00E+00	0.00E+00
PENRT	[MJ]	2.13E+01	0.00E+00	3.20E-02	1.65E-02	1.07E-02	-3.14E+00
SM	[kg]	4.82E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.60E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m³]	1.92E-02	0.00E+00	1.19E-06	1.25E-04	2.25E-06	-2.82E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE32 IG1" (0.64 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.58E-08	0.00E+00	1.28E-12	8.39E-12	2.31E-12	-2.09E-08
NHWD	[kg]	3.27E-01	0.00E+00	4.47E-06	3.28E-03	3.07E-02	3.33E-02
RWD	[kg]	6.71E-04	0.00E+00	6.04E-08	6.62E-07	1.48E-07	-2.74E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	5.65E-01	0.00E+00	0.00E+00	5.83E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE32 IG1" (0.64 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.65 ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE25 IG1"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE25 IG1" (0.63 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.47E+00	0.00E+00	2.46E-03	2.82E-02	6.64E-04	-1.71E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.44E+00	0.00E+00	2.43E-03	2.82E-02	6.60E-04	-1.72E-01
GWP-biogenic	[kg CO ₂ -Eq.]	2.45E-02	0.00E+00	4.54E-06	1.01E-06	2.03E-06	9.06E-04
GWP-luluc	[kg CO ₂ -Eq.]	4.95E-03	0.00E+00	2.55E-05	1.18E-06	2.07E-06	-3.52E-05
ODP	[kg CFC11-Eq.]	2.32E-11	0.00E+00	4.11E-16	3.52E-15	2.14E-15	1.25E-13
AP	[mol H ⁺ -Eq.]	3.92E-03	0.00E+00	8.87E-06	3.09E-06	4.12E-06	-4.09E-04
EP-freshwater	[kg P-Eq.]	8.06E-06	0.00E+00	6.68E-09	6.89E-10	9.33E-10	-4.69E-08
EP-marine	[kg N-Eq.]	1.16E-03	0.00E+00	4.21E-06	8.38E-07	1.00E-06	-6.72E-05
EP-terrestrial	[mol N-Eq.]	1.28E-02	0.00E+00	4.56E-05	1.45E-05	1.09E-05	-6.10E-04
POCP	[kg NMVOC-Eq.]	3.00E-03	0.00E+00	8.11E-06	2.38E-06	3.11E-06	-2.68E-04
ADPE	[kg Sb-Eq.]	2.13E-06	0.00E+00	1.65E-10	3.99E-11	4.48E-11	-9.21E-07
ADPF	[MJ]	1.82E+01	0.00E+00	3.18E-02	7.33E-03	1.08E-02	-1.79E+00
WDP	[m ³ world-Eq deprived]	2.82E-01	0.00E+00	1.13E-05	2.51E-03	7.71E-05	-1.20E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE25 IG1" (0.63 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.07E+01	0.00E+00	2.39E-03	1.87E-03	1.76E-03	6.83E-03
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.19E+01	0.00E+00	2.39E-03	1.87E-03	1.76E-03	6.83E-03
PENRE	[MJ]	1.72E+01	0.00E+00	3.18E-02	5.06E-01	1.08E-02	-1.79E+00
PENRM	[MJ]	1.01E+00	0.00E+00	0.00E+00	-4.99E-01	0.00E+00	0.00E+00
PENRT	[MJ]	1.82E+01	0.00E+00	3.18E-02	7.33E-03	1.08E-02	-1.79E+00
SM	[kg]	5.41E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.35E-02
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.41E-02	0.00E+00	1.18E-06	5.92E-05	2.27E-06	-1.65E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE25 IG1" (0.63 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.21E-08	0.00E+00	1.27E-12	3.75E-12	2.33E-12	-1.22E-08
NHWD	[kg]	2.30E-01	0.00E+00	4.43E-06	1.45E-03	3.11E-02	1.95E-02
RWD	[kg]	6.30E-04	0.00E+00	6.00E-08	3.04E-07	1.50E-07	-1.30E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.87E-01	0.00E+00	0.00E+00	5.90E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	4.64E-02	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	8.31E-02	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE25 IG1" (0.63 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.66 ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE25 IG3/4"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE25 IG3/4" (0.48 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.32E+00	0.00E+00	1.87E-03	3.38E-02	4.99E-04	-2.22E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.29E+00	0.00E+00	1.85E-03	3.38E-02	4.96E-04	-2.23E-01
GWP-biogenic	[kg CO ₂ -Eq.]	2.04E-02	0.00E+00	3.45E-06	1.22E-06	1.53E-06	1.19E-03
GWP-luluc	[kg CO ₂ -Eq.]	4.00E-03	0.00E+00	1.94E-05	1.33E-06	1.56E-06	-4.43E-05
ODP	[kg CFC11-Eq.]	1.96E-11	0.00E+00	3.12E-16	3.96E-15	1.61E-15	1.74E-13
AP	[mol H ⁺ -Eq.]	3.88E-03	0.00E+00	6.73E-06	3.65E-06	3.10E-06	-5.31E-04
EP-freshwater	[kg P-Eq.]	7.83E-06	0.00E+00	5.08E-09	8.10E-10	7.01E-10	-6.00E-08
EP-marine	[kg N-Eq.]	1.14E-03	0.00E+00	3.20E-06	9.87E-07	7.54E-07	-8.71E-05
EP-terrestrial	[mol N-Eq.]	1.25E-02	0.00E+00	3.46E-05	1.71E-05	8.23E-06	-7.90E-04
POCP	[kg NMVOC-Eq.]	2.94E-03	0.00E+00	6.16E-06	2.81E-06	2.34E-06	-3.49E-04
ADPE	[kg Sb-Eq.]	5.96E-07	0.00E+00	1.25E-10	4.52E-11	3.37E-11	-1.20E-06
ADPF	[MJ]	1.61E+01	0.00E+00	2.41E-02	8.26E-03	8.12E-03	-2.31E+00
WDP	[m ³ world-Eq deprived]	2.95E-01	0.00E+00	8.61E-06	2.99E-03	5.80E-05	-1.55E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE25 IG3/4" (0.48 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.76E+01	0.00E+00	1.82E-03	2.12E-03	1.32E-03	1.54E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.88E+01	0.00E+00	1.82E-03	2.12E-03	1.32E-03	1.54E-02
PENRE	[MJ]	1.50E+01	0.00E+00	2.41E-02	5.95E-01	8.12E-03	-2.31E+00
PENRM	[MJ]	1.10E+00	0.00E+00	0.00E+00	-5.86E-01	0.00E+00	0.00E+00
PENRT	[MJ]	1.61E+01	0.00E+00	2.41E-02	8.26E-03	8.12E-03	-2.31E+00
SM	[kg]	3.67E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.22E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.23E-02	0.00E+00	8.99E-07	7.06E-05	1.71E-06	-2.14E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE25 IG3/4" (0.48 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.98E-08	0.00E+00	9.68E-13	4.25E-12	1.75E-12	-1.59E-08
NHWD	[kg]	2.49E-01	0.00E+00	3.37E-06	1.63E-03	2.34E-02	2.53E-02
RWD	[kg]	5.19E-04	0.00E+00	4.55E-08	3.53E-07	1.13E-07	-1.54E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	4.30E-01	0.00E+00	0.00E+00	4.44E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	5.51E-02	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	9.87E-02	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE25 IG3/4" (0.48 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.67 ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE20 PE20

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE20 PE20 (0.30 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	8.96E-01	0.00E+00	1.17E-03	7.63E-02	2.89E-04	-1.32E-01
GWP-fossil	[kg CO ₂ -Eq.]	8.80E-01	0.00E+00	1.15E-03	7.62E-02	2.88E-04	-1.33E-01
GWP-biogenic	[kg CO ₂ -Eq.]	1.33E-02	0.00E+00	2.15E-06	2.79E-06	8.86E-07	4.94E-04
GWP-luluc	[kg CO ₂ -Eq.]	2.58E-03	0.00E+00	1.21E-05	2.59E-06	9.04E-07	-4.99E-05
ODP	[kg CFC11-Eq.]	1.25E-11	0.00E+00	1.95E-16	7.68E-15	9.31E-16	-1.01E-13
AP	[mol H ⁺ -Eq.]	2.57E-03	0.00E+00	4.21E-06	7.96E-06	1.79E-06	-2.91E-04
EP-freshwater	[kg P-Eq.]	5.88E-06	0.00E+00	3.17E-09	1.75E-09	4.06E-10	-4.86E-08
EP-marine	[kg N-Eq.]	7.49E-04	0.00E+00	2.00E-06	2.14E-06	4.37E-07	-5.08E-05
EP-terrestrial	[mol N-Eq.]	8.27E-03	0.00E+00	2.16E-05	3.75E-05	4.77E-06	-4.74E-04
POCP	[kg NMVOC-Eq.]	2.00E-03	0.00E+00	3.85E-06	6.08E-06	1.36E-06	-1.94E-04
ADPE	[kg Sb-Eq.]	3.79E-07	0.00E+00	7.83E-11	8.90E-11	1.95E-11	-6.06E-07
ADPF	[MJ]	1.22E+01	0.00E+00	1.51E-02	1.60E-02	4.70E-03	-1.52E+00
WDP	[m ³ world-Eq deprived]	2.84E-01	0.00E+00	5.38E-06	6.66E-03	3.36E-05	-9.89E-03

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE20 PE20 (0.30 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.11E+01	0.00E+00	1.14E-03	4.21E-03	7.67E-04	-1.08E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.23E+01	0.00E+00	1.14E-03	4.21E-03	7.67E-04	-1.08E-01
PENRE	[MJ]	1.07E+01	0.00E+00	1.51E-02	9.80E-01	4.70E-03	-1.52E+00
PENRM	[MJ]	1.48E+00	0.00E+00	0.00E+00	-9.64E-01	0.00E+00	0.00E+00
PENRT	[MJ]	1.22E+01	0.00E+00	1.51E-02	1.60E-02	4.70E-03	-1.52E+00
SM	[kg]	2.24E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.14E-02
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.01E-02	0.00E+00	5.62E-07	1.57E-04	9.90E-07	-1.09E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE20 PE20 (0.30 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.27E-08	0.00E+00	6.05E-13	8.37E-12	1.02E-12	-8.22E-09
NHWD	[kg]	1.52E-01	0.00E+00	2.11E-06	3.13E-03	1.35E-02	1.26E-02
RWD	[kg]	3.49E-04	0.00E+00	2.85E-08	7.38E-07	6.52E-08	-3.44E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.61E-01	0.00E+00	0.00E+00	2.57E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.22E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.18E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE20 PE20 (0.30 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.68 ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE25 PE25

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE25 PE25 (0.41 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.16E+00	0.00E+00	1.58E-03	5.49E-02	4.10E-04	-1.79E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.14E+00	0.00E+00	1.56E-03	5.49E-02	4.08E-04	-1.80E-01
GWP-biogenic	[kg CO ₂ -Eq.]	1.76E-02	0.00E+00	2.91E-06	1.96E-06	1.26E-06	8.49E-04
GWP-luluc	[kg CO ₂ -Eq.]	3.42E-03	0.00E+00	1.63E-05	2.31E-06	1.28E-06	-4.79E-05
ODP	[kg CFC11-Eq.]	1.68E-11	0.00E+00	2.64E-16	6.85E-15	1.32E-15	3.53E-14
AP	[mol H ⁺ -Eq.]	3.38E-03	0.00E+00	5.68E-06	6.02E-06	2.54E-06	-4.16E-04
EP-freshwater	[kg P-Eq.]	7.95E-06	0.00E+00	4.28E-09	1.34E-09	5.76E-10	-5.51E-08
EP-marine	[kg N-Eq.]	9.86E-04	0.00E+00	2.70E-06	1.63E-06	6.20E-07	-6.98E-05
EP-terrestrial	[mol N-Eq.]	1.09E-02	0.00E+00	2.92E-05	2.82E-05	6.76E-06	-6.40E-04
POCP	[kg NMVOC-Eq.]	2.58E-03	0.00E+00	5.20E-06	4.63E-06	1.92E-06	-2.75E-04
ADPE	[kg Sb-Eq.]	5.16E-07	0.00E+00	1.06E-10	7.78E-11	2.77E-11	-9.13E-07
ADPF	[MJ]	1.47E+01	0.00E+00	2.04E-02	1.43E-02	6.67E-03	-1.94E+00
WDP	[m ³ world-Eq deprived]	3.82E-01	0.00E+00	7.26E-06	4.88E-03	4.76E-05	-1.29E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE25 PE25 (0.41 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.50E+01	0.00E+00	1.53E-03	3.65E-03	1.09E-03	-4.75E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.62E+01	0.00E+00	1.53E-03	3.65E-03	1.09E-03	-4.75E-02
PENRE	[MJ]	1.35E+01	0.00E+00	2.04E-02	7.55E-01	6.67E-03	-1.94E+00
PENRM	[MJ]	1.25E+00	0.00E+00	0.00E+00	-7.41E-01	0.00E+00	0.00E+00
PENRT	[MJ]	1.47E+01	0.00E+00	2.04E-02	1.43E-02	6.67E-03	-1.94E+00
SM	[kg]	3.10E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.26E-02
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.36E-02	0.00E+00	7.58E-07	1.15E-04	1.40E-06	-1.64E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE25 PE25 (0.41 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.69E-08	0.00E+00	8.17E-13	7.31E-12	1.44E-12	-1.22E-08
NHWD	[kg]	2.11E-01	0.00E+00	2.84E-06	2.83E-03	1.92E-02	1.92E-02
RWD	[kg]	4.50E-04	0.00E+00	3.84E-08	5.92E-07	9.25E-08	-2.54E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.63E-01	0.00E+00	0.00E+00	3.64E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	9.02E-02	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.62E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE25 PE25 (0.41 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.69 ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE63 AG2"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE63 AG2" (2.76 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	7.33E+00	0.00E+00	1.07E-02	1.84E-01	2.87E-03	-1.28E+00
GWP-fossil	[kg CO ₂ -Eq.]	7.19E+00	0.00E+00	1.06E-02	1.84E-01	2.86E-03	-1.28E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.12E-01	0.00E+00	1.98E-05	6.43E-06	8.80E-06	6.84E-03
GWP-luluc	[kg CO ₂ -Eq.]	2.22E-02	0.00E+00	1.11E-04	8.78E-06	8.98E-06	-2.52E-04
ODP	[kg CFC11-Eq.]	1.11E-10	0.00E+00	1.80E-15	2.61E-14	9.25E-15	1.02E-12
AP	[mol H ⁺ -Eq.]	2.15E-02	0.00E+00	3.87E-05	2.08E-05	1.78E-05	-3.06E-03
EP-freshwater	[kg P-Eq.]	4.75E-05	0.00E+00	2.92E-08	4.69E-09	4.04E-09	-3.44E-07
EP-marine	[kg N-Eq.]	6.24E-03	0.00E+00	1.84E-05	5.67E-06	4.34E-06	-5.01E-04
EP-terrestrial	[mol N-Eq.]	6.87E-02	0.00E+00	1.99E-04	9.73E-05	4.74E-05	-4.54E-03
POCP	[kg NMVOC-Eq.]	1.58E-02	0.00E+00	3.54E-05	1.61E-05	1.35E-05	-2.00E-03
ADPE	[kg Sb-Eq.]	3.42E-06	0.00E+00	7.20E-10	2.93E-10	1.94E-10	-6.90E-06
ADPF	[MJ]	8.63E+01	0.00E+00	1.39E-01	5.43E-02	4.67E-02	-1.33E+01
WDP	[m³ world-Eq deprived]	1.98E+00	0.00E+00	4.95E-05	1.66E-02	3.34E-04	-8.90E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE63 AG2" (2.76 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	9.92E+01	0.00E+00	1.05E-02	1.37E-02	7.62E-03	9.96E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.00E+02	0.00E+00	1.05E-02	1.37E-02	7.62E-03	9.96E-02
PENRE	[MJ]	8.27E+01	0.00E+00	1.39E-01	3.67E+00	4.67E-02	-1.33E+01
PENRM	[MJ]	3.61E+00	0.00E+00	0.00E+00	-3.61E+00	0.00E+00	0.00E+00
PENRT	[MJ]	8.63E+01	0.00E+00	1.39E-01	5.43E-02	4.67E-02	-1.33E+01
SM	[kg]	2.10E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.01E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m³]	7.71E-02	0.00E+00	5.17E-06	3.92E-04	9.84E-06	-1.23E-01

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE63 AG2" (2.76 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.10E-07	0.00E+00	5.56E-12	2.75E-11	1.01E-11	-9.13E-08
NHWD	[kg]	1.43E+00	0.00E+00	1.94E-05	1.08E-02	1.35E-01	1.46E-01
RWD	[kg]	2.78E-03	0.00E+00	2.62E-07	2.13E-06	6.48E-07	-8.59E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.47E+00	0.00E+00	0.00E+00	2.55E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	3.08E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	5.52E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE63 AG2" (2.76 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.70 ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE50 AG6/4"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE50 AG6/4" (1.50 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	4.03E+00	0.00E+00	5.84E-03	1.32E-01	1.55E-03	-7.01E-01
GWP-fossil	[kg CO ₂ -Eq.]	3.96E+00	0.00E+00	5.77E-03	1.32E-01	1.54E-03	-7.04E-01
GWP-biogenic	[kg CO ₂ -Eq.]	6.13E-02	0.00E+00	1.08E-05	4.57E-06	4.74E-06	3.62E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.21E-02	0.00E+00	6.06E-05	6.87E-06	4.84E-06	-1.53E-04
ODP	[kg CFC11-Eq.]	6.03E-11	0.00E+00	9.76E-16	2.04E-14	4.98E-15	4.30E-13
AP	[mol H ⁺ -Eq.]	1.18E-02	0.00E+00	2.10E-05	1.54E-05	9.60E-06	-1.66E-03
EP-freshwater	[kg P-Eq.]	2.88E-05	0.00E+00	1.59E-08	3.48E-09	2.18E-09	-1.97E-07
EP-marine	[kg N-Eq.]	3.41E-03	0.00E+00	1.00E-05	4.19E-06	2.34E-06	-2.74E-04
EP-terrestrial	[mol N-Eq.]	3.76E-02	0.00E+00	1.08E-04	7.15E-05	2.55E-05	-2.49E-03
POCP	[kg NMVOC-Eq.]	8.72E-03	0.00E+00	1.93E-05	1.19E-05	7.26E-06	-1.09E-03
ADPE	[kg Sb-Eq.]	1.87E-06	0.00E+00	3.91E-10	2.28E-10	1.04E-10	-3.72E-06
ADPF	[MJ]	4.83E+01	0.00E+00	7.54E-02	4.25E-02	2.52E-02	-7.37E+00
WDP	[m ³ world-Eq deprived]	1.39E+00	0.00E+00	2.69E-05	1.20E-02	1.80E-04	-4.93E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE50 AG6/4" (1.50 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	5.38E+01	0.00E+00	5.68E-03	1.06E-02	4.10E-03	-1.86E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	5.50E+01	0.00E+00	5.68E-03	1.06E-02	4.10E-03	-1.86E-02
PENRE	[MJ]	4.59E+01	0.00E+00	7.54E-02	1.54E+00	2.52E-02	-7.37E+00
PENRM	[MJ]	2.40E+00	0.00E+00	0.00E+00	-1.50E+00	0.00E+00	0.00E+00
PENRT	[MJ]	4.83E+01	0.00E+00	7.54E-02	4.25E-02	2.52E-02	-7.37E+00
SM	[kg]	1.13E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.78E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	4.91E-02	0.00E+00	2.81E-06	2.85E-04	5.30E-06	-6.66E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE50 AG6/4" (1.50 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	5.95E-08	0.00E+00	3.02E-12	2.14E-11	5.44E-12	-4.93E-08
NHWD	[kg]	7.72E-01	0.00E+00	1.05E-05	8.53E-03	7.25E-02	7.85E-02
RWD	[kg]	1.52E-03	0.00E+00	1.42E-07	1.61E-06	3.49E-07	-6.30E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.33E+00	0.00E+00	0.00E+00	1.38E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.25E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	4.03E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE50 AG6/4" (1.50 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.71 ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE40 AG5/4"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE40 AG5/4" (1.10 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	2.96E+00	0.00E+00	4.28E-03	9.79E-02	1.14E-03	-5.14E-01
GWP-fossil	[kg CO ₂ -Eq.]	2.91E+00	0.00E+00	4.23E-03	9.78E-02	1.13E-03	-5.16E-01
GWP-biogenic	[kg CO ₂ -Eq.]	4.52E-02	0.00E+00	7.90E-06	3.44E-06	3.48E-06	2.66E-03
GWP-luluc	[kg CO ₂ -Eq.]	8.91E-03	0.00E+00	4.44E-05	4.53E-06	3.55E-06	-1.12E-04
ODP	[kg CFC11-Eq.]	4.44E-11	0.00E+00	7.16E-16	1.35E-14	3.65E-15	3.19E-13
AP	[mol H ⁺ -Eq.]	8.66E-03	0.00E+00	1.54E-05	1.10E-05	7.04E-06	-1.22E-03
EP-freshwater	[kg P-Eq.]	1.99E-05	0.00E+00	1.16E-08	2.47E-09	1.60E-09	-1.44E-07
EP-marine	[kg N-Eq.]	2.52E-03	0.00E+00	7.33E-06	2.99E-06	1.72E-06	-2.01E-04
EP-terrestrial	[mol N-Eq.]	2.78E-02	0.00E+00	7.93E-05	5.14E-05	1.87E-05	-1.83E-03
POCP	[kg NMVOC-Eq.]	6.45E-03	0.00E+00	1.41E-05	8.51E-06	5.32E-06	-8.00E-04
ADPE	[kg Sb-Eq.]	1.36E-06	0.00E+00	2.87E-10	1.52E-10	7.66E-11	-2.73E-06
ADPF	[MJ]	3.57E+01	0.00E+00	5.53E-02	2.81E-02	1.85E-02	-5.40E+00
WDP	[m ³ world-Eq deprived]	8.93E-01	0.00E+00	1.97E-05	8.79E-03	1.32E-04	-3.61E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE40 AG5/4" (1.10 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	3.96E+01	0.00E+00	4.17E-03	7.09E-03	3.01E-03	-1.15E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	4.08E+01	0.00E+00	4.17E-03	7.09E-03	3.01E-03	-1.15E-02
PENRE	[MJ]	3.37E+01	0.00E+00	5.53E-02	1.48E+00	1.85E-02	-5.40E+00
PENRM	[MJ]	1.96E+00	0.00E+00	0.00E+00	-1.45E+00	0.00E+00	0.00E+00
PENRT	[MJ]	3.57E+01	0.00E+00	5.53E-02	2.81E-02	1.85E-02	-5.40E+00
SM	[kg]	8.31E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.77E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	3.32E-02	0.00E+00	2.06E-06	2.08E-04	3.89E-06	-4.88E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE40 AG5/4" (1.10 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	4.39E-08	0.00E+00	2.22E-12	1.42E-11	3.99E-12	-3.62E-08
NHWD	[kg]	5.66E-01	0.00E+00	7.72E-06	5.59E-03	5.32E-02	5.76E-02
RWD	[kg]	1.13E-03	0.00E+00	1.04E-07	1.12E-06	2.56E-07	-4.57E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	9.77E-01	0.00E+00	0.00E+00	1.01E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.63E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.92E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE40 AG5/4" (1.10 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.72 ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE32 AG2"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE32 AG2" (0.69 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.91E+00	0.00E+00	2.69E-03	5.27E-02	7.16E-04	-3.06E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.87E+00	0.00E+00	2.65E-03	5.27E-02	7.11E-04	-3.08E-01
GWP-biogenic	[kg CO ₂ -Eq.]	2.93E-02	0.00E+00	4.96E-06	1.85E-06	2.19E-06	1.61E-03
GWP-luluc	[kg CO ₂ -Eq.]	5.72E-03	0.00E+00	2.79E-05	2.49E-06	2.24E-06	-6.43E-05
ODP	[kg CFC11-Eq.]	2.84E-11	0.00E+00	4.49E-16	7.39E-15	2.30E-15	2.11E-13
AP	[mol H ⁺ -Eq.]	5.59E-03	0.00E+00	9.68E-06	5.95E-06	4.44E-06	-7.29E-04
EP-freshwater	[kg P-Eq.]	1.25E-05	0.00E+00	7.30E-09	1.34E-09	1.01E-09	-8.45E-08
EP-marine	[kg N-Eq.]	1.63E-03	0.00E+00	4.60E-06	1.62E-06	1.08E-06	-1.20E-04
EP-terrestrial	[mol N-Eq.]	1.80E-02	0.00E+00	4.98E-05	2.78E-05	1.18E-05	-1.09E-03
POCP	[kg NMVOC-Eq.]	4.20E-03	0.00E+00	8.86E-06	4.61E-06	3.36E-06	-4.79E-04
ADPE	[kg Sb-Eq.]	8.73E-07	0.00E+00	1.80E-10	8.31E-11	4.83E-11	-1.64E-06
ADPF	[MJ]	2.30E+01	0.00E+00	3.47E-02	1.54E-02	1.16E-02	-3.21E+00
WDP	[m ³ world-Eq deprived]	5.41E-01	0.00E+00	1.24E-05	4.74E-03	8.31E-05	-2.15E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE32 AG2" (0.69 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.54E+01	0.00E+00	2.61E-03	3.88E-03	1.90E-03	5.25E-03
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.65E+01	0.00E+00	2.61E-03	3.88E-03	1.90E-03	5.25E-03
PENRE	[MJ]	2.17E+01	0.00E+00	3.47E-02	7.05E-01	1.16E-02	-3.21E+00
PENRM	[MJ]	1.36E+00	0.00E+00	0.00E+00	-6.90E-01	0.00E+00	0.00E+00
PENRT	[MJ]	2.30E+01	0.00E+00	3.47E-02	1.54E-02	1.16E-02	-3.21E+00
SM	[kg]	5.34E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.66E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	2.05E-02	0.00E+00	1.29E-06	1.12E-04	2.45E-06	-2.93E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE32 AG2" (0.69 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.84E-08	0.00E+00	1.39E-12	7.80E-12	2.51E-12	-2.17E-08
NHWD	[kg]	3.63E-01	0.00E+00	4.84E-06	3.07E-03	3.35E-02	3.46E-02
RWD	[kg]	7.36E-04	0.00E+00	6.55E-08	6.07E-07	1.61E-07	-2.46E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	6.27E-01	0.00E+00	0.00E+00	6.36E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	8.82E-02	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.58E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE32 AG2" (0.69 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.73 ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE32 AG5/4"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE32 AG5/4" (0.61 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.68E+00	0.00E+00	2.39E-03	5.36E-02	6.34E-04	-2.87E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.65E+00	0.00E+00	2.36E-03	5.36E-02	6.30E-04	-2.88E-01
GWP-biogenic	[kg CO ₂ -Eq.]	2.57E-02	0.00E+00	4.41E-06	1.88E-06	1.94E-06	1.49E-03
GWP-luluc	[kg CO ₂ -Eq.]	5.05E-03	0.00E+00	2.48E-05	2.53E-06	1.98E-06	-6.21E-05
ODP	[kg CFC11-Eq.]	2.49E-11	0.00E+00	4.00E-16	7.53E-15	2.04E-15	1.81E-13
AP	[mol H ⁺ -Eq.]	4.92E-03	0.00E+00	8.61E-06	6.06E-06	3.93E-06	-6.80E-04
EP-freshwater	[kg P-Eq.]	1.13E-05	0.00E+00	6.49E-09	1.36E-09	8.91E-10	-8.01E-08
EP-marine	[kg N-Eq.]	1.43E-03	0.00E+00	4.09E-06	1.65E-06	9.58E-07	-1.12E-04
EP-terrestrial	[mol N-Eq.]	1.58E-02	0.00E+00	4.43E-05	2.83E-05	1.05E-05	-1.02E-03
POCP	[kg NMVOC-Eq.]	3.70E-03	0.00E+00	7.88E-06	4.69E-06	2.97E-06	-4.47E-04
ADPE	[kg Sb-Eq.]	7.65E-07	0.00E+00	1.60E-10	8.47E-11	4.28E-11	-1.52E-06
ADPF	[MJ]	2.05E+01	0.00E+00	3.09E-02	1.57E-02	1.03E-02	-3.01E+00
WDP	[m ³ world-Eq deprived]	5.09E-01	0.00E+00	1.10E-05	4.83E-03	7.36E-05	-2.01E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE32 AG5/4" (0.61 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.23E+01	0.00E+00	2.33E-03	3.95E-03	1.68E-03	-4.65E-03
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.35E+01	0.00E+00	2.33E-03	3.95E-03	1.68E-03	-4.65E-03
PENRE	[MJ]	1.92E+01	0.00E+00	3.09E-02	8.14E-01	1.03E-02	-3.01E+00
PENRM	[MJ]	1.31E+00	0.00E+00	0.00E+00	-7.98E-01	0.00E+00	0.00E+00
PENRT	[MJ]	2.05E+01	0.00E+00	3.09E-02	1.57E-02	1.03E-02	-3.01E+00
SM	[kg]	4.65E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.55E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.88E-02	0.00E+00	1.15E-06	1.14E-04	2.17E-06	-2.73E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE32 AG5/4" (0.61 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.49E-08	0.00E+00	1.24E-12	7.95E-12	2.23E-12	-2.02E-08
NHWD	[kg]	3.16E-01	0.00E+00	4.31E-06	3.13E-03	2.97E-02	3.22E-02
RWD	[kg]	6.48E-04	0.00E+00	5.82E-08	6.18E-07	1.43E-07	-2.51E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	5.46E-01	0.00E+00	0.00E+00	5.63E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	8.98E-02	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.61E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE32 AG5/4" (0.61 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.74 ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE32 AG1"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE32 AG1" (0.65 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.77E+00	0.00E+00	2.53E-03	5.83E-02	6.71E-04	-3.04E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.74E+00	0.00E+00	2.50E-03	5.83E-02	6.67E-04	-3.05E-01
GWP-biogenic	[kg CO ₂ -Eq.]	2.71E-02	0.00E+00	4.67E-06	2.04E-06	2.05E-06	1.57E-03
GWP-luluc	[kg CO ₂ -Eq.]	5.33E-03	0.00E+00	2.62E-05	2.75E-06	2.10E-06	-6.64E-05
ODP	[kg CFC11-Eq.]	2.64E-11	0.00E+00	4.23E-16	8.18E-15	2.16E-15	1.86E-13
AP	[mol H ⁺ -Eq.]	5.19E-03	0.00E+00	9.12E-06	6.59E-06	4.16E-06	-7.20E-04
EP-freshwater	[kg P-Eq.]	1.20E-05	0.00E+00	6.87E-09	1.48E-09	9.42E-10	-8.52E-08
EP-marine	[kg N-Eq.]	1.51E-03	0.00E+00	4.33E-06	1.79E-06	1.01E-06	-1.19E-04
EP-terrestrial	[mol N-Eq.]	1.67E-02	0.00E+00	4.69E-05	3.07E-05	1.11E-05	-1.08E-03
POCP	[kg NMVOC-Eq.]	3.91E-03	0.00E+00	8.35E-06	5.10E-06	3.14E-06	-4.73E-04
ADPE	[kg Sb-Eq.]	8.10E-07	0.00E+00	1.70E-10	9.19E-11	4.53E-11	-1.61E-06
ADPF	[MJ]	2.16E+01	0.00E+00	3.27E-02	1.70E-02	1.09E-02	-3.19E+00
WDP	[m ³ world-Eq deprived]	5.46E-01	0.00E+00	1.17E-05	5.24E-03	7.79E-05	-2.13E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE32 AG1" (0.65 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.35E+01	0.00E+00	2.46E-03	4.29E-03	1.78E-03	-8.09E-03
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.47E+01	0.00E+00	2.46E-03	4.29E-03	1.78E-03	-8.09E-03
PENRE	[MJ]	2.03E+01	0.00E+00	3.27E-02	8.74E-01	1.09E-02	-3.19E+00
PENRM	[MJ]	1.37E+00	0.00E+00	0.00E+00	-8.57E-01	0.00E+00	0.00E+00
PENRT	[MJ]	2.16E+01	0.00E+00	3.27E-02	1.70E-02	1.09E-02	-3.19E+00
SM	[kg]	4.92E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.64E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	2.01E-02	0.00E+00	1.22E-06	1.24E-04	2.30E-06	-2.88E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE32 AG1" (0.65 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.63E-08	0.00E+00	1.31E-12	8.63E-12	2.36E-12	-2.14E-08
NHWD	[kg]	3.35E-01	0.00E+00	4.56E-06	3.40E-03	3.14E-02	3.40E-02
RWD	[kg]	6.83E-04	0.00E+00	6.17E-08	6.71E-07	1.51E-07	-2.73E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	5.77E-01	0.00E+00	0.00E+00	5.96E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	9.75E-02	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.75E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE32 AG1" (0.65 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.75 ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE25 AG1"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE25 AG1" (0.57 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.56E+00	0.00E+00	2.23E-03	2.89E-02	6.02E-04	-2.64E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.53E+00	0.00E+00	2.21E-03	2.89E-02	5.98E-04	-2.65E-01
GWP-biogenic	[kg CO ₂ -Eq.]	2.43E-02	0.00E+00	4.12E-06	1.03E-06	1.84E-06	1.45E-03
GWP-luluc	[kg CO ₂ -Eq.]	4.76E-03	0.00E+00	2.32E-05	1.21E-06	1.88E-06	-4.78E-05
ODP	[kg CFC11-Eq.]	2.35E-11	0.00E+00	3.74E-16	3.60E-15	1.94E-15	2.47E-13
AP	[mol H ⁺ -Eq.]	4.61E-03	0.00E+00	8.05E-06	3.17E-06	3.73E-06	-6.35E-04
EP-freshwater	[kg P-Eq.]	9.16E-06	0.00E+00	6.07E-09	7.05E-10	8.46E-10	-6.86E-08
EP-marine	[kg N-Eq.]	1.35E-03	0.00E+00	3.83E-06	8.57E-07	9.09E-07	-1.04E-04
EP-terrestrial	[mol N-Eq.]	1.49E-02	0.00E+00	4.14E-05	1.48E-05	9.92E-06	-9.36E-04
POCP	[kg NMVOC-Eq.]	3.47E-03	0.00E+00	7.37E-06	2.44E-06	2.82E-06	-4.16E-04
ADPE	[kg Sb-Eq.]	7.14E-07	0.00E+00	1.50E-10	4.09E-11	4.06E-11	-1.44E-06
ADPF	[MJ]	1.87E+01	0.00E+00	2.88E-02	7.50E-03	9.78E-03	-2.71E+00
WDP	[m ³ world-Eq deprived]	3.30E-01	0.00E+00	1.03E-05	2.57E-03	6.99E-05	-1.82E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE25 AG1" (0.57 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.10E+01	0.00E+00	2.17E-03	1.92E-03	1.59E-03	4.18E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.22E+01	0.00E+00	2.17E-03	1.92E-03	1.59E-03	4.18E-02
PENRE	[MJ]	1.76E+01	0.00E+00	2.88E-02	5.94E-01	9.78E-03	-2.71E+00
PENRM	[MJ]	1.10E+00	0.00E+00	0.00E+00	-5.86E-01	0.00E+00	0.00E+00
PENRT	[MJ]	1.87E+01	0.00E+00	2.88E-02	7.50E-03	9.78E-03	-2.71E+00
SM	[kg]	4.42E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.47E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.42E-02	0.00E+00	1.07E-06	6.06E-05	2.06E-06	-2.58E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE25 AG1" (0.57 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.36E-08	0.00E+00	1.16E-12	3.84E-12	2.11E-12	-1.91E-08
NHWD	[kg]	3.00E-01	0.00E+00	4.03E-06	1.49E-03	2.82E-02	3.06E-02
RWD	[kg]	6.14E-04	0.00E+00	5.45E-08	3.11E-07	1.36E-07	-1.32E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	5.18E-01	0.00E+00	0.00E+00	5.35E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	4.75E-02	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	8.50E-02	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE25 AG1" (0.57 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.76 ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE25 AG3/4"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	MNR	MNR	MNR	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE25 AG3/4" (0.42 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.15E+00	0.00E+00	1.62E-03	2.84E-02	4.34E-04	-1.93E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.13E+00	0.00E+00	1.60E-03	2.84E-02	4.31E-04	-1.94E-01
GWP-biogenic	[kg CO ₂ -Eq.]	1.79E-02	0.00E+00	2.99E-06	1.01E-06	1.33E-06	1.03E-03
GWP-luluc	[kg CO ₂ -Eq.]	3.50E-03	0.00E+00	1.68E-05	1.19E-06	1.36E-06	-3.81E-05
ODP	[kg CFC11-Eq.]	1.71E-11	0.00E+00	2.71E-16	3.53E-15	1.40E-15	1.54E-13
AP	[mol H ⁺ -Eq.]	3.40E-03	0.00E+00	5.85E-06	3.11E-06	2.69E-06	-4.62E-04
EP-freshwater	[kg P-Eq.]	6.96E-06	0.00E+00	4.41E-09	6.93E-10	6.10E-10	-5.19E-08
EP-marine	[kg N-Eq.]	9.96E-04	0.00E+00	2.78E-06	8.42E-07	6.56E-07	-7.57E-05
EP-terrestrial	[mol N-Eq.]	1.10E-02	0.00E+00	3.01E-05	1.46E-05	7.15E-06	-6.86E-04
POCP	[kg NMVOC-Eq.]	2.59E-03	0.00E+00	5.35E-06	2.39E-06	2.03E-06	-3.03E-04
ADPE	[kg Sb-Eq.]	5.20E-07	0.00E+00	1.09E-10	4.01E-11	2.93E-11	-1.04E-06
ADPF	[MJ]	1.41E+01	0.00E+00	2.10E-02	7.37E-03	7.06E-03	-2.00E+00
WDP	[m ³ world-Eq deprived]	2.71E-01	0.00E+00	7.48E-06	2.52E-03	5.04E-05	-1.34E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE25 AG3/4" (0.42 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.53E+01	0.00E+00	1.58E-03	1.88E-03	1.15E-03	1.50E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.65E+01	0.00E+00	1.58E-03	1.88E-03	1.15E-03	1.50E-02
PENRE	[MJ]	1.31E+01	0.00E+00	2.10E-02	4.99E-01	7.06E-03	-2.00E+00
PENRM	[MJ]	1.00E+00	0.00E+00	0.00E+00	-4.91E-01	0.00E+00	0.00E+00
PENRT	[MJ]	1.41E+01	0.00E+00	2.10E-02	7.37E-03	7.06E-03	-2.00E+00
SM	[kg]	3.19E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.11E-02	0.00E+00	7.81E-07	5.95E-05	1.49E-06	-1.86E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE25 AG3/4" (0.42 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.73E-08	0.00E+00	8.41E-13	3.77E-12	1.52E-12	-1.38E-08
NHWD	[kg]	2.17E-01	0.00E+00	2.93E-06	1.46E-03	2.03E-02	2.20E-02
RWD	[kg]	4.56E-04	0.00E+00	3.96E-08	3.06E-07	9.79E-08	-1.30E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.74E-01	0.00E+00	0.00E+00	3.86E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	4.66E-02	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	8.35E-02	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE25 AG3/4" (0.42 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.77 ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE63 IG2"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE63 IG2" (2.76 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	7.67E+00	0.00E+00	1.07E-02	2.00E-01	2.87E-03	-1.12E+00
GWP-fossil	[kg CO ₂ -Eq.]	7.53E+00	0.00E+00	1.06E-02	2.00E-01	2.85E-03	-1.13E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.17E-01	0.00E+00	1.98E-05	7.06E-06	8.78E-06	5.87E-03
GWP-luluc	[kg CO ₂ -Eq.]	2.28E-02	0.00E+00	1.11E-04	8.99E-06	8.96E-06	-2.38E-04
ODP	[kg CFC11-Eq.]	1.15E-10	0.00E+00	1.80E-15	2.67E-14	9.23E-15	7.54E-13
AP	[mol H ⁺ -Eq.]	2.24E-02	0.00E+00	3.87E-05	2.23E-05	1.78E-05	-2.67E-03
EP-freshwater	[kg P-Eq.]	4.90E-05	0.00E+00	2.92E-08	5.00E-09	4.03E-09	-3.11E-07
EP-marine	[kg N-Eq.]	6.52E-03	0.00E+00	1.84E-05	6.06E-06	4.33E-06	-4.40E-04
EP-terrestrial	[mol N-Eq.]	7.18E-02	0.00E+00	1.99E-04	1.04E-04	4.73E-05	-3.99E-03
POCP	[kg NMVOC-Eq.]	1.66E-02	0.00E+00	3.54E-05	1.72E-05	1.34E-05	-1.75E-03
ADPE	[kg Sb-Eq.]	3.57E-06	0.00E+00	7.20E-10	3.02E-10	1.94E-10	-5.99E-06
ADPF	[MJ]	9.06E+01	0.00E+00	1.39E-01	5.57E-02	4.66E-02	-1.18E+01
WDP	[m³ world-Eq deprived]	2.03E+00	0.00E+00	4.95E-05	1.79E-02	3.33E-04	-7.87E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE63 IG2" (2.76 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.03E+02	0.00E+00	1.05E-02	1.41E-02	7.60E-03	7.55E-03
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.04E+02	0.00E+00	1.05E-02	1.41E-02	7.60E-03	7.55E-03
PENRE	[MJ]	8.67E+01	0.00E+00	1.39E-01	3.51E+00	4.66E-02	-1.18E+01
PENRM	[MJ]	3.97E+00	0.00E+00	0.00E+00	-3.46E+00	0.00E+00	0.00E+00
PENRT	[MJ]	9.06E+01	0.00E+00	1.39E-01	5.57E-02	4.66E-02	-1.18E+01
SM	[kg]	2.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.09E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m³]	7.90E-02	0.00E+00	5.17E-06	4.23E-04	9.82E-06	-1.07E-01

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE63 IG2" (2.76 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.14E-07	0.00E+00	5.56E-12	2.83E-11	1.01E-11	-7.94E-08
NHWD	[kg]	1.49E+00	0.00E+00	1.94E-05	1.11E-02	1.34E-01	1.27E-01
RWD	[kg]	2.91E-03	0.00E+00	2.62E-07	2.24E-06	6.46E-07	-9.28E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.59E+00	0.00E+00	0.00E+00	2.55E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	3.32E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	5.95E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE63 IG2" (2.76 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.78 ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE50 IG6/4"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE50 IG6/4" (1.50 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	4.16E+00	0.00E+00	5.84E-03	1.33E-01	1.55E-03	-6.37E-01
GWP-fossil	[kg CO ₂ -Eq.]	4.09E+00	0.00E+00	5.77E-03	1.33E-01	1.54E-03	-6.40E-01
GWP-biogenic	[kg CO ₂ -Eq.]	6.33E-02	0.00E+00	1.08E-05	4.65E-06	4.74E-06	3.25E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.23E-02	0.00E+00	6.06E-05	6.44E-06	4.84E-06	-1.44E-04
ODP	[kg CFC11-Eq.]	6.21E-11	0.00E+00	9.76E-16	1.91E-14	4.98E-15	3.47E-13
AP	[mol H ⁺ -Eq.]	1.21E-02	0.00E+00	2.10E-05	1.52E-05	9.60E-06	-1.51E-03
EP-freshwater	[kg P-Eq.]	2.86E-05	0.00E+00	1.59E-08	3.41E-09	2.18E-09	-1.82E-07
EP-marine	[kg N-Eq.]	3.53E-03	0.00E+00	1.00E-05	4.12E-06	2.34E-06	-2.49E-04
EP-terrestrial	[mol N-Eq.]	3.89E-02	0.00E+00	1.08E-04	7.07E-05	2.55E-05	-2.27E-03
POCP	[kg NMVOC-Eq.]	9.01E-03	0.00E+00	1.93E-05	1.17E-05	7.26E-06	-9.90E-04
ADPE	[kg Sb-Eq.]	1.92E-06	0.00E+00	3.91E-10	2.15E-10	1.04E-10	-3.36E-06
ADPF	[MJ]	4.99E+01	0.00E+00	7.54E-02	3.99E-02	2.52E-02	-6.74E+00
WDP	[m ³ world-Eq deprived]	1.32E+00	0.00E+00	2.69E-05	1.20E-02	1.80E-04	-4.49E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE50 IG6/4" (1.50 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	5.52E+01	0.00E+00	5.68E-03	1.00E-02	4.10E-03	-4.20E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	5.64E+01	0.00E+00	5.68E-03	1.00E-02	4.10E-03	-4.20E-02
PENRE	[MJ]	4.74E+01	0.00E+00	7.54E-02	2.06E+00	2.52E-02	-6.74E+00
PENRM	[MJ]	2.53E+00	0.00E+00	0.00E+00	-2.02E+00	0.00E+00	0.00E+00
PENRT	[MJ]	4.99E+01	0.00E+00	7.54E-02	3.99E-02	2.52E-02	-6.74E+00
SM	[kg]	1.17E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.41E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	4.79E-02	0.00E+00	2.81E-06	2.84E-04	5.30E-06	-6.01E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE50 IG6/4" (1.50 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	6.14E-08	0.00E+00	3.02E-12	2.02E-11	5.44E-12	-4.46E-08
NHWD	[kg]	7.99E-01	0.00E+00	1.05E-05	7.96E-03	7.25E-02	7.09E-02
RWD	[kg]	1.57E-03	0.00E+00	1.42E-07	1.55E-06	3.49E-07	-6.27E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.38E+00	0.00E+00	0.00E+00	1.38E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.24E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	4.01E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 ELBOW 90°/INT. THREAD: FIT GJS 90 PE50 IG6/4" (1.50 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.79 ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE40 ZAK-SP34

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE40 ZAK-SP34 (1.10 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	3.11E+00	0.00E+00	4.28E-03	1.26E-01	1.12E-03	-4.62E-01
GWP-fossil	[kg CO ₂ -Eq.]	3.06E+00	0.00E+00	4.23E-03	1.26E-01	1.12E-03	-4.64E-01
GWP-biogenic	[kg CO ₂ -Eq.]	4.69E-02	0.00E+00	7.90E-06	4.32E-06	3.44E-06	2.22E-03
GWP-luluc	[kg CO ₂ -Eq.]	9.11E-03	0.00E+00	4.44E-05	5.91E-06	3.51E-06	-1.20E-04
ODP	[kg CFC11-Eq.]	4.57E-11	0.00E+00	7.16E-16	1.79E-14	3.62E-15	1.21E-13
AP	[mol H ⁺ -Eq.]	9.04E-03	0.00E+00	1.54E-05	1.44E-05	6.97E-06	-1.08E-03
EP-freshwater	[kg P-Eq.]	2.28E-05	0.00E+00	1.16E-08	3.07E-09	1.58E-09	-1.40E-07
EP-marine	[kg N-Eq.]	2.62E-03	0.00E+00	7.33E-06	3.86E-06	1.70E-06	-1.80E-04
EP-terrestrial	[mol N-Eq.]	2.89E-02	0.00E+00	7.93E-05	6.71E-05	1.85E-05	-1.65E-03
POCP	[kg NMVOC-Eq.]	6.74E-03	0.00E+00	1.41E-05	1.10E-05	5.27E-06	-7.09E-04
ADPE	[kg Sb-Eq.]	1.43E-06	0.00E+00	2.87E-10	2.01E-10	7.59E-11	-2.37E-06
ADPF	[MJ]	3.79E+01	0.00E+00	5.53E-02	3.74E-02	1.83E-02	-4.97E+00
WDP	[m³ world-Eq deprived]	1.15E+00	0.00E+00	1.97E-05	1.15E-02	1.31E-04	-3.30E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE40 ZAK-SP34 (1.10 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	4.06E+01	0.00E+00	4.17E-03	9.38E-03	2.98E-03	-1.05E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	4.18E+01	0.00E+00	4.17E-03	9.38E-03	2.98E-03	-1.05E-01
PENRE	[MJ]	3.56E+01	0.00E+00	5.53E-02	1.82E+00	1.83E-02	-4.97E+00
PENRM	[MJ]	2.29E+00	0.00E+00	0.00E+00	-1.78E+00	0.00E+00	0.00E+00
PENRT	[MJ]	3.79E+01	0.00E+00	5.53E-02	3.74E-02	1.83E-02	-4.97E+00
SM	[kg]	8.61E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.40E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m³]	3.94E-02	0.00E+00	2.06E-06	2.71E-04	3.85E-06	-4.24E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE40 ZAK-SP34 (1.10 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	4.53E-08	0.00E+00	2.22E-12	1.89E-11	3.95E-12	-2.09E-08
NHWD	[kg]	5.86E-01	0.00E+00	7.72E-06	7.25E-03	5.26E-02	3.33E-02
RWD	[kg]	1.17E-03	0.00E+00	1.04E-07	1.46E-06	2.53E-07	-2.74E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.01E+00	0.00E+00	0.00E+00	9.99E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.19E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	3.92E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE40 ZAK-SP34 (1.10 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.80 ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE50 ZAK-SP46

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE50 ZAK-SP46 (1.67 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	4.57E+00	0.00E+00	6.50E-03	1.70E-01	1.72E-03	-7.49E-01
GWP-fossil	[kg CO ₂ -Eq.]	4.49E+00	0.00E+00	6.42E-03	1.70E-01	1.70E-03	-7.53E-01
GWP-biogenic	[kg CO ₂ -Eq.]	6.91E-02	0.00E+00	1.20E-05	5.80E-06	5.25E-06	3.74E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.35E-02	0.00E+00	6.74E-05	8.21E-06	5.36E-06	-1.79E-04
ODP	[kg CFC11-Eq.]	6.79E-11	0.00E+00	1.09E-15	2.49E-14	5.52E-15	3.33E-13
AP	[mol H ⁺ -Eq.]	1.33E-02	0.00E+00	2.34E-05	1.95E-05	1.06E-05	-1.76E-03
EP-freshwater	[kg P-Eq.]	3.31E-05	0.00E+00	1.77E-08	4.19E-09	2.41E-09	-2.18E-07
EP-marine	[kg N-Eq.]	3.86E-03	0.00E+00	1.11E-05	5.25E-06	2.59E-06	-2.93E-04
EP-terrestrial	[mol N-Eq.]	4.25E-02	0.00E+00	1.20E-04	9.10E-05	2.83E-05	-2.67E-03
POCP	[kg NMVOC-Eq.]	9.86E-03	0.00E+00	2.14E-05	1.50E-05	8.04E-06	-1.16E-03
ADPE	[kg Sb-Eq.]	2.11E-06	0.00E+00	4.36E-10	2.78E-10	1.16E-10	-3.91E-06
ADPF	[MJ]	5.50E+01	0.00E+00	8.39E-02	5.18E-02	2.79E-02	-7.98E+00
WDP	[m³ world-Eq deprived]	1.63E+00	0.00E+00	3.00E-05	1.55E-02	1.99E-04	-5.31E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE50 ZAK-SP46 (1.67 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	6.05E+01	0.00E+00	6.33E-03	1.30E-02	4.55E-03	-9.26E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	6.17E+01	0.00E+00	6.33E-03	1.30E-02	4.55E-03	-9.26E-02
PENRE	[MJ]	5.21E+01	0.00E+00	8.39E-02	2.47E+00	2.79E-02	-7.98E+00
PENRM	[MJ]	2.93E+00	0.00E+00	0.00E+00	-2.42E+00	0.00E+00	0.00E+00
PENRT	[MJ]	5.50E+01	0.00E+00	8.39E-02	5.18E-02	2.79E-02	-7.98E+00
SM	[kg]	1.28E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.97E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m³]	5.67E-02	0.00E+00	3.13E-06	3.66E-04	5.87E-06	-7.00E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE50 ZAK-SP46 (1.67 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	6.71E-08	0.00E+00	3.37E-12	2.61E-11	6.02E-12	-5.20E-08
NHWD	[kg]	8.71E-01	0.00E+00	1.17E-05	1.01E-02	8.03E-02	8.24E-02
RWD	[kg]	1.71E-03	0.00E+00	1.58E-07	1.99E-06	3.87E-07	-8.31E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.50E+00	0.00E+00	0.00E+00	1.52E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.96E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	5.30E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE50 ZAK-SP46 (1.67 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.81 ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE40 ZAK-SP46

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE40 ZAK-SP46 (1.20 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	3.39E+00	0.00E+00	4.67E-03	1.23E-01	1.23E-03	-4.95E-01
GWP-fossil	[kg CO ₂ -Eq.]	3.33E+00	0.00E+00	4.61E-03	1.23E-01	1.23E-03	-4.97E-01
GWP-biogenic	[kg CO ₂ -Eq.]	5.13E-02	0.00E+00	8.62E-06	4.23E-06	3.77E-06	2.43E-03
GWP-luluc	[kg CO ₂ -Eq.]	9.97E-03	0.00E+00	4.84E-05	5.31E-06	3.85E-06	-1.23E-04
ODP	[kg CFC11-Eq.]	5.01E-11	0.00E+00	7.81E-16	1.62E-14	3.97E-15	1.80E-13
AP	[mol H ⁺ -Eq.]	9.87E-03	0.00E+00	1.68E-05	1.38E-05	7.65E-06	-1.16E-03
EP-freshwater	[kg P-Eq.]	2.31E-05	0.00E+00	1.27E-08	2.87E-09	1.73E-09	-1.47E-07
EP-marine	[kg N-Eq.]	2.87E-03	0.00E+00	8.00E-06	3.66E-06	1.86E-06	-1.93E-04
EP-terrestrial	[mol N-Eq.]	3.16E-02	0.00E+00	8.65E-05	6.44E-05	2.03E-05	-1.76E-03
POCP	[kg NMVOC-Eq.]	7.35E-03	0.00E+00	1.54E-05	1.05E-05	5.78E-06	-7.63E-04
ADPE	[kg Sb-Eq.]	1.55E-06	0.00E+00	3.13E-10	1.82E-10	8.32E-11	-2.56E-06
ADPF	[MJ]	4.10E+01	0.00E+00	6.03E-02	3.38E-02	2.00E-02	-5.30E+00
WDP	[m³ world-Eq deprived]	1.07E+00	0.00E+00	2.15E-05	1.11E-02	1.43E-04	-3.52E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE40 ZAK-SP46 (1.20 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	4.46E+01	0.00E+00	4.55E-03	8.55E-03	3.27E-03	-8.41E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	4.58E+01	0.00E+00	4.55E-03	8.55E-03	3.27E-03	-8.41E-02
PENRE	[MJ]	3.86E+01	0.00E+00	6.03E-02	1.91E+00	2.00E-02	-5.30E+00
PENRM	[MJ]	2.39E+00	0.00E+00	0.00E+00	-1.88E+00	0.00E+00	0.00E+00
PENRT	[MJ]	4.10E+01	0.00E+00	6.03E-02	3.38E-02	2.00E-02	-5.30E+00
SM	[kg]	9.47E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.60E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m³]	3.88E-02	0.00E+00	2.25E-06	2.63E-04	4.22E-06	-4.59E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE40 ZAK-SP46 (1.20 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	4.98E-08	0.00E+00	2.42E-12	1.72E-11	4.33E-12	-3.41E-08
NHWD	[kg]	6.45E-01	0.00E+00	8.42E-06	6.47E-03	5.77E-02	5.40E-02
RWD	[kg]	1.28E-03	0.00E+00	1.14E-07	1.36E-06	2.78E-07	-5.98E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.11E+00	0.00E+00	0.00E+00	1.10E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.13E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	3.81E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE40 ZAK-SP46 (1.20 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.82 ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE32 ZAK-SP46

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE32 ZAK-SP46 (0.96 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	2.60E+00	0.00E+00	3.74E-03	1.00E-01	9.86E-04	-4.53E-01
GWP-fossil	[kg CO ₂ -Eq.]	2.55E+00	0.00E+00	3.69E-03	1.00E-01	9.80E-04	-4.56E-01
GWP-biogenic	[kg CO ₂ -Eq.]	3.94E-02	0.00E+00	6.89E-06	3.42E-06	3.02E-06	2.27E-03
GWP-luluc	[kg CO ₂ -Eq.]	7.78E-03	0.00E+00	3.88E-05	4.26E-06	3.08E-06	-1.07E-04
ODP	[kg CFC11-Eq.]	3.86E-11	0.00E+00	6.25E-16	1.32E-14	3.17E-15	2.07E-13
AP	[mol H ⁺ -Eq.]	7.58E-03	0.00E+00	1.35E-05	1.13E-05	6.11E-06	-1.07E-03
EP-freshwater	[kg P-Eq.]	1.79E-05	0.00E+00	1.02E-08	2.28E-09	1.38E-09	-1.32E-07
EP-marine	[kg N-Eq.]	2.20E-03	0.00E+00	6.40E-06	2.97E-06	1.49E-06	-1.77E-04
EP-terrestrial	[mol N-Eq.]	2.43E-02	0.00E+00	6.92E-05	5.26E-05	1.62E-05	-1.62E-03
POCP	[kg NMVOC-Eq.]	5.67E-03	0.00E+00	1.23E-05	8.49E-06	4.62E-06	-7.02E-04
ADPE	[kg Sb-Eq.]	1.19E-06	0.00E+00	2.50E-10	1.48E-10	6.65E-11	-2.37E-06
ADPF	[MJ]	3.16E+01	0.00E+00	4.82E-02	2.74E-02	1.60E-02	-4.82E+00
WDP	[m³ world-Eq deprived]	8.30E-01	0.00E+00	1.72E-05	9.11E-03	1.14E-04	-3.21E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE32 ZAK-SP46 (0.96 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	3.45E+01	0.00E+00	3.64E-03	6.93E-03	2.61E-03	-5.28E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	3.57E+01	0.00E+00	3.64E-03	6.93E-03	2.61E-03	-5.28E-02
PENRE	[MJ]	2.96E+01	0.00E+00	4.82E-02	1.49E+00	1.60E-02	-4.82E+00
PENRM	[MJ]	1.98E+00	0.00E+00	0.00E+00	-1.46E+00	0.00E+00	0.00E+00
PENRT	[MJ]	3.16E+01	0.00E+00	4.82E-02	2.74E-02	1.60E-02	-4.82E+00
SM	[kg]	7.22E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.41E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m³]	3.01E-02	0.00E+00	1.80E-06	2.15E-04	3.37E-06	-4.24E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE32 ZAK-SP46 (0.96 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	3.83E-08	0.00E+00	1.94E-12	1.39E-11	3.46E-12	-3.15E-08
NHWD	[kg]	4.91E-01	0.00E+00	6.74E-06	5.17E-03	4.61E-02	5.00E-02
RWD	[kg]	9.86E-04	0.00E+00	9.11E-08	1.10E-06	2.22E-07	-4.96E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	8.48E-01	0.00E+00	0.00E+00	8.76E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.77E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	3.16E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE32 ZAK-SP46 (0.96 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.83 ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE25 ZAK-SP46

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE25 ZAK-SP46 (0.63 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.71E+00	0.00E+00	2.44E-03	6.94E-02	6.42E-04	-2.97E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.68E+00	0.00E+00	2.41E-03	6.94E-02	6.38E-04	-2.98E-01
GWP-biogenic	[kg CO ₂ -Eq.]	2.61E-02	0.00E+00	4.50E-06	2.35E-06	1.96E-06	1.47E-03
GWP-luluc	[kg CO ₂ -Eq.]	5.13E-03	0.00E+00	2.53E-05	2.67E-06	2.00E-06	-7.24E-05
ODP	[kg CFC11-Eq.]	2.53E-11	0.00E+00	4.07E-16	8.42E-15	2.07E-15	1.18E-13
AP	[mol H ⁺ -Eq.]	5.01E-03	0.00E+00	8.78E-06	7.65E-06	3.98E-06	-6.97E-04
EP-freshwater	[kg P-Eq.]	1.14E-05	0.00E+00	6.62E-09	1.47E-09	9.02E-10	-8.74E-08
EP-marine	[kg N-Eq.]	1.46E-03	0.00E+00	4.17E-06	1.99E-06	9.70E-07	-1.16E-04
EP-terrestrial	[mol N-Eq.]	1.61E-02	0.00E+00	4.51E-05	3.58E-05	1.06E-05	-1.06E-03
POCP	[kg NMVOC-Eq.]	3.78E-03	0.00E+00	8.04E-06	5.70E-06	3.01E-06	-4.59E-04
ADPE	[kg Sb-Eq.]	7.75E-07	0.00E+00	1.63E-10	9.47E-11	4.33E-11	-1.54E-06
ADPF	[MJ]	2.11E+01	0.00E+00	3.15E-02	1.75E-02	1.04E-02	-3.17E+00
WDP	[m ³ world-Eq deprived]	5.13E-01	0.00E+00	1.12E-05	6.28E-03	7.45E-05	-2.11E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE25 ZAK-SP46 (0.63 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.26E+01	0.00E+00	2.37E-03	4.46E-03	1.70E-03	-4.46E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.38E+01	0.00E+00	2.37E-03	4.46E-03	1.70E-03	-4.46E-02
PENRE	[MJ]	1.96E+01	0.00E+00	3.15E-02	1.04E+00	1.04E-02	-3.17E+00
PENRM	[MJ]	1.53E+00	0.00E+00	0.00E+00	-1.02E+00	0.00E+00	0.00E+00
PENRT	[MJ]	2.11E+01	0.00E+00	3.15E-02	1.75E-02	1.04E-02	-3.17E+00
SM	[kg]	4.71E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.57E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.90E-02	0.00E+00	1.17E-06	1.48E-04	2.20E-06	-2.76E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE25 ZAK-SP46 (0.63 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.53E-08	0.00E+00	1.26E-12	8.96E-12	2.25E-12	-2.05E-08
NHWD	[kg]	3.20E-01	0.00E+00	4.39E-06	3.20E-03	3.00E-02	3.25E-02
RWD	[kg]	6.57E-04	0.00E+00	5.94E-08	7.25E-07	1.45E-07	-3.46E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	5.52E-01	0.00E+00	0.00E+00	5.70E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.23E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.20E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE25 ZAK-SP46 (0.63 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.84 ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE32 ZAK-SP34

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE32 ZAK-SP34 (0.81 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	2.22E+00	0.00E+00	3.15E-03	1.04E-01	8.24E-04	-3.87E-01
GWP-fossil	[kg CO ₂ -Eq.]	2.18E+00	0.00E+00	3.11E-03	1.04E-01	8.18E-04	-3.88E-01
GWP-biogenic	[kg CO ₂ -Eq.]	3.33E-02	0.00E+00	5.82E-06	3.51E-06	2.52E-06	1.86E-03
GWP-luluc	[kg CO ₂ -Eq.]	6.56E-03	0.00E+00	3.27E-05	4.93E-06	2.57E-06	-1.00E-04
ODP	[kg CFC11-Eq.]	3.24E-11	0.00E+00	5.27E-16	1.51E-14	2.65E-15	1.03E-13
AP	[mol H ⁺ -Eq.]	6.43E-03	0.00E+00	1.14E-05	1.19E-05	5.11E-06	-9.01E-04
EP-freshwater	[kg P-Eq.]	1.70E-05	0.00E+00	8.56E-09	2.49E-09	1.16E-09	-1.17E-07
EP-marine	[kg N-Eq.]	1.87E-03	0.00E+00	5.40E-06	3.18E-06	1.24E-06	-1.51E-04
EP-terrestrial	[mol N-Eq.]	2.06E-02	0.00E+00	5.84E-05	5.55E-05	1.36E-05	-1.38E-03
POCP	[kg NMVOC-Eq.]	4.82E-03	0.00E+00	1.04E-05	9.08E-06	3.86E-06	-5.94E-04
ADPE	[kg Sb-Eq.]	1.01E-06	0.00E+00	2.11E-10	1.68E-10	5.56E-11	-1.98E-06
ADPF	[MJ]	2.73E+01	0.00E+00	4.07E-02	3.14E-02	1.34E-02	-4.16E+00
WDP	[m ³ world-Eq deprived]	9.03E-01	0.00E+00	1.45E-05	9.48E-03	9.56E-05	-2.76E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE32 ZAK-SP34 (0.81 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.89E+01	0.00E+00	3.07E-03	7.85E-03	2.18E-03	-8.74E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	3.01E+01	0.00E+00	3.07E-03	7.85E-03	2.18E-03	-8.74E-02
PENRE	[MJ]	2.55E+01	0.00E+00	4.07E-02	1.37E+00	1.34E-02	-4.16E+00
PENRM	[MJ]	1.85E+00	0.00E+00	0.00E+00	-1.34E+00	0.00E+00	0.00E+00
PENRT	[MJ]	2.73E+01	0.00E+00	4.07E-02	3.14E-02	1.34E-02	-4.16E+00
SM	[kg]	6.03E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.01E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	3.01E-02	0.00E+00	1.52E-06	2.24E-04	2.82E-06	-3.55E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE32 ZAK-SP34 (0.81 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	3.22E-08	0.00E+00	1.63E-12	1.58E-11	2.89E-12	-2.64E-08
NHWD	[kg]	4.11E-01	0.00E+00	5.68E-06	6.04E-03	3.86E-02	4.17E-02
RWD	[kg]	8.31E-04	0.00E+00	7.68E-08	1.21E-06	1.86E-07	-5.14E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	7.09E-01	0.00E+00	0.00E+00	7.32E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.83E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	3.27E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE32 ZAK-SP34 (0.81 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.85 ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE25 ZAK-SP34

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE25 ZAK-SP34 (0.57 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.64E+00	0.00E+00	2.22E-03	6.69E-02	5.82E-04	-2.38E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.62E+00	0.00E+00	2.19E-03	6.69E-02	5.79E-04	-2.39E-01
GWP-biogenic	[kg CO ₂ -Eq.]	2.49E-02	0.00E+00	4.09E-06	2.25E-06	1.78E-06	1.13E-03
GWP-luluc	[kg CO ₂ -Eq.]	4.81E-03	0.00E+00	2.30E-05	3.05E-06	1.82E-06	-6.34E-05
ODP	[kg CFC11-Eq.]	2.38E-11	0.00E+00	3.71E-16	9.42E-15	1.87E-15	4.75E-14
AP	[mol H ⁺ -Eq.]	4.79E-03	0.00E+00	8.00E-06	7.64E-06	3.61E-06	-5.53E-04
EP-freshwater	[kg P-Eq.]	1.20E-05	0.00E+00	6.03E-09	1.55E-09	8.18E-10	-7.30E-08
EP-marine	[kg N-Eq.]	1.39E-03	0.00E+00	3.80E-06	2.02E-06	8.80E-07	-9.26E-05
EP-terrestrial	[mol N-Eq.]	1.54E-02	0.00E+00	4.11E-05	3.56E-05	9.60E-06	-8.49E-04
POCP	[kg NMVOC-Eq.]	3.62E-03	0.00E+00	7.32E-06	5.78E-06	2.73E-06	-3.64E-04
ADPE	[kg Sb-Eq.]	7.45E-07	0.00E+00	1.49E-10	1.05E-10	3.93E-11	-1.21E-06
ADPF	[MJ]	2.04E+01	0.00E+00	2.86E-02	1.96E-02	9.47E-03	-2.57E+00
WDP	[m ³ world-Eq deprived]	6.11E-01	0.00E+00	1.02E-05	6.12E-03	6.76E-05	-1.71E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE25 ZAK-SP34 (0.57 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.13E+01	0.00E+00	2.16E-03	4.92E-03	1.54E-03	-6.27E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.25E+01	0.00E+00	2.16E-03	4.92E-03	1.54E-03	-6.27E-02
PENRE	[MJ]	1.89E+01	0.00E+00	2.86E-02	9.77E-01	9.47E-03	-2.57E+00
PENRM	[MJ]	1.47E+00	0.00E+00	0.00E+00	-9.57E-01	0.00E+00	0.00E+00
PENRT	[MJ]	2.04E+01	0.00E+00	2.86E-02	1.96E-02	9.47E-03	-2.57E+00
SM	[kg]	4.49E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.23E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	2.08E-02	0.00E+00	1.07E-06	1.45E-04	1.99E-06	-2.17E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE25 ZAK-SP34 (0.57 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.39E-08	0.00E+00	1.15E-12	9.92E-12	2.05E-12	-1.62E-08
NHWD	[kg]	3.05E-01	0.00E+00	4.00E-06	3.71E-03	2.73E-02	2.55E-02
RWD	[kg]	6.27E-04	0.00E+00	5.41E-08	7.62E-07	1.31E-07	-3.36E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	5.26E-01	0.00E+00	0.00E+00	5.17E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.19E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.13E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE25 ZAK-SP34 (0.57 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.86 ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE50 PE50

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE50 PE50 (1.90 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	5.15E+00	0.00E+00	7.39E-03	2.64E-01	1.92E-03	-9.04E-01
GWP-fossil	[kg CO ₂ -Eq.]	5.06E+00	0.00E+00	7.30E-03	2.64E-01	1.91E-03	-9.08E-01
GWP-biogenic	[kg CO ₂ -Eq.]	7.66E-02	0.00E+00	1.36E-05	9.10E-06	5.88E-06	4.29E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.51E-02	0.00E+00	7.67E-05	1.37E-05	6.00E-06	-2.40E-04
ODP	[kg CFC11-Eq.]	7.55E-11	0.00E+00	1.24E-15	4.07E-14	6.18E-15	1.91E-13
AP	[mol H ⁺ -Eq.]	1.48E-02	0.00E+00	2.67E-05	3.06E-05	1.19E-05	-2.10E-03
EP-freshwater	[kg P-Eq.]	4.23E-05	0.00E+00	2.01E-08	6.94E-09	2.70E-09	-2.77E-07
EP-marine	[kg N-Eq.]	4.29E-03	0.00E+00	1.27E-05	8.36E-06	2.90E-06	-3.52E-04
EP-terrestrial	[mol N-Eq.]	4.72E-02	0.00E+00	1.37E-04	1.43E-04	3.17E-05	-3.22E-03
POCP	[kg NMVOC-Eq.]	1.10E-02	0.00E+00	2.44E-05	2.38E-05	9.00E-06	-1.38E-03
ADPE	[kg Sb-Eq.]	2.37E-06	0.00E+00	4.96E-10	4.55E-10	1.30E-10	-4.61E-06
ADPF	[MJ]	6.31E+01	0.00E+00	9.55E-02	8.48E-02	3.12E-02	-9.77E+00
WDP	[m ³ world-Eq deprived]	2.37E+00	0.00E+00	3.41E-05	2.40E-02	2.23E-04	-6.47E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE50 PE50 (1.90 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	6.72E+01	0.00E+00	7.20E-03	2.12E-02	5.09E-03	-2.32E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	6.84E+01	0.00E+00	7.20E-03	2.12E-02	5.09E-03	-2.32E-01
PENRE	[MJ]	5.94E+01	0.00E+00	9.55E-02	3.24E+00	3.12E-02	-9.77E+00
PENRM	[MJ]	3.66E+00	0.00E+00	0.00E+00	-3.15E+00	0.00E+00	0.00E+00
PENRT	[MJ]	6.31E+01	0.00E+00	9.55E-02	8.48E-02	3.12E-02	-9.77E+00
SM	[kg]	1.41E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.68E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	7.63E-02	0.00E+00	3.56E-06	5.68E-04	6.58E-06	-8.25E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE50 PE50 (1.90 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	7.41E-08	0.00E+00	3.83E-12	4.27E-11	6.75E-12	-6.15E-08
NHWD	[kg]	9.60E-01	0.00E+00	1.33E-05	1.70E-02	8.99E-02	9.69E-02
RWD	[kg]	1.89E-03	0.00E+00	1.80E-07	3.21E-06	4.33E-07	-1.26E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.66E+00	0.00E+00	0.00E+00	1.71E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	4.49E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	8.03E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE50 PE50 (1.90 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.87 ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE63 PE63

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE63 PE63 (3.35 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	8.95E+00	0.00E+00	1.30E-02	3.68E-01	3.43E-03	-1.58E+00
GWP-fossil	[kg CO ₂ -Eq.]	8.79E+00	0.00E+00	1.29E-02	3.68E-01	3.41E-03	-1.59E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.35E-01	0.00E+00	2.41E-05	1.29E-05	1.05E-05	7.89E-03
GWP-luluc	[kg CO ₂ -Eq.]	2.67E-02	0.00E+00	1.35E-04	1.75E-05	1.07E-05	-3.74E-04
ODP	[kg CFC11-Eq.]	1.34E-10	0.00E+00	2.18E-15	5.21E-14	1.10E-14	7.17E-13
AP	[mol H ⁺ -Eq.]	2.60E-02	0.00E+00	4.70E-05	4.17E-05	2.13E-05	-3.71E-03
EP-freshwater	[kg P-Eq.]	6.48E-05	0.00E+00	3.54E-08	9.38E-09	4.82E-09	-4.59E-07
EP-marine	[kg N-Eq.]	7.52E-03	0.00E+00	2.23E-05	1.13E-05	5.18E-06	-6.16E-04
EP-terrestrial	[mol N-Eq.]	8.28E-02	0.00E+00	2.42E-04	1.95E-04	5.65E-05	-5.62E-03
POCP	[kg NMVOC-Eq.]	1.92E-02	0.00E+00	4.30E-05	3.23E-05	1.61E-05	-2.44E-03
ADPE	[kg Sb-Eq.]	4.15E-06	0.00E+00	8.74E-10	5.86E-10	2.31E-10	-8.25E-06
ADPF	[MJ]	1.08E+02	0.00E+00	1.68E-01	1.09E-01	5.57E-02	-1.68E+01
WDP	[m ³ world-Eq deprived]	3.17E+00	0.00E+00	6.01E-05	3.31E-02	3.98E-04	-1.12E-01

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE63 PE63 (3.35 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.19E+02	0.00E+00	1.27E-02	2.73E-02	9.09E-03	-1.86E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.20E+02	0.00E+00	1.27E-02	2.73E-02	9.09E-03	-1.86E-01
PENRE	[MJ]	1.02E+02	0.00E+00	1.68E-01	5.07E+00	5.57E-02	-1.68E+01
PENRM	[MJ]	5.47E+00	0.00E+00	0.00E+00	-4.96E+00	0.00E+00	0.00E+00
PENRT	[MJ]	1.08E+02	0.00E+00	1.68E-01	1.09E-01	5.57E-02	-1.68E+01
SM	[kg]	2.50E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.37E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.11E-01	0.00E+00	6.27E-06	7.83E-04	1.17E-05	-1.48E-01

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE63 PE63 (3.35 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.31E-07	0.00E+00	6.75E-12	5.50E-11	1.20E-11	-1.10E-07
NHWD	[kg]	1.71E+00	0.00E+00	2.35E-05	2.17E-02	1.60E-01	1.74E-01
RWD	[kg]	3.33E-03	0.00E+00	3.18E-07	4.26E-06	7.73E-07	-1.73E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.95E+00	0.00E+00	0.00E+00	3.05E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	6.17E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.10E+00	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE63 PE63 (3.35 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.88 ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE32 PE32

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	MNR	MNR	MNR	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE32 PE32 (0.70 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.93E+00	0.00E+00	2.72E-03	1.16E-01	7.00E-04	-3.37E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.90E+00	0.00E+00	2.69E-03	1.16E-01	6.96E-04	-3.39E-01
GWP-biogenic	[kg CO ₂ -Eq.]	2.87E-02	0.00E+00	5.03E-06	4.07E-06	2.14E-06	1.54E-03
GWP-luluc	[kg CO ₂ -Eq.]	5.66E-03	0.00E+00	2.83E-05	5.48E-06	2.19E-06	-9.65E-05
ODP	[kg CFC11-Eq.]	2.79E-11	0.00E+00	4.56E-16	1.63E-14	2.25E-15	1.02E-14
AP	[mol H ⁺ -Eq.]	5.56E-03	0.00E+00	9.82E-06	1.31E-05	4.34E-06	-7.76E-04
EP-freshwater	[kg P-Eq.]	1.55E-05	0.00E+00	7.40E-09	2.95E-09	9.84E-10	-1.07E-07
EP-marine	[kg N-Eq.]	1.61E-03	0.00E+00	4.67E-06	3.57E-06	1.06E-06	-1.31E-04
EP-terrestrial	[mol N-Eq.]	1.78E-02	0.00E+00	5.05E-05	6.12E-05	1.15E-05	-1.21E-03
POCP	[kg NMVOC-Eq.]	4.19E-03	0.00E+00	8.99E-06	1.01E-05	3.28E-06	-5.13E-04
ADPE	[kg Sb-Eq.]	8.70E-07	0.00E+00	1.83E-10	1.83E-10	4.72E-11	-1.69E-06
ADPF	[MJ]	2.44E+01	0.00E+00	3.52E-02	3.39E-02	1.14E-02	-3.69E+00
WDP	[m³ world-Eq deprived]	8.64E-01	0.00E+00	1.26E-05	1.04E-02	8.13E-05	-2.44E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE32 PE32 (0.70 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.49E+01	0.00E+00	2.65E-03	8.55E-03	1.86E-03	-1.22E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.61E+01	0.00E+00	2.65E-03	8.55E-03	1.86E-03	-1.22E-01
PENRE	[MJ]	2.25E+01	0.00E+00	3.52E-02	1.40E+00	1.14E-02	-3.69E+00
PENRM	[MJ]	1.88E+00	0.00E+00	0.00E+00	-1.36E+00	0.00E+00	0.00E+00
PENRT	[MJ]	2.44E+01	0.00E+00	3.52E-02	3.39E-02	1.14E-02	-3.69E+00
SM	[kg]	5.13E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.71E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m³]	2.80E-02	0.00E+00	1.31E-06	2.47E-04	2.40E-06	-3.03E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE32 PE32 (0.70 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.77E-08	0.00E+00	1.41E-12	1.72E-11	2.46E-12	-2.26E-08
NHWD	[kg]	3.50E-01	0.00E+00	4.91E-06	6.77E-03	3.28E-02	3.54E-02
RWD	[kg]	7.21E-04	0.00E+00	6.64E-08	1.34E-06	1.58E-07	-5.46E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	6.02E-01	0.00E+00	0.00E+00	6.22E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.94E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	3.48E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE32 PE32 (0.70 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to EN 15804+A2 are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.89 ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE40 PE40
DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	MNR	MNR	MNR	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE40 PE40 (1.16 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	3.16E+00	0.00E+00	4.51E-03	1.92E-01	1.16E-03	-5.59E-01
GWP-fossil	[kg CO ₂ -Eq.]	3.11E+00	0.00E+00	4.46E-03	1.92E-01	1.15E-03	-5.61E-01
GWP-biogenic	[kg CO ₂ -Eq.]	4.69E-02	0.00E+00	8.33E-06	6.75E-06	3.55E-06	2.55E-03
GWP-luluc	[kg CO ₂ -Eq.]	9.27E-03	0.00E+00	4.68E-05	8.90E-06	3.62E-06	-1.60E-04
ODP	[kg CFC11-Eq.]	4.61E-11	0.00E+00	7.55E-16	2.65E-14	3.73E-15	1.93E-14
AP	[mol H ⁺ -Eq.]	9.09E-03	0.00E+00	1.63E-05	2.16E-05	7.19E-06	-1.29E-03
EP-freshwater	[kg P-Eq.]	2.52E-05	0.00E+00	1.23E-08	4.85E-09	1.63E-09	-1.77E-07
EP-marine	[kg N-Eq.]	2.63E-03	0.00E+00	7.73E-06	5.87E-06	1.75E-06	-2.17E-04
EP-terrestrial	[mol N-Eq.]	2.89E-02	0.00E+00	8.37E-05	1.01E-04	1.91E-05	-2.00E-03
POCP	[kg NMVOC-Eq.]	6.79E-03	0.00E+00	1.49E-05	1.67E-05	5.44E-06	-8.50E-04
ADPE	[kg Sb-Eq.]	1.43E-06	0.00E+00	3.03E-10	2.98E-10	7.83E-11	-2.80E-06
ADPF	[MJ]	3.96E+01	0.00E+00	5.83E-02	5.51E-02	1.89E-02	-6.11E+00
WDP	[m³ world-Eq deprived]	1.39E+00	0.00E+00	2.08E-05	1.73E-02	1.35E-04	-4.04E-02
Caption	GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential						

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE40 PE40 (1.16 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	4.10E+01	0.00E+00	4.39E-03	1.39E-02	3.07E-03	-2.00E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	4.22E+01	0.00E+00	4.39E-03	1.39E-02	3.07E-03	-2.00E-01
PENRE	[MJ]	3.68E+01	0.00E+00	5.83E-02	2.34E+00	1.89E-02	-6.11E+00
PENRM	[MJ]	2.79E+00	0.00E+00	0.00E+00	-2.28E+00	0.00E+00	0.00E+00
PENRT	[MJ]	3.96E+01	0.00E+00	5.83E-02	5.51E-02	1.89E-02	-6.11E+00
SM	[kg]	8.49E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.84E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m³]	4.52E-02	0.00E+00	2.17E-06	4.08E-04	3.97E-06	-5.01E-02

Caption	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water
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RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE40 PE40 (1.16 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	4.53E-08	0.00E+00	2.34E-12	2.80E-11	4.07E-12	-3.74E-08
NHWD	[kg]	5.80E-01	0.00E+00	8.14E-06	1.10E-02	5.43E-02	5.87E-02
RWD	[kg]	1.17E-03	0.00E+00	1.10E-07	2.19E-06	2.62E-07	-9.02E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	9.98E-01	0.00E+00	0.00E+00	1.03E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	3.21E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	5.74E-01	0.00E+00	0.00E+00

Caption	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy
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RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 ELBOW 90°: FIT GJS 90 PE40 PE40 (1.16 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND

Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index
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The additional and optional impact categories according to EN 15804+A2 are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.90 ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE40 AG6/4"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE40 AG6/4" (1.10 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	3.01E+00	0.00E+00	4.28E-03	8.80E-02	1.14E-03	-4.89E-01
GWP-fossil	[kg CO ₂ -Eq.]	2.95E+00	0.00E+00	4.23E-03	8.80E-02	1.13E-03	-4.92E-01
GWP-biogenic	[kg CO ₂ -Eq.]	4.60E-02	0.00E+00	7.90E-06	3.09E-06	3.49E-06	2.55E-03
GWP-luluc	[kg CO ₂ -Eq.]	9.01E-03	0.00E+00	4.44E-05	4.08E-06	3.56E-06	-1.04E-04
ODP	[kg CFC11-Eq.]	4.51E-11	0.00E+00	7.16E-16	1.21E-14	3.67E-15	3.24E-13
AP	[mol H ⁺ -Eq.]	8.80E-03	0.00E+00	1.54E-05	9.90E-06	7.07E-06	-1.16E-03
EP-freshwater	[kg P-Eq.]	1.98E-05	0.00E+00	1.16E-08	2.22E-09	1.60E-09	-1.36E-07
EP-marine	[kg N-Eq.]	2.56E-03	0.00E+00	7.33E-06	2.69E-06	1.72E-06	-1.92E-04
EP-terrestrial	[mol N-Eq.]	2.82E-02	0.00E+00	7.93E-05	4.62E-05	1.88E-05	-1.74E-03
POCP	[kg NMVOC-Eq.]	6.55E-03	0.00E+00	1.41E-05	7.65E-06	5.34E-06	-7.64E-04
ADPE	[kg Sb-Eq.]	1.39E-06	0.00E+00	2.87E-10	1.36E-10	7.69E-11	-2.61E-06
ADPF	[MJ]	3.61E+01	0.00E+00	5.53E-02	2.52E-02	1.85E-02	-5.13E+00
WDP	[m³ world-Eq deprived]	8.59E-01	0.00E+00	1.97E-05	7.90E-03	1.32E-04	-3.43E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE40 AG6/4" (1.10 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	4.01E+01	0.00E+00	4.17E-03	6.37E-03	3.02E-03	4.77E-04
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	4.13E+01	0.00E+00	4.17E-03	6.37E-03	3.02E-03	4.77E-04
PENRE	[MJ]	3.42E+01	0.00E+00	5.53E-02	1.42E+00	1.85E-02	-5.13E+00
PENRM	[MJ]	1.91E+00	0.00E+00	0.00E+00	-1.39E+00	0.00E+00	0.00E+00
PENRT	[MJ]	3.61E+01	0.00E+00	5.53E-02	2.52E-02	1.85E-02	-5.13E+00
SM	[kg]	8.48E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.65E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m³]	3.25E-02	0.00E+00	2.06E-06	1.87E-04	3.90E-06	-4.67E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE40 AG6/4" (1.10 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	4.47E-08	0.00E+00	2.22E-12	1.28E-11	4.00E-12	-3.46E-08
NHWD	[kg]	5.77E-01	0.00E+00	7.72E-06	5.03E-03	5.33E-02	5.51E-02
RWD	[kg]	1.15E-03	0.00E+00	1.04E-07	1.00E-06	2.57E-07	-4.11E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	9.97E-01	0.00E+00	0.00E+00	1.01E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.47E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.63E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE40 AG6/4" (1.10 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.91 ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE32 AG6/4"

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE32 AG6/4" (0.85 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	2.29E+00	0.00E+00	3.31E-03	5.47E-02	8.86E-04	-3.93E-01
GWP-fossil	[kg CO ₂ -Eq.]	2.25E+00	0.00E+00	3.27E-03	5.47E-02	8.81E-04	-3.95E-01
GWP-biogenic	[kg CO ₂ -Eq.]	3.54E-02	0.00E+00	6.10E-06	1.92E-06	2.71E-06	2.11E-03
GWP-luluc	[kg CO ₂ -Eq.]	6.95E-03	0.00E+00	3.43E-05	2.58E-06	2.77E-06	-7.68E-05
ODP	[kg CFC11-Eq.]	3.45E-11	0.00E+00	5.53E-16	7.68E-15	2.85E-15	3.20E-13
AP	[mol H ⁺ -Eq.]	6.74E-03	0.00E+00	1.19E-05	6.18E-06	5.49E-06	-9.41E-04
EP-freshwater	[kg P-Eq.]	1.46E-05	0.00E+00	8.99E-09	1.39E-09	1.24E-09	-1.05E-07
EP-marine	[kg N-Eq.]	1.97E-03	0.00E+00	5.67E-06	1.68E-06	1.34E-06	-1.54E-04
EP-terrestrial	[mol N-Eq.]	2.17E-02	0.00E+00	6.13E-05	2.89E-05	1.46E-05	-1.40E-03
POCP	[kg NMVOC-Eq.]	5.04E-03	0.00E+00	1.09E-05	4.79E-06	4.15E-06	-6.17E-04
ADPE	[kg Sb-Eq.]	1.06E-06	0.00E+00	2.22E-10	8.63E-11	5.98E-11	-2.13E-06
ADPF	[MJ]	2.74E+01	0.00E+00	4.27E-02	1.60E-02	1.44E-02	-4.08E+00
WDP	[m ³ world-Eq deprived]	6.01E-01	0.00E+00	1.52E-05	4.92E-03	1.03E-04	-2.73E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE32 AG6/4" (0.85 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	3.08E+01	0.00E+00	3.22E-03	4.03E-03	2.35E-03	3.49E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	3.20E+01	0.00E+00	3.22E-03	4.03E-03	2.35E-03	3.49E-02
PENRE	[MJ]	2.60E+01	0.00E+00	4.27E-02	9.60E-01	1.44E-02	-4.08E+00
PENRM	[MJ]	1.46E+00	0.00E+00	0.00E+00	-9.44E-01	0.00E+00	0.00E+00
PENRT	[MJ]	2.74E+01	0.00E+00	4.27E-02	1.60E-02	1.44E-02	-4.08E+00
SM	[kg]	6.49E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.16E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	2.36E-02	0.00E+00	1.59E-06	1.16E-04	3.03E-06	-3.80E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE32 AG6/4" (0.85 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	3.43E-08	0.00E+00	1.71E-12	8.11E-12	3.11E-12	-2.81E-08
NHWD	[kg]	4.41E-01	0.00E+00	5.96E-06	3.19E-03	4.15E-02	4.50E-02
RWD	[kg]	8.85E-04	0.00E+00	8.06E-08	6.30E-07	2.00E-07	-2.55E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	7.62E-01	0.00E+00	0.00E+00	7.87E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	9.16E-02	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.64E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 ELBOW 90°/EXT. THREAD: FIT GJS 90 PE32 AG6/4" (0.85 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.92 ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE63 ZAK-SP46

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE63 ZAK-SP46 (2.16 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	5.79E+00	0.00E+00	8.41E-03	2.27E-01	2.22E-03	-1.02E+00
GWP-fossil	[kg CO ₂ -Eq.]	5.68E+00	0.00E+00	8.30E-03	2.27E-01	2.20E-03	-1.02E+00
GWP-biogenic	[kg CO ₂ -Eq.]	8.74E-02	0.00E+00	1.55E-05	7.86E-06	6.78E-06	5.11E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.73E-02	0.00E+00	8.72E-05	1.04E-05	6.92E-06	-2.39E-04
ODP	[kg CFC11-Eq.]	8.66E-11	0.00E+00	1.41E-15	3.13E-14	7.13E-15	4.83E-13
AP	[mol H ⁺ -Eq.]	1.68E-02	0.00E+00	3.03E-05	2.56E-05	1.37E-05	-2.40E-03
EP-freshwater	[kg P-Eq.]	4.09E-05	0.00E+00	2.28E-08	5.53E-09	3.11E-09	-2.95E-07
EP-marine	[kg N-Eq.]	4.88E-03	0.00E+00	1.44E-05	6.89E-06	3.35E-06	-3.98E-04
EP-terrestrial	[mol N-Eq.]	5.37E-02	0.00E+00	1.56E-04	1.20E-04	3.65E-05	-3.62E-03
POCP	[kg NMVOC-Eq.]	1.25E-02	0.00E+00	2.77E-05	1.96E-05	1.04E-05	-1.58E-03
ADPE	[kg Sb-Eq.]	2.67E-06	0.00E+00	5.63E-10	3.51E-10	1.50E-10	-5.33E-06
ADPF	[MJ]	6.96E+01	0.00E+00	1.09E-01	6.51E-02	3.60E-02	-1.08E+01
WDP	[m ³ world-Eq deprived]	1.94E+00	0.00E+00	3.87E-05	2.05E-02	2.57E-04	-7.20E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE63 ZAK-SP46 (2.16 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	7.70E+01	0.00E+00	8.18E-03	1.64E-02	5.87E-03	-1.08E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	7.82E+01	0.00E+00	8.18E-03	1.64E-02	5.87E-03	-1.08E-01
PENRE	[MJ]	6.59E+01	0.00E+00	1.09E-01	3.25E+00	3.60E-02	-1.08E+01
PENRM	[MJ]	3.70E+00	0.00E+00	0.00E+00	-3.19E+00	0.00E+00	0.00E+00
PENRT	[MJ]	6.96E+01	0.00E+00	1.09E-01	6.51E-02	3.60E-02	-1.08E+01
SM	[kg]	1.62E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.41E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	6.94E-02	0.00E+00	4.04E-06	4.85E-04	7.59E-06	-9.54E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE63 ZAK-SP46 (2.16 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	8.51E-08	0.00E+00	4.36E-12	3.30E-11	7.78E-12	-7.08E-08
NHWD	[kg]	1.10E+00	0.00E+00	1.52E-05	1.27E-02	1.04E-01	1.12E-01
RWD	[kg]	2.17E-03	0.00E+00	2.05E-07	2.58E-06	4.99E-07	-1.09E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.91E+00	0.00E+00	0.00E+00	1.97E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	3.89E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	6.96E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ZAK-ISO-FITTING-ELBOW 90° PN16 : FIT GJS 90 PE63 ZAK-SP46 (2.16 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.93 ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE63 ZAK-SP46 DREHBAR

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE63 ZAK-SP46 DREHBAR (2.70 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	7.41E+00	0.00E+00	1.05E-02	2.18E-01	2.80E-03	-1.16E+00
GWP-fossil	[kg CO ₂ -Eq.]	7.28E+00	0.00E+00	1.04E-02	2.18E-01	2.78E-03	-1.16E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.13E-01	0.00E+00	1.94E-05	7.53E-06	8.56E-06	5.97E-03
GWP-luluc	[kg CO ₂ -Eq.]	2.21E-02	0.00E+00	1.09E-04	9.92E-06	8.74E-06	-2.53E-04
ODP	[kg CFC11-Eq.]	1.11E-10	0.00E+00	1.76E-15	2.99E-14	9.00E-15	7.06E-13
AP	[mol H ⁺ -Eq.]	2.16E-02	0.00E+00	3.79E-05	2.46E-05	1.73E-05	-2.74E-03
EP-freshwater	[kg P-Eq.]	4.92E-05	0.00E+00	2.85E-08	5.30E-09	3.93E-09	-3.25E-07
EP-marine	[kg N-Eq.]	6.28E-03	0.00E+00	1.80E-05	6.60E-06	4.23E-06	-4.52E-04
EP-terrestrial	[mol N-Eq.]	6.92E-02	0.00E+00	1.95E-04	1.15E-04	4.61E-05	-4.11E-03
POCP	[kg NMVOC-Eq.]	1.60E-02	0.00E+00	3.47E-05	1.88E-05	1.31E-05	-1.80E-03
ADPE	[kg Sb-Eq.]	3.44E-06	0.00E+00	7.04E-10	3.36E-10	1.89E-10	-6.13E-06
ADPF	[MJ]	8.79E+01	0.00E+00	1.36E-01	6.24E-02	4.55E-02	-1.22E+01
WDP	[m ³ world-Eq deprived]	2.16E+00	0.00E+00	4.84E-05	1.97E-02	3.25E-04	-8.13E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE63 ZAK-SP46 DREHBAR (2.70 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	9.90E+01	0.00E+00	1.02E-02	1.57E-02	7.41E-03	-3.27E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.00E+02	0.00E+00	1.02E-02	1.57E-02	7.41E-03	-3.27E-02
PENRE	[MJ]	8.38E+01	0.00E+00	1.36E-01	3.59E+00	4.55E-02	-1.22E+01
PENRM	[MJ]	4.04E+00	0.00E+00	0.00E+00	-3.53E+00	0.00E+00	0.00E+00
PENRT	[MJ]	8.79E+01	0.00E+00	1.36E-01	6.24E-02	4.55E-02	-1.22E+01
SM	[kg]	2.11E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.23E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	8.10E-02	0.00E+00	5.06E-06	4.65E-04	9.58E-06	-1.10E-01

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE63 ZAK-SP46 DREHBAR (2.70 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.10E-07	0.00E+00	5.44E-12	3.16E-11	9.82E-12	-8.14E-08
NHWD	[kg]	1.44E+00	0.00E+00	1.89E-05	1.22E-02	1.31E-01	1.29E-01
RWD	[kg]	2.80E-03	0.00E+00	2.56E-07	2.47E-06	6.31E-07	-1.04E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.48E+00	0.00E+00	0.00E+00	2.48E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	3.73E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	6.67E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE63 ZAK-SP46 DREHBAR (2.70 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.94 ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE40 ZAK-SP46 DREHBAR

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE40 ZAK-SP46 DREHBAR (1.87 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	5.00E+00	0.00E+00	7.28E-03	1.30E-01	1.95E-03	-8.61E-01
GWP-fossil	[kg CO ₂ -Eq.]	4.90E+00	0.00E+00	7.19E-03	1.30E-01	1.93E-03	-8.66E-01
GWP-biogenic	[kg CO ₂ -Eq.]	7.66E-02	0.00E+00	1.34E-05	4.48E-06	5.96E-06	4.57E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.51E-02	0.00E+00	7.55E-05	5.61E-06	6.08E-06	-1.75E-04
ODP	[kg CFC11-Eq.]	7.57E-11	0.00E+00	1.22E-15	1.71E-14	6.26E-15	6.45E-13
AP	[mol H ⁺ -Eq.]	1.46E-02	0.00E+00	2.62E-05	1.46E-05	1.21E-05	-2.06E-03
EP-freshwater	[kg P-Eq.]	3.18E-05	0.00E+00	1.98E-08	3.03E-09	2.73E-09	-2.35E-07
EP-marine	[kg N-Eq.]	4.26E-03	0.00E+00	1.25E-05	3.88E-06	2.94E-06	-3.38E-04
EP-terrestrial	[mol N-Eq.]	4.69E-02	0.00E+00	1.35E-04	6.81E-05	3.21E-05	-3.06E-03
POCP	[kg NMVOC-Eq.]	1.09E-02	0.00E+00	2.40E-05	1.11E-05	9.12E-06	-1.35E-03
ADPE	[kg Sb-Eq.]	2.32E-06	0.00E+00	4.88E-10	1.93E-10	1.31E-10	-4.64E-06
ADPF	[MJ]	5.91E+01	0.00E+00	9.40E-02	3.57E-02	3.16E-02	-8.98E+00
WDP	[m ³ world-Eq deprived]	1.30E+00	0.00E+00	3.35E-05	1.18E-02	2.26E-04	-6.02E-02

Caption: GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE40 ZAK-SP46 DREHBAR (1.87 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	6.74E+01	0.00E+00	7.08E-03	9.03E-03	5.16E-03	4.39E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	6.86E+01	0.00E+00	7.08E-03	9.03E-03	5.16E-03	4.39E-02
PENRE	[MJ]	5.63E+01	0.00E+00	9.40E-02	2.28E+00	3.16E-02	-8.98E+00
PENRM	[MJ]	2.75E+00	0.00E+00	0.00E+00	-2.24E+00	0.00E+00	0.00E+00
PENRT	[MJ]	5.91E+01	0.00E+00	9.40E-02	3.57E-02	3.16E-02	-8.98E+00
SM	[kg]	1.43E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.71E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	5.13E-02	0.00E+00	3.50E-06	2.78E-04	6.66E-06	-8.29E-02

Caption: PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE40 ZAK-SP46 DREHBAR (1.87 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	7.47E-08	0.00E+00	3.77E-12	1.82E-11	6.84E-12	-6.14E-08
NHWD	[kg]	9.72E-01	0.00E+00	1.31E-05	6.82E-03	9.11E-02	9.80E-02
RWD	[kg]	1.90E-03	0.00E+00	1.77E-07	1.43E-06	4.39E-07	-6.30E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.68E+00	0.00E+00	0.00E+00	1.73E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.26E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	4.04E-01	0.00E+00	0.00E+00

Caption: HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE40 ZAK-SP46 DREHBAR (1.87 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.95 ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE50 ZAK-SP46 DREHBAR

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE50 ZAK-SP46 DREHBAR (2.27 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	6.33E+00	0.00E+00	8.83E-03	1.65E-01	2.36E-03	-9.27E-01
GWP-fossil	[kg CO ₂ -Eq.]	6.21E+00	0.00E+00	8.73E-03	1.65E-01	2.34E-03	-9.32E-01
GWP-biogenic	[kg CO ₂ -Eq.]	9.66E-02	0.00E+00	1.63E-05	5.62E-06	7.22E-06	4.82E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.88E-02	0.00E+00	9.16E-05	7.95E-06	7.37E-06	-2.00E-04
ODP	[kg CFC11-Eq.]	9.48E-11	0.00E+00	1.48E-15	2.41E-14	7.59E-15	5.94E-13
AP	[mol H ⁺ -Eq.]	1.85E-02	0.00E+00	3.18E-05	1.89E-05	1.46E-05	-2.20E-03
EP-freshwater	[kg P-Eq.]	4.23E-05	0.00E+00	2.40E-08	4.06E-09	3.31E-09	-2.59E-07
EP-marine	[kg N-Eq.]	5.37E-03	0.00E+00	1.51E-05	5.08E-06	3.56E-06	-3.63E-04
EP-terrestrial	[mol N-Eq.]	5.92E-02	0.00E+00	1.64E-04	8.83E-05	3.89E-05	-3.30E-03
POCP	[kg NMVOC-Eq.]	1.37E-02	0.00E+00	2.91E-05	1.45E-05	1.11E-05	-1.45E-03
ADPE	[kg Sb-Eq.]	2.94E-06	0.00E+00	5.92E-10	2.69E-10	1.59E-10	-4.94E-06
ADPF	[MJ]	7.48E+01	0.00E+00	1.14E-01	5.02E-02	3.83E-02	-9.74E+00
WDP	[m ³ world-Eq deprived]	1.87E+00	0.00E+00	4.07E-05	1.50E-02	2.74E-04	-6.51E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE50 ZAK-SP46 DREHBAR (2.27 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	8.43E+01	0.00E+00	8.60E-03	1.26E-02	6.25E-03	-1.07E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	8.55E+01	0.00E+00	8.60E-03	1.26E-02	6.25E-03	-1.07E-02
PENRE	[MJ]	7.15E+01	0.00E+00	1.14E-01	2.86E+00	3.83E-02	-9.74E+00
PENRM	[MJ]	3.32E+00	0.00E+00	0.00E+00	-2.81E+00	0.00E+00	0.00E+00
PENRT	[MJ]	7.48E+01	0.00E+00	1.14E-01	5.02E-02	3.83E-02	-9.74E+00
SM	[kg]	1.81E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.01E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	6.96E-02	0.00E+00	4.25E-06	3.55E-04	8.08E-06	-8.83E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE50 ZAK-SP46 DREHBAR (2.27 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	9.38E-08	0.00E+00	4.58E-12	2.53E-11	8.28E-12	-6.54E-08
NHWD	[kg]	1.23E+00	0.00E+00	1.59E-05	9.77E-03	1.10E-01	1.04E-01
RWD	[kg]	2.39E-03	0.00E+00	2.15E-07	1.93E-06	5.32E-07	-8.04E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.13E+00	0.00E+00	0.00E+00	2.10E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.87E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	5.14E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE50 ZAK-SP46 DREHBAR (2.27 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.96 ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE40 ZAK-SP34 DREHBAR

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE40 ZAK-SP34 DREHBAR (1.76 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	4.70E+00	0.00E+00	6.85E-03	1.34E-01	1.83E-03	-8.19E-01
GWP-fossil	[kg CO ₂ -Eq.]	4.62E+00	0.00E+00	6.77E-03	1.34E-01	1.82E-03	-8.24E-01
GWP-biogenic	[kg CO ₂ -Eq.]	7.19E-02	0.00E+00	1.26E-05	4.59E-06	5.59E-06	4.31E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.42E-02	0.00E+00	7.11E-05	6.28E-06	5.71E-06	-1.71E-04
ODP	[kg CFC11-Eq.]	7.10E-11	0.00E+00	1.15E-15	1.91E-14	5.88E-15	5.73E-13
AP	[mol H ⁺ -Eq.]	1.38E-02	0.00E+00	2.47E-05	1.53E-05	1.13E-05	-1.95E-03
EP-freshwater	[kg P-Eq.]	3.14E-05	0.00E+00	1.86E-08	3.26E-09	2.57E-09	-2.26E-07
EP-marine	[kg N-Eq.]	4.00E-03	0.00E+00	1.17E-05	4.10E-06	2.76E-06	-3.21E-04
EP-terrestrial	[mol N-Eq.]	4.41E-02	0.00E+00	1.27E-04	7.13E-05	3.01E-05	-2.92E-03
POCP	[kg NMVOC-Eq.]	1.02E-02	0.00E+00	2.26E-05	1.17E-05	8.56E-06	-1.28E-03
ADPE	[kg Sb-Eq.]	2.18E-06	0.00E+00	4.59E-10	2.13E-10	1.23E-10	-4.39E-06
ADPF	[MJ]	5.58E+01	0.00E+00	8.85E-02	3.97E-02	2.97E-02	-8.57E+00
WDP	[m ³ world-Eq deprived]	1.38E+00	0.00E+00	3.16E-05	1.22E-02	2.12E-04	-5.74E-02

Caption: GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE40 ZAK-SP34 DREHBAR (1.76 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	6.32E+01	0.00E+00	6.67E-03	9.96E-03	4.84E-03	1.82E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	6.44E+01	0.00E+00	6.67E-03	9.96E-03	4.84E-03	1.82E-02
PENRE	[MJ]	5.32E+01	0.00E+00	8.85E-02	2.19E+00	2.97E-02	-8.57E+00
PENRM	[MJ]	2.66E+00	0.00E+00	0.00E+00	-2.15E+00	0.00E+00	0.00E+00
PENRT	[MJ]	5.58E+01	0.00E+00	8.85E-02	3.97E-02	2.97E-02	-8.57E+00
SM	[kg]	1.34E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.46E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	5.19E-02	0.00E+00	3.30E-06	2.88E-04	6.25E-06	-7.85E-02

Caption: PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE40 ZAK-SP34 DREHBAR (1.76 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	7.00E-08	0.00E+00	3.55E-12	2.01E-11	6.42E-12	-5.81E-08
NHWD	[kg]	9.10E-01	0.00E+00	1.23E-05	7.70E-03	8.55E-02	9.27E-02
RWD	[kg]	1.78E-03	0.00E+00	1.67E-07	1.55E-06	4.12E-07	-6.50E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.57E+00	0.00E+00	0.00E+00	1.62E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.33E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	4.16E-01	0.00E+00	0.00E+00

Caption: HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE40 ZAK-SP34 DREHBAR (1.76 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.97 ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE32 ZAK-SP46 DREHBAR

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE32 ZAK-SP46 DREHBAR (1.70 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	4.55E+00	0.00E+00	6.62E-03	8.37E-02	1.78E-03	-7.71E-01
GWP-fossil	[kg CO ₂ -Eq.]	4.46E+00	0.00E+00	6.53E-03	8.37E-02	1.77E-03	-7.75E-01
GWP-biogenic	[kg CO ₂ -Eq.]	7.02E-02	0.00E+00	1.22E-05	2.81E-06	5.46E-06	4.22E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.38E-02	0.00E+00	6.86E-05	3.73E-06	5.57E-06	-1.43E-04
ODP	[kg CFC11-Eq.]	6.93E-11	0.00E+00	1.11E-15	1.16E-14	5.74E-15	6.99E-13
AP	[mol H ⁺ -Eq.]	1.34E-02	0.00E+00	2.39E-05	9.51E-06	1.11E-05	-1.86E-03
EP-freshwater	[kg P-Eq.]	2.80E-05	0.00E+00	1.80E-08	1.91E-09	2.51E-09	-2.02E-07
EP-marine	[kg N-Eq.]	3.90E-03	0.00E+00	1.13E-05	2.51E-06	2.70E-06	-3.03E-04
EP-terrestrial	[mol N-Eq.]	4.30E-02	0.00E+00	1.23E-04	4.44E-05	2.94E-05	-2.74E-03
POCP	[kg NMVOC-Eq.]	9.91E-03	0.00E+00	2.18E-05	7.18E-06	8.36E-06	-1.22E-03
ADPE	[kg Sb-Eq.]	2.12E-06	0.00E+00	4.43E-10	1.29E-10	1.20E-10	-4.21E-06
ADPF	[MJ]	5.32E+01	0.00E+00	8.54E-02	2.41E-02	2.90E-02	-7.95E+00
WDP	[m ³ world-Eq deprived]	1.07E+00	0.00E+00	3.05E-05	7.64E-03	2.07E-04	-5.35E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE32 ZAK-SP46 DREHBAR (1.70 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	6.17E+01	0.00E+00	6.44E-03	6.05E-03	4.73E-03	1.08E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	6.29E+01	0.00E+00	6.44E-03	6.05E-03	4.73E-03	1.08E-01
PENRE	[MJ]	5.10E+01	0.00E+00	8.54E-02	1.75E+00	2.90E-02	-7.95E+00
PENRM	[MJ]	2.24E+00	0.00E+00	0.00E+00	-1.73E+00	0.00E+00	0.00E+00
PENRT	[MJ]	5.32E+01	0.00E+00	8.54E-02	2.41E-02	2.90E-02	-7.95E+00
SM	[kg]	1.31E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.28E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	4.41E-02	0.00E+00	3.18E-06	1.81E-04	6.11E-06	-7.53E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE32 ZAK-SP46 DREHBAR (1.70 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	6.85E-08	0.00E+00	3.43E-12	1.22E-11	6.27E-12	-5.56E-08
NHWD	[kg]	8.93E-01	0.00E+00	1.19E-05	4.54E-03	8.35E-02	8.91E-02
RWD	[kg]	1.74E-03	0.00E+00	1.61E-07	9.43E-07	4.02E-07	-4.15E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.54E+00	0.00E+00	0.00E+00	1.58E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.49E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.67E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE32 ZAK-SP46 DREHBAR (1.70 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.98 ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE32 ZAK-SP34 DREHBAR

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE32 ZAK-SP34 DREHBAR (1.50 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	4.03E+00	0.00E+00	5.84E-03	9.61E-02	1.56E-03	-6.87E-01
GWP-fossil	[kg CO ₂ -Eq.]	3.95E+00	0.00E+00	5.77E-03	9.61E-02	1.56E-03	-6.91E-01
GWP-biogenic	[kg CO ₂ -Eq.]	6.18E-02	0.00E+00	1.08E-05	3.25E-06	4.79E-06	3.67E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.22E-02	0.00E+00	6.06E-05	4.56E-06	4.89E-06	-1.37E-04
ODP	[kg CFC11-Eq.]	6.09E-11	0.00E+00	9.76E-16	1.39E-14	5.04E-15	5.39E-13
AP	[mol H ⁺ -Eq.]	1.18E-02	0.00E+00	2.10E-05	1.10E-05	9.70E-06	-1.64E-03
EP-freshwater	[kg P-Eq.]	2.63E-05	0.00E+00	1.59E-08	2.30E-09	2.20E-09	-1.86E-07
EP-marine	[kg N-Eq.]	3.44E-03	0.00E+00	1.00E-05	2.94E-06	2.36E-06	-2.70E-04
EP-terrestrial	[mol N-Eq.]	3.79E-02	0.00E+00	1.08E-04	5.14E-05	2.58E-05	-2.44E-03
POCP	[kg NMVOC-Eq.]	8.76E-03	0.00E+00	1.93E-05	8.41E-06	7.33E-06	-1.08E-03
ADPE	[kg Sb-Eq.]	1.87E-06	0.00E+00	3.91E-10	1.55E-10	1.06E-10	-3.71E-06
ADPF	[MJ]	4.76E+01	0.00E+00	7.54E-02	2.90E-02	2.54E-02	-7.15E+00
WDP	[m ³ world-Eq deprived]	1.11E+00	0.00E+00	2.69E-05	8.78E-03	1.82E-04	-4.79E-02

Caption: GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE32 ZAK-SP34 DREHBAR (1.50 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	5.43E+01	0.00E+00	5.68E-03	7.26E-03	4.15E-03	4.88E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	5.55E+01	0.00E+00	5.68E-03	7.26E-03	4.15E-03	4.88E-02
PENRE	[MJ]	4.54E+01	0.00E+00	7.54E-02	1.71E+00	2.54E-02	-7.15E+00
PENRM	[MJ]	2.19E+00	0.00E+00	0.00E+00	-1.68E+00	0.00E+00	0.00E+00
PENRT	[MJ]	4.76E+01	0.00E+00	7.54E-02	2.90E-02	2.54E-02	-7.15E+00
SM	[kg]	1.15E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.77E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	4.27E-02	0.00E+00	2.81E-06	2.08E-04	5.36E-06	-6.63E-02

Caption: PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE32 ZAK-SP34 DREHBAR (1.50 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	6.02E-08	0.00E+00	3.02E-12	1.47E-11	5.49E-12	-4.91E-08
NHWD	[kg]	7.82E-01	0.00E+00	1.05E-05	5.58E-03	7.32E-02	7.84E-02
RWD	[kg]	1.53E-03	0.00E+00	1.42E-07	1.12E-06	3.53E-07	-4.73E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.35E+00	0.00E+00	0.00E+00	1.39E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.70E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	3.03E-01	0.00E+00	0.00E+00

Caption: HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE32 ZAK-SP34 DREHBAR (1.50 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.99 ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE25 ZAK-SP46 DREHBAR

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE25 ZAK-SP46 DREHBAR (1.40 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	3.79E+00	0.00E+00	5.45E-03	6.79E-02	1.47E-03	-6.14E-01
GWP-fossil	[kg CO ₂ -Eq.]	3.72E+00	0.00E+00	5.38E-03	6.79E-02	1.46E-03	-6.17E-01
GWP-biogenic	[kg CO ₂ -Eq.]	5.87E-02	0.00E+00	1.01E-05	2.30E-06	4.50E-06	3.35E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.15E-02	0.00E+00	5.65E-05	2.61E-06	4.59E-06	-1.14E-04
ODP	[kg CFC11-Eq.]	5.77E-11	0.00E+00	9.11E-16	8.23E-15	4.73E-15	5.52E-13
AP	[mol H ⁺ -Eq.]	1.12E-02	0.00E+00	1.96E-05	7.48E-06	9.12E-06	-1.48E-03
EP-freshwater	[kg P-Eq.]	2.24E-05	0.00E+00	1.48E-08	1.44E-09	2.07E-09	-1.61E-07
EP-marine	[kg N-Eq.]	3.26E-03	0.00E+00	9.33E-06	1.95E-06	2.22E-06	-2.41E-04
EP-terrestrial	[mol N-Eq.]	3.59E-02	0.00E+00	1.01E-04	3.50E-05	2.42E-05	-2.18E-03
POCP	[kg NMVOC-Eq.]	8.30E-03	0.00E+00	1.80E-05	5.58E-06	6.89E-06	-9.67E-04
ADPE	[kg Sb-Eq.]	1.76E-06	0.00E+00	3.65E-10	9.26E-11	9.92E-11	-3.35E-06
ADPF	[MJ]	4.45E+01	0.00E+00	7.04E-02	1.72E-02	2.39E-02	-6.33E+00
WDP	[m ³ world-Eq deprived]	8.03E-01	0.00E+00	2.51E-05	6.15E-03	1.71E-04	-4.26E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE25 ZAK-SP46 DREHBAR (1.40 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	5.14E+01	0.00E+00	5.30E-03	4.37E-03	3.90E-03	8.39E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	5.26E+01	0.00E+00	5.30E-03	4.37E-03	3.90E-03	8.39E-02
PENRE	[MJ]	4.25E+01	0.00E+00	7.04E-02	1.50E+00	2.39E-02	-6.33E+00
PENRM	[MJ]	1.99E+00	0.00E+00	0.00E+00	-1.48E+00	0.00E+00	0.00E+00
PENRT	[MJ]	4.45E+01	0.00E+00	7.04E-02	1.72E-02	2.39E-02	-6.33E+00
SM	[kg]	1.09E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.40E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	3.46E-02	0.00E+00	2.62E-06	1.45E-04	5.03E-06	-5.99E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE25 ZAK-SP46 DREHBAR (1.40 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	5.72E-08	0.00E+00	2.82E-12	8.77E-12	5.16E-12	-4.42E-08
NHWD	[kg]	7.45E-01	0.00E+00	9.82E-06	3.13E-03	6.88E-02	7.09E-02
RWD	[kg]	1.46E-03	0.00E+00	1.33E-07	7.09E-07	3.31E-07	-3.35E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.29E+00	0.00E+00	0.00E+00	1.31E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.21E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.16E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ZAK-ISO-FITTING PN16 ELBOW 90°/SWIVEL TYPE: FIT GJS 90 PE25 ZAK-SP46 DREHBAR (1.40 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.100 ZAK-REDUCER PN16 ZAK46 SPIGOT-ZAK34 SOCKET: REDUZIERUNG GJS ZAK-SP46 ZAK-MU34

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ZAK-REDUCER PN16 ZAK46 SPIGOT-ZAK34 SOCKET: REDUZIERUNG GJS ZAK-SP46 ZAK-MU34 (0.42 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.19E+00	0.00E+00	1.63E-03	4.02E-02	4.33E-04	-1.89E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.16E+00	0.00E+00	1.61E-03	4.02E-02	4.31E-04	-1.90E-01
GWP-biogenic	[kg CO ₂ -Eq.]	1.82E-02	0.00E+00	3.02E-06	1.32E-06	1.33E-06	9.40E-04
GWP-luluc	[kg CO ₂ -Eq.]	3.55E-03	0.00E+00	1.70E-05	1.45E-06	1.35E-06	-4.52E-05
ODP	[kg CFC11-Eq.]	1.74E-11	0.00E+00	2.73E-16	4.78E-15	1.39E-15	8.22E-14
AP	[mol H ⁺ -Eq.]	3.49E-03	0.00E+00	5.89E-06	4.45E-06	2.69E-06	-4.44E-04
EP-freshwater	[kg P-Eq.]	7.62E-06	0.00E+00	4.44E-09	7.64E-10	6.09E-10	-5.51E-08
EP-marine	[kg N-Eq.]	1.02E-03	0.00E+00	2.80E-06	1.13E-06	6.55E-07	-7.37E-05
EP-terrestrial	[mol N-Eq.]	1.13E-02	0.00E+00	3.03E-05	2.08E-05	7.14E-06	-6.72E-04
POCP	[kg NMVOC-Eq.]	2.66E-03	0.00E+00	5.39E-06	3.24E-06	2.03E-06	-2.92E-04
ADPE	[kg Sb-Eq.]	5.33E-07	0.00E+00	1.10E-10	5.34E-11	2.92E-11	-9.84E-07
ADPF	[MJ]	1.47E+01	0.00E+00	2.11E-02	9.97E-03	7.05E-03	-2.01E+00
WDP	[m ³ world-Eq deprived]	3.31E-01	0.00E+00	7.53E-06	3.69E-03	5.03E-05	-1.34E-02

Caption: GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ZAK-REDUCER PN16 ZAK46 SPIGOT-ZAK34 SOCKET: REDUZIERUNG GJS ZAK-SP46 ZAK-MU34 (0.42 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.56E+01	0.00E+00	1.59E-03	2.53E-03	1.15E-03	-2.42E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.68E+01	0.00E+00	1.59E-03	2.53E-03	1.15E-03	-2.42E-02
PENRE	[MJ]	1.35E+01	0.00E+00	2.11E-02	6.69E-01	7.05E-03	-2.01E+00
PENRM	[MJ]	1.17E+00	0.00E+00	0.00E+00	-6.59E-01	0.00E+00	0.00E+00
PENRT	[MJ]	1.47E+01	0.00E+00	2.11E-02	9.97E-03	7.05E-03	-2.01E+00
SM	[kg]	3.25E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.99E-02
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.25E-02	0.00E+00	7.86E-07	8.69E-05	1.48E-06	-1.76E-02

Caption: PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ZAK-REDUCER PN16 ZAK46 SPIGOT-ZAK34 SOCKET: REDUZIERUNG GJS ZAK-SP46 ZAK-MU34 (0.42 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HW	[kg]	1.76E-08	0.00E+00	8.47E-13	5.09E-12	1.52E-12	-1.31E-08
NHW	[kg]	2.21E-01	0.00E+00	2.95E-06	1.70E-03	2.03E-02	2.07E-02
RWD	[kg]	4.64E-04	0.00E+00	3.98E-08	4.10E-07	9.77E-08	-2.11E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.81E-01	0.00E+00	0.00E+00	3.85E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Caption	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy
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RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ZAK-REDUCER PN16 ZAK46 SPIGOT-ZAK34 SOCKET: REDUZIERUNG GJS ZAK-SP46 ZAK-MU34 (0.42 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.101 ZAK-ISO FITTING PN16 WITH DETACHABLE SOCKET: STECKFIT GJS PE32 ZAK-SP34 REP_DEMONT

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ZAK-ISO FITTING PN16 WITH DETACHABLE SOCKET: STECKFIT GJS PE32 ZAK-SP34 REP_DEMONT (1.05 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	2.98E+00	0.00E+00	4.09E-03	1.16E-01	1.07E-03	-4.38E-01
GWP-fossil	[kg CO ₂ -Eq.]	2.92E+00	0.00E+00	4.04E-03	1.16E-01	1.07E-03	-4.40E-01
GWP-biogenic	[kg CO ₂ -Eq.]	4.49E-02	0.00E+00	7.54E-06	3.94E-06	3.29E-06	2.12E-03
GWP-luluc	[kg CO ₂ -Eq.]	8.71E-03	0.00E+00	4.24E-05	5.65E-06	3.36E-06	-1.12E-04
ODP	[kg CFC11-Eq.]	4.36E-11	0.00E+00	6.83E-16	1.72E-14	3.46E-15	1.25E-13
AP	[mol H ⁺ -Eq.]	8.66E-03	0.00E+00	1.47E-05	1.34E-05	6.67E-06	-1.02E-03
EP-freshwater	[kg P-Eq.]	2.21E-05	0.00E+00	1.11E-08	2.85E-09	1.51E-09	-1.32E-07
EP-marine	[kg N-Eq.]	2.51E-03	0.00E+00	7.00E-06	3.59E-06	1.62E-06	-1.71E-04
EP-terrestrial	[mol N-Eq.]	2.77E-02	0.00E+00	7.57E-05	6.23E-05	1.77E-05	-1.56E-03
POCP	[kg NMVOC-Eq.]	6.45E-03	0.00E+00	1.35E-05	1.02E-05	5.04E-06	-6.74E-04
ADPE	[kg Sb-Eq.]	1.37E-06	0.00E+00	2.74E-10	1.91E-10	7.25E-11	-2.25E-06
ADPF	[MJ]	3.62E+01	0.00E+00	5.28E-02	3.57E-02	1.75E-02	-4.71E+00
WDP	[m ³ world-Eq deprived]	1.13E+00	0.00E+00	1.88E-05	1.06E-02	1.25E-04	-3.13E-02

Caption: GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ZAK-ISO FITTING PN16 WITH DETACHABLE SOCKET: STECKFIT GJS PE32 ZAK-SP34 REP_DEMONT (1.05 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	3.88E+01	0.00E+00	3.98E-03	8.92E-03	2.85E-03	-9.37E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	4.00E+01	0.00E+00	3.98E-03	8.92E-03	2.85E-03	-9.37E-02
PENRE	[MJ]	3.41E+01	0.00E+00	5.28E-02	2.60E+00	1.75E-02	-4.71E+00
PENRM	[MJ]	2.15E+00	0.00E+00	0.00E+00	-2.57E+00	0.00E+00	0.00E+00
PENRT	[MJ]	3.62E+01	0.00E+00	5.28E-02	3.57E-02	1.75E-02	-4.71E+00
SM	[kg]	8.24E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.29E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	3.84E-02	0.00E+00	1.97E-06	2.51E-04	3.68E-06	-4.03E-02

Caption: PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ZAK-ISO FITTING PN16 WITH DETACHABLE SOCKET: STECKFIT GJS PE32 ZAK-SP34 REP_DEMONT (1.05 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	4.34E-08	0.00E+00	2.12E-12	1.80E-11	3.78E-12	-3.00E-08
NHWD	[kg]	5.61E-01	0.00E+00	7.37E-06	6.94E-03	5.03E-02	4.74E-02
RWD	[kg]	1.12E-03	0.00E+00	9.96E-08	1.37E-06	2.42E-07	-5.71E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	9.69E-01	0.00E+00	0.00E+00	9.55E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Caption	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy
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RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ZAK-ISO FITTING PN16 WITH DETACHABLE SOCKET: STECKFIT GJS PE32 ZAK-SP34 REP_DEMONT (1.05 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.102 ZAK-ISO FITTING PN16 WITH DETACHABLE SOCKET: STECKFIT GJS PE50 ZAK-SP46 REP_DEMONT

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	MNR	MNR	MNR	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ZAK-ISO FITTING PN16 WITH DETACHABLE SOCKET: STECKFIT GJS PE50 ZAK-SP46 REP_DEMONT (1.70 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	4.63E+00	0.00E+00	6.62E-03	1.97E-01	1.74E-03	-7.87E-01
GWP-fossil	[kg CO ₂ -Eq.]	4.55E+00	0.00E+00	6.53E-03	1.97E-01	1.73E-03	-7.91E-01
GWP-biogenic	[kg CO ₂ -Eq.]	6.95E-02	0.00E+00	1.22E-05	6.65E-06	5.32E-06	3.85E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.37E-02	0.00E+00	6.86E-05	1.01E-05	5.42E-06	-1.96E-04
ODP	[kg CFC11-Eq.]	6.83E-11	0.00E+00	1.11E-15	3.04E-14	5.59E-15	2.74E-13
AP	[mol H ⁺ -Eq.]	1.34E-02	0.00E+00	2.39E-05	2.29E-05	1.08E-05	-1.84E-03
EP-freshwater	[kg P-Eq.]	3.60E-05	0.00E+00	1.80E-08	4.97E-09	2.44E-09	-2.34E-07
EP-marine	[kg N-Eq.]	3.89E-03	0.00E+00	1.13E-05	6.18E-06	2.62E-06	-3.07E-04
EP-terrestrial	[mol N-Eq.]	4.28E-02	0.00E+00	1.23E-04	1.07E-04	2.86E-05	-2.81E-03
POCP	[kg NMVOC-Eq.]	9.95E-03	0.00E+00	2.18E-05	1.76E-05	8.14E-06	-1.21E-03
ADPE	[kg Sb-Eq.]	2.14E-06	0.00E+00	4.43E-10	3.38E-10	1.17E-10	-4.07E-06
ADPF	[MJ]	5.61E+01	0.00E+00	8.54E-02	6.32E-02	2.82E-02	-8.43E+00
WDP	[m ³ world-Eq deprived]	1.91E+00	0.00E+00	3.05E-05	1.80E-02	2.02E-04	-5.60E-02

Caption: GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2:
1 piece ZAK-ISO FITTING PN16 WITH DETACHABLE SOCKET: STECKFIT GJS PE50 ZAK-SP46
REP_DEMONT (1.70 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	6.09E+01	0.00E+00	6.44E-03	1.57E-02	4.60E-03	-1.40E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	6.21E+01	0.00E+00	6.44E-03	1.57E-02	4.60E-03	-1.40E-01
PENRE	[MJ]	5.30E+01	0.00E+00	8.54E-02	2.63E+00	2.82E-02	-8.43E+00
PENRM	[MJ]	3.08E+00	0.00E+00	0.00E+00	-2.57E+00	0.00E+00	0.00E+00
PENRT	[MJ]	5.61E+01	0.00E+00	8.54E-02	6.32E-02	2.82E-02	-8.43E+00
SM	[kg]	1.28E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.13E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	6.35E-02	0.00E+00	3.18E-06	4.26E-04	5.94E-06	-7.29E-02

Caption: PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ZAK-ISO FITTING PN16 WITH DETACHABLE SOCKET: STECKFIT GJS PE50 ZAK-SP46 REP_DEMONT (1.70 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HW	[kg]	6.73E-08	0.00E+00	3.43E-12	3.18E-11	6.10E-12	-5.42E-08
NHW	[kg]	8.74E-01	0.00E+00	1.19E-05	1.24E-02	8.13E-02	8.57E-02
RWD	[kg]	1.72E-03	0.00E+00	1.61E-07	2.38E-06	3.91E-07	-9.66E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.51E+00	0.00E+00	0.00E+00	1.54E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	3.44E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	6.15E-01	0.00E+00	0.00E+00

Caption	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy
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RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ZAK-ISO FITTING PN16 WITH DETACHABLE SOCKET: STECKFIT GJS PE50 ZAK-SP46 REP_DEMONT (1.70 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND

Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index
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The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.103 ISO-FITTING PN16 TEE: FIT GJS T PE50 PE25 PE50

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE50 PE25 PE50 (1.96 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	5.51E+00	0.00E+00	7.63E-03	2.81E-01	1.98E-03	-8.46E-01
GWP-fossil	[kg CO ₂ -Eq.]	5.41E+00	0.00E+00	7.53E-03	2.81E-01	1.97E-03	-8.50E-01
GWP-biogenic	[kg CO ₂ -Eq.]	8.18E-02	0.00E+00	1.41E-05	9.74E-06	6.05E-06	3.89E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.59E-02	0.00E+00	7.91E-05	1.43E-05	6.18E-06	-2.39E-04
ODP	[kg CFC11-Eq.]	8.02E-11	0.00E+00	1.28E-15	4.26E-14	6.37E-15	4.91E-14
AP	[mol H ⁺ -Eq.]	1.59E-02	0.00E+00	2.75E-05	3.25E-05	1.23E-05	-1.95E-03
EP-freshwater	[kg P-Eq.]	4.51E-05	0.00E+00	2.07E-08	7.35E-09	2.78E-09	-2.67E-07
EP-marine	[kg N-Eq.]	4.58E-03	0.00E+00	1.31E-05	8.86E-06	2.99E-06	-3.29E-04
EP-terrestrial	[mol N-Eq.]	5.04E-02	0.00E+00	1.41E-04	1.51E-04	3.26E-05	-3.02E-03
POCP	[kg NMVOC-Eq.]	1.17E-02	0.00E+00	2.52E-05	2.52E-05	9.27E-06	-1.29E-03
ADPE	[kg Sb-Eq.]	2.53E-06	0.00E+00	5.11E-10	4.77E-10	1.33E-10	-4.25E-06
ADPF	[MJ]	6.77E+01	0.00E+00	9.85E-02	8.88E-02	3.22E-02	-9.24E+00
WDP	[m³ world-Eq deprived]	2.53E+00	0.00E+00	3.52E-05	2.55E-02	2.30E-04	-6.11E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE50 PE25 PE50 (1.96 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	7.12E+01	0.00E+00	7.43E-03	2.22E-02	5.24E-03	-2.92E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	7.24E+01	0.00E+00	7.43E-03	2.22E-02	5.24E-03	-2.92E-01
PENRE	[MJ]	6.37E+01	0.00E+00	9.85E-02	3.57E+00	3.22E-02	-9.24E+00
PENRM	[MJ]	3.99E+00	0.00E+00	0.00E+00	-3.48E+00	0.00E+00	0.00E+00
PENRT	[MJ]	6.77E+01	0.00E+00	9.85E-02	8.88E-02	3.22E-02	-9.24E+00
SM	[kg]	1.50E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.31E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m³]	8.11E-02	0.00E+00	3.67E-06	6.04E-04	6.77E-06	-7.61E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE50 PE25 PE50 (1.96 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	7.90E-08	0.00E+00	3.95E-12	4.47E-11	6.95E-12	-5.68E-08
NHWD	[kg]	1.03E+00	0.00E+00	1.38E-05	1.78E-02	9.26E-02	8.91E-02
RWD	[kg]	2.02E-03	0.00E+00	1.86E-07	3.39E-06	4.46E-07	-1.34E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.77E+00	0.00E+00	0.00E+00	1.76E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	4.77E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	8.54E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE50 PE25 PE50 (1.96 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.104 ISO-FITTING PN16 TEE: FIT GJS T PE63 PE63 PE63

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE63 PE63 PE63 (4.83 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.29E+01	0.00E+00	1.88E-02	5.86E-01	4.92E-03	-2.29E+00
GWP-fossil	[kg CO ₂ -Eq.]	1.27E+01	0.00E+00	1.86E-02	5.86E-01	4.89E-03	-2.30E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.94E-01	0.00E+00	3.47E-05	2.05E-05	1.51E-05	1.12E-02
GWP-luluc	[kg CO ₂ -Eq.]	3.83E-02	0.00E+00	1.95E-04	2.79E-05	1.54E-05	-5.66E-04
ODP	[kg CFC11-Eq.]	1.93E-10	0.00E+00	3.14E-15	8.30E-14	1.58E-14	8.35E-13
AP	[mol H ⁺ -Eq.]	3.74E-02	0.00E+00	6.78E-05	6.64E-05	3.05E-05	-5.35E-03
EP-freshwater	[kg P-Eq.]	9.61E-05	0.00E+00	5.11E-08	1.49E-08	6.91E-09	-6.77E-07
EP-marine	[kg N-Eq.]	1.08E-02	0.00E+00	3.22E-05	1.81E-05	7.43E-06	-8.92E-04
EP-terrestrial	[mol N-Eq.]	1.19E-01	0.00E+00	3.48E-04	3.10E-04	8.11E-05	-8.15E-03
POCP	[kg NMVOC-Eq.]	2.76E-02	0.00E+00	6.20E-05	5.14E-05	2.31E-05	-3.53E-03
ADPE	[kg Sb-Eq.]	5.97E-06	0.00E+00	1.26E-09	9.33E-10	3.32E-10	-1.18E-05
ADPF	[MJ]	1.56E+02	0.00E+00	2.43E-01	1.73E-01	8.00E-02	-2.45E+01
WDP	[m ³ world-Eq deprived]	4.86E+00	0.00E+00	8.66E-05	5.28E-02	5.71E-04	-1.63E-01

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE63 PE63 PE63 (4.83 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.71E+02	0.00E+00	1.83E-02	4.35E-02	1.30E-02	-3.86E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.72E+02	0.00E+00	1.83E-02	4.35E-02	1.30E-02	-3.86E-01
PENRE	[MJ]	1.48E+02	0.00E+00	2.43E-01	7.77E+00	8.00E-02	-2.45E+01
PENRM	[MJ]	8.11E+00	0.00E+00	0.00E+00	-7.60E+00	0.00E+00	0.00E+00
PENRT	[MJ]	1.56E+02	0.00E+00	2.43E-01	1.73E-01	8.00E-02	-2.45E+01
SM	[kg]	3.59E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E+00
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.67E-01	0.00E+00	9.04E-06	1.25E-03	1.68E-05	-2.12E-01

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE63 PE63 PE63 (4.83 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.88E-07	0.00E+00	9.74E-12	8.76E-11	1.73E-11	-1.58E-07
NHWD	[kg]	2.45E+00	0.00E+00	3.39E-05	3.45E-02	2.30E-01	2.49E-01
RWD	[kg]	4.77E-03	0.00E+00	4.58E-07	6.79E-06	1.11E-06	-2.76E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	4.23E+00	0.00E+00	0.00E+00	4.37E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	9.82E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.76E+00	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE63 PE63 PE63 (4.83 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.105 ISO-FITTING PN16 TEE: FIT GJS T PE40 PE25 PE40

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE40 PE25 PE40 (1.50 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	4.06E+00	0.00E+00	5.84E-03	2.18E-01	1.51E-03	-7.16E-01
GWP-fossil	[kg CO ₂ -Eq.]	3.99E+00	0.00E+00	5.77E-03	2.18E-01	1.50E-03	-7.20E-01
GWP-biogenic	[kg CO ₂ -Eq.]	6.06E-02	0.00E+00	1.08E-05	7.66E-06	4.63E-06	3.39E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.20E-02	0.00E+00	6.06E-05	9.95E-06	4.73E-06	-1.92E-04
ODP	[kg CFC11-Eq.]	5.98E-11	0.00E+00	9.76E-16	2.96E-14	4.87E-15	1.37E-13
AP	[mol H ⁺ -Eq.]	1.17E-02	0.00E+00	2.10E-05	2.44E-05	9.38E-06	-1.66E-03
EP-freshwater	[kg P-Eq.]	3.08E-05	0.00E+00	1.59E-08	5.47E-09	2.13E-09	-2.20E-07
EP-marine	[kg N-Eq.]	3.39E-03	0.00E+00	1.00E-05	6.62E-06	2.29E-06	-2.79E-04
EP-terrestrial	[mol N-Eq.]	3.73E-02	0.00E+00	1.08E-04	1.14E-04	2.49E-05	-2.56E-03
POCP	[kg NMVOC-Eq.]	8.71E-03	0.00E+00	1.93E-05	1.88E-05	7.09E-06	-1.10E-03
ADPE	[kg Sb-Eq.]	1.85E-06	0.00E+00	3.91E-10	3.33E-10	1.02E-10	-3.64E-06
ADPF	[MJ]	5.01E+01	0.00E+00	7.54E-02	6.16E-02	2.46E-02	-7.75E+00
WDP	[m ³ world-Eq deprived]	1.60E+00	0.00E+00	2.69E-05	1.95E-02	1.76E-04	-5.14E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE40 PE25 PE40 (1.50 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	5.31E+01	0.00E+00	5.68E-03	1.56E-02	4.01E-03	-1.92E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	5.43E+01	0.00E+00	5.68E-03	1.56E-02	4.01E-03	-1.92E-01
PENRE	[MJ]	4.69E+01	0.00E+00	7.54E-02	2.77E+00	2.46E-02	-7.75E+00
PENRM	[MJ]	3.22E+00	0.00E+00	0.00E+00	-2.70E+00	0.00E+00	0.00E+00
PENRT	[MJ]	5.01E+01	0.00E+00	7.54E-02	6.16E-02	2.46E-02	-7.75E+00
SM	[kg]	1.11E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.70E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	5.41E-02	0.00E+00	2.81E-06	4.61E-04	5.18E-06	-6.53E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE40 PE25 PE40 (1.50 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	5.87E-08	0.00E+00	3.02E-12	3.13E-11	5.31E-12	-4.86E-08
NHWD	[kg]	7.55E-01	0.00E+00	1.05E-05	1.23E-02	7.08E-02	7.66E-02
RWD	[kg]	1.51E-03	0.00E+00	1.42E-07	2.46E-06	3.41E-07	-1.02E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.30E+00	0.00E+00	0.00E+00	1.34E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	3.62E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	6.49E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE40 PE25 PE40 (1.50 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.106 ISO-FITTING PN16 TEE: FIT GJS T PE32 PE25 PE32

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE32 PE25 PE32 (1.11 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	3.01E+00	0.00E+00	4.32E-03	1.42E-01	1.13E-03	-5.26E-01
GWP-fossil	[kg CO ₂ -Eq.]	2.95E+00	0.00E+00	4.27E-03	1.42E-01	1.12E-03	-5.29E-01
GWP-biogenic	[kg CO ₂ -Eq.]	4.53E-02	0.00E+00	7.97E-06	5.01E-06	3.45E-06	2.56E-03
GWP-luluc	[kg CO ₂ -Eq.]	8.93E-03	0.00E+00	4.48E-05	6.44E-06	3.52E-06	-1.33E-04
ODP	[kg CFC11-Eq.]	4.45E-11	0.00E+00	7.22E-16	1.91E-14	3.63E-15	1.69E-13
AP	[mol H ⁺ -Eq.]	8.72E-03	0.00E+00	1.56E-05	1.59E-05	6.99E-06	-1.23E-03
EP-freshwater	[kg P-Eq.]	2.18E-05	0.00E+00	1.17E-08	3.56E-09	1.58E-09	-1.57E-07
EP-marine	[kg N-Eq.]	2.53E-03	0.00E+00	7.40E-06	4.31E-06	1.70E-06	-2.05E-04
EP-terrestrial	[mol N-Eq.]	2.79E-02	0.00E+00	8.00E-05	7.42E-05	1.86E-05	-1.88E-03
POCP	[kg NMVOC-Eq.]	6.51E-03	0.00E+00	1.43E-05	1.23E-05	5.29E-06	-8.10E-04
ADPE	[kg Sb-Eq.]	1.37E-06	0.00E+00	2.90E-10	2.16E-10	7.61E-11	-2.71E-06
ADPF	[MJ]	3.70E+01	0.00E+00	5.58E-02	3.99E-02	1.83E-02	-5.65E+00
WDP	[m³ world-Eq deprived]	1.08E+00	0.00E+00	1.99E-05	1.27E-02	1.31E-04	-3.75E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE32 PE25 PE32 (1.11 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	3.96E+01	0.00E+00	4.21E-03	1.01E-02	2.99E-03	-1.02E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	4.08E+01	0.00E+00	4.21E-03	1.01E-02	2.99E-03	-1.02E-01
PENRE	[MJ]	3.46E+01	0.00E+00	5.58E-02	2.40E+00	1.83E-02	-5.65E+00
PENRM	[MJ]	2.36E+00	0.00E+00	0.00E+00	-2.36E+00	0.00E+00	0.00E+00
PENRT	[MJ]	3.70E+01	0.00E+00	5.58E-02	3.99E-02	1.83E-02	-5.65E+00
SM	[kg]	8.25E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.75E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m³]	3.77E-02	0.00E+00	2.08E-06	3.01E-04	3.86E-06	-4.86E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE32 PE25 PE32 (1.11 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	4.39E-08	0.00E+00	2.24E-12	2.03E-11	3.96E-12	-3.62E-08
NHWD	[kg]	5.63E-01	0.00E+00	7.79E-06	7.94E-03	5.28E-02	5.71E-02
RWD	[kg]	1.13E-03	0.00E+00	1.05E-07	1.60E-06	2.54E-07	-6.63E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	9.70E-01	0.00E+00	0.00E+00	1.00E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.36E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	4.23E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE32 PE25 PE32 (1.11 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.107 ISO-FITTING PN16 TEE: FIT GJS T PE32 PE32 PE32

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE32 PE32 PE32 (1.13 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	3.08E+00	0.00E+00	4.40E-03	1.73E-01	1.14E-03	-5.42E-01
GWP-fossil	[kg CO ₂ -Eq.]	3.02E+00	0.00E+00	4.34E-03	1.73E-01	1.13E-03	-5.44E-01
GWP-biogenic	[kg CO ₂ -Eq.]	4.58E-02	0.00E+00	8.12E-06	6.05E-06	3.48E-06	2.53E-03
GWP-luluc	[kg CO ₂ -Eq.]	9.05E-03	0.00E+00	4.56E-05	8.16E-06	3.55E-06	-1.49E-04
ODP	[kg CFC11-Eq.]	4.50E-11	0.00E+00	7.35E-16	2.42E-14	3.66E-15	6.90E-14
AP	[mol H ⁺ -Eq.]	8.87E-03	0.00E+00	1.59E-05	1.95E-05	7.05E-06	-1.25E-03
EP-freshwater	[kg P-Eq.]	2.42E-05	0.00E+00	1.19E-08	4.39E-09	1.60E-09	-1.69E-07
EP-marine	[kg N-Eq.]	2.57E-03	0.00E+00	7.53E-06	5.31E-06	1.72E-06	-2.11E-04
EP-terrestrial	[mol N-Eq.]	2.83E-02	0.00E+00	8.15E-05	9.11E-05	1.87E-05	-1.93E-03
POCP	[kg NMVOC-Eq.]	6.62E-03	0.00E+00	1.45E-05	1.51E-05	5.33E-06	-8.27E-04
ADPE	[kg Sb-Eq.]	1.40E-06	0.00E+00	2.95E-10	2.72E-10	7.67E-11	-2.74E-06
ADPF	[MJ]	3.83E+01	0.00E+00	5.68E-02	5.05E-02	1.85E-02	-5.89E+00
WDP	[m ³ world-Eq deprived]	1.31E+00	0.00E+00	2.03E-05	1.55E-02	1.32E-04	-3.90E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE32 PE32 PE32 (1.13 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	4.00E+01	0.00E+00	4.28E-03	1.27E-02	3.01E-03	-1.65E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	4.12E+01	0.00E+00	4.28E-03	1.27E-02	3.01E-03	-1.65E-01
PENRE	[MJ]	3.57E+01	0.00E+00	5.68E-02	1.18E+00	1.85E-02	-5.89E+00
PENRM	[MJ]	2.59E+00	0.00E+00	0.00E+00	-1.13E+00	0.00E+00	0.00E+00
PENRT	[MJ]	3.83E+01	0.00E+00	5.68E-02	5.05E-02	1.85E-02	-5.89E+00
SM	[kg]	8.31E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.78E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	4.32E-02	0.00E+00	2.12E-06	3.67E-04	3.89E-06	-4.91E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE32 PE32 PE32 (1.13 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	4.43E-08	0.00E+00	2.28E-12	2.56E-11	3.99E-12	-3.66E-08
NHWD	[kg]	5.68E-01	0.00E+00	7.93E-06	1.01E-02	5.32E-02	5.75E-02
RWD	[kg]	1.14E-03	0.00E+00	1.07E-07	1.99E-06	2.56E-07	-8.12E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	9.78E-01	0.00E+00	0.00E+00	1.01E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.89E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	5.17E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE32 PE32 PE32 (1.13 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.108 ISO-FITTING PN16 TEE: FIT GJS T PE40 PE40 PE40

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE40 PE40 PE40 (1.56 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	4.24E+00	0.00E+00	6.07E-03	2.68E-01	1.56E-03	-7.53E-01
GWP-fossil	[kg CO ₂ -Eq.]	4.17E+00	0.00E+00	6.00E-03	2.68E-01	1.55E-03	-7.56E-01
GWP-biogenic	[kg CO ₂ -Eq.]	6.26E-02	0.00E+00	1.12E-05	9.43E-06	4.76E-06	3.40E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.24E-02	0.00E+00	6.30E-05	1.24E-05	4.86E-06	-2.19E-04
ODP	[kg CFC11-Eq.]	6.18E-11	0.00E+00	1.02E-15	3.70E-14	5.01E-15	-9.79E-15
AP	[mol H ⁺ -Eq.]	1.22E-02	0.00E+00	2.19E-05	3.02E-05	9.65E-06	-1.73E-03
EP-freshwater	[kg P-Eq.]	3.43E-05	0.00E+00	1.65E-08	6.78E-09	2.19E-09	-2.41E-07
EP-marine	[kg N-Eq.]	3.51E-03	0.00E+00	1.04E-05	8.21E-06	2.35E-06	-2.92E-04
EP-terrestrial	[mol N-Eq.]	3.86E-02	0.00E+00	1.12E-04	1.41E-04	2.56E-05	-2.69E-03
POCP	[kg NMVOC-Eq.]	9.05E-03	0.00E+00	2.00E-05	2.33E-05	7.29E-06	-1.14E-03
ADPE	[kg Sb-Eq.]	1.93E-06	0.00E+00	4.07E-10	4.16E-10	1.05E-10	-3.75E-06
ADPF	[MJ]	5.30E+01	0.00E+00	7.84E-02	7.70E-02	2.53E-02	-8.26E+00
WDP	[m ³ world-Eq deprived]	1.91E+00	0.00E+00	2.80E-05	2.41E-02	1.81E-04	-5.45E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE40 PE40 PE40 (1.56 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	5.49E+01	0.00E+00	5.91E-03	1.94E-02	4.12E-03	-2.90E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	5.61E+01	0.00E+00	5.91E-03	1.94E-02	4.12E-03	-2.90E-01
PENRE	[MJ]	4.93E+01	0.00E+00	7.84E-02	3.23E+00	2.53E-02	-8.26E+00
PENRM	[MJ]	3.66E+00	0.00E+00	0.00E+00	-3.15E+00	0.00E+00	0.00E+00
PENRT	[MJ]	5.30E+01	0.00E+00	7.84E-02	7.70E-02	2.53E-02	-8.26E+00
SM	[kg]	1.14E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.81E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	6.19E-02	0.00E+00	2.92E-06	5.70E-04	5.33E-06	-6.73E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE40 PE40 PE40 (1.56 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	6.06E-08	0.00E+00	3.15E-12	3.91E-11	5.46E-12	-5.02E-08
NHWD	[kg]	7.78E-01	0.00E+00	1.09E-05	1.54E-02	7.28E-02	7.87E-02
RWD	[kg]	1.56E-03	0.00E+00	1.48E-07	3.06E-06	3.51E-07	-1.26E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.34E+00	0.00E+00	0.00E+00	1.38E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	4.48E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	8.02E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE40 PE40 PE40 (1.56 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.109 ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE63 IG2" PE63

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE63 IG2" PE63 (3.90 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.04E+01	0.00E+00	1.52E-02	3.93E-01	4.01E-03	-1.83E+00
GWP-fossil	[kg CO ₂ -Eq.]	1.02E+01	0.00E+00	1.50E-02	3.93E-01	3.98E-03	-1.84E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.57E-01	0.00E+00	2.80E-05	1.38E-05	1.23E-05	9.29E-03
GWP-luluc	[kg CO ₂ -Eq.]	3.11E-02	0.00E+00	1.57E-04	1.82E-05	1.25E-05	-4.18E-04
ODP	[kg CFC11-Eq.]	1.56E-10	0.00E+00	2.54E-15	5.39E-14	1.29E-14	9.68E-13
AP	[mol H ⁺ -Eq.]	3.02E-02	0.00E+00	5.47E-05	4.41E-05	2.48E-05	-4.32E-03
EP-freshwater	[kg P-Eq.]	7.24E-05	0.00E+00	4.12E-08	9.91E-09	5.63E-09	-5.23E-07
EP-marine	[kg N-Eq.]	8.76E-03	0.00E+00	2.60E-05	1.20E-05	6.05E-06	-7.15E-04
EP-terrestrial	[mol N-Eq.]	9.64E-02	0.00E+00	2.81E-04	2.06E-04	6.60E-05	-6.51E-03
POCP	[kg NMVOC-Eq.]	2.23E-02	0.00E+00	5.01E-05	3.41E-05	1.88E-05	-2.84E-03
ADPE	[kg Sb-Eq.]	4.82E-06	0.00E+00	1.02E-09	6.08E-10	2.70E-10	-9.63E-06
ADPF	[MJ]	1.24E+02	0.00E+00	1.96E-01	1.12E-01	6.51E-02	-1.94E+01
WDP	[m ³ world-Eq deprived]	3.37E+00	0.00E+00	6.99E-05	3.53E-02	4.65E-04	-1.29E-01

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE63 IG2" PE63 (3.90 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.39E+02	0.00E+00	1.48E-02	2.84E-02	1.06E-02	-1.37E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.40E+02	0.00E+00	1.48E-02	2.84E-02	1.06E-02	-1.37E-01
PENRE	[MJ]	1.18E+02	0.00E+00	1.96E-01	4.01E+00	6.51E-02	-1.94E+01
PENRM	[MJ]	6.06E+00	0.00E+00	0.00E+00	-3.90E+00	0.00E+00	0.00E+00
PENRT	[MJ]	1.24E+02	0.00E+00	1.96E-01	1.12E-01	6.51E-02	-1.94E+01
SM	[kg]	2.92E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.78E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.22E-01	0.00E+00	7.30E-06	8.33E-04	1.37E-05	-1.72E-01

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE63 IG2" PE63 (3.90 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.53E-07	0.00E+00	7.86E-12	5.71E-11	1.41E-11	-1.28E-07
NHWD	[kg]	2.00E+00	0.00E+00	2.74E-05	2.24E-02	1.88E-01	2.03E-01
RWD	[kg]	3.88E-03	0.00E+00	3.70E-07	4.47E-06	9.03E-07	-1.84E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.45E+00	0.00E+00	0.00E+00	3.56E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	6.55E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.17E+00	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE63 IG2" PE63 (3.90 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.110 ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE50 IG6/4" PE50

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE50 IG6/4" PE50 (2.20 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	5.93E+00	0.00E+00	8.56E-03	2.78E-01	2.24E-03	-1.04E+00
GWP-fossil	[kg CO ₂ -Eq.]	5.82E+00	0.00E+00	8.46E-03	2.78E-01	2.22E-03	-1.05E+00
GWP-biogenic	[kg CO ₂ -Eq.]	8.86E-02	0.00E+00	1.58E-05	9.62E-06	6.85E-06	5.08E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.75E-02	0.00E+00	8.88E-05	1.41E-05	6.99E-06	-2.64E-04
ODP	[kg CFC11-Eq.]	8.76E-11	0.00E+00	1.43E-15	4.19E-14	7.20E-15	3.31E-13
AP	[mol H ⁺ -Eq.]	1.71E-02	0.00E+00	3.09E-05	3.20E-05	1.39E-05	-2.44E-03
EP-freshwater	[kg P-Eq.]	4.64E-05	0.00E+00	2.33E-08	7.25E-09	3.14E-09	-3.13E-07
EP-marine	[kg N-Eq.]	4.95E-03	0.00E+00	1.47E-05	8.74E-06	3.38E-06	-4.07E-04
EP-terrestrial	[mol N-Eq.]	5.45E-02	0.00E+00	1.59E-04	1.49E-04	3.69E-05	-3.72E-03
POCP	[kg NMVOC-Eq.]	1.27E-02	0.00E+00	2.82E-05	2.49E-05	1.05E-05	-1.61E-03
ADPE	[kg Sb-Eq.]	2.74E-06	0.00E+00	5.74E-10	4.68E-10	1.51E-10	-5.38E-06
ADPF	[MJ]	7.21E+01	0.00E+00	1.11E-01	8.72E-02	3.64E-02	-1.12E+01
WDP	[m ³ world-Eq deprived]	2.48E+00	0.00E+00	3.95E-05	2.52E-02	2.60E-04	-7.45E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE50 IG6/4" PE50 (2.20 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	7.80E+01	0.00E+00	8.33E-03	2.18E-02	5.93E-03	-2.05E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	7.92E+01	0.00E+00	8.33E-03	2.18E-02	5.93E-03	-2.05E-01
PENRE	[MJ]	6.81E+01	0.00E+00	1.11E-01	3.55E+00	3.64E-02	-1.12E+01
PENRM	[MJ]	3.97E+00	0.00E+00	0.00E+00	-3.46E+00	0.00E+00	0.00E+00
PENRT	[MJ]	7.21E+01	0.00E+00	1.11E-01	8.72E-02	3.64E-02	-1.12E+01
SM	[kg]	1.63E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.46E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	8.22E-02	0.00E+00	4.12E-06	5.96E-04	7.66E-06	-9.64E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE50 IG6/4" PE50 (2.20 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	8.60E-08	0.00E+00	4.44E-12	4.39E-11	7.85E-12	-7.17E-08
NHWD	[kg]	1.12E+00	0.00E+00	1.54E-05	1.75E-02	1.05E-01	1.13E-01
RWD	[kg]	2.19E-03	0.00E+00	2.09E-07	3.33E-06	5.04E-07	-1.32E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.92E+00	0.00E+00	0.00E+00	1.99E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	4.71E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	8.42E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE50 IG6/4" PE50 (2.20 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.111 ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE40 IG5/4" PE40

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE40 IG5/4" PE40 (1.45 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	3.92E+00	0.00E+00	5.64E-03	2.02E-01	1.47E-03	-6.91E-01
GWP-fossil	[kg CO ₂ -Eq.]	3.85E+00	0.00E+00	5.57E-03	2.02E-01	1.46E-03	-6.94E-01
GWP-biogenic	[kg CO ₂ -Eq.]	5.86E-02	0.00E+00	1.04E-05	7.13E-06	4.49E-06	3.30E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.16E-02	0.00E+00	5.85E-05	9.15E-06	4.58E-06	-1.81E-04
ODP	[kg CFC11-Eq.]	5.79E-11	0.00E+00	9.44E-16	2.72E-14	4.72E-15	1.62E-13
AP	[mol H ⁺ -Eq.]	1.13E-02	0.00E+00	2.03E-05	2.26E-05	9.09E-06	-1.61E-03
EP-freshwater	[kg P-Eq.]	2.91E-05	0.00E+00	1.53E-08	5.06E-09	2.06E-09	-2.10E-07
EP-marine	[kg N-Eq.]	3.28E-03	0.00E+00	9.67E-06	6.14E-06	2.22E-06	-2.69E-04
EP-terrestrial	[mol N-Eq.]	3.61E-02	0.00E+00	1.05E-04	1.06E-04	2.42E-05	-2.47E-03
POCP	[kg NMVOC-Eq.]	8.43E-03	0.00E+00	1.86E-05	1.75E-05	6.87E-06	-1.06E-03
ADPE	[kg Sb-Eq.]	1.79E-06	0.00E+00	3.78E-10	3.07E-10	9.89E-11	-3.53E-06
ADPF	[MJ]	4.83E+01	0.00E+00	7.29E-02	5.66E-02	2.38E-02	-7.46E+00
WDP	[m ³ world-Eq deprived]	1.49E+00	0.00E+00	2.60E-05	1.81E-02	1.70E-04	-4.94E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE40 IG5/4" PE40 (1.45 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	5.15E+01	0.00E+00	5.49E-03	1.43E-02	3.89E-03	-1.68E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	5.27E+01	0.00E+00	5.49E-03	1.43E-02	3.89E-03	-1.68E-01
PENRE	[MJ]	4.52E+01	0.00E+00	7.29E-02	2.61E+00	2.38E-02	-7.46E+00
PENRM	[MJ]	3.07E+00	0.00E+00	0.00E+00	-2.56E+00	0.00E+00	0.00E+00
PENRT	[MJ]	4.83E+01	0.00E+00	7.29E-02	5.66E-02	2.38E-02	-7.46E+00
SM	[kg]	1.07E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.58E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	5.08E-02	0.00E+00	2.71E-06	4.28E-04	5.02E-06	-6.33E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE40 IG5/4" PE40 (1.45 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	5.69E-08	0.00E+00	2.92E-12	2.88E-11	5.15E-12	-4.71E-08
NHWD	[kg]	7.32E-01	0.00E+00	1.13E-05	1.13E-02	6.86E-02	7.42E-02
RWD	[kg]	1.46E-03	0.00E+00	1.38E-07	2.27E-06	3.30E-07	-9.45E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.26E+00	0.00E+00	0.00E+00	1.30E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	3.36E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	6.02E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE40 IG5/4" PE40 (1.45 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.112 ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE32 IG1" PE32

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE32 IG1" PE32 (0.83 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	2.27E+00	0.00E+00	3.23E-03	1.12E-01	8.41E-04	-3.95E-01
GWP-fossil	[kg CO ₂ -Eq.]	2.23E+00	0.00E+00	3.19E-03	1.12E-01	8.35E-04	-3.97E-01
GWP-biogenic	[kg CO ₂ -Eq.]	3.41E-02	0.00E+00	5.96E-06	3.95E-06	2.57E-06	1.90E-03
GWP-luluc	[kg CO ₂ -Eq.]	6.71E-03	0.00E+00	3.35E-05	5.20E-06	2.63E-06	-1.02E-04
ODP	[kg CFC11-Eq.]	3.33E-11	0.00E+00	5.40E-16	1.55E-14	2.71E-15	1.03E-13
AP	[mol H ⁺ -Eq.]	6.57E-03	0.00E+00	1.16E-05	1.26E-05	5.21E-06	-9.20E-04
EP-freshwater	[kg P-Eq.]	1.69E-05	0.00E+00	8.78E-09	2.84E-09	1.18E-09	-1.20E-07
EP-marine	[kg N-Eq.]	1.91E-03	0.00E+00	5.53E-06	3.44E-06	1.27E-06	-1.54E-04
EP-terrestrial	[mol N-Eq.]	2.10E-02	0.00E+00	5.99E-05	5.90E-05	1.39E-05	-1.41E-03
POCP	[kg NMVOC-Eq.]	4.92E-03	0.00E+00	1.07E-05	9.77E-06	3.94E-06	-6.07E-04
ADPE	[kg Sb-Eq.]	1.03E-06	0.00E+00	2.17E-10	1.74E-10	5.67E-11	-2.02E-06
ADPF	[MJ]	2.81E+01	0.00E+00	4.17E-02	3.22E-02	1.37E-02	-4.26E+00
WDP	[m ³ world-Eq deprived]	8.66E-01	0.00E+00	1.49E-05	1.01E-02	9.76E-05	-2.82E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE32 IG1" PE32 (0.83 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.96E+01	0.00E+00	3.14E-03	8.13E-03	2.23E-03	-9.01E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	3.08E+01	0.00E+00	3.14E-03	8.13E-03	2.23E-03	-9.01E-02
PENRE	[MJ]	2.62E+01	0.00E+00	4.17E-02	1.46E+00	1.37E-02	-4.26E+00
PENRM	[MJ]	1.93E+00	0.00E+00	0.00E+00	-1.42E+00	0.00E+00	0.00E+00
PENRT	[MJ]	2.81E+01	0.00E+00	4.17E-02	3.22E-02	1.37E-02	-4.26E+00
SM	[kg]	6.16E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.05E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	2.95E-02	0.00E+00	1.55E-06	2.39E-04	2.88E-06	-3.63E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE32 IG1" PE32 (0.83 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	3.29E-08	0.00E+00	1.67E-12	1.63E-11	2.95E-12	-2.70E-08
NHWD	[kg]	4.20E-01	0.00E+00	5.82E-06	6.41E-03	3.93E-02	4.26E-02
RWD	[kg]	8.53E-04	0.00E+00	7.87E-08	1.28E-06	1.89E-07	-5.27E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	7.23E-01	0.00E+00	0.00E+00	7.47E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.88E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	3.36E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE32 IG1" PE32 (0.83 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.113 ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE25 IG3/4" PE25

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE25 IG3/4" PE25 (0.57 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.59E+00	0.00E+00	2.22E-03	6.04E-02	5.84E-04	-2.54E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.57E+00	0.00E+00	2.19E-03	6.03E-02	5.81E-04	-2.55E-01
GWP-biogenic	[kg CO ₂ -Eq.]	2.43E-02	0.00E+00	4.09E-06	2.16E-06	1.79E-06	1.27E-03
GWP-luluc	[kg CO ₂ -Eq.]	4.75E-03	0.00E+00	2.30E-05	2.45E-06	1.83E-06	-6.01E-05
ODP	[kg CFC11-Eq.]	2.35E-11	0.00E+00	3.71E-16	7.28E-15	1.88E-15	1.16E-13
AP	[mol H ⁺ -Eq.]	4.65E-03	0.00E+00	8.00E-06	6.56E-06	3.62E-06	-5.97E-04
EP-freshwater	[kg P-Eq.]	1.02E-05	0.00E+00	6.03E-09	1.46E-09	8.21E-10	-7.37E-08
EP-marine	[kg N-Eq.]	1.36E-03	0.00E+00	3.80E-06	1.77E-06	8.83E-07	-9.91E-05
EP-terrestrial	[mol N-Eq.]	1.50E-02	0.00E+00	4.11E-05	3.08E-05	9.63E-06	-9.04E-04
POCP	[kg NMVOC-Eq.]	3.52E-03	0.00E+00	7.32E-06	5.05E-06	2.74E-06	-3.93E-04
ADPE	[kg Sb-Eq.]	7.19E-07	0.00E+00	1.49E-10	8.28E-11	3.94E-11	-1.33E-06
ADPF	[MJ]	1.97E+01	0.00E+00	2.86E-02	1.52E-02	9.50E-03	-2.70E+00
WDP	[m ³ world-Eq deprived]	4.41E-01	0.00E+00	1.02E-05	5.35E-03	6.79E-05	-1.80E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE25 IG3/4" PE25 (0.57 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.09E+01	0.00E+00	2.16E-03	3.89E-03	1.55E-03	-2.94E-02
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.21E+01	0.00E+00	2.16E-03	3.89E-03	1.55E-03	-2.94E-02
PENRE	[MJ]	1.83E+01	0.00E+00	2.86E-02	9.07E-01	9.50E-03	-2.70E+00
PENRM	[MJ]	1.40E+00	0.00E+00	0.00E+00	-8.92E-01	0.00E+00	0.00E+00
PENRT	[MJ]	1.97E+01	0.00E+00	2.86E-02	1.52E-02	9.50E-03	-2.70E+00
SM	[kg]	4.38E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.68E-02	0.00E+00	1.07E-06	1.26E-04	2.00E-06	-2.37E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE25 IG3/4" PE25 (0.57 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.35E-08	0.00E+00	1.15E-12	7.78E-12	2.05E-12	-1.76E-08
NHWD	[kg]	2.98E-01	0.00E+00	4.00E-06	3.00E-03	2.74E-02	2.79E-02
RWD	[kg]	6.17E-04	0.00E+00	5.41E-08	6.39E-07	1.32E-07	-2.77E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	5.13E-01	0.00E+00	0.00E+00	5.19E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	9.87E-02	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.77E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE25 IG3/4" PE25 (0.57 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.114 ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE20 IG1/2" PE20

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE20 IG1/2" PE20 (0.38 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.07E+00	0.00E+00	1.48E-03	9.01E-02	3.69E-04	-1.87E-01
GWP-fossil	[kg CO ₂ -Eq.]	1.05E+00	0.00E+00	1.46E-03	9.01E-02	3.67E-04	-1.88E-01
GWP-biogenic	[kg CO ₂ -Eq.]	1.59E-02	0.00E+00	2.73E-06	3.30E-06	1.13E-06	7.68E-04
GWP-luluc	[kg CO ₂ -Eq.]	3.14E-03	0.00E+00	1.53E-05	3.04E-06	1.15E-06	-6.31E-05
ODP	[kg CFC11-Eq.]	1.53E-11	0.00E+00	2.47E-16	9.02E-15	1.19E-15	-7.74E-14
AP	[mol H ⁺ -Eq.]	3.07E-03	0.00E+00	5.33E-06	9.40E-06	2.29E-06	-4.21E-04
EP-freshwater	[kg P-Eq.]	6.93E-06	0.00E+00	4.02E-09	2.06E-09	5.19E-10	-6.46E-08
EP-marine	[kg N-Eq.]	8.95E-04	0.00E+00	2.53E-06	2.53E-06	5.58E-07	-7.22E-05
EP-terrestrial	[mol N-Eq.]	9.87E-03	0.00E+00	2.74E-05	4.43E-05	6.08E-06	-6.70E-04
POCP	[kg NMVOC-Eq.]	2.37E-03	0.00E+00	4.88E-06	7.18E-06	1.73E-06	-2.79E-04
ADPE	[kg Sb-Eq.]	4.58E-07	0.00E+00	9.91E-11	1.05E-10	2.49E-11	-8.92E-07
ADPF	[MJ]	1.44E+01	0.00E+00	1.91E-02	1.88E-02	6.00E-03	-2.10E+00
WDP	[m ³ world-Eq deprived]	3.22E-01	0.00E+00	6.82E-06	7.87E-03	4.29E-05	-1.38E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE20 IG1/2" PE20 (0.38 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.36E+01	0.00E+00	1.44E-03	4.95E-03	9.78E-04	-1.15E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.48E+01	0.00E+00	1.44E-03	4.95E-03	9.78E-04	-1.15E-01
PENRE	[MJ]	1.27E+01	0.00E+00	1.91E-02	1.12E+00	6.00E-03	-2.10E+00
PENRM	[MJ]	1.61E+00	0.00E+00	0.00E+00	-1.10E+00	0.00E+00	0.00E+00
PENRT	[MJ]	1.44E+01	0.00E+00	1.91E-02	1.88E-02	6.00E-03	-2.10E+00
SM	[kg]	2.72E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.04E-02
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.18E-02	0.00E+00	7.11E-07	1.85E-04	1.26E-06	-1.60E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE20 IG1/2" PE20 (0.38 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.53E-08	0.00E+00	7.66E-13	9.83E-12	1.30E-12	-1.20E-08
NHWD	[kg]	1.85E-01	0.00E+00	2.67E-06	3.67E-03	1.73E-02	1.86E-02
RWD	[kg]	4.13E-04	0.00E+00	3.60E-08	8.69E-07	8.32E-08	-4.06E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.18E-01	0.00E+00	0.00E+00	3.28E-01	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.44E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	2.58E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 TEE, INT. THREAD: FIT GJS T PE20 IG1/2" PE20 (0.38 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.115 ISO-FITTING PN16 TEE, INT. THREAD: FIT GJL T PE50 IG2" PE50

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	MNR	MNR	MNR	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE, INT. THREAD: FIT GJL T PE50 IG2" PE50 (2.43 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	6.71E+00	0.00E+00	9.46E-03	2.57E-01	2.49E-03	-1.06E+00
GWP-fossil	[kg CO ₂ -Eq.]	6.59E+00	0.00E+00	9.34E-03	2.57E-01	2.48E-03	-1.06E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.01E-01	0.00E+00	1.75E-05	8.87E-06	7.62E-06	5.23E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.97E-02	0.00E+00	9.81E-05	1.34E-05	7.78E-06	-2.57E-04
ODP	[kg CFC11-Eq.]	9.94E-11	0.00E+00	1.58E-15	3.97E-14	8.02E-15	4.25E-13
AP	[mol H ⁺ -Eq.]	1.95E-02	0.00E+00	3.41E-05	2.98E-05	1.54E-05	-2.48E-03
EP-freshwater	[kg P-Eq.]	5.05E-05	0.00E+00	2.57E-08	6.77E-09	3.50E-09	-3.11E-07
EP-marine	[kg N-Eq.]	5.64E-03	0.00E+00	1.62E-05	8.15E-06	3.76E-06	-4.13E-04
EP-terrestrial	[mol N-Eq.]	6.21E-02	0.00E+00	1.75E-04	1.39E-04	4.10E-05	-3.77E-03
POCP	[kg NMVOC-Eq.]	1.44E-02	0.00E+00	3.12E-05	2.32E-05	1.17E-05	-1.63E-03
ADPE	[kg Sb-Eq.]	3.11E-06	0.00E+00	6.34E-10	4.43E-10	1.68E-10	-5.50E-06
ADPF	[MJ]	8.07E+01	0.00E+00	1.22E-01	8.26E-02	4.05E-02	-1.13E+01
WDP	[m ³ world-Eq deprived]	2.59E+00	0.00E+00	4.36E-05	2.34E-02	2.89E-04	-7.51E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE, INT. THREAD: FIT GJL T PE50 IG2" PE50 (2.43 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	8.84E+01	0.00E+00	9.21E-03	2.06E-02	6.60E-03	-1.56E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	8.96E+01	0.00E+00	9.21E-03	2.06E-02	6.60E-03	-1.56E-01
PENRE	[MJ]	7.67E+01	0.00E+00	1.22E-01	3.58E+00	4.05E-02	-1.13E+01
PENRM	[MJ]	4.01E+00	0.00E+00	0.00E+00	-3.50E+00	0.00E+00	0.00E+00
PENRT	[MJ]	8.07E+01	0.00E+00	1.22E-01	8.26E-02	4.05E-02	-1.13E+01
SM	[kg]	1.87E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.58E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	8.77E-02	0.00E+00	4.55E-06	5.53E-04	8.53E-06	-9.84E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE, INT. THREAD: FIT GJL T PE50 IG2" PE50 (2.43 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	9.79E-08	0.00E+00	4.90E-12	4.16E-11	8.75E-12	-7.31E-08
NHWD	[kg]	1.28E+00	0.00E+00	1.71E-05	1.66E-02	1.17E-01	1.16E-01
RWD	[kg]	2.49E-03	0.00E+00	2.31E-07	3.13E-06	5.61E-07	-1.23E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.21E+00	0.00E+00	0.00E+00	2.21E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	4.37E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	7.83E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 TEE, INT. THREAD: FIT GJL T PE50 IG2" PE50 (2.43 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.116 ISO-FITTING PN16 TEE: FIT GJS T PE40 PE32 PE40

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE40 PE32 PE40 (1.50 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	4.07E+00	0.00E+00	5.84E-03	2.35E-01	1.51E-03	-7.20E-01
GWP-fossil	[kg CO ₂ -Eq.]	4.00E+00	0.00E+00	5.77E-03	2.35E-01	1.50E-03	-7.23E-01
GWP-biogenic	[kg CO ₂ -Eq.]	6.04E-02	0.00E+00	1.08E-05	8.25E-06	4.61E-06	3.34E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.19E-02	0.00E+00	6.06E-05	1.09E-05	4.70E-06	-2.00E-04
ODP	[kg CFC11-Eq.]	5.96E-11	0.00E+00	9.76E-16	3.25E-14	4.85E-15	7.24E-14
AP	[mol H ⁺ -Eq.]	1.17E-02	0.00E+00	2.10E-05	2.65E-05	9.34E-06	-1.66E-03
EP-freshwater	[kg P-Eq.]	3.20E-05	0.00E+00	1.59E-08	5.95E-09	2.12E-09	-2.25E-07
EP-marine	[kg N-Eq.]	3.38E-03	0.00E+00	1.00E-05	7.19E-06	2.28E-06	-2.80E-04
EP-terrestrial	[mol N-Eq.]	3.73E-02	0.00E+00	1.08E-04	1.24E-04	2.48E-05	-2.57E-03
POCP	[kg NMVOC-Eq.]	8.71E-03	0.00E+00	1.93E-05	2.05E-05	7.06E-06	-1.10E-03
ADPE	[kg Sb-Eq.]	1.85E-06	0.00E+00	3.91E-10	3.66E-10	1.02E-10	-3.63E-06
ADPF	[MJ]	5.05E+01	0.00E+00	7.54E-02	6.77E-02	2.45E-02	-7.84E+00
WDP	[m³ world-Eq deprived]	1.73E+00	0.00E+00	2.69E-05	2.11E-02	1.75E-04	-5.18E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE40 PE32 PE40 (1.50 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	5.30E+01	0.00E+00	5.68E-03	1.71E-02	3.99E-03	-2.31E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	5.42E+01	0.00E+00	5.68E-03	1.71E-02	3.99E-03	-2.31E-01
PENRE	[MJ]	4.72E+01	0.00E+00	7.54E-02	2.90E+00	2.45E-02	-7.84E+00
PENRM	[MJ]	3.34E+00	0.00E+00	0.00E+00	-2.83E+00	0.00E+00	0.00E+00
PENRT	[MJ]	5.05E+01	0.00E+00	7.54E-02	6.77E-02	2.45E-02	-7.84E+00
SM	[kg]	1.10E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.68E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m³]	5.71E-02	0.00E+00	2.81E-06	4.99E-04	5.16E-06	-6.50E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE40 PE32 PE40 (1.50 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	5.85E-08	0.00E+00	3.02E-12	3.44E-11	5.29E-12	-3.00E-08
NHWD	[kg]	7.52E-01	0.00E+00	1.05E-05	1.35E-02	7.05E-02	4.74E-02
RWD	[kg]	1.50E-03	0.00E+00	1.42E-07	2.69E-06	3.39E-07	-5.71E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.30E+00	0.00E+00	0.00E+00	1.34E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	3.92E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	7.03E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE40 PE32 PE40 (1.50 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.117 ISO-FITTING PN16 TEE: FIT GJS T PE63 PE50 PE63

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE63 PE50 PE63 (3.51 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	9.78E+00	0.00E+00	1.37E-02	4.83E-01	3.55E-03	-1.52E+00
GWP-fossil	[kg CO ₂ -Eq.]	9.60E+00	0.00E+00	1.35E-02	4.82E-01	3.53E-03	-1.53E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.45E-01	0.00E+00	2.52E-05	1.68E-05	1.09E-05	7.09E-03
GWP-luluc	[kg CO ₂ -Eq.]	2.84E-02	0.00E+00	1.42E-04	2.36E-05	1.11E-05	-4.18E-04
ODP	[kg CFC11-Eq.]	1.43E-10	0.00E+00	2.28E-15	7.00E-14	1.14E-14	1.91E-13
AP	[mol H ⁺ -Eq.]	2.82E-02	0.00E+00	4.92E-05	5.50E-05	2.20E-05	-3.52E-03
EP-freshwater	[kg P-Eq.]	7.65E-05	0.00E+00	3.71E-08	1.24E-08	4.99E-09	-4.74E-07
EP-marine	[kg N-Eq.]	8.13E-03	0.00E+00	2.34E-05	1.50E-05	5.37E-06	-5.91E-04
EP-terrestrial	[mol N-Eq.]	8.95E-02	0.00E+00	2.53E-04	2.57E-04	5.85E-05	-5.43E-03
POCP	[kg NMVOC-Eq.]	2.08E-02	0.00E+00	4.51E-05	4.27E-05	1.66E-05	-2.32E-03
ADPE	[kg Sb-Eq.]	4.50E-06	0.00E+00	9.16E-10	7.85E-10	2.40E-10	-7.68E-06
ADPF	[MJ]	1.19E+02	0.00E+00	1.76E-01	1.46E-01	5.77E-02	-1.65E+01
WDP	[m ³ world-Eq deprived]	4.11E+00	0.00E+00	6.30E-05	4.36E-02	4.12E-04	-1.09E-01

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE63 PE50 PE63 (3.51 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.27E+02	0.00E+00	1.33E-02	3.66E-02	9.41E-03	-4.65E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.28E+02	0.00E+00	1.33E-02	3.66E-02	9.41E-03	-4.65E-01
PENRE	[MJ]	1.13E+02	0.00E+00	1.76E-01	6.30E+00	5.77E-02	-1.65E+01
PENRM	[MJ]	6.67E+00	0.00E+00	0.00E+00	-6.15E+00	0.00E+00	0.00E+00
PENRT	[MJ]	1.19E+02	0.00E+00	1.76E-01	1.46E-01	5.77E-02	-1.65E+01
SM	[kg]	2.69E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.80E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.36E-01	0.00E+00	6.57E-06	1.03E-03	1.22E-05	-1.38E-01

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE63 PE50 PE63 (3.51 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.41E-07	0.00E+00	7.08E-12	7.37E-11	1.25E-11	-1.03E-07
NHWD	[kg]	1.84E+00	0.00E+00	2.46E-05	2.91E-02	1.66E-01	1.61E-01
RWD	[kg]	3.59E-03	0.00E+00	3.33E-07	5.67E-06	8.01E-07	-2.28E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.17E+00	0.00E+00	0.00E+00	3.16E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	8.12E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.45E+00	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE63 PE50 PE63 (3.51 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.118 ISO-FITTING PN16 TEE: FIT GJS T PE63 PE40 PE63

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE63 PE40 PE63 (3.21 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	8.79E+00	0.00E+00	1.25E-02	4.48E-01	3.25E-03	-1.46E+00
GWP-fossil	[kg CO ₂ -Eq.]	8.64E+00	0.00E+00	1.23E-02	4.48E-01	3.23E-03	-1.46E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.31E-01	0.00E+00	2.31E-05	1.57E-05	9.93E-06	6.86E-03
GWP-luluc	[kg CO ₂ -Eq.]	2.57E-02	0.00E+00	1.30E-04	2.13E-05	1.01E-05	-3.94E-04
ODP	[kg CFC11-Eq.]	1.29E-10	0.00E+00	2.09E-15	6.32E-14	1.04E-14	2.47E-13
AP	[mol H ⁺ -Eq.]	2.53E-02	0.00E+00	4.50E-05	5.07E-05	2.01E-05	-3.38E-03
EP-freshwater	[kg P-Eq.]	6.78E-05	0.00E+00	3.39E-08	1.14E-08	4.56E-09	-4.50E-07
EP-marine	[kg N-Eq.]	7.32E-03	0.00E+00	2.14E-05	1.38E-05	4.90E-06	-5.67E-04
EP-terrestrial	[mol N-Eq.]	8.06E-02	0.00E+00	2.31E-04	2.37E-04	5.35E-05	-5.20E-03
POCP	[kg NMVOC-Eq.]	1.87E-02	0.00E+00	4.12E-05	3.93E-05	1.52E-05	-2.23E-03
ADPE	[kg Sb-Eq.]	4.04E-06	0.00E+00	8.37E-10	7.11E-10	2.19E-10	-7.40E-06
ADPF	[MJ]	1.07E+02	0.00E+00	1.61E-01	1.32E-01	5.28E-02	-1.58E+01
WDP	[m ³ world-Eq deprived]	3.59E+00	0.00E+00	5.76E-05	4.04E-02	3.77E-04	-1.05E-01

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE63 PE40 PE63 (3.21 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.15E+02	0.00E+00	1.22E-02	3.32E-02	8.60E-03	-4.10E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.16E+02	0.00E+00	1.22E-02	3.32E-02	8.60E-03	-4.10E-01
PENRE	[MJ]	1.01E+02	0.00E+00	1.61E-01	5.80E+00	5.28E-02	-1.58E+01
PENRM	[MJ]	6.18E+00	0.00E+00	0.00E+00	-5.67E+00	0.00E+00	0.00E+00
PENRT	[MJ]	1.07E+02	0.00E+00	1.61E-01	1.32E-01	5.28E-02	-1.58E+01
SM	[kg]	2.42E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.51E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.20E-01	0.00E+00	6.01E-06	9.54E-04	1.11E-05	-1.33E-01

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE63 PE40 PE63 (3.21 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.27E-07	0.00E+00	6.47E-12	6.67E-11	1.14E-11	-9.88E-08
NHWD	[kg]	1.65E+00	0.00E+00	2.25E-05	2.63E-02	1.52E-01	1.56E-01
RWD	[kg]	3.24E-03	0.00E+00	3.05E-07	5.18E-06	7.31E-07	-2.11E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.85E+00	0.00E+00	0.00E+00	2.88E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	7.51E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.34E+00	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE63 PE40 PE63 (3.21 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.119 ISO-FITTING PN16 TEE: FIT GJS T PE63 PE32 PE63

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE63 PE32 PE63 (2.70 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	7.56E+00	0.00E+00	1.05E-02	4.05E-01	2.72E-03	-1.17E+00
GWP-fossil	[kg CO ₂ -Eq.]	7.43E+00	0.00E+00	1.04E-02	4.05E-01	2.70E-03	-1.17E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.12E-01	0.00E+00	1.94E-05	1.42E-05	8.32E-06	5.32E-03
GWP-luluc	[kg CO ₂ -Eq.]	2.19E-02	0.00E+00	1.09E-04	1.93E-05	8.49E-06	-3.36E-04
ODP	[kg CFC11-Eq.]	1.10E-10	0.00E+00	1.76E-15	5.74E-14	8.75E-15	2.17E-14
AP	[mol H ⁺ -Eq.]	2.17E-02	0.00E+00	3.79E-05	4.59E-05	1.69E-05	-2.69E-03
EP-freshwater	[kg P-Eq.]	5.97E-05	0.00E+00	2.85E-08	1.03E-08	3.82E-09	-3.72E-07
EP-marine	[kg N-Eq.]	6.27E-03	0.00E+00	1.80E-05	1.25E-05	4.11E-06	-4.54E-04
EP-terrestrial	[mol N-Eq.]	6.91E-02	0.00E+00	1.95E-04	2.14E-04	4.48E-05	-4.18E-03
POCP	[kg NMVOC-Eq.]	1.61E-02	0.00E+00	3.47E-05	3.56E-05	1.27E-05	-1.78E-03
ADPE	[kg Sb-Eq.]	3.46E-06	0.00E+00	7.04E-10	6.45E-10	1.83E-10	-5.85E-06
ADPF	[MJ]	9.30E+01	0.00E+00	1.36E-01	1.20E-01	4.42E-02	-1.28E+01
WDP	[m ³ world-Eq deprived]	3.25E+00	0.00E+00	4.84E-05	3.65E-02	3.16E-04	-8.45E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE63 PE32 PE63 (2.70 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	9.79E+01	0.00E+00	1.02E-02	3.01E-02	7.20E-03	-4.29E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	9.91E+01	0.00E+00	1.02E-02	3.01E-02	7.20E-03	-4.29E-01
PENRE	[MJ]	8.74E+01	0.00E+00	1.36E-01	5.21E+00	4.42E-02	-1.28E+01
PENRM	[MJ]	5.60E+00	0.00E+00	0.00E+00	-5.09E+00	0.00E+00	0.00E+00
PENRT	[MJ]	9.30E+01	0.00E+00	1.36E-01	1.20E-01	4.42E-02	-1.28E+01
SM	[kg]	2.06E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.93E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.06E-01	0.00E+00	5.06E-06	8.63E-04	9.30E-06	-1.05E-01

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE63 PE32 PE63 (2.70 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.08E-07	0.00E+00	5.44E-12	6.05E-11	9.54E-12	-7.82E-08
NHWD	[kg]	1.41E+00	0.00E+00	1.89E-05	2.39E-02	1.27E-01	1.23E-01
RWD	[kg]	2.77E-03	0.00E+00	2.56E-07	4.69E-06	6.13E-07	-1.91E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.43E+00	0.00E+00	0.00E+00	2.41E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	6.79E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.22E+00	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE63 PE32 PE63 (2.70 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.120 ISO-FITTING PN16 TEE: FIT GJS T PE50 PE40 PE50

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE50 PE40 PE50 (2.58 kg/piece)

Kemindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	6.97E+00	0.00E+00	1.00E-02	3.53E-01	2.61E-03	-1.22E+00
GWP-fossil	[kg CO ₂ -Eq.]	6.85E+00	0.00E+00	9.92E-03	3.53E-01	2.59E-03	-1.23E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.04E-01	0.00E+00	1.85E-05	1.23E-05	7.99E-06	5.84E-03
GWP-luluc	[kg CO ₂ -Eq.]	2.05E-02	0.00E+00	1.04E-04	1.79E-05	8.16E-06	-3.22E-04
ODP	[kg CFC11-Eq.]	1.03E-10	0.00E+00	1.68E-15	5.31E-14	8.40E-15	2.81E-13
AP	[mol H ⁺ -Eq.]	2.01E-02	0.00E+00	3.62E-05	4.07E-05	1.62E-05	-2.85E-03
EP-freshwater	[kg P-Eq.]	5.59E-05	0.00E+00	2.73E-08	9.21E-09	3.67E-09	-3.73E-07
EP-marine	[kg N-Eq.]	5.80E-03	0.00E+00	1.72E-05	1.11E-05	3.94E-06	-4.77E-04
EP-terrestrial	[mol N-Eq.]	6.39E-02	0.00E+00	1.86E-04	1.90E-04	4.30E-05	-4.37E-03
POCP	[kg NMVOC-Eq.]	1.49E-02	0.00E+00	3.31E-05	3.16E-05	1.22E-05	-1.88E-03
ADPE	[kg Sb-Eq.]	3.21E-06	0.00E+00	6.73E-10	5.94E-10	1.76E-10	-6.25E-06
ADPF	[MJ]	8.51E+01	0.00E+00	1.30E-01	1.10E-01	4.24E-02	-1.32E+01
WDP	[m ³ world-Eq deprived]	3.06E+00	0.00E+00	4.63E-05	3.20E-02	3.03E-04	-8.76E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE50 PE40 PE50 (2.58 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	9.13E+01	0.00E+00	9.77E-03	2.76E-02	6.92E-03	-3.01E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	9.25E+01	0.00E+00	9.77E-03	2.76E-02	6.92E-03	-3.01E-01
PENRE	[MJ]	8.03E+01	0.00E+00	1.30E-01	4.40E+00	4.24E-02	-1.32E+01
PENRM	[MJ]	4.81E+00	0.00E+00	0.00E+00	-4.29E+00	0.00E+00	0.00E+00
PENRT	[MJ]	8.51E+01	0.00E+00	1.30E-01	1.10E-01	4.24E-02	-1.32E+01
SM	[kg]	1.91E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.35E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.00E-01	0.00E+00	4.83E-06	7.58E-04	8.94E-06	-1.12E-01

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE50 PE40 PE50 (2.58 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.01E-07	0.00E+00	5.20E-12	5.57E-11	9.17E-12	-8.34E-08
NHWD	[kg]	1.31E+00	0.00E+00	1.81E-05	2.21E-02	1.22E-01	1.31E-01
RWD	[kg]	2.56E-03	0.00E+00	2.45E-07	4.23E-06	5.88E-07	-1.68E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.25E+00	0.00E+00	0.00E+00	2.32E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	5.98E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.07E+00	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE50 PE40 PE50 (2.58 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.121 ISO-FITTING PN16 TEE: FIT GJS T PE50 PE32 PE50

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE50 PE32 PE50 (2.01 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	5.69E+00	0.00E+00	7.82E-03	3.04E-01	2.02E-03	-8.59E-01
GWP-fossil	[kg CO ₂ -Eq.]	5.59E+00	0.00E+00	7.73E-03	3.04E-01	2.01E-03	-8.62E-01
GWP-biogenic	[kg CO ₂ -Eq.]	8.41E-02	0.00E+00	1.44E-05	1.05E-05	6.19E-06	3.87E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.64E-02	0.00E+00	8.11E-05	1.56E-05	6.32E-06	-2.52E-04
ODP	[kg CFC11-Eq.]	8.24E-11	0.00E+00	1.31E-15	4.63E-14	6.51E-15	-2.40E-14
AP	[mol H ⁺ -Eq.]	1.63E-02	0.00E+00	2.82E-05	3.52E-05	1.25E-05	-1.97E-03
EP-freshwater	[kg P-Eq.]	4.75E-05	0.00E+00	2.13E-08	7.96E-09	2.84E-09	-2.76E-07
EP-marine	[kg N-Eq.]	4.71E-03	0.00E+00	1.34E-05	9.60E-06	3.05E-06	-3.33E-04
EP-terrestrial	[mol N-Eq.]	5.19E-02	0.00E+00	1.45E-04	1.64E-04	3.33E-05	-3.07E-03
POCP	[kg NMVOC-Eq.]	1.21E-02	0.00E+00	2.58E-05	2.73E-05	9.48E-06	-1.30E-03
ADPE	[kg Sb-Eq.]	2.61E-06	0.00E+00	5.24E-10	5.17E-10	1.36E-10	-4.27E-06
ADPF	[MJ]	7.01E+01	0.00E+00	1.01E-01	9.63E-02	3.29E-02	-9.43E+00
WDP	[m ³ world-Eq deprived]	2.72E+00	0.00E+00	3.61E-05	2.76E-02	2.35E-04	-6.22E-02

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE50 PE32 PE50 (2.01 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	7.32E+01	0.00E+00	7.61E-03	2.41E-02	5.36E-03	-3.38E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	7.44E+01	0.00E+00	7.61E-03	2.41E-02	5.36E-03	-3.38E-01
PENRE	[MJ]	6.59E+01	0.00E+00	1.01E-01	3.81E+00	3.29E-02	-9.43E+00
PENRM	[MJ]	4.22E+00	0.00E+00	0.00E+00	-3.71E+00	0.00E+00	0.00E+00
PENRT	[MJ]	7.01E+01	0.00E+00	1.01E-01	9.63E-02	3.29E-02	-9.43E+00
SM	[kg]	1.54E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.33E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	8.62E-02	0.00E+00	3.76E-06	6.54E-04	6.92E-06	-7.66E-02

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE50 PE32 PE50 (2.01 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	8.12E-08	0.00E+00	4.05E-12	4.85E-11	7.10E-12	-5.72E-08
NHWD	[kg]	1.06E+00	0.00E+00	1.41E-05	1.93E-02	9.46E-02	8.96E-02
RWD	[kg]	2.08E-03	0.00E+00	1.91E-07	3.67E-06	4.56E-07	-1.45E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.82E+00	0.00E+00	0.00E+00	1.80E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	5.16E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	9.24E-01	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE50 PE32 PE50 (2.01 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

2.122 ISO-FITTING PN16 TEE: FIT GJS T PE50 PE50 PE50

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED); MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE50 PE50 PE50 (3.21 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	8.63E+00	0.00E+00	1.25E-02	4.03E-01	3.26E-03	-1.52E+00
GWP-fossil	[kg CO ₂ -Eq.]	8.48E+00	0.00E+00	1.23E-02	4.03E-01	3.24E-03	-1.53E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.29E-01	0.00E+00	2.31E-05	1.39E-05	9.99E-06	7.41E-03
GWP-luluc	[kg CO ₂ -Eq.]	2.55E-02	0.00E+00	1.30E-04	2.09E-05	1.02E-05	-3.85E-04
ODP	[kg CFC11-Eq.]	1.28E-10	0.00E+00	2.09E-15	6.23E-14	1.05E-14	4.85E-13
AP	[mol H ⁺ -Eq.]	2.49E-02	0.00E+00	4.50E-05	4.68E-05	2.02E-05	-3.56E-03
EP-freshwater	[kg P-Eq.]	6.87E-05	0.00E+00	3.39E-08	1.06E-08	4.58E-09	-4.56E-07
EP-marine	[kg N-Eq.]	7.20E-03	0.00E+00	2.14E-05	1.28E-05	4.93E-06	-5.94E-04
EP-terrestrial	[mol N-Eq.]	7.93E-02	0.00E+00	2.31E-04	2.18E-04	5.38E-05	-5.43E-03
POCP	[kg NMVOC-Eq.]	1.84E-02	0.00E+00	4.12E-05	3.64E-05	1.53E-05	-2.35E-03
ADPE	[kg Sb-Eq.]	3.99E-06	0.00E+00	8.37E-10	6.95E-10	2.20E-10	-7.85E-06
ADPF	[MJ]	1.05E+02	0.00E+00	1.61E-01	1.30E-01	5.30E-02	-1.64E+01
WDP	[m ³ world-Eq deprived]	3.72E+00	0.00E+00	5.76E-05	3.67E-02	3.79E-04	-1.09E-01

Caption GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE50 PE50 PE50 (3.21 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.14E+02	0.00E+00	1.22E-02	3.23E-02	8.65E-03	-2.98E-01
PERM	[MJ]	1.20E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.15E+02	0.00E+00	1.22E-02	3.23E-02	8.65E-03	-2.98E-01
PENRE	[MJ]	9.91E+01	0.00E+00	1.61E-01	5.12E+00	5.30E-02	-1.64E+01
PENRM	[MJ]	5.50E+00	0.00E+00	0.00E+00	-4.99E+00	0.00E+00	0.00E+00
PENRT	[MJ]	1.05E+02	0.00E+00	1.61E-01	1.30E-01	5.30E-02	-1.64E+01
SM	[kg]	2.38E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.97E-01
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m ³]	1.22E-01	0.00E+00	6.01E-06	8.68E-04	1.12E-05	-1.41E-01

Caption PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE50 PE50 PE50 (3.21 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.25E-07	0.00E+00	6.47E-12	6.52E-11	1.15E-11	-1.05E-07
NHWD	[kg]	1.63E+00	0.00E+00	2.25E-05	2.60E-02	1.53E-01	1.65E-01
RWD	[kg]	3.17E-03	0.00E+00	3.05E-07	4.91E-06	7.35E-07	-1.93E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.81E+00	0.00E+00	0.00E+00	2.90E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	6.86E-01	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	1.23E+00	0.00E+00	0.00E+00

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece ISO-FITTING PN16 TEE: FIT GJS T PE50 PE50 PE50 (3.21 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND
IRP	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
ETP-fw	[CTUe]	ND	ND	ND	ND	ND	ND
HTP-c	[CTUh]	ND	ND	ND	ND	ND	ND
HTP-nc	[CTUh]	ND	ND	ND	ND	ND	ND
SQP	[-]	ND	ND	ND	ND	ND	ND
Caption	PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index						

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A2

Owner of the Declaration	E. Hawle Armaturenwerke GmbH
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-HAW-20260411-IBA1-EN
Issue date	21.07.2026
Valid to	20.07.2031

Fitting

E. Hawle Armaturenwerke GmbH

www.ibu-epd.com | <https://epd-online.com>



1. General Information

E. Hawle Armaturenwerke GmbH

Programme holder

IBU – Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

Declaration number

EPD-HAW-20260411-IBA1-EN

This declaration is based on the product category rules:

Fittings and connections for water supply, 01.08.2021
(PCR checked and approved by the SVR)

Issue date

21.07.2026

Valid to

20.07.2031



Dipl.-Ing. Hans Peters
(Chairman of Institut Bauen und Umwelt e.V.)



Dr. Martina Bender
(Managing Director Institut Bauen und Umwelt e.V.)

Fitting

Owner of the declaration

E. Hawle Armaturenwerke GmbH
Wagrainer Straße 13
4840 Vöcklabruck
Austria

Declared product / declared unit

1 piece fitting - type 'ISO-fitting PN16 connector: FIT GJS PE32 PE32'

Scope:

This Environmental Product Declaration refers to a declared unit of 1 piece of fitting - type 'ISO-fitting PN16 connector: FIT GJS PE32 PE32' - produced at the production sites of E. Hawle Armaturenwerke GmbH in Vöcklabruck and Frankenmarkt (Austria).

In addition to the declared product, two annexes to this EPD declare the results of 122 further fittings mainly made of cast iron (Annex Fittings GJS) and 109 further fittings mainly made of POM (Annex Fittings Polymer). The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

The EPD was created according to the specifications of EN 15804+A2. In the following, the standard will be simplified as *EN 15804*.

Verification

The standard EN 15804 serves as the core PCR	
Independent verification of the declaration and data according to ISO 14025:2011	
☐	internally
☒	externally



Angela Schindler,
(Independent verifier)

2. Product

2.1 Product description/Product definition

The declared product is a mechanical pipe-fitting according to *ISO 17885* which is used to connect polyethylene pipes via a so-called ISO-socket push-fit connection.

The referred unit is traded as 'ISO-Fitting' and specified as 'FIT GJS PE32 PE32'.

Catalogue number: 6300
Internal material number: 5005559
Goods no. / Imp. code no.: 73071910
EAN/UPC code: 9007878000157
Coating standard: *EN 14901*

The connection is a push-fit connection, which is called an ISO-socket. It contains a clamp and an O-ring. The ISO-Socket is for PE pipes according to *EN 12201* and *DIN 8074* for operating conditions up to PN16 and up to 30 °C medium temperature, also for vacuum (with support liner). This push-fit socket is restrained acc. to *DIN 8076 T1/T3* with a special clamp for PVC pipes acc. to *EN 1452-2*.

The clamp is made of Polyoxymethylene (POM), and O-rings are made of EPDM elastomer. Additionally, a rubber dust cap made of EPDM is provided to cover and protect the fitting-pipe connection.

Optionally, internal threads, external threads, Hawle-FIT, ZAK, or other connection systems may also be used (see annexes).

The body of the fitting is made from EN-GJS-400-15 ductile cast iron pursuant to *EN 1563*. It is epoxy powder coated on the inside and outside pursuant to *DIN 3476-1* and in compliance with the quality and testing provisions of *RAL-GZ 662 (GSK)*: Coating thickness: min. 250 µm, zero porosity: min. 3000 V spark test, adhesion: min. 16 N/mm².
Optional housing materials: The housing materials can be POM or PP. LCA calculations of which can be found in the annexes.

For the use and application of the product the respective national provisions at the place of use apply, in Germany, for example, the building codes of the federal states and the corresponding national specifications.

2.2 Application

The declared product is a mechanical pipe-fitting according to *ISO 17885* which is used to connect polyethylene pipes via a so-called ISO-socket push-fit connection. It is commonly used in pressurized potable water supply lines (up to 30 °C and pressure up to PN16).

2.3 Technical Data

The following data is decisive for the products of E. Hawle Armaturenwerke GmbH:

Constructional data

5005559 / FIT GJS PE32 PE32

Name	Value	Unit
Medium	Water	
Nominal diameter (DN)	25	
Max. working pressure (PN)	16	bar
temperature (range)	0 - 30	°C
Connection 1	ISO push-fitting	
Connection 2	ISO push-fitting	
Weight	0.00064	t
Housing	Epoxy coated ductile iron	

The performance values of the product with respect to its characteristics comply with the applicable technical regulation pursuant to *ISO 17885* (no CE marking).

2.4 Delivery status

The Hawle fitting is delivered fully assembled, tested, and packaged.

The FIT GJS PE32 PE32 is 12 cm long and has a circular cross-section with an outer diameter of 4.4 cm. It weighs 0.64 kg when unpacked.

2.5 Base materials/Ancillary materials

The main product components are listed in the table below.

Name	Value	Unit
Housing cast iron epoxy powder coated	93.6	%
ISO grip ring POM	3.1	%
O-rings EPDM	1.5	%
Dust cap EPDM	1.8	%

The main constituent is made of cast iron.

Other relevant components:

Clamps are made of Polyoxymethylene (POM) and dust caps and O-rings are made of EPDM elastomer.

A component of the product contains substances listed in the *candidate list* (date: 27.02.2026) exceeding 0.1 percentage by mass: **no**

This product/article/at least one partial article contains other carcinogenic, mutagenic, reprotoxic (CMR) substances in categories 1A or 1B which are not on the *candidate list*, exceeding 0.1 percentage by mass: **no**

Biocide products were added to this construction product or it has been treated with biocide products (this then concerns a treated product as defined by the (EU) *Ordinance on Biocide Products* No. 528/2012): **no**

2.6 Manufacture

The fitting is manufactured in accordance with the quality management standard *ISO 9001*.

All products are checked for function and tightness prior to dispatch. Production takes place according to the specifications of the relevant standards. The products and the manufacturing methods also meet the requirements of the country-specific approvals.

Production takes place at the two production sites of E. Hawle Armaturenwerke GmbH in Vöcklabruck and Frankenmarkt.

The body components are processed mechanically; the surfaces are blasted and then epoxy powder coated. Various plastic components are produced using injection moulding machines and later processed mechanically, such as drilling/milling or friction moulding.

Gaskets and sealings are made from raw rubber in elastomer production. Various O-rings are bought in. The individual components are assembled and are finished after passing quality control.

2.7 Environment and health during manufacturing

The production process at Hawle complies with the health and safety management standard *ISO 45001*. The commitment to continuous improvement is reflected in the company's exceeding of legal requirements with regard to inspections, evaluations, prevention staff and prevention times, and additional measures in connection with the 'Hawle Vital Program' (free fruit, vaccine drives, reintegration measures, various active events).

The certified environmental management system according to *ISO 14001* is proof of Hawle's commitment to steadily reducing its environmental impact. This includes various initiatives in the following areas:

- Resource efficiency: use of recycled plastics for parts that do not come into contact with drinking water; closing raw material loops with suppliers by way of cast iron swarf agglomeration; continuous scrap monitoring; integrated waste management concept; repair of used Euro-pallets, etc.
- Water management: preparation and re-use of test water;
- Energy management: thermal insulation; heat recovery plants; energy recovery plans; efficiency-boosting measures; lighting optimization, etc.

2.8 Product processing/Installation

Installation instructions are enclosed with the product. During laying, installation, and maintenance, the applicable standards, regulations, accident prevention regulations, and the regulations of the professional associations must be observed and complied with. Installation and maintenance shall only be carried out by trained professionals.

Tools needed for assembly are a saw or pipe cutter (to cut the PE-pipe to the right length), a ruler to measure the inlet distance, a moistening liquid (water or spray).

Hawle fittings are designed for maintenance-free operation. After assembly, a pressure test is to be conducted in the open trench pursuant to *EN 805*; this is to be dictated by the working pressure. Special tools are available for dismantling the ISO connection during reconstruction or repair work, so called pull-off trays. Spare parts, such as clamps and O-rings, are available from Hawle and can be easily replaced.

2.9 Packaging

Appropriate packaging is selected to meet drinking water/hygiene requirements and to protect the products.

The following types of packaging are used:

Fittings and other housing products are protected with a shrink wrap foil.

Additional packaging serves merely to protect the product during transport and is dictated by the destination country in question (sea freight, air cargo, parcel express, truck). The provisions governing standard packaging types are set out in a dedicated handbook.

For continental Europe, the transport packaging consists of an exchangeable Euro-pallet with a reusable folding frame and a hardboard base.

Fittings are usually commissioned in cardboard boxes.

The contact points from product and wood frame are protected with cardboard inserts (partly recycled secondary packaging) and the frame is braced with PET straps.

The packaging materials can either be re-used or sent to the country-specific waste collection systems (waste wood, waste paper, plastic packaging).

2.10 Condition of use

The material composition during the usage phase is the same as that at the time of manufacture. The highly corrosion-resistant design ensures a long product life.

The fitting is designed for maintenance-free operation.

2.11 Environment and health during use

From an environmental and health perspective, there are no hazards or restrictions on use.

2.12 Reference service life

Hawle products are produced to extremely high standards. In order to achieve the greatest possible service life, the products are made from or coated with particularly corrosion-resistant materials.

The reference service life of the service valve is 50 years according to *ÖNORM ISO 17885*.

Influences on ageing may include operating conditions not in accordance with the intended use. These can be excessive temperature or pressure and also corrosive media or soils.

2.13 Extraordinary effects

Fire

Fittings are not subject to the Construction Products Regulation. A building material class/flammability cannot be specified.

Water

In the event of flooding or other exposure to water, no negative effects on the product and therefore no resulting consequences for the environment are to be expected.

Mechanical destruction

No negative consequences for the environment are to be expected in the event of mechanical destruction. As part of a drinking water supply pipeline, potential impacts in the event of a functional failure must be considered in the overall risk assessment of the supply pipeline.

2.14 Re-use phase

Repair: Special tools are available for dismantling the ISO connection during reconstruction or repair work, so-called pull-off trays. Spare parts, such as clamps and O-rings, are available from Hawle and can be easily replaced.

Reuse: The cast iron body components could be returned to the production cycle by way of lye treatment/recoating.

Recycling: The product can be dismantled into its components. The materials that are relevant in terms of weight (cast iron) can be recycled directly, elastomer and plastic parts can only be used for energy recovery.

2.15 Disposal

The product is disposed of according to national regulations. Not considering the possibilities mentioned in 2.14, the fitting is disposed of by being fed into the scrap iron processing cycle. The waste code according to the *European Waste Catalogue* is: 17 04 07 Mixed Metal Waste.

2.16 Further information

You can find further information at:

www.hawle.com

3. LCA: Calculation rules

3.1 Declared Unit

This environmental product declaration refers to a declared unit of 1 piece fitting - type 'ISO-fitting PN16 connector: FIT GJS PE32 PE32' - with a weight of 0.64 kg/piece.

Declared unit and mass reference

Name	Value	Unit
Declared unit	1	pce.
Mass reference	0.64	kg/pce

The results for additional versions of fittings can be found in two annexes to this EPD:

- Annex Fittings GJS declaring 122 further fittings mainly made of cast iron
- Annex Fittings Polymer declaring 109 further fittings mainly made of POM

3.2 System boundary

The life cycle assessment of fittings refers to a cradle-to-gate analysis with modules C1–C4 and module D (A1–A3 + C + D). The following life cycle phases are part of the analysis:

Module A1–A3 | Production stage

The production stage includes the upstream burdens of raw material supply, their transport and the production at E. Hawle Armaturenwerke GmbH in Vöcklabruck and Frankenmarkt. The production sites are supplied with 100 % green electricity (GWP-total = 0,01 kg CO₂-equivalents/kWh). The provision of thermal energy at the site in Vöcklabruck is based on district heating using natural gas and biomass. Thermal energy supply in Frankenmarkt is based on local heating using biomass. The production of the product packaging is also included in module A1–A3.

Module C1 | Deconstruction and demolition

The product is used underground and is either dismantled from the accompanying structures or the valves may remain in the ground after their service life. Burdens associated with the dismantling of the products are assumed as low. The real energy consumption of dismantling strongly depends on the site-specific conditions.

Module C2 | Transport to disposal

The transport to the disposal of the material is estimated declaring a 50 km radius to the waste processing.

Module C3 | Waste processing

Module C3 refers to the emissions from the disposal of the polymer parts of the products. The scenario includes the energy recovery of the polymers in a waste incineration plant. Product flows that reach Module D for recycling reach the end-of-waste state in C3 and thus leave the product system. Environmental impacts resulting from the sorting of metal scrap are not included, as referring energy demand is considered to be negligible.

Module C4 | Landfilling

Module C4 refers to the emissions from the disposal of the losses from waste processing (5 % of metals).

Module D | Benefits and loads beyond the system boundary

Module D declares the recycling of the recovered metals (95 % of metals) including the environmental potential for substituting primary material. In addition, substitution potentials from energy recovery of the incineration of the polymers are accounted for in

this module.

3.3 Estimates and assumptions

Assumptions and approximations are applied in case of a lack of representative data. All assumptions and approximations are documented precisely and represent a best-guess representation of reality. The regional applicability of the used background data refers to average data for Europe or Austria. If no European or Austrian data was available, German data was used to represent the Austrian market.

3.4 Cut-off criteria

The LCA model covers all available input and output flows, which can be represented based on robust data and from which a significant contribution can be expected. Data gaps are filled with conservative assumptions of average data or generic data if available and are documented accordingly. Only data with a contribution of less than 1 % were cut off. Thus, no data were neglected, of which a substantial impact is to be expected. All relevant data were collected comprehensively. Cut-off material and energy flows were chosen carefully based on their expected quantitative contribution as well as potential environmental impacts. Thus, it can be assumed that the sum of all neglected input flows does not account for more than 5 % of the total material, water and energy flows.

3.5 Background data

Primary and secondary data are used for the evaluation of upstream environmental impacts in the LCA model. Primary data from one supplier of cast iron is available for modelling the upstream supply chain. Secondary data are taken from the MLC 2025.2 background database.

3.6 Data quality

Data collection is based on industry-specific questionnaires. It follows an iterative process clarifying questions via email, telephone calls or in personal/web meetings. Intensive discussions between E. Hawle Armaturenwerke GmbH and Daxner & Merl result in an accurate mapping of product-related material and energy flows. This leads to a high quality of foreground data collected. Data collection relies on a consistent process according to ISO 14044.

The technological, geographical and time-related representativeness of the database was kept in mind when selecting background data. Whenever specific data were missing, either generic datasets or representative average data were used instead. The implemented MLC-background datasets refer to the latest versions available and are carefully chosen. Except for the dataset for POM, they are not more than ten years old. Due to a lack of more actual data for POM, the industry publication of Plastics Europe from 2010 is part of this analysis. In the absence of more recent data, this data set serves as a conservative approximation.

3.7 Period under review

Foreground data were collected in the 2024 production year, and the data are based on the volumes produced on an annual basis.

3.8 Geographic Representativeness

Land or region, in which the declared product system is manufactured, used or handled at the end of the product's lifespan: Europe

3.9 Allocation

For energy demand, auxiliary materials and land occupation, no product-specific data are available. Therefore, annual quantities were allocated to the product using representative allocation keys (product mass, pieces produced).

All inputs of secondary material are regarded as burden-free. To calculate the net flow, the total external scrap input is subtracted from the total mass of the metal in the product.

3.10 Comparability

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to *EN 15804* and the building context, respectively the product-specific characteristics of performance, are taken into account. The *MLC 2025.2* database was used to calculate the LCA (*LCA FE-Software* Version 10.9).

4. LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon

The declared product does not contain any biogenic carbon.

Information on describing the biogenic carbon content at factory gate

Name	Value	Unit
Biogenic carbon content in product	-	kg C
Biogenic carbon content in accompanying packaging	0.03	kg C

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO₂.

The carbon stored in the packaging was taken into account as 'CO₂-neutral'. This means that the storage effect of the carbon bound in the packaging is not included in the calculation and is considered to be emitted immediately.

Installation into the building (A5)

The end-of-life of the packaging materials is not declared in module A5.

Name	Value	Unit
Packaging (wooden)	0.056	kg
Packaging (particle board)	0.016	kg
Packaging (PE-foil)	0.011	kg
Packaging (cardboard)	0.003	kg
Packaging (PET-strip)	0.0005	kg

End of life (C1-C4)

Name	Value	Unit
Collected separately waste type (steel)	0.6	kg
Recycling (95 %)	0.57	kg
Landfilling (5 %)	0.03	kg
Collected separately waste type (polymers)	0.04	kg
Energy recovery (100 %)	0.04	kg

Reuse, recovery and/or recycling potentials (D), relevant scenario information

Name	Value	Unit
Nef flow (steel)	0.14	kg

This scenario contains a recycling rate of 95 %. As scrap is purchased in the upstream supply chain for the production of the metal parts, this is offset against the metal scrap for recycling (net flow).

5. LCA: Results

The following table contains the LCA results (Environmental impact assessment according to *EN 15804, EF 3.1*) for a declared unit of 1 piece fitting - type 'ISO-fitting PN16 connector: FIT GJS PE32 PE32' with a weight of 0.64 kg/piece.

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)

Product stage			Construction process stage		Use stage							End of life stage				Benefits and loads beyond the system boundaries
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	MND	MND	MND	MND	MNR	MNR	MNR	MND	MND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece fitting - type 'ISO-fitting PN16 connector: FIT GJS PE32 PE32'

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Global Warming Potential total (GWP-total)	kg CO ₂ eq	1.82E+00	0	2.49E-03	1.04E-01	6.38E-04	-2.88E-01
Global Warming Potential fossil fuels (GWP-fossil)	kg CO ₂ eq	1.78E+00	0	2.46E-03	1.04E-01	6.37E-04	-2.89E-01
Global Warming Potential biogenic (GWP-biogenic)	kg CO ₂ eq	2.7E-02	0	4.6E-06	3.66E-06	-9.03E-07	1.29E-03
Global Warming Potential luluc (GWP-luluc)	kg CO ₂ eq	5.27E-03	0	2.58E-05	4.93E-06	2E-06	-8.48E-05
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC11 eq	2.61E-11	0	4.17E-16	1.47E-14	2.06E-15	-1.2E-14
Acidification potential of land and water (AP)	mol H ⁺ eq	5.23E-03	0	8.98E-06	1.18E-05	3.97E-06	-6.6E-04
Eutrophication potential aquatic freshwater (EP-freshwater)	kg P eq	1.44E-05	0	6.77E-09	2.66E-09	9E-10	-9.27E-08
Eutrophication potential aquatic marine (EP-marine)	kg N eq	1.52E-03	0	4.27E-06	3.21E-06	9.68E-07	-1.12E-04
Eutrophication potential terrestrial (EP-terrestrial)	mol N eq	1.67E-02	0	4.62E-05	5.51E-05	1.06E-05	-1.03E-03
Formation potential of tropospheric ozone photochemical oxidants (POCP)	kg NMVOC eq	3.94E-03	0	8.22E-06	9.14E-06	3E-06	-4.37E-04
Abiotic depletion potential for non fossil resources (ADPE)	kg Sb eq	8.16E-07	0	1.67E-10	1.65E-10	4.32E-11	-1.43E-06
Abiotic depletion potential for fossil resources (ADPF)	MJ	2.3E+01	0	3.22E-02	3.05E-02	1.04E-02	-3.16E+00
Water use (WDP)	m ³ world eq deprived	8.04E-01	0	1.15E-05	9.4E-03	7.44E-05	-2.09E-02

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece fitting - type 'ISO-fitting PN16 connector: FIT GJS PE32 PE32'

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Renewable primary energy as energy carrier (PERE)	MJ	2.32E+01	0	2.42E-03	7.69E-03	1.7E-03	-1.16E-01
Renewable primary energy resources as material utilization (PERM)	MJ	1.2E+00	0	0	0	0	0
Total use of renewable primary energy resources (PERT)	MJ	2.44E+01	0	2.42E-03	7.69E-03	1.7E-03	-1.16E-01
Non renewable primary energy as energy carrier (PENRE)	MJ	2.12E+01	0	3.22E-02	1.3E+00	1.04E-02	-3.16E+00
Non renewable primary energy as material utilization (PENRM)	MJ	1.78E+00	0	0	-1.27E+00	0	0
Total use of non renewable primary energy resources (PENRT)	MJ	2.3E+01	0	3.22E-02	3.05E-02	1.04E-02	-3.16E+00
Use of secondary material (SM)	kg	4.83E-01	0	0	0	0	1.45E-01
Use of renewable secondary fuels (RSF)	MJ	0	0	0	0	0	0
Use of non renewable secondary fuels (NRSF)	MJ	0	0	0	0	0	0
Use of net fresh water (FW)	m ³	2.6E-02	0	1.2E-06	2.22E-04	2.19E-06	-2.56E-02

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece fitting - type 'ISO-fitting PN16 connector: FIT GJS PE32 PE32'

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed (HWD)	kg	2.6E-08	0	1.29E-12	1.55E-11	2.25E-12	-1.91E-08
Non hazardous waste disposed (NHWD)	kg	3.29E-01	0	4.49E-06	6.09E-03	3E-02	3E-02
Radioactive waste disposed (RWD)	kg	6.8E-04	0	6.07E-08	1.2E-06	1.44E-07	-4.92E-05
Components for re-use (CRU)	kg	0	0	0	0	0	0
Materials for recycling (MFR)	kg	5.66E-01	0	0	5.69E-01	0	0
Materials for energy recovery (MER)	kg	0	0	0	0	0	0
Exported electrical energy (EEE)	MJ	0	0	0	1.75E-01	0	0
Exported thermal energy (EET)	MJ	0	0	0	3.13E-01	0	0

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece fitting - type 'ISO-fitting PN16 connector: FIT GJS PE32 PE32'

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
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Incidence of disease due to PM emissions (PM)	Disease incidence	ND	ND	ND	ND	ND	ND
Human exposure efficiency relative to U235 (IR)	kBq U235 eq	ND	ND	ND	ND	ND	ND
Comparative toxic unit for ecosystems (ETP-fw)	CTUe	ND	ND	ND	ND	ND	ND
Comparative toxic unit for humans (carcinogenic) (HTP-c)	CTUh	ND	ND	ND	ND	ND	ND
Comparative toxic unit for humans (noncarcinogenic) (HTP-nc)	CTUh	ND	ND	ND	ND	ND	ND
Soil quality index (SQP)	SQP	ND	ND	ND	ND	ND	ND

Disclaimer – for the indicators 'abiotic depletion potential for non-fossil resources', 'abiotic depletion potential for fossil resources', 'water (user) deprivation potential, deprivation-weighted water consumption', 'potential comparative toxic unit for ecosystems', 'potential comparative toxic unit for humans – cancerogenic', 'Potential comparative toxic unit for humans - not cancerogenic', 'potential soil quality index'.

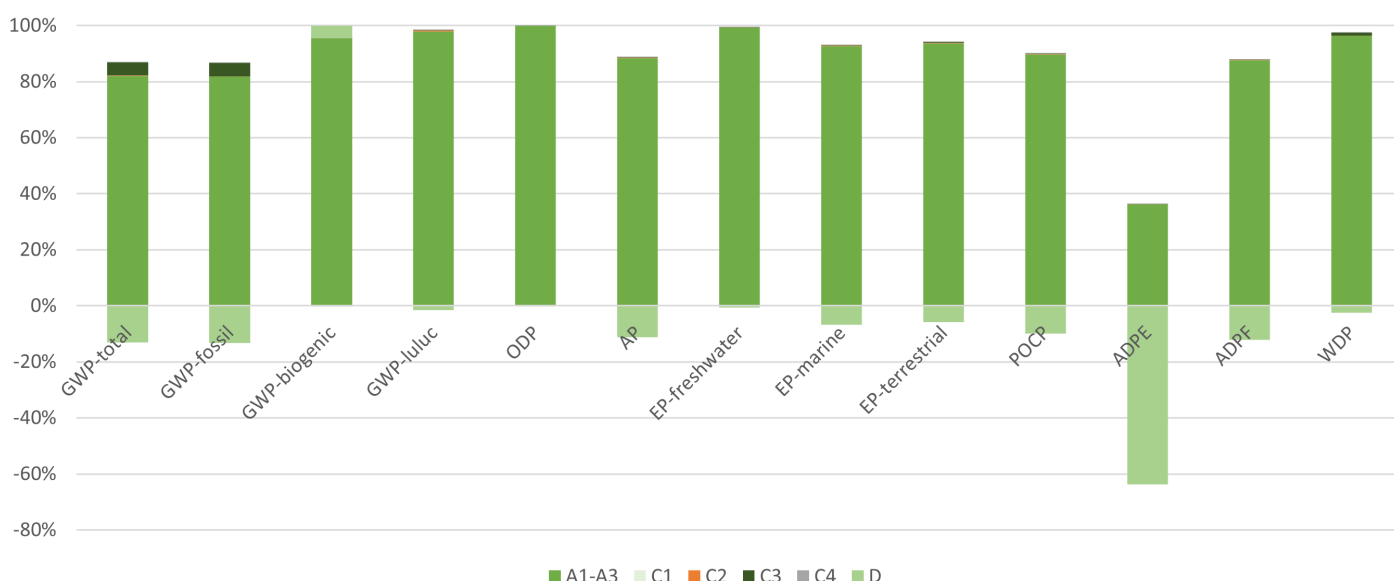
The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high, as there is limited experience with the indicator.

6. LCA: Interpretation

The following interpretation contains a summary of the LCA results referenced to a declared unit of 1 piece fitting - type

'ISO-fitting PN16 connector: FIT GJS PE32 PE32'.

Hot-spot analysis of FIT GJS PE32 PE32



The comparison of the products' life cycle phases shows a clear dominance of the production phase (modules A1-A3).

Environmental impacts in module C3 mainly refer to emissions from the energetic treatment of the polymers in a waste incineration plant. Module C4 declares impacts from landfilling of metal losses making up a minor fraction of the total environmental impact of the valve.

Environmental potentials in module D refer to the recycling potential of primary steel as well as the benefits for the recovered energy from the incineration of the polymer components.

When it comes to the environmental impacts in the production phase, the production of the cast iron represents the major hot-spot in most impact categories considered. Due to the upstream supply chain of the cast iron being partially represented by primary data, this leads to a high representativeness of the results.

The overall contribution of POM in the impact of the declared products is low.

7. Requisite evidence

Not relevant for this EPD.

8. References

Standards

ISO 17885

ISO 17885:2021 08, Plastics piping systems - Mechanical fittings for pressure piping systems - Specifications

EN 1171

EN 1171:2015: Industrial valves. Cast iron gate valves: This European Standard specifies the requirements for cast iron gate valves with flanged ends, socket ends, or spigot ends.

EN 12201

EN 12201:2024 - Plastics piping systems for water supply, and for drains and sewers under pressure.

DIN 8074

DIN 8074:2023 10 - Polyethylene (PE) pipes - PE 80, PE 100 - Dimensions.

DIN 8076

DIN 8076:2013 09 - Pressure pipelines made from thermoplastics materials - Metal and plastics compression fittings for polyethylene (PE) pipes.

EN 1452-2

EN 1452-2:2020 03: Plastics piping systems for water supply and for buried and above-ground drainage and sewerage under pressure - Unplasticized poly(vinyl chloride) (PVC-U) - Part 2: Pipes.

DIN EN 13774

DIN EN 13774:20213 05: Valves for gas distribution systems with maximum operating pressure less than or equal to 16 bar - Performance requirements.

EN 15804

EN 15804:2012+A2:2019+AC:2021, Sustainability of construction works - Environmental Product Declarations — Core rules for the product category of construction products.

ISO 14025

EN ISO 14025:2011, Environmental labels and declarations — Type III environmental declarations — Principles and procedures.

DIN 3476-1

DIN 3476-1:2018-08, Valves - Requirements and tests - Part 1: Protection against corrosion by epoxy coating of coating powders (P) or liquid varnishes (F).

EN 681-1

DIN EN 681-1:2006-11, Elastomeric seals – Material requirements for pipe joint seals used in water and drainage applications - Part 1: Vulcanized rubber.

EN 805

DIN EN 805:2000-03, Water supply - Requirements for systems and components outside buildings.

EN 1563

DIN EN 1563:2019-04, Founding - Spheroidal graphite cast irons.

EN 1074-1

DIN EN 1074-1:2000-07, Valves for water supply - Fitness for purpose requirements and appropriate verification tests - Part 1: General requirements.

EN 1074-2

DIN EN 1074-2:2004-07, Valves for water supply - Fitness for purpose requirements and appropriate verification tests - Part 2: Isolating valves.

EN 1092-1

DIN EN 1092-1:2018-12, Flanges and their joints - Circular flanges for pipes, valves, fittings and accessories, PN designated - Part 1: Steel flanges.

EN 1092-2

DIN EN 1092-2:1997-06, Flanges and their joints - Circular flanges for pipes, valves, fittings and accessories, PN designated - Part 2: Cast iron flanges.

EN 10088-3

DIN EN 10088-3:2014-12, Stainless steels - Part 3: Technical delivery conditions for semi-finished products, bars, rods, wire, sections and bright products of corrosion resisting steels for general purposes.

EN 12351

DIN EN 12351:2010-08, Industrial valves – Protective caps for valves with flanged connections.

EN 14901

DIN EN 14901:2014-12, Ductile iron pipes, fittings and accessories - Requirements and test methods for organic coatings of ductile iron fittings and accessories - Part 1: Epoxy coating (heavy duty).

ISO 9001

ISO 9001:2015-09, Quality management systems - Requirements.

ISO 14001

DIN EN ISO 14001:2015-11, Environmental management systems - requirements with guidance for use.

ISO 14044

DIN EN ISO 14044:2006-10, Environmental management - Life cycle assessment – Requirements and guidance.

ISO 45001

ISO 45001:2018-03, Occupational health and safety management systems - Requirements with guidance for use.

ÖVGW PW 100

PW 100, products in water supply; general requirements and tests for awarding of ÖVGW qualitymark, German version, 2011-11-02.

ÖVGW PW 501

PW 501, Fittings in water supply, part 1-3, German version, 2014-12-15.

RAL-GZ 662

RAL Deutsches Institut für Gütesicherung und Kennzeichnung E. V., RAL-GZ 662, Heavy Duty Corrosion Protection of Valves and Fittings with Powder Coating, 2021-04-21.

Further references

ECHA-Candidate List

Candidate List of Substances of Very High Concern (SVHC) of 05.02.2026, published in accordance with Article 59 (10) of the REACH Regulation Helsinki: European Chemicals Agency.

CLP Regulation

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European Waste Catalogue

European Waste Catalogue (EWC) Ordinance of December 10th, 2001 (Federal Law Gazette I p. 3379), last amended by Article 1 of the Ordinance of June 30th, 2020 (Federal Law Gazette I p. 1533).

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LCA FE

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MLC

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Sphera, 1992-2026. Available at:
<https://lcadatabase.sphera.com/>.

Ordinance on Biocide Products

Regulation (EU) No 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the making available on the market and use of biocidal products.

PCR Part A

Product category rules for building-related products and services. Part A: Calculation rules for life cycle assessment and project report requirements according to EN 15804+A2:2019. version 1.4. Berlin: Institut Bauen und Umwelt e.V. (ed.), 2024.

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