

Annex

Synoflex products

For Hawle E3 valves

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-20230068-IBA1-EN
Issue date	26.08.2025
Valid to	02.03.2028



General Information

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

Number	Product name	Weight	Unit
1.	SYNO2000 K36 connector DN 50-63	3.7	kg/piece
2.	SYNO2000 connector DN 80-90	5.8	kg/piece
3.	SYNO2000 connector DN 100-110	9.3	kg/piece
4.	SYNO2000 connector DN 150-160	16.4	kg/piece
5.	SYNO2000 connector DN 200-225	30.5	kg/piece
6.	SYNO2000 connector DN250 D250	45.8	kg/piece
7.	SYNO2000 connector DN250 D280	46.8	kg/piece
8.	SYNO2000 connector DN300 D315	62.0	kg/piece
9.	SYNO2000 connector DN350 D355	87.0	kg/piece
10.	SYNO2000 connector DN400	112.0	kg/piece
11.	SYNO2000 connector DN100 D125	10.4	kg/piece
12.	SYNO2000 connector DN150 D180	18.9	kg/piece
13.	SYNO2000 connector DN200 D200	30.0	kg/piece
14.	SYNOFLEXendcap DN65	4.8	kg/piece
15.	SYNOFLEXendcap DN80	5.8	kg/piece
16.	SYNOFLEXendcap DN100	9.4	kg/piece
17.	SYNOFLEXendcap DN125	11.8	kg/piece
18.	SYNOFLEXendcap DN150	14.6	kg/piece
19.	SYNOFLEXendcap DN200	22.0	kg/piece
20.	SYNOFLEXendcap DN225	31.3	kg/piece
21.	SYNOFLEXendcap DN250	39.0	kg/piece
22.	SYNOFLEXendcap DN300	50.3	kg/piece
23.	SYNOFLEXendcap DN350	60.0	kg/piece
24.	SYNOFLEXendcap DN400	79.2	kg/piece
25.	SYNOFLEXflange adapter DN50	4.7	kg/piece
26.	SYNOFLEXflange adapter DN65	5.8	kg/piece
27.	SYNOFLEXflange adapter DN80	6.7	kg/piece
28.	SYNOFLEXflange adapter DN80-65	5.9	kg/piece
29.	SYNOFLEXflange adapter DN80-100	9.7	kg/piece
30.	SYNOFLEXflange adapter DN100	10.3	kg/piece
31.	SYNOFLEXflange adapter DN100-80	6.8	kg/piece
32.	SYNOFLEXflange adapter DN100-125 (131-160)	13.5	kg/piece
33.	SYNOFLEXflange adapter DN125	14.1	kg/piece
34.	SYNOFLEXflange adapter DN125-100	11.0	kg/piece
35.	SYNOFLEXflange adapter DN125-150	15.8	kg/piece
36.	SYNOFLEXflange adapter DN150	15.8	kg/piece
37.	SYNOFLEXflange adapter DN150-125	13.1	kg/piece
38.	SYNOFLEXflange adapter DN150-200	25.9	kg/piece
39.	SYNOFLEXflange adapter DN200	24.8	kg/piece
40.	SYNOFLEXflange adapter DN200-150	19.6	kg/piece
41.	SYNOFLEXflange adapter DN200-225	31.7	kg/piece
42.	SYNOFLEXflange adapter DN250	40.0	kg/piece
43.	SYNOFLEXflange adapter DN250-200	31.5	kg/piece
44.	SYNOFLEXflange adapter DN300	53.0	kg/piece

44.	SYNOFLEXflange adapter DN300	53,0	kg/piece
45.	SYNOFLEXflange adapter DN350	67,2	kg/piece
46.	SYNOFLEXflange adapter DN400	77,8	kg/piece
47.	SYNOFLEXflange adapter DN200 PN16	24,8	kg/piece
48.	SYNOFLEXflange adapter DN250 PN16	40,2	kg/piece
49.	SYNOFLEXflange adapter DN300 PN16	53,6	kg/piece
50.	SYNOFLEXflange adapter DN600	186,7	kg/piece
51.	SYNOFLEXflange adapter DN500	151,0	kg/piece
52.	SYNOFLEXflange adapter DN450	123,0	kg/piece
53.	SYNOFLEXflange adapter DN400 PN10/16	100,0	kg/piece
54.	SYNOFLEXflange adapter DN350 PN10/16	96,0	kg/piece
55.	SYNOFLEX connector DN 40	3,6	kg/piece
56.	SYNOFLEX connector DN 50	4,5	kg/piece
57.	SYNOFLEX connector DN 65	5,2	kg/piece
58.	SYNOFLEX connector DN 80	6,3	kg/piece
59.	SYNOFLEX connector DN 80-65	6,0	kg/piece
60.	SYNOFLEX connector DN 100	12,2	kg/piece
61.	SYNOFLEX connector DN 100-80	9,7	kg/piece
62.	SYNOFLEX connector DN 125	14,2	kg/piece
63.	SYNOFLEX connector DN 125-100	13,6	kg/piece
64.	SYNOFLEX connector DN 150	20,1	kg/piece
65.	SYNOFLEX connector DN 150-100	15,9	kg/piece
66.	SYNOFLEX connector DN 150-125	16,7	kg/piece
67.	SYNOFLEX connector DN 200	30,2	kg/piece
68.	SYNOFLEX connector 200-150	29,4	kg/piece
69.	SYNOFLEX connector DN 225	43,3	kg/piece
70.	SYNOFLEX connector DN 225-200	38,4	kg/piece
71.	SYNOFLEX connector 250	48,6	kg/piece
72.	SYNOFLEX connector DN 250-200	48,0	kg/piece
73.	SYNOFLEX connector 250-225	50,2	kg/piece
74.	SYNOFLEX connector DN 300	60,0	kg/piece
75.	SYNOFLEX connector 300-250	61,4	kg/piece
76.	SYNOFLEX connector DN 350 PN10	82,6	kg/piece
77.	SYNOFLEX connector DN 400 PN10	95,4	kg/piece
78.	SYNOFLEX connector DN350-300	76,6	kg/piece
79.	SYNOFLEX connector DN400-350	94,5	kg/piece
80.	SYNOFLEX connector DN600	225,4	kg/piece
81.	SYNOFLEX connector DN500	201,0	kg/piece
82.	SYNOFLEX connector DN450	173,0	kg/piece
83.	SYNOFLEX connector DN400	157,0	kg/piece
84.	SYNOFLEX connector DN350	145,0	kg/piece
85.	SynoZAK connector DN40-ZAK46	2,4	kg/piece
86.	SynoZAK connector DN50-ZAK46	2,8	kg/piece
87.	SynoZAK connector DN50-ZAK69	2,9	kg/piece
88.	SYNOFLEX connector DN 100 AS4158	11,9	kg/piece

This document declares the specific results for the products mentioned above.
It represents a complementary document to the IBU-EPD for **Hawle E3 valve DN100 [declaration number EPD-HAW-20230068-IBA1-EN]**.

General Information on the product

This Annex describes the product specific results for Hawle Synoflex products. Further information on the LCA is provided in the complementing IBU-EPD for Hawle E3 valve.

LCA: Scenarios and additional technical information

The valve described in the IBU-EPD for Hawle E3 valve [declaration number EPD-HAW-20230068-IBA1-EN] is a single valve which is mounted along a pipe to open/close the stream. The Synoflex System is a pipe connection system for multirange restraint joints.

The products consist of a cast iron housing which is powder coated. The socket itself, the Synoflex Ring, contains three major components: a rubber gasket to seal the connection, a grip ring to secure the pipe and a lock ring (coated cast iron) with nuts and bolts to tighten the joint. The grip ring itself is a flexible ring which consists of several support liners (plastics) and several grip elements (steel). The joint is locked by tightening the lock ring with bolts and nuts to the housing.

The Synoflex product range contains different variations and products where the Synoflex socket is combined with other socket types:

- regular connections
- end caps
- reducing connections
- System 2000
- Flange
- ZAK-connection.

The system 2000 sockets are specifically designed for the integration of PE and PVC pipes. It differs from the other Synoflex products by a grip ring fully made of brass and an internal thread in the housing instead of a counter-nut to tighten the lock ring.

System ZAK is a bayonet-style connection which consists of two rubber O-rings and a snap ring to keep them locked together.

The following life cycle phases of the Synoflex 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 Synoflex products at E. Hawle Armaturenwerke GmbH in Vöcklabruck and Frankenmarkt.

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

- Module D: Recycling of 100% of the Synoflex products.

Module C1, C3 and C4 of the Synoflex products do not contain any relevant environmental impacts and are to be declared as "0".

All data collected for the LCA of the E3 valves 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 Synoflex products depends on their dimensions. Products with a nominal diameter of less than 200 mm are shipped in cardboard boxes. Throughout the products DN 200 and bigger the packaging is assumed to remain constant and is represented based on a standard for shipping on the European market. Further details can be found 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 SYNO2000 K36 connector DN 50-63

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 SYNO2000 K36 connector DN 50-63 (3.7 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.00E+01	0.00E+00	1.11E-02	0.00E+00	0.00E+00	-5.14E-01
GWP-fossil	[kg CO ₂ -Eq.]	9.83E+00	0.00E+00	1.10E-02	0.00E+00	0.00E+00	-5.14E-01
GWP-biogenic	[kg CO ₂ -Eq.]	1.83E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.62E-04
GWP-luluc	[kg CO ₂ -Eq.]	4.75E-03	0.00E+00	7.40E-05	0.00E+00	0.00E+00	-1.06E-05
ODP	[kg CFC11-Eq.]	6.97E-11	0.00E+00	1.08E-15	0.00E+00	0.00E+00	-1.12E-15
AP	[mol H ⁺ -Eq.]	3.08E-02	0.00E+00	3.67E-05	0.00E+00	0.00E+00	-1.10E-03
EP-freshwater	[kg P-Eq.]	7.66E-05	0.00E+00	3.92E-08	0.00E+00	0.00E+00	-9.32E-08
EP-marine	[kg N-Eq.]	6.25E-03	0.00E+00	1.68E-05	0.00E+00	0.00E+00	-1.94E-04
EP-terrestrial	[mol N-Eq.]	6.53E-02	0.00E+00	1.88E-04	0.00E+00	0.00E+00	-1.70E-03
POCP	[kg NMVOC-Eq.]	1.93E-02	0.00E+00	3.30E-05	0.00E+00	0.00E+00	-7.88E-04
ADPE	[kg Sb-Eq.]	1.03E-04	0.00E+00	1.11E-09	0.00E+00	0.00E+00	-1.28E-06
ADPF	[MJ]	1.33E+02	0.00E+00	1.44E-01	0.00E+00	0.00E+00	-4.72E+00
WDP	[m ³ world-Eq deprived]	5.41E+00	0.00E+00	1.23E-04	0.00E+00	0.00E+00	-9.55E-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 SYNO2000 K36 connector DN 50-63 (3.7 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	9.61E+01	0.00E+00	1.00E-02	0.00E+00	0.00E+00	2.97E-01
PERM	[MJ]	5.98E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	9.67E+01	0.00E+00	1.00E-02	0.00E+00	0.00E+00	2.97E-01
PENRE	[MJ]	1.28E+02	0.00E+00	1.45E-01	4.88E+00	0.00E+00	-4.72E+00
PENRM	[MJ]	4.88E+00	0.00E+00	0.00E+00	-4.88E+00	0.00E+00	0.00E+00
PENRT	[MJ]	1.33E+02	0.00E+00	1.45E-01	0.00E+00	0.00E+00	-4.72E+00
SM	[kg]	3.75E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.97E-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]	1.69E-01	0.00E+00	1.15E-05	0.00E+00	0.00E+00	-2.16E-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 SYNO2000 K36 connector DN 50-63 (3.7 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.10E-07	0.00E+00	7.66E-13	0.00E+00	0.00E+00	-3.65E-11
NHWD	[kg]	1.65E+00	0.00E+00	2.36E-05	0.00E+00	0.00E+00	7.15E-02
RWD	[kg]	5.81E-03	0.00E+00	2.69E-07	0.00E+00	0.00E+00	5.87E-07
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.75E+00	0.00E+00	0.00E+00	3.32E+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	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
SYNO2000 K36 connector DN 50-63 (3.7 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 SYNO2000 connector DN 80-90

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 SYNO2000 connector DN 80-90 (5.8 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.41E+01	0.00E+00	1.77E-02	0.00E+00	0.00E+00	-1.62E+00
GWP-fossil	[kg CO ₂ -Eq.]	1.39E+01	0.00E+00	1.75E-02	0.00E+00	0.00E+00	-1.62E+00
GWP-biogenic	[kg CO ₂ -Eq.]	2.77E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.27E-04
GWP-luluc	[kg CO ₂ -Eq.]	6.13E-03	0.00E+00	1.18E-04	0.00E+00	0.00E+00	-3.34E-05
ODP	[kg CFC11-Eq.]	9.70E-11	0.00E+00	1.72E-15	0.00E+00	0.00E+00	-3.54E-15
AP	[mol H ⁺ -Eq.]	4.08E-02	0.00E+00	5.85E-05	0.00E+00	0.00E+00	-3.48E-03
EP-freshwater	[kg P-Eq.]	1.09E-04	0.00E+00	6.25E-08	0.00E+00	0.00E+00	-2.94E-07
EP-marine	[kg N-Eq.]	8.61E-03	0.00E+00	2.67E-05	0.00E+00	0.00E+00	-6.12E-04
EP-terrestrial	[mol N-Eq.]	8.99E-02	0.00E+00	2.99E-04	0.00E+00	0.00E+00	-5.37E-03
POCP	[kg NMVOC-Eq.]	2.62E-02	0.00E+00	5.25E-05	0.00E+00	0.00E+00	-2.48E-03
ADPE	[kg Sb-Eq.]	1.27E-04	0.00E+00	1.76E-09	0.00E+00	0.00E+00	-4.04E-06
ADPF	[MJ]	1.89E+02	0.00E+00	2.30E-01	0.00E+00	0.00E+00	-1.49E+01
WDP	[m³ world-Eq deprived]	7.97E+00	0.00E+00	1.96E-04	0.00E+00	0.00E+00	-3.01E-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 SYNO2000 connector DN 80-90 (5.8 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.39E+02	0.00E+00	1.59E-02	0.00E+00	0.00E+00	9.38E-01
PERM	[MJ]	5.10E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.39E+02	0.00E+00	1.59E-02	0.00E+00	0.00E+00	9.38E-01
PENRE	[MJ]	1.81E+02	0.00E+00	2.31E-01	8.97E+00	0.00E+00	-1.49E+01
PENRM	[MJ]	8.97E+00	0.00E+00	0.00E+00	-8.97E+00	0.00E+00	0.00E+00
PENRT	[MJ]	1.90E+02	0.00E+00	2.31E-01	0.00E+00	0.00E+00	-1.49E+01
SM	[kg]	5.22E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.35E-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	[m³]	2.48E-01	0.00E+00	1.84E-05	0.00E+00	0.00E+00	-6.80E-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 SYNO2000 connector DN 80-90 (5.8 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.02E-07	0.00E+00	1.22E-12	0.00E+00	0.00E+00	-1.15E-10
NHWD	[kg]	2.38E+00	0.00E+00	3.76E-05	0.00E+00	0.00E+00	2.26E-01
RWD	[kg]	8.16E-03	0.00E+00	4.28E-07	0.00E+00	0.00E+00	1.85E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	4.10E+00	0.00E+00	0.00E+00	5.24E+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 SYNO2000 connector DN 80-90 (5.8 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 SYNO2000 connector DN 100-110

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 SYNO2000 connector DN 100-110 (9.3 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	2.36E+01	0.00E+00	2.82E-02	0.00E+00	0.00E+00	-2.55E+00
GWP-fossil	[kg CO ₂ -Eq.]	2.31E+01	0.00E+00	2.80E-02	0.00E+00	0.00E+00	-2.55E+00
GWP-biogenic	[kg CO ₂ -Eq.]	4.41E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.30E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.12E-02	0.00E+00	1.88E-04	0.00E+00	0.00E+00	-5.26E-05
ODP	[kg CFC11-Eq.]	1.61E-10	0.00E+00	2.74E-15	0.00E+00	0.00E+00	-5.58E-15
AP	[mol H ⁺ -Eq.]	7.12E-02	0.00E+00	9.33E-05	0.00E+00	0.00E+00	-5.48E-03
EP-freshwater	[kg P-Eq.]	2.28E-04	0.00E+00	9.97E-08	0.00E+00	0.00E+00	-4.63E-07
EP-marine	[kg N-Eq.]	1.51E-02	0.00E+00	4.27E-05	0.00E+00	0.00E+00	-9.63E-04
EP-terrestrial	[mol N-Eq.]	1.57E-01	0.00E+00	4.78E-04	0.00E+00	0.00E+00	-8.46E-03
POCP	[kg NMVOC-Eq.]	4.51E-02	0.00E+00	8.37E-05	0.00E+00	0.00E+00	-3.91E-03
ADPE	[kg Sb-Eq.]	2.04E-04	0.00E+00	2.81E-09	0.00E+00	0.00E+00	-6.36E-06
ADPF	[MJ]	3.24E+02	0.00E+00	3.66E-01	0.00E+00	0.00E+00	-2.34E+01
WDP	[m ³ world-Eq deprived]	1.72E+01	0.00E+00	3.12E-04	0.00E+00	0.00E+00	-4.74E-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 SYNO2000 connector DN 100-110 (9.3 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.30E+02	0.00E+00	2.54E-02	0.00E+00	0.00E+00	1.48E+00
PERM	[MJ]	1.51E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.32E+02	0.00E+00	2.54E-02	0.00E+00	0.00E+00	1.48E+00
PENRE	[MJ]	3.05E+02	0.00E+00	3.68E-01	1.87E+01	0.00E+00	-2.34E+01
PENRM	[MJ]	1.87E+01	0.00E+00	0.00E+00	-1.87E+01	0.00E+00	0.00E+00
PENRT	[MJ]	3.24E+02	0.00E+00	3.68E-01	0.00E+00	0.00E+00	-2.34E+01
SM	[kg]	8.40E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.47E+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]	5.02E-01	0.00E+00	2.93E-05	0.00E+00	0.00E+00	-1.07E-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 SYNO2000 connector DN 100-110 (9.3 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.76E-07	0.00E+00	1.95E-12	0.00E+00	0.00E+00	-1.81E-10
NHWD	[kg]	3.89E+00	0.00E+00	5.99E-05	0.00E+00	0.00E+00	3.55E-01
RWD	[kg]	1.23E-02	0.00E+00	6.83E-07	0.00E+00	0.00E+00	2.91E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	6.56E+00	0.00E+00	0.00E+00	8.18E+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 SYNO2000 connector DN 100-110 (9.3 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 SYNO2000 connector DN 150-160

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 SYNO2000 connector DN 150-160 (16.4 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	4.09E+01	0.00E+00	4.97E-02	0.00E+00	0.00E+00	-4.34E+00
GWP-fossil	[kg CO ₂ -Eq.]	4.01E+01	0.00E+00	4.94E-02	0.00E+00	0.00E+00	-4.35E+00
GWP-biogenic	[kg CO ₂ -Eq.]	7.79E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.22E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.73E-02	0.00E+00	3.32E-04	0.00E+00	0.00E+00	-8.97E-05
ODP	[kg CFC11-Eq.]	2.77E-10	0.00E+00	4.84E-15	0.00E+00	0.00E+00	-9.50E-15
AP	[mol H ⁺ -Eq.]	1.24E-01	0.00E+00	1.65E-04	0.00E+00	0.00E+00	-9.34E-03
EP-freshwater	[kg P-Eq.]	3.39E-04	0.00E+00	1.76E-07	0.00E+00	0.00E+00	-7.88E-07
EP-marine	[kg N-Eq.]	2.54E-02	0.00E+00	7.53E-05	0.00E+00	0.00E+00	-1.64E-03
EP-terrestrial	[mol N-Eq.]	2.65E-01	0.00E+00	8.43E-04	0.00E+00	0.00E+00	-1.44E-02
POCP	[kg NMVOC-Eq.]	7.51E-02	0.00E+00	1.48E-04	0.00E+00	0.00E+00	-6.66E-03
ADPE	[kg Sb-Eq.]	3.41E-04	0.00E+00	4.96E-09	0.00E+00	0.00E+00	-1.08E-05
ADPF	[MJ]	5.53E+02	0.00E+00	6.47E-01	0.00E+00	0.00E+00	-3.99E+01
WDP	[m ³ world-Eq deprived]	2.59E+01	0.00E+00	5.51E-04	0.00E+00	0.00E+00	-8.07E-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 SYNO2000 connector DN 150-160 (16.4 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	3.96E+02	0.00E+00	4.48E-02	0.00E+00	0.00E+00	2.52E+00
PERM	[MJ]	1.39E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	3.98E+02	0.00E+00	4.48E-02	0.00E+00	0.00E+00	2.52E+00
PENRE	[MJ]	5.25E+02	0.00E+00	6.49E-01	2.89E+01	0.00E+00	-3.99E+01
PENRM	[MJ]	2.89E+01	0.00E+00	0.00E+00	-2.89E+01	0.00E+00	0.00E+00
PENRT	[MJ]	5.54E+02	0.00E+00	6.49E-01	0.00E+00	0.00E+00	-3.99E+01
SM	[kg]	1.46E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.51E+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]	7.75E-01	0.00E+00	5.18E-05	0.00E+00	0.00E+00	-1.82E-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 SYNO2000 connector DN 150-160 (16.4 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.81E-07	0.00E+00	3.43E-12	0.00E+00	0.00E+00	-3.08E-10
NHWD	[kg]	6.83E+00	0.00E+00	1.06E-04	0.00E+00	0.00E+00	6.05E-01
RWD	[kg]	2.23E-02	0.00E+00	1.21E-06	0.00E+00	0.00E+00	4.96E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.18E+01	0.00E+00	0.00E+00	1.46E+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	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 SYNO2000 connector DN 150-160 (16.4 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 SYNO2000 connector DN 200-225

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 SYNO2000 connector DN 200-225 (30.5 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	7.30E+01	0.00E+00	9.24E-02	0.00E+00	0.00E+00	-8.66E+00
GWP-fossil	[kg CO ₂ -Eq.]	7.15E+01	0.00E+00	9.18E-02	0.00E+00	0.00E+00	-8.66E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.40E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.42E-03
GWP-luluc	[kg CO ₂ -Eq.]	2.87E-02	0.00E+00	6.17E-04	0.00E+00	0.00E+00	-1.79E-04
ODP	[kg CFC11-Eq.]	4.73E-10	0.00E+00	8.99E-15	0.00E+00	0.00E+00	-1.89E-14
AP	[mol H ⁺ -Eq.]	2.17E-01	0.00E+00	3.06E-04	0.00E+00	0.00E+00	-1.86E-02
EP-freshwater	[kg P-Eq.]	6.43E-04	0.00E+00	3.27E-07	0.00E+00	0.00E+00	-1.57E-06
EP-marine	[kg N-Eq.]	4.56E-02	0.00E+00	1.40E-04	0.00E+00	0.00E+00	-3.27E-03
EP-terrestrial	[mol N-Eq.]	4.80E-01	0.00E+00	1.57E-03	0.00E+00	0.00E+00	-2.87E-02
POCP	[kg NMVOC-Eq.]	1.35E-01	0.00E+00	2.75E-04	0.00E+00	0.00E+00	-1.33E-02
ADPE	[kg Sb-Eq.]	6.56E-04	0.00E+00	9.23E-09	0.00E+00	0.00E+00	-2.16E-05
ADPF	[MJ]	9.88E+02	0.00E+00	1.20E+00	0.00E+00	0.00E+00	-7.95E+01
WDP	[m³ world-Eq deprived]	5.30E+01	0.00E+00	1.02E-03	0.00E+00	0.00E+00	-1.61E+00

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 SYNO2000 connector DN 200-225 (30.5 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	6.81E+02	0.00E+00	8.33E-02	0.00E+00	0.00E+00	5.01E+00
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	7.38E+02	0.00E+00	8.33E-02	0.00E+00	0.00E+00	5.01E+00
PENRE	[MJ]	9.41E+02	0.00E+00	1.21E+00	4.83E+01	0.00E+00	-7.95E+01
PENRM	[MJ]	4.83E+01	0.00E+00	0.00E+00	-4.83E+01	0.00E+00	0.00E+00
PENRT	[MJ]	9.89E+02	0.00E+00	1.21E+00	0.00E+00	0.00E+00	-7.95E+01
SM	[kg]	2.57E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.00E+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	[m³]	1.54E+00	0.00E+00	9.62E-05	0.00E+00	0.00E+00	-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 SYNO2000 connector DN 200-225 (30.5 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.08E-07	0.00E+00	6.38E-12	0.00E+00	0.00E+00	-6.14E-10
NHWD	[kg]	1.19E+01	0.00E+00	1.97E-04	0.00E+00	0.00E+00	1.21E+00
RWD	[kg]	4.30E-02	0.00E+00	2.24E-06	0.00E+00	0.00E+00	9.89E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.06E+01	0.00E+00	0.00E+00	2.71E+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 SYNO2000 connector DN 200-225 (30.5 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 SYNO2000 connector DN250 D250

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 SYNO2000 connector DN250 D250 (45.8 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.06E+02	0.00E+00	1.39E-01	0.00E+00	0.00E+00	-1.61E+01
GWP-fossil	[kg CO ₂ -Eq.]	1.04E+02	0.00E+00	1.38E-01	0.00E+00	0.00E+00	-1.61E+01
GWP-biogenic	[kg CO ₂ -Eq.]	2.03E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.20E-03
GWP-luluc	[kg CO ₂ -Eq.]	4.46E-02	0.00E+00	9.26E-04	0.00E+00	0.00E+00	-3.31E-04
ODP	[kg CFC11-Eq.]	7.28E-10	0.00E+00	1.35E-14	0.00E+00	0.00E+00	-3.51E-14
AP	[mol H ⁺ -Eq.]	3.33E-01	0.00E+00	4.59E-04	0.00E+00	0.00E+00	-3.45E-02
EP-freshwater	[kg P-Eq.]	9.00E-04	0.00E+00	4.91E-07	0.00E+00	0.00E+00	-2.91E-06
EP-marine	[kg N-Eq.]	6.78E-02	0.00E+00	2.10E-04	0.00E+00	0.00E+00	-6.07E-03
EP-terrestrial	[mol N-Eq.]	7.14E-01	0.00E+00	2.35E-03	0.00E+00	0.00E+00	-5.33E-02
POCP	[kg NMVOC-Eq.]	2.02E-01	0.00E+00	4.12E-04	0.00E+00	0.00E+00	-2.46E-02
ADPE	[kg Sb-Eq.]	1.16E-03	0.00E+00	1.39E-08	0.00E+00	0.00E+00	-4.00E-05
ADPF	[MJ]	1.40E+03	0.00E+00	1.80E+00	0.00E+00	0.00E+00	-1.48E+02
WDP	[m ³ world-Eq deprived]	7.41E+01	0.00E+00	1.54E-03	0.00E+00	0.00E+00	-2.98E+00

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 SYNO2000 connector DN250 D250 (45.8 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.08E+03	0.00E+00	1.25E-01	0.00E+00	0.00E+00	9.30E+00
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.14E+03	0.00E+00	1.25E-01	0.00E+00	0.00E+00	9.30E+00
PENRE	[MJ]	1.33E+03	0.00E+00	1.81E+00	7.50E+01	0.00E+00	-1.48E+02
PENRM	[MJ]	7.50E+01	0.00E+00	0.00E+00	-7.50E+01	0.00E+00	0.00E+00
PENRT	[MJ]	1.41E+03	0.00E+00	1.81E+00	0.00E+00	0.00E+00	-1.48E+02
SM	[kg]	3.68E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.28E+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]	2.17E+00	0.00E+00	1.44E-04	0.00E+00	0.00E+00	-6.74E-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 SYNO2000 connector DN250 D250 (45.8 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.52E-07	0.00E+00	9.59E-12	0.00E+00	0.00E+00	-1.14E-09
NHWD	[kg]	2.05E+01	0.00E+00	2.95E-04	0.00E+00	0.00E+00	2.24E+00
RWD	[kg]	4.84E-02	0.00E+00	3.36E-06	0.00E+00	0.00E+00	1.84E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.51E+01	0.00E+00	0.00E+00	4.08E+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 SYNO2000 connector DN250 D250 (45.8 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 SYNO2000 connector DN250 D280

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 SYNO2000 connector DN250 D280 (46.8 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.08E+02	0.00E+00	1.42E-01	0.00E+00	0.00E+00	-1.63E+01
GWP-fossil	[kg CO ₂ -Eq.]	1.06E+02	0.00E+00	1.41E-01	0.00E+00	0.00E+00	-1.64E+01
GWP-biogenic	[kg CO ₂ -Eq.]	2.07E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.35E-03
GWP-luluc	[kg CO ₂ -Eq.]	4.56E-02	0.00E+00	9.47E-04	0.00E+00	0.00E+00	-3.37E-04
ODP	[kg CFC11-Eq.]	7.42E-10	0.00E+00	1.38E-14	0.00E+00	0.00E+00	-3.58E-14
AP	[mol H ⁺ -Eq.]	3.38E-01	0.00E+00	4.69E-04	0.00E+00	0.00E+00	-3.51E-02
EP-freshwater	[kg P-Eq.]	9.10E-04	0.00E+00	5.02E-07	0.00E+00	0.00E+00	-2.97E-06
EP-marine	[kg N-Eq.]	6.89E-02	0.00E+00	2.15E-04	0.00E+00	0.00E+00	-6.18E-03
EP-terrestrial	[mol N-Eq.]	7.26E-01	0.00E+00	2.40E-03	0.00E+00	0.00E+00	-5.42E-02
POCP	[kg NMVOC-Eq.]	2.05E-01	0.00E+00	4.21E-04	0.00E+00	0.00E+00	-2.51E-02
ADPE	[kg Sb-Eq.]	1.22E-03	0.00E+00	1.42E-08	0.00E+00	0.00E+00	-4.08E-05
ADPF	[MJ]	1.42E+03	0.00E+00	1.84E+00	0.00E+00	0.00E+00	-1.50E+02
WDP	[m ³ world-Eq deprived]	7.48E+01	0.00E+00	1.57E-03	0.00E+00	0.00E+00	-3.04E+00

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 SYNO2000 connector DN250 D280 (46.8 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.11E+03	0.00E+00	1.28E-01	0.00E+00	0.00E+00	9.47E+00
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.16E+03	0.00E+00	1.28E-01	0.00E+00	0.00E+00	9.47E+00
PENRE	[MJ]	1.35E+03	0.00E+00	1.85E+00	7.46E+01	0.00E+00	-1.50E+02
PENRM	[MJ]	7.46E+01	0.00E+00	0.00E+00	-7.46E+01	0.00E+00	0.00E+00
PENRT	[MJ]	1.43E+03	0.00E+00	1.85E+00	0.00E+00	0.00E+00	-1.50E+02
SM	[kg]	3.77E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.44E+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]	2.19E+00	0.00E+00	1.48E-04	0.00E+00	0.00E+00	-6.86E-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 SYNO2000 connector DN250 D280 (46.8 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.54E-07	0.00E+00	9.80E-12	0.00E+00	0.00E+00	-1.16E-09
NHWD	[kg]	2.10E+01	0.00E+00	3.02E-04	0.00E+00	0.00E+00	2.28E+00
RWD	[kg]	4.93E-02	0.00E+00	3.44E-06	0.00E+00	0.00E+00	1.87E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.59E+01	0.00E+00	0.00E+00	4.16E+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 SYNO2000 connector DN250 D280 (46.8 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 SYNO2000 connector DN300 D315

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 SYNO2000 connector DN300 D315 (62.0 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.42E+02	0.00E+00	1.88E-01	0.00E+00	0.00E+00	-2.20E+01
GWP-fossil	[kg CO ₂ -Eq.]	1.39E+02	0.00E+00	1.87E-01	0.00E+00	0.00E+00	-2.20E+01
GWP-biogenic	[kg CO ₂ -Eq.]	2.73E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-02
GWP-luluc	[kg CO ₂ -Eq.]	6.03E-02	0.00E+00	1.25E-03	0.00E+00	0.00E+00	-4.54E-04
ODP	[kg CFC11-Eq.]	9.82E-10	0.00E+00	1.83E-14	0.00E+00	0.00E+00	-4.81E-14
AP	[mol H ⁺ -Eq.]	4.47E-01	0.00E+00	6.22E-04	0.00E+00	0.00E+00	-4.72E-02
EP-freshwater	[kg P-Eq.]	1.10E-03	0.00E+00	6.65E-07	0.00E+00	0.00E+00	-3.99E-06
EP-marine	[kg N-Eq.]	8.96E-02	0.00E+00	2.84E-04	0.00E+00	0.00E+00	-8.31E-03
EP-terrestrial	[mol N-Eq.]	9.43E-01	0.00E+00	3.18E-03	0.00E+00	0.00E+00	-7.29E-02
POCP	[kg NMVOC-Eq.]	2.65E-01	0.00E+00	5.58E-04	0.00E+00	0.00E+00	-3.37E-02
ADPE	[kg Sb-Eq.]	1.84E-03	0.00E+00	1.88E-08	0.00E+00	0.00E+00	-5.48E-05
ADPF	[MJ]	1.85E+03	0.00E+00	2.44E+00	0.00E+00	0.00E+00	-2.02E+02
WDP	[m ³ world-Eq deprived]	8.88E+01	0.00E+00	2.08E-03	0.00E+00	0.00E+00	-4.09E+00

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 SYNO2000 connector DN300 D315 (62.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.46E+03	0.00E+00	1.69E-01	0.00E+00	0.00E+00	1.27E+01
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.52E+03	0.00E+00	1.69E-01	0.00E+00	0.00E+00	1.27E+01
PENRE	[MJ]	1.76E+03	0.00E+00	2.45E+00	9.05E+01	0.00E+00	-2.02E+02
PENRM	[MJ]	9.05E+01	0.00E+00	0.00E+00	-9.05E+01	0.00E+00	0.00E+00
PENRT	[MJ]	1.85E+03	0.00E+00	2.45E+00	0.00E+00	0.00E+00	-2.02E+02
SM	[kg]	5.03E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.27E+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]	2.66E+00	0.00E+00	1.96E-04	0.00E+00	0.00E+00	-9.23E-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 SYNO2000 connector DN300 D315 (62.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.99E-07	0.00E+00	1.30E-11	0.00E+00	0.00E+00	-1.56E-09
NHWD	[kg]	2.79E+01	0.00E+00	4.00E-04	0.00E+00	0.00E+00	3.06E+00
RWD	[kg]	6.53E-02	0.00E+00	4.55E-06	0.00E+00	0.00E+00	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]	4.73E+01	0.00E+00	0.00E+00	5.53E+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 SYNO2000 connector DN300 D315 (62.0 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 SYNO2000 connector DN350 D355

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 SYNO2000 connector DN350 D355 (87.0 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.94E+02	0.00E+00	2.64E-01	0.00E+00	0.00E+00	-3.14E+01
GWP-fossil	[kg CO ₂ -Eq.]	1.90E+02	0.00E+00	2.62E-01	0.00E+00	0.00E+00	-3.14E+01
GWP-biogenic	[kg CO ₂ -Eq.]	3.83E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.60E-02
GWP-luluc	[kg CO ₂ -Eq.]	8.26E-02	0.00E+00	1.76E-03	0.00E+00	0.00E+00	-6.48E-04
ODP	[kg CFC11-Eq.]	1.38E-09	0.00E+00	2.56E-14	0.00E+00	0.00E+00	-6.86E-14
AP	[mol H ⁺ -Eq.]	5.94E-01	0.00E+00	8.73E-04	0.00E+00	0.00E+00	-6.74E-02
EP-freshwater	[kg P-Eq.]	1.35E-03	0.00E+00	9.33E-07	0.00E+00	0.00E+00	-5.69E-06
EP-marine	[kg N-Eq.]	1.21E-01	0.00E+00	3.99E-04	0.00E+00	0.00E+00	-1.19E-02
EP-terrestrial	[mol N-Eq.]	1.27E+00	0.00E+00	4.47E-03	0.00E+00	0.00E+00	-1.04E-01
POCP	[kg NMVOC-Eq.]	3.55E-01	0.00E+00	7.83E-04	0.00E+00	0.00E+00	-4.81E-02
ADPE	[kg Sb-Eq.]	3.03E-03	0.00E+00	2.63E-08	0.00E+00	0.00E+00	-7.82E-05
ADPF	[MJ]	2.51E+03	0.00E+00	3.43E+00	0.00E+00	0.00E+00	-2.88E+02
WDP	[m ³ world-Eq deprived]	1.03E+02	0.00E+00	2.92E-03	0.00E+00	0.00E+00	-5.83E+00

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 SYNO2000 connector DN350 D355 (87.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.04E+03	0.00E+00	2.38E-01	0.00E+00	0.00E+00	1.82E+01
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.09E+03	0.00E+00	2.38E-01	0.00E+00	0.00E+00	1.82E+01
PENRE	[MJ]	2.39E+03	0.00E+00	3.44E+00	1.23E+02	0.00E+00	-2.88E+02
PENRM	[MJ]	1.23E+02	0.00E+00	0.00E+00	-1.23E+02	0.00E+00	0.00E+00
PENRT	[MJ]	2.52E+03	0.00E+00	3.44E+00	0.00E+00	0.00E+00	-2.88E+02
SM	[kg]	7.66E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.81E+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]	3.24E+00	0.00E+00	2.74E-04	0.00E+00	0.00E+00	-1.32E-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 SYNO2000 connector DN350 D355 (87.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.75E-07	0.00E+00	1.82E-11	0.00E+00	0.00E+00	-2.23E-09
NHWD	[kg]	3.90E+01	0.00E+00	5.61E-04	0.00E+00	0.00E+00	4.37E+00
RWD	[kg]	9.19E-02	0.00E+00	6.39E-06	0.00E+00	0.00E+00	3.59E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	6.61E+01	0.00E+00	0.00E+00	7.73E+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 SYNO2000 connector DN350 D355 (87.0 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 SYNO2000 connector DN400

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 SYNO2000 connector DN400 (112.0 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	2.54E+02	0.00E+00	3.39E-01	0.00E+00	0.00E+00	-3.38E+01
GWP-fossil	[kg CO ₂ -Eq.]	2.49E+02	0.00E+00	3.37E-01	0.00E+00	0.00E+00	-3.38E+01
GWP-biogenic	[kg CO ₂ -Eq.]	5.10E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.72E-02
GWP-luluc	[kg CO ₂ -Eq.]	1.08E-01	0.00E+00	2.27E-03	0.00E+00	0.00E+00	-6.97E-04
ODP	[kg CFC11-Eq.]	1.88E-09	0.00E+00	3.30E-14	0.00E+00	0.00E+00	-7.38E-14
AP	[mol H ⁺ -Eq.]	7.40E-01	0.00E+00	1.12E-03	0.00E+00	0.00E+00	-7.25E-02
EP-freshwater	[kg P-Eq.]	1.63E-03	0.00E+00	1.20E-06	0.00E+00	0.00E+00	-6.13E-06
EP-marine	[kg N-Eq.]	1.56E-01	0.00E+00	5.14E-04	0.00E+00	0.00E+00	-1.28E-02
EP-terrestrial	[mol N-Eq.]	1.64E+00	0.00E+00	5.75E-03	0.00E+00	0.00E+00	-1.12E-01
POCP	[kg NMVOC-Eq.]	4.57E-01	0.00E+00	1.01E-03	0.00E+00	0.00E+00	-5.18E-02
ADPE	[kg Sb-Eq.]	3.32E-03	0.00E+00	3.39E-08	0.00E+00	0.00E+00	-8.41E-05
ADPF	[MJ]	3.26E+03	0.00E+00	4.41E+00	0.00E+00	0.00E+00	-3.10E+02
WDP	[m ³ world-Eq deprived]	1.20E+02	0.00E+00	3.76E-03	0.00E+00	0.00E+00	-6.27E+00

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 SYNO2000 connector DN400 (112.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.76E+03	0.00E+00	3.06E-01	0.00E+00	0.00E+00	1.95E+01
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.81E+03	0.00E+00	3.06E-01	0.00E+00	0.00E+00	1.95E+01
PENRE	[MJ]	3.13E+03	0.00E+00	4.43E+00	1.38E+02	0.00E+00	-3.10E+02
PENRM	[MJ]	1.38E+02	0.00E+00	0.00E+00	-1.38E+02	0.00E+00	0.00E+00
PENRT	[MJ]	3.27E+03	0.00E+00	4.43E+00	0.00E+00	0.00E+00	-3.10E+02
SM	[kg]	1.03E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E+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]	3.92E+00	0.00E+00	3.53E-04	0.00E+00	0.00E+00	-1.42E-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 SYNO2000 connector DN400 (112.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	3.64E-07	0.00E+00	2.34E-11	0.00E+00	0.00E+00	-2.39E-09
NHWD	[kg]	5.32E+01	0.00E+00	7.22E-04	0.00E+00	0.00E+00	4.70E+00
RWD	[kg]	1.24E-01	0.00E+00	8.22E-06	0.00E+00	0.00E+00	3.86E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	9.24E+01	0.00E+00	0.00E+00	1.02E+02	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
SYNO2000 connector DN400 (112.0 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 SYNO2000 connector DN100 D125

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 SYNO2000 connector DN100 D125 (10.4 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	2.65E+01	0.00E+00	3.16E-02	0.00E+00	0.00E+00	-3.08E+00
GWP-fossil	[kg CO ₂ -Eq.]	2.60E+01	0.00E+00	3.14E-02	0.00E+00	0.00E+00	-3.08E+00
GWP-biogenic	[kg CO ₂ -Eq.]	4.90E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.57E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.20E-02	0.00E+00	2.11E-04	0.00E+00	0.00E+00	-6.36E-05
ODP	[kg CFC11-Eq.]	1.78E-10	0.00E+00	3.08E-15	0.00E+00	0.00E+00	-6.74E-15
AP	[mol H ⁺ -Eq.]	8.61E-02	0.00E+00	1.05E-04	0.00E+00	0.00E+00	-6.62E-03
EP-freshwater	[kg P-Eq.]	2.30E-04	0.00E+00	1.12E-07	0.00E+00	0.00E+00	-5.59E-07
EP-marine	[kg N-Eq.]	1.70E-02	0.00E+00	4.79E-05	0.00E+00	0.00E+00	-1.16E-03
EP-terrestrial	[mol N-Eq.]	1.78E-01	0.00E+00	5.36E-04	0.00E+00	0.00E+00	-1.02E-02
POCP	[kg NMVOC-Eq.]	5.07E-02	0.00E+00	9.40E-05	0.00E+00	0.00E+00	-4.73E-03
ADPE	[kg Sb-Eq.]	2.22E-04	0.00E+00	3.16E-09	0.00E+00	0.00E+00	-7.68E-06
ADPF	[MJ]	3.60E+02	0.00E+00	4.11E-01	0.00E+00	0.00E+00	-2.83E+01
WDP	[m ³ world-Eq deprived]	1.74E+01	0.00E+00	3.51E-04	0.00E+00	0.00E+00	-5.73E-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 SYNO2000 connector DN100 D125 (10.4 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.55E+02	0.00E+00	2.85E-02	0.00E+00	0.00E+00	1.78E+00
PERM	[MJ]	1.51E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.56E+02	0.00E+00	2.85E-02	0.00E+00	0.00E+00	1.78E+00
PENRE	[MJ]	3.41E+02	0.00E+00	4.13E-01	1.86E+01	0.00E+00	-2.83E+01
PENRM	[MJ]	1.86E+01	0.00E+00	0.00E+00	-1.86E+01	0.00E+00	0.00E+00
PENRT	[MJ]	3.60E+02	0.00E+00	4.13E-01	0.00E+00	0.00E+00	-2.83E+01
SM	[kg]	9.33E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.78E+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]	5.16E-01	0.00E+00	3.29E-05	0.00E+00	0.00E+00	-1.29E-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 SYNO2000 connector DN100 D125 (10.4 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.81E-07	0.00E+00	2.19E-12	0.00E+00	0.00E+00	-2.19E-10
NHWD	[kg]	4.19E+00	0.00E+00	6.73E-05	0.00E+00	0.00E+00	4.29E-01
RWD	[kg]	1.43E-02	0.00E+00	7.67E-07	0.00E+00	0.00E+00	3.52E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	7.12E+00	0.00E+00	0.00E+00	9.29E+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
SYNO2000 connector DN100 D125 (10.4 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 SYNO2000 connector DN150 D180

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 SYNO2000 connector DN150 D180 (18.9 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	4.65E+01	0.00E+00	5.72E-02	0.00E+00	0.00E+00	-5.01E+00
GWP-fossil	[kg CO ₂ -Eq.]	4.56E+01	0.00E+00	5.68E-02	0.00E+00	0.00E+00	-5.02E+00
GWP-biogenic	[kg CO ₂ -Eq.]	8.77E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.56E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.93E-02	0.00E+00	3.82E-04	0.00E+00	0.00E+00	-1.03E-04
ODP	[kg CFC11-Eq.]	3.08E-10	0.00E+00	5.57E-15	0.00E+00	0.00E+00	-1.10E-14
AP	[mol H ⁺ -Eq.]	1.46E-01	0.00E+00	1.89E-04	0.00E+00	0.00E+00	-1.08E-02
EP-freshwater	[kg P-Eq.]	3.56E-04	0.00E+00	2.02E-07	0.00E+00	0.00E+00	-9.10E-07
EP-marine	[kg N-Eq.]	2.86E-02	0.00E+00	8.66E-05	0.00E+00	0.00E+00	-1.89E-03
EP-terrestrial	[mol N-Eq.]	2.99E-01	0.00E+00	9.70E-04	0.00E+00	0.00E+00	-1.66E-02
POCP	[kg NMVOC-Eq.]	8.45E-02	0.00E+00	1.70E-04	0.00E+00	0.00E+00	-7.69E-03
ADPE	[kg Sb-Eq.]	5.35E-04	0.00E+00	5.71E-09	0.00E+00	0.00E+00	-1.25E-05
ADPF	[MJ]	6.27E+02	0.00E+00	7.44E-01	0.00E+00	0.00E+00	-4.61E+01
WDP	[m ³ world-Eq deprived]	2.70E+01	0.00E+00	6.34E-04	0.00E+00	0.00E+00	-9.32E-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 SYNO2000 connector DN150 D180 (18.9 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	4.34E+02	0.00E+00	5.16E-02	0.00E+00	0.00E+00	2.90E+00
PERM	[MJ]	1.27E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	4.35E+02	0.00E+00	5.16E-02	0.00E+00	0.00E+00	2.90E+00
PENRE	[MJ]	5.99E+02	0.00E+00	7.47E-01	2.93E+01	0.00E+00	-4.61E+01
PENRM	[MJ]	2.93E+01	0.00E+00	0.00E+00	-2.93E+01	0.00E+00	0.00E+00
PENRT	[MJ]	6.28E+02	0.00E+00	7.47E-01	0.00E+00	0.00E+00	-4.61E+01
SM	[kg]	1.68E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.90E+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]	8.24E-01	0.00E+00	5.96E-05	0.00E+00	0.00E+00	-2.10E-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 SYNO2000 connector DN150 D180 (18.9 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.69E-07	0.00E+00	3.95E-12	0.00E+00	0.00E+00	-3.56E-10
NHWD	[kg]	7.42E+00	0.00E+00	1.22E-04	0.00E+00	0.00E+00	6.98E-01
RWD	[kg]	2.75E-02	0.00E+00	1.39E-06	0.00E+00	0.00E+00	5.73E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.24E+01	0.00E+00	0.00E+00	1.68E+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 SYNO2000 connector DN150 D180 (18.9 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 SYNO2000 connector DN200 D200

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 SYNO2000 connector DN200 D200 (30.0 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	7.14E+01	0.00E+00	9.09E-02	0.00E+00	0.00E+00	-8.80E+00
GWP-fossil	[kg CO ₂ -Eq.]	7.00E+01	0.00E+00	9.03E-02	0.00E+00	0.00E+00	-8.80E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.38E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.49E-03
GWP-luluc	[kg CO ₂ -Eq.]	2.83E-02	0.00E+00	6.07E-04	0.00E+00	0.00E+00	-1.82E-04
ODP	[kg CFC11-Eq.]	4.68E-10	0.00E+00	8.84E-15	0.00E+00	0.00E+00	-1.92E-14
AP	[mol H ⁺ -Eq.]	2.12E-01	0.00E+00	3.01E-04	0.00E+00	0.00E+00	-1.89E-02
EP-freshwater	[kg P-Eq.]	6.36E-04	0.00E+00	3.22E-07	0.00E+00	0.00E+00	-1.60E-06
EP-marine	[kg N-Eq.]	4.49E-02	0.00E+00	1.38E-04	0.00E+00	0.00E+00	-3.32E-03
EP-terrestrial	[mol N-Eq.]	4.72E-01	0.00E+00	1.54E-03	0.00E+00	0.00E+00	-2.92E-02
POCP	[kg NMVOC-Eq.]	1.33E-01	0.00E+00	2.70E-04	0.00E+00	0.00E+00	-1.35E-02
ADPE	[kg Sb-Eq.]	5.94E-04	0.00E+00	9.08E-09	0.00E+00	0.00E+00	-2.19E-05
ADPF	[MJ]	9.62E+02	0.00E+00	1.18E+00	0.00E+00	0.00E+00	-8.08E+01
WDP	[m ³ world-Eq deprived]	5.26E+01	0.00E+00	1.01E-03	0.00E+00	0.00E+00	-1.63E+00

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 SYNO2000 connector DN200 D200 (30.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	6.80E+02	0.00E+00	8.19E-02	0.00E+00	0.00E+00	5.09E+00
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	7.36E+02	0.00E+00	8.19E-02	0.00E+00	0.00E+00	5.09E+00
PENRE	[MJ]	9.17E+02	0.00E+00	1.19E+00	4.59E+01	0.00E+00	-8.08E+01
PENRM	[MJ]	4.59E+01	0.00E+00	0.00E+00	-4.59E+01	0.00E+00	0.00E+00
PENRT	[MJ]	9.63E+02	0.00E+00	1.19E+00	0.00E+00	0.00E+00	-8.08E+01
SM	[kg]	2.51E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.08E+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]	1.52E+00	0.00E+00	9.46E-05	0.00E+00	0.00E+00	-3.69E-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 SYNO2000 connector DN200 D200 (30.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.06E-07	0.00E+00	6.28E-12	0.00E+00	0.00E+00	-6.24E-10
NHWD	[kg]	1.20E+01	0.00E+00	1.93E-04	0.00E+00	0.00E+00	1.22E+00
RWD	[kg]	4.11E-02	0.00E+00	2.20E-06	0.00E+00	0.00E+00	1.01E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.09E+01	0.00E+00	0.00E+00	2.68E+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 SYNO2000 connector DN200 D200 (30.0 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 SYNOFLEXendcap DN65

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 SYNOFLEXendcap DN65 (4.8 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.10E+01	0.00E+00	1.44E-02	0.00E+00	0.00E+00	-1.73E+00
GWP-fossil	[kg CO ₂ -Eq.]	1.08E+01	0.00E+00	1.43E-02	0.00E+00	0.00E+00	-1.74E+00
GWP-biogenic	[kg CO ₂ -Eq.]	2.19E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.86E-04
GWP-luluc	[kg CO ₂ -Eq.]	5.36E-03	0.00E+00	9.61E-05	0.00E+00	0.00E+00	-3.58E-05
ODP	[kg CFC11-Eq.]	8.31E-11	0.00E+00	1.40E-15	0.00E+00	0.00E+00	-3.79E-15
AP	[mol H ⁺ -Eq.]	3.10E-02	0.00E+00	4.76E-05	0.00E+00	0.00E+00	-3.73E-03
EP-freshwater	[kg P-Eq.]	8.62E-05	0.00E+00	5.09E-08	0.00E+00	0.00E+00	-3.15E-07
EP-marine	[kg N-Eq.]	6.95E-03	0.00E+00	2.18E-05	0.00E+00	0.00E+00	-6.55E-04
EP-terrestrial	[mol N-Eq.]	7.25E-02	0.00E+00	2.44E-04	0.00E+00	0.00E+00	-5.75E-03
POCP	[kg NMVOC-Eq.]	2.13E-02	0.00E+00	4.28E-05	0.00E+00	0.00E+00	-2.66E-03
ADPE	[kg Sb-Eq.]	5.17E-05	0.00E+00	1.44E-09	0.00E+00	0.00E+00	-4.32E-06
ADPF	[MJ]	1.41E+02	0.00E+00	1.87E-01	0.00E+00	0.00E+00	-1.59E+01
WDP	[m ³ world-Eq deprived]	6.03E+00	0.00E+00	1.60E-04	0.00E+00	0.00E+00	-3.22E-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 SYNOFLEXendcap DN65 (4.8 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.23E+02	0.00E+00	1.30E-02	0.00E+00	0.00E+00	1.00E+00
PERM	[MJ]	5.98E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.24E+02	0.00E+00	1.30E-02	0.00E+00	0.00E+00	1.00E+00
PENRE	[MJ]	1.36E+02	0.00E+00	1.88E-01	5.73E+00	0.00E+00	-1.59E+01
PENRM	[MJ]	5.73E+00	0.00E+00	0.00E+00	-5.73E+00	0.00E+00	0.00E+00
PENRT	[MJ]	1.42E+02	0.00E+00	1.88E-01	0.00E+00	0.00E+00	-1.59E+01
SM	[kg]	4.16E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E+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]	1.93E-01	0.00E+00	1.50E-05	0.00E+00	0.00E+00	-7.28E-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 SYNOFLEXendcap DN65 (4.8 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.11E-07	0.00E+00	9.94E-13	0.00E+00	0.00E+00	-1.23E-10
NHWD	[kg]	2.25E+00	0.00E+00	3.06E-05	0.00E+00	0.00E+00	2.42E-01
RWD	[kg]	5.24E-03	0.00E+00	3.49E-07	0.00E+00	0.00E+00	1.98E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.92E+00	0.00E+00	0.00E+00	4.49E+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 SYNOFLEXendcap DN65 (4.8 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 SYNOFLEXendcap DN80

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 SYNOFLEXendcap DN80 (5.8 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.33E+01	0.00E+00	1.75E-02	0.00E+00	0.00E+00	-2.07E+00
GWP-fossil	[kg CO ₂ -Eq.]	1.30E+01	0.00E+00	1.74E-02	0.00E+00	0.00E+00	-2.07E+00
GWP-biogenic	[kg CO ₂ -Eq.]	2.71E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E-03
GWP-luluc	[kg CO ₂ -Eq.]	6.25E-03	0.00E+00	1.17E-04	0.00E+00	0.00E+00	-4.28E-05
ODP	[kg CFC11-Eq.]	1.00E-10	0.00E+00	1.71E-15	0.00E+00	0.00E+00	-4.53E-15
AP	[mol H ⁺ -Eq.]	3.60E-02	0.00E+00	5.81E-05	0.00E+00	0.00E+00	-4.45E-03
EP-freshwater	[kg P-Eq.]	1.01E-04	0.00E+00	6.21E-08	0.00E+00	0.00E+00	-3.76E-07
EP-marine	[kg N-Eq.]	8.27E-03	0.00E+00	2.66E-05	0.00E+00	0.00E+00	-7.83E-04
EP-terrestrial	[mol N-Eq.]	8.62E-02	0.00E+00	2.97E-04	0.00E+00	0.00E+00	-6.87E-03
POCP	[kg NMVOC-Eq.]	2.51E-02	0.00E+00	5.21E-05	0.00E+00	0.00E+00	-3.18E-03
ADPE	[kg Sb-Eq.]	5.29E-05	0.00E+00	1.75E-09	0.00E+00	0.00E+00	-5.16E-06
ADPF	[MJ]	1.71E+02	0.00E+00	2.28E-01	0.00E+00	0.00E+00	-1.90E+01
WDP	[m³ world-Eq deprived]	7.06E+00	0.00E+00	1.94E-04	0.00E+00	0.00E+00	-3.85E-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 SYNOFLEXendcap DN80 (5.8 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.50E+02	0.00E+00	1.58E-02	0.00E+00	0.00E+00	1.20E+00
PERM	[MJ]	5.98E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.50E+02	0.00E+00	1.58E-02	0.00E+00	0.00E+00	1.20E+00
PENRE	[MJ]	1.64E+02	0.00E+00	2.29E-01	7.45E+00	0.00E+00	-1.90E+01
PENRM	[MJ]	7.45E+00	0.00E+00	0.00E+00	-7.45E+00	0.00E+00	0.00E+00
PENRT	[MJ]	1.71E+02	0.00E+00	2.29E-01	0.00E+00	0.00E+00	-1.90E+01
SM	[kg]	5.02E+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	[m³]	2.27E-01	0.00E+00	1.83E-05	0.00E+00	0.00E+00	-8.70E-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 SYNOFLEXendcap DN80 (5.8 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.15E-07	0.00E+00	1.21E-12	0.00E+00	0.00E+00	-1.47E-10
NHWD	[kg]	2.74E+00	0.00E+00	3.73E-05	0.00E+00	0.00E+00	2.89E-01
RWD	[kg]	6.36E-03	0.00E+00	4.25E-07	0.00E+00	0.00E+00	2.37E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	4.83E+00	0.00E+00	0.00E+00	5.47E+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
SYNOFLEXendcap DN80 (5.8 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 SYNOFLEXendcap DN100

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 SYNOFLEXendcap DN100 (9.4 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	2.22E+01	0.00E+00	2.84E-02	0.00E+00	0.00E+00	-3.30E+00
GWP-fossil	[kg CO ₂ -Eq.]	2.18E+01	0.00E+00	2.82E-02	0.00E+00	0.00E+00	-3.30E+00
GWP-biogenic	[kg CO ₂ -Eq.]	4.33E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.69E-03
GWP-luluc	[kg CO ₂ -Eq.]	9.93E-03	0.00E+00	1.90E-04	0.00E+00	0.00E+00	-6.81E-05
ODP	[kg CFC11-Eq.]	1.59E-10	0.00E+00	2.76E-15	0.00E+00	0.00E+00	-7.22E-15
AP	[mol H ⁺ -Eq.]	6.38E-02	0.00E+00	9.41E-05	0.00E+00	0.00E+00	-7.09E-03
EP-freshwater	[kg P-Eq.]	2.06E-04	0.00E+00	1.01E-07	0.00E+00	0.00E+00	-5.99E-07
EP-marine	[kg N-Eq.]	1.41E-02	0.00E+00	4.30E-05	0.00E+00	0.00E+00	-1.25E-03
EP-terrestrial	[mol N-Eq.]	1.47E-01	0.00E+00	4.82E-04	0.00E+00	0.00E+00	-1.10E-02
POCP	[kg NMVOC-Eq.]	4.21E-02	0.00E+00	8.45E-05	0.00E+00	0.00E+00	-5.06E-03
ADPE	[kg Sb-Eq.]	1.09E-04	0.00E+00	2.84E-09	0.00E+00	0.00E+00	-8.23E-06
ADPF	[MJ]	2.95E+02	0.00E+00	3.70E-01	0.00E+00	0.00E+00	-3.03E+01
WDP	[m ³ world-Eq deprived]	1.59E+01	0.00E+00	3.15E-04	0.00E+00	0.00E+00	-6.13E-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 SYNOFLEXendcap DN100 (9.4 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.35E+02	0.00E+00	2.56E-02	0.00E+00	0.00E+00	1.91E+00
PERM	[MJ]	8.62E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.36E+02	0.00E+00	2.56E-02	0.00E+00	0.00E+00	1.91E+00
PENRE	[MJ]	2.79E+02	0.00E+00	3.71E-01	1.65E+01	0.00E+00	-3.03E+01
PENRM	[MJ]	1.65E+01	0.00E+00	0.00E+00	-1.65E+01	0.00E+00	0.00E+00
PENRT	[MJ]	2.95E+02	0.00E+00	3.71E-01	0.00E+00	0.00E+00	-3.03E+01
SM	[kg]	7.84E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.91E+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]	4.70E-01	0.00E+00	2.96E-05	0.00E+00	0.00E+00	-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 SYNOFLEXendcap DN100 (9.4 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.69E-07	0.00E+00	1.96E-12	0.00E+00	0.00E+00	-2.34E-10
NHWD	[kg]	4.32E+00	0.00E+00	6.05E-05	0.00E+00	0.00E+00	4.60E-01
RWD	[kg]	1.01E-02	0.00E+00	6.89E-07	0.00E+00	0.00E+00	3.77E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	7.48E+00	0.00E+00	0.00E+00	8.60E+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
SYNOFLEXendcap DN100 (9.4 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 SYNOFLEXendcap DN125

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 SYNOFLEXendcap DN125 (11.8 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	3.01E+01	0.00E+00	3.59E-02	0.00E+00	0.00E+00	-2.48E+00
GWP-fossil	[kg CO ₂ -Eq.]	2.95E+01	0.00E+00	3.56E-02	0.00E+00	0.00E+00	-2.48E+00
GWP-biogenic	[kg CO ₂ -Eq.]	5.88E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.25E-02	0.00E+00	2.39E-04	0.00E+00	0.00E+00	-5.11E-05
ODP	[kg CFC11-Eq.]	2.01E-10	0.00E+00	3.49E-15	0.00E+00	0.00E+00	-5.42E-15
AP	[mol H ⁺ -Eq.]	8.08E-02	0.00E+00	1.19E-04	0.00E+00	0.00E+00	-5.32E-03
EP-freshwater	[kg P-Eq.]	2.58E-04	0.00E+00	1.27E-07	0.00E+00	0.00E+00	-4.49E-07
EP-marine	[kg N-Eq.]	1.80E-02	0.00E+00	5.43E-05	0.00E+00	0.00E+00	-9.36E-04
EP-terrestrial	[mol N-Eq.]	1.88E-01	0.00E+00	6.08E-04	0.00E+00	0.00E+00	-8.21E-03
POCP	[kg NMVOC-Eq.]	5.29E-02	0.00E+00	1.07E-04	0.00E+00	0.00E+00	-3.80E-03
ADPE	[kg Sb-Eq.]	1.15E-04	0.00E+00	3.58E-09	0.00E+00	0.00E+00	-6.17E-06
ADPF	[MJ]	4.14E+02	0.00E+00	4.67E-01	0.00E+00	0.00E+00	-2.27E+01
WDP	[m ³ world-Eq deprived]	1.85E+01	0.00E+00	3.98E-04	0.00E+00	0.00E+00	-4.60E-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 SYNOFLEXendcap DN125 (11.8 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.73E+02	0.00E+00	3.23E-02	0.00E+00	0.00E+00	1.43E+00
PERM	[MJ]	1.51E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.75E+02	0.00E+00	3.23E-02	0.00E+00	0.00E+00	1.43E+00
PENRE	[MJ]	3.97E+02	0.00E+00	4.68E-01	1.74E+01	0.00E+00	-2.28E+01
PENRM	[MJ]	1.74E+01	0.00E+00	0.00E+00	-1.74E+01	0.00E+00	0.00E+00
PENRT	[MJ]	4.14E+02	0.00E+00	4.68E-01	0.00E+00	0.00E+00	-2.28E+01
SM	[kg]	1.12E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.43E+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]	5.67E-01	0.00E+00	3.74E-05	0.00E+00	0.00E+00	-1.04E-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 SYNOFLEXendcap DN125 (11.8 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.86E-07	0.00E+00	2.48E-12	0.00E+00	0.00E+00	-1.76E-10
NHWD	[kg]	4.31E+00	0.00E+00	7.63E-05	0.00E+00	0.00E+00	3.45E-01
RWD	[kg]	2.14E-02	0.00E+00	8.69E-07	0.00E+00	0.00E+00	2.83E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	7.34E+00	0.00E+00	0.00E+00	1.10E+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
SYNOFLEXendcap DN125 (11.8 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 SYNOFLEXendcap DN150

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 SYNOFLEXendcap DN150 (14.6 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	3.42E+01	0.00E+00	4.42E-02	0.00E+00	0.00E+00	-5.13E+00
GWP-fossil	[kg CO ₂ -Eq.]	3.35E+01	0.00E+00	4.39E-02	0.00E+00	0.00E+00	-5.13E+00
GWP-biogenic	[kg CO ₂ -Eq.]	6.77E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.62E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.55E-02	0.00E+00	2.95E-04	0.00E+00	0.00E+00	-1.06E-04
ODP	[kg CFC11-Eq.]	2.48E-10	0.00E+00	4.30E-15	0.00E+00	0.00E+00	-1.12E-14
AP	[mol H ⁺ -Eq.]	9.60E-02	0.00E+00	1.46E-04	0.00E+00	0.00E+00	-1.10E-02
EP-freshwater	[kg P-Eq.]	3.07E-04	0.00E+00	1.56E-07	0.00E+00	0.00E+00	-9.31E-07
EP-marine	[kg N-Eq.]	2.15E-02	0.00E+00	6.69E-05	0.00E+00	0.00E+00	-1.94E-03
EP-terrestrial	[mol N-Eq.]	2.25E-01	0.00E+00	7.49E-04	0.00E+00	0.00E+00	-1.70E-02
POCP	[kg NMVOC-Eq.]	6.37E-02	0.00E+00	1.31E-04	0.00E+00	0.00E+00	-7.87E-03
ADPE	[kg Sb-Eq.]	1.54E-04	0.00E+00	4.41E-09	0.00E+00	0.00E+00	-1.28E-05
ADPF	[MJ]	4.51E+02	0.00E+00	5.75E-01	0.00E+00	0.00E+00	-4.71E+01
WDP	[m ³ world-Eq deprived]	2.31E+01	0.00E+00	4.90E-04	0.00E+00	0.00E+00	-9.53E-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 SYNOFLEXendcap DN150 (14.6 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	3.68E+02	0.00E+00	3.98E-02	0.00E+00	0.00E+00	2.97E+00
PERM	[MJ]	1.39E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	3.69E+02	0.00E+00	3.98E-02	0.00E+00	0.00E+00	2.97E+00
PENRE	[MJ]	4.28E+02	0.00E+00	5.77E-01	2.44E+01	0.00E+00	-4.71E+01
PENRM	[MJ]	2.44E+01	0.00E+00	0.00E+00	-2.44E+01	0.00E+00	0.00E+00
PENRT	[MJ]	4.52E+02	0.00E+00	5.77E-01	0.00E+00	0.00E+00	-4.71E+01
SM	[kg]	1.23E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.96E+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]	6.92E-01	0.00E+00	4.60E-05	0.00E+00	0.00E+00	-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 SYNOFLEXendcap DN150 (14.6 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.70E-07	0.00E+00	3.05E-12	0.00E+00	0.00E+00	-3.64E-10
NHWD	[kg]	6.74E+00	0.00E+00	9.40E-05	0.00E+00	0.00E+00	7.15E-01
RWD	[kg]	1.57E-02	0.00E+00	1.07E-06	0.00E+00	0.00E+00	5.86E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.18E+01	0.00E+00	0.00E+00	1.34E+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
SYNOFLEXendcap DN150 (14.6 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 SYNOFLEXendcap DN200

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 SYNOFLEXendcap DN200 (22.0 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	5.56E+01	0.00E+00	6.67E-02	0.00E+00	0.00E+00	-5.98E+00
GWP-fossil	[kg CO ₂ -Eq.]	5.46E+01	0.00E+00	6.62E-02	0.00E+00	0.00E+00	-5.98E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.04E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.05E-03
GWP-luluc	[kg CO ₂ -Eq.]	2.27E-02	0.00E+00	4.45E-04	0.00E+00	0.00E+00	-1.23E-04
ODP	[kg CFC11-Eq.]	3.76E-10	0.00E+00	6.48E-15	0.00E+00	0.00E+00	-1.31E-14
AP	[mol H ⁺ -Eq.]	1.62E-01	0.00E+00	2.21E-04	0.00E+00	0.00E+00	-1.28E-02
EP-freshwater	[kg P-Eq.]	5.67E-04	0.00E+00	2.36E-07	0.00E+00	0.00E+00	-1.08E-06
EP-marine	[kg N-Eq.]	3.60E-02	0.00E+00	1.01E-04	0.00E+00	0.00E+00	-2.26E-03
EP-terrestrial	[mol N-Eq.]	3.80E-01	0.00E+00	1.13E-03	0.00E+00	0.00E+00	-1.98E-02
POCP	[kg NMVOC-Eq.]	1.08E-01	0.00E+00	1.98E-04	0.00E+00	0.00E+00	-9.17E-03
ADPE	[kg Sb-Eq.]	2.51E-04	0.00E+00	6.66E-09	0.00E+00	0.00E+00	-1.49E-05
ADPF	[MJ]	7.46E+02	0.00E+00	8.67E-01	0.00E+00	0.00E+00	-5.49E+01
WDP	[m ³ world-Eq deprived]	4.83E+01	0.00E+00	7.39E-04	0.00E+00	0.00E+00	-1.11E+00

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 SYNOFLEXendcap DN200 (22.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	5.52E+02	0.00E+00	6.01E-02	0.00E+00	0.00E+00	3.46E+00
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	6.09E+02	0.00E+00	6.01E-02	0.00E+00	0.00E+00	3.46E+00
PENRE	[MJ]	7.07E+02	0.00E+00	8.70E-01	3.99E+01	0.00E+00	-5.49E+01
PENRM	[MJ]	3.99E+01	0.00E+00	0.00E+00	-3.99E+01	0.00E+00	0.00E+00
PENRT	[MJ]	7.47E+02	0.00E+00	8.70E-01	0.00E+00	0.00E+00	-5.49E+01
SM	[kg]	1.84E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.45E+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]	1.35E+00	0.00E+00	6.94E-05	0.00E+00	0.00E+00	-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 SYNOFLEXendcap DN200 (22.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	8.13E-08	0.00E+00	4.60E-12	0.00E+00	0.00E+00	-4.24E-10
NHWD	[kg]	1.05E+01	0.00E+00	1.42E-04	0.00E+00	0.00E+00	8.32E-01
RWD	[kg]	2.54E-02	0.00E+00	1.62E-06	0.00E+00	0.00E+00	6.83E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.83E+01	0.00E+00	0.00E+00	2.00E+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
SYNOFLEXendcap DN200 (22.0 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 SYNOFLEXendcap DN225

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 SYNOFLEXendcap DN225 (31.3 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	7.45E+01	0.00E+00	9.48E-02	0.00E+00	0.00E+00	-1.13E+01
GWP-fossil	[kg CO ₂ -Eq.]	7.30E+01	0.00E+00	9.42E-02	0.00E+00	0.00E+00	-1.13E+01
GWP-biogenic	[kg CO ₂ -Eq.]	1.41E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.77E-03
GWP-luluc	[kg CO ₂ -Eq.]	3.03E-02	0.00E+00	6.33E-04	0.00E+00	0.00E+00	-2.33E-04
ODP	[kg CFC11-Eq.]	5.08E-10	0.00E+00	9.23E-15	0.00E+00	0.00E+00	-2.47E-14
AP	[mol H ⁺ -Eq.]	2.27E-01	0.00E+00	3.14E-04	0.00E+00	0.00E+00	-2.43E-02
EP-freshwater	[kg P-Eq.]	6.87E-04	0.00E+00	3.36E-07	0.00E+00	0.00E+00	-2.05E-06
EP-marine	[kg N-Eq.]	4.79E-02	0.00E+00	1.44E-04	0.00E+00	0.00E+00	-4.27E-03
EP-terrestrial	[mol N-Eq.]	5.05E-01	0.00E+00	1.61E-03	0.00E+00	0.00E+00	-3.75E-02
POCP	[kg NMVOC-Eq.]	1.43E-01	0.00E+00	2.82E-04	0.00E+00	0.00E+00	-1.73E-02
ADPE	[kg Sb-Eq.]	4.39E-04	0.00E+00	9.47E-09	0.00E+00	0.00E+00	-2.82E-05
ADPF	[MJ]	9.81E+02	0.00E+00	1.23E+00	0.00E+00	0.00E+00	-1.04E+02
WDP	[m ³ world-Eq deprived]	5.75E+01	0.00E+00	1.05E-03	0.00E+00	0.00E+00	-2.10E+00

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 SYNOFLEXendcap DN225 (31.3 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	7.51E+02	0.00E+00	8.55E-02	0.00E+00	0.00E+00	6.54E+00
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	8.08E+02	0.00E+00	8.55E-02	0.00E+00	0.00E+00	6.54E+00
PENRE	[MJ]	9.33E+02	0.00E+00	1.24E+00	4.95E+01	0.00E+00	-1.04E+02
PENRM	[MJ]	4.95E+01	0.00E+00	0.00E+00	-4.95E+01	0.00E+00	0.00E+00
PENRT	[MJ]	9.83E+02	0.00E+00	1.24E+00	0.00E+00	0.00E+00	-1.04E+02
SM	[kg]	2.48E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.52E+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]	1.65E+00	0.00E+00	9.87E-05	0.00E+00	0.00E+00	-4.74E-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 SYNOFLEXendcap DN225 (31.3 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.05E-07	0.00E+00	6.55E-12	0.00E+00	0.00E+00	-8.01E-10
NHWD	[kg]	1.44E+01	0.00E+00	2.02E-04	0.00E+00	0.00E+00	1.57E+00
RWD	[kg]	3.41E-02	0.00E+00	2.30E-06	0.00E+00	0.00E+00	1.29E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.45E+01	0.00E+00	0.00E+00	2.88E+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
SYNOFLEXendcap DN225 (31.3 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 SYNOFLEXendcap DN250

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 SYNOFLEXendcap DN250 (39.0 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	9.08E+01	0.00E+00	1.18E-01	0.00E+00	0.00E+00	-1.39E+01
GWP-fossil	[kg CO ₂ -Eq.]	8.90E+01	0.00E+00	1.17E-01	0.00E+00	0.00E+00	-1.39E+01
GWP-biogenic	[kg CO ₂ -Eq.]	1.76E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.09E-03
GWP-luluc	[kg CO ₂ -Eq.]	3.68E-02	0.00E+00	7.89E-04	0.00E+00	0.00E+00	-2.86E-04
ODP	[kg CFC11-Eq.]	6.33E-10	0.00E+00	1.15E-14	0.00E+00	0.00E+00	-3.04E-14
AP	[mol H ⁺ -Eq.]	2.64E-01	0.00E+00	3.91E-04	0.00E+00	0.00E+00	-2.98E-02
EP-freshwater	[kg P-Eq.]	8.18E-04	0.00E+00	4.18E-07	0.00E+00	0.00E+00	-2.52E-06
EP-marine	[kg N-Eq.]	5.76E-02	0.00E+00	1.79E-04	0.00E+00	0.00E+00	-5.24E-03
EP-terrestrial	[mol N-Eq.]	6.06E-01	0.00E+00	2.00E-03	0.00E+00	0.00E+00	-4.60E-02
POCP	[kg NMVOC-Eq.]	1.71E-01	0.00E+00	3.51E-04	0.00E+00	0.00E+00	-2.13E-02
ADPE	[kg Sb-Eq.]	4.48E-04	0.00E+00	1.18E-08	0.00E+00	0.00E+00	-3.46E-05
ADPF	[MJ]	1.19E+03	0.00E+00	1.54E+00	0.00E+00	0.00E+00	-1.28E+02
WDP	[m ³ world-Eq deprived]	6.76E+01	0.00E+00	1.31E-03	0.00E+00	0.00E+00	-2.58E+00

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 SYNOFLEXendcap DN250 (39.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	9.43E+02	0.00E+00	1.07E-01	0.00E+00	0.00E+00	8.03E+00
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	9.99E+02	0.00E+00	1.07E-01	0.00E+00	0.00E+00	8.03E+00
PENRE	[MJ]	1.13E+03	0.00E+00	1.54E+00	5.89E+01	0.00E+00	-1.28E+02
PENRM	[MJ]	5.89E+01	0.00E+00	0.00E+00	-5.89E+01	0.00E+00	0.00E+00
PENRT	[MJ]	1.19E+03	0.00E+00	1.54E+00	0.00E+00	0.00E+00	-1.28E+02
SM	[kg]	3.13E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.01E+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]	1.96E+00	0.00E+00	1.23E-04	0.00E+00	0.00E+00	-5.83E-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 SYNOFLEXendcap DN250 (39.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.29E-07	0.00E+00	8.16E-12	0.00E+00	0.00E+00	-9.85E-10
NHWD	[kg]	1.80E+01	0.00E+00	2.51E-04	0.00E+00	0.00E+00	1.93E+00
RWD	[kg]	4.22E-02	0.00E+00	2.86E-06	0.00E+00	0.00E+00	1.59E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.13E+01	0.00E+00	0.00E+00	3.61E+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
SYNOFLEXendcap DN250 (39.0 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 SYNOFLEXendcap DN300

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 SYNOFLEXendcap DN300 (50.3 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.16E+02	0.00E+00	1.52E-01	0.00E+00	0.00E+00	-1.80E+01
GWP-fossil	[kg CO ₂ -Eq.]	1.14E+02	0.00E+00	1.51E-01	0.00E+00	0.00E+00	-1.80E+01
GWP-biogenic	[kg CO ₂ -Eq.]	2.27E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.20E-03
GWP-luluc	[kg CO ₂ -Eq.]	4.70E-02	0.00E+00	1.02E-03	0.00E+00	0.00E+00	-3.72E-04
ODP	[kg CFC11-Eq.]	8.20E-10	0.00E+00	1.48E-14	0.00E+00	0.00E+00	-3.94E-14
AP	[mol H ⁺ -Eq.]	3.37E-01	0.00E+00	5.05E-04	0.00E+00	0.00E+00	-3.87E-02
EP-freshwater	[kg P-Eq.]	9.78E-04	0.00E+00	5.39E-07	0.00E+00	0.00E+00	-3.27E-06
EP-marine	[kg N-Eq.]	7.28E-02	0.00E+00	2.31E-04	0.00E+00	0.00E+00	-6.81E-03
EP-terrestrial	[mol N-Eq.]	7.66E-01	0.00E+00	2.58E-03	0.00E+00	0.00E+00	-5.98E-02
POCP	[kg NMVOC-Eq.]	2.15E-01	0.00E+00	4.53E-04	0.00E+00	0.00E+00	-2.76E-02
ADPE	[kg Sb-Eq.]	5.90E-04	0.00E+00	1.52E-08	0.00E+00	0.00E+00	-4.49E-05
ADPF	[MJ]	1.51E+03	0.00E+00	1.98E+00	0.00E+00	0.00E+00	-1.66E+02
WDP	[m ³ world-Eq deprived]	7.95E+01	0.00E+00	1.69E-03	0.00E+00	0.00E+00	-3.35E+00

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 SYNOFLEXendcap DN300 (50.3 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.22E+03	0.00E+00	1.37E-01	0.00E+00	0.00E+00	1.04E+01
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.28E+03	0.00E+00	1.37E-01	0.00E+00	0.00E+00	1.04E+01
PENRE	[MJ]	1.44E+03	0.00E+00	1.99E+00	6.88E+01	0.00E+00	-1.66E+02
PENRM	[MJ]	6.88E+01	0.00E+00	0.00E+00	-6.88E+01	0.00E+00	0.00E+00
PENRT	[MJ]	1.51E+03	0.00E+00	1.99E+00	0.00E+00	0.00E+00	-1.66E+02
SM	[kg]	4.07E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.04E+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]	2.35E+00	0.00E+00	1.59E-04	0.00E+00	0.00E+00	-7.56E-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 SYNOFLEXendcap DN300 (50.3 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.62E-07	0.00E+00	1.05E-11	0.00E+00	0.00E+00	-1.28E-09
NHWD	[kg]	2.34E+01	0.00E+00	3.24E-04	0.00E+00	0.00E+00	2.51E+00
RWD	[kg]	5.45E-02	0.00E+00	3.69E-06	0.00E+00	0.00E+00	2.06E-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	4.69E+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
SYNOFLEXendcap DN300 (50.3 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 SYNOFLEXendcap DN350

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 SYNOFLEXendcap DN350 (60.0 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.40E+02	0.00E+00	1.82E-01	0.00E+00	0.00E+00	-2.19E+01
GWP-fossil	[kg CO ₂ -Eq.]	1.37E+02	0.00E+00	1.81E-01	0.00E+00	0.00E+00	-2.19E+01
GWP-biogenic	[kg CO ₂ -Eq.]	2.70E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-02
GWP-luluc	[kg CO ₂ -Eq.]	5.64E-02	0.00E+00	1.21E-03	0.00E+00	0.00E+00	-4.52E-04
ODP	[kg CFC11-Eq.]	9.85E-10	0.00E+00	1.77E-14	0.00E+00	0.00E+00	-4.78E-14
AP	[mol H ⁺ -Eq.]	4.23E-01	0.00E+00	6.02E-04	0.00E+00	0.00E+00	-4.70E-02
EP-freshwater	[kg P-Eq.]	1.14E-03	0.00E+00	6.43E-07	0.00E+00	0.00E+00	-3.97E-06
EP-marine	[kg N-Eq.]	8.76E-02	0.00E+00	2.75E-04	0.00E+00	0.00E+00	-8.27E-03
EP-terrestrial	[mol N-Eq.]	9.23E-01	0.00E+00	3.08E-03	0.00E+00	0.00E+00	-7.26E-02
POCP	[kg NMVOC-Eq.]	2.58E-01	0.00E+00	5.40E-04	0.00E+00	0.00E+00	-3.35E-02
ADPE	[kg Sb-Eq.]	8.58E-04	0.00E+00	1.82E-08	0.00E+00	0.00E+00	-5.45E-05
ADPF	[MJ]	1.81E+03	0.00E+00	2.36E+00	0.00E+00	0.00E+00	-2.01E+02
WDP	[m ³ world-Eq deprived]	9.23E+01	0.00E+00	2.02E-03	0.00E+00	0.00E+00	-4.07E+00

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 SYNOFLEXendcap DN350 (60.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.45E+03	0.00E+00	1.64E-01	0.00E+00	0.00E+00	1.27E+01
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.51E+03	0.00E+00	1.64E-01	0.00E+00	0.00E+00	1.27E+01
PENRE	[MJ]	1.73E+03	0.00E+00	2.37E+00	7.83E+01	0.00E+00	-2.01E+02
PENRM	[MJ]	7.83E+01	0.00E+00	0.00E+00	-7.83E+01	0.00E+00	0.00E+00
PENRT	[MJ]	1.81E+03	0.00E+00	2.37E+00	0.00E+00	0.00E+00	-2.01E+02
SM	[kg]	4.84E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E+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]	2.75E+00	0.00E+00	1.89E-04	0.00E+00	0.00E+00	-9.18E-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 SYNOFLEXendcap DN350 (60.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.92E-07	0.00E+00	1.26E-11	0.00E+00	0.00E+00	-1.55E-09
NHWD	[kg]	2.80E+01	0.00E+00	3.87E-04	0.00E+00	0.00E+00	3.05E+00
RWD	[kg]	6.54E-02	0.00E+00	4.41E-06	0.00E+00	0.00E+00	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]	4.78E+01	0.00E+00	0.00E+00	5.61E+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
SYNOFLEXendcap DN350 (60.0 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 SYNOFLEXendcap DN400

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 SYNOFLEXendcap DN400 (79.2 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.78E+02	0.00E+00	2.40E-01	0.00E+00	0.00E+00	-2.85E+01
GWP-fossil	[kg CO ₂ -Eq.]	1.74E+02	0.00E+00	2.38E-01	0.00E+00	0.00E+00	-2.85E+01
GWP-biogenic	[kg CO ₂ -Eq.]	3.56E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.45E-02
GWP-luluc	[kg CO ₂ -Eq.]	7.28E-02	0.00E+00	1.60E-03	0.00E+00	0.00E+00	-5.88E-04
ODP	[kg CFC11-Eq.]	1.30E-09	0.00E+00	2.33E-14	0.00E+00	0.00E+00	-6.23E-14
AP	[mol H ⁺ -Eq.]	5.08E-01	0.00E+00	7.94E-04	0.00E+00	0.00E+00	-6.12E-02
EP-freshwater	[kg P-Eq.]	1.33E-03	0.00E+00	8.49E-07	0.00E+00	0.00E+00	-5.17E-06
EP-marine	[kg N-Eq.]	1.10E-01	0.00E+00	3.63E-04	0.00E+00	0.00E+00	-1.08E-02
EP-terrestrial	[mol N-Eq.]	1.15E+00	0.00E+00	4.07E-03	0.00E+00	0.00E+00	-9.45E-02
POCP	[kg NMVOC-Eq.]	3.21E-01	0.00E+00	7.13E-04	0.00E+00	0.00E+00	-4.37E-02
ADPE	[kg Sb-Eq.]	8.80E-04	0.00E+00	2.40E-08	0.00E+00	0.00E+00	-7.10E-05
ADPF	[MJ]	2.26E+03	0.00E+00	3.12E+00	0.00E+00	0.00E+00	-2.62E+02
WDP	[m ³ world-Eq deprived]	1.05E+02	0.00E+00	2.66E-03	0.00E+00	0.00E+00	-5.29E+00

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 SYNOFLEXendcap DN400 (79.2 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.94E+03	0.00E+00	2.16E-01	0.00E+00	0.00E+00	1.65E+01
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.00E+03	0.00E+00	2.16E-01	0.00E+00	0.00E+00	1.65E+01
PENRE	[MJ]	2.18E+03	0.00E+00	3.13E+00	8.22E+01	0.00E+00	-2.62E+02
PENRM	[MJ]	8.22E+01	0.00E+00	0.00E+00	-8.22E+01	0.00E+00	0.00E+00
PENRT	[MJ]	2.26E+03	0.00E+00	3.13E+00	0.00E+00	0.00E+00	-2.62E+02
SM	[kg]	6.53E+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]	3.23E+00	0.00E+00	2.50E-04	0.00E+00	0.00E+00	-1.20E-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 SYNOFLEXendcap DN400 (79.2 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.46E-07	0.00E+00	1.66E-11	0.00E+00	0.00E+00	-2.02E-09
NHWD	[kg]	3.74E+01	0.00E+00	5.10E-04	0.00E+00	0.00E+00	3.97E+00
RWD	[kg]	8.62E-02	0.00E+00	5.82E-06	0.00E+00	0.00E+00	3.25E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	6.57E+01	0.00E+00	0.00E+00	7.51E+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	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
SYNOFLEXendcap DN400 (79.2 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 SYNOFLEXflange adapter DN50

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 SYNOFLEXflange adapter DN50 (4.7 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.10E+01	0.00E+00	1.44E-02	0.00E+00	0.00E+00	-1.73E+00
GWP-fossil	[kg CO ₂ -Eq.]	1.08E+01	0.00E+00	1.43E-02	0.00E+00	0.00E+00	-1.73E+00
GWP-biogenic	[kg CO ₂ -Eq.]	2.22E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.82E-04
GWP-luluc	[kg CO ₂ -Eq.]	5.37E-03	0.00E+00	9.59E-05	0.00E+00	0.00E+00	-3.56E-05
ODP	[kg CFC11-Eq.]	8.38E-11	0.00E+00	1.40E-15	0.00E+00	0.00E+00	-3.78E-15
AP	[mol H ⁺ -Eq.]	3.06E-02	0.00E+00	4.75E-05	0.00E+00	0.00E+00	-3.71E-03
EP-freshwater	[kg P-Eq.]	8.02E-05	0.00E+00	5.08E-08	0.00E+00	0.00E+00	-3.13E-07
EP-marine	[kg N-Eq.]	6.89E-03	0.00E+00	2.17E-05	0.00E+00	0.00E+00	-6.52E-04
EP-terrestrial	[mol N-Eq.]	7.18E-02	0.00E+00	2.43E-04	0.00E+00	0.00E+00	-5.73E-03
POCP	[kg NMVOC-Eq.]	2.11E-02	0.00E+00	4.27E-05	0.00E+00	0.00E+00	-2.65E-03
ADPE	[kg Sb-Eq.]	5.16E-05	0.00E+00	1.43E-09	0.00E+00	0.00E+00	-4.30E-06
ADPF	[MJ]	1.41E+02	0.00E+00	1.87E-01	0.00E+00	0.00E+00	-1.59E+01
WDP	[m ³ world-Eq deprived]	5.33E+00	0.00E+00	1.59E-04	0.00E+00	0.00E+00	-3.21E-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 SYNOFLEXflange adapter DN50 (4.7 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.24E+02	0.00E+00	1.29E-02	0.00E+00	0.00E+00	1.00E+00
PERM	[MJ]	5.98E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.25E+02	0.00E+00	1.29E-02	0.00E+00	0.00E+00	1.00E+00
PENRE	[MJ]	1.35E+02	0.00E+00	1.88E-01	5.77E+00	0.00E+00	-1.59E+01
PENRM	[MJ]	5.77E+00	0.00E+00	0.00E+00	-5.77E+00	0.00E+00	0.00E+00
PENRT	[MJ]	1.41E+02	0.00E+00	1.88E-01	0.00E+00	0.00E+00	-1.59E+01
SM	[kg]	4.16E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.97E-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]	1.76E-01	0.00E+00	1.50E-05	0.00E+00	0.00E+00	-7.25E-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 SYNOFLEXflange adapter DN50 (4.7 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.12E-07	0.00E+00	9.92E-13	0.00E+00	0.00E+00	-1.22E-10
NHWD	[kg]	2.25E+00	0.00E+00	3.06E-05	0.00E+00	0.00E+00	2.40E-01
RWD	[kg]	5.28E-03	0.00E+00	3.48E-07	0.00E+00	0.00E+00	1.97E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.93E+00	0.00E+00	0.00E+00	4.49E+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
SYNOFLEXflange adapter DN50 (4.7 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 SYNOFLEXflange adapter DN65

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 SYNOFLEXflange adapter DN65 (5.8 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.32E+01	0.00E+00	1.75E-02	0.00E+00	0.00E+00	-2.06E+00
GWP-fossil	[kg CO ₂ -Eq.]	1.29E+01	0.00E+00	1.73E-02	0.00E+00	0.00E+00	-2.06E+00
GWP-biogenic	[kg CO ₂ -Eq.]	2.71E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.05E-03
GWP-luluc	[kg CO ₂ -Eq.]	6.25E-03	0.00E+00	1.17E-04	0.00E+00	0.00E+00	-4.25E-05
ODP	[kg CFC11-Eq.]	1.01E-10	0.00E+00	1.70E-15	0.00E+00	0.00E+00	-4.50E-15
AP	[mol H ⁺ -Eq.]	3.56E-02	0.00E+00	5.78E-05	0.00E+00	0.00E+00	-4.43E-03
EP-freshwater	[kg P-Eq.]	9.59E-05	0.00E+00	6.18E-08	0.00E+00	0.00E+00	-3.74E-07
EP-marine	[kg N-Eq.]	8.17E-03	0.00E+00	2.64E-05	0.00E+00	0.00E+00	-7.78E-04
EP-terrestrial	[mol N-Eq.]	8.51E-02	0.00E+00	2.96E-04	0.00E+00	0.00E+00	-6.83E-03
POCP	[kg NMVOC-Eq.]	2.48E-02	0.00E+00	5.19E-05	0.00E+00	0.00E+00	-3.16E-03
ADPE	[kg Sb-Eq.]	5.28E-05	0.00E+00	1.74E-09	0.00E+00	0.00E+00	-5.13E-06
ADPF	[MJ]	1.69E+02	0.00E+00	2.27E-01	0.00E+00	0.00E+00	-1.89E+01
WDP	[m ³ world-Eq deprived]	6.47E+00	0.00E+00	1.93E-04	0.00E+00	0.00E+00	-3.83E-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 SYNOFLEXflange adapter DN65 (5.8 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.49E+02	0.00E+00	1.57E-02	0.00E+00	0.00E+00	1.19E+00
PERM	[MJ]	5.98E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.50E+02	0.00E+00	1.57E-02	0.00E+00	0.00E+00	1.19E+00
PENRE	[MJ]	1.62E+02	0.00E+00	2.28E-01	7.00E+00	0.00E+00	-1.89E+01
PENRM	[MJ]	7.00E+00	0.00E+00	0.00E+00	-7.00E+00	0.00E+00	0.00E+00
PENRT	[MJ]	1.69E+02	0.00E+00	2.28E-01	0.00E+00	0.00E+00	-1.89E+01
SM	[kg]	5.02E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.19E+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]	2.13E-01	0.00E+00	1.82E-05	0.00E+00	0.00E+00	-8.64E-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 SYNOFLEXflange adapter DN65 (5.8 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.15E-07	0.00E+00	1.21E-12	0.00E+00	0.00E+00	-1.46E-10
NHWD	[kg]	2.73E+00	0.00E+00	3.71E-05	0.00E+00	0.00E+00	2.87E-01
RWD	[kg]	6.38E-03	0.00E+00	4.23E-07	0.00E+00	0.00E+00	2.35E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	4.83E+00	0.00E+00	0.00E+00	5.46E+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 SYNOFLEXflange adapter DN65 (5.8 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 SYNOFLEXflange adapter DN80

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 SYNOFLEXflange adapter DN80 (6.7 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.52E+01	0.00E+00	2.03E-02	0.00E+00	0.00E+00	-2.39E+00
GWP-fossil	[kg CO ₂ -Eq.]	1.49E+01	0.00E+00	2.02E-02	0.00E+00	0.00E+00	-2.39E+00
GWP-biogenic	[kg CO ₂ -Eq.]	3.14E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.22E-03
GWP-luluc	[kg CO ₂ -Eq.]	7.04E-03	0.00E+00	1.36E-04	0.00E+00	0.00E+00	-4.94E-05
ODP	[kg CFC11-Eq.]	1.16E-10	0.00E+00	1.97E-15	0.00E+00	0.00E+00	-5.23E-15
AP	[mol H ⁺ -Eq.]	4.00E-02	0.00E+00	6.72E-05	0.00E+00	0.00E+00	-5.14E-03
EP-freshwater	[kg P-Eq.]	1.09E-04	0.00E+00	7.18E-08	0.00E+00	0.00E+00	-4.34E-07
EP-marine	[kg N-Eq.]	9.32E-03	0.00E+00	3.07E-05	0.00E+00	0.00E+00	-9.04E-04
EP-terrestrial	[mol N-Eq.]	9.72E-02	0.00E+00	3.44E-04	0.00E+00	0.00E+00	-7.93E-03
POCP	[kg NMVOC-Eq.]	2.81E-02	0.00E+00	6.03E-05	0.00E+00	0.00E+00	-3.67E-03
ADPE	[kg Sb-Eq.]	5.40E-05	0.00E+00	2.03E-09	0.00E+00	0.00E+00	-5.96E-06
ADPF	[MJ]	1.94E+02	0.00E+00	2.64E-01	0.00E+00	0.00E+00	-2.20E+01
WDP	[m ³ world-Eq deprived]	7.46E+00	0.00E+00	2.25E-04	0.00E+00	0.00E+00	-4.44E-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 SYNOFLEXflange adapter DN80 (6.7 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.73E+02	0.00E+00	1.83E-02	0.00E+00	0.00E+00	1.38E+00
PERM	[MJ]	5.98E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.73E+02	0.00E+00	1.83E-02	0.00E+00	0.00E+00	1.38E+00
PENRE	[MJ]	1.86E+02	0.00E+00	2.65E-01	7.96E+00	0.00E+00	-2.20E+01
PENRM	[MJ]	7.96E+00	0.00E+00	0.00E+00	-7.96E+00	0.00E+00	0.00E+00
PENRT	[MJ]	1.94E+02	0.00E+00	2.65E-01	0.00E+00	0.00E+00	-2.20E+01
SM	[kg]	5.81E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.38E+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]	2.46E-01	0.00E+00	2.11E-05	0.00E+00	0.00E+00	-1.00E-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 SYNOFLEXflange adapter DN80 (6.7 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.17E-07	0.00E+00	1.40E-12	0.00E+00	0.00E+00	-1.70E-10
NHWD	[kg]	3.18E+00	0.00E+00	4.32E-05	0.00E+00	0.00E+00	3.33E-01
RWD	[kg]	7.38E-03	0.00E+00	4.92E-07	0.00E+00	0.00E+00	2.73E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	5.67E+00	0.00E+00	0.00E+00	6.36E+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	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 SYNOFLEXflange adapter DN80 (6.7 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 SYNOFLEXflange adapter DN80-65

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 SYNOFLEXflange adapter DN80-65 (5.9 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.37E+01	0.00E+00	1.79E-02	0.00E+00	0.00E+00	-1.99E+00
GWP-fossil	[kg CO ₂ -Eq.]	1.34E+01	0.00E+00	1.78E-02	0.00E+00	0.00E+00	-1.99E+00
GWP-biogenic	[kg CO ₂ -Eq.]	2.81E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.02E-03
GWP-luluc	[kg CO ₂ -Eq.]	6.46E-03	0.00E+00	1.20E-04	0.00E+00	0.00E+00	-4.10E-05
ODP	[kg CFC11-Eq.]	1.05E-10	0.00E+00	1.75E-15	0.00E+00	0.00E+00	-4.35E-15
AP	[mol H ⁺ -Eq.]	3.66E-02	0.00E+00	5.94E-05	0.00E+00	0.00E+00	-4.27E-03
EP-freshwater	[kg P-Eq.]	9.76E-05	0.00E+00	6.35E-08	0.00E+00	0.00E+00	-3.61E-07
EP-marine	[kg N-Eq.]	8.45E-03	0.00E+00	2.72E-05	0.00E+00	0.00E+00	-7.51E-04
EP-terrestrial	[mol N-Eq.]	8.81E-02	0.00E+00	3.04E-04	0.00E+00	0.00E+00	-6.59E-03
POCP	[kg NMVOC-Eq.]	2.56E-02	0.00E+00	5.33E-05	0.00E+00	0.00E+00	-3.05E-03
ADPE	[kg Sb-Eq.]	5.31E-05	0.00E+00	1.79E-09	0.00E+00	0.00E+00	-4.95E-06
ADPF	[MJ]	1.75E+02	0.00E+00	2.33E-01	0.00E+00	0.00E+00	-1.83E+01
WDP	[m³ world-Eq deprived]	6.58E+00	0.00E+00	1.99E-04	0.00E+00	0.00E+00	-3.69E-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 SYNOFLEXflange adapter DN80-65 (5.9 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.55E+02	0.00E+00	1.62E-02	0.00E+00	0.00E+00	1.15E+00
PERM	[MJ]	5.98E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.56E+02	0.00E+00	1.62E-02	0.00E+00	0.00E+00	1.15E+00
PENRE	[MJ]	1.68E+02	0.00E+00	2.34E-01	7.01E+00	0.00E+00	-1.83E+01
PENRM	[MJ]	7.01E+00	0.00E+00	0.00E+00	-7.01E+00	0.00E+00	0.00E+00
PENRT	[MJ]	1.75E+02	0.00E+00	2.34E-01	0.00E+00	0.00E+00	-1.83E+01
SM	[kg]	5.25E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.15E+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	[m³]	2.18E-01	0.00E+00	1.87E-05	0.00E+00	0.00E+00	-8.34E-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 SYNOFLEXflange adapter DN80-65 (5.9 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.15E-07	0.00E+00	1.24E-12	0.00E+00	0.00E+00	-1.41E-10
NHWD	[kg]	2.86E+00	0.00E+00	3.82E-05	0.00E+00	0.00E+00	2.77E-01
RWD	[kg]	6.66E-03	0.00E+00	4.35E-07	0.00E+00	0.00E+00	2.27E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	5.07E+00	0.00E+00	0.00E+00	5.62E+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	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
SYNOFLEXflange adapter DN80-65 (5.9 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 SYNOFLEXflange adapter DN80-100

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 SYNOFLEXflange adapter DN80-100 (9.7 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	2.40E+01	0.00E+00	2.94E-02	0.00E+00	0.00E+00	-2.64E+00
GWP-fossil	[kg CO ₂ -Eq.]	2.35E+01	0.00E+00	2.92E-02	0.00E+00	0.00E+00	-2.64E+00
GWP-biogenic	[kg CO ₂ -Eq.]	4.64E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.07E-02	0.00E+00	1.96E-04	0.00E+00	0.00E+00	-5.45E-05
ODP	[kg CFC11-Eq.]	1.74E-10	0.00E+00	2.86E-15	0.00E+00	0.00E+00	-5.77E-15
AP	[mol H ⁺ -Eq.]	6.76E-02	0.00E+00	9.72E-05	0.00E+00	0.00E+00	-5.67E-03
EP-freshwater	[kg P-Eq.]	2.13E-04	0.00E+00	1.04E-07	0.00E+00	0.00E+00	-4.79E-07
EP-marine	[kg N-Eq.]	1.50E-02	0.00E+00	4.44E-05	0.00E+00	0.00E+00	-9.97E-04
EP-terrestrial	[mol N-Eq.]	1.57E-01	0.00E+00	4.98E-04	0.00E+00	0.00E+00	-8.75E-03
POCP	[kg NMVOC-Eq.]	4.50E-02	0.00E+00	8.73E-05	0.00E+00	0.00E+00	-4.05E-03
ADPE	[kg Sb-Eq.]	1.10E-04	0.00E+00	2.93E-09	0.00E+00	0.00E+00	-6.58E-06
ADPF	[MJ]	3.17E+02	0.00E+00	3.82E-01	0.00E+00	0.00E+00	-2.42E+01
WDP	[m ³ world-Eq deprived]	1.63E+01	0.00E+00	3.25E-04	0.00E+00	0.00E+00	-4.90E-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 SYNOFLEXflange adapter DN80-100 (9.7 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.54E+02	0.00E+00	2.65E-02	0.00E+00	0.00E+00	1.53E+00
PERM	[MJ]	8.62E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.55E+02	0.00E+00	2.65E-02	0.00E+00	0.00E+00	1.53E+00
PENRE	[MJ]	3.02E+02	0.00E+00	3.83E-01	1.62E+01	0.00E+00	-2.43E+01
PENRM	[MJ]	1.62E+01	0.00E+00	0.00E+00	-1.62E+01	0.00E+00	0.00E+00
PENRT	[MJ]	3.18E+02	0.00E+00	3.83E-01	0.00E+00	0.00E+00	-2.43E+01
SM	[kg]	8.62E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.52E+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]	4.85E-01	0.00E+00	3.06E-05	0.00E+00	0.00E+00	-1.11E-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 SYNOFLEXflange adapter DN80-100 (9.7 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.71E-07	0.00E+00	2.03E-12	0.00E+00	0.00E+00	-1.87E-10
NHWD	[kg]	4.74E+00	0.00E+00	6.25E-05	0.00E+00	0.00E+00	3.68E-01
RWD	[kg]	1.11E-02	0.00E+00	7.12E-07	0.00E+00	0.00E+00	3.02E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	8.26E+00	0.00E+00	0.00E+00	8.93E+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
SYNOFLEXflange adapter DN80-100 (9.7 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 SYNOFLEXflange adapter DN100

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 SYNOFLEXflange adapter DN100 (10.3 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	2.42E+01	0.00E+00	3.12E-02	0.00E+00	0.00E+00	-3.57E+00
GWP-fossil	[kg CO ₂ -Eq.]	2.37E+01	0.00E+00	3.10E-02	0.00E+00	0.00E+00	-3.57E+00
GWP-biogenic	[kg CO ₂ -Eq.]	4.79E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.82E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.08E-02	0.00E+00	2.09E-04	0.00E+00	0.00E+00	-7.37E-05
ODP	[kg CFC11-Eq.]	1.75E-10	0.00E+00	3.04E-15	0.00E+00	0.00E+00	-7.81E-15
AP	[mol H ⁺ -Eq.]	6.81E-02	0.00E+00	1.03E-04	0.00E+00	0.00E+00	-7.67E-03
EP-freshwater	[kg P-Eq.]	2.15E-04	0.00E+00	1.11E-07	0.00E+00	0.00E+00	-6.48E-07
EP-marine	[kg N-Eq.]	1.52E-02	0.00E+00	4.73E-05	0.00E+00	0.00E+00	-1.35E-03
EP-terrestrial	[mol N-Eq.]	1.59E-01	0.00E+00	5.30E-04	0.00E+00	0.00E+00	-1.18E-02
POCP	[kg NMVOC-Eq.]	4.54E-02	0.00E+00	9.28E-05	0.00E+00	0.00E+00	-5.48E-03
ADPE	[kg Sb-Eq.]	1.10E-04	0.00E+00	3.12E-09	0.00E+00	0.00E+00	-8.90E-06
ADPF	[MJ]	3.20E+02	0.00E+00	4.06E-01	0.00E+00	0.00E+00	-3.28E+01
WDP	[m ³ world-Eq deprived]	1.64E+01	0.00E+00	3.46E-04	0.00E+00	0.00E+00	-6.64E-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 SYNOFLEXflange adapter DN100 (10.3 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.59E+02	0.00E+00	2.82E-02	0.00E+00	0.00E+00	2.07E+00
PERM	[MJ]	8.62E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.60E+02	0.00E+00	2.82E-02	0.00E+00	0.00E+00	2.07E+00
PENRE	[MJ]	3.03E+02	0.00E+00	4.08E-01	1.73E+01	0.00E+00	-3.28E+01
PENRM	[MJ]	1.73E+01	0.00E+00	0.00E+00	-1.73E+01	0.00E+00	0.00E+00
PENRT	[MJ]	3.20E+02	0.00E+00	4.08E-01	0.00E+00	0.00E+00	-3.28E+01
SM	[kg]	8.67E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.06E+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]	4.90E-01	0.00E+00	3.25E-05	0.00E+00	0.00E+00	-1.50E-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 SYNOFLEXflange adapter DN100 (10.3 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.72E-07	0.00E+00	2.16E-12	0.00E+00	0.00E+00	-2.53E-10
NHWD	[kg]	4.78E+00	0.00E+00	6.65E-05	0.00E+00	0.00E+00	4.97E-01
RWD	[kg]	1.12E-02	0.00E+00	7.57E-07	0.00E+00	0.00E+00	4.08E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	8.36E+00	0.00E+00	0.00E+00	9.50E+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	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
SYNOFLEXflange adapter DN100 (10.3 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 SYNOFLEXflange adapter DN100-80

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 SYNOFLEXflange adapter DN100-80 (6.8 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.60E+01	0.00E+00	2.05E-02	0.00E+00	0.00E+00	-2.06E+00
GWP-fossil	[kg CO ₂ -Eq.]	1.56E+01	0.00E+00	2.03E-02	0.00E+00	0.00E+00	-2.06E+00
GWP-biogenic	[kg CO ₂ -Eq.]	3.27E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.05E-03
GWP-luluc	[kg CO ₂ -Eq.]	7.97E-03	0.00E+00	1.37E-04	0.00E+00	0.00E+00	-4.26E-05
ODP	[kg CFC11-Eq.]	1.24E-10	0.00E+00	1.99E-15	0.00E+00	0.00E+00	-4.51E-15
AP	[mol H ⁺ -Eq.]	4.19E-02	0.00E+00	6.77E-05	0.00E+00	0.00E+00	-4.43E-03
EP-freshwater	[kg P-Eq.]	1.17E-04	0.00E+00	7.24E-08	0.00E+00	0.00E+00	-3.74E-07
EP-marine	[kg N-Eq.]	9.94E-03	0.00E+00	3.10E-05	0.00E+00	0.00E+00	-7.80E-04
EP-terrestrial	[mol N-Eq.]	1.03E-01	0.00E+00	3.47E-04	0.00E+00	0.00E+00	-6.84E-03
POCP	[kg NMVOC-Eq.]	2.98E-02	0.00E+00	6.08E-05	0.00E+00	0.00E+00	-3.16E-03
ADPE	[kg Sb-Eq.]	5.44E-05	0.00E+00	2.04E-09	0.00E+00	0.00E+00	-5.14E-06
ADPF	[MJ]	2.04E+02	0.00E+00	2.66E-01	0.00E+00	0.00E+00	-1.90E+01
WDP	[m ³ world-Eq deprived]	7.60E+00	0.00E+00	2.27E-04	0.00E+00	0.00E+00	-3.83E-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 SYNOFLEXflange adapter DN100-80 (6.8 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.83E+02	0.00E+00	1.84E-02	0.00E+00	0.00E+00	1.19E+00
PERM	[MJ]	9.68E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.84E+02	0.00E+00	1.84E-02	0.00E+00	0.00E+00	1.19E+00
PENRE	[MJ]	1.96E+02	0.00E+00	2.67E-01	8.09E+00	0.00E+00	-1.90E+01
PENRM	[MJ]	8.09E+00	0.00E+00	0.00E+00	-8.09E+00	0.00E+00	0.00E+00
PENRT	[MJ]	2.04E+02	0.00E+00	2.67E-01	0.00E+00	0.00E+00	-1.90E+01
SM	[kg]	6.23E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.19E+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]	2.53E-01	0.00E+00	2.13E-05	0.00E+00	0.00E+00	-8.66E-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 SYNOFLEXflange adapter DN100-80 (6.8 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.78E-07	0.00E+00	1.41E-12	0.00E+00	0.00E+00	-1.46E-10
NHWD	[kg]	3.32E+00	0.00E+00	4.35E-05	0.00E+00	0.00E+00	2.87E-01
RWD	[kg]	7.79E-03	0.00E+00	4.96E-07	0.00E+00	0.00E+00	2.36E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	5.92E+00	0.00E+00	0.00E+00	6.41E+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	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
SYNOFLEXflange adapter DN100-80 (6.8 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 SYNOFLEXflange adapter DN100-125 (131-160)

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 SYNOFLEXflange adapter DN100-125 (131-160) (13.5 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	3.11E+01	0.00E+00	4.10E-02	0.00E+00	0.00E+00	-4.73E+00
GWP-fossil	[kg CO ₂ -Eq.]	3.04E+01	0.00E+00	4.07E-02	0.00E+00	0.00E+00	-4.73E+00
GWP-biogenic	[kg CO ₂ -Eq.]	6.28E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.42E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.43E-02	0.00E+00	2.74E-04	0.00E+00	0.00E+00	-9.77E-05
ODP	[kg CFC11-Eq.]	2.31E-10	0.00E+00	3.99E-15	0.00E+00	0.00E+00	-1.04E-14
AP	[mol H ⁺ -Eq.]	8.46E-02	0.00E+00	1.36E-04	0.00E+00	0.00E+00	-1.02E-02
EP-freshwater	[kg P-Eq.]	2.71E-04	0.00E+00	1.45E-07	0.00E+00	0.00E+00	-8.59E-07
EP-marine	[kg N-Eq.]	1.95E-02	0.00E+00	6.21E-05	0.00E+00	0.00E+00	-1.79E-03
EP-terrestrial	[mol N-Eq.]	2.03E-01	0.00E+00	6.96E-04	0.00E+00	0.00E+00	-1.57E-02
POCP	[kg NMVOC-Eq.]	5.75E-02	0.00E+00	1.22E-04	0.00E+00	0.00E+00	-7.26E-03
ADPE	[kg Sb-Eq.]	1.19E-04	0.00E+00	4.10E-09	0.00E+00	0.00E+00	-1.18E-05
ADPF	[MJ]	4.05E+02	0.00E+00	5.34E-01	0.00E+00	0.00E+00	-4.35E+01
WDP	[m ³ world-Eq deprived]	2.02E+01	0.00E+00	4.55E-04	0.00E+00	0.00E+00	-8.79E-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 SYNOFLEXflange adapter DN100-125 (131-160) (13.5 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	3.45E+02	0.00E+00	3.70E-02	0.00E+00	0.00E+00	2.74E+00
PERM	[MJ]	1.27E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	3.46E+02	0.00E+00	3.70E-02	0.00E+00	0.00E+00	2.74E+00
PENRE	[MJ]	3.86E+02	0.00E+00	5.36E-01	1.97E+01	0.00E+00	-4.35E+01
PENRM	[MJ]	1.97E+01	0.00E+00	0.00E+00	-1.97E+01	0.00E+00	0.00E+00
PENRT	[MJ]	4.06E+02	0.00E+00	5.36E-01	0.00E+00	0.00E+00	-4.35E+01
SM	[kg]	1.16E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.73E+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]	6.14E-01	0.00E+00	4.27E-05	0.00E+00	0.00E+00	-1.99E-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 SYNOFLEXflange adapter DN100-125 (131-160) (13.5 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.46E-07	0.00E+00	2.83E-12	0.00E+00	0.00E+00	-3.36E-10
NHWD	[kg]	6.31E+00	0.00E+00	8.73E-05	0.00E+00	0.00E+00	6.59E-01
RWD	[kg]	1.47E-02	0.00E+00	9.94E-07	0.00E+00	0.00E+00	5.41E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.12E+01	0.00E+00	0.00E+00	1.26E+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
SYNOFLEXflange adapter DN100-125 (131-160) (13.5 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 SYNOFLEXflange adapter DN125

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 SYNOFLEXflange adapter DN125 (14.1 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	3.23E+01	0.00E+00	4.27E-02	0.00E+00	0.00E+00	-4.93E+00
GWP-fossil	[kg CO ₂ -Eq.]	3.16E+01	0.00E+00	4.24E-02	0.00E+00	0.00E+00	-4.93E+00
GWP-biogenic	[kg CO ₂ -Eq.]	6.56E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.52E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.50E-02	0.00E+00	2.85E-04	0.00E+00	0.00E+00	-1.02E-04
ODP	[kg CFC11-Eq.]	2.41E-10	0.00E+00	4.15E-15	0.00E+00	0.00E+00	-1.08E-14
AP	[mol H ⁺ -Eq.]	8.71E-02	0.00E+00	1.41E-04	0.00E+00	0.00E+00	-1.06E-02
EP-freshwater	[kg P-Eq.]	2.78E-04	0.00E+00	1.51E-07	0.00E+00	0.00E+00	-8.94E-07
EP-marine	[kg N-Eq.]	2.02E-02	0.00E+00	6.46E-05	0.00E+00	0.00E+00	-1.86E-03
EP-terrestrial	[mol N-Eq.]	2.11E-01	0.00E+00	7.24E-04	0.00E+00	0.00E+00	-1.63E-02
POCP	[kg NMVOC-Eq.]	5.95E-02	0.00E+00	1.27E-04	0.00E+00	0.00E+00	-7.56E-03
ADPE	[kg Sb-Eq.]	1.19E-04	0.00E+00	4.26E-09	0.00E+00	0.00E+00	-1.23E-05
ADPF	[MJ]	4.19E+02	0.00E+00	5.55E-01	0.00E+00	0.00E+00	-4.53E+01
WDP	[m ³ world-Eq deprived]	2.05E+01	0.00E+00	4.73E-04	0.00E+00	0.00E+00	-9.16E-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 SYNOFLEXflange adapter DN125 (14.1 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	3.60E+02	0.00E+00	3.85E-02	0.00E+00	0.00E+00	2.85E+00
PERM	[MJ]	1.39E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	3.62E+02	0.00E+00	3.85E-02	0.00E+00	0.00E+00	2.85E+00
PENRE	[MJ]	4.00E+02	0.00E+00	5.57E-01	1.99E+01	0.00E+00	-4.53E+01
PENRM	[MJ]	1.99E+01	0.00E+00	0.00E+00	-1.99E+01	0.00E+00	0.00E+00
PENRT	[MJ]	4.20E+02	0.00E+00	5.57E-01	0.00E+00	0.00E+00	-4.53E+01
SM	[kg]	1.21E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.85E+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]	6.26E-01	0.00E+00	4.45E-05	0.00E+00	0.00E+00	-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 SYNOFLEXflange adapter DN125 (14.1 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.68E-07	0.00E+00	2.95E-12	0.00E+00	0.00E+00	-3.50E-10
NHWD	[kg]	6.58E+00	0.00E+00	9.08E-05	0.00E+00	0.00E+00	6.86E-01
RWD	[kg]	1.53E-02	0.00E+00	1.03E-06	0.00E+00	0.00E+00	5.63E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.17E+01	0.00E+00	0.00E+00	1.31E+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
SYNOFLEXflange adapter DN125 (14.1 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 SYNOFLEXflange adapter DN125-100

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 SYNOFLEXflange adapter DN125-100 (11.0 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	2.64E+01	0.00E+00	3.34E-02	0.00E+00	0.00E+00	-3.47E+00
GWP-fossil	[kg CO ₂ -Eq.]	2.59E+01	0.00E+00	3.31E-02	0.00E+00	0.00E+00	-3.47E+00
GWP-biogenic	[kg CO ₂ -Eq.]	5.23E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.77E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.26E-02	0.00E+00	2.23E-04	0.00E+00	0.00E+00	-7.16E-05
ODP	[kg CFC11-Eq.]	1.96E-10	0.00E+00	3.25E-15	0.00E+00	0.00E+00	-7.59E-15
AP	[mol H ⁺ -Eq.]	7.31E-02	0.00E+00	1.10E-04	0.00E+00	0.00E+00	-7.46E-03
EP-freshwater	[kg P-Eq.]	2.30E-04	0.00E+00	1.18E-07	0.00E+00	0.00E+00	-6.30E-07
EP-marine	[kg N-Eq.]	1.67E-02	0.00E+00	5.05E-05	0.00E+00	0.00E+00	-1.31E-03
EP-terrestrial	[mol N-Eq.]	1.74E-01	0.00E+00	5.66E-04	0.00E+00	0.00E+00	-1.15E-02
POCP	[kg NMVOC-Eq.]	4.96E-02	0.00E+00	9.91E-05	0.00E+00	0.00E+00	-5.32E-03
ADPE	[kg Sb-Eq.]	1.12E-04	0.00E+00	3.33E-09	0.00E+00	0.00E+00	-8.65E-06
ADPF	[MJ]	3.47E+02	0.00E+00	4.34E-01	0.00E+00	0.00E+00	-3.19E+01
WDP	[m ³ world-Eq deprived]	1.68E+01	0.00E+00	3.70E-04	0.00E+00	0.00E+00	-6.45E-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 SYNOFLEXflange adapter DN125-100 (11.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.89E+02	0.00E+00	3.01E-02	0.00E+00	0.00E+00	2.01E+00
PERM	[MJ]	1.39E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.91E+02	0.00E+00	3.01E-02	0.00E+00	0.00E+00	2.01E+00
PENRE	[MJ]	3.30E+02	0.00E+00	4.36E-01	1.75E+01	0.00E+00	-3.19E+01
PENRM	[MJ]	1.75E+01	0.00E+00	0.00E+00	-1.75E+01	0.00E+00	0.00E+00
PENRT	[MJ]	3.48E+02	0.00E+00	4.36E-01	0.00E+00	0.00E+00	-3.19E+01
SM	[kg]	9.75E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.00E+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]	5.11E-01	0.00E+00	3.47E-05	0.00E+00	0.00E+00	-1.46E-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 SYNOFLEXflange adapter DN125-100 (11.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.60E-07	0.00E+00	2.30E-12	0.00E+00	0.00E+00	-2.46E-10
NHWD	[kg]	5.25E+00	0.00E+00	7.10E-05	0.00E+00	0.00E+00	4.83E-01
RWD	[kg]	1.23E-02	0.00E+00	8.09E-07	0.00E+00	0.00E+00	3.97E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	9.23E+00	0.00E+00	0.00E+00	1.02E+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	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
SYNOFLEXflange adapter DN125-100 (11.0 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 SYNOFLEXflange adapter DN125-150

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 SYNOFLEXflange adapter DN125-150 (15.8 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	3.64E+01	0.00E+00	4.79E-02	0.00E+00	0.00E+00	-5.56E+00
GWP-fossil	[kg CO ₂ -Eq.]	3.57E+01	0.00E+00	4.76E-02	0.00E+00	0.00E+00	-5.56E+00
GWP-biogenic	[kg CO ₂ -Eq.]	7.29E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.84E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.65E-02	0.00E+00	3.20E-04	0.00E+00	0.00E+00	-1.15E-04
ODP	[kg CFC11-Eq.]	2.68E-10	0.00E+00	4.66E-15	0.00E+00	0.00E+00	-1.22E-14
AP	[mol H ⁺ -Eq.]	1.01E-01	0.00E+00	1.59E-04	0.00E+00	0.00E+00	-1.19E-02
EP-freshwater	[kg P-Eq.]	3.15E-04	0.00E+00	1.70E-07	0.00E+00	0.00E+00	-1.01E-06
EP-marine	[kg N-Eq.]	2.29E-02	0.00E+00	7.25E-05	0.00E+00	0.00E+00	-2.10E-03
EP-terrestrial	[mol N-Eq.]	2.39E-01	0.00E+00	8.12E-04	0.00E+00	0.00E+00	-1.84E-02
POCP	[kg NMVOC-Eq.]	6.75E-02	0.00E+00	1.42E-04	0.00E+00	0.00E+00	-8.52E-03
ADPE	[kg Sb-Eq.]	1.55E-04	0.00E+00	4.78E-09	0.00E+00	0.00E+00	-1.39E-05
ADPF	[MJ]	4.76E+02	0.00E+00	6.23E-01	0.00E+00	0.00E+00	-5.11E+01
WDP	[m ³ world-Eq deprived]	2.37E+01	0.00E+00	5.31E-04	0.00E+00	0.00E+00	-1.03E+00

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 SYNOFLEXflange adapter DN125-150 (15.8 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	4.00E+02	0.00E+00	4.32E-02	0.00E+00	0.00E+00	3.22E+00
PERM	[MJ]	1.39E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	4.01E+02	0.00E+00	4.32E-02	0.00E+00	0.00E+00	3.22E+00
PENRE	[MJ]	4.53E+02	0.00E+00	6.25E-01	2.35E+01	0.00E+00	-5.11E+01
PENRM	[MJ]	2.35E+01	0.00E+00	0.00E+00	-2.35E+01	0.00E+00	0.00E+00
PENRT	[MJ]	4.77E+02	0.00E+00	6.25E-01	0.00E+00	0.00E+00	-5.11E+01
SM	[kg]	1.34E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.21E+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]	7.17E-01	0.00E+00	4.99E-05	0.00E+00	0.00E+00	-2.33E-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 SYNOFLEXflange adapter DN125-150 (15.8 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.73E-07	0.00E+00	3.31E-12	0.00E+00	0.00E+00	-3.94E-10
NHWD	[kg]	7.36E+00	0.00E+00	1.02E-04	0.00E+00	0.00E+00	7.74E-01
RWD	[kg]	1.71E-02	0.00E+00	1.16E-06	0.00E+00	0.00E+00	6.35E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.30E+01	0.00E+00	0.00E+00	1.47E+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	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
SYNOFLEXflange adapter DN125-150 (15.8 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 SYNOFLEXflange adapter DN150

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 SYNOFLEXflange adapter DN150 (15.8 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	3.74E+01	0.00E+00	4.79E-02	0.00E+00	0.00E+00	-5.09E+00
GWP-fossil	[kg CO ₂ -Eq.]	3.66E+01	0.00E+00	4.76E-02	0.00E+00	0.00E+00	-5.09E+00
GWP-biogenic	[kg CO ₂ -Eq.]	7.47E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.60E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.68E-02	0.00E+00	3.20E-04	0.00E+00	0.00E+00	-1.05E-04
ODP	[kg CFC11-Eq.]	2.75E-10	0.00E+00	4.66E-15	0.00E+00	0.00E+00	-1.11E-14
AP	[mol H ⁺ -Eq.]	1.03E-01	0.00E+00	1.59E-04	0.00E+00	0.00E+00	-1.09E-02
EP-freshwater	[kg P-Eq.]	3.20E-04	0.00E+00	1.70E-07	0.00E+00	0.00E+00	-9.24E-07
EP-marine	[kg N-Eq.]	2.33E-02	0.00E+00	7.25E-05	0.00E+00	0.00E+00	-1.92E-03
EP-terrestrial	[mol N-Eq.]	2.44E-01	0.00E+00	8.12E-04	0.00E+00	0.00E+00	-1.69E-02
POCP	[kg NMVOC-Eq.]	6.89E-02	0.00E+00	1.42E-04	0.00E+00	0.00E+00	-7.81E-03
ADPE	[kg Sb-Eq.]	1.56E-04	0.00E+00	4.78E-09	0.00E+00	0.00E+00	-1.27E-05
ADPF	[MJ]	4.91E+02	0.00E+00	6.23E-01	0.00E+00	0.00E+00	-4.68E+01
WDP	[m ³ world-Eq deprived]	2.38E+01	0.00E+00	5.31E-04	0.00E+00	0.00E+00	-9.46E-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 SYNOFLEXflange adapter DN150 (15.8 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	4.06E+02	0.00E+00	4.32E-02	0.00E+00	0.00E+00	2.95E+00
PERM	[MJ]	1.39E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	4.07E+02	0.00E+00	4.32E-02	0.00E+00	0.00E+00	2.95E+00
PENRE	[MJ]	4.67E+02	0.00E+00	6.25E-01	2.52E+01	0.00E+00	-4.68E+01
PENRM	[MJ]	2.52E+01	0.00E+00	0.00E+00	-2.52E+01	0.00E+00	0.00E+00
PENRT	[MJ]	4.92E+02	0.00E+00	6.25E-01	0.00E+00	0.00E+00	-4.68E+01
SM	[kg]	1.36E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.94E+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]	7.23E-01	0.00E+00	4.99E-05	0.00E+00	0.00E+00	-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 SYNOFLEXflange adapter DN150 (15.8 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.75E-07	0.00E+00	3.31E-12	0.00E+00	0.00E+00	-3.61E-10
NHWD	[kg]	7.49E+00	0.00E+00	1.02E-04	0.00E+00	0.00E+00	7.09E-01
RWD	[kg]	1.75E-02	0.00E+00	1.16E-06	0.00E+00	0.00E+00	5.82E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.32E+01	0.00E+00	0.00E+00	1.46E+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	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 SYNOFLEXflange adapter DN150 (15.8 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 SYNOFLEXflange adapter DN150-125

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 SYNOFLEXflange adapter DN150-125 (13.1 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	3.14E+01	0.00E+00	3.97E-02	0.00E+00	0.00E+00	-3.90E+00
GWP-fossil	[kg CO ₂ -Eq.]	3.07E+01	0.00E+00	3.95E-02	0.00E+00	0.00E+00	-3.90E+00
GWP-biogenic	[kg CO ₂ -Eq.]	6.27E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.99E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.45E-02	0.00E+00	2.65E-04	0.00E+00	0.00E+00	-8.04E-05
ODP	[kg CFC11-Eq.]	2.34E-10	0.00E+00	3.86E-15	0.00E+00	0.00E+00	-8.52E-15
AP	[mol H ⁺ -Eq.]	8.51E-02	0.00E+00	1.32E-04	0.00E+00	0.00E+00	-8.37E-03
EP-freshwater	[kg P-Eq.]	2.74E-04	0.00E+00	1.41E-07	0.00E+00	0.00E+00	-7.07E-07
EP-marine	[kg N-Eq.]	1.96E-02	0.00E+00	6.01E-05	0.00E+00	0.00E+00	-1.47E-03
EP-terrestrial	[mol N-Eq.]	2.05E-01	0.00E+00	6.73E-04	0.00E+00	0.00E+00	-1.29E-02
POCP	[kg NMVOC-Eq.]	5.81E-02	0.00E+00	1.18E-04	0.00E+00	0.00E+00	-5.98E-03
ADPE	[kg Sb-Eq.]	1.19E-04	0.00E+00	3.97E-09	0.00E+00	0.00E+00	-9.71E-06
ADPF	[MJ]	4.11E+02	0.00E+00	5.17E-01	0.00E+00	0.00E+00	-3.58E+01
WDP	[m ³ world-Eq deprived]	2.02E+01	0.00E+00	4.40E-04	0.00E+00	0.00E+00	-7.24E-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 SYNOFLEXflange adapter DN150-125 (13.1 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	3.45E+02	0.00E+00	3.58E-02	0.00E+00	0.00E+00	2.26E+00
PERM	[MJ]	1.39E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	3.46E+02	0.00E+00	3.58E-02	0.00E+00	0.00E+00	2.26E+00
PENRE	[MJ]	3.92E+02	0.00E+00	5.19E-01	1.97E+01	0.00E+00	-3.58E+01
PENRM	[MJ]	1.97E+01	0.00E+00	0.00E+00	-1.97E+01	0.00E+00	0.00E+00
PENRT	[MJ]	4.11E+02	0.00E+00	5.19E-01	0.00E+00	0.00E+00	-3.58E+01
SM	[kg]	1.17E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.25E+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]	6.13E-01	0.00E+00	4.14E-05	0.00E+00	0.00E+00	-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 SYNOFLEXflange adapter DN150-125 (13.1 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.67E-07	0.00E+00	2.74E-12	0.00E+00	0.00E+00	-2.76E-10
NHWD	[kg]	6.33E+00	0.00E+00	8.45E-05	0.00E+00	0.00E+00	5.43E-01
RWD	[kg]	1.48E-02	0.00E+00	9.63E-07	0.00E+00	0.00E+00	4.45E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.12E+01	0.00E+00	0.00E+00	1.22E+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	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
SYNOFLEXflange adapter DN150-125 (13.1 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 SYNOFLEXflange adapter DN150-200

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 SYNOFLEXflange adapter DN150-200 (25.9 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	6.08E+01	0.00E+00	7.85E-02	0.00E+00	0.00E+00	-9.07E+00
GWP-fossil	[kg CO ₂ -Eq.]	5.96E+01	0.00E+00	7.79E-02	0.00E+00	0.00E+00	-9.08E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.18E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.64E-03
GWP-luluc	[kg CO ₂ -Eq.]	2.50E-02	0.00E+00	5.24E-04	0.00E+00	0.00E+00	-1.87E-04
ODP	[kg CFC11-Eq.]	4.19E-10	0.00E+00	7.63E-15	0.00E+00	0.00E+00	-1.98E-14
AP	[mol H ⁺ -Eq.]	1.73E-01	0.00E+00	2.60E-04	0.00E+00	0.00E+00	-1.95E-02
EP-freshwater	[kg P-Eq.]	5.91E-04	0.00E+00	2.78E-07	0.00E+00	0.00E+00	-1.65E-06
EP-marine	[kg N-Eq.]	3.91E-02	0.00E+00	1.19E-04	0.00E+00	0.00E+00	-3.43E-03
EP-terrestrial	[mol N-Eq.]	4.12E-01	0.00E+00	1.33E-03	0.00E+00	0.00E+00	-3.01E-02
POCP	[kg NMVOC-Eq.]	1.17E-01	0.00E+00	2.33E-04	0.00E+00	0.00E+00	-1.39E-02
ADPE	[kg Sb-Eq.]	2.54E-04	0.00E+00	7.84E-09	0.00E+00	0.00E+00	-2.26E-05
ADPF	[MJ]	8.06E+02	0.00E+00	1.02E+00	0.00E+00	0.00E+00	-8.34E+01
WDP	[m ³ world-Eq deprived]	4.95E+01	0.00E+00	8.70E-04	0.00E+00	0.00E+00	-1.69E+00

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 SYNOFLEXflange adapter DN150-200 (25.9 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	6.27E+02	0.00E+00	7.07E-02	0.00E+00	0.00E+00	5.25E+00
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	6.84E+02	0.00E+00	7.07E-02	0.00E+00	0.00E+00	5.25E+00
PENRE	[MJ]	7.64E+02	0.00E+00	1.02E+00	4.29E+01	0.00E+00	-8.34E+01
PENRM	[MJ]	4.29E+01	0.00E+00	0.00E+00	-4.29E+01	0.00E+00	0.00E+00
PENRT	[MJ]	8.07E+02	0.00E+00	1.02E+00	0.00E+00	0.00E+00	-8.34E+01
SM	[kg]	2.06E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.24E+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]	1.41E+00	0.00E+00	8.17E-05	0.00E+00	0.00E+00	-3.81E-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 SYNOFLEXflange adapter DN150-200 (25.9 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	8.90E-08	0.00E+00	5.42E-12	0.00E+00	0.00E+00	-6.44E-10
NHWD	[kg]	1.18E+01	0.00E+00	1.67E-04	0.00E+00	0.00E+00	1.26E+00
RWD	[kg]	2.82E-02	0.00E+00	1.90E-06	0.00E+00	0.00E+00	1.04E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.08E+01	0.00E+00	0.00E+00	2.37E+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
SYNOFLEXflange adapter DN150-200 (25.9 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 SYNOFLEXflange adapter DN200

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 SYNOFLEXflange adapter DN200 (24.8 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	5.92E+01	0.00E+00	7.51E-02	0.00E+00	0.00E+00	-8.23E+00
GWP-fossil	[kg CO ₂ -Eq.]	5.81E+01	0.00E+00	7.46E-02	0.00E+00	0.00E+00	-8.23E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.15E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.20E-03
GWP-luluc	[kg CO ₂ -Eq.]	2.43E-02	0.00E+00	5.02E-04	0.00E+00	0.00E+00	-1.70E-04
ODP	[kg CFC11-Eq.]	4.07E-10	0.00E+00	7.31E-15	0.00E+00	0.00E+00	-1.80E-14
AP	[mol H ⁺ -Eq.]	1.68E-01	0.00E+00	2.49E-04	0.00E+00	0.00E+00	-1.77E-02
EP-freshwater	[kg P-Eq.]	5.86E-04	0.00E+00	2.66E-07	0.00E+00	0.00E+00	-1.49E-06
EP-marine	[kg N-Eq.]	3.81E-02	0.00E+00	1.14E-04	0.00E+00	0.00E+00	-3.11E-03
EP-terrestrial	[mol N-Eq.]	4.01E-01	0.00E+00	1.27E-03	0.00E+00	0.00E+00	-2.73E-02
POCP	[kg NMVOC-Eq.]	1.14E-01	0.00E+00	2.23E-04	0.00E+00	0.00E+00	-1.26E-02
ADPE	[kg Sb-Eq.]	2.40E-04	0.00E+00	7.50E-09	0.00E+00	0.00E+00	-2.05E-05
ADPF	[MJ]	7.89E+02	0.00E+00	9.77E-01	0.00E+00	0.00E+00	-7.56E+01
WDP	[m ³ world-Eq deprived]	4.91E+01	0.00E+00	8.33E-04	0.00E+00	0.00E+00	-1.53E+00

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 SYNOFLEXflange adapter DN200 (24.8 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	6.06E+02	0.00E+00	6.77E-02	0.00E+00	0.00E+00	4.76E+00
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	6.63E+02	0.00E+00	6.77E-02	0.00E+00	0.00E+00	4.76E+00
PENRE	[MJ]	7.47E+02	0.00E+00	9.81E-01	4.32E+01	0.00E+00	-7.56E+01
PENRM	[MJ]	4.32E+01	0.00E+00	0.00E+00	-4.32E+01	0.00E+00	0.00E+00
PENRT	[MJ]	7.90E+02	0.00E+00	9.81E-01	0.00E+00	0.00E+00	-7.56E+01
SM	[kg]	2.00E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.75E+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]	1.39E+00	0.00E+00	7.82E-05	0.00E+00	0.00E+00	-3.45E-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 SYNOFLEXflange adapter DN200 (24.8 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	8.71E-08	0.00E+00	5.19E-12	0.00E+00	0.00E+00	-5.84E-10
NHWD	[kg]	1.14E+01	0.00E+00	1.60E-04	0.00E+00	0.00E+00	1.15E+00
RWD	[kg]	2.73E-02	0.00E+00	1.82E-06	0.00E+00	0.00E+00	9.40E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.01E+01	0.00E+00	0.00E+00	2.26E+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
SYNOFLEXflange adapter DN200 (24.8 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 SYNOFLEXflange adapter DN200-150

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 SYNOFLEXflange adapter DN200-150 (19.6 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	4.47E+01	0.00E+00	5.94E-02	0.00E+00	0.00E+00	-6.83E+00
GWP-fossil	[kg CO ₂ -Eq.]	4.38E+01	0.00E+00	5.90E-02	0.00E+00	0.00E+00	-6.84E+00
GWP-biogenic	[kg CO ₂ -Eq.]	9.15E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.49E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.95E-02	0.00E+00	3.96E-04	0.00E+00	0.00E+00	-1.41E-04
ODP	[kg CFC11-Eq.]	3.28E-10	0.00E+00	5.78E-15	0.00E+00	0.00E+00	-1.49E-14
AP	[mol H ⁺ -Eq.]	1.22E-01	0.00E+00	1.97E-04	0.00E+00	0.00E+00	-1.47E-02
EP-freshwater	[kg P-Eq.]	3.35E-04	0.00E+00	2.10E-07	0.00E+00	0.00E+00	-1.24E-06
EP-marine	[kg N-Eq.]	2.87E-02	0.00E+00	8.99E-05	0.00E+00	0.00E+00	-2.58E-03
EP-terrestrial	[mol N-Eq.]	3.02E-01	0.00E+00	1.01E-03	0.00E+00	0.00E+00	-2.27E-02
POCP	[kg NMVOC-Eq.]	8.58E-02	0.00E+00	1.76E-04	0.00E+00	0.00E+00	-1.05E-02
ADPE	[kg Sb-Eq.]	1.59E-04	0.00E+00	5.93E-09	0.00E+00	0.00E+00	-1.70E-05
ADPF	[MJ]	5.82E+02	0.00E+00	7.72E-01	0.00E+00	0.00E+00	-6.28E+01
WDP	[m ³ world-Eq deprived]	2.54E+01	0.00E+00	6.58E-04	0.00E+00	0.00E+00	-1.27E+00

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 SYNOFLEXflange adapter DN200-150 (19.6 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	4.89E+02	0.00E+00	5.35E-02	0.00E+00	0.00E+00	3.96E+00
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	5.46E+02	0.00E+00	5.35E-02	0.00E+00	0.00E+00	3.96E+00
PENRE	[MJ]	5.55E+02	0.00E+00	7.75E-01	2.78E+01	0.00E+00	-6.28E+01
PENRM	[MJ]	2.78E+01	0.00E+00	0.00E+00	-2.78E+01	0.00E+00	0.00E+00
PENRT	[MJ]	5.83E+02	0.00E+00	7.75E-01	0.00E+00	0.00E+00	-6.28E+01
SM	[kg]	1.61E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.95E+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]	7.92E-01	0.00E+00	6.18E-05	0.00E+00	0.00E+00	-2.87E-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 SYNOFLEXflange adapter DN200-150 (19.6 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	7.14E-08	0.00E+00	4.10E-12	0.00E+00	0.00E+00	-4.85E-10
NHWD	[kg]	9.17E+00	0.00E+00	1.26E-04	0.00E+00	0.00E+00	9.52E-01
RWD	[kg]	2.22E-02	0.00E+00	1.44E-06	0.00E+00	0.00E+00	7.81E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.64E+01	0.00E+00	0.00E+00	1.83E+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 SYNOFLEXflange adapter DN200-150 (19.6 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 SYNOFLEXflange adapter DN200-225

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 SYNOFLEXflange adapter DN200-225 (31.7 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	7.77E+01	0.00E+00	9.60E-02	0.00E+00	0.00E+00	-9.98E+00
GWP-fossil	[kg CO ₂ -Eq.]	7.62E+01	0.00E+00	9.54E-02	0.00E+00	0.00E+00	-9.98E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.47E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.10E-03
GWP-luluc	[kg CO ₂ -Eq.]	3.15E-02	0.00E+00	6.41E-04	0.00E+00	0.00E+00	-2.06E-04
ODP	[kg CFC11-Eq.]	5.34E-10	0.00E+00	9.34E-15	0.00E+00	0.00E+00	-2.18E-14
AP	[mol H ⁺ -Eq.]	2.31E-01	0.00E+00	3.18E-04	0.00E+00	0.00E+00	-2.14E-02
EP-freshwater	[kg P-Eq.]	7.02E-04	0.00E+00	3.40E-07	0.00E+00	0.00E+00	-1.81E-06
EP-marine	[kg N-Eq.]	4.95E-02	0.00E+00	1.45E-04	0.00E+00	0.00E+00	-3.77E-03
EP-terrestrial	[mol N-Eq.]	5.22E-01	0.00E+00	1.63E-03	0.00E+00	0.00E+00	-3.31E-02
POCP	[kg NMVOC-Eq.]	1.48E-01	0.00E+00	2.85E-04	0.00E+00	0.00E+00	-1.53E-02
ADPE	[kg Sb-Eq.]	4.26E-04	0.00E+00	9.59E-09	0.00E+00	0.00E+00	-2.49E-05
ADPF	[MJ]	1.03E+03	0.00E+00	1.25E+00	0.00E+00	0.00E+00	-9.17E+01
WDP	[m³ world-Eq deprived]	5.81E+01	0.00E+00	1.06E-03	0.00E+00	0.00E+00	-1.85E+00

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 SYNOFLEXflange adapter DN200-225 (31.7 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	7.82E+02	0.00E+00	8.66E-02	0.00E+00	0.00E+00	5.78E+00
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	8.38E+02	0.00E+00	8.66E-02	0.00E+00	0.00E+00	5.78E+00
PENRE	[MJ]	9.77E+02	0.00E+00	1.25E+00	5.26E+01	0.00E+00	-9.17E+01
PENRM	[MJ]	5.26E+01	0.00E+00	0.00E+00	-5.26E+01	0.00E+00	0.00E+00
PENRT	[MJ]	1.03E+03	0.00E+00	1.25E+00	0.00E+00	0.00E+00	-9.17E+01
SM	[kg]	2.60E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.76E+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	[m³]	1.67E+00	0.00E+00	1.00E-04	0.00E+00	0.00E+00	-4.19E-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 SYNOFLEXflange adapter DN200-225 (31.7 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.11E-07	0.00E+00	6.64E-12	0.00E+00	0.00E+00	-7.08E-10
NHWD	[kg]	1.50E+01	0.00E+00	2.04E-04	0.00E+00	0.00E+00	1.39E+00
RWD	[kg]	3.57E-02	0.00E+00	2.33E-06	0.00E+00	0.00E+00	1.14E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.57E+01	0.00E+00	0.00E+00	2.91E+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
SYNOFLEXflange adapter DN200-225 (31.7 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 SYNOFLEXflange adapter DN250

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 SYNOFLEXflange adapter DN250 (40.0 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.00E+02	0.00E+00	1.21E-01	0.00E+00	0.00E+00	-9.34E+00
GWP-fossil	[kg CO ₂ -Eq.]	9.84E+01	0.00E+00	1.20E-01	0.00E+00	0.00E+00	-9.35E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.93E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.77E-03
GWP-luluc	[kg CO ₂ -Eq.]	4.06E-02	0.00E+00	8.09E-04	0.00E+00	0.00E+00	-1.93E-04
ODP	[kg CFC11-Eq.]	7.13E-10	0.00E+00	1.18E-14	0.00E+00	0.00E+00	-2.04E-14
AP	[mol H ⁺ -Eq.]	2.82E-01	0.00E+00	4.01E-04	0.00E+00	0.00E+00	-2.01E-02
EP-freshwater	[kg P-Eq.]	8.55E-04	0.00E+00	4.29E-07	0.00E+00	0.00E+00	-1.70E-06
EP-marine	[kg N-Eq.]	6.27E-02	0.00E+00	1.83E-04	0.00E+00	0.00E+00	-3.53E-03
EP-terrestrial	[mol N-Eq.]	6.60E-01	0.00E+00	2.05E-03	0.00E+00	0.00E+00	-3.10E-02
POCP	[kg NMVOC-Eq.]	1.86E-01	0.00E+00	3.60E-04	0.00E+00	0.00E+00	-1.43E-02
ADPE	[kg Sb-Eq.]	4.39E-04	0.00E+00	1.21E-08	0.00E+00	0.00E+00	-2.33E-05
ADPF	[MJ]	1.32E+03	0.00E+00	1.58E+00	0.00E+00	0.00E+00	-8.58E+01
WDP	[m ³ world-Eq deprived]	6.95E+01	0.00E+00	1.34E-03	0.00E+00	0.00E+00	-1.74E+00

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 SYNOFLEXflange adapter DN250 (40.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.04E+03	0.00E+00	1.09E-01	0.00E+00	0.00E+00	5.41E+00
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.09E+03	0.00E+00	1.09E-01	0.00E+00	0.00E+00	5.41E+00
PENRE	[MJ]	1.26E+03	0.00E+00	1.58E+00	6.08E+01	0.00E+00	-8.58E+01
PENRM	[MJ]	6.08E+01	0.00E+00	0.00E+00	-6.08E+01	0.00E+00	0.00E+00
PENRT	[MJ]	1.32E+03	0.00E+00	1.58E+00	0.00E+00	0.00E+00	-8.58E+01
SM	[kg]	3.52E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.40E+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]	2.04E+00	0.00E+00	1.26E-04	0.00E+00	0.00E+00	-3.92E-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 SYNOFLEXflange adapter DN250 (40.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.44E-07	0.00E+00	8.37E-12	0.00E+00	0.00E+00	-6.63E-10
NHWD	[kg]	2.01E+01	0.00E+00	2.58E-04	0.00E+00	0.00E+00	1.30E+00
RWD	[kg]	4.74E-02	0.00E+00	2.94E-06	0.00E+00	0.00E+00	1.07E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.53E+01	0.00E+00	0.00E+00	3.71E+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
SYNOFLEXflange adapter DN250 (40.0 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 SYNOFLEXflange adapter DN250-200

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 SYNOFLEXflange adapter DN250-200 (31.5 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	7.26E+01	0.00E+00	9.54E-02	0.00E+00	0.00E+00	-1.10E+01
GWP-fossil	[kg CO ₂ -Eq.]	7.11E+01	0.00E+00	9.48E-02	0.00E+00	0.00E+00	-1.10E+01
GWP-biogenic	[kg CO ₂ -Eq.]	1.46E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.60E-03
GWP-luluc	[kg CO ₂ -Eq.]	2.99E-02	0.00E+00	6.37E-04	0.00E+00	0.00E+00	-2.26E-04
ODP	[kg CFC11-Eq.]	5.15E-10	0.00E+00	9.29E-15	0.00E+00	0.00E+00	-2.40E-14
AP	[mol H ⁺ -Eq.]	1.98E-01	0.00E+00	3.16E-04	0.00E+00	0.00E+00	-2.36E-02
EP-freshwater	[kg P-Eq.]	6.42E-04	0.00E+00	3.38E-07	0.00E+00	0.00E+00	-1.99E-06
EP-marine	[kg N-Eq.]	4.58E-02	0.00E+00	1.44E-04	0.00E+00	0.00E+00	-4.15E-03
EP-terrestrial	[mol N-Eq.]	4.81E-01	0.00E+00	1.62E-03	0.00E+00	0.00E+00	-3.64E-02
POCP	[kg NMVOC-Eq.]	1.36E-01	0.00E+00	2.84E-04	0.00E+00	0.00E+00	-1.68E-02
ADPE	[kg Sb-Eq.]	2.61E-04	0.00E+00	9.53E-09	0.00E+00	0.00E+00	-2.74E-05
ADPF	[MJ]	9.53E+02	0.00E+00	1.24E+00	0.00E+00	0.00E+00	-1.01E+02
WDP	[m ³ world-Eq deprived]	5.19E+01	0.00E+00	1.06E-03	0.00E+00	0.00E+00	-2.04E+00

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 SYNOFLEXflange adapter DN250-200 (31.5 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	7.71E+02	0.00E+00	8.60E-02	0.00E+00	0.00E+00	6.35E+00
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	8.28E+02	0.00E+00	8.60E-02	0.00E+00	0.00E+00	6.35E+00
PENRE	[MJ]	9.05E+02	0.00E+00	1.25E+00	4.88E+01	0.00E+00	-1.01E+02
PENRM	[MJ]	4.88E+01	0.00E+00	0.00E+00	-4.88E+01	0.00E+00	0.00E+00
PENRT	[MJ]	9.54E+02	0.00E+00	1.25E+00	0.00E+00	0.00E+00	-1.01E+02
SM	[kg]	2.54E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.34E+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]	1.53E+00	0.00E+00	9.94E-05	0.00E+00	0.00E+00	-4.61E-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 SYNOFLEXflange adapter DN250-200 (31.5 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.07E-07	0.00E+00	6.59E-12	0.00E+00	0.00E+00	-7.78E-10
NHWD	[kg]	1.45E+01	0.00E+00	2.03E-04	0.00E+00	0.00E+00	1.53E+00
RWD	[kg]	3.44E-02	0.00E+00	2.31E-06	0.00E+00	0.00E+00	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]	2.59E+01	0.00E+00	0.00E+00	2.91E+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
SYNOFLEXflange adapter DN250-200 (31.5 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 SYNOFLEXflange adapter DN300

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 SYNOFLEXflange adapter DN300 (53.0 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.27E+02	0.00E+00	1.61E-01	0.00E+00	0.00E+00	-1.59E+01
GWP-fossil	[kg CO ₂ -Eq.]	1.25E+02	0.00E+00	1.60E-01	0.00E+00	0.00E+00	-1.59E+01
GWP-biogenic	[kg CO ₂ -Eq.]	2.51E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.10E-03
GWP-luluc	[kg CO ₂ -Eq.]	5.12E-02	0.00E+00	1.07E-03	0.00E+00	0.00E+00	-3.27E-04
ODP	[kg CFC11-Eq.]	9.07E-10	0.00E+00	1.56E-14	0.00E+00	0.00E+00	-3.47E-14
AP	[mol H ⁺ -Eq.]	3.57E-01	0.00E+00	5.32E-04	0.00E+00	0.00E+00	-3.41E-02
EP-freshwater	[kg P-Eq.]	1.03E-03	0.00E+00	5.68E-07	0.00E+00	0.00E+00	-2.88E-06
EP-marine	[kg N-Eq.]	7.87E-02	0.00E+00	2.43E-04	0.00E+00	0.00E+00	-5.99E-03
EP-terrestrial	[mol N-Eq.]	8.28E-01	0.00E+00	2.72E-03	0.00E+00	0.00E+00	-5.26E-02
POCP	[kg NMVOC-Eq.]	2.32E-01	0.00E+00	4.77E-04	0.00E+00	0.00E+00	-2.43E-02
ADPE	[kg Sb-Eq.]	5.81E-04	0.00E+00	1.60E-08	0.00E+00	0.00E+00	-3.95E-05
ADPF	[MJ]	1.66E+03	0.00E+00	2.09E+00	0.00E+00	0.00E+00	-1.46E+02
WDP	[m ³ world-Eq deprived]	8.15E+01	0.00E+00	1.78E-03	0.00E+00	0.00E+00	-2.95E+00

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 SYNOFLEXflange adapter DN300 (53.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.33E+03	0.00E+00	1.45E-01	0.00E+00	0.00E+00	9.18E+00
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.39E+03	0.00E+00	1.45E-01	0.00E+00	0.00E+00	9.18E+00
PENRE	[MJ]	1.58E+03	0.00E+00	2.10E+00	7.95E+01	0.00E+00	-1.46E+02
PENRM	[MJ]	7.95E+01	0.00E+00	0.00E+00	-7.95E+01	0.00E+00	0.00E+00
PENRT	[MJ]	1.66E+03	0.00E+00	2.10E+00	0.00E+00	0.00E+00	-1.46E+02
SM	[kg]	4.46E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.16E+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]	2.44E+00	0.00E+00	1.67E-04	0.00E+00	0.00E+00	-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 SYNOFLEXflange adapter DN300 (53.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.81E-07	0.00E+00	1.11E-11	0.00E+00	0.00E+00	-1.13E-09
NHWD	[kg]	2.56E+01	0.00E+00	3.42E-04	0.00E+00	0.00E+00	2.21E+00
RWD	[kg]	6.01E-02	0.00E+00	3.89E-06	0.00E+00	0.00E+00	1.81E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	4.48E+01	0.00E+00	0.00E+00	4.93E+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	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
SYNOFLEXflange adapter DN300 (53.0 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 SYNOFLEXflange adapter DN350

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 SYNOFLEXflange adapter DN350 (67.2 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.56E+02	0.00E+00	2.04E-01	0.00E+00	0.00E+00	-2.42E+01
GWP-fossil	[kg CO ₂ -Eq.]	1.53E+02	0.00E+00	2.02E-01	0.00E+00	0.00E+00	-2.42E+01
GWP-biogenic	[kg CO ₂ -Eq.]	3.09E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.24E-02
GWP-luluc	[kg CO ₂ -Eq.]	6.28E-02	0.00E+00	1.36E-03	0.00E+00	0.00E+00	-4.99E-04
ODP	[kg CFC11-Eq.]	1.11E-09	0.00E+00	1.98E-14	0.00E+00	0.00E+00	-5.29E-14
AP	[mol H ⁺ -Eq.]	4.54E-01	0.00E+00	6.74E-04	0.00E+00	0.00E+00	-5.20E-02
EP-freshwater	[kg P-Eq.]	1.22E-03	0.00E+00	7.21E-07	0.00E+00	0.00E+00	-4.39E-06
EP-marine	[kg N-Eq.]	9.64E-02	0.00E+00	3.08E-04	0.00E+00	0.00E+00	-9.14E-03
EP-terrestrial	[mol N-Eq.]	1.01E+00	0.00E+00	3.45E-03	0.00E+00	0.00E+00	-8.03E-02
POCP	[kg NMVOC-Eq.]	2.84E-01	0.00E+00	6.05E-04	0.00E+00	0.00E+00	-3.71E-02
ADPE	[kg Sb-Eq.]	8.52E-04	0.00E+00	2.03E-08	0.00E+00	0.00E+00	-6.03E-05
ADPF	[MJ]	2.02E+03	0.00E+00	2.65E+00	0.00E+00	0.00E+00	-2.22E+02
WDP	[m ³ world-Eq deprived]	9.53E+01	0.00E+00	2.26E-03	0.00E+00	0.00E+00	-4.50E+00

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 SYNOFLEXflange adapter DN350 (67.2 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.63E+03	0.00E+00	1.84E-01	0.00E+00	0.00E+00	1.40E+01
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.69E+03	0.00E+00	1.84E-01	0.00E+00	0.00E+00	1.40E+01
PENRE	[MJ]	1.93E+03	0.00E+00	2.66E+00	9.39E+01	0.00E+00	-2.22E+02
PENRM	[MJ]	9.39E+01	0.00E+00	0.00E+00	-9.39E+01	0.00E+00	0.00E+00
PENRT	[MJ]	2.02E+03	0.00E+00	2.66E+00	0.00E+00	0.00E+00	-2.22E+02
SM	[kg]	5.43E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.40E+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]	2.89E+00	0.00E+00	2.12E-04	0.00E+00	0.00E+00	-1.02E-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 SYNOFLEXflange adapter DN350 (67.2 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.18E-07	0.00E+00	1.41E-11	0.00E+00	0.00E+00	-1.72E-09
NHWD	[kg]	3.14E+01	0.00E+00	4.33E-04	0.00E+00	0.00E+00	3.37E+00
RWD	[kg]	7.35E-02	0.00E+00	4.93E-06	0.00E+00	0.00E+00	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]	5.42E+01	0.00E+00	0.00E+00	6.28E+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	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
SYNOFLEXflange adapter DN350 (67.2 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 SYNOFLEXflange adapter DN400

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 SYNOFLEXflange adapter DN400 (77.8 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.82E+02	0.00E+00	2.36E-01	0.00E+00	0.00E+00	-2.49E+01
GWP-fossil	[kg CO ₂ -Eq.]	1.79E+02	0.00E+00	2.34E-01	0.00E+00	0.00E+00	-2.49E+01
GWP-biogenic	[kg CO ₂ -Eq.]	3.66E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.27E-02
GWP-luluc	[kg CO ₂ -Eq.]	7.36E-02	0.00E+00	1.57E-03	0.00E+00	0.00E+00	-5.14E-04
ODP	[kg CFC11-Eq.]	1.32E-09	0.00E+00	2.29E-14	0.00E+00	0.00E+00	-5.44E-14
AP	[mol H ⁺ -Eq.]	5.11E-01	0.00E+00	7.80E-04	0.00E+00	0.00E+00	-5.35E-02
EP-freshwater	[kg P-Eq.]	1.36E-03	0.00E+00	8.34E-07	0.00E+00	0.00E+00	-4.52E-06
EP-marine	[kg N-Eq.]	1.12E-01	0.00E+00	3.57E-04	0.00E+00	0.00E+00	-9.40E-03
EP-terrestrial	[mol N-Eq.]	1.17E+00	0.00E+00	4.00E-03	0.00E+00	0.00E+00	-8.25E-02
POCP	[kg NMVOC-Eq.]	3.28E-01	0.00E+00	7.01E-04	0.00E+00	0.00E+00	-3.82E-02
ADPE	[kg Sb-Eq.]	8.67E-04	0.00E+00	2.35E-08	0.00E+00	0.00E+00	-6.20E-05
ADPF	[MJ]	2.35E+03	0.00E+00	3.07E+00	0.00E+00	0.00E+00	-2.29E+02
WDP	[m ³ world-Eq deprived]	1.05E+02	0.00E+00	2.61E-03	0.00E+00	0.00E+00	-4.62E+00

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 SYNOFLEXflange adapter DN400 (77.8 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.94E+03	0.00E+00	2.12E-01	0.00E+00	0.00E+00	1.44E+01
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.00E+03	0.00E+00	2.12E-01	0.00E+00	0.00E+00	1.44E+01
PENRE	[MJ]	2.25E+03	0.00E+00	3.08E+00	1.03E+02	0.00E+00	-2.29E+02
PENRM	[MJ]	1.03E+02	0.00E+00	0.00E+00	-1.03E+02	0.00E+00	0.00E+00
PENRT	[MJ]	2.36E+03	0.00E+00	3.08E+00	0.00E+00	0.00E+00	-2.29E+02
SM	[kg]	6.52E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.44E+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]	3.24E+00	0.00E+00	2.45E-04	0.00E+00	0.00E+00	-1.04E-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 SYNOFLEXflange adapter DN400 (77.8 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.57E-07	0.00E+00	1.63E-11	0.00E+00	0.00E+00	-1.77E-09
NHWD	[kg]	3.74E+01	0.00E+00	5.01E-04	0.00E+00	0.00E+00	3.47E+00
RWD	[kg]	8.75E-02	0.00E+00	5.71E-06	0.00E+00	0.00E+00	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]	6.56E+01	0.00E+00	0.00E+00	7.30E+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
SYNOFLEXflange adapter DN400 (77.8 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 SYNOFLEXflange adapter DN200 PN16

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 SYNOFLEXflange adapter DN200 PN16 (24.8 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	5.96E+01	0.00E+00	7.51E-02	0.00E+00	0.00E+00	-8.14E+00
GWP-fossil	[kg CO ₂ -Eq.]	5.84E+01	0.00E+00	7.46E-02	0.00E+00	0.00E+00	-8.14E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.15E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.16E-03
GWP-luluc	[kg CO ₂ -Eq.]	2.44E-02	0.00E+00	5.02E-04	0.00E+00	0.00E+00	-1.68E-04
ODP	[kg CFC11-Eq.]	4.08E-10	0.00E+00	7.31E-15	0.00E+00	0.00E+00	-1.78E-14
AP	[mol H ⁺ -Eq.]	1.71E-01	0.00E+00	2.49E-04	0.00E+00	0.00E+00	-1.75E-02
EP-freshwater	[kg P-Eq.]	5.86E-04	0.00E+00	2.66E-07	0.00E+00	0.00E+00	-1.48E-06
EP-marine	[kg N-Eq.]	3.83E-02	0.00E+00	1.14E-04	0.00E+00	0.00E+00	-3.07E-03
EP-terrestrial	[mol N-Eq.]	4.04E-01	0.00E+00	1.27E-03	0.00E+00	0.00E+00	-2.70E-02
POCP	[kg NMVOC-Eq.]	1.15E-01	0.00E+00	2.23E-04	0.00E+00	0.00E+00	-1.25E-02
ADPE	[kg Sb-Eq.]	2.53E-04	0.00E+00	7.50E-09	0.00E+00	0.00E+00	-2.03E-05
ADPF	[MJ]	7.94E+02	0.00E+00	9.77E-01	0.00E+00	0.00E+00	-7.48E+01
WDP	[m ³ world-Eq deprived]	4.92E+01	0.00E+00	8.33E-04	0.00E+00	0.00E+00	-1.51E+00

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 SYNOFLEXflange adapter DN200 PN16 (24.8 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	6.07E+02	0.00E+00	6.77E-02	0.00E+00	0.00E+00	4.71E+00
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	6.64E+02	0.00E+00	6.77E-02	0.00E+00	0.00E+00	4.71E+00
PENRE	[MJ]	7.52E+02	0.00E+00	9.81E-01	4.33E+01	0.00E+00	-7.48E+01
PENRM	[MJ]	4.33E+01	0.00E+00	0.00E+00	-4.33E+01	0.00E+00	0.00E+00
PENRT	[MJ]	7.95E+02	0.00E+00	9.81E-01	0.00E+00	0.00E+00	-7.48E+01
SM	[kg]	2.00E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.70E+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]	1.40E+00	0.00E+00	7.82E-05	0.00E+00	0.00E+00	-3.42E-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 SYNOFLEXflange adapter DN200 PN16 (24.8 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	8.75E-08	0.00E+00	5.19E-12	0.00E+00	0.00E+00	-5.77E-10
NHWD	[kg]	1.15E+01	0.00E+00	1.60E-04	0.00E+00	0.00E+00	1.13E+00
RWD	[kg]	2.75E-02	0.00E+00	1.82E-06	0.00E+00	0.00E+00	9.30E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.01E+01	0.00E+00	0.00E+00	2.26E+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
SYNOFLEXflange adapter DN200 PN16 (24.8 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 SYNOFLEXflange adapter DN250 PN16

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 SYNOFLEXflange adapter DN250 PN16 (40.2 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.00E+02	0.00E+00	1.22E-01	0.00E+00	0.00E+00	-9.68E+00
GWP-fossil	[kg CO ₂ -Eq.]	9.84E+01	0.00E+00	1.21E-01	0.00E+00	0.00E+00	-9.68E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.94E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.94E-03
GWP-luluc	[kg CO ₂ -Eq.]	4.06E-02	0.00E+00	8.13E-04	0.00E+00	0.00E+00	-2.00E-04
ODP	[kg CFC11-Eq.]	7.13E-10	0.00E+00	1.18E-14	0.00E+00	0.00E+00	-2.12E-14
AP	[mol H ⁺ -Eq.]	2.82E-01	0.00E+00	4.03E-04	0.00E+00	0.00E+00	-2.08E-02
EP-freshwater	[kg P-Eq.]	8.55E-04	0.00E+00	4.31E-07	0.00E+00	0.00E+00	-1.76E-06
EP-marine	[kg N-Eq.]	6.27E-02	0.00E+00	1.84E-04	0.00E+00	0.00E+00	-3.66E-03
EP-terrestrial	[mol N-Eq.]	6.60E-01	0.00E+00	2.07E-03	0.00E+00	0.00E+00	-3.21E-02
POCP	[kg NMVOC-Eq.]	1.86E-01	0.00E+00	3.62E-04	0.00E+00	0.00E+00	-1.48E-02
ADPE	[kg Sb-Eq.]	4.39E-04	0.00E+00	1.22E-08	0.00E+00	0.00E+00	-2.41E-05
ADPF	[MJ]	1.32E+03	0.00E+00	1.58E+00	0.00E+00	0.00E+00	-8.89E+01
WDP	[m ³ world-Eq deprived]	6.95E+01	0.00E+00	1.35E-03	0.00E+00	0.00E+00	-1.80E+00

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 SYNOFLEXflange adapter DN250 PN16 (40.2 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.04E+03	0.00E+00	1.10E-01	0.00E+00	0.00E+00	5.60E+00
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.09E+03	0.00E+00	1.10E-01	0.00E+00	0.00E+00	5.60E+00
PENRE	[MJ]	1.26E+03	0.00E+00	1.59E+00	6.11E+01	0.00E+00	-8.89E+01
PENRM	[MJ]	6.11E+01	0.00E+00	0.00E+00	-6.11E+01	0.00E+00	0.00E+00
PENRT	[MJ]	1.32E+03	0.00E+00	1.59E+00	0.00E+00	0.00E+00	-8.89E+01
SM	[kg]	3.52E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.59E+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]	2.04E+00	0.00E+00	1.27E-04	0.00E+00	0.00E+00	-4.06E-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 SYNOFLEXflange adapter DN250 PN16 (40.2 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.44E-07	0.00E+00	8.41E-12	0.00E+00	0.00E+00	-6.87E-10
NHWD	[kg]	2.01E+01	0.00E+00	2.59E-04	0.00E+00	0.00E+00	1.35E+00
RWD	[kg]	4.74E-02	0.00E+00	2.95E-06	0.00E+00	0.00E+00	1.11E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.53E+01	0.00E+00	0.00E+00	3.73E+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
SYNOFLEXflange adapter DN250 PN16 (40.2 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 SYNOFLEXflange adapter DN300 PN16

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 SYNOFLEXflange adapter DN300 PN16 (53.6 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.27E+02	0.00E+00	1.62E-01	0.00E+00	0.00E+00	-1.69E+01
GWP-fossil	[kg CO ₂ -Eq.]	1.25E+02	0.00E+00	1.61E-01	0.00E+00	0.00E+00	-1.69E+01
GWP-biogenic	[kg CO ₂ -Eq.]	2.52E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.62E-03
GWP-luluc	[kg CO ₂ -Eq.]	5.13E-02	0.00E+00	1.08E-03	0.00E+00	0.00E+00	-3.48E-04
ODP	[kg CFC11-Eq.]	9.07E-10	0.00E+00	1.58E-14	0.00E+00	0.00E+00	-3.69E-14
AP	[mol H ⁺ -Eq.]	3.57E-01	0.00E+00	5.38E-04	0.00E+00	0.00E+00	-3.63E-02
EP-freshwater	[kg P-Eq.]	1.03E-03	0.00E+00	5.75E-07	0.00E+00	0.00E+00	-3.06E-06
EP-marine	[kg N-Eq.]	7.88E-02	0.00E+00	2.46E-04	0.00E+00	0.00E+00	-6.37E-03
EP-terrestrial	[mol N-Eq.]	8.28E-01	0.00E+00	2.75E-03	0.00E+00	0.00E+00	-5.60E-02
POCP	[kg NMVOC-Eq.]	2.32E-01	0.00E+00	4.83E-04	0.00E+00	0.00E+00	-2.59E-02
ADPE	[kg Sb-Eq.]	5.81E-04	0.00E+00	1.62E-08	0.00E+00	0.00E+00	-4.21E-05
ADPF	[MJ]	1.66E+03	0.00E+00	2.11E+00	0.00E+00	0.00E+00	-1.55E+02
WDP	[m ³ world-Eq deprived]	8.15E+01	0.00E+00	1.80E-03	0.00E+00	0.00E+00	-3.14E+00

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 SYNOFLEXflange adapter DN300 PN16 (53.6 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.33E+03	0.00E+00	1.46E-01	0.00E+00	0.00E+00	9.77E+00
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.39E+03	0.00E+00	1.46E-01	0.00E+00	0.00E+00	9.77E+00
PENRE	[MJ]	1.58E+03	0.00E+00	2.12E+00	8.04E+01	0.00E+00	-1.55E+02
PENRM	[MJ]	8.04E+01	0.00E+00	0.00E+00	-8.04E+01	0.00E+00	0.00E+00
PENRT	[MJ]	1.66E+03	0.00E+00	2.12E+00	0.00E+00	0.00E+00	-1.55E+02
SM	[kg]	4.46E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.74E+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]	2.44E+00	0.00E+00	1.69E-04	0.00E+00	0.00E+00	-7.08E-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 SYNOFLEXflange adapter DN300 PN16 (53.6 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.81E-07	0.00E+00	1.12E-11	0.00E+00	0.00E+00	-1.20E-09
NHWD	[kg]	2.56E+01	0.00E+00	3.45E-04	0.00E+00	0.00E+00	2.35E+00
RWD	[kg]	6.01E-02	0.00E+00	3.94E-06	0.00E+00	0.00E+00	1.93E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	4.49E+01	0.00E+00	0.00E+00	4.98E+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
SYNOFLEXflange adapter DN300 PN16 (53.6 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 SYNOFLEXflange adapter DN600

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 SYNOFLEXflange adapter DN600 (186.7 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	4.14E+02	0.00E+00	5.66E-01	0.00E+00	0.00E+00	-6.53E+01
GWP-fossil	[kg CO ₂ -Eq.]	4.05E+02	0.00E+00	5.62E-01	0.00E+00	0.00E+00	-6.54E+01
GWP-biogenic	[kg CO ₂ -Eq.]	8.53E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.34E-02
GWP-luluc	[kg CO ₂ -Eq.]	1.65E-01	0.00E+00	3.78E-03	0.00E+00	0.00E+00	-1.35E-03
ODP	[kg CFC11-Eq.]	3.03E-09	0.00E+00	5.50E-14	0.00E+00	0.00E+00	-1.43E-13
AP	[mol H ⁺ -Eq.]	1.08E+00	0.00E+00	1.87E-03	0.00E+00	0.00E+00	-1.40E-01
EP-freshwater	[kg P-Eq.]	3.34E-03	0.00E+00	2.00E-06	0.00E+00	0.00E+00	-1.19E-05
EP-marine	[kg N-Eq.]	2.49E-01	0.00E+00	8.56E-04	0.00E+00	0.00E+00	-2.47E-02
EP-terrestrial	[mol N-Eq.]	2.61E+00	0.00E+00	9.59E-03	0.00E+00	0.00E+00	-2.17E-01
POCP	[kg NMVOC-Eq.]	7.26E-01	0.00E+00	1.68E-03	0.00E+00	0.00E+00	-1.00E-01
ADPE	[kg Sb-Eq.]	1.31E-03	0.00E+00	5.65E-08	0.00E+00	0.00E+00	-1.63E-04
ADPF	[MJ]	5.33E+03	0.00E+00	7.36E+00	0.00E+00	0.00E+00	-6.00E+02
WDP	[m ³ world-Eq deprived]	2.64E+02	0.00E+00	6.27E-03	0.00E+00	0.00E+00	-1.21E+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 SYNOFLEXflange adapter DN600 (186.7 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	4.57E+03	0.00E+00	5.10E-01	0.00E+00	0.00E+00	3.78E+01
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	4.62E+03	0.00E+00	5.10E-01	0.00E+00	0.00E+00	3.78E+01
PENRE	[MJ]	5.09E+03	0.00E+00	7.39E+00	2.50E+02	0.00E+00	-6.00E+02
PENRM	[MJ]	2.50E+02	0.00E+00	0.00E+00	-2.50E+02	0.00E+00	0.00E+00
PENRT	[MJ]	5.34E+03	0.00E+00	7.39E+00	0.00E+00	0.00E+00	-6.00E+02
SM	[kg]	1.53E+02	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]	8.03E+00	0.00E+00	5.89E-04	0.00E+00	0.00E+00	-2.74E-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 SYNOFLEXflange adapter DN600 (186.7 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	5.73E-07	0.00E+00	3.91E-11	0.00E+00	0.00E+00	-4.64E-09
NHWD	[kg]	8.74E+01	0.00E+00	1.20E-03	0.00E+00	0.00E+00	9.10E+00
RWD	[kg]	1.98E-01	0.00E+00	1.37E-05	0.00E+00	0.00E+00	7.46E-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+02	0.00E+00	0.00E+00	1.75E+02	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
SYNOFLEXflange adapter DN600 (186.7 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 SYNOFLEXflange adapter DN500

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 SYNOFLEXflange adapter DN500 (151.0 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	3.46E+02	0.00E+00	4.57E-01	0.00E+00	0.00E+00	-4.50E+01
GWP-fossil	[kg CO ₂ -Eq.]	3.39E+02	0.00E+00	4.54E-01	0.00E+00	0.00E+00	-4.50E+01
GWP-biogenic	[kg CO ₂ -Eq.]	7.01E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.30E-02
GWP-luluc	[kg CO ₂ -Eq.]	1.39E-01	0.00E+00	3.05E-03	0.00E+00	0.00E+00	-9.29E-04
ODP	[kg CFC11-Eq.]	2.55E-09	0.00E+00	4.45E-14	0.00E+00	0.00E+00	-9.84E-14
AP	[mol H ⁺ -Eq.]	9.12E-01	0.00E+00	1.51E-03	0.00E+00	0.00E+00	-9.67E-02
EP-freshwater	[kg P-Eq.]	2.76E-03	0.00E+00	1.62E-06	0.00E+00	0.00E+00	-8.17E-06
EP-marine	[kg N-Eq.]	2.09E-01	0.00E+00	6.93E-04	0.00E+00	0.00E+00	-1.70E-02
EP-terrestrial	[mol N-Eq.]	2.19E+00	0.00E+00	7.76E-03	0.00E+00	0.00E+00	-1.49E-01
POCP	[kg NMVOC-Eq.]	6.09E-01	0.00E+00	1.36E-03	0.00E+00	0.00E+00	-6.90E-02
ADPE	[kg Sb-Eq.]	1.14E-03	0.00E+00	4.57E-08	0.00E+00	0.00E+00	-1.12E-04
ADPF	[MJ]	4.45E+03	0.00E+00	5.95E+00	0.00E+00	0.00E+00	-4.14E+02
WDP	[m ³ world-Eq deprived]	2.19E+02	0.00E+00	5.07E-03	0.00E+00	0.00E+00	-8.36E+00

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 SYNOFLEXflange adapter DN500 (151.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	3.80E+03	0.00E+00	4.12E-01	0.00E+00	0.00E+00	2.61E+01
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	3.86E+03	0.00E+00	4.12E-01	0.00E+00	0.00E+00	2.61E+01
PENRE	[MJ]	4.27E+03	0.00E+00	5.97E+00	1.96E+02	0.00E+00	-4.14E+02
PENRM	[MJ]	1.96E+02	0.00E+00	0.00E+00	-1.96E+02	0.00E+00	0.00E+00
PENRT	[MJ]	4.46E+03	0.00E+00	5.97E+00	0.00E+00	0.00E+00	-4.14E+02
SM	[kg]	1.29E+02	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	[m ³]	6.65E+00	0.00E+00	4.76E-04	0.00E+00	0.00E+00	-1.89E-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 SYNOFLEXflange adapter DN500 (151.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	4.79E-07	0.00E+00	3.16E-11	0.00E+00	0.00E+00	-3.19E-09
NHWD	[kg]	7.35E+01	0.00E+00	9.73E-04	0.00E+00	0.00E+00	6.27E+00
RWD	[kg]	1.67E-01	0.00E+00	1.11E-05	0.00E+00	0.00E+00	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]	1.32E+02	0.00E+00	0.00E+00	1.42E+02	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
SYNOFLEXflange adapter DN500 (151.0 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 SYNOFLEXflange adapter DN450

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 SYNOFLEXflange adapter DN450 (123.0 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	2.99E+02	0.00E+00	3.73E-01	0.00E+00	0.00E+00	-3.01E+01
GWP-fossil	[kg CO ₂ -Eq.]	2.93E+02	0.00E+00	3.70E-01	0.00E+00	0.00E+00	-3.01E+01
GWP-biogenic	[kg CO ₂ -Eq.]	5.93E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.54E-02
GWP-luluc	[kg CO ₂ -Eq.]	1.18E-01	0.00E+00	2.49E-03	0.00E+00	0.00E+00	-6.21E-04
ODP	[kg CFC11-Eq.]	2.16E-09	0.00E+00	3.63E-14	0.00E+00	0.00E+00	-6.59E-14
AP	[mol H ⁺ -Eq.]	8.00E-01	0.00E+00	1.23E-03	0.00E+00	0.00E+00	-6.47E-02
EP-freshwater	[kg P-Eq.]	2.41E-03	0.00E+00	1.32E-06	0.00E+00	0.00E+00	-5.46E-06
EP-marine	[kg N-Eq.]	1.80E-01	0.00E+00	5.64E-04	0.00E+00	0.00E+00	-1.14E-02
EP-terrestrial	[mol N-Eq.]	1.89E+00	0.00E+00	6.32E-03	0.00E+00	0.00E+00	-9.99E-02
POCP	[kg NMVOC-Eq.]	5.28E-01	0.00E+00	1.11E-03	0.00E+00	0.00E+00	-4.62E-02
ADPE	[kg Sb-Eq.]	1.11E-03	0.00E+00	3.72E-08	0.00E+00	0.00E+00	-7.51E-05
ADPF	[MJ]	3.91E+03	0.00E+00	4.85E+00	0.00E+00	0.00E+00	-2.77E+02
WDP	[m ³ world-Eq deprived]	1.91E+02	0.00E+00	4.13E-03	0.00E+00	0.00E+00	-5.60E+00

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 SYNOFLEXflange adapter DN450 (123.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	3.17E+03	0.00E+00	3.36E-01	0.00E+00	0.00E+00	1.74E+01
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	3.22E+03	0.00E+00	3.36E-01	0.00E+00	0.00E+00	1.74E+01
PENRE	[MJ]	3.72E+03	0.00E+00	4.87E+00	1.92E+02	0.00E+00	-2.77E+02
PENRM	[MJ]	1.92E+02	0.00E+00	0.00E+00	-1.92E+02	0.00E+00	0.00E+00
PENRT	[MJ]	3.91E+03	0.00E+00	4.87E+00	0.00E+00	0.00E+00	-2.77E+02
SM	[kg]	1.08E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.74E+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+00	0.00E+00	3.88E-04	0.00E+00	0.00E+00	-1.26E-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 SYNOFLEXflange adapter DN450 (123.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	4.17E-07	0.00E+00	2.57E-11	0.00E+00	0.00E+00	-2.14E-09
NHWD	[kg]	6.16E+01	0.00E+00	7.93E-04	0.00E+00	0.00E+00	4.19E+00
RWD	[kg]	1.42E-01	0.00E+00	9.03E-06	0.00E+00	0.00E+00	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]	1.10E+02	0.00E+00	0.00E+00	1.14E+02	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
SYNOFLEXflange adapter DN450 (123.0 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 SYNOFLEXflange adapter DN400 PN10/16

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 SYNOFLEXflange adapter DN400 PN10/16 (100.0 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	2.51E+02	0.00E+00	3.03E-01	0.00E+00	0.00E+00	-2.11E+01
GWP-fossil	[kg CO ₂ -Eq.]	2.46E+02	0.00E+00	3.01E-01	0.00E+00	0.00E+00	-2.12E+01
GWP-biogenic	[kg CO ₂ -Eq.]	4.95E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.08E-02
GWP-luluc	[kg CO ₂ -Eq.]	9.91E-02	0.00E+00	2.02E-03	0.00E+00	0.00E+00	-4.37E-04
ODP	[kg CFC11-Eq.]	1.80E-09	0.00E+00	2.95E-14	0.00E+00	0.00E+00	-4.63E-14
AP	[mol H ⁺ -Eq.]	6.75E-01	0.00E+00	1.00E-03	0.00E+00	0.00E+00	-4.54E-02
EP-freshwater	[kg P-Eq.]	2.06E-03	0.00E+00	1.07E-06	0.00E+00	0.00E+00	-3.84E-06
EP-marine	[kg N-Eq.]	1.52E-01	0.00E+00	4.59E-04	0.00E+00	0.00E+00	-7.99E-03
EP-terrestrial	[mol N-Eq.]	1.60E+00	0.00E+00	5.14E-03	0.00E+00	0.00E+00	-7.02E-02
POCP	[kg NMVOC-Eq.]	4.47E-01	0.00E+00	9.00E-04	0.00E+00	0.00E+00	-3.24E-02
ADPE	[kg Sb-Eq.]	9.49E-04	0.00E+00	3.03E-08	0.00E+00	0.00E+00	-5.27E-05
ADPF	[MJ]	3.32E+03	0.00E+00	3.94E+00	0.00E+00	0.00E+00	-1.94E+02
WDP	[m ³ world-Eq deprived]	1.63E+02	0.00E+00	3.36E-03	0.00E+00	0.00E+00	-3.93E+00

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 SYNOFLEXflange adapter DN400 PN10/16 (100.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.61E+03	0.00E+00	2.73E-01	0.00E+00	0.00E+00	1.22E+01
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.67E+03	0.00E+00	2.73E-01	0.00E+00	0.00E+00	1.22E+01
PENRE	[MJ]	3.15E+03	0.00E+00	3.96E+00	1.71E+02	0.00E+00	-1.94E+02
PENRM	[MJ]	1.71E+02	0.00E+00	0.00E+00	-1.71E+02	0.00E+00	0.00E+00
PENRT	[MJ]	3.32E+03	0.00E+00	3.96E+00	0.00E+00	0.00E+00	-1.94E+02
SM	[kg]	8.88E+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]	4.87E+00	0.00E+00	3.15E-04	0.00E+00	0.00E+00	-8.88E-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 SYNOFLEXflange adapter DN400 PN10/16 (100.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	3.54E-07	0.00E+00	2.09E-11	0.00E+00	0.00E+00	-1.50E-09
NHWD	[kg]	5.08E+01	0.00E+00	6.45E-04	0.00E+00	0.00E+00	2.95E+00
RWD	[kg]	1.18E-01	0.00E+00	7.34E-06	0.00E+00	0.00E+00	2.42E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	9.01E+01	0.00E+00	0.00E+00	9.23E+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	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 SYNOFLEXflange adapter DN400 PN10/16 (100.0 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 SYNOFLEXflange adapter DN350 PN10/16

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 SYNOFLEXflange adapter DN350 PN10/16 (96.0 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	2.27E+02	0.00E+00	2.91E-01	0.00E+00	0.00E+00	-2.64E+01
GWP-fossil	[kg CO ₂ -Eq.]	2.22E+02	0.00E+00	2.89E-01	0.00E+00	0.00E+00	-2.64E+01
GWP-biogenic	[kg CO ₂ -Eq.]	4.45E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E-02
GWP-luluc	[kg CO ₂ -Eq.]	9.11E-02	0.00E+00	1.94E-03	0.00E+00	0.00E+00	-5.44E-04
ODP	[kg CFC11-Eq.]	1.64E-09	0.00E+00	2.83E-14	0.00E+00	0.00E+00	-5.77E-14
AP	[mol H ⁺ -Eq.]	6.30E-01	0.00E+00	9.63E-04	0.00E+00	0.00E+00	-5.67E-02
EP-freshwater	[kg P-Eq.]	1.89E-03	0.00E+00	1.03E-06	0.00E+00	0.00E+00	-4.79E-06
EP-marine	[kg N-Eq.]	1.40E-01	0.00E+00	4.40E-04	0.00E+00	0.00E+00	-9.96E-03
EP-terrestrial	[mol N-Eq.]	1.47E+00	0.00E+00	4.93E-03	0.00E+00	0.00E+00	-8.75E-02
POCP	[kg NMVOC-Eq.]	4.10E-01	0.00E+00	8.64E-04	0.00E+00	0.00E+00	-4.04E-02
ADPE	[kg Sb-Eq.]	9.38E-04	0.00E+00	2.90E-08	0.00E+00	0.00E+00	-6.57E-05
ADPF	[MJ]	2.94E+03	0.00E+00	3.78E+00	0.00E+00	0.00E+00	-2.42E+02
WDP	[m³ world-Eq deprived]	1.54E+02	0.00E+00	3.22E-03	0.00E+00	0.00E+00	-4.90E+00

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 SYNOFLEXflange adapter DN350 PN10/16 (96.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.43E+03	0.00E+00	2.62E-01	0.00E+00	0.00E+00	1.53E+01
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.48E+03	0.00E+00	2.62E-01	0.00E+00	0.00E+00	1.53E+01
PENRE	[MJ]	2.81E+03	0.00E+00	3.80E+00	1.34E+02	0.00E+00	-2.42E+02
PENRM	[MJ]	1.34E+02	0.00E+00	0.00E+00	-1.34E+02	0.00E+00	0.00E+00
PENRT	[MJ]	2.95E+03	0.00E+00	3.80E+00	0.00E+00	0.00E+00	-2.42E+02
SM	[kg]	8.25E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.52E+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	[m³]	4.57E+00	0.00E+00	3.03E-04	0.00E+00	0.00E+00	-1.11E-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 SYNOFLEXflange adapter DN350 PN10/16 (96.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	3.13E-07	0.00E+00	2.01E-11	0.00E+00	0.00E+00	-1.87E-09
NHWD	[kg]	4.72E+01	0.00E+00	6.19E-04	0.00E+00	0.00E+00	3.67E+00
RWD	[kg]	1.08E-01	0.00E+00	7.05E-06	0.00E+00	0.00E+00	3.01E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	8.37E+01	0.00E+00	0.00E+00	8.95E+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
SYNOFLEXflange adapter DN350 PN10/16 (96.0 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 SYNOFLEX connector DN 40

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 SYNOFLEX connector DN 40 (3.6 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.02E+01	0.00E+00	1.09E-02	0.00E+00	0.00E+00	-1.01E+00
GWP-fossil	[kg CO ₂ -Eq.]	1.00E+01	0.00E+00	1.08E-02	0.00E+00	0.00E+00	-1.01E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.69E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.18E-04
GWP-luluc	[kg CO ₂ -Eq.]	4.80E-03	0.00E+00	7.28E-05	0.00E+00	0.00E+00	-2.09E-05
ODP	[kg CFC11-Eq.]	6.90E-11	0.00E+00	1.06E-15	0.00E+00	0.00E+00	-2.22E-15
AP	[mol H ⁺ -Eq.]	3.50E-02	0.00E+00	3.61E-05	0.00E+00	0.00E+00	-2.18E-03
EP-freshwater	[kg P-Eq.]	9.10E-05	0.00E+00	3.86E-08	0.00E+00	0.00E+00	-1.84E-07
EP-marine	[kg N-Eq.]	6.62E-03	0.00E+00	1.65E-05	0.00E+00	0.00E+00	-3.83E-04
EP-terrestrial	[mol N-Eq.]	6.96E-02	0.00E+00	1.85E-04	0.00E+00	0.00E+00	-3.36E-03
POCP	[kg NMVOC-Eq.]	2.07E-02	0.00E+00	3.24E-05	0.00E+00	0.00E+00	-1.55E-03
ADPE	[kg Sb-Eq.]	9.65E-05	0.00E+00	1.09E-09	0.00E+00	0.00E+00	-2.53E-06
ADPF	[MJ]	1.34E+02	0.00E+00	1.42E-01	0.00E+00	0.00E+00	-9.31E+00
WDP	[m ³ world-Eq deprived]	7.03E+00	0.00E+00	1.21E-04	0.00E+00	0.00E+00	-1.88E-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 SYNOFLEX connector DN 40 (3.6 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	9.61E+01	0.00E+00	9.83E-03	0.00E+00	0.00E+00	5.87E-01
PERM	[MJ]	5.98E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	9.67E+01	0.00E+00	9.83E-03	0.00E+00	0.00E+00	5.87E-01
PENRE	[MJ]	1.28E+02	0.00E+00	1.42E-01	6.25E+00	0.00E+00	-9.31E+00
PENRM	[MJ]	6.25E+00	0.00E+00	0.00E+00	-6.25E+00	0.00E+00	0.00E+00
PENRT	[MJ]	1.35E+02	0.00E+00	1.42E-01	0.00E+00	0.00E+00	-9.31E+00
SM	[kg]	3.29E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.85E-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-01	0.00E+00	1.14E-05	0.00E+00	0.00E+00	-4.25E-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 SYNOFLEX connector DN 40 (3.6 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.09E-07	0.00E+00	7.54E-13	0.00E+00	0.00E+00	-7.19E-11
NHWD	[kg]	1.81E+00	0.00E+00	2.32E-05	0.00E+00	0.00E+00	1.41E-01
RWD	[kg]	4.33E-03	0.00E+00	2.64E-07	0.00E+00	0.00E+00	1.16E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.79E+00	0.00E+00	0.00E+00	3.31E+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	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
SYNOFLEX connector DN 40 (3.6 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 SYNOFLEX connector DN 50

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 SYNOFLEX connector DN 50 (4.5 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.16E+01	0.00E+00	1.38E-02	0.00E+00	0.00E+00	-1.74E+00
GWP-fossil	[kg CO ₂ -Eq.]	1.14E+01	0.00E+00	1.37E-02	0.00E+00	0.00E+00	-1.74E+00
GWP-biogenic	[kg CO ₂ -Eq.]	2.05E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.91E-04
GWP-luluc	[kg CO ₂ -Eq.]	5.34E-03	0.00E+00	9.18E-05	0.00E+00	0.00E+00	-3.60E-05
ODP	[kg CFC11-Eq.]	7.85E-11	0.00E+00	1.34E-15	0.00E+00	0.00E+00	-3.81E-15
AP	[mol H ⁺ -Eq.]	3.84E-02	0.00E+00	4.55E-05	0.00E+00	0.00E+00	-3.75E-03
EP-freshwater	[kg P-Eq.]	1.08E-04	0.00E+00	4.87E-08	0.00E+00	0.00E+00	-3.16E-07
EP-marine	[kg N-Eq.]	7.51E-03	0.00E+00	2.08E-05	0.00E+00	0.00E+00	-6.59E-04
EP-terrestrial	[mol N-Eq.]	7.89E-02	0.00E+00	2.33E-04	0.00E+00	0.00E+00	-5.78E-03
POCP	[kg NMVOC-Eq.]	2.32E-02	0.00E+00	4.09E-05	0.00E+00	0.00E+00	-2.67E-03
ADPE	[kg Sb-Eq.]	9.74E-05	0.00E+00	1.37E-09	0.00E+00	0.00E+00	-4.35E-06
ADPF	[MJ]	1.53E+02	0.00E+00	1.79E-01	0.00E+00	0.00E+00	-1.60E+01
WDP	[m ³ world-Eq deprived]	8.47E+00	0.00E+00	1.52E-04	0.00E+00	0.00E+00	-3.24E-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 SYNOFLEX connector DN 50 (4.5 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.13E+02	0.00E+00	1.24E-02	0.00E+00	0.00E+00	1.01E+00
PERM	[MJ]	5.98E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.14E+02	0.00E+00	1.24E-02	0.00E+00	0.00E+00	1.01E+00
PENRE	[MJ]	1.45E+02	0.00E+00	1.80E-01	7.85E+00	0.00E+00	-1.60E+01
PENRM	[MJ]	7.85E+00	0.00E+00	0.00E+00	-7.85E+00	0.00E+00	0.00E+00
PENRT	[MJ]	1.53E+02	0.00E+00	1.80E-01	0.00E+00	0.00E+00	-1.60E+01
SM	[kg]	3.79E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E+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]	2.46E-01	0.00E+00	1.43E-05	0.00E+00	0.00E+00	-7.32E-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 SYNOFLEX connector DN 50 (4.5 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.11E-07	0.00E+00	9.50E-13	0.00E+00	0.00E+00	-1.24E-10
NHWD	[kg]	2.10E+00	0.00E+00	2.93E-05	0.00E+00	0.00E+00	2.43E-01
RWD	[kg]	4.95E-03	0.00E+00	3.33E-07	0.00E+00	0.00E+00	1.99E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.32E+00	0.00E+00	0.00E+00	4.17E+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	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
SYNOFLEX connector DN 50 (4.5 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 SYNOFLEX connector DN 65

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 SYNOFLEX connector DN 65 (5.2 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.56E+01	0.00E+00	1.58E-02	0.00E+00	0.00E+00	-1.95E+00
GWP-fossil	[kg CO ₂ -Eq.]	1.53E+01	0.00E+00	1.57E-02	0.00E+00	0.00E+00	-1.96E+00
GWP-biogenic	[kg CO ₂ -Eq.]	2.48E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.98E-04
GWP-luluc	[kg CO ₂ -Eq.]	5.92E-03	0.00E+00	1.05E-04	0.00E+00	0.00E+00	-4.03E-05
ODP	[kg CFC11-Eq.]	9.53E-11	0.00E+00	1.54E-15	0.00E+00	0.00E+00	-4.28E-15
AP	[mol H ⁺ -Eq.]	4.77E-02	0.00E+00	5.23E-05	0.00E+00	0.00E+00	-4.20E-03
EP-freshwater	[kg P-Eq.]	1.30E-04	0.00E+00	5.59E-08	0.00E+00	0.00E+00	-3.55E-07
EP-marine	[kg N-Eq.]	8.76E-03	0.00E+00	2.39E-05	0.00E+00	0.00E+00	-7.39E-04
EP-terrestrial	[mol N-Eq.]	9.21E-02	0.00E+00	2.68E-04	0.00E+00	0.00E+00	-6.48E-03
POCP	[kg NMVOC-Eq.]	2.80E-02	0.00E+00	4.69E-05	0.00E+00	0.00E+00	-3.00E-03
ADPE	[kg Sb-Eq.]	9.87E-05	0.00E+00	1.58E-09	0.00E+00	0.00E+00	-4.87E-06
ADPF	[MJ]	2.39E+02	0.00E+00	2.05E-01	0.00E+00	0.00E+00	-1.80E+01
WDP	[m ³ world-Eq deprived]	1.02E+01	0.00E+00	1.75E-04	0.00E+00	0.00E+00	-3.63E-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 SYNOFLEX connector DN 65 (5.2 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.31E+02	0.00E+00	1.42E-02	0.00E+00	0.00E+00	1.13E+00
PERM	[MJ]	5.10E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.32E+02	0.00E+00	1.42E-02	0.00E+00	0.00E+00	1.13E+00
PENRE	[MJ]	2.30E+02	0.00E+00	2.06E-01	9.38E+00	0.00E+00	-1.80E+01
PENRM	[MJ]	9.38E+00	0.00E+00	0.00E+00	-9.38E+00	0.00E+00	0.00E+00
PENRT	[MJ]	2.39E+02	0.00E+00	2.06E-01	0.00E+00	0.00E+00	-1.80E+01
SM	[kg]	4.28E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E+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]	3.06E-01	0.00E+00	1.64E-05	0.00E+00	0.00E+00	-8.20E-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 SYNOFLEX connector DN 65 (5.2 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	9.73E-08	0.00E+00	1.09E-12	0.00E+00	0.00E+00	-1.39E-10
NHWD	[kg]	2.41E+00	0.00E+00	3.36E-05	0.00E+00	0.00E+00	2.72E-01
RWD	[kg]	5.99E-03	0.00E+00	3.83E-07	0.00E+00	0.00E+00	2.23E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.88E+00	0.00E+00	0.00E+00	4.77E+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
SYNOFLEX connector DN 65 (5.2 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 SYNOFLEX connector DN 80

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 SYNOFLEX connector DN 80 (6.3 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.55E+01	0.00E+00	1.92E-02	0.00E+00	0.00E+00	-2.36E+00
GWP-fossil	[kg CO ₂ -Eq.]	1.52E+01	0.00E+00	1.91E-02	0.00E+00	0.00E+00	-2.37E+00
GWP-biogenic	[kg CO ₂ -Eq.]	2.86E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.21E-03
GWP-luluc	[kg CO ₂ -Eq.]	6.66E-03	0.00E+00	1.28E-04	0.00E+00	0.00E+00	-4.88E-05
ODP	[kg CFC11-Eq.]	1.06E-10	0.00E+00	1.87E-15	0.00E+00	0.00E+00	-5.17E-15
AP	[mol H ⁺ -Eq.]	4.75E-02	0.00E+00	6.36E-05	0.00E+00	0.00E+00	-5.08E-03
EP-freshwater	[kg P-Eq.]	1.47E-04	0.00E+00	6.80E-08	0.00E+00	0.00E+00	-4.29E-07
EP-marine	[kg N-Eq.]	9.80E-03	0.00E+00	2.91E-05	0.00E+00	0.00E+00	-8.94E-04
EP-terrestrial	[mol N-Eq.]	1.03E-01	0.00E+00	3.26E-04	0.00E+00	0.00E+00	-7.84E-03
POCP	[kg NMVOC-Eq.]	2.99E-02	0.00E+00	5.71E-05	0.00E+00	0.00E+00	-3.63E-03
ADPE	[kg Sb-Eq.]	9.96E-05	0.00E+00	1.92E-09	0.00E+00	0.00E+00	-5.90E-06
ADPF	[MJ]	2.05E+02	0.00E+00	2.50E-01	0.00E+00	0.00E+00	-2.17E+01
WDP	[m ³ world-Eq deprived]	1.18E+01	0.00E+00	2.13E-04	0.00E+00	0.00E+00	-4.39E-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 SYNOFLEX connector DN 80 (6.3 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.23E+02	0.00E+00	1.73E-02	0.00E+00	0.00E+00	1.37E+00
PERM	[MJ]	5.10E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.24E+02	0.00E+00	1.73E-02	0.00E+00	0.00E+00	1.37E+00
PENRE	[MJ]	1.94E+02	0.00E+00	2.51E-01	1.11E+01	0.00E+00	-2.17E+01
PENRM	[MJ]	1.11E+01	0.00E+00	0.00E+00	-1.11E+01	0.00E+00	0.00E+00
PENRT	[MJ]	2.05E+02	0.00E+00	2.51E-01	0.00E+00	0.00E+00	-2.17E+01
SM	[kg]	5.19E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.37E+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]	3.13E-01	0.00E+00	2.00E-05	0.00E+00	0.00E+00	-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 SYNOFLEX connector DN 80 (6.3 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.02E-07	0.00E+00	1.33E-12	0.00E+00	0.00E+00	-1.68E-10
NHWD	[kg]	2.90E+00	0.00E+00	4.09E-05	0.00E+00	0.00E+00	3.29E-01
RWD	[kg]	6.76E-03	0.00E+00	4.66E-07	0.00E+00	0.00E+00	2.70E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	4.84E+00	0.00E+00	0.00E+00	5.82E+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
SYNOFLEX connector DN 80 (6.3 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 SYNOFLEX connector DN 80-65

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 SYNOFLEX connector DN 80-65 (6.0 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.49E+01	0.00E+00	1.81E-02	0.00E+00	0.00E+00	-2.25E+00
GWP-fossil	[kg CO ₂ -Eq.]	1.46E+01	0.00E+00	1.80E-02	0.00E+00	0.00E+00	-2.25E+00
GWP-biogenic	[kg CO ₂ -Eq.]	2.74E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-03
GWP-luluc	[kg CO ₂ -Eq.]	7.03E-03	0.00E+00	1.21E-04	0.00E+00	0.00E+00	-4.65E-05
ODP	[kg CFC11-Eq.]	1.04E-10	0.00E+00	1.77E-15	0.00E+00	0.00E+00	-4.93E-15
AP	[mol H ⁺ -Eq.]	4.63E-02	0.00E+00	6.01E-05	0.00E+00	0.00E+00	-4.84E-03
EP-freshwater	[kg P-Eq.]	1.44E-04	0.00E+00	6.42E-08	0.00E+00	0.00E+00	-4.09E-07
EP-marine	[kg N-Eq.]	9.60E-03	0.00E+00	2.75E-05	0.00E+00	0.00E+00	-8.51E-04
EP-terrestrial	[mol N-Eq.]	1.00E-01	0.00E+00	3.08E-04	0.00E+00	0.00E+00	-7.48E-03
POCP	[kg NMVOC-Eq.]	2.92E-02	0.00E+00	5.39E-05	0.00E+00	0.00E+00	-3.46E-03
ADPE	[kg Sb-Eq.]	9.92E-05	0.00E+00	1.81E-09	0.00E+00	0.00E+00	-5.62E-06
ADPF	[MJ]	1.97E+02	0.00E+00	2.36E-01	0.00E+00	0.00E+00	-2.07E+01
WDP	[m ³ world-Eq deprived]	1.11E+01	0.00E+00	2.01E-04	0.00E+00	0.00E+00	-4.19E-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 SYNOFLEX connector DN 80-65 (6.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.21E+02	0.00E+00	1.64E-02	0.00E+00	0.00E+00	1.30E+00
PERM	[MJ]	8.62E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.22E+02	0.00E+00	1.64E-02	0.00E+00	0.00E+00	1.30E+00
PENRE	[MJ]	1.87E+02	0.00E+00	2.37E-01	1.04E+01	0.00E+00	-2.07E+01
PENRM	[MJ]	1.04E+01	0.00E+00	0.00E+00	-1.04E+01	0.00E+00	0.00E+00
PENRT	[MJ]	1.97E+02	0.00E+00	2.37E-01	0.00E+00	0.00E+00	-2.07E+01
SM	[kg]	5.07E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.30E+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]	2.96E-01	0.00E+00	1.89E-05	0.00E+00	0.00E+00	-9.46E-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 SYNOFLEX connector DN 80-65 (6.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.58E-07	0.00E+00	1.25E-12	0.00E+00	0.00E+00	-1.60E-10
NHWD	[kg]	2.75E+00	0.00E+00	3.86E-05	0.00E+00	0.00E+00	3.14E-01
RWD	[kg]	6.49E-03	0.00E+00	4.40E-07	0.00E+00	0.00E+00	2.57E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	4.55E+00	0.00E+00	0.00E+00	5.51E+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
SYNOFLEX connector DN 80-65 (6.0 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 SYNOFLEX connector DN 100

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 SYNOFLEX connector DN 100 (12.2 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	3.07E+01	0.00E+00	3.70E-02	0.00E+00	0.00E+00	-4.33E+00
GWP-fossil	[kg CO ₂ -Eq.]	3.02E+01	0.00E+00	3.67E-02	0.00E+00	0.00E+00	-4.33E+00
GWP-biogenic	[kg CO ₂ -Eq.]	5.51E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.21E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.35E-02	0.00E+00	2.47E-04	0.00E+00	0.00E+00	-8.93E-05
ODP	[kg CFC11-Eq.]	2.04E-10	0.00E+00	3.60E-15	0.00E+00	0.00E+00	-9.47E-15
AP	[mol H ⁺ -Eq.]	9.79E-02	0.00E+00	1.22E-04	0.00E+00	0.00E+00	-9.30E-03
EP-freshwater	[kg P-Eq.]	3.51E-04	0.00E+00	1.31E-07	0.00E+00	0.00E+00	-7.85E-07
EP-marine	[kg N-Eq.]	2.01E-02	0.00E+00	5.60E-05	0.00E+00	0.00E+00	-1.64E-03
EP-terrestrial	[mol N-Eq.]	2.11E-01	0.00E+00	6.27E-04	0.00E+00	0.00E+00	-1.44E-02
POCP	[kg NMVOC-Eq.]	6.04E-02	0.00E+00	1.10E-04	0.00E+00	0.00E+00	-6.64E-03
ADPE	[kg Sb-Eq.]	2.11E-04	0.00E+00	3.69E-09	0.00E+00	0.00E+00	-1.08E-05
ADPF	[MJ]	4.23E+02	0.00E+00	4.81E-01	0.00E+00	0.00E+00	-3.98E+01
WDP	[m ³ world-Eq deprived]	2.90E+01	0.00E+00	4.10E-04	0.00E+00	0.00E+00	-8.04E-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 SYNOFLEX connector DN 100 (12.2 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.36E+02	0.00E+00	3.33E-02	0.00E+00	0.00E+00	2.51E+00
PERM	[MJ]	1.39E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.38E+02	0.00E+00	3.33E-02	0.00E+00	0.00E+00	2.51E+00
PENRE	[MJ]	3.95E+02	0.00E+00	4.83E-01	2.85E+01	0.00E+00	-3.98E+01
PENRM	[MJ]	2.85E+01	0.00E+00	0.00E+00	-2.85E+01	0.00E+00	0.00E+00
PENRT	[MJ]	4.24E+02	0.00E+00	4.83E-01	0.00E+00	0.00E+00	-3.98E+01
SM	[kg]	9.88E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.50E+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]	7.49E-01	0.00E+00	3.85E-05	0.00E+00	0.00E+00	-1.82E-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 SYNOFLEX connector DN 100 (12.2 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.63E-07	0.00E+00	2.56E-12	0.00E+00	0.00E+00	-3.07E-10
NHWD	[kg]	5.44E+00	0.00E+00	7.87E-05	0.00E+00	0.00E+00	6.03E-01
RWD	[kg]	1.28E-02	0.00E+00	8.97E-07	0.00E+00	0.00E+00	4.94E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	8.96E+00	0.00E+00	0.00E+00	1.08E+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
SYNOFLEX connector DN 100 (12.2 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 SYNOFLEX connector DN 100-80

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 SYNOFLEX connector DN 100-80 (9.7 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	2.42E+01	0.00E+00	2.94E-02	0.00E+00	0.00E+00	-3.46E+00
GWP-fossil	[kg CO ₂ -Eq.]	2.38E+01	0.00E+00	2.92E-02	0.00E+00	0.00E+00	-3.46E+00
GWP-biogenic	[kg CO ₂ -Eq.]	4.43E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.77E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.13E-02	0.00E+00	1.96E-04	0.00E+00	0.00E+00	-7.14E-05
ODP	[kg CFC11-Eq.]	1.66E-10	0.00E+00	2.86E-15	0.00E+00	0.00E+00	-7.57E-15
AP	[mol H ⁺ -Eq.]	7.54E-02	0.00E+00	9.74E-05	0.00E+00	0.00E+00	-7.44E-03
EP-freshwater	[kg P-Eq.]	2.59E-04	0.00E+00	1.04E-07	0.00E+00	0.00E+00	-6.28E-07
EP-marine	[kg N-Eq.]	1.58E-02	0.00E+00	4.45E-05	0.00E+00	0.00E+00	-1.31E-03
EP-terrestrial	[mol N-Eq.]	1.66E-01	0.00E+00	4.99E-04	0.00E+00	0.00E+00	-1.15E-02
POCP	[kg NMVOC-Eq.]	4.75E-02	0.00E+00	8.74E-05	0.00E+00	0.00E+00	-5.31E-03
ADPE	[kg Sb-Eq.]	1.56E-04	0.00E+00	2.94E-09	0.00E+00	0.00E+00	-8.63E-06
ADPF	[MJ]	3.28E+02	0.00E+00	3.83E-01	0.00E+00	0.00E+00	-3.18E+01
WDP	[m ³ world-Eq deprived]	2.06E+01	0.00E+00	3.26E-04	0.00E+00	0.00E+00	-6.43E-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 SYNOFLEX connector DN 100-80 (9.7 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.95E+02	0.00E+00	2.65E-02	0.00E+00	0.00E+00	2.00E+00
PERM	[MJ]	1.39E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.96E+02	0.00E+00	2.65E-02	0.00E+00	0.00E+00	2.00E+00
PENRE	[MJ]	3.09E+02	0.00E+00	3.84E-01	2.00E+01	0.00E+00	-3.18E+01
PENRM	[MJ]	2.00E+01	0.00E+00	0.00E+00	-2.00E+01	0.00E+00	0.00E+00
PENRT	[MJ]	3.29E+02	0.00E+00	3.84E-01	0.00E+00	0.00E+00	-3.18E+01
SM	[kg]	8.13E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.00E+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]	5.41E-01	0.00E+00	3.06E-05	0.00E+00	0.00E+00	-1.45E-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 SYNOFLEX connector DN 100-80 (9.7 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.55E-07	0.00E+00	2.03E-12	0.00E+00	0.00E+00	-2.46E-10
NHWD	[kg]	4.40E+00	0.00E+00	6.26E-05	0.00E+00	0.00E+00	4.82E-01
RWD	[kg]	1.04E-02	0.00E+00	7.13E-07	0.00E+00	0.00E+00	3.95E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	7.32E+00	0.00E+00	0.00E+00	8.74E+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
SYNOFLEX connector DN 100-80 (9.7 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 SYNOFLEX connector DN 125

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 SYNOFLEX connector DN 125 (14.2 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	3.65E+01	0.00E+00	4.30E-02	0.00E+00	0.00E+00	-4.13E+00
GWP-fossil	[kg CO ₂ -Eq.]	3.58E+01	0.00E+00	4.27E-02	0.00E+00	0.00E+00	-4.13E+00
GWP-biogenic	[kg CO ₂ -Eq.]	6.58E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.11E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.55E-02	0.00E+00	2.87E-04	0.00E+00	0.00E+00	-8.52E-05
ODP	[kg CFC11-Eq.]	2.44E-10	0.00E+00	4.18E-15	0.00E+00	0.00E+00	-9.03E-15
AP	[mol H ⁺ -Eq.]	1.13E-01	0.00E+00	1.42E-04	0.00E+00	0.00E+00	-8.87E-03
EP-freshwater	[kg P-Eq.]	4.18E-04	0.00E+00	1.52E-07	0.00E+00	0.00E+00	-7.49E-07
EP-marine	[kg N-Eq.]	2.36E-02	0.00E+00	6.50E-05	0.00E+00	0.00E+00	-1.56E-03
EP-terrestrial	[mol N-Eq.]	2.47E-01	0.00E+00	7.28E-04	0.00E+00	0.00E+00	-1.37E-02
POCP	[kg NMVOC-Eq.]	7.04E-02	0.00E+00	1.28E-04	0.00E+00	0.00E+00	-6.33E-03
ADPE	[kg Sb-Eq.]	2.23E-04	0.00E+00	4.29E-09	0.00E+00	0.00E+00	-1.03E-05
ADPF	[MJ]	4.99E+02	0.00E+00	5.59E-01	0.00E+00	0.00E+00	-3.79E+01
WDP	[m ³ world-Eq deprived]	3.50E+01	0.00E+00	4.76E-04	0.00E+00	0.00E+00	-7.67E-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 SYNOFLEX connector DN 125 (14.2 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.84E+02	0.00E+00	3.87E-02	0.00E+00	0.00E+00	2.39E+00
PERM	[MJ]	1.27E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.85E+02	0.00E+00	3.87E-02	0.00E+00	0.00E+00	2.39E+00
PENRE	[MJ]	4.69E+02	0.00E+00	5.61E-01	3.04E+01	0.00E+00	-3.79E+01
PENRM	[MJ]	3.04E+01	0.00E+00	0.00E+00	-3.04E+01	0.00E+00	0.00E+00
PENRT	[MJ]	4.99E+02	0.00E+00	5.61E-01	0.00E+00	0.00E+00	-3.79E+01
SM	[kg]	1.20E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.38E+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]	9.02E-01	0.00E+00	4.47E-05	0.00E+00	0.00E+00	-1.73E-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 SYNOFLEX connector DN 125 (14.2 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.50E-07	0.00E+00	2.97E-12	0.00E+00	0.00E+00	-2.93E-10
NHWD	[kg]	6.63E+00	0.00E+00	9.14E-05	0.00E+00	0.00E+00	5.75E-01
RWD	[kg]	1.55E-02	0.00E+00	1.04E-06	0.00E+00	0.00E+00	4.72E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.11E+01	0.00E+00	0.00E+00	1.26E+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
SYNOFLEX connector DN 125 (14.2 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 SYNOFLEX connector DN 125-100

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 SYNOFLEX connector DN 125-100 (13.6 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	3.50E+01	0.00E+00	4.11E-02	0.00E+00	0.00E+00	-4.03E+00
GWP-fossil	[kg CO ₂ -Eq.]	3.43E+01	0.00E+00	4.09E-02	0.00E+00	0.00E+00	-4.03E+00
GWP-biogenic	[kg CO ₂ -Eq.]	6.34E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.06E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.50E-02	0.00E+00	2.75E-04	0.00E+00	0.00E+00	-8.31E-05
ODP	[kg CFC11-Eq.]	2.34E-10	0.00E+00	4.00E-15	0.00E+00	0.00E+00	-8.81E-15
AP	[mol H ⁺ -Eq.]	1.08E-01	0.00E+00	1.36E-04	0.00E+00	0.00E+00	-8.65E-03
EP-freshwater	[kg P-Eq.]	3.89E-04	0.00E+00	1.46E-07	0.00E+00	0.00E+00	-7.31E-07
EP-marine	[kg N-Eq.]	2.26E-02	0.00E+00	6.23E-05	0.00E+00	0.00E+00	-1.52E-03
EP-terrestrial	[mol N-Eq.]	2.37E-01	0.00E+00	6.98E-04	0.00E+00	0.00E+00	-1.34E-02
POCP	[kg NMVOC-Eq.]	6.75E-02	0.00E+00	1.22E-04	0.00E+00	0.00E+00	-6.18E-03
ADPE	[kg Sb-Eq.]	2.17E-04	0.00E+00	4.11E-09	0.00E+00	0.00E+00	-1.00E-05
ADPF	[MJ]	4.79E+02	0.00E+00	5.35E-01	0.00E+00	0.00E+00	-3.70E+01
WDP	[m³ world-Eq deprived]	3.22E+01	0.00E+00	4.56E-04	0.00E+00	0.00E+00	-7.48E-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 SYNOFLEX connector DN 125-100 (13.6 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.72E+02	0.00E+00	3.71E-02	0.00E+00	0.00E+00	2.33E+00
PERM	[MJ]	1.27E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.73E+02	0.00E+00	3.71E-02	0.00E+00	0.00E+00	2.33E+00
PENRE	[MJ]	4.49E+02	0.00E+00	5.37E-01	3.01E+01	0.00E+00	-3.70E+01
PENRM	[MJ]	3.01E+01	0.00E+00	0.00E+00	-3.01E+01	0.00E+00	0.00E+00
PENRT	[MJ]	4.80E+02	0.00E+00	5.37E-01	0.00E+00	0.00E+00	-3.70E+01
SM	[kg]	1.14E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.33E+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	[m³]	8.35E-01	0.00E+00	4.28E-05	0.00E+00	0.00E+00	-1.69E-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 SYNOFLEX connector DN 125-100 (13.6 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.49E-07	0.00E+00	2.84E-12	0.00E+00	0.00E+00	-2.86E-10
NHWD	[kg]	6.32E+00	0.00E+00	8.75E-05	0.00E+00	0.00E+00	5.61E-01
RWD	[kg]	1.49E-02	0.00E+00	9.97E-07	0.00E+00	0.00E+00	4.60E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.06E+01	0.00E+00	0.00E+00	1.21E+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
SYNOFLEX connector DN 125-100 (13.6 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 SYNOFLEX connector DN 150

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 SYNOFLEX connector DN 150 (20.1 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	4.85E+01	0.00E+00	6.08E-02	0.00E+00	0.00E+00	-7.15E+00
GWP-fossil	[kg CO ₂ -Eq.]	4.76E+01	0.00E+00	6.04E-02	0.00E+00	0.00E+00	-7.16E+00
GWP-biogenic	[kg CO ₂ -Eq.]	9.06E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.65E-03
GWP-luluc	[kg CO ₂ -Eq.]	2.02E-02	0.00E+00	4.06E-04	0.00E+00	0.00E+00	-1.48E-04
ODP	[kg CFC11-Eq.]	3.28E-10	0.00E+00	5.92E-15	0.00E+00	0.00E+00	-1.56E-14
AP	[mol H ⁺ -Eq.]	1.49E-01	0.00E+00	2.01E-04	0.00E+00	0.00E+00	-1.54E-02
EP-freshwater	[kg P-Eq.]	5.11E-04	0.00E+00	2.15E-07	0.00E+00	0.00E+00	-1.30E-06
EP-marine	[kg N-Eq.]	3.11E-02	0.00E+00	9.21E-05	0.00E+00	0.00E+00	-2.70E-03
EP-terrestrial	[mol N-Eq.]	3.26E-01	0.00E+00	1.03E-03	0.00E+00	0.00E+00	-2.37E-02
POCP	[kg NMVOC-Eq.]	9.23E-02	0.00E+00	1.81E-04	0.00E+00	0.00E+00	-1.10E-02
ADPE	[kg Sb-Eq.]	2.96E-04	0.00E+00	6.08E-09	0.00E+00	0.00E+00	-1.78E-05
ADPF	[MJ]	6.59E+02	0.00E+00	7.91E-01	0.00E+00	0.00E+00	-6.57E+01
WDP	[m³ world-Eq deprived]	4.21E+01	0.00E+00	6.74E-04	0.00E+00	0.00E+00	-1.33E+00

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 SYNOFLEX connector DN 150 (20.1 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	3.83E+02	0.00E+00	5.48E-02	0.00E+00	0.00E+00	4.14E+00
PERM	[MJ]	1.27E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	3.84E+02	0.00E+00	5.48E-02	0.00E+00	0.00E+00	4.14E+00
PENRE	[MJ]	6.18E+02	0.00E+00	7.94E-01	4.16E+01	0.00E+00	-6.57E+01
PENRM	[MJ]	4.16E+01	0.00E+00	0.00E+00	-4.16E+01	0.00E+00	0.00E+00
PENRT	[MJ]	6.59E+02	0.00E+00	7.94E-01	0.00E+00	0.00E+00	-6.57E+01
SM	[kg]	1.61E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.13E+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	[m³]	1.10E+00	0.00E+00	6.33E-05	0.00E+00	0.00E+00	-3.00E-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 SYNOFLEX connector DN 150 (20.1 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.67E-07	0.00E+00	4.20E-12	0.00E+00	0.00E+00	-5.08E-10
NHWD	[kg]	9.02E+00	0.00E+00	1.29E-04	0.00E+00	0.00E+00	9.96E-01
RWD	[kg]	2.10E-02	0.00E+00	1.47E-06	0.00E+00	0.00E+00	8.17E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.52E+01	0.00E+00	0.00E+00	1.80E+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
SYNOFLEX connector DN 150 (20.1 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 SYNOFLEX connector DN 150-100

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 SYNOFLEX connector DN 150-100 (15.9 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	4.10E+01	0.00E+00	4.82E-02	0.00E+00	0.00E+00	-4.44E+00
GWP-fossil	[kg CO ₂ -Eq.]	4.03E+01	0.00E+00	4.79E-02	0.00E+00	0.00E+00	-4.44E+00
GWP-biogenic	[kg CO ₂ -Eq.]	7.46E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.27E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.73E-02	0.00E+00	3.22E-04	0.00E+00	0.00E+00	-9.16E-05
ODP	[kg CFC11-Eq.]	2.78E-10	0.00E+00	4.69E-15	0.00E+00	0.00E+00	-9.71E-15
AP	[mol H ⁺ -Eq.]	1.26E-01	0.00E+00	1.60E-04	0.00E+00	0.00E+00	-9.54E-03
EP-freshwater	[kg P-Eq.]	4.35E-04	0.00E+00	1.71E-07	0.00E+00	0.00E+00	-8.06E-07
EP-marine	[kg N-Eq.]	2.63E-02	0.00E+00	7.30E-05	0.00E+00	0.00E+00	-1.68E-03
EP-terrestrial	[mol N-Eq.]	2.76E-01	0.00E+00	8.18E-04	0.00E+00	0.00E+00	-1.47E-02
POCP	[kg NMVOC-Eq.]	7.85E-02	0.00E+00	1.43E-04	0.00E+00	0.00E+00	-6.81E-03
ADPE	[kg Sb-Eq.]	2.54E-04	0.00E+00	4.82E-09	0.00E+00	0.00E+00	-1.11E-05
ADPF	[MJ]	5.59E+02	0.00E+00	6.27E-01	0.00E+00	0.00E+00	-4.08E+01
WDP	[m ³ world-Eq deprived]	3.58E+01	0.00E+00	5.35E-04	0.00E+00	0.00E+00	-8.25E-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 SYNOFLEX connector DN 150-100 (15.9 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	3.22E+02	0.00E+00	4.35E-02	0.00E+00	0.00E+00	2.57E+00
PERM	[MJ]	1.27E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	3.23E+02	0.00E+00	4.35E-02	0.00E+00	0.00E+00	2.57E+00
PENRE	[MJ]	5.26E+02	0.00E+00	6.30E-01	3.37E+01	0.00E+00	-4.08E+01
PENRM	[MJ]	3.37E+01	0.00E+00	0.00E+00	-3.37E+01	0.00E+00	0.00E+00
PENRT	[MJ]	5.60E+02	0.00E+00	6.30E-01	0.00E+00	0.00E+00	-4.08E+01
SM	[kg]	1.36E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.56E+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]	9.35E-01	0.00E+00	5.02E-05	0.00E+00	0.00E+00	-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 SYNOFLEX connector DN 150-100 (15.9 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.57E-07	0.00E+00	3.33E-12	0.00E+00	0.00E+00	-3.15E-10
NHWD	[kg]	7.56E+00	0.00E+00	1.03E-04	0.00E+00	0.00E+00	6.18E-01
RWD	[kg]	1.78E-02	0.00E+00	1.17E-06	0.00E+00	0.00E+00	5.07E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.27E+01	0.00E+00	0.00E+00	1.43E+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	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
SYNOFLEX connector DN 150-100 (15.9 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 SYNOFLEX connector DN 150-125

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 SYNOFLEX connector DN 150-125 (16.7 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	4.33E+01	0.00E+00	5.05E-02	0.00E+00	0.00E+00	-4.42E+00
GWP-fossil	[kg CO ₂ -Eq.]	4.24E+01	0.00E+00	5.02E-02	0.00E+00	0.00E+00	-4.42E+00
GWP-biogenic	[kg CO ₂ -Eq.]	7.85E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.26E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.82E-02	0.00E+00	3.37E-04	0.00E+00	0.00E+00	-9.12E-05
ODP	[kg CFC11-Eq.]	2.93E-10	0.00E+00	4.92E-15	0.00E+00	0.00E+00	-9.66E-15
AP	[mol H ⁺ -Eq.]	1.32E-01	0.00E+00	1.67E-04	0.00E+00	0.00E+00	-9.49E-03
EP-freshwater	[kg P-Eq.]	4.66E-04	0.00E+00	1.79E-07	0.00E+00	0.00E+00	-8.01E-07
EP-marine	[kg N-Eq.]	2.77E-02	0.00E+00	7.65E-05	0.00E+00	0.00E+00	-1.67E-03
EP-terrestrial	[mol N-Eq.]	2.91E-01	0.00E+00	8.57E-04	0.00E+00	0.00E+00	-1.47E-02
POCP	[kg NMVOC-Eq.]	8.26E-02	0.00E+00	1.50E-04	0.00E+00	0.00E+00	-6.77E-03
ADPE	[kg Sb-Eq.]	2.60E-04	0.00E+00	5.05E-09	0.00E+00	0.00E+00	-1.10E-05
ADPF	[MJ]	5.89E+02	0.00E+00	6.57E-01	0.00E+00	0.00E+00	-4.06E+01
WDP	[m ³ world-Eq deprived]	3.87E+01	0.00E+00	5.60E-04	0.00E+00	0.00E+00	-8.21E-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 SYNOFLEX connector DN 150-125 (16.7 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	3.40E+02	0.00E+00	4.56E-02	0.00E+00	0.00E+00	2.56E+00
PERM	[MJ]	1.27E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	3.41E+02	0.00E+00	4.56E-02	0.00E+00	0.00E+00	2.56E+00
PENRE	[MJ]	5.55E+02	0.00E+00	6.60E-01	3.47E+01	0.00E+00	-4.06E+01
PENRM	[MJ]	3.47E+01	0.00E+00	0.00E+00	-3.47E+01	0.00E+00	0.00E+00
PENRT	[MJ]	5.90E+02	0.00E+00	6.60E-01	0.00E+00	0.00E+00	-4.06E+01
SM	[kg]	1.43E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.55E+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]	1.01E+00	0.00E+00	5.26E-05	0.00E+00	0.00E+00	-1.85E-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 SYNOFLEX connector DN 150-125 (16.7 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.60E-07	0.00E+00	3.49E-12	0.00E+00	0.00E+00	-3.13E-10
NHWD	[kg]	7.99E+00	0.00E+00	1.08E-04	0.00E+00	0.00E+00	6.15E-01
RWD	[kg]	1.87E-02	0.00E+00	1.22E-06	0.00E+00	0.00E+00	5.05E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.35E+01	0.00E+00	0.00E+00	1.50E+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	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
SYNOFLEX connector DN 150-125 (16.7 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 SYNOFLEX connector DN 200

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 SYNOFLEX connector DN 200 (30.2 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	8.00E+01	0.00E+00	9.15E-02	0.00E+00	0.00E+00	-8.49E+00
GWP-fossil	[kg CO ₂ -Eq.]	7.86E+01	0.00E+00	9.09E-02	0.00E+00	0.00E+00	-8.49E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.39E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.34E-03
GWP-luluc	[kg CO ₂ -Eq.]	3.06E-02	0.00E+00	6.11E-04	0.00E+00	0.00E+00	-1.75E-04
ODP	[kg CFC11-Eq.]	4.96E-10	0.00E+00	8.90E-15	0.00E+00	0.00E+00	-1.86E-14
AP	[mol H ⁺ -Eq.]	2.57E-01	0.00E+00	3.03E-04	0.00E+00	0.00E+00	-1.82E-02
EP-freshwater	[kg P-Eq.]	1.00E-03	0.00E+00	3.24E-07	0.00E+00	0.00E+00	-1.54E-06
EP-marine	[kg N-Eq.]	5.32E-02	0.00E+00	1.39E-04	0.00E+00	0.00E+00	-3.21E-03
EP-terrestrial	[mol N-Eq.]	5.62E-01	0.00E+00	1.55E-03	0.00E+00	0.00E+00	-2.82E-02
POCP	[kg NMVOC-Eq.]	1.60E-01	0.00E+00	2.72E-04	0.00E+00	0.00E+00	-1.30E-02
ADPE	[kg Sb-Eq.]	4.99E-04	0.00E+00	9.14E-09	0.00E+00	0.00E+00	-2.12E-05
ADPF	[MJ]	1.11E+03	0.00E+00	1.19E+00	0.00E+00	0.00E+00	-7.80E+01
WDP	[m ³ world-Eq deprived]	9.01E+01	0.00E+00	1.01E-03	0.00E+00	0.00E+00	-1.58E+00

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 SYNOFLEX connector DN 200 (30.2 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	5.72E+02	0.00E+00	8.25E-02	0.00E+00	0.00E+00	4.91E+00
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	6.28E+02	0.00E+00	8.25E-02	0.00E+00	0.00E+00	4.91E+00
PENRE	[MJ]	1.04E+03	0.00E+00	1.19E+00	7.01E+01	0.00E+00	-7.80E+01
PENRM	[MJ]	7.01E+01	0.00E+00	0.00E+00	-7.01E+01	0.00E+00	0.00E+00
PENRT	[MJ]	1.11E+03	0.00E+00	1.19E+00	0.00E+00	0.00E+00	-7.80E+01
SM	[kg]	2.40E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.90E+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]	2.27E+00	0.00E+00	9.53E-05	0.00E+00	0.00E+00	-3.56E-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 SYNOFLEX connector DN 200 (30.2 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.07E-07	0.00E+00	6.32E-12	0.00E+00	0.00E+00	-6.02E-10
NHWD	[kg]	1.39E+01	0.00E+00	1.95E-04	0.00E+00	0.00E+00	1.18E+00
RWD	[kg]	3.32E-02	0.00E+00	2.22E-06	0.00E+00	0.00E+00	9.70E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.32E+01	0.00E+00	0.00E+00	2.65E+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	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
SYNOFLEX connector DN 200 (30.2 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 SYNOFLEX connector 200-150

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 SYNOFLEX connector 200-150 (29.4 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	7.10E+01	0.00E+00	8.91E-02	0.00E+00	0.00E+00	-1.05E+01
GWP-fossil	[kg CO ₂ -Eq.]	6.97E+01	0.00E+00	8.85E-02	0.00E+00	0.00E+00	-1.05E+01
GWP-biogenic	[kg CO ₂ -Eq.]	1.31E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.35E-03
GWP-luluc	[kg CO ₂ -Eq.]	2.82E-02	0.00E+00	5.95E-04	0.00E+00	0.00E+00	-2.16E-04
ODP	[kg CFC11-Eq.]	4.66E-10	0.00E+00	8.67E-15	0.00E+00	0.00E+00	-2.29E-14
AP	[mol H ⁺ -Eq.]	2.19E-01	0.00E+00	2.95E-04	0.00E+00	0.00E+00	-2.25E-02
EP-freshwater	[kg P-Eq.]	7.79E-04	0.00E+00	3.15E-07	0.00E+00	0.00E+00	-1.90E-06
EP-marine	[kg N-Eq.]	4.64E-02	0.00E+00	1.35E-04	0.00E+00	0.00E+00	-3.96E-03
EP-terrestrial	[mol N-Eq.]	4.90E-01	0.00E+00	1.51E-03	0.00E+00	0.00E+00	-3.47E-02
POCP	[kg NMVOC-Eq.]	1.39E-01	0.00E+00	2.65E-04	0.00E+00	0.00E+00	-1.61E-02
ADPE	[kg Sb-Eq.]	4.08E-04	0.00E+00	8.89E-09	0.00E+00	0.00E+00	-2.61E-05
ADPF	[MJ]	9.63E+02	0.00E+00	1.16E+00	0.00E+00	0.00E+00	-9.62E+01
WDP	[m ³ world-Eq deprived]	6.76E+01	0.00E+00	9.87E-04	0.00E+00	0.00E+00	-1.95E+00

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 SYNOFLEX connector 200-150 (29.4 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	5.45E+02	0.00E+00	8.03E-02	0.00E+00	0.00E+00	6.06E+00
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	6.01E+02	0.00E+00	8.03E-02	0.00E+00	0.00E+00	6.06E+00
PENRE	[MJ]	9.06E+02	0.00E+00	1.16E+00	5.81E+01	0.00E+00	-9.62E+01
PENRM	[MJ]	5.81E+01	0.00E+00	0.00E+00	-5.81E+01	0.00E+00	0.00E+00
PENRT	[MJ]	9.64E+02	0.00E+00	1.16E+00	0.00E+00	0.00E+00	-9.62E+01
SM	[kg]	2.27E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.05E+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]	1.74E+00	0.00E+00	9.28E-05	0.00E+00	0.00E+00	-4.39E-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 SYNOFLEX connector 200-150 (29.4 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	9.97E-08	0.00E+00	6.15E-12	0.00E+00	0.00E+00	-7.43E-10
NHWD	[kg]	1.31E+01	0.00E+00	1.89E-04	0.00E+00	0.00E+00	1.46E+00
RWD	[kg]	3.13E-02	0.00E+00	2.16E-06	0.00E+00	0.00E+00	1.20E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.24E+01	0.00E+00	0.00E+00	2.64E+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	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
SYNOFLEX connector 200-150 (29.4 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 SYNOFLEX connector DN 225

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 SYNOFLEX connector DN 225 (43.3 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.10E+02	0.00E+00	1.31E-01	0.00E+00	0.00E+00	-1.52E+01
GWP-fossil	[kg CO ₂ -Eq.]	1.08E+02	0.00E+00	1.30E-01	0.00E+00	0.00E+00	-1.52E+01
GWP-biogenic	[kg CO ₂ -Eq.]	1.92E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.77E-03
GWP-luluc	[kg CO ₂ -Eq.]	4.20E-02	0.00E+00	8.76E-04	0.00E+00	0.00E+00	-3.14E-04
ODP	[kg CFC11-Eq.]	6.93E-10	0.00E+00	1.28E-14	0.00E+00	0.00E+00	-3.33E-14
AP	[mol H ⁺ -Eq.]	3.63E-01	0.00E+00	4.35E-04	0.00E+00	0.00E+00	-3.27E-02
EP-freshwater	[kg P-Eq.]	1.21E-03	0.00E+00	4.65E-07	0.00E+00	0.00E+00	-2.76E-06
EP-marine	[kg N-Eq.]	7.13E-02	0.00E+00	1.99E-04	0.00E+00	0.00E+00	-5.75E-03
EP-terrestrial	[mol N-Eq.]	7.53E-01	0.00E+00	2.23E-03	0.00E+00	0.00E+00	-5.05E-02
POCP	[kg NMVOC-Eq.]	2.13E-01	0.00E+00	3.90E-04	0.00E+00	0.00E+00	-2.33E-02
ADPE	[kg Sb-Eq.]	8.41E-04	0.00E+00	1.31E-08	0.00E+00	0.00E+00	-3.79E-05
ADPF	[MJ]	1.49E+03	0.00E+00	1.71E+00	0.00E+00	0.00E+00	-1.40E+02
WDP	[m ³ world-Eq deprived]	1.06E+02	0.00E+00	1.46E-03	0.00E+00	0.00E+00	-2.83E+00

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 SYNOFLEX connector DN 225 (43.3 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	7.90E+02	0.00E+00	1.18E-01	0.00E+00	0.00E+00	8.81E+00
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	8.46E+02	0.00E+00	1.18E-01	0.00E+00	0.00E+00	8.81E+00
PENRE	[MJ]	1.40E+03	0.00E+00	1.71E+00	9.10E+01	0.00E+00	-1.40E+02
PENRM	[MJ]	9.10E+01	0.00E+00	0.00E+00	-9.10E+01	0.00E+00	0.00E+00
PENRT	[MJ]	1.49E+03	0.00E+00	1.71E+00	0.00E+00	0.00E+00	-1.40E+02
SM	[kg]	3.33E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.78E+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]	2.72E+00	0.00E+00	1.37E-04	0.00E+00	0.00E+00	-6.38E-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 SYNOFLEX connector DN 225 (43.3 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.45E-07	0.00E+00	9.07E-12	0.00E+00	0.00E+00	-1.08E-09
NHWD	[kg]	1.95E+01	0.00E+00	2.79E-04	0.00E+00	0.00E+00	2.12E+00
RWD	[kg]	4.62E-02	0.00E+00	3.18E-06	0.00E+00	0.00E+00	1.74E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.17E+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	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
SYNOFLEX connector DN 225 (43.3 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 SYNOFLEX connector DN 225-200

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 SYNOFLEX connector DN 225-200 (38.4 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	9.95E+01	0.00E+00	1.16E-01	0.00E+00	0.00E+00	-1.14E+01
GWP-fossil	[kg CO ₂ -Eq.]	9.77E+01	0.00E+00	1.16E-01	0.00E+00	0.00E+00	-1.14E+01
GWP-biogenic	[kg CO ₂ -Eq.]	1.75E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.82E-03
GWP-luluc	[kg CO ₂ -Eq.]	3.83E-02	0.00E+00	7.77E-04	0.00E+00	0.00E+00	-2.35E-04
ODP	[kg CFC11-Eq.]	6.36E-10	0.00E+00	1.13E-14	0.00E+00	0.00E+00	-2.49E-14
AP	[mol H ⁺ -Eq.]	3.19E-01	0.00E+00	3.85E-04	0.00E+00	0.00E+00	-2.45E-02
EP-freshwater	[kg P-Eq.]	1.13E-03	0.00E+00	4.12E-07	0.00E+00	0.00E+00	-2.07E-06
EP-marine	[kg N-Eq.]	6.46E-02	0.00E+00	1.76E-04	0.00E+00	0.00E+00	-4.31E-03
EP-terrestrial	[mol N-Eq.]	6.83E-01	0.00E+00	1.97E-03	0.00E+00	0.00E+00	-3.78E-02
POCP	[kg NMVOC-Eq.]	1.93E-01	0.00E+00	3.46E-04	0.00E+00	0.00E+00	-1.75E-02
ADPE	[kg Sb-Eq.]	6.73E-04	0.00E+00	1.16E-08	0.00E+00	0.00E+00	-2.84E-05
ADPF	[MJ]	1.36E+03	0.00E+00	1.51E+00	0.00E+00	0.00E+00	-1.05E+02
WDP	[m ³ world-Eq deprived]	9.93E+01	0.00E+00	1.29E-03	0.00E+00	0.00E+00	-2.12E+00

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 SYNOFLEX connector DN 225-200 (38.4 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	7.29E+02	0.00E+00	1.05E-01	0.00E+00	0.00E+00	6.60E+00
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	7.86E+02	0.00E+00	1.05E-01	0.00E+00	0.00E+00	6.60E+00
PENRE	[MJ]	1.28E+03	0.00E+00	1.52E+00	8.04E+01	0.00E+00	-1.05E+02
PENRM	[MJ]	8.04E+01	0.00E+00	0.00E+00	-8.04E+01	0.00E+00	0.00E+00
PENRT	[MJ]	1.36E+03	0.00E+00	1.52E+00	0.00E+00	0.00E+00	-1.05E+02
SM	[kg]	3.07E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.59E+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]	2.53E+00	0.00E+00	1.21E-04	0.00E+00	0.00E+00	-4.79E-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 SYNOFLEX connector DN 225-200 (38.4 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.33E-07	0.00E+00	8.04E-12	0.00E+00	0.00E+00	-8.09E-10
NHWD	[kg]	1.79E+01	0.00E+00	2.47E-04	0.00E+00	0.00E+00	1.59E+00
RWD	[kg]	4.24E-02	0.00E+00	2.82E-06	0.00E+00	0.00E+00	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]	2.96E+01	0.00E+00	0.00E+00	3.42E+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
SYNOFLEX connector DN 225-200 (38.4 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 SYNOFLEX connector 250

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 SYNOFLEX connector 250 (48.6 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.27E+02	0.00E+00	1.47E-01	0.00E+00	0.00E+00	-1.38E+01
GWP-fossil	[kg CO ₂ -Eq.]	1.24E+02	0.00E+00	1.46E-01	0.00E+00	0.00E+00	-1.38E+01
GWP-biogenic	[kg CO ₂ -Eq.]	2.24E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.03E-03
GWP-luluc	[kg CO ₂ -Eq.]	4.83E-02	0.00E+00	9.83E-04	0.00E+00	0.00E+00	-2.84E-04
ODP	[kg CFC11-Eq.]	8.13E-10	0.00E+00	1.43E-14	0.00E+00	0.00E+00	-3.01E-14
AP	[mol H ⁺ -Eq.]	4.03E-01	0.00E+00	4.88E-04	0.00E+00	0.00E+00	-2.96E-02
EP-freshwater	[kg P-Eq.]	1.40E-03	0.00E+00	5.21E-07	0.00E+00	0.00E+00	-2.50E-06
EP-marine	[kg N-Eq.]	8.16E-02	0.00E+00	2.23E-04	0.00E+00	0.00E+00	-5.20E-03
EP-terrestrial	[mol N-Eq.]	8.62E-01	0.00E+00	2.50E-03	0.00E+00	0.00E+00	-4.57E-02
POCP	[kg NMVOC-Eq.]	2.44E-01	0.00E+00	4.38E-04	0.00E+00	0.00E+00	-2.11E-02
ADPE	[kg Sb-Eq.]	8.51E-04	0.00E+00	1.47E-08	0.00E+00	0.00E+00	-3.43E-05
ADPF	[MJ]	1.73E+03	0.00E+00	1.92E+00	0.00E+00	0.00E+00	-1.27E+02
WDP	[m ³ world-Eq deprived]	1.23E+02	0.00E+00	1.63E-03	0.00E+00	0.00E+00	-2.56E+00

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 SYNOFLEX connector 250 (48.6 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	9.31E+02	0.00E+00	1.33E-01	0.00E+00	0.00E+00	7.97E+00
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	9.88E+02	0.00E+00	1.33E-01	0.00E+00	0.00E+00	7.97E+00
PENRE	[MJ]	1.63E+03	0.00E+00	1.92E+00	1.02E+02	0.00E+00	-1.27E+02
PENRM	[MJ]	1.02E+02	0.00E+00	0.00E+00	-1.02E+02	0.00E+00	0.00E+00
PENRT	[MJ]	1.73E+03	0.00E+00	1.92E+00	0.00E+00	0.00E+00	-1.27E+02
SM	[kg]	3.93E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.95E+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]	3.15E+00	0.00E+00	1.53E-04	0.00E+00	0.00E+00	-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 SYNOFLEX connector 250 (48.6 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.68E-07	0.00E+00	1.02E-11	0.00E+00	0.00E+00	-9.77E-10
NHWD	[kg]	2.29E+01	0.00E+00	3.13E-04	0.00E+00	0.00E+00	1.92E+00
RWD	[kg]	5.40E-02	0.00E+00	3.57E-06	0.00E+00	0.00E+00	1.57E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.79E+01	0.00E+00	0.00E+00	4.34E+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
SYNOFLEX connector 250 (48.6 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 SYNOFLEX connector DN 250-200

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 SYNOFLEX connector DN 250-200 (48.0 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.21E+02	0.00E+00	1.45E-01	0.00E+00	0.00E+00	-1.80E+01
GWP-fossil	[kg CO ₂ -Eq.]	1.19E+02	0.00E+00	1.44E-01	0.00E+00	0.00E+00	-1.80E+01
GWP-biogenic	[kg CO ₂ -Eq.]	2.11E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.21E-03
GWP-luluc	[kg CO ₂ -Eq.]	4.65E-02	0.00E+00	9.71E-04	0.00E+00	0.00E+00	-3.72E-04
ODP	[kg CFC11-Eq.]	7.66E-10	0.00E+00	1.41E-14	0.00E+00	0.00E+00	-3.94E-14
AP	[mol H ⁺ -Eq.]	4.15E-01	0.00E+00	4.81E-04	0.00E+00	0.00E+00	-3.88E-02
EP-freshwater	[kg P-Eq.]	1.26E-03	0.00E+00	5.15E-07	0.00E+00	0.00E+00	-3.27E-06
EP-marine	[kg N-Eq.]	7.86E-02	0.00E+00	2.20E-04	0.00E+00	0.00E+00	-6.81E-03
EP-terrestrial	[mol N-Eq.]	8.32E-01	0.00E+00	2.47E-03	0.00E+00	0.00E+00	-5.98E-02
POCP	[kg NMVOC-Eq.]	2.35E-01	0.00E+00	4.32E-04	0.00E+00	0.00E+00	-2.77E-02
ADPE	[kg Sb-Eq.]	1.07E-03	0.00E+00	1.45E-08	0.00E+00	0.00E+00	-4.50E-05
ADPF	[MJ]	1.63E+03	0.00E+00	1.89E+00	0.00E+00	0.00E+00	-1.66E+02
WDP	[m ³ world-Eq deprived]	1.10E+02	0.00E+00	1.61E-03	0.00E+00	0.00E+00	-3.35E+00

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 SYNOFLEX connector DN 250-200 (48.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	8.63E+02	0.00E+00	1.31E-01	0.00E+00	0.00E+00	1.04E+01
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	9.20E+02	0.00E+00	1.31E-01	0.00E+00	0.00E+00	1.04E+01
PENRE	[MJ]	1.54E+03	0.00E+00	1.90E+00	9.56E+01	0.00E+00	-1.66E+02
PENRM	[MJ]	9.56E+01	0.00E+00	0.00E+00	-9.56E+01	0.00E+00	0.00E+00
PENRT	[MJ]	1.63E+03	0.00E+00	1.90E+00	0.00E+00	0.00E+00	-1.66E+02
SM	[kg]	3.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.04E+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]	2.82E+00	0.00E+00	1.51E-04	0.00E+00	0.00E+00	-7.57E-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 SYNOFLEX connector DN 250-200 (48.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.58E-07	0.00E+00	1.00E-11	0.00E+00	0.00E+00	-1.28E-09
NHWD	[kg]	2.15E+01	0.00E+00	3.09E-04	0.00E+00	0.00E+00	2.51E+00
RWD	[kg]	5.11E-02	0.00E+00	3.52E-06	0.00E+00	0.00E+00	2.06E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.41E+01	0.00E+00	0.00E+00	4.31E+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
SYNOFLEX connector DN 250-200 (48.0 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 SYNOFLEX connector 250-225

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 SYNOFLEX connector 250-225 (50.2 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.23E+02	0.00E+00	1.52E-01	0.00E+00	0.00E+00	-1.82E+01
GWP-fossil	[kg CO ₂ -Eq.]	1.20E+02	0.00E+00	1.51E-01	0.00E+00	0.00E+00	-1.83E+01
GWP-biogenic	[kg CO ₂ -Eq.]	2.22E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.32E-03
GWP-luluc	[kg CO ₂ -Eq.]	4.73E-02	0.00E+00	1.02E-03	0.00E+00	0.00E+00	-3.77E-04
ODP	[kg CFC11-Eq.]	7.93E-10	0.00E+00	1.48E-14	0.00E+00	0.00E+00	-3.99E-14
AP	[mol H ⁺ -Eq.]	3.94E-01	0.00E+00	5.04E-04	0.00E+00	0.00E+00	-3.92E-02
EP-freshwater	[kg P-Eq.]	1.33E-03	0.00E+00	5.38E-07	0.00E+00	0.00E+00	-3.31E-06
EP-marine	[kg N-Eq.]	7.92E-02	0.00E+00	2.30E-04	0.00E+00	0.00E+00	-6.90E-03
EP-terrestrial	[mol N-Eq.]	8.36E-01	0.00E+00	2.58E-03	0.00E+00	0.00E+00	-6.05E-02
POCP	[kg NMVOC-Eq.]	2.36E-01	0.00E+00	4.52E-04	0.00E+00	0.00E+00	-2.80E-02
ADPE	[kg Sb-Eq.]	8.49E-04	0.00E+00	1.52E-08	0.00E+00	0.00E+00	-4.55E-05
ADPF	[MJ]	1.66E+03	0.00E+00	1.98E+00	0.00E+00	0.00E+00	-1.68E+02
WDP	[m ³ world-Eq deprived]	1.16E+02	0.00E+00	1.69E-03	0.00E+00	0.00E+00	-3.39E+00

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 SYNOFLEX connector 250-225 (50.2 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	9.15E+02	0.00E+00	1.37E-01	0.00E+00	0.00E+00	1.06E+01
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	9.71E+02	0.00E+00	1.37E-01	0.00E+00	0.00E+00	1.06E+01
PENRE	[MJ]	1.56E+03	0.00E+00	1.99E+00	9.84E+01	0.00E+00	-1.68E+02
PENRM	[MJ]	9.84E+01	0.00E+00	0.00E+00	-9.84E+01	0.00E+00	0.00E+00
PENRT	[MJ]	1.66E+03	0.00E+00	1.99E+00	0.00E+00	0.00E+00	-1.68E+02
SM	[kg]	3.85E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.05E+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]	2.97E+00	0.00E+00	1.58E-04	0.00E+00	0.00E+00	-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 SYNOFLEX connector 250-225 (50.2 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.63E-07	0.00E+00	1.05E-11	0.00E+00	0.00E+00	-1.29E-09
NHWD	[kg]	2.25E+01	0.00E+00	3.24E-04	0.00E+00	0.00E+00	2.54E+00
RWD	[kg]	5.28E-02	0.00E+00	3.69E-06	0.00E+00	0.00E+00	2.09E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.73E+01	0.00E+00	0.00E+00	4.51E+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	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
SYNOFLEX connector 250-225 (50.2 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 SYNOFLEX connector DN 300

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 SYNOFLEX connector DN 300 (60.0 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.56E+02	0.00E+00	1.82E-01	0.00E+00	0.00E+00	-1.77E+01
GWP-fossil	[kg CO ₂ -Eq.]	1.53E+02	0.00E+00	1.81E-01	0.00E+00	0.00E+00	-1.77E+01
GWP-biogenic	[kg CO ₂ -Eq.]	2.77E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.06E-03
GWP-luluc	[kg CO ₂ -Eq.]	5.93E-02	0.00E+00	1.21E-03	0.00E+00	0.00E+00	-3.66E-04
ODP	[kg CFC11-Eq.]	1.01E-09	0.00E+00	1.77E-14	0.00E+00	0.00E+00	-3.88E-14
AP	[mol H ⁺ -Eq.]	5.01E-01	0.00E+00	6.02E-04	0.00E+00	0.00E+00	-3.81E-02
EP-freshwater	[kg P-Eq.]	1.64E-03	0.00E+00	6.43E-07	0.00E+00	0.00E+00	-3.22E-06
EP-marine	[kg N-Eq.]	9.96E-02	0.00E+00	2.75E-04	0.00E+00	0.00E+00	-6.70E-03
EP-terrestrial	[mol N-Eq.]	1.05E+00	0.00E+00	3.08E-03	0.00E+00	0.00E+00	-5.88E-02
POCP	[kg NMVOC-Eq.]	2.97E-01	0.00E+00	5.40E-04	0.00E+00	0.00E+00	-2.72E-02
ADPE	[kg Sb-Eq.]	1.12E-03	0.00E+00	1.82E-08	0.00E+00	0.00E+00	-4.42E-05
ADPF	[MJ]	2.11E+03	0.00E+00	2.36E+00	0.00E+00	0.00E+00	-1.63E+02
WDP	[m ³ world-Eq deprived]	1.42E+02	0.00E+00	2.02E-03	0.00E+00	0.00E+00	-3.30E+00

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 SYNOFLEX connector DN 300 (60.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.14E+03	0.00E+00	1.64E-01	0.00E+00	0.00E+00	1.03E+01
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.20E+03	0.00E+00	1.64E-01	0.00E+00	0.00E+00	1.03E+01
PENRE	[MJ]	1.99E+03	0.00E+00	2.37E+00	1.24E+02	0.00E+00	-1.63E+02
PENRM	[MJ]	1.24E+02	0.00E+00	0.00E+00	-1.24E+02	0.00E+00	0.00E+00
PENRT	[MJ]	2.12E+03	0.00E+00	2.37E+00	0.00E+00	0.00E+00	-1.63E+02
SM	[kg]	4.84E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.02E+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]	3.65E+00	0.00E+00	1.89E-04	0.00E+00	0.00E+00	-7.45E-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 SYNOFLEX connector DN 300 (60.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.06E-07	0.00E+00	1.26E-11	0.00E+00	0.00E+00	-1.26E-09
NHWD	[kg]	2.82E+01	0.00E+00	3.87E-04	0.00E+00	0.00E+00	2.47E+00
RWD	[kg]	6.67E-02	0.00E+00	4.41E-06	0.00E+00	0.00E+00	2.03E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	4.64E+01	0.00E+00	0.00E+00	5.38E+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	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
SYNOFLEX connector DN 300 (60.0 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 SYNOFLEX connector 300-250

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 SYNOFLEX connector 300-250 (61.4 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.48E+02	0.00E+00	1.86E-01	0.00E+00	0.00E+00	-2.23E+01
GWP-fossil	[kg CO ₂ -Eq.]	1.46E+02	0.00E+00	1.85E-01	0.00E+00	0.00E+00	-2.23E+01
GWP-biogenic	[kg CO ₂ -Eq.]	2.72E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.14E-02
GWP-luluc	[kg CO ₂ -Eq.]	5.72E-02	0.00E+00	1.24E-03	0.00E+00	0.00E+00	-4.60E-04
ODP	[kg CFC11-Eq.]	9.74E-10	0.00E+00	1.81E-14	0.00E+00	0.00E+00	-4.87E-14
AP	[mol H ⁺ -Eq.]	4.70E-01	0.00E+00	6.16E-04	0.00E+00	0.00E+00	-4.79E-02
EP-freshwater	[kg P-Eq.]	1.55E-03	0.00E+00	6.58E-07	0.00E+00	0.00E+00	-4.04E-06
EP-marine	[kg N-Eq.]	9.51E-02	0.00E+00	2.82E-04	0.00E+00	0.00E+00	-8.42E-03
EP-terrestrial	[mol N-Eq.]	1.00E+00	0.00E+00	3.15E-03	0.00E+00	0.00E+00	-7.39E-02
POCP	[kg NMVOC-Eq.]	2.82E-01	0.00E+00	5.53E-04	0.00E+00	0.00E+00	-3.42E-02
ADPE	[kg Sb-Eq.]	9.91E-04	0.00E+00	1.86E-08	0.00E+00	0.00E+00	-5.55E-05
ADPF	[MJ]	1.99E+03	0.00E+00	2.42E+00	0.00E+00	0.00E+00	-2.05E+02
WDP	[m ³ world-Eq deprived]	1.34E+02	0.00E+00	2.06E-03	0.00E+00	0.00E+00	-4.14E+00

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 SYNOFLEX connector 300-250 (61.4 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.13E+03	0.00E+00	1.68E-01	0.00E+00	0.00E+00	1.29E+01
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.18E+03	0.00E+00	1.68E-01	0.00E+00	0.00E+00	1.29E+01
PENRE	[MJ]	1.88E+03	0.00E+00	2.43E+00	1.15E+02	0.00E+00	-2.05E+02
PENRM	[MJ]	1.15E+02	0.00E+00	0.00E+00	-1.15E+02	0.00E+00	0.00E+00
PENRT	[MJ]	2.00E+03	0.00E+00	2.43E+00	0.00E+00	0.00E+00	-2.05E+02
SM	[kg]	4.75E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.29E+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]	3.47E+00	0.00E+00	1.94E-04	0.00E+00	0.00E+00	-9.35E-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 SYNOFLEX connector 300-250 (61.4 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.97E-07	0.00E+00	1.29E-11	0.00E+00	0.00E+00	-1.58E-09
NHWD	[kg]	2.76E+01	0.00E+00	3.96E-04	0.00E+00	0.00E+00	3.10E+00
RWD	[kg]	6.46E-02	0.00E+00	4.51E-06	0.00E+00	0.00E+00	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]	4.62E+01	0.00E+00	0.00E+00	5.55E+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

**RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece
SYNOFLEX connector 300-250 (61.4 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 SYNOFLEX connector DN 350 PN10

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 SYNOFLEX connector DN 350 PN10 (82.6 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	2.10E+02	0.00E+00	2.50E-01	0.00E+00	0.00E+00	-2.62E+01
GWP-fossil	[kg CO ₂ -Eq.]	2.06E+02	0.00E+00	2.49E-01	0.00E+00	0.00E+00	-2.62E+01
GWP-biogenic	[kg CO ₂ -Eq.]	3.77E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.34E-02
GWP-luluc	[kg CO ₂ -Eq.]	8.09E-02	0.00E+00	1.67E-03	0.00E+00	0.00E+00	-5.40E-04
ODP	[kg CFC11-Eq.]	1.39E-09	0.00E+00	2.43E-14	0.00E+00	0.00E+00	-5.72E-14
AP	[mol H ⁺ -Eq.]	6.87E-01	0.00E+00	8.29E-04	0.00E+00	0.00E+00	-5.62E-02
EP-freshwater	[kg P-Eq.]	1.99E-03	0.00E+00	8.86E-07	0.00E+00	0.00E+00	-4.75E-06
EP-marine	[kg N-Eq.]	1.33E-01	0.00E+00	3.79E-04	0.00E+00	0.00E+00	-9.89E-03
EP-terrestrial	[mol N-Eq.]	1.40E+00	0.00E+00	4.24E-03	0.00E+00	0.00E+00	-8.68E-02
POCP	[kg NMVOC-Eq.]	3.94E-01	0.00E+00	7.44E-04	0.00E+00	0.00E+00	-4.01E-02
ADPE	[kg Sb-Eq.]	1.66E-03	0.00E+00	2.50E-08	0.00E+00	0.00E+00	-6.52E-05
ADPF	[MJ]	2.78E+03	0.00E+00	3.25E+00	0.00E+00	0.00E+00	-2.40E+02
WDP	[m ³ world-Eq deprived]	1.69E+02	0.00E+00	2.77E-03	0.00E+00	0.00E+00	-4.86E+00

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 SYNOFLEX connector DN 350 PN10 (82.6 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.58E+03	0.00E+00	2.26E-01	0.00E+00	0.00E+00	1.52E+01
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.63E+03	0.00E+00	2.26E-01	0.00E+00	0.00E+00	1.52E+01
PENRE	[MJ]	2.65E+03	0.00E+00	3.27E+00	1.41E+02	0.00E+00	-2.40E+02
PENRM	[MJ]	1.41E+02	0.00E+00	0.00E+00	-1.41E+02	0.00E+00	0.00E+00
PENRT	[MJ]	2.79E+03	0.00E+00	3.27E+00	0.00E+00	0.00E+00	-2.40E+02
SM	[kg]	6.70E+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]	4.41E+00	0.00E+00	2.61E-04	0.00E+00	0.00E+00	-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 SYNOFLEX connector DN 350 PN10 (82.6 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.73E-07	0.00E+00	1.73E-11	0.00E+00	0.00E+00	-1.86E-09
NHWD	[kg]	3.92E+01	0.00E+00	5.32E-04	0.00E+00	0.00E+00	3.64E+00
RWD	[kg]	9.21E-02	0.00E+00	6.07E-06	0.00E+00	0.00E+00	2.99E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	6.40E+01	0.00E+00	0.00E+00	7.55E+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

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece SYNOFLEX connector DN 350 PN10 (82.6 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 SYNOFLEX connector DN 400 PN10

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 SYNOFLEX connector DN 400 PN10 (95.4 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	2.35E+02	0.00E+00	2.89E-01	0.00E+00	0.00E+00	-3.17E+01
GWP-fossil	[kg CO ₂ -Eq.]	2.31E+02	0.00E+00	2.87E-01	0.00E+00	0.00E+00	-3.17E+01
GWP-biogenic	[kg CO ₂ -Eq.]	4.35E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.62E-02
GWP-luluc	[kg CO ₂ -Eq.]	9.10E-02	0.00E+00	1.93E-03	0.00E+00	0.00E+00	-6.54E-04
ODP	[kg CFC11-Eq.]	1.58E-09	0.00E+00	2.81E-14	0.00E+00	0.00E+00	-6.93E-14
AP	[mol H ⁺ -Eq.]	7.44E-01	0.00E+00	9.57E-04	0.00E+00	0.00E+00	-6.81E-02
EP-freshwater	[kg P-Eq.]	2.17E-03	0.00E+00	1.02E-06	0.00E+00	0.00E+00	-5.75E-06
EP-marine	[kg N-Eq.]	1.48E-01	0.00E+00	4.38E-04	0.00E+00	0.00E+00	-1.20E-02
EP-terrestrial	[mol N-Eq.]	1.56E+00	0.00E+00	4.90E-03	0.00E+00	0.00E+00	-1.05E-01
POCP	[kg NMVOC-Eq.]	4.38E-01	0.00E+00	8.59E-04	0.00E+00	0.00E+00	-4.86E-02
ADPE	[kg Sb-Eq.]	1.67E-03	0.00E+00	2.89E-08	0.00E+00	0.00E+00	-7.90E-05
ADPF	[MJ]	3.13E+03	0.00E+00	3.76E+00	0.00E+00	0.00E+00	-2.91E+02
WDP	[m ³ world-Eq deprived]	1.82E+02	0.00E+00	3.20E-03	0.00E+00	0.00E+00	-5.89E+00

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 SYNOFLEX connector DN 400 PN10 (95.4 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.81E+03	0.00E+00	2.61E-01	0.00E+00	0.00E+00	1.83E+01
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.87E+03	0.00E+00	2.61E-01	0.00E+00	0.00E+00	1.83E+01
PENRE	[MJ]	2.97E+03	0.00E+00	3.77E+00	1.66E+02	0.00E+00	-2.91E+02
PENRM	[MJ]	1.66E+02	0.00E+00	0.00E+00	-1.66E+02	0.00E+00	0.00E+00
PENRT	[MJ]	3.13E+03	0.00E+00	3.77E+00	0.00E+00	0.00E+00	-2.91E+02
SM	[kg]	7.66E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E+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]	4.78E+00	0.00E+00	3.01E-04	0.00E+00	0.00E+00	-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 SYNOFLEX connector DN 400 PN10 (95.4 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	3.13E-07	0.00E+00	2.00E-11	0.00E+00	0.00E+00	-2.25E-09
NHWD	[kg]	4.46E+01	0.00E+00	6.15E-04	0.00E+00	0.00E+00	4.41E+00
RWD	[kg]	1.05E-01	0.00E+00	7.01E-06	0.00E+00	0.00E+00	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]	7.42E+01	0.00E+00	0.00E+00	8.72E+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	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
SYNOFLEX connector DN 400 PN10 (95.4 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 SYNOFLEX connector DN350-300

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 SYNOFLEX connector DN350-300 (76.6 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.89E+02	0.00E+00	2.32E-01	0.00E+00	0.00E+00	-2.61E+01
GWP-fossil	[kg CO ₂ -Eq.]	1.85E+02	0.00E+00	2.31E-01	0.00E+00	0.00E+00	-2.61E+01
GWP-biogenic	[kg CO ₂ -Eq.]	3.43E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.33E-02
GWP-luluc	[kg CO ₂ -Eq.]	7.30E-02	0.00E+00	1.55E-03	0.00E+00	0.00E+00	-5.38E-04
ODP	[kg CFC11-Eq.]	1.25E-09	0.00E+00	2.26E-14	0.00E+00	0.00E+00	-5.70E-14
AP	[mol H ⁺ -Eq.]	6.09E-01	0.00E+00	7.68E-04	0.00E+00	0.00E+00	-5.60E-02
EP-freshwater	[kg P-Eq.]	1.84E-03	0.00E+00	8.21E-07	0.00E+00	0.00E+00	-4.73E-06
EP-marine	[kg N-Eq.]	1.20E-01	0.00E+00	3.51E-04	0.00E+00	0.00E+00	-9.85E-03
EP-terrestrial	[mol N-Eq.]	1.27E+00	0.00E+00	3.94E-03	0.00E+00	0.00E+00	-8.65E-02
POCP	[kg NMVOC-Eq.]	3.57E-01	0.00E+00	6.90E-04	0.00E+00	0.00E+00	-4.00E-02
ADPE	[kg Sb-Eq.]	1.39E-03	0.00E+00	2.32E-08	0.00E+00	0.00E+00	-6.50E-05
ADPF	[MJ]	2.52E+03	0.00E+00	3.02E+00	0.00E+00	0.00E+00	-2.40E+02
WDP	[m ³ world-Eq deprived]	1.57E+02	0.00E+00	2.57E-03	0.00E+00	0.00E+00	-4.85E+00

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 SYNOFLEX connector DN350-300 (76.6 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.44E+03	0.00E+00	2.09E-01	0.00E+00	0.00E+00	1.51E+01
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.49E+03	0.00E+00	2.09E-01	0.00E+00	0.00E+00	1.51E+01
PENRE	[MJ]	2.39E+03	0.00E+00	3.03E+00	1.33E+02	0.00E+00	-2.40E+02
PENRM	[MJ]	1.33E+02	0.00E+00	0.00E+00	-1.33E+02	0.00E+00	0.00E+00
PENRT	[MJ]	2.52E+03	0.00E+00	3.03E+00	0.00E+00	0.00E+00	-2.40E+02
SM	[kg]	6.09E+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]	4.09E+00	0.00E+00	2.42E-04	0.00E+00	0.00E+00	-1.09E-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 SYNOFLEX connector DN350-300 (76.6 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.48E-07	0.00E+00	1.60E-11	0.00E+00	0.00E+00	-1.85E-09
NHWD	[kg]	3.55E+01	0.00E+00	4.94E-04	0.00E+00	0.00E+00	3.63E+00
RWD	[kg]	8.30E-02	0.00E+00	5.63E-06	0.00E+00	0.00E+00	2.98E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	5.87E+01	0.00E+00	0.00E+00	6.99E+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	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
SYNOFLEX connector DN350-300 (76.6 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 SYNOFLEX connector DN400-350

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 SYNOFLEX connector DN400-350 (94.5 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	2.26E+02	0.00E+00	2.86E-01	0.00E+00	0.00E+00	-3.50E+01
GWP-fossil	[kg CO ₂ -Eq.]	2.22E+02	0.00E+00	2.84E-01	0.00E+00	0.00E+00	-3.50E+01
GWP-biogenic	[kg CO ₂ -Eq.]	4.19E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.79E-02
GWP-luluc	[kg CO ₂ -Eq.]	8.81E-02	0.00E+00	1.91E-03	0.00E+00	0.00E+00	-7.22E-04
ODP	[kg CFC11-Eq.]	1.53E-09	0.00E+00	2.79E-14	0.00E+00	0.00E+00	-7.65E-14
AP	[mol H ⁺ -Eq.]	7.25E-01	0.00E+00	9.48E-04	0.00E+00	0.00E+00	-7.52E-02
EP-freshwater	[kg P-Eq.]	2.10E-03	0.00E+00	1.01E-06	0.00E+00	0.00E+00	-6.35E-06
EP-marine	[kg N-Eq.]	1.43E-01	0.00E+00	4.33E-04	0.00E+00	0.00E+00	-1.32E-02
EP-terrestrial	[mol N-Eq.]	1.51E+00	0.00E+00	4.85E-03	0.00E+00	0.00E+00	-1.16E-01
POCP	[kg NMVOC-Eq.]	4.22E-01	0.00E+00	8.51E-04	0.00E+00	0.00E+00	-5.36E-02
ADPE	[kg Sb-Eq.]	1.67E-03	0.00E+00	2.86E-08	0.00E+00	0.00E+00	-8.72E-05
ADPF	[MJ]	2.97E+03	0.00E+00	3.72E+00	0.00E+00	0.00E+00	-3.21E+02
WDP	[m ³ world-Eq deprived]	1.77E+02	0.00E+00	3.17E-03	0.00E+00	0.00E+00	-6.50E+00

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 SYNOFLEX connector DN400-350 (94.5 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1.75E+03	0.00E+00	2.58E-01	0.00E+00	0.00E+00	2.02E+01
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.81E+03	0.00E+00	2.58E-01	0.00E+00	0.00E+00	2.02E+01
PENRE	[MJ]	2.83E+03	0.00E+00	3.74E+00	1.45E+02	0.00E+00	-3.21E+02
PENRM	[MJ]	1.45E+02	0.00E+00	0.00E+00	-1.45E+02	0.00E+00	0.00E+00
PENRT	[MJ]	2.97E+03	0.00E+00	3.74E+00	0.00E+00	0.00E+00	-3.21E+02
SM	[kg]	7.44E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.02E+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]	4.64E+00	0.00E+00	2.98E-04	0.00E+00	0.00E+00	-1.47E-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 SYNOFLEX connector DN400-350 (94.5 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.96E-07	0.00E+00	1.98E-11	0.00E+00	0.00E+00	-2.48E-09
NHWD	[kg]	4.34E+01	0.00E+00	6.09E-04	0.00E+00	0.00E+00	4.87E+00
RWD	[kg]	1.01E-01	0.00E+00	6.94E-06	0.00E+00	0.00E+00	4.00E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	7.20E+01	0.00E+00	0.00E+00	8.71E+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
SYNOFLEX connector DN400-350 (94.5 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 SYNOFLEX connector DN600

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 SYNOFLEX connector DN600 (225.4 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	5.21E+02	0.00E+00	6.83E-01	0.00E+00	0.00E+00	-7.93E+01
GWP-fossil	[kg CO ₂ -Eq.]	5.11E+02	0.00E+00	6.78E-01	0.00E+00	0.00E+00	-7.94E+01
GWP-biogenic	[kg CO ₂ -Eq.]	1.01E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.05E-02
GWP-luluc	[kg CO ₂ -Eq.]	1.99E-01	0.00E+00	4.56E-03	0.00E+00	0.00E+00	-1.64E-03
ODP	[kg CFC11-Eq.]	3.54E-09	0.00E+00	6.64E-14	0.00E+00	0.00E+00	-1.74E-13
AP	[mol H ⁺ -Eq.]	1.50E+00	0.00E+00	2.26E-03	0.00E+00	0.00E+00	-1.70E-01
EP-freshwater	[kg P-Eq.]	5.40E-03	0.00E+00	2.42E-06	0.00E+00	0.00E+00	-1.44E-05
EP-marine	[kg N-Eq.]	3.22E-01	0.00E+00	1.03E-03	0.00E+00	0.00E+00	-3.00E-02
EP-terrestrial	[mol N-Eq.]	3.38E+00	0.00E+00	1.16E-02	0.00E+00	0.00E+00	-2.63E-01
POCP	[kg NMVOC-Eq.]	9.46E-01	0.00E+00	2.03E-03	0.00E+00	0.00E+00	-1.22E-01
ADPE	[kg Sb-Eq.]	2.41E-03	0.00E+00	6.82E-08	0.00E+00	0.00E+00	-1.98E-04
ADPF	[MJ]	6.94E+03	0.00E+00	8.88E+00	0.00E+00	0.00E+00	-7.29E+02
WDP	[m ³ world-Eq deprived]	4.63E+02	0.00E+00	7.57E-03	0.00E+00	0.00E+00	-1.47E+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 SYNOFLEX connector DN600 (225.4 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	4.19E+03	0.00E+00	6.16E-01	0.00E+00	0.00E+00	4.59E+01
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	4.25E+03	0.00E+00	6.16E-01	0.00E+00	0.00E+00	4.59E+01
PENRE	[MJ]	6.56E+03	0.00E+00	8.92E+00	3.94E+02	0.00E+00	-7.29E+02
PENRM	[MJ]	3.94E+02	0.00E+00	0.00E+00	-3.94E+02	0.00E+00	0.00E+00
PENRT	[MJ]	6.95E+03	0.00E+00	8.92E+00	0.00E+00	0.00E+00	-7.29E+02
SM	[kg]	1.78E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.58E+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]	1.20E+01	0.00E+00	7.11E-04	0.00E+00	0.00E+00	-3.33E-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 SYNOFLEX connector DN600 (225.4 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	6.85E-07	0.00E+00	4.72E-11	0.00E+00	0.00E+00	-5.63E-09
NHWD	[kg]	1.02E+02	0.00E+00	1.45E-03	0.00E+00	0.00E+00	1.10E+01
RWD	[kg]	2.33E-01	0.00E+00	1.66E-05	0.00E+00	0.00E+00	9.06E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.78E+02	0.00E+00	0.00E+00	2.06E+02	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
SYNOFLEX connector DN600 (225.4 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 SYNOFLEX connector DN500

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 SYNOFLEX connector DN500 (201.0 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	4.71E+02	0.00E+00	6.09E-01	0.00E+00	0.00E+00	-6.62E+01
GWP-fossil	[kg CO ₂ -Eq.]	4.62E+02	0.00E+00	6.05E-01	0.00E+00	0.00E+00	-6.62E+01
GWP-biogenic	[kg CO ₂ -Eq.]	9.01E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.38E-02
GWP-luluc	[kg CO ₂ -Eq.]	1.82E-01	0.00E+00	4.07E-03	0.00E+00	0.00E+00	-1.37E-03
ODP	[kg CFC11-Eq.]	3.25E-09	0.00E+00	5.92E-14	0.00E+00	0.00E+00	-1.45E-13
AP	[mol H ⁺ -Eq.]	1.37E+00	0.00E+00	2.02E-03	0.00E+00	0.00E+00	-1.42E-01
EP-freshwater	[kg P-Eq.]	4.58E-03	0.00E+00	2.16E-06	0.00E+00	0.00E+00	-1.20E-05
EP-marine	[kg N-Eq.]	2.91E-01	0.00E+00	9.22E-04	0.00E+00	0.00E+00	-2.50E-02
EP-terrestrial	[mol N-Eq.]	3.06E+00	0.00E+00	1.03E-02	0.00E+00	0.00E+00	-2.19E-01
POCP	[kg NMVOC-Eq.]	8.54E-01	0.00E+00	1.81E-03	0.00E+00	0.00E+00	-1.01E-01
ADPE	[kg Sb-Eq.]	2.38E-03	0.00E+00	6.08E-08	0.00E+00	0.00E+00	-1.65E-04
ADPF	[MJ]	6.21E+03	0.00E+00	7.92E+00	0.00E+00	0.00E+00	-6.08E+02
WDP	[m ³ world-Eq deprived]	3.91E+02	0.00E+00	6.75E-03	0.00E+00	0.00E+00	-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 SYNOFLEX connector DN500 (201.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	3.84E+03	0.00E+00	5.49E-01	0.00E+00	0.00E+00	3.83E+01
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	3.89E+03	0.00E+00	5.49E-01	0.00E+00	0.00E+00	3.83E+01
PENRE	[MJ]	5.90E+03	0.00E+00	7.95E+00	3.13E+02	0.00E+00	-6.08E+02
PENRM	[MJ]	3.13E+02	0.00E+00	0.00E+00	-3.13E+02	0.00E+00	0.00E+00
PENRT	[MJ]	6.21E+03	0.00E+00	7.95E+00	0.00E+00	0.00E+00	-6.08E+02
SM	[kg]	1.64E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.82E+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]	1.02E+01	0.00E+00	6.34E-04	0.00E+00	0.00E+00	-2.78E-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 SYNOFLEX connector DN500 (201.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	6.19E-07	0.00E+00	4.21E-11	0.00E+00	0.00E+00	-4.69E-09
NHWD	[kg]	9.38E+01	0.00E+00	1.30E-03	0.00E+00	0.00E+00	9.21E+00
RWD	[kg]	2.14E-01	0.00E+00	1.48E-05	0.00E+00	0.00E+00	7.56E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.63E+02	0.00E+00	0.00E+00	1.85E+02	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
SYNOFLEX connector DN500 (201.0 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 SYNOFLEX connector DN450

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 SYNOFLEX connector DN450 (173.0 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	4.32E+02	0.00E+00	5.24E-01	0.00E+00	0.00E+00	-4.49E+01
GWP-fossil	[kg CO ₂ -Eq.]	4.24E+02	0.00E+00	5.21E-01	0.00E+00	0.00E+00	-4.49E+01
GWP-biogenic	[kg CO ₂ -Eq.]	8.21E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.29E-02
GWP-luluc	[kg CO ₂ -Eq.]	1.65E-01	0.00E+00	3.50E-03	0.00E+00	0.00E+00	-9.27E-04
ODP	[kg CFC11-Eq.]	2.96E-09	0.00E+00	5.10E-14	0.00E+00	0.00E+00	-9.82E-14
AP	[mol H ⁺ -Eq.]	1.23E+00	0.00E+00	1.74E-03	0.00E+00	0.00E+00	-9.65E-02
EP-freshwater	[kg P-Eq.]	4.13E-03	0.00E+00	1.86E-06	0.00E+00	0.00E+00	-8.15E-06
EP-marine	[kg N-Eq.]	2.64E-01	0.00E+00	7.94E-04	0.00E+00	0.00E+00	-1.70E-02
EP-terrestrial	[mol N-Eq.]	2.78E+00	0.00E+00	8.89E-03	0.00E+00	0.00E+00	-1.49E-01
POCP	[kg NMVOC-Eq.]	7.79E-01	0.00E+00	1.56E-03	0.00E+00	0.00E+00	-6.89E-02
ADPE	[kg Sb-Eq.]	2.09E-03	0.00E+00	5.23E-08	0.00E+00	0.00E+00	-1.12E-04
ADPF	[MJ]	5.78E+03	0.00E+00	6.82E+00	0.00E+00	0.00E+00	-4.13E+02
WDP	[m ³ world-Eq deprived]	3.47E+02	0.00E+00	5.81E-03	0.00E+00	0.00E+00	-8.35E+00

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 SYNOFLEX connector DN450 (173.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	3.45E+03	0.00E+00	4.72E-01	0.00E+00	0.00E+00	2.60E+01
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	3.50E+03	0.00E+00	4.72E-01	0.00E+00	0.00E+00	2.60E+01
PENRE	[MJ]	5.47E+03	0.00E+00	6.84E+00	3.23E+02	0.00E+00	-4.13E+02
PENRM	[MJ]	3.23E+02	0.00E+00	0.00E+00	-3.23E+02	0.00E+00	0.00E+00
PENRT	[MJ]	5.79E+03	0.00E+00	6.84E+00	0.00E+00	0.00E+00	-4.13E+02
SM	[kg]	1.46E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.59E+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]	9.12E+00	0.00E+00	5.46E-04	0.00E+00	0.00E+00	-1.89E-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 SYNOFLEX connector DN450 (173.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	5.81E-07	0.00E+00	3.62E-11	0.00E+00	0.00E+00	-3.19E-09
NHWD	[kg]	8.39E+01	0.00E+00	1.12E-03	0.00E+00	0.00E+00	6.25E+00
RWD	[kg]	1.95E-01	0.00E+00	1.27E-05	0.00E+00	0.00E+00	5.13E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.46E+02	0.00E+00	0.00E+00	1.58E+02	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
SYNOFLEX connector DN450 (173.0 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 SYNOFLEX connector DN400

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 SYNOFLEX connector DN400 (157.0 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	3.62E+02	0.00E+00	4.76E-01	0.00E+00	0.00E+00	-5.50E+01
GWP-fossil	[kg CO ₂ -Eq.]	3.55E+02	0.00E+00	4.72E-01	0.00E+00	0.00E+00	-5.50E+01
GWP-biogenic	[kg CO ₂ -Eq.]	7.03E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.81E-02
GWP-luluc	[kg CO ₂ -Eq.]	1.40E-01	0.00E+00	3.18E-03	0.00E+00	0.00E+00	-1.13E-03
ODP	[kg CFC11-Eq.]	2.49E-09	0.00E+00	4.63E-14	0.00E+00	0.00E+00	-1.20E-13
AP	[mol H ⁺ -Eq.]	1.05E+00	0.00E+00	1.57E-03	0.00E+00	0.00E+00	-1.18E-01
EP-freshwater	[kg P-Eq.]	3.54E-03	0.00E+00	1.68E-06	0.00E+00	0.00E+00	-9.98E-06
EP-marine	[kg N-Eq.]	2.25E-01	0.00E+00	7.20E-04	0.00E+00	0.00E+00	-2.08E-02
EP-terrestrial	[mol N-Eq.]	2.37E+00	0.00E+00	8.07E-03	0.00E+00	0.00E+00	-1.82E-01
POCP	[kg NMVOC-Eq.]	6.62E-01	0.00E+00	1.41E-03	0.00E+00	0.00E+00	-8.43E-02
ADPE	[kg Sb-Eq.]	1.79E-03	0.00E+00	4.75E-08	0.00E+00	0.00E+00	-1.37E-04
ADPF	[MJ]	4.81E+03	0.00E+00	6.19E+00	0.00E+00	0.00E+00	-5.05E+02
WDP	[m ³ world-Eq deprived]	2.99E+02	0.00E+00	5.27E-03	0.00E+00	0.00E+00	-1.02E+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 SYNOFLEX connector DN400 (157.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.94E+03	0.00E+00	4.29E-01	0.00E+00	0.00E+00	3.18E+01
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.99E+03	0.00E+00	4.29E-01	0.00E+00	0.00E+00	3.18E+01
PENRE	[MJ]	4.55E+03	0.00E+00	6.21E+00	2.68E+02	0.00E+00	-5.05E+02
PENRM	[MJ]	2.68E+02	0.00E+00	0.00E+00	-2.68E+02	0.00E+00	0.00E+00
PENRT	[MJ]	4.82E+03	0.00E+00	6.21E+00	0.00E+00	0.00E+00	-5.05E+02
SM	[kg]	1.25E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.18E+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]	7.84E+00	0.00E+00	4.95E-04	0.00E+00	0.00E+00	-2.31E-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 SYNOFLEX connector DN400 (157.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	4.84E-07	0.00E+00	3.29E-11	0.00E+00	0.00E+00	-3.90E-09
NHWD	[kg]	7.14E+01	0.00E+00	1.01E-03	0.00E+00	0.00E+00	7.66E+00
RWD	[kg]	1.64E-01	0.00E+00	1.15E-05	0.00E+00	0.00E+00	6.28E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.24E+02	0.00E+00	0.00E+00	1.44E+02	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
SYNOFLEX connector DN400 (157.0 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 SYNOFLEX connector DN350

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 SYNOFLEX connector DN350 (145.0 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	3.37E+02	0.00E+00	4.39E-01	0.00E+00	0.00E+00	-5.10E+01
GWP-fossil	[kg CO ₂ -Eq.]	3.30E+02	0.00E+00	4.36E-01	0.00E+00	0.00E+00	-5.10E+01
GWP-biogenic	[kg CO ₂ -Eq.]	6.48E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.60E-02
GWP-luluc	[kg CO ₂ -Eq.]	1.30E-01	0.00E+00	2.93E-03	0.00E+00	0.00E+00	-1.05E-03
ODP	[kg CFC11-Eq.]	2.30E-09	0.00E+00	4.27E-14	0.00E+00	0.00E+00	-1.11E-13
AP	[mol H ⁺ -Eq.]	9.96E-01	0.00E+00	1.45E-03	0.00E+00	0.00E+00	-1.10E-01
EP-freshwater	[kg P-Eq.]	3.32E-03	0.00E+00	1.55E-06	0.00E+00	0.00E+00	-9.25E-06
EP-marine	[kg N-Eq.]	2.10E-01	0.00E+00	6.65E-04	0.00E+00	0.00E+00	-1.93E-02
EP-terrestrial	[mol N-Eq.]	2.21E+00	0.00E+00	7.45E-03	0.00E+00	0.00E+00	-1.69E-01
POCP	[kg NMVOC-Eq.]	6.19E-01	0.00E+00	1.31E-03	0.00E+00	0.00E+00	-7.82E-02
ADPE	[kg Sb-Eq.]	1.77E-03	0.00E+00	4.39E-08	0.00E+00	0.00E+00	-1.27E-04
ADPF	[MJ]	4.49E+03	0.00E+00	5.71E+00	0.00E+00	0.00E+00	-4.68E+02
WDP	[m ³ world-Eq deprived]	2.82E+02	0.00E+00	4.87E-03	0.00E+00	0.00E+00	-9.47E+00

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 SYNOFLEX connector DN350 (145.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.70E+03	0.00E+00	3.96E-01	0.00E+00	0.00E+00	2.95E+01
PERM	[MJ]	5.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.76E+03	0.00E+00	3.96E-01	0.00E+00	0.00E+00	2.95E+01
PENRE	[MJ]	4.24E+03	0.00E+00	5.74E+00	2.56E+02	0.00E+00	-4.68E+02
PENRM	[MJ]	2.56E+02	0.00E+00	0.00E+00	-2.56E+02	0.00E+00	0.00E+00
PENRT	[MJ]	4.50E+03	0.00E+00	5.74E+00	0.00E+00	0.00E+00	-4.68E+02
SM	[kg]	1.15E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.94E+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]	7.36E+00	0.00E+00	4.57E-04	0.00E+00	0.00E+00	-2.14E-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 SYNOFLEX connector DN350 (145.0 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	4.50E-07	0.00E+00	3.04E-11	0.00E+00	0.00E+00	-3.62E-09
NHWD	[kg]	6.58E+01	0.00E+00	9.35E-04	0.00E+00	0.00E+00	7.10E+00
RWD	[kg]	1.51E-01	0.00E+00	1.06E-05	0.00E+00	0.00E+00	5.82E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.14E+02	0.00E+00	0.00E+00	1.32E+02	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
SYNOFLEX connector DN350 (145.0 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 SynoZAK connector DN40-ZAK46

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 SynoZAK connector DN40-ZAK46 (2.4 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	6.23E+00	0.00E+00	7.15E-03	0.00E+00	0.00E+00	-8.18E-01
GWP-fossil	[kg CO ₂ -Eq.]	6.12E+00	0.00E+00	7.10E-03	0.00E+00	0.00E+00	-8.19E-01
GWP-biogenic	[kg CO ₂ -Eq.]	1.11E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.18E-04
GWP-luluc	[kg CO ₂ -Eq.]	3.68E-03	0.00E+00	4.77E-05	0.00E+00	0.00E+00	-1.69E-05
ODP	[kg CFC11-Eq.]	4.65E-11	0.00E+00	6.96E-16	0.00E+00	0.00E+00	-1.79E-15
AP	[mol H ⁺ -Eq.]	2.03E-02	0.00E+00	2.37E-05	0.00E+00	0.00E+00	-1.76E-03
EP-freshwater	[kg P-Eq.]	5.62E-05	0.00E+00	2.53E-08	0.00E+00	0.00E+00	-1.48E-07
EP-marine	[kg N-Eq.]	4.22E-03	0.00E+00	1.08E-05	0.00E+00	0.00E+00	-3.09E-04
EP-terrestrial	[mol N-Eq.]	4.39E-02	0.00E+00	1.21E-04	0.00E+00	0.00E+00	-2.71E-03
POCP	[kg NMVOC-Eq.]	1.34E-02	0.00E+00	2.12E-05	0.00E+00	0.00E+00	-1.25E-03
ADPE	[kg Sb-Eq.]	4.88E-05	0.00E+00	7.14E-10	0.00E+00	0.00E+00	-2.04E-06
ADPF	[MJ]	8.14E+01	0.00E+00	9.30E-02	0.00E+00	0.00E+00	-7.52E+00
WDP	[m ³ world-Eq deprived]	3.74E+00	0.00E+00	7.93E-05	0.00E+00	0.00E+00	-1.52E-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 SynoZAK connector DN40-ZAK46 (2.4 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	5.48E+01	0.00E+00	6.45E-03	0.00E+00	0.00E+00	4.74E-01
PERM	[MJ]	7.74E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	5.56E+01	0.00E+00	6.45E-03	0.00E+00	0.00E+00	4.74E-01
PENRE	[MJ]	7.80E+01	0.00E+00	9.34E-02	3.50E+00	0.00E+00	-7.52E+00
PENRM	[MJ]	3.50E+00	0.00E+00	0.00E+00	-3.50E+00	0.00E+00	0.00E+00
PENRT	[MJ]	8.15E+01	0.00E+00	9.34E-02	0.00E+00	0.00E+00	-7.52E+00
SM	[kg]	2.27E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.73E-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	7.45E-06	0.00E+00	0.00E+00	-3.43E-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 SynoZAK connector DN40-ZAK46 (2.4 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.33E-07	0.00E+00	4.94E-13	0.00E+00	0.00E+00	-5.81E-11
NHWD	[kg]	1.14E+00	0.00E+00	1.52E-05	0.00E+00	0.00E+00	1.14E-01
RWD	[kg]	2.78E-03	0.00E+00	1.73E-07	0.00E+00	0.00E+00	9.35E-07
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	1.84E+00	0.00E+00	0.00E+00	2.20E+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 SynoZAK connector DN40-ZAK46 (2.4 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 SynoZAK connector DN50-ZAK46

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 SynoZAK connector DN50-ZAK46 (2.8 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	6.93E+00	0.00E+00	8.45E-03	0.00E+00	0.00E+00	-1.05E+00
GWP-fossil	[kg CO ₂ -Eq.]	6.80E+00	0.00E+00	8.40E-03	0.00E+00	0.00E+00	-1.06E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.27E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.39E-04
GWP-luluc	[kg CO ₂ -Eq.]	3.66E-03	0.00E+00	5.64E-05	0.00E+00	0.00E+00	-2.18E-05
ODP	[kg CFC11-Eq.]	5.05E-11	0.00E+00	8.22E-16	0.00E+00	0.00E+00	-2.31E-15
AP	[mol H ⁺ -Eq.]	2.19E-02	0.00E+00	2.80E-05	0.00E+00	0.00E+00	-2.27E-03
EP-freshwater	[kg P-Eq.]	6.24E-05	0.00E+00	2.99E-08	0.00E+00	0.00E+00	-1.91E-07
EP-marine	[kg N-Eq.]	4.56E-03	0.00E+00	1.28E-05	0.00E+00	0.00E+00	-3.99E-04
EP-terrestrial	[mol N-Eq.]	4.76E-02	0.00E+00	1.43E-04	0.00E+00	0.00E+00	-3.50E-03
POCP	[kg NMVOC-Eq.]	1.44E-02	0.00E+00	2.51E-05	0.00E+00	0.00E+00	-1.62E-03
ADPE	[kg Sb-Eq.]	4.93E-05	0.00E+00	8.44E-10	0.00E+00	0.00E+00	-2.63E-06
ADPF	[MJ]	9.05E+01	0.00E+00	1.10E-01	0.00E+00	0.00E+00	-9.69E+00
WDP	[m ³ world-Eq deprived]	4.46E+00	0.00E+00	9.37E-05	0.00E+00	0.00E+00	-1.96E-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 SynoZAK connector DN50-ZAK46 (2.8 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	5.94E+01	0.00E+00	7.62E-03	0.00E+00	0.00E+00	6.11E-01
PERM	[MJ]	5.98E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	6.00E+01	0.00E+00	7.62E-03	0.00E+00	0.00E+00	6.11E-01
PENRE	[MJ]	8.65E+01	0.00E+00	1.10E-01	4.12E+00	0.00E+00	-9.69E+00
PENRM	[MJ]	4.12E+00	0.00E+00	0.00E+00	-4.12E+00	0.00E+00	0.00E+00
PENRT	[MJ]	9.06E+01	0.00E+00	1.10E-01	0.00E+00	0.00E+00	-9.69E+00
SM	[kg]	2.48E+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	[m ³]	1.24E-01	0.00E+00	8.80E-06	0.00E+00	0.00E+00	-4.43E-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 SynoZAK connector DN50-ZAK46 (2.8 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.05E-07	0.00E+00	5.84E-13	0.00E+00	0.00E+00	-7.48E-11
NHWD	[kg]	1.30E+00	0.00E+00	1.80E-05	0.00E+00	0.00E+00	1.47E-01
RWD	[kg]	3.10E-03	0.00E+00	2.05E-07	0.00E+00	0.00E+00	1.21E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.14E+00	0.00E+00	0.00E+00	2.60E+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 SynoZAK connector DN50-ZAK46 (2.8 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 SynoZAK connector DN50-ZAK69

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 SynoZAK connector DN50-ZAK69 (2.9 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	7.19E+00	0.00E+00	8.70E-03	0.00E+00	0.00E+00	-1.09E+00
GWP-fossil	[kg CO ₂ -Eq.]	7.05E+00	0.00E+00	8.64E-03	0.00E+00	0.00E+00	-1.09E+00
GWP-biogenic	[kg CO ₂ -Eq.]	1.33E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.55E-04
GWP-luluc	[kg CO ₂ -Eq.]	4.06E-03	0.00E+00	5.81E-05	0.00E+00	0.00E+00	-2.24E-05
ODP	[kg CFC11-Eq.]	5.34E-11	0.00E+00	8.46E-16	0.00E+00	0.00E+00	-2.38E-15
AP	[mol H ⁺ -Eq.]	2.26E-02	0.00E+00	2.88E-05	0.00E+00	0.00E+00	-2.33E-03
EP-freshwater	[kg P-Eq.]	6.59E-05	0.00E+00	3.08E-08	0.00E+00	0.00E+00	-1.97E-07
EP-marine	[kg N-Eq.]	4.81E-03	0.00E+00	1.32E-05	0.00E+00	0.00E+00	-4.10E-04
EP-terrestrial	[mol N-Eq.]	5.00E-02	0.00E+00	1.47E-04	0.00E+00	0.00E+00	-3.60E-03
POCP	[kg NMVOC-Eq.]	1.51E-02	0.00E+00	2.58E-05	0.00E+00	0.00E+00	-1.67E-03
ADPE	[kg Sb-Eq.]	4.94E-05	0.00E+00	8.68E-10	0.00E+00	0.00E+00	-2.71E-06
ADPF	[MJ]	9.38E+01	0.00E+00	1.13E-01	0.00E+00	0.00E+00	-9.98E+00
WDP	[m ³ world-Eq deprived]	4.51E+00	0.00E+00	9.64E-05	0.00E+00	0.00E+00	-2.02E-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 SynoZAK connector DN50-ZAK69 (2.9 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	6.37E+01	0.00E+00	7.84E-03	0.00E+00	0.00E+00	6.29E-01
PERM	[MJ]	7.74E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	6.44E+01	0.00E+00	7.84E-03	0.00E+00	0.00E+00	6.29E-01
PENRE	[MJ]	8.98E+01	0.00E+00	1.14E-01	4.20E+00	0.00E+00	-9.98E+00
PENRM	[MJ]	4.20E+00	0.00E+00	0.00E+00	-4.20E+00	0.00E+00	0.00E+00
PENRT	[MJ]	9.40E+01	0.00E+00	1.14E-01	0.00E+00	0.00E+00	-9.98E+00
SM	[kg]	2.63E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.27E-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]	1.26E-01	0.00E+00	9.05E-06	0.00E+00	0.00E+00	-4.56E-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 SynoZAK connector DN50-ZAK69 (2.9 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1.34E-07	0.00E+00	6.01E-13	0.00E+00	0.00E+00	-7.71E-11
NHWD	[kg]	1.35E+00	0.00E+00	1.85E-05	0.00E+00	0.00E+00	1.51E-01
RWD	[kg]	3.23E-03	0.00E+00	2.11E-07	0.00E+00	0.00E+00	1.24E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.22E+00	0.00E+00	0.00E+00	2.68E+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 SynoZAK connector DN50-ZAK69 (2.9 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 SYNOFLEX connector DN 100 AS4158

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 SYNOFLEX connector DN 100 AS4158 (11.9 kg/piece)

Kernindikator	Einheit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	3.10E+01	0.00E+00	3.60E-02	0.00E+00	0.00E+00	-3.75E+00
GWP-fossil	[kg CO ₂ -Eq.]	3.04E+01	0.00E+00	3.58E-02	0.00E+00	0.00E+00	-3.75E+00
GWP-biogenic	[kg CO ₂ -Eq.]	5.53E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.91E-03
GWP-luluc	[kg CO ₂ -Eq.]	1.36E-02	0.00E+00	2.40E-04	0.00E+00	0.00E+00	-7.73E-05
ODP	[kg CFC11-Eq.]	2.05E-10	0.00E+00	3.50E-15	0.00E+00	0.00E+00	-8.19E-15
AP	[mol H ⁺ -Eq.]	9.82E-02	0.00E+00	1.19E-04	0.00E+00	0.00E+00	-8.05E-03
EP-freshwater	[kg P-Eq.]	3.52E-04	0.00E+00	1.27E-07	0.00E+00	0.00E+00	-6.80E-07
EP-marine	[kg N-Eq.]	2.02E-02	0.00E+00	5.45E-05	0.00E+00	0.00E+00	-1.42E-03
EP-terrestrial	[mol N-Eq.]	2.12E-01	0.00E+00	6.11E-04	0.00E+00	0.00E+00	-1.24E-02
POCP	[kg NMVOC-Eq.]	6.08E-02	0.00E+00	1.07E-04	0.00E+00	0.00E+00	-5.75E-03
ADPE	[kg Sb-Eq.]	2.11E-04	0.00E+00	3.60E-09	0.00E+00	0.00E+00	-9.34E-06
ADPF	[MJ]	4.29E+02	0.00E+00	4.69E-01	0.00E+00	0.00E+00	-3.44E+01
WDP	[m³ world-Eq deprived]	2.90E+01	0.00E+00	3.99E-04	0.00E+00	0.00E+00	-6.96E-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 SYNOFLEX connector DN 100 AS4158 (11.9 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	2.37E+02	0.00E+00	3.25E-02	0.00E+00	0.00E+00	2.17E+00
PERM	[MJ]	1.39E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.38E+02	0.00E+00	3.25E-02	0.00E+00	0.00E+00	2.17E+00
PENRE	[MJ]	4.00E+02	0.00E+00	4.70E-01	2.89E+01	0.00E+00	-3.44E+01
PENRM	[MJ]	2.89E+01	0.00E+00	0.00E+00	-2.89E+01	0.00E+00	0.00E+00
PENRT	[MJ]	4.29E+02	0.00E+00	4.70E-01	0.00E+00	0.00E+00	-3.44E+01
SM	[kg]	9.88E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.16E+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	[m³]	7.49E-01	0.00E+00	3.75E-05	0.00E+00	0.00E+00	-1.57E-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 SYNOFLEX connector DN 100 AS4158 (11.9 kg/piece)

Indikator	Einheit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	2.64E-07	0.00E+00	2.49E-12	0.00E+00	0.00E+00	-2.66E-10
NHWD	[kg]	5.44E+00	0.00E+00	7.66E-05	0.00E+00	0.00E+00	5.22E-01
RWD	[kg]	1.29E-02	0.00E+00	8.73E-07	0.00E+00	0.00E+00	4.28E-06
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	8.94E+00	0.00E+00	0.00E+00	1.05E+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
SYNOFLEX connector DN 100 AS4158 (11.9 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.