Environmental Product Declaration

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

Plastic spacers and related products from recycled material

(EPD of multiple products, based on the worst case results of the product group)

from

Exte GmbH

Programme:	The International EPD System, www.environdec.com
Programme operator:	EPD International AB
Type of EPD:	EPD of multiple products from a company
EPD registration number:	EPD-IES-0025243:001
Version date:	2025-10-27
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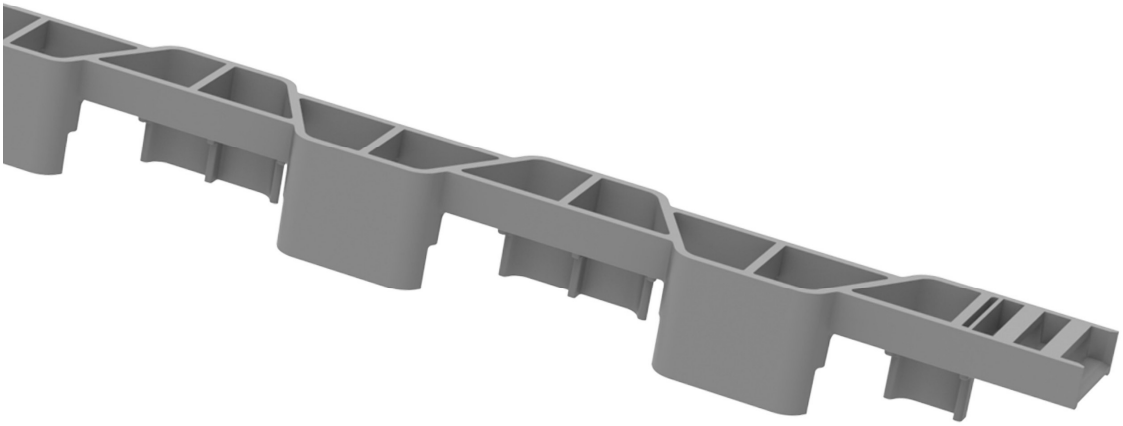
	An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity, see www.environdec.com



GENERAL INFORMATION

Programme Information	
Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	support@environdec.com

Product Category Rules (PCR)
CEN standard EN 15804 serves as the core PCR
PCR: ***PCR 2019:14: CONSTRUCTION PRODUCTS, version 2.0.1***
PCR review was conducted by: ***The Technical Committee of the International EPD System. See www.environdec.com for a list of members. Review chair Rob Rouwette and review co-chair Noa Meron. The review panel may be contacted via the Secretariat on www.environdec.com/contact.***
c-PCR: Not applicable

Third-party Verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ **Individual EPD verification without a pre-verified LCA/EPD tool** Third-party verifier: Luciano Sambataro, Cacta Sustainability Solutions LLC Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but published in different EPD programmes, may not be comparable. For two EPDs to be comparable, they shall be based on the same PCR (including the same first-digit version number) or be based on fully aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have identical scope in terms of included life-cycle stages (unless the excluded life-cycle stage is demonstrated to be insignificant); apply identical impact assessment methods (including the same version of characterisation factors); and be valid at the time of comparison.
For further information about comparability, see EN 15804 and ISO 14025.

INFORMATION ABOUT EPD OWNER

Owner of the EPD: Exte GmbH
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Contact: Dr. Anja Hamblyn, a.hamblyn@exte.de
Address and contact information of the LCA practitioner commissioned by the EPD owner:
Sphera Solutions GmbH, 70771 Leinfelden-Echterdingen, Germany, www.sphera.com

Description of the organisation:

EXTE Group

The EXTE Group is a global supplier of specialised products for the concrete, roller shutter box and window construction industries. Our independent, medium-sized family business combines tradition with innovation. Since our foundation in 1959, we evolved constantly and became a key player in the construction industry.
To live up to our guiding principles, we have been using an energy management system at our sites for over a decade, which is certified according to ISO 50 001.

EXTE GmbH in Nienburg (Saale), Germany

At our site in Nienburg (Saale), Germany, the EXTE GmbH employs 200 people in development, manufacture, warehousing, sales, and distribution. On a production area of around 22,000 m² formwork accessories and spacers for concrete construction are made from steel and plastics – a complete product range tailored to the needs of our customers.

Product-related or management system-related certifications: ISO 50 001

PRODUCT INFORMATION

Product name:
Plastic spacers and related products of different forms for reinforced concrete construction

Product identification:
Plastic spacers for maintaining defined concrete cover and supporting reinforcement in reinforced concrete construction, and related concrete accessories made from recycled material

Product description:
A plastic spacer is a component which is placed to maintain a defined concrete covering between the outer steel reinforcement and formwork or blinding in reinforced concrete construction. Certain spacers additionally provide support for the reinforcement. Spacers differ in shape, size, material and application. This EPD includes the following spacer types:

- **Continuous spacers** – normally characterised by elongated linear shape; used to support horizontal layers of reinforcement mesh
- **Wheel spacers** – normally characterised by a circular section, perpendicular to the bar to which it is attached; used for maintaining distance between vertical layers of reinforcement mesh and formwork
- **Clip-on spacers** – normally characterised by an integrated clip to clamp around the rebar; used with horizontal and vertical layers of reinforcement mesh
- **Rebar chair spacers** – normally characterised by cylindrical or rectangular shape with enlarged footing; used to support horizontal layers of reinforcement mesh or individual rebars
- **Tunnel spacers** – normally characterised by a tubular seat to hold the rebar and enlarged footing; used to maintain the distance between reinforcement and sealing on the uphill side of a tunnel
- **Tube spacers** – normally characterised by a constant hollow cross section; used to maintain the distance between formwork faces; allows tie-rods to be inserted and withdrawn for re-use.

Related products encompass concrete accessories, such as chamfers, profiles, shim pads, caps and plugs for tube spacers, which are used during or after concrete construction to facilitate the forming, pouring, finishing and positioning of concrete structures.

To produce spacers and related products from plastic for reinforced concrete construction the methods of injection moulding or extrusion are used.

Process steps for injection moulding:

1. Plasticisation
   Plastic flakes or pellets fall from a hopper onto a rotating screw conveyer which feds the material through a heated barrel meanwhile melting it.
2. Injection and Cooling
   The melt is forced through a nozzle, sprue and runners into cooled mould cavities where it solidifies.
3. Ejection and Recycling
   After a defined cooling time, the mould opens and the solid articles are released. Material contained in the sprue and runners is separated and, together with non-conforming articles, shredded by an auxiliary grinder and returned to the production process.
4. Quality Control and Packaging
   Visual inspections, dimensional checks, and mechanical testing are performed to ensure quality standards are met. The articles are packaged in bundles held by plastic strapping, bags or boxes, before being placed onto pallets and prepared for distribution.

Process steps for extrusion:
Steps 1 and 4 are identical to the injection moulding process.

2. Extrusion, Sizing, Cooling, Punching and Cutting
   The melt is forced through a die followed by a sizing unit in which shaping and dimensional calibration of the continuous strand takes place. The shape is stabilised by cooling.
   Depending on the product type, a punching unit might be applied to remove sections of the profile, before it is finally cut to length.
3. Recycling
   Punched-out sections and non-conforming articles are shredded by an auxiliary grinder and returned to the production process.

Visual representation (e.g., an image) of the product:
A visual representation of the products is provided in the “List of products” section.

UN CPC code: 3695 Builders’ ware of plastics

Name and location of production site(s): Industriestraße 3, 06429 Nienburg (Saale), Germany

CONTENT DECLARATION

Content declaration is done for plastic spacers and related products from recycled material

Product content	Mass, kg	Post-consumer recycled material, mass-% of product	Biogenic material, mass-% of product	Biogenic material, kg Carbon / product or declared unit
ABS granulate	1	99%	0%	0
TOTAL	1	99%	0%	0

Packaging materials	Mass, kg	Mass-% (versus the product)	Biogenic material, kg Carbon / product or declared unit
Pallets	2.29E-02	2.1500%	0.0080
Wire	9.75E-06	0.0009%	--
Timber (square/board)	3.85E-02	3.6200%	0.0150
Cardboard	2.94E-04	0.0200%	0.0001
LDPE film/sheet/bags	2.32E-03	0.0300%	--
PP strapping	1.50E-05	0.0010%	--
Sticky label	9.18E-04	0.2200%	--
Label	4.64E-06	0.0010%	--
TOTAL	6.51E-02	6.1100%	0.0230

1 kg biogenic carbon in the product/packaging is equivalent to the uptake of 44/12 kg of CO_2.

No substance contained within the product requires declaration according to the Candidate List of SVHC for Authorisation subject to Article 59(10) of the Regulation (EC) No. 1907/2006 (“REACH”).

LCA INFORMATION

Declared unit: 1 kg of plastic spacers made of 99% secondary material

Reference service life: Not applicable

Time representativeness: 2024

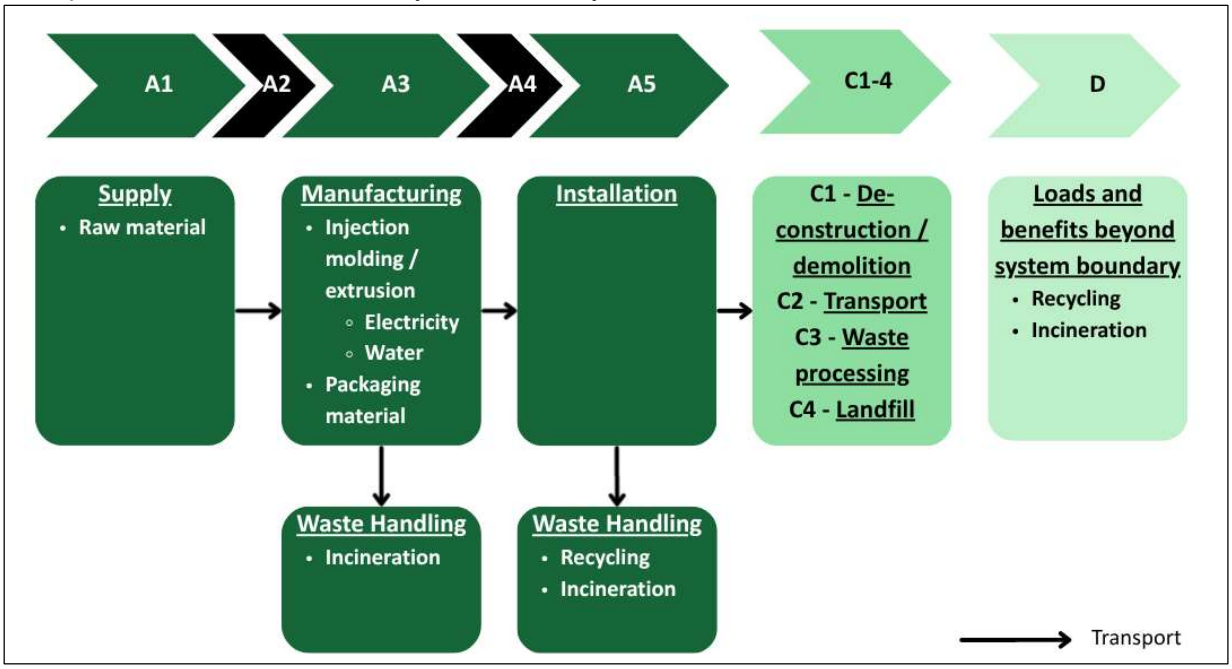
Geographical scope: A1-A2: EU, A3: Germany; A4-A5 and C1-D: EU

Database(s) and LCA software used: The background data has been taken from the Sphera MLC database CUP 2025.1. The LCA model was created using Sphera's LCA for Experts (LCA FE) software, version 10.9.

EPD/LCA Tool used: Not applicable

Description of system boundaries:
Cradle to gate with options, modules C1–C4, module D and with optional modules (A1–A3 + C + D and additional modules A4 and A5).

Process flow diagram:
Process flow diagram of the product system, divided into the life-cycle stages and modules showing the main processes included and the system boundary of the LCA.



More information:
More information on the product can be found under https://www.exte.de/schalungszubehoer/

Information on electricity used in the manufacturing process:
Exte produces solar photovoltaic power on-site, which in the year 2024 substituted 3.37% of the total manufacturing electricity demand. In accordance with the PCR, the German residual grid mix is used for the LCA-calculations to account for the rest of the 96.63%. The emission factor (with regards to the GWP-GHG indicator) accounts for: 0.85 kg CO_2 eq./kWh.

Information on secondary material input:
The spacers consist of 99% secondary material. The scrap enters the system boundary burden-free. The recycled material inputs, which encompass the mechanical recycling of post-consumer plastic waste, via grinding, metal separation, washing, palletisation etc., contribute to more than 10% to the GWP-GHG results of modules A1-A3. The GWP-GHG intensity of the recycled material ranges from 120 kg CO_2 eq./tonne to 600 kg CO_2 eq./tonne.

Information about declared modules and scenarios:

General:
This EPD covers a whole range of different products, and a worst-case representative of these products is declared. The declared product composition represents the specific composition of all spacers produced at the production site over one year.

Module A1 to A3:
The product stage includes provision of all raw materials, transportation of raw materials to manufacturing site and the production process, as well as waste processing up to the end-of-waste state or disposal of final residues during the product stage.

Secondary plastic granulates are used as raw materials for the spacers declared in this EPD. The secondary plastic is purchased in different compositions, i.e. either 99% or 100% secondary granulate (Module A1). The worst-case composition purchased by Exte is declared in this EPD, i.e. ABS granulate with 99% recycled content. This is delivered to the production site by EURO mix truck (Module A2). Further processing of the granulate is done by injection moulding and extrusion (Module A3). The impact of packaging material and its transportation is included.

Module A4:
This module considers 100 km truck transport to site (diesel driven, EURO mix, 40 tons total load, 64% utilization). The transport distance can be modified project-specific if required by linear scaling.

Module A5:
Manual installation is considered in this module. Treatment and disposal of packaging material are included in this module as well, i.e. recycling of steel packaging and incineration of plastic and wood packaging.

Module C1 to C4:
- De-construction/demolition (C1): Demolition of the spacers is done along with the concrete elements they are installed in; for spacers only, the environmental loads are assumed as unsignificant and declared as 0.
- Transport (C2): 50 km EURO mix truck (EU Scenario).
- Waste processing (C3): Not relevant, as the spacers are landfilled.
- Disposal (C4): Spacers are disposed of in landfill.

Module D:
- Benefits and loads from module A5

Excluded data and flows from the LCA calculation:
Infrastructure and capital goods are not considered within this EPD.
Allocation principles for secondary material:
Secondary plastics (in product and packaging) are assumed to reach the end-of-waste status before the recycling process; the recycling process is included in A1-A3.

Data Quality Assessment

Technological: All primary and secondary data are modelled to be specific to the technologies or technology mixes under study. Where technology-specific data are unavailable, proxy data are used. The overall technological representativeness is considered to be very good.

Geographical: All primary and secondary data are collected specific to the countries / regions under study. Where country / region specific data are unavailable, proxy data are used. The overall geographical representativeness is considered to be very good.

Temporal: All primary data are collected for the year 2024. All secondary data come from the Managed LCA Content (MLC) 2025.1 database and are representative of the years 2021 - 2024. As the study intended to compare the product systems for the reference year 2024, temporal representativeness is good.

The share of primary data is calculated based on GWP-GHG results. It is a simplified indicator for data quality that supports the use of more primary data, to increase the representativeness of and comparability between EPDs. Note that the indicator does not capture all relevant aspects of data quality and is not comparable across product categories.

Process	Source type	Source	Reference	Data category	Share of primary data, of GWP-GHG results for A1-A3
Manufacturing of product	Collected data	MLC 2025.1	< 5 years	Secondary data	0%
Raw material supply	Databases	MLC 2025.1	< 5 years	Secondary data	0%
Generation of electricity used in manufacturing of product	Databases and collected data	MLC 2025.1	< 5 years	Primary data	56%
Transport of raw materials	Databases and collected data	MLC 2025.1	< 5 years	Primary data	2%
Other processes	Databases	MLC 2025.1	< 5 years	Secondary data	0%
Total share of primary data, of GWP-GHG results for A1-A3					58%

Content Information

Module A4: Transport to the building site

This module considers 100 km truck transport to site (diesel driven, EURO mix, 40 tons total load, 64% utilization). The transport distance can be modified project-specific if required by linear scaling.

The following table displays technical information used in module A4 (transportation by truck to the building site)

Parameter	Unit	Amount
Diesel consumption	l/100 km (per kg of transported good)	0.0029
Distance	km	100
Capacity utilization (including empty returns)	%	64
Gross weight of transported product	kg	1
Volume capacity utilization factor	-	1

Module A5: Installation in the building

The following table displays technical information regarding the installation in the building (treatment of packaging waste).

Parameter	Unit	Amount
Wooden pallets sent to incineration	kg/ declared unit	2.293E-02
Timber sent to incineration	kg/ declared unit	3.860E-02
Cardboard sent to incineration	kg/ declared unit	2.940E-04
Plastic packaging waste sent to incineration	kg/ declared unit	3.270E-03
Steel packaging waste sent to recycling	kg/ declared unit	9.750E-06

Note: Installation offcuts or installation efforts and related auxiliary materials are not considered in this study and therefore not listed.

Module C: End-of-life

The following table displays the waste flows at the products' end of life (for the worst-case product). The transportation distance for C2 is considered to be 50 km.

The amounts listed represent gross quantities including secondary material.

Parameter	Unit	Amount
Waste collected as mixed construction waste	kg	1
EoL Scenario (Landfill) Waste materials for final deposition	kg	1

Modules declared, geographical scope, share of primary data (in GWP-GHG results) and data variation (in GWP-GHG results):

	Product stage			Distribution/ installation stage		Use stage							End-of-life stage				Beyond product life cycle
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	X	X	X	X	X	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X
Geography	EU	EU	DE	EU	EU								EU	EU	EU	EU	EU
Share of primary data	58%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	-16%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

ENVIRONMENTAL PERFORMANCE

LCA results of the product(s) - main environmental performance results

The calculation of the resource use indicators follows option B from Annex 3 in PCR 2019:14 - Construction Products v.3.4 for packaging. Thus, there is an input in A3 for PERM and PENRM values and output in A5. Calorific value of secondary materials is declared. Biogenic carbon leaving the product system in module A5 has been balanced out in modules A1-A3.

Mandatory impact category indicators according to EN 15804

Results per 1 kg of plastic spacers with 99% secondary material									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-total	kg CO_2 eq.	8.49 E-01	8.36 E-03	1.07 E-01	0	3.92 E-03	0	3.03 E-02	-3.33 E-02
GWP-fossil	kg CO_2 eq.	9.43 E-01	8.26 E-03	1.12 E-02	0	3.88 E-03	0	3.02 E-02	-3.30 E-02
GWP-biogenic	kg CO_2 eq.	-9.52 E-02	1.54 E-05	9.57 E-02	0	7.25 E-06	0	-8.47 E-06	-1.70 E-04
GWP-luluc	kg CO_2 eq.	1.20 E-03	8.68 E-05	2.41 E-06	0	4.07 E-05	0	8.27 E-05	-4.53 E-05
ODP	kg CFC 11 eq.	7.95 E-12	1.40 E-15	1.19 E-14	0	6.57 E-16	0	1.03 E-13	-3.09 E-13
AP	mol H^+ eq.	1.31 E-03	1.23 E-05	1.73 E-05	0	5.77 E-06	0	1.80 E-04	-3.89 E-05
EP-freshwater	kg P eq.	3.11 E-06	2.27 E-08	1.87 E-09	0	1.07 E-08	0	1.68 E-05	-3.01 E-08
EP-marine	kg N eq.	4.08 E-04	4.88 E-06	5.01 E-06	0	2.29 E-06	0	3.90 E-05	-1.13 E-05
EP-terrestrial	mol N eq.	4.46 E-03	5.06 E-05	7.31 E-05	0	2.38 E-05	0	4.25 E-04	-1.26 E-04
POCP	kg NMVOC eq.	1.12 E-03	1.09 E-05	1.38 E-05	0	5.11 E-06	0	1.23 E-04	-3.06 E-05
ADP-minerals&metals*	kg Sb eq.	1.03 E-07	5.61 E-10	1.36 E-10	0	2.63 E-10	0	2.05 E-09	-3.26 E-09
ADP-fossil*	MJ	1.20 E+01	1.08 E-01	2.54 E-02	0	5.07 E-02	0	5.00 E-01	-5.84 E-01
WDP*	m^3	7.21 E-02	3.86 E-05	1.16 E-02	0	1.81 E-05	0	3.72 E-03	-3.42 E-03
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption								

** Disclaimer: 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 experience with the indicator.*
The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.
The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3).

Additional mandatory and voluntary impact category indicators

Results per 1 kg of plastic spacers with 99% secondary material									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	9.59 E-01	8.45 E-03	1.12 E-02	0	3.97 E-03	0	3.10 E-02	-3.38 E-02

Resource use indicators

Results per 1 kg of plastic spacers with 99% secondary material									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	3.56 E+00	8.14 E-03	9.70 E-01	0	3.82 E-03	0	8.34 E-02	-1.89 E-01
PERM	MJ	9.63 E-01	0	-9.63 E-01	0	0	0	0	0
PERT	MJ	4.53 E+00	8.14 E-03	6.80 E-03	0	3.82 E-03	0	8.34 E-02	-1.89 E-01
PENRE	MJ	1.18 E+01	1.08 E-01	1.54 E-01	0	5.07 E-02	0	5.00 E-01	-5.84 E-01
PENRM	MJ	2.91 E+01	0	-1.29 E-01	0	0	0	0	0
PENRT	MJ	4.10 E+01	1.08 E-01	2.54 E-02	0	5.07 E-02	0	5.00 E-01	-5.84 E-01
SM	kg	9.91 E-01	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	3.48 E-03	4.03 E-06	2.72 E-04	0	1.89 E-06	0	1.09 E-04	-1.48 E-04
Acronyms	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 re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water								

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the characterisation factor for biogenic CO_2 is set to zero.

Waste indicators

Results per 1 kg of plastic spacers with 99% secondary material									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1.46 E-07	4.33 E-12	1.35 E-11	0	2.04 E-12	0	1.12 E-10	-3.67 E-10
Non-hazardous waste disposed	kg	1.28 E-01	1.51 E-05	1.96 E-03	0	7.08 E-06	0	9.96 E-01	-2.90 E-04
Radioactive waste disposed	kg	7.37 E-04	2.04 E-07	1.37 E-06	0	9.57 E-08	0	7.20 E-06	-4.37 E-05

Output flow indicators

Results per 1 kg of plastic spacers with 99% secondary material									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0	0	0	0	0	0	0	0
Material for recycling	kg	0	0	0	0	0	0	0	0
Materials for energy recovery	kg	0	0	0	0	0	0	0	0
Exported energy, electricity	MJ	0	0	1.54 E-01	0	0	0	0	0
Exported energy, thermal	MJ	0	0	2.78 E-01	0	0	0	0	0

Further information on the assumptions made in the LCA calculation and the interpretation of the results can be provided upon request.

ADDITIONAL ENVIRONMENTAL INFORMATION

Mass-based conversion factor for converting the declared results to results for specific products within the product group shall be used. The products represented by this EPD are provided in the “List of products” section. The mass of the products is provided upon request.

ABBREVIATIONS

Abbreviation	Definition
ABS	Acrylonitrile Butadiene Styrene
CEN	European Committee for Standardization
CO_2 eq.	Carbon Dioxide Equivalent
CO_2	Carbon Dioxide
c-PCR	Complementary Product Category Rule
EC	European Commission
ECHA	European Chemicals Agency
EN	Europäische Norm (European Standard)
EoL	End of Life
EPD	Environmental Product Declaration
EU	European Union
GPI	General Programme Instructions
GWP-GHG	Global Warming Potential of Greenhouse Gases
ISO	International Organization for Standardization
LCA	Life Cycle Assessment
LDPE	Low-Density Polyethylene
MND	Module Not Declared
PCR	Product Category Rules
PE	Polyethylen
PENRM	Primary Energy Non-Renewable, Material
PERM	Primary Energy Renewable, Material
PP	Polypropylene
PVC	Polyvinyl Chloride
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
SVHC	Substances of Very High Concern
UN CPC	United Nations Central Product Classification

REFERENCES

a) General Programme Instructions of International EPD System. Version 4.
b) PCR 2019:14: CONSTRUCTION PRODUCTS. version 2.0.1. The International EPD System. www.environdec.com.
c) EN 15804:2012+A2:2019, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products.
d) ISO14025, 2006. Environmental labels and declarations — Type III environmental declarations — Principles and procedures.
e) Software and database: Sphera LCA for Experts. LCA FE. software-system and databases. Managed LCA content MLC (fka GaBi database). University of Stuttgart and Sphera Solutions GmbH. 2024. CUP Version: 2024.1. MLC data set documentation under https://lcadatabase.sphera.com/ (Oct 2024)
f) Candidate list of substances of very high concern (SVHC) for authorisation published by ECHA as defined in the REACH Regulation 1907/2006/EC (> 0,1 wt%)

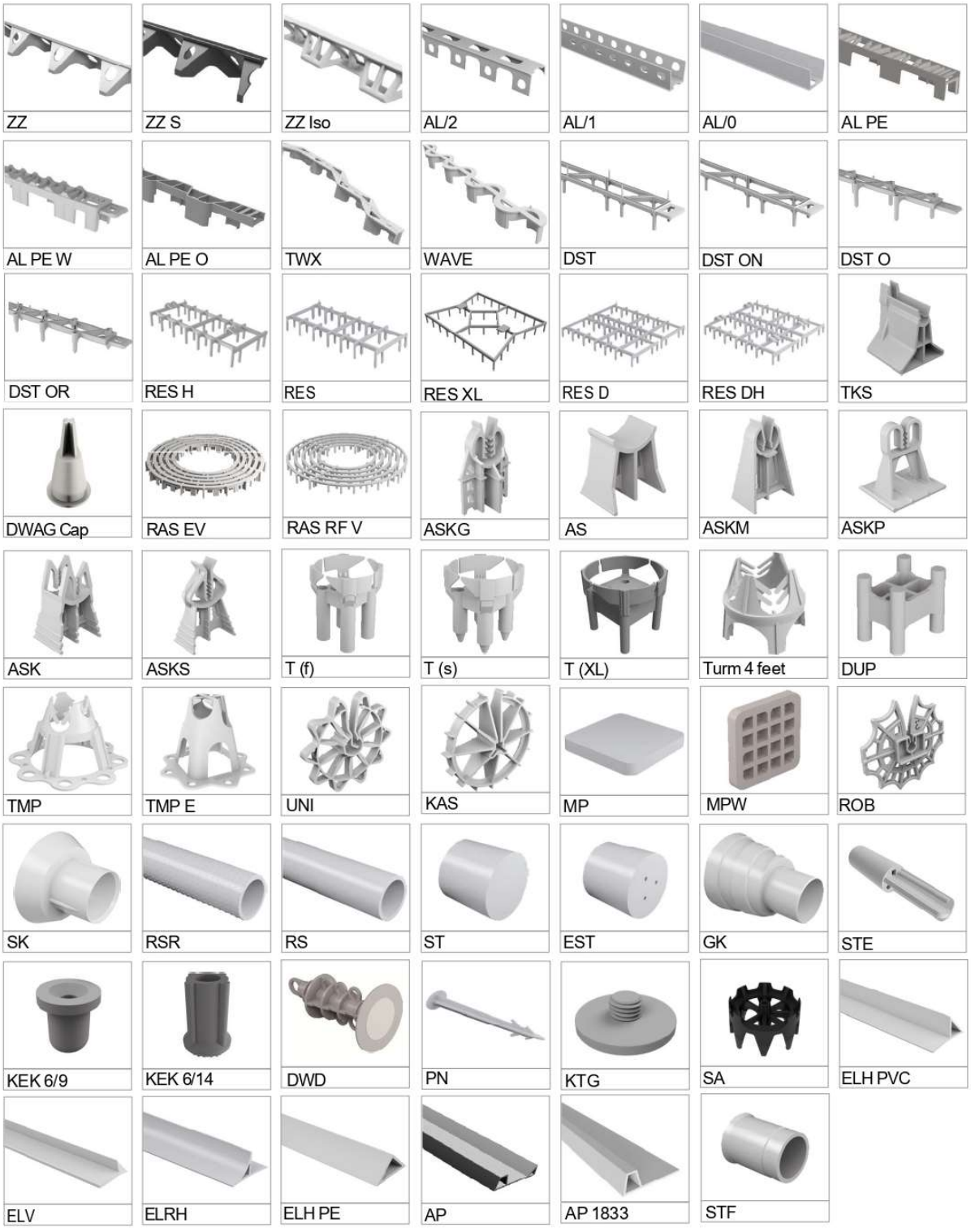
VERSION HISTORY

Original Version of the EPD, 2025-10-27

List of products

Article number	Description
14019..	AL PE - Linear spacer for bottom layer of reinforcement (PVC-free)
14019..O	AL PE O - Linear spacer for bottom layer of reinforcement (PVC-free, optimised shape)
14019..W	AL PE W - Linear spacer for bottom layer of reinforcement (PVC-free, undulating surface)
142..80	TWX Twistex - Wave-spacer for bottom layer of reinforcement
144.250EES	DST ES - Linear spacer for bottom layer of reinforcement (extra stable)
144.250EN15	DST N15 - Linear spacer for bottom layer of reinforcement (knob height 15mm)
144.250x	DST - Linear spacer for bottom layer of reinforcement (knob distance 5,0cm) *x: E = flat feet, RFE = round feet, SFE = pointed feet*
144.250xO	DST O - Linear spacer for bottom layer of reinforcement (with knobs, optimal) *x: FF = flat feet, RF = round feet, SF = pointed feet*
144.250xOR	DST OR - Linear spacer for bottom layer of reinforcement (with knobs, optimal robust) *x: FF = flat feet, RF = round feet, SF = pointed feet*
145.250x	DST - Linear spacer for bottom layer of reinforcement (without knobs) *x: E = flat feet, RFE = round feet, SFE = pointed feet*
145.250xO	DST O - Linear spacer for bottom layer of reinforcement (without knobs, optimal) *x: FF = flat feet, RF = round feet, SF = pointed feet*
145.250xOR	DST OR - Linear spacer for bottom layer of reinforcement (without knobs, optimal robust) *x: FF = flat feet, RF = round feet, SF = pointed feet*
146.250x	DST - Linear spacer for bottom layer of reinforcement (knob distance 2,5cm) *x: E = flat feet, RFE = round feet, SFE = pointed feet*
147033..	WELLE - Wave-spacer for bottom layer of reinforcement
15..A	ZZ - Zig-Zag-spacer for support of bottom reinforcement (from PVC)
15..S	ZZ S - Zig-Zag-spacer for support of bottom reinforcement (from PVC; impact-proof)
16..I	ZZ ISO - Zig-Zag-spacer for bottom layer of reinforcement (PVC-free)
17..	EL - Chamfer *available in specifications:* ** ELH PVC with nailing flange and hollow profile from PVC,* ** ELRH with nailing flange and rounded hollow profile from PVC,* ** ELV with nailing flange and solid profile from PVC,* ** ELH PE without nailing flange, hollow profile from PE*
183.	AP - Profile for drip grooves and chamfered edge Availiable in different *specifications:*
19..	AL - Linear spacer for support of bottom reinforcement (from PVC) *even numbers = AL/1 (without lateral cut-outs, with holes), odd numbers = AL/2 (with lateral cut-outs and holes)*
19..OL	AL OL - Linear spacer for support of bottom reinforcement (from PVC; without lateral cut-outs or holes)
22..	RS - Tube spacer (smooth surface)
25.. 26..	RSR - Tube spacer (rough surface)
30..	ASK - Rebar chair spacer with clamping device
30..x	T Turm - Rebar chair spacer *x: 1 = (f) flat feet, 2 = (f) flat feet and white colour, 3 = (s) pointed feet, 4 = (s) pointed feet and white colour, 5 = (s) pointed feet and lightgrey colour, 6 = (s) pointed feet and black colour, XL = (XL) flat feet and extra large*
309..x	T Turm 4 – Rebar chair with 4 feet *x: 1 = flat feet, 3 = pointed feet*
31..	ST - Plug for sealing tie points
3101…...	STE Stabend - Cap for protruding rebars
31012	DWD - Dowel for fastening cross-arm braces
3105V	KEK 6/9 - End cap for elevating steel cages
3106x	KEK 6/14 - Foot for VB and SB *x: V = 14 mm contact surface, 45 = 45 mm contact surface*
31221	EST - Vent plug for sealing tie points
32..	DWA K - Foot for DWA (cross-shaped)
3200..	ROR Robo Ring - Wheel spacer for bottom layer of reinforcement (suitable for automated distribution)

Article number	Description
3201	GK - Supporting cone for tube spacer
3222..	SK - Supporting cone for tube spacer
3230	SKX - Supporting cone for tube spacer
3269.00810	TKS - Rebar tunnel spacer
329..	DWAG Cap - Cap for DWAG
3299..	DWA Cap - Cap for DWA
33..	AS - Rebar chair spacer
34..	MP - Shim pad
34..1	MP - Shim pad with slot
34.05	MPW - Shim pad with "waffle pattern"
3451.1	KTG - Threaded glueing plate for tube spacers
352022	STF - Sealing plug
354022	STX - Sealing plug
37..	PN - Plastic nail for insulation boards
3706	FK - End cap for elevating steel cages
37100	SA - Formwork stop
38..	ASKP - Rebar chair spacer with clamping device (with large base for soft ground)
38203	HOP - Spacer for hollow planks
381520 382530 384050 385060 387080 389000	Turm TMP - Rebar chair spacer (with large base for soft ground)
388..	ASKS - Rebar chair spacer with clamping device (standard)
3888..	ASKG - Rebar chair spacer with clamping device ("Gigant")
3889..	ASKM - Rebar chair spacer with clamping device ("Maxi")
38899….	DUP Duplex - Rebar spacer for two different concrete covers
389..	ASKO - Rebar chair spacer with guide groove
39..	RAS - Ring-shaped large-area spacer *also available as V (reinforced) and EV (extra reinforced)*
398..x	RES - Rectangular large-area spacer *x: [ ] = round feet, F = flat feet, SF = pointed feet*
398…x	RES H - Rectangular large-area spacer (with hook) *x: [ ] = round feet, F = flat feet, SF = pointed feet*
399..x	RES D - Rectangular large-area spacer (double width) *x: [ ] = round feet, F = flat feet, SF = pointed feet*
399…x	RES D H - Rectangular large-area spacer (double width, with hook) *x: [ ] = round feet, F = flat feet, SF = pointed feet*
3999..x	RES XL - Rectangular large-area spacer (extra large, with hook) *x: [ ] = round feet, F = flat feet, SF = pointed feet*
40..x 41..	UNI - Universal wheel spacer x: [ ] = not reinforced, S = reinforced
42.. 44.. 46.. 49..	KAS - Clamp wheel spacer
42..6 42..8 42..10	ROB Robotex - Wheel spacer for the production of rod spacers
9...	DUOL - End cap with clamp for DUO


ZZ
ZZ S
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AL/2
AL/1
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AL PE
AL PE W
AL PE O
TWX
WAVE
DST
DST ON
DST O
DST OR
RES H
RES
RES XL
RES D
RES DH
TKS
DWAG Cap
RAS EV
RAS RF V
ASKG
AS
ASKM
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DWD
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SA
ELH PVC
ELV
ELRH
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