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ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 and EN 15804+A2

Carl Stahl ARC GmbH
X-TEND® CXL - MW25 - 60/1.5mm - stainless-steel cable mesh

Carl Stahl
ARCHITEKTUR

Owner of the declaration
Carl Stahl ARC GmbH
Siemensstrasse 2
73079 Suessen
Germany

Product
X-TEND® CXL - MW25 - 60/1.5mm - stainless-steel cable mesh

Declared product / Declared unit
1 kg

This declaration is based on Product Category Rules
EN 15804:2012 + A2:2019,
NPCR 013 Part B for Steel and Aluminium Construction Products,
NPCR Part A:2021

Program operator:
EPD Global
Majorstuen P.O. Box 5250
N-0303 Oslo
Norway

Declaration number
NEPD-10417-10417-2

Registration number
NEPD-10417-10417-2

Issue date
13.10.2025

Valid to
12.10.2030

EPD Software
Emidat EPD Tool v1.0.0

General Information

Product
X-TEND® CXL - MW25 - 60/1.5mm - stainless-steel cable mesh

Program Operator
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Declaration Number
NEPD-10417-10417-2

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EN 15804:2012 + A2:2019,
NPCR 013 Part B for Steel and Aluminium Construction Products,
NPCR Part A:2021

Statements
The owner of the declaration shall be liable for the underlying information and evidence. The Norwegian EPD Foundation shall not be liable with respect to manufacturer, life cycle assessment data and evidences.

Declared unit
1 kg

General information on verification of EPD from EPD tools
Independent verification of data, other environmental information and the declaration according to ISO 14025:2010, § 8.1.3 and § 8.1.4. Verification of each EPD is made according to EPD Global's guidelines for verification and approval requiring that tools are i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPD Global, and iii) the process is reviewed annually by an independent third party verifier. See Appendix G of EPD Global's General Programme Instructions for further information on EPD tools.

Verification of EPD tool
Charlotte Merlin, FORCE Technology
(no signature required)

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Place of production
Süßen, Germany

Management system
-

Issue date
13.10.2025

Valid to
12.10.2030

Year of study
2024

Comparability
EPDs of construction products may not be comparable if they do not comply with EN 15804 and are not seen in a building context. EPD data may not be comparable if the datasets used are not developed in accordance with EN 15804 and if the background systems are not based on the same database (including primary and secondary data).

Development and verification of EPD
The declaration was created using the Emidat EPD tool v1.0, developed by Emidat GmbH. The EPD tool has been approved by EPD Global.

Developer of EPD: Marc Schmidtke
Reviewer of company-specific input data and EPD: Christian Hummel

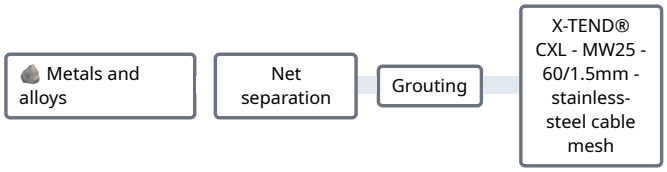
Approved

Håkon Hauan, The Norwegian EPD Foundation

Product

Product description

X-TEND® is a flexible, robust mesh made of stainless-steel cables connected via net clamps. It offers high tensile strength, weather resistance and a long service life. Thanks to its flexibility, the cable mesh adapts to a wide variety of shapes and structures without losing stability. It can be bent or tensioned both flat and spatially. X-TEND® impresses with its elegant, almost invisible appearance, which combines lightness with safety. At the same time, the open structure allows a high level of light and air permeability. This EPD refers to X-TEND® CXL micro 1.5 with a mesh size range of 25 - 60 mm.



X-TEND® is used particularly in the architectural sector as a railing infill, fall protection, façade element, window safety, ball net or greening aid. It is also used in zoological facilities for animal enclosures, as it provides a safe yet transparent barrier. It offers a modern solution for a wide range of applications where design, safety and durability are required. Stainless-steel wire mesh combines functionality with contemporary design.

Product specification

Name of ingredient	Share of total weight	Country of origin
Metals and alloys	80 - 100 %	Various

Technical data

	Unit	Value
Density	kg / m³	8030.0
Total mass	kg	1.0

Market

Germany

LCA: Calculation rules

Declared unit
1 kg

Reference service life
Not defined

Data quality
The foreground data are based on extensive and detailed data collection at the production site of the manufacturer, covering key processes such as raw material sourcing, formulation, and manufacturing. These foreground data are fully linked with corresponding datasets from the background database (ecoinvent 3.10) or with EN15804+A2-compliant EPDs, ensuring consistency, reliability, and maintaining alignment with the latest industry standards.
The overall data representativeness is rated as good with an overall score of 4.21/5, in accordance with EN 15804+A2 Annex E guidance on data quality assessment, considering geographical, technical, and temporal representativeness.

System boundaries (X=included, MND=module not declared)

	Production			Installation		Use stage							End-of-Life				Next product system
	Raw material supply	Transport	Manufacturing	Transport	Installation Process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	Demolition	Transport	Waste Processing	Disposal	Benefits and loads beyond the system boundary
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	x	x	x	x	MND	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	x
Geography			DE	DE	MND	MND	MND	MND	MND	MND	MND	MND	DE	DE	DE	DE	DE

For the geographies modeled in A1 and A2, refer to *Product specification*.

Type of EPD: Cradle to gate with options A4, C1, C2, C3, C4 and D

Stage of Material Production and Construction
Module A1: Extraction and processing of raw materials
Module A2: Transportation of raw materials to the plant
Module A3: Steel component production at the plant and waste treatment
Module A4: Transportation to the construction site

Disposal Stage
Module C1: Demolition/Dismantling
Module C2: Transportation of steel demolition waste for processing
Module C3: Sorting of waste components and recycling of steel
Module C4: Disposal of steel to landfill

Credits and burdens outside the system boundaries
Module D: Credits and burdens from the use of recycled steel as a replacement for primary steel

Cut-off criteria
No cut-offs were applied.

Allocation

Foreground inventory data (energy and fuels, ancillary materials, emissions and waste) was collected at the production-process level. Using the total output of the production process in 2024, these flows are allocated to one declared unit based on mass.

LCA: Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD.

Transport to the building site (A4)	Value	Unit
Transported mass	1.00	kg
Truck: Distance	300.00	km
Truck: Energy demand	1.58	MJ / t*km
Truck: Activity	transport, freight, lorry >32 metric ton, EURO6	-
Truck: Capacity utilization	53.30	%

Demolition (C1)	Value	Unit
Diesel dismantling and sorting	0.04	MJ
Electricity for sorting	0.01	kWh

90.0% of the steel is recycled, 10.0% is sent to landfill.

Transport to the waste facility (C2)	Value	Unit
Mass to recycling	0.90	kg
Mass to landfill	0.10	kg
Distance to recycling by truck	50.00	km
Distance to landfill by truck	50.00	km
Truck: Activity	transport, freight, lorry >32 metric ton, EURO6	-
Truck: Capacity utilization	53.30	%
Truck: Distance	50.00	km
Truck: Energy demand	1.58	MJ / t*km

Waste processing (C3)	Value	Unit
Material for recycling	0.90	kg

Disposal (C4)	Value	Unit
Material for landfill	0.10	kg

Reuse, recovery and/or recycling potentials (D)	Value	Unit
Amount of secondary material that the system takes in	0	kg
Substitution of primary steel	0.90	kg

Calculation of benefits and loads per EN 15804+A2.

LCA: Results

Core environmental impact indicators

Indicator	Unit	A1-3	A4	C1	C2	C3	C4	D
GWP-total	kg CO_2-eq.	2.57e+00	3.11e-02	8.55e-03	5.18e-03	3.37e-01	6.26e-04	-1.25e+00
GWP-fossil	kg CO_2-eq.	2.55e+00	3.11e-02	8.07e-03	5.18e-03	3.27e-01	6.25e-04	-1.26e+00
GWP-biogenic	kg CO_2-eq.	1.50e-02	1.56e-05	4.64e-04	2.60e-06	9.76e-03	6.47e-08	1.30e-02
GWP-luluc	kg CO_2-eq.	1.44e-03	1.10e-05	8.98e-06	1.84e-06	1.53e-04	3.25e-07	-2.87e-04
ODP	kg CFC-11-Eq	5.16e-08	6.47e-10	1.03e-10	1.08e-10	4.18e-09	1.81e-11	-3.26e-09
AP	mol H+-Eq	1.13e-02	7.34e-05	4.38e-05	1.22e-05	1.07e-03	4.43e-06	-4.28e-03
EP-freshwater	kg P-Eq	8.34e-04	2.19e-06	5.84e-06	3.64e-07	1.30e-04	5.19e-08	-6.04e-04
EP-marine	kg N-Eq	2.33e-03	1.92e-05	1.92e-05	3.21e-06	2.77e-04	1.69e-06	-1.02e-03
EP-terrestrial	mol N-Eq	2.43e-02	2.08e-04	1.99e-04	3.47e-05	3.01e-03	1.84e-05	-1.09e-02
POCP	kg NMVOC-Eq	8.16e-03	1.27e-04	5.97e-05	2.12e-05	1.03e-03	6.60e-06	-3.81e-03
ADPE	kg Sb-Eq	4.14e-05	8.88e-08	9.54e-09	1.48e-08	1.13e-06	9.92e-10	-2.92e-08
ADPF	MJ, net calorific value	3.88e+01	4.66e-01	1.17e-01	7.77e-02	4.52e+00	1.53e-02	-1.16e+01
WDP	m^3 world Eq deprived	7.27e-01	2.34e-03	9.85e-04	3.90e-04	2.90e-01	4.29e-05	-1.27e-01

GWP-total: Global Warming Potential - total **GWP-fossil**: Global warming potential - fossil **GWP-biogenic**: Global Warming Potential - biogenic **GWP-luluc**: Global Warming Potential - luluc **ODP**: Depletion potential of the stratospheric ozone layer **AP**: Acidification potential, Accumulated Exceedance **EP-freshwater**: Eutrophication potential - freshwater **EP-marine**: Eutrophication potential - marine **EP-terrestrial**: Eutrophication potential - terrestrial **POCP**: Photochemical Ozone Creation Potential **ADPE**: Abiotic depletion potential - non-fossil resources **ADPF**: Abiotic depletion potential - fossil resources **WDP**: Water (user) deprivation potential

Additional indicators

Indicator	Unit	A1-3	A4	C1	C2	C3	C4	D
PM	disease incidence	1.61e-07	3.03e-09	1.04e-09	5.04e-10	4.49e-08	1.01e-10	-6.40e-08
IRP	kBq U235-Eq	4.96e-01	5.67e-04	1.04e-03	9.44e-05	8.60e-02	9.77e-06	4.13e-02
ETP-fw	CTUe	1.82e+01	1.11e-01	2.18e-02	1.84e-02	2.46e+00	2.10e-03	-1.15e+02
HTP-c	CTUh	4.29e-08	1.99e-10	2.25e-11	3.31e-11	6.83e-09	2.83e-12	-4.37e-07
HTP-nc	CTUh	3.96e-08	3.08e-10	3.75e-11	5.13e-11	1.50e-08	2.75e-12	4.59e-10
SQP	dimensionless	1.35e+01	4.69e-01	1.46e-02	7.82e-02	1.57e+00	3.02e-02	-1.87e+00

PM: Potential incidence of disease due to PM emissions **IRP**: Potential Human exposure efficiency relative to U235 **ETP-fw**: Potential Comparative Toxic Unit for ecosystems **HTP-c**: Potential Comparative Toxic Unit for humans - cancer effects **HTP-nc**: Potential Comparative Toxic Unit for humans - non-cancer effects **SQP**: Potential Soil quality index

IRP: This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

ETP-fw, **HTP-c**, **HTP-nc** and **SQP**: The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experienced with these indicators.

Use of resources

Indicator	Unit	A1-3	A4	C1	C2	C3	C4	D
PERE	MJ	7.41e+00	7.40e-03	1.65e-02	1.23e-03	1.57e+00	1.42e-04	9.70e-01
PERM	MJ	0	0	0	0	0	0	0
PERT	MJ	7.41e+00	7.40e-03	1.65e-02	1.23e-03	1.57e+00	1.42e-04	9.70e-01
PENRE	MJ	3.88e+01	4.66e-01	1.17e-01	7.77e-02	4.52e+00	1.53e-02	-1.16e+01
PENRM	MJ	0	0	0	0	0	0	0
PENRT	MJ	3.88e+01	4.66e-01	1.17e-01	7.77e-02	4.52e+00	1.53e-02	-1.16e+01
SM	kg	7.20e-01	0	0	0	0	0	9.00e-01
RSF	MJ	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0
FW	m^3	2.22e-02	6.78e-05	3.25e-05	1.13e-05	7.02e-03	1.59e-05	-2.08e-03

PERE: Primary energy resources - renewable: use as energy carrier **PERM**: Primary energy resources - renewable: used as raw materials **PERT**: Primary energy resources - renewable: total **PENRE**: Primary energy resources - non-renewable: use as energy carrier **PENRM**: Primary energy resources - non-renewable: used as raw materials **PENRT**: Primary energy resources - non-renewable: total **SM**: Use of secondary material **RSF**: Renewable secondary fuels **NRSF**: Non-renewable secondary fuels **FW**: Net use of fresh water

Waste flows

Indicator	Unit	A1-3	A4	C1	C2	C3	C4	D
HWD	kg	1.50e+00	6.78e-04	2.18e-04	1.13e-04	3.89e-01	1.70e-05	8.52e-02
NHWD	kg	4.86e+00	1.36e-02	2.87e-02	2.26e-03	4.66e-01	3.90e-04	-3.59e+00
RWD	kg	1.19e-04	1.40e-07	3.09e-07	2.34e-08	1.99e-05	2.38e-09	8.61e-06

HWD: Hazardous waste disposed **NHWD**: Non hazardous waste disposed **RWD**: Radioactive waste disposed

Output flows

Indicator	Unit	A1-3	A4	C1	C2	C3	C4	D
CRU	kg	0	0	0	0	0	0	0
MFR	kg	2.83e-05	0	0	0	9.00e-01	0	0
MER	kg	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0

CRU: Components for re-use **MFR**: Materials for recycling **MER**: Materials for energy recovery **EEE**: Exported electrical energy **EET**: Exported thermal energy

Name	Value	Unit
Biogenic carbon content in product	0	kg C
Biogenic carbon content in accompanying packaging	0	kg C

Additional requirements

Greenhouse gas emissions from the use of electricity in the manufacturing phase

Electricity consumption in the manufacturing phase is composed from the source below. Electricity is represented by data in ecoinvent 3.10 regionalised for Germany.

Electricity	Unit	Value
Electricity from grid	kg CO_2-eq. / kWh	0.84

Dangerous substances

The product contains no hazardous substances given by the REACH Candidate List or the Norwegian Priority List.

Additional environmental information

Additional environmental impact indicators required in NPCR Part A for construction products

Indicator	Unit	A1-3	A4	C1	C2	C3	C4	D
GWP-IOBC	kg CO_2-eq.	2.55e+00	3.11e-02	8.11e-03	5.18e-03	3.28e-01	6.26e-04	-1.26e+00

GWP-IOBC: Global Warming Potential - Instantaneous oxidation of biogenic carbon

Bibliography

CEN/TR 15941:2010	Sustainability of construction works - Environmental product declarations - Methodology for selection and use of generic data
EN 15804:2012+A2:2019	Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
EN 15942:2022-04	Sustainability of construction works - Environmental product declarations - Communication format business-to-business
ISO 14025:2011-10	Environmental labels and declarations - Type III environmental declarations - Principles and procedures
ISO 14040:2021-02	Environmental management - Life cycle assessment - Principles and framework
ISO 14044:2021-02	Environmental management - Life cycle assessment - Requirements and guidelines
ecoinvent v3.10	ecoinvent, Zurich, Switzerland, database version 3.10
NPCR 013:2021	Product category rules, Part B: Steel and aluminium construction products. Issue date: 06.10.2021; validity extended to 30.06.2026.
NPCR Part A:2021	Construction products and services, Version 2.0. Issue date: 24.03.2021; validity extended to 24.03.2026.

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