BUREAU VERITAS
Certification

CERTIFICATE OF CONSTANCY OF PERFORMANCE

1370-CPR-2593

In accordance with Regulation 305/2011/EU of the European Parliament and of the Council of 9 March 2011 (Construction Products Regulation - CPR), this certificate applies to the construction product:

PRODUCT	**FIBRES FOR CONCRETE**
CHARACTERISTICS	**See Annex A to the Certificate**

placed on the market under the name or trade mark of:

MANUFACTURER	**CONTINENTAL STEEL PTE LTD** **HEAD OFFICE:** **100 Gul Circle – 629586 SINGAPORE**

and produced in the manufacturing plant:

MANUFACTURING PLANT	100 Gul Circle – 629586 SINGAPORE

This certificate attests that all provisions concerning the assessment and verification of constancy of performance described in Annex ZA of the standard:

EN 14889-1:2006 Fibres for concrete - Part 1: Steel fibres - Definitions, specifications and conformity

within the AVCP 1 system for the performances reported in this certificate have been applied and that the factory production control operated by the manufacturer is able to ensure the **constancy of the performance of the construction product**.

This certificate was first issued on 14-03-2025 and will remain valid as long as neither the harmonised standard, the construction product, the AVCP methods nor the manufacturing conditions in the plant are modified significantly, unless suspended or withdrawn by the notified factory production control certification body.

Milano, lì 14-03-2025

Rev. 0

Firmato digitalmente da
Remo Godino
O = Ordine Ingegneri di Milano
T = Ingegnere
SerialNumber = TINIT-GDNRME72B23Z112G

Ing. Remo GODINO - Direttore Tecnico

ACCREDIA
L'ENTE ITALIANO DI ACCREDITAMENTO
PRD N°0009

Bureau Veritas Italia S.p.A – Organismo Notificato n° 1370
Viale Monza, 347 – 20126 Milano – ITALIA

ANNEX A

OF THE CERTIFICATE OF CONSTANCY OF PERFORMANCE

NUMBER 1370-CPR-2593

PRODUCTS LIST		
Description	***Essential Characteristics***	***Level and/or class***
CFLT 75/60 **Group I** **Shape: deformed** **Length: 60 mm** **Diameter: 0,75 mm**	Tensile strength / Modulus of elasticity	1450 MPa / 202000 MPa
	Effect on consistence of concrete	Vebè Time: 9 s (with 25 kg/m³ fibres)
	Effect on strength of concrete – Residual flexural strength	≥ 1.5 MPa at CMOD=0.5 mm ≥ 1.0 MPa at CMOD=3.5 mm (with 25 kg/m³ fibres)
CFHT 90/60 **Group I** **Shape: deformed** **Length: 60 mm** **Diameter: 0,90 mm**	Tensile strength / Modulus of elasticity	1900 MPa / 194000 MPa
	Effect on consistence of concrete	Vebè Time: 9 s (with 25 kg/m³ fibres)
	Effect on strength of concrete – Residual flexural strength	≥ 1.5 MPa at CMOD=0.5 mm ≥ 1.0 MPa at CMOD=3.5 mm (with 25 kg/m³ fibres)
CFMT 100/60 **Group I** **Shape: deformed** **Length: 60 mm** **Diameter: 1,00 mm**	Tensile strength / Modulus of elasticity	1500 MPa / 192000 MPa
	Effect on consistence of concrete	Vebè Time: 10 s (with 25 kg/m³ fibres)
	Effect on strength of concrete – Residual flexural strength	≥ 1.5 MPa at CMOD=0.5 mm ≥ 1.0 MPa at CMOD=3.5 mm (with 25 kg/m³ fibres)

Milano, lì 14-03-2025

Rev. 0

PRD N°0009

Ing. Remo GODINO - Direttore Tecnico

This Annex is valid only in conjunction to the certificate number 1370-CPR-2593

Continental Steel Pte Ltd
100 Gul Circle
Singapore 629586

T +65 6862 0033
F +65 6862 6530
consteel.com.sg

Co. Reg. No.: 198201467M

DECLARATION OF PERFORMANCE No 02/2025

1. Unique identification code of the product-type

   ConFibe® Hooked End Steel Fibre - CFHT 90/60

2. Type, batch or serial number or any other element allowing identification of the construction product as required pursuant to Article 11(4)

   Unique identification on each package allowing identification and full traceability of the product

3. Intended use or uses of the construction product, in accordance with the applicable harmonized technical specification, as foreseen by the manufacturer

   Steel fibres for structural use in concrete

4. Name, registered trade name or registered trademark and contact address of the manufacturer as required pursuant to Article 11(5)

   CONTINENTAL STEEL PTE LTD
   100 Gul Circle, Singapore 629686

5. Where applicable, name and contact address of the authorized representative whose mandate covers the tasks specified in Article 12(2)

   N.A.

6. System or systems of assessment and verification of constancy of performance of the construction product as set out in Annex V

   System 1

7. In case of the declaration of performance concerning a construction product covered by a harmonized standard

   Harmonized standard: EN 14889-1:2006
   The notified body Bureau Veritas Italia S.p.A (CPR NB 1370) has confirmed the validity of the initial type of testing and performed the initial inspection of the factory and the factory production control. NB 1370 performs as well the continuous surveillance, assessment, and approval of the factory production control.

8. In case of the declaration of performance concerning a construction product for which a European Technical Assessment has been issued

   N.A.

Continental Steel Pte Ltd
100 Gul Circle
Singapore 629586

T +65 6862 0033
F +65 6862 6530
consteel.com.sg

Co. Reg. No.: 198201467M

9. Declared performance

Product Type	Essential Characteristics	Level and/or Class	Harmonized Technical Specification
CFHT 90/60 Group I Shape: deformed Length: 60 mm Diameter: 0.90 mm	Tensile strength / Modulus of elasticity	Tensile strength: 1900 MPa, Modulus of elasticity: 194000 MPa	EN 14889-1:2006
	Effect on consistence of concrete	Vebè Time: 9 s (with 25 kg/m³ fibres)	
	Effect on strength of concrete	≥ 1.5 MPa at CMOD=0.5 mm, ≥ 1.0 MPa at CMOD=3.5 mm (with 25 kg/m³ fibres)	
	Release of dangerous substances	No dangerous substances released	
	Durability	NPD	

The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 9. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Signed for and on behalf of the manufacturer by:

Name: Ng Heng Li

Place: Singapore
Date of issue: 14-03-2025

Continental Steel Pte Ltd
100 Gul Circle
Singapore 629586

T +65 6862 0033
F +65 6862 6530
consteel.com.sg

Co. Reg. No.: 198201467M

DECLARATION OF PERFORMANCE No 01/2025

1. Unique identification code of the product-type

   ConFibe® Hooked End Steel Fibre - CFLT 75/60

2. Type, batch or serial number or any other element allowing identification of the construction product as required pursuant to Article 11(4)

   Unique identification on each package allowing identification and full traceability of the product

3. Intended use or uses of the construction product, in accordance with the applicable harmonized technical specification, as foreseen by the manufacturer

   Steel fibres for structural use in concrete

4. Name, registered trade name or registered trademark and contact address of the manufacturer as required pursuant to Article 11(5)

   CONTINENTAL STEEL PTE LTD
   100 Gul Circle, Singapore 629686

5. Where applicable, name and contact address of the authorized representative whose mandate covers the tasks specified in Article 12(2)

   N.A.

6. System or systems of assessment and verification of constancy of performance of the construction product as set out in Annex V

   System 1

7. In case of the declaration of performance concerning a construction product covered by a harmonized standard

   Harmonized standard: EN 14889-1:2006
   The notified body Bureau Veritas Italia S.p.A (CPR NB 1370) has confirmed the validity of the initial type of testing and performed the initial inspection of the factory and the factory production control. NB 1370 performs as well the continuous surveillance, assessment, and approval of the factory production control.

8. In case of the declaration of performance concerning a construction product for which a European Technical Assessment has been issued

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Continental Steel Pte Ltd
100 Gul Circle
Singapore 629586

T +65 6862 0033
F +65 6862 6530
consteel.com.sg

Co. Reg. No.: 198201467M

9. Declared performance

Product Type	Essential Characteristics	Level and/or Class	Harmonized Technical Specification
CFLT 75/60 Group I Shape: deformed Length: 60 mm Diameter: 0.75 mm	Tensile strength / Modulus of elasticity	Tensile strength: 1450 MPa, Modulus of elasticity: 202000 MPa	EN 14889-1:2006
	Effect on consistence of concrete	Vebè Time: 9 s (with 25 kg/m³ fibres)	
	Effect on strength of concrete	≥ 1.5 MPa at CMOD=0.5 mm, ≥ 1.0 MPa at CMOD=3.5 mm (with 25 kg/m³ fibres)	
	Release of dangerous substances	No dangerous substances released	
	Durability	NPD	

The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 9. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Signed for and on behalf of the manufacturer by:

Name: Ng Heng Li

Place: Singapore
Date of issue: 14-03-2025

Continental Steel Pte Ltd
100 Gul Circle
Singapore 629586

T +65 6862 0033
F +65 6862 6530
consteel.com.sg

Co. Reg. No.: 198201467M

DECLARATION OF PERFORMANCE No 03/2025

1. Unique identification code of the product-type

   ConFibe® Hooked End Steel Fibre - CFMT 100/60

2. Type, batch or serial number or any other element allowing identification of the construction product as required pursuant to Article 11(4)

   Unique identification on each package allowing identification and full traceability of the product

3. Intended use or uses of the construction product, in accordance with the applicable harmonized technical specification, as foreseen by the manufacturer

   Steel fibres for structural use in concrete

4. Name, registered trade name or registered trademark and contact address of the manufacturer as required pursuant to Article 11(5)

   CONTINENTAL STEEL PTE LTD
   100 Gul Circle, Singapore 629686

5. Where applicable, name and contact address of the authorized representative whose mandate covers the tasks specified in Article 12(2)

   N.A.

6. System or systems of assessment and verification of constancy of performance of the construction product as set out in Annex V

   System 1

7. In case of the declaration of performance concerning a construction product covered by a harmonized standard

   Harmonized standard: EN 14889-1:2006
   The notified body Bureau Veritas Italia S.p.A (CPR NB 1370) has confirmed the validity of the initial type of testing and performed the initial inspection of the factory and the factory production control. NB 1370 performs as well the continuous surveillance, assessment, and approval of the factory production control.

8. In case of the declaration of performance concerning a construction product for which a European Technical Assessment has been issued

   N.A.

Continental Steel Pte Ltd
100 Gul Circle
Singapore 629586

T +65 6862 0033
F +65 6862 6530
consteel.com.sg

Co. Reg. No.: 198201467M

9. Declared performance

Product Type	Essential Characteristics	Level and/or Class	Harmonized Technical Specification
CFMT 100/60 Group I Shape: deformed Length: 60 mm Diameter: 1.00 mm	Tensile strength / Modulus of elasticity	Tensile strength: 1500 MPa, Modulus of elasticity: 192000 MPa	EN 14889-1:2006
	Effect on consistence of concrete	Vebè Time: 10 s (with 25 kg/m³ fibres)	
	Effect on strength of concrete	≥ 1.5 MPa at CMOD=0.5 mm, ≥ 1.0 MPa at CMOD=3.5 mm (with 25 kg/m³ fibres)	
	Release of dangerous substances	No dangerous substances released	
	Durability	NPD	

The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 9. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Signed for and on behalf of the manufacturer by:

Name: Ng Heng Li

Place: Singapore
Date of issue: 14-03-2025

ENVIRONMENTAL PRODUCT DECLARATION

Hooked-End Steel Fibres

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

Products included in the EPD:

Hooked-End Steel Fibres

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

EPD of multiple products from a company based on the average results of the product group

EPD Owner
Continental Steel Pte Ltd

Programme
International EPD System
www.environdec.com

Programme operator
EPD International AB

Licensee
EPD Southeast Asia

Registration number
EPD-IES-0022870:002

Version date
2025-06-19

Validity date
2030-06-19

SOUTHEAST ASIA EPD
INTERNATIONAL EPD SYSTEM

ECO PLATFORM EPD VERIFIED

Continental Steel

PROGRAMME INFORMATION

Programme	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

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)	
Product Category Rules (PCR)	2019:14 Construction products (EN 15804+A2) 1.3.4
PCR review was conducted by	The Technical Committee of the International EPD System. See www.environdec.com for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/support.

VERIFICATION

LCA accountability	Natasha Witto, natasha.witto@gmail.com, Continental Steel Pte Ltd
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via	☑ EPD verification through an individual EPD verification ☐ EPD verification through EPD Process Certification* ☐ EPD verification through a pre-verified LCA/EPD tool
Third-party verifier	Bureau Veritas Certification Sverige AB
Accredited by	SWEDAC
Accredited certification body address	Sweden
Procedure for follow-up of data during EPD validity involves third party verifier	☐ Yes ☑ No

*EPD Process Certification involves an accredited certification body certifying and periodically auditing the EPD process and conducting external and independent verification of EPDs that are regularly published. More information can be found in the General Programme Instructions on www.environdec.com. International EPD System.

OWNERSHIP AND LIMITATIONS ON USE OF EPD

Limitations

EPDs within the same product category but registered 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 version number up to the first two digits) 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 equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison.

Ownership

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

INFORMATION ABOUT EPD OWNER

EPD Owner	Continental Steel Pte Ltd
Contact person name	Ng Heng Li
Contact person e-mail	hengli.ng@consteel.com.sg
Organisation address	Singapore Singapore 629586 100 GUL CIRCLE

Description of the organisation of the EPD Owner

Continental Steel Pte Ltd (hereby referred as 'Continental Steel') is one of the largest premier steel suppliers in Southeast Asia, celebrating over 40 years of engineering innovation and growth. The company provides a comprehensive range of ready stock, ensuring quick access for urgent needs. They have close partnerships with suppliers around the globe, offering top-grade products with commitment to quality and compliance.

Continental Steel has expanded its operations to include a new steel fibre production line, operated under Viewforth Trading and Engineering Pte Ltd. This production line focuses on manufacturing high-quality steel fibres used for reinforced concrete applications. The process involves drawing steel wire to precise diameters, forming hooked-end fibres, and packaging them for distribution.

PRODUCT INFORMATION

Product name	Hooked-End Steel Fibres
Product identification	• Product Codes: o CFMT 100/60: Diameter 1.0 mm, Length 60 mm, Tensile Strength 1500 MPa o CFHT 90/60: Diameter 0.9 mm, Length 60 mm, Tensile Strength 1900 MPa o CFLT 75/60: Diameter 0.75 mm, Length 60 mm, Tensile Strength 1450 MPa
Product description	Hooked-end steel fibres are high-strength, cold-drawn steel wires that are formed into hooked-end shapes. These fibres are specifically designed to enhance the mechanical properties of concrete, providing improved tensile strength, ductility, and crack resistance.
Technical purpose of product	The primary purpose of hooked-end steel fibres is to reinforce concrete, making it more durable and resilient. The hooked ends of the fibres provide better anchorage within the concrete matrix, ensuring that the fibres remain securely embedded and effectively distribute stress throughout the concrete. • Application/Intended Use: Hooked-end steel fibres are used in a variety of construction applications, including: o Industrial Floors: Enhancing the load-bearing capacity and durability of concrete floors in warehouses, factories, and other industrial settings. o Tunnels: Providing additional reinforcement to concrete linings in tunnels, improving their structural integrity and resistance to cracking. o Precast Concrete: Used in the production of precast concrete elements such as panels, pipes, and blocks to improve their strength and durability. o Shotcrete: Applied in shotcrete (sprayed concrete) for slope stabilization, mining, and underground construction to enhance the mechanical properties and reduce rebound. o Bridges and Highways: Reinforcing concrete in bridges, highways, and
Manufacturing or service provision description	Continental Steel has expanded its operations to include a new steel fibre production line, operated under Viewforth Trading and Engineering Pte Ltd. This production line focuses on manufacturing high-quality steel fibres used for reinforced concrete applications. The process involves drawing steel wire to precise diameters, forming hooked-end fibres, and packaging them for distribution.
Material properties	Volumetric mass density: 1 kg/m^3
Production site	Continental Steel Pte Ltd Singapore Singapore 629586 100 Gul Circle
UN CPC code	41261. Bars and rods, cold-formed, cold-finished or further worked, of iron or non-alloy steel
Geographical scope(s)	Asia, Global
Geographical scope description	The geographical boundary of the project is the location of Continental Steel Pte Ltd's production site in Singapore, where the steel fibres are manufactured. The raw materials are sourced from varying locations globally. While end-of-life scenarios will be based on a global geographical scope.

Hazardous and toxic substances	The product does not contain any substances from the SVHC candidate list in concentrations exceeding 0.1% of its weight.

PRODUCT IMAGES

CONTENT DECLARATION

Content declaration of multiple products	Weighted average for packaging is used, while all three diameters will be 100% steel so there is no difference anticipated.

PRODUCT CONTENT

Content name	Weight, kg	Post-consumer recycled material, weight-% of product	Biogenic material, weight-% of product	Biogenic material[1], kg C/product
Steel fibre	1	0	0	0
Total	**1**	**0**	**0**	**0**
Note 1	1 kg biogenic carbon is equivalent to 44/12 kg of CO_2			

PACKAGING MATERIALS

Material name	Weight, kg	Weight-% (versus the product)	Biogenic material[1], kg C/product
Option 1: Polypropylene woven bag	0.01	0.2	0
Option 2: Paper bag	0.01	0.5	0.42
Total	**0.02**	**0.7**	**0.42**
Note 1	1 kg biogenic carbon is equivalent to 44/12 kg of CO_2		

LCA INFORMATION

EPD based on declared or functional unit	Functional unit
Functional unit description	1 kg of Steel Fibres (Electric arc furnace (EAF-based), mass excluding packaging)
Reference flow	Steel Fibre Mass: 1 kg
Conversion factor to mass	1
Are infrastructure or capital goods included in any upstream, core or downstream processes?	☐ Yes ☑ No
Data sources used for this EPD	ecoinvent database (general) ecoinvent 3.9.1 database Other database Other | Other
LCA Software	SimaPro SimaPro 9.5
Version of the EN 15804 reference package	EF Reference Package 3.0
Technology description including background system	The products considered are 1 kg of hooked-end steel fibres (Electric arc furnace (EAF-based)). 5.5 mm wire rod is used for the manufacturing of steel fibre, which is the main input. The wire is drawn through 15 drawing blocks and dies to reduce its diameter to 1.0, 0.9, or 0.75 mm. It is threaded and spooled after the drawing process.
Scrap (recycled material) inputs contribution level	More than 10% of the GWP-GHG results in modules A1-A3 come from scrap inputs

SCRAP (RECYCLED MATERIAL) INPUTS DATA

Material scrap name	Material scrap value
Steel scrap from incoming A1 (steel wire)	1800, kg CO_2 eq./tonne
The share of the total scrap input that was assumed to come with an environmental burden	94 %

Data quality assessment and reference years

Description of data quality assessment and reference years	The collection of the foreground data refers to Q1 2025. Continental Steel started production in early 2025, so this analysis is based on the first available Quartal operational period.

DATA QUALITY ASSESSMENT AND REFERENCE YEARS

Process name	Source type	Source	Reference year	Data category	Share of primary data, of GWP-GHG results for A1-A3
A1 - Incoming steel wire	Environment product declaration (EPD) of steel wire suppliers which were published in 2025 as an input to A1	EPD supplier	2023-12-31 - 2024-12-30	Primary data	96%
The rest of A1, A2, A3	Database	Ecoinvent, EPD owner for quantities	2024-12-31 - 2025-02-28	Secondary data	
Total share of primary data, of GWP-GHG results for A1-A3					**96%**
Note	The share of primary data is calculated based on GWP-GHG results. It is a simplified indicator for data quality that do not capture all relevant aspects of data quality. The indicator is not comparable across product categories.				

ELECTRICITY USED IN THE MANUFACTURING PROCESS IN A3

Type of electricity mix	Specific electricity mix as generated, or purchased from an electricity supplier, demonstrated by a contractual instrument	
Energy sources	Hydro	0%
	Wind	3.5%
	Solar	96.5%
	Biomass	0%
	Geothermal	0%
	Waste	0%
	Nuclear	0%
	Natural gas	0%
	Coal	0%
	Oil	0%
	Peat	0%
	Other	0%

Climate impact (GWP-GHG):	0.07 kg CO_2 eq./kWh

SYSTEM BOUNDARY

Description of the System boundary	a) Cradle to gate with modules C1-C4 and module D (A1-A3 + C + D).
Excluded modules	No, there is no excluded module, or there are no excluded modules

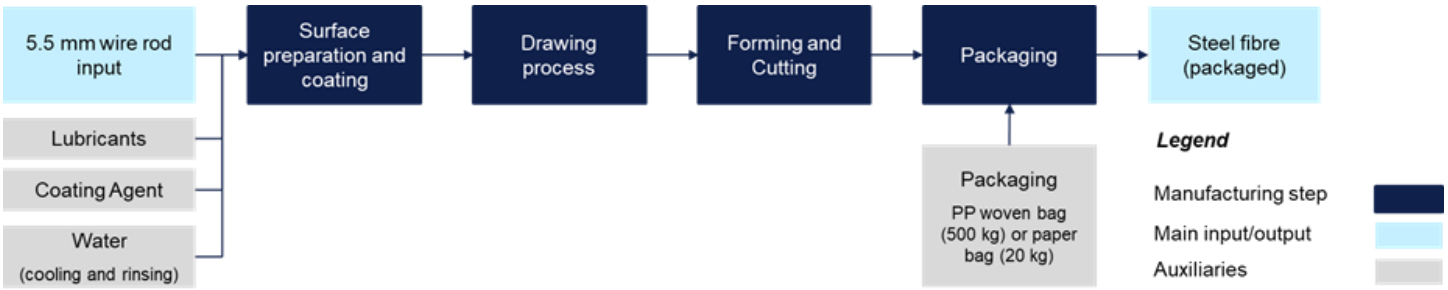
	Product stage			Construction process stage		Use stage							End of life stage				Beyond product life cycle
	Raw material supply	Transport	Manufacturing	Transport to site	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction 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	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	Global	Global	Singapore	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Global	Global	Global	Global	Global
Share of specific data	96%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - products	1%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Description of the process flow diagram(s)

5.5 mm wire rod is used for the manufacturing of steel fibre, which comprised of the following steps:

- Surface preparation and coating – First, the wire rod is prepared through unwinding, descaling, cleaning, rinsing, coating, and drying. For this, lubricants and coating agents are used, as well as water for rinsing.
- Drawing: The wire is drawn through 15 drawing blocks and dies to reduce its diameter to 1.0, 0.9, or 0.75 mm. It is threaded and spooled after the drawing process.
- Forming and cutting: the fibres are formed and cut to 60 mm lengths.
- Packaging: Finally, the fibres are packed into paper bags (20 kg) or polypropylene (PP) woven bag (500 kg), sealed, and stored before being sent off to buyers.

Process flow diagram(s) related images



SCENARIOS

Name of the default scenario	Baseline
Description of the default scenario	For this purpose, the life cycle emissions of the project's baseline scenario (steel fibre production, with a production mix/share of varying diameters: 80% 0.9 mm, 10% 1.0 mm, and 10% 0.75 mm) are presented in this report. The production mix is based on the production line's capability and anticipated market demand.

Module C: End-of-life

Explanatory name of the default scenario in module C	90% steel recycling
Description of the default scenario in module C	A best practice representative has been applied in line with the World Steel Association's Life Cycle inventory (avoided burden approach). Additional assumptions used is that: • Recycling rate: 90%, in which the rest will go to landfill. • Recycled content of primary materials: 85% is assumed. • Transport distance from deconstruction to waste processing facility: 50 km is assumed.

Module D: Beyond product life cycle

Explanatory name of the default scenario in module D	90% steel recycling
Description of the default scenario in module D	Based on World Steel Association's Life Cycle Inventory (LCI) for Steel Scrap. It refers to the overall net recycling credits (EoL recycling rate minus the scrap input)

Module D information	Value	Unit
		N/A

ENVIRONMENTAL PERFORMANCE

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.

Mandatory environmental performance indicators according to EN 15804

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Climate change - total	GWP-total	kg CO_2 eq.	1.19E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.22E-3	9.64E-3	2.76E-3	6.34E-4	-8.66E-2
Climate change - fossil	GWP-fossil	kg CO_2 eq.	7.77E-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.51E-6	1.37E-5	1.77E-5	1.36E-6	4.42E-5
Climate change - biogenic	GWP-biogenic	kg CO_2 eq.	2.63E-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.87E-7	5.00E-6	5.70E-6	3.73E-7	-1.79E-6
Climate change - land use and land-use change	GWP-luluc	kg CO_2 eq.	1.20E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.22E-3	9.66E-3	2.78E-3	6.36E-4	-8.66E-2
Ozone depletion	ODP	kg CFC-11 eq.	4.37E-9	ND	ND	ND	ND	ND	ND	ND	ND	ND	9.66E-11	1.48E-10	1.87E-11	1.76E-11	-1.89E-16
Acidification	AP	mol H^+ eq.	1.10E-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.63E-5	2.33E-5	1.40E-5	4.58E-6	-1.86E-4
Eutrophication aquatic freshwater	EP-freshwater	kg P eq.	4.19E-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.86E-7	7.71E-7	1.28E-6	5.06E-8	-1.57E-8
Eutrophication aquatic marine	EP-marine	kg N eq.	1.25E-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.61E-5	5.69E-6	2.66E-6	1.76E-6	-3.27E-5
Eutrophication terrestrial	EP-terrestrial	mol N eq.	1.57E-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.84E-4	5.84E-5	2.68E-5	1.88E-5	-2.87E-4
Photochemical ozone formation	POCP	kg NMVOC eq.	4.48E-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.40E-5	3.11E-5	7.98E-6	6.56E-6	-1.33E-4
Depletion of abiotic resources - minerals and metals	ADP-minerals&metals[1]	kg Sb eq.	3.43E-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.12E-9	3.06E-8	1.51E-8	8.44E-10	-2.16E-7
Depletion of abiotic resources - fossil fuels	ADP-fossil[1]	MJ, net calorific value	1.49E+1	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.95E-2	1.33E-1	3.50E-2	1.51E-2	-7.95E-1
Water use	WDP[1]	m^3 world eq. deprived	1.82E-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.75E-4	6.01E-4	4.93E-4	6.70E-4	-1.45E-1
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																
General disclaimer	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/A1-A5 for services).																
Disclaimer 1	The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator																

Additional mandatory environmental performance indicators

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Climate change - GWP-GHG	GWP-GHG[1]	kg CO_2 eq.	1.19E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.22E-3	9.64E-3	2.76E-3	6.34E-4	-8.66E-2
Acronyms	GWP-GHG = Global warming potential greenhouse gas.																
General disclaimer	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/A1-A5 for services).																
Disclaimer 1	The GWP-GHG indicator is termed GWP-IOBC/GHG in the ILCD+EPD+ data format. The 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 CF for biogenic CO_2 is set to zero.																

Additional voluntary environmental performance indicators according to EN 15804

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter emissions	PM	Disease incidence	0.00E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Ionizing radiation - human health	IRP[1]	kBq U235 eq.	0.00E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Eco-toxicity - freshwater	ETP-fw[2]	CTUe	0.00E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Human toxicity - cancer effects	HTP-c[2]	CTUh	0.00E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Human toxicity - non-cancer effects	HTP-nc[2]	CTUh	0.00E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Land-use related impacts/soil quality	SQP[2]	Dimensionless	0.00E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Acronyms	PM = Potential incidence of disease due to particulate matter 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; HTP-nc = Potential comparative toxic unit for humans; SQP = Potential soil quality index.																
General disclaimer	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/A1-A5 for services).																
Disclaimer 1	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.																
Disclaimer 2	The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.																

Resource use indicators according to EN 15804

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ, net calorific value	4.40E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.53E-4	1.72E-3	4.86E-3	1.30E-4	2.53E-3
PERM	MJ, net calorific value	3.10E-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PERT	MJ, net calorific value	4.43E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.53E-4	1.72E-3	4.86E-3	1.30E-4	2.53E-3
PENRE	MJ, net calorific value	1.18E+1	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.95E-2	1.33E-1	3.50E-2	1.51E-2	-7.95E-1
PENRM	MJ, net calorific value	1.57E-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PENRT	MJ, net calorific value	1.20E+1	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.95E-2	1.33E-1	3.50E-2	1.51E-2	-7.95E-1
SM	kg	-1.19E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
RSF	MJ, net calorific value	0.00E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
NRSF	MJ, net calorific value	0.00E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
FW	m^3	3.12E-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	-8.74E+0
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.															
General disclaimer	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/A1-A5 for services).															

Waste indicators according to EN 15804

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	kg	4.79E-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.94E-7	3.37E-6	1.58E-6	1.86E-7	0.00E+0
NHWD	kg	6.63E-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.14E-4	6.55E-3	1.95E-4	1.00E-1	0.00E+0
RWD	kg	4.84E-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.71E-9	2.72E-8	9.42E-8	2.24E-9	0.00E+0
Acronyms	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed.															
General disclaimer	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/A1-A5 for services).															

Output flow indicators according to EN 15804

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
CRU	kg	0.00E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MFR	kg	0.00E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	-9.00E-1
MER	kg	0.00E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EEE	MJ, net calorific value	0.00E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EET	MJ, net calorific value	0.00E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Acronyms	CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy.															
General disclaimer	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/A1-A5 for services).															

ADDITIONAL ENVIRONMENTAL INFORMATION

Energy used during the production process—including electricity for drawing and forming the steel fibers—is primarily sourced from renewable energy. Continental Steel operates an onsite photovoltaic (PV) system that supplies electricity directly to the facility and the grid. When solar generation is insufficient, additional electricity is drawn from the grid, backed by unbundled Renewable Energy Certificates (RECs).

These RECs, purchased under a green energy tariff agreement with the electricity provider, ensure that the grid electricity used is matched with renewable sources. According to the supplier, the renewable mix primarily includes solar and wind energy. RECs are typically issued within one year of consumption, and Continental Steel pays a premium (green energy tariff) to support this renewable energy procurement.

INFORMATION RELATED TO EPDS OF MULTIPLE PRODUCTS

Description of how the averages have been determined	This EPD is based on the production mix of 80% 0.9 mm, 10% 1.0 mm, and 10% 0.75 mm (mass-basis). The production mix is based on the production line's capability and anticipated market demand.

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VERSION HISTORY

1.1