

Environmental Product Declaration

Panduit Corporation Cable Support Management

FiberRunner® Cable Routing System



As a leading provider of the highest-quality infrastructure and connectivity solutions, we have established a business course that defines us not only by what we do, but how we do it. We are actively focused on minimizing our carbon footprint through the implementation of environmentally sustainable business practices across the organization.

Since we began our environmental sustainability journey, we have coalesced around a collective mindset that concentrates not only on reducing Panduit's carbon footprint but also on restoring and improving our environment through the development of innovative solutions, waste management, and supporting the circular economy. Our environmental sustainability mission: build a sustainable business for our customers, employees, and our world.

To successfully achieve this vision, we established the Environmental Stewardship Initiative to align, prioritize, and measure our global sustainability objectives. Co-sponsored by Panduit Executive Chairman, Andrew Caveney, and Senior Vice President of Operations, David Tallentire, the initiative is governed by a cross functional team with representatives from every Panduit business function and operating unit.

We walk the talk.

Our world headquarters, a LEED Gold® certified building, is a testament to our commitment to design and implement healthy, energy efficient, and sustainable business environments. Through our experience and expertise, we can help you build an infrastructure that can contribute toward your projects' LEED certification.

Environmental Product Declaration for Panduit Corporation Products:

Cable Support Management

Reference products: 12x4 Channel & 24x4 Channel

Versatile, scalable cable protection for high-density environments



This declaration is an environmental product declaration (EPD) in accordance with ISO 14025 and EN 15804+A2. EPDs rely on Life Cycle Assessment (LCA) to provide information on a number of environmental impacts of products over their life cycle. Exclusions: EPDs do not indicate that any environmental or social performance benchmarks are met, and there may be impacts that they do not encompass. LCAs do not typically address the site-specific environmental impacts of raw material extraction, nor are they meant to assess human health toxicity. EPDs can complement but cannot replace tools and certifications that are designed to address these impacts and/or set performance thresholds – e.g. Type 1 certifications, health assessments and declarations, environmental impact assessments, etc. Accuracy of Results: EPDs regularly rely on estimations of impacts, and the level of accuracy in estimation of effect differs for any particular product line and reported impact. Comparability: EPDs are not comparative assertions and are either not comparable or have limited comparability when they cover different life cycle stages, are based on different product category rules or are missing relevant environmental impacts. EPDs from different programs may not be comparable.

EPD PROGRAM AND PROGRAM OPERATOR NAME, ADDRESS, LOGO, AND WEBSITE	UL Solutions www.spot.ul.com 333 Pfingsten Road, Northbrook, IL 60611
GENERAL PROGRAM INSTRUCTIONS AND VERSION NUMBER	UL Solutions Product Declaration Program General Program Instructions v2.7 March 2022
MANUFACTURER NAME AND ADDRESS	Panduit Corporation 16530 W. 163rd Street Lockport, IL 60441 United States of America
DECLARATION NUMBER	4792139555.101.1
DECLARED PRODUCT & FUNCTIONAL UNIT	Panduit Corporation Cable Support Management Functional Unit = 1 meter capable of supporting a load of "Y" kg per meter on a span of "P" meter.
REFERENCE PCR AND VERSION NUMBER	Product Category Rule (PCR) PEP ecopassport Program: Product Category Rules for Electrical, Electronic and HVAC-R Products, v4.0, 2021 (PCR Part A) and PEP ecopassport Program: Product Specific Rules for Cable Management Solutions, v2.0, 2023 (PSR Part B).
DESCRIPTION OF PRODUCT(S) APPLICATION/USE	Cable Support Management for Cable Support Management
PRODUCT RSL DESCRIPTION	20 years
MARKETS OF APPLICABILITY	North America and Europe
DATE OF ISSUE	April 1st, 2026
PERIOD OF VALIDITY	5 years
EPD TYPE	Product Representative
DATASET VARIABILITY	N/A
EPD SCOPE	Cradle-to-Grave and Module D (A + B + C + D)
YEAR(S) OF REPORTED PRIMARY DATA	The period under review is March 2024 through February 2025 for all products except 24x4 channels where it is January 1 to December 31, 2024.
LCA SOFTWARE & VERSION NUMBER	LCA for Experts v10.9
LCI DATABASE(S) & VERSION NUMBER	LCA for Experts Sphera database & USLCI v2.0
LCIA METHODOLOGY & VERSION NUMBER	TRACI 2.2; CML 4.1; EN 15804+A2
The sub-category PCR review was conducted by:	Pep Ecopassport - contact@pep-ecopassport.orgt
This declaration was independently verified in accordance with ISO 14025: 2006. The IBU: Product Category Rules for Building-Related Products and Services, Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report according to EN 15804+A2:2019, based on EN 15804+A2 serves as the core PCR. ☐ INTERNAL ☒ EXTERNAL	 Cooper McCollum, UL Solutions
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	 Lucas Pedro Berman, Senda Consultorias

Environmental declarations from different programs (ISO 14025) may not be comparable. Comparison of the environmental performance using EPD information shall consider all relevant information modules over the full life cycle of the products within the building. This PCR allows EPD comparability only when the same functional requirements between products are ensured and the requirements of EN 15804+A2 §5.5 are met. It should be noted that different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared.

General Information

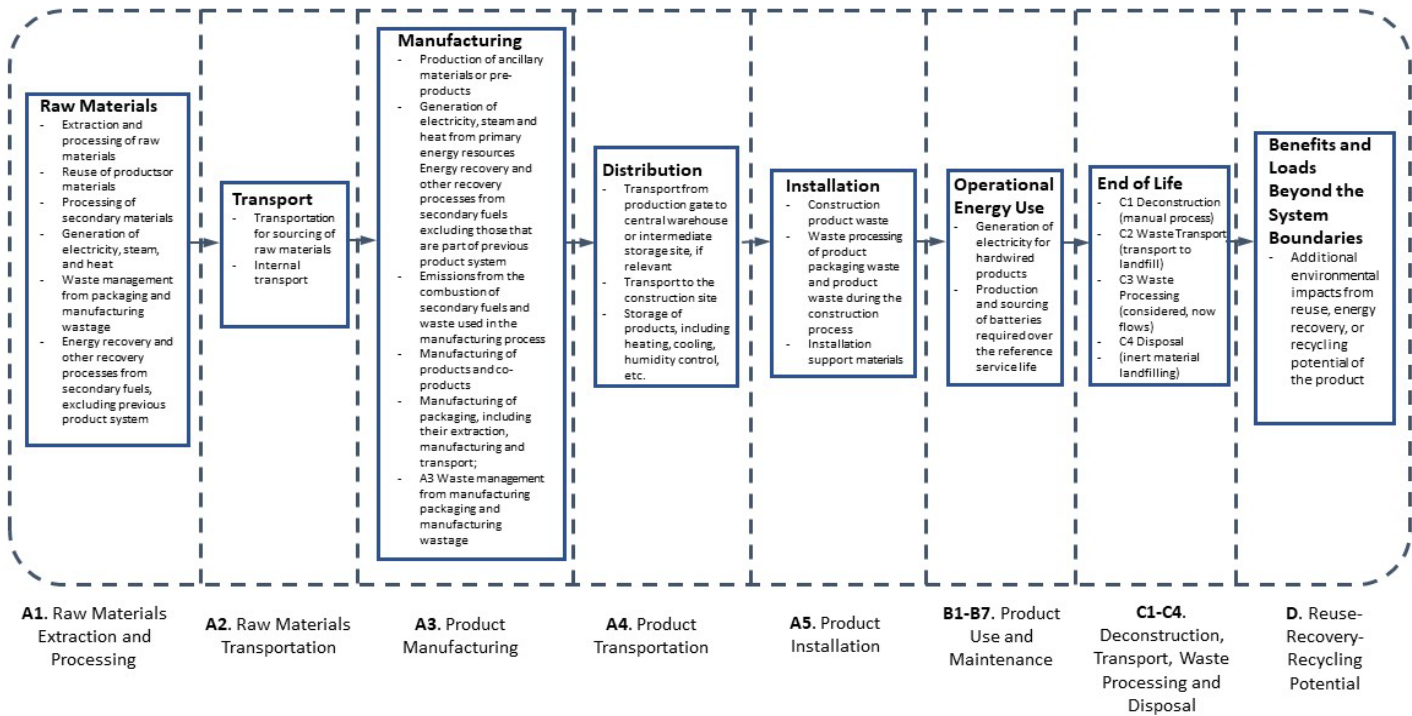
Description of Company/Organization

For more than 65 years, Panduit has been providing innovative infrastructure solutions to help connect our world. That innovation continues today with Panduit’s delivery of dependable, scalable network connectivity and robust, reliable electrical infrastructure. Each product and solution we create helps modern enterprises make more meaningful connections and thrive.

Product Description

Product Name: Panduit FiberRunner®
Product Characteristic: The FiberRunner® Cable Routing System is a system of channel, fittings, covers, and brackets designed to route, manage, and protect fiber optic and high performance copper cabling. Channel and fittings are assembled using timesaving Panduit® QuikLock™ Couplers. Fittings maintain a 2" bend radius to protect against signal loss due to excessive cable bends. Features include:
- Integral bend radius maintained throughout all fittings prevents excessive bends in fiber optic cabling
- Panduit’s innovative QuikLock Couplers and Brackets features no loose hardware and greatly reduces installation time
- Smooth cable carrying surfaces protect your fiber investment with snag-free connections
- Offers multiple configuration options; provides design flexibility and scalability to meet a wide range of applications

Flow Diagram



Manufacturer Specific EPD

This product-specific EPD was developed based on the Cradle-to-Grave Life Cycle Assessment. This EPD represents the primary data from the manufacturer from March 2024 through February 2025 for the Lockport, IL and the 2024 calendar year for the Extrutech Manitowoc, WI sites. The EPD accounts for raw material extraction and processing, transport, product manufacturing, distribution, installation, maintenance, disposal, and potential benefits and loads following the end of life disposal. Manufacturing data were gathered directly from company personnel. When updated company-specific data were not available the ratio of production units, within the 2024 calendar year, was used as a proxy. For any product group EPDs, an impact assessment was completed for each product and the highest impacts were reported as conservative representations of the product group. Scale factor tables are provided to calculate the impacts of each individual product from a representative product.

Material Composition & Packaging

The primary product components and/or materials must be indicated as a percentage of mass to enable the user of the EPD to understand the composition of the product in delivery status.

The composition of the Panduit® FiberRunner® product is as follows:

Part Name	Cardboard	Colorant	Wood Pallets	Paper	PVC
2x2 Channel	10-20%	1-5%	10-25%	0-2%	55-77%
4x4 Channel	5-10%	1-5%	10-25%	0-2%	55-77%
6x4 Channel	5-10%	1-5%	10-25%	0-2%	55-77%
12x4 Channel	1-5%	1-5%	10-25%	0-2%	55-77%
24x4 Channel	1-5%	1-5%	10-25%	0-2%	80-90%

Technical Data

For the Panduit channel product, the following technical data is provided:

Technical Data	
Description	Technical Information
Material	Rigid PVC or PC/ABS
Flammability	UL 94V-0

See Panduit.com for more details.

Application

The Panduit® FiberRunner® Cable Routing System ensures maximum network reliability and reduced cost of ownership. Robust, highly engineered components, with integral bend radius control surfaces can be configured to meet virtually any network application to provide optimum cable protection and assure network performance. Fast and easy to deploy, this scalable cable routing solution reduces installation cost and speeds up implementation of new services.

The FiberRunner is ideal for a wide range of indoor applications, including but not limited to:

- Data Centers
- Telecom Rooms
- Healthcare Facilities
- Commercial & Industrial Buildings
- MTDC & Co-Lo's

Placing on the Market / Application Rules

The standards that can be applied to Panduit's FiberRunner are:

- UL Listed to 2024 Optical fiber Cable routing assemblies compliant with the applicable tests in Telcordia GR-63CORE Network Equipment Building Systems Level 3
- UL 94 V-0

Properties of Declared Product as Shipped

Panduit FiberRunners trays are carefully nested, palletized, and protected with a corrugated shroud and corner boards for safe and secure transport.

Methodological Framework

Functional Unit

The functional unit is to mount a 1 meter of cable tray capable of supporting a load of "Y" kg per meter on a span of "P" meter, for a service life of 20 years.

For the reference 12x4 channel, the functional unit is to mount a 1 meter of cable tray capable of supporting a load of "29.76" kg per meter on a span of "1.5" meters, for a service life of 20 years.

Part Name	Total Weight (kg/m)	"Y" Weight Supported per Meter (kg)	"P" Span (m)	Service Life (years)
2x2 Channel	0.69	2.68	1.5	20
4x4 Channel	1.99	10.42	1.5	20
6x4 Channel	2.08	14.88	1.5	20
12x4 Channel	3.08	29.76	1.5	20
24x4 Channel	7.44	59.53	1.5	20

System Boundary

This is a Cradle-to-Grave and Module D (A + B + C + D) Environmental Product Declaration.

The following life cycle phases were considered:

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 gate to the site	Construction/ installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction /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	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Description of the System Boundary Stages Corresponding to the PCR

(X = Included; MND = Module Not Declared)

*This includes provision of all materials, products and energy, packaging processing and its transport, as well as waste processing up to the end-of-life waste state or disposal of final residues.

Any stages not reported have an impact value of zero.

Reference Service Life

The service life of each fiber runner is 20 years, in accordance with PEP ecopassport Program: Product Specific Rules for Cable Management Solutions, v2.0, 2023 (PSR Part B).

Allocation

Allocation was determined on a per meter basis for primary data. For secondary data, cut-off methodology was used.

Cut-off Criteria

Processes whose total contribution to the final result, with respect to their mass and in relation to all considered impact categories, is less than 1% can be neglected. The sum of the neglected processes may not exceed 5% by mass of the considered impact categories. For that, a documented assumption is admissible.

For Hazardous Substances the following requirements apply:

- The Life Cycle Inventory (LCI) of hazardous substances will be included, if the inventory is available.
- If the LCI for a hazardous substance is not available, the substance will appear as an input in the LCI of the product, if its mass represents more than 0.1% of the product composition.
- If the LCI of a hazardous substance is approximated by modeling another substance, documentation will be provided.

This EPD is in compliance with the cut-off criteria. No processes were neglected or excluded. Capital items for the production processes (machine, buildings, etc.) were not taken into consideration.

Data Sources

Primary data were collected for every process in the product system under the control of Panduit Corporation. Secondary data from ecoinvent & USLCI v2.0 databases were utilized. These data were evaluated and have temporal, geographic, and technical coverage appropriate to the scope of this Environmental Product Declaration.

Data Quality

The data sources used are complete and representative of North America and Europe in terms of the geographic and technological coverage and are a recent vintage (i.e. less than ten years old). The data used for primary data were based on direct information sources of the manufacturer. Secondary data sets were used for raw materials extraction and processing, end of life, transportation, and energy production flows. Wherever secondary data is used, the study adopts critically reviewed data for consistency, precision, and reproducibility to limit uncertainty.

Period Under Review

The period under review is March 2024 through February 2025 for all products except 24x4 channels where it is the 2024 calendar year.

Treatment of Biogenic Carbon

The uptake and release of biogenic carbon throughout the product life cycle follows EN 15804+A2.

Comparability and Benchmarking

A comparison or an evaluation of EPD data is only possible if all data sets to be compared were created according to EN 15804+A2 and the building context, respectively the product-specific characteristics of performance, are taken into account. Environmental declarations from different programs may not be comparable. Full conformance with the Product Category Rule (PCR) PEP ecopassport Program: Product Category Rules for Electrical, Electronic and HVAC-R Products, v4.0, 2021 and PEP ecopassport Program: Product Specific Rules for Cable Management Solutions, v2.0, 2023 allows EPD comparability only when all stages of the product's life cycle have been considered; however, variations and deviations are possible.

Estimates and Assumptions

End-of-Life

The study assumes for fiber runner channels and accessories, the final product is 100% sent to incineration without energy recovery at the end of its life per the PSR. Additionally, per the PSR, 100 km is the distance assumed that waste travels via truck before reaching the final disposal destination.

Units

The LCA results within this EPD are reported in SI units.

LCA: Scenarios and Additional Technical Information

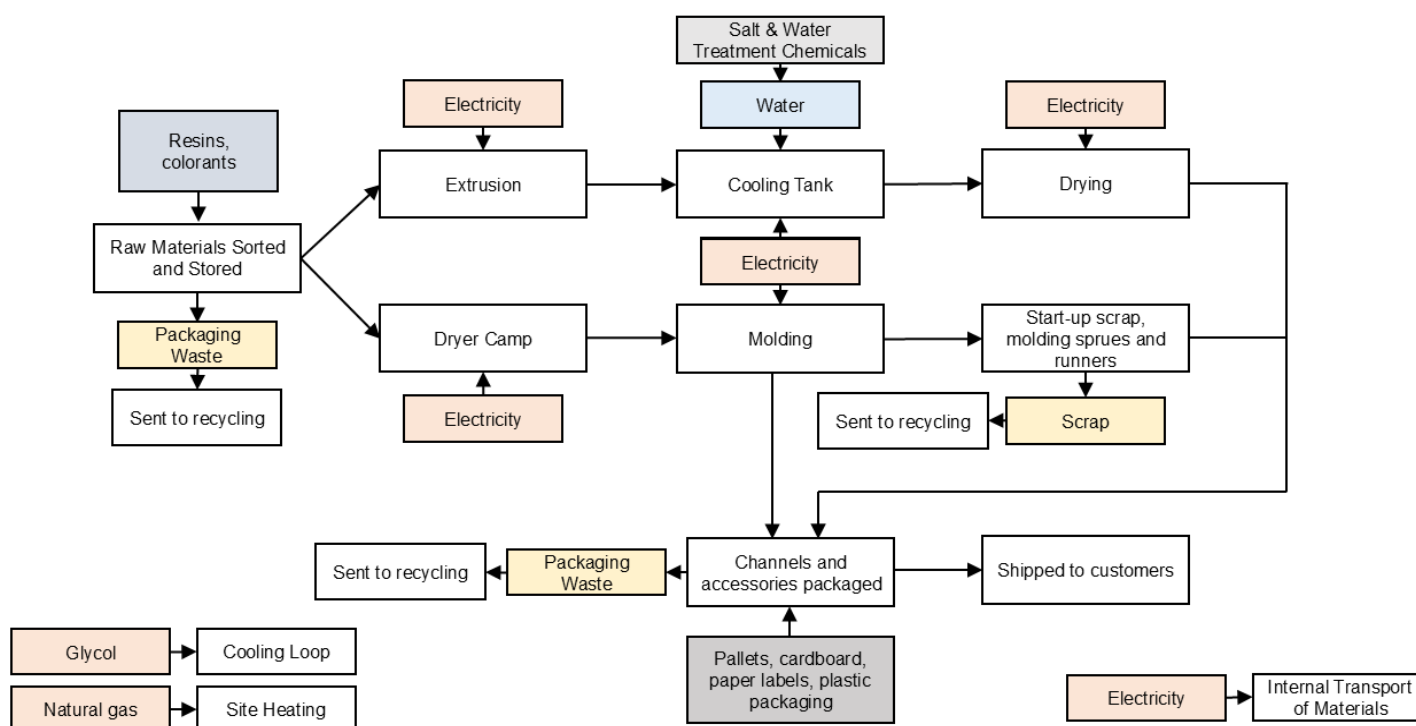
Background data

For life cycle modeling of the considered products, LCA for Experts developed by Sphera, is used. The ecoinvent and USLCI databases contain consistent datasets which are documented. To ensure comparability of results in the LCA, the basic data of the SimaPro database were used for energy, transportation, and auxiliary materials.

Manufacturing

Raw materials are transported to the facilities and stored on-site before entering the manufacturing process. This plastic is either molded or extruded into their forms. Molding is performed by first drying the blended plastic, then molded to the proper shape with scrap material being sent for recycling. Extrusion is performed by loading the blended plastic into the extruder followed by cooling and then drying. Once the final product is shaped and ready for packaging, it is packaged and arranged onto pallets for shipping. The final pallets and packages are sent to the shipping area and are shipped to a warehouse for distribution.

Process Flow Diagram



Transportation

Transport to Building Site (A4)						
Name	2x2 Channel	4x4 Channel	6x4 Channel	12x4 Channel	24x4 Channel	Unit
Fuel type	Diesel					-
Liters of fuel (for freight (combination) truck with a 32t payload)	1.96	5.77	1.50	2.12	9.91	L/m
Capacity utilization (including empty runs)	90					%
Capacity utilization volume factor	1					-
Transport distance	1,251	3,687	957	1,356	6,336	km
Gross density of products transported	0.69	1.99	2.08	3.08	7.44	kg/m

Product Installation

During installation, fiber runners are installed manually and require no additional installation materials. To install fiber runners into a building, some scrap will be generated. A 3% scrap rate is assumed for excess fiber runner during the installation process, and this scrap rate includes upstream impacts. Packaging waste is also generated; this waste is assumed to be treated as 100% incineration, in accordance with the PSR. Note that disposal in commercial incineration facilities is permissible and should be done in accordance with local, state, and federal regulations. Finally, installation waste is assumed to be transported 100 km by truck, per the PSR.

Installation into the building (A5)		
Name	Unit	Quantity
Ancillary Materials	-	0.0
Installation Scrap Rate	-	3%
Packaging Waste (Incineration)	-	100%
Truck Transportation	km	100

Product Use

This study assumes that modules B1, B2, B3, B4, B5, B6, and B7 are null. Channel runner products require no maintenance, repair, or refurbishment during the reference service life. The life cycle of this product is only 20 years, no additional replacements are required.

Disposal

The study assumes for fiber runner channels and accessories, the final product is 100% sent to incineration without energy recovery at the end of its life, per the PSR. Additionally, per the PSR, 100 km is the distance assumed that waste travels via truck before reaching the final disposal destination.

End of life (C1-C4)		
Name	Value	Unit
Incineration without Energy Recovery	100%	%
Truck Transportation	100	km

Re-use Phase

The end-of-life scenario was modeled based on the requirements in the PSR and assumes the final product is 100% incineration without energy recovery at the end of its life.

There are no re-use stage impacts.

12x4 Channel Results per Functional Unit

Reference Product 12x4 Channel Over the Reference Service Life of 20 Years

Results shown below were calculated using TRACI 2.2 Methodology.

TRACI 2.2 Impact Assessment									
Parameter	Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
GWP-Total	Global warming potential - Total	kg CO ₂ -Eq.	1.19E+01	5.59E-02	1.50E+00	8.29E-03	7.41E+00	0.00E+00	0.00E+00
GWP-Fossil	Global warming potential - Fossil Fuels	kg CO ₂ -Eq.	1.40E+01	5.59E-02	-5.12E-01	8.29E-03	7.41E+00	0.00E+00	0.00E+00
GWP-Biogenic	Global warming potential - Biogenic	kg CO ₂ -Eq.	-2.09E+00	0.00E+00	2.01E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	4.74E-11	0.00E+00	-7.14E-12	0.00E+00	3.14E-12	0.00E+00	0.00E+00
AP Air	Acidification potential for air emissions	kg SO ₂ -Eq.	2.18E-02	7.34E-04	5.78E-04	1.09E-04	2.21E-03	0.00E+00	0.00E+00
EP - Freshwater	Eutrophication potential - Freshwater	kg P-Eq.	3.04E-05	0.00E+00	-4.80E-08	0.00E+00	1.58E-07	0.00E+00	0.00E+00
EP - Marine	Eutrophication potential - Marine	kg N-Eq.	1.19E-02	7.14E-04	6.55E-04	1.06E-04	6.11E-04	0.00E+00	0.00E+00
POCP	Photochemical ozone formation	kg O ₃ eq.	4.35E-01	2.08E-02	2.24E-02	3.08E-03	1.61E-02	0.00E+00	0.00E+00
ETP	Ecotoxicity (freshwater)	CTUe	8.60E-02	0.00E+00	-1.15E-02	0.00E+00	8.78E-03	0.00E+00	0.00E+00

*All use phase and disposal stages have been considered. Stages that are not reported have values of zero.

*Results contain the output flows and wastes throughout the life cycle of the product.

Results shown below were calculated using CML 2001 - April 2016 Methodology.

CML 4.1 Impact Assessment									
Parameter	Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
GWP	Global warming potential	kg CO ₂ -Eq.	1.21E+01	5.59E-02	1.50E+00	8.29E-03	7.42E+00	0.00E+00	0.00E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	4.36E-11	0.00E+00	-7.25E-12	0.00E+00	3.14E-12	0.00E+00	0.00E+00
AP Air	Acidification potential for air emissions	kg SO ₂ -Eq.	2.00E-02	5.23E-04	3.62E-04	7.76E-05	1.84E-03	0.00E+00	0.00E+00
EP	Eutrophication potential	kg(PO ₄) ³ -Eq.	3.28E-03	1.37E-04	1.13E-04	2.03E-05	1.82E-04	0.00E+00	0.00E+00
POCP	Formation potential of tropospheric ozone	kg C ₂ H ₄ -Eq.	2.86E-03	-1.32E-04	-1.82E-05	-1.95E-05	8.11E-05	0.00E+00	0.00E+00
ADPE	Abiotic depletion potential for non-fossil resources	kg Sb-Eq.	3.23E-05	0.00E+00	-4.24E-08	0.00E+00	8.30E-07	0.00E+00	0.00E+00
ADPF	Abiotic depletion potential for fossil resources	MJ	2.48E+02	0.00E+00	-6.97E+00	0.00E+00	3.47E+00	0.00E+00	0.00E+00

*All use phase and disposal stages have been considered. Stages that are not reported have values of zero.

*Results contain the output flows and wastes throughout the life cycle of the product.

Results below contain the resource use throughout the life cycle of the product.

EN15804+A2 – Core environmental indicators, units and models

Parameter	Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
GWP-total	Climate change - total	kg CO ₂ -Eq.	1.23E+01	5.59E-02	1.50E+00	8.29E-03	7.43E+00	0.00E+00	0.00E+00
GWP-fossil	Climate change - fossil	kg CO ₂ -Eq.	1.43E+01	5.59E-02	-5.16E-01	8.29E-03	7.42E+00	0.00E+00	0.00E+00
GWP-biogenic	Climate change - biogenic	kg CO ₂ -Eq.	-2.04E+00	0.00E+00	2.01E+00	0.00E+00	1.24E-04	0.00E+00	0.00E+00
GWP-luluc	Climate change - land use and land use change	kg CO ₂ -Eq.	9.85E-03	0.00E+00	-2.04E-04	0.00E+00	7.04E-04	0.00E+00	0.00E+00
ODP	Ozone depletion	kg CFC-11 Eq.	4.35E-11	0.00E+00	-5.96E-12	0.00E+00	2.67E-12	0.00E+00	0.00E+00
AP	Acidification	mol H ⁺ Eq.	2.52E-02	7.78E-04	6.24E-04	1.15E-04	1.29E-03	0.00E+00	0.00E+00
EP-freshwater	Eutrophication aquatic freshwater	kg P Eq.	6.47E-05	0.00E+00	-1.23E-07	0.00E+00	3.52E-07	0.00E+00	0.00E+00
EP-marine	Eutrophication aquatic marine	kg N Eq.	7.11E-03	4.07E-04	3.46E-04	6.04E-05	2.89E-04	0.00E+00	0.00E+00
EP-terrestrial	Eutrophication terrestrial	mol N Eq.	7.76E-02	4.47E-03	4.36E-03	6.63E-04	5.96E-03	0.00E+00	0.00E+00
POCP	Photochemical ozone formation	NM VOC Eq.	2.77E-02	8.59E-04	8.69E-04	1.27E-04	7.92E-04	0.00E+00	0.00E+00
ADP-minerals & metals	Depletion of abiotic resources - minerals and metals	kg Sb Eq.	4.72E-06	0.00E+00	-5.54E-08	0.00E+00	2.59E-08	0.00E+00	0.00E+00
ADP-fossil	Depletion of abiotic resources - fossil fuels	MJ	2.90E+02	0.00E+00	-7.78E+00	0.00E+00	3.80E+00	0.00E+00	0.00E+00
WDP	Water use	m ³ deprived	1.97E+00	0.00E+00	2.03E-01	0.00E+00	6.94E-01	0.00E+00	0.00E+00

EN15804+A2 – Indicators, units and models for additional impact categories

Parameter	Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
PM	Particulate matter emissions	Disease incidence	2.80E-07	6.62E-09	2.06E-10	9.82E-10	1.47E-08	0.00E+00	0.00E+00
IRP	Ionizing radiation, human health	kBq U235 Eq.	1.23E+00	0.00E+00	-2.88E-02	0.00E+00	1.19E-02	0.00E+00	0.00E+00
ETP-fw	Ecotoxicity (freshwater)	CTUe	9.78E+01	1.65E-04	-7.26E-01	2.45E-05	1.46E+00	0.00E+00	0.00E+00
HTP-c	Human toxicity, cancer effects	CTUh	2.95E-09	0.00E+00	-5.35E-11	0.00E+00	1.12E-10	0.00E+00	0.00E+00
HTP-nc	Human toxicity, non-cancer effects	CTUh	4.63E-08	2.36E-12	-1.44E-09	3.49E-13	8.58E-09	0.00E+00	0.00E+00
SQP	Land use related impacts/Soil quality	Pt	2.26E+01	0.00E+00	-1.77E+00	0.00E+00	1.07E+00	0.00E+00	0.00E+00

The table below presents disclaimers with regard to the declaration of relevant core and additional environmental impact indicators according to the following classification.

Disclaimers to the declaration of core and additional environmental impact indicators		
ILCD Classification	Indicator	Disclaimer
ILCD Type 1	Global warming potential (GWP)	None
	Depletion potential of the stratospheric ozone layer (ODP)	None
	Potential incidence of disease due to PM emissions (PM)	None
ILCD Type 2	Acidification potential, Accumulated Exceedance (AP)	None
	Eutrophication potential, Fraction of nutrients reaching freshwater end compartment (EP-freshwater)	None
	Eutrophication potential, Fraction of nutrients reaching marine end compartment (EP-marine)	None
	Eutrophication potential, Accumulated Exceedance (EP-terrestrial)	None
	Formation potential of tropospheric ozone (POCP)	None
	Potential Human exposure efficiency relative to U235 (IRP)	1
ILCD Type 3	Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)	2
	Abiotic depletion potential for fossil resources (ADP-fossil)	2
	Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	2
	Potential Comparative Toxic Unit for ecosystems (ETP-fw)	2
	Potential Comparative Toxic Unit for humans (HTP-c)	2
	Potential Comparative Toxic Unit for humans (HTP-nc)	2
	Potential Soil quality index (SQP)	2
Disclaimer 1 - This impact category deals mainly with the eventual impacts 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, radon, and 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 on these results are high or as there is limited experienced with the indicator.		

Results below contain the resource use throughout the life cycle of the product.

Resource Use									
Parameter	Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
RPR _E	Renewable primary energy as energy carrier	MJ	3.58E+01	0.00E+00	-2.87E+00	0.00E+00	1.21E+00	0.00E+00	0.00E+00
RPR _M	Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRPR _E	Nonrenewable primary energy as energy carrier	MJ	2.90E+02	0.00E+00	-7.78E+00	0.00E+00	3.80E+00	0.00E+00	0.00E+00
NRPR _M	Nonrenewable primary energy as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	Total use of renewable primary energy resources	MJ	3.58E+01	0.00E+00	-2.87E+00	0.00E+00	1.21E+00	0.00E+00	0.00E+00
PENRT	Total use of non-renewable primary energy resources	MJ	2.90E+02	0.00E+00	-7.78E+00	0.00E+00	3.80E+00	0.00E+00	0.00E+00
SM	Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	Use of nonrenewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RE	Energy recovered from disposal of waste	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	Use of net fresh water	m ³	1.97E+00	0.00E+00	3.85E-03	0.00E+00	1.66E-02	0.00E+00	0.00E+00

*All use phase and disposal stages have been considered. Stages that are not reported have values of zero.

Results below contain the output flows and wastes throughout the life cycle of the product.

Output Flows and Waste Categories									
Parameter	Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
HWD	Hazardous waste disposed	kg	8.54E-08	0.00E+00	6.26E-09	0.00E+00	2.57E-09	0.00E+00	0.00E+00
NHWD	Non-hazardous waste disposed	kg	1.99E-01	0.00E+00	1.21E+00	0.00E+00	3.08E+00	0.00E+00	0.00E+00
HLRW	High-level radioactive waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ILLRW	Intermediate- and low-level radioactive waste disposed	kg	1.48E-02	0.00E+00	2.87E-04	0.00E+00	1.19E-04	0.00E+00	0.00E+00
CRU	Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MR	Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER	Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE	Recovered energy exported from product system	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

*All use phase and disposal stages have been considered. Stages that are not reported have values of zero.

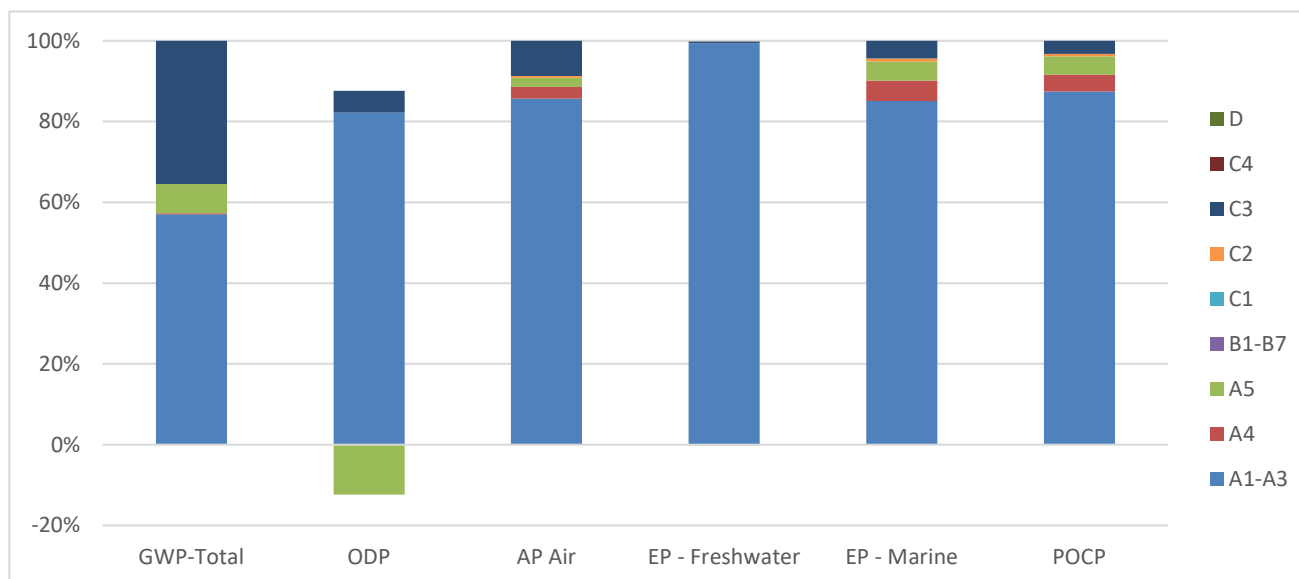
Results below contain direct greenhouse gas emissions and removals throughout the life cycle of the product.

Resource Use									
Parameter	Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
BCRP	Biogenic Carbon Removal from Product	kg CO ₂	2.04E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BCEP	Biogenic Carbon Emissions from Product	kg CO ₂	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.24E-04	0.00E+00	0.00E+00
BCRK	Biogenic Carbon Removal from Packaging	kg CO ₂	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BCEK	Biogenic Carbon Emissions from Packaging	kg CO ₂	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BCEW	Biogenic Carbon Emissions from Combustion of Waste from Renewable Sources Used in Production Process	kg CO ₂	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CCE	Calcination Carbon Emissions	kg CO ₂	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CCR	Carbonation Carbon Removal	kg CO ₂	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CWNR	Carbon Emissions from Combustion of Waste from Non-renewable Sources Used in Production Process	kg CO ₂	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

**All use phase and disposal stages have been considered. Stages that are not reported have values of zero.*

12x4 Channel LCA Interpretation

The life cycle impacts are strongly driven by raw materials (A1) in all categories. This is consistent with the fact that the raw materials have large environmental impacts before being shaped into the products. Waste processing (C3) also has a significant impact on the climate change category. These products are incinerated at the end of their life without energy recovery, per the PCR, which leads to significant climate change impacts.



24x4 Channel Results per Functional Unit

Reference Product 24x4 Channel Over the Reference Service Life of 20 Years

Results shown below were calculated using TRACI 2.2 Methodology.

TRACI 2.2 Impact Assessment									
Parameter	Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
GWP-Total	Global warming potential - Total	kg CO ₂ -Eq.	2.44E+01	5.59E-02	1.64E+00	8.29E-03	1.80E+01	0.00E+00	0.00E+00
GWP-Fossil	Global warming potential - Fossil Fuels	kg CO ₂ -Eq.	2.66E+01	1.83E-01	-5.30E-01	8.29E-03	1.80E+01	0.00E+00	0.00E+00
GWP-Biogenic	Global warming potential - Biogenic	kg CO ₂ -Eq.	0.00E+00	0.00E+00	2.17E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	8.30E-11	0.00E+00	-8.25E-12	0.00E+00	7.65E-12	0.00E+00	0.00E+00
AP Air	Acidification potential for air emissions	kg SO ₂ -Eq.	4.31E-02	2.40E-03	8.62E-04	1.09E-04	5.37E-03	0.00E+00	0.00E+00
EP - Freshwater	Eutrophication potential - Freshwater	kg P-Eq.	2.87E-05	0.00E+00	-1.30E-07	0.00E+00	3.86E-07	0.00E+00	0.00E+00
EP - Marine	Eutrophication potential - Marine	kg N-Eq.	2.87E-02	2.34E-03	9.39E-04	1.06E-04	1.49E-03	0.00E+00	0.00E+00
POCP	Photochemical ozone formation	kg O ₃ eq.	1.03E+00	6.79E-02	3.10E-02	3.08E-03	3.92E-02	0.00E+00	0.00E+00
ETP	Ecotoxicity (freshwater)	CTUe	1.57E-01	0.00E+00	-1.24E-02	0.00E+00	2.14E-02	0.00E+00	0.00E+00

*All use phase and disposal stages have been considered. Stages that are not reported have values of zero.

*Results contain the output flows and wastes throughout the life cycle of the product.

Results shown below were calculated using CML 2001 - April 2016 Methodology.

CML 4.1 Impact Assessment									
Parameter	Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
GWP	Global warming potential	kg CO ₂ -Eq.	2.48E+01	1.83E-01	1.64E+00	8.29E-03	1.80E+01	0.00E+00	0.00E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	8.28E-11	0.00E+00	-8.25E-12	0.00E+00	7.65E-12	0.00E+00	0.00E+00
AP Air	Acidification potential for air emissions	kg SO ₂ -Eq.	3.69E-02	1.71E-03	5.60E-04	7.76E-05	4.48E-03	0.00E+00	0.00E+00
EP	Eutrophication potential	kg(PO ₄) ³ -Eq.	6.82E-03	4.47E-04	1.65E-04	2.03E-05	4.42E-04	0.00E+00	0.00E+00
POCP	Formation potential of tropospheric ozone	kg C ₂ H ₄ -Eq.	5.33E-03	-4.31E-04	-6.22E-05	-1.95E-05	1.97E-04	0.00E+00	0.00E+00
ADPE	Abiotic depletion potential for non-fossil resources	kg Sb-Eq.	7.49E-05	0.00E+00	-6.64E-08	0.00E+00	2.02E-06	0.00E+00	0.00E+00
ADPF	Abiotic depletion potential for fossil resources	MJ	5.12E+02	0.00E+00	-7.47E+00	0.00E+00	8.44E+00	0.00E+00	0.00E+00

*All use phase and disposal stages have been considered. Stages that are not reported have values of zero.

*Results contain the output flows and wastes throughout the life cycle of the product.

Results below contain the resource use throughout the life cycle of the product.

EN15804+A2 – Core environmental indicators, units and models

Parameter	Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
GWP-total	Climate change - total	kg CO ₂ -Eq.	2.51E+01	1.83E-01	1.64E+00	8.29E-03	1.81E+01	0.00E+00	0.00E+00
GWP-fossil	Climate change - fossil	kg CO ₂ -Eq.	2.72E+01	1.83E-01	-5.34E-01	8.29E-03	1.81E+01	0.00E+00	0.00E+00
GWP-biogenic	Climate change - biogenic	kg CO ₂ -Eq.	-2.14E+00	0.00E+00	2.17E+00	0.00E+00	3.02E-04	0.00E+00	0.00E+00
GWP-luluc	Climate change - land use and land use change	kg CO ₂ -Eq.	2.29E-02	0.00E+00	-2.20E-04	0.00E+00	1.71E-03	0.00E+00	0.00E+00
ODP	Ozone depletion	kg CFC-11 Eq.	7.03E-11	0.00E+00	-7.01E-12	0.00E+00	6.49E-12	0.00E+00	0.00E+00
AP	Acidification	mol H ⁺ Eq.	4.84E-02	2.55E-03	9.26E-04	1.15E-04	3.14E-03	0.00E+00	0.00E+00
EP-freshwater	Eutrophication aquatic freshwater	kg P Eq.	6.12E-05	0.00E+00	-3.18E-07	0.00E+00	8.57E-07	0.00E+00	0.00E+00
EP-marine	Eutrophication aquatic marine	kg N Eq.	1.68E-02	1.33E-03	5.05E-04	6.04E-05	7.04E-04	0.00E+00	0.00E+00
EP-terrestrial	Eutrophication terrestrial	mol N Eq.	1.86E-01	1.46E-02	6.16E-03	6.63E-04	1.45E-02	0.00E+00	0.00E+00
POCP	Photochemical ozone formation	NM VOC Eq.	6.50E-02	2.81E-03	1.22E-03	1.27E-04	1.93E-03	0.00E+00	0.00E+00
ADP-minerals & metals	Depletion of abiotic resources - minerals and metals	kg Sb Eq.	9.03E-06	0.00E+00	-5.93E-08	0.00E+00	6.29E-08	0.00E+00	0.00E+00
ADP-fossil	Depletion of abiotic resources - fossil fuels	MJ	5.37E+02	0.00E+00	-8.35E+00	0.00E+00	9.25E+00	0.00E+00	0.00E+00
WDP	Water use	m ³ deprived	3.71E+00	0.00E+00	2.19E-01	0.00E+00	1.69E+00	0.00E+00	0.00E+00

EN15804+A2 – Indicators, units and models for additional impact categories

Parameter	Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
PM	Particulate matter emissions	Disease incidence	5.04E-07	2.17E-08	2.47E-09	9.82E-10	3.58E-08	0.00E+00	0.00E+00
IRP	Ionizing radiation, human health	kBq U235 Eq.	7.38E-01	0.00E+00	-3.11E-02	0.00E+00	2.89E-02	0.00E+00	0.00E+00
ETP-fw	Ecotoxicity (freshwater)	CTUe	2.13E+02	5.40E-04	-7.82E-01	2.45E-05	3.56E+00	0.00E+00	0.00E+00
HTP-c	Human toxicity, cancer effects	CTUh	5.54E-09	0.00E+00	-5.89E-11	0.00E+00	2.72E-10	0.00E+00	0.00E+00
HTP-nc	Human toxicity, non-cancer effects	CTUh	7.87E-08	7.70E-12	-1.70E-09	3.49E-13	2.09E-08	0.00E+00	0.00E+00
SQP	Land use related impacts/Soil quality	Pt	3.89E+01	0.00E+00	-1.90E+00	0.00E+00	2.61E+00	0.00E+00	0.00E+00

Environmental Product Declaration

Panduit Corporation Cable Support Management

FiberRunner® Cable Routing System



**According to
ISO 14025, ISO 14040,
and EN 15804+A2**

The table below presents disclaimers with regard to the declaration of relevant core and additional environmental impact indicators according to the following classification.

Disclaimers to the declaration of core and additional environmental impact indicators

ILCD Classification	Indicator	Disclaimer
ILCD Type 1	Global warming potential (GWP)	None
	Depletion potential of the stratospheric ozone layer (ODP)	None
	Potential incidence of disease due to PM emissions (PM)	None
ILCD Type 2	Acidification potential, Accumulated Exceedance (AP)	None
	Eutrophication potential, Fraction of nutrients reaching freshwater end compartment (EP-freshwater)	None
	Eutrophication potential, Fraction of nutrients reaching marine end compartment (EP-marine)	None
	Eutrophication potential, Accumulated Exceedance (EP-terrestrial)	None
	Formation potential of tropospheric ozone (POCP)	None
	Potential Human exposure efficiency relative to U235 (IRP)	1
ILCD Type 3	Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)	2
	Abiotic depletion potential for fossil resources (ADP-fossil)	2
	Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	2
	Potential Comparative Toxic Unit for ecosystems (ETP-fw)	2
	Potential Comparative Toxic Unit for humans (HTP-c)	2
	Potential Comparative Toxic Unit for humans (HTP-nc)	2
	Potential Soil quality index (SQP)	2

Disclaimer 1 - This impact category deals mainly with the eventual impacts 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, radon, and 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 on these results are high or as there is limited experienced with the indicator.

Results below contain the resource use throughout the life cycle of the product.

Resource Use

Parameter	Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
RPR _E	Renewable primary energy as energy carrier	MJ	5.51E+01	0.00E+00	-3.10E+00	0.00E+00	2.93E+00	0.00E+00	0.00E+00
RPR _M	Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRPR _E	Nonrenewable primary energy as energy carrier	MJ	5.37E+02	0.00E+00	-8.35E+00	0.00E+00	9.25E+00	0.00E+00	0.00E+00
NRPR _M	Nonrenewable primary energy as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	Total use of renewable primary energy resources	MJ	5.51E+01	0.00E+00	-3.10E+00	0.00E+00	2.93E+00	0.00E+00	0.00E+00
PENRT	Total use of non-renewable primary energy resources	MJ	5.37E+02	0.00E+00	-8.35E+00	0.00E+00	9.25E+00	0.00E+00	0.00E+00
SM	Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	Use of nonrenewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RE	Energy recovered from disposal of waste	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	Use of net fresh water	m ³	3.71E+00	0.00E+00	4.15E-03	0.00E+00	4.05E-02	0.00E+00	0.00E+00

**All use phase and disposal stages have been considered. Stages that are not reported have values of zero.*

Results below contain the output flows and wastes throughout the life cycle of the product.

Output Flows and Waste Categories									
Parameter	Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
HWD	Hazardous waste disposed	kg	1.23E-07	0.00E+00	6.74E-09	0.00E+00	-1.29E-07	0.00E+00	0.00E+00
NHWD	Non-hazardous waste disposed	kg	4.43E-01	0.00E+00	1.18E+00	0.00E+00	5.81E+00	0.00E+00	0.00E+00
HLRW	High-level radioactive waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ILLRW	Intermediate- and low-level radioactive waste disposed	kg	8.90E-03	0.00E+00	3.10E-04	0.00E+00	2.89E-04	0.00E+00	0.00E+00
CRU	Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MR	Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER	Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE	Recovered energy exported from product system	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

**All use phase and disposal stages have been considered. Stages that are not reported have values of zero.*

Results below contain direct greenhouse gas emissions and removals throughout the life cycle of the product.

Resource Use									
Parameter	Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
BCRP	Biogenic Carbon Removal from Product	kg CO ₂	2.14E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BCEP	Biogenic Carbon Emissions from Product	kg CO ₂	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.02E-04	0.00E+00	0.00E+00
BCRK	Biogenic Carbon Removal from Packaging	kg CO ₂	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BCEK	Biogenic Carbon Emissions from Packaging	kg CO ₂	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BCEW	Biogenic Carbon Emissions from Combustion of Waste from Renewable Sources Used in Production Process	kg CO ₂	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CCE	Calcination Carbon Emissions	kg CO ₂	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CCR	Carbonation Carbon Removal	kg CO ₂	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CWNR	Carbon Emissions from Combustion of Waste from Non-renewable Sources Used in Production Process	kg CO ₂	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

**All use phase and disposal stages have been considered. Stages that are not reported have values of zero.*

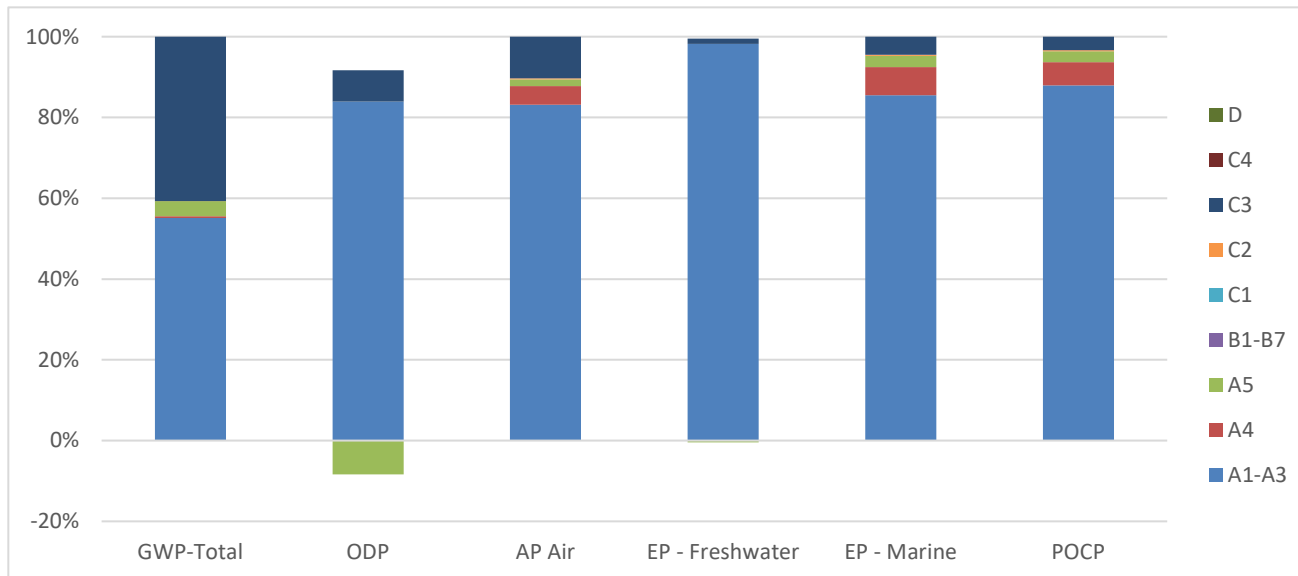
FiberRunner® Cable Routing System



**According to
ISO 14025, ISO 14040,
and EN 15804+A2**

24x4 Channel LCA Interpretation

The life cycle impacts are strongly driven by raw materials (A1) in all categories. This is consistent with the fact that the raw materials have large environmental impacts before being shaped into the products. Waste processing (C3) also has a significant impact on fossil and total climate change categories. These products are incinerated at the end of their life without energy recovery, per the PCR, which leads to significant climate change impacts.



Fiber Runner Channel Scaling Factor Table

An impact assessment was completed for the 12x4 Channel reference product and the impacts were reported as representation of the fiber runners. The rest of the products in the fiber runners are represented through scaling factors and can be independently calculated.

[illegible]

FRFWC12X4L Results per Functional Piece**
Reference Accessory FRFWC12X4L Over the Reference Service Life of 20 Years**

Results shown below were calculated using TRACI 2.2 Methodology.

TRACI 2.2 Impact Assessment									
Parameter	Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
GWP-Total	Global warming potential - Total	kg CO ₂ -Eq.	4.78E+00	2.81E-02	1.45E+00	8.29E-03	2.69E+00	0.00E+00	0.00E+00
GWP-Fossil	Global warming potential - Fossil Fuels	kg CO ₂ -Eq.	6.72E+00	2.81E-02	-4.43E-01	8.29E-03	2.69E+00	0.00E+00	0.00E+00
GWP-Biogenic	Global warming potential - Biogenic	kg CO ₂ -Eq.	-1.93E+00	0.00E+00	1.89E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	2.14E-11	0.00E+00	-6.38E-12	0.00E+00	1.14E-12	0.00E+00	0.00E+00
AP Air	Acidification potential for air emissions	kg SO ₂ -Eq.	1.53E-02	3.69E-04	5.60E-04	1.09E-04	8.01E-04	0.00E+00	0.00E+00
EP - Freshwater	Eutrophication potential - Freshwater	kg P-Eq.	4.42E-05	0.00E+00	-1.39E-07	0.00E+00	5.75E-08	0.00E+00	0.00E+00
EP - Marine	Eutrophication potential - Marine	kg N-Eq.	9.04E-03	3.59E-04	6.26E-04	1.06E-04	2.22E-04	0.00E+00	0.00E+00
POCP	Photochemical ozone formation	kg O ₃ eq.	3.05E-01	1.04E-02	2.11E-02	3.08E-03	5.85E-03	0.00E+00	0.00E+00
ETP	Ecotoxicity (freshwater)	CTUe	3.99E-02	0.00E+00	-9.97E-03	0.00E+00	3.18E-03	0.00E+00	0.00E+00

*All use phase and disposal stages have been considered. Stages that are not reported have values of zero.

*Results contain the output flows and wastes throughout the life cycle of the product.

Results shown below were calculated using CML 2001 - April 2016 Methodology.

CML 4.1 Impact Assessment									
Parameter	Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
GWP	Global warming potential	kg CO ₂ -Eq.	4.87E+00	2.81E-02	1.30E+00	8.29E-03	2.69E+00	0.00E+00	0.00E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	1.95E-11	0.00E+00	-6.43E-12	0.00E+00	1.14E-12	0.00E+00	0.00E+00
AP Air	Acidification potential for air emissions	kg SO ₂ -Eq.	1.37E-02	2.63E-04	3.55E-04	7.76E-05	6.68E-04	0.00E+00	0.00E+00
EP	Eutrophication potential	kg(PO ₄) ³ -Eq.	2.72E-03	6.87E-05	1.07E-04	2.03E-05	6.60E-05	0.00E+00	0.00E+00
POCP	Formation potential of tropospheric ozone	kg C ₂ H ₄ -Eq.	7.19E-04	-6.63E-05	-2.73E-05	-1.95E-05	2.94E-05	0.00E+00	0.00E+00
ADPE	Abiotic depletion potential for non-fossil resources	kg Sb-Eq.	1.18E-05	0.00E+00	-4.55E-08	0.00E+00	3.01E-07	0.00E+00	0.00E+00
ADPF	Abiotic depletion potential for fossil resources	MJ	1.06E+02	0.00E+00	-6.08E+00	0.00E+00	1.26E+00	0.00E+00	0.00E+00

*All use phase and disposal stages have been considered. Stages that are not reported have values of zero.

*Results contain the output flows and wastes throughout the life cycle of the product.

**According to
ISO 14025, ISO 14040,
and EN 15804+A2**

Results below contain the resource use throughout the life cycle of the product.

EN15804+A2 – Core environmental indicators, units and models

Parameter	Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
GWP-total	Climate change - total	kg CO ₂ -Eq.	4.93E+00	2.81E-02	1.30E+00	8.29E-03	2.69E+00	0.00E+00	0.00E+00
GWP-fossil	Climate change - fossil	kg CO ₂ -Eq.	6.81E+00	2.81E-02	-4.46E-01	8.29E-03	2.69E+00	0.00E+00	0.00E+00
GWP-biogenic	Climate change - biogenic	kg CO ₂ -Eq.	-1.88E+00	0.00E+00	1.88E+00	0.00E+00	4.50E-05	0.00E+00	0.00E+00
GWP-luluc	Climate change - land use and land use change	kg CO ₂ -Eq.	4.31E-03	0.00E+00	-1.77E-04	0.00E+00	2.55E-04	0.00E+00	0.00E+00
ODP	Ozone depletion	kg CFC-11 Eq.	1.98E-11	0.00E+00	-5.36E-12	0.00E+00	9.68E-13	0.00E+00	0.00E+00
AP	Acidification	mol H ⁺ Eq.	1.75E-02	3.91E-04	6.03E-04	1.15E-04	4.68E-04	0.00E+00	0.00E+00
EP-freshwater	Eutrophication aquatic freshwater	kg P Eq.	9.26E-05	0.00E+00	-3.16E-07	0.00E+00	1.28E-07	0.00E+00	0.00E+00
EP-marine	Eutrophication aquatic marine	kg N Eq.	5.46E-03	2.05E-04	3.33E-04	6.04E-05	1.05E-04	0.00E+00	0.00E+00
EP-terrestrial	Eutrophication terrestrial	mol N Eq.	5.84E-02	2.25E-03	4.14E-03	6.63E-04	2.16E-03	0.00E+00	0.00E+00
POCP	Photochemical ozone formation	NMVOC Eq.	1.65E-02	4.32E-04	8.22E-04	1.27E-04	2.87E-04	0.00E+00	0.00E+00
ADP-minerals & metals	Depletion of abiotic resources - minerals and metals	kg Sb Eq.	9.55E-07	0.00E+00	-4.84E-08	0.00E+00	9.38E-09	0.00E+00	0.00E+00
ADP-fossil	Depletion of abiotic resources - fossil fuels	MJ	1.27E+02	0.00E+00	-6.78E+00	0.00E+00	1.38E+00	0.00E+00	0.00E+00
WDP	Water use	m ³ deprived	9.89E-01	0.00E+00	1.76E-01	0.00E+00	2.52E-01	0.00E+00	0.00E+00

EN15804+A2 – Indicators, units and models for additional impact categories

Parameter	Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
PM	Particulate matter emissions	Disease incidence	1.89E-07	3.33E-09	6.84E-10	9.82E-10	5.34E-09	0.00E+00	0.00E+00
IRP	Ionizing radiation, human health	kBq U235 Eq.	5.99E-01	0.00E+00	-2.50E-02	0.00E+00	4.32E-03	0.00E+00	0.00E+00
ETP-fw	Ecotoxicity (freshwater)	CTUe	4.24E+01	8.31E-05	-6.53E-01	2.45E-05	5.31E-01	0.00E+00	0.00E+00
HTP-c	Human toxicity, cancer effects	CTUh	1.96E-09	0.00E+00	-4.75E-11	0.00E+00	4.05E-11	0.00E+00	0.00E+00
HTP-nc	Human toxicity, non-cancer effects	CTUh	2.22E-08	1.18E-12	-1.35E-09	3.49E-13	3.11E-09	0.00E+00	0.00E+00
SQP	Land use related impacts/Soil quality	Pt	3.80E+01	0.00E+00	-1.53E+00	0.00E+00	3.89E-01	0.00E+00	0.00E+00

The table below presents disclaimers with regard to the declaration of relevant core and additional environmental impact indicators according to the following classification.

Disclaimers to the declaration of core and additional environmental impact indicators		
ILCD Classification	Indicator	Disclaimer
ILCD Type 1	Global warming potential (GWP)	None
	Depletion potential of the stratospheric ozone layer (ODP)	None
	Potential incidence of disease due to PM emissions (PM)	None
ILCD Type 2	Acidification potential, Accumulated Exceedance (AP)	None
	Eutrophication potential, Fraction of nutrients reaching freshwater end compartment (EP-freshwater)	None
	Eutrophication potential, Fraction of nutrients reaching marine end compartment (EP-marine)	None
	Eutrophication potential, Accumulated Exceedance (EP-terrestrial)	None
	Formation potential of tropospheric ozone (POCP)	None
	Potential Human exposure efficiency relative to U235 (IRP)	1
ILCD Type 3	Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)	2
	Abiotic depletion potential for fossil resources (ADP-fossil)	2
	Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	2
	Potential Comparative Toxic Unit for ecosystems (ETP-fw)	2
	Potential Comparative Toxic Unit for humans (HTP-c)	2
	Potential Comparative Toxic Unit for humans (HTP-nc)	2
	Potential Soil quality index (SQP)	2
Disclaimer 1 - This impact category deals mainly with the eventual impacts 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, radon, and 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 on these results are high or as there is limited experienced with the indicator.		

Results below contain the resource use throughout the life cycle of the product.

Resource Use									
Parameter	Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
RPR _E	Renewable primary energy as energy carrier	MJ	2.85E+01	0.00E+00	-2.49E+00	0.00E+00	4.38E-01	0.00E+00	0.00E+00
RPR _M	Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRPR _E	Nonrenewable primary energy as energy carrier	MJ	1.27E+02	0.00E+00	-6.78E+00	0.00E+00	1.38E+00	0.00E+00	0.00E+00
NRPR _M	Nonrenewable primary energy as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	Total use of renewable primary energy resources	MJ	2.85E+01	0.00E+00	-2.49E+00	0.00E+00	4.38E-01	0.00E+00	0.00E+00
PENRT	Total use of non-renewable primary energy resources	MJ	1.27E+02	0.00E+00	-6.78E+00	0.00E+00	1.38E+00	0.00E+00	0.00E+00
SM	Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	Use of nonrenewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RE	Energy recovered from disposal of waste	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	Use of net fresh water	m ³	9.89E-01	0.00E+00	3.33E-03	0.00E+00	6.03E-03	0.00E+00	0.00E+00

*All use phase and disposal stages have been considered. Stages that are not reported have values of zero.

Results below contain the output flows and wastes throughout the life cycle of the product.

Output Flows and Waste Categories									
Parameter	Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
HWD	Hazardous waste disposed	kg	5.49E-08	0.00E+00	5.43E-09	0.00E+00	9.33E-10	0.00E+00	0.00E+00
NHWD	Non-hazardous waste disposed	kg	1.66E-01	0.00E+00	7.81E-01	0.00E+00	6.06E-01	0.00E+00	0.00E+00
HLRW	High-level radioactive waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ILLRW	Intermediate- and low-level radioactive waste disposed	kg	7.23E-03	0.00E+00	2.49E-04	0.00E+00	4.30E-05	0.00E+00	0.00E+00
CRU	Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MR	Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER	Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE	Recovered energy exported from product system	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

**All use phase and disposal stages have been considered. Stages that are not reported have values of zero.*

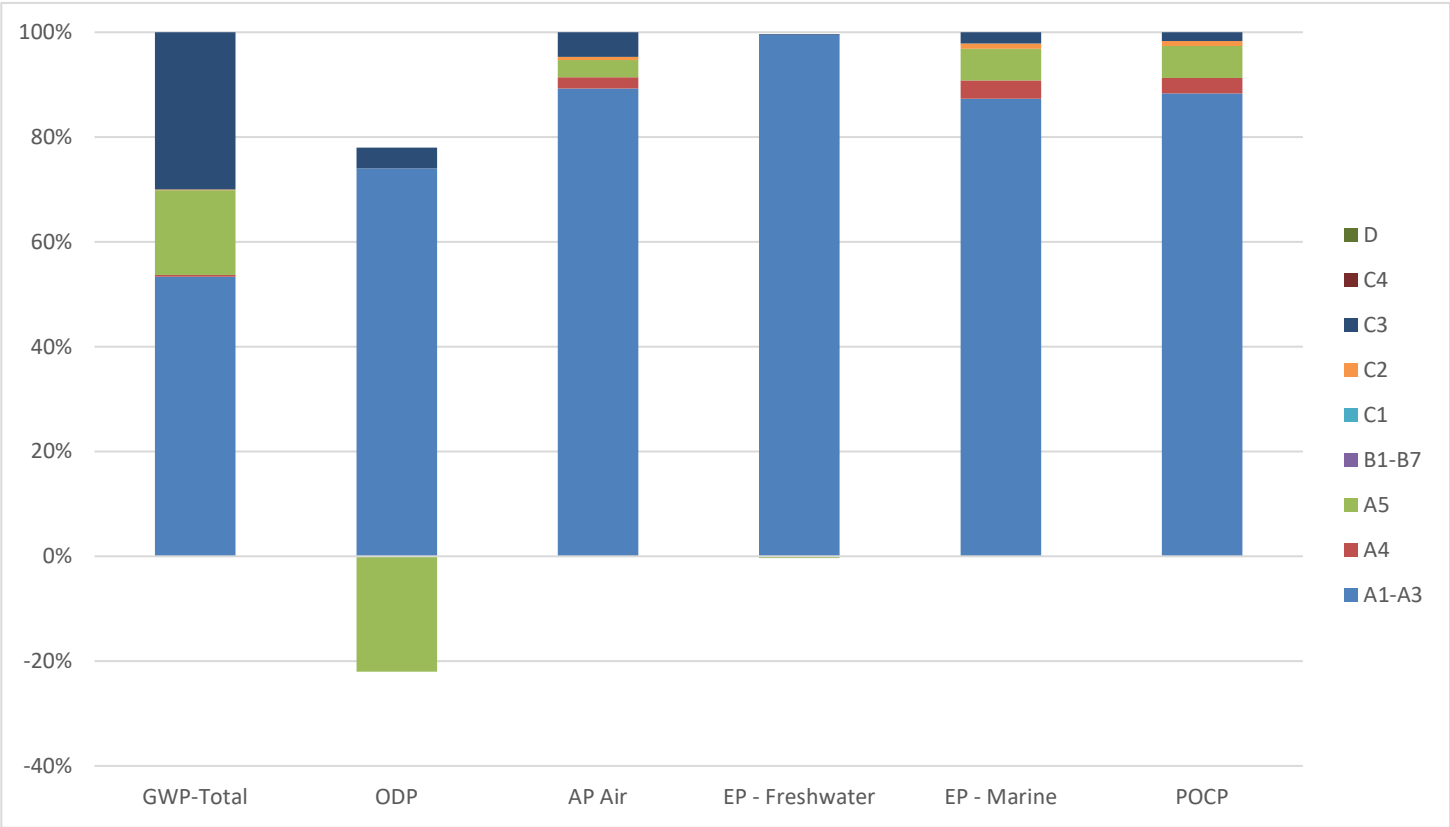
Results below contain direct greenhouse gas emissions and removals throughout the life cycle of the product.

Resource Use									
Parameter	Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
BCRP	Biogenic Carbon Removal from Product	kg CO ₂	1.88E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BCEP	Biogenic Carbon Emissions from Product	kg CO ₂	0.00E+00	0.00E+00	1.88E+00	0.00E+00	4.50E-05	0.00E+00	0.00E+00
BCRK	Biogenic Carbon Removal from Packaging	kg CO ₂	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BCEK	Biogenic Carbon Emissions from Packaging	kg CO ₂	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BCEW	Biogenic Carbon Emissions from Combustion of Waste from Renewable Sources Used in Production Process	kg CO ₂	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CCE	Calcination Carbon Emissions	kg CO ₂	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CCR	Carbonation Carbon Removal	kg CO ₂	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CWNR	Carbon Emissions from Combustion of Waste from Non-renewable Sources Used in Production Process	kg CO ₂	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

**All use phase and disposal stages have been considered. Stages that are not reported have values of zero.*

FRFWC12X4L** LCA Interpretation

The life cycle impacts are strongly driven by raw materials (A1) in all categories. This is consistent with the fact that the raw materials have large environmental impacts before being shaped into the products. Waste processing (C3) also has a significant impact on fossil and total climate change categories. These products are incinerated at the end of their life without energy recovery per the PCR which leads to significant climate change impacts.



Accessories Scaling Factor Table

An impact assessment was completed for the FRFWC12X4L** reference accessory and the impacts were reported as representation of the accessory group. The rest of the products in the accessory group are represented through scaling factors and can be independently calculated. Accessories are added as necessary to the products to achieve desired results for complete systems with these channels.

Product	A1-A3						C2	C3	C4	D
	GWP	ODP	AP	EP-Fresh-water	EP-Marine	POCP				
FRBC12X4L**	1.01	1.05	0.67	0.90	0.91	0.94	0.94	0.97	1.00	1.00
FRRA12X4L**	0.84	0.84	0.94	0.81	0.82	0.87	0.87	0.82	1.00	1.00
FRRASC12L**	0.36	0.38	0.60	0.32	0.33	0.42	0.42	0.31	1.00	1.00
FRT12X4L**	0.90	0.90	0.95	0.88	0.89	0.92	0.92	0.88	1.00	1.00
FRTSC12L**	0.37	0.39	0.62	0.32	0.33	0.43	0.43	0.31	1.00	1.00
FRT12X4W6L**	0.89	0.92	1.31	0.81	0.83	1.00	1.00	0.80	1.00	1.00
FRTSC12W6L**	0.30	0.32	0.55	0.26	0.27	0.36	0.36	0.24	1.00	1.00
FRH4512X4L**	0.39	0.42	0.65	0.35	0.36	0.46	0.46	0.33	1.00	1.00
FRH45SC12L**	0.23	0.22	0.34	0.18	0.19	0.27	0.27	0.20	1.00	1.00
FROVRA12X4L**	0.26	0.25	0.38	0.21	0.22	0.31	0.31	0.24	1.00	1.00
FROVRASC12L**	0.23	0.26	0.48	0.20	0.21	0.29	0.29	0.17	1.00	1.00
FRIV4512X4L**	0.30	0.27	0.35	0.23	0.24	0.32	0.32	0.30	1.00	1.00
FROV4512X4L**	0.18	0.18	0.31	0.14	0.15	0.22	0.22	0.15	1.00	1.00
FROV45SC12L**	0.15	0.15	0.27	0.12	0.12	0.19	0.19	0.12	1.00	1.00
FRFWC12X4L**	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FRFWCSC12L**	0.33	0.30	0.36	0.27	0.27	0.33	0.33	0.30	1.00	1.00
FRFWC12X4W6L**	0.57	0.58	0.78	0.53	0.54	0.63	0.63	0.53	1.00	1.00
FRFWCSC12W6L*	0.29	0.28	0.47	0.22	0.23	0.36	0.36	0.25	1.00	1.00
FREC12X4L**	0.12	0.12	0.20	0.09	0.10	0.15	0.15	0.11	1.00	1.00
FRRF126LS**	0.12	0.14	0.26	0.10	0.11	0.16	0.16	0.09	1.00	1.00
FRRF126SCL**	0.12	0.12	0.20	0.10	0.11	0.14	0.14	0.10	1.00	1.00
FRY126L**	0.37	0.39	0.63	0.33	0.34	0.44	0.44	0.31	1.00	1.00
FRY126SCL**	0.21	0.24	0.45	0.18	0.19	0.26	0.26	0.15	1.00	1.00
FRRF126RL**	0.27	0.25	0.38	0.21	0.22	0.31	0.31	0.25	1.00	1.00
FRRF126RSC**	0.13	0.13	0.25	0.10	0.11	0.16	0.16	0.10	1.00	1.00

Accessories Scaling Factor Table Cont.

Product	A1-A3						C2	C3	C4	D
	GWP	ODP	AP	EP-Fresh-water	EP-Marine	POCP				
FRRF126LL**	0.27	0.25	0.38	0.21	0.22	0.31	0.31	0.25	1.00	1.00
FRRF126LSCL**	0.12	0.13	0.26	0.10	0.11	0.16	0.16	0.09	1.00	1.00
FRVT12X4L**	0.92	0.92	0.97	0.91	0.91	0.93	0.93	0.91	1.00	1.00
FRTR6X4L**	0.09	0.12	0.27	0.08	0.09	0.13	0.13	0.05	1.00	1.00
FRIDT6X4L**	0.15	0.16	0.28	0.12	0.13	0.19	0.19	0.13	1.00	1.00
FRHD4KTL**	0.83	0.70	0.61	0.48	0.52	0.80	0.80	0.69	1.00	1.00
FRLPR64LBL	0.09	0.11	0.07	0.11	0.11	0.16	0.16	0.07	1.00	1.00
FRSPJ2X2L**	0.35	0.62	0.31	0.24	0.26	0.31	0.31	0.09	1.00	1.00
FRSPJC212L**	0.19	0.23	0.50	0.16	0.17	0.25	0.25	0.10	1.00	1.00
FTYR2X2L**	0.03	0.03	0.08	0.02	0.02	0.04	0.04	0.01	1.00	1.00
FIDT2X2L*	0.02	0.03	0.06	0.02	0.02	0.03	0.03	0.01	1.00	1.00
FRHD2KTL**	0.33	0.35	0.09	0.19	0.20	0.30	0.30	0.29	1.00	1.00
TRC2HDLBL	0.01	0.02	0.04	0.01	0.01	0.02	0.02	0.01	1.00	1.00
FRSPJ4X4L**	0.72	0.96	0.56	0.56	0.58	0.66	0.66	0.48	1.00	1.00
FRSPJC412L**	0.25	0.28	0.50	0.22	0.22	0.31	0.31	0.18	1.00	1.00
FRTR4X4L**	0.08	0.11	0.24	0.07	0.08	0.12	0.12	0.04	1.00	1.00
FRIDT4X4L**	0.12	0.13	0.24	0.10	0.10	0.15	0.15	0.09	1.00	1.00
FR1.5IDEL**	0.04	0.05	0.10	0.04	0.04	0.06	0.06	0.03	1.00	1.00
FRTR12X4L**	0.14	0.17	0.35	0.12	0.13	0.19	0.19	0.09	1.00	1.00

Environmental and Health During Manufacturing

At Panduit, we believe our people are our most valuable resource. Accordingly, ensuring the health and safety of our employees, as well as contractors and any other individuals involved with our business, is of utmost importance to us. Panduit devotes the necessary and appropriate attention to ensure that our operations are safe. In doing so, we relentlessly pursue our ultimate goal of zero occupational illnesses and injuries. Panduit implements this Health and Safety Policy through a global Occupational Health and Safety Management System which meets or exceeds all local health and safety legal requirements where we operate.

Environmental and Health During Installation

There is no harmful emissive potential. No damage to health or impairment is expected under normal use, if recommended manufacturer's installation practices are followed, corresponding to the intended use of the product.

Extraordinary Effects

Fire

Product melts when exposed to fire, producing substances such as CO, CO₂ and NO₂.

Water

There are no negative environmental effects resulting from exposure to water.

Mechanical Destruction

There are no negative environmental effects resulting from mechanical destruction.

Delayed Emissions

Global warming potential is calculated using the TRACI 2.2 and CML 4.1 impact assessment methodologies. Delayed emissions are not considered.

Environmental Activities and Certifications

Panduit is ISO 14001 : 2015 certified company. At Panduit, we wholeheartedly embrace environmental sustainability. We actively minimize our environmental impact by implementing practices that effectively reduce waste, conserve energy, and responsibly source materials. Our commitment to sustainability permeates every aspect of our operations, and we continually seek innovative ways to diminish our ecological footprint. We firmly believe that safeguarding the environment is not only a responsibility, but also a vital opportunity to deeply engage our employees and deliver exceptional customer value.

Further Information

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References

- PCR Part A Product Category Rule (PCR) PEP ecopassport Program: Product Category Rules for Electrical, Electronic and HVAC-R Products, v4.0, 2021 (PCR Part A)
- PSR Part B PEP ecopassport Program: Product Specific Rules for Cable Management Solutions, v2.0, 2023 (PSR Part B)
- LCA for Experts v10.9 LCA for Experts Sphera version 10.9 (software).
- ISO 14025 ISO 14025:2011-10, Environmental labels and declarations — Type III environmental declarations — Principles and procedures.
- ISO 14040 ISO 14040:2009-11, Environmental management — Life cycle assessment — Principles and framework.
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