

NONMETALLIC CORRUGATED PA6 CONDUIT

PEP ecopassport®

Environmental Product Declaration



Document in compliance with ISO 14025: 2006 "Environmental labels and declarations. Type III environmental declarations"

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ABB Purpose & Embedding Sustainability

ABB is committed to continually promoting and embedding sustainability across its operations and value chain, aspiring to become a role model for others to follow. With its ABB Purpose, ABB is focusing on reducing harmful emissions, preserving natural resources and championing ethical and humane behavior.



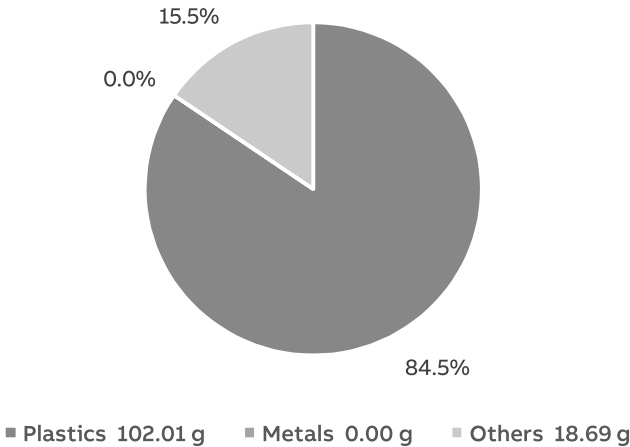
General Information

Reference product	1 meter of corrugated conduit: CF-23B.50
Description of the product	The main function of the conduit system is to protect the cabling of electrical installations.
Functional unit	To accommodate and protect the wiring and wiring accessories along 1 metre for a Reference Service Life of the product of 20 years. The installation trunking system with cross-section 422.7 mm ² includes the profile and accessories that are representative of standard use.
Other products covered	PA6 corrugated conduit product families: CEL, CF, CYL, LLPA, PCL

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Constituent Materials



Total weight of Reference product

101.97 (reference product, 1 m of conduit +3% scrap) g
120.72 (product + packaging)

3% scrap is defined as the over-delivery tolerance. It is added to the product to ensure good quality conduit delivered to the customer.

Plastics as % of weight		Metals as % of weight		Others as % of weight	
Name and CAS number	Weight%	Name and CAS number	Weight%	Name and CAS number	Weight%
Polyamide 6	84.5	–	–	carton	8.2
PE	0.0	–	–	wood	7.2

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Additional Environmental Information

Manufacturing	The manufacturing stage includes the production of PA6 conduits and its packaging. The production occurs at the ABB factory located in Uster, CH, which serves as manufacturer's last logistic platform.
Distribution	The transport from ABB factory in Uster to the top 10 countries was considered. Transport distances were calculated and a weighted average was used.
Installation	During installation, the disposal of packaging, as well as the manufacture, transport, and disposal of 3% scrap of the conduit were considered.
Use	No energy consumption, no maintenance operations needed
End of life	The default end of life scenario, 100% incineration without energy recovery, was applied, in accordance with PEP guidelines.
Benefits and loads beyond the system boundaries	No benefits and loads beyond the system boundaries has been considered.

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Environmental Impacts

Reference lifetime	20 years
Product category	Cable management solutions - cable trunking systems and conduit systems
Installation elements	No installation materials are required in the life cycle of the product.
Use scenario	No material and energy consumption occur during the use stage. No maintenance phase is planned for the conduits.
Geographical representativeness	Europe
Technological representativeness	Technological representativeness refers to the specific production process for primary data.
Software and database used	SimaPro 9.4.0.2 and ecoinvent 3.8

Energy model used

Manufacturing	Electricity, medium voltage {CH} market for Cut-off, S
Installation	No energy consumption occur during the installation stage
Use	No energy consumption occur during the use stage.
End of life	No energy consumption during the end of life stage.

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Common base of mandatory indicators

Environmental impact indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	Use	End of life	Bene- fits
GWP-total	kg CO₂ eq.	7.20E-01	4.32E-01	1.39E-02	3.68E-02	0.00E+00	2.37E-01	0.00E+00
GWP-fossil	kg CO₂ eq.	7.14E-01	4.43E-01	1.39E-02	2.04E-02	0.00E+00	2.37E-01	0.00E+00
GWP-biogenic	kg CO₂ eq.	5.08E-03	-1.13E-02	1.13E-05	1.63E-02	0.00E+00	2.48E-05	0.00E+00
GWP-luluc	kg CO₂ eq.	2.60E-04	2.46E-04	5.99E-06	5.81E-06	0.00E+00	2.32E-06	0.00E+00
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	kg CFC-11 eq.	3.47E-08	2.97E-08	3.22E-09	9.64E-10	0.00E+00	7.32E-10	0.00E+00
ODP = Depletion potential of the stratospheric ozone layer								
AP	H⁺ eq.	1.80E-03	0.00E+00	1.43E-04	5.11E-05	0.00E+00	5.90E-05	0.00E+00
AP = Acidification potential, Accumulated Exceedance								
EP-freshwater	kg P eq.	8.96E-05	2.46E-04	7.91E-07	2.39E-06	0.00E+00	7.57E-07	0.00E+00
EP-marine	kg N eq.	4.07E-04	3.20E-04	4.07E-05	1.40E-05	0.00E+00	3.22E-05	0.00E+00
EP-terrestrial	mol N eq.	4.44E-03	3.58E-03	4.48E-04	1.29E-04	0.00E+00	2.78E-04	0.00E+00
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	kg NMVOC eq.	1.51E-03	1.28E-03	1.25E-04	4.48E-05	0.00E+00	6.85E-05	0.00E+00
POCP = Formation potential of tropospheric ozone								
ADP-minerals & metals	kg Sb eq.	5.90E-07	5.29E-07	2.96E-08	9.64E-10	0.00E+00	1.88E-08	0.00E+00
ADP-fossil	MJ	8.04E+00	7.56E+00	2.10E-01	2.12E-01	0.00E+00	5.81E-02	0.00E+00
ADP-minerals & metals = Abiotic depletion potential for non-fossil resources ADP-fossil = Abiotic depletion for fossil resources potential								
WDP	m³ eq. depr.	3.90E+01	3.79E+01	6.70E-04	1.14E+00	0.00E+00	1.11E-02	0.00E+00
WDP = Water Deprivation potential								

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Common base of mandatory indicators

Inventory flows indicator – Resource use indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	Use	End of life	Bene- fits
PERE	MJ	1.22E+00	1.21E+00	2.47E-03	9.45E-03	0.00E+00	1.89E-03	0.00E+00
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	1.22E+00	1.21E+00	2.47E-03	9.45E-03	0.00E+00	1.89E-03	0.00E+00
PENRE	MJ	8.04E+00	7.56E+00	2.10E-01	2.12E-01	0.00E+00	5.81E-02	0.00E+00
PENRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	8.04E+00	7.56E+00	2.10E-01	2.12E-01	0.00E+00	5.81E-02	0.00E+00
PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials								
PERM = Use of renewable primary energy resources used as raw materials								
PERT = Total Use of renewable primary energy resources								
PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials								
PENRM = Use of non-renewable primary energy resources used as raw materials								
PENRT = Total Use of non-renewable primary energy resources								

Inventory flows indicator – Indicators describing the use of secondary materials, water, and energy resources

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	Use	End of life	Bene- fits
SM	kg	5.98E-03	5.98E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m ³	1.07E+00	1.04E+00	2.29E-05	3.11E-02	0.00E+00	3.50E-04	0.00E+00
SM = Use of secondary material								
RSF = Use of renewable secondary fuels								
NRSF = Use of non-renewable secondary fuels								
FW = Use of net fresh water								

Inventory flows indicator – Waste category indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	Use	End of life	Bene- fits
Hazardous waste disposed	kg	4.64E-06	3.87E-06	4.58E-07	1.28E-07	0.00E+00	1.76E-07	0.00E+00
Non-hazardous waste disposed	kg	4.81E-02	2.06E-02	1.66E-02	5.39E-03	0.00E+00	5.59E-03	0.00E+00
Radioactive waste disposed	kg	2.47E-05	2.26E-05	1.43E-06	4.55E-07	0.00E+00	1.95E-07	0.00E+00

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Common base of mandatory indicators

Inventory flows indicator – Output flow indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	Use	End of life	Bene- fits
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
Materials for recycling	kg	1.39E-02	3.90E-03	0.00E+00	9.95E-03	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	kg	6.24E-03	1.25E-03	0.00E+00	4.99E-03	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Inventory flow indicator – other indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	Use	End of life	Bene- fits
Biogenic carbon content of the product	kg of C	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biogenic carbon content of the associated packaging	kg of C	1.00E-02	1.00E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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Optional indicators

Environmental indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	Use	End of life	Bene- fits
Emissions of fine particles	incidence of diseases	1.87E-08	1.63E-08	1.43E-09	5.37E-10	0.00E+00	3.73E-10	0.00E+00
Ionizing radiation, human health	kBq U235 eq.	7.09E-02	6.88E-02	1.04E-03	9.04E-04	0.00E+00	2.05E-04	0.00E+00
Ecotoxicity (fresh water)	CTUe	5.32E+00	4.51E+00	1.58E-01	1.51E-01	0.00E+00	5.04E-01	0.00E+00
Human toxicity, car-cinogenic effects	CTUh	5.22E-10	4.80E-10	5.40E-12	1.47E-11	0.00E+00	2.14E-11	0.00E+00
Human toxicity, non-carcinogenic effects	incidence of diseases	3.10E-09	2.03E-09	1.64E-10	9.98E-11	0.00E+00	8.12E-10	0.00E+00
Impact related to land use/soil quality	Pt	2.54E+00	2.27E+00	2.06E-01	2.95E-02	0.00E+00	3.07E-02	0.00E+00

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Extrapolation Factors

For other products than the Reference product covered by this PEP, the environmental impacts for each phase of the lifecycle are obtained by multiplying the values of the reference product by the coefficients provided in the tables below, with the following formulas:

Environmental Indicator	Extrapolation factors (manufacturing stage)
GWP – total	1.0915
GWP – fossil	1.1483
GWP – biogenic*	1.5569
GWP – luluc	1.3245
ODP	1.1636
AP	1.1609
EP – freshwater	1.1664
EP – marine	1.1876
EP – terrestrial	1.1728
POCP	1.168
ADP – minerals	1.2136
ADP – fossil	1.1387
WDP	1.1337
PERT	1.4099
PERRM	0.0
PERNRM	1.4099
PENRT	1.1387
PENRRM	0.0
PENRRNM	1.1387
SM	1.5859
RSF	0.0
NRSF	0.0
FW	1.1335
HWD	1.1821
NHWD	1.2437
RWD	1.1005
CRU	0.0
MFR	1.5364
MFE	0.0
EE	0.0
Biogenic C*	0.9792

Manufacturing stage

All indicators: $x = a * x_o * \left(\frac{m}{m_o}\right)$

GWP biogenic and biogenic C indicators: $x = a * x_o * \left(\frac{p}{p_o}\right)$

Distribution Stage: $x = a * x_o * (m + p)$

Installation Stage: $x = a * x_o * (m + p)$

End-of-Life Stage: $x = a * x_o * m$

Where, x is the environmental impact for a given indicator, x_o is the environmental impact for the reference product, a is the extrapolation factor listed in tables, m is the mass of the product, m_o is the mass of the reference product, p is the mass of the packaging, and p_o is the mass of the reference packaging. The values for m and p are given for every product in the following tables.

Stage	Extrapolation factor
Distribution	8.6466
Installation	11.0229
End of Life	10.1010

In cases where the value of an indicator for the reference product is 0, the extrapolation factor has also been set to 0.

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Product Name	Product weight (kg/m)	Packaging weight (kg/m)
CELT-10B.100	0.022	0.005
CELT-12B.100	0.03	0.009
CELT-12B.2200	0.03	0.012
CELT-17B.100	0.045	0.013
CELT-17B.1100	0.045	0.021
CELT-23B.100	0.08	0.019
CELT-23B.600	0.08	0.036
CELT-29B.100	0.108	0.035
CELT-29B.400	0.108	0.05
CELT-36B.50	0.128	0.071
CELT-48B.150	0.195	0.181
CELT-48B.50	0.195	0.09
CF-10B.3300	0.028	0.007
CF-10B.50	0.028	0.008
CF-10B.500	0.028	0.004
CF-10B.50L	0.028	0.006
CF-12B.200	0.038	0.008
CF-12B.2200	0.038	0.013
CF-12B.50	0.038	0.01
CF-12B.50L	0.038	0.011
CF-17B.100	0.057	0.018
CF-17B.200	0.057	0.014
CF-17B.50	0.057	0.015
CF-17B.50L	0.057	0.017
CF-29B.50	0.133	0.033
CF-36B.30	0.16	0.057
CF-36B.30L	0.16	0.067
CF-48B.30	0.228	0.086
CF-70B.30	0.46	0.354
CYLG-23B.150	0.099	0.026
CYLG-23B.50	0.099	0.026
CYLG-29B.50	0.133	0.034
CYLG-36B.30	0.16	0.06
CYLG-36B.60	0.16	0.057
CYLG-48B.30	0.228	0.08
CYLG-56B.30	0.33	0.189
CYLG-70B.0.71	0.46	0.256
CYLG-70B.10	0.46	0.213
CYLG-70B.30	0.46	0.378
CYLT-10B.50	0.028	0.008

Product Name	Product weight (kg/m)	Packaging weight (kg/m)
CYLT-10B.500	0.028	0.004
CYLT-10B.50L	0.028	0.014
CYLT-12B.300	0.038	0.011
CYLT-12B.50	0.038	0.01
CYLT-12B.50L	0.038	0.011
CYLT-17B.100	0.057	0.017
CYLT-17B.50	0.057	0.015
CYLT-23B.100	0.099	0.022
CYLT-23B.50	0.099	0.028
CYLT-29B.50	0.133	0.047
CYLT-29B.50L	0.133	0.057
CYLT-36B.30	0.16	0.061
CYLT-48B.30	0.228	0.089
LLPA-10A.50	0.028	0.006
LLPA-10A.500	0.028	0.005
LLPA-10A.50L	0.028	0.014
LLPA-12A.200	0.038	0.01
LLPA-12A.215	0.038	0.011
LLPA-12A.300	0.038	0.013
LLPA-12A.50	0.038	0.01
LLPA-17A.100	0.057	0.018
LLPA-17A.200	0.057	0.014
LLPA-17A.50	0.057	0.015
LLPA-17A.50L	0.057	0.035
LLPA-23A.200	0.099	0.033
LLPA-23A.50	0.099	0.019
LLPA-29A.150	0.133	0.04
LLPA-29A.50	0.133	0.034
LLPA-36A.30	0.16	0.061
LLPA-36A.300	0.16	0.08
LLPA-48A.150	0.228	0.174
LLPA-48A.30	0.228	0.086
LLPAG-17A.50	0.063	0.018
LLPAG-23A.50	0.099	0.019
LLPAG-36A.30	0.16	0.065
LLPAG-48A.30	0.228	0.09
LLPAG-56A.30	0.33	0.189
LLPAG-70A.10	0.46	0.213
LLPAG-70A.30	0.46	0.291
PCLG-17B.50	0.063	0.02

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Product Name	Product weight (kg/m)	Packaging weight (kg/m)
PCLG-23B.30	0.099	0.031
PCLG-23B.50	0.099	0.02
PCLG-29B.30	0.133	0.045
PCLG-29B.50	0.133	0.038
PCLG-36B.10	0.16	0.079
PCLG-36B.30	0.16	0.062
PCLG-48B.10	0.228	0.097
PCLG-48B.30	0.228	0.09
PCLG-56B.30	0.33	0.189
PCLG-70B.10	0.41	0.213
PCLG-70B.30	0.46	0.325
PCLT-10B.50	0.028	0.006
PCLT-12B.50	0.038	0.01
PCLT-12B.50L	0.038	0.012
PCLT-17B.1.5	0.057	0.188
PCLT-17B.200	0.057	0.035
PCLT-17B.30	0.057	0.02
PCLT-17B.50	0.057	0.016
PCLT-17B.50L	0.057	0.022
PCLT-23B.50	0.099	0.019
PCLT-23B.50L	0.099	0.035
PCLT-29B.50	0.133	0.035
PCLT-36B.30	0.16	0.067
PCLT-36B.300	0.16	0.08
PCLT-48B.30	0.228	0.091

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Environmental Impact Indicator Glossary

Impact indicators

Indicator	Description	Distribution
Global warming potential (GWP) - total	Indicator of potential global warming caused by emissions to air contributing to the greenhouse effect. The total global warming potential (GWP-total) is the sum of three sub-categories of climate change. GWP-total = GWP-fossil + GWP-biogenic + GWP- land use and land use change	kg CO ₂ eq.
Ozone depletion (ODP)	Emissions to air that contribute to the destruction of the stratospheric ozone layer	kg CFC-11 eq.
Acidification of soil and water (A)	Acidification of soils and water caused by the release of certain gases to the atmosphere, such as nitrogen oxides and sulphur oxides	H ⁺ eq.
Eutrophication (E)	Indicator of the contribution to eutrophication of water by the enrichment of the aquatic ecosystem with nutritional elements, e.g. industrial or domestic effluents, agriculture, etc. This indicator is divided to three: freshwater, marine and terrestrial.	kg P eq., kg N eq., mole N eq.
Photochemical ozone creation (POCP)	Indicator of emissions of gases that affect the creation of photochemical ozone in the lower atmosphere (smog) because of the rays of the sun.	kg NMVOC eq.
Depletion of abiotic resources – elements (ADPe)	Indicator of the depletion of natural non-fossil resources	kg Sb eq.
Depletion of abiotic resources – fossil fuels (ADPf)	The use of non-renewable fossil resources in an unsustainable way (e.g. from material to waste)	MJ (lower heating value)
Water Deprivation potential (WDP)	Deprivation-weighted water consumption. Assesses the potential of water deprivation, to either humans or ecosystems, building on the assumption that the less water remaining available per area, the more likely another user will be deprived.	m ³ eq. depr.

Resource use indicators

Indicator	Description	Distribution
Total use of primary energy	Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) + Total use of renewable primary energy re-sources (primary energy and primary energy resources used as raw materials)	MJ (lower heating value)

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Verifier accreditation number: *VH44***Information and reference documents:** *www.pep-ecopassport.org*

Date of issue: **December 2023****Validity period:** *5 years*

Independent verification of the declaration and data, in compliance with ISO 14025: 2006**Internal:** ☐**External:** ☒

The PCR review was conducted by a panel of experts chaired by Julie Orgelet (DDemain)

PEPs are compliant with XP C08-100-1:2016 and EN 50693:2019 or NF E38-500 :2022

The components of the present PEP may not be compared with components from any other program.

Document complies with ISO 14025:2006 "Environmental labels and declarations. Type III environmental declarations"



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