

# ENVIRONMENTAL PRODUCT DECLARATION

in accordance with ISO 14025, ISO 21930 and EN 15804

Owner of the declaration:	TECCON Norge AS
Program operator:	The Norwegian EPD Foundation
Publisher:	The Norwegian EPD Foundation
Declaration number:	
Registration number:	NA
ECO Platform reference number:	NA
Issue date:	
Valid to:	

PN 16/3G2,5 Coilfix

TECCON Norge AS

**TECCON**

[www.epd-norge.no](http://www.epd-norge.no)



## General information

### Product:

PN 16/3G2,5 Coilfix

### Program operator:

The Norwegian EPD Foundation  
Pb. 5250 Majorstuen, 0303 Oslo  
Phone: +47 23 08 80 00  
e-mail: [post@epd-norge.no](mailto:post@epd-norge.no)

### Declaration number:

### ECO Platform reference number:

### This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A1:2013 serves as core PCR  
NPCR 027 Part B for Electrical cables and wires

### Statement of liability:

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

### Declared unit:

1 m PN 16/3G2,5 Coilfix

### Declared unit with option:

A1,A2,A3,A4,A5,C1,C2,C3,C4,D

### Functional unit:

Product construction result in a product which is distributed in various length. E.g. 100m coils. Customer - installer and end-user - cut the actual

### General information on verification of EPD from EPD tools:

Independent verification of data, other environmental information and the declaration according to ISO 14025:2010, § 8.1.3 and § 8.1.4. Individual third party verification of each EPD is not required when the EPD tool is i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPDNorway, and iii) the process is reviewed annually. See Appendix G of EPD-Norway's General Programme Instructions for further information on EPD tools.

### Verification of EPD tool:

Independent third party verification of the EPD tool, background data and test-EPD in accordance with EPDNorway's procedures and guidelines for verification and approval of EPD tools.

Fredrik Moltu Johnsen, Norsus AS

(no signature required)

### Owner of the declaration:

TECCON Norge AS  
Contact person: Jan Vestergaard  
Phone: 51 73 37 00  
e-mail: [jan.vestergaard@teccon.no](mailto:jan.vestergaard@teccon.no)

### Manufacturer:

TECCON Norge AS

### Place of production:

TECCON Norge AS  
Mekjarvik 18 4072 Randaberg  
Norway

### Management system:

Miljøfyrtårn: 4247

### Organisation no:

986 452 125

### Issue date:

### Valid to:

### Year of study:

2020

### Comparability:

EPD of construction products may not be comparable if they not comply with EN 15804 and seen in a building context.

### Development and verification of EPD:

The declaration has been developed and verified using EPD tool lca.tools ver EPD2020.11, developed by LCA.no AS. The EPD tool is integrated into the company's environmental management system, and has been approved by EPD-Norway

Developer of EPD:

Jan Vestergaard, Teccon Norge AS

Reviewer of company-specific input data and EPD:

Helge Aardal, Teccon Norge AS

### Approved:

Sign



Håkon Hauan, CEO EPD-Norge

## Product

### Product description:

Pre-wired corrugated, Halogen free pliable / self-recovering conduit acc. to EN 61386-1 and EN 61386-22. H07V-R insulated wire. The solution may be installed in open or closed environment, behind ceiling, in wall or below deck - embedded in concrete. Cable shall be used according to reference EN 50565-1 and EN 50565-2-6A/B. Contact with water is not permitted. Fire performance according to CPR EN 50575. The conduit material is a halogen free, flame retardant, self-extinguishing polypropylene with low toxic and smoke emission.

### Product specification

Construction standard - Pipe: EN 611386-1; EN 61386-22  
Pipe designation: ICTA 34423  
Construction standard- Cable: EN 50525-1; EN 50525-2-31  
Art.Nr:1251621

Materials	kg	%
E-PVC	0,03	22,33
Polypropylene (PP)	0,05	33,01
Copper	0,06	44,66
Total:	0,14	

Packaging	kg	
Packaging	0,00	
Total including packaging	0,14	

### Technical data:

CONDUIT  
Construction standards EN 611386-1; EN 61386-22  
ICTA 34423  
Corrugated Conduit Pliable/Self recovering halogen free Polypropylene  
Compression force 750N  
Marking EN, Date, and meter marking: 0-100m  
Temperature - operation -25 to + 90°C  
Temperature - installation -5 to + 90°C  
Bending Radius 8 x D  
Resistant to fire performance Flame retardant, self-extinguishing, low smoke toxic emission  
Insulations resistance > 100M $\Omega$  at 500V in 1 min  
Test - mechanical Acc. EN 61386-1; EN 61386-22  
Test - electrical Acc. EN 61386-1; > 2,0kV 50HZ in 15 min

CABLE  
Construction standards EN 50525-1; EN 50525-2-31  
Conductor Solid copper wire IEC 60228 Class 2  
Insulation - conductor PVC TI 1  
Conductor color - Cenelec G/G; Light Blue; Brown; Black; White; Orange; Dark Blue; Dark Blue; Red ; B/R and B/W  
Marking Wire: TECCON H07V-R; Packaging: acc. LVD  
Voltage - nominal Uo/U 450/750V  
Voltage - test 2kV  
Temperature classification 70°  
Temperature Max - Short circuit 250°  
Resistant to fire performance IEC 60332-1-2  
CPR EN 50575 compliance Eca  
DoP 17\_0001\_00  
Temperature - operation -5 - 70°C  
Temperature - installation 5 - 40°C  
Temperature - installed -30 to +70  
CPR EN 50575 compliance Dca  
DOP 14150

### Market:

Norway, Sweden, Denmark, Benelux, Finland, Baltics and Island

### Reference service life, product

25Y+

### Reference service life, construction

25Y+

## LCA: Calculation rules

### Declared unit:

1 m PN 16/3G2,5 Coilfix

### Cut-off criteria:

All major raw materials and all the essential energy is included. The production processes for raw materials and energy flows with very small amounts (less than 1%) are not included. These cut-off criteria do not apply for hazardous materials and substances.

All major materials have been included. Substance representing <1% have not been included. This include folio film for packaging!

### Data quality:

Specific data for the product composition are provided by the manufacturer. They represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on registered EPDs according to EN 15804, Ostfold Research databases, ecoinvent and other LCA databases. The data quality of the raw materials in A1 is presented in the table below.

Data from material supplier and the LCA generator has been accepted "As-Is"

Data from processing TECCON in-house has been repeated ongoingly without major deviations. Figures given in document are worst case values.

Materials	Source	Data quality	Year
Copper	ecoinvent 3.6	Database	2019
E-PVC	ecoinvent 3.6	Database	2019
Packaging	ecoinvent 3.6	Database	2019
Polypropylene (PP)	ecoinvent 3.6	Database	2019

### Allocation:

The allocation is made in accordance with the provisions of EN 15804. Incoming energy and water and waste production in-house is allocated equally among all products through mass allocation. Effects of primary production of recycled materials is allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

The allocation is made in accordance with the guidelines given in EN 15804. Raw material - Information derived from manufactory and from a LCA generator  
Processing: Derived from actual measurements during production of the individual units/stages.

**System boundary:**

Cradle to Gate.

The following stages have been declared: A1-A4

Image not available

**Additional technical information:**

Article 1251621 Coilfix PN 3G2,5 represent the maximum energy consumption from the product family below - from a production volume perspective as follow:

1251611 PN 16/3G1,5  
1251613 PN 16/4G1,5  
1251612 PN 16/5G1,5  
1251621 PN 16/3G2,5  
1251623 PN 16/4G2,5  
1251614 PN 20/5G2,5  
1251616 PN 20/3G4  
1251617 PN 20/3G6

## LCA: Scenarios and additional technical information

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

In A4, a transport distance from the production site to Elektroskandia's warehouse in Langhus was included. A distance of 300 km was also added as additional transport to market. 85 km is added as default transport to waste treatment in C2. In C3 metals such as copper and aluminium are sent to recycling and other materials such as plastic insulation is sent to municipal incineration. Net benefit of material recycling and energy recovery is given in module D. Both aluminium and copper will replace a market average process for the metals in Europe.

### Transport from production place to user (A4)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Unit	Value (l/t)
Truck	38,8 %	Truck, lorry 16-32 tonnes, EURO 6	788	0,043626	l/tkm	34,38
Railway					l/tkm	
Boat					l/tkm	
Other Transportation					l/tkm	

### Assembly (A5)

.	Unit	Value
Auxiliary	kg	
Water consumption	m <sup>3</sup>	
Electricity consumption	kWh	
Other energy carriers	MJ	
Material loss	kg	
Output materials from waste treatment	kg	0,0013
Dust in the air	kg	
VOC emissions	kg	

### End of Life (C1, C3, C4)

.	Unit	Value
Hazardous waste disposed	kg	
Collected as mixed construction waste	kg	
Reuse	kg	
Recycling	kg	0,0572
Energy recovery	kg	0,0788
To landfill	kg	0,0128

### Transport to waste processing (C2)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Unit	Value (l/t)
Truck	38,8 %	Truck, lorry 16-32 tonnes, EURO 5	85	0,044606	l/tkm	3,79
Railway					l/tkm	
Boat					l/tkm	
Other Transportation					l/tkm	

..

### Benefits and loads beyond the system boundaries (D)

.	Unit	Value
Substitution of primary Copper with net secondary copper (kg)	kg	0,04
Substitution of electricity, in Norway (MJ)	MJ	0,22
Substitution of thermal energy, district heating, in Norway (MJ)	MJ	1,53

## LCA: Results

LCA results according to the indicators of EN 15804:2013+A1:2013 are presented in the following tables, for the declared unit defined on page 2 of the EPD document. All potential environmental impacts might not be covered by the EN 15804 indicators. This concerns indicators such as noise, electromagnetic radiation, electromagnetic fields and treatment brominated flame retardants.

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

Product stage			Construction installation stage		User stage								End of life stage				Beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction 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	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	.	X

## Environmental impact

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO <sub>2</sub> -eq	7,63E-01	1,93E-02	3,83E-03	0	2,13E-03	1,84E-01	1,37E-03	-9,28E-02
ODP	kg CFC11 -eq	8,15E-08	3,64E-09	7,00E-12	0	3,93E-10	2,08E-09	8,30E-11	-7,74E-09
POCP	kg C <sub>2</sub> H <sub>4</sub> -eq	1,55E-03	2,93E-06	8,46E-09	0	3,47E-07	2,35E-06	1,45E-07	-7,75E-04
AP	kg SO <sub>2</sub> -eq	4,03E-02	4,55E-05	4,18E-07	0	6,79E-06	4,00E-05	2,99E-06	-1,97E-02
EP	kg PO <sub>4</sub> <sup>3-</sup> -eq	2,29E-03	5,97E-06	1,31E-07	0	1,13E-06	7,84E-06	4,92E-07	-9,14E-04
ADPM	kg Sb -eq	4,83E-07	6,01E-08	9,80E-11	0	6,49E-09	2,46E-08	1,10E-11	-1,35E-07
ADPE	MJ	1,11E+01	2,92E-01	6,79E-04	0	3,21E-02	8,19E-02	8,14E-03	-1,16E+00

GWP Global warming potential; ODP Depletion potential of the stratospheric ozone layer; POCP Formation potential of tropospheric photochemical oxidants; AP Acidification potential of land and water; EP Eutrophication potential; ADPM Abiotic depletion potential for non fossil resources; ADPE Abiotic depletion potential for fossil resources

"Reading example: 9,0 E-03 = 9,0\*10<sup>-3</sup> = 0,009"

\*INA Indicator Not Assessed

## Resource use

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
RPEE	MJ	1,66E+00	4,31E-03	1,19E-05	0	4,68E-04	1,09E-02	7,13E-04	-9,06E-01
RPEM	MJ	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TPE	MJ	1,66E+00	4,31E-03	1,19E-05	0	4,68E-04	1,09E-02	7,13E-04	-9,06E-01
NRPE	MJ	9,31E+00	2,99E-01	5,42E-02	0	3,28E-02	9,32E-02	9,07E-03	-1,44E+00
NRPM	MJ	2,90E+00	0,00E+00	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TRPE	MJ	1,22E+01	2,99E-01	5,42E-02	0	3,28E-02	9,32E-02	9,07E-03	-1,44E+00
SM	kg	1,27E-02	0,00E+00	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	2,26E-05	0,00E+00	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	-4,35E-05
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
W	m <sup>3</sup>	1,80E-02	5,65E-05	9,38E-07	0	6,15E-06	3,00E-03	9,56E-06	-4,78E-03

RPEE Renewable primary energy resources used as energy carrier; RPEM Renewable primary energy resources used as raw materials; TPE Total use of renewable primary energy resources; NRPE Non renewable primary energy resources used as energy carrier; NRPM Non renewable primary energy resources used as materials; TRPE Total use of non renewable primary energy resources; SM Use of secondary materials; RSF Use of renewable secondary fuels; NRSF Use of non renewable secondary fuels; W Use of net fresh water

"Reading example: 9,0 E-03 = 9,0\*10<sup>-3</sup> = 0,009"

\*INA Indicator Not Assessed

## End of life - Waste

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HW	kg	1,01E-03	1,76E-07	4,07E-09	0	1,92E-08	3,41E-07	9,16E-09	-1,91E-06
NHW	kg	4,18E+00	1,60E-02	8,11E-05	0	1,73E-03	5,32E-03	2,12E-02	-1,26E+00
RW	kg	2,84E-05	2,05E-06	2,72E-09	0	2,26E-07	4,63E-07	5,42E-08	-5,21E-06

HW Hazardous waste disposed; NHW Non hazardous waste disposed; RW Radioactive waste disposed

"Reading example: 9,0 E-03 = 9,0\*10<sup>-3</sup> = 0,009"

\*INA Indicator Not Assessed

## End of life - Output flow

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
CR	kg	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MR	kg	2,18E-03	0,00E+00	0,00E+00	0	0,00E+00	5,72E-02	0,00E+00	0,00E+00
MER	kg	5,80E-05	0,00E+00	1,26E-03	0	0,00E+00	7,88E-02	0,00E+00	0,00E+00
EEE	MJ	1,33E-04	0,00E+00	2,70E-03	0	0,00E+00	2,18E-01	0,00E+00	0,00E+00
ETE	MJ	2,59E-04	0,00E+00	2,97E-02	0	0,00E+00	1,50E+00	0,00E+00	0,00E+00

CR Components for reuse; MR Materials for recycling; MER Materials for energy recovery; EEE Exported electric energy; ETE Exported thermal energy

"Reading example: 9,0 E-03 = 9,0\*10<sup>-3</sup> = 0,009"

\*INA Indicator Not Assessed

## Additional Norwegian requirements

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

National production mix from import, low voltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing process (A3).

Electricity mix	Data source	Amount	Unit
El-mix, Norway (kWh)	ecoinvent 3.4	31,04	g CO2-ekv/kWh

### Dangerous substances

The product contains no substances given by the REACH Candidate list or the Norwegian priority list.

### Indoor environment

No effect on in-door environment

## Bibliography

ISO 14025:2010 Environmental labels and declarations - Type III environmental declarations - Principles and procedures.

ISO 14044:2006 Environmental management - Life cycle assessment - Requirements and guidelines.




EN 15804:2012+A1:2013 Environmental product declaration - Core rules for the product category of construction products.

ISO 21930:2017 Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products.

ecoinvent v3, Allocation, cut-off by classification, Swiss Centre of Life Cycle Inventories.

Iversen et al., (2018) eEPD v3- Background information for EPD generator system. LCA.no report 04.18. Iversen et al., (2020) EPD generator for Elektroskandia and Prysmian Group - Background information and LCA data, LCA.no report 01.20

NPCR Part A: Construction products and services. Ver. 1.04.2017 EPD-Norge. NPCR 27 Part B for electrical cables and wires or NPCR 28 Part B for cable pipes Ver. 1.02.2020 EPD-Norge.

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