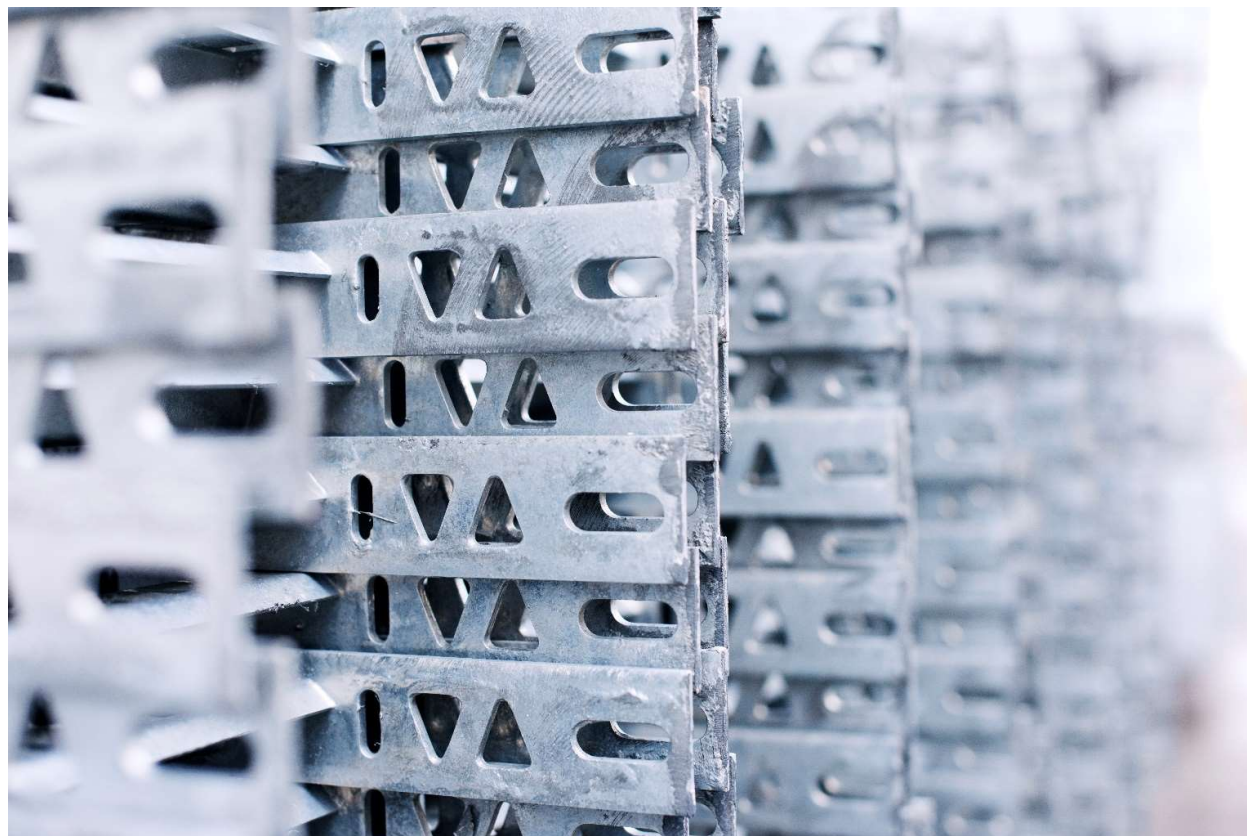


Environmental Product Declaration

In accordance with ISO14025:2006 and EN15804:2012+A2:2019

Machined and Hot Dip Galvanized Carbon Steel Products



A Group Company of 

The Norwegian
EPD Foundation

Owner of the declaration:

Øglænd Systems AS

Product name:

Machined and Hot Dip Galvanized Carbon Steel Products

Declared unit:

1 kg of Machined and Hot Dip Galvanized Carbon Steel Products

Product category /PCR:

NPCR PART A and NPCR 013 Part B for Steel and Aluminum Construction Products (references to EN15804+A2).

Program holder and publisher:

The Norwegian EPD foundation

Declaration number:

NEPD-7966-7623-EN

Registration number:

NEPD-7966-7623-EN

Issue date: 30.10.2024

Valid to: 30.10.2029

General information

Product:

Machined and Hot Dip Galvanized Carbon Steel Products

Program operator:

The Norwegian EPD Foundation
Post Box 5250 Majorstuen, 0303 Oslo, Norway
Tlf: +47 23 08 80 00
e-mail: post@epd-norge.no

Declaration number:

NEPD-7966-7623-EN

This declaration is based on Product Category Rules:

NPCR PART A and NPCR 013 Part B for Steel and Aluminum Construction Products (references to EN15804+A2).

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, life cycle assessment data and evidences.

Declared unit:

1 kg of Machined and Hot Dip Galvanized Carbon Steel Products

Declared unit with option:

1 kg of Machined and Hot Dip Galvanized Carbon Steel Products with options (A4, C1, C2, C3, C4, & D)

Functional unit:

N/A

Verification:

Independent verification of the declaration and data, according to ISO14025:2010

Internal

External



Silvia Vilčeková

Independent verifier approved by EPD Norway

Owner of the declaration:

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Manufacturer:

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Phone: (+47) 51 78 81 00
e-mail: oglaend@oglaend-system.com

Place of production:

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Management system:

NS-EN ISO 9001:2015
NS-EN ISO 14001:2015
NS-ISO 45001:2018
EN1090-1:2009+A1:2011

Organization no:

NO 985 748 128 MVA

Issue date:

30.10.2024

Valid to:

30.10.2029

Year of study:

[xxxx]

Comparability:

EPD of construction products may not be able to compare if they do not comply with EN 15804 and are seen in a building context.

The EPD has been worked out by:

Modi Michael Elisa | Energiråd AS

Approved



Manager of EPD Norway

Product

Product description

Øglænd System AS provides a wide range of products including multi discipline support, cable ladders, cable trays and accessories for low and high voltage cable management, tubing and instrumentation, piping and HVAC across industries such as Offshore oil and gas, renewable energies, power and distribution, ship building and infrastructure.

Product specification

This EPD covers the products from Øglænd System AS that are made from carbon steel, and then hot dip galvanized. Hot dip galvanized steel is coated by a protective layer of zinc. The zinc layer offers solid protection against most corrosive environments. This is due to its low electrode potential, which allows it to act as a sacrificial anode. The zinc therefore corrodes slowly instead of the material it protects. Oglænd System's HDG steel components are made in accordance with European standard EN ISO 1461. Adhering to the standard, components in material thickness from 1.5 - 3.0 mm receive a minimum 45 µm coating. The steel grades used for these products are S355MC and DC01AM

Table 1 Products covered by this EPD

Item Group no.	Name/ Designation
100	100 OE Cable Ladder System
102	102 LOE Cable Ladder System
110	110 SPBE Cable Tray System
111	111 SPB-RF Cable Tray System
120	120 Mekano Support System
121	121 Mekano Support System
130	130 UNO Support System
131	131 UNO Support System
140	140 Other Support
141	141 Other Support

Product manufacturing

The manufacturing of these products comprises the cutting, punching, forming and welding of the steel input, before the products are hot dip galvanized according to EN ISO 1461. The products covered by this EPD are produced by Øglænd System AS at their production site in Klepp, Norway. The hot dip galvanizing is performed by a local sub-supplier.

Table 2 Material input (s) used to manufacture the included products

Materials	Value	%
Alloyed steel, galvanized with zinc	1.00	100.00

Market

Worldwide

Reference service life, product

Not relevant for cradle to gate with options

Reference service life, building

Not relevant

LCA: Calculation rules

Declared unit

1 kg of Machined and Hot Dip Galvanized Carbon Steel Products

Cut-off criteria

All major raw materials and all the essential energy are included. The production process for raw materials and energy flows that are included with very small amounts (<1%) are not included. This cut-off rule does not apply for hazardous materials and substances.

Allocation

The allocation of energy and ancillary material during production was determined by recorded production time for the different product groups. Waste was allocated using total waste streams from the factory and adjusted for the different product groups using mass allocation.

Data quality

General requirements and guidelines concerning use of generic and specific data and the quality of those are as described in EN 15804: 2012, clause 6.3.6 and 6.3.7. The data is representative of temporal, geographical and technological requirements.

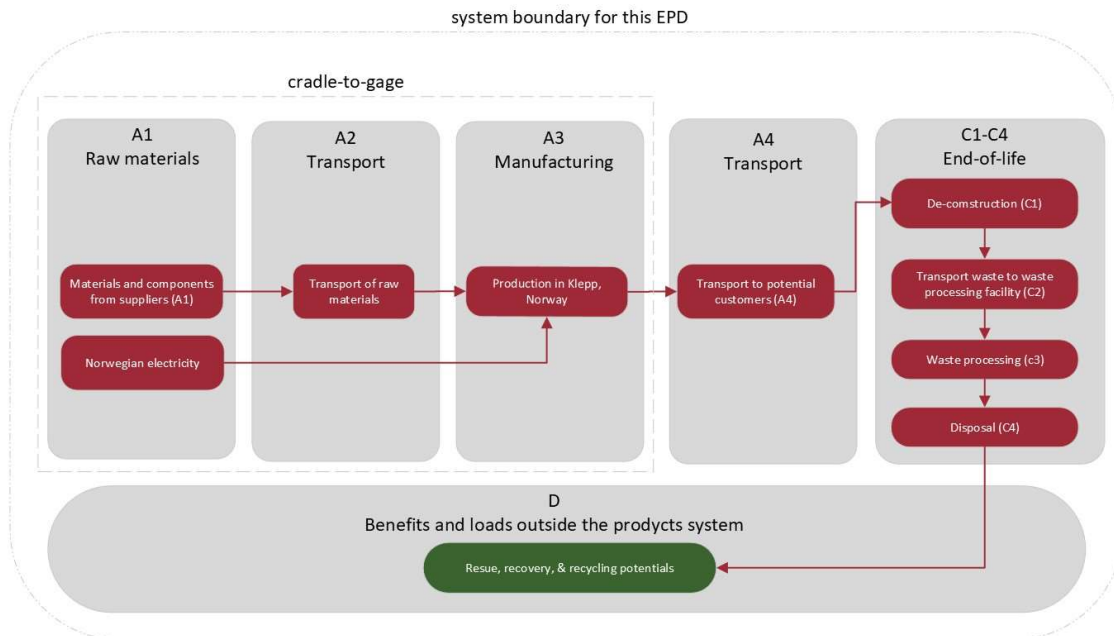
Data for use in module A3 is supplied by the manufacturer and consists of the recorded amount of specific material and energy consumption for the products studied. Specific data has been collected in 2017-2018. Generic data has been created or updated within the last 10 years, except for minor exceptions for generic data used that are slightly older than 10 years.

The geographic region of the production sites included in the calculation is Europe. The specific data from manufacturer is from one site, so no average data is used for several sites.

Data represents technology in use. All generic (background) data has been gathered from version 3.9.1 of the Ecoinvent database (2023).

Tabell 3 System boundaries (X=included, MND=module not declared, MNR=module not relevant)

Product stage			Assembly stage		Use stage								End of life stage				Benefits & loads beyond system boundary
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	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X	



Figur 1 System boundary

LCA: Scenarios and additional technical information

The scenarios in the different modules beyond the cradle-to-gate are described as follows:

Transport from production place to assembly/user (A4)

Transport from production place to assembly/user (A4)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy consumption	Unit	Value
Truck	53%	300	0.0436	l/t*km, diesel	13.08

End of Life (C1, C3, C4)

	Unit	Value
Hazardous waste disposed	kg	0
Collected as mixed construction waste	kg	0.02
Reuse	kg	0
Recycling	kg	0.98
Energy recovery	kg	0
To landfill	kg	0.02

C1 – dismantling is assumed to be done by use of electrical tools. . C2 – the collected mixed waste and sorted waste are transported by truck to landfill and waste processing facility, respectively. C3 – 98% of the product is recycled by remelting process to produce secondary aluminum billets, and C4 – 2% of the product is collected as mixed waste and landfilled.

Transport to waste processing (C2)

Transport from production place to assembly/user (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy consumption	Unit	Value
Truck	37%	20	0.0436	l/t*km, diesel	0.872

Benefits and loads beyond the system boundaries (D)

Benefits and loads beyond the system boundaries (D)	Unit	Value
Recycled stainless steel scrap	kg	0.98
Substitution of primary stainless steel with net scrap	kg	0.88

LCA: Results

The environmental performance indicators for Machined and Hot Dip Galvanized Carbon Steel Products are shown in the following tables. For stages A1-A3 the results are aggregated.

Core environmental impact indicators

Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
GWP - total	kg CO2 eq	3.46E+00	3.01E-02	6.21E-02	2.03E-03	7.79E-04	9.58E-05	-1.69E+00
GWP - fossil	kg CO2 eq	3.43E+00	3.00E-02	6.21E-02	2.03E-03	7.78E-04	9.51E-05	-1.68E+00
GWP - biogenic	kg CO2 eq	3.28E-02	2.30E-05	1.34E-05	7.12E-07	6.30E-07	6.94E-07	-1.55E-03
GWP - luluc	kg CO2 eq	4.11E-03	1.47E-05	6.99E-06	1.04E-06	1.85E-07	1.30E-08	-6.80E-04
ODP	kg CFC11 eq	8.36E-08	6.82E-10	9.88E-10	3.45E-11	5.79E-12	1.54E-12	-3.38E-08
AP	molc H+ eq	1.84E-02	7.44E-05	5.76E-04	5.57E-06	6.01E-06	8.69E-07	-7.38E-03
EP- freshwater	kg P eq	1.92E-03	2.19E-01	3.89E-01	1.63E-02	2.31E-03	5.96E-04	-6.08E+00
EP -marine	kg N eq	4.04E-03	2.03E-05	2.67E-04	1.46E-06	7.68E-07	4.01E-07	-1.63E-02
EP - terrestrial	molc N eq	4.31E-02	2.08E-04	2.90E-03	1.52E-05	8.18E-06	4.36E-06	-1.74E-02
POCP	kg NMVOC eq	1.66E-02	1.21E-04	8.59E-04	8.02E-06	2.52E-06	1.29E-06	-8.38E-03
ADP-M&M ²	kg Sb-Eq	3.03E-04	8.61E-08	2.22E-08	5.84E-09	7.16E-10	5.24E-11	-1.55E-05
ADP-fossil ²	MJ	3.43E+00	4.59E-01	8.19E-01	3.09E-02	7.68E-03	1.33E-03	-1.77E+01
WDP ²	m ³	2.50E+00	2.36E-03	2.03E-03	1.55E-04	2.23E-04	1.55E-05	-1.53E-01

GWP-total: Global Warming Potential; **GWP-fossil:** Global Warming Potential fossil fuels; **GWP-biogenic:** Global Warming Potential biogenic; **GWP-LULUC:** Global Warming Potential land use and land use change; **ODP:** Depletion potential of the stratospheric ozone layer; **AP:** Acidification potential, Accumulated Exceedance; **EP-freshwater:** Eutrophication potential, fraction of nutrients reaching freshwater end compartment; See "additional Norwegian requirements" for indicator given as PO4 eq. **EP-marine:** Eutrophication potential, fraction of nutrients reaching freshwater end compartment; **EP-terrestrial:** Eutrophication potential, Accumulated Exceedance; **POCP:** Formation potential of tropospheric ozone; **ADP-M&M:** Abiotic depletion potential for non-fossil resources (minerals and metals); **ADP-fossil:** Abiotic depletion potential for fossil resources; **WDP:** Water deprivation potential, deprivation weighted water consumption

Reading example: 9,0 E-03 = 9,0*10⁻³ = 0,009

Additional environmental impact indicators

Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
PM	Disease incidence	2.62E-07	2.97E-09	1.61E-08	2.01E-10	6.48E-11	2.44E-11	-1.26E-07
IRP ¹	kBq U235 eq.	3.11E-01	5.75E-04	3.86E-04	2.81E-05	1.40E-05	5.98E-06	-3.54E-02
ETP-fw ²	CTUe	9.55E+01	2.19E-01	3.89E-01	1.63E-02	2.31E-03	5.96E-04	-6.08E+00
HTP-c ²	CTUh	2.20E-08	1.34E-11	1.91E-11	9.05E-13	2.35E-13	2.99E-14	-1.04E-08
HTP-nc ²	CTUh	1.48E-07	3.28E-10	1.34E-10	2.24E-11	7.76E-12	2.36E-13	-1.87E-08
SQP ²	Dimensionless	1.55E+01	6.13E-05	4.39E-05	4.26E-06	9.09E-06	3.57E-07	-3.92E-03

PM: Particulate matter emissions; **IRP:** Ionizing radiation, human health; **ETP-fw:** Ecotoxicity (freshwater); **ETP-c:** Human toxicity, cancer effects; **HTP-nc:** Human toxicity, non-cancer effects; **SQP:** Land use related impacts / soil quality

¹ This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

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

Resource use

Parameter	Unit	A1-A3	A4	C1	C2	C3	C4	D
RPEE	MJ	5.82E+00	6.67E-03	4.63E-03	3.88E-04	1.87E-03	1.08E-04	-1.73E+00
RPEM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TPE	MJ	5.82E+00	6.67E-03	4.63E-03	3.88E-04	1.87E-03	1.08E-04	-1.73E+00
NRPE	MJ	4.10E+01	3.96E-04	3.89E-04	1.94E-05	9.80E-01	4.66E-06	-2.31E-01
NRPM	MJ	1.27E+00	3.99E-02	7.48E-02	2.65E-03	2.62E-04	1.14E-04	-3.24E-01
TRPE	MJ	4.23E+01	4.59E-01	8.19E-01	3.09E-02	7.68E-03	1.33E-03	-1.77E+01
SM	kg	0.00E+00	4.60E-04	4.73E-04	2.34E-05	6.09E-06	4.92E-06	-2.15E-01
RSF	MJ	0.00E+00	1.12E-04	5.22E-05	3.21E-06	2.39E-06	2.54E-06	-5.04E-03
NRSF	MJ	0.00E+00	2.33E-04	1.41E-04	1.19E-05	1.41E-03	9.80E-07	-2.44E-02
W	m ³	0.00E+00	6.13E-05	4.39E-05	4.26E-06	9.09E-06	3.57E-07	-3.92E-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** Nonrenewable primary energy resources used as energy carrier; **NRPM** Nonrenewable 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.

End of life – Waste

Parameter	Unit	A1-A3	A4	C1	C2	C3	C4	D
HW	kg	9.13E-01	4.31E-04	6.81E-04	3.43E-05	1.40E-05	1.08E-06	-5.34E-01
NHW	kg	5.03E-01	3.95E-02	5.05E-04	2.64E-03	1.29E-05	2.00E-02	-6.99E-02
RW	kg	7.88E-05	1.39E-07	8.91E-08	6.69E-09	3.30E-09	1.34E-09	-8.82E-06

HW Hazardous waste disposed; **NHW** Non-hazardous waste disposed; **RW** Radioactive waste disposed.

End of life – output flow

Parameter	Unit	A1-A3	A4	C1	C2	C3	C4	D
CR	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MR	kg	4.27E-01	0.00E+00	0.00E+00	0.00E+00	9.80E-01	0.00E+00	-2.31E-01
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ETE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+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.

Information describing the biogenic carbon content at the factory gate

Biogenic carbon content	Unit	Value
Biogenic carbon content in product	kg C	0.00
Biogenic carbon content in the accompanying packaging	kg C	0.00

Additional requirements

Location based electricity mix from the use of electricity in manufacturing

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 (foreground/core) per functional unit.

National electricity grid	Data source	Foreground / core [kWh]	GWP _{total} [kg CO ₂ -eq/kWh]	SUM [kg CO ₂ -eq]
<i>market for electricity, low voltage electricity, low voltage EN15804, NO</i>	Ecoinvent v3.9.1 (2023)	0.40	0.0347	0.014

Guarantees of origin (GoO) from the use of electricity in the manufacturing phase

No electricity with GoO was used in the manufacturing phase.

Additional environmental impact indicators required for construction products

In order to increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.

Parameter	Unit	A1-A3	A4	C1	C2	C3	C4	D
GWP-IOBC	kg	3.46E+00	3.01E-02	6.21E-02	2.03E-03	7.79E-04	9.58E-05	-1.69E+00

GWP-IOBC Global warming potential calculated according to the principle of instantaneous oxidation.

Hazardous substances

The declaration is based upon reference to threshold values and/or test results and/or material safety data sheets provided to EPD verifiers. Documentation available upon request to EPD owner.

- The product contains no substances given by the REACH Candidate list.
- The product contains substances given by the REACH Candidate list that are less than 0,1 % by weight.
- The product contains dangerous substances, more then 0,1% by weight, given by the REACH Candidate List, see table.
- The product contains no substances given by the REACH Candidate list.
- The product is classified as hazardous waste, see table.

Indoor environment

Not relevant to this product

Carbon footprint

Carbon footprint has not been worked out for the product.

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