epd-norway
Global Program Operator

Environmental Product Declaration

In accordance with ISO 14025 and EN15804 +A2

Wide Air Intake Louver

wide

The Norwegian
EPD Foundation

Owner of the declaration:
Wide Industrier AS

Product name:
Wide Air Intake Louver

Declared unit:
1 kg Wide Air Intake Louver

Product category /PCR:
NPCR Part B for Steel and Aluminum Construction Products (references to EN15804+A2)

Programme operator and publisher:
The Norwegian EPD foundation

Declaration number:
NEPD-4195-3420-EN

Registration number:
NEPD-4195-3420-EN

Issue date: 14.02.2023

Valid to: 14.02.2028

General information

Product:
Wide Air Intake Louver

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

Declaration number:
NEPD-4195-3420-EN

This declaration is based on Product Category Rules:
NPCR Part B for Steel and Aluminium Construction Products (references to EN15804+A2)

Statements:
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 evidence.

Declared unit:
1 kg Wide Air Intake Louver

Functional unit:
[Text]

Conversion factor to mass:
1 kg Wide Air Intake Louver = 0,026 m^2

Verification:
Independent verification of the declaration and data, according to ISO14025:2006

internal ☐ external ☒

Silvia Vilčeková
Independent verifier approved by EPD Norway

Owner of the declaration:
Wide Industrier AS
Contact person: Kristine Degnes
Phone: +47 69 22 78 00
e-mail: wide@wide.no

Manufacturer:
Wide Industrier AS
Sagveien 15, Rakkestad
Phone: +47 69 22 78 00
e-mail: wide@wide.no

Place of production:
Sagveien 15, Rakkestad, Norway

Management system:

Organisation no:
967613436MVA

Issue date:
14.02.2023

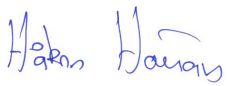
Valid to:
14.02.2028

Year of study:
2021

Comparability:
EPDs from other programmes than EPD-Norway may not be comparable.

The EPD has been worked out by:
Johansen B.H., Elisa M. Energiråd AS

Approved



Manager of EPD Norway

Product

Product description:

Wide Industries is the supplier of air intake systems, ideal for anywhere rain, fog, snow, and ice can occur. Using "standardized tailoring", we optimize the air intake to meet increasingly extreme and demanding weather conditions.

Our air intake louvers are installed as the first stage of an air intake system. The louver have vertical vanes which ensure high efficiency while providing a low pressure drop and sound levels. The louver has an integrated drip tray, ensuring that collected water is drained from the air inlet. Wide air intake louvers are available in seawater-resistant aluminum, square, or any other shape.

Product specification:

The following material specification is given per kg of Wide exterior wall louvers

Materials	KG	%
Extruded aluminum profiles AA6063T6	0,958	95,8
Steel	0,022	2,19
NBR	0,010	1,01
PVC	0,010	1,01

Technical data:

Wide exterior wall louvers are available in all sizes and shapes.

Comes standard in seawater-resistant aluminium, but we can also deliver in AISI 316. The air intake louvers stop everything from rain and in addition fog.
Recommended face velocity: 0 – 6 m/s.

The air intake louvres can also be supplied with integrated heating cables that prevent freezing rain, snow or ice from attaching to the ventilation louvres.

The area requirement when using an vertical air intake louver is down to 50% of the area requirement when using a horizontal ventilation louver or filter louver.

Wide louvers are recommended for use in strong wind and rain-prone areas where the ventilation louver can be exposed to high gusty winds, torrential rain and a generally harsh climate. For building ventilation, the louvers meet requirements of EN13030 Class A, for highest water discharge and class 1 for pressure drop by a large margin. In areas where it is important that the air intake louver, to the greatest extent possible, prevent easy snow to pass.

For offshore use the air intake louvers meet ISO15138 standard and also Equinors' technical requisitions.

Material seawater resistant aluminium AA6063T6.

Market:
Worldwide

Reference service life, product:

Reference service life, building:
60 years according to NPCR 013

LCA: Calculation rules

Declared unit:
1 kg Wide Air Intake Louver

Data quality:
Upstream;
Specific data was acquired by using measurable consumption and emission data from the Wide facilities for 2021. Only specific data was used to analyze the core process of the LCA.

Downstream:
Scenarios were developed based on PCR and statistics and PCR / database data was used.

Conversion to process flows and LCI:
Conversion to primary flows and environmental effects were carried out via OpenLCA (version 1.11.0). Datasets from the ecoinvent v3.8 cutoff database, with EN15804 add-on developed by GreenDelta, were selected according to their technological, geographical and time related representativeness for the process assessed.

Impact assessment:
Open LCA software (version 1.11.0) was used to carry out the impact assessment of this LCA, the later refers to the LCIA characterization models, factors and methods as given by EN15804:2012+A2:2019, labeled "EN15804_A2_2020_3" and "EN15804_A2_additional_2020" in Open LCA.

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 allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

System boundary:
The scope of the study is cradle to grave, described as A1-A3, A4, C1-C4 and D. The study takes into consideration the life cycle stages from the extraction of raw materials, production and disposal, including all transport stages. Figure 1 illustrates the different stages of the product's life cycle considered in the production and delivery of Wide Air Intake Louver to customer. Module D includes

the loads of melting and casting used aluminum and steel together with the potential benefits for the avoided use of virgin metals outside the system boundary for the next product life cycle.

Cut-off criteria:

All major raw materials and all the essential energy is included. The production process for raw materials and energy flows that are included with very small amounts (<1%) are not included.

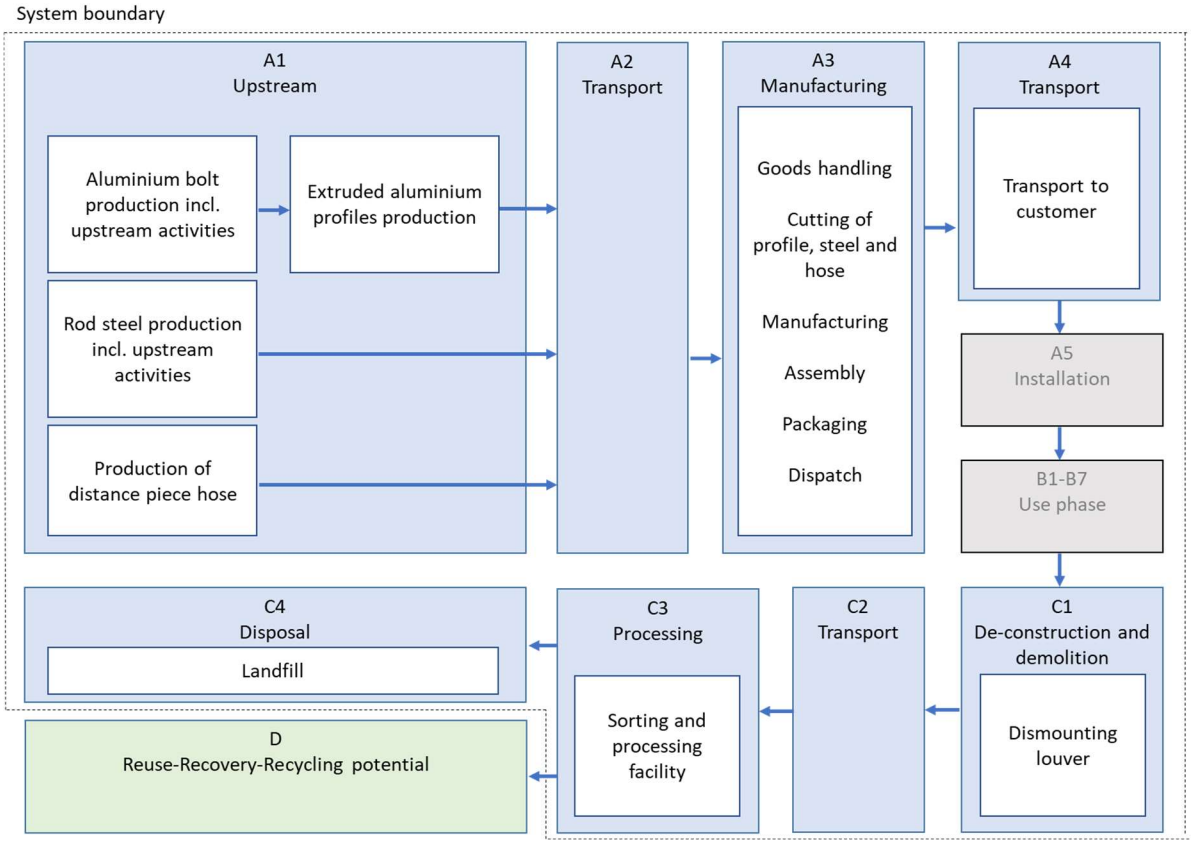


Figure 1: Life cycle stages of Wide Air Intake Louver

LCA: Scenarios and additional technical information

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

Transport from production place to assembly/user (A4)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	value (l/t)
Truck	53,27 %	lorry >32 metric ton, EURO6	300,0	0,0228 l/t.km Diesel	12,133

End of Life (C1, C3, C4)

	Unit	Value
Recycling	kg	0,95
Energy recovery	kg	0,05

The Wide Air Intake Louver system is designed for re-use, but is for the sake of the current study considered as being recycled as a conservative approach is recommended for EPDs. Steel and aluminium are recycled while the distance pieces go to energy recovery.

Transport to waste processing (C2)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance KM	Fuel/Energy consumption	value (l/t)
Truck	36,67 %	lorry 16-32 metric ton,	85	0,045 l/t.km Diesel	4,363

Benefits and loads beyond the system boundaries (D)

	Unit	Value
Substitution of primary aluminum, with net scrap aluminum (kg)	kg	0,88

The Wide Air Intake Louver system is designed for re-use, but is for the sake of the current study considered as being recycled as a conservative approach being recommended for EPDs. The benefits and loads beyond the system boundaries represent the loads of transporting, collecting, sorting and re-melting used metals together with the benefits of avoided new metal. Metal refers to the product composition given on page 3.

Additional technical information

For technical information and product benefits, go to the Wide Industrier website:

https://www.wide.no

LCA: Results

The LCA results are presented below for the product defined on page 3 of the EPD document.

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

Core environmental impact indicators

Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
GWP - total	kg CO2 eq	5,06E+00	4,89E-02	1,08E-03	1,39E-02	2,96E-02	2,20E-04	-3,13E+00
GWP - fossil	kg CO2 eq	4,95E+00	4,88E-02	1,07E-03	1,38E-02	4,51E-03	2,20E-04	-3,11E+00
GWP - biogenic	kg CO2 eq	1,05E-01	8,56E-05	3,93E-06	2,43E-05	2,51E-02	1,56E-06	-1,70E-02
GWP - luluc	kg CO2 eq	2,49E-03	1,71E-05	2,97E-06	4,84E-06	7,66E-07	2,47E-08	4,30E-04
ODP	kg CFC11 eq	5,77E-07	1,13E-08	4,64E-11	3,21E-09	1,26E-10	4,69E-11	-3,89E-07
AP	molc H+ eq	2,69E-02	1,40E-04	3,60E-06	3,93E-05	1,10E-05	2,26E-06	-1,10E-02
EP- freshwater	kg P eq	6,96E-04	3,22E-06	7,17E-07	9,13E-07	1,83E-06	8,48E-09	1,70E-04
EP -marine	kg N eq	6,88E-04	2,83E-05	7,32E-07	8,01E-06	1,82E-05	9,95E-07	5,90E-04
EP - terrestrial	molc N eq	8,16E-03	3,10E-04	6,39E-06	8,70E-05	3,39E-05	1,09E-05	7,36E-03
POCP	kg NMVOC eq	5,44E-03	1,10E-04	1,87E-06	3,25E-05	1,55E-05	2,96E-06	-6,10E-04
ADP-M&M[2]	kg Sb-Eq	1,31E-05	1,66E-07	1,32E-09	4,71E-08	6,28E-08	1,55E-10	1,50E-04
ADP-fossil[2]	MJ	7,05E+00	5,65E-02	7,55E-03	1,60E-02	3,85E-03	1,60E-04	-7,25E-01
WDP[2]	m^3	3,70E+00	3,60E-03	2,10E-04	1,02E-03	4,00E-04	3,83E-05	7,05E-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 counsumption*

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	1,9281E-07	1,5756E-11	1,488E-13	4,464E-12	1,054E-11	5,857E-14	-9,04E-08
IRP[1]	kBq U235 eq.	0,25908	0,00382	3,967E-06	0,00108	6,027E-05	2,725E-05	0,03114
ETP-fw[2]	CTUe	0,22536	0,0247	0,00013	0,007	0,00824	1,723E-05	1,18415
HTP-c[2]	CTUh	1,3272E-09	1,5756E-11	1,488E-13	4,464E-12	1,054E-11	5,857E-14	1,393E-09
HTP-nc[2]	CTUh	5,9337E-08	9,1873E-10	3,463E-11	2,603E-10	2,958E-10	1,113E-12	2,826E-07
SQP[2]	Dimensionless	4,3379	3,0925E-09	5,684E-12	8,762E-10	3,201E-10	6,023E-11	3,12906

***PM:** Particulate matter emissions; **IRP:** Ionising 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	1,10E+01	7,96E-03	5,00E-04	2,26E-03	4,60E-04	2,10E-04	9,65E-01
RPEM	MJ	1,24E+00	2,62E-03	3,07E-05	7,40E-04	6,70E-04	5,44E-05	3,18E-01
TPE	MJ	1,23E+01	1,06E-02	5,30E-04	3,00E-03	1,14E-03	2,70E-04	1,28E+00
NRPE	MJ	1,07E+01	7,21E-02	7,59E-03	2,04E-02	4,35E-03	3,80E-04	-3,24E-01
NRPM	MJ	4,89E+00	6,73E-01	8,84E-03	1,91E-01	8,47E-03	2,83E-03	4,24E+00
TRPE	MJ	1,56E+01	7,45E-01	1,64E-02	2,11E-01	1,28E-02	3,21E-03	3,92E+00
SM	kg	5,76E-02	7,60E-04	5,16E-06	2,20E-04	2,21E-02	1,24E-05	1,79E+00
RSF	MJ	1,05E-02	2,30E-04	3,51E-07	6,40E-05	3,81E-06	6,08E-06	3,44E-03
NRSF	MJ	1,12E-01	9,20E-04	9,82E-07	2,60E-04	9,91E-06	6,29E-07	7,25E-03
W	m^3	8,62E-02	8,58E-05	5,01E-06	2,43E-05	9,43E-06	8,95E-07	1,65E-02

***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	9,74E-01	1,66E-02	3,51E-03	4,71E-03	2,52E-03	4,00E-05	4,59E+00
NHW	kg	1,99E+00	3,84E-02	6,83E-05	1,09E-02	2,01E-02	3,05E-06	-1,21E+00
RW	kg	2,26E-03	1,49E-05	2,77E-08	4,21E-06	3,58E-07	1,60E-07	1,10E-04

***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	5,79E-02	6,30E-04	1,28E-06	1,80E-04	9,50E-01	1,11E-05	1,03E-02
MER	kg	5,34E-03	1,70E-04	5,80E-07	4,92E-05	7,44E-06	1,09E-06	1,00E-03
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
Biogenic carbon content in the accompanying packaging	kg C	0

Additional requirements

Greenhous gas emission 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).

National electricity grid	Unit	Value
Norwegian mix (market for electricity, ecoinvent 3.8)	kg CO2 -eq/kWh	0,01713

Additional environmental impact indicators required in NPCR Part A 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	5,06E+00	4,89E-02	1,08E-03	1,39E-02	2,96E-02	2,20E-04	-3,13E+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 or the Norwegian priority list.
- ☐ The product contains substances given by the REACH Candidate list or the Norwegian priority list that are less than 0,1 % by weight.
- ☐ The product contain dangerous substances, more then 0,1% by weight, given by the REACH Candidate List or the Norwegian Priority list, see table.
- ☐ The product contains no substances given by the REACH Candidate list or the Norwegian priority list. The product is classified as hazardous waste (Avfallsforskiften, Annex III), see table.

Indoor environment

Not relevant for outdoor products.

Carbon footprint

Carbon footprint has not been worked out for the product.

Bibliography

ISO 14025:2006	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+A2:2019	Sustainability of construction works - 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 and services

epd-norway Global Program Operator	**Program Operator**	phone	+47 23 08 80 00
	The Norwegian EPD Foundation		
	Post Box 5250 Majorstuen, 0303 Oslo	e-mail:	post@epd-norge.no
	Norway	web	www.epd-norge.no
epd-norway Global Program Operator	**Publisher**	phone	+47 23 08 80 00
	The Norwegian EPD Foundation		
	Post Box 5250 Majorstuen, 0303 Oslo	e-mail:	post@epd-norge.no
	Norway	web	www.epd-norge.no
wide	**Owner of the decleration**	phone	+47 69 22 78 00
	Wide Industrier AS		
	Sagvegen 15, 1890 Rakkestad	e-mail:	wide@wide.no
	Norway	Web	https://wide.no/
energiråd	**Author of the life cycle assessment**	phone	+47 98 25 90 10
	Energiråd AS		
	Trippevegen 1, 6009 Ålesund	e-mail:	post@energirad.no
	Norway	web	www.energirad.no

EPD for the best environmental decision

The Norwegian EPD foundation
www.epd-norge.no

epd-norway
Global Program Operator