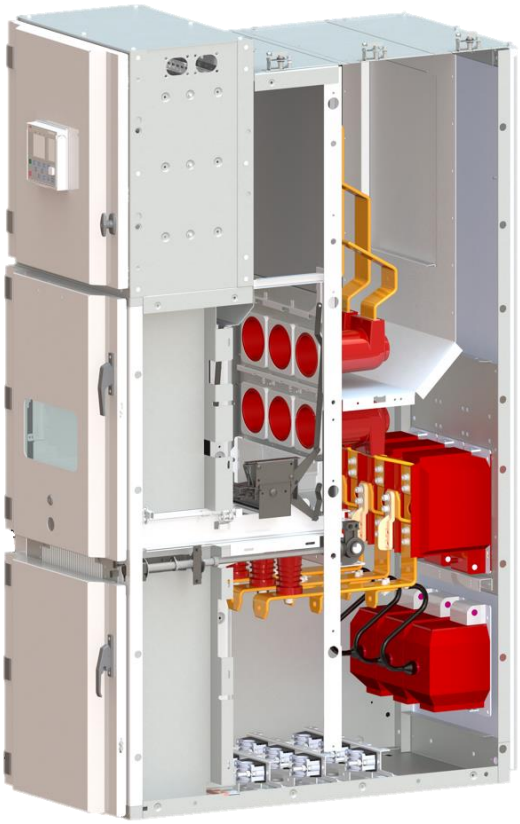
EPD

Environmental Product Declaration

Medium-voltage air-insulated switchgear UniGear ZS1 IF 12.12.32 STD, LDU,BT

Production site: Brno, Czech Republic



DOCUMENT KIND Environmental Product Declaration	IN COMPLIANCE WITH ISO 14025 and EN 50693			
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EPD Owner	ABB Switzerland Ltd, Group Technology Management		
Organization No.	CHE-101.538.426		
Manufacturer name and address	ABB, s.r.o Videnska 117, Brno 619 00, Czech Republic		
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Program operator	The Norwegian EPD Foundation Post Box 5250 Majorstuen, 0303 Oslo, Norway phone: +47 23 08 80 00, email: post@epd-norge.no		
Declared product	Medium-voltage air-insulated switchgear UniGear ZS1 IF 12.12.32 STD, LDU, BT		
Product description	Medium-voltage air-insulated switchgear UniGear ZS1 is the ABB mainline global switchgear up to 24 kV, 4000 A, 63 kA. UniGear ZS1 is used to distribute electric power in a variety of demanding applications such as on offshore platforms, in container or cruise ships, in mines as well as in utility substations, power plants or chemical plants. Panels are available as a single busbar, double busbar, back-to-back or double level solution.		
Functional unit	The functional unit of this study is power distribution switchgear with main function of protecting and metering, during a service life of 20 years with a use rate of 100% % and 61% load factor of the rated current.		
Reference flow	Medium-voltage air-insulated switchgear UniGear ZS1, including related accessories and packaging.		
CPC code	46211 - Electrical apparatus for switching or protecting electrical circuits, or for making connexions to or in electrical circuits, for a voltage exceeding 1000 V		
Independent verification	Independent verification of the declaration and data, according to ISO 14025:2010 ☐ INTERNAL ☒ EXTERNAL Independent verifier approved by EPD-Norge: Elisabet Amat Signature: 		
Approved by	Håkon Hauan, CEO EPD-Norge Signature:		
Reference PCR	EN 50693:2019 – Product Category Rules for Life Cycle Assessments of Electronic and Electrical Products and Systems. EPDItaly007 – Electronic and Electrical Products and Systems, Rev. 3.0, 2023/01/13. EPDItaly015 – Electronic and Electrical Products and Systems – Switchboards, Rev. 1.5, 2022/02/23.		
Program instructions	The Norwegian EPD Foundation/EPD-Norge, General Programme Instructions 2019, Version 3.0, 2019/04/24.		
LCA study	This EPD is based on the LCA study described in the LCA report 1VLG101072.		
EPD type	Specific product by a specific manufacturer		
EPD scope	Cradle-to-grave		
Product RSL	20 years		
Geographical representativeness	Manufacturing (suppliers): Global	Manufacturing (ABB): Czech Republic	Downstream: Europe
Reference year	2022		
LCA software	SimaPro 9.5 (2023)		
LCI database	Ecoinvent v3.9.1 (2022)		
Comparability	EPDs published within the same product category, though originating from different programs, may not be comparable. Full conformance with a PCR allows EPD comparability only when all stages of a life cycle have been considered. However, variations and deviations are possible.		
Liability	The owner of the declaration shall be liable for the underlying information and evidence. EPD-Norge shall not be liable with respect to manufacturer, life cycle assessment data, and evidence.		

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Sustainability at ABB

ABB is a leading global technology company that energizes the transformation of society and industry to achieve a more productive, sustainable future. By connecting software to its electrification, robotics, automation, and motion portfolio, ABB pushes the boundaries of technology to drive performance to new levels.

At ABB, we actively contribute to a more sustainable world, leading by example in our own operations and partnering with customers and suppliers to enable a low-carbon society, preserve resources, and promote social progress.

Learn more on our website global.abb/group/en/sustainability or scan the QR code.

General Information

The product declared in this Environmental Product Declaration is the Medium-voltage air-insulated switchgear UniGear ZS1 12.12.32 STD including related accessories and packaging.

Medium-voltage air-insulated switchgear UniGear ZS1 is the ABB mainline global switchgear up to 24 kV, 4000 A, 63 kA. UniGear ZS1 is used to distribute electric power in a variety of demanding applications such as on offshore platforms, in container or cruise ships, in mines as well as in utility substations, power plants or chemical plants. Panels are available as a single busbar, double busbar, back-to-back or double level solution. Each UniGear ZS1 panel consists of a single unit which can be equipped with a circuit-breaker, contactor or switch-disconnector, as well as with all the accessories available for conventional switchgear units.

General technical specifications of the product are presented below.

Technical information		
	Unit	**Value**
Rated voltage	[kV]	12
Impulse withstand voltage	[kV]	75
Rated frequency	[Hz]	50/60
Rated short time withstand current	[kA 3s]	31,5
Peak withstand current	[kA]	…82
Feeders rated current	[A]	…1 250

The manufacturing of the medium voltage switchgear UniGear ZS1 is located in the ABB Brno Videnska factory. The main metal enclosure is produced and assembled directly in the ABB factory combined with components produced by ABB's suppliers. Some subassemblies are also produced by another ABB factories in Italy, Germany, Czech Republic.

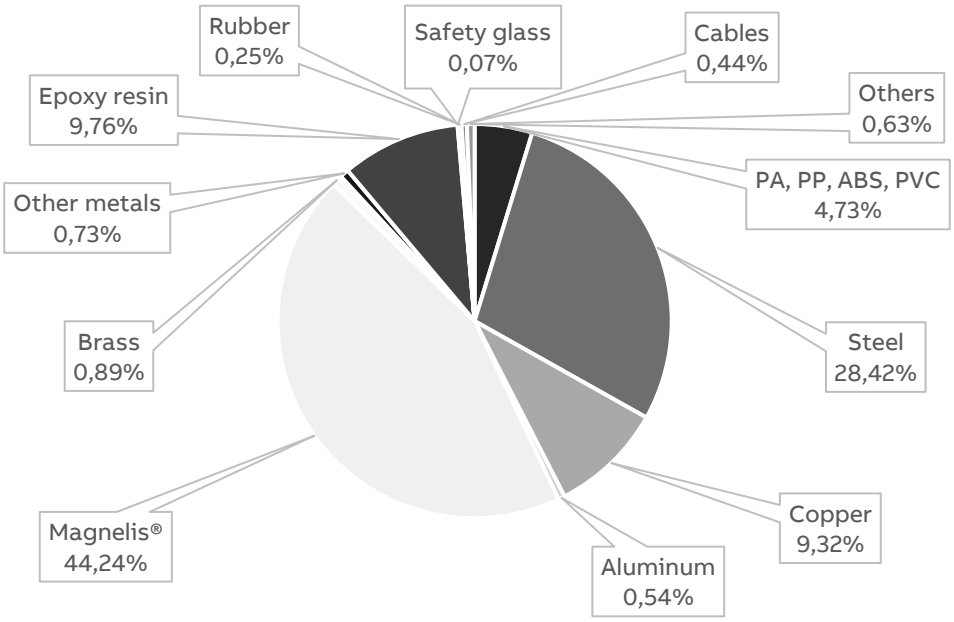
The manufacturing site is certified according to the following standards:

- ISO 9001:2015 – Quality Management Systems
- ISO 14001:2015 – Environmental Management Systems
- ISO 45001:2018 – Occupational Health and Safety Management Systems

Constituent Materials

The UniGear ZS1 12.12.32 STD weight 804,98 kg and the constituent materials are presented below.

UniGear ZS1 IF 12.12.32 STD with subcomponents (VD4, TJC4, TPU 43.13)			
Materials	Name	Weight [kg]	Weight %
Plastics	PA, PP, ABS, PVC	38,04	4,73
Metals	Steel,stainless	228,84	28,43
	Copper	75,04	9,32
	Aluminum	4,34	0,54
	Magnelis®	356,01	44,26
	Brass	7,17	0,89
	Other metals	5,86	0,73
Other	Epoxy resin	78,53	9,76
	Safety glass	0,6	0,07
	Rubber	1,98	0,25
	Cables	3,52	0,44
	Others	5,05	0,63
Total		**804,98**	**100**



The packaging materials and accessories weighs 139,23 kg, and the constituent materials are presented below.

Description	Material	Weight [kg]	Weight %
Metals	Aluminium	0,233	0,17
	Steel	0,81	0,58
Plastics	PE, PES	2,18	1,57
Wooden base materials	Wood(pallet+case)	134	96,24
Others	Cardboard	2,01	1,44
Total		**139,23**	**100**

LCA Background Information

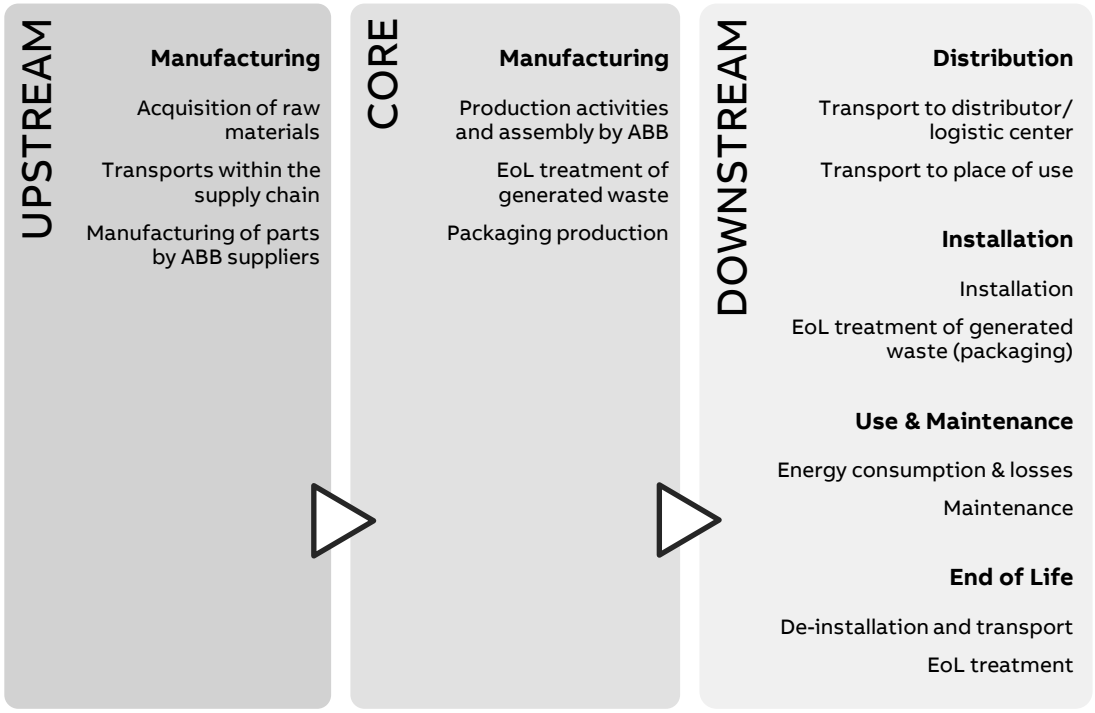
Functional Unit

The functional unit of this study is a switchgear, which is used to distribute electric power, during a service of 20 years with a use rate of 100% and 61% load factor of the rated current. The reference flow is air-insulated switchgear UniGear ZS1 Incoming/outgoing feeder 12.12.32 (12kV rated voltage, 1250A rated current, 31.5kA rated short-time withstand current). Examinated reference flow is also equipped with third party components instrument transformers TJC4 and TPU 43.13 and circuit breaker VD4/P 12.12.32 which are described by individual LCA analysis (see reference table). Low voltage compartment (LVC) is considered without customer specific materials. Reference flow is modeled including related accessories and packaging.

Note, the reference service life (RSL) of 20 years is a theoretical period selected for calculation purposes only – this is not representative for the minimum, average, nor actual service life of the product.

System Boundaries

The life cycle assessment of the UniGear ZS1, an EEPS (Electronic and Electrical Products and Systems), is a “cradle-to-grave” analysis. The figure below shows the product life cycle stages and the information considered in the LCA.



In terms of exclusions from the system boundary, according to Standard/PCR, capital goods such as machinery, tools, buildings, infrastructure, packaging for internal transports, and administrative activities, which cannot be allocated directly to the production of the reference product, are excluded.

Infrastructures, when present, such as in processes deriving from the ecoinvent database, have not been excluded. Scraps for metal working and plastic processes are also included when already defined in ecoinvent.

Temporal and geographical boundaries

In terms of temporal boundaries, all primary data collected from ABB are from 2022, which is considered a representative production year. Secondary data are provided by ecoinvent v3.9.1 which was released in 2022.

In terms of geographical boundaries, the materials and components used in the production of the UniGear ZS1 are globally sourced. The supply chains are often complex and can extend across multiple countries and continents. Therefore, materials and background processes with global representativeness are selected from ecoinvent. Thus, a conservative approach is adopted.

Data quality

Both primary and secondary data are used. The main sources for primary data are the bill of materials and technical drawings, while site specific foreground data are provided by ABB. Furthermore, information and data obtained from other LCA studies are also used.

For all processes for which primary data are not available, generic data originating from the ecoinvent v3.9.1 database, “allocation, cut-off by classification”, are used. The LCA software used for the calculations is SimaPro 9.5.

Environmental impact indicators

The information obtained from the inventory analysis is aggregated according to the effects related to the various environmental issues. In accordance with the PCR EPDItaly007, the environmental impact indicators are determined by using the characterization factors and impact assessment methods specified in EN 15804:2012+A2:2019.

Allocation rules

The utility consumption and waste generation at the ABB manufacturing site is allocated to the production of one UniGear ZS1 by using allocation rules.

All the commodities - Natural Gas, Water, Electricity, Wastes are available for whole ABB Brno Videnska facility for 2022. Specific allocation related to UniGear ZS1 production was done following was:

Natural Gas	allocation by surface areas of AIS buildings (air-insulated switchgears) production related buildings
Water	allocated per AIS production employees
Electricity	sub measurements for AIS production
Wastes	based on the data of HSE and Facility office (no allocation key required)

The allocation coefficient to the single unit and for all listed commodities was defined as ratio between product weight and AIS production in 2022 (represented by total weight of all produced units).

For the end-of-life allocation, the “Polluter Pays” principle is adopted according to what is defined in the CEN/TR 16970 standard, as required by the PCR EPDItaly007. This means, waste treatment processes are allocated to the product system that generates the waste until the end-of-waste state is reached. The environmental burdens of recycling and energy recovery processes are therefore allocated to the product system that generates

the waste, while the product system that uses the exported energy and recycled materials receives it burden-free. However, the potential benefits and avoided loads from recovery and recycling processes are not considered because it is not required by EPDItaly007.

Cut-off criteria

The raw material life cycle stage includes the extraction of raw materials but neglects the production of various components at ABB's suppliers (glue, grease, and adhesive), as their mass represents less than 2% of that of the whole product, as stated in the paragraph of cut-off criteria of EPDItaly-015: "Materials making up the switchboard itself whose total mass does not exceed 2% of the total weight of the device".

This same applies for packaging, where small parts such sticking labels and grease as are even a smaller fraction of the total mass.

Surface treatments like tin plating, silver plating, copper plating and powder coating have been considered in the LCA model. Black oxide and phosphate conversion coating (negligible usage) have been excluded due to the model complexity and unavailability of reference data.

Inventory Analysis

Manufacturing stage

As presented in chapter Constituent Materials, Magnelis and steel are the most frequently used materials, followed by copper and epoxy resin.

All steel components (hot rolled steel, spring steel, stainless steel) are modelled with the same kind of steel: *"Steel, low-alloyed {GLO}| market for | Cut-off, S"*, as it is representative for the large majority of the steel parts. Stainless steel is only used for a small amount of screws and due to lack of data they are modelled using one type of steel.

To account for the production activities of metal and plastic parts, Metal working, average and Injection molding are the most frequently used processes. Surface treatments are also included, and the most common surface treatments is *ABB_Zinc coat pieces (GLO)_SMP_V2* .

Supply chain transports are added as far as data is available between ABB, the suppliers, and sub-suppliers. Only primary suppliers are considered. The rest of the transports are assumed to already be included in ecoinvent's "market for"-processes. The selected ecoinvent processes are *Transport, freight, lorry 16-32 metric ton, EURO4 {RER}* for lorry and *Transport, freight, sea, container ship {GLO}* for sea transport.

For the ABB manufacturing site, which is considered in the core manufacturing stage, utility consumption and waste generation are allocated to the production of one UniGear ZS1 according to the defined allocation rules. The packaging materials and accessories associated with the product are also considered in the core manufacturing stage.

The energy mix used for the production is representative for ABB Videnska factory based on the guarantee of origin (GO) energy certificate. This dataset includes electricity inputs produced in this country and from imports and transformed to medium voltage, the transmission voltage, direct emissions to air and electricity losses during transmission.

Electricity	Source	Amount	Unit
ABB_Electricity mix Brno factory {CZ}_ 2022 | S_SMP_V1	Ecoinvent v3.9.1	0,51	kg CO_2-eq/kWh

Distribution

The transport distance from the ABB manufacturing site to the site of installation is assumed to be 300 km over land, as suggested by the PCR EPDItaly012 and EPDItaly015, as the actual distance is unknown. The selected ecoinvent process is *transport, freight, lorry 16-32 metric ton, EURO4 {RER}*.

Installation

The installation phase mainly implies manual activities, and negligible amounts of energy is consumed. Therefore, this phase only considers the end-of-life of the packaging materials used.

The end-of-life scenario for packaging materials is based on *Packaging waste by waste management operations* by Eurostat (2020), which is representative for Europe. A transport distance of 100 km by lorry is assumed as actual location of disposal is unknown.

Use

Use and maintenance are modelled according to PCR EPDItaly015 “Electronic and electrical products and systems - Switchboards”.
For the use phase, the general European medium voltage electricity mix from Ecoinvent v.3.9.1 is used.

UG ZS1 12.12.32 STD

$$E_{use}[kWh] = \frac{P_{use} * 8760 * RSL * \alpha}{1000} = \frac{142W * 8760 \text{ hours} * 20 \text{ years} * 100\ \%}{1000} = 24956{,}28\ kWh$$

Where:

- E_{use} = Total energy use over the reference service life
- P_{use} = Reference power consumption in watts
- *RSL* = Reference Service Life in years
- α = Use time rate
- 8760 is the number of hours in a year
- 1000 is the conversion factor from W to kW

Because this product is sold globally and is not limited to any specific country, the latest energy mix of the European Union is adopted as suggested by the standard EN 50693. The emission factor of the energy mix is presented below.

Energy mix	Source	Amount	Unit
European energy mix; *Electricity, medium voltage {RER}| market group for | Cut-off, S*	Ecoinvent v3.9.1	0,374	kg CO_2-eq./kWh

End of life

Decommissioning of the product only implies manual activities, and no energy is consumed. Therefore, this phase only considers the end-of-life of the product.

The end-of-life stage is modelled according to PCR EPDItaly015 and IEC/TR 62635. The percentages for end-of-life treatments of UniGear ZS1 are taken from IEC/TR 62635 (Annex D.3), which is representative for Europe.
A transport distance of 100 km by lorry is assumed as actual location of disposal is unknown.

Environmental Indicators

The following tables show the environmental impact indicators of the life cycle of medium-voltage air-insulated switchgear UniGear ZS1, Incoming/outgoing feeder 12/12/32 (12kV rated voltage, 1250A rated current, 31.5kA rated short-time withstand current)STD as requested by PCR EPDItaly007, PCR EPDItaly015 and EN 50693:2019. The indicators are divided into the contribution of the processes to the different modules (upstream, core and downstream) and stages (manufacturing, distribution, installation, use and end-of-life).

UniGear ZS1 12.12.32 STD

			Cradle-to-gate		Cradle-to-grave			
Impact category	Unit	Total	UPSTREAM	CORE	DOWNSTREAM			
			Manufacturing		Distribution	Installation	Use and maintenance	End-of-life
GWP – total	kg CO_2 eq.	2,29E+04	4,25E+03	2,35E+02	4,08E+01	7,03E+01	1,82E+04	1,48E+02
GWP – fossil	kg CO_2 eq.	2,21E+04	4,21E+03	2,52E+02	4,07E+01	6,72E+00	1,75E+04	8,61E+01
GWP – biogenic	kg CO_2 eq.	6,49E+02	3,91E+01	-1,59E+02	4,01E-02	6,36E+01	6,44E+02	6,13E+01
GWP – luluc	kg CO_2 eq.	1,91E+02	4,91E+00	1,43E+02	1,96E-02	2,13E-03	4,31E+01	9,45E-02
ODP	kg CFC-11 eq.	4,21E-04	9,48E-05	1,58E-05	8,69E-07	1,04E-07	3,08E-04	1,22E-06
AP	mol H+ eq.	1,62E+02	7,34E+01	1,80E+00	1,64E-01	2,30E-02	8,63E+01	3,66E-01
EP – freshwater	kg P eq.	2,18E+01	6,04E+00	5,06E-02	2,80E-03	6,24E-04	1,57E+01	2,40E-02
EP – marine	kg N eq.	2,48E+01	5,40E+00	3,70E+00	6,27E-02	2,88E-02	1,53E+01	2,81E-01
EP – terrestrial	mol N eq.	2,15E+02	6,29E+01	1,48E+01	6,69E-01	9,89E-02	1,35E+02	1,00E+00
POCP	kg NMVOC eq.	7,20E+01	2,02E+01	7,64E+00	2,41E-01	3,28E-02	4,36E+01	3,28E-01
ADP – minerals and metals	kg Sb eq.	9,25E-01	8,89E-01	1,18E-03	1,28E-04	1,26E-05	3,38E-02	6,36E-04
ADP – fossil	MJ, net calorific value	4,36E+05	3,70E+04	3,61E+03	5,66E+02	5,91E+01	3,94E+05	9,19E+02
WDP	m^3 eq.	5,63E+03	1,45E+03	1,32E+02	2,30E+00	3,24E-01	4,03E+03	1,28E+01

GWP-fossil: Global Warming Potential fossil; 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; EP-freshwater: Eutrophication potential-freshwater compartment; EP-marine: Eutrophication potential-marine compartment; EP-terrestrial: Eutrophication potential-accumulated exceedance; POCP: Formation potential of tropospheric ozone; ADP-minerals & metals: Abiotic Depletion for non-fossil resources potential; ADP-fossil: Abiotic Depletion for fossil resources potential; WDP: Water deprivation potential.

Resource use parameters	Unit	Total	Cradle-to-gate		Cradle-to-grave			
			UPSTREAM	CORE	DOWNSTREAM			
			Manufacturing		Distribution	Installation	Use and maintenance	End-of-life
PENRE	MJ, low cal. value	4,47E+05	4,84E+04	3,68E+03	5,66E+02	5,91E+01	3,93E+05	9,19E+02
PERE	MJ, low cal. value	8,59E+04	5,63E+03	6,80E+03	8,79E+00	1,13E+00	7,34E+04	8,23E+01
PENRM	MJ, low cal. value	7,41E+02	6,46E+02	9,45E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERM	MJ, low cal. value	1,89E+03	0,00E+00	1,89E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ, low cal. value	4,48E+05	4,91E+04	3,77E+03	5,66E+02	5,91E+01	3,93E+05	9,19E+02
PERT	MJ, low cal. value	8,78E+04	5,63E+03	8,69E+03	8,79E+00	1,13E+00	7,34E+04	8,23E+01
FW	m^3	3,53E+02	4,71E+01	4,66E+00	8,07E-02	1,26E-02	3,00E+02	4,62E-01
MS	kg	1,49E+02	1,44E+02	5,07E+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

PENRE: Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw material; PERE: Use of renewable primary energy excluding renewable primary energy resources used as raw material; PENRM: Use of non-renewable primary energy resources used as raw material; PERM: Use of renewable primary energy resources used as raw material; PENRT: Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials); PERT: Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials); FW: Net use of fresh water; MS: Use of secondary materials; RFS: Use of renewable secondary fuels; NRSF: Use of non-renewable secondary fuels.

Waste production indicators	Unit	Total	Cradle-to-gate		Cradle-to-grave			
			UPSTREAM	CORE	DOWNSTREAM			
			Manufacturing		Distribution	Installation	Use and maintenance	End-of-life
HWD	kg	1,11E+00	5,89E-01	1,50E-02	3,61E-03	3,38E-04	5,01E-01	3,53E-03
NHWD	kg	2,25E+03	7,95E+02	5,12E+01	2,77E+01	5,47E+01	1,08E+03	2,40E+02
RWD	kg	3,01E+00	1,58E-01	5,36E-03	1,84E-04	2,95E-05	2,85E+00	1,80E-03
MER	kg	5,84E+01	4,29E+00	1,19E+01	0,00E+00	4,04E+01	0,00E+00	1,82E+00
MFR	kg	9,57E+02	1,45E+02	1,77E+02	0,00E+00	4,67E+01	0,00E+00	5,88E+02
CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ETE	MJ	2,43E+02	1,80E+01	4,62E+01	0,00E+00	1,68E+02	0,00E+00	1,11E+01
EEE	MJ	1,31E+02	9,05E+00	2,31E+01	0,00E+00	9,31E+01	0,00E+00	6,15E+00

HWD: hazardous waste disposed; NHWD: non-hazardous waste disposed; RWD: radioactive waste disposed; MER: materials for energy recovery; MFR: material for recycling; CRU: components for reuse; ETE: exported thermal energy; EEE: exported electricity energy.

Extrapolation rules

Due to the large variations in environmental impacts present within the series, extrapolation rules are established according to EN 50693. This LCA covers different build configurations than representative product LDU (less deep unit-bottom entry and top entry), BT (buss tie). All the analyzed configurations have the same main functionality, product standards and manufacturing technology. The different life cycle stages can be extrapolated to other products of the same homogeneous environmental family by applying a rule of proportionality to the parameters in the following tables, divided by different life cycle stages.

Type	UG 12.12.32 LDU TE			UG 12.12.32 LDU BE			UG 12.12.32 BT		
LCA phase	Manuf. Upstream	Manuf. Core	End of Life	Manuf. Upstream	Manuf. Core	End of Life	Manuf. Upstream	Manuf. Core	End of Life
GWP – total	1,221	1,000	1,385	1,200	1,000	1,392	1,012	1,000	1,007
GWP – fossil	1,221	1,000	1,173	1,200	1,000	1,185	1,012	1,000	1,006
GWP – biogenic	1,097	1,000	1,697	1,074	1,000	1,697	0,982	1,000	1,010
GWP – luluc	1,430	1,000	1,175	1,401	1,000	1,175	1,008	1,000	1,016
ODP	1,224	1,000	1,115	1,234	1,000	1,172	0,973	1,000	0,984
AP	1,361	1,000	1,191	1,260	1,000	1,189	1,046	1,000	1,016
EP – freshwater	1,373	1,000	1,192	1,278	1,000	1,188	1,043	1,000	1,017
EP – marine	1,341	1,000	1,356	1,281	1,000	1,359	1,022	1,000	1,004
EP – terrestrial	1,328	1,000	1,200	1,253	1,000	1,190	1,030	1,000	1,010
POCP	1,297	1,000	1,220	1,233	1,000	1,220	1,025	1,000	1,015
ADP – minerals and metals	1,384	1,000	1,178	1,282	1,000	1,171	1,052	1,000	1,017
ADP – fossil	1,243	1,000	1,186	1,232	1,000	1,186	0,995	1,000	1,013
WDP	1,455	1,000	1,148	1,379	1,000	1,164	1,041	1,000	0,984

Type	UG 12.12.32 LDU TE		UG 12.12.32 LDU BE		UG 12.12.32 BT	
LCA phase	Distribution	Use and maintenance	Distribution	Use and maintenance	Distribution	Use and maintenance
GWP – total	1,159	1,522	1,150	1,522	1,020	1,000
GWP – fossil	1,162	1,526	1,152	1,526	1,022	1,000
GWP – biogenic	1,162	1,526	1,152	1,526	1,020	1,000
GWP – luluc	1,158	1,524	1,148	1,524	1,020	1,000
ODP	1,162	1,526	1,151	1,526	1,021	1,000
AP	1,165	1,530	1,152	1,530	1,024	1,000
EP – freshwater	1,161	1,529	1,150	1,529	1,018	1,000
EP – marine	1,161	1,529	1,150	1,529	1,021	1,000
EP – terrestrial	1,161	1,526	1,151	1,526	1,021	1,000
POCP	1,158	1,525	1,149	1,525	1,021	1,000
ADP – minerals and metals	1,164	1,524	1,156	1,524	1,023	1,000
ADP – fossil	1,161	1,523	1,152	1,523	1,021	1,000
WDP	1,161	1,526	1,152	1,526	1,022	1,000

Additional Environmental Information

Recyclability potential

The recyclability potential of the UG ZS1 12.12.32 is calculated by dividing “MFR: material for recycling” in the end-of-life stage with the total weight of the product. As a result, the recyclability potential of the product UG ZS1 12.12.32 STD is 73,0 %.

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

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

Energy mix	Data source	Amount	Unit
ABB_Electricity mix Brno factory {CZ}_ 2022 / S_SMP_V1	Ecoinvent v3.9.1	0,51	kg CO_2-eq/kWh

Dangerous substances

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

Indoor environment

The product meets the requirements for low emissions.

Carbon footprint

Carbon footprint has not been worked out for the product.

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