Type III Environmental Product Declaration No. 588/2024

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TLB Gates

(single leaf, double leaf and telescopic sliding gate type TLB 60, and single leaf sliding gate type TLB 120)

Owner of the EPD:

ASSA ABLOY Mercor Doors
Address: ul. Arkońska 6 bud. A2
80-387 Gdańsk, Poland
Tel.: +48 601 692 914
Website: https://www.mercordoors.com
Contact: mercordoors@assaabloy.com

EPD Program Operator:

Instytut Techniki Budowlanej (ITB)
Address: Filtrowa 1,
00-611 Warsaw, Poland
Website: www.itb.pl
Contact: Michał Piasecki
m.piasecki@itb.pl
energia@itb.pl

ITB is the verified member of The European Platform for EPD program operators and LCA practitioner www.eco-platform.org

Basic information

This declaration is the Type III Environmental Product Declaration (EPD) based on EN 15804+A2 and verified according to ISO 14025 by an external auditor. It contains the information on the impacts of the declared construction materials on the environment and their aspects verified by the independent body according to ISO 14025. Basically, comparison or evaluation of EPD data is possible only if all the compared data were created according to EN 15804+A2.

Life cycle analysis (LCA): A1-A3, C1-C4 and D modules in accordance with EN 15804 (Cradle-to-Gate with options)

The year of preparing the EPD: 2024

Tech. assessment doc.: EN 16034:2014, EN 13241:2003+A2:2016

Service Life: 10 years

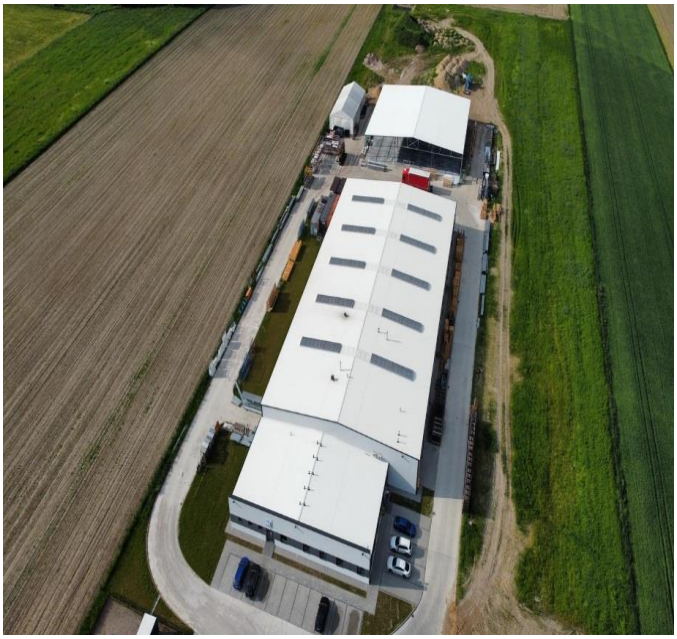
PCR: ITB-PCR A

Declared unit: 1 unit (of TLB gate)

Reasons for performing LCA: B2B

Representativeness: Poland, European, 2022

MANUFACTURER



ASSA ABLOY Mercor Doors is part of ASSA ABLOY, a global leader in comprehensive building security systems committed to meeting safety and user comfort needs. The company is a leading producer of steel and wooden fire doors, profile doors and walls, fire gates and curtains as well as partitions without fire resistance. All products meet the stringent safety requirements, which has been confirmed by numerous tests and obtained Technical Approvals, National Technical Assessments and certificates of relevant research institutes in Poland, as well as in other European countries. The offer of ASSA ABLOY Mercor Doors sp. z o.o. includes: steel doors (covered by this EPD), wooden fire doors, fire gates (roller gates), steel profile doors and walls, aluminum profile doors and walls, RAPTOR apartment doors. ASSA ABLOY Mercor Doors plants are: the plant in Dobrzeń Wielki (Poland), where steel doors, fire gates and RAPTOR apartment doors are manufactured and the plant in Bielsk (Poland, a picture) engaged in the production of steel profile doors and walls as well as aluminum profile doors and walls. The steel door (covered by this EPD) is one the main product of company. Along with the increase in the technical requirements of steel doors, there has been a development of the structure in terms of fire, smoke-tight, strength, corrosion, thermal and acoustic parameters. As a standard, the leaf structure is made of galvanized sheet metal, which is bent and riveted, which guarantees high resistance to corrosion and a perfect leaf plane. The technology of welding the door frames ensures their stability as well as the appropriate shape and size, which facilitates assembly and subsequent adjustment of the door. Production Process is controlled and certified and meets the requirements of the Environmental Management System ISO14001. Code of Conduct covers human rights, labor practices and decent work. Management of ASSA ABLOY is aware of their environmental roles and responsibilities, providing appropriate training, supporting accountability and recognizing outstanding performance.

PRODUCT DESCRIPTION

TLB fire gates are steel gates available in two fire resistances: EI60 and EI120. TLB 60 gates with fire resistance EI60 can be made in a single leaf, double leaf or multi-segment (telescopic) sliding structure. The TLB 60 product can additionally be equipped with fire-resistant passage doors to facilitate pedestrian communication. Due to its high fire resistance class, TLB 120 gates with fire resistance EI120 are available in a single-leaf sliding structure. TLB fire gates are an example of the fact that solidity, durability and an innovative approach to protecting people and property against the elements can be combined in one element. The specific products covered by this EPD document are described in Table 1. TLB fire doors are mainly used in shopping centers, multi-storey garages, warehouses and other industrial facilities.

Table 1. Technical data for two types of TLB gates covered by this EPD

Technical parameters	Product type	
	TLB EI60	TLB EI120
Construction of the products	single leaf sliding gate, double leaf sliding gate single leaf telescopic sliding gate double leaf telescopic sliding gate	single leaf sliding gate,
Passage doors	yes	-
Fire resistance	EI60	EI120
Ability to release	Released	Released
Self-closing	C	C
Durability of the ability to release	Release maintained	Release maintained
Durability of self-closing against degradation (cycling test)	Category of use 3 (50 000 cycles)	Category of use 3 (50 000 cycles)
Durability of self-closing against ageing (corrosion)	Achieved	Achieved
Release of dangerous substances	Pass	Pass
Mechanical resistance and stability	Pass	Pass
Operating forces	Pass	Pass
Dimension* [mm] W: width h: height t: thickness * *Example range of gate sizes*	**single leaf sliding gate** W: 722 - 9260 mm H: 2237 – 7648 mm T: 93 mm **double leaf sliding gate** W: 722 – 8160 mm H: 2237 – 8146 mm T: 93 mm **telescopic sliding gate** W: 722 – 8160 mm H: 2237 – 8146 mm T: 93 mm	**single leaf sliding gate** W: max. 6570 mm H: max. 6990 mm T: 93 mm

LIFE CYCLE ASSESSMENT (LCA) – general rules applied

Unit

The declaration refers to the functional unit of 1 piece of TLB gate. The declared unit is 1 steel gate product including 1-leaf gate and for 2-leaf gate (types: TLB 60 and TLB 120).

System boundary

Type of the EPD is: cradle to gate - with options. The following life cycle stages were considered. Production stage including: A1 – Raw material extraction and processing, A2 – Transport to the manufacturer and A3 – Manufacturing. End-of-life stage: C1- Deconstruction, C2 – Transport to waste processing, C3 – Waste processing, C4 – Disposal (landfill). This includes provision of all materials, products and energy, packaging processing and its transport, as well as waste processing up to the end-of waste state or disposal of final residues. EPD includes D module- declaration of all benefits and loads beyond product system. Energy and water consumption, emissions as well as information on generated wastes were inventoried and were included. It can be assumed that the

total sum of omitted processes does not exceed 5% of all impact categories. In accordance with EN 15804+A2, machines and facilities (capital goods) required for the production as well as transportation of employees were not included in LCA.

Allocation

The allocation rules used for this EPD are based on general ITB's document PCR A (EN 15804+A2). The total average product mass recipe per unit was used for the calculations based on input materials mass divided by the number of specific door products. The input substances ranges are average values and the composition of specific products complying with the EPD can deviate from these concentration levels in individual cases. In the case of a specific specification of the effects of a particular product, it is necessary to contact the manufacturer.

System limits

All raw materials submitted for the formulations and production data were taken into consideration. In the assessment, all available data from production have been considered, i.e. all raw materials/elements used as per formulation process, utilized thermal energy for heating, and electric power consumption. Thus, material and energy flows contributing less than 1 % of mass or energy have been considered. It can be assumed that the total sum of neglected processes does not exceed 1 % of energy usage and mass per modules. Machines and facilities required during production are neglected. The production of etiquettes was not considered.

Modules A1 and A2: *Raw materials supply and transport*

The modules A1 and A2 represent the extraction and processing of raw materials and components and transport to the production sites (including steel, steel elements, glass, mineral wool, gypsum boards and minor plastics). For A2 module (transport) European averages for fuel data are applied. All distances and types of vehicles for all input products were declared by manufacturer and considered. Data on mode of transport and distances, as reported by suppliers were used for those materials and parts contributing more than 0.5 % of total product mass.

Module A3: *Production*

The manufacturing process occurs in two factories ASSA ABLOY Mercor Doors in Dobrzeń Wielki and Bielsk in Poland. The door production process is composed of: input material delivery, cutting profiles and sheets, drilling, welding, grinding, bonding, washing, powder painting, fitting accessories. The product specific manufacturing process line is presented in Figure 1. Electricity is consumed in the mixture process and gas for plant space heating purposes. Production Process meets the requirements of the Environmental Management System ISO14001. Finished TLB doors are placed on wooden pallets and banded to pallet for shipment.

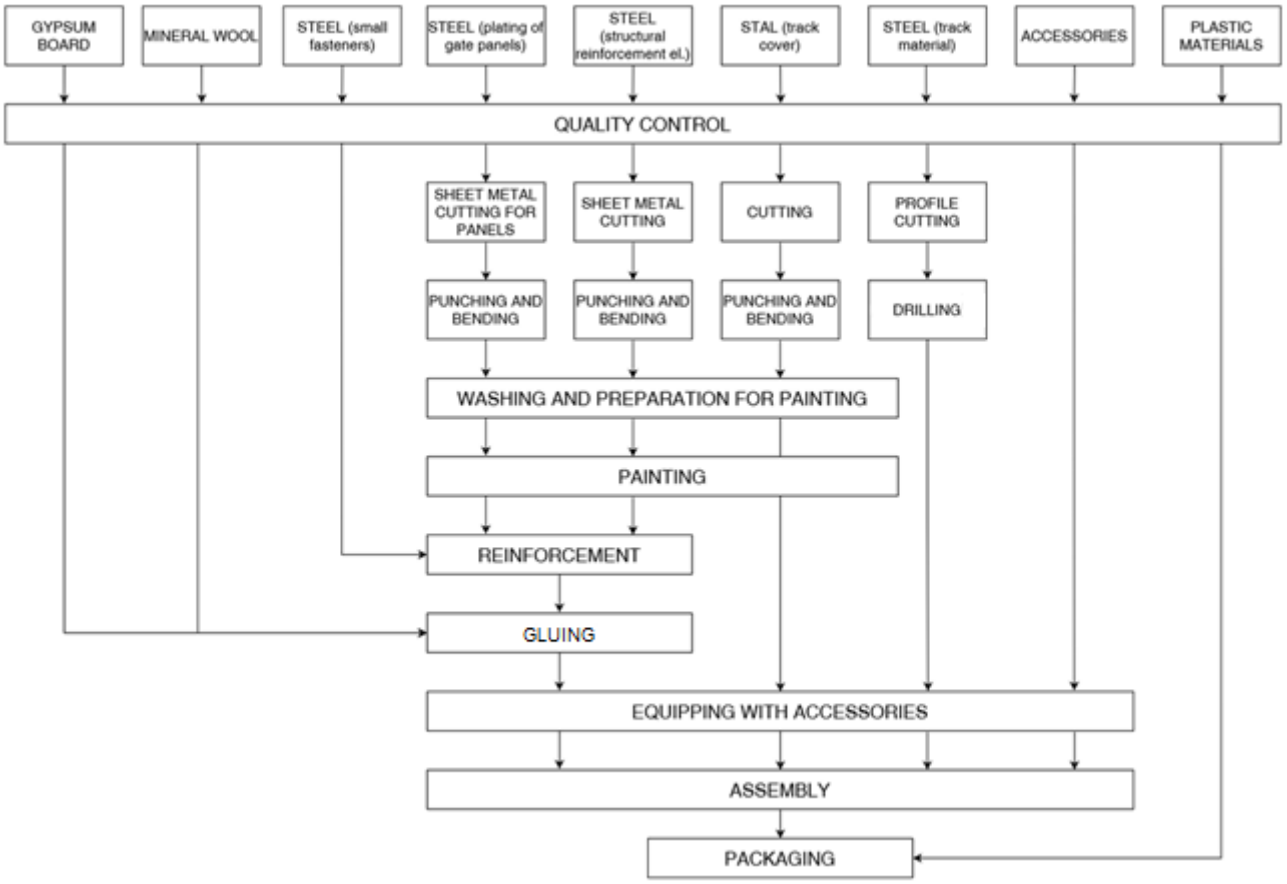


Fig. 1. A basic scheme of steel doors manufacturing process

Modules *C and D: End-of-life (EOL)*

The product (at the end of life in building) is to be removed form a building using electrical tools. The End of Life scenario is based on a material split and respective recycling rates (Table 2). In the applied scenario, the steel parts (98%) are assumed mainly to be recycled, plastics are incinerated (95%), and stone wool landfilled (97%). The all other remaining parts (other than steel) are in 70% landfilled. The energy required for treatment of recycled materials is included. In the adapted end-of-life scenario, the de-constructed products are transported to recycling plant 200 km on > 16t lorry EURO 5. The recycling potentials of materials is presented in table 2. Module D presents credits resulting from the recycling (packaging), energy recovered (plastic incineration) and steel scrap use in a new steel production process. Regarding incineration, model for the waste incineration is adapted according to the material composition and heating value of the plastic material. The reuse, recovery and recycling stage is considered beyond the system boundaries (D). Net scrap is an amount of steel recycled at end-of-life minus scrap input from previous product life cycles. Each scenario assumes that rate % of the material is sent to that scenario (Table 2).

Table 2. End-of-life scenario for the product components.

Material	Recycling %	Landfilling %	Energy recovery %
Steel (and steel elements)	98	2	10
Plastics	0	5	95
Gypsum Boards	80	20	0
Wool	3	97%	0

Other	70	20%	10

Regarding the recycling material of metals, the metal parts in the EoL are declared as end-of-waste status. Electricity at end-of-life (module C) has been modelled. Electricity at end-of-life (module D) has been modelled using an average EU-27 electricity mix as the location where the product reaches end-of-life is unknown.

Data collection period

The data for manufacture of the declared products refer to period between 01.01.2022 – 31.12.2022 (1 year). The life cycle assessments were prepared for Italy and Europe as reference area.

Data quality

The data selected for LCA originate from ITB-LCI questionnaire completed by producer and verified via data audit. No data collected is older than five years and no generic datasets used are older than ten years. The representativeness, completeness, reliability, and consistency is judged as good. The background data for the processes come from the following resources database Ecoinvent v.3.9 (energy carriers, plastics, steel, mineral wool, gypsum boards, waste treatment, incineration, and packaging) and specific EPDs (steel accessories, fire glass). The background data for energy is national based on KOBiZE/GUS reports (Polish electricity mix and combustion factors for fuels). Specific (LCI) data quality analysis was a part of the input data verification. Where no background data was available, data gaps were complemented by literature research.

Assumptions and estimates

The impacts of the representative door products were aggregated using mass averaged approach per unit.

Calculation rules

LCA was performed using ITB-LCA tool developed in accordance with EN15804+A2. Emission of greenhouse gases was calculated using the IPCC GWP method with a 100-year horizon. Emission of acidifying substances, Emission of substances to water contributing to oxygen depletion, Emission of gases that contribute to the creation of ground-level ozone, Abiotic depletion, and ozone depletion emissions where all calculated with the CML-IA baseline method

Additional information

Polish electricity mix used (production) is 0.704 kg CO_2/kWh (KOBiZE 2021). European electricity mix used is 0.430kg CO_2/kWh for the end of life (Ecoinvent v3.9, RER). As a general rule, no particular environmental or health protection measures other than those specified by law are necessary. There is no harmful emissive potential. No damage to health or impairment is expected under normal use corresponding to the intended use of the product. The EPD does not give information on release of dangerous substances to indoor air because the horizontal standards on measurement of release of regulated dangerous substances from construction products using harmonised test methods according to the provisions of the respective technical committees for European product standards are not available.

On the basis of data obtained from suppliers, it is declared that use of recycled content in door elements is as presented in Table 3.

Table 3. Recycled content in door production materials

Material	Post-consumer Recycled content	Pre-consumer recycled content
Mineral wool	Min. 20%	-
Sheet (steel)	63.5%	37.4%
Other steel	20.0%	
Gybsum Boards	10.0%	

LIFE CYCLE ASSESSMENT (LCA) – Results

Declared unit

The declaration refers to declared unit (DU) – 1 unit (steel doors). The following life cycle modules (table 4) were included in the analysis. The following tables 5-16 present the environmental impacts of the life cycle of selected door types (TLB 60 and TLB1 20). In the case of double-leaf doors, the results from the table should be multiplied by the conversion factor 1.8.

Table 4. System boundaries for the environmental characteristic included in LCA

Environmental assessment information (MD – Module Declared, MND – Module Not Declared, INA – Indicator Not Assessed)															
Product stage			Construction process		Use stage							End of life				Benefits and loads beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport to construction site	Construction-installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction 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**
MD	**MD**	**MD**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MD**	**MND**	**MD**	**MD**	**MD**	**MD**	**MD**

Table 5. Life cycle assessment (LCA) results of the steel door type TLB60 - environmental impacts (DU: 1 unit)

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Global Warming Potential	eq. kg CO_2	1.02E+03	2.69E+01	6.69E+01	1.11E+03	7.04E-02	1.58E+01	2.63E+01	3.06E+00	-1.73E+02
Greenhouse potential - fossil	eq. kg CO_2	1.01E+03	2.68E+01	6.69E+01	1.10E+03	7.04E-02	1.57E+01	2.66E+01	3.03E+00	-1.74E+02
Greenhouse potential - biogenic	eq. kg CO_2	5.10E+00	9.15E-02	1.91E+00	7.10E+00	2.00E-03	5.37E-02	5.41E-06	2.99E-02	1.18E+00
Global warming potential - land use and land use change	eq. kg CO_2	5.59E-01	1.05E-02	2.28E-02	5.92E-01	2.40E-05	6.17E-03	6.94E-06	3.06E-03	4.88E-02
Stratospheric ozone depletion potential	eq. kg CFC 11	3.70E-05	6.19E-06	2.09E-06	4.53E-05	1.40E-09	3.64E-06	2.75E-08	9.29E-07	-3.34E-06
Soil and water acidification potential	eq. mol H+	4.52E+00	1.09E-01	7.22E-01	5.36E+00	7.60E-04	6.38E-02	5.93E-01	2.56E-02	-5.35E-01
Eutrophication potential - freshwater	eq. kg P	4.66E-01	1.80E-03	1.23E-01	5.90E-01	1.30E-04	1.06E-03	6.46E-06	8.63E-04	-8.27E-02
Eutrophication potential - seawater	eq. kg N	9.85E-01	3.28E-02	1.07E-01	1.12E+00	1.10E-04	1.93E-02	2.98E-01	8.84E-03	-1.24E-01
Eutrophication potential - terrestrial	eq. mol N	1.01E+01	3.58E-01	8.84E-01	1.13E+01	9.30E-04	2.10E-01	3.27E+00	9.61E-02	-1.43E+00
Potential for photochemical ozone synthesis	eq. kg NMVOC	4.43E+00	1.10E-01	2.48E-01	4.79E+00	2.60E-04	6.43E-02	8.08E-01	2.78E-02	-9.41E-01
Potential for depletion of abiotic resources - non-fossil resources	eq. kg Sb	1.09E-02	9.49E-05	3.16E-04	1.13E-02	3.34E-07	5.57E-05	1.02E-07	1.02E-05	3.21E-03
Abiotic depletion potential - fossil fuels	MJ	7.65E+03	3.97E+02	1.14E+03	9.19E+03	1.16E+00	2.33E+02	5.00E-01	7.02E+01	-1.32E+03
Water deprivation potential	eq. m^3	3.41E+02	1.84E+00	2.32E+01	3.66E+02	2.40E-02	1.08E+00	4.80E-01	4.02E-01	-1.88E+01

Table 6. Life cycle assessment (LCA) results of the steel door type TLB60– additional impacts indicators (DU: 1 unit)

Indicator	Unit	A1-A3	C1-C4	D
Particulate matter	disease incidence	INA	INA	INA
Potential human exposure efficiency relative to U235	eg. kBq U235	INA	INA	INA
Potential comparative toxic unit for ecosystems	CTUe	INA	INA	INA
Potential comparative toxic unit for humans (cancer effects)	CTUh	INA	INA	INA
Potential comparative toxic unit for humans (non-cancer effects)	CTUh	INA	INA	INA
Potential soil quality index	dimensionless	INA	INA	INA

Table 7. Life cycle assessment (LCA) results of the steel door type TLB 60- the resource use (DU: 1 unit)

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Consumption of renewable primary energy - excluding renewable primary energy sources used as raw materials	MJ	INA	INA	INA	INA	INA	INA	INA	INA	INA
Consumption of renewable primary energy resources used as raw materials	MJ	INA	INA	INA	INA	INA	INA	INA	INA	INA
Total consumption of renewable primary energy resources	MJ	1.08E+03	5.70E+00	8.12E+01	1.16E+03	8.60E-02	3.35E+00	7.75E-03	1.21E+00	-7.80E+01
Consumption of non-renewable primary energy - excluding renewable primary energy sources used as raw materials	MJ	INA	INA	INA	INA	INA	INA	INA	INA	INA
Consumption of non-renewable primary energy resources used as raw materials	MJ	INA	INA	INA	INA	INA	INA	INA	INA	INA
Total consumption of non-renewable primary energy resources	MJ	1.09E+04	3.97E+02	1.15E+03	1.25E+04	1.16E+00	2.33E+02	5.00E-01	7.58E+01	-1.25E+03
Consumption of secondary materials	kg	1.90E+02	1.33E-01	1.02E-01	1.90E+02	1.06E-04	7.82E-02	6.63E-05	4.55E-04	7.57E+00
Consumption of renew. secondary fuels	MJ	4.31E-01	1.47E-03	5.62E-04	4.33E-01	5.91E-07	8.62E-04	1.73E-06	1.19E-05	-1.19E-02
Consumption of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	8.84E-01	8.84E-01	9.39E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net consumption of freshwater	m^3	5.56E+00	5.00E-02	4.24E-01	6.03E+00	3.15E-04	2.94E-02	4.08E-03	1.30E-02	-1.21E+00

Table 8. Life cycle assessment (LCA) results of the steel door type TLB 60– waste categories (DU: 1 unit)

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Hazardous waste	kg	3.02E-02	4.46E-01	2.21E-02	4.98E-01	1.20E-05	2.62E-01	1.02E-02	2.41E-03	2.23E+00
Non-hazardous waste	kg	1.20E+00	7.91E+00	7.30E-01	9.84E+00	6.24E-04	4.65E+00	2.75E-02	2.81E+02	1.09E+02
Radioactive waste	kg	1.99E-02	2.97E-05	1.14E-03	2.11E-02	8.70E-07	1.74E-05	2.04E-08	4.28E-04	3.32E-03
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	0.00E+00	0.00E+00
Materials for recycling	kg	7.48E-02	1.23E-03	1.45E-01	2.21E-01	1.20E-06	7.22E-04	8.16E-07	4.33E-06	1.41E-02
Materials for energy recovery	kg	4.07E-03	9.95E-06	9.99E-06	4.09E-03	1.05E-08	5.84E-06	1.00E-07	5.13E-08	1.96E-03
Exported Energy	MJ	1.84E+01	0.00E+00	3.29E+00	2.17E+01	3.46E-03	0.00E+00	1.63E-04	0.00E+00	2.66E+00

Table 9. Life cycle assessment (LCA) results of the steel door type TLB 120- environmental impacts (DU: 1 unit)

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Global Warming Potential	eq. kg CO_2	9.77E+02	5.74E+01	6.49E+01	1.10E+03	7.04E-02	3.46E+01	5.03E+01	1.12E+00	-3.53E+02
Greenhouse potential - fossil	eq. kg CO_2	9.71E+02	5.72E+01	6.48E+01	1.09E+03	7.04E-02	3.45E+01	5.09E+01	1.11E+00	-3.54E+02
Greenhouse potential - biogenic	eq. kg CO_2	5.81E+00	1.95E-01	1.75E+00	7.76E+00	2.00E-03	1.18E-01	1.03E-05	1.06E-02	2.14E+00
Global warming potential - land use and land use change	eq. kg CO_2	5.66E-01	2.24E-02	2.10E-02	6.09E-01	2.40E-05	1.35E-02	1.33E-05	1.12E-03	7.31E-02
Stratospheric ozone depletion potential	eq. kg CFC 11	5.82E-05	1.32E-05	2.34E-06	7.37E-05	1.40E-09	7.98E-06	5.27E-08	3.45E-07	-8.01E-06
Soil and water acidification potential	eq. mol H+	4.61E+00	2.32E-01	6.64E-01	5.51E+00	7.60E-04	1.40E-01	1.13E+00	9.43E-03	-1.14E+00
Eutrophication potential - freshwater	eq. kg P	4.28E-01	3.84E-03	1.12E-01	5.44E-01	1.30E-04	2.32E-03	1.24E-05	3.06E-04	-1.65E-01
Eutrophication potential - seawater	eq. kg N	9.74E-01	7.01E-02	9.86E-02	1.14E+00	1.10E-04	4.22E-02	5.71E-01	3.25E-03	-2.63E-01
Eutrophication potential - terrestrial	eq. mol N	9.69E+00	7.64E-01	8.16E-01	1.13E+01	9.30E-04	4.61E-01	6.26E+00	3.54E-02	-2.99E+00
Potential for photochemical ozone synthesis	eq. kg NMVOC	8.95E+00	2.34E-01	2.31E-01	9.41E+00	2.60E-04	1.41E-01	1.55E+00	1.03E-02	-1.89E+00
Potential for depletion of abiotic resources - non-fossil resources	eq. kg Sb	1.33E-02	2.03E-04	2.91E-04	1.38E-02	3.34E-07	1.22E-04	1.95E-07	3.67E-06	3.88E-03
Abiotic depletion potential - fossil fuels	MJ	1.08E+04	8.49E+02	1.10E+03	1.28E+04	1.16E+00	5.12E+02	9.57E-01	2.59E+01	-2.74E+03
Water deprivation potential	eq. m^3	3.76E+02	3.92E+00	2.13E+01	4.02E+02	2.40E-02	2.37E+00	9.18E-01	1.45E-01	-4.17E+01

Table 10. Life cycle assessment (LCA) results of the steel door type TLB 120– additional impacts indicators (DU: 1 unit)

Indicator	Unit	A1-A3	C1-C4	D
Particulate matter	disease incidence	INA	INA	INA
Potential human exposure efficiency relative to U235	eg. kBq U235	INA	INA	INA
Potential comparative toxic unit for ecosystems	CTUe	INA	INA	INA
Potential comparative toxic unit for humans (cancer effects)	CTUh	INA	INA	INA
Potential comparative toxic unit for humans (non-cancer effects)	CTUh	INA	INA	INA
Potential soil quality index	dimensionless	INA	INA	INA

Table 11. Life cycle assessment (LCA) results of the steel door type TLB 120 the resource use (DU: 1 unit)

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Consumption of renewable primary energy - excluding renewable primary energy sources used as raw materials	MJ	INA	INA	INA	INA	INA	INA	INA	INA	INA
Consumption of renewable primary energy resources used as raw materials	MJ	INA	INA	INA	INA	INA	INA	INA	INA	INA
Total consumption of renewable primary energy resources	MJ	1.03E+03	1.22E+01	7.43E+01	1.11E+03	8.60E-02	7.34E+00	1.48E-02	4.36E-01	-1.77E+02
Consumption of non-renewable primary energy - excluding renewable primary energy sources used as raw materials	MJ	INA	INA	INA	INA	INA	INA	INA	INA	INA
Consumption of non-renewable primary energy resources used as raw materials	MJ	INA	INA	INA	INA	INA	INA	INA	INA	INA
Total consumption of non-renewable primary energy resources	MJ	1.20E+04	8.49E+02	1.11E+03	1.39E+04	1.16E+00	5.12E+02	9.57E-01	2.79E+01	-2.61E+03
Consumption of secondary materials	kg	1.10E+02	2.85E-01	9.77E-02	1.10E+02	1.06E-04	1.71E-01	1.27E-04	4.55E-04	2.65E+00
Consumption of renew. secondary fuels	MJ	4.84E-01	3.14E-03	5.23E-04	4.88E-01	5.91E-07	1.89E-03	3.32E-06	1.19E-05	-3.14E-02
Consumption of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	8.08E-01	8.08E-01	9.39E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net consumption of freshwater	m^3	7.79E+00	1.07E-01	3.99E-01	8.30E+00	3.15E-04	6.44E-02	7.81E-03	6.08E-03	-2.47E+00

Table 12. Life cycle assessment (LCA) results of the steel door type TLB120– waste categories (DU: 1 unit)

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Hazardous waste	kg	3.38E-02	9.52E-01	2.12E-02	3.47E+01	1.20E-05	5.74E-01	1.95E-02	2.34E-03	-3.73E+00
Non-hazardous waste	kg	1.49E+00	1.69E+01	7.06E-01	1.51E+03	6.24E-04	1.02E+01	5.27E-02	9.81E+01	-1.89E+02
Radioactive waste	kg	2.38E-02	6.34E-05	1.08E-03	2.50E-02	8.70E-07	3.82E-05	3.90E-08	1.59E-04	-6.45E-03
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	0.00E+00	0.00E+00
Materials for recycling	kg	7.30E-02	2.63E-03	1.45E-01	2.20E-01	1.20E-06	1.58E-03	1.56E-06	4.33E-06	-2.29E-02
Materials for energy recovery	kg	3.56E-03	2.13E-05	9.51E-06	3.59E-03	1.05E-08	1.28E-05	1.91E-07	5.13E-08	-3.18E-03
Exported Energy	MJ	2.07E+01	0.00E+00	3.03E+00	2.37E+01	3.46E-03	0.00E+00	3.12E-04	0.00E+00	-4.34E+00

Verification

The process of verification of this EPD is in accordance with ISO 14025 and ISO 21930. After verification, this EPD is valid for a 5-year-period. EPD does not have to be recalculated after 5 years, if the underlying data have not changed significantly.

The basis for LCA analysis was EN 15804 and ITB PCR A
Independent verification corresponding to ISO 14025 (sub clause 8.1.3.) ☒ external ☐ internal
External verification of EPD: Halina Prejzner, PhD. Eng. LCA, LCI audit and input data verification: Michał Piasecki, PhD., D.Sc., Eng.

Note: The declaration owner has the sole ownership, liability, and responsibility for the declaration. Declarations of construction products may not be comparable if they do not comply with EN 15804. For further information about comparability, see EN 15804 and ISO 14025.

Normative references

- ITB PCR A General Product Category Rules for Construction Products
- EN 16034-1 Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware. Fire resistance test for door and shutter assemblies and openable windows.
- EN 13241-1:2003+A1:2011 Industrial, commercial and garage doors and gates - Product standard Part 1: Products without fire resistance or smoke control characteristics/
- EN 14351-1+A1:2010 Windows and doors. Product standard, performance characteristics. Windows and external pedestrian doorsets without resistance to fire and/or smoke leakage characteristics.
- ISO 14025:2006, Environmental labels and declarations – Type III environmental declarations – Principles and procedures
- ISO 21930:2017 Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services
- ISO 14044:2006 Environmental management – Life cycle assessment – Requirements and guidelines
- ISO 15686-1:2011 Buildings and constructed assets – Service life planning – Part 1: General principles and framework
- ISO 15686-8:2008 Buildings and constructed assets – Service life planning – Part 8: Reference service life and service-life estimation
- EN 15804:2012+A2:2019 Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products
- ISO 14067:2018 Greenhouse gases — Carbon footprint of products — Requirements and guidelines for quantification
- PN-EN 15942:2012 Sustainability of construction works – Environmental product declarations – Communication format business-to-business

Signature Not Verified
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Instytut Techniki Budowlanej

Instytut Techniki Budowlanej

00-611 Warsaw, Filtrowa 1

Thermal Physics, Acoustics and Environment Department

02-656 Warsaw, Ksawerów 21

CERTIFICATE № 588/2024
of TYPE III ENVIRONMENTAL DECLARATION

Products:

TLB Gates
(type TLB60 and TLB120)

Manufacturer:

ASSA ABLOY Mercor Doors

ul. Arkońska 6 bud. A2, 80-387 Gdańsk, Poland

confirms the correctness of the data included in the development of
Type III Environmental Declaration and accordance with the requirements of the standard

EN 15804+A2

Sustainability of construction works.
Environmental product declarations.
Core rules for the product category of construction products.

This certificate, issued on 8th January 2024 is valid for 5 years
or until amendment of mentioned Environmental Declaration

Head of the Thermal Physic, Acoustics and Environment Department

Agnieszka Winkler-Skalna, PhD

INSTYTUT TECHNIKI BUDOWLANEJ

Deputy Director for Research and Innovation

Krzysztof Kuczyński, PhD

Warsaw, January 2024