ENVIRONMENTAL PRODUCT DECLARATION

as per *ISO 14025* and *EN 15804+A2*

Owner of the Declaration	DYNACO Europe NV
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-DYN-20250520-IBA-EN
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Valid to	29.01.2031

Dynaco D-313 High Performance Door

DYNACO Europe NV

Institut Bauen und Umwelt e.V.

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1. General Information

DYNACO Europe NV

Programme holder

IBU – Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

Declaration number

EPD-DYN-20250520-IBA-EN

This declaration is based on the product category rules:

Automatic doors, automatic gates, and revolving door systems, 01.08.2021
(PCR checked and approved by the SVR)

Issue date

30.01.2026

Valid to

29.01.2031

Dipl.-Ing. Hans Peters
(Chairman of Institut Bauen und Umwelt e.V.)

Florian Pronold
(Managing Director Institut Bauen und Umwelt e.V.)

Dynaco D-313 High Performance Door

Owner of the declaration

DYNACO Europe NV
Waverstraat 21
9310 Moorsel
Belgium

Declared product / declared unit

This declaration represents 1 High Speed Roll Up door DYNACO D-313 with electrical operation, 2500mm width and 3000mm height, consisting of a galvanized steel structure and a roll-up curtain in PVC coated polyester textile.

Scope:

This declaration and its LCA study are relevant to the DYNACO D-313 series of high performance doors.

- D-313 LF (Low Friction): standard door
- D-313 CR LF (Clean Room Low Friction): version with improved air tightness for Clean Rooms

The production location is Moorsel, Belgium and components are sourced from international tier one suppliers. DYNACO D-313 high performance door size will vary according to project requirements; a standard door of 2500mm width and 3000mm height is used in this declaration.

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

The EPD was created according to the specifications of EN 15804+A2. In the following, the standard will be simplified as *EN 15804*.

Verification

The standard EN 15804 serves as the core PCR
Independent verification of the declaration and data according to ISO 14025:2011
☐ internally ☒ externally

Dr.-Ing. Wolfram Trinius,
(Independent verifier)

2. Product

2.1 Product description/Product definition

Product name: DYNACO D-313 high-performance door

The Dynaco D-313 high-speed roll-up door with compact dimensions and an aesthetic design fits in places where space is limited. Even in a showroom or shop.

Its motor is incorporated in the drum, giving a symmetrical appearance and minimizing the door width. Combined with drum and side guide covers in aluminium colour or a colour of your choice, this results into a stunning appearance.

The flexible PVC door curtain of the high-speed roll-up door can be printed with pictures of your products or promotions, improving the shopping experience of your customers.

Free of any rigid elements in the curtain, this high-speed door is intrinsically safe.
Thanks to its fast cycle and tight seal, the roll up door enables energy savings, smooth traffic flows and improved employee comfort.

The fast opening and closing speed improve traffic flow, provides employee comfort, and saves energy. The superior sealing technology protects areas against drafts, humidity, dust, and dirt.

Features that make the door safe are a soft bottom profile, photocells and automatic release of the curtain from side guides if crashed into. The curtain reintroduces itself after a crash to reduce downtime and maintenance.

Safe for personnel and equipment: the flexible curtain without any rigid elements avoids injuries and damage.

The door has 3 primary parts:

1. Top roll with door curtain
2. Side frames
3. Control system with drive system

The DYNACO D-313 high-performance door has been designed to meet all operational and safety requirements in the European Directives and the standards issued by *the European Standardization Committee (CEN*).

For the placing on the market in the European Union/European Free Trade Association (EU/EFTA) (excluding Switzerland), Switzerland and Turkey the Construction Products Regulation *(CPR) (EU) No 305/2011* applies. The products need a Declaration of Performance and CE marking under consideration of the Construction Products Regulation and the harmonized standard *EN 13241:2003+A2:2016* Industrial, commercial, garage doors and gates — Product standard — Part 1: performance characteristics. Products without fire resistance or smoke control characteristics.

Harmonized European standards and associated updated editions, which have been applied:

EN 13241:2003+A2:2016
Industrial, commercial, garage doors and gates - Product standard, performance characteristics

EN 12604:2017+A1:2020
Industrial, commercial, and garage doors and gates - Mechanical aspects - Requirements and test methods

EN 12453:2017+A1:2022
Industrial, commercial, and garage doors and gates - Safety in use of power operated doors - Requirements and test methods

EN 12978:2003+A1:2009
Industrial, commercial, and garage doors and gates - Safety devices for power operated doors and gates - Requirements and test methods

EN 61000-6-2: 2019
Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity standard for industrial environments

EN 61000-6-3: 2021
Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for equipment in residential environments

EN 60335-1:2012+A11:2014+A13:2017+A14:2019+A15:2021+A1:2019+A2:2019
Household and similar electrical appliances - Safety - Part 1: General requirements

EN 60335-2-103: 2015
Household and similar electrical appliances - Safety - Part 2-103: Particular requirements for drives for gates, doors, and windows

Disposal of the product is subject to the *Waste from Electrical and Electronic Equipment* (WEEE) Directive within Europe, *Directive 2012/19/EU*

Other standards or technical specifications, which have been applied:

2006/42/EC Machinery Directive (MD)
2014/30/EU Electromagnetic Compatibility Directive (EMCD)
2014/35/EU Low Voltage Directive (LVD)
2011/65/EU Restriction of Hazardous Substances (RoHS)
2015/863/EU Restriction of Hazardous Substances (RoHS)

UKSI 2008 No.1597 Supply of Machinery (Safety) Regulations 2008
UKSI 2016 No.1091 Electromagnetic Compatibility Regulations 2016
UKSI 2012 No.3032 The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment
UKSI 2016 No.1101 Electrical Equipment (Safety) Regulations 2016
Regulations 2012 (RoHS)

For the application and use, the respective national provisions apply.

2.2 Application

The DYNACO D-313 high-performance door is suitable for all types of buildings, with regard to both function and appearance. It has a modern, clean design and meets high air tightness demands. Space-saving design makes it possible to install this door in almost every type of building in even the tightest spaces.

2.3 Technical Data

The technical properties of the DYNACO D-313 high performance door are as listed below:

- Max size: (W x H): 4000 x 4000 [mm]
- Structure: Galvanised Steel
- Material sidepost covers and top roll covers: Glass fiber reinforced Polyester
- Material lateral top roll covers: PC/ABS
- Material curtain: Technical textile 900 gr/m²: Polyester fibers with PVC coating
- Thickness curtain: 0.8 [mm]
- Optional: fire retardant curtain: B-S2-d0
- Optional: Windows PVC Window or PVC Mesh
- Optional: structure in Stainless Steel 304 or 316
- Cleanroom version: Additional sealing elements in EPDM[1], PE[2] and POM[3]
- Safety devices: Stationary photocell, Bottom edge detection and Soft bottom edge
- Motor Power: 0.75 [kW]
- Electrical operation: Dynalogic 4 controller with frequency inverter, display and brake resistor
- Opening/ closing speed Opening: max 2.7 [m/s] Closing: 0.5 [m/s]
- Power input "Operation": 262 [W]
- Power input "Standby": 10 [W]

[1]Ethylene Propylene Diene M-class
[2]Polyethylene
[3]Polyoxymethylene

Detailed information on specifications, options and accessories is available on www.dynacodoor.com.

Performance according *EN13241-1* standards

Constructional data (D-313 LF)

Name	Value	Unit
Water permeability acc. to EN 12425, EN 12489	Class 3	
Wind Load acc. to EN 12424, EN 12444	Class 1	
Air permeability acc. to EN 12426, EN 12427	Class 1*	
Safe openings acc. to EN 12453, EN 12445	Pass	
Mechanical resistance acc. to EN 12604, EN 12605	Pass	
Unintended movements acc.to EN 12604, EN 12605	Pass	
Curtain thermal transmittance acc. to EN 12428	6.02	W/m²K
Durability	1.000.000	cycles

*D-313 Clean Room LF (Low Friction):
Class 4 (overpressure)
Class 3 (underpressure)
Class 3 (underpressure)

2.4 Delivery status

DYNACO D-313 high-performance door units are delivered in pre-assembled parts ready for installation.

2.5 Base materials/Ancillary materials

The average composition for DYNACO D-313 high performance door is as following:

Name	Value	Unit
Aluminium	0.80	%
Brass	0.15	%
Copper	0.04	%
Electro_mechanics	11.32	%
Electronic	0.76	%
Others	0.35	%
Plastics	38.75	%
Stainless steel	0.15	%
Steel	47.68	%
Total	100.0	%

[percentage in mass]

2.6 Manufacture

The final manufacturing processes occur at the factory in Moorsel, Belgium. The factory has environmental management systems certified according to *ISO 14001*.

Doors are made-to-measure for customer orders. For the side structure, metal and plastic profiles are cut to length and assembled together with stud welding and fasteners. The rolling drum is made by cutting a tube profile to length and fitting it with a motor and axles. The header structure is assembled around the rolling drum. The curtain material is cut to size and panels are joined together with hot air welding. Some smaller parts are attached with glue.

The curtain is rolled into the header structure and the door, with all covers and accessories, is packed onto a pallet and covered with a sturdy cardboard/wood fiber board structure. Offcuts, scraps and waste packaging material generated during the manufacturing process are separated for recycling.

Industrial Waste is sent for disposal and recycling. Waste codes according to the *European Waste Catalogue and Hazardous Waste List* - Valid from 1 July 2015.

EWC 15 01 01 Paper and cardboard packaging
EWC 15 01 02 Plastic packaging
EWC 15 01 03 Wooden packaging
EWC 17 02 01 Wood
EWC 17 02 03 Plastic
EWC 17 04 01 Copper, bronze, brass
EWC 17 04 02 Aluminium
EWC 17 04 05 Iron and steel
EWC 17 04 11 Cables with the exception of those outlined in *EWC 17 04 10*

2.7 Environment and health during manufacturing

Dynaco Europe NV is committed to producing and distributing door opening solutions with minimal environmental impact, where health & safety are the primary focus for all employees and associates.

Environmental operations, Greenhouse gases, energy, water, waste and Health & Safety are being routinely monitored. Inspections, audits, and reviews are conducted periodically to ensure that applicable standards are met and environment management program (effectiveness) is evaluated.

Code of Conduct covers human rights, labour practices and decent work. Management of Dynaco Europe NV is aware of their roles and responsibilities, providing appropriate training, supporting accountability and recognizing outstanding performance.

Any waste metals, plastics and packaging materials generated

during manufacturing are separated and recycled.

2.8 Product processing/Installation

The DYNACO D-313 high-performance door is shipped to site in pre-assembled components (header with top roll with door curtain, side frames and control unit). The components are assembled using simple tools, including drills and hand tools. The installation is performed by trained and qualified installation technicians.

2.9 Packaging

Packaging exists for the purpose of protection during transportation. DYNACO D-313 high-performance door components are packaged on wooden pallets with wood particle boards and corrugated cardboard. All of these packaging components are standard industry types. The cardboard and wood are recyclable.

Packaging material is as following *[in mass percentage]*:

- Paper: 20.18%
- Wood: 79.82%
- **Total: 100.0%**

All materials incurred during installation can be collected for recycling. Waste codes according to the *European Waste Catalogue and Hazardous Waste List* - Valid from 1 July 2015.

EWC 15 01 01 Paper and cardboard packaging
EWC 15 01 03 Wooden packaging

2.10 Condition of use

Regular inspections by a trained and qualified person are recommended with a minimum of one visit per every six months or 50.000 cycles.
Examinations on a 3-months period by the user of the high performance door:

1. Clean the door leaf with a soft clean brush and mild detergent
2. If damage is found, contact the local service center for advice

2.11 Environment and health during use

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.

2.12 Reference service life

The product has a reference service life of more than 1.000.000 cycles or 10 years standard daily use with the recommended maintenance and service program.

For this EPD a lifetime of 10 years was considered.

2.13 Extraordinary effects

Fire
Standard curtain material:
Burning behavior < 100 mm/min according to *ISO 3795 1989*

Option Fire retardant curtain:
B-S2-d0 according to *EN 13501-1*

Water
Contains no substances that have any impact on water. In case of a flood, electric operation of the device will be influenced negatively.

Mechanical destruction
No danger to the environment can be anticipated.

2.14 Re-use phase

The product is possible to be re-used during the reference service life and be moved from one opening to another.

All recyclable materials are directed to a recycling unit where they are recycled (brass, copper, electronics, electro-mechanics, stainless steel, steel, and aluminium). On the other hand, the plastic components could be sent to the waste incineration plant for its energy recovery.

Waste codes according to the *European Waste Catalogue and Hazardous Waste List* - Valid from 1 July 2015.

EWC 16 02 14 Used devices with the exception of those outlined in *EWC 16 02 09* to *EWC 16 02 13*
EWC 17 02 03 Plastic
EWC 17 04 01 Copper, bronze, brass
EWC 17 04 02 Aluminium
EWC 17 04 05 Iron and steel
EWC 17 04 11 Cables with the exception of those outlined in *EWC 17 04 10.*

2.15 Disposal

The product can be mechanically disassembled to separate the different materials for recycling. The plastic components could be used for energy recovery in an incineration plant. No disposal is foreseen for the product nor for the corresponding packaging.

2.16 Further information

Dynaco Europe NV
Waverstraat 21
B-9310 Moorsel-Aalst
Belgium
www.dynacodoor.com

3. LCA: Calculation rules

3.1 Declared Unit

The declaration refers to the functional unit of 1 piece of Dynaco D-313 high-performance door as specified in Part B requirements on the EPD IBU: PCR Automatic doors, automatic gates, and revolving door systems (door systems). Functional unit for module B6: Use of 1 piece of Dynaco D-313 high-performance door for 10 years.

Declared unit and mass reference

Name	Value	Unit
Dimensions (WxH)	2500 x 3000	mm
Declared unit	1	pce
Mass (without packaging)	112.48	kg
Mass packaging (paper and wood)	43.85	kg
Mass reference	112.48	kg/pce

3.2 System boundary

Type of the EPD: cradle to grave with module D (A+B+C+D). The following life cycle stages were considered:

Production stage:
- A1 – Raw material extraction and processing
- A2 – Transport to the manufacturer and
- A3 – Manufacturing

Construction stage:
- A4 - Transport from the gate to the site
- A5 – Packaging waste processing

Use stage related to the operation of the building:
- B6 – Operational energy use

End-of-life stage:
- C1 – De-construction/demolition,
- C2 – Transport to waste processing,
- C3 – Waste processing for recycling and
- C4 – Disposal (landfill, waste for incineration).

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.
Benefits and loads beyond the system boundaries:
- D – Declaration of all benefits and loads.

3.3 Estimates and assumptions

Transportation:
Data on the mode of transport and distances, as reported by suppliers were used for those materials and parts contributing more than 2% of the total product mass. In case of unknown transport distances for parts and materials, contributing less than 2% to the total product mass, transport by road over an average distance of 500 km was assumed.

Use stage:
For the use phase, it is assumed that one piece of Dynaco D-313 high-performance door is used in the European Union, thus a European electricity grid mix is considered within this stage. According to the most representative scenario, the operating hours of the product are accounted for 0.85 hours in on-mode and 23.15 hours in standby mode per day (260 days per year in use, 10 years lifetime); the power consumption throughout the whole life cycle is 1432.92 kWh. For the remaining 105 days the product is assumed to stay in standby mode.

EoL:
In the End-of-Life stage, for all the materials from the product which can be recycled (steel, aluminium, zinc, electronic parts, electro-mechanics, copper, stainless steel and brass), a recycling scenario with 100% collection rate was assumed. The plastic components are sent for energy recovery within a waste incineration process. EoL is assumed to happen within EU-28. Furthermore, a transport distance by truck of 100 km has been assumed in the model.

3.4 Cut-off criteria

In the assessment, all available data from the production process are considered, i.e. all raw materials used, auxiliary materials (e.g. lubricants), and electric power consumption - including material and energy flows contributing less than 1% of mass or energy (if available). In case a specific flow contributing less than 1% in mass or energy is not available, worst-case assumption proxies are selected to represent the respective environmental impacts. Impacts relating to the production of machines and facilities required during production are out of the scope of this assessment.

3.5 Background data

For life cycle modelling of the considered product, Sphera's Life Cycle for Expert (LCA FE) software is used. Sphera Managed Lifecycle Content (MLC) modelling database is used as the background database of the study.

3.6 Data quality

The requirements for data quality and background data correspond to the specifications of the IBU PCR Part A. Sphera performed a variety of tests and checks during the entire project to ensure a high quality of the completed project. This obviously includes an extensive review of project-specific LCA models, as well as the background data used. The technological background of the collected data reflects the physical reality of the declared products. The datasets are complete and conform to the system boundaries and the criteria for the exclusion of inputs and outputs. All relevant background datasets are taken from the Sphera MLC database.

3.7 Period under review

The period under review is 2024 (12-month average).

3.8 Geographic Representativeness

Land or region, in which the declared product system is manufactured, used or handled at the end of the product´s lifespan: Europe

3.9 Allocation

Regarding incineration, the software model for the waste incineration plant (WIP) is adapted according to the material composition and heating value of the combusted material. In this EPD, the following specific life cycle inventories for the WIP are considered for:
- Waste incineration of paper
- Waste incineration of plastic
- Waste incineration of wood

Regarding the recycling material of metals, the metal parts in the EoL are declared as end-of-waste status. Thus, these materials are considered in module D. Specific information on allocation within the background data is given in the MLC dataset documentation.

3.10 Comparability

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to *EN 15804* and the building context, respectively the product-specific characteristics of performance, are taken into account. Sphera's Managed LCA Content CUP 2024.2 serves as background database for the calculation.

4. LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon

The following technical information is a basis for the declared modules, or can be used for developing specific scenarios in the context of a building assessment if modules are not declared (MND).

Information on describing the biogenic carbon content at factory gate

Name	Value	Unit
Biogenic carbon content in product	-	kg C
Biogenic carbon content in accompanying packaging	21.31	kg C

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO_2.

Transport to the building site (A4)

Name	Value	Unit
Litres of fuel	27.5	l/100km
Capacity utilisation (including empty runs)	61	%
Transport distance by ship	102	km
Transport distance by truck	984	km

Installation into the building (A5)

Name	Value	Unit
Output substances following waste treatment on site (paper/cardboard packaging)	8.85	kg
Output substances following waste treatment on site (wood packaging)	35	kg

Reference service life

Name	Value	Unit
Life Span according to the manufacturer	10	years

Operational energy use (B6)

Name	Value	Unit
Electricity consumption per RSL (260 days per year during 10 years)	1432.92	kWh
Hours per day in on mode	0.85	h
Hours per day in stand-by mode	23.15	h
Power consumption – on mode	262	W
Power consumption – stand-by mode	10	W

For the remaining days (105 days) the door is in stand-by mode.
*Total energy consumed during the whole product life was calculated using following formula:

((W_active mode*h_active mode + W_idle mode*h_idle mode + W_standby model*h_standby mode) *Days_years operational*Lifespan)+(W_idle mode*h_idle mode* Days_years idle*Lifespan)+ (W_standby mode*h_idle mode* Days_years idle*Lifespan)*0.001

Where:
- W_active mode - Energy consumption in active mode in W
- h_active mode - Operation time in active mode in hours
- W_idle mode - Energy consumption in idle mode in W
- h_idle mode - Operation time in idle mode in hours
- W_standby model – Energy consumption in standby mode in W
- h_standby mode – Operation time in Standby mode in hours
- Lifespan - Reference service life of product
- Days_year operation - Operation days per year
- Days_year idle – Only Idle days per year
- Days_year standby – Only stand by days per year
- 0.001 - Conversion factor from Wh to kWh

End of life (C1-C4)

Name	Value	Unit
Transport to EoL (C2)	100	km
Collected separately waste type (aluminium, steel, brass, plastics, stainless steel, copper, electronic, electro-mechanics etc.)	112.09	kg
Incineration of plastic parts	43.58	kg
Recycling (aluminium, steel, copper, electronic, electro-mechanics, stainless steel and brass)	68.50	kg
Landfill	0.39	kg

Reuse, recovery and/or recycling potentials (D), relevant scenario information

Name	Value	Unit
Collected separately waste type (including packaging)	155.94	kg
Recycling aluminium	0.58	%
Recycling brass	0.11	%
Recycling copper	0.03	%
Recycling stainless steel	0.11	%
Recycling steel	34.40	%
Recycling electronic	0.55	%
Recycling electro-mechanics	8.17	%
Incineration of plastic parts	27.95	%
Incineration of packaging (paper and wood) (from A5)	28.12	%

5. LCA: Results

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)

Product stage			Construction process stage		Use stage							End of life stage				Benefits and loads beyond the system boundaries
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	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	X	MNR	MNR	MNR	X	MND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece Dynaco D-313 high-performance door

Parameter	Unit	A1-A3	A4	A5	B2	B6	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq	2.42E+02	1.2E+01	7.73E+01	0	4.32E+02	0	8.54E-01	7.7E+01	0	-2.29E+02
GWP-fossil	kg CO_2 eq	3.32E+02	1.17E+01	4.06E-01	0	4.28E+02	0	8.38E-01	7.7E+01	0	-2.29E+02
GWP-biogenic	kg CO_2 eq	-7.81E+01	2.76E-02	7.69E+01	0	3.85E+00	0	2E-03	1.78E-03	0	-8.92E-02
GWP-luluc	kg CO_2 eq	3.44E-01	1.93E-01	2.32E-04	0	6.5E-02	0	1.41E-02	4E-03	0	-8.22E-02
ODP	kg CFC11 eq	2.43E-09	1.71E-12	2.31E-12	0	9.71E-09	0	1.23E-13	2.05E-11	0	-1.82E-10
AP	mol H^+ eq	9.07E-01	2.58E-02	7.2E-02	0	8.27E-01	0	1.15E-03	1.15E-02	0	-5.28E-01
EP-freshwater	kg P eq	8.92E-04	4.9E-05	6.78E-07	0	1.78E-03	0	3.58E-06	5.05E-06	0	-1.4E-04
EP-marine	kg N eq	2E-01	8.08E-03	1.6E-02	0	2.07E-01	0	4.17E-04	3.52E-03	0	-1.18E-01
EP-terrestrial	mol N eq	2.11E+00	9.39E-02	1.79E-01	0	2.16E+00	0	4.96E-03	5.42E-02	0	-1.28E+00
POCP	kg NMVOC eq	7.38E-01	2.24E-02	5.28E-02	0	5.46E-01	0	1.14E-03	9.89E-03	0	-3.79E-01
ADPE	kg Sb eq	8.41E-03	1E-06	2.42E-08	0	8.01E-05	0	7.3E-08	1.99E-07	0	-1.8E-03
ADPF	MJ	5.34E+03	1.54E+02	5.21E+00	0	8.99E+03	0	1.1E+01	3.86E+01	0	-2.48E+03
WDP	m^3 world eq deprived	2.86E+01	1.78E-01	3.82E+00	0	1.18E+02	0	1.3E-02	7.65E+00	0	-1.31E+01

GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential)

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece Dynaco D-313 high-performance door

Parameter	Unit	A1-A3	A4	A5	B2	B6	C1	C2	C3	C4	D
PERE	MJ	1.45E+03	1.3E+01	8.16E+02	0	6.49E+03	0	9.51E-01	1.13E+01	0	-2.91E+02
PERM	MJ	8.15E+02	0	-8.15E+02	0	0	0	0	0	0	0
PERT	MJ	2.27E+03	1.3E+01	1.36E+00	0	6.49E+03	0	9.51E-01	1.13E+01	0	-2.91E+02
PENRE	MJ	3.33E+03	1.54E+02	5.21E+00	0	8.99E+03	0	1.1E+01	2.05E+03	0	-2.48E+03
PENRM	MJ	2.01E+03	0	0	0	0	0	0	-2.01E+03	0	0
PENRT	MJ	5.34E+03	1.54E+02	5.21E+00	0	8.99E+03	0	1.1E+01	3.86E+01	0	-2.48E+03
SM	kg	1.37E+01	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0
FW	m^3	1.18E+00	1.45E-02	8.95E-02	0	4.97E+00	0	1.06E-03	1.83E-01	0	-6E-01

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece Dynaco D-313 high-performance door

Parameter	Unit	A1-A3	A4	A5	B2	B6	C1	C2	C3	C4	D
HWD	kg	1.37E-04	5.87E-09	2.33E-09	0	1.3E-05	0	4.23E-10	2.44E-08	0	-3.64E-07
NHWD	kg	1.56E+01	2.49E-02	7.21E-01	0	7.41E+00	0	1.8E-03	7.37E+00	0	-6.61E+00
RWD	kg	2.78E-01	2.78E-04	2.25E-04	0	1.44E+00	0	2.01E-05	1.55E-03	0	-8.29E-02
CRU	kg	0	0	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0	7.5E+01	0	0
MER	kg	0	0	0	0	0	0	0	0	0	0
EEE	MJ	2.3E+00	0	1.96E+02	0	0	0	0	1.39E+02	0	0

EET	MJ	5.33E+00	0	2.69E+02	0	0	0	0	2.51E+02	0	0

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece Dynaco D-313 high-performance door

Parameter	Unit	A1-A3	A4	A5	B2	B6	C1	C2	C3	C4	D
PM	Disease incidence	1.07E-05	3.34E-07	3.3E-07	0	6.92E-06	0	1.15E-08	1.39E-07	0	-7.02E-06
IR	kBq U235 eq	2.59E+01	4.03E-02	3.4E-02	0	2.37E+02	0	2.92E-03	2.2E-01	0	-1.43E+01
ETP-fw	CTUe	1.54E+03	1.14E+02	3.29E+00	0	2.6E+03	0	8.2E+00	2.37E+01	0	-3.95E+02
HTP-c	CTUh	2.55E-07	2.3E-09	5.53E-09	0	1.46E-07	0	1.66E-10	1.28E-09	0	-2.63E-07
HTP-nc	CTUh	2.37E-06	1.03E-07	1.92E-07	0	2.24E-06	0	7.43E-09	9.9E-08	0	-2.16E-07
SQP	SQP	1E+04	7.43E+01	1.41E+00	0	3.78E+03	0	5.43E+00	1.05E+01	0	-1.55E+02

PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index

Disclaimer 1 – for the indicator “Potential Human exposure efficiency relative to U235”. 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 or radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, radon and from some construction materials is also not measured by this indicator.

Disclaimer 2 – for the indicators “abiotic depletion potential for non-fossil resources”, “abiotic depletion potential for fossil resources”, “water (user) deprivation potential, deprivation-weighted water consumption”, “potential comparative toxic unit for ecosystems”, “potential comparative toxic unit for humans – cancerogenic”, “Potential comparative toxic unit for humans - not cancerogenic”, “potential soil quality index”. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high as there is limited experience with the indicator.

6. LCA: Interpretation

This chapter contains an interpretation of the Life Cycle Impact Assessment categories. Stated percentages in the whole interpretation are related to the overall life cycle, excluding credits (module D).
The production stage (modules A1-A3) contributes between 18% and 99% to the overall results for all core environmental impact assessment categories.

Within the production stage, the main contribution for all the impact categories is the production of steel and aluminium, mainly due to the energy consumption of these processes. These two materials account for approx. 48% of the overall mass of the product. Therefore, the impacts are in line with the mass composition of the product. The environmental impacts for the transport (A2) have a negligible impact within this stage.

To reflect the use stage (module B6) in 10 years of service life, the energy consumption was included, and it has a relevant contribution for all core impact assessment categories considered - between 1% and 51%, except for ADPF (62%), EP-Freshwater (65%), WDP (75%) and ODP (80%). This is a result of 0.85 hours of operation in on-mode and 23.15 hours in stand-by mode per day and per 260 days in a year. For the remaining days (105 days) the door is in stand-by mode

In the end-of-life stage, there are loads and benefits (module D, negative values) considered. The benefits are considered beyond the system boundaries and are declared for the recycling potential of the metals and for the credits from the incineration process (energy substitution).

7. Requisite evidence

Not applicable in this EPD.

8. References

CPR
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EN 12604
EN 12604:2017+A1:2020 Industrial, commercial and garage doors and gates -
Mechanical aspects - Requirements and test methods

EN 12978
EN 12978:2003+A1:2009
Industrial, commercial and garage doors and gates - Safety devices for power operated doors and gates - Requirements and test methods

EN 12424 Class 3
EN 12424:2000 Class 3, Industrial, commercial and garage doors and gates - Resistance to wind load - Classification; German version EN 12424:2000

EN 12425 Class 3
EN 12425:2000 Class 3, Industrial, commercial and garage doors and gates - Resistance to water penetration - Classification; German version EN 12425:2000

EN 12426 Class 3
EN 12424:2000 Class 3, Industrial, commercial and garage doors and gates. Air permeability. Classification; German version EN 12424:2000

EN 12428
EN 12428:2013, Industrial, commercial and garage doors - Thermal transmittance - Requirements for the calculation; German version EN 12428:2013

EN 12453
EN 12453:2017, Industrial, commercial and garage doors and gates – Safety in use of power operated doors – Requirements and test methods

EN 12604:2017+A1:2020
EN 12604:2017+A1:2020, Industrial, commercial and garage doors and gates – Mechanical aspects – Requirements and test methods

EN 12978:2003+A1:2009
EN 12978:2003+A1:2009, Industrial, commercial and garage doors and gates - Safety devices for power operated doors and gates - Requirements and test methods

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EN 13241:2003+A2:2016, Industrial, commercial, garage doors and gates - Product standard, performance characteristics

EN 15804
EN 15804:2012+A2:2019+AC:2021, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products.

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EN 16034:2014, Pedestrian doorsets, industrial, commercial, garage doors and openable windows – Product standard, performance characteristics – Fire resisting and/or smoke control characteristics

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EN 61000-6-2
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EN 61000-6-3
EN 61000-6-3:2007, Electromagnetic compatibility (EMC) - Part 6-3: Generic Standards - Emission standard for residential, commercial and light-industrial environments

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EN ISO 10140-2:2010, Acoustics - Laboratory measurement of sound insulation of building elements - Part 2: Measurement of airborne sound insulation (ISO 10140-2:2010); German version EN ISO 10140-2:2010

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EN ISO 13849-1
DIN EN ISO 13849-1:2016, Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design

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

EWC
European Waste Catalogue established by Commission Decision 2000/532/EC

EN ISO 14001:2015
EN ISO 14001:2015, Environmental management systems – Requirements with guidance for use (ISO 14001:2015)

ISO 9001
ISO 9001:2015, Quality management systems - Requirements with guidance for us
Regulation (EU) No 305/2011
Regulation of the European parliament and the council laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC

2006/42/EC
European directive on machinery, and amending Directive 95/16/EC (recast)

2011/65/EC
European directive on the restriction of the use of certain hazardous substances in electrical and electronical equipment, and its amendment directives including 2015/863/EC (RoHS directive)

2012/19/EU
European directive on waste electrical and electronic equipment (WEEE)

2014/30/EU
European directive on the harmonization of the laws of the Member States relating to electromagnetic compatibility (recast)

2015/863/EU
European directive amending Annex II to Directive 2011/65/EU of the European Parliament and of the Council as regards the list of restricted substances (RoHS directive)

UKSI 2008 No.1597
UKSI 2008 No.1597 Supply of Machinery (Safety) Regulations 2008 for the Great Britain market

UKSI 2016 No.1091
UKSI 2016 No.1091 Electromagnetic Compatibility Regulations 2016 for the Great Britain market

UKSI 2012 No.3032
UKSI 2012 No.3032 The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment for the Great Britain market

UKSI 2016 No.1101
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Institut Bauen und Umwelt e.V., Berlin (pub.): Product Category Rules for Construction Products from the range of Environmental Product Declarations of Institut Bauen und Umwelt (IBU), Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Background Report Version 1.4 04-2024 www.ibu-epd.de

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