DAPcons®.100.183

DECLARACIÓN AMBIENTAL DE PRODUCTO
ENVIRONMENTAL PRODUCT DECLARATION

According to the standards:
ISO 14025 and UNE-EN 15804:2012+A2:2020/AC:2021

cateb
Arquitectura Tècnica
Barcelona

dapcons®

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GENERAL INFORMATION

Product

Locks for fire rated doors

Company

Product description

Locks for fire rated doors are locks suitable for installation in fire doors with a durability of 200,000 cycles. The CF series consists of the subseries CF50NG (SINGLE POINT lock with latch and lever, not for panic exits), CF50ASR (SINGLE POINT lock with latch and lever, panic), CF60 (SINGLE POINT lock with latch, panic), CF60 with SOLENOID (electromechanical SINGLE POINT lock with latch, panic) and CF32 (counter lock for passive leaf).

Reference RCP

RCP 100 (version 3 - 27/05/2021) Construction products in general

Production plant

Aranburuzabala Kalea, 23, 20540, Eskoriatza (Gipuzkoa, Basque Country)

Validity

From: 21/05/2024 Until: 21/05/2029

The validity of DAPcons®.100.183 is subject to the conditions of the regulation DAPcons®. The current edition of this DAPcons® is the one that appears in the registry maintained by Cateb; for informational purposes, it is included on the Program website www.csostenible.net

EXECUTIVE SUMMARY

Locks for fire rated doors

DAPconstruction® Programme Operator
Environmental Product Declarations in the Construction sector
www.csostenible.net

Programme Manager
Colegio de la Arquitectura Técnica de Barcelona (Cateb)
Bon Pastor, 5 · 08021 Barcelona www.apabcn.cat

Owner of the declaration
Talleres de Escoriaza SAU
Barrio Ventas 35 20305 - GUIPUZCOA (España)
www.tesa.es

Author of the Life cycle assessment:
ECOPENTA SL
C/ Tuset 19, 1º 3ª, 08006 - BARCELONA, España

Declared product

Locks for fire rated doors

Geographic representation

The raw materials of the product are globally sourced. The product is manufactured in Eskoriatza (Guipuzkoa, Basque Country, Spain) and distributed globally.

Variability between different products

>10%. The worst case based on design and weight is declared.

Declaration number

DAPcons®.100.183

Issue date

18/01/2024

Validity

This verified declaration authorizes its holder to carry the logo of the operator of the ecolabelling program DAPconstruction®. The declaration is applicable exclusively to the mentioned product and for five years from the date of registration. The information contained in this statement was provided under the responsibility of: **Talleres de Escoriaza SAU**

Programme Administrator Signature

Celestí Ventura Cisternas. President of Cateb

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Verifier Signature

Josep Manuel Giner Pallarés. ReMa-INGENIERIA, S.L.. Verifier accredited by the administrator of the DAPcons® Programme

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ENVIRONMENTAL PRODUCT DECLARATION

1. PRODUCT DESCRIPTION AND USE

TESA has a wide range of locks for fire rated doors that are divided into a number of series. The locks covered in this study are mainly made of steel which means they offer maximum resistance in case of fire and constitute an effective defense against fire.

The CF series consists of the subseries CF50NG (SINGLE POINT lock with latch and lever, not for panic exits), CF50ASR (SINGLE POINT lock with latch and lever, panic), CF60 (SINGLE POINT lock with latch, panic), CF60 with SOLENOID (electromechanical SINGLE POINT lock with latch, panic) and CF32 (counter lock for passive leaf).

Within the CF series all the locks have very similar performance and CE classification: All of them are suitable for installation on fire doors, have the same category of use, same durability (200,000 cycles), same door mass (<=200 kg), same corrosion and temperature resistance, etc.
The differences between the models are mainly due to the design of the internal components considering the functional variations between the models. These components' materials are the same as are the lock's external dimensions.

The specifications of each of the series are listed below:

CF50NG lock:
- Lock SUITABLE for use on fire rated doors
- 9x9mm through follower
- Distance between axes: 72 mm
- Backset: 65 mm
- Reversible
- Zinc plated steel (Z) or stainless steel (I) frontplate
- Durability: 200,000 cycles @ 120N preload on the latch
- The lock allows the removal of the latch by:
- Use of the key
- Turning the handle after undeadlocking the cylinder
- When the handle is operated with the lock deadlocked, it is not possible to open the door.
- Certified according to UNE-EN 12209:2004

CF50ASR lock:
- Lock with lever
- Panic function
- SUITABLE for use on fire rated doors
- Certified according to UNE-EN 12209:2004
- Steel latch with ramp
- 9x9mm split follower
- Backset: 65mm
- Distance between axes: 72mm
- Reversible
- Zinc plated steel (Z) or stainless steel (I) frontplate
- Durability: 200,000 cycles @ 120N preload on the latch

CF60 lock:
- Panic lock
- SUITABLE for use on fire rated doors
- Certified according to UNE-EN 12209:2004
- Certified according to UNE-EN 1125:2009
- Steel latch with ramp
- Non-friction guide between latch and frontplate
- 9x9mm split follower
- Backset: 65mm
- Distance between axes: 72mm
- Reversible
- Frontplate finish: zinc plated (Z) or stainless steel (I), except CF6I
- Durability: 200,000 cycles @ 120N preload on the latch

CF60 SOLENOID Lock:
- CF60 lock, cylinder not included
- SUITABLE for use on fire rated doors
- Certified according to UNE-EN 14846:2010
- Reversible
- Steel latch with ramp
- Non-friction guide between latch and frontplate
- 9x9mm follower
- Backset: 65mm
- Distance between axes: 72mm
- CF60 with panic function:
- By deadlocking the cylinder, the external follower is blocked and the door cannot be opened. However, as it is a panic lock, the door can always be opened from the inside irrespective of whether or not the cylinder is deadlocked.
- With a remote electric signal, the solenoid disengages, allowing the door to be opened from the outside.
- When the signal disappears, the lock becomes blocked again from the outside.
- “Inwards opening” version available
- CF60 without panic function:
- By deadlocking the cylinder, the follower is blocked and the door cannot be opened from either the inside or the outside.
- With a remote electric signal, the solenoid disengages, allowing the door to be opened from both the outside and the inside.
- When the signal disappears, the lock becomes blocked again.

CF32 counter lock:
- The central body of the counter lock with:
- 9mm follower
- Stainless steel (….ICE) and zinc plated steel (….ZCE) frontplate
- Frontplate CE-marked according to EN1125
- Frontplate dimensions to accommodate CF60 latch or CF50 latch and lever
- Prepared for M8x1 vertical rod device threads
- Supplementary latch on the frontplate
- The lock has two operating modes: manual and panic:

- MANUAL: Manual removal of the high/low locking points by means of the pull handle on the lock's frontplate.
- PANIC: Automatic removal of the high/low locking points by operating the lock's follower by means of a panic device

The study in question is associated with the CF60 SOLENOID series and the CF32 counter lock. It has been carried out based on the study of the worst case in terms of number of components and weight of products that make up each of the series, where the CF60 SOLENOID is the worst case with respect to the locks. The CF32 was also chosen because it is a counter lock and used on two-leaf doors which makes it the worst case option.

1.1 Content information

Product components

They are listed below.

Packaging materials

They are listed below.

The product's composition is as follows:

Materials	CF60 SOLENOID mass (g)	%
Steel	265,00	28,10
Stainless steel	194,70	20,65
Zinc plated steel	410,00	43,48
Polyoxymethylene	1,20	0,13
Nylon	0,30	0,03
Electronics	44,00	4,67
Wiring	27,20	2,88
Rubber	0,60	0,06
TOTAL	**943,00**	100,00

Materials	CF32 mass (g)	%
Steel	242,60	33,96
Stainless steel	99,70	13,96
Zinc plated steel	370,90	51,92
Polyoxymethylene	1,20	0,17
TOTAL	**714,4**	100,00

The packaging materials are as follows:

CF60 SOLENOID packaging	Weight (kg)	%
CARDBOARD	0,0456	41,68
SELF-ADHESIVE PAPER	0,01412	12,91
PALLET	0,050	45,41
TOTAL	**0,109**	100,00

CF32 packaging	Weight (kg)	%
CARDBOARD	0,0456	52,20
SELF-ADHESIVE PAPER	0,00412	4,72
PALLET	0,038	43,09
TOTAL	**0,087**	100,00

2. DESCRIPTION OF THE STAGES OF THE LIFE CYCLE

2.1. Manufacturing (A1, A2 y A3)

Raw Materials and transport (A1 y A2)

Module A1 includes the supply of raw materials for the product and packaging (raw materials to be processed in TESA's plant or components already formed by suppliers).
The product consists mainly of steel components.

Module A2 includes the transport of raw materials and packaging to TESA's factory in Ezkoriatza (Guipuzkoa). The distance and type of truck has been entered for each raw material and packaging, the average calculated based on the distances to the various suppliers and weighted with the quantities delivered in 2021.

Manufacturing (A3)

Stage A3 considers the energy use of the production process, the production and transport of auxiliary materials (chemicals, varnishes, lubricants, etc.), the treatment of waste generated during production, and the emissions from the production process and the discharge analysis.
The manufacturing process can be summarized in the following phases:

- PHASE 1 – STAMPING PRESS
- PHASE 2 - VIBRATING
- PHASE 3 – ASSEMBLY
- PHASE 4 – PACKAGING
- PHASE 5 – QUALITY TESTS: Salt spray, ageing chamber, mechanical tests (not included in the system boundary as they are performed on a sample basis and at the Irun plant).
- PHASE 6 – SHIPPING: Once the product has been manufactured, it is packed for distribution.

2.2. Construction process stage (A4 y A5)

Transport to the building site (A4)

The transport to the installation site stage has been calculated based on the weighting of 2021 sales (of all the locks for fire rated doors subseries covered by this EPD) by country and theoretically according to the PCR of 3,500 km in a 16-32 tn EURO 6 truck for those countries accounting for less than 1%.

Table 1. Basic of a scenario with the parameters described in the following table

Destinations	Type of transport	Percentage	Average km
Spain	Truck 16-32 Tn EURO VI	2.77	942
Europe	Truck 16-32 Tn EURO VI	31.98	10893
Rest of the world	Truck 16-32 Tn EURO IV, VI	6.59	2246
	Container ship	58.66	19981.23

Product installation process and construction (A5)

According to the PCR, it can be assumed that manual installation is the default way to install hardware on doors

and windows or directly in buildings. This entails zero impacts to be declared in module A5 arising from the machining of the door where it is installed.
This installation stage only includes the impacts of the end-of-life of the product packaging (cardboard, paper, film, and wooden pallet).
It is managed as follows in plants at a distance of 50 km from the installation site:
• Paper and cardboard waste: 85% recycling, 15% landfill (PEF, 2021).
• Wood waste (pallets): Pallets are reused an estimated average of six times (sector).

2.3. Product use (B1-B7)

Use (B1)

This module includes the environmental aspects and impacts in normal use of the products, not including water and energy use. As it is a passive construction material, the value of this module is 0.

Maintenance (B2)

The product studied does not require any significant maintenance during its service life.

Repair (B3)

It does not require any type of repair during its service life when used properly.

Replacement (B4)

No replacement of the product is required given the timeframe set for this study.

Refurbishment (B5)

It does not require any kind of rehabilitation during its service life.

Operational energy use (B6)

During the use of the lock, it is considered that there is power usage of 2.64 W.

Operational water use (B7)

It does not require any water use during its service lifetime.

2.4. End of life (C1-C4)

Deconstruction and demolition (C1)

At the end of its service life, the product will be removed during demolition. In the context of the demolition of a building, the impacts attributable to the removal of the product are negligible.

Transport to waste processing (C2)

The product's waste is shipped by 16-32 ton truck complying with the Euro VI standard over a distance of 50 km to the treatment plant.

Waste processing for reuse, recovery and/or recycling (C3)

According to EUROSTAT> Recovery rate of construction and demolition waste, a recycling and recovery for reuse scenario of 90% is considered.
When a material is sent for recycling, the electricity usage of a crusher (corresponding to the process "Grinding, metals") is taken into account.

Disposal (C4)

The remaining % not included in module C3 is expected to go to landfill: 10%.

2.5. Reuse/recovery/recycling potential (D)

The net impacts of recycling the lock have been considered as follows:
• Metal waste: 90% recycling.
The difference between the avoided impacts of no longer extracting virgin metal and the impact of the second metal transformation (scrap) is considered for the calculations.

3. LIFE CYCLE ASSESSMENT

Carrying out a “cradle to grave” Life Cycle Assessment, covering the stages of product manufacture, construction, use and end of life according to ISO 14040:2006 and ISO 14044:2006 of the products, taking into account the environmental impacts (UNE-EN 15804+A2:2019) according to the Product Category Rules PCR 100 Environmental Product Declaration for construction products in general (version 3 - 27.05.2021).
Supplemented with EN 17610 Building hardware - Environmental product declarations - Product category rules complementary to EN 15804 for building hardware.
The application used is Simapro version 9.3.0.2, 2022.
Specific data from the manufacturing plant at Eskoriaza (Gipuzkoa) for 2021 have been used to inventory the manufacturing stage. Generic data from the Ecoinvent v3.8 database have been used for the rest of the stages.

3.1. Functional Unit

The functional unit is a pack consisting of one CF60 SOLENOID lock and one CF32 counter lock used over the reference service life of 30 years corresponding to a minimum of 200.000 use cycles.
The mass of the CF60 SOLENOID lock is 0,943 kg while that of the counter lock is 0,714 kg. Therefore, the mass of the functional unit without packaging is 1,66 kg and with packaging is 1,85 kg.
For a geographical and technological environment of Spain in the year of production for 2021.

Additional comments

No additional remarks.

3.2. Scope and modules that are declared

Table 2. Declared modules

Product stage			Construction Process Stage		Use stage							End of life stage				Benefits and loads beyond the system boundaries
Raw materials supply	Transport	Manufacturing	Transport	Construction - Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction	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	x	x	x	x	x	x	x	x	x	x	x	x

X = Declared module **MND** = Undeclared module

3.3. LCA results of potential environmental impact referred to the declared unit (ACV)

Table 3. Parameters of environmental impact

Parameter	Unit	Life cycle stage																Module D
		Product stage			Construction Process Stage		Use stage							End of life stage				
		A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	
Climate change - total (GWP-total)	kg CO2 eq	7,97E+00	4,89E-01	2,66E+00	2,46E-01	4,06E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,93E+02	0,00E+00	0,00E+00	1,36E-02	3,57E-02	3,34E-02	-1,21E+00
Climate change - fossil (GWP-fossil)	kg CO2 eq	7,92E+00	4,88E-01	2,61E+00	2,45E-01	1,98E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,75E+02	0,00E+00	0,00E+00	1,35E-02	3,73E-02	3,34E-02	-1,23E+00
Climate change - biogenic (GWP-biogenic)	kg CO2 eq	3,86E-02	6,09E-04	3,80E-02	4,93E-04	4,04E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,73E+01	0,00E+00	0,00E+00	3,63E-05	-1,65E-03	1,06E-06	1,82E-02
Climate change - land use and changes in land use (GWP-luluc)	kg CO2 eq	9,72E-03	6,90E-05	7,93E-03	1,07E-04	5,88E-08	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,50E-01	0,00E+00	0,00E+00	5,41E-06	7,12E-05	1,09E-05	1,60E-04
Ozone layer depletion (ODP)	kg CFC 11 eq	4,64E-07	1,12E-07	5,57E-07	5,27E-08	5,88E-11	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,38E-05	0,00E+00	0,00E+00	3,13E-09	4,96E-09	6,37E-10	-4,16E-08
Acidification (AP)	mol H+ eq	5,29E-02	2,26E-03	1,30E-02	1,12E-03	3,49E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,56E+00	0,00E+00	0,00E+00	3,84E-05	4,44E-04	6,03E-05	-3,68E-03
Eutrophication of fresh water (EP-freshwater)	kg P eq	5,91E-04	1,37E-06	8,75E-05	2,02E-06	4,74E-09	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,94E-02	0,00E+00	0,00E+00	9,64E-08	1,81E-06	1,40E-07	-5,12E-05
Eutrophication of sea water (EP-marine)	kg N eq.	8,61E-03	7,73E-04	2,45E-03	2,51E-04	3,13E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,99E-01	0,00E+00	0,00E+00	7,63E-06	9,80E-05	2,19E-05	-8,86E-04
Terrestrial eutrophication (EP-terrestrial)	mol N eq.	9,39E-02	8,49E-03	2,24E-02	2,79E-03	8,06E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,30E+00	0,00E+00	0,00E+00	8,50E-05	1,13E-03	2,39E-04	-1,04E-02
Photochemical ozone formation (POCP)	kg NMVOC eq	3,35E-02	2,28E-03	7,15E-03	8,96E-04	1,15E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,31E-01	0,00E+00	0,00E+00	3,27E-05	3,11E-04	1,68E-04	-6,77E-03
Depletion of abiotic resources - minerals and metals (ADP-minerals&metals)	kg Sb eq	8,76E-04	5,19E-07	2,49E-05	8,25E-07	1,30E-09	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,55E-03	0,00E+00	0,00E+00	4,79E-08	4,42E-06	3,98E-08	2,62E-06
Depletion of abiotic resources - fossil fuels (ADP-fossil)	MJ, net calorific value	9,26E+01	6,98E+00	4,80E+01	3,60E+00	4,97E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,83E+03	0,00E+00	0,00E+00	2,05E-01	5,15E-01	6,81E-02	-9,70E+00
Water consumption (WDP)	m3 worldwide eq. private	2,93E+00	8,80E-03	1,40E+00	1,23E-02	2,49E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,82E+01	0,00E+00	0,00E+00	6,24E-04	6,80E-03	1,61E-03	-9,34E-02
The Indicador includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This Indicador is thus equal to the GWP Indicador originally defined in EN 15804:2012+A1:2013. Can be obtained from IPCC characterization factors.																		
Global Warming Potential (GHG)	kg CO2 eq	7,73E+00	4,86E-01	2,56E+00	2,43E-01	2,51E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,73E+02	0,00E+00	0,00E+00	1,34E-02	3,69E-02	3,05E-02	-1,16E+00

A1 Supply of raw materials. **A2** Transport to waste processing. **A3** Manufacturing. **A4** Transport to waste processing. **A5** Installation and construction processes. **B1** Use. **B2** Maintenance. **B3** Repair. **B4** Replacement. **B5** Refurbishment. **B6** Operational energy use. **B7** Operational water use. **C1** Deconstruction and demolition. **C2** Transport to waste processing. **C3** Waste management for reuse, recovery and recycling. **C4** Fine removal. **D** Environmental benefits and burdens beyond the system boundary. **MND** Undeclared module.

Table 4. Parameters for the use of resources, waste and output material flows

Parameter	Unit	Life cycle stage																Module D
		Product stage			Construction Process Stage		Use stage							End of life stage				
		A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	
Use of renewable primary energy excluding renewable primary energy resources used as feedstock	MJ, net calorific value	1,49E+01	4,14E-02	6,64E+00	4,12E-02	8,92E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,17E+03	0,00E+00	0,00E+00	2,93E-03	8,01E-02	4,15E-03	5,01E-01
Use of renewable primary energy used as raw material	MJ, net calorific value	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renewable primary energy (primary energy and renewable primary energy resources used as feedstock)	MJ, net calorific value	1,49E+01	4,14E-02	6,64E+00	4,12E-02	8,92E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,17E+03	0,00E+00	0,00E+00	2,93E-03	8,01E-02	4,15E-03	5,01E-01
Non-renewable primary energy use, excluding non-renewable primary energy resources used as feedstock	MJ, net calorific value	9,85E+01	7,41E+00	5,13E+01	3,82E+00	5,24E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,11E+03	0,00E+00	0,00E+00	2,18E-01	5,46E-01	7,24E-02	-1,02E+01
Use of non-renewable primary energy used as raw material	MJ, net calorific value	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-renewable primary energy (primary energy and renewable primary energy resources used as feedstock)	MJ, net calorific value	9,85E+01	7,41E+00	5,13E+01	3,82E+00	5,24E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,11E+03	0,00E+00	0,00E+00	2,18E-01	5,46E-01	7,24E-02	-1,02E+01
Use of secondary materials	kg	3,82E-01	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of renewable secondary fuels	MJ, net calorific value	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of non-renewable secondary fuels	MJ, net calorific value	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Net use of freshwater resources	m3	2,89E+00	9,22E-03	1,40E+00	1,24E-02	2,26E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,70E+01	0,00E+00	0,00E+00	6,27E-04	6,73E-03	1,59E-03	-8,96E-02
Hazardous waste removed	kg	6,59E-04	1,85E-05	5,92E-05	9,23E-06	6,28E-09	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,43E-03	0,00E+00	0,00E+00	5,35E-07	1,48E-06	9,93E-08	-1,63E-04
Non-hazardous waste eliminated	kg	4,15E+00	1,02E-01	7,97E-01	1,78E-01	1,81E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,13E+01	0,00E+00	0,00E+00	1,07E-02	1,59E-02	1,62E-01	1,70E-01
Radioactive waste disposed of	kg	2,44E-04	4,90E-05	2,09E-04	2,36E-05	3,71E-08	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,26E-02	0,00E+00	0,00E+00	1,38E-06	3,04E-06	3,46E-07	1,82E-05
Components for reuse	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,26E-01	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	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	0,00E+00	4,06E+05	0,00E+00	2,08E-01	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	1,49E+00	0,00E+00	0,00E+00
Materials for energy recovery (energy recovery)	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,20E-04	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	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ by energy vector	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,48E-06	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	0,00E+00	0,00E+00	0,00E+00

A1 Supply of raw materials. **A2** Transport to waste processing. **A3** Manufacturing. **A4** Transport to waste processing. **A5** Installation and construction processes. **B1** Use. **B2** Maintenance. **B3** Repair. **B4** Replacement. **B5** Refurbishment. **B6** Operational energy use. **B7** Operational water use. **C1** Deconstruction and demolition. **C2** Transport to waste processing. **C3** Waste management for reuse, recovery and recycling. **C4** Fine removal. **D** Environmental benefits and burdens beyond the system boundary. **MND** Undeclared module.

Table 5. Kg of biogenic carbon

Carbon content (biogenic) - packaging	0,0947
Carbon content (biogenic) - product	0,0

3.4. Recommendations of this EPD

Construction products should be compared on the basis of the same functional unit and at building level, i.e. including the performance of the product over its entire life cycle.
Environmental product declarations of different type III eco-labeling schemes are not directly comparable as the calculation rules may be different. Products included in this EPD: CF50NG, CF50ASR, CF60, CF60 SOLENOID and CF32 series.

3.5. Cut-off rules

General cut-off criteria are given in EN 15804, clause 6.3.5. This clause states that a maximum of 1% of the energy and raw material use per process unit can be excluded. This is provided that the total amount excluded does not exceed 5% of the total energy or material use for a module (A1, A2, A3, etc.).
More than 95% of all mass and energy inputs and outputs of the system have been included, leaving out auxiliary materials that account for less than 1% of the total material use in module A3.
Also, infrastructure for machinery, production facilities and offices are estimated to contribute less than 1% and are therefore not included.

Allocation rules:
The polluter pays principle and the modularity principle (environmental burdens are allocated to the stage where the impact occurs) have been followed in the LCA.
Usage of energy, water, auxiliary materials and internal waste production has been allocated equally between all products through mass allocation (based on total production).

3.6. Additional environmental information

All the locks for fire rated doors are EN 1125 and CE certified.
TESA ASSA ABLOY is ISO 9001 and ISO 14001 certified.

3.7. Other data

According to EUROSTAT>Recovery rate of construction and demolition waste, a recycling and recovery for reuse scenario of 90% and the remaining 10% to landfill is estimated.

4. ADDITIONAL TECHNICAL INFORMATION AND SCENARIOS

4.1. Transport to the building site (A4)

Parameter	Parameter expressed per functional unit
Type and fuel consumption, type of vehicle used for transportation	Road: Truck between 16 and 32 tons. Euro VI, uses 0.047 kg/ton/km diesel.
Distance	Transport by road and ship depending on sales in each country.
Capacity utilization (including empty return)	Road transport: 100% Ecoinvent 3.5 database-driven.
Apparent density of transported product	7,850 kg/m3
Useful capacity factor (1, <1 or >1 for products that are packed compressed or nested)	1

4.2. Installation processes (A5)

Parameter	Parameter expressed per functional unit
Auxiliary materials for construction (specifying each material)	N/A
Water use	N/A
Use of other resources	N/A
Quantitative description of the type of energy (regional mix) and consumption during the installation process	N/A
Waste of materials in the work before the treatment of waste, generated by the installation of the product (specify by type)	18,24 g paper 91,20 g cardboard 87,33 g wood (pallet)
Material outputs (specified by type) as a result of waste treatment on the building site. For example: collection for recycling, energy recovery, disposal (specified by route)	• Paper and cardboard waste: 85% recycling, 15% landfill (PEF, 2021) • Wood: 100% reused – 6 reuses (Manufacturer data 2019)
Direct emissions to air, soil and water	N/A

4.3. Reference life (B1)

Parameter	Parameter expressed per functional unit
Reference Lifetime (RSL)	200,000 use cycles which based on a theoretical scenario corresponds to 30 years of use.

Parameter	Parameter expressed per functional unit
Characteristics and properties of the product	Locks for fire rated doors
Requirements (conditions of use, frequency of maintenance, repair, etc.)	N/A

4.4. Maintenance (B2), Repair (B3), Replacement (B4), or Refurbishment (B5)

Maintenance (B2)

Parameter	Parameter expressed per functional unit
Maintenance process, for example; cleaning agent, surfactant type	N/A
Maintenance cycle	N/A
Auxiliary materials for the maintenance process (specifying each material)	None
Energy inputs for the maintenance process (quantity and type of energy vector)	None
Net consumption of fresh water during maintenance or repair	None
Material waste during maintenance (specifying the type)	N/A

Repair (B3)

Parameter	Parameter expressed per functional unit
Repair process	N/A
Proceso de inspección	N/A
Repair cycle	N/A
Auxiliary materials (specifying each material], for example lubricant	None
Interchange of parts during the product life cycle	None
Energy inputs during maintenance, type of energy, example: electricity, and quantity	None

Parameter	Parameter expressed per functional unit
Energy input during the repair, renovation, replacement process if applicable and relevant (quantity and type of energy vector)	None
Material waste during repair (specifying each material)	N/A
Consumo neto de agua dulce	None

Replacement (B4)

Parameter	Parameter expressed per functional unit
Energy input during substitution, for example for the use of cranes (quantity and energy vector)	None
Change of worn parts in the product life cycle (specifying each material)	N/A
Net freshwater consumption	None

Refurbishment (B5)

Parameter	Parameter expressed per functional unit
Rehabilitation process	N/A
Rehabilitation cycle	N/A
Energy input during rehabilitation, for example for the use of cranes (quantity and energy vector)	N/A
Input material for rehabilitation, including auxiliary materials (specifying by material)	N/A
Waste of material during rehabilitation (specifying each material)	N/A
Other scenario development assumptions	N/A

4.5. Reference life

Parameter	Parameter expressed per functional unit
Reference life	30 years corresponding to a minimum of 200,000 use cycles
Declared properties of the product, finishes, etc.	N/A
Application design parameters (manufacturer's instructions)	N/A
Estimation of the quality of execution, when installed according to the manufacturer's instructions	N/A
Outdoor environment for outdoor applications. For example, weather, pollutants, UV radiation, temperature, etc.	N/A
Indoor environment for indoor applications. For example, temperature, humidity, chemical exposure	N/A
Terms of use. For example, frequency of use, mechanical exposure, etc.	N/A
Maintenance. For example, the required frequency, etc.	N/A

4.6. Operational energy use (B6) and operational water use (B7)

Parameter	Parameter expressed per functional unit
Auxiliary materials (specified by material)	N/A
Type of energy vector. For example, electricity, natural gas, district heating	Electricity
Equipment output power	1 lock uses 2,64 W (on standby) Power usage of the lock during its service life: 2,64 W x 365 days x 24 hours/day x 30 years = 694 kWh
Net freshwater consumption	None
Characteristic features (energy efficiency, emissions, etc.)	N/A
Other scenario development assumptions. For example, transportation	None

4.7. End of life (C1-C4)

	Process		
	Collection processes (specified by types)	Recovery systems (specified by type)	Elimination
	kg collected with mixed construction waste	kg	kg for final disposal
	1.66	1.49	0.17
Assumptions for scenario development	Metals: 90% recycling; 10% landfill The remaining 10% of the metal is considered to end up in landfill. 100% of the remaining materials (EE, wiring and plastics) goes to landfill.		

5. ADDITIONAL INFORMATION

6. PCR AND VERIFICATION

This statement is based on Document

RCP 100 (version 3 - 27/05/2021) Construction products in general

Independent verification of the declaration and data, in accordance with ISO 14025 and IN RCP 100 (version 3 - 27/05/2021)

☑ External

Third party Verifier

Josep Manuel Giner Pallarés
Accredited by the administrator of the DAPcons® Programme

Verification date:

04/06/2024

References

PRODUCT LIFE CYCLE ANALYSIS: Locks for fire rated doors
By: ECOPENTA SL. April 2024 (unpublished)

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