ENVIRONMENTAL PRODUCT DECLARATION

as per /ISO 14025/ and /EN 15804/

Owner of the Declaration	Royal Boon Edam International B.V.
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
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Valid to	02.09.2023

TOURNIKET - All options included
BOON EDAM

Institut Bauen und Umwelt e.V.

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1. General Information

Boon Edam B.V.	TOURNIKET
Programme holder IBU - Institut Bauen und Umwelt e.V. Panoramastr. 1 10178 Berlin Germany	**Owner of the Declaration** Royal Boon Edam International B.V. Ambachtstraat 4 1135 GG Edam The Netherlands
Declaration number EPD-RBE-20180009-IBD1-EN	**Declared product / Declared unit** The declaration represents one automatic revolving door, consisting of four (4) door leaves and with a diameter of 3800 mm and a height of 2300 mm.
This Declaration is based on the Product Category Rules: Automatic doors, automatic gates, and revolving door systems, 07.2014 (PCR tested and approved by the SVR)	**Scope:** The declaration and background LCA report represent an automatic revolving door Boon Edam Tourniket, type TQ. Raw materials and components are provided by suppliers from around the globe and shipped to Boon Edam, where the doors are manufactured and assembled before being shipped and installed on a construction site in Europe. The energy use on site and maintenance during the 20 years of use are taken in account. 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.
Issue date 03.09.2018	
Valid to 02.09.2023	**Verification** The CEN Norm /EN 15804/ serves as the core PCR Independent verification of the declaration according to /ISO 14025/ ☐ internally ☒ externally
Prof. Dr.-Ing. Horst J. Bossenmayer (President of Institut Bauen und Umwelt e.V.)	
Dipl. Ing. Hans Peters (Managing Director IBU)	Dr. Frank Werner (Independent verifier appointed by SVR)

2. Product

2.1 Product description / Product definition

The Tourniket is Boon Edam's most versatile entry solution. Available in virtually every colour or finish, with three or four door wings, manual or automatic operation, and with a variety of door set options, it is the ultimate solution for many different types of buildings.

For the product studied in this document, all options available for a Tourniket TQ were selected:

- Maximum diameter (3800 mm) and height under canopy (2300mm) available for the range,
- 4 Collapsible door leaves with thickened-glass windows,
- Thickened-glass windows curved walls,
- Automated drive positioned in the canopy (hence a higher canopy),
- Motion detector control and idle speed control,
- External manual control panel,
- Automatic night locking, including monitoring, with thickened-glass windows,
- Protective aluminium strips on all windows,
- Lighting, with 4 low energy lamps,
- Increased thickness floor mat.

For the placing on the market in the EU/EFTA (with the exception of Switzerland) the following legal provisions apply:

/2006/42/EC/
/EMC directive 2014/30/EU/
/EN 16005/
/DIN 18650/
/EN 60335/
/EN ISO 13849/
/EN 61000/

The CE-marking for the product takes into account the Declaration of Performance in accordance with the

CPR and the proof of conformity with the following harmonised norms based on the other harmonisation provisions.

2.2 Application

Automatic revolving doors are intended to be used in commercial buildings, in particular in:

- Airports
- Retail
- Banks
- Corporate Headquarters
- Governmental buildings
- Healthcare
- Hotels & Restaurants

2.3 Technical Data

Constructional data

Note: The power input values entered are for a collapsible doorset, and include lighting. The values for both "standby" and "operation" would be much lower for a doorset without these two options.

Because Boon Edam refers to different (EN) standards than those listed by default in the EPD template Part B, some of the constructional data were replaced as follows:
- The heat transfer coefficient is declared for the entire door instead of separated values for the glass and frame.
- The joint permeability coefficient (in cubic meter of air per linear meter of joint) is replaced with the air permeability of the whole door (in cubic meter of air per square-meter of door).
- The deflection from wind (in mm) is replaced with Winload resistance (in Pascals).

Name	Value	Unit
Heat transfer coefficient of the entire door system, acc. to /EN 16361/	4.4	W/(m²K)
Airborne sound reduction acc. to /EN ISO 10140-2/	32	dB
Windload resistance acc. to /EN 12211/	448	Pa
Air permeability acc. to /EN 12207/ & /EN 1026/	19.8	m³/h*m²
Burglar protection class acc. to /EN 1627/ - /EN 1630/	Class 3	-
Power input "Standby"	75	W
Power input "Operation"	150	W

Performance data of the product according to the harmonised norms, based on the harmonisation provisions.

/EN 1627 - EN 1630/
/EN 16361/
/EN ISO 10140-2/
/EN ISO 717-1/
/EN 12211/
/EN ISO 10077/
/ISO 10292/
/EN 1991/

2.4 Delivery status

The Tourniket modelled for this study is delivered ready for installation with a wooden packaging, with a total weight of 2300kg.
It presents the following dimensions:

- External diameter: 3877 mm
- Internal diameter: 3800 mm
- Height: 3500 mm
- Height under canopy: 2300 mm

2.5 Base materials / Ancillary materials

The constituent materials are distributed as follows (materials accounting for less than 1% of the total have been grouped in category 'others')

Name	Value	Unit
Glass	32	%
Aluminium alloys	28	%
Steel & stainless steel	26	%
Wood	5	%
Packing	4	%
Electrical parts	3	%
Others	2	%

Royal Boon Edam International B.V. use substances on their own or in a preparation within its industrial or commercial activities, and is therefore a downstream user as defined in Article 3 No. 13 of /Regulation (EC) No. 1907/2006/ (so-called /REACh regulation/). As a downstream user, Boon Edam has already requested that all suppliers provide confirmation regarding the correct implementation of /REACh/, and that our products do not contain SVHCs with a concentration greater than 0.1 percent by weight, as for the list published on the 7th of July 2017.

2.6 Manufacture

All materials are shipped from suppliers to Boon Edam Manufacturing EMEA site in Edam, The Netherlands. Steel and aluminium profiles are cut to shape and size on site, and are assembled with the rest of the materials by Boon Edam.
The manufacturing site in Edam is /ISO 9001/ certified.

2.7 Environment and health during manufacturing

Standard cutting and coating machinery are used on site. Safety measures are implemented on site and employees are required to wear personal protective equipment.

Boon Edam's Manufacturing EMEA site in Edam, Netherlands, has set-up several take-back schemes, with customers in the Netherlands and with suppliers. Metal cuttings from production (steel and aluminium alloys) are collected and sent back to suppliers to be reprocessed.

The site is /ISO 14001/ certified.

2.8 Product processing/Installation

Boon Edam's installation teams in Europe are following a strict safety process to define, together with the clients, safe access and work conditions during the installation.
A list of personal protective equipment to be worn for each different task is defined as part of this process.

2.9 Packaging
The doors are delivered partially mounted for easier handling and transport.
The packaging consists mainly of wood pallets and crates, while smaller accessories maybe grouped in cardboard boxes with installation instructions.

Packaging materials should be discarded according to the regulations in place in the country of installation, and can be recycled or incinerated (for energy recovery) once the product is installed.

2.10 Condition of use
Maintenance instructions are provided by Boon Edam, and will ensure efficient operations of the door.
Annual maintenance checks are advised, and should be carried out by Boon Edam or an approved agent.

The materials used in the composition of the door are very stable, and their composition is not expected to change in the timeframe of use of the product, provided the advised maintenance procedures are respected.

2.11 Environment and health during use
The products manufactured by Boon Edam do not release any fluid, fumes, or chemical substances if used in accordance with the specifications provided, and if proper maintenance checks are performed regularly.
Automatic revolving door are fitted with safety sensors and actuators that will prevent any physical damage in case of malfunction or improper use.

2.12 Reference service life
The actual use of a revolving door will highly depend on the environment, and on the traffic expected.

To calculate the indicators for potential impact during the use stage of a Tourniket, a service life of 20 years has been selected, as suggested in the 'Nutzungsdauern von Bauteilen' (Service Lives of Components) from the /BBSR/

Provided that proper maintenance procedures are followed, the characteristics of the installed product will remain stable over the years and will not suffer from ageing of materials or components.

NB: A service life in accordance with the /BBSR/ table is not a RSL according to /ISO 15686/.

2.13 Extraordinary effects

Fire
Information on fire performance according to /EN 13501/
Fire protection

Name	Value
Building material class	Class D
Burning droplets	Class d0
Smoke gas development	Class s1

Water
Automatic doors contain electric and electronic equipment that may malfunction if in contact with water.
Please refer to instructions regarding maintenance and cleaning.

No impact on the environment will occur in case of such malfunction.

Mechanical destruction
Mechanical destruction will never result from a malfunction of the revolving door itself.
In case mechanical destruction is caused by an external event, no environmental damage will be caused.

The damaged door will need to be de-constructed with care and replaced.

2.14 Re-use phase
At the end-of-life of a revolving door, Boon Edam Netherlands and several Boon Edam entities in other European countries, offer a take-back scheme.

Products that reached their end-of-life can be dismantled by Boon Edam, and transported to local recycling companies or to the headquarters in Edam for further processing.

Parts obtained from dismantled doors are not reused, for quality and safety reasons, but materials are separated and prepared for recycling.

2.15 Disposal
Waste materials are produced at the end-of-life of the product. They are listed below according to the European List of Waste /2014/955/EU/.

- /16 02 Wastes from electrical and electronic equipment/
- /17 02 01 Wood/
- /17 02 02 Glass/
- /17 02 03 Plastic/
- /17 04 02 Aluminium/
- /17 04 05 Iron and steel/
- /17 04 11 Cables (with no hazardous substances)/

Products that reached their end-of-life can be collected on building site by Boon Edam, and transported to Edam to be dismantled.
Metals and glass collected when dismantling are sent back to suppliers to be reprocessed.

2.16 Further information
See contact details

3. LCA: Calculation rules

3.1 Declared Unit
The LCA study used to draft this EPD is based on 1 Boon Edam Tourniket TQ-04, used in Europe for 20 years.

Declared Unit: 1 piece (1 revolving door), with a 3800mm diameter, 2300mm height under canopy and 3500mm height.

It is fitted with a 220V AC motor of 180W.

This is the maximum possible size for this range, with all potential options included, in effect presenting the 'worst-case scenario' for a product of the TQ range.

Declared unit

Name	Value	Unit
Mass (total system)	2184	kg
Conversion factor to 1 kg	0.000458	-
Declared unit	1	Reference door (frame) 1.23m x 2.18m
Dimensions , diameter	3800	mm
Dimensions , usable height	2300	mm

3.2 System boundary

The present EPD is declared as a "cradle-to-gate - with options"
The modules declared are:

Production stage

- *A1 - Raw material extraction and processing:* All materials and parts that are constituents of the final product are considered. All pre-processing that are applied to the material, prior to handling by Boon Edam, are part of A1. Additional raw material quantities that are needed to cover-up for the production losses and metal cuttings that are sent back to suppliers are also accounted in A1.
- *A2 - Transport to the manufacturer:* Transports of all raw materials (incl. quantities needed to cover-up for the production losses) and packaging materials are accounted for.
- *A3 - Manufacturing:* All processes performed at Boon Edam are accounted for (incl. use of energy), as well as raw material extraction and pre-processing of packaging materials. Waste generated are accounted in A3, excepted for recycled metal cutting (included in A1)

Construction stage

- *A4 - Transport to building site:* Transport from Boon Edam Distribution & Support centre to a theoretical building in Europe is modelled, including the door and its packaging.
- *A5 - Installation in the building:* The effort for installation is minimal since the main parts of the doors are supplied pre-assembled, and (depending on the dimensions and option of the product) consist only in a couple of hours of use of electric screwdrivers and power drills. Disposal of packaging is also accounted for.

Use stage modules related to the building fabric

- *B2- Maintenance:* For the door to be functional over a period of 20 years, some parts need to be replaced as preventive maintenance (mainly sensors and wear parts). The material needed for production of these parts, and the production effort in the upstream chain are included, as well as the transport to the construction site. When it comes to the replaced elements, their transport from the installation site back to Boon Edam and end of life treatment are taken into account.

Use stage modules related to operation of the building

- *B6 - operational energy use:* The electricity use for powering the electric drive is computed in the model.

End-of-life stage

- *C1 - Deconstruction:* Electricity needed for the use of power drills is included.
- *C2 - Transport to waste processing:* Transport of the complete door is computed.
- *C3 - Waste processing:* The processing of components which reach end of waste state and need conversion to secondary materials, and those which are incinerated, is included.
- *C4 - Disposal:* End of life of all the materials is considered. Some of the materials used in the product - steel, aluminium and glass - present a value and reach the end of waste state (see detail of the ratios used in §4.1.4). The remaining components are incinerated and landfilled

3.3 Estimates and assumptions

Reference Service Life

The RSL of the Tourniket is estimated using the BBSR's table "Nutzungsdauern von Bauteilen" (Service lives of components for Life Cycle Analysis according to the German Federal Institute for Research on Building, Urban Affairs and Spatial Development).
NB: A service life in accordance with the /BBSR/ table is not a RSL according /to ISO 15686/.

3.4 Cut-off criteria

Production stage

All materials and energy inputs and outputs were considered, based on the nomenclature of the product considered, and on the energy inputs and waste flows from the factory.
To the best of our knowledge, no input or output having a significant impact on the indicators have been left aside.

Use stage

During the use stage, the only maintenance activities not included are the cleaning and technical checks. These would consist of: energy necessary to power the cleaning devices, water, soap and transport of personnel for the technical checks.
Given the predominance of the operational energy use (B6), these impacts will be negligible in comparison.

End-of-life

Due to the choice of system-model in the background data (cut-off approach), the end-of-life processes do not include benefits of the material recycling.

3.5 Background data
Background data processes were obtained from /ecoinvent version 3.3/, with the Cut-off system model, as compiled for SimaPro 8 in October 2016.

3.6 Data quality
The /ecoinvent 3/ database is used for every background datasets, ensuring consistence of the scope.
Global market data were used for all supplies that are procured on the market without specific requirement for location, and more specific geographies were used otherwise (e.g. electricity used on site is representative of the Dutch electricity market)
All background data have been reviewed by the editor in 2016.

Primary data have been collected specifically for the product considered, at the time when the assessment has been made, and are representative of the current situation at Boon Edam.

3.7 Period under review
Data have been collected in 2017 and represents an average of the consumptions in 2016.

3.8 Allocation
Manufacturing (A3) inputs and outputs are allocated per door.

The metal scraps collected during manufacturing (A3) and sent back to supplier are considered not leaving the system boundaries and are reintegrated in the raw material supplies (A1). Transport back to supplier and losses are included.

3.9 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.

Background data processes were obtained from /ecoinvent version 3.3/, with the Cut-off system model, as compiled for SimaPro 8 in October 2016..

4. LCA: Scenarios and additional technical information

Transport to the manufacturer (A2)
A survey from Boon Edam in 2016 shown that all their suppliers are local companies, the furthest being situated 260km from Edam. This maximum value has been selected for all transport distances. (note: 'market' datasets from ecoinvent were selected in to model materials, meaning that upstream transports - occurring before the last transport step to Edam - are computed, but in the A1 module)

Transport to the building site (A4)
The distance is calculated as an average of Boon Edam's actual delivery, and is modelled as a freight truck transport.

Name	Value	Unit
Litres of fuel for 1t transported	4.5	l/100km
Transport distance	3500	km
Capacity utilisation (including empty runs)	49	%

Installation into the building (A5)

Name	Value	Unit
Packaging waste (wood)	111	kg
Packaging waste (paper & cardboard)	1.9	kg
Packaging waste (plastics)	2.3	kg

Reference service life

Name	Value	Unit
Life Span (according to /BBSR/)	20	a

Operational energy use (B6)
The electricity consumption of the motor drive is divided in 3 ranges of use:
- The revolving door is turned off
- The revolving door is in stand-by mode
- The revolving door is active

It is estimated that, during a day when the door is active, it will be 8 hours in each of the range. Moreover, we estimate that the door will be used 260 days per year (5 days a week for 52 weeks), and turned off the rest of the time.

Note: The power input values entered are for a collapsible doorset, and include lighting.
The values for both "standby" and "operation" would be much lower for a doorset without these two options.

Name	Value	Unit
Years of use (RSL)	20	years
Days used per year	260	days/year
Hours in standby (on day used)	8	hours/day
Hours active (on day used)	8	hours/day
Power in standby (collapsible door and lighting)	75	W
Power active (collapsible door and lighting)	150	W
Electricity consumption	4870	kWh

End of life (C1-C4)
Boon Edam Netherlands offers their customers a recycling scheme, in which the materials recovered from deconstruction are delivered to recycling stations, which are also the suppliers of Boon Edam. Their exact recycling rate is not known, therefore average Dutch percentage of recycled steel and aluminium was used in the model. They are based on the data from Dutch waste scenario in ecoinvent 3.3. For glass, which is used in the product but not included as recyclable in ecoinvent dataset, the collection rate of 25% was used. The remaining, not recycled materials are treated according to the same ecoinvent waste scenario, based on Eurostat 2012 data.

A survey from Boon Edam in 2016 shown that all their subcontractors providing recycling services are local companies that will have facilities in the vicinity of any

Boon Edam's customer. We used a distance of 100 km covered by truck to model this aspect.

Name	Value	Unit
Collected separately	2184	kg
Collected as mixed construction waste	1297	kg
Recycling	889	kg
Energy recovery	1073	kg
Landfilling	94.7	kg

5. LCA: Results

LCA results for a Boon Edam Tourniket TQ revolving door.

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

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	MND

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: 1 Tourniket TQ, all options included

Parameter	Unit	A1-A3	A4	A5	B2	B6	C1	C2	C3	C4
GWP	[kg CO_2-Eq.]	1.99E+4	1.67E+2	3.45E+0	9.06E+2	4.20E+3	2.69E+0	3.53E+1	1.27E+2	5.68E+0
ODP	[kg CFC11-Eq.]	9.16E-4	3.12E-5	4.43E-7	4.16E-5	4.20E-4	2.69E-7	6.59E-6	3.87E-6	2.44E-7
AP	[kg SO_2-Eq.]	1.19E+2	7.54E-1	2.84E-2	5.36E+0	2.12E+1	1.36E-2	1.59E-1	1.62E-1	1.28E-2
EP	[kg $(PO_4)^{3-}$-Eq.]	1.03E+1	1.17E-1	4.73E-3	7.99E-1	3.16E+0	2.02E-3	2.47E-2	2.76E-2	4.69E-3
POCP	[kg ethene-Eq.]	7.18E+0	2.74E-2	1.01E-3	5.34E-1	7.90E-1	5.06E-4	5.78E-3	9.11E-3	1.45E-3
ADPE	[kg Sb-Eq.]	2.81E-1	5.13E-4	5.28E-6	3.30E-2	6.36E-3	4.07E-6	1.08E-4	4.53E-5	1.22E-6
ADPF	[MJ]	1.88E+5	2.53E+3	4.33E+1	8.45E+3	4.44E+4	2.85E+1	5.35E+2	3.68E+2	2.73E+1

Caption	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

RESULTS OF THE LCA - RESOURCE USE: 1 Tourniket TQ, all options included

Parameter	Unit	A1-A3	A4	A5	B2	B6	C1	C2	C3	C4
PERE	[MJ]	3.16E+4	3.77E+1	5.42E+3	1.06E+3	1.58E+4	1.01E+1	7.96E+0	3.92E+3	1.38E+0
PERM	[MJ]	9.31E+3	0.00E+0	-5.41E+3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	-3.90E+3	0.00E+0
PERT	[MJ]	4.09E+4	3.77E+1	1.06E+1	1.06E+3	1.58E+4	1.01E+1	7.96E+0	1.98E+1	1.38E+0
PENRE	[MJ]	1.97E+5	2.59E+3	2.38E+2	9.19E+3	8.37E+4	5.36E+1	5.47E+2	2.80E+3	2.90E+1
PENRM	[MJ]	2.57E+3	0.00E+0	-1.69E+2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	-2.40E+3	0.00E+0
PENRT	[MJ]	1.99E+5	2.59E+3	6.88E+1	9.19E+3	8.37E+4	5.36E+1	5.47E+2	4.02E+2	2.90E+1
SM	[kg]	1.73E+2	0.00E+0	0.00E+0	1.77E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
RSF	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
NRSF	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
FW	[m^3]	1.81E+2	5.32E-1	7.76E-2	6.93E+0	7.20E+1	4.61E-2	1.12E-1	9.34E-2	2.58E-2

Caption	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 – OUTPUT FLOWS AND WASTE CATEGORIES: 1 Tourniket TQ, all options included

Parameter	Unit	A1-A3	A4	A5	B2	B6	C1	C2	C3	C4
HWD	[kg]	5.27E-1	1.52E-3	1.00E-4	4.83E-2	1.27E-1	8.15E-5	3.20E-4	5.77E-4	2.81E-5
NHWD	[kg]	5.87E+3	1.23E+2	7.56E+1	1.48E+2	2.77E+2	1.78E-1	2.60E+1	1.72E+1	9.51E+1
RWD	[kg]	3.86E-1	1.78E-2	4.66E-4	2.01E-2	5.93E-1	3.80E-4	3.76E-3	2.26E-3	1.44E-4
CRU	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MFR	[kg]	1.09E+2	0.00E+0	0.00E+0	4.08E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	8.89E+2
MER	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EEE	[MJ]	5.69E+1	0.00E+0	5.20E+1	4.30E+1	0.00E+0	0.00E+0	0.00E+0	2.97E+2	0.00E+0
EET	[MJ]	1.19E+2	0.00E+0	1.10E+2	8.83E+2	0.00E+0	0.00E+0	0.00E+0	6.13E+2	0.00E+0

Caption	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; EEE = Exported thermal energy

Notes:

Although the service life in accordance with the /BBSR/ table is not a RSL according to /ISO 15686/, we chose to declare the use phase over 20 years, in order to better reflect the impact over the lifetime of the product.

6. LCA: Interpretation

The environmental impacts of a Tourniket TQ with all options are mainly attributed to the Product Stage (A1-A3), followed by the operational energy use (B6). This is applicable for all Environmental Impact and Resource Use indicators, and for Hazardous and Non-hazardous Waste Disposed indicators.

Radioactive Waste Disposed are mainly the result of electricity consumption, due to the average European

mix used in the model.
The two last output flows indicators are naturally dominated by the Disposal step at End-of-Life Stage.

Out of three main materials used in the production of a Tourniket (glass, aluminium and steel), aluminium has the highest contribution in all impact categories.

At the end-of-life 55% of the materials in the product are send to incineration, 41% are recycled and the remainder is sent to landfill.

7. Requisite evidence

Not applicable for this product: Revolving doors rely on electric energy for functionning, and no emissions will be released in normal conditions.

8. References

Institut Bauen und Umwelt
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