ENVIRONMENTAL PRODUCT DECLARATION

as per /ISO 14025/ and /EN 15804/

Owner of the Declaration	**ASSA ABLOY Opening Solutions Sweden**
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-ASA-20180191-IBC1-EN
Issue date	20.12.2018
Valid to	19.12.2023

ASSA ABLOY Connect Lock case 740-50 ME

ASSA ABLOY Opening Solutions Sweden

Institut Bauen und Umwelt e.V.

www.ibu-epd.com / https://epd-online.com

1. General Information

ASSA ABLOY Opening Solutions Sweden	Connect Lock case 740-50 ME
Programme holder IBU - Institut Bauen und Umwelt e.V. Panoramastr. 1 10178 Berlin Germany	**Owner of the declaration** ASSA ABLOY Opening Solutions Sweden Kungsgatan 71 632 21 Eskilstuna Sweden
Declaration number EPD-ASA-20180191-IBC1-EN	**Declared product / declared unit** The declaration represents 1 mechanical lock case 740 ME with 50mm backset with micro switches.
This declaration is based on the product category rules: Building Hardware products, 02.2016 (PCR checked and approved by the SVR)	**Scope:** This declaration and the corresponding LCA study is done on a 740 - 50 ME lock case. This lock is the most complex variant that represents the family of emergency exit locks that consists of 710, 710 ME, 711, 711 ME, 740, 740 ME. The primary manufacturing processes are performed by external suppliers and the final manufacturing processes and assembly for the lock components occur at the ASSA ABLOY factory in Bucharest, Romania. The owner of the declaration shall be liable for the underlying information and evidence; IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.
Issue date 20.12.2018	
Valid to 19.12.2023	**Verification** The standard /EN 15804/ serves as the core PCR Independent verification of the declaration and data according to /ISO 14025:2010/ ☐ internally ☒ externally
Prof. Dr.-Ing. Horst J. Bossenmayer (President of Institut Bauen und Umwelt e.V.)	
Hans Peter (Head of Board IBU)	Dr. Wolfram Trinius (Independent verifier appointed by SVR)

2. Product

2.1 Product description / Product definition

Product name: Connect Lock Case 740 - 50 ME
Product characteristic: Emergency Exit Lock
- Reversible latch bolt for alternate door hanging
- Independent hardened hook bolt
- Provides a secure coupling between door and frame
- Blocked latch to ensure correct door to frame sealing pressure. This contributes to achieving optimal sound and heat insulation of the door.
- Lock is certified according to SSF 3522 class 2B.

The products are subject to CE marking. Relevant norms that can applied to Lock Case 740 - 50 ME are:

SS-EN 12209:2004

2.2 Application

The lock is designed for single or double leaf doors. The locks are typically installed in commercial buildings, such as
- Commercial campuses
- Colleges
- Detention centers
- Dormitories
- Hospitals
- Warehouses
- Psychiatric wards
- Where panic exit devices are a requirement.

2.3 Technical Data

The following table lists the technical properties of the product according to the classification SS-**EN 12209:2004.**

Classes	Required technical characteristic	Defined grades
1	Category of use	
2	Durability	X
3	Door mass and closing force	8
4	Suitability for use in fire resisting and/or smoke control door set	1
5	Safety	
6	Corrosion resistance	
7	Security – burglar resistance	
8	Key identification of lever stock	

There is no power consumption due to the fact that the electronics of the product are micro switch that only allow or break the flow of electricity.

2.4 Delivery status
The locks are delivered as a complete unit, including of lock case, fasteners and installation cables. Delivered in a box size 110 x 245 x 65 mm.

2.5 Base materials / Ancillary materials
The composition for ASSA ABLOY Connect Lock Case 740 - 50 ME is as following.

Component	Percentage in mass (%)
Copper	4.76
Electronics	0.76
Paper	0.00
Plastics	32.10
Stainless steel	0.42
Steel	57.91
Zinc	4.06
Others	
Total	100

2.6 Manufacture
The majority of the components are manufactured by sub-suppliers in Romania. The components originate from processes such as stamped steel, turning, zinc, steel casting. Final manufacturing and assembly is done in the ASSA ABLOY factory based in Bucharest, Romania.
The ASSA ABLOY factory in Romania has a Quality Management System and is certified according to ISO 9001:2015. Quality management systems can be referred to.

2.7 Environment and health during manufacturing
ASSA ABLOY Opening Solutions is committed to producing and distributing door opening solutions with minimal environmental impact, where health & safety is the primary focus for all employees and associates.
• Environmental operations, GHG, energy, water, waste, VOC, surface treatment and H&S are routinely monitored. Inspections, audits, and reviews are conducted periodically to ensure that applicable standards are met and to evaluate the effectiveness of the environmental management program.
• Code of Conduct covers human rights, labor practices and decent work. The management of ASSA ABLOY Opening Solutions are aware of their environmental roles and responsibilities, providing appropriate training, supporting accountability and recognizing outstanding performance.
• The ASSA ABLOY factory in Romania has an Environmental Management System certified according to ISO 14001:2015. Preparation and manufacturing conditions in the factory do not require special health and safety measures. Standard health and safety measures (work gloves, hearing protection, safety shoes, dust mask when sanding and milling, dust extraction, etc.) are observed where appropriate.
• Water and soil contamination does not occur, and all production related waste is processed internally in the appropriate manner.
• Any waste metals during machining are separated and recycled.

2.8 Product processing/Installation
740 - 50 ME are distributed through, and installed by trained technicians, such as locksmiths or security technicians. Preparation of doors and frames are conducted at the door manufacturer's production site.

2.9 Packaging
740 - 50 ME are packed in a plastic bag within a cardboard box. Packaging includes installation instruction and drilling template in paper – all of which are fully recyclable. The packaging does not return to the manufacturer meaning it stays at the site.

Name	Value
Paper	71.75
Plastic	28.25
Total	100

2.10 Condition of use
Annual inspection is recommended in order to guarantee the correct functionality of the product. The inspection includes: checking, fixing screws to ensure they are properly tight, correct adjustments (closing speeds, force), compliance with local legal inspection standards and greasing all the moving parts.

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 reference service life of 10+ years (depending on frequency of use) in a typical installation where 740 - 50 ME lock is used as an emergency exit lock for when the facilities are evacuated.
The lock is tested according to SS-EN 12209:2004 and SS-EN 1125.

2.13 Extraordinary effects

Fire
740 - 50 ME is suitable for use in fire and smoke protection doors. Connect Lock Case 740 - 50 ME is fire tested for usage in fire and smoke protection doors according to EN 1634-1."

Water
The product does not contain any substances that could be released and have an additional environmental impact on water in case of flood.

Mechanical destruction
No danger to the environment can be anticipated during mechanical destruction of the products.

2.14 Re-use stage
The product can be re-used during the reference service life and it can be moved from one application to another.

2.15 Disposal
The product can be mechanically dissembled to separate the different materials. The majority, by weight, of components is steel, which can be recycled. The plastic components can be used for energy recovery in an incineration process. The lock can be sent for recycling to a professional recycling service provider. No disposal is foreseen for the product nor for the corresponding packaging.

EWC/ 17 04 05 iron and steel
EWC/ 17 02 03 plastic.
EWC/ 17 04 04 zinc
EWC/ 17 04 01 copper, bronze, brass

EWC/ 15 01 01 paper and cardboard packaging
EWC/ 15 01 02 plastic packaging

2.16 Further information

ASSA ABLOY Opening Solutions Sweden
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Sweden
https://www.assaabloyopeningsolutions.se.

3. LCA: Calculation rules

3.1 Declared Unit

The declaration refers to the functional unit of 1 piece 1 mechanical lock case 740 ME with 50mm backset with micro switches.

Declared unit

Name	Value	Unit
Mass (without packaging)	1.11	kg
Mass packaging (paper and plastics)	0.014	kg
Conversion factor to 1 kg	0.90	-
Declared unit for hardware systems	1	piece

3.2 System boundary

Type of the EPD: cradle to gate - with options
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 includes:

- B6 – Operational energy use

C1-C4 End-of-life stage:

- 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.

Module D:

- Declaration of all benefits and loads

3.3 Estimates and assumptions

Transportation: Data on 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 stage, it is assumed that the lock is used within EU-28. Furthermore, there is no power consumption due to the fact that the electronics of the product are micro switches that allow or break the flow of electricity.

EoL:
In the End-of-Life stage, for all the materials which can be recycled, a recycling scenario with 100% collection rate was assumed. The geographical region where EoL takes place is EU-27. 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 modeling of the considered products, the GaBi 8.7.0.18 Software System for Life Cycle Engineering,
developed by thinkstep AG, is used /GaBi 8.7.0.18 2018/. The GaBi-database contains consistent and
documented datasets which are documented in the online GaBi-documentation /GaBi 8.7.0.18 2018D/.
To ensure comparability of results in the LCA, the basic data of GaBi database were used for energy, transportation and auxiliary materials.

3.6 Data quality

The requirements for data quality and background data correspond to the specifications of the /IBU PCR Part A.
thinkstep performed a variety of tests and checks during the entire project to ensure 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 GaBi 8.7.0.18 software database.

3.7 Period under review

The period under review is 2017/18 (12-month average).

3.8 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 plastic
Waste incineration of paper (packaging)

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 GaBi dataset documentation.

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. GaBi 8.7.0.18 serves as background database for the calculation.

4. LCA: Scenarios and additional technical information

The following technical scenario information is required 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).

Transport to the building site (A4)

Name	Value	Unit
Litres of fuel	39,4	l/100km
Transport distance	2438	km
Capacity utilisation (including empty runs)	85-	%

Installation into the building (A5)

Name	Value	Unit
Output substances following waste treatment on site (Paper packaging)	0.01	kg
Output substances following waste treatment on site (Plastics packaging)	0.004	kg

Reference service life

Name	Value	Unit
Reference service life (according to ISO 15686-1, -2, -7 and -8)	10	a

Operational energy use (B6)

Name	Value	Unit
Hours per day in on mode	24	h
Electricity consumption	none	kWh

End of life (C1-C4)

Name	Value	Unit
Collected separately (Copper, Plastics, Stainless steel, Steel, Zinc, Electronic) (excl. packaging)	1.11	kg
Incineration of plastic parts	0.36	kg
Recycling Copper, Stainless Steel Steel, Electronics, Zinc	0.75-	kg

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

Name	Value	Unit
Collected separately waste type (including packaging)	1.12	kg
Recycling Copper	4.70	%
Recycling Steel	57.18	%
Recycling Stainless Steel	0.42	%
Recycling Electronics	0.75	%
Incineration of Plastic parts (not packaging)	32.05	%
Incineration of packaging (paper and plastic) (from A5)	0.90	%

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5. LCA: Results

Results shown below were calculated using CML 2000 – Apr. 2013 Methodology.

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	MND	MNR	MNR	MNR	X	MND	MND	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: 1 piece of 740 - 50 ME lock case

Parameter	Parameter	Unit	A1 - A3	A4	A5	B6	C2	C3	C4	D
GWP	Global warming potential	[kg CO_2-Eq.]	3.52E+00	1.30E-01	1.83E-02	0.00E+00	5.28E-03	4.22E-03	8.81E-01	-1.87E+00
ODP	Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	2.12E-10	6.24E-13	-1.69E-12	0.00E+00	2.53E-14	2.89E-12	2.63E-12	-2.14E-10
AP	Acidification potential of land and water	[kg SO_2-Eq.]	1.37E-02	5.97E-04	-9.18E-06	0.00E+00	2.42E-05	1.99E-05	2.22E-04	-8.04E-03
EP	Eutrophication potential	[kg $(PO_4)^{3-}$-Eq.]	1.10E-03	1.36E-04	-2.73E-07	0.00E+00	5.52E-06	1.12E-06	1.48E-05	-5.25E-04
POCP	Formation potential of tropospheric ozone photochemical oxidants	[kg ethene-Eq.]	1.62E-03	-1.92E-04	-8.90E-07	0.00E+00	-7.79E-06	1.18E-06	1.06E-05	-8.37E-04
ADPE	Abiotic depletion potential for non-fossil resources	[kg Sb-Eq.]	7.94E-04	4.91E-09	4.40E-10	0.00E+00	1.99E-10	5.84E-10	5.30E-08	-6.39E-04
ADPF	Abiotic depletion potential for fossil resources	[MJ]	5.20E+01	1.80E+00	-7.78E-02	0.00E+00	7.29E-02	4.79E-02	3.70E-01	-2.11E+01

RESULTS OF THE LCA - RESOURCE USE: 1 piece of 740 - 50 ME lock case

Parameter	Parameter	Unit	A1 - A3	A4	A5	B6	C2	C3	C4	D
PERE	Renewable primary energy as energy carrier	[MJ]	4.74E+00	-	-	-	-	-	-	-
PERM	Renewable primary energy resources as material utilization	[MJ]	0.00E+00	-	-	-	-	-	-	-
PERT	Total use of renewable primary energy resources	[MJ]	4.74E+00	7.09E-02	-7.82E-03	0.00E+00	2.87E-03	1.37E-02	2.61E-02	-1.69E+00
PENRE	Non-renewable primary energy as energy carrier	[MJ]	5.73E+01	-	-	-	-	-	-	-
PENRM	Non-renewable primary energy as material utilization	[MJ]	0.00E+00	-	-	-	-	-	-	-
PENRT	Total use of non-renewable primary energy resources	[MJ]	5.73E+01	1.80E+00	-9.35E-02	0.00E+00	7.31E-02	7.50E-02	4.09E-01	-2.30E+01
SM	Use of secondary material	[kg]	1.18E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	Use of renewable secondary fuels	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	Use of non-renewable secondary fuels	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	Use of net fresh water	[m^3]	1.90E-02	5.00E-05	4.51E-05	0.00E+00	2.03E-06	3.39E-05	2.05E-03	-7.97E-03

RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES: 1 piece of 740 - 50 ME lock case

Parameter	Parameter	Unit	A1 - A3	A4	A5	B6	C2	C3	C4	D
HWD	Hazardous waste disposed	[kg]	3.43E-03	4.11E-06	-5.79E-06	0.00E+00	1.67E-07	1.04E-05	2.62E-05	-3.23E-04
NHWD	Non-hazardous waste disposed	[kg]	2.06E-01	2.27E-04	1.27E-03	0.00E+00	9.19E-06	2.42E-05	1.19E-01	-1.18E-01
RWD	Radioactive waste disposed	[kg]	2.10E-03	2.36E-06	-6.24E-06	0.00E+00	9.57E-08	1.08E-05	1.55E-05	-7.48E-04
CRU	Components for re-use	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	Materials for recycling	[kg]	0.00E+00	0.00E+00	1.00E-02	0.00E+00	0.00E+00	7.46E-01	0.00E+00	0.00E+00
MER	Materials for energy recovery	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	Exported electrical energy	[MJ]	0.00E+00	0.00E+00	3.73E-02	0.00E+00	0.00E+00	0.00E+00	1.70E+00	0.00E+00
EET	Exported thermal energy	[MJ]	0.00E+00	0.00E+00	1.04E-01	0.00E+00	0.00E+00	0.00E+00	4.67E+00	0.00E+00

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 77.0 % and 99.9 % to the overall results for all the environmental impact assessment categories hereby considered; Abiotic depletion potential (ADPE), for which the contribution of the production stage (modules A1-A3) accounts for approx. 99.99 % - describes the reduction of the global amount of non-fossil resources, therefore, as expected, it is mainly related with the extraction of raw materials (A1).

Within the production stage, the main contribution for all the impact categories is the production of steel mainly due to the energy consumption. Steel accounts with approx. 57 % to 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.

The use stage (module B6), has no contribution due to the fact that the electronics in the product are micro switches that only allow or break the flow of electricity. Thus, they do not consume electricity.

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

/EN 15804/
/EN 15804:2012-04+A1 2013/, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

/EN 1634-1/
/Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware. Fire resistance test for door and shutter assemblies and openable windows

/GaBi 8.7.0.18:2018a/
Software-System and Database for Life Cycle Engineering. Copyright, TM. Stuttgart, thinkstep AG, Echterdingen, 1992-2018

/GaBi 8.7.0.18:2018b/
Documentation of GaBi 6: Software-System and Database for Life Cycle Engineering. Copyright, TM. Stuttgart, thinkstep AG, Echterdingen, 1992-2013. http://documentation.gabi-software.com/

/IBU 2016/
IBU (2016): General Programme Instructions for the Preparation of EPDs at the Institut Bauen und Umwelt e.V., Version 1.1 Institut Bauen und Umwelt e.V., Berlin.
www.ibu-epd.de

/ISO 14025/
DIN EN /ISO 14025:2011-10/, Environmental labels and declarations — Type III environmental declarations — Principles and procedures

/ISO 9001:2015/
/Quality management systems - -- Requirements with guidance for use

/ISO 14001:2015/
/Environmental management systems -- Requirements with guidance for use.

/OHSAS 18001:2007/
/Occupational Health and Safety Assessment Series

/SS-EN 12209:2004/
/Building hardware - Locks and latches - Mechanically operated locks, latches and locking plates - Requirements and test methods

/SS-EN 1125:2008/
/Building hardware - Panic exit devices operated by a horizontal bar - Requirements and test methods

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9. Annex

Results shown below were calculated using TRACI Methodology.

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 BOUNDARYS
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement[1)]	Refurbishment[1)]	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	MND	MND	MND	MND	X	MND	MND	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: 1 piece of 740 - 50 ME lock case

Parameter	Parameter	Unit	A1 - A3	A4	A5	B6	C2	C3	C4	D
GWP	Global warming potential	[kg CO_2-Eq.]	3.52E+00	1.30E-01	1.83E-02	0.00E+00	5.28E-03	4.22E-03	8.81E-01	-1.87E+00
ODP	Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	2.26E-10	6.64E-13	-1.80E-12	0.00E+00	2.69E-14	3.07E-12	2.80E-12	-2.27E-10
AP	Acidification potential of land and water	[kg SO_2-Eq.]	1.35E-02	7.80E-04	-7.68E-06	0.00E+00	3.16E-05	1.88E-05	2.58E-04	-7.77E-03
EP	Eutrophication potential	[kg N-eq.]	9.89E-04	5.51E-05	-3.66E-07	0.00E+00	2.23E-06	8.01E-07	7.23E-06	-3.53E-04
Smog	Ground-level smog formation potential	[kg O_3-eq.]	1.65E-01	1.60E-02	-5.37E-05	0.00E+00	6.50E-04	1.70E-04	1.67E-03	-8.75E-02
Resources	Resources – resources fossil	[MJ]	4.65E+00	2.59E-01	-9.67E-03	0.00E+00	1.05E-02	3.41E-03	3.83E-02	-1.26E+00

RESULTS OF THE LCA - RESOURCE USE: 1 piece of 740 - 50 ME lock case

Parameter	Parameter	Unit	A1 - A3	A4	A5	B6	C2	C3	C4	D
PERE	Renewable primary energy as energy carrier	[MJ]	4.74E+00	-	-	-	-	-	-	-
PERM	Renewable primary energy resources as material utilization	[MJ]	0.00E+00	-	-	-	-	-	-	-
PERT	Total use of renewable primary energy resources	[MJ]	4.74E+00	7.09E-02	-7.82E-03	0.00E+00	2.87E-03	1.37E-02	2.61E-02	-1.69E+00
PENRE	Non-renewable primary energy as energy carrier	[MJ]	5.73E+01	-	-	-	-	-	-	-
PENRM	Non-renewable primary energy as material utilization	[MJ]	0.00E+00	-	-	-	-	-	-	-
PENRT	Total use of non-renewable primary energy resources	[MJ]	5.73E+01	1.80E+00	-9.35E-02	0.00E+00	7.31E-02	7.50E-02	4E-01	-2.30E+01
SM	Use of secondary material	[kg]	1.18E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	Use of renewable secondary fuels	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	Use of non-renewable secondary fuels	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	Use of net fresh water	[m^3]	1.90E-02	5.00E-05	4.51E-05	0.00E+00	2.03E-06	3.39E-05	2.05E-03	-7.97E-03

RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES: 1 piece of 740 - 50 ME lock case

Parameter	Parameter	Unit	A1 - A3	A4	A5	B6	C2	C3	C4	D
HWD	Hazardous waste disposed	[kg]	3.43E-03	4.11E-06	-5.79E-06	0.00E+00	1.67E-07	1.04E-05	2.62E-05	-3.23E-04
NHWD	Non-hazardous waste disposed	[kg]	2.06E-01	2.27E-04	1.27E-03	0.00E+00	9.19E-06	2.42E-05	1.19E-01	-1.18E-01
RWD	Radioactive waste disposed	[kg]	2.10E-03	2.36E-06	-6.24E-06	0.00E+00	9.57E-08	1.08E-05	1.55E-05	-7.48E-04
CRU	Components for re-use	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-
MFR	Materials for recycling	[kg]	0.00E+00	0.00E+00	1.00E-02	0.00E+00	0.00E+00	7.46E-01	0.00E+00	-
MER	Materials for energy recovery	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-
EEE	Exported electrical energy	[MJ]	0.00E+00	0.00E+00	3.73E-02	0.00E+00	0.00E+00	0.00E+00	1.70E+00	-
EET	Exported thermal energy	[MJ]	0.00E+00	0.00E+00	1.04E-01	0.00E+00	0.00E+00	0.00E+00	4.67E+00	-

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