Environmental Product Declaration in accordance with ISO 14025 and EN 15804+A2

Schindler 9300

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This EPD provides current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.epdhub.com.

We Elevate

General information

Geographical scope	India
Manufacturer	Schindler Management Ltd Zugerstrasse 13 6030 Ebikon, Switzerland Product_integrity@schindler.com www.schindler.com
Program operator	EPD Hub Limited 77 Lower Camden Street Dublin, D02 XE80, Ireland hub@epdhub.com
Reference standard	EN 15804 + A2:2019 and ISO 14025
PCR	EPD Hub Product Category Rules 1.2 - March 24th, 2023 PCR 2019:14 V2.0.0 C-PCR-025
Sector	Manufactured product
Category of EPD	Third party verified EPD
Scope of the EPD	The function of an escalator is the transportation of passengers over an inclined (or horizontal) trajectory. Functional unit: 1 passenger-kilometer (pkm) System boundary: cradle to grave and module D
EPD author	Georg Wagenleitner

Verification

Independent verification of this EPD and data, according to ISO 14025 **☐Internal ☒External**
EPD verifier: Nikolay Minkov

The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

Product	
Product name	Schindler 9300
Additional labels	–
Product reference	–
Place(s) of raw material origin	
Place of production	Pune, India
Place of installation and use	
Period for data	2024
Averaging in EPD	No grouping
Variation in GWP-fossil for A1–A3 (%)	0
GTIN (Global Trade Item Number)	–
NOBB (Norwegian Building Product Database)	–
A1-A3 Specific data (%)	99.2

Environmental data summary	
Declared unit	1 unit of escalator
Declared unit mass (kg)	5,043
GWP-fossil, A1–A3 (kgCO2e)	2.59E+04
GWP-total, A1–A3 (kgCO2e)	2.62E+04
Secondary material, inputs (%)	37
Secondary material, outputs (%)	93
Total energy use, A1–A3 (kWh)	88,400
Total water use, A1–A3 (m3e)	170

Product and manufacturer

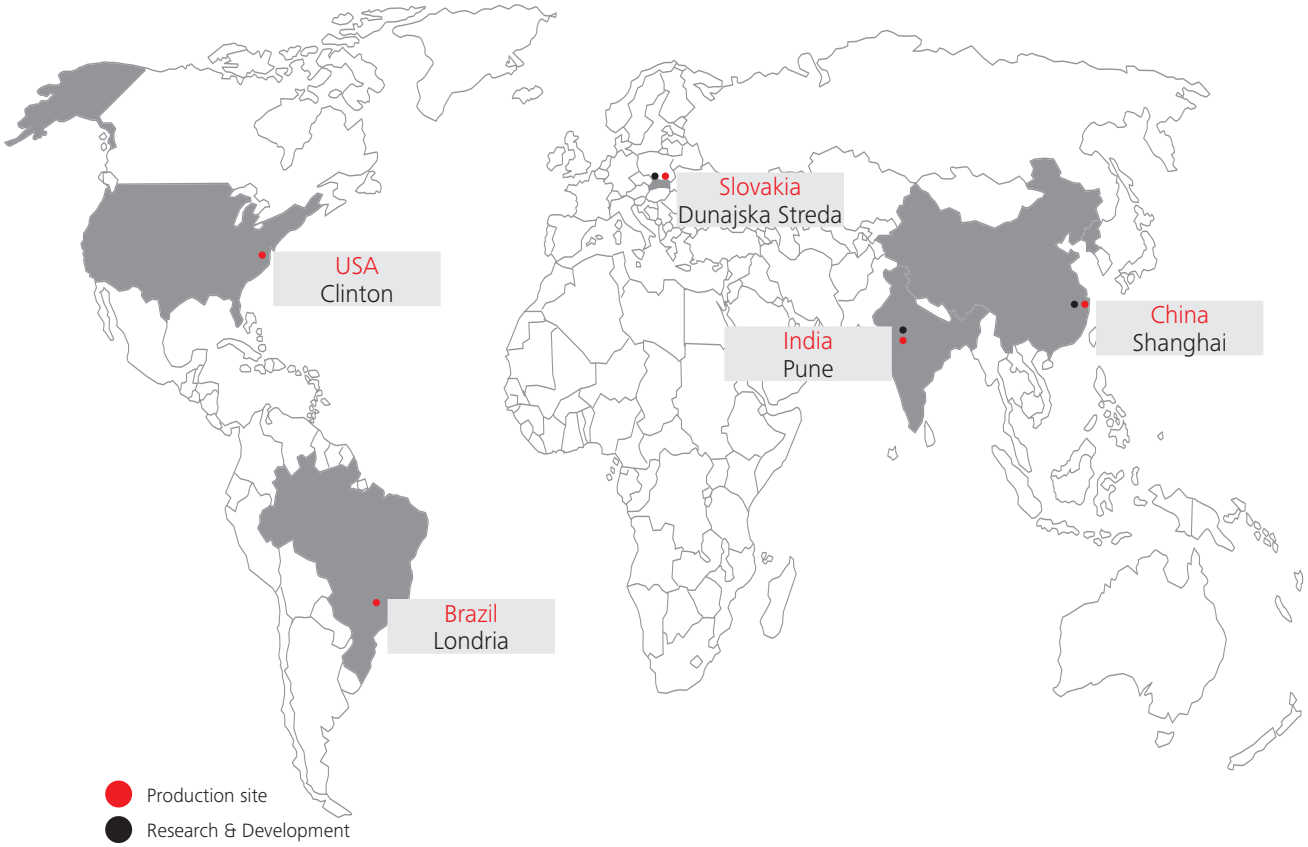
Founded in Switzerland in 1874, the Schindler Group is a leading global provider of elevators, escalators, and related services. Its innovative and environmentally friendly access and transit management systems make an important contribution to mobility in urban societies.

Behind the company's success are around 70,000 employees in more than 1,000 branches in over 100 countries throughout Europe, North & South America, Asia-Pacific, and Africa with manufacturing plants strategically located in Europe, Brazil, USA, China, and India.

Schindler manufactures, installs, services, and modernizes elevators, escalators, and moving walks for almost every type of building worldwide. Schindler's offerings range from cost-effective solutions for low-rise residential buildings to sophisticated access and transportation management concepts for skyscrapers.

Schindler moves people and materials and connects vertical and horizontal transportation systems through intelligent mobility solutions driven by green and user-friendly technologies. Schindler products can be found in many well-known buildings across the globe, including residential and office buildings, airports, shopping centers/retail establishments, and buildings with special requirements.

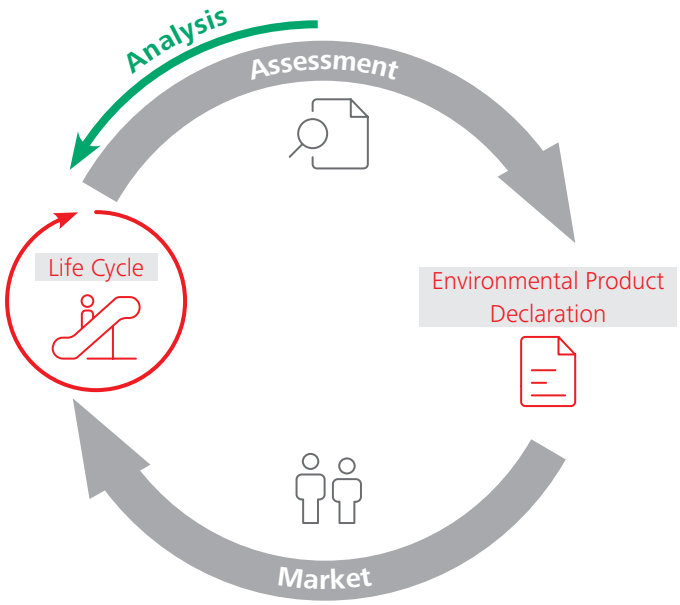
Production sites of Schindler escalators and moving walks



We Elevate... Sustainability

Schindler's commitment to sustainability is enshrined in our Corporate Sustainability Policy, which defines our approach to sustainability based on four pillars – People, Product, Planet, and Performance – and the journey we have embarked on regarding key sustainability challenges. Sustainability is a dual commitment for Schindler: We want to fulfill our vision of leadership in urban mobility solutions and strive to optimize our environmental impact while investing in people and society. Schindler has demonstrated this commitment by achieving ISO 9001/14001 certification in 2020.

Mobility is essential in the world we live and work in. Every day, more than 2 billion people all over the world place their trust in Schindler. That is why we are committed to continuously improving the environmental impact of our products and services along the whole life cycle. Since our foundation in Central Switzerland in 1874, Schindler has grown around the world and is recognized as a responsible corporate citizen. We firmly intend to continue evolving along this path with a global perspective on sustainability and a focus on the most relevant key performance indicators.



From design to recycling
Environmental assessment concerns are an essential aspect of the product development process at Schindler that begins with the initial design sketches and continues through disposal and recycling. The assessment adheres strictly to the ISO 14040 standard and is integrated into the Corporate Research & Development ISO 14001 Environmental Management System, ensuring openness throughout all phases.

Life Cycle Assessment (LCA)
Schindler conducts life cycle assessments of its products. The objective is to continuously improve the environmental performance of the product assessed. A holistic approach is applied all the way from initial product development through to continuous product improvement initiatives.

Environmental Product Declaration (EPD)
The EPD provides verified information regarding a product's environmental impact. The declaration adheres to ISO 14025 and is based on a Life Cycle Assessment study in accordance with the requirements of EN 15804+A2 and applicable PCR 2019:14 V2.0.0 and C-PCR-025. Product category rules (PCRs) specify the guidelines and requirements for EPDs of a certain product category. By simplifying a difficult issue, they are an essential component of ISO 14025 since they enable transparency and comparability between EPDs.

Product information

Product description

Schindler escalators and moving walks are ideally adapted for use in all relevant application segments. Because of their modular design, Schindler escalators and moving walks can be configured specifically to meet the needs of each customer and application. Comparability between EPDs based on C-PCR-025 Escalators and moving walks (to PCR 2019:14) is only achievable if the following performance characteristics apply: functional unit (FU), operation mode, and usage class (UC) are identical, and the geographic region is equivalent.

The representative installation for this life cycle assessment (LCA) is a typical escalator as specified for commercial projects. Its configuration corresponds to a typical application of the Schindler 9300, with a usage class 2 (UC2), 7,000 passengers per day. This Schindler 9300 representative has a vertical rise of 4.5 m, a step width of 1,000 mm, an inclination of 30° and a nominal speed of 0.5 m/s. A technical life span (TL) of 15 years, operation of 365 days per year with "Auto start" operation mode (according ISO 25745-3) is considered.

Technical specifications	
Key figures	**Schindler 9300**
Vertical rise (m)	Up to 20
Angle of inclination, α [degree]	27.3, 30, 35
Nominal speed (m/s)	0.5, 0.65, 0.75
Balustrade design	Vertical and inclined balustrade
Step width (mm)	600, 800, 1,000
Transition radius, top/bottom (m)	1.0/1.0, 1.5/1.0, 2.6/2.0
Type of horizontal step run	2, 3, 4 horizontal steps
Step chain type	Chain rollers inside chain links
Relieving curve	No

Product application

The Schindler 9300 escalators are ideally suited for adaptation to contemporary architectural concepts, be it in shopping malls, movie centers, museums, furniture or shoe stores or public transportation applications. It offer virtually every variant – from the aesthetic, timeless basic equipment via highly distinctive customized design options to sturdy designs for public transportation applications.

Product standards

All Schindler escalators and moving walks are TÜV certified and meet all international standards, including EN 115, GB 16899, HK-COP, ANSI, and others.

Physical properties of the product representative unit	
Characteristic	Values
Type of installation	Escalator
Type of configuration	New specific installation
Commercial name	Schindler 9300
Recommended application	Commercial
Geographic region of intended installation	India
Optional equipment	Multi speed operation (slow speed operation and stand by operation by frequency conversion)
Technical life span (TL) in years	15
Applied Usage Class (UC) (as per Table 1 of c-PCR-025)	2 (7,000 passengers/ day)
Nominal speed (m/s)	0.5
Number of operating days per year	365
Operation mode (as per Table 3 of ISO 25745-3)	Auto start
Angle of inclination, α [degree]	30
Vertical rise (m)	4.5
Step width (mm)	1,000

Product raw material main composition		
Raw material category	Amount, mass %	Material origin
Metals	~90	India, China
Minerals	~7.4	India
Fossil materials	~2.6	India
Bio-based materials	–	

Content declaration including packaging			
Raw material category	**Weight (kg)**	**Weight (%)**	**Post-consumer material weight (%)**
Declared unit			
Ferrous metals	3,885.8	75.8	unknown
Non-ferrous metals	595.4	11.6	unknown
Plastics and rubbers	89.2	1.7	0.0
Inorganic materials	0.0	0.0	0.0
Organic materials (e.g. paper or wood)	0.0	0.0	0.0
Lubricants (e.g. oils and greases), paints, coatings, adhesives, and fillers	10.7	0.2	0.0
Electric and electronic equipment	88.2	1.7	unknown
Batteries and accumulators	0.0	0.0	0.0
Other materials	373.7	7.3	unknown
Packaging			
Ferrous metals	0.0	0.0	0.0
Non-ferrous metals	0.0	0.0	0.0
Plastics and rubbers	24.0	0.5	0.0
Inorganic materials	0.0	0.0	0.0
Organic materials: wood	22.0	0.4	0.0
Organic materials: paperboard	36.0	0.7	0.0
Lubricants (e.g. oils and greases), paints, coatings, adhesives, and fillers	0.0	0.0	0.0
Electric and electronic equipment	0.0	0.0	0.0
Batteries and accumulators	0.0	0.0	0.0
Other materials	0.0	0.0	0.0
Total	**5,125**	**100**	

Biogenic carbon content	**Product's biogenic carbon content at the factory gate.**
Biogenic carbon content in product (kg C)	0
Biogenic carbon content in packaging (kg C)	22.36

Functional unit and service life	
Declared unit	1 unit of escalator
Mass per declared unit (kg)	5,043
Functional unit	1 person kilometer (pkm)
Technical life span (TL) in years	15

Substances, reach – very high concern

Hazardous substances are avoided as much as possible, in accordance with REACH. However, substances may still exist above 0.1% weight by weight in articles used in our product.

The reported Candidate List substances can be found in SCIP:
https://echa.europa.eu/factsheet/-/factsheet/224641409

Product life cycle

System boundry

This EPD covers the life cycle modules listed in the table below:

Product stage	Raw material supply	A1	✓
	Transport	A2	✓
	Manufacturing	A3	✓
Construction process stage	Transport	A4	✓
	Installation	A5	✓
Use stage	Use	B1	not relevant
	Maintenance	B2	✓
	Repair	B3	not relevant
	Replacement	B4	not relevant
	Refurbishment	B5	not relevant
	Operational energy use	B6	✓
	Operational water use	B7	not relevant
End-of-life stage	Deconstruction	C1	✓
	Transport	C2	✓
	Waste processing	C3	✓
	Waste disposal	C4	✓
Beyond the system boundaries	Recycling	D	✓

Manufacturing and packaging (A1–A3)

The product stage (A1–A3) includes the extraction and production of raw materials, transportation to the manufacturing location (mostly by truck), component manufacturing, and component assembly while accounting for the requirements of energy, auxiliary and operating materials, and packaging.

All components such as drive, guides, steps, sheet metal, etc. are received as finished parts at the escalator factory. Packaging is discarded. The escalators are assembled with electrical machinery support. After assembly the escalator is packed and sent to installation destination.

Transport and installation (A4–A5)

The assembly stage (A4–A5) includes truck transportation to the installation site and installation, taking into account energy demand and auxiliary materials including related volatile organic compound (VOC) emissions.

Product use and maintenance (B1–B7)

The use stage (B1–B7) includes maintenance, taking into account the transportation of employees to the installation site and auxiliary materials, including related VOC emissions.
Module B2 is based on preventive maintenance, taking into account the replacement of components at predetermined intervals to ensure functionality of the product over the course of its 15-year life span (B2).

The product uses power from the country electricity grid mix at the operation stage (B6).This EPD follows additional requirements for products using energy in module B6 of the use stage and permanently installed into building or infrastructure (defined by the manufacturer). Based on the load profile, speed, and rise of the escalator over the course of its lifetime, the value was calculated in accordance with the ISO 25745-3 standard. All other modules are not relevant, and modernization of the unit is not anticipated. Air, soil, and water impacts during the use stage have not been investigated.

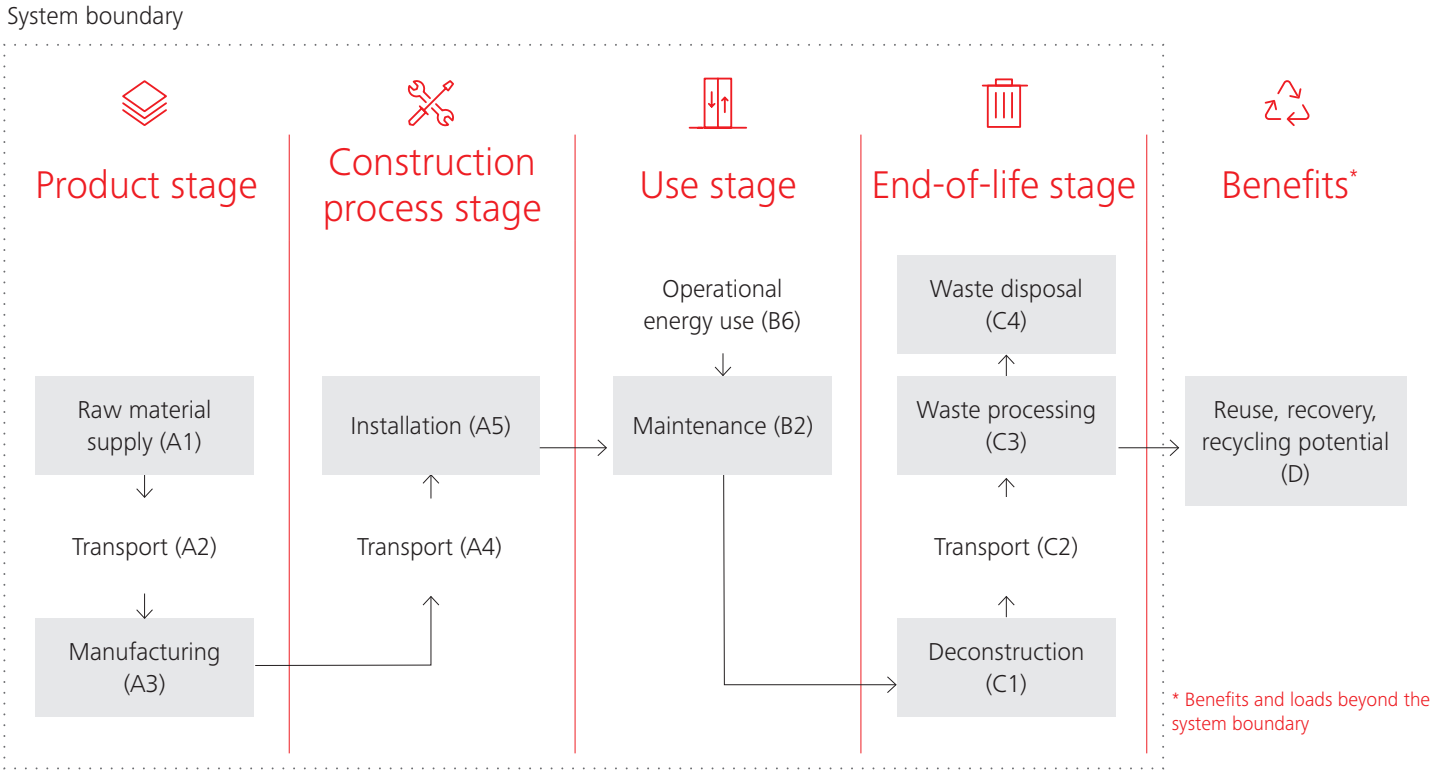
Product end of life (C1–C4, D)

The end-of-life stage (C1–C4) includes deconstruction, taking into account energy demand and auxiliary materials, transportation by truck to waste processing facilities, waste processing including sorting, and waste disposal, including a scenario with recycling, incineration, and landfill. Finally, the benefits and loads beyond the system boundaries stage (D) includes the potential for recycling by substitution of primary material and energy recovery.

Electricity in the manufacturing (A3) and operation phases (B6)

The production process (manufacturing A3) requires the usage of electricity. Each country has its own electricity mix with its own composition and environmental impact. The following table shows the GWP GHG emission factors of kg CO2 equivalent per kWh (kg CO2e/kWh) with a location-based approach, for the electricity grid supply and the photovoltaic power station supply from the rooftop of the Schindler production facility. Location-based approach was applied for the operational energy use stage (operation B6).

Country	Electricity kg CO2e/kWh	Photovoltaic power station kg CO2e/kWh
India (Production A3)	1.33	0.058
India (Installation B6)	1.58	-


System boundary
Product stage
Construction process stage
Use stage
End-of-life stage
Benefits*
Raw material supply (A1)
Transport (A2)
Manufacturing (A3)
Installation (A5)
Transport (A4)
Operational energy use (B6)
Maintenance (B2)
Waste disposal (C4)
Waste processing (C3)
Transport (C2)
Deconstruction (C1)
Reuse, recovery, recycling potential (D)
* Benefits and loads beyond the system boundary

Manufacturing process

Production
Finished parts, components, and small assembly groups are produced by external suppliers. After transportation to the Schindler production facilities, the units are assembled there.

Schindler manufactures the steps and pallets at its own aluminum die-casting factories located next to or nearby its assembly plants.

Life cycle assessment

Cut-off criteria

The Life Cycle Assessment (LCA) was conducted using the ecoinvent database. The applied LCA method follows the "Cut-off by classification" approach, in accordance with EN 15804+A2. The study does not exclude any of the processes or modules that the applied PCR and reference standards specify as mandatory, nor does it exclude any potentially harmful products or substances. All significant raw material and energy usage is covered in the study. The calculation takes into account all of the unit processes' inputs and outputs for which data is available. No disregarded unit process accounts for more than 1% of the total mass or energy flows. Additionally, the total disregarded input and output flows for each module do not use more than 5% of the energy or mass used. All LCA processes used are qualified as "good".

Allocation, estimates, and assumptions

The allocation method applied for post-consumer waste is the cut-off approach, meaning no environmental burdens are allocated to the recycled material beyond the point of collection. Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	No allocation
Packaging materials	Allocated by mass
Ancillary materials	Allocated by mass
Manufacturing energy and waste	Allocated by mass

Averages and variability	
Type of average	No averaging
Averaging method	Not applicable
Variation in GWP-fossil for A1–A3	– %

This EPD is specific to the product and factory and does not contain average calculations.

LCA software and bibliography

This EPD has been created using the One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. Ecoinvent V3.10.1 and One Click LCA databases were used as sources of environmental data.

Environmental performance

Environmental impact data in upward direction, per functional unit

The estimated impact results are relative statements that do not specify the impact categories' endpoints, exceeding threshold values, safety margins, and/or risks.

Core environmental impact indicators – EN 15804+A2, EF 3.1, per functional unit

	EN 15804	Product stage				Construction process stage		Use stage		End-of-life stage					Net benefits
Impact category	**Unit**	**A1**	**A2**	**A3**	**Sum A1–A3**	**A4**	**A5**	**B2**	**B6**	**C1**	**C2**	**C3**	**C4**	**Total**	**D**
GWP_{tot}	kg CO_2e	7.20E-02	4.97E-04	3.50E-03	7.60E-02	9.10E-05	8.75E-04	3.47E-03	5.07E-01	5.40E-04	9.12E-05	4.97E-04	6.28E-04	5.90E-01	-1.83E-02
GWP_{fos}	kg CO_2e	7.09E-02	4.97E-04	3.77E-03	7.51E-02	9.10E-05	5.85E-04	3.47E-03	5.07E-01	5.40E-04	9.11E-05	4.97E-04	6.28E-04	5.88E-01	-1.82E-02
GWP_{bio}	kg CO_2e	1.05E-03	9.57E-08	-2.75E-04	7.75E-04	0.00E+00	2.90E-04	-8.06E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.07E-03	0.00E+00
GWP_{luluc}	kg CO_2e	6.19E-05	2.45E-07	7.28E-06	6.94E-05	4.12E-08	5.74E-08	1.97E-06	5.11E-04	5.54E-08	4.23E-08	5.91E-07	2.79E-08	5.83E-04	-4.05E-05
ODP	kg $CFC\text{-}_{11}$e	8.67E-10	7.57E-12	3.57E-11	9.10E-10	1.35E-12	8.15E-12	6.38E-11	1.21E-09	8.26E-12	1.46E-12	3.71E-12	5.48E-13	2.21E-09	-3.82E-11
AP	mol H+e	4.31E-04	6.64E-06	1.45E-05	4.52E-04	2.08E-07	4.78E-06	9.92E-06	2.49E-03	4.87E-06	2.35E-07	2.68E-06	1.92E-07	2.96E-03	-1.15E-04
EP_{fw}*	kg Pe	2.60E-05	3.02E-08	1.89E-06	2.79E-05	7.13E-09	1.66E-08	5.83E-07	4.52E-04	1.56E-08	7.31E-09	1.96E-07	1.04E-08	4.81E-04	-7.14E-06
EP_{mar}	kg Ne	7.15E-05	1.67E-06	3.33E-06	7.65E-05	4.84E-08	2.38E-06	1.84E-06	5.29E-04	2.26E-06	6.06E-08	9.92E-07	3.54E-07	6.13E-04	-1.54E-05
EP_{ter}	mol Ne	9.87E-04	1.85E-05	3.20E-05	1.04E-03	5.22E-07	2.43E-05	1.93E-05	5.07E-03	2.48E-05	6.58E-07	7.07E-06	8.03E-07	6.18E-03	-1.99E-04
POCP	kg NMVOCe	2.46E-04	5.60E-06	1.33E-05	2.65E-04	2.93E-07	7.28E-06	1.88E-05	1.35E-03	7.39E-06	3.57E-07	2.26E-06	2.53E-07	1.65E-03	-5.90E-05
ADPE	kg Sbe	8.96E-10	1.03E-09	1.18E-08	1.37E-08	2.99E-10	2.07E-10	2.47E-08	1.41E-06	1.88E-10	2.57E-10	3.54E-08	7.74E-11	1.49E-06	-1.26E-07
ADPF**	MJ	7.64E-01	6.81E-03	4.42E-02	8.15E-01	1.26E-03	6.91E-03	5.66E-02	5.62E+00	7.02E-03	1.35E-03	4.08E-03	3.62E-04	6.52E+00	-1.55E-01
WDP**	m^3e depr.	2.52E-02	2.88E-05	1.07E-03	2.63E-02	6.00E-06	2.17E-05	1.01E-03	6.76E-02	1.77E-05	6.76E-06	1.57E-04	5.49E-05	9.52E-02	1.14E-03

GWPtot Climate change total
GWPfos Climate change – fossil
GWPbio Climate change – biogenic
GWPluluc Climate change – land use and land use change
ODP Ozone Depletion
AP Acidification
EPfw* Eutrophication aquatic freshwater
EPmar Eutrophication aquatic marine
POCP Photochemical ozone formation
ADPE Depletion of abiotic resources – minerals and metals
ADPF** Depletion of abiotic resources – fossil fuels
WDP** Water use

* Required characterization method and data are in kg P-eq. Multiply by 3.07 to get PO4e.
** EN 15804+A2 disclaimer for abiotic depletion and water use and optional indicators except particulate matter and ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

Use of natural resources, per functional unit

	EN 15804	Product stage				Construction process stage		Use stage		End-of-life stage					Net benefits
Impact category	Unit	A1	A2	A3	Sum A1–A3	A4	A5	B2	B6	C1	C2	C3	C4	Total	D
PERE	MJ	7.48E-02	7.96E-05	5.41E-03	8.02E-02	1.78E-05	-2.77E-03	2.18E-03	2.66E-01	4.48E-05	1.88E-05	6.06E-04	1.12E-05	3.46E-01	-1.26E-02
PERM	MJ	0.00E+00	0.00E+00	1.30E-03	1.30E-03	0.00E+00	-1.30E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	7.48E-02	7.96E-05	6.71E-03	8.15E-02	1.78E-05	-4.07E-03	2.18E-03	2.66E-01	4.48E-05	1.88E-05	6.06E-04	1.12E-05	3.46E-01	-1.26E-02
PENRE	MJ	8.02E-01	6.89E-03	3.36E-02	8.42E-01	1.28E-03	4.43E-03	1.69E-02	5.78E+00	7.07E-03	1.37E-03	3.27E-03	-1.01E-02	6.65E+00	-1.59E-01
PENRM	MJ	1.85E-02	0.00E+00	2.78E-03	2.12E-02	0.00E+00	-2.78E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.53E-02	-3.14E-03	0.00E+00	0.00E+00
PENRT	MJ	8.20E-01	6.89E-03	3.63E-02	8.64E-01	1.28E-03	1.65E-03	1.69E-02	5.78E+00	7.07E-03	1.37E-03	-1.21E-02	-1.33E-02	6.65E+00	-1.59E-01
SM	kg	9.91E-06	0.00E+00	0.00E+00	9.91E-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	9.91E-06	0.00E+00
RSF	MJ	1.83E-05	2.66E-08	3.28E-05	5.11E-05	7.45E-09	8.18E-09	5.45E-06	4.29E-06	7.68E-09	7.39E-09	2.99E-07	1.03E-08	6.12E-05	-2.47E-06
NRSF	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	4.68E-04	8.32E-07	2.32E-05	4.92E-04	1.75E-07	5.97E-08	2.47E-05	1.60E-03	4.67E-07	2.06E-07	1.02E-05	1.31E-07	2.13E-03	-3.43E-04

PERE Use of renewable primary energy excluding renewable energy resources used as raw material
PERM Use of renewable primary energy resources used as raw material
PERT Total use of renewable primary energy resources (primary energy and primary energy resources used as raw material)
PENRE Use of non-renewable primary energy excluding non-renewable energy resources used as raw material
PENRM Use of non-renewable primary energy resources used as raw material
PENRT Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw material)
SM Use of secondary material
RSF Use of renewable secondary fuels
NRSF Use of non-renewable secondary fuels
FW Net use of fresh water

End of life - Waste, per functional unit

	EN 15804	Product stage				Construction process stage		Use stage		End-of-life stage					Net benefits
Impact category	Unit	A1	A2	A3	Sum A1–A3	A4	A5	B2	B6	C1	C2	C3	C4	Total	D
HWD	kg	1.75E-02	1.07E-05	3.17E-04	1.79E-02	2.24E-06	8.93E-06	1.79E-04	2.93E-02	7.86E-06	2.31E-06	4.86E-05	2.44E-05	4.75E-02	-6.26E-03
NHWD	kg	2.60E-01	1.83E-04	1.76E-02	2.78E-01	4.21E-05	7.79E-04	4.85E-03	2.17E+00	1.07E-04	4.27E-05	1.18E-03	2.72E-03	2.46E+00	1.38E-01
RWD	kg	9.34E-07	1.21E-09	4.00E-08	9.75E-07	2.56E-10	7.86E-10	3.13E-08	4.09E-06	7.68E-10	2.90E-10	6.93E-09	1.35E-10	5.10E-06	-4.99E-08

HWD Hazardous waste disposal
NHWD Non-hazardous waste disposal
RWD Radioactive waste disposal

End of life – Output flow, per functional unit

	EN 15804	Product stage				Construction process stage		Use stage		End-of-life stage					Net benefits
Impact category	Unit	A1	A2	A3	Sum A1–A3	A4	A5	B2	B6	C1	C2	C3	C4	Total	D
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	kg	0.00E+00	0.00E+00	1.25E-04	1.25E-04	0.00E+00	7.36E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E-02	0.00E+00	1.37E-02	0.00E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.88E-05	0.00E+00	3.88E-05	0.00E+00
EE	MJ	0.00E+00	0.00E+00	8.82E-03	8.82E-03	0.00E+00	1.02E-03	4.15E-03	0.00E+00	0.00E+00	0.00E+00	1.08E-03	0.00E+00	1.51E-02	0.00E+00
EET	MJ	0.00E+00	0.00E+00	1.33E-03	1.33E-03	0.00E+00	3.16E-04	3.53E-03	0.00E+00	0.00E+00	0.00E+00	9.15E-04	0.00E+00	6.09E-03	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	7.49E-03	7.49E-03	0.00E+00	5.60E-05	6.26E-04	0.00E+00	0.00E+00	0.00E+00	1.62E-04	0.00E+00	8.34E-03	0.00E+00

CRU Compoents for re-use
MFR Materials for recycling
MER Materials for energy recovery
EE Exported Energy
EET Exported Energy Thermal
EEE Exported Energy Electrical

Additional environmental information

Functional unit (FU), Transporation value (TV)
The function of an escalator is the transportation of passengers over an inclined trajectory. Thus, the functional unit (FU) is defined as the transportation of one passenger over one kilometer, i.e., one passenger-kilometer (pkm) over an inclined trajectory.

This section provides a conversion factor based on the functional unit (FU), defined as the transportation value (TV), which reflects the total passenger kilometers (pkm) transported during the service life of the specified escalator to calculate the results per functional unit (FU) to results per complete technical life span.

TV = 344,925 pkm

Energy consumption per declared unit		Energy efficiency calculation (acc. ISO 25745-3)
Upwards	110,904 kWh	Class A +++
Downwards	36,795 kWh	Class A +++
Energy consumption per functional unit		
Upwards	0.32 kWh	Class A +++
Downwards	0.11 kWh	Class A +++

According to the representative escalator, as per page 6

Core environmental impact indicators – EN 15804+A2, EF 3.1

	EN 15804	Per functional unit	
Impact category	**Unit**	**B6 (up)**	**B6 (down)**
GWP_{tot}	kg CO_2e	5.07E-01	1.68E-01
GWP_{fos}	kg CO_2e	5.07E-01	1.68E-01
GWP_{bio}	kg CO_2e	0.00E+00	3.02E-05
GWP_{luluc}	kg CO_2e	5.11E-04	1.70E-04
ODP	kg $CFC\text{-}_{11}$e	1.21E-09	4.00E-10
AP	mol H+e	2.49E-03	8.26E-04
EP_{fw}*	kg Pe	4.52E-04	1.50E-04
EP_{mar}	kg Ne	5.29E-04	1.75E-04
EP_{ter}	mol Ne	5.07E-03	1.68E-03
POCP	kg NMVOCe	1.35E-03	4.49E-04
ADPE	kg Sbe	1.41E-06	4.70E-07
ADPF**	MJ	5.62E+00	1.87E+00
WDP**	m^3e depr.	6.76E-02	2.24E-02

GWPtot	Climate change total
GWPfos	Climate change – fossil
GWPbio	Climate change – biogenic
GWPluluc	Climate change – land use and land use change
ODP	Ozone Depletion
AP	Acidification
EPfw*	Eutrophication aquatic freshwater
EPmar	Eutrophication aquatic marine
EPter	Eutrophication terrestrial
POCP	Photochemical ozone formation
ADPE	Depletion of abiotic resources – minerals and metals
ADPF	Depletion of abiotic resources – fossil fuels
WDP	Water use

Use of natural resources

	EN 15804	Per functional unit	
Impact category	**Unit**	**B6 (up)**	**B6 (down)**
PERE	MJ	2.66E-01	8.81E-02
PERM	MJ	0.00E+00	0.00E+00
PERT	MJ	2.66E-01	8.81E-02
PENRE	MJ	5.78E+00	1.92E+00
PENRM	MJ	0.00E+00	0.00E+00
PENRT	MJ	5.78E+00	1.92E+00
SM	kg	0.00E+00	1.56E-04
RSF	MJ	4.29E-06	1.42E-06
NRSF	MJ	0.00E+00	0.00E+00
FW	m^3	1.60E-03	5.30E-04

PERE	Use of renewable primary energy excluding renewable energy resources used as raw material
PERM	Use of renewable primary energy resources used as raw material
PERT	Total use of renewable primary energy resources (primary energy and primary energy resources used as raw material)
PENRE	Use of non-renewable primary energy excluding non-renewable energy resources used as raw material
PENRM	Use of non-renewable primary energy resources used as raw material
PENRT	Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw material)
SM	Use of secondary material
RSF	Use of renewable secondary fuels
NRSF	Use of non-renewable secondary fuels
FW	Net use of fresh water

End of life – Waste

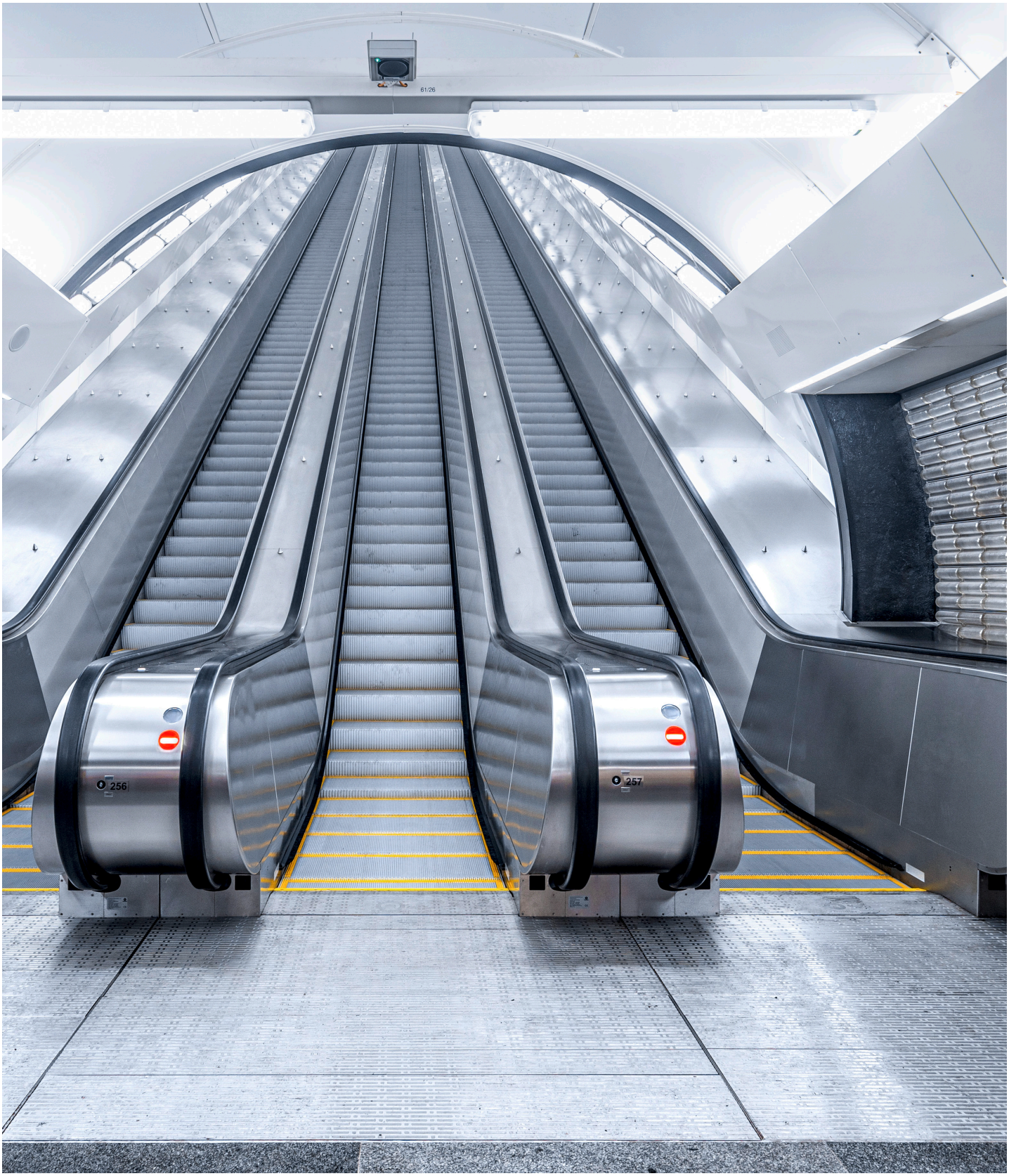
	EN 15804	Per functional unit	
Impact category	**Unit**	**B6 (up)**	**B6 (down)**
HWD	kg	2.93E-02	9.73E-03
NHWD	kg	2.17E+00	7.20E-01
RWD	kg	4.09E-06	1.35E-06

HWD	Hazardous waste disposal
NHWD	Non-hazardous waste disposal
RWD	Radioactive waste disposal

End of life – Output flows

	EN 15804	Per functional unit	
Impact category	**Unit**	**B6 (up)**	**B6 (down)**
CRU	kg	0.00E+00	0.00E+00
MFR	kg	0.00E+00	0.00E+00
MER	kg	0.00E+00	0.00E+00
EE	MJ	0.00E+00	0.00E+00
EET	MJ	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00

CRU	Components for re-use
MFR	Materials for recycling
MER	Materials for energy recovery
EE	Exported Energy
EET	Exported Energy Thermal
EEE	Exported Energy Electrical


61/26
256
257

Scenario

The scenario documentation provides documentation describing the assumptions and conditions under which certain life cycle phases of a product are assessed, especially those that are not product-specific but usage- or context-dependent.

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	1. Market group for electricity, medium voltage (Reference product: electricity, medium voltage)
	2.Electricity production, photovoltaic, 3kWp slanted-roof installation, multi-Si, panel, mounted (Reference product: electricity, low voltage)
Electricity CO2e / kWh	512
District heating data source and quality	Heat production, natural gas, at boiler atmospheric non-modulating <100kW (Reference product: heat, central or small-scale, natural gas)
District heating CO2e / kWh	7

Transport scenario documentation A4

Scenario parameter	Value
Specific transport CO2e emissions, kg CO2e / tkm	Market for transport, freight, lorry >32 metric ton, EURO6
Average transport distance, km	32
Capacity utilization (including empty return) %	100
Bulk density of transported products	121.4
Volume capacity utilization factor	<1

Installation scenario documentation A5

Scenario Information	Value
Ancillary materials for installation (specified by material) / kg or other units as appropriate	0
Water use / m^3	0
Other resource use / kg	0
Quantitative description of energy type (regional mix) and consumption during the installation process / kWh or MJ	516.8
Waste materials on the building site before waste processing, generated by the product's installation (specified by type) / kg	82.4
Output materials (specified by type) as result of waste processing at the building site e.g. collection for recycling, for energy recovery, disposal (specified by route) / kg	48.1
Direct emissions to ambient air, soil and water / kg	34.3

Use stage scenario documentation - B2 Maintenance

Scenario Information	Value
Maintenance process / Description or source where description can be found	See chapter product life cycle
Maintenance cycle / Number per RSL or year (Not applicable if only B2 is declared)	2
Ancillary materials for maintenance, e.g. cleaning agent, specify materials / kg / cycle	0
Waste material resulting from maintenance (specify materials) / kg	201
Net fresh water consumption during maintenance / m^3	0
Energy input during maintenance, e.g. vacuum cleaning, energy carrier type, e.g. electricity, and amount, if applicable and relevant / kWh	0


Botty

Scenario

Use stages scenario documentation - B3 repair	
Scenario information	**Value**
Repair process / Description or source where description can be found	0
Inspection Process / Description or source where description can be found	0
Repair cycle / Number per RSL or year	0
Ancillary materials, e.g., lubricant (specify materials) / kg or kg/cycle	0
Waste material resulting from repair (specify materials) / kg	0
Net fresh water consumption during repair / m^3	0
Energy input during repair, e.g., crane activity, energy carrier type, e.g., electricity, and amount / kWh/RSL, kWh/cycle	0

Use stage scenario documentation - B4 Replacement	
Scenario information	**Value**
Replacement cycle / Number per RSL or year	0
Energy input during replacement, e.g., crane activity, energy carrier type, e.g., electricity and amount (if applicable and relevant) / kWh	0
Exchange of worn parts during the product's life cycle, e.g., zinc galvanized steel sheet (specify materials) / kg	0

Use stages scenario - B5 Refurbishment	
Scenario information	**Value**
Refurbishment process / Description or source where description can be found	0
Refurbishment cycle / Number per RSL or year	0
Energy input during refurbishment, e.g., crane activity, energy carrier type, e.g., electricity, and amount (if applicable and relevant) / kWh	0
Material input for refurbishment, e.g., bricks, including ancillary materials for the refurbishment process, e.g., lubricant (specify materials) / kg or kg/cycle	0
Waste material resulting from refurbishment (specify materials) / kg	0

Use stage scenario documentation - B6-B7, Use of energy and water	
Scenario information	**Value**
Ancillary materials specified by material / kg or units as appropriate	0
Net fresh water consumption / m^3	0
Type of energy carrier, e.g., electricity, natural gas, district heating / kWh	110,904.57
Power output of equipment / kW	0
Characteristic performance, e.g., energy efficiency, emissions, variation of performance with capacity utilization, etc. / Units as appropriate	A+++ (Acc. ISO 25745-3)
Further assumptions for scenario development, e.g., frequency and period of use, number of occupants / Units as appropriate	344,925 pkm (person*km)

End if life scenario documentation	
Scenario information	**Value**
Collection process – kg collected separately	0
Collection process – kg collected with mixed waste	0
Recovery process – kg for re-use	0
Recovery process – kg for recycling	4,649 kg
Recovery process – kg for energy recovery	371.4 MJ
Disposal (total) – kg for final deposition	383 kg
Scenario assumptions e.g. transportation	517 kWh

Verification statement

Verification process for this EPD
This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents, and compliance with the reference standard, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

– This Environmental Product Declaration
– The Life Cycle Assessment used in this EPD
– The digital background data for this EPD

This EPD has been created using the One Click LCA EPD Generator, which has been verified and approved by the EPD Hub.

Third-party verification statement
I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA, and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried out, the presentation of environmental data in the EPD, and other additional environmental information, as present with respect to the procedural and methodological requirements in ISO 14025:2010 and the reference standard.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

Nikolay Minkov

EPD Hub
VERIFIED ISO 14025

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

References

References

ISO 14025:2006 Environmental labels and declarations – Type III environmental declarations. Principles and procedures.

ISO 14040:2006 Environmental management. Life cycle assessment. Principles and frameworks.

ISO 14044:2006 Environmental management. Life cycle assessment. Requirements and guidelines.

EN 15804:2012+A2:2019 Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.

PCR 2019:14 V2.0.0 Construction products.

C-PCR-025 (TO PCR 2019:14) Escalators and moving walks (VERSION: 2023-06-12).

ISO 25745-3: Energy performance of lifts, escalators, and moving walks – Part 3: Energy calculation and classification of escalators and moving walks.

Glossary

LCA – Life Cycle Assessment: Assessment methodology of the environmental impact of all relevant material and energy flows throughout the entire life cycle of a product, according to ISO 14040.

LCI – Life Cycle Inventory: Creation of an inventory of input and output flows for a product system. These flows include inputs such as water, energy, and raw materials. Outputs are releases to air, land, and water. Inventories are based on literature analysis or process simulation.

EPD – Environmental Product Declaration: A declaration that provides quantified environmental data using predetermined parameters defined in a Product Category Rule, according to ISO 14025.

PCR – Product Category Rule: A set of specific rules, requirements, and guidelines for developing environmental declarations for one or more product categories.

c-PCR – Complementary product category rules:
A product group-specific PCR that provides additional compliant and non-contradictory requirements to EN 15804.

REACH – Registration, Evaluation, Authorization, and Restriction of Chemicals: EU regulation (EC 1907/2006) that addresses the production and use of chemical substances, and their potential impacts on both human health and the environment.

TL – Technical life span: The average time for which the product has been designed or proven to last (expressed in years). This parameter is a reference for all the data in the EPD.

FU – Functional Unit: The FU for escalators is defined as the transportation of one passenger over one kilometer, i.e., one passenger-kilometer (pkm), over an inclined (or horizontal) trajectory.

UC – Usage Class: Defines the intensity of the escalator usage by categories, based on average number of passengers per day, according to C-PCR-025.

Sustainability
We Elevate... Our World

Sustainability at Schindler is more than striving to minimize the use of natural resources. We facilitate sustainable, smart urban mobility, while committing to a sustainable supply chain for all our products and driving innovation for green building management.

Sustainability at Schindler also means enabling an inclusive work environment where our workforce, which is as diverse as our customers and passengers, can thrive. It also means creating value in the communities where we operate by helping develop young talent through education and training, by fostering lifelong learning for our technicians, and by designing products and systems that make it easy and safe for people to move about in cities.

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