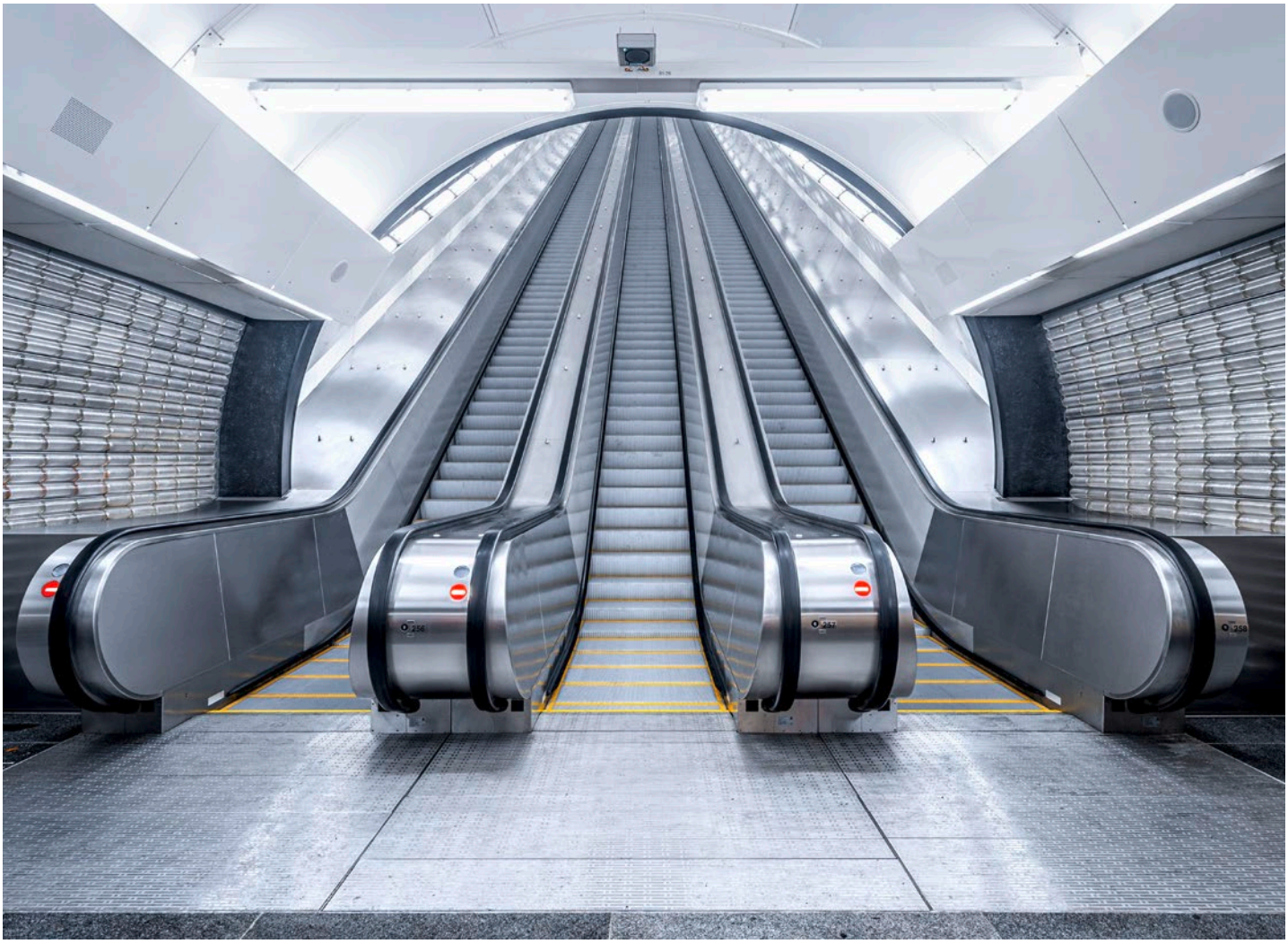


Environmental Product Declaration
Schindler 9700

Program:	EPD Hub www.epdhub.com
EPD registration number:	HUB-0750
Published:	13.10.2023
Revision:	–
Valid until:	13.10.2028
Verification date:	12.10.2023
Product group classification:	UN CPC 4354

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

Schindler

General information

Manufacturer	Schindler Management Ltd Zugerstrasse 13 6030 Ebikon Switzerland Product_integrity@schindler.com www.schindler.com
Program operator	EPD Hub hub@epdhub.com
Reference standard	EN 15804 + A2:2019 and ISO 14025
PCR	EPD Hub Core PCR version 1.0, February 1st, 2022 PCR 2019:14 V1.2.5 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 Country of product production and installation: China
EPD author	Georg Wagenleitner

Verification

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

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 9700
Additional labels	–
Product reference	–
Country of production	China
Period for data	2021
Averaging in EPD	No averaging
Variation in GWP-fossil for A1–A3	– %

Environmental data summary	
Declared unit	1 unit of escalator
Declared unit mass (kg)	14,577
GWP-fossil, A1–A3 ($kgCO_2e$)	8.57E4
GWP-total, A1–A3 ($kgCO_2e$)	8.74E4
Secondary material, inputs (%)	46.9
Secondary material, outputs (%)	65.2
Total energy use, A1–A3 (kWh)	298,000
Total water use, A1–A3 (m_3e)	6.85E2

Product and manufacturer

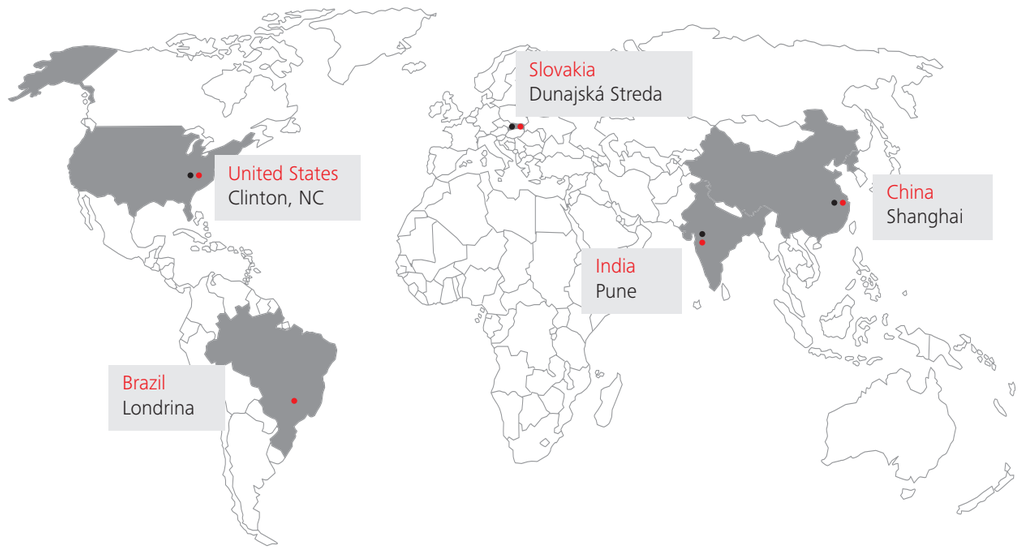
Founded in Switzerland in 1874, the Schindler Group is a leading global provider of elevators, escalators, and related services. Its innovative and environmentally friendly access and transit management systems make an important contribution to mobility in urban societies.

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.

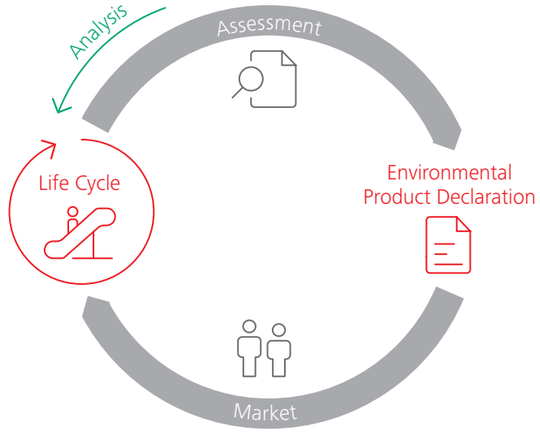
Schindler moves people and materials and connects vertical and horizontal transportation systems through intelligent mobility solutions driven by green and user-friendly technologies. Schindler products can be found in many well-known buildings across the globe, including residential and office buildings,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

Production sites of Schindler escalators and moving walks



We Elevate… Sustainability

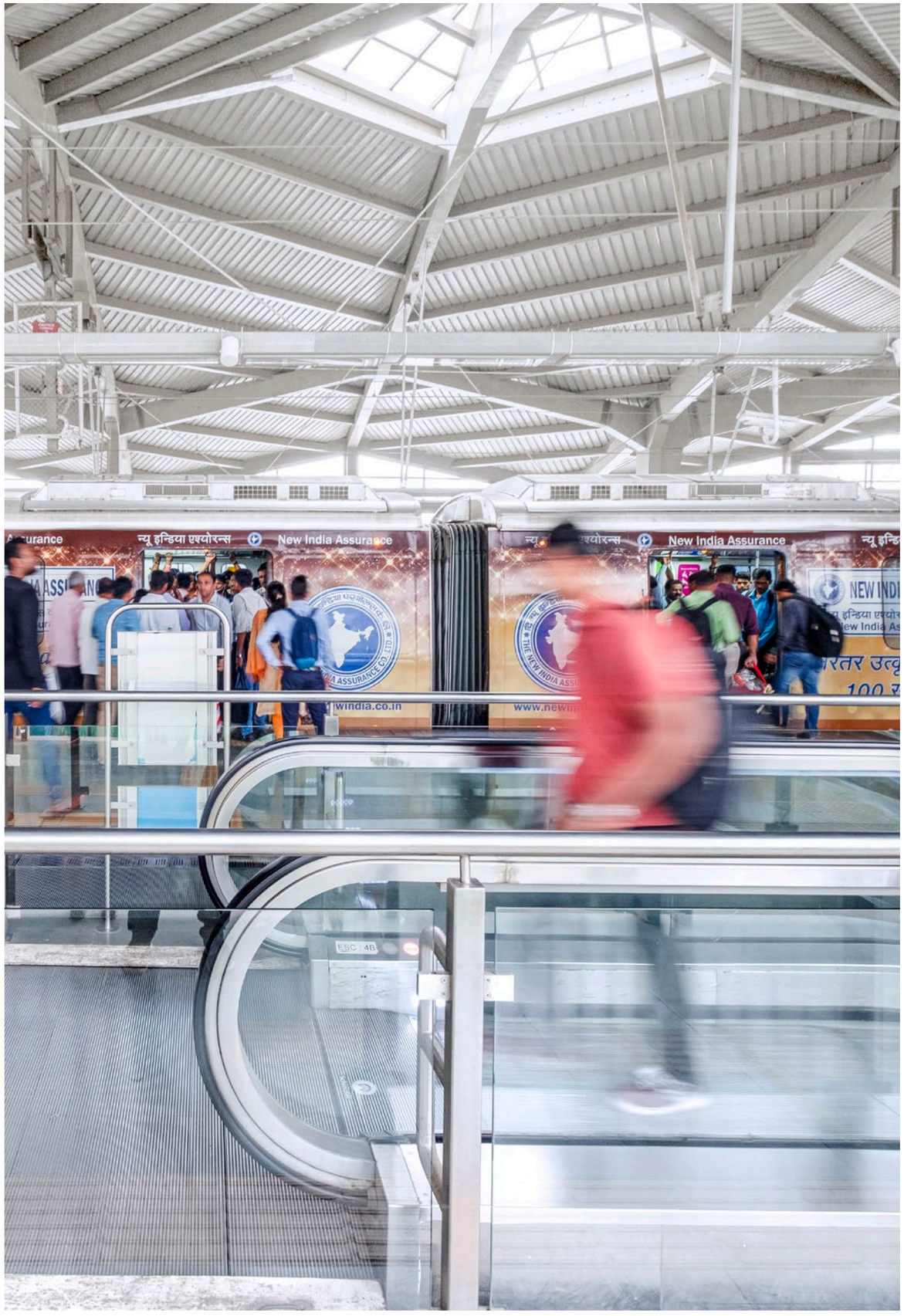
Schindler's commitment to sustainability is enshrined in our Corporate Sustainability Policy, which defines our approach to sustainability based on four pillars – People, Product, Planet, and Performance – and the journey we have embarked on regarding key sustainability challenges. Sustainability is 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 thorough LCA. 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 public transport escalator as specified for infrastructure projects. Its configuration corresponds to a typical application of the Schindler 9700, with a usage class 4 (UC4), 40,000 passengers per day. This Schindler 9700 representative has a vertical rise of 8 m, a step width of 1,000 mm, an inclination of 30° and a nominal speed of 0.65 m/s. A technical life span (TL) of 20 years, operation of 365 days per year with “Auto start” operation mode (according ISO 25745-3) is considered.

Technical specifications	
Key figures	Schindler 9700
Vertical rise (m)	Up to 50
Angle of inclination, α [degree]	27.3, 30
Nominal speed (m/s)	0.5, 0.65, 0.75
Balustrade design	Vertical and inclined balustrade
Step width (mm)	800, 1,000
Transition radius, top/bottom (m)	1.5/1.0, 2.7/2.0, 4.0/3.0, 4.0/2.0, 6.0/3.0
Type of horizontal step run	2, 3, 4, 5 horizontal steps
Step chain type	Chain rollers outside chain links
Relieving curve	Yes

Product application
The sturdy design of this product line is aimed at large rises and the special requirements of heavy-duty public transportation.

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 9700
Recommended application	Public transport
Geographic region of intended installation	China
Optional equipment	Multi speed operation (slow speed operation and stand by operation by frequency conversion)
Technical life span (TL) in years	20
Applied Usage Class (UC) (as per Table 1 of c-PCR-025)	4 (40,000 passengers/day)
Nominal speed (m/s)	0.65
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)	8.0
Step width (mm)	1,000

Product raw material main composition		
Raw material category	**Amount, mass %**	**Material origin**
Metals	~99	China
Minerals	–	
Fossil materials	~1	China
Bio-based materials	–	

Content declaration including packaging			
Raw material category	**Weight (kg)**	**Weight (%)**	**Post-consumer material weight (%)**
Declared unit			
Ferrous metals	12,929.8	86.6	unknown
Non-ferrous metals	1,433.1	9.6	unknown
Plastics and rubbers	138.7	0.9	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	14.7	0.1	0.0
Electric and electronic equipment	60.7	0.4	unknown
Batteries and accumulators	0.0	0.0	0.0
Other materials	0.0	0.0	0.0
Packaging			
Ferrous metals	86.6	0.6	unknown
Non-ferrous metals	0.0	0.0	0.0
Plastics and rubbers	79.1	0.5	0.0
Inorganic materials	0.0	0.0	0.0
Organic materials: wood	142.6	1.0	0.0
Organic materials: paperboard	47.5	0.3	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	**14,932.8**	**100.0**	

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)	77.68

Functional unit and service life	
Declared unit	1 unit of escalator
Mass per declared unit (kg)	14,577
Functional unit	1 person kilometer (pkm)
Technical life span (TL) in years	20

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 boundary
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	MND
	Maintenance	B2	✓
	Repair	B3	MND
	Replacement	B4	MND
	Refurbishment	B5	MND
	Operational energy use	B6	✓
	Operational water use	B7	MND
End-of-life stage	Deconstruction	C1	✓
	Transport	C2	✓
	Waste processing	C3	✓
	Waste disposal	C4	✓
Beyond the system boundaries	Recycling	D	✓

Modules not declared = MND.

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.

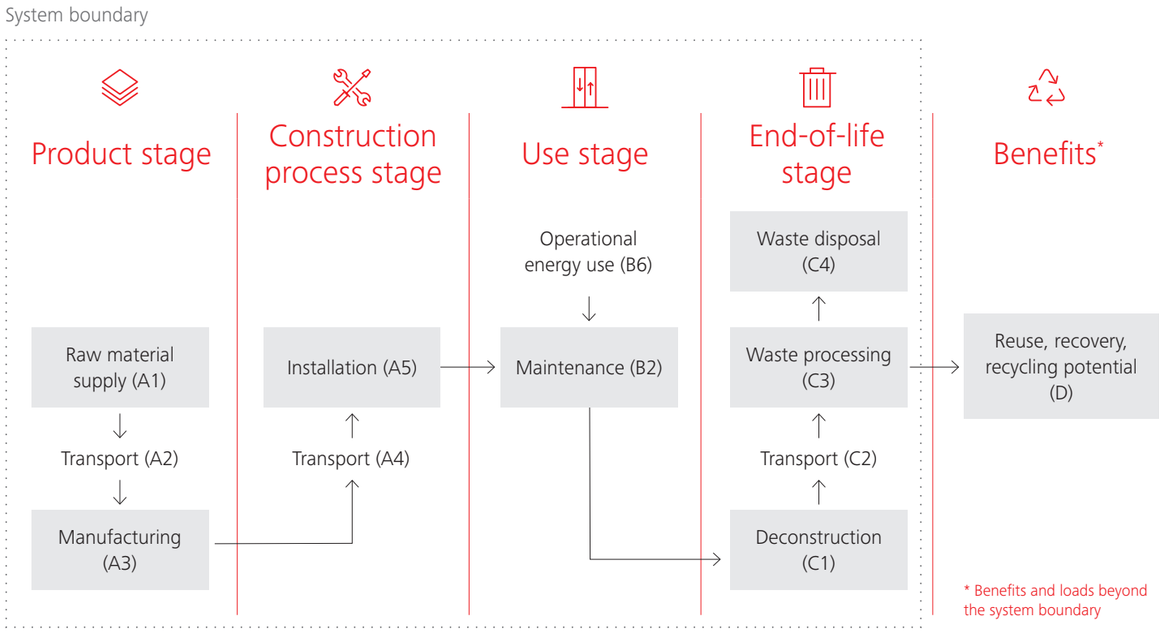
Module B2 is based on preventive maintenance, taking into account the replacement of components at predetermined intervals to ensure functionality of the product over the course of its 20-year life span (B2). The product uses power from the country electricity grid mix at the operation stage (B6). Based 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 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 CO_2 equivalent per kWh (kg CO_2e/kWh) of the country-specific supply mix, and the photovoltaic power station on the rooftop of the Schindler production facility. For Schindler's in-house production, a combination of the electricity mixes below was used.

The country-specific electricity mix (1.14 kg CO_2e/kWh) was also applied for the operational energy use stage (B6).

Country	Electricity kg CO_2e/kWh	Photovoltaic power station kg CO_2e/kWh
China	1.14	0.08



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 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.

Allocation, estimates, and assumptions
Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

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

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 3.8 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, PEF, 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	1.84E-02	6.93E-05	2.13E-04	1.87E-02	1.73E-05	1.01E-04	1.23E-03	2.10E-01	3.66E-05	1.72E-06	1.23E-04	4.38E-05	2.30E-01	-1.23E-03
GWP_{fos}	kg CO_2e	1.80E-02	6.93E-05	3.01E-04	1.83E-02	1.72E-05	3.96E-05	1.20E-03	2.10E-01	3.66E-05	1.72E-06	1.20E-04	4.37E-05	2.30E-01	-1.23E-03
GWP_{bio}	kg CO_2e	4.33E-04	2.57E-08	-8.79E-05	3.45E-04	7.06E-09	6.10E-05	2.30E-05	3.21E-05	6.64E-09	2.35E-10	2.30E-06	5.14E-08	4.64E-04	0.00E+00
GWP_{luluc}	kg CO_2e	1.75E-05	3.00E-08	4.35E-07	1.79E-05	6.64E-09	4.49E-09	9.57E-07	2.49E-05	3.64E-09	6.64E-10	8.78E-08	1.46E-08	4.39E-05	1.06E-06
ODP	kg $CFC-_{11}$e	1.05E-09	1.50E-11	1.37E-11	1.08E-09	4.07E-12	7.92E-12	1.35E-10	1.09E-09	7.92E-12	4.07E-13	4.07E-12	1.73E-12	2.33E-09	-2.41E-11
AP	mol H+e	1.13E-04	2.03E-07	1.35E-06	1.15E-04	5.57E-08	3.90E-07	4.79E-06	1.10E-03	3.81E-07	6.21E-09	4.56E-07	5.57E-08	1.22E-03	-4.82E-06
EP_{fw}*	kg Pe	1.20E-06	5.78E-10	1.22E-08	1.22E-06	1.46E-10	1.50E-10	3.85E-08	4.46E-06	1.22E-10	1.43E-11	4.07E-09	2.01E-10	5.72E-06	-1.95E-09
EP_{mar}	kg Ne	1.80E-05	4.07E-08	3.21E-07	1.84E-05	1.24E-08	1.82E-07	9.27E-07	2.26E-04	1.69E-07	1.56E-09	1.33E-07	1.82E-08	2.46E-04	-1.10E-07
EP_{ter}	mol Ne	2.85E-04	4.54E-07	2.96E-06	2.88E-04	1.37E-07	1.89E-06	9.65E-06	2.49E-03	1.85E-06	1.73E-08	1.18E-06	1.90E-07	2.79E-03	-1.27E-05
POCP	kg NMVOCe	6.83E-05	1.71E-07	1.02E-06	6.95E-05	5.35E-08	5.22E-07	4.75E-06	6.44E-04	5.07E-07	6.21E-09	3.64E-07	5.78E-08	7.20E-04	-7.25E-06
ADPE	kg Sbe	3.84E-06	2.35E-10	2.35E-09	3.84E-06	4.07E-11	3.00E-11	1.11E-08	6.14E-07	1.82E-11	4.07E-12	5.78E-09	2.57E-11	4.47E-06	-2.52E-08
ADPF**	MJ	2.06E-01	1.01E-03	4.33E-03	2.11E-01	2.70E-04	5.07E-04	1.74E-02	1.82E+00	4.93E-04	2.65E-05	6.79E-04	1.39E-04	2.05E+00	-8.42E-03
WDP**	m^3e depr.	7.42E-03	4.45E-06	1.45E-04	7.57E-03	1.21E-06	3.48E-06	4.70E-04	2.21E-02	1.32E-06	1.18E-07	2.32E-05	1.41E-05	3.02E-02	5.07E-04

GWP_{tot} Climate change total
GWP_{fos} Climate change – fossil
GWP_{bio} Climate change – biogenic
GWP_{luluc} Climate change – land use and land use change
ODP Ozone Depletion
AP Acidification
EP_{fw} Eutrophication aquatic freshwater
EP_{mar} Eutrophication aquatic marine
EP_{ter} Eutrophication terrestrial
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

Table of results – 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	1.91E-02	1.19E-05	1.99E-03	2.11E-02	3.04E-06	3.41E-06	9.56E-04	1.70E-01	2.82E-06	2.98E-07	8.74E-05	3.98E-06	1.92E-01	-4.93E-04
PERM	MJ	0.00E+00	0.00E+00	7.15E-04	7.15E-04	0.00E+00	-4.94E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.21E-04	0.00E+00
PERT	MJ	1.91E-02	1.19E-05	2.70E-03	2.18E-02	3.04E-06	-4.91E-04	9.56E-04	1.70E-01	2.82E-06	2.98E-07	8.74E-05	3.98E-06	1.93E-01	-4.93E-04
PENRE	MJ	2.04E-01	1.01E-03	3.35E-03	2.09E-01	2.70E-04	5.07E-04	1.30E-02	1.82E+00	4.93E-04	2.65E-05	6.79E-04	1.39E-04	2.05E+00	-8.43E-03
PENRM	MJ	1.80E-03	0.00E+00	9.86E-04	2.78E-03	0.00E+00	-6.94E-04	5.85E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.93E-03	0.00E+00
PENRT	MJ	2.06E-01	1.01E-03	4.34E-03	2.12E-01	2.70E-04	-1.87E-04	1.89E-02	1.82E+00	4.93E-04	2.65E-05	6.79E-04	1.39E-04	2.06E+00	-8.43E-03
SM	kg	1.46E-03	3.34E-07	1.14E-05	1.48E-03	7.49E-08	2.10E-07	6.63E-05	1.90E-04	1.93E-07	7.28E-09	4.84E-05	1.13E-06	1.78E-03	8.67E-04
RSF	MJ	4.24E-06	4.28E-09	4.39E-06	8.64E-06	7.49E-10	9.63E-10	1.45E-06	1.46E-06	6.21E-10	7.49E-11	5.78E-08	3.00E-09	1.16E-05	-1.12E-07
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	1.43E-04	1.20E-07	3.17E-06	1.47E-04	3.42E-08	3.21E-08	9.49E-06	5.23E-04	3.00E-08	3.42E-09	1.60E-06	1.35E-07	6.81E-04	-3.06E-05

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

Table of results – 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	5.59E-03	1.45E-06	3.96E-05	5.63E-03	3.55E-07	6.91E-07	2.11E-04	2.64E-02	6.59E-07	3.42E-08	7.71E-06	4.82E-06	3.23E-02	-2.99E-04
NHWD	kg	3.23E-02	2.32E-05	3.96E-04	3.27E-02	5.84E-06	6.59E-05	1.52E-03	1.74E-01	4.63E-06	5.74E-07	1.30E-04	6.65E-04	2.09E-01	-1.91E-03
RWD	kg	4.82E-07	6.64E-09	6.42E-09	4.95E-07	1.82E-09	3.42E-09	6.42E-08	9.18E-07	3.42E-09	1.78E-10	2.01E-09	1.31E-11	1.49E-06	1.68E-08

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

End of life – Output flows

Table of results – environmental 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	1.48E-06	1.48E-06	0.00E+00	1.54E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.03E-03	0.00E+00	2.05E-03	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE	MJ	0.00E+00	0.00E+00	3.69E-04	3.69E-04	0.00E+00	2.78E-04	1.03E-03	0.00E+00	0.00E+00	0.00E+00	4.53E-04	0.00E+00	2.13E-03	0.00E+00
EET	MJ	0.00E+00	0.00E+00	3.14E-04	3.14E-04	0.00E+00	5.50E-04	8.61E-04	0.00E+00	0.00E+00	0.00E+00	3.85E-04	0.00E+00	2.11E-03	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	5.57E-05	5.57E-05	0.00E+00	9.77E-05	1.67E-04	0.00E+00	0.00E+00	0.00E+00	6.83E-05	0.00E+00	3.88E-04	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

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.

Environmental performance
This section provides additional results of the environmental impacts for the information module B6 “Operational energy use” for the specific escalator operating downwards, next to the results for operating upwards.

Core environmental impact indicators – EN 15804+A2, PEF

	EN 15804	Per declared unit		Per functional unit	
Impact category	**Unit**	**B6 (up)**	**B6 (down)**	**B6 (up)**	**B6 (down)**
GWP_{tot}	kg CO_2e	9.81E+05	-1.41E+05	2.10E-01	-3.01E-02
GWP_{fos}	kg CO_2e	9.8E+05	-1.41E+05	2.10E-01	-3.01E-02
GWP_{bio}	kg CO_2e	1.5E+02	-2.16E+01	3.21E-05	-4.62E-06
GWP_{luluc}	kg CO_2e	1.16E+02	-1.67E+01	2.49E-05	-3.57E-06
ODP	kg CFC-$_{11}$e	5.09E-03	-7.30E-04	1.09E-09	-1.56E-10
AP	mol H+e	5.13E+03	-7.37E+02	1.10E-03	-1.58E-04
EP_{fw}*	kg Pe	2.08E+01	-2.99E+00	4.46E-06	-6.40E-07
EP_{mar}	kg Ne	1.06E+03	-1.52E+02	2.26E-04	-3.24E-05
EP_{ter}	mol Ne	1.16E+04	-1.67E+03	2.49E-03	-3.57E-04
POCP	kg NMVOCe	3.01E+03	-4.32E+02	6.44E-04	-9.26E-05
ADPE	kg Sbe	2.88E+00	-4.10E-01	6.14E-07	-8.78E-08
ADPF**	MJ	8.52E+06	-1.22E+06	1.82E+00	-2.62E-01
WDP**	m^3e depr.	1.03E+05	-1.48E+04	2.21E-02	-3.18E-03

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 = 4,672,000 pkm

Energy consumption per declared unit		Energy efficiency calculation (acc. ISO 25745-3)
Upwards	860,901.6 kWh	Class A +++
Downwards	-123,661.6 kWh	Class A +++
Energy consumption per functional unit		
Upwards	0.184 kWh	Class A +++
Downwards	-0.026 kWh	Class A +++

According to the representative escalator, as per page 6.

GWP_{tot} Climate change total
GWP_{fos} Climate change – fossil
GWP_{bio} Climate change – biogenic
GWP_{luluc} Climate change – land use and land use change
ODP Ozone Depletion
AP Acidification
EP_{fw} Eutrophication aquatic freshwater
EP_{mar} Eutrophication aquatic marine
EP_{ter} 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 declared unit		Per functional unit	
Impact category	**Unit**	**B6 (up)**	**B6 (down)**	**B6 (up)**	**B6 (down)**
PERE	MJ	7.96E+05	-1.14E+05	1.70E-01	-2.45E-02
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	7.96E+05	-1.14E+05	1.70E-01	-2.45E-02
PENRE	MJ	8.52E+06	-1.22E+06	1.82E+00	-2.62E-01
PENRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	8.52E+06	-1.22E+06	1.82E+00	-2.62E-01
SM	kg	8.86E+02	-1.27E+02	1.90E-04	-2.72E-05
RSF	MJ	6.81E+00	-9.80E-01	1.46E-06	-2.10E-07
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	2.44E+03	-3.51E+02	5.23E-04	-7.51E-05

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 declared unit		Per functional unit	
Impact category	**Unit**	**B6 (up)**	**B6 (down)**	**B6 (up)**	**B6 (down)**
HWD	kg	1.23E+05	-1.77E+04	2.64E-02	-3.80E-03
NHWD	kg	8.13E+05	-1.17E+05	1.74E-01	-2.50E-02
RWD	kg	4.29E+00	-6.20E-01	9.18E-07	-1.33E-07

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

End of life – Output flows

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

Additional environmental information

Environmental impact data in upward direction, per declared unit
The estimated impact results are just relative statements that do not identify the impact categories' endpoints, exceeding threshold values, safety margins, and/or risks.

Core environmental impact indicators – EN 15804+A2, PEF, per declared 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	8.61E+04	3.24E+02	9.95E+02	8.74E+04	8.07E+01	4.70E+02	5.73E+03	9.81E+05	1.71E+02	8.02E+00	5.73E+02	2.05E+02	1.08E+06	-5.72E+03
GWP_{fos}	kg CO_2e	8.40E+04	3.24E+02	1.40E+03	8.57E+04	8.06E+01	1.85E+02	5.62E+03	9.80E+05	1.71E+02	8.02E+00	5.62E+02	2.04E+02	1.07E+06	-5.73E+03
GWP_{bio}	kg CO_2e	2.02E+03	1.20E-01	-4.11E+02	1.61E+03	3.30E-02	2.85E+02	1.07E+02	1.50E+02	3.10E-02	1.10E-03	1.08E+01	2.40E-01	2.17E+03	0.00E+00
GWP_{luluc}	kg CO_2e	8.16E+01	1.40E-01	2.03E+00	8.38E+01	3.10E-02	2.10E-02	4.47E+00	1.16E+02	1.70E-02	3.10E-03	4.10E-01	6.80E-02	2.05E+02	4.96E+00
ODP	kg $CFC-_{11}$e	4.90E-03	7.00E-05	6.40E-05	5.03E-03	1.90E-05	3.70E-05	6.30E-04	5.10E-03	3.70E-05	1.90E-06	1.90E-05	8.10E-06	1.09E-02	-1.13E-04
AP	mol H+e	5.28E+02	9.50E-01	6.31E+00	5.35E+02	2.60E-01	1.82E+00	2.24E+01	5.13E+03	1.78E+00	2.90E-02	2.13E+00	2.60E-01	5.69E+03	-2.25E+01
EP_{fw}	kg Pe	5.62E+00	2.70E-03	5.70E-02	5.68E+00	6.80E-04	7.00E-04	1.80E-01	2.08E+01	5.70E-04	6.70E-05	1.90E-02	9.40E-04	2.67E+01	-9.12E-03
EP_{mar}	kg Ne	8.43E+01	1.90E-01	1.50E+00	8.60E+01	5.80E-02	8.50E-01	4.33E+00	1.06E+03	7.90E-01	7.30E-03	6.20E-01	8.50E-02	1.15E+03	-5.15E-01
EP_{ter}	mol Ne	1.33E+03	2.12E+00	1.38E+01	1.35E+03	6.40E-01	8.82E+00	4.51E+01	1.16E+04	8.63E+00	8.10E-02	5.52E+00	8.90E-01	1.30E+04	-5.91E+01
POCP	kg NMVOCe	3.19E+02	8.00E-01	4.77E+00	3.25E+02	2.50E-01	2.44E+00	2.22E+01	3.01E+03	2.37E+00	2.90E-02	1.70E+00	2.70E-01	3.36E+03	-3.39E+01
ADPE*	kg Sbe	1.79E+01	1.10E-03	1.10E-02	1.80E+01	1.90E-04	1.40E-04	5.20E-02	2.87E+00	8.50E-05	1.90E-05	2.70E-02	1.20E-04	2.09E+01	-1.18E-01
ADPF*	MJ	9.63E+05	4.70E+03	2.02E+04	9.88E+05	1.26E+03	2.37E+03	8.15E+04	8.52E+06	2.30E+03	1.24E+02	3.17E+03	6.51E+02	9.60E+06	-3.94E+04
WDP*	m^3e depr.	3.47E+04	2.08E+01	6.78E+02	3.54E+04	5.63E+00	1.63E+01	2.20E+03	1.03E+05	6.19E+00	5.50E-01	1.08E+02	6.58E+01	1.41E+05	2.37E+03

GWP_{tot} Climate change total
GWP_{fos} Climate change – fossil
GWP_{bio} Climate change – biogenic
GWP_{luluc} Climate change – land use and land use change
ODP Ozone Depletion
AP Acidification
EP_{fw} Eutrophication aquatic freshwater
EP_{mar} Eutrophication aquatic marine
EP_{ter} Eutrophication terrestrial
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

Table of results – use of natural resources, per declared 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	8.91E+04	5.58E+01	9.29E+03	9.84E+04	1.42E+01	1.59E+01	4.47E+03	7.96E+05	1.32E+01	1.39E+00	4.09E+02	1.86E+01	8.99E+05	-2.30E+03
PERM	MJ	0.00E+00	0.00E+00	3.34E+03	3.34E+03	0.00E+00	-2.31E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.03E+03	0.00E+00
PERT	MJ	8.91E+04	5.58E+01	1.26E+04	1.02E+05	1.42E+01	-2.29E+03	4.47E+03	7.96E+05	1.32E+01	1.39E+00	4.09E+02	1.86E+01	9.00E+05	-2.30E+03
PENRE	MJ	9.55E+05	4.70E+03	1.57E+04	9.76E+05	1.26E+03	2.37E+03	6.08E+04	8.52E+06	2.30E+03	1.24E+02	3.17E+03	6.51E+02	9.56E+06	-3.94E+04
PENRM	MJ	8.39E+03	0.00E+00	4.61E+03	1.30E+04	0.00E+00	-3.24E+03	2.73E+04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.71E+04	0.00E+00
PENRT	MJ	9.64E+05	4.70E+03	2.03E+04	9.89E+05	1.26E+03	-8.72E+02	8.81E+04	8.52E+06	2.30E+03	1.24E+02	3.17E+03	6.51E+02	9.60E+06	-3.94E+04
SM	kg	6.84E+03	1.56E+00	5.31E+01	6.90E+03	3.50E-01	9.80E-01	3.10E+02	8.86E+02	9.00E-01	3.40E-02	2.26E+02	5.29E+00	8.33E+03	4.05E+03
RSF	MJ	1.98E+01	2.00E-02	2.05E+01	4.04E+01	3.50E-03	4.50E-03	6.78E+00	6.81E+00	2.90E-03	3.50E-04	2.70E-01	1.40E-02	5.42E+01	-5.26E-01
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	6.69E+02	5.60E-01	1.48E+01	6.85E+02	1.60E-01	1.50E-01	4.43E+01	2.44E+03	1.40E-01	1.60E-02	7.48E+00	6.30E-01	3.18E+03	-1.43E+02

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

Table of results – waste, per declared 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	2.61E+04	6.79E+00	1.85E+02	2.63E+04	1.66E+00	3.23E+00	9.87E+02	1.23E+05	3.08E+00	1.60E-01	3.60E+01	2.25E+01	1.51E+05	-1.40E+03
NHWD	kg	1.51E+05	1.08E+02	1.85E+03	1.53E+05	2.73E+01	3.08E+02	7.12E+03	8.13E+05	2.17E+01	2.68E+00	6.09E+02	3.11E+03	9.78E+05	-8.91E+03
RWD	kg	2.25E+00	3.10E-02	3.00E-02	2.31E+00	8.50E-03	1.60E-02	3.00E-01	4.29E+00	1.60E-02	8.30E-04	9.40E-03	6.10E-05	6.95E+00	7.86E-02

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

End of life – Output flows

Table of results – environmental output flow, per declared 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	6.93E+00	6.93E+00	0.00E+00	7.20E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.50E+03	0.00E+00	9.58E+03	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE	MJ	0.00E+00	0.00E+00	1.73E+03	1.73E+03	0.00E+00	1.30E+03	4.80E+03	0.00E+00	0.00E+00	0.00E+00	2.12E+03	0.00E+00	9.94E+03	0.00E+00
EET	MJ	0.00E+00	0.00E+00	1.47E+03	1.47E+03	0.00E+00	2.57E+03	4.02E+03	0.00E+00	0.00E+00	0.00E+00	1.80E+03	0.00E+00	9.86E+03	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	2.60E+02	2.60E+02	0.00E+00	4.56E+02	7.78E+02	0.00E+00	0.00E+00	0.00E+00	3.19E+02	0.00E+00	1.81E+03	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

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.

Lucas Rodriguez

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.

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 Construction products.

C-PCR-025 (TO PCR 2019:14) Escalators and moving walks.

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

ESC EPD 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.

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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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