# Environmental Product Declaration

EPD of multiple products based on a representative product in accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for

## **L24**
## LIGHT INSET for **MOVE IT 45**

from XAL GmbH

**Included products**
L10 MOVE IT 45
L24 MOVE IT 45


**Programme**
The International EPD® System
www.environdec.com

**Programme operator**
EPD International AB

| | |
|---|---|
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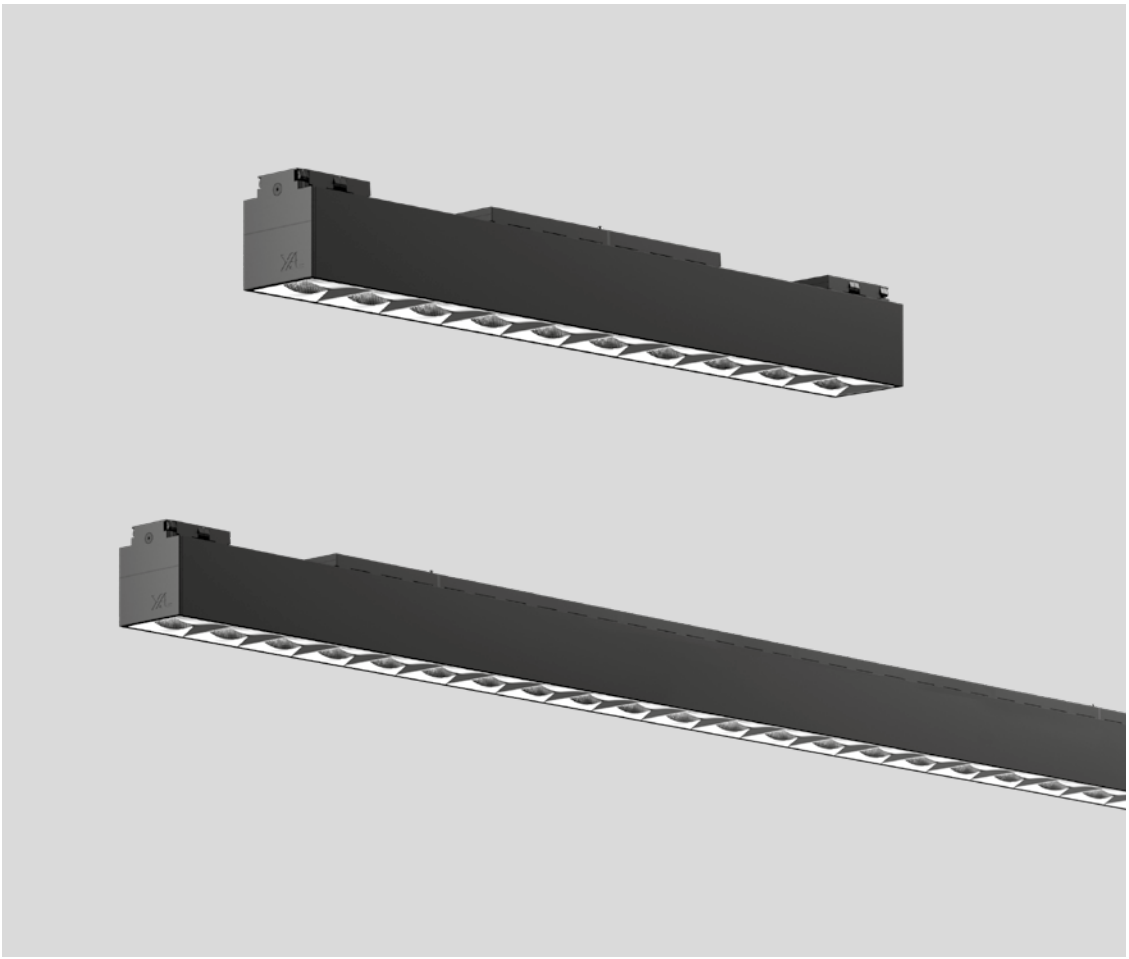
| **Valid until** | 2029-09-18 |

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com

EPD®
THE INTERNATIONAL EPD® SYSTEM

ECO PLATFORM EPD VERIFIED

# General information

## Programme information


Programme: The International EPD® System

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Website: www.environdec.com

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## Accountabilities for PCR, LCA and independent, third-party verification

**Product category rules (PCR)**
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)

PCR 2019:14 Construction products version 1.3.4, 2024-04-30.
UN CPC code(s): 4653 (Ver. 2.1) Lighting Equipment

**PCR review was conducted by**
The Technical Committee of the International EPD® System

**Life Cycle Assessment (LCA) accountability**
XAL GmbH, Auer-Welsbach-Gasse 36, 8055 Graz, Austria

**Third-party verification**
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:

☒ EPD verification by individual verifier

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**Approved by**
The International EPD® System

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

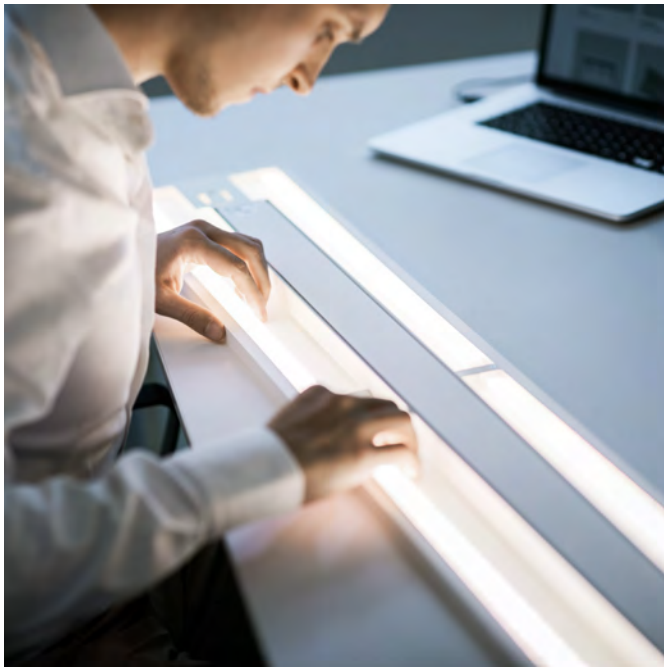
EPDs within the same product category but registered in different EPD programs, or not compliant with EN 15804:2012+A2:2019/AC:2021, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/declared units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterization factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804:2012+A2:2019/AC:2021 and ISO 14025:2006.

# Company information

## Owner of the EPD

XAL GmbH
Auer-Welsbach-Gasse 36
8055 Graz
AUSTRIA

epd@xal.com



## Description of the organisation

XAL is an internationally operating manufacturer of high-end luminaires and lighting solutions for shop, office, hotel and residential lighting. For 30 years, XAL has been working with lighting designers, architects and planners to develop custom luminaires of the highest technical standard, with a focus on style and aesthetics. While XAL mainly targets B2B costumers, we also provide our standard portfolio to B2C costumers.

With its headquarters in Graz, Austria, the XAL Group currently employs 1300 people worldwide and has 30 international subsidiaries. We are continuously working on further improving our products – whether in terms of durability, efficiency, the carbon footprint, or also with regard to the replaceability and reusability of components and materials.

## Product-related or management system-related certifications

XAL is certified according to several management and CSR standards.

- **ISO 9001** – Quality management systems
- **ISO 14001** – Environmental management systems
- **ISO 45001** – Occupational health and safety management systems
- **Ecovadis** – regular evaluation of our corporate social responsibility based on objective criteria with a focus on the environment, labour and human rights, ethics and responsible procurement.
- **UN Global Compact initiative** – our interactions with each other and our stakeholders, our supply chain management and our resource strategies are guided by the principles of the UN Global compact.

**Name and location of production site(s)**
The production sites are located in Murska Sobota (XAL Svetila d.o.o., Slovenia) and in Graz (XAL GmbH, Austria).

More information
**xal.com**

# Product information

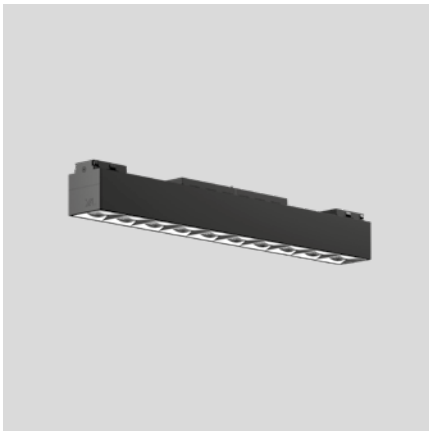
Product name

**L10 & L24**
LIGHT INSET for
**MOVE IT 45**

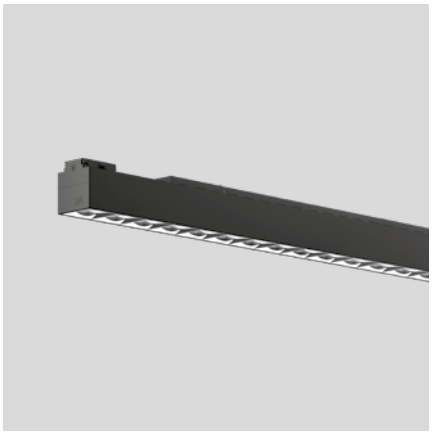
## Product identification

The linear light insets can be used in many different variations. Available with different optics, a wide range of beam characteristics can be generated. The micro-faceted reflector technology en-sures precise light distribution and minimum glare that is unequalled. The downlight optics for generating round and angular light projections are available with several beam angles. Choose the right inset with the right optics for your individual needs

## This EPD covers two variations of our MOVE IT 45 insets



**L10**
**MOVE IT 45**



**L24**
**MOVE IT 45**

# Product information

## Product description

Linear light inset made of aluminium; light inset can be installed and moved without tools by means of magnetic holders+locking; surface anodised; flush with profile system; equipped with 24 specially computed OFFICE light elements; high gloss reflector with faceted design; precise radia-tion characteristic with symmetrical light distribution; energy-efficient high power LEDs with very good colour rendering; hot plug protection

| Specification | L10 | L24 |
|---|---|---|
| Inset power | 22.2 W, 30 W | 20.2 W, 20.7 W |
| Luminous efficacy | up to 126 lm/W | up to 139 lm/W |
| Colour temperature | 3000 K, 4000 K, TW* | 3000 K, 4000 K, TW* |
| Electricial | DALI-2, DALI-2 DT8 | DALI-2, DALI-2 DT8 |
| Physical | Length 381<br>Width 43<br>Height 48 | Length 906<br>Width 43<br>Height 48 |

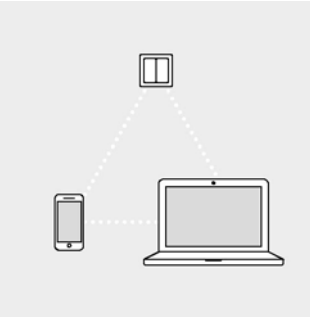
*TW = tunable white

CB

The L10 MOVE IT 45 is not only thoroughly tested in our externally accredited in-house facilities but is also third-party tested: CB is available.

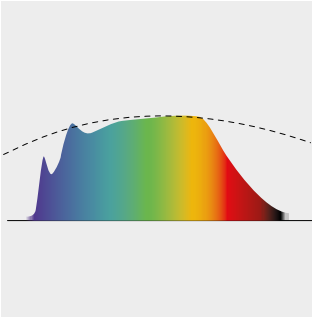
**UN CPC code**

- 4653 (Ver. 2.1) Lighting Equipment



**Control Options**
Easy control of the luminaires

**Magnetic Mounting**
Installation and assembly are quick and easy



**Full Spectrum LED**
Healthy and eye-friendly light

# LCA information

## Declared unit

The declared unit is one piece of L24 MOVE IT 45 including the LED-Converter.

The weight of the product per declared unit is 1.33 kg and 2340 lm. The L10 variant weights 0.5 kg and has an output of 2890 lm.

L10 and L24 MOVE IT 45 version use the same material and production technology, but there are differences in weight for the aluminium profile, the number of reflectors and the size of the printed wiring board. These differences have been incorporated and therefore the difference in the envi-ronmental impact can be scaled using the given conversion factors found in the Annex.

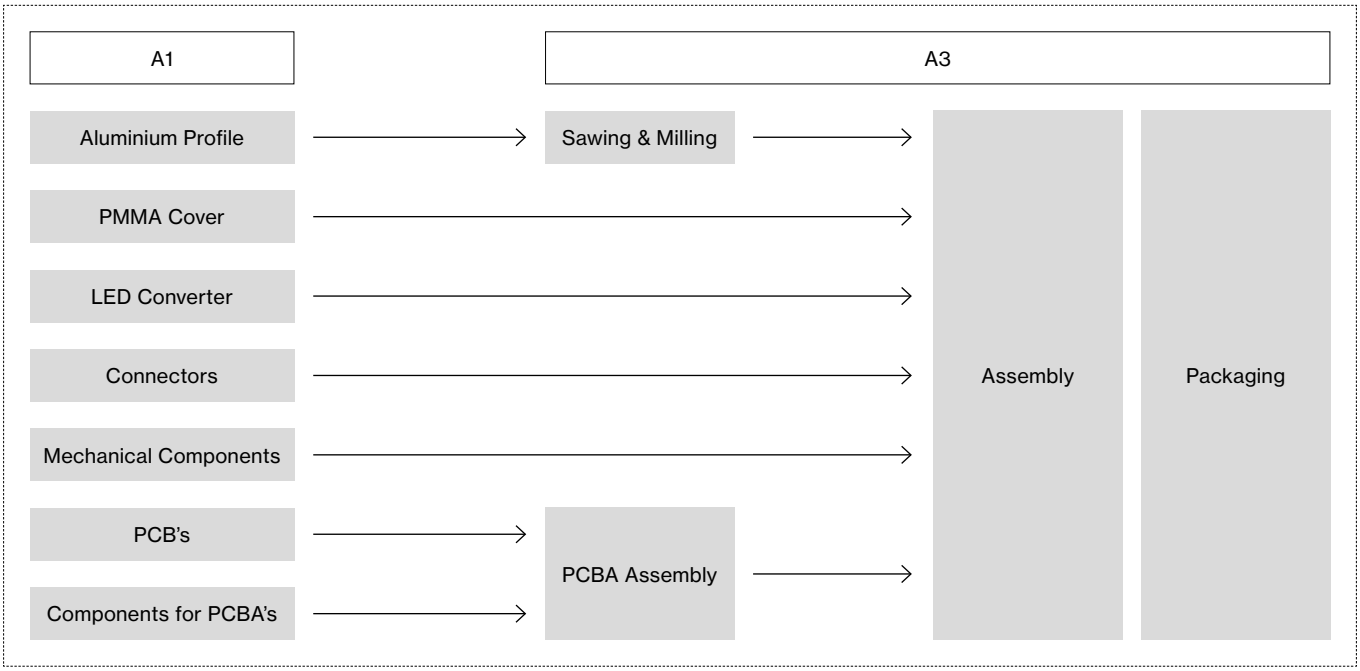
**Reference service life:**
13.25 years

**Time representativeness:**
2023

**Database(s) and LCA software used:**
LCA for Experts 10.8.0.14

**Description of system boundaries:**
Cradle to grave and module D

## System diagram (A3 – Manufacturing)




## Transport to building (A4)

The transport is calculated to the capitals of the countries with sales shares > 4 % (Berlin, Copen-hagen, Zurich, London, Vienna, Rome and Stockholm).

The product market includes countries all over the world.

Weighted distance: 1084.7 km
Truck used: Class EURO 6, 26 – 28 t
Fuel type: Diesel (0.00287 kg / 100 km)

## Use, maintenance, repair, replacement and refurbishment (B1, B2, B3, B4, B5)

These stages include the use, maintenance, repair, replacement and refurbishment of the product, which do not contribute to the environmental impacts of the product's functional unit.

## Installation into building (A5)

No emissions occur during the installation. This module includes the waste treatment of the packaging. For the transport-packaging, the euro pallet is reused 28 times, therefore only 1/28 of the weight is taken into account for the production and the end of life of the pallet.

Packaging waste including transport packaging:

| Material | Weight [kg] |
|---|---|
| Cardboard | 0.2115 |
| Paper | 0.0134 |
| Polyethylene film | 0.0053 |
| Wooden Pallet | 0.0045 |

## Operational Energy Use (B6)

Electricity consumption during the use stage is modelled based on the technical parameters of the luminaires and is representative for a weighted average of the following applications – office (60 %), hotel (15 %), restaurant (15 %), and retail (10 %) with an average lifetime of 13.25 years. Geography of the electricity mix is modelled by sales shares and is representative for European countries (91.72 % - EU-28) and rest of world countries (8.28 %). For the rest of world countries, an electricity mix for China is used following a worst-case approach.

The energy consumption is calculated using the formula from EN 15193:2007: **Energy consumption [kWh] = {Pa x FCP x FO x (FD x tD + FN x tN) + Pp x ty} x 1/1.000 x a**

The results are presented in the additional information chapter.

| Scenario | L24 MOVE IT 45 | Unit |
|---|---|---|
| Electricity use (13.25 years) | 956 | kWh |
| Active power | 20.7 | W |
| Passive power | 0.85 | W |
| Total active time | 41406 | hours |
| Total passive time | 74664 | hours |
| Dimmable | non-dimmable, DALI-2 control | - |
| Presence control | No | - |

## Operational water use (B7)

No water is consumed during the use stage. Therefore, this stage does not contribute to the envi-ronmental impacts of the product's functional unit.

## End-of-life stage (C1 – C4)

L24 MOVE IT 45 presumed to be decomposed manually, therefore no emissions should occur. For the corresponding waste destinations, the following distances are used:

- To recycling facility – 250 km
- To incineration facility – 50 km
- To landfill – 100 km for metal and electronic parts, 20 km for plastic parts and packaging waste

Based on official statistics and literature, waste treatment options are taken into account for Europe and rest of the world countries.

| Scenario (luminaire & mounting accessory) | L24 MOVE IT 45 | Unit |
|---|---|---|
| Collected separately | 1.330 | kg |
| Collected with mixed (construction) waste | - | kg |
| For reuse | - | kg |
| For recycling | 0.851 | kg |
| For energy recovery | 0.273 | kg |
| For final disposal | 0.356 | kg |

## Module D

According to the guidelines of EN 15804+A2 and the PCR from EPD International, calculations are made for Module D. The loads and benefits result from the export of secondary materials and the energy which comes from incineration and landfilling. In Module D also the benefits from the product packaging waste are included.

| Scenario (contributing materials, incl. packaging) | L24 MOVE IT 45 | Unit |
|---|---|---|
| Materials for recycling | 1.22E+00 | kg |
| Materials for export of secondary fuels | - | kg |
| Materials for incineration | 3.95E-01 | kg |
| Materials for landfilling | 4.13E-01 | kg |

## Cut-off rules

Consistent with the PCR, a minimum of 95 % of total inflows (mass and energy) are included. In addition, materials and processes with insignificant contributions of less than 1% are also included. For the use and end-of-life stage, scenarios are used, factoring in geographical conditions (such as electricity mix) and applications (waste treatment practices)

The following processes have been excluded:

- Manufacture of equipment used in production, buildings or any other capital goods;
- The transportation of personnel to the plant;
- Transportation of personnel within the plant;
- Research and development activities;
- Long-term emissions.

## Data quality

Based on site specific information, this LCA study reflects the production for 2023. Components are supplied by external vendors, therefore manufacturing processes are modelled using GaBi, with the best fitting representative geographical conditions and applications.

## Electricity grid

For the manufacturing in Graz, Austria, the corresponding electricity grid mix as stated on the in-voice is used: Hydro (87.3 %), Wind (8.4 %), Solar (2 %), Biomass (1.4 %), other RE (0.9 %).

For Murska Sobota, Slovenia, the electricity used is 100 % from Hydro Power.

| Environmental impact of the electricity used in | AUT | SLO |
|---|---|---|
| $CO_2$ eq. [kg/kWh] | 0.008 | 0.005 |

# Content information

### Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

| | Product stage | | | Construction process stage | | Use stage | | | | | | | End of life stage | | | | Resource recovery stage |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Raw material supply | Transport | Manufacturing | Transport | Construction installation | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | De-construction demolition | Transport | Waste processing | Disposal | Reuse-Recovery-Recycling-potential |
| **Module** | **A1** | **A2** | **A3** | **A4** | **A5** | **B1** | **B2** | **B3** | **B4** | **B5** | **B6** | **B7** | **C1** | **C2** | **C3** | **C4** | **D** |
| Modules declared | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Geography | GLO | GLO | AUT, SLO | GLO | GLO | GLO | GLO | GLO | GLO | GLO | GLO | GLO | GLO | GLO | GLO | GLO | GLO |
| Specific data used | >90 % | | | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| Variation – products | +19 % | | | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| Variation – sites | 0 % | | | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| Acronyms | GLO = Global, AUT = Austria, SLO = Slovenia | | | | | | | | | | | | | | | | |

### Content information

| Product components | Weight, kg | Weight-% (versus total weight) | Post-consumer material, weight-% | Biogenic material, weight-% / declared unit | Biogenic material, kg C / declared unit |
|---|---|---|---|---|---|
| Aluminium | 0.76 | 56.61 | 0.00 | 0.00 | 0.00 |
| Polycarbonate | 0.28 | 21.01 | 0.00 | 0.00 | 0.00 |
| Epoxy Resin | 0.07 | 4.89 | 0.00 | 0.00 | 0.00 |
| Glass fibers | 0.06 | 4.72 | 0.00 | 0.00 | 0.00 |
| Neodymium | 0.06 | 4.37 | 0.00 | 0.00 | 0.00 |
| Copper | 0.03 | 2.26 | 0.00 | 0.00 | 0.00 |
| Steel | 0.03 | 1.93 | 0.00 | 0.00 | 0.00 |
| **TOTAL** | **1.33** | **100.00** | **0.00** | **0.00** | **0.00** |

| Packaging materials | Weight, kg | Weight-% (versus the product) | Weight biogenic carbon, kg C / declared unit |
|---|---|---|---|
| Paper | 0.01 | 1.01 | 0.01 |
| Cardboard | 0.18 | 13.20 | 0.07 |
| **TOTAL** | **0.19** | **30.78** | **0.02** |

Packaging material table includes only product primary packaging. Transport packaging also in-cluded in the LCA.

# Results of the environmental performance indicators

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

Usage of results from A1-A3 without considering the results of module C is not encouraged

## Mandatory impact category indicators according to EN 15804+A2 (based on EF 3.1)

| | | Results per piece of L24 MOVE IT 45 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Indicator** | **Unit** | **A1 – A3** | **A4** | **A5** | **B1 – B5** | **B6** | **B7** | **C1** | **C2** | **C3** | **C4** | **D** |
| GWP – fossil | kg $CO_2$ eq. | 5.77E+01 | 2.33E-01 | 1.92E-02 | 0.00E+00 | 3.21E+02 | 0.00E+00 | 0.00E+00 | 2.66E-02 | 7.59E-01 | 6.16E-03 | -7.28E+00 |
| GWP – biogenic | kg $CO_2$ eq. | -1.34E+00 | 0.00E+00 | 1.33E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.26E-03 | 0.00E+00 | 0.00E+00 |
| GWP – luluc | kg $CO_2$ eq. | 5.22E-02 | 3.87E-03 | 1.46E-04 | 0.00E+00 | 9.68E-02 | 0.00E+00 | 0.00E+00 | 4.41E-04 | 4.19E-05 | 1.96E-05 | -6.10E-04 |
| **GWP – total** | **kg $CO_2$ eq.** | **5.64E+01** | **2.37E-01** | **1.35E+00** | **0.00E+00** | **3.21E+02** | **0.00E+00** | **0.00E+00** | **2.70E-02** | **7.60E-01** | **6.16E-03** | **-7.28E+00** |
| ODP | kg CFC 11 eq. | 4.45E-10 | 2.32E-14 | 2.63E-14 | 0.00E+00 | 6.25E-09 | 0.00E+00 | 0.00E+00 | 2.64E-15 | 3.50E-13 | 1.71E-14 | -3.76E-11 |
| AP | mol H+ eq. | 2.67E-01 | 3.29E-04 | 5.35E-05 | 0.00E+00 | 7.12E-01 | 0.00E+00 | 0.00E+00 | 3.75E-05 | 1.39E-04 | 4.13E-05 | -3.07E-02 |
| EP – freshwater | kg P eq. | 6.14E-04 | 9.82E-07 | 5.22E-07 | 0.00E+00 | 1.12E-03 | 0.00E+00 | 0.00E+00 | 1.12E-07 | 7.86E-08 | 1.16E-08 | -8.33E-06 |
| EP – marine | kg N eq. | 5.19E-02 | 1.22E-04 | 2.46E-05 | 0.00E+00 | 1.71E-01 | 0.00E+00 | 0.00E+00 | 1.39E-05 | 4.44E-05 | 1.03E-05 | -6.37E-03 |
| EP – terrestrial | mol N eq. | 5.48E-01 | 1.45E-03 | 2.25E-04 | 0.00E+00 | 1.81E+00 | 0.00E+00 | 0.00E+00 | 1.65E-04 | 6.45E-04 | 1.13E-04 | -6.90E-02 |
| POCP | kg NMVOC eq. | 1.50E-01 | 3.12E-04 | 7.61E-05 | 0.00E+00 | 4.66E-01 | 0.00E+00 | 0.00E+00 | 3.55E-05 | 1.22E-04 | 3.18E-05 | -1.81E-02 |
| ADP – minerals & metals* | kg Sb eq. | 6.73E-03 | 1.96E-08 | 1.10E-09 | 0.00E+00 | 5.20E-05 | 0.00E+00 | 0.00E+00 | 2.23E-09 | 3.21E-09 | 5.23E-10 | -3.20E-04 |
| ADP – fossil* | MJ | 7.14E+02 | 3.00E+00 | 1.97E-01 | 0.00E+00 | 6.14E+03 | 0.00E+00 | 0.00E+00 | 3.42E-01 | 4.96E-01 | 9.28E-02 | -9.11E+01 |
| WDP* | $m^3$ | 2.54E+01 | 3.43E-03 | 9.06E-03 | 0.00E+00 | 9.13E+01 | 0.00E+00 | 0.00E+00 | 3.91E-04 | 7.92E-02 | 7.23E-04 | -1.40E+00 |

| | |
|---|---|
| Acronyms | GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential. Accumulated Exceedance; EP-freshwater = Eutrophication potential. fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential. fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential. Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential. deprivation-weighted water consumption |

* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

## Additional mandatory and voluntary impact category indicators

| | | Results per piece of L24 MOVE IT 45 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Indicator** | **Unit** | **A1 – A3** | **A4** | **A5** | **B1 – B5** | **B6** | **B7** | **C1** | **C2** | **C3** | **C4** | **D** |
| GWP – GHG[1] | kg $CO_2$ eq. | 5.77E+01 | 2.37E-01 | 1.94E-02 | 0.00E+00 | 3.21E+02 | 0.00E+00 | 0.00E+00 | 2.70E-02 | 7.59E-01 | 6.18E-03 | -7.28E+00 |
| PM | disease inc. | 3.53E-06 | 3.33E-09 | 4.30E-10 | 0.00E+00 | 7.02E-06 | 0.00E+00 | 0.00E+00 | 3.80E-10 | 1.64E-09 | 4.94E-10 | -5.23E-07 |
| IRP – HE** | kg U235-eq | 2.61E+00 | 5.42E-04 | 4.84E-04 | 0.00E+00 | 1.46E+02 | 0.00E+00 | 0.00E+00 | 6.18E-05 | 5.45E-03 | 1.48E-04 | -4.91E-01 |
| ETP – fw* | CTUe | 3.17E+02 | 2.21E+00 | 1.36E-01 | 0.00E+00 | 1.69E+03 | 0.00E+00 | 0.00E+00 | 2.52E-01 | 2.66E-01 | 5.45E-02 | -2.78E+01 |
| HTP – c* | CTUh | 4.01E-07 | 4.43E-11 | 3.32E-12 | 0.00E+00 | 1.02E-07 | 0.00E+00 | 0.00E+00 | 5.05E-12 | 1.54E-11 | 4.04E-12 | -5.69E-09 |
| HTP – nc* | CTUh | 8.49E-07 | 1.97E-09 | 2.02E-10 | 0.00E+00 | 1.57E-06 | 0.00E+00 | 0.00E+00 | 2.25E-10 | 1.02E-09 | 3.79E-10 | -6.74E-08 |
| SQP | dimension-less | 2.65E+02 | 1.49E+00 | 6.87E-02 | 0.00E+00 | 2.41E+03 | 0.00E+00 | 0.00E+00 | 1.69E-01 | 1.61E-01 | 1.80E-02 | 8.41E+01 |

| | |
|---|---|
| Acronyms | PM = particulate matter emissions. IRP-HE = ionizing radiation potential-human exposure. ETP-fw = ecotoxicity (freshwater). HTP-c = human toxicity potential. cancer effects. HTP-nc = human toxicity potential. non-cancer effects. SQP = land use related impacts. |

[1] The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

# Results of the environmental performance indicators

## Resource use indicators

| | | Results per piece of L24 MOVE IT 45 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Indicator** | **Unit** | **A1 – A3** | **A4** | **A5** | **B1 – B5** | **B6** | **B7** | **C1** | **C2** | **C3** | **C4** | **D** |
| PERE | MJ | 2.67E+02 | 2.54E-01 | 2.64E-02 | 0.00E+00 | 4.17E+03 | 0.00E+00 | 0.00E+00 | 2.89E-02 | 2.07E-01 | 1.38E-02 | -3.31E+01 |
| PERM | MJ | 3.42E+00 | 0.00E+00 | -3.36E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | -6.03E-02 | 0.00E+00 | 0.00E+00 |
| PERT | MJ | 2.70E+02 | 2.54E-01 | -3.34E+00 | 0.00E+00 | 4.17E+03 | 0.00E+00 | 0.00E+00 | 2.89E-02 | 1.47E-01 | 1.38E-02 | -3.31E+01 |
| PENRE | MJ | 7.14E+02 | 3.00E+00 | 1.97E-01 | 0.00E+00 | 6.14E+03 | 0.00E+00 | 0.00E+00 | 3.42E-01 | 4.96E-01 | 9.29E-02 | -9.11E+01 |
| PENRM | MJ | 1.09E+01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | -1.09E+01 | 0.00E+00 | 0.00E+00 |
| PENRT | MJ | 7.25E+02 | 3.00E+00 | 1.97E-01 | 0.00E+00 | 6.14E+03 | 0.00E+00 | 0.00E+00 | 3.42E-01 | -1.04E+01 | 9.29E-02 | -9.11E+01 |
| SM | 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 |
| RSF | 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 |
| 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 |
| FW | $m^3$ | 7.57E-01 | 2.85E-04 | 2.24E-04 | 0.00E+00 | 3.50E+00 | 0.00E+00 | 0.00E+00 | 3.25E-05 | 1.92E-03 | 2.19E-05 | -4.90E-02 |

Acronyms: PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

## Waste indicators

| | | Results per piece of L24 MOVE IT 45 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Indicator** | **Unit** | **A1 – A3** | **A4** | **A5** | **B1 – B5** | **B6** | **B7** | **C1** | **C2** | **C3** | **C4** | **D** |
| Hazardous waste disposed | kg | 6.39E-06 | 9.72E-11 | 2.87E-10 | 0.00E+00 | 8.36E-06 | 0.00E+00 | 0.00E+00 | 1.11E-11 | 4.26E-10 | 1.48E-11 | -9.88E-09 |
| Non-hazardous waste disposed | kg | 5.64E+00 | 4.67E-04 | 4.60E-02 | 0.00E+00 | 4.84E+00 | 0.00E+00 | 0.00E+00 | 5.32E-05 | 7.51E-02 | 3.56E-01 | -2.64E+00 |
| Radioactive waste disposed | kg | 2.45E-02 | 3.88E-06 | 3.09E-06 | 0.00E+00 | 8.98E-01 | 0.00E+00 | 0.00E+00 | 4.42E-07 | 3.55E-05 | 1.17E-06 | -4.69E-03 |

## Output flow indicators

| | | Results per piece of L24 MOVE IT 45 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Indicator** | **Unit** | **A1 – A3** | **A4** | **A5** | **B1 – B5** | **B6** | **B7** | **C1** | **C2** | **C3** | **C4** | **D** |
| 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 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Material for recycling | kg | 2.96E-01 | 0.00E+00 | 3.03E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.25E-01 |
| Materials for energy recovery | kg | 0.00E+00 | 0.00E+00 | 4.79E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.47E-01 | 0.00E+00 | 0.00E+00 |
| Exported energy. electricity | 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 |
| Exported energy. thermal | 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 |

# Additional environmental information

L24 MOVE IT 45 and L10 MOVE IT 45 belong to an environmental homogenous family as described in chapter 3.6.1. of the PEP-PCR-ed4-EN-2021 09 06:

- The materials and manufacturing processes of the luminaires are identical and only differ in mass
- The packaging materials and manufacturing processes are identical
- The products use the same logistic circuit
- Installation and use conditions are the same
- The technology of the light source is the same
- The luminaires are recycled according to the same regulatory requirements

The results of the L24 MOVE IT 45 (2340 lm) can therefore be scaled to L10 MOVE IT 45 (2890 lm). The calculations of the scaling factors are based on the extrapolation rules of PeP described in chap-ter 3.6.2. – 3.6.8. (P.E.P.. 2021). The reference life used for the calculation of B6 is 116 070 hours.

| | A1 – A3 | A4 | A5 | B6 | C1 – C4 | D |
|---|---|---|---|---|---|---|
| **L24 MOVE IT 45** | 1 | 1 | 1 | 1 | 1 | 1 |
| **L10 MOVE IT 45** | 0.59 | 0.48 | 0.38 | 0.91 | 0.51 | 0.59 |

## Results for 1.000 lumens during a reference life of 35.000 hours (PSR-0014-ed2.0-EN-2023 07 13).

A conversion factor can be used for converting the results to 1 000 lumens during a reference life of 35 000 hours.

| | A1 – A3<br>Production | A4<br>Transport | A5<br>Installation | B6<br>Use stage | C1 – C4<br>End of life | D<br>Resource - recovery |
|---|---|---|---|---|---|---|
| **Conversion Factor L24 MOVE IT 45** | 0.39 | 0.39 | 0.39 | 0.33 | 0.39 | 0.39 |
| **Conversion Factor L10 MOVE IT 45** | 0.32 | 0.32 | 0.32 | 0.27 | 0.32 | 0.32 |

## Information related to the sectorial EPD

This EPD is not sectoral.

## Differences from previous versions

This is the first version of the EPD.

# References

EN 15804:2012+A2:2019/AC:2021 Sustainability of construction works. Environmental product declarations. Core rules for the product category of construction products.

European court of auditors. EU actions and existing challenges on electronic waste. Review No. 4. 2021

General Programme Instructions of the International EPD® System. Version 4.0.

ISO 14025:2006 - Environmental labels and declarations - Type III environmental declarations - Princi-ples and procedures

ISO 14040:2021 Environmental management — Life cycle assessment — Principles and framework

ISO 14044:2021 Environmental management — Life cycle assessment — Requirements and guide-lines

LCA background report. L24 MOVE IT 45. 2024-08-14

LCA for Experts 10.8.0.14

PCR-ed4-EN-2021 09 062021. P.E.P. Association. Product Category Rules for Electrical. Electronic and HVAC-R Products.

Product category rules (PCR) 2019:14 Construction products version 1.3.4. 2024-04-30. The EPD International. 2024

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