Environmental Product Declaration

EPD of multiple products, based on a representative product in accordance with ISO 14025:2017 and EN 15804:2012+A2:2019/ AC:2021 for:

LENS | MICROPRISMATIC | OPAL
for MOVE IT PRO

from XAL GmbH

Programme
The International EPD® System
www.environdec.com

Programme operator
EPD International AB

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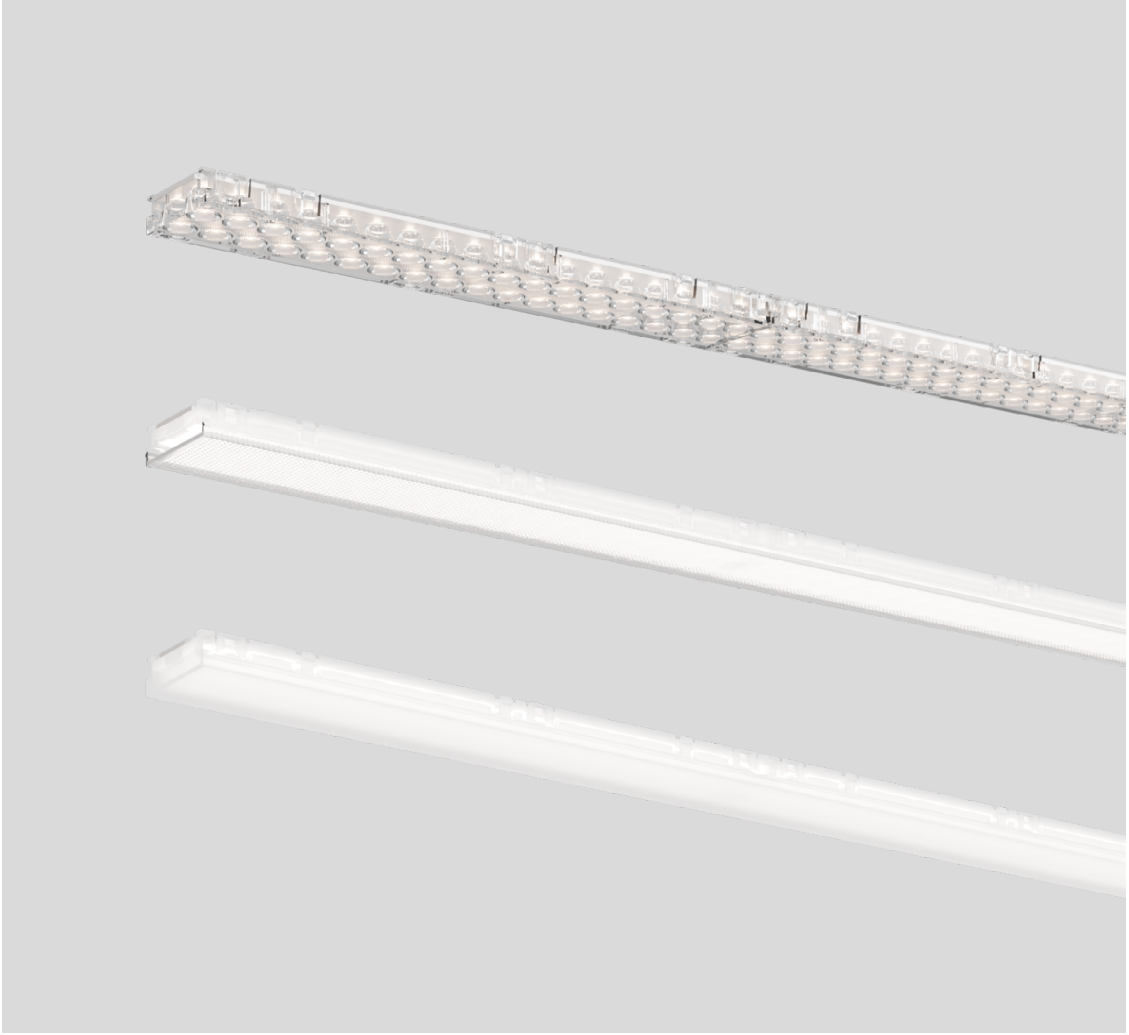

This EPD follows additional requirements for construction products considered as Electronic or Electric Equipment. An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com

EPD®
THE INTERNATIONAL EPD® SYSTEM

ECO PLATFORM EPD VERIFIED

General information

Programme information

Programme	The International EPD® System
Address	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
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CEN standard EN 15804 serves as the Core Product Category Rules (PCR)

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

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
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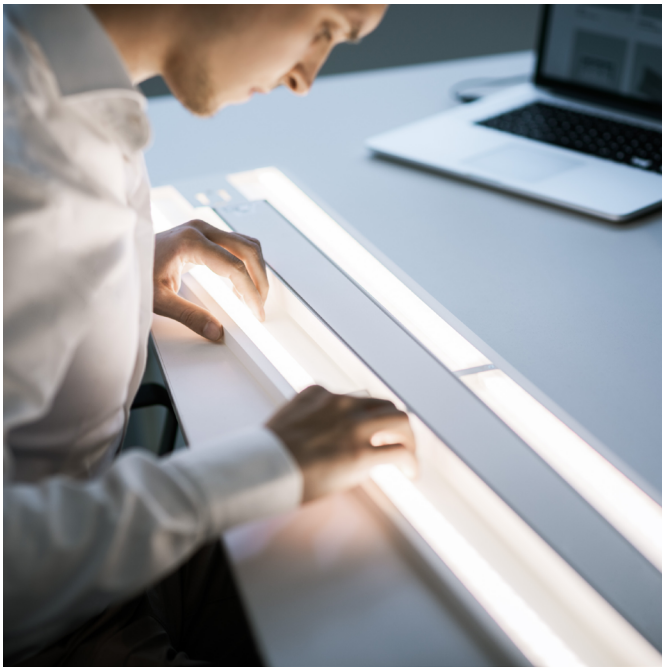


Description of the organisation

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

LENS, MICROPRISMATIC, OPAL for MOVE IT PRO

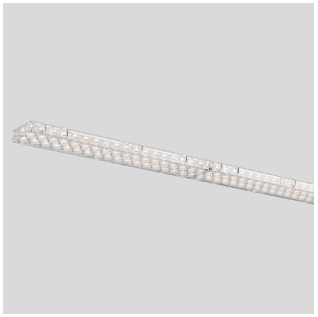
Product identification

Linear light insets for MOVE IT PRO system.

This EPD covers multiple products:
- LENS WIDE MOVE IT PRO
- LENS WALLWASHER MOVE IT PRO
- LENS SHELF MOVE IT PRO
- MICROPRISMATIC MOVE IT PRO
- OPAL MOVE IT PRO
- OPAL JUT-OUT MOVE IT PRO

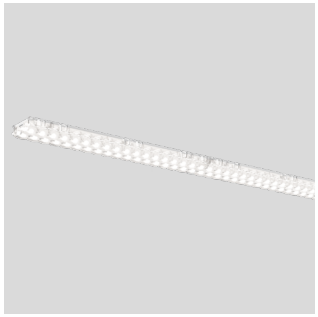
The MICROPRISMATIC Inset is available in UGR ≤ 19 and UGR ≤ 22.
LENS SHELF insets are available as shelf floor washer and wide shelf floor washer and with low- mid- and high power.
Conversion factors for all products are given in the Annex.

This EPD covers multiple products

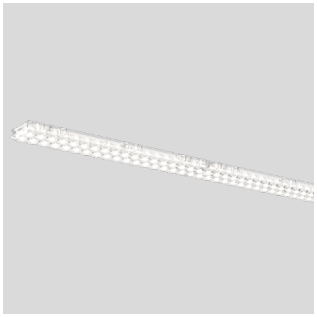


LENS WIDE

LENS WALLWASHER



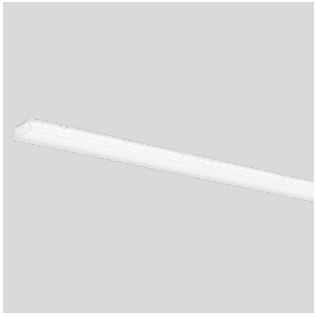
LENS SHELF
shelf floor washer



LENS SHELF
wide shelf floor washer

Product information

MICROPRISMATIC



OPAL

OPAL JUT-OUT

Product description

Linear light inset made of plastic; light inset, incl. high power adapter + converter can be installed flexibly and without tools; flush with profile system; equipped with specially computed wallwasher / wide beam / shelf floor washer / wide shelf floor washer lenses; precise radiation characteristic with different light distributions (symmetric / asymmetric); energy-efficient LEDs with very good colour rendering. PMMA covers in OPAL, OPAL JUT-OUT and MICROPRISMATIC variants.

Technical specifications

Specification	LENS WIDE	LENS SHELF	LENS WALLWASHER
Inset power (1000 mm)	18.2 W	22.2 W, 33 W, 48 W	18.2 W
Luminous efficacy	up to 189 lm/W	up to 176 lm/W	up to 161 lm/W
Colour temperature	2700 K - 4000 K	2700 K - 4000 K	2700 K - 4000 K
Electrical	DALI-2	DALI-2	DALI-2
Physical	Length 1000-3000 mm Diameter 43 mm Height 13 mm	Length 1000-2000 mm Diameter 43 mm Height 13 mm	Length 1000-3000 mm Diameter 43 mm Height 13 mm

Specification	MICROPRISMATIC	OPAL	OPAL JUT-OUT
Inset power	8 W, 18.2 W	18.2 W	18.2 W
Luminous efficacy	up to 127 lm/W	up to 143 lm/W	up to 164 lm/W
Colour temperature	2700 K - 4000 K	2700 K - 4000 K	2700 K - 4000 K
Electrical	DALI-2	DALI-2	DALI-2
Physical	Length 1000-3000 mm Diameter 43 mm Height 13 mm	Length 1000-3000 mm Diameter 43 mm Height 13 mm	Length 1000-3000 mm Diameter 43 mm Height 21 mm

UN CPC code(s):
- 4653 (Ver. 2.1) Lighting Equipment

LCA information

Declared unit

The declared unit is 1 meter of the LENS WIDE Inset including the LED-Converter with a colour temperature of 3000 K. This product has been selected as the reference due to the highest predicted share of sales. The weight of the product per declared unit is 0.593 kg. Luminous flux: 2590 lm.

For better comparison with other types of luminaires, conversion factors are also available to convert the results to 1000 lumens during a reference lifetime of 35000 hours. This reference value is proposed by the PEP Category rules (PSR-0014-ed2.0-EN-2023 07 13).
The conversion factors are available under “Additional environmental information“.

The principles of “Modularity” and “polluter pay” have been followed.

Reference service life
12.35 years

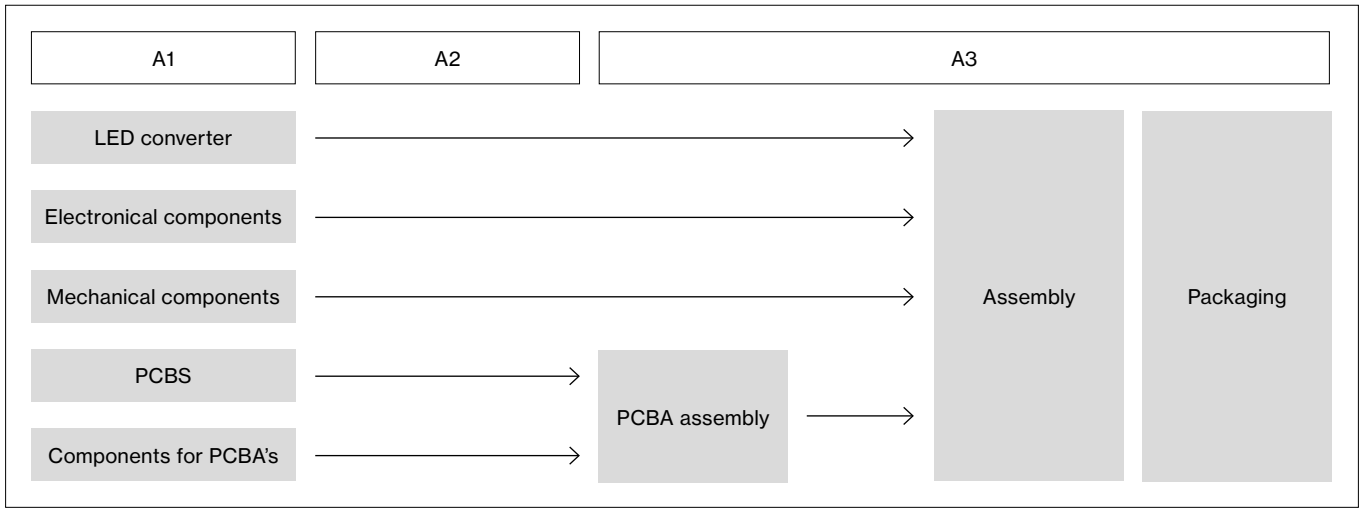
Time representativeness
2023-2024*

Database(s) and LCA software used
LCA for Experts 10.9.0.20 (Sphera)

Description of system boundaries
Cradle to grave and module D.

* Some primary data (BoM and supplier data) is from a period < 12 months. It will be reviewed once one year of production is effective to confirm that the data is still representative.

System diagram (A1 – A3)



Product stage (A1 – A3)

Raw materials are found in the components used for the luminaire production. The raw materials and the necessary process steps have been modelled using LCA for Experts. The PCB is assembled in Graz, Austria. The final assembly of the luminaire is done in Murska Sobota, Slovenia. The corresponding electricity mix has been used for all manufacturing steps. Transportation of all the components is incorporated. For the components which are delivered from China, aggregated data has been used, since transportation involved various routes and transport vehicles. Packaging for the components has been accounted for using a worst-case approach. The ESD-packaging is reused one time within the company. therefore only ½ of the weight is taken into account for the production and the recycling. Since connectors typically consist of various material compositions, the EPDs of XAL GmbH assume plastic/metal connectors with a generous ratio of 50/50.

Transport to building (A4)

The transport is calculated from Graz, Austria to the capitals of the countries with predicted sales shares >4% (Vienna, Berlin, London, Zurich, Stockholm, Copenhagen).

The product market includes countries all over the world.

Weighted distance:	846.5 km
Truck used:	Class EURO 6, 26-28 t
Fuel type:	Diesel (0.00287 kg/100 kkm)

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. This is an assumption derived from the PEP Eco Passport rules (PSR-0014-ed2.0-EN-2023 07 13).

Material	Weight (kg)
Cardboard	0.228
Polyethylene film	0.003
Wooden Pallet	0.003
Paper	0.007

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.

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%), hospital (2%), hotel (6%), restaurant 7%), and retail (25%) with an average lifetime of 12.35 years. Geography of the electricity mix is modelled by sales shares and is representative for European countries (71% - EU-28) and rest of world countries (29%). 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	LENS WIDE Inset	Unit
Electricity use (11.5 years)	801.45	kWh
Active power	18.2	W
Total active time	41064	hours
Total passive time	67122	hours
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 environmental impacts of the product's functional unit.

End-of-life stage (C1 – C4)

The product is 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)	LENS WIDE Inset	Unit
Collected separately	0.593	kg
Collected with mixed (construction) waste	-	kg
For reuse	-	kg
For recycling	0.125	kg
For energy recovery	0.268	kg
For final disposal	0.200	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)	LENS WIDE Inset	Unit
Materials for recycling	0.316	kg
Materials for export of secondary fuels	-	kg
Materials for incineration	0.294	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 LCA for Experts, 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 invoice 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	0005

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	86%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	+6%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
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
Polycarbonate	0.332	56.00%	0.00	0.00	0.00
Glass fibres	0.089	15.05%	0.00	0.00	0.00
Epoxy-Resin	0.074	12.55%	0.00	0.00	0.00
Copper in alloy	0.037	6.19%	0.00	0.00	0.00
Copper	0.019	3.16%	0.00	0.00	0.00
Aluminum	0.008	1.29%	0.00	0.00	0.00
TOTAL	**0.593**	**100.00**	**0.00**	**0.00**	**0.00**

Packaging materials	Weight, kg	Weight-% (versus the product)	Weight biogenic carbon, kg C / declared unit
Paper	0.007	1.24%	0.004
Cardboard	0.120	20.25%	0.061
TOTAL	**0.127**	**21.49%**	**0.065**

The products do not contain any REACH and RoHS SVHC substances in amounts greater than 0.1 % (1000 ppm).

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 declared unit										
Indicator	**Unit**	**A1 – A3**	**A4**	**A5**	**B1 – B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP – fossil	kg CO_2 eq.	1.48E+01	7.84E-02	1.03E-02	0.00E+00	2.72E+02	0.00E+00	0.00E+00	9.65E-03	1.08E+00	6.56E-03	-1.47E+00
GWP – biogenic	kg CO_2 eq.	-5.81E-01	0.00E+00	5.81E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP – luluc	kg CO_2 eq.	1.68E-02	1.34E-03	8.99E-05	0.00E+00	8.24E-02	0.00E+00	0.00E+00	1.65E-04	3.31E-05	1.23E-05	-3.87E-04
GWP – total	**kg CO_2 eq.**	**1.43E+01**	**7.98E-02**	**5.91E-01**	**0.00E+00**	**2.72E+02**	**0.00E+00**	**0.00E+00**	**9.81E-03**	**1.08E+00**	**6.57E-03**	**-1.47E+00**
ODP	kg CFC 11 eq.	5.36E-09	8.03E-15	1.30E-14	0.00E+00	4.70E-09	0.00E+00	0.00E+00	9.88E-16	6.98E-13	1.57E-14	-5.29E-12
AP	mol H+ eq.	6.66E-02	1.14E-04	2.71E-05	0.00E+00	8.47E-01	0.00E+00	0.00E+00	1.40E-05	2.58E-04	4.72E-05	-1.31E-02
EP – freshwater	kg P eq.	1.57E-04	3.40E-07	2.23E-07	0.00E+00	9.61E-04	0.00E+00	0.00E+00	4.19E-08	1.54E-07	1.13E-08	-1.40E-06
EP – marine	kg N eq.	1.35E-02	4.22E-05	1.20E-05	0.00E+00	1.49E-01	0.00E+00	0.00E+00	5.19E-06	7.30E-05	1.21E-05	-1.70E-03
EP – terrestrial	mol N eq.	1.44E-01	5.00E-04	1.16E-04	0.00E+00	1.59E+00	0.00E+00	0.00E+00	6.16E-05	1.19E-03	1.33E-04	-1.83E-02
POCP	kg NMVOC eq.	3.96E-02	1.08E-04	3.61E-05	0.00E+00	4.20E-01	0.00E+00	0.00E+00	1.33E-05	1.96E-04	3.67E-05	-4.89E-03
ADP – minerals & metals*	kg Sb eq.	1.74E-03	6.78E-09	6.32E-10	0.00E+00	4.75E-05	0.00E+00	0.00E+00	8.35E-10	1.03E-08	6.84E-10	-7.79E-04
ADP – fossil*	MJ	2.05E+02	1.04E+00	1.07E-01	0.00E+00	5.14E+03	0.00E+00	0.00E+00	1.28E-01	8.05E-01	8.73E-02	-2.14E+01
WDP*	m^3	3.91E+00	1.19E-03	4.81E-03	0.00E+00	5.90E+01	0.00E+00	0.00E+00	1.46E-04	1.14E-01	7.30E-04	-2.29E-01

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 declared unit										
Indicator	**Unit**	**A1 – A3**	**A4**	**A5**	**B1 – B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP – GHG[1]	kg CO_2 eq.	1.48E+01	7.98E-02	1.04E-02	0.00E+00	2.72E+02	0.00E+00	0.00E+00	9.81E-03	1.08E+00	6.57E-03	-1.47E+00
PM	disease inc.	7.60E-07	1.15E-09	2.15E-10	0.00E+00	8.02E-06	0.00E+00	0.00E+00	1.42E-10	2.89E-09	5.81E-10	-9.88E-08
IRP – HE**	kg U235-eq	7.46E-01	1.88E-04	2.44E-04	0.00E+00	6.86E+01	0.00E+00	0.00E+00	2.31E-05	9.75E-03	1.08E-04	-8.66E-02
ETP – fw*	CTUe	1.31E+02	7.65E-01	7.42E-02	0.00E+00	1.26E+03	0.00E+00	0.00E+00	9.42E-02	2.91E-01	4.87E-02	-4.89E+00
HTP – c*	CTUh	9.42E-09	1.53E-11	1.79E-12	0.00E+00	8.92E-08	0.00E+00	0.00E+00	1.89E-12	2.44E-11	7.46E-12	-3.51E-10
HTP – nc*	CTUh	1.90E-07	6.84E-10	9.95E-11	0.00E+00	1.29E-06	0.00E+00	0.00E+00	8.41E-11	1.56E-09	7.93E-10	-1.66E-08
SQP	dimension-less	5.53E+01	5.15E-01	4.08E-02	0.00E+00	2.27E+03	0.00E+00	0.00E+00	6.33E-02	2.88E-01	1.81E-02	4.46E+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 declared unit										
Indicator	**Unit**	**A1 – A3**	**A4**	**A5**	**B1 – B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	6.83E+01	8.79E-02	1.41E-02	0.00E+00	3.44E+03	0.00E+00	0.00E+00	1.08E-02	3.94E-01	1.31E-02	2.90E+00
PERM	MJ	3.47E+00	0.00E+00	-3.46E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.15E-02	0.00E+00	0.00E+00
PERT	MJ	7.18E+01	8.79E-02	-3.45E+00	0.00E+00	3.44E+03	0.00E+00	0.00E+00	1.08E-02	3.82E-01	1.31E-02	2.90E+00
PENRE	MJ	2.05E+02	1.04E+00	1.07E-01	0.00E+00	5.14E+03	0.00E+00	0.00E+00	1.28E-01	8.05E-01	8.73E-02	-2.14E+01
PENRM	MJ	1.09E+01	0.00E+00	-1.18E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.08E+01	0.00E+00	0.00E+00
PENRT	MJ	2.16E+02	1.04E+00	-1.03E-02	0.00E+00	5.14E+03	0.00E+00	0.00E+00	1.28E-01	-9.99E+00	8.73E-02	-2.14E+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	6.49E-02
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	1.28E-01	9.88E-05	1.19E-04	0.00E+00	1.88E+00	0.00E+00	0.00E+00	1.22E-05	2.80E-03	2.22E-05	-7.69E-03

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 declared unit										
Indicator	**Unit**	**A1 – A3**	**A4**	**A5**	**B1 – B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	7.96E-06	3.37E-11	1.49E-10	0.00E+00	7.25E-06	0.00E+00	0.00E+00	4.14E-12	5.45E-10	4.49E-12	6.34E-09
Non-hazardous waste disposed	kg	6.09E-01	1.62E-04	1.91E-02	0.00E+00	4.44E+00	0.00E+00	0.00E+00	1.99E-05	1.17E-01	4.47E-01	-6.24E-02
Radioactive waste disposed	kg	6.60E-03	1.34E-06	1.55E-06	7.25E-06	7.41E-01	0.00E+00	0.00E+00	1.65E-07	6.65E-05	9.72E-07	-6.07E-04

Output flow indicators

		Results per declared unit										
Indicator	**Unit**	**A1 – A3**	**A4**	**A5**	**B1 – B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	7.42E-02	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	1.03E-01	0.00E+00	2.30E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.18E-02	0.00E+00	0.00E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	1.95E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.04E-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

Scaling Factors for other variants

The products covered by this EPD are very similar but show some differences in their construction. Those differences have been accounted for in the LCA.

The results of the 1000 mm variants can be scaled to bigger sizes. The calculations of the scaling factors are based on the extrapolation rules of PeP described in chapter 3.6.2. – 3.6.8. (P.E.P., 2021).

The results of the environmental performance indicators above can be scaled to the corresponding variants with the following conversion factors:

Variant	Power	Length	A1 – A3	A4	A5	B6	C1 – C4	D
LENS WIDE	-	1000	1	1	1	1	1	1
LENS WALLWASHER	-	1000	1.04	1.09	1.01	1	1.17	1.05
LENS SHELF SFW	low	1000	1.06	1.10	1.01	1.20	1.20	1.06
LENS SHELF SFW	mid	1000	1.06	1.10	1.01	1.81	1.20	1.06
LENS SHELF SFW	high	1000	1.06	1.10	1.01	2.64	1.20	1.06
LENS SHELF WSFW	low	1000	1.04	1.07	1.01	1.20	1.13	1.04
LENS SHELF WSFW	mid	1000	1.04	1.07	1.01	1.81	1.13	1.04
LENS SHELF WSFW	high	1000	1.04	1.07	1.01	2.64	1.13	1.04
MICROPRISMATIC UGR≤19	-	1000	0.97	1.00	1.01	0.48	0.98	0.99
MICROPRISMATIC UGR≤22	-	1000	0.97	1.00	1.01	1	0.98	0.99
OPAL	-	1000	0.96	0.97	1.02	1	0.91	0.97
OPAL JUT-OUT	-	1000	0.98	1.01	1.01	1	1	1
LENS WIDE	-	1500	1.31	1.31	1.17	1.45	1.37	1.31
LENS WALLWASHER	-	1500	1.35	1.42	1.18	1.45	1.59	1.35
LENS SHELF SFW	low	1500	1.37	1.44	1.18	1.79	1.65	1.37
LENS SHELF SFW	mid	1500	1.37	1.44	1.18	2.58	1.65	1.37
LENS SHELF WSFW	low	1500	1.35	1.39	1.18	1.79	1.54	1.35
LENS SHELF WSFW	mid	1500	1.35	1.39	1.18	2.58	1.54	1.35
MICROPRISMATIC UGR≤19	-	1500	1.27	1.29	1.18	0.69	1.33	1.30
MICROPRISMATIC UGR≤22	-	1500	1.27	1.29	1.18	1.45	1.33	1.30
OPAL	-	1500	1.26	1.25	1.20	1.45	1.24	1.27
OPAL JUT-OUT	-	1500	1.27	1.30	1.18	1.45	1.35	1.27
LENS WIDE	-	2000	1.64	1.63	1.40	1.81	1.74	1.64
LENS WALLWASHER	-	2000	1.67	1.77	1.41	1.81	2.02	1.27
LENS SHELF SFW	low	2000	1.71	1.80	1.40	2.33	2.09	1.71
LENS SHELF WSFW	low	2000	1.68	1.73	1.40	2.33	1.95	1.68
MICROPRISMATIC UGR≤19	-	2000	1.59	1.61	1.40	0.88	1.69	1.62
MICROPRISMATIC UGR≤22	-	2000	1.59	1.61	1.39	1.81	1.72	1.60
OPAL	-	2000	1.57	1.55	1.43	1.81	1.56	1.91
OPAL JUT-OUT	-	2000	1.58	1.60	1.40	1.81	1.69	1.58
LENS WIDE	-	2500	1.96	1.94	1.60	2.25	2.11	1.96
LENS WALLWASHER	-	2500	1.99	2.11	1.61	2.25	2.44	1.99
MICROPRISMATIC UGR≤19	-	2500	1.89	1.91	1.60	1.07	2.04	1.93
MICROPRISMATIC UGR≤22	-	2500	1.89	1.92	1.59	2.25	2.09	1.91
OPAL	-	2500	1.88	1.84	1.63	2.25	1.89	1.88
OPAL JUT-OUT	-	2500	1.88	1.90	1.60	2.25	2.04	1.88

Variant	Power	Length	A1 – A3	A4	A5	B6	C1 – C4	D
LENS WIDE	-	3000	2.25	2.22	1.69	2.53	2.48	2.25
LENS WALLWASHER	-	3000	2.27	2.42	1.70	2.53	2.87	2.27
MICROPRISMATIC UGR ≤ 19	-	3000	2.16	2.18	1.69	1.21	2.39	2.21
MICROPRISMATIC UGR ≤ 22	-	3000	2.16	2.19	1.68	2.53	2.45	2.18
OPAL	-	3000	2.15	2.09	1.72	2.53	2.21	2.00
OPAL JUT OUT	-	3000	2.14	2.17	1.69	2.53	2.39	2.14

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.

			Conversion factors					
Variant	CRI	Length	A1–A3	A4	A5	B6	C1–C4	D
LENS WIDE	80	1000	0.39	0.39	0.39	0.35	0.39	0.39
	90	1000	0.45	0.45	0.45	0.41	0.45	0.45
	80	1500	0.26	0.26	0.26	0.24	0.26	0.26
	90	1500	0.30	0.30	0.30	0.27	0.30	0.30
	80	2000	0.19	0.19	0.19	0.18	0.19	0.19
	90	2000	0.22	0.22	0.22	0.20	0.22	0.22
	80	2500	0.16	0.16	0.16	0.14	0.16	0.16
	90	2500	0.18	0.18	0.18	0.16	0.18	0.18
	80	3000	0.13	0.13	0.13	0.12	0.13	0.13
	90	3000	0.15	0.15	0.15	0.14	0.15	0.15
LENS WALLWASHER	80	1000	0.46	0.46	0.46	0.42	0.46	0.46
	90	1000	0.53	0.53	0.53	0.48	0.53	0.53
	80	1500	0.31	0.31	0.31	0.28	0.31	0.31
	90	1500	0.35	0.35	0.35	0.32	0.35	0.35
	80	2000	0.23	0.23	0.23	0.21	0.23	0.23
	90	2000	0.27	0.27	0.27	0.24	0.27	0.27
	80	2500	0.18	0.18	0.18	0.17	0.18	0.18
	90	2500	0.21	0.21	0.21	0.19	0.21	0.21
	80	3000	0.15	0.15	0.15	0.14	0.15	0.15
	90	3000	0.18	0.18	0.18	0.16	0.18	0.18
LENS SHELF SFW & WSFW	80	1000	0.31	0.31	0.31	0.28	0.31	0.31
low power	90	1000	0.36	0.36	0.36	0.33	0.36	0.36
	80	1500	0.21	0.21	0.21	0.19	0.21	0.21
	90	1500	0.24	0.24	0.24	0.22	0.24	0.24
	80	2000	0.16	0.16	0.16	0.14	0.16	0.16
	90	2000	0.18	0.18	0.18	0.16	0.18	0.18
LENS SHELF SFW & WSFW	80	1000	0.21	0.21	0.21	0.19	0.21	0.21
mid power	90	1000	0.24	0.24	0.24	0.22	0.24	0.24
	80	1500	0.14	0.14	0.14	0.13	0.14	0.14
	90	1500	0.16	0.16	0.16	0.15	0.16	0.16
LENS SHELF SFW & WSFW	80	1000	0.15	0.15	0.15	0.13	0.15	0.15
high power	90	1000	0.17	0.17	0.17	0.15	0.17	0.17

			Conversion factors					
Variant	**CRI**	**Length**	**A1–A3**	**A4**	**A5**	**B6**	**C1–C4**	**D**
MICROPRISMATIC	80	1000	1.30	1.30	1.30	1.18	1.30	1.30
UGR ≤ 19	90	1000	1.51	1.51	1.51	1.37	1.51	1.51
	80	1500	0.87	0.87	0.87	0.79	0.87	0.87
	90	1500	1.00	1.00	1.00	0.91	1.00	1.00
	80	2000	0.65	0.65	0.65	0.59	0.65	0.65
	90	2000	0.76	0.76	0.76	0.69	0.76	0.76
	80	2500	0.52	0.52	0.52	0.47	0.52	0.52
	90	2500	0.61	0.61	0.61	0.55	0.61	0.61
	80	3000	0.44	0.44	0.44	0.40	0.44	0.44
	90	3000	0.50	0.50	0.50	0.46	0.50	0.50
MICROPRISMATIC	80	1000	0.58	0.58	0.58	0.53	0.58	0.58
UGR ≤ 22	90	1000	0.68	0.68	0.68	0.62	0.68	0.68
	80	1500	0.39	0.39	0.39	0.35	0.39	0.39
	90	1500	0.45	0.45	0.45	0.41	0.45	0.45
	80	2000	0.29	0.29	0.29	0.26	0.29	0.29
	90	2000	0.34	0.34	0.34	0.31	0.34	0.34
	80	2500	0.23	0.23	0.23	0.21	0.23	0.23
	90	2500	0.27	0.27	0.27	0.25	0.27	0.27
	80	3000	0.20	0.20	0.20	0.18	0.20	0.20
	90	3000	0.23	0.23	0.23	0.21	0.23	0.23
OPAL	80	1000	0.49	0.49	0.49	0.44	0.49	0.49
	90	1000	0.57	0.57	0.57	0.51	0.57	0.57
	80	1500	0.33	0.33	0.33	0.30	0.33	0.33
	90	1500	0.38	0.38	0.38	0.34	0.38	0.38
	80	2000	0.24	0.24	0.24	0.22	0.24	0.24
	90	2000	0.28	0.28	0.28	0.26	0.28	0.28
	80	2500	0.20	0.20	0.20	0.18	0.20	0.20
	90	2500	0.23	0.23	0.23	0.20	0.23	0.23
	80	3000	0.16	0.16	0.16	0.15	0.16	0.16
	90	3000	0.19	0.19	0.19	0.17	0.19	0.19
OPAL JUT-OUT	80	1000	0.45	0.45	0.45	0.41	0.45	0.45
	90	1000	0.53	0.53	0.53	0.48	0.53	0.53
	80	1500	0.30	0.30	0.30	0.27	0.30	0.30
	90	1500	0.35	0.35	0.35	0.32	0.35	0.35
	80	2000	0.23	0.23	0.23	0.21	0.23	0.23
	90	2000	0.26	0.26	0.26	0.24	0.26	0.26
	80	2500	0.18	0.18	0.18	0.16	0.18	0.18
	90	2500	0.21	0.21	0.21	0.19	0.21	0.21
	80	3000	0.15	0.15	0.15	0.14	0.15	0.15
	90	3000	0.18	0.18	0.18	0.16	0.18	0.18

Information related to the sectorial EPD

This EPD is not sectoral.

Version History

1st version	published 2025-01-28
2nd version	published 2026-03-03
NAMING	Changed product name “LENS” to “LENS WIDE”
VARIANTS	Added variants LENS WALLWASHER, LENS SHELF and OPAL JUT-OUT
p. 4, p. 5	Added product pictures

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