Product Environmental Profile for light bollards

Reference Product:
KLOU180

Registration number: ACL6-00002-V01.01-EN	Drafting Rules	PCR-ed4-EN-2021 09 06
	Supplemented by	PSR-0014-ed2.0-EN-2023 07 13
Verifier accreditation number: VH51	Information and reference documents: **www.pep-ecopassport.org**	
Date of issue: 10-2025	Validity period	5 years
Independent verification of the declaration and data, in compliance with ISO 14025 : 2006		
Internal ☐ / External ☒		
The PCR review was conducted by a panel of experts chaired by Julie Orgelet (DDemain)		
PEPs are compliant with XP C08-100-1:2016 and EN 50693:2019 The components of the present PEP may not be compared with components from any other program.		
Document complies with ISO 14025:2006 Environmental labels and declarations. Type III environmental declarations.		

GENERAL INFORMATION

COMPANY

Arcluce S.p.A. is an Italian company specialized in the design and manufacture of indoor and outdoor lighting solutions. Arcluce designs, develops, and engineers its products within its Research & Development department located in Via I Maggio, 6, 20070 San Zenone al Lambro MI.

For more details regarding Arcluce and the products cover by the PEP, visit
https://www.arcluce.it/

Contact details for questions related to the PEP:
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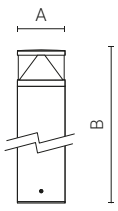
REFERENCE ARTICLE

Light bollards KLOU180 (art. code 0871020)

Illuminated bollard for outdoor lighting with a catchy cylindrical design. Body in die-cast aluminum alloy with low copper content (EN 47100). Pole in extruded aluminum alloy with low copper content (AW6060). QUALICOAT2 validated multi-stage painting process tested in salt spray according to ISO 9227 for aggressive environments of class C4. On request, resistance class C5. Gaskets in silicone rubber with controlled hardness, stabilized against UV rays. External screws in AISI 316 stainless steel chemically passivated to contrast galvanic corrosion. Color of the screws combined with the color of the fixture for better aesthetic coordination. Driver LED with protection against overheating and voltage spikes or network overvoltage in common and differential mode. UV rays stabilized, 850°C glow wire test resistant, V2 self-extinguishing clear polycarbonate screen.

Luminaire built in compliance with EN 60598-1 and EN 60598-2-1 standards, complete with CE marking in compliance with EU directives.

Technical information	
Light source:	LED, 3000K, CRI>80
Luminaire efficacy:	69lm/W
Luminaire:	21W , 1450lm
Luminaire Lifetime:	100.000 hours
High colour consistency:	< 3 SDCM
Power supply:	220-240V 50/60Hz
Wiring:	DALI
Optics:	radial
Performances tested at:	25°C
Size:	A: Ø 182mm / B: 960mm



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Elements supplied with the luminaire	
Light Source	LED module
Control Gear	Constant current dimmable driver

FUNCTIONAL UNIT

Provide lighting that delivers an outgoing artificial luminous flux of 1.000 lumens during a reference lifetime of 35.000 hours

Based on the assigned lifetime according to EN 13201-5:2016 for Outdoor application (urban zone/ open space), the luminaire has an operational lifetime of 25years.

Consequently, the reference flow is calculated as: (1.000/1.450) x (35.000/100.000) = **0,2414**

PRODUCTS INCLUDED IN THE PEP

The following series belong to the same homogeneous environmental family as the reference product.

PRODUCT	CODE	Weight [kg]	Power [W]	Lumen@Ta=25°C [lm]
KLOU180-V20A	0871020	6.897	21	1450
KLOU180-V20B	0871083	6.897	19	1900
KLOU180-V20C	0871040	6.897	19	1500
KLOU180-V20D	0871050	6.897	21	1450
KLOU150	0861020	5.048	15	1000
KLOU150-A	0861020	5.048	15	1000
KLOU150-B	0861080	5.048	13	1350
KLOU150-C	0861040	5.048	13	1000
KLOU150-D	0861050	5.048	15	1100
KLOU76	0860000	2.022	8	500
LOYD180	0889010	22.9	32	4630
LOYD	0889000	4.5	32	4630

Technical Data Sheet of the products included in the Environmental Profile available at ***https://www.arcluce.it***

MATERIALS AND SUBSTANCES

All useful measures have been adopted to ensure that the materials used in the composition of the product do not contain any substances banned by the legislation in force at the time of marketing.

MATERIAL TYPE	Weight [kg]	Share (%)
Product		
Aluminium	6.090	78.6%
Plastic	0.566	7.3%
Other	0.211	2.7%
Driver LED	0.087	1.1%
Other Metals	0.070	0.9%
LED	0.031	0.4%
Packaging		
Paper	0.689	*9,0%*
Total mass of reference product:	**7.743**	

MANUFACTURING

These products are manufactured by Arcluce at the plant located in Via I Maggio, 6, 20070 San Zenone al Lambro, Italy. Within its production process, Arcluce makes use of selected subcontractors to perform specific manufacturing stages. These typically include specialized operations such as surface treatments.

By outsourcing these phases to qualified partners, Arcluce ensures high-quality finishes and compliance with technical standards, while retaining full control over design, assembly, and final testing in-house.

DISTRIBUTION

From Arcluce S.p.A. plant the bollard lights are shipped to the final destinations around the world. as described below:

Country	Share
EMEA	77%
UAE	23%

INSTALLATION

The impact associated with the installation of the product is considered negligible and therefore not accounted for. Only the end of life scenario of the packaging material is considered in this phase. The scenario set up by the PSR-0014-ed2.0-EN-2023 07 13 was used.

USE AND MAINTENANCE

The module LED has a declared service life of 100.000 hours L70 – B50. During the service life, at the temperatures the luminaire is operated, no maintenance nor replacement is required.

The driver has a declared service life of 100.000 h B10, therefore no replacement has been considered.

The electricity mix has been modelled in accordance with the product distribution:

Electricity, low voltage {RER}| market group for electricity, low voltage | Cut-off, U	77%
Electricity, low voltage {AE}| market for electricity, low voltage | Cut-off, U	23%

END OF LIFE

Considering the complexity and the lack of knowledge of the electric and electronic recycling channel and processes, the scenario set up by the PSR-0014-ed2.0-EN-2023 07 13 was used.

ENVIRONMENTAL IMPACTS

Evaluation of the environmental impact covers the following life cycle stages: raw materials, manufacturing, distribution, installation, use and end of life (EoL). This environmental declaration has been developed by considering an outgoing artificial luminous flux of 1,000 lumens over a reference lifetime of 35,000 hours.

Software	Simapro 10.2.0.2
Database	Ecoinvent 3.11
Data reference year	2024
Geographical representativeness	Global
Energy models	Manufacturing: Italian residual mix – Medium Voltage Use: Mix in accordance with distribution – Low Voltage
Reference flow/declared unit	(1.000/1.450) x (35.000/100.000) = 0,2414

Damage Classification	Unit	Manufacturing	Distribution	Installation	Use	End of Life	Tot
Climate change - total	kg CO2 eq	1.26E+01	1.83E-01	1.11E-01	9.44E+01	8.33E-01	1.08E+02
Climate change - Fossil	kg CO2 eq	1.26E+01	1.83E-01	3.39E-02	9.21E+01	3.14E-01	1.05E+02
Climate change - Biogenic	kg CO2 eq	-7.31E-02	3.09E-05	7.69E-02	2.15E+00	5.18E-01	2.68E+00
Climate change - Land use and LU change	kg CO2 eq	3.07E-02	8.15E-06	1.38E-06	1.81E-01	1.47E-04	2.12E-01
Ozone depletion	kg CFC11 eq	5.27E-04	2.34E-09	4.81E-11	1.62E-06	2.16E-09	5.29E-04
Acidification	mol H+ eq	1.44E-01	2.51E-03	2.61E-05	3.33E-01	7.28E-04	4.80E-01
Eutrophication. freshwater	kg P eq	3.63E-04	8.41E-07	4.51E-08	6.05E-03	1.03E-05	6.42E-03
Eutrophication. marine	kg N eq	7.56E-04	6.55E-04	1.55E-05	4.93E-02	4.49E-04	5.12E-02
Eutrophication. terrestrial	mol N eq	1.81E-01	7.27E-03	1.15E-04	5.49E-01	2.02E-03	7.39E-01
Photochemical ozone formation	kg NMVOC eq	3.17E+01	2.07E-03	3.61E-05	2.24E-01	7.69E-04	3.20E+01
Resource use. minerals and metals	kg Sb eq	9.82E-05	9.79E-09	1.15E-09	4.37E-06	2.00E-06	1.05E-04
Resource use. fossils	MJ	1.13E+01	2.34E+00	4.04E-02	1.99E+03	1.65E+00	2.00E+03
Water use*	m3 depriv.	1.38E+02	2.26E-03	9.81E-04	1.50E+01	-1.08E-01	1.53E+02
Particulate matter	disease inc.	3.95E-04	8.84E-09	2.88E-10	7.37E-07	1.36E-08	3.96E-04
Ionising radiation	kBq U-235 eq	6.62E+00	1.79E-04	1.14E-05	1.38E+01	3.28E-03	2.05E+01
Ecotoxicity. freshwater	CTUe	9.70E+00	1.75E-01	5.19E-01	1.30E+02	8.73E+00	1.49E+02

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Damage Classification	Unit	Manufacturing	Distribution	Installation	Use	End of Life	Tot
Human toxicity. cancer	CTUh	4.15E-10	1.82E-11	1.48E-11	8.26E-09	5.99E-11	8.77E-09
Human toxicity. non-cancer	CTUh	1.10E-08	8.62E-10	4.34E-10	3.45E-07	6.25E-09	3.63E-07
Land use	Pt	9.58E-01	1.66E-02	1.08E-02	1.63E+02	6.77E-01	1.65E+02
Use of renewable primary energy. excluding renewable primary energy resources used as raw materials	MJ	1.47E+01	4.14E-03	4.13E-04	3.67E+02	8.91E-02	3.82E+02
Use of renewable primary energy resources used as raw materials	MJ	8.87E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.87E-03
Total use of renewable primary energy resources	MJ	1.47E+01	4.14E-03	4.13E-04	3.67E+02	8.91E-02	3.82E+02
Use of non-renewable primary energy. excluding non-renewable primary energy resources used as raw materials	MJ	1.16E+01	2.34E+00	4.05E-02	2.02E+03	1.68E+00	2.04E+03
Use of non-renewable primary energy resources used as raw materials	MJ	1.71E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.71E-02
Total use of non-renewable primary energy resources	MJ	1.16E+01	2.34E+00	4.05E-02	2.02E+03	1.68E+00	2.04E+03
Secondary material	kg	4.69E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.69E+00
Renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net use of fresh water*	m3	2.43E-01	8.14E-05	3.74E-05	9.39E-01	-2.16E-03	1.18E+00
Total use of primary energy during the life cycle	MJ	2.63E+01	2.34E+00	4.09E-02	2.39E+03	1.77E+00	2.42E+03
Hazardous waste disposed	kg	6.44E-03	5.79E-05	1.39E-05	3.30E-07	9.14E-03	1.57E-02
Non-hazardous waste disposed	kg	1.45E-01	2.07E-02	1.40E-04	1.07E-02	9.04E-01	1.08E+00
Radioactive waste disposed	kg	1.23E-04	7.09E-06	9.94E-08	7.16E-09	1.13E-02	1.14E-02
Component for reuse	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recicling	kg	2.63E-02	0.00E+00	3.54E-01	0.00E+00	2.92E+00	3.30E+00
Material for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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
Biogenic carbon content of the product	kg of C	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biogenic carbon content of the associated packaging	kg of C	1.79E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.79E-01

EXTRAPOLATION COEFFICIENTS

The extrapolation coefficients are given for the environmental impact of the FU, which is the emission of an outgoing artificial luminous flux of 1.000 lumens over 35.000 hours. For each life cycle stage, the environmental impacts of the product are calculated by multiplying the reference product impacts of the declaration with the extrapolation coefficient. The "Total" column shall be calculated by adding the environmental impacts of each life cycle stage.

PRODUCT	ARTICLE CODE	A1-A3; C1-C4	A4	A5	B6
KLOU180-V20A	0871020	1.000	1.000	1.000	1.000
KLOU180-V20B	0871083	0.763	0.763	0.763	0.690
KLOU180-V20C	0871040	0.967	0.967	0.967	0.875
KLOU180-V20D	0871050	1.000	1.000	1.000	1.000
KLOU150	0861020	1.061	1.097	1.450	1.036
KLOU150-A	0861020	1.061	1.097	1.450	1.036
KLOU150-B	0861080	0.786	0.812	1.074	0.665
KLOU150-C	0861040	1.061	1.097	1.450	0.898
KLOU150-D	0861050	0.965	0.997	1.318	0.942
KLOU76	0860000	0.850	0.861	0.972	1.105
LOYD180	0889010	1.040	1.069	1.364	0.477
LOYD	0889000	0.204	0.214	0.313	0.477