

Product Environmental Profile of luminaires for indoor lighting - Libera family

Reference product: RP54 + PE35 + PE76 + PE64 + PF74 + PE60



| | | | |
|-------------------------------|----------------------|-------------------------------------|--|
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| Verifier accreditation number | VH08 | Information and reference documents | www.pep-ecopassport.org |
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Independent verification of the declaration and data, in compliance with ISO 14025: 2006

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|----------|--|----------|---|
| Internal | | External | x |
|----------|--|----------|---|

The PCR review was conducted by a panel of experts chaired by Julie ORGELET (DDemain)

PEP are compliant with XP C08-100-1:2016 or EN 50693:2019

The elements of the present PEP cannot be compared with elements from another program.

Document in compliance with ISO 14025 : 2006 « Environmental labels and declarations. Type III environmental declarations»





General information

Company information:

iGuzzini illuminazione S.p.A via Mariano Guzzini, 37 62019, Recanati, Italy

Web Site available at: <https://www.iguzzini.com/it/>

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Reference product:

“Libera RP54 + PE35 + PE76 + PE64 + PF74 + PE60 ”

The assessed product range covers indoor lighting luminaires for the “Libera” family. The luminaires are used for professional lighting of indoor environments.

The main technical features of the reference product are described in the table below.

| Characteristics | Unit | Libera family |
|--|---------|---|
| Product code | - | RP54 + PE35 + PE76 + PE64 + PF74 + PE60 |
| Light source | - | Integrated LED module |
| Power supply | - | 62,1 |
| Color temperature | K | 3000 |
| Protection index for water and dust (IP) | - | IP20 |
| Impact resistance index (IK) | - | IK06 |
| Nominal operating voltage | V | 220-240 |
| Assigned lifetime | Hours | 50.000 |
| Declaration lifetime of the LED module | Hours | 50.000 |
| Useful output flux | Lumen | 7.627 |
| Electrical power | W | 62,1 |
| Luminous efficiency | Lumen/W | 95,9 |
| Dimension | mm | 2736 |

Functional unit:

“Provide lighting that delivers an outgoing artificial luminous flux of 1,000 lumens during a reference lifetime of 35,000 hours”.

The reference flow is calculated as:

(1,000/outgoing luminous flux of the analyzed product in lumens) x (35,000/declared product lifetime of the analyzed product in hours):

$$(1.000/7.627) \times (35.000/50.000) = 0,092$$

Homogeneous environmental family:

The reference product represents the Libera luminaires family, which differs in terms of power, useful output flux (lumen) and size.

The range of variations for the products in the same family is the following:

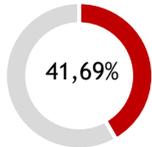
| Libera Family | Unit | Value for the reference product | Minimum value in product range | Maximum value in product range |
|--------------------|-------|---------------------------------|--------------------------------|--------------------------------|
| Power | W | 62,1 | 7,3 | 71 |
| Useful output flux | Lumen | 7.627 | 667 | 7.637 |
| Dimension | mm | 2.736 | 684 | 2.736 |

The present PEP declaration is valid for all the products in the described homogenous environmental family. The spreadsheet provided as annex shall be used by the PEP user to extrapolate the impact of the other products for the Libera family, based on the technical parameters of the considered product, as requested by the PSR.



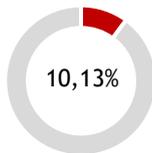
Constituent materials

METALS



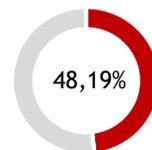
| | kg | % |
|----------|-------|-------|
| Aluminum | 1,219 | 71,71 |
| Steel | 0,293 | 17,23 |
| Zamak | 0,100 | 5,88 |
| Brass | 0,088 | 5,18 |

PLASTICS



| | kg | % |
|--------------------------------|-------|------|
| Polymethyl methacrylate (PMMA) | 0,180 | 4,41 |
| Nylon (PA66) | 0,113 | 2,77 |
| Silicon | 0,071 | 1,75 |
| Polycarbonate (PC) | 0,049 | 1,19 |

OTHER MATERIALS



| | kg | % |
|--------------------------|-------|-------|
| Electronical components | 0,524 | 12,86 |
| Chemicals | 0,198 | 4,85 |
| Paper | 0,074 | 1,82 |
| Cardboard - Packaging | 0,951 | 23,32 |
| Plastic (PE) - Packaging | 0,038 | 0,93 |
| Wood - Packaging | 0,180 | 4,41 |

| | | |
|--------------------------------|--------------|--------------|
| Total reference product | 2,909 | 71,33 |
| Total packaging | 1,169 | 28,67 |
| TOTAL | 4,078 | 100% |

The list above includes also materials with a certain amount of recycled content, in order to reduce the impacts linked to the production of virgin materials. In particular:

- The paperboard box of packaging is made of 100% of recycled content;
- The pallet used for shipment is reused.

Manufacture

The product components are manufactured or assembled by iGuzzini S.p.A. in Recanati (Italy) manufacturing site. iGuzzini applies an environmental management system, certified according to ISO 14001:2015 and an energy management system certified according to ISO 50001:2018 (the certificates are available at: <https://www.iguzzini.com/it/certificazioni/>).

In 2023 iGuzzini gained the gold medal in the EcoVadis platform.

In 2022, iGuzzini disclosed its sustainability performances within the Fagerhult Group Sustainability Report. In the same year iGuzzini plant of Recanati passed to 100% green energy procurement verified and certified by GO (origin guarantee certificates).

All lighting products manufactured by iGuzzini comply to the European directive “2011/65/EU ROHS 2 - Restriction of dangerous substances in electrical and electronic equipment”.

Distribution

There is no hub for the distribution. Products leaving the production site in Recanati (MC), Italy, are delivered directly to the final clients. The distribution of the final destinations is the following:

| Destination | Share (%) | Type transport considered |
|-------------|-----------|---------------------------|
| Italy | 20% | Local |
| France | 20% | Intercontinental |
| England | 20% | Intercontinental |
| German | 20% | Intercontinental |
| Spain | 15% | Intercontinental |
| Emirates | 5% | Intracontinental |

Installation

The luminaires are provided to the client with the power supply, the fixing elements and the assembly elements, fittings and other electrical connectors needed for installation. Therefore, the installation of the luminaire does not require additional components and the product is easily installed using manual tools. In this phase the end of life (EoL) of the packaging of the final product is considered as well.

Use

Energy efficient light sources (LED lighting) are integrated. The use phase consists of electricity use during the whole lifetime of the product. The assigned lifetime of the luminaire is 50.000 hours. Because of the products are installed and used in six different states, the total consumption of the product is divided into the various states based on the percentage of sale listed on table of distribution paragraph.

End of life

The company is affiliated with a WEEE (Waste Electrical and Electronic Equipment) Italian consortium (Ecolight, <https://ecolight.it/>). The product at its end of life is managed as prescribed by the current legislation about EEE waste (Directive 2012/19/EU) and the waste treatment scenarios of the Countries in which the product is distributed. According to the most recent data available, waste treatment scenarios are the following:

| Scenario | Recycling | Energy recovery | Incineration | Landfill |
|----------|-----------|-----------------|--------------|----------|
| Italy | 95% | 2% | 0% | 3% |
| German | 54% | - | - | 46% |
| France | 41% | 15% | 0% | 44% |
| England | 59% | - | - | 41% |
| Spain | 34% | - | - | 66% |
| Emirates | 6% | - | - | 94% |

The end of life scenarios are made with the following assumptions:

- In Italian scenario the transport to the end of life is assumed to be 100 km and the treatment of waste is based on Ecolight statistics;
- In French scenario the transport to the end of life is assumed to be 1000 km and the treatment of waste is based on PSR statistics;
- In other European and not-Europeans scenarios the transport to the end of life is assumed to be 1000 km and the treatment of waste is based on Global E-Waste Monitor report;

Environmental impacts

The evaluation of environmental impacts examines the manufacturing, distribution, installation, use and end-of-life stages of the Reference Product life cycle.

The environmental impacts assessment of the reference product has been performed using SimaPro 9.4.0.2 software. Background datasets have been retrieved from Ecoinvent 3.8 libraries. The impact indicators and impact models used are the ones indicated by the PCR-ed4-EN-2021 09 06. This environmental declaration has been developed considering an outgoing artificial luminous flux of 1,000 lumens over a reference lifetime of 35,000 hours (Functional Unit).

Results of mandatory indicators per F.U. (for 1.000 lumens during 35.000 hours):

| Impact category | Unit | Total | Manufacturing | Distribution | Installation | Use | EoL |
|---|------------------------|----------|---------------|--------------|--------------|----------|----------|
| Climate change | kg CO ₂ eq | 1,06E+02 | 4,40E+00 | 4,73E-01 | 2,40E-02 | 1,01E+02 | 1,15E-01 |
| Ozone depletion | kg CFC-11 eq | 7,20E-06 | 2,07E-07 | 1,07E-07 | 2,34E-10 | 6,88E-06 | 5,10E-09 |
| Photochemical ozone formation | kg NMVOC eq | 6,62E+01 | 1,55E-01 | 3,07E-02 | 9,48E-05 | 6,61E+01 | 1,87E-03 |
| Acidification | mol H ⁺ eq | 2,21E-01 | 1,49E-02 | 2,60E-03 | 9,60E-06 | 2,04E-01 | 1,46E-04 |
| Eutrophication, freshwater | kg P eq | 2,11E-06 | 3,22E-07 | 9,68E-09 | 1,21E-10 | 1,77E-06 | 2,57E-09 |
| Eutrophication, marine | kg N eq | 1,40E-06 | 2,32E-07 | 5,89E-09 | 5,22E-11 | 1,16E-06 | 4,10E-10 |
| Eutrophication, terrestrial | mol N eq | 5,02E-08 | 1,06E-08 | 6,23E-11 | 8,27E-13 | 3,95E-08 | 9,69E-12 |
| Water use | m ³ depriv. | 4,44E-01 | 3,48E-02 | 2,47E-03 | 6,13E-06 | 4,07E-01 | 1,15E-04 |
| Abiotic resource depletion, fossils | MJ | 6,23E-02 | 1,89E-03 | 1,00E-05 | 7,82E-08 | 6,04E-02 | 2,43E-06 |
| Abiotic resource depletion, minerals and metals | kg Sb eq | 8,56E-02 | 4,91E-03 | 9,00E-04 | 1,55E-05 | 7,95E-02 | 2,36E-04 |
| Climate change - Fossil | kg CO ₂ eq | 8,24E-01 | 5,02E-02 | 9,85E-03 | 2,04E-05 | 7,64E-01 | 4,20E-04 |
| Climate change - Biogenic | kg CO ₂ eq | 1,53E+03 | 1,78E+02 | 3,83E+00 | 4,97E-02 | 1,34E+03 | 7,18E-01 |
| Climate change - Land use and LU change | kg CO ₂ eq | 5,20E+02 | 1,74E+01 | 1,41E+00 | 1,95E-02 | 5,00E+02 | 4,20E-01 |

Results of mandatory indicators per unit of product (declared unit, 7.627 lumens during 50.000 hours):

| Impact category | Unit | Total | Manufacturing | Distribution | Installation | Use | EoL |
|---|------------------------|----------|---------------|--------------|--------------|----------|----------|
| Climate change | kg CO ₂ eq | 1,15E+03 | 4,79E+01 | 5,14E+00 | 2,60E-01 | 1,10E+03 | 1,25E+00 |
| Ozone depletion | kg CFC-11 eq | 7,82E-05 | 2,25E-06 | 1,17E-06 | 2,54E-09 | 7,48E-05 | 5,54E-08 |
| Photochemical ozone formation | kg NMVOC eq | 7,20E+02 | 1,69E+00 | 3,33E-01 | 1,03E-03 | 7,18E+02 | 2,03E-02 |
| Acidification | mol H ⁺ eq | 2,41E+00 | 1,62E-01 | 2,82E-02 | 1,04E-04 | 2,21E+00 | 1,59E-03 |
| Eutrophication, freshwater | kg P eq | 2,29E-05 | 3,50E-06 | 1,05E-07 | 1,31E-09 | 1,93E-05 | 2,80E-08 |
| Eutrophication, marine | kg N eq | 1,52E-05 | 2,52E-06 | 6,40E-08 | 5,67E-10 | 1,26E-05 | 4,45E-09 |
| Eutrophication, terrestrial | mol N eq | 5,46E-07 | 1,15E-07 | 6,77E-10 | 8,99E-12 | 4,30E-07 | 1,05E-10 |
| Water use | m ³ depriv. | 4,83E+00 | 3,78E-01 | 2,68E-02 | 6,66E-05 | 4,42E+00 | 1,24E-03 |
| Abiotic resource depletion, fossils | MJ | 6,77E-01 | 2,05E-02 | 1,09E-04 | 8,50E-07 | 6,57E-01 | 2,64E-05 |
| Abiotic resource depletion, minerals and metals | kg Sb eq | 9,31E-01 | 5,34E-02 | 9,78E-03 | 1,69E-04 | 8,65E-01 | 2,56E-03 |
| Climate change - Fossil | kg CO ₂ eq | 8,96E+00 | 5,45E-01 | 1,07E-01 | 2,22E-04 | 8,30E+00 | 4,56E-03 |
| Climate change - Biogenic | kg CO ₂ eq | 1,66E+04 | 1,93E+03 | 4,17E+01 | 5,40E-01 | 1,46E+04 | 7,81E+00 |
| Climate change - Land use and LU change | kg CO ₂ eq | 5,65E+03 | 1,89E+02 | 1,53E+01 | 2,12E-01 | 5,44E+03 | 4,56E+00 |

Results of mandatory indicators per unit of product - Detail of the use phase with the decomposition of module B (B1-B7) according to EN 15978 and EN 15804:

| Impact category | Unit | Total | B1 | B2 | B3 | B4 | B5 | B6 | B7 |
|---|------------------------|----------|----|----|----|----|----|----------|----|
| Climate change | kg CO ₂ eq | 1,02E+03 | - | - | - | - | - | 1,10E+03 | - |
| Ozone depletion | kg CFC-11 eq | 3,78E-05 | - | - | - | - | - | 7,48E-05 | - |
| Photochemical ozone formation | kg NMVOC eq | 2,35E+00 | - | - | - | - | - | 7,18E+02 | - |
| Acidification | mol H ⁺ eq | 4,78E+00 | - | - | - | - | - | 2,21E+00 | - |
| Eutrophication, freshwater | kg P eq | 4,59E-01 | - | - | - | - | - | 1,93E-05 | - |
| Eutrophication, marine | kg N eq | 8,68E-01 | - | - | - | - | - | 1,26E-05 | - |
| Eutrophication, terrestrial | mol N eq | 8,73E+00 | - | - | - | - | - | 4,30E-07 | - |
| Water use | m ³ depriv. | 1,92E+02 | - | - | - | - | - | 4,42E+00 | - |
| Abiotic resource depletion, fossils | MJ | 1,49E+04 | - | - | - | - | - | 6,57E-01 | - |
| Abiotic resource depletion, minerals and metals | kg Sb eq | 6,55E-03 | - | - | - | - | - | 8,65E-01 | - |
| Climate change - Fossil | kg CO ₂ eq | 1,00E+03 | - | - | - | - | - | 8,30E+00 | - |
| Climate change - Biogenic | kg CO ₂ eq | 2,02E+01 | - | - | - | - | - | 1,46E+04 | - |
| Climate change - Land use and LU change | kg CO ₂ eq | 2,03E+00 | - | - | - | - | - | 5,44E+03 | - |

Within the determination of the impacts of the manufacturing, installation, use and end of life the choice of the dataset relating to electricity consumption fell on low voltage energy (230 V) for all the geographical areas considered in the study. Furthermore, energy mixes were used for each country.

Results of mandatory inventory flow indicators per F.U. (1.000 lumens during 35.000 hours) and declared unit (7.627 lumens during 50.000 hours):

| Indicators | Unit | F.U. | D.U. |
|---|----------------|----------|----------|
| Renewable primary energy (without raw material) | MJ | 4,49E+02 | 4,88E+03 |
| Renewable primary energy (raw material) | MJ | 4,19E+00 | 4,56E+01 |
| Total use of renewable primary energy | MJ | 4,53E+02 | 4,93E+03 |
| Nonrenewable primary energy (without raw material) | MJ | 2,47E+03 | 2,69E+04 |
| Nonrenewable primary energy (raw material) | MJ | 4,50E+01 | 4,89E+02 |
| Total use of non-renewable primary energy | MJ | 2,52E+03 | 2,74E+04 |
| Use of secondary materials | kg | 4,88E-02 | 5,30E-01 |
| Use of renewable secondary fuels | MJ | - | - |
| Use of non-renewable secondary fuels | MJ | 3,90E+00 | 4,24E+01 |
| Net use of fresh water | m ³ | 7,91E-04 | 8,60E-03 |
| Hazardous waste disposed | kg | 1,14E-03 | 1,24E-02 |
| Non-hazardous waste disposed | kg | 5,54E-02 | 6,02E-01 |
| Radioactive waste disposed | kg | - | - |
| Components for reuse | kg | 1,66E-02 | 1,80E-01 |
| Materials for recycling | kg | * | * |
| Materials for energy recovery | kg | * | * |
| Exported energy | MJ | - | - |
| Biogenic carbon content of the product | kg | 6,82E-03 | 7,41E-02 |
| Biogenic carbon content of the associated packaging | kg | 8,75E-02 | 9,51E-01 |

*The use of the symbol * indicates that the value depends on the country where the WEEE is disposed*



Extrapolation rules

Extrapolations rules have been calculated following PCR-ed4-EN-2021 09 06 and PSR-0014-ed1.0-EN-2018 07 18. The defined rules shall be applied using the Extrapolation rules file provided in the following tables.

| Parameter | Value for reference product |
|--|-----------------------------|
| Lighting output [lumens] | 7.627 |
| Weight of light source [kg] | 0,0039 |
| Weight of luminaire structure [kg] | 2,722 |
| Weight of power equipment [kg] | 0,183 |
| Weight of light management system [kg] | - |
| Weight of product including its light source (no packaging) [kg] | 2,909 |
| Weight of product including its packaging [kg] | 1,173 |
| Power [W] | 62,1 |

The potential environmental impacts mentioned are applicable to the entire Libera range, including combinations between main body and accessories not listed in the table below. For more information, please refer to the LCA report in section 2.2.6.

The extrapolation coefficients calculation at the functional unit level shall be taken into account with the following formula:

$$\text{Extrapolation coefficient at the product level} \times \frac{\text{Lighting output of reference product (lumen)}}{\text{Lighting output of concerned product (lumens)}}$$

Extrapolation coefficients

The reported extrapolation coefficients are intended at product level (declared unit) and not at functional unit.

| Product Code | Manufacturing | Distribution | Installation | Use | EoL |
|-------------------------------|---------------|--------------|--------------|------|------|
| RP17+PE18+PE60+PE76+PF74 | 0,54 | 0,52 | 0,54 | 0,23 | 0,51 |
| RP18+PE18+PE60+PE76+PF74 | 0,54 | 0,52 | 0,54 | 0,23 | 0,51 |
| RP19+PE18+PE60+PE76+PF74 | 0,54 | 0,52 | 0,54 | 0,22 | 0,51 |
| RP20+PE18+PE60+PE76+PF74 | 0,54 | 0,52 | 0,54 | 0,22 | 0,51 |
| RP21+PE22+PE60+PE76+PF74 | 0,58 | 0,57 | 0,57 | 0,32 | 0,56 |
| RP22+PE22+PE60+PE76+PF74 | 0,58 | 0,57 | 0,57 | 0,32 | 0,56 |
| RP23+PE22+PE60+PE76+PF74 | 0,58 | 0,57 | 0,57 | 0,30 | 0,56 |
| RP24+PE22+PE60+PE76+PF74 | 0,58 | 0,57 | 0,57 | 0,30 | 0,56 |
| RP25+PE26+PE60+PE76+PF74 | 0,64 | 0,63 | 0,65 | 0,40 | 0,62 |
| RP26+PE26+PE60+PE76+PF74 | 0,64 | 0,63 | 0,65 | 0,40 | 0,62 |
| RP27+PE26+PE60+PE76+PF74 | 0,64 | 0,63 | 0,65 | 0,38 | 0,62 |
| RP28+PE26+PE60+PE76+PF74 | 0,64 | 0,63 | 0,65 | 0,38 | 0,62 |
| RP29+PE30+PE60+PE76+PF74 | 0,64 | 0,54 | 0,83 | 0,66 | 0,41 |
| RP30+PE30+PE60+PE76+PF74 | 0,64 | 0,54 | 0,83 | 0,66 | 0,41 |
| RP31+PE30+PE60+PE76+PF74 | 0,64 | 0,54 | 0,83 | 0,63 | 0,41 |
| RP32+PE30+PE60+PE76+PF74 | 0,64 | 0,54 | 0,83 | 0,63 | 0,41 |
| RP33+PE35+PE60+PE76+PF74+PE64 | 1,01 | 1,01 | 1,00 | 1,00 | 1,02 |
| RP34+PE35+PE60+PE76+PF74+PE64 | 1,01 | 1,01 | 1,00 | 1,00 | 1,02 |
| RP35+PE35+PE60+PE76+PF74+PE64 | 1,01 | 1,01 | 1,00 | 0,96 | 1,02 |
| RP36+PE35+PE60+PE76+PF74+PE64 | 1,01 | 1,01 | 1,00 | 0,96 | 1,02 |
| RP37+PE18+PE60+PE76+PF74 | 0,54 | 0,52 | 0,54 | 0,23 | 0,51 |
| RP38+PE18+PE60+PE76+PF74 | 0,54 | 0,52 | 0,54 | 0,23 | 0,51 |
| RP39+PE18+PE60+PE76+PF74 | 0,54 | 0,52 | 0,54 | 0,22 | 0,51 |
| RP40+PE18+PE60+PE76+PF74 | 0,54 | 0,52 | 0,54 | 0,22 | 0,51 |
| RP41+PE22+PE60+PE76+PF74 | 0,58 | 0,56 | 0,57 | 0,32 | 0,56 |
| RP42+PE22+PE60+PE76+PF74 | 0,58 | 0,56 | 0,57 | 0,32 | 0,56 |
| RP43+PE22+PE60+PE76+PF74 | 0,58 | 0,56 | 0,57 | 0,30 | 0,56 |
| RP44+PE22+PE60+PE76+PF74 | 0,58 | 0,56 | 0,57 | 0,30 | 0,56 |
| RP45+PE26+PE60+PE76+PF74 | 0,64 | 0,62 | 0,65 | 0,40 | 0,61 |
| RP46+PE26+PE60+PE76+PF74 | 0,64 | 0,62 | 0,65 | 0,40 | 0,61 |
| RP47+PE26+PE60+PE76+PF74 | 0,64 | 0,62 | 0,65 | 0,38 | 0,61 |
| RP48+PE26+PE60+PE76+PF74 | 0,64 | 0,62 | 0,65 | 0,38 | 0,61 |
| RP49+PE30+PE60+PE76+PF74 | 0,79 | 0,78 | 0,83 | 0,66 | 0,77 |
| RP50+PE30+PE60+PE76+PF74 | 0,79 | 0,78 | 0,83 | 0,66 | 0,77 |
| RP51+PE30+PE60+PE76+PF74 | 0,79 | 0,78 | 0,83 | 0,63 | 0,77 |
| RP52+PE30+PE60+PE76+PF74 | 0,79 | 0,78 | 0,83 | 0,63 | 0,77 |
| RP53+PE35+PE60+PE76+PF74+PE64 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 |
| RP54+PE35+PE60+PE76+PF74+PE64 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 |
| RP55+PE35+PE60+PE76+PF74+PE64 | 1,00 | 1,00 | 1,00 | 0,96 | 1,00 |
| RP56+PE35+PE60+PE76+PF74+PE64 | 1,00 | 1,00 | 1,00 | 0,96 | 1,00 |

| | | | | | |
|-------------------------------|------|------|------|------|------|
| RP57+PE38+PE60+PE76+PF74 | 0,54 | 0,52 | 0,54 | 0,12 | 0,51 |
| RP58+PE38+PE60+PE76+PF74 | 0,54 | 0,52 | 0,54 | 0,12 | 0,51 |
| RP59+PE38+PE60+PE76+PF74 | 0,54 | 0,52 | 0,54 | 0,12 | 0,51 |
| RP60+PE38+PE60+PE76+PF74 | 0,54 | 0,52 | 0,54 | 0,12 | 0,51 |
| RP61+PE42+PE60+PE76+PF74 | 0,58 | 0,56 | 0,57 | 0,17 | 0,56 |
| RP62+PE42+PE60+PE76+PF74 | 0,58 | 0,56 | 0,57 | 0,17 | 0,56 |
| RP63+PE42+PE60+PE76+PF74 | 0,58 | 0,56 | 0,57 | 0,16 | 0,56 |
| RP64+PE42+PE60+PE76+PF74 | 0,58 | 0,56 | 0,57 | 0,16 | 0,56 |
| RP65+PE46+PE60+PE76+PF74 | 0,64 | 0,62 | 0,65 | 0,22 | 0,61 |
| RP66+PE46+PE60+PE76+PF74 | 0,64 | 0,62 | 0,65 | 0,22 | 0,61 |
| RP67+PE46+PE60+PE76+PF74 | 0,64 | 0,62 | 0,65 | 0,20 | 0,61 |
| RP68+PE46+PE60+PE76+PF74 | 0,64 | 0,62 | 0,65 | 0,20 | 0,61 |
| RP69+PE50+PE60+PE76+PF74 | 0,79 | 0,78 | 0,83 | 0,36 | 0,77 |
| RP70+PE50+PE60+PE76+PF74 | 0,79 | 0,78 | 0,83 | 0,36 | 0,77 |
| RP71+PE50+PE60+PE76+PF74 | 0,79 | 0,78 | 0,83 | 0,34 | 0,77 |
| RP72+PE50+PE60+PE76+PF74 | 0,79 | 0,78 | 0,83 | 0,34 | 0,77 |
| RP73+PE54+PE60+PE76+PF74+PE64 | 1,00 | 1,00 | 1,00 | 0,54 | 1,00 |
| RP74+PE54+PE60+PE76+PF74+PE64 | 1,00 | 1,00 | 1,00 | 0,54 | 1,00 |
| RP75+PE54+PE60+PE76+PF74+PE64 | 1,00 | 1,00 | 1,00 | 0,51 | 1,00 |
| RP76+PE54+PE60+PE76+PF74+PE64 | 1,00 | 1,00 | 1,00 | 0,51 | 1,00 |
| RP77+PE18+PE60+PE76+PF74 | 0,54 | 0,52 | 0,54 | 0,27 | 0,51 |
| RP78+PE18+PE60+PE76+PF74 | 0,54 | 0,52 | 0,54 | 0,27 | 0,51 |
| RP79+PE18+PE60+PE76+PF74 | 0,54 | 0,52 | 0,54 | 0,25 | 0,51 |
| RP80+PE18+PE60+PE76+PF74 | 0,54 | 0,52 | 0,54 | 0,25 | 0,51 |
| RP81+PE22+PE60+PE76+PF74 | 0,58 | 0,57 | 0,57 | 0,36 | 0,56 |
| RP82+PE22+PE60+PE76+PF74 | 0,58 | 0,57 | 0,57 | 0,36 | 0,56 |
| RP83+PE22+PE60+PE76+PF74 | 0,58 | 0,57 | 0,57 | 0,34 | 0,56 |
| RP84+PE22+PE60+PE76+PF74 | 0,58 | 0,57 | 0,57 | 0,34 | 0,56 |
| RP85+PE26+PE60+PE76+PF74 | 0,64 | 0,63 | 0,65 | 0,46 | 0,62 |
| RP86+PE26+PE60+PE76+PF74 | 0,64 | 0,63 | 0,65 | 0,46 | 0,62 |
| RP87+PE26+PE60+PE76+PF74 | 0,64 | 0,63 | 0,65 | 0,44 | 0,62 |
| RP88+PE26+PE60+PE76+PF74 | 0,64 | 0,63 | 0,65 | 0,44 | 0,62 |
| RP89+PE30+PE60+PE76+PF74 | 0,64 | 0,54 | 0,83 | 0,75 | 0,41 |
| RP90+PE30+PE60+PE76+PF74 | 0,64 | 0,54 | 0,83 | 0,75 | 0,41 |
| RP91+PE30+PE60+PE76+PF74 | 0,64 | 0,54 | 0,83 | 0,71 | 0,41 |
| RP92+PE30+PE60+PE76+PF74 | 0,64 | 0,54 | 0,83 | 0,71 | 0,41 |
| RP93+PE35+PE60+PE76+PF74+PE64 | 1,01 | 1,01 | 1,00 | 1,14 | 1,02 |
| RP94+PE35+PE60+PE76+PF74+PE64 | 1,01 | 1,01 | 1,00 | 1,14 | 1,02 |
| RP95+PE35+PE60+PE76+PF74+PE64 | 1,01 | 1,01 | 1,00 | 1,09 | 1,02 |
| RP96+PE35+PE60+PE76+PF74+PE64 | 1,01 | 1,01 | 1,00 | 1,09 | 1,02 |
| RH35+PE18+PE60+PE76+PF74 | 0,54 | 0,51 | 0,54 | 0,27 | 0,50 |
| RH36+PE18+PE60+PE76+PF74 | 0,54 | 0,51 | 0,54 | 0,27 | 0,50 |
| RH37+PE18+PE60+PE76+PF74 | 0,54 | 0,51 | 0,54 | 0,25 | 0,50 |
| RH38+PE18+PE60+PE76+PF74 | 0,54 | 0,51 | 0,54 | 0,25 | 0,50 |
| RH39+PE22+PE60+PE76+PF74 | 0,58 | 0,56 | 0,57 | 0,36 | 0,55 |
| RH40+PE22+PE60+PE76+PF74 | 0,58 | 0,56 | 0,57 | 0,36 | 0,55 |
| RH41+PE22+PE60+PE76+PF74 | 0,58 | 0,56 | 0,57 | 0,34 | 0,55 |
| RH42+PE22+PE60+PE76+PF74 | 0,58 | 0,56 | 0,57 | 0,34 | 0,55 |
| RH43+PE26+PE60+PE76+PF74 | 0,63 | 0,62 | 0,65 | 0,46 | 0,61 |

| | | | | | |
|-------------------------------|------|------|------|------|------|
| RH44+PE26+PE60+PE76+PF74 | 0,63 | 0,62 | 0,65 | 0,46 | 0,61 |
| RH45+PE26+PE60+PE76+PF74 | 0,63 | 0,62 | 0,65 | 0,44 | 0,61 |
| RH46+PE26+PE60+PE76+PF74 | 0,63 | 0,62 | 0,65 | 0,44 | 0,61 |
| RH47+PE30+PE60+PE76+PF74 | 0,78 | 0,78 | 0,83 | 0,75 | 0,76 |
| RH48+PE30+PE60+PE76+PF74 | 0,78 | 0,78 | 0,83 | 0,75 | 0,76 |
| RH49+PE30+PE60+PE76+PF74 | 0,78 | 0,78 | 0,83 | 0,71 | 0,76 |
| RH50+PE30+PE60+PE76+PF74 | 0,78 | 0,78 | 0,83 | 0,71 | 0,76 |
| RH51+PE35+PE60+PE76+PF74+PE64 | 0,99 | 0,99 | 1,00 | 1,14 | 0,98 |
| RH52+PE35+PE60+PE76+PF74+PE64 | 0,99 | 0,99 | 1,00 | 1,14 | 0,98 |
| RH53+PE35+PE60+PE76+PF74+PE64 | 0,99 | 0,99 | 1,00 | 1,09 | 0,98 |
| RH54+PE35+PE60+PE76+PF74+PE64 | 0,99 | 0,99 | 1,00 | 1,09 | 0,98 |

The following table reports the information of the products included in the homogeneous environmental family.

| Product Code | System power (Watt) | Total weight (kg) | Luminaries weight (kg) | Structure weight (kg) | Control Gear (kg) | Lighting Source weight (kg) | Packaging (and packing) weight (kg) |
|-------------------------------|---------------------|-------------------|------------------------|-----------------------|-------------------|-----------------------------|-------------------------------------|
| RP17+PE18+PE60+PE76+PF74 | 14,4 | 2,03 | 1,4 | 1,216 | 0,183 | 0,0008 | 0,632 |
| RP18+PE18+PE60+PE76+PF74 | 14,4 | 2,03 | 1,4 | 1,216 | 0,183 | 0,0008 | 0,632 |
| RP19+PE18+PE60+PE76+PF74 | 13,7 | 2,03 | 1,4 | 1,216 | 0,183 | 0,0008 | 0,632 |
| RP20+PE18+PE60+PE76+PF74 | 13,7 | 2,03 | 1,4 | 1,216 | 0,183 | 0,0008 | 0,632 |
| RP21+PE22+PE60+PE76+PF74 | 19,8 | 2,21 | 1,55 | 1,366 | 0,183 | 0,0012 | 0,662 |
| RP22+PE22+PE60+PE76+PF74 | 19,8 | 2,21 | 1,55 | 1,366 | 0,183 | 0,0012 | 0,662 |
| RP23+PE22+PE60+PE76+PF74 | 18,8 | 2,21 | 1,55 | 1,366 | 0,183 | 0,0012 | 0,662 |
| RP24+PE22+PE60+PE76+PF74 | 18,8 | 2,21 | 1,55 | 1,366 | 0,183 | 0,0012 | 0,662 |
| RP25+PE26+PE60+PE76+PF74 | 25,1 | 2,46 | 1,702 | 1,517 | 0,183 | 0,0015 | 0,757 |
| RP26+PE26+PE60+PE76+PF74 | 25,1 | 2,46 | 1,702 | 1,517 | 0,183 | 0,0015 | 0,757 |
| RP27+PE26+PE60+PE76+PF74 | 23,9 | 2,46 | 1,702 | 1,517 | 0,183 | 0,0015 | 0,757 |
| RP28+PE26+PE60+PE76+PF74 | 23,9 | 2,46 | 1,702 | 1,517 | 0,183 | 0,0015 | 0,757 |
| RP29+PE30+PE60+PE76+PF74 | 41,1 | 2,11 | 1,138 | 0,952 | 0,183 | 0,0025 | 0,967 |
| RP30+PE30+PE60+PE76+PF74 | 41,1 | 2,11 | 1,138 | 0,952 | 0,183 | 0,0025 | 0,967 |
| RP31+PE30+PE60+PE76+PF74 | 39,2 | 2,11 | 1,138 | 0,952 | 0,183 | 0,0025 | 0,967 |
| RP32+PE30+PE60+PE76+PF74 | 39,2 | 2,11 | 1,138 | 0,952 | 0,183 | 0,0025 | 0,967 |
| RP33+PE35+PE60+PE76+PF74+PE64 | 62,1 | 3,96 | 2,795 | 2,608 | 0,183 | 0,0039 | 1,168 |
| RP34+PE35+PE60+PE76+PF74+PE64 | 62,1 | 3,96 | 2,795 | 2,608 | 0,183 | 0,0039 | 1,168 |
| RP35+PE35+PE60+PE76+PF74+PE64 | 59,5 | 3,96 | 2,795 | 2,608 | 0,183 | 0,0039 | 1,168 |
| RP36+PE35+PE60+PE76+PF74+PE64 | 59,5 | 3,96 | 2,795 | 2,608 | 0,183 | 0,0039 | 1,168 |
| RP37+PE18+PE60+PE76+PF74 | 14,4 | 2,02 | 1,388 | 1,204 | 0,183 | 0,0008 | 0,632 |
| RP38+PE18+PE60+PE76+PF74 | 14,4 | 2,02 | 1,388 | 1,204 | 0,183 | 0,0008 | 0,632 |
| RP39+PE18+PE60+PE76+PF74 | 13,7 | 2,02 | 1,388 | 1,204 | 0,183 | 0,0008 | 0,632 |
| RP40+PE18+PE60+PE76+PF74 | 13,7 | 2,02 | 1,388 | 1,204 | 0,183 | 0,0008 | 0,632 |
| RP41+PE22+PE60+PE76+PF74 | 19,8 | 2,20 | 1,534 | 1,350 | 0,183 | 0,0012 | 0,662 |
| RP42+PE22+PE60+PE76+PF74 | 19,8 | 2,20 | 1,534 | 1,350 | 0,183 | 0,0012 | 0,662 |
| RP43+PE22+PE60+PE76+PF74 | 18,8 | 2,20 | 1,534 | 1,350 | 0,183 | 0,0012 | 0,662 |
| RP44+PE22+PE60+PE76+PF74 | 18,8 | 2,20 | 1,534 | 1,350 | 0,183 | 0,0012 | 0,662 |
| RP45+PE26+PE60+PE76+PF74 | 25,1 | 2,44 | 1,681 | 1,496 | 0,183 | 0,0015 | 0,757 |
| RP46+PE26+PE60+PE76+PF74 | 25,1 | 2,44 | 1,681 | 1,496 | 0,183 | 0,0015 | 0,757 |
| RP47+PE26+PE60+PE76+PF74 | 23,9 | 2,44 | 1,681 | 1,496 | 0,183 | 0,0015 | 0,757 |
| RP48+PE26+PE60+PE76+PF74 | 23,9 | 2,44 | 1,681 | 1,496 | 0,183 | 0,0015 | 0,757 |
| RP49+PE30+PE60+PE76+PF74 | 41,1 | 3,07 | 2,105 | 1,919 | 0,183 | 0,0025 | 0,967 |
| RP50+PE30+PE60+PE76+PF74 | 41,1 | 3,07 | 2,105 | 1,919 | 0,183 | 0,0025 | 0,967 |
| RP51+PE30+PE60+PE76+PF74 | 39,2 | 3,07 | 2,105 | 1,919 | 0,183 | 0,0025 | 0,967 |
| RP52+PE30+PE60+PE76+PF74 | 39,2 | 3,07 | 2,105 | 1,919 | 0,183 | 0,0025 | 0,967 |
| RP53+PE35+PE60+PE76+PF74+PE64 | 62,1 | 3,91 | 2,746 | 2,559 | 0,183 | 0,0039 | 1,168 |
| RP54+PE35+PE60+PE76+PF74+PE64 | 62,1 | 3,91 | 2,746 | 2,559 | 0,183 | 0,0039 | 1,168 |
| RP55+PE35+PE60+PE76+PF74+PE64 | 59,5 | 3,91 | 2,746 | 2,559 | 0,183 | 0,0039 | 1,168 |
| RP56+PE35+PE60+PE76+PF74+PE64 | 59,5 | 3,91 | 2,746 | 2,559 | 0,183 | 0,0039 | 1,168 |

| | | | | | | | |
|-------------------------------|------|------|-------|-------|-------|--------|-------|
| RP57+PE38+PE60+PE76+PF74 | 7,7 | 2,02 | 1,388 | 1,204 | 0,183 | 0,0008 | 0,632 |
| RP58+PE38+PE60+PE76+PF74 | 7,7 | 2,02 | 1,388 | 1,204 | 0,183 | 0,0008 | 0,632 |
| RP59+PE38+PE60+PE76+PF74 | 7,3 | 2,02 | 1,388 | 1,204 | 0,183 | 0,0008 | 0,632 |
| RP60+PE38+PE60+PE76+PF74 | 7,3 | 2,02 | 1,388 | 1,204 | 0,183 | 0,0008 | 0,632 |
| RP61+PE42+PE60+PE76+PF74 | 10,7 | 2,20 | 1,534 | 1,350 | 0,183 | 0,0012 | 0,662 |
| RP62+PE42+PE60+PE76+PF74 | 10,7 | 2,20 | 1,534 | 1,350 | 0,183 | 0,0012 | 0,662 |
| RP63+PE42+PE60+PE76+PF74 | 10 | 2,20 | 1,534 | 1,350 | 0,183 | 0,0012 | 0,662 |
| RP64+PE42+PE60+PE76+PF74 | 10 | 2,20 | 1,534 | 1,350 | 0,183 | 0,0012 | 0,662 |
| RP65+PE46+PE60+PE76+PF74 | 13,5 | 2,44 | 1,681 | 1,496 | 0,183 | 0,0015 | 0,757 |
| RP66+PE46+PE60+PE76+PF74 | 13,5 | 2,44 | 1,681 | 1,496 | 0,183 | 0,0015 | 0,757 |
| RP67+PE46+PE60+PE76+PF74 | 12,7 | 2,44 | 1,681 | 1,496 | 0,183 | 0,0015 | 0,757 |
| RP68+PE46+PE60+PE76+PF74 | 12,7 | 2,44 | 1,681 | 1,496 | 0,183 | 0,0015 | 0,757 |
| RP69+PE50+PE60+PE76+PF74 | 22,1 | 3,07 | 2,105 | 1,919 | 0,183 | 0,0025 | 0,967 |
| RP70+PE50+PE60+PE76+PF74 | 22,1 | 3,07 | 2,105 | 1,919 | 0,183 | 0,0025 | 0,967 |
| RP71+PE50+PE60+PE76+PF74 | 20,9 | 3,07 | 2,105 | 1,919 | 0,183 | 0,0025 | 0,967 |
| RP72+PE50+PE60+PE76+PF74 | 20,9 | 3,07 | 2,105 | 1,919 | 0,183 | 0,0025 | 0,967 |
| RP73+PE54+PE60+PE76+PF74+PE64 | 33,7 | 3,91 | 2,746 | 2,559 | 0,183 | 0,0039 | 1,168 |
| RP74+PE54+PE60+PE76+PF74+PE64 | 33,7 | 3,91 | 2,746 | 2,559 | 0,183 | 0,0039 | 1,168 |
| RP75+PE54+PE60+PE76+PF74+PE64 | 31,8 | 3,91 | 2,746 | 2,559 | 0,183 | 0,0039 | 1,168 |
| RP76+PE54+PE60+PE76+PF74+PE64 | 31,8 | 3,91 | 2,746 | 2,559 | 0,183 | 0,0039 | 1,168 |
| RP77+PE18+PE60+PE76+PF74 | 16,6 | 2,03 | 1,4 | 1,216 | 0,183 | 0,0013 | 0,632 |
| RP78+PE18+PE60+PE76+PF74 | 16,6 | 2,03 | 1,4 | 1,216 | 0,183 | 0,0013 | 0,632 |
| RP79+PE18+PE60+PE76+PF74 | 15,7 | 2,03 | 1,4 | 1,216 | 0,183 | 0,0013 | 0,632 |
| RP80+PE18+PE60+PE76+PF74 | 15,7 | 2,03 | 1,4 | 1,216 | 0,183 | 0,0013 | 0,632 |
| RP81+PE22+PE60+PE76+PF74 | 22,6 | 2,21 | 1,55 | 1,365 | 0,183 | 0,0018 | 0,662 |
| RP82+PE22+PE60+PE76+PF74 | 22,6 | 2,21 | 1,55 | 1,365 | 0,183 | 0,0018 | 0,662 |
| RP83+PE22+PE60+PE76+PF74 | 21,4 | 2,21 | 1,55 | 1,365 | 0,183 | 0,0018 | 0,662 |
| RP84+PE22+PE60+PE76+PF74 | 21,4 | 2,21 | 1,55 | 1,365 | 0,183 | 0,0018 | 0,662 |
| RP85+PE26+PE60+PE76+PF74 | 28,7 | 2,46 | 1,702 | 1,517 | 0,183 | 0,0020 | 0,757 |
| RP86+PE26+PE60+PE76+PF74 | 28,7 | 2,46 | 1,702 | 1,517 | 0,183 | 0,0024 | 0,757 |
| RP87+PE26+PE60+PE76+PF74 | 27,2 | 2,46 | 1,702 | 1,517 | 0,183 | 0,0024 | 0,757 |
| RP88+PE26+PE60+PE76+PF74 | 27,2 | 2,46 | 1,702 | 1,517 | 0,183 | 0,0024 | 0,757 |
| RP89+PE30+PE60+PE76+PF74 | 46,8 | 2,11 | 1,138 | 0,951 | 0,183 | 0,0039 | 0,967 |
| RP90+PE30+PE60+PE76+PF74 | 46,8 | 2,11 | 1,138 | 0,951 | 0,183 | 0,0039 | 0,967 |
| RP91+PE30+PE60+PE76+PF74 | 44,4 | 2,11 | 1,138 | 0,951 | 0,183 | 0,0039 | 0,967 |
| RP92+PE30+PE60+PE76+PF74 | 44,4 | 2,11 | 1,138 | 0,951 | 0,183 | 0,0039 | 0,967 |
| RP93+PE35+PE60+PE76+PF74+PE64 | 71 | 3,96 | 2,795 | 2,606 | 0,183 | 0,0059 | 1,168 |
| RP94+PE35+PE60+PE76+PF74+PE64 | 71 | 3,96 | 2,795 | 2,606 | 0,183 | 0,0059 | 1,168 |
| RP95+PE35+PE60+PE76+PF74+PE64 | 67,4 | 3,96 | 2,795 | 2,606 | 0,183 | 0,0059 | 1,168 |
| RP96+PE35+PE60+PE76+PF74+PE64 | 67,4 | 3,96 | 2,795 | 2,606 | 0,183 | 0,0059 | 1,168 |
| RH35+PE18+PE60+PE76+PF74 | 16,6 | 2,01 | 1,376 | 1,192 | 0,183 | 0,0013 | 0,632 |
| RH36+PE18+PE60+PE76+PF74 | 16,6 | 2,01 | 1,376 | 1,192 | 0,183 | 0,0013 | 0,632 |
| RH37+PE18+PE60+PE76+PF74 | 15,7 | 2,01 | 1,376 | 1,192 | 0,183 | 0,0013 | 0,632 |
| RH38+PE18+PE60+PE76+PF74 | 15,7 | 2,01 | 1,376 | 1,192 | 0,183 | 0,0013 | 0,632 |
| RH39+PE22+PE60+PE76+PF74 | 22,6 | 2,18 | 1,519 | 1,334 | 0,183 | 0,0018 | 0,662 |
| RH40+PE22+PE60+PE76+PF74 | 22,6 | 2,18 | 1,519 | 1,334 | 0,183 | 0,0018 | 0,662 |
| RH41+PE22+PE60+PE76+PF74 | 21,4 | 2,18 | 1,519 | 1,334 | 0,183 | 0,0018 | 0,662 |
| RH42+PE22+PE60+PE76+PF74 | 21,4 | 2,18 | 1,519 | 1,334 | 0,183 | 0,0018 | 0,662 |
| RH43+PE26+PE60+PE76+PF74 | 28,7 | 2,42 | 1,662 | 1,477 | 0,183 | 0,0020 | 0,757 |

| | | | | | | | |
|-------------------------------|------|------|-------|-------|-------|--------|-------|
| RH44+PE26+PE60+PE76+PF74 | 28,7 | 2,42 | 1,662 | 1,477 | 0,183 | 0,0024 | 0,757 |
| RH45+PE26+PE60+PE76+PF74 | 27,2 | 2,42 | 1,662 | 1,477 | 0,183 | 0,0024 | 0,757 |
| RH46+PE26+PE60+PE76+PF74 | 27,2 | 2,42 | 1,662 | 1,477 | 0,183 | 0,0024 | 0,757 |
| RH47+PE30+PE60+PE76+PF74 | 46,8 | 3,04 | 2,075 | 1,888 | 0,183 | 0,0039 | 0,967 |
| RH48+PE30+PE60+PE76+PF74 | 46,8 | 3,04 | 2,075 | 1,888 | 0,183 | 0,0039 | 0,967 |
| RH49+PE30+PE60+PE76+PF74 | 44,4 | 3,04 | 2,075 | 1,888 | 0,183 | 0,0039 | 0,967 |
| RH50+PE30+PE60+PE76+PF74 | 44,4 | 3,04 | 2,075 | 1,888 | 0,183 | 0,0039 | 0,967 |
| RH51+PE35+PE60+PE76+PF74+PE64 | 71 | 3,87 | 2,7 | 2,511 | 0,183 | 0,0059 | 1,168 |
| RH52+PE35+PE60+PE76+PF74+PE64 | 71 | 3,87 | 2,7 | 2,511 | 0,183 | 0,0059 | 1,168 |
| RH53+PE35+PE60+PE76+PF74+PE64 | 67,4 | 3,87 | 2,7 | 2,511 | 0,183 | 0,0059 | 1,168 |
| RH54+PE35+PE60+PE76+PF74+PE64 | 67,4 | 3,87 | 2,7 | 2,511 | 0,183 | 0,0059 | 1,168 |