

Product Environmental Profile

Pass & Seymour: Turnlok® Locking
 Plugs - 20/30A



COMPANY OVERVIEW

• Sustainability built in to support our associates, customers, and the environment

At Legrand North and Central America, we're committed to leading by example within our own operations, to developing high quality solutions for our customers' High Performance Buildings, and to transforming how people live and work – more safely, more comfortably, more efficiently.

• Better Performance

A core principle of designing for sustainability drives us to innovate products and systems that enable buildings to reach exceptional levels of performance, bringing about industry-leading ideas, inventions and initiatives.

• Better Operations

A commitment to a leadership role in operational excellence through environmental management, optimizing the way we manage energy, water and waste.

• Better Lives

A dedication to enhancing employee and community welfare through programs that help people enjoy healthier, more productive and more rewarding lives.

For more information on Legrand's PEPs and other sustainability initiatives, visit legrand.us/sustainability.



LEGRAND'S ENVIRONMENTAL COMMITMENTS

• Incorporate environmental management into our industrial sites

Of all Legrand sites worldwide, over 85% are ISO 14001 certified (sites belonging to Legrand for more than five years).

• Offer our customers environmentally friendly solutions

Develop innovative solutions to help our customers design more energy efficient, better managed and more environmentally friendly installations.

• Involve the environment in product design

Reduce the environmental impact of products over their whole life cycle.

Provide our customers with all relevant information (composition, consumption, end of life, etc.).



REFERENCE PRODUCT

<p>Function</p>	<p>To plug/unplug a load consuming a maximum of 30A under a voltage of 250V between the two hot wires and 125V between the hot and the neutral wires to a connection to an electric power supply while protecting the user from direct contact with live parts for 20 years.</p>
<p>Reference Product</p>	<div style="text-align: center;">  <p>Part Number: L1430P</p> <p>Turnlok Plug; 4 Wire, 30A, 125/250V, (NEMA: L14-30P); Black Back, White Front Body</p> </div>

The company reserves the right to change specifications and designs without notice. All illustrations, descriptions, dimensions and weights in the document are for guidance and cannot be held binding on the company.

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PRODUCTS CONCERNED

The environmental data is representative of the following products:

- 20A Turnlok Plugs: L#20P*
- 30A Turnlok Plugs: L#30P*

Where # represents a 1 or 2 digit number from 5 to 23 (and 37) indicating the type of plug, ^ represents a possible color suffix, and * represents a possible packaging suffix. .

The number in the product code corresponds to the product's NEMA plug configuration number (except L3720P which corresponds to NEMA 24-20P). Configurations with numbers 5 to 9 and 37 are 2 pole 3 wire (2P3W), 10 to 13 are 3 pole 3wire (3P3W), 14 to 17 are 3 pole 4 wire (3P4W), 18 to 20 are 4 pole 4 wire (4P4W), and 21 to 23 are 4 pole 5 wire (4P5W).

Color suffixes can include: BK (black back and black front body); no color suffix indicates black back and white front body. Packaging suffixes can include: CC... (retail cut case with various specifications); no packaging suffix indicates generic electrical distributor packaging.



CONSTITUENT MATERIALS

This Reference Product contains no substances prohibited by the regulations applicable at the time of its introduction to the market. It respects the restrictions on use of hazardous substances as defined in the RoHS directive 2011/65/EC.

Total weight of Reference Product with unit packaging	173.79 g (6.13 oz)
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Plastics as % of weight		Metals as % of weight		Others as % of weight	
Product					
PA6 (polyamide 6 - nylon)	38.0%	Brass	22.0%		
PC (polycarbonate)	5.6%	Steel	9.7%		
PVC (polyvinyl chloride)	1.1%				
Other plastics	1.3%				
Packaging					
PE-LD (polyethylene - low density)	<0.1%			paper/cardboard	17.6%
				wood (pallet)	4.6%
Total plastics	46.0%	Total metals	31.8%	Total others	22.2%

Estimated recycled material content: 24% of weight.

Masses and materials vary with the amperage and wire number of the product. Values are given in the table below.

Plug Type	20A			30A			
	2P3W; 3P3W	3P4W; 4P4W	4P5W	2P3W; 3P3W	3P4W; 4P4W	4P5W	
Total Mass (g)	165	170	179	168	174	184	
Product (plastic)	PA6	41.0%	38.8%	36.8%	40.2%	38.0%	35.9%
	PC	5.7%	5.7%	5.4%	5.6%	5.6%	5.3%
	PVC	1.1%	1.1%	1.0%	1.1%	1.1%	1.0%
	other plastics	1.4%	1.3%	1.3%	1.4%	1.3%	1.2%
Product (metal)	brass	12.4%	16.1%	23.8%	17.2%	22.0%	29.6%
	steel	14.9%	14.2%	10.1%	11.4%	9.7%	6.0%
Packaging (all)	PE-LD	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
	paper/cardboard	18.5%	17.9%	17.0%	18.2%	17.6%	16.6%
	wood	4.9%	4.7%	4.5%	4.8%	4.6%	4.4%

Estimated recycled material content is equivalent across all products covered by this PEP.

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MANUFACTURING

The Reference Product comes from a site that have received ISO 14001 certification.



DISTRIBUTION

Products are distributed from logistics centers located to optimize transport efficiency using EPA SmartWay® certified carriers to reduce greenhouse gases emissions. Due to highly variable distribution, an average of 1200 km by heavy truck was used. This represents transportation of the Reference Product from our warehouse to the local point of distribution in the North American market.



INSTALLATION

For the installation of the product, only standard tools are needed and no electricity is required.



USE

Servicing and maintenance:

Under normal conditions of use, this type of product requires no servicing or maintenance.

Consumable:

No consumables are necessary to use this type of product.

Energy:

Electric energy is lost due to the Joule effect during the use of the product. Using the method described in PSR-005-ed2-2016 03 29 for power sockets, the total loss over the life of the product is estimated to be 89 kWh. This loss constitutes the entirety of the product's energy use as the electric power passing through the product to supply the load is not attributed to the product.



END OF LIFE

• Hazardous waste* contained in the product: no hazardous waste

(* Hazardous waste as defined by European Commission decision 2000/532/EC.

• Recycling rate:

Calculated using the method described in the IEC/TR 62635 technical report, the recyclability rate of the Reference Product (including packaging) is estimated as 96%. This value is based on data collected from a technological channel using industrial procedures. It does not pre-validate the effective use of this channel for end-of-life electrical and electronic products.

Separated into:	(% mass of Reference Product)
- plastic materials (excluding packaging):	42%
- metal materials (excluding packaging):	32%
- packaging (all types of materials):	22%

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ENVIRONMENTAL IMPACTS

The evaluation of environmental impacts examines the stages of the Reference Product life cycle: manufacturing, distribution, installation, use, and end of life. It is representative of products marketed and used in North America.

The following modelling elements were taken into account:

Manufacturing	Packaging taken into account. As required by the PEP ecopassport program, all transport for the manufacturing of the Reference Product, including materials and components, has been taken into account. The waste generated during manufacturing phase has been taken into account.
Distribution	Transport between the last distribution center and an average delivery to the sales area.
Installation	The end of life of the packaging (19.5 g) is taken into account at this phase. Transport of packaging to end of life treatment.
Use	<ul style="list-style-type: none"> • Under normal conditions of use, this type of product requires no servicing or maintenance. • No consumables are necessary to use this type of product. • Product category: power plug • Use scenario: for a 20 year working life, the product operates at 50% of the rated load for 50% of the time. This modelling duration does not constitute a minimum durability requirement. • Energy model: Electricity(US) - 2009
End of life	The default end of life scenario modelled maximizes the environmental impact using the PCR hypothesis for "Local transport": 621 miles (1000 km) by heavy truck and landfilling.
Software used	EIME V5 and its database "CODDE-2016-11" and the indicators defined in the PCR ed 3 in alignment with the EN15804 standard

	Total for Life cycle		Raw material and manufacturing		Distribution		Installation		Use		End of life	
Global warming (GW)	6.24E+01	kg CO ₂ eq.	9.63E-01	2%	1.04E-02	< 1%	2.30E-03	< 1%	6.14E+01	98%	1.31E-02	< 1%
Ozone depletion (OD)	1.19E-06	kg CFC-11 eq.	7.87E-08	7%	2.10E-11	< 1%	1.40E-11	< 1%	1.11E-06	93%	2.68E-10	< 1%
Acidification of soil and water (A)	6.09E-02	kg SO ₂ eq.	1.99E-03	3%	4.66E-05	< 1%	1.11E-05	< 1%	5.88E-02	97%	5.15E-05	< 1%
Water eutrophication (WE)	1.66E-02	kg PO ₄ ³⁻ eq.	1.05E-03	6%	1.07E-05	< 1%	1.05E-05	< 1%	1.55E-02	93%	6.67E-05	< 1%
Photochemical ozone creation (POCP)	9.62E-03	kg C ₂ H ₄ eq.	1.95E-04	2%	3.31E-06	< 1%	7.86E-07	< 1%	9.42E-03	98%	3.98E-06	< 1%
Depletion of abiotic resources - elements (ADPe)	5.15E-05	kg Sb eq.	5.09E-05	99%	4.15E-10	< 1%	9.90E-11	< 1%	6.04E-07	1%	7.66E-10	< 1%
Total use of primary energy (PE)	8.37E+02	MJ	1.03E+01	1%	1.47E-01	< 1%	3.18E-02	< 1%	8.27E+02	99%	1.49E-01	< 1%
Net use of fresh water (FW)	1.17E-01	m ³	8.79E-03	7%	9.29E-07	< 1%	6.36E-07	< 1%	1.09E-01	93%	9.35E-06	< 1%
Depletion of abiotic resources – fossil fuels (ADP_f)	9.80E+02	MJ	7.10E+00	< 1%	1.46E-01	< 1%	3.21E-02	< 1%	9.72E+02	99%	1.84E-01	< 1%
Water pollution (WP)	3.46E+03	m ³	4.32E+02	12%	1.71E+00	< 1%	3.60E-01	< 1%	3.03E+03	87%	1.59E+00	< 1%
Air pollution (AP)	5.49E+03	m ³	2.75E+02	5%	4.26E-01	< 1%	2.57E-01	< 1%	5.22E+03	95%	1.34E+00	< 1%

The values of the 27 impacts defined in the PCR-ed3-EN-2015 04 02 are available in the digital database of pep-ecopassport.org website. The environmental impacts of the Reference Product are representative of the products covered by the PEP, which therefore constitute a homogeneous environmental family.



ENVIRONMENTAL IMPACTS (continued)

For products covered by the PEP other than the Reference Product, the environmental impacts of each phase of the lifecycle can be calculated with the following rules:

Manufacturing – The different amperage ratings and wire numbers across the product range lead to different amounts of plastic and metal materials in the plugs. Those differences have variable effects on the environmental impacts in this phase. In the table below, conversion factors are listed for each of the 11 indicators for each of the amperage-wire combinations that when multiplied by the corresponding impacts of the Reference Product give the impacts of the desired product.

Indicator	20A			30A		
	2P3W; 3P3W	3P4W; 4P4W	4P5W	2P3W; 3P3W	3P4W; 4P4W	4P5W
GW	0.97	0.98	1.03	0.98	1.00	1.05
OD	0.81	0.88	1.05	0.90	1.00	1.18
A	0.98	1.00	1.09	0.98	1.00	1.10
WE	0.97	0.99	1.02	0.98	1.00	1.04
POCP	1.00	1.02	1.07	0.99	1.00	1.05
ADPe	0.53	0.72	1.12	0.75	1.00	1.42
PE	1.00	1.05	1.08	0.96	1.00	1.03
FW	0.80	0.89	1.08	0.88	1.00	1.20
ADPf	0.91	0.96	1.06	0.94	1.00	1.10
WP	1.01	0.99	1.00	1.01	1.00	1.01
AP	0.62	0.77	1.11	0.79	1.00	1.35

Distribution – The impacts in this phase are proportional to the mass of the product (including packaging) for all indicators. (Masses are given in the constituent materials section of this document).

Installation – The impacts in this phase are equivalent across all products for all indicators.

Use – The different amperage ratings and pole numbers across the product range lead to different amounts of energy loss due to internal resistance. In the table below, conversion factors are given for each of the amperage-pole combinations that when multiplied by the corresponding impacts of the Reference Product give the impacts of the desired product. These conversion factors apply to all indicators.

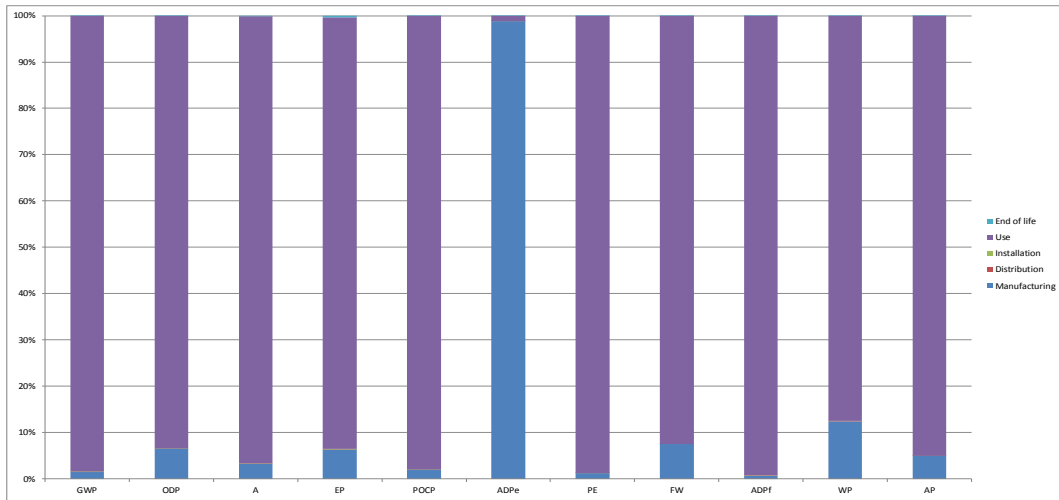
Indicator	20A			30A		
	2P3W	3P3W; 3P4W	4P4W; 4P5W	2P3W	3P3W; 3P4W	4P4W; 4P5W
All	0.30	0.44	0.59	0.67	1.00	1.33

End-of-Life – The different amperage ratings and wire numbers across the product range lead to different amounts of plastic and metal materials in the plugs. In the table below, conversion factors are given for each of the amperage-wire combinations that when multiplied by the corresponding impacts of the Reference Product give the impacts of the desired product. These conversion factors apply to all indicators.

Indicator	20A			30A		
	2P3W; 3P3W	3P4W; 4P4W	4P5W	2P3W; 3P3W	3P4W; 4P4W	4P5W
All	0.97	0.98	1.02	0.98	1.00	1.04



ENVIRONMENTAL IMPACTS (continued)



The environmental impact of the Reference Product occurs predominantly during the use phase.

Registration number: LGRP-00813-V01.01-EN	Drafting rules: "PCR-ed3-EN-2015 04" Supplemented by "PSR-005-ed2-2016 03 29"
Verifier's accreditation number: VH26	Information and reference documents: www.pep-ecopassport.org
Date of issue: 12-2018	Validity period: 5 years
Independent verification of the declaration and data, in compliance with ISO 14025:2010 Internal <input type="checkbox"/> External <input checked="" type="checkbox"/>	
The PCR Review was conducted by a panel of experts chaired by Philippe Osset (SOLINNEN).	
PEP are compliant with XP C08-100-1: 2014 The elements of the present PEP cannot be compared with elements from another program.	
Document in compliance with ISO 14025:2010: "Environmental labels and declarations - Type III environmental declarations"	
In compliance with ISO 14040:2006: "Environmental management - LCA - Principles and framework" In compliance with ISO 14044:2006: "Environmental management - LCA - Requirements and guidelines" In alignment with EN 15804:2012+A1:2013: "Sustainability of construction works - EPD's - Core rules for the product category of construction products"	