

Reference product



> Reference product

SOLUS 2 PA 10/12

Ref **200235**

> Functional unit

Ensure the closing and opening action by performing 14 000 operating cycles, and a reference service life of 15 years, with a torque of 10 Nm, on a length of 2 meters, corresponding to 13 winding turns per half-cycle, with a tube diameter of 50 mm.

> References covered

SOLUS 8/12 PA, 5003950A

SOLUS 10/12 PA, 200235A

SOLUS 15/12 PA, 5003949A

SOLUS 20/12 PA, 200237A

SOLUS 30/12 PA, 200239A

SOLUS 40/12 PA, 200299A

SOLUS 2 PA 6/12, 5013787A, 5013785A, 5013321A

SOLUS 2 PA 8/12, 5013309A

SOLUS 2 PA 10/12, 5013312A

SOLUS 2 PA 10/12, 5013766A, 5013316A

SOLUS 2 PA 15/12, 5013320A, 5013319A

SOLUS 2 PA 20/12, 5013769A, 5013311A, 5013308A

SOLUS 2 PA 30/12, 5013315A, 5013770A, 5013313A

SOLUS 2 PA 40/12, 5013317A, 5013318A

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.

Plastics			Metals			Other		
	g	%		g	%		g	%
PA66	175,90	6,1%	Steel	1580,00	54,4%	Glass fiber	120,00	4,1%
PVC	120,00	4,1%	Copper	269,00	9,3%	Lubricant	25,00	0,9%
PPS	36,10	1,2%	Zamak	171,00	5,9%	Other	1,98	0,1%
POM	34,70	1,2%	Other	31,47	1,1%	Packaging		
Other	85,92	3,0%				Cardboard	208,50	7,2%
						Paper	27,00	0,93%
						EPS	25,00	0,86%
Total mass of reference flow: 2906,1g								
Estimated recyclable content: 70%								

> CHEMICAL SUBSTANCES

The products covered by this PEP comply with REACH regulation and RoHS directive.



— Manufacturing

The devices covered in this PEP are manufactured in a production that has adopted an environmental management approach.

> Energy model

Tunisian Mix



— Distribution

> Packaging is continuously improved by reducing the amount and using a maximum of recycled materials.

> The unit pack has been modeled here. It is made up of :

- 100% recycled fiber paper instructions
- cardboard with a minimum of 50% recycled fibers
- a wedge in polystyrene expended with gas from biomethanisation (in order to reduce its carbon impact).



— Installation

> Installation elements

A crown and a wheel required for installation are included in this phase.

> Installation processes

There is no installation process.

> Energy model

No



— Use

For the considered scenario, the product has a power of 100W in active mode during 0.38% of the time. This motorization having a mechanical control, it does not consume in standby, we therefore consider 0W for 99.62% of time remaining. This corresponds to an energy consumption of 49.51 kWh for the lifetime of 15 years.

> Energy model of the use phase: European Mix

> Consumables and maintenance: None



— End of life

> Typical transport conditions

Considering the complexity of the electric and electronic recycling channel and our lack of knowledge about the end of life processes implemented all around the world, we considered:

- 1000 km of transport
- A landfill treatment of the product

> Energy model

European Mix

Product Environmental Profile

Wired motor for rolling shutters Solus PA, Solus 2PA



Environmental impacts

Evaluation of the environmental impact covers the following life cycle stages: manufacturing, distribution, installation, use and end of life.
All calculations are done with EIME software version EIME© v5.8.1

Indicators	Global	Unit	Manufacturing	Distribution	Installation	Usage	End of Life
Global warming	3,90E+01	kg.equivalent. CO2	1,32E+01	8,80E-01	3,25E-01	2,45E+01	2,04E-01
Ozone depletion	2,20E-06	kg.equivalent. CFC-11	6,05E-07	1,51E-09	8,95E-10	1,59E-06	2,58E-09
Acidification of soil and water	1,74E-01	kg.equivalent. SO2	4,57E-02	2,49E-02	8,32E-05	1,02E-01	8,34E-04
Water eutrophication	1,85E-02	kg.equivalent. P04 3-	7,99E-03	2,46E-03	6,01E-04	6,16E-03	1,26E-03
Photochemical Ozone formation	1,10E-02	kg.equivalent. C2H4	3,99E-03	1,24E-03	7,85E-05	5,61E-03	6,33E-05
Depletion of abiotic resources - elements	3,62E-04	kg.equivalent. Sb	3,60E-04	3,18E-08	8,59E-10	2,13E-06	1,01E-08
Depletion of abiotic resources - fossil fuelss	3,94E+02	MJ	1,03E+02	1,12E+01	2,33E-01	2,78E+02	2,33E+00
Water pollution	2,66E+03	m3	1,48E+03	1,31E+02	1,77E+01	1,01E+03	2,71E+01
Air pollution	3,85E+03	m3	2,66E+03	1,21E+02	2,41E+00	1,05E+03	1,57E+01
Use of renewable primary energy, excluding renewable primary energy resources used as raw materials	6,53E+01	MJ	3,15E+00	1,44E-02	1,91E-03	6,21E+01	2,74E-02
Use of renewable primary energy resources used as raw materials	6,44E-01	MJ	6,44E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	6,60E+01	MJ	3,79E+00	1,44E-02	1,91E-03	6,21E+01	2,74E-02
Use of non-renewable primary energy, excluding non-renewable primary energy resources used as raw materials	7,05E+02	MJ	2,65E+02	1,12E+01	2,54E-01	4,26E+02	2,42E+00
Use of non-renewable primary energy resources used as raw materials	1,52E+01	MJ	1,52E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-renewable primary energy resources (pri- mary energy and primary energy resources used as raw materials)	7,20E+02	MJ	2,80E+02	1,12E+01	2,54E-01	4,26E+02	2,42E+00
Use of secondary materials	8,52E-01	kg	8,52E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of renewable secondary fuels	0,00E+00	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of non-renewable secondary fuels	0,00E+00	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water	8,99E+01	m3	1,19E+00	6,80E-05	1,84E-05	8,87E+01	9,38E-05
Hazardous waste disposed of	3,05E+01	kg	3,05E+01	0,00E+00	2,46E-04	1,28E-02	4,12E-04
Non-hazardous waste disposed of	9,91E+01	kg	4,86E+00	2,71E-02	2,67E-01	9,12E+01	2,78E+00
Radioactive waste disposed of	6,23E-02	kg	1,29E-03	1,88E-05	2,59E-06	6,09E-02	3,23E-05
Components for re-use	0,00E+00	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	0,00E+00	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	0,00E+00	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	1,70E-02	MJ by energy vector	1,55E-03	0,00E+00	1,55E-02	0,00E+00	0,00E+00
Total use of primary energy during the life cycle	7,86E+02	MJ	2,84E+02	1,12E+01	2,56E-01	4,89E+02	2,44E+00

Product Environmental Profile

Wired motor for rolling shutters Solus PA, Solus 2PA



> Extrapolation rule

For each stage of lifecycle, the environmental impacts of the product concerned are calculated by multiplying the impacts of the reference product by the extrapolation coefficient. The «Sum» column is calculated by adding the environmental impacts of each stage of the lifecycle.

	Manufacturing	Distribution	Installation	Use	End of life	Application example: Global sum for Global Warming indicator (kg CO2 eq)
Solus PA and 2 PA 6/12	1	1	1	0,90	1	3,66E+01
Solus PA and 2 PA 8/12	1	1	1	0,90	1	3,66E+01
Solus PA and 2 PA 10/12 (REF)	1	1	1	1,00	1	3,90E+01
Solus PA and 2 PA 15/12	1	1	1	1,20	1	4,39E+01
Solus PA and 2 PA 20/12	1	1	1	1,40	1	4,88E+01
Solus PA and 2 PA 30/12	1	1	1	1,60	1	5,37E+01
Solus PA and 2 PA 40/12	1	1	1	2,40	1	7,33E+01

Registration number : SOMF-00048-V01.02-EN	Drafting Rules: PCR-ed3-EN-2015 04 02 Supplemented by PSR-0006-ed1.1-EN-2015 10 16
Accreditation number: VH18	Programme information: www.pep-ecopassport.org
Date of issue: 02-2020	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"/> Bureau Veritas LCIE	
The PCR review was conducted by a panel of experts chaired by Philippe Osset (SOLINNEN)	
PEP are compliant with XP C08-100-1: 2016 The elements of the present PEP cannot be compared with elements from another programme.	
Document in compliance with ISO 14025: 2010 "Environmental labels and declarations. Type III environmental declarations	
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