



Environmental Product Declaration In accordance with ISO 14025 for:

Next Solar

Gear motors for blinds and shutter automation

From:	Programme:	The International EPD® System, www.environdec.com
Nice S.p.A.	Programme operator:	EPD International AB
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An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continue registration and publication at www.environdec.com



Company information

A world without barriers.

This is the aspiration, the *vision* of Nice, an Italian multinational company and international leader in the **Home Automation, Home Security** and **Smart Home** sectors.

A *mission* that aims to improve people's quality of life by **simplifying everyday movements** in total safety and maximum comfort, for a 100% living space.

The Nice world

Founded in 1993 in Oderzo (Treviso) by Lauro Buoro, current Chairman, Nice designs, manufactures and commercialises integrated and connected solutions for applications in residential, commercial and industrial contexts, in the field of:

- Smart Home
- Smart Home Security
- Solar Shading automations
- Gate & Garage Doors automations
- Access control

Today Nice count on an organization of more than 3,000 people on 5 continents, with a rich background of competences and different cultures, as well as 15 R&D centers (Italy, Germany, Poland, Brazil, USA, South Africa Canada, India, Russia, China) and 13 production plants (Germany, Italy, Poland, Brazil, USA, Australia, South Africa and Canada) serving its partners and customers in over 100 countries worldwide.

Thanks to its global presence, Nice contributes to promoting the excellence, style and know-how of *Made in Italy* in the world with the high quality of its Home Automation solutions: products that skilfully combine technology, design, innovation and ease of use.



The value of Sustainability – NiceLoveEarth

For Nice sustainability means ensuring comfort and wellbeing, simplifying people's daily gestures, thanks to the quality and advanced technology of its products, which reduce the environmental impact of living spaces.

For people

Nice is actively committed to improving people's quality of life, making it more sustainable, by developing solutions that optimise the management of natural light and heat. Wellbeing is a top priority for Nice, thanks to the solutions for humidity control, intelligent heating and cooling, air quality measurement, carbon monoxide detection and notification in case of dangerous situations, in order to always guarantee the right environmental conditions to protect the wellbeing of people living in the home.

For products

Nice is committed to lowering the environmental impact of its products, following ecodesign principles, reducing the energy consumption of home automations and using recycled materials. The packaging of the products is made of natural cardboard, 100% recyclable, all plastic parts have been removed and instructions are available in digital format. Furthermore, in a circular economy perspective, Nice works to limit the production of industrial waste, encouraging recovery systems

For buildings

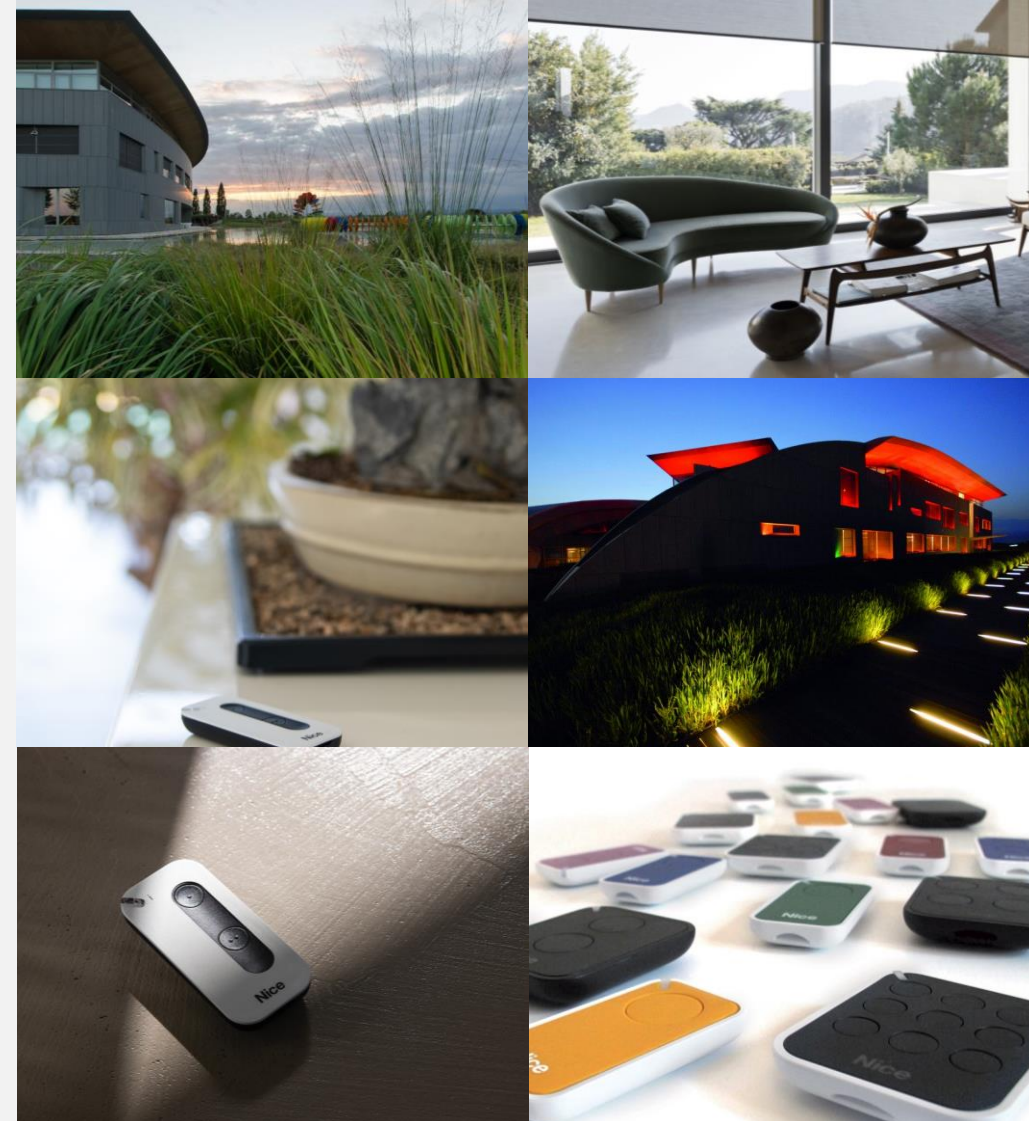
Nice technology makes life for individuals and communities more connected, easier and safer, ensuring greater well-being inside buildings. The application of Nice solutions contributes to making buildings sustainable, minimising the environmental impact of our homes, promoting energy efficiency through intelligent control of heating, cooling, lighting and monitoring of electrical loads to reduce consumption. Nice is a facilitator of simple daily gestures that can have a great impact on the entire planet and encourage the green evolution of buildings.



Nice Innovation

Nice continuously invests in its 15 research and development centres located in Italy, Poland, Germany, Brazil, USA, Canada, South Africa, India and China. This is where the international R&D team operates, made up of highly specialized professionals who, in addition to performing rigorous and accurate tests to ensure the highest standards of quality and safety, work constantly to study, develop and implement cutting-edge solutions able of meeting, and anticipating market demands.

*"Human capital - declares **Lauro Buoro, Chairman and Founder of Nice** - is a fundamental asset for the development and expansion strategy of our company. Thanks to the excellent professionals who work in Nice and to their ideas, we create innovation to facilitate even the smallest daily gestures".*



Products information

The Next series is a series of Star Head tubular motors, for vertical blinds and shutters, size M ø 45 mm; The Star Head represents a motor head compatible with star-shaped supports therefore also suitable for maintenance and replacement work of previous applications. Next Solar is a family of gearmotors for roller shutters, with electronic limit switches and integrated radio receiver, with solar power supply. The kit contained in the package includes a solar heating panel, a battery back and a tubular motor. It is used to move an automation (e.g. a shutter) without the aid of electricity but using solar energy stored in the battery. The system is thus self-sustaining as, once installed correctly, the energy stored in the battery should always be sufficient to move the automation. The series include three products:

- KIT NEXT SOLAR MA 10Nm 14rpm BIDI
- KIT NEXT SOLAR MA 20Nm 10rpm BIDI
- KIT NEXT SOLAR MA 6Nm 15rpm BIDI

For Next Solar, secondary packaging is composed by a cardboard box and two expanded polyethylene molds; the configuration can either contain one kit, or sixty kit in one box.



Nice Green Products, with specific technological innovations or materials that permit **energy efficiency of the buildings** and a **low impact on the environment**.

TECHNICAL INFORMATION	U.M.	NEXT SOLAR MA 10Nm 14rpm	NEXT SOLAR MA 20Nm 10rpm	NEXT SOLAR MA 6Nm 15rpm
Nominal torque	Nm	10,0	20,0	6,0
Nominal angular velocity	rpm	14,0	10,0	15,0
Electric power assimilated in the motion phase	W	40,00	65,00	35,00
Electric power assimilated in the stand-by phase	W	0,001	0,001	0,001
Time for performing one operating cycle	S	60	80	60
Number of cycles per day*	N	4	4	4
Reference service life	y	10	10	10

* The complete opening and closing of an application

UN CPC code for Next Solar products is 46111 - Motors of an output not exceeding 37.5 W; other DC motors; DC generators

The presence of the different materials in the products are reported in the following page.

Products information

Presence of different materials in the products of the series Next Solar:

MATERIALS	PERCENTAGE
Metals	74,5%
Plastic	19,8%
Circuit boards	1,9%
Cables and connectors	2,3%
Other	1,5%

The products do not contain any of the substances of very high concern (SVHC) regulated by the Regulation (EC) No 1907/2006 (REACH) or the Regulation (EC) No 1272/2008 of European parliament.

Methodology

Inventory analysis was conducted using specific data relating to the year 2023: the Next Solar series is produced in Nice 2 (Italy). The data refer to the consumption of raw materials and electricity, the production of the gearmotors and the waste connected to it.

Selected generic data from international databases were used (in particular Ecoinvent 3.10) regarding the production processes of raw materials and auxiliary materials used for the gearmotor production, generation and distribution of electricity, means of transport and waste treatment processes related to the production that takes place in the Nice plant.

In addition, data on ground transportation distances were calculated using the Google Maps online calculator and those by sea using the Sea-rates online tool.

The calculation method adopted for the LCA study reported in this EPD is described in the document "GPI for an International EPD® System" version 3.01, while the characterization factors, used to convert the data deriving from the inventory analysis of the life cycle in impact categories, are described in the reported at www.environdec.com.



LCA information

Functional Unit

Following the indications of the PCR 2019:11 version 1.02, functional unit for the product's life cycle is a drive capable of assure a rated output equal to 10 W for the movement of an object.

The complete use phase has been calculated dor the service life of 10 years, according to PCR 2019:11.

System borders

The present study is defined "from-cradle-to-grave", therefore the life cycle of product for the automation under study is subdivided into Upstream, Core and Downstream phases. The EPD only refers to the gear motor and no other components that can be necessary for the movement of an automation (transmitters, sensors, tracks or other accessories).

Upstream phase includes the production of all the materials (raw and auxiliary) that enter the production process, as detailed below:

- operations of extraction, transport and treatment of resources;
- the production of raw materials (components) that make up the product, including their packaging;
- the production of auxiliary for the assembly, printing and lubrication materials;
- packaging production;
- the production of electricity and fuels used at the companies that produce the materials described in the previous points.

Core phase includes the following processes, which are associated with transport and processing that combine to create the finished product:

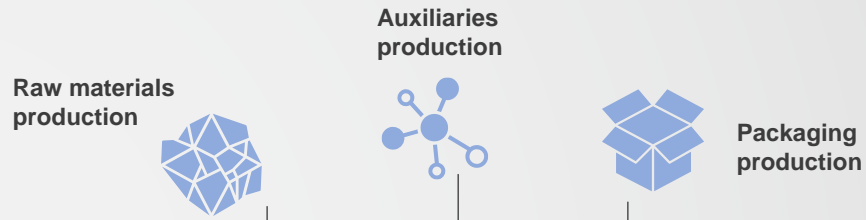
- transport of materials from the place of production to the manufacturing site. The specific transport of every component has been calculated; for the suppliers of Nice's suppliers, an estimated distance of 100 km has been applied.
- consumption of electricity for product assembly;
- storage and packaging;
- treatment of waste produced during manufacture;

Finally, the Downstream phase includes the following processes, which take place outside the plant and involve the finished product:

- transport from production site to the final retailer;
- use of the product (throughout its reference service life);
- end-of-life of the product after use;
- end-of-life of packaging after use.



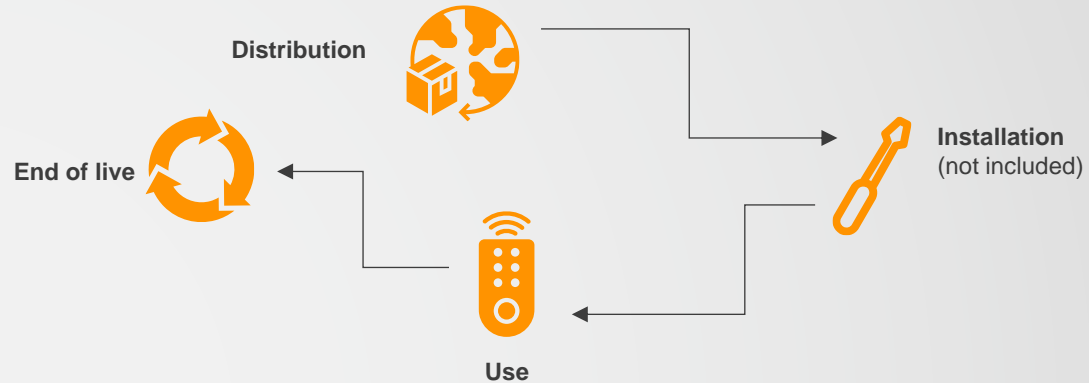
Upstream



Core



Downstream



Data quality and cut-off

In accordance with the cut-off rule, flows less than 1% of the total inventory were excluded, i.e.:

- construction of company plants and processing machinery (with a life of more than three years);
- staff travel and home-work transfers;
- research and development activities;
- the materials necessary for cleaning the machinery;
- product installation and its maintenance.



Energy consumption calculation

Based on the technical information regarding the product, energy consumption in the use phase has been calculated as follow:

$$\text{Consumption [kWh/y]} = \left[\left(\frac{P_m}{1000} \times t_m \right) + \left(\frac{P_s}{1000} \times t_s \right) \right] \times 24 \times 365$$

Where:

P_m = electric power assimilated in the motion phase [W]

t_m = motion ratio [%]

P_s = electric power assimilated in the stand-by phase [W]

t_s = stand-by ratio [%]

Motion ratio is a measure of the period the gear motor spends applying force/torque to move an object, i. e. an automation system. It has been calculated as

$$t_m = \frac{T \times C}{3600 \times 24}$$

Where:

T = time for performing one operating cycle [seconds]

C = number of cycles per day [number]

For this products, the calculation has been integrated with assumptions from the gear motors' designers, resulting in a *motion ratio* equal to 0,125% for Next Solar.

Stand-by ratio has been therefore calculated as:

$$t_s = 1 - t_m$$

The presented formula refers to the electricity that the product consumes in one year (kWh/y); the complete use phase has been therefore calculated for the service life of 10 years (PCR 2019:11).

EPD validity

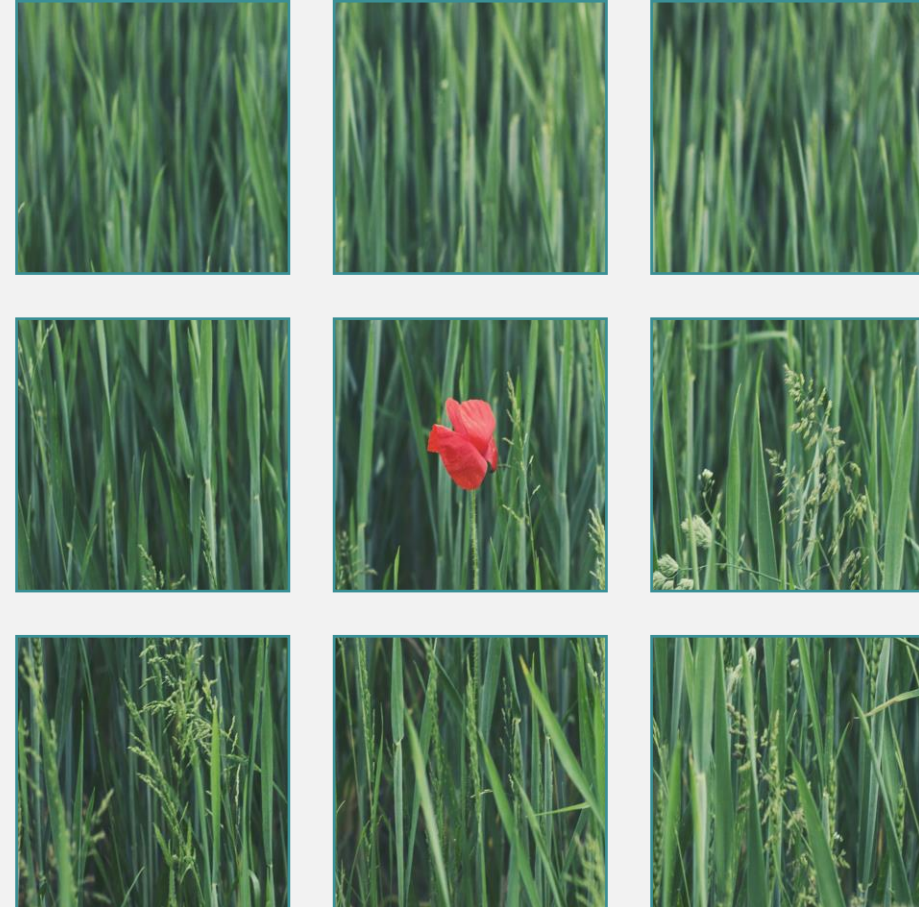
This EPD is valid globally and has a validity related to Nice's Process EPD Certificate, which is effective until October 2nd, 2023.

Environmental performance

In order to reach the results reported below, the most recent software for LCA has been used, namely SimaPro 9.6.

The impact categories are:

- Global warming potential (GWP)
- Acidification potential (AP)
- Eutrophication potential (EP) freshwater, marine and terrestrial
- Photochemical oxidant formation potential (POFP)
- Ozone Layer Depletion (ODP)
- Abiotic depletion potential – Elements
- Abiotic depletion potential – Fossil resources
- Water scarcity potential
- Use of resources





KIT NEXT SOLAR MA 10Nm 14rpm BIDI

Potential environmental impact

PARAMETER	UNIT	Upstream	Core	Downstream		TOTAL	
				Distribution + end-of-life	Use phase		
Global warming potential (GWP)	Fossil	Kg CO ₂ eq.	5,97E+00	8,65E-02	1,78E+00	2,42E+01	3,21E+01
	Biogenic	Kg CO ₂ eq.	3,44E-02	4,29E-04	3,52E-04	8,00E-02	1,15E-01
	Land use and land transformation	Kg CO ₂ eq.	1,05E-02	2,73E-03	1,08E-04	2,89E-02	4,22E-02
	TOTAL	Kg CO₂ eq.	6,02E+00	8,97E-02	1,78E+00	2,43E+01	3,22E+01
Acidification potential (AP)	mol H ⁺ eq.	4,02E-02	3,74E-04	1,58E-03	1,38E-01	1,80E-01	
Eutrophication potential (EP) - freshwater	kg P eq.	3,23E-03	6,18E-07	3,97E-05	1,08E-02	1,41E-02	
Eutrophication potential (EP) - marine	kg N eq.	6,33E-03	1,45E-04	6,92E-04	2,22E-02	2,94E-02	
Eutrophication potential (EP) - terrestrial	mol N eq.	6,50E-02	1,58E-03	6,76E-03	2,27E-01	3,00E-01	
Photochemical oxidant formation potential (POFP)	kg NMVOC eq.	2,26E-02	5,39E-04	2,05E-03	8,03E-02	1,06E-01	
Ozone depletion (ODP)	kg CFC11 eq.	1,42E-07	1,73E-09	4,70E-09	5,06E-07	6,55E-07	
Abiotic depletion potential – Elements*	kg SB eq.	4,34E-04	2,78E-09	3,26E-08	1,35E-03	1,79E-03	
Abiotic depletion potential – Fossil resources*	MJ	3,20E+01	1,26E-02	5,66E-01	1,24E+02	1,57E+02	
Water scarcity potential*	m ³ eq.	1,95E+00	9,48E-03	3,30E-02	9,49E+00	1,15E+01	

*The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.

NOTE: No significant aircraft GHG emissions have been detected in life cycle of the gear motor.

KIT NEXT SOLAR MA 10Nm 14rpm BIDI

Use of resources

PARAMETER	UNIT	Upstream	Core	Downstream		TOTAL	
				Distribution + end-of-life	Use phase		
Primary energy resources Renewable	Use as energy carrier	MJ	6,24E+00	2,21E+00	2,30E+00	2,54E+01	3,61E+01
	Used as raw materials	MJ	3,10E+00	-8,86E-01	-2,21E+00	0,00E+00	0,00E+00
	TOTAL	MJ	9,34E+00	1,33E+00	8,51E-02	2,54E+01	3,61E+01
Primary energy resources Non-renewable	Use as energy carrier	MJ	2,74E+01	4,95E-01	4,64E+00	1,24E+02	1,57E+02
	Used as raw materials	MJ	4,56E+00	-4,82E-01	-4,08E+00	0,00E+00	0,00E+00
	TOTAL	MJ	3,20E+01	1,26E-02	5,66E-01	1,24E+02	1,57E+02
Secondary material	Kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	
Renewable secondary fuels	Mj	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	
Net use of fresh	M ³	6,96E-02	2,07E-03	1,29E-03	3,47E-01	4,20E-01	



KIT NEXT SOLAR MA 20Nm 10rpm BIDI

Potential environmental impact

PARAMETER	UNIT	Upstream	Core	Downstream		TOTAL	
				Distribution + end-of-life	Use phase		
Global warming potential (GWP)	Fossil	Kg CO ₂ eq.	4,18E+00	6,06E-02	1,37E+00	1,42E+01	1,98E+01
	Biogenic	Kg CO ₂ eq.	2,40E-02	3,00E-04	1,76E-04	4,49E-02	6,94E-02
	Land use and land transformation	Kg CO ₂ eq.	7,36E-03	1,91E-03	7,92E-05	1,69E-02	2,62E-02
	TOTAL	Kg CO₂ eq.	4,21E+00	6,28E-02	1,37E+00	1,42E+01	1,99E+01
Acidification potential (AP)	mol H ⁺ eq.	2,81E-02	2,62E-04	1,56E-03	8,12E-02	1,11E-01	
Eutrophication potential (EP) - freshwater	kg P eq.	2,26E-03	4,33E-07	3,03E-05	6,36E-03	8,66E-03	
Eutrophication potential (EP) - marine	kg N eq.	4,42E-03	1,01E-04	6,67E-04	1,32E-02	1,83E-02	
Eutrophication potential (EP) - terrestrial	mol N eq.	4,55E-02	1,11E-03	6,72E-03	1,34E-01	1,87E-01	
Photochemical oxidant formation potential (POFP)	kg NMVOC eq.	1,58E-02	3,78E-04	2,09E-03	4,77E-02	6,60E-02	
Ozone depletion (ODP)	kg CFC11 eq.	9,97E-08	1,21E-09	5,11E-09	3,23E-07	4,29E-07	
Abiotic depletion potential – Elements*	kg SB eq.	3,04E-04	1,94E-09	3,01E-08	7,79E-04	1,08E-03	
Abiotic depletion potential – Fossil resources*	MJ	2,24E+01	8,84E-03	4,39E-01	7,46E+01	9,75E+01	
Water scarcity potential*	m ³ eq.	1,35E+00	6,64E-03	2,45E-02	5,92E+00	7,31E+00	

*The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.

NOTE: No significant aircraft GHG emissions have been detected in life cycle of the gear motor.

KIT NEXT SOLAR MA 20Nm 10rpm BIDI

Use of resources

PARAMETER		UNIT	Upstream	Core	Downstream		TOTAL
					Distribution + end-of-life	Use phase	
Primary energy resources Renewable	Use as energy carrier	MJ	4,36E+00	1,55E+00	1,61E+00	1,59E+01	2,34E+01
	Used as raw materials	MJ	2,17E+00	-6,20E-01	-1,55E+00	0,00E+00	0,00E+00
	TOTAL	MJ	6,53E+00	9,28E-01	6,23E-02	1,59E+01	2,34E+01
Primary energy resources Non-renewable	Use as energy carrier	MJ	1,92E+01	3,46E-01	3,29E+00	7,46E+01	9,74E+01
	Used as raw materials	MJ	3,19E+00	-3,37E-01	-2,85E+00	0,00E+00	0,00E+00
	TOTAL	MJ	2,24E+01	8,83E-03	4,39E-01	7,46E+01	9,74E+01
Secondary material		Kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Renewable secondary fuels		Mj	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
Net use of fresh		M ³	4,88E-02	1,45E-03	9,61E-04	2,18E-01	2,69E-01



KIT NEXT SOLAR MA 6Nm 15rpm BIDI

Potential environmental impact

PARAMETER	UNIT	Upstream	Core	Downstream		TOTAL	
				Distribution + end-of-life	Use phase		
Global warming potential (GWP)	Fossil	Kg CO ₂ eq.	9,33E+00	1,35E-01	2,76E+00	1,67E+02	1,79E+02
	Biogenic	Kg CO ₂ eq.	5,58E-02	6,67E-04	6,28E-04	6,16E-01	6,73E-01
	Land use and land transformation	Kg CO ₂ eq.	1,72E-02	4,25E-03	1,67E-04	1,98E-01	2,19E-01
	TOTAL	Kg CO₂ eq.	9,40E+00	1,40E-01	2,77E+00	1,68E+02	1,80E+02
Acidification potential (AP)	mol H ⁺ eq.	6,29E-02	5,84E-04	2,46E-03	9,21E-01	9,87E-01	
Eutrophication potential (EP) - freshwater	kg P eq.	5,11E-03	9,65E-07	6,18E-05	7,17E-02	7,69E-02	
Eutrophication potential (EP) - marine	kg N eq.	1,00E-02	2,26E-04	1,08E-03	1,46E-01	1,57E-01	
Eutrophication potential (EP) - terrestrial	mol N eq.	1,03E-01	2,47E-03	1,05E-02	1,51E+00	1,63E+00	
Photochemical oxidant formation potential (POFP)	kg NMVOC eq.	3,56E-02	8,42E-04	3,18E-03	5,26E-01	5,66E-01	
Ozone depletion (ODP)	kg CFC11 eq.	1,37E-07	2,70E-09	7,32E-09	2,25E-06	2,40E-06	
Abiotic depletion potential – Elements*	kg SB eq.	6,76E-04	4,34E-09	5,07E-08	9,77E-03	1,04E-02	
Abiotic depletion potential – Fossil resources*	MJ	5,02E+01	1,97E-02	8,79E-01	7,45E+02	7,96E+02	
Water scarcity potential*	m ³ eq.	3,06E+00	1,47E-02	5,16E-02	4,70E+01	5,01E+01	

*The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.
 NOTE: No significant aircraft GHG emissions have been detected in life cycle of the gear motor.

KIT NEXT SOLAR MA 6Nm 15rpm BIDI

Use of resources

PARAMETER	UNIT	Upstream	Core	Downstream		TOTAL	
				Distribution + end-of-life	Use phase		
Primary energy resources Renewable	Use as energy carrier	MJ	1,03E+01	3,44E+00	5,03E+00	1,24E+02	1,42E+02
	Used as raw materials	MJ	6,27E+00	-1,38E+00	-4,89E+00	0,00E+00	0,00E+00
	TOTAL	MJ	1,66E+01	2,06E+00	1,32E-01	1,24E+02	1,42E+02
Primary energy resources Non-renewable	Use as energy carrier	MJ	4,33E+01	7,70E-01	7,05E+00	7,45E+02	7,96E+02
	Used as raw materials	MJ	6,92E+00	-7,50E-01	-6,17E+00	0,00E+00	0,00E+00
	TOTAL	MJ	5,02E+01	1,97E-02	8,79E-01	7,45E+02	7,96E+02
Secondary material	Kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+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	M ³	1,10E-01	3,22E-03	2,05E-03	1,71E+00	1,82E+00	1,82E+00

Additional Information

Next Solar gear motors presented in the EPD responds to the CE marking and the NF standard certification.

Differences versus previous version

2023-05-15 First publication.

2024-12-20 Version 1: update to year 2023 specific data; modified calculation method for Primary Energy indicators; update of Ecoinvent database to version 3.10 and Simapro 9.6.1



Programme information

Programme

The International EPD® System

EPD International AB
Box 210 60
SE-100 31 Stockholm
Sweden

www.environdec.com
info@environdec.com

Product Category Rules (PCR):
2019:11: AC and DC Gear Motors for Automation Systems, v. 1.02

UN CPC 46111 and 46112
Valid until: 2023-10-02

PCR review was conducted by:
The Technical Committee of the International EPD® System.

A full list of members available on www.environdec.com. The review panel may be contacted via info@environdec.com.

Chair of the PCR review: Gorka Benito Alonso

Independent third-party verification of the declaration and data, according to ISO 14025:2006

- EPD process certification
- EPD verification

Third party verifier:
DNV Business Assurance Italy Srl

Procedure for follow-up of data during EPD validity involves third party verifier:

- Yes
- No

References:

- General Programme Instructions of the International EPD® System. Version 3.01
- Ambiente Italia S.r.l., Life Cycle Assessment of Nice products for automation - motors, version march 2023.
- ISO 14040:2006 Environmental management – Life cycle assessment - Principles and Framework
- ISO 14044:2006 Environmental management – Life cycle assessment – Requirements and Guidelines
- Eurostat, <http://ec.europa.eu/eurostat/data/database>, last update 2020
- Waste report ISPRA 2022, reference year 2021
- Barkmeyer, M., Kaluza, A., Pastewski, N., Thiede, S., & Herrmann, C., 2017. Assessment of end-of-life strategies for automation technology components. Procedia CIRP, 61, 34-39.
- Olivetti, E., Duan, H., & Kirchain, R., 2013. Exploration of carbon footprint of electrical products: guidance document for product attribute to impact algorithm methodology. A publication of the Materials Systems Laboratory, Massachusetts Institute of Technology, Cambridge.
- PCR 2019:11 AC and DC Gear Motors for Automation Systems, v. 1.02



Nice S.p.A.

Erik Cescon

qualita@niceforyou.com

Ambiente Italia s.r.l.

Simona Canzanelli

simona.canzanelli@ambienteitalia.it

For more information:

www.niceforyou.com

www.environdec.com

The EPD owner has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programmes may not be comparable.