



Environmental Product Declaration

In accordance with ISO 14025 for:

Road barrier M5BAR

Gear motor for industrial barriers automation



From:
Nice S.p.A.

Programme:	The International EPD® System, www.environdec.com
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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 continued 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".*



Product information

Electromechanical road barrier system for control of road access with a 24 Vdc gearmotor with built-in control unit and loop detector. The product M5BAR allows the opening of barriers up to 5 m. The robust structure in steel, united to the new high strength balancing springs guaranteed up to 1,000,000 opening and closing operations and elliptical section bar with high wind-gust resistance. More comfort and safety in programming and maintenance phases, thanks to the separate enclosures for electronics and mechanics protect internal parts from potential risks. Energy saving: the system sets to standby when not in use to save consumption. No blackouts: emergency backup power with the optional batteries housed inside the case. This EPD refers to the following product codes:

M5BAR	Road barrier max 5m
M5BAR1	Road stainless steel barrier max 5m
M5BAR/V1	Road barrier max 5m 120Vac
M5BARWH/V1	Road barrier max 5m 120Vac WhiteRAL9010
M5BARGR1	Road barrier max 5m colour grey RAL 7015
M5BARS	Road barrier max 5m SASO
M5BARWH	Road barrier max 5m WhiteRAL9010
M5BARGR1S	Road barrier max 5m colour grey RAL 7015 SASO

The nominal mechanical power of the M5BAR gear motor is equal to 60 W, and it allows the movement of applications with a weight that can reach up to 600 kg. Secondary packaging is composed by two cardboard boxes, a linerboard and a HDPE bag; tertiary packaging is composed by a wooden pallet and LDPE tape.

TECHNICAL INFORMATION	U.M.	VALUE
Nominal Torque	N	70.00
Angular speed	rad/s	0.30
Electric power assimilated in the motion phase	W	122.17
Electric power assimilated in the stand-by phase	W	7.00

TECHNICAL INFORMATION	U.M.	VALUE
Time for performing one operating cycle	S	4.50
Number of cycles per day*	N	100.00
Reference service life	Y	10.00

* The complete opening and closing of an application

UN CPC code for M5BAR is 46112 - Universal AC/DC motors of an output exceeding 37.5 W; other AC motors; AC generators (alternators).

The presence of the different materials in the product M5BAR is reported below:

MATERIALS	PERCENTAGE
Metals	97,24%
Plastic	2,13%
Circuit boards	0,60%
Other	0,03%

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.



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

Methodology

Inventory analysis was conducted using specific data from Nice S.p.A., relating to the year 2022 and to the production site "Nice 3". The data refer to the consumption of raw materials and electricity, the production of the gearmotor and the waste connected to it.

Selected generic data from international databases were used (in particular SimaPro 9.4 and Ecoinvent 3.8) 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 the reference year, Nice used energy 100% renewable in its facilities.

Data on ground transportation distances were calculated using the Google Maps online calculator and those by sea using the Searates 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, the functional unit for the life cycle is represented by 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:

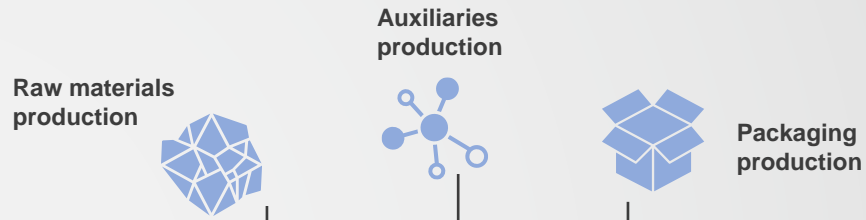
- transport of materials from the place of production to the manufacturing site. The specific transport of every component has been calculated; for the suppliers of Nice's suppliers, an estimated distance of 100 km has been applied.
- consumption of electricity for product assembly;
- storage and packaging;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

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.



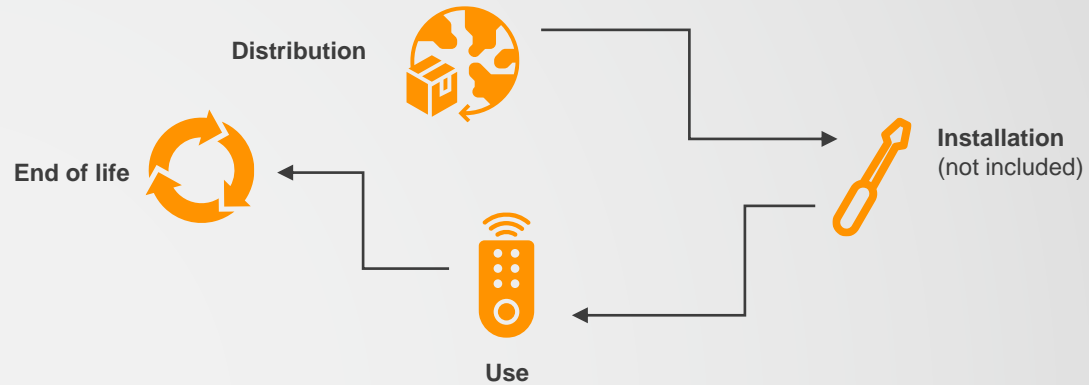
Upstream



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 product, the calculation has been integrated with assumptions from the gear motor's designers, resulting in a motion ratio equal to 0.52% for M5BAR.

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 of 5 year starting from the approval date.

Environmental performance

In order to reach the results reported below, the most recent databases on the production of materials, the production cycles in the metallurgical and chemical sector, transports and energy systems were used (GaBi Professional and Ecoinvent).

The impact categories are:

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





Barrier M5BAR

Potential environmental impact

PARAMETER	UNIT	Upstream	Core	Downstream		TOTAL	
				Distribution + end-of-life	Use phase		
Global warming potential (GWP)	Fossil	kg CO ₂ eq.	6,72E+02	2,22E-01	9,39E+00	1,74E+02	8,56E+02
	Biogenic	kg CO ₂ eq.	4,35E+00	4,55E-04	3,03E-01	4,95E-01	5,15E+00
	Land use and land transformation	kg CO ₂ eq.	7,06E-01	2,30E-03	1,72E-04	2,46E-01	9,55E-01
	TOTAL	kg CO₂ eq.	6,77E+02	2,25E-01	9,69E+00	1,75E+02	8,62E+02
Acidification potential (AP)	mol H ⁺ eq.	3,06E+00	3,15E-03	1,18E-01	9,73E-01	4,16E+00	
Eutrophication potential (EP) - freshwater	kg P eq.	2,23E-01	9,38E-07	1,42E-04	1,30E-01	3,54E-01	
Eutrophication potential (EP) - marine	kg N eq.	4,73E-01	8,63E-04	3,30E-02	1,49E-01	6,56E-01	
Eutrophication potential (EP) - terrestrial	mol N eq.	4,56E+00	9,56E-03	3,61E-01	1,36E+00	6,29E+00	
Photochemical oxidant formation potential (POFP)	kg NMVOC eq.	1,66E+00	2,44E-03	9,26E-02	3,87E-01	2,14E+00	
Ozone depletion (ODP)	Kg CFC-11 eq.	8,41E-05	5,08E-08	2,06E-06	1,01E-05	9,63E-05	
Abiotic depletion potential – Elements*	kg Sb eq.	7,85E-03	7,36E-09	5,90E-07	4,11E-06	7,85E-03	
Abiotic depletion potential – Fossil resources*	MJ	1,03E+04	3,06E+00	1,29E+02	2,56E+03	1,30E+04	
Water scarcity potential*	m ³ eq.	1,96E+02	7,05E-03	3,40E-02	3,35E+01	2,30E+02	

*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.

Use of resources

PARAMETER	UNIT	Upstream	Core	Downstream		TOTAL	
				Distribution + end-of-life	Use phase		
Primary energy resources Renewable	Use as energy carrier	MJ	6,39E+02	1,11E+00	1,43E-01	2,88E+02	9,28E+02
	Used as raw materials	MJ	8,85E+01	8,59E-04	3,10E-02	3,54E+01	1,24E+02
	TOTAL	MJ	7,27E+02	1,12E+00	1,74E-01	3,24E+02	1,05E+03
Primary energy resources Non-renewable	Use as energy carrier	MJ	1,10E+04	3,25E+00	1,37E+02	2,75E+03	1,39E+04
	Used as raw materials	MJ	1,54E+02	3,47E-05	1,28E-03	2,00E-02	1,54E+02
	TOTAL	MJ	1,11E+04	3,25E+00	1,37E+02	2,75E+03	1,40E+04
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	6,29E+00	1,72E-03	2,49E-03	3,23E+00	9,52E+00	9,52E+00

Additional Information

The gear motor presented in the EPD responds to the CE marking

Differences versus previous version

2023-06-30 Version 1: first publication.

2023-08-03 Version 2: correction in technical characteristics.

Programme information

Programme

The International EPD® System

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

UN CPC 46111 AND 46112

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 verification

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 4.0.
- General Programme Instructions of the International EPD® System. Version 3.01 (for PCR reference).
- PCR 2019:11. Version 1.02 - "AC and DC gear motors for automation systems"
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- ISO 14040:2006 Environmental management – Life cycle assessment - Principles and Framework
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- Rapporto rifiuti ISPRA 2022, aggiornamento dati 2022
- PCR Guidance-Texts for Building Related Products and Services; Part B: Requirements on the EPD for Automatic doors, automatic gates, and revolving door systems; Version 1.6
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- 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.



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