Product specifications
COVEO 120 or 300+ immersed motor for automatic pool covers.

DISTRIBUTION	
NAME	**Department/Function**
Ludovic Faugier	Sales
Emmanuel Miralles	Customers

Release management	
Version	Description of the upgrade
00	Creation
01	Replacement: axis by articulated mounting, 300Nm by 300+. Updated characteristics.
02	Addition of details regarding water-tightness.
03	Labelling update ch 4.1

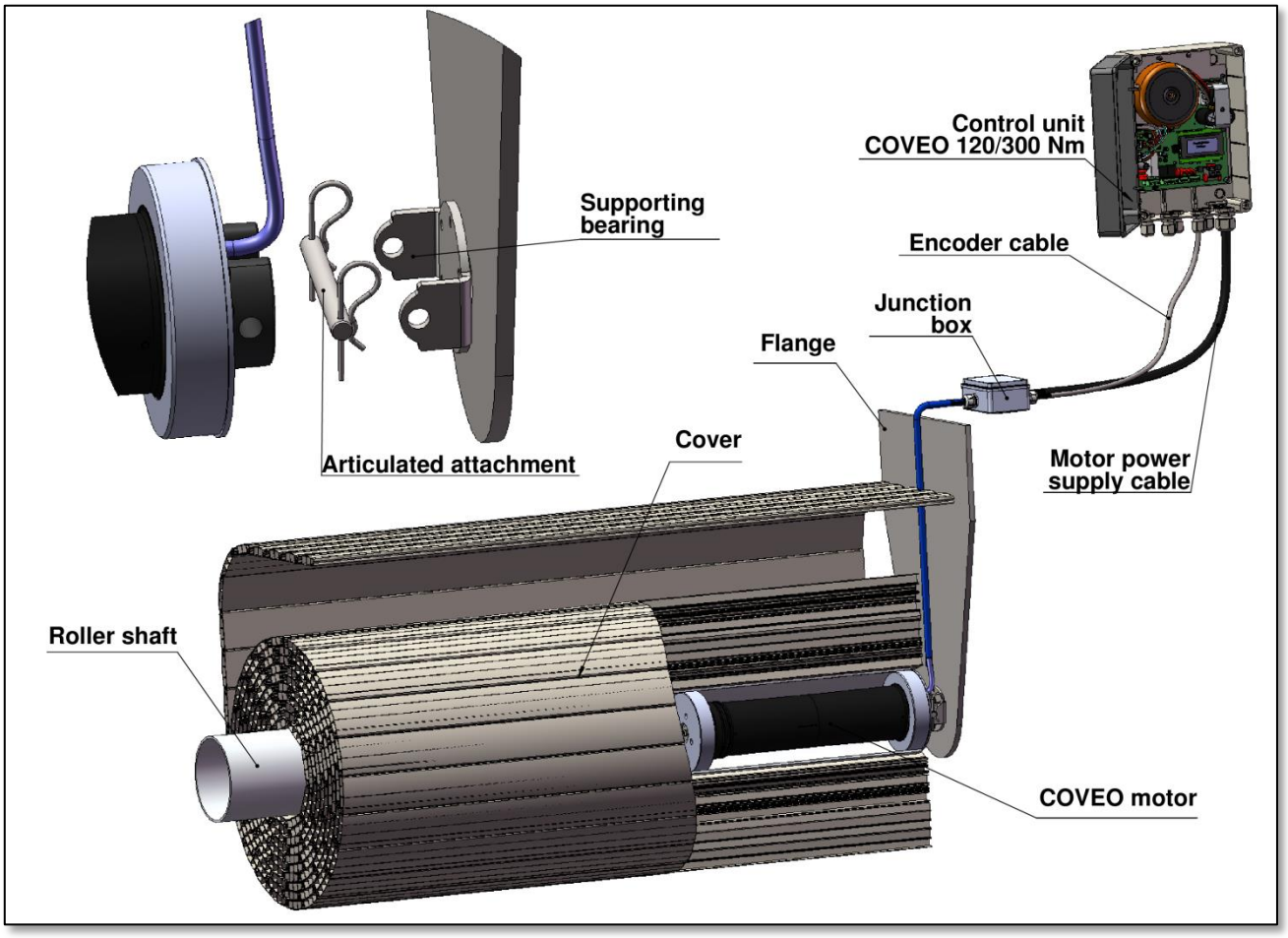
CONTENTS

1. Purpose of the product

This motor is designed to drive pool safety covers with immersed drive shafts.
It is mounted in the roller shaft and fulfils the following functions:

- rotating the shaft
- maintaining the shaft in position when it is stopped
- supporting the load. Buoyancy of the entire cover.

1.1. How it works:



The force applied to the motor is taken up on the fixed shaft by the customer's supporting bearing (no dual articulation).

- ➔ The supporting bearing is sufficiently rigid to limit the bending of the motor's fixed shaft to 9°.
- ➔ The articulated attachment of this shaft is horizontal. (see 2.1 diagram of the motor).

The supporting bearing is fixed to a flange or directly sealed in the wall of the pool.

1.2. Connection with the unit:

The motor is controlled by the COVEO control unit that is connected to the motor by two cables:

- The motor cable: two conductors with the cross-section shown in the table below
- The sensor cable: four conductors, with a cross-section of at least 1.5 mm² Shielding that is correctly connected to the earth at one end is recommended for improved protection against atmospheric over voltages.

These cables and the COVEO motor cable are connected by a sealed and reliable system. Example: connection box with gel.
The following low-voltage electrical standards must be respected: NFC15100, CEI60364. The control box must be installed outside volumes 0, 1 and 2.

1.3. Environment

- Chemistry:

- Bleach concentration: < 5 mg/l (pH<=7,4) NaOCl
- Chlorine concentration: < 1,5 mg/l (pH<=7,4) Cl2
- Chlorine concentration: < 1,5 mg/l (pH<=7,4) Br2
- Hydrogen peroxide concentration: < 10 mg/l H2O2

- The temperature of the water must be between 0°C and +40°C.
- The temperature of the air during storage -20°C and 40°C.
- Cable permanently exposed to UV

1.4. Using the COVEO:

1.4.1.Size of the pool.

Immersion depth of the shaft = 0.5m (water level)	WIDTH OF THE POOL								
LENGTH OF THE POOL	3 m*	4 m*	4.5 m*	5 m*	5.5 m*	6 m**	6.5 m**	7 m**	7.5 m**
0 m									
7 m			120Nm						
9 m									
10 m									
11 m									
12 m									
14 m					300Nm				
15 m									
17 m									
20 m									
30 m									

1.4.2.Immersion depth

LENGTH OF THE POOL		WIDTH OF THE POOL								
		3m*	4m*	4.5m*	5m*	5.5m*	6m**	6.5m**	7m**	7.5m**
IMMERSION DEPTH OF THE SHAFT	0.5m	14m 120N.m	14m 120N.m	11m 120N.m	9m 120N.m	7m 120N.m	20m 300N.m	17m 300N.m	15m 300N.m	12m 300N.m
	1m	20m 300N.m	20m 300N.m	20m 300N.m	15m 300N.m	12m 300N.m	14m 300N.m	12m 300N.m	10m 300N.m	8.5m 300N.m
	1.5m	20m 300N.m	18m 300N.m	13m 300N.m	10m 300N.m	8m 300N.m	8.5m 300N.m	/	/	/
	2m	14m 300N.m	12m 300N.m	8m 300N.m	7m 300N.m	5.5m 300N.m	/	/	/	/

Data used to compile the table:

Cross-section of the roller shaft:

- *: Equivalent to that of an aluminium tube with an øint150xe=4
- **: Equivalent to that of an aluminium tube with an øint150xe=10

Characteristics of the cover:

- Lift: 100N/m²
- Weight of the blades: 40N/m²

This data is not guaranteed and can only be used for initial approximations. It cannot replace the user's experience.
To be validated according to the type of blade, the type of shaft, the type of attachment, etc.

1.5. Cross-section of the motor cable

To guarantee that the motor turns sufficiently quickly, the drop in voltage between the supply unit and the motor must not exceed 2 Volts. The cross section of the wires in the motor power supply cable shall respect the recommended cross-sections according to the distance between the unit and the motor:

Coveo 120 Nm: (5A max)

Distance between the motor and the unit	10 m	20 m	30 m	40 m
Recommended cross-section	2.5 mm²	2.5 mm²	4 mm²	6 mm²

Coveo 300 +: (16A max)

Distance between the motor and the unit	10m	20m	30m	40m
Recommended cross-section	4 mm²	6 mm²	10 mm²	12 mm² (*)

*: non-standard cross-section.

These cross-sections are for maximum usage of the product. They can be reduced if consumption is lower (please contact us).

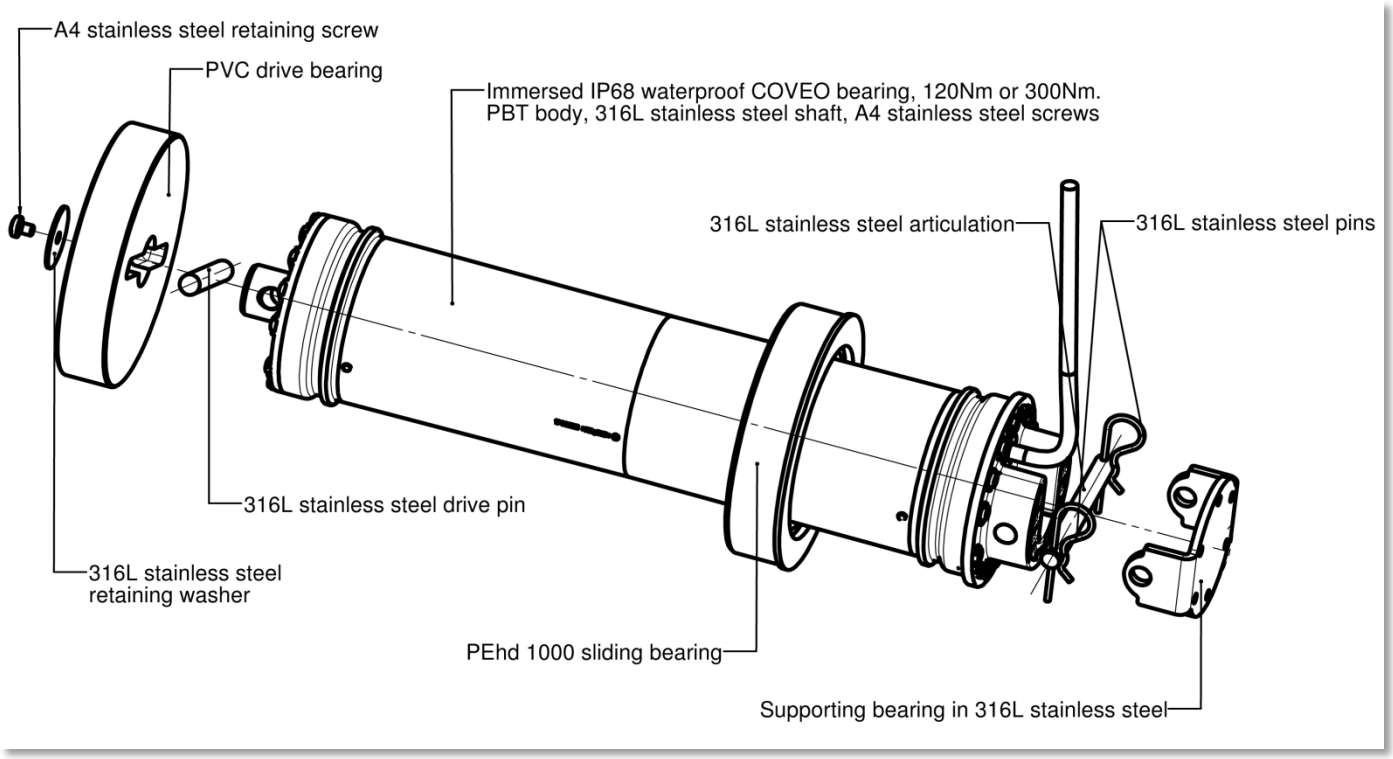
2. Product characteristics

2.1. Product composition

A COVEO is made up of a motorised waterproof IP68 cartridge (120Nm or 300Nm), fitted with the following parts:

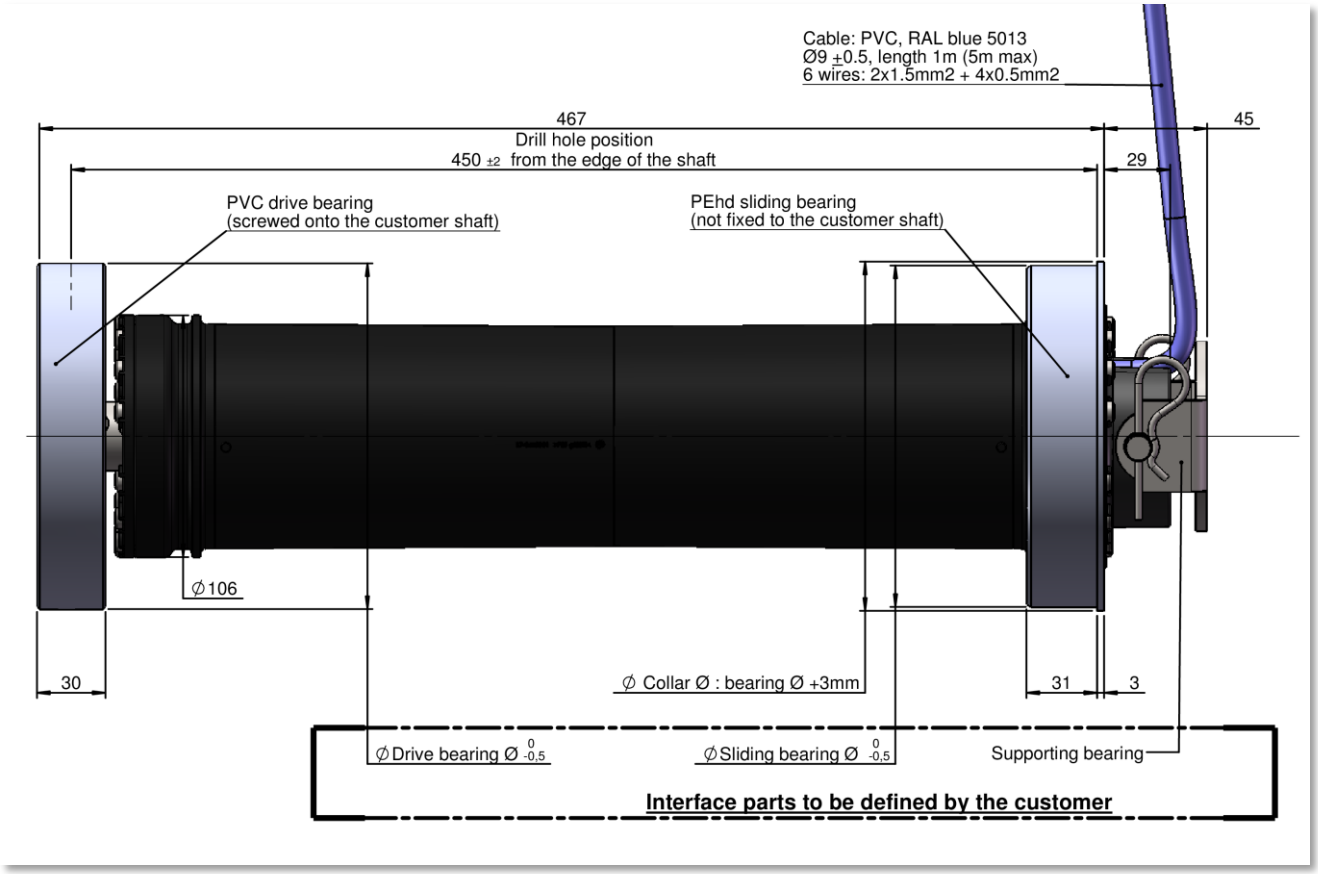
- Drive and sliding bearings. These parts are mounted in the customer's roller shaft. This shaft and these bearings can be adjusted for an effortless installation. This adjustment is defined by the customer. The retaining screw can be removed to access these parts.

- A fixed shaft that links the motor to the flange or to the wall through a bearing. The articulation shaft that links the fixed shaft to the COVEO cartridge is mounted horizontally.



2.2. Space requirements

Standard space requirements plan of a COVEO motor.



For reference.

The articulated mounting that links the motor to the supporting bearing and the diameter and shape of the bearings may vary according to the customer's requirements. Each motor has a detailed space requirements drawing, validated by the customer.

2.3. Electromechanical characteristics

Characteristics of the immersed motors		120N.m	300+
Reduction ratio		1/886	1/516
Supply voltage of the SIREM unit		24Vdc (<30Vdc)	24Vdc(<30Vdc)
Consumption at max. torque (±20%)		5.5A	16A
Service: for the automatic cover roller, max. three successive cycles			
Max. torque		120N.m	300N.m
Speed (±20%)	Off load	6 rpm	7.5 rpm
	At max. torque	4 rpm	4.5 rpm
Motor shaft		316L stainless steel	316L stainless steel
Materials	Cartridge	PBT	PBT
EOT switches		Two square signals, offset by 90° One point per rev	
Magnetic brake (auto unlocking)		120N.m ±10% min.	300 N.m ±10% min.
Soft cable	Diameter	Ø10±0.5	Ø10±0.5
	Minimum bending radius	40 mm	40 mm
	Composition	2x2.5mm²+4x0.5mm²	2x2.5mm²+4x0.5mm²
	Waterproofing (as per NFC15100)	AD8	AD8
Max. permissible load on the motor		6,000 N **(1)**	
Conditions of use	Period of use	6 months/year	
	Number of cycles/day	2	2
	Max. pool length in shaft revs	12 shaft revs (2)	15 shaft revs (3)
	Operating water T°	0°C – 40°C	

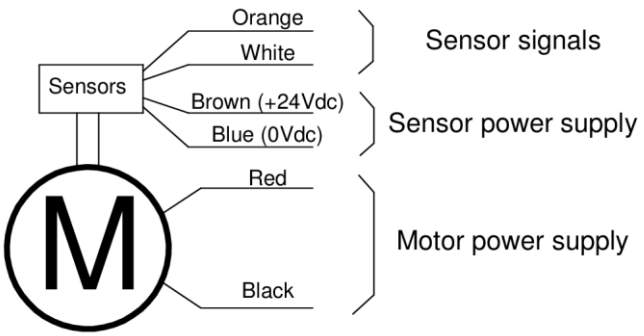
(1): Max. covered surface: 120 m² (see chapter 1.3)
(2): For a covered length of 14m (see chapter 1.3)
(3): For a covered length of 20m (see chapter 1.3)

Values for reference only.

2.4. Operation

2.4.1.Connections:

The motor cable has six wires that are assigned as shown below.

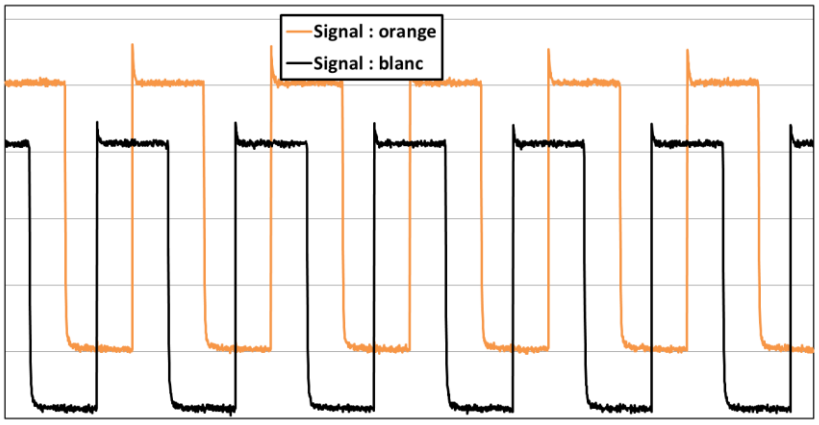


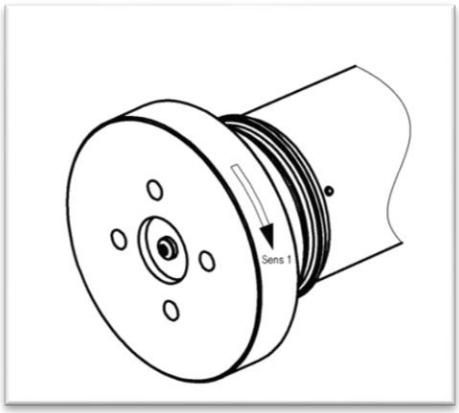
Connection in a waterproof junction box filled with gel or resin is compulsory.

2.4.2.Operating principle

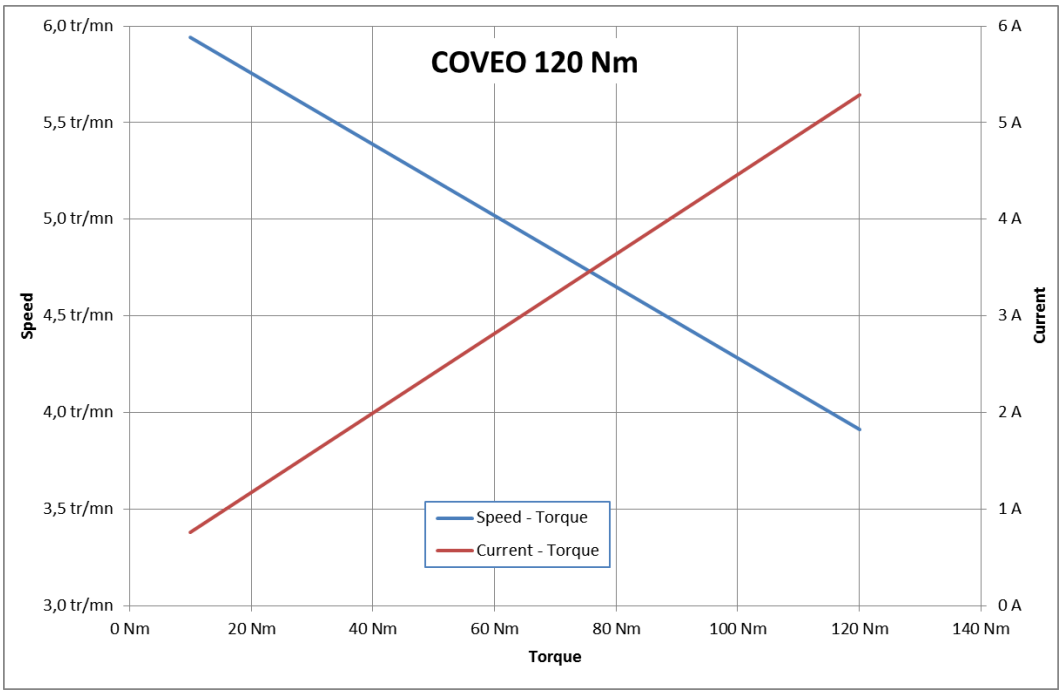
The red and black conductors (2.5 mm² section) directly power the direct-current motor with brushes. When the positive polarity is carried by the red wire and the negative polarity by the black wire, the output rotates in direction 1 as shown in the diagram below.
This voltage can be supplied by a battery (minimum 12V) for checking motor operation.

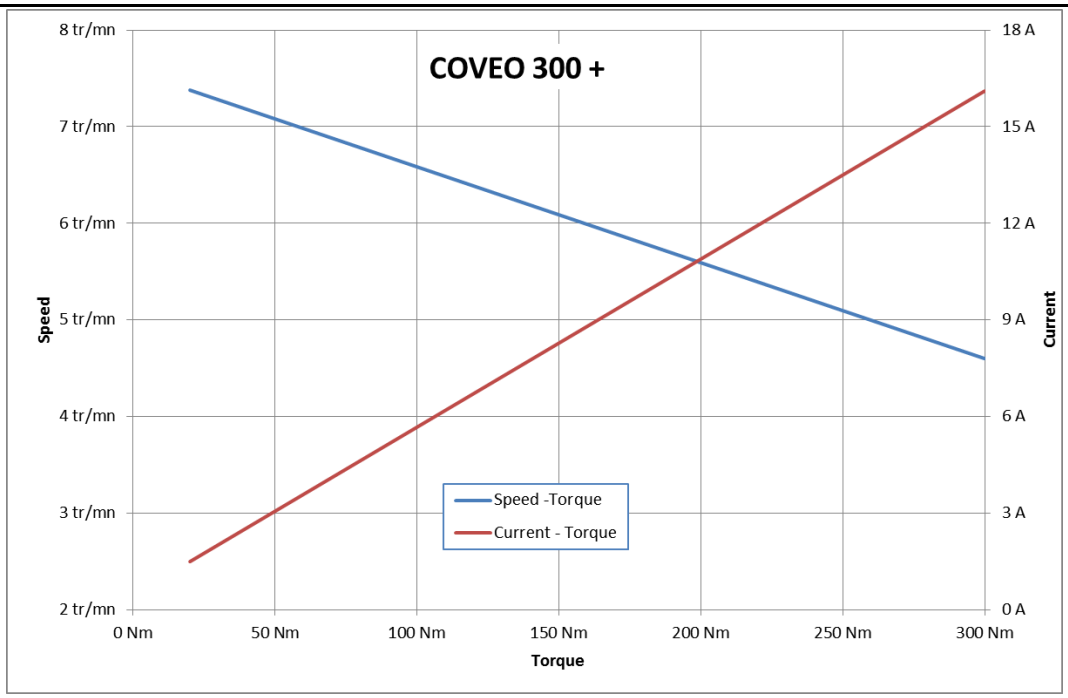
When the motor rotates in direction 1 and the sensors are powered, they deliver the following signals:
(PNP type output with open collector).





2.5. Curves





Due to the complexity of the COVEO production, the indicated technical values are statistical values that do not necessarily match the actual technical values of each individual product. The actual values of each product may differ from these values.

2.6. Water-tightness.

The product is IP68 water-tight up to 2m deep.
This water-tightness is guaranteed by:

- the chamber being filled with nitrogen at a pressure of 0.7 bar ± 10%.
- a double lip seal
- resin-coated cables.

The reference standards for electrical installations (NF C15-100 or IEC 60364 or local standards) states that all electrical components (aboveground and submerged control casings, connectors, key cases, initialisation button) will be placed in an IP X5 housing.

These electrical components are often located near the pool. In general, they are safely located in the supporting feet of the aboveground covers, and for submerged covers on a sheltered frontage or even an exterior wall. There is an elevated risk of splashing with highly corrosive pool water (Karcher, rain, etc ...). Although this danger is taken into account when choosing the installation's level of protection, it is advisable to strengthen this protection against any intrusion of water or submersion.

The atmosphere near the pools can be highly corrosive due to the presence of chloride ion in the splashed water. As a result there is a high risk that the key button contacts could become inoperative after a long period of inactivity. It is therefore important to regularly check contact operation or change them if necessary. The continuity of the connecting cable and motor connections should be checked if the risk of corrosion is important. The initialisation button will be inserted in the overground post last, so that it remains in the upper position to avoid contact with water.

2.7. Wiring recommendations

The resistance of the sensor to atmospheric over voltages (lightning) is greater than the requirements of the standard (EN 61000-4-4 : EN 61000-4-5). This value has been lab tested.

This resistance threshold is capable of withstanding most lightning strikes. However, in view of the particular nature of climatic events and the complexity of the system, it is impossible to provide protection against all the over voltages that occur when lightning strikes.
In particular, if at least one of the cables is long (more than, 15m), if the system is insulated and if storms are frequent in the region, protection against over voltages should be provided:

- ➔ a lightning rod on the 230V in the pool shelter where the power supply arrives, even if the main residence is already protected.
- ➔ In any case, high-capacity current sinks to the earth are required with an earth resistance of less than 10 ohms. For long distances, the earth connection may be installed separately in the pool shelter, in accordance with the regulations.
- ➔ The encoder cable is shielded and the ends of the shielding are connected to the earth.

3. Standards

This product is designed to be incorporated in an automatic safety cover defined by the standard NFP 90308 (2006).

To this end, and in accordance with the European low-voltage directive 2006/95/EC, this motor complies with the following standards, when connected to the COVEO control unit 120/300:

- Immunity as per EN 55014-2:
- Emissions as per EN 55014-1 and EN 61000-6-3
- Electrical safety as per NF EN 60335-1

The electrical installation standards NFC15100, IEC 60334, or the local standards in the country of use only apply to the wiring between the components. Therefore, it is up to the installers to respect or enforce these standards.

The SIREM control unit of the immersed 120Nm and 300Nm COVEO systems supplies an SELV to the motor: safety extra low voltage <30Vdc as per NFC15100 or IEC 60364-7.

The control box must be installed outside volumes 0, 1 and 2.

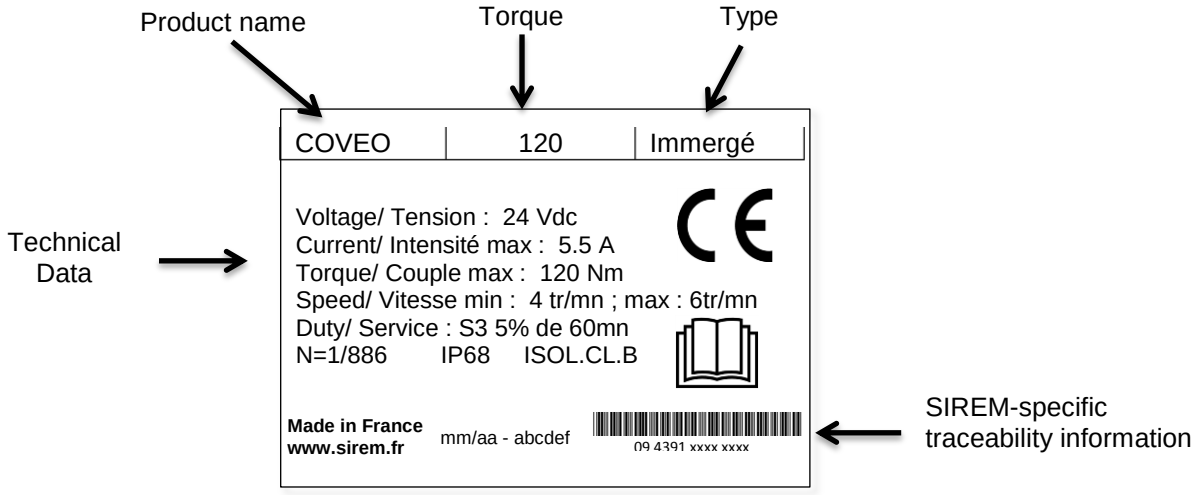
3.1. Over-voltage withstand.

The over-voltage withstand level is at least 2x greater than that required by the standard:

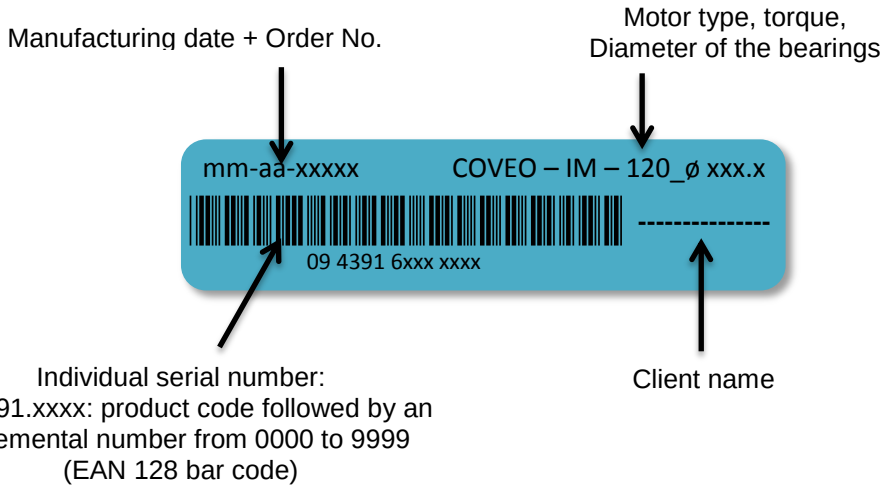
Electrical fast transient/burst immunity test	EN 61000-4-4	Tr: 5ns / Th: 50ns	Input and output a.c. power ports		±0.5±1±2KV
					±4 KV
			Input and output d.c. power ports		±0.5, ±1, ±2KV
					±4 KV
			Ports for signal and control lines		±0.5, ±1, ±2KV
					±4 KV
Surge immunity test	EN 61000-4-5	Tr: 1.2µs / Th: 50µs (Tr: 8µs / Th: 20µs)	Input and output a.c. power ports	- line to line	±1KV
					±2KV
				- line to earth	±2KV
					±3KV
			Input and output d.c. power ports	- line to line	±1KV
					±2KV
				- line to earth	±2KV
					±3KV
			Ports for signal and control lines	- line to line	±2KV
				- line to earth	±2KV

4. Product identification

4.1. *Manufacturer's plate located on the motor cartridge*



4.2. *Blue (Pantone 305C) 8cmx2cm label bonded to the bearing:*



5. Warning

Important: failure to follow these instructions can result in serious injury

- The drive bearing (inner bearing) is the only bearing fixed to the tube to drive the shaft. The outer bearing (the bearing that turns on the motor) is not fixed to the tube (customer shaft).
- Attachment by four ø6 max radial screws (M6 max or equivalent). Respect the max. drilling depths shown on the product drawing. It shall obey the rules of the art and follow the recommendations for use for the preparation of the attachment: ø of the pre-drilling hole, min drilling ø for plastic screws. (refer to the screw manufacturer's data)
- All operations on the electrical system must be performed by qualified and authorised specialised electricians.
- The motor controls must only be operated by adults. Prohibit children from using them.
- Cables are not to be used for handling purposes. Handle the cables with care.
- In the event of damage, immobilise the system until it has been repaired.
- Place the system out of order and switch off the power supply during services and maintenance operations, and whenever work is done on the motor.
- When installing, make sure that the electric cable cannot be damaged. If an electric power supply cable is damaged, only the manufacturer is authorised to replace it.
- Never drill or weld in the vicinity of the reduction gear.
- Always protect the electrical connections with an IP68 box, gel or resin.

SIREM does not provide any guarantees and declines all liability in the event of material or bodily harm caused by its products in the event of misuse, failure to follow instructions, changes to the products and the use of the motors with unauthorised accessories made by other manufacturers.

Declarations of compliance

SIREM

DECLARATION OF "CE" CONFORMITY

We declare our products, COVEO (swimming pool cover motorisation) and its electric panel control box to be manufactured according to the following manufacturing standards:

IEC 60-335-1: Household and similar electrical appliances - Safety - Part 1.
NF EN 55014-1: Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission.
NF EN 61000-6-3: Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments.

IEC=CEI

and to be conformed to the requirements of standards subject to being assembled in compliance with their intended :

2006/95/CE Low voltage directive
2004/108/EC Electromagnetic compatibility directive

ADDITIONAL INFORMATION:

These products' design allow them to be used as a component in an assembly covered by the application of the NF P90-308 standards: protections for non ground pools closed to private use individually or collectively (Safety covers and gripping).

Marking: CE on the nameplate.

Saint-Maurice-de-Beynost, 06/03/2014.

G. MALPHETTES
CEO

E.MIRALLES
Technical Director

D.PERRADIN
Quality Manager

Chemin du Pilon – Saint Maurice de Beynost – 01708 MIRIBEL Cedex – FRANCE – Tél. : +33 (0)4 78 55 83 00 – Fax : +33(0)4 78 55 89 54
S.A.S au capital de 3 525 520 euros – RCS Bourg en Bresse – SIREN 351 138 169 - Code APE 2711Z – N°TVA FR 48 351 138 169