

**COVEO 150Nm/12Vdc above-ground motor for automatic pool covers.**

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Release management	
Version	Description of the upgrade
00	Creation
01	
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03	

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## 1. Purpose of the product

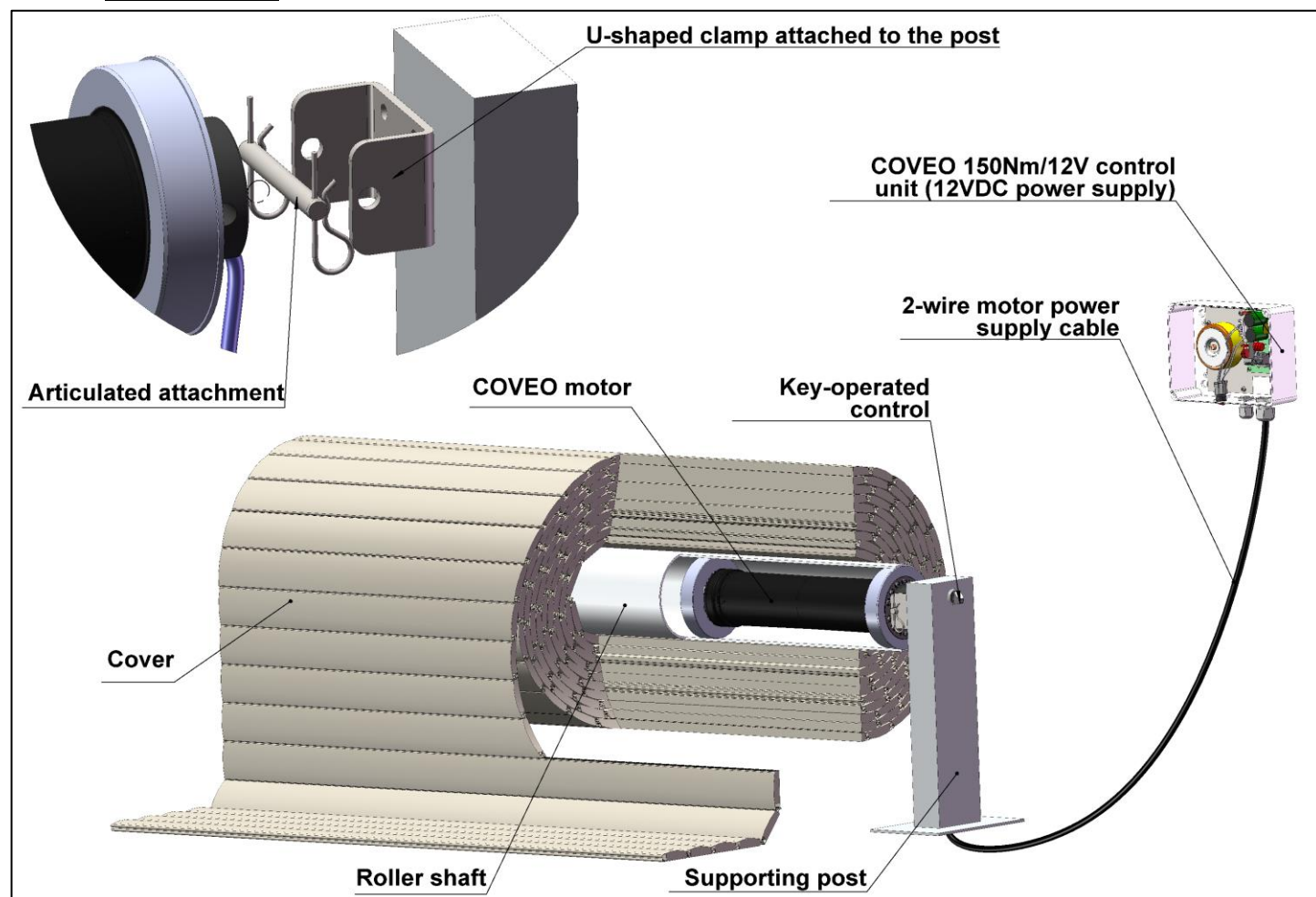
This motor is designed to drive pool safety covers with ground-level drive shafts.

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 weight of the entire cover.
- The closed and open positions are controlled by the PCB built into the motor\*.

\*depending on the equipment.

### 1.1. How it works:



The force applied to the motor is taken up on the U-shaped flange by the supporting post (no dual articulation).

- ➔ The post must be sufficiently rigid to limit the bending of the roller shaft.
- ➔ The articulated attachment of this fixed shaft is horizontal. (see 2.1 diagram of the motor).

### 1.2. Control


The motor includes a rev counter PCB that controls the motor and the EOT switches.

A 12VDC power supply, a key-operated control (two NO switches) and a switch to set the board to programming mode (initialisation) must be connected to the motor. These switches are usually on the post.

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

- The temperature of the air during storage and operation: between -20°C and 40°C.
- Cable permanently exposed to UV

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## 1.4. Using the COVEO:

### 1.4.1. Size of the pool.

Shaft height: 0.5m above the water		WIDTH OF THE POOL				
		4 m*	4,5 m*	5 m*	5,5 m**	6 m**
LENGTH OF THE POOL	12 m					
	13 m					
	14 m					
	16 m					
	18 m					

Data used to compile the table:

#### Cross-section of the roller shaft:

- \*: Equivalent to that of an aluminium tube with an  $\varnothing_{int} 150 \times e=4$
- \*\*: Equivalent to that of an aluminium tube with an  $\varnothing_{int} 150 \times e=10$

#### Characteristics of the cover:

- Weight of the blades: 40N/m<sup>2</sup>

*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 150 Nm: (8A max)

Distance between the motor and the unit	10 m	20 m	30 m	40 m
Recommended cross-section	2.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>	4 mm <sup>2</sup>	6 mm <sup>2</sup>

Linear resistance of the class 5 copper at 20°C: about 19 ohm.mm<sup>2</sup>/km


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

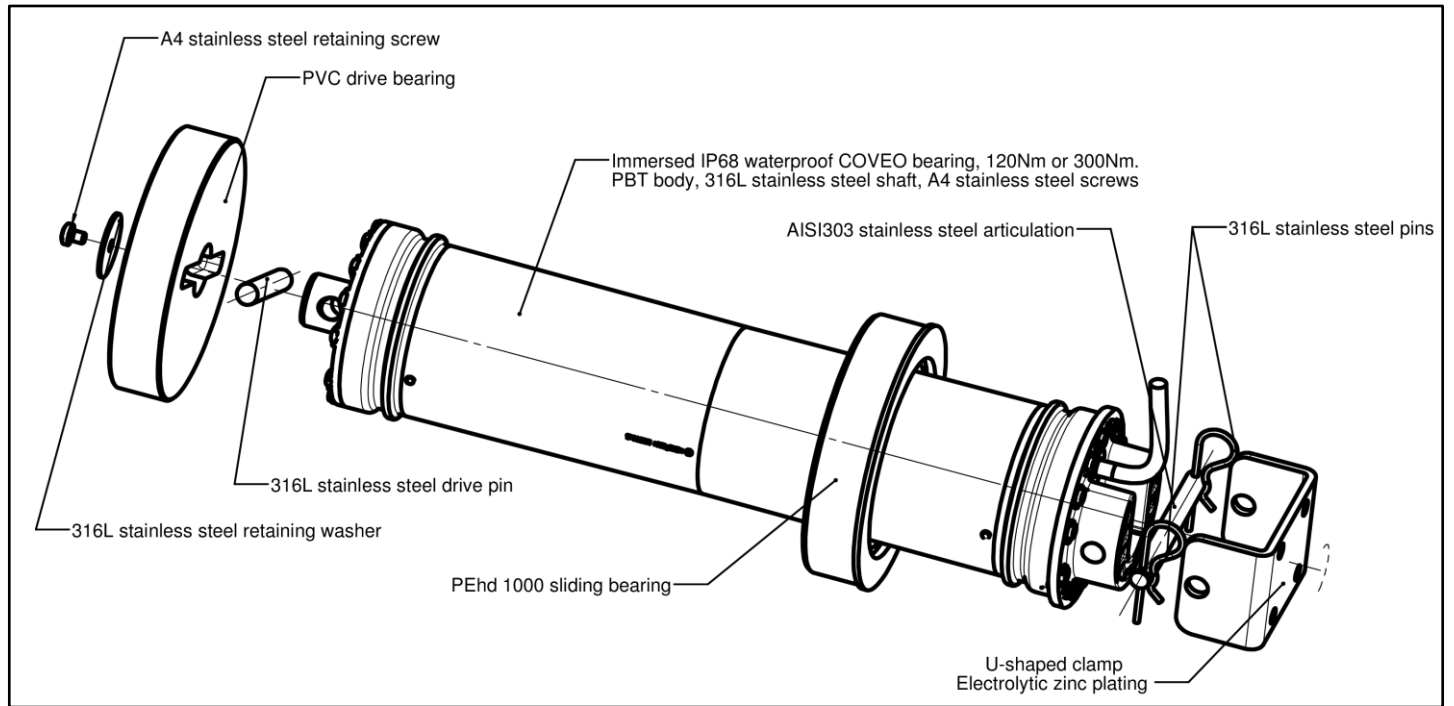
## 2. Product characteristics


### 2.1. Product composition

A COVEO is made up of a motorised waterproof IPX5 cartridge (120Nm or 200Nm), 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 extract the bearings.
- The articulation shaft links the motor to the post, while allowing the motor to bend vertically. This shaft must be horizontal.

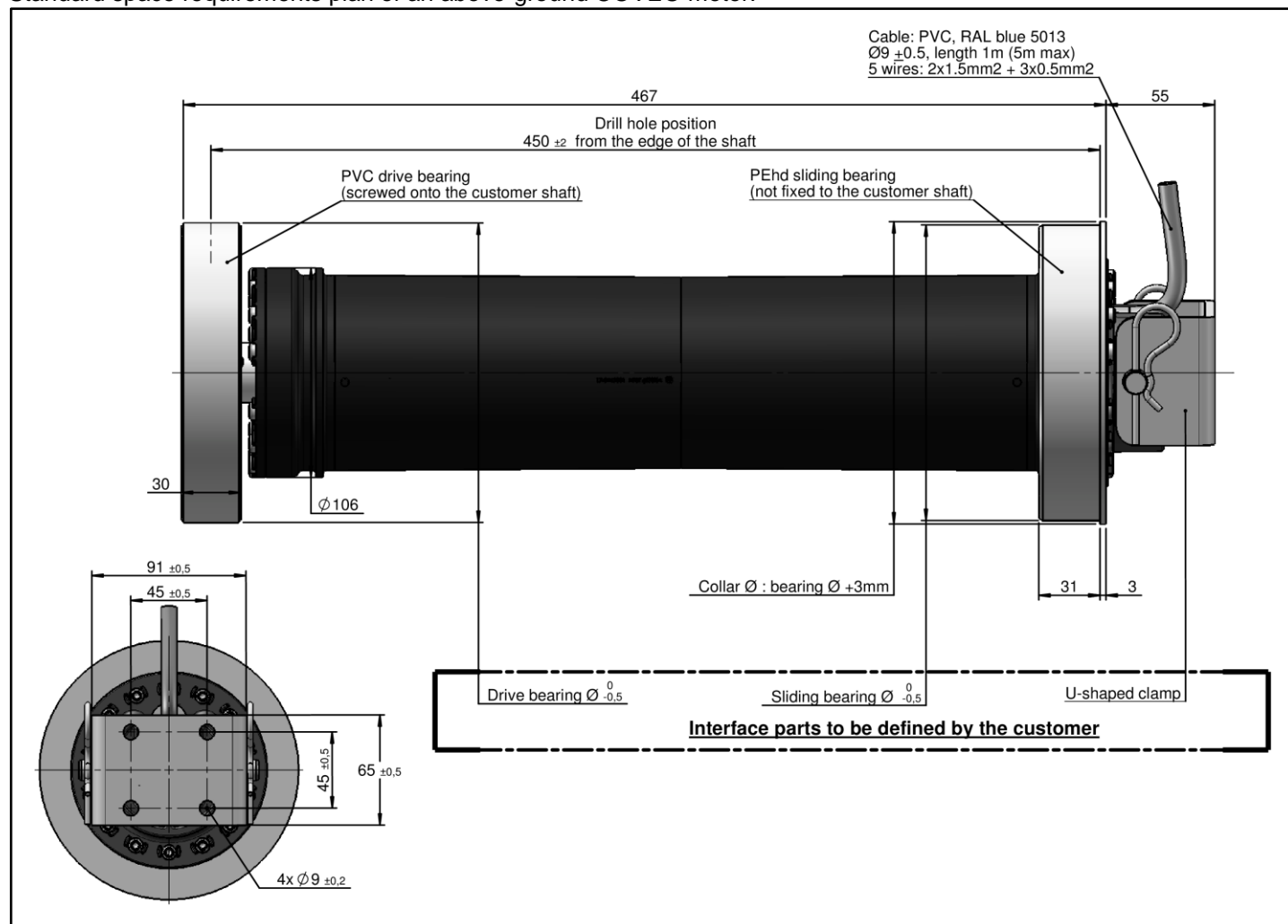
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## 2.2. Space requirements

Standard space requirements plan of an above-ground COVEO motor.




For reference:

The attachment to the post 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 above-ground motors		150N.m
Reduction ratio		1/1003
Supply voltage of the SIREM unit		12Vdc (20Vmax no load)
Consumption at max. torque (±20%)		7.8A
Service: for the automatic cover roller, max. three successive cycles		
Max. torque		150N.m
Speed (±20%)	Off load	3.5 rpm
	At max. torque	2.5 rpm
Motor shaft		Phosphate-coated and oiled steel (96h resistance to neutral salt mist)
Materials	Cartridge	PBT
Control		Rev counter board, activated by the signals

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		on the blue or white wires
Magnetic brake (auto unlocking)		150N.m $\pm 10\%$ min.
Soft cable	Diameter	$\varnothing 9 \pm 0.5$
	Composition	$2 \times 1.5 \text{ mm}^2 + 3 \times 0.5 \text{ mm}^2$
	Cable sealing (as per NFC15100)	AD8
Max. permissible load on the motor		6,000 N <b>(1)</b>
Conditions of use	Period of use	6 months/year
	Number of cycles/day	2
	Max. pool length in shaft revs	12 shaft revs (2)
	Operating T° in the air	0°C – 50°C

(1): Load never reached (see chapter 1.3)

(2): For a covered length of 14m (see chapter 1.3)

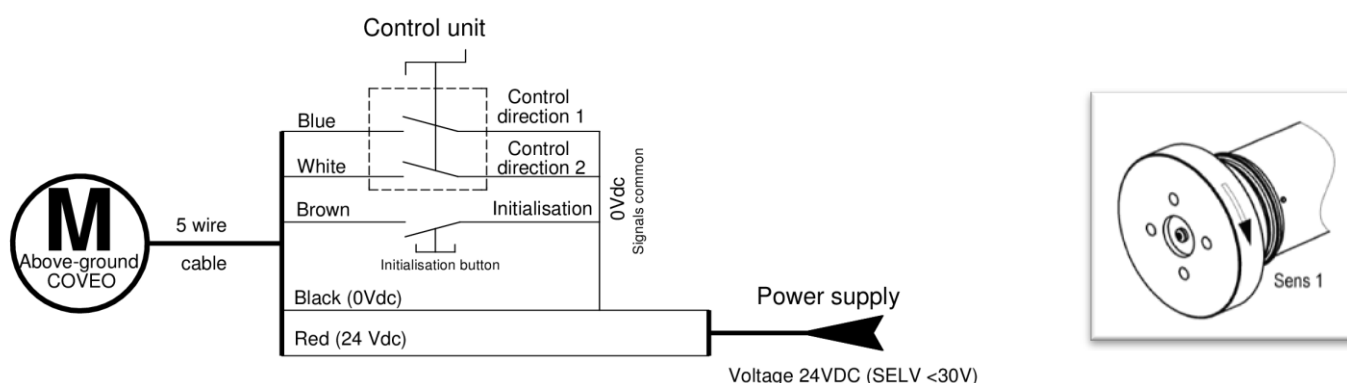
(3): For a covered length of 20m (see chapter 1.3)

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.

## 2.4. Operation

### 2.4.1. Connections:

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

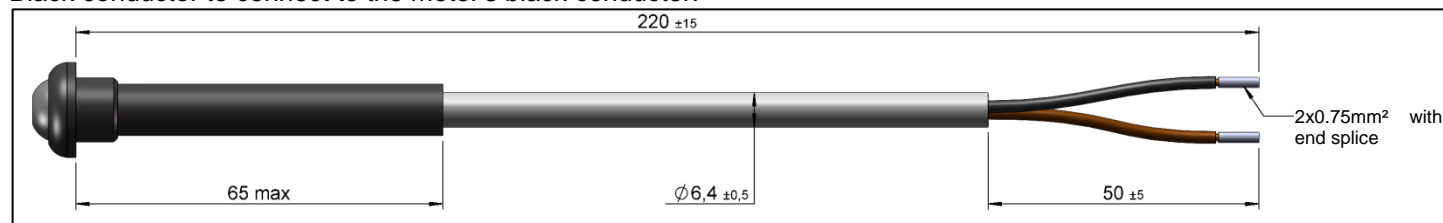


Connection in a waterproof junction box filled with gel or resin is compulsory.

Initialisation button to connect Supplied by SIREM, delivered separately in a bag.

Brown conductor to connect to the motor's brown conductor.


Black conductor to connect to the motor's black conductor.



### 2.4.2. Initialisation procedure

The purpose of this step is to inform the rev counter board of where the closed and open positions of the pool are located. This step starts with the pool in the closed position.

- 1) Press the ini button for more than 3 seconds.

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- 2) Open the cover.
- 3) Release the key. The initialisation is now complete.

#### 2.4.3.Regular operation:

There are several modes of operation:

- Open and close by press-and-hold (default)\*
- One-press opening, closing by press-and-hold
- One-press opening and closing

Only the first two modes of operation comply with chapter 10.1 of the standard NFP90-308, published in December 2006.

*\*Please contact us if use is different from the default mode.*


#### 2.4.4.Notes:

- Depending on whether the motor is positioned on the left or the right of the pool, the "open" and "closed" switches are assigned to either the blue or the white wires.
- The motor is controlled by a 3-position switch (ON: OFF: ON)
- The key must be removed and stored after each operation.
- This key-operated switch is located in a fixed unit close to the pool.

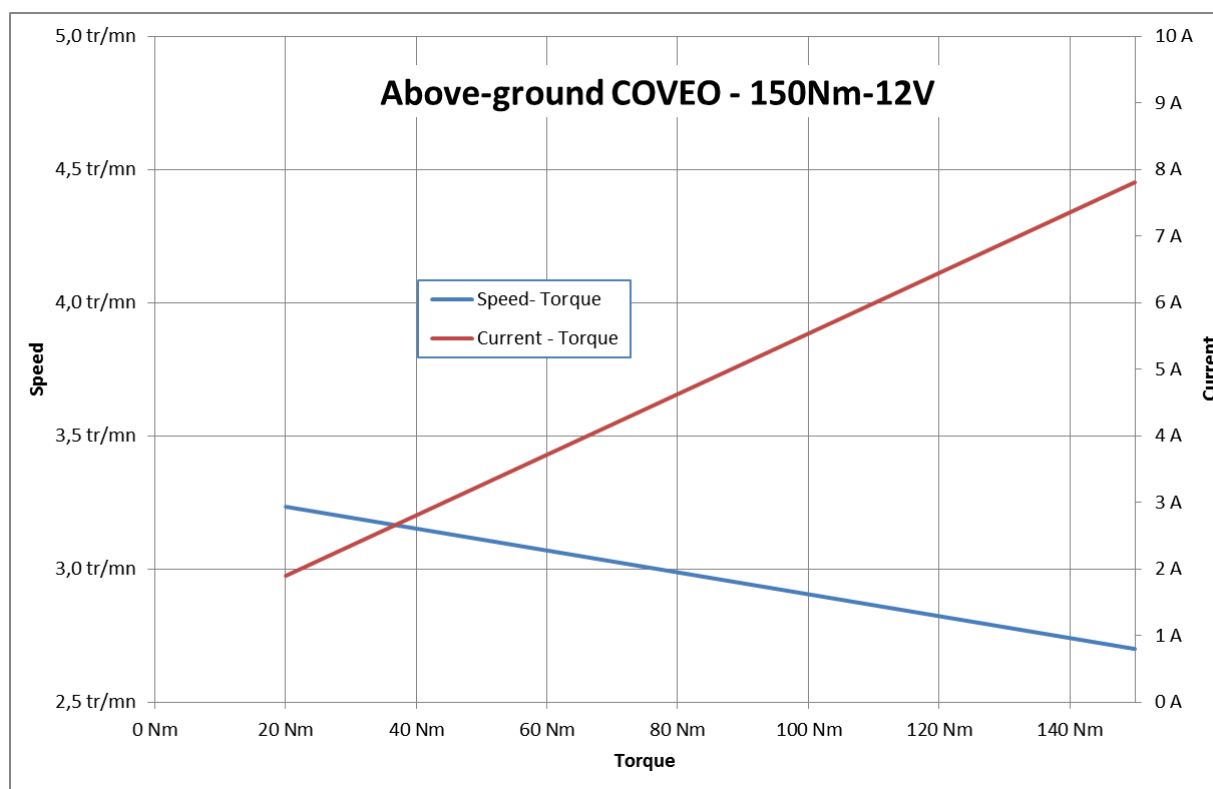
The functions comply with the French standard: **NF P90-308**

#### 2.4.5.Safety

- Wait between two successive movements: 1s.
- Wait before starting after an input: 0.2s.
- The motor stops after uninterrupted operation lasting more than 10 minutes.
- If the power cuts out during initialisation, the configuration will be lost, and it is necessary to re-initialise.
- The open and closed positions are saved, even after a power cut.
- The motor rev counter board is fitted with a time-delay thermal fuse that maintains a current of 7A at 25°C and a thermal current of 13.2 A.
- A minimum voltage of 17VDC is required for the board to work correctly.

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## 2.5. Courbes.



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. Waterproofing

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 board to atmospheric over voltages (lightning) is greater than the requirements of the standard (EN 61000-4-4 and EN61000-4-5). 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.

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In particular, if the power supply cable 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.

### 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 of these components (motor, unit, key unit, etc.) shall comply with the applicable standards: NFC15100, IEC60334 or the local country standards. It is up to the installers to respect or enforce these standards.


The SIREM control unit of the above-ground 120Nm and 200Nm 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.

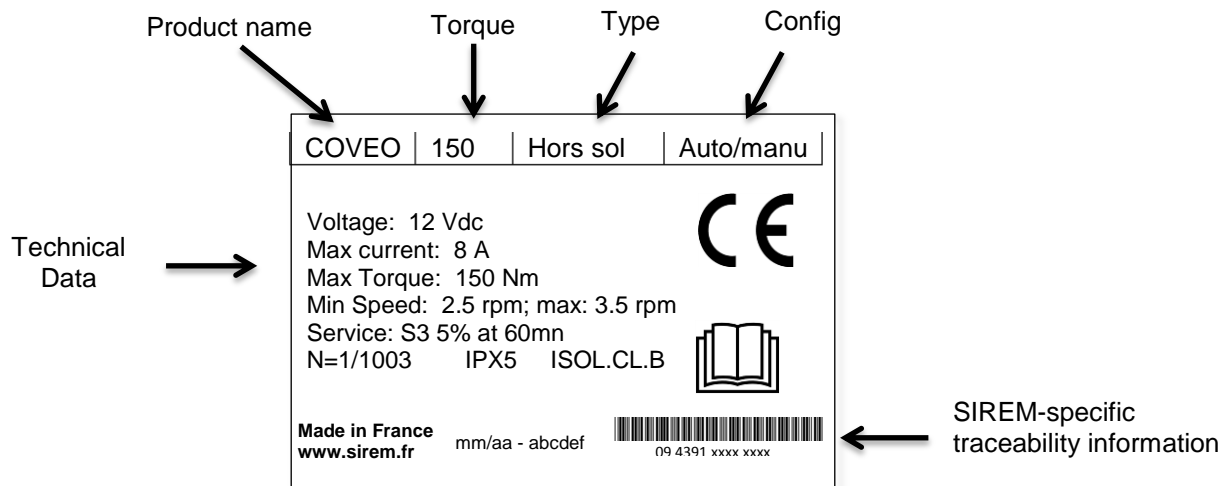
The over-voltage withstand level is at least 2x greater than that required by the standard:

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

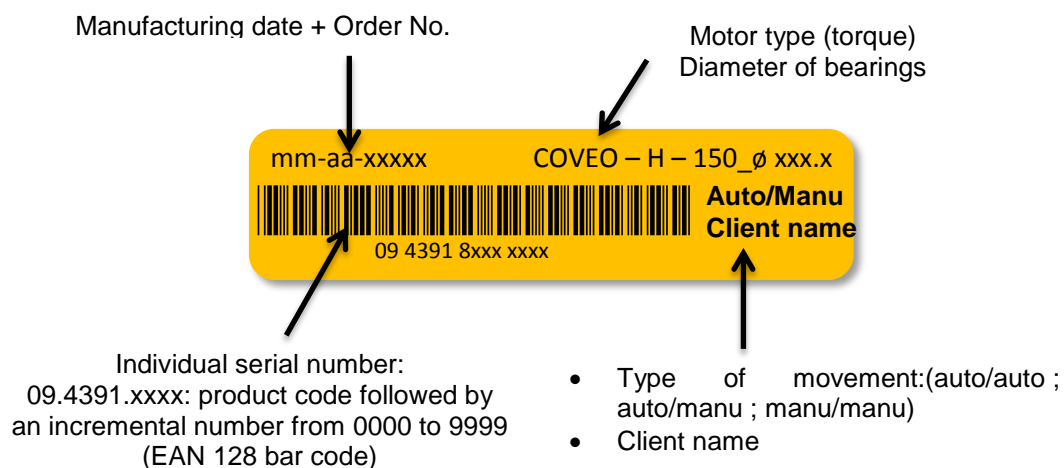
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## 4. Product identification

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



### 4.2. Orange (pantone 1485C) 8cmx2cm label bonded to the bearing:




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## 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  $\varnothing 6$  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:  $\varnothing$  of the pre-drilling hole, min drilling  $\varnothing$  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.

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## Declarations of compliance



### 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.


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