Technical specifications
MH2
For automatic security cover decks of pools

DIFFUSION	
Name	**Department / Function**
Commercial dpt SIREM	
Customers	

Gestion des évolutions	
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SOMMAIRE

1. General points.

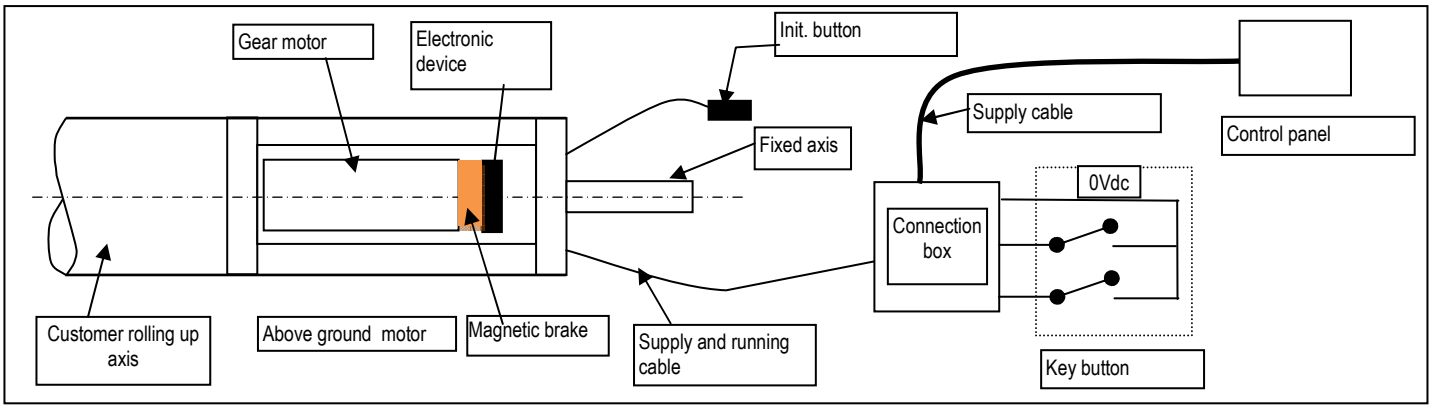
This motorization is specified to drive security pool covers with above ground driving axis.
It is assembled in the rolling up axis and ensures these following functions:

- puts the rotating axis into motion
- hold the axis in stop position
- acts as a flange for the rolling up axis

When the cover is rolled around the axis, the unit applies an effort on the motorization of around 2500 Newtons for a pool of 6m per 12m. The total weight of the deck will not exceed 400kg. (5m per 10m and 275 kg for the Light version)
2 versions:

- With electronic rev counter card: this card ensures the management of the open and close positions of the pool cover. These positions are defined during the initialization step.
- Without electronic rev counter card: the user defines the stop positions manually.

1.1. Generic description of an installation



This drawing presents the different components required for the installation and supply of the above ground motorization.
Two cables go out of the motorization:

- A 4-thread wire for the order of the rotating way and the supply. This wire will receive 12V supply and the contacts opening and closing.
- A cable with an init. button.

Some variations can be proposed:

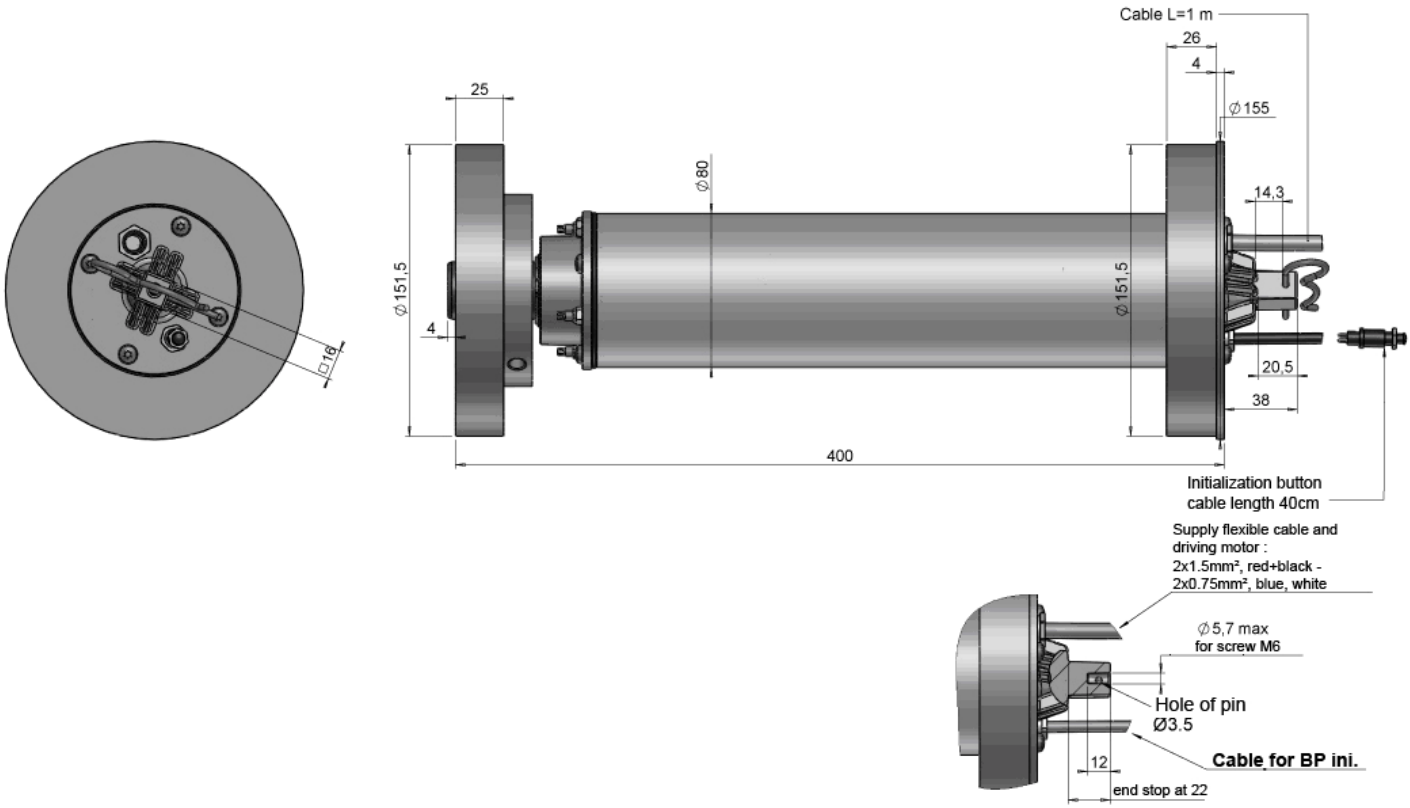
- No init button, then the cable has 5 threads (brown for the init contact)
- A normally close init. contact with an additional card integrated to the motor which makes the conversion.

2. Product description.

2.1. Mechanical.

2.1.1. Bulk Dimensions

The draw N°: 100344 gives the bulk dimensions of th e product.

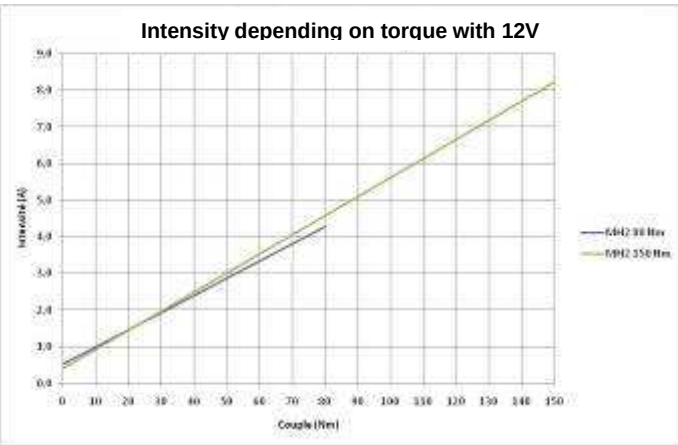


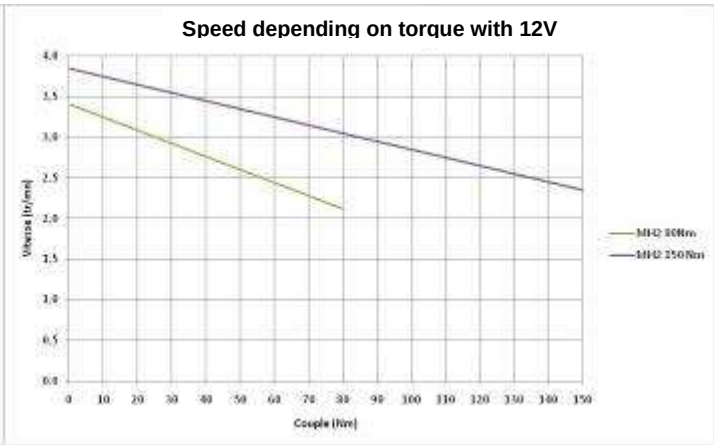
2.1.2. Functional parameters:

	MH2	MH2 light
Reduction ratio	1/572	1/572
Maximum torque (Nm)	150	80
Mechanic power at maximum torque (W)	36 ±10%	18 ±10%
Minimum rupture torque (static effort) (Nm)	200	200
Minimum reversibility torque (Nm)	60	60
Rotation speed at maximum torque (RPM)	2,3 ±10%	2,1±10%
Rotation speed empty (RPM)	3,8±10%	3,8±10%
Waterproofness	IPX5	IPX5
Service class	S3 (5% of 60 min)	S3 (5% of 60 min)

These characteristics are given for a normal use (see the limits of use) on a 6 per 12m max pool (5 per 10m for a MH2 light), and for a minimum of 3000 cycles.

2.1.3. Curves (under stabilized supply at 12Vdc)





These data are based on laboratory work in standard conditions (stabilised 12V supply, distance of cable of 1m,…) and can be changed without prior notice.

2.1.4. Material.

- Plastic parts: Stiff PVC, POM.
- Tube : Colourless anodized aluminium.
- Screws : Zinced steel.
- Shaft : Phosphated steel.
- External flange : Colourless anodized aluminium (MH2 Light) or anodized aluminium flange + square axis in zinced steel (MH2)
- Cables : PVC insulated cables.
- Cable gland : Brass.

These materials guarantee the maintain of the external motor envelope to a 96hr neutral salty fog test.

2.1.5. Electrical.

- Supply: 12V dc (-15%, +20%, undulations included) (rectified tension double filtered alternation) This tension must be operating on the motor terminals. The cable section between the control panel and the motor must be sufficient so that the tension drop be lower than 1.5V in full load.
- Current at maximum torque: 8.2A +/- 10 % (4.3 A for MH2 light)
- Empty current of motor: 0.5A +/-50%.
- Consumption of the electronic card when the motor is stopped : 10mA max
- **The common of the order signs is the -0Vdc, no electrical component must be installed between the common and the inputs.**
- Minimum resistance of the open contacts : *4.7 kΩ (below, the contact is considered as closed)*

2.1.6. Cable characteristics.

2.1.6.1. Motorization supply cable with card

Color	Section	Occupancy
Red	1.5 mm²	Supply + 12 Vdc
Black	1.5 mm²	Supply -0Vdc
White	0.75 mm²	CCW rotation command
Blue	0.75 mm²	CW rotation command
Brown (in option)	0.75 mm²	Initialization

This is a black cable, ø8.8 mm ±0.2mm.

2.1.6.2. *Initialisation cable (cut brown conductor).*

Free length: 0.4m ±0.05m
Initialization button is at the end of the cable.
Fastening: mounting on ø7.1 panel, max thickness: 2.5 mm

This button will be sheltered from bad weather (water must not reach the button)

2.1.6.3. *Without card motorization cable.*

Free length: 1 m ±0.05m
Section: ø7.5 mm ±0.2.
Composition: 2x1.5 mm² flexible, blue and brown.

When the positive polarity is connected to the brown conductor and the negative polarity to the blue conductor, the motor turns in the CW way.

2.1.7. Link with the customer's axis

2.1.7.1. *Flange*

The fastening of the PVC flanges on the customer's axis will be done according to the recommendations set by mutual agreement with the customer.

2.1.7.2. *Fastening square*

Pay a very special attention to the fastening plate which will receive the square 16 per 16 of the motorization.

- Material : steel
- Thickness : 5 mm mini
- Dimensions of the square: 16x16 with a tolerance of 0/+0.2 mm.

The adjusting of our square in the fastening plate might be little bit tight if the tolerance is at the minimum.

2.2. Protection against water spatters.

The reference norm for the electrical installations (NFC15100) foresees that the whole electrical components (Connections, key box, ini. button) take place into an IPX5 envelope.

These electrical components are often close to the pool (on the supporting base of the cover in general). The splashing risks of highly corrosive pool water spatters are important, though they have been taken into consideration in the choice of the protection grade of the installation.
However, it is recommended that this protection be reinforced against any water intrusion.

The atmosphere close to the pools can be extremly corrosive due to the presence of chloride ion in the spattered waters. The risk is important that the contacts of the key button become inoperative after a long period of inactivity. One will care to regularly action the contacts or change them if necessary. The continuity at the level of connections between the cable and the motorization will have to be checked if the risk of corrosion is important.

2.3. Limits of use

- The maximum length of the axis is : 6 m (5m for the MH2 light)
- The maximum length of the deck is: 12m + stairs. (10 m + stairs for the MH2 light)
- Maximum weight of the deck : 400 Kg. (275 kg for the MH2 light)
- Working temperature : >0℃ & < +40 ℃
- Temperatures beyond which the motor should not work: -10℃/+50℃.
- **The control of the motorization is submitted to the respect of the following instructions by the user :**
  - **Absence of obstacles, objects or persons in the pool that could prevent the cover from rolling or unrolling (ice, swimmer, robot, pipe, toy).**
  - **Unlocking of the fastening system of the cover.**
- **The average using conditions are :**
  - **4 opening-closing cycles a day**
  - **4 months a year**
  - **In max load condition, the product will not work more than 3 mn per hour (S3 service class)**

3. Working principle

3.1. Self-teaching

The goal of this step is for the electronic device counting the rotations to know where the open and close positions of the pool cover are.

1. Press the *ini* button during more than two seconds.
2. Bring the cover in the open position.
   - The open position is recognized when the key is turn on the close position.
   - Bring the cover in the close position.
   - The close position is recognized when the key is turn in the open position.

3.2. Normal use :

The normal use is linked to the soft version associated to the electronic rev counter card:

3.2.1. Closing.

- A maintained contact on the closing input brings the cover on the position defined during the initialization process (Version France) according to the chapter 10.1 of the norm NFP90-308 dated December 2006.
- An impulse on the closing input brings the cover on the position defined during the initialization process. (other countries)

3.2.2. Opening.

- For the opening, just an impulse is enough to bring the cover in the open position.

3.3. Remarks :

- According to the position of the motor on the right or on the left of the pool, the contacts « opening » « closing » will be affected to one or the other orders CW (clockwise) and CCW (counter clockwise).
- The order is operated by a 3-position key with maintained contact (ON : OFF : ON)
- The key must be removed and stored after each operation.
- This key switch should be placed in a box to install close to the pool.

The operated functions abide by the norm: **NF P90-308**

3.4. Working security

- Waiting time to invert the rotating direction : 0.2 s
- Waiting time before start after an input: 0.2s.
- The motor will stop automatically after working ceaselessly more than 5 minutes.
- If the supply is interrupted during the initialization operation, the configuration will be lost and you will have to start the initialization process again.
- The electronic rev counter card is fitted with a delayed thermal switch of holding current of 7A @ 25°C and of thermal current of 13.2 A
- **The control panel will have to comply with the ruling norms EN 60335-1.**
- **The link control panel-motorization will have to comply with the ruling norms NFC 15100.**

4. Conformity

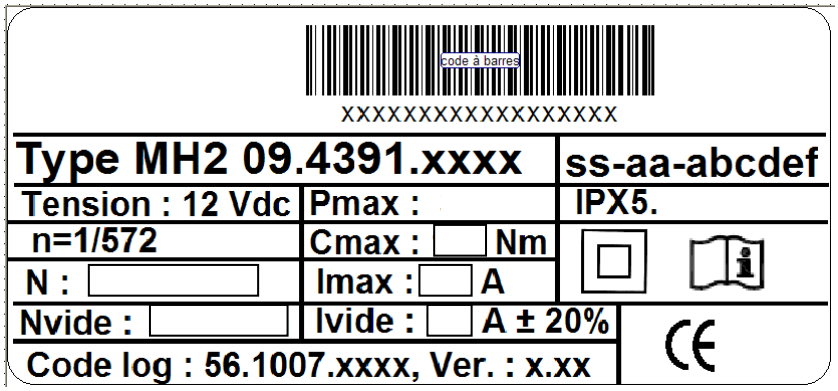
The Sirem above ground motor is run by the Sirem supply 230/12V and abides by the following norms :

- Norm EN 60335-1 electrical security
- Norms CEM on emission : EN 55014-1, A1, A2, EN 61000-3-2 (2000) EN 61000-3-3 (95), NF EN 61000 6-3

These norms are part of norm references withhold by the concerned product norm : NFP 90-308.

5. Mark

The following firm plate is stuck on our products on the inside flange.



6. State of delivery

The products will be delivered in containers 800x1200mm, on a pallet with the same dimensions.
10 motors per stage, 5 stages, that is to say 50 motors per container.
No constraint of resistance has been specified for this packing, it is only intended for this use.

7. Warranty – After Sales Service

The warranty period begins with the manufacturing date that can be found on the firm plate.