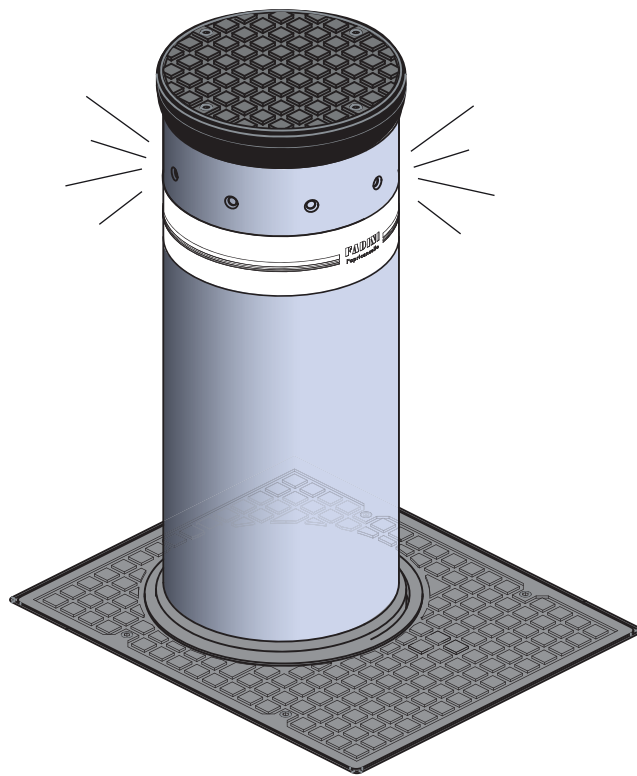




# TALOS M30



**ANTI-TERRORISM OIL-HYDRAULIC AUTOMATIC BOLLARD**

## GENERAL WARNINGS FOR PEOPLE SAFETY

### THANK YOU

Thank you for purchasing a Fadini product. Please read these instructions carefully before using this appliance. The instructions contain important information which will help you get the best out of the appliance and ensure safe and proper installation, use and maintenance. Keep this manual in a convenient place so that you can always refer to it for the safe and proper use of the appliance.

### INTRODUCTION

This operator is designed for a specific scope of applications as indicated in this manual, including safety, control and signaling accessories as minimum required with Fadini equipment. □ Any applications not explicitly included in this manual may cause operation problems or damages to properties and people. □ Meccanica Fadini S.r.l. is not liable for damages caused by the incorrect use of the equipment, or for applications not included in this manual or for malfunctioning resulting from the use of materials or accessories not recommended by the manufacturer. □ The manufacturer reserves the right to make changes to its products without prior notice. □ All that is not explicitly indicated in this manual is to be considered not allowed.

### BEFORE INSTALLATION

Before commencing operator installation assess the suitability of the access, its general condition and the structure. □ Make sure that there is no risk of impact, crushing, shearing, conveying, cutting, entangling and lifting situations, which may prejudice people safety. □ Do not install near any source of heat and avoid contacts with flammable substances. □ Keep all the accessories able to turn on the operator (transmitters, proximity readers, key-switches, etc) out of the reach of the children. □ Transit through the access only with stationary operator. □ Do not allow children and/or people to stand in the proximity of a working operator. □ To ensure safety in the whole movement area of a gate it is advisable to install photocells, sensitive edges, magnetic loops and detectors. □ Use yellow-black strips or proper signals to identify dangerous spots. □ Before cleaning and maintenance operations, disconnect the appliance from the mains by switching off the master switch. □ If removing the actuator, do not cut the electric wires, but disconnect them from the terminal box by loosening the screws inside the junction box.

### INSTALLATION

All installation operations must be performed by a qualified technician, in observance of the Machinery Directive 2006/42/CE and safety regulations EN 12453 - EN 12445. □ Verify the presence of a thermal-magnetic circuit breaker 0,03 A - 230 V - 50 Hz upstream the installation. □ Use appropriate objects to test the correct functionality of the safety accessories, such as photocells, sensitive edges, etc. □ Carry out a risk analysis by means of appropriate instruments measuring the crushing and impact force of the main opening and closing edge in compliance with EN 12445. □ Identify the appropriate solution necessary to eliminate and reduce such risks. □ In case where the gate to automate is equipped with a pedestrian entrance, it is appropriate to prepare the system in such a way to prohibit the operation of the engine when the pedestrian entrance is used.

□ Apply safety nameplates with CE marking on the gate warning about the presence of an automated installation. □ The installer must inform and instruct the end user about the proper use of the system by releasing him a technical dossier, including: layout and components of the installation, risk analysis, verification of safety accessories, verification of impact forces and reporting of residual risks.

### INFORMATION FOR END-USERS

The end-user is required to read carefully and to receive information concerning only the operation of the installation so that he becomes himself responsible for the correct use of it. □ The end-user shall establish a written maintenance contract with the installer/maintenance technician (on -call). □ Any maintenance operation must be done by qualified technicians. □ Keep these instructions carefully.

### WARNINGS FOR THE CORRECT OPERATION OF THE INSTALLATION

For optimum performance of system over time according to safety regulations, it is necessary to perform proper maintenance and monitoring of the entire installation: the automation, the electronic equipment and the cables connected to these. □ The entire installation must be carried out by qualified technical personnel, filling in the Maintenance Manual indicated in the Safety Regulation Book (to be requested or downloaded from the site [www.fadini.net/supporto/downloads](http://www.fadini.net/supporto/downloads)).

□ Operator: maintenance inspection at least every 6 months, while for the electronic equipment and safety systems an inspection at least once every month is required. □ The manufacturer, Meccanica Fadini S.r.l., is not responsible for non-observance of good installation practice and incorrect maintenance of the installation.

### DISPOSAL OF MATERIAL

Dispose properly of the packaging materials such as cardboard, nylon, polystyrene etc. through specializing companies (after verification of the regulations in force at the place of installation in the field of waste disposal). Disposal of electrical and electronic materials: to remove and dispose through specializing companies, as per Directive 2012/19/UE. Disposal of substances hazardous for the environment is prohibited.



**GENERAL DESCRIPTION OF THE PRODUCT**

Talos M30 is designed for traffic control. The bollard can fully retract into the ground, flat with road or street level. Movements are by an incorporated oil-hydraulic motor-pump. With the bollard in standing position, traffic is securely stopped from the area. Designed and constructed to comply with ASTM/PAS 68 requirements (K4/M30 a 6,8 t vehicle at 50 km/h). To this purpose, the foundation casing incorporates some specific, structural component parts meeting these standards. Suitable for heavy duty applications and protection of accesses to sensitive areas (anti-terrorism) such as military bases, embassies, banks, ministerial entities, etc.

The post has a diameter of 275 mm and a thickness of 12 mm (S355J2H steel), cataphoresis treated and polyester powder coated. With the bollard in standing position, the part of the post remaining inside the casing into the dedicated guide is 40 cm (constraint). A greater resistance to impact and breakout is so ensured.

The Elpro S40/S20 electronic controller is to be installed on the outside, in a protected place.

The bollard is designed to take a number of accessories to ensure such a level of safety and functionality allowing the entire automatic system to be suitable for any applications in public and private areas.

TALOS M30 can be required, at the time of the order, to be delivered with supplementary accessories (all the accessories are pre-assembled and connected to the internal terminal board):

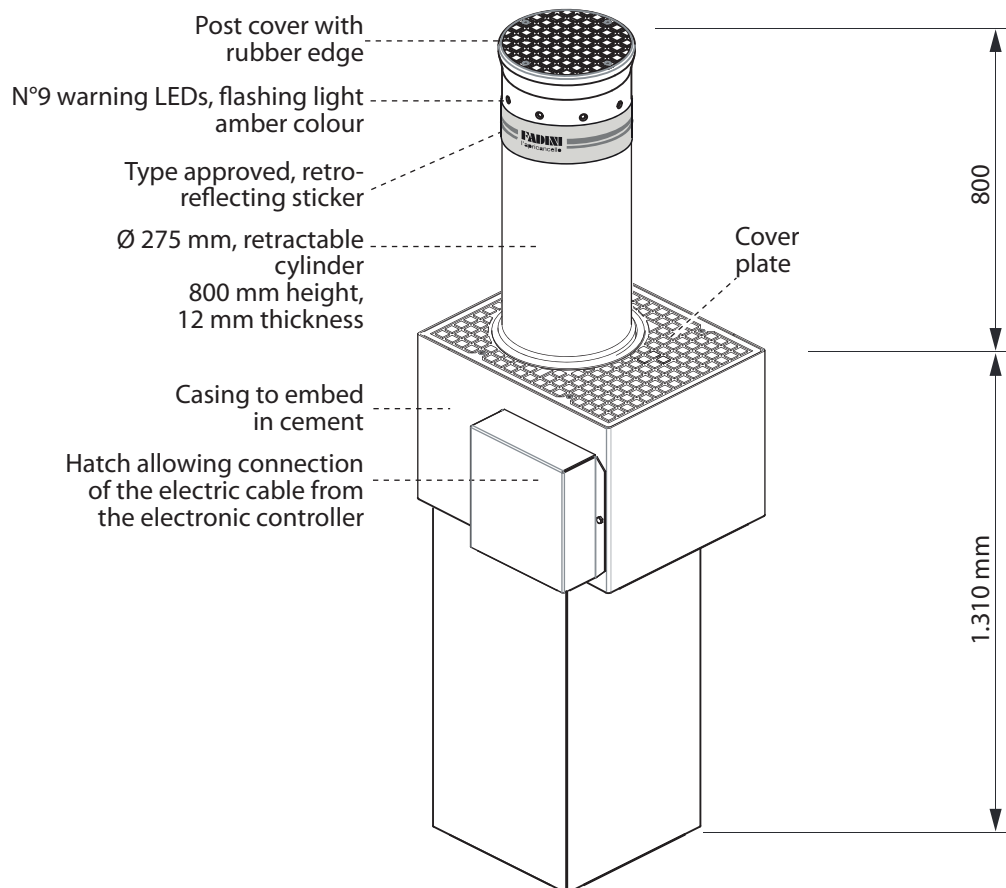
- **Beeper:** an acoustic device emitting an intermittent sound during the rising and lowering movements of the bollard.
- **Heater:** a device to keep warm the inside of TALOS M30 when the external temperature is lower than 5 °C.

Colour customizing available in any RAL options, polyester powder coating.

It comes along with the following screws:

- 2 nos. M10 bolts with lifting rings
- 4 nos. M10 screws
- 2 nos. M12 screws
- 8 nos. M16 screws

## MAIN COMPONENTS



Pic. 1

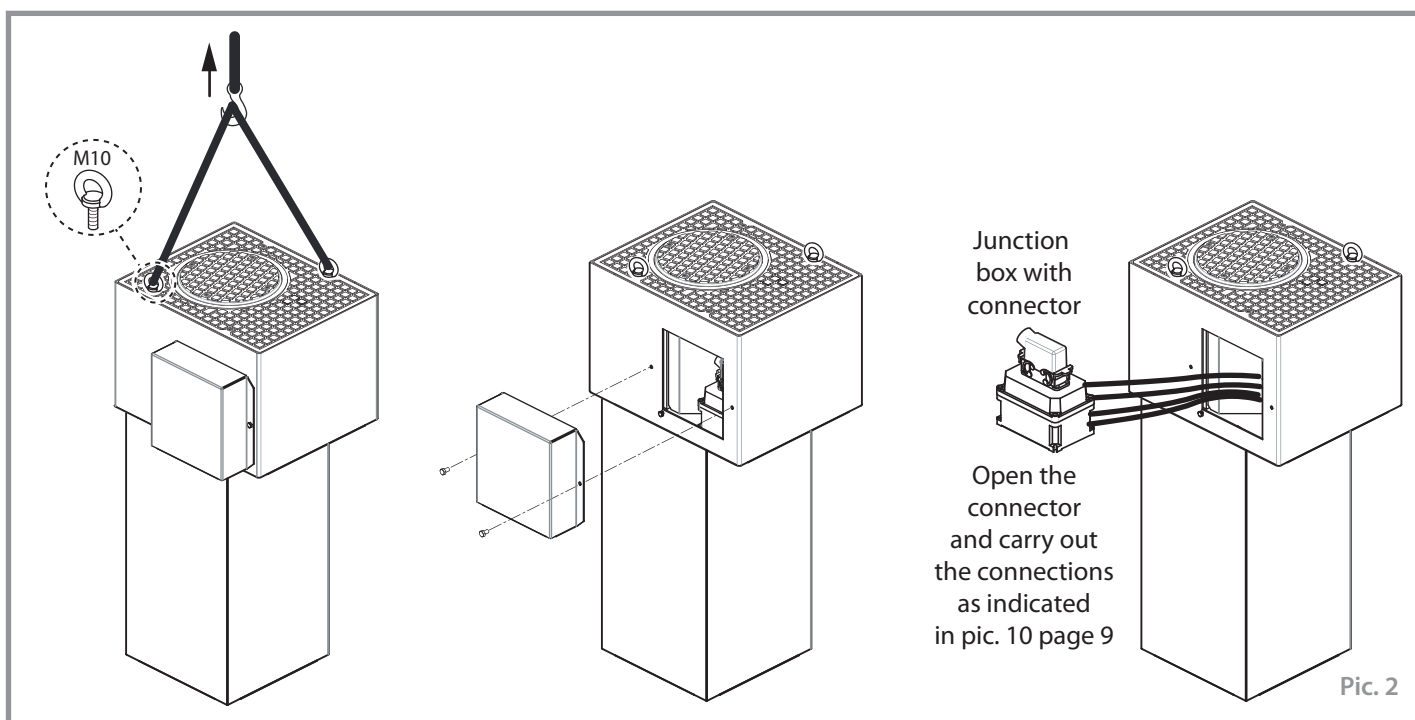
**NON MANDATORY RUNNING TEST (not required for installation purposes).**

**Talos M30 is factory-tested to assess correct functioning in normal conditions before being sent out to customers.**

Anyway, for the installer to be able to carry out some testing before installation, it is possible to access the inner terminal block for the electrical connections by removing the hatch cover: unscrew the two lateral screws of the cover and pull out the junction box along with the connector.

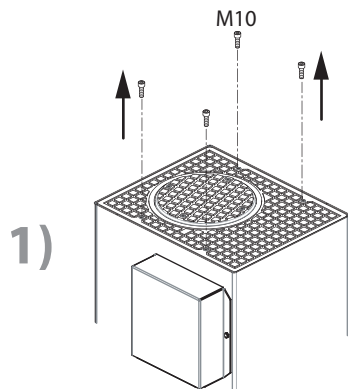


**NOTE WELL: once testing is finished, put back the box and the cover.**

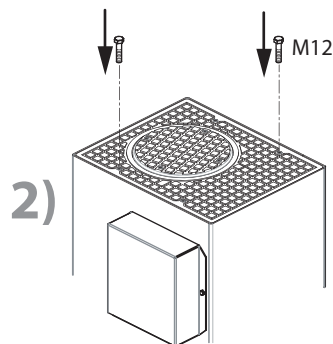


Pic. 2

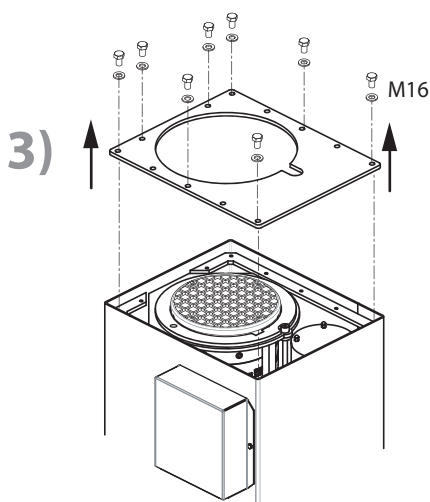
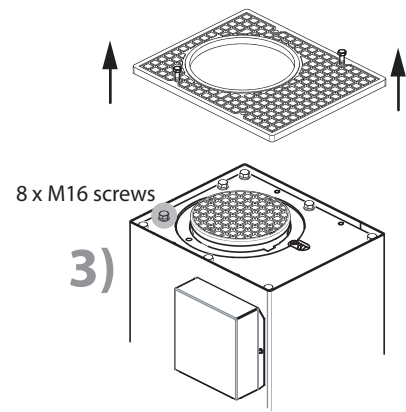
## REMOVING THE BOLLARD FROM THE CASING



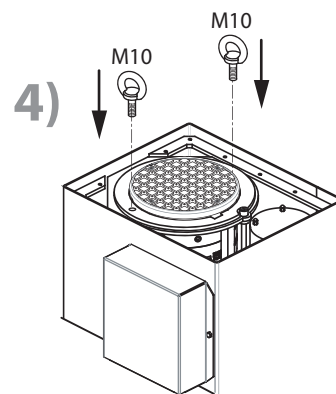
1) Remove the M10 screws from the rectangular cover plate



2) Screw in the two M12 screws to remove the rectangular cover plate



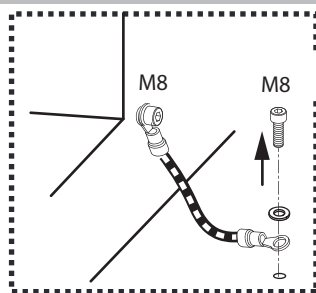
3) Remove the inner fixing plate



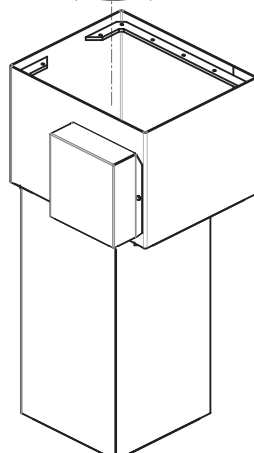
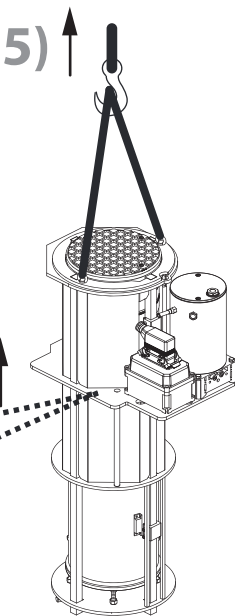
4) Drive the two M10 screws with lifting rings into the dedicated holes



**NOTE WELL:** before hoisting, disconnect the ground cable from the casing



By means of a winch, carefully hoist the inner assembly of the bollard, and mind not to tear off or damage the oil pipes and the inner electrical cables

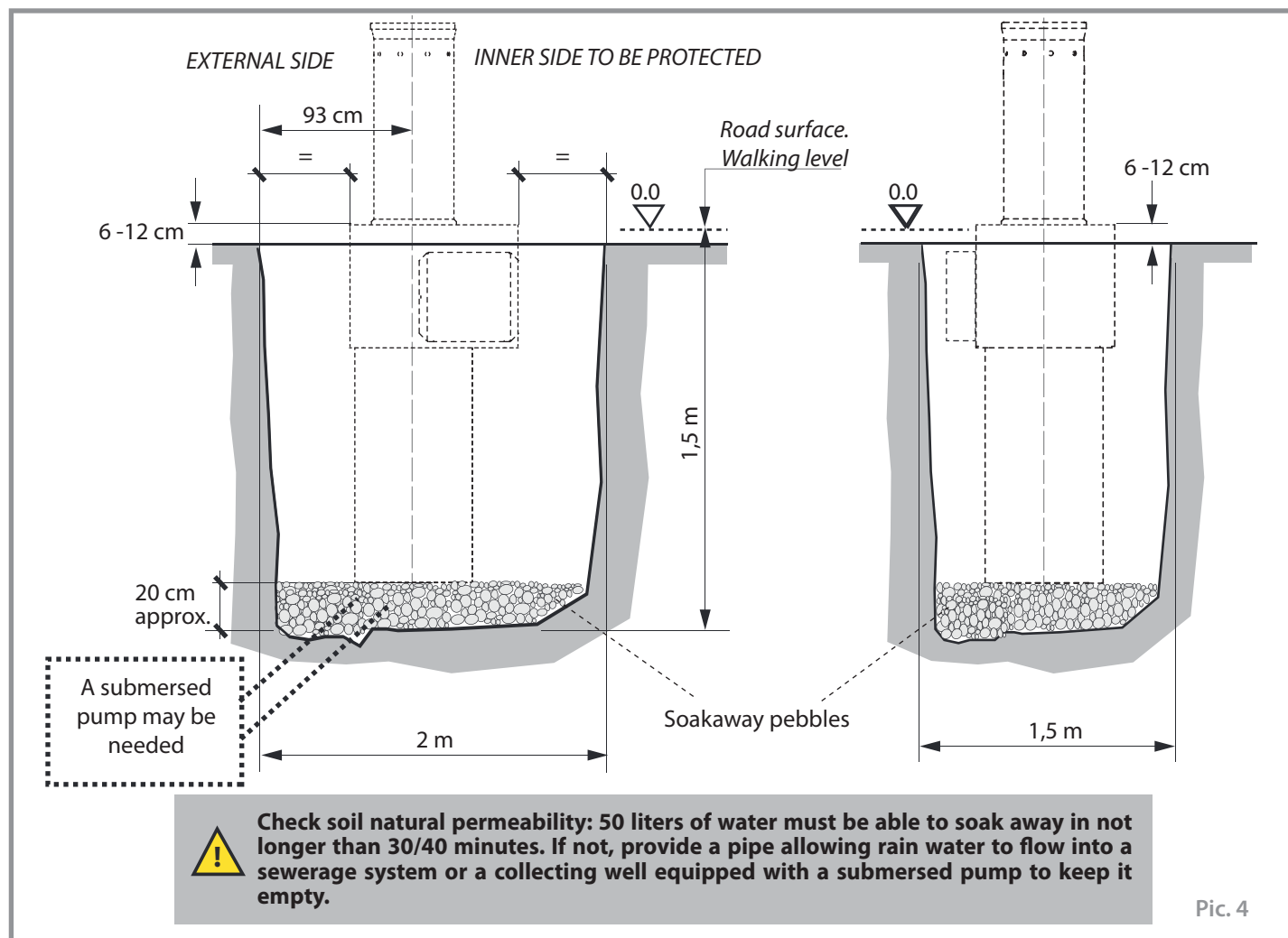


Casing to cement

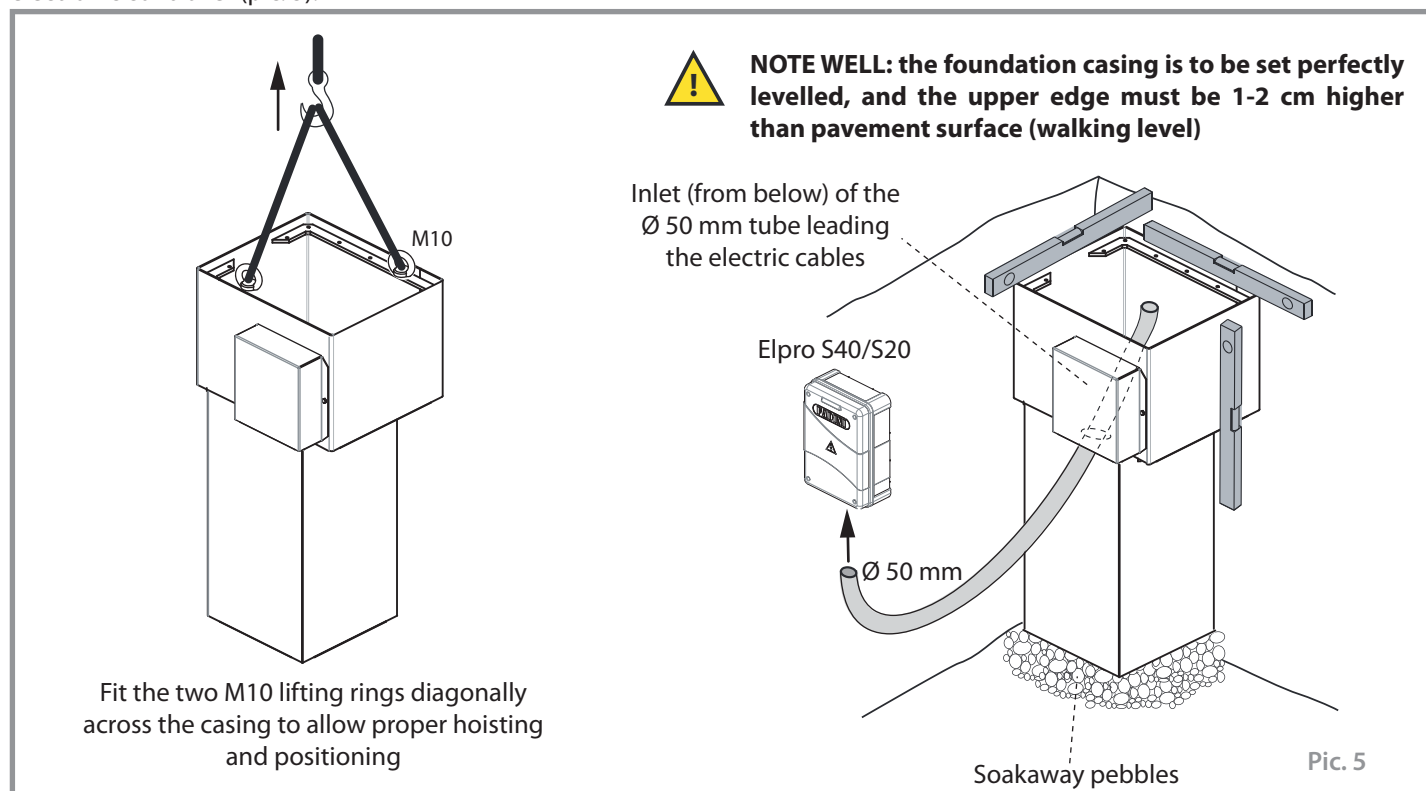
Pic. 3

**CEMENTING THE CASING**

Dig a pit in the ground following the dimensions indicated in pic. 4.

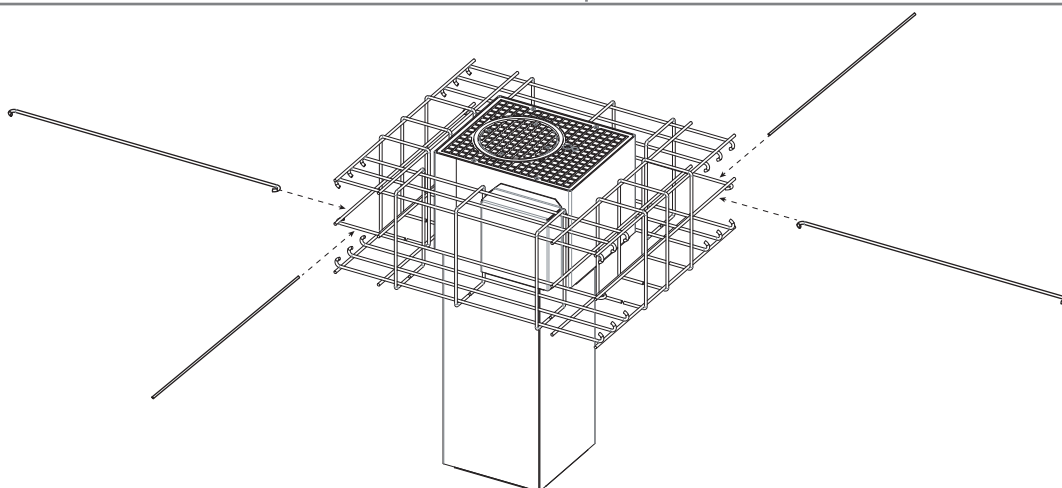
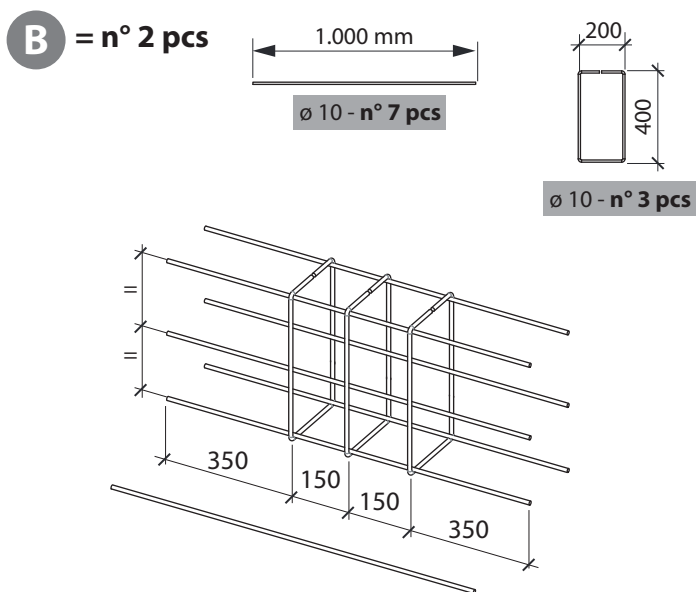
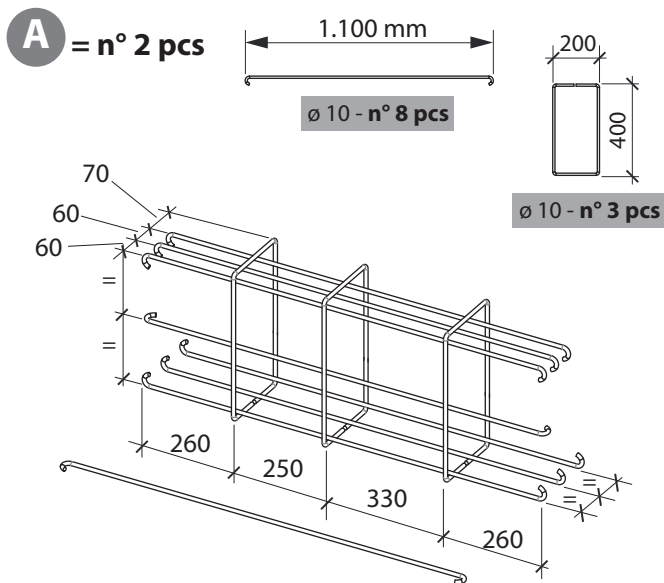
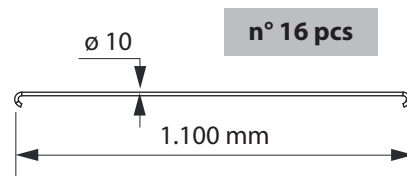
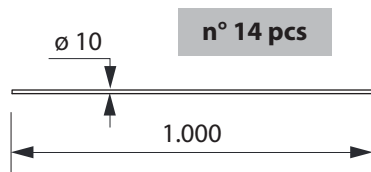
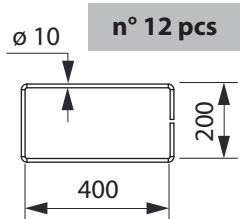
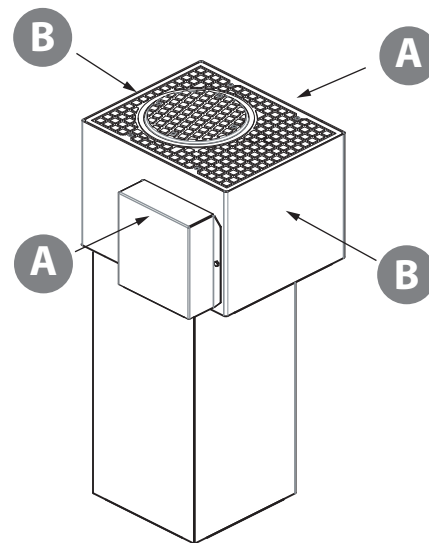
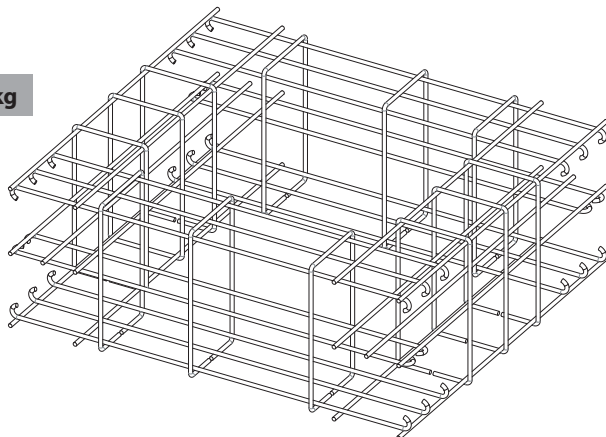


Lay a Ø 50 mm corrugated tube to lead the electric cables through it, either from a junction pit or directly from the Elpro S40/S20 electronic controller (pic. 5).



**Iron armature:** class B450C (ASTM A615 Grade 60) made of rebars whose yield point is  $\geq 450$  MPa and breaking point  $\geq 540$  MPa.

32 kg



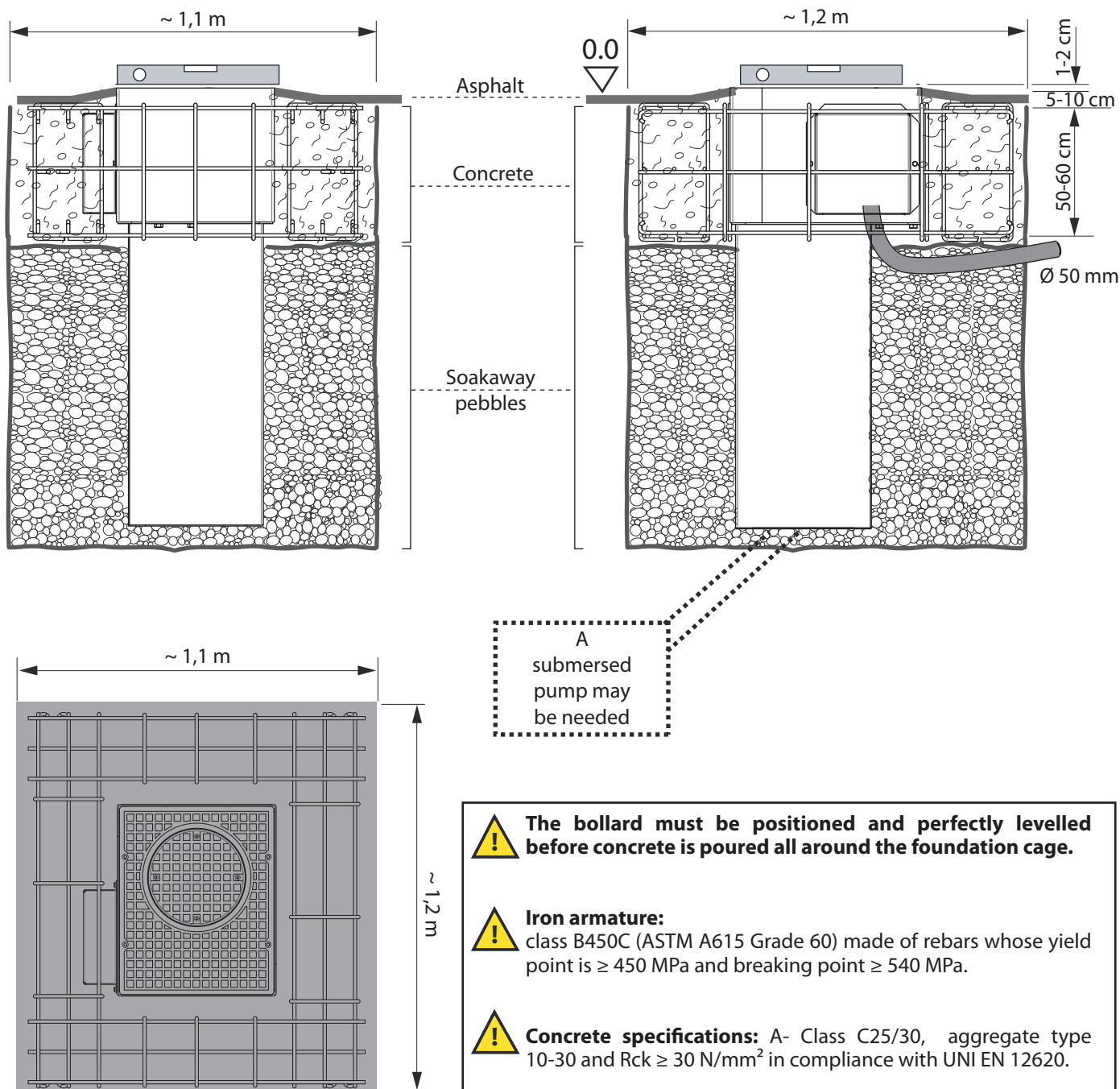
Pic. 6



The upper level of the foundation casing must be 1-2 cm higher than the walking level in order to limit the amount of rain water that can get inside.

Pour A-class concrete all around the casing up to approx 5-10 cm below the walking level. Wait all the time required for the concrete to set firmly (at least 7 days) and then finish the surface work.

It is most important that the casing be 1-2 cm higher than the area finished level. In no way Talos M30 is to become a water gathering basin. Avoid areas where soil tends to sag to prevent the bollard from staying flooded. In case of snow, the flat surface of the cover plate can be easily cleared even by heavy mechanical means.



The bollard must be positioned and perfectly levelled before concrete is poured all around the foundation cage.



**Iron armature:**

class B450C (ASTM A615 Grade 60) made of rebars whose yield point is  $\geq 450$  MPa and breaking point  $\geq 540$  MPa.



**Concrete specifications:** A- Class C25/30, aggregate type 10-30 and  $R_{ck} \geq 30$  N/mm<sup>2</sup> in compliance with UNI EN 12620.



**Soil:** compaction index 90%, as per "Proctor" Test optimal curve, in compliance with UNI EN 13286-2:2005.



**Concrete:** to set for at least 7 days before the installation of the bollard can be carried on.

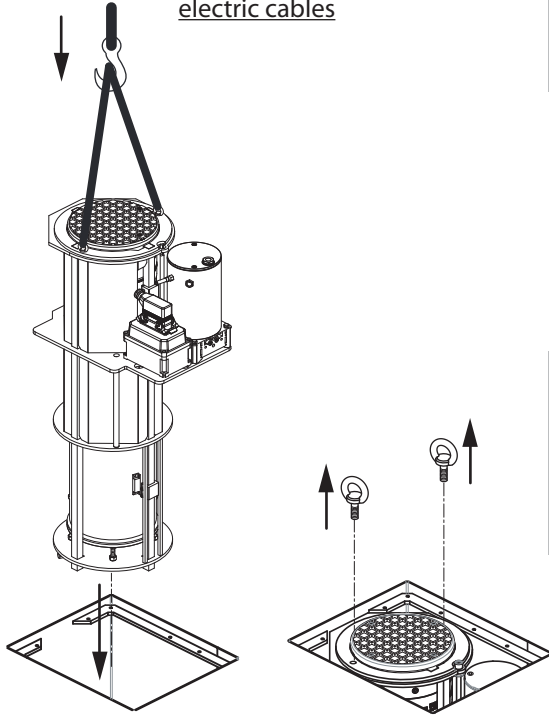
## INSTALLATION OF THE BOLLARD

Once made sure that concrete has firmly set around the casing, insert the inner assembly. Eventually remove the lifting rings.

By a winch hoist and insert the inner assembly into the casing, minding not to tear, cut or somehow damage the pipes and the internal electric cables



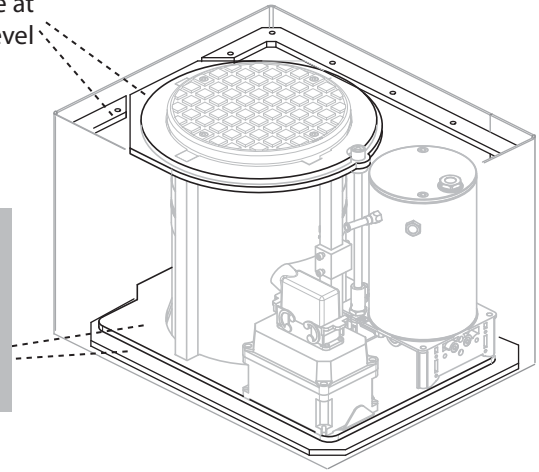
**NOTE WELL: MAKE SURE THE ENTIRE INNER ASSEMBLY FITS WELL INTO ITS SEAT. THE PLATE, ON WHICH THE MOTOR-PUMP IS FIXED, MUST PROPERLY REST ON THE CASING INNER SURFACE, CLEARED OF POSSIBLE CHIPS.**



They must be at the same level



**The parts must perfectly fit into the dedicated seat of the ground casing**



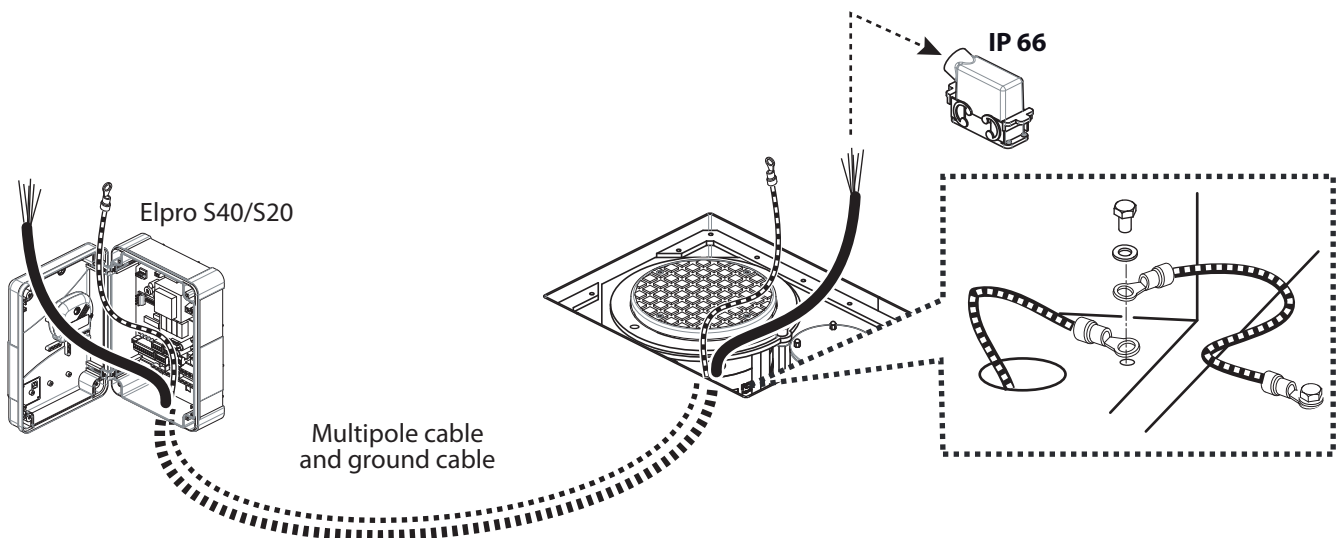
Pic. 8

## ELECTRIC CONNECTIONS TO THE ELECTRONIC CONTROLLER ELPRO S40/S20

The electronic controller Elpro S40/S20 is to be installed in a dry and protected place to prevent unauthorized actions. Make sure that all the electric cables of the command and safety accessories are properly led to the controller.

Through the previously laid corrugated tube pull a multicore cable, type **BUT FLESSIBILE FG 7OR 12x1,5 mm<sup>2</sup>** (not supplied with the equipment, but available on request as per catalogue) for the electrical connections to the Elpro S40/S20 controller, depending on which model of TALOS M30 is to be installed (see page 15, point 9).

**NOTE WELL: lay a ground cable to suit the type of installation required, either public or private, in compliance with the existing safety norms. Connect it inside by the provided screw.**

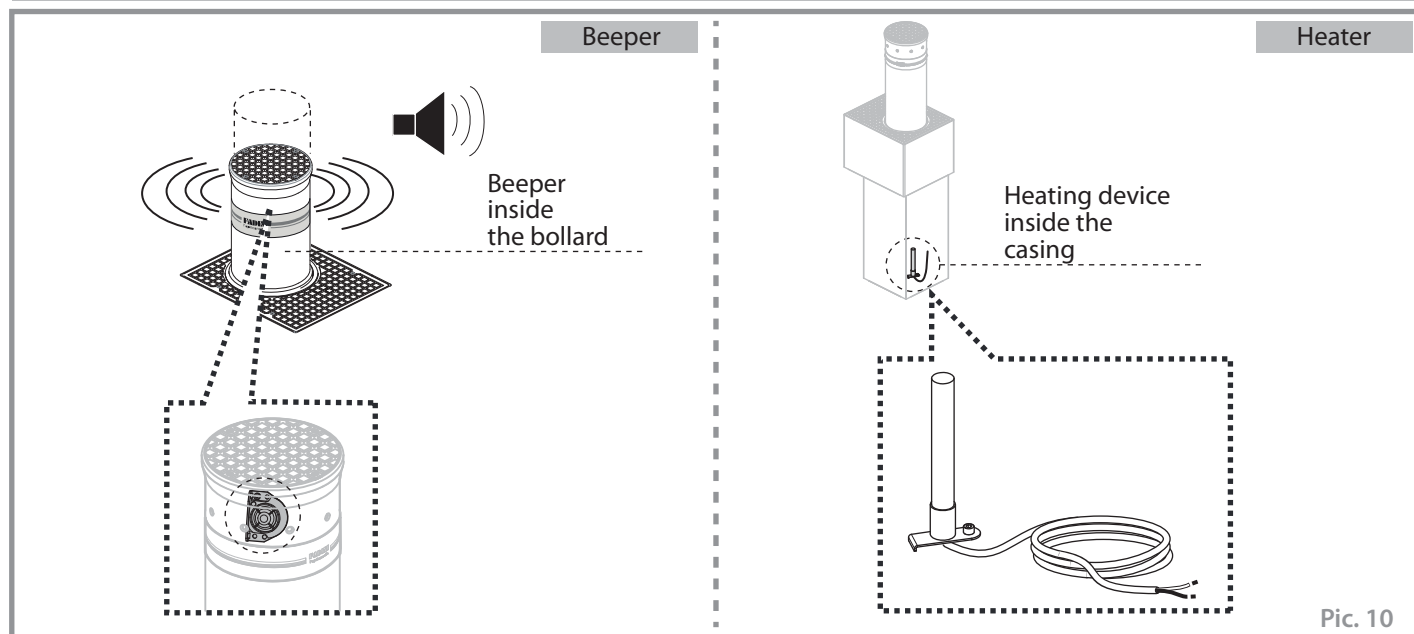


**The multicore cable BUT FLESSIBILE FG 7OR 12x1,5 mm<sup>2</sup> (see page 15, point 9) must not exceed 50 m of length.**  
**Lay the ground cable in compliance with the installation requirements, section as suitable.**

Pic. 9

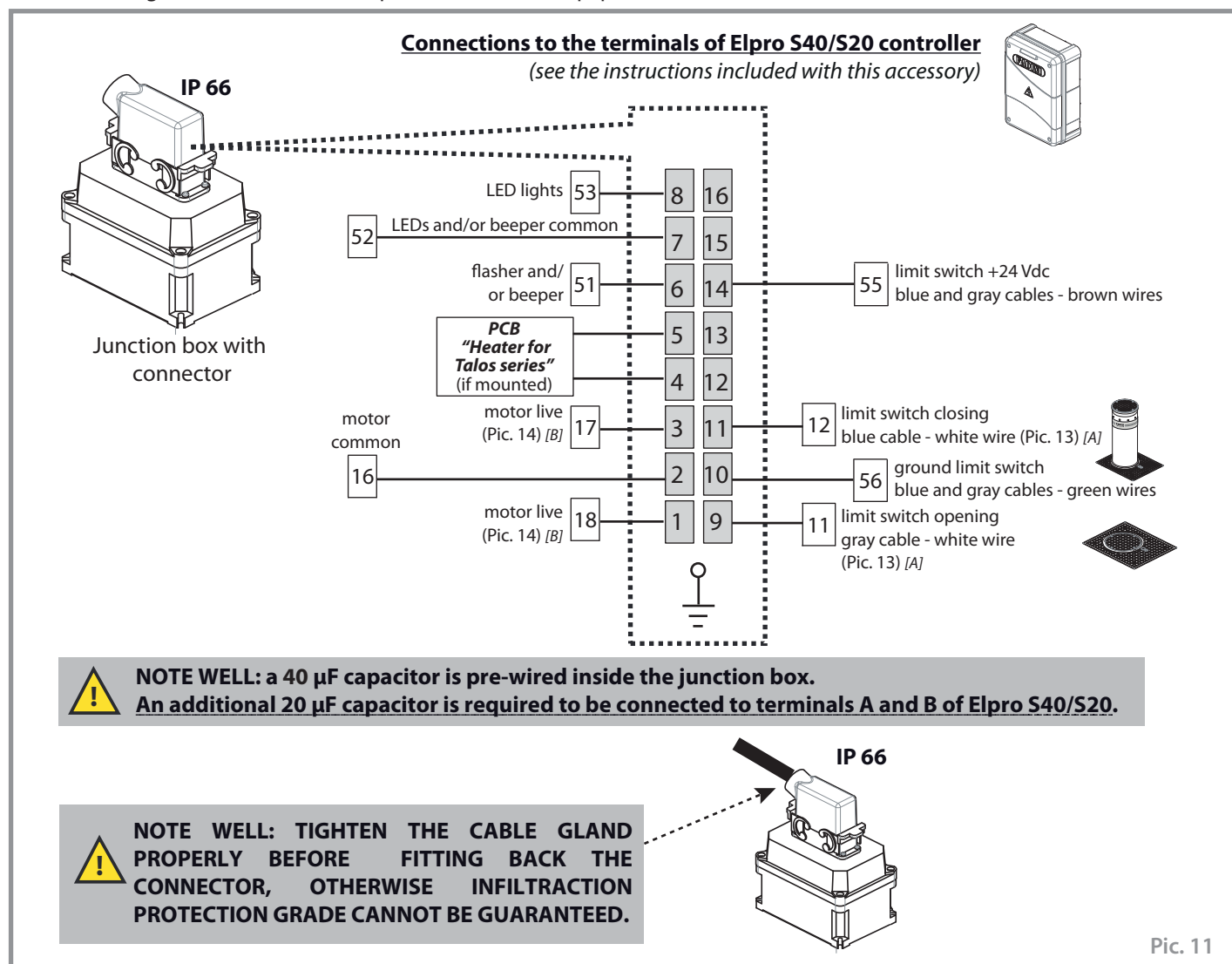


**NOTE WELL:** before carrying on with the electrical connections, it is advisable to identify which optional accessories are mounted on TALOS M30 (beeper or heating device), and so be able to establish which connections are to be made to the connector.



Pic. 10

A watertight junction box is incorporated in the bollard with all the electrical connections to the bollard (electric motor, limit switches, LED lights and beeper as an option). Remove the connector from the box and make the connections to the respective terminals using a multicore cable (not provided with the equipment).



Pic. 11

## FIRST RUN TEST



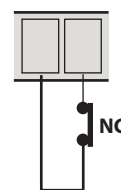
**NOTE WELL:** power supply the system only after all the electrical connections are made.

Once completed the connections of all the safety (all NC contacts of Elpro S40/S20 controller must be closed) and command accessories to the respective terminals in Elpro S40/S20, the first run test can be performed.

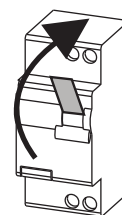
A careful analysis of possible hazards is always recommended to be executed before this test.

If a radio transmitter is available, after having match encoded it with the receiver following the instructions provided with it, pulse once for the bollard to rise.

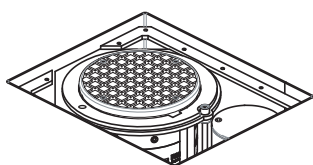
[A] **Check the electrical connections to the limit switches. Supply voltage and check the status indication LEDs first of all: with the bollard in down position the L8 LED is OFF, while the L9 LED is ON. If not, swap the connections to terminals 11 and 12 in Elpro S40/S20.**



Close all NC contacts to Elpro S40/S20 controller

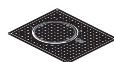
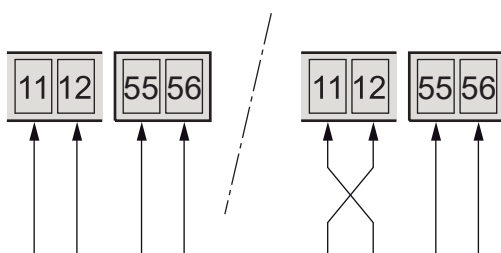


Pic. 12



**NOTE WELL:** the bollard is required to be fully down.

On installation phase should the bollard go up, even partially, proceed with the manual release and bring it fully down on to the bollard stop (Pic. 17).



**L8** = M1 opening limit switch, normally **ON**, off with the bollard in down position



**L9** = M1 closing limit switch, normally **ON**, off with the bollard in standing position

If the installation consists of more than one bollard carry on the same procedure for each of them

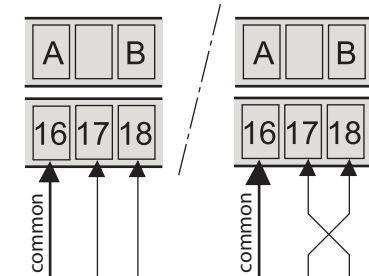
Pic. 13

[B] Once supplied the system with electric power, and made sure the LEDs of the limit switches are ON as indicated (bollard down, L8 LED must be OFF), the bollard should rise when a command pulse is given. Should it not, switch off power supply and reverse the live connections to the motor in Elpro S40/S20.

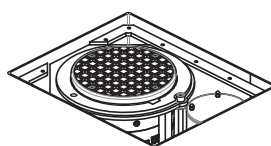


**NOTE WELL:** a 40  $\mu$ F capacitor is pre-wired inside the junction box.

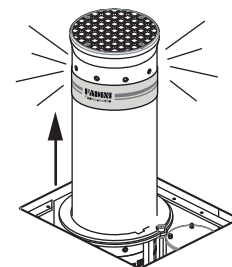
An additional 20  $\mu$ F capacitor is required to be connected to terminals A and B of Elpro S40/S20.



Connections to the electric motor of the hydraulic motor pump



1st pulse



Bollard in standing position: no access allowed

If the installation consists of more than one bollard carry on the same procedure for each of them

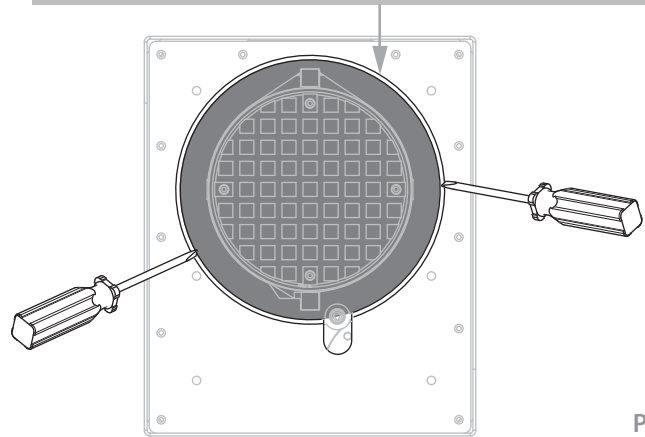
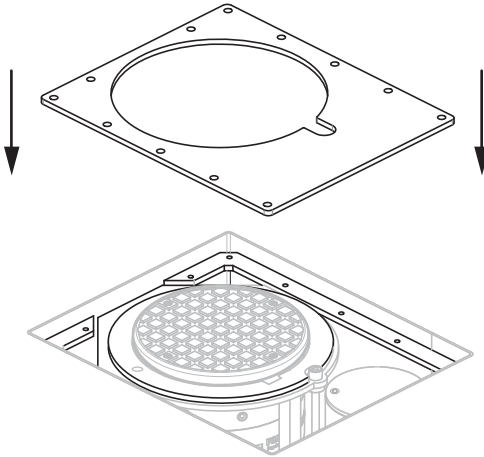
Pic. 14

## FIXING THE COVER PLATES OF THE BOLLARD

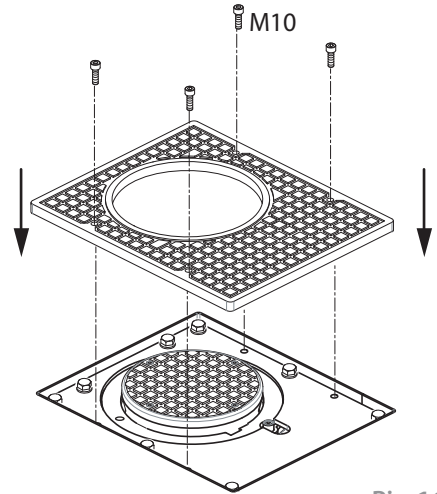
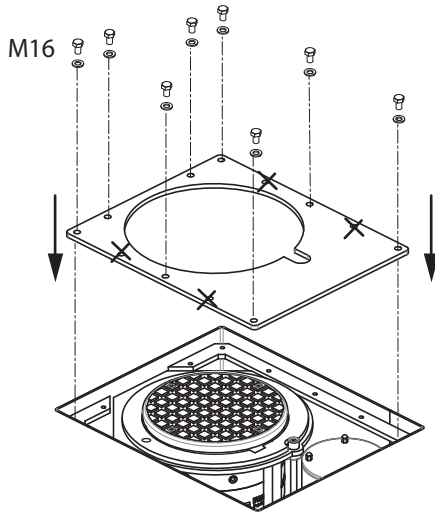
The cover plate is to firmly rest all over the surface and closely adhere to the circular flange around the post



**IMPORTANT: BOLLARD AND COVER PLATE ARE TO BE PERFECTLY CENTERED, SO THAT THE GAP BETWEEN BOLLARD AND COVER PLATE HOLE IS EQUALLY SPACED ALL AROUND**



Pic. 15



Pic. 16

**MANUAL RELEASE OF THE BOLLARD AND LOWERING OPERATIONS (IN CASE OF AN EMERGENCY)**

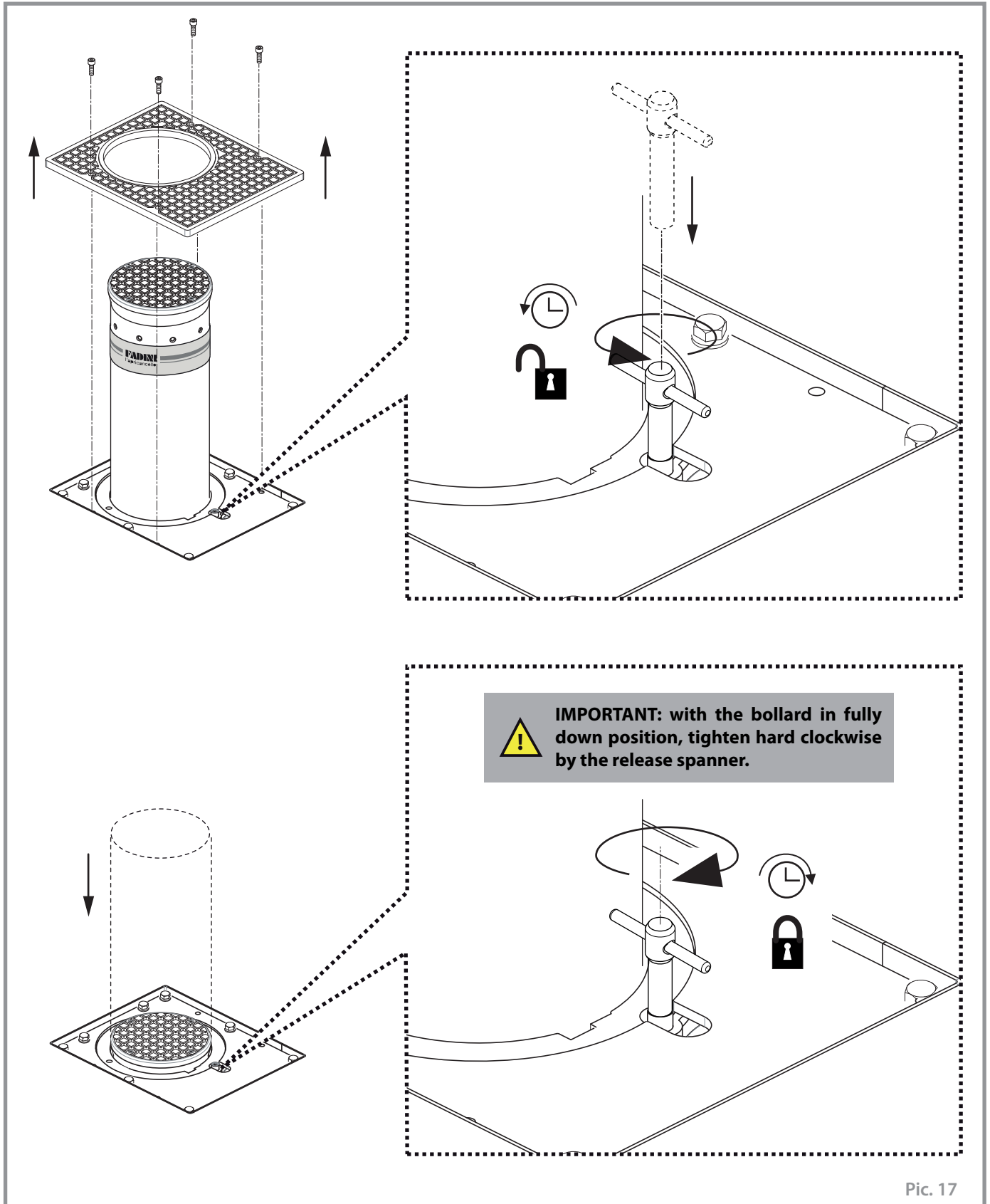
In case of an electric power failure the bollard system is configured to stay in standing position.

**For the bollard to be allowed to descend, it is required that it is on voltage.**

It is possible though, in particular situations of danger and/or emergency, to lower the bollard manually as follows:

- Remove the fixing screws and take off the aluminium cover.
- Insert the release spanner through the cover hole to fit it into the triangular profile of the lock and turn it one complete turn anti-clockwise.

**IMPORTANT: once the bollard is fully down, turn the spanner clockwise and tighten hard.**



Pic. 17

**OPERATIONS FOR ORDINARY ROUTINE MAINTENANCE OF FADINI AUTOMATIC BOLLARDS (EVERY SIX MONTHS)**

The standard maintenance routine sequence is as follows:

- Clean the ground cylinder and suck all material settlements.
- Clean water drains located at the bottom of the ground cylinder and/or excavation pit.
- Check any possible oil leaking from the hydraulic piston and, in case, fix it.
- Overhaul the screws fastening the bollard to the ground cylinder, making sure they are properly tightened and lubricated.
- Check the oil-hydraulic motor-pump and oil pressure by assessing the rising times of the bollard. If required, top up oil in the reservoir and/or parallel add an extra capacitor to the existing one (instructions manual is to be referred to).
- Check the correct functioning of the signal LED lights (if incorporated) in the bollard head.
- Sight check the electronic board controlling the bollard/s (e.g.: "flooded" relay contacts, oxidized terminal clamps, etc.).
- Check the correct functioning and positioning of the limit switches.
- Check the release system for bollard manual operations.
- Clean and recondition the rising cylinder if required, e.g.: paint patching up, replacing the back reflecting sticker and /or the cover fitted with rubber edge.

**Routine maintenance does not require the use of lifting equipment.**

**IF OPTIONAL ACCESSORIES ARE INCLUDED, FURTHER MAINTENANCE IS REQUIRED AS FOLLOWS:**

- Check the correct functioning of the safety accessories such as the inductive loop/s and the photocells.
- Check the correct functioning of the radio receiver and all of the remote controls.
- Check the correct functioning of the beeper.
- Check the correct functioning of the traffic lights and the respective control card.



This symbol indicates that a particular attention is required on the installation phases and on running the operator. Failure to observe these indications may cause incorrect functioning of the bollard.



### WARRANTY RECOMMENDATIONS AND REQUIREMENTS

- 1) Installation operations, testing, analysis of the risks and future maintenance are to be executed by qualified and authorized technicians in compliance with the existing regulations ([www.fadini.net/supporto/download](http://www.fadini.net/supporto/download)).
  - 2) This automatic system is intended to be exclusively used for the applications described in this manual and includes the minimum of safety, command and signalling accessories as required to comply.
  - 3) Any application not indicated in this manual may cause malfunctioning or damages to people and properties.
  - 4) Providing a suitable reinforcement metallic framework ensures that the breakout resistance value be respected as stated in this manual. **NOTE:** the iron framework (all of the steel rebars) is not supplied by our company. It has to be made locally in compliance with the technical data, drawings and all of the indications described in this installation manual. The components of the structure developed in this way are able to make the most of the performance features of each component and ensure the impact resistance features of the bollard as indicated.
  - 5) Make sure the soil be adequate to take the bollard to avoid that settling at a later stage causes problems to the system.
  - 6) Make sure the site be free from utilities that may interfere with the installation.
  - 7) Make sure that electromagnetic sources be at a suitable distance from the accessories, especially from the loop detectors. The magnetic fields of other sources may affect the detection of the loops as well as those of other command and safety devices of the system.
  - 8) Make sure the power supply to the electric motor be 230 V (50 Hz).
  - 9) **Recommended power supply cable:**  
**BUT FLESSIBILE FG 7OR 12x1,5 mm<sup>2</sup> (up to 50 metres max.): for TALOS M30 bollard (in both versions, the standard one and the one fitted with heating device).**  
**N.W. The beeper, either fitted to TALOS M30 or not, is irrelevant to the choice of the cable.**  
**The section of the cable to ground is to comply with the site regulations.**
  - 10) In case any components or accessories need replacing, use only original parts as provided by the manufacturer.
    - Observe the instructions in the instruction booklet for both installation and scheduled maintenance. Every inspection must be documented and recorded in the maintenance booklet. The recommended preventive maintenance work must be carried out in good time.
    - Always check that the ground where the bollard is to be installed is suitable for laying and cementing.
    - Avoid installation near sandy places (beaches, etc.), unless proper maintenance/cleaning is planned.
    - Identify the suitable bollard according to the installation site, checking for the presence of pipes (underground utilities), salt spray, etc.
    - Check the natural permeability of the ground: 50 litres of water should drain off in no more than 30/40 minutes. If this is not the case, provide for the rainwater to drain away by means of a pipe connected to the drainage system or to another sump equipped with a drainage system with a submersible pump.
    - Check that the installation site respects the bollard's operating temperatures indicated in the manual and that the frequency of use complies with the specified data.
    - The length of the power cable between the bollard and the electronic control unit must comply with the specifications in the instruction booklet.
    - Ensure that an adequate power supply is available at the place of installation.
    - Check water tables: these must be at least 30 cm lower than the base of the bollard foundation box. This check is particularly important near the sea, rivers, lakes or other watercourses.
    - If the bollard is installed in the vicinity of a roadway, to limit access to a gap or to interrupt a roadway, it must be appropriately marked.
    - If installed in the middle of the carriageway, check the flow of HGV traffic and position the bollard so as to avoid continuous passing over it.
    - Do not install the bollard in basins or at the end of a downhill slope to prevent the accumulation of sewage. Provide drains to prevent this problem.
  - 11) The installer shall provide the final user with information related to all of the operating commands and functions of the system, including manual lowering of the bollard in case of an emergency (manual release operation).
  - 12) The installer shall inform the final user of the dangers coming from the presence of persons, especially children, in the proximity of the bollard.
  - 13) The manufacturer reserves the right to change this manual without previous notice.
- As far as configuration and execution of the system are concerned, these are to comply with the laws in the country of installation.**

**PRODUCT SPECIFICATIONS**

Fully retractable automatic bollard for heavy duty applications, made up of an incorporated oil-hydraulic motor pump unit and an oil-hydraulic actuator inside the moving cylinder. Designed in compliance with ASTM/PAS 68 K4/M30 specifications (vehicle of 6,8 t at a speed of 50 km/h). Suitable for access protection to sites under attack risk (anti terror) such as military bases, embassies, banks, government institutions, etc. IP 67. The height of the rising cylinder (from ground) is 800 mm. Rising cylinder made of S355J2H steel, thickness 12 mm, cathaphoresis treated and powder coated. AISI 304 brushed stainless steel cover sleeve available for the rising cylinder. Rubber ring on rising cylinder head. Cathaphoresis treated aluminium cover, finished to provide a slip-proof treading surface. Rising cylinder fitted with high intensity, microprismatic, retroreflecting approved sticker (h 80 mm), and 9 signalling LEDs with flashing light all around the top. Hot dip galvanized steel casing for ground foundation. Impact resistance 150.000 J, breakout resistance 700.000 J. Static load max 1.500 kg in standing position, max 20.000 kg in lowered position. Working temperature -40 °C +80 °C. Supply voltage 230 Vac  $\pm$  10%, 50 Hz. Absorbed power 1.100 W. Connector and junction box IP 66 for cabling. Rising time  $\sim$  4,50 s. Frequency of use 2.000 cycles/day. Hydraulic device locking the bollard in standing position.

**TECHNICAL DATA****BOLLARD**

|                          |                                      |
|--------------------------|--------------------------------------|
| Post diameter            | Ø 275 mm                             |
| Post thickness           | 12 mm                                |
| Post height              | 800 mm                               |
| Post finish              | polyester powder coating RAL 7016    |
| Post material            | S355J2H steel                        |
| Ground casing            | hot dip galvanized                   |
| Piston diameter          | 30 mm                                |
| Shaft diameter           | 16 mm                                |
| Piston stroke            | 810 mm                               |
| Factory set thrust power | 61 daN (61 kg)                       |
| Frequency of use         | intensive (2.000 cycles/day)         |
| Led power adaptor        | in: 230 V - 50 Hz out: 12 Vdc 600 mA |
| Led top lights           | 12 Vdc                               |

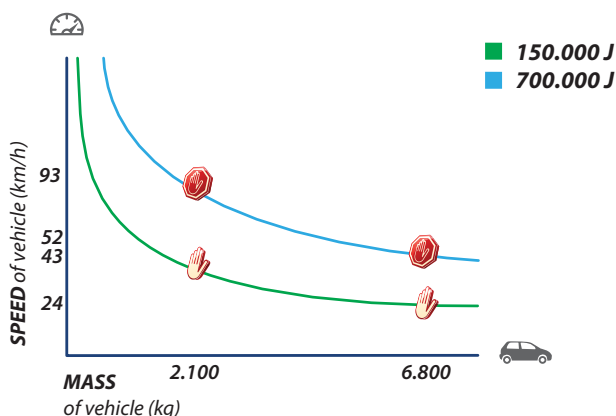
|   |                         |
|---|-------------------------|
| Impact resistance                                   | 150.000 J               |
| Breakout resistance                                 | 700.000 J               |
| Max. static load                                    | 20.000 kg               |
| Weight with casing                                  | 291 kg                  |
| Environment working temperature                     | -20 °C +80 °C           |
| Environment working temperature with heating device | -40 °C +80 °C           |
| Rising time [speed]                                 | $\sim$ 4,50 s [18 cm/s] |
| Lowering time [speed]                               | $\sim$ 3,42 s [23 cm/s] |

**ELECTRIC MOTOR**

|                      |             |
|----------------------|-------------|
| Absorbed power       | 1.100 W     |
| Power supply         | 230 V       |
| Frequency            | 50 Hz       |
| Rated current        | 1,8 ÷ 3,5 A |
| Maximum current      | 6 A         |
| Intermittent service | S3          |
| Capacitor            | 40 $\mu$ F  |

**HYDRAULIC MOTOR PUMP UNIT 3.20LP**

|                     |                        |
|---------------------|------------------------|
| Pump type           | P20                    |
| Working pressure    | 1 MPa (10 bar)         |
| Working temperature | -20 °C +80 °C          |
| Oil type            | Fadini oil - code 708L |
| Reservoir capacity  | 3 liters               |
| Protection grade    | IP 67                  |



Various factors, such as the compaction index, soil permeability coefficient and kind of concrete may reduce the values indicated in the diagram even significantly.

