

Codice documento	Rev.	SAVE DATA	PRINT DATA
INTitano_FS_01	4	05/03/14	1/02/17 6:37



**MAC** s.r.l.

Sede e stabilimento:  
 Via Enrico Mattei, 9 - Loc. MORCIOLA  
 61022 VALLEFOGLIA (PU)  
 Tel. +39 0721 495447 - Fax. +39 0721 495438  
 Internet: <http://www.mezzanottifausto.it>  
 E-mail: [info@mezzanottifausto.it](mailto:info@mezzanottifausto.it)  
[commerciale@mezzanottifausto.it](mailto:commerciale@mezzanottifausto.it)  
 Cod. Fisc. - Partita IVA n. 02246440412

# INSTALLATION TITANO



INFORMATION:

Customer:

Installing Company:

---

Timbre&Signature

**CAREFULLY READ THE MANUAL BEFORE USE**

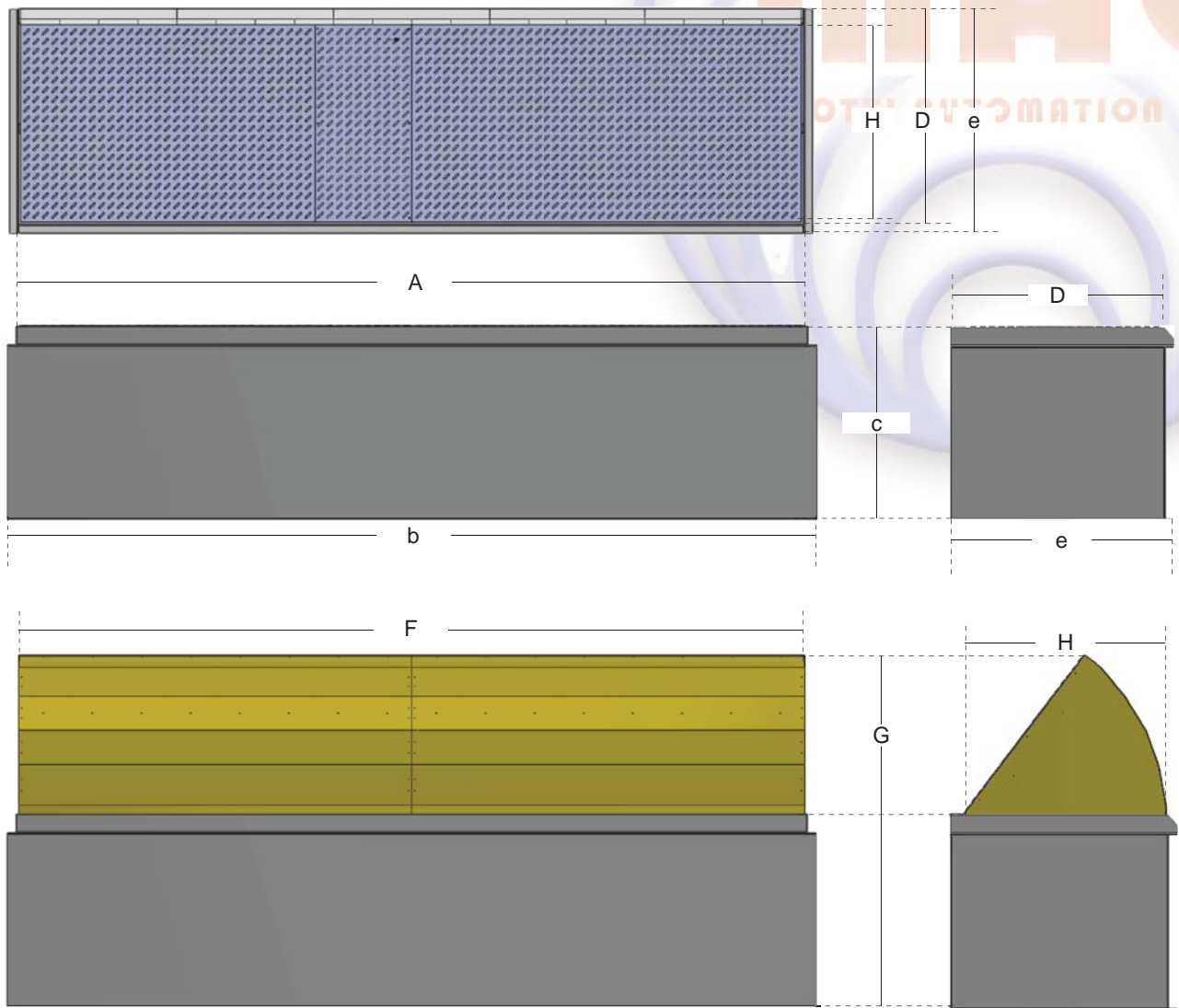


## SUMMARY

<b>SUMMARY</b>	<b>2</b>
<b>DIMENSIONS</b>	<b>3</b>
<b>APPROXIMATELY MACHINE DECLARATION OF INCORPORATION</b>	<b>4</b>
<b>(IN ACCORDANCE WITH THE EUROPEAN DIRECTIVE 2006/42/CE ALL. II.B)</b>	<b>4</b>
<b>WARNING</b>	<b>5</b>
<b>WARNINGS FOR THE INSTALLATION</b>	<b>5</b>
<b>D.P.I. FOR THE OPERATOR RESPONSIBLE FOR THE MECHANICAL MAINTENANCE</b>	<b>5</b>
<b>DELIVERY OF THE BOLLARD</b>	<b>5</b>
<b>LIFTING UP AND TRANSPORT</b>	<b>6</b>
<b>INSTALLATION OF THE BOLLARD</b>	<b>6</b>
<b>ELETRICAL CONNECTIONS TITANO FOR BRAIN1 AND BRAIN4</b>	<b>10</b>
<b>GROUNDING OF THE TITANO</b>	<b>11</b>
<b>ELECTRICAL CONNECTIONS WITH CONTROL BOARD</b>	<b>12</b>



## DIMENSIONS



Cod. Titano	quote (u.m.=mm)							
	undergrounded part			ground level		movable part		
	b	c	e	A	D	F	H	G
H8L4	4120	985	1143	4032	1099	4004	1002	800
H7L4	4120	885	1143	4032	1099	4004	1002	700
H7L3	3120	885	1143	3032	1099	3004	1002	700
H35L1	1100	486	615	1032	581	1004	502	350

APPROXIMATELY MACHINE DECLARATION OF INCORPORATION  
(in accordance with the European Directive 2006/42/CE All. II.B)

All. II.B.1

Name of the company: MAC s.r.l.

Address: Via Enrico Mattei n°9 - Loc. Morciola  
61022 VALLEFOGLIA (PU) - Italia  
Tel.: 0721/495447  
Fax: 0721/495438  
mail: info@mezzanottifausto.it  
web: www.mezzanottifausto.it

**DECLARES**

All. II.B.2

Name and address of who is authorized to draw up the technical file:

Ing. Michael Tizza Via Enrico Mattei n°9 - Loc. Morciola - 61022 VALLEFOGLIA (PU) - Italia



All. II.B.3

Description

The bollard is built to be incorporated in a machine or with other machineries in order to arrange a machinery in compliance with the Directive 2006/42/CE

General Denomination

Automatic bollard

Purpose

Avoid the transit of any vehicle.

Model

TITANO

Type

TITANO H--L--

Serial number

Ceck the silver label on the product.

Commercial Denomination

Bollard / Road Blocker

All. II.B.4

The product is in compliance with all the dispositions related to the following Directives:

- 2006/42/CE European Directive
- 2004/108/CE Electromagnetic Compatibility (CEM)
- 2006/95/CE Low Tension Directive
- 1999/5/CE Radio and Telecommunications terminal Devices (upon request)
- EN 124:1995
- CEI EN 60204-1

All. II.B.5

The company MAC srl undertakes itself to transmit, the information concerning the approximately machines, as answer to a question of the national authorities.

All. II.B.6

Furthermore, is not allowed to put on the machinery till the identification of the machine where it will be integrated. The machinery must be also declared in compliance with the Directive 2006/42/CE.

All. II.B.7

Morciola di Vallefoglia, 07/01/2013

All. II.B.8

Managing Director

  
Fausto Mezzanotti

## WARNING

The company MAC SRL reserves the right to make, at any time, without undertaking to update this publication, possible changes of components, essential parts or supplies that will be considered advantageous for its improvement or for any other need.

The reproduction, even partial, and the spreading of this document, by any means, are not allowed without the permission of the author.

Any infringement will be punished in ways and times foreseen by Law.

The company MAC SRL is the exclusive owner of the registration of the trade mark MAC srl fixed on CE conformity labels and seals and warning signals.

Any removal, cancellation, change or alteration of the mark MAC srl affixed on the bollard is forbidden.

## WARNINGS FOR THE INSTALLATION

The installation must be entrusted to BUILDING AND/OR ELECTRIC COMPANIES SPECIALIZED IN INSTALLATION. The person involved in the installation of the bollard must have an appropriate formation and must be well-informed about the work he is about to do.

The operator must use proper means fit for the installation in safety conditions. He/She must use working tools in perfect state of use as foreseen by the respective builders.

The operator must also know the laws that protect himself and the people exposed, in subject of machines and environment of use; the operator will have to consider carefully the place where the bollard must be installed so that the operations do not lead to dangers of residual nature, furthermore the operator must take care that the movable parts are free from obstacles and the movements are linear.

Before start moving the bollard, it must be verified the efficiency of the means of lifting and the lifting force of the means of lifting. During the operations of lifting up and displacement of the bollards, it is necessary to adopt safety measures to avoid any possible dangerous movement that could cause accidents or damages to people and materials.

During the lifting up avoid sudden movements that could damage the bollard.

For the lifting up of the bollard or its parts, it is necessary to use means having a minimum force higher than the claimed weight. During the movements keep the bollard as lower as possible for better stability.

The lifting up operations must be done by expert staff. Make sure that nobody is in the dangerous zone

### NOTE:



At the end of the installation the specialized firm must complete the form, written in the first page, with all the identification data, stamp and signature.

Furthermore, he/she must complete the form "product codes" at page 12 of the "Mechanical Maintenance Manual".

On the contrary the company MAC SRL reserves all its right to recede from the guarantee terms.

## D.P.I. FOR THE OPERATOR RESPONSIBLE FOR THE MECHANICAL MAINTENANCE

Form N°1: INDIVIDUAL PROTECTION DEVICES FOR THE OPERATOR RESPONSIBLE FOR THE MAINTENANCE		
Pictogram	Description	Description of the operation for general controls
	SHOES	Use safety shoes to avoid the risks produced by the falling of materials during the operations of maintenance (especially during the dismantlement of parts).
	PROTECTION GLOVES	Hand protection gloves in case of manipulation of objects that can cause damage.
	SUITABLE CLOTHES	Suitable clothes (for example the overall): it is forbidden to use clothes with large sleeves or appendixes that can be held back by mechanical devices.
	GLASSES	Keep at your own disposal:
		Accident-prevention glasses, in case that grinding operations or similar operations are necessary.
	GLASSES FOR WELDING	Protective glasses for welding, in case it is necessary to make operations of welding.

In case the maintenance is made within one of these working areas:

- Productive ambient (firm)
- Construction site

The personnel must use the required D.P.I. in these environments of working.

## DELIVERY OF THE BOLLARD

The whole material is carefully controlled and tested by the builder before the shipment. At the receipt make sure that it has not had damages during the transport and that nothing has been tampered or taken off.

In case that you find damages in the bollard or missing parts inform immediately the carrier and the builder producing photographic documents.

At the moment of unpacking, throw away the components considering the National Laws of Solid Waste.



## LIFTING UP AND TRANSPORT

The lifting up and the transport of the bollard must be done with proper equipment, in compliance with the work safety Law, in force in the area of installation.

The eyebolts and the ropes must: have a lifting power major than the weight of the bollard; be in good state of maintenance and have the marking CE.



### WARNING

As regards the transport of the bollard, it is necessary to use means having minimum capacity higher than the weight of the bollard (the weight of the bollard is on the identification plate).

Before starting the handling it is necessary to verify the efficiency of the means of lifting and their capacity.

During the operations of lifting and displacement of the bollard it is necessary to adopt any possible caution to avoid dangerous movements that could cause accidents or damages to people and/or material and objects.

Avoid sudden movements that could damage the bollard.

The operations of movement of the bollard must be done by personnel with experience.



### WARNING

During the lifting the bollard must be always in a stable and safe position.

During the lifting all the surrounding area is to be considered dangerous zone.

Untill the bollard is not completely lifted check its correct balance.

The lifting must be done with continuity, without sudden movements.

## INSTALLATION OF THE BOLLARD



### WARNING

The following described procedures of installation must not be done by the final user or by a not specialized building firm.



### DANGER OF CRUSHING

During the operations of installation it is necessary to adopt any possible caution to avoid movements that can cause accidents or damages to people and/or materials and objects.



### WARNING

This symbol is used in these instructions when the unrespect or the wrong interpretation of the information, prescriptions or procedures, regarding the installation, can cause damages to the bollard.



All images in this manual are merely indicative, to keep the description as clear as possible.

### CHECK

The consistency of the ground has not to be friable.



If friable it is necessary to realize a bigger dig to stabilize the bollard, in order to avoid the exit of the concrete plinth after a smash.

Make sure that the placing position of the bollard is not in a drainage area.

It is necessary to install a sewage system for the water harvesting, in rainy places or places where the ground is not draining.



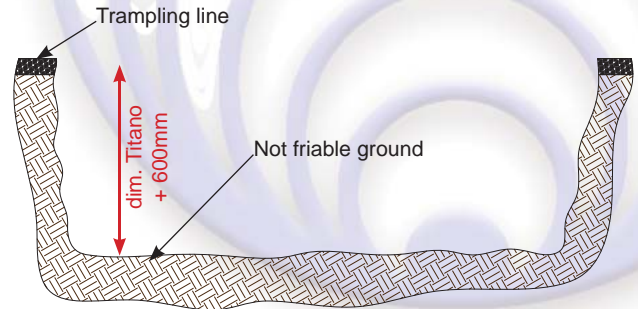
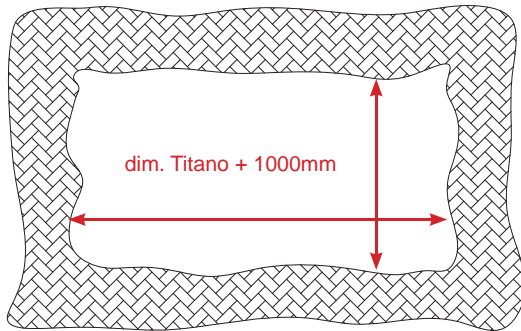
**All these decisions must be kept by a qualified technician.**



For a good installation of our product, proceed according to the following points:

1

Make a dig of the dimensions of the TITANO + 1000mm in the ground until a depth of +600mm.



2

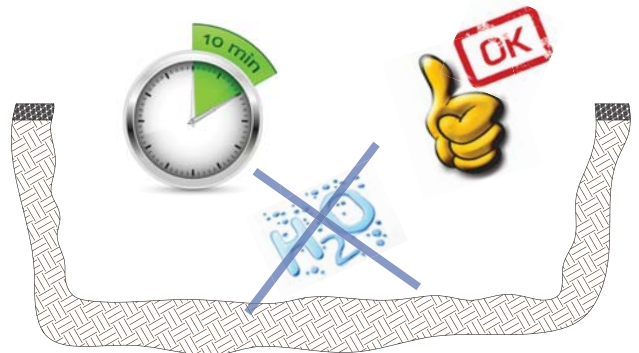
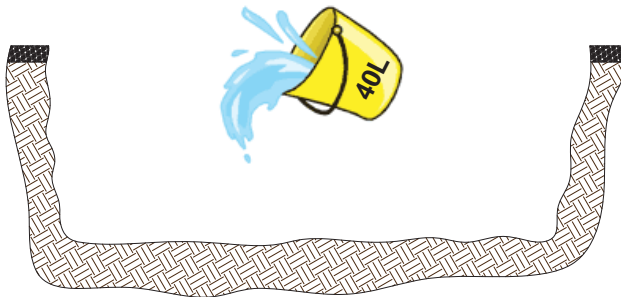


Put 40 liters of water in the dig to verify the drainage. If after ten minutes the dig is empty there's no need to install a sewerage system.

In that case go on to point 4.

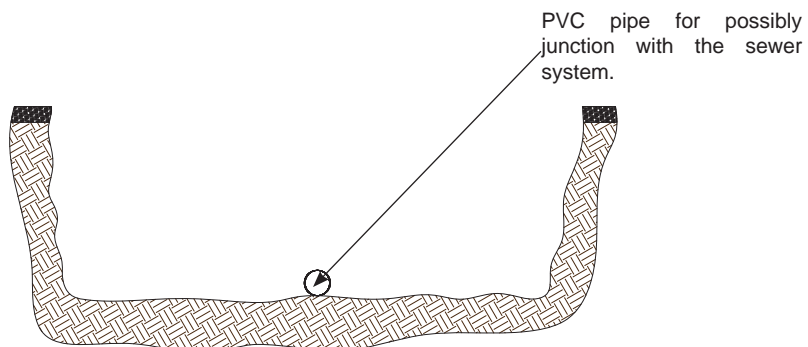
Each case must be assessed, taking in account the importance of ground and weather conditions which involve the surrounding area at the installation site.

Possibly build a sewer system.



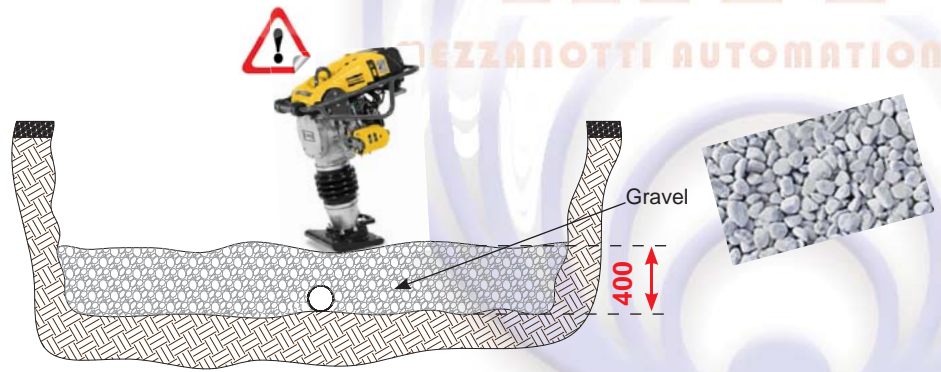
3

If needed, proceed with the realization of a sewer for rainwater posing a PVC pipe with diameter of 80 mm, to be joined to the sewerage system or in alternative to a basin with a drain down system with a deepness bigger than the pipe.



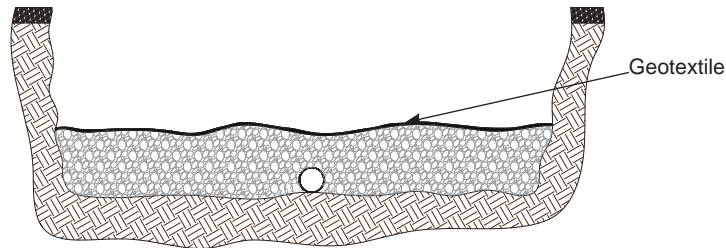
4

Insert gravel with grain diameter of 22 / 32 mm until a height of 300mm.  
Compact the gravel to avoid changes due to the settlement of the ground.



5

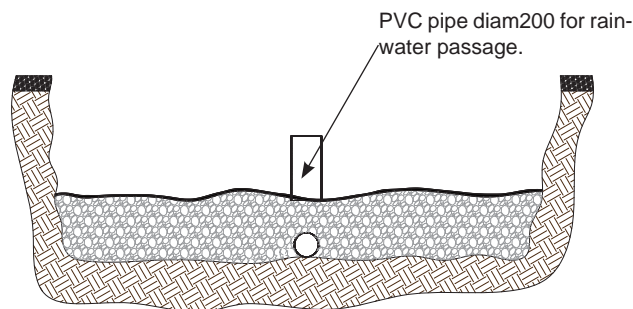
Insert a layer of geotextile (gr. 300) on the compacted gravel.



6



Put the PVC pipe (diameter of 200 mm and length 220mm) in the middle of the dig on the geotextile (the PVC pipe is necessary for the passage of the rain-water).

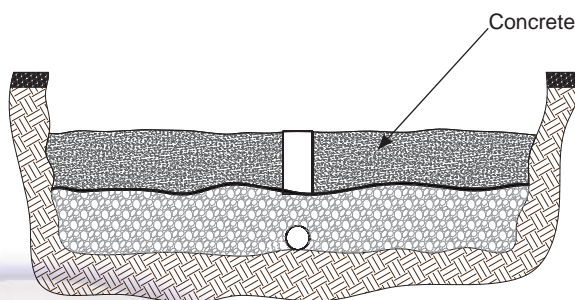


7



Enter Concrete in the dig until a height of 400mm.  
Be careful that the PVC pipe remains in the middle of the dig.

**WARNING:** the Concrete base must be perfectly leveled (to gain a good support of the bollard).



Remove the footsie before the installation.



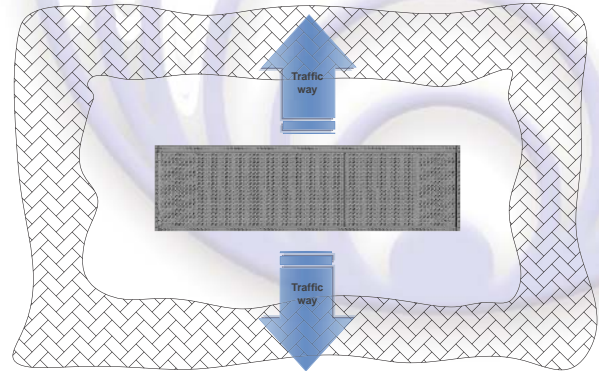
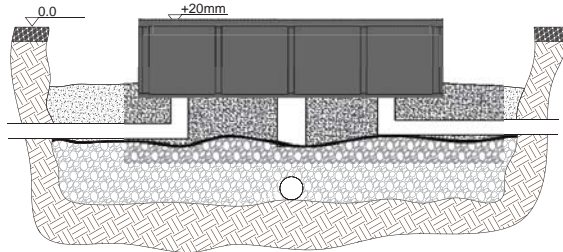


8



Set the provided formwork on the Concrete base taking care to position it perpendicularly, considering that the upper part of the formwork must be 20mm higher than the trampling line (to limit the presence of rain-water in the basin).

**WARNING: PUT THE FORMWORK FOLLOWING THE TRAFFIC WAY AS IN THE VIEW FROM ABOVE**

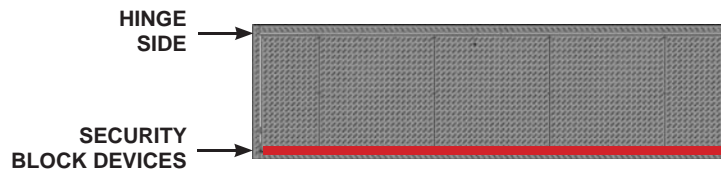


9



### SECURITY BLOCK DEVICES

Be sure that the security lock devices are located between the external structure of the Road Blocker and the movable structure (see the picture below) during the pouring of the concrete. Remove the locks only after the hardening of the concrete.



10



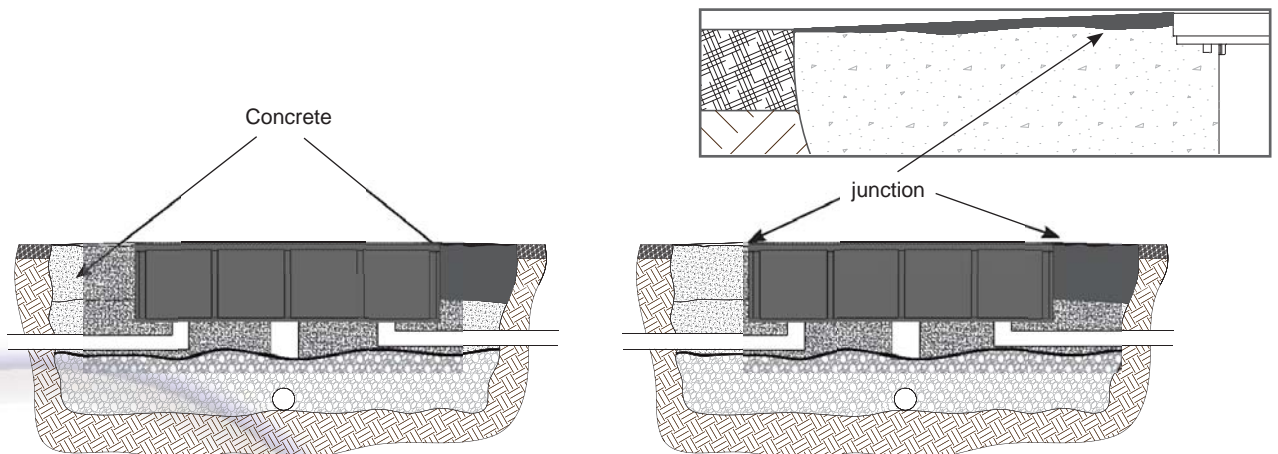
Put the Concrete all around in the dig.

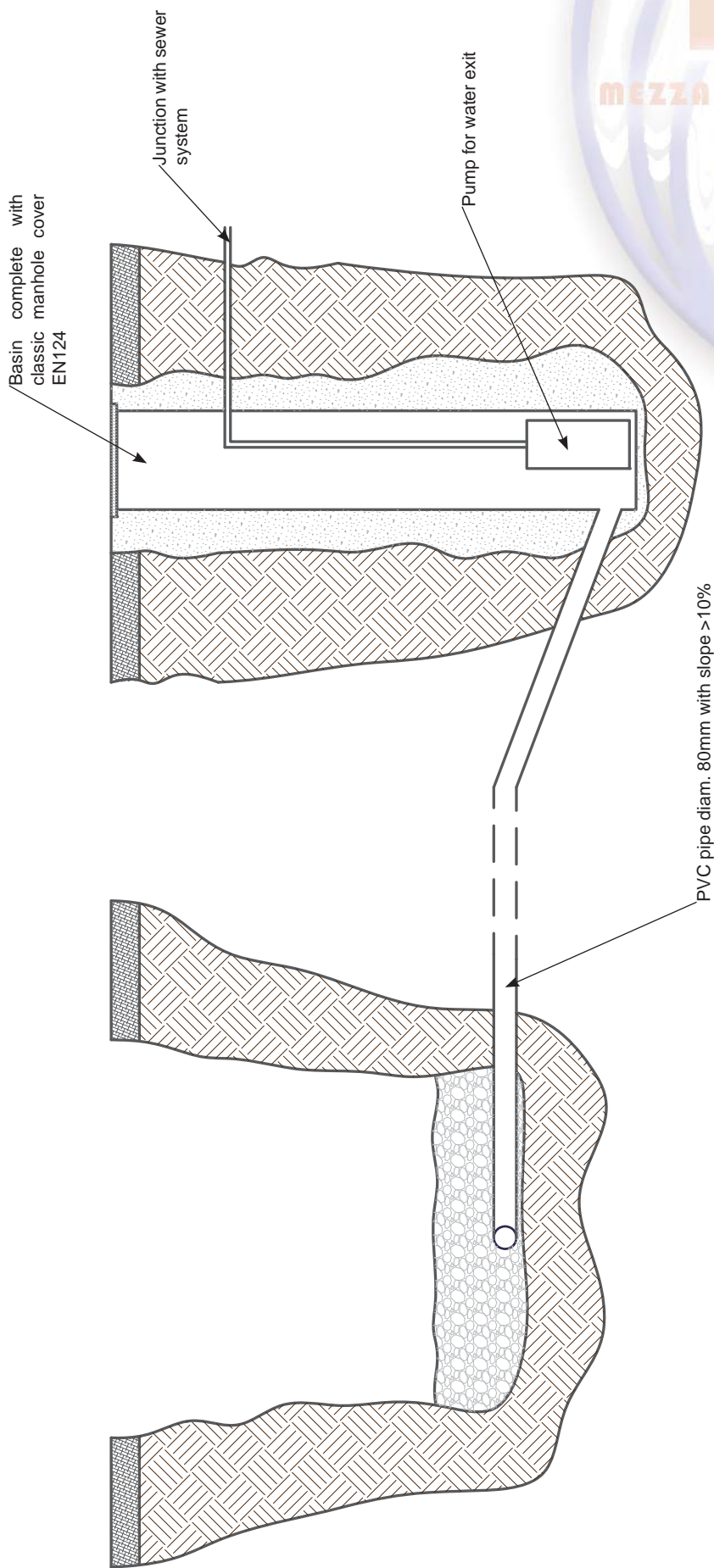
**WARNING: Verify that the Concrete sticks to the walls of the formwork.**

**WARNING: Verify that during the Concrete cast, the formwork remains at ground level.**

**WARNING: The second Concrete cast can reach the trampling area.**

**NOTE: The piping must be posed in accordance with the laws in force.**



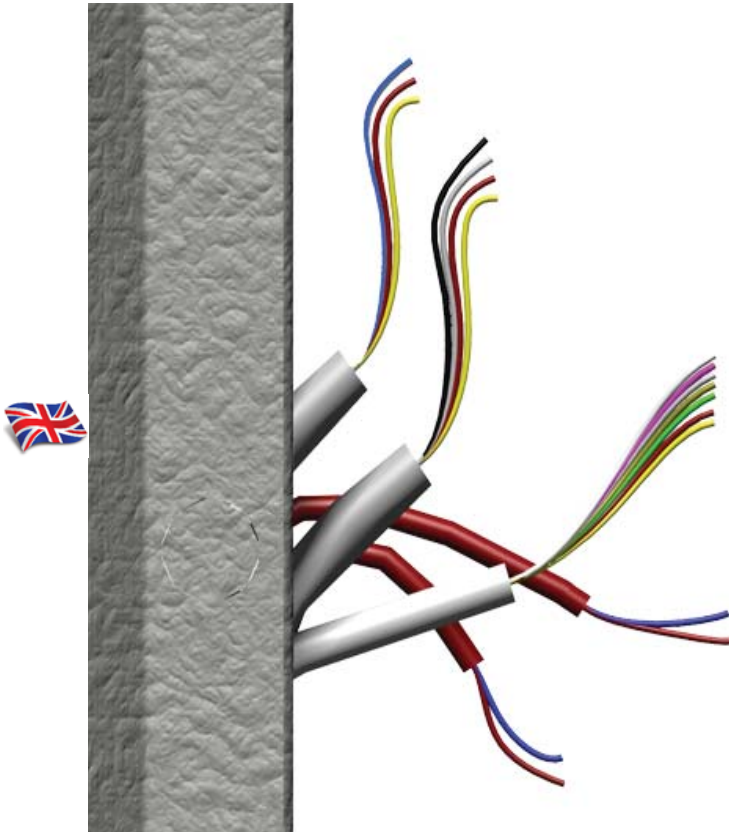


**Warning:**  
 This sewer system is thought for grounds with low draining quality, where, we you make a dig you can find immediately water and/or where you can't build a sewer system.  
 This drawn shows how to build a basin for the unloading of the water from the formwork of the bollard.  
 All the concrete that cover the bollard and the basin must contain special additives to isolate the water.  
 You can also build one basin to unload the water of all installed bollards.



## ELETRICAL CONNECTIONS TITANO FOR BRAIN1 AND BRAIN4

Electrican connections: Electrical valve, Hydraulic power unit, LEDs, Magnetic limit switch.





- CABLE 1** Electrical valve  $V_{rac}= 230Vac$  (ELET.V.)  
Type: 3 G 0,5 mm<sup>2</sup>
- CABLE 2** Power supply Engine  $V=230Vac$  (M1)  
Type: 4 G 1,5 mm<sup>2</sup>
- CABLE 3** Sensitive head+ORION LED  
Power supply ORION LED ( $V= 24Vdc$ ) +  
n°2 Is sensitive head (N.C.) (SEC2) +  
n°1 Is sensitive head (N.C.) (SEC1) +  
Typology: 7 G 0,5 mm
- CABLE 4** Magnetic limit switch (LOW)  
n°1 LO...(N.C.) (Limit switch1 Opening)  
Type: 2x0,5 mm<sup>2</sup>
- CABLE 5** Magnetic limit switch (HIGH)  
n°1 LC...(N.C.) (Limit switch2 Closing)  
Type: 2x0,5 mm<sup>2</sup>



### WARNING:

Before the installation, please read carefully this instruction manual.

MAC SRL declines every responsibility in case of non-compliance with the laws in force in the country.

N° cable	cable colour	Description cables	BRAIN1	BRAIN4
	(REF.PLUG)			
<b>--1-- CABLE 3G0,5 mm2 ELECTRICAL VALVE ALIMENTATION CABLE (ELET.V.) (V=230vac) (optional)</b>				
	YELLOW / GREEN	Electrical valve Ground cable		
	BLUE	Electrical valve power supply 230Vac	(18)	ELET.V.(19)
	BROWN	Electrical valve power supply 230Vac	(17)	ELET.V.(20)
<b>--2--CABLE 4G1,5 mm2 ENGINE ALIMENTATION CABLE (M1) (V=230vac 50Hz)</b>				
	YELLOW / GREEN	Engine ground cable	(21)	
<b>--3-- CABLE 2G0,5 mm2 ORION LED (V=24vdc) (optional)</b>				
*1	BIANCO (-)	ORION LED Power Supply	- 0	- 0 Vdc (25)
*2	ROSA (+)	ORION LED Power Supply	+ 24	+ 24 Vdc(26)
<b>--4-- CABLE 2x0,5 mm2 MAGNETIC LIMIT SWITCH1 PLACED LOW Fn OPEN</b>				
	BLUE	COMMON	(8)	C(34) (37) (40) (43)
	BROWN	NC CONTACT	(10)	FA(35) (38) (41) (44)
<b>--5-- CABLE 2x0,5 mm2 MAGNETIC LIMIT SWITCH2 PLACED LOW Fn CLOSED</b>				
	BLUE	COMMON	(8)	C(34) (37) (40) (43)
	BROWN	NC CONTACT	(9)	FC(33) (36) (39) (42)
<b>--6-- CABLE 3x1,5 mm2 SELF REGULATING HEATER RESISTANCE (V=230vac) (optional)</b>				
	YELLOW / GREEN	Heater ground cable		
	BLUE	Heater power supply 230Vac	N Linea 220	N Linea 220
	BROWN	Heater power supply 230Vac	F Linea 220	F Linea 220
<b>--7-- CABLE 2x1,5 mm2 BUZZER (V=230vac) (optional)</b>				
	BLUE	Buzzer power supply 230Vac	23	21
	BROWN	Buzzer power supply 230Vac	22	22
* The numbers with asterisk are the numeration on the cables if they don't have different colours				



For more explanations read the BRAIN1 and BRAIN4 manuals

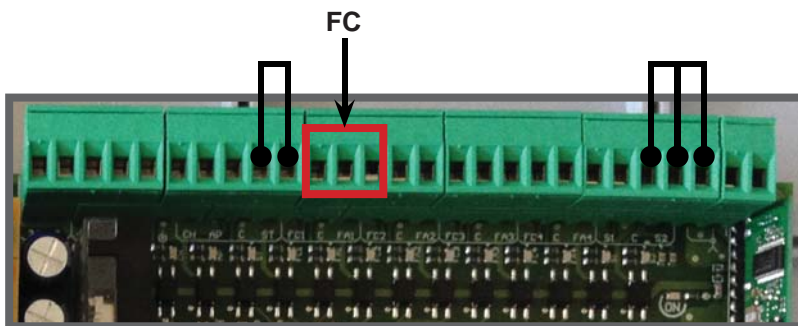
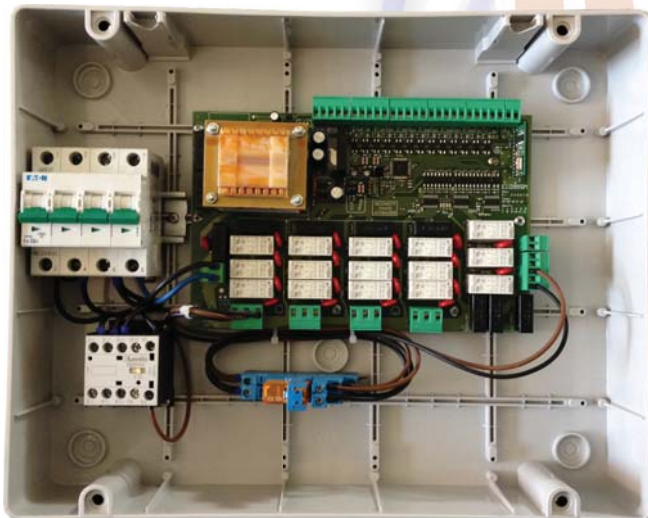
## GROUNDING OF THE TITANO



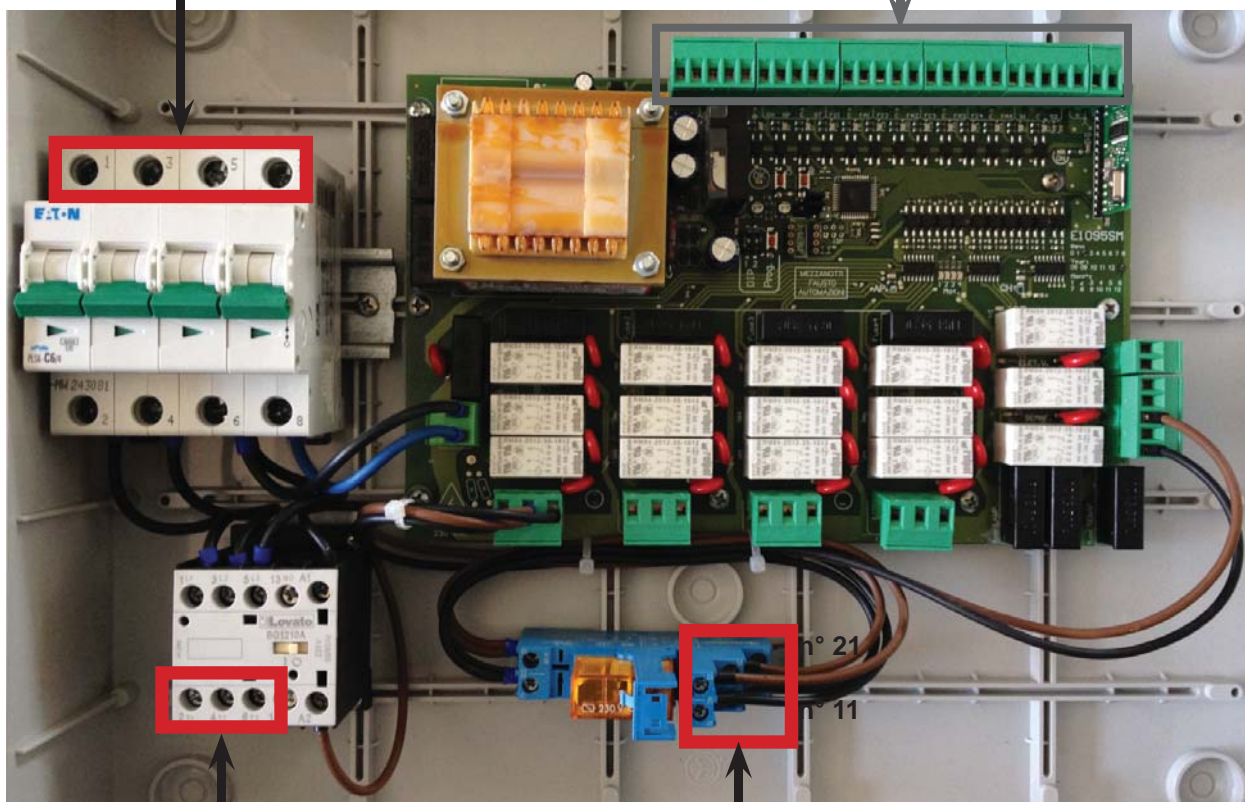
**CABLE E** Cable 6mm<sup>2</sup>  
Connect here the ground cable

(the ground cable is not included)

# ELECTRICAL CONNECTIONS WITH CONTROL BOARD



Power supply 380V  
3 Phases + N + T

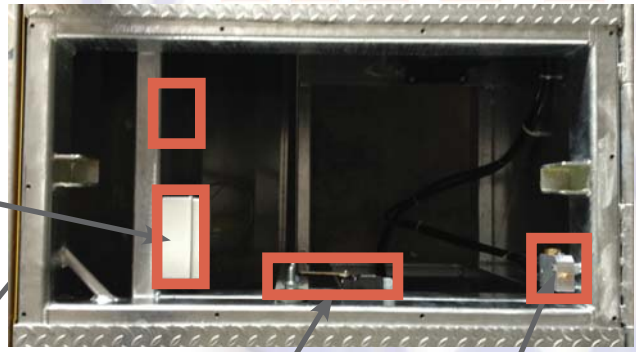


Engine

Electrical valve



FC AP    FC CH  
Led



FC AP



Engine

DESCENT  
valve  
pressure



FC CH



Unlock



Electrical valve





ANY





