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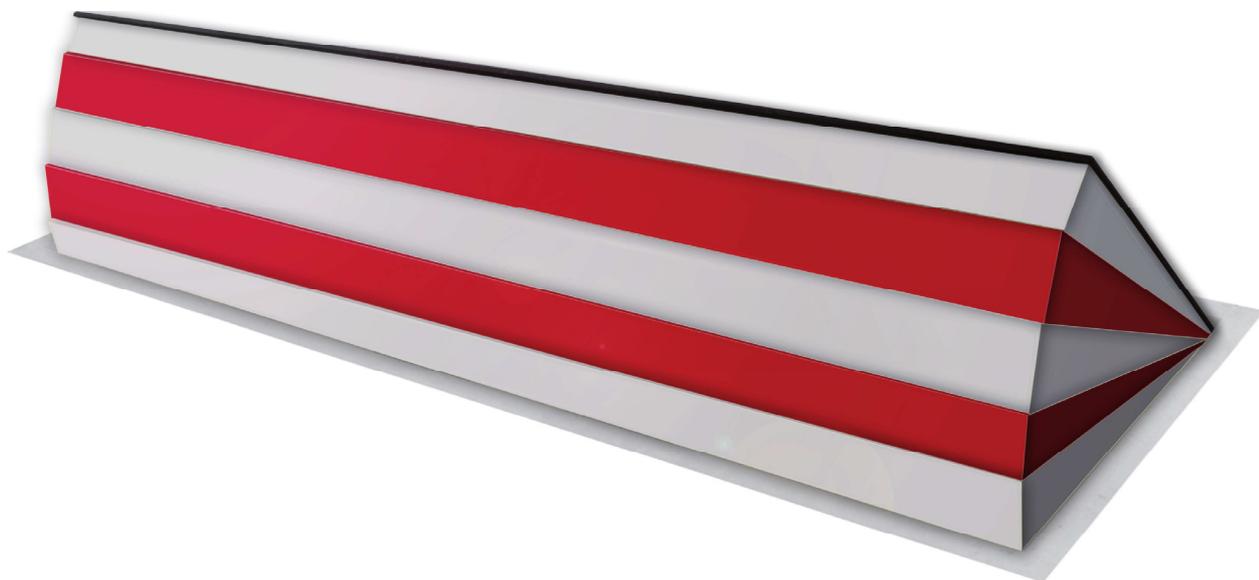
# PILOMAT<sup>®</sup>

## PILOMAT ROAD BLOCKER RB500

CODE: PW500X000

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## TECHNICAL INSTRUCTIONS



## WARNINGS FOR THE INSTALLER – GENERAL SAFETY OBLIGATIONS

	ATTENTION! It is very important for the safety of people to follow all instructions strictly. A wrong installation or use of the product could cause serious damage to people.	17	Each automatic installation should have at least one lighting device (i.e: flashing lights integrated in the crosshead of the bollard) and a signal placard, along with the device quoted at point “16”
2	<u>Read carefully this manual</u> before starting installation and save it for future reference.	18	In each automatic installation the installer must consider and install appropriate safety devices.
3	Packaging materials (i.e. plastic, polystyrene, etc.) must be out of children’s reach, because potentially dangerous.	19	For maintenance works use only original parts supplied by Pilomat S.r.l.
4	This product has been designed and manufactured exclusively on the purpose indicated in this manual. Any different use not here indicated could damage the integrity of the product and/or be potentially dangerous.	20	Pilomat S.r.l. is not responsible for safety and good functioning of the product , in case of use of components not manufactured or distributed by Pilomat S.r.l.
5	Pilomat S.r.l. is not responsible for any damage caused by improper or different use from the indicated one.	21	Do not apply any modification to the parts composing the automated product PILOMAT.
6	Do not install the device in an explosive area: Using Inflammable gases could be not safe.	22	The installer must provide the Customer with all information related to the manual release of the automatic bollard in case of emergency and give the User a warning manual attached to the product.
7	Installation must be according to the local Laws.	23	Do not allow children or others to stop close to the bollard during operation.
8	In order to have an adequate safety level in the extra-CEE countries, in addition to the national laws, the above mentioned laws must be followed.	24	Keep remote controls or other impulse-giving devices out of children’s reach, in order to avoid involuntary activation.
9	Pilomat S.r.l. is not responsible if someone does not observes the correct method of installation of the PILOMAT products and related devices, included deformations coming during the use.	25	Thoroughfare over the Pilomat bollard allowed only at complete lowering of the bollard.
10	Before any actions on the automatic installations take power off.	26	Semiautomatic bollards are not adviceable for multiple installation (two or more) on main streets where the frequent passage of vehicles over the lowered bollards can break the lock block and make the bollard lifting without control.
11	An Omni polar switch should be foreseen on the alimentation’s net of automatic installations. Its connections should have an opening range of 3 mm. A magnetotermical differential with 6A Omni polar switch is adviceable	27	The User must avoid any repairing actions or direct operations on the bollard, and must address to qualified and authorized personnel only.
12	Assure that a differential switch with 0,03° is present at the beginning of the automatic installation.	28	Do not waste exhausted batteries in the garbage, but dispose them in the apposite containers to allow recycling. Disposal costs have already been paid by the manufacturer
13	The main electrical alimentation of the control unit of automatic installations must be connected directly to at the beginning of the apposite principal switch set inside the control unit; use anti-flame cables approved by at least one of the European Institutes. The dimension of the first alimentation line must be minimum 3x2,5mm,but evaluated by the installer according to the number of PILOMAT (400W each PILOMAT) and the distance from the output point in order to guarantee a correct alimentation (230V +/- 10% for moving PILOMAT).	29	The product is packaged on Euro pallet; use pallets’ movers or shunters for movement; handle with care.
14	Test that the earthing is workmanlike and connect the metallic parts.	30	The product has been manufactured with IP 56 protection’s level, and could therefore be stored everywhere; storage in internal or covered places is anyway preferable.
15	The automatic installations include a standard safety device: an inversion pressure switch in case of at least 40 kg of load. It is anyway necessary to test the activation level every six months, according to what laws establish.	31	The product does not require availability of spare parts; Pilomat’s warehouse can send by express any needed spare parts.
16	Safety devices (Law EN 12978) allow protection of potentially dangerous areas where activities such as squashing, conveyance, shearing are possible to occur.	32	In case of maintenance and/or reparation, Pay attention not to give improper raising signals; to avoid any problems, disconnect the bollard’s moving by the switch set inside the control management station.
		33	Everything not mentioned in this manual is not allowed.

**PILOMAT**<sup>®</sup>



**PRODUCER COMPLIANCE DECLARATION:**

2006/42/EC - 2006/95/EC – 2004/108/EC

**Producer:** PILOMAT S.r.l.

**Address:** Via Zanica 17/P Grassobbio (BG – ITALY)

**We state under our exclusive responsibility that the product**

**PILOMAT ROAD BLOCKER RB500 - CODE: PW500X000**

**LINE NUMBER:**

Is built to be integrated into a machine or to be assembled with other machinery to create a machine under the provision of Directive 2006/42/EC

Conforms to the essential safety requirements of the following EEC directives:

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

And also declares that it is prohibited to put into service the machinery until the machine in which it will be integrated or of which it will become a component has been identified and declares as conforming to the conditions of Directive 2006/42/EC and subsequent amendments.

Grassobbio (BG – ITALY) 14.01.2015

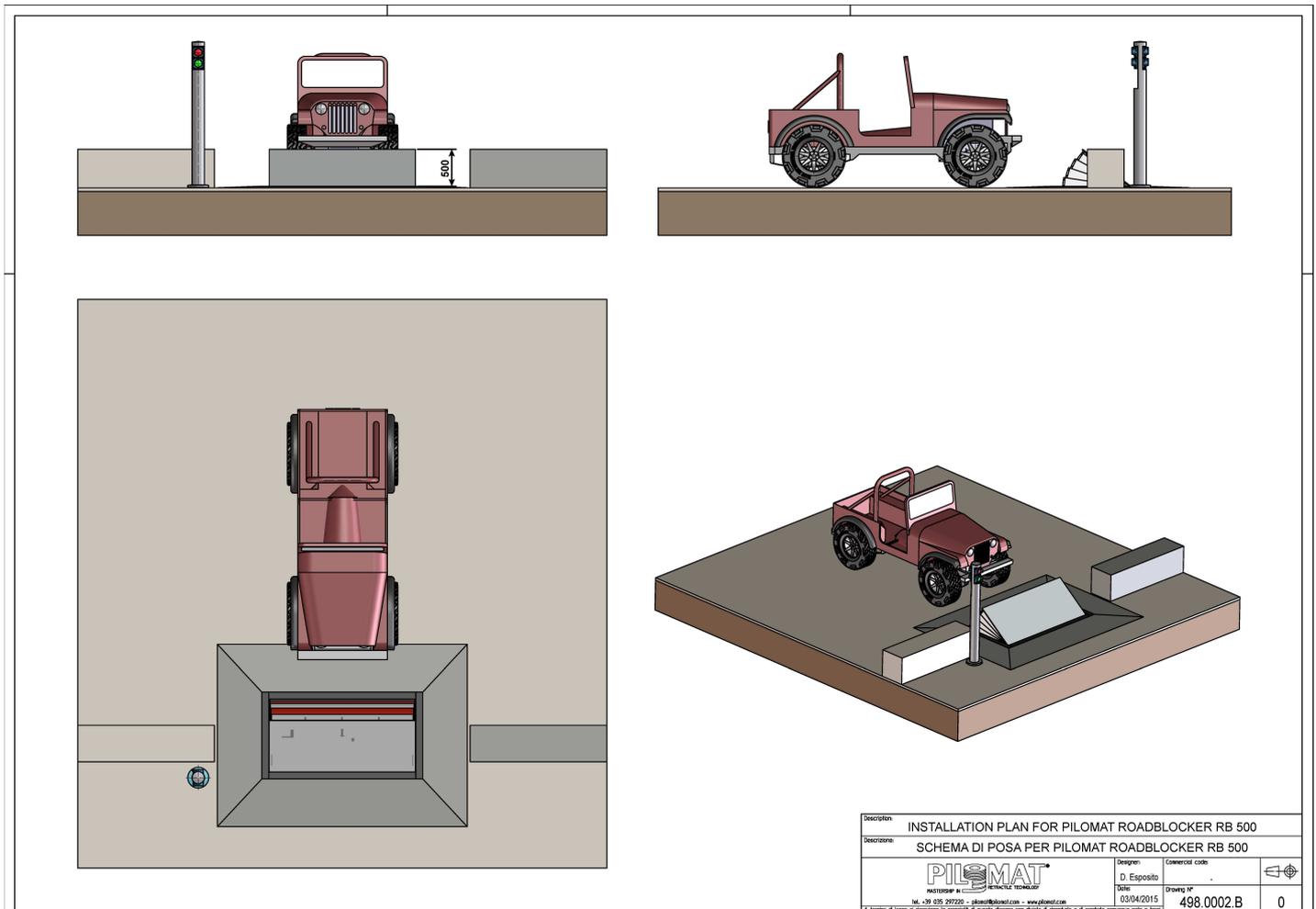
Technical Manager  
Sergio P.I. Toffetti

## PILOMAT ROAD BLOCKER RB500

### AUTOMATIC WITH BUILT-IN HYDRAULIC PUMP

#### DATA SHEET RB500

PLATFORM HEIGHT ABOVE GROUND	500 mm
PLATFORM WIDTH	STANDARD: 2,00m – 3,00m – 4,00m – 5,00m – 6,00m (out of standard sizes evaluable)
ROAD BLOCKER DEPTH	290mm (SHALLOW MOUNTED)
DEPTH OF DIGGING (FOUNDATION AND ROAD BLOCKER)	500mm
BREAKOUT RESISTANCE	700.000 J. (REF. US. CERTIFICATIONS ASTM LEVEL M30)
USED MOVEMENT	HYDRAULIC
RISING SPEED	5" POSSIBILITY TO SET FASTER SPEED (OUT OF STANDARD)
LOWERING SPEED	3" POSSIBILITY TO SET FASTER SPEED (OUT OF STANDARD)
E.F.O CIRCUIT FOR EMERGENCY RISING	YES (OPTIONAL) – RISING SPEED 1,5"
DEVICE FOR MANUAL HANDLING	YES (OPTIONAL)
MULTILED FLASHING LIGHT (30 LED POINTS/M)	YES (OPTIONAL)
METAL SHUTTER FOR CLOSING FRONT AND SIDE	YES (OPTIONAL)
CONNECTION LINE TO CONTROL UNIT	STANDARD 10m (MAX: 30m) – POSSIBILITY TO EVALUATE GREATER LENGHTS (OUT OF STANDARD)
PLATFORM FINISH	ALUMINIUM ANTISLIP METAL SHEET– OPTIONAL ANTISLIP STAINLESS STEEL
CLASS OF LOAD	REGULATION U.N.I. - D400
TYPE OF USE	INTENSIVE
POWER SUPPLY	230V (1P + N) – 50/60Hz – 1,1kW
STANDARD CABINET	WALL MOUNTING - 700x500x200P mm



## **PILOMAT ROAD BLOCKER RB500 - Width: 2,0mt**

### **INSTALLATION SEQUENCE**

**The following laying sequence concerns the RB500 2,0m wide.**

Rebars, brackets and chemical anchors are required for the installation (**supplied by the contractor**). It is advisable to be equipped with them before starting the placing.

It is necessary for ROAD BLOCKER RB 500 - 2,0mt wide:

- N° 18 U-rebars 460x200mm – ferro tondo diametro 14mm.
- N° 12 linear rebars – bar  $\varnothing$ 14mm, 2.930mm long.
- N° 12 linear rebars – bar  $\varnothing$ 14mm, 2.100mm long.
- N° 8 brackets 224x114mm – bar  $\varnothing$ 8mm.
- N° 20 chemical anchor HILTI (or similar). Reference HILTI = threaded bar: HIT-V-5.8 M16x150mm – injection chemical anchor: HIT-HY 200-A 330/2.

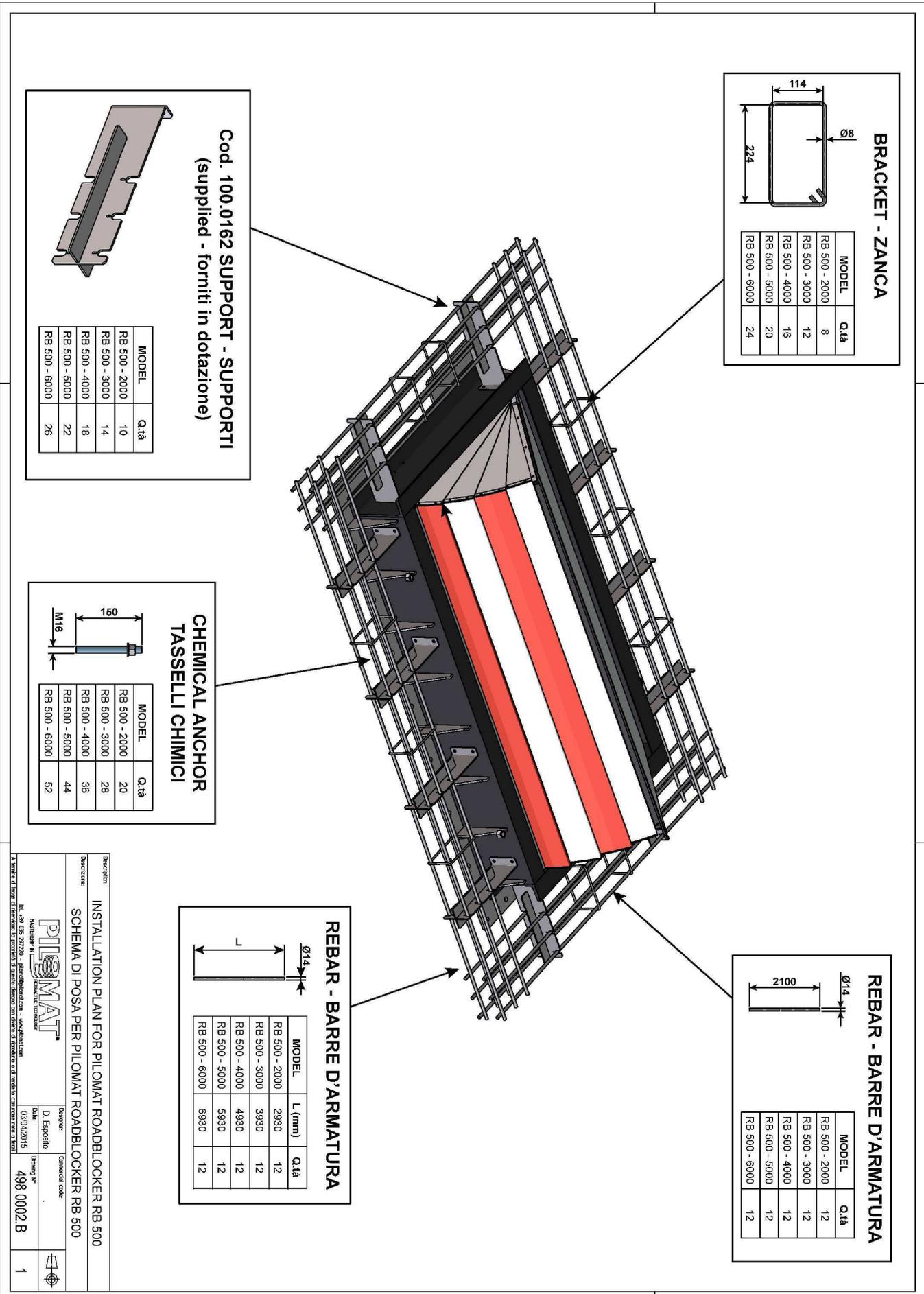
**In case of a different width, refer to the related drawing; the sequence of installation is the same but the size in width, the amount of the brackets, chemical anchors and supports for reinforcing rods change.**

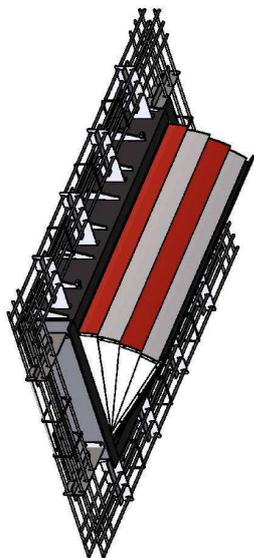
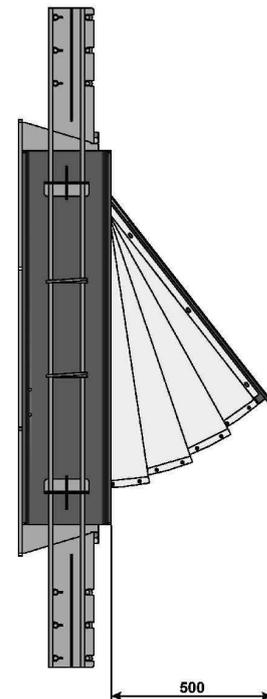
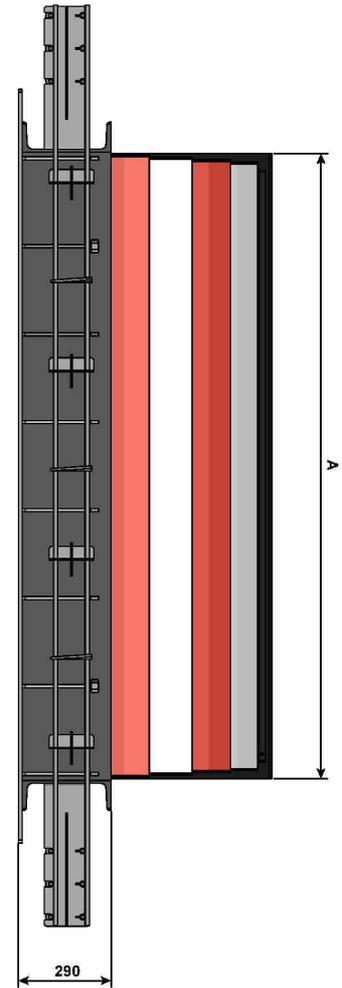
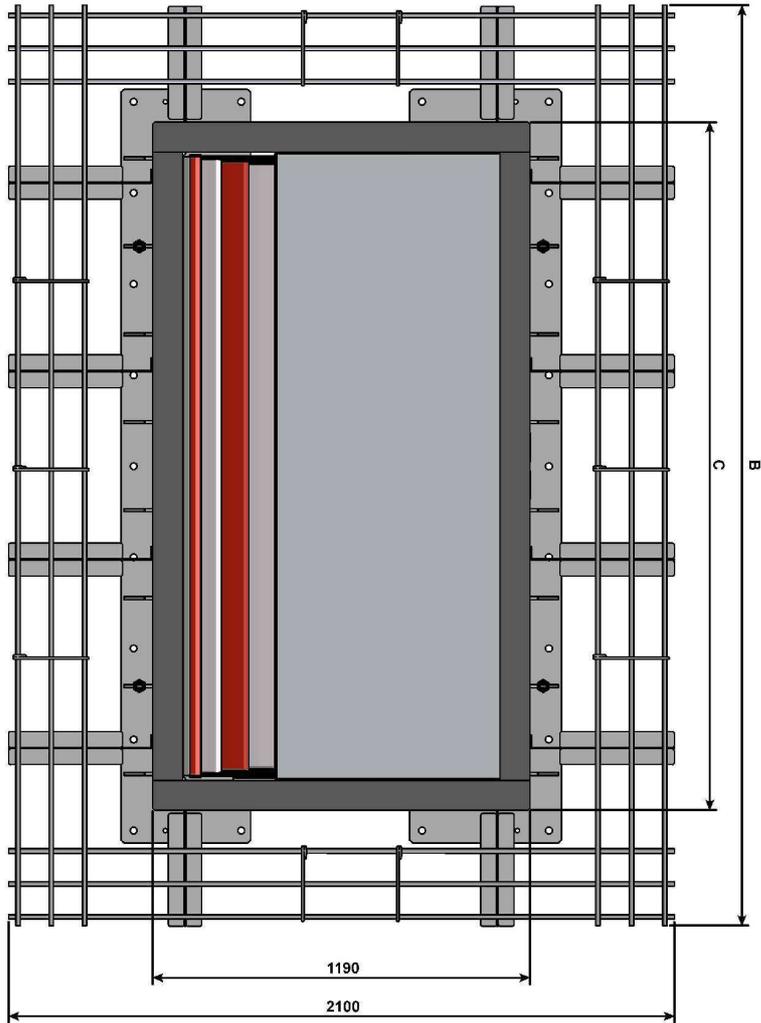
- 1) The area of installation must be scanned for underground services. At the chosen location, mark the ground for the laying of ROAD BLOCKER.
- 2) Dig a hole 2,50m wide and 3,40m long to a depth of about 0,50m (ref. drawing 498.0002-3); the excavation includes two  $\varnothing$  40mm sheaths for connecting PILOMAT ROAD BLOCKER to the control unit and a  $\varnothing$  100mm pipe for rainwater drainage (ref. drawing 498.0002.B-3).
- 3) Lay a  $\varnothing$ 100mm pipe for rainwater drainage (**supplied by the contractor**), protected by its dedicated grating (to avoid clogging); the piping must be properly connected to the drainage system (ref. Drawing 498.0002.B-3).
- 4) Execute the flooring substrate (well leveled) to a thickness of about 230mm with a concrete casting minimum  $R_{ck} = 30,00N / mm^2$  (or higher). Lay a welded mesh 100x100mm wire  $\varnothing$ 8mm (**supplied by the contractor**) and 18 U-rebars 460x200mm wire  $\varnothing$ 14mm (**supplied by the contractor**) stuck into the ground for about 60mm (ref. drawing 498.0002.B-3). It is advisable to vibrate the concrete with a special electric instrument.
  - Once the flooring substrate is mature, place ROAD BLOCKER RB500 in the center of the excavation. Screw the outer frame of ROAD BLOCKER with the 10 supports provided for perimetral rebars (ref. drawing 498.0002.B-1). Secure the rebars in the supports: 12 linear rebars  $\varnothing$ 14mm, 2.930mm long - 12 linear rebars  $\varnothing$ 14mm, 2.100mm long (ref. drawing C) - 8 brackets 224x114mm – bar  $\varnothing$ 8mm.
- 5)

- 6) Make the correct leveling of the ROAD BLOCKER (use the special 4 leveling screws placed at four sides) and check the correct position in relation to the walking level (ensure that ROAD BLOCKER is 20mm above the finished road surface, to limit the entry of rainwater into the excavation).
- 7) Fix ROAD BLOCKER to the ground with 20 HILTI chemical anchors (**supplied by the contractor**), using the external fixing holes of the perimeter frame (rif. drawing 498.0002.B-4) and check the proper leveling.  
Reference HILTI: threaded bar: HIT-V-5.8 M16x150mm – injection chemical anchor: HIT-HY 200-A 330/2.
- 8) ROAD BLOCKER is supplied with a power line and a pair of hydraulic pipes of suitable length for connection to the control unit. Lay 2 flexible Ø50mm sheaths from the two exit points of ROAD BLOCKER to the control unit, connecting the power line and the hydraulic pipes simultaneously (ref. drawing attached 498.0002.B-4).
- 9) Execute the final casting concrete minimum  $R_{ck} = 30n, 00N / mm^2$  (or higher), considering possible finishes of the road surface (such as asphalt). It is advisable to vibrate the concrete with a special electric instrument (ref. drawing 498.0002-4). As mentioned before, ROAD BLOCKER is 20mm above the finished road level then adjust the height difference with concrete or pavement.
- 10) Lay any additional accessories and the pipes for the power lines, such as: control panel - safety inductive loops - traffic lights - etc. (ref. drawing 498.0002.B-5 and notes on laying inductive loops).
- 11) Place and connect the control unit (see the attached procedure).
- 12) When the concrete has hardened test the proper operation of ROAD BLOCKER and all additional accessories.

PS 1: All pipes must be set in full compliance with the regulations.

PS 2: The inductive loops should not be installed less than 1m far from ROAD BLOCKER to avoid interference during the movement.





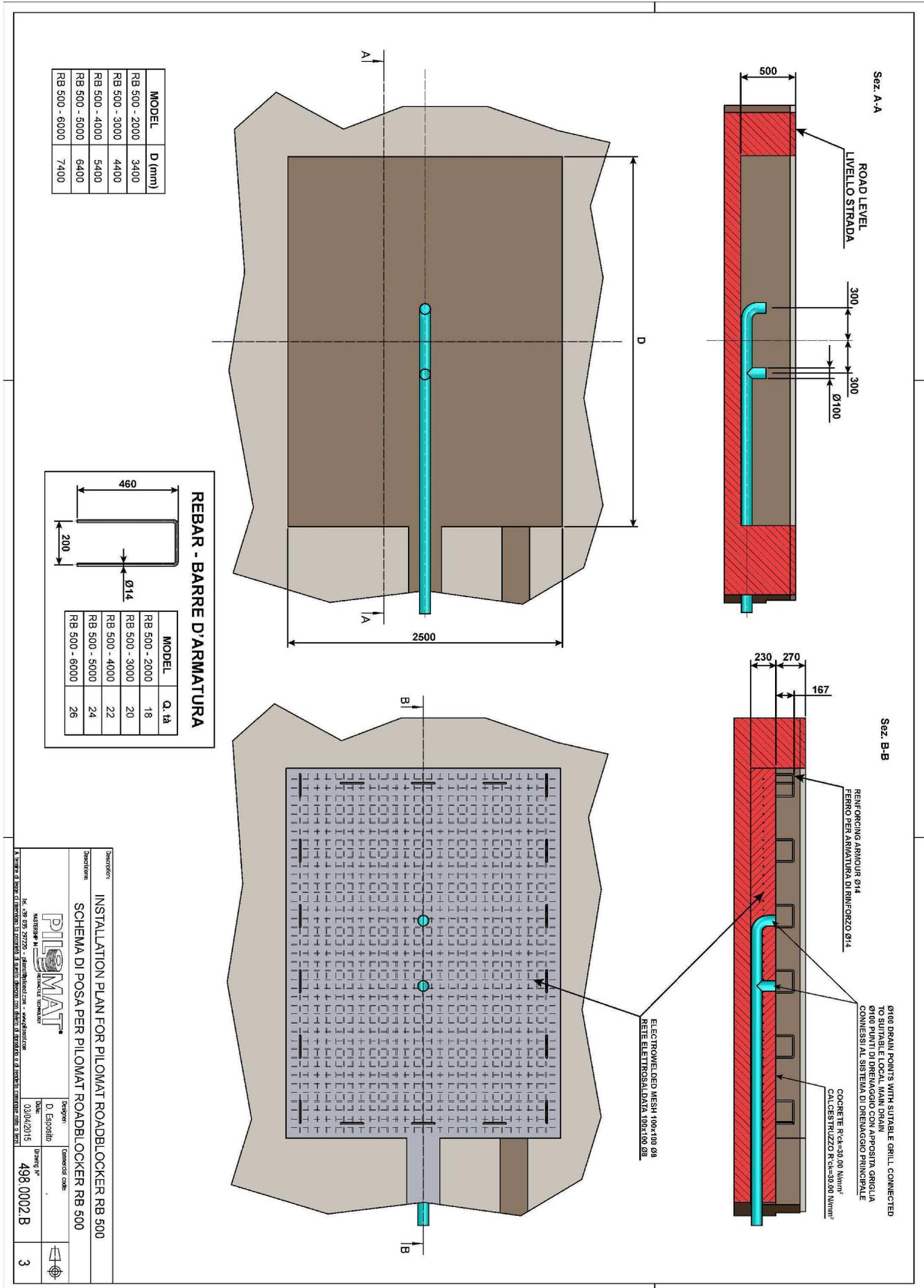
MODEL	A (mm)	B (mm)	C (mm)
RB 500 - 2000	1930	2930	2190
RB 500 - 3000	2830	3930	3190
RB 500 - 4000	3830	4930	4190
RB 500 - 5000	4930	5930	5190
RB 500 - 6000	5930	6930	6190

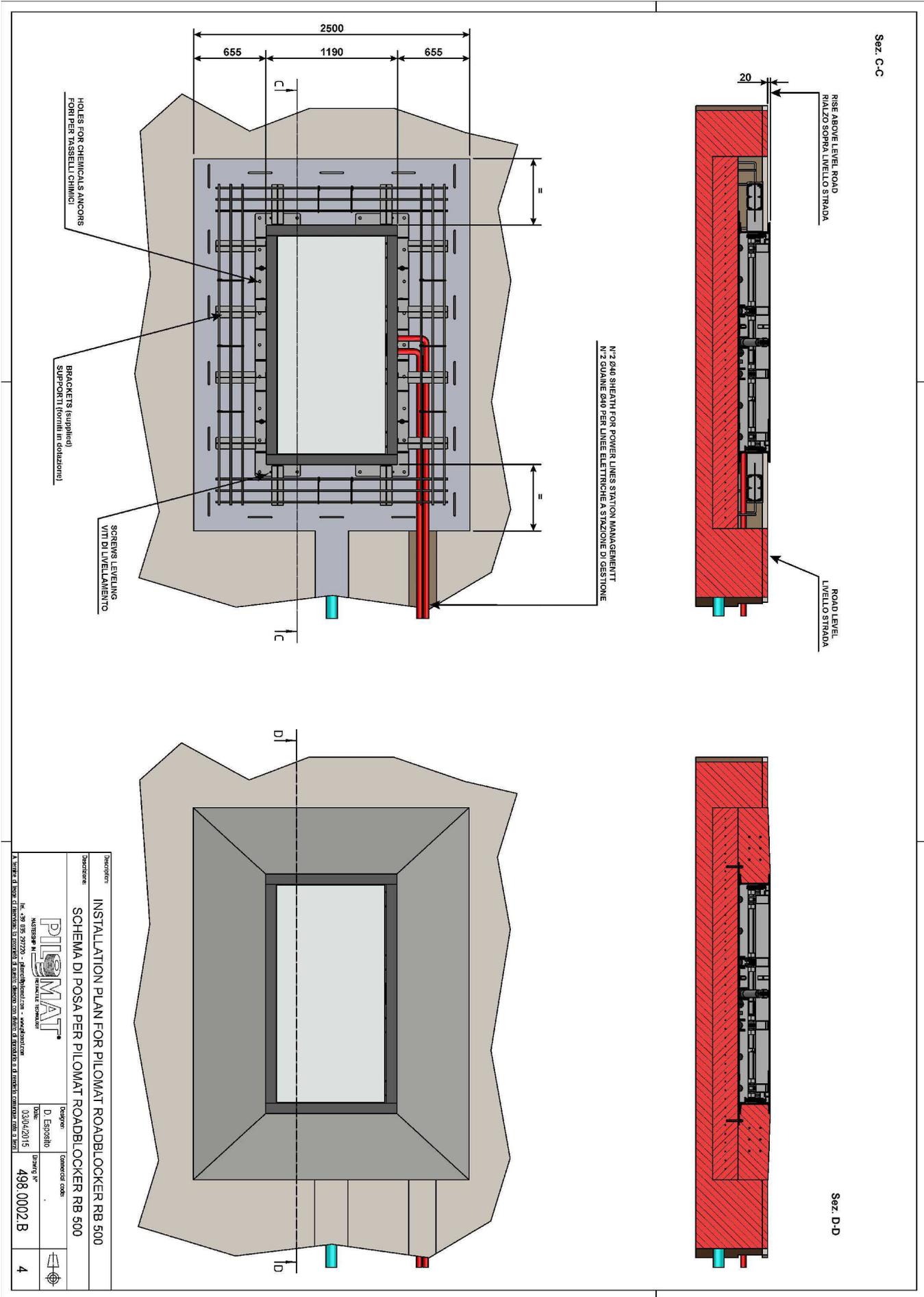
Descrizione: **INSTALLATION PLAN FOR PILOMAT ROADBLOCKER RB 500**  
 Caratteristiche: **SCHEMA DI POSA PER PILOMAT ROADBLOCKER RB 500**

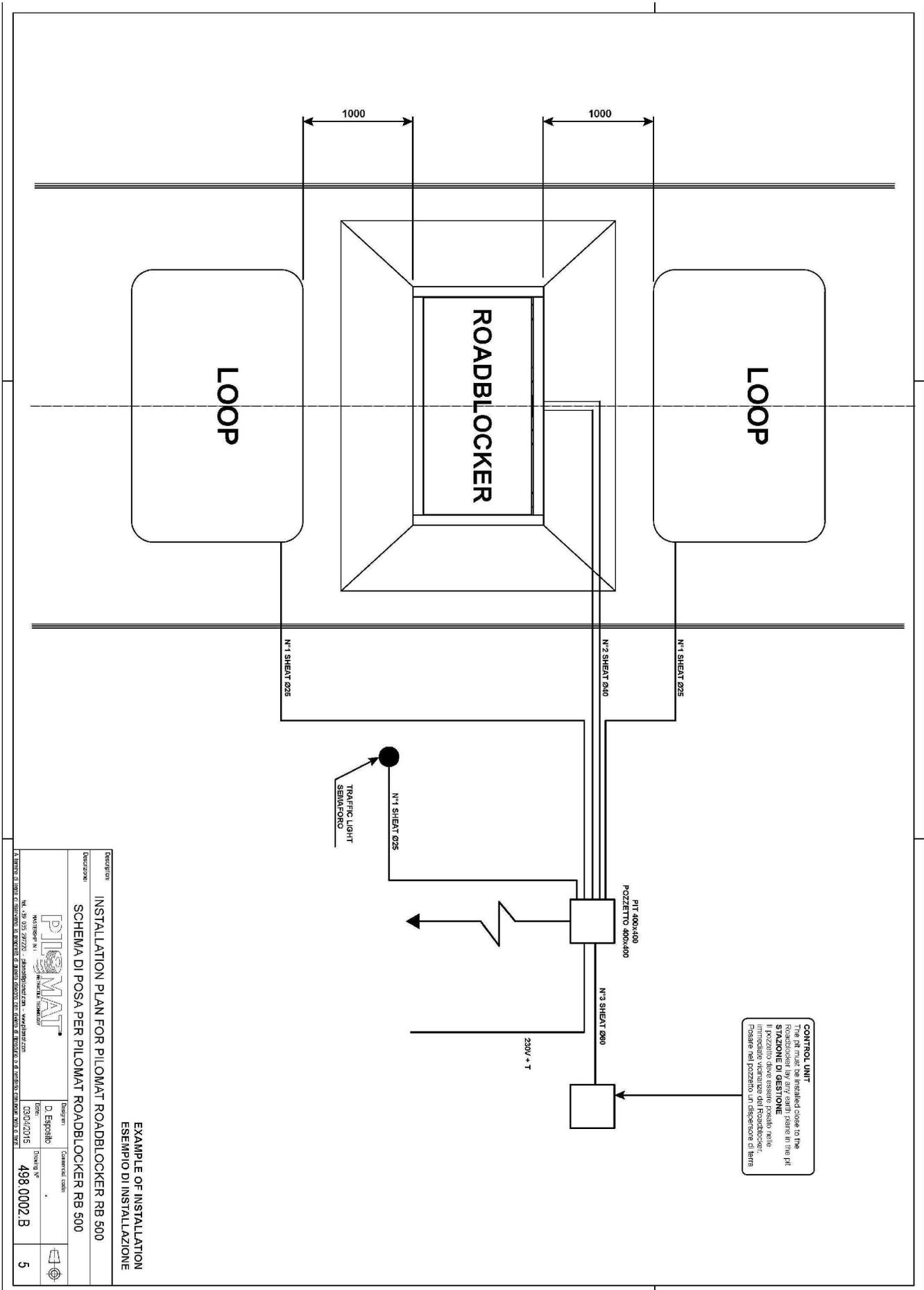
**PILOMAT**  
 MASTERSHIP IN RETRACTILE TECHNOLOGY

Indirizzo: **D. Esposito**  
 Data: 03/04/2015  
 Disegnato: **498.0002B**  
 Foglio: **2**

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## **NOTES ON LAYING THE MAGNETIC LOOP WITH A 9,60m CABLE**

When installing Road Blocker RB500, two inductive magnetic loops should be laid down to detect metal weights (cars), one in front of the Road Blocker and another behind. The standard dimensions of the loops are width 2,30m - length 2,50m.

Other sizes are available on request.

The loop is crafted by using a special electric cable with a diameter of approximately 9 mm and suitable protection, laid directly in the ground without pipes.

When laying the loop, it is necessary to check the presence of electro welded metal meshes nearby. If this is the case, it is essential that the mesh is at least 25cm below the loop (otherwise, a 30 cm section of the mesh below the loop must be removed).

The loops should be placed 5-7 cm below the road surface. If the surrounding area is of set stone or similar, the blocks must be lowered to allow the laying of the loops at this depth. Alternatively, the loops could be laid between one block and another with a Greek fret pattern.

The loop is connected to a line that sends the signal to the control unit. The line is made of a special insensitive cable to be laid in a 25mm diameter sheath.

**TECHNICAL DATASHEET OF SP CONTROL UNIT RB500**

Electronic control circuit	<b>Micro-processor-operated, with dedicated software which manages the ROAD BLOCKER units.</b>
Protection class	<b>Not less than IP56</b>
Operational temperature	<b>-40°C + 70°C</b>
Power supply	<b>230V One phase – 50/60HZ – 6A</b>
Protection cut-off	<b>Magneto-thermic switch 1P+N – 10A – 6KA</b>
Standard cabinet	<b>Wall mounting - 700x500x200P mm</b>

**CONNECTION PROCEDURE ROAD BLOCKER RB500 - CONTROL UNIT**

Following the connection procedure of Road Blocker RB500 to the control unit:

- Lay the power supply cable 230V 50/60Hz (of suitable section in relation to the length of the line) and connect it to the safety electromagnetic switch.
- Lay the grounding and connect it to the dedicated point.
- Lay the line for console and connect it to the master (terminal 24 – 25).
- Lay the line for traffic light and connect it to the master (terminal 40 – 41 – 42).
- Lay the line for Road Blocker signals and connect it to the master (terminal 13 – 14).
- Lay the black hydraulic hose and the blue moisture drainage pipe for the piston of Road blocker.
- Connect the black hydraulic hose (see picture 1-2) – **warning:** the hose is filled with oil so pay attention while connecting.
- Connect the blue moisture drainage pipe (see picture 3-4) – **warning:** the connection is done with a quick release; to remove the sample pipe (see picture 3), press the orange ring nut and extract the pipe.
- Remove the two black caps (only for delivery) placed on two white vent pipe for hydraulic pumps (see pictures 3-4).
- Execute other additional connections of the system.
- Test the proper operation of the Road Blocker.



PHOTO 1



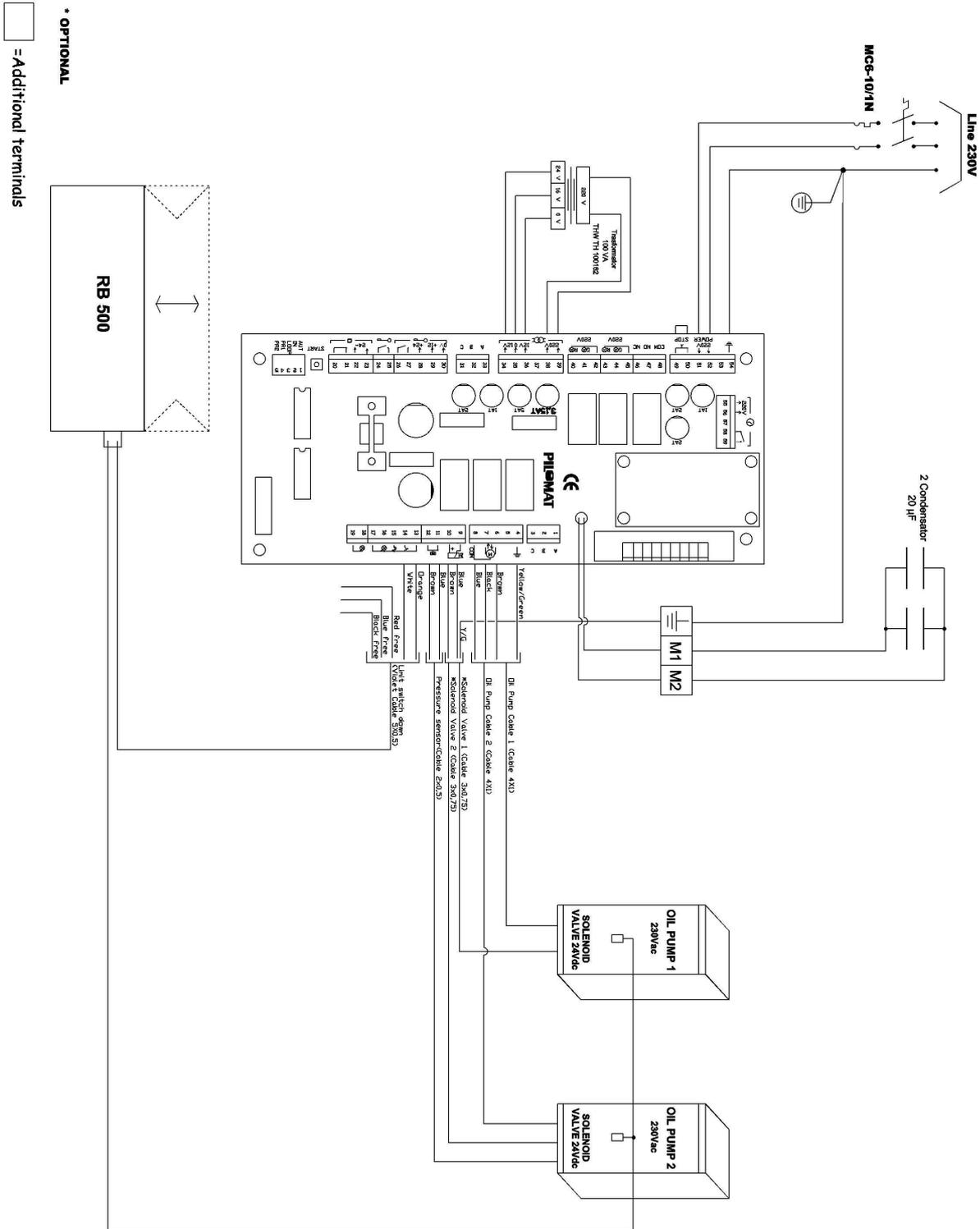
PHOTO 2



PHOTO 3

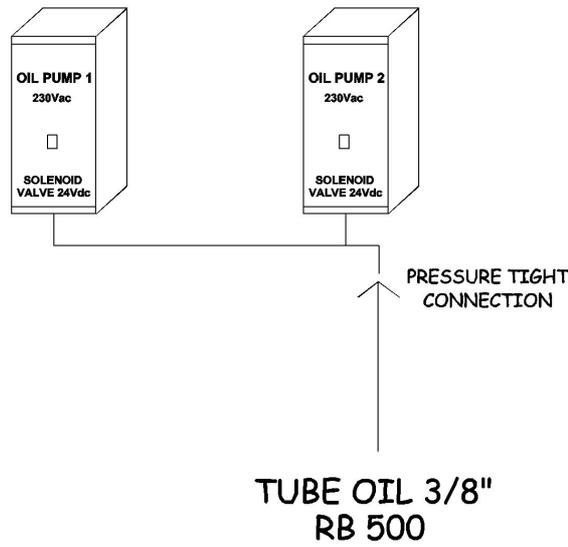


PHOTO 4

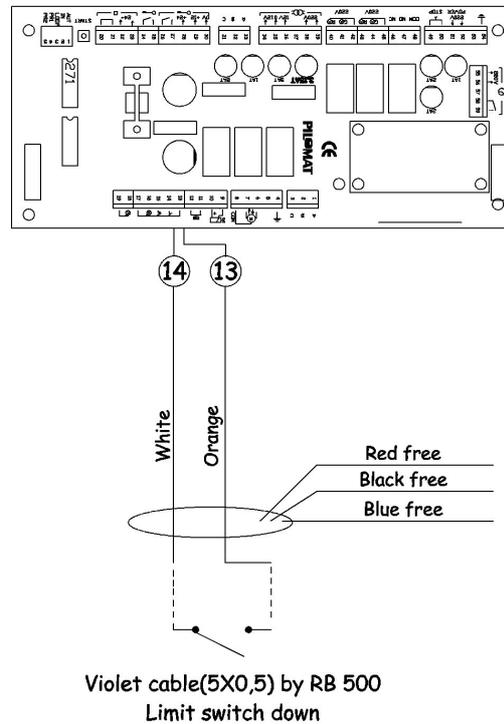


**DEVICE SP1 RB 500**

## CONNECTION OLEODINAMIC RB 500

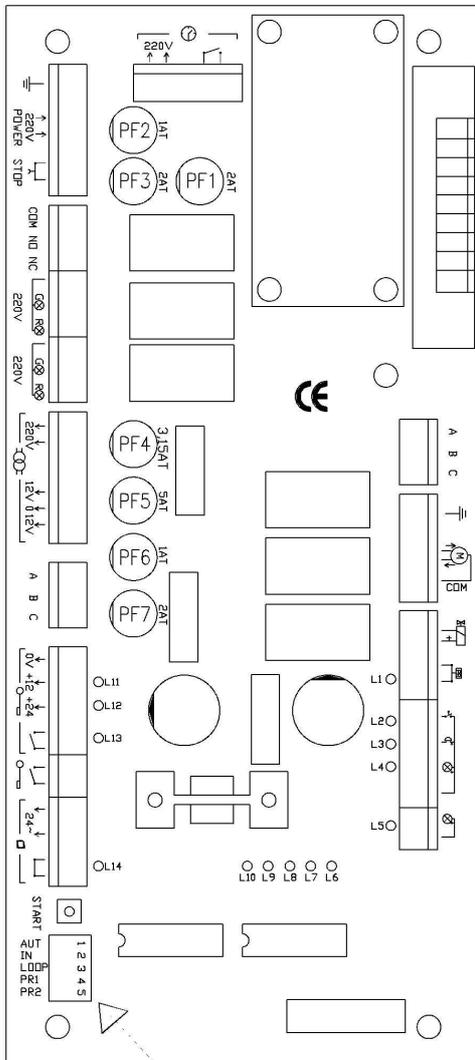


## CONNECTION LIMIT SWITCH DOWN RB 500



## CONNECTION OLEODINAMIC AND ELECTRIC RB 500

## Special descriptions Led / Dip Switch / Protection Master applicated only to RB 500



- L1 - Input Pressure Sensor
- L2 - Input Limit Switch Open (Limit switch Road Block down)
- L3 - Out Acoustic Buzzer
- L4 - Out Road Block Led Stripe
- L5 - Free
- L6 - Out Close (up)
- L7 - Out Solenoid Valves
- L8 - Out Open (down)
- L9 - Out Running
- L10- Out Green Traffic Light
- L11- (Out) + 12V d.c. OK
- L12- (Out) + 24V d.c. OK
- L13- Input Start
- L14- Input Detector

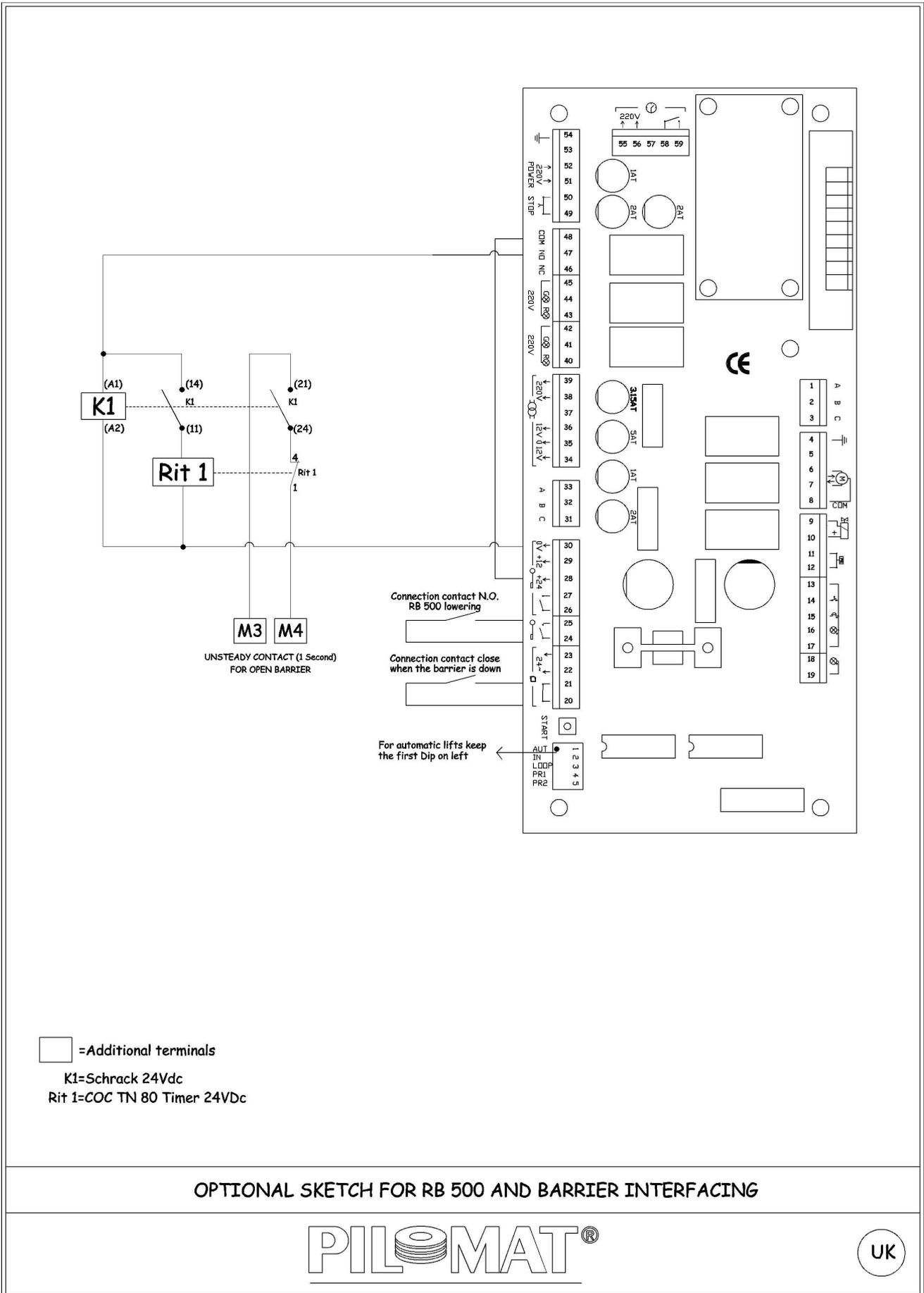
- PF1- Trasformer Protection
- PF2- Clock Protection
- PF3- Traffic Lights Protection
- PF4- Solenoide Valves Protection
- PF5- Aux Protection
- PF6- Aux Protection 24V
- PF7- Logic Protection

### RB 500 ELECTRONIC CIRCUIT DIP-SWITCH FUNCTIONALITIES

DIP-SWITCH IN THE OFF POSITION		DIP-SWITCH IN THE ON POSITION
AUTOMATIC LIFTING ENABLED	1	AUTOMATIC LIFTING INHIBITED
DRIVES ENABLED	2	DRIVES INHIBITED
SAFETY DEVICES ENABLED	3	SAFETY DEVICES INHIBITED
LIFTING LIMIT STOP ENABLED	4	LIFTING LIMIT STOP PRESSURE SWITCH INHIBITED
REVERSAL PRESSURE SWITCH ENABLED	5	REVERSAL PRESSURE SWITCH INHIBITED

**Special descriptions Master circuit connection terminal board  
applied only to RB 500**

Terminal 1-2-3=available (feedthrough with 31-32-33-with protection fuse)-  
Terminal 4-6-7-8=hidraulic pumps connection-  
Terminal 5=not used-  
Terminal 9-10=Lowering solenoid valves connection-  
Terminal 11-12=input pressure sensor  
Terminal 13=common wire for limit switch connection-  
Terminal 14=input limit switch open (limit switch Road Block down)-  
Terminal 15=Road block intermittent buzzer connection-  
Terminal 16=Road block led stripe connection-  
Terminal 17=common wire for -buzzer- Road Block led stripe-  
Terminal 18-19=not used-  
Terminal 20-21-22-23=turns inductive detector-  
Terminal 24-25=input for lowering drive-  
Terminal 26-27-28-29-30=rx radio/reader for lowering connection-  
Terminal 31-32-33=available (feedthrough with 1-2-3 with protection fuse)-  
Terminal 34-35-36-37-38-39=service transformer connection-  
Terminal 40-41-42=connection 230v traffic lights 1-  
Terminal 43-44-45=connection 230v traffic lights 2-  
Terminal 46-47-48=remote repetition of traffic lights (neutral switching contact)-  
Terminal 49-50=not used-  
Terminal 51-52=230v connection to electronic circuit-  
Terminal 53=not used-  
Terminal 54=ground connection-  
Terminal 55-56-57-58-59=weekly/yearly clock connection-



## **PILOMAT ELECTRONIC CIRCUIT DIP-SWITCH FUNCTIONALITIES**

### **Item PIL 03**

FOREWORD: the DIP SWITCHES that are found on the Road Blocker electronic circuit board are useful to the technicians for a quick diagnostic during maintenance/repair work of the system. Indeed, in the event of failures, instead of disconnecting the wires from the terminal strips, it proves to be more functional to cut out a part of the circuits through a proper positioning of the DIP SWITCHES -

DIP-SWITCH IN THE OFF POSITION		DIP-SWITCH IN THE ON POSITION
AUTOMATIC LIFTING ENABLED	<b>1</b>	AUTOMATIC LIFTING INHIBITED
DRIVES ENABLED	<b>2</b>	DRIVES INHIBITED
SAFETY DEVICES ENABLED	<b>3</b>	SAFETY DEVICES INHIBITED
LIFTING LIMIT STOP ENABLED	<b>4</b>	LIFTING LIMIT STOP PRESSURE SWITCH INHIBITED
REVERSAL PRESSURE SWITCH ENABLED	<b>5</b>	REVERSAL PRESSURE SWITCH INHIBITED

#### **DIP SWITCH 1:**

Position yet to be defined as a function of the specific need and configuration of the system (if the safety devices are not used, it MUST be positioned ON) –

- **Position OFF = AUTOMATIC LIFT ENABLED:** the Road Blocker is normally set to be in the high position – after the actuation of the drive, it reaches the low position – when the vehicle has crossed the controlled passage (hence it engages and then disengages the safety devices), the Road Blocker rises to the high position– if the vehicle does not cross the passage, the Road Blocker moves back to the high position automatically after 30” –
- **Position ON = AUTOMATIC LIFT INHIBITED:** the Road Blocker, after actuating the drive for the first time, moves from high to low – then after a further actuation it moves back to the top position –

#### **DIP SWITCH 2:**

Normally in the OFF position –

- **Position OFF = DRIVES ENABLED:** the Road Blocker operating drives associated with terminals 24/25 – 26/27 – 58/59 are operative –
- **Position ON = DRIVES INHIBITED:** the Road Blocker operating drives associated with terminals 24/25 – 26/27 – 58/59 are inhibited – if the Road Blocker does not rise, the technician, on intervening, may temporarily inhibit the drives and use the dedicated push-button located on the same circuit to operate some trial runs -

### DIP SWITCH 3:

Normally in the OFF position –

- **Position OFF = SAFETY DEVICES ENABLED:** the input for safety devices, associated with terminals 20/21, is enabled - if the dip-switch is in the OFF position and the device is not connected (or without closing jumper), the column will not rise to the high position –
- **Position ON = SAFETY DEVICES INHIBITED:** the input for safety devices, associated with terminals 20/21, is inhibited – if the Road Blocker does not rise, the technician, on intervening, may temporarily inhibit the safety devices to check whether the cause of the failure is to be ascribed to the safety devices themselves–

### DIP SWITCH 4:

Normally in the OFF position –

- **Position OFF = LIFTING LIMIT STOP-PRESSURE SWITCH ENABLED:** at the final lifting stage, the signal emitted by the pressure switch is used as upper limit stop to end the lifting stage -
- **Position ON = LIFTING LIMIT STOP-PRESSURE SWITCH INHIBITED:** The above function is inhibited; the lifting stop occurs by timeout (the timeout delay may change as a function of the installed EPROM memory installed in the electronic managing circuit)-

### DIP SWITCH 5:

Normally in the OFF position –

- **Position OFF = REVERSAL PRESSURE SWITCH ENABLED:** during the lifting stage, in the event of a weight exceeding 50 kg. being detected, the pressure switch signal is used as a safety device to stop the Road Blocker and lead it back to the “low” position -
- **Position ON= REVERSAL PRESSURE SWITCH INHIBITED:** the function described above is inhibited – if the Road Blocker does not rise or during the rising stage it moves back with no apparent reason, the technician, on intervening, may temporarily inhibit this function to check whether the cause of the failure is to be ascribed to the pressure switch –

**ORDINARY ROUTINE MAINTENANCE PROCEDURE FOR**  
**PILOMAT<sup>®</sup> ROAD BLOCKER**

The standard routine maintenance sequence is as follows:

- Cleaning of the inner part of Road Blocker with suction of all material settlements –
- Cleaning of the water drainage tube located on the bottom of the pit-
- Testing of the hydraulic circuit for oil leaks–
- General testing the correct tightening of screw's elements–
- General cleaning of Road Blocker and painting touch-ups, if needed -
- Testing of the hydraulic pump, top-up of oil level (if needed) and checks over working pressure settings –
- Test the multi-led flashlight incorporated in Road Blocker for proper operation

**MOREOVER, IF THE FOLLOWING ITEMS ARE IN THE INSTALLATION,**  
**PERFORM THE FOLLOWING CHECKS AND TESTS:**

- Test the flashlight incorporated in the element's head for proper operation –
- Operating test of traffic-lights lanterns –
- Operating test of inductive safety loops –
- Check over the power failure procedure for proper operation –
- Operating test over the control radio receiver –
- Operating test of the remote control GSM effector-
- Sight check of the control unit management unit (e.g.: “flooded” relay contacts oxidized clamps – etc.)



**Distributor stamp:**

All descriptions and pictures of this manual are not binding. PILOMAT srl has the right, maintaining the main characteristics of its products, to provide them with needed modifications at any time and without up-dating of this manual, in order to improve their technical performance or to meet commercial requirements.