Waypole 2

Installation Manual

ENGLISH

enel way

Index

Caution: The safety of the apparatus is guaranteed only via the appropriate use of the following instructions. It is therefore necessary to save them. The installation and any interventions on operating stations must be carried out solely by specialized personnel in accordance with the mandatory safety requirements.

1. Purpose

The purpose of this document is to describe how to install the apparatus called "Enel X Way Waypole™ 2".

2. Field of application

It is used to document the Installation of this apparatus as part of Charging System for Electric Vehicles.

3. Definitions/Abbreviations

JP 2	Enel X Way Waypole™ 2
JP	Enel X Way Waypole™
PS3G	Pole Station 3G
PI	PRESCRIPTION FOR INSTALLATION (This document)
DIFF.	DIFFERENTIAL SWITCH
MT	MAGNETOTHERMIC SWITCH

4. Equipment

TOOL	MEASUREMENT	USE
Socket wrench at least 1.6'' long	0.5''	Power supply clamps 400 Vac + earth
		
Monkey's wrench	0.7''	Nuts to fasten clamps
		
"Torx" wrench	T20	To fasten the Cap

Hex key	0.1''	Internal panel and lexan Protection
Hex key	0.2''	To fasten the metal cable tie
Spanner/Monkey's wrench	0.8''	Small cable gland
Spanner/Monkey's wrench	2.1''	Large cable glands
Crimping tool	---	5 x Cable lugs with eyelet for M8
Socket wrench	0.4'', 0.5'', 0.6''	Fastening lugs

5. Materials provided by the manufacturer

The following table lists the materials provided by the manufacturer for each JP 2 to be used for the installation. This document will also be provided.

REF.	CODE	DESCRIPTION	QTY.
1	467016531	JP 2 ENEL SINGLE PHASE SINGLE PHASE JP2 RFID	1
	467016181	JP2ENELSINGLEPHASETHREEPHASE JP2.1 RFID	1
	467016171	JP2ENELTHREEPHASETHREEPHASE JP2.1 RFID	1
2	161192991	JP 2 Cap Group	1
3	161109931	JP 2 Clamp Group with Box	1
4	163089501	JP 2 Packaging	1

1

Example

2

3

REF.	CODE	DESCRIPTION	QTY.
1	364460346	JP11 HEAD SUPPORT	2
2	364460347	JP11 POLE SUPPORT	4
3	364460348	NYLON BAG 500 X 1500	1
4	364460349	JP11 BOX 440X1500X514	1
5	364460351	PALLET P.S.4G 1550x950	0.25

163089501 .- P.S. 4G Packaging

REF.	CODE	DESCRIPTION	QTY.
1	364101822	ANCHOR SUPPORT	1
2	364101823	THREADED ROD	2
3	361020164	NUT ES.M12 INOX 5588	4
4	361030320	GROWER WASHERS D.12 1751 INOX	4
5	364460361	CLAMP BOX	1

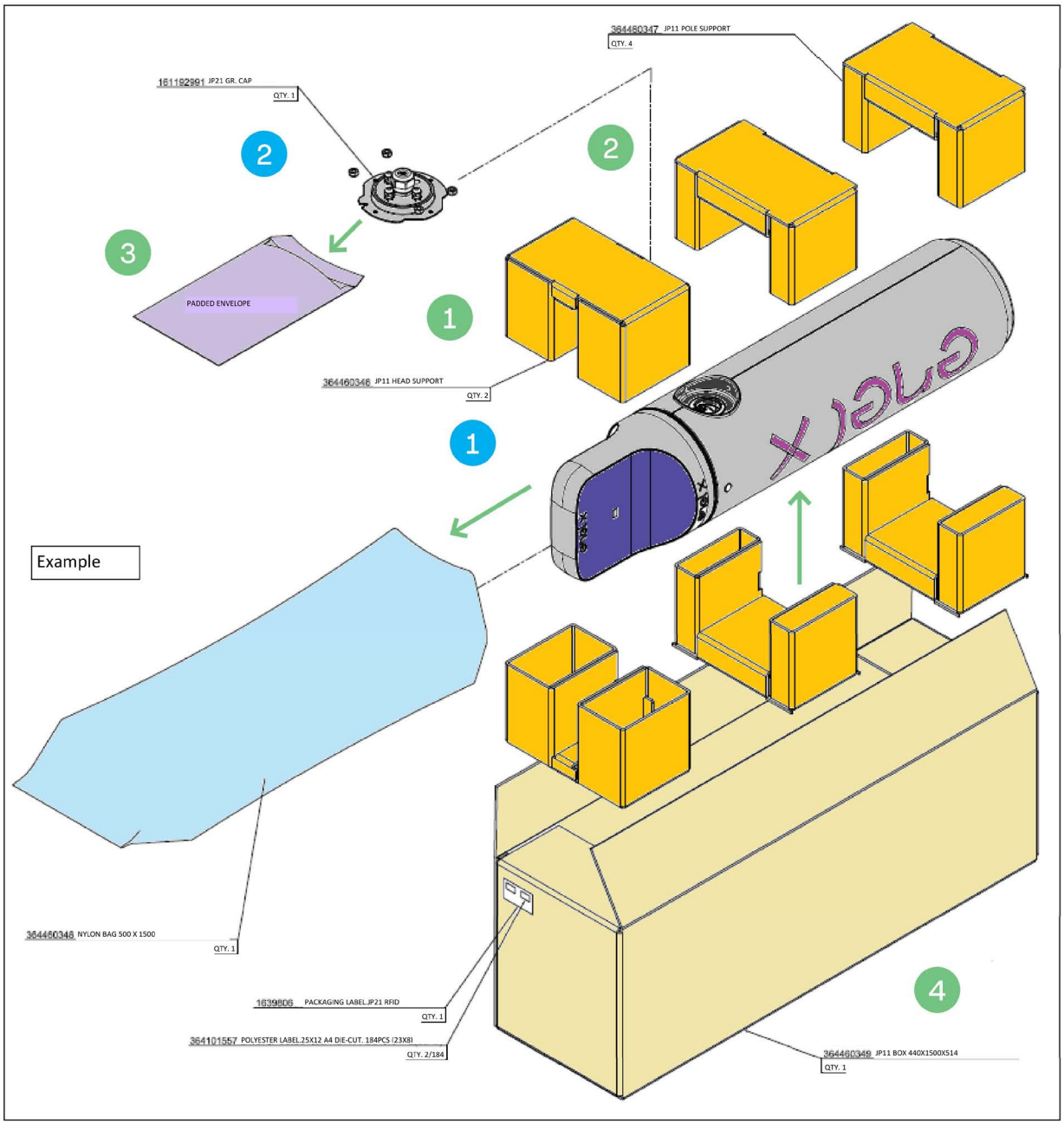
161109931.- JP 2 Clamp Group with Box

6. Unpacking

Remove the pole from its packaging (big box) by removing the cardboard protection, then place it vertically on the pavement, taking care not to damage it.

Extract also the auxiliary material attached to the pole, necessary for installation, and store it carefully on site until used.

Themainpackaging

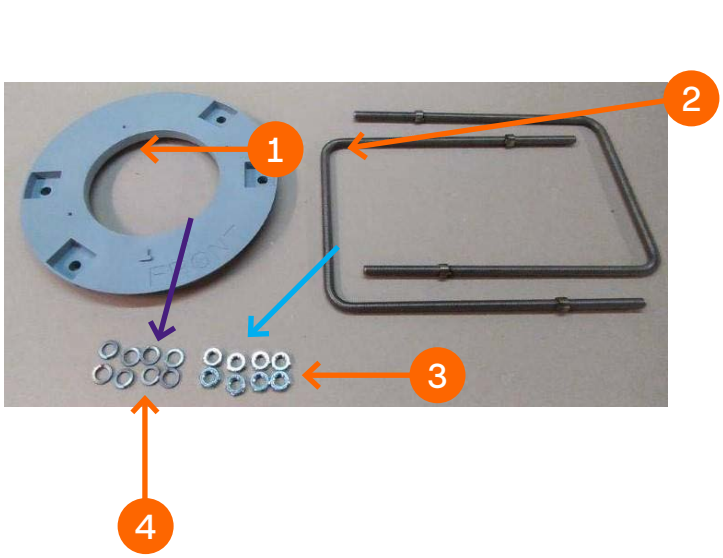


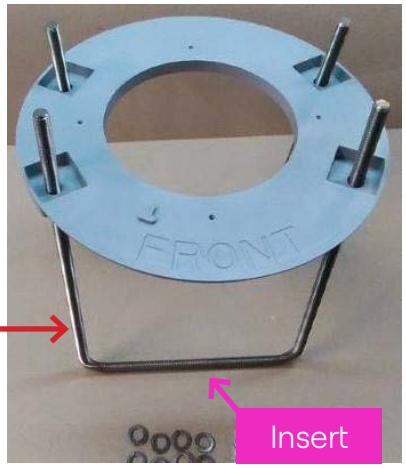
Remove the Cap.

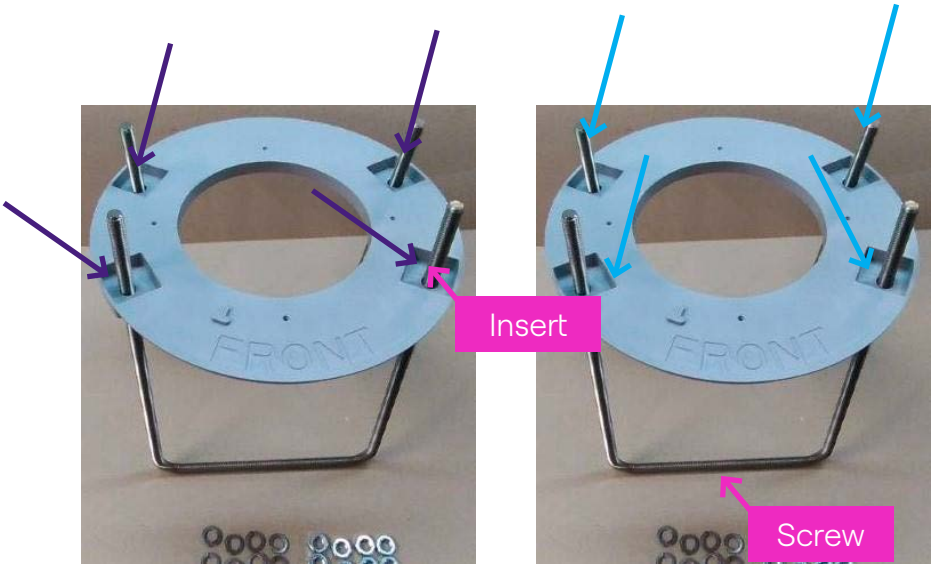
REF.	CODE	DESCRIPTION	QTY.
1	361020164	NUT ES.M12 INOX 5588	4
2	361030320	WASHERS GROWER D.12 1751 INOX	4
3	361030211	FLAT WASHERS D12 INOX 6592	4
4	361011495	SELF-TAPPING SCREW WN1411 KC40X12 IN	4

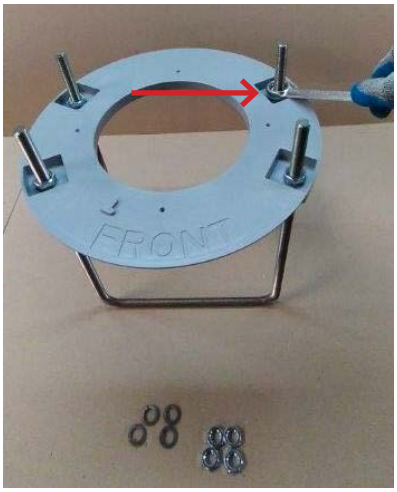
Remove the plate with “clamps” from the packaging and assemble.

Note: Obviously this activity will take place early on, before the unpacking of the pole, in time with the enforcement activities of the Civil Works.

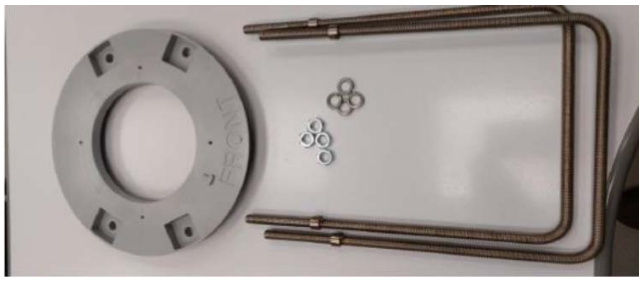

1
2
3
4


FRONT
Insert

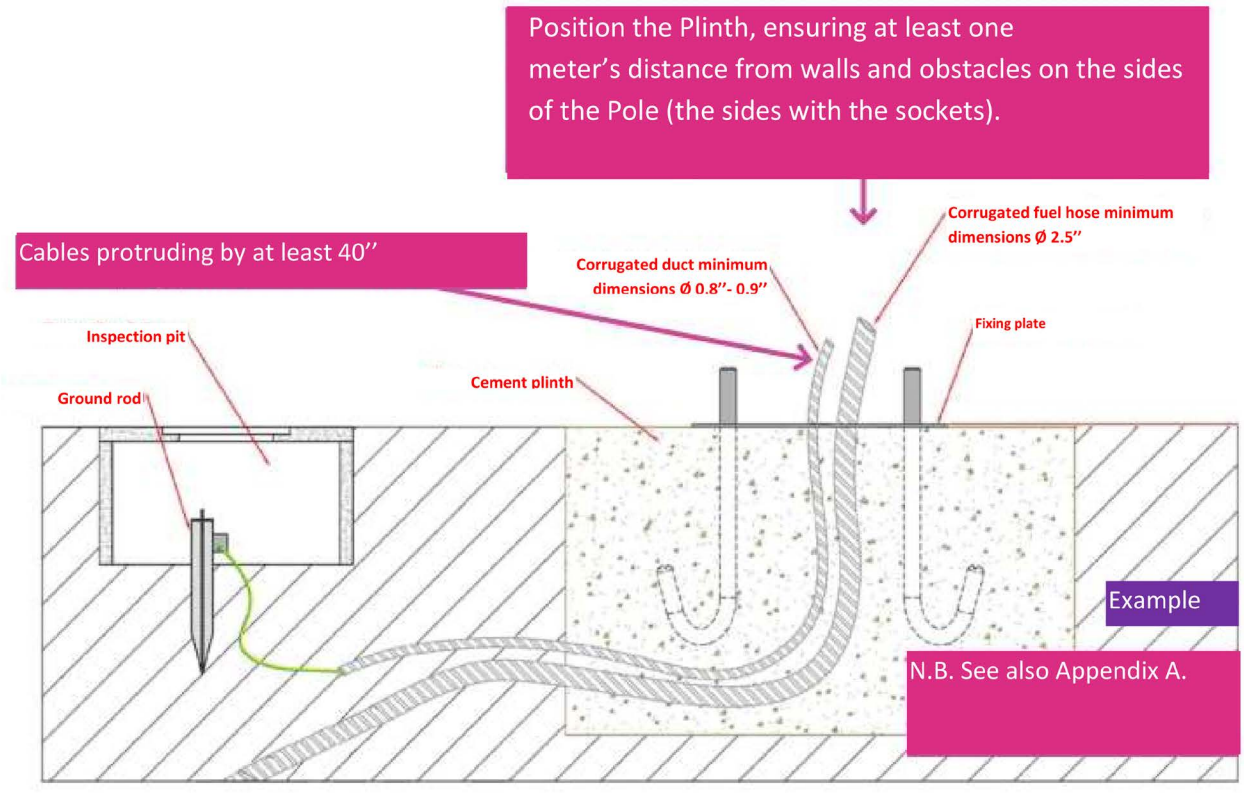

FRONT
Insert
FRONT
Screw


FRONT

7. The plinth

PLINTH ASSEMBLY DIAGRAM JP 2	
Package contents	
Installation method Tightening torque 3.6 ft/lb	 

Plinth Area cross-section



8. Installation

8.1 Warnings

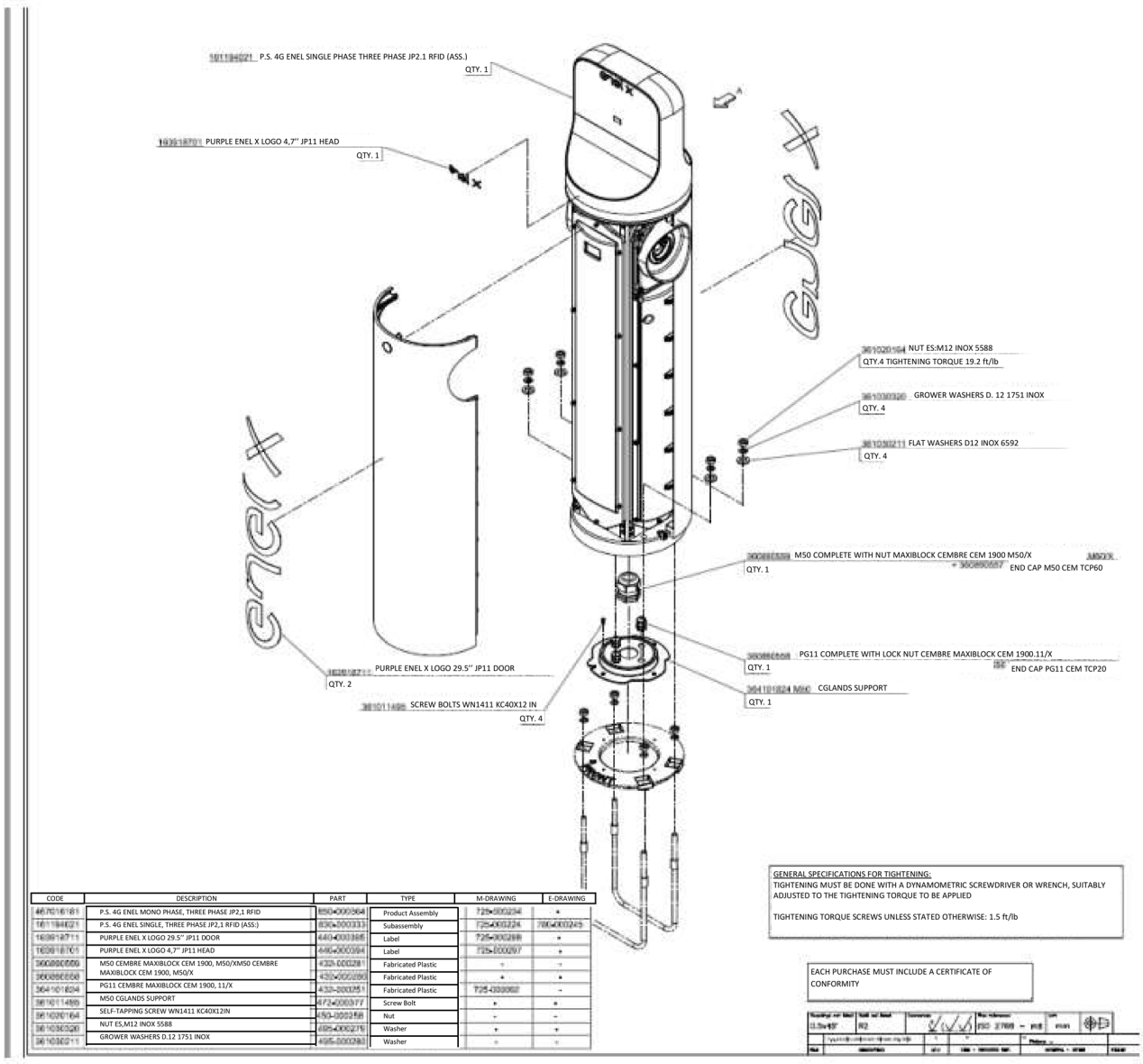
Caution: All activities described in this Manual must be carried out in the absence of voltage in accordance with the procedures laid down by the rules in force.

[redacted]

Article 28 of the Legislative Decree 49/2014

Overall weight = 92.5lb

8.2 Exploded



8.3 Pole predisposition

Once the pole has been removed from its packaging, and placed vertically on the pavement, taking care not to damage it, it must be prepared for installation.

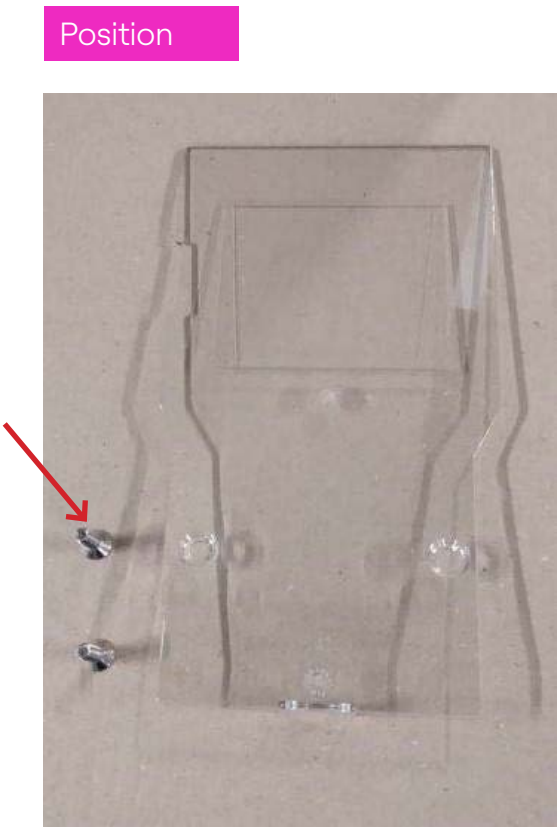
Note: This sequence develops in the following images illustrating those activities to be made executed "in the factory".

With the key, open the Front and Back Doors making sure to temporarily place them vertically and on a suitable surface, avoiding balancing them precariously.

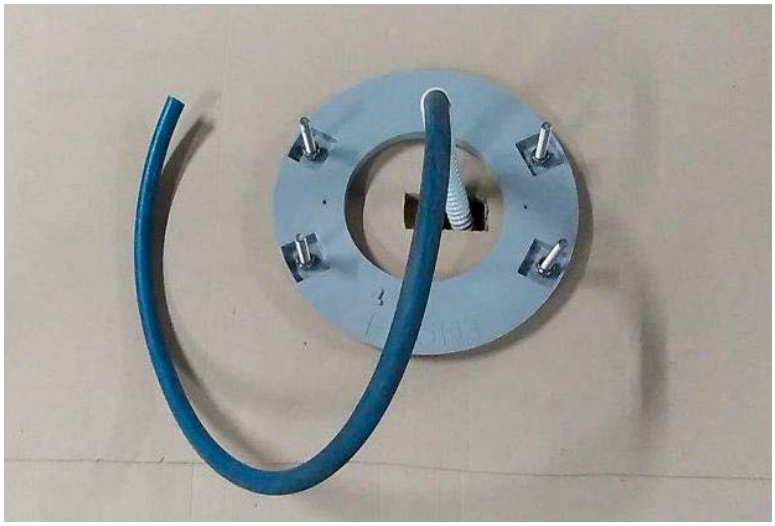
Note: Do not ever use the screwdriver.

Unscrew the front Panel and set it to one side, together with its 10 screws.

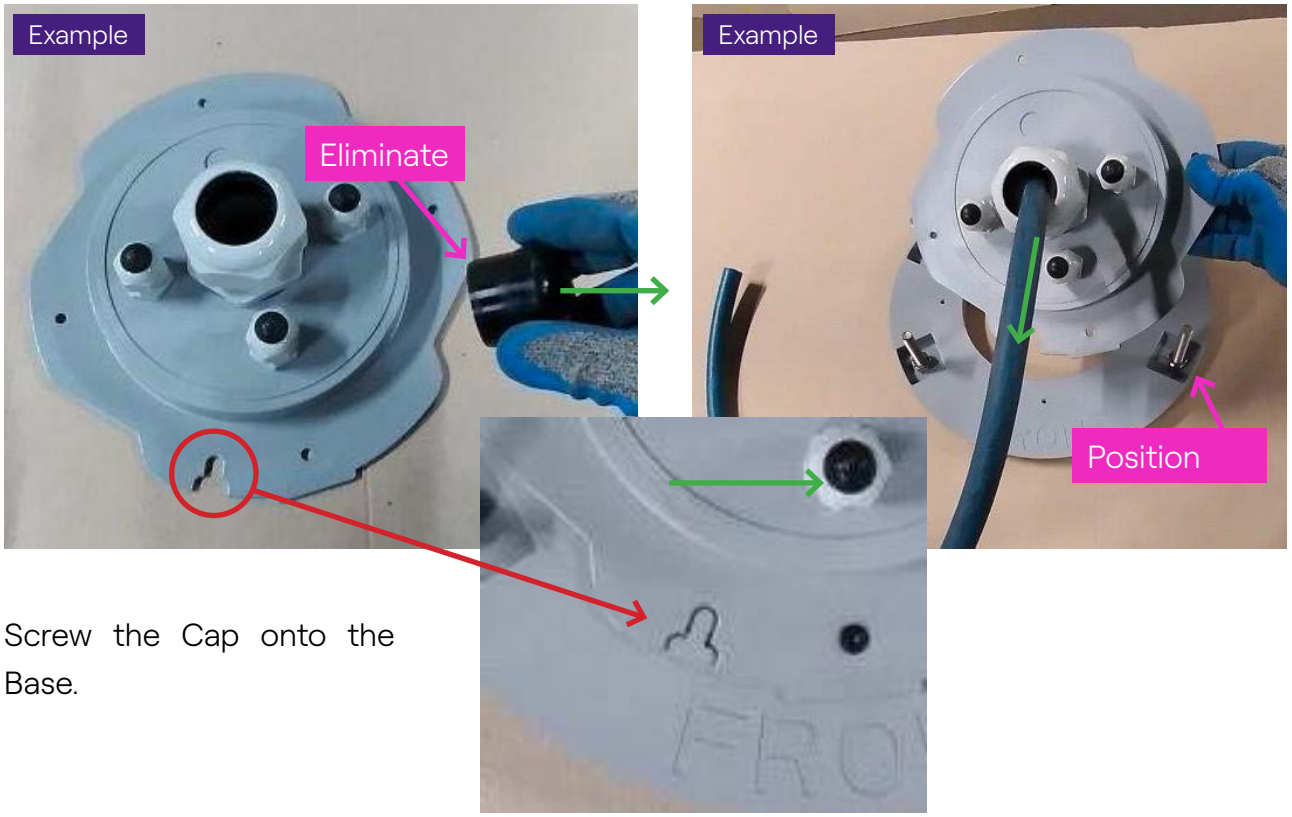
Unscrew the “lexan” protection of the terminal block, placing it with the 2 screws in a safe place.



8.4 Positioning the Pole "in situ"

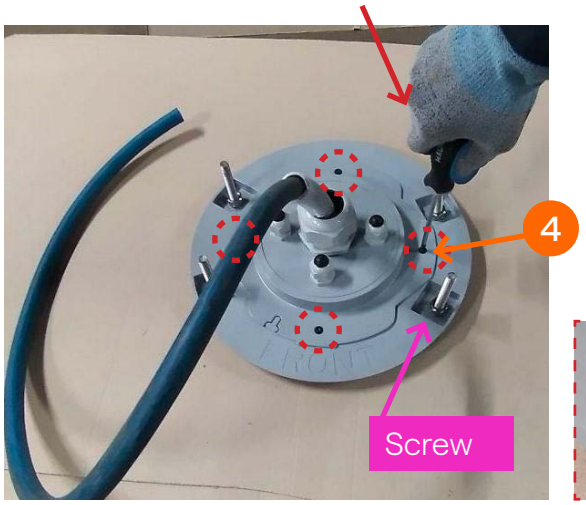


Remove the central cover of the Cap and insert it on the Clamps in the direction indicated by inserting the power Cable in the central hole (Example with 5 pin-plugs - See also Appendix B).



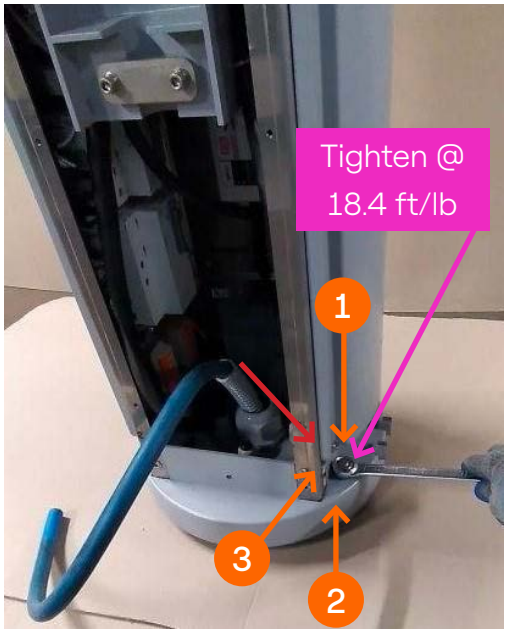
Screw the Cap onto the Base.

Place the pole on the Clamp studs in the direction indicated by "FRONT" paying attention to the Cable "part".



Position the Pole on the 4 studs of the Clamps.

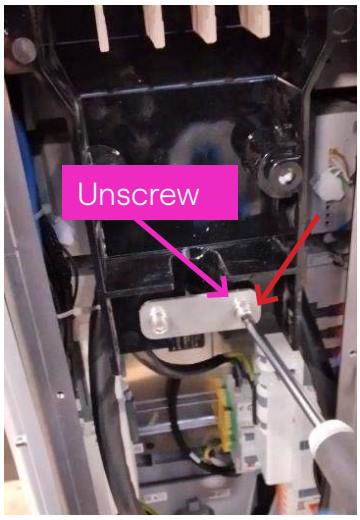
Fix it to the base with the screws provided. The tightening torque is 18.4 ft/lb

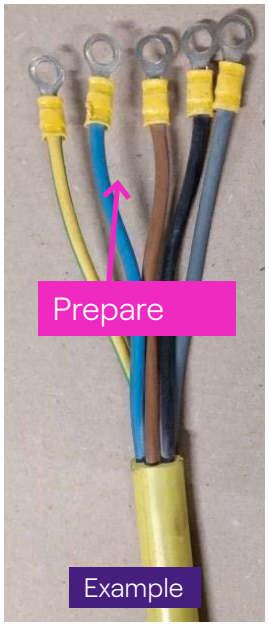


Caution: All activities described in this Manual must be carried out in the absence of voltage in accordance with the procedures laid down by the rules in force.

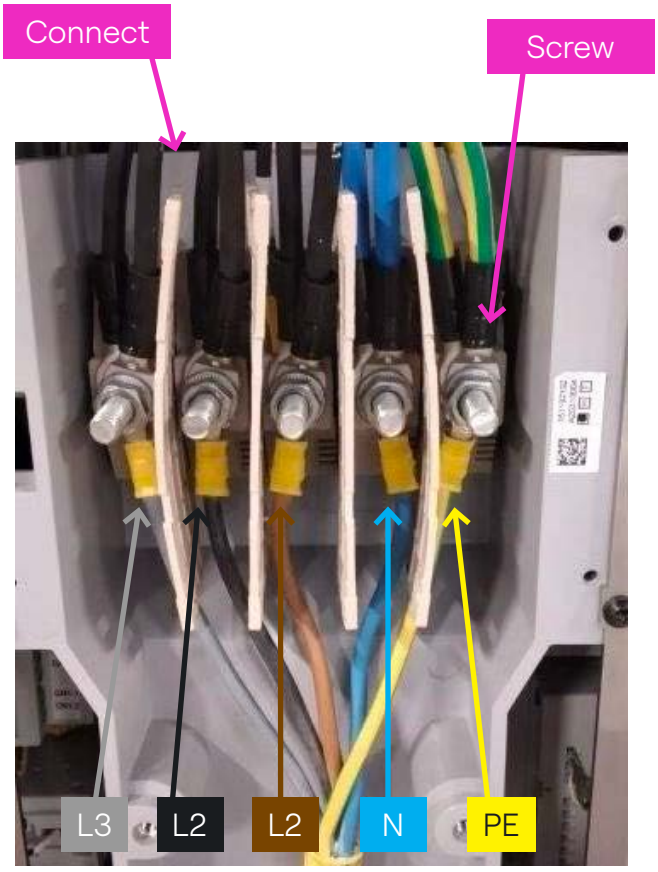
8.5 Ground power wiring

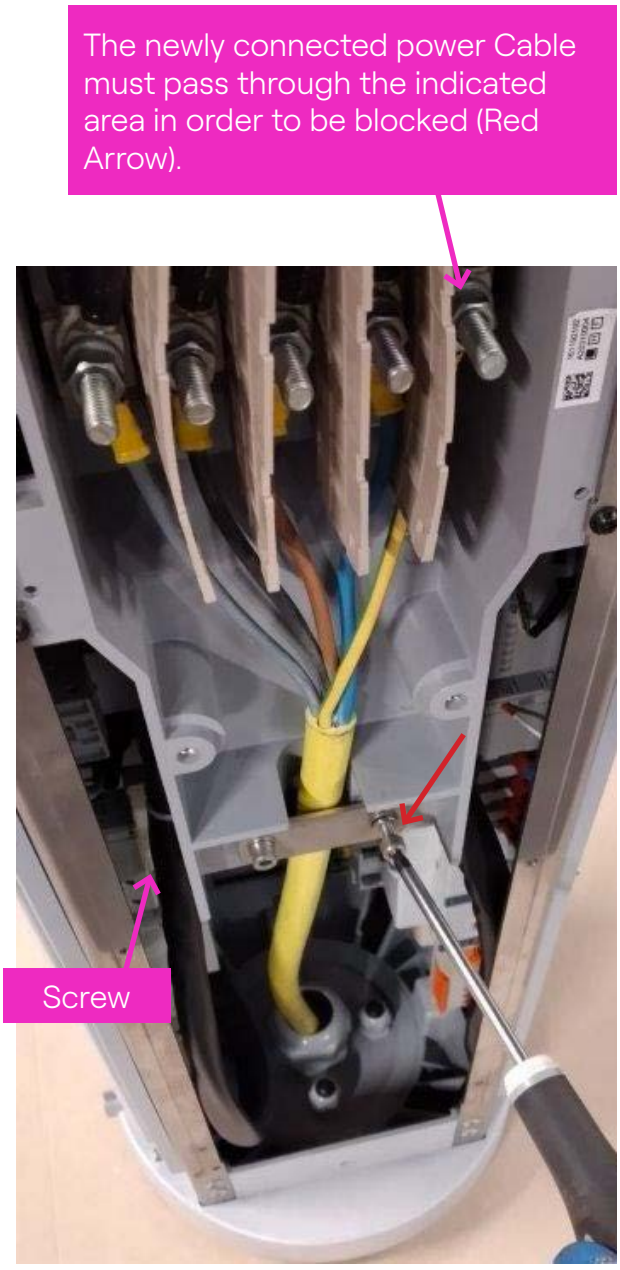
Unscrew only on one side the metal cable tie of the Terminal Block.
Prepare the Power Cable (Example with 5 pin-plugs - See also Appendix B).



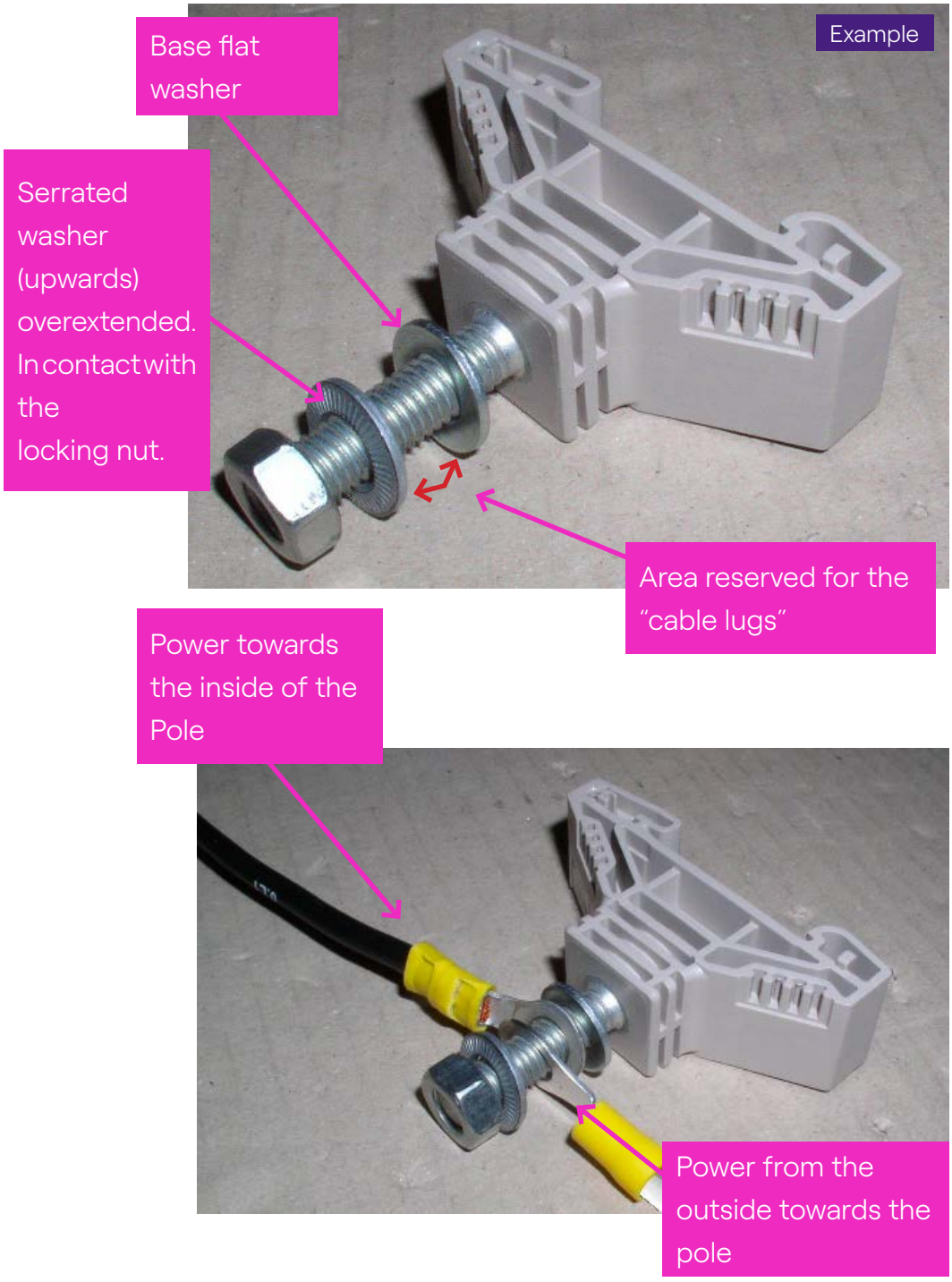


After having prepared the Power Cable (see Appendix B) and the main Ground (eyelet cable lugs for M8 screw) operate the connection with the terminal block.


Connect
Screw
L3
L2
L2
N
PE


The newly connected power Cable must pass through the indicated area in order to be blocked (Red Arrow).
Screw

Caution: The single Clamp must remained connected as seen in the images below.



Use a socket wrench, **at least 1.6'' long,** of 0.5'' so as to tighten the bolts at best, applying a minimum torque of 4.4 ft/lb.

8.6 Concluding operations

> Cross-check all Switches (Magneto-Thermal and Differential - Single phase and/or Three phase).

> Reassemble the transparent “lexan” protection.

> Reassemble the terminal block protection.

> Reassemble the front Door.

> Place the 2 doors in their slots and lock them.

> Manage key storage according to established procedures.

After closing it, remove any film that has remained glued onto the Top, Side, Front and Back.

9. Final operations

Once operations are completed:

> Verify the correct fastening and locking of the Apparatus;

> Verify the “working state” of the Apparatus;

> Retrieve all the equipment and store it away carefully;

> Retrieve any waste produced;

> Leaving the “environment” just as you found it.

10. Features of the charging stations

POWER CABLE
Voltage: 400 Vac Three phase
Frequency: 50 Hz

CHARGING DATA
SINGLE PHASE CHARGING
Socket Type **3a** - 4 contacts: L,N,PE + CP
- Maximum power: 3.7 kW
- Maximum power: 16 A
- Magnetothermic Protection:
  - I_n = 20 A
  - I_{cn} = 10 kA
  - Type "D"
- Differential Protection:
  - Power: 0.03 A
  - Type B Protection

THREE PHASE CHARGING
Socket Type **2** - 7 contacts: L1, L2, L3, N, PE + CP + PP
- Maximum power: 22 kW
- Maximum power: 32 A
- Magnetothermic Protection:
  - I_n = 40 A
  - I_{cn} = 10 kA
  - Type "D"
- Differential protection:
  - Power: 0.03 A
  - Type B Protection

GENERAL
Environment temperature: -25°÷+50°C
Humidity: 5%÷95%
Atmospheric pressure: 860hPa 1060hPa
Level of Protection: IP55

REGULATIONS
EN61851-1
EN61851-22
EN62196-1

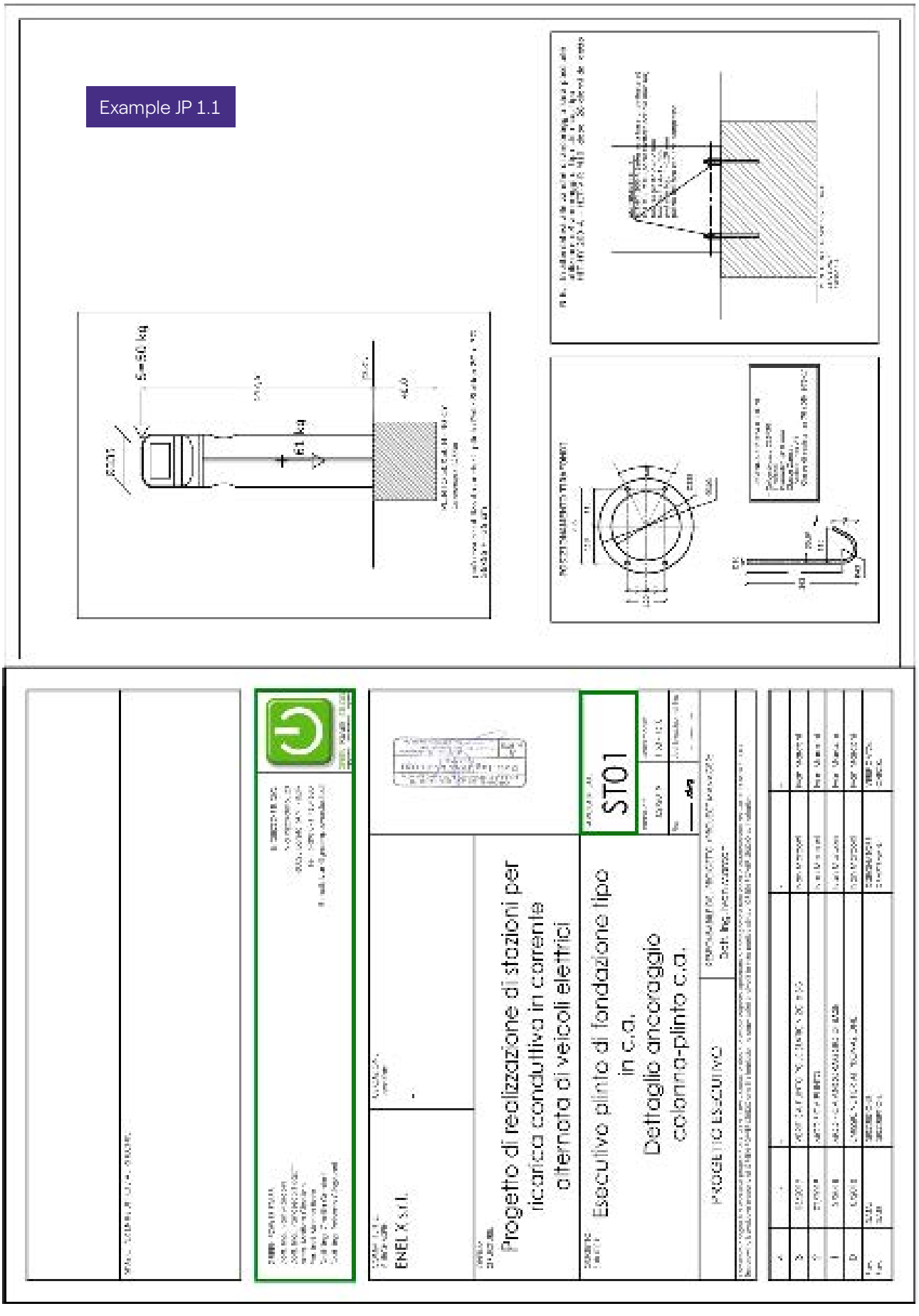
10.1 Radio equipment features

DEVICE	NOTE	POWER/OPERATING FREQUENCY
4G Modem	Power	> 2G (GSM) – LB Class 4: 2 W – 33 dBm > 2G (GSM) – LB Class E2: 0.5 W – 27 dBm > 2G (GSM) – HB Class 1: 1 W – 30 dBm > 2G (GSM) – HB Class E2: 0.4 W – 26 dBm > 3G (WCDMA) – Class 3: 0.25 W – 24 dBm > TD-SCDMA – Class 3: 0.13 W – 21 dBm > 4G (FDD & TDD) Class 3: 0.2 W – 23 dBm
	Operating Frequency	**Transmitter:** > DCS 1800: 1710 ~ 1785 MHz > EGSM 900: 890 ~ 915/ 880 ~ 890 MHz > WCDMA 2100 – B1: 1920 ~ 1980 MHz > WCDMA 1800 – B3: 1710 ~ 1785 MHz > WCDMA 900 – B8: 880 ~ 915 MHz > LTE B1: 1920 ~ 1980 MHz > LTE B3: 1710 ~ 1785 MHz > LTE B7: 2500 ~ 2570 MHz > LTE B8: 880 ~ 915 MHz > LTE B20: 832 ~ 862 MHz > LTE B28A: 703 ~ 733 MHz **Receiver:** > DCS 1800: 1805 ~ 1880 MHz > EGSM 900: 935 ~ 960 MHz > WCDMA 2100 – B1: 925 ~ 935 MHz > WCDMA 1800 – B3: 2110 ~ 2170 MHz > WCDMA 900 – B8: 1805 ~ 1880 MHz > LTE B28A: 925 ~ 960 MHz > LTE B1: 2110 ~ 2170 MHz > LTE B3: 1805 ~ 1880 MHz > LTE B7: 2620 ~ 2690 MHz > LTE B8: 925 ~ 960 MHz > LTE B20: 791 ~ 821 MHz > LTE B28A: 758 ~ 788 MHz > GPS/Galileo: 1559 ÷ 1610 MHz > Glonass: 1592.9525 ÷ 1610.485 MHz

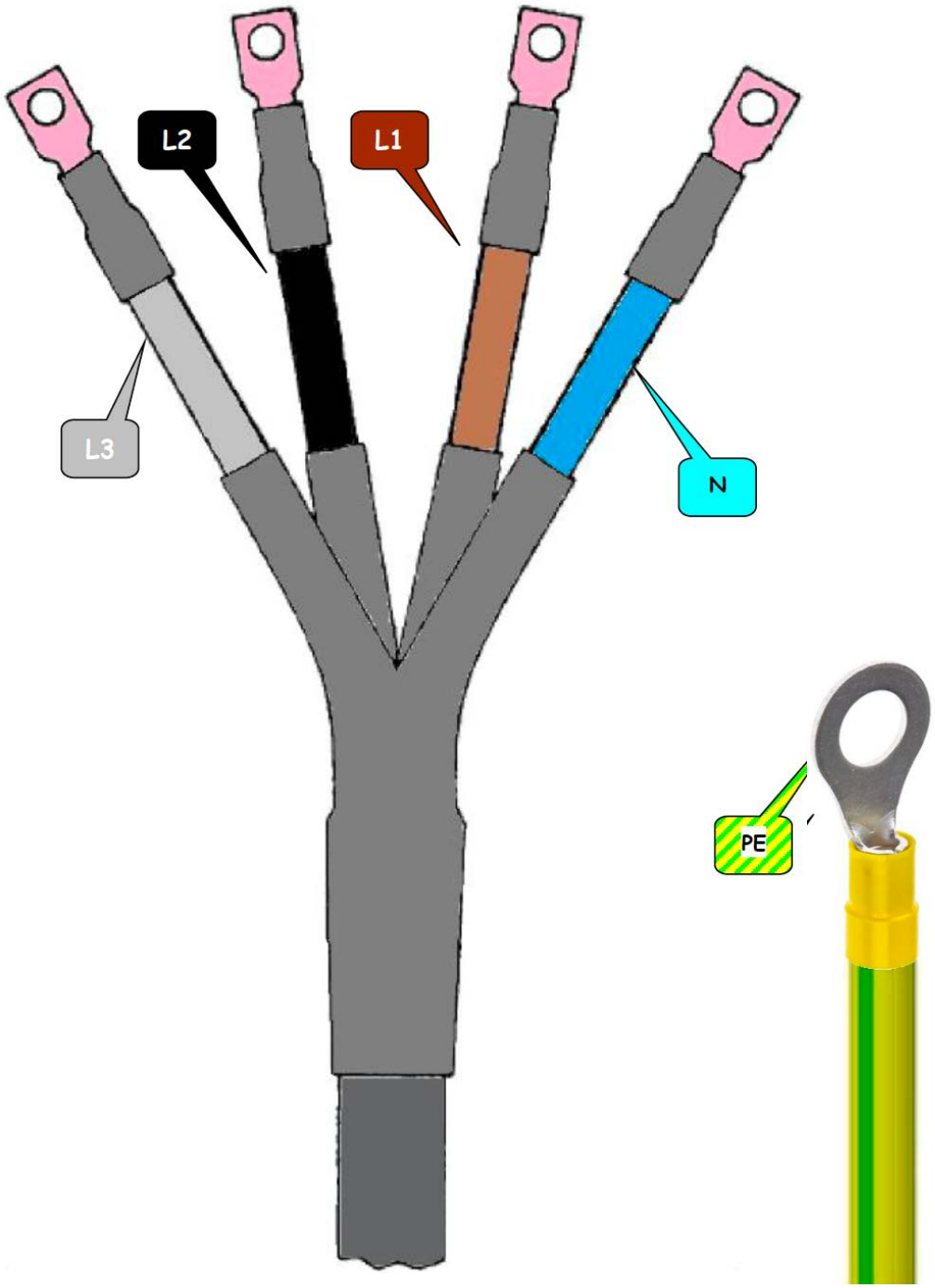
RFID	Power	> 0.5 W – 27 dBm
	Operating Frequency	> F c = 13.56 MHz; > BW = 2.26 kHz.
Wi – Fi	Power	802.11 b: 50 mW – 17 dBm
		802.11 g: 20 mW – 23 dBm
		802.11 n: 15 mW – 12 dBm
	Operating Frequency	2400 MHz – 2483.5 MHz
Bluetooth	Power	2.1+EDR:
		BLE 4.2:
	Operating Frequency	

APPENDIX A – THE PLINTH

Example JP 1.1



APPENDIX B – "QUADRIPOLAR" + "EARTH" CABLE TERMINATION



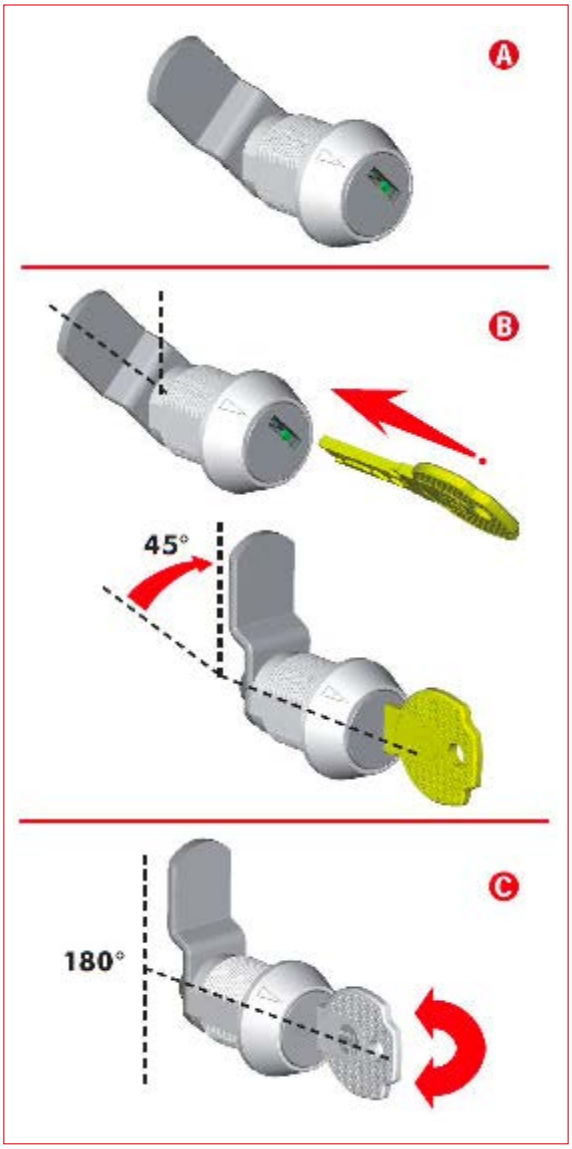
APPENDIX C – PROGRAMMING LOCKS PROCEDURES FOR POLES INSTALLED IN PUBLIC AREAS

Reprogramming Locks.

Insert the brass-plated key MASTER B) in the lock.
A) Turn the lock into neutral position (45° counterclockwise) with the brass-plated key (MASTER B) with which it was originally programmed in the factory and extract it.

B) Insert a brass-plated key (MASTER A) programmed with another combination and turn it 45° clockwise. The lock is now programmed in a new combination.

C) Insert the utility key (SLAVE A) with a new combination to use the lock.



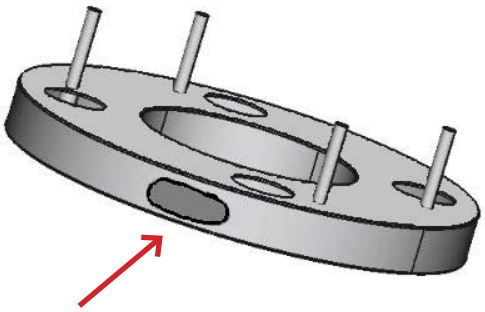
APPENDIX D – INSTALLATION ON JP OR PS3G PLINTH OR ON NO PLINTH

List of possible installations

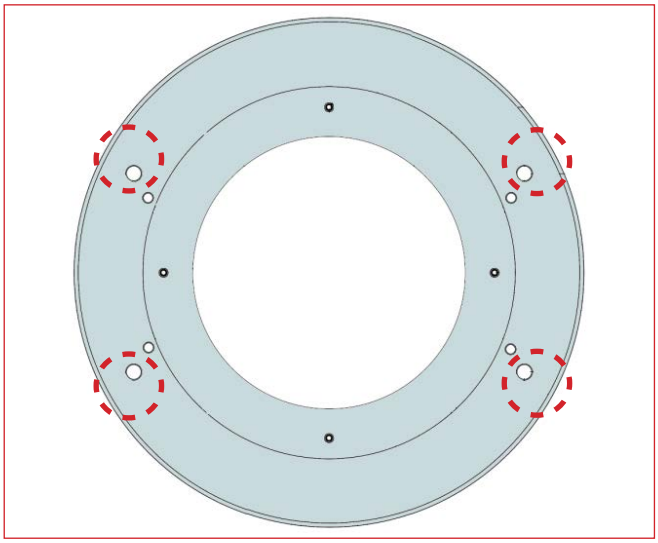
TYPE OF PLINTH UTILIZED	MATERIAL FOR JP 2 INSTALLATION	MODIFICATION OPERATIONS TO BE PERFORMED BEFOREINSTALLA-TION	TIGHTENING TORQUES
NO PLINTH (ARRIVAL OF STREET LEVEL CABLES)	4 THREADED ANCHOR RODS. ADAPTOR RING: CODE. **EN2019022** 4 WASHERS **Diam. 10** AISI 304 4 NUTS **Diam. 10** AISI 304 ZINC- 4 SCREWS M4 X 0.2''	DRILLING INTO THE PAVEMENT. MOUNTING AND FIXING THREADED RODS.	**18.4 ft/lb** The joint MUST be lubricated before tightening
POLE PLINTH **3G** ALREADY INSTALLED	ADAPTOR RING: CODE. **EN2019022** 4 WASHERS **Diam. 10** AISI 304 4 NUTS **Diam. 10** AISI 304 4 WASHERS **Diam. 14** AISI 304 4 NUTS **Diam. 14** AISI 304 4 SCREWS **M4** X 0.2''	DISCHARGE HOLES ON ADAPTOR RING. THREADED HOLES ON ADAPTOR RING FOR FASTENING JP 2 GROMMETS.	**18.4 ft/lb** The joint MUST be lubricated before tightening
POLE PLINTH JP1.X ALREADY INSTALLED	ADAPTOR RING: CODE. **EN2019022** 4 WASHERS **Diam. 10** AISI 304 4 NUTS **Diam. 10** AISI 304 4 SCREWS **M4** X 0.2''	DISCHARGEHOLESONJP 1.X. PLINTH DISC. THREADED HOLES ON JP 1.X. PLINTH DISC FOR FASTENING JP2.1 GROMMETS	**18.4 ft/lb** The joint MUST be lubricated before tightening

NO PLINTH

1. Determine the location.
2. Bring the power cable from "Street Level" to the pole via the "passage" hole in the Adapter Ring.



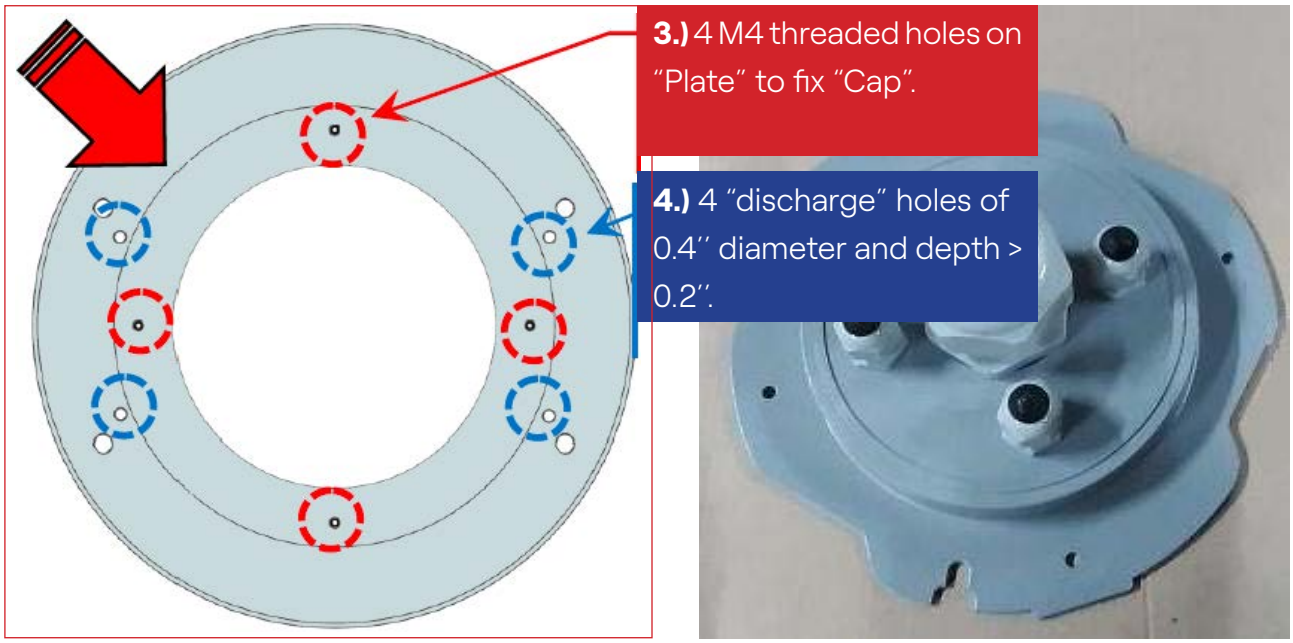
3. Using the Adapter Ring as a "Template" locate the 4 points on the pavement for the Tie-rods holes to go (chemically fastened) taking care to verify the exact placement of the pole.



4. Make 4 holes (orthogonal to the ground) congruent to the diameter of the threaded rods(diameter 0.8'').

5. Insert the 4 tie rods and proceed to cement them following the "data sheet" instructions, taking care that they are all orthogonal to the ground.

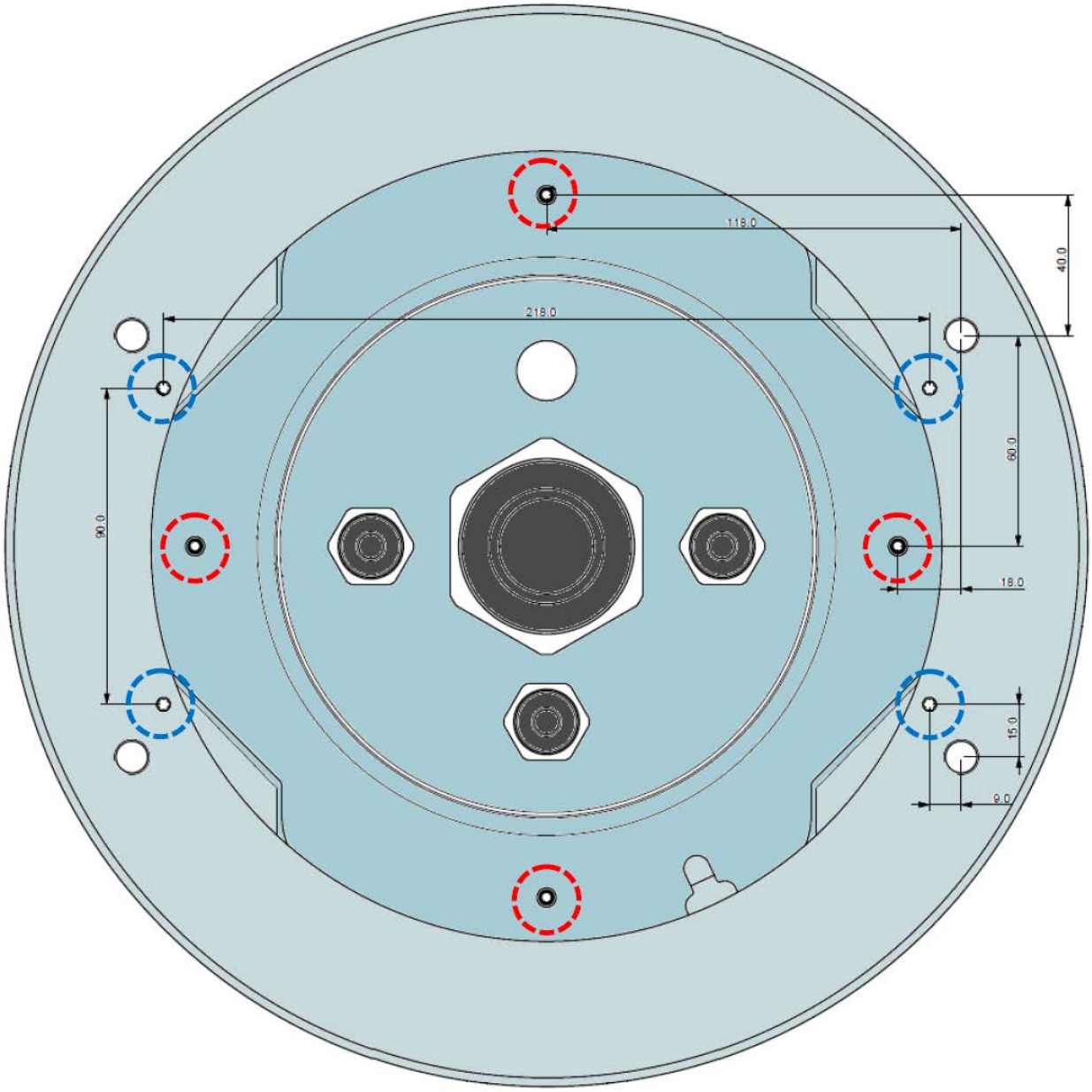
6. Wait for the complete drying of the "chemical cement" before proceeding.
7. Insert the Adapter Ring perforated with 4 "discharge" holes of a 0.4'' diameter (Light-blue circles) and 4 M4 threaded holes (Red circles) onto which the Cap with its 4 screws



Caution: Manage the passage of cables in the appropriate cable clamps.

is to be fixed

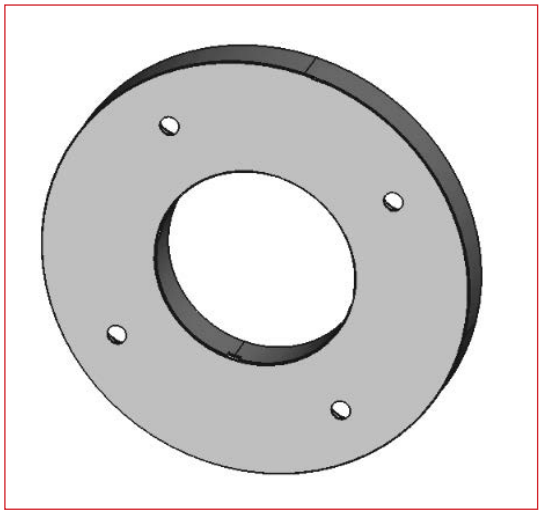
8. In particular, if they are not present, the units to be used are the following.

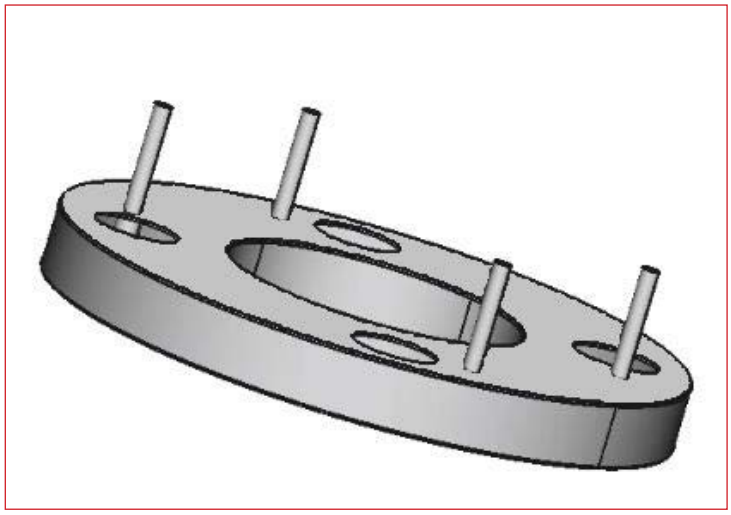


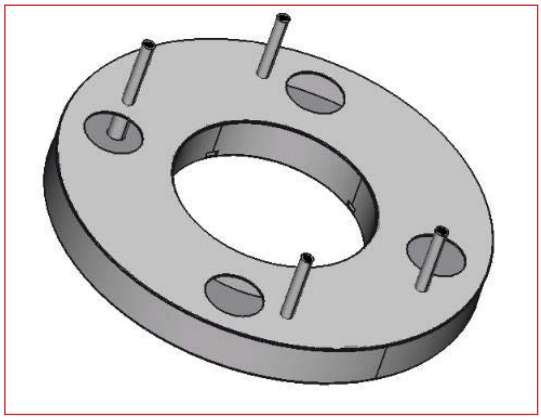
POLE PLINTH 3G ALREADY INSTALLED

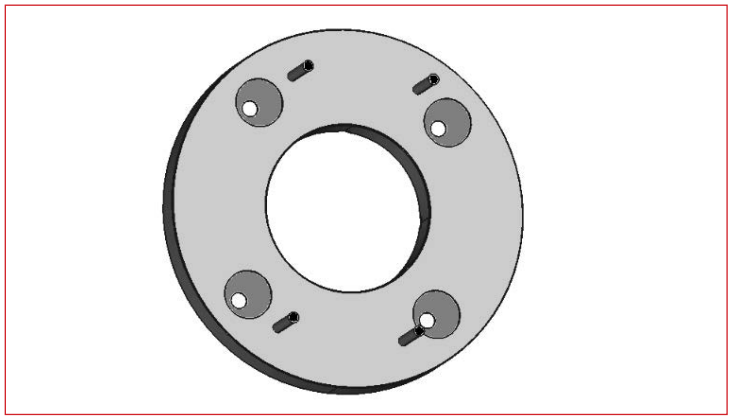
1. Pole Plinth 3G with the 4 studs in sight.

2. Remove the Adapter Ring.

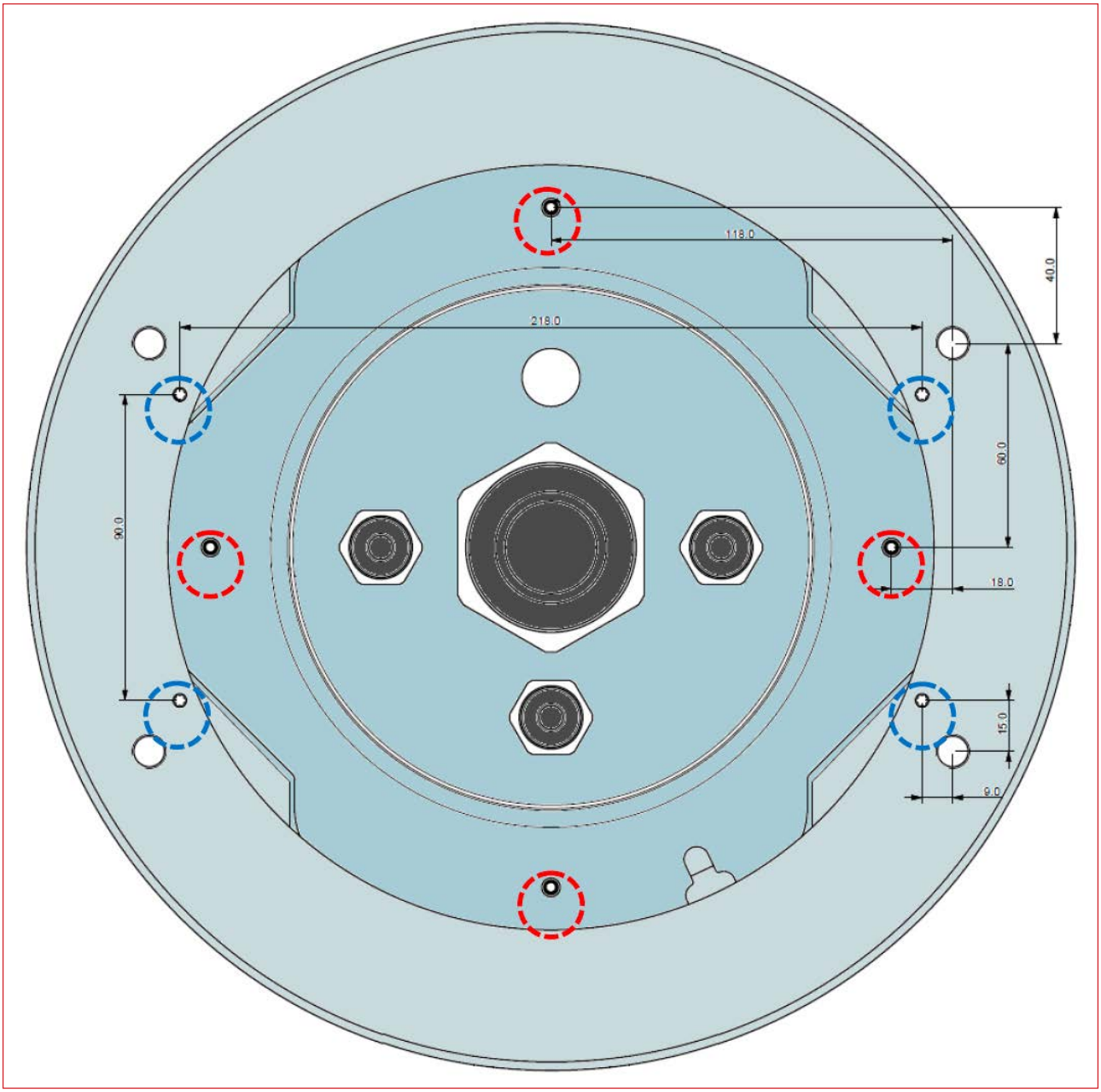




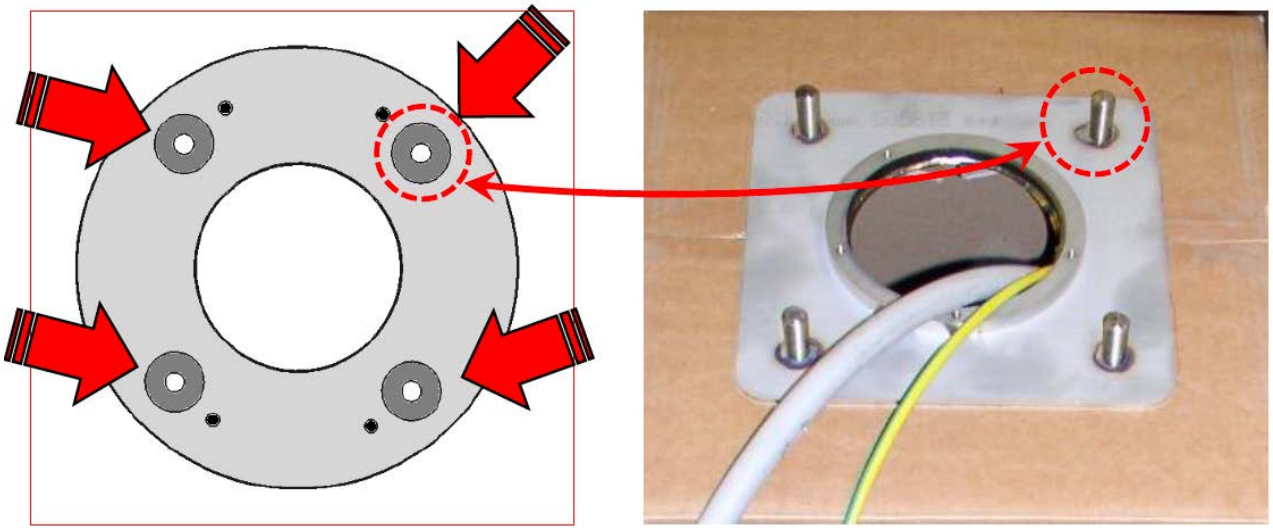




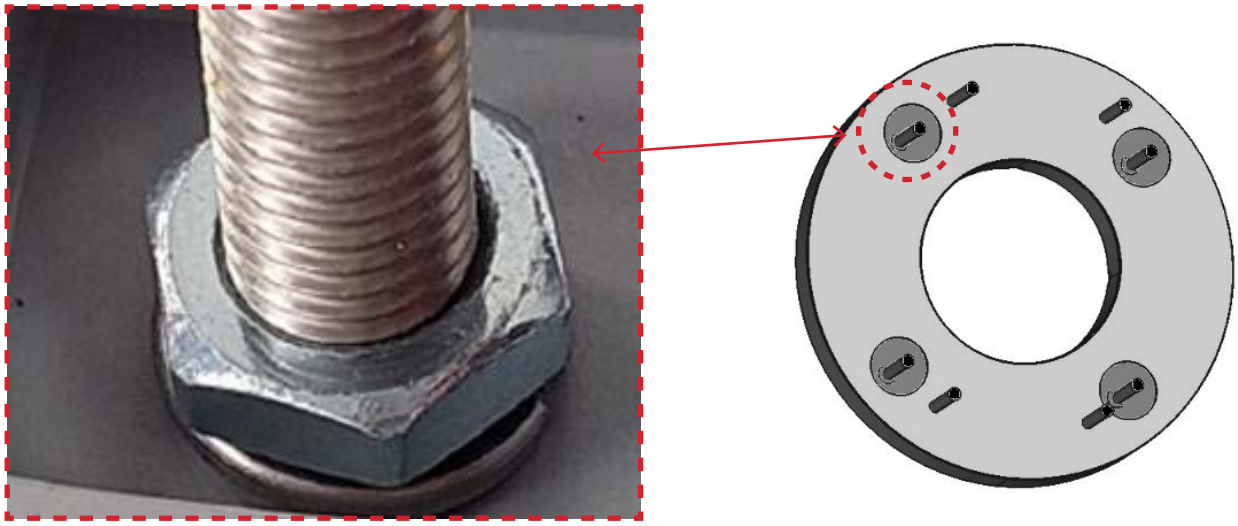
3. Make 4 “discharge” holes diam 0.4’’(Light-blue circles) and 4 M4 threaded holes (Red circles) on the Adapter Ring before proceeding, unless they are already there.



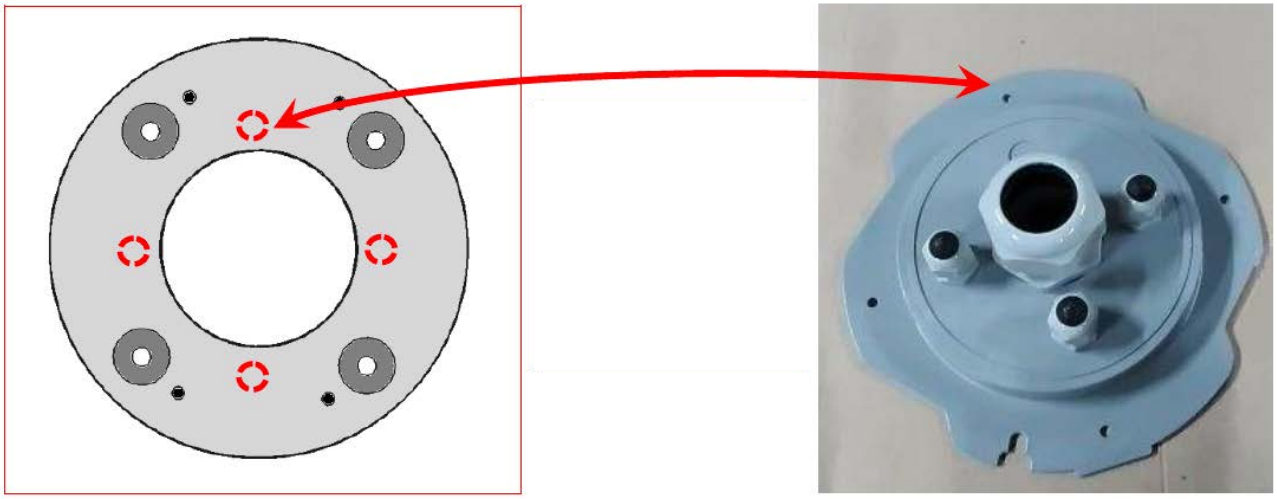
4. Insert it on the clamp of the 3G Pole (managing the outgoing Cables) taking care to insert the 4 “Studs” that are protruding from the Plinth in the 4 holes on the Adapter.



5. Screw on the 4 nuts on the studs with the 4 washers supplied (M14).



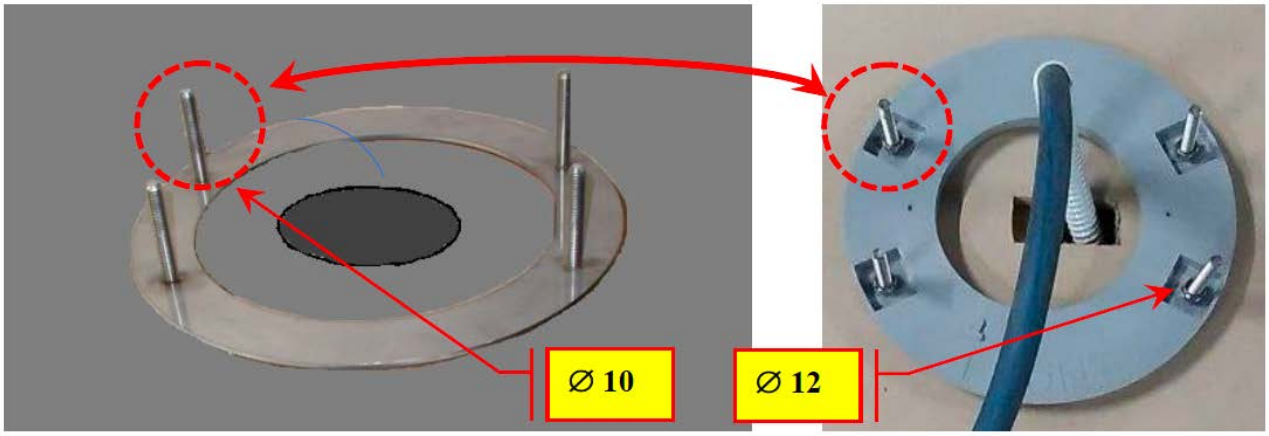
6. Now you can proceed with fixing on the "Cap" using its 4 screws.



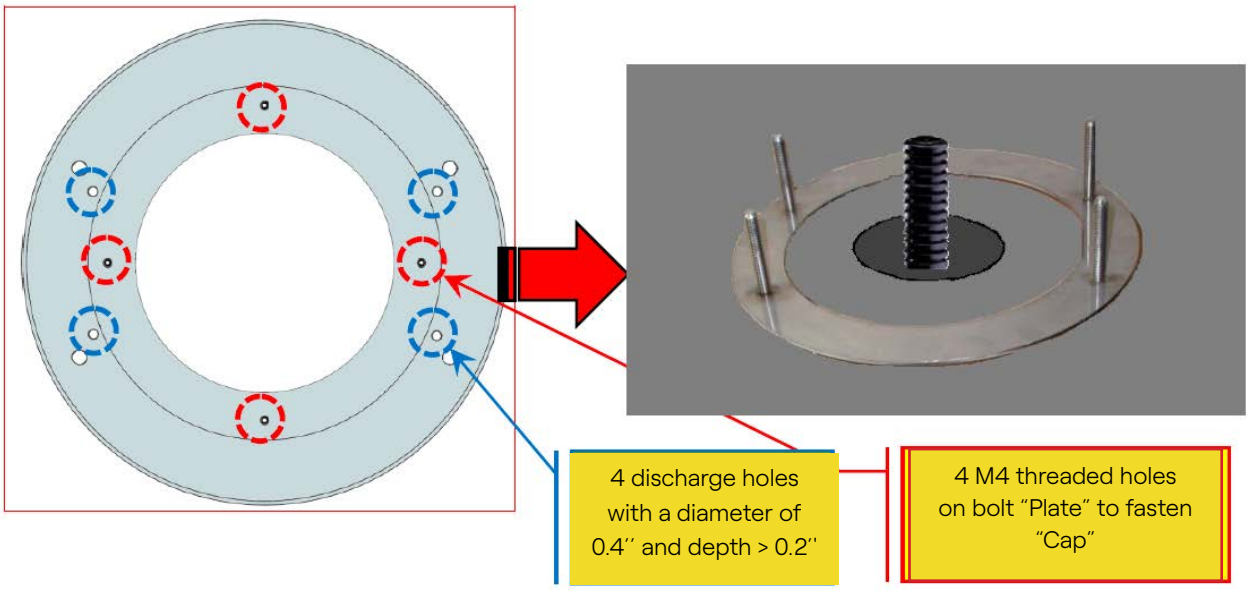
Caution: Manage the passage of cables in the appropriate cable clamps.

POLE PLINTH JP1.X ALREADY INSTALLED

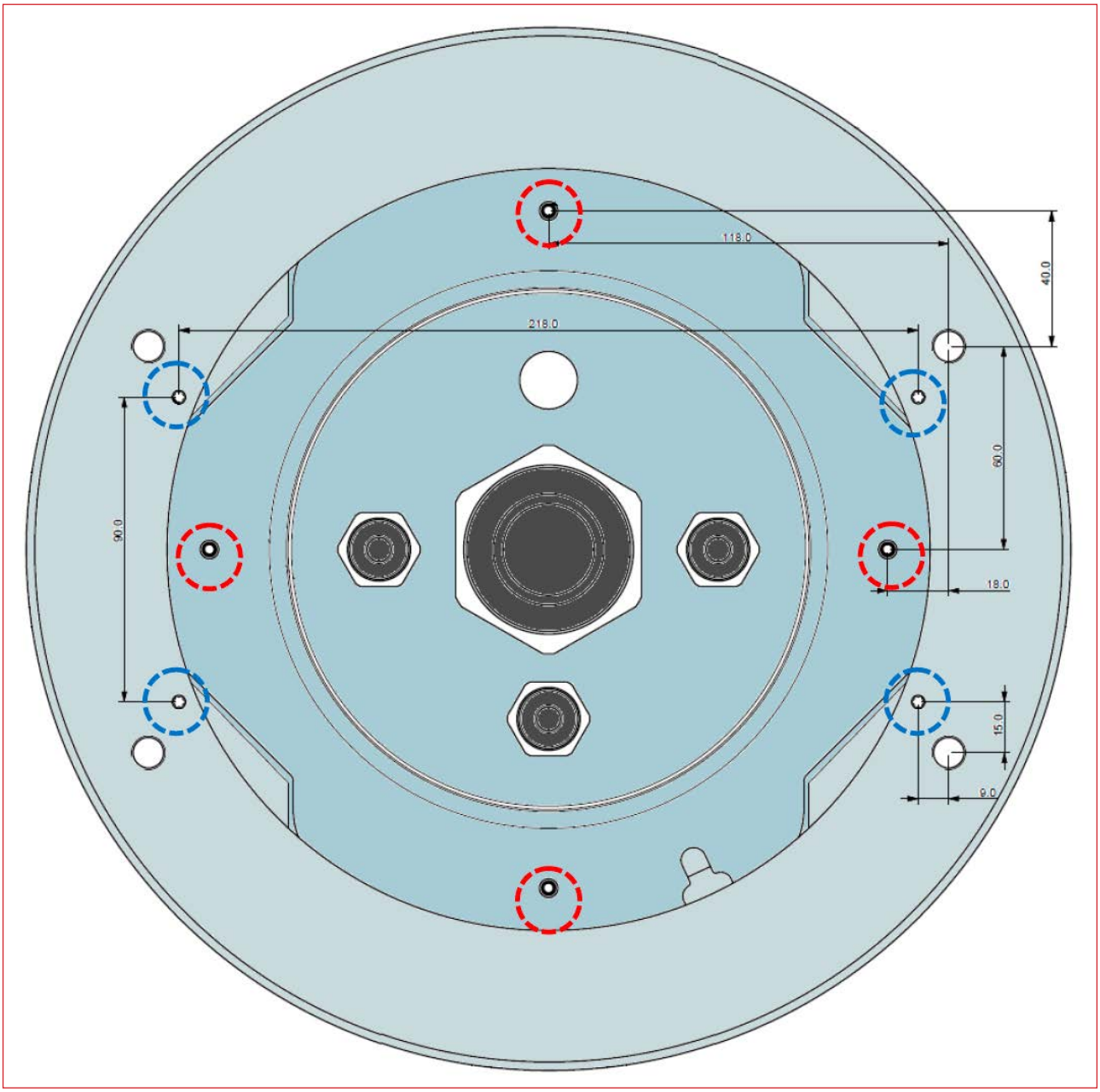
1. The "step" of the Tie rods is the same for both JP1.X and JP2.X.



2. The diameter of the JP1.X Tie rods is 0.4'' (instead of 0.5'' of JP2.1) therefore one can reuse the Washers and Nuts of the JP1.X instead of the newly supplied ones.
3. Insert the "Adapter" dedicated to the "clamps" of the JP1.1.



4. If not present, using the aforementioned "template", make 4 "discharge" holes (to avoid the interference of 4 screws of the "Lower Disk") of 0.4'' diameter (Blue circles).
5. If not present, using the so-called "template", make 4 M4 diameter "threaded" holes in the plate (Red circles) to fix the Cap on.
6. In particular, the units to be used, if necessary, are the following.



7. You can now fix the Cap on with its 4 screws.

Caution: Manage the passage of cables in the appropriate cable clamps.