Sicurpal

INSTRUCTION MANUAL
FOR ASSEMBLY, USE AND MAINTENANCE

PG/PB and SICURTERM

sicurpal.it

EDITION 2 - REVISION 0

Translation of original instructions.

1. REFERENCE STANDARDS

This manual has been drawn up in compliance with the following legal requirements and standards:

1. Legislative Decree No. 81 dated 9 April 2008 and subsequent modifications and additions

2. Certification standards:

- **UNI EN 795:2012*** valid for max. 1 (one) operator
- **CEN/TS 16415:2013*** valid for max. 4 (four) operators
- **UNI 11578:2015*** valid within Italy only, for max. 4 (four) operators

*See Chapter 7.

3. Reference standards:

- **UNI EN 365:1993**
- **UNI EN 363:2008**
- **UNI 11560:2014**
- **UNI 11158:2015**
- **Regulation UE 425/2016**

	Always read the manual carefully before using the system.
	This manual must always be available for consultation.

2. INTRODUCTION

This “Instruction manual for assembly, use and maintenance” refers to **SICURPAL PB**, **PG**, **PTS**, **PTM**, **PTL** devices made of stainless steel. These devices comply with the requirements of standards **UNI EN 795: 2012**, **CEN/TS 16415:2013**, **UNI 11578:2015 Type A** and **Type C**. The **Type A SICURPAL PB**, **PG**, **PTS**, **PTM**, **PTL** anchorage systems are designed and approved to be used simultaneously by a maximum of 2 (two) operators and are capable of withstanding a maximum strain of 30 kN. This allows them to be used as anchorages for provisional systems certified as **UNI EN 795 Type B**, subject to verification of the anchoring devices. Pay attention during the tensioning phase, the load that will trigger deformation of the device is 2 kN. The **Type C SICURPAL PB**, **PG**, **PTS**, **PTM**, **PTL** anchorage systems are designed and approved to be used simultaneously by a maximum of 4 (four) operators.

2.1. WARRANTY

The warranty period for **SICURPAL PB**, **PG**, **PTS**, **PTM**, **PTL** anchoring devices is maximum 10 years from the date of installation, if this can be ascertained. If this is not the case, the warranty is for 10 years from the date of the production batch, which is indicated on the product label. The WARRANTY relates to the **PB**, **PG**, **PTS**, **PTM**, **PTL** devices as a whole and their individual components, and covers in particular:

- Faults in manufacture
- Faults in materials
- Faults in welding

EXCEPTIONS

The warranty does not cover damage resulting from use in a manner not foreseen by this manual.

LIMITATIONS

In all cases the warranty is restricted to replacement of the elements or equipment acknowledged to be faulty after assessment by the **SICURPAL** technical department.

All faulty components must be returned to **SICURPAL**, who will assess their characteristics and, if the faults are confirmed, will replace them with conform material.

The warranty only applies to the returned elements, and does not cover the expense incurred for removal and reinstallation of the equipment in the system in which it is fitted.
The warranty also lapses if the material has been fitted and used in a manner not in compliance with the assembly and technical instructions issued by **SICURPAL**.
Any tampering with, or unauthorised replacement of, anchorage device components, use of unsuitable accessories, elements or components and/or improper use of the system will cause the warranty to lapse.
Failure to carry out periodic inspections will render the product guarantee void.

IMPROPER USE refers to use of the device:

- As a support to fix the television aerial;
- As a hook to move objects and/or materials;
- As a lightning conductor (although the device can be used for that purpose subject to the prior authorisation of a qualified technician who must plan and certify connection to the Faraday cage);
- Any other use that is not typical of an anchorage for a fall arrest system.

2.2. PACKING AND TRANSPORT

During storage in the warehouse the fall arrest systems must be suitably protected.
SICURPAL ensures that they are carefully packed prior to transport and assured against:

- Unforeseen stress
- Excessive heat or damp
- Contact with sharp edges
- Contact with corrosive substances or other substances that might damage the devices.

For better protection of the environment, **SICURPAL** has decided to reduce packaging to a minimum. For this reason several products may be sent within the same packaging.

2.3. NOTES ON DELIVERY

On receipt of the material, check that:

- The packages received are undamaged and properly wrapped;
- The goods supplied correspond with the order specifications;
- The delivery note is present;
- The product Declaration of Conformity is present;
- The product manual is present;
- If there is any damage, enter a reservation when signing the shipping document, and notify both the courier and the **SICURPAL** Logistics department within 48 hours of delivery. Detailed photographs are required to support the notification, In the absence of these, **SICURPAL** will not be responsible for any damage;
- In the case of faulty **SICURPAL** devices, contact the **SICURPAL** Logistics Department (Telephone number **SICURPAL** 059-81.81.79, e-mail: qualità@sicurpal.it).

	This manual must be **handed over** to the **installer**, **user** or **maintenance technician** of the anchorage system who, before carrying out installation, using or performing maintenance on the system, must read all the relevant instructions carefully and procure the materials and Personal Protection Equipment (P.P.E.) required to work in safety (see the Technical Roofing Plan). This document must form part of the Technical Construction File, together with design of the fall prevention system (**Encl. XVI Leg. Dec. 81/08**).

3. DESCRIPTION AND FIXING OF ANCHORAGE DEVICES

The products in the **SICURPAL PB**, **PG**, **PTS**, **PTM**, **PTL** range can be used to create lifelines of a length varying from 5 to 80 metres, with spans of minimum 5 meters and maximum 15 metres.

3.1. DESCRIPTION OF THE ANCHORAGE DEVICES

The **PB**, **PG**, **PTS**, **PTM**, **PTL** devices are ideal to create a lifeline in which it is possible to by-ass intermediate points without having to unhook. They can be fixed to the structure using bars/bolts/screws/welding, as instructed by the engineer. Please refer to Chapter 3.3 for the choice of fixing device.

PB – Post Cod. 001472

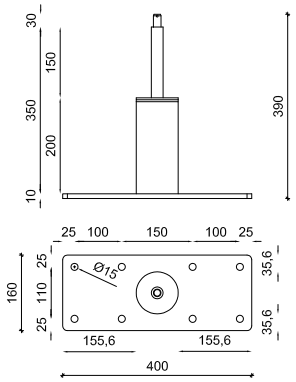


Figure 3.1 - PB post

- Manufactured in AISI 304 inox steel
- Base size 400x160x10 mm and 8 bores Φ 15 mm for fixing
- Height of the device 390 mm
- Device to be assembled with eyebolt and split pin (Cod. 000058) or accessories

PG – Post Cod. 001471

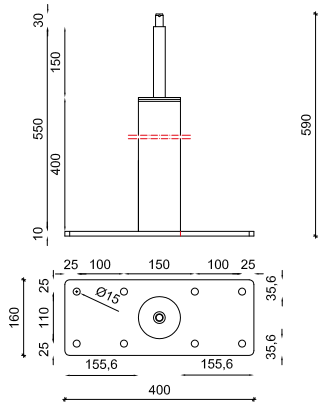


Figure 3. 2 - PB post

- Manufactured in AISI 304 inox steel
- Base size 400x160x10 mm and 8 bores Φ 15 mm for fixing
- Height of the device 590 mm
- Device to be assembled with eyebolt and split pin (Cod. 000058) or accessories

PTS – Cod. 001477

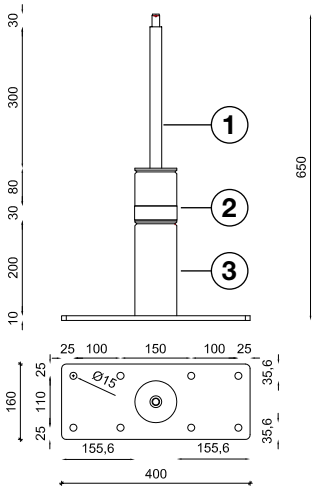


Figure 3.3 - PTS post

- Manufactured in:
  1. AISI 304 Stainless steel (upper part of the post)
  2. ertalon (thermal insulation)
  3. hot galvanised steel (lower part and base of the post)
- Base size 400x160x10 mm and 8 bores Φ 15 mm for fixing
- Height of the device 650 mm
- Device to be assembled with eyebolt and split pin (Cod. 000058) or accessories

PTM – Cod. 001478

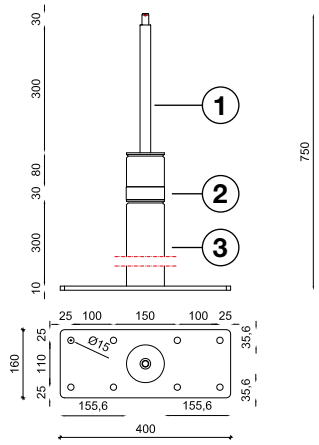


Figure 3. 4 - PTM post

- Manufactured in:
  1. AISI 304 Stainless steel (upper part of the post)
  2. ertalon (thermal insulation)
  3. hot galvanised steel (lower part and base of the post)
- Base size 400x160x10 mm and 8 bores Φ 15 mm for fixing
- Height of the device 750 mm
- Device to be assembled with eyebolt and split pin (Cod. 000058) or accessories

PTL – Cod. 001479

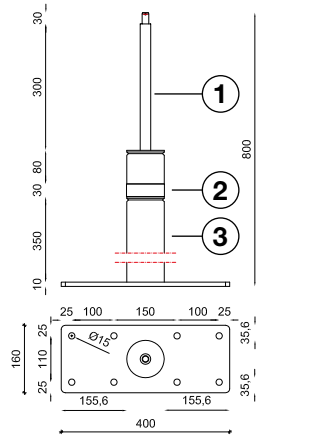


Figure 3.3 - PTS post

- Manufactured in:
  1. AISI 304 Stainless steel (upper part of the post)
  2. ertalon (thermal insulation)
  3. hot galvanised steel (lower part and base of the post)
- Base size 400x160x10 mm and 8 bores for fixing
- Height of the device 800 mm
- Device to be assembled with eyebolt and split pin (Cod. 000058) or accessories

3.2. POSITIONING OF THERMAL POSTS

Reduction of thermal bridges is essential to create buildings designed to achieve energy class A.
SICURTERM, when compared to a traditional steel post, has half the thermal dispersion to the exterior, while remaining a solid anchoring point that does not create any problems regarding waterproofing of the roof.

Comparison between the transmitted thermal power and point U value between a galvanised post, a stainless steel post and a post with thermal insulation on a wooden structure
SICURTERM positioning diagram, roof with 28/30 cm insulating envelope

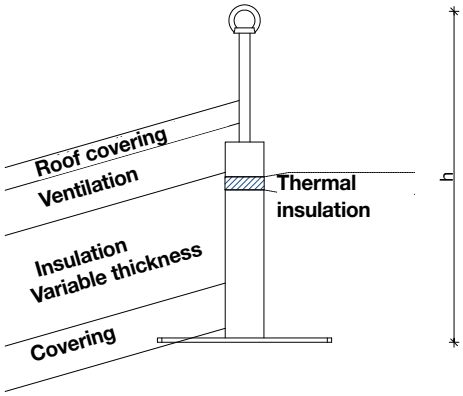
notes ΔT 23°C (-5°+18°)

Post	Thermal Power Transmitted		
	Thermal Post PT	INOX Post PG	Galvanised Post PZL
Post H cm 80	0,391 W	0,713 W	0,874 W
Post H cm 75	0,437 W	0,736 W	0,897 W
Post H cm 65	0,460 W	0,874 W	1,196 W
Post	**Point U value**		
	Thermal Post PT	**INOX Post PG**	**Galvanised Post PZL**
Post H cm 80	0,017 W/°K	0,031 W/°K	0,038 W/°K
Post H cm 75	0,019 W/°K	0,032 W/°K	0,039 W/°K
Post H cm 65	0,020 W/°K	0,038 W/°K	0,052 W/°K

Figure 3.6

The thermal insulation area (green) must remain inside the insulating envelope.

Figure 3.7 - Temperature distribution range



h=610 mm
h=710 mm
h=760 mm

Figure 3.8 - Positioning

3.3. FIXING THE ANCHORAGE DEVICES

Installation of the **PB**, **PG**, **PTS**, **PTM**, **PTL** anchorage devices must be carried out by trained staff, capable of assembling and dismantling the anchorage system (UNI 11560:2014) according to the indications provided in the Calculation Report drawn up by an authorised technician and containing all the detailed characteristics for the selected fastening (for example the fastening type, bar/screw dimensions, anchoring depth, distance from edges, etc.).
The following are some of the possible application methods, which are subject to verification by an authorised technician.

DEVICES	MATERIAL	FIXING METHOD						
		4 Bars/Bolts* ≤M12	Two-component Resin	Distribution plate + bolts	Wood screws	Counterplate	Welded	Other mechanical solutions**
PB	WOOD	✓	✓	✓	✓	✓		
	STEEL	✓		✓		✓	✓	✓
	REINFORCED CONCRETE	✓	✓	✓		✓		✓
PG	WOOD	✓	✓	✓	✓	✓		
	STEEL	✓		✓		✓	✓	✓
	REINFORCED CONCRETE	✓	✓	✓		✓		✓
PTS	WOOD	✓	✓	✓	✓	✓		
	STEEL	✓		✓		✓	✓	✓
	REINFORCED CONCRETE	✓	✓	✓		✓		✓
PTM	WOOD	✓	✓	✓	✓	✓		
	STEEL	✓		✓		✓	✓	✓
	REINFORCED CONCRETE	✓	✓	✓		✓		✓
PTL	WOOD	✓	✓	✓	✓	✓		
	STEEL	✓		✓		✓	✓	✓
	REINFORCED CONCRETE	✓	✓	✓		✓		✓

*The manufacturer recommends that the designer assess the use of vibration damping and self-locking systems (e.g. extra-large washers, self-locking nuts, split washers etc.) when fixing.
** When mechanical solutions are used it is recommended that preference be given to systems certified for dynamic loads with a life-span longer than or equal to that of the product (30 years), in order to avoid sustaining additional costs in the future.
On the customer's request, the manufacturer can provide the assistance of a technician for the installation methods to be used for **SICURPAL** devices.
This manual is to be considered as an essential indication of how to install the anchorage system properly.
In spite of this, **SICURPAL** offers courses for designers, fitters and testers in order to improve their understanding of these instructions and pass on their know-how to ensure proper installation and reduce to a minimum possible on-site errors.

3.4. DESCRIPTION OF THE LOAD DISTRIBUTION PLATES

The **PB**, **PG**, **PTS**, **PTM**, **PTL** devices can be combined with various load distribution plates.
The posts are fastened to the plates using bars/bolts/screws.
The most significant examples of this are shown below, purely as an illustration:

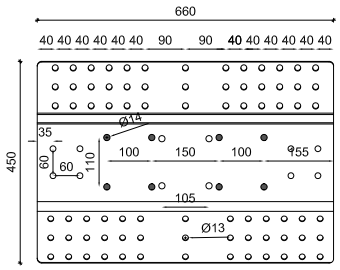


Figure 3.9 - Ridge beam load distribution plate (Cod. 000213) for PB/PG/PTS/PTM/PTL device

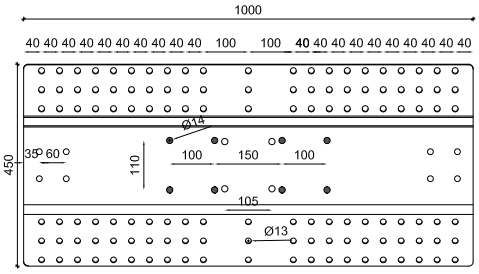


Figure 3.10 - Ridge beam load distribution plate (Cod. 000218) for PB/PG/PTS/PTM/PTL device

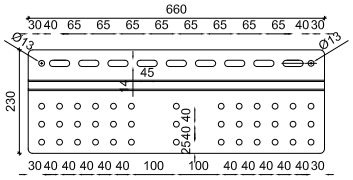


Figure 3.11 - Pitched roof load distribution plate (Cod. 000224) for PB/PG/PTS/PTM/PTL device

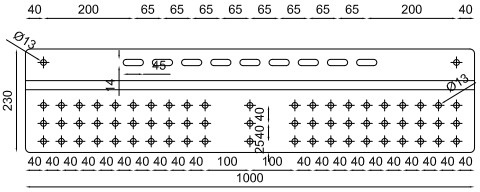


Figure 3.12 - Pitched roof load distribution plate (Cod. 000220) for PB/PG/PTS/PTM/PTL device

3.5. FIXING THE PB, PG, PTS, PTM, PTL POSTS WITH THE DISTRIBUTION PLATES

The following are the phases involved when fixing the plate to the support structure:
1. Rest the anchorage device on the plate (1);
2. Insert the screws into the anchorage device (2) (kit B12);
3. Screw the self-locking nuts onto the screws on the underside of the plate until it is completely tight (3).

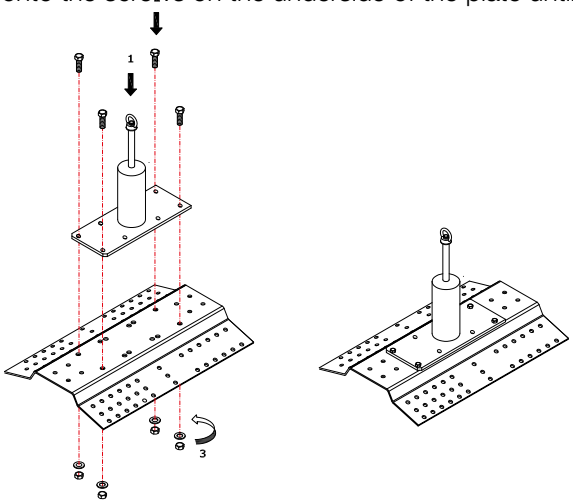


Figure 3.13 - PB/PG/PTS/PTM/PTL device with distribution plate (Cod. 000213) for ridge beam

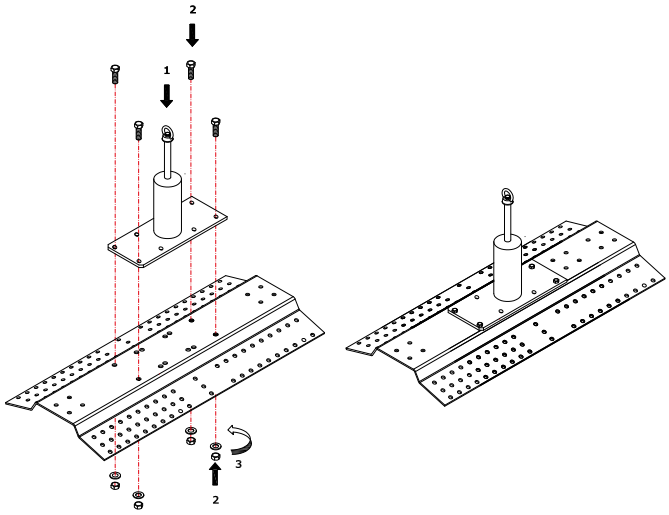


Figure 3.14 - PB/PG/PTS/PTM/PTL device with distribution plate (Cod. 000218) for ridge beam

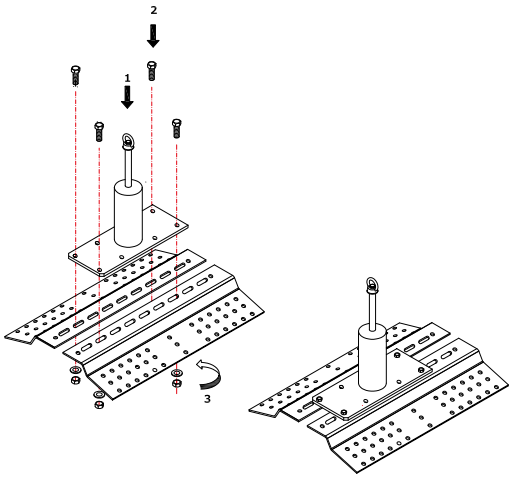


Figure 3.15 - PB/PG/PTS/PTM/PTL device with distribution plate (Cod. 000220) for pitched roof

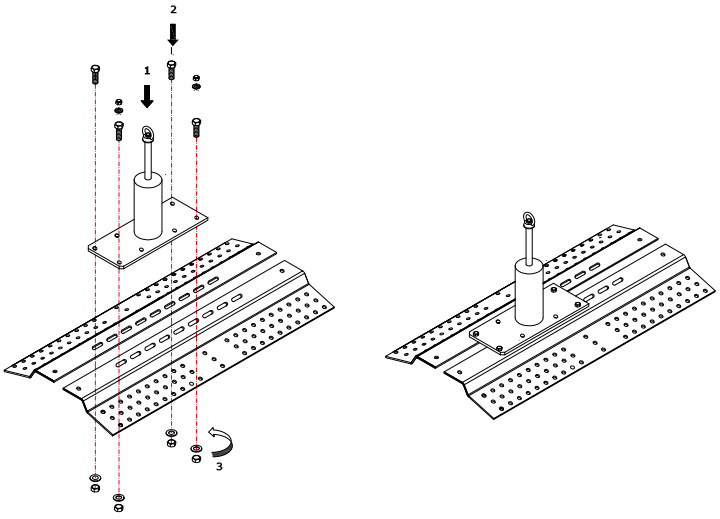


Figure 3.16 - PB/PG/PTS/PTM/PTL device with distribution plate (Cod. 000224) for pitched roof

3.6. DESCRIPTION OF THE COUNTERPLATES

Fixing must be carried out with counterplates, threaded bars, washers and nuts in the following cases:

1. When, based on the technician's assessment, the dimensions of the support structure are not suitable for fixing with resins;
2. When the structure is in pre-compressed concrete, and therefore will not stand boring.

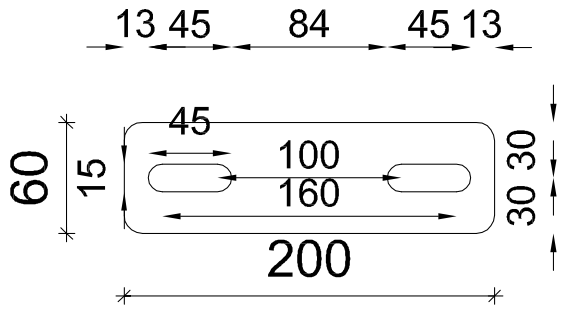


Figure 3.17 - Galvanised steel plate (Cod. 000196) for PB/PG/PTS/PTM/PTL devices

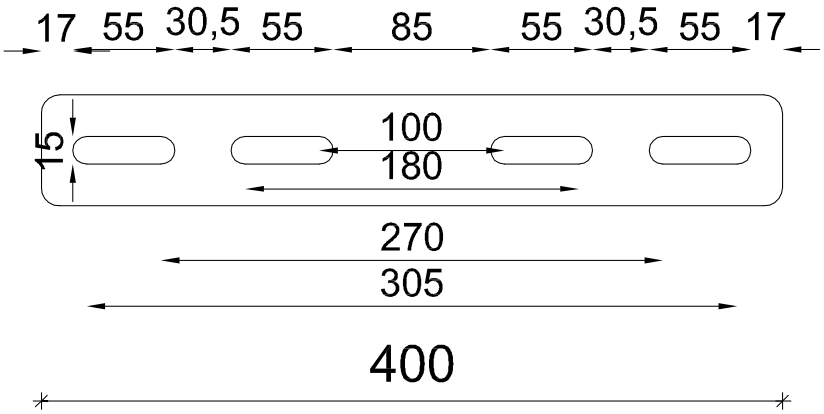


Figure 3.18 - Galvanised steel plate (Cod. 000203) for PB/PG/PTS/PTM/PTL devices

3.7. ASSEMBLY OF THE PB, PG, PTS, PTM, PTL POSTS WITH COUNTERPLATES

The assembly phases with counterplates are indicated below:

1. Rest the device on the support structure (1);
2. Insert the threaded bars in the bores on the anchorage device (2);
3. Position the counterplates on the underside of the support structure, in line with the bars*;
4. Insert washers and self-locking nuts;
5. Tighten the self-locking nuts (3).

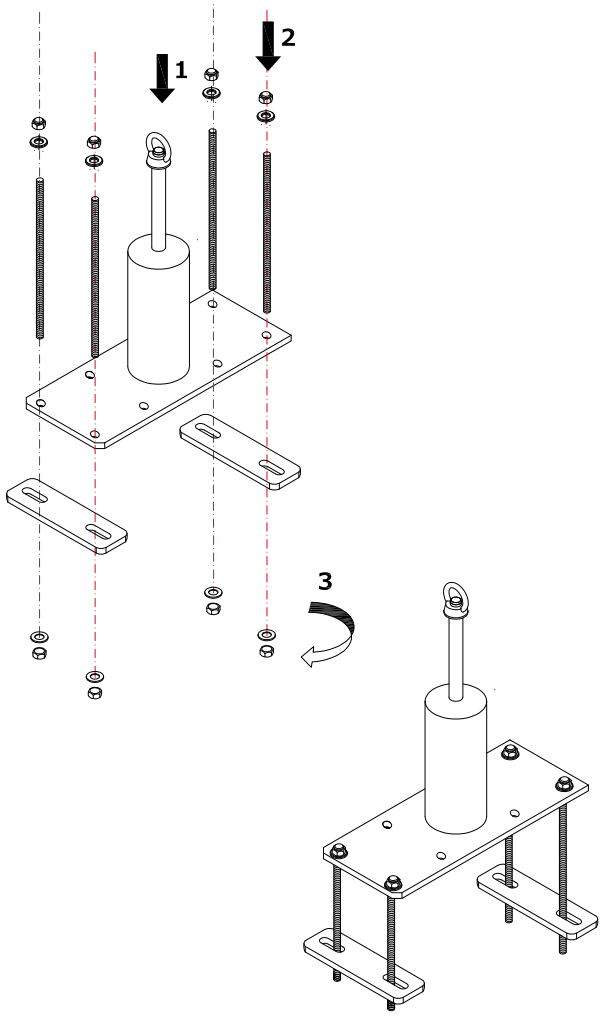


Figure 3.19 - PB/PG/PTS/PTM/PTL device with counterplates (Cod. 000196)

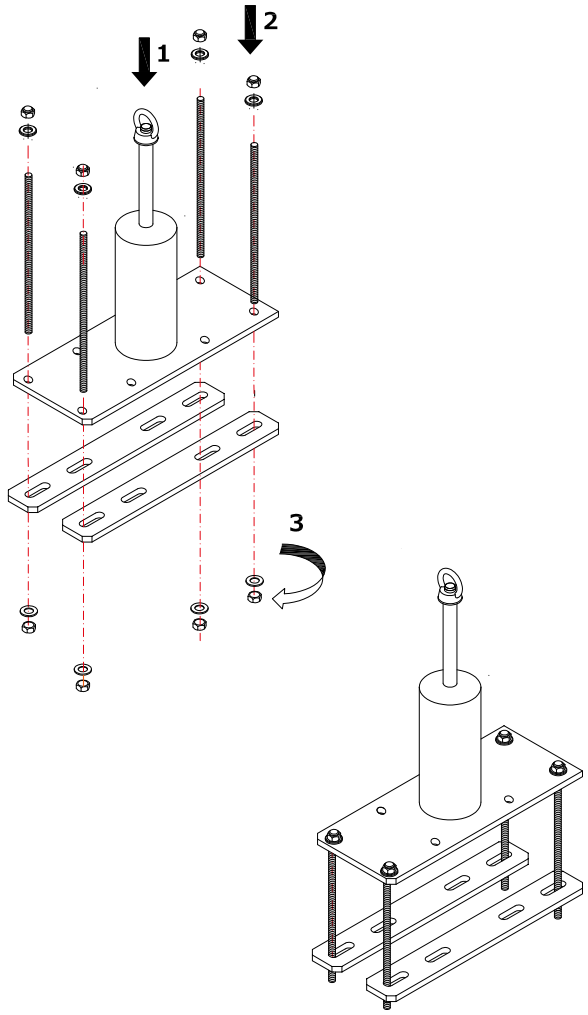


Figure 3.20 - PB/PG/PTS/PTM/PTL device with counterplates (Cod. 000203)

***The length of the bars must be indicated by the technician in the table attached to the Calculation Report**

For a better understanding of how the counterplates are used with the various devices, it is recommended you download the file "examples of application" from the address: *http://www.sicurpal.it/it/prodotti/accessori/materiale-per-il-montaggio/sistemi-di-fissaggio/contropiatti* or photograph the QR-code given here.

3.8. WATERPROOFING

Should it be necessary to avoid possible infiltrations, **SICURPAL** offers a lead flashing (Cod. 000017/Cod.000279) and one steel drip flap (Cod. 000018) and ond heat shrinkable drip flap (Cod. 002547) specially designed to waterproof the devices in the **PB**, **PG**, **PTS**, **PTM**, **PTL** line.
At the customer's discretion, it is possible to use alternative solutions (e.g. bituminous sheeting), the responsibility for which will be directly with the customer.

The phases to follow in the device waterproofing process using a flashing (Cod. 000017) and a drip flap (Cod. 000018) are given below:
1. Identify the installation point for the device on the roof;
2. Install the device on the roof;
3. Position the waterproofing flashing;
4. Fix the flashing with the drip flap as described in the instructions supplied in the box.

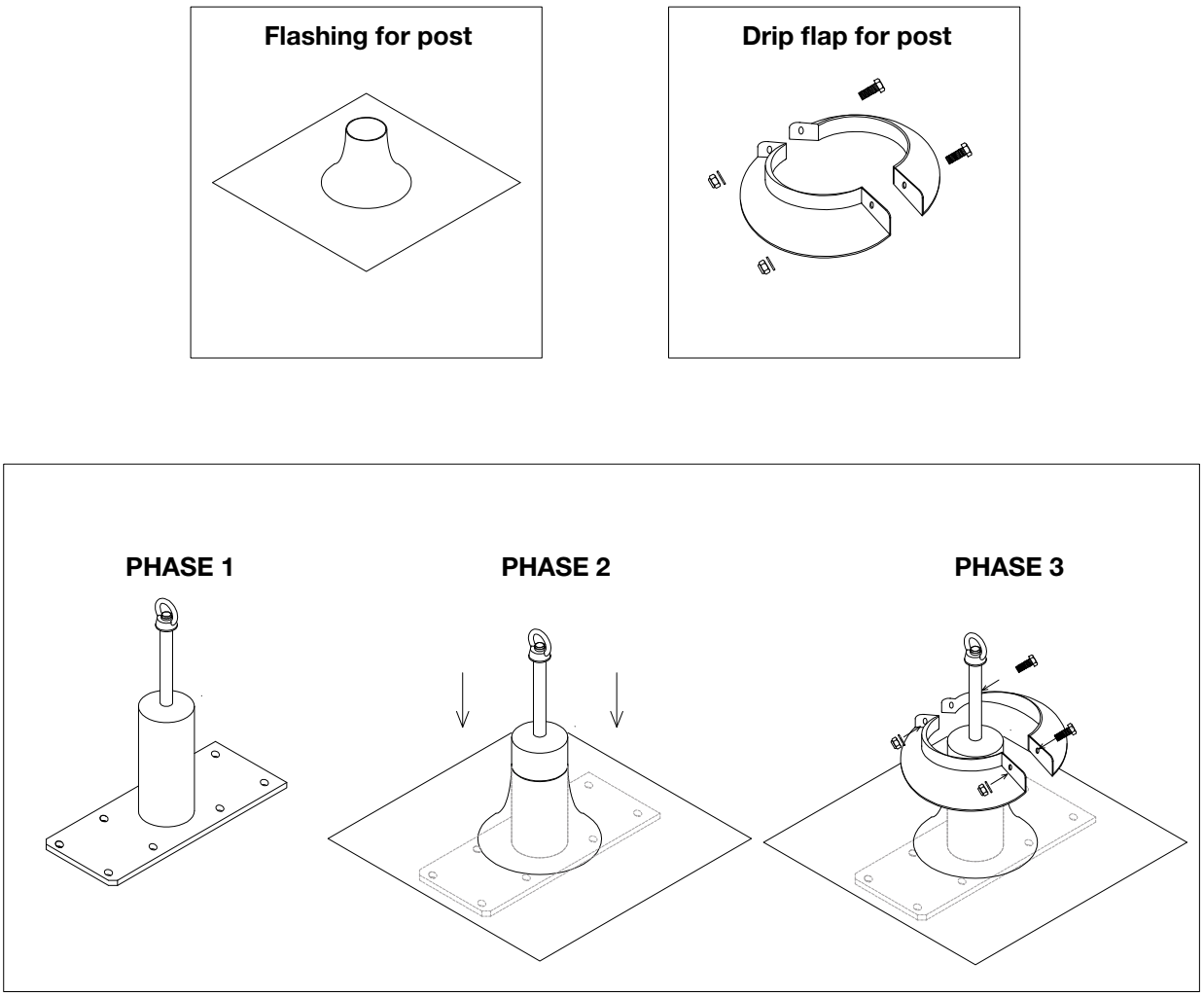


Figure 3.21 - Waterproofing of the PB/PG/PTS/PTM/PTL post with lead flashing (Cod. 000017) and a drip flap (Cod. 000018)

The phases to follow in the device waterproofing process using a flashing (Cod. 000279) are given below:

1. Identify the installation point for the device on the roof;
2. Install the device on the roof;
3. Position the waterproofing flashing;
4. Arrange the tiles so that:
   - the bottom section of the flashing is over the tile;
   - the top section of the flashing is under the tile.

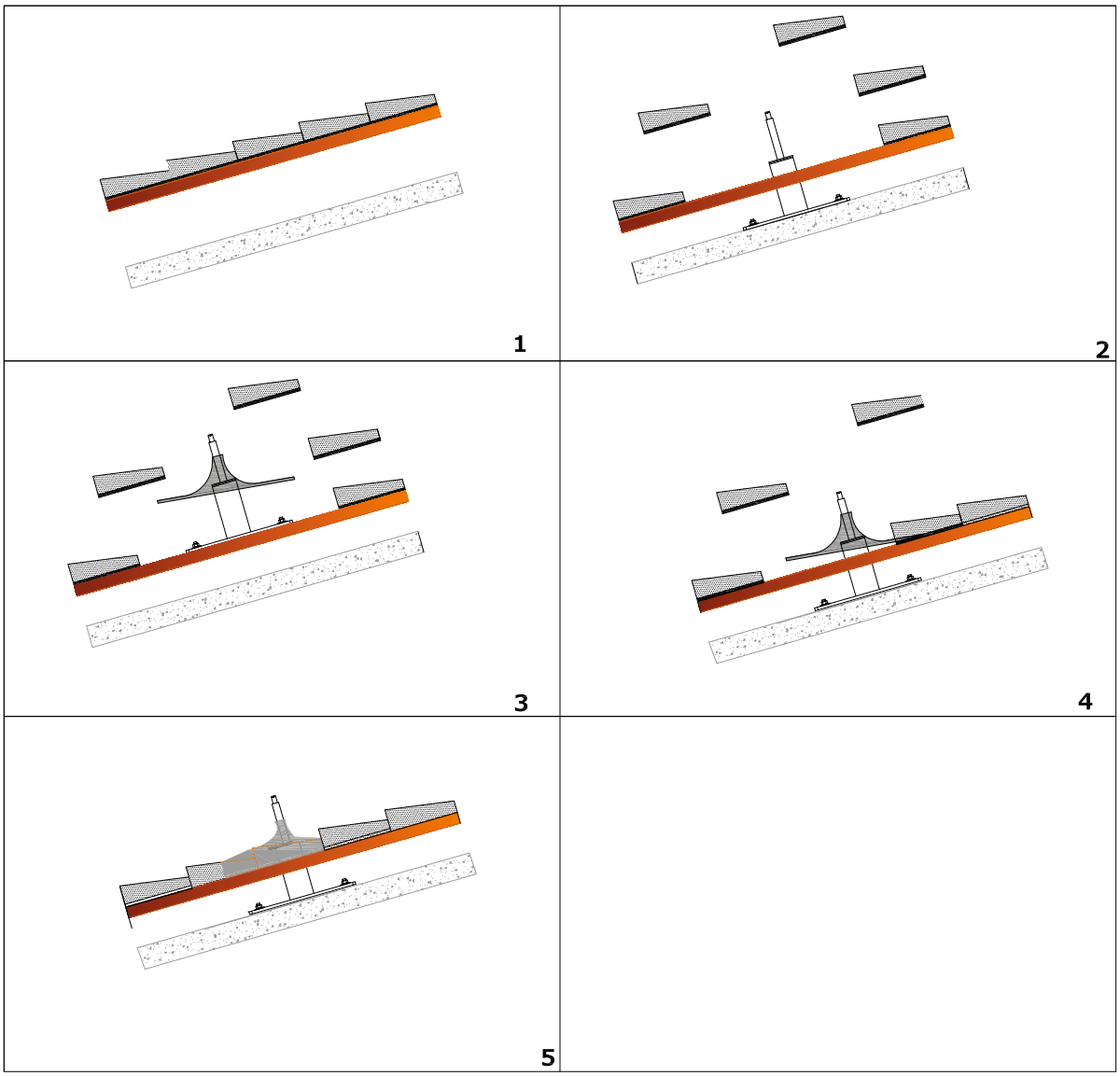


Figure 3.22 - Waterproofing of the PB/PG/PTS/PTM/PTL post with flashing (Cod. 000279)

⚠	**All waterproofing methods are the responsibility of the fitter.**

4. DESCRIPTION AND ASSEMBLY OF THE ACCESSORIES

The accessories are to be fitted on the top of the devices to complete the **PB**, **PG**, **PTS**, **PTM**, **PTL** devices and anchorage system.

4.1. LIFELINE ACCESSORIES

CABLE Ø8

Cod. 000055
In AISI 316 stainless steel Ø 8 mm
49 strands with identification bar for product traceability

Figure 4.1

ABSORBER

Cod. 000033
Energy absorber for lifeline
In stainless steel AISI 304

Figure 4.2

QUICK LINK

Figure 4.3

Cod. 001518
Universal quick link

Cod. 001758
Economy quick link

Figure 4.4

END OF TRAVEL PLATE

Cod. 000636
End of travel device for 8 mm cable, including two fixing clamps that prevent the operator from continuing beyond the point defined by the end of travel plate.

Figure 4.5

EYEBOLT AND SPLIT PIN

Cod. 000058
Eyebolt to be fitted on the head of the PB/PG/PTS/PT M/PTL post and fixed using a split pin

Figure 4.6

TURNBUCKLE/PIPE SUPPORT

Cod. 000194
For installation of the pipe turnbuckle (Cod. 000775) or guide pipe (Cod. 000307/000308/000309)
In AISI Stainless steel 304
Hardware included: bolt 16x35 mm and washer ø 16 mm in stainless steel

Figure 4.7

PIPE TURNBUCKLE

Figure 4.8

Cod. 000775
Turnbuckle with 250 mm thread in AISI 316 Stainless steel **to be pressed** for lifeline
Hardware included: 2 nuts and 1 washer ø14 in stainless steel

Figure 4.9

Cod. 002477
Turnbuckle with 250 mm thread in AISI 316 Stainless steel **to be crimped** for lifeline
Hardware included: 2 nuts and 1 washer ø14 in stainless steel
The turnbuckle allows tensioning of the lifeline

JAW/PIPE TURNBUCKLE

Figure 4.10

Cod. 000294
AISI 316 Stainless steel turnbuckle with 250 mm closed pipe and one jointed jaw with Ø 12X40 mm fastening bolt

Figure 4.11

Cod. 002494
AISI 304 Stainless steel turnbuckle with 150 mm closed pipe and one jointed jaw with Ø 12X40 mm fastening bolt

DOUBLE JAW TURNBUCKLE

Figure 4.12

Cod. 000032
AISI 316 Stainless steel turnbuckle with 250 mm closed pipe and two jointed jaws with Ø 12X40 mm fastening bolts

Figure 4.13

Cod. 002493
AISI 304 Stainless steel turnbuckle with 150 mm closed pipe and two jointed jaws with Ø 12X40 mm fastening bolts

JAW TERMINAL

FIXED

Figure 4.14

Cod. 000292
AISI 316 Stainless steel terminal and fixed jaw with Ø 12X40 mm fastening bolt

JOINTED

Figure 4.15

Cod. 000293
AISI 316 Stainless steel terminal and jointed jaw with fastening bolt Ø 12X40 mm

FIXING KIT, Ø 8 CABLE

Cod. 001513
FIXING KIT, Ø 8 CABLE
In AISI 304 Stainless steel for Ø 8 mm cable required for fixing with rope clips

Figure 4.16

SEAL

Cod. 000290
Turnbuckle locking seal
See chapter 5 for the installation procedure

Figure 4.17

LIFELINE ID

Cod. 000291
Lifeline identification code

Figure 4.18

ACCESS SIGN

Cod. 000296
Aluminium access sign to be positioned in the vicinity of every access point to the secured area

Figure 4.19

4.2. BYPASS LINE ACCESSORIES

STAINLESS STEEL CABLE SUPPORT

Cod. 000501
Intermediate cable support in AISI 304 Stainless Steel
To be installed on the head of the intermediate PB/PG/PTS/PTM/PTL device using the Ø 16 mm self-locking nut supplied in the package

Figure 4.20

CORNER GUIDE PIPES

Figure 4.21
STRAIGHT PIPE
Cod. 000309

Figure 4.22
135° PIPE
Cod. 000307

Figure 4.23
90° PIPE
Cod. 000308

Pipe Ø 14 mm with thickness 2 mm
In AISI 304 Stainless steel
Capable of covering 90°/135°/180° corers
To be used in combination with the support (Cod. 000194)

BRACKET

Cod. 000298
Anchoring bracket to create hoisting lines or connect two lifelines to the same post

Figure 4.24

4.3. GLIDER ACCESSORIES

GLIDER VERTICAL CABLE SUPPORT

Cod. 000192
Fixed vertical cable support for glider

Figure 4.25

VERTICAL 90 CABLE SUPPORT

Cod. 001327
Fixed vertical 90° cable support for glider

Figure 4.26

ADJUST. VERTICAL CABLE SUPPORT

Cod. 001344
Vertical cable support for glider, adjustable 0°/45°.

Figure 4.27

L.L. GLIDER

Cod. 001512
Safety glider for bypassable lifeline, allowing the operator to work without having to unhook, pause or slow down his movements (see Chapter 4, point 4.5.)

Figure 4.28

4.4. ASSEMBLING THE ACCESSORIES

The **PB**, **PG**, **PTS**, **PTM**, **PTL** devices can be assembled with an eyebolt and split pin (Cod. 000058) or accessories:
1. Grease all the threads on the **PB/PG/PTS/PTM/PTL** device, so that there is no risk of blockage during tightening;
2. Insert the eyebolt onto the head of the device;
3. Screw on the eyebolt;
4. Insert the split pin and bend the two ends back.

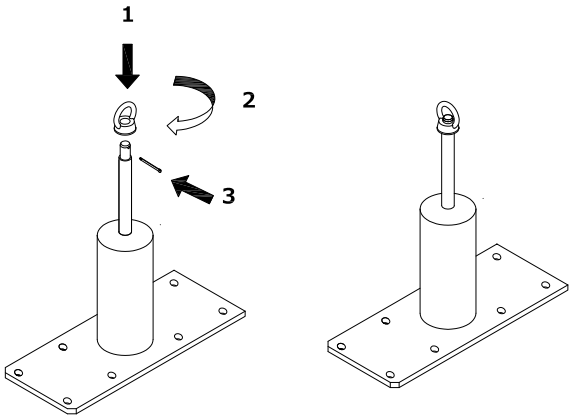


Figure 4.29 - Assembling the PB/PG/PTS/PTM/PTL device with eyebolt and split pin (Cod. 000058)

The PB, PG, PTS, PTM, PTL devices acting as intermediate devices can be assembled with various accessories, as shown below:
1. Align the accessory bore with the intermediate bore on the terminal;
2. Fix the accessory to the terminal using an M16 bolt;
3. Fix everything to the **PB**, **PG**, **PTS**, **PTM**, **PTL** post as described in the preceding point.

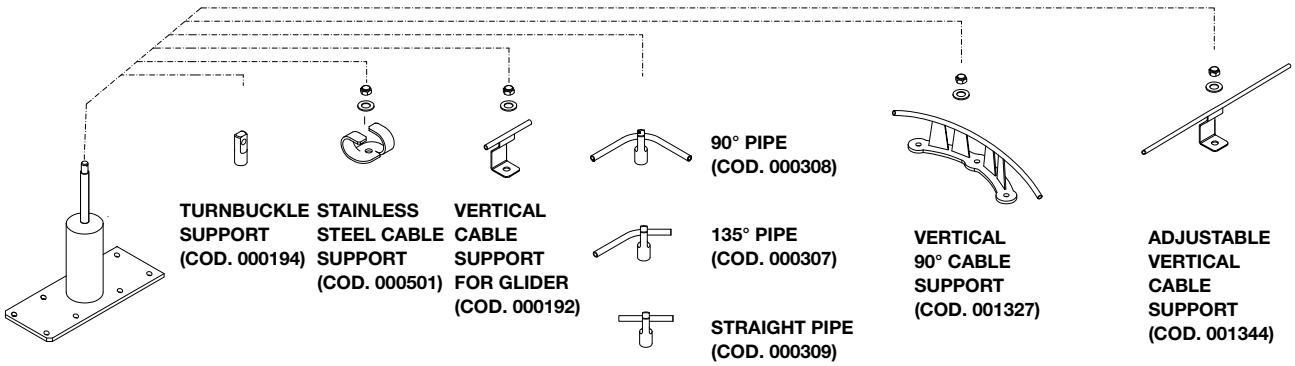


Figure 4.30 - PB/PG/PTS/PTM/PTL device combinable with one of the following accessories:
- **turnbuckle support Cod. 000194)**
- **stainless steel cable support (Cod. 000501)**
- **vertical cable support for glider (Cod. 000192)**
- **90° pipe (Cod. 000308),135° pipe (Cod. 000307) straight pipe (Cod. 000309)**
- **vertical 90° cable support (Cod. 001327)**
- **adjustable vertical cable support (Cod. 001344)**

Assembly of the **PB**, **PG**, **PTS**, **PTM**, **PTL** posts with stainless steel cable support, vertical cable support for glider, 90° vertical cable support or adjustable vertical cable support must always be carried out after first greasing the post threads, as described above.
The procedure to be followed when assembling the accessories is given below:
1. Insert the accessory into the head of the **PB/PG/PTS/PTM/PTL** device;
2. Insert the washer and the self-locking M16 nut;
3. Tighten the nut to 80 Nm.

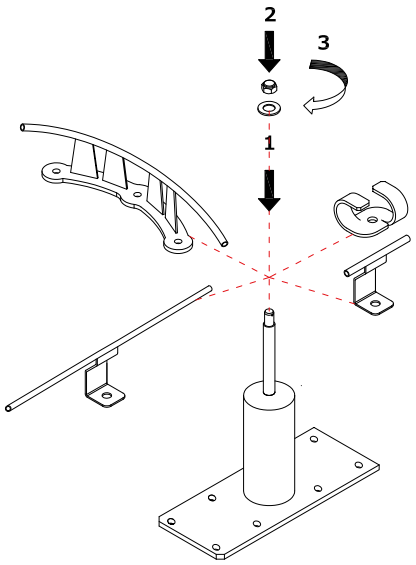


Figure 4.31 - PB/PG/PTS/PTM/PTL device with accessories and self-locking nut

The sole exception to the above is assembly of the turnbuckle support, for which the procedure to be followed is given below:
1. Insert the cable support into the head of the **PB/PG/PTS/PTM/PTL** device;
2. Screw on the support (Cod. 000194);
3. Insert the pipe (Cod. 000307/00308/000309).
You will clearly see whether or not the turnbuckle/pipe support and pipe have been screwed on properly if, when the lifeline cable is pulled, they neither turn nor unscrew.

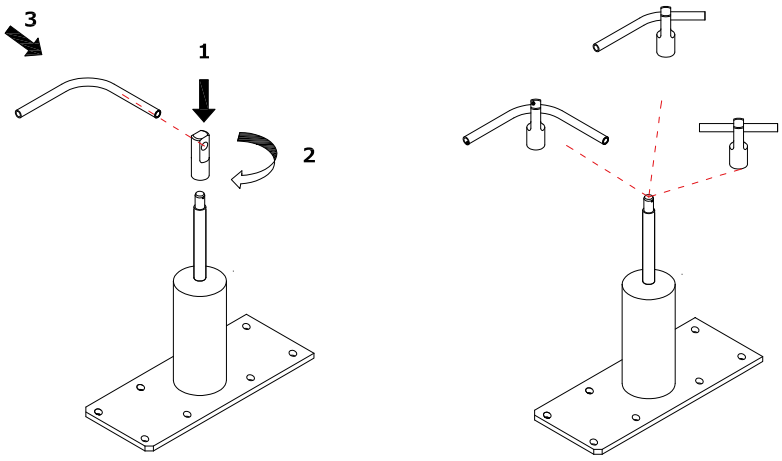


Figure 4.32 - Assembling the PB/PG/PTS/PTM/PTL device with cable support and pipe

4.5. INSTALLATION, USE AND MAINTENANCE OF THE GLIDER

The safety glider is used for bypassable lifelines of significant lengths, to allow the operator to work without having to unhook, pause or slow down his movements. This is possible if the lifeline is also equipped with the following accessories:

- Vertical cable support for glider (Cod. 000192)
- Vertical cable support 90 (Cod. 001327)
- Adjustable vertical cable support (Cod. 001344)

The glider consists of two assembled, sliding parts. This allows the glider to be hooked up and unhooked from the lifeline by means of two intentional actions. The front part contains two stops:

Figure 4.33
Stop 1 - Serves to lock the two parts of the glider finally and intentionally.
Stop 2 - This is a safety stop that serves to open the glider and subsequently allow it to be hooked up to the lifeline.

Figure 4.34 - The rear part of the glider contains two teeth, which have the sole purpose of allowing the mobile part to be gripped and made to slide (after applying a slight downward force).
(See Figure 4.35)

The following illustrates how to install the glider on the lifeline:

Figure 4.35

Figure 4.36 - Glider open

1. Unscrew stop 1;
2. Pull stop 2 outwards and at the same time grip the mobile part of the glider and press downwards slightly (see Figure 4.35);
3. Fasten the glider to the lifeline cable and release the grip, so that the glider closes again (returns to its original position);
4. Turn stop 1 until it is completely tight;
5. Hook the snap shackle (OXAN TL) included with the device into the bore at the bottom.

The same procedure is used to remove the glider.
For proper maintenance of the glider, it is recommended that a jet of compressed air and a cleaning product for brakes and metals be used in case of blockage.

⚠	**The device must only be opened for maintenance by Sicurpal technicians.**

5. INDICATIONS FOR FITTING THE LIFELINE

The following are the operations to be carried out to complete installation of the **PB**, **PG**, **PTS**, **PTM**, **PTL** lifeline:

1. Assemble the accessories (see Chapter 4.4);

2. Fix the turnbuckle at one end and the energy absorber at the other end, or in series;

3. Fix the intermediate accessories in the case of a line with multiple spans*
*In the case of lifelines with multiple spans of different lengths, it is recommended that the energy absorber be installed in the shortest span;

4. Fix the cable.

To fix the cable, two main methods can be used:

4.1. Method 1: FITTING WITH CRIMPING

The terminals in the **PBS/PBSC** lifeline can be:

- crimped
- fixed jaw (Cod. 000292)
- jointed jaw (Cod. 000293)

The turnbuckles in the **PB**, **PG**, **PTS**, **PTM**, **PTL** lifeline can be:

- jaw/pipe turnbuckle (Cod. 000294/002494)
- double jaw turnbuckle (Cod. 000032/002493)

Each pipe to be crimped has an open bore that allows the correct positioning of the cable to be checked both before and after crimping.

The procedure used for crimping is as follows:

a) Insert the cable all the way into the pipe and check that it is present using the bore;

b) Use a crimping tool to make the first crimping, checking that the cable is still visible inside the pipe;

c) Perform the other crimping operations at a distance of approximately 8 mm from the previous one, turning the crimping tool by about 20° each time (see **Figure 5.1**). This operation is compulsory for aesthetic reasons, to avoid a pipe that is not straight and not in axis.

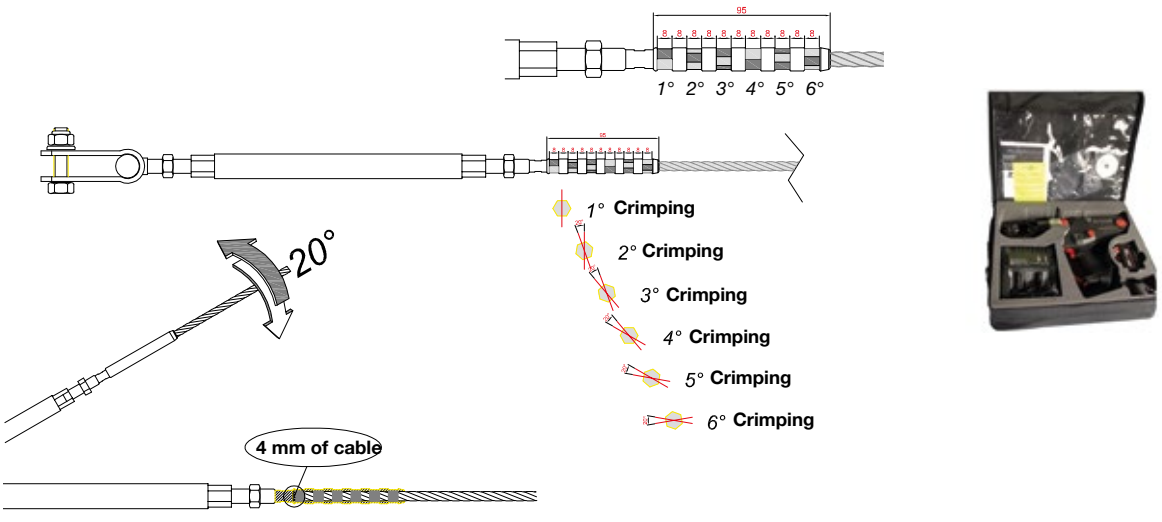


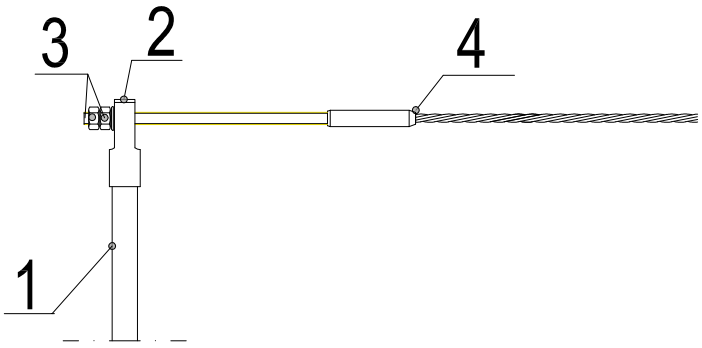
Figure 5.1 - Crimping

EXAMPLES:

All **PB/PG/PTS/PTM/PTL** products comply with standards UNI EN 795:2012, CEN/TS 16415:2013 and with UNI 11578:2015.

Crimped connections comply with all three of the above mentioned standards.

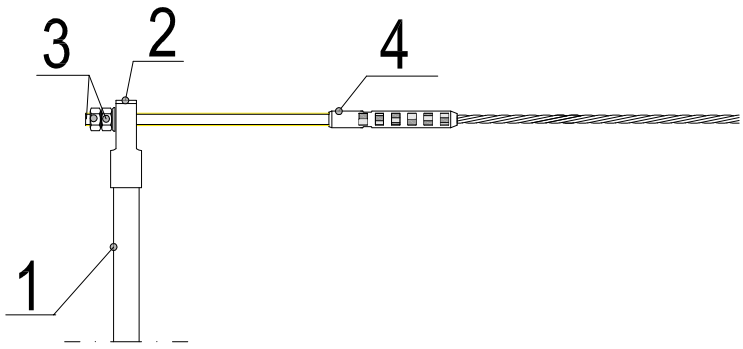
The following are a series of ways in which the lifeline can be assembled:



- **UNI EN 795:2012**
- **CEN/TS 16415:2013**
- **UNI 11578:2015**

Figure 5.2

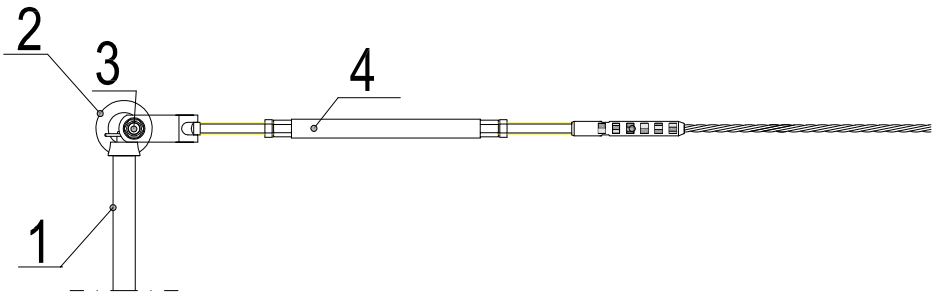
1. Screw the turnbuckle support (Cod. 000194) onto the head of the device (1) until it is completely tight, as explained in Chapter 4.4
2. Insert the pipe turnbuckle (4) (Cod. 000775) inside the turnbuckle support (Cod. 000194) and fix it using two M12x40 screws (3);
3. Insert the cable into the pipe (4) (Cod. 002477) and press it.



- **UNI EN 795:2012**
- **CEN/TS 16415:2013**
- **UNI 11578:2015**

Figure 5.3

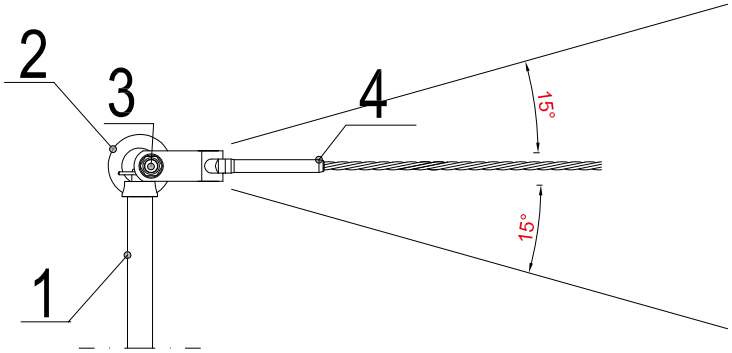
1. Screw the turnbuckle support (Cod. 000194) onto the head of the device (1) until it is completely tight, as explained in Chapter 4.4
2. Insert the pipe turnbuckle (4) (Cod. 002477) inside the turnbuckle support (Cod. 000194) and fix it using two M12x40 screws (3);
3. Insert the cable into the pipe (4) (Cod. 002477) and crimp it.



UNI EN 795:2012
CEN/TS 16415:2013
UNI 11578:2015

Figure 5.4

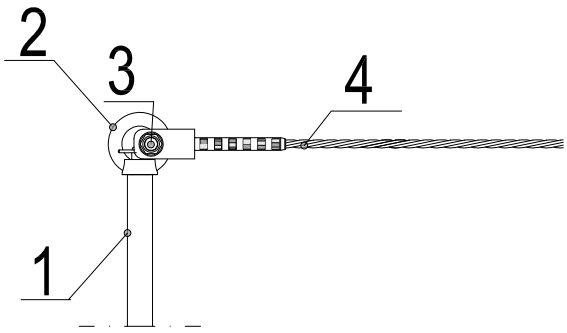
1. Fix the eyebolt with the split pin (2) (Cod. 000058) to the device (1), as described in the Chapter 4.4
2. Fix the J/P turnbuckle (2) (Cod. 000294) to the eyebolt using an M12x40 screw (3);
3. Insert the cable into the pipe and crimp it.



UNI EN 795:2012
CEN/TS 16415:2013
UNI 11578:2015

Figure 5.5

1. Fix the eyebolt with the split pin (2) (Cod. 000058) to the device (1), as described in the Chapter 4.4
2. Fix the jointed jaw terminal (4) (Cod. 000293) to the eyebolt using an M12x40 screw (3);
3. Insert the cable into the pipe and crimp it.



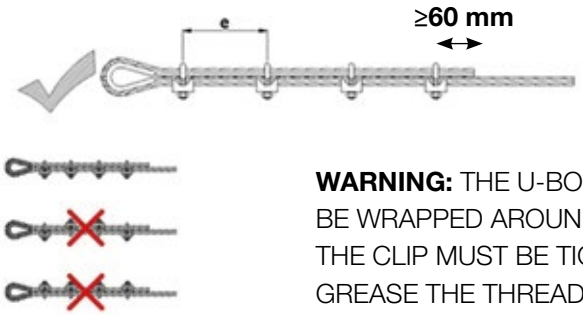
UNI EN 795:2012
CEN/TS 16415:2013
UNI 11578:2015

Figure 5.6

1. Fix the eyebolt with the split pin (2) (Cod. 000058) to the device (1), as described in the Chapter 4.4
2. Fix the fixed jaw terminal (4) (Cod. 000292) to the eyebolt using an M12x40 screw (3);
3. Insert the cable into the pipe and crimp it.

4.2. Method 2: FITTING WITH WIRE ROPE CLIPS

a) Insert the cable into the smaller heat-shrinkable sheathing and then into the larger one, before bending the cable;
b) Position the 4 rope clips on the 8 mm diameter cable, taking care to ensure that the first rope clip is as close as possible to the thimble, so that the value of the distance between clips "e" is between 30 mm and 60 mm and in any case not less than 30 mm or greater than 60 mm (see **Figure 5.7**).
The length of the dead cable must be in relation to the distance "e" between clips, while the length of the cable at the end of the clips must always be more than 60 mm;



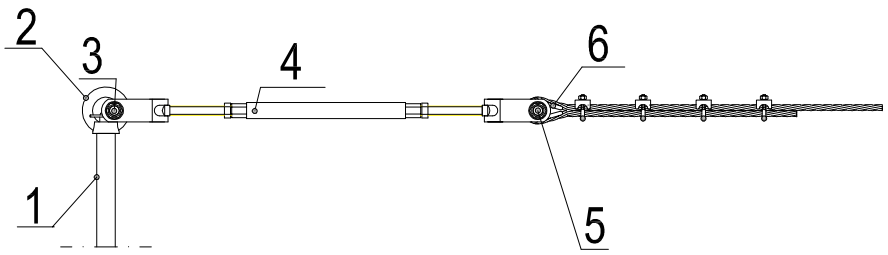
WARNING: THE U-BOLT PART OF THE ROPE CLIP MUST BE WRAPPED AROUND THE DEAD PART OF THE CABLE.
THE CLIP MUST BE TIGHTENED TO 3.3 Nm.
GREASE THE THREADS BEFORE TIGHTENING.

Figure 5.7 - Positioning cable with rope clips

c) Tighten the 8 nuts in the clips using a torque wrench set to 3.3 Nm (EN 14399);
d) Initial tightening of the clips must be with the cable slack and without using a torque wrench, while final tightening must be using a torque wrench and with the cable taut;
e) Tension the cable;
f) Position the wider heat shrinkable sheathing over the four rope clips and heat it until it has shrunk completely into place (see **Figure 5.8**).

Figure 5.8 - Heating the sheathing

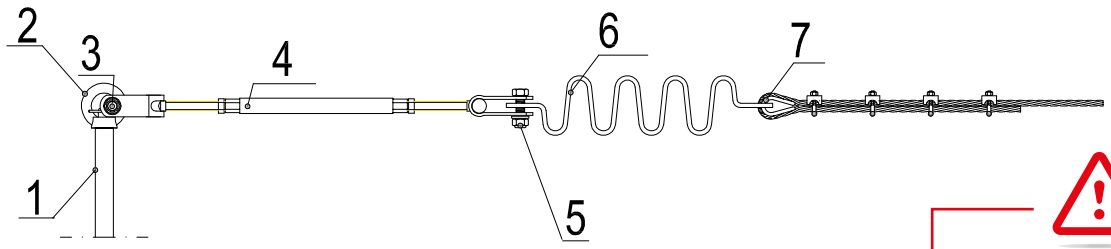
	During heating of the sheathing the following risks are present: **· Risk of fire** **· Risk of heat** **· Risk of explosion** **· Risk of intoxication**



UNI 11578:2015

Figure 5.9

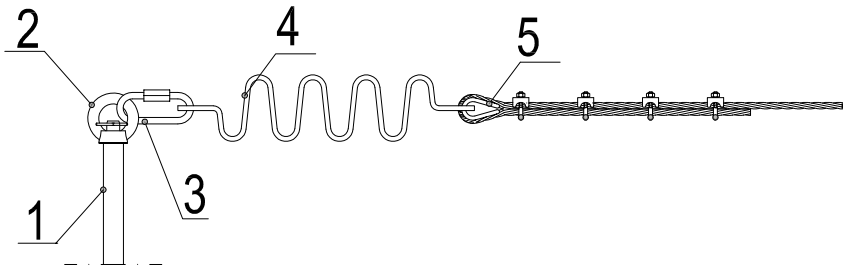
1. Fix the eyebolt with the split pin (2) (Cod. 000058) to the device (1), as described in the Chapter 4.4
2. Fix the double jaw turnbuckle (4) (Cod. 000032/002493) to the device using an M12x40 bolt;
3. Insert a thimble (7) into the other end of the turnbuckle, to allow passage of the cable;
4. Fix the cable with 4 rope clips (See Chapter 5, point 4.2.).



UNI 11578:2015

Figure 5.10

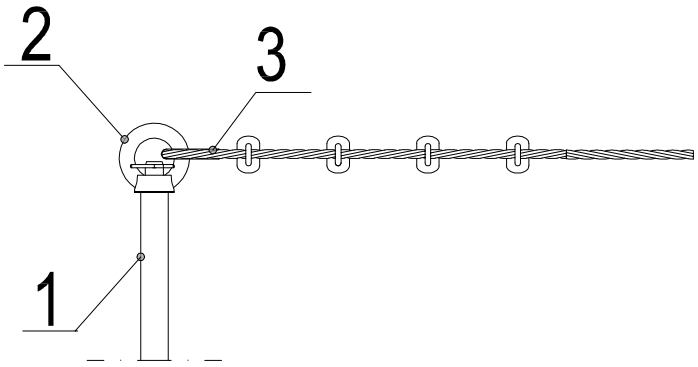
1. Fix the eyebolt with the split pin (2) (Cod. 000058) to the device (1), as described in the Chapter 4.4
2. Fix the double jaw turnbuckle (4) (Cod. 000032/002493) to the device using an M12x40 bolt;
3. Insert the energy absorber (Cod.000033) into the other end of the turnbuckle and fix it with an M12x40 bolt (5);
4. Insert a thimble (7) into the end hole on the turnbuckle, to allow passage of the cable;
5. Fix the cable with 4 rope clips (See Chapter 5, point 4.2.).



UNI 11578:2015

Figure 5.11

1. Fix the eyebolt with the split pin (2) (Cod. 000058) to the device (1), as described in the Chapter 4.4
2. Fix a quick link (3) (Cod. 001518/001758) to the eyebolt;
3. Insert the absorber (4) (Cod. 000033) into the quick link and close it;
4. Insert a thimble (5) into the other end of the energy absorber, to allow passage of the cable;
5. Fix the cable with 4 rope clips (See Chapter 5, point 4.2.).



UNI 11578:2015

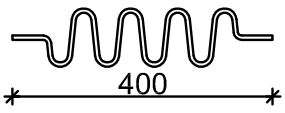
Figure 5.12

1. Fix the eyebolt with the split pin (2) (Cod. 000058) to the device (1), as described in the Chapter 4.4
2. Insert a thimble (3) into the eyebolt, to allow passage of the cable;
3. Fix the cable with 4 rope clips (See Chapter 5, point 4.2.).

5. Complete installation of the lifeline by turning the turnbuckle (Cod. 000775/000032/002493/000294/002494) until the line is taut.
For proper tensioning of the line:
- Check the length of the energy absorber and tighten the cable until the absorber lengthens by 5-10 mm (equivalent to a traction force of approximately 100/150 daN) (Cod. 000033) (see **Figure 5.12**);
- If you have the test KIT, the cable tension can be measured using cell C - Cable Tensioning.

CHECKING THE ENERGY ABSORBER

Starting length 40 cm (400 mm) ±0.5 cm (5 mm)



Length after pre-tensioning 40.5-41 cm (405-1410 mm) ±0.5 cm (5 mm)

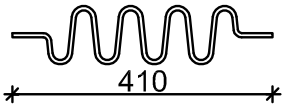


Figure 5.13

In the case of lengthening by more than 45 cm (450 mm), replace the absorber.

5. Posizionare il sigillo del tenditore.

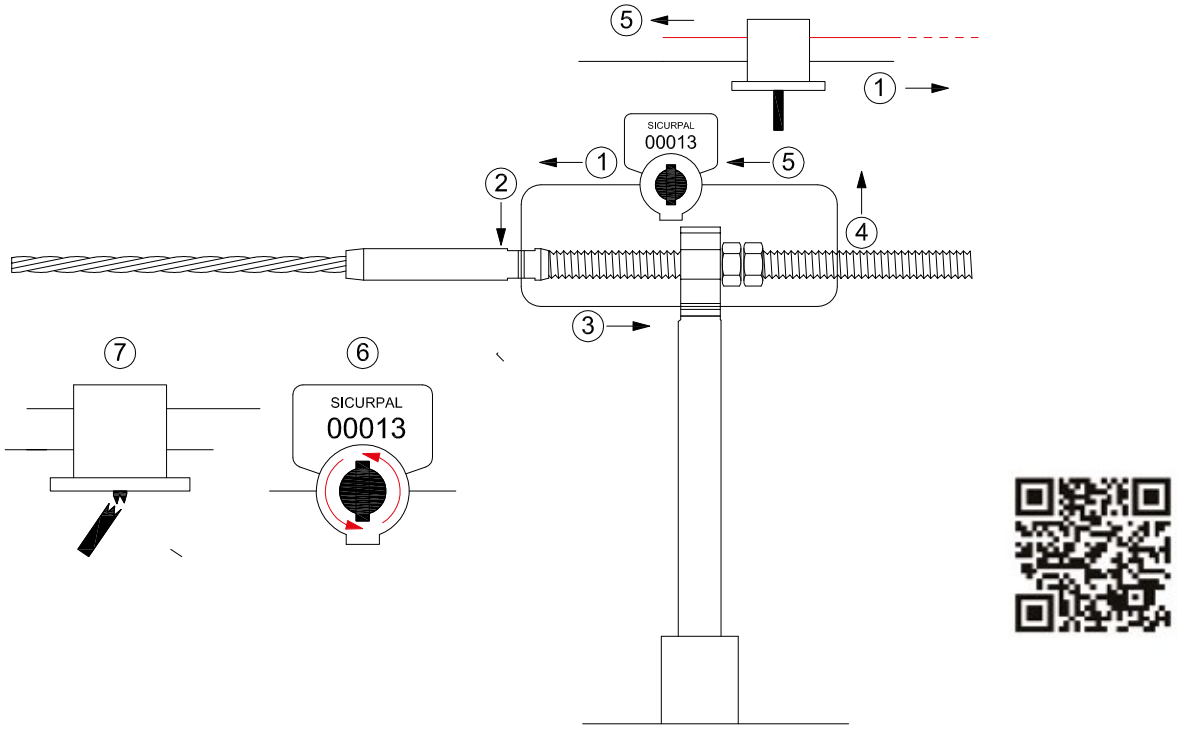


Figure 5.14

1. Pass one end of the wire cable through one of the two bores in the safety seal;
2. Continue by inserting the metal wire into the bore in the turnbuckle (Cod. 000775/000032/002493/000294/002494) or into one of the two jaws;
3. Continue by inserting the wire into the turnbuckle support or into the remaining jaw;
4. Continue by bringing the metal wire up to the safety seal;
5. Insert the wire into the remaining bore in the safety seal, pulling it tight;
6. After tightening the metal wire, turn the locking device in the seal and eliminate the excess wire;
7. Seal the whole by breaking the locking device grip.

For the sake of clarity, it is recommended to watch the explanatory video on the Sicurpal website:
https://www.youtube.com/watch?v=XmeRp1hxLyw

5. Install the lifeline identification code (Cod. 000291), which identifies the system and is used to find all the necessary information in terms of system components and the location of devices in the event of subsequent inspections.

	**Crimped connections are compliant with:** **UNI EN 795:2012** **CEN/TS 16415:2013** **UNI 11578:2015**
	**Connections with wire rope clips are compliant with:** **UNI 11578:2015**

6. USE OF FALL PREVENTION SYSTEMS

The **SICURPAL PB**, **PG**, **PTS**, **PTM**, **PTL** devices suitable for use by operators, comply with the minimum requirements of standards **UNI EN 363:2008**, **UNI 11560:2014** and **UNI 11158:2015** and with the provisions of Leg. Dec. 81/08 and subsequent modifications and additions, art. 115.
They are suitable for use in the following types of personal protection system:

- ✓ Retention systems;
- ✓ On-site positioning systems;
- ✓ Cable access systems;
- ✓ Fall arrest systems;
- ✓ Rescue systems.

A personal fall protection system consists of an assembly of components designed to protect the worker from falling from a height, including a body harness and a connection system, which can be fastened to the anchorage system.
It should be remembered that Leg. Dec. 81/08 and subsequent modifications and additions, art. 77 paragraph 5, letter a, indicates the essential nature of training in the use of personal fall protection systems and the relevant Category III P.P.E. (Personal Protection Equipment) (Regulation UE 425/2016).

6.1. RETENTION SYSTEMS

A retention system is a personal fall protection system that prevents the worker from reaching areas in which there is a risk of falling from a height (UNI 11560:2014).

Table of deflections in the case of retention and/or positioning of an operator

MAX SPAN Length (m)	1 SPAN		2 SPANS		4 SPANS		TOT LINE L. (m)	
	WEIGHT [Kg]	DEFLECTION [m]	WEIGHT [Kg]	DEFLECTION [m]	WEIGHT [Kg]	DEFLECTION [m]	WEIGHT [Kg]	DEFLECTION [m]
5	5.00		10.00		20.00		80.00	
	0.70	0.06	0.70	0.12	0.70	0.25	0.70	0.97
10	10.00		20.00		40.00		80.00	
	0.70	0.37	0.70	0.43	0.70	0.51	0.70	1.01
15	15.00		30.00		60.00		80.00	
	0.70	0.76	0.70	0.86	0.70	1.02	0.70	1.02

The values indicated in the table "Table of deflections in the case of retention and/or positioning of an operator" must be taken into account by the operator who is using the retention and/or positioning (UNI EN 358).

6.2. ON-SITE POSITIONING SYSTEMS

An on-site positioning system is a personal fall protection system that allows the worker to work while restrained/ held up, so as to prevent falling from a height (UNI 11560:2014).

6.3. CABLE ACCESS SYSTEMS

A cable access system is a personal fall protection system that allows the worker to access the work place held, either in tension or suspended, in such a way that free falls are prevented or stopped.
To hook up the safety cable used in cable systems it is possible to use the **PB**, **PG**, **PTS**, **PTM**, **PTL**, lifeline, which makes it possible to have a safety anchor that is always perpendicular to the position of the operator while at work.

Table of deflections in the case of a suspended operator weighing 125 kg anchored to the lifeline

MAX SPAN Length (m)	1 SPAN		2 SPANS		4 SPANS		TOT LINE L. (m)	
	WEIGHT [Kg]	DEFLEC-TION [m]	WEIGHT [Kg]	DEFLEC-TION [m]	WEIGHT [Kg]	DEFLEC-TION [m]	WEIGHT [Kg]	DEFLEC-TION [m]
5	5.00		10.00		20.00		80.00	
	125.00	0.41	125.00	0.44	125.00	0.50	125.00	0.86
10	10.00		20.00		40.00		80.00	
	125.00	0.66	125.00	0.72	125.00	0.81	125.00	1.08
15	15.00		30.00		60.00		80.00	
	125.00	1.16	125.00	1.25	125.00	1.43	125.00	1.55

6.4. FALL ARREST SYSTEMS

A fall arrest system is a personal fall protection system that stops a free fall and restricts the impact on the worker's body during stoppage of the fall.

Table of dynamic deflections in the case of fall arrest of four operators, to calculate the clearance

MAX SPAN Length (m)	1 SPAN		2 SPANS		4 SPANS		5 SPANS		TOT LINE L. (m)	
	LOAD [kN]	DEFLEC-TION [m]	LOAD [kN]	DEFLEC-TION [m]	LOAD [kN]	DEFLEC-TION [m]	LOAD [kN]	DEFLEC-TION [m]	LOAD [kN]	DEFLEC-TION [m]
5	5.00		10.00		20.00		25.00		80.00	
	8.75	1.05	8.61	1.07	8.38	1.11	8.27	1.13	7.04	1.31
10	10.00		20.00		40.00		50.00		80.00	
	8.88	1.43	8.63	1.48	8.22	1.58	8.05	1.63	7.35	1.76
15	15.00		30.00		60.00		75.00		80.00	
	8.88	1.74	8.54	1.84	8	2	7.63	2.08	7.52	2.1

6.5. RESCUE SYSTEMS

A rescue system is a personal fall prevention system with which the worker can save himself or others, to prevent free falls.
A rescue system:
- Avoids free falling both of the person being rescued and of the rescuer during the rescue operation;
- Can be used to lift or lower the person being rescued to a safe place.

7. TECHNICAL DATA

		DEVICES				
		PB	**PG**	**PTS**	**PTM**	**PTL**
Net weight	**[Kg]**	390	590	650	750	800
Product height [mm]	**[mm]**	7.20	9.00	11.00	12.50	13.00
Anchor plate dimensions	**[mm]**	400x160				
Number of structural anchor bores	**n°**	8 bores				
Material used		AISI 304 STAINLESS STEEL		• AISI 304 STAINLESS STEEL (upper part of the post) • ERTALON (thermal insulation) • HOT GALVANISED STEEL (lower part and base of the post)		
Number of users per device under UNI EN 795:2012 Type A	**max**	1				
Number of users per device as CEN/TS 16415:2013 Type A	**max**	2				
Number of users per lifeline under UNI EN 795:2012 Type C	**max**	1				
Number of users per lifeline under CEN/TS 16415:2013 and UNI 11578:2015 Type C	**max**	4				
Maximum weight of each user	**[Kg]**	125				
Minimum distance between lifeline anchorage devices	**[m]**	5				
Maximum distance between lifeline anchorage devices	**[m]**	15				
Maximum length of lifeline	**[m]**	80				
Number of P.P.E. anchor bores*	**n°**	1				

*** The availability of anchorage bores for P.P.E. varies according to the number of accessories fixed to the devices.**

8. EXAMPLES OF MARKING

Each removable component in the system is clearly marked, as shown below:

Figure 8.1

Sicurpal	Manufacturer's name and identification mark
EN 795/2012 **CEN/TS 16415/2013** **UNI 11578/2015**	Certification standards
PB	Name of anchorage device
J 01152	Production batch number
1X	Max. No. operators allowed
Cod. 000263	Product identification code
	Read the instructions in the manual

	In the absence of a mark the device is to be considered non compliant and must be replaced.

9. INSPECTION AND MAINTENANCE SCHEDULE

Standard UNI 11560:2014 envisages four types of inspection. The manufacturer has implemented this standard and applies it as follows:

9.1. INSPECTION ON FITTING

Inspection of the components prior to assembly and inspection of the system after assembly, must be carried out by the fitter in accordance with the instructions provided by **SICURPAL** as the device manufacturer, the anchorage system designer and the structural engineer (UNI 11560:2014).

SICURPAL, as the manufacturer, prescribes the following operations:

- Verification, prior to installation, of the expiry date of chemical anchoring agents, if use of these agents is foreseen;
- After installation, carry out a traction test (the **PB**, **PG**, **PTS**, **PTM**, **PTL** devices can be pulled upwards) (see **Figure 9.1**) on the end devices and on all the devices forming a curve/crossing. Whenever possible, wrap a tape around the bottom part of the rod and apply the force perpendicular to the post and in all directions (see **Figure 9.2**). This test serves to verify that the anchorage and the support structure.

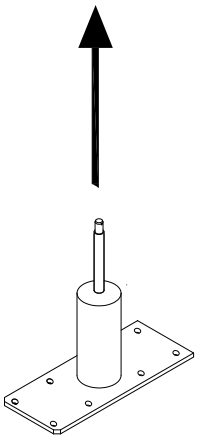


Figure 9.1

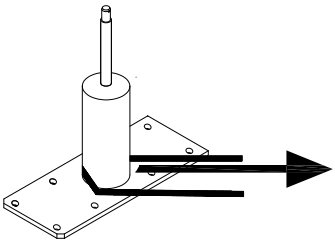


Figure 9.2

9.2. INSPECTION PRIOR TO USE

Before using the **SICURPAL** anchorage devices, the following preliminary visual inspections must be carried out:

- Waterproofing;
- Wear;
- Rusting/corrosion;
- Deformation of components (see Chapter 5.5);
- Abnormal deformation of the cable;
- Tensioning of the cable;
- Locking of the nuts and bolts on visible devices;
- State of any moving parts.

⚠	**If any anomalies are found in the system after performing these checks, it must not be used. It is also necessary to prevent access by other users and to inform the client, who must withdraw the system from service and, if necessary, arrange for it to be restored to normal use, by requesting the intervention of competent persons.**

Before accessing the roof area, the user must check the fall clearance in all parts of the roof where there is a risk of falling, so as to eliminate any risk of colliding with the ground or with other obstacles along the path in the event of a fall.
Before going onto the roof, make sure that the weather and environmental conditions are not likely to cause a health risk for the fall prevention system user. The user must check the Technical Plan for any dangers of swing fall and for any special requirements.

9.3. PERIODIC INSPECTION

Periodic inspection of each anchorage system must be carried out by a competent person*, with the interval between two periodic inspections not exceeding 2 years for controls on the anchorage system and 4 years for controls on the support structure and anchoring devices (UNI 11560:2014 see System Instruction Manual).
Notwithstanding the above, Sicurpal recommends that inspections be carried out annually as regards the devices (with particular attention to **PTS**, **PTM**, **PTL** products, which contain plastic components) and at the intervals recommended by the structural engineer as regards the structural fixing system. If there is a flashing on the **PB**, **PG**, **PTS**, **PTM**, **PTL** device,check it periodically (annually under UNI EN 365) to verify its state of preservation.

	**For further information please contact your local authorised dealer or SICURPAL.**

9.4. SPECIAL INSPECTION

After notification of a fault or after a fall, the anchorage system must immediately be put out of use. After this, a special inspection must be carried out by **SICURPAL** or a company authorised by **SICURPAL**, to identify any action that needs to be taken to restore the anchorage system, the anchors and the support structure to their proper performance levels (UNI 11560:2014).

9.5. MAINTENANCE

Maintenance must be carried out, if necessary, following the special inspection. If the maintenance involves replacing components and/or operations on the support structure, if necessary involving an authorised technician, (UNI 11560:2014) the maintenance technician must issue a declaration indicating that the required maintenance has been properly carried out, confirming that the system is suitable for use.

** A competent person is a person who knows current requirements for inspections prior to use, periodic and special inspections, the recommendations and instructions issued by the manufacturer and applicable to the component, sub-system or system in question (UNI EN 365 § 3 "terms and definitions").*

10. WARNINGS AND RECOMMENDATIONS

10.1. INSTALLATION

10.2. USE

The devices in the **PB**, **PG**, **PTS**, **PTM**, **PTL** range must only be installed after a qualified technician has assessed the risks of falling from a height, and verified the suitability of the structures on which the devices are to be installed.	The **SICURPAL** anchorage devices must only be used by persons authorised by the employer (or customer) who have fully read and understood the instructions provided in this manual. They must also be trained, instructed and experienced in the use of Category III P.P.E.
The qualified structural engineer must also indicate the most suitable fixing method according to the type of base material, the size and the mechanical characteristics of the bearing structures onto which the product is to be installed. Installation must take place according to the performance values provided by the manufacturer.	The **SICURPAL** anchorage devices must only be used by persons equipped with P.P.E. that comply with specific technical standards, are subjected to regular maintenance and have not exceeded the manufacturer's expiry date.
During installation of the **SICURPAL** anchorage devices it is strictly forbidden to use components other than the ones supplied without the manufacturer's authorisation.	The manufacturer is likewise to be considered free from any responsibility for accidents due to improper use of the system and failure to observe the warnings and recommendations contained in this manual. In this case the responsibility will lie with the client and/or employer.
The installer must make sure that the materials and supports to which the anchorage devices are to be fixed are compliant with and suited to the requirements of the Calculation Report.	The choice of P.P.E. to be employed when using the anchorage devices must be made and indicated by the employer (or client) in the working safety plan.
It is absolutely forbidden to create new bores, enlarge existing ones or modify the shape of the device without the prior written authorisation of the manufacturer **SICURPAL**. Doing so will render the warranty and product conformity null and void.	

10.3. INSPECTIONS AND MAINTENANCE

If the user connected to the **SICURPAL** devices suffers a fall, the anchorage system must be put out of use and all its components must be checked by **SICURPAL**.	If the anchorage devices become bent or damaged, they must be replaced immediately. Replacement of any products must be carried out by **SICURPAL** or by authorised and qualified technicians.
The **PB**, **PG**, **PTS**, **PTM**, **PTL**devices must only be returned to service after they have been finally certified by **SICURPAL** or a company authorised by **SICURPAL**.	

	The manufacturer will not be held liable for any accidents deriving from failure to comply with the standards and indications given in this manual.
	As well as verifying the anchorage system, the user must also make sure all the control procedures are carried out for all the system anchoring elements (energy absorbers, lanyards, harnesses, etc.).

In the case of faulty **SICURPAL** devices, contact the **SICURPAL** Logistics Department (Telephone number **SICURPAL** 059-81.81.79, e-mail: qualità@sicurpal.it).

10.4. EARTHING

In areas at risk of lightning, according to standard CEI 81-10, connect the underside of the device fixing plat to an equipotential / earthing circuit using a cable with eyelet terminal of a suitable cross-section to allow for protection from lightning.
This operation must be carried out by a qualified technician pursuant to Ministerial Decree N° 37 dated 22-1-2008.
This operation is not mandatory, and is the responsibility of the client/owner of the building.

	Check that the anchorage device is fixed and properly installed according to these instructions.
	SICURPAL will not be held liable in any way for earthing of the system.

11. MANUFACTURER'S NOTE

The following is the information requested in point 7 of standard UNI EN 795:2012:

A) The **PB**, **PG**, **PTS**, **PTM**, **PTL Type A** anchorage device can be used by **1 (one) operator** following certification tests under UNI EN 795:2012, max. **2 (two) operators** following certification tests under Technical Specification CEN/TS 16415:2013.
The **PB**, **PG**, **PTS**, **PTM**, **PTL Type C** anchorage device can be used by max. **4 (four) operators** following certification tests according to Technical Standards CEN/TS 16415:2013 and UNI 11578:2015.

B) The anchorage device can be used with fall arrest systems, provided the Personal Protection Equipment contains an energy absorber.

C) The maximum load transmittable by the **Type A** anchorage device is ft = 7.44 kN in a horizontal direction parallel to the roof and in any direction (valid for **1 (one) operator** hooked to the post – **UNI 11578:2015**).
The maximum load transmittable by the Type C anchorage device is ft = 8.89 kN in a horizontal direction parallel to the roof and in the direction of the cable and of fall (valid for **1 (one) operator** hooked to the line– **UNI EN 795:2012**).
The maximum load transmittable by the Type C anchorage device is ft = 12.61 kN in a horizontal direction parallel to the roof and in the direction of the cable and of fall (valid for **4 (four) operators** hooked to the line– **CEN/TS 16415:2013**).

D) The maximum deflection value of the **PB**, **PG**, **PTS**, **PTM**, **PTL** anchorage devices and the maximum movement value of the anchorage point is 0°.
The maximum deflection of the **PB**, **PG**, **PTS**, **PTM**, **PTL** Type C is 198 cm.

E) See Chapter 6.

F) The anchorage devices are made exclusively of metal, so that it is not necessary to provide additional information on the materials from which they are made.

G) It is necessary to mark the System Register or the card located near the roof access points, after every inspection.

H) Not relevant - Type B anchorage devices.

I) i) At the present time, intermediate anchorages with an angle of 90°/135°/180° are not foreseen.
ii) The Type C **PB**, **PG**, **PTS**, **PTM**, **PTL** anchorage devices may be used with retracting type fall arrest devices, provided they have been tested by the manufacturer.
iii) The potential dangers that might arise when using the fall prevention system with **SICURPAL PB**, **PG**, **PTS**, **PTM**, **PTL** product, are:
- falling from a height with operator hanging,
- swing effect,
- collision with obstacles beyond the edge of the roof, due to insufficient clearance,
- vertical fall due to breakage of the roof,
- falling through open or breakable skylights and dormer windows.
There might be other residual dangers, which must be assessed on a case by case basis according to the type of roof in question.

J) i) The anchorage devices can be installed on roof and/or flat surfaces with slopes of up to 16° that need to be made safe.
ii) The manufacturer allows direct connection to the anchorage line, subject to installation of a mobile anchor point using a connector (UNI EN 362) fixed directly to the anchor line, or using a glider as mobile anchor point.
iii) When using connectors (UNI EN 362), it is possible to use the fall prevention system without removing the mobile anchor from the lifeline. Also when using the mobile glider and vertical cable support for glider (Cod. 000192) it is possible to use the fall prevention system without removing the mobile anchor from the lifeline. However, in the case of curves that involve a break in the lifeline, it is necessary to use a

lanyard (UNI EN 354) with connectors (UNI EN 362) to hook up to the next lifeline before disconnecting from the one being used. When using a connector (UNI EN 362) as mobile anchor point in the presence of vertical cable supports for glider, it is likewise necessary to use a lanyard (UNI EN 354) to hook up to the next span before disconnecting from the span of the lifeline being used.

K) Not relevant - Type E anchorage devices.

L) On completing installation, the installer must provide the client with the Declaration of Proper Installation - Appendix A1 UNI EN 795:2012 signed by himself, as proof and warranty of proper and appropriate installation. This will be considered the basic documentation for subsequent periodic examinations. The client is responsible for keeping said documentation so that it can be consulted by maintenance technicians/installers/users. More detailed documentation will be kept by **SICURPAL** and can be consulted, subject to appointment, by calling +39 059.818179.

According to Appendix A2 - Guide to the documentation to be supplied after installation, the documentation required by the client who decides to carry out installation independently must comprise:

- address and location of the installation;
- name and address of the installing company;
- name of the person responsible for installation;
- product identification (name of the anchorage device manufacturer, type, model/article);
- fixing device (manufacturer, product, allowed traction and transversal forces);
- outline installation plan and information pertinent to the user/client, such as the position of anchorage points.

The outline installation plan should be affixed at the entrance points to the building, so that it is visible or available to all.

The Declaration of Proper Installation provided by the installer in charge must contain the following information relating to the anchorage device:

- It has been installed in compliance with the installation instructions provided by the manufacturer;
- The installation plan, described above, has been followed;
- It has been fixed to the substrate indicated;
- It has been fixed as indicated (number of bolts, proper materials, proper position, proper location);
- It has been commissioned in compliance with the manufacturer's instructions;
- Photographic/documentary information has been provided.

It must be remembered that, when more than one anchorage point has to be photographed for identification, the anchorage devices must be marked with numbers and these numbers must be incorporated in the inspection reports for the anchorage device and in the outline drawing of the installation area.

M) The anchorage device must only be used for fall prevention P.P.E.s and not for lifting equipment. For more detailed information on this question, please see chapter 2.1. "Warranty".

N) The **PB**, **PG**, **PTS**, **PTM**, **PTL** devices are not fitted with a fall indicator, so no information on how to inspect the fall indicator is provided in this Manual.

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