Sicurpal

INSTRUCTION MANUAL
FOR ASSEMBLY, USE AND MAINTENANCE

PTV

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. 3 (three) operators

*See Chapter 7

3. Reference standards:

- **UNI EN 365:1993**
- **UNI EN 363:2008**
- **UNI 11560:2014**
- **UNI 11158:2015**
- **Leg.Dec. 475/1992**

	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 PTV** devices made of stainless steel. These devices comply with the requirements of standards **UNI EN 795:2012, CEN/TS 16415:2013**, **Type A** and **Type C**.

The **Type A SICURPAL PTV** anchorage systems are designed and approved to be used by a maximum of 2 (two) operators per anchorage device. The range consists of a post flanged to a support structure.

The **Type C SICURPAL PTV** anchorage systems are designed and approved to be used simultaneously by a maximum of 3 (three) operators per anchorage device.

The range consists of two or more anchorage devices consisting of posts flanged to a support structure and of connection cables and accessories, capable of resisting a maximum strain of 30 kN.

2.1. WARRANTY

The warranty period for **SICURPAL PTV** anchorage devices is maximum 10 years from the date of installation.

The WARRANTY relates to the **PTV** 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 respond for any damage.
- In the case of faulty **SICURPAL** devices, contact the **SICURPAL** Logistics manager (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 OF THE ANCHORAGE DEVICES AND THE FIXING KITS

The products in the **SICURPAL PTV** line can be used to create individual Type A anchorage points or Type C lifelines, consisting of two or more anchorage devices, stainless steel cables and accessories, to be installed on hanging green roofs.
It can be used to create lifelines with a variable length of between 6 and 50 metres with a minimum span of 6 metres and a maximum span of 12 metres.

3.1. DESCRIPTION OF THE PTV POST

The PTV devices are suitable to be fixed on green roofs using the fixing kit as instructed in this manual.

PTV – Green roof post Cod. 001774

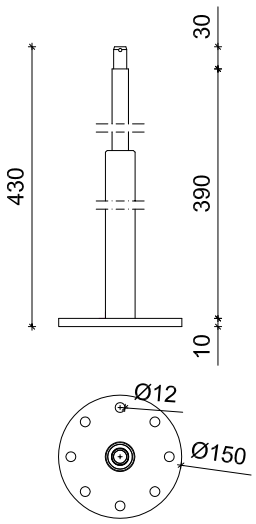


Figure 3.1 - PTV post

- Anchor post in AISI 304 Stainless steel
- Circular base with diameter 150 mm, thickness 10 mm and eight Φ12 mm fixing bores for flanged fixing to the underlying structural plate
- Height of the device h 430 mm
- Anchorage designed to be bolted onto the support structure
- Post fixed to the plate shaped support structure, dimensions 730x730x3 mm, which is in turn fixed to the geo-mesh and to the geo-textile
- Ideal for green roofs

3.2. COMPONENTS

Components to be fitted **on the post** to complete the anchorage device **PTV**.

EYEBOLT + SPLIT PIN

Figure 3.2

Cod. 000058
Manufactured in stainless steel
AISI 316 Ø16

3.3. DESCRIPTION OF THE FIXING KITS

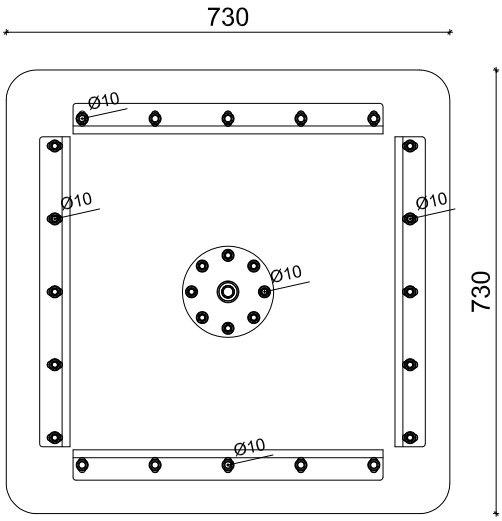


Figure 3.3 - PTV Type A post fixing kit Cod. 002115

- Load-bearing support structure for PTV post with stabilising function
- Suitable for fixing of a Type A anchorage
- Geo-mesh and geo-textile included up to 24 m^2 (6x4 m)

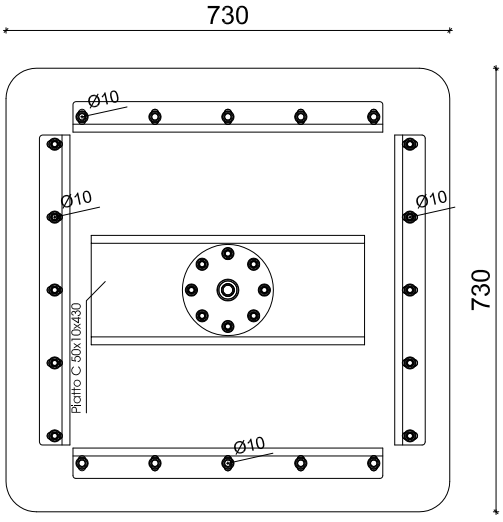


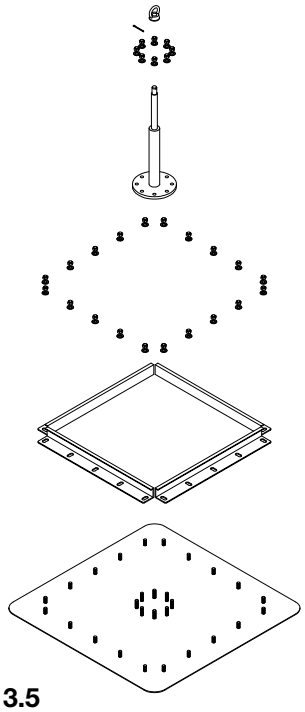
Figure 3. 4 - PZI post

- Load-bearing support structure for PTV post with stabilising function
- Suitable for fixing of a Type C anchorage
- Additional reinforcement structure to be installed in the direction in which the force is applied
- Geo-mesh and geo-textile included up to 24 m^2 (6x4 m)

3.4. ASSEMBLY OF THE PTV POST WITH THE FIXING KITS

The following shows the order in which the **PTV** post is assembled with the fixing kit, for the sake of illustration only. For a more detailed description of the various phases, please see Chapter 5.

3.4.1. PTV ASSEMBLY WITH KIT FOR POST TYPE A



Eyebolt + split pin (Cod. 000058)
8 bolts M10x35
PTV post (Cod. 001774)

20 bolts M10x25

4 L brackets (Cod. 001813)

Plate 730x730x3 mm (Cod. 001772)

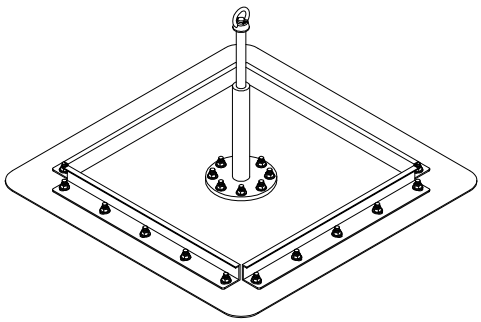
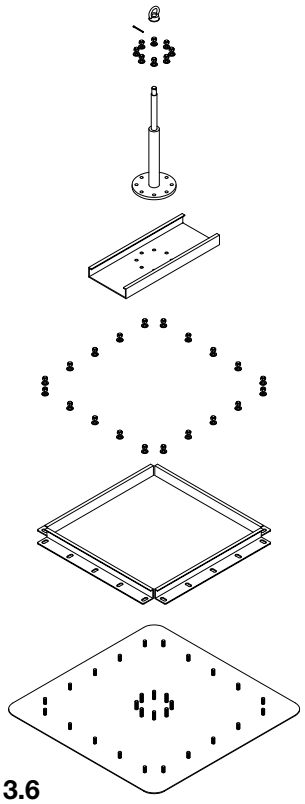


Figure 3.5

3.4.2. PTV ASSEMBLY WITH KIT FOR POST TYPE C



Eyebolt + split pin (Cod. 000058)
8 bolts M10x35
PTV post (Cod. 001774)

"C" plate

20 bolts M10x25

4 L brackets (Cod. 001813)

Plate 730x730x3 mm (Cod. 001772)

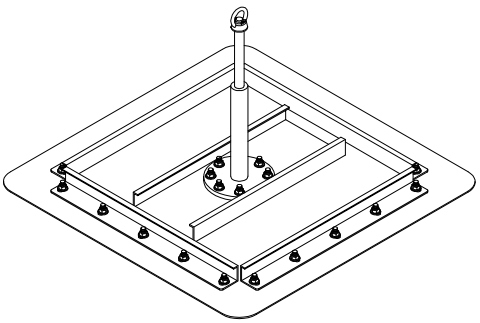


Figure 3.6

4. DESCRIPTION AND ASSEMBLY OF THE ACCESSORIES

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

END OF TRAVEL PLATE Ø8

Cod. 000636
End of travel device for Ø8 mm cable, including two fixing clamps. The device prevents the operator from continuing beyond the point defined by the end of travel plate

Figure 4.2

JAW/PIPE TURNBUCKLE

Cod. 000294
AISI 316 Stainless steel turnbuckle with 250 mm closed pipe. Consists of a Jointed jaw with Ø12X40 mm locking bolt at one end and Turnbuckle at the other end to be crimped

Figure 4.3

Cod. 002494
AISI 304 Stainless steel turnbuckle with 150 mm closed pipe. Consists of a Jointed jaw with Ø12X40 mm locking bolt at one end and Turnbuckle at the other end to be crimped

Figure 4.4

JOINTED JAW TERMINAL

Cod. 000293
AISI 316 Stainless steel terminal with jointed jaw and Ø12X40 mm fastening bolt

Figure 4.5

FIXED JAW TERMINAL

Cod.000292
AISI 316 Stainless steel terminal and fixed jaw with Ø12X40 mm fastening bolt

Figure 4.6

SEAL

Cod. 000290
Turnbuckle locking seal

Figure 4.7

LIFELINE ID

Cod.000291
Lifeline identification code

Figure 4.8

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 4.4, for information on the installation procedure, use and maintenance

Figure 4.9

ACCESS SIGN

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

Figure 4.10

ANCHORING BRACKET

Cod. 000298
Anchor bracket for PTV line in AISI 304 Stainless steel

Figure 4.11

L BRACKET

Cod. 001813
Stainless steel profile to fix the geo-mesh and the geo-textile to the plate. The assembly of components makes up the load-bearing structure

Figure 4.12

C REINFORCEMENT

Cod. 001815
Stainless steel profile to make the load-bearing structure to which the PTV post is fixed more rigid. To be used to create Type C lifelines

Figure 4.13

PLATE 730X730X3 MM

Cod. 001772
Base plate to create the PTV device load-bearing structure

Figure 4.14

WHITE GEO-TEXTILE

Cod. 001988
White geo-textile 2 m in height and 1.3mm in breadth. Made of needle-punched and heat-stabilised propylene. Positioned between the drainage layer and the substrate, it forms an excellent filter when constructing multi-layer hanging green roofs

Figure 4.15

BLACK GEO-MESH

Cod. 001989
Black polypropylene geo-mesh to stabilise and reinforce the soil. The geo-mesh is 4 metres in height and 7 mm thick at the joints

Figure 4.16

4.2. BYPASS ACCESSORIES

STAINLESS STEEL CABLE SUPPORT

Cod. 000501
Intermediate cable support in AISI 304 Stainless Steel
To be installed on the head of the intermediate PBS/PBSC device using Ø16 mm self-locking nut

Figure 4.17

4.3. GLIDER ACCESSORIES

GLIDER VERTICAL CABLE SUPPORT

Cod. 000192
Fixed vertical cable support for glider.
In some cases it is possible to install directly on the support

Figure 4.18

ADJUST. INCLINED CABLE SUPPORT

Cod. 001345
Inclined cable support for glider, adjustable 0°/45°

Figure 4.19

4.4. 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)
- Inclined adjustable cable support (Cod. 001345)

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 4.20
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 4.21 - 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 4.22)

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

Figure 4.22

Figure 4.23 - 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 4.22).
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. INSTALLING THE PTV POST AND FITTING THE LIFELINE

Installation information provided by the manufacturer (Appendix A1- UNI EN 795:2012)

5.1. INSTALLING PTV TYPE A (INDIVIDUAL ANCHOR POINT)

There is only one way to install the **Type A** PTV "Palo Tetto Verde" anchorage device.

The post must be fixed to a support structure created by **SICURPAL**, to guarantee adherence of the **PTV** to the elements that make up the roof garden.
In the case of the Type A anchorage device, the system consists of the following layers (from the bottom up):

- EPS panel;
- Plate 730x730x3 mm (Cod. 001772 - load-bearing structure made by **SICURPAL**);
- Geo-mesh (Cod.001989);
- White geo-textile (Cod.001988) (made of needle-punched polypropylene - thickness 1.30 mm - mass 220 g/m²). When installing the **PTV** with gravel, position the white geo-textile on top of the geo-mesh over the whole roof, overlapping the sheets by at least 20 cm;
- 4 (four) bent reinforcement plates, fixed to the 730x730 mm plate by means of 20 M10x25 bolts - 5 bolts for each L bracket (Cod. 001813) - load-bearing structure made by **SICURPAL**;
- PTV post (Cod. 001774) fixed using eight M10x35 bolts.

POSITIONING PROCEDURE

- Screw on the eyebolt (Cod. 000058) and insert the safety split pin.
- Keep the PTV post at a distance of not less than 250 cm (2.50 m) from all edges of the roof.

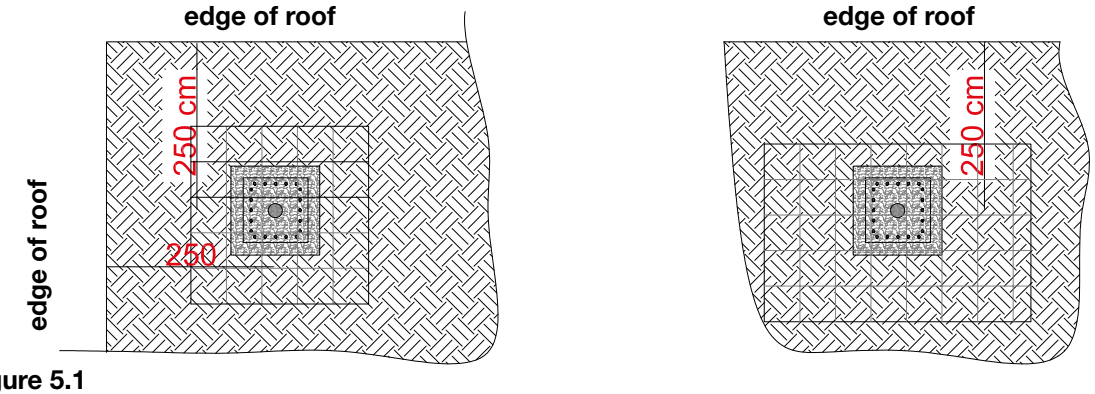


Figure 5.1

- Position the geo-mesh in the vicinity of the edges of the roof (measurements in centimetres).

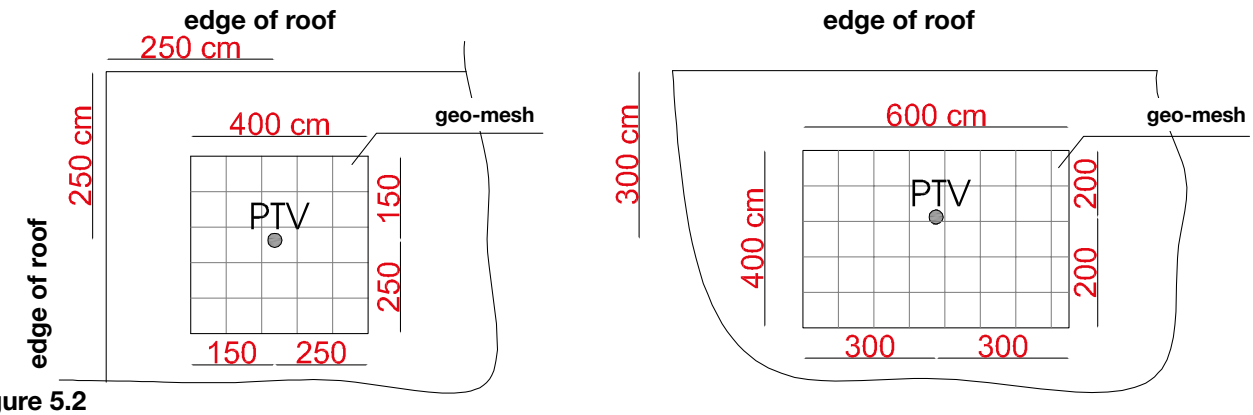


Figure 5.2

FIXING THE TYPE A DEVICE

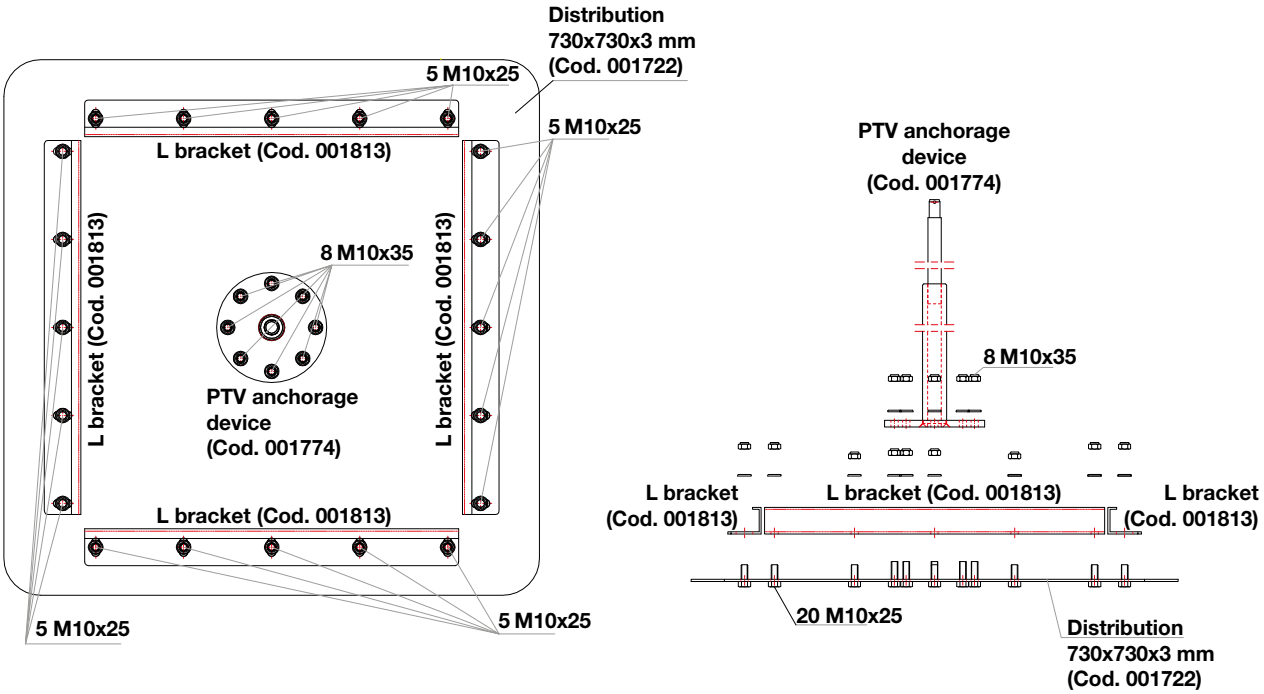


Figure 5.3

All the M10 bolts are tightened to 20 Nm using a torque wrench

Position a layer of gravel with a minimum thickness of 8 and an area of 100x100 cm, with the post at the centre of the area (grain size 10-30 mm);

- On the remaining area (min, 23m), position a layer of peat (minimum thickness 8 cm when laid).

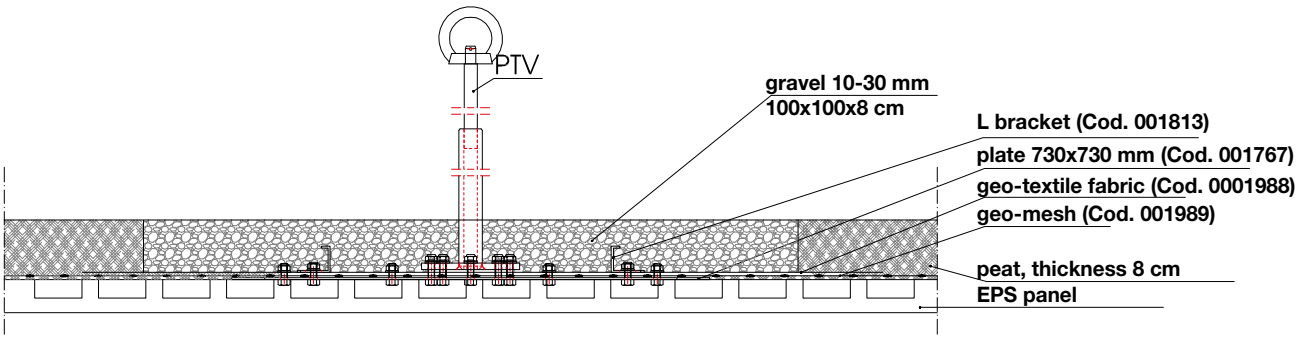


Figure 5.4

5.2. INSTALLING PTV TYPE C (LIFELINE)

There is only one way to install the **Type C** model **PTV** “Palo Tetto Verde” anchorage device.

The post must be fixed to a support structure created by **SICURPAL**, to guarantee adherence of the **PTV** to the elements that make up the roof garden.
In the case of the Type C anchorage device, the system consists of the following layers (from the bottom up):

1. EPS panel;
2. Plate 730x730x3 mm (Cod. 001772 - load-bearing structure made by **SICURPAL**);
3. Geo-mesh;

Positioning of the geo-mesh for Type C:

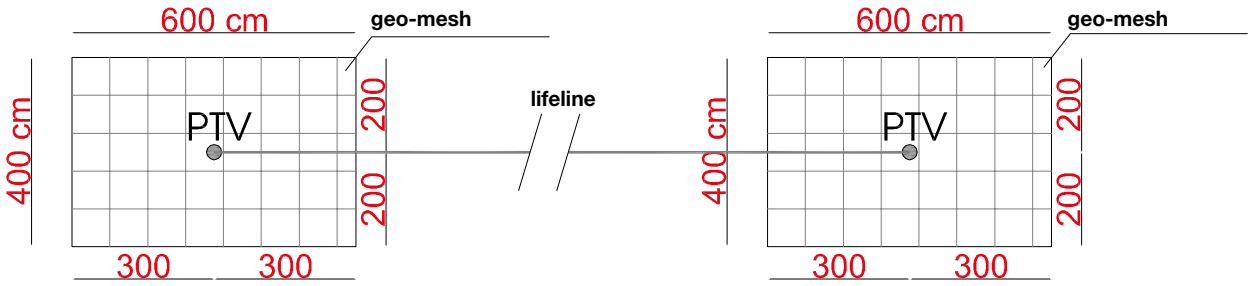


Figure 5.5

4. White geo-textile (Cod.001988) (made of needle-punched polypropylene - thickness 1.30 mm - mass 220 g/m²). When installing the **PTV** with gravel, position the white geo-textile on top of the geo-mesh over the whole roof, overlapping the sheets by at least 20 cm;
5. 4 (four) bent reinforcement plates, fixed to the 730x730 mm plate by means of 20 M10x25 bolts - 5 for each L bracket (Cod. 001813) - load-bearing structure made by **SICURPAL**;
6. C reinforcement (Cod. 001815) to be installed in the direction of the lifeline.
   Compulsory for end posts (to be fitted at an angle of 45° at the ends forming the curve).
   Not necessary on intermediate posts;

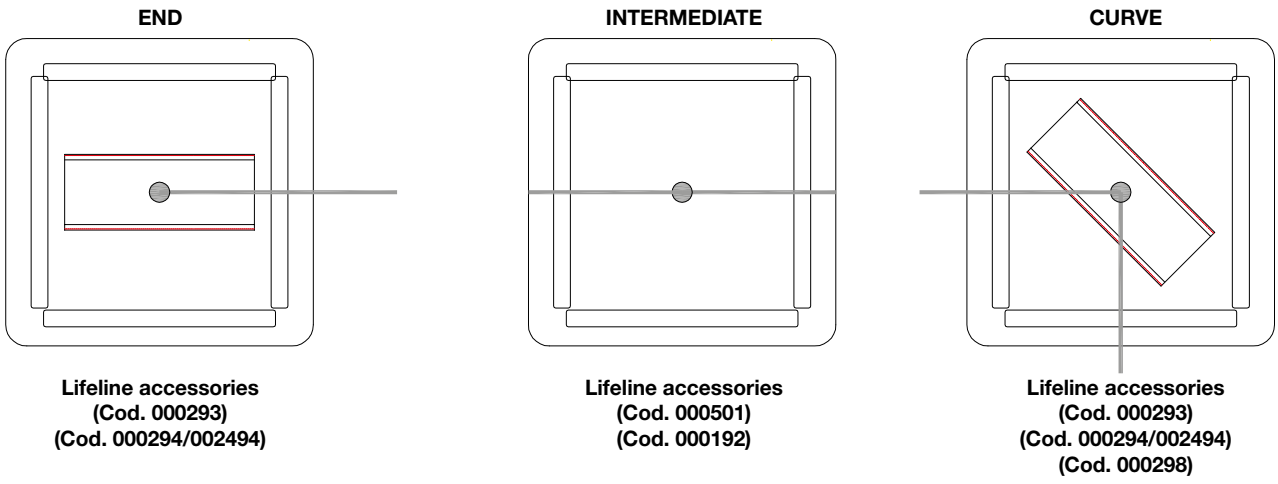


Figure 5.6 - Positioning the C reinforcement (Cod. 001815)

7. PTV post (Cod. 001774) fixed to the load-bearing structure created by SICURPAL by means of 8 M10x35 bolts;

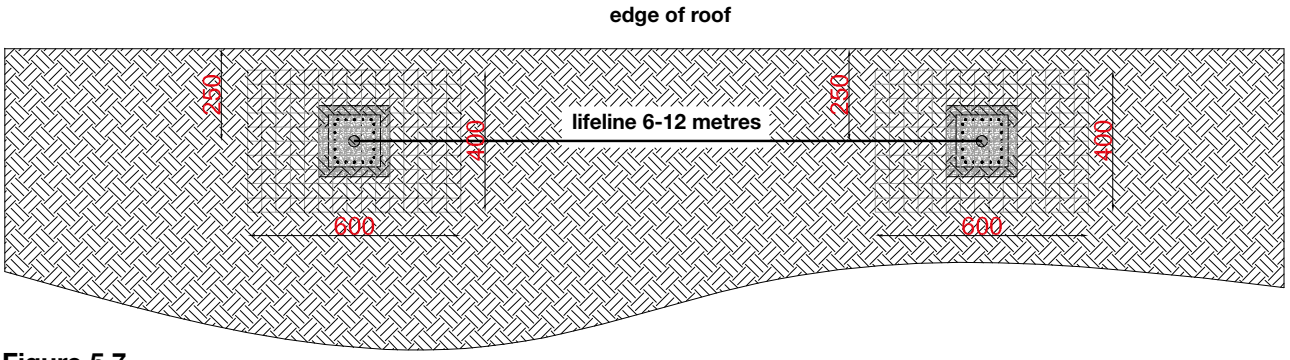


Figure 5.7

8. For longer lifelines with a length of between 12 and 50 metres, straight and with no curves, position the following posts to give a span of minimum 6 metres and maximum 12 metres.

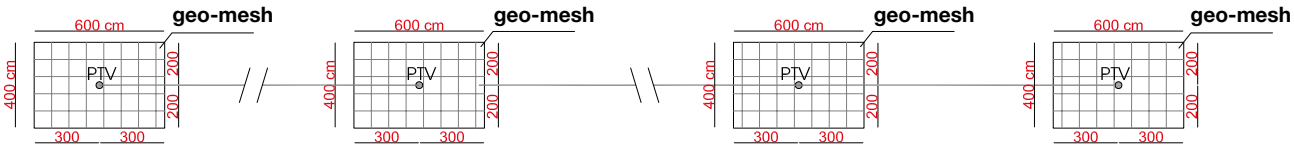


Figure 5.8 - Anchorage devices for horizontal lifeline of a length between 12 and 50 metres with variable multiple span

LOAD-BEARING ROOF SURFACE FIXING PROCEDURE

9. Screw on the eyebolt (Cod. 000058) and insert the safety split pin;
10. Position a layer of gravel with a minimum thickness of 8 and an area of 100x100 cm, with the post at the centre of the area (grain size 10-30 mm);
11. Position a layer of soil (minimum thickness 8 cm when laid);

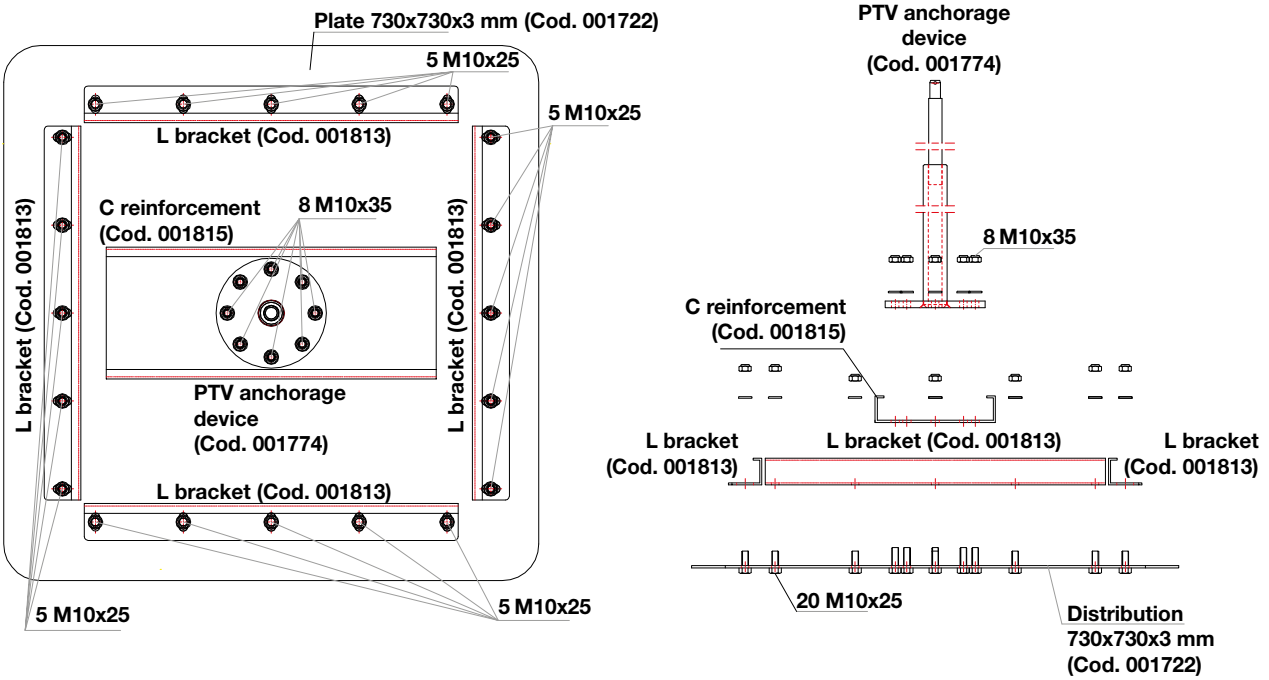


Figure 5.9

All the M10 bolts are tightened to 20 Nm using a torque wrench

5.3. INDICATIONS FOR FITTING THE LIFELINE

The following are the operations to be carried out to complete installation of the **PTV lifeline**:

12. Install the jointed jaw turnbuckle (2) (Cod. 000294/002494) on one end of the Type C anchorage device, using an M12x40 bolt + washer, taking care to install it with the thread fully open;
13. Install the fixed or jointed jaw terminal (3) (Cod. 000292/000293) on the other end of the Type C anchorage device;
14. Install the stainless steel cable support (Cod. 000501) to be used with connectors (UNI EN 362) or use the cable supports for glider to create lifelines;

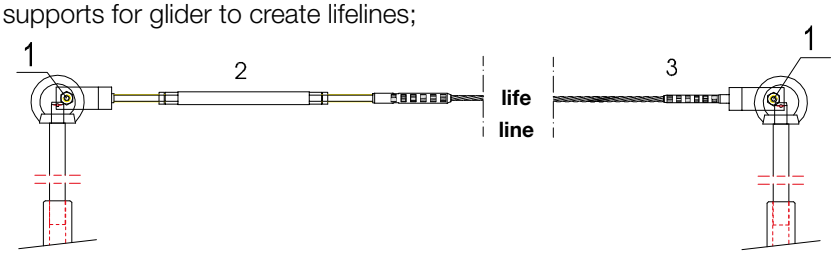


Figure 5.10

15. Take care to keep the turnbuckle with its threads fully open and then crimp the cable at both ends (3);
16. Screw up the turnbuckle until the cable is tight.

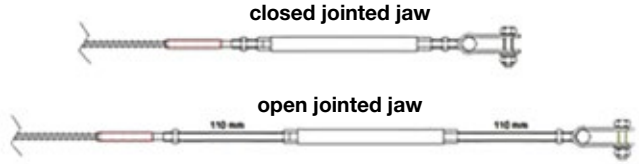


Figure 5.11

As indicated above, all the turnbuckles and terminals in the PTV line are fixed to the cable by crimping.
The phases involved in crimping the device are described and explained below.

INSTRUCTIONS FOR CRIMPING

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 5.12**).
This operation is compulsory for aesthetic reasons, to avoid a pipe that is not straight and not in axis.

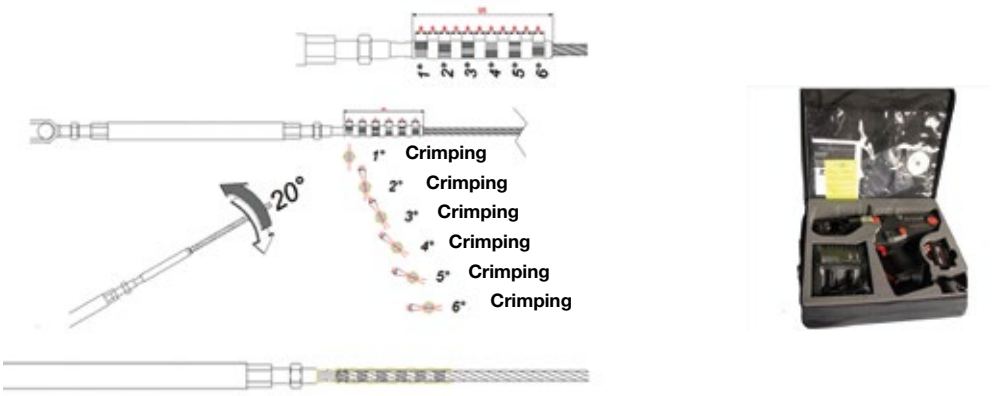


Figure 5.12 - Crimping

5.4. TYPES OF LIFELINE INSTALLATION

5.4.1. END POSTS

The lifeline can be positioned on the end post in one of two different ways:

First method (for straight lifelines)

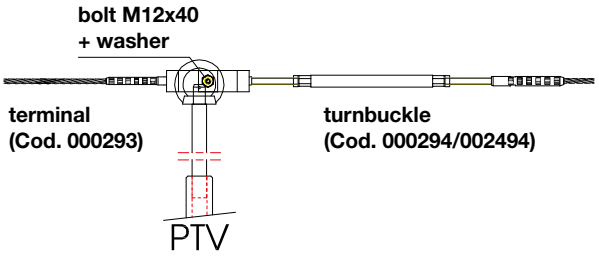


Figure 5.13

Second method (for straight lifelines)

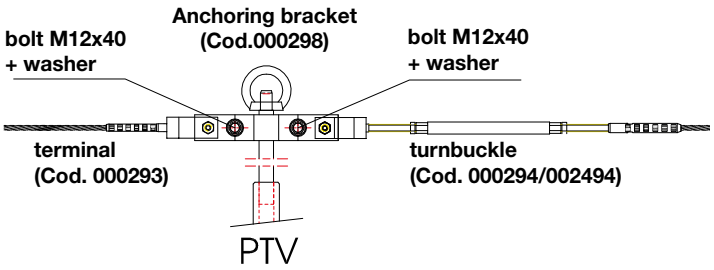


Figure 5.14

Second method (for lifelines that are perpendicular to each other)

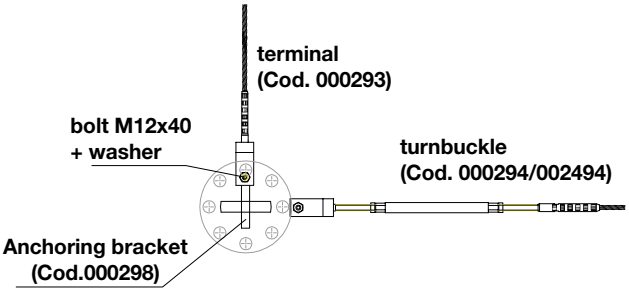


Figure 5.15

5.4.2. INTERMEDIATE POSTS

Standard examples of fixing the M16 self-locking nut with M16 washer on every intermediate anchorage device. Bolts tightened to 80 Nm.

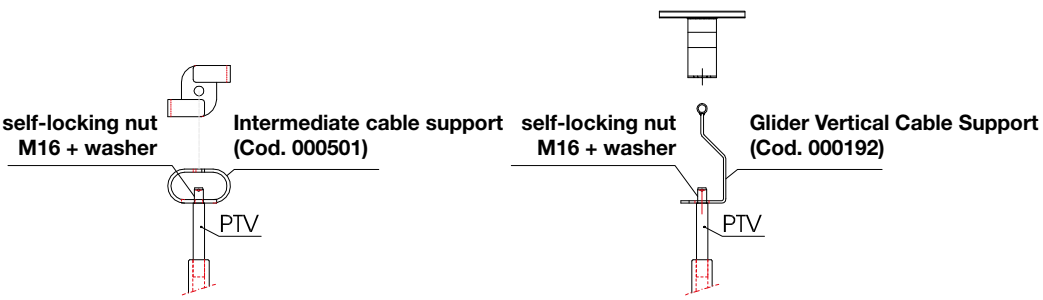


Figure 5.16

6. USE OF FALL PREVENTION SYSTEMS

The **SICURPAL PTV** 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;
- ✓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) (Leg. Dec. 475/1992).

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.

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 P.P.E.

Flexure of the post in the case of a 70 Kg operator held up by the PTV post is 0 cm for the Type A anchorage device).

Flexure of the lifeline in the case of a 70 Kg operator held up at the centre of the single span lifeline (Type C anchorage device) is:

ANCHORAGE DEVICE	LIFELINE LENGTH - SINGLE SPAN (m)	STATIC DEFLECTION - SINGLE SPAN (cm)
Type C Lifeline	6.00	60
	12.00	96
	50.00	104

6.2. 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.

6.3. 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.

Based on the tests carried out by **SICURPAL** in compliance with the requirements of UNI 11560:2014, the following are the flexure values for the lifeline.

Flexure of the lifeline in the case of 1 (one) operator falling at the centre of the single span lifeline (Type C anchorage device) is:

ANCHORAGE DEVICE	LIFELINE LENGTH - SINGLE SPAN (m)	STATIC DEFLECTION - SINGLE SPAN (cm)
Type C Lifeline	6.00	112
	12.00	154

Flexure of the lifeline in the case of 1 (one) operator falling at the centre of the multiple span lifeline (Type C anchorage device) is:

ANCHORAGE DEVICE	LIFELINE LENGTH - SINGLE SPAN (m)	STATIC DEFLECTION - SINGLE SPAN (cm)
Type C Lifeline	6.00	143
	12.00	154
	18.00	167
	24.00	178
	30.00	189
	36.00	200
	42.00	211
	46.00	219
	48.00	222
	50.00	225

Flexure of the lifeline in the case of 3 (three) operators falling at the centre of the single span lifeline (Type C anchorage device) is:

ANCHORAGE DEVICE	LIFELINE LENGTH - SINGLE SPAN (m)	STATIC DEFLECTION - SINGLE SPAN (cm)
Type C Lifeline	6.00	108
	12.00	150

Flexure of the lifeline in the case of 3 (three) operators falling at the centre of the multiple span lifeline (Type C anchorage device) is:

ANCHORAGE DEVICE	LIFELINE LENGTH - SINGLE SPAN (m)	STATIC DEFLECTION - SINGLE SPAN (cm)
Type C Lifeline	6.00	120
	12.00	150
	18.00	180
	24.00	213
	30.00	235
	36.00	258
	42.00	280
	48.00	302
	50.00	309

6.4. RESCUE SYSTEM

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.

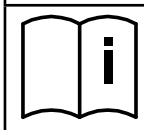
7. TECHNICAL DATA

		PTV
		DEVICES
Weight of post	[Kg]	2.97
Product height	[mm]	430
Anchor plate dimensions	[mm]	Φ150 x 10
Number of structural anchor bores	n°	8
Material used	n°	AISI 304 STAINLESS STEEL
Number of users per device as 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 as UNI EN 795:2012 Type C	max	1
Number of users per lifeline as CEN/ TS 16415:2013 Type C	max	3
Maximum weight of each user	[Kg]	125
Minimum distance between lifeline anchorage devices	[m]	6
Maximum distance between lifeline anchorage devices	[m]	12
Maximum length of lifeline	[m]	50

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
UNI EN 795:2012 type A and C	Certification standards
	Max. No. operators allowed
PTV	Name of anchorage device
	Read the instructions for the product
J XXXX	Production batch number
Cod. 001774	Product identification code

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

9. INSPECTION AND MAINTENANCE SCHEDULE

Thanks to their stainless steel structure, the PTV anchorage devices do not require any particular scheduled maintenance.

	**For the PTV line it is not necessary to carry out structural verification of the system. It is sufficient for the client to issue a declaration of the load capacity.**

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:

- Use a torque wrench to check the tightness of the bolts a second time;
- Check the height of the layer of gravel and the soil over the whole geo-mesh covering.

9.2. INSPECTION PRIOR TO USE

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

- Wear
- Rusting/corrosion
- Deformation of components
- Abnormal deformation of the cable
- Tensioning of the cable
- Locking of the nuts and bolts on visible devices
- State of any moving parts
- Height of the layer of gravel and/or soil.

	**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 every anchorage system must be carried out by a competent person*. Inspection should be carried out annually for the devices and at the intervals recommended by the structural engineer as regards the structural anchorage system. If there is a flashing on the **PTV** device, **check it periodically** (annually under UNI EN 365) to verify its state of preservation.
In any case, the interval between two periodic inspections must not be more than 2 years for controls on the anchorage system (UNI 11560:2014 see System Instruction Manual).

	**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

In the presence of hanging gardens, the **PTV** can rest on polystyrene to allow proper irrigation of the plants. In cases where no surface irrigation is necessary, installation of the polystyrene can be omitted. The underlying polystyrene does not form an integral part of the product certification.	The maximum slope of the roof on which it is possible to install **PTV** anchorage devices (Type A and Type C) must be less than and/or equal to 5°. The feasibility of installing Type C devices on roofs with a slope of between 6° and 15° must be assessed by a competent person, who must ensure that the system will not slip.
The devices in the **PTV** 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.	An essential condition is that a protective sheathing be laid under the **PTV** post, if the weight of the layer laid over the geo-mesh (compulsory) is sufficient to lacerate the waterproofing layer.
The material on top of the geo-textile (thickness 1.30 mm and weight 220 g/m^2) is not binding for the fixing resistance of the **PTV** post. The presence of a material (soil/gravel) weighing at least 75 kg/m^2 is compulsory.	The choice of the number and position of devices to be used must be specifically indicated and is bound by the requirements indicated in the Technical Roofing Plan and relevant drawings. The plan must be drawn up by an authorised technician according to current regulations.
Any integration of existing fall prevention systems must be indicated in the Technical Roofing Plan.	The **PTV** devices must be fitted in compliance with user safety regulations (Legislative Decree 81/2008).
During installation of the **SICURPAL** anchorage devices it is strictly forbidden to use components other than the ones supplied without the manufacturer's authorisation.	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**.
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 this manual.	

10.2. USE

10.3. INSPECTIONS AND MAINTENANCE

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.	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**.
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.	The **PTV** devices must only be returned to service after they have been finally certified by **SICURPAL** or a company authorised by **SICURPAL**.
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.	If the anchorage devices become bent or damaged, they must be replaced immediately.
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.	Replacement of any products must be carried out by **SICURPAL** or by authorised and qualified technicians.

	**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 **PTV 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 **PTV Type C** anchorage device can be used by **3 (three) operators** following certification tests under Technical Specification CEN/TS 16415:2013.

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 = 7.00 kN in a horizontal direction parallel to the roof and in any direction. Furthermore, a maximum moment at fixed end of ft x hpost =3.01 kNm is generated on the plate structure at the base of the anchorage device, in the operator angle of fall (valid for **1 (one) operator** hooked to the post - UNI EN 795:2012).
The maximum load transmittable by the **Type C** anchorage device is ft = 6.50 kN in a horizontal direction parallel to the roof and in any direction. Furthermore, a maximum moment at fixed end of ft x hpost =2.80 kNm is generated on the plate structure at the base of the anchorage device, in the operator angle of fall (valid for **1 (one) operator** hooked to the line - UNI EN 795:2012).
The maximum load transmittable by the **Type A** anchorage device is ft = 8.24 kN in a horizontal direction parallel to the roof and in any direction. Furthermore, a maximum moment at fixed end of ft x hpost =3.54 kNm is generated on the plate structure at the base of the anchorage device, in the operator angle of fall. (valid for **2 (two) operators** hooked to the post – CEN/TS 16415:2013).
The maximum load transmittable by the **Type C** anchorage device is ft = 7.74 kN in a horizontal direction parallel to the roof and in any direction. Furthermore, a maximum moment at fixed end of ft x hpost =3.33 kNm is generated on the plate structure at the base of the anchorage device, in the operator angle of fall (valid for **3 (three) operators** hooked to the line CEN/TS 16415:2013).

D) The maximum deflection value of the **PTV Type A** anchorage device and the maximum movement value for the anchorage point are (post deflection 4° - pin deflection 9° - movement of anchorage point 50 mm).
The maximum deflection value of the **PTV Type C** anchorage device is 309 cm.

E) See Chapter 6.

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

G) Following every inspection it is necessary for the inspector to affix his stamp and signature on the System Register or on the sign located in the vicinity of the roof access points.

H) Not relevant - Type B anchorage devices.

I) i) Currently, intermediate anchorage points are foreseen and corner anchorages with curve are not foreseen, but it is necessary to start again with a new lifeline.
ii) The **PTV Type C** anchorage device must not be used with retracting type fall prevention devices.

iii) As it has not been tested for use with retracting type (UNI EN 360) or guided type (UNI EN 353-2) fall prevention devices, the potential dangers that might arise using the **SICURPAL PTV** fall prevention system 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.

A) i) The maximum angle of the **PTV** anchorage device with respect to the horizontal is nil.
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.
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 steel connectors (UNI EN 362) and cable supports (Cod. 000501), 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.

B) Not relevant - Type E anchorage devices.

C) 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.

D) 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".

E) The **PTV** post does not include a fall indicator.

	**It is not necessary to draw up and provide a Calculation Report for the PTV device, as the posts are only installed using the method illustrated in this manual. For this reason, SICURPAL assumes full responsibility in this regard.**

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