



INSTRUCTION MANUAL
FOR ASSEMBLY, USE AND MAINTENANCE



ECONOMY LINE

sicurpal.it

EDITION 2 - REVISION 0

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Translation of original instructions.

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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**
- **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 ECONOMY LINE** devices, made of hot galvanised 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 ECONOMY LINE** 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.

The **Type C SICURPAL ECONOMY LINE** 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 ECONOMY LINE** anchorage devices is maximum 10 years from the date of installation. The WARRANTY relates to the **ECONOMY LINE** 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 ECONOMY LINE** can be used to create lifelines of variable length between 5 metres and 120 metres, with minimum spans of 5 metres and maximum spans of 20 metres.

3.1. DESCRIPTION OF THE ANCHORAGE DEVICES

The PZP, PZC, PZL and PZI devices are suitable for fixing to the structure using bars/bolts/screws/welding, according to the instructions of the engineer. Please refer to Chapter 3.3 for the choice of fixing device.

The **ECONOMY LINE** posts are hot galvanised both internally and externally, to avoid any problems with rusting that might prejudice their strength over time. This makes them easy to inspect during routine periodic inspections.

PZP – Flat base post Cod. 000263 (h=300mm) Cod.000036 (h=500mm)

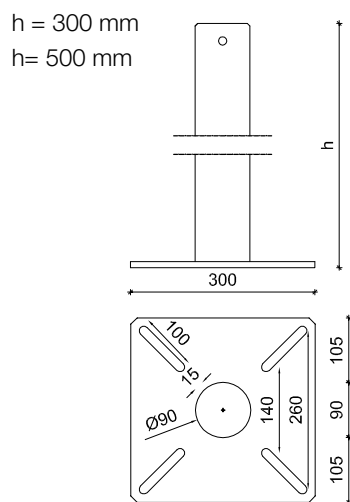


Figure 3.1 - PZP post

- Made of hot galvanised steel
- Base size 300x300x10 mm with 100 mm slots for fixing
- Height of the device 300 mm or 500 mm
- Device to be assembled with end terminal (Cod. 000305) or with intermediate terminal (Cod. 000038) with drip guard
- Ideal as an end or intermediate anchorage on flat roofs

PZC – V-base post for ridge beam Cod. 000265 (h=300 mm) Cod.000186 (h=500 mm)

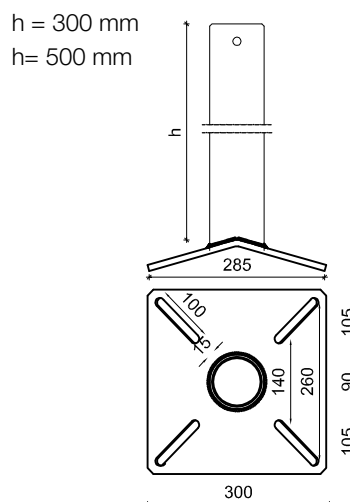


Figure 3.2 - PZC post

- Made of hot galvanised steel
- Base size 300x300x10 mm with 100 mm slots for fixing
- Height of the device 300 mm or 500 mm
- Device to be assembled with end terminal (Cod. 000305) or with intermediate terminal (Cod. 000038) with drip guard
- Ideal as an end or intermediate anchorage on ridge beams

PZL – cod. 000266 (h=300mm) cod.000187 (h=500mm)

h = 300 mm

h= 500 mm

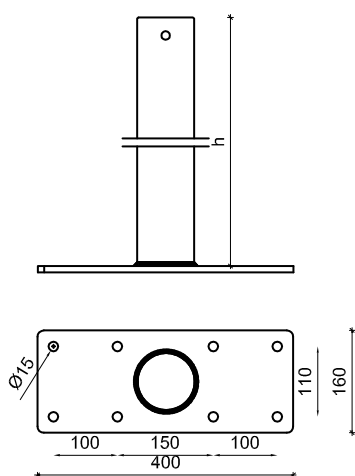


Figure 3.3 - PZL post

- Made of hot galvanised steel
- Base size 400x160x10 mm with 8 fixing bores (see Figure 3.3 for the distance between centres)
- Height of the device 300 mm or 500 mm
- Device to be assembled with end terminal (Cod. 000305) or with intermediate terminal (Cod. 000038) with drip guard
- Ideal as an end or intermediate anchorage on flat roofs

PZI – Inclined base post cod. 000264 (h=300mm) cod.000185 (h=500mm)

h = 300 mm

h= 500 mm

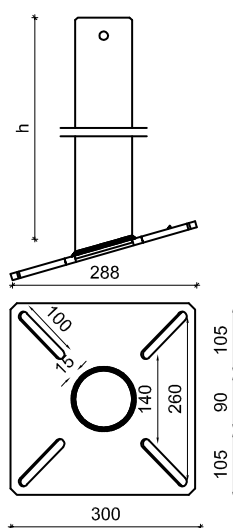


Figure 3.4 - PZI post

- Made of hot galvanised steel
- Base size 300x300x10 mm with 100 mm slots for fixing
- Height of the device 300 mm or 500 mm
- Device to be assembled with end terminal (Cod. 000305) or with intermediate terminal (Cod. 000038) with drip guard
- Ideal as an end or intermediate anchorage on roofs with a slope of approx. 16°

3.2. END AND INTERMEDIATE TERMINALS

The intermediate and end terminals are components to be fitted on the heads of the posts to complete the **ECONOMY LINE** lifeline anchorage devices. They are constructed with a drip guard to prevent water from accidentally getting into the inside of the post and to encourage evaporation of any condensation produced by the roof.



Figure 3. 5
End terminal Cod.
000305

- Accessory used to create the end points of the lifeline
- Made of hot galvanised steel
- The terminal consists of two upper bores used to fix the accessories and/or the connector (snap shackle) and two side bores for fixing to the post using an M12x120 mm stainless steel bolt (included)



Figure 3.6
Intermediate and end
terminal
Cod. 000038

- Accessory used to create the intermediate and/or end points of the lifeline
- Made of hot galvanised steel
- The accessory consists of a central bore used to fix the accessories, two bores used for lifeline crossovers and/or the connector (snap shackle) and two side bores for fixing to the post using an M12x120 mm stainless steel bolt (included)

3.3. FIXING THE ANCHORAGE DEVICES

Installation of the **ECONOMY LINE** 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	Mechanical solutions**
PZP	WOOD	✓	✓	✓		✓		
	STEEL	✓				✓	✓	✓
	RC	✓	✓	✓		✓		✓
PZC	WOOD	✓	✓	✓	✓	✓		
	STEEL	✓				✓	✓	✓
	RC	✓	✓	✓		✓		✓
PZL	WOOD	✓	✓	✓	✓	✓		
	STEEL	✓				✓	✓	✓
	RC	✓	✓	✓		✓		✓
PZI	WOOD	✓	✓	✓		✓		
	STEEL	✓				✓	✓	✓
	RC	✓	✓	✓		✓		✓

*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 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.

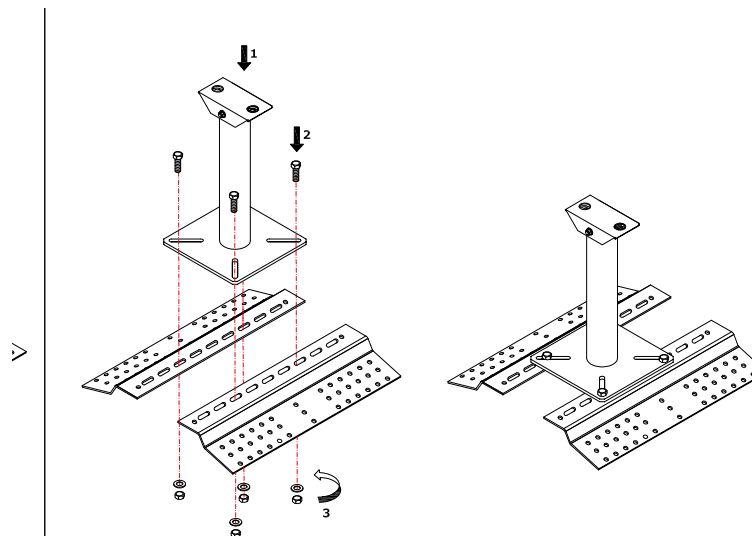


Figure 3.12 - PZP device (for flat roofs) and PZI device (for pitched roofs) with load distribution plate (Cod. 000224)

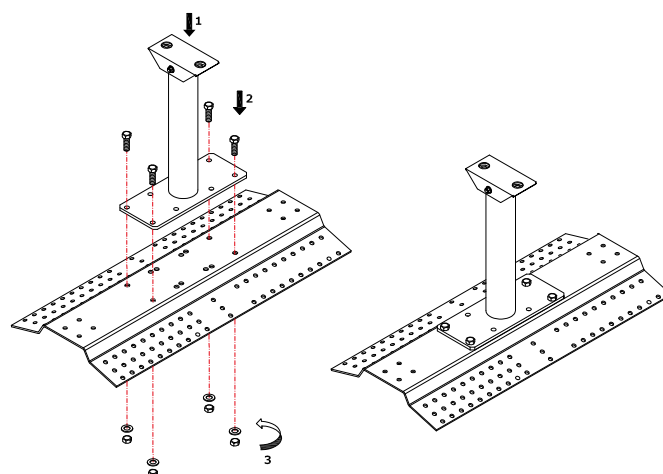


Figure 3.13 - PZL device with distribution plate (Cod. 000218)

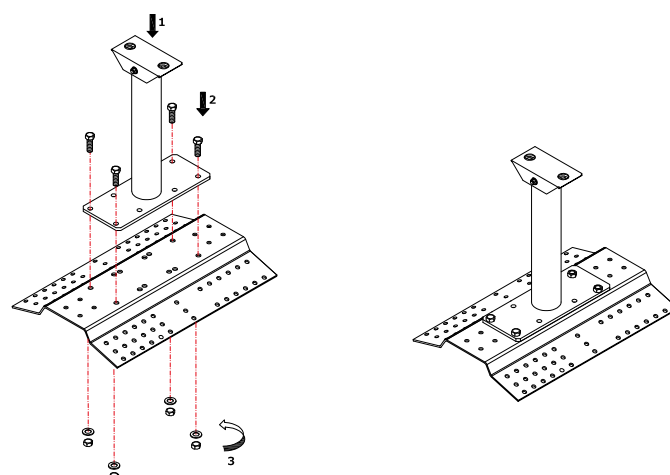


Figure 3.14 - PZL device with distribution plate (Cod. 000213)

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.

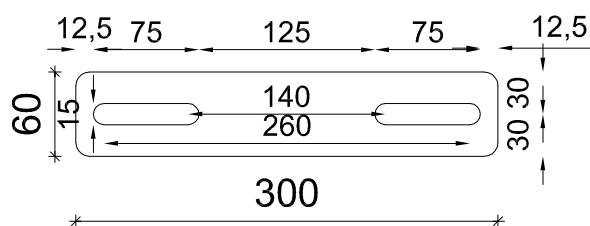


Figure 3.15 - Stainless steel plate (Cod. 000039) for PZP/PZL/PZI devices

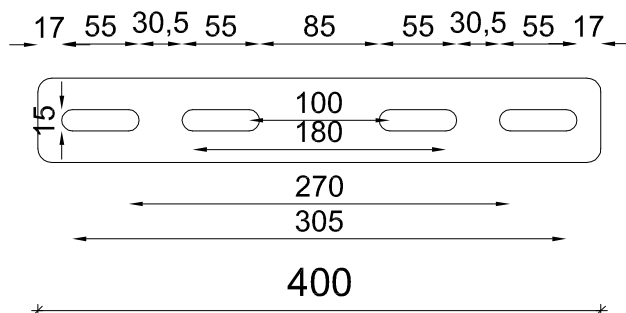


Figure 3.16 - Stainless steel plate (Cod. 000203) for PZL device

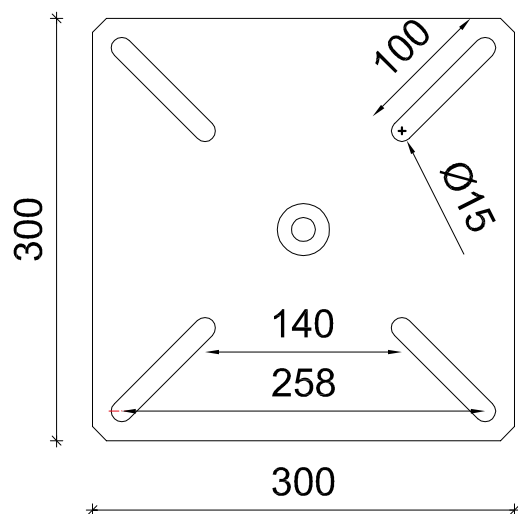


Figure 3.17 - Stainless steel plate (Cod. 001510)/galvanized steel plate (Cod. 000230) for PZP/PZI devices

3.7. ASSEMBLING THE ECONOMY LINE POSTS WITH COUNTERPLATES

The assembly phases with counterplates are indicated below:

1. Rest the device on the support structure
2. Fasten washers and self-locking nuts to the ends of the bars
3. Insert the threaded bars in the bores on the anchorage device
4. Position the counterplates on the underside of the support structure, in line with the bars
5. Insert washers and self-locking nuts and tighten them completely.

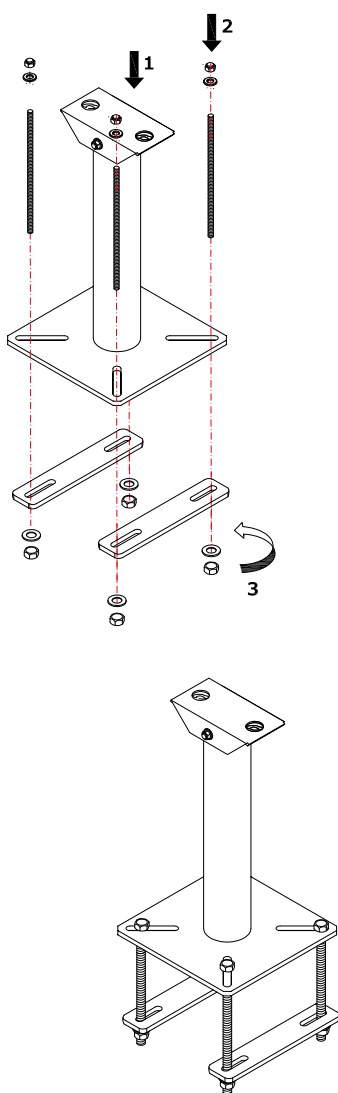


Figure 3.18 - PZP/PZC/PZI device with counterplate (Cod. 000039)

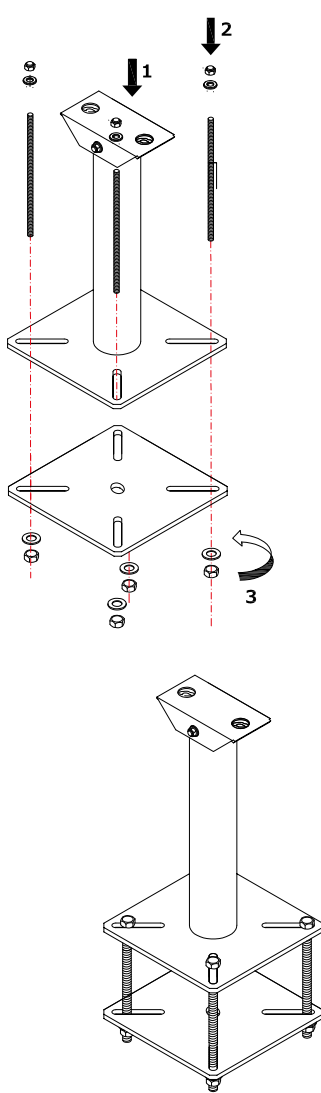


Figure 3.19 - PZP/PZC/PZI device with counterplate (Cod. 000230/001510)

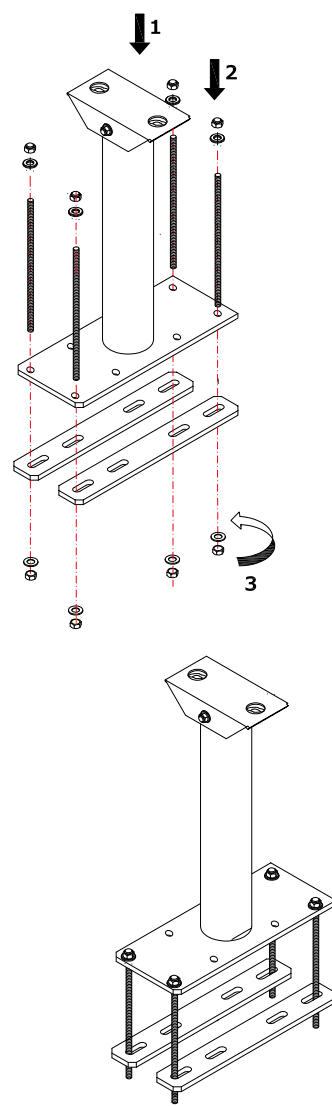


Figure 3.20 - PZL device with counterplates (Cod. 000203)

3.8. WATERPROOFING

Should it be necessary to avoid possible infiltrations, **SICURPAL** offers a lead flashing (Cod. 000017) and a drip flap (Cod. 000018) specially designed to waterproof devices in the **ECONOMY 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 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 drip flap as described in the instructions supplied in the box.

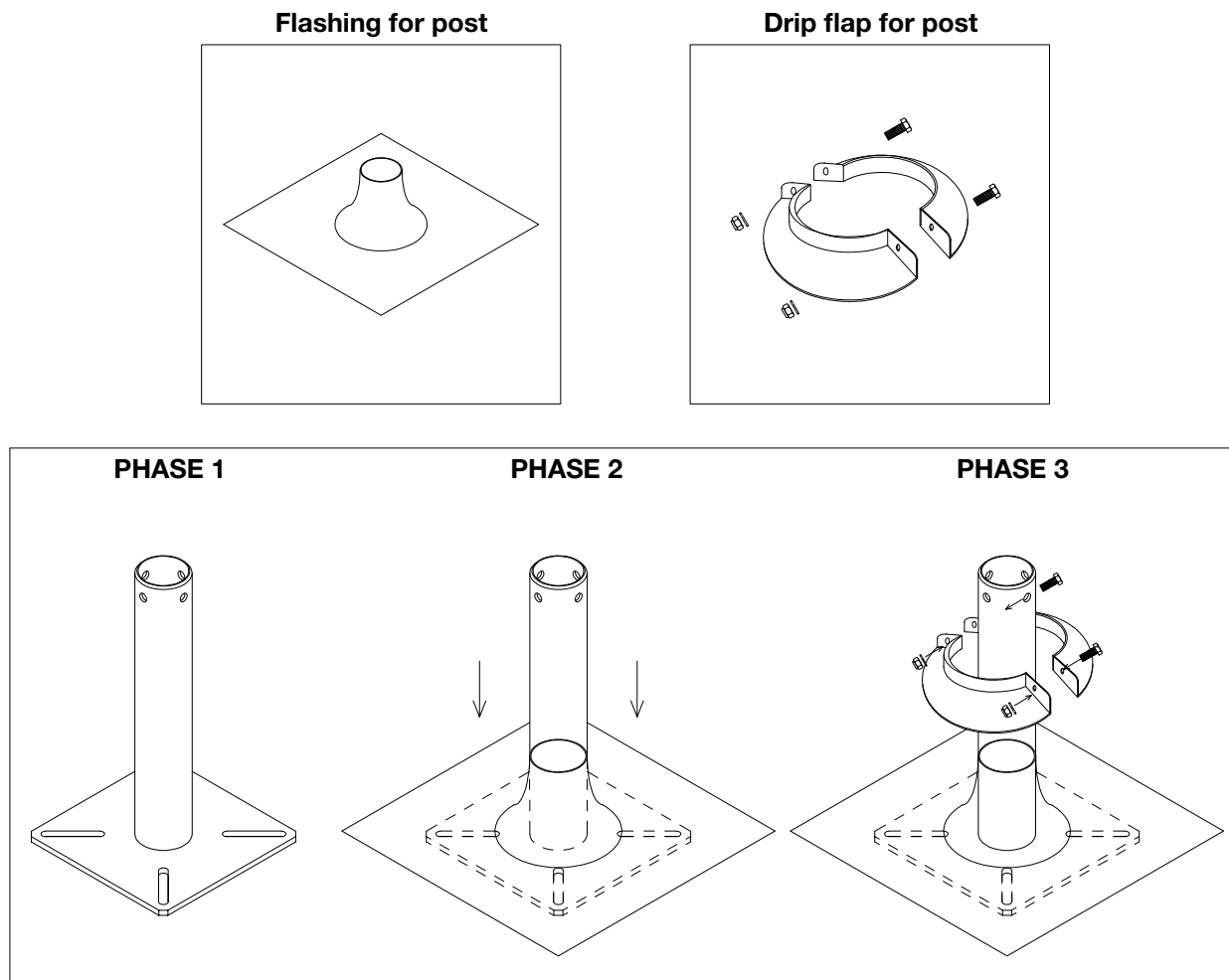


Figure 3.21 - Waterproofing of the Economy Line post



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 posts to complete the **ECONOMY LINE** devices and anchorage system.

4.1. LIFELINE ACCESSORIES

CABLE Ø8



Cod. 000055
In AISI 316 stainless steel ø8 mm
49 strands with identification bar for product traceability

Figure 4.1

TURNBUCKLE/PIPE SUPPORT



Cod. 000194
For installation of the pipe turnbuckle (Cod. 000775) or the guide pipe (Cod. 000307/000308/000309)
In AISI 304 Stainless steel
Hardware included: bolt 16x35 mm and ø16 mm washer in stainless steel

Figure 4.2

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 4.3

TWO-WAY BRACKET



Cod. 000184
To change the trajectory of the lifeline cable
Manufactured in AISI 304 Stainless steel

Figure 4.4

ABSORBER



Cod. 000033
Energy absorber for lifeline
In AISI 304 Stainless steel
Essential in lifelines of less than 40/50 mt in order to reduce the load on the supports

Figure 4.5

QUICK LINK



Figure 4.6



Figure 4.7

Cod. 001518
Universal quick link

Cod. 001758
Economy quick link

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

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



Figure 4.9

DOUBLE JAW TURNBUCKLE



Figure 4.12

Cod.000032

AISI 316 Stainless steel turnbuckle with 250 mm closed pipe and two jointed jaws with Ø12X40 mm fastening bolts

Cod.002493

AISI 316 Stainless steel turnbuckle with 150 mm closed pipe and two jointed jaws with Ø12X40 mm fastening bolts



Figure 4.13

JOINTED JAW TERMINAL



Figure 4.15

Cod. 000293

AISI 316 Stainless steel terminal and jointed jaw with Ø12X40 mm fastening bolt
The 250 mm pipe body allows tensioning of the lifelines

JAW/PIPE TURNBUCKLE



Figure 4.10

Cod. 000294

AISI 316 Stainless steel turnbuckle with 250 mm closed pipe and one jointed jaw with Ø12X40 mm fastening bolt

Cod. 002494

AISI 316 Stainless steel turnbuckle with 150 mm closed pipe and one jointed jaw with Ø12X40 mm fastening bolt



Figure 4.11

FIXED JAW TERMINAL



Figure 4.14

Cod.000292

AISI 316 Stainless steel terminal and fixed jaw with Ø12X40 mm fastening bolt
The 250 mm pipe body allows tensioning of the lifelines

FIXING KIT, Ø8 CABLE



Figure 4.16

Cod.001513

FIXING KIT, Ø8 CABLE
In AISI 304 Stainless steel for cable Ø8 mm
Required for fixing with rope clips

SEAL



Figure 4.17

Cod. 000290

Turnbuckle locking seal
See chapter 5 for the
installation procedure

LIFELINE ID



Figure 4.18

Cod.000291

Lifeline identification
code

L.L. GLIDER



Figure 4.19

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,
for information on the
installation procedure,
use and maintenance

ACCESS SIGN



Figure 4.20

Cod. 000296

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

4.2. BYPASS ACCESSORIES

INTERMEDIATE CABLE SUPPORT



Figure 4.21

Cod. 001094

Aluminium by-pass
cable support

CORNER GUIDE PIPES



Figure 4.22
STRAIGHT PIPE
Cod. 000309

Pipe Ø14 mm with
thickness 2 mm
In AISI 304 Stainless
steel



Figure 4.23
135° PIPE
Cod. 000307

Capable of covering
90°/135°/180° corners
To be used in
combination with the
supports (Cod.000194)



Figure 4.24
90° PIPE
Cod. 000308

PULLEY CORNER CABLE SUPPORT



Figure 4.25

Cod. 000306

Corner cable support
with AISI 304 stainless
steel elements and
aluminium pulley
Hardware included:
bolt 16x50 + self-locking
nut and Ø16 mm
stainless steel washer

4.3. GLIDER ACCESSORIES

GLIDER VERTICAL CABLE SUPPORT



Cod. 000192
Fixed vertical cable support for glider

Figure 4.26

GLIDER INCLINED CABLE SUPPORT



Cod. 000193
Inclined cable support for glider

Figure 4.27

VERTICAL 90 CABLE SUPPORT



Cod. 001327
Fixed vertical 90° cable support for glider

Figure 4.28

ADJUST. INCLINED CABLE SUPPORT



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

Figure 4.29

4.4. ASSEMBLING THE ACCESSORIES

The **ECONOMY LINE** devices can be assembled with end terminals (Cod. 000305) or with intermediate terminals (Cod. 000038).

The terminal must always be installed perpendicular to the lifeline, except in cases where a quick link (Cod. 001518/001758), double jaw turnbuckle (Cod. 000032/002493) or jaw/pipe turnbuckle (Cod. 000294/002494) is used.

The following are terminal installation phases:

1. Position the intermediate/end terminal on the post so that the side bores in the terminal are completely aligned with those on the post.
2. Insert the M120x120 bolt through the bores to fix the terminal to the post.
3. Tighten the nut.

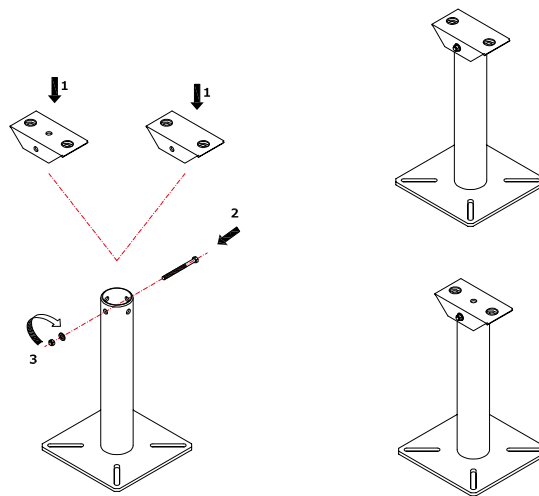


Figure 4.30 - Assembly of the Economy Post* with terminal Cod.000305/000038

4. Assembly of accessories with the intermediate terminal.

- A) Align the accessory bore with the central bore on the intermediate terminal
- B) Fix the accessory to the terminal using an M16 bolt
- C) Fix everything to the Economy Line post as described in the preceding point

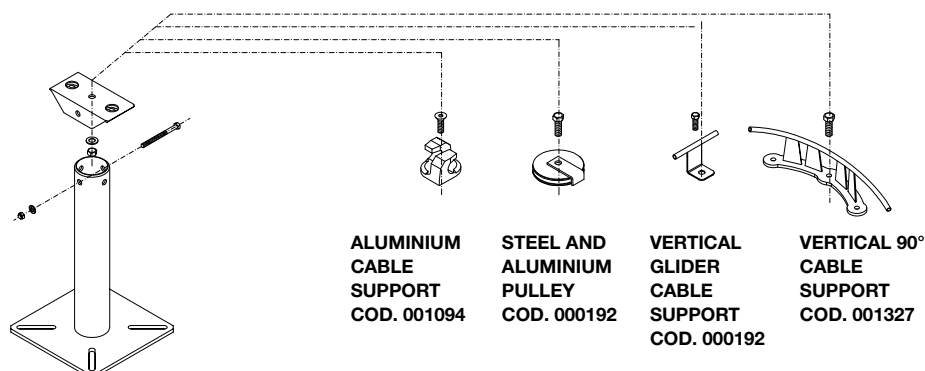


Figure 4.31 - Economy post with intermediate terminal (Cod. 000038) combinable with:

- aluminium cable support (Cod. 001094)
- pulley (Cod. 000306)
- vertical cable support for glider (Cod. 000192)
- vertical 90° cable support (Cod. 001327)

A) A pipe turnbuckle (Cod. 000775) or a pipe (Cod. 000307/00308/000309) can be inserted inside the turnbuckle support, allowing the cable to be positioned at 90°/135°/180°.

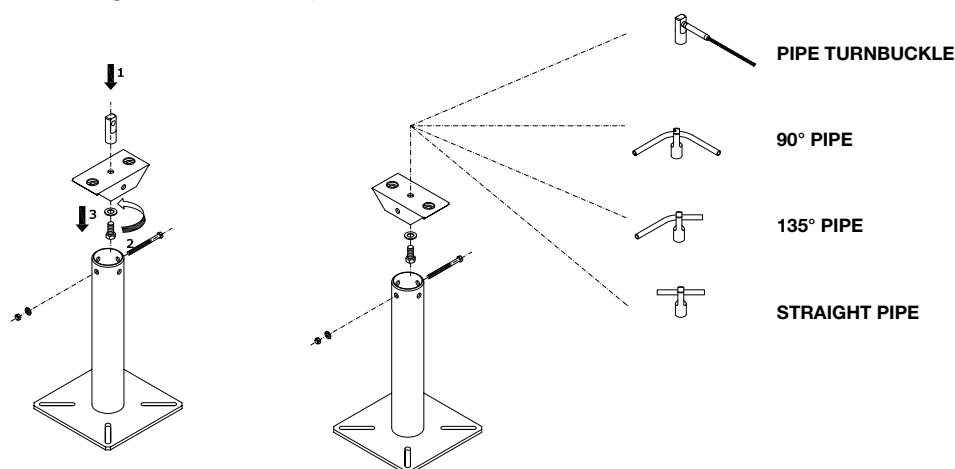


Figure 4.32 - Economy* post with intermediate terminal (Cod. 000038) and turnbuckle support (Cod. 000194)

***Economy Post = PZP/PZI/PZC/PZL**

Alternative settings for intermediate posts as lifeline crossover points:

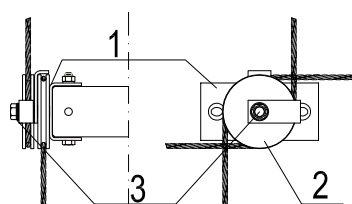


Figure 4.33 - (1) Intermediate terminal (Cod. 000038) with 2 pulleys (2) (Cod. 000306) fastened using an M16x100 bolt + washer (3)

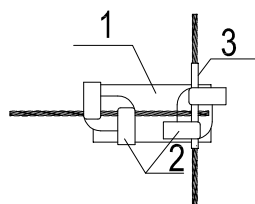


Figure 4.34 - (1) Intermediate terminal (Cod. 000038) with 2 Al. cable supports (2) (Cod. 001094) + straight pipe (3) (Cod. 000309)

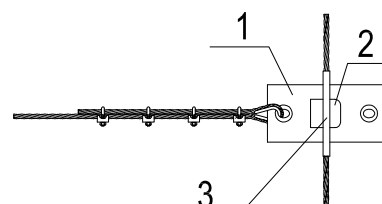


Figure 4.35 - (1) Intermediate terminal (Cod. 000038) with pipe support for glider (2) (Cod. 000192) + straight pipe (3) (Cod. 000309)

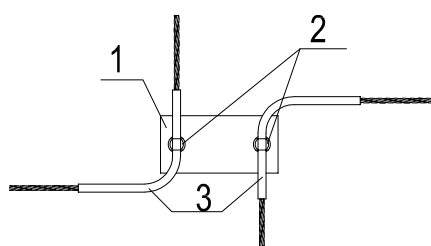


Figure 4.36 - (1) Intermediate terminal (Cod. 000038) with 2 turnbuckle supports (2) (Cod. 000194) + two 90° pipes (3) (Cod. 000308)

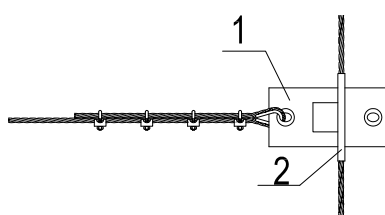


Figure 4.37 - (1) Intermediate terminal (Cod. 000038) with pipe support for glider (2) (Cod. 000193)

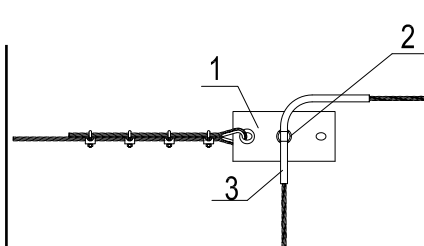


Figure 4.38 - (1) Intermediate terminal (Cod. 000038) with turnbuckle support (2) (Cod. 000194) + 90° pipe (3) (Cod. 000308)

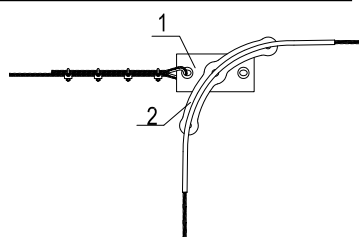


Figure 4.39 - (1) Intermediate terminal (Cod. 000038) with vertical pipe support (2) (Cod. 001327)

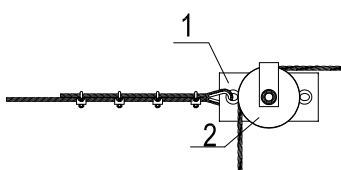


Figure 4.40 - (1) Intermediate terminal (Cod. 000038) with pulley (2) (Cod. 000306)

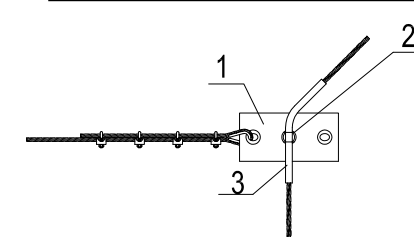


Figure 4.41 - (1) Intermediate terminal (Cod. 000038) with turnbuckle support (2) (Cod. 000194) + 135° pipe (3) (Cod. 000307)

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)
- Inclined cable support (Cod. 00193)
- Vertical cable support 90 (Cod. 001327)
- 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 4.42

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.

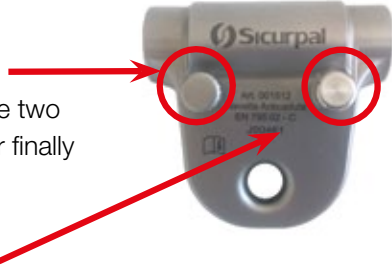


Figure 4.43 - The rear part of the glider contains two teeth, which have the sole purpose of allowing the mobile part to be gripped and made to slide (after applying a slight downward force) (See Figure 4.44)

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



Figure 4.44



Figure 4.45 - 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 4.44).
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 **ECONOMY LINE 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 **ECONOMY LINE** lifeline can be:

- crimped
- fixed jaw (Cod.000292)
- jointed jaw (Cod.000293)
- jaw/pipe turnbuckle (Cod.000294/002494)

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.

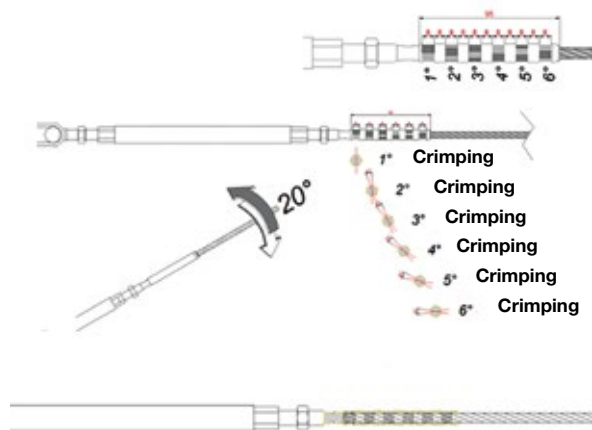


Figure 5.1 - Crimping

EXAMPLES:

All **ECONOMY LINE** products comply with standards UNI EN 795:2012, CEN/TS 16415:2013 and UNI 11578:2015.

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

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

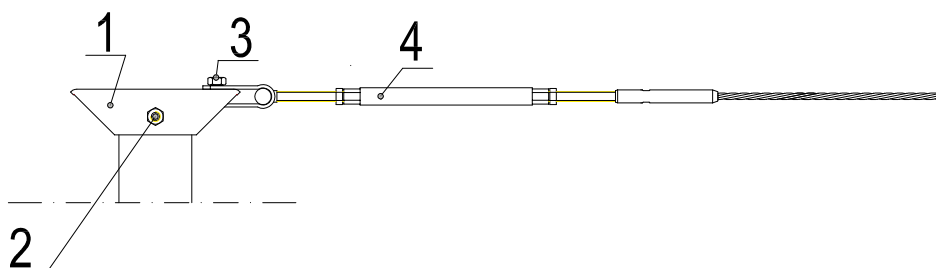


Figure 5.2

1. Assemble the terminal (1) (Cod. 000305) on the Economy Line post using an M12x120 bolt + washer (2)
2. Fix the J/P turnbuckle (4) (Cod. 000294/002494) to the terminal using an M12x40 bolt + washer (3)
3. Insert the cable into the turnbuckle and press it

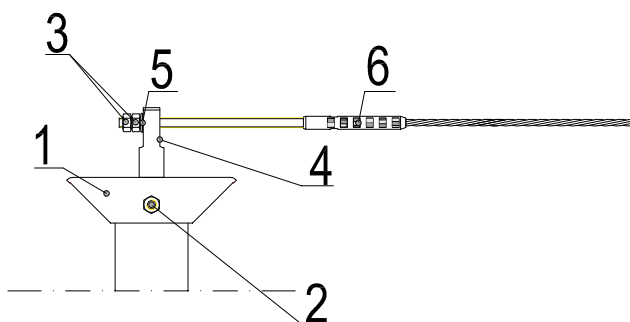


Figure 5.3

1. Assemble the turnbuckle support (4) (Cod. 000194) with the terminal (1) (Cod. 000038) as described in chapter 4.4 and fix the terminal to the Economy Line post using an M12x120 bolt + washer (2)
2. Fix the pipe turnbuckle to the turnbuckle support (4) using two M12 bolts (3)
3. Insert the cable into the turnbuckle and crimp it (6) (see Chapter 5)

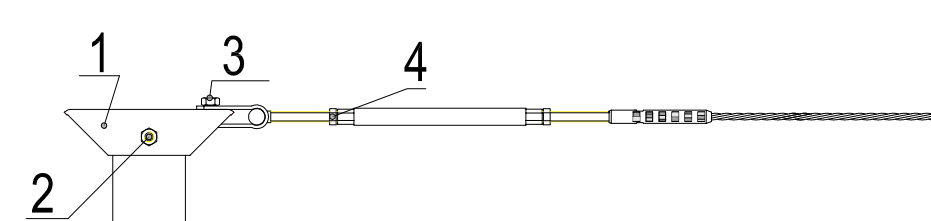


Figure 5.4

1. Assemble the terminal (1) (Cod. 000305) on the Economy Line post using an M12x120 bolt + washer (2)
2. Fix the J/P turnbuckle (4) (Cod. 000294/002494) to the terminal using an M12x40 bolt + washer (3)
3. Insert the cable into the turnbuckle and crimp it (see Chapter 5)

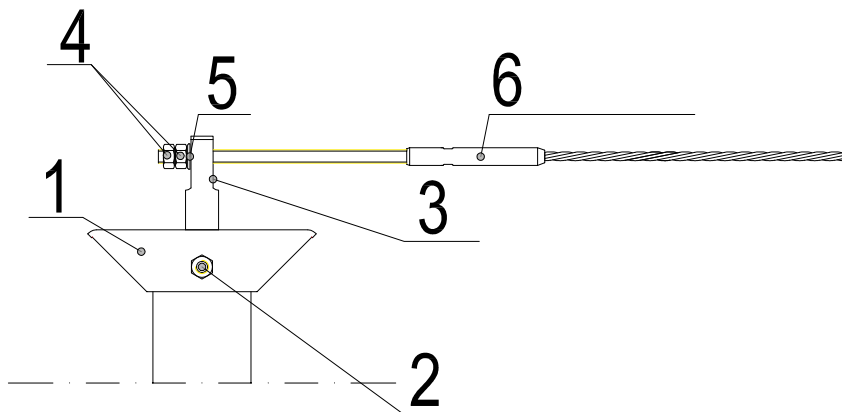


Figure 5.5

1. Assemble the turnbuckle support (3) (Cod. 000194) with the terminal (1) (Cod. 000038) as described in chapter 4.4 and fix the terminal to the Economy Line post using an M12x120 bolt + washer (2)
2. Fix the pipe turnbuckle (6) (Cod. 000775) to the turnbuckle support (3) using two M12 bolts (3)
3. Insert the cable into the turnbuckle and press it

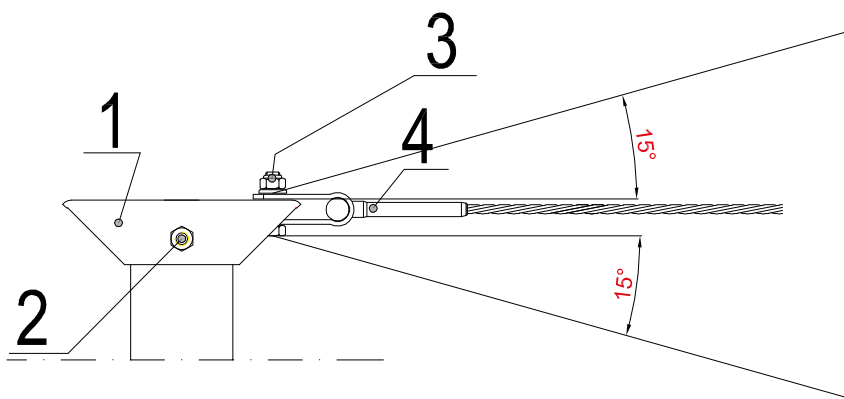


Figure 5.6

1. Assemble the terminal (1) (Cod. 000305) on the Economy Line post using an M12x120 bolt + washer (2)
2. Fix the jointed jaw terminal (4) (Cod. 000293) to the terminal using an M12x40 bolt + washer (3)
3. Insert the cable into the terminal and press it

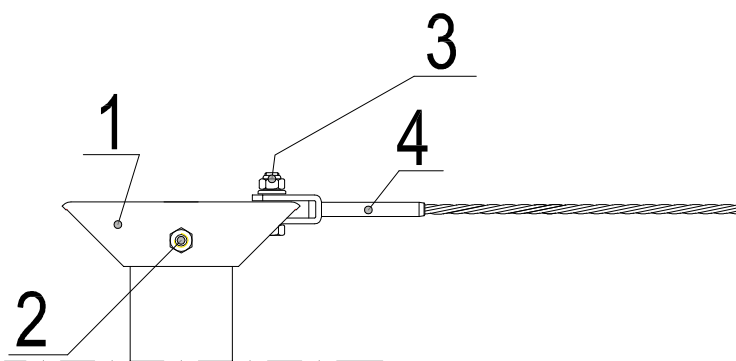


Figure 5.7

1. Assemble the terminal (1) (Cod. 000305) on the Economy Line post using an M12x120 bolt + washer (2)
2. Fix the fixed jaw terminal (4) (Cod. 000292) to the terminal using an M12x40 bolt + washer (3)
3. Insert the cable into the terminal and press it



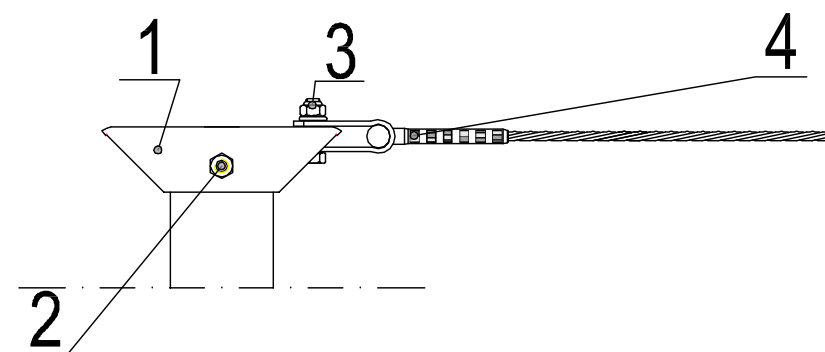


Figure 5.8

1. Assemble the terminal (1) (Cod. 000305) on the Economy Line post using an M12x120 bolt + washer (2)
2. Fix the jointed jaw terminal (4) (Cod. 000293) to the terminal using an M12x40 bolt + washer (3)
3. Insert the cable into the terminal and crimp it (see Chapter 5)

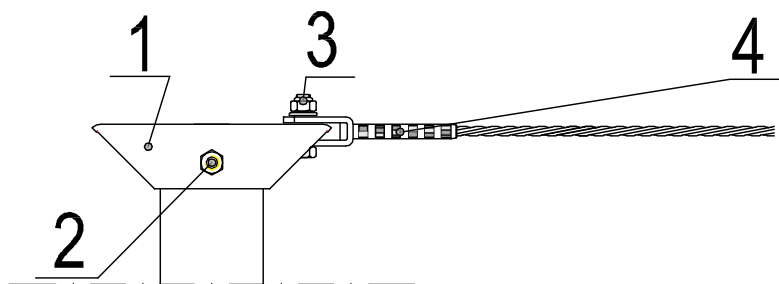
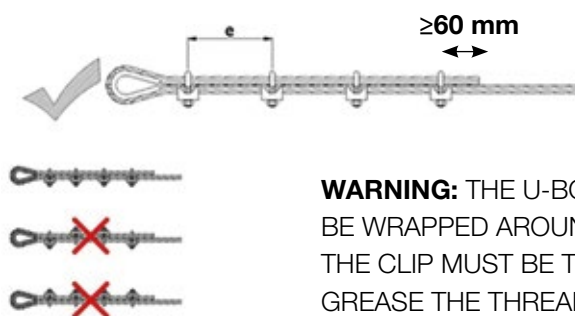


Figure 5.9

1. Assemble the terminal (1) (Cod. 000305) on the Economy Line post using an M12x120 bolt + washer (2)
2. Fix the fixed jaw terminal (Cod. 000292) to the terminal using an M12x40 bolt + washer (3)
3. Crimp the cable (4)

4.2. Method 2: FITTING WITH WIRE ROPE CLIPS

1. Insert the cable into the smaller heat-shrinkable sheathing and then into the larger one, before bending the cable.
2. 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 5.10).
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 5.10 - Positioning cable with rope clips

3. Tighten the 8 nuts in the clips using a torque wrench set to 3.3 Nm (EN 14399).
4. 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.
5. Tension the cable.
6. Position the wider heat shrinkable sheathing over the four rope clips and heat it until it has shrunk completely into place (see **Figure 5.11**).



Figure 5.11 - 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

EXAMPLES:

Unlike crimped and pressed connections, connections made using wire rope clips are only compliant with standard UNI 11578:2015.

WITHOUT QUICK LINK

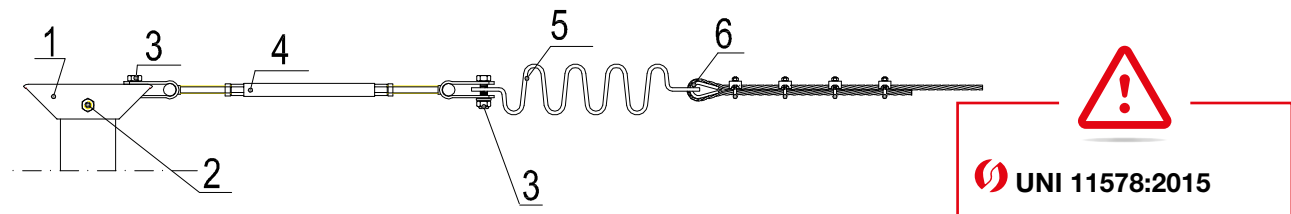


Figure 5.12

1. Fix the terminal (1) (Cod. 000305) on the Economy Line post using an M12x120 bolt + washer (2)
2. Insert the J/J turnbuckle (4) (Cod. 000032/002493) into the bore on the terminal and fix it using an M12x120 bolt + washer (3)
3. Insert the absorber (5) (Cod. 000033) into the opposite end of the turnbuckle and fix it using an M12x40 bolt + washer
4. Insert the thimble (6) into the bore on the opposite end of the absorber (5), so as to allow passage of the cable
5. Fix the cable using four rope clips, as described in Chapter 5, point 4.2.

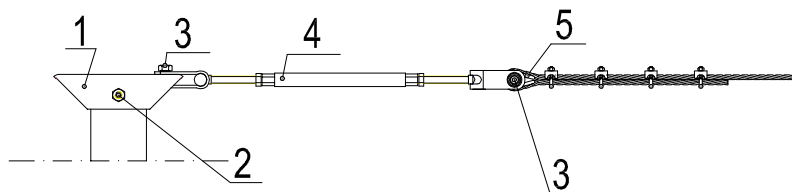


Figure 5.13

1. Fix the terminal (1) (Cod. 000305) on the Economy Line post using an M12x120 bolt + washer (2)
2. Insert the J/J turnbuckle (4) (Cod. 000032/002493) into the bore on the terminal and fix it using an M12x120 bolt + washer (3)
3. Insert the thimble (5) into the bore on the opposite end of the turnbuckle, so as to allow passage of the cable and fix it with an M12x40 bolt (3)
4. Fix the cable using four rope clips, as described in Chapter 5, point 4.2.

WITH QUICK LINK

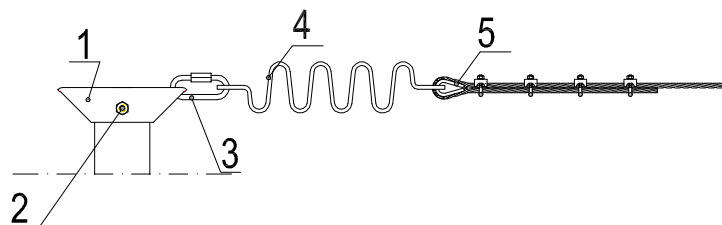


Figure 5.14

1. Fix the terminal (1) (Cod. 000305) on the Economy Line post using an M12x120 bolt + washer (2)
2. Insert the quick link (3) (Cod. 001518) into the bore in the terminal
3. Insert the energy absorber (4) (Cod. 000644) into the quick link and close it carefully
4. Insert the thimble (5) into the bore on the opposite end of the absorber, so as to allow passage of the cable
5. Fix the cable using four rope clips, as described in Chapter 5, point 4.2.

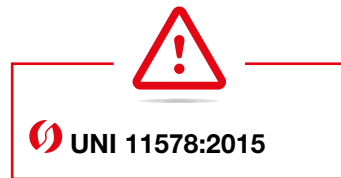
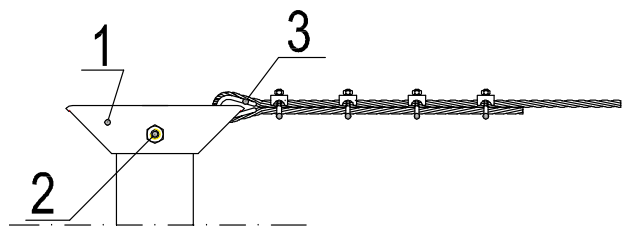


Figure 5.15

1. Fix the terminal (1) (Cod. 000305) on the Economy Line post using an M12x120 bolt + washer (2)
2. Insert the thimble (3) into the bore in the terminal and pass the cable around it
3. Fix the cable using four rope clips, as described in 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.

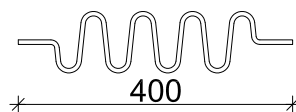
For proper tensioning of the line:

- 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 5.16**).
- 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 (405-410 mm) ± 0.5 cm (5 mm)

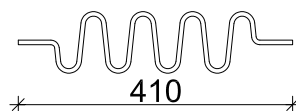


Figure 5.16

If the absorber exceeds 45 cm (450 mm) in length, it must be replaced.

6. Positioning the turnbuckle seal

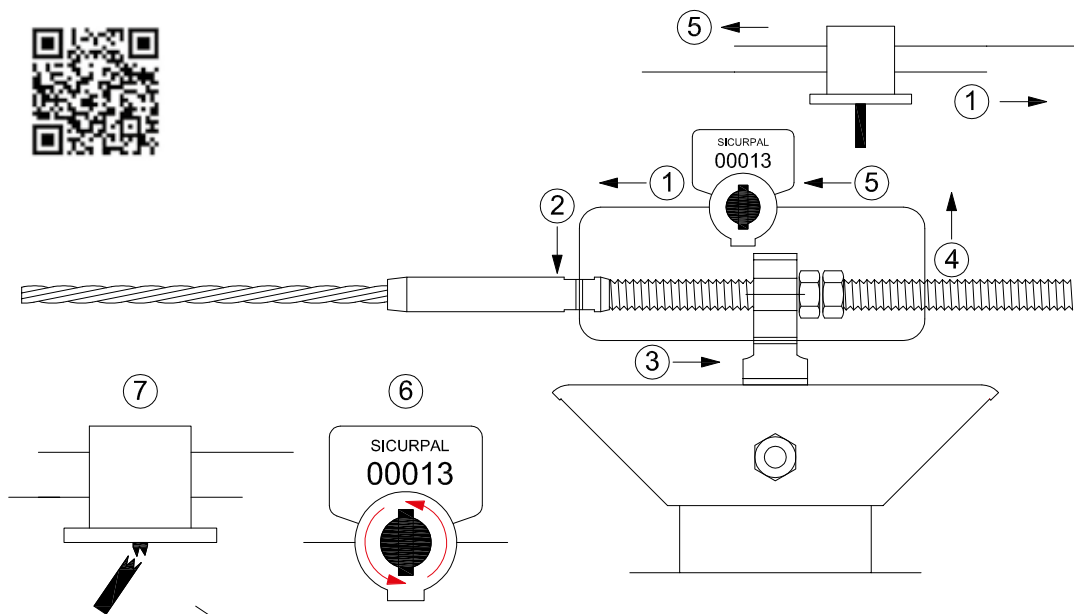


Figure 5.8

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, we suggest you watch the explanatory video on the Sicurpal website:
<https://www.youtube.com/watch?v=AfKvLSx-AFU>

7. 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 ECONOMY LINE** 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) (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.

Table of deflections in the case of retention and/or positioning of an operator, 70 Kg table

MAX SPAN Length (m)	1 SPAN		2 SPANS		4 SPANS		6 SPANS		
	WEIGHT [kN]	DEFLEC- TION [m]	WEIGHT [kN]	DEFLEC- TION [m]	WEIGHT [kN]	DEFLEC- TION [m]	WEIGHT [kN]	DEFLEC- TION [m]	
5	5.00		10.00		20.00		30.00		Total length of line (m)
	0.70	0.06	0.70	0.12	0.70	0.25	0.70	0.37	
10	10.00		20.00		40.00		60.00		Total length of line (m)
	0.70	0.37	0.70	0.43	0.70	0.51	0.70	0.76	
20	20.00		40.00		80.00		120.00		Total length of line (m)
	0.70	0.76	0.70	0.86	0.70	1.02	0.70	1.52	

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.

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.

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 **ECONOMY LINE** 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		6 SPANS		
	WEIGHT [kN]	DEFLEC- TION [m]	WEIGHT [kN]	DEFLEC- TION [m]	WEIGHT [kN]	DEFLEC- TION [m]	WEIGHT [kN]	DEFLEC- TION [m]	
5	5.00		10.00		20.00		30.00		Total length of line (m)
	125.00	0.41	125.00	0.44	125.00	0.50	125.00	0.56	
10	10.00		20.00		40.00		60.00		Total length of line (m)
	125.00	0.66	125.00	0.72	125.00	0.81	125.00	0.96	
20	20.00		40.00		80.00		120.00		Total length of line (m)
	125.00	1.16	125.00	1.29	125.00	1.55	125.00	1.81	

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		6 SPANS		
	WEIGHT [kN]	DEFLEC- TION [m]	WEIGHT [kN]	DEFLEC- TION [m]	WEIGHT [kN]	DEFLEC- TION [m]	WEIGHT [kN]	DEFLEC- TION [m]	
5	5.00		10.00		20.00		30.00		Total length of line (m)
	11.58	0.86	11.06	0.88	10.4	0.92	10.01	0.96	
10	10.00		20.00		40.00		60.00		Total length of line (m)
	12.35	1.28	11.26	1.34	10.05	1.44	9.24	1.54	
20	20.00		40.00		80.00		120.00		Total length of line (m)
	12.76	2.04	11.32	2.16	9.84	2.35	8.86	2.5	

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							
		PZP		PZI		PZC		PZL	
Product height [mm]	[mm]	300	500	300	500	300	500	300	500
Net weight	[Kg]	10.00	13.00	10.00	12.00	10.00	12.00	8.00	11.00
Anchor plate dimensions	[mm]	300X300						400x160	
Number of structural anchor bores	n°	4 slots						8 bores	
Material used	n°	SS235 HOT GALVANISED							
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]	20							
Maximum length of lifeline	[m]	120							
Number of P.P.E. anchor bores*	n°	2							

* 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

	Manufacturer's name and identification mark
PROD. CONF. TYPE A - C	Certification standards
PZP	Name of anchoring devices
J 01152	Production batch number
1X	Max. No. operators allowed
Cod. 00263	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, perform a traction test (the **ECONOMY LINE** devices can be pulled in all directions) (see **Figure 9.1**).

This test, which does not damage the product, serves to verify that the anchorage and the support structure.

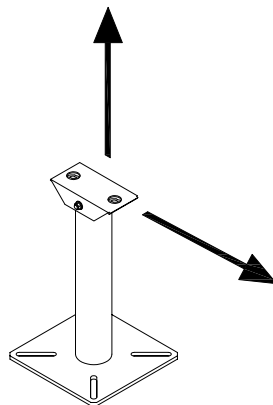


Figure 9.1

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, point 5)
- Abnormal deformation of the cable
- Tensioning of the cable
- Locking of the nuts and bolts on visible devices



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 **ECONOMY LINE** 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 and 4 years for controls on the support structure and anchoring devices (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



10.2. USE

The devices in the **ECONOMY LINE** 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



<p>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.</p>	<p>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.</p>
<p>The ECONOMY LINE devices must only be returned to service after they have been finally certified by SICURPAL or a company authorised by SICURPAL.</p>	



	<p>The manufacturer will not be held liable for any accidents deriving from failure to comply with the standards and indications given in this manual.</p>
	<p>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.).</p>

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 plate 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.

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

11. MANUFACTURER'S NOTE

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

- A) The **ECONOMY LINE 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 **ECONOMY LINE 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 **ECONOMY LINE** anchorage devices 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 $f_t = 8.78 \text{ kN}$ in a horizontal direction parallel to the roof and in any direction. Furthermore, a maximum moment at fixed end of $f_t \times h_{\text{post}} = 4.39 \text{ kNm}$ is generated 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 A** anchorage device is $f_t = 12.96 \text{ kN}$ in a horizontal direction parallel to the roof and in any direction. Furthermore, a maximum moment at fixed end of $f_t \times h_{\text{post}} = 6.48 \text{ kNm}$ is generated at the base of the anchorage device, in the operator angle of fall (valid for **2 (two) operators** hooked to the post – **UNI EN 16415:2013**).
The maximum load transmittable by the **Type C** anchorage device is $f_t = 12.44 \text{ kN}$ in a horizontal direction parallel to the roof and in the direction of the cable and of fall. Furthermore, a maximum moment at fixed end of $f_t \times h_{\text{post}} = 6.22 \text{ kNm}$ is generated at the base of the anchorage device, in the operator angle of fall (valid for **2 (two) operators** hooked to the line – **CEN/TS 16415:2013** and **UNI 11578:2015**).
The maximum load transmittable by the **Type C** anchorage device is $f_t = 12.76 \text{ kN}$ in a horizontal direction parallel to the roof and in the direction of the cable. Furthermore, a maximum moment at fixed end of $f_t \times h_{\text{post}} = 6.38 \text{ kNm}$ is generated at the base of the anchorage device, in the operator angle of fall (valid for **4 (four) operators** hooked to the line – **CEN/TS 16415:2013** and **UNI 11578:2015**).
- D) The maximum deflection value of the **ECONOMY LINE** anchorage devices and the maximum movement value of the anchorage point is 0° .
The maximum deflection of the **Type C ECONOMY LINE** is 152 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) 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) At the present time, intermediate anchorages with an angle of $90^\circ/135^\circ/180^\circ$ are not foreseen.
ii) The **Type C ECONOMY LINE** 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 ECONOMY LINE** 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 aluminium connectors (UNI EN 362) and cable supports (Cod. 001094), 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 **ECONOMY LINE** devices are not supplied with fall indicator included.



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