Sicurpal

INSTRUCTION MANUAL
FOR ASSEMBLY, USE AND MAINTENANCE

SHED LINE

sicurpal.it

EDITION 2 - REVISION 0

Translation of original instructions.

1. REFERENCE STANDARDS

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

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

2. Certification standards:

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

*See Chapter 7

3. Reference standards:

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

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

2. INTRODUCTION

This “Instruction manual for assembly, use and maintenance” refers to **SICURPAL SHED LINE** devices, made of hot galvanised stainless steel or 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 SHED LINE** anchorage systems are designed and approved to be used simultaneously by a maximum of 2 (two) operators. They are likewise 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 SHED 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 SHED LINE** anchorage devices is maximum 10 years from the date of installation. The WARRANTY relates to the **SHED 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**).

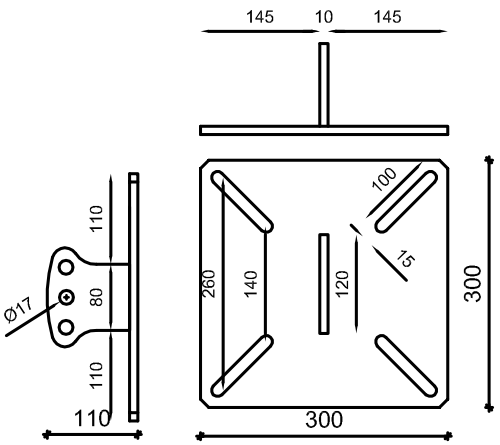
3. DESCRIPTION AND FIXING OF ANCHORAGE DEVICES

The products in the **SICURPAL SHED 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

Devices **SZG**, **SZP**, **SZS**, **PZFG**, **PZFP**, **PZFS**, **EXTERNAL CURVE** and **INTERNAL CURVE**, are ideal to create a wall-mounted lifeline in which it is possible to by-pass the intermediate points without disconnecting. They can be fixed to the structure using bars/bolts/screws/welding, as instructed by the engineer.
Please refer to Chapter 3.2 for the choice of fixing device .

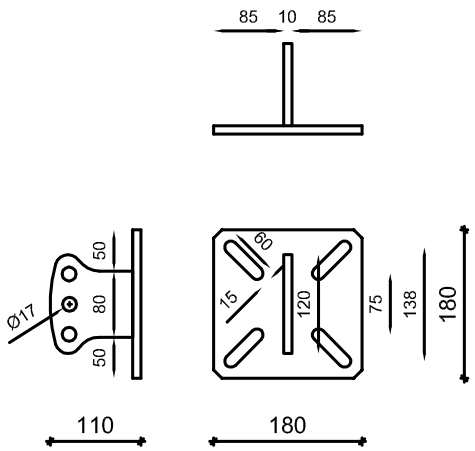
SZG – Wall-mounted plate Cod. 000037 (Galvanised) Cod. 001509 (Stainless steel)



- Produced in hot galvanised or stainless steel
- Base size 300x300x10 mm with 4 100 mm slots for fixing
- Height of the device 110 mm
- Ideal for masonry walls with a thickness of 20 cm
- No. 3 lifeline fixing bores

Figure 3.1 - Plate SZG

SZP – Wall-mounted plate Cod. 000188 (Galvanised) Cod. 000262 (Stainless steel)



- Produced in hot galvanised or stainless steel
- Base size 180x180x10 mm with 4 60 mm slots for fixing
- Height of the device 110 mm
- Ideal for lifelines on the reinforced concrete walls
- No. 3 lifeline fixing bores

Figure 3.2 - Plate SZP

SZS – Wall-mounted plate Cod. 000189 (Galvanised) Cod. 000268 (Stainless steel)

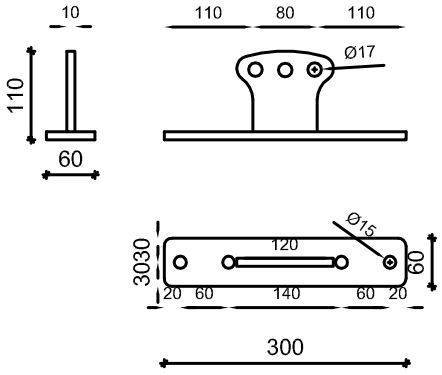


Figure 3.3 - Plate SZS

- Produced in hot galvanised or stainless steel
- Base size 300x60x10 mm and 4 bores Φ 15 mm for fixing
- Height of the device 110 mm
- Ideal for lifelines on the reinforced concrete roof curbs of prefabricated elements
- No. 3 lifeline fixing bores

PZFG – Wall-mounted plate Cod. 000230 (Galvanised) Cod. 001510 (Stainless steel)

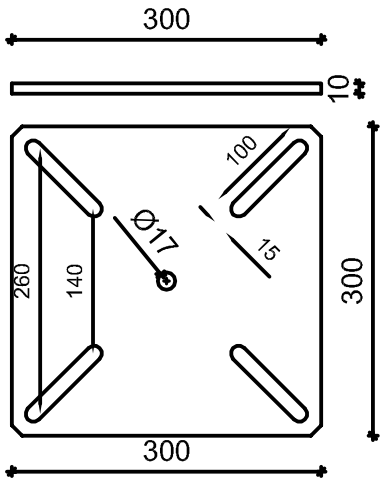


Figure 3.4 - Plate PZFG

- Produced in hot galvanised or stainless steel
- Base size 300x300x10 mm with 4 100 mm slots for fixing
- Central bore Φ 17 countersunk
- Ideal for creation of lifelines installed on masonry walls
- To be used to fix accessories or as counterplate

PZFP – Wall-mounted plate Cod. 000232 (Galvanised) Cod. 001236 (Stainless steel)

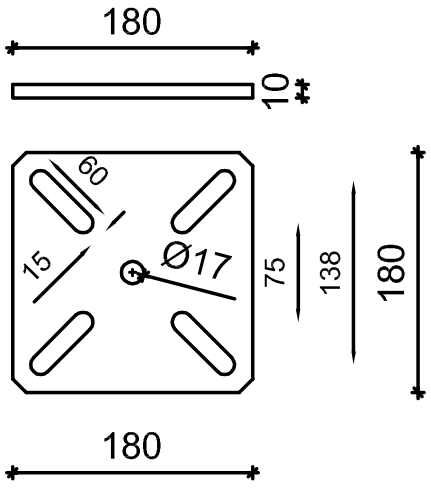


Figure 3.5 - Plate PZFP

- Produced in hot galvanised or stainless steel
- Base size 180x180x10 mm with 4 60 mm slots for fixing
- Height of the device 10 mm
- Central bore Φ 17 countersunk
- To be used to fix accessories or as counterplate
- Ideal for lifelines on reinforced concrete walls

PZFS – Wall-mounted plate Cod. 000233 (Stainless steel)

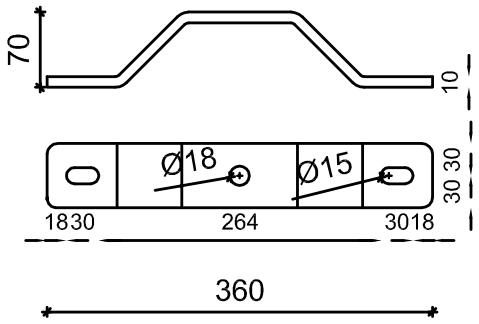


Figure 3.6 - Plate PZFG

- Manufactured in stainless steel size 300x60x10 mm with two 30 mm slots for fixing
- Height of the device 70 mm
- Central bore Φ 18 mm
- Used to fix the intermediate accessory
- Ideal for lifelines on prefabricated reinforced concrete roof curbs

EXTERNAL CURVE – Cod. 001374 (Stainless steel)

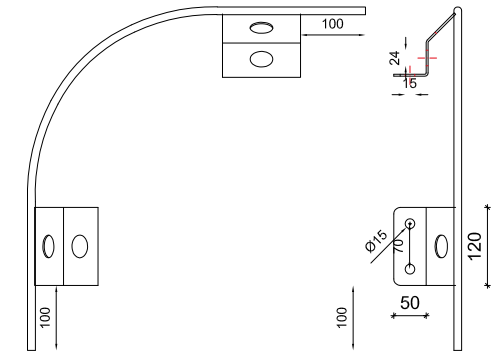


Figure 3.7 – EXTERNAL CURVE

- Manufactured in stainless steel
- Bracket that can be bypassed by the glider
- Used to give continuity to the lifeline at the corners of the building
- Distance from the fixing structure 100 mm
- Fixing plate size 50x120x3 mm
- Fixing plate bores Φ 15 mm

INTERNAL CURVE – Cod. 001373 (Stainless steel)

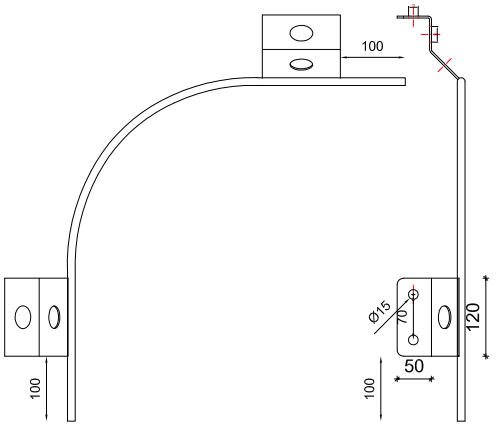


Figure 3.8 – INTERNAL CURVE

- Manufactured in stainless steel
- Bracket that can be bypassed by the glider
- Used to give continuity to the lifeline at the corners of the building
- Distance from the fixing structure 100 mm
- Fixing plate size 50x120x3 mm
- Fixing plate bores Φ 15 mm

3.2. FIXING THE ANCHORAGE DEVICES

Installation of the **SHED 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				
		Bars ≤M12	Two-component Resin	Counterplate	Welded	Mechanical solutions**
SZP/SZG/SZS PZFG/PZFP/PZFS/ EXTERNAL CURVE/INTERNAL CURVE	MASONRY	✓	✓	✓		✓
	STEEL	✓		✓	✓	✓
	REIN-FORCED CONCRETE	✓	✓	✓		✓

*The manufacturer recommends that the designer assess the use of vibration damping and self-locking systems (e.g. extra-large washers, self-locking nuts, split washers etc.) when fixing.
** When mechanical solutions are used it is recommended that preference be given to systems certified for dynamic loads with a life-span longer than or equal to that of the product (30 years), in order to avoid sustaining additional costs in the future.

On the customer's request, the manufacturer can provide the assistance of a technician for the installation methods to be used for **SICURPAL** devices.
This manual is to be considered as an essential indication of how to install the anchorage system properly.
In spite of this, **SICURPAL** offers courses for designers, fitters and testers in order to improve their understanding of these instructions and pass on their know-how to ensure proper installation and reduce to a minimum possible on-site errors.

3.3. 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.

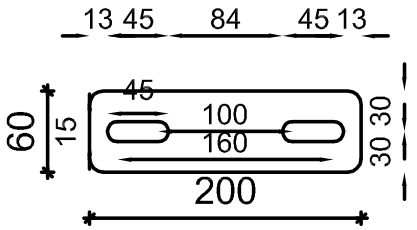


Figure 3.9 - Galvanised steel counterplate (Cod. 000196) for the products SZP/SZS

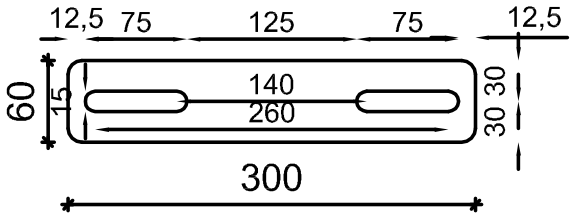


Figure 3.10 - Galvanised steel counterplate (Cod. 000039) for the products SZG/SZP/SZS

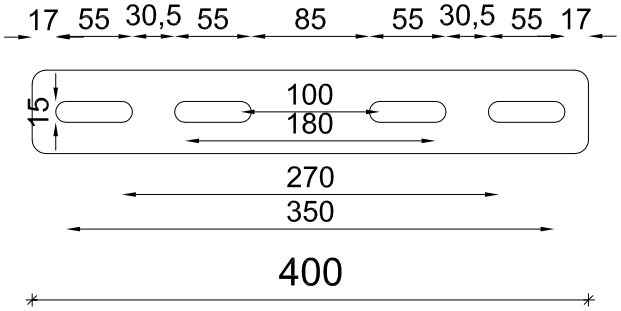


Figure 3.11 - Galvanised steel counterplate (Cod. 000203) for the products SZG/SZP/SZS/PZFS

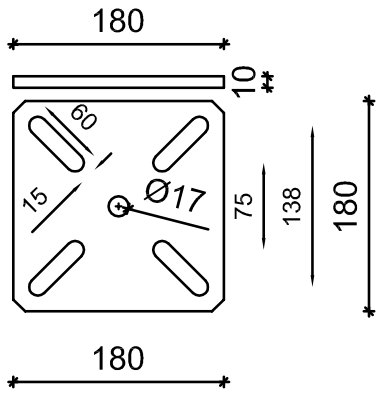


Figure 3.12 - Galvanised steel counterplate (Cod. 000230) or stainless steel counterplate (Cod. 001510) for the product SZP

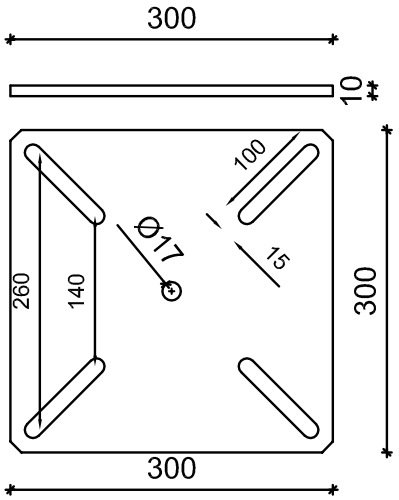


Figure 3.13 - Galvanised steel counterplate (Cod. 000230) or stainless steel counterplate (Cod. 001510) for the product SZG

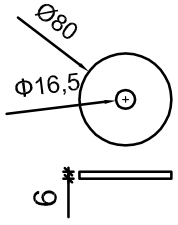


Figure 3.14 - Stainless steel counterplate (Cod. 000174) for the products SZS and PZFP

3.4. ASSEMBLING THE SHED LINE DEVICES WITH COUNTERPLATES

The assembly phases with counterplates are indicated below:
1.Rest the anchorage device on the support structure;
2.Insert the threaded bars in the bores on the anchorage device;
3.Position the counterplates on the underside of the support structure, in line with the bars;
4.Insert washers and self-locking nuts;
5.Tighten the self-locking nuts.

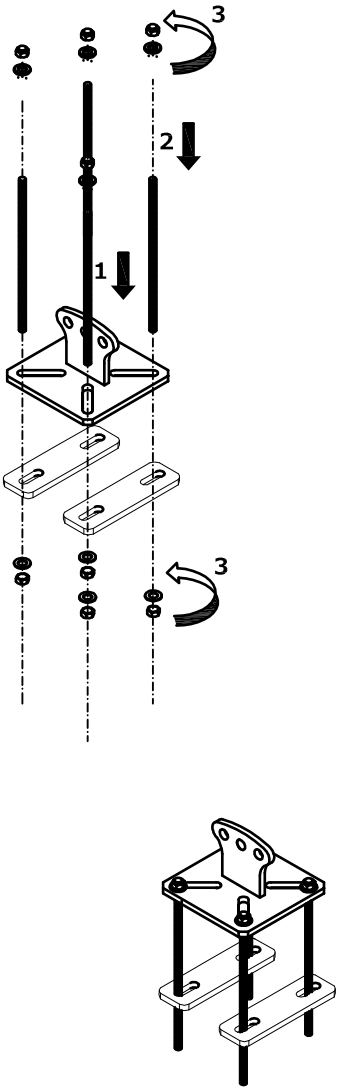


Figure 3.15 - Plate SZP/ SZS with counterplate Cod. 000039

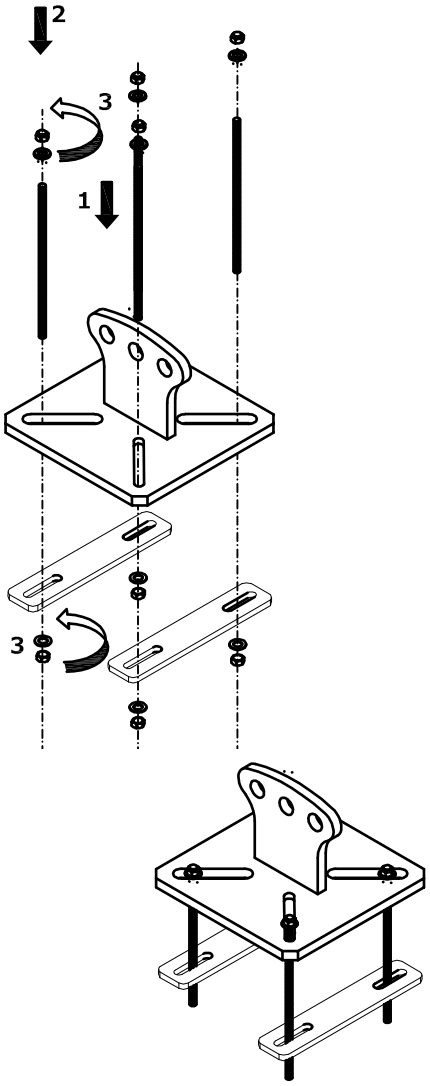


Figure 3.16 - Plate SZG/SZP/SZS with counterplate Cod. 000196

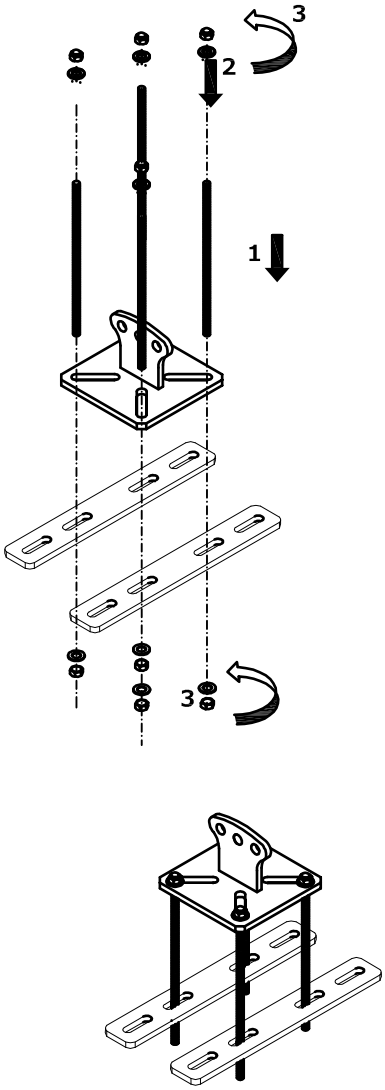


Figure 3.17 - Plate SZG/ SZP/SZS/PZFS with counterplate Cod. 000203

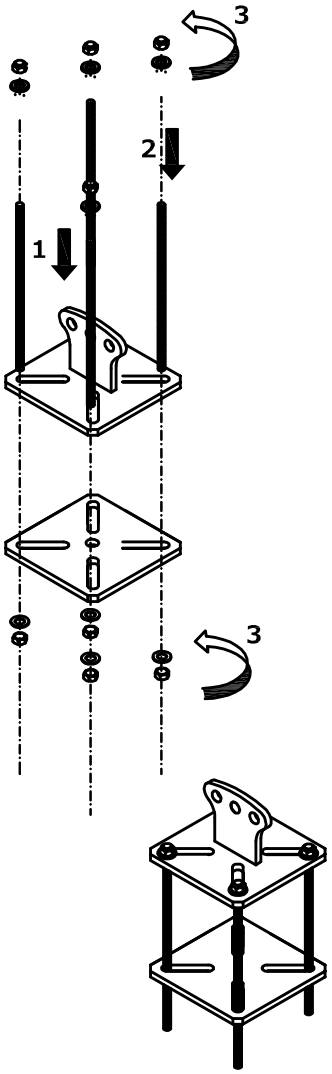


Figure 3.18 - Plate SZP
with counterplate PZFP
Cod. 000232/001236

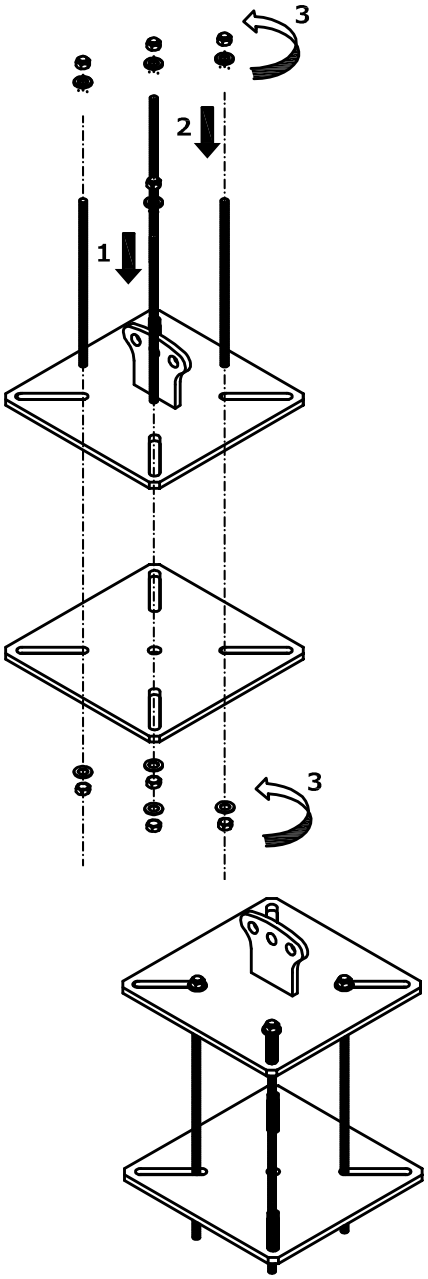


Figure 3.19 - Plate SZP
with counterplate PZFG
Cod. 000230/001510

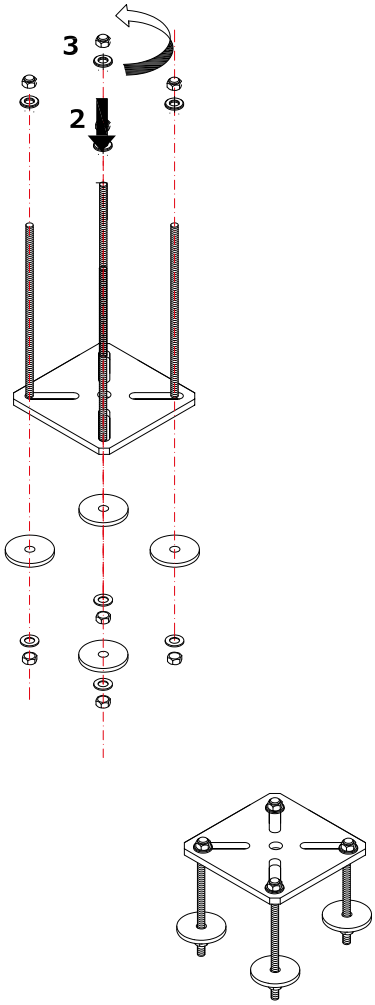


Figure 3.20 - Plate SZS/PZFP
with WASHER counterplate
Cod. 000174

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

4. DESCRIPTION AND ASSEMBLY OF THE ACCESSORIES

The accessories are to be installed on the plates to complete the **SHED LINE** anchorage devices and/or the fall prevention system.

4.1. LIFELINE ACCESSORIES

CABLE Ø8

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

Figure 4.1

TURNBUCKLE/PIPE SUPPORT

Cod. 000194
For installation of the pipe turnbuckle (Cod. 000775) or 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
The device prevents 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 INOX steel

Figure 4.4

ABSORBER

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

Figure 4.5

QUICK LINK

Figure 4.6

Cod. 001518
Universal quick link

Cod. 001758
Economy quick link

Figure 4.7

PIPE TURNBUCKLE

Figura 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

JAW/PIPE TURNBUCKLE

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

Figure 4.10

DOUBLE JAW TURNBUCKLE

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

Figure 4.11

FIXED JAW TERMINAL

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

Figure 4.12

JOINTED JAW TERMINAL

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

Figure 4.13

FIXING KIT, Ø8 CABLE

Cod.001513
FIXING KIT, Ø 8 CABLE
In AISI 304 Stainless steel for cable Ø8 mm
Required for fixing with rope clips

Figure 4.14

SEAL

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

Figure 4.15

LIFELINE ID

Cod.000291
Lifeline identification code

Figure 4.16

L.L. GLIDER

Cod. 001512
Safety glider for bypassable lifeline, allowing the operator to work without having to unhook, pause or slow down his movements
See Chapter 4, point 4.5, for information on the installation procedure, use and maintenance

Figure 4.17

ACCESS SIGN

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

Figure 4.18

WASHER

Cod. 000174
Counterplate, diameter 80 mm with Ø15 mm bore
Manufactured in stainless steel
Counterplate for SZS and PZFP

Figure 4.19

MINI SUPPORT FOR TURNBUCKLE

Cod. 000765
For installation of the pipe turnbuckle (Cod. 000775) for guide pipe (Cod. 000307/000308/ 000309)
Provided in AISI 304 INOX steel
Hardware included: bolt Ø 16x35 mm and ø16 mm washer in stainless steel

Figure 4.20

4.2. BYPASS ACCESSORIES

INTERMEDIATE CABLE SUPPORT

Cod. 001094
Aluminium by-pass cable support

Figure 4.21

CORNER GUIDE PIPES

Figure 4.22
STRAIGHT PIPE
Cod. 000309

Figure 4.23
135° PIPE
Cod. 000307

Figure 4.24
90° PIPE
Cod. 000308

Pipe Ø 14 mm with thickness 2 mm
In AISI 304 Stainless steel
Capable of covering 90°/135°/180° corers
To be used in combination with the supports (Cod. 000194 or 000765)

PULLEY - CORNER CABLE SUPPORT

Cod. 000306
Cable support with AISI 304 stainless steel elements and aluminium pulley
Hardware included: bolt Ø 16x50 mm and ø16 mm washer in stainless steel

Figure 4.25

SPACER

Cod. 000195
Spacer with dimensions 60x60x60 mm and central bore Ø 17 mm on both surfaces
Manufactured in AISI 304 INOX steel

Figure 4.26

4.3. GLIDER ACCESSORIES

GLIDER VERTICAL CABLE SUPPORT

Cod. 000192
Fixed vertical cable support for glider

Figure 4.27

GLIDER INCLINED CABLE SUPPORT

Cod. 000193
Inclined cable support for glider

Figure 4.28

VERTICAL 90 CABLE SUPPORT

Cod. 001327
Fixed vertical 90° cable support for glider

Figure 4.29

ADJUSTABLE INCLINED CABLE SUPPORT

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

Figure 4.30

VERTICAL 90 CABLE SUPPORT

Cod. 001344
Vertical cable support for glider, adjustable 0°/45°
In some cases it is possible the installation directly on the support

Figure 4.31

4.4. ASSEMBLING THE ACCESSORIES

The **SHED LINE** devices can be combined with various accessories to satisfy the different needs encountered on a day-to-day basis on site. The following are some of the most significant examples, with the various installation phases:

1.Fix the plate, following the instructions provided in Chapter 3.2.

2.Where necessary, combine the complementary accessories (e.g. support for turnbuckle + pipe).

3.Align the bore/s on the accessory with those on the plate.

4.Fix the accessory to the plate using bolt/s.

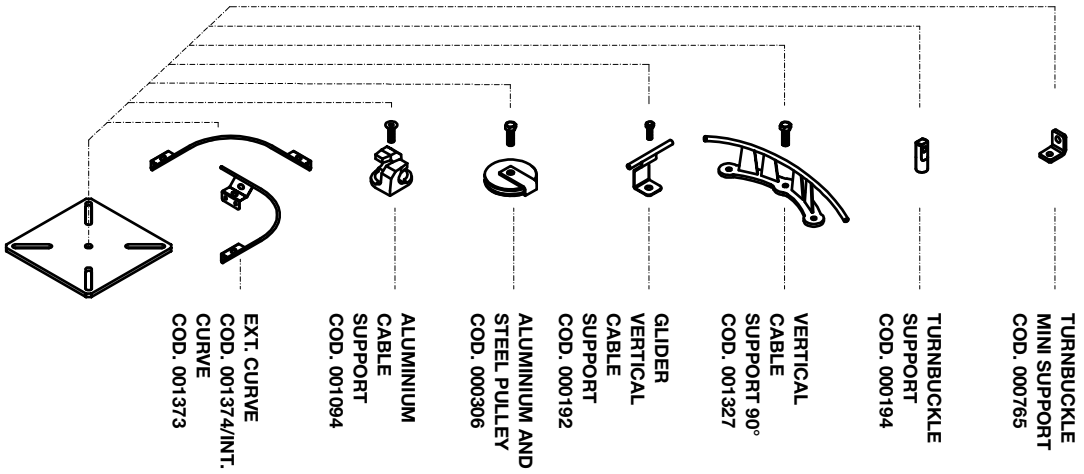


Figure 4.32 - Plate PZFG/PZFP combined with:
ext. curve (Cod. 001374)-int. curve (Cod. 001373) / aluminium cable support (Cod. 001094) / aluminium and steel pulley (Cod. 000306) / vertical cable support for glider (Cod. 000192) / vertical cable support 90° (Cod. 001327) turnbuckle support (Cod. 000194) and turnbuckle mini support (Cod. 000765)

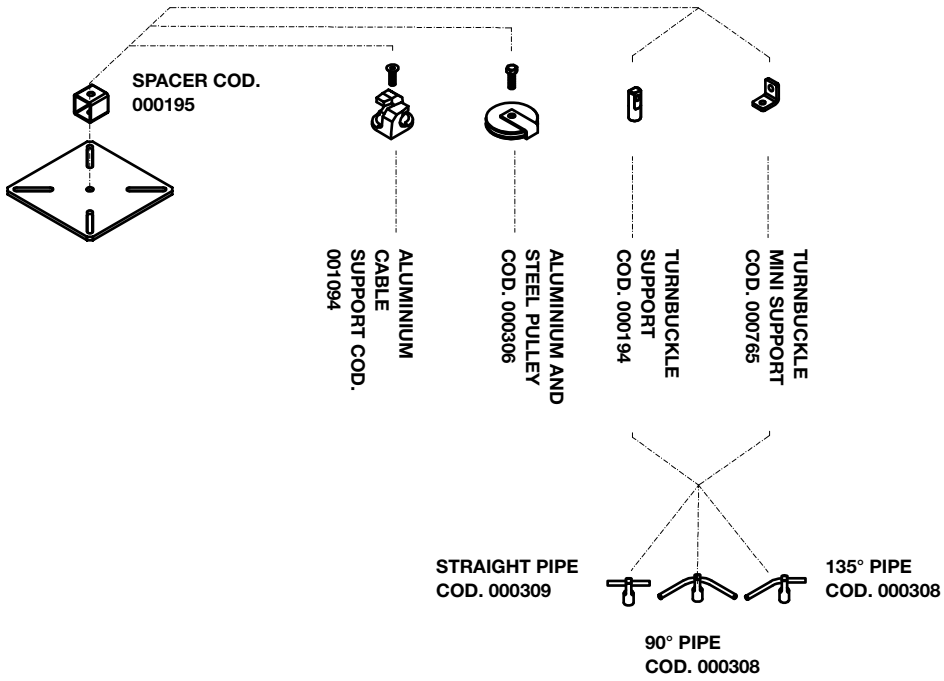


Figure 4.33 - Plate PZFG/PZFP combined with spacer (Cod. 000195) and:
aluminium cable support (Cod. 001094) / steel pulley (Cod. 000306) turnbuckle support (Cod. 000194)+ pipe / and turnbuckle support (Cod. 000765)+ pipe

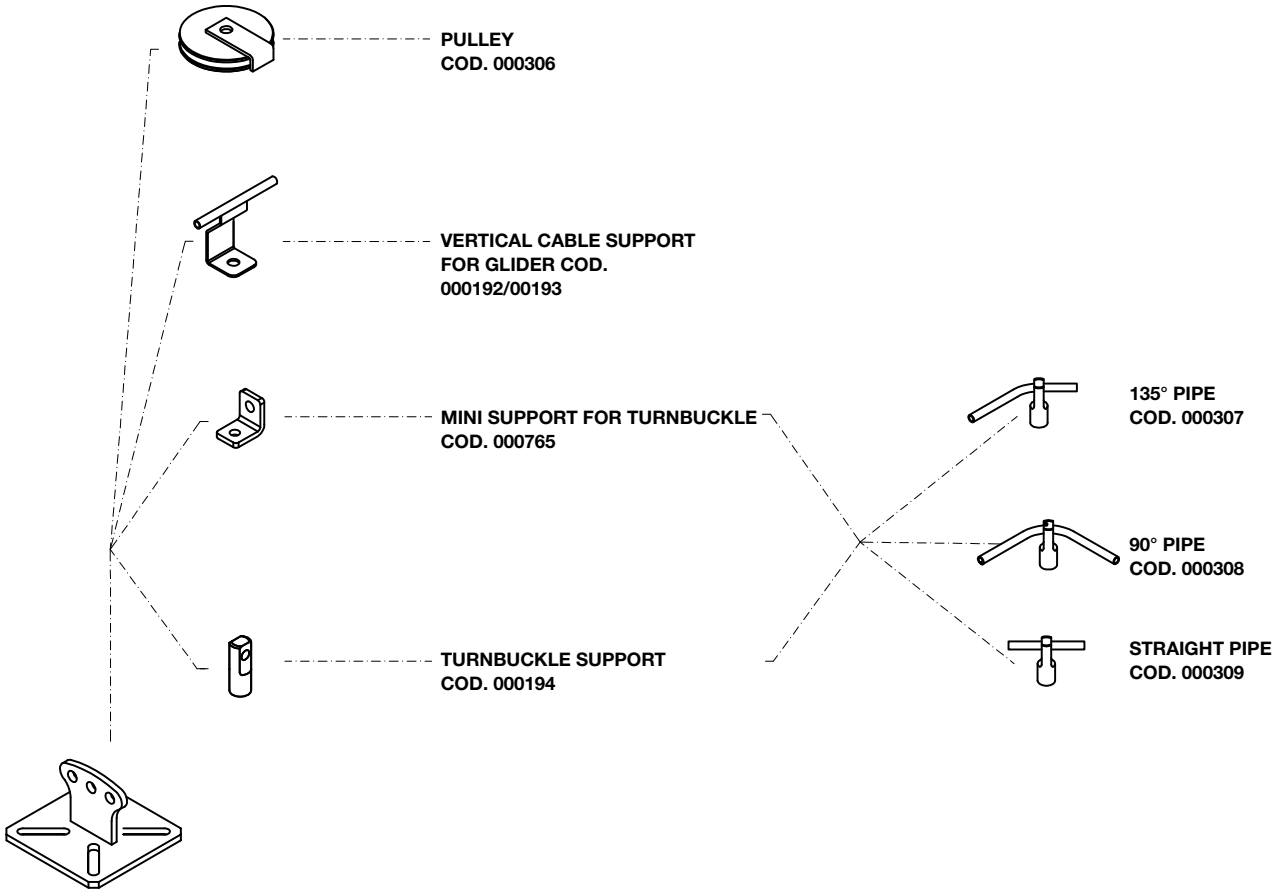


Figure 4.34 - Plate SZG/SZP/SZS/PZFS combined with:
pulley (Cod. 000306) / vertical cable support for glider (Cod. 000192/000193) / turnbuckle mini support (Cod. 000765)+ pipe / and turnbuckle support (Cod. 000194)+ pipe

4.5. INSTALLATION, USE AND MAINTENANCE OF THE GLIDER

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

- Vertical cable support for glider (Cod. 000192)
- Inclined cable support (Cod. 00193)
- Vertical cable support 90 (Cod. 001327)
- Inclined adjustable cable support (Cod. 001345)
- Adjustable vertical cable support (Cod. 001344)

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

Figure 4.35
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 4.36 - 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 4.37)

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

Figure 4.37

Figure 4.38 - 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 4.37).
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 **SHED 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 **SHED LINE** lifeline can be:

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

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.

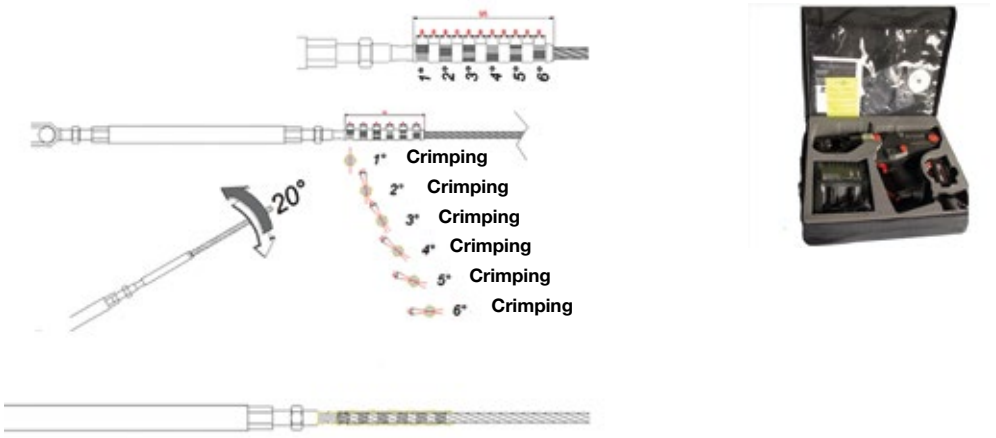


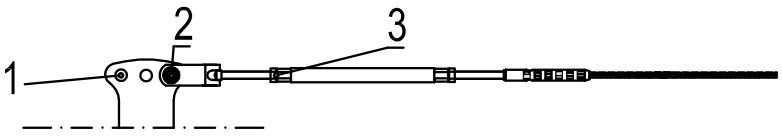
Figure 5.1 - Crimping

EXAMPLES:

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

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

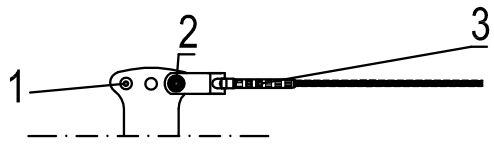
The following are a series of lifeline assembly case histories, which can be applied to coverings, walls or ceilings. When fitting on ceilings, remember to use the cable support for glider combined with the complementary glider support.



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

Figure 5.2

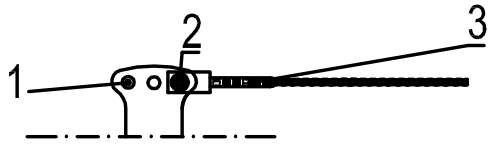
1. Fix the plate SZG (Cod. 000037/001509) / SZP (Cod. 000188/000262) / SZS (Cod. 000189/000268) (1) following the indications provided in the Chapter 3.2.
2. Fix the J/P turnbuckle (Cod. 000294) to one of the two side bores in the plate by means of one nut M12x40 + washer (2)
3. Insert the cable into the other end of the turnbuckle and crimp it (see Chapter 5)



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

Figure 5.3

1. Fix the plate SZG (Cod. 000037/001509) / SZP (Cod. 000188/000262) / SZS (Cod. 000189/000268) (1) following the indications provided in the Chapter 3.2.
2. Fix the jointed jaw terminal (Cod. 000293) to one of the two side bores in the plate by means of one nut M12x40 + washer (2)
3. Insert the cable into the other end of the terminal and crimp it (see Chapter 5)



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

Figure 5.4

1. Fix the plate SZG (Cod. 000037/001509) / SZP (Cod. 000188/000262) / SZS (Cod. 000189/000268) (1) following the indications provided in the Chapter 3.2.
2. Fix the jointed jaw terminal (Cod. 000292) to one of the two side bores in the plate by means of one nut M12x40 + washer (2)
3. Insert the cable into the other end of the terminal and crimp it (see Chapter 5)

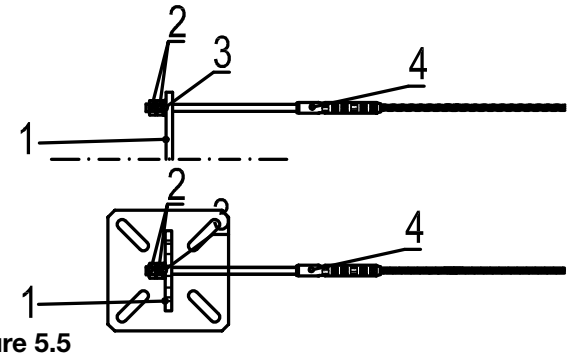


Figure 5.5

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

1. Fix the plate SZG (Cod. 000037/001509) / SZP (Cod. 000188/000262) (1) following the indications provided in the Chapter 3.2.
2. Fix the pipe terminal (Cod. 000775) to one of the two side bores in the plate by means of the bolt provided (3) using two nuts M12x40 + washer (2)
3. Insert the cable into the other end of the terminal and crimp it (4) (see Chapter 5)

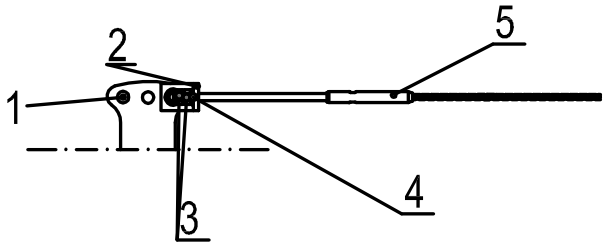


Figure 5.6

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

1. Fix the plate SZG (Cod. 000037/001509) / SZP (Cod. 000188/000262) / SZS (Cod. 000189/000268) (1) following the indications provided in the Chapter 3.2.
2. Fix a turnbuckle mini support (Cod. 000765) (2) using the bolt provided
3. Fix the pipe turnbuckle (Cod. 000775) to the turnbuckle mini support (Cod. 000765) fastening it with two nuts (2)
4. Insert the cable into the other end of the turnbuckle and press it

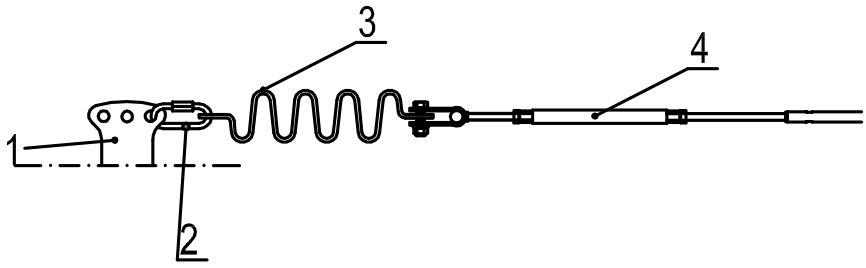


Figure 5.7

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

1. Fix the plate SZG (Cod. 000037/001509) / SZP (Cod. 000188/000262) / SZS (Cod. 000189/000268) (1) following the indications provided in the Chapter 3.2.
2. Connect a quick link to one of the two side bores in the plate (Cod. 001518/001758) (2)
3. Pass the energy absorber through the inside of the quick link (Cod. 000033) (3)
4. Fix the jaw-pipe turnbuckle (Cod. 0002945) into the other end of the energy absorber
5. Insert the cable into the other end of the turnbuckle and press it

Regarding the intermediate points it must be specified that, if the conditions of the support structure allow it, the accessories can be installed directly on the support itself.

4.2. Method 2: FITTING WITH WIRE ROPE CLIPS

a) Insert the cable into the smaller heat-shrinkable sheathing and then into the larger one, before bending the cable.
b) Position the 4 rope clips on the 8 mm diameter cable, taking care to ensure that the first rope clip is as close as possible to the thimble, so that the value of the distance between clips "e" is between 30 mm and 60 mm and in any case not less than 30 mm or greater than 60 mm (see **Figure 5.8**).
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.

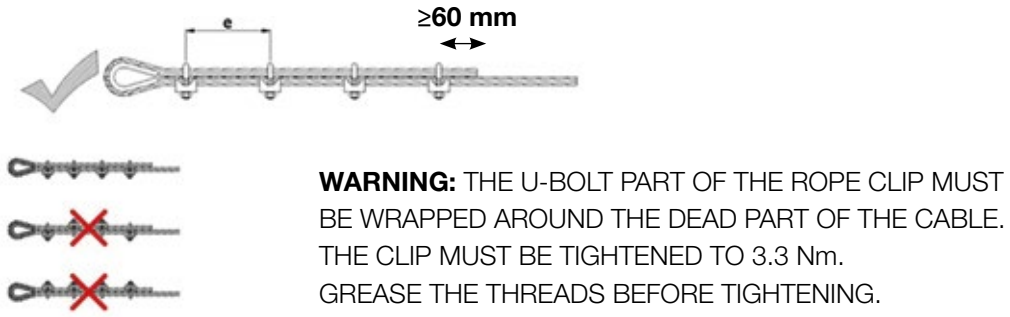


Figure 5.8 - Positioning cable with rope clips

c) Tighten the 8 nuts in the clips using a torque wrench set to 3.3 Nm (EN 14399).
d) Initial tightening of the clips must be with the cable slack and without using a torque wrench, while final tightening must be using a torque wrench and with the cable taut.
e) Tension the cable.
f) Position the wider heat shrinkable sheathing over the four rope clips and heat it until it has shrunk completely into place (see **Figure 5.9**).

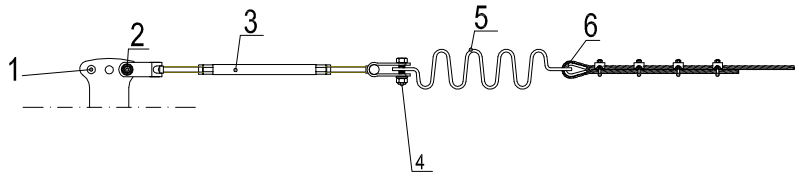
Figure 5.9 - Heating the sheathing

	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.

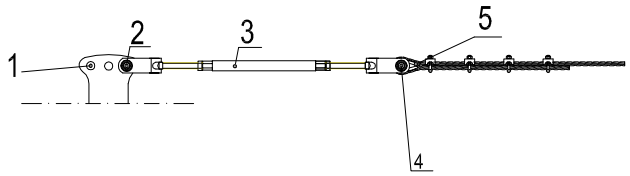
WITHOUT QUICK LINK



UNI 11578:2015

Figure 5.10

1. Install the plate SZG (Cod. 000037/001509) / SZP (Cod. 000188/000262) / SZS (Cod. 000189/000268) (1) following the fastening indications Chapter 3.2.
2. Fix the J/J turnbuckle (Cod. 000032) (3) to the plate using an M12x120 bolt + washer (2)
3. Connect the opposite end of the turnbuckle (2) to the energy absorber (Cod. 000033) (5) using a bolt M12x120 (4)
4. Insert a thimble into the bore at the other end of the energy absorber, and pass the cable through the thimble
5. Fix the cable with 4 rope clips



UNI 11578:2015

Figure 5.11

1. Install the plate SZG (Cod. 000037/001509) / SZP (Cod. 000188/000262) / SZS (Cod. 000189/000268) (1) following the indications provided by the engineer in the special sheet attached to the Calculation Report
2. Fix the J/J turnbuckle (Cod. 000032) (3) to the plate using an M12x120 bolt + washer (2)
3. Connect the opposite end of the turnbuckle (2) to a thimble (5) and pass the cable through it
4. Fix the cable with 4 rope clips

INCORRECT INSTALLATION

MORTAL DANGER

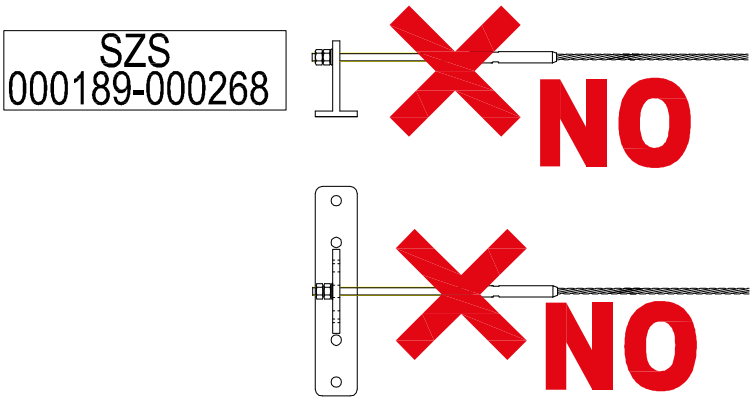
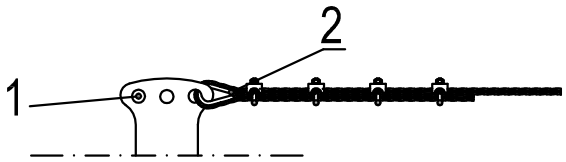


Figure 5.12

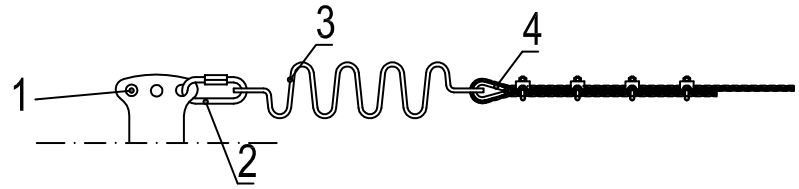


UNI 11578:2015

Figure 5.13

1.Install the plate SZG (Cod. 000037/001509) / SZP (Cod. 000188/000262) / SZS (Cod. 000189/000268) (1) following the indications provided by the engineer in the special sheet attached to the Calculation Report
2.Insert a thimble into the bore in the SHED LINE plate and pass the cable through it
3.Fix the cable with 4 rope clips

WITH QUICK LINK



UNI 11578:2015

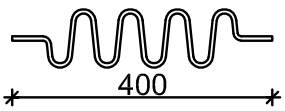
Figure 5.14

1.Install the plate SZG (Cod. 000037/001509) / SZP (Cod. 000188/000262) / SZS (Cod. 000189/000268) (1) following the indications provided by the engineer in the special sheet attached to the Calculation Report
2.Insert the quick link into the bore on the SHED LINE plate
3.Insert one end of the energy absorber (Cod. 000033) (3) into the quick link (Cod. 0001518/001758) and close it
4.Insert the thimble (4) onto the opposite end of the energy absorber
5.Pass the cable through the thimble and fix it with 4 rope clips

5.Complete installation of the lifeline by turning the turnbuckle (Cod. 000775 or 000032 or 000294) 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 5.15**).
- 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 (405-1410mm) ±0.5 cm (5 mm)

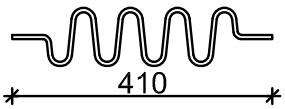


Figure 5.15

If the absorber exceeds 45 cm (450 mm) in length, it must be replaced.
For straight lifelines (no curves) and/or straight lifelines on the horizontal axis with a line length exceeding 60 m it is possible not to use the energy absorber, while it is compulsory to do so in all other cases.
For special and complex lay-outs it is recommended that you contact the Sicurpal technical department.

6.Positioning the turnbuckle seal

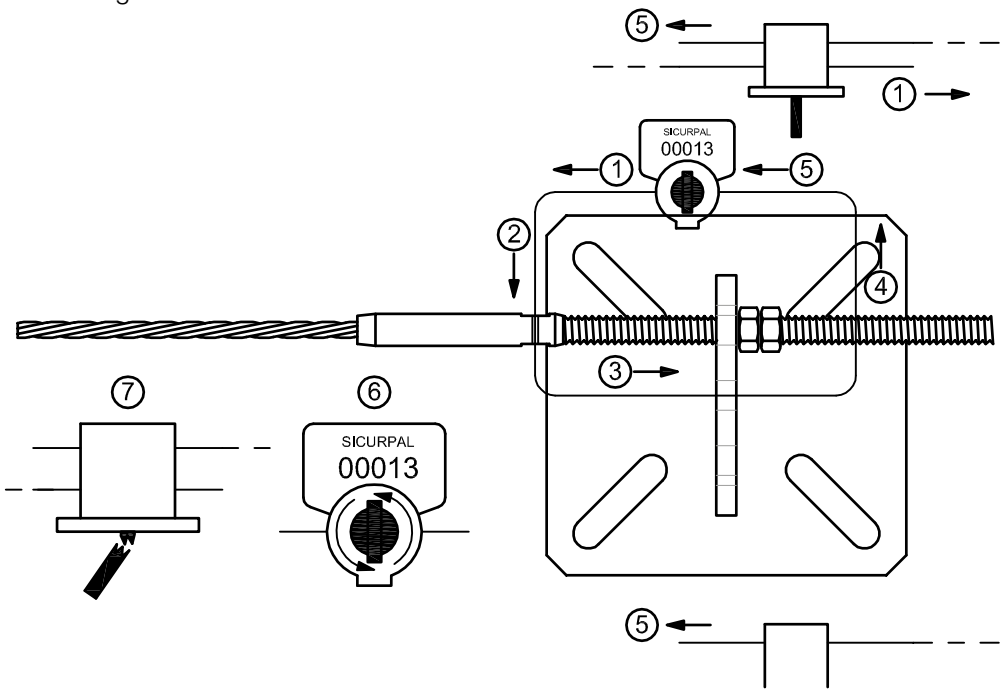


Figure 5.16

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
Cod. 000032
Cod. 000294 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 wire up to the seal
5.Insert the wire into the remaining bore in the safety seal, pulling it tight.
6.After tightening the metal wire, turn the locking device in the seal and eliminate the excess wire.
7.Seal the whole by breaking the locking device grip.

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

5.1. SHED PLATES WITH OTHER LINES (case histories)

The **SHED LINE** range of plates can be combined with devices from other **SICURPAL** lines to create the lifelines. They can be used as end or intermediate devices for all lifelines, with the exception of the PTV lifeline.
The following are some examples:

a) SHED PLATE + PBS/PBSC DEVICE

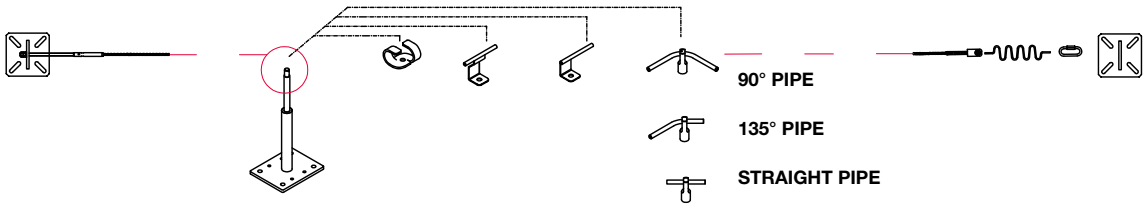


Figure 5.17 - SHED LINE plate (Cod. 000037/001509, Cod. 000188/000262, Cod. 000189/000268, Cod. 000230/001510, Cod. 000232/001236) + PBS/PBSC device (Cod. 000004/Cod. 000137)

b) PLATE SHED + PTV DEVICE

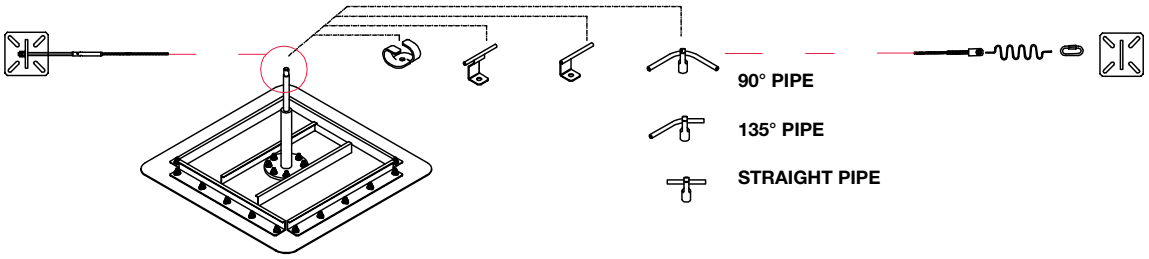


Figure 5.18 - SHED LINE plate (Cod. 000037/001509, Cod. 000188/000262, Cod. 000189/000268, Cod. 000230/001510, Cod. 000232/001236) + PTV device Cod. 001774 and accessories

⚠	**Do not use the PTV post as an end device if it is combined with SHED LINE plates**

c) SHED PLATE + SICURLAM PLATE

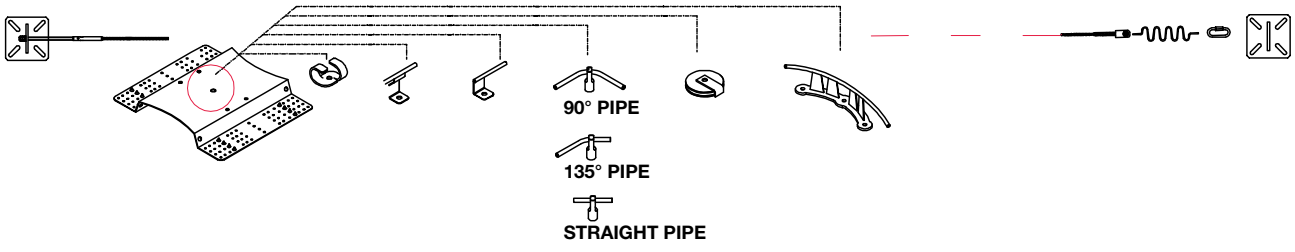


Figure 5.19 - SHED LINE plate (Cod. 000037/001509, Cod. 000188/000262, Cod. 000189/000268/, Cod. 000230/001510, Cod. 000232/001236) + SICURLAM plate Cod. 001517/MULTILAM Cod. 000784/000785/000786 and accessories

d) SHED PLATE + PTS/PTM/PTL DEVICE

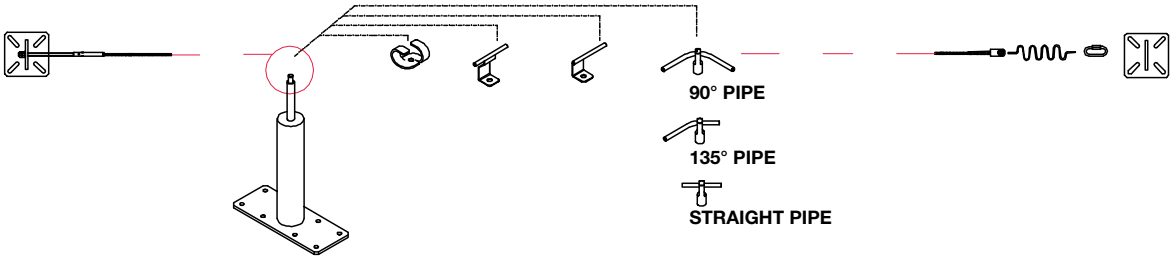


Figure 5.20 - SHED LINE plate (Cod. 000037/001509, Cod. 000188/000262, Cod. 000189/000268, Cod. 000230/001510, Cod. 000232/001236) + PTS/PTM/PTL device (Cod. 001477 / Cod. 001478 / Cod. 001479) and accessories

e) SHED PLATE + ECONOMY LINE DEVICE

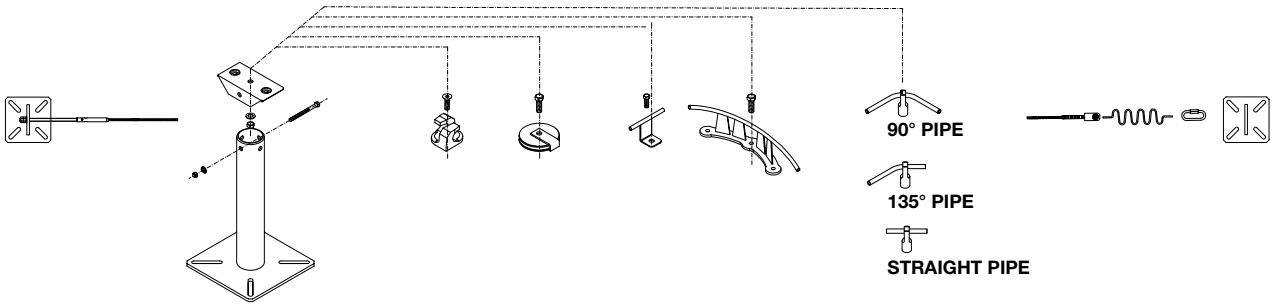


Figure 5.21 - SHED LINE plate (Cod. 000037/001509, Cod. 000188/000262, Cod. 000189/000268, Cod. 000230/001510, Cod. 000232/001236) + ECONOMY LINE devices and accessories

f) SHED PLATE + LVB/LVBD DEVICE

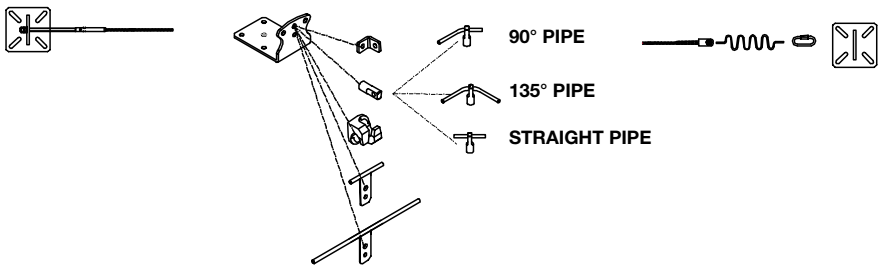


Figure 5.22 - SHED LINE plate (Cod. 000037/001509, Cod. 000188/000262, Cod. 000189/000268, Cod. 000230/001510, Cod. 000232/001236) + LVB/LVBD devices and accessories

6. USE OF FALL PREVENTION SYSTEMS

The **SICURPAL SHED 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) (Regulation UE 425/2016).

6.1. RETENTION SYSTEMS

A retention system is a personal fall protection system that prevents the worker from reaching areas in which there is a risk of falling from a height.

Table of deflections in the case of retention and/or positioning of a 70 kg operator

MAX SPAN Length (m)	1 SPAN		2 SPANS		4 SPANS		6 SPANS		
	WEIGHT [kN]	DEFLECTION [m]	WEIGHT [kN]	DEFLECTION [m]	WEIGHT [kN]	DEFLECTION [m]	WEIGHT [kN]	DEFLECTION [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 **SHED 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]	DEFLECTION [m]	WEIGHT [kN]	DEFLECTION [m]	WEIGHT [kN]	DEFLECTION [m]	WEIGHT [kN]	DEFLECTION [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]	DEFLECTION [m]	WEIGHT [kN]	DEFLECTION [m]	WEIGHT [kN]	DEFLECTION [m]	WEIGHT [kN]	DEFLECTION [m]	
5	5.00		10.00		20.00		30.00		Total length of line (m)
	12.3	0.84	11.66	0.87	10.74	0.9	10.29	0.94	
10	10.00		20.00		40.00		60.00		Total length of line (m)
	13.68	1.2	12.42	1.26	10.71	1.35	9.97	1.44	
20	20.00		40.00		80.00		120.00		Total length of line (m)
	14.86	1.76	12.13	1.9	9.88	2.12	8.77	2.29	

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											
		SZG		SZP		SZS		PZFG		PZFP		PZFS	
Net weight	**[Kg]**	Stainless steel	Galva-nised	Stainless steel	Galva-nised	Stainless steel	Galva-nised	Stainless steel	Galva-nised	Stainless steel	Galva-nised	Stain-less steel	
		7.21	7.48	2.86	3.00	2.04	2.09	6.47	6.61	2.22	2.25	1.79	
Product height [mm]	**[mm]**	110						10				70	
Anchor plate dimensions	**[mm]**	300x300		180x180		300x60		300x300		180x180		360x60	
Number of structural anchor bores	**n°**	4 slots				4 bores		4 slots				2 slots	
Material used	**n°**	SS235 HOT GALVANISED											
		AISI 304 STAINLESS STEEL											
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

Sicurpal	Manufacturer's name and identification mark
EN 795/2012 **CEN/TS 16415/2013** **UNI 11578/2015**	Certification standards
SZS	Name of anchorage device
J 01152	Production batch number
1X	Max. No. operators allowed
Cod. 00189	Product identification code
	Read the instructions in the manual

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

9. INSPECTION AND MAINTENANCE SCHEDULE

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

9.1. INSPECTION ON FITTING

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

SICURPAL, as the manufacturer, prescribes the following operations:

- Verification, prior to installation, of the expiry date of chemical anchoring agents, if use of these agents is foreseen;
- After installation, carry out a traction test, preferably in the direction of the lifeline, on the end devices or on devices forming a curve/crossing (the **SHED LINE** devices must be pulled in the directions indicated by the arrows in Figure 9.1). This test serves to verify that the anchorage and the support structure. After this test, the device **must not** have suffered any deformation.

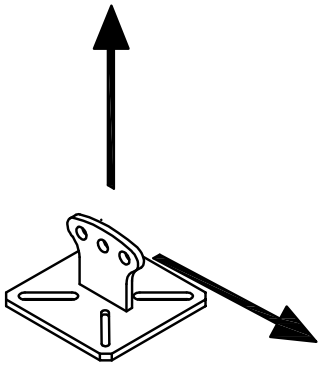


Figure 9.1

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.
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 **SHED 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

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

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

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

10.4. EARTHING

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

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

11. MANUFACTURER'S NOTE

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

A) The **SHED 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 **SHED 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 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 = 9.42 kN in a horizontal direction parallel to the roof and in any direction. Furthermore, a maximum moment at fixed end of ft x hpost =4.39 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 ft = 12.96 kN in a horizontal direction parallel to the roof and in any direction. Furthermore, a maximum moment at fixed end of ft x hdevice=1.35 kNm is generated at the base of the anchorage device, in the operator angle of fall (valid for **2 (two) operators** hooked to the device – **UNI EN 16415:2013**).
The maximum load transmittable by the **Type C** anchorage device is ft = 12.44 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 ft x hdevice =6.22 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 ft = 14.10 kN in a horizontal direction parallel to the roof and in the direction of the cable. Furthermore, a maximum moment at fixed end of ft x hdevice =1.55 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 movement of the **SHED LINE** anchorage point is 29.1°.
The maximum deflection of the Type C **SHED 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°/135°/180° are not foreseen.
ii) The Type C **SHED 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 SHED 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 **SHED LINE** devices are not supplied with fall indicator included.

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