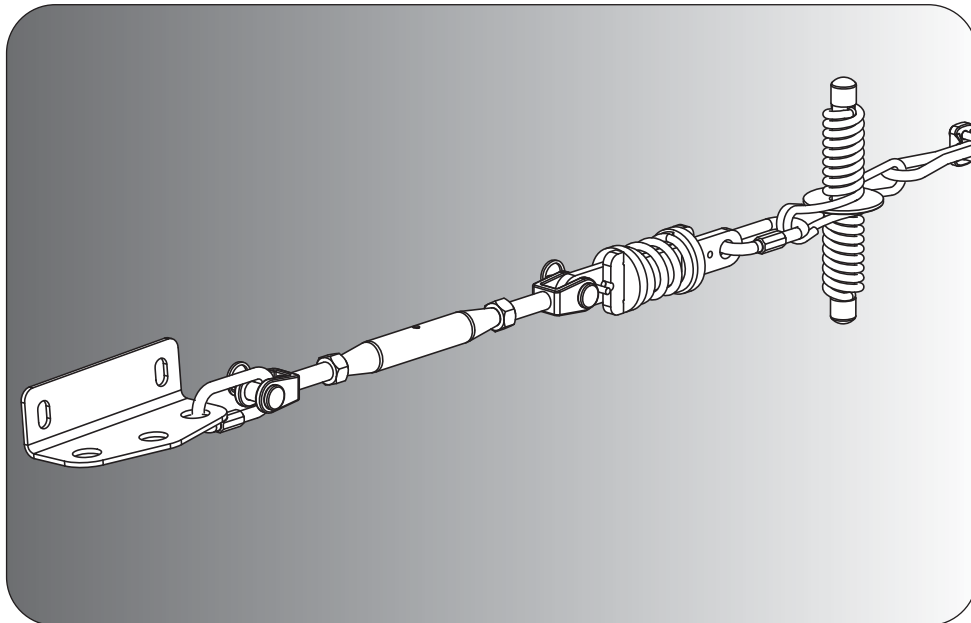


# travspring™ - EN 795 Class C

English GB

**Single cable wall or ground horizontal lifeline**  
**Single cable horizontal lifeline on posts**  
(Anchoring device equipped with flexible horizontal retaining cable)

**Installation, operating and maintenance manual**



 **Tractel** Group®

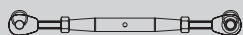
## Sommaire

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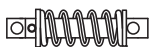
A - End anchor



B - Tensioner



C - Tension indicator



D - Shock absorber



E - Intermediary anchor



F - Information plate



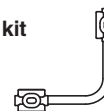
G - Steel cable



H - Cable grip



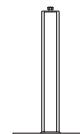
I - Angular securing point kit



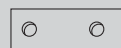
J - Fast link connector



K - Steel fixing post



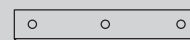
L - End anchor for fixing post



M - Fixing post flange



N - Angle fixing post plate



P - Corner post

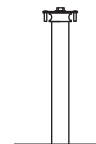


Fig 1

Ground installation drawing

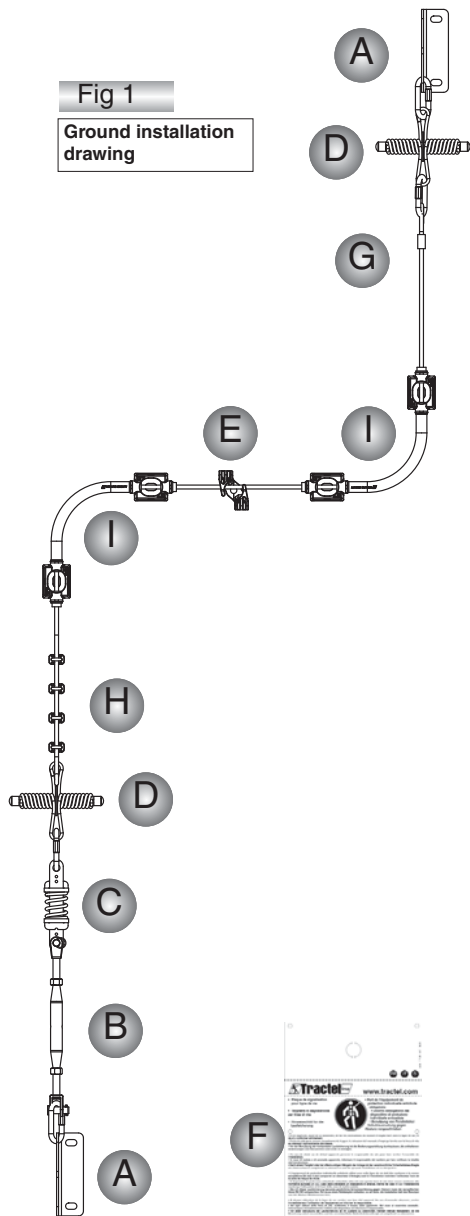
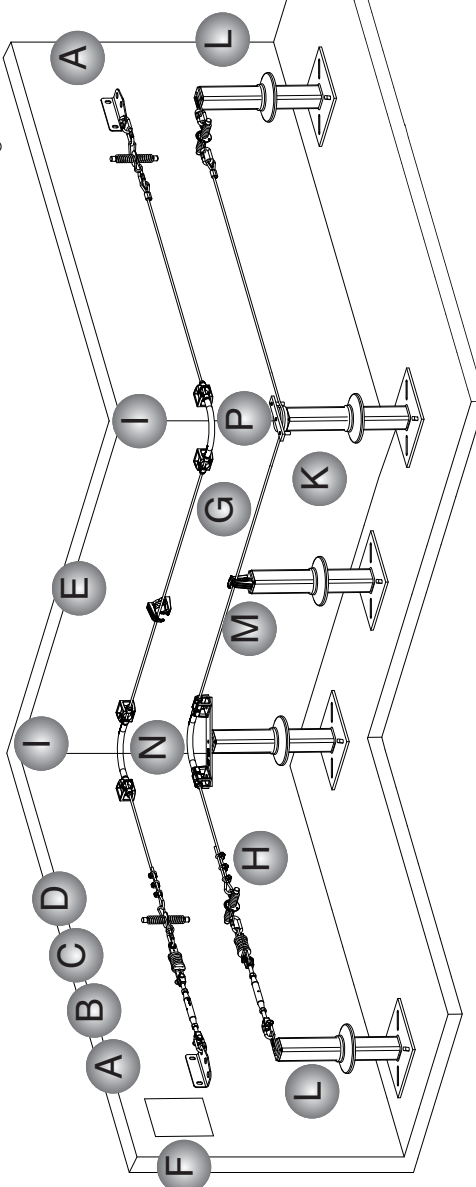


Fig 2



**Foreword:** All of the instructions in this manual refer to a horizontal lifeline equipped with a flexible retaining cable. All of the instructions mentioning PPE (Individual Protection Equipment) refer to an PPE against falls from height.

## 1 Priority recommendations

1) The purpose of the TRAVSPRING™ lifeline is to control serious risks of people falling. Consequently it is essential, for safe installation and use of the equipment, that you read this manual closely and comply strictly with the instructions provided both before and during installation and use of the lifeline.

2) This manual should be entrusted to the person responsible for the lifeline and be kept available to all users or installers. Extra copies can be obtained from Tractel® SAS, on request.

3) The use of the TRAVSPRING™ lifeline involves the association and connection of personal protection equipment (PPE), fall prevention devices including at the very least a complete fall prevention harness, linking and connection mechanisms for each user. The complete assembly must constitute a system that can prevent or stop any fall from height within conditions that comply with the relevant regulations and safety standards.

4) If the lifeline is destined to carry fall prevention systems, these systems must have an energy absorber element in compliance with the EN 363 Standard. If the lifeline is destined exclusively to act as preventive equipment against falls from height (support while working), keeping the user out of areas where there is a risk of falling, then the energy absorber is not required.

5) The information plate (see Chapter 7), installation of which is mandatory, must be kept completely visible throughout the use of the lifeline. Extra copies can be obtained from Tractel® SAS, on request.

6) Every person using a TRAVSPRING™ lifeline should meet the conditions of physical and professional aptitude for working at height. In case of doubt, contact your physician or the occupational health physician. Use of this equipment is prohibited for pregnant women. All persons using this equipment should have received prior training, in safe conditions, covering both theory and practical, and associating PPE in compliance with safety requirements. This training should include comprehensive information on the chapters of this user manual.

7) **As every operation of the lifeline is specific to the moment, any installation of a TRAVSPRING™ lifeline should be preceded by a specific technical study** for its location, to be carried out by an appropriate specialist technician, including the calculations, according to the installation Specifications and this manual. This study must take into account the configuration of the site and more especially check the appropriateness and mechanical resistance of the structure to which the TRAVSPRING™ lifeline will be secured. It must be translated into a technical file that can be used by the installer.

8) Installation of the lifeline should be carried out using appropriate resources, and in safety conditions that totally control any risk of falling for the installer because of the layout of the site.

9) The operation, maintenance and management of the TRAVSPRING™ lifeline should be placed under the responsibility of people who know the safety regulations and the standards that apply to this kind of equipment and the accessories associated with

it. Every responsible person must have read and understood this manual. The initial commissioning should be the subject of verification by an appropriate person, for installation conformity with the prior study file and this manual.

10) The person responsible for the operation of the lifeline should check and ensure the constant conformity of this lifeline, and that of the associated PPE, with the safety requirements, rules and Standards that apply. They should ensure the compatibility of the associated PPE, both between each item and with the lifeline.

11) The lifeline and the equipment associated with it should never be used unless they are in obvious good state. In the event that a visual inspection should reveal a defect, or if there is any doubt as to the condition of the lifeline, it MUST be remedied before the lifeline is used. A periodical inspection of the TRAVSPRING™ lifeline and the associated PPE should be organized at least once a year, as indicated in chapter 9, under the supervision of a person that has been trained for this purpose. This training can be provided by Tractel® SAS. This inspection must be carried out in compliance with Directive 89/656/CEE and the instructions provided in this manual.

12) Before each usage sequence, the user should carry out a visual inspection of the lifeline in order to ensure that it is in good condition for use, that the associated PPE are also in good repair and that they are compatible, correctly in place and connected.

13) The lifeline should only be used for fall prevention, as specified in this manual. Any other usage is strictly prohibited. **More especially, it should never be used as a suspension system.** It should never be used by more than five users at a time, and never be subjected to an effort higher than that specified herein.

14) It is prohibited to repair or modify parts of the Travspring lifeline or to use parts that are not supplied or recommended by Tractel® SAS. The dismantling of the TRAVSPRING™ lifeline can present a high risk of bodily or material harm (lash-back). This dismantling must only be carried out by a technician that knows how to handle the risk of dismantling a tensioned cable.

15) Tractel® SAS declines all responsibility for the assembly of the TRAVSPRING™ lifeline, if this is done without its supervision.

16) When any point of the TRAVSPRING™ lifeline has been put under strain by a user falling, the entire lifeline, and more especially the anchors, seals and securing points located in the fall zone, as well as any PPE involved in the fall must ALWAYS be verified before being returned to service. This verification should be carried out in compliance with the instructions given in this manual, and by a person qualified for this act. Disposable components or items should be thrown away and replaced in compliance with the instruction manuals that come with these components and/or items.

17) For user safety, if the product is sold outside the initial country for which it was intended, the reseller must supply: operating and servicing instructions for periodic inspections and repairs, drawn up in the language of the product user country.

## 2 Presentation

The TRAVSPRING™ lifeline is a permanent mobile anchoring device including a horizontal single cable retaining cable, enabling it to be installed in a particularly easy manner. It is manufactured and tested in compliance with the EN 795 class C standard to receive up to five mobile anchors made up of steel connectors, compliant with the EN 362 Standard (Tractel® reference: M 10). An item of Personal Protection Equipment (PPE) against falls from height can be attached to each of these connectors, in compliance with European Directive 89/686/CEE and the corresponding standards. All of the metal parts of the TRAVSPRING™ lifeline comply with the requirements of the EN 362 Standard, chapter 4.4, against rust.

**IMPORTANT:** The TRAVSPRING™ lifeline is a proximity lifeline, i.e. it should be installed, from one end to the other, within reach of the user, so that he/she can manually maneuver their mobile securing connector in order to cross intermediary securing points or angular securing points if there are any (using a dual lanyard). This constraint does not exist if the lifeline has no intermediary or angular securing points (length less than fifteen meters).

**Comment:** Horizontal lifelines are not subject to CE marking, nor as a consequence to the corresponding certification procedures. Nevertheless, Tractel® SAS offers a certification of conformity with the EN 795 Class C , No. 2417977 / 2417982 / 2962302 Standard, delivered by the Lyon APAVE with the TRAVSPRING™ lifeline. The PPE associated with the TRAVSPRING™ lifeline must always carry the CE mark.

The maximum force to be applied to each terminal or intermediate structural anchor must not exceed 1300 daN. These parts have a tensile strength of 2600 daN. For turn anchors, the maximum force to be applied must not exceed 1400 daN; the minimum tensile strength is 2800 daN whatever the number of anchors and the length of the lifeline.

## 3 Description

The TRAVSPRING™ lifeline provided by Tractel® SAS is made up of the following components arranged as shown in figures 1 and 2 (page 3) showing a typical installation, modular in relation to the requirements of the site to be equipped (wall, floor or fixing post mounting).

- Two end anchors (A) (wall ground version),
- A cable tensioner with a load capacity of 55kN and a travel capacity of 100mm (B) with a pin for making fast at each end, secured by a spring ring split pin.
- A tension indicator (C),
- One or several shock absorbers (D),
- A stainless steel or galvanized 8mm diameter cable (G), making up the retaining cable. This cable has a sleeved buckle at one end, equipped with a heart shaped thimble, the other end being brazed and ground smooth. Its length depends on the length of lifeline to be assembled.
- One or more intermediary securing points (E), the number varying with the length of the lifeline, should this exceed fifteen meters,
- Two connectors (J) for a lifeline with just one shock absorber (for a single user) and an additional connector for each additional shock absorber. N.B. The Travspring lifeline is delivered without PPE connectors.

- Three cable clamps (H) to form a loop on the brazed end of the cable,
- One or more information plates (F), depending on the number of access locations to be set on the lifeline,
- One or more 90° angular securing points (I),
- One or more fixing posts (K) (fixing post version),
- One or two end anchors for fixing posts (L) (fixing post version),
- One or more fixing posts angle plates (N) (fixing post version),
- One sealing flange per fixing post (M) (fixing post version),
- One or several corner posts (P) (post version),

In the event that the cable has to pass one or more angles on the supporting structure, the equipment will also include the required number of angular securing points, the components of which can be assembled to suit various types of application: interior wall angle, exterior wall angle, ground angle and angle on fixing post. The four ways of assembling the sub-assembly for these four cases of use are illustrated in figures 1 and 2 (page 3). **In these cases, each user should use two lanyards or a dual lanyard to circumnavigate angles, which requires an additional connector for each user working at the same time.**

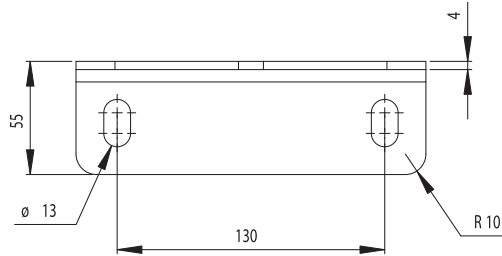
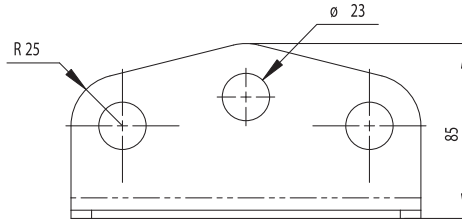
**N.B:** The connection of each PPE onto the lifeline cable must be carried out using a steel, type M10 karabiner, not provided by Tractel® SAS with the lifeline.

**Important:** The TRAVSPRING™ lifeline is delivered without screws or dowel pins for securing it to the supporting structure. The technical specifications for the means of securing the lifeline to the hoist structure depend on the type and the specifications of the said structure. These means must be defined by the essential prior study, including the analysis of the supporting structure, the determination of its mechanical resistance and the corresponding calculation result. The selected securing means, (screws, dowel pins, etc.) must be placed in conformity with the instruction manuals delivered by the manufacturers of these securing mechanisms.

**End anchor**

The end anchors are designed to be attached to the supporting structure with two screws or bolts (specifications to be set by prior study) through the holes shown on the adjoining drawing.

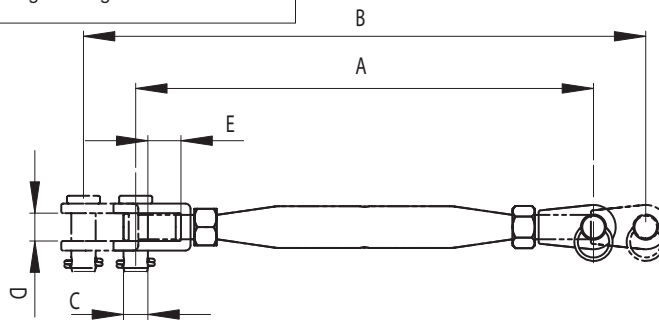
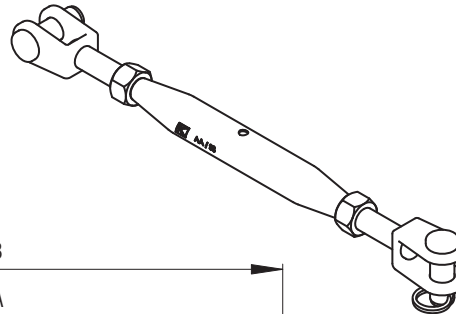
Material: Stainless steel  
Size: 170 x 104 x 84 mm  
Centre distance: 130 mm  
Net Weight: 580 g



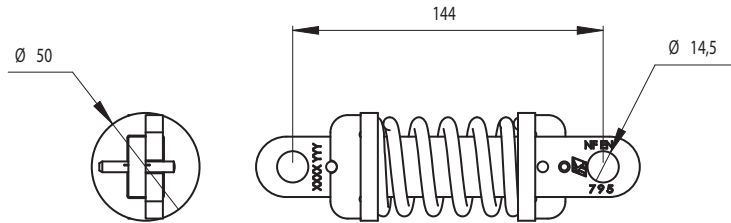
**Tensioner**

The tensioner enables adjustment of the cable tension to the required value.

Material: Stainless steel  
Resistance: 55 kN  
Net Weight: 580 g



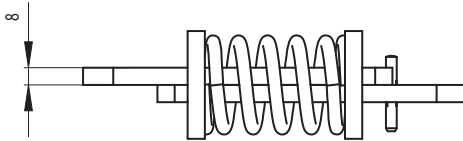
A = 270 mm  
B = 400 mm  
ØC = Ø12 mm  
D = 14 mm  
E = 19 mm



**Tension indicator**

The tension indicator enables to check that the cable pre-stress is at 100 daN by simply aligning a hole and a notch. Correct cable tension ensures correct operation of all the lifeline components in the event of a fall.

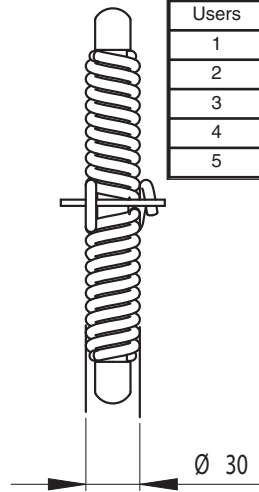
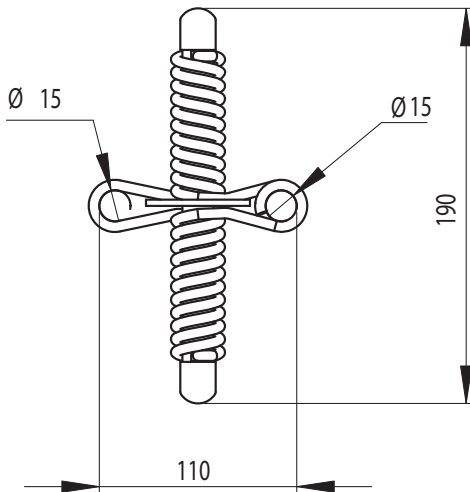
Material: Stainless steel  
 Size: 144 x 50 mm  
 Resistance: 55 kN  
 Net Weight: 900 g



**Shock absorber (French INRS patent)**

The shock absorber is designed to dissipate the energy transmitted to the supporting structure by the fall of a user connected to the lifeline. It is disposable (used once). It does not negate the necessity of equipping every user with a fall prevention device. Every shock absorber comes with a quick link.

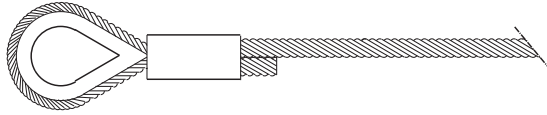
Material: Stainless steel  
 Size: 190 x 110 mm  
 Resistance: 30 kN  
 Net Weight: 400 g



Users	Shock absorbers
1	1
2	1
3	1
4	2
5	2

### The Cable

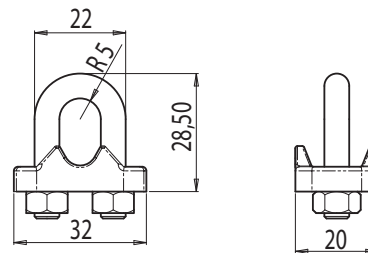
This makes up the retaining cable. It is sleeved, looped and fitted with a thimble at one end, and the other end is brazed and ground smooth in the factory. It is available in stainless steel or galvanized. The cable comes with 3 cable clamps and a quick link.



### Cable clamp

The cable clamps are delivered in threes with nuts. They are used to make fast the free end of the cable to the shock absorber. Assembly, see Fig. 13.

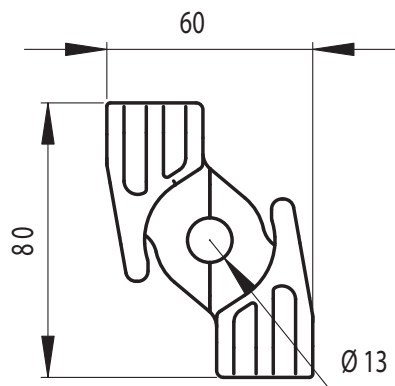
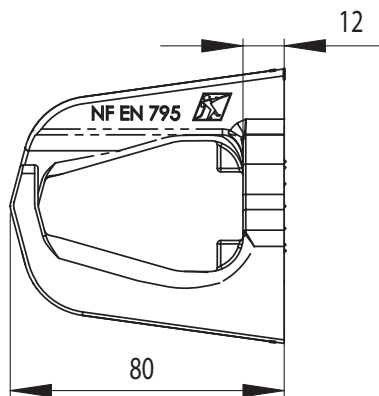
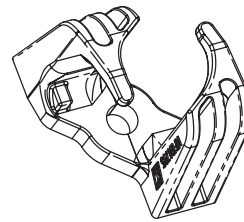
Material: Stainless steel  
Net Weight: 70 g



### Intermediary anchor

From an original design, the TRAVSPRING™ intermediary anchor enables each user to cross over the connector for their PPE without having to unhook the lifeline. Intermediary securing points must be placed in sufficient numbers so that any space between anchors from one end of the lifeline to the other does not exceed fifteen meters.

Material: Stainless steel  
Resistance: 12 kN  
Net Weight: 510 g

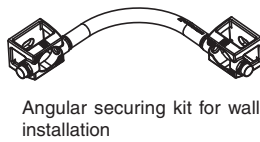
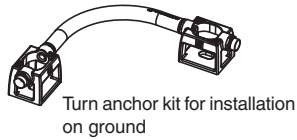
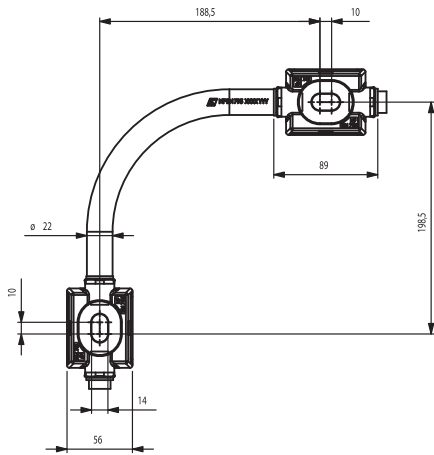




**Angular securing point kit**

This sub-assembly is only used when the path of a lifeline includes 90° angles. Each angle circumnavigating sub-assembly plays the part of an intermediary securing point. It is delivered unassembled in order to allow the installer to assemble it in one of three ways: internal or external angle on vertical or sloped structural plane, or angle on horizontal structural plane.

Material: Stainless steel. Net Weight: 1.2 kg

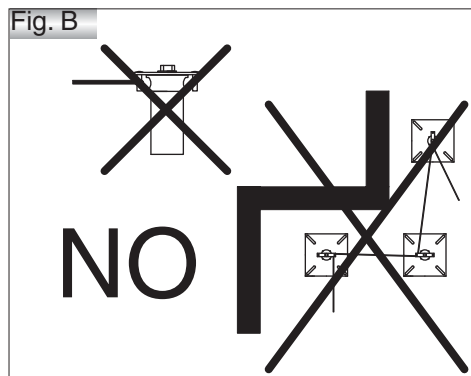
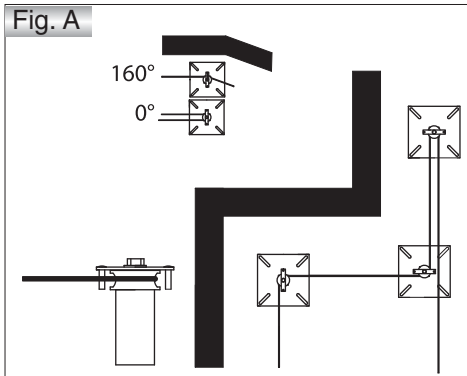
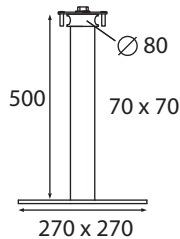


Information plate (see page 21)

**Corner post**

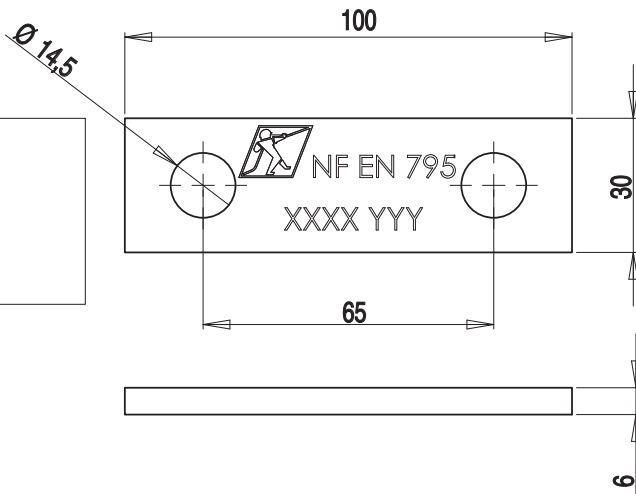
The travspring™ corner post is designed for a terrace-type installation on a concrete or metal support. The post is built to receive the travspring™ lifeline cable and to direct the cable over an angle of 0° to 160° (see Fig. A, page 9). This post must only be used with a Travspring™ lifeline mounted on post, and only as an intermediate anchor point.

- Material: galvanized steel post
- Pulley: Aluminum bronze stainless steel
- Tensile strength > 60 kN
- Net weight: 15 kg
- Supplied assembled



**End anchor for fixing post**

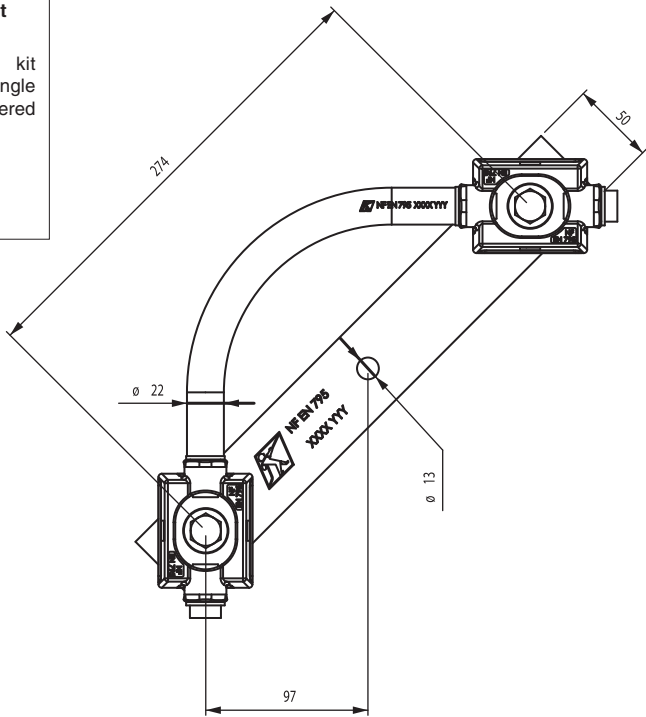
Material: Stainless steel  
 Size: 100 x 30 x 4 mm  
 Centre distance: 65 mm  
 Net Weight: 580 g



**Plate for angle securing kit**

Angular securing point kit equipped with a plate for angle fixing post. The plate is delivered with 2 bolts and 4 washers.

Material: Stainless steel  
 Net Weight: 1.2 kg



### Standard fixing post

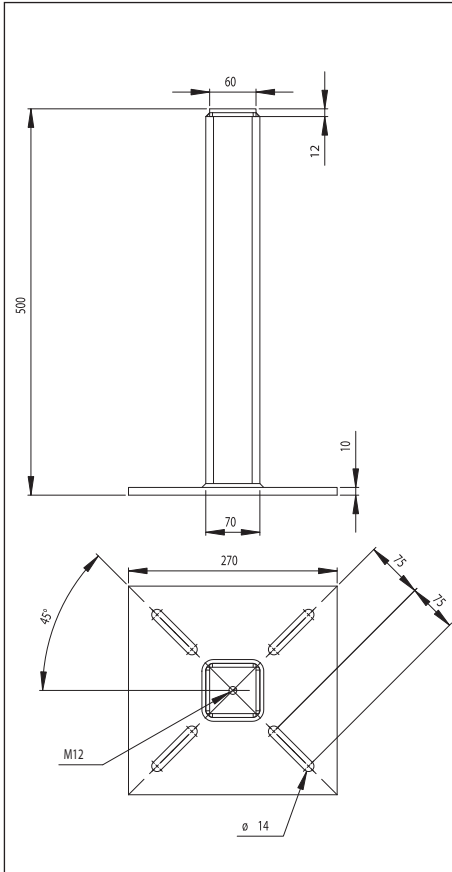
Material: Galvanized steel  
Shear resistance > 30 kN  
Net Weight: 11 kg

#### Supplied with:

- 1 Ø 12 mm washer
- 1 Ø 12 x 30 mm screw

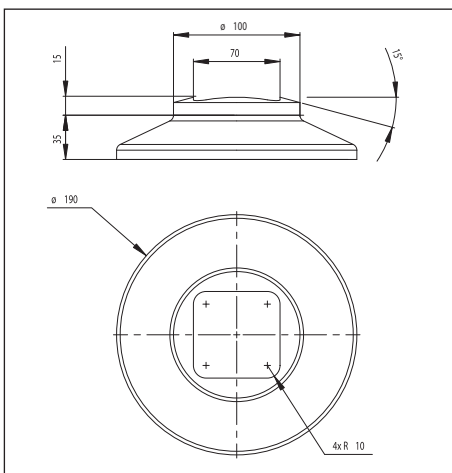
#### fixing posts

The Standard fixing posts are designed for terrace type assembly on a concrete or metal support. They enable direct hooking up of the end anchors, intermediary securing points and anchor rings.



### Adjustable flange

Material: Polymer  
Net Weight: 340 g



## 4 Associated equipment

The TRAVSPRING™ lifeline can only ensure its fall prevention safety role if it is used in association with Personal Protection Equipment (PPE) connected to it. It can take up to five PPE at the same time. The PPE used with the lifeline must be CE certified, manufactured in compliance with the Directive 89/686/CEE, and used in compliance with Directive 89/656/CEE. Tractel® SAS distributes a range of PPE that complies with the application of these directives and that is compatible with the TRAVSPRING™ lifeline.

## 5 Prior study

**A prior study** by a specialist technician, especially in the resistance of materials, **is essential prior to any use of the lifeline.** This study should be based on a calculation report and take into account the appropriate regulations, standards and good practices as well as this manual, both for the lifelines and the PPE used with them. This manual should therefore be handed over to the technician or design office responsible for carrying out the prior study.

The technician or design office should study the risks to be covered by the installation, in accordance with the site configuration and the activity to be protected by the TRAVSPRING™ lifeline against the risk of falls from height. In view of these risks, it should:

- define the operation limits in such a way as to exclude any permanent deformation of the structure in the event of a simultaneous fall by all the users scheduled, as well as all the risk of user injuries due to surrounding elements in the event of a fall.
- define the securing method (type, size, material) for the TRAVSPRING™ lifeline onto the supporting structure, directly or by means of an interface if necessary. The TRAVSPRING™ lifeline can be attached directly onto a load bearing surface or onto a fixing post (in the case of a horizontal plane).
- check the mechanical resistance of the structure to which the lifeline should be affixed, for all of the securing points, and the compatibility of the structure with the TRAVSPRING™ lifeline and its function,
- as a consequence define the location of the securing points in the structure, necessary in relation to the calculated reaction (intensity and direction),
- define the PPE to be used in such a way as to ensure compliance with the regulations and their compatibility with the TRAVSPRING™ lifeline, taking into account the configuration of the site, and the draught required at all points of the usage area. For the calculation of clearance, you should take into account the vertical deflection of the retaining cable at the points that could be affected by the fall of the user(s), in all possible scenarios.
- draw up a description of the area of the site to be covered by the installation, and a description of the TRAVSPRING™ lifeline installation to be set up with all of its components, as well as a layout drawing, in relation to the site layout and the path to be used by users, if necessary taking into account the intermediary interface elements between the lifeline and the structure.

The layout drawing will include the access and connection zones to the lifeline, that are exempt from any risk of falls from height.

The prior study should take into account, if necessary, the presence of electrical equipment near to the lifeline installation, to protect the user from this equipment.

This prior study should be recorded in a technical file including a copy of this manual; a file which will be submitted to the installer with all of the instructions required for its implementation. This file should be created, even if the prior study is carried out by the installer.

Any change in the layout of the area covered by the TRAVSPRING™ lifeline, that might have an influence on safety or operation should lead to a revision of the prior study before operation of the lifeline continues. Any modification to the installation should be made by a technician that is qualified to a level enabling installation of a new lifeline.

Tractel® SAS is at your disposal to draw up the prior study required for the installation of your TRAVSPRING™ lifeline, and to study any special installation of the TRAVSPRING™ lifeline. Tractel® SAS can also provide you with the PPE required against falls from height, and assist you on the subject of installations in-situ or installation projects.

## 6 Installation

The installer, and the site manager, if this is not the installer, should procure a copy of this manual and the prior study, and check that these deal with all of the aforementioned points.

More specifically, they should ensure that this study has taken into account the regulations and standards applicable to both PPE and lifelines.

The TRAVSPRING™ lifeline should be installed in compliance with the prior study submitted to the installer. Furthermore it should be preceded by a visual examination of the site by the installer, who will check that the site layout complies with that taken into account by the study, if the installer is not itself the author. The installer should have the required skills to implement a prior study in compliance with standard good practices.

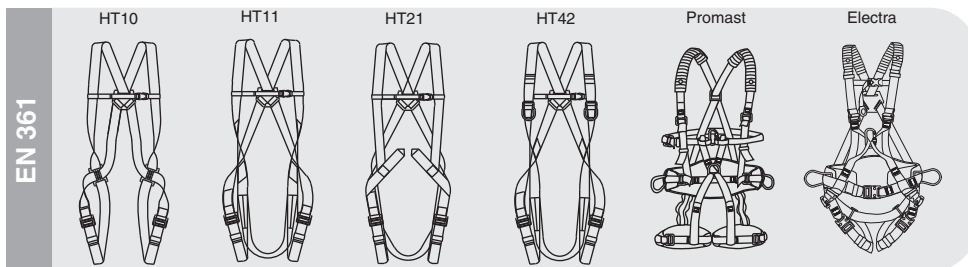
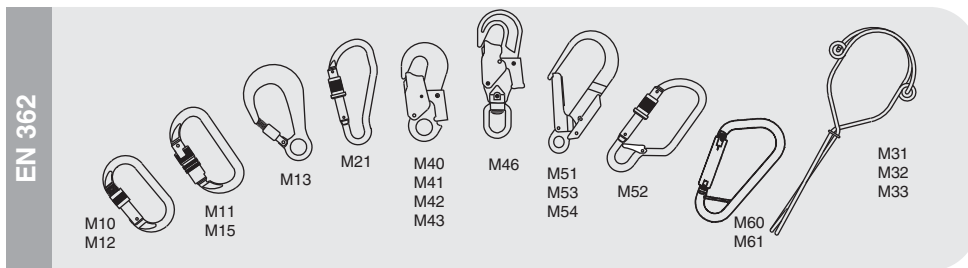
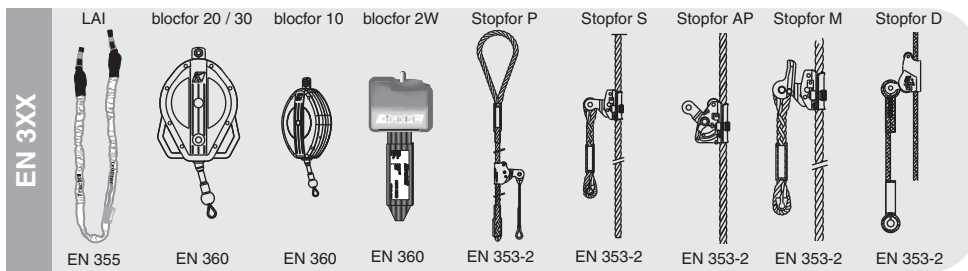
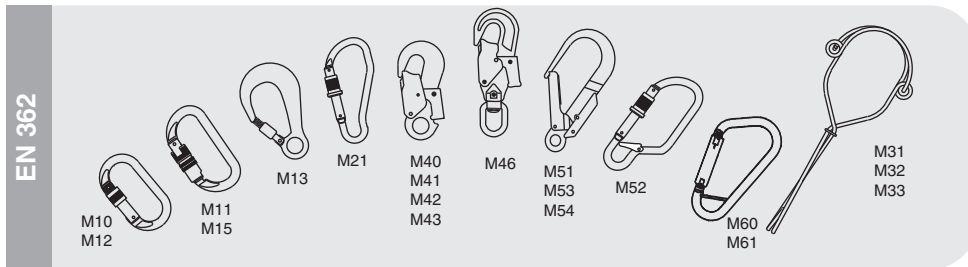
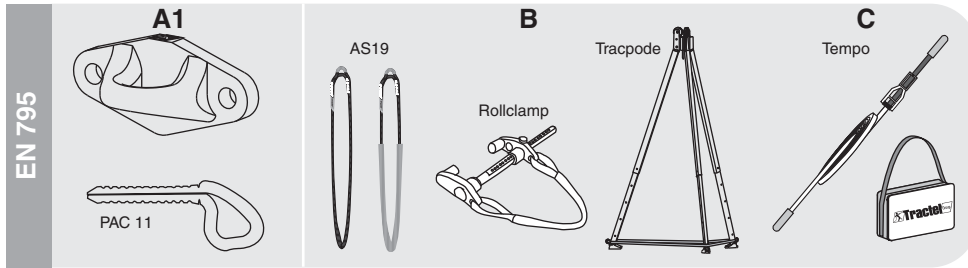
Before carrying out the work, the installer should organize their site in such a way that the installation work can be fulfilled under the required safety conditions, especially in relation to the Labor Laws. It will set up the collective and / or individual protective equipment required for this purpose. It should check that the equipment to be assembled complies in type and quantity with the equipment described in the prior study.

The travspring™ lifeline can be mounted on a horizontal, vertical or inclined plane but must follow a fully horizontal path with a maximum angle of 15°. It must not be installed on the underside of a horizontal or inclined plane.

It should never be secured to a lower level than the plane on which the user will be moving.

The tools required for the installation of a lifeline include, other than the hardware required for securing the structural anchor points: A size 19 tubular socket wrench, a set of spanners from 10 to 24, a cable cutter, a Ø 6 mm thickness gauge, a drill and a screwdriver. The tools required for securing the structural anchors are decided as from the securing device manufacturer's manuals (dowel pins, bolts, etc.).

**Reminder:** The installer should have a length of cable longer than the distance separating the two end anchor points, enough to create a loop at the end, taking into account the cable deflection and the cable return.



**feuille de contrôle - inspection sheet - kontrollkarte - controlleblad - hoja de revisión - scheda di revisione  
Folha de controlo - Δελτίο ελέγχου - kontrollskjema - kontrollskjema - tarkastuslista - kontrolblad**

Type de produit Type of product Produktbezeichnung Produkttype Tipo de producto Tipo de prodotto Tipo de producto Τύπος προϊόντος Produkttyp Τύπος προϊόντος Type produkt	Référence produit Product reference Produktcode Referencia producto Referencia prodotto Referência do produto Код продукта Produktreferanse Produktreferans Tuoteviite numero Produktnummer	Numéro de série Serial number Seriennummer Numero di serie Numero de série Записный номер Seriennummer Seriennummer Seriennummer	Nom de l'utilisateur Name of user Name des Benutzers Naam van de gebruiker Nombre del usuario Nome dell'utilizzatore Nome do utilizador Όνομα του Χρήστη Brukerens navn Användarens namn Käyttäjän nimi Bruçerens navn
Date of fabrication Date of manufacture Herstellungsdatum Fabricagedatum Fecha de fabricación Data di fabbricazione Data de fabrico Ημερομηνία κατασκευής Fabrikationsdato Tilvækningsdato Valmistuspäivä Fabrikationsdato	Date d'achat Date of purchase Kaufdatum Anskaffningsdatum Fecha de compra Data di acquisto Data de compra Ημερομηνία αγοράς Köpsdatum Ostöpäivä Købsdato	Date de mise en service Date of use Datum der Inbetriebnahme Datum i begyndeelse Fecha de puesta en servicio Data di messa in servizio Data de entrada em serviço Ημερομηνία θέσης σε λειτουργία Dato for bruk første gang Första användningsdagen Käyttöönottopäivä Dato for ibrugtagning	

DESCRIPTION	OK	REV	OK
End ANCHORS  CONNECTOR	Check tightness of nuts and bolts Check that part has not been altered Check for rust Check for deformation  Check that the tightening ring is locked Check that part has not been altered Check for rust Check for deformation		



<p><b>SHOCK ABSORBERS</b></p>	<p>Check tightness of nuts and bolts  Check that part has not been altered</p> <p>Check that the number of shock absorbers correspond to the number of users+1  Check for rust  Check for deformation (Release possible)</p>		
<p><b>SLEEVED BUCKLE FOR STAINLESS STEEL AND GALVANIZED CABLE</b></p>	<p>Check that sleeve has been correctly installed  Check that the sleeved buckle is well adhered to the securing point, connector or to the absorber</p>		
<p><b>8MM Ø CABLE</b></p>	<p>Check that the cable is correctly tensioned  Check that it is 8mm in diameter  Check that the cable is not damaged  Check for rust  Check for deformation (cable cinching, fraying, wear)</p>		
<p><b>INTERMEDIARY SECURING POINT</b></p>	<p>Check tightness of nuts and bolts  Check that part has not been altered  Check that the part is not broken or damaged  Check for rust  Check for deformation</p>		
<p><b>TENSION INDICATOR</b></p>	<p>Check tightness of nuts and bolts  Check that part has not been altered  Check for rust  Check cable tension (that the two holes in the indicator body are in line)</p>		
<p><b>ANGULAR SECURING POINT</b></p>	<p>Check tightness of nuts and bolts  Check that part has not been altered  Check for rust  Check for deformation</p>		
<p><b>CORNER POST</b></p>	<p>Check that the cable is properly positioned in the groove bottom  Check that all the screw-products are properly tightened  Check that the part has not been modified  Check for any signs of corrosion  Check for any signs of deformation</p>		
<p><b>INFORMATION PANEL</b></p>	<p>Check for the presence of one or more information panels, depending on the number of line access points  Check on the date this check was made</p>		





## 1) Securing the structural anchors and fixing posts:

### Securing the structural anchors:

Relying on the means of securing to the supporting structure laid down in the prior study, the installer will proceed to secure the end anchors and then the intermediary securing points (intermediary securing points and angular securing points), complying with the manufacturer's documentation for the securing means selected (mechanical or chemical dowel pins, screws, bolts). The intermediary securing points will be arranged at intervals of no more than fifteen meters and with anchors at each end. The resistance to tearing of the structural anchors must be 2600 daN at the ends, 1200 daN for the intermediate anchors and 2800 daN for the turn anchors (see Chapter 2). The calculation must be made by a qualified engineer consistent with the technical data provided by TRACTEL SAS. The Travspring™ lifeline can be mounted either on a horizontal or inclined plane with slope not exceeding 15° with respect to the horizontal (installation on post or secured to floor), in a wall-mounted configuration (Fig. 5b). When installed on floor or post, the Travspring™ lifeline must not be deflected by an angle greater than 10° in the plane of the host structure when run through an intermediate anchor (Fig. 5c). For a wall-mounted installation, the Travspring™ must not be deflected by an angle greater than 15° in the plane of the host structure, when run through an intermediate anchor (Fig. 5a). It must never be secured at a level below the plane on which the user will be moving. It must have at least one access point by which the user can safely connect his lanyard to the lifeline.

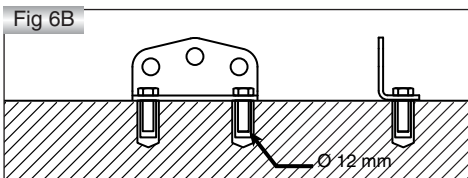
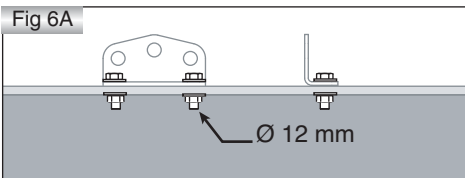
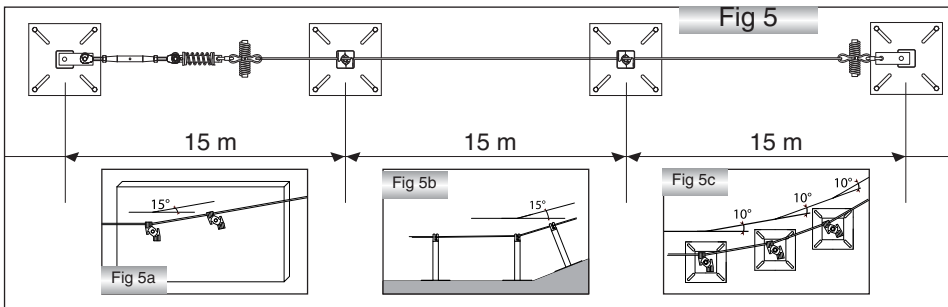
Fig. 5 presents the principle of installation with fixing posts at the end, and intermediary fixing posts. Prepare the location of your fixing posts, spacing them with a maximum interval of 15 meters. Align the fixing posts avoiding any cable drift while it is being installed.

### Securing the fixing posts:

Drill into the structure in compliance with the scaling of the fixing post foot.

For concrete structures, each sealing point must have a traction resistance of more than 1150 daN per securing point. Comply strictly with the instructions in the prior study and the manufacturers' recommendations regarding the securing methods. The nuts and bolts must be  $\varnothing$  12 mm. For the corner post, each fastener securing the post to the host structure must have a diameter of at least 16 mm and a tensile strength of at least 2000 daN.

For assembly onto metal structures, it is mandatory to set up washers of the right size for the securing method diameters. These washers must be placed under the screw head and / or under the bolts before tightening in relation to the installation layout.



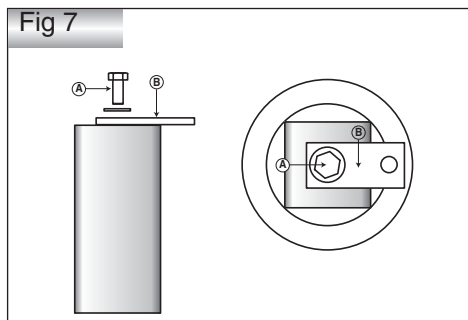
## 2) Securing the end anchors:

### 21) Ground wall version

Figures 6A and 6B show the layout diagram for the location of end anchors respectively for a metal and then a concrete structure.

### 22) fixing posts version

Installation of an end anchor for fixing post: Loosen the screw (A) located at the top of the fixing post (Fig. 7). Position the end anchor hole (B) to meet up with hole located at the top of the fixing post. Tighten together by tightening with the original screw and washer of the fixing post.



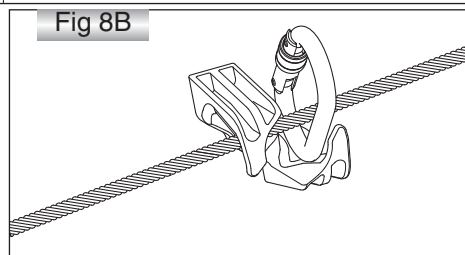
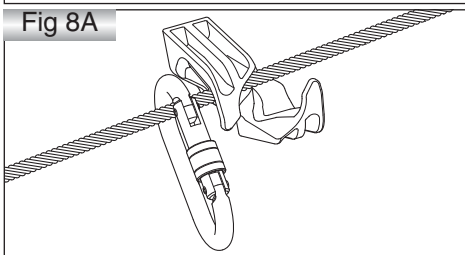
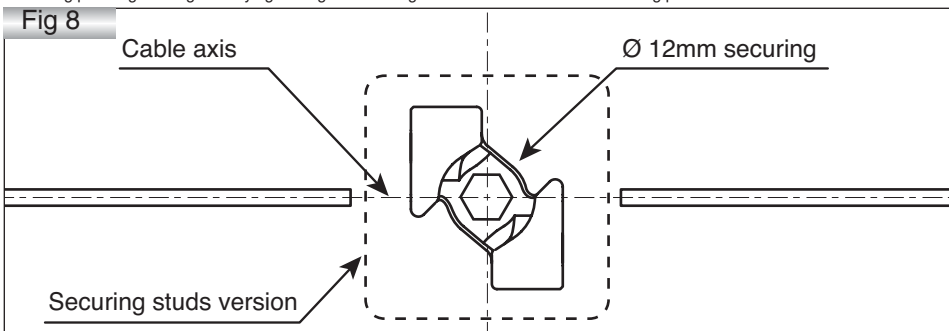
### 3) Securing the intermediary securing points:

#### 31) ground or wall securing:

The intermediary securing points are to be arranged as shown on Figure 8, the securing part being located at the axis of the cable. Their foot is equipped with spikes to ensure their adherence to the support. Before tightening into place definitively, check that it is directed in a convenient direction for using the PPE karabiner connector (Fig. 8A and 8B).

#### 32) Securing onto fixing posts:

Loosen the screw located at the top of the fixing post. Position the intermediary anchor hole to meet up with hole located at the top of the fixing post. Tighten together by tightening with the original screw and washer of the fixing post.



### 4) Securing the angular securing kit

#### 4) Installing the turn components

##### 41) Installing the turn anchor kits

###### 411) Ground or wall securing:

41a - Component assembly: The angular securing point kit comes disassembled, enabling assembly in one of three ways: interior wall angle (Fig 9A), exterior wall angle (Fig 9B), angle at ground (Fig. 9C).

41b - Securing to supporting structure Proceed as for intermediary securing point.

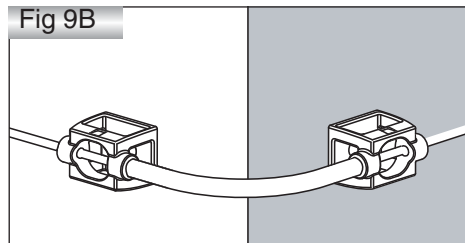
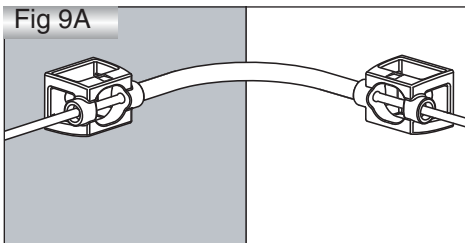
###### 412) Attachment on post

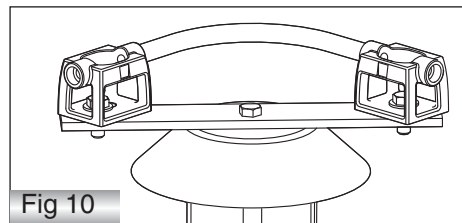
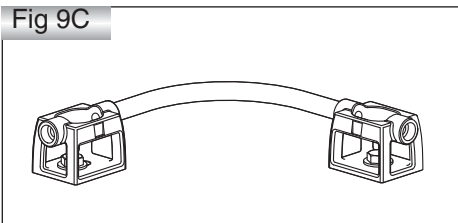
Component assembly: The angular securing point kit must be assembled on the angle fixing post and secured onto it with the 2 bolts and washers delivered with the plate. Secure the assembly onto the pole with the screw delivered with it (Fig. 10).

##### 42) Installation of angular securing kit for fixing posts:

For angles greater than, less than or equal to 90°, you can install the corner post. The corner post is supplied assembled (see corner post, page 9)

**Reminder:** The corner post must be secured to the host structure with fasteners having a diameter of at least 16 mm.



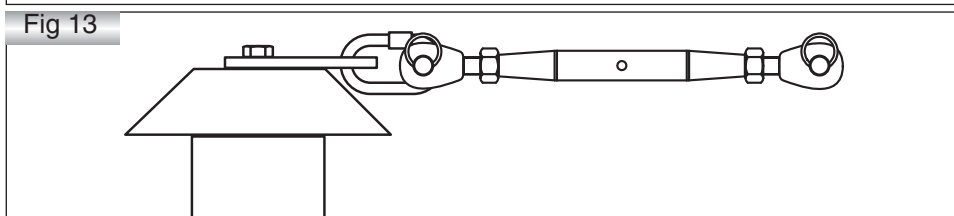
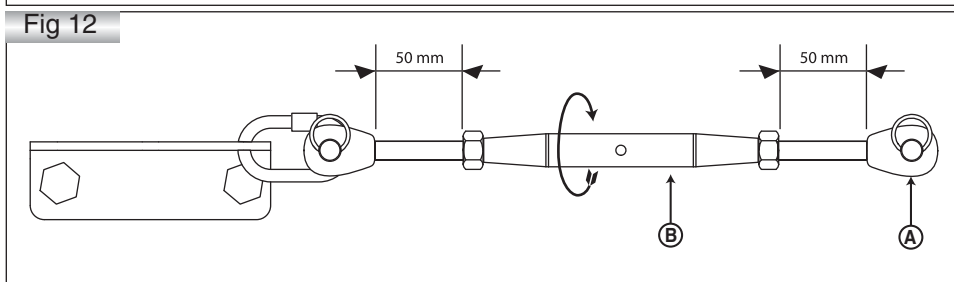
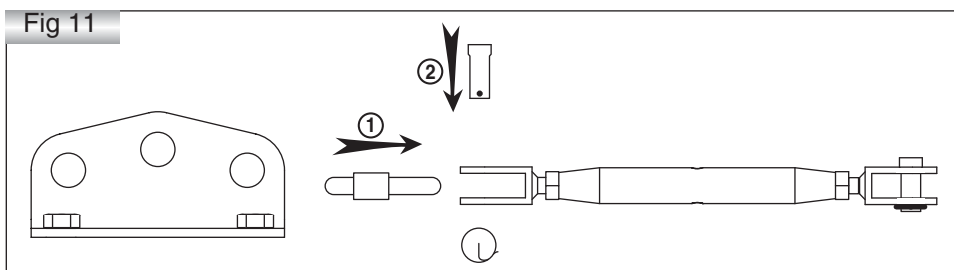


**5) Making fast the tensionier:**

All attaching parts now in position, fasten the tensioning device to one of the extremity anchors using a quick link. To this effect, remove the locking pin from the core rod and take out the rod situated at one of the tensioning device's tips.

Pass the rod through the holes of the outer shell and in the quick link. Replace the locking pin into the holes found at the tip by pushing it in completely and taking care to lock the pin by flipping its ringed spring across the core rod (Fig 11). Ensure that the pin itself is correctly locked off and cannot come loose from the assembly. The ring should be closed onto the pin as shown in Fig. 15. Then connect the assembly formed by the tensioning device and the quick link to the extremity anchor. Be careful to lock the connector by closing its opening by fully screwing on the connecting nut.

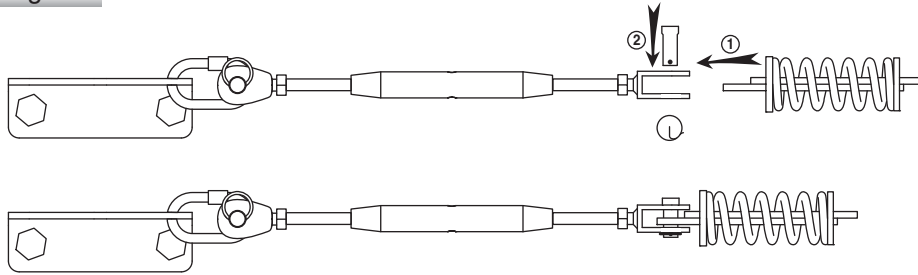
Adjust the length of the tensionier, proceeding as shown on Fig. 12. For this purpose, hold the tensionier by the yoke (A) and turn the body (B) of the tensionier so as to remove the two interior stems of the tensionier bringing the outlet part to 50mm (maximum length).



### 6) Making fast the tension indicator:

Make the tension indicator fast to the free end of the tensioner, by carrying out the same procedure as for making the tensioner fast to the end anchor (Fig. 14). Carry out the same process for fixing post installations.

Fig 14



### 7) Shock absorber connection:

Connect the shock absorber to the tension indicator using the "quick link" connector provided with each shock absorber as shown in Fig. 15. Take care to lock the connector closed by fully tightening the link nut. The shock absorber should be freely aligned on the tension indicator. Should several shock absorbers be installed, these must be linked together using connectors of the "quick-link" type and distributed along the line as shown in Fig 15 B and C. The number of shock absorbers to be installed will depend on the planned number of users (see table on p.7).

Fig 15

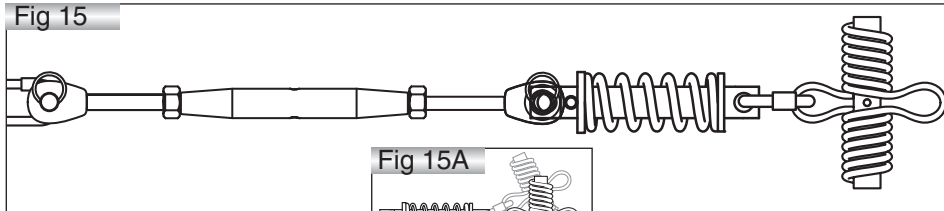


Fig 15B

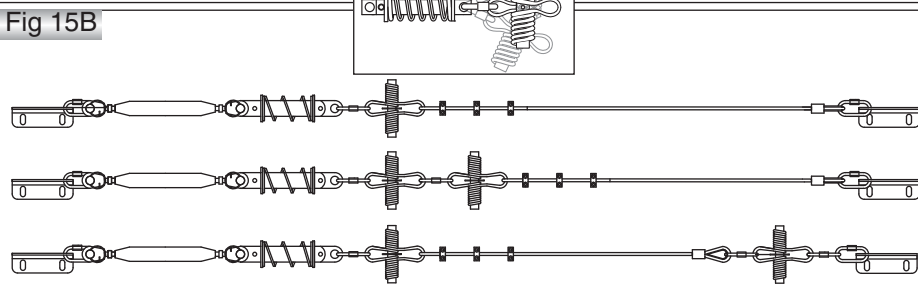
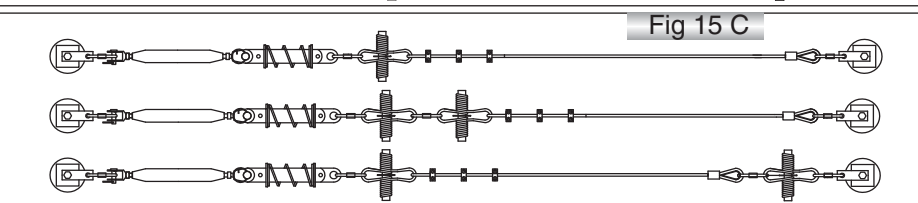


Fig 15 C



## 8) Making fast the cable:

### 81) Floor or wall version:

Connect the sleeve end of the cable, using a "quick-link" connector, with one, two or three shock absorbers. Then connect this (or these) shock absorber(s) to the other extremity anchor set aside by using the two "quick-link" connectors (Fig 16A). Insert the free end of the cable through the intermediate anchors, and, if necessary, through the turn anchors placed along the lifeline. For long lengths you can pre-tension the cable using a "TIRVIT" cable tensioner. In order not to damage the shock absorber, use a dynamometer to check that the tension strength does not exceed 100 daN. Should the shock absorbers have been subject to distortion due to excessive tension, it is essential to replace them.

### 82) Posts version:

Proceed in the same way as for the ground or wall version, but only using one quick-connect connector between the end anchor for post and the shock-absorber(s). To run the cable on the corner post, run the cable between the cable guide pin and the pulley. The cable must always be tensioned on the pulley. See Fig. A., page 9. When the cable is correctly positioned, check that the pulley screw is properly tightened. **Note : Never use the cable guide pin to deflect the lifeline cable (Fig. B, page 9). The strength of the system will not be ensured in this way and can be hazardous for the user(s). For any special installation configuration, or if you have any doubts, contact Tractel® SAS.**

Fig 16A

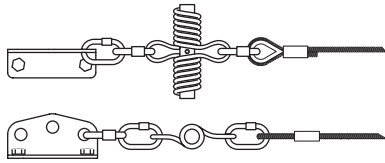
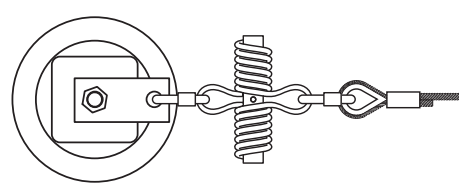


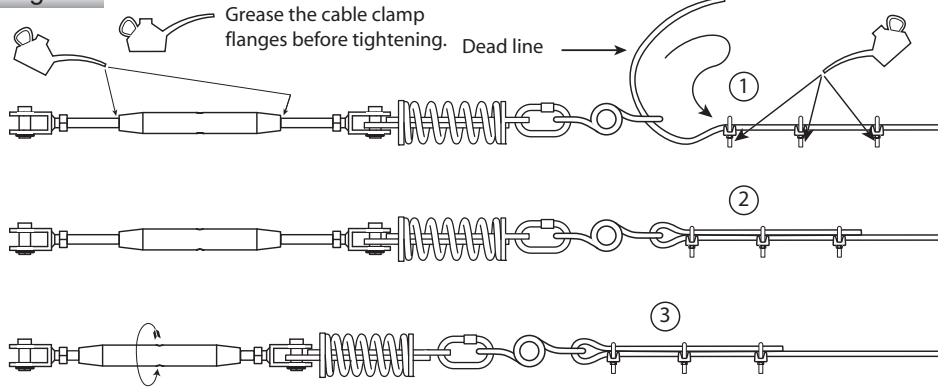
Fig 16B



## 9) Connecting the cable to the shock absorber:

Slide the three cable clamps onto the free end of the cable and pass the cable through the free ring on the shock absorber then through the three cable clamps. Place these as shown in Fig. 17. The distance between the cable clamps is six to eight times the cable diameter, being 50 to 65 mm. The line that works on the cable clamp feet and the dead line under the cable clamp stirrup must be put in place. Manually pull on the end of the dead line and semi-tighten the cable clamp. Check that assembly complies with Fig. 17-2, then fully tighten the cable clamps. Check that the cable loop is freely aligned on the shock absorber.

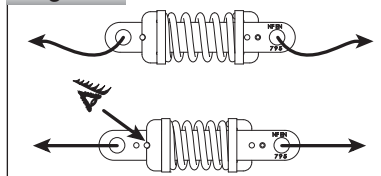
Fig 17



## 10) Setting cable tension:

Turn the body of the tensioner to shorten it by pulling the two stems inside the tensioner. Continue the operation using a tommy bar (screwdriver, etc) inserted in the tensioner's central hole. Tension until the 2 indicator holes (A) are facing each other (Fig. 18). Once the holes have been aligned, stop the operation as over-tensioning damages the shock absorber, which must then be replaced.

Fig 18



## 11) Lay-out of lifeline access areas:

Access points and lifeline access points should be defined and restricted to an area where there is no risk of falling from heights and signposted with an information plate as indicated hereinafter. They should be laid out in such a way as the user can connect themselves along the length of the lifeline in total safety.

### 7 Information plate

A Tractel® 117505 information plate is provided with each end anchor. In compliance with the EN 795 Class C Standard, these plates should be attached at each lifeline access point. If additional accesses are foreseen, Tractel® can provide the additional copies required. As the Tractel® plate is drawn up in six languages, three languages on each side, care must be taken to place the information plate in such a way that the side containing the language of the country where the site is located is on display.

Any information to be placed on this panel by the installer should be written in indelible pen or stamped on it, and be clearly readable for the user. Any illegible plate should be replaced before use (See page 21).

### 8 Use

The person in charge of using the TRAVSPRING™ lifeline should, prior to commissioning, obtain a copy of the mandatory compiled prior study file from the user. They should also be aware of the contents of this manual.

They should ensure that the personal protection equipment (PPE) to be used with the TRAVSPRING™ lifeline comply with the current regulations and Standards, are compatible with the installation and are in good working order.

Any person called on to use the TRAVSPRING™ lifeline should be physically capable of working at height and have received prior training in its use, in compliance with this manual, with a demonstration of its use in safe conditions and using the appropriate PPE. The method of connection and disconnection to the lifeline, and passing through the intermediary supports (including angled turns) should be carefully explained and a check made that the user fully understands the method.

The description of the PPE karabiner connector given in Fig. 19 shows the karabiner in open position ready to be located, and in the closed position for using on the lifeline. It is essential for the user's safety that the locking nut is fully tightened as soon as connection is made. An M10 steel connector must be used.

The TRAVSPRING™ lifeline should only be used for protection against falls from height, and in no event as a means of suspension. It should only be used in association with CE certified PPE, and in compliance with the appropriate regulations and Standards. A full fall prevention harness is the only user body handling device acceptable for use in association with the lifeline.

The TRAVSPRING™ lifeline should never be used beyond the limits indicated in this manual and the prior study.

A visual check of all of the lifeline installation and the associated PPE should be carried out prior to each usage. In the event that an anomaly or deterioration is noted concerning the installation, it should be immediately withdrawn from use until it has been returned to correct working order by a qualified technician. The route protected by the lifeline should be kept free of any obstacle. The person in charge, owner or manager of the building on which the TRAVSPRING™ lifeline is being used, should set up a rescue

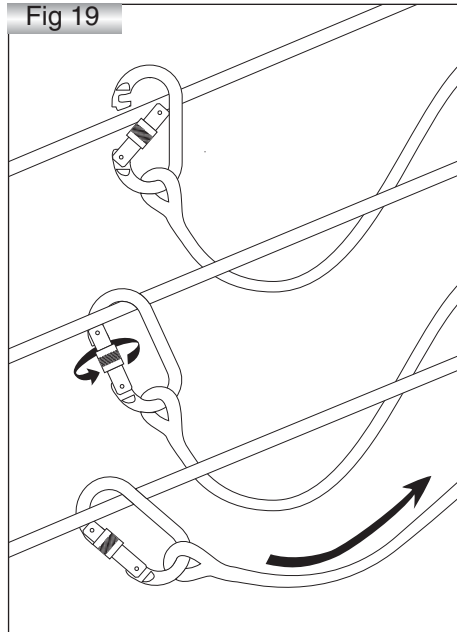
procedure for the user in the event that they suffer a fall at any point along the lifeline, and for any other emergency, in such a way as to evacuate the victim in circumstances compatible with safeguarding their health. It is recommended that each user is equipped with a mobile phone containing the number to call in an emergency.

The Labor Laws of some countries prescribe that "when personal protection equipment is used (against falls from height) a worker must never be left alone in order that they can be rescued in a timescale compatible with safeguarding their health". Tractel® recommends that all users comply with this prescription.

**IMPORTANT:** The user must not at any time find themselves disconnected from the TRAVSPRING™ lifeline when they are in an area containing a risk of a fall. As a result:

- They should only access or disconnect from a life line at points provided for this purpose and which have been laid out in order to enable initial connection to be made in perfect safety.
- The passing through of intermediary securing points should only be made by a maneuver in which the PPE connector passes through these securing points without it being disconnected. Figures. 8A and 8B describe how to manipulate the connector in order to pass through any intermediary securing point.
- Passing through angular securing points should be carried out using a pair of lanyards (or a dual lanyard) permanently attached to the user's fall prevention harness so that one remains available for use whilst making the passing through, by connecting it to the lifeline at the other side of the angle, before disconnecting the other lanyard attached to the station on the lifeline.
- Outside of this operation, the user should only disconnect from the lifeline at the pre-ordained access points when they wish to exit the danger area.

Fig 19



## 9 Checks, inspections and maintenance

All lifeline installations should, prior to commissioning or re-commissioning after being disassembled or repaired have each component part inspected in order to ensure that they comply with the legal safety provisions and Standards, and especially the EN 795 Standard. Tractel® SAS recommends that this examination is entrusted to an approved inspection organization. This examination is carried out on the user's initiative and at their expense.

As the horizontal lifeline is not a PPE, it is not legally subject to periodic inspection. Nonetheless, Tractel® SAS recommends that at least a yearly check is made to confirm that the TRAVSPRING™ lifeline is still in good condition.

This check involves confirming the overall general condition and cleanliness of the components (end plates, cable, intermediary parts, tensioner, tension indicator, energy shock absorber, cable clamps, connectors). When performing periodic inspection, check that the markings on the lifeline components are perfectly legible.

In addition, the PPE used in association with the TRAVSPRING™ lifeline should also be checked prior to commissioning and be subject to periodic checks by a qualified person in compliance with the relevant regulations and Standards. This check should be carried out at least once a year.

The lifeline and its components should always be kept clean and free from encumbrances (paint, worksite waste, debris etc).

It is recommended that a record book is established containing the prior study reference No., the lifeline's composition, inspections performed, any fall that has occurred in which the lifeline came into operation, returning to good order or repairs carried out, as well as any modifications that have been made to the lifeline. Incidentally, each PPE should be allocated its own identification sheet in compliance with the EN 365 Standard.

When any point on a TRAVSPRING™ lifeline has been put under strain by a user falling, the entire lifeline, and more especially the anchors, seals and securing points located in the fall zone, as well as any PPE involved in the fall, MUST always be checked by an appropriately qualified person before being put back into service.

## 10 reception tests

The commissioning and safety tests are carried out at the user's initiative and expense.

As all dynamic tests are potentially partially or totally destructive, possibly in a manner that is undetectable, without any lack of deterioration being necessarily conclusive, we strongly advise against carrying out dynamic tests for TRAVSPRING™ lifeline reception.

In order to comply more directly with Appendix A (informative) of the EN 795 Standard (pr NF EN 795) chapter A5, each structural securing point (end or intermediary) will be subjected to a traction test in order to check the resistance at its point of attachment. To do this, we apply a 5kN load for at least 15 seconds on each securing point, then check that no deformation has occurred following the test. This operation can be carried out using a dynamometric extractor. In the event that installation is on fixing posts, this test can be made by applying and measuring the aforementioned stress (by using a Tirfor apparatus and a cable equipped with a dynafor™ dynamometer, for example) between

each consecutive pair of fixing posts.

Check, before carrying out the test that all the nuts and bolts are correctly tightened.

These tests will be carried out prior to any sealing material being installed, should such material be scheduled for the surface of the structure on which the securing points are to be attached.

## 11 Prohibited incorrect usages

The use of the TRAVSPRING lifeline in compliance with the instructions contained in this manual offers a guarantee of total safety. Nonetheless, it seems appropriate to advise the user against the following incorrect methods of handling and usage:

IT IS PROHIBITED:

- to install any item on the lifeline cable other than those laid down in the prior study, and most especially, any item other than those parts provided by Tractel as being one of the lifeline's components,
- to modify the installation without being overseen by an appropriately qualified person in order to implement the prior study,
- to use the lifeline cable as a means of suspension other than as the result of an involuntary fall,
- to test the lifeline by a deliberate fall,
- to pull on the mobile securing point connector in order to dislodge a possible obstacle, or to cause it to cross an intermediary securing point,
- to connect or disconnect the lifeline cable to a point other than that provided for the purpose,
- to pass the cable or the PPE lanyards over sharp edges or allow them to rub against hard surfaces,
- to remove the lifeline cable without having the necessary qualification and the equipment required to remove a tensioned cable,
- to use the lifeline by more than 5 persons at a time,
- to use the cable guide pin of the corner post to deflect the lifeline cable,
- to install a lifeline on a plane beneath that on which the user will be moving,
- to install a lifeline on an inclined surface with slope exceeding 15° with respect to the horizontal,
- to install a lifeline on a post or on the floor, where the cable deflection angle in the host structure plane exceeds 10° when passing through an intermediate anchor,
- to install a lifeline on a wall, where the cable deflection angle in the host structure plane exceeds 15° when passing through an intermediate anchor.

## 12 Regulation Standards

Horizontal lifelines are not PPE and are not the subject of any specific Directive. They are governed by the European EN 795 Standard. The user's safety is directly linked to the efficiency and strength of the equipment.

However, they need to be used in association with personal protection equipment against falls from height, comprising, for each operator, a full fall prevention harness, linking and connection items and, if necessary an energy absorber manufactured in compliance with European Directive 89 / 686, and used in compliance with Directive EN / 656, and the provisions relevant to each user country. All PPE components should be CE certified.

### 13 Official terminology

1/ Lifeline: There is no reference to the term "lifeline" either in the regulations or the Standards. The "TRAVSPRING™ horizontal lifeline" comes under the category of an "Anchoring device equipped with flexible horizontal retaining supports".

2/ anchoring device = "Item or series of items or components comprising a securing point or points"

3/ retaining cable = "flexible support located between structural anchors". On the TRAVSPRING™ lifeline, the retaining cable is a tensioned cable between an end anchor and the energy shock absorber"

4/ securing point = "Item to which personal protection equipment (against falls from height) can be attached after an anchoring device has been installed". On the TRAVSPRING™ lifeline, the securing points are mobile: these are the connectors of PPE, which slide on the lifeline cable.

5/ structural securing point = "Item attached permanently to a structure (host or supporting structure), to which can be attached an anchoring device or personal protection equipment (against falls from height)". On the TRAVSPRING™ lifeline, the structural anchors are the end anchors and the intermediary securing point, as well as, if required, angular securing points.



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[www.tractel.com](http://www.tractel.com)

- Plaque de signalisation pour ligne de vie
- Targhetta di segnalazione per linea di vita
- Hinweisschild für die Laufsicherung



- Port de l'équipement de protection individuelle antichute obligatoire
  - Utilizzo obbligatorio del dispositivo di protezione individuale anticaduta
  - Benutzung von Persönlicher Schutzausrüstung gegen Absturz vorgeschrieben

- Il est impératif, avant de se connecter, de lire les instructions du manuel d'emploi livré avec la ligne de vie, et de s'y conformer strictement.
- Prima di collegarsi, occorre tassativamente leggere le istruzioni del manuale d'impiego fornito con la linea di vita ed attenersi rigorosamente alle stesse.
- Vor der Benutzung der horizontalen Laufsicherung ist die Bedienungsanleitung durchzulesen, die enthaltenen Anweisungen und Vorschriften sind strikt zu befolgen.

- En cas de chute ou de défaut apparent, prévenir le responsable du site pour faire vérifier l'ensemble de l'installation.
- In caso di caduta o di anomalia apparente, informare il responsabile del cantiere per fare verificare la totalità dell'installazione.
- Nach einem Fangfall oder bei offenkundigen Mängeln der Anlage ist der verantwortliche Sicherheitsbeauftragte des Unternehmens umgehend zu informieren und die gesamte Installation ist zu überprüfen.

- L'équipement de protection individuelle antichute utilisé avec cette ligne de vie doit être conforme à la norme européenne EN 363. Il doit comporter un absorbeur d'énergie, sauf si l'installation maintient l'utilisateur hors de la zone de risque de chute.
- Il dispositivo di protezione individuale anticaduta utilizzato con questa linea di vita deve essere conforme alla normativa europea EN 363. Esso deve prevedere un dissipatore di energia, tranne nel caso in cui l'installazione mantenga l'utilizzatore al di fuori della zona di rischio caduta.
- Die mit dieser Laufsicherung benutzte persönliche Schutzausrüstung gegen Absturz muss der europäischen Norm EN 363 entsprechen. Sie muss einen Fallsdämpfer enthalten, es sei denn, die Installation hält den Benutzer von der Absturz-Gefahrenzone fern.

- A chaque utilisation de la ligne de vie, vérifier son bon état apparent. En cas d'anomalie observée, arrêter immédiatement l'utilisation de l'équipement et informer le responsable.
- Ad ogni utilizzo della linea di vita, verificarne il buono stato apparente. Nel caso si osservino anomalie, interrompere immediatamente l'utilizzo del dispositivo ed informare il responsabile.
- Vor jeder Benutzung der Laufsicherung ist ihr Zustand zu überprüfen. Werden Mängel festgestellt, ist die Benutzung sofort einzustellen und der verantwortliche Sicherheitsbeauftragte ist umgehend zu informieren.

Date de contrôle					
Data di controllo					
Nächste Überprüfung					

Date de réception			<b>Installateur - Installatore - Monteur</b>
Data di ricezione			
Datum der Abnahme			
Tirant d'air			
Tirante d'aria			
Absturzfreiraum			
Nombre maximal d'utilisateurs			
Numero massimo di utilizzatori			
Max. Anzahl der Benutzer			





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