

**Safe Climber**

product  
literature

Vertical Anchorage Line System  
Ref: Vertex PN7000-SK



**Manufacturer :**

SAFE CLIMBER, 314 E. CANAL ST. MULBERRY, FL 33860

**Certification Body :**

SATRA Technology Europe Ltd, Bracetown Business Park, Clonee, Dublin D15 YN2P Ireland  
(Notified Body 2777)

**Ongoing Assessment Body:**

SGS Fimko Oy, Takomotie 8, FI-00380 Helsinki, Finland (Notified Body 0598)



CHAPTER 1 KNOW YOUR SYSTEM

CHAPTER 2 GENERAL DESCRIPTION OF PARTS

CHAPTER 3 INSTALLATION OF SYSTEM

CHAPTER 4 PRE USE CHECKS AND PRECAUTIONS

CHAPTER 5 PRECAUTIONS WHILE USING THE SYSTEM



# CONTENTS



## CHAPTER - 1

### KNOW YOUR SYSTEM

#### 1.1 Vertex PN7000-SK Vertical Anchorage Lifeline System on Rigid Cable Line

Vertex PN7000-SK is a permanent Vertical Life Line System designed to ensure a safe ascent & descent of a person on ladders fixed on high rise structures, telecom towers, windmills etc. The system consists of a stainless steel rope grab that moves along with the user on a vertical lifeline made up of 8 mm diameter stainless steel wire rope. The rope grab is connected to the attachment element of the user's harness. In the event of a fall, while the user is going up or down the ladder, the rope grab automatically locks against the wire rope thereby preventing the person from falling down. Not only does it restrict the fall of the user, it also reduces the impact of the fall on the body thanks to the inbuilt shock absorption system in the line. Vertex PN7000-SK fully complies with the European norm EN 353-1:2014 + A1:2017 & is CE certified by SATRA Technology Europe Limited, Bracetown Business Park, Clonee, D15 YN2P, Dublin 15, Ireland, NB# 2777'.

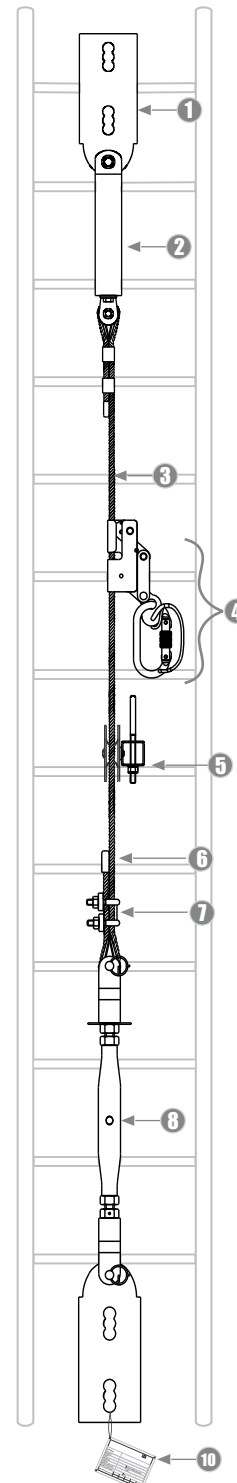
Vertex PN7000-SK is a modular system consistency of different components, made up of Stainless steel to withstand heavy weather conditions & offer maximum corrosion resistance. The system can be easily installed on all kinds of ladders.



### 1.2 Component Chart

The Chart below shows all the components of the Vertex PN7000-SK Vertical Lifeline Systems with their appropriate ref. no's and quantity required in a system.

Sr. No.	Component	Ref. No.	Qty. Required
01	MOUNTING BRACKET (INCLUDING PLATES, STUDS & NUTS) - SS316 WITHOUT CHANNEL GRIP	PN 7000-SK(01)	02 Sets.
02	SHOCK ABSORBER-SS316	PN 7000-SK(02)	01 No.
03	WIRE ROPE-SS316, 8.0MM DIA, 7X19 WITH ONE END HAVING A SWAGED LOOP	PN9XXXSL (XXX IS LENGTH OF WIRE ROPE)	Length of System in meters.
04	STAINLESS STEEL ROPE GRAB-SS316 WITH KARABINER PN112 & WIRE SLING	RG02(112)	01 No.
05	INTERMEDIATE (INCLUDING BACK PLATE AND 4 NUTS & BOLTS)-SS316	PN 2001-SK(04)	Recommended Installation Every 10m.
06	WIRE ROPE CAP	PN 7000-SK(12)	01 No.
07	SET OF 2 NOS. U-BOLTS-SS316 & 1 NO. THIMBLE	PN 6000-SK(01)	01 No.
08	TENSIONER-SS316 (8MM) WITHOUT CABLE EXTREMITY	PN 7000-SK(05)	01 No.
09	Set of 2 NOS. FERUL & 1 NO. THIMBLE	PN 7000-SK(14)	01. No.
10	INSPECTION PLATE	PN 8000-SK(09)	01 No.
11	CABLE EXTREMITY-SS316 (8MM DIA)	PN 7000-SK(03)	01 No.



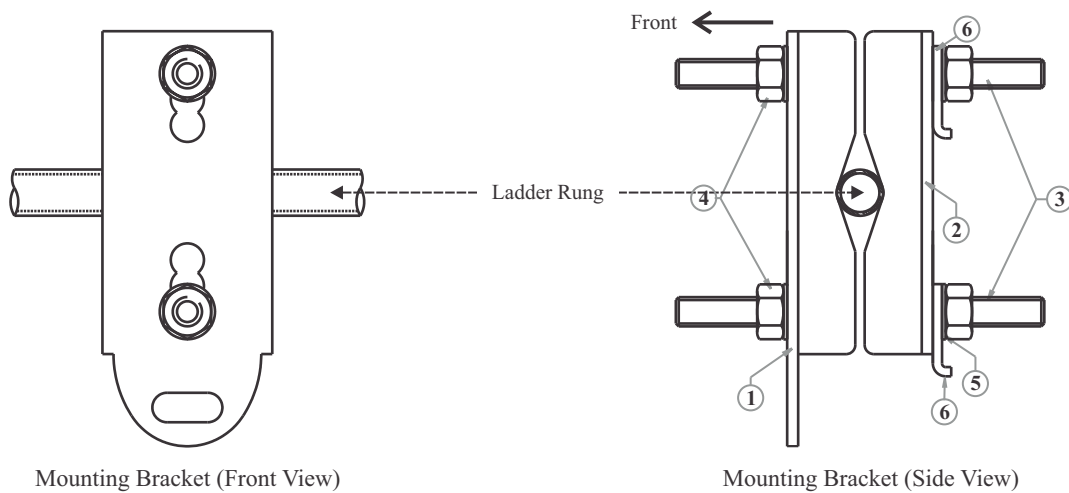


## CHAPTER -2

### GENERAL DESCRIPTION OF PARTS OF VERTEX PN7000-SK

#### 2.1 (A) Mounting Brackets: Ref. PN7000-SK (01)

Mounting Brackets made up of SS 316 which are fitted on the top and the bottom of the ladder. The retrofit design of the brackets allows easy and multiple ways of fitting the same either to the rungs of the ladder or to the side members. The same set of brackets can be used for anchorage at top & at the bottom. Installation using just two studs connecting the two plates makes them very handy to install by the installer.



#### Recommended Torque:

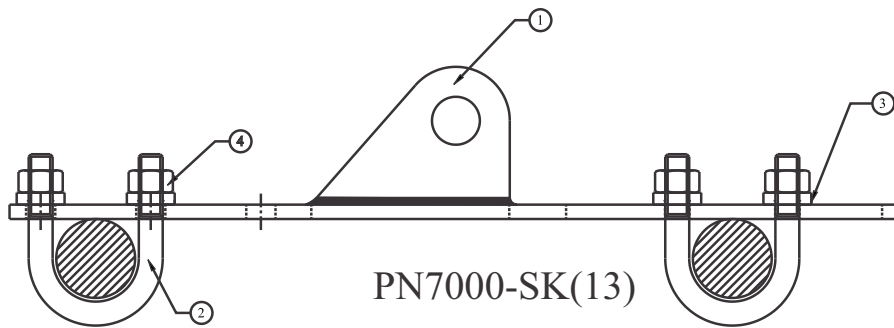
Part List of Mounting Bracket Ref. PN7000-SK (01)			
S. No.	Part Description	Part No.	Qty.
1	Vertex Mounting Bracket Front	PN7000-SK (01.1)	1
2	Vertex Mounting Bracket Back	PN7000-SK (01.2)	1
3	Full Threaded Stud	PN7000-SK (01.3)	2
4	Hex. Head Nut	PN7000-SK (01.4)	6
5	Washer	PN7000-SK (01.5)	6
6	Channel Grip	PN7000-SK (01.6)	2

Application : Mounting Brackets are provided to install the anchorage line on a ladder.  
 Operating Temperature : -30°C to +50°C (-86° F to + 122° F)  
 Material : SS 316  
 Total Weight : 2.8 kg. (6.17 lbs)



**2.1 (B) Ref. PN7000-SK (13)**

Stainless steel extremity plate used to install a vertical anchor line made of ss wire rope installed on the ladder with U-bolts and nylocks nuts.

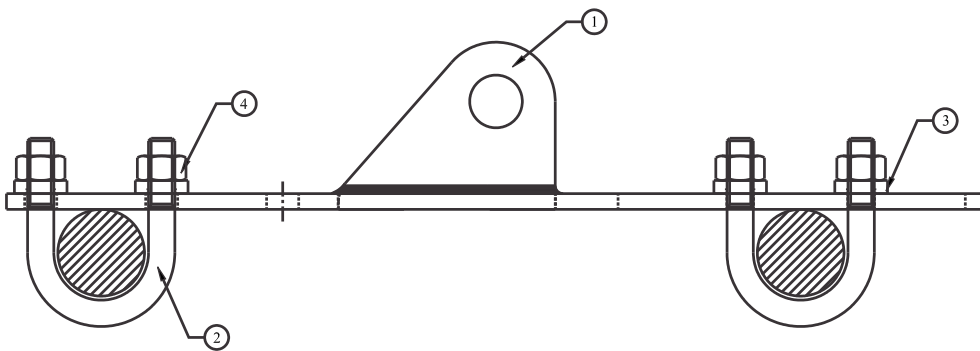


Application	:	Stainless steel extremity plate used to install a vertical anchor line made of ss wire rope installed on the ladder with U-bolts and nylocks nuts.
Operating Temperature	:	-30°C to +50°C (-86° F to + 122° F)
Material	:	SS 316
Total Weight	:	1.30kg, ± 0.05kg. ( 2.866 ± 0.011 lbs)



### 2.1 (C) Ref.PN 7000EC-SK(13)

Alloy steel extremity plate used to install a vertical anchor line made of ss wire rope installed on the ladder with U-bolts and nylocks nuts.

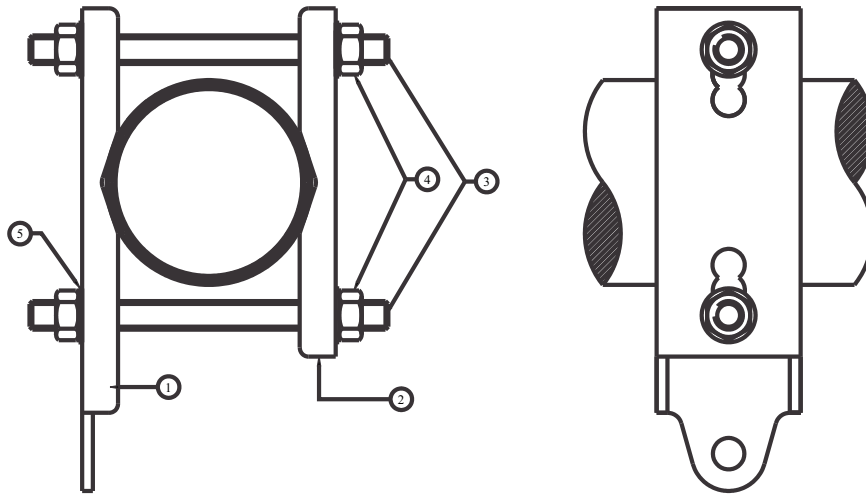


Application	:	Alloy steel extremity plate used to install a vertical anchor line made of ss wire rope installed on the ladder with U-bolts and nylocks nuts.
Operating Temperature	:	-30°C to +50°C (-86° F to + 122° F)
Material	:	MS
Total Weight	:	1.26kg. ± 0.05kg. ( 2.77 ± 0.011 lbs)



### 2.1 (D) Ref. PN7000-SK (21)

- Mounting Bracket are provided to install the anchorage line on a ladder.
- The unique design of the brackets allows easy and multiple ways of fitting the same either to the rungs of the ladder or the side members.
- The same set of brackets can be used for anchorage at top & at the bottom.
- Installation using just two studs connecting the two plates makes them very handy to install by the installer.



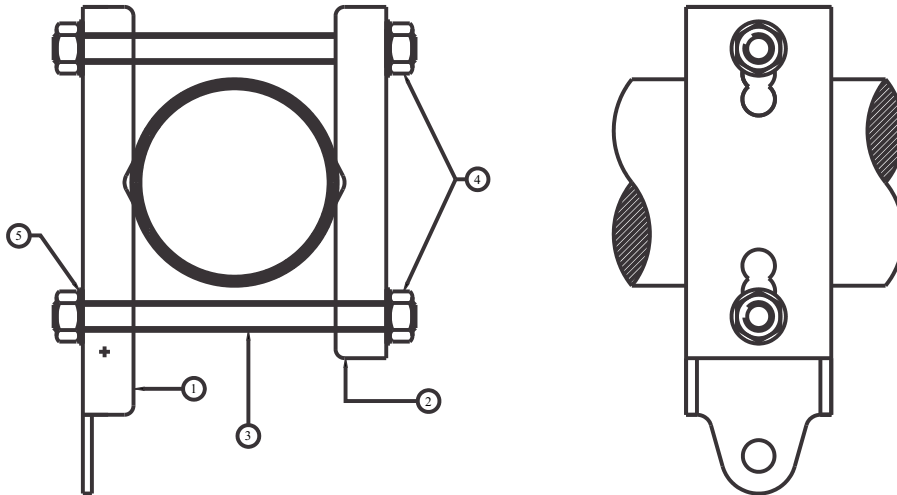
Application	: · Mounting Bracket are provided to install the anchorage line on a ladder. · The unique design of the brackets allows easy and multiple ways of fitting the same either to the rungs of the ladder or the side members. · The same set of brackets can be used for anchorage at top & at the bottom. · Installation using just two studs connecting the two plates makes them very handy to install by the installer.
Operating Temperature	: -30°C to +50°C (-86° F to + 122° F)
Material	: SS 316
Total Weight	: 2.95kg. ± 0.05kg. ( 6.50 lbs ± 0.011 lbs)





### 2.1 (E) Ref. PN 7000EC-SK(21)

- Mounting Bracket are provided to install the anchorage line on a ladder.
- The unique design of the brackets allows easy and multiple ways of fitting the same either to the rungs of the ladder or the side members.
- The same set of brackets can be used for anchorage at top & at the bottom.
- Installation using just two studs connecting the two plates makes them very handy to install by the installer.



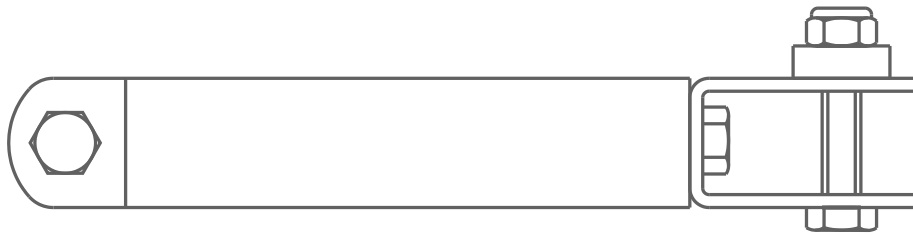
Application	: · Mounting Bracket are provided to install the anchorage line on a ladder. · The unique design of the brackets allows easy and multiple ways of fitting the same either to the rungs of the ladder or the side members. · The same set of brackets can be used for anchorage at top & at the bottom. · Installation using just two studs connecting the two plates makes them very handy to install by the installer.
Operating Temperature	: -30°C to +50°C (-86° F to + 122° F)
Material	: MS
Total Weight	: 2.95kg. ± 0.05kg. ( 6.50 lbs ± 0.011 lbs)



## 2.2 Vertex Shock Absorber: Ref. PN7000-SK (02)

In the event of a fall, the rope grab locks against the wire rope anchorage line. This sudden stop of the user generates a high force (Braking Force) transmitted to the user which may be harmful & injurious. The Vertex Shock Absorber fitted at the top mounting bracket ensures that this Braking force is minimized to prevent injury to the user. The Braking Force is reduced to less than 6 kN.

The shock absorber also protects the receiving structure from heavy impact force generated as a result of the fall.

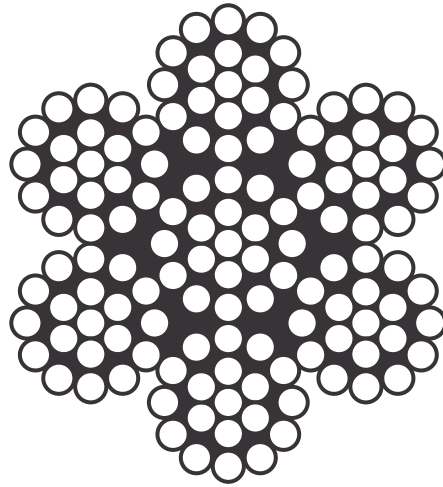


Application	:	Shock absorber is provided to reduce the impact force in the event of a fall. The fall indicator warns about any fall or overloading on the system.
Operating Temperature	:	-30°C to +50°C (-86° F to + 122° F)
Material	:	SS 316
Weight	:	2.9 kg. (6.39 lbs)
Minimum Breaking Strength	:	23 kN (5070 lbs)



### 2.3 Wire Rope (Cable Wire): Ref. PN 9XXXX

The cable of stainless steel grade 316 provides excellent strength and corrosion resistance.



7 STRANDS OF 19 WIRES

Application	:	Stainless Steel Cable as Vertical Life Line System
Operating Temperature	:	-30°C to +50°C (-86° F to + 122° F)
Material	:	SS 316
Minimum Breaking Strength	:	36 kN (7936.6 lbs)
Runnage	:	0.24 kg.(0.52 lbs) per meter
Construction	:	7X19
Diameter	:	8mm.(0.31 ")

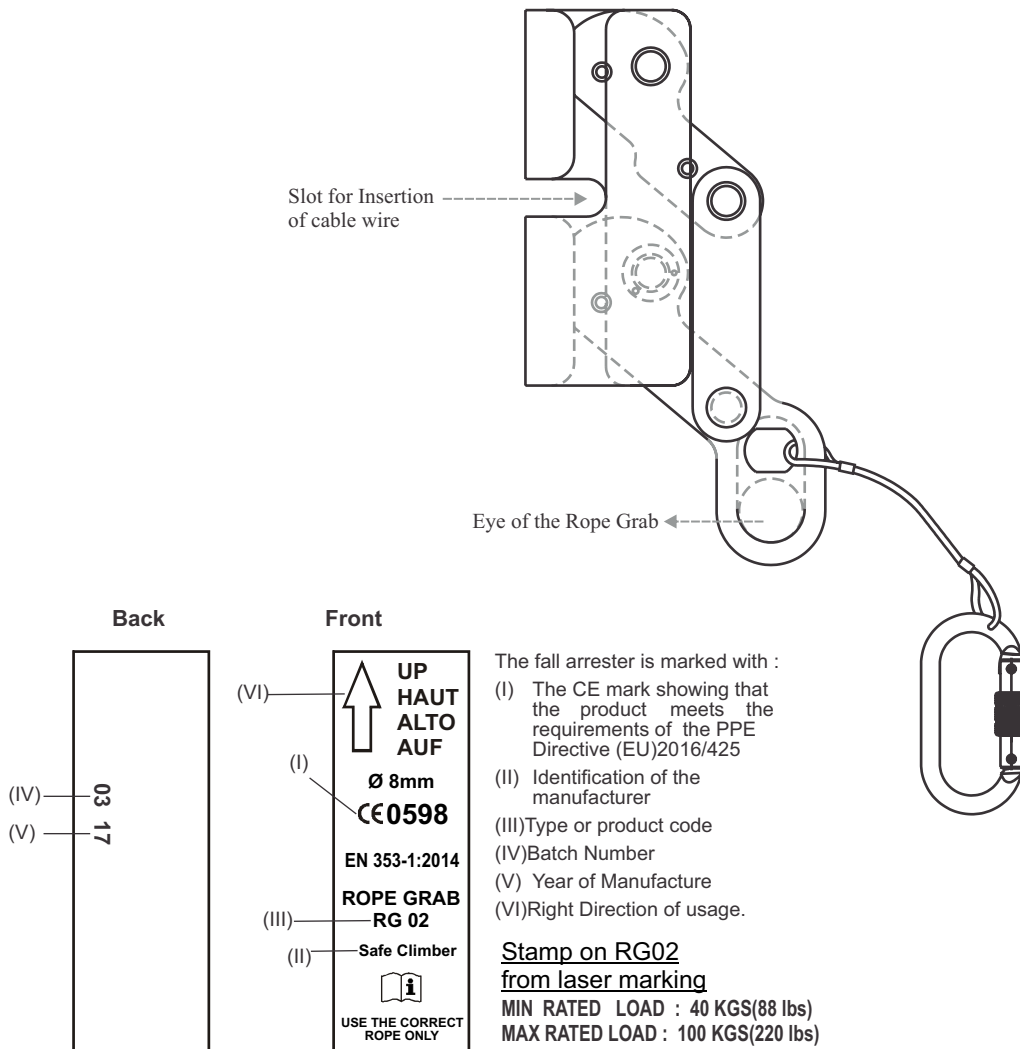


### 2.4 Rope Grab: Ref. RG 02112

Rope Grab RG 02112 is fall arrest device that slides through the cable while the user is ascending or descending. It locks automatically in case of a fall.

It has a gravity locking mechanism to ensure that it cannot be fitted to the Cable in the wrong direction.

The rope grab is so designed that accidental disengagement of the rope grab from the system is not possible till the carabiner connecting the rope grab to the user is taken out of the eye of the rope grab. carabiner is permanently attached to the rope grab with help of SS cable.

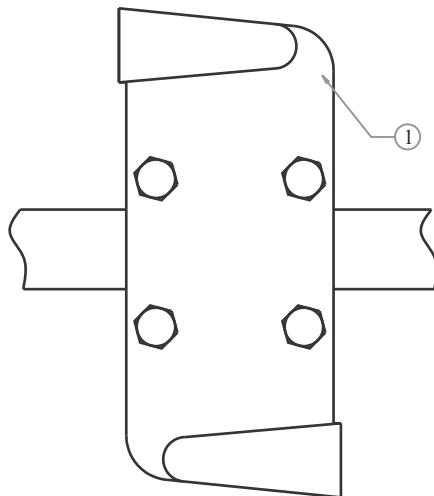


Application	:	Use to Move along with the user climbing up & down and locks in case of fall.
Operating Temperature	:	-30°C to +50°C (-86° F to + 122° F)
Material	:	SS 316
Weight	:	0.63 kg. (1.38 lbs)
Vital Test Compliance	:	Static Strength : 15 kN(3306 lbs) for 3 min.

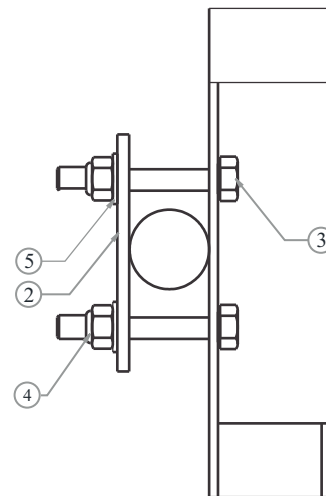


### 2.5 (A) Intermediate : Ref. PN2001-SK(04)

These Intermediates are installed at regular intervals along the length of the line usually at every 8 mtrs to 12 mtrs. The Vertex Cable guides prevent the wire rope from large deflections/ vibrations caused by usage or heavy winds. It is made up of Stainless steel grade 316 to ensure complete corrosion protection.



Intermediate (Front View)



Intermediate (Side View)

#### Recommended Torque For M8 Fasteners

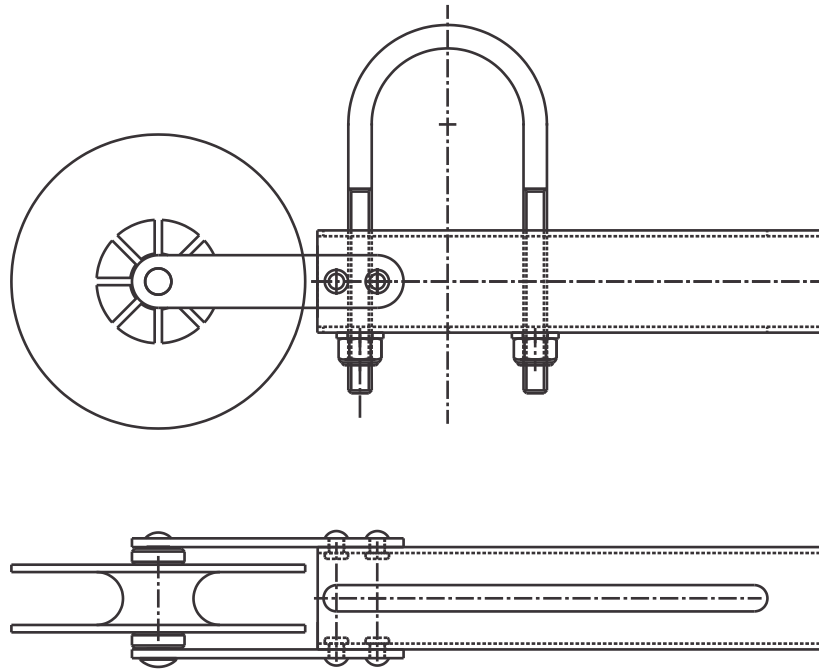
Part List of Intermediate : Ref. PN 2001 (04)			
S. No.	Part Description	Part No.	Qty.
1	Intermediate	PN2001-SK(04.1.1)	1
2	Fisher Plate	PN2001-SK(04.2)	1
3	Bolt M8	PN2001-SK(04.3)	4
4	Nylock Nut M8	PN5001-SK(08.3)	4
5	Washer	PN2001-SK(08.4)	4

- Application : The Intermediates prevents the Wire rope from large deflections/ vibrations caused by usage or heavy winds.
- Operating Temperature : -30°C to +50°C (-86° F to + 122° F)
- Material : SS 316
- Total Weight : 0.7 kg. (1.54 lbs)



### 2.5 (B) Wheel type Intermediate : Ref. PN7000-SK (04)

Intermediates are installed at regular intervals along the length of the line usually at every 8 mtrs to 12 mtrs. The Vertex Cable guides prevent the wire rope from large deflections/ vibrations caused by usage or heavy winds. It is made up of Stainless steel grade 316 to ensure complete corrosion protection.

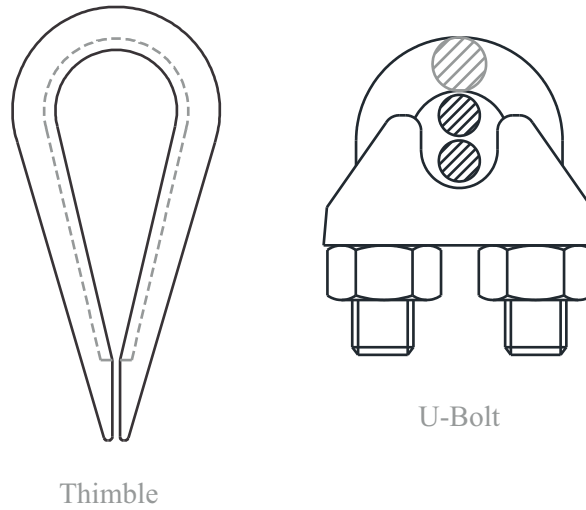


Application	:	The Intermediates prevents the Wire Rope from large deflections/ vibrations caused by usage or heavy winds.
Operating Temperature	:	-30°C to +50°C (-86° F to + 122° F)
Material	:	SS 316
Weight	:	0.7 kg. (1.54 ")



### 2.6 Set of U Bolt & Thimble : Ref. PN6000-SK(01)

The Cable is suitably terminated at the lower end using a thimble and two U-Bolts of Stainless Steel grade 316.



Part List of Set of U Bolt & Thimble : Ref. PN 6000 (01)			
S. No.	Part Description	Part No.	Qty.
1	Thimble	TH 05	1
2	U-Bolt	PN2001-SK(05.1)	2

Application : Provides suitable termination to the cable  
Operating Temperature : -30°C to +50°C (-86° F to + 122° F)  
Material : Thimble : SS 316 ; U-Bolt : SS 316  
Weight : Thimble : 0.02Kg.(0.044 lbs) ; U-Bolt : 0.07 kg.(0.15 lbs)

### 2.7 Swage less Cable Extremity : Ref- PN7000-SK(03)

Allows swage-less crimping of the cable wire at the desired length, and eliminates danger of any loose wire

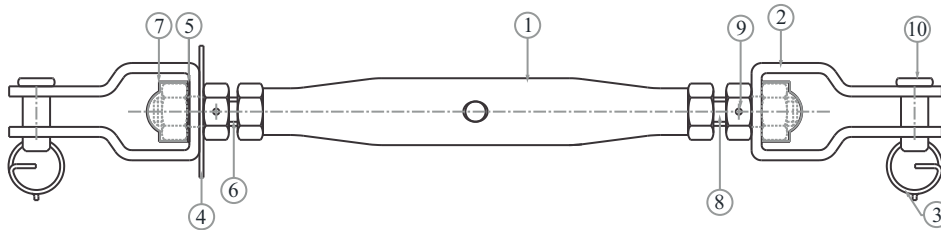
Material: Stainless Steel 316

Feature: Swagless termination



### 2.8 Tensioner : Ref . PN7000-SK (05)

The Vertex Tensioner is installed at the lower point of the Vertical Life Line between the end of the wire rope cable and the bottom mounting Bracket. The free end of the wire rope is suitably terminated by a thimble and two Stainless steel U bolts. Once installed, it can be easily used to regulate the tension in the cable line by simply rotating the central drum of the tensioner. The Vertex Tensioner is made up of Stainless steel grade 316 to offer complete Corrosion protection.



PART LIST OF TENSIONER : REF. PN7000-SK(05)			
S NO.	PART DESCRIPTION	PART NO.	QTY.
1	TENSIONER HOUSING	PN4000-SK(03.1)	1
2	TENSIONER EYE	PN7000-SK(05.1)	2
3	PIN RING	PN7000-SK(03.6)	2
4	INDECATOR WASHER	PN7000-SK(05.3)	1
5	PRESSURE WASHER	PN7000-SK(05.4)	1
6	STUD RHT WITH HEX NUT(M14)	PN7000-SK(05.5)	1
7	CAP	PN7000-SK(05.10)	2
8	STUD LHT WITH HEX NUT(M14)	PN7000-SK(05.7)	1
9	M5X5.0 GRUB SCREW	PN7000-SK(05.8)	4
10	LOCKING PIN	PN7000-SK(05.9)	2

- Application : The Tensioner is used to provide suitable tension to the line.
- Operating Temperature : -30°C to +50°C (-86° F to + 122° F)
- Material : SS 316
- Weight : 1.9kg.(4.18 lbs)
- Minimum Breaking Strength : 23 kN(5000 lbs)





### 2.9 Marking & Inspection Plate : Ref. PN8000-SK (09)

The Inspection name plate is installed on the first rung of the ladder for identification, traceability and maintenance of inspection records. Two stainless steel cable ties are used to fasten the system name plate to the structure. At time of installation the relevant details are punched on the plate by a number punch. The revalidation dates are punched each year on the plates after inspection and revalidation.

**Safe Climber** II 2G  
Ex h IIc T6 Gb i  
EN 353-1:2014+A1:2017

ADDRESS :	Safe Climber, 314 E. Canal St. Mulberry, FL 33860
PRODUCT :	Vertical Anchorage Line System on Rigid Cable Line
CODE :	PN7000-SK

1 of 2

BATCH NO. :	YEAR OF MFG.:	
LENGTH :	MTRS.	
INSTALLATION DATE :	/ /	
INSPECTION REPORT :	Date :	/ /
REVALIDATION DUE ON :		

2 of 2

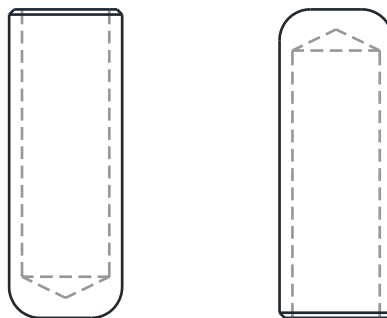
#### Marking Explanation

**PN8000-SK(09) is marked with:**

- (i) The CE mark showing that the product meets the requirements of the PPE Regulation (EU)2016/425
- (ii) Identification of the manufacturer
- (iii) Manufacturer's Address
- (iv) Product Description
- (v) Product Code
- (vi) Maximum Load
- (vii) Minimum Load
- (viii) Batch number
- (ix) Length
- (x) Year of manufacture

### 2.10 Wire Rope Cap : Ref PN7000-SK (12)

Aluminum wire rope cap is supplied with the system to enclose the open ends of the wire rope which prevents from the accidents caused due to sharp edges of the open strands.



Material : Aluminum Alloy  
 Finish : Anodized



## CHAPTER -3

### INSTALLATION OF SYSTEM VERTEX PN7000-SK

#### 3.1 Pre-Installation Inspection of the Receiving Structure

The receiving structure on which the system is to be installed should be strong enough to hold an impact load of more than 15 kN(3306.1 lbs).

It is hence essential to calculate the strength of the receiving structure before the installation. If in doubt a competent person or a qualified structural engineer may study the drawings or visit the site and verify the adequacy of strength of the receiving structure.

**Note:** Maximum load of 4.6 kN(1014.1 lbs) may be applied to the anchorage point in dynamic fall.

#### 3.2 Installation of the System

The System PN7000-SK system is installed in the following way:

##### **Step 1: Installation of the Mounting Bracket Ref. PN7000-SK (01) on the Upper Ladder Rung:**

The mounting brackets can be installed on different sections of the ladder rung with the help of the two channel grips and fastened on the same with the help of the given fasteners. The drawings below illustrate the position of the channel grips for different sections.

Fasten the Mounting Bracket plates on the upper most ladder rung with the help of given fasteners as shown in below picture.

#### 3.3 Installation of the System

**Possible installation of our lifeline with help of various mounting brackets on varying structure**



### 3.3 Installation of the System

Possible installation of our lifeline with help of various mounting brackets on varying structure

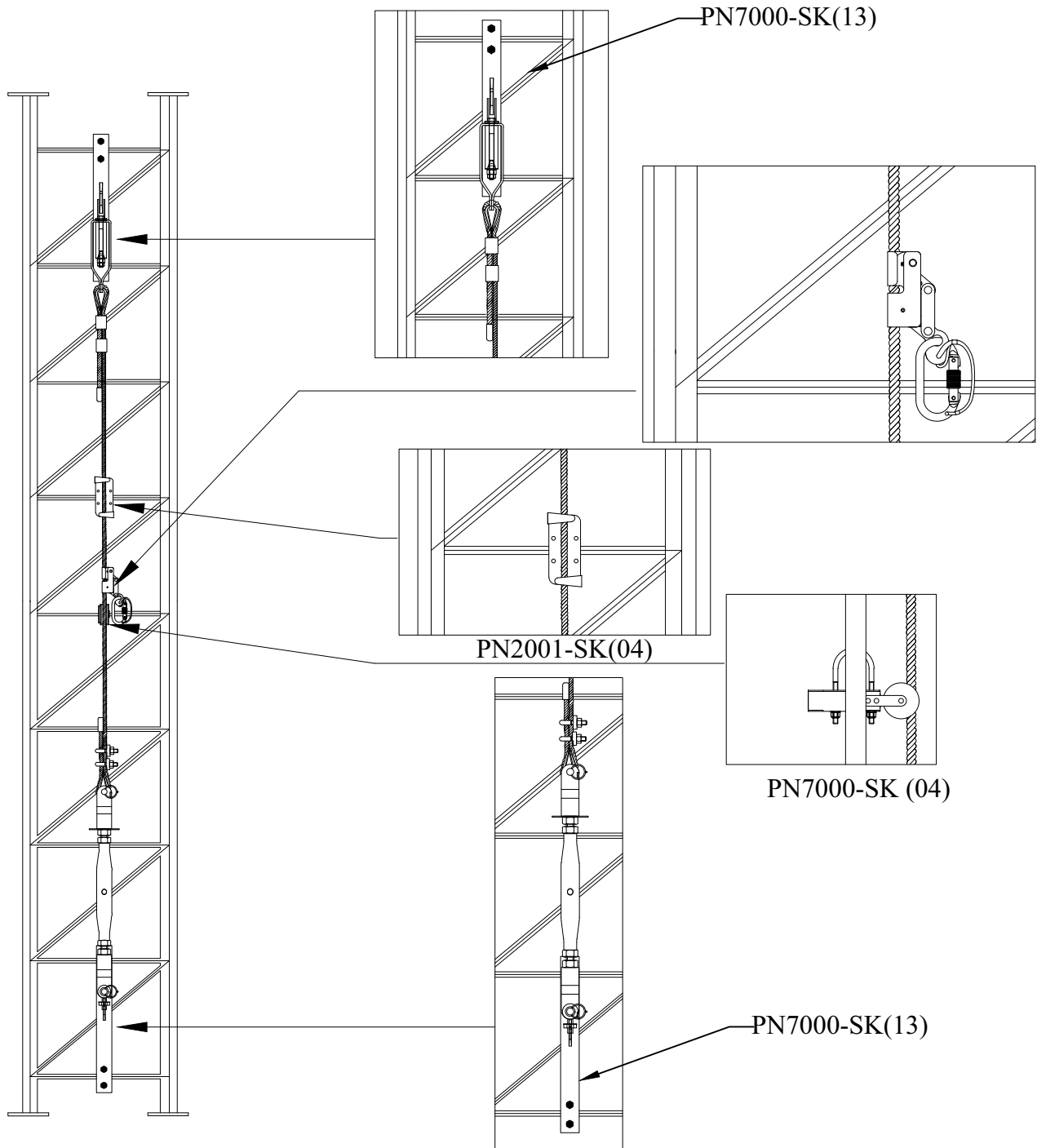


Fig 8: PN7000-SK(PN7000-SK(13))  
PN7000-SK INSTALLED ON DELTA TOWER  
USING MOUNTING BRACKET PN7000-SK(13)

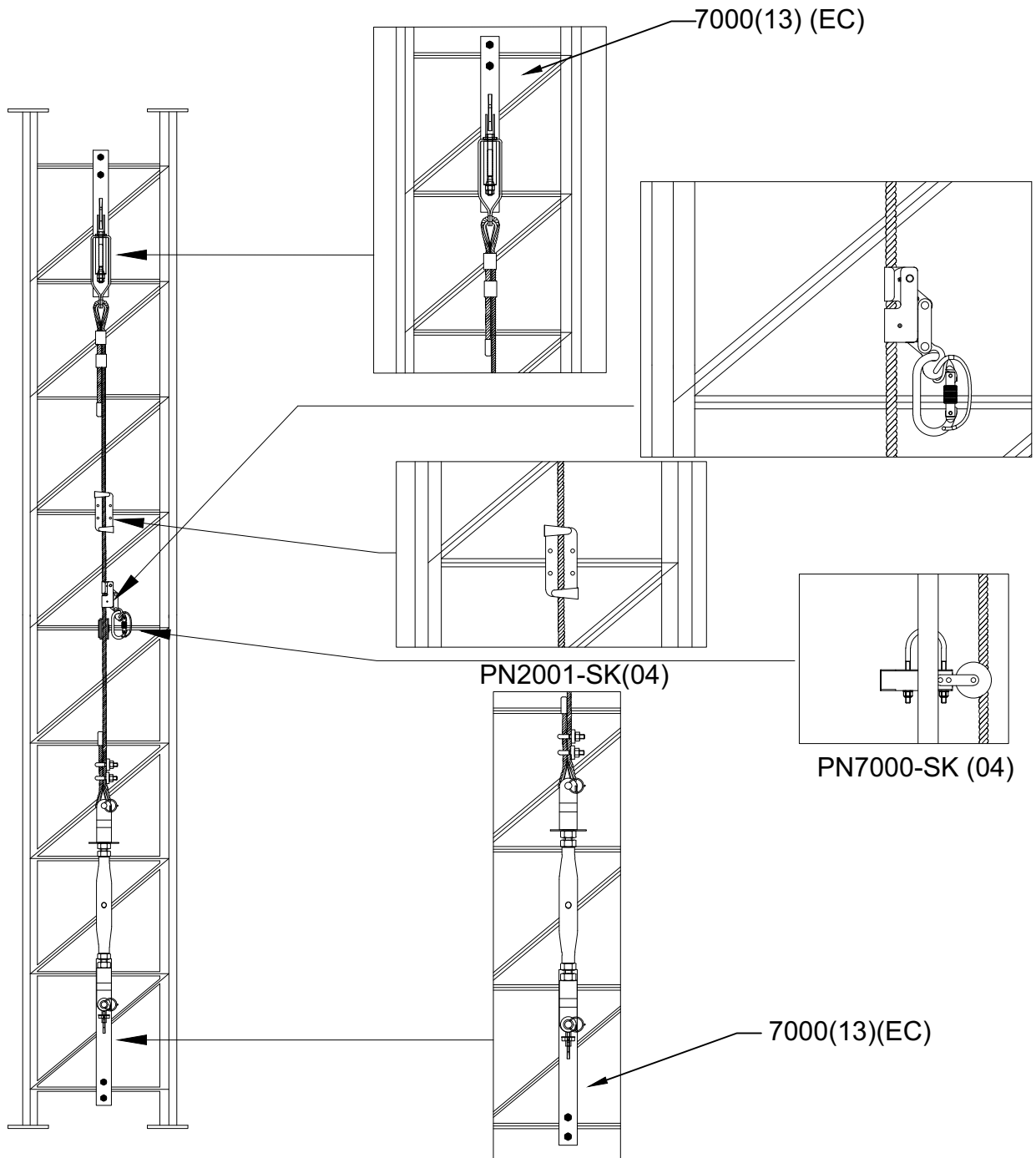


Fig 9: PN7000-SK(7000(13) (EC))  
PN7000-SK INSTALLED ON DELTA TOWER  
USING MOUNTING BRACKET 7000(13) (EC)

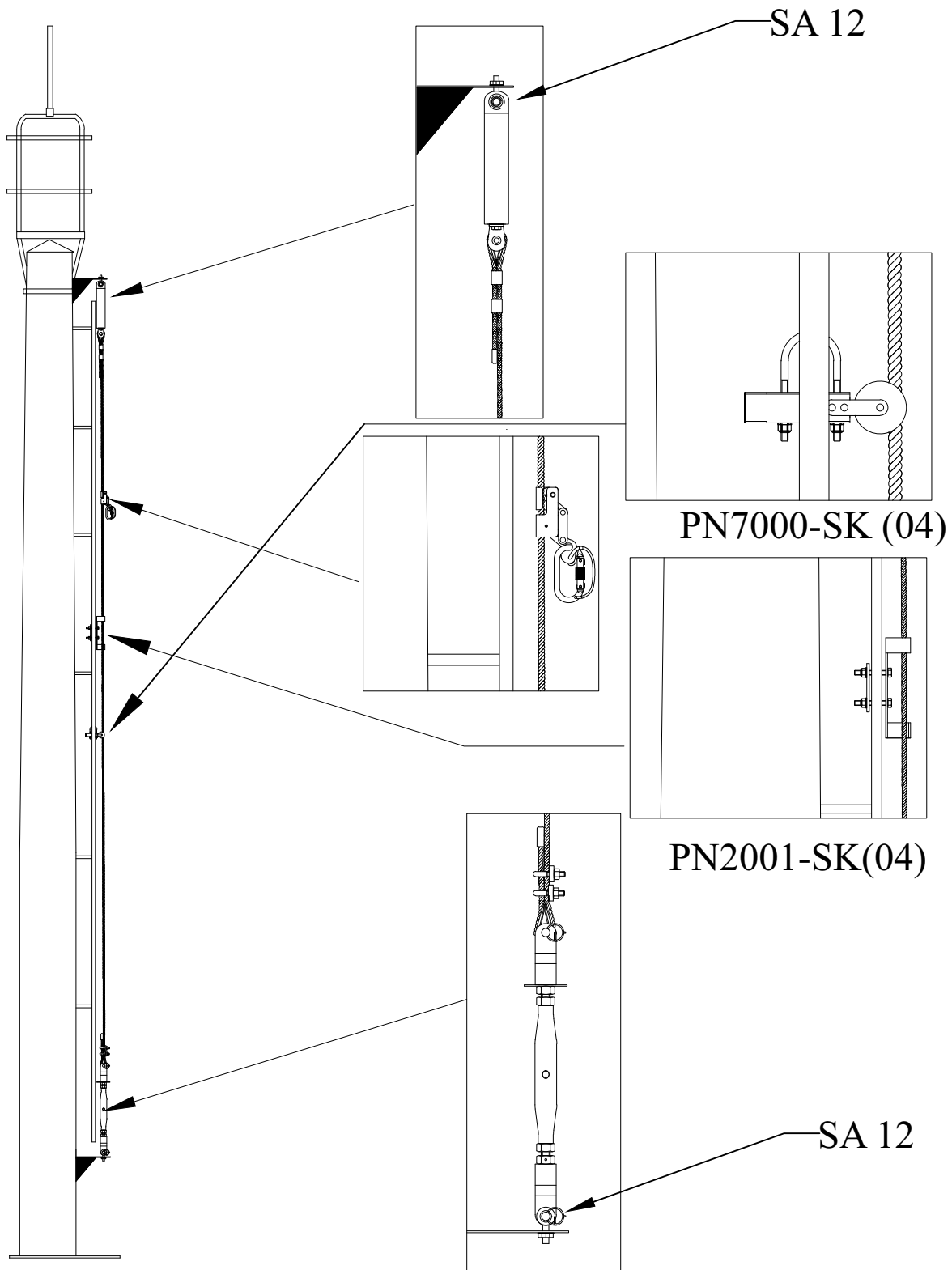


Fig 10: PN7000-SK(SA 12)

PN7000-SK INSTALLED ON GROUND BASED MAST  
USING MOUNTING BRACKET SA 12

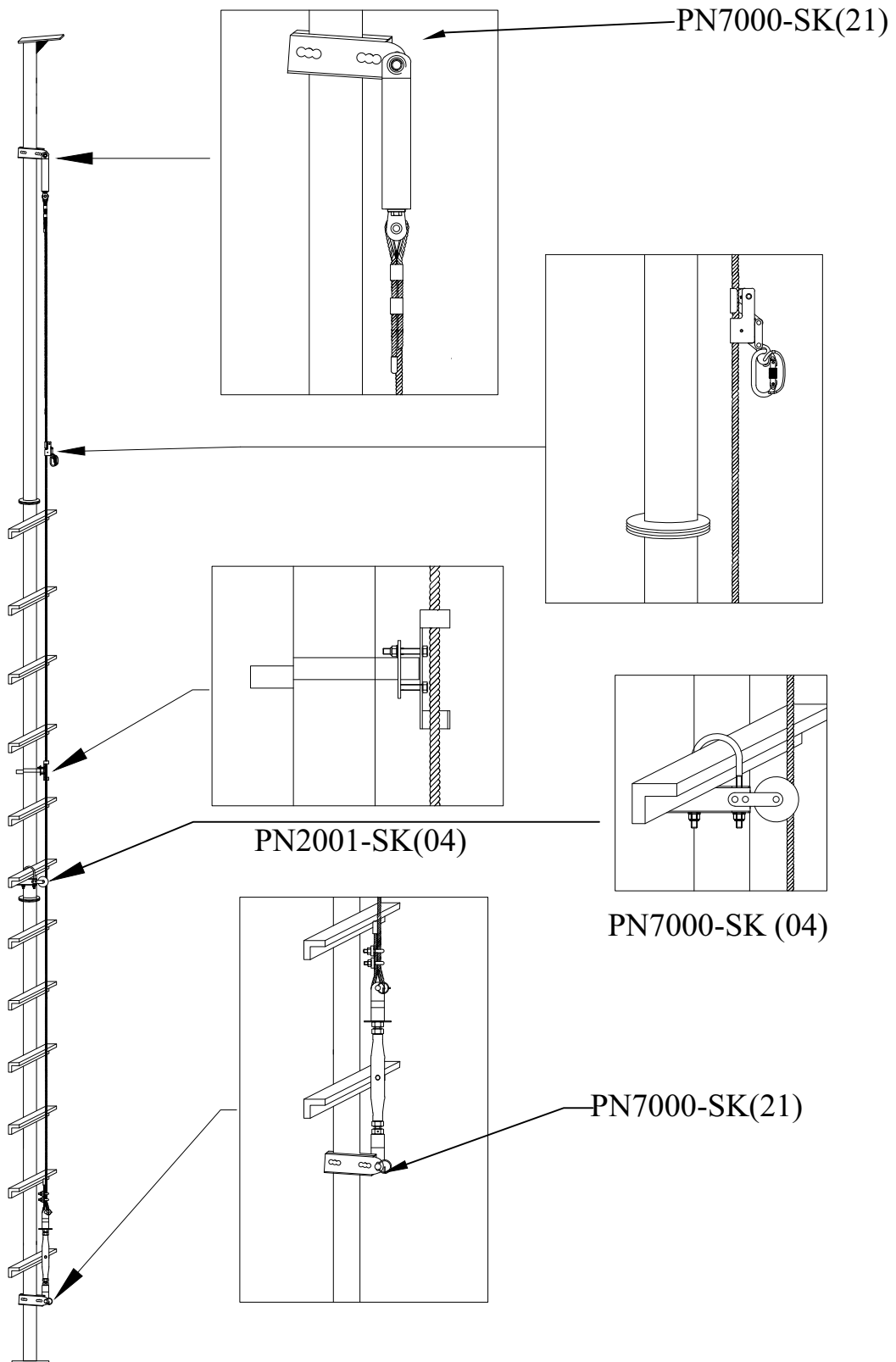


Fig 11: PN7000-SK(PN7000-SK(21))  
PN7000-SK INSTALLED ON ROOF TOP POLE  
USING MOUNTING BRACKET PN7000-SK(21)

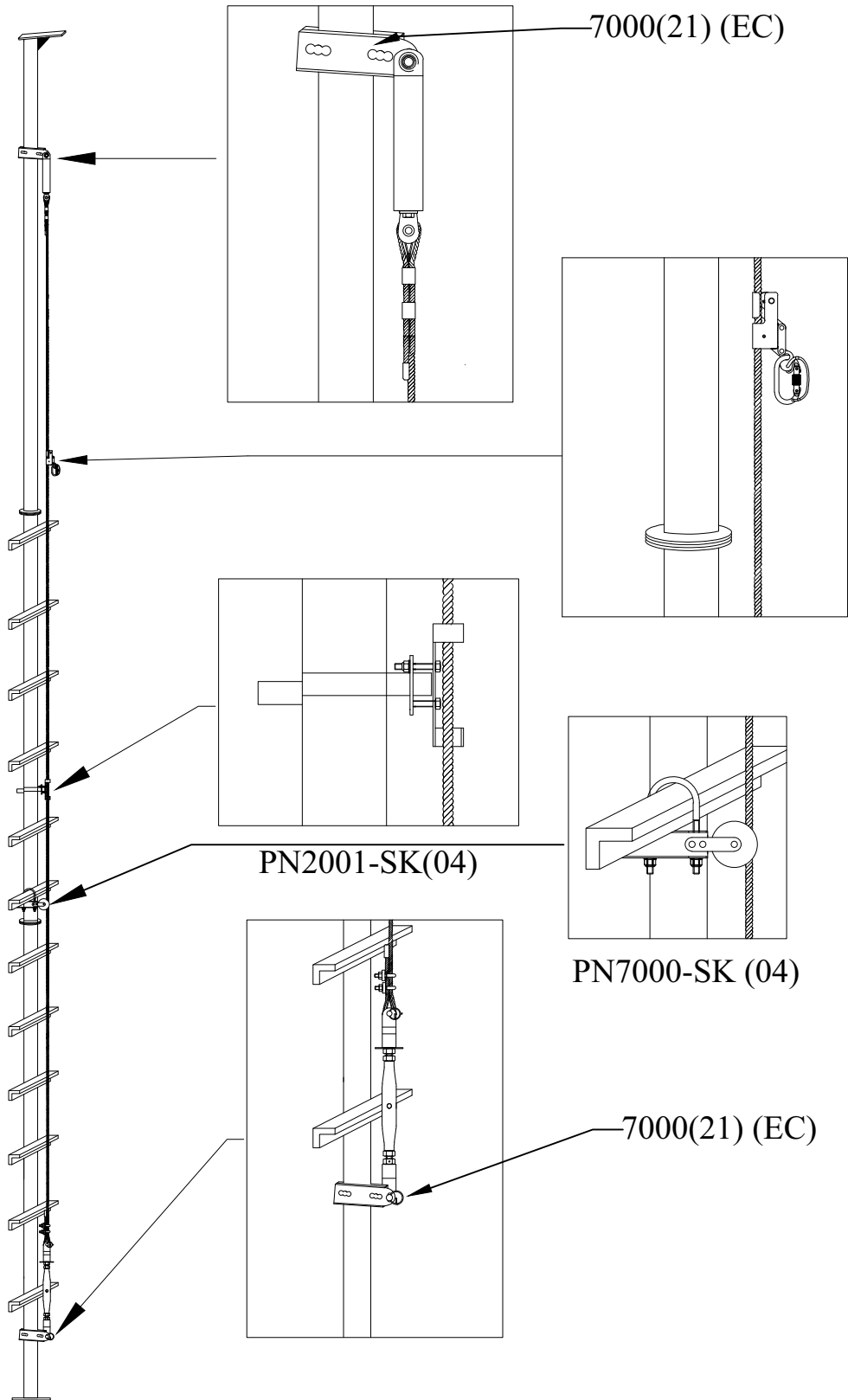


Fig 12: PN7000-SK( 7000(21) (EC))  
PN7000-SK INSTALLED ON ROOF TOP POLE  
USING MOUNTING BRACKET 7000(21) (EC)

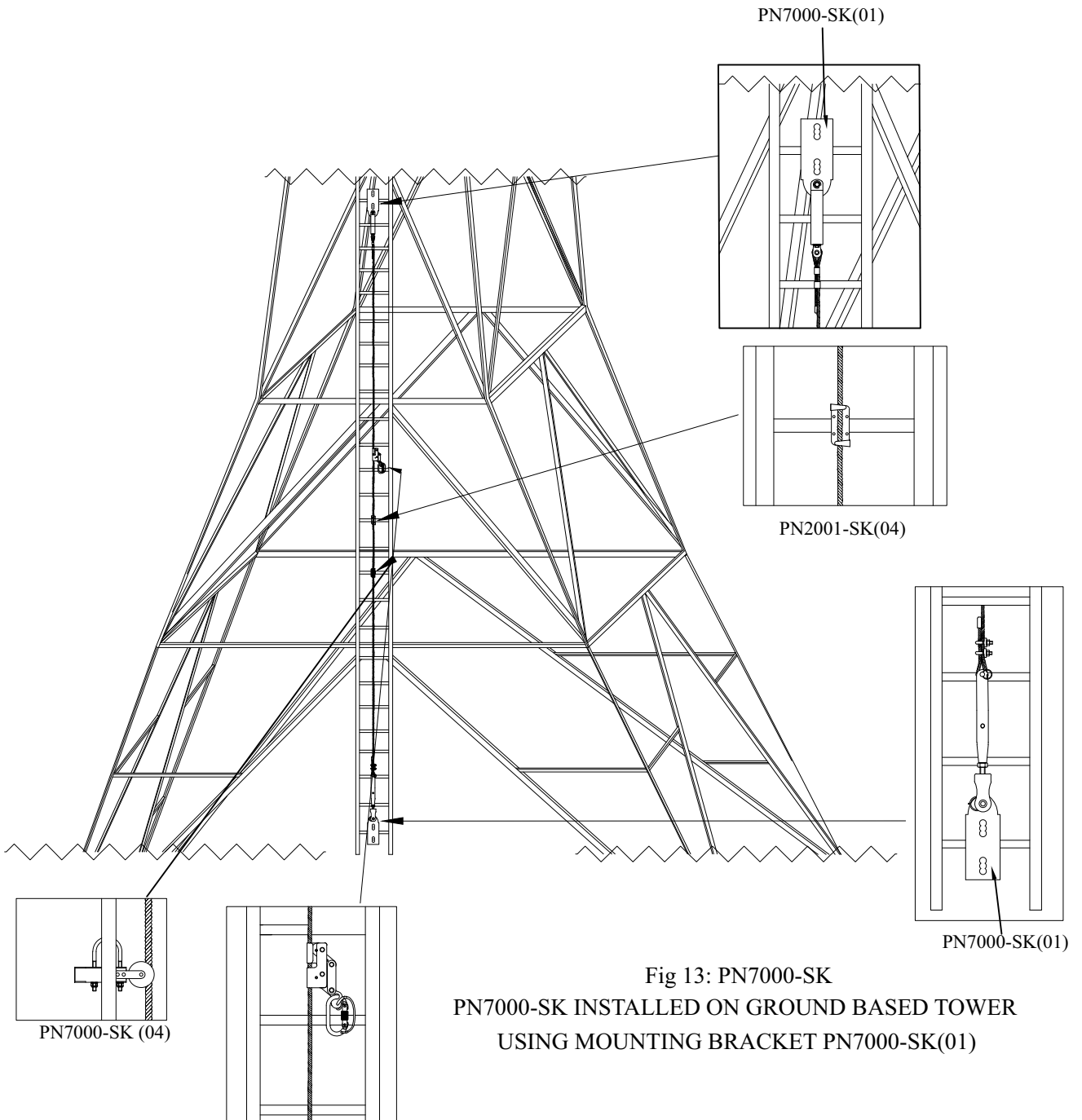


Fig 13: PN7000-SK  
PN7000-SK INSTALLED ON GROUND BASED TOWER  
USING MOUNTING BRACKET PN7000-SK(01)



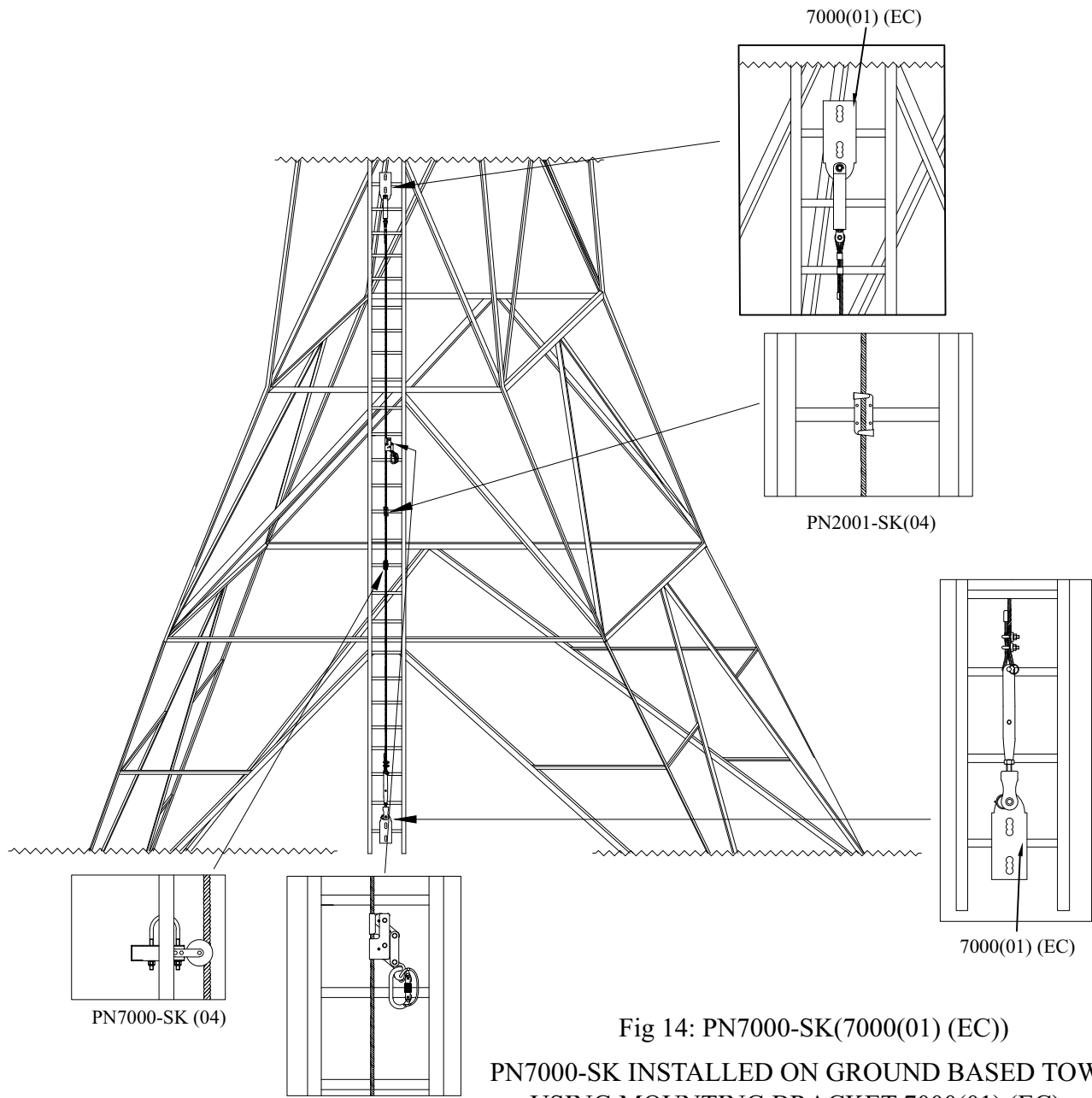


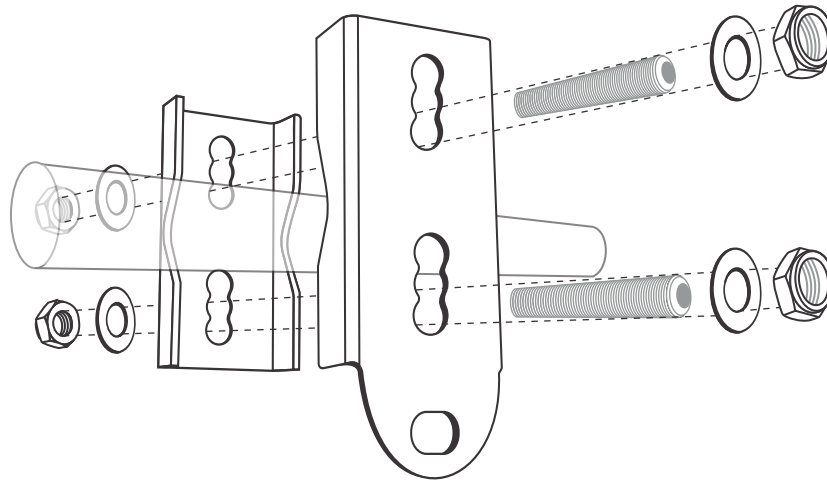
Fig 14: PN7000-SK(7000(01) (EC))  
PN7000-SK INSTALLED ON GROUND BASED TOWER  
USING MOUNTING BRACKET 7000(01) (EC)






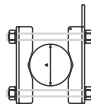
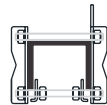
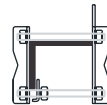
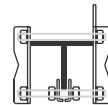
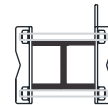


**Step 1: Installation of the Mounting Bracket Ref. PN7000-SK (01) on the Upper Ladder Rung:**

The mounting brackets can be installed on different sections of the ladder rung with the help of the two channel grips and fastened on the same with the help of the given fasteners. The drawings below illustrate the position of the channel grips for different sections.

Fasten the Mounting Bracket plates on the upper most ladder rung with the help of given fasteners as shown in below picture.

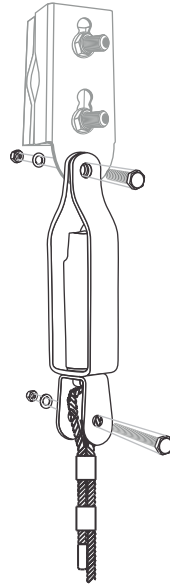


COMPATIBLE SUPPORT SECTION					
PROCESS					



### Step 2: Installation of Shock Absorber

- ◆ Connect the shock absorber to the top mounting bracket with help of supplied fasteners.
- ◆ Ensure that the energy absorber is fitted with the red arrow on the label pointing down wards
- ◆ Connect the swaged end of the wire rope to the energy absorber with help of supplied fasteners.

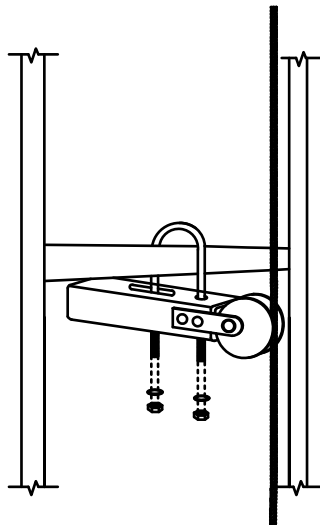


### Step 3: (A) Installation of the Wheel type Intermediate: Ref. PN7000-SK (04)

Intermediate is to be fixed at an interval of 10 mtr along the length of cable.

Place the wheel assembly onto the ladder rung such that the wire rope passes through the sheave of the wheel.

Now fix the position of this wheel assembly connecting the U bolt directly to the Ladder rung and fasten the wheel assembly with help of nut.

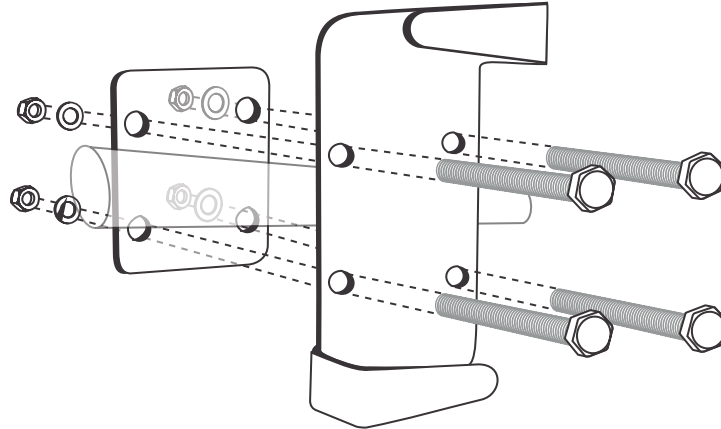


INSTALLATION VIEW OF WHEEL TYPE INTERMEDIATE



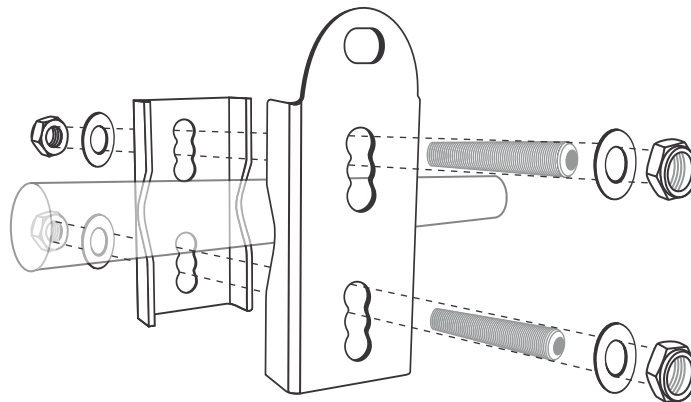
**(B) Installation of the Intermediate: Ref. PN2001-SK(04)**

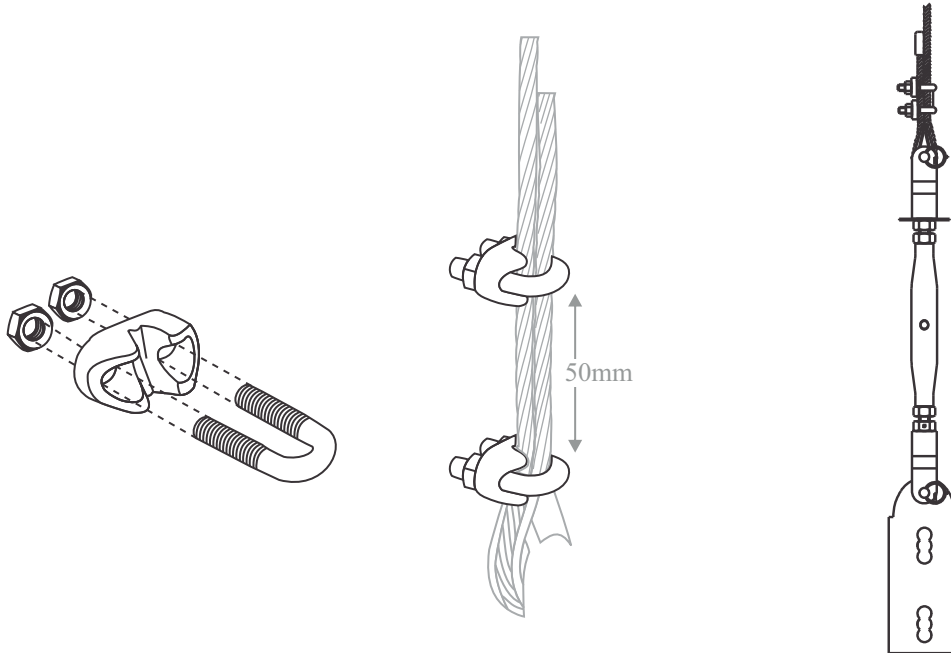
Place the fisher plate of the Intermediate on the back of the ladder rung. Fasten the Intermediate Plate with the fisher plate with the help of the given fasteners. Ensure that the cable is in between the two arms of the intermediate. It is recommended to install an Intermediate at an interval of every 10 m length of the Cable.



**Step 4: Installation of Mounting Bracket to the Lower Ladder Rung**

Fasten the lower Mounting Bracket on the lowest ladder rung with help of supplied fastener as shown in below picture.





#### Step 5: Installation of the Tensioner: Ref PN7000-SK (05)

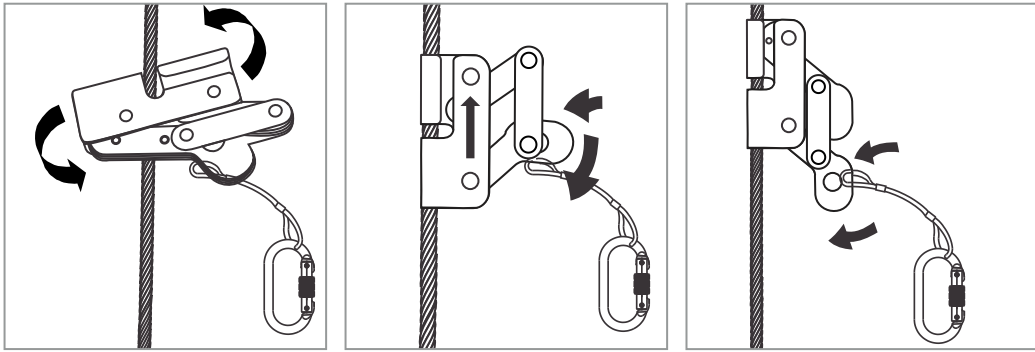
- ◆ The Tensioner is installed at the lower end of the system.
- ◆ Open the threads of the extension rod of the tensioner from both ends. Ensure that 75% of the thread is open.
- ◆ Insert the eye of the tensioner to the mounting bracket at the lower ladder rung.
- ◆ Insert the stainless steel locking pin so as to pass through the eye of the tensioner and the mounting brackets.
- ◆ Insert the pin ring in the locking pin to lock it.
- ◆ **Fix the tensioner to the wire rope.**
- ◆ Fix the thimble of the wire rope to the eye of the tensioner and insert the locking pin pass through the eye of the tensioner and thimble of the cable.
- ◆ Insert the locking ring to lock it.
- ◆ Loop the Cable across the thimble and ensure at least 300mm of the cable is overlapping.
- ◆ Fasten the stainless steel U bolts approximately 50 mm apart.
- ◆ Cut the cable and seal the loose end of the cable by swaging wire rope cap.
- ◆ **Providing tension to the wire rope:**
- ◆ Open both the chuck nuts and hold the tensioner eye.
- ◆ Insert a steel rod in the housing of the tensioner and rotate the tensioner in anti clock wise direction.
- ◆ Rotate it until the load indicator plate starts moving free to rotate.
- ◆ **Note:** The wire rope shall be anchored at the top and bottom and shall be tightened to a minimum equivalent force of 0.8 kN.
- ◆ Tighten both the chuck nuts to lock the position.



### Step 6: Installation of the Rope Grab: Ref. RG (02112)

**Connect Rope Grab to the Cable following the given simple steps:**

- ◆ Hold the Rope Grab as shown in the figure.
- ◆ Push the Rope Grab through the cable and rotate it counter clockwise.
- ◆ Ensure the arrow on Rope Grab points up wards.
- ◆ Insert the permanently linked carabiner in the eye of the Rope Grab.
- ◆ Connect the other end of the connector to the harness of the user.



### Step 7: Connect the Harness to the Rope Grab

- ◆ Check that all straps of the Harness are connected, buckles are secured and the Harness has been adjusted to give it a snug fit.
- ◆ Connect the Rope Grab to the front attachment point of the Full Body Harness with the help of the permanently linked carabiner.
- ◆ Ensure that the gate of the carabiner is closed and locked properly.





### 3.4. INSTALLATION OF OPTIONAL COMPONENT

#### 3.4.1 Installation of the Extension Arm: Ref. PN7000-SK(06) (Optional)

- ◆ If the System has been provided with the Extension Arm, this shall be installed in place of Upper Mounting Bracket as in step 1. The Extension Arm is provided pre-installed with the Mounting Bracket for the Upper end of the system.

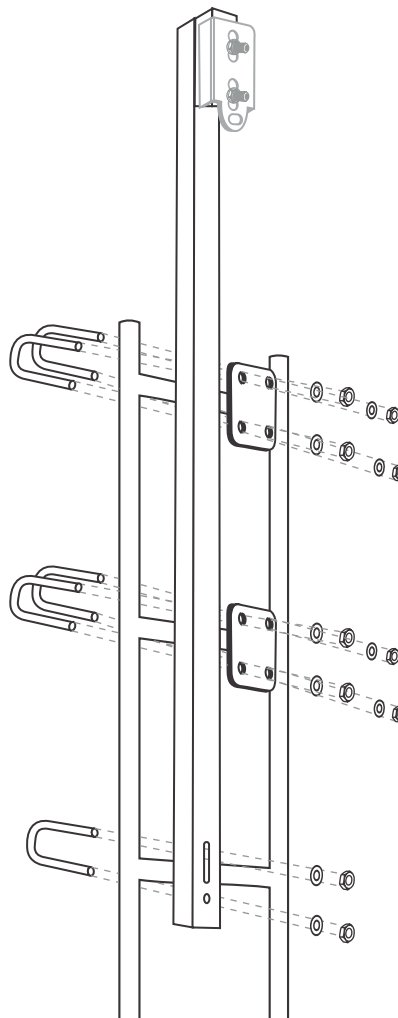
#### Follow the simple steps for easy installation

##### Top Rung

- ◆ Hold the extension arm against the upper last three rungs of the ladder.
- ◆ Hold the fisher plate in front of the extension arm.
- ◆ Insert the given U- bolts through the rung in to the fisher plate. Tighten the nuts of the U-bolts

##### Repeat the exercise for the Second rung from the top

- ◆ On the third rung of the ladder, from the top insert the given U-bolt through the ladder rung into the slot so as to pass through the extension arm. Tighten the nuts of the U-Bolt.





## CHAPTER -4

### PRE-USE CHECKS AND PRECAUTIONS

#### 4.1 Pre Use-Checks

It is mandatory for the Site Inspector/ Supervisor and the actual users of the system to perform a thorough check of the same before carrying out any work. The following points are considered for the Pre-Use check-

##### 4.1.1 Checking the Receiving Structure

- ◆ If the ladder or the receiving structure of ladder is found weak do not climb

##### 4.1.2 Checking the System

- ◆ Keep the system clean of any dust/dirt. Check for any mechanical defects.
- ◆ Check for wear and tear in all components is unusual bending or deformation.
- ◆ Check for any modifications done by the user.
- ◆ Check for any missing component.
- ◆ Check for any damages that may have been caused due to welding while maintenance of other equipment.
- ◆ Check the Identification Plate. The system needs to be put out of service if the label is not legible or missing.

##### 4.1.3 Checking the Cable

- ◆ See that there is sufficient tension on the cable by gently pulling the cable by rotating the load indicator plate by hand. Check whether cable is properly passing through the Intermediates. If not, place them in the Intermediates.
- ◆ Check the condition of the cable. Wear hand gloves and check the wire from all sides. Check for broken strands or any deformity in the cable. Report if strands are found broken.

##### 4.1.4 Checking the Rope Grab

- ◆ Check the movement of the rope grab and its grip before each climb.
- ◆ Check the spring of the rope grab it should move freely.
- ◆ Check for excessive wear and tear in the jaws of the Rope Grab.

##### 4.1.5 Check the Shock Absorber

- ◆ Check the bolt of the Energy Absorber. If the Energy Absorber is deployed, the red marking on the bolt would be visible. In case the Energy Absorber is deployed, put the system out of use.

---

### INSTRUCTIONS FOR SAFETY

#### Putting Into Service

Ensure strength of receiving structure is same as mentioned in the user manual to sustain the predicted impact load. Before use check and ensure the legibility of the marking/label

A full body harness complying to EN361 is the only recommended body holding device during service.

#### **USAGE:**

Ensure that it is not possible to remove the carriage body from the lifeline unintentionally.

#### **INSTALLATION:**

Installation must be done as per directions specified in the user instructions. Adjustment of length of lifeline must be done with help of intermediates at specified lengths.

#### **TRAINING:**

- ◆ It is important to impart training to the user/installer by authorized person for safe usage of the product.

#### SPECIFIC CONDITIONS FOR USE:-

- ◆ Any doubts arising about safe condition of product such as damaged lifeline, rusted parts, which could affect the performance of product, in such cases immediately remove from service.
- ◆ Product is safe to be used up to a Maximum temperature of 50°C
- ◆ Maximum surface temperature of the device is 40°C.
- ◆ Any alteration or misuse to the product may directly lead to serious injury or death.





## CHAPTER -5

### PRECAUTIONS WHILE USING THE SYSTEM PN7000-SK

#### 5.1 The following points of precautions needs to be considered for safe use of the system PN7000-SK

- ♦ The life line is for the purpose of fall protection while climbing up or down the ladder. A back up fall arrest system is required when transitioning on and off the life line system while working at height.
- ♦ The user should not suspend himself on the Rope Grab. The intended use of a rope grab is fall protection and not a work positioning device.
- ♦ Never disengage the rope grab while climbing up or down.
- ♦ Prevent the rope grab from falling from a height.
- ♦ Do not put grease to lubricate the system.  
If any fall is reported put the system out of use. Contact the manufacturer for repairs and re-validation.
- ♦ Full body harness which comply EN 361 with front attachment anchorage points should be used in conjunction with Vertex PN7000-SK System.
- ♦ Do not alter or misuse this equipment. Usage of certain component/sub system may interfere with the proper functioning of this equipment and the system may not deliver the working as per its intended use.
- ♦ The lifelines must be kept free from dust, grease etc., by periodic cleaning. The system can be cleaned by a soft dry cloth.

**5.1.1** Hazards existing in the immediate environment may require additional precautions to limit the possibility of injury to the user or damage to the equipment. Hazards may include but are not limited to, extreme temperatures, caustic chemicals, corrosive environments, high voltage power lines, explosive or toxic gases, moving machinery, sharp edges, high velocity winds etc. Do not expose the equipment to any hazard which it is not designed to withstand. Consult the manufacturer incase doubt.

**5.1.2** Rescue Plan: It is mandatory to ensure that the user should have a rescue plan and means to execute it while using this equipment. The rescue plan needs to be project specific. The employees must be trained in self-rescue or alternative means should be provided for prompt rescue in the event of a fall.



## WARNING & LIMITATIONS

- ♦ Full Body Harness is the only acceptable body holding device that can be used in a fall arrest system  
**Note:** Product is for single user only.
- ♦ Full Body harness should be properly adjusted to snug fit and should not be used if loose. If the harness becomes loose during the ascent and descent it should be correctly adjusted again from a secured position.
- ♦ Length of the connecting element shall not extend or shortened e.g. by adding or subtracting a connector.
- ♦ Mass of the user including clothing and equipment shall not be more than 40 kgs and the User's weight shall exceed more than 100 kgs.
- ♦ Only stainless steel rope grab RG02112 shall be used in conjunction with the vertical anchorage line PN7000-SK.
- ♦ Engaging a guided type fall arrester's release function during ascent or descent could hinder the safe operation of breaking mechanism and should be done only from a safe position where there is no risk of fall.
- ♦ Guided type fall arrester shall not be used for work positioning and if required a separate system shall be used.
- ♦ **User must attach themselves to connector which must go through the rope grab and not hang from it via the small tether cable.**
- ♦ Connection and disconnection from rigid anchorage line shall be done from a safe place or by using a secondary personal fall protection system.
- ♦ Orientation of the anchorage line shall not be inclined more than 1° from vertical position.
- ♦ Rigid anchor line should not be installed in highly corrosive atmosphere because of risk of non visible stress corrosion cracking, unless specified controlled measures are in place.
- ♦ The Coldest temperature at which the guided type fall arrester including the rigid anchor line may be used should not increase -30° C
- ♦ For the first two meters the user may not be protected against hitting the ground and that extra care should be taken when ascending or descending.
- ♦ The user is warned to be care full about the medical conditions that could his safety in normal and emergency use.
- ♦ The fall arrester should be used by a person trained and competent in it's safe use.
- ♦ The fall arrester shall not be used outside its limitations or for any purpose other than fall arrest.
- ♦ It should be a personal property of the user.
- ♦ To optimize protection, in some instances it may be necessary to use the fall arrester with suitable boots/gloves/helmet/ear defenders. In this case, before carrying out the risk-related activity, consult your supplier to ensure that all your protective products are compatible and suitable for your application. Compatibility within a fall arrest system can be checked on the check card below.
- ♦ Make a visual inspection of the system to ensure that it is in a serviceable condition & operates correctly. Also ensure that the recommendations for use with other components within a system as advised on the check card are complied with. Ensure that the harness used conformers to EN361 and the carabiner is connected to the attachment element of the harness. Also ensure that the harness has an attachment point located appropriately in relation to the fall arrester. We recommend the user to use Full Body Harness with front attachment elements only. Use the fall arrester only with the Anchorage Line supplied by the manufacturer.  
While attaching the anchorage line to the anchor point, only use carabiners according to EN 362.
- ♦ In case of any doubt arising about the safety of the fall arrester, it should be replaced immediately on consultation with an expert.
- ♦ Withdraw from use any fall arrester that has been used to arrest a fall & return it to the manufacturer or competent repair center for servicing & retest. Do not use again until confirmed in writing by a competent person that it is acceptable to do so
- ♦ While using the fall arrester, it is essential for safety to verify the free space required beneath the user at the work place before each occasion of use. It should be min. 2.5ms below the feet of the user.
- ♦ If the product is re-sold outside the original country of destination, the reseller shall provide instructions for use, for maintenance & periodic examination and for repair in the language of country of purchase.
- ♦ Danger may arise using combinations of items of equipment in which the safe function of anyone item is affected by or interferes with the safe function of another.



### INSTRUCTIONS FOR MAINTENANCE

- ◆ Proper maintenance of the equipment is essential for its successful performance.
- ◆ Regular cleaning is essential. In case of minor soiling, wipe with cotton cloth or soft brush. Do not use abrasive material. For intensive cleaning, it can be washed with water using neutral detergents. Do not use acid or basic detergents. Strictly follows the cleaning procedure as mentioned.
- ◆ If the fall arrest becomes wet, it should be allowed to dry naturally & kept away from direct heat.
- ◆ Store in a cool dry place. Avoid humid & acidic environment for storage.
- ◆ Always use standard packaging of manufacturer during transportation and storage to avoid any damage or moisture to product.

### INSTRUCTIONS FOR PERIODIC EXAMINATIONS

- ◆ It is emphasized that periodic examination of the fall arrester is important as the safety of the user depends upon continued efficiency and durability of the equipment.
- ◆ It is recommended that the fall arrester is periodically examined at least once every year.
- ◆ The periodic examination should be conducted by a competent person and strictly in accordance with our laid procedures.
- ◆ It is important to check the legibility of the markings in every examination.

#### Check Card

It is recommended that the fall arrestor should be inspected and examined by an expert for any damages or failures if the need arises, but at least once a year. The observations should be recorded in the table below. In case such damages are observed, the fall arrestor should be replaced immediately.

The fall arrestor shall only be used within a fall arrest system according to EN 363:1993 in combination with a full body harness according to EN 361:2002 and connectors according to EN 362:2004.

The instructions for use for the individual components are to be observed.

	J	F	M	A	M	J	J	A	S	O	N	D
YR												
YR												
YR												
YR												
YR												

If equipment fails inspection IMMEDIATELY REMOVE FROM SERVICE.

EQUIPMENT RECORD				
Product :				
Model & type/Identification		Trade Name		Identification number
Manufacturer		Address		Tel, fax, email into use
Year of manufacture		Purchase Date		Date first put into use
Other relevant information (e.g. document number)				
PERIODIC EXAMINATION AND REPAIR HISTORY				
Date	Reason for entry (periodic examination or repair)	Defects noted, repairs carried out and other relevant information	Name and signature of competent person	Periodic examination next due date