



## NECESSITY & APPROPRIATENESS OF FALL PROTECTION

Trainer,  
Amrit Singh

4years exp. in HSE Trainings  
Expertise in Fall Protection



knowing your needs better

# Who we are

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- 18 year old company
- 3<sup>rd</sup> largest Fall Protection Manufacturer globally
- India's Largest Manufacturer of Fall Protection Equipment (PPE) & Fixed Lifeline Systems (FLS)
- 12 Offices in major cities across India
- Country-wide network of Distributors and Dealers to serve you at your door-step
- Focus on being Solution Provider to give you tailor-made Safety solutions as per your requirements.



# KARAM's Global Footprint

OEM supplier to over 60 countries

Confirming to ANSI, EN, CANADIAN, SINGAPORE and AUSTRALIAN norms



# Our Manufacturing Units

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Lucknow Unit

# Program Outline & Learning Objectives

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This presentation is based on the NECESSITY & APPROPRIATENESS of Fall Protection System

- What is Fall
- Accidents from Fall
- Lack of Awareness/ Behaviour issues
- Importance of Fall Arrest System
- New Technologies & Innovations
- Selection of right equipment
- Maintenance
- Proper Usage
- Significance of certification
- Training-its scope & importance



# What is Fall?

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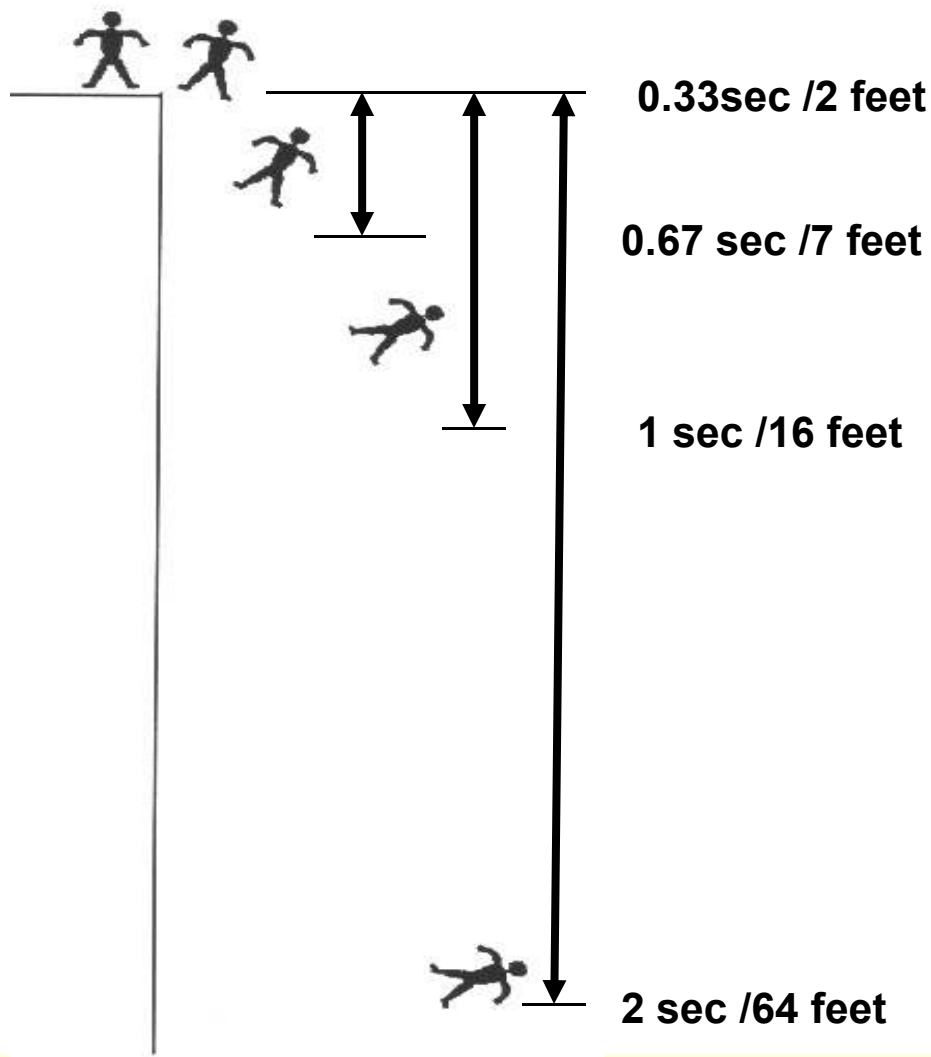
An Unexpected and Unforeseen event having Undesirable consequences resulting from workers experiencing a Fall from an Elevation.



**MOST OF THE MAJOR INJURIES OCCURES DUE TO FALL FROM MORE THAN **1.8 or 2 METERS** HEIGHT**



# Anatomy of a Fall

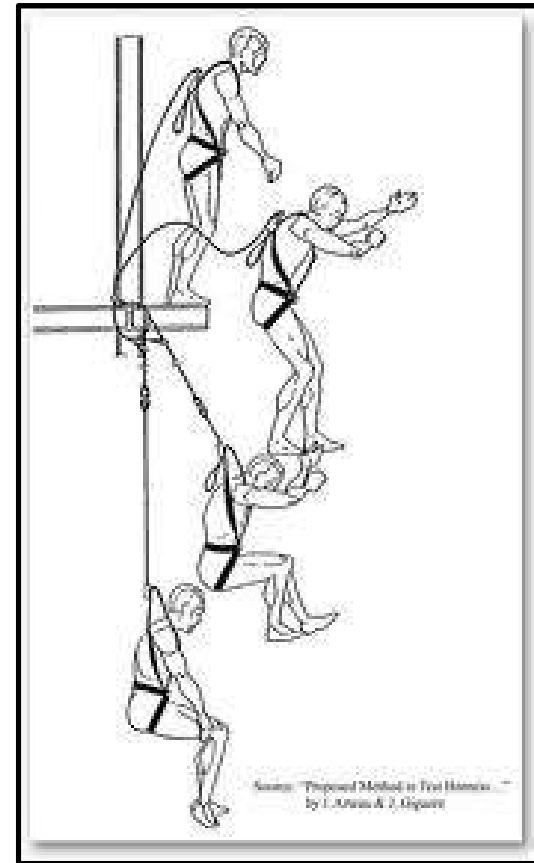


- It takes most people about .33 of a second to become aware.
- It takes another .67 of a second for the body to react.
- A body can fall up to 7 feet in 2/3 of a second.



# Forces experienced during a Fall

Calculation of Forces		
Mass in Kgs	Fall in meters	Impact on human body
50	2	980kgf
55	2	1078kgf
60	2	1176kgf
65	2	1274kgf
70	2	1372kgf
75	2	1470kgf
80	2	1568kgf
85	2	1666kgf
90	2	1764kgf
95	2	1862kgf
100	2	1960kgf



1568 Kgf on a human body is deadly



# Calculation Of Force from 2meters

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$$F=ma$$

Where **F= Force**

**m= Mass**

**a = Acceleration due to gravity (9.8 m/s)**

Normal length of Lanyard is **2meter**.

Now calculate the acceleration for **2meter** it is **(9.8\*2= 19.6)**

$$F=ma$$

$$F= 80 \text{ (Normal weight of person) } * 19.6= 1568.$$

$$F= 1568\text{kgf}$$



# Why Fall Hazard is the most dangerous of all?

**11,867** workmen died due to fall related accidents in India in the year 2011

*This means,*

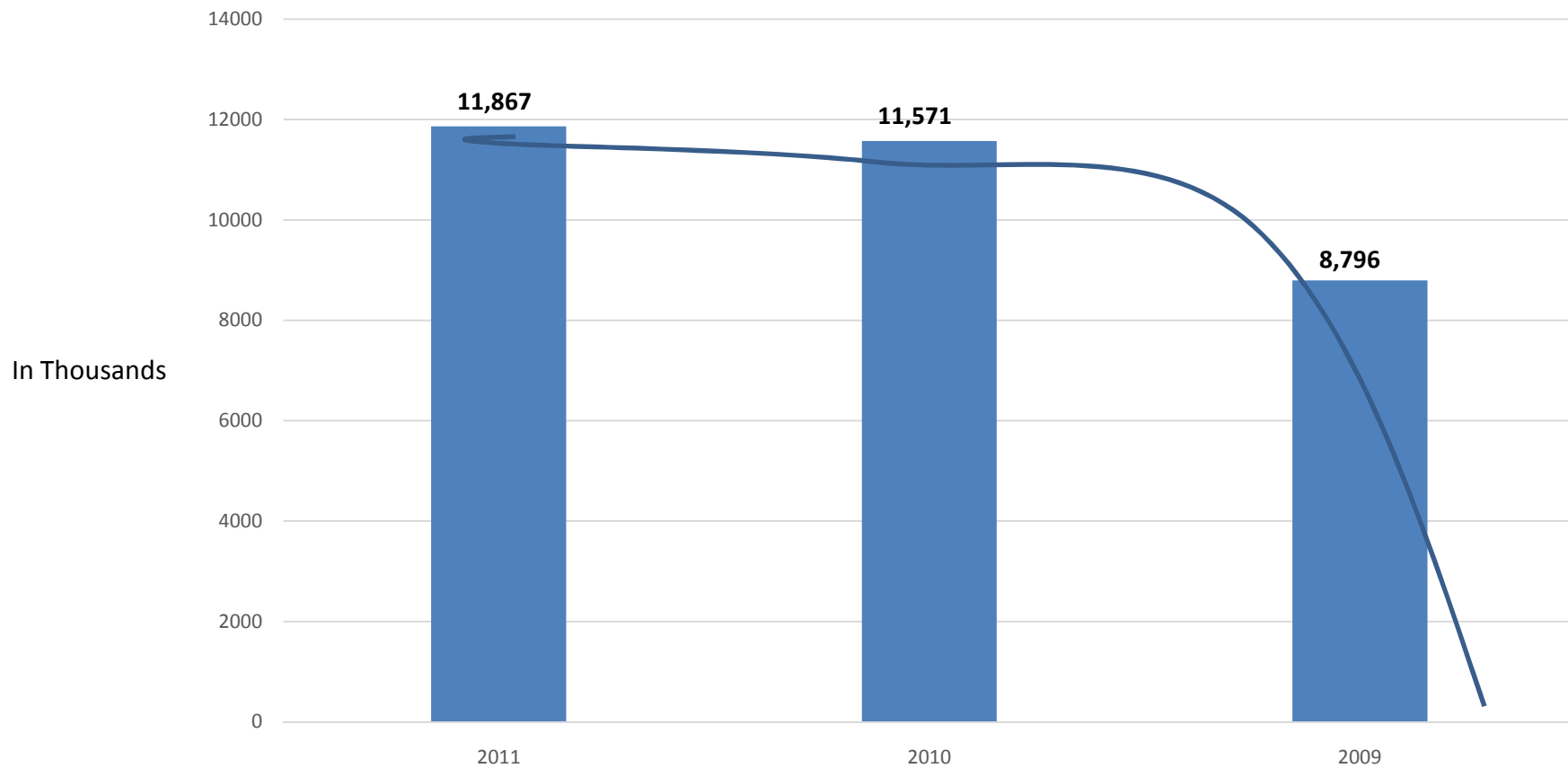
**Almost 32 workmen died EVERYDAY due to fall related injury**

Source: National Crime Record Bureau, GOI



# Why Fall Hazard is most dangerous of all?

Number of Deaths



<http://ncrb.nic.in/ADSI2010/accidental-deaths-10.pdf>



# Lack of Awareness

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- Behavioral Issues
- Lack of Training
- Lack of proper Fall Protection Equipment's



# Behavior

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As per **Bureau of Labor Statistics**;

- Hard hats were worn by only 16% of those workers who sustained head injuries
- Only 1% of approx. 770 workers suffering face injuries were wearing face protection
- Only 23% of the workers with foot injuries wore safety shoes or boots
- About 40% of the workers with eye injuries wore eye protection

<https://ehs.okstate.edu/training/oshappe.htm>



# Training

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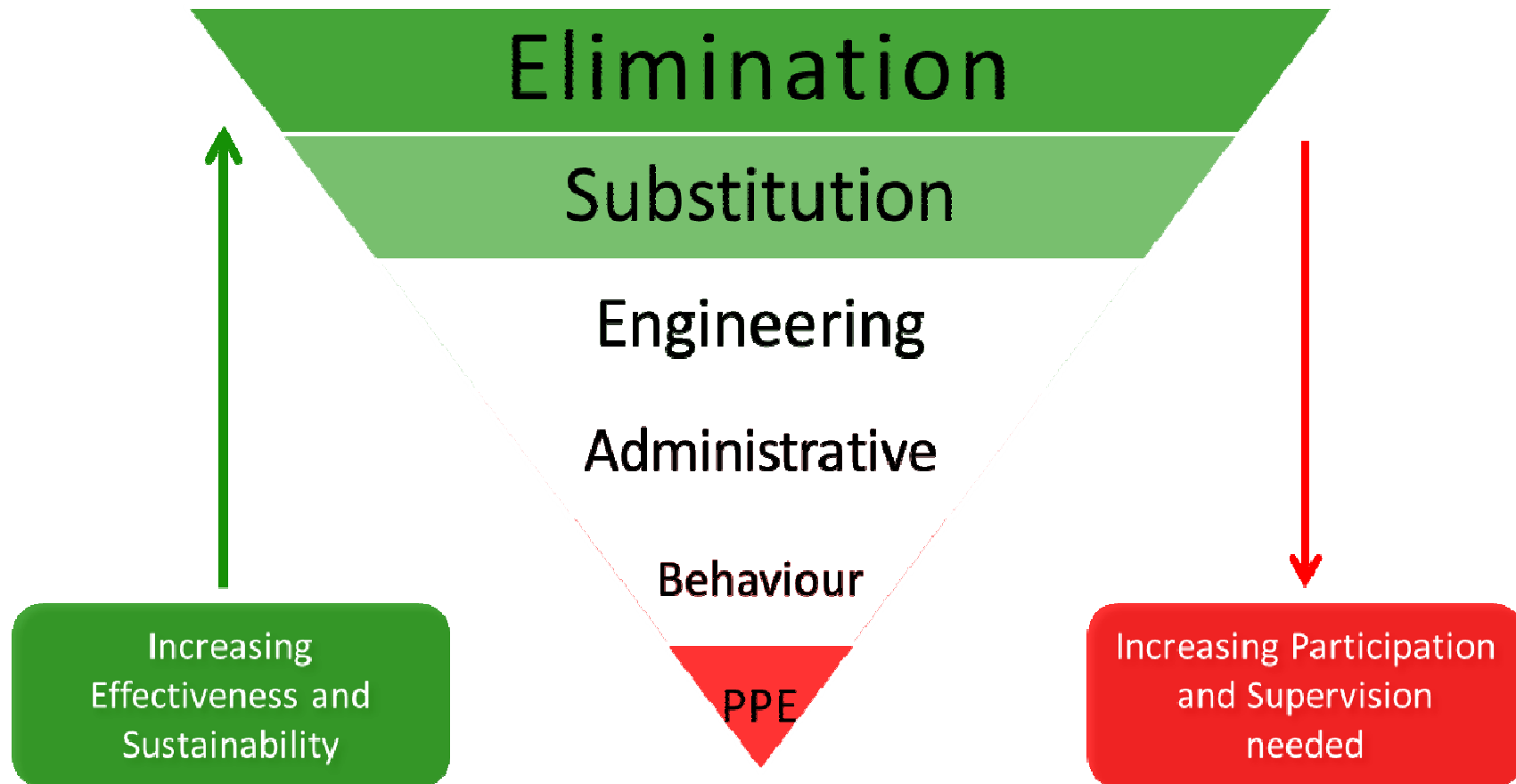
It is mandatory to take the training who is using the Fall Protection Equipment's like;

- Inspection of that FP Equipment's
- Features of that FP Equipment's
- How to wear
- How to use



# Hierarchy of Control

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# Fall Protection Equipment's can save our life?

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No only **correct & suitable FP Equipment's** can save our life because it is last lime of defense





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So, always use **correct & suitable Personal Fall Protection Equipment's** which can save our life



*Selection of PPE as per OSHA standard 1910.132 - 139*





# New Technologies & innovations

Harness for Hot Work



FLANIL



Anti-static harness for

NoSpark



FLANIL RANGE

Anchorage Sling  
Ref. PN 004 (FR)

Work Positioning Lanyard  
Ref. PN 243 (FR)

Forked EA Lanyard  
Ref. PN 361 (FR)

Full Body Harness  
Ref. PN 42(02) (FR)

Also available in FLANIL Range:  
PN 22 (FR), PN 371 (FR),  
PN 328 (FR), PN 261 (FR)

Revolta for ONGC



REVOLTA<sup>TM</sup>  
SERIES



# New Technologies & innovations



Rescue from height is very simple



Different types of Retractable Blocks



# Maintenance & Storage

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- Prevent exposure to UV-radiation and to extended strong sunlight
- Let PPE dry naturally when wet
- Pay attention to chemical/ oil/ paint
- Never write on the any textile material
- Clean only with water
- Damaged material to be rejected
- Keep PPE together
- Store in a cool dry place



# Maintenance & Storage

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Self life of Fall Protection PPE's like-  
Lanyards, Rope, Safety Harness, Slings is **Five Years**, if  
it is kept in good condition.

Refer EN 365:2004 – Personal protective equipment against falls from a  
height-

*General requirements for instructions for use, maintenance, periodic  
examination, repair, marking and packaging*



# Significance of certification

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When ever we buy any product we have to see it is certify as per ISI, EN, ANSI or not.

These certifications shows on which parameters the product is tested.

**EN 364:1992 – Personal protective equipment against falls from a height -  
*Test methods***



# List of EN Standards for Fall Protection

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EN 355:2002 – Personal protective equipment against falls from a height - Energy/ Shock absorbers

EN 360:2002 – Personal protective equipment against falls from a height – Retractable type fall arresters

EN 361:2002 – Personal protective equipment against falls from a height – Full body harnesses

EN 362:2004 – Personal protective equipment against falls from a height – Connectors/Hooks

EN 364:1992 – Personal protective equipment against falls from a height - Test methods

EN 365:2004 – Personal protective equipment against falls from a height – General requirements for instructions for use, maintenance, periodic examination, repair, marking and packaging



# Certifications achieved by KARAM



1997 KARAM made its first ISI Marked Safety Belt



1998 Achieved the Director General of Mines and Services, Government of India approval by the DGMS



2006 KARAM became the First Indian Company to achieve CE Certification on Fall Protection Equipment



2007 Achieved Australian Certification in July, 2006.

2007 Achieved American Certification ANSI, on Fall Protection Equipment in August, 2006.



2007 Achieved ISO-9001:2000 Certification

**Note : All certificates are valid only for One Year.**





# Article 11 Certification

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- As per the Directive 89/686/EEC (of the European Legislation) the CE certificate is valid only for one year from the date of issuance of the Certificate.
- For **extension of validity** of CE certificate for Category 3 PPE testing is redone **every year** as per the original examination, and an Article 11 A or 11 B Certificate is issued by the Notifying Body.

## **Recertification is done each year under-**

- Article 11 A - Samples of the product are retested
- Article 11 B – Processes of the manufacturer are assessed to the most stringent norms. This is more stringent and difficult to achieve but also ensured consistent quality output.
- **KARAM recertifies as per Article 11 B**



# Samples

## Certificate



**SATRA**  
Notified Body 0321

Issued to: P & S Global Private Ltd  
100 2<sup>nd</sup> Floor  
And 4<sup>th</sup> Floor  
New Sector 149/6  
Gurgaon

SATRA Client: P010

### EC Type-Examination Certificate

Number 4790 Issue 2

This is to certify that the product(s) below conforms (conform) to EN 12412 & EN 12413 complying the following product:

Product Ref.	Description
SKALT 1	Full size helmets with double chin strap of 17kg and front edge adjustment beam track. Protective helmet setting - adult - 44cm
SKALT 2	Impact of SKALTA 1 incorporating a steel adjusting bar
SKALT 3	Forward view helmet with chin strap incorporating a chin strap. New style of strap for side connection in case strap and with central webbing for SKALTA2. Protective helmet setting - adult - 44cm

Technical reports:  
SATRA: SPGD1913151002

You have signed up an EC Type-Examination in accordance with Article 10 of the TPE Directive (93/68/EEC) and have been issued a certificate and issued documents in the Declaration for the complete category through:

1. Testing to the following standards: EN 12412 & EN 12413
2. Examination of the relevant technical documentation.

The certificate remains valid until the certificate is cancelled or withdrawn with effect 31 of December 2020/2021 and will remain in force until the date of the next renewal or the date of the next extension of the certificate.

Full details of the certification and product are contained in the manufacturer's technical file.  
This certificate is only valid if produced with the seal - SATRA - Equipment Notified Body 0321.  
This certificate is issued subject to the conditions on the reverse side of this certificate.  
CE marking of production is also subject to correct compliance with Directive 93/68/EEC Article 11.

Signed: *[Signature]* (M.J. Cooper)  
Signed: *[Signature]* Date: 2nd July 2010  
On behalf of SATRA

SATRA Technology Centre, Wyke Road, Wyke, Wetherby, West Yorkshire, WF15 8EQ, United Kingdom

## Extension Certificate



**SATRA**  
Notified Body 0321

Issued to: SKALT B.V.  
Draaiveldweg 18  
2182 AT Alblasdorp  
The Netherlands

SATRA Client: P010

### EC Type-Examination Certificate

Number 4070 Issue 1 Extension 1

This is to certify that the product(s) below conforms (conform) to EN 12412 & EN 12413 complying the following product:

Product Ref.	Description
SKALT PROCLIMB	Adjustable safety rope grab, clamp for rope size diameter 8mm - (21mm).

Technical reports:  
SATRA: SPGD1913151002

You have signed up an EC Type-Examination in accordance with Article 10 of the TPE Directive (93/68/EEC) and have been issued a certificate and issued documents in the Declaration for the complete category through:

1. Testing to the following standards: EN 12412
2. Examination of the relevant technical documentation.

The certificate remains valid until the certificate is cancelled or withdrawn with effect 31 of December 2020/2021 and will remain in force until the date of the next renewal or the date of the next extension of the certificate.

Full details of the certification and product are contained in the manufacturer's technical file.  
This certificate is only valid if produced with the seal - SATRA - Equipment Notified Body 0321.  
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Signed: *[Signature]* (M.J. Cooper)  
Signed: *[Signature]* Date: 2nd July 2010  
On behalf of SATRA

SATRA Technology Centre, Wyke Road, Wyke, Wetherby, West Yorkshire, WF15 8EQ, United Kingdom

# Labels & Markings

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**How to determine if a product is certified by EN and if the certificate is still valid?**

Each Product Label must carry following information as per Clause 4.8 EN 365



The label includes a marking **CE0321**

The last digits are identification of the Notified Certifying Body  
For eg. 0321 is SATRA, UK

EC Declaration of Conformity  
Manufacturer:  
PPE Model:  
Serial No.:  
EN Standard:  
CE Approval Cert No.:  
Notified body No:  
Article 11 Notified Body:

**The certifying lab can easily be contacted for verification of the certificate.**



# Inspection/ Examination of your PPE

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- By yourself- before use

Checkpoints PPE:

- Damaged
- Bent/ disfigured all metal products
- Dirt may cover damage
- Rust

**Always check the  
Manufacturing Year of  
the PPE and keep in  
mind the Life Cycle of  
the Product**

- Annual examination by Competent Person as per prescribed procedure by manufacturer



# After Sales Service

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For, Block & Fixed Line Systems  
Repair, Servicing & Recertification

**Only INDIAN player to offer  
Repair & Servicing services**

- **Annual Inspection & Servicing**
- **Repair using genuine KARAM spares**
- **Testing as per EN Norms**
- **Authorized Service Centre under KARAM monitoring**



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Thank You

