SRA APPROVED INSTALLER TRAINING COURSE

CERTIFICATE IN COMPETENCY

safetyroofanchors.com.au

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COURSE CONTENTS

Introduction to SRA

Safety Roof Anchors is an Australian company established and operated by rope access technicians and certified riggers, with many years of hands on experience.

After numerous years spent working at heights, we decided it was time to put our practical knowledge to use and create better, safer products that are robust yet easy to install.

We have dedicated years to research and engineering of our products which are now supported by independent testing carried out by a certified NATA laboratory. The result is a line of products that is robust, modular and easy to install and use.

Our range of rope access and fall arrest anchor points and static lines has been fully engineered and rigorously tested. All parts are genuine SRA products, designed and manufactured specifically for use in industrial rope access and fall arrest applications.

Our unique way of fixing into light structures such as metal roofs and timber trusses, provides unrivalled strength due to the maximised use of the host structure working in unison with the anchor point. As a result, we have bridged the gap between rope access and fall arrest anchor points which means that all of our products can be used in both applications.
Our approach is different because we know that only the best will do when you are working at height.

We are driven by innovation and quality, to provide you with the products you can trust when it matters most.

Installation of SRA Products

- SRA cannot be held responsible for any product that is not installed correctly.
- Persons installing SRA products must be approved SRA product installers.
- All persons installing SRA products must know the 'Working at Heights' regulations, have completed 'Height Safety Training' and be competent in all the relevant Australian standards applicable to the work they are performing.
- Any installation instructions are SRA recommended methods and must be adhered to.
- SRA cannot be held responsible for incorrect installation documentation or procedures.
- SRA will endeavour to help and give guidance where necessary but cannot be held responsible for any 'misinterpretations' or 'incorrect' advice.
- SRA cannot warrant the structure to which the product is installed to. Assessment must be made by a qualified structural engineer; unless it is clear to a competent person it is structurally adequate.
- E&OE apply to all SRA documentation.

MODULE 1:

WHAT ARE ANCHOR POINTS & STATIC LINES?

2.1 What are anchor points and why are they so important?

Anchor points are attachment devices enabling access to otherwise unprotected edges and structures, to the trained personnel, designed for protection from fall from heights. They are usually required in vertical or sloping environments such as roofs of buildings, dams, bridges and other structures over 2m.

There are many types of anchor points and therefore the anchor point installer must determine:

1. Purpose of anchor point (fall arrest, rope access or re-direction)
2. System layout
3. Host structure and anchors' suitability (concrete, steel, multiple brick walls, steel purlins, roof sheet, timber rafters etc.)
4. Rating of anchor point in kN (1 or 2 person anchor)

2.2 What are life lines (static lines) and why are they so important?

Life lines are attachment devices using a series of anchor points connected together with a (stainless) steel cable. They can be of horizontal (roof) or vertical (ladder) configuration. They offer continuous protection to the personnel working at height.

The physics behind life lines (static lines) are much more complicated when compared to anchor points. Great care must be taken when assessing the structure! The end anchors must be able to resist both the lateral tensile forces developed in the line as well as the directly applied forces at right angles to the line, resulting from the arrested fall.

SRA static line is a proprietary system for multiple users. This means that its design and manufacture is based on calculations confirmed by static and dynamic testing of critical configurations in all relevant substrates.

MODULE 2:

SOME COMMON BASIC TERMINOLOGY

3.1 Difference between rope access, fall arrest, fall restraint and 2 person anchor:

- **Rope Access** (or Industrial Rope Access or Work Positioning) is a relatively new industry which has evolved from basic climbing techniques. Rope access technicians use a twin rope technique to abseil buildings and structures. Rope access anchor points must be rated at minimum 12 kN. There are a minimum of 2 anchor points within the system (i.e. twin rope technique).

- **Fall Arrest** is situations where a person attached to an anchor device, via an approved harness and lanyard, has taken a fall and the anchor point arrested his/her fall. A fall arrest anchor point has to be rated at a minimum of 15 kN.

- **Fall Restraint** is a situation where a person is attached to an anchor device, via an approved harness and lanyard, in such a manner that it is physically impossible to fall over the edge.

- A **2 Person Anchor** is rated at 21 kN. Understand however that it is usually not the anchor itself which will fail; it will most likely be that the host structure won't be able to withstand 21 kN.

Don't use 2 person anchors if you don't have to!

Design a better system which doesn't require operators to share the anchors! SRA doesn't rate any of its anchor points as 2 person anchors because we don't advocate sharing the anchors in the first place. By rating an anchor point as a 2 person anchor you are actually increasing your own liability while you don't have to! The host structure can be treacherous!

3.2 Definitions of abbreviations and terms

- **1 kilo Newton** (1kN) is a measurement unit of force **(not to be confused with weight)**

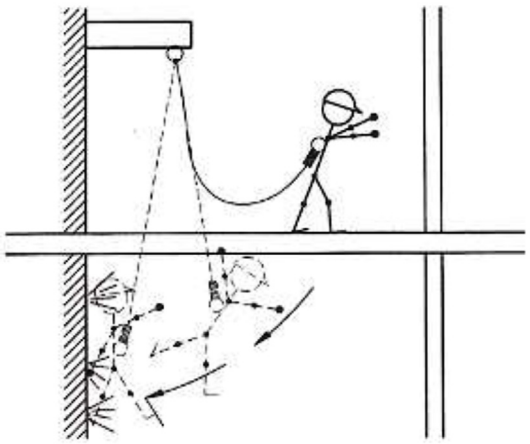
- 1kN = approximately 100KG 10kN = 1,000KG (1T) 15kN = 1,500 KG (1 T)

- **SWL (Safe Working Load)** is the load that a piece of lifting equipment, lifting device or accessory, can safely utilize to lift, suspend, or lower a mass without fear of breaking. It is generally considered to be the breaking load of the components, divided by an appropriate factor of safety, giving a 'safe' load that can be lifted, suspended or carried.

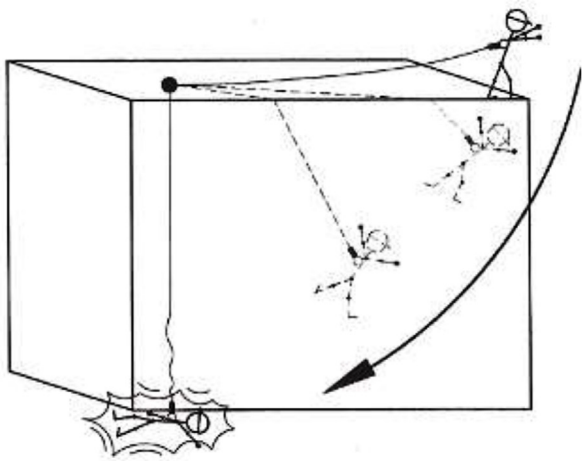
- **WLL (Working Load Limit)** is a replacement term for SWL describing capacity of items such as hooks, slings, shackles and anchors.

- **MBS (Minimum Breaking Strength)** is often marked on the equipment by the manufacturer and is generally 5-10 times more than WWL

- **Pendulum effect** is a situation when a person attached to a piece of rope or lanyard falls over the edge and continues to swing until he/she hits the ground or side of the building. The swinging motion can also sever the rope or lanyard on the edge of the building.

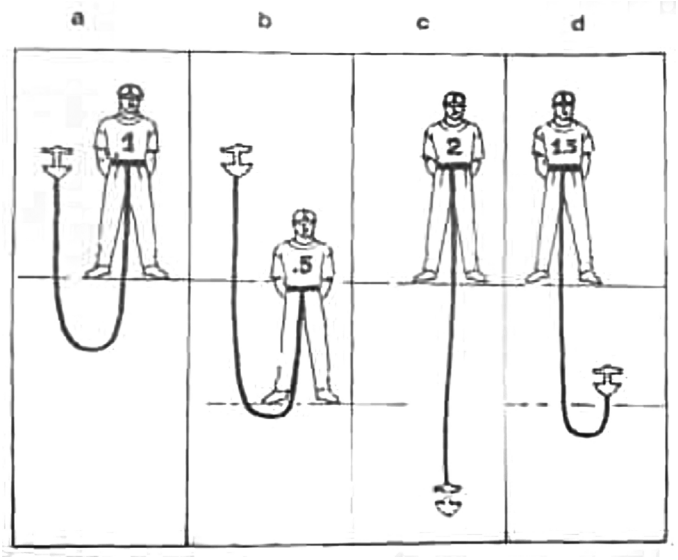


(a) Pendulum effect simple case



(b) Pendulum effect-anchorage line sliding along edge

- **Fall factor** is a method of describing the length of a free fall an attached person can take in relation to the length of their lanyard as well as their position in relation to the anchor point. For example a person standing ABOVE the anchor point will fall over the length of the whole lanyard. This is called a Factor 2 fall. A fall where a persons' harness attachment point is at the same height as the anchor is called a Factor 1 fall. This is because the fall distance is shorter; usually ½ of the lanyards' length.



- **Aid climbing** refers to a rope access technique, used by abseilers, to move across the structure using a series of anchor points and 3 lanyards (cow tails) with foot loops, connected to a rope access harness. Aid climbing routes are often installed in overhangs of buildings. You must be an abseiler to install aid routes, unless you are able to install from a scaffold or machinery.

- **EWP (Elevated Work Platform)** some examples of EWPs are cherry picker and scissor lift.

MODULE 3:
STANDARDS

1.1 Who is a “competent person”?

According to AS/NZS1891 competent person is:

“A person who has, through a combination of training, education and experience, acquired knowledge and skills enabling that person to correctly perform a specific task.”

- Are you a competent person?
- What are your qualifications?

Installed anchor points and static lines must not be used until they are tested and certified!

- Are you covered by Professional Indemnity insurance?

1.2 Standards and codes of practice relating to installation of anchor points and static lines

WHS Act 2011

AS/NZS 1891.2:2001 Industrial Fall Arrest Systems and Devices – Horizontal Lifeline and Rail Systems

AS/NZS 1891.4:2009 Industrial Fall Arrest Systems and Devices – Selection, Use and Maintenance

ISO 22486 (2003) replaces AS/NZS 4488(1997)

Part 1: Fundamental principles for a system of work

Part 2: Code of Practice

COP Safe Work on Roofs – Commercial Buildings

COP Safe Work on Roofs – Residential Buildings

Safe Working at Heights guide

1.3 Standards relating to manufacture of anchor points

AS/NZS 5532:2013 Manufacturing Requirements For Single-Point Anchor Device Used For HarnessBased Work At Height

MODULE 4:

ANCHOR POINT SYSTEM DESIGN AND LAYOUT PLAN

4.1 System design

To design a correct anchor point system one must answer a few basic questions:

- What is the system to be used for?
- How many people will be using the system?
- What is the access to the roof/ structure?

When planning the system layout, one should visit the site (if possible) to make certain the host structure will be able to withstand the loads imposed on it during the use of the system. Assessment must be made by a qualified structural engineer; unless it is clear to a competent person it is structurally adequate!

System design includes knowing the quality of concrete, size of the timber members, purlin gauge, condition and thickness of the roof sheet and thickness of brick walls.

In case the site visit is not practicable, gather as much information about the host structure as possible. You can make use of plans, drawings and Google Earth images or speak to the person in charge of the building and ask questions!

Ensure there is safe access to the roof/ structure area. You may need to consider EWP, ladder use, installation of a hatch, installation of a ladder bracket etc.

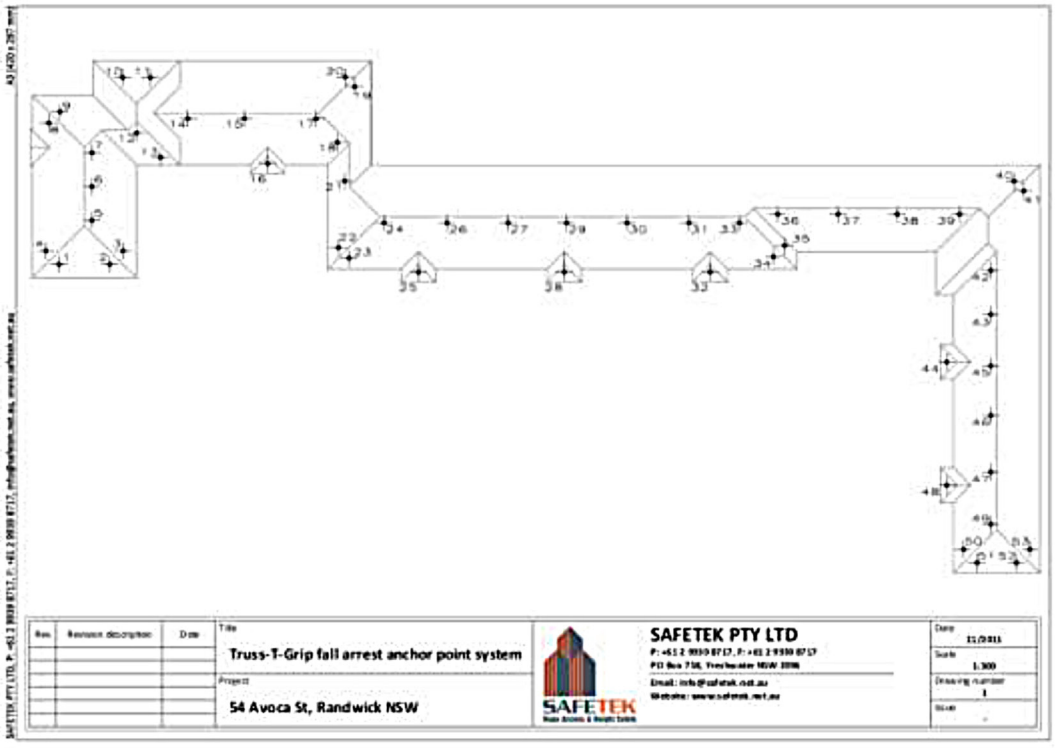
■ Decide on the type(s) of anchor you will be using.

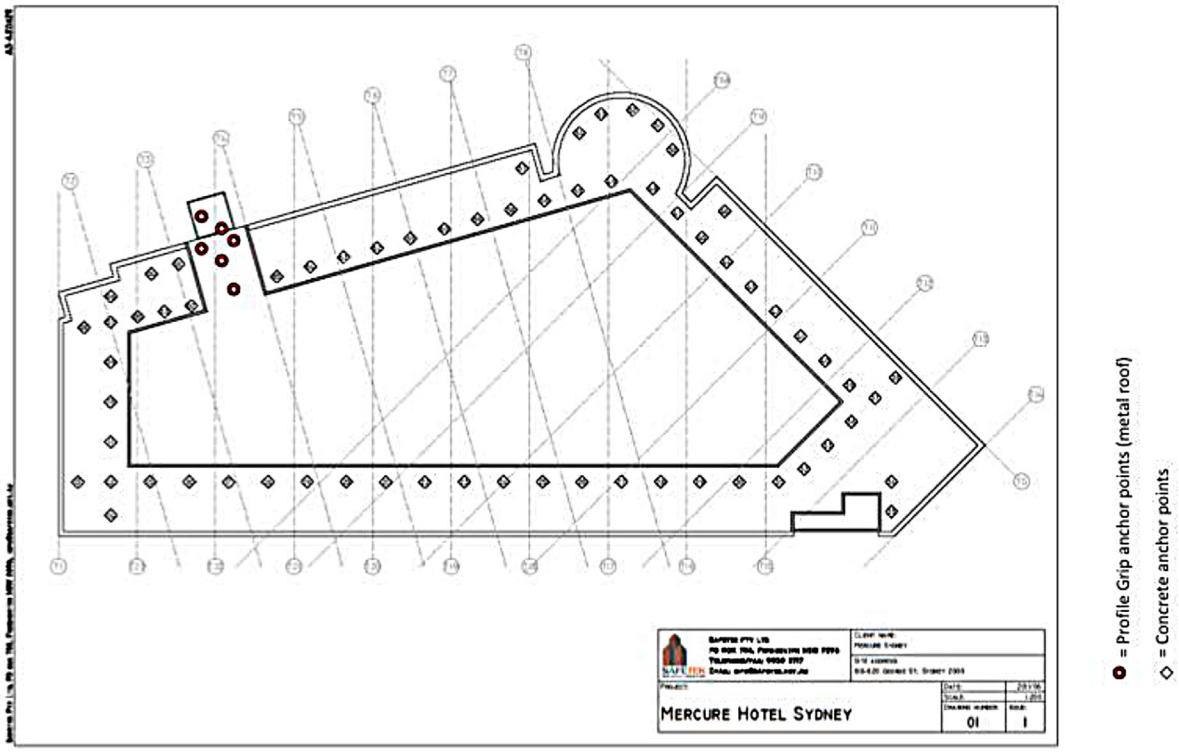
It is always better to plan to install more anchor points than less. Keep in mind that, especially when designing anchor point systems for abseiling, the number of rope access technicians that can work on site at the same time is often dependant on the availability of anchorage points. For example, if a builder needs a window cleaning job finished quickly, the cleaning contractor needs to utilise more abseilers and therefore will need more anchorage points.

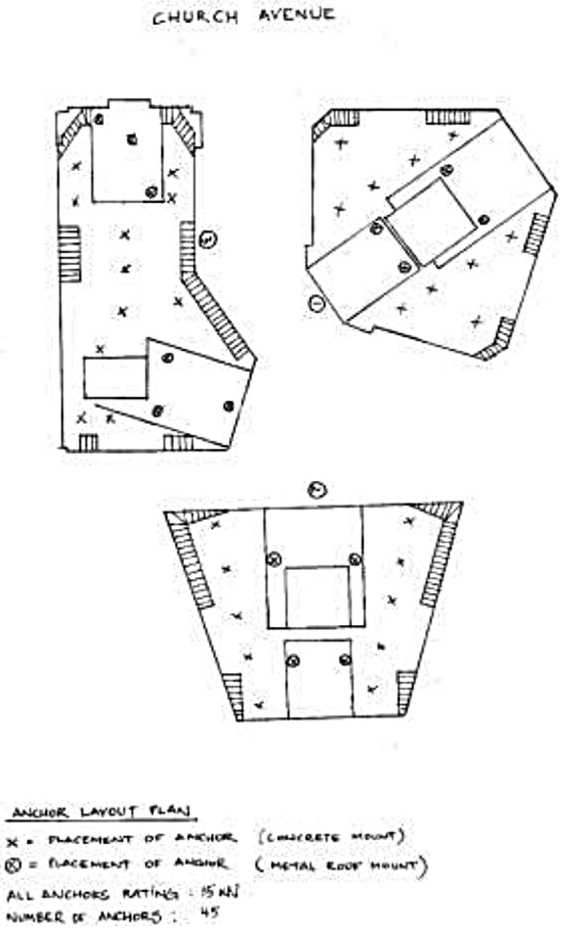
In any case, a few extra anchor points for the purposes of rescue are always a good idea!

- When designing systems be aware of the pendulum effect!
- Create a ‘System Layout Plan’ and submit it to the client together with your quote. Refer to the drawing during the installation.

4.2 System layout plan







There are many ways of creating a functional layout plan depending on availability of drawing programs and your ability to use them.

There is nothing wrong with a hand drawn layout plan as long as it is tidy and functional.

MODULE 5:
HOST STRUCTURES AND METHODS OF FIXING

5.1 Host structures

Anchor points can be installed in to a variety of host structures. The most common examples include:

- **Concrete** (AA400 series)
- **Natural stone** (AA400 series)
- **Steel purlins** (AA403)
- **Steel beams** (AA 400 series)
- **Steel purlins and roof sheet combinations** (Profile Grip)
- **Timber batons and roof sheet combinations** (Profile Grip)
- **Timber trusses and rafters** (Truss-T-Grip)
- **Double brick walls** (AA400 series)

5.2 Concrete anchors (AA400 series)

For installation in concrete either a chemical or mechanical fixing can be used. SRA recommends Hilti products. The choice depends on the intended use of the anchor. For example, use chemical anchors in most installations outside, to help with water proofing of the hole. Mechanical anchors (HSL-GR or HST3- R) are an asset in tensile anchor installations in overhangs when installing an aid climbing route.

Chemicals include Hilti HVU, Hilti HIT-RE-500.

Different chemical are often used for different situations. For example RE-500 is suitable for curing under water and is therefore also suitable for fixing into natural stone as there can be water present.

Hilti HVU sachets are pre-measured for the rod size so there is no issue with the amount of chemical squeezed into the hole, compared to using injection type of chemical. They are also great on hot days because they won't dry out like their injection chemical counterparts.

SRA has developed an eyebolt setting tool enabling the installer to use Hilti HVU sachets. This was previously not possible as the eyebolts must be drilled in to activate the chemical and start the curing process. The setting tool is compatible with Mini SDS Plus and is therefore suitable for most types of rotary hammer drills.

HIT is a cheaper option when installing larger quantities of anchors but there can be an issue with the air bubbles inside the hole. It can be also hard to use on hot days as it dries quickly inside the nozzle, rendering it useless.

Hilti mechanical anchors recommended for SRA product installation:

- Hilti HSL-GR stainless steel in M12 and M10
- Hilti HSL 3 & Hilti HSL 3B in M12. Indoor use only!
- Hilti HST3-R in M12

Through bolts:

- Use rods with backing plates

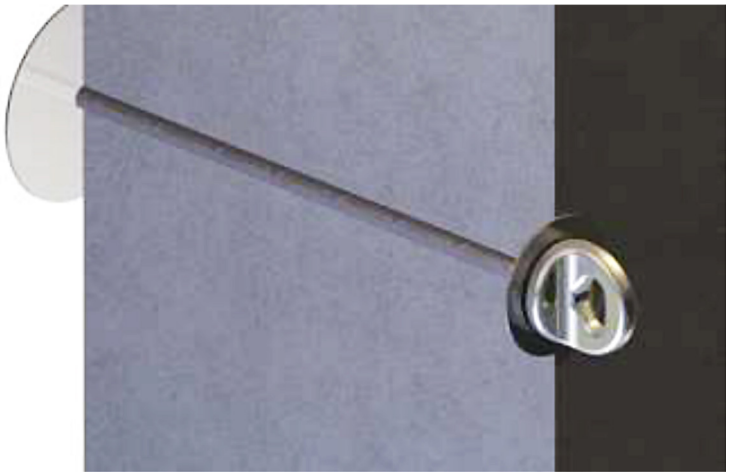
The size of the backing plate is important, especially when installing through multiple brick walls. The backing plates should capture as many bricks as possible i.e. you wouldn't use a small backing plate that covers only one brick. The aim here is to spread the load over a larger surface area and capture at least 3-4 bricks, or possibly more using custom made backing plates. If unsure, consult an engineer!

5.3 Direction of pull

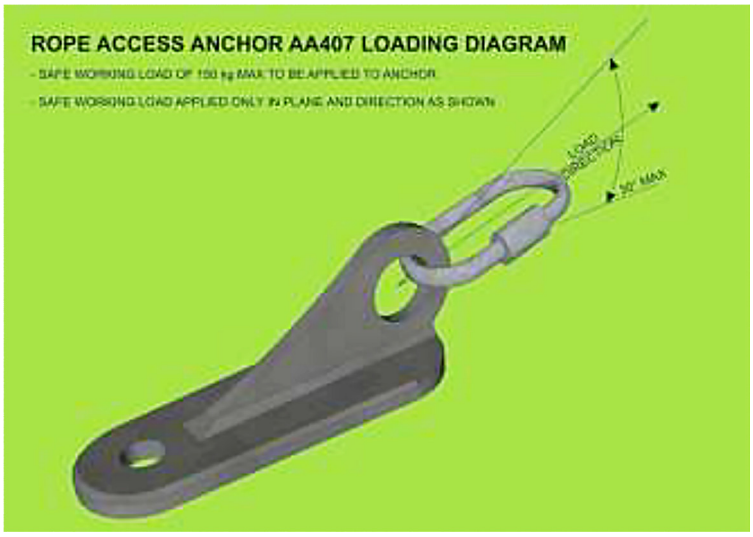
Collared eye bolts, installed either chemically or mechanically into concrete (and natural stone), must not be loaded under an angle greater than 20° with the surface they have been installed in to (AS/NZS 1891.4:2009 Industrial Fall Arrest Systems and Devices – Selection, Use and Maintenance).

This means that eye bolts must be loaded in **SHEER** only. Direction of pull exceeding 20° is considered **tensile** loading. Loading the eye bolts under tension can result in catastrophic failure should the chemset fail. The SRA **AA407** swivel anchor has been developed for loading under an angle up to 30°. Should the anchor point serve as a tensile anchor, the system designer must consider one of the following options:

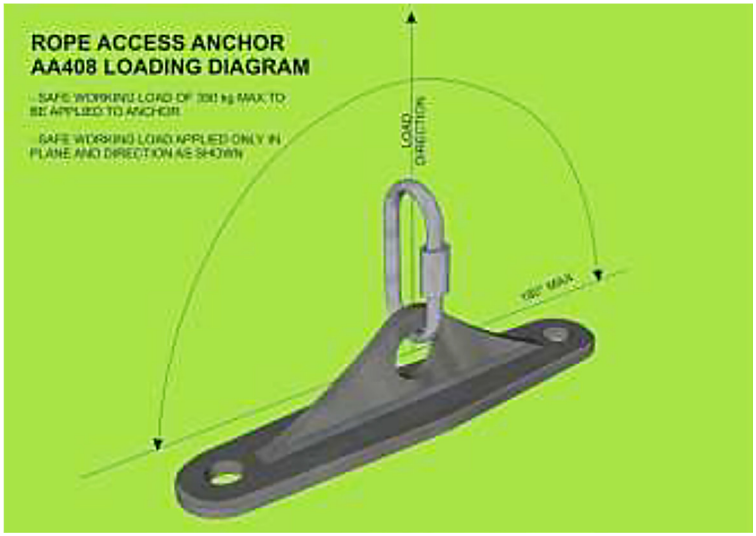
1. Install a double bolt anchor such as **AA408** which provides the safety factor of 2 bolts.
2. Install through bolt **AA400T** with a backing plate on the other side of the wall.



AA400T – through bolt anchor



AA408 anchor – tensile and sheer loading

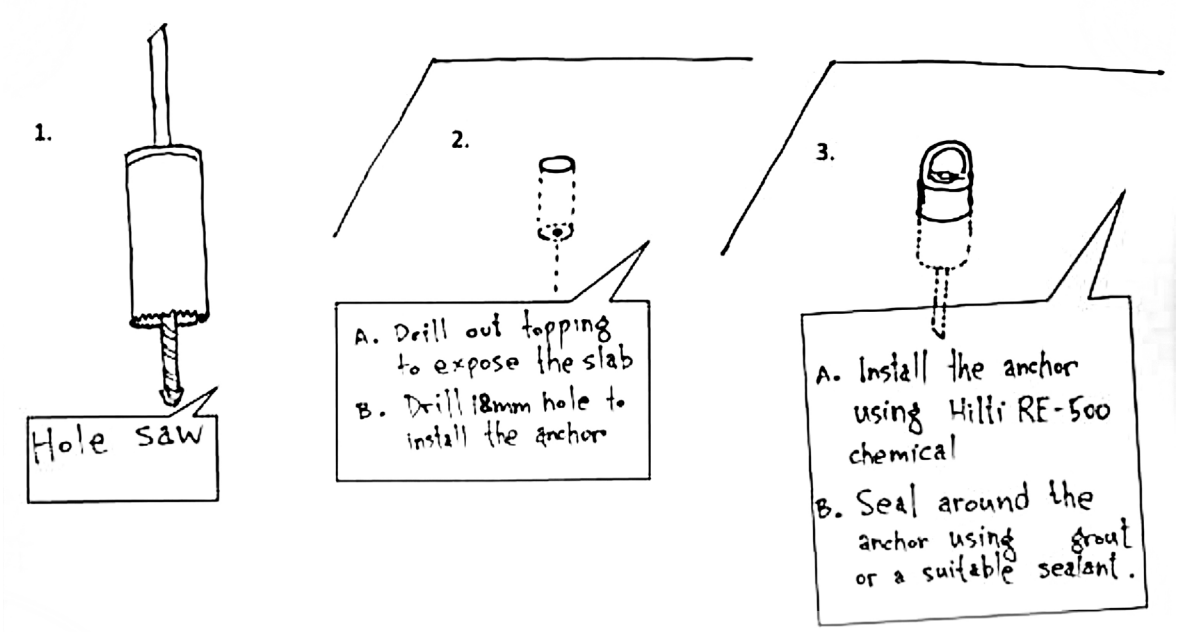


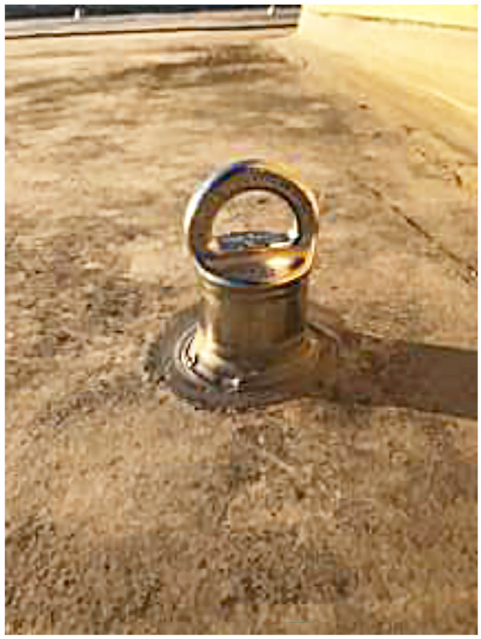
AA406 anchor – sheer loading only

5.4 Concrete roofs with topping

Some old concrete roofs have a layer of topping over the concrete slab. This topping is typically around 00mm thick and sealed off with a membrane making it hard to spot. Once identified, the installer is generally faced with 2 options:

AA405 - the easiest option

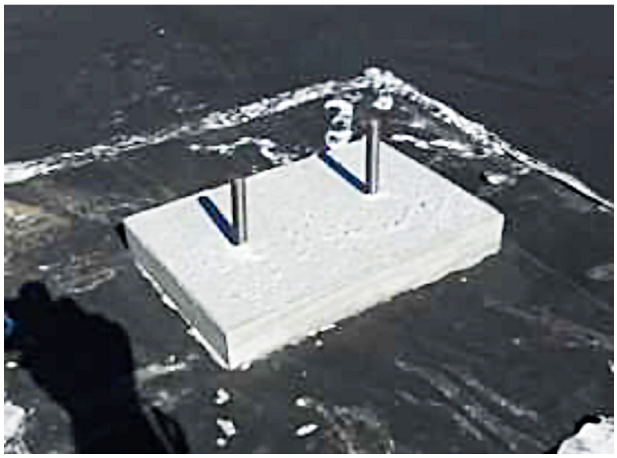




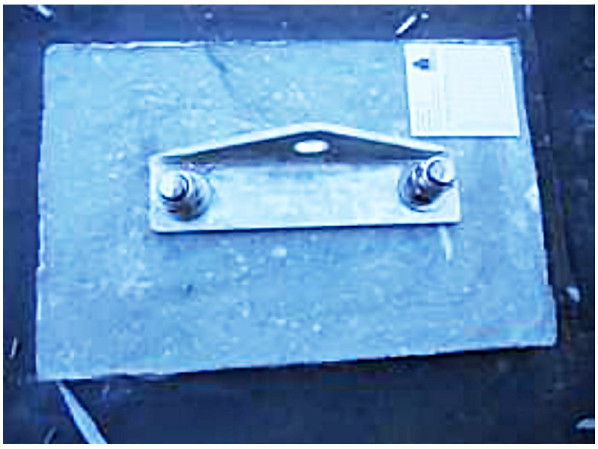
AA408 on reinforced Sika grout hobs - for all applications where the loading angle exceeds 20°with the roof (i.e. tensile applications)

Note: For the ease of annual testing & re-certification it must be remembered that fixings must stay **exposed** above the surface and not get buried under the insulation.Hilti mechanical anchors recommended for SRA product installation:

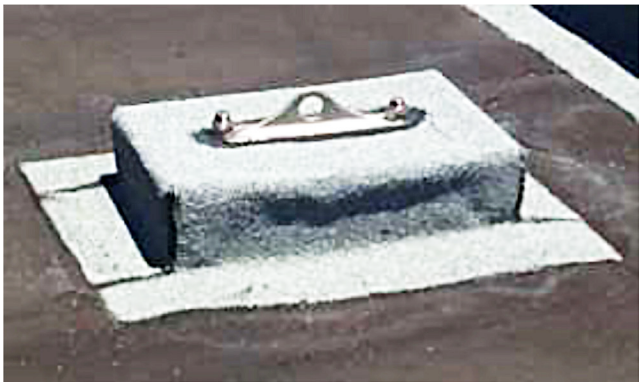
A. Insulation is removed and the slab is exposed



B. Grade 316 stainless steel M16 rods are installed and reinforced Sika Grout hobs are constructed



C. Grade 316 stainless steel anchors are installed on the hobs



D. The hobs are water proofed with membrane (different anchor model shown AA408

E. Different water proofing technique shown - stainless steel flashing over membrane

Advantages of concrete hobs:

- Eliminate all water proofing issues around the anchor.
- All parts of the system are visible and can be visually inspected and tested at any time.
- Easy rigging, including tensile applications.
- Fully engineered system

5.5 M12 vs. M16 rod size

As per Hilti standards, the depth of embedment is 110mm for M12 and 125mm for M16 rods.

The above application (concrete hobs) is the one of the very few examples where we recommend M16 rods. The reason for this is that the rods are longer than usual and we want to avoid any flex (possible tensile loading) should the hob fail.
In all other installations into concrete we recommend M12 rods as their strength is more than sufficient for the 15kN requirement. The depth of embedment is less when compared to theM16 rods and therefore the slab thickness requirement is also reduced, which can be a huge benefit particularly on older buildings. Furthermore there is less wear and tear on the drilling equipment and the overall cost of chemicals is cheaper.

5.6 Annual testing and re-certification

Every friction or glued in anchorage shall be proof loaded to 50% of the designed ultimate strength (as specified in the table below) in accordance with the manufacturer's instructions, after installation and prior to its initial use. The proof load shall be applied as an axial pull out force. Proof loading to 50% of the design load shall also be carried out as part of the subsequent periodic inspection. (AS/NZS 1891.4:2009 Industrial Fall Arrest Systems and Devices – Selection, Use and Maintenance)

Certification must be done by a competent person holding professional indemnity insurance!

STRENGTH REQUIREMENT FOR ANCHORAGES

kilonewtons

	Purpose of anchorage	Ultimate strength in direction of loading (minimum) (see Note 1)
(a)	*Single point anchorages*	
	Free fall-arrest—one person	15
	Free fall-arrest—two persons attached to same anchor	21
	Limited free fall-arrest (including rope access anchorages)	12
	~~Restrained fall-arrest—restraint line anchorage~~	~~6~~
	~~Total restraint only—no risk of a fall~~	~~6~~
(b)	*Horizontal lifelines* (see Note 2)	
	End anchorages	See Clause 6.2.4
	Intermediate anchorages	
	—diversion less than 15 degrees	12
	—diversion 15 degrees or more	12+ (see Note 3)

When installing rods for SRA AA400 series anchors into concrete, leave at least 3 threads showing above the lock nut. When the time comes to test the fixing you won't need to unscrew the lock nut and instead you will be able to screw an eye nut onto the rod and proof load it.

All fixings are to be proof loaded. Do not proof load the eye only, unless it's an AA402 anchor (eye bolt). If there are multiple fixings, proof load them individually!

5.7 Steel roof anchor points – Allfit 360˚, Maxifit 360˚, Profile Grip series (SURFACE MOUNT ANCHORS)

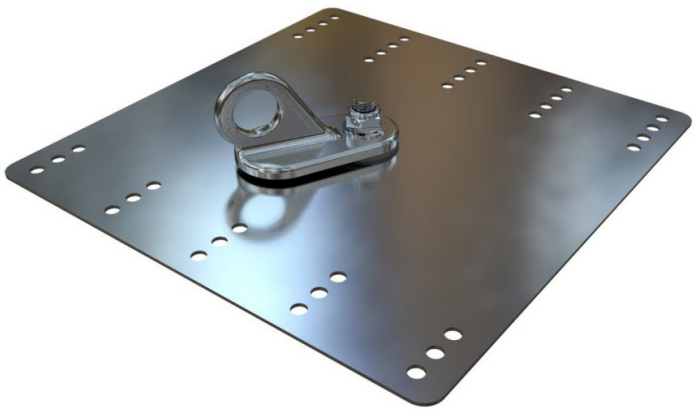
There are many types of steel roof sheeting used in Australia. Some roof profiles used are typical for some areas and construction periods as well as volumes of rainfall typical for that area.

Metal deck roofs can be built on both steel and timber structures. The roof sheets are typically held either by screws (e.g. Corrugated) or clips (e.g. Klip-lok type).

When installing into metal roofs, some basic rules need to be observed:

1. The roof sheet must be in good condition (no excessive corrosion)
2. The size and gauge of the steel purlin must be observed
3. The timber baton size must be observed
4. The correct screws must be used for either timber or steel structure
5. Overlap and underlap of roof sheets must be observed
6. Minimum distance from the roof's edge must be observed
7. Profile Grips must be loaded in sheer only

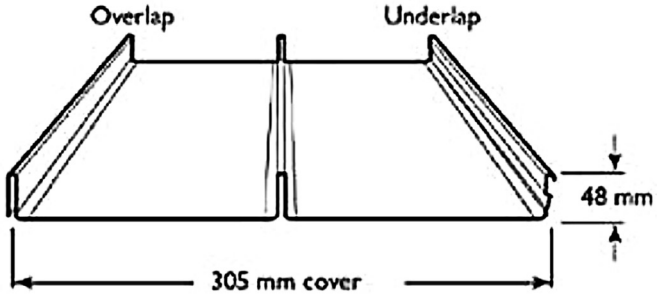
Allfit 360˚ - Designed for a hassle-free installation into majority steel roofs. Surface mount anchor suitable for rope access and fall arrest



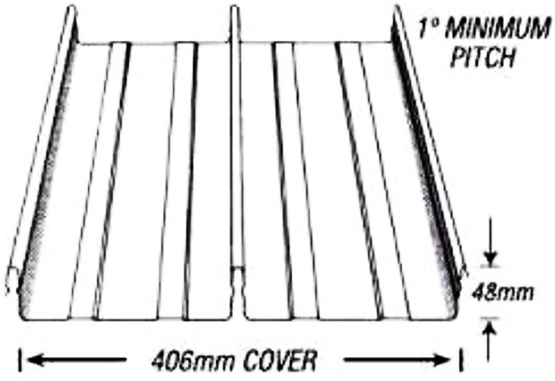
Maxifit 360˚ - Designed for a hassle-free installation into Spandek profile and some other larger span profiles. Surface mount anchor suitable for rope access and fall arrest

Profile Grip series

PG1 – Designed to provide the best fit to Longline roof sheet, PG1 can be used for rope access as well as to support a fall arrest load of 15 kN



PG2 – Designed to provide the best fit to Brownbuilt roof sheet, PG2 can be used for rope access as well as to support a fall arrest load of 15 kN

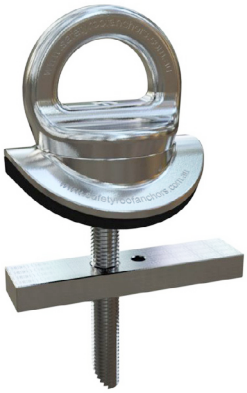


Purlin anchors AA403 and AA403C

Suitable for metal deck roofs with steel purlins. Minimum purlin gauge must be at least 150mm x 1.2mm

AA403 – typical Klip lock or screwed on sheet applicationprofiles. Surface mount anchor suitable for rope access and fall arrest

AA403C – corrugated sheet application



5.8 Timber trusses and rafters – Truss-T-Grip® series (Australian Patent 744587)

Timber trusses and rafters are utilised in many residential and government buildings around Australia and are therefore a good market to get into, provided the right products are used. Truss-T-Grip® anchor points offer an unrivalled strength and ease of installation, supported by engineering and independent testing. Truss-T-Grip® is a trade mark of SRA and is patented in Australia, USA and Europe.

The key feature of the Truss-T-Grip series anchor points is that their installation doesn't rely on penetration of the timber members. Rather, it utilises a unique clamp system which compresses the timber, rather than splitting it, in the event of arresting a fall.

Drilling of trusses and rafters significantly weakens them and also voids the builder's warranty.

Truss-T-Grip anchor points are suitable for both fall arrest as well as abseiling, when installed according to SRA's instructions!

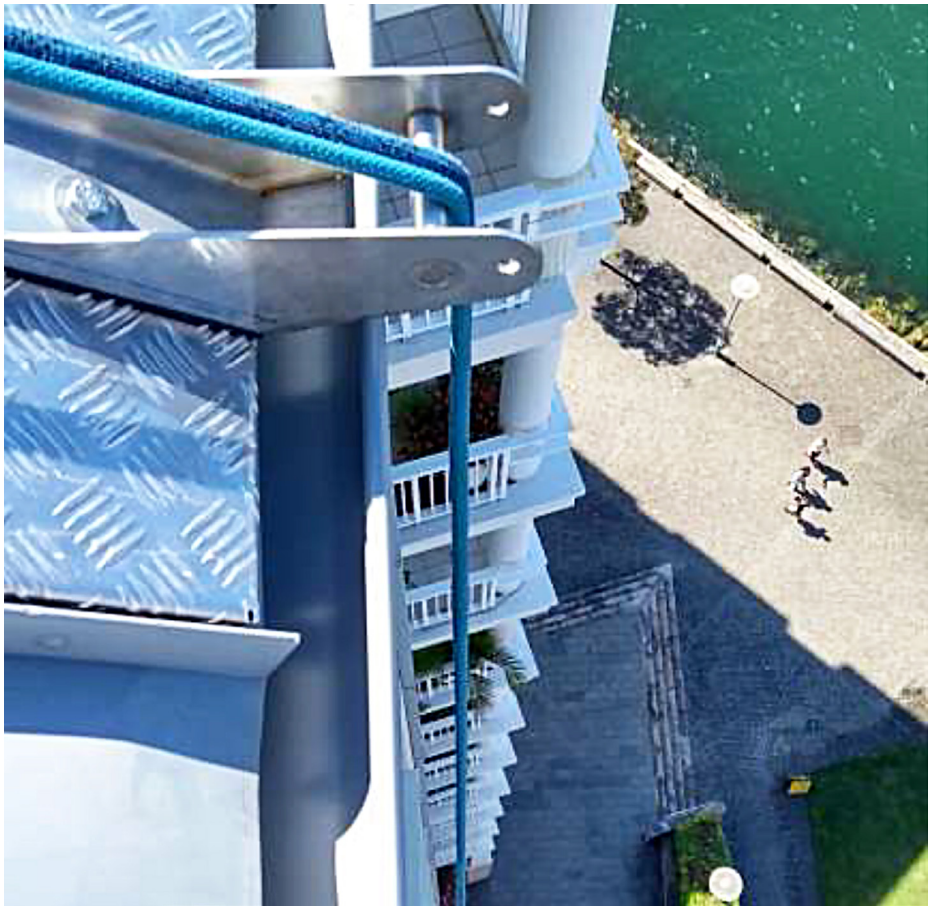
They can be installed in under 1 minute with very basic tools such as a spanner and hammer. Due to the ease of installation they are also ideal for use as temporary anchors.

Truss-T-Grip anchors are stocked in the most common rafter sizes (100x50mm and 90x35mm) but can be made to suit any timber member.

It has to be understood that a timber rafter is very strong when loaded along its length. When loaded sideways it can only withstand a fraction of the force and can fail catastrophically. Extra nogging and armour plates must be installed between the rafters to provide for side loading!

5.9 Edge Protection – Gutter Jumper (EP01)

To protect gutters and other delicate building edges during rope access, SRA has developed a Gutter Jumper - a portable rope diversion device made of heavy-duty aluminium chequered plate and a welded bracket. It has been rigorously tested over a 2-year period and provides an ideal balance of toughness and portability.

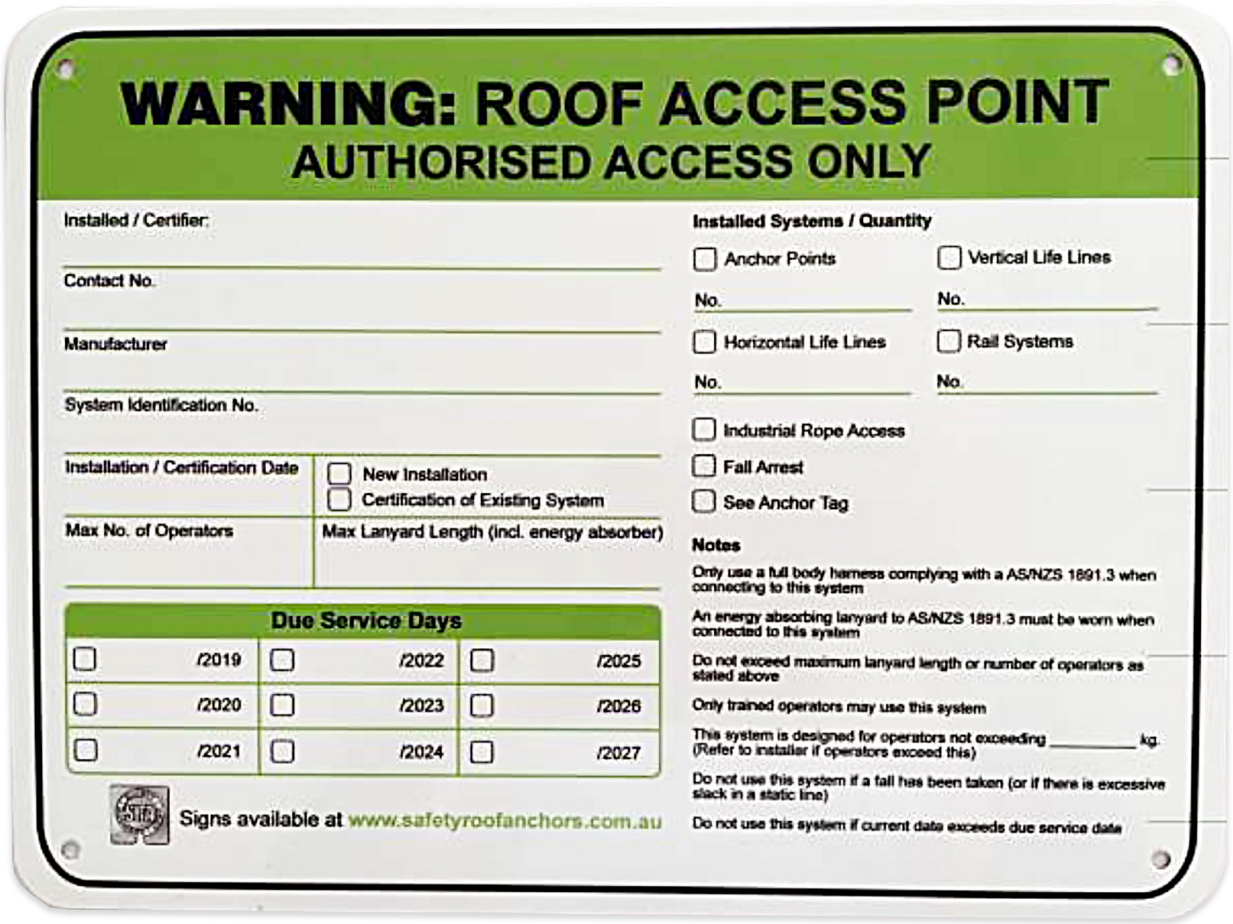


MODULE 6:
SIGNAGE

Each permanently installed anchor point must have a weather proof tag attached to it identifying:

1. The installer
2. Date of installation and certification
3. Rating and purpose of the anchorage
4. Maximum number of people (max 2) permitted to be connected to the anchor at any one time

A compliance plate listing all parts of the system and their quantity must be attached at the roof access area.

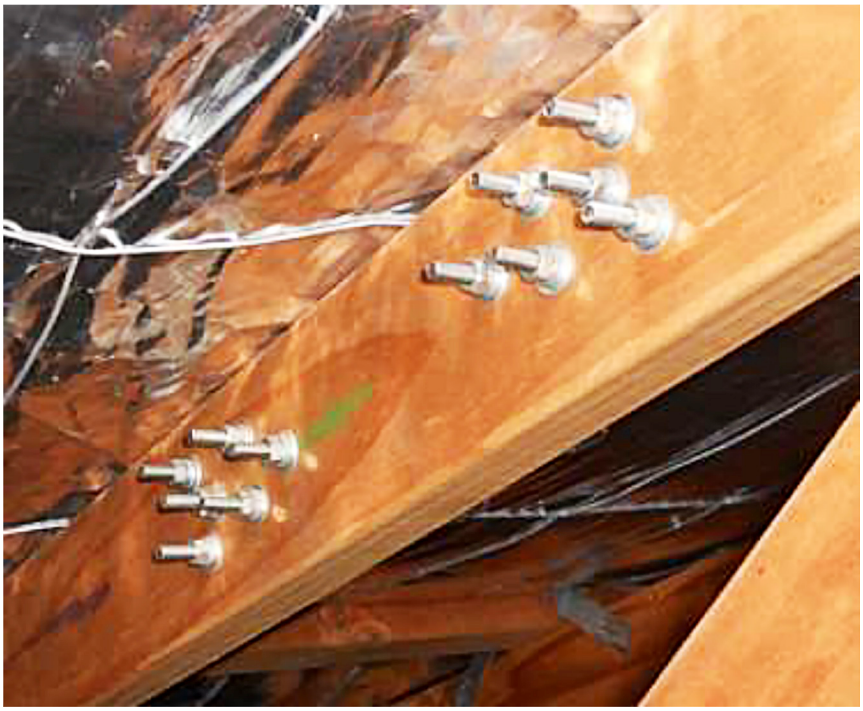


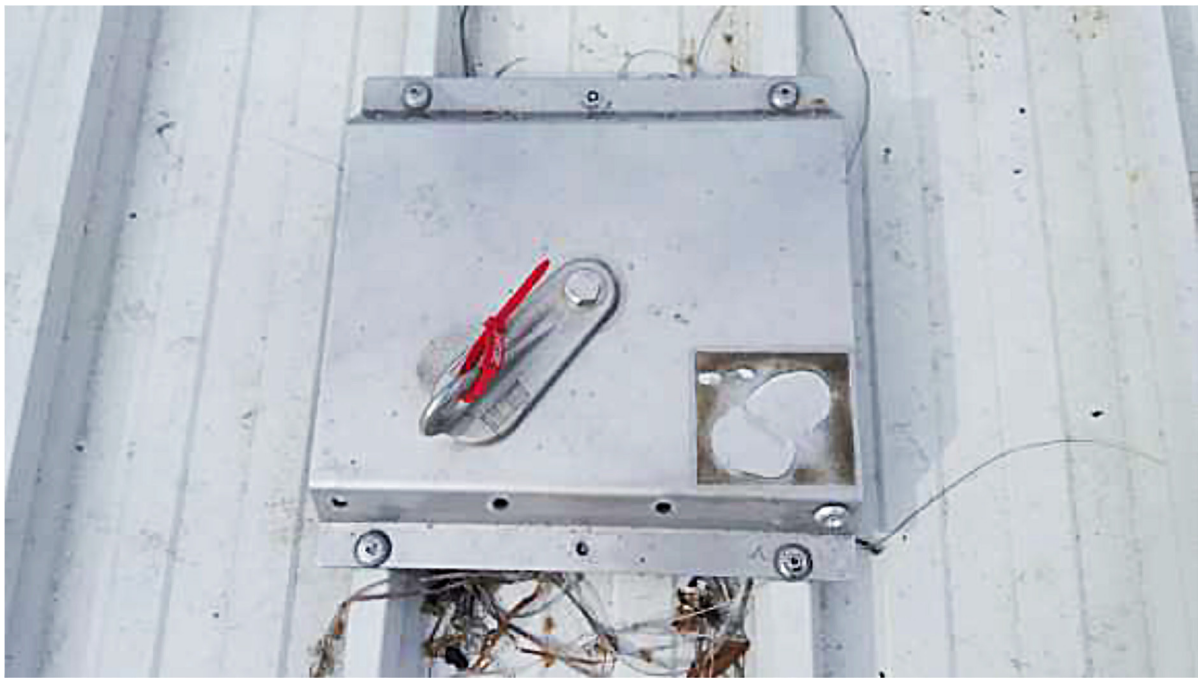
MODULE 7:
INCORRECT INSTALLATION

Due to unclear regulations in height safety it is not uncommon to see installations which are clearly not right. It is up to you as an installer to identify these products and report them to the client who will hopefully listen and employ your services to uninstall them and to replace them with better, fully compliant products.

Prior to AS/NZS 5532:2013 there was no requirement for the anchor points to be live tested by the manufacturer. As a result we can see many home-made anchor devices as well as regular anchors installed in the wrong way.

See the examples below:





The above pictures are just a few examples of incorrect installations that you can expect to see on roofs.

VECTOR
FORCES

Vector forces become apparent whenever there is an internal angle greater than 0° between two or more rigging components or anchorage points.

For ease of explanation, a vector force is typically trying to pull horizontally as well as vertically. This has a multiplying effect on the loads that are felt at the anchor points and likewise the tension exerted within the rigging equipment, be it ropes, slings, strops or chains. The effects of vector forces must always be taken into account when undertaking rigging tasks to ensure that these forces do not exceed the safe working load capacity of the equipment, components and anchor devices used within the system.

Force is an influence that has both magnitude and direction, it is usually given in the dynamic unit of Newtons (N). For ease of explanation we have used kilograms on this page.

The Basics

To start with the basics, if we imagine a load of 100kg suspended equally from two slings then each sling would equally share half of the loads weight.

In the situation illustrated to the right, the weight of the load = 100kg. The load is supported by two slings of equal configuration with no internal angle, so 100kg / 2 = 50kg. This means that each sling and anchor point is being subject to 50kg or 50% of the loads weight.

The Ideal Angle

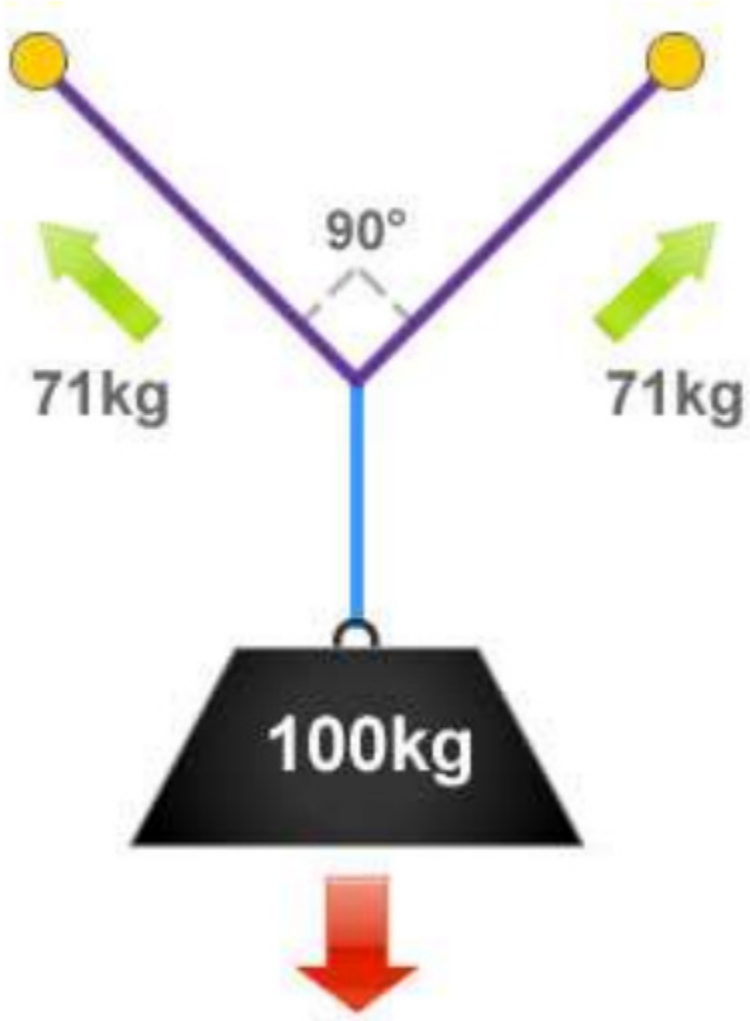
As the internal angle between the rigging slings increases then additional forces (vector forces) begin to be applied to each sling / anchor point.

When rigging ropes the 'ideal angle' is approximately 45°, at the ideal angle there would be 54% of the loads weight being distributed to each anchor device. Although this is over half of the original weight of the load we have still gained an advantage vby sharing it between the two anchor points.

The “OK” Angle

An internal angle of 90° between ropes and rigging components is sometimes referred to as the ‘OK’ angle. At this angle 71% of the loads weight will be distributed to each anchor component, so in this example that will be 71kg.

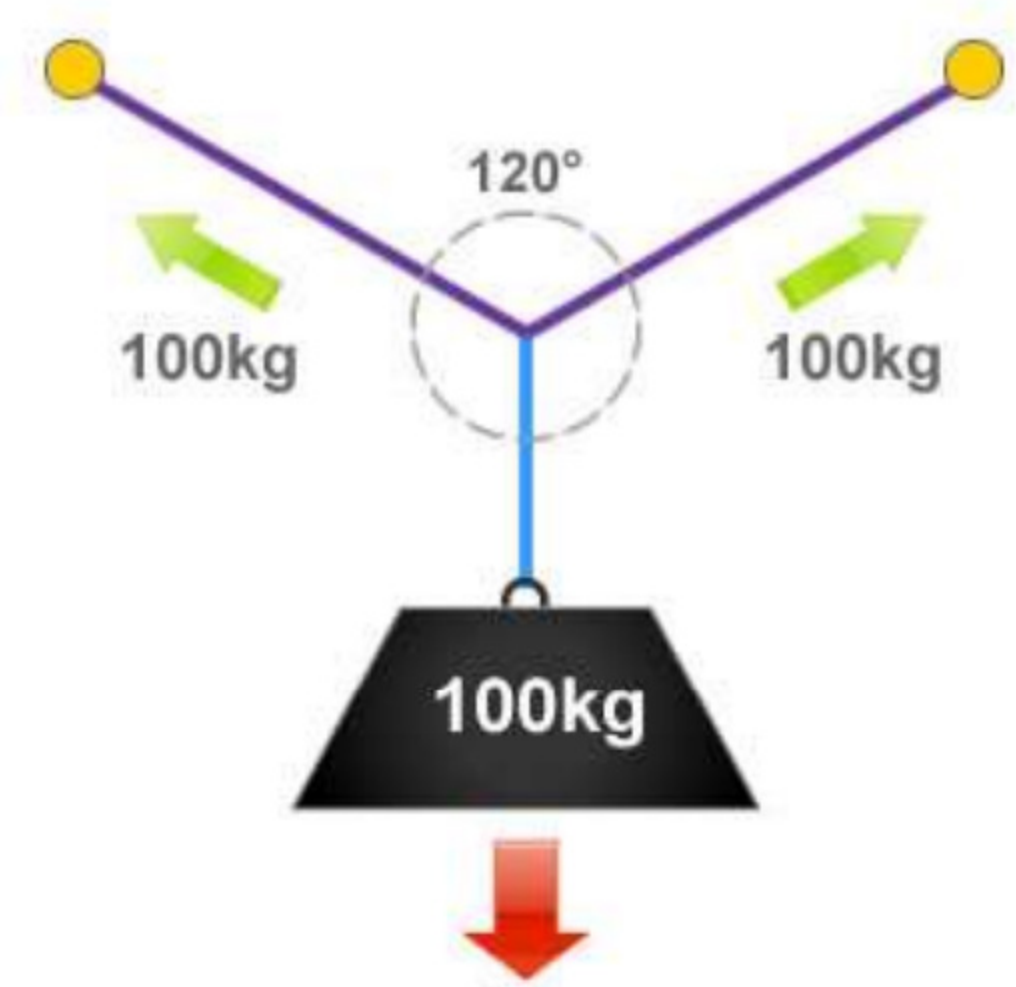
It is often easier to roughly estimate a 90° or right-angle when undertaking rigging tasks. By staying at or below this angle ensures that we don’t load our anchor components with excessive forces.



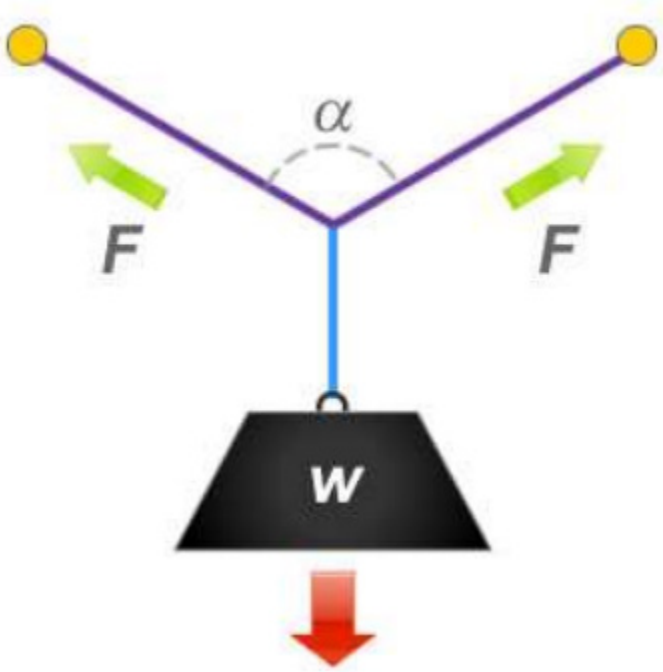
The Critical Angle

A basic way to understand the effect of vector forces is to imagine that if a full circle equates to 360° and this was split into three equal parts we would end up with three angles of 120°, as show in the illustration on the right. An internal angle of 120° is also defined as the 'critical angle'.

Because everything is in equilibrium at the critical angle of 120°, whatever the load weighs is what we have being exerted to each anchor point and each item of rigging equipment. So in this example it is 100kg or 100% of the loads weight.



The Calculations



Vector forces can be calculated using mathematical formula. So far on this page we have used kilograms to represent the loads in the illustrations. As a kilogram is a measurement of mass, this should be converted to weight (Newtons) to calculate the resultant force correctly.

Providing that the rigging components are sharing the weight of the load equally, such as in a 'Y' hang then the following equation can be used:

$$F = \frac{(w \times 0.5)}{\cos(\alpha \times 0.5)}$$

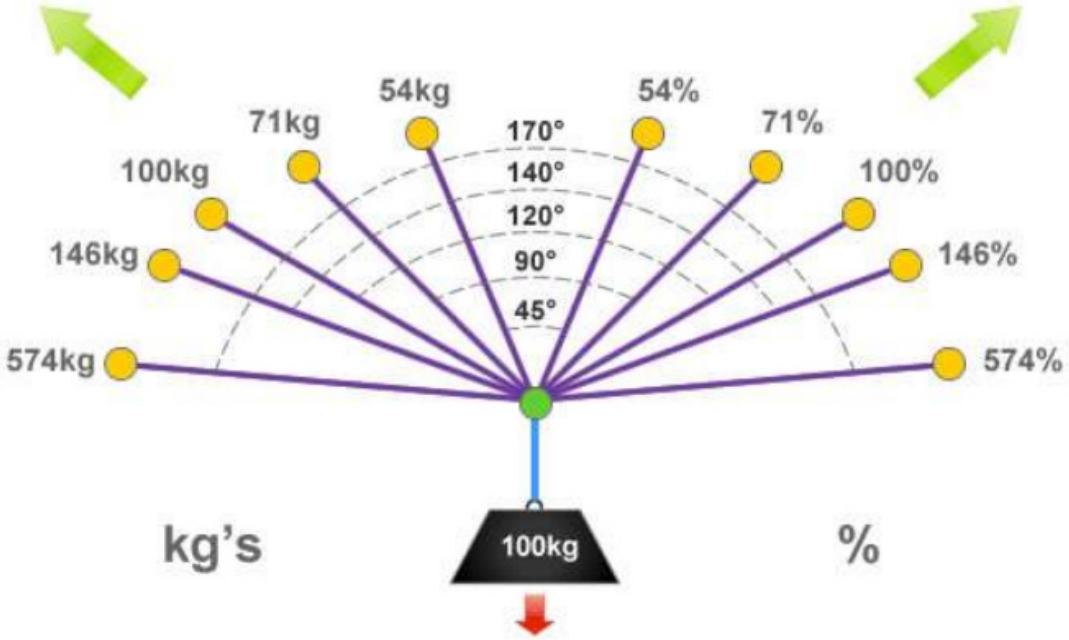
Where:

F is the resultant force exerted to each anchorage.
W is the weight of the load.
α is the internal angle between the two slings.

Force is an influence that has both magnitude and direction, it is usually given in the dynamic unit of Newtons (N). For simplicity we have used kilograms for the examples on this page.

Vector Force Chart

This chart displays the resultant force applied to each anchor point / rigging component when the load is equally shared in a Y-hang rigging configuration. The ratio is also given in percentages as this is often an easier way to calculate forces relevant to the specific weight of the load.



Notice that when the critical angle of 120° is exceeded, then these forces increase dramatically. If an angle of 175° could be achieved (although this would be extremely difficult) then with a 100kg load there would nearly be 1150kg being felt by each anchor component. Something worth keeping in mind when working with Tensioned Lines, Cross Hauls and Tyrolean's!

Using Percentage Ratio

It is not always the case that the load will weigh 100kg, it is far easier to calculate the relevant vector forces from a percentage ratio. This can be achieved by using the formula:

$$F = w \times \left(\frac{\%\ factor}{100} \right)$$

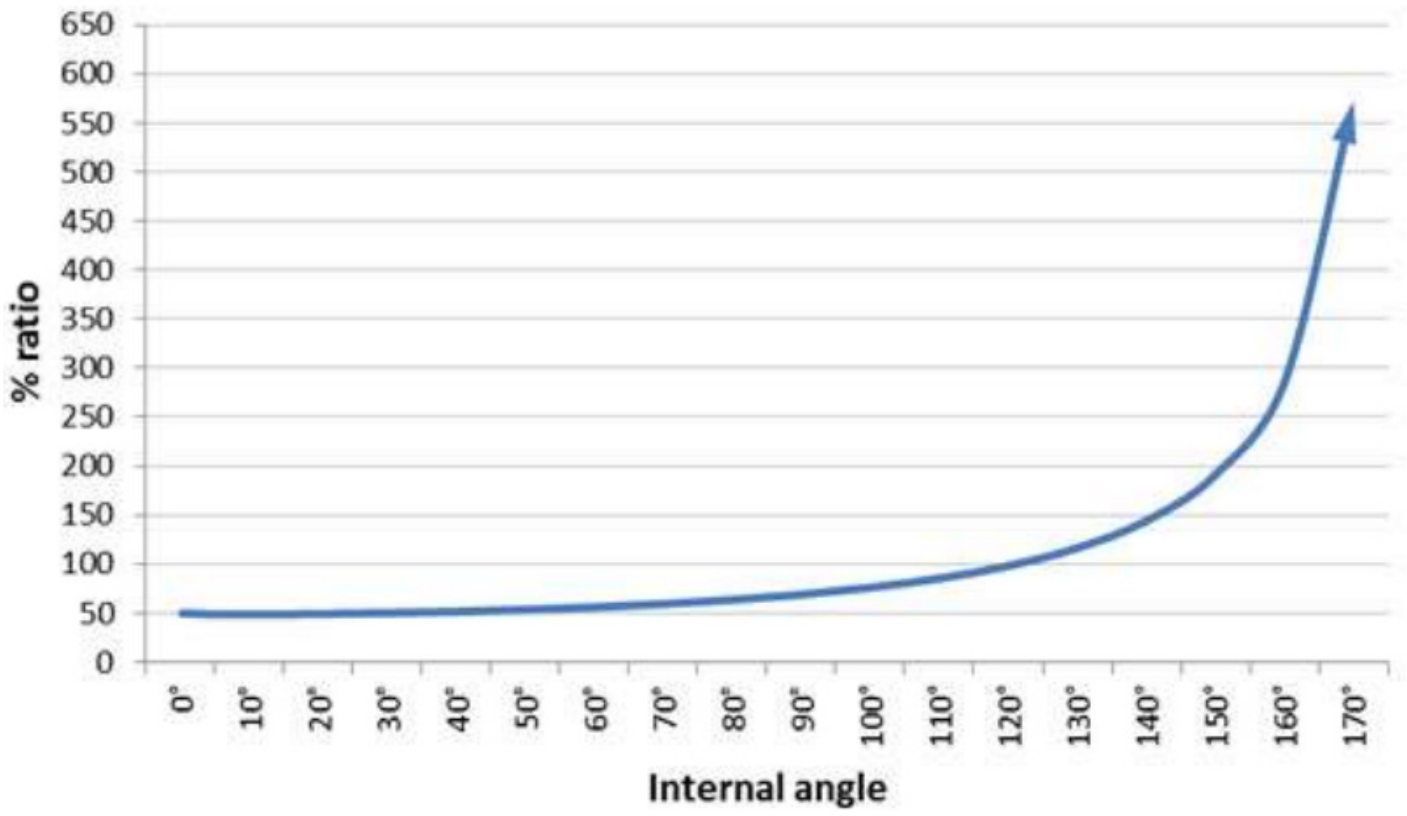
For example if we had a load weighing 76kg suspended from a Y-hang rigging configuration with an internal angle of 75° then:

$$F = 76 \times \left(\frac{63.0}{100} \right) = 47.8$$

ANGLE	% RATIO	ANGLE
0°	50.00	65°
5°	50.1	70°
10°	50.2	75°
15°	50.4	80°
20°	50.8	85°
25°	51.2	90°
30°	51.8	95°
35°	52.4	100°
40°	53.2	105°
45°	54.1	110°
50°	55.2	115°
55°	56.4	120°
60°	57.7	125°

Vector Force Graph

The graph below displays the relationship between the internal angle and the percentage ratio. At 180° this line would continue to rise vertically, meaning that from a mathematical point of view the force exerted on each anchor point would be infinite.



See more at: http://www.ropebook.com/information/vectorforces#sthash.vgUdv4vK.dpuf

SAMPLE
CERTIFICATE

Height Safety Access System Certificate

☐ New System ☑ Existing System

Client:	Owners of Strata Plan or building owner etc
Site Address:	
System Location:	Roof of the building.
Date Installed:	N/A
Date Certified:	20/03/2018

Systems Tested/Certified

☑ Anchor Points	☐ Life Lines/Static Lines	☐ Track Systems	☐ Inertia Reels

ANCHOR POINTS - TOTAL QUANTITY 22

Quantity	Anchor Type	Host Structure	Fixing	Rope Access	Fall Arrest	Manufacturer/Code
	Eye Bolts			☐	☐	
	Surface Mounts			☐	☐	
	Through Bolts			☐	☐	
	Rafter Anchors			☐	☐	
22	Purlin Anchors	**Steel Purlin/Steel Roof Sheet Combination**	**Through Bolt M12**	☑	☐	**Unknown**

Test Description
☐ Applied axial pull out of force of 6kn (as per AS/NZS 4488.2 1997 Industrial Rope Access Systems)
☐ Applied axial pull out of force of 7.5kn (as per AS/NZS 1891.4 2000 Industrial Fall Arrest Systems and Devices)
☐ Applied axial load force and inspected in accordance with AS/NZS 1981.2 Supp 1 - 2001 Industrial Fall Arrest Systems and Devices - Horizontal Life Lines and Rail Systems
☑ No Load Test required - Visual Inspection Only

Test Results

Sample No.	Load Applied	Pass / Fail	Anchor Rating (kN)
22x purlin anchor	N/A	Pass	12KN

Test Equipment Used		
☐ Hilti Tester 4 S/N 59604	Calibration Date	
☐ Load Cell AD 4326A	Calibration Date	
☑ None Required		

Attachments

☐ Photo(s)	☐ Spec Sheet	☐ Layout Plan

The Height Safety Access System is to be used by rope access personnel and other competent contractors with current NSW accreditation for work at heights only.

It is compulsory to inspect all parts of the system every 12 months to ensure their continued integrity as a fall arrest / rope access system.

???????? 20 March 2018

Director

Anchor Point Certificate JK V2 Dec 2012

PRODUCT SPEC SHEETS
AND INSTALLATION GUIDES

AA400T EYE BOLT THROUGH BOLT ANCHOR POINT

The System

Developed mainly for applications in concrete and steel AA400T eye bolt is designed to withstand a fall arrest load of 15 kN. It can be usedfor a wide range of applications and host structures.

Special Features:

- Unique robust design
- Complete traceability
- Large 120mm dia plate to spread to load over larger surface area

Uses:

AA400T anchor is designed for industrial rope access (abseiling) and to support a fall arrest load of 15 KN provided a suitable personal shock absorber is used.

Installation by trained and certified personnel in accordance with AS/NZS 4488.2:1997, AS/NZS 1891.4:2009, ISO 22846 (2003) and manufacturer's instructions.

Product Warranty:

10 years from date of purchase subject to correct installation, use and maintenance in accordance with manufacturer's specifications and recommendations.

Important Note:

Failure to supply and/or install proprietary product in accordance with above standards and codes, specifications and instructions voids complete system certification and/or warranty.

Technical Data

Material Used:

Investment Cast 316 Stainless Steel (Eye)
316 Stainless Steel (Threaded Rod)

Finish:

Bead blast or electro polished

Abseil Capacity:

12 kN

Fall Arrest Capacity:

15 kN

Dimensions:

- Overall length – 300mm, 500mm or 1000mm
- Eye Diameter – 40 mm x 26 mm
- Rod length – M12 x 300 mm, 500mm or 1000mm
- Weight – 460 g

Fixing Details:

1 x Through bolt M12 (HOLE 14 DIA)

Maintenance:

Inspection and load testing required by competent person at intervals not exceeding 12 months as specified in AS 1891.4:2009, AS/NZS 4488.2:1997 and ISO 22846 (2003).

Standards:

Complies with WHS Act 2011 and relevant Codes of Practice. Australian Standard – AS/NZS 1891.4:2009, AS/NZS 4488.2:1997, ISO 22846 (2003) and AS/NZS 5532:2013

AA400T EYE BOLT THROUGH BOLT ANCHOR POINT
INSTALLATION INSTRUCTIONS

Things To Know:
AA400T is designed for installation in concrete and steel. It has been specifically developed for applications in rope access (abseiling) but it can be also used to support a fall arrest load of 15 kN provided a suitable personal shock absorber is used.

Minimum distance to the edge of the slab or between any 2 eyebolts must be at least 200mm unless certified by a structural engineer!

Fixing Options:
Through bolt M12 (HOLE 14 DIA)

Loading:
360° including tensile loading

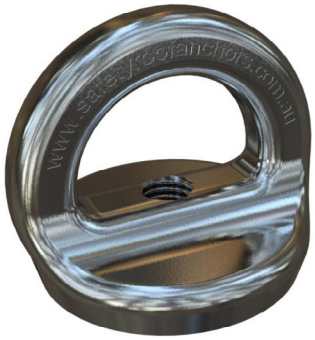
Tools Needed For Installation:
Rotary hammer drill, masonry drill bit 14, reo detector, spanner, bar

Installation Steps – M12 through Bolt:
1. Use Hilti Reo Scan or similar device to avoid drilling the steel reinforcement in concrete.
2. Mark the position for hole to be drilled.
3. Drill one M14 through hole. Ensure the hole is 90° with the drilled surface.
4. Install AA400T with the large (120mm diameter) backing plate on the inside.
5. Install an M12 washer and lock nut and tighten fully. Ensure minimum of 5 threads are showing when fully tightened.

Proof Load and Certification:
Through bolts must be visually inspected upon installation – do not proof load!

Note:
The structure must be assessed by a structural engineer unless it is clear to a suitably qualified person that it is capable of withstanding the forces imposed on it during a fall arrest situation and/ or during work positioning.

Disclaimer:



AA401 EYE NUT

The System

Developed mainly for applications in concrete and steel AA401 eye nut is designed to withstand a fall arrest load of 15 kN in any direction. It can be used for a wide range of applications and host structures.

Special Features:

- Unique robust design
- Complete traceability

Uses:

AA401 is designed for industrial rope access (abseiling) and to support a fall arrest load of 15 kN in 360° direction provided a suitable personal shock absorber is used.

Installation by trained and certified personnel in accordance with AS/NZS 4488.2:1997, AS/NZS 1891.4:2009, ISO 22846 (2003) and manufacturer's instructions.

Product Warranty:

10 years from date of purchase subject to correct installation, use and maintenance in accordance with manufacturer's specifications and recommendations.

Important Note:

Failure to supply and/or install proprietary product in accordance with above standards and codes, specifications and instructions voids complete system certification and/or warranty.

Technical Data

Material Used:

Investment Cast 316 Stainless Steel

Finish:

Bead Blast or Electro polished

Abseil Capacity:

12 kN

Fall Arrest Capacity:

15 kN

Dimensions:

- Height – 50 mm
- Eye Diameter – 45 mm x 26 mm
- Weight – 355 g

Fixing Details:

- 1 x Through bolt M12 (HOLE 14 DIA)
- 1 x Chemical HILTI HVU2 or equivalent M12 (HOLE 14 DIA)

Maintenance:

Inspection and load testing required by competent person at intervals not exceeding 12 months as specified in AS 1891.4:2009, AS/NZS 4488.2:1997 and ISO 22846 (2003).

Standards:

Complies with WHS Act 2011 and relevant Codes of Practice. Australian Standard – AS/NZS 1891.4:2009, AS/NZS 4488.2:1997, ISO 22846 (2003) and AS/NZS 5532:2013

AA401 EYE NUT
INSTALLATION INSTRUCTIONS

Things To Know:
AA401 is designed for installation in concrete and steel. It has been specifically developed for applications in rope access (abseiling) but it can be also used to support a fall arrest load of 15 kN provided a suitable personal shock absorber is used. It is recommended to use a permanent locking agent such as Loctite 277 or equivalent when installing on a threaded rod without welding.

Fixing Options:
- Through bolt M12 (HOLE 14 DIA)
- Chemical HILTI HVU M12 or equivalent (HOLE 14 DIA)

Loading:
Sheer, not exceeding 20° with the surface it is installed into if installed as a chemset in concrete.

Tools Needed For Installation:
Rotary hammer drill, masonry drill bit 14, air pump, cleaning brush

Installation Steps – M12 chemset in concrete:
1. Use Hilti Reo Scan or similar device to avoid drilling the steel reinforcement in concrete.
2. Mark the position for hole to be drilled.
3. Drill an M14 x 110mm hole. Ensure the hole is 90° with the drilled surface.
4. Clean the hole 3 times with compressed air and cleaning brush.
5. Insert one Hilti HVU M12 chemical pack in the hole.
6. Using rotary hammer with appropriate setting tool, install a stainless steel M12 rod. Ensure the rod has the tip cut off on 45° angle or use Hilti rods suitable for the application.
7. Allow sufficient drying time as per Hilti HVU instructions.
8. Use a fastener locking agent such as Loctite 277 or equivalent to install AA401. Ensure minimum of 3 threads are showing.

NOTE: *When installing through water proofing membrane, a full gasket of membrane compatible sealant is recommended between the eye nut and the membrane.*

Installation Steps – M12 through Bolt:
1. Use Hilti Reo Scan or similar device to avoid drilling the steel reinforcement in concrete.
2. Mark the position for hole to be drilled.
3. Drill one M14 through hole. Ensure the hole is 90° with the drilled surface.
4. Insert M12 stainless steel rod cut to size. Add one backing plate (BP2 or BP3) to each side of the rod.
5. Install one M12waher and one lock nut to the back side and AA401 anchor to the front side. Apply a fastener locking agent such as Loctite 277 or equivalent to the thread and tighten fully using a spanner and a bar. Ensure minimum of 3 threads are showing on each side.

Proof Load and Certification:
All chemical and friction anchorages must be proof loaded before their initial use and subsequently on regular basis to satisfy the requirements set out in AS/NZS 1891.4:2009, AS/NZS 4488.2:1997 and ISO 22846 (2003).

- Proof load the eye to 7.5 kN for rope access and fall arrest applications
- Through bolts must be visually inspected – do not proof load!

Note:
The structure must be assessed by a structural engineer unless it is clear to a suitably qualified person that it is capable of withstanding the forces imposed on it during arresting of a fall and work positioning.

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Disclaimer:

All product specifications and technical descriptions, recommendations and other information provided in this document are given as general guidance and advice, and are to be considered in conjunction with Safety Roof Anchors installation instructions and any other data available and applicable to each particular standard product or system. Use of such data is however the user's sole responsibility taking into account the intended application and actual conditions existing on the specific worksite. Consequent selection of the right product for any particular use remains the user's ultimate responsibility.

Safety Roof Anchors is therefore not obligated or liable for any direct or indirect, incidental or consequential damages, losses or expenses in connection with, or by reason of the suitability and use of or otherwise, any product or system for any purpose. Implied warranties of merchantability or fitness for any particular purpose are specifically excluded. Safety Roof Anchors maintains a policy of continuous improvement and development, and therefore reserves the right to modify, amend or otherwise alter product and system designs and specification, models and part numbers, colours and pricing etc., without prior notice. Safety Roof Anchors accepts no liability whatsoever for incorrect information, errors or omissions.

AA402 EYE BOLT ANCHOR POINT

The System

Developed mainly for applications in concrete and steel AA402 eye bolt is designed to withstand a fall arrest load of 15 kN. It can be used for a wide range of applications and host structures.

Special Features:

- Unique robust design
- Complete traceability

Uses:

AA402 anchor is designed for industrial rope access (abseiling) and to support a fall arrest load of 15 kN provided a suitable personal shock absorber is used.

Designed as one person anchor point except rescue situation.

Installation by trained and certified personnel in accordance with AS/NZS 4488.2:1997, AS/NZS 1891.4:2009, ISO 22846 (2003) and manufacturer's instructions.

Product Warranty:

10 years from date of purchase subject to correct installation, use and maintenance in accordance with manufacturer's specifications and recommendations.

Important Note:

Failure to supply and/or install proprietary product in accordance with above standards and codes, specifications and instructions voids complete system certification and/or warranty.

Technical Data

Material Used:

Investment Cast 316 Stainless Steel (Eye)
316 Stainless Steel (Threaded Rod)

Finish:

Bead blast or Electro polished

Abseil Capacity:

15 kN

Fall Arrest Capacity:

15 kN

Dimensions:

- Overall length – 160mm
- Eye Diameter – 45 mm x 26 mm
- Rod length – M12 x 110 mm
- Weight – 460 g

Fixing Details:

- 1 x Through bolt M12 (HOLE 14 DIA)
- 1 x Chemical HILTI HVU2 or equivalent M12 (hole 14 DIA)

Maintenance:

Inspection and load testing required by competent person at intervals not exceeding 12 months as specified in AS 1891.4:2009, AS/NZS 4488.2:1997 and ISO 22846 (2003).

Standards:

Complies with WHS Act 2011 and relevant Codes of Practice. Australian Standard – AS/NZS 1891.4:2009, AS/NZS 4488.2:1997, ISO 22846 (2003) and AS/NZS 5532:2013

AA402 EYE BOLT ANCHOR POINT
INSTALLATION INSTRUCTIONS

Things To Know:
AA402 is designed for installation in concrete and steel. It has been specifically developed for applications in rope access (abseiling) but it can be also used to support a fall arrest load of 15 kN provided a suitable personal shock absorber is used.

Minimum distance to the edge of the slab or between any 2 eyebolts must be at least 200mm unless certified by a structural engineer!

Fixing Options:
- Chemical HILTI HVU M12 (HOLE 14 DIA) using SRA setting tool
- Chemical Hilti HIT or Hilti RE 500 (HOLE 14 DIA) or equivalent
- HSL 3-B M12 or HSL-GR M12 (HOLE 18 DIA)
- Through bolt M12 (HOLE 14 DIA)

Loading:
Load the eye bolt in sheer, not exceeding 20° with the surface it's installed into unless installed as a through bolt in steel.

Tools Needed For Installation:
Rotary hammer drill, masonry drill bit 14 or 18 (for Hilti HSL), air pump, cleaning brush, SRA setting tool if using Hilti HVU chemset

Installation Steps – M12 through Bolt:
1. Use Hilti Reo Scan or similar device to avoid drilling the steel reinforcement in concrete.
2. Mark the position for hole to be drilled.
3. Drill an M14 x 110mm hole. Ensure the hole is 90° with the drilled surface.


4. Clean the hole 3 times with compressed air and cleaning brush.


5. Insert one Hilti HVU M12 chemical pack in the hole.

6. Using rotary hammer with SRA setting tool, install the AA402 eyebolt.

7. Allow sufficient drying time as per Hilti HVU instructions.

Note: *When installing through water proofing membrane, it is recommended to use a base plate (BP1 or BP2) with a full gasket of compatible sealant between the base plate and the membrane.*

Installation Steps – Hilti HIT or RE 500 chemset in concrete:

1. Use Hilti Reo Scan or similar device to avoid drilling the steel reinforcement in concrete.
2. Mark the position for hole to be drilled.
3. Drill an M14 x 110mm hole. Ensure the hole is 90° with the drilled surface.
4. Clean the hole 3 times with compressed air and cleaning brush.
5. Inject Hilti HIT or RE 500 chemicals in the hole as per the manufacturer's instructions.
6. Install AA402 by turning is slowly in clockwise direction while pushing it inside the hole. Ensure the tip of the rod is cut on 45° angle to assist with air bubble elimination. Wipe off the excess chemical.
7. Allow sufficient drying time as per the Hilti chemical instructions.

Note: *When installing through water proofing membrane, it is recommended to use a base plate (BP1, BP2 or BP3). A full gasket of a compatible sealant is recommended between the base plate and the membrane.*

Installation Steps – M12 Hilti HSL-3B or HSL-GR in concrete:

1. Use Hilti Reo Scan or similar device to avoid drilling the steel reinforcement in concrete.
2. Mark the position for hole to be drilled.
3. Drill one M18 x 125mm hole. Ensure the hole is 90° with the drilled surface.
4. Clean the hole 3 times with compressed air and cleaning brush.
5. Install Hilti HSL-3B or HSL-GR as and use a spanner to apply correct torque as per Hilti instructions.
6. Remove the M12 bolt inside the HSL-3B or HSL-GR and install AA402 eyebolt instead.

Installation Steps – M12 through bolt:

1. Use Hilti Reo Scan or similar device to avoid drilling the steel reinforcement in concrete.
2. Mark the position for hole to be drilled.
3. Drill one M14 through hole. Ensure the hole is 90° with the drilled surface.
4. Install AA402 with one backing plate (BP2 or BP3) on the back side.
5. Clamp down with a M12 washer and lock nut and tighten fully. Ensure minimum of 8 threads are showing when fully tightened.

Proof Load and Certification:

All chemical and friction anchorages must be proof loaded before their initial use and subsequently on regular basis to satisfy the requirements set out in AS/NZS 1891.4:2009 and ISO 22846 (2003) (formerly AS/NZS 4488.2:1997).

Note:

The roof structure must be assessed by a structural engineer unless it is clear to a suitably qualified person that it is capable of withstanding the forces imposed on it during arresting of a fall and during work positioning.

Disclaimer:

All product specifications and technical descriptions, recommendations and other information provided in this document are given as general guidance and advice, and are to be considered in conjunction with Safety Roof Anchors installation instructions and any other data available and applicable to each particular standard product or system. Use of such data is however the user's sole responsibility taking into account the intended application and actual conditions existing on the specific worksite. Consequent selection of the right product for any particular use remains the user's ultimate responsibility.

Safety Roof Anchors is thvrefore not obligated or liable for any direct or indirect, incidental or consequential damages, losses or expenses in connection with, or by reason of the suitability and use of or otherwise, any product or system for any purpose. Implied warranties of merchantability or fitness for any particular purpose are specifically excluded. Safety Roof Anchors maintains a policy of continuous improvement and development, and therefore reserves the right to modify, amend or otherwise alter product and system designs and specification, models and part numbers, colours and pricing etc., without prior notice. Safety Roof Anchors accepts no liability whatsoever for incorrect information, errors or omissions.

AA402HIS REMOVABLE EYE BOLT ANCHOR POINT

The System

Developed for applications in concrete AA402HIS eye bolt is rated at 15 kN. This internally threaded rod is suitable for applications that require removable eyebolt such as residential balconies or areas with increased trip hazard.

Special Features:

- Unique robust design
- Complete traceability
- Hilti engineering

Uses:

AA402HIS anchor is designed for industrial rope access (abseiling) and to support a fall arrest load of 15 kN provided a suitable personal shock absorber is used.

Installation by trained and certified personnel in accordance with AS/NZS 4488.2:1997, AS/NZS 1891.4:2009, ISO 22846 (2003) and manufacturer's instructions.

Product Warranty:

10 years from date of purchase subject to correct installation, use and maintenance in accordance with manufacturer's specifications and recommendations.

Important Note:

Failure to supply and/or install proprietary product in accordance with above standards and codes, specifications and instructions voids complete system certification and/or warranty.

Technical Data

Material Used:

Investment Cast 316 Stainless Steel (Eye)
316 Stainless Steel (Hilti HIS internally threaded rod)

Finish:

Electro polished

Abseil Capacity:

15 kN

Fall Arrest Capacity:

15 kN

Dimensions:

- Overall length – 160mm Eye
- Diameter – 45 mm x 26 mm
- HIS anchor length – M12 x 110 mm
- Weight – 635 g

Fixing Details:

Chemset 1 x Hilti HVU2 M16 or injectable equivalent (hole 25 DIA)

Maintenance:

Inspection and load testing required by competent person at intervals not exceeding 12 months as specified in AS 1891.4:2009, AS/NZS 4488.2:1997 and ISO 22846 (2003).

Standards:

Complies with WHS Act 2011 and relevant Codes of Practice. Australian Standard – AS/NZS 1891.4:2009, AS/NZS 4488.2:1997, ISO 22846 (2003) and AS/NZS 5532:2013.

AA402HIS REMOVABLE EYE BOLT ANCHOR POINT
INSTALLATION INSTRUCTIONS

Things To Know:
AA402HIS is designed for installation in concrete. It has been specifically developed for applications in rope access (abseiling) but it can be also used to support a fall arrest load of 15 kN provided a suitable personal shock absorber is used.

Minimum distance to the edge of the slab or between any 2 eyebolts must be at least 200mm unless certified by a structural engineer!

Fixing Options:
Chemset Hilti HVU M16 or equivalent (HOLE 22 DIA)

Loading:
Sheer, not exceeding 20° with the surface it's installed in.

Tools Needed For Installation:
Rotary hammer drill, masonry drill bit 22, air pump, cleaning brush, suitable Hilti chemical such as HIT500RE or HVU with appropriate Hilti setting tool.

Installation Steps – M12 Hilti HIS in concrete:
1. Use Hilti Reo Scan or similar device to avoid drilling the steel reinforcement in concrete.
2. Mark the position for hole to be drilled.
3. Drill one M22 x 125mm hole. Ensure the hole is 90° with the drilled surface.
4. Clean the hole 3 times with compressed air and cleaning brush.
5. Install Hilti HIS internally threaded rod as per Hilti instructions and allow sufficient curing time.
6. Screw in SRA eye bolt and proof load.

Proof Load and Certification:
All chemical and friction anchorages must be proof loaded before their initial use and subsequently on regular basis to satisfy the requirements set out in AS/NZS 1891.4:2009 and ISO 22846 (2003) (formerly AS/NZS 4488.2:1997)

- Proof load the eye to 7.5 kN for fall arrest applications
- Proof load the eye to 7.5 kN for applications in rope access

Note:
The roof structure must be assessed by a structural engineer unless it is clear to a suitably qualified person that it is capable of withstanding the forces imposed on it during arresting of a fall and during work positioning.

Disclaimer:

EYE BOLT SETTING TOOL

The System

Developed for speedy and comfortable installation of eye bolts (AA402) in concrete in conjunction with Hilti HVU chemicals.

Special Features:

- Mini SDS Plus compatible
- Fits both eyebolt sizes- M12 and M16

Uses:

The SRA setting tool is designed to attach to all brands of rotary hammers and power drills equipped with Mini SDS Plus system to tackle the challenge of installing eyebolts in concrete while using Hilti HVU chemicals.

Product Warranty:

10 years from date of purchase subject to correct use and maintenance in accordance with manufacturer's specifications and recommendations.

Technical Data

Material Used:

Investment Cast 316 Stainless Steel

Finish:

Electro polished

Dimensions:

- Overall length – 105mm
- Weight – 131g

AA403 PURLIN ANCHOR POINT

The System

Developed mainly for applications in rope access AA403 Purlin anchor is designed for installation through the steel purlin and roof sheet on a wide range of tray deck metal roofs. It can be used for a wide range of applications and host structures such as steel beams. It comes with a 6mm x 80mm neoprene seal under the base plate for water proofing of penetrations in roof sheet.

Special Features:

- Unique robust design
- Complete traceability

Uses:

AA403 anchor is designed for industrial rope access (abseiling) and to support a fall arrest load of 15 kN provided a suitable personal shock absorber is used.

Installation by trained and certified personnel in accordance with AS/NZS 4488.2:1997, AS/NZS 1891.4:2009, ISO 22846 (2003) and manufacturer's instructions.

Product Warranty:

10 years from date of purchase subject to correct installation, use and maintenance in accordance with manufacturer's specifications and recommendations.

Important Note:

Failure to supply and/or install proprietary product in accordance with above standards and codes, specifications and instructions voids complete system certification and/or warranty.

Technical Data

Material Used:

Investment Cast 316 Stainless Steel (Eye and base plate)
316 Stainless Steel (Threaded Rod)
Neoprene (seal on underside of base plate)

Finish:

Bead blast or electro polished

Abseil Capacity:

15 kN

Fall Arrest Capacity:

15 kN

Dimensions:

- Overall length – 185 mm
- Eye Diameter – 45 mm x 26 mm
- Base plate diameter-80 mm
- Rod length – M12 x 135 mm
- Weight – 815 g

Fixing Details:

1 x Through bolt M12 (hole 25 DIA)

Maintenance:

Inspection required by competent person at intervals not exceeding 12 months as specified in AS 1891.4:2009, AS/NZS 4488.2:1997 and ISO 22846 (2003).

Standards:

Complies with WHS Act 2011 and relevant Codes of Practice. Australian Standard – AS/NZS 1891.4:2009, AS/NZS 4488.2:1997, ISO 22846 (2003) and AS/NZS 5532:2013.

AA403 PURLIN ANCHOR
INSTALLATION INSTRUCTIONS

Things To Know:

AA403 has been developed as for applications in rope access (abseiling) but can also be used to support a fall arrest load of 15kN. It can be installed into steel purlins of various tray deck and kliplok types of roofs of the following minimum requirements:

- **Steel structure:** Minimum purlin gauge – 150mm x 1.2mm
- **Roof sheet:** Minimum sheet gauge – 0.42mm
- **Minimum roof size:** For rope access there must be minimum of 3 purlins supporting the roof sheet. For fall arrest there must be minimum of 5 purlins supporting the roof sheet. Refer to installation steps for details (fig 8)
- **Loading:** Always in sheer with the roof

Tools Needed:

Cordless drill, 25mm hole saw, brush and dust pan or vacuum, a bar to tighten

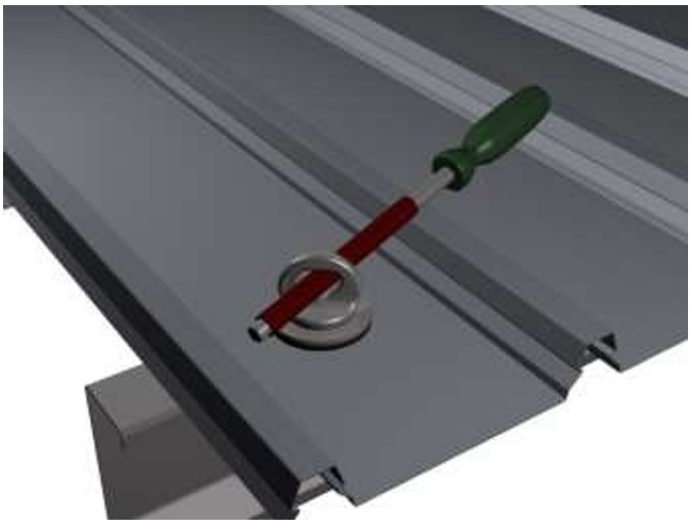
Installation Steps:

1. Assemble the 80mm plate with neoprene seal onto the eyebolt.
2. Drill a 25mm hole in the centre of the purlin at the required position.

3. Feed the plastic cable tie through the small (5mm) hole in the steel block.

4. While firmly holding the cable tie, insert the block through the hole.
5. When the steel block is fully through the hole, pull the cable tie back, pressing the block firmly against the underside of the purlin. Make sure the threaded hole of the block is visible.
6. Using your other hand take the eyebolt and screw it into the steel block at least 6 turns.

7. Release the cable tie and let in fall through the roof.
8. The eye bolt can be now fully tightened using a bar (40Nm is recommended). Make sure the eyebolt faces the right direction when fully tightened.



Note: *The neoprene seal will work better on a clean roof. In case the roof is not in a clean condition, it may require some sealant under the neoprene seal. Clear sealant is required to be applied between the eye bolt and the base plate to ensure water proofing as well as prevention from seizing.*

Annual Re-certification:

All anchor points must be inspected and certified before their initial use and subsequently on regular basis to satisfy the requirements set out in AS/NZS 1891.4:2009, AS/NZS 4488.2:1997 and ISO 22846 (2003).

Note:

The roof structure must be assessed by a structural engineer unless it is clear to a suitably qualified person that it is capable of withstanding the forces imposed on it during arresting of a fall and during work positioning.

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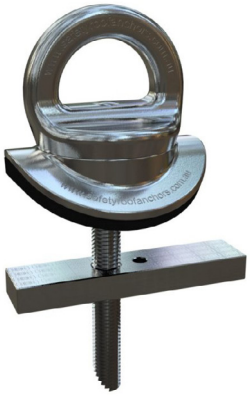


AA403C PURLIN ANCHOR POINT

The System

Developed mainly for applications in rope access AA403C Purlin anchor is designed for installation through the steel purlin and corrugated roof sheet. It comes with a 6mm x 80mm neoprene seal under the base plate for water proofing of penetrations in roof sheet.

Special Features:

- Unique robust design
- Complete traceability

Uses:

AA403C anchor is designed for industrial rope access (abseiling) and to support a fall arrest load of 15 KN provided a suitable personal shock absorber is used.

Installation by trained and certified personnel in accordance with AS/NZS 4488.2:1997, AS/NZS 1891.4:2009, ISO 22846 (2003) and manufacturer's instructions.

Product Warranty:

10 years from date of purchase subject to correct installation, use and maintenance in accordance with manufacturer's specifications and recommendations.

Important Note:

Failure to supply and/or install proprietary product in accordance with above standards and codes, specifications and instructions voids complete system certification and/or warranty.

Technical Data

Material Used:

Investment Cast 316 Stainless Steel (Eye and base plate)
316 Stainless Steel (Threaded Rod)
Neoprene (seal on underside of base plate)

Finish:

Bead blast or electro polished

Abseil Capacity:

15 kN

Fall Arrest Capacity:

15 kN

Dimensions:

- Overall length – 185 mm
- Eye Diameter – 45 mm x 26 mm
- Base plate diameter-80 mm
- Rod length – M12 x 135 mm
- Weight – 815 g

Fixing Details:

1 x Through bolt M12 (hole 25 DIA)

Maintenance:

Inspection and load testing required by competent person at intervals not exceeding 12 months as specified in AS 1891.4:2009,
AS/NZS 4488.2:1997 and ISO 22846 (2003).

Standards:

Complies with WHS Act 2011 and relevant Codes of Practice. Australian Standard – AS/NZS 1891.4:2009, AS/NZS 4488.2:1997, ISO 22846 (2003) and AS/NZS 5532:2013

AA403C PURLIN ANCHOR
INSTALLATION INSTRUCTIONS

Things To Know:

AA403C has been developed as for applications in rope access (abseiling) but can also be used to support a fall arrest load of 15kN. It can be installed into steel purlins of corrugated type of roof of the following minimum requirements:

- **Steel structure:** Minimum purlin gauge – 150mm x 1.2mm
- **Roof sheet:** Minimum sheet gauge – 0.42mm
- **Minimum roof size:** For rope access there must be minimum of 3 purlins supporting the roof sheet. For fall arrest there must be minimum of 5 purlins supporting the roof sheet. Refer to installation steps for details (fig 8).
- **Loading:** Always in sheer with the roof

Tools Needed:

Cordless drill, 25mm hole saw, brush and dustpan or vacuum, a bar to tighten.

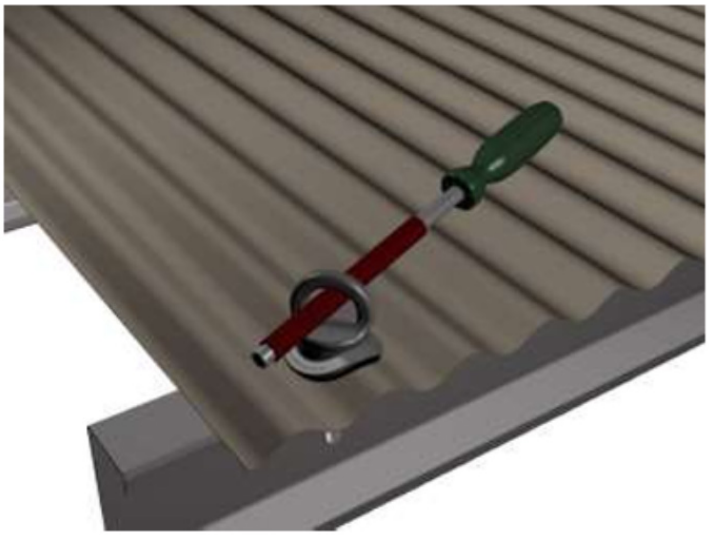
Installation Steps:

1. Assemble the 80mm plate with neoprene seal onto the eyebolt.
2. Drill a 25mm hole in the centre of the purlin at the required position.

3. Feed the plastic cable tie through the small (5mm) hole in the steel block.

4. While firmly holding the cable tie, insert the block through the hole.
5. When the steel block is fully through the hole, pull the cable tie back, pressing the block firmly against the underside of the purlin. Make sure the threaded hole of the block is visible.
6. Using your other hand take the eyebolt and screw it into the steel block at least 6 turns.

7. Release the cable tie and let in fall through the roof.
8. The eye bolt can be now fully tightened using a bar (40Nm is recommended). Make sure the eyebolt faces the right direction when fully tightened.



Note: *The neoprene seal will work better on a clean roof. In case the roof is not in a clean condition, it may require some sealant under the neoprene seal. Clear sealant is required to be applied between the eye bolt and the base plate to ensure water proofing as well as prevention from seizing.*

Annual Re-certification:

All anchor points must be inspected and certified before their initial use and subsequently on regular basis to satisfy the requirements set out in AS/NZS 1891.4:2009 and AS/NZS 4488.2:1997and ISO 22846 (2003).

Note:

The roof structure must be assessed by a structural engineer unless it is clear to a suitably qualified person that it is capable of withstanding the forces imposed on it during arresting of a fall and during work positioning.

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AA404 PEDESTAL

The System

Developed for applications in concrete and steel AA404 Pedestal is used to support a swivel eye bolt or as a static line end anchor point carrier.

Special Features:

- Unique robust design
- Welded swivel eye bolt
- Complete traceability
- High profile design

Uses:

AA404 is useful in some applications where the extra height of the anchorage is important such as installations through topping.

Installation by trained and certified personnel in accordance with AS/NZS 4488.2:1997, AS/NZS 1891.4:2009, ISO 22846 (2003) and manufacturer's instructions.

Product Warranty:

10 years from date of purchase subject to correct installation, use and maintenance in accordance with manufacturer's specifications and recommendations.

Important Note:

Failure to supply and/or install proprietary product in accordance with above standards and codes, specifications and instructions voids complete system certification and/or warranty.

Technical Data

Material Used:

Investment Cast 316 Stainless Steel (Post and the Eye)
316 Stainless Steel (Bolt)

Finish:

Bead blast or electro polished

Abseil Capacity:

N/A

Fall Arrest Capacity:

N/A

Dimensions:

- Overall height – 100 mm
- Weight – 1,240 g

Fixing Details:

- 3 x Through bolt M12 (HOLE 14 DIA)
- 3 x Chemical HILTI HVU2 or equivalent M12 (hole 14 DIA)

Maintenance:

Inspection and load testing required by competent person at intervals not exceeding 12 months as specified in AS 1891.4:2009, AS/NZS 4488.2:1997 and ISO 22846 (2003).

Standards:

Complies with WHS Act 2011 and relevant Codes of Practice. Australian Standard – AS/NZS 1891.4:2009, AS/NZS 4488.2:1997, ISO 22846 (2003) and AS/NZS 5532:2013.

AA404 PEDESTAL
INSTALLATION INSTRUCTIONS

Things To Know:

AA404 is designed for installation in concrete and steel in applications where a higher profile anchorage point is desirable (e.g. Roof tops with pebbles or other topping). It is suitable as a base for a rope access anchor or fall arrest anchor or as a static line carrier.

Fixing Options:

- 3 x Through bolt M12 (HOLE 14 DIA)
- 3 x Chemical HILTI HVU M12 or equivalent (HOLE 14 DIA)
- 3 x HSL 3-B M12 (HOLE 18 DIA)
- 3 x Through bolt M16 (HOLE 18 DIA)
- 3 x Chemical HILTI HVU M16 or equivalent (HOLE 18 DIA)

Tools Needed For Installation:

Rebar detector, Rotary hammer drill, masonry drill bit 14 or 18, air pump, cleaning brush, spanner or torque wrench if using HSL-R

Installation Steps – M12 HVU chemset in concrete:

1. Use Hilti Reo Scan or similar device to avoid drilling the steel reinforcement in concrete.
2. Mark the positions for holes to be drilled.
3. Drill three M14x110mm holes. When you start drilling the second and third hole, double check your holes line up with the holes in the pedestal base. Ensure the holes are parallel and 90° with the drilled surface.
4. Clean the holes 3 times with compressed air and cleaning brush.
5. Insert one Hilti HVU M12 chemical pack in each hole.
6. Using rotary hammer with appropriate setting tool, install 3 stainless steel M12 rods through the holes in the base of the pedestal. The rods must have their tips cut on 45° angle to allow for correct mixing of chemical.
7. Allow sufficient drying time as per Hilti HVU instructions.
8. Install three M12 washers and nylock nuts on the rods ensuring minimum of 3 threads are showing when nuts are fully tightened.

NOTE: *When installing through water proofing membrane, a full gasket of quality polyurethane sealant is recommended between the pedestal base plate and the membrane.*

NOTE 2: *Install M16 chemset as per the above instructions with re-drilled pedestal holes to take M16 rods*

Installation Steps – M12 Hilti HSL-3B or HSL-R in concrete:

1. Use Hilti Reo Scan or similar device to avoid drilling the steel reinforcement in concrete.
2. Mark the positions for holes to be drilled.
3. Assemble the HSL's onto the pedestal base and check they line up with the marked holes.
4. Drill three M18x125mm holes. When you start drilling the second and third hole, double check your holes line up with the holes in the pedestal base. Ensure the holes are parallel and 90° with the drilled surface.
5. Clean the holes 3 times with compressed air and cleaning brush.
6. Offer the whole assembly to the drilled holes and tap both HSL's repeatedly with hammer until fully in.
7. Use a spanner to apply correct torque as per Hilti HSL-3B or HSL-R instructions.

NOTE: *When installing through water proofing membrane, a full gasket of quality polyurethane sealant is recommended between the anchor base plate and the membrane.*

Installation Steps – M12 through bolt

1. Use Hilti Reo Scan or similar device to avoid drilling the steel reinforcement in concrete.
2. Mark the positions for holes to be drilled.
3. Drill three M14 holes. When you start drilling the second and third hole, double check your holes line up with the holes in the pedestal base. Ensure the holes are parallel and 90° with the drilled surface.
4. Insert three M12 stainless steel rods cut to size. Add three backing plates (BP3); one to each rod on the back side and M12 washer to each rod on the front side.
5. Install six M12 lock nuts; one for each end of the rod and tighten to 40 Nm using two spanners. Ensure minimum of 3 threads are showing when nuts are fully tightened.

NOTE: *Install M16 through bolt as per the above instructions with re-drilled anchor body holes to take M16 rods.*

Proof Load and Certification:

All chemical and friction anchorages must be proof loaded before their initial use and subsequently on regular basis to satisfy the requirements set out in AS/NZS 1891.4:2009 and AS/NZS 4488.2:1997 and ISO 22846 (2003)

- Proof load each rod individually to 7.5 kN
- Do not proof load the bracket

Through bolts must be visually inspected – do not proof load!

Note:

The roof structure must be assessed by a structural engineer unless it is clear to a suitably qualified person that it is capable of withstanding the forces imposed on it during arresting of a fall and during work positioning.

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AA404P PEDESTAL WITH M12 WELDED SWIVEL EYE BOLT

The System

Developed for applications in concrete and steel AA404P Pedestal with M12 Welded swivel eye bolt is designed to withstand a fall arrest load of 15kN. It can be used for a wide range of applications and host structures.

Special Features:

- Unique robust design
- Welded swivel eye bolt
- Complete traceability
- High profile design

Uses:

AA404P anchor is designed for industrial rope access (abseiling) and to support a fall arrest load of1 15 kN provided a suitable personal shock absorber is used.

It is useful in some applications where the extra height of the anchorage is important such as installations through topping.

Installation by trained and certified personnel in accordance with AS/NZS 4488.2:1997, AS/NZS 1891.4:2009, ISO 22846 (2003) and manufacturer's instructions.

Product Warranty:

10 years from date of purchase subject to correct installation, use and maintenance in accordance with manufacturer's specifications and recommendations.

Important Note:

Failure to supply and/or install proprietary product in accordance with above standards and codes, specifications and instructions voids complete system certification and/or warranty.

Technical Data

Material Used:

Investment Cast 316 Stainless Steel (Post and the Eye)
316 Stainless Steel (Bolt)

Finish:

Bead blast or electro polished

Abseil Capacity:

15 kN

Fall Arrest Capacity:

15 kN

Dimensions:

- Overall height – 160 mm
- Eye Diameter – 45 mm x 26 mm
- Weight – 1,650 g

Fixing Details:

- 3 x Through bolt M12 (HOLE 14 DIA)
- 3 x Chemical HILTI HVU2 or equivalent M12 (hole 14 DIA)

Maintenance:

Inspection and load testing required by competent person at intervals not exceeding 12 months as specified in AS 1891.4:2009, AS/NZS 4488.2:1997 and ISO 22846 (2003).

Standards:

Complies with WHS Act 2011 and relevant Codes of Practice. Australian Standard – AS/NZS 1891.4:2009, AS/NZS 4488.2:1997, ISO 22846 (2003) and AS/NZS 5532:2013.

AA404P PEDESTAL WITH WELDED SWIVEL EYE BOLT

INSTALLATION INSTRUCTIONS

Things To Know:

AA404P is designed for installation in concrete and steel in applications where a higher profile anchorage point is desirable (e.g. Roof tops with pebbles or other topping). It is suitable as a rope access anchor or fall arrest anchor. It is designed to handle tensile loading and should therefore be used in place of collared eye bolts in all applications where they are loaded under an angle greater than 20° with the surface they are installed in.

Fixing Options:

- 3 x Through bolt M12 (HOLE 14 DIA)
- 3 x Chemical HILTI HVU M12 or equivalent (HOLE 14 DIA)
- 3 x HSL 3-B M12 (HOLE 18 DIA)
- 3 x Through bolt M16 (HOLE 18 DIA)
- 3 x Chemical HILTI HVU M16 or equivalent (HOLE 18 DIA)

Loading:

360°

Tools Needed For Installation:

Rebar detector, Rotary hammer drill, masonry drill bit 14 or 18, air pump, cleaning brush, spanner or torque wrench if using HSL-R

Installation Steps – M12 HVU chemset in concrete:

1. Use Hilti Reo Scan or similar device to avoid drilling the steel reinforcement in concrete.
2. Mark the positions for holes to be drilled.
3. Drill three M14x110mm holes. When you start drilling the second and third hole, double check your holes line up with the holes in the pedestal base. Ensure the holes are parallel and 90° with the drilled surface.
4. Clean the holes 3 times with compressed air and cleaning brush.
5. Insert one Hilti HVU M12 chemical pack in each hole.
6. Using rotary hammer with appropriate setting tool, install 3 stainless steel M12 rods through the holes in the base of the pedestal. The rods must have their tips cut on 45° angle to allow for correct mixing of chemical.
7. Allow sufficient drying time as per Hilti HVU instructions.
8. Install three M12 washers and nylock nuts on the rods ensuring minimum of 3 threads are showing when nuts are fully tightened.

NOTE: *When installing through water proofing membrane, a full gasket of quality polyurethane sealant is recommended between the pedestal base plate and the membrane.*

NOTE 2: *Install M16 chemset as per the above instructions with re-drilled pedestal holes to take M16 rods*

Installation Steps – M12 Hilti HSL-3B or HSL-R in concrete:

1. Use Hilti Reo Scan or similar device to avoid drilling the steel reinforcement in concrete.
2. Mark the positions for holes to be drilled.
3. Assemble the HSL's onto the pedestal base and check they line up with the marked holes.
4. Drill three M18x125mm holes. When you start drilling the second and third hole, double check your holes line up with the holes in the pedestal base. Ensure the holes are parallel and 90° with the drilled surface.
5. Clean the holes 3 times with compressed air and cleaning brush.
6. Offer the whole assembly to the drilled holes and tap both HSL's repeatedly with hammer until fully in.
7. Use a spanner to apply correct torque as per Hilti HSL-3B or HSL-R instructions.

NOTE: *When installing through water proofing membrane, a full gasket of quality polyurethane sealant is recommended between the anchor base plate and the membrane.*

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Installation Steps – M12 through bolt:

1. Use Hilti Reo Scan or similar device to avoid drilling the steel reinforcement in concrete.
2. Mark the positions for holes to be drilled.
3. Drill three M14 holes. When you start drilling the second and third hole, double check your holes line up with the holes in the pedestal base. Ensure the holes are parallel and 90° with the drilled surface.
4. Insert three M12 stainless steel rods cut to size. Add three backing plates (BP3); one to each rod on the back side and M12 washer to each rod on the front side.
5. Install six M12 lock nuts; one for each end of the rod and tighten to 40 Nm using two spanners. Ensure minimum of 3 threads are showing when nuts are fully tightened.

NOTE: *Install M16 through bolt as per the above instructions with re-drilled anchor body holes to take M16 rods.*

Proof Load and Certification:

All chemical and friction anchorages must be proof loaded before their initial use and subsequently on regular basis to satisfy the requirements set out in AS/NZS 1891.4:2009 and AS/NZS 4488.2:1997and ISO 22846 (2003).

- Proof load each rod individually to 7.5 kN
- Do not proof load the bracket

Through bolts must be visually inspected – do not proof load!

Note:

The roof structure must be assessed by a structural engineer unless it is clear to a suitably qualified person that it is capable of withstanding the forces imposed on it during arresting of a fall and during work positioning.

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AA405 POST ANCHOR WITH M16 EYE BOLT

The System

Developed for applications in concrete AA404 extended anchor with M16 eye bolt is designed for installation into roofs with topping such as pebbles and similar. It can be used for both rope access and fall arrest.

Special Features:
- Unique robust design
- M16 welded eye bolt
- Complete traceability
- LHigh profile design

Uses:
AA405 anchor is designed for industrial rope access (abseiling) and to support a fall arrest load of1 15 kN provided a suitable personal shock absorber is used.

It is useful in some applications where the extra height of the anchorage is important such as installations through topping.

Installation by trained and certified personnel in accordance with AS/NZS 4488.2:1997, AS/NZS 1891.4:2009, ISO 22846 (2003) and manufacturer's instructions.

Product Warranty:
10 years from date of purchase subject to correct installation, use and maintenance in accordance with manufacturer's specifications and recommendations.

Important Note:
Failure to supply and/or install proprietary product in accordance with above standards and codes, specifications and instructions voids complete system certification and/or warranty.

Technical Data

Material Used:
Investment Cast 316 Stainless Steel (Eye)
316 Stainless Steel (Bolt)
316 Stainless Steel 3mm thick pipe (body)

Finish:
Electro polished

Abseil Capacity:
15 kN

Fall Arrest Capacity:
15 kN

Dimensions:
- Overall height – 200 mm
- Inside Eye Diameter – 45 mm x 26 mm
- Weight – 1,415 g

Fixing Details:
- 1 x Chemical HILTI RE500 (hole 18 DIA)
- 1x Chemical ICCONS Hybrid GEN2 (hole 18 DIA)

Maintenance:
Inspection and load testing required by competent person at intervals not exceeding 12 months as specified in AS 1891.4:2009, AS/NZS 4488.2:1997 and ISO 22846 (2003).

Standards:
Complies with WHS Act 2011 and relevant Codes of Practice. Australian Standard – AS/NZS 1891.4:2009, AS/NZS 4488.2:1997, ISO 22846 (2003) and AS/NZS 5532:2013.`

AA405 EXTENDED EYE BOLT
INSTALLATION INSTRUCTIONS

Things To Know:
AA405 is designed for installation in concrete and steel in applications where a higher profile anchorage point is desirable (eg. Roof tops with pebbles or other topping). It is suitable as a rope access anchor or fall arrest anchor. Minimum distance to the edge of the slab or between any 2 eyebolts must be at least 200mm unless certified by a structural engineer!

Fixing Options:
- 1 x Through bolt M16 (HOLE 18 DIA)
- 1 x Chemical HILTI RE 500 or equivalent (HOLE 18 DIA)

Loading:
360°

Tools Needed For Installation:
Rebar detector, Rotary hammer drill, masonry drill bit 18, air pump, cleaning brush, chemset gun

Installation Steps – chemset in concrete (Hilti RE500):
1. Use Hilti Reo Scan or similar device to avoid drilling the steel reinforcement in concrete.
2. Mark the position for hole to be drilled.
3. Drill one M18x125mm holes. Ensure the holes is 90° with the drilled surface.
4. Clean the hole 3 times with compressed air and cleaning brush.
5. Squeeze the right amount of Hilti RE500 chemical in the hole.
6. Slowly screw the rod into the hole and keep turning until it is fully embedded.
7. Allow sufficient drying time as per Hilti RE 500 instructions.

NOTE: *When installing through water proofing membrane, Hilti RE 500 chemical takes care of the waterproofing job nicely. No need to add sealant. Excess chemical that is pushed out upon installation seals the hole.*

Installation Steps – M16 through bolt in concrete:
1. Use Hilti Reo Scan or similar device to avoid drilling the steel reinforcement in concrete.
2. Mark the position for hole to be drilled.
3. Drill one M18 hole. Ensure the hole is 90° with the drilled surface.
4. Insert the anchor into the hole. Add one backing plate (BP1 or BP2) and M16 washer.
5. Install one M16 lock nut and tighten to 40 Nm using two spanners. Ensure minimum of 3 threads are showing when the nut is fully tightened.

Proof Load and Certification:
All chemical and friction anchorages must be proof loaded before their initial use and subsequently on regular basis to satisfy the requirements set out in AS/NZS 1891.4:2009 and AS/NZS 4488.2:1997 and ISO 22846 (2003)

- Proof load to 7.5 kN for a duration of 2 minutes.

Through bolts must be visually inspected – do not proof load!

Note:
The structure must be assessed by a structural engineer unless it is clear to a suitably qualified person that it is capable of withstanding the forces imposed on it during a fall arrest situation and/ or during work positioning.

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Disclaimer:

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Safety Roof Anchors is therefore not obligated or liable for any direct or indirect, incidental or consequential damages, losses or expenses in connection with, or by reason of the suitability and use of or otherwise, any product or system for any purpose. Implied warranties of merchantability or fitness for any particular purpose are specifically excluded. Safety Roof Anchors maintains a policy of continuous improvement and development, and therefore reserves the right to modify, amend or otherwise alter product and system designs and specification, models and part numbers, colours and pricing etc., without prior notice. Safety Roof Anchors accepts no liability whatsoever for incorrect information, errors or omissions.

AA406/AA407 SWIVEL ANCHOR POINT

The System

Developed mainly for applications in concrete and steel the AA406 anchor point features a 360° swivel eye which offers a uniform loading in all directions preventing side loading of a karabiner attachment.

Special Features:

- 360° swivelling anchor point
- Used for both Fall arrest/Rope access

Uses:

AA406 is designed for use in industrial rope access (abseiling) and to support a fall arrest load of 15 KN in all directions (always in sheer) provided a suitable personal shock absorber is used.

Installation by trained and certified personnel in accordance with AS/NZS 4488.2:1997, AS/NZS 1891.4:2009, ISO 22846 (2003) and manufacturer's instructions.

Product Warranty:

10 years from date of purchase subject to correct installation, use and maintenance in accordance with manufacturer's specifications and recommendations.

Important Note:

Failure to supply and/or install proprietary product in accordance with above standards and codes, specifications and instructions voids complete system certification and/or warranty.

Technical Data

Material Used:

Investment Cast 316 Stainless Steel (eye and base plate)
Grade 316 stainless steel (rod)

Finish:

Bead blast or Electro polish

Abseil Capacity:

15 kN

Fall Arrest Capacity:

15 kN

Dimensions:

- Length of plate – 95 mm
- Eye Diameter – 25 mm
- Weight – 260 g

Fixing Details:

- 1 x Through bolt M12 (hole 14 DIA)
- 1 x Chemical HILTI HVU2 or equivalent M12 (hole 14 DIA)
- 1 x Through bolt M16 (hole 18 DIA)
- 1 x Chemical HILTI HVU2 or equivalent M16 (hole 18 DIA)

Maintenance:

Inspection and load testing required by competent person at intervals not exceeding 12 months as specified in AS 1891.4:2009, AS/NZS 4488.2:1997 and ISO 22846 (2003).

Standards:

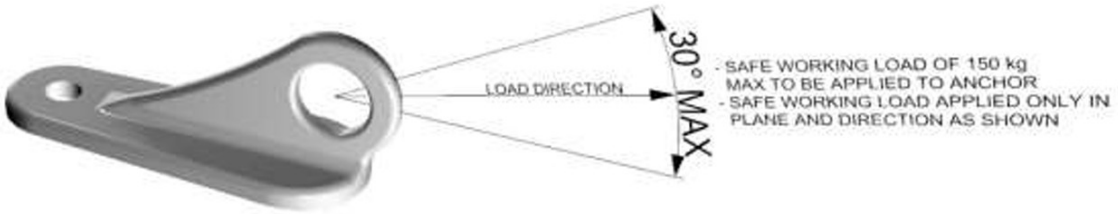
Complies with WHS Act 2011 and relevant Codes of Practice. Australian Standard – AS/NZS 1891.4:2009, AS/NZS 4488.2:1997, ISO 22846 (2003) and AS/NZS 5532:2013

AA406/AA407 SWIVEL ANCHOR POINT
INSTALLATION INSTRUCTIONS

Things To Know:
AA406 is designed for installation in concrete and steel. It has been specifically developed for applications in rope access (abseiling) but it can be also used to support a fall arrest load of 15 kN provided a suitable personal shock absorber is used. The swivelling action dramatically improves the loading properties and prevents the cross loading of karabiners. It is recommended to install the AA406 as a kit (AA406K) Minimum distance to the edge of the slab or between any 2 eyebolts must be at least 200mm unless certified by a structural engineer!

Fixing Options:
- Through bolt M12 (HOLE 14 DIA)
- Chemical HILTI HVU M12 or equivalent (HOLE 14 DIA)

Loading:
sheer as per the diagram



Tools Needed For Installation:
Rebar detector, Rotary hammer drill, masonry drill bit 14, air pump, cleaning brush, setting tool for rods

Installation Steps – M12 chemset in concrete:
1. Use Hilti rebar detector or similar device to avoid drilling the steel reinforcement in concrete.
2. Mark the position for hole to be drilled.
3. Drill an M14 x 110mm hole. Ensure the hole is 90° with the drilled surface.

4. Clean the hole 3 times with compressed air and cleaning brush.

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5. Insert one Hilti HVU M12 chemical pack in the hole.
6. Using rotary hammer with appropriate setting tool (hex socket), install a stainless steel M12 rod. Ensure the rods have their tips cut off on 45° angle or use Hilti rods suitable for the application.

7. Allow sufficient drying time as per Hilti HVU instructions. Once dry, remove the hex nuts.

8. Install a stainless-steel base plate (BP2 80mm), AA406 anchor, M12 washer and clamp down with M12 nylock nut. Tighten the locknut fully and then slack off until the anchor can swivel freely. Ensure minimum of 3 threads are showing.

***NOTE**: When installing through water proofing membrane, a full gasket of quality polyurethane sealant is recommended between the base plate and the membrane.*

Installation Steps – M12 through bolt:

1. Use Hilti Reo Scan or similar device to avoid drilling the steel reinforcement in concrete.
2. Mark the position for hole to be drilled.
3. Drill one M14 through hole. Ensure the hole is 90° with the drilled surface.
4. Insert M12 stainless steel rod cut to size. Add one backing plate (BP1 120mm or BP2 80mm) to each side of the rod.
5. Install one M12 washer and one lock nut to the back side and AA406 anchor, M12 washer and one M12 lock nut to the front side. . Tighten fully using 2 spanners and then slack off just enough to ensure the anchor can swivel freely. Ensure minimum of 8 threads are showing on each side.

Proof Load and Certification:

All chemical and friction anchorages must be proof loaded before their initial use and subsequently on regular basis to satisfy the requirements set out in AS/NZS 1891.4:2009 and AS/NZS 4488.2:1997 and ISO 22846 (2003).

- Proof load rod to 7.5 kN for fall arrest applications.
- Proof load rod to 7.5 kN for applications in rope access.
- Always proof load the rods, NOT the brackets!

Through bolts must be visually inspected – do not proof load!

Note:

The structure must be assessed by a structural engineer unless it is clear to a suitably qualified person that it is capable of withstanding the forces imposed on it during a fall arrest situation and/or work positioning.

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AA406K/AA407K SWIVEL ANCHOR POINT KIT

The System

Developed mainly for applications in concrete and steel the AA406K anchor point kit features a 360° swivel eye which offers a uniform loading in all directions preventing side loading of a karabiner attachment.

Special Features:

- 360° swivelling anchor point
- Used for both Fall arrest/Rope access
- Includes 80mm base plate, M12 x 110mm rod, 2 off M12 hex nuts, 1 off nylock nut, 1 off M12 washer

Uses:

AA406K is designed for use in industrial rope access (abseiling) and to support a fall arrest load of 15 kN in all directions (always in sheer) provided a suitable personal shock absorber is used.

Installation by trained and certified personnel in accordance with AS/NZS 4488.2:1997, AS/NZS 1891.4:2009, ISO 22846 (2003) and manufacturer's instructions.

Product Warranty:

10 years from date of purchase subject to correct installation, use and maintenance in accordance with manufacturer's specifications and recommendations.

Important Note:

Failure to supply and/or install proprietary product in accordance with above standards and codes, specifications and instructions voids complete system certification and/or warranty.

Technical Data

Material Used:

Investment Cast 316 Stainless Steel (eye and base plate)
Grade 316 stainless steel (rod)

Finish:

Bead blast or Electro polished

Abseil Capacity:

15 kN

Fall Arrest Capacity:

15 kN

Dimensions:

- Length of plate – 95 mm
- Eye Diameter – 25 mm
- Base plate diameter – 80 mm
- Weight of kit – 600 g

Fixing Details:

- 1 x Through bolt M12 (hole 14 DIA)
- 1 x Chemical HILTI HVU2 M12 or equivalent (hole 14 DIA)
- 1 x Through bolt M16 (hole 18 DIA)
- 1 x Chemical HILTI HVU2 M16 or equivalent (hole 18 DIA)

Maintenance:

Inspection and load testing required by competent person at intervals not exceeding 12 months as specified in AS 1891.4:2009, AS/NZS 4488.2:1997 and ISO 22846 (2003).

Standards:

Complies with WHS Act 2011 and relevant Codes of Practice. Australian Standard – AS/NZS 1891.4:2009, AS/NZS 4488.2:1997, ISO 22846 (2003) and AS/NZS 5532:2013

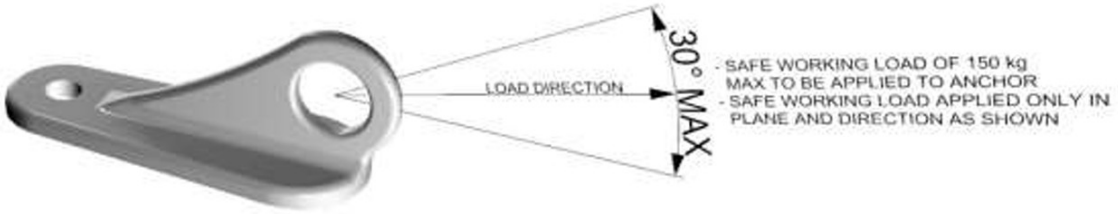
AA406K SWIVEL ANCHOR
INSTALLATION INSTRUCTIONS

Things To Know:
AA406K is designed for installation in concrete and steel. It has been specifically developed for applications in rope access (abseiling) but it can be also used to support a fall arrest load of 15 kN provided a suitable personal shock absorber is used. The swivelling action dramatically improves the loading properties and prevents the cross loading of karabiners.

Minimum distance to the edge of the slab or between any 2 eyebolts must be at least 200mm unless certified by a structural engineer!

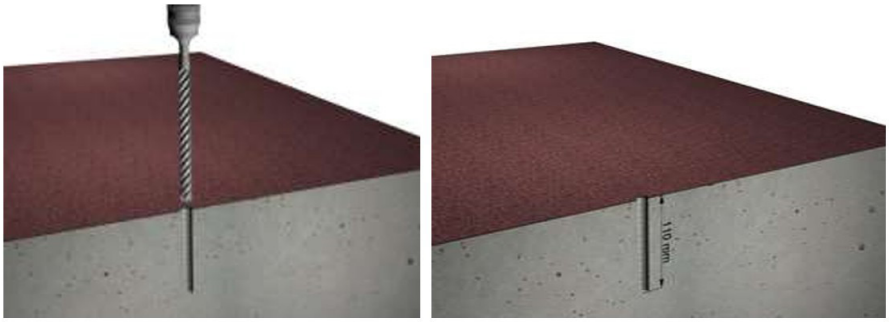
Fixing Options:
- Through bolt M12 (HOLE 14 DIA)
- Chemical HILTI HVU M12 or equivalent (HOLE 14 DIA)

Loading:
sheer as per the diagram

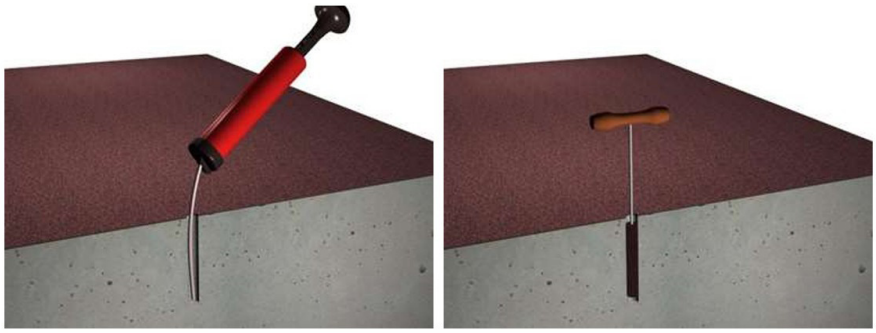


Tools Needed For Installation:
Rebar detector, Rotary hammer drill, masonry drill bit 14, air pump, cleaning brush, setting tool for rods

Installation Steps – M12 chemset in concrete:
1. Use Hilti rebar detector or similar device to avoid drilling the steel reinforcement in concrete.
2. Mark the position for hole to be drilled.
3. Drill an M14 x 110mm hole. Ensure the hole is 90° with the drilled surface.



4. Clean the hole 3 times with compressed air and cleaning brush.



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5. Insert one Hilti HVU M12 chemical pack in the hole.
6. Using rotary hammer with appropriate setting tool (hex socket), install a stainless steel M12 rod. Ensure the rods have their tips cut off on 45° angle or use Hilti rods suitable for the application.

7. Allow sufficient drying time as per Hilti HVU instructions. Once dry, remove the hex nuts.

8. Install a stainless-steel base plate (BP2 80mm), AA406 anchor, M12 washer and clamp down with M12 nylock nut. Tighten the locknut fully and then slack off until the anchor can swivel freely. Ensure minimum of 3 threads are showing.

***NOTE**: When installing through water proofing membrane, a full gasket of quality polyurethane sealant is recommended between the base plate and the membrane.*

Installation Steps – M12 through bolt:

1. Use Hilti Reo Scan or similar device to avoid drilling the steel reinforcement in concrete.
2. Mark the position for hole to be drilled.
3. Drill one M14 through hole. Ensure the hole is 90° with the drilled surface.
4. Insert M12 stainless steel rod cut to size. Add one backing plate (BP1 120mm or BP2 80mm) to each side of the rod.
5. Install one M12 washer and one lock nut to the back side and AA406 anchor, M12 washer and one M12 lock nut to the front side. . Tighten fully using 2 spanners and then slack off just enough to ensure the anchor can swivel freely. Ensure minimum of 8 threads are showing on each side.

Proof Load and Certification:

All chemical and friction anchorages must be proof loaded before their initial use and subsequently on regular basis to satisfy the requirements set out in AS/NZS 1891.4:2009 and AS/NZS 4488.2:1997 and ISO 22846 (2003).

- Proof load rod to 7.5 kN for fall arrest applications.
- Proof load rod to 7.5 kN for applications in rope access.
- Always proof load the rods, NOT the brackets!

Through bolts must be visually inspected – do not proof load!

Note:

The structure must be assessed by a structural engineer unless it is clear to a suitably qualified person that it is capable of withstanding the forces imposed on it during a fall arrest situation and/or work positioning.

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AA408 TENSILE ANCHOR POINT

The System

Developed especially for loading in tension AA408 features a double bolt design. This safety factor is important in all applications where the anchor is loaded under an angle exceeding 20˚ with the surface it is installed into (as per AS/NZS 4488.2:1997, section 5.3).

Special Features:
- Designed to be loaded in sheer and tension
- Large eye diameter
- Safety factor of 2 bolts
- 360 degree loading as well as tensile loading

Uses:
AA408 anchor is designed for industrial rope access (abseiling) and to support a fall arrest load of 15 KN provided a suitable personal shock absorber is used.

It is essential in overhangs as a re-belay anchor or aid climbing anchor as well as a through bolt anchor with an added safety factor.

Installation by trained and certified personnel in accordance with AS/NZS 4488.2:1997, AS/NZS 1891.4:2009, ISO 22846 (2003) and manufacturer's instructions.

Product Warranty:
10 years from date of purchase subject to correct installation, use and maintenance in accordance with manufacturer's specifications and recommendations.

Important Note:
Failure to supply and/or install proprietary product in accordance with above standards and codes, specifications and instructions voids complete system certification and/or warranty.

Technical Data

Material Used:
Investment Cast 316 Stainless Steel

Finish:
Bead blast or Electro polished

Abseil Capacity:
15 kN

Fall Arrest Capacity:
15 kN

Dimensions:
- Overall length – 240 mm
- Hole to hole centres – 200 mm
- Eye Diameter- 25 mm
- Weight- 710 g

Fixing Details:
- 2x Through bolt M12 (hole 14 DIA)
- 2x Chemical HILTI HVU2 M12 or equivalent (hole 14 DIA)
- 2x Chemical HILTI HVU2 M16 or equivalent (hole 18 DIA)
- 2x Hilti HSL-GR M10 (hole15 DIA)
- 2x Hilti HST3-R M12 125mm (hole M12 DIA)
- 2x Friulsider FM-753 CRACK 120/20 M12 DIA

Maintenance:
Inspection and load testing required by competent person at intervals not exceeding 12 months as specified in AS 1891.4:2009, AS/NZS 4488.2:1997 and ISO 22846 (2003).

Standards:
Complies with WHS Act 2011 and relevant Codes of Practice. Australian Standard – AS/NZS 1891.4:2009, AS/NZS 4488.2:1997, ISO 22846 (2003) and AS/NZS 5532:2013

AA408 TENSILE DOUBLE BOLT ANCHOR
INSTALLATION INSTRUCTIONS

Things To Know:
AA408 is designed for installation in concrete and steel. It has been specifically developed for tensile loading applications. It is suitable as a re-belay/ aid climbing anchor, tensile rope access anchor or fall arrest anchor. It should be used in place of collared eye bolts in all applications where they are loaded under an angle greater than 20° with the surface they are installed in.

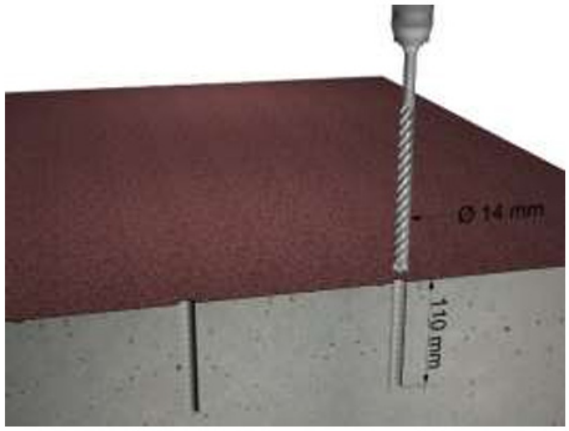
Minimum distance to the edge of the slab or between any 2 eyebolts must be at least 200mm unless certified by a structural engineer!

Fixing Options:
- 2 x Through bolt M12 (HOLE 14 DIA)
- 2 x Chemical HILTI HVU M12 or injectable equivalent (HOLE 14 DIA)
- 2 x HSL 3 GR M12 (HOLE 18 DIA) or 2 HSL 3 GR M10
- 2x Hilti HST3-R M12x125mm (HOLE 12 DIA)
- 2x FRIULSIDER FM-753 CRACK M12x120/20 (HOLE 12 DIA)

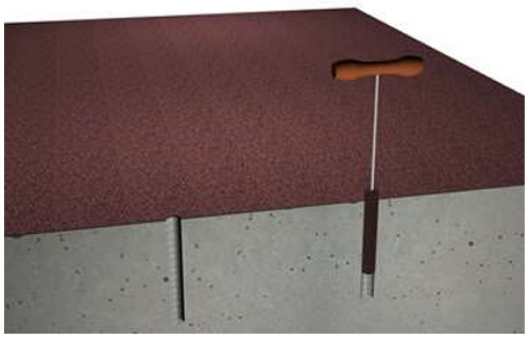
Loading:
Tensile or sheer (360 degree in any possible way of loading)

Tools Needed For Installation:
Rebar detector, Rotary hammer drill, Masonry drill bit 12, 14 or 18, air pump, cleaning brush and torque wrench.

Installation Steps – M12 chemset in concrete:
1. Use Hilti Reo Scan or similar device to avoid drilling the steel reinforcement in concrete.
2. Mark the positions for holes to be drilled.
3. Drill two M14x110mm holes. When you start drilling the second hole, double check your holes line up with the anchor holes. Ensure the holes are parallel and 90° with the drilled surface.



4. Clean the holes 3 times with compressed air and cleaning brush.



5. Insert one Hilti HVU M12 chemical pack in each hole.

6. Using rotary hammer with appropriate setting tool, install 2 stainless steel M12 rods through the holes in the base of AA408 anchor. The rods must have their tips cut on 45° angle to allow for correct mixing of chemical.

7. Allow sufficient drying time as per Hilti HVU instructions. Once cured, remove the hex nuts.

8. Install one M12 washer and one M12 nylock nut on each rod ensuring minimum of 5 threads are showing when nuts are fully tightened.

Note: *The 5 threads are important for a secure attachment of a separate M12 eye nut which is needed to complete the proof load of individual rods/fixings on annual basis.*

Note a: *When installing through water proofing membrane, a full gasket of a membrane compatible sealant is recommended between and around the anchor base plate and the membrane.*

Note b: *Install M16 chemset as per the above instructions with re-drilled anchor body holes to take M16 rods*

Installation Steps – M12 Hilti HSL 3 GR fixings in concrete:

1. Use Hilti Reo Scan or similar device to avoid drilling the steel reinforcement in concrete.
2. Mark the positions for holes to be drilled.
3. Assemble both HSL's onto the anchor body and check they line up with the marked holes.
4. Drill two M18 x 125mm holes. When you start drilling the second hole, double check the holes line up with the HSL's in your assembly. Ensure the holes are parallel and 90° with the drilled surface.
5. Clean the holes with compressed air and cleaning brush.
6. Offer the whole assembly to the drilled holes and tap both HSL's repeatedly with hammer until fully in.
7. Use a spanner to apply correct torque as per Hilti HSL-3B instructions.
8. Once a prescribed torque is achieved in both fixings, the installation is complete. In the overhead applications, the original hex nuts and washers will suffice or may be upgraded to M12 nylock nuts. As an alternative, a heavy-duty thread locker (Loctite Red 271) or s/s spring washers can be used with the original nuts. Ensure minimum of 5 threads are showing when nuts are fully tightened.

Note: *The 5 threads are important for a secure attachment of a separate M12 eye nut which is needed to complete the proof load of individual rods/fixings on annual basis.*

Installation Steps – M12 through bolt:

1. Use Hilti Reo Scan or similar device to avoid drilling the steel reinforcement in concrete.
2. Mark the positions for holes to be drilled.
3. Drill two M14 holes. When you start drilling the second hole, double check your holes line up with the anchor holes. Ensure the holes are parallel and 90° with the drilled surface.
4. Insert two M12 stainless steel rods cut to size. Add two backing plates (BP2 or BP3) to each rod on the back side and M12 washer to each rod on the front side.
5. Install four M12 lock nuts; one for each end of the rod and tighten to 40 Nm using two spanners. Ensure minimum of 5 threads are showing when nuts are fully tightened.

Installation Steps – M12x125mm Hilti HST3-R fixings in concrete:

1. Use Hilti Reo Scan or similar device to avoid drilling the steel reinforcement in concrete.
2. Mark the positions for holes to be drilled.
3. Assemble both M12x125mm HST3-Rs onto the anchor body and check they line up with the marked holes.
4. Drill two M12 x 110mm holes. When you start drilling the second hole, double check the holes line up with the M12x125mm HST3-Rs in your assembly. Ensure the holes are parallel and 90° with the drilled surface.
5. Clean the holes with compressed air and cleaning brush.
6. Offer the whole assembly to the drilled holes and tap both M12x125mm HST3-R's repeatedly with hammer until fully in. You can also use a setting tool with SDS drill attachment to do this.
7. Use a torque wrench to apply correct torque as per Hilti M12x125mm HST3-R instructions.
8. Once a prescribed torque is achieved in both fixings, the installation is complete. Original hex nuts and washers will suffice or may be upgraded to M12 nylock nuts. As an alternative, a heavy-duty thread locker (Loctite Red 271) or s/s spring washers can be used with the original nuts. Ensure minimum of 5 threads are showing when nuts are fully tightened.

Note: *The 5 threads are important for a secure attachment of a separate M12 eye nut which is needed to complete the proof load of individual rods/fixings on annual basis.*

Installation Steps – FRIULSIDER FM-753 CRACK M12x120/20 heavy duty fixings in concrete:

1. Use Hilti Reo Scan or similar device to avoid drilling the steel reinforcement in concrete.
2. Mark the positions for holes to be drilled.
3. Assemble both FRIULSIDER FM-753 CRACK M12x120/20 heavy duty fixings onto the anchor body and check they line up with the marked holes.
4. Drill two M12 x 100mm holes. When you start drilling the second hole, double check the holes line up with the FRIULSIDER FM-753 CRACK M12x120/20 heavy duty fixings in your assembly. Ensure the holes are parallel and 90° with the drilled surface.
5. Clean the holes with compressed air and cleaning brush.
6. Offer the whole assembly to the drilled holes and tap both FRIULSIDER FM-753 CRACK M12x120/20 heavy duty fixings repeatedly with hammer until fully in. You can also use a setting tool with SDS attachment to do this.
7. Use a torque wrench to apply correct torque as per FRIULSIDER FM-753 CRACK M12x120/20 heavy duty fixings instructions.
8. Once a prescribed torque is achieved in both fixings, the installation is complete. Original hex nuts and washers will suffice or may be upgraded to M12 nylock nuts. As an alternative, a heavy-duty thread locker (Loctite Red 271) or s/s spring washers can be used with the original nuts. Ensure minimum of 5 threads are showing when nuts are fully tightened.

Note: *The 5 threads are important for a secure attachment of a separate M12 eye nut which is needed to complete the proof load of individual rods/fixings on annual basis.*

Proof load and certification:

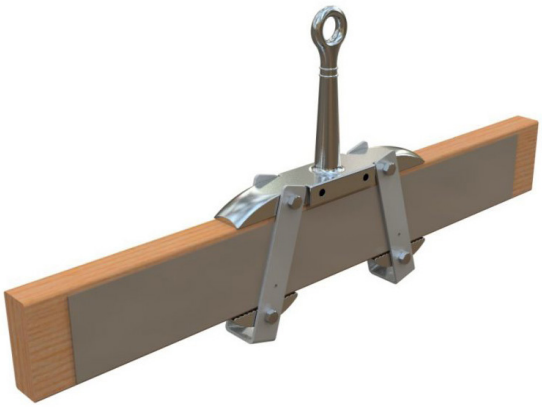
All chemical and friction anchorages must be proof loaded before their initial use and subsequently on regular basis to satisfy the requirements set out in AS/NZS 1891.4:2009, AS/NZS 4488.2:1997 & ISO 22846.

- Proof load each rod (fixing) individually to 7.5 kN
- Do not proof load the bracket. Proof loading each rod individually is the best practice!

Through bolts must be visually inspected – do not proof load!

Note: *The structure must be assessed by a structural engineer unless it is clear to a suitably qualified person that it can withstand the forces imposed on it during arresting of a fall and during work positioning.*

Disclaimer:



TRUSS-T-GRIP® ROPE ACCESS & FALL ARREST ANCHOR POINT
AUSTRALIAN PATENT 744587

The System

Truss-T-Grip® is a rope access and fall arrest anchor point designed for use on timber members such as trusses and rafters. It doesn't rely on penetration of timber members by screws or any other means of their modification. Instead, it utilises a unique clamping mechanism which compresses the timber rather than splitting it in the event of arresting a fall. It comes complete with 2 stainless steel truss armour plates and rubber flashing.

Truss-T-Grip® is stocked in 3 most common truss/ rafter sizes: TG9035 (fits trusses 90mm x 30mm), TG10050 and TG20050 but it can be made to suit any truss/ rafter size.

Special Features:
- Compression clamp mechanism
- Easy installation and removal
- Can be used as a temporary anchor
- Fits all standard truss and rafter sizes

Uses:
Designed for industrial rope access (abseiling) and to support a fall arrest load of 15 kN in any direction provided a suitable personal shock absorber is used.

Installation by trained and certified personnel in accordance with AS/NZS 4488.2:1997 and AS/NZS 1891.4:2009 and manufacturer's instructions.

Technical Data

Material Used:
Investment cast grade 316 Stainless Steel

Finish:
Electro polish

Ultimate Load:
Rope access: 15 kN Fall arrest: 15 kN

Dimensions:
- Height – 180 mm
- Eye Diameter – 22 mm

Weight:
- TG9035 - 2,725 g
- TG10050 - 3,160 g
- TG20050 - 3,175 g

Fixing Details:
Timber truss or rafter – min 90mm x 35mm

Maintenance:
Inspection required by competent person at intervals not exceeding 12 months as specified in AS 1891.4:2009 and ISO 22846 (2003)

Standards:
Complies with WHS Act 2011 and relevant Codes of Practice. Australian Standard – AS/NZS 1891.4:2009, AS/NZS 4488.2:1997, ISO 22846 (2003) and AS/NZS 5532:2013

TRUSS-T-GRIP® ANCHOR
INSTALLATION INSTRUCTIONS

Things To Know:

Truss-T-Grip® anchor points have been designed for applications in both rope access (abseiling) and fall arrest. They will withstand loads of 15 kN in all directions when installed according to our instructions. Keep in mind that common size trusses and rafters on their own are not strong enough to withstand the lateral force of 15 kN and that's why the structure must be reinforced as described below!

Truss-T-Grip anchor points are stocked in 3 most common rafter sizes but can be manufactured to accommodate any rafter size. They can be installed permanently or temporarily, depending on requirements. All types of Truss-T-Grip are supplied with Roof-tite flashing and Armour plates to provide for permanent installation.

- **Timber truss/rafter size:** 90mm x 35mm, 100mm x 50mm, 200mm x 50mm

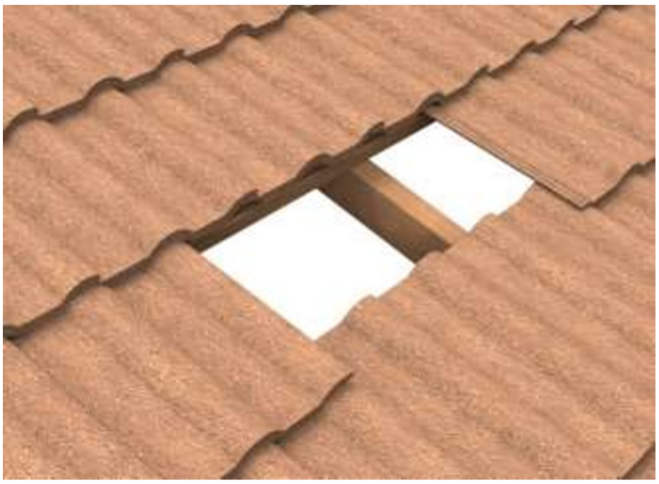
- **Loading:** Truss-T-Grip anchor points can be loaded in all directions always in sheer with the roof.

Tools and Materials Needed:

Hammer, 2 ring spanners, hand saw, grinder with diamond wheel, caulking gun, Stanley knife, Wakaflex or similar flashing, framing pine to reinforce roof structure (point 6)

Installation Steps:

1. Remove tiles to expose the rafter.



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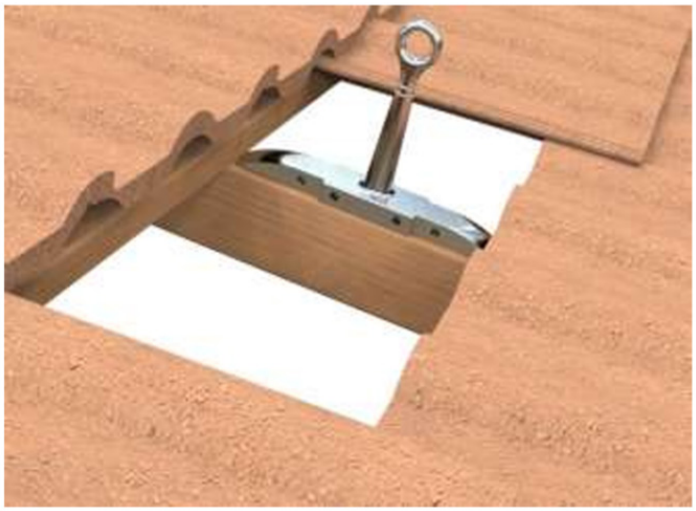
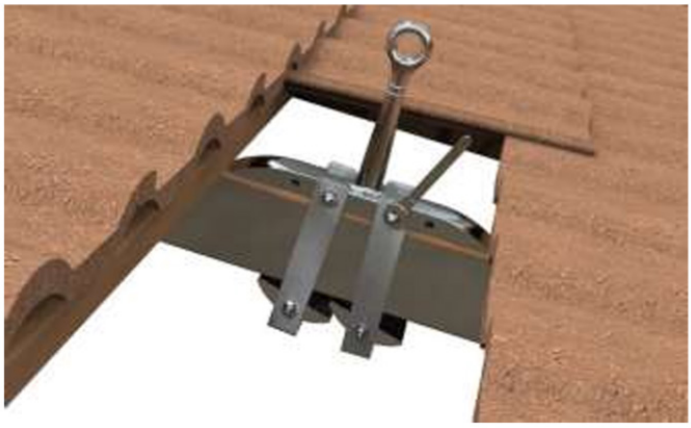
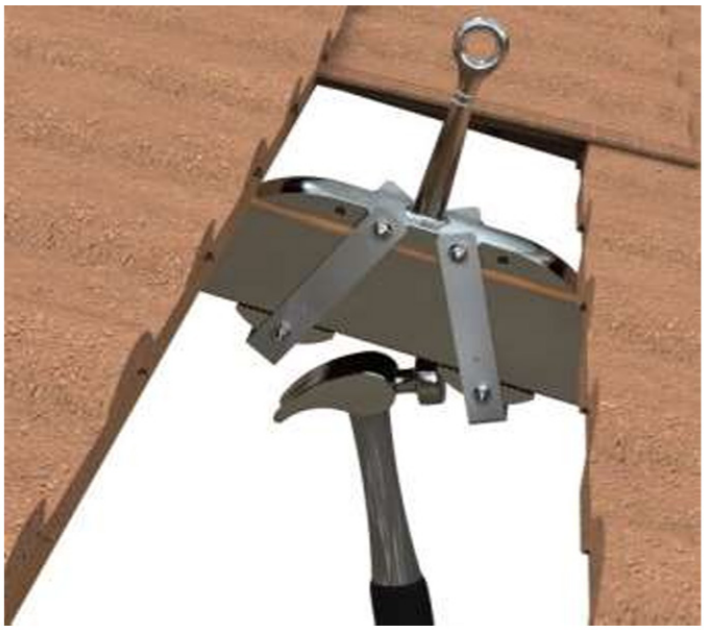
2. Place Truss-T-Grip body on the rafter.



3. Install the U-straps with friction plates to the underside of the rafter ensuring the Armour plates are held firmly against the rafter. The anchor body shape provides for attachment of two sizes of friction plates at two different spots. Ensure the correct pair of holes on the anchor body is used for fixing. They are 35mm or 50mm wide (this depends on the rafter size) and attach with M8 bolts (provided). You can choose to work from the inside the roof cavity or from the roof top. A team of two is ideal with one person inside and one outside.



4. Use a hammer to knock the friction plates into compression and tighten the bolts.



5. Install 2 small nails (provided) next to the friction plates to keep them engaged at all times.

6. Extra nogging between the rafters cut to size must be used to strengthen the roof structure. A piece of pine the size of the rafter will do the job perfectly (shown in red).

7. Use angle grinder with a diamond wheel to make a small hole in the tile, positioned directly above the anchor eye. Ensure the hole will be in the correct position by partially replacing the tile and marking the position with a texter. Once the position has been determined cut the outline of a rectangular hole connecting the diagonally opposite corners of the hole with two cuts in the shape of letter X. Then tap the tile gently with a hammer creating a rectangular hole. Replace all tiles and close the hole in the roof.

8. Apply Wakaflex or similar flashing over the tile and cut to size with Stanley knife.

9. Apply polyurethane sealant under the Roof-tite flashing (provided) and shape the base of the flashing to adhere to the tile's shape perfectly.

10. The installation is now complete.

Annual Re-certification:

All anchor points must be inspected and certified before their initial use and subsequently on regular basis to satisfy the requirements set out in AS/NZS 1891.4:2009, AS/NZS 4488.2:1997and ISO 22846 (2003).

Note:

The roof structure must be assessed by a structural engineer unless it is clear to a suitably qualified person that it is capable of withstanding the forces imposed on it during arresting of a fall and during work positioning.

Disclaimer:

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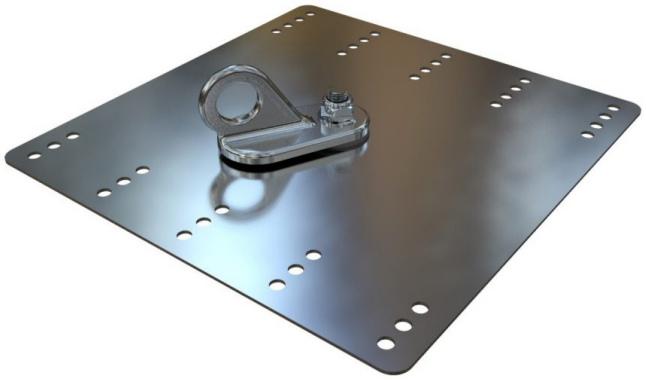
Safety Roof Anchors is thvrefore not obligated or liable for any direct or indirect, incidental or consequential damages, losses or expenses in connection with, or by reason of the suitability and use of or otherwise, any product or system for any purpose. Implied warranties of merchantability or fitness for any particular purpose are specifically excluded. Safety Roof Anchors maintains a policy of continuous improvement and development, and therefore reserves the right to modify, amend or otherwise alter product and system designs and specification, models and part numbers, colours and pricing etc., without prior notice. Safety Roof Anchors accepts no liability whatsoever for incorrect information, errors or omissions.



ALLFIT 360° SURFACE MOUNT ANCHOR

The System

Allfit 360° is a top fixed fall arrest anchor point designed for easy installation into a wide variety of steel roofs. The pre-drilled base plate provides for a quick installation while the swivelling AA406 ensures uniform loading to all sides.

Special Features:

- Heavy duty swivel eye bolt
- Quick and easy installation
- Suitable for both steel and timber structures
- 2mm thickness version suitable for fall arrest only
- 3mm thickness version suitable for abseil and fall arrest use

Uses:

2mm version: Designed to support a fall arrest load of 15 KN in any direction (always in sheer) provided a suitable personal shock absorber is used.

3mm version: Designed for abseiling as well as to support a fall arrest load of 15 kN in any direction (always in sheer) provided a suitable personal shock absorber is used.

Installation by trained and certified personnel in accordance with AS/NZS 4488.2:1997, AS/NZS 1891.4:2009, ISO 22846 (2003) and manufacturer's instructions.

Product Warranty:

10 years from date of purchase subject to correct installation, use and maintenance in accordance with manufacturer's specifications and recommendations.

Important Note:

Failure to supply and/or install proprietary product in accordance with above standards and codes, specifications and instructions voids complete system certification and/or warranty.

Technical Data

Material Used:

Base plate: 2mm or 3mm grade 316 stainless steel
Swivel AA406: Investment cast 316 Stainless Steel

Finish:

Base plate: 2B stainless steel (can be powder coated)
Swivel AA406: Electro polish

Ultimate Load:

Abseil 15kN Fall Arrest 15kN

Dimensions:

- Base plate – 282mm x 290mm
- Eye Diameter – 25mm
- Weight – 2mm plate – 1.635g
  3mm plate – 2.290g

Fixing Details:

- Timber rafter/ batten – min 70mm x 35mm
- Steel purlin – min gauge 150 x 1.2 mm
- Roof Sheet – min gauge 0.42mm
- LYSAGHT TOPSPAN® 40 top hat, 550MPa min yield

Installation Maintenance:

Installation by trained and certified personnel in accordance with AS/NZS 4488.2:1997, AS/NZS 1891.4:2009, ISO 22846 (2003) and manufacturer's instructions.

Inspection and load testing required by competent person at intervals not exceeding 12 months as specified in AS 1891.4:2009, AS/NZS 4488.2:1997 and ISO 22846 (2003).

Standards:

Complies with WHS Act 2011 and relevant Codes of Practice. Australian Standard – AS/NZS 1891.4:2009, AS/NZS 4488.2:1997, ISO 22846 (2003) and AS/NZS 5532:2013.

ALLFIT 360° SURFACE MOUNT ANCHOR
INSTALLATION INSTRUCTIONS

Things To Know:
Allfit 360° anchor base plates come in 2 thicknesses: 2mm and 3mm

The **2mm** base plate anchors are designed to support a **FALL ARREST** load of 15 kN when a personal shock absorber compliant with AS/NZS 1891.4:2001 is used. Do not use for abseiling! Suitable for roof pitch max 40° degrees.

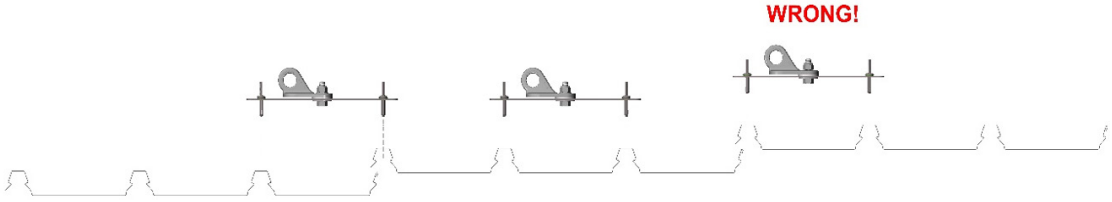
The **3mm** base plates are designed for **ABSEILING** as well as to support a **FALL ARREST** load of 15 kN when a personal shock absorber compliant with AS/NZS 1891.4:2001 is used.

Allfit 360° fall arrest anchor points can be used on most types of structurally sound roofs with either timber or steel underlying structure.

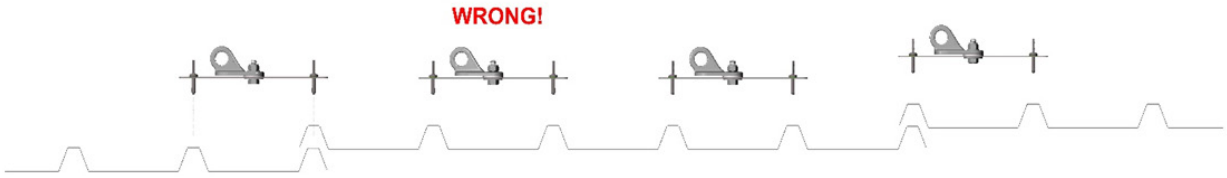
Tools Needed For Installation:
Cordless drill, 8mm drill bit, hex bit driver, rivet gun, brush and dust pan or vacuum

Structure Requirements:
- **Timber structure:** Minimum size rafter/batten – 70mmx 35mm
- **Steel structure:** Minimum purlin gauge – 150mm x 1.2mm, LYSAGHT TOPSPAN TOPHAT 550MPa minimum yield strength
- **Roof sheet:** Minimum sheet gauge – 0.42mm
- **Minimum roof size:** For **ROPE ACCESS** there must be minimum of **3 PURLINS** supporting the roof sheet and for **FALL ARREST** there must be minimum of **5 PURLINS** supporting the roof sheet!
- **First purlin or batten:** Never install Allfit 360° into the first purlin or batten on the roof's edge unless it's only for rope re-direction and is clearly labelled for this purpose!
- **Klip lok roof installation:** Some Klip Lok designs can be surprisingly easy to unclip. The roof sheet must therefore be secured to the first purlin /batten directly above the installed anchor. The screws should be installed through the ridges of the sheet to avoid waterproofing issues. You might need to pre-drill the holes as the fixing clips can be hard to penetrate.
- **Sheet overlap and underlap:** To ensure maximum strength observe the sheet underlap and overlap. This is especially important with 'Kliplok' type roofs.

  The diagram below shows klip-lok roof where there is no full lap in the 3rd picture. This situation is dangerous!



The diagram below shows 'screwed down' type of roof deck. The 2nd picture shows a situation which can be dangerous if there is no screw securing the sheet on the overlap!



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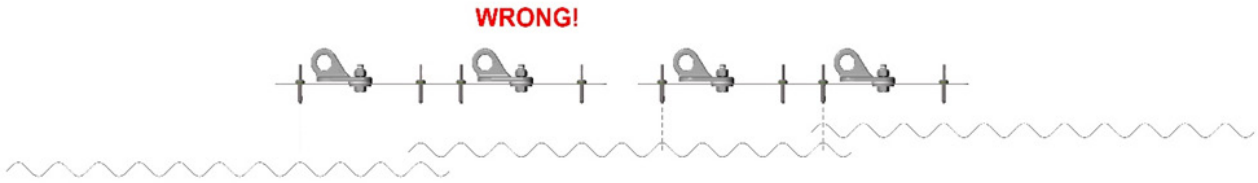
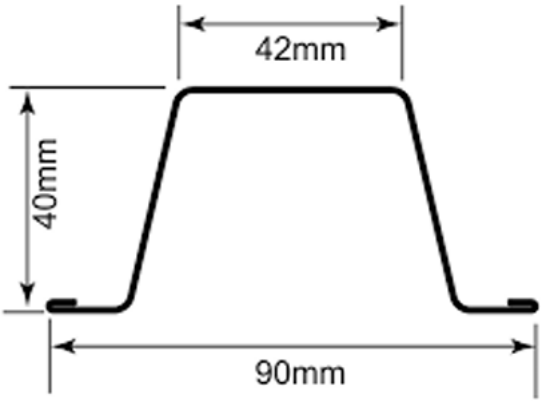
The diagram below shows the corrugated 'screwed down" type of roof deck. The 2nd picture shows a situation which can be dangerous if there is no screw securing the sheet on the overlap!

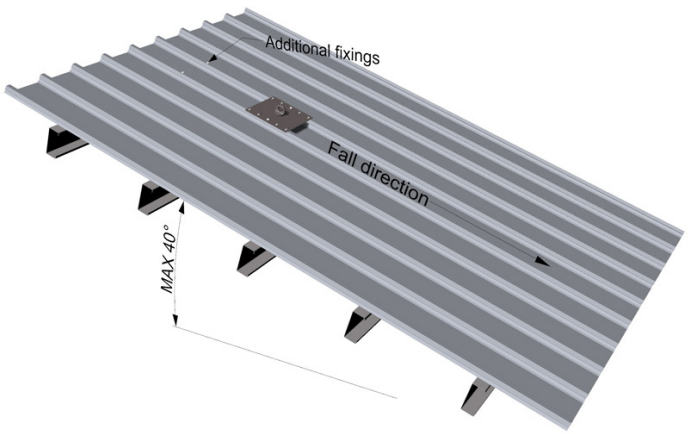


Installation Steps:

1. Identify the underlying structure. Is it timber or metal? Set aside the right screws.
2. Locate purlin (or batten) and place the anchor point down onto the roof sheet. Remove 1 or 2 roof screws if necessary and determine which row of fixing holes will fit the best for the roof sheet.
3. Install 2x 14G screws through the central fixing holes through the roof sheet into the purlin/ batten. Be sure you use the correct fixing screws for the steel or timber structure. Do not over tighten. The anchor must be always screwed to the purlin/batten!
4. Drill 8 holes into the roof sheet through the pre-drilled holes of the anchor point using 8mm drill bit.
5. Install eight aluminium Bulbtite rivets provided using rivet gun. Ensure correct rivet penetration!
6. If you are installing into a KlipLok roof, the roof sheet must be fixed with minimum 2 extra screws to the purlin/ batten directly above or under the anchor point depending on force direction as per the drawing below.
7. If you are installing onto a roof sheet with **LYSAGHT TOPSPAN TOPHAT 550MPa** (or equivalent) roof structure below, the anchor plate must be fixed by 2x 14G **timber screws** through the central fixing holes through the roof sheet into the TOPHAT.



8. Remove any steel shavings to prevent roof corrosion and install a weatherproof certification tag.
9. The Allfit 360° is now ready to be used.



Annual Re-certification:

All anchor points must be inspected and certified before their initial use and subsequently on regular basis to satisfy the requirements set out in AS/NZS 1891.4:2009 and AS/NZS 4488.2:1997 and ISO 22846 (2003).

Note:

The roof structure must be assessed by a structural engineer unless it is clear to a suitably qualified person that it is capable of withstanding the forces imposed on it during arresting of a fall and during work positioning.

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ALLFIT402 360° SURFACE MOUNT ANCHOR

The System

Allfit 360° is a top fixed fall arrest anchor point designed for easy installation into a wide variety of steel roofs. The pre-drilled base plate provides for a quick installation while the swivelling eyebolt ensures uniform loading to all sides.

Special Features:

- Heavy duty swivel eye bolt
- Quick and easy installation
- Suitable for both steel and timber structures
- 2mm thickness version suitable for fall arrest only
- 3mm thickness version suitable for abseil and fall arrest use

Uses:

2mm version: Designed to support a fall arrest load of 15 KN in any direction (always in sheer) provided a suitable personal shock absorber is used.

3mm version: Designed for abseiling as well as to support a fall arrest load of 15 kN in any direction (always in sheer) provided a suitable personal shock absorber is used.

Installation by trained and certified personnel in accordance with AS/NZS 4488.2:1997, AS/NZS 1891.4:2009, ISO 22846 (2003) and manufacturer's instructions.

Product Warranty:

10 years from date of purchase subject to correct installation, use and maintenance in accordance with manufacturer's specifications and recommendations.

Important Note:

Failure to supply and/or install proprietary product in accordance with above standards and codes, specifications and instructions voids complete system certification and/or warranty.

Technical Data

Material Used:

Base plate: 2mm or 3mm grade 316 stainless steel
Swivel eyebolt AA402: Investment cast 316 Stainless Steel

Finish:

Base plate: 2B stainless steel (can be powder coated)
Swivel eyebolt AA402: Electro polish

Ultimate Load:

Abseil 15kN Fall Arrest 15kN

Fixing Details:

- Base plate - 282mm x290mm
- Eye Diameter- 32mm x 26mm

Fixing Details:

- BTimber rafter/ batten – min 70mm x 35mm
- Steel purlin – min gauge 150 x 1.2 mm
- Roof Sheet – min gauge 0.42mm
- LYSAGHT TOPSPAN® 40 top hat, 550MPa min yield

Installation Maintenance:

Installation by trained and certified personnel in accordance with AS/NZS 4488.2:1997, AS/NZS 1891.4:2009, ISO 22846 (2003) and manufacturer's instructions.
Inspection and load testing required by competent person at intervals not exceeding 12 months as specified in AS 1891.4:2009, AS/NZS 4488.2:1997 and ISO 22846 (2003).

Standards:

Complies with WHS Act 2011 and relevant Codes of Practice.
Australian Standard – AS/NZS 1891.4:2009, AS/NZS 4488.2:1997, ISO 22846 (2003) and AS/NZS 5532:2013.

ALLFIT402 360° SURFACE MOUNT ANCHOR
INSTALLATION INSTRUCTIONS

Things To Know:
Allfit402 360° anchor base plates come in 2 thicknesses: 2mm and 3mm

The **2mm** base plate anchors are designed to support a **FALL ARREST** load of 15 kN when a personal shock absorber compliant with AS/NZS 1891.4:2001 is used. Do not use for abseiling! Suitable for roof pitch max 40° degrees.

The **3mm** base plates are designed for **ABSEILING** as well as to support a **FALL ARREST** load of 15 kN when a personal shock absorber compliant with AS/NZS 1891.4:2001 is used.

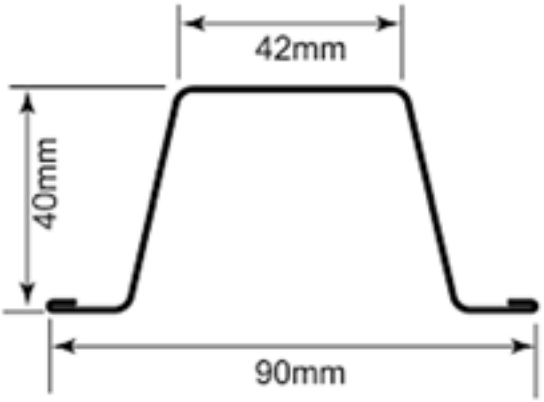
Allfit 360° fall arrest anchor points can be used on most types of structurally sound roofs with either timber or steel underlying structure.

Tools Needed For Installation:
Cordless drill, 8mm drill bit, hex bit driver, rivet gun, brush and dust pan or vacuum

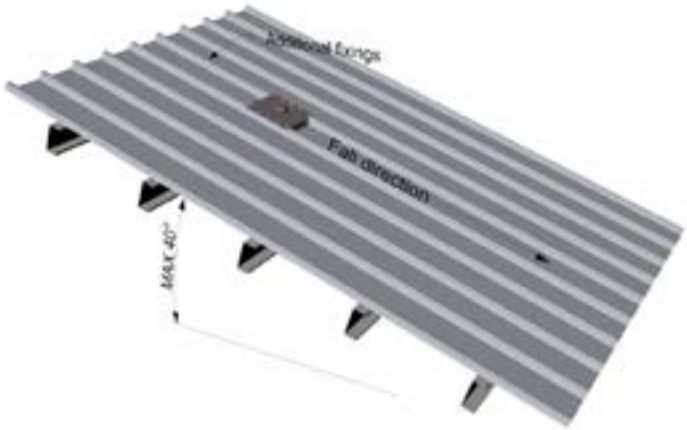
Structure Requirements:
- **Timber structure:** Minimum size rafter/batten – 70mmx 35mm
- **Steel structure:** Minimum purlin gauge – 150mm x 1.2mm, LYSAGHT TOPSPAN TOPHAT 550MPa minimum yield strength
- **Roof sheet:** Minimum sheet gauge – 0.42mm
- **Minimum roof size:** For **ROPE ACCESS** there must be minimum of **3 PURLINS** supporting the roof sheet and for **FALL ARREST** there must be minimum of **5 PURLINS** supporting the roof sheet!
- **First purlin or batten:** Never install Allfit 360° into the first purlin or batten on the roof's edge unless it's only for rope re-direction and is clearly labelled for this purpose!
- **Klip lok roof installation:** Some Klip Lok designs can be surprisingly easy to unclip. The roof sheet must therefore be secured to the first purlin /batten directly above the installed anchor. The screws should be installed through the ridges of the sheet to avoid waterproofing issues. You might need to pre-drill the holes as the fixing clips can be hard to penetrate.
- **Sheet overlap and underlap:** To ensure maximum strength observe the sheet underlap and overlap. This is especially important with 'Kliplok' type roofs.

Installation Steps:

1. Identify the underlying structure. Is it timber or metal? Set aside the right screws.
2. Locate purlin (or batten) and place the anchor point down onto the roof sheet. Remove 1 or 2 roof screws if necessary and determine which row of fixing holes will fit the best for the roof sheet.
3. Install 2x 14G screws through the central fixing holes through the roof sheet into the purlin/ batten. Be sure you use the correct fixing screws for the steel or timber structure. Do not over tighten. The anchor must be always screwed to the purlin/batten!
4. Drill 8 holes into the roof sheet through the pre-drilled holes of the anchor point using 8mm drill bit.
5. Install eight aluminium Bulbtite rivets provided using rivet gun. Ensure correct rivet penetration!
6. If you are installing into a KlipLok roof, the roof sheet must be fixed with minimum 2 extra screws to the purlin/ batten directly above or under the anchor point depending on force direction as per the drawing below.
7. If you are installing onto a roof sheet with **LYSAGHT TOPSPAN TOPHAT 550MPa** (or equivalent) roof structure below, the anchor plate must be fixed by 2x 14G **timber screws** through the central fixing holes through the roof sheet into the TOPHAT.



8. Remove any steel shavings to prevent roof corrosion and install a weatherproof certification tag.
9. The Allfit 360° is now ready to be used.



Annual Re-certification:

All anchor points must be inspected and certified before their initial use and subsequently on regular basis to satisfy the requirements set out in AS/NZS 1891.4:2009 and AS/NZS 4488.2:1997 and ISO 22846 (2003).

Note:

The roof structure must be assessed by a structural engineer unless it is clear to a suitably qualified person that it is capable of withstanding the forces imposed on it during arresting of a fall and during work positioning.

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PG1 PROFILE GRIP SURFACE MOUNT ANCHOR POINT
AUSTRALIAN PATENT 2004218599

The System

Profile Grip PG1 is a top fixed anchor point designed for an exact fit specifically to Longline305 roof sheet profile. The tailored fit in conjunction with 360˚ swivel action dramatically improves the loading properties of this surface mount anchor.

Special Features:
- Swivelling anchor point
- Easy installation doesn't require access to the underside of roof
- Unique way of fixing works in unison with the host structure
- Suitable for abseiling and fall arrest
- Suitable for both steel and timber structures

Uses:
Designed for industrial rope access (abseiling) and to support a fall arrest load of 15 KN in any direction (always in sheer) provided a suitable personal shock absorber is used.

Installation by trained and certified personnel in accordance with AS/NZS 4488.2:1997 and AS/NZS 1891.4:2009 and manufacturer's instructions.

Technical Data

Material Used:
Profile Grip plate: 3mm grade 316 stainless steel
Swivel anchor: Investment cast 316 Stainless Steel

Finish:
Profile Grip plate – 2B Stainless
Swivel anchor- Electro polish
Profile Grip plates can be supplied in any Colorbond colour

Ultimate Load:
15 kN

Dimensions:
- Length of plate – 300 mm
- Eye Diameter – 25 mm
- Weight – 2,725 Kg

Fixing Details:
- Timber rafter/ batten – min 70mm x 35mm
- Steel Purlin – min gauge 150 x 1.2 mm
- Roof Sheet – min gauge 0.42mm

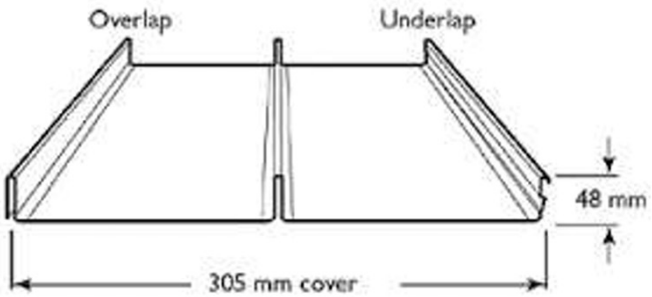
Maintenance:
Inspection required by competent person at intervals not exceeding 12 months as specified in AS 1891.4:2009 and ISO 22846 (2003)

Standards:
Complies with WHS Act 2011 and relevant Codes of Practice. Australian Standard – AS/NZS 1891.4:2009, AS/NZS 4488.2:1997, ISO 22846 (2003) and AS/NZS 5532:2013

PG 1– PROFILE GRIP ANCHOR
INSTALLATION INSTRUCTIONS

Things To Know:
Profile Grip (PG 1 – Longline) anchor point can be used for rope access (abseiling) as well as to support a fall arrest load of 15 kN when a suitable personal shock absorber is used. Profile Grips can be used on all structurally sound roofs with either timber or steel underlying structure of the following minimum requirements:

- **Timber structure:** Minimum size rafter/batten – 70mmx 35mm
- **Steel structure:** Minimum purlin gauge – 150mm x 1.2mm
- **Minimum roof size:** There must be minimum of 3 purlins supporting the roof sheet
- **First purlin or batten:** Never install Profile Grips into the first purlin or batten on the roof's edge!
- **Loading:** Always load the Profile Grips in sheer under an angle not exceeding 20° with the surface of the roof.
- **Roof Sheet:** Designed specifically for LONGLINE roof sheet only! Minimum sheet gauge – 0.42mm.



Tools Needed:
Cordless drill, 8mm drill bit, hex bit driver, rivet gun, brush and dust pan or vacuum

Installation Steps:
1. Identify the roof profile. Refer to the picture above for dimensions.
2. Identify the host structure. Is it timber or metal? Set aside the right screws.
3. Locate purlin (or batten) and place the Profile Grip down onto the roof sheet. The central holes on the bottom flanges (1) must be positioned over the centre of the purlin or batten.
4. Install 2x 14G screws through the holes (1), through the roof sheet into the purlin or batten. Be sure you use the correct fixing screws for the steel or timber structure. Do not over tighten.
5. Drill 8 holes into the roof sheet through the pre-drilled holes (2) of the Profile Grip using 8mm drill bit.
6. Install eight aluminium bulbtite rivets provided using rivet gun.
7. Remove any steel shavings to prevent roof corrosion and install a weatherproof certification tag.
8. The Profile Grip is now ready to be used.

Annual Re-certification:
All anchor points must be inspected and certified before their initial use and subsequently on regular basis to satisfy the requirements set out in AS/NZS 1891.4:2009 and AS/NZS 4488.2:1997and ISO 22846 (2003).

Note:
The roof structure must be assessed by a structural engineer unless it is clear to a suitably qualified person that it is capable of withstanding the forces imposed on it during arresting of a fall and during work positioning.

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Disclaimer:

All product specifications and technical descriptions, recommendations and other information provided in this document are given as general guidance and advice, and are to be considered in conjunction with Safety Roof Anchors installation instructions and any other data available and applicable to each particular standard product or system. Use of such data is however the user's sole responsibility taking into account the intended application and actual conditions existing on the specific worksite. Consequent selection of the right product for any particular use remains the user's ultimate responsibility.

Safety Roof Anchors is thvrefore not obligated or liable for any direct or indirect, incidental or consequential damages, losses or expenses in connection with, or by reason of the suitability and use of or otherwise, any product or system for any purpose. Implied warranties of merchantability or fitness for any particular purpose are specifically excluded. Safety Roof Anchors maintains a policy of continuous improvement and development, and therefore reserves the right to modify, amend or otherwise alter product and system designs and specification, models and part numbers, colours and pricing etc., without prior notice. Safety Roof Anchors accepts no liability whatsoever for incorrect information, errors or omissions.

PG2 PROFILE GRIP SURFACE MOUNT ANCHOR POINT
AUSTRALIAN PATENT 2004218599

The System

Profile Grip PG2 is a top fixed anchor point designed for exact fit specifically to Brownbilt 406 roof sheet profile. The tailored fit in conjunction with 360˚ swivel action dramatically improves loading properties of this surface mount anchor.

Special Features:
- Swivelling anchor point
- Easy installation doesn't require access to the underside of roof
- Unique way of fixing works in unison with the host structure
- Suitable for abseiling and fall arrest
- Suitable for both steel and timber structures

Uses:
Designed for industrial rope access (abseiling) and to support a fall arrest load of 15 KN in any direction (always in sheer) provided a suitable personal shock absorber is used.

Installation by trained and certified personnel in accordance with AS/NZS 4488.2:1997 and AS/NZS 1891.4:2009 and manufacturer's instructions.

Technical Data

Material Used:
Profile Grip plate: 3mm grade 316 stainless steel
Swivel anchor: Investment cast 316 Stainless Steel

Finish:
Profile Grip plate – 2B Stainless
Swivel anchor- Electro polish
Profile Grip plates can be supplied in any Colorbond colour

Ultimate Load:
15 kN

Dimensions:
- Length of plate – 300 mm
- Eye Diameter – 25 mm
- Weight – 3,080 Kg

Fixing Details:
- Timber rafter/ batten – min 70mm x 35mm
- Steel Purlin – min gauge 150 x 1.2 mm
- Roof Sheet – min gauge 0.42mm

Maintenance:
Inspection required by competent person at intervals not exceeding 12 months as specified in AS 1891.4:2009 and ISO 22846 (2003)

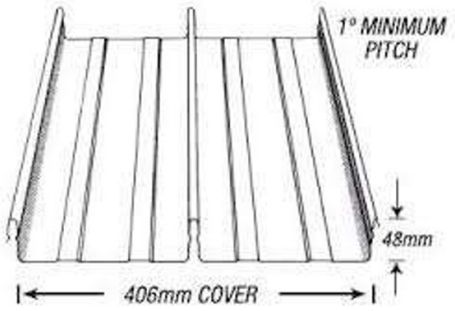
Standards:
Complies with WHS Act 2011 and relevant Codes of Practice.
Australian Standard – AS/NZS 1891.4:2009, AS/NZS 4488.2:1997, ISO 22846 (2003) and AS/NZS 5532:2013

PG 2 – PROFILE GRIP ANCHOR
INSTALLATION INSTRUCTIONS

Things To Know:

Profile Grip (PG 2- Brownbuilt) anchor point can be used for rope access (abseiling) as well as to support a fall arrest load of 15 kN when a suitable personal shock absorber is used. Profile Grips can be used on all structurally sound roofs with either timber or steel underlying structure of the following minimum requirements:

- **Timber structure:** Minimum size rafter/batten – 70mmx 35mm
- **Steel structure:** Minimum purlin gauge – 150mm x 1.2mm
- **Minimum roof size:** There must be minimum of 3 purlins supporting the roof sheet
- **First purlin or batten:** Never install Profile Grips into the first purlin or batten on the roof's edge!
- **Loading:** Always load the Profile Grips in sheer under an angle not exceeding 20° with the surface of the roof.
- **Roof Sheet:** Designed specifically for BROWNBUILT roof sheet only! Minimum sheet gauge – 0.42mm.



Tools Needed:

Cordless drill, 8mm drill bit, hex bit driver, rivet gun, brush and dust pan or vacuum

Installation Steps:

1. Identify the roof profile. Refer to the picture above for dimensions.
2. Identify the host structure. Is it timber or metal? Set aside the right screws.
3. Locate purlin (or batten) and place the Profile Grip down onto the roof sheet. The central holes on the bottom flanges (1) must be positioned over the centre of the purlin or batten.
4. Install 2x 14G screws through the holes (1), through the roof sheet into the purlin or batten. Be sure you use the correct fixing screws for the steel or timber structure. Do not over tighten.
5. Drill 8 holes into the roof sheet through the pre-drilled holes (2) of the Profile Grip using 8mm drill bit.
6. Install eight aluminium bulbtite rivets provided using rivet gun.
7. Remove any steel shavings to prevent roof corrosion and install a weatherproof certification tag
8. The Profile Grip is now ready to be used.

Annual Re-certification:

All anchor points must be inspected and certified before their initial use and subsequently on regular basis to satisfy the requirements set out in AS/NZS 1891.4:2009 and AS/NZS 4488.2:1997and ISO 22846 (2003).

Note:

The roof structure must be assessed by a structural engineer unless it is clear to a suitably qualified person that it is capable of withstanding the forces imposed on it during arresting of a fall and during work positioning.

Disclaimer:

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PSL01 STATIC LINE END ANCHOR POINT (CONCRETE MOUNT)

The System

Anchorage is used as an end anchor point for static line installations in concrete.

Special Features:

- Robust design
- Full traceability
- Fully engineered and independently tested

Uses:

PSL01 can be used as a static line end anchor point or as a bracing to add strength to existing static line end anchor point.

Technical Data

Material Used:

Investment Cast 316 Stainless Steel

Finish:

E-Polished

Ultimate Load:

28 kN

Fall Arrest Capacity:

15 kN

Dimensions:

- Height – 150 mm
- Eye Diameter – 2 x 16 mm attachment hole
- Weight – 1,565 g

Fixing Details:

- 1 x Through bolt M12 (hole 14 DIA)
- 1 x Chemical HILTI HVU M12 or equivalent (hole 14 DIA)

Maintenance:

Permanent installed anchorages inspection required by competent person at intervals not exceeding 12 months as specified in AS 1891.4:2009/AS/NZS 4488.2:1997

Standards:

Complies with- WHS Act 2011
Australian Standard – AS/NZS 1891.4:2009, AS/NZS 4488.2:2001

SLSA ENERGY ABSORBER

The System

The SLSA Energy Absorber is custom engineered to reduce static line tension forces experienced in the cable, anchorages and the host structure. The 8mm thick stainless steel shock absorber is resistant to corrosion and encased in shrunken polymer providing protection from the rigors of outdoor exposure.

Special Features:

- Unique robust design
- Complete traceability
- Engineered and made in Australia

Uses:

SLSA Energy absorber is engineered to work with all SRA static lines using 8mm (7x7 construction) 316 s/s cable with Blue Wave swaged and swageless cable fittings.

Installation by trained and certified personnel in accordance with AS/NZS 1891.4:2009, AS/NZS 1891.2:2001 and manufacturer's instructions.

Technical Data

Material Used:

Body: Stirlings 316 Stainless Steel
Tandem links: Investment cast 316 Stainless steel

Finish:

Body: Rumbled
Tandem links: electro polished

Deployment force:

7.25 kN

Full extension:

33 kN

Ultimate strength:

49.128 kN

Dimensions:

- Overall length – 295mm
- Width – 80 mm
- Thickness: 8mm
- Eye Diameter – 12 mm
- Weight – 1005 g

Fixing Details:

2x Blue Wave Pins

Maintenance:

Inspection required by competent person at intervals not exceeding 12 months as specified in AS/NZS 1891.2:2001

Standards:

Complies with WHS Act 2011 and relevant Codes of Practice. Australian Standard – AS/NZS 1891.2:2001

SLSA ENERGY ABSORBER
INSTALLATION INSTRUCTIONS

Things To Know:

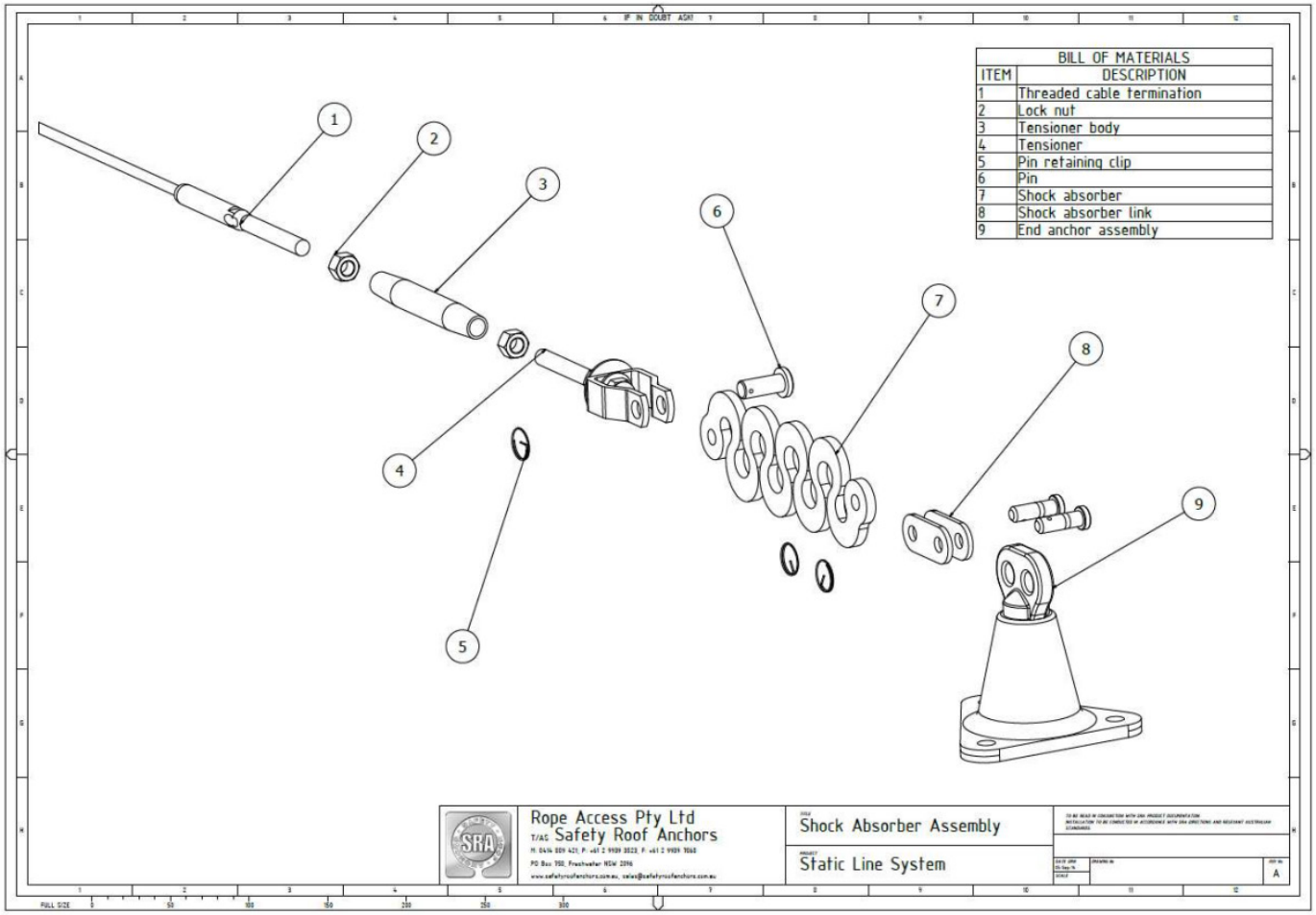
The SLSA Energy Absorber is engineered to reduce static line tension forces experienced in the cable, anchorages and the host structure. It is optimized for all SRA static lines with 8mm (7x7 construction) 316 s/s cable with swaged and swageless BlueWave terminals. Do not use as a personal energy absorber! Damaged or deployed energy absorber must be removed from service and complete system inspected and re-certified.

Fixing Options:

Blue Wave pins only (part number 062812)

Installation Steps:

1. Align one hole of both Shock Absorber Links (8) with one hole of the Energy Absorber (7). Insert a Pin (6) through both Shock Absorber Links (8) and the Energy Absorber (7), ensuring that the Pin (6) is fully engaged.
2. Fit the Pin Retaining Clip (5) into the small hole located in the end of the Pin (6). Ensure that the Pin Retaining Clip is fully threaded through the hole and cannot fall out.
3. Align the available holes of both Energy Absorber Links (8) with inner hole of the End Anchor Assembly (9). Insert a Pin (6) through both Energy Absorber Links (8) and the End Anchor Assembly (9), ensuring that the Pin (6) is fully engaged.
4. Fit the Pin Retaining Clip (5) into the small hole located in the end of the Pin (6). Ensure that the Pin Retaining Clip is fully threaded through the hole and cannot fall out.
5. Align the holes of the Tensioner (4) with the available hole of the Energy Absorber (7). Insert a Pin (6) through both Tensioner (4) and the Energy Absorber (7), checking that the Pin (6) is fully engaged.
6. Fit the Pin Retaining Clip (5) into the small hole located in the end of the Pin (6). Ensure that the Pin Retaining Clip is fully threaded through the hole and cannot fall out.



SLTR STATIC LINE TRAVELLER

The System

The SLTR static line traveller provides users with hands free, uninterrupted access along the whole length of static line system without the need to re-connect when passing intermediate brackets. It features easy to operate, reliable locking gate mechanism and self locking karabiner.

Special Features:

- Easy operation and reliability
- Complete traceability
- Engineered and made in Australia

Uses:

The SLTR static line traveller is engineered for SRA static lines with 8mm (7x7 construction) 316 s/s cable.

Only the karabiner supplied with the unit must be used. The SLTR traveller is suitable for single person use only!

Operation by trained and certified personnel in accordance with AS/NZS 1891.4:2009, AS/NZS 1891.2:2001 and manufacturer's instructions.

Technical Data

Material Used:

Body: 316 Stainless Steel

Finish:

Electro polish

Dimensions:

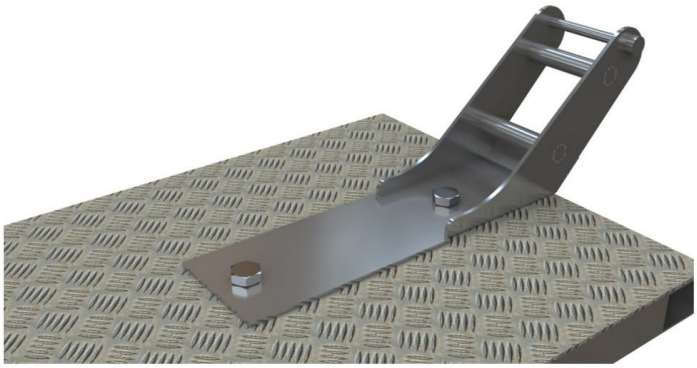
- Overall length – 107mm
- Width – 55mm
- Thickness: 28mm
- Eye Diameter – 15mm x 13 mm
- Weight – 590g

Maintenance:

Inspection required by competent person at intervals not exceeding 3 months.

Standards:

Complies with WHS Act 2011 and relevant Codes of Practice. Australian Standard – AS/NZS 1891.2:2001



EP01 – GUTTER JUMPER

The System

Developed for protection of gutters and delicate building edges while abseiling over them, Gutter Jumper takes the headache out of this task with ease.

Special Features:

- Aluminium body construction with stainless steel components
- Rigorously tested by abseilers over 2- year period
- Tough rubber backing

Uses:

Gutter Jumper is designed for industrial rope access applications as a portable diversion over the building's gutters or other delicate edges. It must be anchored independently of the abseiling ropes to a suitable anchor point.

For use by trained and certified personnel in accordance with AS/NZS 4488.2:1997 and manufacturer's instructions.

Technical Data

Material Used:

Aluminium (Body)
316 Stainless Steel (Bracket and Eye bolt)
Rubber (back)

Finish:

Aluminium checker plate

Abseil Capacity:

15 kN + rescue

Dimensions:

- Overall length – 1300 mm
- Width – 435 mm
- Eye Diameter – 40 mm x 26 mm
- Overall height – 187mm
- Weight – 12 Kg

Maintenance:

Inspection by a competent person at intervals not exceeding 12 months

Standards:

Complies with WHS Act 2011
Australian Standard – AS/NZS4488.2:1997, ISO22846 (2003)

BRC01 - LADDER RESTRAINT BRACKET

The System

Parapet type ladder restraint bracket is designed to provide safe/ secure attachment point to the extension ladders while accessing a roof area.

Special Features:

- Unobtrusive
- Easy installation
- Extra deep design prevents ladder movement or slipping

Uses:

Provides a secure point onto which a ladder can be attached to prevent movement or slipping.

Can be installed onto concrete, masonry or metal parapet walls and like structures.

Technical Data

Material Used:

2mm 316 Stainless Steel

Finish:

Stainless Steel Polished smooth finish

Dimensions:

- 450mm x 105mm (at the base)
- 450mm x 200 (at the widest point)

Fixing Details:

The ladder restraint bracket can be fixed/installed to the roof structure, masonry, parapet wall and concrete by using appropriate fixings.

Maintenance:

No scheduled maintenance required.

Standards:

Complies with current Codes of Practice.

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BRC04 - WALLMOUNT LADDER RESTRAINT BRACKET

The System

Wallmount type ladder restraint bracket is designed to provide safe/secure attachment point to the extension ladders on roofs and structures where ladders would otherwise come in contact with the building's facade causing damage and unsafe access conditions.

Special Features:

- Unobtrusive
- Easy installation
- Extra deep design prevents ladder movement or slipping
- L – shape straps to enable installation on the wall

Uses:

Provides a secure point onto which a ladder can be attached to prevent movement or slipping.

Can be installed onto concrete, masonry or metal parapet walls and like structures.

Technical Data

Material Used:

Body: 2mm 316 Stainless Steel
Straps: 3mm 316 Stainless Steel
Screws: 316 Stainless Steel

Finish:

Stainless Steel Polished smooth finish

Dimensions:

- Width 450mm
- Length 440mm

Weight:

2,510g

Fixing Details:

The ladder restraint bracket can be fixed/installed directly to the roof sheet extending over the gutter by using appropriate fixings.

Maintenance:

No scheduled maintenance required.

Standards:

Complies with current Codes of Practice.

BRC03 – GUTTERSAFE LADDER RESTRAINT BRACKET

The System

Guttersafe type ladder restraint bracket is designed to provide safe/secure attachment point to the extension ladders on roofs and structures where ladders would otherwise come in contact with gutters causing damage and unsafe access conditions.

Special Features:

- Unobtrusive
- Easy installation
- Extra deep design prevents ladder movement or slipping
- Generous fixing slots to fit all roof sheets

Uses:

Provides a secure point onto which a ladder can be attached to prevent movement or slipping.

Can be installed onto concrete, masonry or metal parapet walls and like structures.

Technical Data

Material Used:

Body: 2mm 316 Stainless Steel
Straps: 3mm 316 Stainless Steel
Screws: 316 Stainless Steel

Finish:

Stainless Steel Polished smooth finish

Dimensions:

- Width 450mm
- Length 440mm

Weight:

2,510g

Fixing Details:

The ladder restraint bracket can be fixed/installed directly to the roof sheet extending over the gutter by using appropriate fixings.

Maintenance:

No scheduled maintenance required.

Standards:

Complies with current Codes of Practice.

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