INSTALLATION HANDBOOK

CLASSIC TUFF-POST CONCRETE ANCHORS

- Square Post -

SafetyLink is an innovative anchor company achieving success and keeping you safe whilst working at heights.

- ROOF ANCHORS
- HORIZONTAL LIFELINES
- PERMANENT LADDERS
- LADDER STABILISERS
- TEMPORARY ANCHOR
- WALKWAY & GUARDRAIL
- X-RAIL - HORIZONTAL RAIL

Read entire handbook before installing SafetyLink products. All products must be installed in accordance with SafetyLink's installation handbook, using only products supplied by SafetyLink Pty Ltd. Failure to follow all warnings and instructions may result in serious injury or death.

SafetyLink®
Innovative Fall Protection

Asia-Pacific/The Americas
info@safetylink.com
Europe/Africa/Middle East
europe.sales@safetylink.com
Northern Europe
uk.sales@safetylink.com

www.safetylink.com

TABLE OF CONTENTS

INSTALLATION OF SAFETYLINK
TUFF-POST CONCRETE (SQUARE) ANCHORS

SCAN ME

Safety Centre Training

SCAN ME

Anchor Layout Video

SCAN ME

Catalogue

SCAN ME

Website

WARNINGS ⚠

READ CAREFULLY SOMEONE'S LIFE DEPENDS ON IT

INSTALLATION MUST BE CARRIED OUT BY, OR UNDER THE SUPERVISION OF A COMPETENT HEIGHT SAFETY INSTALLER.
The building or structure for the anchorages should be assessed by an engineer, unless it is clear to a competent height safety installer that the anchorages system is structurally adequate.

STANDARD EYEBOLTS MUST ONLY BE USED AS A FALL ARREST ANCHOR.
ABSEILING EYEBOLTS ARE TO BE USED FOR ROPE ACCESS (ABSEILING).
SURFACE MOUNTED ANCHORS MUST NOT BE USED FOR ROPE ACCESS (ABSEILING).
RETRO EYEBOLTS USED FOR ROPE ACCESS (ABSEILING) EXCEPT ON HIGH PROFILE SECTION.

When installing anchor points all safety procedures must comply in accordance with the current safety code/s of practice/s for working at heights.

- Recommended waterproofing for roof tiles: *Sika Flex Co-Polymer Sealant*.
- Recommended waterproofing for metal roof: S*ilicone Sealant*.
- A personal energy absorber or a fall-arrest device with a personal energy absorber must be used to connect to all SafetyLink Anchorages and (or) Strops.

⚠ **MAXIMUM USER PER EYEBOLT IS ONE (1)**

WARNING

Locking Hex Nut must be fully screwed up the thread of the eyebolt to expose 30mm of thread.

This thread must be fully screwed into the bracket.

Locking Hex Nut must be firmly tightened onto the bracket to stop the eyebolt from unscrewing and to gain maximum strength.

EYEBOLTS - Threads need to have a minimum of SIX FULL 360º TURNS into the ultimate thread.
RETRO EYEBOLTS - Threads need to have a minimum of EIGHT FULL 360º TURNS into the ultimate thread.

CORRECT
Always use a spanner when tightening and un-tightening the locking hex nut.

WRONG
DO NOT place an object into the eye of the eyebolt to tighten or un-tighten the locking hex nut, as this may damage the eyebolt.

MAINTENANCE – PERIODIC INSPECTIONS

All items of height safety equipment which are in regular use shall be subjected to periodic inspection and servicing. These regular scheduled inspections and servicing must be carried out by a competent height safety installer.

FIXED LADDERLINK: LADDER SUPPORT BRACKET

ALL LADDERLINKS MUST BE INSPECTED EVERY 12 MONTHS, INSPECTIONS NEED TO BE CARRIED OUT BY A COMPETENT HEIGHT SAFETY INSTALLER.

Procedures to be followed at inspection time:

- Visually inspect ladder support brackets for any signs of deterioration or the protective coating being removed. *(Note: LadderLink is made from marine grade aluminium and therefore should not corrode).*
- Ensure LadderLink is firmly secured to the structure as per SafetyLink Installation Handbook. *(refer to Installing LadderLink).*

SAFETYLINK ANCHORAGES

ALL ANCHORAGES MUST BE INSPECTED EVERY TWELVE MONTHS, INSPECTIONS NEED TO BE CARRIED OUT BY A COMPETENT HEIGHT SAFETY INSTALLER.

Procedures to be followed at inspection time:

- Visually inspect anchors for signs of deterioration.
- The FrogLink/TileLink anchor point has two energy absorbing regions and two stabilising joins which hold the eyelet in place during use. If these energy absorbing regions are expanded this will indicate the anchor point has arrested a fall. Similarly, if the two stabilising joins have been broken this would also indicate the FrogLink/TileLink has arrested a fall and should be replaced.
- The eyebolt should remain straight, a bent eyebolt will indicate that the anchor point has arrested a fall *(The design features of the eyebolt includes the ability to bend like a fishing pole starting from the top and working its way to the bottom, enabling it to use up energy as the eyebolt bends whilst lessening the force on the person falling and the attachment point).*
- Visually inspect the components of the anchor for corrosion, superficial surface marking is permitted while deeper corrosion or pitting would require attention.
- Manually (by hand) check the eyebolt for rigidity and tightness, if the eyebolt can turn in the anticlockwise direction it will require attention.
- Visually inspect the rubber hat washer and waterproofing components to ensure it has remained sealed.
- Visually inspect the attachment component of the anchorage where practically possible.
- Visually inspect the parent structure for modifications or deterioration which might lead to loss of anchorage strength.
- For Concrete Installation Only: To comply with Australian Standards, each ConcreteLink must be tested after installation and at every recertification inspection. Ensure you wait the recommended curing time as specified by the chemical anchor instructions. The pull test can be done using a 16mm threaded eyebolt. Test consists of ultimate pull out force proof loading to 50% of design purpose of anchorage.
- A personal energy absorber or a fall-arrest device with a personal energy absorber must be used in conjunction with all SafetyLink Anchorages and Lifeline systems.

IN ADDITION TO SAFETYLINK PTY LTD EQUIPMENT, ALL ANCILLARY EQUIPMENT MUST BE INSPECTED IN ACCORDANCE WITH APPLICABLE REGULATORY REQUIREMENTS AND THE MANUFACTURER'S INSTRUCTIONS.

FOR MAINTENANCE ADVICE AND SERVICES PLEASE CONTACT SAFETYLINK
ON +61 249 641068 OR 1300 789545 FOR YOUR NEAREST SAFETYLINK INSPECTION SERVICE CENTRE OR EMAIL: info@safetylink.com

WARRANTIES

EXTRACT: SafetyLink Pty Ltd STANDARD TERMS AND CONDITIONS

11.1 To the extent permitted by law all implied conditions, warranties and undertakings are expressly excluded.

11.2 Except as provided in this clause the Company shall not be liable for any loss or damage, whether direct or indirect (including consequential losses or damage) arising out of any breach of contract by the Company or any negligence of the Company, its employees or agents.

11.3 Should the Company be liable for a breach of a guarantee, condition or warranty implied by the Australian Consumer Law (not being a guarantee, condition or warranty implied by sections 51, 52 and 53 of that Law) then its liability for a breach of any such condition or warranty express or implied shall be limited, at its option, to any one or more of the following.

A) in case of Goods
- (I) the replacement of the Goods or the supply of equivalent Goods.
- (II) the repair of the goods,
- (III) the payment of the cost of replacing the Goods or acquiring equivalent Goods.
- (IV) The payment of the cost of having the Goods repaired.

Provided that any such Goods are returned to the Company by the Purchaser at the Purchaser's expense.

B) in the case of services
- (i) the supply of the services again,
- (ii) the payment of the cost of having the services supplied again.

11.4 The Company will not be liable for the costs of recovery of the Goods from the field, loss of use of the Goods, loss of time, inconvenience, incidental or consequential loss or damage, nor for any other loss or damage other than as stated above, whether ordinary or exemplary, caused either directly or indirectly by use of the Goods.

11.5 The Company warrants that at the time of shipment, Products manufactured by it will be free from defects in material and workmanship. In the absence of a modified written warranty, the Company agrees to making good any such defects by repairing the same or at the Company's option by replacement, for a period of (1) one year from the date of shipment. This limited warranty applies provided that:

(a) defects have arisen solely from faulty materials or workmanship;
(b) the Products have not received maltreatment, inattention or interference;
(c) **the Products have been installed in accordance with the Company's Installation Handbooks using only products supplied by the Company;**
(d) accessories used with the Products are manufactured by or approved by the Company;
(e) the Products are maintained in accordance with Australian Standard 1891.4 (section 9).
(f) you notify any claim under this warranty to SafetyLink in writing to the address below no later than 14 days after the event or occurrence concerning the product giving rise to the claim and you pay all costs related to your claim.

This warranty does not apply to any defects or other malfunctions caused to the Goods by accident, neglect, vandalism, misuse, alteration, modification or unusual physical, environment or electrical stress.

Please note that the benefits to the purchaser (as a consumer) given by this warranty are in addition to your other rights and remedies under the Australian Consumer Law. Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

11.6 If any goods are not manufactured by the Company, the guarantee of the manufacturer thereof shall be accepted by the Purchaser as the only express warranty given in respect of the goods.

11.7 Except as provided in this clause 11, all express and implied warranties, guarantees and conditions under statute or general law as the merchantability, description, quality, suitability or fitness of the Products for any purpose or as to design, assembly, installation, materials or workmanship or otherwise are hereby expressly excluded (to the extent to which they may be excluded by law).

PLEASE SEE SAFETYLINK PTY LTD FULL STANDARD TERMS OF CONDITIONS OF SALE FOR FURTHER REFERENCE.

TUFF-POST (Square Post) – Concrete Mounted Components

TUFF-POST RETRO EYEBOLT

PRODUCT CODE	DESCRIPTION	MATERIAL	QTY
TUFF-POST300C-RET	**TUFF-POST Concrete Anchor Raised 300mm: (Retro)**	316SS	1
EYEBOLT-RETRO	Retro Eyebolt	316SS	1
WASHER M20	Washer: M20	316SS	1
O-RING	O-Ring	Rubber	1
RETRO-WASHER	Retro Washer with Foam	316SS	1
TUFF-POST300	TUFF-POST 300mm (Square)	316SS	1
CON-M12x160	Anchor Rod M12x160, M12 Nut, Spring Washer & Washer	316SS	4

PRODUCT CODE	DESCRIPTION	MATERIAL	QTY
TUFF-POST600C-RET	**TUFF-POST Concrete Anchor Raised 600mm: (Retro)**	316SS	1
EYEBOLT-RETRO	Retro Eyebolt	316SS	1
WASHER M20	Washer: M20	316SS	1
O-RING	O-Ring	Rubber	1
RETRO-WASHER	Retro Washer with Foam	316SS	1
TUFF-POST600	TUFF-POST 600mm (Square)	316SS	1
CON-M16x160	Anchor Rod M16x160, M16 Nut, Spring Washer & Washer	316SS	4

TUFF-POST COLLARED EYEBOLT

PRODUCT CODE	DESCRIPTION	MATERIAL	QTY
TUFF-POST300C-COL	**TUFF-POST Concrete Anchor Raised 300mm: (Collared)**	316SS	1
EYEBOLT M16x26mm	Collared Eyebolt: M16x26mm	316SS	1
WASHER M16	Washer: M16	316SS	1
WASHER M16_SPRING	Spring Washer: M16	316SS	1
TUFF-POST300	TUFF-POST 300mm (Square)	316SS	1
CON-M12x160	Anchor Rod M12x160, M12 Nut, Spring Washer & Washer	316SS	4

PRODUCT CODE	DESCRIPTION	MATERIAL	QTY
TUFF-POST600C-COL	**TUFF-POST Concrete Anchor Raised 600mm: (Collared)**	316SS	1
EYEBOLT M16x26mm	Collared Eyebolt: M16x26mm	316SS	1
WASHER M16	Washer: M16	316SS	1
WASHER M16_SPRING	Spring Washer: M16	316SS	1
TUFF-POST600	TUFF-POST 600mm (Square)	316SS	1
CON-M16x160	Anchor Rod M16x160, M16 Nut, Spring Washer & Washer	316SS	4

TUFF-POST (Square Post) – Concrete Installation

All safety procedures must comply in accordance with the current safety code(s) of practice(s) for working at heights. Ensure safety at all times during and after installation by using an appropriate height safety system.

TUFF-POST is designed to raise the ground height of a height safety system therefore TUFF-POST **must only** be used in conjunction with a SafetyLink lifeline or eyebolt system.

POSITIONING OF TUFF-POST

- The pendulum effect applies *(refer to Appendix Diagram 2)*
- TUFF-POST must be in a position easily and safely reached from a safe access point.
- TUFF-POST must **not** be installed close to concrete edges, minimum distance to concrete edge is **150mm**.
- **Minimum concrete thickness 150mm.**
- **Minimum concrete grade MPA32.**
- **Minimum anchor rod embedment 115mm.**
- **Recommended chemical anchor: Fischer FIS-V as per Fischer Product Supplement Data sheets (Refer to *Appendix 1*).**

⚠ If any doubt exists with the strength of the structure an engineer should make the assessment.
⚠ Installation must be carried out by, or under the supervision of a competent height safety installer.
⚠ During installation you must be safe at all times.

LOCATING THE STEEL REINFORCING IN THE CONCRETE

Use of a digital metal detector (example: Bosch DMO 10) to locate the steel reinforcing in the concrete is recommended when determining the anchor hole locations for the TUFF-POST. This ensures steel is avoided when drilling.

DRILLING THE HOLES

TUFF-POST 300 - Drill **4 x M18 holes.**
TUFF-POST 600 - Drill **4 x M18 holes.**

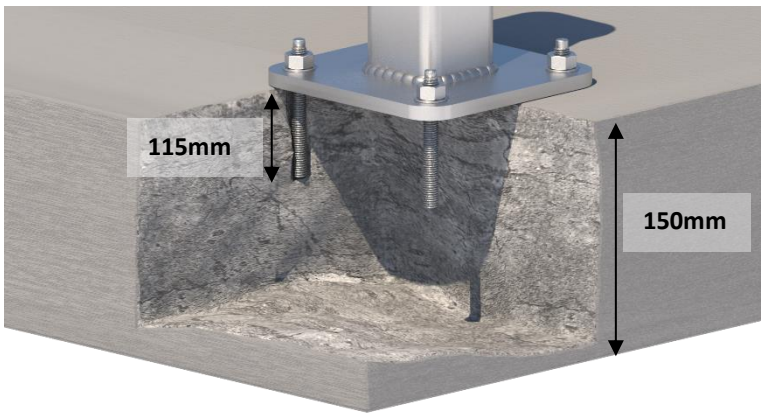
- Drill a minimum depth of 115mm with a hammer drill and masonry drill bit, *refer to Drawing 2.*

PREPARING THE HOLES

The holes must be moisture and dust free. Remove dust using compressed air, small brush and vacuum cleaner.

Drawing 1

Drawing 2



TUFF-POST (Square Post) – Concrete Installation

INSTALLING ANCHOR RODS

TUFF-POST 300 - must be held down with a minimum of **4 x CON-M16x160.**
TUFF-POST 600 - must be held down with a minimum of **4 x CON-M16x160.**

Anchor rod length must be a minimum of 160mm however will be determined based on water proofing membrane thickness under the TUFF-POST.

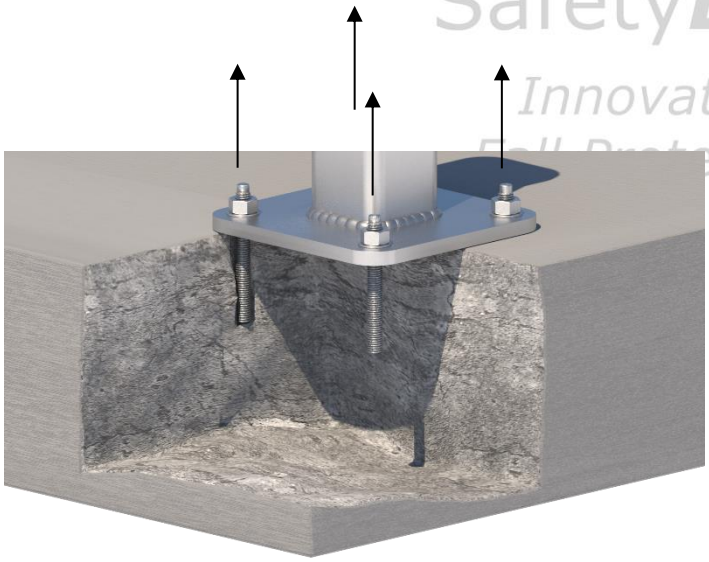
- Fill 14mm or 18mm holes with chemical adhesive gel as specified with the Fischer product use data sheet.
- Fit anchor rods ensuring a minimum of 115mm for 150mm, 300mm and 600mm posts is embedded in the concrete and chemical adhesive gel.
- Remove any chemical adhesive gel that has been displaced from the anchor hole during installation.
- Allow chemical adhesive gel to cure to full strength as indicated in the Fischer product use manual.
- Once chemical adhesive gel has cured each Anchor Rod will need to be load tested with a calibrated pull testing machine to **7.5kN**, *refer to Drawing 3.*
- Once pull testing is completed, place the TUFF-POST onto anchor rods.
- Place washer, spring washer and nut onto anchor rods.
- Ensure all nuts are torque tighten to 50NM/60NM respectively for M12/M16.

Annual recertification will require the TUFF-POST to be load tested as a complete unit with a calibrated pull testing machine to **7.5kN**, *refer to Drawing 4.*

If TUFF-POST is installed with an energy absorbing eyebolt, a test eyebolt will need to be installed and the energy absorbing eyebolt reinstalled once the test is completed. **NEVER COMPLETE LOAD TESTS ON ENERGY ABSORBING EYEBOLTS, LIFELINE END AND INTERMEDIATES.**

Drawing 3

4 x Anchor Rod – 7.5kN Pull

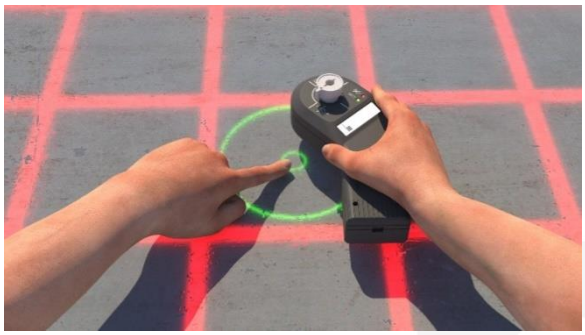


Drawing 4

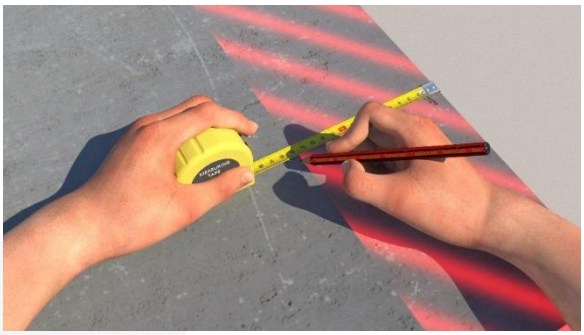
Tuff-Post End - 7.5kN Pull

INSTALLATION TO CONCRETE

STEP 1
LOCATE THE STEEL IN THE CONCRETE. Use a digital metal detector to locate the steel when positioning the Anchor Rod into the concrete. This ensures steel is avoided when drilling.



STEP 2
Mark out the position to be drilled. NOTE: Anchors should not be positioned close to an edge, minimum distance 150mm. If any doubt exists as to the strength of the structure an engineer should make the assessment.

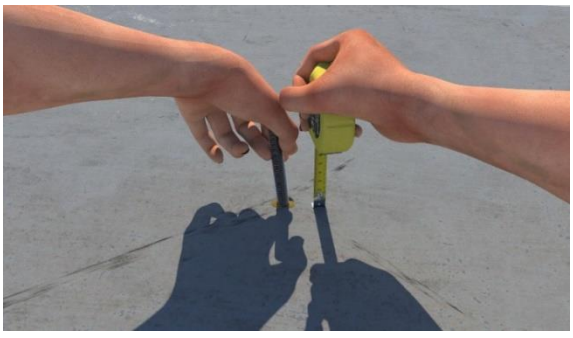


STEP 3
Mark drill bit or set drill depth to 120mm, this enables easy detection of correct length.

STEP 4
Drill a 14mm or 18mm hole into the concrete (minimum 115mm embedment into structure concrete). The hole must be moisture and dust free (using a form of compressed air, vacuum or brush to clean it).

STEP 5
Apply the recommended epoxy adhesive into the hole at the rate stated by the product manufacturer. Refer to the adhesive manufacturer's catalogue for the adhesive strength and installation requirements. (Refer to *Appendix 1*).

STEP 6
Insert the anchor rod down into the adhesive in the hole. Ensure you use enough adhesive chemical as specified by the chemical manufacturer to cover the hole. A small amount of gel should be expelled once the rod is installed, wipe excess away.



TUFF-POST (Square Post) – Concrete Installation

All safety procedures must comply in accordance with the current safety code(s) of practice(s) for working at heights. Ensure safety at all times during and after installation by using an appropriate height safety system.

TUFF-POST is designed to raise the ground height of a height safety system therefore TUFF-POST **must only** be used in conjunction with a SafetyLink lifeline or energy absorbing eyebolt system.

Once the TUFF-POST is correctly installed to the structure, the Eyebolt can be installed.
The system components are only to be installed to the TUFF-POST with a minimum grade A4-70 Stainless Steel 316 bolt.

FITTING THE RETRO EYEBOLT TO THE TUFF-POST

1. Place the Retro Washer with Foam on TUFF-POST.
2. Then place Washer and O-ring on the Retro Eyebolt thread.
3. Screw Eyebolt into TUFF-POST.
4. Threads need to have a minimum of EIGHT FULL 360º TURNS into the ultimate thread.

FITTING THE COLLARED EYEBOLT TO THE TUFF-POST

1. Place the Washer, Spring Washer on the Collared Eyebolt thread.
2. Screw Eyebolt into TUFF-POST.
3. Threads need to have a minimum of EIGHT FULL 360º TURNS into the ultimate thread.

APPENDIX 1 – CONCRETE INJECTION MORTAR

POSITIONING OF CONCRETE ANCHOR - The Concrete Anchor must be in a position easily and safely reached from a safe access point. Concrete anchor should not be positioned close to an edge, minimum distance 150mm. Minimum concrete thickness 150mm.

LOCATING THE REINFORCING STEEL BAR (REO BAR) IN THE CONCRETE - Use *Digital metal detector (Example: BOSCH DMO 10)* to locate the Reo bar in the concrete when positioning the Concrete Anchor. This ensures reo bars are avoided when drilling.

DRILLING THE HOLE - Drill a hole to a depth and width as suggested in below table.

PREPARING THE HOLE - The hole must be moisture and dust free. Remove dust using compressed air, small brush, and vacuum cleaner.

INSTALLING THE CONCRETE ANCHOR - Recommended chemical is **Fischer FIS-V**.

- Prior to anchor installation, refer to installation procedure for individual anchor product and check chemical is within expiry date.
- The injection cartridge is for use with a standard caulking gun.
- Partially used cartridges can be re-used by changing the mixing nozzle.
- The entire surface of the anchors embedded section must be within the concrete and shall use sufficient adhesive mortar as specified in the table below.

PRODUCT CODE: CON-CHEM-FISV.300			
Product Code	Description	Qty	
CON-CHEM-FISV.300.01	Injection Mortar FIS V Cartridge 300ml	1	
CON-CHEM-FISMR	Static Mixer FIS MR	2	

FIS V 300T: INJECTION MORTAR					
APPLICATION	**ANCHOR DIAMETER(mm)**	**DRILL HOLE DIAMETER(mm)**	**DRILL HOLE DEPTH(mm)**	**MORTAR/ FIXING(ml)**	**NO# OF FIXING/ CARTRIDGE**
DonutLink FrogLine	16	18	95	15	20
Concrete Insert	24	28	90	40	7.5
One Piece Eyebolt	16	18	90	15	20
WindowLink	53&25	55&28	20&122	60	5
SwiveLink	24	28	90	40	7.5
M12x160 Anchor Rod	12	14	115	10	30
M16x160 Anchor Rod	16	18	115	15	20
X-Rail	12	14	95	10	30

CURING TIME FIS V			
Cartridge Temperature (mortar)	Gelling Time	Temperature at anchoring base	Curing Time
		- 5°C - ± 0°C	24 hours
+ 0°C - + 5°C	13 minutes	± 0°C - + 5°C	3 hours
+ 5°C - + 10°C	9 minutes	+ 5°C - + 10°C	90 minutes
+ 10°C - + 20°C	5 minutes	+ 10°C - + 20°C	60 minutes
+ 20°C - + 30°C	4 minutes	+ 20°C - + 30°C	45 minutes
+ 30°C - + 40°C	2 minutes	+ 30°C - + 40°C	35 minutes

The above times apply from the moment of contact between resin and hardener in the static mixer.
For installation, the cartridge temperature must be at least +5°C. For longer installation times, ie when interruptions occur in work, the mixer should be replaced.

Testing for concrete mounted anchor.
To comply with current Standards each Concrete unit must be tested after installation. Allow required curing time as specified in above table before testing. Test consists of pull out force to 50% of design load of anchorage.
Note: Drilled-in anchorages such as friction and glued-in anchorages shall be placed so that the shear load is at least twice the tension load. For collared eyebolts this translates to a pull at an angle not exceeding 20 degrees to the surface in which the bolt is installed.

IN CASE OF ACCIDENT

⚠ **A FALL RESCUE PLAN AND SAFE WORK STATEMENT MUST BE DEVELOPED PRIOR TO USING SAFETYLINK SYSTEMS AND EQUIPMENT.**

⚠ **PERSONS WORKING AT HEIGHTS SHOULD NOT WORK ALONE.**

It is critical that before using any SafetyLink Systems a fall rescue plan is in place for any persons suspended mid-air following a fall. Serious injury or death can occur in a matter of minutes, particularly if a person's movement or breathing is restricted or loss of consciousness has occurred. In accordance with your fall rescue plan and appropriate first aid procedures it is essential to remove the person from the suspended position as quickly as possible.

In accordance with AS/NZS 1891.4:2009 clause 9.5

EQUIPMENT WHICH HAS ARRESTED A FALL OR SHOWS A DEFECT

Any piece of equipment including both personal and permanently installed items, which has been used to arrest a fall or which shows any defect during operator or periodic inspection shall be withdrawn from service immediately and a replacement obtained if necessary. A label indicating the condition or defect should be attached to the equipment, and it should be examined by a competent height safety installer who will decide whether the equipment is to be destroyed or repaired if necessary and returned to service. In the latter case, details of any repair shall be documented, and a copy given to the operator.

SafetyLink®
Innovative
Fall Protection

bsi ISO 9001 Quality Management Systems CERTIFIED
FS 707792

SafetyLink Pty Ltd | ABN 83 081 777 371 | www.safetylink.com

DISTRIBUTOR:

Asia-Pacific/The Americas | +61 2 4964 1068 | info@safetylink.com
Europe/Africa/Middle East | europe.sales@safetylink.com
Northern Europe | uk.sales@safetylink.com