Guardian™

2600 Davit Shoring Kit

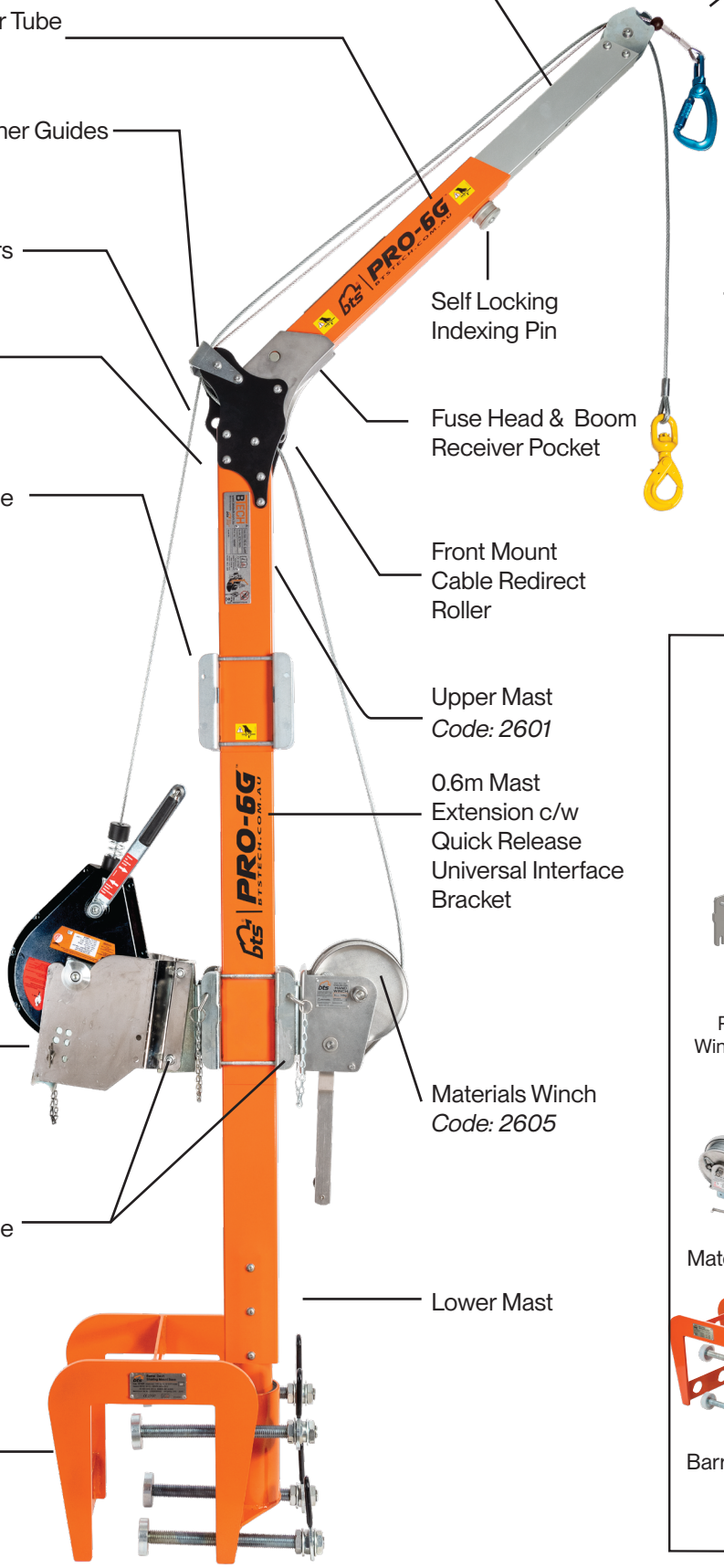
Operation & Maintenance Manual

Edition 1



GUARDIANCIVIL.CO.NZ

PARTS IDENTIFICATION



5 Position Boom Extension Tube

Davit Boom Outer Tube
Code: 2601

Rear Cable Retainer Guides

Rear Cable Rollers

Secondary Anchor Point

Quick Release Universal Interface Bracket

Winch / Rescue Recovery Winch mount bracket
Code: 2604

Quick Release Universal Interface Bracket

Barrel Mount
Code:2602

Head Pulleys

Triple Action Karabiner Safety Hook

Self Locking Indexing Pin

Materials Winch Cable

Fuse Head & Boom Receiver Pocket

6mm Grade 80 Eye Swivel Self Locking Hook

Front Mount Cable Redirect Roller

Upper Mast
Code: 2601

0.6m Mast Extension c/w Quick Release Universal Interface Bracket

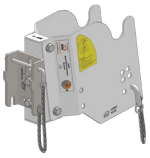
Materials Winch
Code: 2605

Lower Mast

Each Kit Contains the Following



Heavy Duty Storage Bag



Rescue Recovery Winch Mount Bracket



Rescue Recovery Winch



Materials Winch



Lower mast



Upper mast



Barrel Mount



Davit boom



0.6m mast extension

1. INTRODUCTION TO SYSTEM APPLICATIONS

The 2600 Davit Shoring Kit is designed to be mounted on a shoring/trench (steel or aluminium) panels to provide reliable operation in various applications at trenches and ground excavations. The Kit includes:

1 x Davit Shoring Kit
1 x Steel Adjustable Barrel Davit Mount
1 x Inertia Reel 24m
1 x HRA Winch mount bracket

The product has been tested to AS/NZS5532:2013, AS/NZS1891.4, ANSI Z359.18:2017 and OSHA 1926.140; 1926.502 requirements, EN795 & CEN/TS16415:2013, CSA Z259.15:2022 and complies with the Basic Health & Safety requirements of New PPE Regulation (EU) 2016/425



1.1 Specification

Working Load Limit: 1 person weighing a maximum of 136kg including all clothing, tools and equipment connected to the HRA / Winch. The operator of the winch needs to be connected to the secondary anchor point on the mast using a type 3 SRL.

1.2 Safety Instructions prior to use

- Prior to using the equipment, please ensure all operating procedures have been read and understood.
- The Kit is only to be installed and used by a competent person who has been trained in safe use of the system and associated equipment and has an understanding of the dangers associated with excavations and ground collapse hazards (Guidance can be sought from Excavation and Construction Codes of Practice).
- Use appropriate personal protective equipment (PPE) during installation, operation and maintenance of the equipment.
- All non-operational bystanders are to be kept clear of work areas.
- Always wear gloves and beware of pinch points during installation and operation.
- Ask for assistance when lifting/moving heavy components. Before lifting, position body close to the load and keep back straight and knees slightly bent.
- Be aware of soft or uneven ground near the excavation site and keep work area clear of excess tools and equipment to prevent slips, trips or falls.
- Ensure all workplace OH&S requirements are identified and understood. A risk assessment complete with site specific safe work method procedure must be completed and approved by management prior to commencing the work.
- A rescue plan must be devised and be ready to be implemented prior to usage of the Kit.
- This product requires periodic inspection and maintenance by a competent person as per section 7 of this manual. The system must not be used if any part of it is overdue for service, inspection or damaged.
- Only an approved full body harness, certified to country/state or territory applicable standards and regulations, is to be used with this Kit.
- The system is designed to be used for Limited Free Fall Arrest and requires that BTS Self Retracting Lifelines (SRLs) and HRA fall Arrest Recovery Device be used. HRAs & SRLs selected for use with this system must have a Maximum Arrest Force (MAF) rating of 4kN or less.
- The PRO-6G Davit is only to be used with a compatible Davit base, capable of withstanding forces indicated in Mounting and Anchorage Strength requirements described in section 3.
- Visually inspect the product for damage prior to use. The system must not be used if there is any deterioration or deformation of any component or the structure to which the system is attached. If the Davit mast shows signs of overload or fall, immediately tag the system “Out of Service” and do not use until it has been fully inspected and re certified by a competent person.
- Persons with muscular, skeletal and physical disorders should consult a physician before using Personal Fall Protection Equipment. Increasing age or lowered physical activity may reduce a person’s ability to use this equipment.
- This user manual does not in any way replace the need for completion of a recognised height safety training course

Everything you need to know about the Guardian Pro-6G davit arm kit!

1.3 Site Hazards

Sites have associated with them many hazards which must be considered before using any equipment or performing tasks.

These include but are not limited to:

- Overhead power lines, transformers, underground power and solar power systems
- Gas lines (both underground and surface)
- Ground collapse hazards
- Chemicals
- Plant and machinery
- Traffic – both vehicle and pedestrian

NOTE: Failure to follow all safety, installation, usage and maintenance instructions may result in serious injury or death.

2. APPLICATION

The Kit is designed to be used in various applications at ground excavation sites.

2.1 Fall Protection

The PRO-6G Davit is designed to be used with the Barrel Davit mount to provide an engineered supporting structure for Personal Fall Arrest Systems (PFAS).

2.2 Work Positioning

The Davit may be equipped with a material Winch or a Type 3 HRA Fall Arrest Recovery device to be used for the suspension of a worker at an elevated position for the performance of a task. The worker must wear a harness and if suspended in a work seat, a secondary personal fall arrest system must be used.

2.3 Rescue

The PRO-6G Davit Arm, base and winch may be used, employed as part of a system meeting the requirements of Australian Codes of Practice for the rescue of a fallen worker/s, BS EN 1496:2006 for the rescue of a fallen worker.

2.4 Confined Space Entry/Retrieval and Rescue

The PRO-6G Davit Arm, base and winch, may be used as part of a system to facilitate access to and egress from a confined space as well as non-entry rescue in the event of an emergency. When used with approved BTS mounting base and winch, the PRO-6G Davit System meets the requirements of Safe Work Australia, Confined Spaces Code of practice, EN795 & CEN/TS16415:2013, for use as a confined space entry/retrieval and rescue device.

2.5 Fall Protection While Climbing

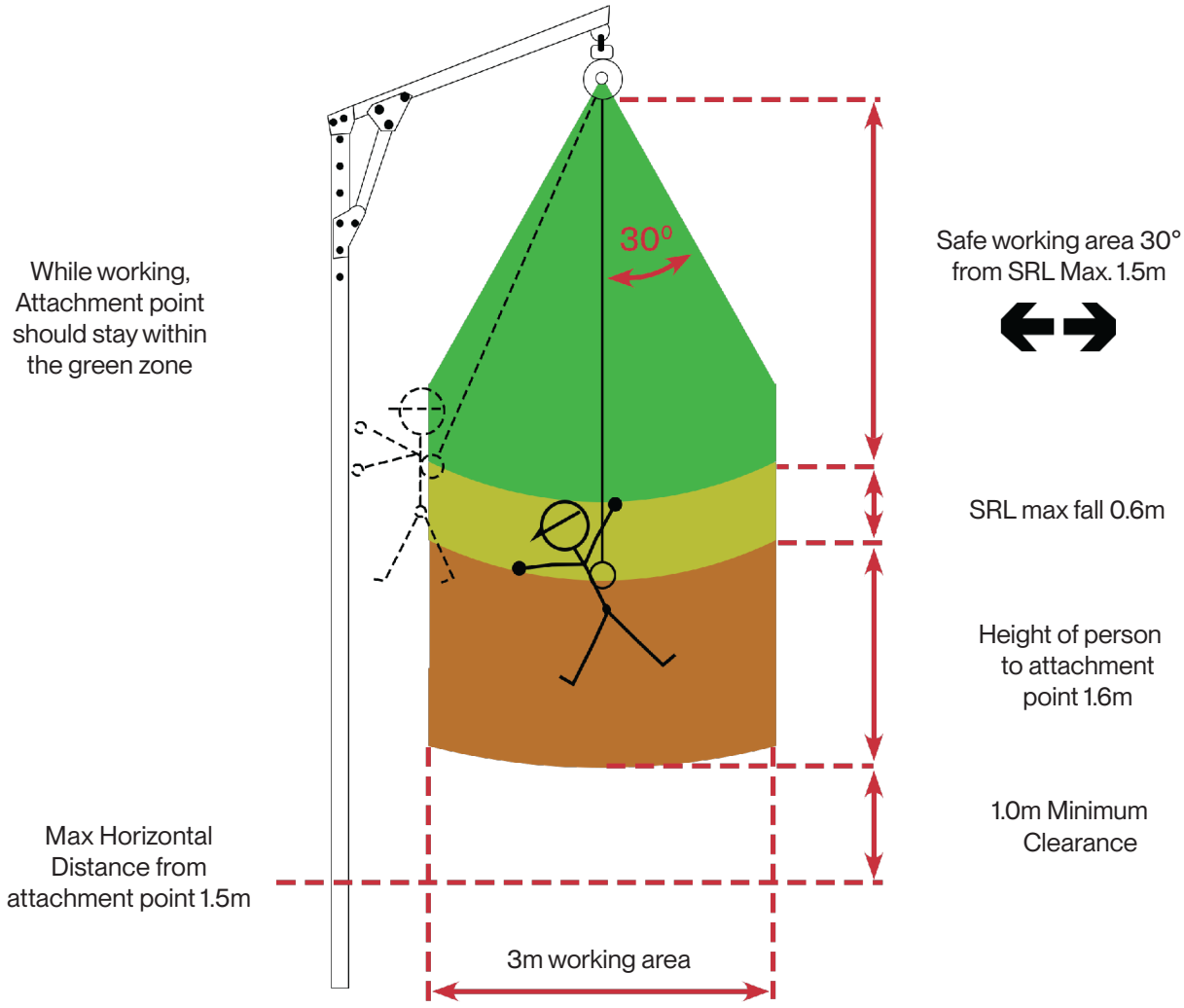
In situations permanently installed personal fall arrest system, the PRO-6G Davit and man rated winch can be used to guard against falling while climbing a ladder or other structure. The man rated winch line can be used as an extendable anchorage connector that moves up and down with the climber. An energy absorbing lanyard installed between the man rated winch line and the dorsal D-ring on the climber's full body harness absorbs fall energy and reduces the arresting forces in the event of a fall in line with current codes of practice. The man rated winch must be operated so as to continuously eliminate any slack in the man rated winch line as the climber moves up and down (length as requested). The man rated winch operator must be specifically instructed in such use of this equipment. All such installations must be designed, installed and used under the supervision of a competent person. There are restrictions and limitations that must be carefully considered in the selection, installation and operation of this equipment.

2.6 Limitations

BTS recommends that any and all persons using this equipment do not work alone in case of an emergency and/or help is required.

MUST READ PRIOR TO USE

- Only to be used by persons with documented proof of training in the use of height safety and fall protection systems.
- The 2600 Davit Shoring Kit is suitable for a single user to be attached at any one time. Check system specifications or contact BTS for configuration limitations. Operator of the winch or Type 3 HRA is to be connected to the secondary anchor point on the mast.
- Users of this system must be connected via an HRA/SRL (compliant to AS/NZS1891.3, EN360:2002), which will limit any fall to less than 600mm. The system must be set up so that the user will not be offset by more than 30 degrees from vertical.
- Do not modify any of the system components.
- System only to be used for personal fall protection equipment and not for lifting equipment/material.



3. GENERAL SYSTEM REQUIREMENTS

▪ The maximum loads that could be transmitted in service from the anchor device to the structure is 4kNm in a downward direction of the jib
▪ The maximum value of deflection of the anchor device is 95mm and displacement of the anchor point that can occur in service is 10mm

3.1 Mounting Requirements

Structure selected for the installation of the Davit base must be capable of supporting a minimum of 10,000N.m moment and 22.2kN vertical load or must be approved by a Competent person so as to an appropriate safety factor for the given application(s) specified in applicable regulations.

3.2 Anchorage Strength

The PRO-6G Davit Arm is designed to be set up or installed and used on a supporting surface (anchorage) capable of providing sufficient anchorage strength to support all applied loads with an acceptable margin of safety. The standards governing different situations specify various minimum requirements depending on the application, the work being performed and other factors. However, at no time shall the anchorage provide any less than the greater of:
2:1 safety factor on the maximum arrest force (MAF) rating of any fall arrest system being used.
4:1 safety factor on personnel working loads applied to the system, as defined in the specific codes of practice & standards.

All installations MUST BE carried out under the supervision of a Competent Person.

3.3 Connectors

All connectors used to connect components in the system must be compatible with each other to ensure sufficient strength and eliminate the risk of accidental disengagement or rollout during use. Connectors supplied with products designed, manufactured and/or approved by BTS meet all applicable requirements for connectors (refer to AS/NZS1891.1, AS/NZS1891.3 and EN 362:2004). Any connectors not supplied by BTS MUST BE selected and approved by a competent person.

3.4 Full Body Harness

Use only a full body harness designed, tested and approved for fall arrest (refer to AS/NZS1891.1 or EN361:2002 or equivalent to country/ state or territory standards/ directive or regulations) when connecting a person to this system. Warning: Body belts or straps MUST NOT be used, as they do not provide adequate restraint / support to the body and may cause serious injury or death in the event of a fall.





3.5 Fall Protection

Activities involving working at heights require the use of Personal Protection Equipment (PPE) to protect the worker in the event of a fall. Suitable fall protection must be provided as required by applicable local regulations when using this equipment. Fall protection equipment MUST be selected and installed under the supervision of a Competent Person.

4. SYSTEM INSTALLATION

- The system can only be installed by a trained/competent person that has fully read and understood this manual. As the system is to be installed at an elevated level, on the edge of an excavation protected by a shoring system, a number of licences and qualifications may be required under site specific requirements, Local, State and Federal law. The system is only as strong as the structure/shoring box that it is mounted on; therefore, it is imperative that the shoring be installed as per the manufacturer's instructions.
- Please note that Installation records need to be kept and maintained by the user for future installations and inspections.
- This record must include information such as details of the installer, the address and location of installation, product identification and procedures and/or product or tools used for the installation. This document must be signed off by the installer. For further details, please refer to AS/NZS1891.4 Section 9.10 or Annex A.2 of EN795:2012
- Inspect the components for wear and damage that may have been sustained either in use or during transport. If any of the components are damaged or deemed unfit for purpose, tag them "Out of Service" and contact your supervisor prior to commencing installation.
- Before mounting the B-TRENCHSAFE PRO-6G Davit Shoring Kit, ensure that the shoring has been installed as per the manufacturer's instructions. At this point check also that the soil around the shoring box is stable (look for fissures, cracks, signs of water, services or previous excavations) and make an assessment of the potential for ground collapse. If there is any doubt as to whether it is safe to proceed, seek the guidance of a suitably qualified person.

Note: Person installing the product may require to be connected to a separate fall arrest device if exposed to fall hazards.

1. Install the Barrel Mount over an approved supporting structure. Tighten the clamp screws to 65N.m or as deemed tight enough by a competent person using the integral handles provided. Do not use larger tools or any kind of an extension on these handles.

2. Install the Davit into the Barrel Mount base.

3. Adjust the offset of the davit as required by turning & pulling the self indexing pin knob, sliding the Boom extension tube to the required position and then releasing the knob to lock boom extension in any of 5 positions. Install the Winch and/ or SRL as per Winch/SRL's operator manual provided.

Quick Setup Guide

Davit Assembly With No Mast Extension

What does a Pro-6G Davit Arm include?



Install the Barrel Mount over an approved supporting structure. As per instructions (point 1) above

Install the Lower Mast into the barrel mount.

Install the Upper Mast into the barrel mount.

Install the Davit Boom into the Upper Mast. Ensure Clicks engage on both sides.

Adjust Davit Boom length by rotating & pulling the self indexing pin knob & sliding the boom to the desired position (5 Positions).

Quick Setup Guide

Davit Assembly Mast Extension



Install the Barrel Mount over an approved supporting structure. As per instructions (point 1) above

Install the Lower Mast into the barrel mount.

Install the Mast Extension into the Lower Mast.

Install the Upper Mast into the Mast Extension.

Install the Davit Boom into the Upper Mast. Ensure Clicks engage on both sides.

Adjust Davit Boom length by rotating & pulling the self indexing pin knob & sliding the boom to the desired position (5 Positions).

Quick Setup Guide

Mounting the Recovery Wench



Install the Rescue Recovery Winch Bracket onto the fixed Quick release bracket located on the boom side of the davit. Ensure the bracket engages with the bar on the bottom of the bracket on the Davit.



Lift Bracket up, line up top holes & insert locking pin.



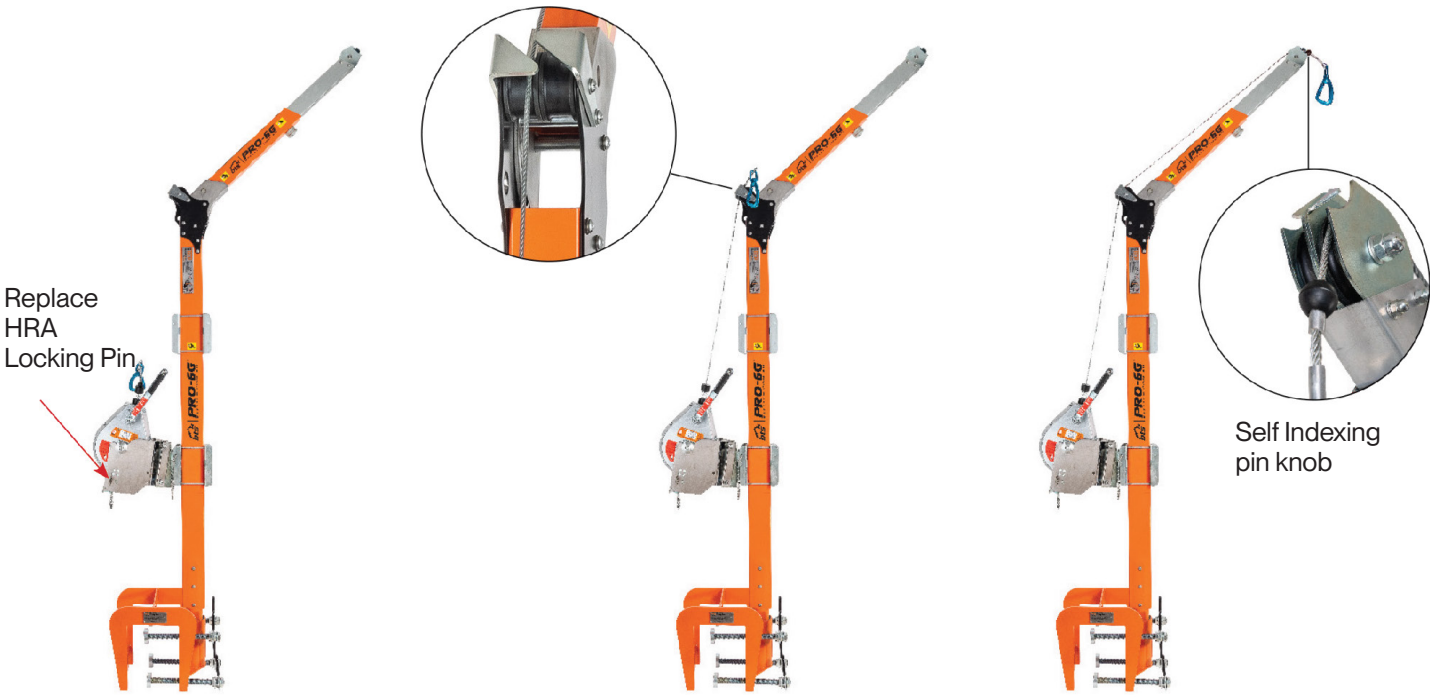
Remove Rescue Recovery Winch locking pin from Bracket and allow to hang.



Install Rescue Recovery Winch into bracket, Ensure bracket is located correctly on both sides of Rescue Recovery Winch and rescue handle is on right hand side facing pit.

Quick Setup Guide

Mounting the Recovery Wench



Line up hole in Rescue Recovery Winch hanger and Rescue Recovery Winch Davit Bracket and replace locking pin

Release enough cable to reach the bottom of the davit boom, then feed the cable through the guides and over the left or right rear cable roller, then continue to the boom tip cable guides and onto the roller as shown above.

Now feed the cable between the guides and over one of the boom tip cable rollers. Ensure that you use the same side roller as on the rear cable roller

Note: The Rescue Recovery Winch is NOT to be used for Lifting or Lowering of materials. It is for personnel recovery only

Stainless Steel Hand Brake Winch Assembly

Stainless Steel Load Brake Winches Capacity: 140Kg (Lifting).

PRODUCT FEATURES

- Compact design.
- Stainless steel construction Grade 304.
- Automatic breaking system- no free wheeling under load.
- Fully enclosed gear train.
- Suitable for marine environments.
- Minimum handle effort to lift or pull W.L.L (Working Load Limit)
- 18m x 6mm 7x19 H.D.G Grade G2070 Wire rope
- C/w 6mm Grade 80 Eye Swivel Self Locking Hook
- Quick Release Single Universal Interface Bracket c/w toggle pin & jack chain.

STAINLESS STEEL HAND BRAKE WINCH ASSEMBLY		
Part No.		BWT1800
Rated Capacity	Lifting	140kg
Gear Ratio		5:1

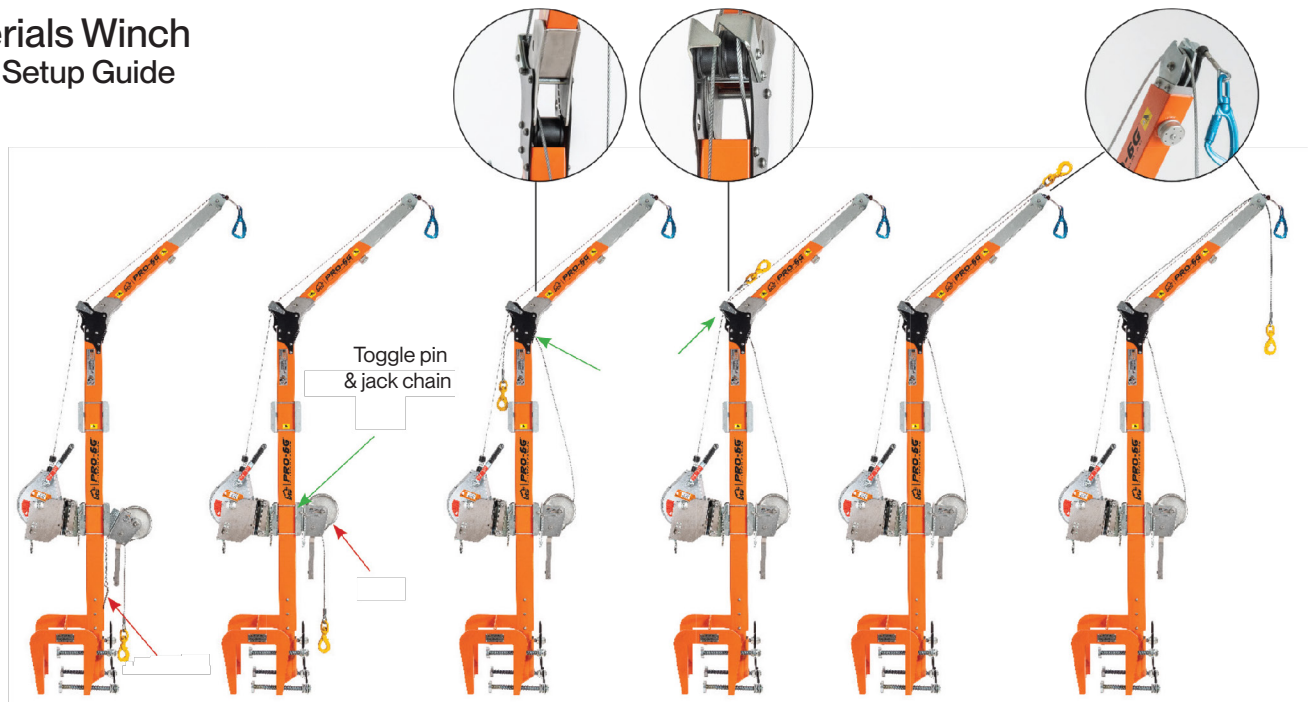


CODE: 2605
COMPLIES WITH AS1418.2

Note: Stainless Steel wire rope can be supplied as an option

Materials Winch

Quick Setup Guide



Install the Materials Winch onto the fixed Quick release bracket located on the inside of the davit. Ensure the bracket engages with the bar on the bottom of the bracket on the Davit.

Lift Winch up, line up top holes & insert locking pin.

Push the Materials Winch hook through the front mount redirect roller opening and locate the cable onto the roller.

Release enough cable to reach the top of the davit boom, then feed the cable through the guides and over the free rear cable roller, then continue to the boom tip cable guides and onto the free roller as shown above.

5. TRAINING

All persons using this equipment must receive appropriate training from their employer on all equipment involved prior to operating. Users must also read and fully understand this manual and any other instruction manual(s) relating to the system being used, or have the instructions fully explained to them before using this equipment.

Additionally, users must be properly trained in the use of any accessories that are to be used with the davit shoring kit, as well as fall protection, confined space safety and any other procedures that are applicable to the work being performed; in compliance with local regulations.

Note: Documented training records should be kept for all users of this equipment.

6. SYSTEM USAGE

- Before using the system, ensure that free space beneath the workplace/Davit is calculated to achieve minimum required clearance, so that, in case of a fall, there will be no collision with the ground or other obstacle in the fall path. This includes 1m clearance, limited fall arrest distance of the device used and stretch in the harness.
- Fit a full body harness (compliant to AS/NZS1891.1, EN361:2002 or equivalent country/state or territory applicable standards/ directive/ regulations) and ensure that the harness is fitted as per the manufacturer's instructions. Never use a harness that is not adjusted correctly as it does not provide adequate support in the event of a fall.
- Connect the HRA's/ SRL's hook to the Dorsal Dee ring of the harness, if you cannot see that the connection has been done correctly, have another worker confirm that the hook is in the correct location and closed properly. Please read the operators manual for this item prior to use.
- Using winch to retrieve the personnel from the excavation. Please read Operator's instructions for the Winch provided by its manufacturer.

7. INSPECTION & MAINTENANCE

The system must be inspected by a competent person before each use and periodically on a scheduled basis. Any problems must be reported immediately to the supervisor and the equipment tagged "Out of Service" to prevent further use until it has been repaired.

7.1 Daily Inspection & Maintenance

- Inspect the system and all accessories for physical damage, bent parts etc. that may have been caused by an excavator or other plant on the job site. Check also for loose or missing hardware and missing or illegible labels (Refer to section 8 for Labels and Markings). Replacement labels and accessories for all BTS products are available from your equipment supplier.
- Inspect the pullies on the Davit to ensure they are clean and rotate freely.
- Inspect the Davit fuse head to check if there are any signs of a fall or overload that might have occurred. Before each use ensure the following:

  -Extend and lock the Boom Extension Tube as described in Section 4.
  -Install a Winch,HRA or SRL on the structure as per the applicable instructions.
  - Pull with your full body weight on the lifeline and make sure there is no movement of the extension tube. If using a HRA or SRL, apply a sharp, steady pull on the lifeline to engage the SRL brakes and then pull on the lifeline to test the system.

- Barrel Mount base must be cleaned and inspected before each use. Check that all four clamping screws on the barrel mount base are secure and that the base is sitting level on top of the shoring.
- If used with a Winch, ensure the Winch bracket is secure to the Davit Post. Use Winch Operation/inspection manual for its inspection and maintenance.
- If used with a HRA a visual inspection and functional test of the HRA fall arrest block must be performed before every use. To do so, attach the fall arrest block to a suitable anchor point: Pull the rope, the ratchets must lock audibly and the device must be locking. Firmly hold the rope and allow it to retract into the fall arrest block in a controlled manner. See the operators manual for further information.

7.2 Annual Inspection & Maintenance

At least annually, the Kit needs to go through a detailed inspection by a competent person following the inspection procedure outlined in Section 7.1 and the results recorded in an Inspection Log (a sample log is provided on page 9).

Note: The Inspection plate on the Davit needs to be marked with the date of inspection and date of next inspection.

7.3 Inspection of IKAR HRA Rescue / Retrieval Handle Wire Seal

The IKAR HRA (Rescue Retrieval Winch) has a Wire seal that prevents the handle from being used as a materials winch. If the seal is broken, it will indicate that a rescue as been performed with this HRA & that an incident report has been filled out and documented in the provided inspection log.



⚠ CAUTION

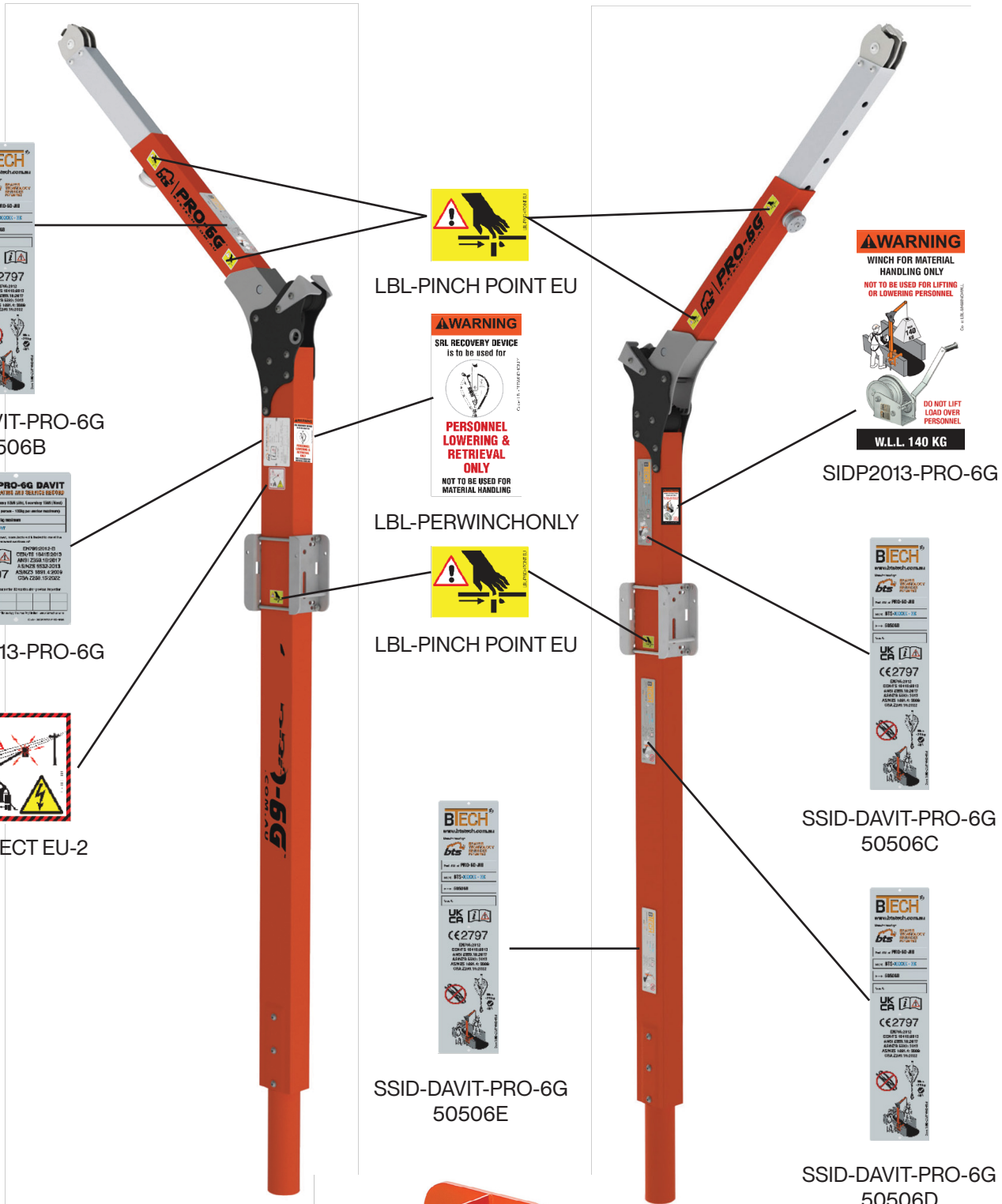
Note: The Rescue Recovery Winch is NOT to be used for Lifting or Lowering of materials. It is for personnel recovery only

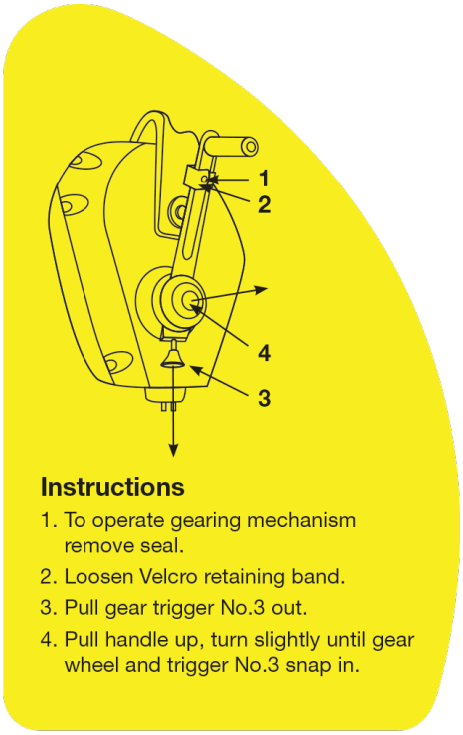
8. PACKAGING

For transportation or storage, ensure the system is disassembled and stored in the Heavy Duty Storage Bag provided with the kit by BTS.

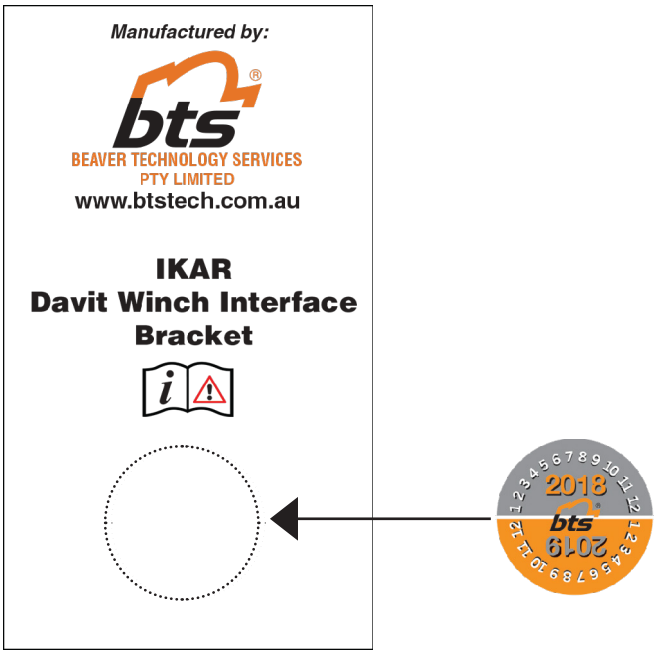


9. LABELS & MARKINGS





IKAR Instruction label



IKAR Davit winch interface bracket and service due / Warning read instructions before use label

9.1 Labels & Markings explanation of pictograms used on labels



Users must read and fully understand the information booklet and any other instruction manuals relating to the system being used, or have the instructions fully explained to them before using this equipment. Failure to do so could result in serious or fatal injuries.

Tear web lanyards shall not be used on the jib.

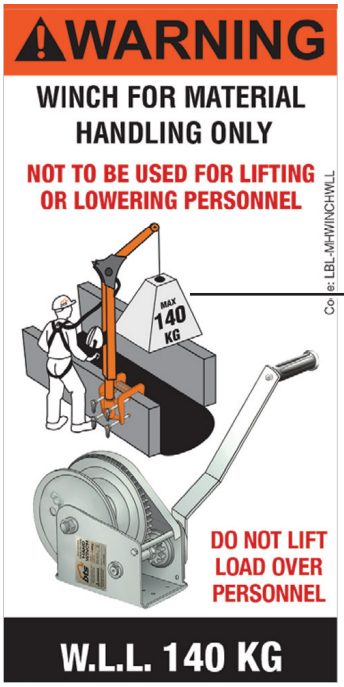
Working Load Limit: 1 person weighing a maximum of 136kg including all clothing, tools and equipment connected to the HRA / Winch.

Self Retracting Lifelines shall have a Maximum Arrest force of 4kN.

The operator of the winch needs to be connected to the secondary anchor point on the mast using a type 3 SRL.



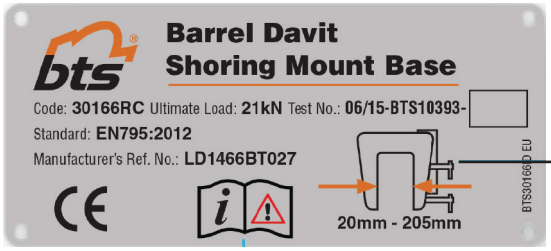
Danger! Beware of overhead power lines that may cause electrocution.



Maximum Weight Load Limit that can be lifted with this equipment is 140kg.



Warning! There is a risk of pinching or crushing in this location. Always wear gloves and beware of pinch points during installation and operation.



Maximum size of wall suitable for mounting on to is 20mm – 205mm

Users must read and fully understand the information booklet and any other instruction manuals relating to the system being used, or have the instructions fully explained to them before using this equipment. Failure to do so could result in serious or fatal injuries.

10. PRODUCT SPECIFICATION

PRO-6G Davit
- PRODUCT CODE: 2601
- Weight: 26kg
- Overall dimension: Height – 2167 / 2792mm & Width – 1110mm

Packaging Dimension (Heavy Duty Carry Bag)
- 300mm x 300mm x 1280mmBTRENCHSAFE® Steel Adjustable Barrel Davit Mount

BTRENCHSAFE Steel Adjustable barrel Davit Mount
- PRODUCT CODE: 2602
- Weight: 25.2kg
- Overall dimension: 376mm x 354mm x 265mm

11. CLEANING

The system must be clean and free of surface contaminants to work correctly. Depending on the site conditions, the Pro-6G Davit system may need to be periodically cleaned to remove any built up dirt and debris that may have accumulated. Use a solution of warm water and mild detergent to clean the system. Do not use solvents or other cleaners to clean the unit, as this may result in damage the surface finish. If the equipment becomes wet, either from being in use or due to cleaning, it should be allowed to dry naturally or wiped down with a cloth. Do not use heat generating equipment to speed up the process of drying.

2600 Davit Shoring Kit Inspection

Product Model No..... Date of Manufacture (dd/mm/yy):.....

Product Serial No:..... Purchase Date: (dd/mm/yy):.....

INSPECTION ITEM	PASS	FAIL	DETAILS / LOCATION OF DAMAGE	DISPOSITION (REPAIRED / SCRAPPED)	APPROVED FOR USE BY:
Check the kit - ensure it is free of dents, distortion, cracks, corrosion or other damage					
Inspect the pulley on Davit to ensure it is clean and rotates freely					
Inspect Davit arm and ensure the fuse head is properly engaged and there are no indications of fall or overload					
Ensure the offset adjustment arm open & close properly					
Inspect all bolts and nuts – ensure they are secure and none missing, substituted or altered					
Ensure all labels are secure and legible (refer to section 8)					
Inspect the system components (SRL, Winch, Karabiners, etc.)					

If inspection or operation reveals a defective condition, remove the Davit System from service immediately and contact an authorized service centre for repair.

Date of Inspection: _____

Inspected by: _____

Date of Next Inspection: _____

The information set out in this manual has been compiled from supplier reference data including third party sources. BTS believes that the information is accurate and reliable, though we do not make or give any warranty (other than implied by statute which may not be excluded) with respect to the information. By using this information, the user undertakes not to hold BTS liable or responsible in any way whatsoever in relation or consequential to such use.

Full range of trench shoring equipment available for hire or purchase.



Manual and Hydraulic Solder Sets



Standard Trench Shields



Large Trench Shields



Modular Trench Shoring System



Manhole Boxes



Trench Accessories

Request our range of product flyers from the team... or jump online at www.guardiancivil.co.nz.

Aluminium Loading Ramps Catalogue



Scan the QR code to download the catalogue.

Trench & Site Catalogue



Scan the QR code to download the catalogue.



GUARDIANCIVIL.CO.NZ

CONTACT:

sales@guardiancivil.co.nz
0508 41 41 41

CHRISTCHURCH

2 Edmonton Rd, Hornby
Christchurch 8042

AUCKLAND

6a Te Apunga Place, Mount
Wellington, Auckland 1060

WELLINGTON HIRE YARD

24E Takapu Road, Grenada
North, Wellington 5028

All Guardian products are engineered and manufactured to comply with applicable industry standards and safety regulations in New Zealand, including those related to excavation support and ground stabilisation. However, it is the sole responsibility of the end user to ensure that all equipment is used correctly, safely, and within the limits for which it is designed. By purchasing or using our products, the user acknowledges and accepts full responsibility for ensuring the equipment is used appropriately and in compliance with all applicable regulations and best practices.
Always consult a qualified engineer or competent person before use.