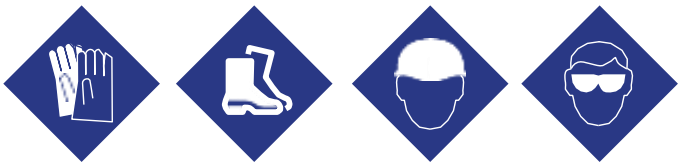
Trishore Props

Hazard and Risk Assessments

Before using this equipment, the job you are doing must be assessed for foreseeable hazards and risks and appropriate measures to eliminate, control or reduce those risks must be taken before you commence work.

Suggested PPE (Personal Protective Equipment):



Protective Gloves | Protective Footwear | Hard Hat | Eye Wear

Note: PPE must be suited to the risks and person(s) using the equipment.

Installation Requirements:

Trishore propping systems are HIGH RISK equipment. Installers must have sufficient training/instruction to properly install and use this equipment.

ENSURE YOU HAVE BEEN PROPERLY INSTRUCTED BEFORE USING THIS EQUIPMENT.

Purpose for which this equipment is designed:

For supporting formwork, concrete, 'dead' and 'live' loads. Can be used as a back prop provided the propping system is installed correctly and its rated load is not exceeded.

Safety Instructions:

1. **Operating Instructions** – Before using this equipment ensure you have read the 'Operating Instructions' and taken note of the 'Hazards and Risks' detailed on this instruction sheet and taken all necessary steps to prevent injury.
2. **Personal Protective Equipment** – Use appropriate personal protective equipment for the job.
3. **Installation Advice** – The safe use and application of this equipment must be in accordance with AS3610, the Occupational Health and Safety Act, approved Codes of Practice and any other regulatory requirements. Consultation with a qualified engineer is advised.

HAZARD: Risk of Structural Collapse and Crushing

... Incorrectly installed or rated propping systems may cause structural collapse.

... Consultation with a qualified engineer is advised.

4. Work Area

i. During installation of propping system, ensure all bystanders are kept clear of work area.

ii. Installations that take place in close proximity to pedestrian or vehicle traffic should be barricaded to minimise risk of personal injury or property damage.

5. Avoid Body Strain

i. If equipment is too heavy, ask for assistance when loading/unloading, positioning etc. or use mechanical device.

ii. Adopt recommended manual handling techniques e.g. keep a straight back when lifting and use your leg muscles to take the weight.

6. Rated Load

i. Do not exceed the props working load limits.

ii. The working load limits of these props are for compression loads only. Do not subject them to tension (pulling) loads or forces.

iii. When props are setup in non vertical positions, the working load limits are reduced. Additional or higher rated props may be required.

7. **Look Up and Live** – Stay clear of overhead wires and other obstructions when positioning and installing propping systems. Refer to local regulatory authorities for minimum power line clearances.

8. Install the Props Correctly

i. Ensure props are installed on a firm level surface capable of supporting the load. Where the surface is not firm and level, steel or hardwood 'sole plates' should be used to spread the load and/or provide a level surface.

ii. When used in vertical applications, ensure prop sections are installed as close to vertically upright as possible. Props installed on an angle may slip, not be able to take the load, cause structural collapse and reduce load capacities.

9. Avoid Lateral Movement

i. Be aware of lateral (sideways) movement of the propping system when supporting uneven or 'live' loads, or being subject to a sideways force e.g. being hit by machinery on site etc. Where possible bolt/secure propping system in place.

ii. Where multiple propping structures are to be installed, 'cross-brace' the assembly to avoid lateral movement.

10. **Do not Use to "Jack Up" a Load Structure** – Screw jacks must not be used to raise or lower the load as structural failure and/or component damage may occur.

11. **Adjust the Prop into the Load** – Use the screw jacks to raise or lower the prop under the load. Do not hammer the prop into position.

12. **Equipment Inspections** – Prior to use and at regular intervals whilst in use, the propping system components should be inspected by a suitably competent person to ensure they have not been damaged when transported, craned, installed or while in position under load on site. Any damaged equipment must be returned immediately to Shore Hire for inspection. Do not attempt to repair or modify any propping system equipment.

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Operating and Safety Instructions

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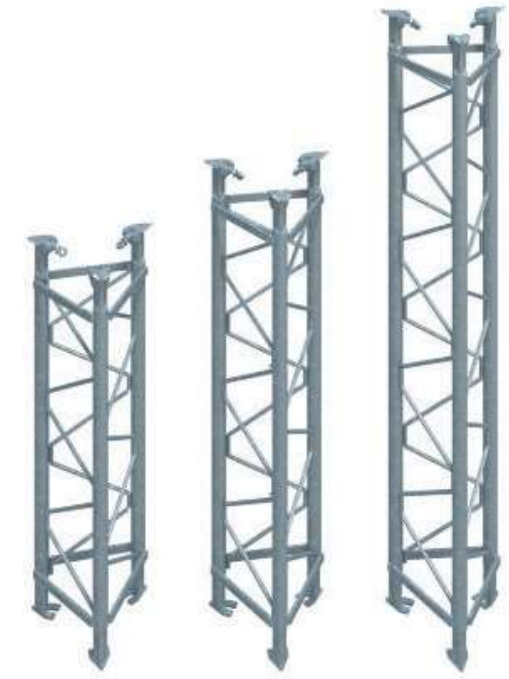
Component Details:

TRISHORE INTERMEDIATE SECTIONS	
Length	Weight
2000mm	41.8kg
1500mm	32.8kg
1250mm	29.0kg

The Trishore intermediate sections are connected together by their mating plates and a swing over eyebolt. The capacity for this connection to withstand tensile forces is nominal.

- Trishore shall not be used in tension.
- When tube lacing is required in both directions, at least one of the two tubes shall be connected to 2 of the Trishore legs.



1250mm 1500mm 2000mm

Trishore Jack

TRISHORE JACK SPECIFICATIONS		
Head Jack Weight	Base Jack Weight	Flat Head Weight
32kg	34kg	14kg

- Where Trishore is utilised as back propping for concrete slab, base jacks, intermediate sections and flatheads can be used.
  When a flathead is used a single ply packer should be placed between the flathead and the slab to take up any minor variations in the concrete surface.
- Where the Trishore is utilised as back propping for beams, base jacks, intermediate sections and head jacks can be used.
- The two Trishore arrangements that may be used for back propping may be used inverted providing the same requirements are met.
- Trishores may be constructed using a head jack at each end of the shore without any reduction in capacity. One of the head jacks will need to be secured to the intermediate section using 3 no. M16 x 40mm Hex Hd Bolts G8.8.
- The Trishore rail head is only 30mm wide. The narrow rail head minimises the eccentricity when header beams are required to be set on an angle. However, this also promotes very high bearing stress on any member that the rail head may support.
  These stresses shall be assessed to determine whether additional stiffeners are required

BASE JACK

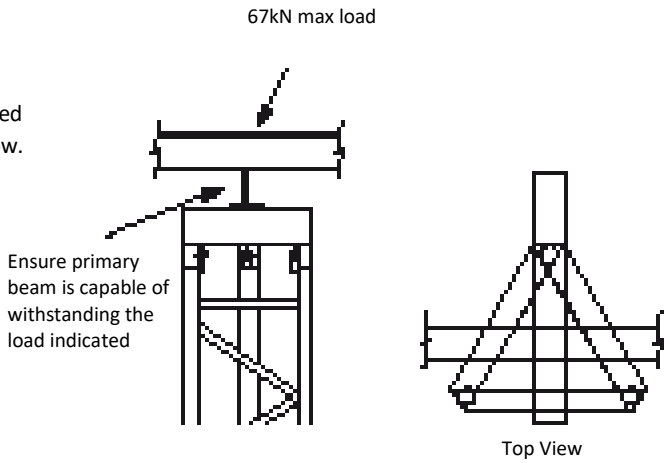
HEAD JACK

FLAT HEAD PIECE

Component Details Cont:

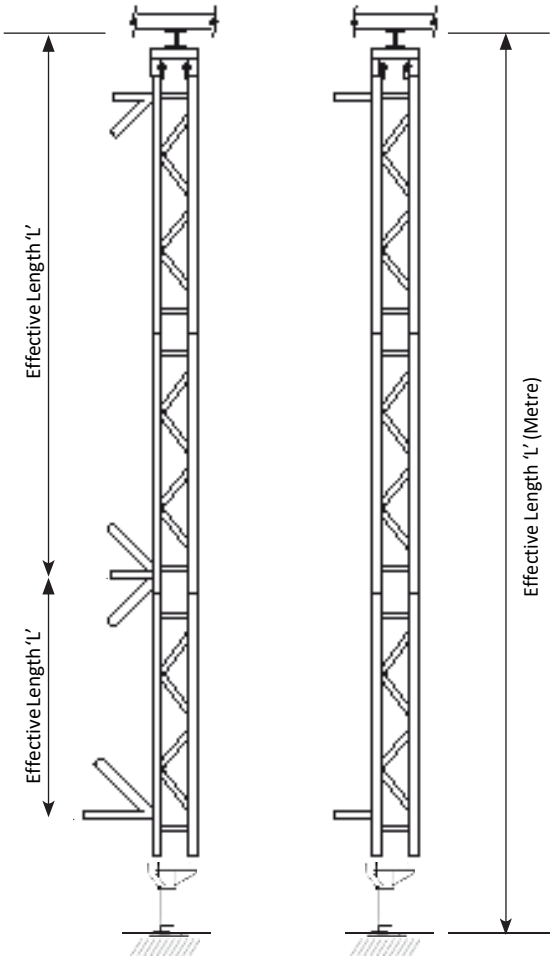
Trishore Flathead Weight: 12.4 kg

- Support of steel beams by Trishores with flat heads is not recommended as the capacity of the Trishore is significantly reduced. See figure below.



Trishore Capacity:

- When Trishores are used for horizontal shoring the working loads from the graphs below should be reduced by 15%.
- The effective length can be reduced as shown by correctly fitted bracing. Specific applications should be checked with a qualified engineer.



Working Load Graph for Vertical Shores

Operating and Safety Instructions

Installation Instructions:

1. Erection – General:

i. The area on which the Trishore is to be erected shall be cleared of obstacles, flat and of suitable material to withstand the stated loads without settlement. Suitable mass concrete of structural foundations may be required to withstand the high loads.

ii. Set out the positions of the Trishore using a suitably experienced and qualified person and appropriate surveying instruments. It is imperative that the Trishores are located correctly relative to the structure both above and below.

iii. Preassemble a Trishore base jack, intermediate section(s) and head jack for flat head to make up one shore. Each component is connected to its adjacent component with 3 swing-over eyebolts locating into the recessed slot of the connection plates. Once the eyebolts are tightened using podger bar or similar the Trishore should be rigid and straight.

iv. Adjust the head and base jacks to the stated extension.

v. Repeat this procedure with the remaining Trishores where appropriate.

vi. Lift and stand the first Trishore in its correct location. Temporarily stabilise the Trishore using props, raking tubes or tying with the tube and fitting to the nearest structure.

vii. Repeat the procedure with the remaining Trishore. As the Trishore are installed, tube and fitting lacing and bracing can be installed in accordance with project drawings to further stabilise the system. Refer also to AS3610 for information on bracing.

viii. Complete the installation of the tube and lifting bracing in accordance with the details on the drawing.

2. Erection – Backpropping:

i. Where Trishore are used to backprop an existing structure and this structure is laterally stable it is recommended that nominal bracing of the shore is installed to ensure stability.

ii. Where flat heads are used to bear directly against the structure the customer shall ensure that any gaps between the flat heads and concrete surface are properly packed.

iii. Where head jacks are used suitable packaging shall be inserted between the rail head and concrete surface to minimise bearing pressure.

3. Check the Shoring System:

i. Prior to placement of concrete a check on the shoring system should be conducted to ensure that all connections are solid, jack extensions do not exceed the maximum allowable and foundations are firm.

ii. Consult the project drawings for any specific requirements for placement of concrete and any restrictions to loading on completion of the pour.

Dismantling Instructions:

HAZARD Risk of Structural Collapse and Crushing

…Do not remove 'loaded' props. Before removing props, ensure the load is self supporting (or supported by other means) and will not collapse when props are removed. Consult project engineer.

With the prop supported to ensure it will not fall over when removing from load, dismantle the prop as follows:

1. If prop previously secured in place, undo securing bolts, remove bracing etc.
2. Shorten the length of the prop approx. 50mm by rotating the base jack or intermediate section. Do not hammer the prop to remove.
3. Lay the prop on the ground.
4. To dismantle prop loosen the eyebolts on each component and swing them into the recessed slot of the connecting plates.
5. Wear appropriate PPE and be aware of pinch points.

RISK ASSESSMENT (1= HIGH RISK, 5 = LOW RISK)

Risk (Ranking)	Description	Control
1	Erecting props on unstable/shifting foundation could cause a collapse seriously injuring personnel.	Always ensure base area is firm, clean and capable of supporting the load without shift or movement.
1	Overloading props creates a very high risk of collapse possibly causing, serious injury or death.	Strictly follow the engineers advice. Do not overload props and always observe props 'load capacity'.
1	Loose swing-over eyebolts could cause prop failure.	Always tighten swing-over eyebolts.
3	Cuts and grazes from improper handling procedures.	Observe safety procedures, always wear correct PPE.
2	Dropping units, trapping hands and feet, mishandling.	Follow safety procedures, use PPE and assisted lifts.