

## Trench Boxes

### 1.0 General Information

- Trench boxes are simple, robust, two sided mechanical excavation support system with integrated return/end panels designed to be installed by an excavator utilising the dig and push technique.
- They are manufactured and designed in compliance with BS EN 13331: 2002 PARTS 1 and 2 Trench Lining Systems.
- Boxes are fabricated from Grade S355 steel.
- Lightweight box suitable for 20kN/m<sup>2</sup> panel resistance SWL for Trenchshore and 40kN/m<sup>2</sup> panel resistance SWL for MGF.
- They are ideal for handling by small sized excavators.
- They have a clearance under the lower strut which is 900mm.
- A fast, safe and economic method of providing trench safety.
- A risk assessment must be completed prior to the use and suitability of this equipment.**
- Marwoods also recommends that a suitable 4 leg lifting chains is used when turned upright (10mm x 6.7 tonne).**

#### 1.01 Trenchshore round sockets component list

	Size (mm)	Weight (kg)	Struts	Struts pins & R clips	Connector pins & clips
Base Unit	2850 x 2000	630	4	12	N/A
Top Unit	2850 x 1000	390	2	6	4

#### 1.02 MGF square sockets component list

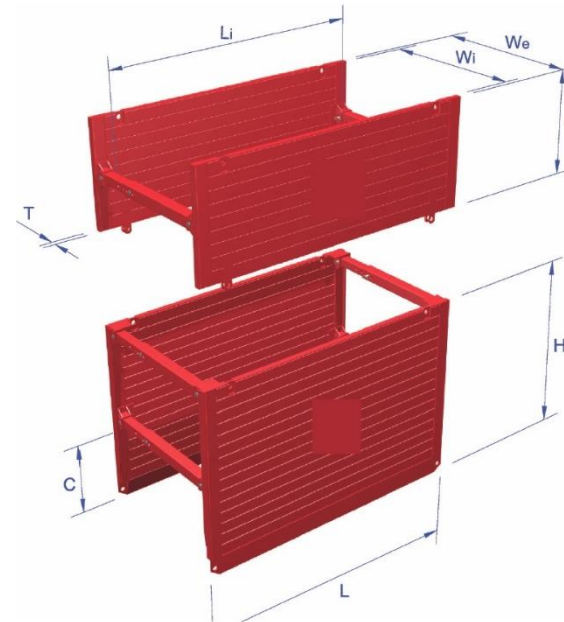
	Size (mm)	Weight (kg)	Struts	Struts pins & R clips	Connector pins & clips
Base Unit	3000 x 2000	1360	4	12	N/A
Top Unit	3000 x 1100	730	2	6	4

## STRUTS Technical Information

Round Struts		Weight (kg)	Square Struts		Weight (kg)
TRST1	600-800MM ROUND STRUT	30	TRST1M	600-800MM ROUND STRUT	30
TRST2	800-1200MM ROUND STRUT	40	TRST2M	800-1200MM ROUND STRUT	40
TRST3	1300-2000MM ROUND STRUT	60	TRST3M	1300-2000MM ROUND STRUT	60

## Dimensions of MGF Trench Boxes

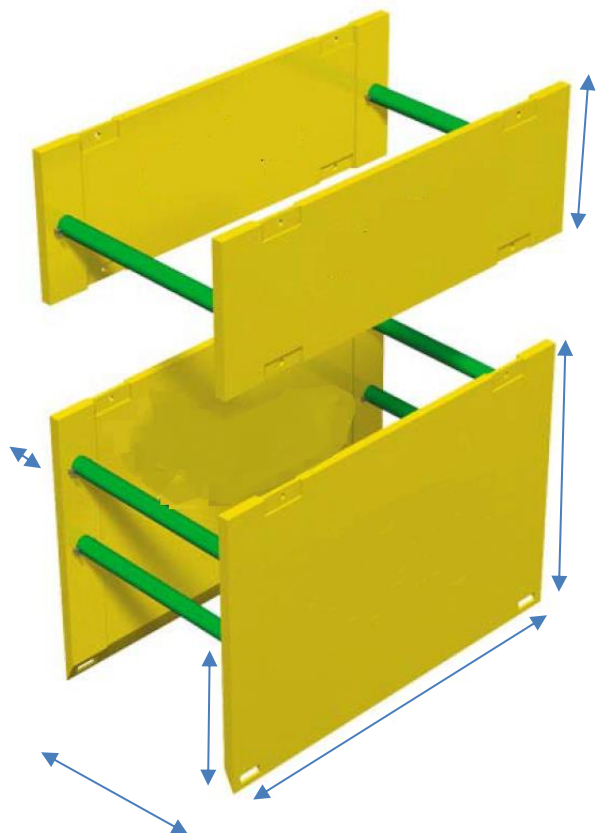
Photo for illustration purpose only



Description L x H	3000x2010 Base	3000x1100 Top
Max Depth** (m)	4.19	N/A
Panel Resistance SWL (kN/m <sup>2</sup> )	45	45
Panel Thick/ Weight T(mm)/(kg)	60/586	60/320
Internal Trench Width* Wi(mm)	605-3625	605-3625
Trench Width* We(mm)	725-3745	725-3745
Clearance Below Bottom Struts C(mm)	903	N/A
Clearance Between Struts Li(mm)	2716	2716

## Dimensions of Trenchshore Trench Boxes

Photo for illustration purpose only



Type	Length (m)	Height (m)	Internal Width (m)	Panel Thickness (mm)	Clearance between struts (m)	Clearance under struts (m)	Panel Weight (kg)
Trench Base	2.85	2.0	0.3 - 2.35	63	2.65	1.3	310
Trench Top	2.85	1.0	0.3 - 2.35	63	2.65	1.3	175

## 2.0 Safety Instructions

- Only qualified authorised personnel should be allowed to operate trenches and accessories.
- The competent person must supervise the installation, alteration or removal of excavation support.
- Correct manual handling techniques must always be used and PPE as detailed in the specific risk assessment must be worn at all times.
- Marwood Group Ltd recommends the use of gas detector and breathing equipment.
- A land and ground survey must also be carried out to check also for any utilities (electrical, telephone cable and gas or water supply) below the trench.
- Continually monitor groundwater, soil and air by sight, smell and use gas detection equipment when working in excavation.
- The operating instructions should be always available.
- Boxes should only be used in the configurations shown in section 1.0.
- Boxes should not be used in very weak ground (especially very soft clays and peats) or where significant groundwater is present.
- Boxes are not suitable for usage in trenches with multiple service crossings.
- Boxes are not normally suitable for usage where ground movement is an issue and are therefore not recommended for use in live carriageway situations or adjacent to existing buildings / structures.
- Lifting of the box above the base of the excavation is strictly prohibited.
- Boxes should not be left in-situ for extended periods within cohesive soil as adhesion on the panel surfaces may prevent safe removal.
- Ladders must be present around the excavation to provide easy access in and exit in the trenches. (usually about 8 metres or less)

## 3.0 Installation Guidelines for Trench Box Assembly

1. Always install/remove the system from a position of safety. If working from an unsupported edge a full risk assessment should be carried out for the installation.
2. Lay one section face down on the ground with the spigots pointing upwards.
3. Locate the struts in the spigots.
4. Secure with pins and R-clips.
5. Install the second with the face upwards and locate facing spigots onto the free ends of the struts.
6. Secure with pins and R-clips.

**Note: As the handling of this equipment has an increased risk with it. Care must taken to avoid the equipment slipping causing injuries or trapping.**

#### 4.0 Installation Guidelines using the Trench Boxes

1. Excavate approximately 1.0m below existing ground level to the overall plan size as required.
2. Place the assembled Trench Box in the excavation using the 4-Leg Chain. Ensure that the panels of the Trench Box are vertical at rest.
3. Progressively install the Trench Box by a 'cut and lower' technique, using the excavator to apply downward pressure to each corner of the unit.
4. If the required excavation depth is greater than the height of a single Trench Box, Top extension units should be used. When the top of the Trench Box Base is at or just above existing ground level, position the assembled Trench Box Top on the installed base unit, connecting each corner of the assembly using the corner connectors supplied.
5. Continue to install the Trench Boxes until formation level is achieved. If required, a second Top unit can be used to increase the height of the box further. Marwoods do not recommend that more than 2 Top units be used with any one Base unit.
6. When the pipes have been installed, the Trench Box is removed by applying a sudden upward force to break the friction/adhesion between the panels and the soil. The Trench Box should be progressively withdrawn, as the excavation is backfilled.

**Note: Marwood would always recommend the use of Edge Safe Panels which conform to the latest Temporary Edge Protection Systems legislation BS EN13374 and keeps operators safe from open excavations.**

#### 5.0 Maintenance & Inspection of Trench Boxes

- A visual inspection is required to be carried by a competent person before and after its use.
- A competent person must inspect excavations at the start of each shift before work begins, after any event likely to have affected the strength or stability of the excavation and after any accidental fall of rock, earth or other material.
- Any distortion, damage or security concern about the boxes or its accessories must be reported to the competent person and the box must not be used until it is deemed safe.
- Make sure that the connector pins and R-clips are in good condition.
- A written report should be made after most inspections. Stop work if the inspections show the excavation or equipment is unsafe.

#### 6.0 Transportation Notes

The panels will be supplied by Marwood Depot as per configuration below. For collection back to Marwood Depot, ensure that they are properly laid flat as per photo with sets of wood bites in between the panels (opposite ends on top of each other). Ensure that the panels are securely strapped to the lorry. The panels must not create any hazard while in transit. Take extra care when loading and unloading the load.



**This equipment must not be modified**