### PRODUCT: SHORE BRACE 200 REFERENCE: TDS17 - PAGE 1



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# **TECHNICAL DATA**

#### Description

The Shore Brace 200 System is made up of fixed and mechanical extensions used in conjunction with the hydraulic ram unit to achieve positive pressure for large 4-sided excavations.

It is particularly suited to larger excavations. Shore Hire's Shore Brace 200 Hydraulic Bracing System is an extremely flexible system. It is a strong, durable, modular hydraulic bracing frame that can be configured to satisfy multi-sided excavations in conjunction typically with trench sheets or sheet piles for perimeter support. Typical applications include large tank installation, interceptor chambers, pump stations, storm water pits, gross pollutant traps, boring pits and lift wells.

Fabricated from Domex grade 700 steel, the extensions are quickly assembled into brace legs using simple pin and retaining clip, bolt and nut assemblies. Each leg contains a double acting hydraulic ram assembly providing 1000mm of stroke and the legs are joined together at corners to form frames via a simple pin and retaining clip assembly. Connecting the rams (via hydraulic hoses) to a Shore Hire hydraulic pump unit containing hydraulic shoring fluid allows the leg lengths to be quickly and easily adjusted to suit the excavation dimensions. Once the frames are fully assembled and located at the correct line and level, the rams are pre-loaded against the sheet wall using the hydraulic pump. Pre-loading of the legs ensures the frame cannot slip and minimises the extent of potential ground movements. Self sealing quick release valves and mechanical isolation valves ensure that the ram pressure cannot be accidentally released once installed. Handling and restraining points are provided on each leg to assist assembly/removal and to allow the brace/waler to be supported off Shore Hire's restraining chains attached to the sheet wall by hooks.



#### Shore Brace 200 Configuration Example - Isometric view

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# **TECHNICAL DATA**

#### Knee Brace Applications

The bolted bracket is a crucial accessory that connects the modular knee brace struts to the shore brace 200, ensuring a secure and stable connection. This component provides a dependable and efficient solution to ensure a safe and stable structure. It can be bolted to either the Shore 400 or Shore 1000 modular strut with rocking heads.

In situations where the bending moment and deflection criteria of frame surpasses the maximum allowable value, knee brace struts become particularly vital.

At Shore Hire, we are dedicated to providing a valuable range of accessories for the Shore Brace 200 to ensure a secure and reliable solution for our customers. Our products empower construction workers to work with confidence, knowing that their shoring system is safe and stable.



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### **TECHNICAL DATA**

#### Hydraulic Ram Assembly:



HYDRAULIC CYLINDER	DOUBLE ACTING		
MATERIAL	STEEL		
BORE	130 mm		
MAX. WORKING PRESSURE	207 BAR (3000 psi)		
APPROX. WORKING STROKE	1000 mm		
AXIAL SWL @ 500 mm STROKE	300 kN		
MIN. FOS (BY TEST)	2		
APPROX. PRE-LOAD	150 kN		

SHORING FLUID IS PUMPED INTO THE FULL BORE SIDE OF THE PISTON THROUGH THE MALE QUICK RELEASE VALVE (QRV) TO EXTEND THE RAM. AT THE SAME TIME FLUID FROM THE RETURN SIDE OF THE PISTON IS RETURNED TO THE PUMP VIA THE FEMALE QRV. RETRACTION IS A REVERSE OF EXTENSION. ENSURE ISOLATION VALVE IS CLOSED TO MAINTAIN PRE-LOAD PRESSURE AND BEFORE RELEASE/CONNECTION OF QRV'S.

#### Pump Units:



THE PUMPS ARE USED TO EXTEND AND RETRACT THE HYDRAULIC RAMS AND CONTAIN BIO-DEGRADABLE SHORING FLUID. MAXIMUM RECOMMENDED INSTALLATION PRESSURE 1500 PSI (103 BAR). THERE ARE 2 TYPES OF PUMPS AVAILABLE, A MANUALLY OPERATED BUCKET PUMP AND A MOTORISED PUMP STATION.

PRODUCT DESCRIPTION	DOUBLE ACTING HAND PUMP
SHORING FLUID	SUPPLIED BY SHOREHIRE
INSTALLATION PRESSURE	103 BAR (1500 psi)

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### **TECHNICAL DATA**

Shore Brace 200 Specifications:





TECHNICAL SPECIFICATIONS				
* WLL IN BENDING X-AXIS (KNm)	225			
WLL IN SHEAR X-AXIS (KN)	702			
** WLL IN AXIAL COMPRESSION (KN)	300 (HYDRAULIC RAM CAPACITY)			
MIN. YIELD STRENGTH (Fy) (MPa)	700			
MATERIAL GRADE	DOMEX 700 MC STEEL TO EN - 10149.2			
CROSS SECTIONAL AREA (A) (mm <sup>2</sup> )	7698			
MOMENT OF INERTIA (Ix) (mm4)	45.42 x 10E6			
SECTION MODULUS (Zx) (mm3)	484 x 10E3			
*PARTIAL SAFETY FACTOR FOR ACTION OF 1.5 APPLIED.				
** MAX. STROKE OF 500 mm. CAPACITY DECREASES WITH INCREASING STROKE.				

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# **TECHNICAL DATA**

#### Leg Configurations

A shore brace 200 system capacity must be defined by a practising qualified structural engineer as per the guidelines of AS4744.1 steel shoring and trench lining equipment.

The series 200 hydraulic brace and mechanical system is configured with a combination of the fixed and mechanical extensions in conjunction with the hydraulic ram unit to achieve positive pressure for large four sided excavations. Examples of some of the possible configurations are conveyed in the chart below.



SHORE BRACE 400 SPECIFICATIONS							
Length [m]	Weight [kg]	RAM	0.5m Extension	1.0m Extension	2.0m Exten		
1.9 - 2.9	420	1					
2.4 - 3.4	558	1	1				
2.9 - 3.9	599	1		1			
3.4 - 4.4	737	1	1	1			
3.9 - 4.9	697	1			1		
4.4 - 5.4	835	1	1		1		
4.9 - 5.9	876	1		1	1		
5.4 - 6.4	1014	1	1	1	1		
5.9 - 6.9	974	1			2		
6.4 - 7.4	1112	1	1		2		
6.9 - 7.9	1153	1		1	2		
7.4 - 8.4	1291	1	1	1	2		
7.9 - 8.9	1251	1			3		
8.4 - 9.4	1389	1	1		3		
8.9 - 9.9	1430	1		1	3		
9.4 - 10.4	1568	1	1	1	3		
9.9 - 10.9	1528	1			4		

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### **TECHNICAL DATA**

#### Safe Working Load for Shore Brace 200

The series 200 brace system acts primarily as flexural members to resist bending due to lateral earth pressures. The graph indicates the load and deflection capacities for each sheet-to-sheet dimension. The shaded area conveys the safe working loads for each dimension whereas the dotted red line indicates the maximum deflection that can occur over the span of the beam under the given load.



Shore hire's team of qualified practicing engineers can custom size and specify your brace configuration based on the site conditions, constraints, excavation geometry and geotechnical information provided. Shore hire can provide site inspections and compliance certification to meet relevant Australian standards.

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### **TECHNICAL DATA**

#### Assembly Configuration Edge Protection:

Edge protection is critical in shoring systems to protect workers and pedestrians from falling debris and other hazards.

The Shore Brace 200 system includes several key components such as the knee joint, hanging chains, horizontal struts, edge protection, ladder safe and davit arm. These components work together to create a secure and stable structure that can withstand different loads and stresses.

The ladder safe provides a safe access for workers into the excavation. Our ladder safe is equipped with two fall arrest points. These secure anchorages effectively prevent falls and reduce the risk of injuries.

The davit arm is a valuable accessory that can provide personnel hoisting for rescue situations. It's often used to lower or raise people and equipment safely. Our over pile davit mount bracket provides a safe fixing point for the davit arm to different sheet pile sizes and profiles.

