



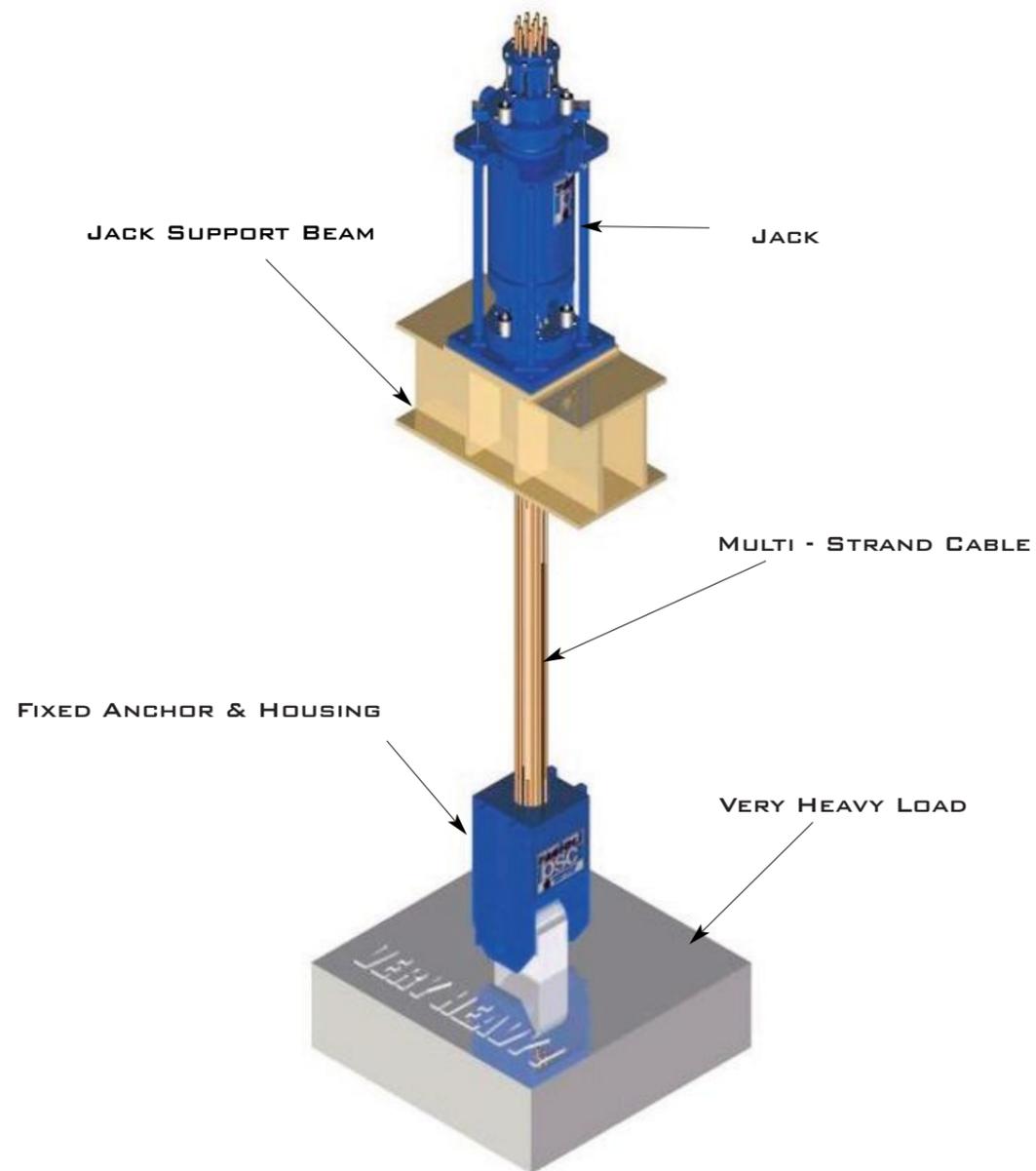
**STRAND JACKING
SYSTEM**

**THE WORLD... OUR PASSION
SINCE 1955**

TECHNICAL BROCHURE

Fagioli operate a range of Jacks from 15 to 750 tonnes capacity each based upon lift cables of 1 to 50 strands of 18mm diameter, 7 wire die-compacted, prestressing strand of guaranteed minimum breaking load of 38 tonnes per strand. Jacks may be used singularly, in pairs, or in groups to give any lifting capacity required.

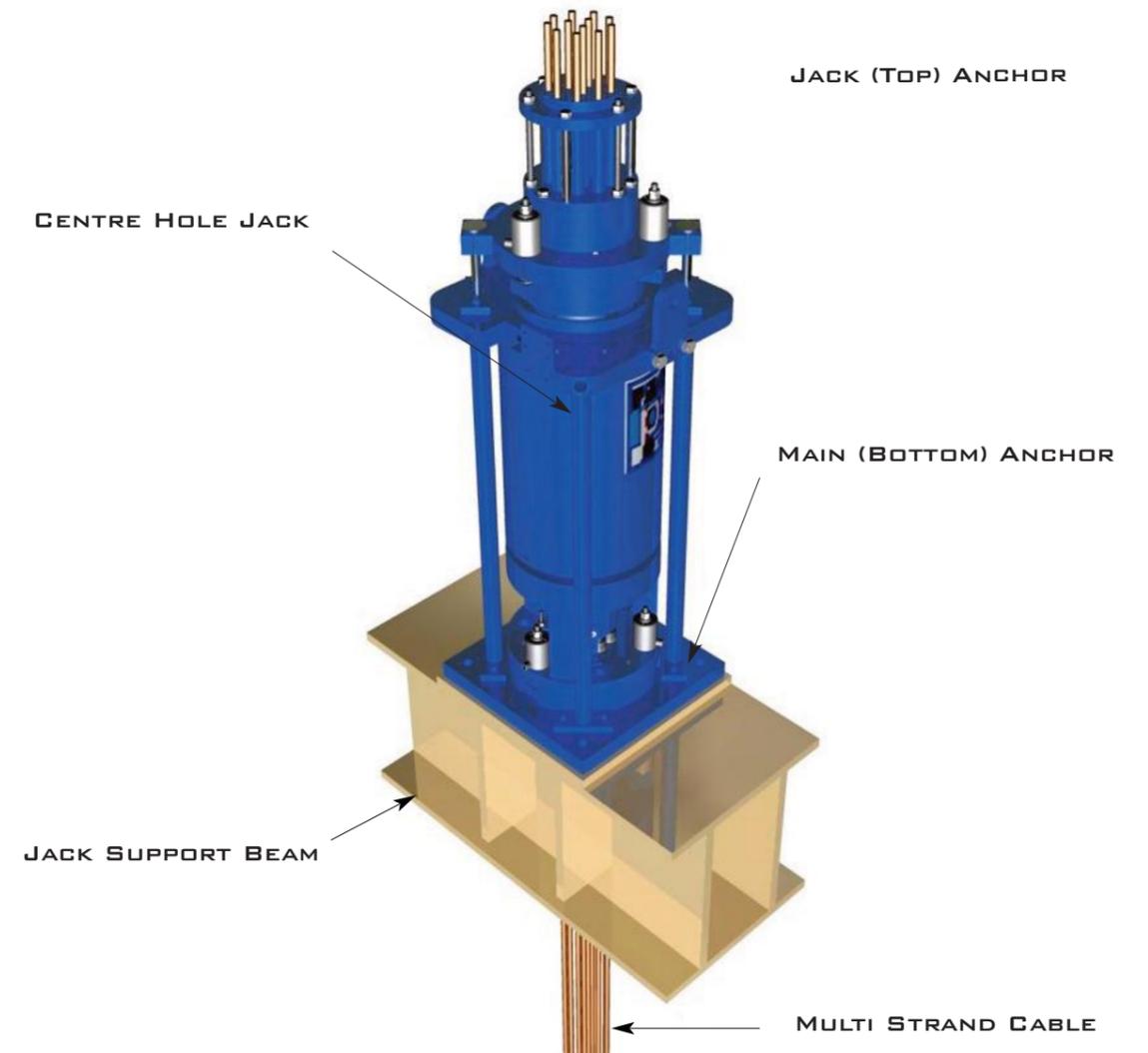
ASSEMBLY



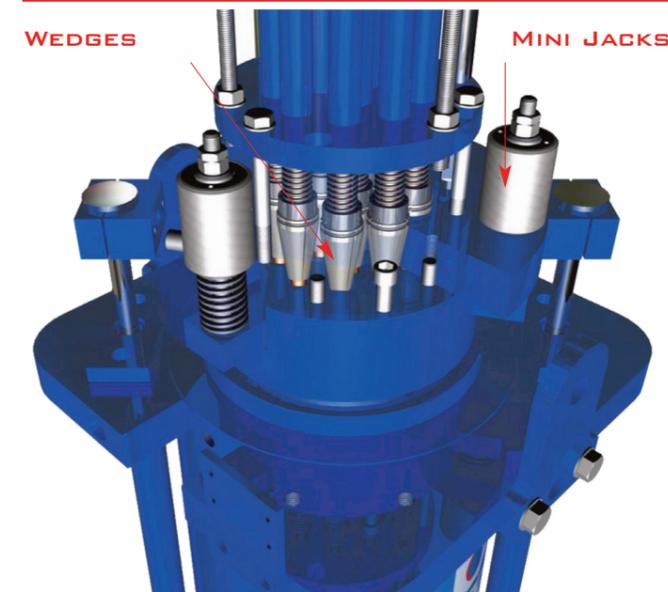
STRAND JACK USES

- Strand jacks are used in the following industries:
- Civil Engineering
 - Offshore (Fabrication Yards and Offshore Sites)
 - Petrochemical & Refinery
 - Power Generation

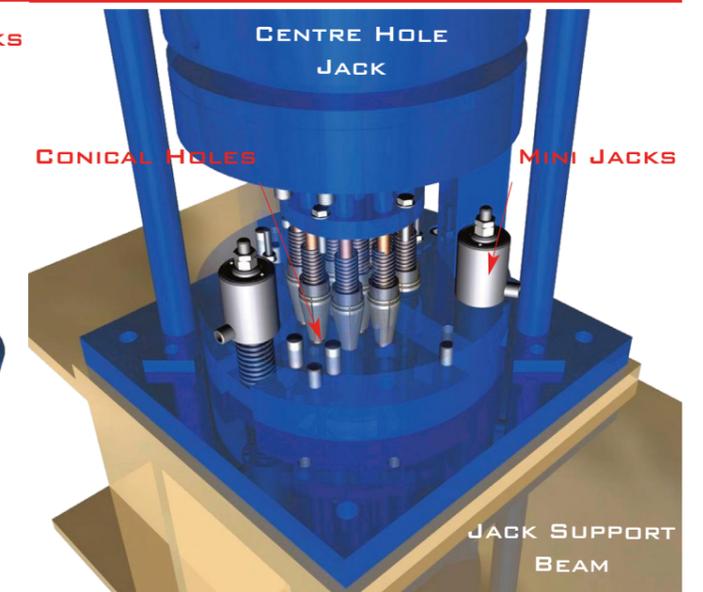
JACK COMPONENTS



JACK (TOP) ANCHOR



MAIN (BOTTOM) ANCHOR



STRAND JACKS

Vitally important to strand jacks are the strands. These are 18mm diameter and are formed from seven wires. The seven wires are wound together to form a helix. After winding they are drawn through a die to compact and harden them. The resulting strand has a guaranteed ultimate tensile strength of 38 tonnes and a factor of safety of 2.5 is normally applied to this to give the safe working load of 15 tonnes. Other factors of safety have been used from 2.0 (short term load during a pulling operation) to 9.0 (inside a nuclear containment area) but 2.5 has been adopted as the industry norm.



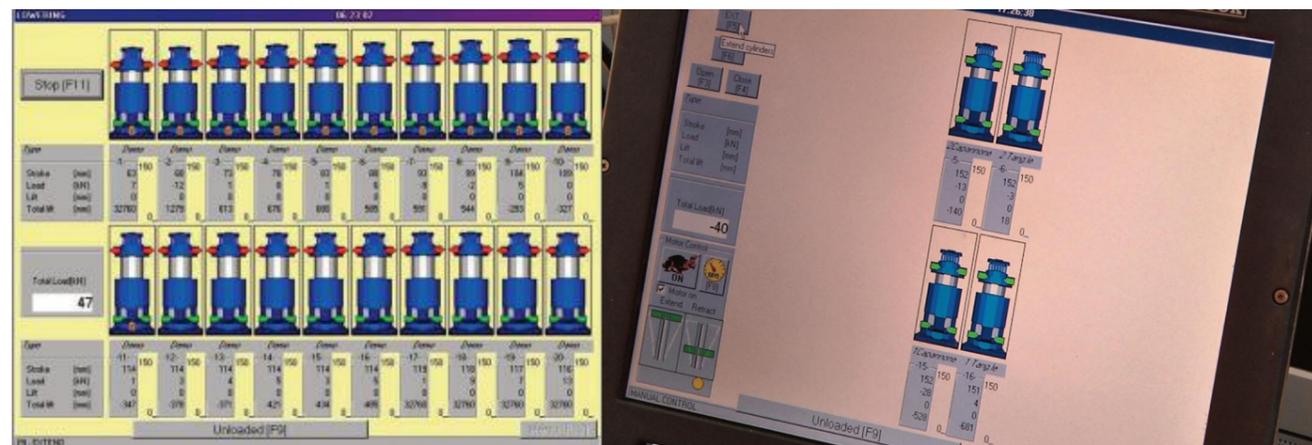
POWER PACKS - REMOTE CONTROL

Power packs provide the oil to the jacks and can be powered by diesel engine or electric motor. All power packs have direct, panel mounted, monitoring and control systems. Further electronic monitoring can display number of lift strokes completed and individual stroke positions at each jack.

Similar control and monitoring facilities can also be positioned remote from the power pack to fully computerised systems, including automatic lifting and lowering capabilities. Maximum pumping pressure, hence jack lifting force, can be pre-set or altered at will by pressure control valves on the panel.

The control system is a PC operated system to operate up to 20 jacks with total synchronisation. The system features are:

- Lift and load sensitive detection
- Overload detection
- Lift counting
- Adjustable equalisation of jack strokes.



TOWERLIFT SYSTEM

Strand jacks are mainly used with Towerlift system. Tower lift is an extremely heavy duty structural support system designed in modular form for ease of assembly, erection.. Strand jacks and tower lift system are specifically used for heavy lift hoisting operations for the Oil & Gas and Civil industry.



INNOVATIVE SOLUTIONS

Innovative solutions for use of strand jacking system in the heavy lifting / lowering operations were conceived by Fagioli during the last decade. For instance, for the installation of mobile barriers to be used as a defence of Venice from flood, Fagioli engineering department planned and built a tailor made gantry launching structure provided with strand jacks on top.



STADIUM

Fagioli strand jacking system is also used for the lifting and tensioning of cables net roof stadium. The system is remotely controlled and the lifting process is effected by tensioning the Upper and Lower Radial Cables. Picture on the right shows the cover cable system of the new Hotspur Tottenham stadium in London by means of 216 strand jacks operating at the same time.



SKIDDING - LOAD OUT

Strand jacking system is used for the load out operation of Oil & gas and offshore modules with a pulling action exerted on dedicated skid tracks. Fagioli engineering department issues detailed documentation for the analysis of forces involved during the skidding operation. Picture on the right refers to the load out operation of a 12,000 ton Topside module onto a barge.



OFFSHORE MODULE LIFTING

In some cases Fagioli is called to execute the lifting of complete offshore jacket and topside modules either for the weighing operation and for the assembly of additional sections underneath. Fagioli strand jacking system (one of the biggest fleet on the market) is able to gain limitless tonnage capacity for this kind of offshore operations.



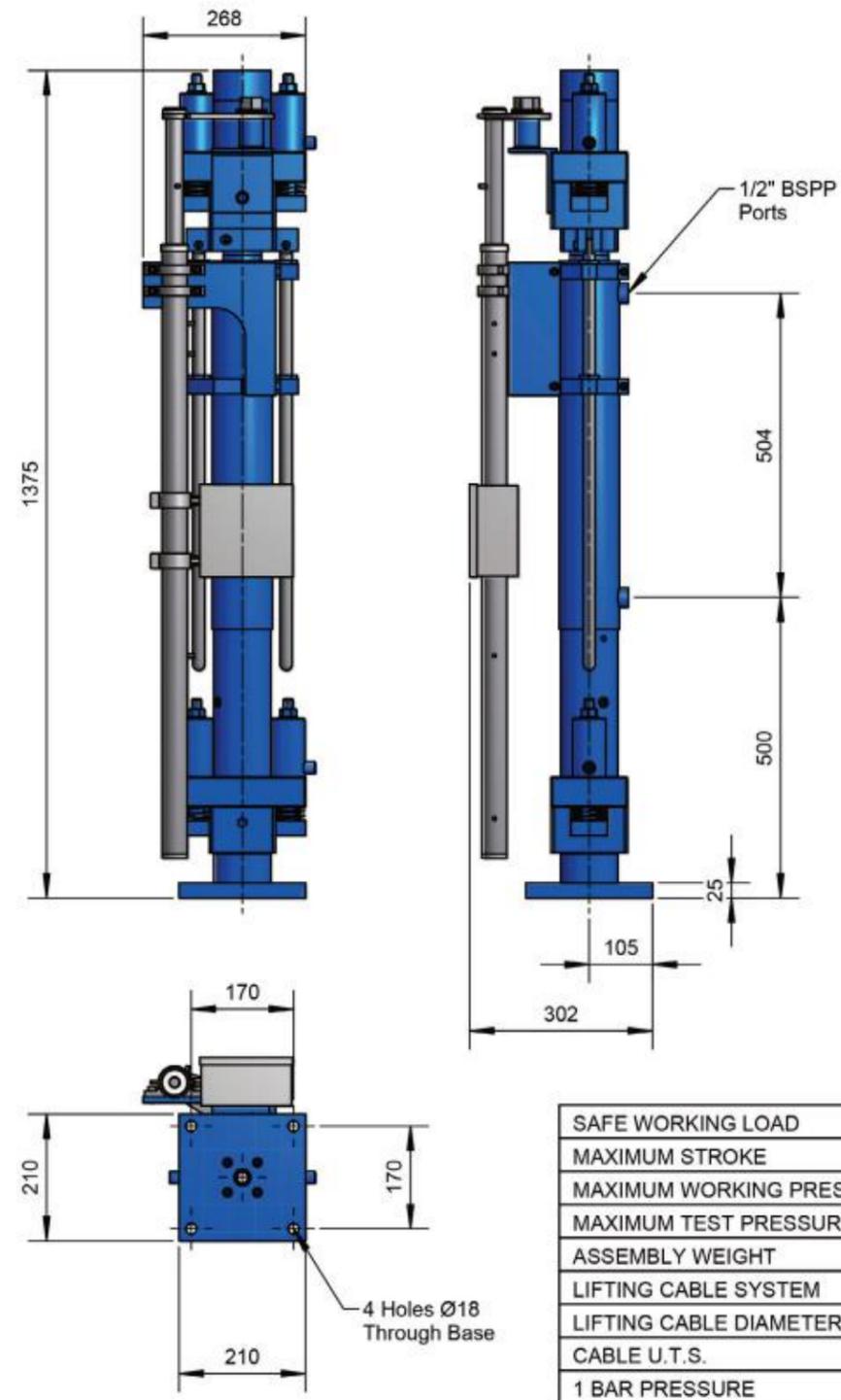
HEAVY INDUSTRY APPLICATION

Strand jacks are also used for the assembly and lifting operations of heavy machinery such as complete blast furnace sections, Goliath crane, ship-to-shore cranes. Safety benefits comes from a steady and remotely controlled operation of the strand jacks guaranteed by the Tower lift system anchored at ground level. Picture refers to the assembly of a complete Goliath crane.





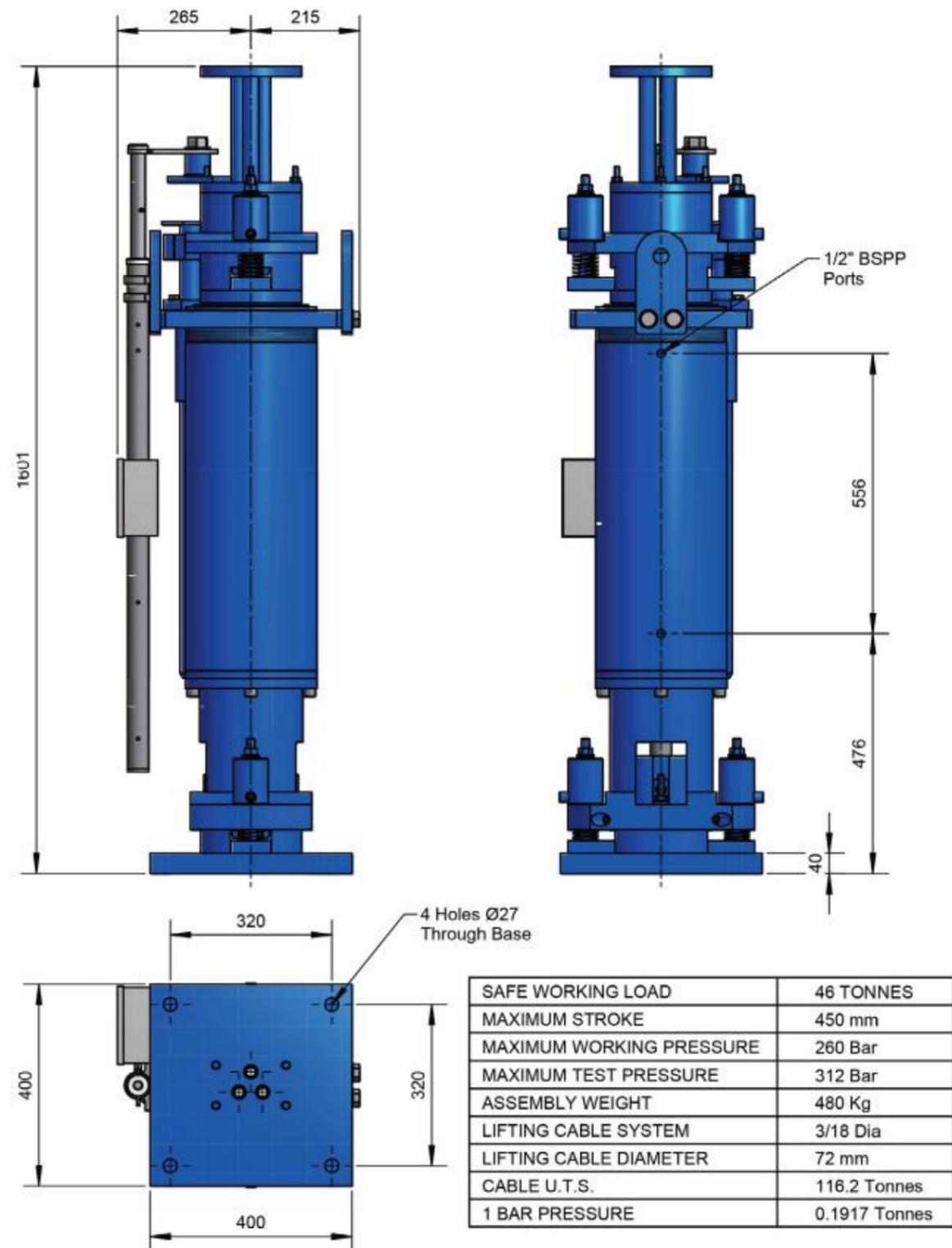
15 TON CAPACITY STRAND JACK



15-750 TON

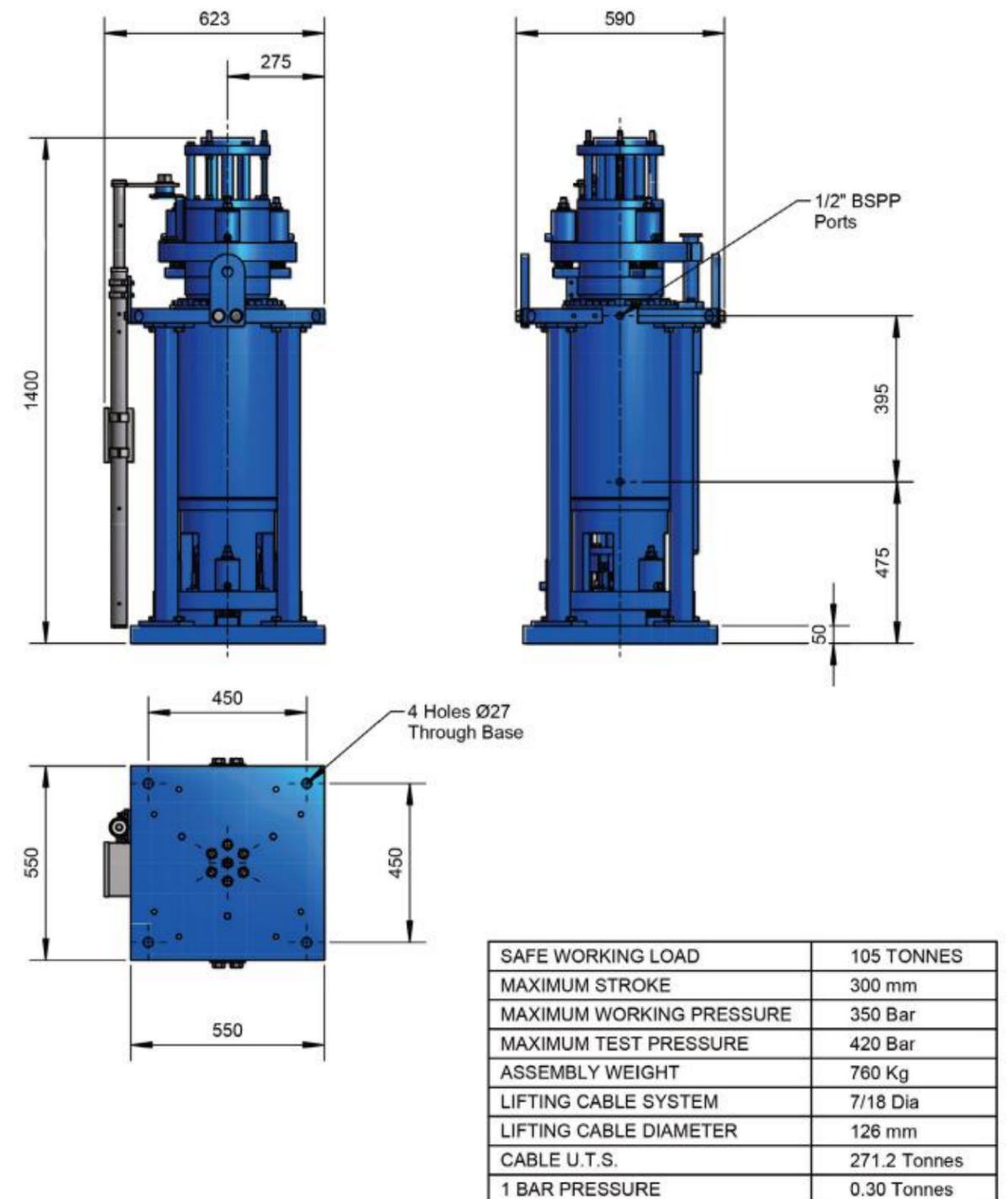
L15 MK2 Jack Data Sheet
Rev 00

50 TON CAPACITY STRAND JACK



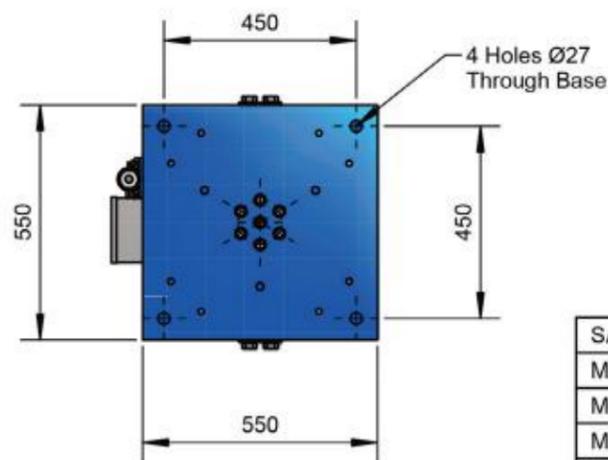
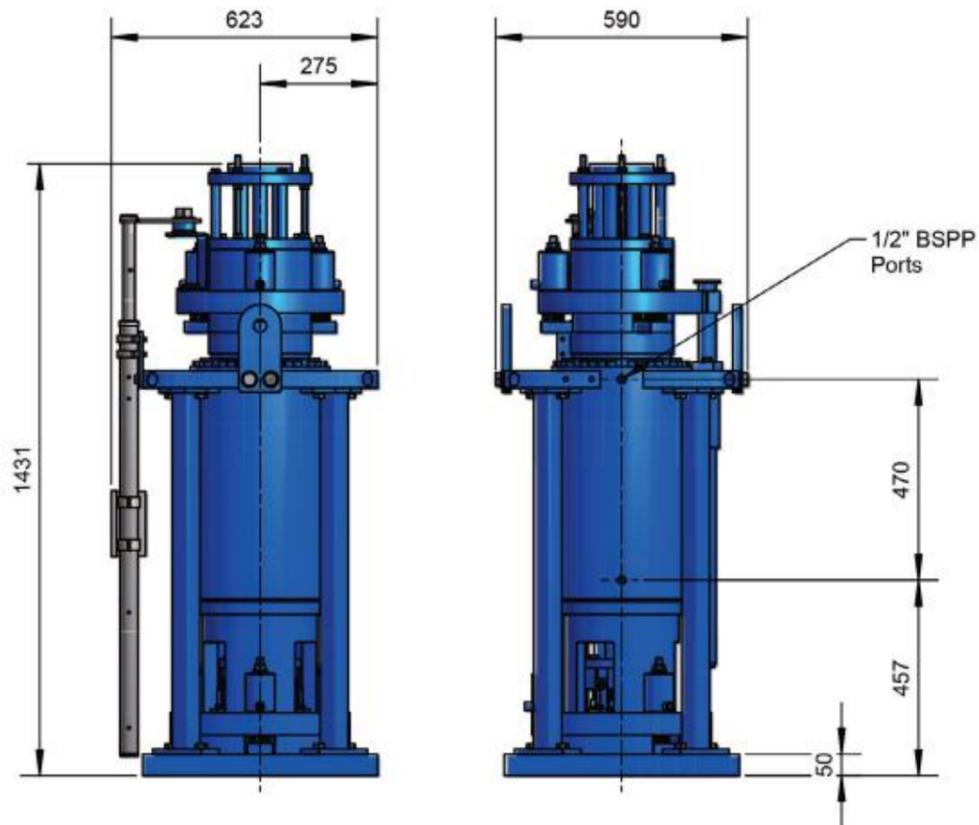
L50 MK2 Jack Data Sheet
Rev 01

100 TON CAPACITY STRAND JACK



L100 MK2 Jack Data Sheet
Rev 00

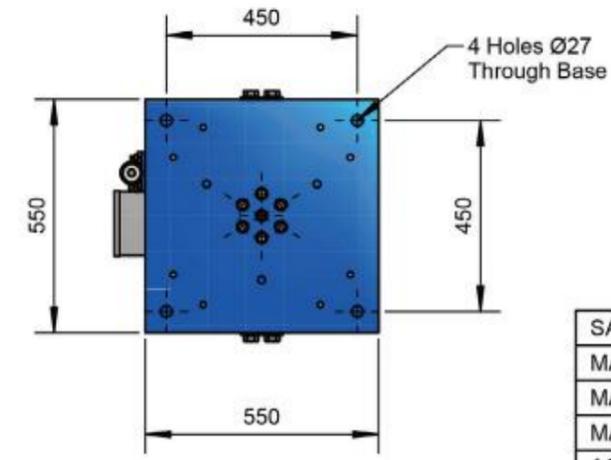
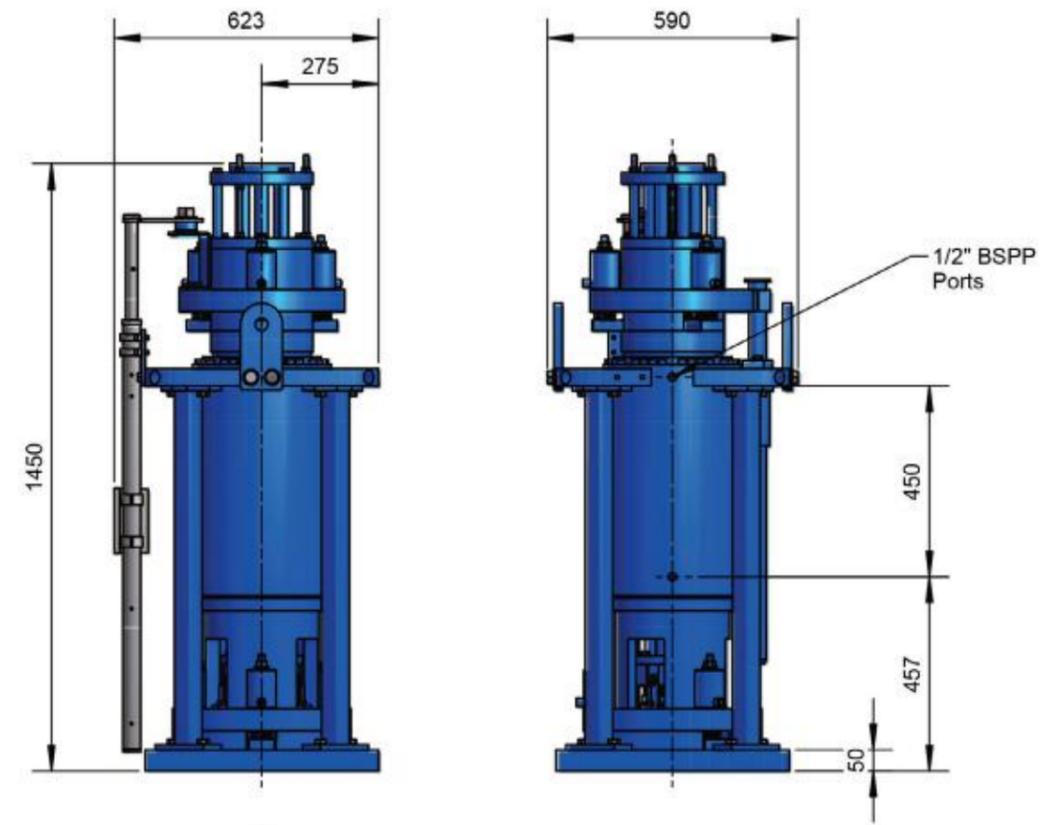
100 TON CAPACITY STRAND JACK



SAFE WORKING LOAD	105 TONNES
MAXIMUM STROKE	300 mm
MAXIMUM WORKING PRESSURE	350 Bar
MAXIMUM TEST PRESSURE	420 Bar
ASSEMBLY WEIGHT	773 Kg
LIFTING CABLE SYSTEM	7/18 Dia
LIFTING CABLE DIAMETER	126 mm
CABLE U.T.S.	271.2 Tonnes
1 BAR PRESSURE	0.30 Tonnes

L100 MK4 Jack Data Sheet
Rev 01

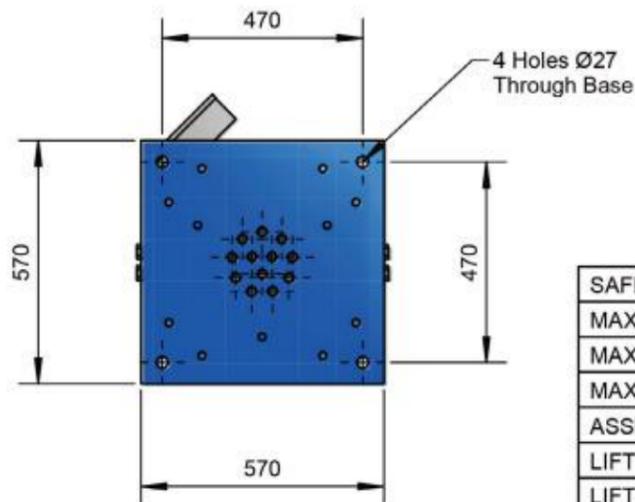
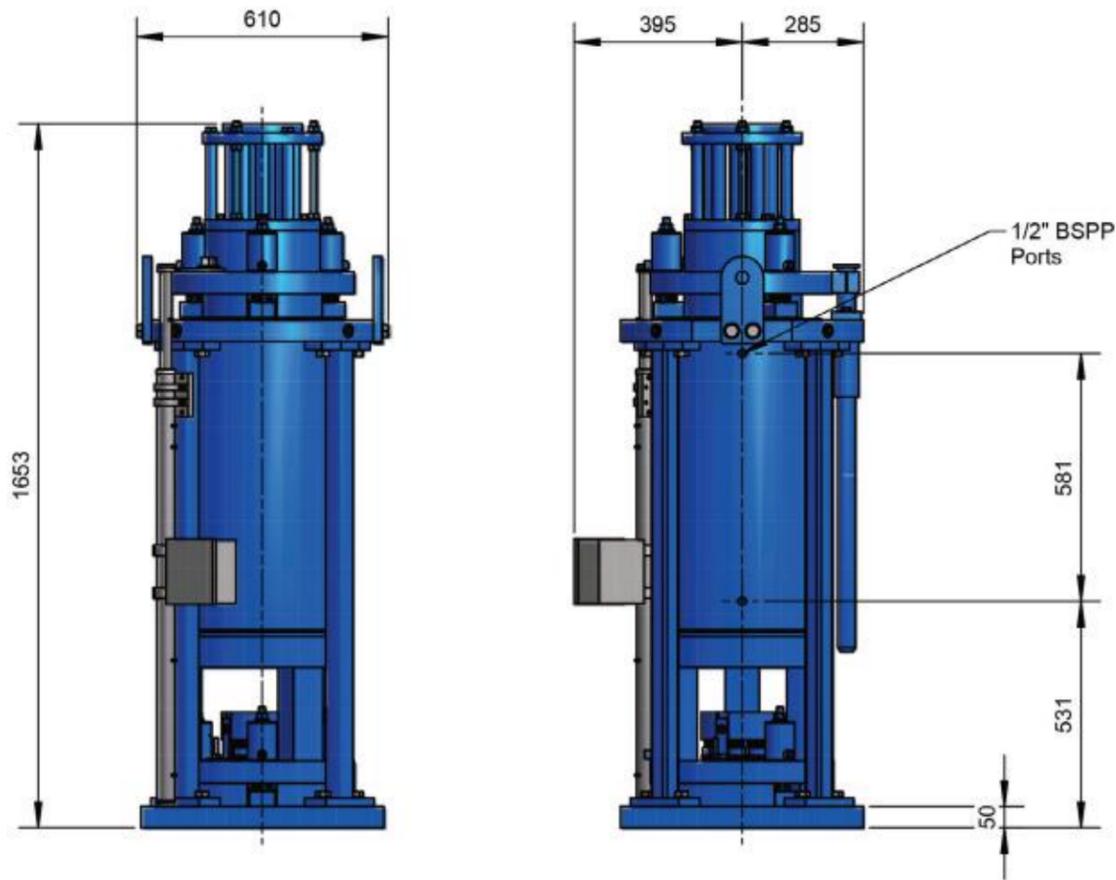
100 TON CAPACITY STRAND JACK



SAFE WORKING LOAD	105 TONNES
MAXIMUM STROKE	300 mm
MAXIMUM WORKING PRESSURE	350 Bar
MAXIMUM TEST PRESSURE	420 Bar
ASSEMBLY WEIGHT	770 Kg
LIFTING CABLE SYSTEM	7/18 Dia
LIFTING CABLE DIAMETER	126 mm
CABLE U.T.S.	271.2 Tonnes
1 BAR PRESSURE	0.30 Tonnes

L100 MK5 Jack Data Sheet
Rev 00

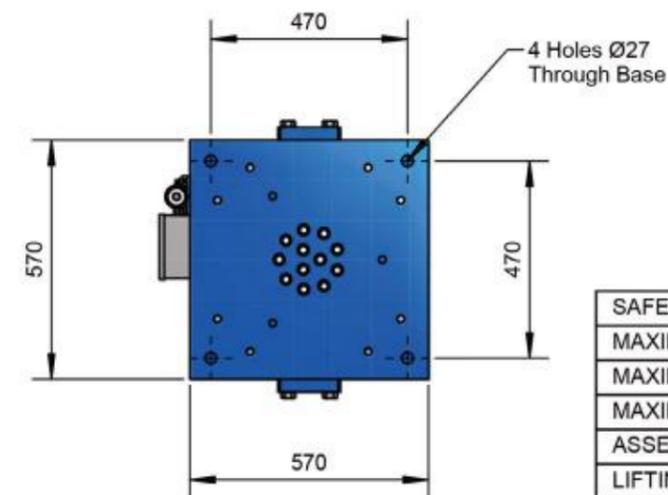
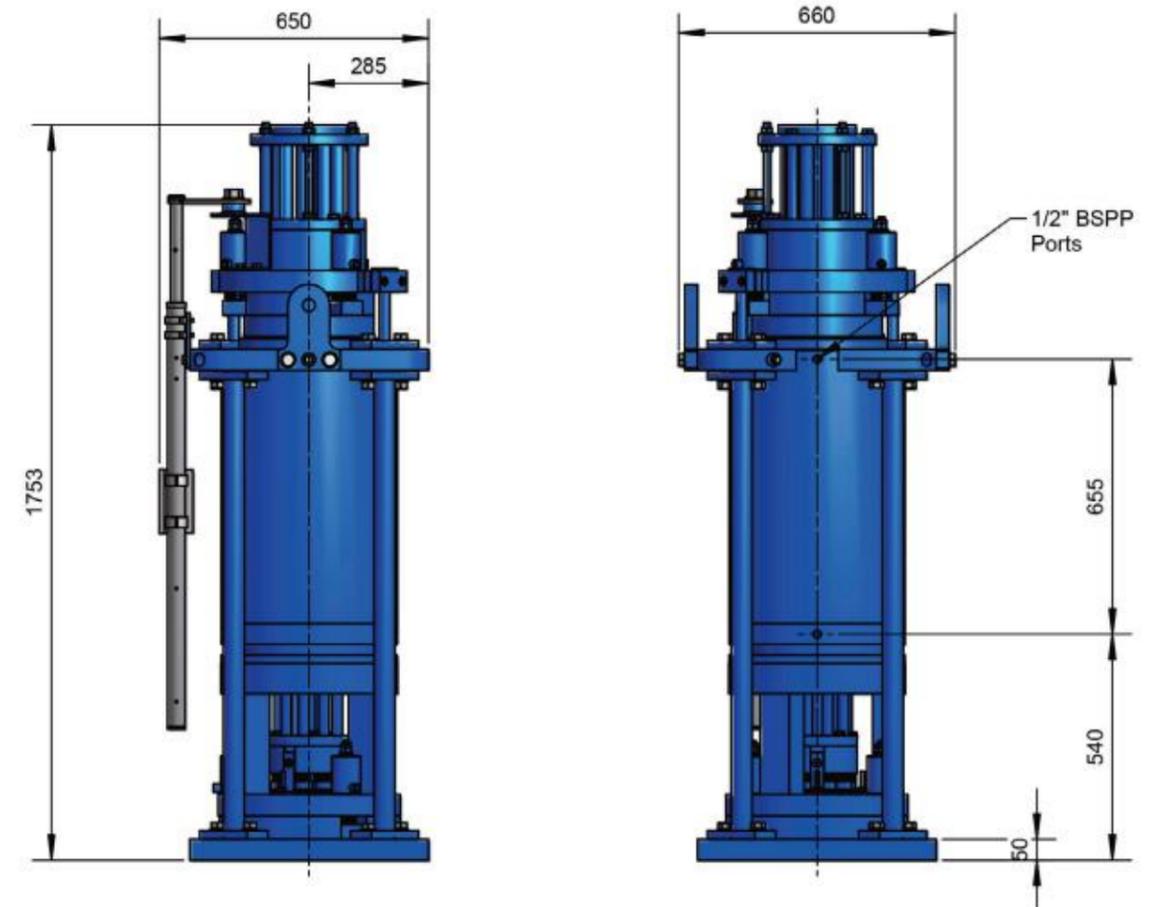
180 TON CAPACITY STRAND JACK



SAFE WORKING LOAD	165 TONNES
MAXIMUM STROKE	500 mm
MAXIMUM WORKING PRESSURE	350 Bar
MAXIMUM TEST PRESSURE	420 Bar
ASSEMBLY WEIGHT	1030 Kg
LIFTING CABLE SYSTEM	12/18 Dia
LIFTING CABLE DIAMETER	165 mm
CABLE U.T.S.	465 Tonnes
1 BAR PRESSURE	0.474 Tonnes

L180 MK2 Jack Data Sheet
Rev 01

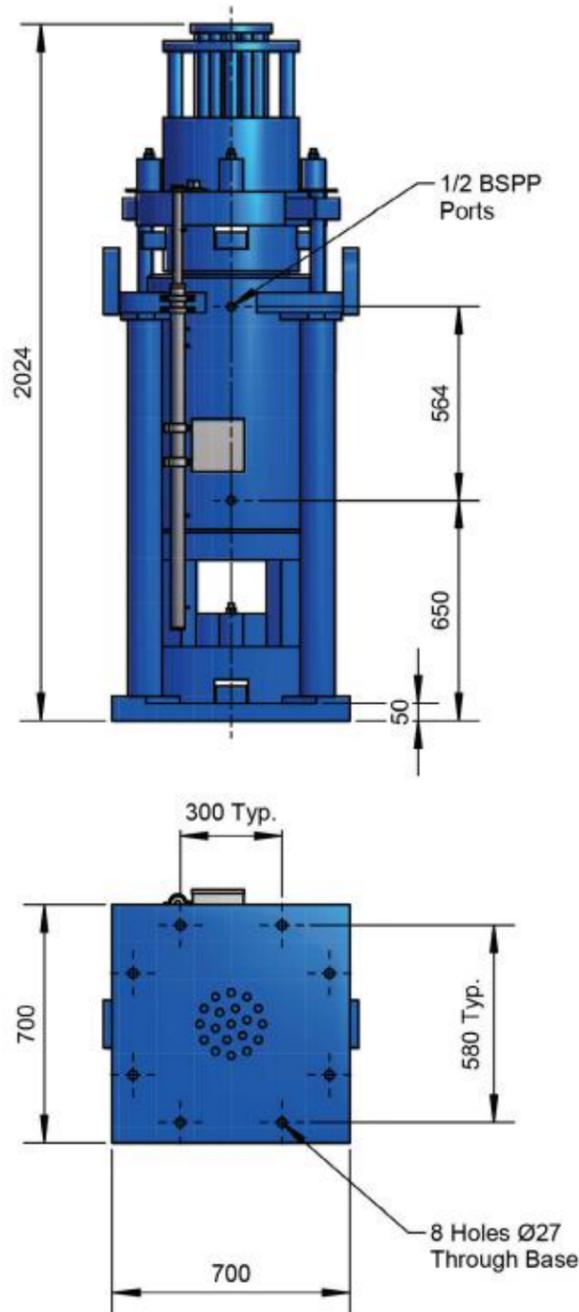
180 TON CAPACITY STRAND JACK



SAFE WORKING LOAD	183 TONNES
MAXIMUM STROKE	450 mm
MAXIMUM WORKING PRESSURE	308 Bar
MAXIMUM TEST PRESSURE	370 Bar
ASSEMBLY WEIGHT	1212 Kg
LIFTING CABLE SYSTEM	12/18 Dia
LIFTING CABLE DIAMETER	168 mm
CABLE U.T.S.	465 Tonnes
1 BAR PRESSURE	0.5937 Tonnes

L180 MK4 Jack Data Sheet
Rev 01

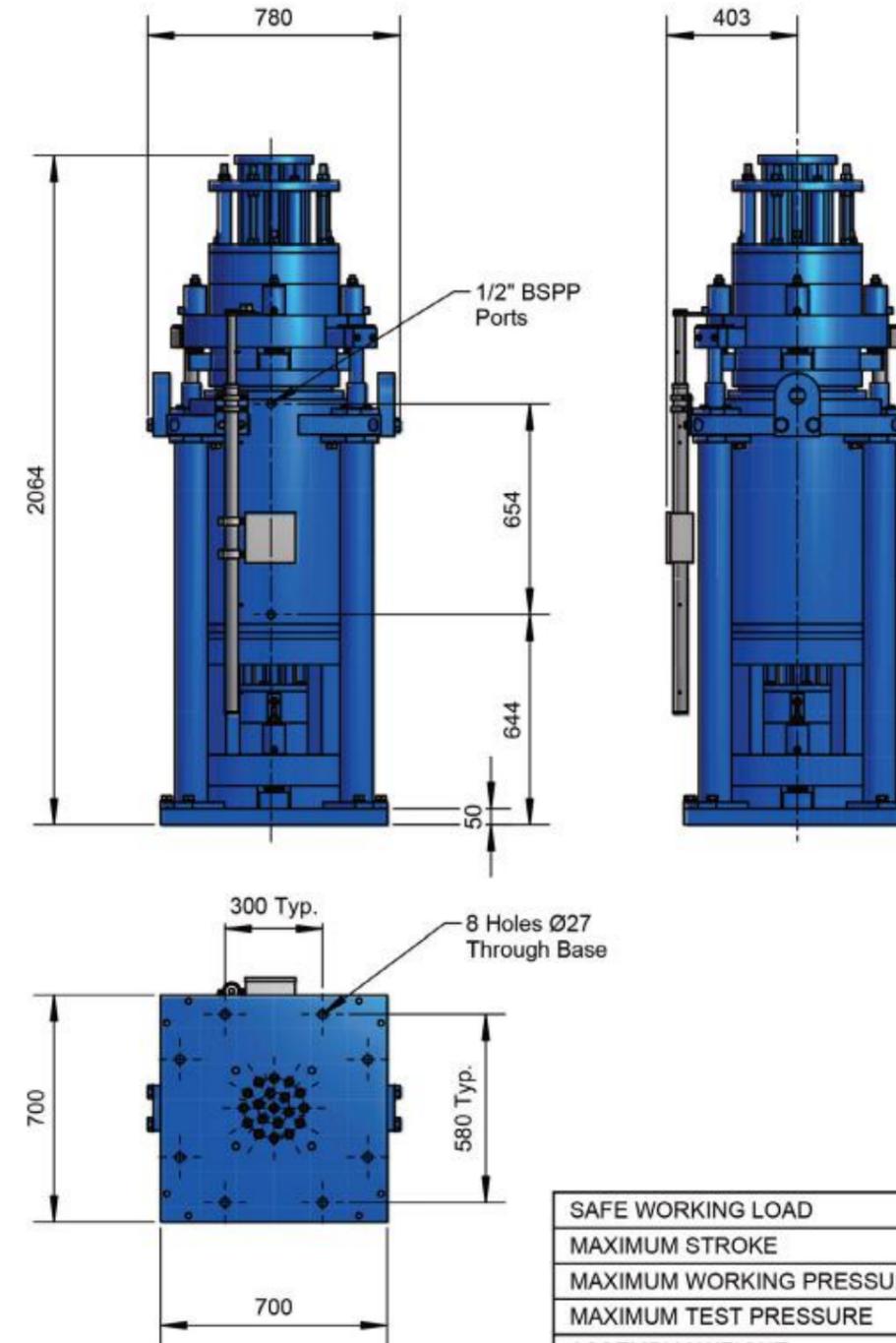
300 TON CAPACITY STRAND JACK



SAFE WORKING LOAD	295 TONNES
MAXIMUM STROKE	450 mm
MAXIMUM WORKING PRESSURE	350 Bar
MAXIMUM TEST PRESSURE	420 Bar
ASSEMBLY WEIGHT	2497 Kg
LIFTING CABLE SYSTEM	19/18 Dia
LIFTING CABLE DIAMETER	205 mm
CABLE U.T.S.	736.2 Tonnes
1 BAR PRESSURE	0.892 Tonnes

L300 MK2 Jack Data Sheet
Rev 01

300 TON CAPACITY STRAND JACK

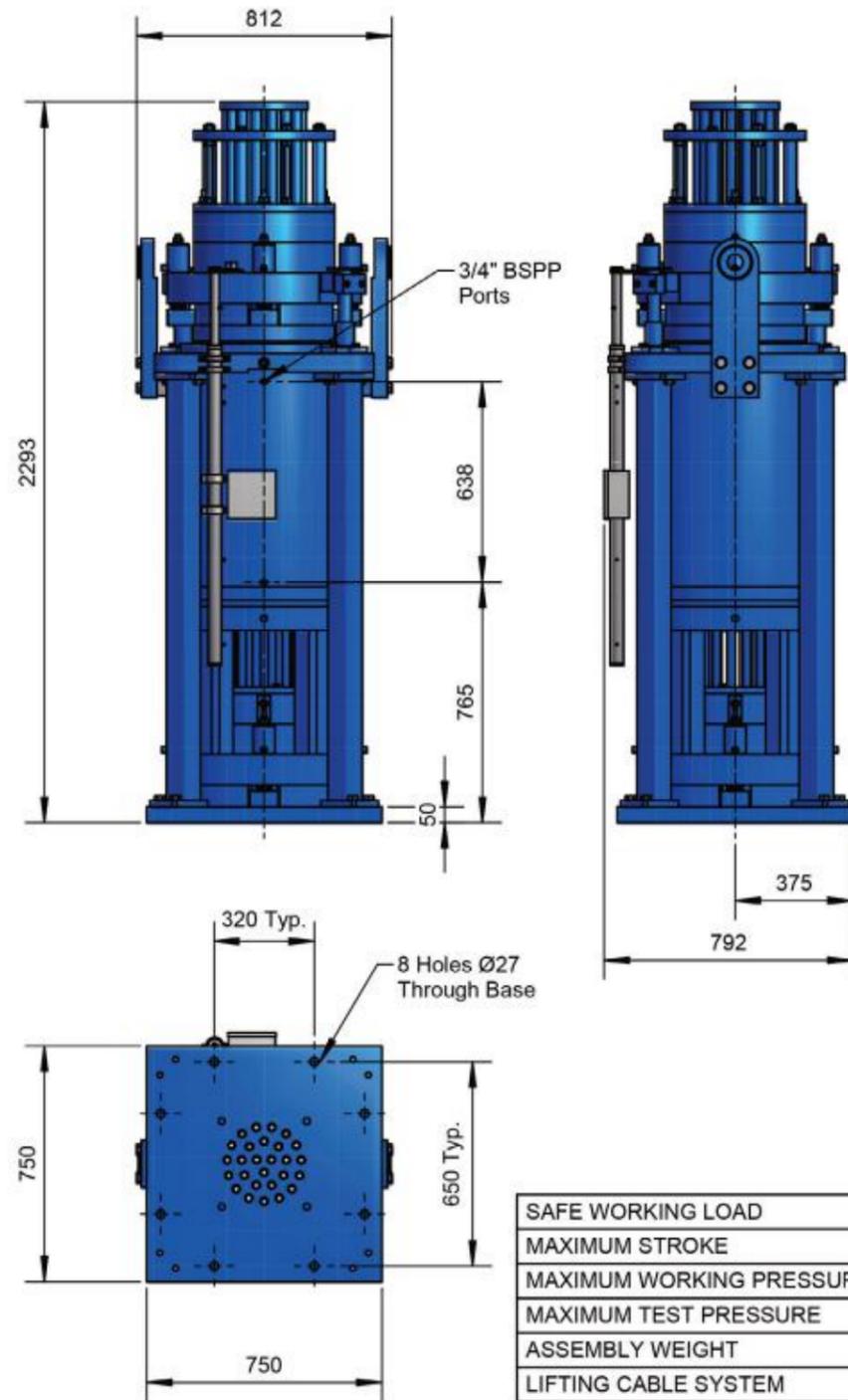


SAFE WORKING LOAD	295 TONNES
MAXIMUM STROKE	450 mm
MAXIMUM WORKING PRESSURE	308 Bar
MAXIMUM TEST PRESSURE	370 Bar
ASSEMBLY WEIGHT	2480 Kg
LIFTING CABLE SYSTEM	19/18 Dia
LIFTING CABLE DIAMETER	205 mm
CABLE U.T.S.	736.2 Tonnes
1 BAR PRESSURE	0.994 Tonnes

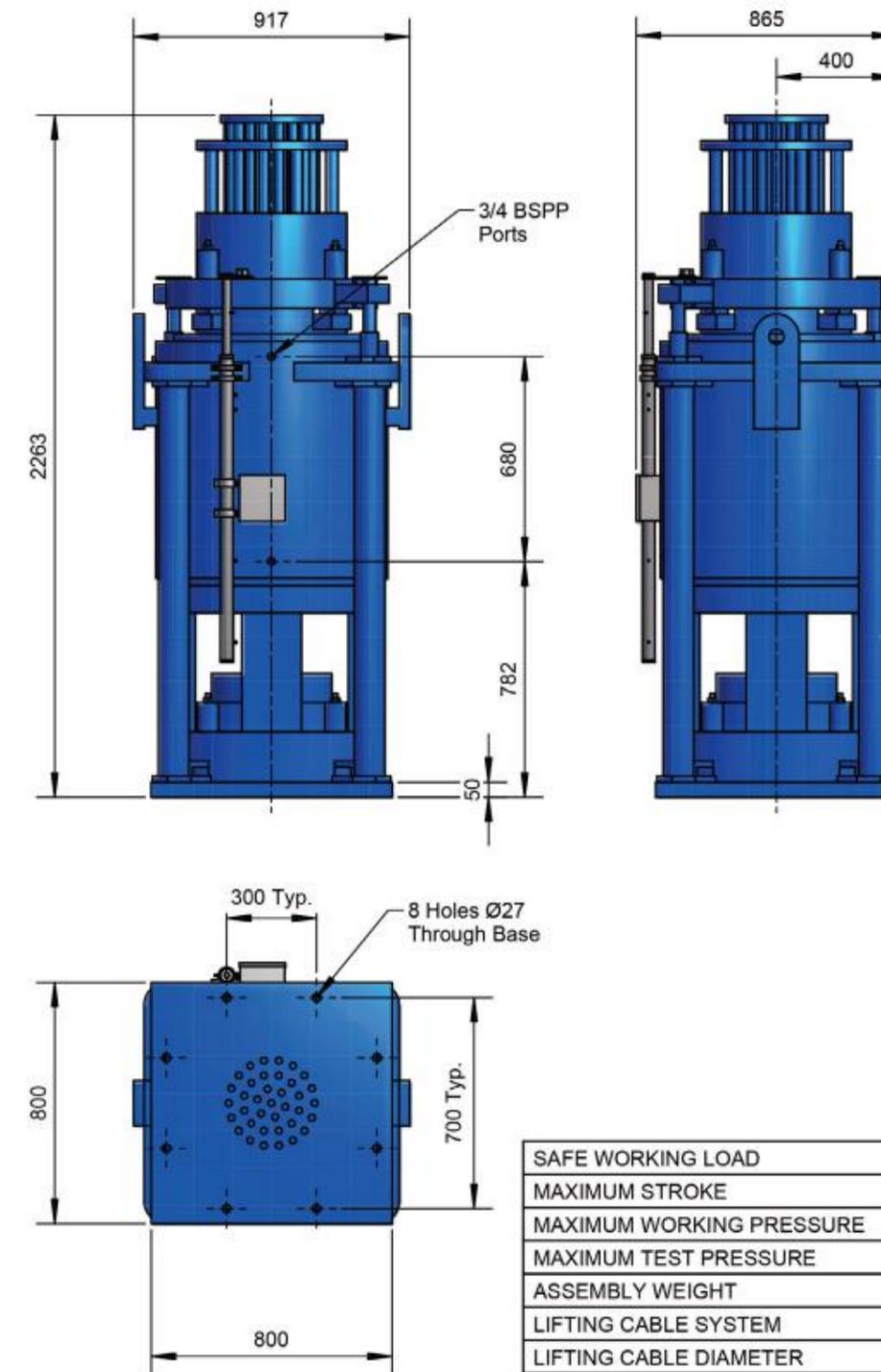
L300 MK4 Jack Data Sheet
Rev 00

450 TON CAPACITY STRAND JACK

600 TON CAPACITY STRAND JACK



SAFE WORKING LOAD	418 TONNES
MAXIMUM STROKE	450 mm
MAXIMUM WORKING PRESSURE	308 Bar
MAXIMUM TEST PRESSURE	370 Bar
ASSEMBLY WEIGHT	3320 Kg
LIFTING CABLE SYSTEM	27/18 Dia
LIFTING CABLE DIAMETER	256 mm
CABLE U.T.S.	1046.2 Tonnes
1 BAR PRESSURE	1.4842 Tonnes

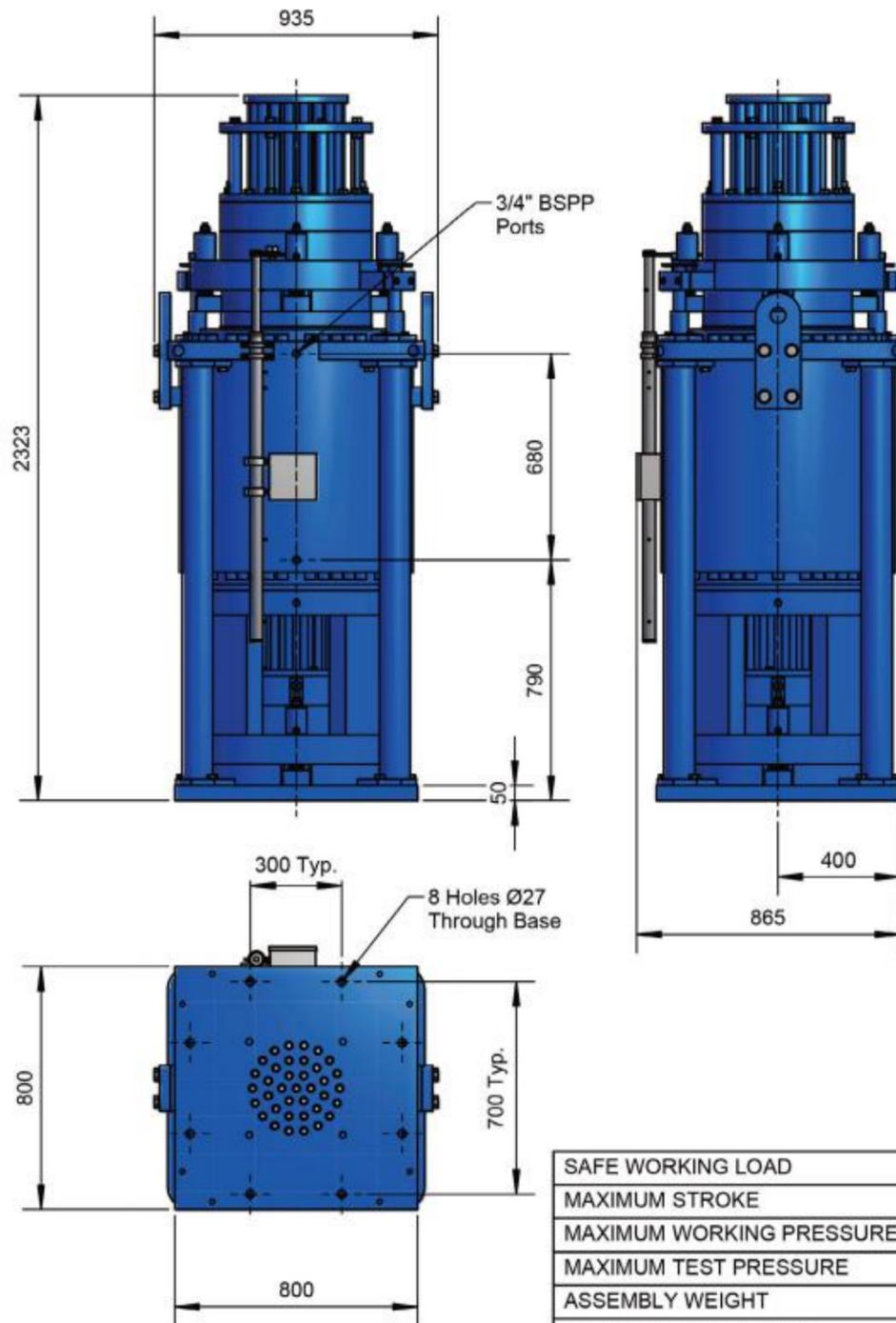


SAFE WORKING LOAD	573 TONNES
MAXIMUM STROKE	450 mm
MAXIMUM WORKING PRESSURE	308 Bar
MAXIMUM TEST PRESSURE	370 Bar
ASSEMBLY WEIGHT	4420 Kg
LIFTING CABLE SYSTEM	37/18 Dia
LIFTING CABLE DIAMETER	305 mm
CABLE U.T.S.	1433.7 Tonnes
1 BAR PRESSURE	1.9480 Tonnes

L450 MK4 Jack Data Sheet
Rev 00

L600 MK3 Jack Data Sheet
Rev 00

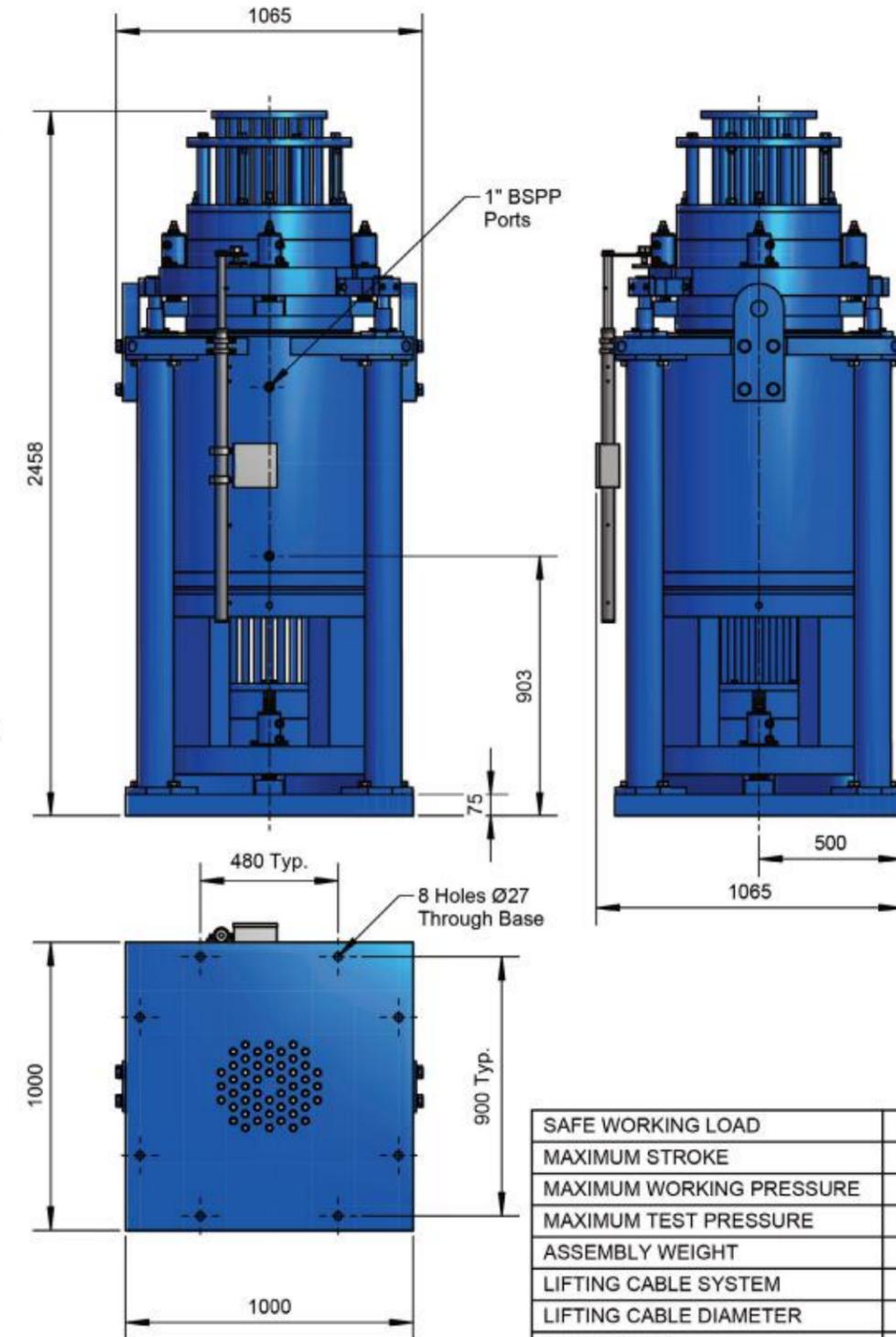
600 TON CAPACITY STRAND JACK



SAFE WORKING LOAD	573 TONNES
MAXIMUM STROKE	450 mm
MAXIMUM WORKING PRESSURE	308 Bar
MAXIMUM TEST PRESSURE	370 Bar
ASSEMBLY WEIGHT	4520 Kg
LIFTING CABLE SYSTEM	37/18 Dia
LIFTING CABLE DIAMETER	305 mm
CABLE U.T.S.	1433.7 Tonnes
1 BAR PRESSURE	1.9839 Tonnes

L600 MK5 Jack Data Sheet
Rev 00

750 TON CAPACITY STRAND JACK



SAFE WORKING LOAD	757 TONNES
MAXIMUM STROKE	450 mm
MAXIMUM WORKING PRESSURE	308 Bar
MAXIMUM TEST PRESSURE	370 Bar
ASSEMBLY WEIGHT	6480 Kg
LIFTING CABLE SYSTEM	50/18 Dia
LIFTING CABLE DIAMETER	368 mm
CABLE U.T.S.	1937.4 Tonnes
1 BAR PRESSURE	2.460 Tonnes

L750 MK1 Jack Data Sheet
Rev 01

STRAND JACK SYSTEM - ADVANTAGES

- Comprehensive, completely automatic, remote control and monitoring;
- Mechanically fail-safe gripping mechanisms;
- Pre-set overload protection;
- Automatic synchronisation of lifting speeds irrespective of loads;
- Ample operating speeds;
- Load is held mechanically not hydraulically at any time movement is stopped;
- Movement can be stopped and held indefinitely at any point in jack stroke;
- Extremely precise adjustment of the lift for setting of weld gaps or the fitting of steelwork connecting bolts;
- Automatic lifting and lowering without any personnel in attendance at the jacks;
- Easy re-distribution of the jack loads;
- Minimal maintenance of gripping mechanisms;
- Gripping mechanisms are fully accessible at all times;



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