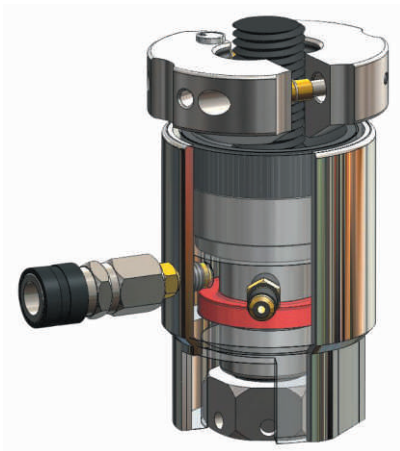


TSS SERIES SUB SEA BOLT TENSIONERS

TSS Series Bolt Tensioners are specially designed for sub sea applications. These Tensioners are suitable for higher pressure rating flanges also. It's ergonomic design makes it very easy to handle and use by divers under the harsh sea conditions. These tensioners are designed to provide a wide range of flexibility, covering stud sizes 3/4" to 3.1/2" (M-18 to M-85).

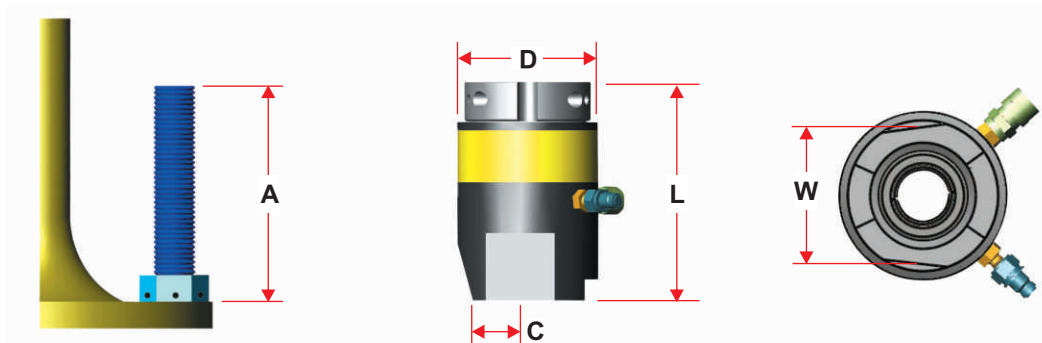
The tool consists of two basic parts - Tensioning Unit and Puller Nut as shown below:



Features

- **High Strength Stainless Steel Construction:** The Complete tool is made from high strength stainless steel for use in corrosive sea environment and to minimize maintenance.
- **Versatile Design:** Designed to provide a wide range of flexibility, covering stud sizes 3/4" to 3.1/2" (M-18 to M-85) using just 8 load cells.
- **Higher Load generation:** Generates higher load making it suitable for higher pressure rating flanges (API 170 - 10K).
- **Long Stroke And Stroke Indication:** All tensioners have a 25mm long stroke with piston marked with fluorescent rings for indication of stroke and over stroke limit.
- **Safe Design in event of Piston 'Over Stroke':** Designed to release high pressure hydraulic oil inwards in the event of over-stroke, thus saving the operator from any potential exposure.
- **Multi Tensioning:** The tensioning unit cell is provisioned with two connections that act as a manifold for multi tensioning applications.
- **Anti Roll, Composite Material Seals:** Fitted with Anti Roll, Composite Material seals for longer life and high reliability. The seals used have a low coefficient of friction so that the piston can be returned to a closed position with minimal effort. Sub Sea tensioners can be provided with machined PU (poly urethane) seals if requested by the customer.
- **Split Nut:** Optional Split Nut available for fast and easy fitment which ensures most efficient use of expensive diver time.
- **Safe Handling:** Provisioned with detachable hooks and strap for easy handling under water.
- **Non Slip Tool Surface:** Knurled and formed surface allows easy handling.
- **Fluorescent band:** Fluorescent band provided on load cell body for easy tool identification in poor visibility conditions.

TSS SERIES SUB SEA BOLT TENSIONERS



Specifications

| Model No. | | Bolt Size | | Max Load | | Hyd Area | | D | C | W | L | A | Weight |
|-----------|-------------|-----------|-----|----------|------|-----------------|-----------------|-----|----|-----|-----|-----|--------|
| Load Cell | Puller Nut. | inch | mm | Ton | kN | in ² | mm ² | mm | mm | mm | mm | mm | Kg. |
| TSS-03 | PT03-0.12 | 3/4" | | 21.2 | 188 | 1.95 | 1256 | 65 | 30 | 46 | 100 | 122 | 3.6* |
| | PT03-M20 | | M20 | | | | | | | | | | 0.4 |
| | PT03-0.14 | 7/8" | | | | | | | | | | | 0.4 |
| TSS-04 | PT04-M24 | | | 34.7 | 309 | 3.19 | 2061 | 83 | 30 | 64 | 123 | 153 | 6.1* |
| | PT04-1.00 | 1 | | | | | | | | | | | 0.8 |
| | PT04-M27 | | M27 | | | | | | | | | | 0.8 |
| | PT04-1.02 | 1.1/8" | | | | | | | | | | | 0.8 |
| | PT04-M30 | | M30 | | | | | | | | | | 0.8 |
| TSS-05 | PT05-1.04 | 1.1/4 | | 54.2 | 482 | 4.98 | 3215 | 98 | 30 | 78 | 138 | 171 | 7.7* |
| | PT05-M33 | | M33 | | | | | | | | | | 1.4 |
| | PT05-1.06 | 1.3/8 | | | | | | | | | | | 1.4 |
| | PT05-M36 | | M36 | | | | | | | | | | 1.4 |
| TSS-07 | PT07-1.08 | 1.1/2 | | 79.4 | 706 | 7.30 | 4710 | 113 | 30 | 93 | 147 | 186 | 11.3* |
| | PT07-M39 | | M39 | | | | | | | | | | 2.1 |
| | PT07-1.10 | 1.5/8 | | | | | | | | | | | 2.1 |
| | PT07-M42 | | M42 | | | | | | | | | | 2.1 |
| TSS-11 | PT11-1.12 | 1.3/4 | | 119.1 | 1060 | 10.95 | 7065 | 136 | 60 | 113 | 152 | 197 | 19.0* |
| | PT11-M45 | | M45 | | | | | | | | | | 3.5 |
| | PT11-1.14 | 1.7/8 | | | | | | | | | | | 3.5 |
| | PT11-M48 | | M48 | | | | | | | | | | 3.5 |
| | PT11-2.00 | 2" | | | | | | | | | | | 3.8 |
| | PT11-M52 | | M52 | | | | | | | | | | 3.8 |
| TSS-15 | PT15-M56 | | | 174.7 | 1554 | 16.06 | 10362 | 162 | 60 | 141 | 171 | 229 | 31.4* |
| | PT15-2.04 | 2.1/4" | | | | | | | | | | | 7.7 |
| | PT15-M60 | | M60 | | | | | | | | | | 7.7 |
| | PT15-2.08 | 2.1/2" | | | | | | | | | | | 8.5 |
| | PT15-M64 | | M64 | | | | | | | | | | 8.5 |
| TSS-20 | PT20-2.12 | 2.3/4" | | 219.4 | 1952 | 20.17 | 13011 | 190 | 60 | 166 | 194 | 266 | 45.0* |
| | PT20-M72 | | M72 | | | | | | | | | | 9.5 |
| | PT20-M76 | | M76 | | | | | | | | | | 11.0 |
| | PT20-3.00 | 3" | | | | | | | | | | | 11.0 |
| TSS-27 | PT27-M80 | | | 268.7 | 2390 | 24.70 | 15935 | 214 | 60 | 191 | 208 | 288 | 62.5* |
| | PT27-3.04 | 3.1/4" | | | | | | | | | | | 13.0 |
| | PT27-M85 | | M85 | | | | | | | | | | 15.0 |
| | PT27-3.08 | 3.1/2" | | | | | | | | | | | 15.0 |

* Weight of Load Cell + Puller Nut.