

#### HYDRAULIC BOLT TENSIONERS

# MT-BT · BTS · SST

## TOPSIDE · SPRING RETURN · SUBSEA RANGE CATALOGUE

MT-BT



### Pure axial preload, from M20 to M150.

Bolt tensioning stretches the stud with a hydraulic load cell instead of turning the nut: no torsion, no friction under the nut, an accurate and repeatable preload on every bolt of the flange. Three series share one working principle at 1,500 bar: the MT-BT topside range with interchangeable adaptor kits, the MT-BTS spring-return range for fast cycles, and the stainless-steel MT-SST subsea range for diver-operated work. Twin manifold connections on every load cell allow any number of tools to run simultaneously from one pump.

- Pure axial load — zero torsion on the stud
- Studs from M20 to M150 (3/4" – 5.3/4")
- High-strength AISI 4340 alloy steel construction
- 1,500 bar maximum working pressure
- Integral stroke indicator with over-stroke red line
- Safe internal pressure release on over-stroke
- Floating piston tolerates 2° misalignment at full load
- Multi-tensioning: 100% or 50% tool coverage

MAUCOTOOLS · HYDRAULIC BOLT TENSIONER RANGE

**M20 – M150**  
STUD RANGE

**30**  
MODELS · 3 SERIES

**4,754**  
KN MAX LOAD

**1,500**  
BAR WORKING PRESSURE

**15 / 25**  
MM STROKE

## THE RANGE

three series · one hydraulic platform



**MT-BT**  
Topside  
M20 – M150 · 339 – 4,754 kN  
12 models



**MT-BTS**  
Spring Return  
M24 – M110 · 330 – 3,768 kN  
10 models



**MT-SST**  
Subsea · Stainless  
M20 – M85 · 188 – 2,390 kN  
8 models

### TYPICAL APPLICATIONS

PIPELINE FLANGES · HEAT EXCHANGERS · PRESSURE VESSELS · COMPRESSOR COVERS · BOILER  
FEED PUMPS · OFFSHORE & SUBSEA · WIND ENERGY · ANCHOR BOLTS

## HYDRAULIC BOLT TENSIONERS

## MT-BT

## TOPSIDE

MT-BT



MAUCOTOOLS · MT-BT SERIES

## The core of the range — twelve load cells, M20 to M150.

The MT-BT topside series covers studs from M20 to M150 with twelve load cells and a 15 mm stroke. Each cell accepts interchangeable adaptor kits — threaded puller, bridge and nut-rotating socket — so one tool covers several stud sizes by changing the kit only. The AISI 4340 alloy body, anti-roll composite seals and floating piston deliver long, trouble-free service on pipeline flanges, exchangers, vessels and compressor covers.

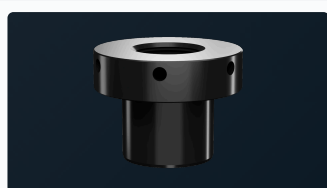
- 15 mm stroke with integral stroke indicator
- Adaptor kits swap in minutes — no tool change
- Anti-roll composite seals, low-friction retraction
- Twin quick-connect ports act as a manifold
- Internal high-pressure relief on over-stroke
- Floating piston — 2° tilt without load loss

## TECHNICAL SPECIFICATIONS

| MODEL      | BOLT RANGE                    | MAX LOAD (KN) | HYDRAULIC AREA (MM <sup>2</sup> ) | O.D. (MM) | WEIGHT (KG)* |
|------------|-------------------------------|---------------|-----------------------------------|-----------|--------------|
| MT-BT-100  | M20 – M24 · 3/4" – 1"         | 339           | 2,257                             | 84        | 3.5          |
| MT-BT-200  | M27 – M36 · 1.1/8" – 1.3/8"   | 397           | 2,649                             | 98        | 4.5          |
| MT-BT-300  | M33 – M39 · 1.1/4" – 1.1/2"   | 639           | 4,259                             | 115       | 5.9          |
| MT-BT-400  | M36 – M42 · 1.3/8" – 1.3/4"   | 721           | 4,808                             | 128       | 7.7          |
| MT-BT-500  | M42 – M52 · 1.5/8" – 2"       | 942           | 6,280                             | 145       | 11.4         |
| MT-BT-600  | M48 – M56 · 1.7/8" – 2.1/4"   | 1,354         | 9,028                             | 165       | 14.8         |
| MT-BT-700  | M56 – M68 · 2.1/4" – 2.1/2"   | 1,651         | 11,006                            | 180       | 18.1         |
| MT-BT-800  | M64 – M72 · 2.1/2" – 2.3/4"   | 1,978         | 13,188                            | 198       | 23.4         |
| MT-BT-900  | M72 – M76 · 2.3/4" – 3"       | 2,257         | 15,045                            | 215       | 29.3         |
| MT-BT-1000 | M80 – M100 · 3.1/4" – 4"      | 3,047         | 20,312                            | 244       | 40.3         |
| MT-BT-1100 | M100 – M125 · 3.3/4" – 4.3/4" | 3,768         | 25,120                            | 280       | 52.7         |
| MT-BT-1200 | M125 – M150 · 5" – 5.3/4"     | 4,754         | 31,694                            | 325       | 89.6         |

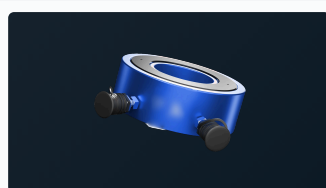
## THE FOUR-PART TOOL

one load cell · many stud sizes



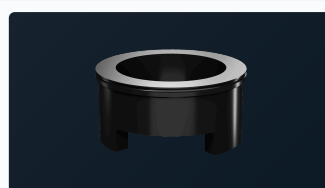
## THREADED PULLER

Screws onto the stud protrusion — at least one diameter engaged.



## LOAD CELL

The hydraulic cylinder: applies the axial load at up to 1,500 bar.



## BRIDGE

Rests on the flange and lets the nut be run down under load.



## NUT DRIVER

Rotating socket: seats the nut at zero torque with a tommy bar.

\* Weight = load cell + adaptor kit of the smallest size. Bolt range = coverage of the interchangeable adaptor kits (metric and imperial kits available per size). Max load at 1,500 bar. Technical data may change without notice.

## HYDRAULIC BOLT TENSIONERS

## MT-BTS

## SPRING RETURN

MT-BTS



MAUCOTOOLS · MT-BTS SERIES

## Automatic piston return — fast cycles on multi-bolt flanges.

On flanges with many studs, resetting the piston after every pass costs time. The MT-BTS series adds an automatic spring return: on pressure release the piston closes by itself, with no manual reset, cutting cycle times on repetitive tensioning work. Ten dedicated load cells cover studs from M24 to M110 with a 15 mm stroke, AISI 4340 body, 1,500 bar rating and the same interchangeable adaptor kits as the topside range.

- Auto spring return — piston closes on pressure release
- Shorter cycle times on multi-stud flanges
- 15 mm stroke with integral stroke indicator
- Ten load cells, M24 – M110 (7/8" – 4.1/2")
- Interchangeable adaptor kits as the MT-BT range
- Anti-roll composite seals, 1,500 bar rating

## TECHNICAL SPECIFICATIONS

| MODEL       | BOLT RANGE                  | MAX LOAD (KN) | HYDRAULIC AREA (MM²) | O.D. (MM) | WEIGHT (KG)* |
|-------------|-----------------------------|---------------|----------------------|-----------|--------------|
| MT-BTS-200  | M24 – M30 · 7/8" – 1.1/4"   | 330           | 2,006                | 98        | 3.6          |
| MT-BTS-300  | M30 – M39 · 1.1/4" – 1.1/2" | 565           | 3,768                | 115       | 4.6          |
| MT-BTS-400  | M36 – M45 · 1.3/8" – 1.3/4" | 636           | 4,239                | 128       | 7.8          |
| MT-BTS-500  | M42 – M48 · 1.5/8" – 1.7/8" | 845           | 5,632                | 145       | 9.6          |
| MT-BTS-600  | M48 – M52 · 1.7/8" – 2"     | 1,354         | 9,026                | 165       | 13.6         |
| MT-BTS-700  | M52 – M64 · 2" – 2.1/2"     | 1,530         | 10,206               | 180       | 17.6         |
| MT-BTS-800  | M64 – M72 · 2.1/2" – 2.3/4" | 1,845         | 12,303               | 198       | 20.6         |
| MT-BTS-900  | M72 – M76 · 2.3/4" – 3"     | 2,555         | 17,032               | 224       | 26.6         |
| MT-BTS-1000 | M80 – M95 · 3.1/4" – 3.3/4" | 3,134         | 20,903               | 248       | 36.6         |
| MT-BTS-1100 | M100 – M110 · 4" – 4.1/2"   | 3,768         | 25,123               | 280       | 48.6         |

## TYPICAL APPLICATIONS

PIPELINE FLANGES · HEAT EXCHANGERS · PRESSURE VESSELS · COMPRESSOR COVERS · BOILER FEED PUMPS · OFFSHORE & SUBSEA · WIND ENERGY · ANCHOR BOLTS

\* Weight = load cell + adaptor kit of the smallest size. Spring-return load cells have their own hydraulic areas — do not interchange calculation data with the MT-BT topside series. Technical data may change without notice.

## HYDRAULIC BOLT TENSIONERS

## MT-SST

## SUBSEA · STAINLESS

MT-SST



MAUCOTOOLS · MT-SST SERIES

## Stainless-steel tensioners built for diver-operated work.

The MT-SST subsea series is built entirely from high-strength stainless steel for the corrosive marine environment, with an ergonomic two-part design — tensioning unit and puller nut — that divers can handle quickly in poor visibility. A long 25 mm stroke with fluorescent indicator rings, detachable hooks and strap, knurled non-slip surfaces and an optional split nut keep expensive diver time to a minimum. Eight load cells cover studs from M20 to M85, including high pressure-rating flanges (10K).

- Full high-strength stainless-steel construction
- 25 mm stroke · fluorescent stroke / over-stroke rings
- Inward pressure release on over-stroke — diver-safe
- Optional split nut for fast fitment
- Detachable hooks and strap for underwater handling
- Fluorescent band for identification in poor visibility

## TECHNICAL SPECIFICATIONS

| MODEL      | BOLT RANGE                  | MAX LOAD (KN) | HYDRAULIC AREA (MM <sup>2</sup> ) | O.D. (MM) | WEIGHT (KG)* |
|------------|-----------------------------|---------------|-----------------------------------|-----------|--------------|
| MT-SST-100 | M20 · 3/4" – 7/8"           | 188           | 1,256                             | 65        | 2.0          |
| MT-SST-200 | M24 – M30 · 1" – 1.1/8"     | 309           | 2,061                             | 86        | 4.0          |
| MT-SST-300 | M33 – M36 · 1.1/4" – 1.3/8" | 482           | 3,215                             | 98        | 5.5          |
| MT-SST-400 | M39 – M42 · 1.1/2" – 1.5/8" | 706           | 4,710                             | 117       | 7.4          |
| MT-SST-500 | M45 – M52 · 1.3/4" – 2"     | 1,060         | 7,065                             | 138       | 13.5         |
| MT-SST-600 | M56 – M64 · 2.1/4" – 2.1/2" | 1,554         | 10,362                            | 164       | 20.7         |
| MT-SST-700 | M72 – M76 · 2.3/4" – 3"     | 1,952         | 13,011                            | 190       | 23.5         |
| MT-SST-800 | M80 – M85 · 3.1/4" – 3.1/2" | 2,390         | 15,935                            | 214       | 31.5         |

## DIMENSIONS — TENSIONING UNIT

millimetres (mm)

| MODEL      | O.D. (MM) | RELIEF (MM) | WIDTH (MM) | HEIGHT (MM) |
|------------|-----------|-------------|------------|-------------|
| MT-SST-100 | 65        | 30          | 46         | 100         |
| MT-SST-200 | 86        | 30          | 64         | 123         |
| MT-SST-300 | 98        | 30          | 78         | 138         |
| MT-SST-400 | 117       | 30          | 93         | 147         |
| MT-SST-500 | 138       | 60          | 113        | 152         |
| MT-SST-600 | 164       | 60          | 141        | 171         |
| MT-SST-700 | 190       | 60          | 166        | 194         |
| MT-SST-800 | 214       | 60          | 191        | 208         |

\* Weight = load cell + puller nut of the smallest size. Relief = counterbore depth. Optional alloy-steel construction available. Technical data may change without notice.

## HYDRAULIC BOLT TENSIONERS

## SYSTEM · SETUP

MT-BT · BTS · SST

## HOW BOLT TENSIONING WORKS

four steps · zero torsion

## 1 · PLACE

The nut driver drops over the nut; bridge and load cell rest on the flange.

## 2 · ENGAGE

The threaded puller screws onto the stud protrusion — at least 1 × diameter engaged.

## 3 · TENSION

Hydraulic pressure stretches the stud within its elastic range; the nut is run down at zero torque.

## 4 · RELEASE

Pressure is released: the preload stays in the stud. Move the tool to the next bolt.

## SIZING THE TOOL

residual load method

## APPLIED LOAD

= residual bolt load × load relaxation factor (1.01 + Ø/L, min. 1.1).

## SAFETY LIMIT

Applied load never exceeds 95% of the stud yield strength.

## PRESSURE

= applied load ÷ hydraulic area of the load cell — max 1,500 bar.

## COVERAGE

100% coverage: one tool per stud, one pass. 50%: alternate studs, two passes.

## POWER UNITS — 1,500 BAR

| MODEL       | DRIVE                                                 | MAX PRESSURE | FLOW / RESERVOIR    | WEIGHT |
|-------------|-------------------------------------------------------|--------------|---------------------|--------|
| MT-TPE-1500 | Electric · 230 V 50 Hz · two-stage · 5 m cable remote | 1,500 bar    | 3 / 0.7 L·min · 5 L | 42 kg  |
| MT-TPA-1500 | Air-driven · 1:350 ratio · stainless frame            | 1,500 bar    | — · 5 L             | 22 kg  |
| MT-TPH-1500 | Hand pump · two-speed                                 | 1,500 bar    | — · 3 L             | 12 kg  |

## HIGH-PRESSURE ACCESSORIES

## Link hoses

4-ply construction · 1,800 bar working, 4,500 bar burst · -30 to +80 °C · 1.5 / 3 / 5 m, custom lengths.

## Manifolds &amp; fittings

Blocks and T-fittings for 1,500 bar multi-tool circuits.

## Quick couplings

Male / female couplers for 1,500 and 2,500 bar working pressure.

## Hose reel

Single hose up to 500 m for subsea applications, with required end fittings.

