

▼ FTR-Series Foundation Bolt Tensioner



High Precision, Low Maintenance



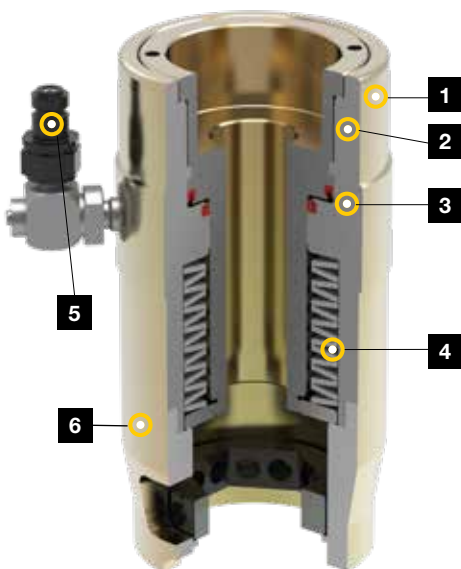
FTR-Series Foundation Bolt Tensioners

FTR-Series Foundation Bolt Tensioners are designed specifically for tensioning wind tower foundation bolts. These tensioners provide the speed and precision required by this critical application.

Potential thread fit problems are eliminated through the use of existing rebar hex nuts as a reaction point.

The FTR-Series includes long-stroke models, which provide greater speed and ease of use by enabling applications to be completed in a single pull.

- **FTR-Series Foundation Bolt Tensioners provide fast, accurate and easy tightening of external or internal ring wind tower foundations**
- **Standard models are available for 75, 150 ksi and metric style Williams, Dyson and Macalloy® bar types**
- **Long-stroke options accelerate process with single-pull tensioning**



- 1. Corrosion protection:**
Zinc coating provides best-in-class corrosion resistance.
- 2. Over-stroke indicator:**
Extends life by helping to prevent over-stroking of cylinder.
- 3. Long-life seals:**
For maximum durability and extended service life intervals.
- 4. Auto-retract piston:** Simplifies use and improves speed of operation.
- 5. Quick-disconnect coupler:** For safe, simple hydraulic connection. *OPTIONAL 360° swivel available for additional hose positioning flexibility.*
- 6. Interchangeable bridge:**
For optimal application fit.

▼ *FTR-Series Foundation Bolt Tensioner. Manual wrench (not included) required to apply up to 22 Ft.lbs of torque during installation of models that feature run down gears.*



Foundation Bolt Tensioners

▼ This is how a FTR-Series Foundation Bolt Tensioner Model Number is Built Up:



| | | | | | |
|--------------|-----------|----------------------|--------|--------------|---------------|
| 1 | 2 | 3 | 4 | 5 | 6 |
| Product Type | Bar Grade | Bar Size Designation | Stroke | Fitting Type | Run Down Gear |

1 Product Type

FTR = Foundation Tensioner, Round

2 Bar Grade

75 = 75 ksi
150 = 150 ksi (or metric designation)

3 Bar Size Designation

Example: 14 = No. 14 bar

4 Maximum Stroke

Example: 20 = 20 mm (0.79 inch) max. stroke

5 Fitting Type

SW = Includes swivel manifold with single male fitting

6 Run Down Gear

G = Includes Run Down Gear (available in select models)

FTR Series



Load Range:

0 - 308 tons

Maximum Operating Pressure*:

21,750 psi / 1500 bar

* Max. Pressure varies, see specification table for details.



Tensioner Pumps

Electric, pneumatic and manual high-pressure tensioning pumps are available for use with Enerpac hydraulic tensioners.

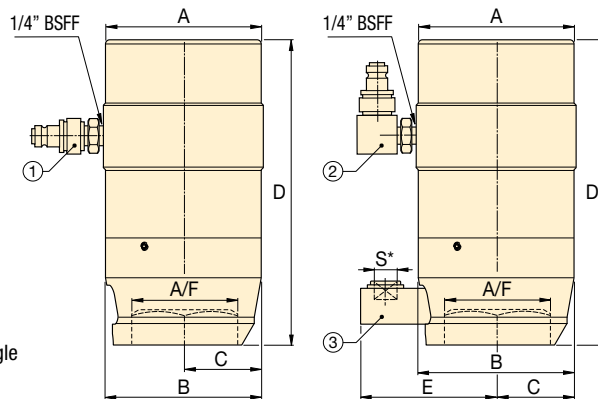
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Hoses and Fittings

High-pressure hoses and fittings for use with Enerpac tensioning systems are available.

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FTR...S

FTR...SWG

- ① Single male fitting
- ② Swivel manifold with single male fitting
- ③ Nut run down gear box

▼ SPECIFICATION TABLE

| Bar Grade | Bolt Diameter | | Bar Size Designation | Model Number | Nut A/F | Maximum Pressure | Hydraulic Pressure Area | Load Capacity | Stroke | Dimensions (in) | | | | | Wt. (lbs) | Min. Bolt Protrusion (in) |
|-----------|---------------|------|----------------------|--------------|---------|------------------|-------------------------|---------------|--------|-----------------|------|------|-------|------|-----------|---------------------------|
| | (in) | (mm) | | | | | | | | A | B | C | D | E | | |
| 75 ksi | 1.38 | 35 | #10 | FTR751010S | 2.00 | 17,400 | 4.86 | 42.3 | 0.39 | 3.90 | 3.48 | 1.74 | 6.42 | - | 12.9 | 7.87 |
| | 1.38 | 35 | #10 | FTR751025S | 2.00 | 17,400 | 4.84 | 42.1 | 0.98 | 4.53 | 4.02 | 1.65 | 8.64 | - | 24.1 | 9.84 |
| | 1.50 | 38 | #11 | FTR751110S | 2.25 | 21,750 | 4.86 | 52.8 | 0.39 | 3.90 | 3.86 | 1.50 | 7.01 | - | 12.1 | 8.66 |
| | 1.50 | 38 | #11 | FTR751125SG | 2.25 | 21,750 | 4.84 | 52.7 | 0.98 | 4.53 | 4.02 | 2.01 | 8.92 | 3.78 | 25.3 | 10.24 |
| | 1.88 | 48 | #14 | FTR751420S | 2.75 | 16,965 | 9.44 | 80.1 | 0.79 | 5.20 | 5.20 | 2.60 | 10.55 | - | 40.2 | 12.40 |
| 150 ksi | 1.44 | 37 | 1.25 | FTR15012510S | 2.25 | 16,965 | 8.34 | 90.8 | 0.39 | 4.37 | 4.33 | 1.57 | 7.01 | - | 18.2 | 8.66 |
| | 1.56 | 40 | 1.375 | FTR15013810S | 2.50 | 21,750 | 8.34 | 90.8 | 0.39 | 4.37 | 4.33 | 1.50 | 7.01 | - | 17.8 | 8.86 |
| | 2.75 | 70 | 2.50 | FTR15025025S | 4.25 | 21,750 | 28.27 | 307.5 | 1.00 | 8.44 | 8.35 | 3.39 | 13.68 | - | 127.8 | 17.72 |
| 10.9 | 1.42 | 36 | 36 | FTR1093610SG | 2.36 | 21,750 | 5.92 | 64.4 | 0.39 | 4.02 | 3.90 | 1.57 | 6.93 | 3.74 | 19.0 | 7.68 |

Gear box square drive dimension S = 1/2 inch.

▼ FTE-Series Elliptical Foundation Tensioner



High Precision, Low Maintenance



FTE-Series, Foundation Bolt Tensioners

Similar to Standard Foundation Tensioners, Elliptical Tensioners were designed specifically for foundation fastening applications on wind towers, and utilize the existing hex nut as a reaction point in order to eliminate thread fit misalignment.

Unlike Standard FTR-Series Tensioners, FTE-Series Tensioners feature an elliptical geometry, which enables fit in narrow access foundation applications, without reducing load capabilities.

Operators may access the nut with a Tommy bar rather than employing the use of an offset rundown gear.

Elliptical tensioners are ideal for close clearance applications, or as a universal tool that will work in nearly any foundation application, whether standard or narrow access.

- **FTE-Series Foundation Bolt Tensioners provide fast and accurate performance in difficult, narrow access foundation tensioning applications**
- **Standard models are available for 75, 150 ksi and metric style Williams, Dyson and Macalloy® bar types**
- **Ideal universal solution that fits both standard and narrow access applications**

-
1. **Max. stroke Indicator:** Extends life by helping to prevent over-stroking of cylinder.
 2. **Long-life seals:** For maximum durability and extended service life intervals.
 3. **Auto-retract piston:** Simplifies use and improves speed of operation.
 4. **Elliptical form:** Provides access to close clearance applications.
 5. **Corrosion protection:** Zinc coating provides best-in-class corrosion resistance.
 6. **Quick-disconnect coupler (not shown):** For safe, simple hydraulic connection. *OPTIONAL 360° swivel available for additional hose positioning flexibility.*

▼ FTE-Series, Foundation Bolt Tensioner, designed to fit both standard and narrow access foundation applications.



Foundation Bolt Tensioners (Elliptical)

▼ This is how an FTE-Series Foundation Bolt Tensioner Model Number is Built Up:



1 Product Type

FTE = Foundation Tensioner, Elliptical

2 Bar Grade

75 = 75 ksi
150 = 150 ksi
(or metric designation)

3 Bar Size Designation

Example: 10 = No. 10 bar

4 Fitting Type

S = Includes single male fitting
SW = Includes swivel manifold with single male fitting

FTE Series



Load Range:

0 - 86 tons

Maximum Operating Pressure*:

21,750 psi / 1500 bar

* Maximum pressure varies, see specification table for details.



Tensioner Pumps

Electric, pneumatic and manual high-pressure tensioning pumps are available for use with Enerpac hydraulic tensioners.

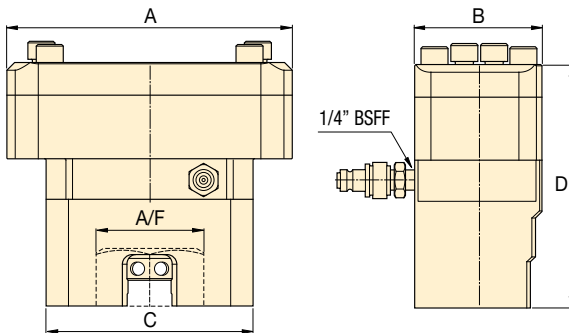
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Hoses and Fittings

High-pressure hoses and fittings for use with Enerpac tensioning systems are available.

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▼ SPECIFICATION TABLE

| Bar Grade | Bolt Diameter | | Bar Size Designation | Model Number | Nut A/F | Maximum Pressure | Hydraulic Pressure Area | Load Capacity | Stroke | Dimensions (in) | | | | Wt. (lbs) | Min. Bolt Protrusion (in) |
|-----------|---------------|------|----------------------|-------------------|---------|------------------|-------------------------|---------------|--------|-----------------|------|------|------|-----------|---------------------------|
| | (in) | (mm) | | | | | | | | A | B | C | D | | |
| 75 ksi | 1.38 | 35 | #10 | FTE7510S | 2.00 | 17,400 | 4.82 | 41.9 | 0.39 | 6.69 | 3.23 | 5.59 | 5.81 | 18.19 | 7.87 |
| | 1.50 | 38 | #11 | FTE7511S | 2.25 | 21,750 | 4.82 | 52.4 | 0.39 | 6.69 | 3.23 | 5.59 | 5.81 | 18.19 | 8.66 |
| 150 ksi | 1.44 | 37 | 1.25 | FTE150125S | 2.25 | 17,400 | 7.86 | 68.4 | 0.39 | 8.74 | 3.90 | 6.34 | 8.01 | 41.67 | 9.45 |
| | 1.56 | 40 | 1.375 | FTE150138S | 2.50 | 21,750 | 7.86 | 85.6 | 0.39 | 8.74 | 3.90 | 6.34 | 8.01 | 40.81 | 9.06 |
| 8.8 | 1.42 | 36 | 36 | FTE8836S | 2.36 | 21,750 | 4.82 | 52.4 | 0.39 | 5.59 | 3.23 | 5.59 | 5.81 | 21.32 | 7.09 |