

POWER GENERATION BOLT TENSIONERS

For critical fastening applications in Wind, Gas and Steam Turbines



ENERPAC 

▼ PGT-Series Single Stage and Double Deck Tensioners



High Precision, Low Maintenance



Engineering Team

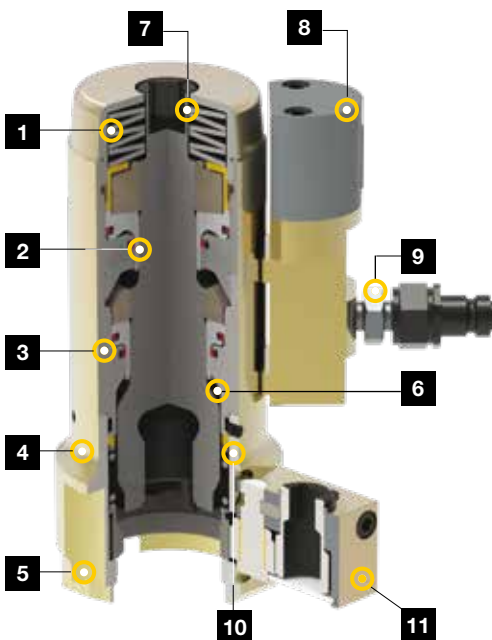
Enerpac's Bolting Engineering Team is staffed with a large and highly experienced group of tensioning professionals who

specialize in creating customized solutions for unique applications.

- PGT-Series Bolt Tensioners are designed for critical fastening applications in wind, steam and gas turbines
- A broad range of single stage and double deck tensioners provide high performance in tight spaces associated with Power Generation applications
- PGT-Series Bolt Tensioners are loaded with performance enhancing features such as Auto-Retract Pistons, Cycle Counters and a premium coating to offer the ultimate in efficiency, durability and ease of use.

Description	PGTS Single Stage	PGTD Double Deck
Auto-Retract Piston	●	●
Zinc Coating	●	●
Geared Nut-Rundown	●	●
Over-stroke Indicator	●	●
Over-stroke Preventer	●	●
Single Male Fitting	◆	◆
Swivel Manifold	◆	◆
Cycle Counter	◆	◆

- = Standard
- ◆ = Possible option
- ◆ = Option not available

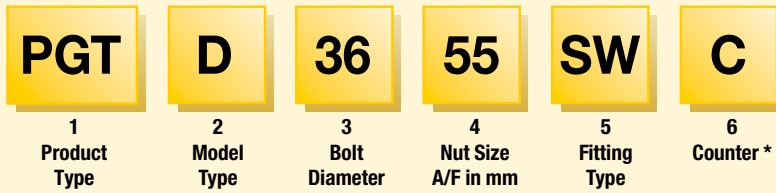


1. **Auto-retract piston:** Simplifies use and improves speed of operation.
2. **Long-life puller:** For maximum durability.
3. **Long-life seals:** For maximum durability and extended service life intervals.
4. **Corrosion protection:** Zinc coating provides best-in-class corrosion resistance.
5. **Interchangeable bridge:** For optimal application fit.
6. **Over-stroke Preventer:** Mechanically prevents over-stroke, extending cylinder life.
7. **Over-stroke Indicator:** Extends cylinder life by helping to prevent over-stroking of cylinder.
8. **Optional counter:** Helps indicate when maintenance is due to maximize uptime.
9. **Quick-disconnect coupler:** For safe, simple hydraulic connection. Optional 360° swivel available for additional hose positioning flexibility.
10. **Spring-loaded nut engagement:** Keeps socket positioned on nut for faster and easier seating process.
11. **Auto-engage nut rundown:** For rapid and accurate seating of nuts.

▲ The model above illustrates a typical tool configuration. Actual model configurations vary.

PGT-Series, Power Generation Bolt Tensioners

▼ This is how a PGT-Series Power Generation Bolt Tensioner model number is built up:



1 Product Type

PGT = Power Generation Tensioner

2 Model Type

S = Single Stage
D = Double Deck

3 Bolt Diameter (thread in mm)

36 = M36 x 4,0

4 Nut Size A/F (Across the Flats in mm)

Example:
55 = 55 mm A/F

5 Fitting Type

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

6 Counter

C = Includes counter
* Counter not available on single stage tools

PGT Series



Bolt Range:

M20 - M42

Maximum Load Capacity:

938,7 kN

Maximum Operating Pressure ¹⁾:

1500 bar

¹⁾ Max. pressure varies, see specifications table for details.



Tensioning Pumps

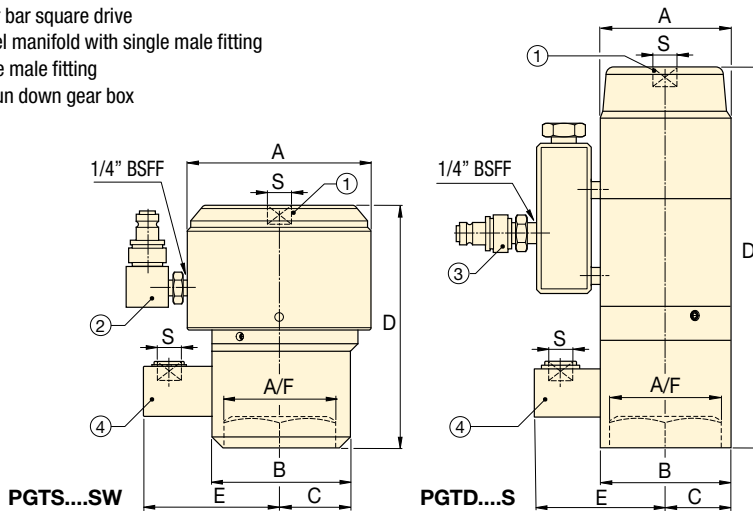
Electric, pneumatic and manual high-pressure tensioning pumps are available for use with Enerpac hydraulic tensioners.



Hoses and Fittings

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

- ① Puller bar square drive
- ② Swivel manifold with single male fitting
- ③ Single male fitting
- ④ Nut run down gear box



▼ SPECIFICATION TABLE ²⁾

Type	Thread Diameter (mm)	Model Number ²⁾	Nut Size A/F (mm)	Max. Pressure (bar)	Hydraulic Pressure Area (mm ²)	Max. Load Capacity (kN)	Stroke (mm)	Dimensions (mm)					Bolt Potrusion (mm) Min. Max.			
								A	B	C	D	E		S (inch)		
Single Stage	M20 x 2,5	PGTS2030S	30	1500	1358	203,7	7,0	64	64	25	81	78	3/8	2,0	44	55
	M24 x 3,0	PGTS2436S	36	1500	1947	292,1	7,0	77	77	25	98	82	3/8	2,9	49	62
	M36 x 4,0	PGTS3655S	55	1500	4467	670,1	9,0	111	90	40	128	95	1/2	6,3	71	95
	M42 x 4,5	PGTS4265S	65	1500	6258	938,7	10,0	134	104	44	177	99	1/2	12,3	79	115
Double Deck	M27 x 3,0	PGTD2742S	42	1350	2939	396,8	6,0	68	75	34	196	84	1/2	5,2	60	68
	M30 x 3,5	PGTD3046S	46	1350	3426	462,5	7,0	73	85	37	195	88	1/2	5,8	60	70
	M33 x 3,5	PGTD3350S	50	1350	4272	576,7	7,0	78	77	38,5	208	90	1/2	6,9	65	77
	M36 x 4,0	PGTD3655S	55	1350	4995	674,3	8,0	84	82	41	218	93	1/2	7,7	70	87
	M42 x 4,5	PGTD4265S	65	1350	6865	926,8	10,0	98	104	44	248	99	1/2	11,4	82	91

²⁾ These models reflect a standard configuration. To select an optional modification, apply the appropriate nomenclature indicated at the top of the page. If models beyond those indicated in this table are required, contact Enerpac.

▼ FTR-Series, Foundation Bolt Tensioners Round



- 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

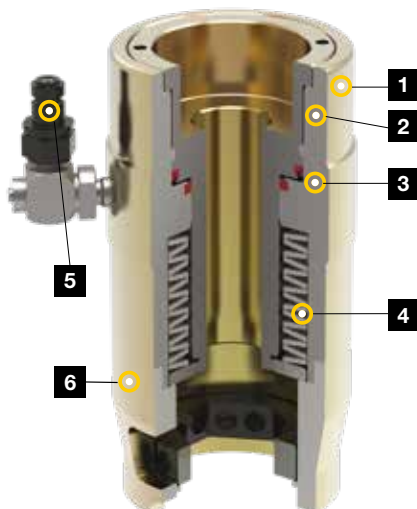
High Precision, Low Maintenance



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.



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 30 Nm of torque during installation of models that feature run down gears.



FTR-Series, Foundation Bolt Tensioners

▼ This is how a FTR-Series Foundation Bolt Tensioner model number is built up:



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 size

4 Maximum Stroke

Example:
20 = 20 mm max. stroke

5 Fitting Type

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

6 Run Down Gear

G = Includes Nut Run Down Gear
 * available in select models

FTR Series



Maximum Load Capacity:

2736 kN

Maximum Operating Pressure ¹⁾:

1500 bar

¹⁾ Max. pressure varies, see specifications table for details.



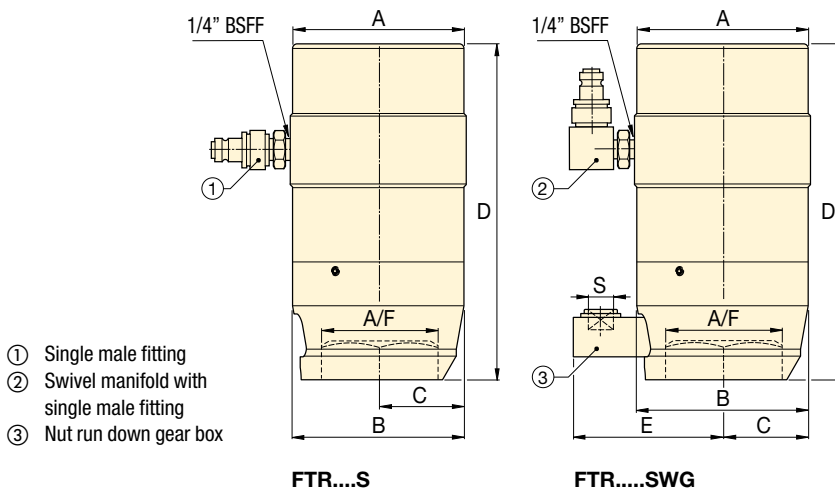
Tensioning Pumps

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



Hoses and Fittings

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



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

FTR....S

FTR.....SWG

▼ SPECIFICATION TABLE

Bar Grade	Bolt Diameter		Bar Size Designation	Model Number	Nut Size A/F (mm)	Max. Pressure (bar)	Hydraulic Pressure Area (mm ²)	Max. Load Capacity (kN)	Stroke (mm)	Dimensions (mm)					Minimum Bolt Potrusion (kg)	Minimum Bolt Potrusion (mm)
	(mm)	(inch)								A	B	C	D	E		
75 ksi	35	1.38	#10	FTR751010S	51	1200	3134	376,1	10,0	99	88,5	44,3	163	–	5,8	200
	35	1.38	#10	FTR751025S	51	1200	3123	374,8	25,0	115	102	42	220	–	10,9	250
	38	1.50	#11	FTR751110S	57	1500	3134	470,1	10,0	99	98	38	178	–	5,5	220
	38	1.50	#11	FTR751125SG	57	1500	3123	468,5	25,0	115	102	51	226	96	11,5	260
	48	1.88	#14	FTR751420S	70	1170	6093	712,9	20,0	132	132	66	268	–	18,2	315
150 ksi	37	1.44	1.25	FTR15012510S	57	1170	5383	629,8	10,0	111	110	40	178	–	8,2	220
	40	1.56	1.37	FTR15013810S	64	1500	5383	807,5	10,0	111	110	38	178	–	8,1	225
	70	2.75	2.50	FTR15025025S	108	1500	18.238	2736,0	25,4	215	212	86	348	–	58,0	450
10.9	36	1.42	36	FTR1093610SG	60	1500	3820	573,0	10,0	102	99	40	176	95	8,6	195

Gear box square drive dimension S = ½ inch.

▼ FTE-Series, Foundation Bolt Tensioner Elliptical



- 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

High Precision, Low Maintenance



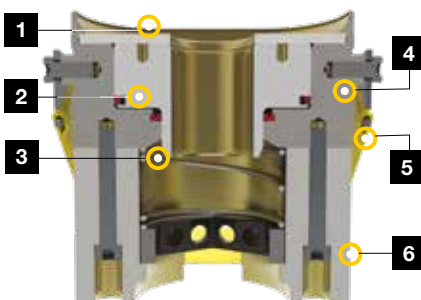
FTE-Series, Foundation Bolt Tensioners

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, the 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.



1. **Maximum 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.



FTE-Series, Foundation Bolt Tensioners, Elliptical

▼ This is how a 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 size

4 Fitting Type

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

FTE Series



Maximum Load Capacity:

761,1 kN

Maximum Operating Pressure ¹⁾:

1500 bar

¹⁾ Max. pressure varies, see specifications table for details.



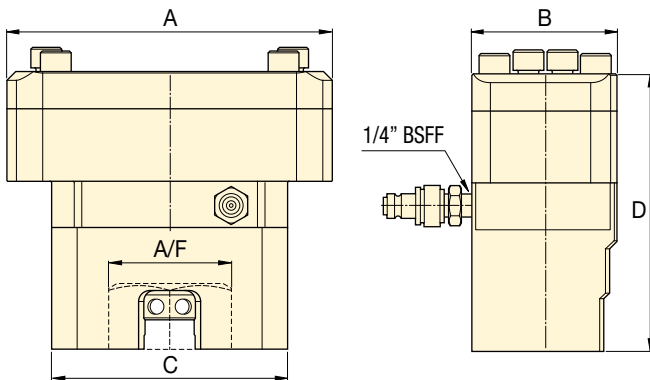
Tensioning Pumps

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



Hoses and Fittings

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



▼ SPECIFICATION TABLE

Bar Grade	Bolt Diameter		Bar Size Designation	Model Number	Nut Size A/F	Max. Pressure	Hydraulic Pressure Area	Max. Load Capacity	Stroke	Dimensions (mm)				Minimum Bolt Potrusion	
	(mm)	(inch)								A	B	C	D		
75 ksi	35	1.38	#10	FTE7510S	51	1200	3108	373,0	10,0	170	82	142	147,5	8,3	200
	38	1.50	#11	FTE7511S	57	1500	3108	466,2	10,0	170	82	142	147,5	8,3	200
150 ksi	40	1.56	1.375	FTE150138S	64	1500	5074	761,1	10,0	222	99	161	203,4	18,5	230
	37	1.44	1.250	FTE150125S	57	1200	5074	608,9	10,0	222	99	161	203,4	18,9	240
8.8	36	1.42	36	FTE8836S	60	1500	3108	466,2	10,0	142	82	142	147,5	9,7	180



BOLTING SOLUTIONS

Enerpac's comprehensive range of bolting equipment provides precise and effective force to make your work more productive, safer, and easier to perform. The best solutions for controlled tightening, joint integrity and more, available from one source.

Controlled Tightening and Loosening



Pneumatic and Electric Torque Wrenches



Hydraulic Torque Wrenches



Electric Torque Wrench Pumps



Pneumatic Torque Wrench Pumps



Manual Torque Multipliers

Tensioning Tools



Power Generation Bolt Tensioners



General Purpose Bolt Tensioners



Electric Tensioning Pumps



Pneumatic Tensioning Pumps



High-Pressure Hand Pumps

Joint Assembly & Joint Separation



Hydraulic Nut Cutters and Nut Splitters



Step-Type Flange Spreaders



Flange Alignment Tools



Pin-Type Flange Spreaders



Mechanical Flange Face Tool

Your Enerpac Distributor:

info@enerpac.com
www.enerpac.com

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