

TRITORC

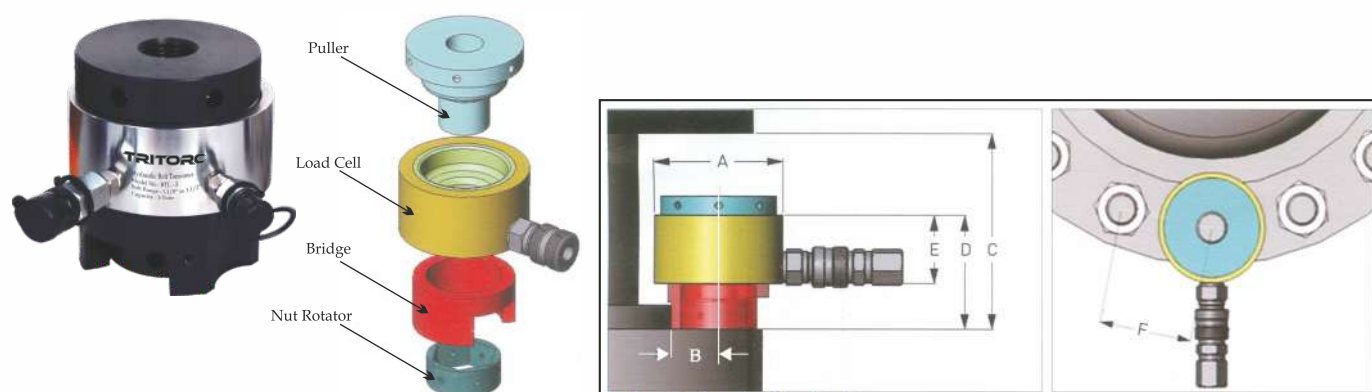


HYDRAULIC BOLT TENSIONERS

HAND PUMPS AND POWERPACKS

CONTROLLED BOLTING

TOP-SIDE BOLT TENSIONER (BTL SERIES)



TECHNICAL DATA

Model	Bolt Size		Cylinder kN (Ton)	Hyd. Area cm ² (in ²)	Dimension						Weight kg (lbs)
	Metric	Inch			A	B	C	D	E	F	
BTL-3	M16	-	234.2 (23.88)	15.7 (2.43)	75 (2.95)	32.5 (1.27)	168 (6.61)	90 (3.54)	62 (2.44)	47-51 (1.85-2.0)	3 (6.61)
	M18	3/4"									
	M20	-									
	M22	7/8"									
	M24	1"									
BTL-5	M27	1-1/8"	498.2 (50.80)	33 (5.11)	102 (4.01)	47 (1.85)	187 (7.36)	106 (4.17)	60 (2.36)	65-71 (2.55-2.79)	5.50 (12.12)
	M30	-									
	M33	1-1/4"									
	M36	1-3/8"									
BTL-9	M39	1-1/2"	896.8 (91.44)	59.7 (9.25)	133 (5.23)	61 (2.40)	208 (8.18)	120 (4.72)	60 (2.36)	86-93 (3.38-3.66)	10 (22.04)
	M42	1-5/8"									
	M45	1-3/4"									
	M48	1-7/8"									
BTL-13	M52	2"	1245.0 (126.8)	83 (12.86)	163 (6.41)	73 (2.87)	231 (9.09)	135 (5.31)	62 (2.44)	106-114 (4.17-4.48)	16 (35.27)
	M56	2-1/4"									
	M60	-									
BTL-19	M64	2-1/2"	1843.3 (187.96)	123 (19.06)	193 (7.59)	86.5 (3.40)	254 (10)	150 (5.90)	62 (2.44)	129-135 (5.07-5.31)	22 (48.50)
	M68	-									
	M72	2-3/4"									
	M76	3"									
BTL-27	M76	3"	2640.5 (269.25)	176 (27.28)	233 (9.17)	110 (4.33)	286 (11.25)	180 (7.08)	73 (2.87)	155-167 (6.10-6.57)	40 (88.18)
	M80	-									
	M85	3-1/4"									
	M90	3-1/2"									
	M95	3-3/4"									
	M100	4"									
BTL-37	M90	3-1/2"	3768.0 (384.22)	251 (38.90)	280 (11.02)	111-121 (4.37-4.76)	304-338 (11.96-13.30)	181-197 (7.12-7.75)	37-40 (1.45-1.57)	175-196 (6.88-7.71)	64 (141.09)
	M95	3-3/4"									
	M100	4"									
	M110	4.1-4.4"									
BTL-44	M100	4"	4335.0 (442.04)	289 (44.79)	314 (12.36)	121-140 (4.76-5.51)	310-360 (12.20-14.17)	191-210 (7.51-8.26)	40-44 (1.57-1.73)	192-233 (7.55-9.17)	85 (187.39)
	M110	4.1-2"									
	M120	4.3-4"									
	M125	5"									
BTL-54	M125	5"	5404.0 (551.05)	360 (55.80)	344 (13.54)	131-161 (5.15-6.33)	354-388 (13.93-15.27)	202-216 (7.95-8.50)	42-47 (1.65-1.85)	243-275 (9.56-10.82)	125 (275.57)
	M130	5-1/4"									
	M140	5-1/2"									
	M150	5-3/4"									

Note: Dimensions are subject to change.

MULTI-STAGE HYDRAULIC BOLT TENSIONER (MST SERIES)

Multi Stage Tensioners are slim tensioners suited for constricted space operations and benefit from the combined tensioning force of multiple cylinders and achieve desired results in a smaller diameter.

- Working Pressure 1500Bar / 21755 psi.
- Fast, simple, accurate, reliable and ideal tightening and bolting tool for Wind Turbine.
- Small, compact, can impart large tensioning load.
- Durable composite material seal kit.
- Clear over stroke alarming mark.
- Optional gear drive allows the user rotate the nut quickly.
- Optional cycle counter available.

Automatic Piston Return: Increasing the working speed, the integrated automatic piston return mechanism pushes the piston back to its end position when hydraulic pressure is released.

Sturdy Gearbox for Rundown of Sockets: The Heavy gearbox drives the nut rotator. This ensures that the nut can be turned easily with a hand ratchet.

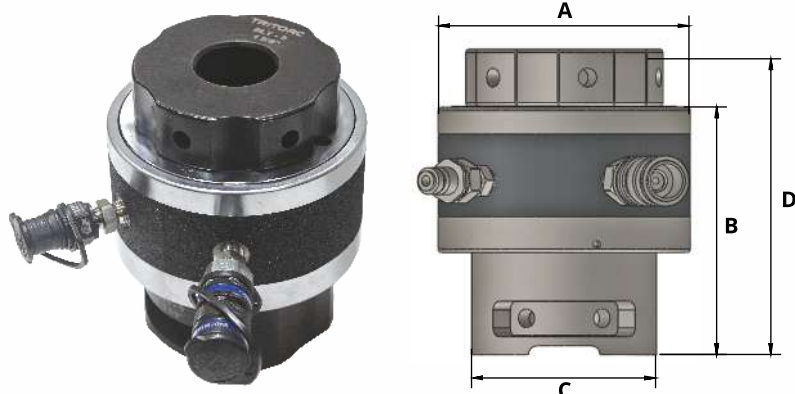


TECHNICAL DATA OF VARIANTS:

Model	Bolt Diameter		Min. Length of Thread (mm)	Max. Length of Thread (mm)	Working Stroke (mm)	Bolt Distance (mm)	Max. Load (KN)	Outside Diameter (mm)	Min.Height (mm)
	(mm)	(in)							
MST-M30	M30	1-1/8	62	69	7	66	464	73	276
MST-M33	M33	1-1/4	66	73	9	72	583	78	295
MST-M36	M36	1-3/8	75	82	9	77	677	84	326
MST-M39	M39	1-1/2	78	88	10	83	805	90	360
MST-M42	M42	1-5/8	83	91	10	89	926	96	357
MST-M45	M45	1-3/4	87	96	10	96	1091	105	371
MST-M48	M48	1-7/8	93	102	10	102	1231	110	387

Note: Dimensions are subject to change. Customised solutions are provided as per requirement as well.

SPRING RETURN HYDRAULIC BOLT TENSIONER SLT SERIES



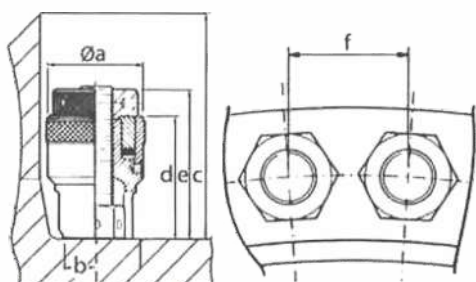
- Working Pressure 1500Bar / 21755 psi
- Special Seal Kit, Piston/Cylinder mis-alignment compensation
- Piston Stroke of SLT 1=8mm, the other model is 10mm
- Built-in stroke limit valve prevent over stroke
- Fully enclosed load cell to prevent debris into cylinder
- Spring return, fast, safety

Model	Bolt Size		Max. Load kN (Ton)	Hyd. Area cm ² (in ²)	A mm (in)	B mm (in)	C mm (in)	Clearance D mm (in)	Weight kg (lbs)
	Imperial	Metric							
SLT1	3/4" SLT1-1	M20 SLT1-3	160 (16.31)	10.67 (1.65)	66 (2.59)	93 (3.66)	63 (2.48)	136 (5.35)	1.4 (3.08)
	7/8" SLT1-2	M22 SLT1-4							
SLT2	1" SLT2-1	M24 SLT2-3	280 (28.55)	18.67 (2.89)	87 (3.42)	117 (4.60)	68 (2.67)	175 (6.88)	2.7 (5.95)
	1-1/8" SLT2-2	M27 SLT2-4							
SLT3	1" SLT3-1	M24 SLT3-5	450 (45.88)	30.01 (4.65)	103 (4.05)	117 (4.60)	75 (2.95)	175 (6.88)	4.1 (9.03)
		M27 SLT3-6				120 (4.72)	80 (3.14)	181 (7.12)	
	1-1/8" SLT3-2	M30 SLT3-7				123 (4.84)	84 (3.30)	188 (7.40)	
	1-1/4" SLT3-3	M33 SLT3-8				126 (4.96)	89 (3.50)	195 (7.67)	
SLT4	1-1/4" SLT4-1	M33 SLT4-5	660 (67.30)	44.01 (6.82)	118 (4.64)	123 (4.84)	88 (3.46)	190 (7.48)	5.4 (11.9)
	1-3/8" SLT4-2	M36 SLT4-6				126 (4.96)	96 (6.77)	197 (7.75)	
	1-1/2" SLT4-3	M39 SLT4-7				130 (8.11)	96 (3.77)	203 (7.99)	
	1-5/8" SLT4-4	M42 SLT4-8				133 (5.23)	105 (4.13)	209 (8.22)	
SLT5	1-1/2" SLT5-1	M39 SLT5-6	1000 (101.97)	66.68 (10.33)	140.5 (5.53)	132 (5.19)	112 (4.40)	211 (8.30)	8.4 (18.51)
	1-5/8" SLT5-2	M42 SLT5-7				135 (5.31)	114 (4.48)	217 (8.54)	
	1-3/4" SLT5-3	M45 SLT5-8				139 (5.47)	118 (4.64)	223 (8.77)	
	1-7/8" SLT5-4	M48 SLT5-9				142 (5.59)	114 (4.48)	230 (9.05)	
	2" SLT5-5					145 (5.70)	120 (4.72)	236 (9.29)	
SLT6	2" SLT6-1	M52 SLT6-5	1500 (152.95)	100.03 (15.50)	175.5 (6.90)	148 (5.82)	120 (4.72)	246 (6.68)	13.8 (30.42)
	2-1/4" SLT6-1	M56 SLT6-6				154 (6.06)	138 (5.43)	259 (10.19)	
		M60 SLT6-7				161 (6.33)	138 (5.43)	259 (10.19)	
	2-1/2" SLT6-3	M64 SLT6-8				161 (6.33)	153 (6.02)	272 (10.70)	
	2-3/4" SLT6-4	M68 SLT6-9				167 (6.57)	156 (6.14)	284 (11.18)	
SLT7	2-3/4" SLT7-1	M72 SLT7-5	2500 (254.92)	166.71 (25.84)	219 (8.62)	167 (6.57)	157 (6.18)	294 (11.57)	23 (50.70)
	3" SLT7-2	M76 SLT7-6				171 (6.73)	158 (6.22)	307 (12.08)	
		M80 SLT7-7				180 (7.08)	190 (7.48)	310 (12.20)	
	3-1/4" SLT7-3	M85 SLT7-8				180 (7.08)	190 (7.48)	320 (12.59)	
	3-1/2" SLT7-4	M90 SLT7-9				186 (7.32)	205 (8.07)	332 (13.07)	
SLT8	3-1/2" SLT8-1	M90 SLT8-4	3200 (326.30)	213.39 (33.07)	252 (9.92)	186 (7.32)	200 (7.87)	339 (13.34)	32 (70.54)
		M95 SLT8-5				186 (7.32)	200 (7.87)	346 (13.62)	
	3-3/4" SLT8-2	M100 SLT8-6				192 (7.55)	200 (7.87)	352 (13.85)	
	4" SLT8-3					199 (7.83)	210 (8.26)	364 (14.33)	

Note: Dimensions are subject to change

SUB-SEA HYDRAULIC BOLT TENSIONER

TRITORC Subsea Bolt Tensioners are manufactured to suit the demanding requirements of divers working in harsh subsea environments. We provide a complete range of Subsea Tensioners which incorporate the Split Reaction Nut allows the diver to save time and ensure the fastest possible reaction nut engagement.



- Cover full range of bolt sizes from 1" to 3.1/2"
- Up to work load of 253 Tonnage Force

Model		Bolt Dia.		Max. Load		Hydraulic Area		Stroke	Tool Weight	Tool Dimensions inch					
Imperial	Metric	in	mm	TONF	KN	in ²	cm ²	mm	kg (lbs)	a	b	c	d	e	f
1ST:1000	1ST:0024	1"	24	24.58	245	2.53	16.34	30	3.2	3.22	0.98	8.5	4.72	5.66	2.40
1ST:1125	1ST:0027	1.1/8"	27	24.58	245				(7.05)	3.22	0.98	8.5	4.72	5.66	2.51
2ST:1250	2ST:0033	1.1/4"	33	38	379.2	3.92	25.32	30	4.8	3.93	1.10	9.44	5.15	6.25	2.95
2ST:1375	2ST:0036	1.3/8"	36	38	379.2				(10.58)	3.93	1.10	9.44	5.15	6.25	3.07
3ST:1500	3ST:0039	1.1/2"	39	55.4	552	5.71	36.88	30	6.2	4.40	1.37	9.80	5.23	6.53	3.30
3ST:1625	3ST:0042	1.5/8"	42	55.4	552				(13.66)	4.40	1.37	9.80	5.23	6.53	3.42
4ST:1750	4ST:0045	1.3/4"	45	75.6	753	7.79	50.27	30	8.5	5.03	1.61	10.66	5.51	7	3.75
4ST:1875	4ST:0048	1.7/8"	48	75.6	753				(18.73)	5.03	1.61	10.66	5.51	7	3.85
5ST:2000	5ST:0052	2"	52	108	1076	11.12	71.74	30	12.2	5.82	1.88	11.65	5.98	7.79	4.76
5ST:2250	5ST:0056	2.1/4"	56	108	1076				(26.89)	5.82	1.88	11.65	5.98	7.79	4.56
6ST:2500	6ST:0064	2.1/2"	64	165	1644	17	109.68	30	19.2	6.92	2.28	13.18	6.61	8.81	5.31
6ST:2750	6ST:0072	2.3/4"	72	165	1644				(42.32)	6.92	2.28	13.18	6.61	8.81	5.55
7ST:3000	7ST:0076	3"	76	253.4	2525	26.1	168.70	30	29	8.50	2.08	14.68	7.55	10.23	6.37
7ST:3500	7ST:0090	3.1/2"	90	253.4	2525				(63.93)	8.50	2.08	14.68	7.55	10.23	6.81

Note: Dimensions are subject to change.

WIND TURBINE FOUNDATION BOLT TENSIONER (WBT SERIES)

The foundation of the Wind Turbine Tower has an external and internal flange where the bolts are fastened using hydraulic bolt tensioners.

TRITORC offers bespoke foundation bolting solutions for various bolt sizes & Thread Profiles.

- Required amount of force is achieved with smaller dimensions and simultaneous operation.
- Custom built foundation tensioning tools.
- Generates higher loads in tight spaces.
- 100% simultaneous operation with highly accurate tensioning load.
- Works with electric, pneumatic and manually operated power packs.
- An Auto retract mechanism makes installation faster.



AIR OPERATED HYDRAULIC POWER PACK FOR TENSIONERS

The Air Operated Pumps are designed while considering safety, reliability and maximum operator comfort. All the pressurised connections are face away from the operator.

- Consumption of Free Air 800 Litres per minute (28 Standard cubic feet per minute)
- Air Pressure Required 4 - 7 Bar (60 - 100 psi)
- Finish Pressure Gauge Dual Scale 0 - 2000 Bar (0-29000 psi)
- Working Pressure 1500 Bar

Flow	0.5LPM
Air Consumption	28 - 100cfm
Maximum Outlet Pressure	2300 Bar (33350 PSI)
Maximum Air Pressure	7 Bar/100 PSI
Pressure Ratio	1:300



HAND PUMPS FOR BOLT TENSIONERS

MODEL: BPL-15

The TRITORC Two-Stage Hand Pumps come with Standard Pressure Gauge; this gives the user precise and safe control over the work carried out. The gauge is directly mounted onto the pump and is well protected by the specially designed pump lever.

FEATURES:

- Return connections on all pumps
- Robust design
- Easy and simple maintenance
- Aluminum Tank

Oil Tank Capacity	2000 (122.1)cm ³ (in ³)
Usable Oil Capacity	1700 (103.7)cm ³ (in ³)
Volume per Stroke	High - 0.8cm ³ /mm Low - 20cm ³ /mm
Piston Stroke	26 mm
Max. Working Pressure	1800 kg/cm ²
Max. Handle Effort	33.9 kg (74.74 lb)
Weight	7.7 kg (16.98 lb)



ULTRA HIGH PRESSURE ELECTRIC PUMP FOR TENSIONING APPLICATIONS

- Two Stage piston pump, compact, robust and reliable
- 1.1 kw electric motor, powerful, big flow
- Safe and easy operating control line
- When pressure under the set pressure 1 Bar/ 14.5 psi, pressure switch starts automatically and pressure will be raised to the set value
- Single and double acting pump available, which is applicable to various operations
- High performance radiator ensures continuous operation

SPECIFICATIONS

Model	Maximum Pressure		Flow Rate at Pressure	
	psi	bar	in ³ /min	lpm
46	4,600	315	59	0.9
60	6,000	420	53	0.8
87	8,750	605	45	0.7
100	10,000	685	39	0.6
125	12,500	860	32	0.5
160	16,000	1,100	26	0.4
237	23,750	1,635	18	0.3
365	36,500	2,515	12	0.2



*Supply: Voltage and frequency can be demanded by customer.

TRITORC

Perfect Product, Unmatched Quality.
No Ambiguity, Full Accountability.
Uncompromising Quality, Unbeatable Prices.

OUR PRESENCE



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