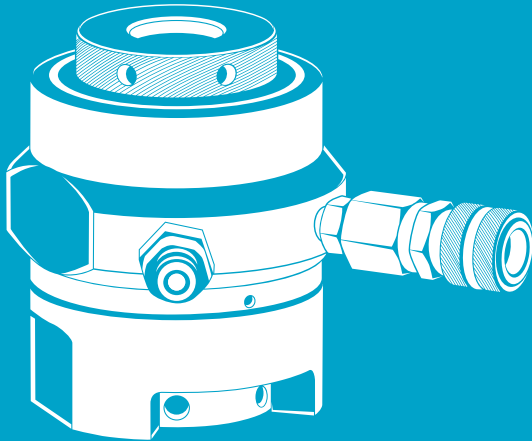
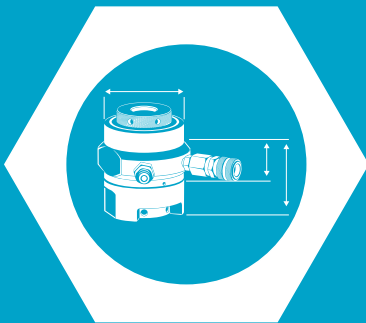


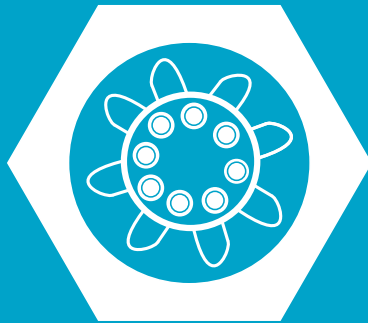
Hydraulic bolt tensioning systems



*Reaction free
operation*



*Custom
engineering*



*Simultaneous
tensioning*



Tentec CTST

Topside hydraulic bolt tensioner

Thread insert

Contains a matching female thread to the bolt being tensioned.

Reliable seals

Proven seal technology ensures many 1000's of tool pressure cycles.

Piston stroke

15mm piston/ram stroke capability on models CTST 02 - CTST 06.

Versatile

Detachable and Interchangeable bridge component.



Tentec CTST range of topside bolt tensioning tools comprises 6 base tools covering bolt sizes from 3/4" to 4" (M20 to M100). The tools are designed to fit on to most ANSI B16.5, ANSI B16.47 Series 1, MSS-SP44, API-6A and API-17D flanges. Each base tool can be converted for use with different bolt sizes using a conversion kit.



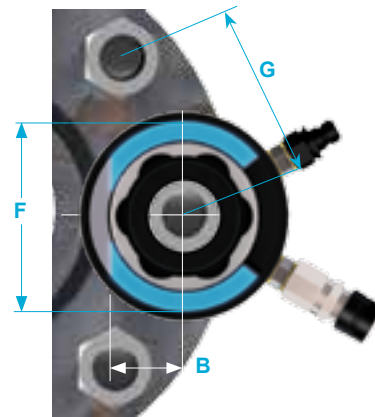
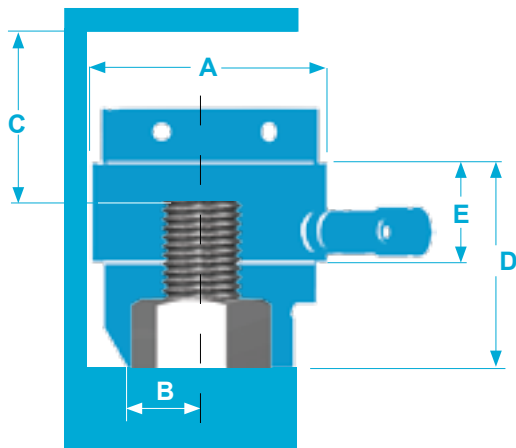
Hydraulic connections

User configurable quick release connections.

Nut Rotating Socket (NRS)

Fits around the bolted joint nut to allow for easy rotation.

CTST Bolt tensioners

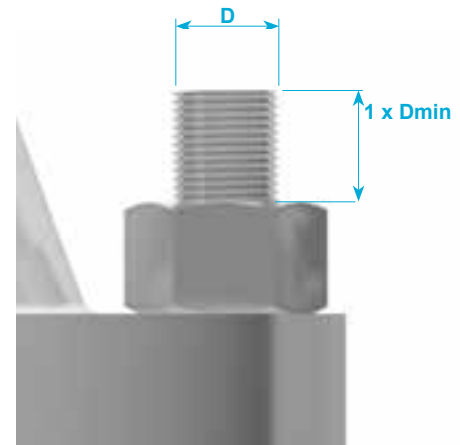


Tool	Item Imperial	Thread Size		Item Metric	Bolt Load		Ram Area		Stroke Weight		A	B	C	D	E	F	G
		Inch	mm		Kn	Ton	In ²	mm ²	mm	kg							
No 1	HTT.9551.034	3/4"-10UNC	M20x2.5	HTT.9551.020	227.81	22.86	2.354	1518.76	10	2.0	73.50	21.0	67.00	71.0	45	62	49.5
	HTT.9551.078	7/8"-9UNC	M22x2.5	HTT.9551.022						1.9		24.0	64.00	71.0	63	53	
	HTT.9551.100	1"-8UN	M24x3	HTT.9551.024						1.9		24.0	69.00	78.0	69	58.5	
	HTT.9551.118	1 1/8"-8UN	M27x3	HTT.9551.027						1.9		24.0	66.00	79.0	74	63.5	
No 2	HTT.9552.118	1 1/8"-8UN	M27x3	HTT.9552.027	443.00	44.46	4.578	2953.69	15	4.8	102	27.0	85.50	92.0	54	82	67.5
			M30x3.5	HTT.9552.030						4.9		32.0	85.00	93.0	85	69	
	HTT.9552.114	1 1/4"-8UN	M33x3.5	HTT.9552.033						4.6		31.0	84.00	95.0	85	72	
	HTT.9552.138	1 3/8"-8UN	M36x4	HTT.9552.036						4.6		34.0	84.00	98.0	91	78	
	HTT.9552.112	1 1/2"-8UN	M39x4	HTT.9552.039						4.7		36.5	82.00	100.0	90	80	
No 3	HTT.9553.112	1 1/2"-8UN	M39x4	HTT.9553.039	810.85	81.38	8.379	5405.70	15	9.5	133	36.5	98.00	109.0	56	97	83.5
	HTT.9553.158	1 5/8"-8UN	M42x4.5	HTT.9553.042						9.0		37.5	93.00	107.0	110	92.5	
	HTT.9553.134	1 3/4"-8UN	M45x4.5	HTT.9553.045						9.3		40.5	98.50	116.0	115	98	
	HTT.9553.178	1 7/8"-8UN	M48x5	HTT.9553.048						9.0		42.5	95.00	116.0	116	101	
	HTT.9553.200	2"-8UN	M52x5	HTT.9553.052						8.6		50.0	93.50	117.0	120	106	
No 4	HTT.9554.178	1 7/8"-8UN	M48x5	HTT.9554.048	1273.16	127.78	13.159	8489.96	15	16.1	163	43.5	106.00	118.0	57	130	108
	HTT.9554.200	2"-8UN	M52x5	HTT.9554.052						15.7		46.0	102.50	117.0	124	108	
	HTT.9554.214	2 1/4"-8UN	M56x5.5	HTT.9554.056						15.8		55.0	103.00	123.0	134	118.5	
			M60x5.5	HTT.9554.060						18.3		54.0	121.50	145.5	150	127	
	HTT.9554.212	2 1/2"-8UN	M64x6	HTT.9554.064						15.1		58.0	102.50	130.0	147	130.5	
No 5	HTT.9555.212	2 1/2"-8UN	M64x6	HTT.9555.064	1828.99	183.56	18.905	12196.45	15	22.7	193	64.0	107.50	133.0	60	147	130.5
			M68x6	HTT.9555.068						23.6		80.0	111.00	141.0	160	138	
	HTT.9555.234	2 3/4"-8UN	M72x6	HTT.9555.072						24.7		72.0	115.00	147.0	161	143	
	HTT.9555.300	3"-8UN	M76x6	HTT.9555.076						22.2		77.0	108.00	146.0	170	153	
No 6	HTT.9556.300	3"-8UN	M76x6	HTT.9556.076	2643.43	265.30	27.323	17627.48	15	38.5	233	77.0	120.00	153.0	64	170	153
			M80x6	HTT.9556.080						38.3		78.0	117.00	154.0	178	155.5	
	HTT.9556.314	3 1/4"-8UN	M85x6	HTT.9556.085						38.1		78.0	114.00	154.0	182	165.5	
	HTT.9556.312	3 1/2"-8UN	M90x6	HTT.9556.090						37.0		86.0	114.00	160.0	191	174.5	
	HTT.9556.334	3 3/4"-8UN	M95x6	HTT.9556.095						37.0		99.0	116.00	168.0	210	189.5	
	HTT.9556.400	4"-8UN	M100x6	HTT.9556.100						36.4		105.0	116.00	174.0	220	200	

CTST Ordering numbers

Bolt protrusion

CTST-Series tensioners need a minimum of 1 x bolt diameter protruding above the hexagon or round nut.



Metric

Item	Description	Ordering No.
HTT.9551.020	M20 CTST Tensioner	8434 2200 71
HTT.9551.022	M22 CTST Tensioner	8434 2200 73
HTT.9551.024	M24 CTST Tensioner	8434 2200 75
HTT.9551.027	M27 CTST Tensioner	8434 2200 77
HTT.9552.027	M27 CTST Tensioner	8434 2200 80
HTT.9552.030	M30 CTST Tensioner	8434 2200 82
HTT.9552.033	M33 CTST Tensioner	8434 2200 83
HTT.9552.036	M36 CTST Tensioner	8434 2200 85
HTT.9552.039	M39 CTST Tensioner	8434 2200 87
HTT.9553.039	M39 CTST Tensioner	8434 2200 94
HTT.9553.042	M42 CTST Tensioner	8434 2200 95
HTT.9553.045	M45 CTST Tensioner	8434 2200 96
HTT.9553.048	M48 CTST Tensioner	8434 2200 97
HTT.9553.052	M52 CTST Tensioner	8434 2200 98
HTT.9554.048	M48 CTST Tensioner	8434 2201 03
HTT.9554.052	M52 CTST Tensioner	8434 2201 05
HTT.9554.056	M56 CTST Tensioner	8434 2201 06
HTT.9554.060	M60 CTST Tensioner	8434 2201 07
HTT.9554.064	M64 CTST Tensioner	8434 2201 08
HTT.9555.064	M64 CTST Tensioner	8434 2201 13
HTT.9555.068	M68 CTST Tensioner	8434 2201 14
HTT.9555.072	M72 CTST Tensioner	8434 2201 15
HTT.9555.076	M76 CTST Tensioner	8434 2201 16
HTT.9556.076	M76 CTST Tensioner	8434 2201 30
HTT.9556.080	M80 CTST Tensioner	8434 2201 31
HTT.9556.085	M85 CTST Tensioner	8434 2201 32
HTT.9556.090	M90 CTST Tensioner	8434 2201 33
HTT.9556.095	M95 CTST Tensioner	8434 2201 34
HTT.9556.100	M100 CTST Tensioner	8434 2201 35

Imperial

Item	Description	Ordering No.
HTT.9551.034	3/4" CTST Tensioner	8434 2200 70
HTT.9551.078	7/8" CTST Tensioner	8434 2200 72
HTT.9551.100	1" CTST Tensioner	8434 2200 74
HTT.9551.118	1 1/8" CTST Tensioner	8434 2200 76
HTT.9552.118	1 1/8" CTST Tensioner	8434 2200 79
HTT.9552.114	1 1/4" CTST Tensioner	8434 2200 81
HTT.9552.138	1 3/8" CTST Tensioner	8434 2200 84
HTT.9552.112	1 1/2" CTST Tensioner	8434 2200 86
HTT.9553.112	1 1/2" CTST Tensioner	8434 2200 89
HTT.9553.158	1 5/8" CTST Tensioner	8434 2200 90
HTT.9553.134	1 3/4" CTST Tensioner	8434 2200 91
HTT.9553.178	1 7/8" CTST Tensioner	8434 2200 92
HTT.9553.200	2" CTST Tensioner	8434 2200 93
HTT.9554.178	1 7/8" CTST Tensioner	8434 2201 00
HTT.9554.200	2" CTST Tensioner	8434 2201 01
HTT.9554.214	2 1/4" CTST Tensioner	8434 2201 04
HTT.9554.212	2 1/2" CTST Tensioner	8434 2201 02
HTT.9555.212	2 1/2" CTST Tensioner	8434 2201 10
HTT.9555.234	2 3/4" CTST Tensioner	8434 2201 11
HTT.9555.300	3" CTST Tensioner	8434 2201 12
HTT.9556.300	3" CTST Tensioner	8434 2201 26
HTT.9556.314	3 1/4" CTST Tensioner	8434 2201 25
HTT.9556.312	3 1/2" CTST Tensioner	8434 2201 27
HTT.9556.334	3 3/4" CTST Tensioner	8434 2201 28
HTT.9556.400	4" CTST Tensioner	8434 2201 29

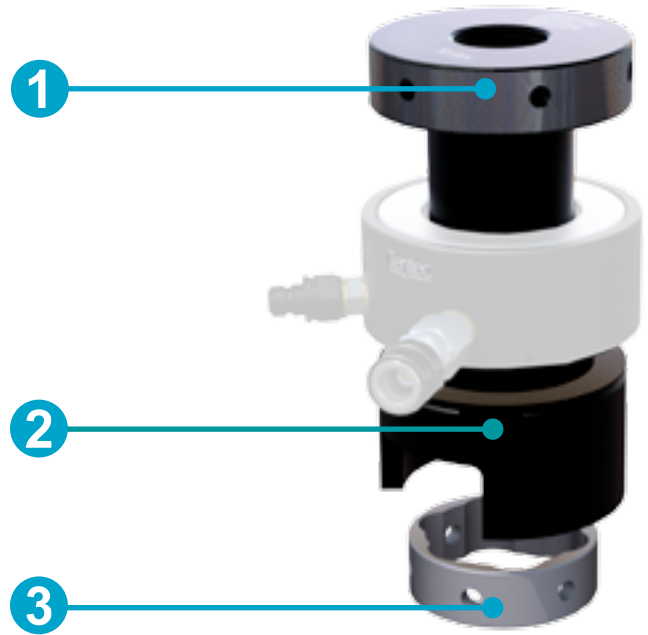
You can order a complete tensioner for the stud size using the table above, or you can order load cells and conversion kits as needed. Many different configurations are available for our CTST bolt tensioners.

CTST Conversion kits

Conversion Kits offer a very economical way to expand your inventory of bolt tensioning tools. Kits are available to convert a Tentec CTST tensioner to suit an alternative bolt size within its size range.

Kits consist of three items:

- 1 Thread insert
- 2 Bridge piece
- 3 Nut rotating socket

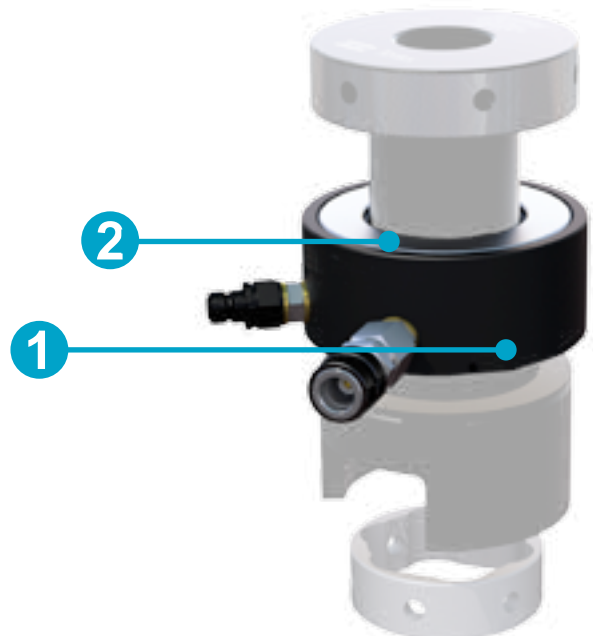


Load cell and seal kits

The core unit for any tensioner set is composed of two items:

- 1 Load cells
- 2 Seal kit

Comes fitted with hydraulic connections.



CTST Conversion kit ordering numbers

Metric

Tool Ident	Item	Description	Ordering No.
No 1	HTT.9551.521	M20 Conversion Kit	4222 2600 02
	HTT.9551.523	M22 Conversion Kit	4222 2600 04
	HTT.9551.525	M24 Conversion Kit	4222 2600 06
	HTT.9551.528	M27 Conversion Kit	4222 2600 08
No 2	HTT.9552.528	M27 Conversion Kit	4222 2600 10
	HTT.9552.532	M30 Conversion Kit	4222 2600 11
	HTT.9552.534	M33 Conversion Kit	4222 2600 13
	HTT.9552.537	M36 Conversion Kit	4222 2600 15
No 3	HTT.9552.514	M39 Conversion Kit	4222 2600 17
	HTT.9553.540	M39 Conversion Kit	4222 2600 19
	HTT.9553.543	M42 Conversion Kit	4222 2600 21
	HTT.9553.546	M45 Conversion Kit	4222 2600 23
	HTT.9553.549	M48 Conversion Kit	4222 2600 25
	HTT.9553.553	M52 Conversion Kit	4222 2600 27
No 4	HTT.9554.549	M48 Conversion Kit	4222 2600 29
	HTT.9554.553	M52 Conversion Kit	4222 2600 31
	HTT.9554.557	M56 Conversion Kit	4222 2600 33
	HTT.9554.562	M60 Conversion Kit	4222 2600 34
No 5	HTT.9554.568	M64 Conversion Kit	4222 2600 36
	HTT.9555.565	M64 Conversion Kit	4222 2701 60
	HTT.9555.570	M68 Conversion Kit	4222 2701 61
	HTT.9555.573	M72 Conversion Kit	4222 2701 62
	HTT.9555.577	M76 Conversion Kit	4222 2701 63
No 6	HTT.9556.577	M76 Conversion Kit	4222 2600 38
	HTT.9556.582	M80 Conversion Kit	4222 2600 39
	HTT.9556.586	M85 Conversion Kit	4222 2600 41
	HTT.9556.591	M90 Conversion Kit	4222 2600 43
	HTT.9556.596	M95 Conversion Kit	4222 2600 45
	HTT.9556.501	M100 Conversion Kit	4222 2600 47

Imperial

Tool Ident	Item	Description	Ordering No.
No 1	HTT.9551.536	3/4" Conversion Kit	4222 2600 01
	HTT.9551.580	7/8" Conversion Kit	4222 2600 03
	HTT.9551.502	1" Conversion Kit	4222 2600 05
	HTT.9551.520	1 1/8" Conversion Kit	4222 2600 07
No 2	HTT.9552.520	1 1/8" Conversion Kit	4222 2600 12
	HTT.9552.516	1 1/4" Conversion Kit	4222 2600 09
	HTT.9552.540	1 3/8" Conversion Kit	4222 2600 14
No 3	HTT.9552.511	1 1/2" Conversion Kit	4222 2600 16
	HTT.9553.514	1 1/2" Conversion Kit	4222 2600 18
	HTT.9553.516	1 5/8" Conversion Kit	4222 2600 20
	HTT.9553.536	1 3/4" Conversion Kit	4222 2600 22
	HTT.9553.580	1 7/8" Conversion Kit	4222 2600 24
	HTT.9553.502	2" Conversion Kit	4222 2600 26
No 4	HTT.9554.580	1 7/8" Conversion Kit	4222 2600 28
	HTT.9554.502	2" Conversion Kit	4222 2600 30
	HTT.9554.516	2 1/4" Conversion Kit	4222 2600 32
No 5	HTT.9554.511	2 1/2" Conversion Kit	4222 2600 35
	HTT.9555.514	2 1/2" Conversion Kit	4222 2701 64
No 6	HTT.9555.536	2 3/4" Conversion Kit	4222 2701 65
	HTT.9555.502	3" Conversion Kit	4222 2701 66
No 6	HTT.9556.502	3" Conversion Kit	4222 2600 37
	HTT.9556.516	3 1/4" Conversion Kit	4222 2600 40
	HTT.9556.511	3 1/2" Conversion Kit	4222 2600 42
	HTT.9556.536	3 3/4" Conversion Kit	4222 2600 44
	HTT.9556.542	4" Conversion Kit	4222 2600 46

Load cell and seal kits ordering numbers

Item	Description	Ordering No.
HTT.9551.000A	CTST No.1 Loadcell	8434 2200 69
HTT.9551.003.A	CTST No.1 Spare Seal Kit	4222 2700 26
HTT.9552.000A	CTST No.2 Loadcell	8434 2200 78
HTT.9552.003.A	CTST No.2 Spare Seal Kit	4222 2700 27
HTT.9553.000A	CTST No.3 Loadcell	8434 2200 88
HTT.9553.003.A	CTST No.3 Spare Seal Kit	4222 2700 28

Item	Description	Ordering No.
HTT.9554.000A	CTST No.4 Loadcell	8434 2200 99
HTT.9554.003.A	CTST No.4 Spare Seal Kit	4222 2700 29
HTT.9555.000A	CTST No.5 Loadcell	8434 2201 09
HTT.9555.003.A	CTST No.5 Spare Seal Kit	4222 2700 30
HTT.9556.000A	CTST No.6 Loadcell	8434 2201 24
HTT.9556.003.A	CTST No.6 Spare Seal Kit	4222 2700 31

Tentec Airbac Bolt Tensioner

Reduced diameter thread insert provides weight saving



One piece end cap and valve protection brackets



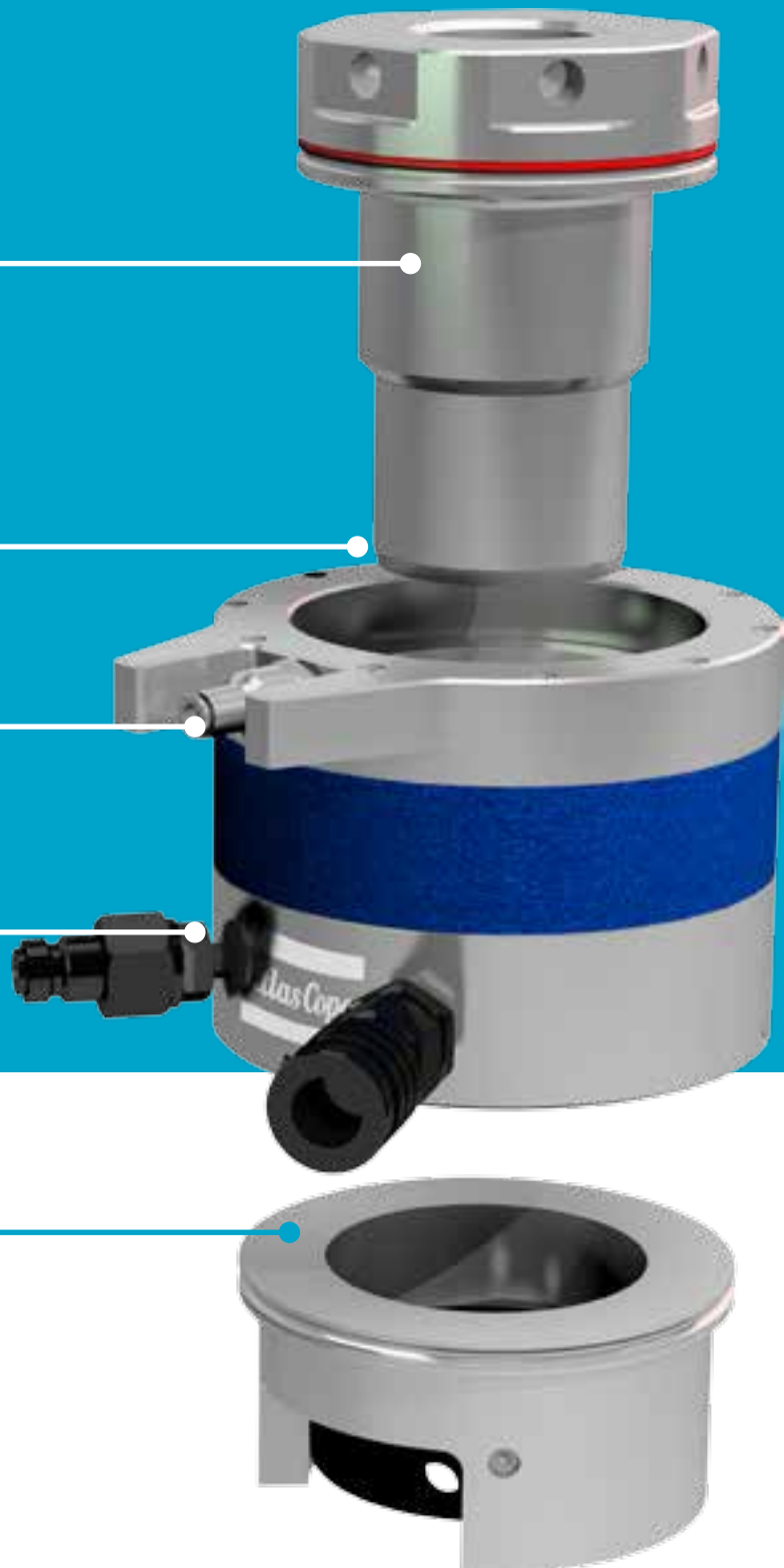
One way air valve for rapid re-charging



Outside diameter same as CTST model ensuring compatibility with ASME, ANSI and API flanges



Standard bridge and NRS interchangeable with CTST tool range



The patented Airbac range of Tentec topside bolt tensioning tools consist of 6 base tools covering bolt sizes from 3/4" to 4" (M20 to M100). The tools are designed to fit on to most ANSI B16.5, ANSI B16.47 Series 1, MSS-SP44, API-6A and API-17D flanges.

Bolt tightening solutions

Consistent, Dependable and Safe.

Using multiple bolt tensioning tools on a bolted joint gives a much improved uniform bolt load across all bolts.

Axial Bolt Load: Bolt load is applied axially to the bolt. Inconsistencies such as friction, bending and lubricant are not a factor when using bolt tensioners. No torsional stresses are involved.

Rapid: Multiple bolt tensioners offer a rapid and accurate method of tightening a bolt.

Accurate: Bolt load is directly proportional to the pressure applied to the tensioner.

Benefits

Piston return more than twice as fast as spring assisted tensioners

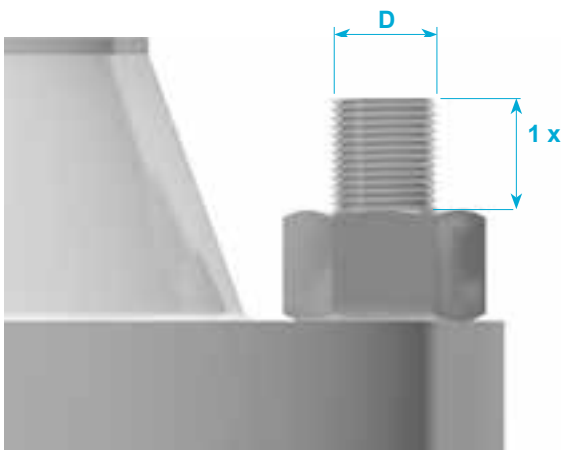
A 20% weight saving versus spring assisted equivalents reduces operator fatigue

Enhanced corrosion protection for harsh environments

Identical hydraulic pressure areas, load outputs, and MWP (1500 bar) as the CTST range

Bolt protrusion

The patented Airbac Series tensioners need a minimum of 1 x bolt diameter protruding above the hexagon or round nut.



Maximum Working Pressure = 1500bar

Tool Identification	Thread Size	Tentec Completed Tool GA No (HTT)	Part Number	Dimensions						
				A	B	C	D	E	F	G
AB-01	3/4"	HTT.18001.034	8434 2204 31	73.50	21	75	79	45	62	49.5
	M20 x 2.5	HTT.18001.020	8434 2204 32		21	74			63	49.5
	7/8"	HTT.18001.078	8434 2204 33		24	72	79		63	53
	M22 x 2.5	HTT.18001.022	8434 2204 34		24	72	79		63	53
	1"	HTT.18001.100	8434 2204 35		24	75.75	86		69	58.5
	M24 x 3	HTT.18001.024	8434 2204 36		24	77	86		69	58.5
	1 1/8"	HTT.18001.118	8434 2204 37		27	73.5	87		74	63.5
	M27 x 3	HTT.18001.027	8434 2204 38		27	75	87		74	63.5
AB-02	1 1/8"	HTT.18002.118	8434 2204 40	102	27	97.5	104	66	82	67.5
	M27 x 3	HTT.18002.027	8434 2204 41		27	99	104		82	67.5
	M30 x 3.5	HTT.18002.030	8434 2204 42		32	97	105		85	69
	1 1/4"	HTT.18002.114	8434 2204 43		31	97.5	107		85	72
	M33 x 3.5	HTT.18002.033	8434 2204 44		31	96	107		85	72
	1 3/8"	HTT.18002.138	8434 2204 45		34	97.25	110		91	78
	M36 x 4	HTT.18001.036	8434 2204 46		34	96	110		91	78
	1 1/2"	HTT.18002.112	8434 2204 47		36.5	96	112		90	80
AB-03	M39 x 4	HTT.18002.039	8434 2204 48	133	36.5	95	112	100	90	80
	M36 x 4	HTT.18003.036	8434 2204 50		36.5	130.5	153		97	83.5
	1 1/2"	HTT.18003.112	8434 2204 51		36.5	128.5	153		97	83.5
	M39 x 4	HTT.18003.039	8434 2204 52		36.5	127.5	153		97	83.5
	1 5/8"	HTT.18003.158	8434 2204 53		37.5	123.25	151		110	92.5
	M42 x 4.5	HTT.18003.042	8434 2204 54		37.5	122.5	151		110	92.5
	1 3/4"	HTT.18003.134	8434 2204 55		40.5	129.25	160		115	98
	M45 x 4.5	HTT.18003.045	8434 2204 56		40.5	128.5	160		115	98
AB-04	1 7/8"	HTT.18003.178	8434 2204 57	163	42.5	126	160	100	116	101
	M48 x 5	HTT.18003.048	8434 2204 58		42.5	125.5	160		116	101
	2"	HTT.18003.200	8434 2204 59		50	123.75	161		120	106
	M52 x 5	HTT.18003.052	8434 2204 60		50	122.5	161		120	106
	M42 x 4.5	HTT.18004.042	8434 2204 62		43.5	134.25	161		120	106
	1 7/8"	HTT.18004.178	8434 2204 63		43.5	128.75	161		130	108
	M48 x 5	HTT.18004.048	8434 2204 64		43.5	128.25	161		130	108
	2"	HTT.18004.200	8434 2204 65		46	124.5	160		130	108
AB-05	M52 x 5	HTT.18004.052	8434 2204 66	193	46	123.25	160	111.25	124	108
	2 1/4"	HTT.18004.214	8434 2204 67		55	124.25	166		124	108
	M56 x 5.5	HTT.18004.056	8434 2204 68		55	125.25	166		134	118.5
	M60 x 5.5	HTT.18004.060	8434 2204 69		54	143.75	188.5		134	118.5
	2 1/2"	HTT.18004.212	8434 2204 70		58	124.75	173		150	127
	M64 x 6	HTT.18004.064	8434 2204 71		58	124.25	173		147	130.5
	2 1/2"	HTT.18005.212	8434 2204 73		64	138.25	184.25		147	130.5
	M64 x 6	HTT.18005.064	8434 2204 74		64	137.75	184.25		147	130.5
AB-06	M68 x 6	HTT.18005.068	8434 2204 75	233	80	141.75	192.25	111.25	160	138
	2 3/4"	HTT.18005.234	8434 2204 76		72	146	198.25		161	143
	M72 x 6	HTT.18005.072	8434 2204 77		72	143.75	198.25		161	143
	3"	HTT.18005.300	8434 2204 78		77	138.75	197.25		170	153
	M76 x 6	HTT.18005.076	8434 2204 79		77	138.75	197.25		170	153
	3"	HTT.18006.300	8434 2204 81		77	141.75	200.25		170	153
	M76 x 6	HTT.18006.076	8434 2204 82		77	141.75	200.25		170	153
	M80 x 6	HTT.18006.080	8434 2204 83		78	138.75	201.25		178	155.5
AB-06	3 1/4"	HTT.18006.314	8434 2204 84	233	78	136.25	201.25	111.25	182	165.5
	M85 x 6	HTT.18006.085	8434 2204 85		78	133.75	201.25		182	165.5
	3 1/2"	HTT.18006.312	8434 2204 86		86	136	207.25		191	174.5
	M90 x 6	HTT.18006.090	8434 2204 87		86	134.75	207.25		191	174.5
	3 3/4"	HTT.18006.334	8434 2204 88		99	137.5	215.25		210	189.5
	M95 x 6	HTT.18006.095	8434 2204 89		99	137.75	215.25		210	189.5
	4"	HTT.18006.400	8434 2204 90		105	137.25	221.25		220	200
	M100 x 6	HTT.18006.100	8434 2204 91		105	138.75	221.25		220	200

Designs and specifications are subject to change without notice or obligation. Read all safety instructions in the manual before usage.
AB-01 and AB-02 are manual retract tensioners.

Tool Identification	Thread Size	Conversion Kit No	Part No	Tool Load		Hydraulic Pressure Area		Stroke		Total Tool Weight		Load Cell Weight Only										
				kN	Ton	mm2	In2	mm	In	kg	lbs	kg	lbs									
AB-01	3/4"	HTT.18001.201	4222 2600 50	227.812	22.864	1518.746	2.354	10	0.394	2.71	5.96	1.64	3.61									
	M20 x 2.5	HTT.18001.202	4222 2600 51							2.71	5.96											
	7/8"	HTT.18001.203	4222 2600 52							2.61	5.74											
	M22 x 2.5	HTT.18001.204	4222 2600 53							2.62	5.76											
	1"	HTT.18001.205	4222 2600 54							2.71	5.96											
	M24 x 3	HTT.18001.206	4222 2600 55							2.76	6.07											
	1 1/8"	HTT.18001.207	4222 2600 56							2.73	6.01											
	M27 x 3	HTT.18001.208	4222 2600 57							2.81	6.18											
	1 1/8"	HTT.18002.200	4222 2600 58							5.58	12.28											
	M27 x 3	HTT.18002.201	4222 2600 59							5.64	12.41											
AB-02	M30 x 3.5	HTT.18002.202	4222 2600 60	443.060	44.466	2953.734	4.578	10	0.394	5.68	12.50	3.02	6.64									
	1 1/4"	HTT.18002.203	4222 2600 61							5.5	12.10											
	M33 x 3.5	HTT.18002.204	4222 2600 62							5.49	12.08											
	1 3/8"	HTT.18002.205	4222 2600 63							5.56	12.23											
	M36 x 4	HTT.18002.206	4222 2600 64							5.57	12.25											
	1 1/2"	HTT.18002.207	4222 2600 65							5.76	12.67											
	M39 x 4	HTT.18002.208	4222 2600 66							5.71	12.56											
	AB-03	M36 x 4	HTT.18003.300							4222 2600 67	810.849			81.378	5405.665	8.379	10	0.394	11.83	26.03	6.53	14.37
		1 1/2"	HTT.18003.301							4222 2600 68									11.7	25.74		
		M39 x 4	HTT.18003.302							4222 2600 69									11.73	25.81		
1 5/8"		HTT.18003.303	4222 2600 70	11.4	25.08																	
M42 x 4.5		HTT.18003.304	4222 2600 71	11.55	25.41																	
1 3/4"		HTT.18003.305	4222 2600 72	11.68	25.70																	
M45 x 4.5		HTT.18003.306	4222 2600 73	11.74	25.83																	
1 7/8"		HTT.18003.307	4222 2600 74	11.54	25.39																	
M48 x 5		HTT.18003.308	4222 2600 75	11.63	25.59																	
2"		HTT.18003.309	4222 2600 76	11.18	24.60																	
AB-04	M52 x 5	HTT.18003.310	4222 2600 77	1273.489	127.809	8489.933	13.159	10	0.394	11.2	24.64	9.52	20.94									
	M42 x 4.5	HTT.18004.300	4222 2600 78							18.33	40.33											
	1 7/8"	HTT.18004.301	4222 2600 79							17.87	39.31											
	M48 x 5	HTT.18004.302	4222 2600 80							17.97	39.53											
	2"	HTT.18004.303	4222 2600 81							17.53	38.57											
	M52 x 5	HTT.18004.304	4222 2600 82							17.57	38.65											
	2 1/4"	HTT.18004.305	4222 2600 83							17.91	39.40											
	M56 x 5.5	HTT.18004.306	4222 2600 84							18.32	40.30											
	M60 x 5.5	HTT.18004.307	4222 2600 85							20.56	45.23											
	2 1/2"	HTT.18004.308	4222 2600 86							17.4	38.28											
AB-05	M64 x 6	HTT.18004.309	4222 2600 87	1829.474	183.608	12196.497	18.905	10	0.394	17.74	39.03	14.59	32.10									
	2 1/2"	HTT.18005.400	4222 2600 88							26.76	58.87											
	M64 x 6	HTT.18005.401	4222 2600 89							27.12	59.66											
	M68 x 6	HTT.18005.402	4222 2600 90							27.82	61.20											
	2 3/4"	HTT.18005.403	4222 2600 91							28.85	63.47											
	M72 x 6	HTT.18005.404	4222 2600 92							29.1	64.02											
	3"	HTT.18005.405	4222 2600 93							26.76	58.87											
	M76 x 6	HTT.18005.406	4222 2600 94							27.57	60.65											
	3"	HTT.18006.500	4222 2600 95							41.22	90.68											
	M76 x 6	HTT.18006.501	4222 2600 96							41.99	92.38											
AB-06	M80 x 6	HTT.18006.502	4222 2600 97	2644.126	265.368	17627.506	27.323	10	0.394	41.31	90.88	20.11	44.24									
	3 1/4"	HTT.18006.503	4222 2600 98							41.19	90.62											
	M85 x 6	HTT.18006.504	4222 2600 99							41.72	91.78											
	3 1/2"	HTT.18006.505	4222 2601 00							40.32	88.70											
	M90 x 6	HTT.18006.506	4222 2601 01							40.97	90.13											
	3 3/4"	HTT.18006.507	4222 2601 02							40.58	89.28											
	M95 x 6	HTT.18006.508	4222 2601 03							41.77	91.89											
4"	HTT.18006.509	4222 2601 04	40.7	89.54																		
M100 x 6	HTT.18006.510	4222 2601 05	41.61	91.54																		

Tentec Compact 8

Subsea hydraulic bolt tensioner

RELEASE BUTTON

For rapid speed of use.

SPLIT REACTION NUTS

For rapid speed of fit.

STAINLESS STEEL

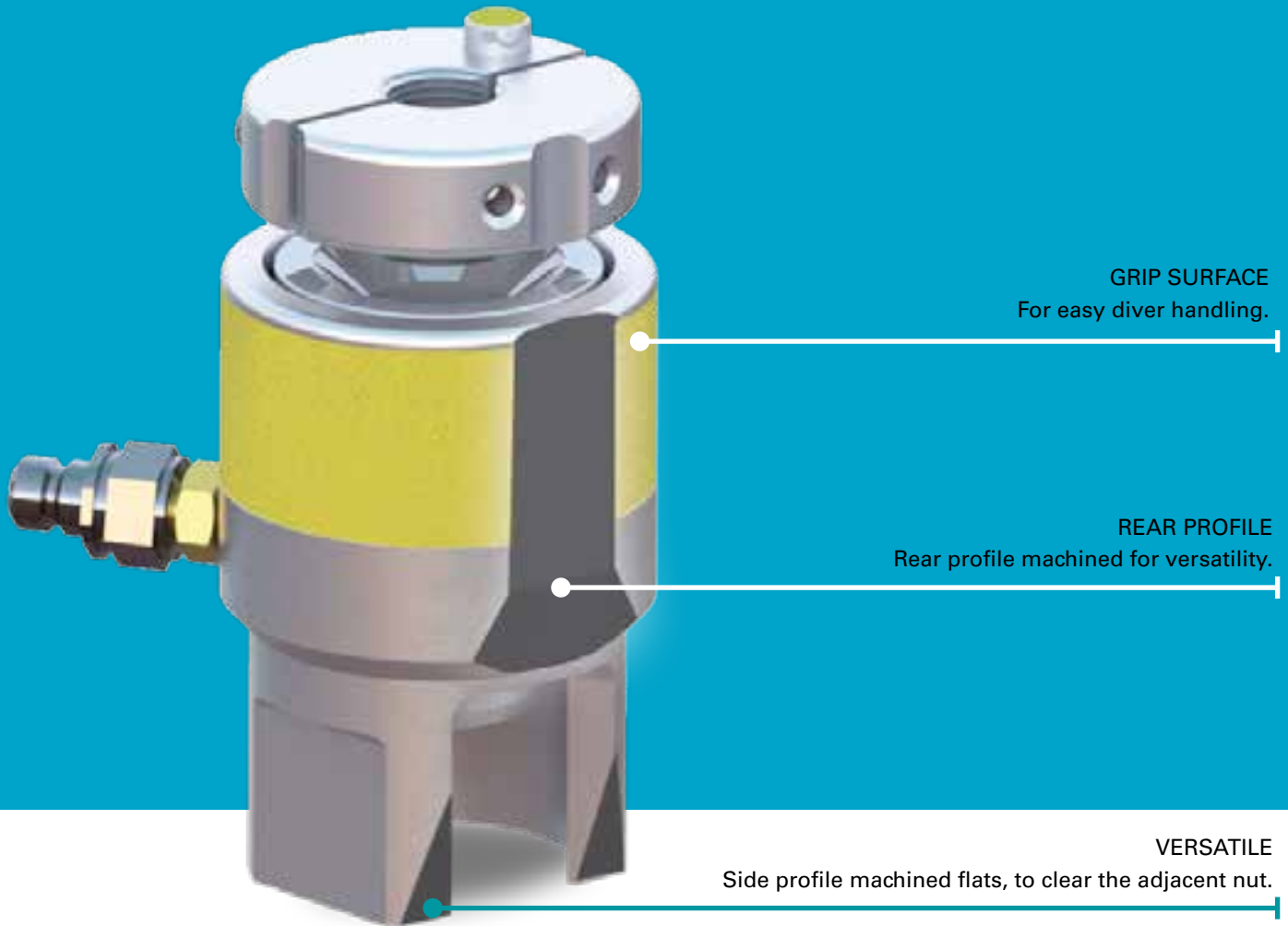
Durable and low maintenance

HYDRAULIC CONNECTIONS

User configurable
Connections.



Tentec COMPACT-8 range of subsea bolt tensioning tools brings a new generation of bolting solutions. Comprising just 8 bolt tensioning tools, the COMPACT-8 series is capable of tensioning most standard flanges and Compact flanges. The COMPACT-8 series is made from high strength stainless steel which greatly reduces maintenance work to a minimum after subsea use.

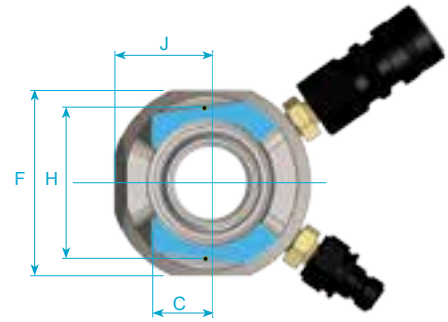
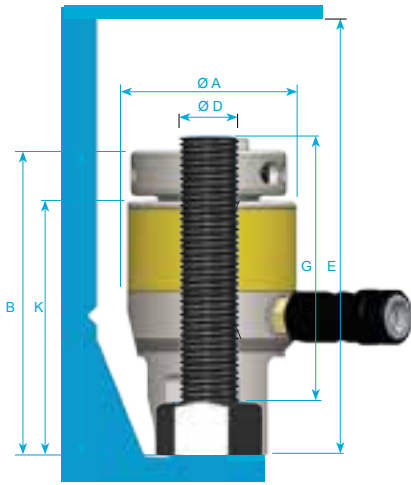


Compact 8 technical data

Model	Bolt Dia	Thread Pitch	Tool Dia	Side Dia	Tool Height	Radial Dim'n	Max Initial Bolt Load	Hyd Area mm ²	Ram Stroke	Extra Stud Length	Headroom Dimension	AF	Radial Dim'n	Dim'n
	D		A	F	B	C				G	E	H	J	K
	Inch	mm	mm	mm	mm	mm	kN	mm	mm	mm	mm	mm	mm	mm
C8-00	0.75	UNC	66.0	66.0	123	20	190.21	1268.420	20	113.5	214.5	50.2	31.6	97.00
	0.875	UNC	66.0	66.0	123	20	190.21	1268.420	20	110.3	214.5	50.2	31.6	97.00
C8-01	1	8-UN	87.0	87.0	153	25	328.87	2193.020	30	137.1	270.5	65	41.5	127.00
	1.125	8-UN	87.0	87.0	153	25	328.87	2193.020	30	134.0	270.5	65	41.5	127.00
C8-02	1.25	8-UN	104.5	104.5	165	28	514.84	3433.170	30	142.8	286.5	82.5	50.15	135.00
	1.375	8-UN	104.5	104.5	165	28	514.84	3433.170	30	139.6	286.5	82.5	50.15	135.00
C8-03	1.5	8-UN	123.1	118.3	184.5	35	746.70	4979.300	30	155.9	321.5	90	59.1	150.50
	1.625	8-UN	123.1	118.3	184.5	35	746.70	4979.300	30	152.8	321.5	90	59.1	150.50
C8-04	1.75	8-UN	150.0	143.5	210.75	48	1177.31	7850.800	30	175.8	365.0	110	71.7	169.75
	1.875	8-UN	150.0	143.5	210.75	48	1177.31	7850.800	30	172.7	365.0	110	71.7	169.75
C8-05	2	8-UN	150.0	143.5	210.75	48	1177.31	7850.800	30	169.5	365.0	110	71.7	169.75
	2.25	8-UN	182.5	174.3	235.75	59	1904.04	12696.940	30	188.1	393.0	136	87.1	179.75
C8-06	2.5	8-UN	182.5	174.3	235.75	59	1904.04	12696.940	30	181.8	393.0	136	87.1	179.75
	2.75	8-UN	210.0	210.0	259.75	65	2542.11	16951.840	30	199.4	432.0	163.5	105	199.75
C8-07	3	8-UN	210.0	210.0	259.75	65	2542.11	16951.840	30	193.1	432.0	163.5	105	199.75
	3.25	8-UN	258.1	258.1	302.8	85	4059.32	27069.190	30	229.8	492.6	204	129	232.25
C8-07	3.5	8-UN	258.1	258.1	302.8	85	4059.32	27069.190	30	223.4	492.6	204	129	232.25
	3.75	8-UN	258.1	258.1	302.8	85	4059.32	27069.190	30	217.1	492.6	204	129	232.25

Model	Bolt Dia D	Thread Pitch	Tool Dia	Side Dia	Tool Height	Radial Dim'n	Max Initial Bolt Load	Hyd Area	Ram Stroke	Extra Stud Length	Headroom Dimension	AF	Radial Dim'n	Dim'n
			A	F	B	C				G	E	H	J	K
	mm	mm	mm	mm	mm	mm	kN	mm ²	mm	mm	mm	mm	mm	mm
C8-01	24	3	87.0	87.0	153	25	328.87	2193.020	30	138	270	65	41.5	127.00
	27	3	87.0	87.0	153	25	328.87	2193.020	30	135	270	65	41.5	127.00
	30	3.5	87.0	87.0	153	25	328.87	2193.020	30	133.5	271.5	65	41.5	127.00
C8-02	33	3.5	104.5	104.5	165	28	514.84	3433.170	30	142.5	287.5	82.5	50.15	135.00
	36	4	104.5	104.5	165	28	514.84	3433.170	30	141	289	82.5	50.15	135.00
C8-03	39	4	123.1	118.3	184.5	35	746.70	4979.300	30	157.5	324	90	59.1	150.50
	42	4.5	123.1	118.3	184.5	35	746.70	4979.300	30	156	325.5	90	59.1	150.50
C8-04	45	4.5	150.0	143.5	210.8	48	1177.31	7850.800	30	179.25	369	110	71.7	169.75
	48	5	150.0	143.5	210.8	48	1177.31	7850.800	30	177.75	370.5	110	71.7	169.75
	52	5	150.0	143.5	210.8	48	1177.31	7850.800	30	173.75	370.5	110	71.7	169.75
C8-05	56	5.5	182.5	174.3	235.8	59	1904.04	12696.940	30	196.25	400	136	87.1	179.75
	60	5.5	182.5	174.3	235.8	59	1904.04	12696.940	30	192.25	400	136	87.1	179.75
	64	6	182.5	174.3	235.8	59	1904.04	12696.940	30	189.75	401.5	136	87.1	179.75
C8-06	68	6	210.0	210.0	259.8	65	2542.11	16951.840	30	209.75	440.5	163.5	105	199.75
	72	6	210.0	210.0	259.8	65	2542.11	16951.840	30	205.75	440.5	163.5	105	199.75
	76	6	210.0	210.0	259.8	65	2542.11	16951.840	30	201.75	440.5	163.5	105	199.75
C8-07	80	6	258.1	258.1	302.8	85	4059.32	27069.190	30	240.8	501.05	204	129	232.25
	85	6	258.1	258.1	302.8	85	4059.32	27069.190	30	235.8	501.05	204	129	232.25
	90	6	258.1	258.1	302.8	85	4059.32	27069.190	30	230.8	501.05	204	129	232.25
	95	6	258.1	258.1	302.8	85	4059.32	27069.190	30	225.8	501.05	204	129	232.25

Compact 8 ordering numbers



Technical Specification

Maximum Working Pressure = 1500bar : 21750psi
 Maximum ram stroke = (Tools O1 to O7): 30mm : 1.181"
 Maximum ram stroke = (Tool O0): 20mm : 0.787"

Item	Description	Ordering No.
HTT.9700.102.A	No.0 Compact-8 Spare Seal Kit	4222 2700 04
HTT.9700.000.A	No.0 Compact-8 Subsea Loadcell	8434 2200 54
HTT.9701.102.A	No.1 Compact-8 Spare Seal Kit	4222 2700 05
HTT.9701.000.A	No.1 Compact-8 Subsea Loadcell	8434 2200 55
HTT.8824.500.A	No.1 Split Nut - 1" Thread	8434 2200 18
HTT.8824.501.A	No.1 Split Nut - 1.1/8" Thread	8434 2200 19
HTT.8824.510.A	No.1 Split Nut - M24 Thread	8434 2200 20
HTT.8824.511.A	No.1 Split Nut - M27 Thread	8434 2200 21
HTT.8824.512.A	No.1 Split Nut - M30 Thread	8434 2200 22
HTT.9702.102.A	No.2 Compact-8 Spare Seal Kit	4222 2700 06
HTT.9702.000.A	No.2 Compact-8 Subsea Loadcell	8434 2200 56
HTT.8825.500.A	No.2 Split Nut - 1.1/4" Thread	8434 2200 23
HTT.8825.501.A	No.2 Split Nut - 1.3/8" Thread	8434 2200 24
HTT.8825.510.A	No.2 Split Nut - M33 Thread	8434 2200 25
HTT.8825.511.A	No.2 Split Nut - M36 Thread	8434 2200 26
HTT.9703.102.A	No.3 Compact-8 Spare Seal Kit	4222 2700 07
HTT.9703.000.A	No.3 Compact-8 Subsea Loadcell	8434 2200 57
HTT.8826.500.A	No.3 Split Nut - 1.1/2" Thread	8434 2200 27
HTT.8826.510.A	No.3 Split Nut - M39 Thread	8434 2200 29
HTT.8826.511.A	No.3 Split Nut - M42 Thread	8434 2200 30
HTT.8826.501.A	No.3 Split Nut 1.5/8" Thread	8434 2200 28
HTT.9704.102.A	No.4 Compact-8 Spare Seal Kit	4222 2700 08
HTT.9704.000.A	No.4 Compact-8 Subsea Loadcell	8434 2200 58
HTT.8827.500.A	No.4 Split Nut - 1.3/4" Thread	8434 2200 31
HTT.8827.501.A	No.4 Split Nut - 1.7/8" Thread	8434 2200 32

Item	Description	Ordering No.
HTT.8827.502.A	No.4 Split Nut - 2" Thread	8434 2200 33
HTT.8827.510.A	No.4 Split Nut - M45 Thread	8434 2200 34
HTT.8827.511.A	No.4 Split Nut - M48 Thread	8434 2200 35
HTT.8827.512.A	No.4 Split Nut - M52 Thread	8434 2200 36
HTT.9705.102.A	No.5 Compact-8 Spare Seal Kit	4222 2700 09
HTT.9705.000.A	No.5 Compact-8 Subsea Loadcell	8434 2200 59
HTT.8828.501.A	No.5 Split Nut - 2.1/2" Thread	8434 2200 38
HTT.8828.500.A	No.5 Split Nut - 2.1/4" Thread	8434 2200 37
HTT.8828.510.A	No.5 Split Nut - M56 Thread	8434 2200 39
HTT.8828.511.A	No.5 Split Nut - M60 Thread	8434 2200 40
HTT.8828.512.A	No.5 Split Nut - M64 Thread	8434 2200 41
HTT.9706.102.A	No.6 Compact-8 Spare Seal Kit	4222 2700 10
HTT.9706.000.A	No.6 Compact-8 Subsea Loadcell	8434 2200 60
HTT.8829.500.B	No.6 Split Nut - 2.3/4" Thread	8434 2200 42
HTT.8829.501.B	No.6 Split Nut - 3" Thread	8434 2200 43
HTT.8829.510.B	No.6 Split Nut - M68 Thread	8434 2200 44
HTT.8829.511.B	No.6 Split Nut - M72 Thread	8434 2200 45
HTT.8829.512.B	No.6 Split Nut - M76 Thread	8434 2200 46
HTT.9707.102.A	No.7 Compact-8 Spare Seal Kit	4222 2700 11
HTT.9707.000.A	No.7 Compact-8 Subsea Loadcell	8434 2200 61
HTT.8830.501.B	No.7 Split Nut - 3.1/2" Thread	8434 2200 48
HTT.8830.500.B	No.7 Split Nut - 3.1/4" Thread	8434 2200 47
HTT.8830.502.A	No.7 Split Nut - 3.3/4" Thread	8434 2200 49
HTT.8830.510.B	No.7 Split Nut - M80 Thread	8434 2200 50
HTT.8830.511.B	No.7 Split Nut - M85 Thread	8434 2200 51
HTT.8830.512.B	No.7 Split Nut - M90 Thread	8434 2200 52
HTT.8830.513.A	No.7 Split Nut - M95 Thread	8434 2200 53

You can order Compact-8 tensioners using the table above. There are also many different configurations available for our Compact-8 subsea bolt tensioners.

Tentec WTB

Wind turbine hydraulic bolt tensioner

Automatic reset

Internal heavy duty springs automatically resets the tensioner once the pressure has been released.

High life puller

All Aero WTB tensioners have a device that ensures the tool fails safely in the unlikely event of a puller failure.



These feature-packed tensioners have been designed with rapid tensioning in mind and offer a safe, reliable and consistent method of simultaneously tensioning many bolts.

Grip surface

For easy user handling.

Optional cycle counter

For maintenance scheduling purposes all Aero WTB Tools offer an optional mechanical pressure cycle counter.

Swivel connection

360° swivel operation allows the hydraulic hoses to be positioned in the best possible position to allow open access to the tensioning tools.

Geared nut run down

The inclusion of a gear nut run-down mechanism offers a very rapid and consistent way of seating the hexagon nuts during the tensioning procedure.

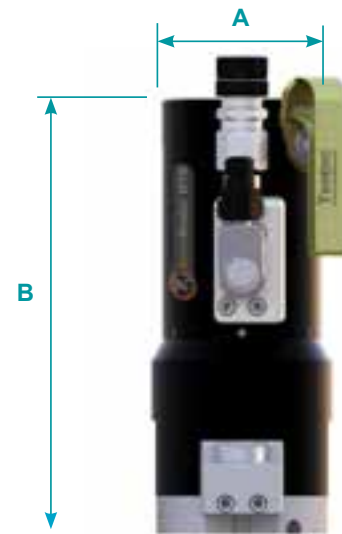
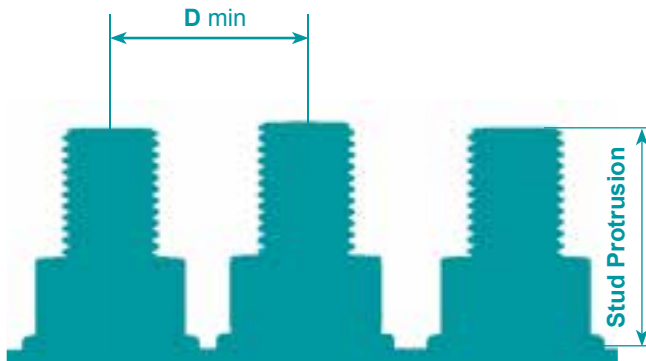
Best fit

The interchangeable profile cut spacer at the base of the tool gives the tensioner the flexibility to be used on many different applications.

“Snap Down” Nut Drive

To increase speed all Aero WTB tensioners are fitted with a spring loaded device that automatically engages the tensioner drive socket with the hexagon nut.

AERO WTB technical data



Model	Bolt Diameter	Stud Protrusion (Mm)		Max Stroke	Maximum Load		Hydraulic Pressure Area		Dia A	Height B	D	Weight
		min	max		mm	kN	lbs	mm2				
WTB30	M30	59	69	8	465.38	104622	3447.21	5.343	72	205	64	6.16
WTB33	M33	64	73	10	575.80	129444	4265.09	6.611	79	217.5	71	7.24
WTB36	M36	71	81	10	678.26	152478	5024.05	7.787	84.5	229.5	77	8.75
WTB39	M39	76	86	10	810.58	182225	6004.20	9.307	92	263	83	11.12
WTB42	M42	83	93	10	929.67	208999	6886.37	10.674	97	262.5	95	12.75
WTB45	M45	88	98	10	1079.48	242682	7996.12	12.394	105	275.5	94.5	15.86
WTB48	M48	94	104	10	1221.57	274620	9048.67	14.025	111	286.5	100.5	17.84
WTB56	M56	110	120	10	1686.19	379070	12490.29	19.359	132	314	115	26.5
WTB64	M64	124	134	10	2221.00	499300	16461.30	25.515	150	352	124	35

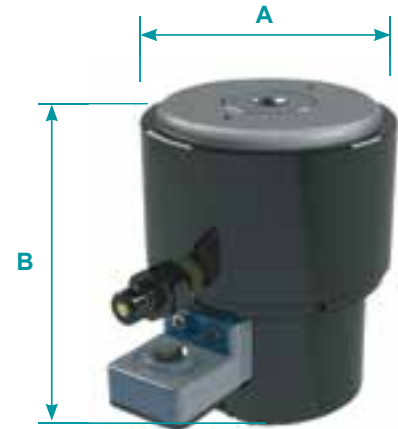
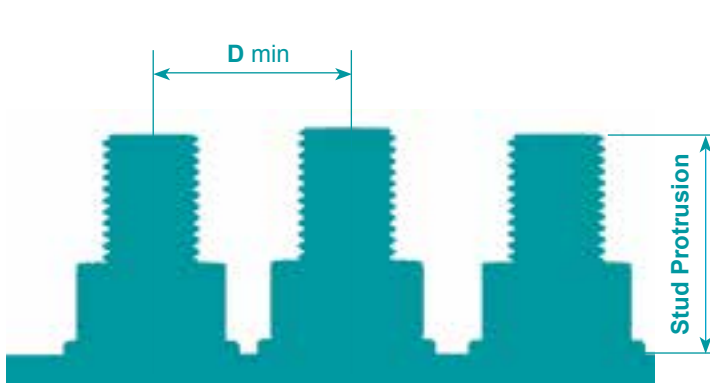
WTB Tensioner ordering numbers

Model	Description	Ordering No.
M30 – HTT.8010.000	M30 Blade Tensioner	8434 2200 62
M33 – HTT.8011.000	M33 Blade Tensioner	8434 2200 63
M36 – HTT.8012.000	M36 Blade Tensioner	8434 2200 64
M39 – HTT.8013.000	M39 Blade Tensioner	8434 2200 65
M42 – HTT.8014.000	M42 Blade Tensioner	8434 2200 66
M45 – HTT.8015.000	M45 Blade Tensioner	8434 2200 67
M48 – HTT.8016.000	M48 Blade Tensioner	8434 2200 68
M56 – HTT.9185.000	M56 Blade Tensioner	8434 2203 50
M64 – HTT.13153.000	M64 Blade Tensioner	8434 2203 51

WTB Spare seal kit ordering numbers

Model	Description	Ordering No.
HTT.8010	WTB Spare Seal kit	4222 2700 12
HTT.8011	WTB Spare Seal kit	4222 2700 13
HTT.8012	WTB Spare Seal kit	4222 2700 14
HTT.8013	WTB Spare Seal kit	4222 2700 15
HTT.8014	WTB Spare Seal kit	4222 2700 16
HTT.8015	WTB Spare Seal kit	4222 2700 17
HTT.8016	WTB Spare Seal kit	4222 2700 18
HTT.9185	WTB Spare Seal kit	4222 2701 16
HTT.13153	WTB Spare Seal kit	4222 2701 17
HTT.8314	WTBLH Spare Seal kit	4222 2701 18
HTT.13153	WTBLH Spare Seal kit	4222 2701 19

AERO WTB-low height technical data



Model	Bolt Diameter	Stud Protrusion (Mm)		Max Stroke	Maximum Load		Hydraulic Pressure		Dia A	Height B	D	Weight
		min	max		mm	lbs	mm2	in2				
WTBLH36	M36	71	91	10	678.14	152452	5023.4	7.79	123	167.5	-	9.97
WTBLH42	M42	83	103	10	930.15	209106	6889.96	10.68	142.5	181.3	-	13.94

WTB-LH ordering numbers

Model	Description	Ordering No.
M36-HTT.8314	M36 Low Height Tensioner	8434 2203 52
M42- HTT.8315	M42 Low Height Tensioner	8434 2203 53



"Snap Down" Nut Drive



Automatic Reset



Best Fit

You can order a from our standard wind turbine base tensioners but there are many different configurations available for our WTB tensioners.

Tentec WTF

Wind turbine foundation
hydraulic bolt tensioner



Tentec wind turbine foundation tensioning tools can be supplied to suit many different AllThread Bars and the more conventionally ISO metric and Imperial Unified thread forms. These feature packed tensioners have been designed with rapid tensioning in mind and offer a safe, reliable and consistent method to simultaneously tension many foundation bolts.

Seal reliability

Class leading high pressure seal technology.

Long piston stroke

The Aero WTF range of tensioners offer up to 25mm piston/ram stroke capability.

Handling straps

For easy user handling in tight areas.

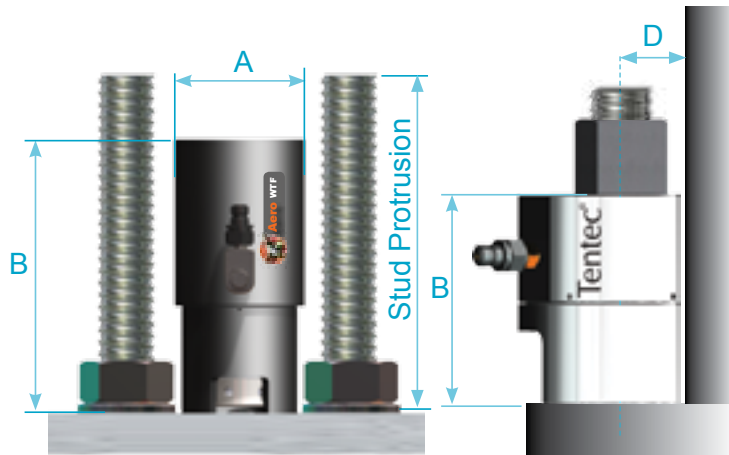
Swivel connection

360° swivel operation allows the hydraulic hoses to be positioned in the best possible position to allow open access to the tensioning tools.

Geared nut run down

The inclusion of a gear nut run-down mechanism offers a very rapid and consistent way of seating the hexagon nuts during the tensioning procedure.

AERO WTF technical data



75 KSI - All Thread Bar

Tool Ident	Foundation Bolt Type	Gear Box	Stud Protrusion (mm)		Max Stroke mm	Maximum Load		Hydraulic Pressure Area		Dia A mm	Height B mm	D mm	Weight kg
			#10	#11		kN	lbs	mm2	In2				
WTF-8041	Grade 75ksi AllThread	Y	260	257	25	472.6	106244.7	3500.72	5.426	110	231	56	10.84
WTF-8148	Grade 75ksi AllThread	N	260	257	25	472.6	106244.7	3500.72	5.426	110	231	56	10.47
WTF-8040	Grade 75ksi AllThread	Y	200	197	10	472.6	106244.7	3500.72	5.426	108	158	55	7.06
WTF-8147	Grade 75ksi AllThread	N	200	197	10	472.6	106244.7	3500.72	5.426	108	158	55	6.69
WTF-7566	Grade 75ksi Elliptical AllThread	N	205	198	10	469.3	105502.8	3128.83	4.85	142	144	41	10

150 KSI - All Thread Bar

Tool Ident	Foundation Bolt Type	Gear Box	Stud Protrusion (mm)		Max Stroke mm	Maximum Load		Hydraulic Pressure Area		Dia A mm	Height B mm	D mm	Weight kg
			#10	#11		kN	lbs	mm2	In2				
WTF-8342	Grade 150ksi AllThread	Y	270	275	25	762.45	171404.8	5647.79	8.754	125	245	63.5	14.34
WTF-8343	Grade 150ksi AllThread	N	270	275	25	762.45	171404.8	5647.79	8.754	125	245	63.5	14.34
WTF-8340	Grade 150ksi AllThread	Y	215	223	10	762.45	171404.8	5647.79	8.754	123	175	62.5	9.72
WTF-8341	Grade 150ksi AllThread	N	215	223	10	762.45	171404.8	5647.79	8.754	123	175	62.5	9.72

Metric Coarse Threads

Tool Ident	Foundation Bolt Type	Gear Box	Stud Protrusion (mm)		Max Stroke mm	Maximum Load		Hydraulic Pressure Area		Dia A mm	Height B mm	D mm	Weight kg
			Max	Min		kN	lbs	mm2	In2				
WTF-9753	M36x4	Y	250	190	15	579.8	130344	3866	5.992	108	210	50.6	10.27
WTF-9426	M42x4.5	Y	250	199	15	788	177078	5251	8.139	124	210	62	13.25

AERO WTF ordering numbers

Aero Foundation tensioners come in four basic types.

- 1 Long piston stroke tensioner
- 2 Metric thread tensioner
- 3 Short piston stroke tensioner
- 4 Elliptical tensioner



Tool Ident	Foundation Bolt Type	Ordering No.
75 KSI - All Thread Bar		
WTF-8041	Grade 75ksi All Thread	8434 2203 54
WTF-8148	Grade 75ksi All Thread	8434 2203 55
WTF-8040	Grade 75ksi All Thread	8434 2203 56
WTF-8147	Grade 75ksi All Thread	8434 2203 57
WTF-7566 Elliptical	Grade 75ksi All Thread	8434 2203 58
150 KSI - All Thread Bar		
WTF-8342	Grade 150ksi All Thread	8434 2203 59
WTF-8343	Grade 150ksi All Thread	8434 2203 60
WTF-8340	Grade 150ksi All Thread	8434 2203 61
WTF-8341	Grade 150ksi All Thread	8434 2203 62
Metric Coarse Threads		
WTF-9753	M36x4	8434 2203 63
WTF-9426	M42x4.5	8434 2203 64

WTF spare seals ordering numbers

Model	Description	Ordering No.
WTF-8041	WTF Spare Seals	4222 2701 41
WTF-8148	WTF Spare Seals	4222 2701 42
WTF-8040	WTF Spare Seals	4222 2701 43
WTF-8147	WTF Spare Seals	4222 2701 44
WTF-7566 Elliptical	WTF Spare Seals	4222 2701 45
WTF-8342	WTF Spare Seals	4222 2701 46
WTF-8343	WTF Spare Seals	4222 2701 47
WTF-8340	WTF Spare Seals	4222 2701 48
WTF-8341	WTF Spare Seals	4222 2701 49
WTF-9753	WTF Spare Seals	4222 2701 50
WTF-9426	WTF Spare Seals	4222 2701 51

You can order from our standard WTF wind turbine foundation tensioners using the table above. There are many different configurations available.

Tentec hydraulic nuts

Top collar and bottom collar models

HYDRAULIC CONNECTIONS

User configurable quick release connections.
Side and top connections available.

NUT BODY

Designed with considerable allowable
piston movement.

HYDRAULIC SEALS

Proven seal technology ensures many
thousands of tool pressure cycles.

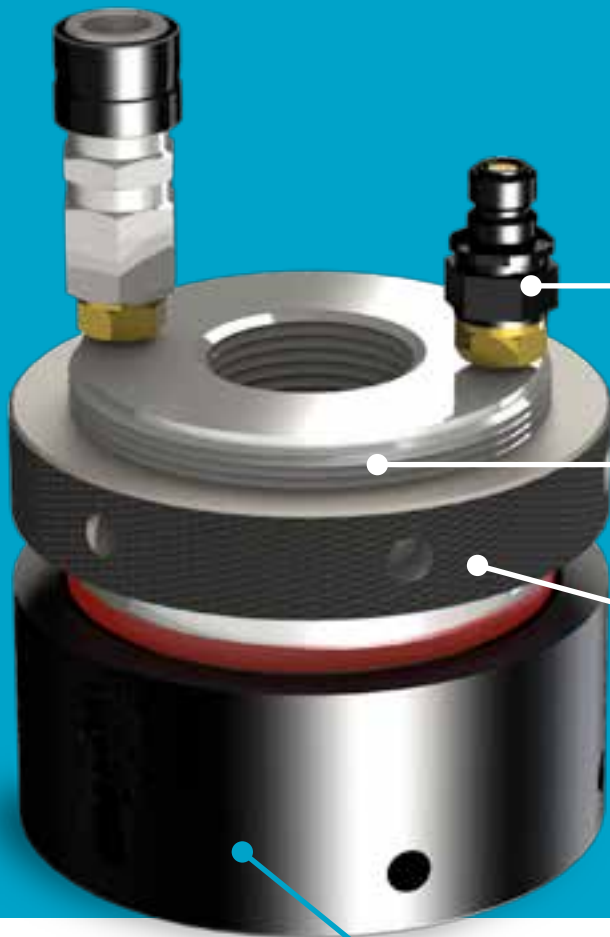
LOAD RETAINING COLLAR

The tension is permanently retained by
means of the load retaining collar.



Bottom collar

Tentec Hydraulic Nuts offer an extremely rapid and simple method of simultaneously accurately tensioning every bolt on a bolted joint. Hydraulic Nuts become a permanent part of the bolted joint and remain on the joint after the bolt load has been generated.



HYDRAULIC CONNECTIONS
User configurable quick release connections.
Side and top connections available.

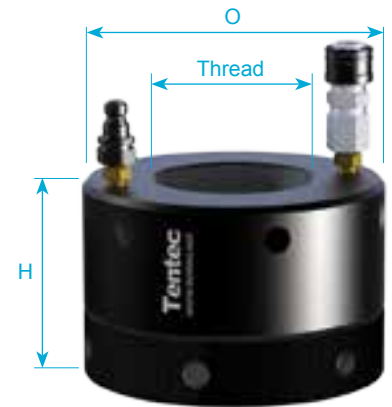
THREADED PISTON
Interfaces with the load collar to
retain bolt load.

LOAD RETAINING COLLAR
The tension is permanently
retained by means of the load
retaining collar.

Top collar

NUT BODY
Designed with considerable allowable piston movement.

Bottom collar technical data



Model		Thread		Bolt Load		O	H	S	Ordering No.	
Inch	Metric	Inches	Metric	kN	Tons	mm	mm	mm	Imperial	Metric
BCHN:0875	BCHN:0022	7/8	M22	190	19.1	54	48	5	8434 2202 64	8434 2202 86
BCHN:1000	BCHN:0024	1"	M24	205	20.6	57	44	5	8434 2202 65	8434 2202 87
BCHN:1125	BCHN:0027	1 1/8	M27	220	22.1	60	48	5	8434 2202 66	8434 2202 88
	BCHN:0030		M30							8434 2200 09
BCHN:1250	BCHN:0033	1 1/4	M33	265	26.6	67	51	5	8434 2202 67	8434 2202 89
BCHN:1375	BCHN:0036	1 3/8	M36	325	32.6	73	54	6	8434 2202 68	8434 2200 08
BCHN:1500	BCHN:0039	1 1/2	M39	373	37.5	78	56	6	8434 2202 69	8434 2202 90
BCHN:1625	BCHN:0042	1 5/8	M42	424	42.6	83	58	6	8434 2202 70	8434 2200 07
BCHN:1750	BCHN:0045	1 3/4	M45	445	44.6	86	60	6	8434 2202 71	8434 2202 91
BCHN:1875	BCHN:0048	1 7/8	M48	523	52.5	93	70	8	8434 2202 72	8434 2202 92
BCHN:2000	BCHN:0052	2	M52	629	63.1	102	71	8	8434 2202 73	8434 2202 93
BCHN:2250	BCHN:0056	2 1/4	M56	781	78.3	112	75	8	8434 2202 74	8434 2202 94
BCHN:2500	BCHN:0064	2 1/2	M64	941	94.4	124	86	8	8434 2202 75	8434 2202 95
BCHN:2750	BCHN:0068	2 3/4	M68	1042	104.5	131	90	8	8434 2202 76	8434 2202 96
BCHN:3000	BCHN:0072	3	M72	1246	125.1	144	94	10	8434 2202 77	8434 2202 97
BCHN:3250	BCHN:0080	3 1/4	M80	1607	161.3	159	104	10	8434 2202 78	8434 2202 98
BCHN:3500	BCHN:0090	3 1/2	M90	2027	203.4	176	114	10	8434 2202 79	8434 2202 99
BCHN:3750	BCHN:0095	3 3/4	M95	2160	216.7	182	118	10	8434 2202 80	8434 2203 00
BCHN:4000	BCHN:0100	4	M100	2466	247.5	200	124	15	8434 2202 81	8434 2203 01
BCHN:4500	BCHN:0110	4 1/2	M110	2814	282.4	215	136	15	8434 2202 82	8434 2203 02
BCHN:5000	BCHN:0125	5	M125	3820	383.4	244	148	15	8434 2202 83	8434 2203 03
BCHN:5500	BCHN:0140	5 1/2	M140	4954	497.1	272	164	15	8434 2202 84	8434 2203 04
BCHN:6000	BCHN:0150	6	M150	5655	567.5	290	176	15	8434 2202 85	8434 2203 05

Hydraulic nut seal ordering numbers

Ordering No.	Item imperial	Thread		Item metric	Ordering No.
		Inches	metric		
4222 2700 32	BCHN:0875	7/8"	M22	BCHN:0022	4222 2700 52
4222 2701 58	BCHN:1000	1"	M24	BCHN:0024	4222 2700 53
4222 2701 59	BCHN:1125	1 1/8"	M27	BCHN:0027	4222 2700 54
			M30	BCHN:0030	4222 2700 03
4222 2700 33	BCHN:1250	1 1/4"	M33	BCHN:0033	4222 2700 55
4222 2700 34	BCHN:1375	1 3/8"	M36	BCHN:0036	4222 2700 02
4222 2700 35	BCHN:1500	1 1/2"	M39	BCHN:0039	4222 2700 56
4222 2700 36	BCHN:1625	1 5/8"	M42	BCHN:0042	4222 2700 01
4222 2700 37	BCHN:1750	1 3/4"	M45	BCHN:0045	4222 2700 57
4222 2700 38	BCHN:1875	1 7/8"	M48	BCHN:0048	4222 2700 58
4222 2700 39	BCHN:2000	2"	M52	BCHN:0052	4222 2700 59

Ordering No.	Item imperial	Thread		Item metric	Ordering No.
		Inches	metric		
4222 2700 40	BCHN:2250	2 1/4"	M56	BCHN:0056	4222 2700 60
4222 2700 41	BCHN:2500	2 1/2"	M64	BCHN:0064	4222 2700 61
4222 2700 42	BCHN:2750	2 3/4"	M68	BCHN:0068	4222 2700 62
4222 2700 43	BCHN:3000	3"	M72	BCHN:0072	4222 2700 63
4222 2700 44	BCHN:3250	3 1/4"	M80	BCHN:0080	4222 2700 64
4222 2700 45	BCHN:3500	3 1/2"	M90	BCHN:0090	4222 2700 65
4222 2700 46	BCHN:3750	3 3/4"	M95	BCHN:0095	4222 2700 66
4222 2700 47	BCHN:4000	4"	M100	BCHN:0100	4222 2700 67
4222 2700 48	BCHN:4500	4 1/2"	M110	BCHN:0110	4222 2700 68
4222 2700 49	BCHN:5000	5"	M125	BCHN:0125	4222 2700 69
4222 2700 50	BCHN:5500	5 1/2"	M140	BCHN:0140	4222 2700 70
4222 2700 51	BCHN:6000	6"	M150	BCHN:0150	4222 2700 71

Top collar technical data



Model		Thread		Bolt Load		O	H	Ram Stroke	Ordering No.	
Inch	Metric	Inches	Metric	kN	Tons	mm	mm	mm	Imperial	Metric
TCHN:0875	TCHN:0022	7/8	M22	190	19.1	54	40	5	8434 2203 06	8434 2203 28
TCHN:1000	TCHN:0024	1	M24	205	20.6	57	44	5	8434 2203 07	8434 2203 29
TCHN:1125	TCHN:0027	1 1/8	M27	220	22.1	60	46	5	8434 2203 08	8434 2203 30
TCHN:1250	TCHN:0033	1 1/4	M33	265	26.6	67	48	5	8434 2203 09	8434 2203 31
TCHN:1375	TCHN:0036	1 3/8	M36	325	32.6	73	52	6	8434 2203 10	8434 2203 32
TCHN:1500	TCHN:0039	1 1/2	M39	373	37.5	78	56	6	8434 2203 11	8434 2203 33
TCHN:1625	TCHN:0042	1 5/8	M42	424	42.6	83	58	6	8434 2203 12	8434 2203 34
TCHN:1750	TCHN:0045	1 3/4	M45	445	44.6	86	60	6	8434 2203 13	8434 2203 35
TCHN:1875	TCHN:0048	1 7/8	M48	523	52.5	93	64	8	8434 2203 14	8434 2203 36
TCHN:2000	TCHN:0052	2	M52	629	63.1	102	72	8	8434 2203 15	8434 2203 37
TCHN:2250	TCHN:0056	2 1/4	M56	781	78.3	112	75	8	8434 2203 16	8434 2203 38
TCHN:2500	TCHN:0064	2 1/2	M64	941	94.4	124	81	8	8434 2203 17	8434 2203 39
TCHN:2750	TCHN:0068	2 3/4	M68	1042	104.5	131	89	8	8434 2203 18	8434 2203 40
TCHN:3000	TCHN:0072	3	M72	1246	125.1	144	96	10	8434 2203 19	8434 2203 41
TCHN:3250	TCHN:0080	3 1/4	M80	1607	161.3	159	104	10	8434 2203 20	8434 2203 42
TCHN:3500	TCHN:0090	3 1/2	M90	2027	203.4	176	114	10	8434 2203 21	8434 2203 43
TCHN:3750	TCHN:0095	3 3/4	M95	2160	216.7	182	117	10	8434 2203 22	8434 2203 44
TCHN:4000	TCHN:0100	4	M100	2466	247.5	200	126	15	8434 2203 23	8434 2203 45
TCHN:4500	TCHN:0110	4 1/2	M110	2814	282.4	215	138	15	8434 2203 24	8434 2203 46
TCHN:5000	TCHN:0125	5	M125	3820	383.4	244	150	15	8434 2203 25	8434 2203 47
TCHN:5500	TCHN:0140	5 1/2	M140	4954	497.1	272	168	15	8434 2203 26	8434 2203 48
TCHN:6000	TCHN:0150	6	M150	5655	567.5	290	174	15	8434 2203 27	8434 2203 49

Hydraulic nut seal ordering numbers

Ordering No.	Item imperial	Thread		Item metric	Ordering No.
		Inches	metric		
4222 2700 72	TCHN:0875	7/8"	M22	TCHN:0022	4222 2700 94
4222 2700 73	TCHN:1000	1"	M24	TCHN:0024	4222 2700 95
4222 2700 74	TCHN:1125	1 1/8"	M27	TCHN:0027	4222 2700 96
4222 2700 75	TCHN:1250	1 1/4"	M33	TCHN:0033	4222 2700 97
4222 2700 76	TCHN:1375	1 3/8"	M36	TCHN:0036	4222 2700 98
4222 2700 77	TCHN:1500	1 1/2"	M39	TCHN:0039	4222 2700 99
4222 2700 78	TCHN:1625	1 5/8"	M42	TCHN:0042	4222 2701 00
4222 2700 79	TCHN:1750	1 3/4"	M45	TCHN:0045	4222 2701 01
4222 2700 80	TCHN:1875	1 7/8"	M48	TCHN:0048	4222 2701 02
4222 2700 81	TCHN:2000	2"	M52	TCHN:0052	4222 2701 03
4222 2700 82	TCHN:2250	2 1/4"	M56	TCHN:0056	4222 2701 04

Ordering No.	Item imperial	Thread		Item metric	Ordering No.
		Inches	metric		
4222 2700 83	TCHN:2500	2 1/2"	M64	TCHN:0064	4222 2701 05
4222 2700 84	TCHN:2750	2 3/4"	M68	TCHN:0068	4222 2701 06
4222 2700 85	TCHN:3000	3"	M72	TCHN:0072	4222 2701 07
4222 2700 86	TCHN:3250	3 1/4"	M80	TCHN:0080	4222 2701 08
4222 2700 87	TCHN:3500	3 1/2"	M90	TCHN:0090	4222 2701 09
4222 2700 88	TCHN:3750	3 3/4"	M95	TCHN:0095	4222 2701 10
4222 2700 89	TCHN:4000	4"	M100	TCHN:0100	4222 2701 11
4222 2700 90	TCHN:4500	4 1/2"	M110	TCHN:0110	4222 2701 12
4222 2700 91	TCHN:5000	5"	M125	TCHN:0125	4222 2701 13
4222 2700 92	TCHN:5500	5 1/2"	M140	TCHN:0140	4222 2701 14

Order from standard configurations on the table above.

Tentec V-Series

Compact flange bolt tensioner

Knurled thread insert

Makes operation easier for the user.



Sculpted to fit

Machined flats and other custom design on this tensioner perfectly clears elliptical hub profile, weld protrusion and peion diameter.

The V-Series compact flange bolt tensioners are a purpose designed range of tools designed specifically for use on SPO Compact flanges. The range consists of 11 powerful bolt tensioning tools covering bolt sizes from 3/4" to 4".

Grip surface

Allows easier user handling.

Holding straps

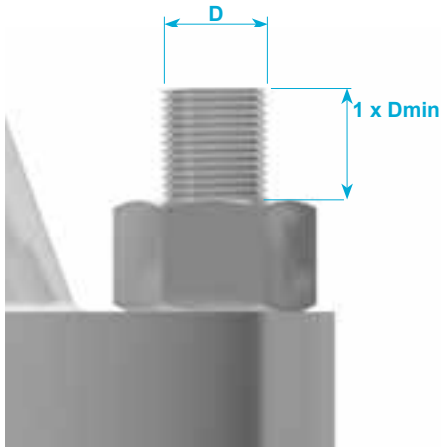
On our larger tensioners, we include holding straps to make it easier to move tools around.

No small bonded seals

All V-Series have been designed without the need for small bonded seals, which helps reduce downtime.



Tentec V-Series technical data



V-Series tensioners need a minimum of 1 x bolt diameter protruding above the hexagon or round nut.

Tool	Item Imperial	Thread Size		Item Metric	Bolt Load		Ram Area		Stroke Mm	Weight Kg
		Inch	Mm		Kn	Ton	In ²	Mm ²		
V-1	HTT.10101.034	3/4"-10Unc	M20x2.5	HTT.10101.020	135.5	13.599	1.401	903.87	10	1.67
V-2	HTT.10102.034	3/4"-10Unc	M20x2.5	HTT.10102.020	189.39	19.007	1.958	1263.22	10	2.17
	HTT.10102.078	7/8"-9Unc	M22x2.5	HTT.10102.022						2.07
V-3	HTT.10103.078	7/8"-9Unc	M22x2.5	HTT.10103.022	245.92	24.681	2.542	1640.00	15	3.33
	HTT.10103.100	1"-8Un	M24x3	HTT.10103.024						3.19
V-4			M27x3	HTT.10104.027	415.52	41.702	4.295	2770.96	15	6.2
	HTT.10104.118	1.1/8-8Un	M30x3.5	HTT.10104.030						6.08
	HTT.10104.114	1.1/4"-8Un	M33x3.5	HTT.10104.033						5.87
V-5	HTT.10105.138	1.3/8"-8Un	M36x4	HTT.10105.036	628.64	63.091	6.498	4192.25	15	8.65
	HTT.10105.112	1.1/2"-8Un	M39x4	HTT.10105.039						8.37
V-6	HTT.10106.158	1.5/8"-8Un	M42x4.5	HTT.10106.042	878.45	88.162	9.08	5858.05	15	12.08
	HTT.10106.134	1.3/4"-8Un	M45x4.5	HTT.10106.045						11.73
V-7	HTT.10107.178	1.7/8"-8Un	M48x5	HTT.10107.048	1184.49	118.877	12.243	7898.69	15	16.34
	HTT.10107.200	2"-8Un	M52x5	HTT.10107.052						15.92
V-8			M56x5.5	HTT.10108.056	1905.46	191.234	19.695	12706.43	15	28.27
	HTT.10108.214	2.1/4"-8Un	M60x5.5	HTT.10108.060						27.91
	HTT.10108.212	2.1/2"-8Un	M64x6	HTT.10108.064						26.71
V-9			M68x6	HTT.10109.068	2544.02	255.321	26.295	16964.48	15	40.13
	HTT.10109.234	2.3/4"-8Un	M72x6	HTT.10109.072						39.22
	HTT.10109.300	3"-8Un	M76x6	HTT.10109.076						37.64
V-10			M80x6	HTT.10110.080	3521.35	353.407	36.397	23481.89	15	64.76
	HTT.10110.314	3.1/4"-8Un	M85x6	HTT.10110.085						63.07
	HTT.10110.312	3.1/2"-8Un	M90x6	HTT.10110.090						61.05
V-11	HTT.10111.334	3.3/4"-8Un	M95x6	HTT.10111.095	4653.38	467.018	48.098	31030.91	15	88.36
	HTT.10111.400	4"-8Un	M100x6	HTT.10111.100						85.64

Tentec V-Series ordering numbers

Tool	Item		Thread Size		PTD Number Imperial	PTD Number Metric
	Imperial	Inch	mm	Metric		
V-1	HTT.10101.034	3/4" V-Series Tensioner	M20 V-Series Tensioner	HTT.10101.020	8434 2201 36	8434 2201 57
V-2	HTT.10102.034	3/4" V-Series Tensioner	M20 V-Series Tensioner	HTT.10102.020	8434 2201 37	8434 2201 58
	HTT.10102.078	7/8" V-Series Tensioner	M22 V-Series Tensioner	HTT.10102.022	8434 2201 38	8434 2201 59
V-3	HTT.10103.078	7/8" V-Series Tensioner	M22 V-Series Tensioner	HTT.10103.022	8434 2201 39	8434 2201 60
	HTT.10103.100	1" V-Series Tensioner	M24 V-Series Tensioner	HTT.10103.024	8434 2201 40	8434 2201 61
V-4			M27 V-Series Tensioner	HTT.10104.027		8434 2201 62
	HTT.10104.118	1.1/8" V-Series Tensioner	M30 V-Series Tensioner	HTT.10104.030	8434 2201 41	8434 2201 63
	HTT.10104.114	1.1/4" V-Series Tensioner	M33 V-Series Tensioner	HTT.10104.033	8434 2201 42	8434 2201 64
V-5	HTT.10105.138	1.3/8" V-Series Tensioner	M36 V-Series Tensioner	HTT.10105.036	8434 2201 43	8434 2201 65
	HTT.10105.112	1.1/2" V-Series Tensioner	M39 V-Series Tensioner	HTT.10105.039	8434 2201 44	8434 2201 66
V-6	HTT.10106.158	1.5/8" V-Series Tensioner	M42 V-Series Tensioner	HTT.10106.042	8434 2201 45	8434 2201 67
	HTT.10106.134	1.3/4" V-Series Tensioner	M45 V-Series Tensioner	HTT.10106.045	8434 2201 46	8434 2201 68
V-7	HTT.10107.178	1.7/8" V-Series Tensioner	M48 V-Series Tensioner	HTT.10107.048	8434 2201 47	8434 2201 69
	HTT.10107.200	2" V-Series Tensioner	M52 V-Series Tensioner	HTT.10107.052	8434 2201 48	8434 2201 70
V-8			M56 V-Series Tensioner	HTT.10108.056		8434 2201 71
	HTT.10108.214	2.1/4" V-Series Tensioner	M60 V-Series Tensioner	HTT.10108.060	8434 2201 49	8434 2201 72
	HTT.10108.212	2.1/2" V-Series Tensioner	M64 V-Series Tensioner	HTT.10108.064	8434 2201 50	8434 2201 73
V-9			M68 V-Series Tensioner	HTT.10109.068		8434 2201 74
	HTT.10109.234	2.3/4" V-Series Tensioner	M72 V-Series Tensioner	HTT.10109.072	8434 2201 51	8434 2201 75
	HTT.10109.300	3" V-Series Tensioner	M76 V-Series Tensioner	HTT.10109.076	8434 2201 52	8434 2201 76
V-10			M80 V-Series Tensioner	HTT.10110.080		8434 2201 77
	HTT.10110.314	3.1/4" V-Series Tensioner	M85 V-Series Tensioner	HTT.10110.085	8434 2201 53	8434 2201 78
	HTT.10110.312	3.1/2" V-Series Tensioner	M90 V-Series Tensioner	HTT.10110.090	8434 2201 54	8434 2201 79
V-11	HTT.10111.334	3.3/4" V-Series Tensioner	M95 V-Series Tensioner	HTT.10111.095	8434 2201 55	8434 2201 80
	HTT.10111.400	4" V-Series Tensioner	M100 V-Series Tensioner	HTT.10111.100	8434 2201 56	8434 2201 81

V-Series spare seal kit ordering numbers

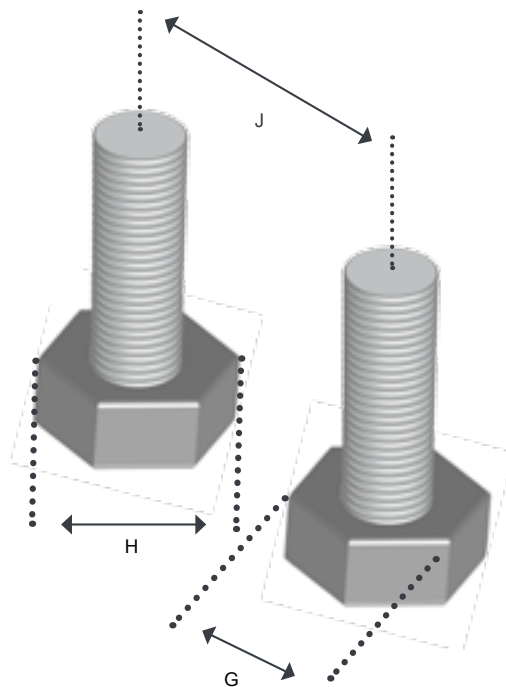
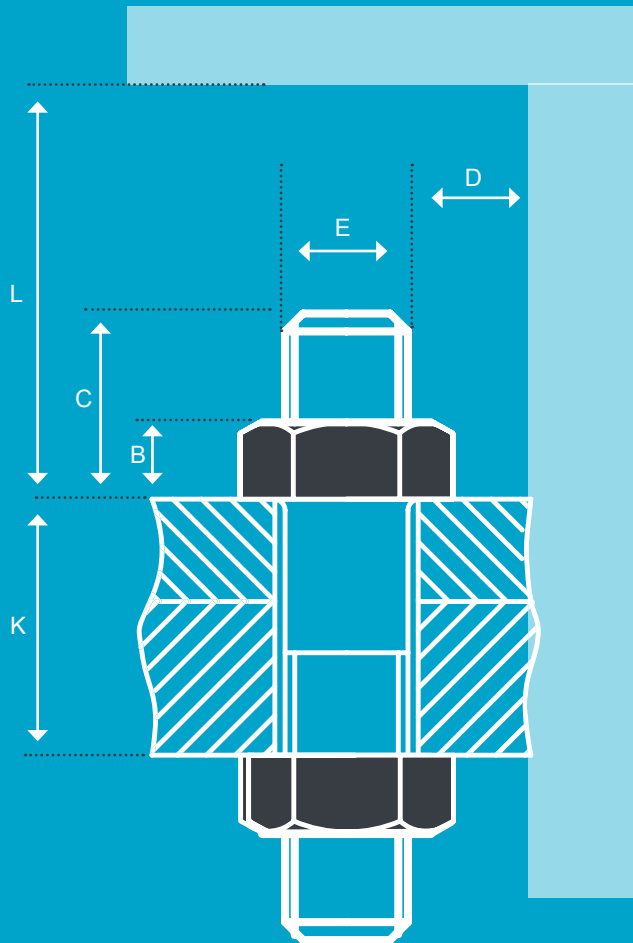
Tool	Description	Ordering No.
V-1	V-1 Spare Seal Kit	4222 2701 20
V-2	V-2 Spare Seal Kit	4222 2701 21
V-3	V-3 Spare Seal Kit	4222 2701 22
V-4	V-4 Spare Seal Kit	4222 2701 23
V-5	V-5 Spare Seal Kit	4222 2701 24
V-6	V-6 Spare Seal Kit	4222 2701 25

Tool	Description	Ordering No.
V-7	V-7 Spare Seal Kit	4222 2701 26
V-8	V-8 Spare Seal Kit	4222 2701 27
V-9	V-9 Spare Seal Kit	4222 2701 28
V-10	V-10 Spare Seal Kit	4222 2701 29
V-11	V-11 Spare Seal Kit	4222 2701 30

You can order a from our standard V-Series range using the table above. There are many different configurations available for V-Series bolt tensioners.

Custom tensioners

Custom-built for your application



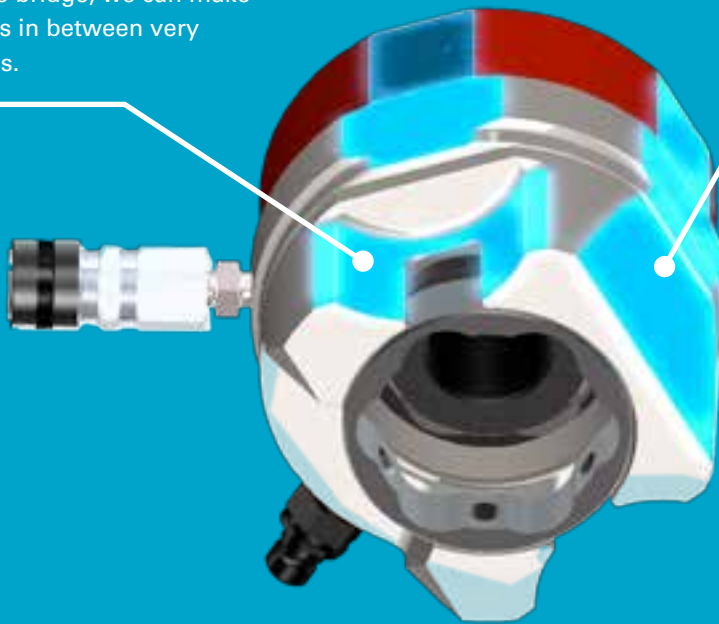
Tentec line of tensioners cover a great range of applications, but our in-house development team really shines when it comes to custom tensioner design. No matter the application, our team can get it done. By providing us with basic measurements, we can create the exact tensioner design for your application. All parts of a tensioner can be customized to cater for any special application. Common customization is requested to match thread pitch, bolt load requirements and Nut Rotating Socket height.

Customized sculpted bridge

By customizing the bridge, we can make a tensioner that fits in between very close hexagon nuts.

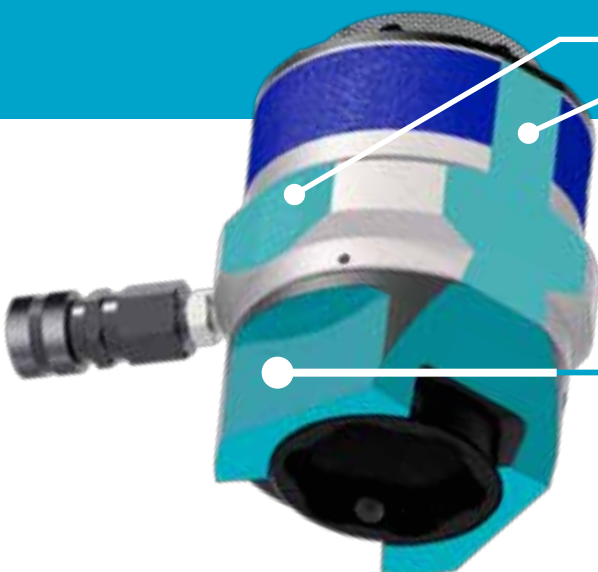
Customized machined flats

Customized machined flats to the rear of the tensioner to allow for tight weld radius and tight applications.



Machined profile

We can machine profile, rear and sides to adjust to a specific measurement.



Machined nut rotating socket

Profiles can be reduced on the Nut Rotating Socket to perfectly sit in between adjacent nuts.

Accessories for tentec bolt tensioners

Hand Pumps

Item	Description	Ordering No.
HTT.2065.000.A	Low Pressure Hand Pump	8434 2200 03
HTT.2122.000.A	High Pressure Hand Pump	8434 2200 04



Air-Driven Pumps

Item	Description	Ordering No.
HTT.6271	Low Pressure Air Driven Pump D500, 25,000 psi	8434 2200 05
HTT.6272	High Pressure Air Driven Pump D500, 40,000 psi	8434 2200 06
Hi-Flow HTT.6978	Low Pressure Hi-Flow Air Driven Pump, stainless steel frame D600, 25,000 psi	8434 2202 62
Hi-Flow HTT.9384	High Pressure High Flow Air Driven Pump, stainless steel frame D600, 40,000 psi	8434 2202 63
HTT.18007.000	Airbac Pump	4222 2601 06
HTT.18008.000	Retro-fit Kit	4222 2601 07



Wind Turbine Pumps

Item	Description	Ordering No.
HTT.8900.200	Wind Turbine Pump 115v-60Hz	8434 2203 66
HTT.8900.400	Wind Turbine Pump 230v-50Hz	8434 2203 68
HTT.8900.600	Wind Turbine Pump 400v-50Hz	8434 2203 70

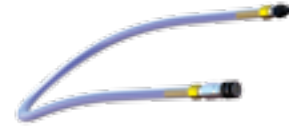
For any other voltage/frequency contact local sales office



Hydraulic Hoses

Item	Description	Ordering No.
HTT.4425.130	4.Ply 1.3 Meter Long Hose (Low Pressure)	8434 2200 10
HTT.4425.150	4.Ply 1.5 Meter Long Hose (Low Pressure)	8434 2200 11
HTT.4425.300	4.Ply 3.0 Meter Long Hose (Low Pressure)	8434 2200 12
HTT.4425.500	4.Ply 5 Meter Long Hose (Low Pressure)	8434 2200 13
HTT.4444.130	6.Ply 1.3 Meter Long Hose (High Pressure)	8434 2200 14
HTT.4444.150	6.Ply 1.5 Meter Long Hose (High Pressure)	8434 2200 15
HTT.4444.300	6.Ply 3.0 Meter Long Hose (High Pressure)	8434 2200 16
HTT.4444.500	6.Ply 5 Meter Long Hose (High Pressure)	8434 2200 17

1500 bar Hydraulic Link Hose



2275 bar Hydraulic Link Hose



Couplers/Nipples

Item	Description	Ordering No.
HTT.3427.000	1/4" Male X 1/4" Male Adaptor (Tensioner)	4222 2700 19
HTT.3627.000	1/4" Male X 1/4" Cejn Male (Hose)	4222 2700 20
400.021-4490-2	1/4" Bonded Seal	4222 2700 21
C101161202	C116 Female Coupling (Low Pressure)	4222 2700 22
C101166202	C116 Male Nipple (Low Pressure)	4222 2700 23
C101251203	C125 Female Coupling (High Pressure)	4222 2700 24
C101256203	C125 Male Nipple (Hiigh Pressure)	4222 2700 25
HTT.4132	1/4 BSP M X 1/8 BSP M ADAP	4222 2701 52
DOWTY.0.125	1/8" Bonded Seal	4222 2701 53
HTT.2408	1/8" BSP CONED BLANK PLUG	4222 2701 54
HTT.3609	9/16" UNF CONED BLANK PLUG	4222 2701 55
HTT.5886	1/4" BSP BLANK PLUG	4222 2701 56



Hydraulic Oil

Item	Description	Ordering No.
AWS68	AWS68 - Hyd Oil One Gallon	8434 2200 01
AWS32	AWS32 - Hyd Oil One Gallon	8434 2200 02

