



**"I don't intend to build in order to
have clients; I intend to have
clients in order to build."**

Ayn Rand



BOLTING TOOLS

I N D E X



● SSD Series Hydraulic Torque Wrenches

The advantages at a glance

Features / Dimensions

Accessories



● SXD Series Hydraulic Torque Wrenches

The advantages at a glance

Features / Dimensions

SXD ratchet link sizes



● Roark Pneumatic Wrenches

The advantages at a glance

Features / Dimensions

Accessories



● Flange Tools

Flange Aligning Tool

Flange Spreader & Prying Tool



● CHAMELEON PUMP

Features / Dimensions

Hydraulic Torque Wrench Pumps

Hydraulic Tensioner Pumps

BOLTING TOOLS

I N D E X



● Hydraulic Vertical Lifting Wedges

Hydraulic spreading wedge HVW-10



● Mechanical Torque Multipliers

BTM Series Torque Multipliers

Slim Series Torque Multipliers



● Mechanical Torque Wrenches

RVTR / TQW Series Torque Wrenches

RVT / TQW Series Torque Wrenches



● Hydraulic Bolt Tensioners

RST Series for standard applications

TSS Series for sub-sea / Offshore applications

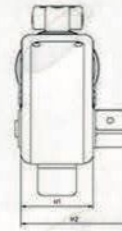
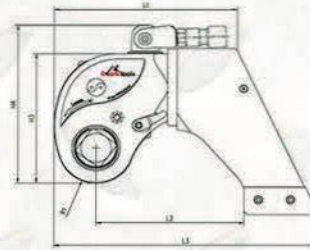
CST Series slim version

DA / CAT Series windmill applications



● Pipers Backup Wrench

Hydraulic Torque Wrenches SSD Series

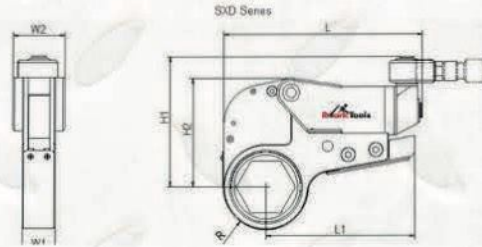


- Powerful, Accurate, Durable and Dependable
- +/- 3% Accuracy
- Enclosed Housing - FME Compliant
- Carrying Case and Handle Included
- Your Choice of Threaded or Quick Disconnect Couplers
- Finite Element Analysis - Longer Tool Life
- Made with Finest Grade Aircraft Quality Materials
- 2 Year Warranty
- CE Certified Certificate No. EC.1282.0A141010.RTTO62

SSD Series Technical Data

Model No.	SSD-2	SSD-3	SSD-5	SSD-7	SSD-11	SSD-20	SSD-27	SSD-35	SSD-50
Square Drive	3/4"	1"	1 1/2"	1 1/2"	1 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"
Min. Torque ft-lbs (Nm)	139(188)	330(447)	550(745)	791(1073)	1,133(1,536)	1,946(2639)	2,610(3,540)	3,595(4,874)	5,212(7,066)
Max. Torque ft-lbs (Nm)	1,388 (1,882)	3,294 (4,466)	5,495 (7,451)	7,915 (10,732)	11,328 (15,359)	19,465 (26,392)	26,107 (35,397)	35,948 (48,740)	52,166 (70,660)
Output Accuracy	+/- 3%	+/- 3%	+/- 3%	+/- 3%	+/- 3%	+/- 3%	+/- 3%	+/- 3%	+/- 3%
Repeatability	100%	100%	100%	100%	100%	100%	100%	100%	100%
Duty Cycle	100%	100%	100%	100%	100%	100%	100%	100%	100%
Tool Weight Lbs (Kg)	4.7(2)	9(4)	16(7)	23.5(10.6)	29(12.9)	55(25)	75(33.8)	94(43)	115(52)
L1 Inches (mm)	5.12(130)	6.70(170)	7.95(202)	0.90(228)	9.33(237)	11.30(287)	12.72(323)	13.82(351)	14.80(376)
L2 Inches (mm)	4.02(102)	5.51(140)	6.30(160)	7.24(184)	7.56(192)	9.76(248)	10.08(256)	10.67(271)	11.61(295)
L3 Inches (mm)	7.17(182)	9.80(249)	11.26(286)	12.83(326)	13.23(336)	17.05(433)	18.27(464)	19.45(494)	20.79(528)
H1 Inches (mm)	2.05(52)	2.76(70)	3.19(81)	3.54(90)	3.94(100)	4.72(120)	5.43(138)	6.02(153)	6.38(162)
H2 Inches (mm)	3.03(77)	3.86(98)	4.92(125)	5.28(134)	5.67(144)	7.36(187)	8.11(206)	8.54(217)	8.90(226)
H3 Inches (mm)	3.78(96)	5(127)	5.87(149)	6.77(172)	7.13(181)	8.70(221)	10.16(258)	10.98(279)	11.46(291)
H4 Inches (mm)	5.24(133)	6.5(165)	7.24(184)	8.15(207)	8.50(216)	10.08(256)	9.09(231)	12.40(315)	12.83(326)
R Inches (mm)	1.02(25.8)	1.37(34.8)	1.57(39.8)	1.84(46.8)	2(50.8)	2.35(59.8)	2.79(70.8)	3.02(76.8)	3.10(78.8)

Hydraulic Torque Wrenches SXD Series



- Versatile, Accurate, Durable and Dependable
- +/- 3% Accuracy
- Nickel Plated for Corrosion Resistance
- Multi Position Safety Swivel
- Carrying Case and Handle Included
- Your Choice of Threaded or Quick Disconnect Couplers
- Made with Finest Grade Aircraft Quality Materials
- 2 Year Warranty
- CE Certified Certificate No. EC.1282.0A141010.RTTO62

SXD Series Technical Data

Model No.	SXD-2	SXD-4	SXD-8	SXD-14	SXD-16	SXD-32
Min. Torque ft-lbs (Nm)	167(227)	383(519)	727(986)	1,268(1,720)	1,702(2,307)	2,997(4,064)
Max. Torque ft-lbs (Nm)	1,671(2,266)	3,826(5,188)	7,269(9,855)	12,688(17,202)	17,017(23,072)	29,974(40,639)
Output Accuracy	+/- 3%	+/- 3%	+/- 3%	+/- 3%	+/- 3%	+/- 3%
Repeatability	100%	100%	100%	100%	100%	100%
Duty Cycle	100%	100%	100%	100%	100%	100%
Tool Weight Lbs (Kg)	5(2.2)	11(5)	21.2(9.6)	37.5(16.9)	50.7(22.9)	83.1(38)
L Inches (mm)	8.07(205)	9.89(251.3)	11.91(302.5)	14.45(367)	15.77(400.5)	18.01(457.5)
L1 Inches (mm)	5.79(147)	7.40(188)	9.17(233)	11.14(283)	12.12(308)	14.33(364)
H1 Inches (mm)	5.08(129)	6.42(163)	7.52(191)	8.78(223)	9.68(246)	11.10(282)
H2 Inches (mm)	3.94(100)	5.35(136)	6.55(166.5)	7.79(198)	8.82(224)	10.43(265)
W1 Inches (mm)	1.26(32)	1.61(41)	2.09(53)	2.52(64)	2.75(70)	3.31(84)
W2 Inches (mm)	1.97(50)	2.60(66)	3.27(83)	3.90(99)	4.33(110)	5.20(132)
R Inches (mm)	1.63(41.3)	2.12(53.8)	2.71(68.8)	3.36(85.3)	3.89(98.8)	4.56(115.8)
Common Hex Size Inches (mm)	1 1/16"-2"(27-50)	1 1/16"-2 9/16"(27-65)	2"-3 5/8"(50-90)	3 5/16"-4 9/16"(85-115)	3 5/8"-5 5/16"(95-135)	3 15/16"-6 1/8"(100-155)

Hydraulic Torque Wrenches

SXD Series

SXD Series Hex Link Sizes and Part Numbers

Imperial/Metric Conversion Table

SXD-1 Link Part#	Hex Size	
	inch	mm
SXD-1RL008	1/2"	
SXD-1RL13M		13mm
SXD-1RL009	9/16"	
SXD-1RL14M		14mm
SXD-1RL010	5/8"	
SXD-1RL15M		15mm
SXD-1RL17M		17mm
SXD-1RL011	11/16"	
SXD-1RL012M19	3/4"	19mm
SXD-1RL013	13/16"	
SXD-1RL21M		21mm
SXD-1RL014M22	7/8"	22mm
SXD-1RL015	15/16"	
SXD-1RL24M		24mm
SXD-1RL100	1"	
SXD-1RL101M27	1-1/16"	27mm
SXD-1RL102	1-1/8"	
SXD-1RL103M30	1-3/16"	30mm
SXD-1RL104	1-1/4"	
SXD-1RL32M		32mm
SXD-1RL105	1-5/16"	
SXD-1RL106M35	1-3/8"	35mm
SXD-1RL36M		36mm
SXD-1RL107	1-7/16"	
SXD-1RL108M38	1-1/2"	38mm
SXD-1RL109	1-9/16"	
SXD-1RL110M41	1-5/8"	41mm

SXD-2 Link Part#	Hex Size	
	inch	mm
SXD-2RL012M19	3/4"	19mm
SXD-2RL013	13/16"	
SXD-2RL014M22	7/8"	22mm
SXD-2RL015	15/16"	
SXD-2RL24M		24mm
SXD-2RL100	1"	
SXD-2RL101M27	1-1/16"	27mm
SXD-2RL102	1-1/8"	
SXD-2RL103M30	1-3/16"	30mm
SXD-2RL104	1-1/4"	
SXD-2RL105	1-5/16"	
SXD-2RL106M35	1-3/8"	35mm
SXD-2RL36M		36mm
SXD-2RL107	1-7/16"	
SXD-2RL108M38	1-1/2"	38mm
SXD-2RL109	1-9/16"	
SXD-2RL110M41	1-5/8"	41mm
SXD-2RL111	1-11/16"	
SXD-2RL112	1-3/4"	
SXD-2RL113M46	1-13/16"	46mm
SXD-2RL114	1-7/8"	
SXD-2RL115M49	1-15/16"	49mm
SXD-2RL50M		50mm
SXD-2RL200	2"	
SXD-2RL201	2-1/16"	
SXD-2RL202	2-1/8"	
SXD-2RL203M55	2-3/16"	55mm
SXD-2RL204	2-1/4"	
SXD-2RL205	2-5/16"	
SXD-2RL206M60	2-3/8"	60mm

SXD-4 Link Part#	Hex Size	
	inch	mm
SXD-4RL100	1"	
SXD-4RL101M27	1-1/16"	27mm
SXD-4RL102	1-1/8"	
SXD-4RL103M30	1-3/16"	30mm
SXD-4RL104	1-1/4"	
SXD-4RLM32		32mm
SXD-4RL105	1-5/16"	
SXD-4RL106	1-3/8"	
SXD-4RL107	1-7/16"	
SXD-4RL108M38	1-1/8"	38mm
SXD-4RL109	1-9/16"	
SXD-4RL110	1-5/8"	
SXD-4RL111	1-11/16"	
SXD-4RL112	1-3/4"	
SXD-4RL113	1-13/16"	
SXD-4RL114	1-7/8"	
SXD-4RL115M49	1-15/16"	49mm
SXD-4RL50M		50mm
SXD-4RL200	2"	50mm
SXD-4RL201	2-1/16"	
SXD-4RL202	2-1/8"	
SXD-4RL203M55	2-3/16"	55mm
SXD-4RL204	2-1/4"	
SXD-4RL205	2-5/16"	
SXD-4RL206M60	2-3/8"	60mm
SXD-4RL207	2-7/16"	
SXD-4RL208	2-1/2"	
SXD-4RL209M65	2-9/16"	65mm
SXD-4RL210	2-5/8"	
SXD-4RL211	2-11/16"	
SXD-4RL212M70	2-3/4"	70mm
SXD-4RL213	2-13/16"	
SXD-4RL214	2-7/8"	
SXD-4RL215M75	2-15/16"	75mm
SXD-4RL300	3"	
SXD-4RL301	3-1/16"	
SXD-4RL302	3-1/8"	
SXD-4RL80		80mm

SXD-8 Link Part#	Hex Size	
	inch	mm
SXD-8RL114	1-7/8"	
SXD-8RL115M49	1-15/16"	49mm
SXD-8RL50M		50mm
SXD-8RL200	2"	
SXD-8RL201	2-1/16"	
SXD-8RL202	2-1/8"	
SXD-8RL203M55	2-3/16"	55mm
SXD-8RL204	2-1/4"	
SXD-8RL205	2-5/16"	
SXD-8RL206M60	2-3/8"	60mm
SXD-8RL207	2-7/16"	
SXD-8RL208	2-1/2"	
SXD-8RL209M65	2-9/16"	65mm
SXD-8RL210	2-5/8"	
SXD-8RL211	2-11/16"	
SXD-8RL212M70	2-3/4"	70mm
SXD-8RL213	2-13/16"	
SXD-8RL214	2-7/8"	
SXD-8RL215M75	2-15/16"	75mm
SXD-8RL300	3"	
SXD-8RL301	3-1/16"	
SXD-8RL302	3-1/8"	
SXD-8RL80		80mm
SXD-8RL303	3-3/16"	
SXD-8RL304	3-1/4"	
SXD-8RL305	3-5/16"	
SXD-8RL85M		85mm
SXD-8RL306	3-3/8"	
SXD-8RL307	3-7/16"	
SXD-8RL308	3-1/2"	
SXD-8RL90M		90mm
SXD-8RL309	3-9/16"	
SXD-8RL310	3-5/8"	
SXD-8RL311	3-11/16"	
SXD-8RL312M95	3-3/4"	95mm
SXD-8RL313	3-13/16"	
SXD-8RL314	3-7/8"	
SXD-8RL315M100	3-15/16"	100mm
SXD-8RL400	4"	
SXD-8RL401	4-1/16"	
SXD-8RL402M105	4-1/8"	105mm

Hydraulic Torque Wrenches

SXD Series

SXD Series Hex Link Sizes and Part Numbers

Same hex sizes available for SXD-14

SXD-16 Link Part#	Hex Size	
	Inch	mm
SXD-16RL203M55	2-3/16"	55mm
SXD-16RL204	2-1/4"	
SXD-16RL205	2-5/16"	
SXD-16RL206M60	2-3/8"	60mm
SXD-16RL207	2-7/16"	
SXD-16RL208	2-1/2"	
SXD-16RL209M65	2-9/16"	65mm
SXD-16RL210	2-5/8"	
SXD-16RL211	2-11/16"	
SXD-16RL212M70	2-3/4"	70mm
SXD-16RL213	2-13/16"	
SXD-16RL214	2-7/8"	
SXD-16RL215M75	2-15/16"	75mm
SXD-16RL300	3"	
SXD-16RL301	3-1/16"	
SXD-16RL302	3-1/8"	
SXD-16RL80		80mm
SXD-16RL303	3-3/16"	
SXD-16RL304	3-1/4"	
SXD-16RL305	3-5/16"	
SXD-16RL85M		85mm
SXD-16RL306	3-3/8"	
SXD-16RL307	3-7/16"	
SXD-16RL308	3-1/2"	
SXD-16RL90M		90mm
SXD-16RL309	3-9/16"	
SXD-16RL310	3-5/8"	
SXD-16RL311	3-11/16"	
SXD-16RL312M95	3-3/4"	95mm

SXD-16 Link Part#	Hex Size	
	Inch	mm
SXD-16RL313	3-13/16"	
SXD-16RL314	3-7/8"	
SXD-16RL315M100	3-15/16"	100mm
SXD-16RL400	4"	
SXD-16RL401	4-1/16"	
SXD-16RL402M105	4-1/8"	105mm
SXD-16RL403	4-3/16"	
SXD-16RL404	4-1/4"	
SXD-16RL405	4-5/16"	
SXD-16RL110M		110mm
SXD-16RL406	4-3/8"	
SXD-16RL407	4-7/16"	
SXD-16RL408	4-1/2"	
SXD-16RL115M		115mm
SXD-16RL409	4-9/16"	
SXD-16RL410	4-5/8"	
SXD-16RL120M		120mm
SXD-16RL411	4-11/16"	
SXD-16RL412	4-3/4"	
SXD-16RL413	4-13/16"	
SXD-16RL414	4-7/8"	
SXD-16RL125M		125mm
SXD-16RL415	4-15/16"	
SXD-16RL500	5"	
SXD-16RL501	5-1/16"	
SXD-16RL502M130	5-1/8"	130mm
SXD-16RL503	5-3/16"	
SXD-16RL504	5-1/4"	
SXD-16RL505M135	5-5/16"	135mm

SXD-32 Link Part#	Hex Size	
	Inch	mm
SXD-32RL302	3-1/8"	
SXD-32RL80		80mm
SXD-32RL303	3-3/16"	
SXD-32RL304	3-1/4"	
SXD-32RL305	3-5/16"	
SXD-32RL85M		85mm
SXD-32RL306	3-3/8"	
SXD-32RL307	3-7/16"	
SXD-32RL308	3-1/2"	
SXD-32RL90M		90mm
SXD-32RL309	3-9/16"	
SXD-32RL310	3-5/8"	
SXD-32RL311	3-11/16"	
SXD-32RL312M95	3-3/4"	95mm
SXD-32RL313	3-13/16"	
SXD-32RL314	3-7/8"	
SXD-32RL315M100	3-15/16"	100mm
SXD-32RL400	4"	
SXD-32RL401	4-1/16"	
SXD-32RL402M105	4-1/8"	105mm
SXD-32RL403	4-3/16"	
SXD-32RL404	4-1/4"	
SXD-32RL405	4-5/16"	
SXD-32RL110M		110mm
SXD-32RL406	4-3/8"	
SXD-32RL407	4-7/16"	
SXD-32RL408	4-1/2"	
SXD-32RL115M		115mm
SXD-32RL409	4-9/16"	
SXD-32RL410	4-5/8"	
SXD-32RL120M		120mm
SXD-32RL411	4-11/16"	
SXD-32RL412	4-3/4"	
SXD-32RL413	4-13/16"	
SXD-32RL414	4-7/8"	
SXD-32RL125M		125mm
SXD-32RL415	4-15/16"	
SXD-32RL500	5"	
SXD-32RL501	5-1/16"	
SXD-32RL502M130	5-1/8"	130mm
SXD-32RL503	5-3/16"	
SXD-32RL504	5-1/4"	
SXD-32RL505M135	5-5/16"	135mm
SXD-32RL506	5-3/8"	
SXD-32RL507	5-7/16"	
SXD-32RL508M140	5-1/2"	140mm

SXD-32 Link Part#	Hex Size	
	Inch	mm
SXD-32RL509	5-9/16"	
SXD-32RL510	5-5/8"	
SXD-32RL511	5-11/16"	
SXD-32RL145M		145mm
SXD-32RL512	5-3/4"	
SXD-32RL513	5-13/16"	
SXD-32RL514	5-7/8"	
SXD-32RL150M		150mm
SXD-32RL515	5-15/16"	
SXD-32RL600	6"	
SXD-32RL601	6-1/16"	
SXD-32RL155M		155mm
SXD-32RL602	6-1/8"	
SXD-32RL603	6-3/16"	
SXD-32RL604	6-1/4"	
SXD-32RL160M		160mm
SXD-32RL605	6-5/16"	
SXD-32RL606	6-3/8"	
SXD-32RL607	6-7/16"	
SXD-32RL608M165	6-1/2"	165mm
SXD-32RL609	6-9/16"	
SXD-32RL610	6-5/8"	
SXD-32RL611M170	6-11/16"	170mm
SXD-32RL612	6-3/4"	
SXD-32RL613	6-13/16"	
SXD-32RL614	6-7/4"	
SXD-32RL175M		175mm
SXD-32RL615	6-15/16"	
SXD-32RL700	7"	
SXD-32RL701	7-1/16"	
SXD-32RL180M		180mm
SXD-32RL702	7-1/8"	
SXD-32RL703	7-3/16"	
SXD-32RL704	7-1/4"	
SXD-32RL185M		185mm
SXD-32RL705	7-5/16"	
SXD-32RL706	7-3/8"	
SXD-32RL707	7-7/16"	
SXD-32RL190M		190mm
SXD-32RL708	7-1/2"	
SXD-32RL709	7-9/16"	
SXD-32RL710	7-5/8"	
SXD-32RL111M195	7-11/16"	195mm
SXD-32RL712	7-3/4"	
SXD-32RL713	7-13/16"	
SXD-32RL714M200	7-7/8"	200mm



Hydraulic Torque Wrenches RXD Series

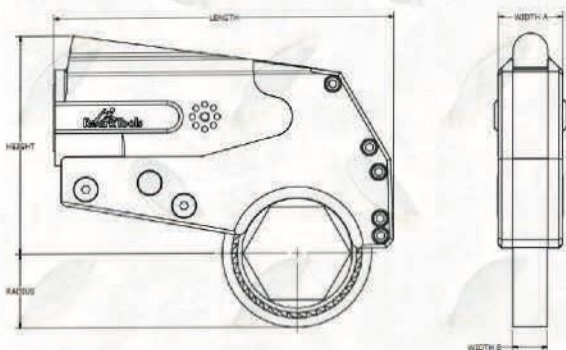


Features:

- ULTRA-SLIM DESIGN, FITS WHERE OTHER TOOLS CAN'T
- MADE FROM THE FINEST AND STRONGEST MATERIALS AVAILABLE
- INCREDIBLE STRENGTH AND DURABILITY
- FAST, ACCURATE AND DEPENDABLE
- NICKEL PLATED FOR CORROSION RESISTANCE
- 360 X 360 DEGREE INDEPENDENT SWIVELS
- THREADED OR QUICK CONNECT COUPLERS
- +/- 3% ACCURACY
- CE CERTIFIED CERTIFICATE NO. EC.1282.0A141010.RTT062

TECHNICAL DATA

MIN TORQUE	380 Ft-Lbs	515 Nm
MAX TORQUE	3975 Ft-Lbs	5389 NM
CYLINDER WEIGHT	6.2 Lbs	2.81 Kg
LINK WEIGHT FROM	5.5 Lbs	2.49 Kg
LINK WEIGHT TO	7.7 Lbs	3.49 Kg
REPEATABILITY	100%	
DUTY CYCLE	100%	
OUTPUT ACCURACY	+/-3%	



DIMENSIONAL DATA

LINK SIZE	LENGTH		HEIGHT		WIDTH A		WIDTH B		RADIUS	
	Inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
1" - 1 5/8"	8.51	216.15	5.57	141.48	1.63	41.40	0.88	22.35	1.35	34.29
1 11/16" - 1 13/16"	8.51	216.15	5.57	141.48	1.63	41.40	0.88	22.35	1.46	37.08
1 7/8" - 2"	8.51	216.15	5.57	141.48	1.63	41.40	0.88	22.35	1.61	40.89
2 1/16" - 2 3/16"	8.51	216.15	5.57	141.48	1.63	41.40	0.88	22.35	1.72	43.69
2 1/4" - 2 3/8"	8.58	217.93	5.57	141.48	1.63	41.40	0.88	22.35	1.83	46.48
2 7/16" - 2 9/16"	8.69	220.73	5.57	141.48	1.63	41.40	0.88	22.35	1.93	49.02
2 5/8" - 2 3/4"	8.76	222.50	6.01	152.65	1.63	41.40	0.88	22.35	2.04	51.82
2 13/16" - 2 15/16"	8.86	225.04	6.01	152.65	1.63	41.40	0.88	22.35	2.16	54.86
3" - 3 1/8"	8.94	227.08	6.01	152.65	1.63	41.40	0.88	22.35	2.27	57.66

Applications

- Continuous rotation tightening or loosening of all heavy duty fastening connections
- Perfect for bolting applications in explosive environments.
- RoarkTools comfortable torque multiplier with rotating handle for torques of 160 Nm to 9,800 Nm

Advantages

- Permanently higher joint quality compared to Impact wrenches by continuous rotation of the square drive
- RoarkTools - the 360 degree rotating handle ensures comfortable operation and none of the reaction forces are transferred to the operator

RoarkTools specials

- Simple 1-finger operation for right/left rotation.
- Robust motor housing from cast aluminium with proven pneumatic drive
- Proven high-performance gears, produced in a chip-free high-precision process produces high loads with low wear
- On demand with optional silencer levels to reduce the noise from the motor exhaust

Specifications



On request, you will receive our pneumatic multipliers with
ATEX-Certification: II 2 G D c IIB T6

Prerequisites for best work and the indicated torques are an operating pressure of 2-7 bar at a volume flow of approx. 10-15 l/s. The torque accuracy depends on the stability of the supply system.



Greater Quality

First class production
>80% quieter than impacts
>95% less vibration than impacts
Highest quality materials.

Greater Precision

Accurate and customized torque
High repeated accuracy
High reliability in continuous operation
Recordable tightening outputs
Automatic shut-off

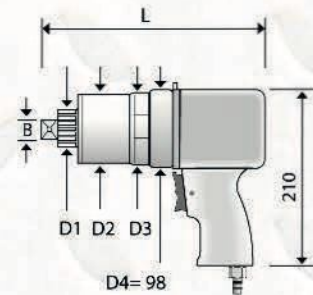
Greater Productivity

Fast error-free torquing
Hazardous Area Rated (IP 54, ATEX)
Worldwide power supply compatibility
Safe operation – easy instruction
Low maintenance and cost-efficient

Better service

Technical on site advice
Instruction and training courses
Manufacturer's calibration and certification
Lifecycle maintenance
Spares and repair service

Pneumatic Torque Multiplier



CLD

Technical Data

Models CLD

Type		CLD 55	CLD 85	CLD 105	CLD 125	CLD 155	CLD 225	CLD 280	CLD 380	CLD 580	CLD 780	CLD 980
Torque range (approx.) *	Nm	160-490	300-900	360-1100	450-1300	600-1700	900-2700	1200-3500	1500-4400	2100-6100	2600-7700	3300-9800
Square drive	B	3/4"	3/4" / 1"	1"	1"	1"	1"	1"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
Diameter (approx.)	D ₁	mm	41	41/54	54	54	54	54	72	72	72	91
Diameter (approx.)	D ₂	mm	85	85	85	85	85	85	98	109	133	173
Diameter (approx.)	D ₃	mm	88	88	88	88	88	88	98	109	133	173
Length (approx.)	L	mm	280	300	300	300	300	300	320	350	350	370
Weight without DMA (approx.)	kg	7	8	8	8	8	8.5	8.5	10.5	13	15	25
Idle speed	rpm	27	19	12	9	7	5	4	3	2	1.5	1

Product information

RoarkTools CLV models

Pneumatic torque multipliers with remote control for multiple bolted connections and serial assembly in semi-automatic operation. Torques up to 3,460 Nm.

We will gladly provide you with comprehensive information on this.



The torque control of the pneumatic RoarkTools torque multiplier takes place via the air supply or pressure regulator of the Maintenance Unit.

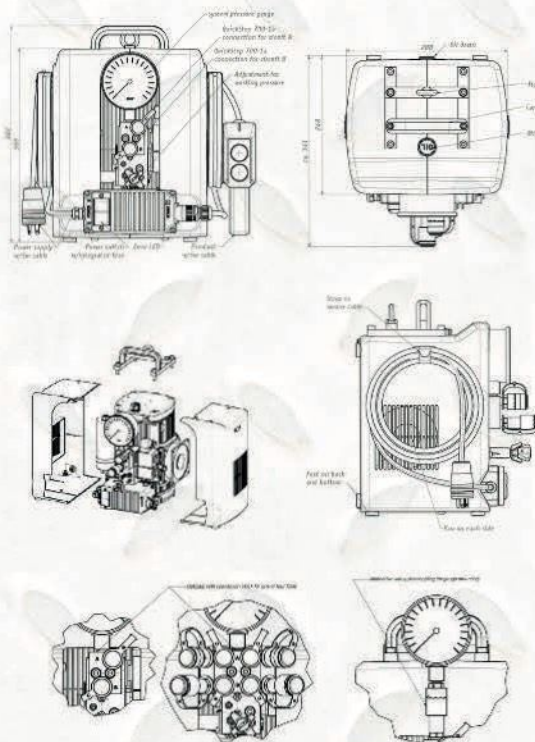
Accessories

Maintenance Unit, complete with filter, regulator, oiler and 5m hose, incl. couplings.



RHP CHAMELEON PUMP

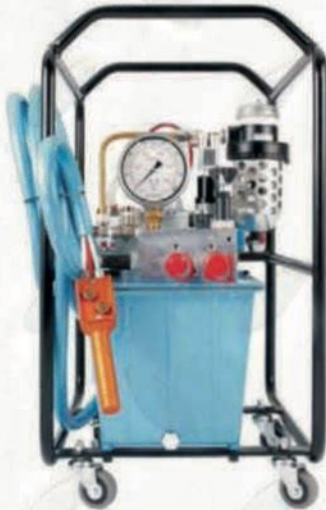
- Low voltage start-up and operation. 14 amp max power draw.
- Suited for intermittent and continuous operation
- Industry tested, reliable, 2-stage radial piston pump accentuates speed and efficiency
- Dual cooling fans on system
- 2 year warranty
- Sealed reservoir allows unit to be stored on its side and shipped with oil (feet on bottom and rear)
- Protective shroud designed to also promote heat exchanger efficiency
- Removable gauge via quick disconnect for transport and calibration
- Removable remote pendant
- Quick disconnect couplers with the standard, single tool manifold, or the optional 4-tool manifold
- Weight with oil 66lbs
- CE Certified



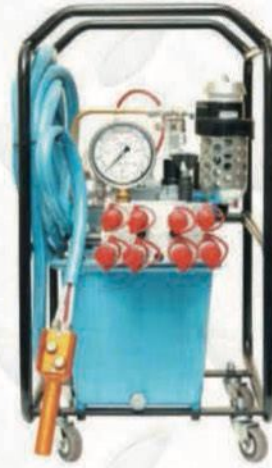
Hydraulic data:

Q (HP)	= 0.9 lpm	0.92 lpm	0.76 lpm
Q (LP+LP)	= 5.58 lpm	5.71 lpm	4.72 lpm
p _{max} (HP)	= 700 bar		
p _{max} (LP)	= 100 bar		
V _{fill}	= 4.0 liters		
V _{usable}	= 2.0 liters		

Hydraulic Torque Wrenches Pumps



RAP 1000 with Mono Port



RAP 1000 with Quadra Port (4 Port)

Technical Features

- Multi-Port Manifold (Max. 4 Ports).
- Cool running continuous duty axial piston pump.
- Powerful 1.5HP industrial duty air motor.
- Runs on 50 cfm / 80 PSI of air.
- Quiet operation (approx. 80 dBA@ 10,000 PSI).
- Rugged remote pendant to control motor and valve.
- Easily adjustable pressure control knob.
- Auto-dump relieves oil pressure from hoses.
- Filter/Lubricator for long trouble free operation.
- 2 Gallon oil reservoir.
- Precise PSI/BAR pressure gauge.
- Non-drip quick-connect couplers with safety locking collar.
- Supplied with one set of dual non-conductive high pressure hose with couplers.
- CE Certified



Resvr. Size (Gal.)	Valve		Motor Specifications	Flow Rate @ 115 VAC		weight	
	Control	Type		600 psi	10,000 psi	kg	lbs
2	Solenoid	3 Way/2 Pos	1.5 HP Rotary Air	9.83 lpm	0.82 lpm	27	59

Retract pressure is preset at 1,300 PSI.

Standard Roll Bar Dimensions: 25-7/16" L x 20-1/2" H x 166-3/4"W

Hydraulic Tensioner Pumps



The RU-AH-1500 air operated pumps are designed and manufactured in collaboration with Maximator GmbH, Germany and meet the highest technical and safety requirements of high pressure equipment.

Pump		
Pressure Ratio		1:350
Displacement Volume	Cm3	1.3
Operating Pressure, Max. (at 5.1 bar Pre Limited (PL) Air Pressure)	bar	1.800
Compressed air supply (air drive)		
System Operating Air Pressure, Max.	bar	5.1
Safety Valve Set Pressure	bar	5.5
Stainless Steel Tank Capacity		
Oil Tank Capacity	litre	5

Other Models with higher maximum operating pressures, digital pressure gauges and larger hydraulic reservoir capacities are available as per customer requirements.

Technical Features

- The hydraulic unit is installed in a weather proof stainless steel protection frame
- Logical layout design engraved for easy operation
- Calibrated 6" (150mm), liquid filled, SS Frame, 2500 bar rating pressure gauge with dual reading of bar and psi
- System includes FRL Unit, air pressure gauge and control knob for safe air control and supply.
- Pumps has max working pressure of 1500 bar to cover all bolt tensioning applications.
- Unit weighs only 18 kg. and measures 450mm X 340mm X 480mm.
- Higher pressure ratio of 1:350 ensures less input air pressure for operation.
- Pumps comes fitted with quick connect outlet for easy connection of hydraulic hose.



Hydraulic Pump RU-HP-1500

This hand pump is specially designed for bolt tensioners applications. The pump is compact and light in weight with longer handle needing very little effort to generate max working load. All pumps are supplied with suitable fittings and stainless steel 4" dia pressure gauge.

Model No	Description	Usable Oil Capacity (Liters)	Outlet Coupler	Dimensions			Net Weight Kg.
				Length mm	Width mm	Height mm	
RU-HP-1500	1500 bar Hand Pump c/w 200 bar gauge	2.0	HCS-150-F	750	120	200	11.0

Hydraulic Vertical Lifting Wedge

HSW-10

The spreading wedge HSW-10 has been developed as the simple cost effective solution for flange spreading.



Features

- Access gap of only 1/4" (6.0 mm) needed
- Robust Light weight tool – just 15.9 lbs (7.2 kgs)
- 10.000 psi (700 bar) generates 14.0 tons spreading force
- Automatic spring return
- Locking at first step ensures no slippage, increased safety



Mini-Kit

- 1 x Lifting wedge HSW-10
- 1 x Safety block
- 1 x Instruction manual
- 1 x Carry case



Stepped block

- 2 x Stepped block
- 2 x Screws CSK M6x12mm
- 1 x Allen key



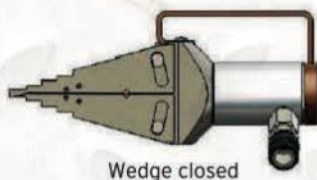
Standard Kit

- 1 x Lifting wedge HSW-10
- 1 x 700 bar 2 stage Hydraulic-Pump
- 1 x 700 bar Hydraulic hose
- 1 x Safety block
- 1 x Instruction manual
- 1 x Carry case

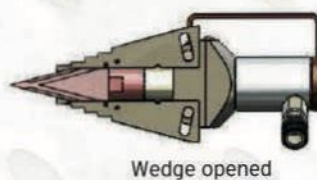


Maxi Kit

- 2 x Lifting wedge HSW-10
- 1 x 700 bar 2 stage Hydraulic-Pump
- 2 x 700 bar Hydraulic hose
- 2 x Safety block
- 1 x Instruction manual
- 1 x Twin manifold block
- 1 x Carry case



Wedge closed



Wedge opened



Safety block side view



Stepped block top view

Mechanical Torque Multiplier

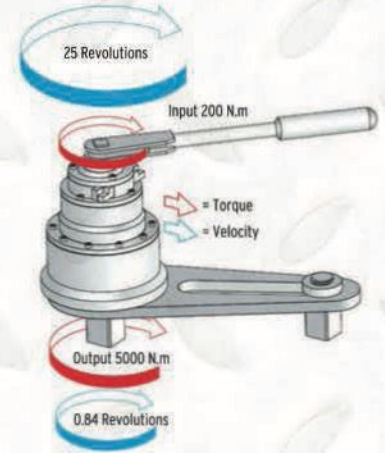
BTM Series

The given load at the input gets multiplied as per the multiplication factor and transmitted at the output with a minimum efforts you achieve greater load.



Features

- Accuracy $\pm 4\%$
- Precision tightening and loosening of all heavy duty fasteners.
- Low energy input with high torque transfer.
- Higher capacity multipliers are furnished with strong ratchets (Anti-wind up mechanism) allowing jobs to be performed easily, efficiently, and safely.
- Precision manufacturing ensures long life and premier quality.
- A groove on out put square breaks if over loaded in excess of 20% of ist capacity.
- Highest possible load factor is guaranteed due to design and use of forged components.

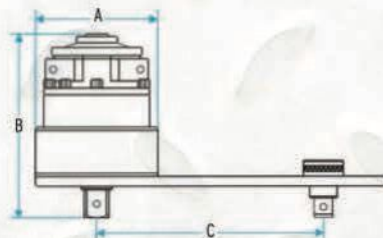


Hand torque multipliers incorporate an 'Epicyclic' or 'Planetary' gear train having one or more stages. Each stage of gearing increases the torque applied by a factor of 5, allowing to offer multipliers in ratios of 5:1, 25:1 and 125:1. In the planetary gear system, torque is applied to the input gear or 'Sun' gear. Three or four planet gears whose teeth are engaged with the sun gear and therefore rotate. The out side casing of the multiplier, or 'Annulus' is also engaged with the planet gear teeth, and would normally rotate in the opposite direction to the sun gear. A reaction arm prevents the annulus from rotating, and this causes the planet gears to orbit around the sun. The planet gears are held between input and output plate which also holds the output square drive. Therefore as the planetary gears orbit around the sun gear output plate, so square drive turns. Without the reaction arm to keep the annulus stationary, the output square will not apply torque.

BTM Series Technical Data

Model	Torque max. ft-lbs	Torque max. Nm	Ratio	Drive input inch	Drive output inch	A mm	B mm	C min mm	C max mm	Weight lbs (kg)
BTM-2/25	1254	1700	1:25	1/2	1	115	151	75	164	15.40 (7)
BTM-5	1991	2700	1:5	3/4	1	136	135	89	260	18.48 (8.4)
BTM-5/25	1991	2700	1:25	1/2	1	136	163	89	260	25.30 (11.5)
BTM-6	2508	3400	1:5	3/4	1 1/2	136	149	105	260	20.24 (9.2)
BTM-6/25	2508	3400	1:25	1/2	1 1/2	136	176	105	260	26.40 (12.0)
BTM-7	4425	6000	1:5	3/4	1 1/2	168	174	115	310	39.60 (18.0)
BTM-7/25	4425	6000	1:25	1/2	1 1/2	168	226	115	310	48.40 (22.0)
BTM-9/25	7007	9500	1:25	3/4	1 1/2	195	256	150	350	72.60 (33.0)
BTM-9/125	7007	9500	1:125	1/2	1 1/2	195	301	150	350	78.10 (35.5)
BTM-11/25	12539	17000	1:25	3/4	2 1/2	220	360	164	480	114.40 (52)
BTM-11/125	12539	17000	1:125	1/2	2 1/2	220	404	164	480	125.40 (57)
BTM-13/125	35034	47500	1:125	3/4	2 1/2	315	550	164	480	176.00 (80)

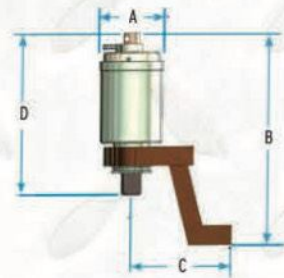
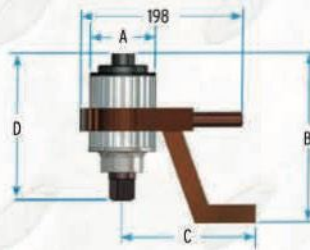
Dimensions



Mechanical Torque Multiplier

STM Series

Slim Torque Multipliers



Features

- Compact in size hence can be used in constrained areas.
- Higher reduction ratio for low input.
- Safety shear pin at the input provisioned to prevent over loading.
- Built in Anti-Windup Mechanism reduces operators effort.
Can be used with non-ratchet type torque wrench.
- Pin Lock mechanism at output Sq. Drive for positive locking of socket.
- Different types of reaction arms available as per user requirement.
- Better than $\pm 4\%$ with very high repeatability.
- Supplied in sturdy molded plastic carrying case for better storage and handling.

STM Series Technical Data

Model	Torque max. ft-lbs	Torque max. Nm	Ratio	Drive input inch	Drive output inch	A mm	B mm	C min mm	C max mm	Weight lbs (kg)
STM-1	1696	2300	1:8	1/2	3/4	81	133-175	165	149	9.5 (4,3)
STM-2	2360	3200	1:10	1/2	3/4	88	272	141	207	13.9 (6,3)
STM-3	3098	4200	1:10	3/4	3/4	88	272	151	217	15 (6,8)

Mechanical Torque Wrenches

RVT/TQW Series

1/2"



RVT/RVTR Series Technical Data

Model	Ratchet?	Torque Range				Square Drive		Length		Weight	
		Nm	Kgm	in-lbs	ft-lbs	mm	inch	mm	inch	kg	lbs
RVT-600A	X	12-68	1.2-7	100-600	10-50	12.7	1/2	476	18.74	1.02	2.25
RVT-1200A	X	25-135	3-14	200-1200	20-100	12.7	1/2	546	21.50	1.62	3.57
RVTR-1200	✓	25-135	3-14	200-1200	20-100	12.7	1/2	555	21.85	2.00	4.40
RVT-2000A	X	50-225	5-23	400-2000	40-160	12.7	1/2	597	23.50	2.38	5.25
RVTR-2000	✓	50-225	5-23	400-2000	40-160	12.7	1/2	626	24.64	2.46	5.47
RVT-3000A	X	70-330	7-35	600-3000	50-250	12.7	1/2	825	32.48	3.12	6.86
RVTR-3000	✓	70-330	7-35	600-3000	50-250	12.7	1/2	840	33.07	4.00	8.80

3/4"

1"



RVT/RVTR/TQW Series Technical Data

Model	Ratchet?	Torque Range			Square Drive		Length		Weight	
		Nm	Kgm	ft-lbs	mm	inch	mm	inch	kg	lbs
RVT-500	X	140-560	14-57	100-410	19.1	3/4	1130	44.49	5.90	13.00
RVTR-5000	✓	140-560	14-57	100-410	19.1	3/4	1210	47.64	6.58	14.50
RVT-7200	X	200-810	22-82	150-600	19.1	3/4	1181	46.50	6.50	14.30
RVTR-7200	✓	200-810	22-82	150-600	19.1	3/4	1261	49.65	7.00	15.40
RVT-8400	X	480-940	49-95	350-700	25.4	1	1397	55.00	11.30	24.90
RVTR-8400	✓	480-940	49-95	350-700	19.1	3/4	1471	57.91	12.70	28.00
RVT-12300	X	700-1400	70-140	500-1000	25.4	1	1505	59.25	15.50	34.10
RVTR-12300	✓	700-1400	70-140	500-1000	25.4	1	1505	59.25	17.00	37.40
TQW-10	X	1015-1900	105-195	750-1400	25.4	1	1356	53.38	16.50	36.30
TQW-R-10	✓	1015-1900	105-195	750-1400	25.4	1	1356	53.38	18.00	39.60
TQW-11	X	1350-2700	135-275	1000-2000	25.4	1	1498	58.97	19.50	42.90
TQW-R-11	✓	1350-2700	135-275	1000-2000	25.4	1	1498	58.97	20.60	45.32

Hydraulic Bolt Tensioners

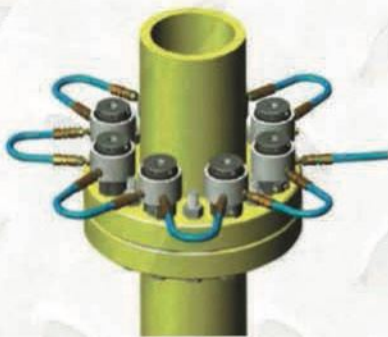
RST Series

Bolt tensioning is another preferred method of tightening bolts and studs on all critical applications. RST range of bolt tensioners provides optimum solutions to bolt tensioning requirements.

RST series bolt tensioners are designed for operation in a wide variety of applications including pipeline flanges, heat exchangers, pressure vessels, compressors or covers, boilers feed pumps, anchor bolts and many others.

Features

- RST Series standard variable tensioners are designed to provide a wide range of flexibility, covering stud sizes 3/4" to 5.3/4". Different stud sizes are accommodated by simply changing adaptor kit consisting of Puller, Bridge and Nut Driver, while utilizing the same Load Cell.
- The RST Series tensioners operate at a maximum pressure of 1500 Bar and utilizes high strength AISI 4340 steel parts for long lasting performance.
- The RST Series tensioner has an exception stroke of 15 mm. Integral stroke indicator allows piston stroke to be viewed and measured indication of stroke is provisioned with over stroke limit indication.
- The RST series tensioners are designed so that in event of over-stroke the high pressure fluid will be released from inner side of the load cell and thus saving the operator from exposure.
- The RST Series load cell is provisioned with two connections and this acts as manifold for multi tensioning applications. By using high pressure link hoses any number of bolt tensioners can be connected and tightened simultaneously. This ensures equal tightening of all bolts in the assy and reduce the work time.
- Low frictions, anti roll seals and rigid backup rings incorporated for improved life and reliability.
- The unique piston design allows 2° tilt without any loss of load, preventing piston seizure or damage of piston bore.



Load Cell



Puller



Nut Driver



Bridge

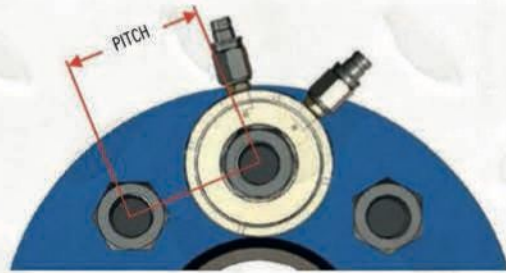
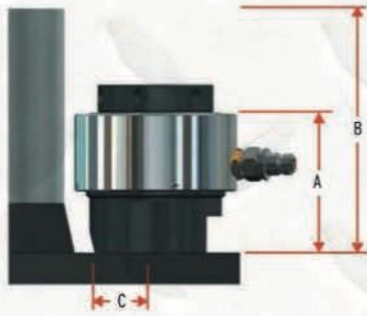
Procedure of Bolt Tensioning



The nut-driver is placed over the nut (Fig.1) The bridge and the load cell is then place over the bolt (Fig.2). The puller is then screwed over the stud protruding above the nut face (Fig.3) making sure that at least 1 x diameter of bolt is engaged with the threaded puller. Desired hydraulic pressure is now applied to load cell, which stretches the bolt (Fig.4). The nut is turned down using the nut-driver and tommy bar. The pressure is then released leaving the stud loaded to the desired value.

Hydraulic Bolt Tensioners

RST Series



RST Series Technical Data

Model		Bolt Size		Max Load		Hydr. Area		O.D.	Min Pitch	Relief C	Height A	Clearance B	Weight
Load Cell	Adaptor Kit	inch	mm	M Ton	kN	in ²	mm ²	mm	mm	mm	mm	mm	kg.
RST-01	A1-0.12	3/4		34.5	339	3.50	2257	84	46	26	86	160	3.5*
	A1-M20		20						47	26	86	160	1.3
	A1-0.14	7/8							53	30	94	168	1.4
	A1-M24		24						54	30	94	168	1.4
	A1-1.00	1							55	30	94	168	1.4
RST-02	A2-M27		27	40.6	397	4.11	2649	98	56	29	96	170	4.5*
	A2-1.02	1.1/8							59	32	97	171	1.8
	A2-M30		30						62	32	97	171	1.9
	A2-1.04	1.1/4							67	35	99	177	2.0
	A2-M33		33						68	35	99	180	2.1
	A2-1.06	1.3/8							72	38	101	183	2.3
	A2-M36		36						73	38	101	186	2.3
RST-03	A3-1.04	1.1/4		65.2	639	6.60	4259	115	69	37	99	185	5.9*
	A3-M33		33						70	37	99	174	2.4
	A3-1.06	1.3/8							74	40	101	176	2.9
	A3-M36		36						75	40	101	176	2.9
	A3-1.08	1.1/2							80	43	105	182	3.0
	A3-M39		39						80	43	105	183	3.0
RST-04	A4-1.06	1.3/8		73.6	721	7.45	4808	128	75	41	101	183	7.7*
	A4-M36		36						76	41	101	183	3.4
	A4-1.08	1.1/2							81	43	105	183	3.6
	A4-M39		39						81	43	105	183	3.6
	A4-1.10	1.5/8							86	46	107	186	3.9
	A4-M42		42						86	46	107	186	3.9
	A4-1.12	1.3/4							91	49	108	189	4.0
RST-05	A5-1.10	1.5/8		96.1	942	9.73	6280	145	87	47	132	197	11.4*
	A5-M42		42						87	47	134	199	5.2
	A5-1.12	1.3/4							92	50	139	204	5.4
	A5-M45		45						93	50	140	205	5.4
	A5-1.14	1.7/8							98	53	146	211	5.6
	A5-M48		48						98	53	146	211	5.6
	A5-2.00	2							104	56	151	216	6.3
	A5-M52		52						105	56	151	216	5.9
RST-06	A6-1.14	1.7/8		138.2	1354	13.99	9028	165	99	54	109	209	14.8*
	A6-M48		48						99	54	109	209	7.1
	A6-2.00	2							105	57	112	214	7.6
	A6-M52		52						106	57	112	214	7.6
	A6-M56		56						113	61	116	223	7.8
	A6-2.04	2.1/4							114	61	116	244	7.8

*Indicates weight of Load Cell + Adaptor Kit of particular size.

Hydraulic Bolt Tensioners

RCST Series



RST Series Technical Data

Model		Bolt Size		Max Load		Hydr. Area		O.D.	Min Pitch	Relief C	Height A	Clearance B	Weight
Load Cell	Adaptor Kit	inch	mm	M Ton	kN	in ²	mm ²	mm	mm	mm	mm	mm	kg.
RST-07	A7-M56		56	168.5	1651	17.06	11006	180	112	59	154	219	18.1*
	A7-2.04	2 1/4							112	59	156	221	9.3
	A7-M60		60						117	61	163	228	9.4
	A7-2.08	2 1/2							125	66	169	231	9.7
	A7-M64		64						125	66	169	231	9.7
	A7-M68		68						129	66	177	238	10.0
RST-08	A8-2.08	2 1/2		201.8	1978	20.44	13188	198	129	70	137	242	23.4*
	A8-M64		64						129	70	137	242	12.1
	A8-M68		68						132	69	142	246	12.3
	A8-2.12	2 3/4							139	75	142	246	12.5
	A8-M72		72						141	75	145	251	12.5
	A9-2.12	2 3/4							139	75	145	261	29.3*
RST-09	A9-M72		72	230.3	2257	23.30	15045	215	141	75	145	261	15.6
	A9-M76		76						150	80	145	254	17.2
	A9-3.00	3							150	80	145	254	17.2
	A10-M80		80						160	87	156	275	40.3*
RST-10	A10-3.04	3 1/4		310.9	3047	31.48	20312	244	162	87	156	278	24.0
	A10-M85		85						164	87	158	269	24.5
	A10-3.08	3 1/2							174	93	162	276	22.6
	A10-M90		90						175	93	154	269	22.6
	A10-M95		95						179	93	160	275	22.8
	A10-3.12	3 3/4							191	105	160	276	22.9
	A10-M100		100						195	105	167	288	22.1
	A10-4.00	4							197	105	167	288	22.1
RST-11	A11-3.12	3 3/4		384.5	3768	38.94	25120	280	192	106	172	299	52.7*
	A11-M100		100						196	106	179	306	31.4
	A11-4.00	4							198	106	179	299	31.4
	A11-4.04	4 1/4							209	111	186	306	36.4
	A11-M110		110						210	111	186	308	36.4
	A11-4.08	4 1/2							222	118	191	319	39.7
	A11-M120		120						226	118	198	327	41.4
	A11-4.12	4 3/4							229	121	202	327	42.3
RST-12	A11-M125		125	485.1	4754	49.13	31694	325	233	121	202	212	43.3
	A12-M125		125						236	124	204	346	89.6*
	A12-5.00	5							243	129	204	350	60.3
	A12-M130		130						243	126	207	359	63.1
	A12-5.04	5 1/4							254	135	210	367	63.1
	A12-5.08	5 1/2							266	141	217	374	70.4
	A12-M140		140						260	135	217	374	70.6
	A12-5.3/4	5 3/4							276	145	218	383	70.8
	A12-M150		150						275	141	221	386	73.3

*Weight of Load Cell + Adaptor Kit of particular size.

Please refer to catalog sheet - 'Basic of Tensioning' for Bolt Tensioners application and tool pressure calculation.

Hydraulic Bolt Tensioners

TSS Series

TSS Series Bolt Tensioners are specially designed for sub sea applications. These Tensioners are suitable for higher pressure rating flanges also. It's ergonomic design makes it very easy to handle and use by divers under the harsh sea conditions. These tensioners are designed to provide a wide range of flexibility, covering stud sizes 3/4" to 3.1/2" (M-18 to M-85). The tool consists of two basic parts; Tensioning Unit and Puller Nut as shown below:



- The complete tool is made from high strength stainless steel for use in corrosive sea environment and to minimize maintenance.
- Designed to provide a wide range of flexibility, covering stud sizes 3/4" to 3.1/2" (M-18 to M-85) using just 8 load cells.
- Generates higher load making it suitable for higher pressure rating flanges (API 170 - 10K).
- All tensioners have a 25mm long stroke with piston marked with fluorescent rings for indication of stroke and over stroke limit.
- Designed to release high pressure hydraulic oil inwards in the event of over-stroke, thus saving the operator from any potential exposure.
- The tensioning unit cell is provisioned with two connections that act as a manifold for multi tensioning applications.
- Fitted with Anti Roll, Composite Material seals for longer life and high reliability. The seals used have a low coefficient of friction so that the piston can be returned to a closed position with minimal effort. Sub Sea tensioners can be provided with machined PU (polyurethane) seals if requested by the customer.
- Optional Split Nut available for fast and easy fitment which ensures most efficient use of expensive diver time.

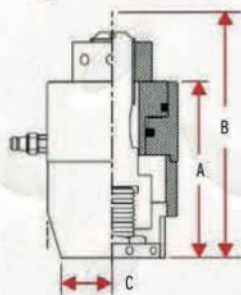
TSS Series Technical Data

Model		Bolt Size		Max Load		Hydr. Area		D	C	W	L	A	Weight
Load Cell	Puller Nut	inch	mm	Ton	kN	in ²	mm ²	mm	mm	mm	mm	mm	Kg.
TSS-03	PT03-0.12	3/4*		21.2	188	1.95	1256	65	30	46	100	122	2.0*
	PT03-M20		M20										0.3
	PT03-0.14	7/8*											0.3
TSS-04	PT04-M24			34.7	309	3.19	2061	86	30	64	123	153	4.0*
	PT04-1.00	1											0.7
	PT04-M27		M27										0.7
	PT04-1.02	1.1/8"											0.7
	PT04-M30		M30										0.7
TSS-05	PT05-1.04	1.1/4		54.2	482	4.98	3215	98	30	78	138	171	5.5*
	PT05-M33		M33									171	0.7
	PT05-1.06	1.3/8										174	0.7
	PT05-M36		M36									174	0.7
TSS-07	PT07-1.08	1.1/2		79.4	706	7.30	4710	117	30	93	147	186	7.4*
	PT07-M39		M39									186	0.8
	PT07-1.10	1.5/8										189	0.8
	PT07-M42		M42									189	0.8
TSS-11	PT11-1.12	1.3/4		119.1	1060	10.95	7065	138	60	113	152	197	13.5*
	PT11-M45		M45									197	3.5
	PT11-1.14	1.7/8										200	3.5
	PT11-M48		M48									203	3.5
	PT11-2.00	2"										206	3.8
	PT11-M52		M52									209	3.8
TSS-15	PT15-M56		M56	174.7	1554	16.06	10362	164	60	141	171	229	20.7*
	PT15-2.04	2.1/4"										229	5.0
	PT15-M60		M60									229	5.0
	PT15-2.08	2.1/2"										233	5.2
	PT15-M64		M64									233	5.2
TSS-20	PT20-2.12	2.3/4"		219.4	1952	20.17	13011	190	60	166	194	266	23.5*
	PT20-M72		M72									266	5.2
	PT20-M76		M76									269	5.2
	PT20-3.00	3"										269	5.2
TSS-27	PT27-M80		M80	268.7	2390	24.70	15935	214	60	191	208	288	31.5*
	PT27-3.04	3.1/4"										288	6.5
	PT27-M85		M85									293	6.5
	PT27-3.08	3.1/2"										293	6.5

*Weight of Load Cell + Puller Nut.

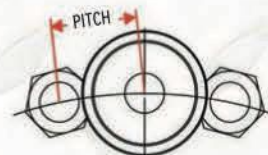
Hydraulic Bolt Tensioners

CST Series



CST Series are slimmer, variable type Bolt Tensioners consisting of five parts-Puller, Puller Nut, Load Cell, Bridge and Nut Driver as shown below:

- Designed to provide a wide range of flexibility, covering stud sizes 3/4 "to 2.1/2"(M-20 to M-64).
- All Parts are made from high strength Aircraft Quality alloy steel for long lasting performance and better safety factor.
- Marked piston indicates stroke and provides an over stroke indication.
- Designed to release high pressure hydraulic oil inwards in event of over-stroke, thus saving the operator from exposure.
- Fitted with Anti Roll, Composite Material seals for longer life and high reliability.
- The seals have a low coefficient of friction so that the piston can be returned to a closed position with minimal effort. Sub Sea tensioners can be provided with machined PU (polyurethane) seals if requested by the customer.
- The unique piston design allows 2° tilt with out any loss of load and prevents piston seizure or damage of piston.



CST Series Technical Data

Model		Bolt Size		Max Load		Hyd Area		O.D.	Min Pitch	Relief C	Height A	Clearance B
Load Cell	Adaptor Kit	inch	mm	Ton	kN	in ²	mm ²	mm	mm	mm	mm	mm
CST-24	A24-0.12	3/4		26.4	235.1	2.43	1568	68	42	37	173	192
	A24-M20		M20						43	38	173	193
	A24-0.14	7/8							44	41	175	197
	A24-M24		M24						46	44	177	201
	A24-1.00	1							47	46	178	203
	A24-M27		M27						49	50	180	207
CST-36	A36-1.02	1.1/8		47.6	423.2	4.37	2822	88	53	53	240	269
	A36-M30		M30						55	55	241	271
	A36-1.04	1.1/4							56	58	243	274
	A36-M33		M33						57	60	244	277
	A36-1.06	1.3/8							59	63	246	281
	A36-M36		M36						61	65	247	283
CST-41	A41-M36		M36	59.8	531.6	5.49	3545	103	76	65	267	303
	A41-1.08	1.1/2							78	69	269	307
	A41-M39		M39						79	70	270	309
	A41-1.10	1.5/8							81	74	272	314
	A41-M42		M42						82	75	273	315
	A48-M42		M42						92	75	296	338
CST-48	A48-1.12	1.3/4		84.6	752.7	7.78	5019	118	93	80	298	343
	A48-M45		M45						94	81	299	344
	A48-1.14	1.7/8							96	85	302	349
	A48-M48		M48						97	86	302	350
	A55-M48		M48						104	86	327	375
	A55-2.00	2							106	91	330	381
CST-55	A55-M52		M52	104.1	926.2	9.57	6176	130	107	93	331	383
	A55-M56		M56						109	100	335	391
	A55-2.04	2.1/4							109	102	336	393
	A60-2.04	2.1/4							117	102	367	424
CST-60	A60-M60		M60	191.8	1261.6	13.04	8413	148	120	107	370	430
	A60-2.08	2.1/2							121	113	374	437
	A60-M64		M64						124	113	374	438

Hydraulic Bolt Tensioners

DA/CAT Series

The Wind Mill bolting applications has its own restrictions for use of tools due poor open working environment and restricted space for application. Towers are high and pneumatic supply is normally not practical for tools. Tools required must be light in weight compact in size and must use energy source readily available at site. We have two types of tensioners for WIND MILL Applications i.e. DA Series and CAT Series. The 700 bar "DA Series" are specially designed for Base Bolt applications, while the "CAT Series", 1500 bar tensioners are for versatile applications from Tower Base to Turbine Blades.

These tensioners are specially designed for Base Bolt applications of Wind Mill Towers. Tensioning is carried out using standard Hydraulic Torque Wrench Powerpack. Though most applications are covered by our two models as referred below.

Customized sizes are available upon request.



DA Series Technical Data/Dimensions

Model No.	Bolt Size	Max Load	Max Dia	Stroke	Dim. C	OAL	Weight
		kN	mm	mm	mm	mm	kg
DA-3639	M33-M36	385	116	25	54	138	4.3
DA-3642	M36-M42	412	125	25	58	138	5.5

Model CAT



CAT Series Technical Data

Model No.	Bolt Size		Max Load	Max Dia	Stroke	
	Metric	Imperial	kN	mm	Standard	Long
CAT-27	M24-M27	7/8 - 1	271	74	15	25
CAT-33	M30-M33	1 1/8 - 1 1/4	369	86	15	25
CAT-36	M33-M36	1 1/8 - 1 1/2	767	118	15	25
CAT-42	M39-M42	1 1/8 - 1 1/2	820	123	15	25

- The tensioners are designed with smaller diameter for ease of tool fitment.
- 1500 bar working pressure to generate higher load with smaller hydraulic area of tensioner.
- Geared Nut Driver to move the nut faster and with ease using standard 1/2" Square Drive Wrench.
- Tool is available with standard and long stroke as per application.
- All parts are made from High Strength Alloy Steel, better strength and compact design.
- CAT series tensioners are available with both standard and customized adaptor kit.
- Standard tensioners are available with optional auto spring retraction for fast and easy retraction of piston.

PETOL™ POP-IT™

PETOL™ Flange Aligning Tool

Click any Catalog No. to send an inquiry.

CATALOG NO.	BOLT HOLE SIZE	LENGTH	WEIGHT
FT100	3/8"	2-1/8"	1-1/4 ozs.
FT0	1/2"	2-3/8"	2-1/4 ozs.
FT01	5/8"	2-3/4"	4 ozs.
FT02	3/4"	3-1/4"	7 ozs.
FT03	7/8"	3-1/2"	11 ozs.
FT04	1"	4"	1 lb.
FT06	1-1/8"	5"	1-1/2 lbs.
FT08	1-1/4"	5-1/2"	2 lbs.
FT1012	1-3/8"	6-1/4"	2-7/8 lbs.
FT14	1-1/2"	6-1/2"	3-1/4 lbs.
FT16	FT16	1-5/8" 7-1/4"	4-1/8 lbs.
FT1820	1-3/4"	7-7/8"	4-3/4 lbs.
FT22	1-7/8"	8-3/8"	7 lbs.
FT2426	2"	9"	6-5/8 lbs.
FT30	2-1/8"	12"	10-3/8 lbs.
FT34	2-3/8"	13-1/4"	13-1/8 lbs.
FT3642	2-5/8"	14"	16-7/8 lbs.
FT48	2-7/8"	13-5/8"	24-3/8 lbs.
FT5054	3-1/8"	18"	35-7/8 lbs.
FT60	3-5/8"	20"	54-7/8 lbs.
EXTRA LONG			
FT0L	1/2"	5-3/8"	10 ozs.
FT01L	5/8"	5-3/4"	12 ozs.
FT02L	3/4"	6-1/4"	14 ozs.
FT03L	7/8"	6-1/2"	1-1/8 lbs.
FT04L	1"	7"	1-1/2 lbs.
FT06L	1-1/8"	8"	2-1/4 lbs.
FT08L	1-1/4"	8-1/2"	3 lbs.
FT1012L	1-3/8"	9-1/4"	4 lbs.
FT14L	1-1/2"	9-1/2"	4-1/2 lbs.
FT16L	1-5/8"	10-1/4"	5-3/4 lbs.
FT1820L	1-3/4"	10-7/8"	6-1/4 lbs.
FT22L	1-7/8"	11-3/8"	7-1/2 lbs.
FT2426L	2"	12"	9-1/4 lbs.
FT30L	2-1/8"	15"	13 lbs.
FT34L	2-3/8"	16-1/4"	15 lbs.
FT3642L	2-5/8"	17"	18 lbs.



PETOL™ FLANGE ALIGNING TOOLS are a safe, fast, and effective solution for even the toughest flange alignment jobs. The tool's tapered shaft is a patented feature that eliminates the need for hammering and prying when lining up flange bolt holes.

PETOL Flange Aligning Tools are sold individually and in sets.



Simply find a bolt hole that is aligned enough for the tapered shaft to fit through and turn.



If necessary, use a second tool and turn until the bolt holes are in alignment and insert flange bolts.



PETOL™ Flange Aligning Tool Sets

CATALOG NO.	SET INCLUDES 2 EACH:	WEIGHT
FTS24	FT02, FT03, FT04	8 lbs.
FTS26	FT02, FT03, FT04, FT06	11 lbs.
FTS28	FT02, FT03, FT04, FT06, FT08	15 lbs.
FTS212 (Shown)	FT02, FT03, FT04, FT06, FT08, FT1012	21 lbs.
FTS1426	FT14, FT16, FT1820, FT2426	47 lbs.
EXTRA LONG		
FTS24L	FT02L, FT03L, FT04L	17 lbs.
FTS26L	FT02L, FT03L, FT04L, FT06L	21 lbs.
FTS28L	FT02L, FT03L, FT04L, FT06L, FT08L	26 lbs.
FTS212L	FT02L, FT03L, FT04L, FT06L, FT08L, FT1012L	37 lbs.



Pipers

Order individually or in sets!

Individual Sizes	8 Piece Set	6 Piece Set	3 Piece Set
7/8"	7/8"	7/8"	7/8"
1 1/16"	1 1/16"	1 1/16"	1 1/16"
1 1/4"	1 1/4"	1 1/4"	1 1/4"
1 7/16"	1 7/16"	1 7/16"	
1 5/8"	1 5/8"	1 5/8"	
1 13/16"	1 13/16"	1 13/16"	
2"	2"		
2 3/16"	2 3/16"		
2 3/8"			
2 3/4"			
2 9/16"			
2 15/16"			
3 1/8"			
3 1/2"			
3 7/8"			
4 1/4"			
4 5/8"			
5 3/8"			



A standard 6 piece set accommodates 1/2" to 20" class 150# and 1/12" to 12" class 1500# flanges.

Compare our Piper weights to the weight of the wrenches that you are currently using and we think you'll find that The Piper is much easier to store and carry to your job site.

7/8"	.8 lbs
1 1/16"	.85 lbs
1 1/4"	1.10 lbs
1 7/16"	1.4 lbs
1 5/8"	1.75 lbs
1 13/16"	2.25 lbs
2"	3.9 lbs
2 3/16"	3.75 lbs
2 3/8"	4.4 lbs
2 9/16"	4.05 lbs
2 15/16"	7.3 lbs
2 3/4"	7.9 lbs
3 1/8"	6.75 lbs
3 1/2"	25.7 lbs
3 7/8"	24.1 lbs
4 1/4"	36.0 lbs
4 5/8"	34.0 lbs
5 3/8"	42.0 lbs

Muskegon Tools' Piper products are cast from 8630 steel alloy with nickel, chrome, and molybdenum.

After machining, the tools are carburized, quenched, and tempered to 34-36RC.

The finished strength levels are:

150,000 lbs per square inch Tensile
125,000 lbs per square inch Yield



Torque Chart for ASTM A193 Grade B7 Studs in Ft./Lbs. at 100% of yield						
Bolt Diameter	Nut Size	Moly Lube	Nickel Lube	Copper Lube	Machine Oil	Dry
		u=0.085	u=0.110	u=0.100	u=0.160	u=0.400
3/4"	1-1/4"	208	342	314	448	1,118
7/8"	1-7/16"	330	544	500	716	1,786
1"	1-5/8"	490	810	746	1,066	2,664
1-1/8"	1-13/16"	702	1,170	1,076	1,544	3,888
1-1/4"	2"	966	1,622	1,492	2,150	5,440
1-3/8"	2-3/16"	1,288	2,180	2,000	2,894	7,356
1-1/2"	2-3/8"	1,674	2,850	2,614	3,792	9,274
1-5/8"	2-9/16"	2,142	3,668	3,364	4,890	12,520
1-3/4"	2-3/4"	2,676	4,602	4,218	6,144	15,776
1-7/8"	2-15/16"	3,292	5,682	5,204	7,596	19,550
2"	3-1/8"	3,994	6,920	6,334	9,260	23,884
2-1/8"	N/A	4,790	8,324	7,618	11,150	28,816
2-1/4"	3-1/2"	5,686	9,906	9,068	13,282	34,382
2-3/8"	N/A	6,686	11,676	10,678	15,668	40,620
2-1/2"	3-7/8"	7,796	13,646	12,476	18,324	47,536
2-3/4"	4-1/4"	9,382	16,488	15,066	22,170	57,692
3"	4-5/8"	13,974	21,464	19,606	28,894	75,340
3-1/4"	5"	15,470	27,352	24,976	36,856	96,258
3-1/2"	5-3/8"	19,312	34,226	31,244	46,158	120,730
3-3/4"	5-3/4"	23,742	42,168	38,482	56,906	149,032
4"	6-1/8"	27,262	48,590	44,324	65,652	172,292
4-1/4"	6-1/2"	28,802	51,248	46,758	69,206	181,440
4-1/2"	6-7/8"	32,348	57,742	52,664	78,058	205,026

Torque Chart for ASTM A193 Grade B7 Studs in Ft./Lbs at 70% of yield						
Bolt Diameter	Nut Size	Moly Lube	Nickel Lube	Copper Lube	Machine Oil	Dry
		u=0.085	u=0.110	u=0.100	u=0.160	u=0.400
3/4"	1-1/4"	145	239	219	313	782
7/8"	1-7/16"	231	380	350	501	1,250
1"	1-5/8"	343	567	522	746	1,864
1-1/8"	1-13/16"	491	819	753	1,080	2,721
1-1/4"	2"	676	1,135	1,044	1,505	3,808
1-3/8"	2-3/16"	901	1,526	1,400	2,025	5,149
1-1/2"	2-3/8"	1,171	1,995	1,829	2,654	6,491
1-5/8"	2-9/16"	1,499	2,567	2,354	3,423	8,764
1-3/4"	2-3/4"	1,873	3,221	2,952	4,300	11,043
1-7/8"	2-15/16"	2,304	3,977	3,642	5,317	13,685
2"	3-1/8"	2,795	4,844	4,433	6,482	16,718
2-1/8"	N/A	3,353	5,826	5,332	7,805	20,171
2-1/4"	3-1/2"	3,980	6,934	6,343	9,297	24,067
2-3/8"	N/A	4,680	8,173	7,474	10,367	28,434
2-1/2"	3-7/8"	5,457	9,552	8,733	12,862	33,275
2-3/4"	4-1/4"	6,567	11,541	10,546	15,519	40,384
3"	4-5/8"	9,781	15,024	13,724	20,225	52,738
3-1/4"	5"	10,829	19,146	17,483	25,799	67,380
3-1/2"	5-3/8"	13,518	23,958	21,870	32,310	84,511
3-3/4"	5-3/4"	16,619	29,517	26,937	39,834	10,432
4"	6-1/8"	19,083	34,013	32,730	45,956	12,700
4-1/4"	6-1/2"	20,161	35,873	31,026	48,444	12,060
4-1/2"	6-7/8"	22,643	40,419	36,864	54,640	14,351

u= The coefficient of friction of the lubricant

Figures are a GUIDE only, always consult the manufacturer or an engineer



Torque Chart for ASTM A193 Grade B7 Studs in Ft./Lbs at 60% of yield						
Bolt Diameter	Nut Size	Moly Lube	Nickel Lube	Copper Lube	Machine Oil	Dry
		u=0.085	u=0.110	u=0.100	u=0.160	u=0.400
3/4"	1-1/4"	125	205	188	269	671
7/8"	1-7/16"	198	326	300	430	1,072
1"	1-5/8"	294	486	447	640	1,598
1-1/8"	1-13/16"	421	702	645	926	2,333
1-1/4"	2"	579	973	895	1,290	3,264
1-3/8"	2-3/16"	773	1,308	1,200	1,736	4,414
1-1/2"	2-3/8"	1,004	1,704	1,568	2,275	5,564
1-5/8"	2-9/16"	1,285	2,200	2,018	2,934	7,512
1-3/4"	2-3/4"	1,605	2,761	2,530	3,686	9,465
1-7/8"	2-15/16"	1,975	3,409	3,122	4,557	11,730
2"	3-1/8"	2,396	4,152	3,800	5,556	14,330
2-1/8"	N/A	2,874	4,994	4,570	6,690	17,289
2-1/4"	3-1/2"	3,411	5,943	5,437	7,969	20,629
2-3/8"	N/A	4,011	7,005	6,406	9,400	24,372
2-1/2"	3-7/8"	4,677	8,187	7,485	10,994	28,521
2-3/4"	4-1/4"	5,629	9,892	9,039	13,302	34,615
3"	4-5/8"	8,384	12,878	11,763	17,336	45,204
3-1/4"	5"	9,282	16,411	14,985	22,113	57,754
3-1/2"	5-3/8"	11,587	20,535	18,746	27,694	72,438
3-3/4"	5-3/4"	14,245	25,300	23,089	34,143	89,419
4"	6-1/8"	15,301	27,227	24,842	36,767	96,397
4-1/4"	6-1/2"	16,357	29,154	26,594	39,391	103,375
4-1/2"	6-7/8"	19,408	34,645	31,598	46,834	123,015

Torque Chart for ASTM A193 Grade B7 Studs in Ft./Lbs at 50% of yield						
Bolt Diameter	Nut Size	Moly Lube	Nickel Lube	Copper Lube	Machine Oil	Dry
		u=0.085	u=0.110	u=0.100	u=0.160	u=0.400
3/4"	1-1/4"	104	171	157	224	559
7/8"	1-7/16"	165	272	250	358	893
1"	1-5/8"	245	405	373	533	1,332
1-1/8"	1-13/16"	351	585	538	772	1,944
1-1/4"	2"	483	811	746	1,075	2,720
1-3/8"	2-3/16"	644	1,090	1,000	1,447	3,678
1-1/2"	2-3/8"	837	1,425	1,307	1,896	4,637
1-5/8"	2-9/16"	1,071	1,834	1,682	2,445	6,260
1-3/4"	2-3/4"	1,338	2,301	2,109	3,072	7,888
1-7/8"	2-15/16"	1,646	2,841	2,602	3,798	9,775
2"	3-1/8"	1,997	3,460	3,167	4,630	11,942
2-1/8"	N/A	2,395	4,162	3,809	5,575	14,408
2-1/4"	3-1/2"	2,843	4,653	4,531	6,641	17,191
2-3/8"	N/A	3,343	5,838	5,339	7,834	20,310
2-1/2"	3-7/8"	3,898	6,823	6,238	9,162	23,768
2-3/4"	4-1/4"	4,691	8,244	7,533	11,085	28,846
3"	4-5/8"	6,987	10,732	9,803	14,447	37,670
3-1/4"	5"	7,735	13,676	12,488	18,428	48,129
3-1/2"	5-3/8"	9,656	17,113	15,622	23,079	60,365
3-3/4"	5-3/4"	11,871	21,084	19,241	28,453	74,516
4"	6-1/8"	13,631	24,295	22,162	32,826	86,146
4-1/4"	6-1/2"	14,401	25,624	23,379	34,603	90,720
4-1/2"	6-7/8"	16,174	28,871	26,332	39,029	102,513

u= The coefficient of friction of the lubricant

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