

**TU SERIES SQUARE DRIVE HYDRAULIC WRENCHES**



**TX SERIES LOW CLEARANCE HYDRAULIC WRENCHES**



**BOLTING SERVICES / RENTAL PROGRAMS**



**PUMPS FOR USE WITH HYDRAULIC WRENCHES**



**MICROMETER TORQUE WRENCHES**



**CLASSIC MECHANICAL CLICK TORQUE WRENCHES**



**CLASSIC MECHANICAL TORQUE MULTIPLIERS**



**POWER SPLITTER HYDRAULIC NUT SPLITTERS**



**POWER SPREADER FLANGE SPREADERS**



**HYDRAULIC BOLT TENSIONERS**

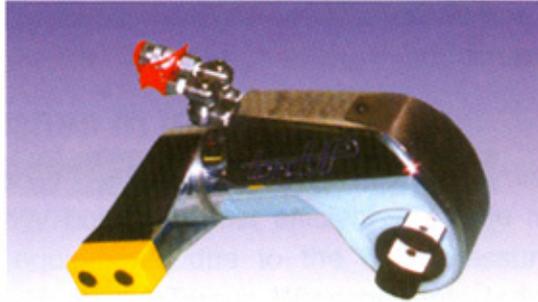


**BOLTCALC BOLTING SOFTWARE**



## TU SQUARE DRIVE TORQUE WRENCH

Simply...  
“The Most Advanced Wrench Ever Produced”



Faster Stroke!  
Anti-Back Lash Mechanism!  
Hands-Off Operation!  
Accurate Repeatability!  
Less Moving Parts!  
Patented Mono-Body Housing!  
Unique Design to Fit Every Application!

## TX LOW PROFILE TORQUE WRENCH

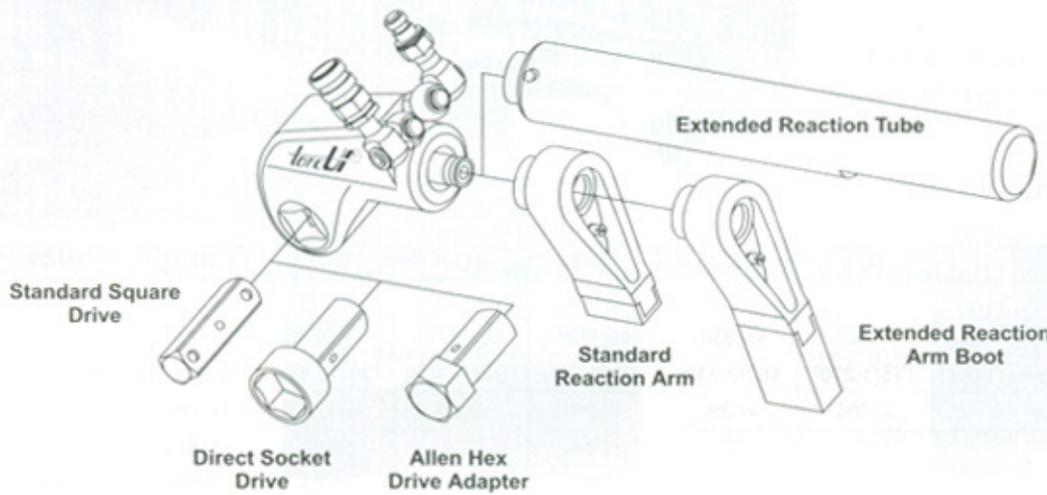
Simply...  
“The Flattest Hydraulic Wrench Ever Produced”



Flat Design from Cylinder to Link!  
Unique “Peanut Shaped” Piston!  
Direct Flow Oil Distribution for Faster Stroke!  
Less Moving Parts!  
Accurate Repeatability!  
Hands-Off Operation!

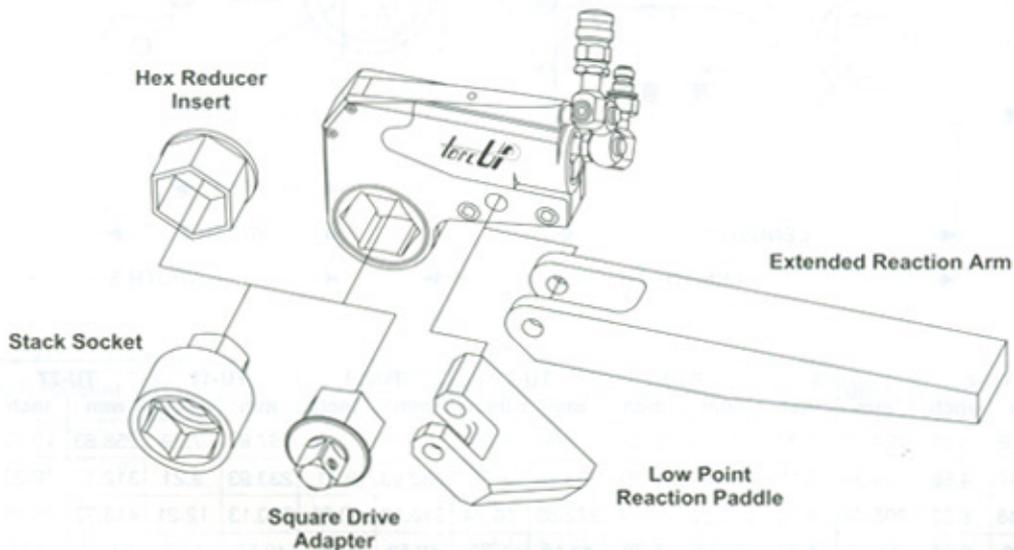
# ACCESSORIES

## TU - Accessories



POWERMASTER has in stock application specific accessories to fit on your job!  
Call POWERMASTER today for help with  
your application specification!

## TX - Accessories



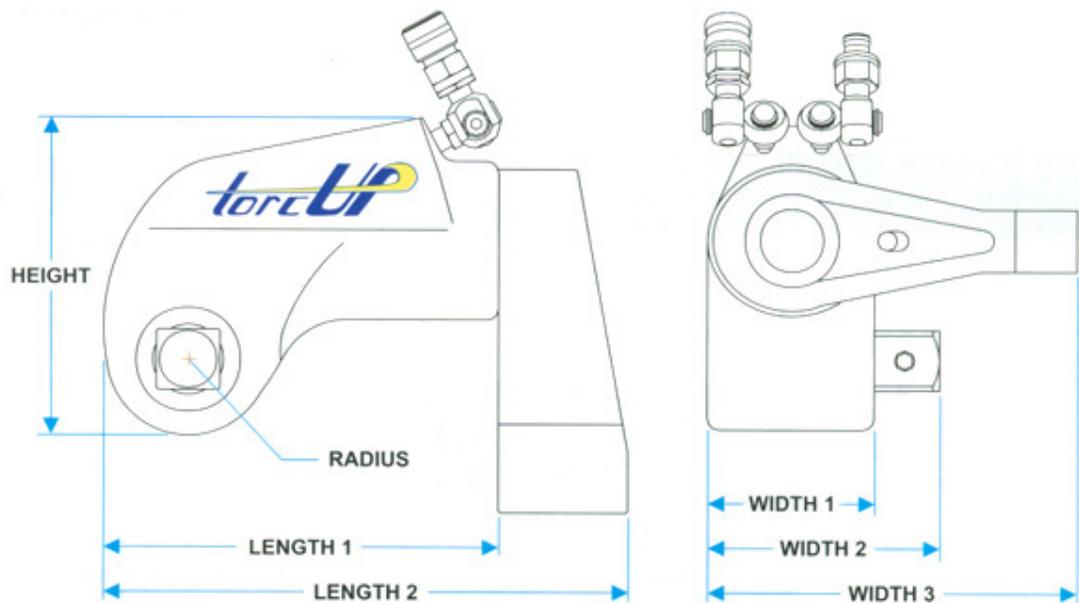
When clearance is an issue...TX is the answer!  
TX accessories allow you to convert your low profile  
system into a multi-application system simply by inserting hex accessories.  
Call POWERMASTER to solve ANY of your limited area, low clearance bolting applications.

# TU SERIES SPECIFICATIONS



## Technical

Model No.	TU-2	TU-3	TU-5	TU-7	TU-10	TU-11	TU-27	TU-60
Square Drive	3/4"	1"	1.1/2"	1.1/2"	1.1/2"	1.1/2"	2.1/2"	2.1/2"
Min. Torque Kg-m(Ft/Lbs)	17(127)	45(330)	99(717)	102(740)	130(942)	152(1,100)	376(2,720)	801(5,800)
Max. Torque Kg-m(Ft/Lbs)	175(1,270)	460(3,330)	990(7,170)	1020(7,400)	1301(9,420)	1520(11,010)	3760(27,200)	8018(58,000)
Output Accuracy	+/-3%	+/-3%	+/-3%	+/-3%	+/-3%	+/-3%	+/-3%	+/-3%
Repeatability	100%	100%	100%	100%	100%	100%	100%	100%
Duty Cycle	100%	100%	100%	100%	100%	100%	100%	100%
Tool Weight Kgs/(Lbs)	1.77/(3.90)	4.09/(9.00)	8.64/(19.00)	8.64/(19.00)	12.27/(27.00)	13.18/(29.00)	31.81/(70.00)	59.00/(130.00)



## Dimensions

Model No.	TU-2		TU-3		TU-5		TU-7		TU-10		TU-11		TU-27		TU-60	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
Height	106.68	4.20	134.62	5.30	177.55	6.99	177.55	6.99	197.87	7.79	197.87	7.79	258.83	10.19	292.10	11.50
Length 1	118.87	4.68	154.94	6.10	203.20	8.00	203.20	8.00	233.93	9.21	233.93	9.21	312.17	12.29	390.65	15.38
Length 2	157.48	6.20	205.74	8.10	272.80	10.74	272.80	10.74	310.13	12.21	310.13	12.21	413.77	16.29	518.16	20.40
Radius	24.89	0.98	33.02	1.30	43.18	1.70	43.18	1.70	49.53	1.95	49.53	1.95	61.72	2.43	73.66	2.90
Width 1	50.80	2.00	66.54	2.62	91.69	3.61	91.69	3.61	99.82	3.93	99.82	3.93	133.60	5.26	167.13	6.58
Width 2	70.87	2.79	93.47	3.68	128.52	5.06	128.52	5.06	137.92	5.43	137.92	5.43	196.34	7.73	225.80	8.89
Width 3	112.27	4.42	147.57	5.81	202.69	7.98	202.69	7.98	221.49	8.72	221.49	8.72	295.40	11.63	368.00	14.49

### Note :

- All tool weights include Couplers, Swivels, Reaction Arm and Internal Oil.
- The Patented Mono-Body Housing is standard on all models.

# TU SERIES FEATURES

## TU Square Drive - The Performer



**TU-2 Achieves Proper Torque in Seconds!**

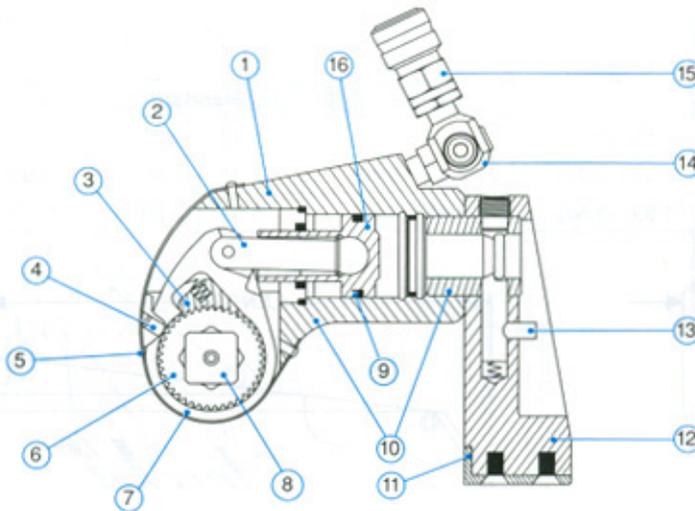


**TU-10 The Workhorse in Power Generation**

The **torcUP** Multi-Application TU Series is the tool of choice on every application in every industry. Whether in a steel mill, on an offshore drill platform or diving to the ocean bottom a **torcUP** TU Wrench will **OUTPERFORM** every other method of tightening threaded fasteners.

Tensioners...Impact Wrenches...  
Nut Runners...  
are no match for  
A TU Hydraulic Wrench on  
any application !!

Other Hydraulic Wrench manufacturers?  
Not a chance!!



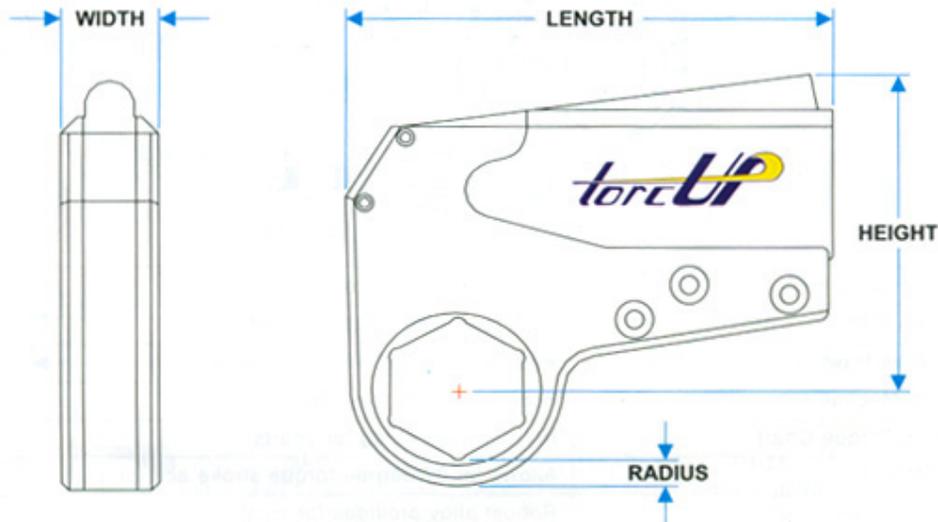
1	Patented Mono-Body Housing	A TorcUP exclusive!!
2	Balanced Drive Rod	Side load free piston movement.
3	Never-Lock Drive Pawl	Ensures tool will NEVER lock up.
4	Anti-Back Lash Mechanism	Provides hands free operation.
5	Laser Engraved Torque Chart	No more searching for charts.
6	Multi-Tooth Ratchet	Allows for 27 degree torque stroke accuracy.
7	One Piece Drive Plate	Robust alloy provides for small nose radius.
8	Push-Through-Drive	Simply push to switch from loosen to tighten.
9	Single Seal Piston	Assures extended maintenance free operation.
10	Direct Housing Reaction	Allows use of tool without reaction arm.
11	Steel Reaction Boot	Field replaceable feature protects reaction arm.
12	Long Length Reaction Arm	Allows for reaction on all applications.
13	Reaction Arm Release Button	Protected within reaction arm housing.
14	360 x 360 Swivel	Allows hose to be cleared on all applications.
15	No-Drip Quick Connect Couplers	Assures easy and safe operation.
16	Steel Alloy Piston	Robust composition allows for longer operation cycle.

# TX SERIES SPECIFICATIONS



## Technical

Model No.	TX-2	TX-4	TX-8	TX-16	TX-32
Tool Hex from	19mm / 3/4"	25mm / 1"	50mm / 1.7/8"	65mm / 2.5/8"	80mm / 3.1/8"
to	60mm / 2.3/8"	80mm / 3.1/8"	105mm / 4"	115mm / 4.5/8"	155mm / 6.1/8"
Min. Torque Kg-m (Ft/Lbs)	26 (192)	54 (395)	115 (830)	215 (1,560)	445 (3,220)
Max. Torque Kg-m (Ft/Lbs)	260 (1,928)	540 (3,950)	1192 (8,630)	2293 (16,600)	4924 (35,650)
Output Accuracy	+/- 3%	+/- 3%	+/- 3%	+/- 3%	+/- 3%
Repeatability	100%	100%	100%	100%	100%
Duty Cycle	100%	100%	100%	100%	100%
Corrosion Protection	Standard				
Cylinder Weight Kgs / (Lbs)	1.59 / (3.50)	2.73 / (6.00)	5.32 / (11.70)	7.27 / (16.00)	11.82 / (26.00)
Link Weight from Kgs / (Lbs)	1.09 / (2.40)	2.45 / (5.40)	5.41 / (11.90)	9.55 / (21.00)	13.18 / (29.00)
to Kgs / (Lbs)	1.59 / (3.50)	3.45 / (7.60)	6.59 / (14.50)	12.73 / (28.00)	17.95 / (39.50)



## Dimensions

Model No.	TX-2		TX-4		TX-8		TX-16		TX-32	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
Length	144.00	5.67	198.12	7.80	248.92	9.80	328.42	12.93	388.62	15.30
Height	101.60	4.00	142.24	5.60	177.80	7.00	192.53	7.58	276.86	10.90
Width	31.75	1.25	41.40	1.63	52.07	2.05	63.50	2.50	82.30	3.24
Radius	9.14	0.36	11.68	0.46	13.72	0.54	16.51	0.65	23.62	0.93

### Note :

- All tool weights include Couplers, Swivels and Internal Oil.
- The Patented Peanut Shaped Cylinder Bore is standard on TX-2, TX-4 and TX-8 models.

# TX SERIES FEATURES

## TX Low Profile - The Solution

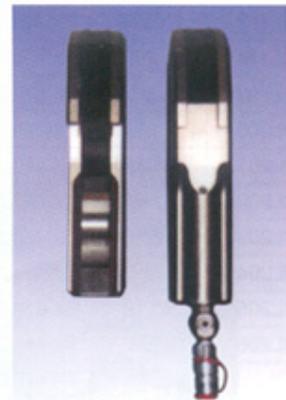
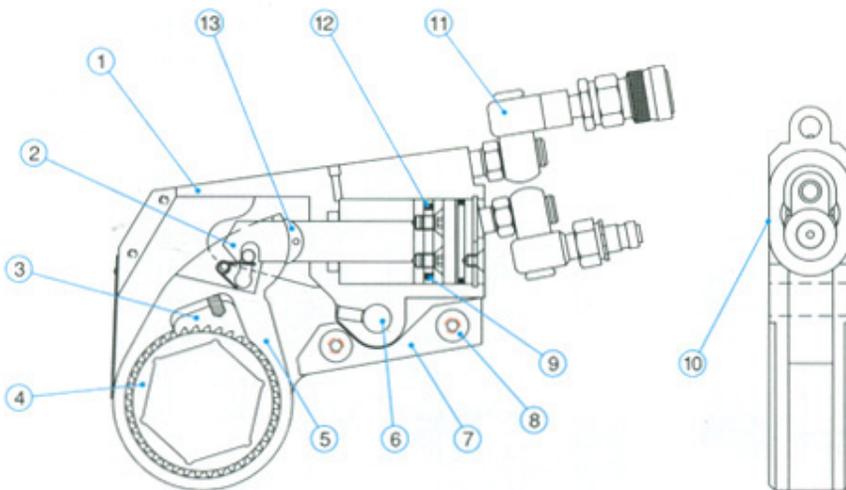


▲  
*TX saves time when  
precise torque is required*

- Clearance **ABOVE** The Nut - No Problem For A TX!
- Clearance **BEHIND** The Nut - No Problem For A TX!
- Clearance **BETWEEN** The Nut - No Problem For A TX!

The **torcUP** Patented Peanut Shape Piston Design assures that your application will have the correct torque applied every time.

- Tensioners - Too Big To Fit!
- Multipliers - Too Big To Fit!
- Nut Runners - Too Big To Fit!
- Impact Wrenches - Too Big To Fit!
- Other Hydraulic Wrenches - Too Big To Fit!

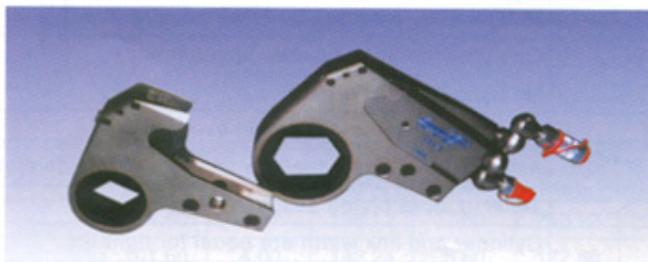


▲  
*TX cylinder and link are  
the same width. A TorcUP exclusive.*

1	Patented "Peanut Shaped Cylinder"	Fit both the cylinder and link in confined areas.
2	Engagement Rod	Automatically engages link on the first stroke.
3	Never-Lock Drive Pawl	Ensures tool will NEVER lock up.
4	Multi-Tooth Ratchet	Allows for 27 degree torque stroke accuracy.
5	One Piece Drive Plate	Robust alloy provides for small nose radius.
6	Link Pin	One pin for link to cylinder engagement. No tools required.
7	In-Line Reaction Pad	Assures torsion free reaction every time.
8	Steel Alignment Pin	Assures equal load displacement between side plates.
9	Piston Tension O-Ring	Tension locks piston seal into "Peanut" bore.
10	Completely Flat Design	Cylinder and link width are equal for tight fits.
11	360 x 360 Swivel	Allows hose to be cleared on all applications.
12	Teflon Piston Seal	Patented technology provides years of maintenance free use.
13	Slider	Prevents wear of piston or drive plate. Reduces costly repairs.

# TX SERIES HEX LINK PART NUMBERS

TX-2 Link Number	Hex Size	TX-4 Link Number	Hex Size	TX-8 Link Number	Hex Size	TX-16 Link Number	Hex Size	TX-32 Link Number	Hex Size
TX-2RL012	3/4"	TX-4RL100	1"	TX-8RL114	1.7/8"	TX-16RL210	2.5/8"	TX-32RL302	3.1/8"
TX-2RL013	13/16"	TX-4RL101	1.1/16"	TX-8RL115	1.15/16"	TX-16RL211	2.11/16"	TX-32RL303	3.3/16"
TX-2RL014	7/8"	TX-4RL102	1.1/8"	TX-8RL200	2"	TX-16RL212	2.3/4"	TX-32RL304	3.1/4"
TX-2RL015	15/16"	TX-4RL103	1.3/16"	TX-8RL201	2.1/16"	TX-16RL213	2.13/16"	TX-32RL305	3.5/16"
TX-2RL100	1"	TX-4RL104	1.1/4"	TX-8RL202	2.1/8"	TX-16RL214	2.7/8"	TX-32RL306	3.3/8"
TX-2RL101	1.1/16"	TX-4RL105	1.5/16"	TX-8RL203	2.3/16"	TX-16RL215	2.15/16"	TX-32RL307	3.7/16"
TX-2RL102	1.1/8"	TX-4RL106	1.3/8"	TX-8RL204	2.1/4"	TX-16RL300	3"	TX-32RL308	3.1/2"
TX-2RL103	1.3/16"	TX-4RL107	1.7/16"	TX-8RL205	2.5/16"	TX-16RL301	3.1/16"	TX-32RL309	3.9/16"
TX-2RL104	1.1/4"	TX-4RL108	1.1/2"	TX-8RL206	2.3/8"	TX-16RL302	3.1/8"	TX-32RL310	3.5/8"
TX-2RL105	1.5/16"	TX-4RL109	1.9/16"	TX-8RL207	2.7/16"	TX-16RL303	3.3/16"	TX-32RL311	3.11/16"
TX-2RL106	1.3/8"	TX-4RL110	1.5/8"	TX-8RL208	2.1/2"	TX-16RL304	3.1/4"	TX-32RL312	3.3/4"
TX-2RL107	1.7/16"	TX-4RL111	1.11/16"	TX-8RL209	2.9/16"	TX-16RL305	3.5/16"	TX-32RL313	3.13/16"
TX-2RL108	1.1/2"	TX-4RL112	1.3/4"	TX-8RL210	2.5/8"	TX-16RL306	3.3/8"	TX-32RL314	3.7/8"
TX-2RL109	1.9/16"	TX-4RL113	1.13/16"	TX-8RL211	2.11/16"	TX-16RL307	3.7/16"	TX-32RL315	3.15/16"
TX-2RL110	1.5/8"	TX-4RL114	1.7/8"	TX-8RL212	2.3/4"	TX-16RL308	3.1/2"	TX-32RL400	4"
TX-2RL111	1.11/16"	TX-4RL115	1.15/16"	TX-8RL213	2.13/16"	TX-16RL309	3.9/16"	TX-32RL401	4.1/16"
TX-2RL112	1.3/4"	TX-4RL200	2"	TX-8RL214	2.7/8"	TX-16RL310	3.5/8"	TX-32RL402	4.1/8"
TX-2RL113	1.13/16"	TX-4RL201	2.1/16"	TX-8RL215	2.15/16"	TX-16RL311	3.11/16"	TX-32RL403	4.3/16"
TX-2RL114	1.7/8"	TX-4RL202	2.1/8"	TX-8RL300	3"	TX-16RL312	3.3/4"	TX-32RL404	4.1/4"
TX-2RL115	1.15/16"	TX-4RL203	2.3/16"	TX-8RL301	3.1/16"	TX-16RL313	3.13/16"	TX-32RL405	4.5/16"
TX-2RL200	2"	TX-4RL204	2.1/4"	TX-8RL302	3.1/8"	TX-16RL314	3.7/8"	TX-32RL406	4.3/8"
TX-2RL201	2.1/16"	TX-4RL205	2.5/16"	TX-8RL303	3.3/16"	TX-16RL315	3.15/16"	TX-32RL407	4.7/16"
TX-2RL202	2.1/8"	TX-4RL206	2.3/8"	TX-8RL304	3.1/4"	TX-16RL400	4"	TX-32RL408	4.1/2"
TX-2RL203	2.3/16"	TX-4RL207	2.7/16"	TX-8RL305	3.5/16"	TX-16RL401	4.1/16"	TX-32RL409	4.9/16"
TX-2RL204	2.1/4"	TX-4RL208	2.1/2"	TX-8RL306	3.3/8"	TX-16RL402	4.1/8"	TX-32RL410	4.5/8"
TX-2RL205	2.5/16"	TX-4RL209	2.9/16"	TX-8RL307	3.7/16"	TX-16RL403	4.3/16"	TX-32RL411	4.11/16"
TX-2RL206	2.3/8"	TX-4RL210	2.5/8"	TX-8RL308	3.1/2"	TX-16RL404	4.1/4"	TX-32RL412	4.3/4"
		TX-4RL211	2.11/16"			TX-16RL405	4.5/16"	TX-32RL413	4.13/16"
		TX-4RL212	2.3/4"			TX-16RL406	4.3/8"	TX-32RL414	4.7/8"
		TX-4RL213	2.13/16"			TX-16RL407	4.7/16"	TX-32RL415	4.15/16"
		TX-4RL214	2.7/8"			TX-16RL408	4.1/2"	TX-32RL500	5"
		TX-4RL215	2.15/16"			TX-16RL409	4.9/16"	TX-32RL501	5.1/16"
		TX-4RL300	3"			TX-16RL410	4.5/8"	TX-32RL502	5.1/8"
		TX-4RL301	3.1/16"					TX-32RL503	5.3/16"
		TX-4RL302	3.1/8"					TX-32RL504	5.1/4"
								TX-32RL505	5.5/16"
								TX-32RL506	5.3/8"
								TX-32RL507	5.7/16"
								TX-32RL508	5.1/2"
								TX-32RL509	5.9/16"
								TX-32RL510	5.5/8"
								TX-32RL511	5.11/16"
								TX-32RL512	5.3/4"
								TX-32RL513	5.13/16"
								TX-32RL514	5.7/8"
								TX-32RL515	5.15/16"
								TX-32RL600	6"
								TX-32RL601	6.1/16"
								TX-32RL602	6.1/8"



Change sizes by removing single link pin

All TX series links are available in MM sizes also. Consult POWERMASTER for part numbers.

## BOLTING SERVICES

### Powermaster Offers A Complete Hydraulic Bolting Service.....

*From plants to platforms, from drilling rigs to refineries, we do it faster, safer and more accurately.*



Powermaster will submit a quote for your bolting requirements which will include :

- Skilled supervisor and skilled hydraulic tool operators.
- Tools based on how fast your operation is to be completed.
- Hydraulic pumps for use with tools.
- Accessories like Impact Sockets, Nut Splitters, Stud Removers, Pneumatic Saws, Slugging Wrenches, Mechanical Torque Wrenches and Multipliers and much more.



Powermaster Bolting Services offer the following advantages :

- Safe - Powermaster supervisors ensure a trouble free job. Powermaster bolting technicians have undergone training from M/S TorcUP (USA) and our services meet MMS, USCG and DSHA regulations.
- Fast - Skilled and experienced crew will allow the job to be completed faster and better than a 'First Time' crew.
- Economical - Since most companies use hydraulic bolting tools for a small part of the year, in a lot of cases it does not justify the large investment needed to purchase the tools.
- Time Savings - Since Powermaster carries a fleet of hydraulic bolting tools in its ISO-9002 certified facility, our crew can be on site and on the job in matter of days, versus the weeks and sometimes months it takes for a company to import and commission a new set of hydraulic bolting tools.

## RENTAL PROGRAMS

For customers who do not have the need for Powermaster crew, they have the option of renting Powermaster tools at a nominal cost. Powermaster recommends an orientation of the use of its tools at its factory in Thane, Maharashtra, before the tools are sent out to the customer on rent. Please contact us for rental information and prices.

# QUADRA-TORC SYSTEM

## Quadra-Torc - Fast-Accurate-Even Bolt Load



With the *tercel* Quadra-Torc System an even load is distributed across any flange, casing or multi fastener application in the fastest torque mode available. *tercel* Quadra-Torc System will eliminate the need for timely and costly tensioners.

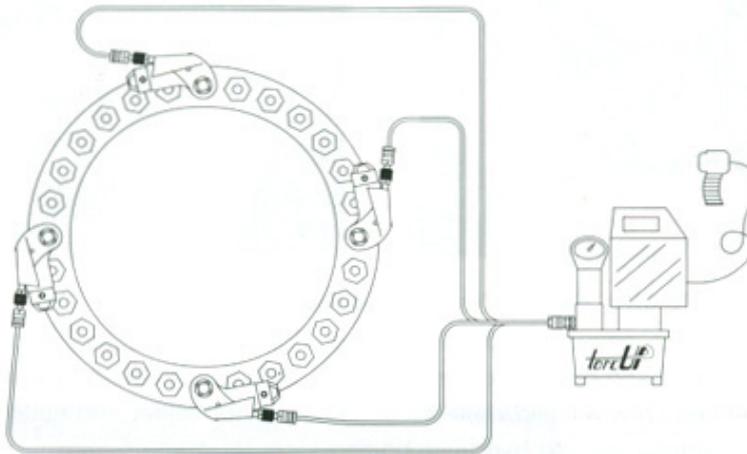
Parallel Closure : To have equal or comparable load applied to all bolts on the application at the same time.

### The Quadra-Torc System

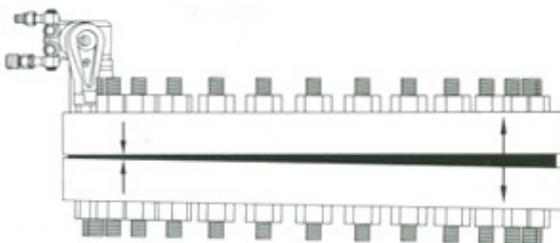
The primary focus of the Quadra-Torc System is to eliminate the common "Criss-Cross" bolt tightening pattern that causes constant crush or over torque of gaskets. With the Quadra-Torc System multi *tercel* torque units are utilized along with our Quadra-Torc Hydraulic Pumps. Once the *tercel* wrenches are in place a single operator can apply even load at the push of a button. The Quadra-Torc System will evenly close the gap and apply equal torque to  $\pm 3\%$  accuracy!



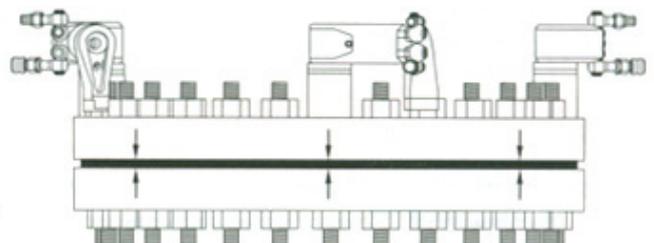
### Get Into Speed Torque Mode With Quadra-Torc!



*Quadra-Torc four tool system*



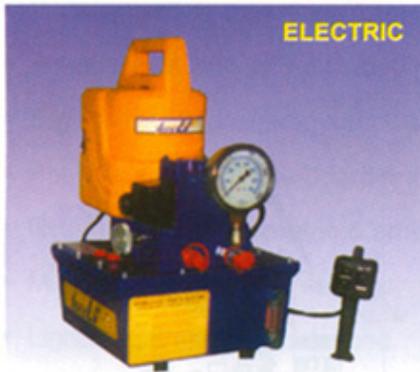
*Uneven load using one tool*



*Even and precise load with Quadra-Torc*

# POWER PACKS

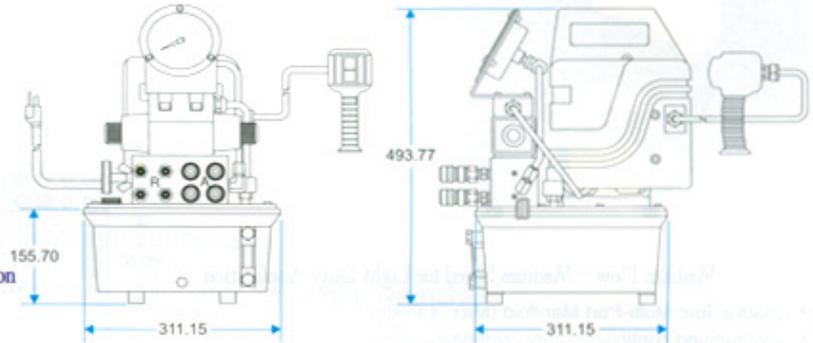
## Quadra-Torc - (4 Port)



**EP1000**  
(Shown with Mono-Port)

### EP1000 - High Flow - High Speed for Heavy Duty Application

- Quadra-Torc Multi-Port Manifold (Max. 4 Ports).
- Cool running continuous duty clydesdale pump.
- Powerful 1.5HP permanent magnet motor.
- 115V and 230V available.
- Starts under full load.
- Runs on reduced voltage.
- 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.
- Completely enclosed motor housing and electronics.
- 2 Gallon oil reservoir.
- Precise PSI/BAR pressure gauge.
- Quick-connect no-drip couplers with safety locking collar.
- Supplied with dual non-conductive high pressure hose with couplers.



Resvr. Size (Gal.)	Valve		Motor Spec. (Permanent Magnet)	Flow Rate @ 115 VAC		Weight	
	Control	Type		600 psi	10,000 psi	kg	lbs
2	Solenoid	4 Way/3 Pos.	1.5 HP Single Phase	11.47 lpm	0.82 lpm	25.4	56

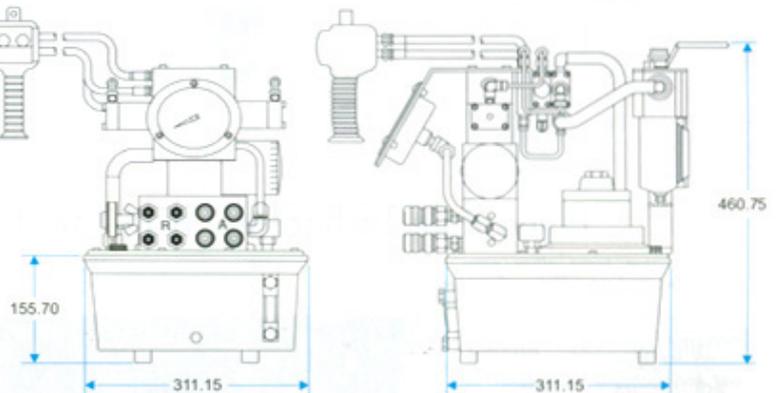
Retract pressure is preset at 1,300 PSI.



**AP1000**  
(Shown with Mono-Port)

### AP1000 - High Flow - High Speed for Heavy Duty Application

- Quadra-Torc Multi-Port Manifold (Max. 4 Ports).
- Cool running continuous duty clydesdale 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.
- Quick-connect no-drip couplers with safety locking collar.
- Supplied with dual non-conductive high pressure hose with couplers.



Resvr. Size (Gal.)	Valve		Motor Specifications	Flow Rate @ 50 cfm/ 90psi		Weight	
	Control	Type		600 psi	10,000 psi	kg	lbs
2	Solenoid	4 Way/3 Pos.	1.5 HP Rotary Air	9.83 lpm	0.82 lpm	24.5	54

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

# TORQCLICK TORQUE WRENCHES

The ever-increasing need for accurate torque tightening throughout industry, in both manufacturing and servicing demands the use of reliable, accurate torque wrenches. When you buy a torque wrench you are paying essentially for sustained accuracy. Without accuracy that can be relied upon, the results are at best misleading and at worst positively dangerous and damaging.

There are many reasons for insisting on TORQCLICK Torque Wrenches from POWERMASTER.

For certainty and safety ask for TORQCLICK  
by name and accept no substitutes.

#### ACCURATE IN USE

*Mechanism pivots on the square drive.*

*Guaranteed accuracy wherever the wrench is grasped.*

#### DURABLE

*Hard-wearing, heavy-duty mechanism.*

*Retains original accuracy of  $\pm 3\%$  for up to 10,000 operations without Recalibration.*

#### SAFETY IN USE

*Progressive torque build-up to the selected setting easily detected by sight, sound and feel.*

*Torque setting cannot be exceeded by accident. Avoids mechanical damage and risk of injury.*

#### ACCURATE IN DESIGN

*Guaranteed accuracy of  $\pm 3\%$  throughout the torque Range.*

*Ensures safety and avoidance of damage.*

#### EASY TO USE TORQUE SCALE

*Large, clear scale markings in Nm, kg/m, lbf/in and lbf/ft.*

*Accurate setting easily obtained.*

#### CONVENIENCE IN USE

*Push-through, user replaceable square drive. Enables wrench to be turned over and used in opposite direction: with no need to return wrench to manufacturer for drive repair.*

#### COMPACT

*Head no wider than a typical socket or, in the case of ratcheting versions, no bigger than a typical ratchet handle head.*

*Improved access in confined spaces.*

#### ROBUST

*Extremely strong construction.*

*Resists all but the most severe accidental damage.*

#### EASE IN USE

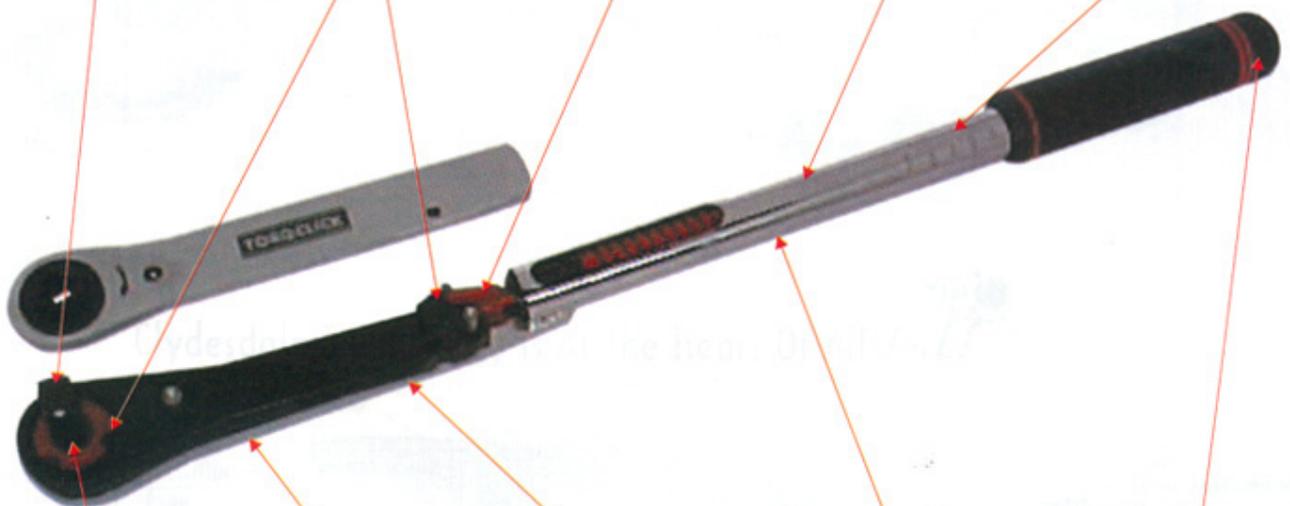
*Length calculated to enable a controlled effort at all torque settings essential in all torque limiting situations.*

*Avoids accidentally exceeding required torque setting so preventing damage and safety risks.*

#### SECURITY

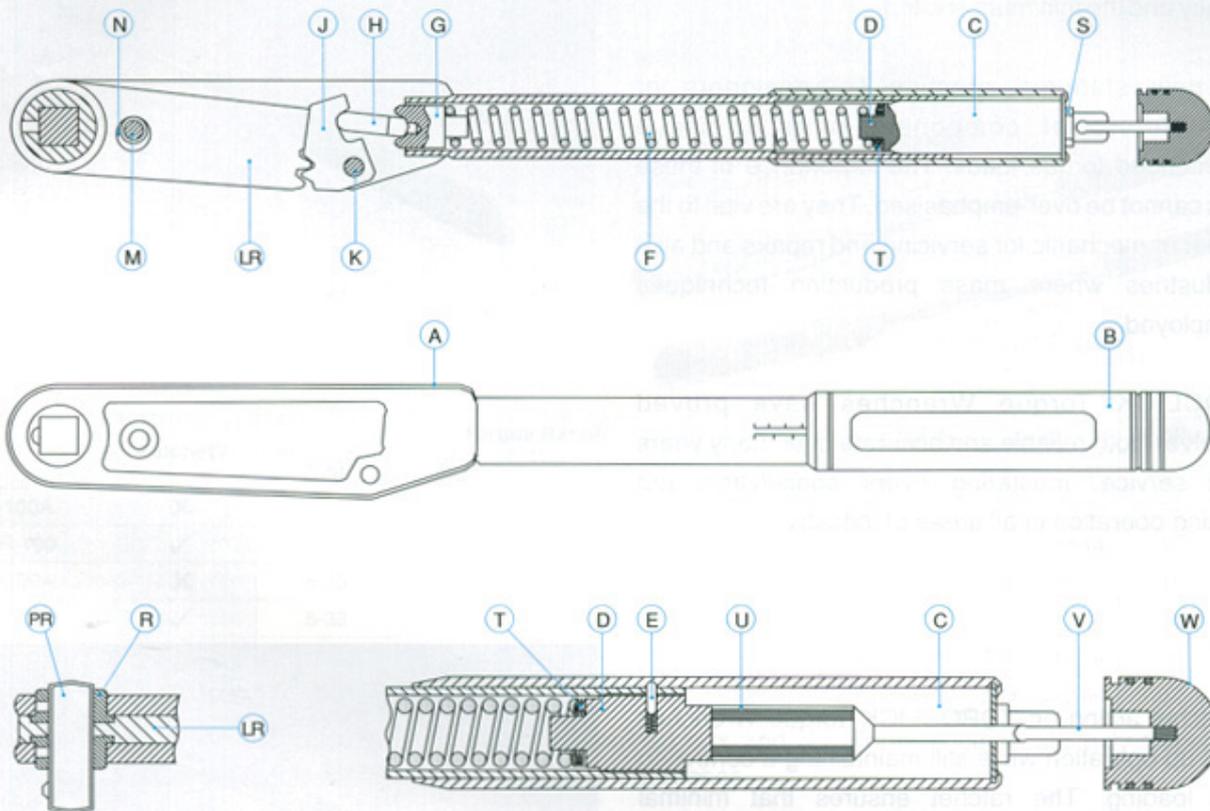
*Secure and rapid torque setting adjustment.*

*Easily adjusted yet impossible to alter by accident-ensures accurate setting at all times.*



# TORQCLICK TORQUE WRENCHES

## TORQCLICK Torque Wrench Spare Parts



This table gives correct descriptions for the parts identified by reference letters on the drawing above.

Ref. Letter	Description Of Part	Ref. Letter	Description Of Part
A	Brazed Body	LR	Gear Link
B	Handle Sleeve	M	Gear Link Retaining Pin
C	Adjusting Screw	N	Spacing Bush
D	Spring Adjuster Plug	PR	Square Drive
E	Lock Pin	R	Square Drive Brushes
F	Spring	S	Circlip
G	Plunger	T	Packing Washers
H	Toggle	U	Barrel Plug
J	Pinion Link	V	Tommy Bar
K	Pinion Link Pivot Pin	W	Knob

**Important :** To ensure correct calibration, a new Spring (F) can only be supplied complete with Spring Adjuster Plug (D) and requisite number of Packing Washers (T). These parts must be kept together prior to assembly in the wrench. Recalibrate the Torque Wrench after repair \ replacement of any component.

**To order a replacement part :** Prefix the letter reference for the part required with the wrench.

Example - Wrench No. PVTR-1200 Part required is Toggle (H). Quote PVTR-1200 H.

# TYPES OF TORQCLICK TORQUE WRENCHES

## Non Ratcheting

Indicate with touch, sound and sight when the required torque setting is reached. This 3 phase safety signal ensures that whatever the application, the tightening torque is applied with the highest degree of accuracy and the minimum of effort.

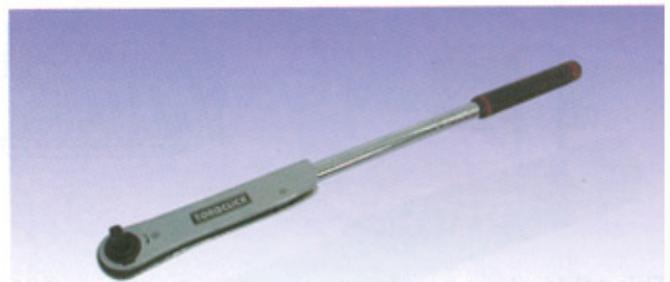
It is now standard practice for designers or manufacturers of component parts to issue recommended torque loads. The importance of these figures cannot be over-emphasised. They are vital to the engineer or mechanic for servicing and repairs and also to industries where mass production techniques are employed.

TORQCLICK Torque Wrenches have proved themselves both reliable and accurate over many years of full service, mastering every conceivable nut tightening operation in all areas of industry.



## Ratcheting

The ratchet action on TORQCLICK Torque Wrenches speeds up operation while still maintaining a controlled torque loading. The ratchet ensures that minimal movement is required giving ease of operation in confined spaces. The heads of the wrenches have been kept very compact for maximum accessibility.



## Production

With the ever increasing use of fixed torque setting in production line assembly, the need exists for Torque Wrenches capable of being set at a particular load, and then locked in such a manner as to stop unauthorised alteration of the setting.

TORQCLICK Production Torque Wrenches meet this need, available in both reversible non-ratcheting and reversible ratcheting types. These Torque Wrenches provide a constant accurate torque which cannot be altered by the operator, but when required, can be re-set to a different torque load using a suitable test rig.

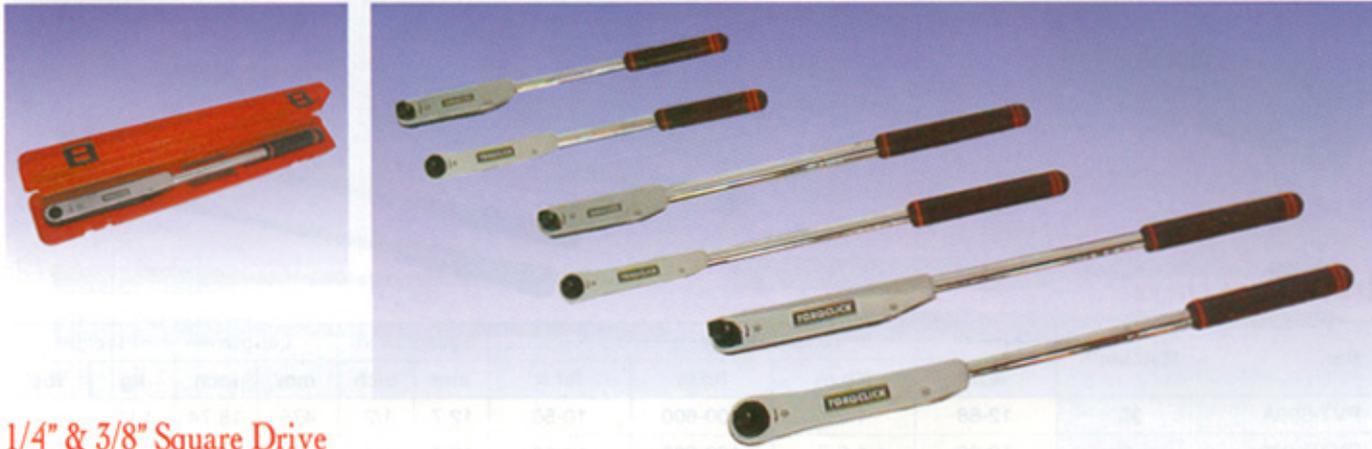


# TORQCLICK TORQUE WRENCHES

1/4"

3/8"

## Classic Mechanical - Torque Wrenches



1/4" & 3/8" Square Drive

Ref.	Ratchet?	Torque Range				Square Drive		Length		Weight	
		N.m	Kg.m	lbf.in	lbf.ft	mm	inch	mm	inch	kg	lbs
PVT-100A	✗	2.5-11	0.3-1.2	20-100	2-8	9.52	3/8	318	12.52	0.56	1.23
PVTR-100	✓	2.5-11	0.3-1.2	20-100	2-8	6.35	1/4	334	13.14	0.58	1.27
PVT-300A	✗	5-33	0.5-3.4	40-300	4-24	9.52	3/8	422	16.61	0.71	1.57
PVTR-300	✓	5-33	0.5-3.4	40-300	4-24	9.52	3/8	443	17.44	0.74	1.62
PVT-600A	✗	12-68	1.2-7	100-600	10-50	9.52	3/8	476	18.74	1.02	2.25
PVTR-600	✓	12-68	1.2-7	100-600	10-50	9.52	3/8	499	19.64	1.07	2.35

All models are supplied complete with sturdy blow moulded box and a calibration certificate fully traceable to national standards and suitable for ISO-9000 assessment purposes.

## Production Torque Wrenches - Fixed Torque Setting



Ref.	Ratchet?	Torque Range				Square Drive		Length		Weight	
		N.m	Kg.m	lbf.in	lbf.ft	mm	inch	mm	inch	kg	lbs
PFT-100	✗	4.1-10.9	0.4-1.1	40-100	3-8	9.52	3/8	260	10.24	0.50	1.10
PFTR-100	✓	4.1-10.9	0.4-1.1	40-100	3-8	9.52	3/8	273	10.74	0.52	1.14
PFT-300	✗	9.6-34	1.0-3.4	86-300	7.25	9.52	3/8	350	13.78	0.60	1.30
PFTR-300	✓	9.6-34	1.0-3.4	86-300	7.25	9.52	3/8	367	14.44	0.63	1.38
PFT-600	✗	20-69	2.0 to 6.9	177-610	15-51	9.52	3/8	434	17.10	0.98	2.15
PFTR-600	✓	20-69	2.0 to 6.9	177-610	15-51	9.52	3/8	455	17.91	1.02	2.24

All models are supplied complete with calibration certificate fully traceable to national standards and suitable for ISO-9000 assessment purposes.

1/2"

# TORQCLICK TORQUE WRENCHES

## Classic Mechanical - Torque Wrenches



### 1/2" Square Drive

Ref.	Ratchet?	Torque Range				Square Drive		Length		Weight	
		N.m	Kg.m	lbf.in	lbf.ft	mm	inch	mm	inch	kg	lbs
PVT-600A	✗	12-68	1.2-7	100-600	10-50	12.7	1/2	476	18.74	1.02	2.25
PVTR-600	✓	12-68	1.2-7	100-600	10-50	12.7	1/2	499	19.64	1.07	2.35
PVT-1200A	✗	25-135	3-14	200-1200	20-100	12.7	1/2	546	21.50	1.62	3.57
PVTR-1200	✓	25-135	3-14	200-1200	20-100	12.7	1/2	555	21.85	2.00	4.40
PVT-2000A	✗	50-225	5-23	400-2000	40-160	12.7	1/2	597	23.50	2.38	5.25
PVTR-2000	✓	50-225	5-23	400-2000	40-160	12.7	1/2	626	24.64	2.49	5.47
PVT-3000A	✗	70-330	7-35	600-3000	50-250	12.7	1/2	825	32.48	3.12	6.86
PVTR-3000	✓	70-330	7-35	600-3000	50-250	12.7	1/2	840	33.07	4.00	8.80

All models are supplied complete with sturdy blow moulded box and a calibration certificate fully traceable to national standards and suitable for ISO-9000 assessment purposes.

### Production Torque Wrenches - Fixed Torque Setting



Ref.	Ratchet?	Torque Range				Square Drive		Length		Weight	
		N.m	Kg.m	lbf.in	lbf.ft	mm	inch	mm	inch	kg	lbs
PFT-720	✗	27-82	2.8-8.3	200-270	20-60	12.7	1/2	470	18.50	1.40	3.08
PFTR-720	✓	27-82	2.8-8.3	200-720	20-60	12.7	1/2	475	18.70	1.62	3.57
PFT-1200	✗	68-136	6.9-13.8	600-1200	50-100	12.7	1/2	555	21.85	1.60	3.53
PFTR-1200	✓	68-136	6.9-13.8	600-1200	50-100	12.7	1/2	565	22.24	1.82	4.00
PFT-2000	✗	116-218	11.8-22	1000-2000	85-160	12.7	1/2	680	26.77	2.60	5.72
PFTR-2000	✓	116-218	11.8-22	1000-2000	85-160	12.7	1/2	680	26.77	3.20	7.04
PFT-3000	✗	170-341	17.3-34.5	1500-3000	125-250	12.7	1/2	820	32.28	3.00	6.60
PFTR-3000	✓	170-341	17.3-34.5	1500-3000	125-250	12.7	1/2	820	32.28	3.50	7.70

All models are supplied complete with calibration certificate fully traceable to national standards and suitable for ISO-9000 assessment purposes.

# TORQCLICK TORQUE WRENCHES

3/4"

1"

## Classic Mechanical - Torque Wrenches

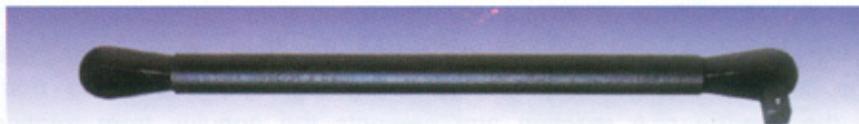


### 3/4" & 1" Square Drive

Ref.	Ratchet?	Torque Range			Square Drive		Length		Weight	
		N.m	Kg.m	lbf.ft	mm	inch	mm	inch	kg	lbs
PVT-5000	✗	140-560	14.2-57.1	100-410	19.1	3/4	1130	44.49	5.90	13.00
PVTR-5000	✓	140-560	14.2-57.1	100-410	19.1	3/4	1210	47.64	6.58	14.50
PVT-7200	✗	200-810	20.4-82.6	150-600	19.1	3/4	1181	46.50	6.50	14.30
PVTR-7200	✓	200-810	20.4-82.6	150-600	19.1	3/4	1261	49.65	7.00	15.40
PVT-8400	✗	480-940	49-95.9	350-700	25.4	1	1397	55.00	11.30	24.90
PVTR-8400	✓	480-940	49-95.9	350-700	25.4	1	1471	57.91	12.70	28.00
PVT-12300	✗	700-1400	70-140	500-1000	25.4	1	1505	59.25	15.50	34.10
PVTR-12300	✓	700-1400	70-140	500-1000	25.4	1	1505	59.25	17.00	37.40
TQW-10	✗	1015-1890	105-195	750-1400	25.4	1	1356	53.38	16.50	36.30
TQW-R-10	✓	1015-1890	105-195	750-1400	25.4	1	1356	53.38	18.00	39.60
TQW-11	✗	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

All models are supplied complete with calibration certificate fully traceable to national standards and suitable for ISO-9000 assessment purposes.

### Torque Wrench Extensions



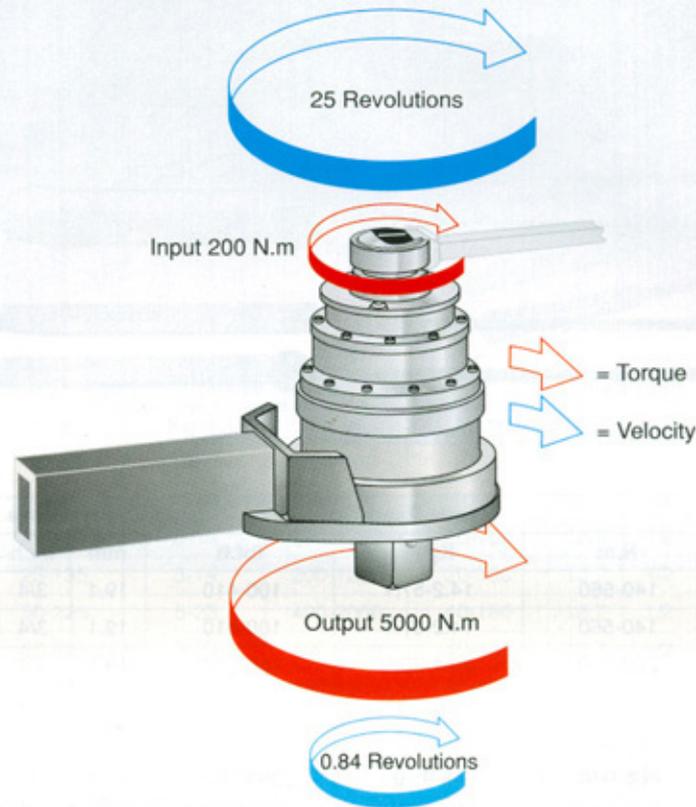
Ref.	Torque Range		Square Drive		Length		Weight	
	N.m	lbf.ft	mm	inch	mm	inch	kg	lbs
PTWX-1500	900-1500	664-1107	25.4	1	740	29.13	6.50	14.30
PTWX-2000	1000-2000	738-1476	25.4	1	1390	54.72	11.00	24.20

PTWX-1500/2000 - 1" square drive torque wrench extension. These products have been developed to meet the torque tightening needs in excess of 1000N.m. This method of increasing the range of the PVT-8400 has the major benefit of being more manageable in terms of physically applying the torque load (often a two man job), and from a transport and storage point of view. The extension fits between the ratchet head and the socket. The required torque value is converted to the torque wrench reading using the supplied chart and the load is applied in the normal way.

# TORQUE MULTIPLIERS

## Handtorque - Multipliers

Classic Mechanical



### What is a Torque Multiplier?

A torque multiplier is a device that increases the torque that can be applied by an operator. Because the power output can not exceed the power input, the number of output revolutions will be lower than the number of input revolutions (Torque x rpm = Power).

### How They Work

Handtorque 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 Powermaster 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 outside 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 in a 'Planetary' carrier which also holds the outputs square drive. Therefore as the planetary gears orbit around the sun gear, the carrier and so the square drive turns.

Without the reaction arm to keep the annulus stationary, the output square will not apply torque.

### Why use a Torque Multiplier?

**Safety** - Use of long levers can be dangerous. Torque multipliers mean a reduction in the lever length or operator effort by a factor of 5, 25 or 125.

**Space Limitation** - The use of a long lever may be impossible due to restricted space.

**Accuracy** - Torque will be applied most accurately when it is applied smoothly and slowly. Torque multipliers enable this by removing much of the physical effort from the tightening task.

# TORQUE MULTIPLIERS

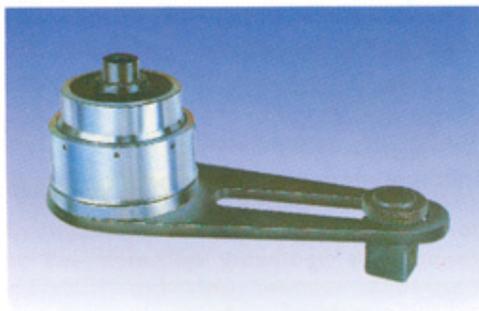
## Advantages Of Powermaster Torque Multipliers :

POWERMASTER gearboxes are built to an extremely high standard of precision. All gears rotate on needle roller bearings about hardened and ground journal pins. As a result, POWERMASTER Torque Multipliers can be relied upon to have a torque multiplication accuracy of  $\pm 4\%$ , throughout the operating range, taking the uncertainty out of high torque tightening.

No gearbox is 100% efficient and so the velocity ratio (the number of turns that the input has to make to achieve one revolution of the output ) is not the same as the torque multiplication ratio. POWERMASTER multipliers are engineered such that each gear stage has a velocity ratio of typically 5.45:1 which result in a true torque multiplication factor of 5:1.

Torque output calculations are therefore a matter of simple arithmetic with little risk of incorrect bolt loading due to conversion errors. Other manufacturer's often require graphs or formulae to calculate the input torque to achieve a particular output.

POWERMASTER Torque Multipliers are the most comprehensive multiplier range available. Standard products are available up to 47,500 N.m (35,000 lbs.ft).



## Summary Of POWERMASTER Torque Multiplier Advantages :

The ratio stated is the true torque multiplication factor.

No correction charts are needed to determine torque output.

Strong, safe Anti Wind-Up Ratchet available on most models for safe and comfortable operation.

A wide range of alternative reaction members are available making the Torque Multiplier adaptable to many applications.

# TORQUE MULTIPLIERS

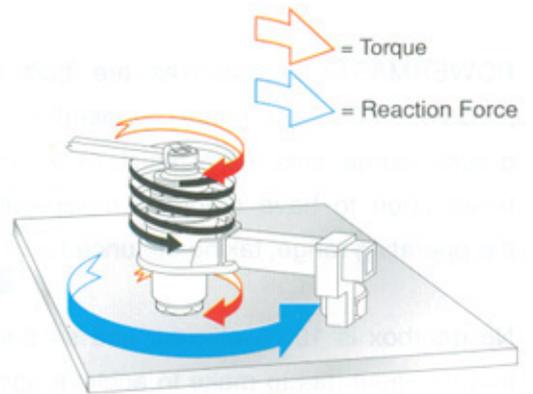
## POWERMASTER Anti Wind-Up Ratchet (AWUR):

With any high ratio gearbox (25:1 or more) a certain amount of wind-up (spring) has to be taken up before any useful tightening work is applied to the nut.

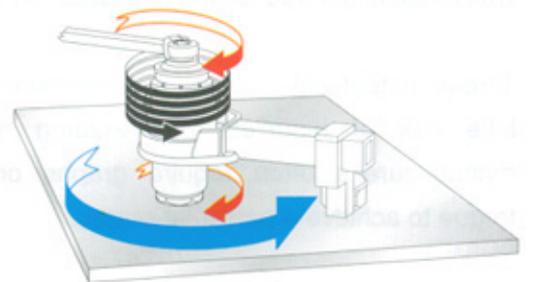
Each time the input device is released, the wind-up will rotate it back against the direction of operation.

The Anti Wind-Up Ratchet retains all of the wind-up forces as they are created, with the following benefits :

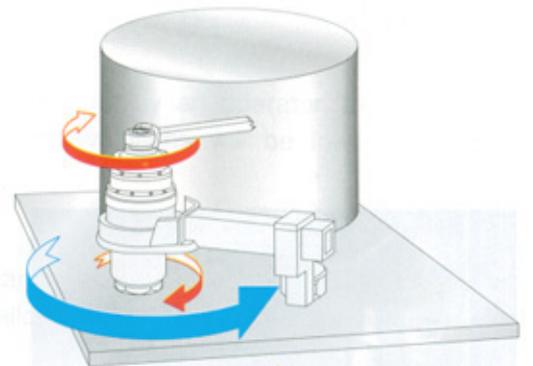
1. The torque input device can not fly backwards against the direction of operation if it is suddenly released.
2. Without an Anti Wind-Up Ratchet, it will often be necessary to continue to make 360 sweeps with the torque input device otherwise the multiplier will 'unwind'. However, obstructions will often make this impossible.
3. With an Anti Wind-Up Ratchet fitted, the multiplier becomes locked onto the nut because the reaction plate is held hard against the reaction point. This means that even used upside down, the multiplier will support it's own weight.



*Multiplier behaves like a very stiff 'Spring'*



*Multiplier will achieve maximum torque only after the 'Spring' has been taken up.*



*In this application, if it takes more than 180° to take up the wind-up at the required torque, this tightening operation will be impossible without an 'Anti Wind-Up Ratchet'.*

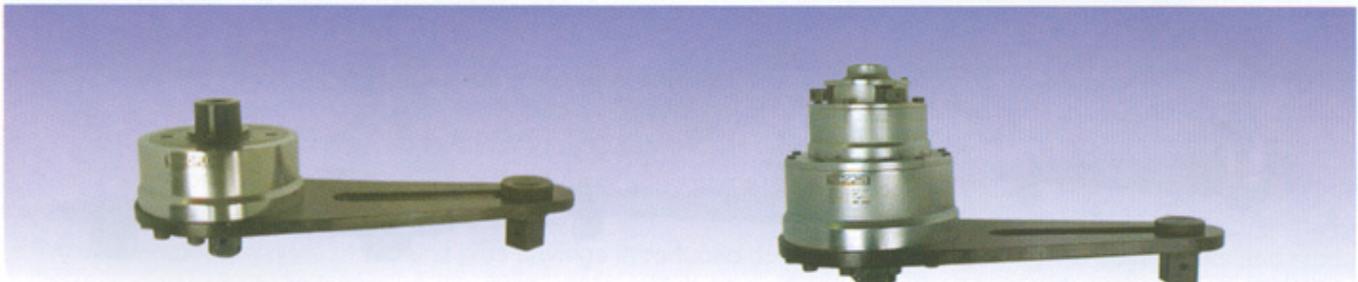
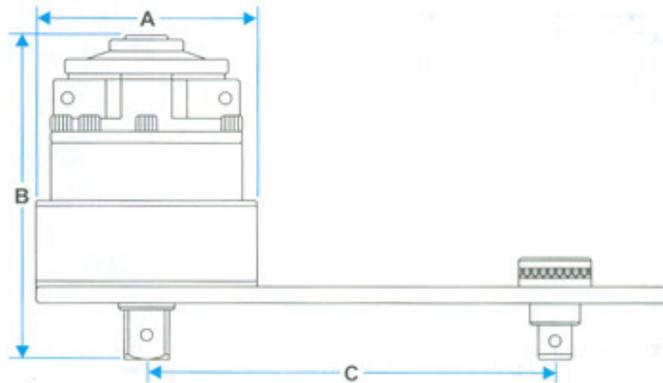


◀ *Standard Series Anti Wind-Up Ratchet.*

**Safety Note :** Additional support is recommended as failure in the bolt, socket or multiplier will release the wind-up forces and cause the multiplier to drop.

# TORQUE MULTIPLIERS

## Handtorque - Standard Series



### Handtorque Standard Series to 3400 N.m : **HANDTORQUE** 3400 N.m.

- Accuracy better than  $\pm 4\%$ .
- Precision tightening and loosening of all heavy duty fastening connections.
- Low energy input with high torque transfer.
- Multipliers are furnished with strong ratchets (anti-wind up) allowing jobs to be performed easily, efficiently, and safely.
- Precision Manufacturing ensures long life and premier quality.
- Shear pin at input drive protects gear box in case of torque overload.
- Highest possible load factor is guaranteed due to design and use of forged components.
- Each tool contains extra shear pins, and torque multiplication selection sheet.

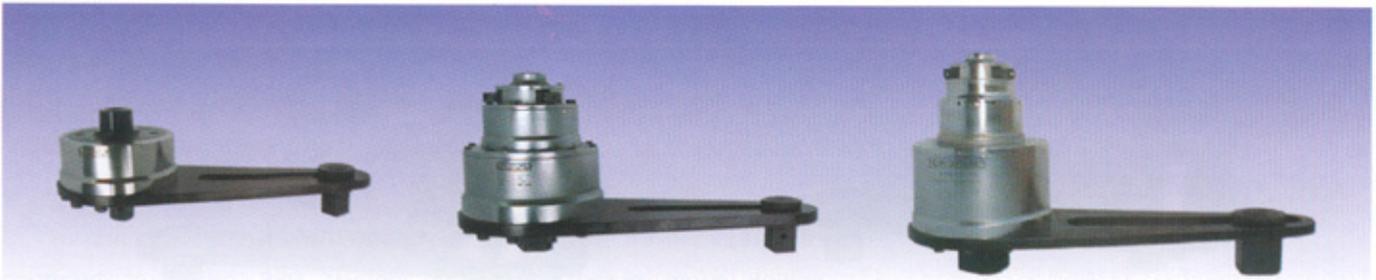
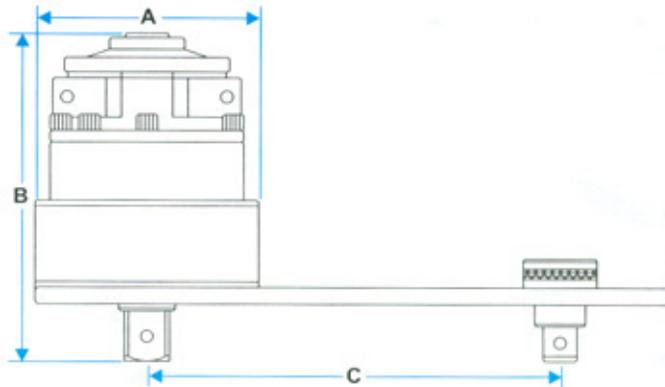
### Standard Series, to 3400 N.m

Model No.	Range		Ratio	Input Square	Output Square	A	B	C	C	Weight*	
	N.m	lbf.ft		inch	inch	$\phi$	mm	mm	min	max	kg
BTM-1	1700	1250	5	1/2	3/4	115	115	82	210	4.50	9.90
BTM-2	1700	1250	5	3/4	1	115	130	82	210	5.00	11.00
BTM-2/25	1700	1250	25	1/2	1	115	151	75	164	7.00	15.40
BTM-5	2700	2000	5	3/4	1	136	135	89	260	8.40	18.48
BTM-5/25 Fitted with AWUR	2700	2000	25	1/2	1	136	163	89	260	11.50	25.30
BTM-6	3400	2500	5	3/4	1.1/2	136	149	105	260	9.20	20.24
BTM-6/25 Fitted with AWUR	3400	2500	25	1/2	1.1/2	136	176	105	260	12.00	26.40

\* Including reaction plate.

# TORQUE MULTIPLIERS

## Handtorque - Standard Series



### Handtorque Standard Series to 47500 N.m : **HANDTORQUE** 47500 N.m.

- Accuracy better than  $\pm 4\%$ .
- Precision tightening and loosening of all heavy duty fastening connections.
- Low energy input with high torque transfer.
- Multipliers are furnished with strong ratchets (anti-wind up) allowing jobs to be performed easily, efficiently, and safely.
- Precision Manufacturing ensures long life and premier quality.
- Shear pin at input drive protects gear box in case of torque overload.
- Highest possible load factor is guaranteed due to design and use of forged components.
- Each tool contains extra shear pins, and torque multiplication selection sheet.

### Standard Series, to 47500 N.m

Model No.	Range		Ratio	Input Square	Output Square	A	B	C	C	Weight*	
	N.m	lbf.ft		inch	inch	$\phi$	mm	mm	mm	mm	kg
BTM-7	6000	4500	5	3/4	1.1/2	168	174	115	310	18.00	39.60
BTM-7/25 Fitted with AWUR	6000	4500	25	1/2	1.1/2	168	226	115	310	22.00	48.40
BTM-9/25 Fitted with AWUR	9500	7000	25	3/4	1.1/2	195	256	150	350	33.00	72.60
BTM-9/125 Fitted with AWUR	9500	7000	125	1/2	1.1/2	195	301	150	350	35.50	78.10
BTM-11/25 Fitted with AWUR	17000	12500	25	3/4	2.1/2	220	360	164	480	52.00	114.40
BTM-11/125 Fitted with AWUR	17000	12500	125	1/2	2.1/2	220	404	164	480	57.00	125.40
BTM-13/125 Fitted with AWUR	47500	35000	125	3/4	2.1/2	315	550	164	480	80.00	176.00

\* Including reaction plate.

# POWER SPLITTERS

## For Removing Frozen Nuts The Right Way

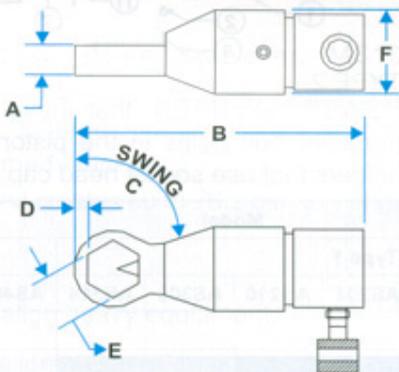


### Features / Benefits :

- Safe - No sparks. No flames. No risk to volatile surroundings. No hammers or impact needed. No flying fragments.
- Fast - Cuts a 3" nut in 20 to 30 seconds vs. approx. 20 minutes with a hammer & chisel or torch.
- Easy Set up - You can be up and away in less than 5 minutes.
- Quiet - No noise pollution or related injuries. You will only hear the hum of the hydraulic pump and a snap when the nut is cut.
- No Damage to bolt or stud threads by calibrating the chisel so that only the nut is cut.
- Versatile - Power splitters cut the hardest nuts. The range of models offered and the range of each model compares very favorably vs. the competition.
- Price - Competitive price of the unit plus savings in reduced downtime and no damage to costly bolts and studs.

### Power Splitter

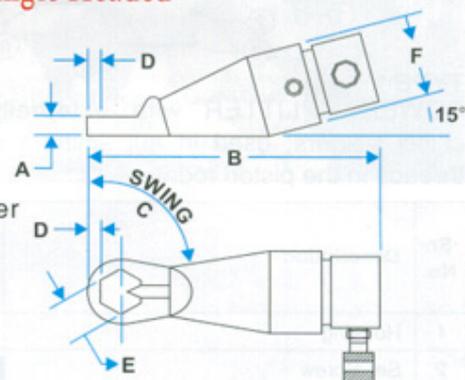
Model - AS-105  
to  
Model - AS-506



### Power Splitter Angle Headed

Model - AS-100

For removing Frozen nuts the right way. Other Anglesplitter sizes quoted on request.



Model No.	Stud Diameter		Nut A/F  Across The Flats		A		B		C	D		E		F		Weight	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	kg
AS-100 Angleheaded	11-16	7/16-5/8	13-24	1/2-1	17.5	11/16	260.0	10.1/4	30°	6.0	1/4	27.0	1.1/16	72.5	2.7/8	3.76	8.20
AS-105	11-22	7/16-7/8	16-36	5/8-1.7/16	38.1	1.1/2	271.0	10.7/16	60°	9.5	3/8	38.1	1.1/2	105.0	4.1/8	9.82	21.60
AS-200	22-32	7/8-1.1/4	36-51	1.7/16-2	38.1	1.1/2	287.0	11.5/16	45°	12.7	1/2	54.0	2.1/8	108.0	4.1/4	10.42	22.90
AS-204	32-38	1.1/4-1.1/2	46-60	1.13/16-2.3/8	57.1	2.1/4	385.0	15.5/32	30°	14.3	9/16	63.5	2.1/2	164.0	6.7/16	32.50	71.50
AS-210	35-45	1.3/8-1.3/4	57-70	2.1/4-2.3/4	57.1	2.1/4	398.0	15.11/16	30°	17.5	11/16	73.0	2.7/8	164.0	6.7/16	32.86	72.30
AS-308	45-57	1.3/4-2.1/4	70-89	2.3/4-3.1/2	77.8	3.1/16	460.0	18.1/8	30°	19.0	3/4	98.4	3.7/8	214.0	8.7/16	72.12	158.66
AS-314	50-64	2-2.1/2	79-98	3.1/8-3.7/8	79.4	3.1/8	488.0	19.7/32	30°	22.2	7/8	108.0	4.1/4	214.0	8.7/16	74.52	163.94
AS-404	64-70	2.1/2-2.3/4	95-108	3.3/4-4.1/4	95.3	3.3/4	579.0	22.13/16	60°	28.6	1.1/8	117.5	4.5/8	250.8	9.7/8	114.18	251.20
AS-500	76-83	3-3.1/4	114-127	4.1/2-5	104.8	4.1/8	590.0	23.7/32	60°	28.6	1.1/8	136.5	5.3/8	250.8	9.7/8	116.62	256.56
AS-506	83-89	3.1/4-3.1/2	124-136	4.7/8-5.3/8	104.8	4.1/8	598.0	23.17/32	60°	28.6	1.1/8	149.2	5.7/8	250.8	9.7/8	119.50	262.90

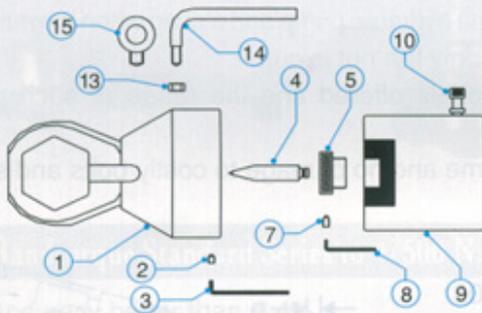
\* If you have an application not covered by the models above just call us and we will provably be able to design a model for you

# POWER SPLITTERS

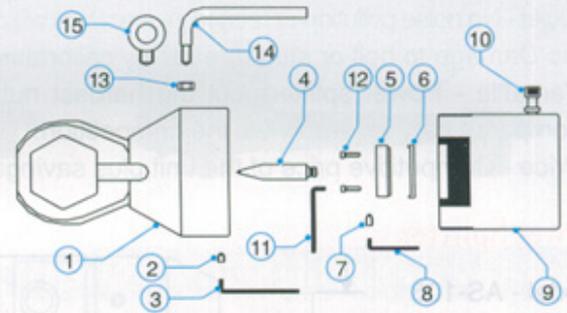
## Power Splitter Vs. the competition :

- Versatile - One model cuts a wide range of nut sizes (6-8) Vs. 1-2 of the competition. Hydraulic Cylinders and other common parts among models reduce inventory (refer parts list below for common parts).
- Flexible - Housing is designed to fit virtually any application so you can work from more angles and in tighter spaces. Power Splitter fits all API and ANSI flanges and all valve bonnets. It cuts virtually any shape nut (Hex, square and 12 point).
- Durable - Our heat treatment processes and cryogenic treatment of housings and chisels ensure life second to none. Chisels can be resharpened after dozens of cuts to prolong life.
- Precise - Chisel can be callibrated by using suitable holder to cut the nut wall precisely so that the bolt or stud does not get damaged. No damage to your equipment and no damage to your Power Splitter.
- Power - Power to weight ratio is the best in the industry and it is easier to handle.
- Economical - Price is among the most competitive available anywhere in the world.
- Warranty - For a full 6 months from defects in materials or workmanship.
- Variety of Pumps - Power splitter can be supplied with a variety of hand, foot operated, electric or air powered pumps. Please contact us for choices of available pumps.

## Power Splitter Part List :



**TYPE 1**  
POWER SPLITTER with externally threaded chisel holders; used in nut splitters with internal threads in the piston rod.



**TYPE 2**  
POWER SPLITTER that have a cylinder with threaded bolt holes in the piston rod and chisels holders that use socket head cap screw.

Sr. No.	Description	Model									
		Type 1						Type 2			
		AS100	AS105	AS200	AS204	AS210	AS308	AS314	AS404	AS500	AS506
1	Housing										
2	Set Screw										
3	Allen Wrench										
4	Chisel										
5	Chisel Holder										
6	Spacers Set										
7	Set Screw for Chisel Holder										
8	Allen Wrench for Chisel Holder										
9	Hydraulic Cylinder										
10	Quick Disconnect Female Coupler										
11	Allen Wrench for Cap Screws										
12	Socket Head Cap Screw (2 each)										
13	Handle for Housing (2)										
14	Hex Nut for Handle (2)										
15	Lifting Eye										
16	Tool Box (Not Shown)										

Note : Shades overlapping into multiple model numbers indicate common parts.

# POWER SPREADERS

## Flange Spreader

### One-Size-Fits-All



**HS10K Hydraulic Model**

With the Hydraulic Power-Spreader, HS10K, a hydraulic cylinder replaces the ratchet handle. A standard hand pump powers 1 Power-Spreader, or a pair, with ease. Again, you are supplied with 4535 kg (10,000 lbs) of force and 76.2 mm (3") of gap; ample for gasket replacement or turning of blinds.

Using the manual Power-Spreader, MS10K, simply place the tips between the flange faces and turn the ratcheted handle. The ratcheting action is transformed into 4535 Kg (10,000 lbs.) of spreading force and creates up to 76.2 mm (3") of gap.

### Applications :

- Lift, level and align heavy equipment.
- Remove propellers or impellers.
- Separate manways.
- Change gaskets, turn blinds.

Specification	Metric	Imperial
Weight*	7.7 kg	17 lbs
Length	35.5 cm	14"
Width of feet	114 mm	4.5"
Width of body	101 mm	4"
Tips closed	2.3 mm	0.09"
Tips open	76.2 mm	3"
Tips penetration	38.1 mm	1.5"
Rated force	4,535 kg	10,000 lbs

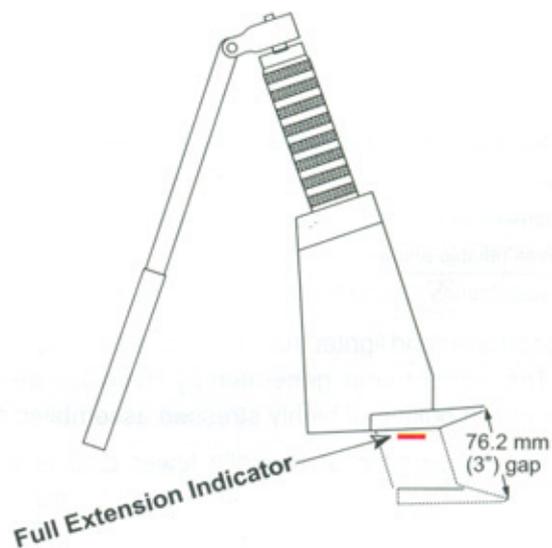
\* The weight of the HS10K is 7 kg or 15.5 lbs. The length of the HS10K is 33.6 cm or 13.25". All other specification are the same.

### Choose Manual or Hydraulic

- Lightweight. Only 7.7 Kg (17 lbs).
- Jaws open parallel.
- No drift. It stays where you place it.
- Easy one person operation.
- Universal. One-Size-Fits-All.
- 4535 Kg (10,000 lbs) applied force at tips.
- Opens to 76.2 mm (3 inches).



**MS10K Manual Model**



# BOLT TENSIONERS

## Dedicated



**A2 Model Bolt Tensioners**

*Bolt Tensioners can be custom-made to suit specific application*



## Description :

The Powermaster 'Hydrajac' Bolt Tensioner utilises the power of hydraulic pressure to easily produce the forces necessary to effectively tension bolts and studs. Once the HydraJac is in place, screwed onto the bolt's thread over the standard nuts, the required pressure is applied to stretch the bolts to its recommended preload, and the nut screwed down to retain the load. The pressure is relieved, the HydraJac removed and is ready to use again.

HydraJac Dedicated Thread Stud Tensioners provide the answer to many of the fitting problems associated with using larger tensioning equipment. They are also ideal for single task applications which do not require interchangeability of thread sizes.

Any number of HydraJacs can be interlinked to provide even amounts of simultaneous tension over multiple studs or bolts as required.

Produced from high strength alloy steel, HydraJac Stud Tensioners are made in standard configurations. They can also be made to suit the requirements of a specific application.

## Applications :

Typical HydraJac applications are found in many industries, including :

- |                          |                                       |
|--------------------------|---------------------------------------|
| • Mining and quarrying   | • Agricultural                        |
| • Oil and gas industries | • Structural                          |
| • Marine                 | • Heavy equipment in general industry |
| • Power generation       | • Chemical plants                     |

## Features :

The HydraJac provides the following advantages :

- |   |   |
|---|---|
| • Reduces maintenance down time                               | • Requires little physical effort                     |
| • Improves safety on the job by eliminating hammer tightening | • Is ideal for confined spaces or difficult locations |
| • Gives reliable and precise tensioning                       | • Multiple tensioning for leak-free flange makeup     |
| • Is user-friendly - fast to fit and remove                   |   |

Although smaller and lighter than many competitive types, HydraJac Stud Tensioners are capable of high application forces. The higher forces generated by HydraJac devices permit their use with bolts of very high tensile strength, for example, in bolting of highly stressed assemblies or those prone to destructive vibration.

Operation of HydraJac at typically lower charge pressures requires less use of costly pumping equipment, and with an improved degree of safety. All HydraJac Tensioners are designed to use inexpensive seals which can be easily replaced in minutes, eliminating expensive repairs.

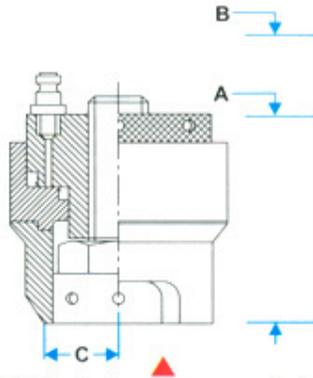


# DEDICATED BOLT TENSIONERS

## Technical Specifications :



▲  
*A specially designed HydraJac*



▲  
*The A2 HydraJac features a designated thread type for optimal performance, with reduced weight and cost.*

HydraJac Stud Tensioners are made in standard types :

- "A2" Models (shown here) are dedicated to a single designated thread size.
- "A3" Models can be used with a range of thread types and bolts in conjunction with suitable Adaptor Nuts. Application pressures are read from prepared charts supplied with the equipment.

HydraJac A2 and A3 Models have been specifically developed for use with flange couplings commonly used in hydrocarbon and chemical process plants.

Although rated to pressures of 100MPa, the HydraJac will typically require less than this for most applications. "Commercial" (mild steel) fasteners can typically be tensioned at charge pressures below 70MPa.

All HydraJac Stud Tensioners have exceptional working stroke length from a minimum of 15 mm for the smallest units.

## HydraJac A2 Model Specifications :

Model No.	Imp. Size	ISO Size	Max Force kN	O.D.		Min Bolt Pitch mm	Relief C mm	Height A mm	Clearance B mm
	inch			mm	inch				
A21010X11	5/8		126.76	52	2.04	41	23	72	108
A2M16X20		M16							110
A2M18X25		M18	171.99	62	2.44	46	23	76	114
A21012X10	3/4								116
A2M20X25		M20	208.43	66	2.60	51	26	78	123
A2M22X25		M22	264.63	72	2.83	51	26	86	133
A21014X9	7/8								134
A2M24X30		M24	327.51	78	3.07	59	29	88	137
A21100X8	1								139
A2M27X30		M27	448.67	88	3.46	65	36	93	145
A21102X8	1.1/8								147
A2M30X35		M30	448.67			72		93	148
A21104X8	1.1/4		529.2	98	3.85	73	36	96	153
A2M33X35		M33	679.19	108	4.25	76	39	103	161
A21106X8	1.3/8								163
A2M36X40		M36	810.28	118	4.64	80	42	108	171
A21108X8	1.1/2								171
A2M39X40		M39				89		112	176
A2M42X45		M42	917.28	126	4.96	91	45	114	181
A21110X8	1.5/8								185
A2M45X45		M45	952.61	130	5.11	94	49	118	185
A21112X8	1.3/4								188
A2M48X50		M48	1151.01	142	5.59	102	51	122	195
A21114X8	1.7/8								192
A2M52X50		M52	1277.72	148	5.82	110	54	124	201
A21200X8	2					106		124	201
A2M56X55		M56	1455.37	160	6.29	119	59	138	219
A21204X8	2.1/4								221
A2M60X55		M60				131	65	142	227
A2M64X60		M64	1794.87	178	7.00	131	65	151	240
A21208X8	2.1/2								240
A2M68X60		M68				146	71		244
A2M72X60		M72	2116.8	192	7.55	146	71	159	256
A21212X8	2.3/4								254
A21300X8	3		2579.84	215	8.46	160	77	177	278
A2M76X60		M76						173	274
A2M80X60		M80				161		177	282
A21304X8	3.1/4		2963.51	230	9.05	172	87	197	305
A2M85X60		M85				175			307
A21308X8	3.1/2		3505.94	250	9.84	177	93	202	317
A2M90X60		M90							317
A21312X8	3.3/4		3951.35	265	10.433	202	96	218	338
A2M95X60		M95							338
A21400X8	4		4573.16	285	11.22	212	105	225	351
A2M100X60		M100	4573.16	285	11.22	212	105	225	350

Note : Stroke for all models is 15mm.

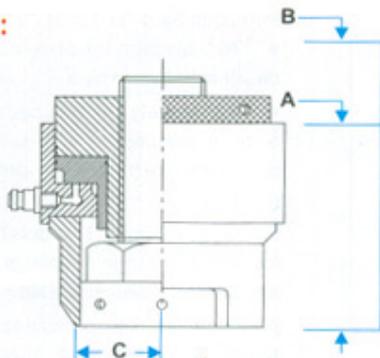


# VARIABLE BOLT TENSIONERS

## Technical Specifications :



▲  
Test charging  
a custom-built HydraJac



▲  
The A3 HydraJac features  
a modular design which adapts  
for multiple thread options.

HydraJac Stud Tensioners are made in standard types :

- "A2" Models are dedicated to a single designated thread size.

- "A3" Models (shown here) can be used with a range of thread types and bolts in conjunction with suitable Adaptor Nuts. Application pressures are read from prepared charts supplied with the equipment.

HydraJac A2 and A3 Models have been specifically developed for use with flange couplings commonly used in hydrocarbon and chemical process plants.

Although rated to pressures of 100MPa, the HydraJac will typically require less than this for most applications. "Commercial" (mild steel) fasteners can typically be tensioned at charge pressures below 70MPa.

All HydraJac Stud Tensioners have exceptional working stroke length from a minimum of 15 mm for the smallest units.

Please contact us for assortment of hand, air and electric pumps for use with Bolt Tensioners.

## HydraJac A3 Model Specifications :

Load Cell No.	Imp. Size	ISO Size	Adaptor Kit No.	Max load @ 100 MPA 14500 psi	O.D.		Min Pitch mm	Relief C mm	Height A mm	Clearance B mm			
	inch				mm	inch							
T1	3/4	M16	T1-1	152.1	70	2.75	49	23	85	143			
			T1-2										
		M18	T1-3								49	87	145
		M20	T1-4								49	87	145
T2	1	M22	T1-5	240.9	84	3.30	51	26	89	147			
			T1-6										
		M24	T2-1								59	91	149
		M27	T2-2								59	92	150
T3	1.1/8	M30	T2-3	363	100	3.93	60	32	115	185			
			T2-4										
		M33	T3-1								60	115	185
		M36	T3-2								72	117	187
T4	1.1/4	M33	T3-3	444.5	110	4.33	73	36	118	188			
			T3-4										
		M36	T3-5								76	122	192
		M39	T4-1								76	123	193
T5	1.1/2	M39	T4-2	643.2	130	5.11	77	36	122	198			
			T4-3										
		M42	T4-4								77	123	199
		M45	T4-5								78	125	201
T6	1.3/8	M45	T4-6	811.1	145	5.70	80	42	126	202			
			T5-1										
		M48	T5-2								80	128	204
		M52	T5-3								80	129	205
T7	1.7/8	M48	T5-4	997.9	158	6.22	89	42	133	208			
			T5-5										
		M52	T5-6								89	135	210
		M56	T5-7								91	137	212
T8	2	M52	T5-8	1267	180	7.08	91	45	137	212			
			T6-1										
		M56	T6-2								94	140	215
		M60	T6-3								94	140	215
T9	2.1/4	M60	T6-4	1672.4	198	7.79	99	45	135	208			
			T6-5										
		M64	T6-6								99	135	208
		M68	T6-7								101	138	211
T10	2.3/4	M64	T6-8	1935.3	215	8.46	101	49	138	211			
			T7-1										
		M72	T7-2								102	141	214
		M76	T7-3								102	141	214
T11	3	M72	T7-4	2518	238	9.37	102	51	141	214			
			T7-5										
		M80	T7-6								105	144	217
		M85	T7-7								105	145	218
T12	3.1/4	M80	T7-8	3284.1	276	10.86	110	51	150	228			
			T8-1										
		M85	T8-2								110	150	228
		M90	T8-3								112	154	232
T13	3.1/2	M85	T8-4	3284.1	276	10.86	112	54	154	232			
			T8-5										
		M90	T8-6								112	154	232
		M95	T8-7								119	160	238
T14	3.3/4	M90	T8-8	3284.1	276	10.86	119	59	158	236			
			T9-1										
		M95	T9-2								124	168	263
		M100	T9-3								124	167	262
T15	4	M95	T9-4	3284.1	276	10.86	131	65	171	266			
			T9-5										
		M100	T9-6								131	175	270
		M100	T9-7								131	175	270

Components ordered as complete tool, e.g. T4/T4-4 for M36 or Adaptor Kit only. **Note** : Stroke for all models is 15mm.