

ENERPAC®

POWERFUL SOLUTIONS. GLOBAL FORCE.



BOLTING TOOLS

US

E 4 1 2

ENERPAC'S Bolting Solutions caters to the complete bolting work-flow, ensuring joint integrity in a variety of applications throughout industry:

Joint Assembly

From simple pipe alignment to complex joint positioning of large structural assemblies, our comprehensive line of joint assembly products range from hydraulic and mechanical alignment tools to PLC-controlled multi-point positioning systems.

Controlled Tightening

Enerpac offers a variety of controlled tightening options to best meet the requirements of your application. From mechanical torque multipliers to hydraulically driven square drive wrenches, and from low profile torque wrenches to inter-connectable bolt tensioning tools; we offer the products you need for accurate and simultaneous tightening of multiple bolts.

Joint Separation

Enerpac also provides hydraulic nut splitters and a variety of mechanical and hydraulic spreading tools for joint separation during inspection, maintenance and decommissioning operations.

High quality bolting solutions from the brand you can trust. See how Enerpac can make your bolting work-flow more accurate, safer and efficient.



Bolting Integrity Software

Visit www.enerpac.com to access our free on-line bolting software application and obtain information on tool selection, bolt load calculations and tool pressure settings. A combined application data sheet and joint completion report is also available.



All information in this catalog can be changed due to product improvements without prior notice.

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ATM – Flange Alignment Tools



Misaligned joints

Joints must be pulled together and correctly aligned prior to tightening. Current methods of manipulation tend to be dangerous and involve a high degree of manual lifting using slings, hooks and lifting gear. These methods can damage joint components, are time consuming in setup and disassembly, operational time and the amount of manpower required.

Solution: Flange Alignment Tools

The Enerpac ATM series Flange Alignment Tools are developed to rectify twist and rotational misalignment without additional stress in pipelines. Hydraulic cylinders, jacks and lifting wedges can also be used to assist in positioning and aligning.

E-Series, Manual Torque Multipliers



Controlled tightening when external power is unavailable

Applications are often located where external power sources to drive air or electric powered tools are unavailable but controlled bolting is required, typically at values higher than an operator can generate using manual wrenches.

Solution: Manual Torque Multipliers

Enerpac E-series manual torque multipliers offer a range of output torques from manual inputs that can easily be achieved by an operator, providing accurate, efficient torque multiplication for make-up or break-out of joint fasteners.

S and W Series Torque Wrenches



Industrial Application

Controlled Tightening of Multiple sized fasteners for industrial applications.

Solution: Hydraulic Torque Wrenches

Professional tools for industrial applications. Truly versatile tools which utilize standard Impact Sockets, optional direct Allen Drives or Interchangeable cassettes to provide controlled tightening of multiple sized fasteners per tool. Optional accessories further extend the application range of these products.

SQD and HXD Series Torque Wrenches



General Applications

Controlled Tightening of Multiple sized fasteners.

Solution: Hydraulic Torque Wrenches

Lightweight aluminum tools for controlled bolting.

Controlled Bolting

Increasing Health and Safety, Environmental and Productivity requirements demand even and parallel joint closure to ensure a sound assembly, especially on pressure containing vessels. This often requires the simultaneous tightening of multiple fasteners.

Solution: Bolt Tensioners

Enerpac GT Series Bolt Tensioners can achieve accurate preload in single or multiple fastener applications simultaneously, without inducing rotational twist or contending with the uncertainties of friction and lubrication.

GT Series – Bolt Tensioners



Frozen or Corroded Nuts

Often nuts are difficult to remove, while loosening using tightening tools is possible it generally requires larger equipment and is time consuming. The use of cutting torches or hammers and chisels can cause damage to the joint components, requires significantly longer setup and operational time and can present a potential safety risk.

Solution: Hydraulic Nut Cutters

Nut splitting with the NC Series Nut Cutters or NS Series Nut Splitters is the safest method. It takes less time and avoids costly damage to joint components. The head design fitted with heavy-duty chisels permits the splitting of nuts on a wide variety of applications.

NC or NS – Hydraulic Nut Cutters & Splitters



Separation of stubborn joints for inspection and maintenance particularly those fitted with ring grooves or those with external forces acting on them are often difficult to separate. The use of hammers and wedges, chain blocks and lever bars can damage joint components and present a potential safety risk.

The FSH, FSM-Series parallel wedge spreaders offer controlled separation without bending or risk of slipping from the joint. The FS series spreaders are ideally suited to flanged joint applications.

FSH & FSM – Parallel Wedge Spreaders



Pumps and Accessories

A wide range of Pumps and Accessories are available including: Manual, Air and Electrically operated pump units, hoses, gauges, manifolds and fittings.

Pumps and Accessories



For Bolting Solutions Think Enerpac

▼ Shown from left to right: E291, E393, E494



Accurate, Efficient Torque Multiplication

When accurate make-up or break-out of stubborn fasteners requires high torque

- High-efficiency planetary gear sets achieve high output torque from low input torque
- Most models operator protected by anti-backlash device
- Multiplier output accuracy $\pm 5\%$ of input torque
- Reversible, tighten or loosen bolts
- Reaction bar or reaction plate type
- Angle-of-turn protractor standard on E300 series models
- Reaction plate models offer increased versatility with reaction point locations
- E300 and E400 series replaceable shear drives provide overload protection of internal power train (one replacement shear drive is included)



Typical Torque Multiplier Applications

- Locomotives
- Power plants
- Pulp and paper mills
- Refineries
- Chemical plants
- Mining and construction
- Off-road equipment
- Shipyards
- Cranes



◀ Enerpac Reaction Bar Torque Multiplier E393 used to manually torque bolts up to 3,200 ft-lbs.

▼ SELECTION CHART

Torque Multiplier Type	Output Torque Capacity		Model Number
	(Ft.lbs)	(Nm)	
Reaction Bar Multiplier	750	1015	E290PLUS
	1000	1355	E291
	1200	1625	E391
	2200	2980	E392
	3200	4340	E393
Reaction Plate Multiplier	2200	2980	E492
	3200	4340	E493
	5000	6780	E494
	8000	10845	E495



Manual Torque Multipliers

Enerpac manual torque multipliers provide efficient torque multiplication in wide clearance applications and when external power sources are not available.

Manual torque multipliers are used in most industrial, construction, and equipment maintenance applications. Hydraulic torque wrenches are better suited for tight tolerance, flange and repetitious bolting applications.

Use Reaction Bar Models:

- where space is limited
- where multiple reaction points are available
- when portability is desirable

Use Reaction Plate Models:

- above 3200 Ft.-lbs. output torque
- on flanges and applications where neighboring bolt or nut is available to react against
- when extreme reaction forces are generated

E Series



Maximum Output Torque:
750-8000 Ft.lbs

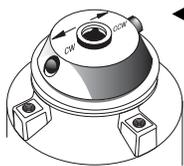
Torque Ratio:
3:1-52:1

Multiplier Output Ratio Accuracy:
± 5 %

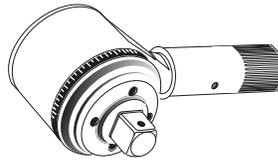


CAUTION!

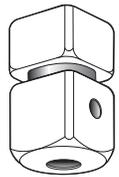
Never use impact type air tools for power driving torque multipliers. Torque multiplier drive train damage will occur.



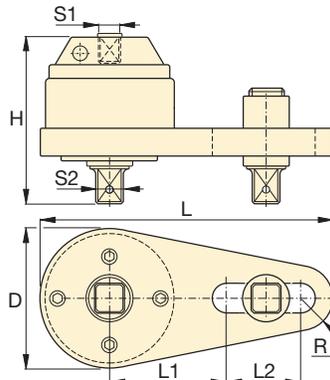
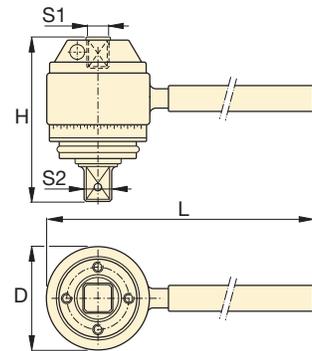
Selector Pawl
Models with anti-backlash protection have directional selector pawls. Set the pawl for clockwise or counter-clockwise rotation.



Angle-of-Turn Protractor
E391, E392 and E393 models include an angle-of-turn protractor (scale) to tighten fasteners using a "torque turn" method. Allows accurate measuring a specific number of degrees of rotation.



Shearable Square Drive
Provides overload protection on E300- and E400-series multiplier's power train by shearing at 103-110% of rated capacity. Internal shear pin prevents tool from falling off bolt.



Reaction Bar Type ¹⁾

Reaction Plate Type ¹⁾



Hydraulic Torque Wrenches

Enerpac offers a complete range of square drive and hexagon cassette torque wrenches.

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BSH-Series Sockets

Heavy-Duty Impact Sockets for power driven torquing equipment.

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Input Torque		Torque Ratio	Input Female Square Drive	Output Male Square Drive		Over-load Protection	Anti-Back-lash	Dimensions (in)						Wt. (lbs)	Model Number
(Ft.lbs)	(Nm)			S1 (in)	S2 (in)			Replaceable Shear Drive Model No.	D	H	L	L1	L2		
250	338	3 : 1	½	¾	–	No	No	2.8	3.3	8.6	–	–	–	4.0	E290PLUS
333	451	3 : 1	½	¾	–	No	No	2.8	3.3	17.4	–	–	–	5.5	E291
200	271	6 : 1	½	¾	E391SDK	Yes	No	3.9	4.0	19.6	–	–	–	13.8	E391
162	219	13.6 : 1	½	1	E392SDK	Yes	Yes	4.1	5.7	19.6	–	–	–	18.3	E392
173	234	18.5 : 1	½	1	E393SDK	Yes	Yes	4.1	6.5	19.6	–	–	–	15.2	E393
162	219	13.6 : 1	½	1	E392SDK	Yes	Yes	4.9	5.5	14.0	5.5	4.9	1.3	17.2	E492
173	234	18.5 : 1	½	1	E393SDK	Yes	Yes	4.9	6.4	14.0	5.5	4.9	1.3	23.4	E493
189	256	26.5 : 1	½	1½	E494SDK	Yes	Yes	5.6	8.7	14.9	7.0	3.5	1.7	34.0	E494
154	208	52 : 1	½	1½	E495SDK	Yes	Yes	5.8	10.7	15.2	7.0	3.5	1.9	50.3	E495

¹⁾ E200 and E400-series do not have an Angle-of-Turn Protractor (scale). User must verify manual torque wrench accuracy prior to use to ensure accurate final output torque.

▼ From left to right: S3000, S6000, S1500



Rigid Steel Design

The *Professional* Square Drive Solution



S-Series, Square Drive Wrenches

This product range has been designed using state-of-the-art CAD techniques to bring you the most advanced square drive torque wrench on the market.

To ensure that the tools you buy meet our own exacting requirements, during the design process every prototype was put through finite element stress analysis, photo-elastic modeling, rigorous cyclic testing and strain gauging.

Simplicity

- 360° click-on, multi-position reaction arm
- Push button square drive release for quickly reversing the square drive for tightening or loosening
- Fine tooth ratchet prevents tool “lock-on”
- Single 360° hydraulic swivel manifold, complete with screw lock couplings, increases wrench and hose maneuverability

Design

- Compact, high-strength uni-body construction for a small operating radius
- Robust design with minimal parts enables easy on-site maintenance without special tools
- Lightweight, ergonomic design for easy handling and an easy fit, even in applications where access is limited
- Optimised strength-to-weight ratio
- Fast operation due to the large nut rotation per wrench cycle (35 degree rotation angle) and rapid return stroke

Reliability

- All wrenches are nickel-plated for excellent corrosion protection and improved durability in harsh environments

Accuracy

- Constant torque output provides high accuracy across the full stroke
- Accuracy of +/-3% can be achieved because the Uni-Body construction reduces internal deflections



TSP - Pro Series Swivel

Featuring Tilt & Swivel technology the TSP provides 360° X-axis rotation and 160° Y-axis rotation.

How to Order

Order as an accessory which can be fitted to existing S-Series wrenches.

Factory fitted to new S-Series wrenches: Suffix the wrench model number with "-P" e.g.: **S1500-P**.

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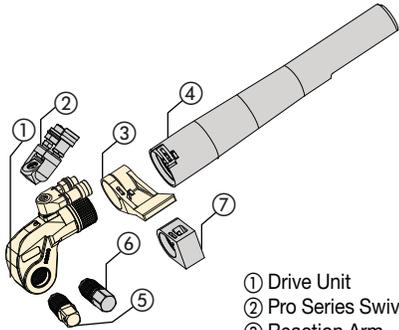


Torque Wrench Hoses

Use Enerpac **THQ-700** Series torque wrench hoses with S-Series torque wrenches to ensure the integrity of your hydraulic system.

19.5 feet long, 2 hoses	THQ-706T
39 feet long, 2 hoses	THQ-712T

Double-Acting Square Drive Hydraulic Torque Wrenches



- ① Drive Unit
- ② Pro Series Swivel
- ③ Reaction Arm
- ④ Extended Reaction Arm
- ⑤ Square Drive
- ⑥ Allen Drive
- ⑦ Short Reaction Arm



Select the Right Torque

Choose your Enerpac Torque Wrench using the **untightening rule of thumb**: Loosening torque equals about 250% of tightening torque.

S Series



Maximum Torque at 10,000 psi:

25,140 Ft.lbs

Square Drive Range:

3/4-2 1/2 inch

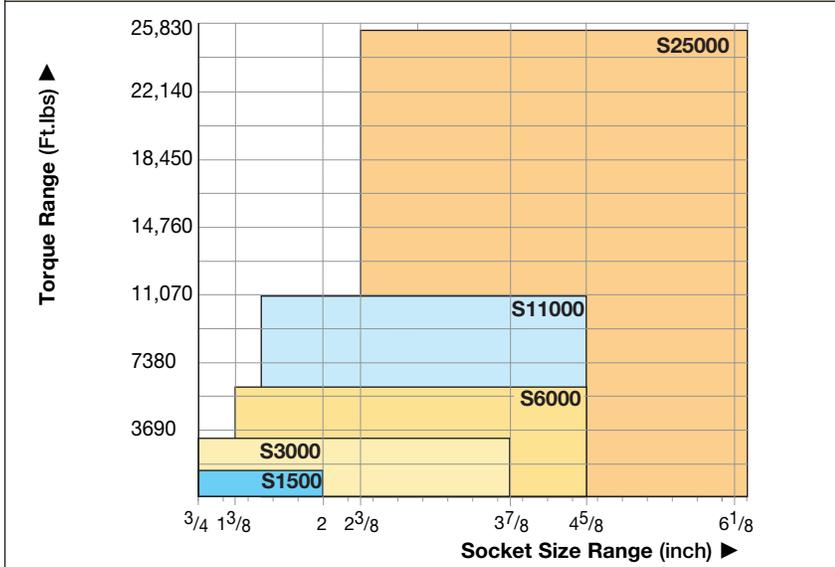
Nose Radius:

.99-2.50 inch

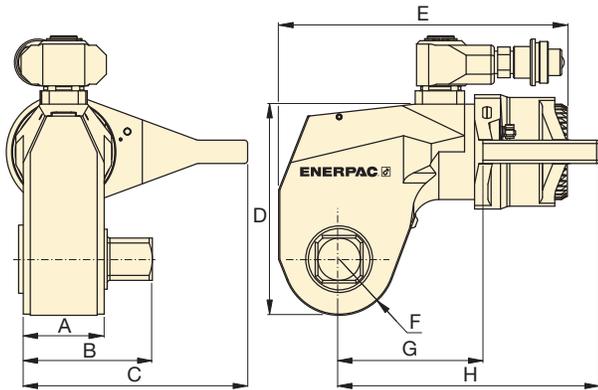
Maximum Operating Pressure:

10,000 psi

*TORQUE WRENCH SELECTION (based on socket size range)



*Additional socket sizes available upon request.



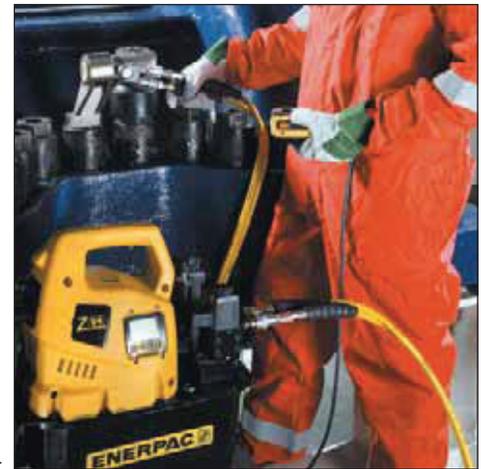
The rigid steel design of S-Series torque wrenches guarantee durability, reliability and safety. These wrenches can be powered by the portable ZU4T-Series pumps.



Torque Wrench and Pump Selection Matrix

For optimum speed and performance see the torque wrench and pump matrix.

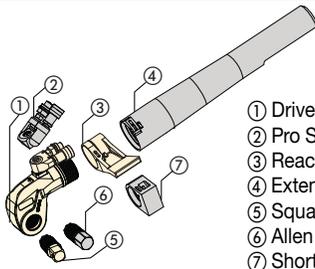
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Maximum Torque at 10,000 psi		Square Drive		Torque Wrench Model No.	Dimensions (in)								Weight (lbs)
		Size (in)	Model No. (included with wrench)		A	B	C	D	E	F	G	H	
(Ft.lbs)	(Nm)												
1400	1898	3/4"	SD15-012	S1500	1.55	2.54	4.24	3.74	5.35	0.99	2.72	4.69	5.95
3200	4339	1"	SD30-100	S3000	1.91	3.14	5.28	4.96	6.77	1.30	3.54	6.26	11.02
6010	8144	1 1/2"	SD60-108	S6000	2.15	3.64	6.59	6.09	7.59	1.62	4.43	7.32	18.74
11,000	14,914	1 1/2"	SD110-108	S11000	2.81	4.48	7.71	7.35	8.98	1.95	5.22	8.89	33.07
25,140	34,079	2 1/2"	SD250-208	S25000	3.48	5.63	9.62	9.50	11.31	2.52	7.16	11.46	68.34

See "Yellow Pages" section for torque conversions.

To order a S-series wrench fitted with the TSP swivel, suffix the model number with "-P". e.g., S1500-P.



- ① Drive Unit
- ② Pro Series Swivel
- ③ Reaction Arm
- ④ Extended Reaction Arm
- ⑤ Square Drive
- ⑥ Allen Drive
- ⑦ Short Reaction Arm

Maximum Torque at 10,000 psi:

25,140 Ft.lbs.

Hexagon Size Allen Drive:

1/2-2 1/2 in. (14-85 mm)

For
S
Series



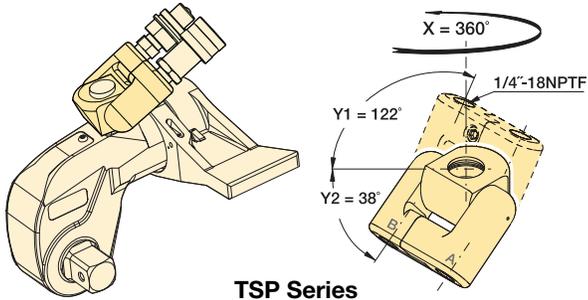
▼ SELECTION CHART

TORQUE WRENCH	OPTIONAL ALLEN DRIVES, IMPERIAL				OPTIONAL ALLEN DRIVES, METRIC				SHORT REACTION ARM FOR ALLEN DRIVES		
	Hexagon Size (in)	Maximum Torque (Ft.Lbs)	Model Number	Dim. B1 (in)	Hexagon Size (mm)	Maximum Torque (Ft.lbs)	Model Number	Dim. B1 (in)	Model Number	Dimensions (in) C1 H1	
 S1500 (1400 Ft-lbs)	1/2	355	SDA15-008	2.6	14	475	SDA15-14	2.60	 SRA15	2.66	2.56
	5/8	690	SDA15-010	2.6	17	850	SDA15-17	2.68			
	3/4	1195	SDA15-012	2.8	19	1184	SDA15-19	2.76			
	7/8	1400	SDA15-014	2.9	22	1399	SDA15-22	2.87			
	1	1400	SDA15-100	3.0	24	1399	SDA15-24	2.91			
S3000 (3200 Ft-lbs)	5/8	690	SDA30-010	3.0	17	850	SDA30-17	3.03	SRA30	3.15	2.91
	3/4	1195	SDA30-012	3.1	19	1185	SDA30-19	3.11			
	7/8	1895	SDA30-014	3.3	22	1835	SDA30-22	3.23			
	1	2825	SDA30-100	3.4	24	2385	SDA30-24	3.31			
	1 1/8	3200	SDA30-102	3.5	27	3200	SDA30-27	3.35			
	1 1/4	3200	SDA30-104	3.5	30	3200	SDA30-30	3.43			
-	-	-	-	32	3200	SDA30-32	3.46				
S6000 (6000 Ft-lbs)	5/8	690	SDA60-010	3.3	17	850	SDA60-17	3.39	SRA60	3.60	3.50
	3/4	1195	SDA60-012	3.5	19	1185	SDA60-19	3.46			
	7/8	1895	SDA60-014	3.6	22	1835	SDA60-22	3.58			
	1	2825	SDA60-100	3.7	24	2385	SDA60-24	3.66			
	1 1/8	4025	SDA60-102	3.8	27	3395	SDA60-27	3.70			
	1 1/4	5520	SDA60-104	3.9	30	4655	SDA60-30	3.78			
-	-	-	-	32	5650	SDA60-32	3.82				
S11000 (11,000 Ft-lbs)	1 1/4	5520	SDA110-104	4.5	30	4655	SDA110-30	4.41	SRA110	5.02	4.17
	1 3/8	7345	SDA110-106	4.6	32	5650	SDA110-32	4.49			
	1 1/2	9535	SDA110-108	4.6	36	8040	SDA110-36	4.61			
	1 5/8	11,000	SDA110-110	4.8	41	11,000	SDA110-41	4.76			
	1 3/4	11,000	SDA110-112	4.9	46	11,000	SDA110-46	5.00			
S25000 (25,000 Ft-lbs)	1 1/2	9535	SDA250-108	5.5	36	8040	SDA250-36	5.51	SRA250	6.24	5.31
	1 5/8	12,120	SDA250-110	5.7	41	11,880	SDA250-41	5.67			
	1 3/4	15,135	SDA250-112	5.8	46	16,775	SDA250-46	5.83			
	1 7/8	18,620	SDA250-114	5.9	50	21,545	SDA250-50	5.94			
	2	22,595	SDA250-200	5.9	55	25,150	SDA250-55	6.06			
	2 1/4	25,150	SDA250-204	6.0	60	25,150	SDA250-60	6.22			
	-	-	-	-	65	25,150	SDA250-65	6.34			
	-	-	-	-	70	25,150	SDA250-70	6.46			
	-	-	-	-	75	25,150	SDA250-75	6.61			
	-	-	-	-	85	25,150	SDA250-85	6.89			

TSP-Series, Pro Series Swivels

- Featuring Tilt and Swivel technology
- 360° X-axis and 160° Y-axis rotation
- Increases tool fit in restricted access areas
- Simplifies hose placement

**TSP
RTE
SRS
Series**



TSP Series

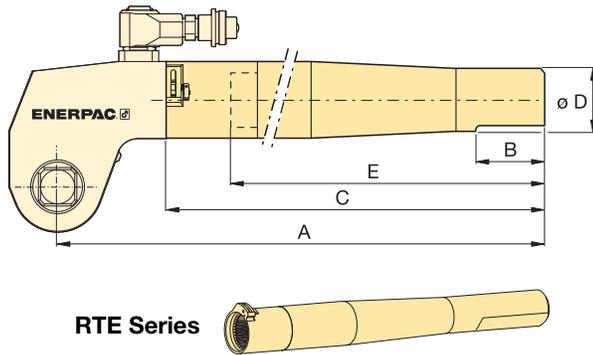
Torque Wrench Model Number	Model * Number	Maximum Pressure (psi)	Wt. (lbs)
S1500, S3000	TSP100	10,000	0.4
S6000, S11000, S25000	TSP200	10,000	0.4

To order an S-series wrench fitted with the TSP swivel, add suffix "P" to the model number. Example: **S1500-P**.

*TSP-swivel does not include couplers except when ordered wrench mounted.

RTE-Series, Reaction Tube Extensions

- Full torque rated
- Increases tool fit in restricted access areas



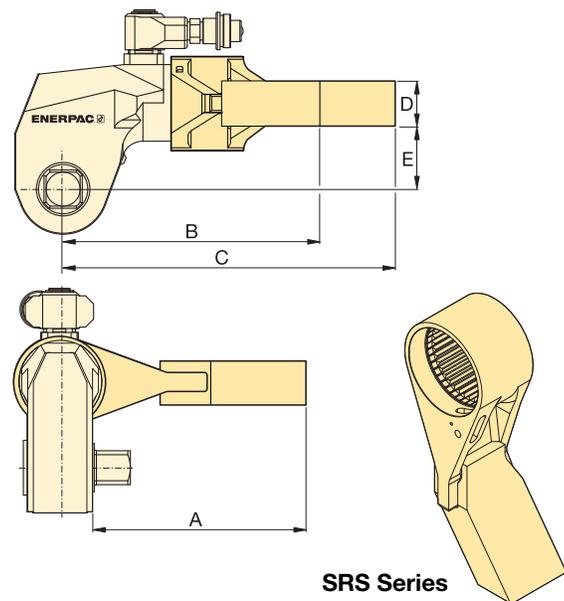
RTE Series

Torque Wrench Model Number	Model Number	Dimensions (in)					Wt. (lbs)*
		A	B	C	D	E	
S1500	RTE15	27.80	5.98	25.04	2.28	23.62	10.1
S3000	RTE30	28.86	5.98	25.47	2.24	23.62	12.1
S6000	RTE60	29.41	5.98	25.94	2.56	23.62	17.0
S11000	RTE110	30.28	5.98	26.57	2.99	23.62	24.7
S25000	RTE250	32.01	5.98	26.97	3.94	23.62	38.1

* Weights indicated are for the accessories only and do not include the wrench.

SRS-Series, Extended Reaction Arms

- Lightweight interchangeable design



SRS Series

Wrench Model	Max. Torque (Ft-lbs)	Model Number	Dimensions (in)					Wt. (lbs)*
			A	B	C	D	E	
S1500	1328	SRS151	3.81	3.43	5.04	0.94	1.34	1.8
	1210	SRS152	4.80	3.86	5.47	0.94	1.34	2.2
	1131	SRS153	5.79	4.29	5.90	0.94	1.34	2.6
S3000	2890	SRS301	4.37	4.09	6.69	1.34	1.89	3.5
	2738	SRS302	5.39	4.69	7.28	1.34	1.89	4.4
	2636	SRS303	6.38	5.24	7.87	1.34	1.89	5.5
S6000	5784	SRS601	5.83	5.28	7.80	1.54	2.44	5.1
	5498	SRS602	6.81	5.87	8.39	1.54	2.44	6.0
	5292	SRS603	7.80	6.42	8.98	1.54	2.44	7.5
S11000	10805	SRS1101	5.94	6.22	233	1.81	2.99	9.7
	10294	SRS1102	6.93	6.81	9.17	1.81	2.99	11.2
	9877	SRS1103	7.91	7.36	10.31	1.81	2.99	12.8
S25000	24736	SRS2501	7.20	8.86	12.36	1.97	3.94	16.8
	23638	SRS2502	8.19	9.45	12.95	1.97	3.94	18.1
	22680	SRS2503	9.17	10.00	13.54	1.97	3.94	22.0

* Weights indicated are for the accessories only and do not include the wrench.

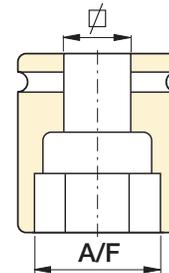
- Heavy-duty impact sockets
- Supplied with "Pin and Ring"

Hexagon Sizes:
3/4 - 6 1/8 inch
19 - 155 mm



IMPERIAL SOCKETS													
3/4" Square Drive		1" Square Drive				1 1/2" Square Drive				2 1/2" Square Drive			
Model Number	A/F (in)	Model Number	A/F (in)	Model Number	A/F (in)	Model Number	A/F (in)	Model Number	A/F (in)	Model Number	A/F (in)	Model Number	A/F (in)
BSH7519	3/4"	BSH1019	3/4"	BSH10231	2 5/16"	BSH15144	1 7/16"	BSH15281	2 13/16"	BSH25244	2 7/16"	BSH25419	4 13/16"
BSH75088	7/8"	BSH10088	7/8"	BSH10238	2 3/8"	BSH1538	1 1/2"	BSH15288	2 7/8"	BSH25250	2 1/2"	BSH25425	4 1/4"
BSH75094	15/16"	BSH10094	15/16"	BSH10244	2 7/16"	BSH15156	1 9/16"	BSH1575	2 15/16"	BSH25265	2 9/16"	BSH25110	4 5/16"
BSH7527	1 1/16"	BSH1027	1 1/16"	BSH10250	2 1/2"	BSH15163	1 5/8"	BSH15300	3"	BSH25263	2 5/8"	BSH25438	4 3/8"
BSH7530	1 3/16"	BSH1030	1 3/16"	BSH1065	2 9/16"	BSH1543	1 11/16"	BSH15306	3 1/16"	BSH25269	2 11/16"	BSH25450	4 1/2"
BSH75125	1 1/4"	BSH10125	1 1/4"	BSH10263	2 5/8"	BSH15175	1 3/4"	BSH15313	3 1/8"	BSH2570	2 3/4"	BSH25463	4 5/8"
BSH75131	1 5/16"	BSH10131	1 5/16"	BSH10269	2 11/16"	BSH1546	1 13/16"	BSH15319	3 3/16"	BSH25281	2 13/16"	BSH25475	4 3/4"
BSH7535	1 3/8"	BSH1035	1 3/8"	BSH1070	2 3/4"	BSH15188	1 7/8"	BSH15325	3 1/4"	BSH25288	2 7/8"	BSH25488	4 7/8"
BSH75144	1 7/16"	BSH10144	1 7/16"	BSH10281	2 13/16"	BSH15194	1 15/16"	BSH15338	3 3/8"	BSH2575	2 15/16"	BSH25500	5"
BSH7538	1 1/2"	BSH1038	1 1/2"	BSH10288	2 7/8"	BSH15200	2"	BSH15350	3 1/2"	BSH25300	3"	BSH25513	5 1/8"
BSH75156	1 9/16"	BSH10156	1 9/16"	BSH1075	2 15/16"	BSH15206	2 1/16"	BSH15363	3 5/8"	BSH25306	3 1/16"	BSH25519	5 3/16"
BSH75163	1 5/8"	BSH10163	1 5/8"	BSH10300	3"	BSH15213	2 1/8"	BSH1595	3 3/4"	BSH25313	3 1/8"	BSH25525	5 1/4"
BSH7543	1 11/16"	BSH1043	1 11/16"	BSH10306	3 1/16"	BSH15219	2 3/16"	BSH15388	3 7/8"	BSH25319	3 3/16"	BSH25538	5 3/8"
BSH75175	1 3/4"	BSH10175	1 3/4"	BSH10313	3 1/8"	BSH15225	2 1/4"	BSH15100	3 15/16"	BSH25325	3 1/4"	BSH25140	5 1/2"
BSH7546	1 13/16"	BSH1046	1 13/16"	BSH10319	3 3/16"	BSH15231	2 5/16"	BSH15400	4"	BSH25338	3 3/8"	BSH25575	5 3/4"
BSH75188	1 7/8"	BSH10188	1 7/8"	BSH10325	3 1/4"	BSH15238	2 3/8"	BSH15105	4 1/8"	BSH25350	3 1/2"	BSH25150	5 7/8"
BSH75194	1 15/16"	BSH10194	1 15/16"	BSH10338	3 3/8"	BSH15244	2 7/16"	BSH15419	4 3/16"	BSH25363	3 5/8"	BSH25600	6"
BSH75200	2"	BSH10200	2"	BSH10350	3 1/2"	BSH15250	2 1/2"	BSH15425	4 1/4"	BSH2595	3 3/4"	BSH25613	6 1/8"
		BSH10206	2 1/16"	BSH10363	3 5/8"	BSH1565	2 9/16"	BSH15110	4 5/16"	BSH25388	3 7/8"		
		BSH10213	2 1/8"	BSH1095	3 3/4"	BSH15263	2 5/8"	BSH15438	4 3/8"	BSH25100	3 15/16"		
		BSH10219	2 3/16"	BSH10388	3 7/8"	BSH15269	2 11/16"	BSH15450	4 1/2"	BSH25400	4"		
		BSH10225	2 1/4"			BSH1570	2 3/4"	BSH15463	4 5/8"	BSH25105	4 1/8"		

METRIC SOCKETS							
3/4" Square Drive		1" Square Drive		1 1/2" Square Drive		2 1/2" Square Drive	
Model Number	A/F (mm)	Model Number	A/F (mm)	Model Number	A/F (mm)	Model Number	A/F (mm)
BSH7519	19	BSH1019	19	BSH1536	36	BSH2565	65
BSH7524	24	BSH1024	24	BSH15163	41	BSH2570	70
BSH7527	27	BSH1027	27	BSH1546	46	BSH2575	75
BSH7530	30	BSH1030	30	BSH1550	50	BSH2580	80
BSH7532	32	BSH1032	32	BSH1555	55	BSH2585	85
BSH7536	36	BSH1036	36	BSH1560	60	BSH2590	90
BSH75163	41	BSH10163	41	BSH1565	65	BSH2595	95
BSH7546	46	BSH1046	46	BSH1570	70	BSH25100	100
BSH7550	50	BSH1050	50	BSH1575	75	BSH25105	105
		BSH1055	55	BSH1580	80	BSH25110	110
		BSH1060	60	BSH1585	85	BSH25115	115
		BSH1065	65	BSH1590	90	BSH25120	120
		BSH1070	70	BSH1595	95	BSH25125	125
		BSH1075	75	BSH15100	100	BSH25135	135
		BSH1080	80	BSH15105	105	BSH25140	140
		BSH1085	85	BSH15110	110	BSH25145	145
		BSH1090	90	BSH15115	115	BSH25150	150
		BSH1095	95			BSH25155	155
		BSH10100	100				



Pin and Ring

All sockets are supplied with a "Pin and Ring" to hold the socket in place on the square drive of the tool.



Select the Right Torque

Choose your Enerpac Torque Wrench using the untightening rule of thumb: Loosening torque equals about 250% of tightening torque.

ENERPAC professional series steel torque wrenches provide reliable controlled tightening solutions across many industries.

S3000 Square Drive Torque Wrench on Wind Turbine Assembly and Maintenance

S3000 used to connect wind turbine segments during assembly and maintenance. A robust but compact solution is required for bolt tightening on wind tower sections. Large numbers of fasteners require precise application of torque to ensure joint integrity is achieved and maintained.

The Enerpac S-Series wrench offers simple and reliable operation while providing accurate and repeatable results.



S1500 Square Drive Wrench with twice the flexibility

When looking to tighten the bolts on a large specialized piece of machining equipment the need for a unique tool was requested by the customer. A double-headed Reaction Arm and double-sided Square Drive was the answer to the situation.

Although in most instances the Enerpac product in the catalog can solve a customers requirements there are occasions where something custom is required. Enerpac has the capabilities to provide those solutions.

S6000 on a High Volume Pump Unit

High vibration requires long studs to be accurately tightened to the calculated preload.

During maintenance, quick turnaround times are essential; S Series wrenches provide a large angle of nut rotation per stroke, offering speed and accuracy in a compact ergonomic tool.



▼ Shown: Drive units with interchangeable cassettes



Rigid Steel Design

The Professional Low Profile Solution



W-Series, Low Profile Torque Wrenches

This product range has been designed using state-of-the-art CAD techniques to bring you the most advanced low profile torque wrench on the market. Safety, quality, toughness and reliability are built in.

During the design process every prototype was put through finite element stress analysis, photo-elastic modelling, rigorous cyclic testing and strain gauging.

Simplicity

- No tools are needed for changing the hexagon cassettes
- Innovative, pinless wrench construction incorporates quick release cylinder and automatic crank engagement
- Single 360° hydraulic swivel manifold complete with screw lock couplings increases wrench and hose maneuverability

Design

- Cylinders and low profile cassettes have been engineered to give ultra slim, compact low clearance tooling with a small nose radius
- Robust design with minimal parts enables easy on-site maintenance without special tools
- Nut sizes covered range from 1 1/8 - 6 1/8 inch (30 - 155 mm)
- Optimized strength-to-weight ratio
- Fast operation due to the large nut rotation per wrench cycle (30 degree rotation angle) and rapid return stroke

Reliability

- All wrenches are nickel-plated for excellent corrosion protection and improved durability in harsh environments
- All wrenches are fitted with bronze bushings to ensure the ratchet will never seize in the sideplates, thus eliminating costly repairs

Accuracy

- Constant torque output provides accuracy ± 3% across the full stroke
- In-line reaction foot ensures accuracy by reducing internal deflections



TSP - Pro Series Swivel

Featuring Tilt and Swivel technology the TSP provides 360° X-axis rotation and 160° Y-axis rotation.

How to Order

Order as an accessory which can be fitted to existing W-Series wrenches.

Factory fitted to new W-Series wrenches: Suffix the wrench model number with "-P" e.g.: W2000-P.

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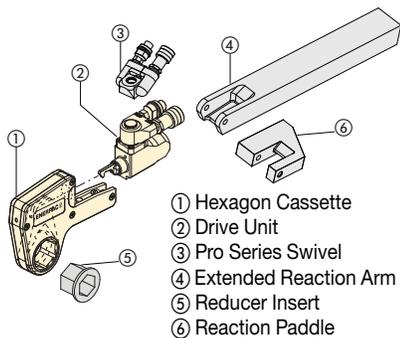


Torque Wrench Hoses

Use Enerpac THQ-700 Series hoses with W-Series torque wrenches to ensure the integrity of your hydraulic system.

19.5 feet long, 2 hoses	THQ-706T
39 feet long, 2 hoses	THQ-712T

Double-Acting Hydraulic Hexagon Torque Wrenches



- ① Hexagon Cassette
- ② Drive Unit
- ③ Pro Series Swivel
- ④ Extended Reaction Arm
- ⑤ Reducer Insert
- ⑥ Reaction Paddle



Hexagon Cassettes and Reducer Inserts
Maximum versatility with the full range of interchangeable hexagon cassettes and hexagon reducing inserts is available in metric and inch sizes.

Page: 14

W Series



Maximum Torque at 10,000 psi:
35,000 Ft.lbs

Hexagon Range:
1 1/8 - 6 1/8 inch

Nose Radius:
1.22-4.52 inch

Maximum Operating Pressure:
10,000 psi

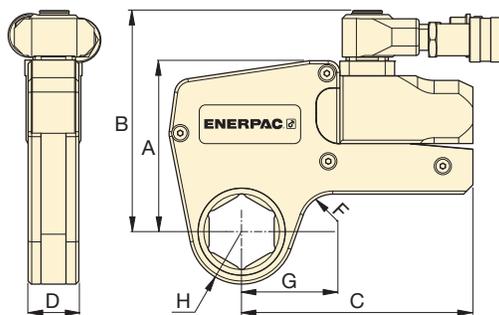
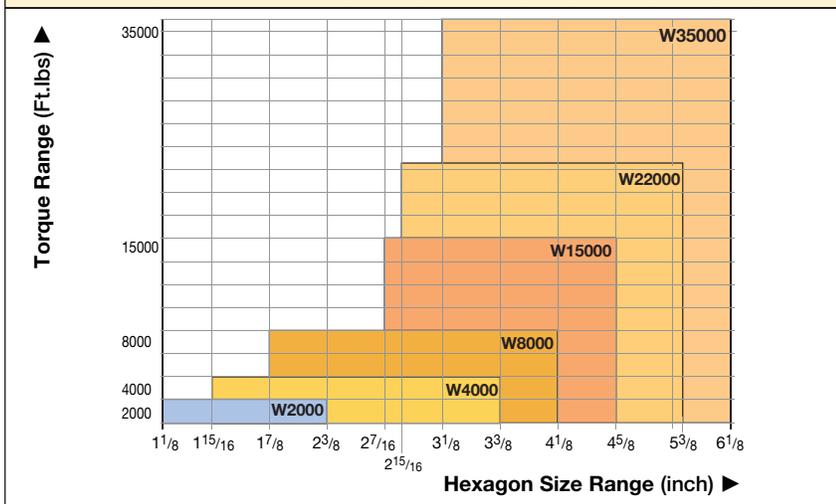


Torque Wrench Pump Selection Matrix

For optimum speed and performance see the torque wrench and pump matrix.

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DRIVE UNIT AND INTERCHANGEABLE CASSETTE SELECTION



▼ These rigid steel wrenches with low profile interchangeable hexagon cassettes guarantee durability and maximum versatility in bolting applications.

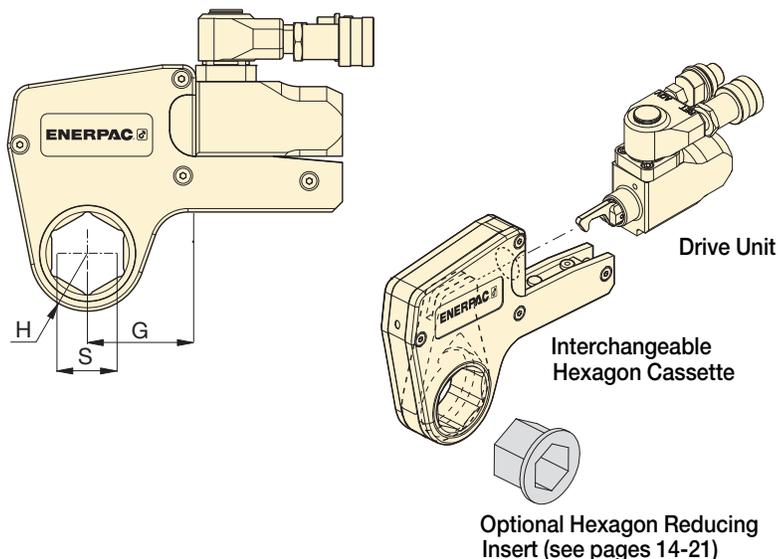


SELECTION CHART

Hexagon Range *		Maximum Torque at 10,000 psi		Drive Unit Model Number **	Dimensions (see pages 14-21 for dimensions H, G, and S)					Weight (Drive unit without hexagon cassette)
(in)	(mm)	(Ft.lbs)	(Nm)		(in)					(lbs)
Page: 14					A	B	C	D	F	
1 1/8 - 2 3/8	30 - 60	2000	2712	W2000	4.29	5.55	5.83	1.26	.79	3.04
1 5/16 - 3 3/8	36 - 85	4000	5423	W4000	5.35	6.57	7.01	1.61	.79	4.44
1 7/8 - 4 1/8	50 - 105	8000	10.846	W8000	6.77	8.07	8.19	2.07	.98	6.59
2 7/16 - 4 5/8	65 - 115	15,000	20.337	W15000	8.15	9.45	9.96	2.48	.79	10.72
2 15/16 - 5 3/8	75 - 135	22,500	30.510	W22000	8.94	10.46	11.69	3.03	1.38	16.98
3 1/8 - 6 1/8	80-155	35,000	47.453	W35000	10.54	11.94	13.60	3.57	1.98	25.14

* With in-line reaction foot.

** To order a W-series wrench fitted with the TSP swivel, suffix the model number with "-P". e.g., W2000-P.



W Series



Maximum Torque at 10,000 psi:

2000 Ft.lbs

Hexagon Range:

1 1/8-2 3/8 inch

Maximum Operating Pressure:

10,000 psi



Metric Sizes

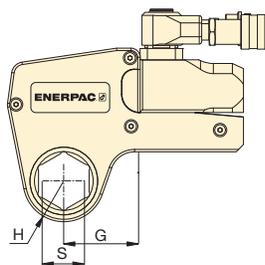
For metric sizes of hexagon cassettes and reducer inserts see:

Page: **20**

▼ SELECTION CHART

Drive Unit Model Number	Hexagon Size	Nose Radius	Dim.	Model Number	Weight	Hexagon Reducer		Hexagon Reducer		Hexagon Reducer	
						Hexagon Reducer (in)	Model Number	Hexagon Reducer (in)	Model Number	Hexagon Reducer (in)	Model Number
W2000	1 1/8	1.22	2.11	W2102	4.19	-	-	-	-	-	-
	1 3/16	1.22	2.11	W2103	4.19	-	-	-	-	-	-
	1 1/4	1.22	2.11	W2104	4.19	-	-	-	-	-	-
	1 5/16	1.22	2.11	W2105	4.48	-	-	-	-	-	-
	1 3/8	1.22	2.11	W2106	4.43	-	-	-	-	-	-
	1 7/16	1.22	2.11	W2107	4.37	1 7/16 - 1 1/8	W2107R102	-	-	-	-
	1 1/2	1.32	2.29	W2108	4.51	-	-	-	-	-	-
	1 9/16	1.32	2.29	W2109	4.44	-	-	-	-	-	-
	1 5/8	1.32	2.29	W2110	4.38	1 5/8 - 1 1/4	W2110R104	1 5/8 - 1 3/16	W2110R103	-	-
	1 11/16	1.44	2.38	W2111	4.63	-	-	-	-	-	-
	1 3/4	1.44	2.38	W2112	4.57	-	-	-	-	-	-
	1 13/16	1.44	2.38	W2113	4.46	1 13/16 - 1 7/16	W2113R107	1 13/16 - 1 1/4	W2113R104	-	-
	1 7/8	1.54	2.48	W2114	4.69	-	-	-	-	-	-
	1 15/16	1.54	2.48	W2115	4.64	-	-	-	-	-	-
	2	1.54	2.48	W2200	4.54	2 - 1 5/8	W2200R110	2 - 1 7/16	W2200R107	-	-
	2 1/16	1.65	2.70	W2201	4.83	-	-	-	-	-	-
	2 1/8	1.65	2.70	W2202	4.74	-	-	-	-	-	-
	2 3/16	1.65	2.70	W2203	4.64	2 3/16 - 1 13/16	W2203R113	2 3/16 - 1 5/8	W2203R110	2 3/16 - 1 7/16	W2203R107
	2 1/4	1.75	2.55	W2204	4.94	-	-	-	-	-	-
	2 5/16	1.75	2.55	W2205	4.84	-	-	-	-	-	-
2 3/8	1.75	2.55	W2206	4.72	2 3/8 - 2	W2206R200	2 3/8 - 1 7/8	W2206R114	2 3/8 - 1 13/16	W2206R113	
-	-	-	-	-	-	2 3/8 - 1 1/2	W2206R108	2 3/8 - 1 7/16	W2206R107	2 3/8 - 1 5/8	W2206R110

W4000 Series Imperial Cassettes & Reducer Inserts



Maximum Torque at 10,000 psi:

4000 Ft.lbs

Hexagon Range:

1⁵/₁₆-3³/₈ inch

Maximum Operating Pressure:

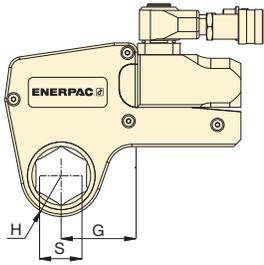
10,000 psi

W Series



▼ SELECTION CHART

Drive Unit Model Number	Hexagon Size	Nose Radius	Dim.	Model Number	Weight	Hexagon Reducer		Hexagon Reducer		Hexagon Reducer	
						(in)	Model Number	(in)	Model Number	(in)	Model Number
W4000	S	H	G		(lbs)						
	1 ⁵ / ₁₆	1.46	2.40	W4105	8.15	-	-	-	-	-	-
	1 ³ / ₈	1.46	2.40	W4106	8.15	-	-	-	-	-	-
	1 ⁷ / ₁₆	1.46	2.40	W4107	8.15	-	-	-	-	-	-
	1 ¹ / ₂	1.46	2.40	W4108	8.31	-	-	-	-	-	-
	1 ⁹ / ₁₆	1.46	2.40	W4109	8.22	-	-	-	-	-	-
	1 ⁵ / ₈	1.46	2.40	W4110	8.15	-	-	-	-	-	-
	1 ¹¹ / ₁₆	1.56	2.52	W4111	8.43	-	-	-	-	-	-
	1 ³ / ₄	1.56	2.52	W4112	8.35	-	-	-	-	-	-
	1 ¹³ / ₁₆	1.56	2.52	W4113	8.25	-	-	-	-	-	-
	1 ⁷ / ₈	1.63	2.63	W4114	8.45	-	-	-	-	-	-
	1 ¹⁵ / ₁₆	1.63	2.63	W4115	8.39	-	-	-	-	-	-
	2	1.63	2.63	W4200	8.28	2 - 1 ⁷ / ₈	W4200R107	-	-	-	-
	2 ¹ / ₁₆	1.73	2.89	W4201	8.65	-	-	-	-	-	-
	2 ¹ / ₈	1.73	2.89	W4202	8.53	-	-	-	-	-	-
	2 ³ / ₁₆	1.73	2.89	W4203	8.42	2 ³ / ₁₆ - 1 ⁵ / ₈	W4203R110	2 ³ / ₁₆ - 1 ⁷ / ₁₆	W4203R107	2 ³ / ₁₆ - 1 ¹ / ₄	W4203R104
	2 ¹ / ₄	1.83	2.78	W4204	8.73	-	-	-	-	-	-
	2 ⁵ / ₁₆	1.83	2.78	W4205	8.61	-	-	-	-	-	-
	2 ³ / ₈	1.83	2.78	W4206	8.47	2 ³ / ₈ - 2	W4206R200	2 ³ / ₈ - 1 ¹³ / ₁₆	W4206R113	2 ³ / ₈ - 1 ⁷ / ₁₆	W4206R107
	-	-	-	-	-	2 ³ / ₈ - 1 ³ / ₈	W4206R106	-	-	-	-
	2 ⁷ / ₁₆	1.95	3.00	W4207	8.96	2 ⁷ / ₁₆ - 2	W4207R200	-	-	-	-
	2 ¹ / ₂	1.95	3.00	W4208	8.86	2 ¹ / ₂ - 2	W4208R200	2 ¹ / ₂ - 1 ¹³ / ₁₆	W4208R113	2 ¹ / ₂ - 2 ¹ / ₁₆	W4208R201
	2 ⁹ / ₁₆	1.95	3.00	W4209	8.67	2 ⁹ / ₁₆ - 2 ³ / ₁₆	W4209R203	2 ⁹ / ₁₆ - 2 ¹ / ₈	W4209R202	-	-
	-	-	-	-	-	2 ⁹ / ₁₆ - 2	W4209R200	2 ⁹ / ₁₆ - 1 ¹³ / ₁₆	W4209R113	-	-
	2 ⁵ / ₈	2.07	3.08	W4210	9.14	-	-	-	-	-	-
	2 ¹¹ / ₁₆	2.07	3.08	W4211	9.03	-	-	-	-	-	-
	2 ³ / ₄	2.07	3.08	W4212	8.84	2 ³ / ₄ - 2 ³ / ₈	W4212R206	2 ³ / ₄ - 2 ³ / ₁₆	W4212R203	2 ³ / ₄ - 2 ¹ / ₈	W4212R202
	2 ¹³ / ₁₆	2.18	3.21	W4213	9.32	-	-	-	-	-	-
	2 ⁷ / ₈	2.18	3.21	W4214	9.17	-	-	-	-	-	-
	2 ¹⁵ / ₁₆	2.18	3.21	W4215	8.96	2 ¹⁵ / ₁₆ - 2 ⁹ / ₁₆	W4215R209	2 ¹⁵ / ₁₆ - 2 ³ / ₈	W4215R206	2 ¹⁵ / ₁₆ - 2 ³ / ₁₆	W4215R203
	-	-	-	-	-	2 ¹⁵ / ₁₆ - 2	W4215R200	-	-	-	-
	3	2.30	3.29	W4300	9.51	3 - 2 ³ / ₁₆	W4300R203	-	-	-	-
3 ¹ / ₁₆	2.30	3.29	W4301	9.42	-	-	-	-	-	-	
3 ¹ / ₈	2.30	3.29	W4302	9.16	3 ¹ / ₈ - 2 ¹⁵ / ₁₆	W4302R215	3 ¹ / ₈ - 2 ³ / ₄	W4302R212	3 ¹ / ₈ - 2 ⁹ / ₁₆	W4302R209	
-	-	-	-	-	3 ¹ / ₈ - 2 ³ / ₈	W4302R206	3 ¹ / ₈ - 2 ⁵ / ₁₆	W4302R205	3 ¹ / ₈ - 2 ¹ / ₄	W4302R204	
-	-	-	-	-	3 ¹ / ₈ - 2 ³ / ₁₆	W4302R203	3 ¹ / ₈ - 2 ¹ / ₈	W4302R202	3 ¹ / ₈ - 2	W4302R200	
3 ³ / ₁₆	2.44	3.37	W4303	9.92	-	-	-	-	-	-	
3 ¹ / ₄	2.44	3.37	W4304	9.92	-	-	-	-	-	-	
3 ⁵ / ₁₆	2.44	3.37	W4305	9.92	-	-	-	-	-	-	
3 ³ / ₈	2.44	3.37	W4306	9.92	-	-	-	-	-	-	



Maximum Torque at 10,000 psi:

8000 Ft.lbs

Hexagon Range:

1 7/8 - 4 1/8 inch

Maximum Operating Pressure:

10,000 psi

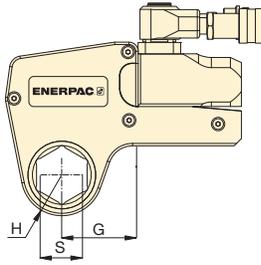
W Series



▼ SELECTION CHART

Drive Unit Model Number	Hexagon Size	Nose Radius	Dim.	Model Number	Weight						
						Hexagon Reducer (in)	Model Number	Hexagon Reducer (in)	Model Number	Hexagon Reducer (in)	Model Number
W8000	S (in)	H (in)	G (in)		(lbs)						
	1 7/8	1.77	3.08	W8114	17.97	-	-	-	-	-	-
	1 15/16	1.77	3.08	W8115	17.89	-	-	-	-	-	-
	2	1.77	3.08	W8200	17.75	-	-	-	-	-	-
	2 1/16	1.89	3.15	W8201	17.52	-	-	-	-	-	-
	2 1/8	1.89	3.15	W8202	17.36	-	-	-	-	-	-
	2 3/16	1.89	3.15	W8203	17.22	-	-	-	-	-	-
	2 1/4	2.01	3.25	W8204	17.92	-	-	-	-	-	-
	2 5/16	2.01	3.25	W8205	17.76	-	-	-	-	-	-
	2 3/8	2.01	3.25	W8206	17.59	-	-	-	-	-	-
	2 7/16	2.07	3.38	W8207	17.65	-	-	-	-	-	-
	2 1/2	2.07	3.38	W8208	17.52	-	-	-	-	-	-
	2 9/16	2.07	3.38	W8209	17.29	2 9/16 - 2	W8209R200	-	-	-	-
	2 5/8	2.20	3.34	W8210	17.50	-	-	-	-	-	-
	2 11/16	2.20	3.34	W8211	17.36	-	-	-	-	-	-
	2 3/4	2.20	3.34	W8212	17.12	2 3/4 - 2 3/16	W8212R203	-	-	-	-
	2 13/16	2.28	3.35	W8213	17.57	-	-	-	-	-	-
	2 7/8	2.28	3.35	W8214	17.38	-	-	-	-	-	-
	2 15/16	2.28	3.35	W8215	17.11	2 15/16 - 2 3/8	W8215R206	2 15/16 - 2 3/8	W8215R203	-	-
	3	2.38	3.52	W8300	17.77	-	-	-	-	-	-
	3 1/16	2.38	3.52	W8301	17.65	-	-	-	-	-	-
	3 1/8	2.38	3.52	W8302	17.33	3 1/8 - 2 9/16	W8302R209	3 1/8 - 2 9/16	W8302R206	3 1/8 - 2 9/16	W8302R203
	-	-	-	-	-	-	3 1/8 - 2	W8302R200	-	-	-
	3 3/16	2.60	3.63	W8303	18.99	-	-	-	-	-	-
	3 1/4	2.60	3.63	W8304	18.72	-	-	-	-	-	-
	3 5/16	2.60	3.63	W8305	18.54	-	-	-	-	-	-
	3 3/8	2.60	3.63	W8306	18.36	-	-	-	-	-	-
	3 7/16	2.60	3.63	W8307I	18.11	-	-	-	-	-	-
	3 1/2	2.60	3.63	W8308	17.81	3 1/2 - 3	W8308R300	3 1/2 - 2 15/16	W8308R215	3 1/2 - 2 3/4	W8308R212
	3 9/16	2.91	4.05	W8309	20.36	-	-	-	-	-	-
	3 5/8	2.91	4.05	W8310	20.18	-	-	-	-	-	-
	3 11/16	2.91	4.05	W8311	19.93	-	-	-	-	-	-
3 3/4	2.91	4.05	W8312	19.71	3 3/4 - 3 1/8	W8312R302	3 3/4 - 2 15/16	W8312R215	3 3/4 - 2 3/4	W8312R212	
3 13/16	2.91	4.05	W8313	19.46	-	-	-	-	-	-	
3 7/8	2.91	4.05	W8314	19.10	3 7/8 - 3 1/8	W8314R302	3 7/8 - 2 15/16	W8314R215	-	-	
3 15/16	3.13	4.33	W8315	20.31	-	-	-	-	-	-	
4	3.13	4.33	W8400	20.04	-	-	-	-	-	-	
4 1/16	3.13	4.33	W8401I	19.80	-	-	-	-	-	-	
4 1/8	3.13	4.33	W8402	19.39	-	-	-	-	-	-	

W15000 Series Imperial Cassettes & Reducer Inserts



Maximum Torque at 10,000 psi:

15,000 Ft.lbs

Hexagon Range:

2⁷/₁₆-4⁵/₈ inch

Maximum Operating Pressure:

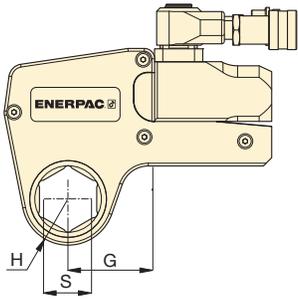
10,000 psi

W Series



▼ **SELECTION CHART**

Drive Unit Model Number	Hexagon Size	Nose Radius	Dim.	Model Number	Weight	Hexagon Reducer		Hexagon Reducer		Hexagon Reducer	
						Hexagon Reducer (in)	Model Number	Hexagon Reducer (in)	Model Number	Hexagon Reducer (in)	Model Number
W15000	S (in)	H (in)	G (in)		(lbs)						
	2 ⁷ / ₁₆	2.32	3.49	W15207	30.72	-	-	-	-	-	-
	2 ¹ / ₂	2.32	3.49	W15208	30.72	-	-	-	-	-	-
	2 ⁹ / ₁₆	2.32	3.49	W15209	30.72	-	-	-	-	-	-
	2 ⁵ / ₈	2.32	3.49	W15210	30.72	-	-	-	-	-	-
	2 ¹¹ / ₁₆	2.32	3.49	W15211	30.72	-	-	-	-	-	-
	2 ³ / ₄	2.32	3.49	W15212	30.72	-	-	-	-	-	-
	2 ¹³ / ₁₆	2.44	3.56	W15213	30.62	-	-	-	-	-	-
	2 ⁷ / ₈	2.44	3.56	W15214	30.39	-	-	-	-	-	-
	2 ¹⁵ / ₁₆	2.44	3.56	W15215	30.08	-	-	-	-	-	-
	3	2.54	3.66	W15300	30.86	3 - 2 ¹ / ₈	W15300R202	-	-	-	-
	3 ¹ / ₁₆	2.54	3.66	W15301	30.71	-	-	-	-	-	-
	3 ¹ / ₈	2.54	3.66	W15302	30.34	3 ¹ / ₈ - 2 ⁹ / ₁₆	W15302R209	-	-	-	-
	3 ³ / ₁₆	2.74	3.80	W15303	32.38	-	-	-	-	-	-
	3 ¹ / ₄	2.74	3.80	W15304	32.07	-	-	-	-	-	-
	3 ⁵ / ₁₆	2.74	3.80	W15305	31.85	-	-	-	-	-	-
	3 ³ / ₈	2.74	3.80	W15306	31.63	-	-	-	-	-	-
	3 ⁷ / ₁₆	2.74	3.80	W15307I	31.32	-	-	-	-	-	-
	3 ¹ / ₂	2.74	3.80	W15308	30.98	3 ¹ / ₂ - 2 ¹⁵ / ₁₆	W15308R215	3 ¹ / ₂ - 2 ³ / ₄	W15308R212	-	-
	3 ⁹ / ₁₆	2.95	4.01	W15309	31.70	-	-	-	-	-	-
	3 ⁵ / ₈	2.95	4.01	W15310	31.70	-	-	-	-	-	-
	3 ¹¹ / ₁₆	2.95	4.01	W15311	31.70	-	-	-	-	-	-
	3 ³ / ₄	2.95	4.01	W15312	31.70	3 ³ / ₄ - 3 ¹ / ₈	W15312R302	3 ³ / ₄ - 2 ¹⁵ / ₁₆	W15312R215	-	-
	3 ¹³ / ₁₆	2.95	4.01	W15313	31.70	-	-	-	-	-	-
	3 ⁷ / ₈	2.95	4.01	W15314	31.70	3 ⁷ / ₈ - 3 ¹ / ₈	W15314R302	3 ⁷ / ₈ - 2 ¹⁵ / ₁₆	W15314R215	-	-
	3 ¹⁵ / ₁₆	3.17	4.06	W15315	34.02	-	-	-	-	-	-
	4	3.17	4.06	W15400	33.70	-	-	-	-	-	-
	4 ¹ / ₁₆	3.17	4.06	W15401I	33.41	-	-	-	-	-	-
	4 ¹ / ₈	3.17	4.06	W15402	33.09	4 ¹ / ₈ - 3 ¹ / ₂	W15402R308	4 ¹ / ₈ - 3 ⁹ / ₁₆	W15402R305	4 ¹ / ₈ - 3 ¹ / ₄	W15402R304
	4 ³ / ₁₆	3.17	4.06	W15403I	32.81	-	-	-	-	-	-
	4 ¹ / ₄	3.17	4.06	W15404	32.29	4 ¹ / ₄ - 3 ¹ / ₂	W15404R308	4 ¹ / ₄ - 3 ¹ / ₈	W15404R302	-	-
	4 ⁵ / ₁₆	3.44	4.52	W15405	35.61	-	-	-	-	-	-
4 ³ / ₈	3.44	4.52	W15406	35.32	-	-	-	-	-	-	
4 ⁷ / ₁₆	3.44	4.52	W15407	34.99	-	-	-	-	-	-	
4 ¹ / ₂	3.44	4.52	W15408I	34.63	-	-	-	-	-	-	
4 ⁹ / ₁₆	3.44	4.52	W15409I	34.28	-	-	-	-	-	-	
4 ⁵ / ₈	3.44	4.52	W15410I	33.72	4 ⁵ / ₈ - 3 ¹⁵ / ₁₆	W15410R315	4 ⁵ / ₈ - 3 ⁷ / ₈	W15410R314	4 ⁵ / ₈ - 3 ³ / ₄	W15410R312	
-	-	-	-	-	-	4 ⁵ / ₈ - 3 ¹ / ₂	W15410R308	-	-	-	



Maximum Torque at 10,000 psi:

22,500 Ft.lbs

Hexagon Range:

2³/₁₆ - 5³/₈ inch

Maximum Operating Pressure:

10,000 psi

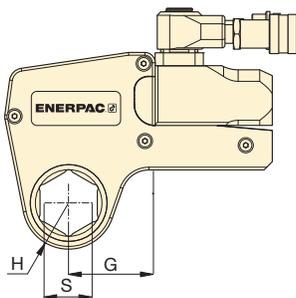
W Series



▼ SELECTION CHART

Drive Unit Model Number	Hexagon Size	Nose Radius	Dim.	Model Number	Weight	Hexagon Reducer		Hexagon Reducer		Hexagon Reducer	
						Hexagon Reducer (in)	Model Number	Hexagon Reducer (in)	Model Number	Hexagon Reducer (in)	Model Number
W22000	2 ¹⁵ / ₁₆	2.64	4.02	W22215	48.72	-	-	-	-	-	-
	3	2.64	4.02	W22300	48.40	-	-	-	-	-	-
	3 ¹ / ₁₆	2.64	4.02	W22301	48.22	-	-	-	-	-	-
	3 ³ / ₈	2.64	4.02	W22302	47.78	3 ¹ / ₈ - 2 ³ / ₈	W22302R206	3 ¹ / ₈ - 2 ³ / ₁₆	W22302R203	-	-
	3 ³ / ₁₆	2.85	4.23	W22303	50.58	-	-	-	-	-	-
	3 ¹ / ₄	2.85	4.23	W22304	50.19	-	-	-	-	-	-
	3 ⁵ / ₁₆	2.85	4.23	W22305	49.92	-	-	-	-	-	-
	3 ³ / ₈	2.85	4.23	W22306	49.66	-	-	-	-	-	-
	3 ⁷ / ₁₆	2.85	4.23	W22307	50.29	-	-	-	-	-	-
	3 ¹ / ₂	2.85	4.23	W22308	48.87	3 ¹ / ₂ - 2 ³ / ₄	W22308R212	3 ¹ / ₂ - 2 ⁹ / ₁₆	W22308R209	3 ¹ / ₂ - 2 ³ / ₈	W22308R206
	3 ⁹ / ₁₆	3.07	4.45	W22309	51.58	-	-	-	-	-	-
	3 ⁵ / ₈	3.07	4.45	W22310	51.30	-	-	-	-	-	-
	3 ¹¹ / ₁₆	3.07	4.45	W22311	50.93	-	-	-	-	-	-
	3 ³ / ₄	3.07	4.45	W22312	50.62	3 ³ / ₄ - 2 ¹⁵ / ₁₆	W22312R215	-	-	-	-
	3 ¹³ / ₁₆	3.07	4.45	W22313	50.24	-	-	-	-	-	-
	3 ⁷ / ₈	3.07	4.45	W22314	49.77	3 ⁷ / ₈ - 3 ¹ / ₈	W22314R302	3 ⁷ / ₈ - 2 ¹⁵ / ₁₆	W22314R215	3 ⁷ / ₈ - 2 ³ / ₄	W22314R212
	3 ¹⁵ / ₁₆	3.35	4.72	W22315	53.57	-	-	-	-	-	-
	4	3.35	4.72	W22400	53.19	-	-	-	-	-	-
	4 ¹ / ₁₆	3.35	4.72	W22401	52.82	-	-	-	-	-	-
	4 ¹ / ₈	3.35	4.72	W22402	52.43	-	-	-	-	-	-
	4 ³ / ₁₆	3.35	4.72	W22403	52.09	-	-	-	-	-	-
	4 ¹ / ₄	3.35	4.72	W22404	51.48	4 ¹ / ₄ - 3 ¹ / ₂	W22404R308	4 ¹ / ₄ - 3 ¹ / ₈	W22404R302	4 ¹ / ₄ - 2 ¹⁵ / ₁₆	W22404R215
	4 ⁵ / ₁₆	3.54	4.92	W22405	54.26	-	-	-	-	-	-
	4 ³ / ₈	3.54	4.92	W22406	53.91	-	-	-	-	-	-
	4 ⁷ / ₁₆	3.54	4.92	W22407	53.50	-	-	-	-	-	-
	4 ¹ / ₂	3.54	4.92	W22408	53.06	-	-	-	-	-	-
	4 ⁹ / ₁₆	3.54	4.92	W22409	52.64	-	-	-	-	-	-
	4 ⁵ / ₈	3.54	4.92	W22410	51.99	4 ⁵ / ₈ - 3 ⁷ / ₈	W22410R314	4 ⁵ / ₈ - 3 ³ / ₄	W22410R312	4 ⁵ / ₈ - 3 ¹ / ₂	W22410R308
	4 ³ / ₄	3.74	5.12	W22412	54.54	-	-	-	-	-	-
	4 ⁷ / ₈	3.74	5.12	W22414	53.60	-	-	-	-	-	-
	5	3.74	5.12	W22500	52.37	5 - 4 ¹ / ₄	W22500R404	5 - 4 ¹ / ₈	W22500R402	5 - 3 ⁷ / ₈	W22500R314
	5 ¹ / ₈	3.94	5.31	W22502	55.10	-	-	-	-	-	-
5 ³ / ₁₆	3.94	5.31	W22503	54.71	-	-	-	-	-	-	
5 ¹ / ₄	3.94	5.31	W22504	54.05	-	-	-	-	-	-	
5 ³ / ₈	3.94	5.31	W22506	52.77	5 ³ / ₈ - 4 ⁵ / ₈	W22506R410	5 ³ / ₈ - 4 ¹ / ₄	W22506R404	5 ³ / ₈ - 4 ¹ / ₈	W22506R402	
-	-	-	W22506	52.77	5 ³ / ₈ - 3 ⁷ / ₈	W22506R314	-	-	-	-	

W35000 Series Imperial Cassettes & Reducer Inserts



Maximum Torque at 10,000 psi:

35,000 Ft.lbs

Hexagon Range:

3 1/8 - 6 1/8 inches

Maximum Operating Pressure:

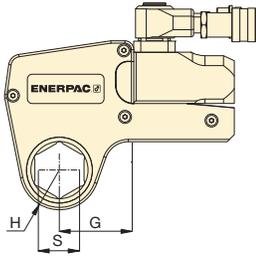
10,000 psi

W Series



▼ SELECTION CHART

Drive Unit Model Number	Hexagon Size	Nose Radius	Dim.	Model Number	Weight	Reducer	
						Hexagon Reducer	Model Number
	S (in)	H (in)	G (in)		(lbs)	(in)	
W35000	3 1/8	3.02	4.99	W35302	72.30	3 1/8 - 2	W35302R200
	3 9/16	3.02	4.99	W35303	72.10	-	-
	3 1/4	3.02	4.99	W35304	71.70	-	-
	3 5/16	3.02	4.99	W35305	71.40	-	-
	3 3/8	3.02	4.99	W35306	71.00	-	-
	3 7/16	3.02	4.99	W35307	70.50	-	-
	3 1/2	3.02	4.99	W35308	70.10	3 1/2 - 2 5/16	W35308R205
	3 9/16	3.23	5.22	W35309	71.40	-	-
	3 5/8	3.23	5.22	W35310	73.40	-	-
	3 11/16	3.23	5.22	W35311	73.00	-	-
	3 3/4	3.23	5.22	W35312	72.50	-	-
	3 13/16	3.23	5.22	W35313	72.10	-	-
	3 7/8	3.23	5.22	W35314	71.40	3 7/8 - 2 11/16	W35314R211
	3 15/16	3.45	5.39	W35315	70.80	3 15/16 - 2 13/16	W35315R213
	4	3.45	5.39	W35400	74.70	-	-
	4 1/16	3.45	5.39	W35401	74.30	-	-
	4 1/8	3.45	5.39	W35402	73.90	-	-
	4 3/16	3.45	5.39	W35403	73.40	-	-
	4 1/4	3.45	5.39	W35404	72.80	4 1/4 - 3 1/16	W35404R301
	4 5/16	3.69	5.63	W35405	76.90	-	-
	4 3/8	3.69	5.63	W35406	76.50	-	-
	4 7/16	3.69	5.63	W35407	76.10	-	-
	4 1/2	3.69	5.63	W35408	75.60	-	-
	4 9/16	3.69	5.63	W35409	75.20	-	-
	4 5/8	3.69	5.63	W35410	74.50	4 5/8 - 3 5/8	W35410R310
	4 3/4	3.91	5.85	W35412	78.50	4 3/4 - 3 3/4	W35412R312
	4 7/8	3.91	5.85	W35414	76.90	-	-
	5	3.91	5.85	W35500	75.60	5 - 4	W35500R400
	5 1/8	4.09	6.02	W35502	78.90	5 1/8 - 4 1/8	W35502R402
	5 3/16	4.09	6.02	W35503	78.50	-	-
	5 1/4	4.09	6.02	W35504	77.60	-	-
	5 3/8	4.09	6.02	W35506	76.30	5 3/8 - 4 5/16	W35506R405
5 1/2	4.31	6.24	W35508	79.80	-	-	
5 9/16	4.31	6.24	W35509	79.40	-	-	
5 5/8	4.31	6.24	W35510	78.50	-	-	
5 3/4	4.31	6.24	W35512	76.90	5 3/4 - 4 3/4	W35512R412	
5 7/8	4.52	6.46	W35514	80.90	5 7/8 - 4 7/8	W35514R414	
6	4.52	6.46	W35600	79.60	-	-	
6 1/8	4.52	6.46	W35602	77.80	6 1/8 - 5 1/8	W35602R502	



Hexagon Range:
30-105 mm

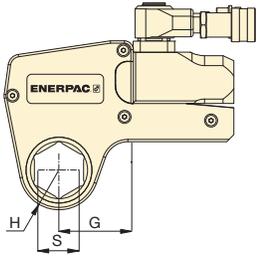
Maximum Operating Pressure:
10,000 psi (700 bar)



▼ SELECTION CHART

Drive Unit Model Number	Hexagon Size	Nose Radius	Dim.	Model Number	Weight							
						Hexagon Reducer (mm)	Model Number	Hexagon Reducer (mm)	Model Number	Hexagon Reducer (mm)	Model Number	
	S (mm)	H (in)	G (in)		(lbs)							
	30	1.22	2.11	W2103	4.19	-	-	-	-	-	-	
	32	1.22	2.11	W2104	4.19	-	-	-	-	-	-	
	36	1.22	2.11	W2107	4.19	-	-	-	-	-	-	
	38	1.32	2.29	W2108	4.51	-	-	-	-	-	-	
	41	1.32	2.29	W2110	4.38	41 - 32	W2110R104	41 - 30	W2110R103	41 - 24	W2110R024M	
	46	1.44	2.38	W2113	4.69	46 - 36	W2113R107	46 - 32	W2113R104	-	-	
	50	1.54	2.48	W2200	4.54	50 - 41	W2200R110	50 - 36	W2200R107	-	-	
	55	1.65	2.70	W2203	4.64	55 - 46	W2203R113	55 - 41	W2203R110	55 - 36	W2203R107	
	60	1.75	2.55	W2206	4.72	60 - 50	W2206R200	60 - 46	W2206R113	60 - 41	W2206R110	
-	-	-	-	-	-	60 - 36	W2206R107	-	-	-	-	
	36	1.46	2.40	W4107	7.72	-	-	-	-	-	-	
	41	1.46	2.40	W4110	7.72	-	-	-	-	-	-	
	46	1.56	2.52	W4113	7.94	-	-	-	-	-	-	
	50	1.63	2.63	W4200	8.28	50 - 36	W4200R107	-	-	-	-	
	55	1.73	2.89	W4203	8.42	55 - 41	W4203R110	55 - 36	W4203R107	55 - 32	W4203R104	
	60	1.83	2.78	W4206	8.47	60 - 50	W4206R200	60 - 46	W4206R113	60 - 36	W4206R107	
	65	1.95	3.00	W4209	8.67	65 - 55	W4209R203	65 - 50	W4209R200	65 - 46	W4209R113	
	70	2.07	3.08	W4212	8.84	70 - 60	W4212R206	70 - 55	W4212R203	-	-	
	75	2.18	3.21	W4215	8.96	75 - 65	W4215R209	75 - 60	W4215R206	-	-	
	-	-	-	-	-	-	75 - 55	W4215R203	75 - 50	W4215R200	-	-
	80	2.30	3.29	W4302	9.16	80 - 75	W4302R215	80 - 70	W4302R212	80 - 65	W4302R209	
	-	-	-	-	-	-	80 - 55	W4302R203	80 - 50	W4302R200	-	-
	50	1.77	3.08	W8200	17.75	-	-	-	-	-	-	
	55	1.89	3.15	W8203	17.22	-	-	-	-	-	-	
	60	2.01	3.25	W8206	17.59	-	-	-	-	-	-	
	65	2.07	3.38	W8209	17.29	65 - 50	W8209R200	-	-	-	-	
	70	2.07	3.34	W8212	17.12	70 - 55	W8212R203	-	-	-	-	
	75	2.28	3.35	W8215	17.11	75 - 60	W8215R206	75 - 55	W8215R203	-	-	
	80	2.38	3.52	W8302	17.33	80 - 65	W8302R209	80 - 60	W8302R206	80 - 55	W8302R203	
	-	-	-	-	-	-	80 - 50	W8302R200	-	-	-	
	85	2.60	3.63	W8085M	18.42	85 - 70	W8085R070M	85 - 65	W8085R065M	85 - 60	W8085R060M	
	-	-	-	-	-	-	85 - 55	W8085R055M	-	-	-	
	90	2.91	4.05	W8090M	20.46	90 - 75	W8090R075M	-	-	-	-	
	95	2.91	4.05	W8312	19.71	95 - 80	W8312R302	95 - 75	W8312R215	-	-	
	100	3.13	4.33	W8315	20.31	-	-	-	-	-	-	
	105	3.13	4.33	W8402	19.39	-	-	-	-	-	-	

W Series Metric Cassettes and Reducer Inserts



Hexagon Range:
65-155 mm

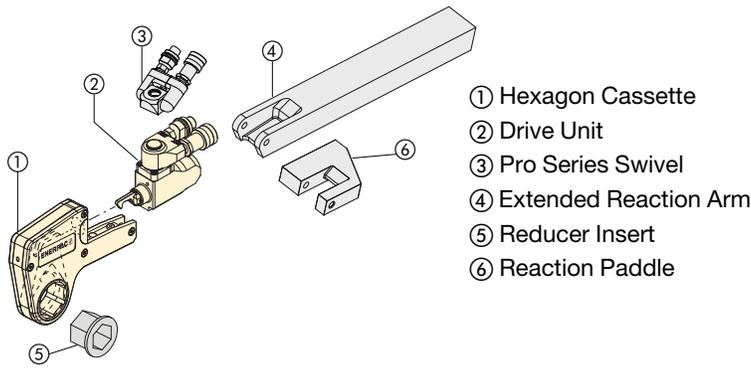
Maximum Operating Pressure:
10,000 psi (700 bar)

W
Series



▼ **SELECTION CHART**

Drive Unit Model Number	Hexagon Size	Nose Radius	Dim.	Model Number	Weight	Hexagon Reducer		Hexagon Reducer	
						Hexagon Reducer (mm)	Model Number	Hexagon Reducer (mm)	Model Number
W15000	S (mm)	H (in)	G (in)		(lbs)				
	65	2.32	3.49	W15209	30.72	-	-	-	-
	70	2.32	3.49	W15212	30.72	-	-	-	-
	75	2.44	3.56	W15215	30.08	-	-	-	-
	80	2.54	3.66	W15302	30.34	80-65	W15302R209	-	-
	85	2.74	3.80	W15085M	31.70	85-70	W15085R070M	-	-
	90	2.95	4.01	W15090M	33.32	90-75	W15090R075M	-	-
	95	2.95	4.01	W15312	31.70	95-80	W15312R302	95 - 75	W15312R215
	100	3.17	4.06	W15315	34.02	-	-	-	-
	105	3.17	4.06	W15402	33.09	105-90	W15402R090M	-	-
	110	3.44	4.52	W15405	35.61	110-95	W15110R095M	-	-
115	3.44	4.52	W15115M	34.48	115-100	W15115R100M	-	-	
W22000	75	2.64	4.02	W22215	48.72	-	-	-	-
	80	2.64	4.02	W22302	47.78	80-60	W22302R206	80 - 55	W22302R203
	85	2.85	4.23	W22085M	49.74	85-65	W22085MR209	85 - 60	W22085MR206
	90	3.07	4.45	W22090M	51.72	90-70	W22090M212	90 - 60	W22090MR206
	95	3.07	4.45	W22312	50.62	95-75	W22312R215	-	-
	100	3.35	4.72	W22315	53.57	-	-	-	-
	105	3.35	4.72	W22402	52.09	-	-	-	-
	110	3.54	4.92	W22404	51.48	-	-	-	-
	115	3.54	4.92	W22115M	52.88	-	-	-	-
	120	3.74	5.12	W22412	54.54	-	-	-	-
	123	3.74	5.12	W22123M	53.80	-	-	-	-
W35000	130	3.94	5.31	W22502	55.10	-	-	-	-
	135	3.94	5.31	W22506	52.77	135 - 105	W22506R402	-	-
	80	3.02	5.08	W35302	72.30	80-50	W35302R200	-	-
	85	3.02	5.08	W35085M	33.10	-	-	-	-
	90	3.23	5.33	W35090M	34.30	90-60	W35090R206	-	-
	95	3.23	5.30	W35312	72.50	-	-	-	-
	100	3.45	5.48	W35315	70.80	-	-	-	-
	105	3.45	5.48	W35402	73.90	-	-	-	-
	110	3.69	5.75	W35405	76.90	110-85	W35405R085M	-	-
	115	3.69	5.75	W35115M	77.10	-	-	-	-
	120	3.91	6.01	W35412	78.50	120-95	W35412R312	-	-
	123	3.91	6.01	W35123M	78.90	-	-	-	-
	130	4.09	6.30	W35502	78.90	130-105	W35502R402	-	-
	135	4.09	6.30	W35506	76.30	135-110	W35506R405	-	-
	140	4.31	6.43	W35508	79.80	140-115	W35508R115M	-	-
145	4.31	6.43	W35512	76.90	145-120	W35512R412	-	-	
150	4.52	6.67	W35514	80.90	-	-	-	-	
151	4.52	6.67	W35151M	82.10	-	-	-	-	
155	4.52	6.67	W35602	77.80	155-130	W35602R502	-	-	

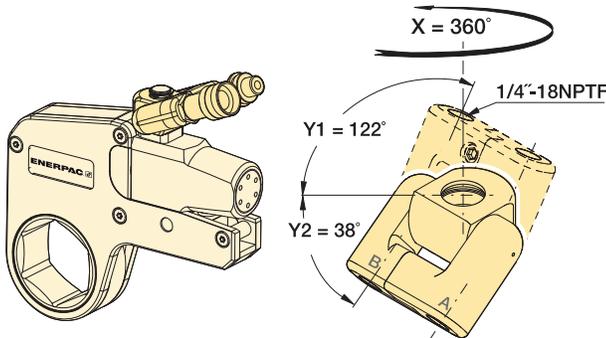


- ① Hexagon Cassette
- ② Drive Unit
- ③ Pro Series Swivel
- ④ Extended Reaction Arm
- ⑤ Reducer Insert
- ⑥ Reaction Paddle

TSP WTE WRP Series



TSP-Series, Pro Series Swivels



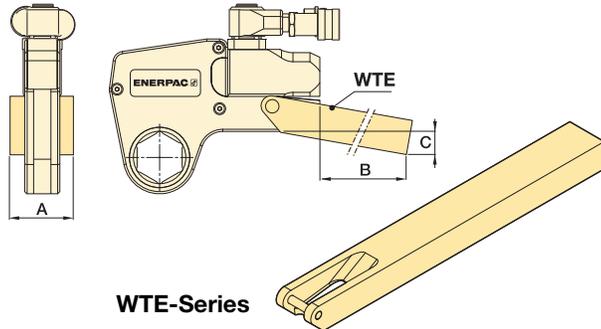
TSP-Series

- Featuring Tilt and Swivel technology
- 360° X-axis and 160° Y-axis rotation
- Increases tool fit in restricted access areas
- Simplifies hose placement

Torque Wrench Model Number	Model Number	Maximum Pressure (psi)	Wt. (lbs)
W2000, W4000	TSP100	10,000	.44
W8000, W15000, W22000, W35000	TSP200	10,000	.44

To order a W-series wrench fitted with the TSP swivel, add suffix "P" to the model number. Example: **W2000-P**.
*TSP-swivel does not include couplers except when ordered wrench mounted.

WTE-Series, Extended Reaction Arm



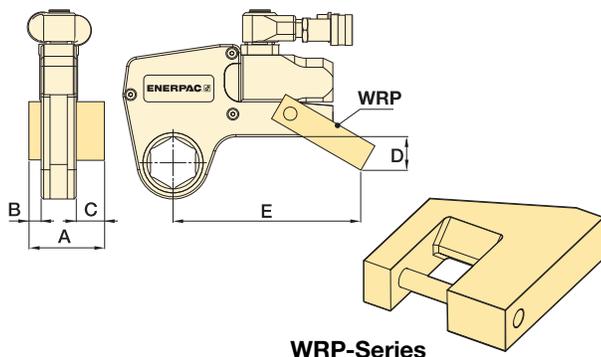
WTE-Series

- Full torque rated
- Increases tool fit in restricted access areas

Torque Wrench Model Number	Model Number	Dimensions (in)			Wt.* (lbs)
		A	B	C	
W2000	WTE20	2.20	15.67	2.99	5.73
W4000	WTE40	2.60	17.17	2.91	10.14
W8000	WTE80	3.35	17.68	2.60	16.75
W15000	WTE150	4.02	19.61	2.84	26.46
W35000	WTE350	5.00	16.48	5.23	39.17

* Weights indicated are for the accessories only and do not include the wrench.

WRP-Series, Low Profile Reaction Paddles



WRP-Series

- Lightweight interchangeable design
- Allows for offset reaction when in-line reaction is not available

Torque Wrench Model No.	Model Number	Dimensions (in)					Wt.* (lbs)
		A	B	C	D	E	
W2000	WRP20	3.31	0.62	1.38	1.77	5.83	.88
W4000	WRP40	4.29	0.83	1.85	2.32	7.48	1.76
W8000	WRP80	5.39	1.02	2.24	2.71	8.78	4.41
W15000	WRP150	6.50	1.26	2.71	3.43	10.12	8.60
W35000	WRP350	8.84	1.65	3.57	7.15	14.44	23.35

* Weights indicated are for the accessories only and do not include the wrench.

ENERPAC W-Series Torque Wrenches provide high accuracy across the full stroke for safety critical applications.

W4000 Low Profile Torque Wrench used in a set of four to simultaneously tighten a flange

Sometimes some creativity is needed to tighten a joint that must be brought together by tightening multiple bolts at the same time. By combining four Enerpac W-Series wrenches with a 4-port manifold on an Enerpac ZE-Series pump this specialty task can be done safely and quickly.

This simple adaptation provides even and accurate torque across the flange four times faster than using only one W4000 at a time.



W4000 Low Profile Torque Wrench on an ANSI Pipe Flange

Throughout the Oil and Gas, Petrochemical and Processing Industries, pipeline joints, valves, pumps and machinery present challenges for controlled bolting.

The restricted access on this pipeline elbow was easily overcome with an Enerpac W-Series Torque Wrench. The W-Series Wrenches offer reliability and control, ensuring even and consistent torque is applied to all bolts.

W8000 Low Profile Torque Wrench tightening the bolts on turbine

Using the strength and accuracy of a steel wrench to tighten highly stressed bolts on a turbine is the safe way to handle a critical application.

All of Enerpac's W-Series and S-Series Wrenches are made of high-strength steel which gives you additional stiffness that other alloys cannot provide. This added stiffness translates into a stronger and more durable tool.



▼ Shown: SQD-50-I



Lightweight Aluminum High-Power Wrench for Sockets or Allen Drives

- Very high torque-to-weight ratio
- High speed, double-acting operation
- High degree of rotation angle for increased productivity
- Never-jam mechanism
- High repeatability, with accuracy $\pm 3\%$
- Slim nose radius and 360° swivel hose connection allow easier positioning in confined areas
- Few moving parts means durability and low maintenance
- Push-button drive release; no tools needed to reverse square or Allen drives for tightening or loosening
- Storage case (included) protects from damage, water and dirt
- Lock-ring couplers are standard on all torque wrenches, pumps and hoses



Swivel Hose Connection

All Enerpac torque wrenches feature a 360° swivel connection to allow easy access in all positions.



Twin 3.5:1 Safety Hoses

Use only Enerpac THC-700 series twin 3.5:1 safety hoses with SQD double-acting wrenches to ensure the integrity of your system.

www.enerpac.com



Optional Allen Drives

Expanded versatility with a wide range of metric and imperial Allen drives.

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◀ Easy and reliable service in the field using Enerpac SQD-series torque wrenches.

Double-Acting, Square Drive Wrenches



▲ All wrenches come standard with swivel coupler, square drive and reaction arm.

SQD Series



Maximum Torque:
19,875 Ft.lbs

Square Drive Range:
3/4-2 1/2 inches

Maximum Operating Pressure:
11,600 psi



Use only heavy-duty Impact Sockets for power driven torquing equipment, according to ISO 2725 and ISO 1174; DIN 3129 and DIN 3121 or ASME-B107.2/1995.



Torque Wrench Pumps

Enerpac system matched air and electric torque wrench pumps provide control to operate hydraulic torque wrenches.

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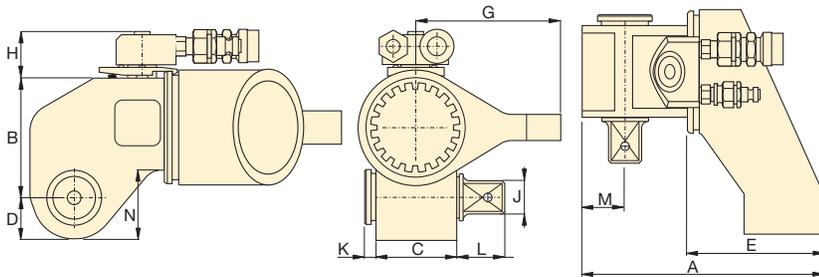
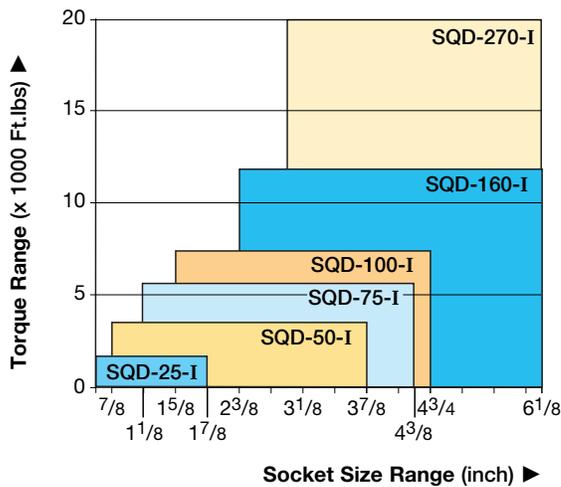


Hexagon Bolt and Nut Sizes

See the table for hexagon sizes of bolts, nuts and related thread diameters.

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TORQUE WRENCH SELECTION (based on socket size range)



Square Drive (in)	Max. Torque @ 11,600 psi		Torque Wrench Model No.	Dimensions												Weight (incl. reaction arm and square drive) (lbs)
	(Ft.lbs)	(Nm)		A	B	C	D	E	G	H	J	K	L	M	N	
3/4	1735	2350	SQD-25-I	6.57	2.83	2.09	.94	4.25	3.74	1.38	3/4	.24	1.08	1.04	1.44	5.52
1	3550	4800	SQD-50-I	8.05	3.62	2.67	1.22	5.31	4.53	1.38	1	.59	1.30	1.34	2.07	9.35
1 1/2	5570	7560	SQD-75-I	8.89	4.21	2.95	1.41	6.02	4.80	1.38	1 1/2	.47	1.69	1.54	2.52	11.90
1 1/2	7360	10,000	SQD-100-I	9.96	4.53	3.31	1.54	6.46	5.12	1.38	1 1/2	.50	1.55	1.69	2.68	17.64
1 1/2	11,835	16,000	SQD-160-I	10.71	5.28	3.94	1.89	7.00	5.91	1.97	1 1/2	.44	1.76	2.13	3.21	26.55
2 1/2	19,875	27,000	SQD-270-I	13.45	6.46	4.69	2.32	8.58	7.87	1.97	2 1/2	.69	2.97	2.48	3.90	54.00

▼ SELECTION CHART

TORQUE WRENCH		OPTIONAL ALLEN DRIVES, IMPERIAL			REACTION ARM FOR ALLEN DRIVE
					
Model Number (max. capacity)	Nose Radius D (in)	Hexagon Size (in)	Maximum Torque ¹⁾ (Ft.lbs)	Model Number	Model Number
SQD-25-I (1735 Ft.lbs)	0.94	1/2	390	25A-050	RAH-25
		5/8	735	25A-063	
		3/4	1325	25A-075	
		7/8	1735	25A-088	
		1	1735	25A-100	
SQD-50-I (3550 Ft.lbs)	1.22	5/8	735	50A-063	RAH-50
		3/4	1325	50A-075	
		7/8	2065	50A-088	
		1	3095	50A-100	
		1 1/8	3550	50A-113	
		1 1/4	3550	50A-125	
		-	-	-	
SQD-75-I (5570 Ft.lbs)	1.41	5/8	735	75A-063	RAH-75
		3/4	1325	75A-075	
		7/8	2065	75A-088	
		1	3095	75A-100	
		1 1/8	4350	75A-113	
		1 1/4	5570	75A-125	
SQD-100-I (7360 Ft.lbs)	1.54	7/8	2065	100A-088	RAH-100
		1	3095	100A-100	
		1 1/8	4350	100A-113	
		1 1/4	6270	100A-125	
		1 3/8	7360	100A-138	
		1 1/2	7360	100A-150	
SQD-160-I (11,835 Ft.lbs)	1.89	1 1/4	6270	160A-125	RAH-160
		1 3/8	7745	160A-138	
		1 1/2	10,325	160A-150	
		1 5/8	11,835	160A-163	
		1 3/4	11,835	160A-175	
SQD-270-I (19,875 Ft.lbs)	2.32	1 1/2	10,325	270A-150	RAH-270
		1 5/8	13,275	270A-163	
		1 3/4	16,225	270A-175	
		1 7/8	19,875	270A-188	
		2	19,875	270A-200	
		2 1/4	19,875	270A-225	
		-	-	-	
		-	-	-	

¹⁾ Determine maximum torque according to the bolt size and grade.

For SQD Series



Maximum Torque at 11,600 psi:

19,875 Ft.lbs

Allen Drive Range:

1/2-2 1/4 inches

Nose Radius:

0.94-2.32 inches



Torque Wrench Pumps

Enerpac system matched air and electric torque wrench pumps provide control to operate hydraulic torque wrenches.

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Nut Cutters / Nut Splitters

Remove rusted or corroded nuts easily with Enerpac Nut Cutters. Hexagon nut capacities up to 5.38 in.

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Hexagon Bolt and Nut Sizes

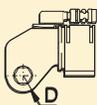
See the table for hexagon sizes of bolts, nuts and related thread diameters.

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▼ SQD-100-I with RAH-100 Reaction Arm and Allen drive used for loosening hexagon socket head cap screws.



▼ SELECTION CHART

TORQUE WRENCH		OPTIONAL ALLEN DRIVES, METRIC			REACTION ARM FOR ALLEN DRIVE
					
Model Number (max. capacity)	Nose Radius D (in)	Hexagon Size (mm)	Maximum Torque (Ft.lbs)	Model Number	Model Number
SQD-25-I (1735 Ft.lbs)	0.94	14	550	25A-14	RAH-25
		17	955	25A-17	
		19	1325	25A-19	
		22	1735	25A-22	
		24	1735	25A-24	
SQD-50-I (3550 Ft.lbs)	1.22	17	955	50A-17	RAH-50
		19	1325	50A-19	
		22	2065	50A-22	
		24	2580	50A-24	
		27	3550	50A-27	
		30	3550	50A-30	
		32	3550	50A-32	
SQD-75-I (5570 Ft.lbs)	1.41	17	955	75A-17	RAH-75
		19	1325	75A-19	
		22	2065	75A-22	
		24	2580	75A-24	
		27	3685	75A-27	
		30	5160	75A-30	
		32	5570	75A-32	
SQD-100-I (7360 Ft.lbs)	1.54	22	2065	100A-22	RAH-100
		24	2580	100A-24	
		27	3685	100A-27	
		30	5160	100A-30	
		32	6270	100A-32	
		36	7360	100A-36	
SQD-160-I (11,835 Ft.lbs)	1.89	30	5160	160A-30	RAH-160
		32	6270	160A-32	
		36	8850	160A-36	
		41	11,835	160A-41	
		46	11,835	160A-46	
SQD-270-I (19,875 Ft.lbs)	2.32	36	8850	270A-36	RAH-270
		41	13,275	270A-41	
		46	18,440	270A-46	
		50	19,875	270A-50	
		55	19,875	270A-55	
		60	19,875	270A-60	
		65	19,875	270A-65	
		70	19,875	270A-70	

For
SQD
Series



Maximum Torque at 11,600 psi:

19,875 Ft.lbs

Allen Drive Range:

14-70 mm

Nose Radius:

0.94-2.32 inches



Optional Allen Drives and Reaction Arm

The **RAH**-Reaction Arm for Allen drives must be used instead of reaction arm for square drives.



Flange Spreaders

Separates pipe flanges with ease, enabling efficient maintenance tasks.

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Select the Right Torque

Choose your Enerpac Torque Wrench using the loosening torque rule of thumb:

Loosening torque may require 250% of tightening torque depending on the condition of the fastener.

▼ SQD-50-I with 50A-22 Allen drive with RAH-50 Reaction Arm for Allen drives.



▼ Shown from left to right: HXD-60 with CC-680, HXD-30 with CC-360



- High torque-to-weight ratio, slim nose radius and flat design
- High speed, high degree of rotation angle
- Snap in, interchangeable cassettes, no tools required
- 360° swivel hose connection allows easier positioning in confined areas
- High repeatability, with accuracy $\pm 3\%$
- Strong unibody design, integrated reaction arm and few moving parts make wrenches durable and reliable
- Extensive range of metric and imperial hexagon cassettes and reducers
- Drive unit and cassette come in storage case to protect from damage, water and dirt
- Lock-ring couplers are standard

▼ The HXD-30 drive unit combined with cassette CC-3238 is the best solution for this turbine application. The slim nose radius and swivel couplers allow easy access in all positions.



Aluminum, Low Profile



Twin 3.5:1 Safety Hoses

Use only Enerpac **THC-700** series twin 3.5:1 safety hoses with HXD double-acting wrenches to ensure the integrity of your system.

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Nut Splitters / Nut Cutters

Remove rusted or corroded nuts easily with Enerpac Nut Cutters. Hexagon nut capacities up to 5.38 inches.

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Select the Right Torque

Choose your Enerpac Torque Wrench using the loosening torque rule of thumb:

Loosening torque may require 250% of tightening torque depending on the condition of the fastener.

▼ An Enerpac HXD hydraulic wrench brings safety and efficiency to this flange maintenance job at a refinery.



Double-Acting Hydraulic Torque Wrenches

▼ Shown from left to right: CC-3238, HXD-30



Torque Wrench Selection in 2 steps:

- 1. Drive Unit**
Select the HXD-drive Unit using the quick selection chart below.
- 2. Cassette**
Select the appropriate CC-cassette from pages 30 and 31.

HXD Series



Maximum Torque:

17,860 Ft.lbs

Hexagon Range:

1¼-5 inches

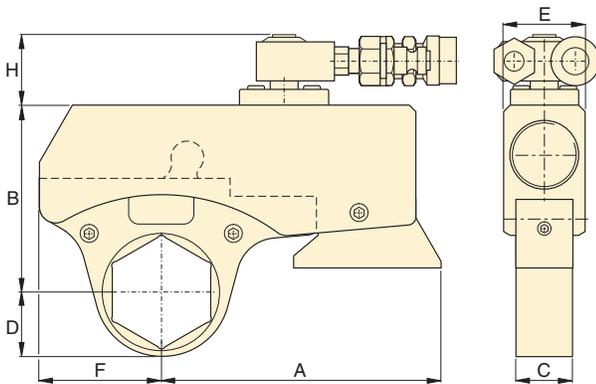
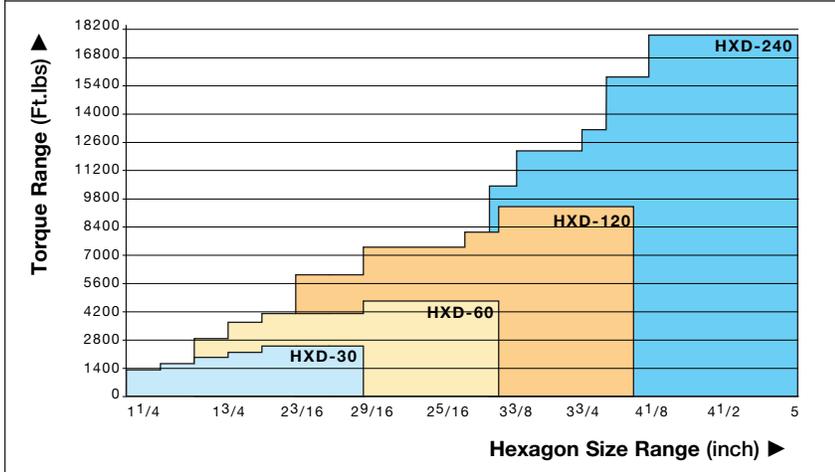
Nose Radius:

1.12-3.78 inches

Maximum Operating Pressure:

11,600 psi

DRIVE UNIT AND INTERCHANGEABLE CASSETTE SELECTION



Drive Unit with Cassette

▼ QUICK SELECTION CHART

Cassette Range		Maximum Torque at 11,600 psi (Ft.lbs)	Drive Unit * Model Number	Drive Unit and Cassette Dimensions (in)							Weight (including smallest cassette) (lbs)
(in)	(mm)			A	B	C	D	E	F	H	
1¼ - 2¾	32 - 60	2425	HXD-30	5.31	3.58 - 4.06	1.10	1.12 - 1.87	1.57	2.36	1.50	4.6
1½ - 3½	41 - 80	4565	HXD-60	6.14	4.53 - 5.12	1.38	1.36 - 2.38	1.97	2.95	1.50	8.1
2¾ - 3¾	55 - 100	9220	HXD-120	7.87	5.55 - 6.14	1.85	1.83 - 2.89	2.56	3.78	1.50	16.3
3 - 5	80 - 130	17860	HXD-240	10.20	6.80 - 7.95	2.20	2.44 - 3.78	3.22	4.92	2.00	28.9

* With integrated reaction arm.



Imperial and Metric Sizes

Expanded versatility with the full range of metric and imperial Reducer Inserts and Holding Rings.

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Hexagon Bolt and Nut Sizes

See the table for hexagon sizes of bolts, nuts and related thread diameters.

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Torque Wrench Pumps

System matched air and electric pumps provide control to operate Enerpac HXD Torque Wrenches.

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Maximum Torque at 11,600 psi:

17,860 Ft.lbs

Hexagon Range:

1.25-5 inches



◀ The optional Reducer Insert must be secured in the Cassette with a Holding Ring.

**CC
IN
HR
Series**



▼ SELECTION CHART

DRIVE UNIT 	INTERCHANGEABLE CASSETTE, IMPERIAL					OPTIONAL ADD-ON REDUCER INSERTS, IMPERIAL				HOLDING RINGS
	Max. Torque (Ft.lbs)	Hex. Size ¹⁾ (in)	Nose Radius D (in)	Model Number	Weight (lbs)	Hexagon Size (in)	Model Number	Hexagon Size (in)	Model Number	Model Number
HXD-30 (2425 Ft.lbs)	1250	1¼	1.12	CC-3125	1.2	-	-	-	-	-
	1545	17/16	1.24	CC-3144	1.4	17/16 - 1¼	IN3144-125	-	-	HR-36
	1840	15/8	1.36	CC-3163	1.5	15/8 - 17/16	IN3163-144	15/8 - 1¼	IN3163-125	HR-41
	2130	113/16	1.52	CC-3181	1.8	113/16 - 15/8	IN3181-163	113/16 - 17/16	IN3181-144	HR-46
	2425	2	1.65	CC-3200	2.1	2 - 113/16	IN3200-181	2 - 15/8	IN3200-163	HR-50
		23/16	1.77	CC-3219	2.2	23/16 - 2	IN3219-200	23/16 - 113/16	IN3219-181	HR-55
		23/8	1.87	CC-3238	2.3	23/8 - 23/16	IN3238-219	23/8 - 2	IN3238-200	HR-60
HXD-60 (4565 Ft.lbs)	2830	15/8	1.36	CC-6163	2.6	-	-	-	-	-
	3540	113/16	1.56	CC-6181	2.9	113/16 - 15/8	IN6181-163	-	-	HR-46
	3990	2	1.71	CC-6200	3.2	2 - 113/16	IN6200-181	2 - 15/8	IN6200-163	HR-50
		23/16	1.83	CC-6219	3.3	23/16 - 2	IN6219-200	23/16 - 113/16	IN6219-181	HR-55
		23/8	1.91	CC-6238	3.4	23/8 - 23/16	IN6238-219	23/8 - 2	IN6238-200	HR-60
	4565	29/16	2.07	CC-6256	4.1	29/16 - 23/8	IN6256-238	29/16 - 23/16	IN6256-219	HR-65
		23/4	2.19	CC-6275	4.2	23/4 - 29/16	IN6275-256	23/4 - 23/8	IN6275-238	HR-70
		215/16	2.26	CC-6293	4.3	215/16 - 23/4	IN6293-275	215/16 - 29/16	IN6293-256	HR-75
		31/8	2.38	CC-6313	4.4	31/8 - 215/16	IN6313-293	31/8 - 23/4	IN6313-275	HR-80
HXD-120 (9220 Ft.lbs)	5900	23/16	1.83	CC-12219	5.8	23/16 - 2	IN12219-200	23/16 - 113/16	IN12219-181	HR-55
		23/8	1.91	CC-12238	5.8	23/8 - 23/16	IN12238-219	23/8 - 2	IN12238-200	HR-60
	7225	29/16	2.07	CC-12256	6.1	29/16 - 23/8	IN12256-238	29/16 - 23/16	IN12256-219	HR-65
		23/4	2.19	CC-12275	6.2	23/4 - 29/16	IN12275-256	23/4 - 23/8	IN12275-238	HR-70
		215/16	2.26	CC-12293	6.3	215/16 - 23/4	IN12293-275	215/16 - 29/16	IN12293-256	HR-75
	8010	3	2.26	CC-12300	6.3	3 - 23/4	IN12300-275	3 - 29/16	IN12300-256	HR-75
		31/8	2.38	CC-12313	6.5	31/8 - 215/16	IN12313-293	31/8 - 23/4	IN12313-275	HR-80
	9220	33/8	2.54	CC-12338	7.8	33/8 - 3	IN12338-300	33/8 - 215/16	IN12338-293	HR-85
		31/2	2.66	CC-12350	8.0	31/2 - 31/8	IN12350-313	31/2 - 3	IN12350-300	HR-90
		33/4	2.78	CC-12375	8.2	33/4 - 31/2	IN12375-350	33/4 - 33/8	IN12375-338	HR-95
37/8		2.89	CC-12388	8.3	37/8 - 31/2	IN12388-350	37/8 - 33/8	IN12388-338	HR-100	
HXD-240 (17860 Ft.lbs)	10325	31/8	2.44	CC-24313²⁾	11.2	31/8 - 215/16	IN24313-293	31/8 - 23/4	IN24313-275	HR-80
	11685	33/8	2.60	CC-24338	11.4	33/8 - 31/8	IN24338-313	33/8 - 3	IN24338-300	HR-85
	12225	31/2	2.71	CC-24350	11.4	31/2 - 31/8	IN24350-313	31/2 - 3	IN24350-300	HR-90
	12775	33/4	2.83	CC-24375	11.9	33/4 - 31/2	IN24375-350	33/4 - 33/8	IN24375-338	HR-95
	13315	37/8	2.99	CC-24388³⁾	12.3	41/8 - 37/8	IN24413-388	37/8 - 33/8	IN24388-338	HR-100
		41/8	3.15	CC-24413	12.5	41/4 - 37/8	IN24425-388	41/8 - 33/4	IN24413-375	HR-105
	17860	41/4	3.30	CC-24425	14.9	45/8 - 41/4	IN24463-425	41/4 - 33/4	IN24425-375	HR-110
		45/8	3.54	CC-24463	16.0	5 - 45/8	IN24500-463	45/8 - 41/8	IN24463-413	HR-120
		5	3.78	CC-24500	16.3			5 - 41/4	IN24500-425	HR-130

Other Reducer Insert dimensions available upon request.

¹⁾ See the table of hexagon bolt and nut sizes and related thread diameters on page 70.

²⁾ Additional imperial Reducer Insert: 31/8"-29/16" **IN24313-256** fits **CC-24313** Cassette. Use **HR-80** Holding Ring.

³⁾ Additional imperial Reducer Insert: 33/4"-29/16" **IN24375-313** fits **CC-24388** Cassette. Use **HR-100** Holding Ring.

HXD-Series, Metric Cassettes and Inserts



Maximum Torque at 11,600 psi:

17,860 Ft.lbs

Hexagon Range:

32-130 mm



◀ The optional Reducer Insert must be secured in the Cassette with a Holding Ring.

**CC
IN
HR
Series**



▼ SELECTION CHART

DRIVE UNIT 	INTERCHANGEABLE CASSETTES, METRIC					OPTIONAL ADD-ON REDUCER INSERTS, METRIC						HOLDING RINGS
	Max. Torque (Ft.lbs)	Hex. Size ¹⁾ (mm)	Nose Radius D (in)	Model Number	Weight (lbs)		Model Number		Model Number		Model Number	
HXD-30 (2425 Ft.lbs)	1250	32	1.12	CC-332	1.2	–	–	–	–	–	–	–
	1545	36	1.24	CC-336	1.4	–	–	–	–	–	–	–
	1840	41	1.36	CC-341	1.5	41/36	IN3-4136	41/32	IN3-4132	41/30	IN3-4130	HR-41
	2130	46	1.52	CC-346	1.8	46/41	IN3-4641	46/36	IN3-4636	46/32	IN3-4632	HR-46
	2425	50	1.65	CC-350	2.1	50/46	IN3-5046	50/41	IN3-5041	50/36	IN3-5036	HR-50
		55	1.77	CC-355	2.2	55/50	IN3-5550	55/46	IN3-5546	55/41	IN3-5541	HR-55
		60	1.87	CC-360	2.3	60/55	IN3-6055	60/50	IN3-6050	60/46	IN3-6046	HR-60
HXD-60 (4565 Ft.lbs)	2830	41	1.36	CC-641	2.6	41/36	IN6-4136	–	–	–	–	HR-41
	3540	46	1.56	CC-646	2.9	–	–	–	–	–	–	–
	3990	50	1.71	CC-650	3.2	50/46	IN6-5046	50/41	IN6-5041	50/36	IN6-5036	HR-50
		55	1.83	CC-655	3.3	55/50	IN6-5550	55/46	IN6-5546	55/41	IN6-5541	HR-55
		60	1.91	CC-660	3.4	60/55	IN6-6055	60/50	IN6-6050	60/46	IN6-6046	HR-60
	4565	65	2.07	CC-665	4.1	65/60	IN6-6560	65/55	IN6-6555	65/50	IN6-6550	HR-65
		70	2.19	CC-670	4.2	70/65	IN6-7065	70/60	IN6-7060	70/55	IN6-7055	HR-70
		75	2.26	CC-675	4.3	75/70	IN6-7570	75/65	IN6-7565	75/60	IN6-7560	HR-75
		80	2.38	CC-680	4.4	80/75	IN6-8075	80/70	IN6-8070	80/65	IN6-8065	HR-80
	HXD-120 (9220 Ft.lbs)	5900	55	1.83	CC-1255	5.8	55/50	IN12-5550	55/46	IN12-5546	55/41	IN12-5541
60			1.91	CC-1260	5.8	60/55	IN12-6055	60/50	IN12-6050	60/46	IN12-6046	HR-60
7225		65	2.07	CC-1265	6.1	65/60	IN12-6560	65/55	IN12-6555	65/50	IN12-6550	HR-65
		70	2.19	CC-1270	6.2	70/65	IN12-7065	70/60	IN12-7060	70/55	IN12-7055	HR-70
		75	2.26	CC-1275	6.3	75/70	IN12-7570	75/65	IN12-7565	75/60	IN12-7560	HR-75
		–	–	–	–	–	–	–	–	–	–	–
8010		80	2.38	CC-1280	6.5	80/75	IN12-8075	80/70	IN12-8070	80/65	IN12-8065	HR-80
		85	2.54	CC-1285	7.8	85/80	IN12-8580	85/75	IN12-8575	85/70	IN12-8570	HR-85
9220		90	2.66	CC-1290	8.0	90/85	IN12-9085	90/80	IN12-9080	90/75	IN12-9075	HR-90
		95	2.78	CC-1295	8.2	95/90	IN12-9590	95/85	IN12-9585	95/80	IN12-9580	HR-95
	100	2.89	CC-12100	8.3	100/95	IN12-10095	100/90	IN12-10090	100/85	IN12-10085	HR-100	
HXD-240 (17860 Ft.lbs)	10245	80	2.44	CC-2480	11.2	80/75	IN24-8075	80/70	IN24-8070	80/65	IN24-8065	HR-80
	11820	85	2.60	CC-2485	11.4	85/80	IN24-8580	85/75	IN24-8575	85/70	IN24-8570	HR-85
	12215	90	2.72	CC-2490	11.4	90/85	IN24-9085	90/80	IN24-9080	90/75	IN24-9075	HR-90
	12610	95	2.83	CC-2495	11.9	95/90	IN24-9590	95/85	IN24-9585	95/80	IN24-9580	HR-95
	13400	100	2.99	CC-24100	12.3	100/95	IN24-10095	100/90	IN24-10090	100/85	IN24-10085	HR-100
		105	3.15	CC-24105	12.5	105/100	IN24-105100	105/95	IN24-10595	105/90	IN24-10590	HR-105
	17860	110	3.31	CC-24110	12.8	110/105	IN24-110105	110/100	IN24-110100	110/95	IN24-11095	HR-110
		115	3.43	CC-24115	15.6	115/110	IN24-115110	115/105	IN24-115105	115/100	IN24-115100	HR-115
		120	3.54	CC-24120	16.1	120/115	IN24-120115	120/110	IN24-120110	120/105	IN24-120105	HR-120
		125	3.66	CC-24125	16.1	125/120	IN24-125120	125/115	IN24-125115	125/110	IN24-125110	HR-125
130		3.78	CC-24130	16.3	130/125	IN24-130125	130/120	IN24-130120	130/115	IN24-130115	HR-130	

See the table of hexagon bolt and nut sizes and related thread diameters on page 70.

Optimum Torque Wrench and Pump Combinations

For optimum speed and performance Enerpac recommends the following system set-up with wrench-pump-hose combinations.

		ELECTRIC PUMPS				AIR DRIVEN PUMPS	
		PMU-Series	ZU4-Series	TQ-700-Series	ZE4/5-Series	PTA-Series	ZA4-Series
							
		Page: 33	Page: 34	Page: 40	Page: 38	Page: 42	Page: 44
Speed:							
Oil Capacity:	.5 - 1 Gal.	1 - 1.75 Gal.	1 Gal.	1-10 Gal.	1 Gal.	1 - 1.75 Gal.	
Duty Cycle:	Standard duty	Standard duty	Medium duty	Heavy duty	Standard duty	Heavy duty	
Weight:							
Field/Factory Work:	Field	Field	Field/Factory	Factory	Field	Field	
S-Series  6	S1500	Optimal	Optimal	Optimal	Optimal	Optimal	
	S3000					Optimal	
	S6000					-	
	S11000					Acceptable	
	S25000					Optimal	
W-Series  12	W2000	Optimal	Optimal	Optimal	Optimal	Optimal	
	W4000	Optimal				Optimal	
	W8000	-				Acceptable	
	W15000	-				Acceptable	
	W22000	-				-	
	W35000	-				-	
SQD-Series  24	SQD-25-I	Optimal	Optimal	-	-	Optimal	
	SQD-50-I					Optimal	
	SQD-75-I					-	
	SQD-100-I					-	
	SQD-160-I					-	
	SQD-270-I					-	
HXD-Series  28	HXD-30	Optimal	Optimal	-	-	Optimal	
	HXD-60					Optimal	
	HXD-120					-	
	HXD-240					-	
						-	



ZU4-Series Electric Torque Wrench Pump

Utilizing a universal motor, the ZU4-Series has excellent low voltage characteristics. It works well with long extension cords or generator driven electrical power supplies. A field proven, efficient design ensures this pump is dependable and will draw less current—lowering your operating cost. The pumps are available in Pro and Classic formats. ZU4 Pro pumps have an LCD feature to display torque or pressure, selectable torque wrench, and self-diagnostics – premium features not available on any other pump. ZU4 Classic pumps feature an analogue gauge and a basic electrical package to deliver durable, safe and efficient hydraulic power.

ZE-Series Electric Torque Wrench Pump

The ZE-Series features premium options, such as the LCD to display torque or pressure values, and self-diagnostics. These pumps utilize an induction motor, making the ZE-Series the coolest and quietest pumps in their class.

ZA-Series Air Torque Wrench Pump

Utilizing the highly efficient design of the Z-Class pumping element, this air driven pump is best suited to power medium to large size torque wrenches



TQ-700 Series

Designed for both portability and production, the TQ-700 features optimized flow technology to deliver superior bolting speed.

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Call Enerpac!

For other combinations, consult your Enerpac bolting expert or your authorized Enerpac distributor.

Portable Electric Torque Wrench Pumps

▼ Shown: PMU-10427



PMU Series

Reservoir Capacity:

0.5-1 gal.

Flow at 10,000 psi:

20 in³/min.

Motor Size:

0.5 hp

Maximum Operating Pressure:

10,000 and 11,600 psi



Pump Ratings

-Q suffix pumps are for 10,000 psi torque wrenches, and include spin-on couplers.

-E suffix pumps are for use with 11,600 psi rated torque wrenches, and include polarized lock-ring safety couplers.

- Powerful two-speed pump is lightweight and easy to carry
- Standard heat exchanger package keeps pump cool under extreme use
- Glycerin filled gauge with scales reading in psi and bar
- Transparent overlays in Ft.lbs and Nm for all Enerpac torque wrenches provide a quick torque reference
- Universal motor for a high power-to-weight ratio; generates full pressure on as little as 50% of the rated line voltage
- Adjustable pressure relief valve for accurate torque adjustments and precise repeatability



Twin Torque Wrench Hoses

Use Enerpac **THQ-700** series twin hoses with 10,000 psi pumps, or use **THC-700** series twin hoses with 11,600 psi pumps.

10,000 psi	
19.5 feet long, 2 hoses	THQ-706T
39 feet long, 2 hoses	THQ-712T
11,600 psi	
19.5 feet long, 2 hoses	THC-7062
39 feet long, 2 hoses	THC-7122

▼ SELECTION CHART

For Use With Torque Wrenches		Maximum Pressure Rating (psi)		Oil Flow Rate (in ³ /min)		Model Number	Useable Oil Capacity (gal)	Electric Motor	Dimensions L x W x H (in)	Weight (lbs)
		1 st stage	2 nd stage	1 st stage	2 nd stage					
		S1500 S3000	W2000 W4000	700	10,000					
		700	10,000	200	20	PMU-10447-Q	1.0	115V- 1 ph -50/60Hz	17 x 13 x 15	60
		700	10,000	200	20	PMU-10422-Q	.50	230V- 1 ph -50/60Hz	17 x 11 x 15	53
		700	10,000	200	20	PMU-10442-Q	1.0	230V- 1 ph -50/60Hz	17 x 13 x 15	60
SQD-25-I SQD-50-I	HXD-30 HXD-60	700	11,600	200	20	PMU-10427	.50	115V- 1 ph -50/60Hz	17 x 11 x 15	53
		700	11,600	200	20	PMU-10447	1.0	115V- 1 ph -50/60Hz	17 x 13 x 15	60
		700	11,600	200	20	PMU-10422	.50	230V- 1 ph -50/60Hz	17 x 11 x 15	53
		700	11,600	200	20	PMU-10442	1.0	230V- 1 ph -50/60Hz	17 x 13 x 15	60

▼ Shown: ZU4204TB-Q and ZU4204BB-Q



Z Tough.
Dependable.
Innovative.
CLASSIC



FIRMWARE

- Display torque in Ft.lbs. or Nm
- Display pressure in bar, MPa or psi
- Torque wrench model is selectable
- “Auto cycle” setting easily programmable

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Classic Electrical

Basic electrical package includes mechanical contactor, ON/OFF toggle switch, pendant with electro-mechanical pushbuttons, 24V transformer timer and operator accessible circuit breaker.



Back-lit LCD, for Pro-Series

- Pump usage information, hour and cycle counts
- Low-voltage warning and recording
- Self-test and diagnostic capabilities
- Information can be displayed in English, French, German, Italian, Spanish and Portuguese
- Pressure transducer is more accurate and durable than analog gauges

- Features **Z-Class** high-efficiency pump design; higher oil flow and bypass pressure, cooler running and requires 18% less current draw than comparable pumps
- Powerful 1.7 hp universal electric motor provides high power-to-weight ratio and excellent low-voltage operating characteristics
- High-strength, molded composite shroud protects motor and electrical components, while providing an ergonomic, non-conductive handle for easy transport
- Low-voltage pendant provides additional safety for the operator
- Valve technology reduces oil operating temperatures and withstands contaminants to increase pump reliability

Pro-Series

- LCD readout provides pressure and torque display and a number of diagnostic and readout capabilities never before offered on a portable electric pump
- Auto cycle feature provides continuous cycle operation of the torque wrench as long as the advance button is pressed. (Pump can be used with or without auto cycle feature)

▼ Any brand of hydraulic torque wrench can be powered by the portable ZU4-Series torque wrench pump.





Z-Class – A Pump For Every Application

Patented Z-Class pump technology provides

high by-pass pressures for increased productivity—important in applications using long hose runs and high pressure-drop circuits, like heavy lifting or certain double-acting tools.

Enerpac ZU4 Hydraulic Pumps are built to power small to large torque wrenches. Choosing the right ZU4 torque wrench pump for your application is easy.

Classic Electric Torque Wrench Pump

- The Classic has an analog gauge and traditional electro-mechanical components (transformers, relays and switches) in place of solid-state electronics. The Classic

delivers durable, safe and efficient hydraulic power.

Pro Series Electric Torque Wrench Pump

- Digital (LCD) display features a built-in hour meter, pressure and torque display, and shows self-diagnostic, cycle-count and low voltage warning information. These premium features are not available on any other pump—anywhere!

AutoCycle feature provides continuous cycle operation of the torque wrench as long as the advance button is pressed. (Pump can be used with or without AutoCycle feature).

ZU4 Series



Reservoir Capacity:

1 and 1.75 gal.

Flow at 10,000 psi:

60 in³/min.

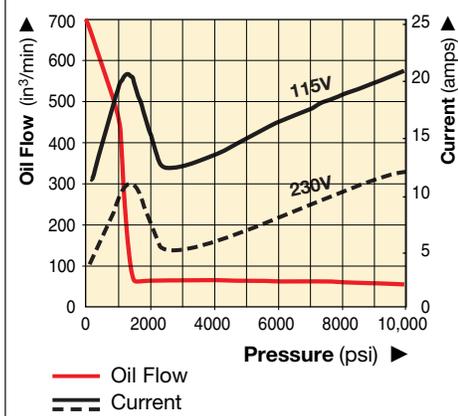
Motor Size:

1.7 hp

Maximum Operating Pressure:

10,000 psi

OIL FLOW AND CURRENT vs PRESSURE



Torque Wrench Pump Selection Matrix

For optimum speed and performance see the torque wrench pump and hose selection matrix.

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Pump Ratings

-Q suffix pumps are for 10,000 psi torque wrenches, and include spin-on couplers.

-E suffix pumps are for use with Enerpac SQD and HXD 11,600 psi torque wrenches, and include polarized locking safety couplers.

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COMMON PUMP MODELS

	For Use With Torque Wrenches	Model Number ^{1) 4)}	Motor Electrical Specification	Usable Oil Capacity (gal)	Weight with Oil (lbs)
Pro Series	All wrenches	ZU4204TB-Q	115 V-1 ph	1.0	70
		ZU4208TB-Q	115 V-1 ph	1.75	76
		ZU4204TE-Q ²⁾	208-240 V-1 ph	1.0	70
		ZU4208TE-Q ²⁾	208-240 V-1 ph	1.75	76
		ZU4204TI-Q ³⁾	208-240 V-1 ph	1.0	70
		ZU4208TI-Q ³⁾	208-240 V-1 ph	1.75	76
Classic	All wrenches	ZU4204BB-QH	115 V-1 ph	1.0	82
		ZU4204BB-Q	115 V-1 ph	1.0	73
		ZU4208BE-QH ²⁾	208-240 V-1 ph	1.75	83
		ZU4204BE-Q ²⁾	208-240 V-1 ph	1.0	74
		ZU4208BI-QH	208-240 V-1 ph	1.75	88
		ZU4208BI-Q	208-240 V-1 ph	1.75	79

1) All models meet CE safety requirements and all TÜV requirements
 2) European plug and CE EMC directive compliant
 3) With NEMA 6-15 plug
 4) Replace the Q- suffix with an -E suffix for Enerpac SQD and HXD 11,600 psi torque wrench pumps



Gauge Overlay Kit

Gauge overlay kits are also available separately.

GT-4015 includes overlays for all SQD and HXD torque wrenches. **GT-4015-Q**

includes overlays for all S- and W-Series torque wrenches.

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▼ This is how a ZU4 Series pump model number is built up:

Z	U	4	2	08	T	E	-	Q	H	M
1	2	3	4	5	6	7	8	8	8	
Product Type	Motor Type	Flow Group	Valve Type	Reservoir Size	Valve Operation	Voltage	Must be E or Q	Options	Options	

1 Product Type

Z = Pump series

2 Motor Type

U = Universal electric motor

3 Flow Group

4 = 60 in³/min @ 10,000 psi

4 Valve Type

2 = Torque wrench valve

5 Reservoir Size (useable capacity)

04 = 1.0 gallon
08 = 1.75 gallons

6 Valve Operation

T = Solenoid valve with pendant, LCD Electric and pressure transducer.
B = Solenoid valve with pendant, classic electrical

7 Voltage

B = 115V, 1 ph, 50/60 Hz
E = 208-240V, 1 ph, 50/60 Hz (with European plug CE RF compliant)
I = 208-240V, 1 ph, 50/60 Hz (with NEMA 6-15 plug)

8 Factory installed features and options

E = 11,600 coupler for use with HXD-, SQD-Series or other wrenches
Q = 10,000 coupler for use with S- and W-Series or other wrenches
H = Heat exchanger
K = Skidbar
M = 4-wrench manifold
R = Roll cage



How to order your ZU4-Series torque wrench pump

Ordering Example 1

Model No. ZU4208TB-QMHK
10,000 psi pump for use with Enerpac S- and W-Series and other 10,000 psi torque wrenches, 115V motor, 1.75 gallon reservoir, 4-wrench manifold, heat exchanger and skidbar.

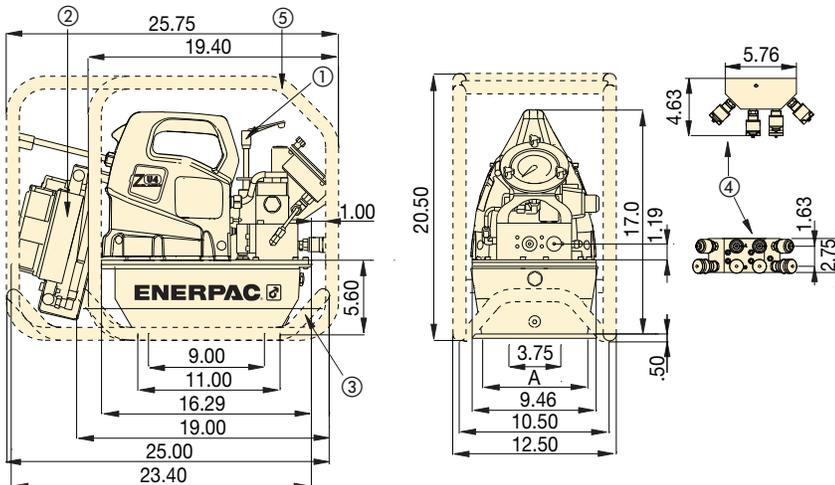
Refer to the torque wrench pump selection matrix for optimum wrench, pump and hose combinations.



Twin Torque Wrench Hoses

Use Enerpac **THQ-700** series twin hoses with 10,000 psi pumps, or use **THC-700** series twin hoses with 11,600 psi pumps.

10,000 psi	
19.5 feet long, 2 hoses	THQ-706T
39 feet long, 2 hoses	THQ-712T
11,600 psi	
19.5 feet long, 2 hoses	THC-7062
39 feet long, 2 hoses	THC-7122



ZU4-Series Torque Wrench Pumps

Dimensions shown in inches

- ① User adjustable relief valve
- ② Heat exchanger (optional)
- ③ Skidbar (optional)
- ④ 4-wrench manifold (optional)
- ⑤ Roll cage (optional)

Reservoir Size (useable gallons)	A (in)
1	6.0
1.75	8.1

ZU4 Performance							
Motor Size (hp)	Output Flow Rate (in ³ /min)				*Motor Electrical Specification	Sound Level (dBA)	Relief Valve Adjustment Range (psi)
	100 psi	700 psi	5,000 psi	10,000 psi			
1.7	700	535	76	60	115 VAC, 1-ph 208-240 VAC, 1-ph	85-90	1,800-10,000**

* 50/60 HZ

** Pump type (-Q) shown, (-E) range is 1,800 - 11,600 psi.

▼ Most hydraulic torque wrenches can be powered by the Enerpac ZU4-Series torque wrench pump.



ZU4 Torque Wrench Pump Options



Heat Exchanger

- Removes heat from the bypass oil to provide cooler operation
- Stabilizes oil viscosity, increasing oil life and reduces wear of pump and other hydraulic components

Accessory Kit No. *	Can be used with:
ZHE-U115	115V pumps
ZHE-U230	230V pumps

* Add suffix **H** to pump model number for factory installation.
Heat Exchanger adds 9.1 lbs. to pump weight.

Ordering Example:
Model No. ZU4208TB-H



Skidbar

- Provides greater pump stability on soft or uneven surfaces
- Provides easy two-handed lift

Accessory Kit No. *	Can be used on ZU4-Series torque wrench pumps
SBZ-4	1 and 2 gallon ¹⁾
SBZ-4L	1 and 2 gallon ²⁾

* Add suffix **K** to pump model number for factory installation.

¹⁾ Without heat exchanger 4.9 lbs.

²⁾ With heat exchanger 7.0 lbs.

Ordering Example:
Model No. ZU4208TB-QK



Roll Cage

- Protects pump
- Provides greater pump stability

Accessory Kit No. *	Can be used on ZU4-Series torque wrench pumps
ZRC-04	1 and 2 gallon reservoir ¹⁾
ZRC-04H	1 and 2 gallon reservoir ²⁾

* Add suffix **R** for factory installation.

¹⁾ For use with pumps without a heat exchanger fitted

²⁾ For use with pumps with a heat exchanger fitted

Ordering Example:
Model No. ZU4208BB-QR

ZU4 Series



Reservoir Capacity:
1 and 1.75 gal.

Flow at 10,000 psi:
60 in³/min.

Motor Size:
1.7 hp

Maximum Operating Pressure:
10,000 psi



4-Wrench Manifold

- For simultaneous operation of multiple torque wrenches
- Can be factory installed or ordered separately

Accessory Kit No. *	Can be used on ZU4-Series torque wrench pumps
ZTM-E	for 11,600 psi torque wrenches
ZTM-Q	for 10,000 psi torque wrenches

* Add suffix **M** to pump model number for factory installation.

Ordering Example:
Model No. ZU4208TB-QM

▼ Shown: ZE4204TB-QHR



- Features **Z-Class** high-efficiency pump design; higher oil flow and bypass pressure, cooler running and requires 18% less current draw than comparable pumps
- Totally enclosed, fan-cooled industrial electric motors supply extended life and stand up to harsh industrial environments
- Low-voltage pendant provides additional safety for the operator
- High-strength, molded electrical enclosure protects electronics, power supplies and LCD readout from harsh environments
- LCD readout provides pressure and torque display and a number of diagnostic and readout capabilities never before offered on a portable electric pump
- Auto cycle feature provides continuous cycle operation of the torque wrench as long as the advance button is pressed (Pump can be used with or without auto cycle feature)
- Valve technology reduces oil operating temperatures and withstands contaminants to increase pump reliability

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FIRMWARE

- Display torque in Ft.lb. or Nm
- Display pressure in bar, MPa or psi
- Torque wrench model is selectable
- “Auto cycle” setting easily programmable



Back-lit LCD

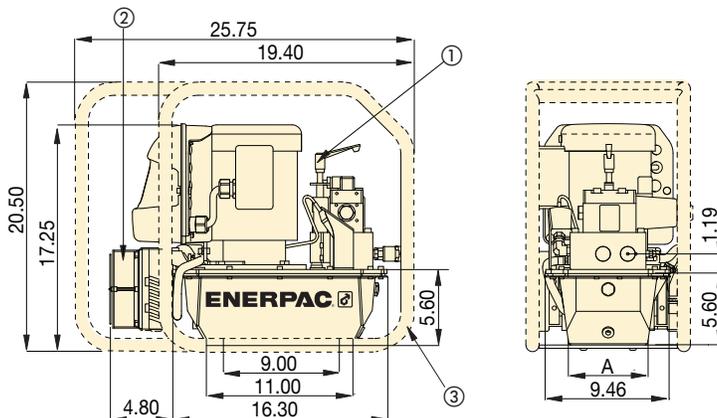
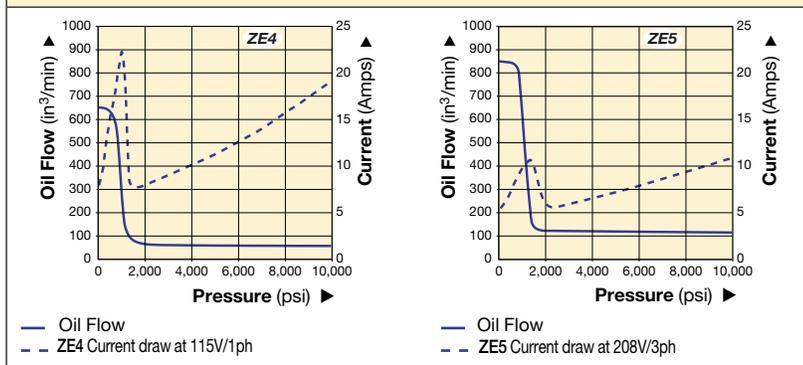
- Pump usage information, hour and cycle counts
- Low-voltage warning and recording
- Self-test and diagnostic capabilities
- Information can be displayed in English, French, German, Italian, Spanish and Portuguese
- Pressure transducer is more accurate and durable than analog gauges

▼ The ZE4 torque wrench pumps are perfectly matched for this W2000 wrench.



ZE Series Electric Torque Wrench Pumps

ZE4 and ZE5 Oil Flow and Current vs. Pressure



Reservoir Size (useable gallons)	A (in)
1	6.0
1.75	8.1

Dimensions shown in inches.

- ① User adjustable relief valve
- ② Heat Exchanger (optional)
- ③ Roll cage (optional)

ZE Series



Reservoir Capacity:

1.0 -10 gal.

Flow at 10,000 psi:

60-120 in³/min.

Motor Size:

1.5-3.0 hp

Maximum Operating Pressure:

10,000 and 11,600 psi



All Z-Class electric pumps are TÜV and CE compliant.



Accessory Options

A full list of optional accessories can be found in the ZU4 section.

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▼ COMMON PUMP MODELS

For Use With Torque Wrenches	Max. Operating Pressure (psi)	Model Number	Motor Electrical Specification	Usable Oil Capacity ¹⁾ (gal)	Weight with Oil (lbs)
All S- and W-Series Wrenches	10,000	ZE4208TB-QHR	115 V-1 ph	2	138
	10,000	ZE4208TE-QHR	230 V-1 ph	2	129
	10,000	ZE4208TG-QHR	230 V-3 ph	2	140
	10,000	ZE5208TW-QHR	400 V-3 ph	2	131
All SQD and HXD-Series Wrenches	11,600	ZE4208TB-EHR	115 V-1 ph	2	138
	11,600	ZE4208TE-EHR	230 V-1 ph	2	129
	11,600	ZE4208TG-EHR	230 V-3 ph	2	141
	11,600	ZE5208TW-EHR	400 V-3 ph	2	132

¹⁾ Larger reservoirs (2, 2.5, 5, 10 gallon) are available. Contact Enerpac.

▼ PERFORMANCE CHART

Pump Series	Output Flow Rate (in ³ /min)				Motor Size		Relief Valve Adjustment Range (psi)	Sound Level (dBA)
	100 psi	700 psi	5,000 psi	10,000 psi	hp	RPM		
ZE4	650	600	62	60	1.5	1750	1000 - 11,600	75
ZE5	850	825	123	120	3.0	1750	1000 - 11,600	75

Flow rate will be approximately 5/6 of these values at 50 Hz.

▼ Shown: TQ-700E



- Optimized flow technology delivers up to 50% faster bolting than competing pumps
- Compact and lightweight (<67 lbs.) design fits through tight openings and provides easy handling
- Built-in protection for controls and gauge for job-site durability
- IP55 rating for superior dust and water protection
- Advanced IEC Motor provides for quiet, continuous operation, high voltage tolerance, and low maintenance
- Simple pressure setting and convenient pendant control for hassle-free operation



Lightweight Torque Wrench Pump



Four Port Manifold

The **TQ-700** Classic offers an optional four wrench manifold as an accessory (TQM) factory installed. (Add suffix "M" at the end of the model number. For example: **TQ700EM**)



Twin Torque Wrench Hoses

Use Enerpac **THQ-700** series twin hoses with 10,000 psi pumps.

10,000 psi	
6 meters long, 2 hoses	THQ-706T
12 meters long, 2 hoses	THQ-712T



Hydraulic Torque Wrenches

Enerpac offers a complete range of square drive and hexagon cassette torque wrenches.

Page: **6**

◀ The TQ-700E and the W-Series wrenches are a productive combination in wind applications.

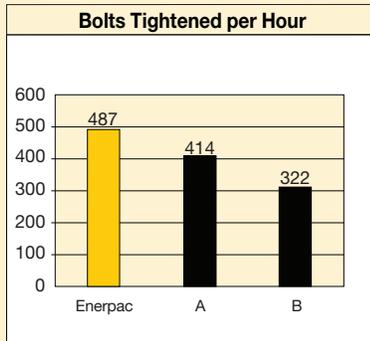


TQ-700 Series Pump Applications

The **TQ-700** Series pump is ideal for powering hydraulic wrenches for the Power Generation and Wind Markets.

The **TQ-700** has been engineered with **Optimized Flow Technology** to deliver up to 50% faster bolt tightening than competing pumps.

Bolting speed is more complex than how much flow per minute the pump produces. The key is optimizing the flow rate across the entire bolting cycle. With more oil flowing at the right time and at the right volume, you achieve the optimized flow for a hydraulic bolting system. The result of this optimized flow is more bolts tightened faster and a more productive work team.



Internal laboratory testing based on standard torquing procedure on a pipe flange with 14, 1 7/8" bolts.

Optimized for small to medium sized wrenches: (S1500, S3000, S6000, W2000, W4000, W8000.)

TQ Series



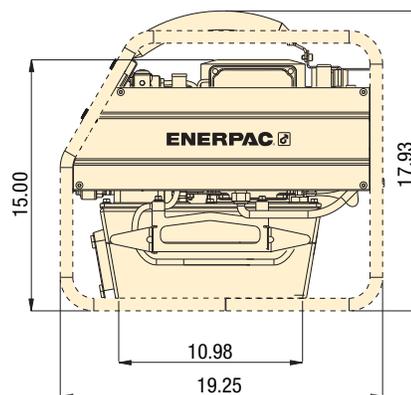
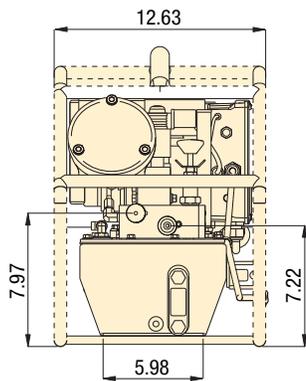
Reservoir Capacity:

1 gallon

Maximum Operating Pressure:

10,000 psi

Dimensions shown in inches.



TQ-700 Configuration

The **TQ-700** comes fully configured as follows:

- Robust roll frame
- 20 ft (6m) pendant control and storage
- Hydraulic pressure gauge
- Heat exchanger



IP55 Rating for Superior Dust and Water Protection

The IP Code (or Ingress Protection Rating) classifies and rates the degrees of protection provided against the intrusion of solid objects and water in mechanical casings and electrical enclosures.

An IP55 rating means the **TQ-700** offers complete protection against contact with mechanical and electrical components, and that dust will not enter in a sufficient quantity to interfere with the operation of the equipment.

The IP55 rating also means water jets sprayed against the **TQ-700** from any direction will not have any harmful effects.

Performance	For Use with Torque Wrenches		Pressure Rating (psi)	Model Number	Motor Electrical Specification	Usable Oil Capacity (gal)	Weight (no oil) (lbs)				
Optimal	S1500	W2000	10,000	TQ-700B	115V-1 ph, 60 Hz	1.0	67.0				
	S3000	W4000									
	S6000	W8000									
Acceptable	S11000	W15000	10,000	TQ-700E	230V-1 ph, 50 Hz	1.0	65.2				
	S25000	W22000						TQ-700I	230V-1 ph, 60 Hz	1.0	65.2
		W35000									

▼ Shown: PTA-1404



- Compact and portable
- Handle located directly over pump's center of gravity for greater ease in carrying
- High bypass (1800 psi) for faster torque cycles
- High power-to-weight ratio suits all Enerpac torque wrenches
- Glycerine filled pressure gauge with scales reading in psi/bar
- Transparent overlays in Ft.lbs and Nm for all Enerpac torque wrenches provide a quick torque reference
- Internal safety relief valve, factory preset
- 15 ft. air pendant assembly enables easy maneuvering at the job site

Two-Stage Power in a Portable Design



Pump Ratings

-Q suffix pumps are for 10,000 psi torque wrenches, and include spin-on couplers.

-E suffix pumps are for use with Enerpac SQD and HXD 11,600 psi torque wrenches, and include polarized locking safety couplers.



Twin Torque Wrench Hoses

Use Enerpac **THQ-700** series twin hoses with 10,000 psi pumps, or use **THC-700** series twin hoses with 11,600 psi pumps.

10,000 psi	
19.5 feet long, 2 hoses	THQ-706T
39 feet long, 2 hoses	THQ-712T
11,600 psi	
19.5 feet long, 2 hoses	THC-7062
39 feet long, 2 hoses	THC-7122



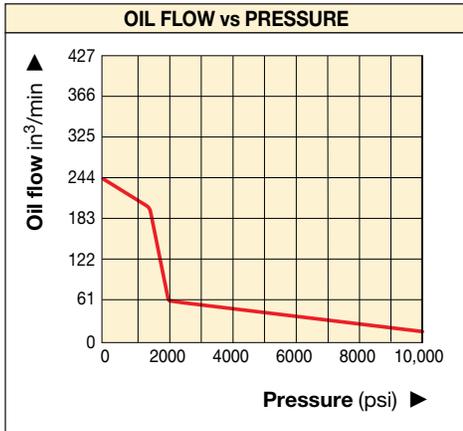
Gauge Overlay Kit

Gauge overlay kits are also available separately.

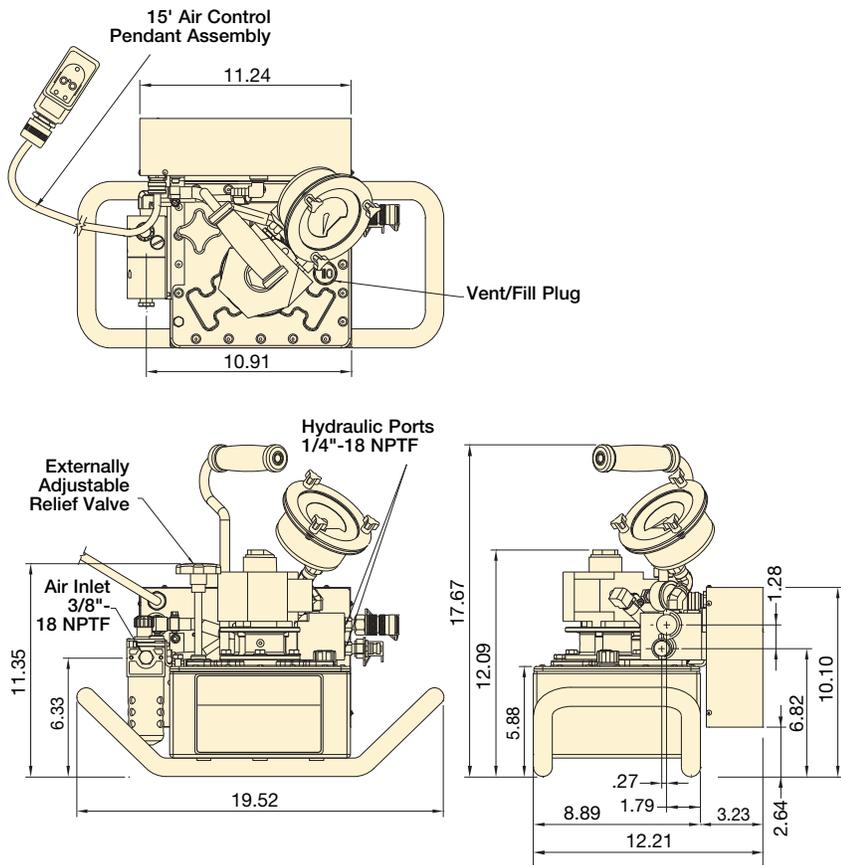
GT-4015 includes overlays for all SQD and HXD torque wrenches.

GT-4015-Q includes overlays for all S- and W-Series torque wrenches.

Compact Pneumatic Torque Wrench Pump



Dimensions shown in inches.



PTA Series



Reservoir Capacity:

1 gal.

Flow at 10,000 psi:

20 in³/min.

Maximum Operating Pressure:

10,000 and 11,600 psi



Torque Wrench Pump Selection Matrix

For optimum speed and performance see the torque wrench pump and hose selection matrix.

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▼ SELECTION CHART

For Use With Torque Wrenches		Pressure Rating (psi)	Model Number	Reservoir Capacity (gal)	Useable Oil Capacity (gal)	Pump Flow Rates (in ³ /min)		Air Consumption @ 100 psi (scfm)	Air Pressure Range (psi)	Weight with Oil (lbs)
						1 st stage	2 nd stage			
S1500 S3000	W2000 W4000	10,000	PTA-1404-Q	1.0	0.5	240	20	40	49-101	54
SQD-25-I SQD-50-I	HXD-30 HXD-60	11,600	PTA-1404	1.0	0.5	240	20	40	49-101	54

▼ Shown: ZA4204TX-QR



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- Features **Z-Class** high-efficiency pump design; higher oil flow and bypass pressure
- Two-speed operation and high by-pass pressure reduces cycle time for improved productivity
- Heat exchanger warms exhaust air to prevent freezing and cools the oil
- Ergonomic pendant allows remote operation up to 20 feet
- Glycerin filled pressure gauge with transparent overlays in Ft.lbs and Nm for Enerpac torque wrenches provide a quick torque reference
- Regulator-Filter-Lubricator with removable bowls and auto drain is standard
- Valve technology reduces oil operating temperatures and withstands contaminants to increase pump reliability



Pump Ratings

-**Q** suffix pumps are for 10,000 psi torque wrenches, and include spin-on couplers.

-**E** suffix pumps are for use with Enerpac SQD and HXD 11,600 psi torque wrenches, and include polarized locking safety couplers.



Twin Torque Wrench Hoses

Use Enerpac **THQ-700** series twin hoses with 10,000 psi pumps, or use **THC-700** series twin hoses with 11,600 psi pumps.

10,000 psi	
19.5 feet long, 2 hoses	THQ-706T
39 feet long, 2 hoses	THQ-712T
11,600 psi	
19.5 feet long, 2 hoses	THC-7062
39 feet long, 2 hoses	THC-7122



◀ Most hydraulic torque wrenches can be powered by the Enerpac ZA4-Series torque wrench pump.



ZA4-Series Pump Applications

The ZA4-Series pump is best suited to power medium to large size torque wrenches.

Patent-pending Z-Class technology provides high by-pass pressures for increased productivity. Its high

power-to-weight ratio and compact design make it ideal for applications which require easy transport of the pump.

For further application assistance contact your local Enerpac office.

ZA4 Series



Reservoir Capacity:

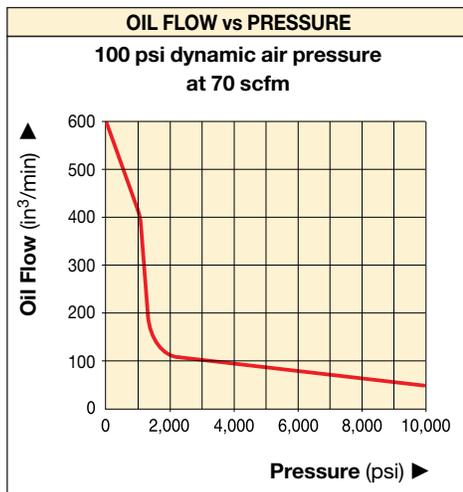
1 and 1.75 gal.

Flow at 10,000 psi:

60 in³/min.

Maximum Operating Pressure:

10,000 and 11,600 psi



ATEX Certified

The ZA-series pumps are tested and certified according to the Equipment Directive 94 / 9 / EC "ATEX Directive". The explosion protection is for equipment group II, equipment category 2 (hazardous area zone 1), in gas and/or dust atmospheres. The ZA-series pumps are marked with: Ex II 2 GD ck T4.



Torque Wrench Pump Selection Matrix

For optimum speed and performance see the torque wrench, pump and hose selection matrix.

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▼ COMMON PUMP MODELS

For Use With Torque Wrenches		Maximum Operating Pressure (psi)	Model Number ¹⁾	Usable Oil Capacity (gal)	Weight with Oil (lbs)
S1500 S11000 S3000 S25000 S6000	W2000 W15000 W4000 W22000 W8000 W35000	10,000	ZA4204TX-Q	1.0	94
		10,000	ZA4208TX-Q	1.75	100
		10,000	ZA4204TX-QR	1.0	101
SQD-75-I SQD-100-I SQD-160-I SQD-270-I	HXD-30 HXD-60 HXD-120 HXD-240	11,600	ZA4204TX-E	1.0	94
		11,600	ZA4208TX-E	1.75	100
		11,600	ZA4204TX-ER	1.0	101

¹⁾ All models meet CE safety requirements and all TÜV requirements.



Accessory Options

Available by placing the following additional suffix at the end of the model number:

- K** = Skidbar
- M** = 4-wrench manifold
- R** = Roll cage

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▼ This is how a ZA4-Series pump model number is built up:

Z	A	4	2	08	T	X	-	Q	M	R
1	2	3	4	5	6	7		8	8	8
Product Type	Motor Type	Flow Group	Valve Type	Reservoir Size	Valve Operation	Voltage		Must be E or Q	Options	Options

1 Product Type

Z = Pump Series

2 Motor Type

A = Air motor

3 Flow Group

4 = 60 in³/min @ 10,000 psi

4 Valve Type

2 = Torque Wrench Valve

5 Reservoir Size (useable capacity)

04 = 1.0 gallon

08 = 1.75 gallons

6 Valve Operation

T = Air operated valve with pendant

7 Voltage

X = Not applicable

8 Factory installed features and options

E = 11,600 psi coupler for use with HXD- and SQD-Series wrenches

Q = 10,000 psi coupler for use with S- and W-Series or other wrenches

K = Skidbar

M = 4-wrench manifold

R = Roll cage



How to order your ZA4-Series torque wrench pump

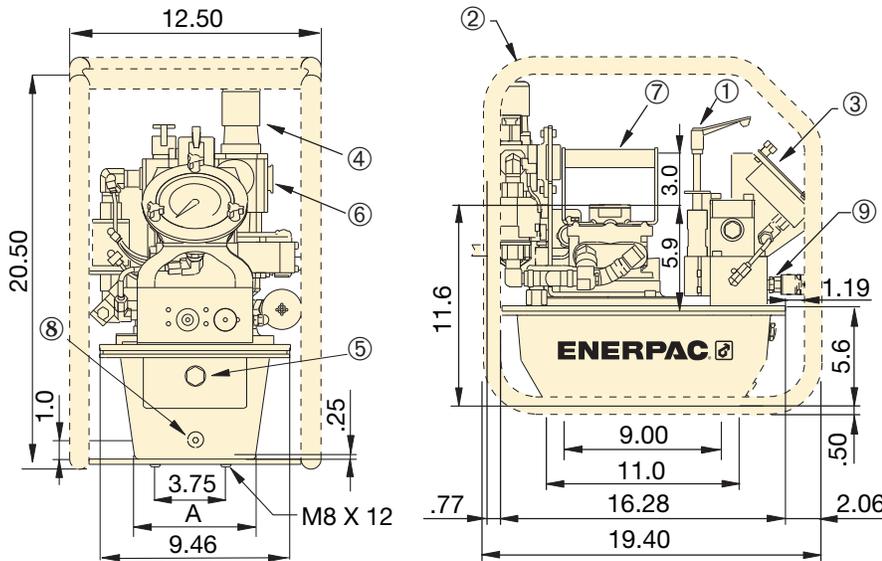
Ordering Example 1

Model No. ZA4208TX-QMR

10,000 psi pump for use with Enerpac S- and W-Series and other 10,000 psi torque wrenches, 1.75 gallon reservoir, 4-wrench manifold, and roll cage.

Refer to the torque wrench pump selection matrix for optimum wrench, pump and hose combinations.

Dimensions shown in inches.



ZA4-Series Torque Wrench Pumps

Reservoir Size (useable gallons)	A (in)
1	6.0
1.75	8.1

- ① User adjustable relief valve
- ② Roll bar cage (optional)
- ③ Gauge with overlays
- ④ Filter/lubricator/regulator
- ⑤ Oil level sight gauge
- ⑥ Air input 1/2" NPTF
- ⑦ Standard handle
- ⑧ Oil drain
- ⑨ 1/4"-18 NPTF Oil Outlet

Output Flow Rate					Dynamic Air Pressure Range	Air Consumption	Sound Level at 100 psi Dynamic	Relief Valve Adjustment Range
(in ³ /min)								
100 psi	700 psi	5,000 psi	10,000 psi	11,600 psi	(psi)	(scfm)	(dBA)	(psi)
600	500	80	60	55	60-100	20-100	80-95	1,400-10,000*

* Pump type (-Q) shown.

ZA4 Torque Wrench Pump Options



Skidbar

- Provides greater pump stability on soft or uneven surfaces
- Provides two-handed lift

Accessory Kit No. *	Can be used on ZA4-Series torque wrench pumps
SBZ-4	1 and 2 gallon reservoir

* Add suffix **K** for factory installation. Skidbar weight 4.9 lbs.

Ordering Example:

Model No. **ZA4208TX-QK**



4-Wrench Manifold

- For simultaneous operation of multiple torque wrenches
- Can be factory installed or ordered separately

Accessory Kit No. *	Can be used on ZA4-Series torque wrench pumps
ZTM-E	for 11,600 psi torque wrenches
ZTM-Q	for 10,000 psi torque wrenches

* Add suffix **M** for factory installation.

Ordering Example:

Model No. **ZA4208TX-QM**

ZA4 Series



Reservoir Capacity:

1 and 1.75 gal.

Flow at 10,000 psi:

60 in³/min.

Maximum Operating Pressure:

10,000 and 11,600 psi



Gauge Overlay Kit

Gauge overlay kits are also available separately.

GT-4015 includes overlays for all SQD and HXD torque wrenches. **GT-4015-Q**

includes overlays for all S- and W-Series torque wrenches.



Roll Cage

- Protects pump
- Provides greater pump stability

Accessory Kit No. *	Can be used on ZA4-Series torque wrench pumps
ZRC-04	1 and 2 gallon reservoir

* Add suffix **R** for factory installation. Roll bar cage weight 7.5 lbs.

Ordering Example:

Model No. **ZA4208TX-QR**



Twin Torque Wrench Hoses

Use Enerpac THQ-700 series twin hoses with 10,000 psi pumps, or use THC-700 series twin hoses with 11,600 psi pumps.

10,000 psi	
19.5 feet long, 2 hoses	THQ-706T
39 feet long, 2 hoses	THQ-712T
11,600 psi	
19.5 feet long, 2 hoses	THC-7062
39 feet long, 2 hoses	THC-7122

▼ Shown: GT-Series bolt tensioners



Accurate & Reliable Extreme Performance Bolt Tensioner



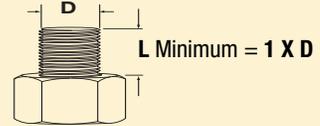
Pumps and Accessories

High pressure pumps, hoses and fittings matched for use with the Enerpac GT Bolt Tensioning system.

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Minimum Stud Protrusion

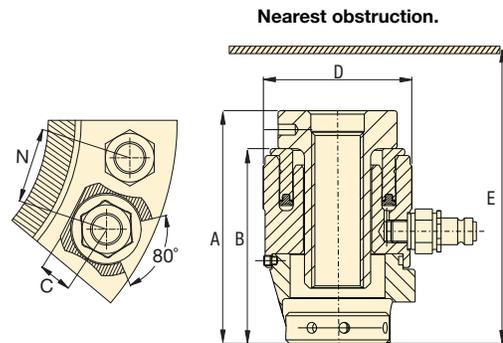


These products operate at ultra-high pressure, use only the specified fittings and hoses designed for these pressures.

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- Six load cells from 5/8" to 3 3/4" or from M16 to M95
- Twin ports for quick connection of multiple tools
- Only one size of bridge per size of load cell
- Detachable and rotational bridge simplifies tool positioning
- Full bridge window
- Piston stroke indicator
- Black surface treatment protects against corrosion
- Anti-slip grip for more secure handling
- Universal and multi-use tool

▼ GT2 Bolt Tensioner on a flange joint.



Threaded Fastener Range		Load Cell and Bridge Reference	Technical Data			Dimensions (in)				Weight (lbs)
(in)	(mm)		Cylinder Effective Area (in ²)	Load Capacity (ton)	Stroke (in)	A	B	C	D	
5/8" - 1"	M16-M30	GT1-LCB	2.32	25.2	0.39	5.31	4.45	1.06	3.39	6.60
1 1/8" - 1 1/2"	M30-M39	GT2-LCB	4.15	45.1	0.39	5.35	4.37	1.38	4.21	9.02
1 1/2" - 2"	M39-M52	GT3-LCB	7.95	86.4	0.39	6.30	4.96	1.81	5.43	15.40
2" - 2 1/2"	M52-M68	GT4-LCB	15.16	164.9	0.39	7.09	5.55	2.44	6.85	26.84
2 1/2" - 3 1/4"	M68-M80	GT5-LCB	23.37	254.1	0.39	7.95	6.18	3.07	8.27	41.14
3 1/4" - 3 3/4"	M80-M95	GT6-LCB	29.41	319.8	0.39	8.62	6.81	3.23	9.45	61.16

GT-Series Hydraulic Bolt Tensioners

Load Cell and Bridge Reference	Thread Size	Adaptor Kit Model Number	Pitch Between Bolts N (in)	Minimum Height E (in)	Weight (lbs)
GT1-LCB	M16 x 2	GT1PM-NRS01620	2.17	6.65	3.48
	M18 x 2.5	GT1PM-NRS01825	2.20	6.50	3.32
	M20 x 2.5	GT1PM-NRS02025	2.24	6.50	3.15
	M24 x 3	GT1PM-NRS02430	2.32	6.46	2.88
	M27 x 3	GT1PM-NRS02730	2.44	6.57	2.55
	M30 x 3.5	GT1PM-NRS03035	2.56	6.69	2.22
	5/8" 11UN	GT1P-NRS0625U11	2.17	6.65	3.45
	3/4" 10UN	GT1P-NRS0750U10	2.20	6.50	3.17
	7/8" 9UN	GT1P-NRS0875U09	2.32	6.46	2.86
	1" 8UN	GT1P-NRS1000U08	2.44	6.57	2.68
1 1/8" 8UN	GT1P-NRS1125U08	2.56	6.69	2.31	
GT2-LCB	M30 x 3.5	GT2PM-NRS03035	2.80	6.81	5.68
	M33 x 3.5	GT2PM-NRS03335	2.91	6.85	5.21
	M36 x 4	GT2PM-NRS03640	3.03	6.97	4.77
	M39 x 4	GT2PM-NRS03940	3.15	7.09	4.25
	1 1/8" 8UN	GT2P-NRS1125U08	2.80	6.81	5.81
	1 1/4" 8UN	GT2P-NRS1250U08	2.91	6.85	5.32
	1 3/8" 8UN	GT2P-NRS1375U08	3.03	6.97	4.84
	1 1/2" 8UN	GT2P-NRS1500U08	3.15	7.09	4.29
GT3-LCB	M39 x 4	GT3PM-NRS03940	3.62	8.35	12.50
	M42 x 4.5	GT3PM-NRS04245	3.78	8.46	11.77
	M45 x 4.5	GT3PM-NRS04545	3.90	8.58	10.96
	M48 x 5	GT3PM-NRS04850	4.13	8.50	10.25
	M52 x 5	GT3PM-NRS05250	4.25	8.66	9.20
	1 1/2" 8UN	GT3P-NRS1500U08	3.62	8.35	12.56
	1 5/8" 8UN	GT3P-NRS1625U08	3.78	8.46	11.70
	1 3/4" 8UN	GT3P-NRS1750U08	3.90	8.58	10.89
	1 7/8" 8UN	GT3P-NRS1875U08	4.13	8.50	10.10
	2" 8UN	GT3P-NRS2000U08	4.25	8.66	9.17
GT4-LCB	M52 x 5	GT4PM-NRS05250	4.65	9.45	23.63
	M56 x 5.5	GT4PM-NRS05655	4.76	9.61	22.22
	M60 x 5.5	GT4PM-NRS06055	4.88	9.76	20.77
	M64 x 6	GT4PM-NRS06460	5.00	9.92	19.32
	M68 x 6	GT4PM-NRS06860	5.12	10.08	17.80
	2" 8UN	GT4P-NRS2000U08	4.65	9.45	23.63
	2 1/4" 8UN	GT4P-NRS2250U08	4.76	9.61	21.23
	2 1/2" 8UN	GT4P-NRS2500U08	5.00	9.92	18.63
GT5-LCB	M68 x 6	GT5PM-NRS06860	5.71	10.94	38.02
	M72 x 6	GT5PM-NRS07260	5.87	11.10	36.06
	M76 x 6	GT5PM-NRS07660	5.98	11.26	34.03
	M80 x 6	GT5PM-NRS08060	6.38	11.54	32.01
	2 1/2" 8UN	GT5P-NRS2500U08	5.67	10.79	39.16
	2 3/4" 8UN	GT5P-NRS2750U08	5.87	11.10	35.84
	3" 8UN	GT5P-NRS3000U08	5.98	11.26	32.45
	3 1/4" 8UN	GT5P-NRS3250U08	6.38	11.54	28.86
GT6-LCB	M80 x 6	GT6PM-NRS08060	6.65	12.28	49.02
	M85 x 6	GT6PM-NRS08560	6.65	12.28	46.20
	M90 x 6	GT6PM-NRS09060	7.01	12.48	42.57
	M95 x 6	GT6PM-NRS09560	7.13	12.68	39.69
	3 1/4" 8UN	GT6P-NRS3250U08	6.65	12.28	45.56
	3 1/2" 8UN	GT6P-NRS3500U08	7.01	12.48	41.43
	3 3/4" 8UN	GT6P-NRS3750U08	7.13	12.68	36.94

GT Series



Bolt Range:
5/8" - 3 3/4" | M16-M95

Load:
0-319.8 tons

Maximum Operating Pressure
21,750 psi



How to Order

To provide maximum flexibility Load Cell and Bridges are ordered separately from

Adaptor Kits.

Example, to order a complete tensioner for a 1" threaded bolt order:

- 1 x Load Cell and Bridge: **GT1-LCB**
- 1 x Adaptor Kit: **GT1P-NRS1000U08**



Bolting Integrity Software

A comprehensive on-line software solution for Bolted Joint integrity.

Integral databases hold data for:

- BS1560, MSS SP44, API 6A and 17D flanged joints
- Common gasket materials and configurations
- Comprehensive range of bolt materials
- Comprehensive range of lubricants
- Enerpac's Controlled Bolting Equipment including: Torque Multipliers, Hydraulic Wrenches and Bolt Tensioning tools

Custom Joint information can also be entered.

The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application data sheet and Joint completion report.

www.enerpac.com

▼ Shown: ZUTP-1500B



Reliability, Power and Precision

- High efficiency Universal Motor draws lower amps for superior performance in remote locations
- Panel mounted 6-inch pressure gauge, with polycarbonate cover, for improved visibility and safety
- User adjustable valve for safe and precise pressure control
- Compact and lightweight design fits through tight openings and provides easy handling
- Safety relief valve limits output pressure for additional operator safety



Applications

The Enerpac ZUTP-Series electric pump is ideally suited for use with hydraulic bolt tensioning tools and hydraulic nuts.

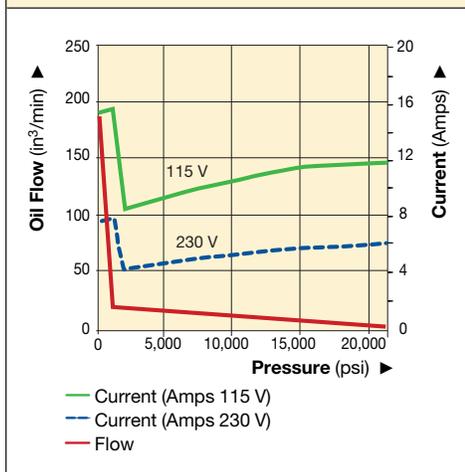
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◀ In remote locations working off a generator the reliable Enerpac ZUTP1500 delivers the ultra high pressure needed for tensioning applications.

ZUTP-Series, Electric Tensioning Pump

Oil Flow and Current vs. Pressure



ZUTP Series



Reservoir Capacity:

1 gallon

Flow at Rated Pressure:

8.0 in³/min.

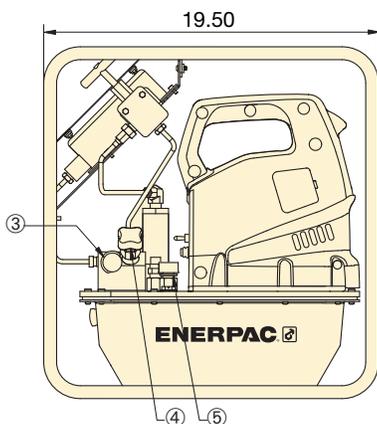
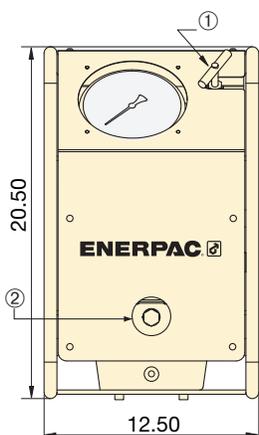
Maximum Operating Pressure:

21,750 psi



This pump operates at ultra-high pressure, use only the specified fittings and hoses designed for these pressures.

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- ① Release Valve
- ② Sight Glass
- ③ 1/4" BSPM Outlet Port

- ④ User Adjustable Pressure Control Valve
- ⑤ Breather



For further information on Bolt Tensioning or other controlled bolt tensioning methods, please visit www.enerpac.com.



ZUTP Series Manual Valve

The ZUTP1500 series with manual valve provides higher flow rates than air-driven tensioner pumps for a fast and economic solution ideal for bolt tensioning applications not requiring single-person operation.

▼ PERFORMANCE CHART

Pump Type	Useable Oil Capacity (gal)	Valve Type	Model Number ¹⁾	Output Flow Rate at 0 psi (in ³ /min)	Output Flow Rate at 21,750 psi (in ³ /min)	Motor Electrical Specification	Sound Level (dBA)	Weight with oil (lbs)
High pressure	1.0	Manual	ZUTP-1500B	180	8	115 VAC, 1-ph	89	65
			ZUTP-1500E ²⁾			230 VAC, 1-ph		
			ZUTP-1500I ³⁾			230 VAC, 1-ph		

¹⁾ All models meet CE safety requirements and all TÜV requirements.
²⁾ European plug and CE EMC directive compliant.
³⁾ With NEMA 6-15 plug.

▼ Shown: ATP-1500



ATP Series

Reservoir Capacity:

1.0 gallon

Flow at Rated Pressure:

4 in³/min.

Maximum Operating Pressure:

21,750 psi



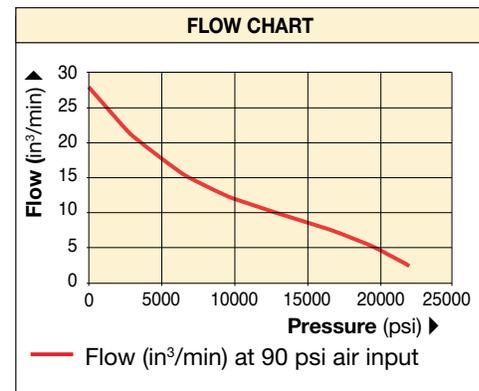
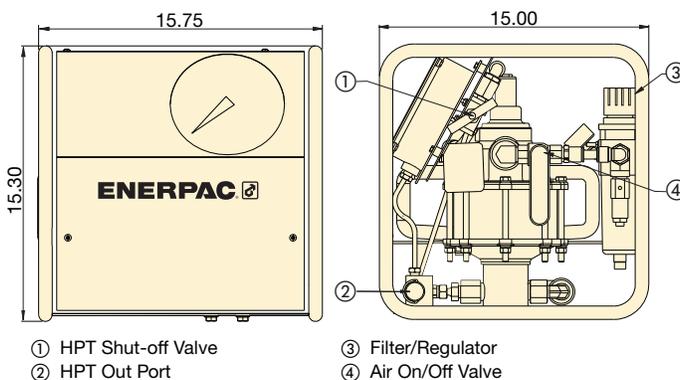
These products operate at ultra-high pressure, use only the specified fittings and hoses designed for these pressures.

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- General purpose, high pressure air driven pump unit for products requiring up to 21,750 psi hydraulic pressure
- Compact, lightweight, rugged steel frame for protection and easy handling
- Prelubricated pump element, does not require an airline lubricator
- Easily adjustable output pressure control
- Integrated and protected easy to read glycerin filled gauge
- Safety relief valve limits output pressure

ATEX Certified

The ATP-series pump was tested and certified according to the Equipment Directive 94 / 9 / EC "ATEX Directive". The explosion protection is for equipment group II, equipment category 2 (hazardous area zone 1), in gas and/or dust atmospheres. The ATP-series pump is marked with: Ex II 2 GD ck T4.



Pump Type	Useable Oil Capacity (gal)	Model Number	Pressure Rating (psi)	Output Flow Rate at 0 psi (in ³ /min)	Output Flow Rate at 21,750 psi (in ³ /min)	Air Pressure Range (psi)	Air Consumption (sfc)	Sound Level (dBA)	Weight (lbs)
High pressure	1.0	ATP-1500	21,750	26	4	80-90	70	70	65

HPT Pump and Accessories

▼ Shown: HPT-1500



HPT Series

Reservoir Capacity:

155 in³

Flow at 10,000 psi:

.037-.99 in³/stroke

Maximum Operating Pressure:

21,750 psi (1500 bar)



Applications

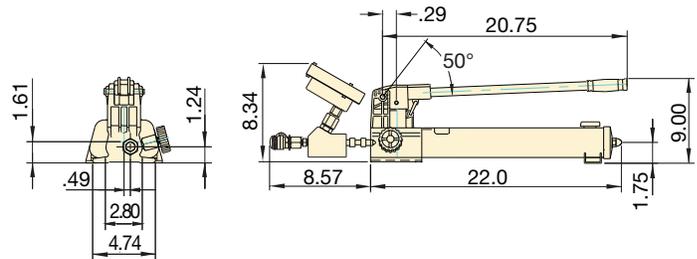
The Enerpac HPT high-pressure Hand Pump is ideally suited for use with hydraulic bolt tensioning tools and hydraulic nuts.

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These products operate at ultra-high pressure, use only the specified fittings and hoses designed for these pressures.

- Lightweight and portable high-pressure hand pump
- Two-speed operation displaces a larger volume of oil per stroke, reducing cycle times for many testing applications
- Includes a gauge and coupler for direct connection to GT-Series bolting tools
- Integrated relief valve set at 21,750 psi



Model Number	Description	Usable Oil Capacity (in ³)	Oil Displacement per Stroke (in ³)		Pressure Rating (psi)		Weight (lbs)
			1 st stage	2 nd stage	1 st stage	2 nd stage	
HPT-1500	High Pressure Hand Pump with Gauge	155	.99	0.037	200	21,750	19

▼ HOSES

Model Number		End 1	End 2	Length (ft)
HT-1503		1/4 BSPM 120° Cone	1/4 BSPM 120° Cone	3.28
HT-1510		1/4 BSPM 120° Cone	1/4 BSPM 120° Cone	9.84
HT-1503HR*		BH150	BR150	3.28
HT-1510HR*		BH150	BR150	9.84

* Includes dust caps

▼ FITTINGS

Description		Complete Set	Female Half	Male Half
Quick Disconnect Coupler*		B150	BR150	BH150
Quick Disconnect Coupler and Adaptor Kit*		BW150AW	—	—
Quick Disconnect Blanking Coupler Set*		B150B	—	—

* Includes dust caps

▼ From left to right: **ATM-3, ATM-1, ATM-5**



ATM Series

Bolt Hole Range:
1¹/₁₆ - 2¹/₈ inches

Flange Wall Thickness:
1¹/₁₆ - 8 inches

Maximum Force:
0.3 - 5.5 tons



Adjustable Reach-on ATM-3

The highly adjustable reach of the wing, the reversible lift hook and manual torque wrench **TW-22** (3/8" drive) allow precise alignment.

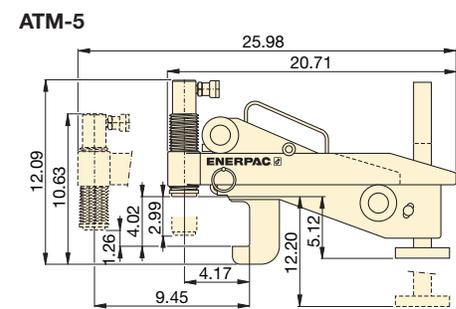
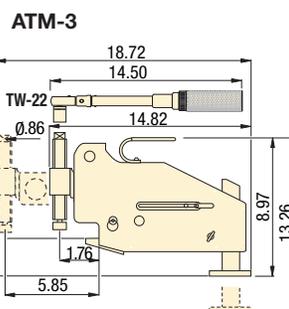
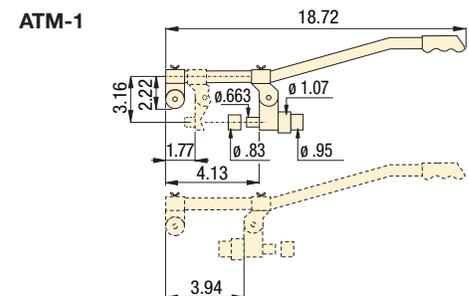


ATM-5 Including Hydraulics

Including 10,000 psi hydraulics: RC-53 single-acting cylinder, P-142 two-speed hand pump and 6 ft. long safety hose (HC-7206C).

- Rectifies twist and rotational misalignment without additional stress in pipe lines
- For most commonly used ANSI, API, BS and DIN flanges
- No slings, hooks, or lifting gear. Extremely safe, high precision
- ATM-1 supplied with three bushings for different bolt hole sizes. Can be used in reversed position.
- ATM-3 fits when flange joint is:
 - between 1.18 - 5.23 inches apart and
 - bolt hole size 0.95 inches or greater
- ATM-5 fits when flange joint is:
 - between 3.75 - 9 inches apart and
 - bolt hole size 1.25 inches or greater
- Can be installed and used in any position and any location
- Stays stable in position under full load

All dimensions shown in inches.



▼ The Enerpac ATM-3 used to align a large ANSI flange.



Maximum Lifting Force (ton)	Model Number	Bolt Hole Range		Flange Wall Thickness		Weight (lbs)
		(in)	(mm)	(in)	(mm)	
0.3	ATM-1	11/16 - 11/8	17 - 27,2	11/16 - 2	17 - 50	4.4
3.3	ATM-3	1 - 2 1/8	25 - 54	13/16 - 4 1/2	30 - 115	21.4
5.5	ATM-5 *	≥ 1 1/4	≥ 31,5	3/8 - 8	80 - 203	35.7

* At 10,000 psi maximum operating pressure.

ATM-5 weight including hydraulic cylinder. Total set weight 62 lbs.

Hydraulic Nut Cutters

▼ Shown from left to right: NC-3241, NC-1319, NC-1924



NC Series



Capacity:
5-90 tons

Hexagon Nut Range:
0.5-2.88 inches

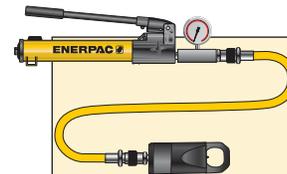
Maximum Operating Pressure:
10,000 psi



Enerpac Nut Cutters

Nut Cutters include a spare chisel, a spare set screw and the wrench used to secure the chisel. A CR-400 coupler is standard.

- Compact and ergonomic design, easy to use
- Unique angled head allows flush access
- Single-acting, spring return cylinder
- Heavy-duty chisels can be reground
- Applications include servicing trucks, piping industry, tank cleaning, petrochemical, steel construction and mining



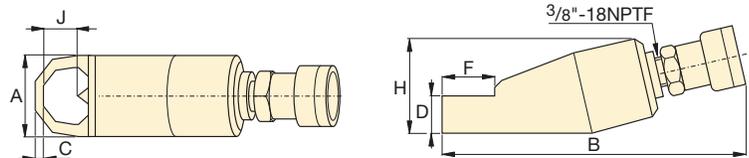
Nut Cutter Sets

Hydraulic Nut Cutters are available as sets (pump, tool, gauge, adaptor and hose).

Set Model Number	Splitter Model Number	Pump Model Number
STN-1924H	NC-1924	P-392
STN-2432H	NC-2432	P-392
STN-3241H	NC-3241	P-392



◀ Easily removing rusty nuts during railroad construction is just one of many application examples for the Enerpac Nut Cutters.



Hexagon Nut Range (in)	Bolt Range (in)	Capacity (ton)	Oil Capacity (in ³)	Model Number	Dimensions (in)							Weight (lbs)	Replacement Chisel Model Number
					A	B	C	D	F	H	J		
.50-.75	.31-.50	5	.92	NC-1319	1.57	7.87	.24	.75	1.10	1.89	.83	1.8	NCB-1319
.75-.94	.50-.63	10	1.22	NC-1924*	2.17	8.94	.32	.98	1.50	2.80	1.00	4.4	NCB-1924
.94-1.13	.63-.88	15	3.66	NC-2432*	2.60	10.24	.39	1.22	1.93	2.99	1.30	6.6	NCB-2432
1.13-1.56	.88-1.13	20	4.88	NC-3241*	2.95	11.26	.59	1.38	2.60	3.50	1.69	9.7	NCB-3241
1.56-2.00	1.13-1.38	35	9.46	NC-4150	3.78	12.80	.83	1.77	2.87	4.29	2.13	18.0	NCB-4150
2.00-2.25	1.38-1.50	50	14.64	NC-5060	4.17	14.41	1.06	2.13	3.63	4.96	2.38	26.0	NCB-5060
2.38-2.88	1.50-1.88	90	30.00	NC-6075	6.14	14.43	1.06	2.95	4.33	7.09	3.07	75.1	NCB-6075

Ordering Notes: Maximum allowable hardness to split is HRC-44. Not to be used on square nuts. Larger sizes available upon request.

* Available as Tool-Pump set, see note on this page.

▼ Shown: NS-7080, NS-70105



- Specially designed to suit standard ANSI B16.5 / BS1560 flanges
- Single-acting, spring return cylinder
- Tri-blade technology provides three cutting surfaces on a single blade
- Interchangeable heads provide maximum nut range flexibility
- Preset scale allows controlled blade extension, which avoids damage to bolt threads
- Grip tape and handle included for more secure maneuverability
- Nickel-plated cylinder body for excellent corrosion protection and improved durability in harsh environments
- Internal Pressure Relief Valve for overload protection



◀ Heavily corroded and weathered nuts are quickly split and removed using an NS-Series Nut Splitter.

Power and Precision

High Performance Nut Splitter



Blade Cutting Depth Scale

Adjustable cutting depth scale for controlled blade extension, which avoids damage to bolt threads.

The scale indicates the bolt range in metric and imperial values on each cutting head.



Hydraulic Nut Cutters

The NC-Series models are available featuring an angle-head design for 0.50"-2.88" hexagon nuts.

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FS-Series Spreaders

FS-Series Flange Spreaders provide quick and easy joint separation using hydraulic or mechanical force.

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ATM Flange Alignment Tools

The ATM series provides safe high-precision flange alignment tools that fit most commonly used ANSI, API, BS, and DIN flanges.

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Nut Splitter Sets

To provide maximum flexibility, NS-Series Nut Splitters can also be ordered in sets (NS-xxxSy). Select

Nut Splitter size and pump style from the chart below.

To order additional Cutting Heads (NSH-xxxxxx), Cylinders (NSC-xxx) or Replacement Blades (NSB-xxx), see Selection Chart below.

SET SELECTION:

- 1 Select your Nut Splitter
- 2 Select your pump type

NS Series



Capacity:

103.2-192.5 tons

Hexagon Nut Range:

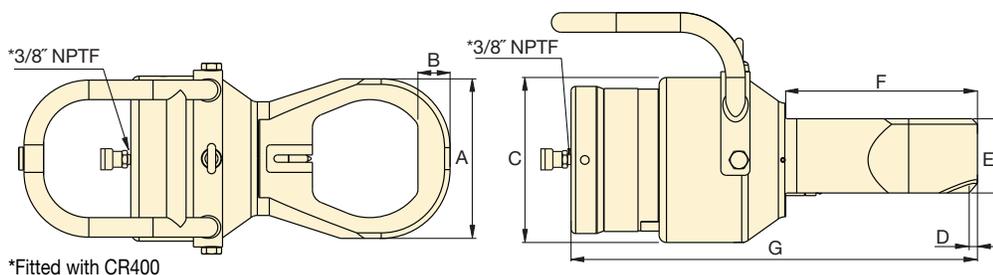
2.75-5.38 inches

Maximum Operating Pressure:

10,000 psi

Set Model Number	Nut Splitter Model Number	Pump Options			Accessories Included			
		Hand Pump Model No.	Air Pump Model No.	Electric Pump Model No.	Gauge Adaptor Model No.	Gauge Model No.	Hose Model No.	Storage Case Model No.
NS-70105SH	NS-70105		-	-	GA-2	GP-10S	HC-7206	CM-4
NS-70105SA	NS-70105	-	XA-11G*	-	-	integrated*	HC-7206	CM-4
NS-70105SE	NS-70105	-	-	PUD-1100B	GA-2	GP-10S	HC-7206	CM-7
NS-110130SH	NS-110130		-	-	GA-2	GP-10S	HC-7206	CM-4
NS-110130SA	NS-110130	-	XA-11G*	-	-	integrated*	HC-7206	CM-4
NS-110130SE	NS-110130	-	-	PUD-1100B	GA-2	GP-10S	HC-7206	CM-7

*XA-11G air pump features an integrated pressure gauge.



SELECTION CHART

Hexagon Nut Range**	Bolt Range	Cap.	Oil Cap.	Model Number*	Dimensions (in)							Weight	NS Cylinder	NS Cutting Head	Replacement Blade
					A	B	C	D	E	F	G				
(in)	(in)	(ton)	(in ³)												
2.75-3.13	1.75-2.00	103.2	23.0	NS-7080	5.2	1.1	7.1	0.3	3.2	7.3	16.2	81.4	NSC-70	NSH-7080	NSB-70
2.75-3.50	1.75-2.25	103.2	23.0	NS-7085	5.7	1.2	7.1	0.3	3.2	7.7	16.6	82.7	NSC-70	NSH-7085	NSB-70
2.75-3.88	1.75-2.50	103.2	23.0	NS-7095	6.3	1.3	7.1	0.3	3.2	7.9	17	84.9	NSC-70	NSH-7095	NSB-70
2.75-4.25	1.75-2.75	103.2	23.0	NS-70105	6.9	1.4	7.1	0.4	3.2	8.2	17.5	87.1	NSC-70	NSH-70105	NSB-70
4.25-4.63	2.75-3.00	192.5	50.0	NS-110115	7.4	1.4	9.2	0.1	4.4	9.2	18.6	151.6	NSC-110	NSH-110115	NSB-110
4.25-5.38	2.75-3.50	192.5	50.0	NS-110130	8.6	1.6	9.2	0.1	4.4	9.5	19.4	158.3	NSC-110	NSH-110130	NSB-110

* NS-Series Nut Splitters ship in two cases: One containing the NSC Cylinder and one containing the NSH Cutting Head. Assembly required.

** Maximum allowable hardness to split is HRc-44.

▼ Shown: FS-56



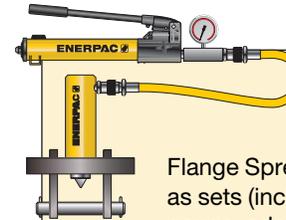
- Lightweight, ergonomic design for ease of use
- Adjustable jaw widths from 2.75" to 8.50" for a wide range of applications
- Single-acting, spring return RC Series cylinders for fast trouble-free operation

FS Series



Capacity:
5-10 tons

Maximum Operating Pressure:
10,000 psi



Flange Spreader Sets

Both Hydraulic Flange Spreaders are available as sets (includes pump, gauge, adaptor and hose).

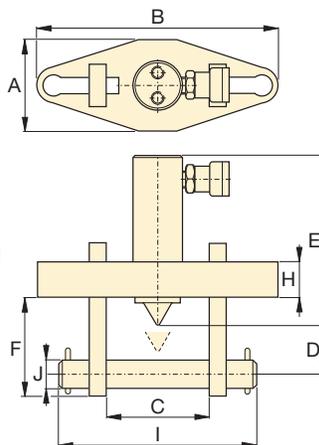
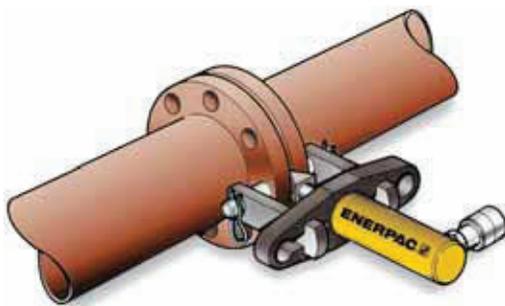
Set Model Number	Spreader Model Number	Pump Model Number
STF-56H	FS-56	P-142
STF-109H	FS-109	P-392
STF-109A	FS-109	PATG-1102N



Wedge Spreaders

Friction-free, smooth and parallel wedge movement with unique interlock wedge design. Eliminates flange damage and risk of spreading arm failure.

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Flange Spreader Matching Chart

ASA Rating (psi)	Pipe Size (in)	
	FS-56	FS-109
150	5-20	22-42
300	2.50-14	16-28
400	2.50-12	14-24
500	2.50-10	12-20
900	.50-6	8-16
1500	.50-3.50	4-8
2500	.50-2.50	3-4

Maximum Flange Thickness (in)	Stud Size (in)	Standard Wedge (in)	Cap. (ton)	Stroke (in)	Oil Cap. (in ³)	Model Number	Dimensions (in)										Weight (lbs)
							A	B	C		D	E	F	H	I	J	
									Min.	Max.							
2 x 2.25	.75-1.13	.13-1.13	5	1.50	1.50	FS-56	3.00	8.25	2.75	6.10	1.28	7.71	3.45	1.00	8.10	.75	26
2 x 3.63	1.25-1.63	.13-1.13	10	2.13	4.80	FS-109	4.25	11.00	4.10	8.50	1.98	6.00	4.50	1.50	10.75	1.25	40

Hydraulic and Mechanical Industrial Spreaders

▼ Shown: FSH-14 and FSM-8 with safety blocks SB1



FSM/FSH Series

Tip Clearance / Maximum Spread*:

0.24/3.16 inches

Maximum Spread Force:

8-14 tons

Maximum Operating Pressure:

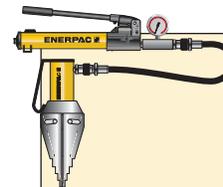
10,000 psi (FSH-14)



Stepped Blocks FSB-1

Use this pair of stepped blocks to increase wedge opening up to 3.16 in. (81 mm). Fits both FSH-14 and FSM-8.

- **Integrated wedge concept:** friction-free, smooth, parallel wedge movement eliminates flange damage and spreading arm failure
- **Unique interlocking wedge design:** no first step bending and risk of slipping out of joint
- **Requires very small access gap of only .24 in. (6 mm)**
- **Stepped spreader arm design:** each step can spread under full load
- **Few moving parts means durability and low maintenance**
- **Safety block SB-1 and ratchet spanner SW-22 included with FSM-8**
- **Safety block and Enerpac RC-102 cylinder included with FSH-14**

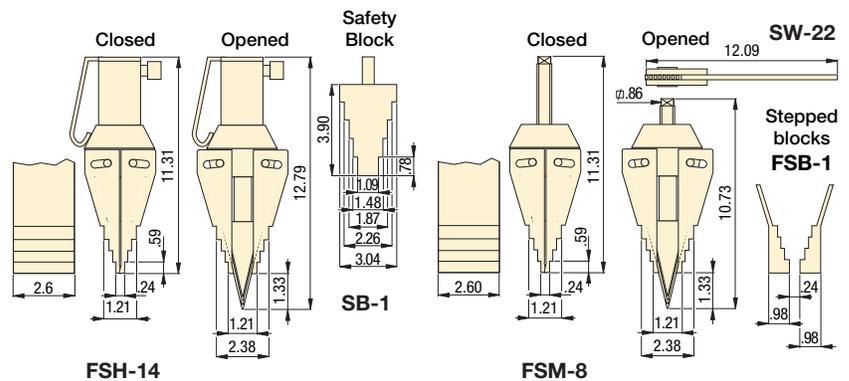


Flange Spreader Sets

Hydraulic FSH-14 is available as a set (pump, tool, gauge, adaptor and hose).

Set Model Number	Set Includes:	
STF-14H	FSH-14	GA-2
	P-392	GP-10S
	HC-7206	-

▼ Two FSH-14 spreaders used simultaneously with Enerpac handpump, hoses and AM-21 split-flow manifold.



Max. Spreading Force (ton)	Model Number	Tip Clearance (in)	Max. Spread* (in)	Type	Oil Capacity (in ³)	Weight (lbs)
8	FSM-8	.24	3.16	Mechanical	-	14.3
14	FSH-14	.24	3.16	Hydraulic	4.76	15.7

* Using stepped blocks FSB-1.

▼ Shown clockwise from top: **WR-5, A-92, WR-15**



- Single-acting, spring return
- **WR-15:** For long stroke spreading applications
- **WR-5:** For use in very confined work areas
- **A-92:** Spreader attachment screws onto RC-Series 10 ton cylinders (except RC-101)

A, WR Series

Capacity:
0.75-1.00 ton

Tip Clearance:
0.50-1.38 inches

Maximum Spread Range:
3.70-11.50 inches

Maximum Operating Pressure:
10,000 psi



RC Series DUO Cylinders

10 ton **RC Series DUO** cylinders (except RC-101) fit into A-92 Spreader Attachment.

www.enerpac.com

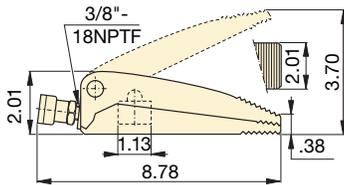


Best Match Hand Pump

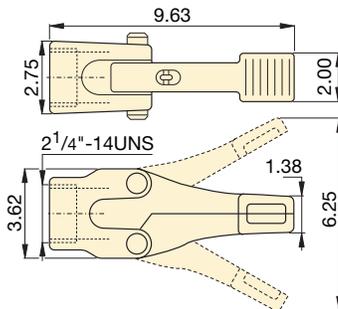
To power your WR5 and WR15 the **P-392** hand pump is an ideal choice.

www.enerpac.com

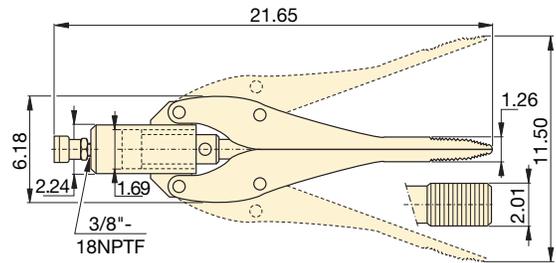
WR-5



A-92



WR-15



◀ A **WR-5** wedgie cylinder is used to position a concrete block on a construction site.

Spreader Capacity	Tip Clearance	Model Number	Maximum Spread	Cylinder Effective Area	Oil Capacity	Wt.
(ton)	(in)		(in)	(in ²)	(in ³)	(lbs)
1.00	.50	WR-5	3.70	1.00	.61	5.0
.75	1.26	WR-15	11.50	2.25	3.91	25.0
1.00	1.38	A-92	6.25	–	–	8.0

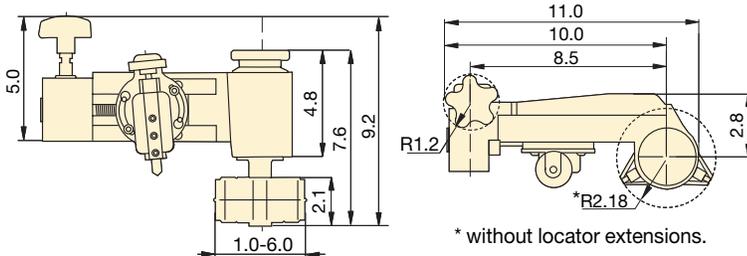
FF-Series, Mechanical Flange Face Tool

▼ Shown: FF-120



- Refacing made easy — hand-operated machine tool can be set up anywhere without the need for air, electric or hydraulic power support
- Lightweight and portable — easily transported to remote locations for increased productivity
- Adjustable cutting range for flange diameters between 1-12 inches [25,4-304,8 mm]
- Interchangeable collets for ID mounting range from 1-6 inches allowing the user to work on many different flanges with minimal time between set-ups
- Interchangeable lead screws suitable for refacing damaged raised-face (RF), flat-face (FF) or lens-ring joint flanges
- Tool body with expanding collets centers itself providing real concentric operation

Dimensions shown in inches.



▼ TOOL SELECTION CHART

Pipe Flange Cutting Diameter Range		Internal Pipe Mounting Diameter Range		Average Roughness (Ra)		Model Number	Wt. (lbs)
(in)	(mm)	(in)	(mm)	(μ in)	(μ m)		
1.0-12.0	25,4-304,8	1.0-6.0	25,4-152,4	125-250	3,18-6,35	FF-120	15
				60-100*	1,52-2,54*		

* When using fine thread feed screw, FF120FSF.

FF Series

Pipe Flange Cutting Diameter Range:

1-12 in (25,4-304,8 mm)

Internal Pipe Mounting Diameter Range:

1-6 in (25,4-152,4 mm)

Average Roughness:

125-250 μ in (3,18-6,35) μ m



Joint Separation Tools

FS and FSH-Series parallel wedge spreaders provide quick and easy joint separation using hydraulic or mechanical force.

Page: 58



Joint Assembly Tools

Rectify twist and rotational alignment without additional stress in pipe lines using the **ATM-Series** flange alignment tools.

Page: 54



Fine Thread Feed Screw

Accessory Kit **FF120FSF** is included as standard and provides a fine thread feed screw, 1/2"-20 UNF, and delivers a Ra of: 60-100 μ in (1,52-2,54 μ m)

▼ The Enerpac FF120 Quick Face has same precision and quality of finish as powered machines.





Enerpac 'Yellow Pages' *stand for* Technical Information!

If selecting bolting tools is not your daily routine, then you will appreciate these pages. The 'Yellow Pages' are designed to help you work with hydraulics. They will help you to better understand the basics of bolting system set-ups and of the most commonly used bolting techniques. The better your choice of equipment, the better you will appreciate these tools. Take the time to go through these 'Yellow Pages' and you will benefit even more from Enerpac Bolting Solutions.

Section		Page
Bolting Theory		64 ▶
Torque Tightening		66 ▶
Tensioning		68 ▶
Bolt and Nut Sizes		70 ▶
Key to measurement		71 ▶

GLOBAL LIFETIME WARRANTY STATEMENT



www.enerpac.com

Visit our web site for the complete Global Lifetime Warranty or call your Authorized Service Center.

Enerpac products are warranted to be free of defects in materials and workmanship. Any product that does not conform to specification will be repaired or replaced at Enerpac's expense, anywhere in the world; simple as that !!

This warranty does not cover ordinary wear and tear, abuse, misuse, alterations, or the use of improper fluids. Determination of the authenticity of a warranty claim will be made only by Enerpac or its Authorized Service Centers.

Enerpac is certified for several quality standards. These standards require compliance with standards for management, administration, product development and manufacturing.

CE Marking & Conformity

Enerpac provides Enerpac provides Declarations of Conformity, Declarations of Incorporation, and CE marking for products that conform to the European Community Directives.



Where specified, Enerpac electric power units meet the design, assembly and test requirements of The Standards Council of Canada (CAN C22.2 No. 68-92), and UL73 for the United States. Units were tested and certified for both USA and Canada by TUV, a nationally recognized testing laboratory.

EMC Directive 2004/108/EC

Where specified, Enerpac electric power pumps meet the requirements for Electromagnetic Compatibility per EMC Directive 2004/108/EC.



The ZA-series pumps are tested and certified according to the Directive 94 / 9 / EC "ATEX Directive". The explosion protection is for equipment group II, equipment category 2 (hazardous area zone 1), in gas and/or dust atmospheres. The ZA-series pumps are marked with: Ex II 2 GD ck T4.

ASME B30.1-2004

Our cylinders fully comply with the criteria set forth by the American Society of Mechanical Engineers (except RD series).

DIN 20024

Enerpac thermoplastic hoses are related to the criteria set forth in Deutsche Industrie Norm 20024.

Product Design Criteria

All hydraulic components are designed and tested to be safe for use at maximum 10,000 psi unless otherwise specifically noted.



ENERPAC, 720 W. James St., Columbus, WI 53925 USA

Enerpac works hard to maintain the ISO 9001 quality rating, in its ongoing pursuit of excellence.

Bolting Solution and Application Worksheet



▼ Please complete the following information prior contacting Enerpac for your bolting proposal:

Requested By: _____ Requested Date: _____

Company: _____ Industry: _____

Contact: _____ Title: _____

Phone: _____ Fax: _____ Email: _____

Description of Application (provide drawings if possible):

Type of Application:

APPLICATION TECHNICAL DATA

Bolt Quantity: _____

Bolt Diameter: _____

Bolt Threads per Inch/Pitch: _____

Bolt Grade: _____

Bolt Coating: _____

Gasket Type: _____

App. Operating Temp., °C or °F: _____

Known Bolting Values:

Load
(Lbs. / kN) _____
% of Yield (psi/Nmm²) _____

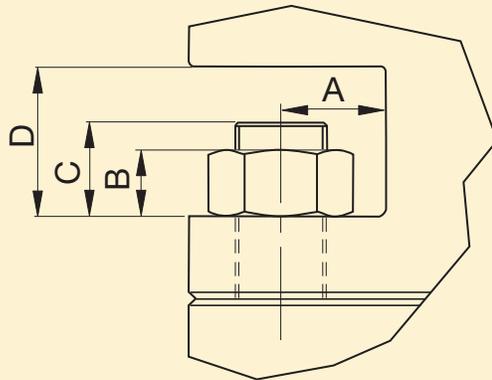
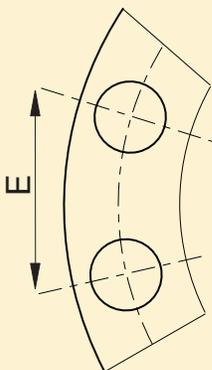
Stretch-Bolt Length
(in. / mm) _____

Turn of Nut
(Preload / Degrees) _____

Torque
(Ft.lbs / Nm / Kgm) _____

Application Position:

Top-side Vertical Inverted



Specify Dimensions:	INCH	MM (Metric)
A _____ B _____ C _____ D _____ E _____		
Distance to Closure:	_____	
Current Lubrication:	Type _____	Brand _____

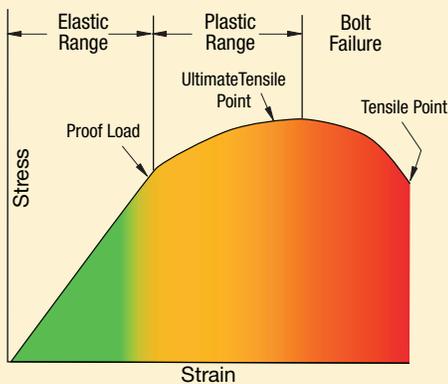


Function of Bolts and Nuts

Threaded fasteners are used across industry to assemble products ranging from pipelines to heavy-duty earth movers and from cranes to bridges and many more. Their principle function is to create a clamping force across the joint which is able to sustain the operating conditions without loosening.

Correctly tightened bolts make use of their elastic properties, to work well they must behave like springs. When load is applied, the bolt stretches and tries to return to its original length. This creates compressive force across the joint members.

Hooke's Law of Physics



Behavior of Bolts and Nuts

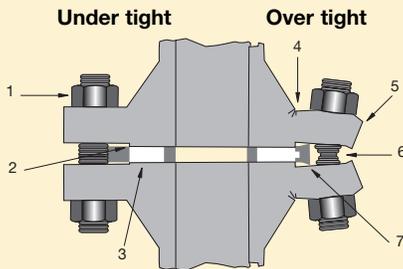
Elasticity is defined in Hooke's Law of physics: The stress in a bolt is directly proportional to its strain. The stress-strain of a bolt has an **elastic range** and a **plastic range**. In the elastic range Hooke's Law is true.

All of the elongation applied within the elastic range is relieved when the load is removed. The amount of elongation increases when more load is applied. When a bolt is stressed beyond its **proof load** (maximum load under which a bolt will behave in an elastic manner), the elastic elongation changes to plastic deformation and the strain will no longer be proportional to the stress.

In the plastic deformation a part of the elongation will remain after the load is removed. The point where this permanent elongation occurs is called the yield strength. The further application of load takes the bolt to a point where it begins to fail this is termed its **ultimate tensile strength (UTS)**. At this UTS-point, if additional force is applied to the bolt it will continue to elongate until it finally breaks. The point at which the bolt breaks is called the **tensile point**.

Careful attention must be paid to the grade of bolt being used as bolt grades differ in the elastic range.

Uniform preload (residual load)



1. Bolt loosens due to cycle loads of vibration.
2. Sealing face surface damage.
3. No compression.
4. Cracking.
5. Flange rotation.
6. Yielding of bolts.
7. Over compression of gasket.

Preload

The main purpose of a bolt and nut is to clamp parts together with the correct force to prevent loosening in operation. The term **preload** refers to the loading in a bolt immediately after it has been tightened.

The amount of preload (residual load) is critical as the joint can fail if the load in the bolt is too high, too low or not uniform in every bolt.

Uneven bolt loads can result in:

- Some bolts being loose while others are overloaded.
- Crushing of the gasket on one side, leakage on the other side.

Preload is normally dictated by the joint design, (see Enerpac Bolted Joint Integrity) for information on common joint types or contact your local representative.



Tightening Methods

Principally there are two modes of tightening: "Uncontrolled" and "Controlled".

Uncontrolled tightening

Uses equipment and/or procedures that cannot be measured. Preload is applied to a bolt and nut assembly using a hammer and spanner or other types of impact tools.

Controlled tightening

Employs calibrated and measurable equipment, follows prescribed procedures and is carried out by trained personnel. There are two main techniques: Torque tightening and Bolt tensioning.

- 1) **Torque tightening** - Achieves preload in a bolt and nut assembly via the nut in a controlled manner using a tool.
- 2) **Bolt tensioning** - Achieves preload in a bolt and nut assembly by stretching the bolt axially using a tool.

Advantages of Controlled Tightening

Known, controllable and accurate bolt loads

Employs tooling with controllable outputs and adopts calculation to determine the required tool settings.

Uniformity of bolt loading

Especially important on gasketed joints as an even and consistent compression is required for the gasket to be effective.

Safe operation following prescribed procedures

Eliminates the dangerous activities of manual uncontrolled tightening and requires that the operators be skilled and follow procedures.

Reduces operational time resulting in increased productivity

Reduces tightening time and operator fatigue by replacing manual effort with the use of controlled tooling.

Reliable and repeatable results

Using calibrated, tested equipment, following procedures and employing skilled operators achieves known results consistently.

The right results first time

Many of the uncertainties surrounding in-service joint failures are removed by ensuring the correct assembly and tightening of the joint are carried out the first time.



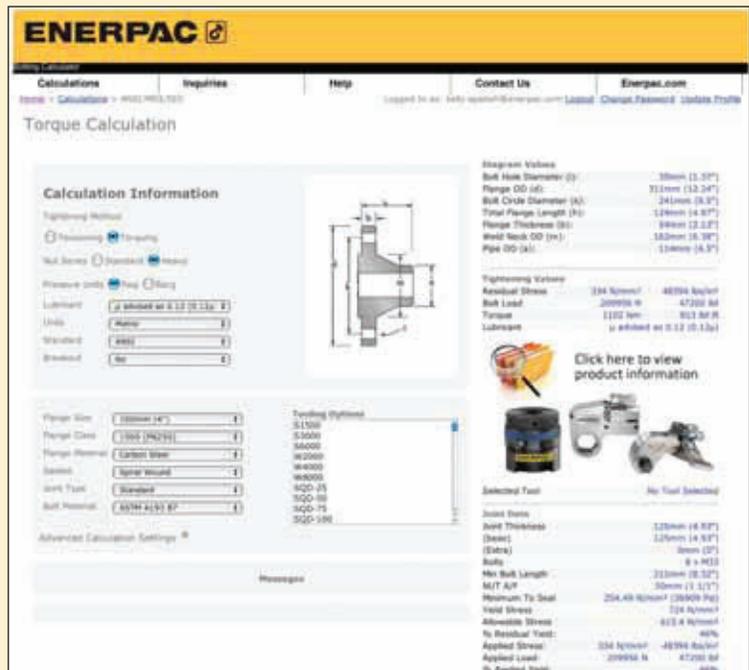
Bolting Integrity Software

A comprehensive on-line software solution for Bolted Joint Integrity.

Integral databases hold data for:

- BS1560, MSS SP44, API 6A and 17D flanged joints
 - Common gasket materials and configurations
 - Comprehensive range of bolt materials
 - Comprehensive range of lubricants
 - Enerpac's Controlled Bolting Equipment including: Torque Multipliers, Hydraulic Wrenches and Bolt Tensioning tools
- Custom Joint information can also be entered.

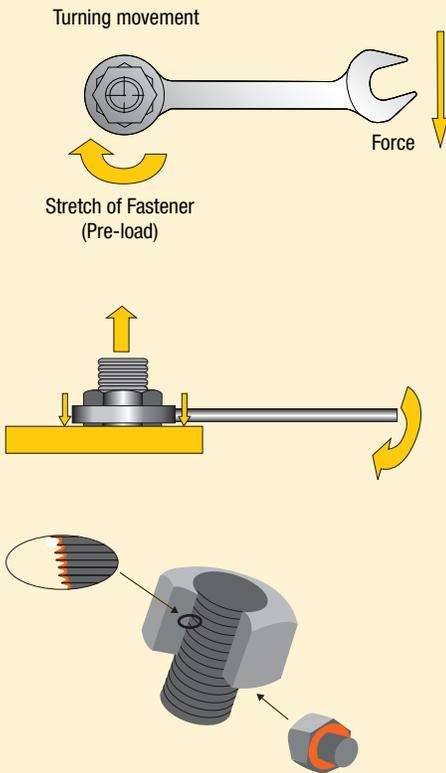
The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application data sheet and Joint completion report.



Visit www.enerpac.com to access our free on-line bolting software application and obtain information on tool selection, bolt load calculations and tool pressure settings. A combined application data sheet and joint completion report is also available.



Torque Tightening



Friction points should always be lubricated when using the torque tightening method.

What is Torque?

It is a measure of how much force acting on an object which causes that object to rotate.

What is Torque Tightening?

The application of preload to a fastener by the turning of the fastener's nut.

Torque Tightening and Preload

The amount of preload created when torquing is largely dependant on the effects of friction.

Principally there are three different "torque components":

- torque to stretch the bolt
- torque to overcome the friction in bolt and nut threads
- torque to overcome friction at the nut spot face (bearing contact surface).



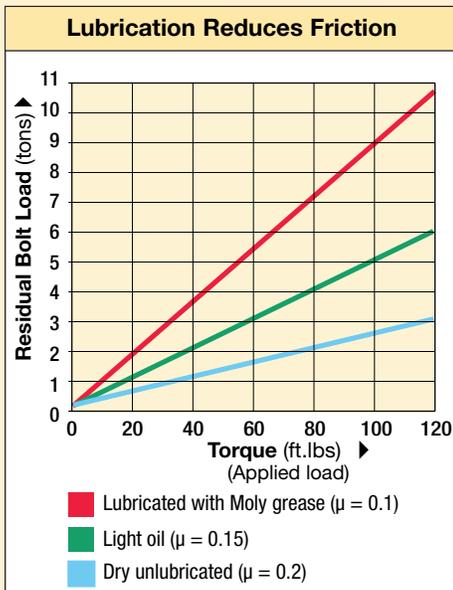
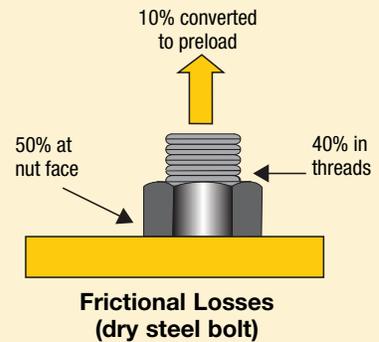
Preload (residual load) = Applied Torque *minus* Frictional Losses

Lubrication Reduces Friction

Lubrication reduces the friction during tightening, decreases bolt failure during installation and increases bolt service life. Variation in friction coefficients affect the amount of preload achieved at a specified torque. Higher friction results in less conversion of torque to preload. The value for the friction coefficient provided by the lubricant manufacturer must be known to accurately establish the required torque value.

Lubricant or anti-seizure compounds should be applied to both the nut bearing surface and the male threads.

Frictional Losses



Example of how a lubricant can reduce the effect of friction and convert more torque to bolt preload.

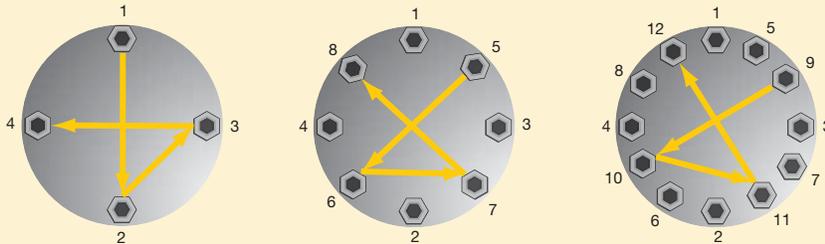


Manufacturer's rating of pressure and torque are maximum safe limits. Good practice encourages using only 80% of these ratings!

Torque Procedure

When torquing it is common to tighten only one bolt at a time, this can result in Point Loading and Load Scatter. To avoid this, torque is applied in stages following a prescribed pattern:

Torque Sequence



- Step 1:** Spanner tight ensuring that 2-3 threads extend above nut
- Step 2:** Tighten each bolt to **one-third** of the final required torque following the pattern as shown above.
- Step 3:** Increase the torque to **two-thirds** following the pattern shown above.

- Step 4:** Increase the torque to **full torque** following the pattern shown above.
- Step 5:** Perform one final pass on each bolt working clockwise from bolt 1, at the full final torque.



Select the Correct Wrench

Choose your Enerpac torque wrench using the untightening rule of thumb:

- When loosening a nut or bolt more torque is usually required than when tightening.
- For general conditions it can take up to 2½ times the input torque to breakout.
- Do not apply more than 75% of the maximum torque output of the tool when loosening nuts or bolts.

Conditions of Bolted Joints

- Humidity corrosion (rust) requires up to twice the torque required for tightening.
- Sea water and chemical corrosion requires up to 2½ times the torque required for tightening.
- Heat corrosion requires up to 3 times the torque required for tightening.

Minimum Output Torque

- The recommended minimum torque value of a hydraulic wrench is 10% of the maximum rated value.

Breakout Torque

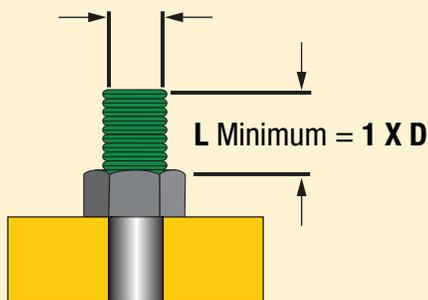
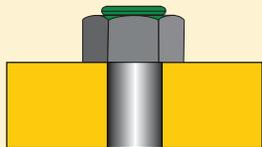
When loosening bolts a torque value higher than the tightening torque is normally required. This is mainly due to corrosion and deformations in the bolt and nut threads.

Breakout torque cannot be accurately calculated, however, depending on conditions it can take up to 2½ times the input torque to breakout.

The use of penetrating oils or anti-seize products is always recommended when performing breakout operations.



Tensioning requires longer bolts



What is Bolt Tensioning

Tensioning is the direct axial stretching of the bolt to achieve **preload**. Inaccuracies created through friction are eliminated. Massive mechanical effort to create torque is replaced with simple hydraulic pressure. A uniform load can be applied by tensioning multiple studs simultaneously.

Tensioning requires longer bolts, and a seating area on the assembly around the nut. Tensioning can be done using detachable Bolt Tensioners or Hydraulic Nuts.



Preload (residual load) = Applied Load minus Load Losses

What is Load Loss

Load loss is a loss of bolt elongation depending on factors such as thread deflections, radial expansion of the nut, and embedding of the nut into the contact area of the joint. Load loss is accounted for in calculation and is added to the preload value to determine the initial **Applied Load**.

The preload depends on Applied Load and Load Loss (load loss factor).



GLOSSARY OF TERMS

Applied Load: The load applied to a bolt during tensioning which includes an allowance for Load Loss.

Bolt Tensioning: A method of controlled tightening which applies preload to a bolt by stretching it axially.

Breakout Torque: The amount of torque required to loosen a tightened bolt. (Usually more torque is required to loosen a bolt than was used to tighten it.)

Elastic Range: The range on a bolt's stress / strain curve where stress is directionally proportional to strain.

Load Loss: The losses in a bolt which occur on transfer of load from a tensioning device to the bolt assembly (these may arise from phenomena such as thread deflection and embedding of

the nut to the contact area of the joint, and is calculated as a factor of the length to diameter ratio of the bolt).

Load Scatter: The spread of differing loads in a sequence of bolts after they have been loaded. It is mostly due to the elastic interaction of the bolts and the joint member; as subsequently tightened bolts further compress the joint, previously tightened bolts are subject to some relaxation.

Plastic Range: The range on a stress/strain curve where the tensile load applied to a bolt results in permanent deformation.

Preload: The load in a bolt immediately after it has been tightened.

Proof Load: Proof load is often used interchangeably with Yield Strength but is usually measured at 0.2% plastic strain.

Tensile Point: The point at which the tensile loading on a bolt causes the bolt to rupture.

Torque Tightening: The application of Preload to a bolt by turning of the bolt's nut.

Ultimate Strength: The maximum tension which can be created by tensile load on a bolt.

Yield Strength: The point at which a bolt begins to plastically deform under tensile loading.

NOTE: Bolt is used as a generic term for a threaded fastener.



Manufacturer's rating of pressure and load are maximum safe limits. Good practice encourages using only 80% of these ratings!

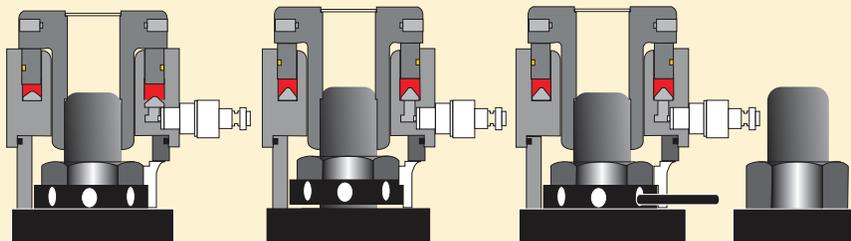
Tensioning Operation

Tensioning permits the simultaneous tightening of multiple bolts; the tools are connected in sequence via a high-pressure hose assembly to a single pump unit. This ensures each tool develops the exact same load and provides a uniform clamping force across the joint. This is especially important for pressure containing vessels requiring even gasket compression to affect a seal.

General Procedure

- Step 1:** The bolt Tensioner is fitted over the stud
- Step 2:** Hydraulic pressure is applied to the tensioner which then stretches the stud.
- Step 3:** The Stud's nut is wound down against the joint face
- Step 4:** Pressure is released and the tool removed.

The bolt behaves like a spring, when the pressure is released the bolt is under tension and attempts to contract, creating the required clamping force across the joint.

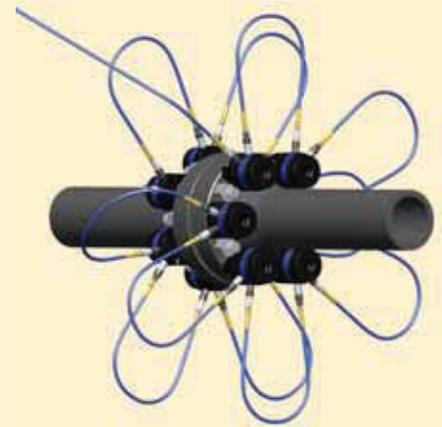


Step 1

Step 2

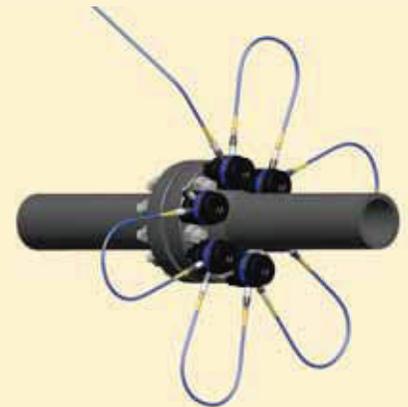
Step 3

Step 4



Set-up using a 100% tensioning procedure

All bolts are tensioned simultaneously.



Set-up using a 50% tensioning procedure

Half the bolts are tensioned simultaneously, the tools are relocated on the remaining bolts and they are subsequently tensioned.

Less than 100% Tensioning

Not all applications allow for the simultaneous fit of a tensioning device on each bolt, in these cases at least two tensioning pressures are applied. This is to account for a load loss in those bolts already tensioned as the next sets are tightened. The load losses are accounted for in calculation and a higher load is applied to allow the first sets to relax back to the target preload.



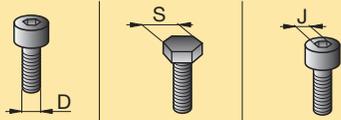
Read Instruction Manuals

Please refer to the product Instruction Sheets for safe use guidelines and detail on the correct set up and operation of the equipment.



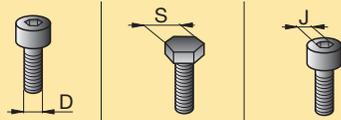
Hexagon Nut and Bolt Sizes

METRIC SIZES



Thread Size D (mm)	Hexagon Size S (mm)	Hexagon Size J (mm)
M 10	17	8
M 12	19	10
M 14	22	12
M 16	24	14
M 18	27	14
M 20	30	17
M 22	32	17
M 24	36	19
M 27	41	19
M 30	46	22
M 33	50	24
M 36	55	27
M 39	60	27 (30)
M 42	65	32
M 45	70	-
M 48	75	36
M 52	80	36
M 56	85	41
M 60	90	46
M 64	95	46
M 68	100	50
M 72	105	55
M 76	110	60
M 80	115	65
M 85	120	70
M 90	130	70 (75)
M 95	135	-
M 100	145	85
M 105	150	-
M 110	155	-
M 115	165	-
M 120	170	-
M 125	180	-
M 130	185	-
M 140	200	-
M 150	210	-

IMPERIAL SIZES



Thread Size D (in)	Hexagon Size * S (in)	Hexagon Size J (in)
5/8"	1 1/16"	1/2"
3/4"	1 1/4"	5/8"
7/8"	1 7/16"	3/4"
1"	1 5/8"	3/4"
1 1/8"	1 13/16"	7/8"
1 1/4"	2"	7/8"
1 3/8"	2 3/16"	1"
1 1/2"	2 3/8"	1"
1 5/8"	2 9/16"	-
1 3/4"	2 3/4"	1 1/4"
1 7/8"	2 15/16"	1 3/8"
2"	3 1/8"	1 5/8"
2 1/4"	3 1/2"	1 3/4"
2 1/2"	3 7/8"	1 7/8"
2 3/4"	4 1/4"	2"
3"	4 5/8"	2 1/4"
3 1/4"	5"	2 1/4"

* Heavy hexagon nuts.



Determine the maximum torque according to the bolt (nut) size and grade. Always consult the manufacturers instructions or engineering recommendations when making bolted connections.



IMPORTANT

The hexagon sizes shown in the tables should be used as a guide only. Individual sizes should be checked before specifying any equipment.



Use only Heavy Duty Impact Sockets for power driven torquing equipment, according to ISO2725 and ISO1174; DIN3129 and DIN3121 or ASME-B107.2/1995.



Key to measurements

All capacities and measurements in the catalog are expressed in uniform values.

The conversion chart provides helpful information for their translation into equivalent systems.

FDM Conversion Chart		
Inches	Decimal	mm
1/16	0.06	1,59
1/8	0.13	3,18
3/16	0.19	4,76
1/4	0.25	6,35
5/16	0.31	7,94
3/8	0.38	9,53
7/16	0.44	11,11
1/2	0.50	12,70
9/16	0.56	14,29
5/8	0.63	15,88
11/16	0.69	17,46
3/4	0.75	19,05
13/16	0.81	20,64
7/8	0.88	22,23
15/16	0.94	23,81
1	1.00	25,40

Pressure:

1 psi	= 0,069 bar
1 bar	= 14,50 psi
	= 10 N/cm ²
1 kPa	= 0,145 psi
1 MPa	= 145 psi

Force:

1 lbf	= 4.45 N
1 klbf	= 1000 lbf
1 kN	= 1000 N

Weight:

1 pound (lb)	= 0,4536 kg
1 kg	= 2,205 lbs
1 metric ton	= 2205 lbs
	= 1000 kg
1 ton (short)	= 2000 lbs
	= 907,18 kg

Temperature:

To Convert °C to °F:
 $T^{\circ}\text{F} = (T^{\circ}\text{C} \times 1,8) + 32$

To Convert °F to °C:
 $T^{\circ}\text{C} = (T^{\circ}\text{F} - 32) \div 1,8$

Volume:

1 in ³	= 16,387 cm ³
1 cm ³	= 0,061 in ³
1 liter	= 61,02 in ³
	= 0,264 gal
1 US gal	= 3,785 cm ³
	= 3,785 l
	= 231 in ³

Other measurements:

1 in	= 25,4 mm
1 mm	= 0,039 in
1 ft	= 0,3048 m
1 m	= 3,2808 ft
1 in ²	= 6,452 cm ²
1 cm ²	= 0,155 in ²
1 hp	= 0,746 kW
1 kW	= 1,340 hp
1 Nm	= 0,738 Ft.lbs
1 Ft.lbs	= 1,356 Nm
1 kN	= 224,82 lbs
1 lb	= 4,448 N

Torque Conversion Factors



Free Conversion Calculator

Visit enerpac.com and download the free conversion calculator.

Units to be converted	International System - S.I. Nm	Imperial Lbf.ft	Metric kgf.m
1 Ft.lbs	1,356	1,000	0,138
1 Nm	1,000	0,738	0,102
1 kgf.m	9,807	7,233	1,000



▼ S-Series

Pressure vs. Torque – S-Series Torque Wrench Imperial Table

Pump Pressure	S1500 Torque Output	S3000 Torque Output	S6000 Torque Output	S11000 Torque Output	S25000 Torque Output
	(T _F 0.140)	(T _F 0.320)	(T _F 0.601)	(T _F 1.100)	(T _F 2.515)
(psi)	(ft-lbs)	(ft-lbs)	(ft-lbs)	(ft-lbs)	(ft-lbs)
1000	140	320	601	1100	2515
1200	168	384	721	1320	3018
1400	196	448	841	1540	3521
1600	224	512	962	1760	4024
1800	252	576	1082	1980	4527
2000	280	640	1202	2200	5030
2200	308	704	1322	2420	5533
2400	336	768	1442	2640	6036
2600	364	832	1563	2860	6539
2800	392	896	1683	3080	7042
3000	420	960	1803	3300	7545
3200	448	1024	1923	3520	8048
3400	476	1088	2043	3740	8551
3600	504	1152	2164	3960	9054
3800	532	1216	2284	4180	9557
4000	560	1280	2404	4400	10,060
4200	588	1344	2524	4620	10,563
4400	616	1408	2644	4840	11,066
4600	644	1472	2765	5060	11,569
4800	672	1536	2885	5280	12,072
5000	700	1600	3005	5500	12,575
5200	728	1664	3125	5720	13,078
5400	756	1728	3245	5940	13,581
5600	784	1792	3366	6160	14,084
5800	812	1856	3486	6380	14,587
6000	840	1920	3606	6600	15,090
6200	868	1984	3726	6820	15,593
6400	896	2048	3846	7040	16,096
6600	924	2112	3967	7260	16,599
6800	952	2176	4087	7480	17,102
7000	980	2240	4207	7700	17,605
7200	1008	2304	4327	7920	18,108
7400	1036	2368	4447	8140	18,611
7600	1064	2432	4568	8360	19,114
7800	1092	2496	4688	8580	19,617
8000	1120	2560	4808	8800	20,120
8200	1148	2624	4928	9020	20,623
8400	1176	2688	5048	9240	21,126
8600	1204	2752	5169	9460	21,629
8800	1232	2816	5289	9680	22,132
9000	1260	2880	5409	9900	22,635
9200	1288	2944	5529	10,120	23,138
9400	1316	3008	5649	10,340	23,641
9600	1344	3072	5770	10,560	24,144
9800	1372	3136	5890	10,780	24,647
10,000	1400	3200	6010	11,000	25,150



The function of a hydraulic Torque Wrench, is to convert hydraulic pressure into torque. This chart is a “quick-reference” to help in determining what this conversion factor is. If you do not find your torque and pressure values in the chart, then the following conversion formulas can be used to find your theoretical torque value. The actual value may vary due to wrench condition and age.

$$T = P \times T_f$$

$$P = T / T_f$$

Where: T = target torque

P = pressure

T_f = theoretical applied torque



Bolting Integrity Software

A comprehensive on-line software solution for Bolted Joint Integrity.

Integral databases hold data for:

- BS1560, MSS SP44, API 6A and 17D flanged joints
 - Common gasket materials and configurations
 - Comprehensive range of bolt materials
 - Comprehensive range of lubricants
 - Enerpac's Controlled Bolting Equipment including: Torque Multipliers, Hydraulic Wrenches and Bolt Tensioning tools
- Custom Joint information can also be entered.

The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application data sheet and Joint completion report.



▼ W-Series

Pressure vs. Torque – W-Series Torque Wrench Imperial Table

Pump Pressure	W2000 Torque Output	W4000 Torque Output	W8000 Torque Output	W15000 Torque Output	W22000 Torque Output	W35000 Torque Output
	(T _F 0.200)	(T _F 0.400)	(T _F 0.800)	(T _F 1.500)	(T _F 2.250)	(T _F 3.500)
(psi)	(ft-lbs)	(ft-lbs)	(ft-lbs)	(ft-lbs)	(ft-lbs)	(ft-lbs)
1000	200	400	800	1500	2250	3500
1200	240	480	960	1800	2700	4200
1400	280	560	1120	2100	3150	4900
1600	320	640	1280	2400	3600	5600
1800	360	720	1440	2700	4050	6300
2000	400	800	1600	3000	4500	7000
2200	440	880	1760	3300	4950	7700
2400	480	960	1920	3600	5400	8400
2600	520	1040	2080	3900	5850	9100
2800	560	1120	2240	4200	6300	9800
3000	600	1200	2400	4500	6750	10,500
3200	640	1280	2560	4800	7200	11,200
3400	680	1360	2720	5100	7650	11,900
3600	720	1440	2880	5400	8100	12,600
3800	760	1520	3040	5700	8550	13,300
4000	800	1600	3200	6000	9000	14,000
4200	840	1680	3360	6300	9450	14,700
4400	880	1760	3520	6600	9900	15,400
4600	920	1840	3680	6900	10,350	16,100
4800	960	1920	3840	7200	10,800	16,800
5000	1000	2000	4000	7500	11,250	17,500
5200	1040	2080	4160	7800	11,700	18,200
5400	1080	2160	4320	8100	12,150	18,900
5600	1120	2240	4480	8400	12,600	19,600
5800	1160	2320	4640	8700	13,050	20,300
6000	1200	2400	4800	9000	13,500	21,000
6200	1240	2480	4960	9300	13,950	21,700
6400	1280	2560	5120	9600	14,400	22,400
6600	1320	2640	5280	9900	14,850	23,100
6800	1360	2720	5440	10,200	15,300	23,800
7000	1400	2800	5600	10,500	15,750	24,500
7200	1440	2880	5760	10,800	16,200	25,200
7400	1480	2960	5920	11,100	16,650	25,900
7600	1520	3040	6080	11,400	17,100	26,600
7800	1560	3120	6240	11,700	17,550	27,300
8000	1600	3200	6400	12,000	18,000	28,000
8200	1640	3280	6560	12,300	18,450	28,700
8400	1680	3360	6720	12,600	18,900	29,400
8600	1720	3440	6880	12,900	19,350	30,100
8800	1760	3520	7040	13,200	19,800	30,800
9000	1800	3600	7200	13,500	20,250	31,500
9200	1840	3680	7360	13,800	20,700	32,200
9400	1880	3760	7520	14,100	21,150	32,900
9600	1920	3840	7680	14,400	21,600	33,600
9800	1960	3920	7840	14,700	22,050	34,300
10,000	2000	4000	8000	15,000	22,500	35,000



The function of a hydraulic Torque Wrench, is to convert hydraulic pressure into torque. This chart is a “quick-reference” to help in determining what this conversion factor is. If you do not find your torque and pressure values in the chart, then the following conversion formulas can be used to find your theoretical torque value. The actual value may vary due to wrench condition and age.

$$T = P \times T_F$$

$$P = T / T_F$$

Where: T = target torque

P = pressure

T_F = theoretical applied torque



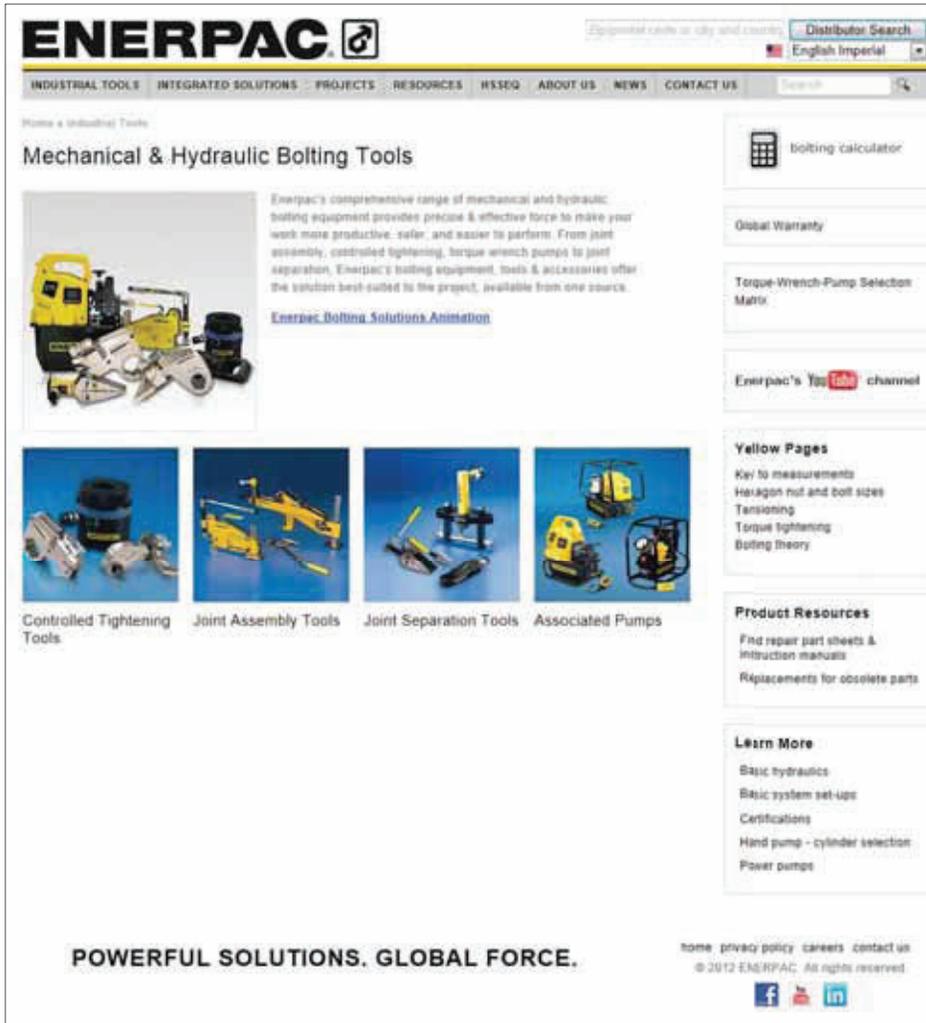
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Australia and New Zealand Actuant Australia Ltd.

Block V Unit 3
Regents Park Estate
391 Park Road
Regents Park NSW 2143
(P.O. Box 261) Australia
T +61 297 438 988
F +61 297 438 648
sales-au@enerpac.com

Brazil

Power Packer do Brasil Ltda.
Rua Luiz Lawrie Reid, 548
09930-760 - Diadema (SP)
T +55 11 5687 2211
F +55 11 5686 5583
Toll Free: 0800 891 5770
vendabrasil@enerpac.com

Canada

Actuant Canada Corporation
6615 Ordan Drive, Unit 14-15
Mississauga, Ontario L5T 1X2
T +1 905 564 5749
F +1 905 564 0305
Toll Free:
T +1 800 268 4987
F +1 800 461 2456
customer.service@actuant.com

China

Actuant (China) Industries Co. Ltd.
No. 6 Nanjing Road,
Taicang Economic Dep Zone
Jiangsu, China
T +86 0512 5328 7500
F +86 0512 5335 9690
Toll Free: +86 400 885 0369
sales-cn@enerpac.com

France, Switzerland, North Africa and French speaking African countries

ENERPAC
Une division d'ACTUANT
France S.A.S.
ZA de Courtaboef
32, avenue de la Baltique
91140 VILLEBON /YVETTE
France
T +33 1 60 13 68 68
F +33 1 69 20 37 50
sales-fr@enerpac.com

Germany and Austria

ENERPAC GmbH
P.O. Box 300113
D-40401 Düsseldorf
Willstätterstrasse 13
D-40549 Düsseldorf, Germany
T +49 211 471 490
F +49 211 471 49 28
sales-de@enerpac.com

India

ENERPAC Hydraulics Pvt. Ltd.
No. 1A, Peenya Industrial Area
IInd Phase, Bangalore, 560 058, India
T +91 80 40 792 777
F +91 80 40 792 792
sales-in@enerpac.com

Italy

ENERPAC S.p.A.
Via Canova 4
20094 Corsico (Milano)
T +39 02 4861 111
F +39 02 4860 1288
sales-it@enerpac.com

Japan

Applied Power Japan LTD KK
Besshocho 85-7
Kita-ku, Saitama-shi 331-0821, Japan
T +81 48 662 4911
F +81 48 662 4955
sales-jp@enerpac.com

Middle East, Egypt and Libya

ENERPAC Middle East FZE
Office 423, LOB 15
P.O. Box 18004, Jebel Ali, Dubai
United Arab Emirates
T +971 (0)4 8872686
F +971 (0)4 8872687
sales-ua@enerpac.com

Russia

Rep. office Enerpac
Russian Federation
Admirala Makarova Street 8
125212 Moscow, Russia
T +7 495 98090 91
F +7 495 98090 92
sales-ru@enerpac.com

Southeast Asia, Hong Kong and Taiwan

Actuant Asia Pte Ltd.
83 Joo Koon Circle
Singapore 629109
T +65 68 63 0611
F +65 64 84 5669
Toll Free: +1800 363 7722
sales-sg@enerpac.com

South Korea

Actuant Korea Ltd.
3Ba 717, Shihwa Industrial Complex
Jungwang-Dong, Shihung-Shi,
Kyunggi-Do
Republic of Korea 429-450
T +82 31 434 4506
F +82 31 434 4507
sales-kr@enerpac.com

Spain and Portugal

ENERPAC SPAIN, S.L.
Avda. Los Frailes, 40 - Nave C & D
Pol. Ind. Los Frailes
28814 Daganzo de Arriba
(Madrid) Spain
T +34 91 884 86 06
F +34 91 884 86 11
sales-es@enerpac.com

Sweden, Denmark, Norway,

Finland and Iceland
Enerpac Scandinavia AB
Fabriksgatan 7
412 50 Gothenburg
Sweden
T +46 (0) 31 799 0281
F +46 (0) 31 799 0010
scandinavianinquiries@enerpac.com

The Netherlands, Belgium, Luxembourg, Central and Eastern Europe, Baltic States, Greece, Turkey and CIS countries

ENERPAC B.V.
Galvanistraat 115
6716 AE Ede
P.O. Box 8097
6710 AB Ede
The Netherlands
T +31 318 535 911
F +31 318 535 848
sales-nl@enerpac.com

Enerpac Integrated Solutions B.V.

Opaalstraat 44
7554 TS Hengelo
P.O. Box 421
7550 AK Hengelo
The Netherlands
T +31 74 242 20 45
F +31 74 243 03 38
integratedsolutions@enerpac.com

South Africa and other English speaking

African countries
Enerpac Africa Pty Ltd
No5 Bauhinia Avenue
Cambridge Office Park
Block E
Highveld techno Park
Centurion 0157
South Africa
T: +0027 (0) 12 940 0656
sales-za@enerpac.com

United Kingdom and Ireland

ENERPAC Ltd.,
Bentley Road South
Darlaston, West Midlands
WS10 8LQ
England
T +44 (0)121 50 50 787
F +44 (0)121 50 50 799
sales-uk@enerpac.com

USA, Latin America and Caribbean

ENERPAC
P.O. Box 3241
Milwaukee, WI 53201 USA
T +1 262 293 1600
F +1 262 293 7036
User inquiries:
+1 800 433 2766
Distributor inquiries/orders:
T +1 800 558 0530
F +1 800 628 0490
Technical inquiries:
techservices@enerpac.com
sales-us@enerpac.com

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**Manual Torque Multipliers
Square Drive Wrenches
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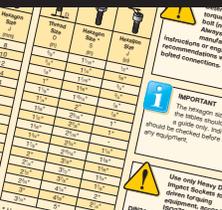


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Australia and New Zealand
Actuant Australia Ltd.
Tel: +61 297 438 988 – Fax: +61 297 438 648

Brazil
Power Packer do Brasil Ltda.
Tel: +55 11 5687 2211 – Fax: +55 11 5686 5583
Toll Free: 0800 891 5770

Canada
Actuant Canada Corporation
Tel: +1 905 564 5749 – Fax: +1 905 564 0305
Toll Free:
Tel: +1 800 268 4987 – Fax: +1 800 461 2456

China
Actuant (China) Industries Co., Ltd.
Toll Free: +86 400 885 0369
Tel: +86 0512 5328 7500 – Fax: +86 0512 5335 9690

**France, Switzerland, North Africa and
French speaking African countries**
ENERPAC
Tel: +33 1 60 13 68 68 – Fax: +33 1 69 20 37 50

Germany and Austria
ENERPAC GmbH
Tel: +49 211 471 490 – Fax: +49 211 471 49 28

India
ENERPAC Hydraulics Pvt. Ltd.
Tel: +91 80 40 792 777 – Fax: +91 80 40 792 792

Italy
ENERPAC S.p.A.
Tel: +39 02 4861 111 – Fax: +39 02 4860 1288

Japan
Applied Power Japan LTD KK
Tel: +81 48 662 4911 – Fax: +81 48 662 4955

Middle East, Egypt and Libya
ENERPAC Middle East FZE
Tel: +971 (0)4 8872686 – Fax: +971 (0)4 8872687

Russia
Rep. office Enerpac
Tel: +7 495 98090 91 – Fax: +7 495 98090 92

Southeast Asia, Hong Kong and Taiwan
Actuant Asia Pte Ltd.
Tel: +65 68 63 0611 – Fax: +65 64 84 5669
Toll Free: +1800 363 7722

South Korea
Actuant Korea Ltd.
Tel: +82 31 434 4506 – Fax: +82 31 434 4507

Spain and Portugal
ENERPAC SPAIN, S.L.
Tel: +34 91 884 86 06 – Fax: +34 91 884 86 11

Sweden, Denmark, Norway, Finland and Iceland
Enerpac Scandinavia AB
Tel: +46 (0) 31 799 0281 – Fax: +46 (0) 31 799 0010

**The Netherlands, Belgium, Luxembourg, Central and
Eastern Europe, Baltic States, Greece, Turkey and
CIS countries**
ENERPAC B.V.
Tel: +31 318 535 911 – Fax: +31 318 535 848

Enerpac Integrated Solutions B.V.
Tel: +31 74 242 20 45 – Fax: +31 74 243 03 38

**South Africa and other English speaking
African countries**
ENERPAC Africa (PTY) Ltd.
Tel: +0027 (0) 12 940 0656

United Kingdom and Ireland
ENERPAC Ltd.
Tel: +44 (0)121 50 50 787 – Fax: +44 (0)121 50 50 799

USA, Latin America and Caribbean
ENERPAC
Tel: +1 262 293 1600 – Fax: +1 262 293 7036

User inquiries: +1 800 433 2766
Distributor inquiries/orders:
Tel: +1 800 558 0530 – Fax: +1 800 628 0490

e-mail: info@enerpac.com
internet: www.enerpac.com

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