ENERPAC®

POWERFUL SOLUTIONS. GLOBAL FORCE.

BOLTING TOOLS

US

E413

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, ranging from manual torque multipliers, to pneumatic multipliers, as well as a comprehensive range of hydraulic torque wrenches and inter-connectable bolt tensioning tools.

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

Controlled tightening of a large range of fasteners including those in hard to reach areas, which require highly accurate torquing solutions.

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.

PTW Series Torque Wrenches

General Applications

Applications that require controlled bolting, feature a high volume of fastenings, and offer access to an air compressor.

Solution:
Pneumatic Torque Wrenches

Enerpac Pneumatic Torque Wrenches are fast, easy to use and highly accurate. Their low friction planetary gear box provides continuous rotation for constant torque output and minimizes wear for longer tool life. The PTW tools' quiet air motor and low vibration design make them suitable for both indoor and outdoor applications.

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

Joint Separation

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.

Flange Spreaders

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 ± 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 (Ft.lbs)	Output Torque Capacity (Nm)	Model Number
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

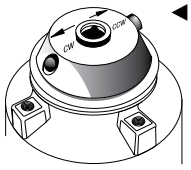
E Series

Nominal Output Torque:
750-8000 Ft.lbs

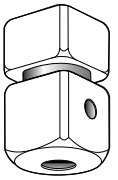
Torque Ratio:
3:1-52:1

Multiplier Output Ratio Accuracy:
± 5 %

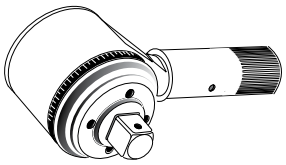
CAUTION!
Never use impact type air tools for power driving torque multipliers. Torque multiplier drive train damage will occur.



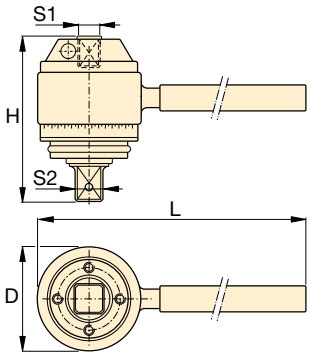
◀ **Selector Pawl**
Models with anti-backlash protection have directional selector pawls. Set the pawl for clockwise or counter-clockwise rotation.



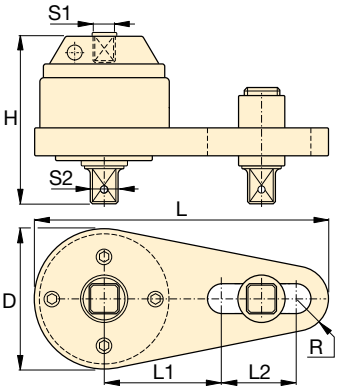
◀ **Shearable Square Drive**
Designed to provide overload protection on E300- and E400-series multiplier power train by shearing when excess input torque is applied. Internal shear pin prevents tool from falling off bolt.



▲ **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.



Reaction Bar Type [1)]



Reaction Plate Type [1)]

Hydraulic Torque Wrenches
Enerpac offers a complete range of square drive and hexagon cassette torque wrenches.
Page: 6 & 12

BSH-Series Sockets
Heavy-Duty Impact Sockets for power driven torquing equipment.
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Input Torque (Ft.lbs)	Input Torque (Nm)	Torque Ratio	Input Female Square Drive S1 (in)	Output Male Square Drive S2 (in)	Output Male Square Drive Replaceable Shear Drive Model No.	Over-load Protec-tion	Anti-Back-lash	Dimensions (in) D	H	L	L1	L2	R	Wt. (lbs)	Model Number
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.

▼ Shown: **S3000X**

Safety and Performance

- **Compact, high-strength uni-body construction provides a small operating radius without sacrificing endurance**
- **35° rotation angle and rapid return stroke for fast operation**
- **Tough manifold design with added safety feature for enhanced operator safety**

Simplicity

- **360° click-on reaction arm with quick release lever provides easier handling, even when wearing gloves**
- **Includes robust handle which mounts on both sides of tool for extra maneuverability**
- **Push button square drive release for quickly reversing the square drive for tightening or loosening**

Versatility

- **Available with optional enhanced tilt and swivel TSP300 manifold for horizontal and vertical maneuverability, with greater durability***

Accuracy

- **Constant torque output provides accuracy of +/-3% across full stroke**
- **Optional Angle-of-Turn Indicator provides measurement of rotation**

* TSP300 is designed for X-Edition tools only, and is not compatible with standard edition tools. For replacement components for existing tools, refer to repair sheet on www.enerpac.com

Setting New Standards in Safety, Simplicity and Performance

Two Handle Styles

Robust angled positioning handles come standard with every S-Series (X-Edition) tool. Straight positioning handles are available as accessories.

Compatible S-Series (X-Edition) wrenches	Angled positioning handles (standard)	Straight positioning handles (optional)
S1500X, S3000X	SWH6A	SWH6S
S6000X, S11000X	SWH10A	SWH10S
S25000X	Supplied with an eyebolt handle (SWH10EA)	

TSP - Pro Series Swivel

The optional **TSP300** tilt and swivel manifold with robust interlocking design provides 360° X-axis rotation and 160° Y-axis rotation.

How to Order*

Factory fitted to S-Series (X-Edition) wrenches: Insert a "P" prior to the "X" in the tool designation, e.g.: **S1500PX**.

Order as an accessory using the part number: **TSP300**, which can be fitted to existing S-Series (X-Edition) wrenches.

* Includes male and female couplers.

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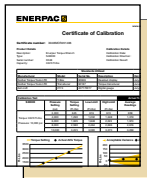
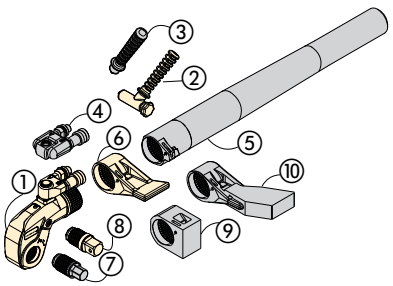


Calibration Certificate

All X-Edition tools are CE-ATEX declared, factory calibrated and are shipped complete with a calibration certificate.

CE Ex II 2 GD ck T4
CSA/SIRA 15XT072

S-Series, X-Edition, Square Drive Torque Wrenches



① Drive Unit
② Angeled Positioning Handle
③ Straight Positioning Handle (optional)
④ Pro Series Swivel (optional)
⑤ Reaction Tube Extension (optional)
⑥ Standard Reaction Arm
⑦ Allen Drive (optional)
⑧ Square Drive
⑨ Short Reaction Arm (optional)
⑩ Extended Reaction Arm (optional)

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 (X-Edition)

Nominal Torque at 10,000 psi:
26,150 Ft.lbs

Square Drive Range:
¾-2½ inch

Nose Radius:
.98-2.52 inch

Maximum Operating Pressure:
10,000 psi

Accessory Options

A full list of optional accessories can be found on page 9.

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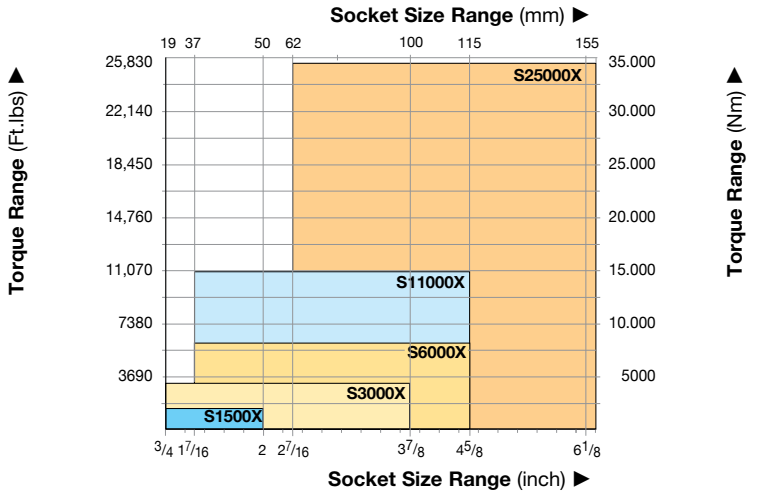
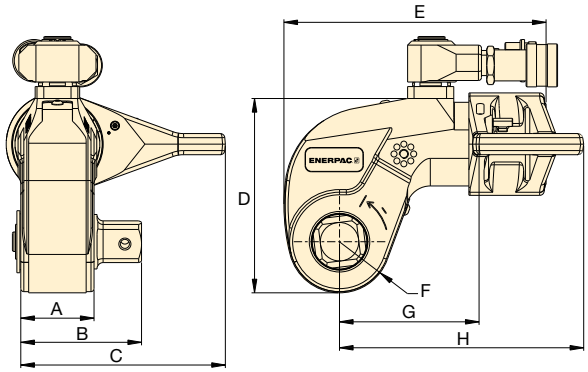
***TORQUE WRENCH SELECTION (based on socket size range)**



*Additional socket sizes available upon request. See page 10 for BSH-Sockets.

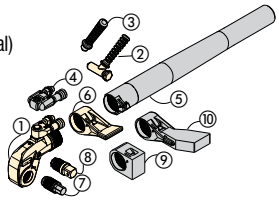
▼ *The rigid steel design of the S-Series torque wrenches provides durability, reliability and safety.*



Nominal Torque at 10,000 psi		Minimum Torque		Square Drive Size (in)	Square Drive Model No. (included with wrench)	Angle-of-Turn Model No. (optional)	Torque Wrench Model No.*	Dimensions (in)								Wt.
								A	B	C	D	E	F	G	H	
(Ft.lbs)	(Nm)	(Ft.lbs)	(Nm)													(lbs)
1440	1952	144	195	¾"	SD15–012	AOT15	**S1500X**	1.54	2.56	4.25	3.82	5.35	0.98	2.76	5.08	7.0
3225	4373	323	438	1"	SD30–100	AOT30	**S3000X**	1.89	3.15	5.31	5.04	6.81	1.30	3.54	6.34	12.3
6150	8338	615	834	1½"	SD60–108	AOT60	**S6000X**	2.17	3.62	6.65	6.18	7.56	1.57	4.33	7.40	20.2
11,175	15.151	1,118	1.516	1½"	SD110–108	AOT110	**S11000X**	2.83	4.49	7.76	7.48	8.98	1.95	5.24	9.02	34.7
26,150	35.455	2,615	3.545	2½"	SD250–208	AOT250	**S25000X**	3.50	5.63	9.69	9.61	11.30	2.52	7.17	11.61	70.8

* To order a S-series (X-Edition) wrench fitted with the TSP swivel, insert a "P" prior to the "X" in the tool designation. e.g., **S1500PX**.

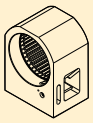
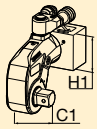
① Drive Unit
② Angeled Positioning Handle
③ Straight Positioning Handle (optional)
④ Pro Series Swivel (optional)
⑤ Reaction Tube Extension (optional)
⑥ Standard Reaction Arm
⑦ Allen Drive (optional)
⑧ Square Drive
⑨ Short Reaction Arm (optional)
⑩ Extended Reaction Arm (optional)



Nominal Torque at 10,000 psi:
26,150 Ft.lbs.

Hexagon Size Allen Drive:
½-2¼ in. (14-85 mm)

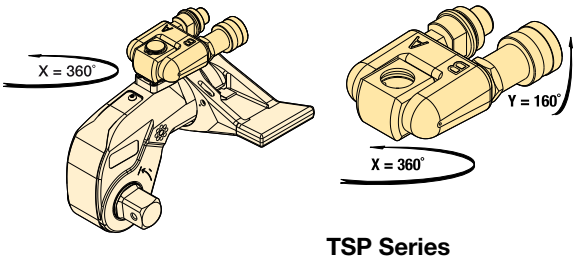
For S Series (X-Edition)

TORQUE WRENCH	OPTIONAL ALLEN DRIVES, IMPERIAL				OPTIONAL ALLEN DRIVES, METRIC				SHORT REACTION ARM FOR ALLEN DRIVES		
											
Model Number	**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**
S1500X (1440 Ft-lbs)	½	355	**SDA15-008**	2.6	**14**	475	**SDA15-14**	2.60	**SRA15X**	2.66	2.56
	⅝	690	**SDA15-010**	2.6	**17**	850	**SDA15-17**	2.68			
	¾	1195	**SDA15-012**	2.8	**19**	1185	**SDA15-19**	2.76			
	⅞	1400	**SDA15-014**	2.9	**22**	1400	**SDA15-22**	2.87			
	1	1400	**SDA15-100**	3.0	**24**	1400	**SDA15-24**	2.91			
S3000X (3225 Ft-lbs)	⅝	690	**SDA30-010**	3.0	**17**	850	**SDA30-17**	3.03	**SRA30X**	3.15	2.91
	¾	1195	**SDA30-012**	3.1	**19**	1185	**SDA30-19**	3.11			
	⅞	1895	**SDA30-014**	3.3	**22**	1835	**SDA30-22**	3.23			
	1	2825	**SDA30-100**	3.4	**24**	2385	**SDA30-24**	3.31			
	1⅛	3200	**SDA30-102**	3.5	**27**	3200	**SDA30-27**	3.35			
	1¼	3200	**SDA30-104**	3.5	**30**	3200	**SDA30-30**	3.43			
	–	–	**–**	–	**32**	3200	**SDA30-32**	3.46			
S6000X (6050 Ft-lbs)	⅝	690	**SDA60-010**	3.3	**17**	850	**SDA60-17**	3.39	**SRA60X**	3.60	3.50
	¾	1195	**SDA60-012**	3.5	**19**	1185	**SDA60-19**	3.46			
	⅞	1895	**SDA60-014**	3.6	**22**	1835	**SDA60-22**	3.58			
	1	2825	**SDA60-100**	3.7	**24**	2385	**SDA60-24**	3.66			
	1⅛	4025	**SDA60-102**	3.8	**27**	3395	**SDA60-27**	3.70			
	1¼	5520	**SDA60-104**	3.9	**30**	4655	**SDA60-30**	3.78			
	–	–	**–**	–	**32**	5650	**SDA60-32**	3.82			
S11000X (11,175 Ft-lbs)	**1¼**	5520	**SDA110-104**	4.5	**30**	4655	**SDA110-30**	4.41	**SRA110X**	5.02	4.17
	1⅜	7345	**SDA110-106**	4.6	**32**	5650	**SDA110-32**	4.49			
	1½	9535	**SDA110-108**	4.6	**36**	8040	**SDA110-36**	4.61			
	1⅝	11,000	**SDA110-110**	4.8	**41**	11,000	**SDA110-41**	4.76			
	1¾	11,000	**SDA110-112**	4.9	**46**	11,000	**SDA110-46**	5.00			
S25000X (26,150 Ft-lbs)	**1½**	9535	**SDA250-108**	5.5	**36**	8040	**SDA250-36**	5.51	**SRA250X**	6.24	5.31
	1⅝	12,120	**SDA250-110**	5.7	**41**	11,880	**SDA250-41**	5.67			
	1¾	15,135	**SDA250-112**	5.8	**46**	16,775	**SDA250-46**	5.83			
	1⅞	18,620	**SDA250-114**	5.9	**50**	21,545	**SDA250-50**	5.94			
	2	22,595	**SDA250-200**	5.9	**55**	26,150	**SDA250-55**	6.06			
	2¼	26,150	**SDA250-204**	6.0	**60**	26,150	**SDA250-60**	6.22			
	–	–	**–**	–	**65**	26,150	**SDA250-65**	6.34			
	–	–	**–**	–	**70**	26,150	**SDA250-70**	6.46			
	–	–	**–**	–	**75**	26,150	**SDA250-75**	6.61			
	–	–	**–**	–	**85**	26,150	**SDA250-85**	6.89			

TSP-Series, Pro Series Swivels

- Robust interlocking design
- 360° X-axis and 160° Y-axis rotation
- Increases tool fit in restricted access areas
- Simplifies hose placement
- Includes male and female couplers

TSP
RTEX
SRSX
Series



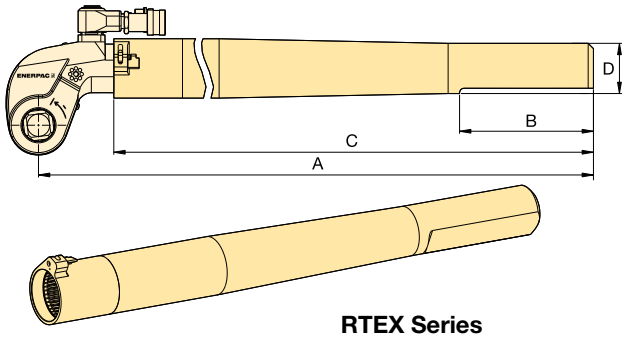
TSP Series

Torque Wrench Model Number	Model Number	Maximum Pressure (psi)	Wt. (lbs)
S1500X, S3000X, S6000X, S11000X, S25000X	TSP300*	10,000	0.44

Note: To order a S-series (X-Edition) wrench fitted with the TSP swivel, insert a "P" prior to the "X" in the tool designation, e.g., **S1500PX.**

* TSP300 is designed for X-Edition tools only, and is not compatible with standard edition tools. For replacement components for existing tools, refer to repair sheet on www.enerpac.com

RTEX-Series, Reaction Tube Extensions



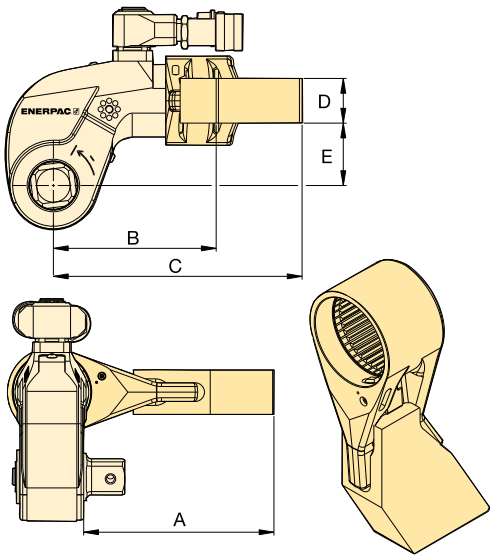
RTEX Series

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

Torque Wrench Model Number	Model Number	Dimensions (in)				Wt. (lbs)*
		A	B	C	D	
S1500X	RTE15X	27.80	5.98	25.04	2.28	10.1
S3000X	RTE30X	28.86	5.98	25.47	2.24	12.1
S6000X	RTE60X	29.41	5.98	25.94	2.56	17.0
S11000X	RTE110X	30.28	5.98	26.57	2.99	24.7
S25000X	RTE250X	32.01	5.98	26.97	3.94	38.1

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

SRSX-Series, Extended Reaction Arms



SRSX Series

- Lightweight interchangeable design

Wrench Model	Max. Torque (Ft-lbs)	Model Number	Dimensions (in)					Wt. (lbs)*
			A	B	C	D	E	
S1500X	1328	SRS151X	3.70	3.39	5.00	0.94	1.34	1.8
	1210	SRS152X	4.69	3.82	5.43	0.94	1.34	2.2
	1131	SRS153X	5.71	4.29	5.83	0.94	1.34	2.6
S3000X	2890	SRS301X	4.37	4.17	6.61	1.34	1.89	3.5
	2739	SRS302X	5.39	4.61	7.17	1.34	1.89	4.4
	2638	SRS303X	6.38	5.20	7.80	1.34	1.89	5.5
S6000X	5784	SRS601X	5.43	5.04	7.56	1.54	2.44	5.1
	5501	SRS602X	6.42	5.67	8.15	1.54	2.44	6.0
	5295	SRS603X	7.44	6.26	8.74	1.54	2.44	7.5
S11000X	10,812	SRS1101X	5.87	6.18	9.13	1.81	2.99	9.7
	10,300	SRS1102X	6.89	6.77	9.72	1.81	2.99	11.2
	9883	SRS1103X	7.87	7.36	10.28	1.81	2.99	12.8
S25000X	24,751	SRS2501X	7.20	8.23	11.61	1.97	3.94	16.8
	23,652	SRS2502X	8.19	8.74	12.20	1.97	3.94	18.5
	22,694	SRS2503X	9.17	9.29	12.83	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"**

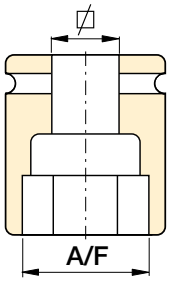
Hexagon Sizes:
¾ - 6⅛ inch
(19 - 155 mm)

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	¾"	BSH1019	¾"	BSH10231	2 5/16"	BSH15144	1 7/16"	BSH15281	2 13/16"	BSH25244	2 7/16"	BSH25419	4 3/16"
BSH75088	⅞"	BSH10088	⅞"	BSH10238	2 3/8"	BSH1538	1 ½"	BSH15288	2 7/8"	BSH25250	2 ½"	BSH25425	4 ¼"
BSH75094	15/16"	BSH10094	15/16"	BSH10244	2 7/16"	BSH15156	1 9/16"	BSH1575	2 15/16"	BSH2565	2 9/16"	BSH25110	4 5/16"
BSH7527	1 1/16"	BSH1027	1 1/16"	BSH10250	2 ½"	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 ½"
BSH75125	1 ¼"	BSH10125	1 ¼"	BSH10263	2 5/8"	BSH15175	1 ¾"	BSH15313	3 1/8"	BSH2570	2 ¾"	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 ¾"
BSH7535	1 3/8"	BSH1035	1 3/8"	BSH1070	2 ¾"	BSH15188	1 7/8"	BSH15325	3 ¼"	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 ½"	BSH1038	1 ½"	BSH10288	2 7/8"	BSH15200	2"	BSH15350	3 ½"	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 ¾"	BSH25313	3 1/8"	BSH25525	5 ¼"
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 ¾"	BSH10175	1 ¾"	BSH10313	3 1/8"	BSH15225	2 ¼"	BSH15100	3 15/16"	BSH25325	3 ¼"	BSH25140	5 ½"
BSH7546	1 13/16"	BSH1046	1 13/16"	BSH10319	3 3/16"	BSH15231	2 5/16"	BSH15400	4"	BSH25338	3 3/8"	BSH25575	5 ¾"
BSH75188	1 7/8"	BSH10188	1 7/8"	BSH10325	3 ¼"	BSH15238	2 3/8"	BSH15105	4 1/8"	BSH25350	3 ½"	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 ½"	BSH15250	2 ½"	BSH15425	4 ¼"	BSH2595	3 ¾"	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 ¾"	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 ½"	BSH25400	4"		
		BSH10225	2 ¼"			BSH1570	2 ¾"	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.

S3000X Square Drive Torque Wrench on Wind Turbine Assembly and Maintenance

S3000X 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.

W4000X Low Profile Torque Wrench on an API 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 flange was easily overcome with an Enerpac W-Series Torque Wrench. The W Wrenches offer reliability and control, ensuring even and consistent torque is applied to all bolts.

S3000X on an Oil and Gas Flange

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: **W4206X cassette with W4000X drive unit**
(Rear model shows optional straight handle)

Setting New Standards in Safety, Simplicity and Performance

Safety and Performance

- **Superior strength to size ratio provides easy access to difficult to reach applications without sacrificing endurance**
- **30° rotation angle and rapid return stroke provide fast operation**
- **Tough manifold design with added safety feature for enhanced operator safety**

Simplicity

- **Fast release drive unit enables rapid exchange of cassettes, no tools required and no pins to lose**
- **Includes robust handles which mount on both sides, and the tops of cassettes to allow for extra maneuverability**
- **Quick and easy disassembly for maintenance without special tools**

Versatility

- **Available with optional enhanced tilt and swivel TSP300 manifold for horizontal and vertical maneuverability, with greater durability***
- **X-Edition drive units, cassettes and most accessories are compatible with standard edition tools***
- **Drive unit compatible with UltraSlim and WCR-Series cassettes**

Accuracy

- **Constant torque output provides accuracy of +/-3% across full stroke**

* TSP300 is designed for X-Edition tools only, and is not compatible with standard edition tools. For replacement components for existing tools, refer to repair sheet on www.enerpac.com

Two Handle Styles

Robust angled positioning handles come standard with every W-Series (X-Edition) tool. Straight positioning handles designed for extreme limited access applications are available as accessories.

Compatible W-Series (X-Edition) wrenches	Angled positioning handles (standard)	Straight positioning handles (optional)
W2000X, W4000X	SWH6A	SWH6S
W8000X, W15000X	SWH10A	SWH10S
W22000X, W35000X	Supplied with an eyebolt handle (SWH10EA)	

TSP - Pro Series Swivel

The optional TSP300 tilt and swivel manifold with robust interlocking design provides 360° X-axis rotation and 160° Y-axis rotation.

How to Order

Factory fitted to new W-Series (X-Edition) wrenches: Insert a "P" prior to the "X" in the tool designation, e.g.: **W2000PX**.

Order as an accessory using the part number: **TSP300**, which can be fitted to existing W-Series (X-Edition) wrenches.

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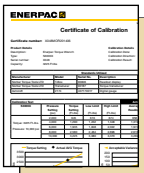
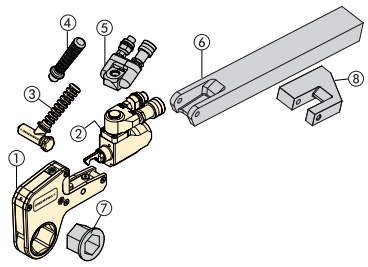


Calibration Certificate

All X-Edition tools are CE-ATEX declared, factory calibrated and are shipped complete with a calibration certificate.

CE Ex II 2 GD ck T4
CSA/SIRA 15XT072



① Hexagon Cassette
② Drive Unit
③ Angled Positioning Handle
④ Straight Positioning Handle (optional)
⑤ Pro Series Swivel (optional)
⑥ Extended Reaction Arm (optional)
⑦ Reducer Insert (optional)
⑧ Reaction Paddle (optional)

Hexagon Cassettes and Reducer Inserts

Full range of interchangeable hexagon cassettes and reducing inserts provides maximum versatility. Details available at www.enerpac.com

W Series (X-Edition)

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

Hexagon Range:
1 1/16 -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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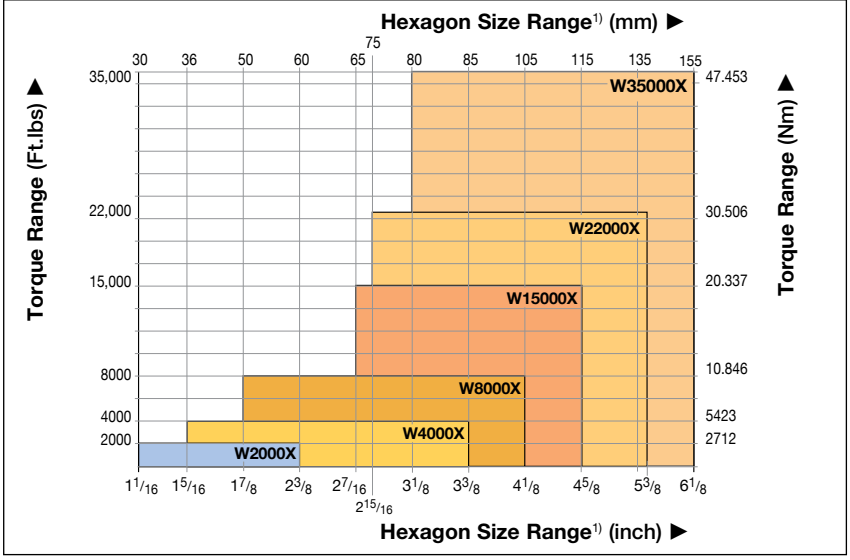
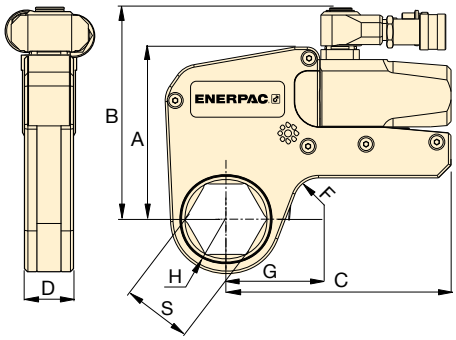
DRIVE UNIT AND INTERCHANGEABLE CASSETTE SELECTION



[1] See page 80 for table of hexagon sizes of bolts, nuts and related thread diameters.



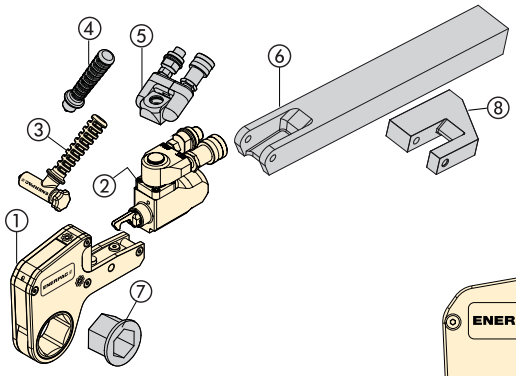
▼ *These rigid steel wrenches with low profile interchangeable hexagon cassettes guarantee durability and maximum versatility in bolting applications.*

▼ SELECTION CHART

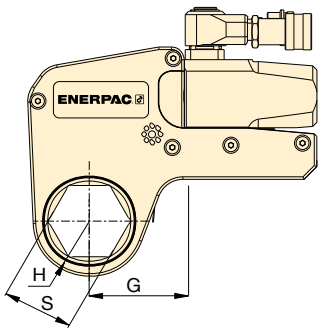
Hexagon Range *  *Page:* 14		Nominal Torque at 10,000 psi		Drive Unit Model Number ** 	Minimum Torque		Dimensions (see pages 14-21 for dimensions H, G, and S) (in)					Weight (Drive unit without hexagon cassette)
(in)	(mm)	(Ft.lbs)	(Nm)		(Ft.lbs)	(Nm)	A	B	C	D	F	(lbs)
1 1/16 - 2 3/8	30 - 60	2040	2766	**W2000X**	204	277	4.29	5.55	5.83	1.26	.79	3.04
1 5/16 - 3 3/8	36 - 85	4175	5661	**W4000X**	418	566	5.35	6.57	7.01	1.61	.79	4.44
1 7/8 - 4 1/8	50 - 105	8470	11.484	**W8000X**	847	1148	6.77	8.07	8.19	2.07	.98	6.59
2 7/16 - 4 5/8	65 - 115	15,330	20.785	**W15000X**	1533	2079	8.15	9.45	9.96	2.48	.79	10.72
2 15/16 - 5 3/8	75 - 135	22,500	30.506	**W22000X**	2250	3050	8.94	10.46	11.68	3.03	1.38	16.98
3 1/8 - 6 1/8	80-155	35,000	47.453	**W35000X**	3500	4745	10.54	11.94	13.60	3.57	1.98	26.40

* With in-line reaction foot.

** To order a W-series (X-Edition) wrench fitted with the TSP swivel, insert a "P" prior to the "X" in the tool designation. e.g., **W2000PX**.



① Hexagon Cassette
② Drive Unit
③ Angled Positioning Handle
④ Straight Positioning Handle (optional)
⑤ Pro Series Swivel (optional)
⑥ Extended Reaction Arm (optional)
⑦ Reducer Insert (optional)
⑧ Reaction Paddle (optional)



W Series (X-Edition)

Nominal Torque at 10,000 psi:
2040 Ft.lbs

Hexagon Range:
1 1/16 - 2 3/8 inch

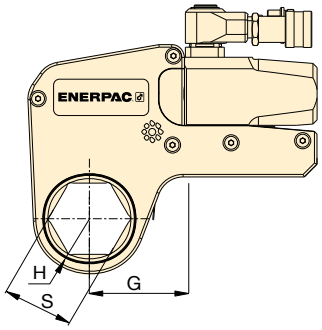
Maximum Operating Pressure:
10,000 psi

Metric Sizes
For metric sizes of hexagon cassettes and reducer inserts see:
Page: 20

▼ **SELECTION CHART**

Drive Unit Model Number	Hexagon Size S (in)	Nose Radius H (in)	Dim. G (in)	Model Number	Weight (lbs)	Hexagon Reducer (in)	Model Number	Hexagon Reducer (in)	Model Number	Hexagon Reducer (in)	Model Number
W2000X	1 1/16	1.22	2.11	W2101X	4.19	–	–	–	–	–	–
	1 1/8	1.22	2.11	W2102X	4.19	–	–	–	–	–	–
	1 3/16	1.22	2.11	W2103X	4.19	–	–	–	–	–	–
	1 1/4	1.22	2.11	W2104X	4.19	–	–	–	–	–	–
	1 5/16	1.22	2.11	W2105X	4.48	–	–	–	–	–	–
	1 3/8	1.22	2.11	W2106X	4.43	–	–	–	–	–	–
	1 7/16	1.22	2.11	W2107X	4.37	1 7/16 - 1 1/8	W2107R102	–	–	–	–
	1 1/2	1.32	2.29	W2108X	4.51	–	–	–	–	–	–
	1 9/16	1.32	2.29	W2109X	4.44	–	–	–	–	–	–
	1 5/8	1.32	2.29	W2110X	4.38	1 5/8 - 1 1/4	W2110R104	1 5/8 - 1 3/16	W2110R103	–	–
	1 11/16	1.44	2.38	W2111X	4.63	–	–	–	–	–	–
	1 3/4	1.44	2.38	W2112X	4.57	–	–	–	–	–	–
	1 13/16	1.44	2.38	W2113X	4.46	1 13/16 - 1 7/16	W2113R107	1 13/16 - 1 1/4	W2113R104	–	–
	1 7/8	1.54	2.48	W2114X	4.69	–	–	–	–	–	–
	1 15/16	1.54	2.48	W2115X	4.64	–	–	–	–	–	–
	2	1.54	2.48	W2200X	4.54	2 - 1 5/8	W2200R110	2 - 1 7/16	W2200R107	–	–
	2 1/16	1.65	2.70	W2201X	4.83	–	–	–	–	–	–
	2 1/8	1.65	2.70	W2202X	4.74	–	–	–	–	–	–
	2 3/16	1.65	2.70	W2203X	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	W2204X	4.94	–	–	–	–	–	–
	2 5/16	1.75	2.55	W2205X	4.84	–	–	–	–	–	–
	2 3/8	1.75	2.55	W2206X	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

W4000X Series Imperial Cassettes & Reducer Inserts



Nominal Torque at 10,000 psi:
4175 Ft.lbs

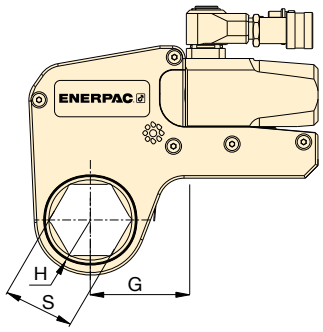
Hexagon Range:
1 5/16-3 3/8 inch

Maximum Operating Pressure:
10,000 psi

W Series (X-Edition)

▼ **SELECTION CHART**

Drive Unit Model Number	Hexagon Size S (in)	Nose Radius H (in)	Dim. G (in)	Model Number	Weight (lbs)	Hexagon Reducer (in)	Model Number	Hexagon Reducer (in)	Model Number	Hexagon Reducer (in)	Model Number
W4000X	1 5/16	1.46	2.40	W4105X	8.15	–	–	–	–	–	–
	1 3/8	1.46	2.40	W4106X	8.15	–	–	–	–	–	–
	1 7/16	1.46	2.40	W4107X	8.15	–	–	–	–	–	–
	1 1/2	1.46	2.40	W4108X	8.31	–	–	–	–	–	–
	1 9/16	1.46	2.40	W4109X	8.22	–	–	–	–	–	–
	1 5/8	1.46	2.40	W4110X	8.15	–	–	–	–	–	–
	1 11/16	1.56	2.52	W4111X	8.43	–	–	–	–	–	–
	1 3/4	1.56	2.52	W4112X	8.35	–	–	–	–	–	–
	1 13/16	1.56	2.52	W4113X	8.25	–		–	–	–	–
	1 7/8	1.63	2.63	W4114X	8.45	–	–	–	–	–	–
	1 15/16	1.63	2.63	W4115X	8.39	–	–	–	–	–	–
	2	1.63	2.63	W4200X	8.28	2 - 1 7/16	W4200R107	–	–	–	
	2 1/16	1.73	2.89	W4201X	8.65	–	–	–	–	–	–
	2 1/8	1.73	2.89	W4202X	8.53	–	–	–	–	–	–
	2 3/16	1.73	2.89	W4203X	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	W4204X	8.73	–	–	–	–	–	–
	2 5/16	1.83	2.78	W4205X	8.61	–	–	–	–	–	–
	2 3/8	1.83	2.78	W4206X	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	W4207X	8.96	2 7/16 - 2	W4207R200	–	–	–	–
	2 1/2	1.95	3.00	W4208X	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	W4209X	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	W4210X	9.14	–	–	–	–	–	–
	2 11/16	2.07	3.08	W4211X	9.03	–	–	–	–	–	–
	2 3/4	2.07	3.08	W4212X	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	W4213X	9.32	–	–	–	–	–	–
	2 7/8	2.18	3.21	W4214X	9.17	–	–	–	–	–	–
	2 15/16	2.18	3.21	W4215X	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	W4300X	9.51	3 - 2 3/16	W4300R203	–	–	–	–
	3 1/16	2.30	3.29	W4301X	9.42	–	–	–	–	–	–
	3 1/8	2.30	3.29	W4302X	9.16	–	–	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	W4303X	9.92	–	–	–	–	–	–
	3 1/4	2.44	3.37	W4304X	9.92	–	–	–	–	–	–
	3 5/16	2.44	3.37	W4305X	9.92	–	–	–	–	–	–
	3 3/8	2.44	3.37	W4306X	9.92	–	–	–	–	–	–



Nominal Torque at 10,000 psi:
8470 Ft.lbs

Hexagon Range:
1⅞ -4⅛ inch

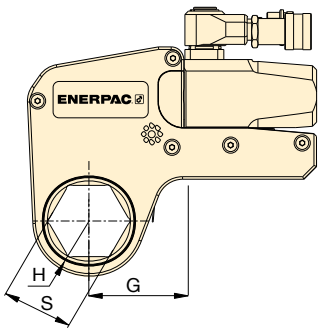
Maximum Operating Pressure:
10,000 psi

W Series (X-Edition)

▼ **SELECTION CHART**

Drive Unit Model Number	Hexagon Size S (in)	Nose Radius H (in)	Dim. G (in)	Model Number	Weight (lbs)	Hexagon Reducer (in)	Model Number	Hexagon Reducer (in)	Model Number	Hexagon Reducer (in)	Model Number
W8000X	1⅞	1.77	3.08	W8114X	17.97	–	–	–	–	–	–
	1 15/16	1.77	3.08	W8115X	17.89	–	–	–	–	–	–
	2	1.77	3.08	W8200X	17.75	–	–	–	–	–	–
	2 1/16	1.89	3.15	W8201X	17.52	–	–	–	–	–	–
	2⅛	1.89	3.15	W8202X	17.36	–	–	–	–	–	–
	2 3/16	1.89	3.15	W8203X	17.22	–	–	–	–	–	–
	2¼	2.01	3.25	W8204X	17.92	–	–	–	–	–	–
	2 5/16	2.01	3.25	W8205X	17.76	–	–	–	–	–	–
	2⅜	2.01	3.25	W8206X	17.59	–	–	–	–	–	–
	2 7/16	2.07	3.38	W8207X	17.65	–	–	–	–	–	–
	2½	2.07	3.38	W8208X	17.52	–	–	–	–	–	–
	2 9/16	2.07	3.38	W8209X	17.29	2 9/16 - 2	W8209R200		–		–
	2⅝	2.20	3.34	W8210X	17.50	–	–	–	–	–	–
	2 11/16	2.20	3.34	W8211X	17.36	–	–	–	–	–	–
	2¾	2.20	3.34	W8212X	17.12	2¾ - 2 3/16	W8212R203		–		–
	2 13/16	2.28	3.35	W8213X	17.57	–	–	–	–	–	–
	2⅞	2.28	3.35	W8214X	17.38	–	–	–	–	–	–
	2 15/16	2.28	3.35	W8215X	17.11	2 15/16 - 2⅜	W8215R206	2 15/16 - 2 3/16	W8215R203	–	–
	3	2.38	3.52	W8300X	17.77	–	–	–	–	–	–
	3 1/16	2.38	3.52	W8301X	17.65	–	–	–	–	–	–
	3⅛	2.38	3.52	W8302X	17.33	3⅛ - 2 9/16	W8302R209	3⅛ - 2⅜	W8302R206	3⅛ - 2 3/16	W8302R203
	–	–	–	–	–	3⅛ - 2	W8302R200	–	–	–	–
	3 3/16	2.60	3.63	W8303X	18.99	–	–	–	–	–	–
	3¼	2.60	3.63	W8304X	18.72	–	–	–	–	–	–
	3 5/16	2.60	3.63	W8305X	18.54	–	–	–	–	–	–
	3⅜	2.60	3.63	W8306X	18.36	–	–	–	–	–	–
	3 7/16	2.60	3.63	W8307IX	18.11	–	–	–	–	–	–
	3½	2.60	3.63	W8308X	17.81	3½ - 3	W8308R300	3½ - 2 15/16	W8308R215	3½ - 2¾	W8308R212
	3 9/16	2.91	4.05	W8309X	20.36	–	–	–	–	–	–
	3⅝	2.91	4.05	W8310X	20.18	–	–	–	–	–	–
	3 11/16	2.91	4.05	W8311X	19.93	–	–	–	–	–	–
	3¾	2.91	4.05	W8312X	19.71	3¾ - 3⅛	W8312R302	3¾ - 2 15/16	W8312R215	3¾ - 2¾	W8312R212
	3 13/16	2.91	4.05	W8313X	19.46	–	–	–	–	–	–
	3⅞	2.91	4.05	W8314X	19.10	3⅞ - 3⅛	W8314R302	3⅞ - 2 15/16	W8314R215	–	–
	3 15/16	3.13	4.33	W8315X	20.31	–	–	–	–	–	–
	4	3.13	4.33	W8400X	20.04	–	–	–	–	–	–
	4 1/16	3.13	4.33	W8401IX	19.80	–	–	–	–	–	–
	4⅛	3.13	4.33	W8402X	19.39	–	–	–	–	–	–

W15000X Series Imperial Cassettes & Reducer Inserts



Nominal Torque at 10,000 psi:
15,330 Ft.lbs

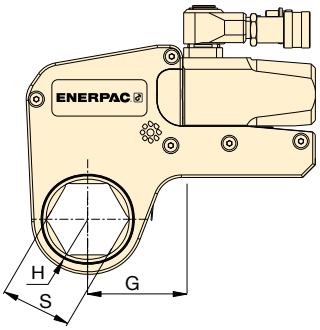
Hexagon Range:
2 7/16-4 5/8 inch

Maximum Operating Pressure:
10,000 psi

W Series (X-Edition)

▼ **SELECTION CHART**

Drive Unit Model Number	Hexagon Size S (in)	Nose Radius H (in)	Dim. G (in)	Model Number	Weight (lbs)	Hexagon Reducer (in)	Model Number	Hexagon Reducer (in)	Model Number	Hexagon Reducer (in)	Model Number
W15000X	2 7/16	2.32	3.49	W15207X	30.72	–	–	–	–	–	–
	2 1/2	2.32	3.49	W15208X	30.72	–	–	–	–	–	–
	2 9/16	2.32	3.49	W15209X	30.72	–	–	–	–	–	–
	2 5/8	2.32	3.49	W15210X	30.72	–	–	–	–	–	–
	2 11/16	2.32	3.49	W15211X	30.72	–	–	–	–	–	–
	2 3/4	2.32	3.49	W15212X	30.72	–	–	–	–	–	–
	2 13/16	2.44	3.56	W15213X	30.62	–	–	–	–	–	–
	2 7/8	2.44	3.56	W15214X	30.39	–	–	–	–	–	–
	2 15/16	2.44	3.56	W15215X	30.08	–	–	–	–	–	–
	3	2.54	3.66	W15300X	30.86	3 - 2 1/8	W15300R202	–	–	–	–
	3 1/16	2.54	3.66	W15301X	30.71	–	–	–	–	–	–
	3 1/8	2.54	3.66	W15302X	30.34	3 1/8 - 2 9/16	W15302R209		–		
	3 3/16	2.74	3.80	W15303X	32.38	–	–	–	–	–	–
	3 1/4	2.74	3.80	W15304X	32.07	–	–	–	–	–	–
	3 5/16	2.74	3.80	W15305X	31.85	–	–	–	–	–	–
	3 3/8	2.74	3.80	W15306X	31.63	–	–	–	–	–	–
	3 7/16	2.74	3.80	W15307IX	31.32	–	–	–	–	–	–
	3 1/2	2.74	3.80	W15308X	30.98	3 1/2 - 2 15/16	W15308R215	3 1/2 - 2 3/4	W15308R212		–
	3 9/16	2.95	4.01	W15309X	31.70	–	–	–	–	–	–
	3 5/8	2.95	4.01	W15310X	31.70	–	–	–	–	–	–
	3 11/16	2.95	4.01	W15311X	31.70	–	–	–	–	–	–
	3 3/4	2.95	4.01	W15312X	31.70	3 3/4 - 3 1/8	W15312R302	3 3/4 - 2 15/16	W15312R215		–
	3 13/16	2.95	4.01	W15313X	31.70	–	–	–	–	–	–
	3 7/8	2.95	4.01	W15314X	31.70	3 7/8 - 3 1/8	W15314R302	3 7/8 - 2 15/16	W15314R215	–	–
	3 15/16	3.17	4.06	W15315X	34.02	–	–	–	–	–	–
	4	3.17	4.06	W15400X	33.70	–	–	–	–	–	–
	4 1/16	3.17	4.06	W15401IX	33.41	–	–	–	–	–	–
	4 1/8	3.17	4.06	W15402X	33.09	4 1/8 - 3 1/2	W15402R308	4 1/8 - 3 5/16	W15402R305	4 1/8 - 3 1/4	W15402R304
	4 3/16	3.17	4.06	W15403IX	32.81	–	–	–	–	–	–
	4 1/4	3.17	4.06	W15404X	32.29	4 1/4 - 3 1/2	W15404R308	4 1/4 - 3 1/8	W15404R302	–	–
	4 5/16	3.44	4.52	W15405X	35.61	–	–	–	–	–	–
	4 3/8	3.44	4.52	W15406X	35.32	–	–	–	–	–	–
	4 7/16	3.44	4.52	W15407X	34.99	–	–	–	–	–	–
	4 1/2	3.44	4.52	W15408IX	34.63	–	–	–	–	–	–
	4 9/16	3.44	4.52	W15409IX	34.28	–	–	–	–	–	–
	4 5/8	3.44	4.52	W15410IX	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	–	–	–	–



Nominal Torque at 10,000 psi:
22,500 Ft.lbs

Hexagon Range:
2 15/16 - 5 3/8 inch

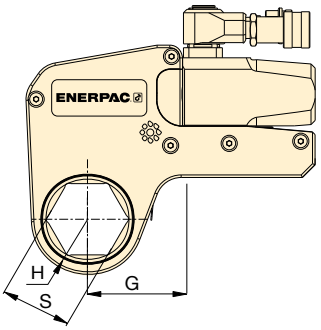
Maximum Operating Pressure:
10,000 psi

W Series (X-Edition)

▼ **SELECTION CHART**

Drive Unit Model Number	Hexagon Size S (in)	Nose Radius H (in)	Dim. G (in)	Model Number	Weight (lbs)	Hexagon Reducer (in)	Model Number	Hexagon Reducer (in)	Model Number	Hexagon Reducer (in)	Model Number
W22000X	2 15/16	2.64	4.02	W22215X	48.72	–	–	–	–	–	–
	3	2.64	4.02	W22300X	48.40	–	–	–	–	–	–
	3 1/16	2.64	4.02	W22301X	48.22	–	–	–	–	–	–
	3 1/8	2.64	4.02	W22302X	47.78	3 1/8 - 2 3/8	W22302R206	3 1/8 - 2 3/16	W22302R203	–	–
	3 3/16	2.85	4.23	W22303X	50.58	–	–	–	–	–	–
	3 1/4	2.85	4.23	W22304X	50.19	–	–	–	–	–	–
	3 5/16	2.85	4.23	W22305X	49.92	–	–	–	–	–	–
	3 3/8	2.85	4.23	W22306X	49.66	–	–	–	–	–	–
	3 7/16	2.85	4.23	W22307X	50.29	–	–	–	–	–	–
	3 1/2	2.85	4.23	W22308X	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	W22309X	51.58	–	–	–	–	–	–
	3 5/8	3.07	4.45	W22310X	51.30	–	–	–	–	–	–
	3 11/16	3.07	4.45	W22311X	50.93	–	–	–	–	–	–
	3 3/4	3.07	4.45	W22312X	50.62	3 3/4 - 2 15/16	W22312R215	–	–	–	–
	3 13/16	3.07	4.45	W22313X	50.24	–	–	–	–	–	–
	3 7/8	3.07	4.45	W22314X	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	W22315X	53.57	–	–	–	–	–	–
	4	3.35	4.72	W22400X	53.19	–	–	–	–	–	–
	4 1/16	3.35	4.72	W22401IX	52.82	–	–	–	–	–	–
	4 1/8	3.35	4.72	W22402X	52.43	–	–	–	–	–	–
	4 3/16	3.35	4.72	W22403X	52.09	–	–	–	–	–	–
	4 1/4	3.35	4.72	W22404X	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	W22405X	54.26	–	–	–	–	–	–
	4 3/8	3.54	4.92	W22406X	53.91	–	–	–	–	–	–
	4 7/16	3.54	4.92	W22407X	53.50	–	–	–	–	–	–
	4 1/2	3.54	4.92	W22408IX	53.06	–	–	–	–	–	–
	4 9/16	3.54	4.92	W22409X	52.64	–	–	–	–	–	–
	4 5/8	3.54	4.92	W22410IX	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	W22412X	54.54		–	–	–	–	–
	4 7/8	3.74	5.12	W22414X	53.60	–	–	–	–	–	–
	5	3.74	5.12	W22500X	52.37	5 - 4 1/4	W22500R404	5 - 4 1/8	W22500R402	5 - 3 7/8	W22500R314
	5 1/8	3.94	5.31	W22502X	55.10	–	–	–	–	–	–
	5 3/16	3.94	5.31	W22503X	54.71	–	–	–	–	–	–
	5 1/4	3.94	5.31	W22504X	54.05	–	–	–	–	–	–
	5 3/8	3.94	5.31	W22506X	52.77	5 3/8 - 4 5/8	W22506R410	5 3/8 - 4 1/4	W22506R404	5 3/8 - 4 1/8	W22506R402
	–	–	–	W22506X	52.77	5 3/8 - 3 7/8	W22506R314	–	–	–	–

W35000X Series Imperial Cassettes & Reducer Inserts



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

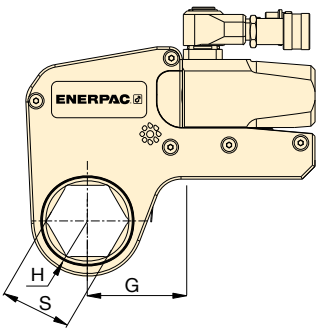
Hexagon Range:
3⅛-6⅛ inches

Maximum Operating Pressure:
10,000 psi

W Series (X-Edition)

▼ **SELECTION CHART**

Drive Unit Model Number	Hexagon Size S (in)	Nose Radius H (in)	Dim. G (in)	Model Number	Weight (lbs)	Hexagon Reducer (in)	Model Number
W35000X	3⅛	3.02	4.99	W35302X	72.30	3⅛ – 2	W35302R200
	3 3/16	3.02	4.99	W35303X	72.10	–	–
	3¼	3.02	4.99	W35304X	71.70	–	–
	3 5/16	3.02	4.99	W35305X	71.40	–	–
	3⅜	3.02	4.99	W35306X	71.00	–	–
	3 7/16	3.02	4.99	W35307IX	70.50	–	–
	3½	3.02	4.99	W35308X	70.10	3½ - 2 5/16	W35308R205
	3 9/16	3.23	5.22	W35309X	71.40	–	–
	3⅝	3.23	5.22	W35310X	73.40	–	–
	3 11/16	3.23	5.22	W35311X	73.00	–	–
	3¾	3.23	5.22	W35312X	72.50	–	–
	3 13/16	3.23	5.22	W35313X	72.10	–	–
	3⅞	3.23	5.22	W35314X	71.40	3⅞ - 2 11/16	W35314R211
	3 15/16	3.45	5.39	W35315X	70.80	3 15/16 - 2 13/16	W35315R213
	4	3.45	5.39	W35400X	74.70		–
	4 1/16	3.45	5.39	W35401X	74.30	–	–
	4⅛	3.45	5.39	W35402X	73.90	–	–
	4 3/16	3.45	5.39	W35403X	73.40	–	–
	4¼	3.45	5.39	W35404X	72.80	4¼ - 3 1/16	W35404R301
	4 5/16	3.69	5.63	W35405X	76.90	–	–
	4⅜	3.69	5.63	W35406X	76.50	–	–
	4 7/16	3.69	5.63	W35407X	76.10	–	–
	4½	3.69	5.63	W35408X	75.60	–	–
	4 9/16	3.69	5.63	W35409IX	75.20	–	–
	4⅝	3.69	5.63	W35410IX	74.50	4⅝ - 3⅝	W35410R310
	4¾	3.91	5.85	W35412X	78.50	4¾ - 3¾	W35412R312
	4⅞	3.91	5.85	W35414X	76.90	–	–
	5	3.91	5.85	W35500X	75.60	5 - 4	W35500R400
	5⅛	4.09	6.02	W35502X	78.90	5⅛ - 4⅛	W35502R402
	5 3/16	4.09	6.02	W35503X	78.50	–	–
	5¼	4.09	6.02	W35504X	77.60	–	–
	5⅜	4.09	6.02	W35506X	76.30	5⅜ - 4 5/16	W35506R405
	5½	4.31	6.24	W35508X	79.80	–	–
	5 9/16	4.31	6.24	W35509X	79.40	–	–
	5⅝	4.31	6.24	W35510X	78.50	–	–
	5¾	4.31	6.24	W35512X	76.90	5¾ - 4¾	W35512R412
	5⅞	4.52	6.46	W35514X	80.90	5⅞ - 4⅞	W35514R414
	6	4.52	6.46	W35600X	79.60	–	
	6⅛	4.52	6.46	W35602X	77.80	6⅛ - 5⅛	W35602R502



Hexagon Range:
30-105 mm

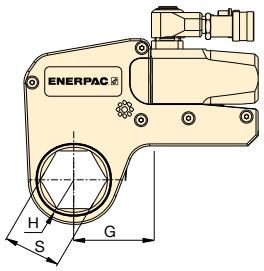
Maximum Operating Pressure:
10,000 psi (690 bar)

W Series (X-Edition)

▼ **SELECTION CHART**

Drive Unit Model Number	Hexagon Size S (mm)	Nose Radius H (in)	Dim. G (in)	Model Number	Weight (lbs)	Hexagon Reducer (mm)	Model Number	Hexagon Reducer (mm)	Model Number	Hexagon Reducer (mm)	Model Number
W2000X	30	1.22	2.11	W2103X	4.19	–	–	–	–	–	–
	32	1.22	2.11	W2104X	4.19	–	–	–	–	–	–
	36	1.22	2.11	W2107X	4.19	–	–	–	–	–	–
	38	1.32	2.29	W2108X	4.51	–	–	–	–	–	–
	41	1.32	2.29	W2110X	4.38	41 - 32	W2110R104	41 - 30	W2110R103	41 - 24	W2110R024M
	46	1.44	2.38	W2113X	4.69	46 - 36	W2113R107	46 - 32	W2113R104	–	–
	50	1.54	2.48	W2200X	4.54	50 - 41	W2200R110	50 - 36	W2200R107	–	–
	55	1.65	2.70	W2203X	4.64	55 - 46	W2203R113	55 - 41	W2203R110	55 - 36	W2203R107
	60	1.75	2.55	W2206X	4.72	60 - 50	W2206R200	60 - 46	W2206R113	60 - 41	W2206R110
	–	–	–	–	–	60 - 36	W2206R107	–	–	–	–
W4000X	36	1.46	2.40	W4107X	7.72	–	–	–	–	–	–
	41	1.46	2.40	W4110X	7.72	–	–	–	–	–	–
	46	1.56	2.52	W4113X	7.94	–	–	–	–	–	–
	50	1.63	2.63	W4200X	8.28	50 - 36	W4200R107	–	–	–	–
	55	1.73	2.89	W4203X	8.42	55 - 41	W4203R110	55 - 36	W4203R107	55 - 32	W4203R104
	60	1.83	2.78	W4206X	8.47	60 - 50	W4206R200	60 - 46	W4206R113	60 - 36	W4206R107
	65	1.95	3.00	W4209X	8.67	65 - 55	W4209R203	65 - 50	W4209R200	65 - 46	W4209R113
	70	2.07	3.08	W4212X	8.84	70 - 60	W4212R206	70 - 55	W4212R203	–	–
	75	2.18	3.21	W4215X	8.96	75 - 65	W4215R209	75 - 60	W4215R206	–	–
	–	–	–		–	75 - 55	W4215R203	75 - 50	W4215R200	–	–
	80	2.30	3.29	W4302X	9.16	80 - 75	W4302R215	80 - 70	W4302R212	80 - 65	W4302R209
	–	–	–		–	80 - 55	W4302R203	80 - 50	W4302R200		–
	85	2.44	3.37	W4085MX	9.48	–	–	–	–	–	–
W8000X	50	1.77	3.08	W8200X	17.75	–	–	–	–	–	–
	55	1.89	3.15	W8203X	17.22	–	–	–	–	–	–
	60	2.01	3.25	W8206X	17.59	–	–	–	–	–	–
	65	2.07	3.38	W8209X	17.29	65 - 50	W8209R200	–	–	–	–
	70	2.07	3.34	W8212X	17.12	70 - 55	W8212R203	–	–	–	–
	75	2.28	3.35	W8215X	17.11	75 - 60	W8215R206	75 - 55	W8215R203	–	–
	80	2.38	3.52	W8302X	17.33	80 - 65	W8302R209	80 - 60	W8302R206	80 - 55	W8302R203
	–	–	–	–	–	80 - 50	W8302R200		–	–	–
	85	2.60	3.63	W8085MX	18.42	85 - 70	W8085R070M	85 - 65	W8085R065M	85 - 60	W8085R060M
	–	–	–	–	–	85 - 55	W8085R055M	–	–	–	–
	90	2.91	4.05	W8090MX	20.46	90 - 75	W8090R075M	–	–	–	–
	95	2.91	4.05	W8312X	19.71	95 - 80	W8312R302	95 - 75	W8312R215	–	–
	100	3.13	4.33	W8315X	20.31	–	–	–	–	–	–
	105	3.13	4.33	W8402X	19.39	–	–	–	–	–	–

W Series Metric Cassettes and Reducer Inserts



Hexagon Range:
65-155 mm

Maximum Operating Pressure:
10,000 psi (690 bar)

W Series (X-Edition)

▼ **SELECTION CHART**

Drive Unit Model Number	Hexagon Size S (mm)	Nose Radius H (in)	Dim. G (in)	Model Number	Weight (lbs)	Hexagon Reducer (mm)	Model Number	Hexagon Reducer (mm)	Model Number
W15000X	65	2.32	3.49	W15209X	30.72	–	–	–	–
	70	2.32	3.49	W15212X	30.72	–	–	–	–
	75	2.44	3.56	W15215X	30.08	–	–	–	–
	80	2.54	3.66	W15302X	30.34	80-65	W15302R209	–	–
	85	2.74	3.80	W15085MX	31.70	85-70	W15085R070M	–	
	90	2.95	4.01	W15090MX	33.32	90-75	W15090R075M	–	–
	95	2.95	4.01	W15312X	31.70	95-80	W15312R302	95 - 75	W15312R215
	100	3.17	4.06	W15315X	34.02	–	–	–	–
	105	3.17	4.06	W15402X	33.09	105-90	W15402R090M	–	–
	110	3.44	4.52	W15405X	35.61	110-95	W15110R095M	–	–
	115	3.44	4.52	W15115MX	34.48	115-100	W15115R100M	–	–
W22000X	75	2.64	4.02	W22215X	48.72	–	–	–	
	80	2.64	4.02	W22302X	47.78	80-60	W22302R206	80 - 55	W22302R203
	85	2.85	4.23	W22085MX	49.74	85-65	W22085MR209	85 - 60	W22085MR206
	90	3.07	4.45	W22090MX	51.72	90-70	W22090M212	90 - 60	W22090MR206
	95	3.07	4.45	W22312X	50.62	95-75	W22312R215	–	–
	100	3.35	4.72	W22315X	53.57	–	–	–	–
	105	3.35	4.72	W22402X	52.09	–	–	–	–
	110	3.54	4.92	W22404X	51.48	–	–	–	–
	115	3.54	4.92	W22115MX	52.88	–	–	–	–
	120	3.74	5.12	W22412X	54.54	–	–	–	–
	123	3.74	5.12	W22123MX	53.80	–	–	–	–
	130	3.94	5.31	W22502X	55.10	–	–	–	–
	135	3.94	5.31	W22506X	52.77	135 - 105	W22506R402	–	–
W35000X	80	3.02	5.08	W35302X	72.30	80-50	W35302R200	–	–
	85	3.02	5.08	W35085MX	33.10	–	–	–	
	90	3.23	5.33	W35090MX	34.30	90-60	W35090R206	–	–
	95	3.23	5.30	W35312X	72.50	–	–	–	–
	100	3.45	5.48	W35315X	70.80	–	–	–	–
	105	3.45	5.48	W35402X	73.90	–	–	–	–
	110	3.69	5.75	W35405X	76.90	110-85	W35405R085M	–	–
	115	3.69	5.75	W35115MX	77.10	–	–	–	–
	120	3.91	6.01	W35412X	78.50	120-95	W35412R312	–	–
	123	3.91	6.01	W35123MX	78.90	–	–	–	–
	130	4.09	6.30	W35502X	78.90	130-105	W35502R402	–	–
	135	4.09	6.30	W35506X	76.30	135-110	W35506R405	–	–
	140	4.31	6.43	W35508X	79.80	140-115	W35508R115M	–	–
	145	4.31	6.43	W35512X	76.90	145-120	W35512R412	–	–
	150	4.52	6.67	W35514X	80.90	–	–	–	–
	151	4.52	6.67	W35151MX	82.10	–	–	–	–
	155	4.52	6.67	W35602X	77.80	155-130	W35602R502	–	–

▼ Shown: **W4206SL stepped-width cassette with W4000X drive unit**

Versatility

- **Lean, stepped width design allows tool to be mounted over bolts where other tools won't fit**
- **Bi-Hexagonal cassette allows twice as many positioning points on nut or bolt**
- **Uses same drive unit as standard W-series hexagon cassettes**
- **Robust top mounted handle stays out of the way, providing safe fastening in hard to reach areas**

Performance

- **Premium components provide best-in-class endurance**

Ease of Use

- **Few moving parts are easily accessible for quick field maintenance**
- **Fast release drive unit enables rapid exchange of cassettes, no tools required and no pins to lose**
- **Uses same drive unit as standard and X-Edition cassettes**

Accuracy

- **Constant torque output provides accuracy of +/- 3% across the full stroke**

Your easy and long lasting solution to difficult access bolting applications

Designed for Tight Spots

Stepped width design provides easy access in confined areas. UltraSlim cassettes fit where standard solutions won't.

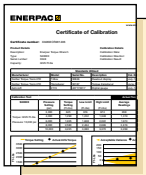
Built to Outperform

High endurance components keep working when others fail.

Top Mounted Handles

Standard top mounted handles provide safety and versatility; optional angled handles are also available.

Replacement handle (straight)	**SWH6S**
Angled handle (optional)	**SWH6A**



Calibration Certificate

All **UltraSlim Series** cassettes are CE - ATEX declared, factory calibrated and are shipped complete with a calibration certificate.

CE Ex II 2 GD ck T4
CSA/SIRA 15XT072

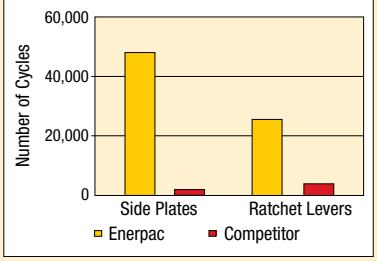
Slim enough to fit and tough enough to last. This UltraSlim wrench is the perfect controlled bolting solution for this oil and gas flange. ▶

UltraSlim Stepped-Width Cassettes

Accessing narrow spaces normally requires significantly reducing the width of the torque wrench. For the tool operator, this has always meant vastly reduced tool durability, and/or reduced torque output.

By using the highest grade materials, perfecting the geometry, and placing the positioning handle on top of the tool, Enerpac UltraSlim cassettes are able to provide greater torque, get into tighter spaces, and vastly outperform the competition in product durability.*

Durability of Key Components*



Average test results, whereby three Enerpac 1 13/16" UltraSlim cassettes and three competitor 1 13/16" cassettes were tested at 4000 ft-lbs for 50,000 cycles. The Enerpac sideplates never broke for the full duration of the test.

W Series Ultra-Slim

Nominal Torque at 10,000 psi:
4360 Ft.lbs.

Hexagon Range:
1 13/16 -2 15/16 inches

Maximum Operating Pressure:
10,000 psi

Torque Wrench Pumps

Visit enerpac.com for system matched air and electric torque wrench pumps that are ideal for use with hydraulic torque wrenches.

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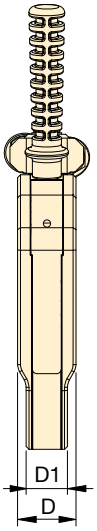
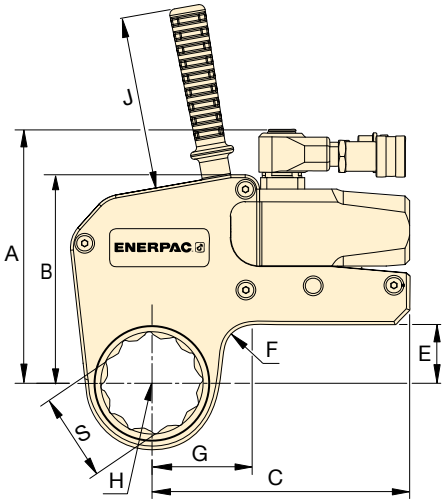
Torque Wrench Hoses

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**





▼ **SELECTION CHART**

Hexagon Size S (in)	Nominal Torque @ 10,000 psi (Ft.lbs)	Cassette Model Number	Minimum Torque @ 1000 psi (Ft.lbs)	Nose Radius H (in)	Dimensions (in) G	A	B	C	D	D1	E	F (radius)	J	Weight (lbs)	Drive Unit Model* (sold separately)
1 13/16	1980	**W2113SL**	200	1.44	2.35	5.54	4.30	5.81	1.28	1.00	0.94	0.79	4.72	4.87	**W2000X**
2 3/16	1980	**W2203SL**	200	1.63	2.49									4.87	
2 3/8	1980	**W2206SL**	200	1.75	2.56									4.88	
2 3/16	4360	**W4203SL**	430	1.73	2.70	6.91	5.69	7.03	1.59	1.13	1.61	0.79	4.72	10.15	**W4000X**
2 3/8	4360	**W4206SL**	430	1.89	2.82									10.36	
2 9/16	4360	**W4209SL**	430	1.99	2.92									10.37	
2 3/4	4360	**W4212SL**	430	2.11	2.98									10.42	
2 15/16	4360	**W4215SL**	430	2.20	2.99									10.37	

* May also be used with **W2000PX** and **W4000PX** drive units, featuring double-swivel manifolds.

▼ WCR4000 Roller Cassette with Spanner and W4000 Drive Unit

Bi-Hexagonal Spanner Size:
1 7/16-3 1/8 inch

Spanner Nose Radius:
1.22-2.18 inch

Nominal Torque:
4250 Ft-lbs

Maximum Operating Pressure:
10,000 psi

- **Spanners available to fit most commonly used API flanges**
- **Small nose radius – resolves bolt to pipe restrictions**
- **Slim spanner design – reduces bolt height restrictions**
- **Wide range of spanners ranging from 1 7/16 - 3 1/8 inches (36 - 80 mm)**
- **Includes handle to improve tool handling and safety**
- **Rigid solid steel body for maximum endurance and minimum downtime**

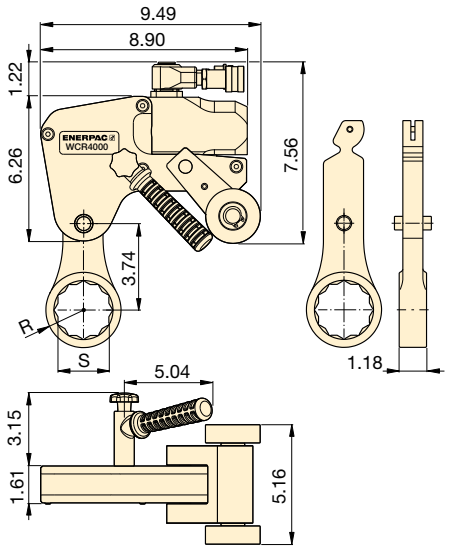
WCR4000 Torque Wrench

The **WCR4000** combines power and durability with a slim spanner design to provide bolting professionals with one of the most versatile and high performing limited access tools on the market today.

The tool was designed for use in narrow access applications, particularly in the height above the nut, and between the bolt center, and the inside of the joint.

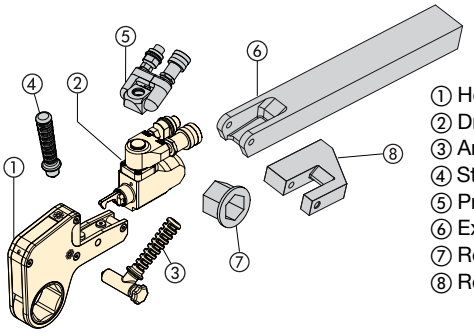
Ideal for bolting API flanges, the **WCR4000** is available with a wide range of ring type spanners, and is powered by the standard W4000X drive unit.

Closed Spanner Hexagon Size S (in)	S (mm)	Closed Spanner Model Number	Spanner Radius R (in)	Weight * (lb)	Roller Cassette Assy Model No.**	Drive Unit Model No.
1 7/16	36	W4107CS	1.22	4.2	WCR4000	W4000X
1 1/2	38	W4108CS	1.29	4.4		
1 5/8	41	W4110CS	1.29	4.2		
1 13/16	46	W4113CS	1.40	4.3		
1 7/8	48	W4114CS	1.51	4.7		
2	50	W4200CS	1.51	4.2		
2 3/16	55	W4203CS	1.62	4.3		
2 3/8	60	W4206CS	1.77	4.6		
2 9/16	65	W4209CS	1.84	4.6		
2 3/4	70	W4212CS	1.95	4.7		
2 15/16	75	W4215CS	2.05	4.6		
3 1/8	80	W4302CS	2.18	4.9		



*For total weight add 13.89 lbs for WCR4000, 4.40 lbs. for W4000X and weight of the spanner.
** The WCR4000 cassettes, spanners and drive units are all sold separately.

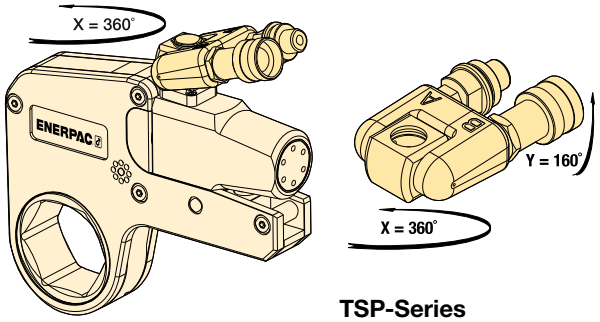
Accessories for W-Series, X-Edition Torque Wrenches



① Hexagon Cassette
② Drive Unit
③ Angled Positioning Handle
④ Straight Positioning Handle (optional)
⑤ Pro Series Swivel (optional)
⑥ Extended Reaction Arm (optional)
⑦ Reducer Insert (optional)
⑧ Reaction Paddle (optional)

TSP
WTE
WRP
Series

TSP-Series, Pro Series Swivels



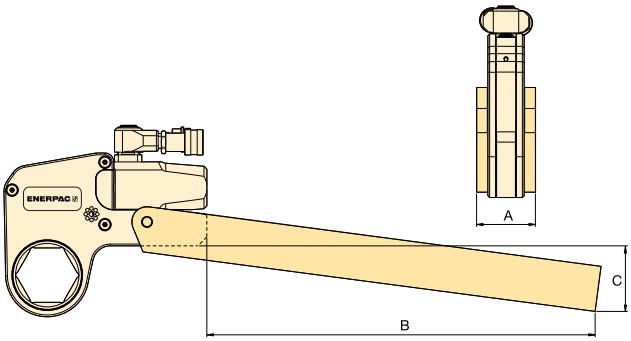
TSP-Series

- **Robust interlocking design**
- **360° X-axis and 160° Y-axis rotation**
- **Increases tool fit in restricted access areas**
- **Simplifies hose placement**
- **Includes male and female couplers**

Torque Wrench Model Number	Model Number	Maximum Pressure (psi)	Wt. (lbs)
W2000X, W4000X, W8000X, W15000X, W22000X, W35000X	**TSP300***	10,000	.44

Note: To order a W-series (X-Edition) wrench fitted with the TSP swivel, insert a "P" prior to the "X" in the tool designation, e.g., W2000PX.
* TSP300 is designed for X-Edition tools only, and is not compatible with standard edition tools. For replacement components for existing tools, refer to repair sheet on www.enerpac.com

WTE-Series, Extended Reaction Arm



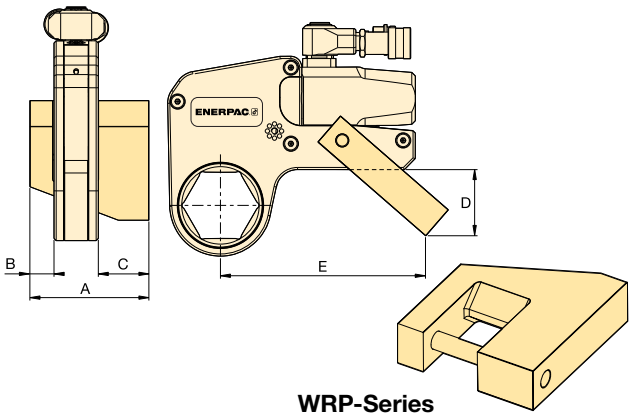
WTE-Series

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

Torque Wrench Model Number	Model Number	Dimensions (in)			Wt.* (lbs)
		A	B	C	
W2000X	**WTE20**	2.20	15.67	2.66	5.73
W4000X	**WTE40**	2.60	17.17	2.91	10.14
W8000X	**WTE80**	3.35	17.68	2.15	16.76
W15000X	**WTE150**	4.02	19.61	2.83	26.46
W22000X	**WTE220**	4.49	20.51	3.03	38.14
W35000X	**WTE350**	5.00	16.48	5.23	39.24

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

WRP-Series Reaction Paddles



WRP-Series

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

TorqueWrench Model Number	Model Number	Dimensions (in)					Wt.* (lbs)
		A	B	C	D	E	
W2000X	**WRP20**	3.31	0.63	1.40	1.77	5.83	.88
W4000X	**WRP40**	4.29	0.83	1.87	2.32	7.48	1.76
W8000X	**WRP80**	5.37	1.02	2.25	2.72	8.78	4.41
W15000X	**WRP150**	6.50	1.26	2.74	3.43	10.12	8.60
W22000X	**WRP220**	8.15	1.52	3.58	5.28	12.48	15.87
W35000X	**WRP350**	9.22	1.79	3.58	7.17	13.98	23.37

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

▼ 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 ± 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.*

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

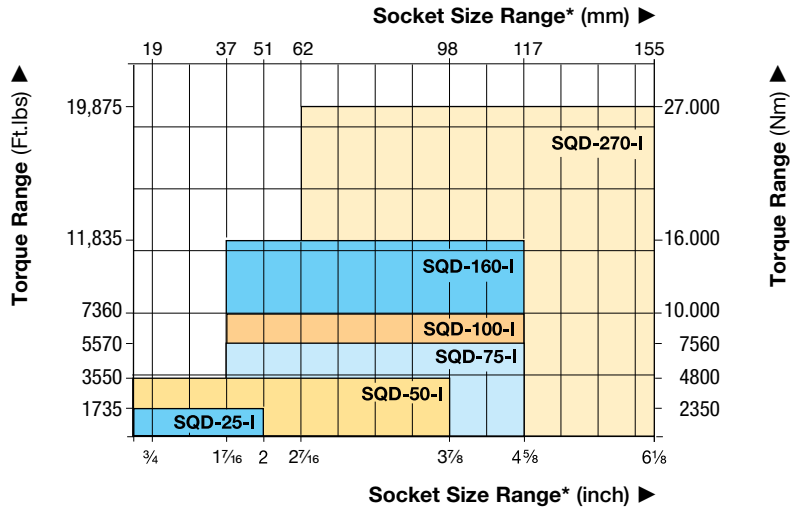
SQD Series

Nominal Torque:
19,875 Ft.lbs

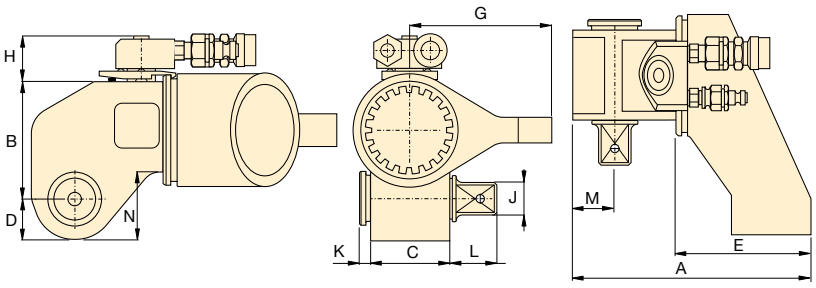
Square Drive Range:
¾-2½ inches

Maximum Operating Pressure:
11,600 psi

TORQUE WRENCH SELECTION (based on socket size range)



* See page 10 for BSH-series Heavy-Duty Impact Sockets.



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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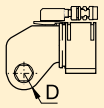
Square Drive	Nominal Torque @ 11,600 psi		Torque Wrench Model No.	Dimensions												Weight (incl. reaction arm and square drive)
(in)	(Ft.lbs)	(Nm)		A	B	C	D	E	G	H	J	K	L	M	N	(lbs)
¾	1735	2350	**SQD-25-I**	6.57	2.83	2.09	.94	4.25	3.74	1.38	¾	.24	1.08	1.04	1.44	5.52
1	3550	4800	**SQD-50-I**	8.05	3.62	2.67	1.22	5.31	4.53	1.38	1	.59	1.30	1.34	2.07	9.35
1½	5570	7560	**SQD-75-I**	8.89	4.21	2.95	1.41	6.02	4.80	1.38	1½	.47	1.69	1.54	2.52	11.90
1½	7360	10,000	**SQD-100-I**	9.96	4.53	3.31	1.54	6.46	5.12	1.38	1½	.50	1.55	1.69	2.68	17.64
1½	11,835	16,000	**SQD-160-I**	10.71	5.28	3.94	1.89	7.00	5.91	1.97	1½	.44	1.76	2.13	3.21	26.55
2½	19,875	27,000	**SQD-270-I**	13.45	6.46	4.69	2.32	8.58	7.87	1.97	2½	.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)	**Nominal Torque** [1] (Ft.lbs)	**Model Number**	**Model Number**
SQD-25-I (1735 Ft.lbs)	0.94	½	**390**	**25A-050**	**RAH-25**
		⅝	**735**	**25A-063**	
		¾	**1325**	**25A-075**	
		⅞	**1735**	**25A-088**	
		1	**1735**	**25A-100**	
SQD-50-I (3550 Ft.lbs)	1.22	⅝	**735**	**50A-063**	**RAH-50**
		¾	**1325**	**50A-075**	
		⅞	**2065**	**50A-088**	
		1	**3095**	**50A-100**	
		1⅛	**3550**	**50A-113**	
		1¼	**3550**	**50A-125**	
		–	–	–	
SQD-75-I (5570 Ft.lbs)	1.41	⅝	**735**	**75A-063**	**RAH-75**
		¾	**1325**	**75A-075**	
		⅞	**2065**	**75A-088**	
		1	**3095**	**75A-100**	
		1⅛	**4350**	**75A-113**	
		1¼	**5570**	**75A-125**	
		–	–	–	
SQD-100-I (7360 Ft.lbs)	1.54	⅞	**2065**	**100A-088**	**RAH-100**
		1	**3095**	**100A-100**	
		1⅛	**4350**	**100A-113**	
		1¼	**6270**	**100A-125**	
		1⅜	**7360**	**100A-138**	
		1½	**7360**	**100A-150**	
SQD-160-I (11,835 Ft.lbs)	1.89	1¼	**6270**	**160A-125**	**RAH-160**
		1⅜	**7745**	**160A-138**	
		1½	**10,325**	**160A-150**	
		1⅝	**11,835**	**160A-163**	
		1¾	**11,835**	**160A-175**	
SQD-270-I (19,875 Ft.lbs)	2.32	1½	**10,325**	**270A-150**	**RAH-270**
		1⅝	**13,275**	**270A-163**	
		1¾	**16,225**	**270A-175**	
		1⅞	**19,875**	**270A-188**	
		2	**19,875**	**270A-200**	
		2¼	**19,875**	**270A-225**	
		–	–	–	
		–	–	–	

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

For SQD Series

Nominal Torque at 11,600 psi:
19,875 Ft.lbs

Allen Drive Range:
½-2¼ 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. AF.

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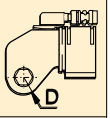
▼ *SQD-100-I with RAH-100 Reaction Arm and Allen drive used for loosening hexagon socket head cap screws.*

▼ SELECTION CHART

TORQUE WRENCH		OPTIONAL ALLEN DRIVES, METRIC			REACTION ARM FOR ALLEN DRIVE
					
Model Number (max. capacity)	**Nose Radius D** (in)	**Hexagon Size** (mm)	**Nominal 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

Nominal 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**

Aluminum, Low Profile

- **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 ± 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**

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.

www.enerpac.com

Nut Splitters / Nut Cutters

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

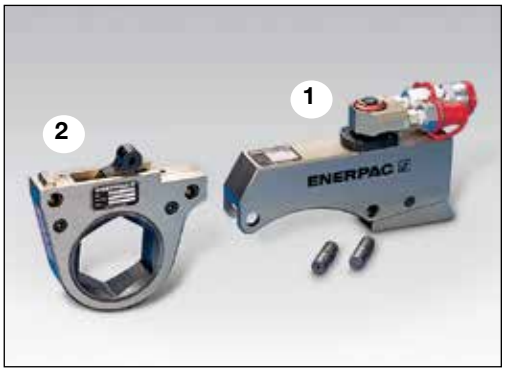
Page: **66**

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.

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

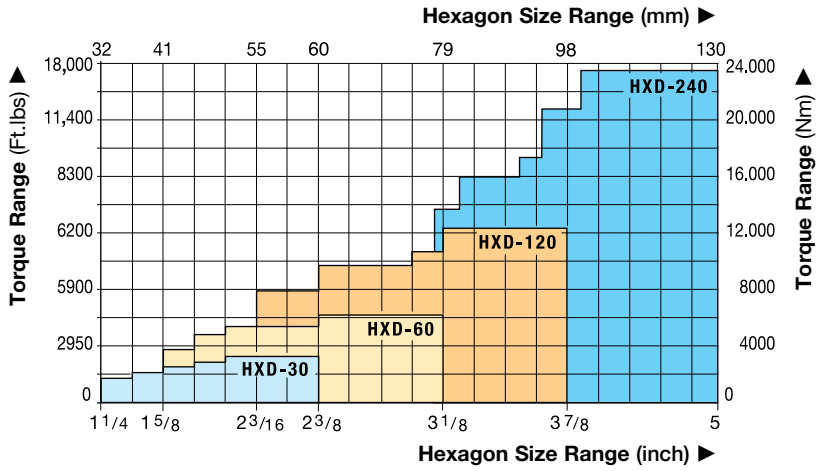
▼ Shown from left to right: **CC-3238, HXD-30**

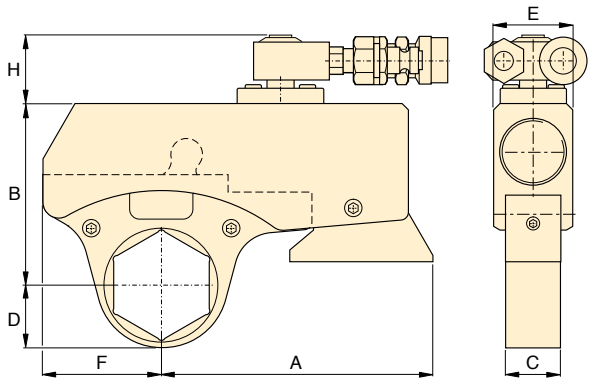


Torque Wrench Selection in 2 steps:

1. **Drive Unit**
   Select the HXD-drive Unit using the quick selection chart below.
2. **Cassette**
   Select the appropriate CC-cassette from pages 32 and 33.

DRIVE UNIT AND INTERCHANGEABLE CASSETTE SELECTION





Drive Unit with Cassette

HXD Series

Nominal Torque:
17,860 Ft.lbs

Hexagon Range:
1¼-5 inches

Nose Radius:
1.12-3.78 inches

Maximum Operating Pressure:
11,600 psi

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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▼ QUICK SELECTION CHART

Cassette Range (in)	Cassette Range (mm)	Nominal Torque at 11,600 psi (Ft.lbs)	Drive Unit * Model Number	Drive Unit and Cassette Dimensions (in) A	B	C	D	E	F	H	Weight (including smallest cassette) (lbs)
1¼ - 2⅜	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
1⅝ - 3⅛	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
2 3/16 - 3⅞	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
3⅛ - 5	80 - 130	17,860	**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.

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
Model Number (max. capacity)	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	1 7/16	1.24	CC-3144	1.4	1 7/16 – 1¼	IN3144-125	–	–	HR-36
	1840	1⅝	1.36	CC-3163	1.5	1⅝ – 1 7/16	IN3163-144	1⅝ – 1¼	IN3163-125	HR-41
	2130	1 13/16	1.52	CC-3181	1.8	1 13/16 – 1⅝	IN3181-163	1 13/16 – 1 7/16	IN3181-144	HR-46
	2425	2	1.65	CC-3200	2.1	2 – 1 13/16	IN3200-181	2 – 1⅝	IN3200-163	HR-50
		2 3/16	1.77	CC-3219	2.2	2 3/16 – 2	IN3219-200	2 3/16 – 1 13/16	IN3219-181	HR-55
		2⅜	1.87	CC-3238	2.3	2⅜ – 2 3/16	IN3238-219	2⅜ – 2	IN3238-200	HR-60
HXD-60 (4565 Ft.lbs)	2830	1⅝	1.36	CC-6163	2.6	–	–	–	–	–
	3540	1 13/16	1.56	CC-6181	2.9	1 13/16 – 1⅝	IN6181-163	–	–	HR-46
	3990	2	1.71	CC-6200	3.2	2 – 1 13/16	IN6200-181	2 – 1⅝	IN6200-163	HR-50
		2 3/16	1.83	CC-6219	3.3	2 3/16 – 2	IN6219-200	2 3/16 – 1 13/16	IN6219-181	HR-55
		2⅜	1.91	CC-6238	3.4	2⅜ – 2 3/16	IN6238-219	2⅜ – 2	IN6238-200	HR-60
	4565	2 9/16	2.07	CC-6256	4.1	2 9/16 – 2⅜	IN6256-238	2 9/16 – 2 3/16	IN6256-219	HR-65
		2¾	2.19	CC-6275	4.2	2¾ – 2 9/16	IN6275-256	2¾ – 2⅜	IN6275-238	HR-70
		2 15/16	2.26	CC-6293	4.3	2 15/16 – 2¾	IN6293-275	2 15/16 – 2 9/16	IN6293-256	HR-75
		3⅛	2.38	CC-6313	4.4	3⅛ – 2 15/16	IN6313-293	3⅛ – 2¾	IN6313-275	HR-80
HXD-120 (9220 Ft.lbs)	5900	2 3/16	1.83	CC-12219	5.8	2 3/16 – 2	IN12219-200	2 3/16 – 1 13/16	IN12219-181	HR-55
		2⅜	1.91	CC-12238	5.8	2⅜ – 2 3/16	IN12238-219	2⅜ – 2	IN12238-200	HR-60
	7225	2 9/16	2.07	CC-12256	6.1	2 9/16 – 2⅜	IN12256-238	2 9/16 – 2 3/16	IN12256-219	HR-65
		2¾	2.19	CC-12275	6.2	2¾ – 2 9/16	IN12275-256	2¾ – 2⅜	IN12275-238	HR-70
		2 15/16	2.26	CC-12293	6.3	2 15/16 – 2¾	IN12293-275	2 115/16 – 2 9/16	IN12293-256	HR-75
		3	2.26	CC-12300	6.3	3 – 2¾	IN12300-275	3 – 2 9/16	IN12300-256	HR-75
	8010	3⅛	2.38	CC-12313	6.5	3⅛ – 2 15/16	IN12313-293	3⅛ – 2¾	IN12313-275	HR-80
	9220	3⅜	2.54	CC-12338	7.8	3⅜ – 3	IN12338-300	3⅜ – 2 15/16	IN12338-293	HR-85
		3½	2.66	CC-12350	8.0	3½ – 3⅛	IN12350-313	3½ – 3	IN12350-300	HR-90
		3¾	2.78	CC-12375	8.2	3¾ – 3½	IN12375-350	3¾ – 3⅜	IN12375-338	HR-95
		3⅞	2.89	CC-12388	8.3	3⅞ – 3½	IN12388-350	3⅞ – 3⅜	IN12388-338	HR-100
HXD-240 (17860 Ft.lbs)	10325	3⅛	2.44	CC-24313 [2]	11.2	3⅛ – 2 15/16	IN24313-293	3⅛ – 2¾	IN24313-275	HR-80
	11685	3⅜	2.60	CC-24338	11.4	3⅜ – 3⅛	IN24338-313	3⅜ – 3	IN24338-300	HR-85
	12225	3½	2.71	CC-24350	11.4	3½ – 3⅛	IN24350-313	3½ – 3	IN24350-300	HR-90
	12775	3¾	2.83	CC-24375	11.9	3¾ – 3½	IN24375-350	3¾ – 3⅜	IN24375-338	HR-95
	13315	3⅞	2.99	CC-24388 [3]	12.3	4⅛ – 3⅞	IN24413-388	3⅞ – 3⅜	IN24388-338	HR-100
	15490	4⅛	3.15	CC-24413	12.5	4¼ – 3⅞	IN24425-388	4⅛ – 3¾	IN24413-375	HR-105
	17,860	4¼	3.30	CC-24425	14.9	4⅝ – 4¼	IN24463-425	4¼ – 3¾	IN24425-375	HR-110
		4⅝	3.54	CC-24463	16.0	5 – 4⅝	IN24500-463	4⅝ – 4⅛	IN24463-413	HR-120
		5	3.78	CC-24500	16.3			5 – 4¼	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 76.
[2] Additional imperial Reducer Insert: 3⅛"–2 9/16" **IN24313-256** fits **CC-24313** Cassette. Use **HR-80** Holding Ring.
[3] Additional imperial Reducer Insert: 3¾"–2 9/16" **IN24375-313** fits **CC-24388** Cassette. Use **HR-100** Holding Ring.

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
												
Model Number (max. capacity)	**Max. Torque** (Ft.lbs)	**Hex. Size** [1] (mm)	**Nose Radius D** (in)	**Model Number**	**Weight** (lbs)	**Hexagon Size** (mm)	**Model Number**	**Hexagon Size** (mm)	**Model Number**	**Hexagon Size** (mm)	**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**	**HR-55**
		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**
	9220	85	2.54	**CC-1285**	7.8	85/80	**IN12-8580**	85/75	**IN12-8575**	85/70	**IN12-8570**	**HR-85**
		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**
	15370	105	3.15	**CC-24105**	12.5	105/100	**IN24-105100**	105/95	**IN24-10595**	105/90	**IN24-10590**	**HR-105**
	17,860	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 76.

▼ Shown: **PTW1000**

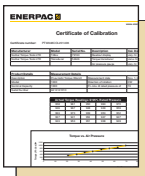
Continuous Rotation Controlled Torque

Typical Pneumatic Torque Wrench Applications

Mining
- Track maintenance
- Undercarriage maintenance
- Wheel maintenance
- Shovel maintenance

Power Generation
- Turbine bolts
- Tower segments
- Turbine casings

Oil and Gas
- Pipe flanges
- Valves
- Manway covers
- Pressure vessels



Calibration Certificate

All PTW tools are CE declared and are shipped complete with a calibration certificate.

CE

Productivity

- **High speed continuous rotation for constant torque output**
- **Low friction planetary gearbox design minimizes wear and extends uptime**

Safety

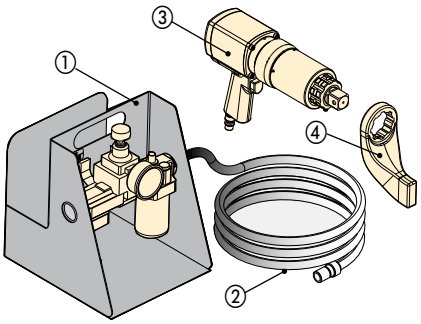
- **Ergonomic, low vibration design reduces fatigue and the risk of vibration related injuries for the operator**
- **Low noise air motor provides quiet, consistent performance for indoor and outdoor applications**

Convenience

- **Provided with standard reaction arm; wide assortment of custom arms and accessories are available**
- **Available with or without Filter-Regulator-Lubricator (FRL)**
- **Unique calibration certificate provided with each tool**

◀ *The PTW1000 makes quick work of this flange maintenance job.*

▼ *PTW-Series Pneumatic Torque Wrenches are ideal for applications where speed and precision are critical, such as track maintenance.*



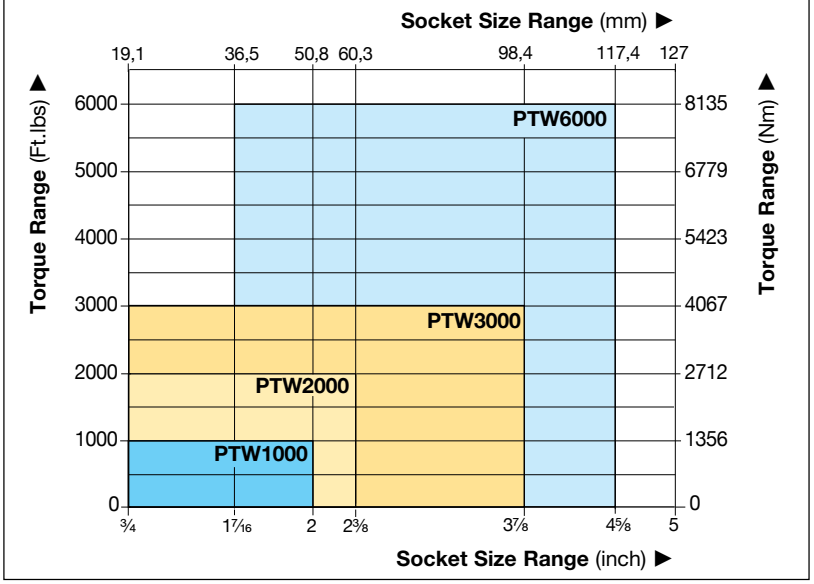
① Filter-Regulator-Lubricator
② Hose
③ PTW Torque Wrench
④ Reaction Arm

PTW Series

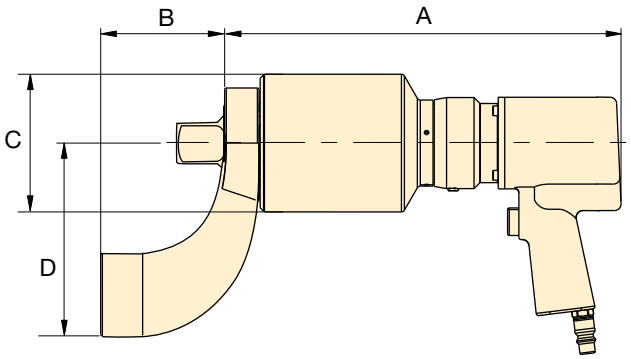
Nominal Output Torque:
6000 Ft.lbs

Square Drive Range:
1 - 1½ inch

***TORQUE WRENCH SELECTION**



*Socket size recommendations are based on torque output of tool and socket size range. Additional socket sizes available on request.



All tools are shipped complete with standard reaction arm and FRL*.

Pneumatic Torque Wrench Accessories

Enerpac offers a full line of accessories including a range of reaction arms and drives.

Page: 36

Filter-Regulator-Lubricator

Recommended for use with all PTW pneumatic torque wrenches.
Provides clean, lubricated air and allows for air pressure adjustment.

Order model number	FRL120C

BSH-Series Sockets

Heavy-Duty Impact Sockets for power driven torquing equipment.

Page: 10

Hydraulic Torque Wrenches

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

Page: 6 & 12

▼ SELECTION CHART

Minimum Torque (ft-lbs)	Minimum Torque (Nm)	Maximum Torque (ft-lbs)	Maximum Torque (Nm)	Square Drive (in)	Model Number*	RPM	Dimensions (in) A	B	C	D	Weight** (lbs)
300	407	1000	1356	1	**PTW1000C**	12.6	10.70	3.27	2.83	5.12	18
500	678	2000	2712	1	**PTW2000C**	8.0	11.26	3.27	3.11	5.24	19.5
900	1220	3000	4067	1	**PTW3000C**	3.1	13.50	3.27	3.74	5.24	23
1300	1763	6000	8135	1½	**PTW6000C**	2.5	14.40	4.49	5.00	7.00	39

* To order without FRL and hose, remove "C" Suffix (e.g. PTW3000).
** Weight does not include reaction arm. Reaction arm weight for PTW1000, PTW2000, PTW3000 is 2.9 lbs. and PTW6000 is 7.75 lbs.

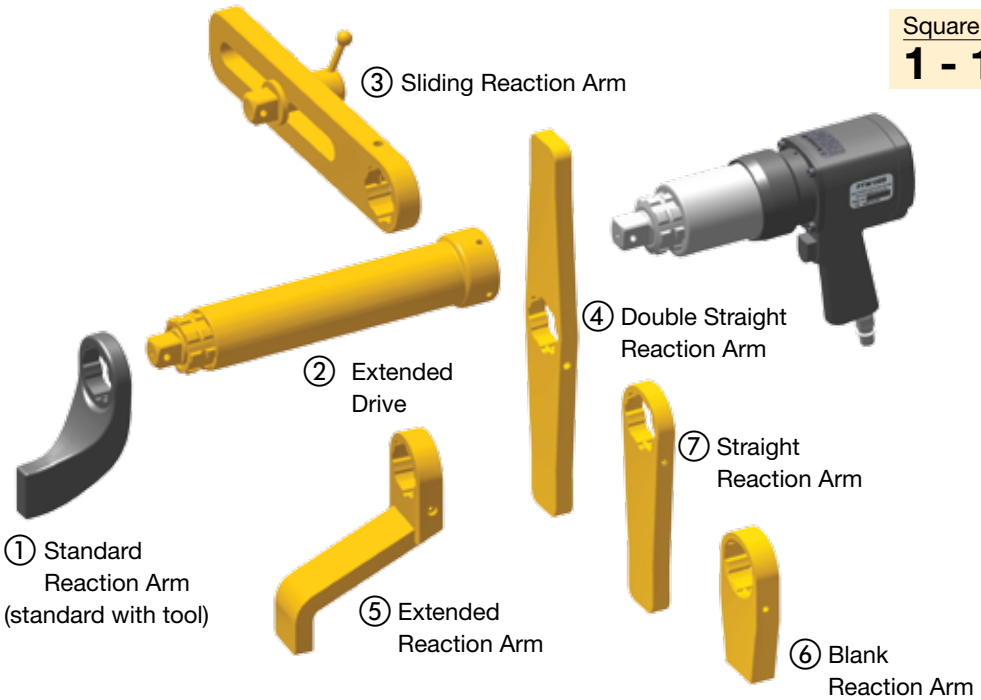
PTW-Series Torque Wrenches

Enerpac offers the following accessories to support a wide variety of applications in industries such as mining, power generation and oil and gas. For additional custom accessories not pictured here, please contact Enerpac.

PTW-Series

Nominal Output Torque:
6000 Ft.lbs

Square Drive Range:
1 - 1½ inch



▼ PTW-SERIES OPTIONAL ACCESSORIES

No.	Description	Model No.	Application
▼ For use with PTW1000, PTW2000, PTW3000 models			
1	Standard Reaction Arm	**RATWS**	Standard arm included with PTW model
2	Extended Drive, 6 inch	**ED6TWS**	152 mm nose extension, primarily for truck wheel bolts
2	Extended Drive, 12 inch	**ED12TWS**	305 mm nose extension, primarily for truck wheel bolts
2	Extended Drive, 18 inch	**ED18TWS**	457 mm nose extension, primarily for truck wheel bolts
3	Sliding Reaction Arm	**SLRATWS**	For widely spaced and uneven bolt centers
4	Double Straight Reaction Arm	**DSATWS**	Reduces time to reposition arm *
5	Extended Reaction Arm	**ERATWS**	Long plate for use with deep well sockets
6	Blank Reaction Arm	**BLTWS**	Weldable blank for custom applications **
7	Straight Reaction Arm	**SRATWS**	Long plate for wide spaced reaction points
▼ For use with PTW6000 models			
1	Standard Reaction Arm	**RATWL**	Standard arm included with PTW model
2	Extended Drive 6 inch	**ED6TWL**	152 mm nose extension, primarily for truck wheel bolts
2	Extended Drive 12 inch	**ED12TWL**	305 mm nose extension, primarily for truck wheel bolts
3	Sliding Reaction Arm	**SLRATWL**	For widely spaced and uneven bolt centers
4	Double Straight Arm	**DSATWL**	Reduces time to reposition arm *
5	Extended Reaction Arm	**ERATWL**	Long plate for use with deep well sockets
6	Blank Reaction Arm	**BLTWL**	Weldable blank for custom applications **
7	Straight Reaction Arm	**SRATWL**	Long plate for wide spaced reaction points

* Time to reposition arm when repeatedly moving from tightening to loosening.
** Blank reaction arms must be heat treated to HRc 38-42 prior to use.

Typical PTW-Series Torque Wrench Applications

Mining

- Track maintenance
- Undercarriage maintenance
- Wheel maintenance
- Shovel maintenance

Power Generation

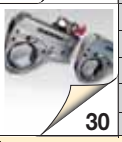
- Turbine bolts
- Tower segments
- Turbine casings

Oil & Gas

- Pipe flanges
- Valves
- Manway covers
- Pressure vessels

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: 39	Page: 40	Page: 46	Page: 44	Page: 48	Page: 50
		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	Heavy duty	Heavy duty	Standard duty	Heavy duty
		Weight:						
		Field/Factory Work:	Field	Field	Field/Factory	Factory	Field	Field
S-Series	 6	S1500X	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal
		S3000X						
		S6000X	–		Acceptable		–	
		S11000X						
		S25000X						
W-Series	 12	W2000X	Optimal		Optimal		Optimal	
		W4000X						
		W8000X	–		Acceptable		–	
		W15000X						
		W22000X						
		W35000X						
SQD-Series	 26	SQD-25-I	Optimal	Optimal	–	–	Optimal	Optimal
		SQD-50-I						
		SQD-75-I	–				–	
		SQD-100-I						
		SQD-160-I						
		SQD-270-I						
HXD-Series	 30	HXD-30	Optimal				Optimal	
		HXD-60						
		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.

▼ Shown: **PMU-10427**

PMU/PME 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

- **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**

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.

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 (in³/min)		Model Number with Heat Exchanger*	Useable Oil Capacity (gal)	Electric Motor	Dimensions L x W x H (in)	Weight (lbs)
		1st stage	2nd stage	1st stage	2nd stage					
S1500X S3000X	W2000X W4000X	700	10,000	200	20	**PMU-10427-Q**	.50	115V- 1 ph -50/60Hz	17 x 11 x 15	53
		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

* For pump without heat exchanger change PMU into PME. Example: PME-10442-Q.
PME-Series pump size 10 x 10 x 14 inches. Weight 37.5 lbs. (.50 gallon) and 44 lbs (1 gallon).

▼ Shown: **ZU4204TB-Q and ZU4204BB-Q**

- **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)**

Z Tough. Dependable. Innovative. **CLASS**

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 Display for Pro Series

- Digital pressure or torque read-out
- Programmable "Auto-Cycle" setting
- "Auto-Cycle" setting easily programmable
- Torque wrench model is selectable
- Display torque in Nm or Ft.lbs
- 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

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

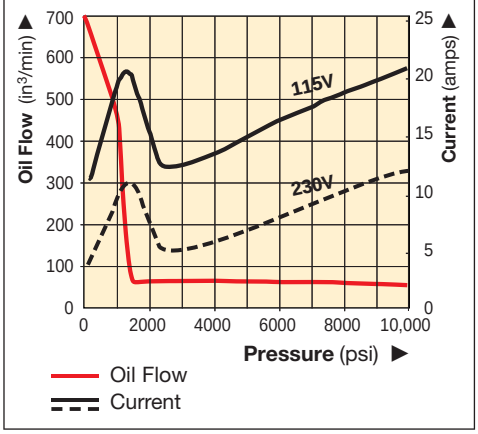
- The Classic has an analog gauge and traditional electro-mechanical components (transformers, relays and switches) in place of solid-state electronics. The Classic delivers durable, safe and efficient hydraulic power.

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).

OIL FLOW AND CURRENT vs PRESSURE



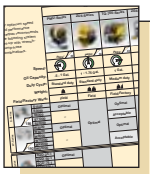
ZU4T Series

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



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 lock-ring safety couplers.

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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.

www.enerpac.com

▼ 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 3)	208-240 V-1 ph	1.75	88
		ZU4208BI-Q 3)	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

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

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

1 Product Type
Z = Pump series

2 Motor Type
U = Universal electric motor

3 Flow Group
4 = 60 in^3/min @ 10,000 psi

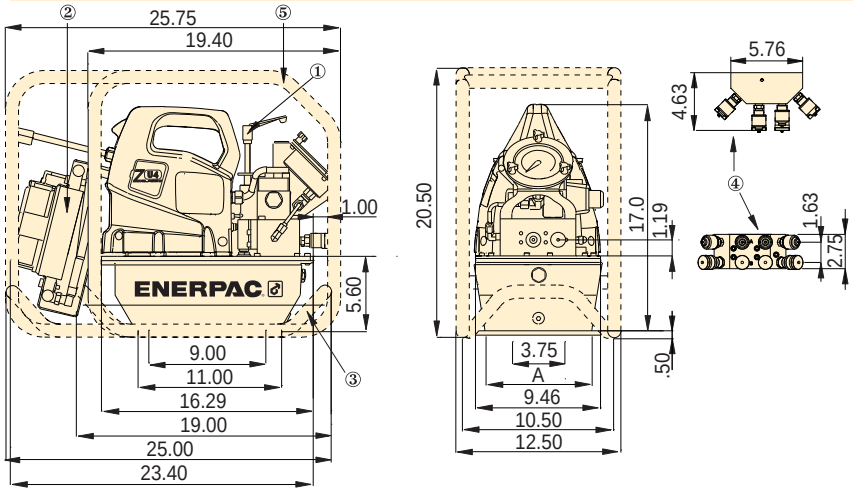
4 Valve Type
2 = Torque wrench valve

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



ZU4-Series Torque Wrench Pumps

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 Skidbar (optional)
④ 4-wrench manifold (optional)
⑤ Roll cage (optional)

ZU4 Performance							
Motor Size	Output Flow Rate (in^3/min)				*Motor Electrical Specification	Sound Level	Relief Valve Adjustment Range
(hp)	100 psi	700 psi	5,000 psi	10,000 psi		(dBA)	(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.

How to order your ZU4T-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**

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

ZU4T 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

Roll Cage

- **Protects pump**
- **Provides greater pump stability**

Accessory Kit No. *	Can be used on ZU4-Series torque wrench pumps
ZRC-04	1 and 1.75 gallon reservoir[1)]
ZRC-04H	1 and 1.75 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

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 1.75 gallon[1)]
SBZ-4L	1 and 1.75 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

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

ZU4T 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

▼ Shown: **ZE4204TB-QHR**

Z Resistente.
Confiable.
Diseño Innovador.
CLASS

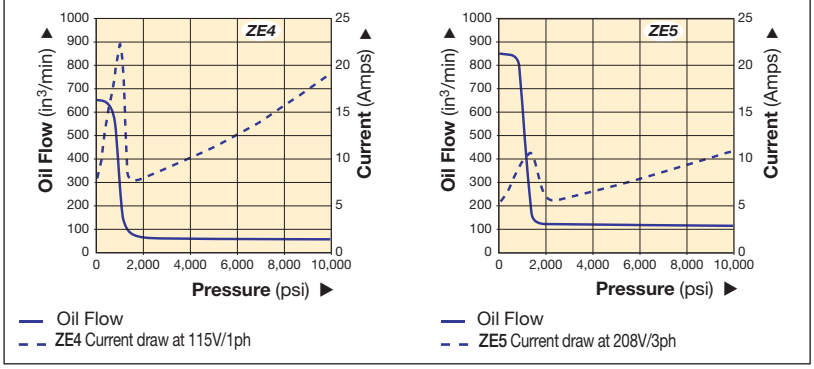
- **Auto cycle feature provides continuous cycle operation of the torque wrench as long as the advance button is pressed (Pump can be used with or without auto**
- **LCD readout provides pressure and torque display and a number of diagnostic and readout capabilities never before offered on a portable electric pump**
- **Totally enclosed, fan-cooled industrial electric motors supply extended life and stand up to harsh industrial environments**
- **High-strength, molded electrical enclosure protects electronics, power supplies and LCD readout from harsh environments**

Back-lit LCD Display

- Digital pressure or torque read-out
- Programmable "Auto-Cycle" setting
- "Auto-Cycle" setting easily programmable
- Torque wrench model is selectable
- Display torque in Nm or Ft.lbs
- 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 W2000X wrench.*

ZE4 and ZE5 Oil Flow and Current vs. Pressure



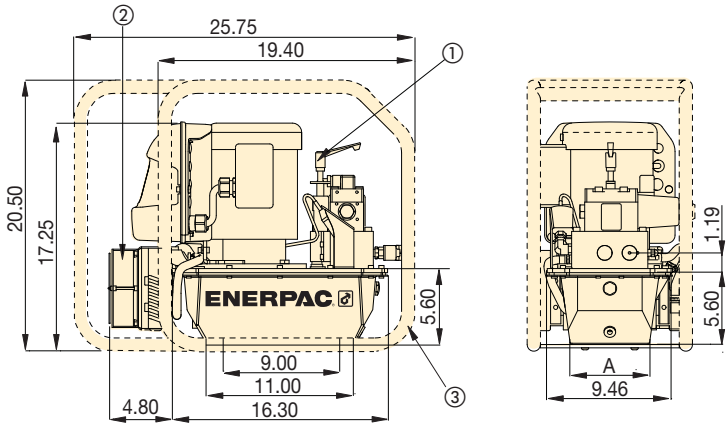
ZE4T ZE5T Series

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



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)

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 with Heat Exchanger and Roll Cage	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	129
	10,000	ZE4208TI-QHR	230 V-1 ph	2	129
	10,000	ZE4208TG-QHR	230 V-3 ph	2	131
	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	ZE4208TI-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] Reservoir sizes available:1, 2, 2.5, 5, 10 gallon. Contact Enerpac.

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

▼ PERFORMANCE CHART

Pump Series	Output Flow Rate (in³/min)				Motor Size		Relief Valve Adjustment Range	Sound Level
	100 psi	700 psi	5,000 psi	10,000 psi	hp	RPM	(psi)	(dBA)
ZE4T	650	600	62	60	1.5	1750	1000 - 11,600	75
ZE5T	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 three stage pump maximizes productivity of the pump and tool while minimizing heat build-up and downtime**
- **Heat exchanger is standard**
- **A quiet (<85 dBA), lightweight pump with a compact footprint — easy to move around**
- **Durable roll cage with an ergonomically sized handle and shielded gauge**
- **Maintenance made simple with a brushless motor designed for continuous usage**
- **Straightforward operation with a simple pressure set and convenient to use 20 ft. pendant cord**
- **IP55 Rating for superior dust and water protection**
- **Transparent gauge overlays in Ft.lbs and Nm for all Enerpac S and W-Series torque wrenches provide a quick torque reference**

Lightweight Torque Wrench Pump

Optimized for S-Series and W-series Hydraulic Torque Wrenches

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

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Pendant Control

The **TQ-700** comes equipped with a 20-foot pendant cord which allows the user to pressurize the pump from a distance increasing productivity and speed of setup.

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

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

TQ Series

Reservoir Capacity:
1 gallon

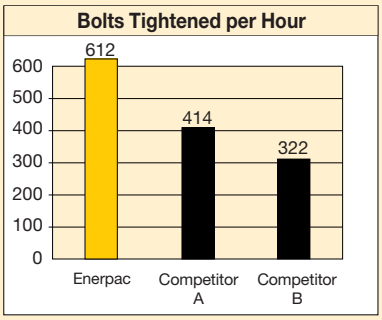
Maximum Operating Pressure:
10,000 psi

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, 1⅞" bolts.

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

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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 AF.

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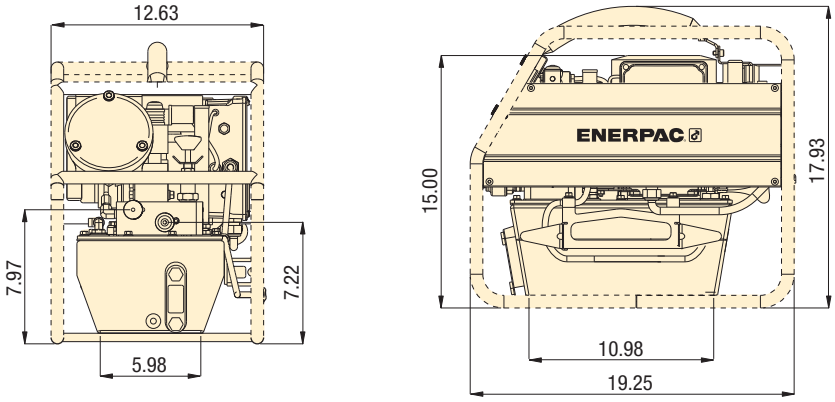
Dimensions shown in inches.



Performance	For Use with Torque Wrenches		Pressure Rating (psi)	Model Number[1]	Motor Electrical Specification	Usable Oil Capacity (gal)	Weight (no oil) (lbs)
Optimal	S1500X S3000X S6000X	W2000X W4000X W8000X	10,000	TQ-700B	115V-1 ph, 50 / 60 Hz	1	68
				TQ-700E[2]	230V-1 ph, 50 Hz		66
Acceptable	S11000X S25000X	W15000X W22000X W35000X		TQ-700I[3]	230V-1 ph, 60 Hz		66

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

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.

▼ Shown: **PTA-1404**

Two-Stage Power in a Portable Design

- **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**

◀ *The compact PTA-Series pumps may easily be transported to jobsites, and are ideal for powering Enerepac torque wrenches such as this W-Series low profile tool.*

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 lock-ring 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.

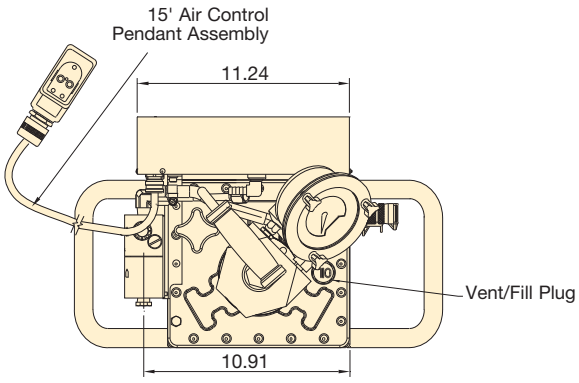
PTA Series

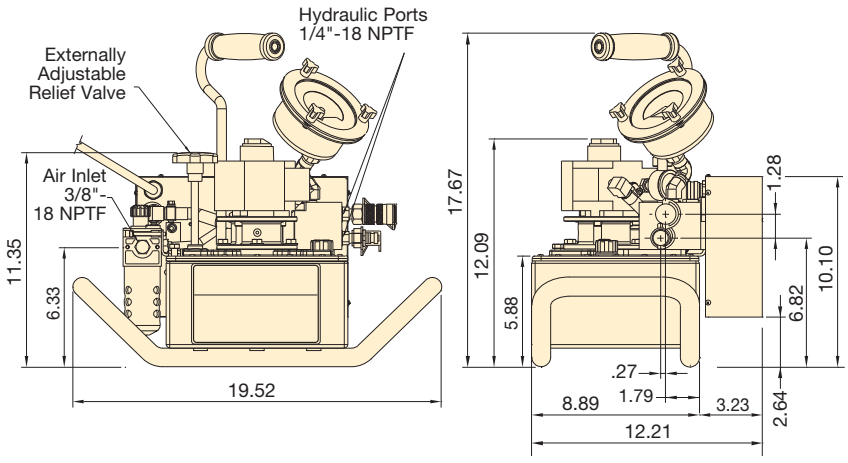
Reservoir Capacity:
1 gal.

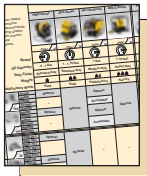
Flow at 10,000 psi:
20 in³/min.

Maximum Operating Pressure:
10,000 and 11,600 psi

Dimensions shown in inches.







Torque Wrench Pump Selection Matrix

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

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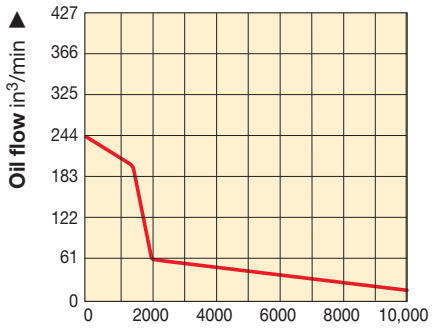
OIL FLOW vs PRESSURE



▼ SELECTION CHART

For Use With Torque Wrenches		Pressure Rating (psi)	Model Number	Reservoir Capacity (gal)	Useable Oil Capacity (gal)	Pump Flow Rates (in³/min) 1st stage	Pump Flow Rates (in³/min) 2ND stage	Air Consumption @ 100 psi (scfm)	Air Pressure Range (psi)	Weight with Oil (lbs)
S1500X S3000X	W2000X W4000X	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**

Z CLASS
Tough.
Dependable.
Innovative.

- **Two-speed operation and high by-pass pressure reduces cycle time for improved productivity**
- **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**
- **Ergonomic pendant allows remote operation up to 20 feet**
- **Valve technology reduces oil operating temperatures and withstands contaminants to increase pump reliability**

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.

◀ *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.

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.

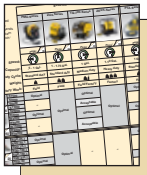
Ex II 2 GD ck T4
DEKRA 0602
CE

ZA4T 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



Torque Wrench Pump Selection Matrix

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

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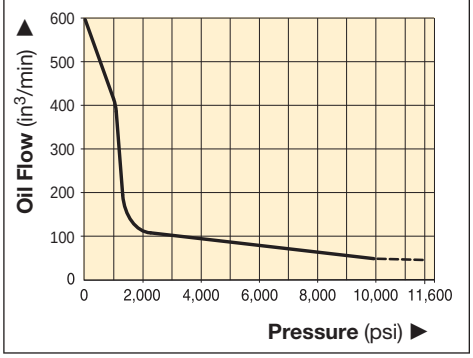
OIL FLOW vs PRESSURE

100 psi dynamic air pressure at 70 scfm



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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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 lock-ring safety couplers.

▼ COMMON PUMP MODELS

For Use With Torque Wrenches	Maximum Operating Pressure (psi)	Model Number [1]	Usable Oil Capacity (gal)	Weight with Oil (lbs)
For all S- and W- Series (X-Edition)	**10,000**	**ZA4204TX-Q**	1.0	94
	10,000	**ZA4208TX-Q**	1.75	100
	10,000	**ZA4204TX-QR**	1.0	101
For all SQD- and HXD-Series	**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.

▼ 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

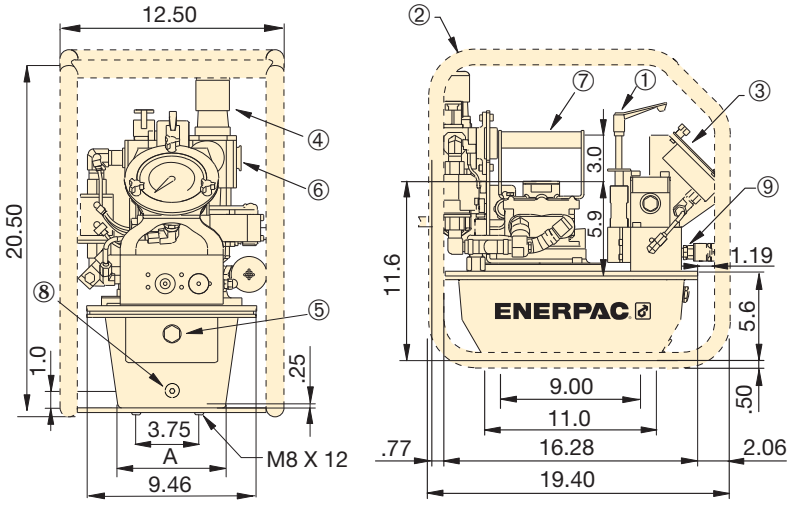
Ordering Example 1

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.



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

ZA4-Series Torque Wrench Pumps

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

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

ZA4 Performance								
Output Flow Rate (in³/min)					Dynamic Air Pressure Range	Air Consumption	Sound Level at 100 psi Dynamic	Relief Valve Adjustment Range
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.

ZA4T 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 1.75 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

ZA4T 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.

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**

Roll Cage

- **Protects pump**
- **Provides greater pump stability**

Accessory Kit No. *	Can be used on ZA4-Series torque wrench pumps
ZRC-04	1 and 1.75 gallon reservoir

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

Ordering Example:
Model No. ZA4208TX-QR

▼ 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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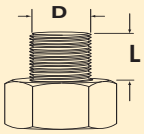
Minimum Stud Protrusion



L Minimum = **1 X D**

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

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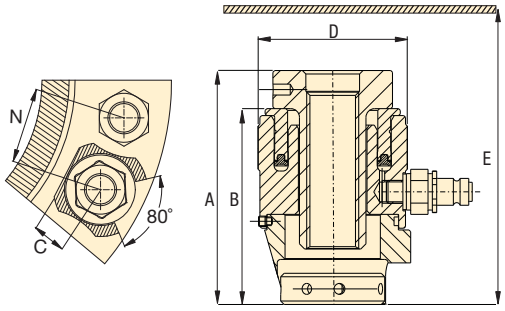
- **Six load cells from ⅝" to 3¾" or from M16 to M95**
- **Twin ports for quick connection of multiple tools**
- **Only one size of bridge per size of load cell**
- **Detachable and rotational bridge simplifies tool positioning**
- **Full bridge window**
- **Piston stroke indicator**
- **Black surface treatment protects against corrosion**
- **Anti-slip grip for more secure handling**
- **Universal and multi-use tool**

Nearest obstruction.



▼ *GT2 Bolt Tensioner on a flange joint.*

Threaded Fastener Range		Load Cell and Bridge Reference	Technical Data			Dimensions (in)				Weight
			Cylinder Effective Area	Load Capacity	Stroke					
(in)	(mm)		(in²)	(ton)	(in)	A	B	C	D	(lbs)
⅝"-1"	M16-M30	**GT1-LCB**	2.32	25.2	0.39	5.31	4.45	1.06	3.39	6.60
1⅛"-1½"	M30-M39	**GT2-LCB**	4.15	45.1	0.39	5.35	4.37	1.38	4.21	9.02
1½"-2"	M39-M52	**GT3-LCB**	7.95	86.4	0.39	6.30	4.96	1.81	5.43	15.40
2"-2½"	M52-M68	**GT4-LCB**	15.16	164.9	0.39	7.09	5.55	2.44	6.85	26.84
2½"-3¼"	M68-M80	**GT5-LCB**	23.37	254.1	0.39	7.95	6.18	3.07	8.27	41.14
3¼"- 3¾"	M80-M95	**GT6-LCB**	29.41	319.8	0.39	8.62	6.81	3.23	9.45	61.16

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
22-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 with low power quality**
- **Two-stage pump design provides high flow at low pressure for fast system fills and controlled flow at high pressure for safe and accurate operation**
- **Compact and lightweight design fits through tight openings and provides easy handling**
- **Panel mounted 6" pressure gauge, with polycarbonate cover, is set into the protective metal shroud for improved visibility and safety**
- **Panel mounted user adjustable valve for safe and precise pressure control**
- **Safety relief valve limits output pressure**

Applications

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

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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.

Bolting Theory

See our "Yellow Pages" for information on torque tightening and tensioning.

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◀ *The ZUTP-1500 pump is rugged, lightweight, compact for tight openings, and delivers hassle-free operation of bolt tensioning in remote locations with up to two times the speed of competitive pumps.*

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.

ZUTP Series

Reservoir Capacity:
1 gallon

Flow at Rated Pressure:
20.0 in³/min.

Maximum Operating Pressure:
21,750 psi

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

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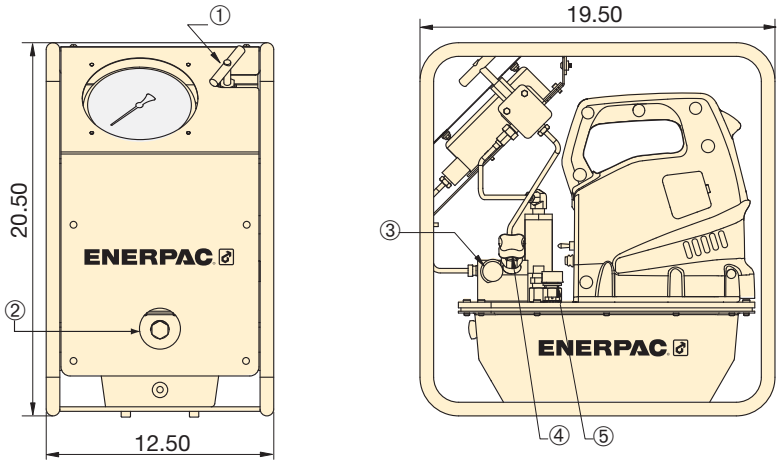
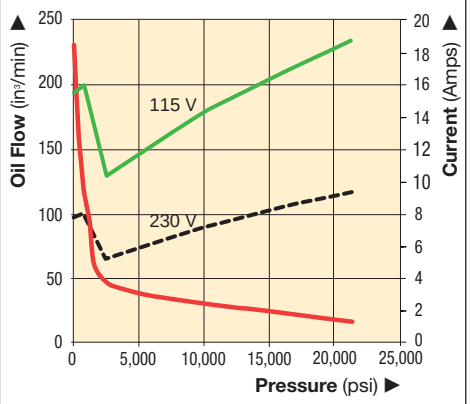


① Release Valve
② Sight Glass
③ 1/4" BSPM Outlet Port
④ User Adjustable Pressure Control Valve
⑤ Breather

Oil Flow and Current vs. Pressure



21,750 PSI HIGH PRESSURE PUMP

Pump Type	Useable Oil Capacity (gal)	Valve Type	Model Number [1]	Output Flow Rate at 0 psi (in³/min)	Output Flow Rate at 21,750 psi (in³/min)	Motor Electrical Specification	Sound Level (dBA)	Weight with oil (lbs)
High pressure	1.0	Manual	**ZUTP-1500B**	230	20	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.
[4] Add suffix "H" for factory installation of Heat Exchanger.

▼ 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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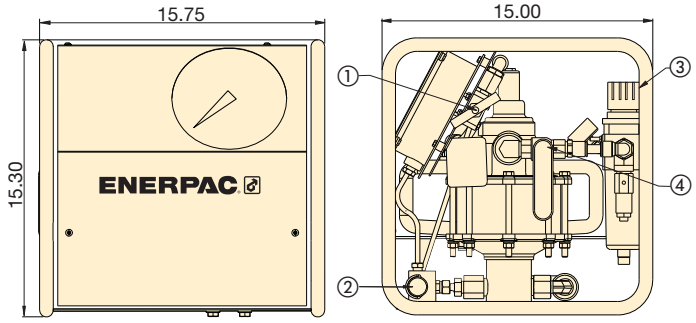
- **General purpose, high pressure air driven pump unit for products requiring up to 21,750 psi hydraulic pressure**
- **Compact, lightweight, rugged steel frame for protection and easy handling**
- **Prelubricated pump element, does not require an airline lubricator**
- **Easily adjustable output pressure 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.

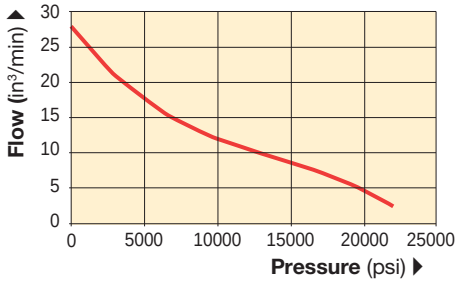
Ex II 2 GD ck T4
IBExU 070/10

CE



① HPT Shut-off Valve
② HPT Out Port
③ Filter/Regulator
④ Air On/Off Valve

FLOW CHART



Flow (in³/min) at 90 psi air input

21,750 PSI ULTRA HIGH PRESSURE PUMP

Pump Type	Useable Oil Capacity (gal)	Model Number	Pressure Rating (psi)	Output Flow Rate at 0 psi (in³/min)	Output Flow Rate at 21,750 psi (in³/min)	Air Pressure Range (psi)	Air Consumption (sfcm)	Sound Level (dBA)	Weight (lbs)
High pressure	1.0	**ATP-1500**	21,750	26	4	80-90	70	70	65

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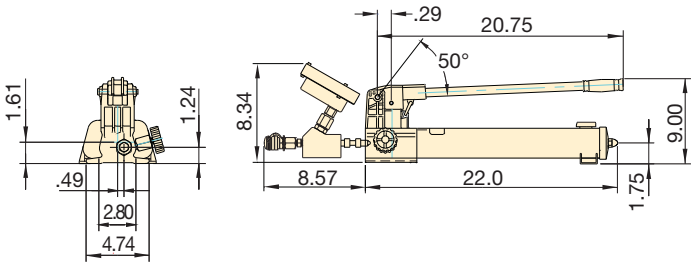
Ultra-High Pressure
These products operate at ultra-high pressure, use only the specified fittings and hoses designed for these pressures.

- **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**



▼ 21,750 PSI ULTRA HIGH PRESSURE PUMP

Model Number	Description	Usable Oil Capacity (in³)	Oil Displacement per Stroke (in³) 1st stage	Oil Displacement per Stroke (in³) 2nd stage	Pressure Rating (psi) 1st stage	Pressure Rating (psi) 2nd stage	Weight (lbs)
HPT-1500	High Pressure Hand Pump with Gauge	155	.99	0.037	200	21,750	19

▼ 21,750 PSI 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

▼ 21,750 PSI COUPLERS

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-4, ATM-9, ATM-2**

The faster, simpler and safer way to align flanges

- **Enerpac ATM-Series tools rectify twist and rotational misalignment quickly, safely, and without the need for an external power source**
- **Appropriate for use on most ANSI, API, BS and DIN flanges**
- **No slings, hooks or lifting gear required**
- **Can be installed and used in any position (horizontally or vertically)**
- **Portable, lightweight design enables easy transport and use, even in remote locations**
- **Each ATM-model contains a tool and kit box**

Adjustable Reach

The highly adjustable reach of the wing and drop leg on the **ATM-4** and **ATM-9** allows precise alignment.

Gauge and Adaptor

The ATM-9 includes P-142 hand pump and HC-7206C 6 ft. long hose. Enerpac recommends the use of the GA45GC pressure gauge, adaptor and coupler assembly for easy mounting and viewing angle.

▼ The compact ATM-2 mechanical alignment tool aligns small flanges in a matter of seconds.

▼ *The ATM-9 is shown here with optional pressure gauge and gauge adaptor.*

Applications

Enerpac's ATM-Series Tools help correct flange misalignment and allow bolts to be placed into joints. This alignment takes place during pipe work construction or maintenance.

These tools provide pipe installers and maintenance personnel with some of the simplest, safest and most productive solutions available for flange alignment in the market today.

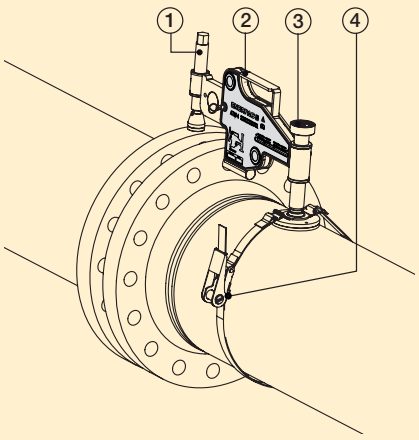
① Extendable wing provides usage on wide variety of flanges.

② Portable, light-weight design enables easy transport and use.

③ Hand-adjustable base for easy positioning by a single operator.

④ Safety strap helps provide secure operation from a horizontal or vertical position.

ATM-4



ATM Series

Minimum Bolt Size:
.63 - 1.24 inches

Flange Wall Thickness:
.55 - 9.00 inches

Maximum Lifting Force:
1 - 10 ton (10 - 90 kN)

Cylinder-Pump Sets

Hydraulic cylinders, jacks and lifting wedges can also be used to assist in pipe line positioning and aligning.

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Pipe Flange Face Tool

The portable, hand-powered tool **FF-120** makes even the hardest to reach pipe flanges resurfaceable in a safe and convenient way.

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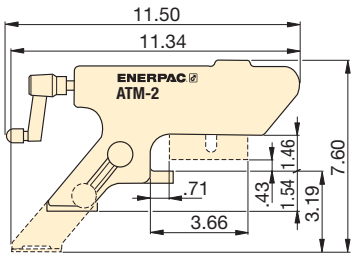
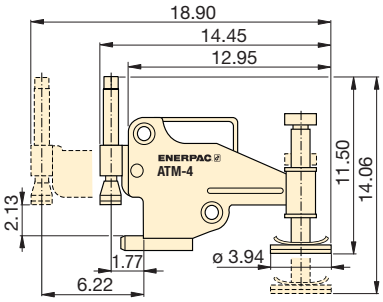
All dimensions shown in inches.

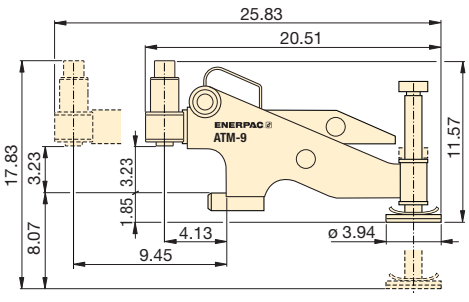
ATM-2



ATM-4



ATM-9



▼ *The ATM-Series - the faster, simpler and safer way to align flanges.*

Maximum Lifting Force (ton)	Maximum Lifting Force (kN)	Model Number	Minimum Bolt Size (in)	Minimum Bolt Size (mm)	Flange Wall Thickness (max) (in)	Flange Wall Thickness (max) (mm)	Weight (lbs)
1	**10**	**ATM-2**	.63	16	.55 - 3.29	14 - 82	3.5
4	**40**	**ATM-4**	.95	24	1.18 - 5.23	30 - 133	19
10	**90**	**ATM-9***	1.24	31,5	3.66 - 9.00	93 - 228	32**

* ATM-9 includes an Enerpac hand pump and hydraulic hose (which operate at a maximum pressure of 10,000 psi) - gauge and adaptor sold separately.
** ATM-9 weight includes tool only.

▼ Shown cylinder-pump set: **SCR-1010H**

The Quickest and Easiest Way to Start Working Right Away

- **Optimum match of individual components**
- **All sets are ready to use and include single-acting cylinder, two-speed pump, 6 foot safety hose, calibrated gauge with gauge adaptor**
- **RC-Series DUO, general purpose cylinders for maximum versatility**
- **RCS-Series, low height cylinders for maximum versatility**
- **RCH-Series hollow cylinders for pushing and pulling**

LW-16 Lifting Wedge

Hydraulic cylinders, jacks and lifting wedges can also be used to assist in positioning and aligning.

The LW-16 only requires an access gap of .39 inch. See our "Specialty Tools" section on **www.enerpac.com**.

▼ *Cylinder-Pump Sets - optimum match of components. The quickest and easiest way to start working right away.*

1 Cylinder Selection	Nominal Set Capacity (ton)	Cylinder Model No.	Stroke (in)	Collapsed Height (in)
	5	RC-55	5.00	8.50
	10	RC-102	2.13	4.78
		RC-106	6.13	9.75
		RC-1010	10.13	13.75
	15	RC-154	4.00	7.88
		RC-156	6.00	10.69
	25	RC-252	2.00	6.50
		RC-254	4.00	8.50
		RC-256	6.25	10.75
		RC-2514	14.25	18.75
	50	RC-506	6.25	11.13
	10	RCS-101	1.50	3.47
	20	RCS-201	1.75	3.88
	30	RCS-302	2.44	4.63
	50	RCS-502	2.38	4.81
	100	RCS-1002	2.25	5.56
	12	RCH-121	1.63	4.75
	20	RCH-202	2.00	6.31
	30	RCH-302	2.50	7.03
	60	RCH-603	3.00	9.75
	100	RCH-1003	3.00	10.00

SET SELECTION:

1. **Select the cylinder**
2. **Select the pump**
3. **Find the set model number in the blue field of the matrix**

SELECTION EXAMPLE

Selected cylinder:
- RC-106, Single-acting cylinder with 6.13" stroke

Selected pump:
- P-392, Lightweight hand pump

Set model number:
- SCR-106H

Included:
- HC-7206 hose
- GF-10P gauge
- GA-2 adaptor

SC Series

Capacity:
5-100 tons

Stroke:
1.50-14.25 inches

Maximum Operating Pressure:
10,000 psi

2 **Pump selection** (See Pump Section of this catalog for full product descriptions)

Hand Pump P-142	Hand Pump P-392	Hand Pump P-80	Foot Pump P-392FP	XA-Series Air Pump XA-11	Accessories Included: Hose Model No.	Gauge Model No.	Gauge Adaptor Model No.
							
SCR-55H	–	–	–	–	HC-7206	GP-10S	GA-4
–	**SCR-102H**	–	**SCR-102FP**	**SCR-102XA**	HC-7206	GF-10P	GA-2
–	**SCR-106H**	–	**SCR-106FP**	**SCR-106XA**	HC-7206	GF-10P	GA-2
–	**SCR-1010H**	–	**SCR-1010FP**	**SCR-1010XA**	HC-7206	GF-10P	GA-2
–	**SCR-154H**	–	**SCR-154FP**	**SCR-154XA**	HC-7206	GP-10S	GA-2
–	**SCR-156H**	–	**SCR-156FP**	**SCR-156XA**	HC-7206	GP-10S	GA-2
–	**SCR-252H**	–	**SCR-252FP**	**SCR-252XA**	HC-7206	GF-20P	GA-2
–	**SCR-254H**	–	**SCR-254FP**	**SCR-254XA**	HC-7206	GF-20P	GA-2
–	**SCR-256H**	–	–	**SCR-256XA**	HC-7206	GF-20P	GA-2
–	–	**SCR-2514H**	–	**SCR-2514XA**[1]	HC-7206	GF-20P	GA-2
–	–	**SCR-506H**	–	**SCR-506XA**[1]	HC-7206	GF-50P	GA-2
–	**SCL-101H**	–	**SCL-101FP**	**SCL-101XA**	HC-7206	GF-10P	GA-2
–	**SCL-201H**	–	**SCL-201FP**	**SCL-201XA**	HC-7206	GF-230P	GA-2
–	**SCL-302H**	–	**SCL-302FP**	**SCL-302XA**	HC-7206	GF-230P	GA-2
–	**SCL-502H**	–	**SCL-502FP**	**SCL-502XA**	HC-7206	GF-510P	GA-2
–	–	**SCL-1002H**	–	–	HC-7206	GF-510P	GA-2
SCH-121H	–	–	–	–	HB-7206	GF-120P	GA-4
–	**SCH-202H**	–	**SCH-202FP**	**SCH-202XA**	HC-7206	GF-813P	GA-3
–	**SCH-302H**	–	**SCH-302FP**	**SCH-302XA**	HC-7206	GF-813P	GA-3
–	–	**SCH-603H**	–	**SCH-603XA**[1]	HC-7206	GF-813P	GA-3
–	–	**SCH-1003H**	–	–	HC-7206	GP-10S	GA-2

[1] With **XA-12** air pump

▼ **EVO-8** (shown with optional cylinders and wire stroke sensors)

EVO Series

Number of Lift Points:
4-12 points

Accuracy Over Full Stroke:
Up to 0.040"

Ease of Operation

- A single operator controls the entire operation
- User friendly interface: visual screens, icons, symbols and color coding

- **Modular lifting system to control 4, 8 or 12 lifting points**
- **Can be networked to link up to 4 systems together (requires separate master control box)**
- **Intuitive user interface provides easy set-up and control with multiple lifting options**
- **Accuracy of 0.040" between leading and lagging cylinders**
- **Data storage and recording capabilities**
- **For use with standard single- or double-acting cylinders**
- **Built in warning and stop alarms for optimum safety**
- **Variable frequency electric motor for optimal flow control**
- **Two flow groups available to operate a wide range of cylinders**
- **EVO-B is a modular design allowing for use of existing Enerpac pumps**

Enerpac's family of EVO synchronous lifting systems provides precision control and levels of force suitable for most lifting/lowering applications. We can also provide custom systems tailored to unique project requirements.

The standard EVO system can support up to 12 lifting points, or be networked up to 48 points, and includes features such as center of gravity and tilting/weighing capabilities. It is a comprehensive self-contained design that features simple to use software that is extremely efficient at completing basic to complex applications.

The modular EVO-B system is a modular design that allows for utilization of existing Enerpac pumps. EVO-B offers an economical solution to basic applications requiring a maximum of 8 lifting points.

Used for aligning large flanged structures such as hydraulic excavators or dragline slew rings.

◀ *Shown: Dragline joint separation using Enerpac Synchronous Lifting System.*

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

NC, STN Series

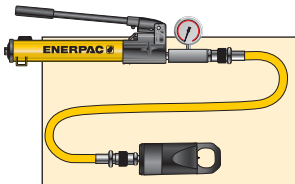
Capacity:
5-90 tons

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.

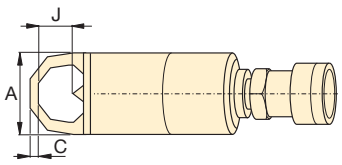
- **Compact and ergonomic design, easy to use**
- **Unique angled head allows flush access**
- **Single-acting, spring return cylinder**
- **Heavy-duty chisels can be reground**
- **Applications include servicing trucks, piping industry, tank cleaning, petrochemical, steel construction and mining**

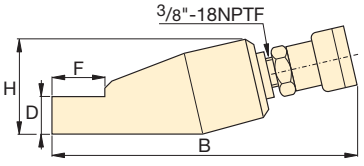


Nut Cutter Sets
Hydraulic Nut Cutters are available as sets (pump, tool, gauge, adaptor and hose).

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**

Power and Precision

High Performance Nut Splitter

- **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**

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

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

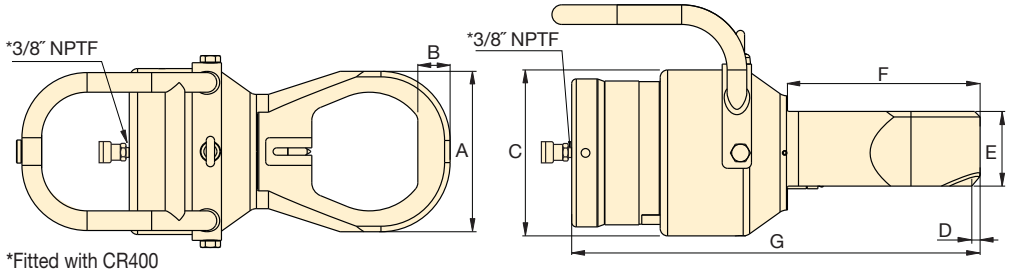
Capacity:
103.2-192.5 tons

Hexagon Nut Range:
2.75-5.38 inches

Maximum Operating Pressure:
10,000 psi

Set Model Number	1 Nut Splitter Model Number	2 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	P392	–	–	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	P802	–	–	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.



*Fitted with CR400

▼ SELECTION CHART

Hexagon Nut Range** (in)	Bolt Range (in)	Cap. (ton)	Oil Cap. (in³)	Model Number*	Dimensions (in) A	B	C	D	E	F	G	Weight (lbs)	NS Cylinder	NS Cutting Head	Replacement Blade
															
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**

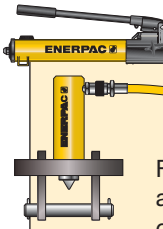
FS, STF Series

Capacity:
5-10 tons

Spread:
2.75 - 8.50 inches

Maximum Operating Pressure:
10,000 psi

- **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**



Flange Spreader Sets

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

Set Model Number	Spreader Model Number	Pump Model Number
STF-56H	FS-56	P-392
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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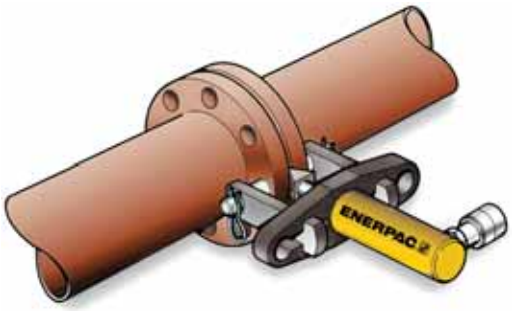
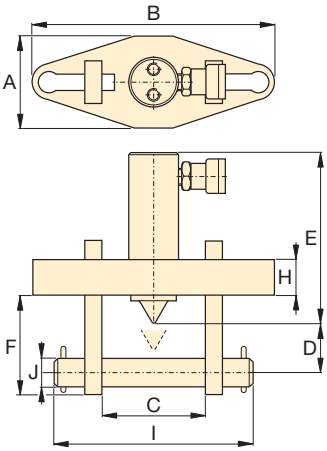




Flange Spreader Matching Chart

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 Min.	C Max.	D	E	F	H	I	J	
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

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

Hydraulic and Mechanical Industrial Spreaders

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

FSM/FSH/STF Series

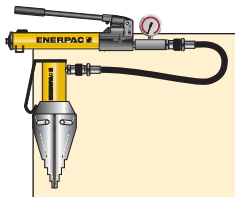
Tip Clearance / Maximum Spread*:
0.24/3.16 inches

Maximum Spread Force:
8-14 tons

Maximum Operating Pressure:
10,000 psi (FSH-14)

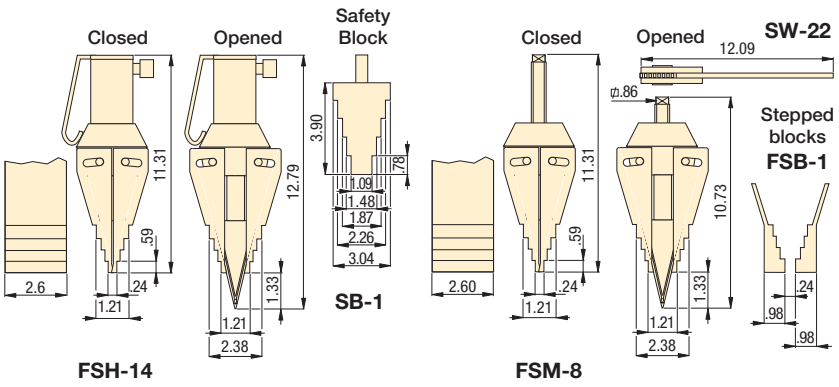
- **Integrated wedge concept: friction-free, smooth, parallel wedge movement eliminates flange damage and spreading arm failure**
- **Unique interlocking wedge design: no first step bending and risk of slipping out of joint**
- **Requires very small access gap of only .24 in. (6 mm)**
- **Stepped spreader 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**

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.



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	–



Max. Spreading Force (ton)	Model Number	Tip Clearance (in)	Max. Spread[1] (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

[1] Using stepped blocks FSB-1.
* Available as pump-tool set, see note on ths page.

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

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

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

- **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)**

RC Series DUO Cylinders

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

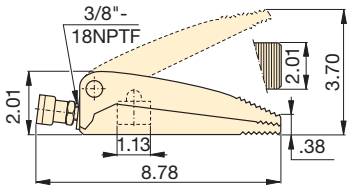
www.enerpac.com

Best Match Hand Pump

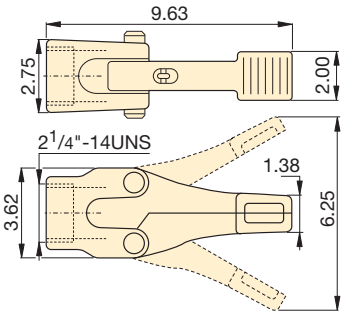
To power your WR5 and WR15 the **P-392** hand pump is an ideal choice.

www.enerpac.com

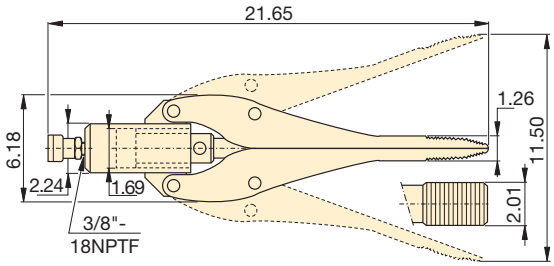
WR-5



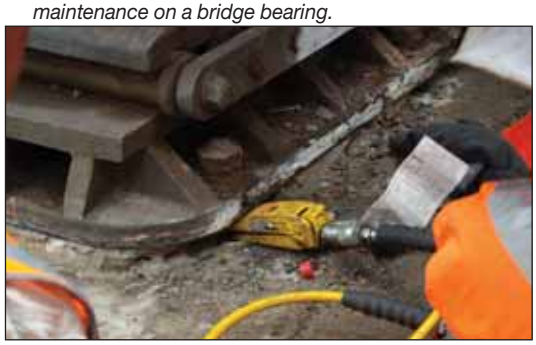
A-92



WR-15



▼ *A WR-5 wedgie cylinder is used for maintenance on a bridge bearing.*



Spreader Capacity (ton)	Tip Clearance (in)	Model Number	Maximum Spread (in)	Cylinder Effective Area (in^2)	Oil Capacity (in^3)	Wt. (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**

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 µin (3,18-6,35) µm

- **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**

Joint Separation Tools

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

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Joint Assembly Tools

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

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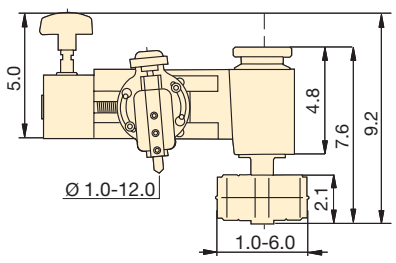
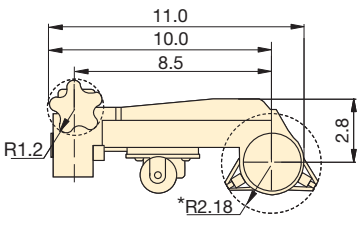
Fine Thread Feed Screw

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 µin (1,52-2,54 µm)

Dimensions shown in inches.





* without locator extensions.

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

▼ TOOL SELECTION CHART

Pipe Flange Cutting Diameter Range		Internal Pipe Mounting Diameter Range		Average Roughness (Ra)		Model Number	Wt.
(in)	(mm)	(in)	(mm)	(µin)	(µm)		(lbs)
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.

Enerpac "Yellow Pages" *stand for* Hydraulic Information!

If selecting hydraulic equipment 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 hydraulics, of system set-ups and of the most commonly used hydraulic techniques. The better your choice of equipment, the better you will appreciate hydraulics. Take the time to go through these "Yellow Pages" and you will benefit even more from Enerpac High Pressure Hydraulics.

ENERPAC WARRANTY STATEMENT

www.enerpac.com

Visit our website for the complete Enerpac Global Warranty or call your Enerpac representative or Enerpac Authorized Service Center.

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

ISO 9001 REGISTERED

ENERPAC, 199 Gateway Court, Columbus WI 53925 USA

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

CE Marking & Conformity

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 and by CSA, nationally recognized testing laboratories.

EMC Directive & by CSA

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

Ex II 2 GD ck T4
DEKRA & IBEx

ATP-1500, ZA and XA-Series air-motor driven pumps, and S- and W-Series Torque Wrenches are tested and certified according to the Directive 2014 / 34 / EU "ATEX Directive". The explosion protection is for equipment group II, equipment category 2 (hazardous area zone 1), in gas and/or dust atmospheres. ATP-1500, ZA and XA-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, BRD, CLL, CLS and CLP-Series).

ISO1402, ISO4672, ISO6803

Enerpac thermoplastic hoses are related to the criteria set forth in these standards.

Product Design Criteria

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

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)

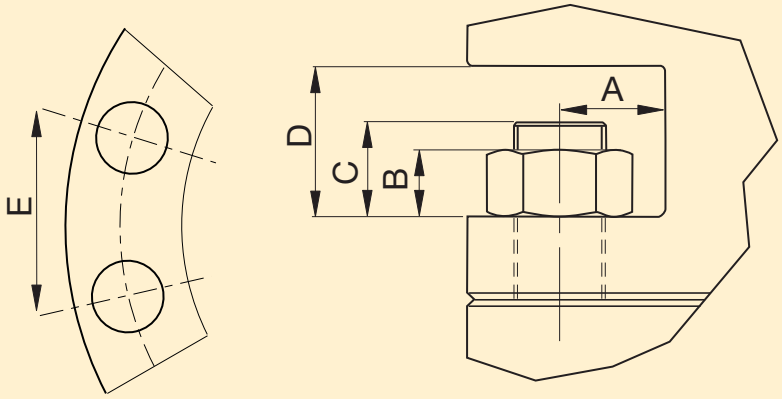
☐ Stretch-Bolt Length
(in. / mm) _____

☐ 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: _____

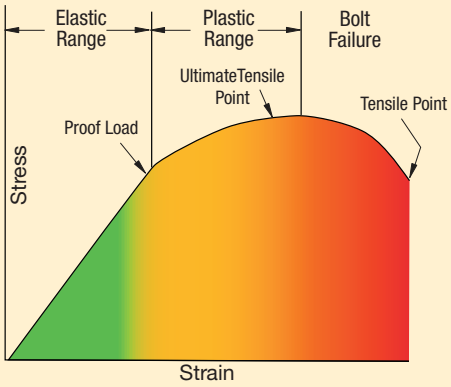
Current Lubrication: **Type** _____ **Brand** _____

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

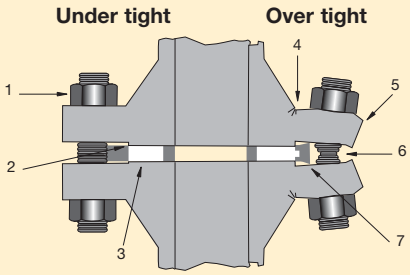
Elasticity is defined in Hooke's Law of physics: The stress in a bolt is directly proportional to its strain. The stress-strain of a bolt has an **elastic range** and a **plastic range**. In the elastic range Hooke's Law is true.

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.

Safe operation following prescribed procedures

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

Reliable and repeatable results

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

Uniformity of bolt loading

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

Reduces operational time resulting in increased productivity

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

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

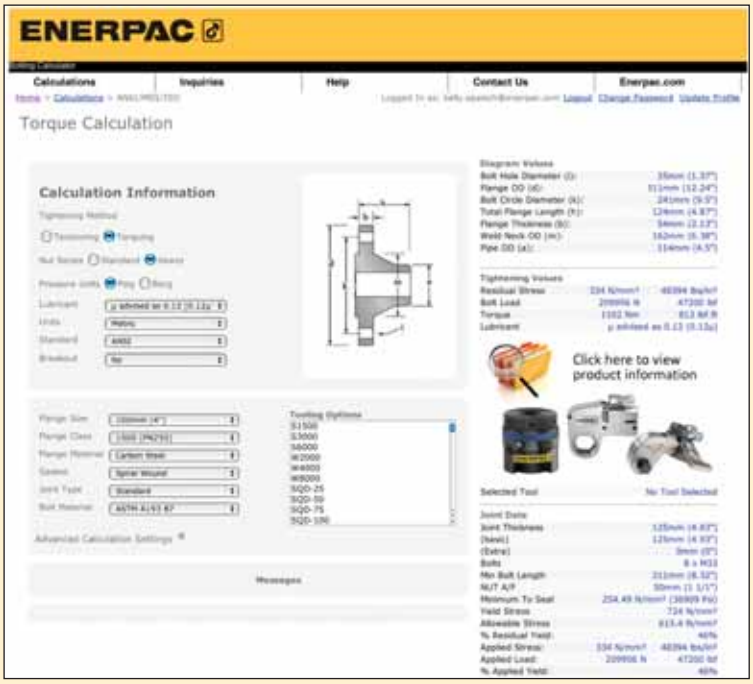
A comprehensive on-line software solution for Bolted Joint Integrity.

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

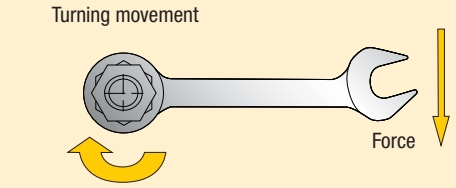
Custom Joint information can also be entered.

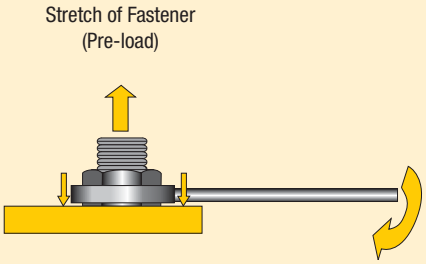
The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application data sheet and Joint completion report.

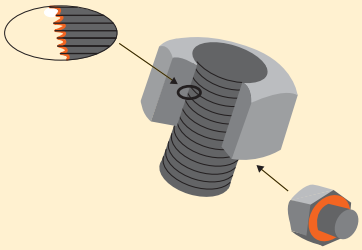


Visit ***www.enerpac.com*** to access our free on-line bolting software application and obtain information on tool selection, bolt load calculations and tool pressure settings. A combined application data sheet and joint completion report is also available.

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 torqueing 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).

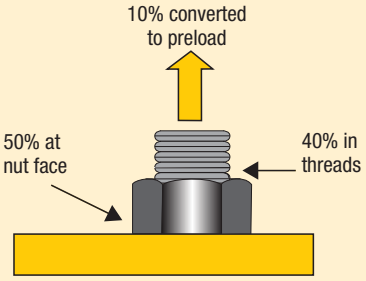
Preload (residual load) = Applied Torque *minus* Frictional Losses

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.

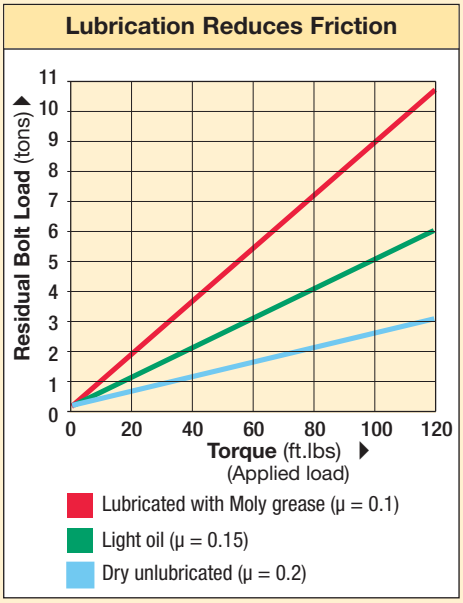
Lubricant or anti-seizure compounds should be applied to both the nut bearing surface and the male threads.

Frictional Losses



Frictional Losses (dry steel bolt)

Lubrication Reduces Friction



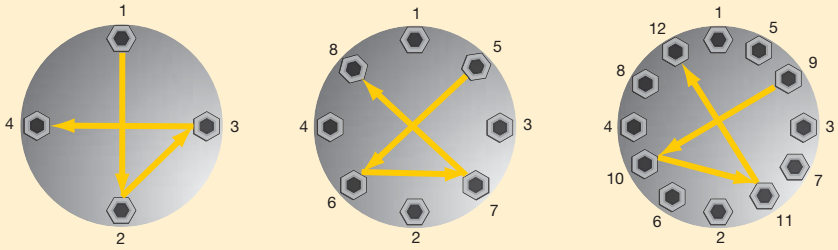
Example of how a lubricant can reduce the effect of friction and convert more torque to bolt preload.

**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

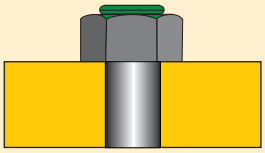
When loosening bolts a torque value higher than the tightening torque is normally required. This is mainly due to corrosion and deformations in the bolt and nut threads.

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

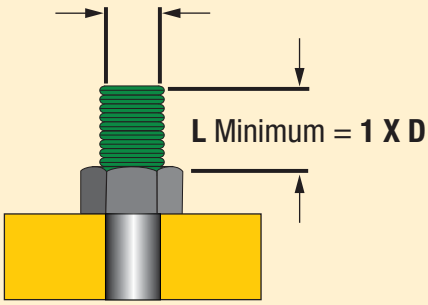
The use of penetrating oils or anti-seize products is always recommended when performing breakout operations.

Tensioning requires longer bolts

INCORRECT



CORRECT



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!**

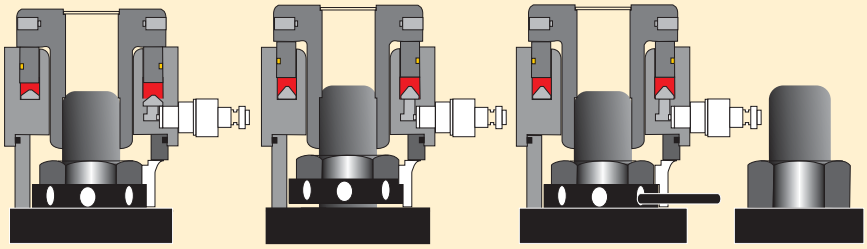
Tensioning Operation

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.

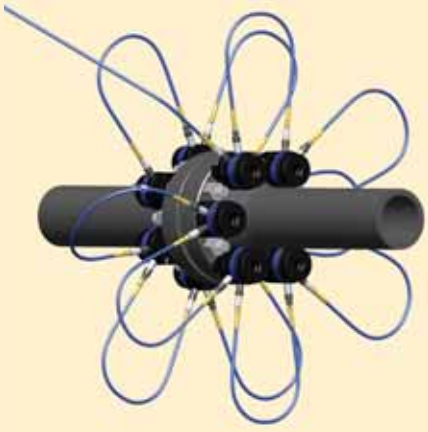
The bolt behaves like a spring, when the pressure is released the bolt is under tension and attempts to contract, creating the required clamping force across the joint.



Step 1 Step 2 Step 3 Step 4

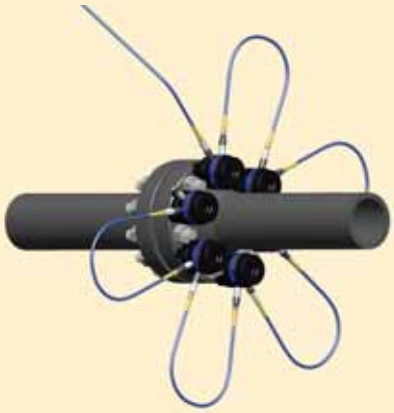
Less than 100% Tensioning

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.



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.

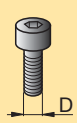
Read Instruction Manuals

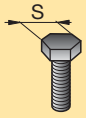
Please refer to the product Instruction Sheets for safe use guidelines and detail on the correct set up and operation of the equipment.

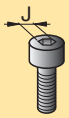
Hexagon Nut and Bolt Sizes

ENERPAC
POWERFUL SOLUTIONS. GLOBAL FORCE.

METRIC SIZES

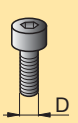


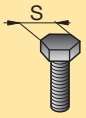




Thread Size D (mm)	Hexagon Size S (mm)	Hexagon Size J (mm)
M 10	17	8
M 12	19	10
M 14	22	12
M 16	24	14
M 18	27	14
M 20	30	17
M 22	32	17
M 24	36	19
M 27	41	19
M 30	46	22
M 33	50	24
M 36	55	27
M 39	60	27 (30)
M 42	65	32
M 45	70	-
M 48	75	36
M 52	80	36
M 56	85	41
M 60	90	46
M 64	95	46
M 68	100	50
M 72	105	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°F = (T°C x 1,8) + 32

To Convert °F to °C:

T°C = (T°F – 32) ÷ 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

Free Conversion Calculator

Visit **enerpac.com** and download the free conversion calculator.

Torque Conversion Factors

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

Pressure vs. Torque S-Series, (X-Edition)

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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Integral databases hold data for:

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- Common gasket materials and configurations
- Comprehensive range of bolt materials
- Comprehensive range of lubricants
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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.

▼ **S-Series (X-Edition)**

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

Pump Pressure (psi)	S1500X Torque Output (T_F 0.144) (ft-lbs)	S3000X Torque Output (T_F 0.3225) (ft-lbs)	S6000X Torque Output (T_F 0.615) (ft-lbs)	S11000X Torque Output (T_F 1.1175) (ft-lbs)	S25000X Torque Output (T_F 2.515) (ft-lbs)
1000	144	323	615	1118	2515
1200	173	387	738	1341	3018
1400	202	452	861	1565	3521
1600	230	516	984	1788	4024
1800	259	581	1107	2012	4527
2000	288	645	1230	2235	5030
2200	317	710	1353	2459	5533
2400	346	774	1476	2682	6036
2600	374	839	1599	2906	6539
2800	403	903	1722	3129	7042
3000	432	968	1845	3353	7545
3200	461	1032	1968	3576	8048
3400	490	1097	2091	3800	8551
3600	518	1161	2214	4023	9054
3800	547	1226	2337	4247	9557
4000	576	1290	2460	4470	10,060
4200	605	1355	2583	4694	10,563
4400	634	1419	2706	4917	11,066
4600	662	1484	2829	5141	11,569
4800	691	1548	2952	5364	12,072
5000	720	1613	3075	5588	12,575
5200	749	1677	3198	5811	13,078
5400	778	1742	3321	6035	13,581
5600	806	1806	3444	6258	14,084
5800	835	1871	3567	6482	14,587
6000	864	1935	3690	6705	15,090
6200	893	2000	3813	6929	15,593
6400	922	2064	3936	7152	16,096
6600	950	2129	4059	7376	16,599
6800	979	2193	4182	7599	17,102
7000	1008	2258	4305	7823	17,605
7200	1037	2322	4428	8046	18,108
7400	1066	2387	4551	8270	18,611
7600	1094	2451	4674	8493	19,114
7800	1123	2516	4797	8717	19,617
8000	1152	2580	4920	8940	20,120
8200	1181	2645	5043	9164	20,623
8400	1210	2709	5166	9387	21,126
8600	1238	2774	5289	9611	21,629
8800	1267	2838	5412	9834	22,132
9000	1296	2903	5535	10,058	22,635
9200	1325	2967	5658	10,281	23,138
9400	1354	3032	5781	10,505	23,641
9600	1382	3096	5904	10,728	24,144
9800	1411	3161	6027	10,952	24,647
10,000	1440	3225	6150	11,175	25,150

Pressure vs. Torque W-Series, (X-Edition)

▼ **W-Series (X-Edition)**

Pressure vs. Torque – W-Series Torque Wrench Imperial Table						
Pump Pressure	**W2000X Torque Output**	**W4000X Torque Output**	**W8000X Torque Output**	**W15000X Torque Output**	**W22000X Torque Output**	**W35000X Torque Output**
	(T_F 0.204)	(T_F 0.4175)	(T_F 0.847)	(T_F 1.533)	(T_F 2.25)	(T_F 3.50)
(psi)	(ft-lbs)	(ft-lbs)	(ft-lbs)	(ft-lbs)	(ft-lbs)	(ft-lbs)
1000	204	418	847	1533	2250	3500
1200	245	501	1016	1840	2700	4200
1400	286	585	1186	2146	3150	4900
1600	326	668	1355	2453	3600	5600
1800	367	752	1525	2759	4050	6300
2000	408	835	1694	3066	4500	7000
2200	449	919	1863	3373	4950	7700
2400	490	1002	2033	3679	5400	8400
2600	530	1086	2202	3986	5850	9100
2800	571	1169	2372	4292	6300	9800
3000	612	1253	2541	4599	6750	10500
3200	653	1336	2710	4906	7200	11200
3400	694	1420	2880	5212	7650	11900
3600	734	1503	3049	5519	8100	12600
3800	775	1587	3219	5825	8550	13300
4000	816	1670	3388	6132	9000	14000
4200	857	1754	3557	6439	9450	14700
4400	898	1837	3727	6745	9900	15400
4600	938	1921	3896	7052	10350	16100
4800	979	2004	4066	7358	10800	16800
5000	1020	2088	4235	7665	11250	17500
5200	1061	2171	4404	7972	11700	18200
5400	1102	2255	4574	8278	12150	18900
5600	1142	2338	4743	8585	12600	19600
5800	1183	2422	4913	8891	13050	20300
6000	1224	2505	5082	9198	13500	21000
6200	1265	2589	5251	9505	13950	21700
6400	1306	2672	5421	9811	14400	22400
6600	1346	2756	5590	10118	14850	23100
6800	1387	2839	5760	10424	15300	23800
7000	1428	2923	5929	10731	15750	24500
7200	1469	3006	6098	11038	16200	25200
7400	1510	3090	6268	11344	16650	25900
7600	1550	3173	6437	11651	17100	26600
7800	1591	3257	6607	11957	17550	27300
8000	1632	3340	6776	12264	18000	28000
8200	1673	3424	6945	12571	18450	28700
8400	1714	3507	7115	12877	18900	29400
8600	1754	3591	7284	13184	19350	30100
8800	1795	3674	7454	13490	19800	30800
9000	1836	3758	7623	13797	20250	31500
9200	1877	3841	7792	14104	20700	32200
9400	1918	3925	7962	14410	21150	32900
9600	1958	4008	8131	14717	21600	33600
9800	1999	4092	8301	15023	22050	34300
10,000	2040	4175	8470	15330	22500	35000

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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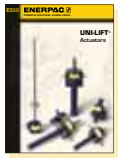

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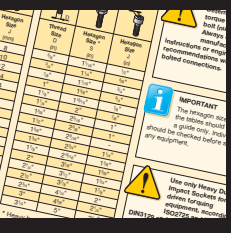

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