ENERPAC®

GB

E 4 1 5 e

BOLTING TOOLS

Enerpac Bolting Tools

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 flange alignment and flange closing tools to PLC-controlled multi-point synchronous positioning systems.

Controlled Tightening

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

Joint Separation

Enerpac also provides hydraulic nut splitters and a variety of mechanical and hydraulic spreading tools for joint separation during inspection, maintenance and decommissioning operations. High quality bolting solutions from the brand you can trust. See how Enerpac can make your bolting work-flow more accurate, safer and efficient.

Enerpac Bolting Integrity Software Solutions

Enerpac Bolting Integrity Software Solutions play a key role in implementing and managing an Integrity Program for bolted connections.

The software is used by a wide range of clients worldwide often interfacing with maintenance, construction and commissioning management systems.

The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application Data Sheet and Joint Completion Report. Custom Joint information can also be entered.

Page: 126

Bolting Tools Overview

ATM-Series, 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, W and RSL-Series, Torque Wrenches

Industrial Applications

Controlled tightening of multiple sized fasteners for industrial applications.

Solution: Hydraulic Torque Wrenches

Enerpac hydraulic torque wrenches are professional tools for industrial applications. Truly versatile tools which utilize standard Impact Sockets, optional direct Allen-Key Drives or interchangeable hexagon cassettes to provide controlled tightening of multiple sized fasteners per tool. Optional accessories further extend the application range of these products.

PTW and ETW-Series, Torque Wrenches

General Applications

Applications that require controlled bolting, feature a high volume of fastenings.

Solution: Pneumatic and Electric Torque Wrenches

Enerpac PTW-Series pneumatic torque wrenches are fast, easy to use and highly accurate. Enerpac ETW-Series electric torque wrenches are particularly well suited for complex jobs, which demand precision and traceability.

Bolting Solutions

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: Hydraulic Bolt Tensioners

Enerpac 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.
Power Generation Bolt Tensioners (PGT) and Foundation Bolt Tensioners (FTE, FTR) are also availble.

HM, GT, EAJ-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 and NS-Series Hydraulic Nut Cutters 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. With the two blades models nuts are split from two side in one action.

NC and NS-Series, Nut Cutters

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.

Solution: Flange Spreading Tools

Enerpac Wedge Spreaders and Flange Spreading Tools offer controlled separation without bending or risk of slipping from the joint. The SWi and SG-Series flange spreading tools can also be used.

FSC, FSH, FSM-Series, Wedge Spreaders

Pumps and Accessories

A wide range of bolting pumps and accessories are available including: manual, air and electrically operated pump units, hoses, gauges, manifolds and fittings.

Enerpac Bolting Integrity Software Solutions

Comprehensive on-line software solutions for Bolted Joint Integrity. The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application Data Sheet and Joint Completion Report. Custom Joint information can also be entered.

Pumps and Accessories Bolting Integrity Software

▼ 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**
- **Operator protected by anti-backlash device**
- **Torque multiplier accuracy ± 5%**
- **Reversible, tighten or loosen bolts**
- **Reaction bar or reaction plate style**
- **Angle-of-turn protractor standard on E300-Series models**
- **Reaction plate models offer increased versatility with reaction point locations**
- **E300 and E400-Series have replaceable shear drives, providing overload protection of internal power train**
- **One replacement shear drive is included with each E300 and E400-Series models.**

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 4300 Nm.*

▼ **SELECTION CHART**

Torque Multiplier Type	Nominal Torque Output (Nm)	Nominal Torque Output (Ft.lbs)	Model Number
Reaction Bar Multiplier	1020	750	**E290PLUS**
	1358	1000	**E291**
	1627	1200	**E391**
	2983	2200	**E392**
	4340	3200	**E393**
Reaction Plate Multiplier	2983	2200	**E492**
	4339	3200	**E493**
	6779	5000	**E494**
	10.846	8000	**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:

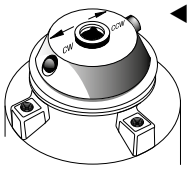
- Above 4300 Nm output torque,
- On flanges and applications where neighbouring bolt or nut is available to react against
- When extreme reaction forces are generated.

E Series

Nominal Torque Output:
1020 - 10.846 Nm

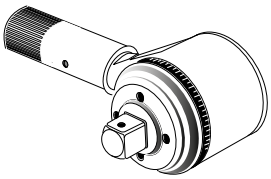
Torque Ratio:
3,3:1 - 52:1

Output Ratio Accuracy:
± 5 %



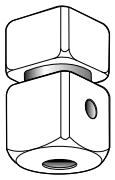
◀ **Selector Pawl**

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



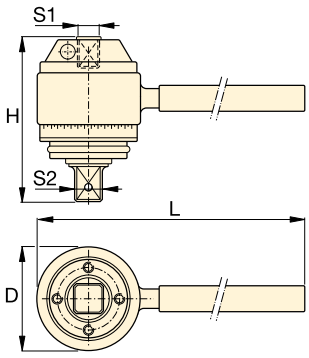
▲ **Angle-of-Turn Protractor**

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

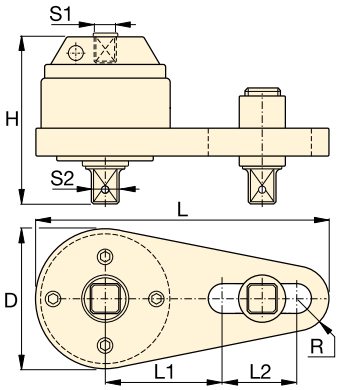


◀ **Shearable Square Drive**

Provides overload protection on E300- and E400-series multiplier's power train by shearing when the rated capacity of the tool is exceeded. Internal shear pin prevents tool from falling off bolt.



Reaction Bar Type [1]



Reaction Plate Type [1]

CAUTION!

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

BSH-Series Sockets

Heavy-Duty Impact Sockets for power driven torqueing equipment.

Page: 10

Back-Up Spanners

Hands free tool to be used to stop back nut from turning during make up or break out.

Page: 11

Input Torque [2] (Nm)	Input Torque [2] (Ft.lbs)	Torque Ratio	Input Female Square Drive S1 (inch)	Output Male Square Drive S2 (inch)	Output Male Square Drive Replaceable Shear Drive Model Nr.	Overload protection	Anti-Backlash	Dimensions (mm) D	H	L	L1	L2	R	(kg)	Model Number
309	227	3,3 : 1	½	¾	–	No	No	71	83	217	–	–	–	1,8	**E290PLUS**
411	303	3,3 : 1	½	¾	–	No	No	71	83	443	–	–	–	2,5	**E291**
271	200	6 : 1	½	¾	E391SDK	Yes	No	100	102	497	–	–	–	4,1	**E391**
220	162	13,6 : 1	½	1	E392SDK	Yes	Yes	103	146	498	–	–	–	6,9	**E392**
235	173	20,25 : 1	½	1	E393SDK	Yes	Yes	103	165	498	–	–	–	8,3	**E393**
219	162	13,6 : 1	½	1	E392SDK	Yes	Yes	124	140	356	140	124	32	7,8	**E492**
234	173	18,5 : 1	½	1	E393SDK	Yes	Yes	124	163	356	140	124	32	8,9	**E493**
256	189	26,5 : 1	½	1½	E494SDK	Yes	Yes	143	222	378	178	89	42	15,4	**E494**
209	154	52 : 1	½	1½	E495SDK	Yes	Yes	148	273	387	178	89	48	22,8	**E495**

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

▼ Shown: **S3000PX**

Setting New Standards in Safety, Simplicity and Performance

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 features for enhanced operator safety**

Simplicity

- **360° click-on reaction arm with quick release lever provides easier handling, even with gloves on**
- **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 [1)]**

Accuracy

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

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

Two Handle Styles

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

Compatible S-Series (X-Edition) wrenches	Model Nr. Angled positioning handles (standard)	Model Nr. Straight positioning handles (optional)
S1500X, S3000X	**SWH6A**	**SWH6S**
S6000X, S11000X	**SWH10A**	**SWH10S**
S25000X	**SWH10EA [2)]**	

[2)] SWH10EA is an eyebolt handle.

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.

Page: 9

ATEX declared. Calibration certificate included

All X-edition tools are CE - ATEX declared and are shipped complete with a calibration certificate.

CE Ex II 2 GD T4

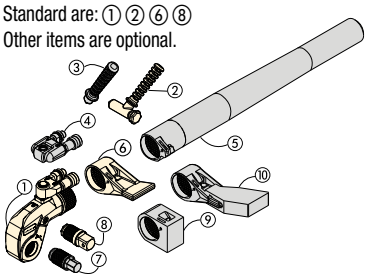
Bolting Integrity Software

Enerpac Bolting Integrity Software Solutions play a key role in implementing and managing an Integrity Program for bolted connections. The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application Data Sheet and Joint Completion Report. Custom Joint information can also be entered.

Page: 126

X-Edition, Square Drive Torque Wrenches

Standard are: ① ② ⑥ ⑧
Other items are optional.



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

250%

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

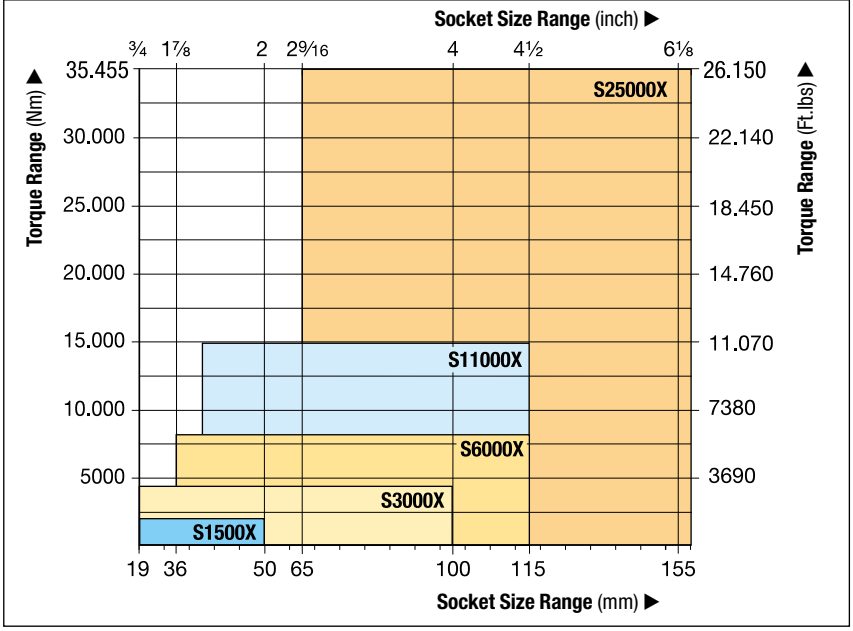
Nominal Torque Output:
35.455 Nm

Square Drive Range:
¾ - 2½ inch

Nose Radius:
25 - 64 mm

Maximum Operating Pressure:
690 bar

TORQUE WRENCH SELECTION (based on socket size range)



Back-Up Spanners

Hands free tool to be used to stop back nut from turning during make up or break out.

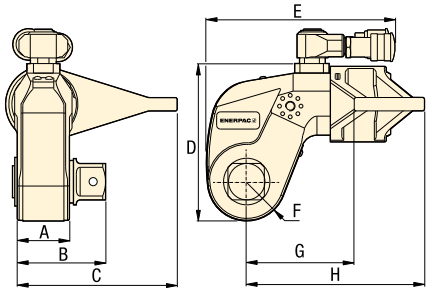
Page: 11

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

Use only Heavy Duty Impact Sockets

For power driven torqueing equipment, according to ISO2725 and ISO1174; DIN 3129 and DIN 3121 or ASME-B107.2/1995.

Page: 10



Nominal Torque at 690 bar (Nm)	Nominal Torque at 690 bar (Ft.lbs)	Minimum Torque at 69 bar (Nm)	Minimum Torque at 69 bar (Ft.lbs)	Square Drive Size (inch)	Square Drive Model Nr. (included with wrench)	Angle-of-Turn Model Nr. (optional)	Torque Wrench Model Number *	Dimensions (mm) A	B	C	D	E	F	G	H	(kg)
1952	1440	195	144	¾	SD15-012	AOT15	**S1500X**	39	65	108	97	136	25	70	129	3,2
4373	3225	438	323	1	SD30-100	AOT30	**S3000X**	48	78	135	128	173	33	90	161	5,6
8338	6150	834	615	1½	SD60-108	AOT60	**S6000X**	55	92	169	157	192	40	110	188	9,2
15.151	11.175	1516	1118	1½	SD110-108	AOT110	**S11000X**	72	114	197	190	228	50	133	229	15,8
35.455	26.150	3545	2615	2½	SD250-208	AOT250	**S25000X**	89	143	246	244	287	64	182	295	32,2

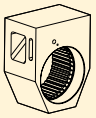
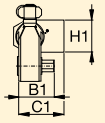
* To order a S-Series (X-edition) torque wrench fitted with a TSP300 tilt and swivel manifold, insert a "P"prior to the "X" in the tool model number, example: **S1500PX**.

Maximum Torque at 690 bar:
35.455 Nm

Hexagon Size Allen Drive:
½ - 2¼ inch

Hexagon Size Allen Drive:
14 - 85 mm

For S Series

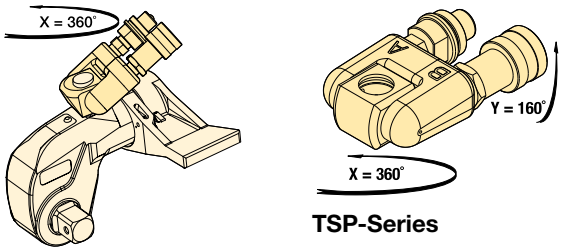
Torque Wrench	Optional Allen Drives, Imperial				Optional Allen Drives, Metric				Short Reaction Arm for Allen Drives		
											
Model Number	**Hexagon Size [1]** (inch)	**Maximum Torque** (Nm)	**Model Number**	**Dim.** B1 (mm)	**Hexagon Size [1]** (mm)	**Maximum Torque** (Nm)	**Model Number**	**Dim.** B1 (mm)	**Model Number**	**Dimensions** (mm) C1	H1
S1500X (1952 Nm)	½	481	**SDA15-008**	66	**14**	644	**SDA15-14**	66	**SRA15X**	67,5	74
	⅝	936	**SDA15-010**	67	**17**	1152	**SDA15-17**	68			
	¾	1620	**SDA15-012**	71	**19**	1607	**SDA15-19**	70			
	⅞	1952	**SDA15-014**	74	**22**	1952	**SDA15-22**	73			
	1	1952	**SDA15-100**	77	**24**	1952	**SDA15-24**	74			
S3000X (4373 Nm)	⅝	936	**SDA30-010**	77	**17**	1152	**SDA30-17**	77	**SRA30X**	80,0	74
	¾	1620	**SDA30-012**	80	**19**	1607	**SDA30-19**	79			
	⅞	2569	**SDA30-014**	83	**22**	2488	**SDA30-22**	82			
	1	3830	**SDA30-100**	86	**24**	3234	**SDA30-24**	84			
	1⅛	4373	**SDA30-102**	88	**27**	4373	**SDA30-27**	85			
	1¼	4373	**SDA30-104**	89	**30**	4373	**SDA30-30**	87			
	–	–	**–**	–	**32**	4373	**SDA30-32**	88			
S6000X (8338 Nm)	⅝	936	**SDA60-010**	85	**17**	1152	**SDA60-17**	86	**SRA60X**	91,5	89
	¾	1620	**SDA60-012**	89	**19**	1607	**SDA60-19**	88			
	⅞	2569	**SDA60-014**	92	**22**	2488	**SDA60-22**	91			
	1	3830	**SDA60-100**	95	**24**	3234	**SDA60-24**	93			
	1⅛	5457	**SDA60-102**	97	**27**	4603	**SDA60-27**	94			
	1¼	7484	**SDA60-104**	98	**30**	6311	**SDA60-30**	96			
	–	–	**–**	–	**32**	7660	**SDA60-32**	97			
S11000X (15.151 Nm)	**1¼**	7484	**SDA110-104**	115	**30**	6311	**SDA110-30**	112	**SRA110X**	127,5	106
	1⅜	9958	**SDA110-106**	117	**32**	7660	**SDA110-32**	114			
	1½	12.928	**SDA110-108**	118	**36**	10.901	**SDA110-36**	117			
	1⅝	15.151	**SDA110-110**	122	**41**	15.151	**SDA110-41**	121			
	1¾	15.151	**SDA110-112**	125	**46**	15.151	**SDA110-46**	127			
S25000X (35.455 Nm)	**1½**	12.928	**SDA250-108**	141	**36**	10.901	**SDA250-36**	140	**SRA250X**	158,5	135
	1⅝	16.433	**SDA250-110**	145	**41**	16.107	**SDA250-41**	144			
	1¾	20.520	**SDA250-112**	148	**46**	22.744	**SDA250-46**	148			
	1⅞	25.245	**SDA250-114**	149	**50**	29.211	**SDA250-50**	151			
	2	30.635	**SDA250-200**	151	**55**	35.455	**SDA250-55**	154			
	2¼	35.455	**SDA250-204**	154	**60**	35.455	**SDA250-60**	158			
	–	–	**–**	–	**65**	35.455	**SDA250-65**	161			
	–	–	**–**	–	**70**	35.455	**SDA250-70**	164			
	–	–	**–**	–	**75**	35.455	**SDA250-75**	168			
	–	–	**–**	–	**85**	35.455	**SDA250-85**	175			

[1] See page 128 for table of hexagon sizes of bolts, nuts and related thread diameters.

TSP
RTEX
SRSX
Series

TSP-Series, Pro Series Swivel

- **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**

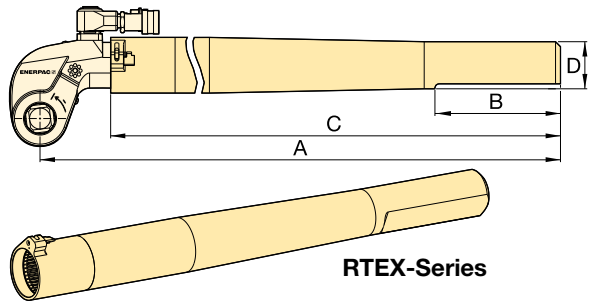


TSP-Series

For Torque Wrench Model Number	Model Number [1]	Maximum Pressure (bar)	(kg)
S1500X, S3000X, S6000X, S11000X, S25000X	**TSP300**	690	0,2

[1] To order a S-Series (X-edition) torque wrench fitted with a TSP300 tilt and swivel manifold, insert a "P"prior to the "X" in the tool model number, example: **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



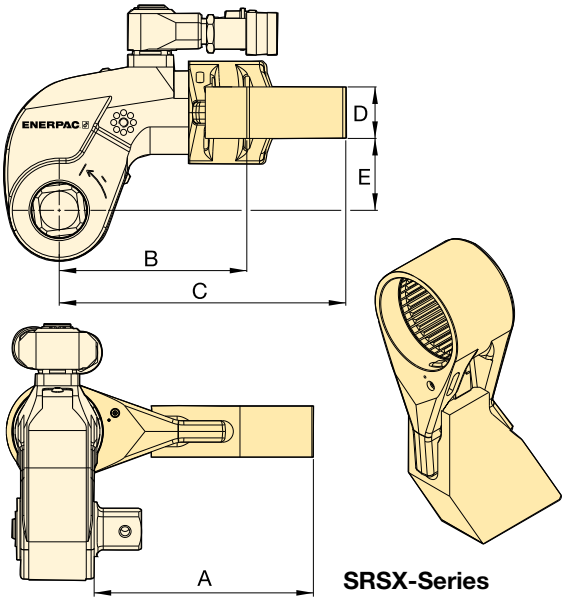
RTEX-Series

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

For Torque Wrench Model Number	Model Number	Dimensions (mm)				(kg) *
		A	B	C	D	
S1500X	**RTE15X**	706	152	636	58	4,6
S3000X	**RTE30X**	733	152	647	57	5,5
S6000X	**RTE60X**	747	152	659	65	7,7
S11000X	**RTE110X**	769	152	675	76	11,2
S25000X	**RTE250X**	813	152	685	100	17,3

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

SRSX-Series, Extended Reaction Arms



SRSX-Series

- **Lightweight interchangeable design**

For Wrench Model	Max. Torque (Nm)	Model Number	Dimensions (mm)					(kg) *
			A	B	C	D	E	
S1500X	1801	**SRS151X**	94	86	127	24	34	0,8
	1641	**SRS152X**	119	97	138	24	34	1,0
	1533	**SRS153X**	145	109	148	24	34	1,2
S3000X	3918	**SRS301X**	111	106	168	34	48	1,6
	3712	**SRS302X**	137	117	182	34	48	2,0
	3574	**SRS303X**	162	132	198	34	48	2,5
S6000X	7842	**SRS601X**	138	128	192	39	62	2,3
	7454	**SRS602X**	163	144	207	39	62	2,7
	7175	**SRS603X**	189	159	222	39	62	3,4
S11000X	14.650	**SRS1101X**	149	157	232	46	76	4,4
	13.957	**SRS1102X**	175	172	247	46	76	5,1
	13.391	**SRS1103X**	200	187	261	46	76	5,8
S25000X	33.538	**SRS2501X**	183	209	295	50	100	7,6
	32.049	**SRS2502X**	208	222	310	50	100	8,4
	30.750	**SRS2503X**	233	236	326	50	100	10,0

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

BSH-Series, Heavy-Duty Sockets

ENERPAC

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

BSH Series

Hexagon Sizes (A/F):

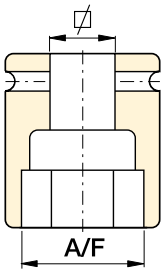
19 - 155 mm | ¾ - 6⅛"

Select the Right Torque

250%

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

Page: 123



Hexagon Bolt and Nut Sizes

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

Page: 128

METRIC SOCKETS

¾" Square Drive		1" Square Drive		1½" Square Drive		2½" Square Drive	
A/F (mm)	Model Number	A/F (mm)	Model Number	A/F (mm)	Model Number	A/F (mm)	Model Number
19	BSH7519	19	BSH1019	36	BSH1536	65	BSH2565
24	BSH7524	24	BSH1024	41	BSH15163	70	BSH2570
27	BSH7527	27	BSH1027	46	BSH1546	75	BSH2575
30	BSH7530	30	BSH1030	50	BSH1550	80	BSH2580
32	BSH7532	32	BSH1032	55	BSH1555	85	BSH2585
36	BSH7536	36	BSH1036	60	BSH1560	90	BSH2590
41	BSH75163	41	BSH10163	65	BSH1565	95	BSH2595
46	BSH7546	46	BSH1046	70	BSH1570	100	BSH25100
50	BSH7550	50	BSH1050	75	BSH1575	105	BSH25105
–	–	55	BSH1055	80	BSH1580	110	BSH25110
–	–	60	BSH1060	85	BSH1585	115	BSH25115
–	–	65	BSH1065	90	BSH1590	120	BSH25120
–	–	70	BSH1070	95	BSH1595	125	BSH25125
–	–	75	BSH1075	100	BSH15100	135	BSH25135
–	–	80	BSH1080	105	BSH15105	140	BSH25140
–	–	85	BSH1085	110	BSH15110	145	BSH25145
–	–	90	BSH1090	115	BSH15115	150	BSH25150
–	–	95	BSH1095	–	–	155	BSH25155
–	–	100	BSH10100	–	–	–	–

IMPERIAL SOCKETS

¾" Square Drive		1" Square Drive				1½" Square Drive				2½" Square Drive			
A/F (inch)	Model Number	A/F (inch)	Model Number	A/F (inch)	Model Number	A/F (inch)	Model Number	A/F (inch)	Model Number	A/F (inch)	Model Number	A/F (inch)	Model Number
¾"	BSH7519	¾"	BSH1019	2 5/16"	BSH10231	1 7/16"	BSH15144	2 13/16"	BSH15281	2 7/16"	BSH25244	4 3/16"	BSH25419
⅞"	BSH75088	⅞"	BSH10088	2⅜"	BSH10238	1½"	BSH1538	2⅞"	BSH15288	2½"	BSH25250	4¼"	BSH25425
15/16"	BSH75094	15/16"	BSH10094	2 7/16"	BSH10244	1 9/16"	BSH15156	2 15/16"	BSH1575	2 13/16"	BSH2565	4 5/16"	BSH25110
1 1/16"	BSH7527	1 1/16"	BSH1027	2½"	BSH10250	1⅝"	BSH15163	3"	BSH15300	2⅝"	BSH25263	4⅜"	BSH25438
1 3/16"	BSH7530	1 3/16"	BSH1030	2 9/16"	BSH1065	1 11/16"	BSH1543	3 1/16"	BSH15306	2 11/16"	BSH25269	4½"	BSH25450
1¼"	BSH75125	1¼"	BSH10125	2⅝"	BSH10263	1¾"	BSH15175	3⅛"	BSH15313	2¾"	BSH2570	4⅝"	BSH25463
1 5/16"	BSH75131	1 5/16"	BSH10131	2 11/16"	BSH10269	1 13/16"	BSH1546	3 3/16"	BSH15319	2 11/16"	BSH25281	4¾"	BSH25475
1⅜"	BSH7535	1⅜"	BSH1035	2¾"	BSH1070	1⅞"	BSH15188	3¼"	BSH15325	2⅞"	BSH25288	4⅞"	BSH25488
1 7/16"	BSH75144	1 7/16"	BSH10144	2 13/16"	BSH10281	1 15/16"	BSH15194	3⅜"	BSH15338	2 15/16"	BSH2575	5"	BSH25500
1½"	BSH7538	1½"	BSH1038	2⅞"	BSH10288	2"	BSH15200	3½"	BSH15350	3"	BSH25300	5⅛"	BSH25513
1 9/16"	BSH75156	1 9/16"	BSH10156	2 15/16"	BSH1075	2 1/16"	BSH15206	3⅝"	BSH15363	3 1/16"	BSH25306	5 3/16"	BSH25519
1⅝"	BSH75163	1⅝"	BSH10163	3"	BSH10300	2⅛"	BSH15213	3¾"	BSH1595	3⅛"	BSH25313	5¼"	BSH25525
1 11/16"	BSH7543	1 11/16"	BSH1043	3 1/16"	BSH10306	2 3/16"	BSH15219	3⅞"	BSH15388	3 3/16"	BSH25319	5⅜"	BSH25538
1¾"	BSH75175	1¾"	BSH10175	3⅛"	BSH10313	2¼"	BSH15225	3 15/16"	BSH15100	3¼"	BSH25325	5½"	BSH25140
1 13/16"	BSH7546	1 13/16"	BSH1046	3 3/16"	BSH10319	2 5/16"	BSH15231	4"	BSH15400	3⅜"	BSH25338	5¾"	BSH25575
1⅞"	BSH75188	1⅞"	BSH10188	3¼"	BSH10325	2⅜"	BSH15238	4⅛"	BSH15105	3½"	BSH25350	5⅞"	BSH25150
1 15/16"	BSH75194	1 15/16"	BSH10194	3⅜"	BSH10338	2 7/16"	BSH15244	4 3/16"	BSH15419	3⅝"	BSH25363	6"	BSH25600
2"	BSH75200	2"	BSH10200	3½"	BSH10350	2½"	BSH15250	4¼"	BSH15425	3¾"	BSH2595	6⅛"	BSH25613
–	–	2 1/16"	BSH10206	3⅝"	BSH10363	2 9/16"	BSH1565	4 5/16"	BSH15110	3⅞"	BSH25388	–	–
–	–	2⅛"	BSH10213	3¾"	BSH1095	2⅝"	BSH15263	4⅜"	BSH15438	3 15/16"	BSH25100	–	–
–	–	2 3/16"	BSH10219	3⅞"	BSH10388	2 11/16"	BSH15269	4½"	BSH15450	4"	BSH25400	–	–
–	–	2¼"	BSH10225	–	–	2¾"	BSH1570	4⅝"	BSH15463	4⅛"	BSH25105	–	–

Back-Up Spanners for Torque Wrenches

▼ **BUS03 Back-Up Spanner** (safety cable not shown)

- **Hands free solution – improves operator safety**
- **Eliminates the need for flogging spanners**
- **Speeds up the bolting process**
- **Includes safety cable with quick-connect carabiner's, stainless steel tethers and secure Allen-key fixings**
- **Won't lock on during operations**
- **Spark free**
- **Two hexagon sizes in one tool.**

BUS
Series

Hexagon Sizes (A/F):
27 - 120 mm

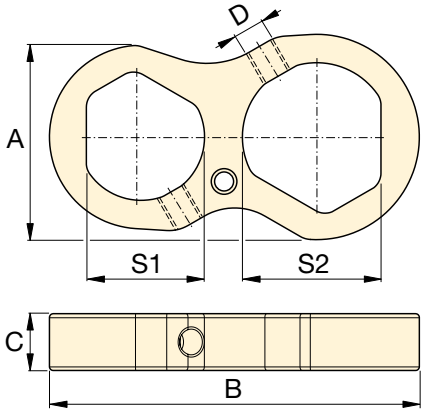
Hexagon Sizes (A/F):
1 1/16 - 4 15/16 inch

Back-Up Spanners

Hands free operation of a hydraulic torque wrench improves the safety of the operator significantly.

Enerpac Back-Up Spanners are a hands free tool that eliminates the need to use a flogging spanner as a backing tool.

The Back-Up Spanners have been specifically designed to prevent them from locking onto the nut during bolt torqueing operations. They fit easily onto the back nut and prevent it from turning during make up or break out of bolted joints.



▼ **SELECTION CHART BACK-UP SPANNERS**

Hexagon Sizes (A/F)		Model Number	Dimensions (mm)				
S1 to S2 (mm)	S1 to S2 (inch)		A	B	C	D	(kg)
27 - 32	1 1/16 - 1 1/4"	**BUS 01**	51	98	15	M8	0,3
36 - 41	1 7/16 - 1 5/8"	**BUS 02**	62	119	15	M8	0,4
46 - 50	1 13/16 - 2"	**BUS 03**	75	141	20	M8	0,6
55 - 60	2 3/16 - 2 3/8"	**BUS 04**	89	166	20	M12	0,8
65 - 70	2 9/16 - 2 3/4"	**BUS 05**	100	190	25	M16	1,0
75 - 80	2 15/16 - 3 1/8"	**BUS 06**	112	213	25	M16	1,3
–	3 1/2 - 3 7/8"	**BUS 07**	135	257	30	M20	2,2
–	4 1/4 - 4 5/8"	**BUS 08**	163	310	30	M20	3,3
85 - 90	-	**BUS 09**	126	242	25	M16	1,7
95 - 100	3 3/4 - 3 15/16"	**BUS 10**	138	266	30	M20	2,3
105 - 110	4 1/8 - 4 15/16"	**BUS 11**	153	297	30	M20	3,1
115 - 120	-	**BUS 12**	165	320	30	M20	3,5

▼ *Enerpac Back-Up Spanners to be used to stop back nut from turning during make up or break out.*

▼ Shown: **W4206X hexagon cassette with W4000PX drive unit**

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 features for enhanced operator safety**

Simplicity

- **Fast release drive unit enables rapid exchange of cassettes, no tools required**
- **Quick and easy disassembly for maintenance without special tools**
- **Drive unit includes robust handle which mounts on both sides and the tops of cassettes to allow for extra maneuverability**

Versatility

- **Available with optional enhanced tilt and swivel TSP300 manifold for horizontal and vertical maneuverability, with greater durability [1)]**
- **X-Edition drive units, cassettes and most accessories are compatible with standard edition tools [1)]**
- **Drive unit compatible with UltraSlim and WCR-Series cassettes**

Accuracy

- **Constant torque output provides accuracy of ±3% across full stroke.**

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

Two Handle Styles

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

Compatible with W-Series (X-Edition) Cassettes	Model Nr. Angled positioning handles (standard)	Model Nr. Straight positioning handles (optional)
W2000X, W4000X	**SWH6A**	**SWH6S**
W8000X, W15000X	**SWH10A**	**SWH10S**
W22000X, W35000X	**SWH10EA [2)]**	

[2)] SWH10EA is an eyebolt handle.

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.

Page: 24

ATEX declared. Calibration certificate included

All X-edition tools are CE - ATEX declared and are shipped complete with a calibration certificate.

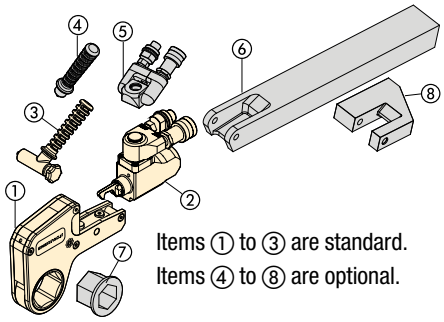
CE Ex II 2 GD T4

Bolting Integrity Software

Enerpac Bolting Integrity Software Solutions play a key role in implementing and managing an Integrity Program for bolted connections. The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application Data Sheet and Joint Completion Report. Custom Joint information can also be entered.

Page: 126

Double-Acting Hydraulic Hexagon Torque Wrenches, X-Edition



Items ① to ③ are standard.
Items ④ to ⑧ are optional.

① Hexagon Cassette (pages 14-21)
② Drive Unit (page 13)
③ Angled Positioning Handle (page 12)
④ Straight Positioning Handle (page 12)
⑤ Pro Series Swivel (page 24)
⑥ Extended Reaction Arm (page 24)
⑦ Reducer Insert (pages 14-21)
⑧ Reaction Paddle (page 24)

W Series X-Edition

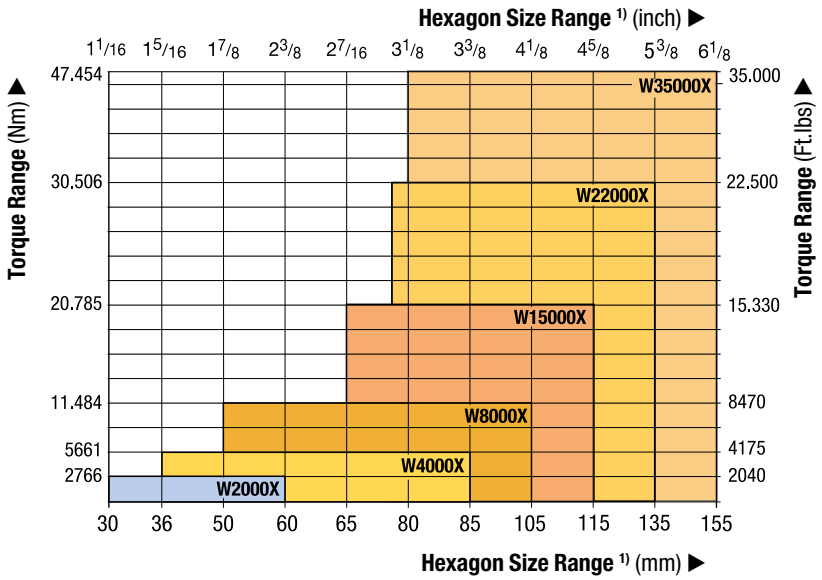
Nominal Torque at 690 bar:
47.454 Nm

Hexagon Range:
30 - 155 mm / 1 1/16 - 6 1/8 ”

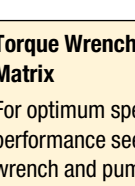
Nose Radius:
31 - 115 mm

Maximum Operating Pressure:
690 bar

DRIVE UNIT AND INTERCHANGEABLE CASSETTE SELECTION



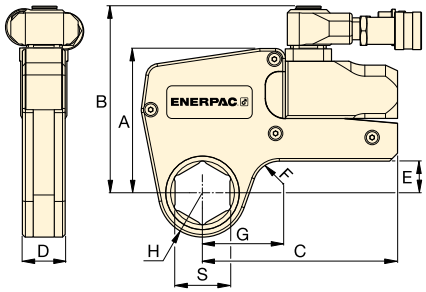
1) See page 128 for table of hexagon sizes of bolts, nuts and related thread diameters.



Torque Wrench Pump Selection Matrix

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

Page: 45

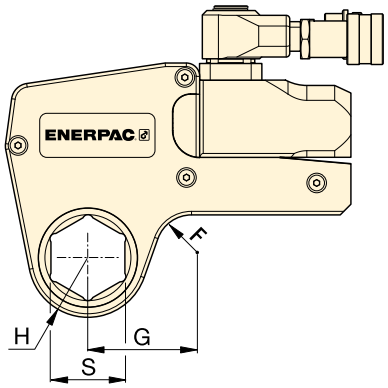


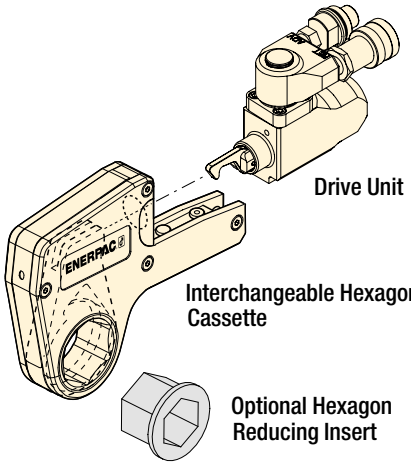
These rigid steel wrenches with low profile interchangeable hexagon cassettes guarantee durability and maximum versatility in bolting applications. ▶

▼ SELECTION CHART

Hexagon Range *  Page: 14		Nominal Torque at 690 bar		Drive Unit Model Number ** 	Minimum Torque		Dimensions (mm) (see pages 14-21 for dimensions G, H and S)						Weight (drive unit without hexagon cassette)
(mm)	(inch)	(Nm)	(Ft.lbs)		(Nm)	(Ft.lbs)	A	B	C	D	E	F	(kg)
30 - 60	1 1/16 - 2 3/8	2766	2040	**W2000X**	276	204	109	141	148	32	24	20	1,4
36 - 85	1 5/16 - 3 3/8	5661	4175	**W4000X**	566	417	136	167	178	41	33	20	2,0
50 - 105	1 7/8 - 4 1/8	11.484	8470	**W8000X**	1148	847	172	205	208	53	42	25	3,0
65 - 115	2 7/16 - 4 5/8	20.785	15.330	**W15000X**	2078	1533	207	240	253	63	50	20	5,0
75 - 135	2 15/16 - 5 3/8	30.506	22.500	**W22000X**	3050	2250	227	266	297	77	48	35	7,7
80 - 155	3 1/8 - 6 1/8	47.454	35.000	**W35000X**	4745	3500	268	301	345	91	69-73	50	11,4

* With in-line reaction foot.
** To order a W-series wrench fitted with the TSP swivel, suffix the model number with "-P". Example: **W2000PX**.





W Series X-Edition

Nominal Torque at 690 bar:
2766 Nm

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

Maximum Operating Pressure:
690 bar

Metric Sizes

For metric sizes of hexagon cassettes and reducer inserts see:

Page: 20

Back-Up Spanners

Hands free tool to be used to stop back nut from turning during make up or break out.

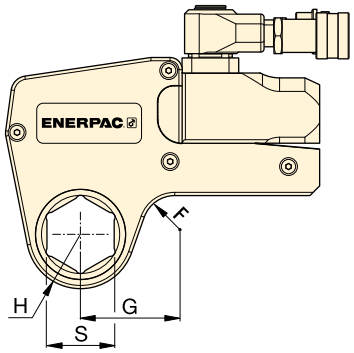
Page: 11

▼ SELECTION CHART

Drive Unit Model Number	Hexagon Size [1] S (inch)	Nose Radius H (mm)	Dim. G (mm)	Model Number	(kg)	Hexagon Reducer (inch)	Model Number	Hexagon Reducer (inch)	Model Number	Hexagon Reducer (inch)	Model Number
W2000X	1 1/16	31,0	53,7	W2101X	2,1	–	–	–	–	–	–
	1 1/8	31,0	53,7	W2102X	2,1	–	–	–	–	–	–
	1 3/16	31,0	53,7	W2103X	2,1	–	–	–	–	–	–
	1 1/4	31,0	53,7	W2104X	2,1	–	–	–	–	–	–
	1 5/16	31,0	53,7	W2105X	2,1	–	–	–	–	–	–
	1 3/8	31,0	53,7	W2106X	2,1	–	–	–	–	–	–
	1 7/16	31,0	53,7	W2107X	2,1	1 7/16 - 1 1/8	W2107R102	–	–	–	–
	1 1/2	33,5	58,2	W2108X	2,2	–	–	–	–	–	–
	1 9/16	33,5	58,2	W2109X	2,2	–	–	–	–	–	–
	1 5/8	33,5	58,2	W2110X	2,2	1 5/8 - 1 1/4	W2110R104	1 5/8 - 1 3/16	W2110R103	–	–
	1 11/16	36,5	60,5	W2111X	2,2	–	–	–	–	–	–
	1 3/4	36,5	60,5	W2112X	2,2	–	–	–	–	–	–
	1 13/16	36,5	60,5	W2113X	2,2	1 13/16 - 1 7/16	W2113R107	1 13/16 - 1 1/4	W2113R104	–	–
	1 7/8	39,0	63,1	W2114X	2,2	–	–	–	–	–	–
	1 15/16	39,0	63,1	W2115X	2,2	–	–	–	–	–	–
	2	39,0	63,1	W2200X	2,2	2 - 1 5/8	W2200R110	2 - 1 7/16	W2200R107	–	–
	2 1/16	41,8	68,6	W2201X	2,3	–	–	–	–	–	–
	2 1/8	41,8	68,6	W2202X	2,3	–	–	–	–	–	–
	2 3/16	41,8	68,6	W2203X	2,3	2 3/16 - 1 13/16	W2203R113	2 3/16 - 1 5/8	W2203R110	2 3/16 - 1 7/16	W2203R107
	2 1/4	44,5	64,8	W2204X	2,2	–	–	–	–	–	–
	2 5/16	44,5	64,8	W2205X	2,2	–	–	–	–	–	–
	2 3/8	44,5	64,8	W2206X	2,2	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 5/16	W2206R110

[1] See page 128 for table of hexagon sizes of bolts, nuts and related thread diameters.

W4000X-Series, Inch-Cassettes & Reducer Inserts



Nominal Torque at 690 bar:
5661 Nm

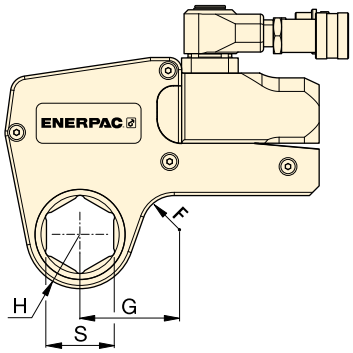
Hexagon Range:
1 5/16 - 3 3/8 inch

Maximum Operating Pressure:
690 bar

W
Series
X-Edition

Drive Unit Model Number	Hexagon Size [1] S (inch)	Nose Radius H (mm)	Dim. G (mm)	Model Number	(kg)	Hexagon Reducer (inch)	Model Number	Hexagon Reducer (inch)	Model Number	Hexagon Reducer (inch)	Model Number
W4000X	1 5/16	37,0	61,0	W4105X	3,7	–	–	_	–	–	–
	1 3/8	37,0	61,0	W4106X	3,7	–	–	–	–	–	–
	1 7/16	37,0	61,0	W4107X	3,7	–	–	–	–	–	–
	1 1/2	37,0	61,0	W4108X	3,7	–	–	–	–	–	–
	1 9/16	37,0	61,0	W4109X	3,7	–	–	–	–	–	–
	1 5/8	37,0	61,0	W4110X	3,7	–	–	–	–	–	–
	1 11/16	39,5	64,0	W4111X	3,8	–	–	–	–	–	–
	1 3/4	39,5	64,0	W4112X	3,8	–	–	–	–	–	–
	1 13/16	39,5	64,0	W4113X	3,8	–		–	–	–	–
	1 7/8	41,5	66,7	W4114X	3,9	–	–	–	–	–	–
	1 15/16	41,5	66,7	W4115X	3,9	–	–	–	–	–	–
	2	41,5	66,7	W4200X	3,9	2 - 1 7/16	W4200R107	–	–	–	
	2 1/16	44,0	73,4	W4201X	4,0	–	–	–	–	–	–
	2 1/8	44,0	73,4	W4202X	4,0	–	–	–	–	–	–
	2 3/16	44,0	73,4	W4203X	4,0	2 3/16 - 1 5/8	W4203R110	2 3/16 - 1 7/16	W4203R107	2 3/16 - 1 1/4	W4203R104
	2 1/4	46,5	70,6	W4204X	4,1	–	–	–	–	–	–
	2 5/16	46,5	70,6	W4205X	4,1	–	–	–	–	–	–
	2 3/8	46,5	70,6	W4206X	4,1	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	49,5	76,2	W4207X	4,1	2 7/16 - 2	W4207R200	–	–	–	–
	2 1/2	49,5	76,2	W4208X	4,1	2 1/2 - 2	W4208R200	2 1/2 - 1 7/16	W4208R113	2 1/2 - 2 1/16	W4208R201
	2 9/16	49,5	76,2	W4209X	4,1	2 9/16 - 2 3/16	W4209R203	2 9/16 - 2 1/8	W4209R202	2 9/16 - 2 1/16	W4209R201
	–	–	–	–	–	2 9/16 - 2	W4209R200	2 9/16 _ 1 13/16	W4209R113	–	–
	2 5/8	52,5	78,3	W4210X	4,2	–	–	–	–	–	–
	2 11/16	52,5	78,3	W4211X	4,2	–	–	–	–	–	–
	2 3/4	52,5	78,3	W4212X	4,2	2 3/4 - 2 3/8	W4212R206	2 3/4 - 2 3/16	W4212R203	2 3/4 - 2 1/8	W4212R202
	2 13/16	55,3	81,6	W4213X	4,3	–	–	–	–	–	–
	2 7/8	55,3	81,6	W4214X	4,3	–	–	–	–	–	–
	2 15/16	55,3	81,6	W4215X	4,3	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	58,5	83,5	W4300X	4,4	3 - 2 3/16	W4300R203	–	–	–	–
	3 1/16	58,5	83,5	W4301X	4,4	–	–	–	–	–	–
	3 1/8	58,5	83,5	W4302X	4,4	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 3/16	W4302R203	3 1/8 - 2 1/8	W4302R202	3 1/8 - 2	W4302R200
	3 3/16	62,0	85,5	W4303X	4,5	–	–	–	–	–	–
	3 1/4	62,0	85,5	W4304X	4,5	–	–	–	–	–	–
	3 5/16	62,0	85,5	W4305X	4,5	–	–	–	–	–	–
	3 3/8	62,0	85,5	W4306X	4,5	–	–	–	–	–	–

[1] See page 128 for table of hexagon sizes of bolts, nuts and related thread diameters.



Nominal Torque at 690 bar:
11.484 Nm

Hexagon Range:
1⅞ - 4⅛ inch

Maximum Operating Pressure:
690 bar

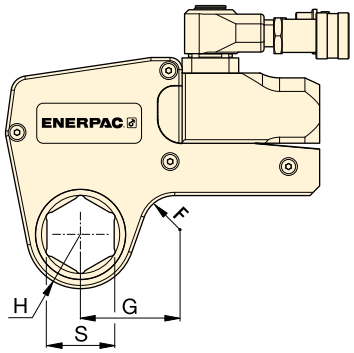
W
Series
X-Edition

▼ **SELECTION CHART**

Drive Unit Model Number	Hexagon Size [1] S (inch)	Nose Radius H (mm)	Dim. G (mm)	Model Number	(kg)	Hexagon Reducer (inch)	Model Number	Hexagon Reducer (inch)	Model Number	Hexagon Reducer (inch)	Model Number
W8000X	1⅞	45,0	78,2	W8114X	8,1	–	–	–	–	–	–
	1 15/16	45,0	78,2	W8115X	8,1	–	–	–	–	–	–
	2	45,0	78,2	W8200X	8,1	–	–	–	–	–	–
	2 1/16	48,0	80,0	W8201X	8,1	–	–	–	–	–	–
	2⅛	48,0	80,0	W8202X	8,1	–	–	–	–	–	–
	2 3/16	48,0	80,0	W8203X	8,1	–	–	–	–	–	–
	2¼	51,0	82,5	W8204X	8,1	–	–	–	–	–	–
	2 5/16	51,0	82,5	W8205X	8,1	–	–	–	–	–	–
	2⅜	51,0	82,5	W8206X	8,1	–	–	–	–	–	–
	2 7/16	52,5	85,9	W8207X	8,1	–	–	–	–	–	–
	2½	52,5	85,9	W8208X	8,1	–	–	–	–	–	–
	2 9/16	52,5	85,9	W8209X	8,1	2 9/16 - 2	W8209R200		–		
	2⅝	56,0	84,8	W8210X	8,1	–	–	–	–	–	–
	2 11/16	56,0	84,8	W8211X	7,9	–	–	–	–	–	–
	2¾	56,0	84,8	W8212X	7,9	2¾ - 2 3/16	W8212R203		–		
	2 13/16	58,0	85,0	W8213X	7,9	–	–	–	–	–	–
	2⅞	58,0	85,0	W8214X	7,9	–	–	–	–	–	–
	2 15/16	58,0	85,0	W8215X	7,9	2 15/16 - 2⅜	W8215R206	2 15/16 - 2 3/16	W8215R203		
	3	60,5	89,5	W8300X	8,0	–	–	–	–	–	–
	3 1/16	60,5	89,5	W8301X	8,0	–	–	–	–	–	–
	3⅛	60,5	89,5	W8302X	8,0	3⅛ - 2 9/16	W8302R209	3⅛ - 2⅜	W8302R206	3⅛ - 2 3/16	W8302R203
	–	–	–	–	–	3⅛ - 2	W8302R200		–		
	3 3/16	66,0	92,2	W8303X	8,2	–	–	–	–	–	–
	3¼	66,0	92,2	W8304X	8,2	–	–	–	–	–	–
	3 5/16	66,0	92,2	W8305X	8,2	–	–	–	–	–	–
	3⅜	66,0	92,2	W8306X	8,2	–	–	–	–	–	–
	3 7/16	66,0	92,2	W8307IX	8,2	–	–	–	–	–	–
	3½	66,0	92,2	W8308X	8,2	3½ - 3	W8308R300	3½ - 2 15/16	W8308R215	3½ - 2¾	W8308R212
	3 9/16	74,0	102,9	W8309X	8,8	–	–	–	–	–	–
	3⅝	74,0	102,9	W8310X	8,8	–	–	–	–	–	–
	3 11/16	74,0	102,9	W8311X	8,8	–	–	–	–	–	–
	3¾	74,0	102,9	W8312X	8,8	3¾ - 3⅛	W8312R302	3¾ - 2 15/16	W8312R215	3¾ - 2¾	W8312R212
	3 13/16	74,0	102,9	W8313X	8,8	–	–	–	–	–	–
	3⅞	74,0	102,9	W8314X	8,8	3⅞ - 3⅛	W8314R302	3⅞ - 2 15/16	W8314R215		–
	3 15/16	79,5	110,0	W8315X	9,3	–	–	–	–	–	–
	4	79,5	110,0	W8400X	9,3	–	–	–	–	–	–
	4 1/16	79,5	110,0	W8401IX	9,3	–	–	–	–	–	–
	4⅛	79,5	110,0	W8402X	9,3	–	–	–	–	–	–

[1] See page 128 for table of hexagon sizes of bolts, nuts and related thread diameters.

W15000X-Series, Inch-Cassettes & Reducer Inserts



Nominal Torque at 690 bar:
20.785 Nm

Hexagon Range:
2⅛ - 4⅝ inch

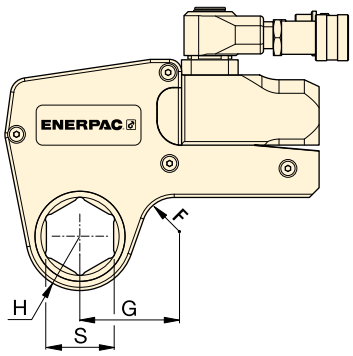
Maximum Operating Pressure:
690 bar

W
Series
X-Edition

▼ **SELECTION CHART**

Drive Unit Model Number	Hexagon Size [1] S (inch)	Nose Radius H (mm)	Dim. G (mm)	Model Number	(kg)	Hexagon Reducer (inch)	Model Number	Hexagon Reducer (inch)	Model Number	Hexagon Reducer (inch)	Model Number
W15000X	2 7/16	59,0	88,6	W15207X	13,6	–	–	–	–	–	–
	2 1/2	59,0	88,6	W15208X	13,6	–	–	–	–	–	–
	2 9/16	59,0	88,6	W15209X	13,6	–	–	–	–	–	–
	2 5/8	59,0	88,6	W15210X	13,6	–	–	–	–	–	–
	2 11/16	59,0	88,6	W15211X	13,6	–	–	–	–	–	–
	2 3/4	59,0	88,6	W15212X	13,6	–	–	–	–	–	–
	2 13/16	62,0	90,5	W15213X	13,7	–	–	–	–	–	–
	2 7/8	62,0	90,5	W15214X	13,7	–	–	–	–	–	–
	2 15/16	62,0	90,5	W15215X	13,7	–	–	–	–	–	–
	3	64,5	92,9	W15300X	13,8	3 - 2 1/8	W15300R202	–	–	–	–
	3 1/16	64,5	92,9	W15301X	13,8	–	–	–	–	–	–
	3 1/8	64,5	92,9	W15302X	13,8	3 1/8 - 2 9/16	W15302R209	–	–	–	
	3 3/16	69,5	96,6	W15303X	14,1	–	–	–	–	–	–
	3 1/4	69,5	96,6	W15304X	14,1	–	–	–	–	–	–
	3 5/16	69,5	96,6	W15305X	14,1	–	–	–	–	–	–
	3 3/8	69,5	96,6	W15306X	14,1	–	–	–	–	–	–
	3 7/16	69,5	96,6	W15307IX	14,1	–	–	–	–	–	–
	3 1/2	69,5	96,6	W15308X	14,1	3 1/2 - 2 15/16	W15308R215	3 1/2 - 2 3/4	W15308R212	–	–
	3 9/16	75,0	101,8	W15309X	14,6	–	–	–	–	–	–
	3 5/8	75,0	101,8	W15310X	14,6	–	–	–	–	–	–
	3 11/16	75,0	101,8	W15311X	14,6	–	–	–	–	–	–
	3 3/4	75,0	101,8	W15312X	14,6	3 3/4 - 3 1/8	W15312R302	3 3/4 - 2 15/16	W15312R215	–	–
	3 13/16	75,0	101,8	W15313X	14,5	–	–	–	–	–	–
	3 7/8	75,0	101,8	W15314X	14,5	3 7/8 - 3 1/8	W15314R302	3 7/8 - 2 15/16	W15314R215	–	–
	3 15/16	80,5	103,1	W15315X	14,8	–	–	–	–	–	–
	4	80,5	103,1	W15400X	14,8	–	–	–	–	–	–
	4 1/16	80,5	103,1	W15401IX	14,8	–	–	–	–	–	–
	4 1/8	80,5	103,1	W15402X	14,8	4 1/8 - 3 1/2	W15402R308	4 1/8 - 3 5/16	W15402R305	4 1/8 - 3 1/4	W15402R304
	4 3/16	80,5	103,1	W15403IX	14,8	–	–	–	–	–	–
	4 1/4	80,5	103,1	W15404X	14,8	4 1/4 - 3 1/2	W15404R308	4 1/4 - 3 1/8	W15404R302	–	–
	4 5/16	87,5	114,8	W15405X	15,1	–	–	–	–	–	–
	4 3/8	87,5	114,8	W15406X	15,1	–	–	–	–	–	–
	4 7/16	87,5	114,8	W15407X	15,1	–	–	–	–	–	–
	4 1/2	87,5	114,8	W15408IX	15,1	–	–	–	–	–	–
	4 9/16	87,5	114,8	W15409IX	15,1	–	–	–	–	–	–
	4 5/8	87,5	114,8	W15410IX	15,1	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	–	–	–	–
	–	–	–	–	–	–	–	–	–	–	–

[1] See page 128 for table of hexagon sizes of bolts, nuts and related thread diameters.



Nominal Torque at 690 bar:
30.506 Nm

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

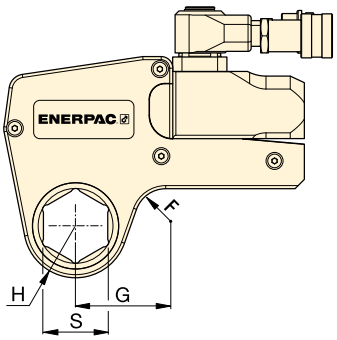
Maximum Operating Pressure:
690 bar

W
Series
X-Edition

▼ **SELECTION CHART**

Drive Unit Model Number	Hexagon Size [1] S (inch)	Nose Radius H (mm)	G (mm)	Model Nr. Cassette	(kg)	Hexagon Reducer (inch)	Model Number Reducer	Hexagon Reducer (inch)	Model Number Reducer	Hexagon Reducer (inch)	Model Number Reducer
W22000X	2 15/16	67,0	102,1	W22215X	22,1	–	–	–	–	–	–
	3	67,0	102,1	W22300X	22,0	–	–	–	–	–	–
	3 1/16	67,0	102,1	W22301X	21,9	–	–	–	–	–	–
	3 1/8	67,0	102,1	W22302X	21,6	3 1/8 - 2 3/8	W22302R206	3 1/8 - 2 3/16	W22302R203	–	–
	3 3/16	72,4	107,4	W22303X	22,9	–	–	–	–	–	–
	3 1/4	72,4	107,4	W22304X	22,8	–	–	–	–	–	–
	3 5/16	72,4	107,4	W22305X	22,6	–	–	–	–	–	–
	3 3/8	72,4	107,4	W22306X	22,5	–	–	–	–	–	–
	3 7/16	72,4	107,4	W22307IX	22.8	–	–	–	–	–	–
	3 1/2	72,4	107,4	W22308X	22,2	3 1/2 - 2 3/4	W22308R212	3 1/2 - 2 9/16	W22308R209	3 1/2 - 2 3/8	W22308R206
	3 9/16	77,9	113,0	W22309X	23,4	–	–	–	–	–	–
	3 5/8	77,9	113,0	W22310X	23,3	–	–	–	–	–	–
	3 11/16	77,9	113,0	W22311X	23,1	–	–	–	–	–	–
	3 3/4	77,9	113,0	W22312X	22,9	3 3/4 - 2 15/16	W22312R215	–	–	–	–
	3 13/16	77,9	113,0	W22313X	22,8	–	–	–	–	–	–
	3 7/8	77,9	113,0	W22314X	22,6	3 7/8 - 3 1/8	W22314R302	3 7/8 - 2 15/16	W22314R215	3 7/8 - 2 3/4	W22314R212
	3 15/16	85,1	119,9	W22315X	24,3	–	–	–	–	–	–
	4	85,1	119,9	W22400X	24,1	–	–	–	–	–	–
	4 1/16	85,1	119,9	W22401IX	24,0	–	–	–	–	–	–
	4 1/8	85,1	119,9	W22402X	23,6	–	–	–	–	–	–
	4 3/16	85,1	119,9	W22403IX	23,6	–	–	–	–	–	–
	4 1/4	85,1	119,9	W22404X	24,6	4 1/4 - 3 1/2	W22404R308	4 1/4 - 3 1/8	W22404R302	4 1/4 - 2 15/16	W22404R215
	4 5/16	89,9	125,0	W22405X	24,6	–	–	–	–	–	–
	4 3/8	89,9	125,0	W22406X	24,5	–	–	–	–	–	–
	4 7/16	89,9	125,0	W22407X	24,3	–	–	–	–	–	–
	4 1/2	89,9	125,0	W22408IX	24,1	–	–	–	–	–	–
	4 9/16	89,9	125,0	W22409IX	23.9	–	–	–	–	–	–
	4 5/8	89,9	125,0	W22410IX	23,6	4 5/8 - 3 7/8	W22410R314	4 5/8 - 3 3/4	W22410R312	4 5/8 - 3 1/2	W22410R308
	4 3/4	95,0	130,0	W22412X	24,7		–	–	–	–	–
	4 7/8	95,0	130,0	W22414X	24,3	–	–	–	–	–	–
	5	95,0	130,0	W22500X	23,8	5 - 4 1/4	W22500R404	5 - 4 1/8	W22500R402	5 - 3 7/8	W22500R314
	5 1/8	100,0	134,8	W22502X	25,0	–	–	–	–	–	–
	5 3/16	100,0	134,8	W22503IX	24,8	–	–	–	–	–	–
	5 1/4	100,0	134,8	W22504IX	24,5	–	–	–	–	–	–
	5 3/8	100,0	134,8	W22506X	23,9	5 3/8- 4 5/8	W22506R410	5 3/8- 4 1/4	W22506R404	5 3/8- 4 1/8	W22506R402
	–	–	–	W22506X	23,9	5 3/8- 3 7/8	W22506R314	–	–	–	–

[1] See page 128 for table of hexagon sizes of bolts, nuts and related thread diameters.



W
Series
X-Edition

Nominal Torque at 690 bar:
47.454 Nm

Hexagon Range:
3⅛ - 6⅛ inch

Maximum Operating Pressure:
690 bar

▼ **SELECTION CHART**

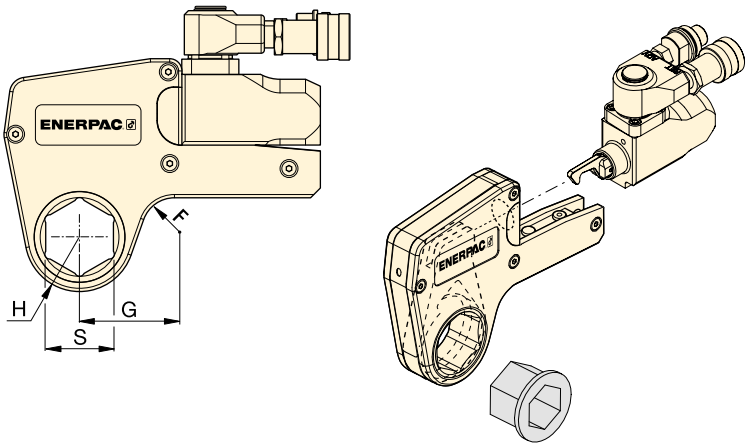
Drive Unit Model Number	Hexagon Size S (inch)	Nose Radius H (mm)	G (mm)	Model Nr. Cassette	(kg)	Hexagon Reducer (inch)	Model Number Reducer
W35000X	3⅛	76,0	126,8	W35302X	32,8	3⅛ – 2	W35302R200
	3³⁄₁₆	76,0	126,8	W35303X	32,7	–	–
	3¼	76,0	126,8	W35304X	32,5	–	–
	3⁵⁄₁₆	76,0	126,8	W35305X	32,4	–	–
	3⅜	76,0	126,8	W35306X	32,2	–	–
	3⁷⁄₁₆	76,0	126,8	W35307IX	32,0	–	–
	3½	76,0	126,8	W35308X	31,8	3½ - 2⁵⁄₁₆	W35308R205
	3⁹⁄₁₆	81,5	132,5	W35309X	32,4	–	–
	3⅝	81,5	132,5	W35310X	33,3	–	–
	3¹¹⁄₁₆	81,5	132,5	W35311X	33,1	–	–
	3¾	81,5	132,5	W35312X	32,9	–	–
	3¹³⁄₁₆	81,5	132,5	W35313X	32,7	–	–
	3⅞	81,5	132,5	W35314X	32,4	3⅞ - 2¹¹⁄₁₆	W35314R211
	3¹⁵⁄₁₆	87,0	137,0	W35315X	34,1	3¹⁵⁄₁₆ - 2¹³⁄₁₆	W35315R213
	4	87,0	137,0	W35400X	33,9		–
	4¹⁄₁₆	87,0	137,0	W35401IX	33,7	–	–
	4⅛	87,0	137,0	W35402X	33,5	–	–
	4³⁄₁₆	87,0	137,0	W35403IX	33,3	–	–
	4¼	87,0	137,0	W35404X	33,0	4¼ - 3¹⁄₁₆	W35404R301
	4⁵⁄₁₆	93,0	143,0	W35405X	34,9	–	–
	4⅜	93,0	143,0	W35406X	34,7	–	–
	4⁷⁄₁₆	93,0	143,0	W35407X	34,5	–	–
	4½	93,0	143,0	W35408IX	34,3	–	–
	4⁹⁄₁₆	93,0	143,0	W35409IX	34,1	–	–
	4⅝	93,0	143,0	W35410IX	33,7	4⅝ - 3⅝	W35410R310
	4¾	98,5	148,5	W35412X	35,6	4¾ - 3¾	W35412R312
	4⅞	98,5	148,5	W35414X	34,9	–	–
	5	98,5	148,5	W35500X	34,3	5 - 4	W35500R400
	5⅛	103,0	153,0	W35502X	35,8	5⅛ - 4⅛	W35502R402
	5³⁄₁₆	103,0	153,0	W35503IX	35,6	–	–
	5¼	103,0	153,0	W35504IX	35,2	–	–
	5⅜	103,0	153,0	W35506X	34,6	5⅜ - 4⁵⁄₁₆	W35506R405
	5½	108,5	158,5	W35508X	36,2	–	–
	5⁹⁄₁₆	108,5	158,5	W35509X	36,0	–	–
	5⅝	108,5	158,5	W35510X	35,6	–	–
	5¾	108,5	164,0	W35512X	34,9	5¾ - 4¾	W35512R412
	5⅞	114,0	164,0	W35514X	36,7	5⅞ - 4⅞	W35514R414
	6	114,0	164,0	W35600X	36,1	–	
	6⅛	114,0	164,0	W35602X	35,3	6⅛ - 5⅛	W35602R502

Back-Up Spanners
Hands free tool to be used to stop back nut from turning during make up or break out.

Page: 11

Hexagon Bolt and Nut Sizes
See the table for hexagon sizes of bolts, nuts and related thread diameters.

Page: 128



W
Series
X-Edition

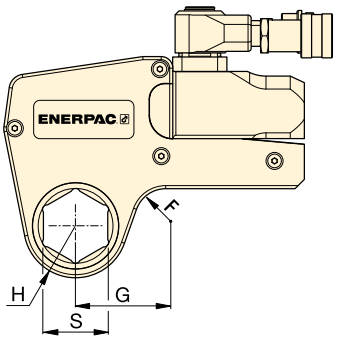
Hexagon Range:
24 - 105 mm

Maximum Operating Pressure:
690 bar

▼ **SELECTION CHART**

Drive Unit Model Number	Hexagon Size [1] S (mm)	Nose Radius H (mm)	Dim. G (mm)	Model Nr. Cassette	(kg)	Hexagon Reducer (mm)	Model Number Reducer	Hexagon Reducer (mm)	Model Number Reducer	Hexagon Reducer (mm)	Model Number Reducer
W2000X (2766 Nm)	**30**	31	54	**W2103X**	2,1	–	**–**	–	**–**	–	**–**
	32	31	54	**W2104X**	2,1	–	**–**	–	**–**	–	**–**
	36	31	54	**W2107X**	2,1	–	**–**	–	**–**	–	**–**
	38	34	58	**W2108X**	2,2	–	**–**	–	**–**	–	**–**
	41	34	58	**W2110X**	2,2	41 - 32	**W2110R104**	41 - 30	**W2110R103**	41 - 24	**W2110R024M**
	46	34	61	**W2113X**	2,2	46 - 36	**W2113R107**	46 - 32	**W2113R104**	–	**–**
	50	39	63	**W2200X**	2,2	50 - 41	**W2200R110**	50 - 36	**W2200R107**		**–**
	55	42	69	**W2203X**	2,3	55 - 46	**W2203R113**	55 - 41	**W2203R110**	55 - 36	**W2203R107**
	60	45	65	**W2206X**	2,2	60 - 50	**W2206R200**	60 - 46	**W2206R113**	60 - 41	**W2206R110**
	–	–	–	**–**	–	60 - 36	**W2206R107**	–	**–**	–	**–**
W4000X (5661 Nm)	**36**	37	61	**W4107X**	3,7	–	**–**	–	**–**	–	**–**
	41	37	61	**W4110X**	3,7	–	**–**	–	**–**	–	**–**
	46	40	64	**W4113X**	3,8	–	**–**	–	**–**	–	**–**
	50	42	67	**W4200X**	3,9	50 - 36	**W4200R107**	–	**–**	–	**–**
	55	44	73	**W4203X**	4,0	55 - 41	**W4203R110**	55 - 36	**W4203R107**	55 - 32	**W4203R104**
	60	47	71	**W4206X**	4,1	60 - 50	**W4206R200**	60 - 46	**W4206R113**	60 - 36	**W4206R107**
	65	50	76	**W4209X**	4,1	65 - 55	**W4209R203**	65 - 50	**W4209R200**	65 - 46	**W4209R113**
	70	53	78	**W4212X**	4,2	70 - 60	**W4212R206**	70 - 55	**W4212R203**	–	**–**
	75	55	82	**W4215X**	4,3	75 - 65	**W4215R209**	75 - 60	**W4215R206**	–	**–**
	–	–	–	**W4215X**		75 - 55	**W4215R203**	75 - 50	**W4215R200**	–	**–**
	80	59	84	**W4302X**	–	–	**–**	80 - 70	**W4302R212**	80 - 65	**W4302R209**
	–	–	–	**W4302X**	–	80 - 55	**W4302R203**	80 - 50	**W4302R200**	–	**–**
	85	62	86	**W4085MX**	4,5	–	**–**	–	**–**	–	**–**
W8000X (11.484 Nm)	**50**	45	78	**W8200X**	8,1	–	**–**	–	**–**	–	**–**
	55	48	80	**W8203X**	8,1	–	**–**	–	**–**	–	**–**
	60	51	83	**W8206X**	8,1	–	**–**	–	**–**	–	**–**
	65	56	85	**W8209X**	8,1	65 - 50	**W8209R200**	–	**–**	–	**–**
	70	56	85	**W8212X**	7,9	70 - 55	**W8212R203**	–	**–**	–	**–**
	75	58	85	**W8215X**	7,9	75 - 60	**W8215R206**	75 - 55	**W8215R203**	–	**–**
	80	61	90	**W8302X**	8	80 - 65	**W8302R209**	80 - 60	**W8302R206**	80 - 55	**W8302R203**
	–	–	–	**–**	–	80 - 50	**W8302R200**	–	**–**	–	**–**
	85	66	92	**W8085MX**	8,2	85 - 70	**W8085R070M**	85 - 65	**W8085R065M**	85 - 60	**W8085R060M**
	–	–	–	**–**	–	85 - 55	**W8085R055M**	–	**–**	–	**–**
	90	74	103	**W8090MX**	8,8	90 - 75	**W8090R075M**	–	**–**	–	**–**
	95	74	103	**W8312X**	8,8	95 - 80	**W8312R302**	95 - 75	**W8312R215**	–	**–**
	100	80	110	**W8315X**	9,3	–	**–**	–	**–**	–	**–**
	105	80	110	**W8402X**	9,3	–	**–**	–	**–**	–	**–**

[1] See page 128 for table of hexagon sizes of bolts, nuts and related thread diameters.



Hexagon Range:
50 - 155 mm

Maximum Operating Pressure:
690 bar

W
Series
X-Edition

▼ **SELECTION CHART**

Drive Unit Model Number	Hexagon Size [1] S (mm)	Nose Radius H (mm)	Dim. G (mm)	Model Nr. Cassette	(kg)	Hexagon Reducer (mm)	Model Number Reducer	Hexagon Reducer (mm)	Model Number Reducer
W15000X (20.785 Nm)	**65**	59	89	**W15209X**	13,6	–	**–**	–	**–**
	70	59	89	**W15212X**	13,6	–	**–**	–	**–**
	75	62	91	**W15215X**	13,7	–	**–**	–	**–**
	80	65	93	**W15302X**	13,8	80 - 65	**W15302R209**	–	**–**
	85	70	97	**W15085MX**	14,1	85 - 70	**W15085R070M**	–	**–**
	90	75	102	**W15090MX**	14,5	90 - 75	**W15090R75M**	–	**–**
	95	75	102	**W15312X**	14,6	95 - 80	**W15312R302**	95 - 75	**W15312R215**
	100	81	103	**W15315X**	14,8	–	**–**	–	**–**
	105	81	103	**W15402X**	14,8	105 - 90	**W15402R090M**	–	**–**
	110	88	115	**W15405X**	15,1	110 - 95	**W15110R095M**	–	**–**
	115	88	115	**W15115MX**	15,1	115 - 100	**W15115R100M**	–	**–**
W22000X (30.506 Nm)	**75**	67	102	**W22215X**	22,0	–	**–**	–	**–**
	80	67	102	**W22302X**	21,6	80-60	**W22302R206**	80 - 55	**W22302R203**
	85	73	107	**W22085MX**	22,5	85-65	**W22085MR209**	85 - 60	**W22085MR206**
	90	78	113	**W22090MX**	23,4	90-70	**W22090MR212**	90 - 60	**W22090MR206**
	95	78	113	**W22312X**	22,9	95-75	**W22312R215**	–	**–**
	100	85	120	**W22315X**	24,3	–	**–**	–	**–**
	105	85	120	**W22402X**	23,4	–	**–**	–	**–**
	110	90	125	**W22405X**	24,6	–	**–**	–	**–**
	115	90	125	**W22115MX**	24,0	–	**–**	–	**–**
	120	95	130	**W22412X**	24,7	–	**–**	–	**–**
	123	95	130	**W22123MX**	24,4	–	**–**	–	**–**
	130	100	135	**W22502X**	25,0	–	**–**	–	**–**
	135	100	135	**W22506X**	23,9	135 - 105	**W22506R402**	–	**–**
W35000X (47.454 Nm)	**80**	77	129	**W35302X**	32,8	80 - 50	**W35302R200**	–	**–**
	85	77	129	**W35085MX**	32,3	–	**–**	–	**–**
	90	82	135	**W35090MX**	33,5	90 - 60	**W35090R206**	–	**–**
	95	82	135	**W35312X**	32,9	–	**–**	–	**–**
	100	88	139	**W35315X**	34,1		**–**	–	**–**
	105	88	139	**W35402X**	33,5	–	**–**	–	**–**
	110	94	146	**W35405X**	34,9	110 - 85	**W35405R085M**	–	**–**
	115	94	146	**W35115MX**	34,2	–	**–**	–	**–**
	120	100	153	**W35412X**	35,6	120 - 95	**W354121R312**	–	**–**
	123	100	153	**W35123MX**	35,0	–	**–**	–	**–**
	130	104	160	**W35502X**	35,8	130 - 105	**W35502R402**	–	**–**
	135	104	160	**W35506X**	34,6	135 - 110	**W35506R405**	–	**–**
	140	110	163	**W35508X**	36,2	140 - 115	**W35508R115M**	–	**–**
	145	110	163	**W35512X**	34,9	145 - 120	**W35512R412**	–	**–**
	150	115	169	**W35514X**	36,7	–	**–**	–	**–**
	151	115	169	**W35151MX**	36,5	–	**–**	–	**–**
	155	115	169	**W35602X**	35,3	155 - 130	**W35602R502**	–	**–**

[1] See page 128 for table of hexagon sizes of bolts, nuts and related thread diameters.

W-SL, Series, UltraSlim Bi-Hexagonal Cassettes

ENERPAC

▼ W4206SL ultraslim bi-hexagonal 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
- Robust top mounted handle stays out of the way, providing safe fastening in hard to reach areas
- Uses same drive unit as standard W-series hexagon cassettes

Performance

- Premium components provide best-in-class endurance compared to other limited access tools

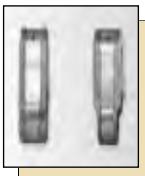
Ease of Use

- Few moving parts are easily accessible for quick field maintenance
- Fast release drive unit enables rapid exchange of cassettes, no tools required
- Top mounted straight handle for improved tool handling and safety

Accuracy

- Constant torque output provides accuracy of ± 3% across the full stroke
- Calibration certificate shipped with every cassette.

Your easy and long lasting solution to difficult access bolting applications



UltraSlim: 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 Straight Handle

The top mounted straight handle is standard and provides safe and easy positioning and access to hard to reach fasteners.

Straight handle (standard)	**SWH6S**
Angled handle (optional)	**SWH6A**

ATEX declared.
Calibration certificate included.

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

CE Ex II 2 GD T4

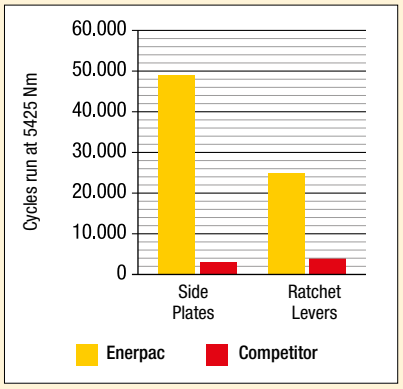
Slim enough to fit and tough enough to last. This UltraSlim wrench is the perfect controlled bolting solution for this oil and gas flange. ▶

UltraSlim Bi-Hexagonal 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 for safe fastening, 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 46 mm UltraSlim cassettes and three competitor 46 mm cassettes were tested at 5425 Nm for 50.000 cycles. The Enerpac side plates never broke for the full duration of the test.*

W-SL Series UltraSlim

Nominal Torque Output:
5911 Nm

Bi-Hexagonal Range:
46 - 75 mm

Maximum Operating Pressure:
690 bar

Torque Wrench Pumps

System matched air and electric torque wrench pumps that are ideal for use with hydraulic torque wrenches.

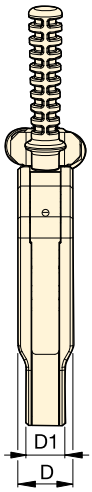
Page: 45

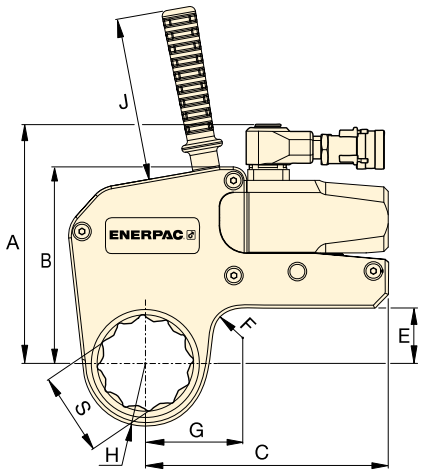
Torque Wrench Hoses

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

6 m long, 2 hoses	THQ-706T
12 m long, 2 hoses	THQ-712T

Page: 86





▼ SELECTION CHART

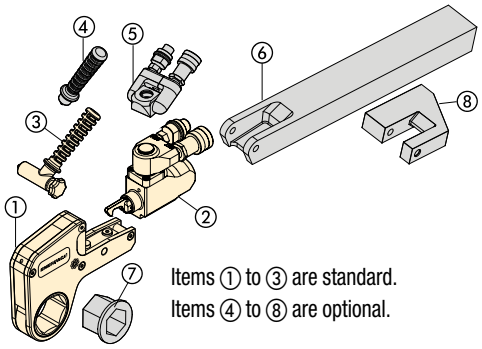
Bi-Hexagonal Size S (mm)	S (inch)	Nominal Torque @ 690 bar (Nm)	UltraSlim Cassette * Model Nr.	Minimum Torque @ 69 bar (Nm)	Nose Radius H (mm)	Dimensions (mm) G	A	B	C	D	D1	E	F	J	(kg)	Drive Unit Model Nr. ** (sold separately)
46	1 13/16	2685	W2113SL	269	36,5	59,6									2,2	
55	2 3/16	2685	W2203SL	269	41,5	63,2	140,7	109,3	147,7	32,4	25,4	24,0	20,0	120	2,2	W2000X
60	2 3/8	2685	W2206SL	269	44,5	65,1									2,2	
55	2 3/16	5911	W4203SL	591	44,0	68,7									4,6	
60	2 3/8	5911	W4206SL	591	48,0	71,6									4,7	
65	2 9/16	5911	W4209SL	591	50,5	74,1	175,6	144,5	178,5	40,5	28,6	40,8	20,0	120	4,7	W4000X
70	2 3/4	5911	W4212SL	591	53,5	75,6									4,7	
75	2 15/16	5911	W4215SL	591	56,0	76,0									4,7	

* Bi-Hexagonal Cassette includes top mounted straight handle.

** Cassette may also be used with W2000PX and W4000PX drive units, featuring double-swivel manifolds. Weight of drive unit W2000X = 1,4 kg; W4000X = 2,0 kg.

Accessories for W-Series, X-Edition Wrenches

ENERPAC

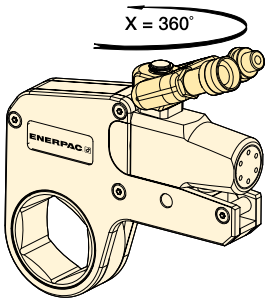


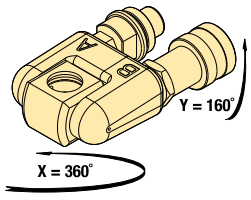
Items ① to ③ are standard.
Items ④ to ⑧ are optional.

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

TSP
WTE
WRP
Series

TSP-Series, Pro Series Swivel





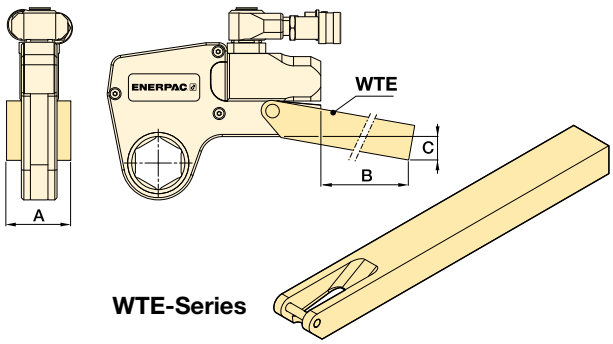
TSP-Series

- **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**

For Torque Wrench Model Number	Model Number [1]	Maximum Pressure (bar)	(kg)
W2000X, W4000X, W8000X, W15000X, W22000X, W35000X	**TSP300**	690	0,2

[1] To order a W-Series (X-edition) drive unit fitted with a TSP300 tilt and swivel manifold, insert a "P"prior to the "X" in the tool model number, example: **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



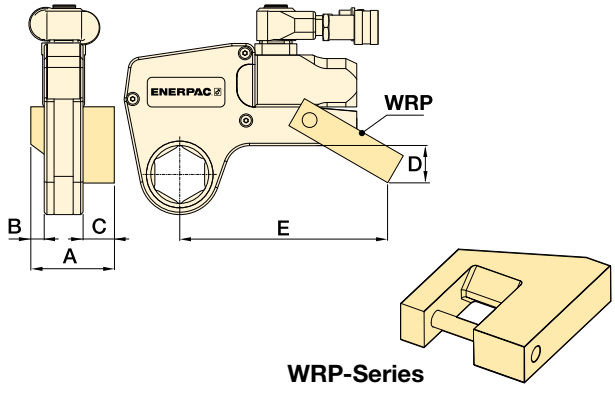
WTE-Series

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

For Torque Wrench Model Number	Model Number	Dimensions (mm) A	B	C	(kg) *
W2000X	**WTE20**	56	398	76	2,6
W4000X	**WTE40**	66	436	74	4,6
W8000X	**WTE80**	85	449	55	7,6
W15000X	**WTE150**	102	498	72	12,0
W22000X	**WTE220**	114	524	77	17,3
W35000X	**WTE350**	127	419	133	17,8

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

WRP-Series, Low Profile Reaction Paddles



WRP-Series

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

For Torque Wrench Model Nr.	Model Number	Dimensions (mm) A	B	C	D	E	(kg) *
W2000X	**WRP20**	84	16	35	45	148	0,4
W4000X	**WRP40**	109	21	47	59	190	0,8
W8000X	**WRP80**	137	26	57	69	223	2,0
W15000X	**WRP150**	165	32	69	87	257	3,9
W22000X	**WRP220**	207	37	91	134	317	7,2
W35000X	**WRP350**	225	42	91	182	367	10,6

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

Enerpac professional series steel torque wrenches provide reliable controlled tightening solutions across the industry.

S3000X Square Drive Torque Wrench on wind tower erection and maintenance

S3000X used to connect wind tower segments during assembly and maintenance. A robust but compact solution is required for tightening of bolts 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 was selected as it 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. These 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 are chosen as they provide a large angle of nut rotation per stroke, offering speed and accuracy in a compact ergonomic tool.

▼ RSL-Drive Units with interchangeable RLP-Hexagon Cassette and RSQ-Square Drive Cassette

Setting New Standards in Safety, Simplicity and Performance

Safety and Performance

- Innovative design that completely encloses all moving parts and minimizes pinch points
- 30-35° rotation angle provides added productivity while avoiding "tool lock on" which is common with some torque wrench designs.

Simplicity

- Simple robust alloy steel design with just three moving parts for reduced maintenance
- Robust handles are available for both sides and the tops of cassettes to allow for extra maneuverability
- Designed to give optimum strength to weight and torque to weight ratios
- Minimum nose radius for trouble-free tool fit.

Versatility

- Interchangeable cassette design
- Wide range of hexagon sizes available for all applications
- Reaction arm has a simple dial lock for rapid change
- For use in multiple industrial, energy, and oil and gas applications.

Accuracy

- Accuracy of ±3%

Torque Wrench Options and Accessories

Optional accessories are available for maximum versatility. Please contact your Enerpac representative to help you select the optimum solution for your application.

Page: 33

Back-Up Spanner

To be used to stop back nut from turning during make up or break out. Two hexagon sizes in one tool.

Hexagon Sizes (A/F)		Back-Up Spanner Model Number
mm	inch	
27 - 32	1 1/16 - 1 1/4"	BUS 01
36 - 41	1 7/16 - 1 5/8"	BUS 02
46 - 50	1 13/16 - 2"	BUS 03
55 - 60	2 3/16 - 2 3/8"	BUS 04
65 - 70	2 9/16 - 2 3/4"	BUS 05
75 - 80	2 15/16 - 3 1/8"	BUS 06
–	3 1/2 - 3 7/8"	BUS 07
–	4 1/4 - 4 5/8"	BUS 08
85 - 90	–	BUS 09
95 - 100	3 3/4 - 3 15/16"	BUS 10
105 - 110	4 1/8 - 4 15/16"	BUS 11
115 - 120	–	BUS 12

Page: 11

Torque Wrench Pumps

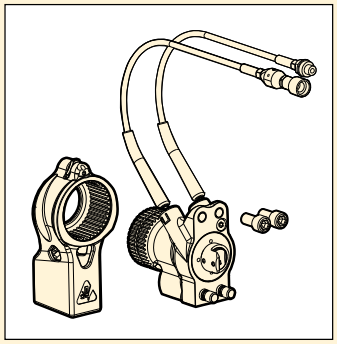
Visit enerpac.com for system matched air and electric torque wrench pumps that are ideal for use with hydraulic torque wrenches.

Page: 45

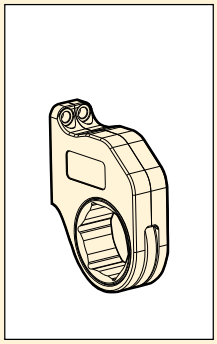
Drive Units for Hexagon & Square Drive Cassettes

One Drive, Two Tools

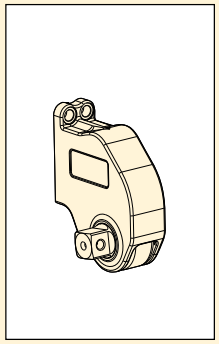
One RSL-Hydraulic Drive Unit fits RLP-Hexagon Cassette or RSQ-Square Drive Cassette.



RSL

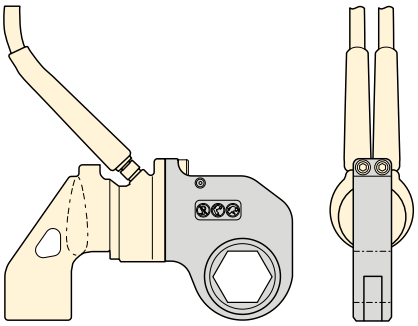


RLP... / RLP...SL

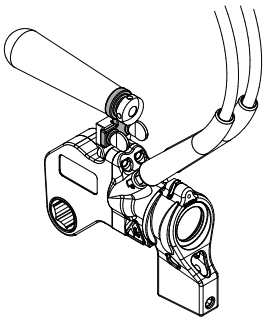


RSQ

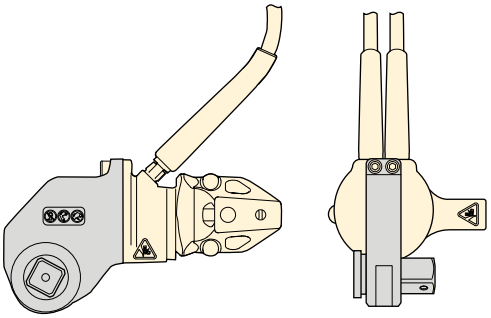
▼ **RSL-Torque Wrench Drive Unit shown with RLP-Low Profile Hexagon Cassette**



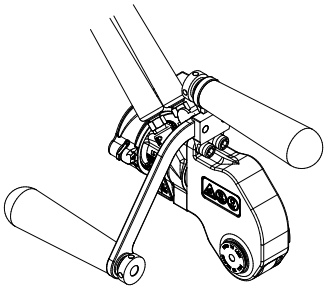
▼ Contact Enerpac for optional handles.



▼ **RSL-Torque Wrench Drive Unit shown with RSQ-Square Drive Cassette**



▼ Contact Enerpac for optional handles.



▼ **SELECTION CHART**

Hexagon Cassette Range (A/F) (see pages 28 - 32 for sizes and model numbers		Drive Unit Model Number	Maximum Torque Output		
(inch)	(mm)		(Ft.lbs)	(Nm)	(kg)
7/8 - 2 3/8	26 - 60	**RSL1500**	1408	1909	1,6
1 5/16 - 2 15/16	33 - 75	**RSL3000**	3080	4176	2,6
1 11/16 - 3 1/8	46 - 80	**RSL5000**	5303	7190	4,1
2 3/8 - 3 1/8	60 - 80	**RSL8000**	7862	10.659	4,9
2 7/16 - 4 5/8	62 - 110	**RSL11000**	11.154	15.123	5,3
2 15/16 - 4 5/8	75 - 115	**RSL19000**	18.843	25.547	9,1
3 1/8 - 6 1/8	80 - 155	**RSL28000**	28.002	37.965	10,0

RSL Series

Maximum Torque at 690 bar:
1909 - 37.965 Nm

Hexagon Range:
7/8 - 6 1/8 inch

Hexagon Range:
26 - 155 mm

Maximum Operating Pressure:
690 bar

Select the Right Torque: Use Enerpac Bolting Integrity Software Solutions

Comprehensive on-line software solutions for Bolted Joint Integrity.
The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application Data Sheet and Joint Completion Report. Custom Joint information can also be entered.

Page: 126

Torque Wrench Hoses

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

Page: 86

RLP-Low Profile Hexagon Cassettes

For the metric and imperial sizes of hexagon cassettes see pages 28 - 32.

Page: 28

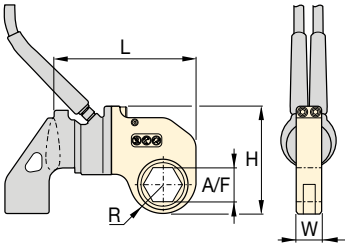
RSQ-Square Drive Cassettes

RSQ-Square Drive Cassettes are interchangeable with the RLP-Hexagon Cassettes. They all use the same RSL-drive unit.

Page: 36

Hexagon Cassettes for RSL-Series

ENERPAC



Hexagon Range:
⅞ - 6⅛ inch

Hexagon Range:
26 - 155 mm

Maximum Operating Pressure:
690 bar

RSL Series

▼ SELECTION CHART

Drive Unit Model Number	Hexagon Size A/F		Hexagon Cassette Model Number	Maximum Torque		Dimensions (inch)					Dimensions (mm)				
	(inch)	(mm)		(Ft.lbs)	(Nm)	R	L	W	H	(lbs)	R	L	W	H	(kg)
RSL1500	⅞	–	RLP1014	320	434	0.79	6.00	1.25	4.33	2.2	20,1	152,4	31,8	110,0	1,0
	1 1/16	26	RLP1101	640	868	0.95	6.05	1.25	4.50	2.2	24,1	153,7	31,8	114,3	1,0
	1⅛	–	RLP1102	640	868	1.03	6.12	1.25	4.57	2.3	26,2	155,4	31,8	116,1	1,0
	1 3/16	30	RLP1103	640	868	1.03	6.12	1.25	4.57	2.3	26,2	155,4	31,8	116,1	1,0
	1¼	32	RLP1104	640	868	1.03	6.12	1.25	4.57	2.3	26,2	155,4	31,8	116,1	1,0
	1 5/16	33	RLP1105	900	1220	1.15	6.24	1.25	4.69	2.4	29,2	158,5	31,8	119,1	1,1
	1⅜	35	RLP1106	900	1220	1.15	6.24	1.25	4.69	2.4	29,2	158,5	31,8	119,1	1,1
	1 7/16	36	RLP1107	900	1220	1.15	6.24	1.25	4.69	2.4	29,2	158,5	31,8	119,1	1,1
	1½	38	RLP1108	1408	1909	1.31	6.41	1.25	4.86	2.7	33,3	162,8	31,8	123,4	1,2
	1 9/16	–	RLP1109	1408	1909	1.31	6.41	1.25	4.86	2.7	33,3	162,8	31,8	123,4	1,2
	1⅝	41	RLP1110	1408	1909	1.31	6.41	1.25	4.86	2.7	33,3	162,8	31,8	123,4	1,2
	1 11/16	–	RLP1111	1408	1909	1.40	6.49	1.25	4.94	2.7	35,6	164,8	31,8	125,5	1,2
	1¾	–	RLP1112	1408	1909	1.40	6.49	1.25	4.94	2.7	35,6	164,8	31,8	125,5	1,2
	1 13/16	46	RLP1113	1408	1909	1.40	6.49	1.25	4.94	2.7	35,6	164,8	31,8	125,5	1,2
	1⅞	–	RLP1114	1408	1909	1.48	6.58	1.25	5.03	2.7	37,6	167,1	31,8	127,8	1,2
	1 15/16	–	RLP1115	1408	1909	1.48	6.58	1.25	5.03	2.7	37,6	167,1	31,8	127,8	1,2
	2	50	RLP1200	1408	1909	1.48	6.58	1.25	5.03	2.7	37,6	167,1	31,8	127,8	1,2
	2 1/16	–	RLP1201	1408	1909	1.58	6.68	1.25	5.13	2.7	40,1	169,7	31,8	130,3	1,2
	2⅛		RLP1202	1408	1909	1.58	6.68	1.25	5.13	2.7	40,1	169,7	31,8	130,3	1,2
	2 3/16	55	RLP1203	1408	1909	1.58	6.68	1.25	5.13	2.7	40,1	169,7	31,8	130,3	1,2
	2¼	–	RLP1204	1408	1909	1.70	6.79	1.25	5.24	2.8	43,2	172,5	31,8	133,1	1,3
	2 5/16	–	RLP1205	1408	1909	1.70	6.79	1.25	5.24	2.8	43,2	172,5	31,8	133,1	1,3
	2⅜	60	RLP1206	1408	1909	1.70	6.79	1.25	5.24	2.8	43,2	172,5	31,8	133,1	1,3
RSL3000	1 5/16	33	RLP3105	900	1220	1.18	7.62	1.38	5.49	3.5	30,0	193,5	35,1	139,4	1,6
	1⅜	35	RLP3106	900	1220	1.18	7.62	1.38	5.49	3.5	30,0	193,5	35,1	139,4	1,6
	1 7/16	36	RLP3107	900	1220	1.18	7.62	1.38	5.49	3.5	30,0	193,5	35,1	139,4	1,6
	1½	38	RLP3108	1200	1627	1.32	7.77	1.38	5.63	3.9	33,5	197,4	35,1	143,0	1,8
	1 9/16	–	RLP3109	1200	1627	1.32	7.77	1.38	5.63	3.9	33,5	197,4	35,1	143,0	1,8
	1⅝	41	RLP3110	1200	1627	1.32	7.77	1.38	5.63	3.9	33,5	197,4	35,1	143,0	1,8
	1 11/16	–	RLP3111	1900	2576	1.47	7.87	1.38	5.78	4.0	37,3	199,9	35,1	146,8	1,8
	1¾	–	RLP3112	1900	2576	1.47	7.87	1.38	5.78	4.0	37,3	199,9	35,1	146,8	1,8
	1 13/16	46	RLP3113	1900	2576	1.47	7.87	1.38	5.78	4.0	37,3	199,9	35,1	146,8	1,8
	1⅞	–	RLP3114	2600	3526	1.60	8.04	1.38	5.92	4.5	40,6	204,2	35,1	150,4	2,0
	1 15/16	–	RLP3115	2600	3526	1.60	8.04	1.38	5.92	4.5	40,6	204,2	35,1	150,4	2,0
	2	50	RLP3200	2600	3526	1.60	8.04	1.38	5.92	4.5	40,6	204,2	35,1	150,4	2,0
	2 1/16	–	RLP3201	3080	4176	1.76	8.16	1.38	6.08	4.7	44,7	207,3	35,1	154,4	2,1
	2⅛	–	RLP3202	3080	4176	1.76	8.16	1.38	6.08	4.7	44,7	207,3	35,1	154,4	2,1
	2 3/16	55	RLP3203	3080	4176	1.76	8.16	1.38	6.08	4.7	44,7	207,3	35,1	154,4	2,1
	2¼	–	RLP3204	3080	4176	1.84	8.25	1.38	6.15	4.8	46,7	209,6	35,1	156,2	2,2
	2 5/16	–	RLP3205	3080	4176	1.84	8.25	1.38	6.15	4.8	46,7	209,6	35,1	156,2	2,2
	2⅜	60	RLP3206	3080	4176	1.84	8.25	1.38	6.15	4.8	46,7	209,6	35,1	156,2	2,2
	2 7/16	62	RLP3207	3080	4176	1.95	8.14	1.38	6.26	4.6	49,5	206,8	35,1	159,0	2,1
	2½	63	RLP3208	3080	4176	1.95	8.14	1.38	6.26	4.6	49,5	206,8	35,1	159,0	2,1
	2 9/16	65	RLP3209	3080	4176	1.95	8.14	1.38	6.26	4.6	49,5	206,8	35,1	159,0	2,1
	2⅝	–	RLP3210	3080	4176	2.04	8.23	1.38	6.36	4.4	51,8	209,0	35,1	161,5	2,0
	2 11/16	–	RLP3211	3080	4176	2.04	8.23	1.38	6.36	4.4	51,8	209,0	35,1	161,5	2,0
	2¾	70	RLP3212	3080	4176	2.04	8.23	1.38	6.36	4.4	51,8	209,0	35,1	161,5	2,0
	2 13/16	–	RLP3213	3080	4176	2.16	8.34	1.38	6.54	4.7	54,9	211,8	35,1	166,1	2,1
	2⅞	–	RLP3214	3080	4176	2.16	8.34	1.38	6.54	4.7	54,9	211,8	35,1	166,1	2,1
	2 15/16	75	RLP3215	3080	4176	2.16	8.34	1.38	6.54	4.7	54,9	211,8	35,1	166,1	2,1

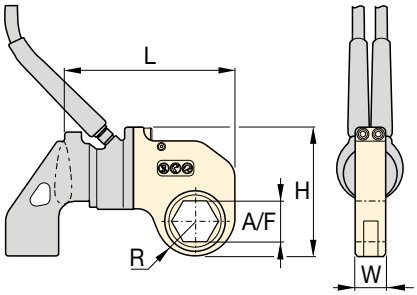
Hexagon Cassettes for RSL-Series

Hexagon Range:
⅞ - 6⅛ inch

Hexagon Range:
26 - 155 mm

Maximum Operating Pressure:
690 bar

RSL
Series



Slimline Stepped-Width Hexagon Cassettes

For accessing narrow spaces **RLP...SL** Stepped-Width Hexagon Cassettes are available. Slimline cassettes use same drive unit as standard RLP-cassettes.

Page: 35

▼ SELECTION CHART

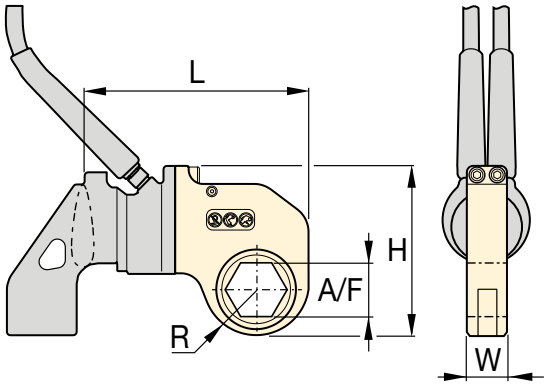
Drive Unit Model Number	Hexagon Size A/F		Hexagon Cassette Model Number	Maximum Torque		Dimensions (inch)					Dimensions (mm)				
	(inch)	(mm)		(Ft.lbs)	(Nm)	R	L	W	H	(lbs)	R	L	W	H	(kg)
RSL5000	1 11/16	–	RLP5111	2600	3526	1.61	9.08	1.75	6.52	6.6	40,9	230,6	44,5	165,6	3,0
	1¾	–	RLP5112	2600	3526	1.61	9.08	1.75	6.52	6.6	40,9	230,6	44,5	165,6	3,0
	1 13/16	46	RLP5113	2600	3526	1.61	9.08	1.75	6.52	6.6	40,9	230,6	44,5	165,6	3,0
	1⅞	–	RLP5114	2600	3526	1.61	9.08	1.75	6.52	6.6	40,9	230,6	44,5	165,6	3,0
	1 15/16	–	RLP5115	2600	3526	1.61	9.08	1.75	6.52	6.6	40,9	230,6	44,5	165,6	3,0
	2	50	RLP5200	2600	3526	1.61	9.08	1.75	6.52	6.6	40,9	230,6	44,5	165,6	3,0
	2 1/16	–	RLP5201	3500	4746	1.71	9.18	1.75	6.62	6.5	43,4	233,2	44,5	168,1	2,9
	2⅛	–	RLP5202	3500	4746	1.71	9.18	1.75	6.62	6.5	43,4	233,2	44,5	168,1	2,9
	2 3/16	55	RLP5203	3500	4746	1.71	9.18	1.75	6.62	6.5	43,4	233,2	44,5	168,1	2,9
	2¼	–	RLP5204	4500	6102	1.87	9.34	1.75	6.78	7.0	47,5	237,2	44,5	172,2	3,2
	2 5/16	–	RLP5205	4500	6102	1.87	9.34	1.75	6.78	7.0	47,5	237,2	44,5	172,2	3,2
	2⅜	60	RLP5206	4500	6102	1.87	9.34	1.75	6.78	7.0	47,5	237,2	44,5	172,2	3,2
	2 7/16	62	RLP5207	5303	7191	2.01	9.48	1.75	6.92	7.0	51,1	240,8	44,5	175,8	3,2
	2½	63	RLP5208	5303	7191	2.01	9.48	1.75	6.92	7.0	51,1	240,8	44,5	175,8	3,2
	2 9/16	65	RLP5209	5303	7191	2.01	9.48	1.75	6.92	7.0	51,1	240,8	44,5	175,8	3,2
	2⅝	–	RLP5210	5303	7191	2.16	9.63	1.75	7.07	7.5	54,9	244,6	44,5	179,6	3,4
	2 11/16	–	RLP5211	5303	7191	2.16	9.63	1.75	7.07	7.5	54,9	244,6	44,5	179,6	3,4
	2¾	70	RLP5212	5303	7191	2.16	9.63	1.75	7.07	7.5	54,9	244,6	44,5	179,6	3,4
	2 13/16	–	RLP5213	5303	7191	2.24	9.71	1.75	7.15	7.5	56,9	246,6	44,5	181,6	3,4
	2⅞	–	RLP5214	5303	7191	2.24	9.71	1.75	7.15	7.5	56,9	246,6	44,5	181,6	3,4
	2 15/16	75	RLP5215	5303	7191	2.24	9.71	1.75	7.15	7.5	56,9	246,6	44,5	181,6	3,4
	3	–	RLP5300	5303	7191	2.26	9.73	1.75	7.17	7.2	57,4	247,1	44,5	182,1	3,3
	3 1/16	–	RLP5301	5303	7191	2.26	9.73	1.75	7.17	7.2	57,4	247,1	44,5	182,1	3,3
	3⅛	80	RLP5302	5303	7191	2.26	9.73	1.75	7.17	7.2	57,4	247,1	44,5	182,1	3,3
RSL8000	2⅜	60	RLP8206	4500	6102	1.87	9.53	2.25	7.00	8.9	47,5	242,1	57,2	177,8	4,0
	2 7/16	62	RLP8207	5800	7865	2.01	9.67	2.25	7.13	9.0	51,1	245,6	57,2	181,1	4,1
	2½	63	RLP8208	5800	7865	2.01	9.67	2.25	7.13	9.0	51,1	245,6	57,2	181,1	4,1
	2 9/16	65	RLP8209	5800	7865	2.01	9.67	2.25	7.13	9.0	51,1	245,6	57,2	181,1	4,1
	2⅝	–	RLP8210	7862	10.661	2.16	9.82	2.25	7.28	9.6	54,9	249,4	57,2	184,9	4,4
	2 11/16	–	RLP8211	7862	10.661	2.16	9.82	2.25	7.28	9.6	54,9	249,4	57,2	184,9	4,4
	2¾	70	RLP8212	7862	10.661	2.16	9.82	2.25	7.28	9.6	54,9	249,4	57,2	184,9	4,4
	2 13/16	–	RLP8213	7862	10.661	2.24	9.90	2.25	7.38	9.6	56,9	251,5	57,2	187,5	4,4
	2⅞	–	RLP8214	7862	10.661	2.24	9.90	2.25	7.38	9.6	56,9	251,5	57,2	187,5	4,4
	2 15/16	75	RLP8215	7862	10.661	2.24	9.90	2.25	7.38	9.6	56,9	251,5	57,2	187,5	4,4
	3	–	RLP8300	7862	10.661	2.26	9.92	2.25	7.39	9.3	57,4	252,0	57,2	187,7	4,2
	3 1/16	–	RLP8301	7862	10.661	2.26	9.92	2.25	7.39	9.3	57,4	252,0	57,2	187,7	4,2
	3⅛	80	RLP8302	7862	10.661	2.26	9.92	2.25	7.39	9.3	57,4	252,0	57,2	187,7	4,2

Hexagon Range:
⅞ - 6⅛ inch

Hexagon Range:
26 - 155 mm

Maximum Operating Pressure:
690 bar

RSL
Series



▼ SELECTION CHART

Drive Unit Model Number	Hexagon Size A/F		Hexagon Cassette Model Number	Maximum Torque		Dimensions (inch)					Dimensions (mm)				
	(inch)	(mm)		(Ft.lbs)	(Nm)	R	L	W	H	(lbs)	R	L	W	H	(kg)
RSL11000	2 7/16	62	RLP11207	5800	7865	1.98	10.00	2.50	8.03	14.2	50,3	254,0	63,5	204,0	6,4
	2 1/2	–	RLP11208	5800	7865	1.98	10.00	2.50	8.03	14.2	50,3	254,0	63,5	204,0	6,4
	2 9/16	65	RLP11209	5800	7865	1.98	10.00	2.50	8.03	14.2	50,3	254,0	63,5	204,0	6,4
	2 5/8	–	RLP11210	7300	9899	2.19	11.20	2.50	8.23	14.8	55,6	284,5	63,5	209,0	6,7
	2 11/16	–	RLP11211	7300	9899	2.19	11.20	2.50	8.23	14.8	55,6	284,5	63,5	209,0	6,7
	2 3/4	70	RLP11212	7300	9899	2.19	11.20	2.50	8.23	14.8	55,6	284,5	63,5	209,0	6,7
	2 13/16		RLP11213	9000	12.204	2.29	11.31	2.50	8.34	14.8	58,2	287,3	63,5	211,8	6,7
	2 7/8	–	RLP11214	9000	12.204	2.29	11.31	2.50	8.34	14.8	58,2	287,3	63,5	211,8	6,7
	2 15/16	75	RLP11215	9000	12.204	2.29	11.31	2.50	8.34	14.8	58,2	287,3	63,5	211,8	6,7
	3	–	RLP11300	11.154	15.125	2.43	11.44	2.50	8.47	15.2	61,7	290,6	63,5	215,1	6,9
	3 1/16	–	RLP11301	11.154	15.125	2.43	11.44	2.50	8.47	15.2	61,7	290,6	63,5	215,1	6,9
	3 1/8	80	RLP11302	11.154	15.125	2.43	11.44	2.50	8.47	15.2	61,7	290,6	63,5	215,1	6,9
	3 3/16	–	RLP11303	11.154	15.125	2.60	11.71	2.50	8.64	16.6	66,0	297,4	63,5	219,5	7,5
	–	85	RLP11085M	11.154	15.125	2.60	11.71	2.50	8.64	16.6	66,0	297,4	63,5	219,5	7,5
	3 1/4	–	RLP11304	11.154	15.125	2.60	11.71	2.50	8.64	16.6	66,0	297,4	63,5	219,5	7,5
	3 5/16	–	RLP11305	11.154	15.125	2.60	11.71	2.50	8.64	16.6	66,0	297,4	63,5	219,5	7,5
	3 3/8	–	RLP11306	11.154	15.125	2.60	11.71	2.50	8.64	16.6	66,0	297,4	63,5	219,5	7,5
	3 7/16	–	RLP11307	11.154	15.125	2.60	11.71	2.50	8.64	16.6	66,0	297,4	63,5	219,5	7,5
	3 1/2	–	RLP11308	11.154	15.125	2.60	11.71	2.50	8.64	16.6	66,0	297,4	63,5	219,5	7,5
	–	90	RLP11090M	11.154	15.125	2.88	11.89	2.50	8.92	17.2	73,2	302,0	63,5	226,6	7,8
	3 9/16	–	RLP11309	11.154	15.125	2.88	11.89	2.50	8.92	17.2	73,2	302,0	63,5	226,6	7,8
	3 5/8	–	RLP11310	11.154	15.125	2.88	11.89	2.50	8.92	17.2	73,2	302,0	63,5	226,6	7,8
	3 11/16	–	RLP11311	11.154	15.125	2.88	11.89	2.50	8.92	17.2	73,2	302,0	63,5	226,6	7,8
	3 3/4	95	RLP11312	11.154	15.125	2.88	11.89	2.50	8.92	17.2	73,2	302,0	63,5	226,6	7,8
	3 13/16	–	RLP11313	11.154	15.125	2.88	11.89	2.50	8.92	17.2	73,2	302,0	63,5	226,6	7,8
	3 7/8	–	RLP11314	11.154	15.125	2.88	11.89	2.50	8.92	17.2	73,2	302,0	63,5	226,6	7,8
	3 15/16	100	RLP11315	11.154	15.125	2.98	12.00	2.50	9.03	16.4	75,7	304,8	63,5	229,4	7,4
	4	–	RLP11400	11.154	15.125	2.98	12.00	2.50	9.03	16.4	75,7	304,8	63,5	229,4	7,4
	4 1/16	–	RLP11401	11.154	15.125	2.98	12.00	2.50	9.03	16.4	75,7	304,8	63,5	229,4	7,4
	4 1/8	105	RLP11402	11.154	15.125	2.98	12.00	2.50	9.03	16.4	75,7	304,8	63,5	229,4	7,4
	4 1/4	–	RLP11404	11.154	15.125	2.98	12.00	2.50	9.03	16.4	75,7	304,8	63,5	229,4	7,4
	4 5/16	110	RLP11405	11.154	15.125	3.25	12.27	2.50	9.30	17.6	82,6	311,7	63,5	236,2	8,0
	4 1/2	–	RLP11408	11.154	15.125	3.25	12.27	2.50	9.30	17.6	82,6	311,7	63,5	236,2	8,0
	4 5/8	–	RLP11410	11.154	15.125	3.25	12.27	2.50	9.30	17.6	82,6	311,7	63,5	236,2	8,0

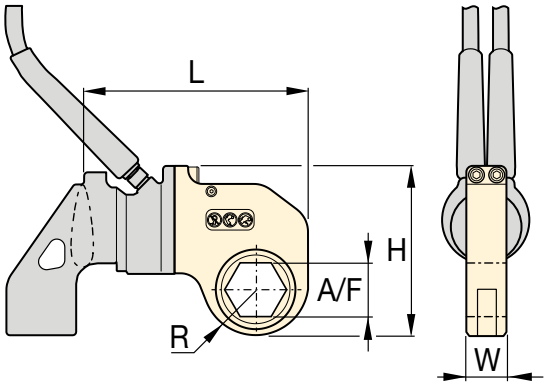
Hexagon Cassettes for RSL-Series

Hexagon Range:
7/8 - 6 1/8 inch

Hexagon Range:
26 - 155 mm

Maximum Operating Pressure:
690 bar

RSL
Series

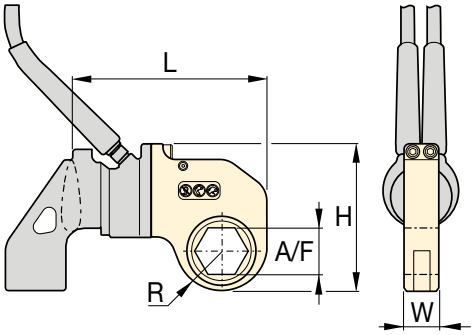


▼ **SELECTION CHART**

Drive Unit Model Number	Hexagon Size A/F		Hexagon Cassette Model Number	Maximum Torque		Dimensions (inch)					Dimensions (mm)				
	(inch)	(mm)		(Ft.lbs)	(Nm)	R	L	W	H	(lbs)	R	L	W	H	(kg)
RSL19000	2 15/16	75	RLP19215	11.000	14.916	2.45	12.72	2.75	9.44	21.5	62,2	323,1	69,9	239,8	9,8
	3	–	RLP19300	11.000	14.916	2.45	12.72	2.75	9.44	21.5	62,2	323,1	69,9	239,8	9,8
	3 1/16	–	RLP19301	11.000	14.916	2.45	12.72	2.75	9.44	21.5	62,2	323,1	69,9	239,8	9,8
	3 1/8	80	RLP19302	11.000	14.916	2.45	12.72	2.75	9.44	21.5	62,2	323,1	69,9	239,8	9,8
	3 3/16	–	RLP19303	16.000	21.696	2.77	13.04	2.75	9.76	22.6	70,4	331,2	69,9	247,9	10,3
	–	85	RLP19085M	16.000	21.696	2.77	13.04	2.75	9.76	22.6	70,4	331,2	69,9	247,9	10,3
	3 1/4	–	RLP19304	16.000	21.696	2.77	13.04	2.75	9.76	22.6	70,4	331,2	69,9	247,9	10,3
	3 5/16	–	RLP19305	16.000	21.696	2.77	13.04	2.75	9.76	22.6	70,4	331,2	69,9	247,9	10,3
	3 3/8	–	RLP19306	16.000	21.696	2.77	13.04	2.75	9.76	22.6	70,4	331,2	69,9	247,9	10,3
	3 7/16	–	RLP19307	16.000	21.696	2.77	13.04	2.75	9.76	22.6	70,4	331,2	69,9	247,9	10,3
	3 1/2	–	RLP19308	16.000	21.696	2.77	13.04	2.75	9.76	22.6	70,4	331,2	69,9	247,9	10,3
	–	90	RLP19090M	18.843	25.551	2.95	13.22	2.75	9.94	23.8	74,9	335,8	69,9	252,5	10,8
	3 9/16	–	RLP19309	18.843	25.551	2.95	13.22	2.75	9.94	23.8	74,9	335,8	69,9	252,5	10,8
	3 5/8	–	RLP19310	18.843	25.551	2.95	13.22	2.75	9.94	23.8	74,9	335,8	69,9	252,5	10,8
	3 11/16	–	RLP19311	18.843	25.551	2.95	13.22	2.75	9.94	23.8	74,9	335,8	69,9	252,5	10,8
	3 3/4	95	RLP19312	18.843	25.551	2.95	13.22	2.75	9.94	23.8	74,9	335,8	69,9	252,5	10,8
	3 13/16	–	RLP19313	18.843	25.551	2.95	13.22	2.75	9.94	23.8	74,9	335,8	69,9	252,5	10,8
	3 7/8	–	RLP19314	18.843	25.551	2.95	13.22	2.75	9.94	23.8	74,9	335,8	69,9	252,5	10,8
	3 15/16	100	RLP19315	18.843	25.551	3.30	13.57	2.75	10.28	25.3	83,8	344,7	69,9	261,1	11,5
	4	–	RLP19400	18.843	25.551	3.30	13.57	2.75	10.28	25.3	83,8	344,7	69,9	261,1	11,5
	4 1/16	–	RLP19401	18.843	25.551	3.30	13.57	2.75	10.28	25.3	83,8	344,7	69,9	261,1	11,5
	4 1/8	105	RLP19402	18.843	25.551	3.30	13.57	2.75	10.28	25.3	83,8	344,7	69,9	261,1	11,5
	4 3/16	–	RLP19403	18.843	25.551	3.30	13.57	2.75	10.28	25.3	83,8	344,7	69,9	261,1	11,5
	4 1/4	–	RLP19404	18.843	25.551	3.30	13.57	2.75	10.28	25.3	83,8	344,7	69,9	261,1	11,5
	4 5/16	110	RLP19405	18.843	25.551	3.44	13.71	2.75	10.43	25.6	87,4	348,2	69,9	264,9	11,6
	4 3/8	–	RLP19406	18.843	25.551	3.44	13.71	2.75	10.43	25.6	87,4	348,2	69,9	264,9	11,6
	4 7/16	–	RLP19407	18.843	25.551	3.44	13.71	2.75	10.43	25.6	87,4	348,2	69,9	264,9	11,6
	4 1/2	–	RLP19408	18.843	25.551	3.44	13.71	2.75	10.43	25.6	87,4	348,2	69,9	264,9	11,6
	–	115	RLP19115M	18.843	25.551	3.44	13.71	2.75	10.43	25.6	87,4	348,2	69,9	264,9	11,6
	4 9/16	–	RLP19409	18.843	25.551	3.44	13.71	2.75	10.43	25.6	87,4	348,2	69,9	264,9	11,6
	4 5/8	–	RLP19410	18.843	25.551	3.44	13.71	2.75	10.43	25.6	87,4	348,2	69,9	264,9	11,6

Hexagon Cassettes for RSL-Series

ENERPAC



Hexagon Range:
⅞ - 6⅛ inch

Hexagon Range:
26 - 155 mm

Maximum Operating Pressure:
690 bar

RSL
Series

▼ **SELECTION CHART**

Drive Unit Model Number	Hexagon Size A/F		Hexagon Cassette Model Number	Maximum Torque		Dimensions (inch)					Dimensions (mm)				
	(inch)	(mm)		(Ft.lbs)	(Nm)	R	L	W	H	(lbs)	R	L	W	H	(kg)
RSL28000	3⅛	80	RLP28302	16.000	21.696	2.56	14.36	3.00	10.54	27.6	65,0	364,7	76,2	267,7	12,5
	3³⁄₁₆	–	RLP28303	16.000	21.696	2.56	14.36	3.00	10.54	27.6	65,0	364,7	76,2	267,7	12,5
	–	85	RLP28085M	16.000	21.696	2.56	14.36	3.00	10.54	27.6	65,0	364,7	76,2	267,7	12,5
	3¼	–	RLP28304	16.000	21.696	2.56	14.36	3.00	10.54	27.6	65,0	364,7	76,2	267,7	12,5
	3⁵⁄₁₆	–	RLP28305	16.000	21.696	2.56	14.36	3.00	10.54	27.6	65,0	364,7	76,2	267,7	12,5
	3⅜	–	RLP28306	16.000	21.696	2.56	14.36	3.00	10.54	27.6	65,0	364,7	76,2	267,7	12,5
	3⁷⁄₁₆	–	RLP28307	16.000	21.696	2.56	14.36	3.00	10.54	27.6	65,0	364,7	76,2	267,7	12,5
	3½	–	RLP28308	16.000	21.696	2.56	14.36	3.00	10.54	27.6	65,0	364,7	76,2	267,7	12,5
	–	90	RLP28090M	22.000	29.832	2.92	14.36	3.00	10.77	28.8	74,2	364,7	76,2	273,6	13,1
	3⁹⁄₁₆	–	RLP28309	22.000	29.832	2.92	14.36	3.00	10.77	28.8	74,2	364,7	76,2	273,6	13,1
	3⅝	–	RLP28310	22.000	29.832	2.92	14.36	3.00	10.77	28.8	74,2	364,7	76,2	273,6	13,1
	3¹¹⁄₁₆	–	RLP28311	22.000	29.832	2.92	14.36	3.00	10.77	28.8	74,2	364,7	76,2	273,6	13,1
	3¾	95	RLP28312	22.000	29.832	2.92	14.36	3.00	10.77	28.8	74,2	364,7	76,2	273,6	13,1
	3¹³⁄₁₆	–	RLP28313	22.000	29.832	2.92	14.36	3.00	10.77	28.8	74,2	364,7	76,2	273,6	13,1
	3⅞	–	RLP28314	22.000	29.832	2.92	14.36	3.00	10.77	28.8	74,2	364,7	76,2	273,6	13,1
	3¹⁵⁄₁₆	100	RLP28315	28.002	37.971	3.29	14.47	3.00	11.14	31.7	83,6	367,5	76,2	283,0	14,4
	4	–	RLP28400	28.002	37.971	3.29	14.47	3.00	11.14	31.7	83,6	367,5	76,2	283,0	14,4
	4⅛	–	RLP28401	28.002	37.971	3.29	14.47	3.00	11.14	31.7	83,6	367,5	76,2	283,0	14,4
	4⅛	105	RLP28402	28.002	37.971	3.29	14.47	3.00	11.14	31.7	83,6	367,5	76,2	283,0	14,4
	4³⁄₁₆	–	RLP28403	28.002	37.971	3.29	14.47	3.00	11.14	31.7	83,6	367,5	76,2	283,0	14,4
	4¼	–	RLP28404	28.002	37.971	3.29	14.47	3.00	11.14	31.7	83,6	367,5	76,2	283,0	14,4
	4⁵⁄₁₆	110	RLP28405	28.002	37.971	3.43	14.61	3.00	11.28	31.5	87,1	371,1	76,2	286,5	14,3
	4⅜	–	RLP28406	28.002	37.971	3.43	14.61	3.00	11.28	31.5	87,1	371,1	76,2	286,5	14,3
	4⁷⁄₁₆	–	RLP28407	28.002	37.971	3.43	14.61	3.00	11.28	31.5	87,1	371,1	76,2	286,5	14,3
	4½	–	RLP28408	28.002	37.971	3.43	14.61	3.00	11.28	31.5	87,1	371,1	76,2	286,5	14,3
	–	115	RLP28115M	28.002	37.971	3.43	14.61	3.00	11.28	31.5	87,1	371,1	76,2	286,5	14,3
	4⁹⁄₁₆	–	RLP28409	28.002	37.971	3.43	14.61	3.00	11.28	31.5	87,1	371,1	76,2	286,5	14,3
	4⅝	–	RLP28410	28.002	37.971	3.43	14.61	3.00	11.28	31.5	87,1	371,1	76,2	286,5	14,3
	4¾	120	RLP28412	28.002	37.971	3.65	14.83	3.00	11.50	33.5	92,7	376,7	76,2	292,1	15,2
	–	123	RLP28123M	28.002	37.971	3.65	14.83	3.00	11.50	33.5	92,7	376,7	76,2	292,1	15,2
	4⅞	–	RLP28414	28.002	37.971	3.65	14.83	3.00	11.50	33.5	92,7	376,7	76,2	292,1	15,2
	5	–	RLP28500	28.002	37.971	3.65	14.83	3.00	11.50	33.5	92,7	376,7	76,2	292,1	15,2
	5⅛	130	RLP28502	28.002	37.971	3.79	14.97	3.00	11.64	33.2	96,3	380,2	76,2	295,7	15,1
	5³⁄₁₆	–	RLP28503	28.002	37.971	3.79	14.97	3.00	11.64	33.2	96,3	380,2	76,2	295,7	15,1
	5¼	–	RLP28504	28.002	37.971	3.79	14.97	3.00	11.64	33.2	96,3	380,2	76,2	295,7	15,1
	5⅜	135	RLP28506	28.002	37.971	3.79	14.97	3.00	11.64	33.2	96,3	380,2	76,2	295,7	15,1
	5½	140	RLP28508	28.002	37.971	4.05	15.23	3.00	11.90	33.5	102,9	386,8	76,2	302,3	15,2
	5⁹⁄₁₆	–	RLP28509	28.002	37.971	4.05	15.23	3.00	11.90	33.5	102,9	386,8	76,2	302,3	15,2
	5⅝	–	RLP28510	28.002	37.971	4.05	15.23	3.00	11.90	33.5	102,9	386,8	76,2	302,3	15,2
	5¾	145	RLP28512	28.002	37.971	4.05	15.23	3.00	11.90	33.5	102,9	386,8	76,2	302,3	15,2
	5⅞	150	RLP28514	28.002	37.971	4.22	15.48	3.00	12.15	34.5	107,2	393,2	76,2	308,6	15,6
	6	–	RLP28600	28.002	37.971	4.22	15.48	3.00	12.15	34.5	107,2	393,2	76,2	308,6	15,6
	6⅛	155	RLP28602	28.002	37.971	4.22	15.48	3.00	12.15	34.5	107,2	393,2	76,2	308,6	15,6

Accessories for RSL-Series Torque Wrenches

TWMPS503, Torque Wrench Moly Paste

- **Enerpac 503 Moly Paste reduces friction on threaded fasteners – bolts, nuts and studs**
- **The low and uniform friction coefficient of 0.06 (torque coefficient, K, of 0.10) creates reliable assembly conditions**
- **This lubricant stays in place through heat, load and vibration to insure trouble-free disassembly from -29 °C to 400 °C (-20 °F to 750 °F)**
- **Can of 1,8 kg (4 lb).**

▼ **TWMPS503**

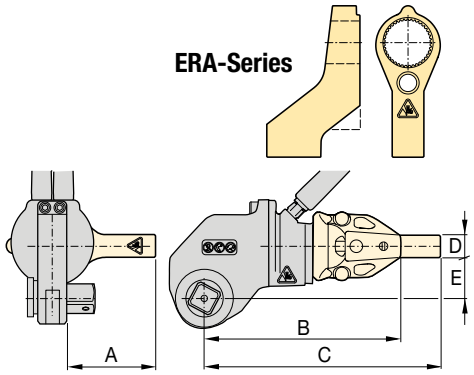
for RSL Series

ERA-Series, Extended Reaction Arms

For Torque Wrench Model Nr.	Model Number	Dimensions (mm) A	B	C	D	E	(kg)
RSL1500	ERA15114	87	145	195	29	36	0,9
	ERA15228	113	181	230	29	36	1,8
	ERA15342	139	226	276	29	36	2,7
	ERA15456	164	236	286	29	36	3,6
	ERA15570	189	287	337	29	36	4,5
RSL3000	ERA30114	105	195	257	34	41	2,7
	ERA30228	131	231	293	34	41	3,6
	ERA30342	156	266	328	34	41	4,5
	ERA30456	181	302	364	34	41	5,4
RSL5000	ERA50114	131	208	284	44	48	4,1
	ERA50228	156	243	320	44	48	5,0
	ERA50342	181	279	355	44	48	5,9
	ERA50456	207	314	391	44	48	6,8
RSL11000	ERA110114	125	219	296	51	59	6,3
	ERA110228	150	255	331	51	59	7,3
	ERA110342	176	291	367	51	59	8,2
	ERA110456	201	326	402	51	59	9,1
RSL28000	ERA280228	171	335	411	57	85	11,3
	ERA280342	197	370	447	57	85	13,6

NOTE: Extended Reaction Arms for RSL8000 and RSL19000 are available on request.

- **Only to be used on RSL-drive units with RSQ-square drive wrenches**
- **Used in place of standard reaction arm**
- **Lightweight interchangeable design**
- **Full torque rated.**

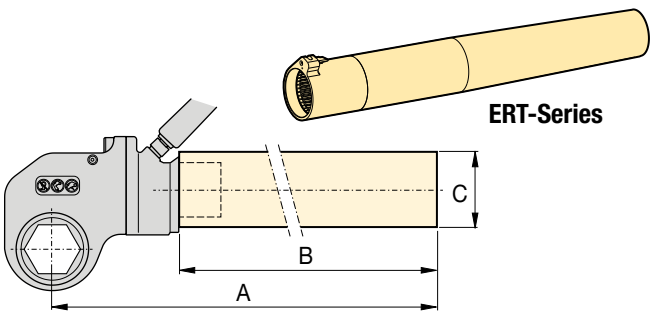


ERT-Series, Extended Reaction Tubes

For Torque Wrench Model Nr.	Model Number	Dimensions (mm) A	B	Ø C	(kg)
RSL1500	ERT152	157	51	57	0,9
	ERT156	259	152	57	1,6
	ERT159	335	229	57	2,5
	ERT1512	411	305	57	3,4
	ERT1524	716	610	57	6,7
RSL3000	ERT3012	429	305	70	3,0
	ERT3024	734	610	70	5,9
RSL5000	ERT5012	451	305	89	5,6
	ERT5024	756	610	89	11,3
RSL11000	ERT1106	330	152	95	2,1
	ERT11012	483	305	95	4,1
	ERT11018	635	457	95	6,1
	ERT11024	787	610	95	8,4
RSL19000	ERT19024	800	610	127	16,7
RSL28000	ERT2806	351	152	127	3,6
	ERT28012	503	305	127	7,3
	ERT28018	655	457	127	10,9
	ERT28024	808	610	127	16,6

NOTE: Extended Reaction Tubes for RSL8000 are available on request.

- **Only to be used on RSL-drive units with RLP-hexagon cassettes**
- **Used in place of standard reaction arm**
- **One piece steel design, durable and simple**
- **Increases tool fit in restricted access areas**
- **Full torque rated.**



▼ RSL-Drive Unit with interchangeable RLP...SL Slimline Hexagon Cassette

Setting New Standards in Safety, Simplicity and Performance

Simplicity

- Minimum nose radius for trouble-free tool fit which makes it uniquely equipped to access tight spaces
- Simple robust alloy steel design with three moving parts for reduced maintenance
- Robust handles are available for both sides and the tops of cassettes to allow for extra maneuverability
- Proven to perform even in the harshest environments
- Reaction arm has a simple dial lock for rapid change
- Designed to give optimum strength to weight and torque to weight ratios.

Versatility

- Interchangeable cassette design
- Drive unit / hexagon cassette combination for limited height in line solutions
- Wide range of hexagon sizes available for all applications.

Accuracy

- Accuracy of ±3%

Ease of Use

- Few moving parts are easily accessible for quick field maintenance
- Innovative design that completely encloses all moving parts and minimizes pinch points.

Torque Wrench Pumps

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

Page: 45

Torque Wrench Options and Accessories

Optional accessories are available for maximum versatility. Please contact your Enerpac representative to help you select the optimum solution for your application.

Page: 33

Back-Up Spanner

To be used to stop back nut from turning during make up or break out. Two hexagon sizes in one tool.

Hexagon Sizes (A/F)		Back-Up Spanner Model Number
mm	inch	
27 - 32	1 1/16 - 1 1/4"	BUS 01
36 - 41	1 7/16 - 1 5/8"	BUS 02
46 - 50	1 13/16 - 2"	BUS 03
55 - 60	2 3/16 - 2 3/8"	BUS 04
65 - 70	2 9/16 - 2 3/4"	BUS 05
75 - 80	2 15/16 - 3 1/8"	BUS 06
–	3 1/2 - 3 7/8"	BUS 07
–	4 1/4 - 4 5/8"	BUS 08
85 - 90	–	BUS 09
95 - 100	3 3/4 - 3 15/16"	BUS 10
105 - 110	4 1/8 - 4 15/16"	BUS 11
115 - 120	–	BUS 12

Page: 11

Slimline Stepped-Width Hexagon Cassettes for RSL-Series

Slimline Stepped-Width Hexagon 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.

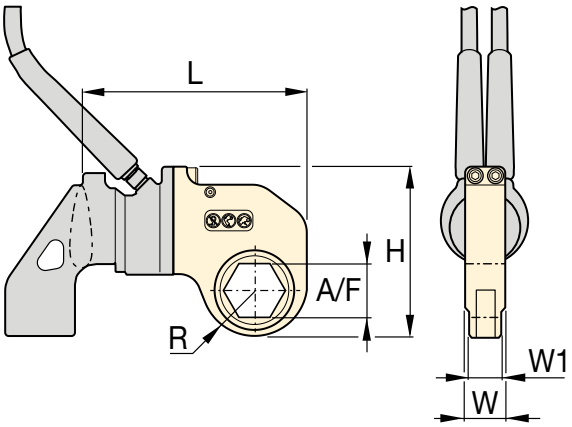
By using the highest-grade materials and perfecting the geometry, the RSL Slimline cassettes are able to provide greater torque, get into tighter spaces, and vastly outperform the competition in product durability.

RSL Series

Hexagon Range:
1¼ - 3³⁄₁₆ inch

Hexagon Range:
32 - 80 mm

Maximum Operating Pressure:
690 bar



Select the Right Torque

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

Page: 123

Torque Wrench Hoses

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

Page: 86

▼ SELECTION CHART

Drive Unit Model Number	Hexagon Size A/F		Slimline Hexagon Cassette Model Nr.	Maximum Torque		Dimensions (inch)						Dimensions (mm)					
	(inch)	(mm)		(Ft.lbs)	(Nm)	R	L	W	W1	H	(lbs)	R	L	W	W1	H	(kg)
RSL1500	1¼	32	RLP1104SL	375	509	1.03	6.12	1.25	1.00	4.57	2.2	26,2	155,4	31,8	25,4	116,1	1,0
	1⁷⁄₁₆	36	RLP1107SL	658	892	1.15	6.24	1.25	1.00	4.69	2.3	29,2	158,5	31,8	25,4	119,1	1,0
	1⅝	41	RLP1110SL	831	1127	1.31	6.41	1.25	1.00	4.86	2.7	33,3	162,8	31,8	25,4	123,4	1,2
	1¹³⁄₁₆	46	RLP1113SL	831	1127	1.40	6.49	1.25	1.00	4.94	2.7	35,6	164,8	31,8	25,4	125,5	1,2
	2	50	RLP1200SL	831	1127	1.48	6.58	1.25	1.00	5.03	2.7	37,6	167,1	31,8	25,4	127,8	1,2
RSL3000	2	50	RLP3200SL	1354	1836	1.60	8.04	1.38	1.13	5.92	4.5	40,6	204,2	35,1	28,7	150,4	2,0
	2³⁄₁₆	55	RLP3203SL	1604	2175	1.76	8.16	1.38	1.13	6.08	4.7	44,7	207,3	35,1	28,7	154,4	2,1
	2⅜	60	RLP3206SL	1604	2175	1.84	8.25	1.38	1.13	6.15	4.8	46,7	209,6	35,1	28,7	156,2	2,2
	2⁹⁄₁₆	65	RLP3209SL	1604	2175	1.95	8.14	1.38	1.13	6.26	4.6	49,5	206,8	35,1	28,7	159,0	2,1
	2¾	70	RLP3212SL	1604	2175	2.04	8.23	1.38	1.13	6.36	4.4	51,8	209,0	35,1	28,7	161,5	2,0
	2¹⁵⁄₁₆	75	RLP3215SL	1604	2175	2.16	8.34	1.38	1.13	6.54	4.7	54,9	211,8	35,1	28,7	166,1	2,1
RSL5000	2¾	70	RLP5212SL	4173	5659	2.16	9.63	1.75	1.62	7.07	7.5	54,9	244,6	44,5	41,1	179,6	3,4
	3⅛	80	RLP5302SL	4173	5659	2.26	9.73	1.75	1.62	7.17	7.2	57,4	247,1	44,5	41,1	182,1	3,3
RSL8000	2³⁄₁₆	55	RLP8203SL	2487	3372	1.71	9.53	2.25	2.00	6.84	8.5	43,4	242,1	57,2	50,8	173,7	3,9
	2⅜	60	RLP8206SL	3198	4336	1.87	9.67	2.25	2.00	7.00	8.9	47,5	245,6	57,2	50,8	177,8	4,0
	2⁹⁄₁₆	65	RLP8209SL	4122	5589	2.01	9.67	2.25	2.00	7.13	9.0	51,1	245,6	57,2	50,8	181,1	4,1
	2¾	70	RLP8212SL	5587	7576	2.16	9.82	2.25	2.00	7.28	9.6	54,9	249,4	57,2	50,8	184,9	4,4
	2¹⁵⁄₁₆	75	RLP8215SL	5587	7576	2.24	9.90	2.25	2.00	7.36	9.6	56,9	251,5	57,2	50,8	186,9	4,4
	3⅛	80	RLP8302SL	5587	7576	2.26	9.92	2.25	2.00	7.39	9.3	57,4	252,0	57,2	50,8	187,7	4,2
	3³⁄₁₆	–	RLP8303SL	4740	6427	2.26	9.92	2.25	2.00	7.39	9.3	57,4	252,0	57,2	50,8	187,7	4,2

▼ RSL drive unit with interchangeable RSQ square drive cassette

Safety and Performance

- Innovative design that completely encloses all moving parts and minimizes pinch points
- 30-35° rotation angle provides added productivity while avoiding "tool lock on" which is common with some torque wrench designs.

Simplicity

- Simple robust design with just three moving parts for reduced maintenance
- Robust handles are available for both sides and the tops of cassettes to allow for extra maneuverability
- Pull-type square drive release for quickly reversing the square drive for tightening or loosening.

Versatility

- Square Drive Sets available with Interchangeable Hexagon Cassettes
- Power head / square drive combination for flexible use with standard impact quality sockets
- Reaction arm has a simple dial lock for rapid change.

Accuracy

- Accuracy of ±3%

Setting New Standards in Safety, Simplicity and Performance

Torque Wrench Options and Accessories

Optional accessories are available for maximum versatility. Please contact your Enerpac representative to help you select the optimum solution for your application.

Page: 33

Back-Up Spanner

To be used to stop back nut from turning during make up or break out. Two hexagon sizes in one tool.

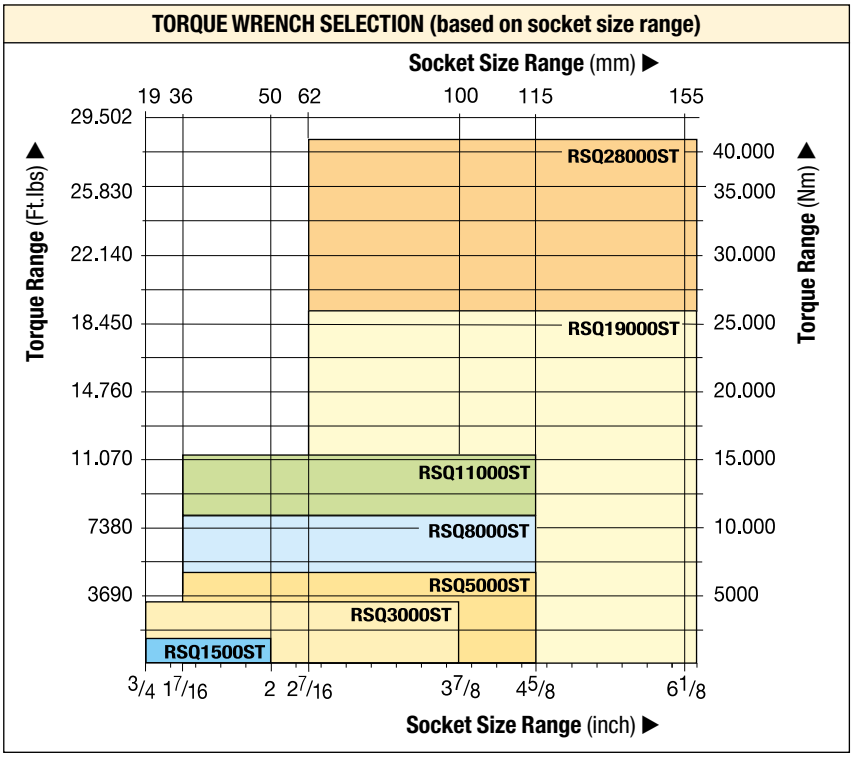
Hexagon Sizes (A/F)		Back-Up Spanner Model Number
mm	inch	
27 - 32	1 1/16 - 1 1/4"	BUS 01
36 - 41	1 7/16 - 1 5/8"	BUS 02
46 - 50	1 13/16 - 2"	BUS 03
55 - 60	2 3/16 - 2 3/8"	BUS 04
65 - 70	2 9/16 - 2 3/4"	BUS 05
75 - 80	2 15/16 - 3 1/8"	BUS 06
–	3 1/2 - 3 7/8"	BUS 07
–	4 1/4 - 4 5/8"	BUS 08
85 - 90	–	BUS 09
95 - 100	3 3/4 - 3 15/16"	BUS 10
105 - 110	4 1/8 - 4 15/16"	BUS 11
115 - 120	–	BUS 12

Page: 11

Torque Wrench Hoses

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

6 m long, 2 hoses	THQ-706T
12 m long, 2 hoses	THQ-712T



RSL Series

Maximum Torque Output:
1408 - 28.002 Ft.lbs

Maximum Torque Output:
1909 - 37.965 Nm

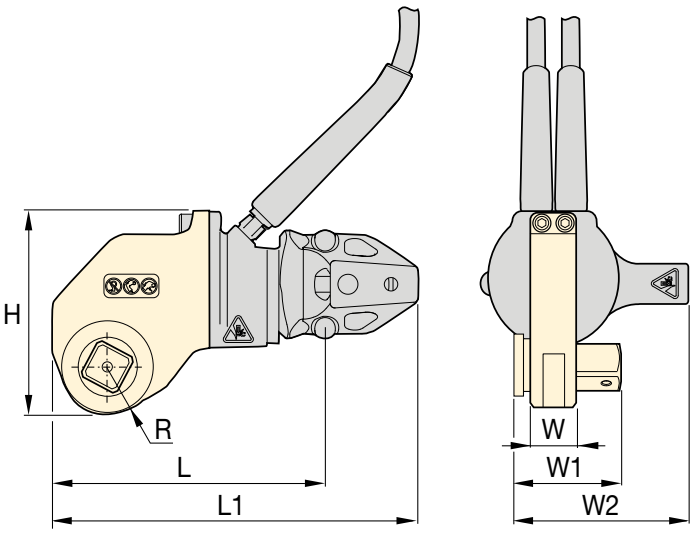
Square Drive Range:
¾ - 2½ inch

Maximum Operating Pressure:
690 bar

BSH-Series Sockets

Heavy-Duty Impact Sockets for power driven torqueing equipment.

Page: 10



Select the Right Torque

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

Torque Wrench Pumps

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

Page: 45

▼ SELECTION CHART

Maximum Torque Output (Ft.lbs)	Maximum Torque Output (Nm)	Square Drive Size (inch)	Square Drive Cassette Model Number [1]	Square Drive Torque Wrench Set Model Number [2]	Dimensions (mm) W	W1	W2	H	L	L1	R	Weight (kg) Drive Unit (without reaction arm)	Reaction Arm	Square Drive Cassette
1408	1909	¾	**RSQ1500**	**RSQ1500ST**	32	58	101	114	160	189	24	1,6	0,5	1,3
3080	4176	1	**RSQ3000**	**RSQ3000ST**	38	73	124	141	195	262	32	2,6	1,0	2,4
5303	7190	1½	**RSQ5000**	**RSQ5000ST**	45	94	160	163	235	296	39	4,1	1,8	4,1
7862	10.659	1½	**RSQ8000**	**RSQ8000ST**	61	105	160	169	241	300	39	4,8	2,0	5,3
11.154	15.123	1½	**RSQ11000**	**RSQ11000ST**	64	118	170	201	284	315	48	5,3	3,0	8,4
18.843	25.547	2½	**RSQ19000**	**RSQ19000ST**	83	162	265	241	342	482	64	9,1	7,1	13,1
28.002	37.965	2½	**RSQ28000**	**RSQ28000ST**	89	166	227	263	358	536	64	10,0	5,0	17,9

[1] When ordering an RSQ Square Drive Cassette, the RSL-Drive Unit must be ordered separately.

[2] An RSQ....ST Torque Wrench Set includes RSQ-Square Drive Cassette, RSL-Drive Unit with Hoses and Reaction Arm.

▼ PTW1000

Continuous Rotation Controlled Torque

Calibration Certificate

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

CE

FRL120C, Filter-Regulator-Lubricator with air hose

All PTW-Series tools are shipped complete with standard reaction arm, and Filter-Regulator-Lubricator (FRL120C).

MCS-Series, Mobile Calibration System

To check torque accuracy, run calibration tests and create calibration certificates prior to the use of continuous rotation torque tools in various applications while on a job site.

Page: 44

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.*

PTW-Series, Pneumatic Torque Wrenches

Enerpac PTW-Series Pneumatic Torque Wrenches are designed for applications that require speed and control.

The standard package includes a Torque Wrench with a calibration certificate, an FRL (Filter/Regulator/Lubricator), and a 3 m long, ½" inch (13 mm) diameter air hose, which connects the FRL to the wrench.

Once the air hoses are connected, the operator simply adjusts the air pressure on the FRL to achieve the desired torque using the calibration certificate. After this, the tool is ready to go to work! *

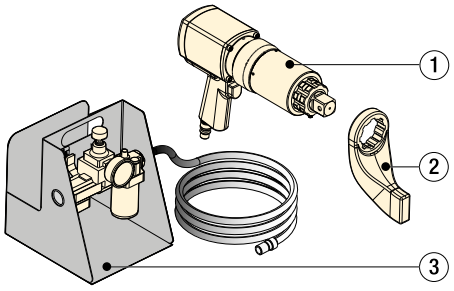
The air source used with the PTW system must be regulated and/or limited to 8,3 bar, and must be capable of providing a volume of at least (85 m^3/h) at 6,9 bar. A separate ½" inch hose (not included) must be used to connect the FRL to the air supply.

* See instruction manual for comprehensive instructions.

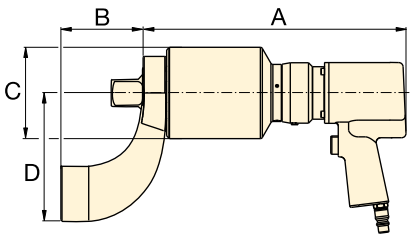
PTW Series

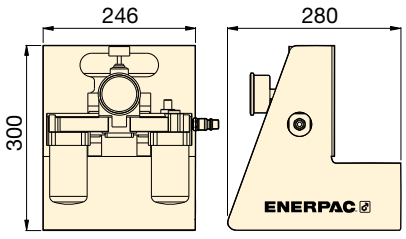
Nominal Torque Output:
8135 Nm

Square Drive Range:
¾ - 1 - 1½ inch



① PTW Torque Wrench
② Standard Reaction Arm
③ FRL120C Filter-Regulator-Lubricator with 3 meters air hose





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

Page: 42

BSH-Series Sockets
Heavy-Duty Impact Sockets for power driven torquing equipment.

Page: 10

Back-Up Spanners
Hands free tool to be used to stop back nut from turning during make up or break out.

Page: 11

▼ SELECTION CHART

All tools are shipped complete with standard reaction arm and FRL120C.

Minimum Torque (Nm)	Minimum Torque (Ft.lbs)	Nominal Torque (Nm)	Nominal Torque (Ft.lbs)	Square Drive (inch)	Model Number [1] (FRL120C included)	Speed (RPM)	Dimensions (mm) A	B	C	D	(kg) [2]
407	300	1356	1000	¾	**PTW1000C-75**	12,6	272	83	72	130	7,9
407	300	1356	1000	1	**PTW1000C**	12,6	272	83	72	130	8,2
678	500	2712	2000	1	**PTW2000C**	8,0	286	83	79	133	8,8
1220	900	4067	3000	1	**PTW3000C**	3,1	343	83	95	133	10,4
1763	1300	8135	6000	1½	**PTW6000C**	2,5	366	114	127	178	17,7

[1] To order without FRL120C, remove "C" suffix from model number (example: **PTW3000**).
[2] Weight does not include reaction arm.
Reaction arm weight for PTW1000, PTW2000, PTW3000 is 1,3 kg and for PTW6000 is 3,5 kg.

▼ **TW3000EI** (torque wrench shown without servo motor cable)

Versatility

- **Patented firmware design provides accurate fastening on soft or pre-tightened joints when accuracy is critical**
- **Single control box may be used to operate multiple wrench models**
- **Wrenches and control boxes may be purchased separately or as a calibrated set.**

Performance

- **High speed continuous rotation gets the job done faster**
- **Torque and angle functionality allows input of nominal torque value followed by a specific angle of rotation**
- **Pass/Fail LED indicator on back of tool verifies fastening has been completed according to specified input.**

Simplicity

- **Control box with 7-inch touchscreen simplifies tool operation**
- **Controls on back of wrench enable operator to monitor and manage the fastening process without returning to the control box**
- **Brightly lit three line LED display on wrench is easy to read in any environment, even in bright sunlight.**

Traceability

- **Fastening record can be viewed on-screen and transferred through standard USB connection on the control box**
- **Each tool is performance tested and shipped complete with a factory calibration certificate.**

Safety

- **Lift points on wrench enable use with positioning handle or lifting device for greater handling safety**
- **Ground fault detector protects operator in the event of insufficient grounding.**

Your Simple Solution for Smart Bolting

Touchscreen Control Box

ETW-Series tools feature an easy to use, interactive touch-screen control box, which helps make even the most complex jobs simple to complete.
Single control box may be used to operate multiple wrench models.
Firmware upgrades may be uploaded online and easily transferred to the tool via a USB connection.

Easy Access to Controls

Controls on back of wrench with LED display allow user to directly input desired torque, change direction of rotation, and monitor the fastening process.

Certifications and Declarations

All ETW-Sets and TW-tools are:
- CE declared
- Shipped complete with a calibration certificate
- Certified for North American Electrical Safety by CSA International
- Carry a CSA US and Canada mark.

▼ *ETW-Series Electric Torque Wrenches are ideal for high volume fastening applications that require precision and traceability, such as this wind tower job.*

ETW-Series, Electric Torque Wrenches

Enerpac ETW-Series Electric Torque Wrenches are particularly well suited to complex jobs which demand precision and traceability.

The ETW-Series tools feature an automatic mode, which helps simplify and automate complex jobs, including those with torque and angle specifications, through the creation of presets.

Using the touchscreen, simply input the number of fasteners and desired torque value for each fastening step, followed by the required angle of turn. This sequence may then be saved as an automatic preset for future use.

For simpler jobs, torque values may be input with a digital slider on the touchscreen, or directly into the rear control panel of the wrench.

Once the input torque is achieved, the tool stalls, and a pass/fail indicator verifies that it is ready to move on to the next fastener.

When the job is completed, the fastening record can be viewed on the touch screen, or exported to a computer via a USB connection on the control box.

ETW Series

Nominal Torque Output:
8135 Nm

Square Drive Range:
1 - 1½ inch

Accessories

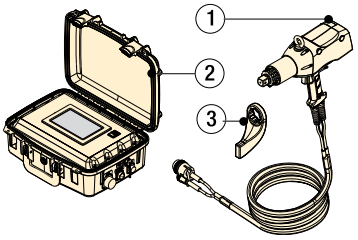
Enerpac offers a full line of accessories including a range of reaction arms and drives.

Page: 42

BSH-Series Sockets

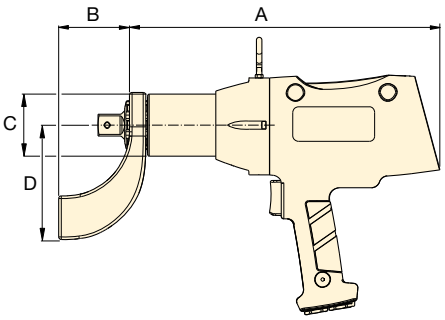
Heavy-Duty Impact Sockets for power driven torquing equipment.

Page: 10

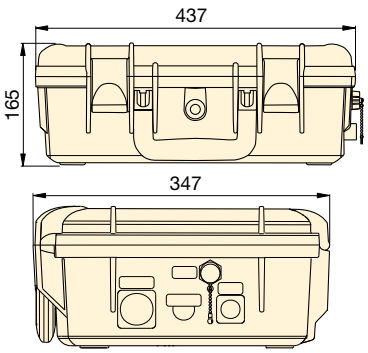


ETW-Set

① ETW Torque Wrench with 6m servo motor cable
② Control Box with 2m power cord
③ Standard Reaction Arm



ETW-torque wrench



ETWCB-control box

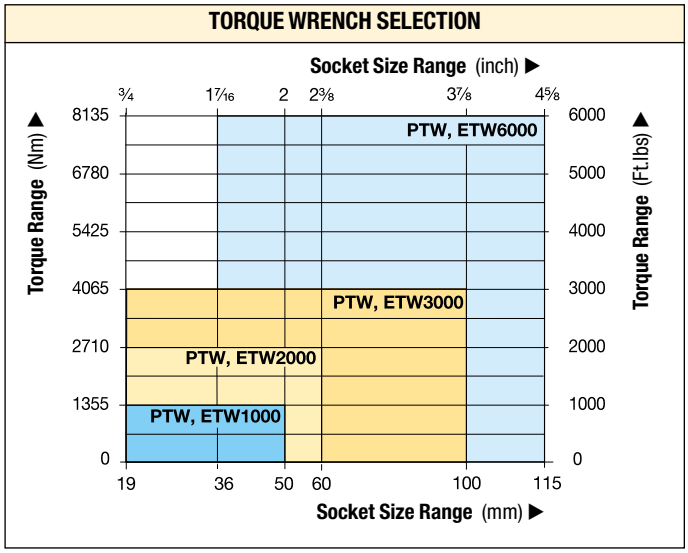
Voltage: (Model Number ending with suffix)

B = 115V, 60 Hz
I = 230V, 60 Hz (with NEMA 6-15 plug)
E = 230V, 50 Hz (with commonly used European (SCHUKO) plug)

Minimum Torque (Nm)	Minimum Torque (Ft.lbs)	Nominal Torque (Nm)	Nominal Torque (Ft.lbs)	Square Drive (inch)	ETW-Set Model Number	ETW-Set includes Wrench Model Nr. [2]	ETW-Set includes Control Box Model Nr. [2]	Voltage	Nominal Speed (RPM)	Dimensions (mm) A	B	C	D	(kg) [1]
270	200	1355	1000	1	**ETW1000B**	**TW1000B**	**ETWCB-B**	115V 60 Hz	9,8	365	83	72	130	8,2
270	200	1355	1000	1	**ETW1000I**	**TW1000EI**	**ETWCB-I**	230V 60 Hz	15,2	365	83	72	130	8,2
270	200	1355	1000	1	**ETW1000E**	**TW1000EI**	**ETWCB-E**	230V 50 Hz	15,2	365	83	72	130	8,2
540	400	2710	2000	1	**ETW2000B**	**TW2000B**	**ETWCB-B**	115V 60 Hz	5,8	380	83	79	133	8,9
540	400	2710	2000	1	**ETW2000I**	**TW2000EI**	**ETWCB-I**	230V 60 Hz	9,0	380	83	79	133	8,9
540	400	2710	2000	1	**ETW2000E**	**TW2000EI**	**ETWCB-E**	230V 50 Hz	9,0	380	83	79	133	8,9
810	600	4065	3000	1	**ETW3000B**	**TW3000B**	**ETWCB-B**	115V 60 Hz	2,8	436	83	95	133	11,9
810	600	4065	3000	1	**ETW3000I**	**TW3000EI**	**ETWCB-I**	230V 60 Hz	4,3	436	83	95	133	11,9
810	600	4065	3000	1	**ETW3000E**	**TW3000EI**	**ETWCB-E**	230V 50 Hz	4,3	436	83	95	133	11,9
1625	1200	8135	6000	1½	**ETW6000B**	**TW6000B**	**ETWCB-B**	115V 60 Hz	1,9	453	114	127	178	19,1
1625	1200	8135	6000	1½	**ETW6000I**	**TW6000EI**	**ETWCB-I**	230V 60 Hz	2,9	453	114	127	178	19,1
1625	1200	8135	6000	1½	**ETW6000E**	**TW6000EI**	**ETWCB-E**	230V 50 Hz	2,9	453	114	127	178	19,1

[1] Wrench weight does not include reaction arm. Standard reaction arm weight for ETW1000, ETW2000, ETW3000 is 1,3 kg and for ETW6000 is 3,5 kg. Standard reaction arm included with TW-model. Weight of the control box is 9 kg.

[2] Use of ETW requires both wrench and control box. These may be purchased separately, or as a calibrated set.



PTW, ETW Series

Nominal Torque Output:
8135 Nm

Square Drive Range:
1 - 1½ inch

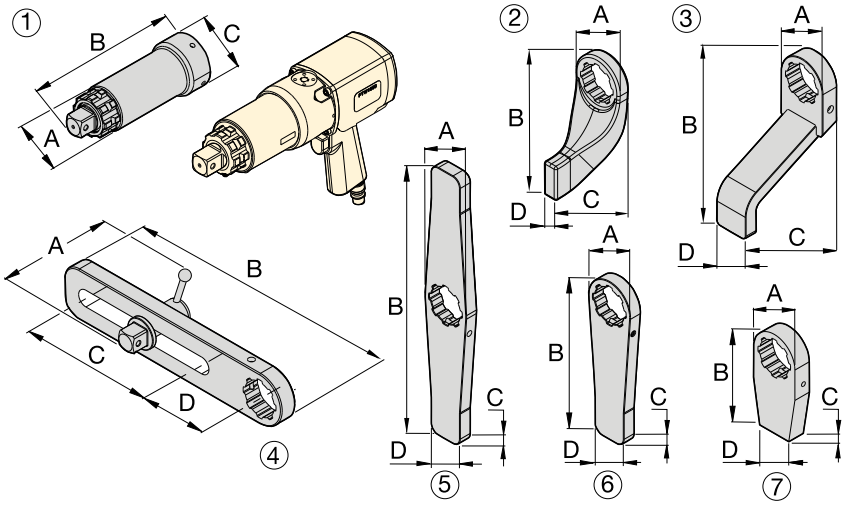
BSH-Series Sockets

Heavy-Duty Impact Sockets for power driven torquing equipment.

Page: **10**

PTW and ETW-Accessories

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



Optional Accessories

For use with PTW and ETW1000, 2000, 3000-models				Dimensions (mm)			
Nr.	Description	Model Nr.	Application	A	B	C	D
1	Extended Drive, 6 inch (152 mm)	**ED6TWS**	Nose extension, primarily for truck wheel bolts	62	206	73	–
1	Extended Drive, 12 inch (305 mm)	**ED12TWS**	Nose extension, primarily for truck wheel bolts	62	384	73	–
1	Extended Drive, 18 inch (457 mm)	**ED18TWS**	Nose extension, primarily for truck wheel bolts	62	511	73	–
2	Standard Reaction Arm	**RATWS**	Standard arm included with PTW and ETW model	76	172	102	21
3	Extended Reaction Arm	**ERATWS**	Long plate for use with deep well sockets	73	150	202	51
4	Sliding Reaction Arm	**SLRATWS**	For widely spaced and uneven bolt centers	112	381	203	102
5	Double Straight Reaction Arm	**DSATWS**	Reduces time to reposition arm *	73	406	19	102
6	Straight Reaction Arm	**SRATWS**	Long plate for wide spaced reaction points	73	240	19	51
7	Blank Reaction Arm **	**BLTWS**	Weldable blank for custom applications **	72	151	25	51
For use with PTW and ETW6000-models							
1	Extended Drive 6 inch (152 mm)	**ED6TWL**	Nose extension, primarily for truck wheel bolts	84	232	102	–
1	Extended Drive 12 inch (305 mm)	**ED12TWL**	Nose extension, primarily for truck wheel bolts	84	384	102	–
2	Standard Reaction Arm	**RATWL**	Standard arm included with PTW and ETW model	102	229	146	32
3	Extended Reaction Arm	**ERATWL**	Long plate for use with deep well sockets	102	254	184	64
4	Sliding Reaction Arm	**SLRATWL**	For widely spaced and uneven bolt centers	152	419	190	114
5	Double Straight Arm	**DSATWL**	Reduces time to reposition arm *	102	508	32	57
6	Straight Reaction Arm	**SRATWL**	Long plate for wide spaced reaction points	102	305	32	57
7	Blank Reaction Arm **	**BLTWL**	Weldable blank for custom applications **	102	152	32	57

* Time to reposition arm when repeatedly moving from tightening to loosening.

** WARNING: Blank reaction arms must be heat treated to HRc 38-42 prior to use.

Typical PTW and ETW-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

▼ MCS7500, Mobile Calibration System

MCS
Series

Measurable Output Torque Range:
200 - 10.000 Nm

Female Square Drive:
1½ inch

Accuracy

The calibration system is a calibrated instrument qualified in a UKAS certified laboratory. The accuracy of the MCS7500 is calibrated to meet or exceed:
1% of FSD from 2% to 8% of torque range and
1% of reading from 8% to 100% of torque range.

Female Reducer Set

The Female Reducer Set consists of two reducers:
1½ x 1 inch and 1½ x 3/4 inch
To be ordered separately as **MCS7500RS**.

Versatility

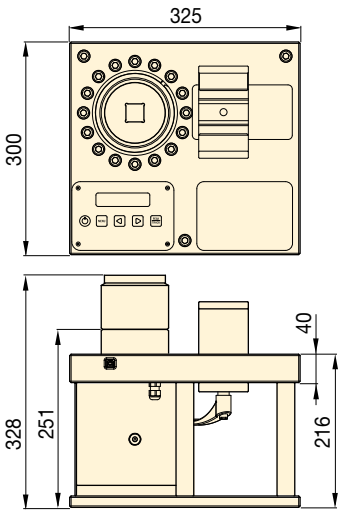
- **Accurately measures torque output for continuous rotation tools from 200 - 10.000 Nm (148 - 7375 Ft.lbs)**
- **Adaptable design enables use with a large variety of Enerpac and competitive wrenches**
- **Internal Li-ion battery pack, external power via 5V DC USB power supply.**

Performance

- **Certificate Manager feature enables quick and easy creation of calibration certificates**
- **Tool database feature allows specific wrench data and calibration results to be recorded and saved for future use**
- **Each MCS comes with a standard ISO17025 calibration certificate.**

Ease of Use

- **Compact design in carrying facilitates easy transport, allowing calibration to be carried out in the shop, on jobsites, or even in a vehicle**
- **Integrated digital interface enables torque values to be displayed, saved, printed or transferred to a computer.**



Minimum Measurable Torque Output		Nominal Measurable Torque Output		Female Square Drive	Model Number *	Description	
(Nm)	(Ft.lbs)	(Nm)	(Ft.lbs)	(inch)			(kg)
200	148	10.000	7375	1½	**MCS7500**	Mobile Calibration System (MCS)	35
200	148	10.000	7375	1½	**MCS7500C**	MCS with carrying case	40

* Not suitable for use with hydraulic wrenches or impact tools.

Selection Matrix – Optimum Wrench-Pump Combinations

For optimum speed and performance Enerpac recommends the following system set-up with wrench-pump-hose combinations. For other combinations, consult your Enerpac bolting expert or your authorized Enerpac distributor.

			ELECTRIC PUMPS					AIR DRIVEN PUMPS
			Cordless XC-Series	**E-Pulse™ E-Series**	**TQ-Series**	**ZU4-Series**	**ZE-Series**	**ZA4-Series**
								
			Page: 46	*Page:* 48	*Page:* 50	*Page:* 52	*Page:* 56	*Page:* 58
		Speed:						
		Oil Flow at 700 bar:	0,25 l/min	0,52 l/min	0,5 l/min	1,0 l/min	0,8 - 1,6 l/min	0,8 l/min
		Reservoir Capacity:	2,0 litres	3,0 litres	4,0 litres	4,0 - 8,0 litres	4,0 - 40 litres	4,0 - 8,0 litres
		Duty Cycle:	Intermittent	Heavy-Duty	Standard	Standard	Heavy-Duty	Heavy-Duty
		Weight:						
		Field/Factory Work:	Field	Field/Factory	Field/Factory	Field	Factory	Field
S-Series	 6	S1500X	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal
		S3000X						
		S6000X	–					
		S11000X		Acceptable	Acceptable			
		S25000X						
W-Series	 12	W2000X	Optimal	Optimal	Optimal			
		W4000X						
		W8000X	–					
		W15000X		Acceptable	Acceptable			
		W22000X						
		W35000X						
RSL-Series	 26	RSL1500	Optimal	Optimal	Optimal	Optimal	Optimal	Optimal
		RSL3000						
		RSL5000						
		RSL8000	–	–	Acceptable			
		RSL11000						
		RSL19000						
		RSL28000						

XC-Series, Portable Cordless Pumps
Battery Torque Wrench Pump is ideal for maintenance bolting applications at sites that do not have access to power or where having extension cords or air hoses could cause trip hazards.

E-Series, E-Pulse Portable Wrench Pumps
High-efficiency permanent magnet, direct drive motor for continuous use and long service life. Ideal pump for high volume fastening applications where weight is critical. Durable rugged roll-cage design. E-Pulse pumps feature an interactive pendant for operation, programming and diagnostics.

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

ZU4T – Electric Wrench Pumps
Utilizing a universal motor, the ZU4-Series works well with long extension cords or generator driven electrical power supplies. ZU4-pumps are available in **Pro** and **Classic** formats.

ZU4T 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.

ZU4T Classic Pumps feature an analogue gauge and a basic electrical package to deliver durable, safe and efficient hydraulic power.

ZE4T, ZE5T-Series Electric Wrench Pumps
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.

ZA4T-Series Air Driven Wrench Pumps
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.

THQ-Series, Torque Wrench Hoses
Use Enerpac THQ-700 Series torque wrench hoses with S, W and RSL-Series torque wrenches to ensure the integrity of your hydraulic system. See page 86.

▼ XC1502TE

Portable Battery Pump for Torque Applications

- **Ideal for maintenance bolting applications requiring portability and convenience**
- **Interactive pendant provides visual and vibration feedback of pump operation**
- **Intelligent Auto-Cycle enables press and release actuation to cycle torque wrench until final torque is achieved**
- **User can set pressure and operate in manual or auto-cycle mode**
- **Superior run-time with 5Ah, 28V battery**
- **6 metres detachable pendant control**
- **100 mm glycerine-filled gauge for easy viewing**
- **Bladder reservoir allows pump to be used in any position**
- **High-strength fiberglass reinforced composite housing provides superior durability in demanding job site environments**
- **Integrated handle and carrying strap for portability.**

28-Volt Battery

The **XC28V5** 5 Amps battery with Lithium-Ion technology for maximum battery performance.

Roll Cage

Roll cage accessory option for both XC-TW and XC pump. Please order model number **XCRCTK**.

Torque Wrenches

The following torque wrenches are ideal for use with the XC-Series Cordless Torque Wrench Pumps:

S-Series	W-Series	RSL-Series
S1500X	W2000X	RSL1500
S3000X	W4000X	RSL3000
		RSL5000

Larger torque wrenches will work with the pump, battery run time and application speed will be impacted.

XC-Series, Cordless Torque Wrench Pumps

Battery-Powered Torque Wrench Pumps

The XC-Series Cordless Torque Wrench pump is ideal for maintenance applications in the PowerGen, Oil & Gas and MRO markets. This portable pump is perfect for remote locations, sites that do not have access to power or where trip hazards are a concern.

The interactive pendant allows the user to set and clear pressure and operate in manual or auto-cycle mode.
The pump has an easily accessible user adjustable valve for precise pressure control.

Torque Wrench	Nut A/F (mm)	Stud (mm)	Pres-sure (bar)	Torque (Nm)	Faste-ners torqued
S3000X	60	38	330	2035	32
W2000X	60	38	350	1356	52

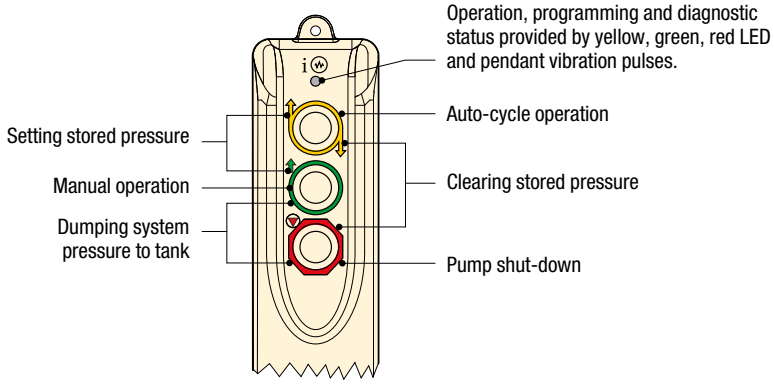
XC Series

Reservoir Capacity:
2,0 litres

Flow at Rated Pressure:
0,25 l/min

Motor Size:
0,37 kW

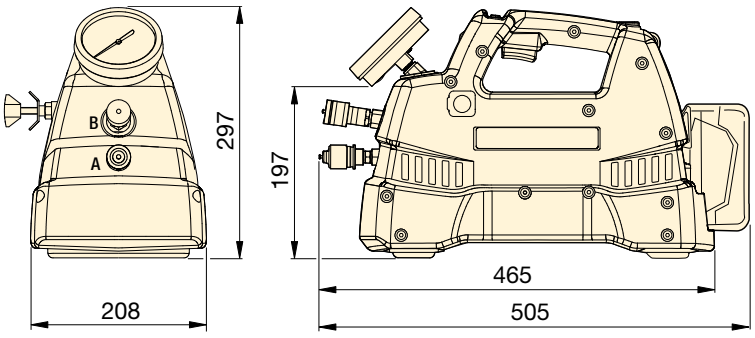
Maximum Operating Pressure:
700 bar



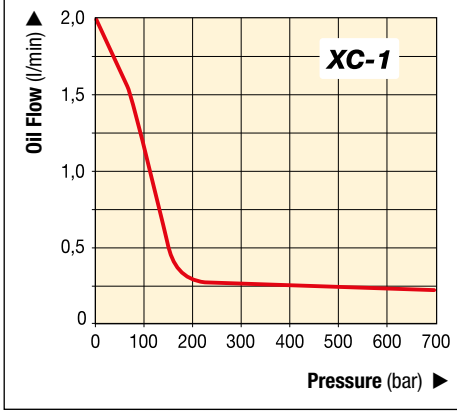
Torque Wrench Hoses

Use Enerpac 700 bar THQ-700 Series torque wrench hoses with torque wrenches and pumps

2 m long, 2 hoses	THQ-702T
6 m long, 2 hoses	THQ-706T
12 m long, 2 hoses	THQ-712T



OIL FLOW vs. PRESSURE



▼ SELECTION CHART

Description	Useable Oil Capacity (litres)	Model Number	Output Flow Rate (l/min) No Load	140 bar	700 bar	Included with pump	(kg) [1]
Cordless Pump Kit	2,0	XC-1502TB	2,05	0,49	0,25	2 batteries and 115V charger	12
Cordless Pump Kit	2,0	XC-1502TE	2,05	0,49	0,25	2 batteries and 230V charger	12
Cordless Pump	2,0	XC-1502T	2,05	0,49	0,25	No batteries or charger	12

[1] Weight includes oil, without battery. battery weight 1,1 kg.

▼ EP3504TE, E-Pulse Torque Wrench Pump

Performance

- Two-stage pump with high by-pass pressure: 3,6 l/min at 200 bar, 0,52 l/min at 700 bar
- Smart controls enable motor to maintain constant power across the pressure range
- 24VDC power regulator minimizes effects of poor power supply
- Six-piston block design provides even flow for smooth operation of cylinder or tool.

Durability

- Durable aluminium housing
- Integrated heat exchanger minimizes heat buildup
- High-efficiency permanent magnet, direct drive motor enables continuous use and long service life
- Built-in thermal protection
- IP Rating: IP54 on the pump, IP67 on the pendant.

Convenience

- Integrated calibrated pressure gauge
- Interactive pendant with smart controls
- Pendant and cord management system
- Intelligent Auto-Cycle enables press and release actuation to cycle torque wrench until final torque is achieved
- User can set pressure and operate in manual or auto-cycle mode
- Convenient oil fill port, oil level indicator and automatic breather.

Productivity through innovation

Bolting Integrity Software

A comprehensive on-line software solutions for Bolted Joint Integrity. The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application Data Sheet and Joint Completion Report. Custom Joint information can also be entered.

Page: 126

Torque Wrenches

The following torque wrenches are ideal for use with the E-Pulse Wrench Pumps:

S-Series	W-Series	RSL-Series
S1500X	W2000X	RSL1500
S3000X	W4000X	RSL3000
S6000X	W8000X	RSL5000

Larger torque wrenches will work with the pump, but application speed will be impacted.

Page: 45

Torque Wrench Hoses

Use Enerpac 700 bar THQ-700 Series torque wrench hoses with torque wrenches and pumps

2 m long, 2 hoses	**THQ-702T**
6 m long, 2 hoses	**THQ-706T**
12 m long, 2 hoses	**THQ-712T**

Page: 86

E-Pulse Torque Wrench Pump

The Enerpac E-Pulse Electric Torque Wrench Pump, through its innovative design, is ideal for high volume fastening applications where weight is a critical factor. Smart controls enable the motor to maintain constant power providing higher flow than traditional pumps.

The durable aluminum housing, integrated heat exchanger and highly efficient permanent magnet motor minimize heat buildup in the toughest environments. The interactive pendant provides the operator a number of usage options for optimal efficiency. The E-Pulse Torque Wrench Pump is the pinnacle of bolting equipment.

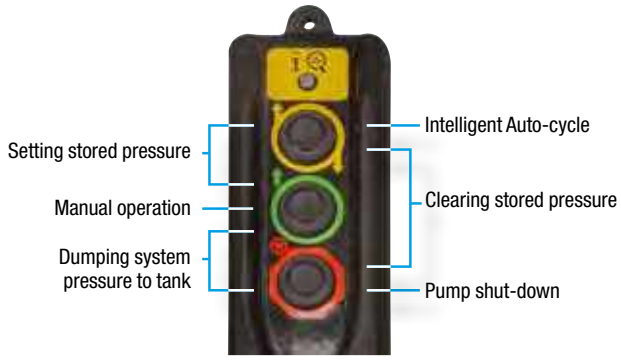
E Series

Reservoir Capacity:
3,0 litres

Flow at Rated Pressure:
0,52 l/min

Motor Size:
0,63 kW

Maximum Operating Pressure:
700 bar

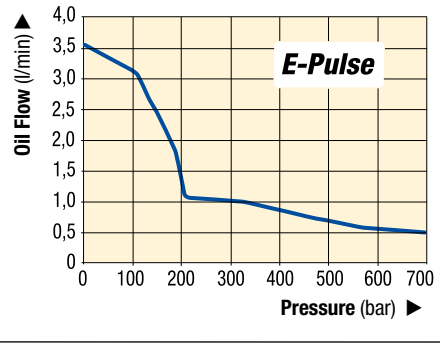


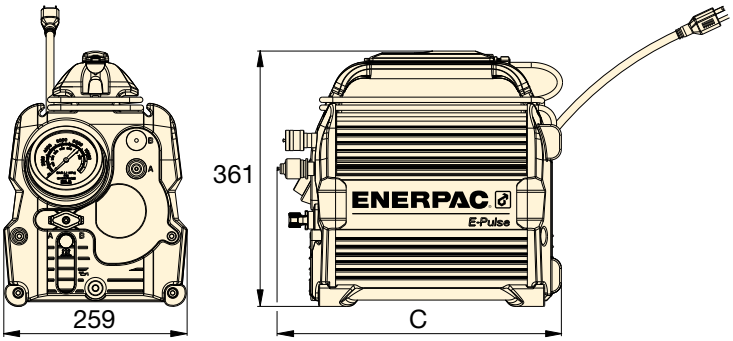
Pendant with 6 metre cord

Interactive Torque Wrench Pendant

- User can set pressure and operate in manual or auto-cycle mode
- Intelligent Auto-Cycle enables press and release actuation to cycle torque wrench until final torque is achieved

OIL FLOW vs. PRESSURE





▲ *EP3504T-EM multi-port manifold pump*

▼ SELECTION CHART

Number of Wrenches pump can operate	Useable Oil Capacity (litres)	Model Number	Output Flow Rate (l/min) 1 bar	175 bar	350 bar	700 bar	Motor Voltage (VAC)	Current Draw (Amps)	Plug Type	Sound Level (dBA)	Dimension C (mm)	(kg) [1]
1	3,0	**EP3504TB**	3,61	2,13	0,95	0,52	100-120	12	NEMA 5-15	70-85	401	20,4
		EP3504TI	3,61	2,13	0,95	0,52	200-250	7	NEMA 6-15	70-85	401	20,4
		EP3504TE	3,61	2,13	0,95	0,52	200-250	7	Schuko CEE 7/7	70-85	401	20,4
2	3,0	**EP3504TB-M ***	3,61	2,13	0,95	0,52	100-120	12	NEMA 5-15	70-85	429	21,7
		EP3504TI-M *	3,61	2,13	0,95	0,52	200-250	7	NEMA 6-15	70-85	429	21,7
		EP3504TE-M *	3,61	2,13	0,95	0,52	200-250	7	Schuko CEE 7/7	70-85	429	21,7

* Pump model with multi-port manifold.

[1] with oil

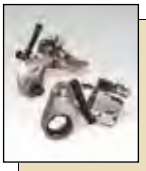
▼ TQ-700E

Lightweight Torque Wrench Pumps

- **Optimized flow technology – three stage pump maximizes productivity of the pump and tool while minimizing heat build-up and down time**
- **Heat exchanger is standard included**
- **A quiet (<85 dBA), lightweight pump with a compact footprint – easy to move around and through the work site**
- **Durable roll cage with an ergonomically sized handle and shielded gauge – a pump that is easy to put into position and safe from on site operational hazards**
- **Maintenance made simple with a brushless motor designed for continuous usage**
- **Straightforward operation with a simple pressure set and convenient to use 6 m pendant control – immediate productivity for crews operating the pump**
- **IP55 Rating for Superior Dust and Water Protection**
- **Transparent gauge overlays in Nm and Ft.lbs for all Enerpac S, W and RSL-Series torque wrenches provide a quick torque reference.**

Four Port Manifold

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



Hydraulic Torque Wrenches

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

Page: 1

Torque Wrench Hoses

Use Enerpac THQ-700 series twin hoses with 700 bar pumps.

For 700 bar	Model Nr.
2 meters long, 2 hoses	**THQ-702T**
6 meters long, 2 hoses	**THQ-706T**
12 meters long, 2 hoses	**THQ-712T**

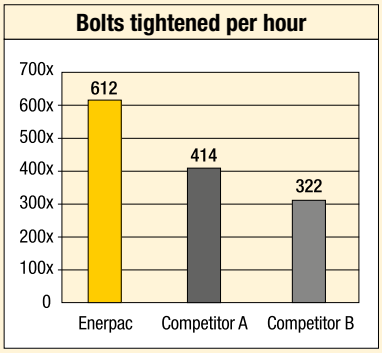
Page: 86

TQ-700 Applications

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

Bolting speed is more complex than how much flow per minute the pump produces. The key is optimising 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 torqueing procedure on a pipe flange with 14, 1⅞" bolts.

TQ Series

Reservoir Capacity:
4,0 litres

Flow at Rated Pressure:
0,5 l/min

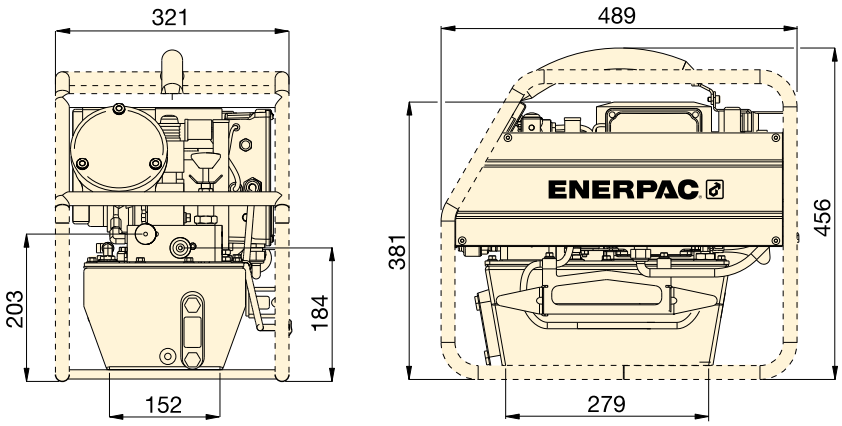
Motor Size:
0,75 kW

Maximum Operating Pressure:
700 bar

Torque Wrench Pump Selection Matrix

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

Page: 45



▼ *The TQ-700E and the W-Series wrenches are a productive combination.*

For Use with Torque Wrenches	Pressure Rating (bar)	Model Number [1]	Useable Oil Capacity (litres)	Motor Size (kW)	Motor Electrical Specifications (Volt - Ph - Hz)	Sound Level (dBA)	(kg)
All S, W and RSL-Series	700	**TQ-700B**	4,0	0,75	115 - 1 - 50/60	82 - 85	31
	700	**TQ-700E** [2]	4,0	0,75	230 - 1 - 50	82 - 85	30
	700	**TQ-700I** [3]	4,0	0,75	230 - 1 - 60	82 - 85	30

[1] All models meet CE safety requirements and all TÜV requirements.
[2] TQ-700E with European plug and CE EMC directive compliant.
[3] TQ-700I with NEMA 6-15 plug.

ZU4T-Series, Electric Torque Wrench Pumps

ENERPAC

▼ ZU4204TE-Q (Pro-Serie), ZU4204BE-Q (Classic)

Z Tough, Dependable Innovative CLASS

Classic Electrical

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

- **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 1,25 kW 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.**

Pro Series pump only

- **LCD readout provides pressure display and a number of diagnostic and readout capabilities never before offered on a portable electric pump**
- **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 auto cycle feature).**

Pro-Series

Back-lit LCD and Pressure Transducer featuring Auto-Cycle Technology.

- Torque wrench model is selectable
- "Auto cycle" setting easily programmable.
- Digital read-out and "Autocycle" setting
- 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
- Easy-viewing variable rate display
- Display pressure in bar, MPa or psi.

◀ *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 ZU4T-Series pumps are built to power small to large torque wrenches. Choosing the right ZU4T-Series torque wrench pump for your application is easy.

Classic Electric Torque Wrench Pump

- The Classic has 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 display and shows self-diagnostic, cycle-count and low voltage warning information.

  These premium features are not available on any other pump – anywhere!
- 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).

ZU4T Series

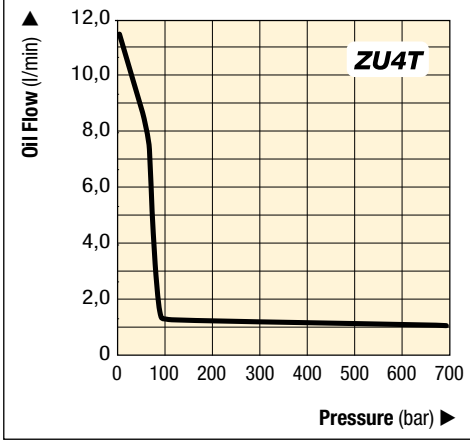
Reservoir Capacity:
4,0 - 8,0 litres

Flow at Rated Pressure:
1,0 l/min

Motor Size:
1,25 kW

Maximum Operating Pressure:
700 bar

OIL FLOW VERSUS PRESSURE



Torque Wrench Pump Selection Matrix

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

Page: 45

Overlay Kit with Gauge

Available separately for use with ZU4T-Series Classic: **GT-4015Q** includes gauge and torque overlays for all S-, W and RSL-Series torque wrenches.

Bolting Integrity Software

Enerpac Bolting Integrity Software Solutions play a key role in implementing and managing an Integrity Program for bolted connections. The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application Data Sheet and Joint Completion Report. Custom Joint information can also be entered.

Page: 126

▼ COMMON PUMP MODELS

	For Use With Torque Wrenches	Model Number [1]	Motor Electrical Specification	Usable Oil Capacity (litres)	(kg)
Pro Series	All wrenches	ZU4204TB-Q	115 VAC, 1-ph	4,0	32
		ZU4208TB-Q	115 VAC, 1-ph	8,0	34
		ZU4204TE-Q [2]	208-240 VAC, 1-ph	4,0	32
		ZU4208TE-Q [2]	208-240 VAC, 1-ph	8,0	34
		ZU4204TI-Q [3]	208-240 VAC, 1-ph	4,0	32
		ZU4208TI-Q [3]	208-240 VAC, 1-ph	8,0	34
Classic	All wrenches	ZU4204BB-QH	115 VAC, 1-ph	4,0	37
		ZU4204BB-Q	115 VAC, 1-ph	4,0	33
		ZU4208BE-QH [2]	208-240 VAC, 1-ph	8,0	38
		ZU4204BE-Q [2]	208-240 VAC, 1-ph	4,0	34
		ZU4208BI-QH [3]	208-240 VAC, 1-ph	8,0	40
		ZU4208BI-Q [3]	208-240 VAC, 1-ph	8,0	36

[1] All models meet CE safety requirements and all CSA requirements.
For AUSTRALIA: Change voltage code into "A" for pump with over molded Australian plug. See page 55.
[2] European plug and CE EMC directive compliant
[3] With NEMA 6-15 plug

4-Wrench Manifold

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

Accessory Kit * Model Nr.	Can be used on ZU4-Series torque wrench pumps
ZTM-Q	for 700 bar torque wrenches

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

Ordering Example: ZU4208TE-QM

Skid Bar

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

Accessory Kit * Model Nr.	Can be used on ZU4-Series torque wrench pumps
SBZ-4	4 and 8 litres reservoir [1]
SBZ-4L	4 and 8 litres reservoir [2]

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

[1] Without heat exchanger 2,2 kg.

[2] With heat exchanger 3,2 kg.

Ordering Example: ZU4208TE-QK

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 * Model Nr.	Can be used on ZU4-Series torque wrench pumps
ZHE-U115	115 V pumps
ZHE-U230	230 V pumps

* Add suffix **H** to pump model number for factory installation.
Heat Exchanger adds 4,1 kg to pump weight.

Ordering Example: ZU4208TE-QH

Roll Cage

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

Accessory Kit * Model Nr.	Can be used on ZU4-Series torque wrench pumps
ZRC-04	4 and 8 litres reservoir [1]
ZRC-04H	4 and 8 litres reservoir [2]

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

[1] Without heat exchanger.

[2] With heat exchanger.

Ordering Example: ZU4208TE-QR

Thermal Transfer * (Btu/h)	Max. Pressure (bar)	Max. Oil Flow (l/min)	Voltage (VDC)
900	20,7	26,5	12

* At 1,9 l/min at 21 °C ambient temperature.
Do not exceed maximum oil flow and pressure ratings.
Heat exchanger is not suitable for water-glycol or high water-based fluids.

▼ *Most hydraulic torque wrenches can be powered by the Enerpac ZU4T-Series torque wrench pump.*

ZU4T-Series, Ordering Matrix and Specifications

▼ This is how a ZU4T-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		7 Voltage		8 Must be Q	8 Options	8 Options

1 Product Type
- **Z** = Pump series

2 Motor Type
- **U** = Universal electric motor

3 Flow Group
- **4** = 1,0 l/min @ 700 bar

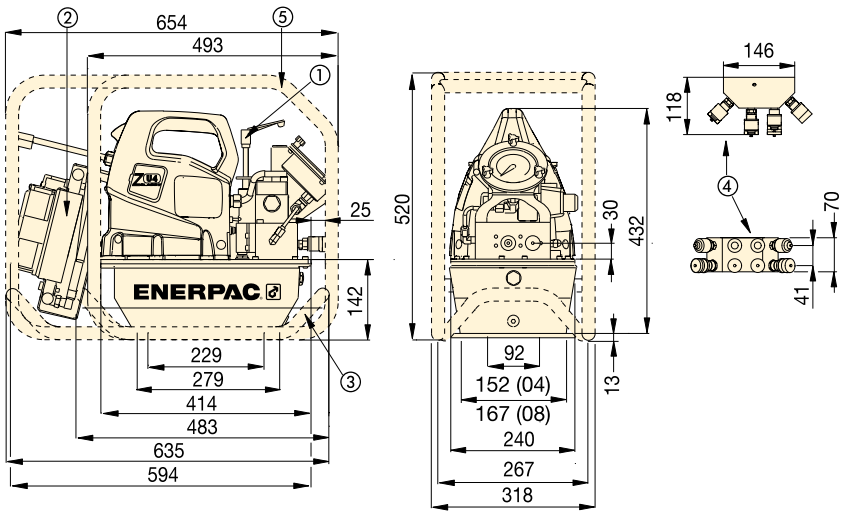
4 Valve Type
- **2** = Torque wrench valve

5 Reservoir Size (useable oil)
- **04** = 4 litres
- **08** = 8 litres

6 Valve Operation
- **T** = **Pro Serie** pump with solenoid valve and pendant, LCD Electric and pressure transducer
- **B** = **Classic pump** with solenoid valve and pendant.

7 Voltage
- **A** = 230V, 1 ph, 50 Hz (with over molded Australian plug. Only available on Pro Series)
- **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 Options
- **Q** = **700 bar couplers** for use with S, W and RSL-Series or other wrenches
- **H** = Heat exchanger
- **K** = Skid bar
- **M** = 4-wrench manifold
- **R** = Roll cage



ZU4T-Series Torque Wrench Pumps

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

ZU4T-Series Performance Chart

Motor Size (kW)	Output Flow Rate (l/min) 7 bar	50 bar	350 bar	700 bar	Motor Electrical Specification (Volt - Phase - Hz)	Sound Level (dBA)	Relief Valve Adjustment Range (bar)
1,25	11,5	8,8	1,2	1,0	115 - 1 - 50/60 208-240 - 1 - 50/60	85-90	124-700

ZU4T Series

Reservoir Capacity:
4 - 8 litres

Flow at Rated Pressure:
1,0 l/min

Motor Size:
1,25 kW

Maximum Operating Pressure:
700 bar

How to order your ZU4T-Series torque wrench pump

Ordering Example : Modelnr. ZU4208TE-QMHK

700 bar Pro Series pump for use with Enerpac S, W and RSL-Series and other 700 bar torque wrenches, 230V motor, 8 litres reservoir, 4-wrench manifold, heat exchanger and skidbar.

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

Page: 45

Torque Wrench Hoses

Use Enerpac twin safety hoses to connect your torque wrench to the pump.

For 700 bar	Model-Nr.
2 m long, 2 hoses	THQ-702T
6 m long, 2 hoses	THQ-706T
12 m long, 2 hoses	THQ-712T

Page: 86

▼ ZE4204TE-QHR

Tough,
Dependable
Innovative
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 cycle feature)**
- **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.**

Pro-Series

Back-lit LCD and Pressure Transducer featuring Auto-Cycle Technology.

- Torque wrench model is selectable
- "Auto cycle" setting easily programmable.
- Digital read-out and "Autocycle" setting
- 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
- Easy-viewing variable rate display
- Display pressure in bar, MPa or psi.

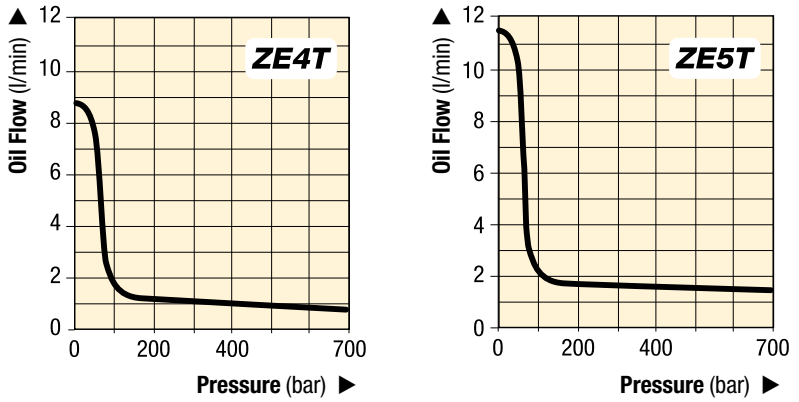
Bolting Integrity Software

Enerpac Bolting Integrity Software Solutions play a key role in implementing and managing an Integrity Program for bolted connections. The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application Data Sheet and Joint Completion Report. Custom Joint information can also be entered.

Page: 126

◀ *The ZE4T-Series torque wrench pumps are perfectly matched for this W2000X wrench.*

ZE4T AND ZE5T-SERIES OIL FLOW VERSUS PRESSURE



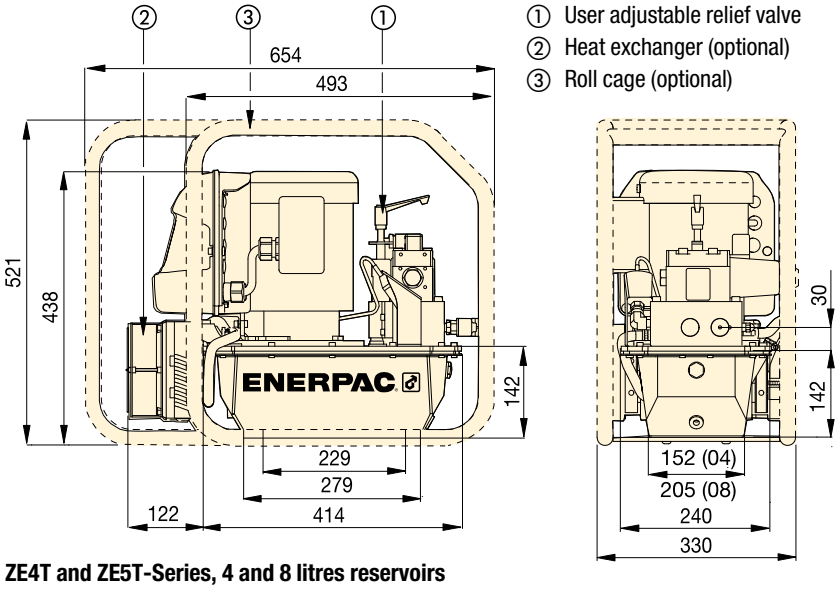
ZE4T ZE5T Series

Reservoir Capacity:
4 - 40 litres

Flow at Rated Pressure:
0,82 - 1,64 l/min

Motor Size:
1,1 - 2,2 kW

Maximum Operating Pressure:
700 bar



ZE4T and ZE5T-Series, 4 and 8 litres reservoirs

Torque Wrench Pump Selection Matrix

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

Page: 45

Torque Wrench Hoses

Use Enerpac twin safety hoses to connect your torque wrench to the pump.

For 700 bar	Model-Nr.
2 m long, 2 hoses	THQ-702T
6 m long, 2 hoses	THQ-706T
12 m long, 2 hoses	THQ-712T

Page: 86

▼ COMMON TORQUE WRENCH PUMP MODELS

For Use With Torque Wrenches	Max. Operating Pressure (bar)	Model Number with Heat Exchanger and Roll Cage	Motor Electrical Specification (Volt - Ph - Hz)	Usable Oil Capacity[1] (litres)	(kg)
all S, W and RSL-Series	700	ZE4204TB-QHR	115 - 1 - 50/60	4,0	61
	700	ZE4204TE-QHR	230 - 1 - 50/60	4,0	61
	700	ZE4204TG-QHR	230 - 3 - 50/60	4,0	62
	700	ZE5204TW-QHR	400 - 3 - 50/60	4,0	62

[1] Larger reservoirs (8, 10, 20 and 40 litres) are available. Contact Enerpac.

▼ PERFORMANCE CHART

Pump Series	Output Flow Rate at 50 Hz [2] (l/min)				Motor Size	Relief Valve Adjustment Range	Sound Level
	7 bar	50 bar	350 bar	700 bar	(kW)	(bar)	(dBA)
ZE4T	8,8	8,1	0,9	0,8	1,1	70 - 700	75
ZE5T	11,8	11,2	1,7	1,6	2,2	70 - 700	75

[2] Flow rate will be approximately 6/5 higher at 60 Hz.

ZA4T-Series, Air Driven Torque Wrench Pumps

ENERPAC

▼ **ZA4204TX-QR**

Tough, Dependable Innovative CLASS

- **Fine air pressure adjustment for very accurate torque control**
- **High bypass pressure (200 bar) for faster torque cycles**
- **Improved wrench performance at low pressure**
- **Two-speed operation and high by-pass pressure reduces cycle time for improved productivity**
- **Glycerin filled pressure gauge with transparent overlays in Nm and Ft.lbs for Enerpac torque wrenches provide a quick torque reference**
- **Standard Regulator-Filter-Lubricator with removable bowls and auto drain**
- **Heat exchanger warms exhaust air to prevent freezing and cools the oil**
- **Ergonomic pendant allows remote operation up to 6 m.**

Torque Wrench Hoses

Use Enerpac twin safety hoses to connect your torque wrench to the pump.

For 700 bar	Model-Nr.
2 m long, 2 hoses	**THQ-702T**
6 m long, 2 hoses	**THQ-706T**
12 m long, 2 hoses	**THQ-712T**

Gauge with Overlay Kit

Gauge Overlay Kits are available separately for use with ZA4T-Series pumps:

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

Torque Wrench Pump Selection Matrix

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

Page: 45

◀ *Most hydraulic torque wrenches can be powered by the Enerpac ZA4T-Series torque wrench pump.*

ZA4T-Series Pump Applications

The ZA4T-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.

All ZA4T-Series pump models meet CE, CSA and TÜV safety requirements. For further application assistance contact your local Enerpac office.

ATEX 95 Certified

The ZA4T-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 ZA4T-Series pumps are marked with: **Ex II 2 GD ck T4**.

Ex II 2 GD ck T4
DEKRA 0602

ZA4T Series

Reservoir Capacity:
4,0 - 8,0 litres

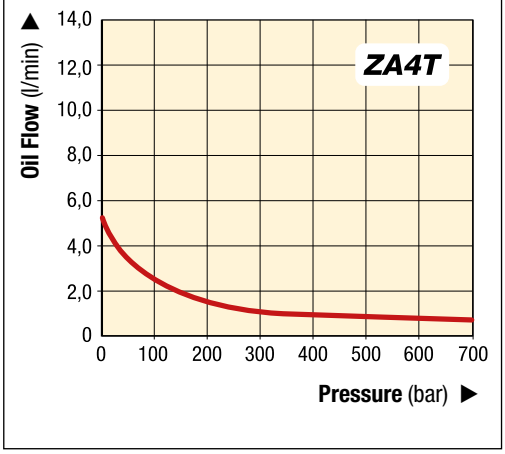
Flow at Rated Pressure:
0,8 l/min

Air Consumption:
600 - 2840 l/min

Maximum Operating Pressure:
700 bar

OIL FLOW VERSUS PRESSURE

6,9 bar dynamic air pressure at 2840 l/min



Accessory Options

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

K = Skid bar
M = 4-wrench manifold
R = Roll cage.

Page: 60

▼ *ZA4208TX-QR for improved wrench performance and torque control at low pressure.*

▼ **COMMON PUMP MODELS**

For Use With Torque Wrenches	Maximum Operating Pressure (bar)	Model Number	Usable Oil Capacity (litres)	(kg)
all S, W and RSL-Series	700	ZA4204TX-Q	2,7	42
	700	ZA4208TX-Q	6,6	47
	700	ZA4204TX-QR *	2,7	46
	700	ZA4208TX-QR *	6,6	51

* With Roll Cage.

Skid Bar

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

Accessory Kit * Model Nr.	Can be used on ZA4T-Series torque wrench pumps
SBZ-4	Reservoir 04 and 08

* Add suffix **K** for factory installation.
Weight skid bar 2,2 kg.
Ordering Example: ZA4208TX-QK

4-Wrench Manifold

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

Accessory Kit * Model Nr.	Can be used on ZA4T-Series torque wrench pumps
ZTM-Q	for 700 bar torque wrenches

* Add suffix **M** for factory installation.
Weight manifold 4,5 kg.
Ordering Example: ZA4208TX-QM

Roll Cage

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

Accessory Kit * Model Nr.	Can be used on ZA4T-Series torque wrench pumps
ZRC-04	Reservoir 04 and 08

* Add suffix **R** for factory installation.
Roll cage weight 3,4 kg.
Ordering Example: ZA4208TX-QR

700 bar Spin-on Couplers

- **Mounted on:**
  - **Torque wrench pumps with suffix "Q"**
  - **RSL, S and W-Series wrenches**
  - **THQ-Series hoses**
  - **4-Wrench manifold ZTM-Q.**

Torque Wrench Hoses

Use Enerpac twin safety hoses to connect your torque wrench to the pump.

For 700 bar	Model-Nr.
2 m long, 2 hoses	**THQ-702T**
6 m long, 2 hoses	**THQ-706T**
12 m long, 2 hoses	**THQ-712T**

Page: 86

Ordering Matrix and Specifications

▼ **This is how a ZA4T-Series pump model number is built up:**

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

1 Product Type
Z = Pump series

2 Motor Type
A = Air motor

3 Flow Group
4 = 1,0 l/min @ 700 bar

4 Valve Type
2 = Torque Wrench Valve

5 Reservoir Size
(useable capacity)
04 = 2,7 litres
08 = 6,6 litres

6 Valve Operation
T = Air operated valve with pendant

7 Voltage
X = Not applicable

8 Options
Q = 700 bar couplers for use with S, W and RSL-Series or other wrenches
K = Skid bar
M = 4-wrench manifold
R = Roll cage

ZA4T Series

Reservoir Capacity:
4,0 - 8,0 litres

Flow at Rated Pressure:
0,8 l/min

Air Consumption:
600 - 2840 l/min

Maximum Operating Pressure:
700 bar

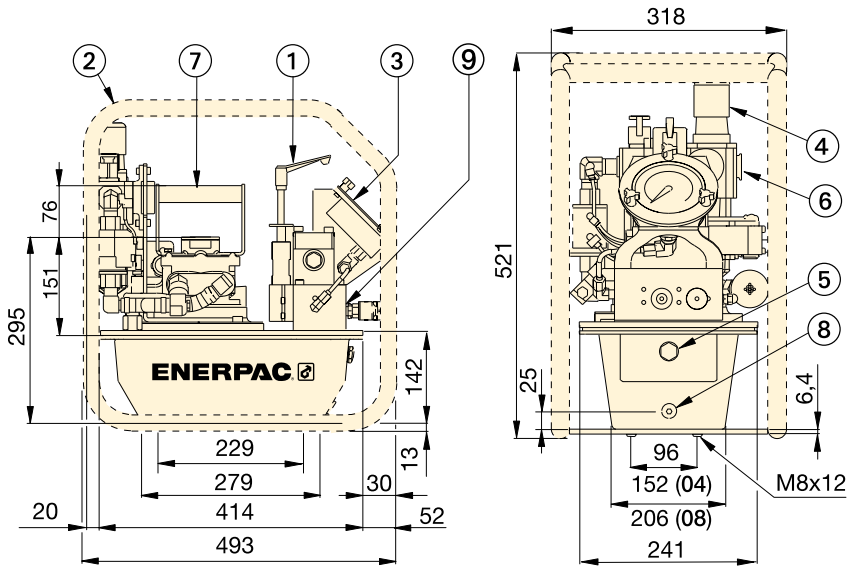
How to order your ZA4T-Series torque wrench pump

Model No. ZA4208TX-QMR

700 bar pump for use with Enerpac S-, W- and RSL-Series and other 700 bar torque wrenches, 8 litres reservoir,4-wrench manifold, and roll cage.

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

Page: 45



① User adjustable relief valve
② Roll 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

▼ *Most hydraulic torque wrenches can be powered by the Enerpac ZA4T-Series torque wrench pump.*

ZA4T-Series Performance							
Output Flow Rate (l/min)				Dynamic Air Pressure Range (bar)	Air Consumption (l/min)	Sound Level (dBA)	Relief Valve Adjustment Range (bar)
7 bar	50 bar	350 bar	700 bar				
5,4	4,8	1,1	0,8	7,0	600 - 2840	85-90	124-700

▼ HM10 Hydramax® Topside Tensioner

High Bolt Load Capacities, Superior Performance

- **Fifteen load cells from ¾" to 4" / M20 to M100**
- **Twin ports for quick connection of multiple tools**
- **High bolt load capacity at max. 1500 bar (21.750 psi)**
- **Long stroke capability of 15 mm (9/16 inch) with over stroke elimination**
- **HM01 to HM05: mechanical over-stroke prevention, no spring assist; HM06 to HM15: relief valve for over-stroke prevention, spring assist**
- **Quick release bridge**
- **Stroke indicator**
- **Captive socket – eliminates falling object risk**
- **Interchangeable adapter kits available**
- **Anti-slip grip for more secure handling**
- **HM-Series HydraMax® Tensioners comply to following: Machine Directive 2006/42/EC, ASME B30.1, EN-ISO 4413:2010 and EN-ISO 12100:2010**

HydraMax® Topside Tensioners

The HM-Series tensioners have been designed to fit all standard flanges, including ANSI, API and Compact flanges based on Norsok L005 and generates 30% more load capacity than traditional tensioners.

Tensioning Pumps, Hoses and Couplers

High pressure pumps, hoses and fittings matched for use with the Enerpac Bolt Tensioners.
See enerpac.com

Page: 78

Ultra-high Pressure

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

How to Order HydraMax® Tensioners

To provide maximum flexibility Load Cells are ordered separately from Adaptor and Bridge Kits.

Example, to order a complete tensioner for a M24 x 3 threaded bolt order:

1 x Load Cell with tommy bar: **HM03-LC**

1 x Adaptor and Bridge Kit: **HM03BPM-NRS02430**

Bolting Integrity Software

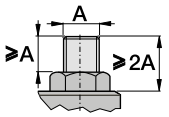
The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application data sheet and Joint completion report. Custom Joint information can also be entered.

Page: 126

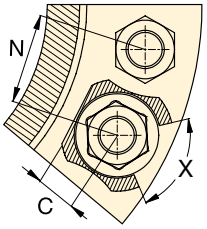
◀ *Enerpac HM-Series HydraMax® tensioners have been designed to generate high bolt loads associated with compact flanges, while providing versatility for maximum bolt coverage,*

Thread and Pitch Sizes

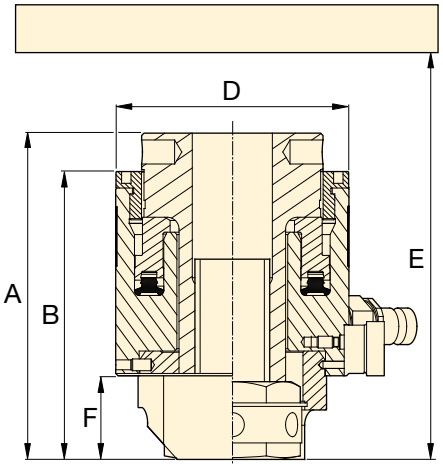
Contact Enerpac for different thread or pitch sizes. Alternative size adaptor kits can be supplied upon request.



Minimum Stud Protrusion



X = Minimum socket rotation 60°



HM Series

Bolt Range:
M20 - M39, ¾ - 1½"

Maximum Load Capacity:
134 - 624 kN

Stroke:
10 - 15 mm *

Maximum Operating Pressure:
1500 bar

* Stroke HM01 models 10 mm
Strokes all other HM-models 15 mm.

Load Cell Model Number *	Thread Size	Adaptor and Bridge Kit Model Number	Cylinder Effective Area	Maximum Load Capacity	Dimensions (mm)							Load Cell Weight	Adaptor and Bridge Kit Weight
					A	B	C	D	E min.	F	N min.		
			(mm²)	(kN)								(kg)	(kg)
HM01-LC	M20 x 2,5	HM01BPM-NRS02025	894	134,0	112	96	15	61	208	28	51	1,6	0,6
	¾"- 10UN	HM01BP-NRS0750U10	894	134,0	112	96	15	61	208	28	51	1,6	0,6
HM02-LC	M20 x 2,5	HM02BPM-NRS02025	1240	186,0	119	103	15	69	227	28	53	1,8	0,9
	M22 x 2,5	HM02BPM-NRS02225	1240	186,0	119	103	18	69	225	28	54	1,8	0,9
	¾"- 10UN	HM02BP-NRS0750U10	1240	186,0	119	103	15	69	227	28	52	1,8	0,9
	⅞"-9UN	HM02BP-NRS0875U09	1240	186,0	119	103	18	69	225	28	56	1,8	0,8
HM03-LC	M20 x 2,5	HM03BPM-NRS02025	1628	244,1	120	105	15	77	230	28	57	2,2	1,1
	M22 x 2,5	HM03BPM-NRS02225	1628	244,1	120	105	18	77	228	28	58	2,2	1,1
	M24 x 3	HM03BPM-NRS02430	1628	244,1	120	110	20	77	232	33	59	2,2	1,1
	¾"- 10UN	HM03BP-NRS0750U10	1628	244,1	120	105	15	77	230	28	56	2,2	1,1
	⅞"- 9UN	HM03BP-NRS0875U09	1628	244,1	120	105	18	77	228	28	58	2,2	1,1
	1"- 8UN	HM03BP-NRS1000U08	1628	244,1	125	110	20	77	232	33	60	2,2	1,1
HM04-LC	M22 x 2,5	HM04BPM-NRS02225	2159	323,8	128	112	18	90	250	28	62	2,7	1,6
	M24 x 3	HM04BPM-NRS02430	2159	323,8	129	117	20	90	255	33	63	2,7	1,6
	M27 x 3	HM04BPM-NRS02730	2159	323,8	134	117	20	90	256	34	65	2,7	1,7
	M30 x 3,5	HM04BPM-NRS03035	2159	323,8	137	120	23	90	257	36	66	2,7	1,7
	⅞"- 9UN	HM04BP-NRS0875U09	2159	323,8	129	112	18	90	250	28	62	2,7	1,6
	1"- 8UN	HM04BP-NRS1000U08	2159	323,8	134	117	20	90	255	33	64	2,7	1,7
	1⅛"- 8UN	HM04BP-NRS1125U08	2159	323,8	137	120	23	90	257	36	65	2,7	1,7
HM05-LC	M24 x 3	HM05BPM-NRS02430	2752	412,7	131	119	20	99	263	33	68	3,3	1,9
	M27 x 3	HM05BPM-NRS02730	2752	412,7	136	119	20	99	263	34	69	3,3	2,0
	M30 x 3,5	HM05BPM-NRS03035	2752	412,7	139	122	23	99	261	36	71	3,3	2,0
	M33 x 3,5	HM05BPM-NRS03335	2752	412,7	142	125	27	99	262	39	72	3,3	2,1
	1"-8UN	HM05BP-NRS1000U08	2752	412,7	136	119	20	99	263	33	68	3,3	2,1
	1⅛"-8UN	HM05BP-NRS1125U08	2752	412,7	139	122	23	99	261	36	70	3,3	2,1
	1¼"-8UN	HM05BP-NRS1250U08	2752	412,7	142	125	27	99	262	39	71	3,3	2,1
HM06-LC	M30 x 3,5	HM06BPM-NRS03035	4162	624,1	143	125	23	118	266	36	80	4,5	2,8
	M33 x 3,5	HM06BPM-NRS03335	4162	624,1	146	128	27	118	269	39	82	4,5	2,9
	M36 x 4	HM06BPM-NRS03640	4162	624,1	149	131	32	118	273	42	83	4,5	3,0
	M39 x 4	HM06BPM-NRS03940	4162	624,1	152	134	33	118	277	45	85	4,5	3,1
	1⅛"- 8UN	HM06BP-NRS1125U08	4162	624,1	143	125	23	118	266	36	79	4,5	2,8
	1¼"- 8UN	HM06BP-NRS1250U08	4162	624,1	146	128	27	118	269	39	81	4,5	2,9
	1⅜"- 8UN	HM06BP-NRS1375U08	4162	624,1	149	131	32	118	273	32	82	4,5	3,0
	1½"- 8UN	HM06BP-NRS1500U08	4162	624,1	152	134	33	118	277	45	84	4,5	3,1

* Tommy Bar is included with Load Cell.

Thread and Pitch Sizes

Contact Enerpac for different thread or pitch sizes. Alternative size adaptor kits can be supplied upon request.

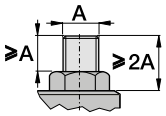
HM Series

Bolt Range:
M33 - M52, 1¼ - 2"

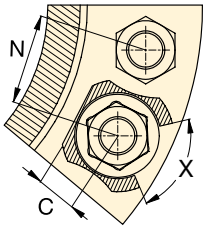
Maximum Load Capacity:
746 - 1179 kN

Stroke:
15 mm

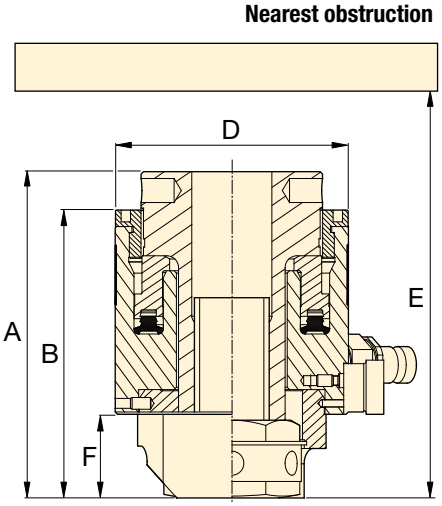
Maximum Operating Pressure:
1500 bar



Minimum Stud Protrusion

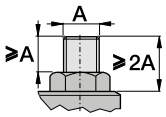


X = Minimum socket rotation 60°

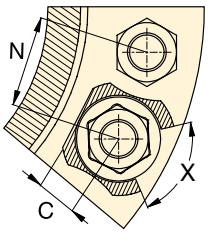


Load Cell Model Number *	Thread Size	Adaptor and Bridge Kit Model Number	Cylinder Effective Area (mm²)	Maximum Load Capacity (kN)	Dimensions (mm) A	B	C	D	E min.	F	N min.	Load Cell Weight (kg)	Adaptor and Bridge Kit Weight (kg)
HM07-LC	M33 x 3,5	HM07BPM-NRS03335	4980	746,8	145	128	27	127	278	39	86	5,2	3,4
	M36 x 4	HM07BPM-NRS03640	4980	746,8	148	131	32	127	279	42	88	5,2	3,5
	M39 x 4	HM07BPM-NRS03940	4980	746,8	151	134	33	127	280	45	89	5,2	3,6
	M42 x 4,5	HM07BPM-NRS04245	4980	746,8	154	137	34	127	280	48	91	5,2	3,7
	1¼"- 8UN	HM07BP-NRS1250U08	4980	746,8	145	128	27	127	278	39	85	5,2	3,4
	1⅜"- 8UN	HM07BP-NRS1375U08	4980	746,8	148	131	32	127	279	42	87	5,2	3,5
	1½"- 8UN	HM07BP-NRS1500U08	4980	746,8	151	134	33	127	280	45	89	5,2	3,6
	1⅝"- 8UN	HM07BP-NRS1625U08	4980	746,8	154	137	34	127	280	48	90	5,2	3,7
HM08-LC	M36 x 4	HM08BPM-NRS03640	5869	880,1	149	133	32	137	283	42	93	6,3	3,9
	M39 x 4	HM08BPM-NRS03940	5869	880,1	152	136	33	137	284	45	94	6,3	4,0
	M42 x 4,5	HM08BPM-NRS04245	5869	880,1	155	139	34	137	284	48	96	6,3	4,1
	M45 x 4,5	HM08BPM-NRS04545	5869	880,1	158	142	39	137	285	51	97	6,3	4,4
	1⅜"- 8UN	HM08BP-NRS1375U08	5869	880,1	149	133	32	137	283	42	92	6,3	3,9
	1½"- 8UN	HM08BP-NRS1500U08	5869	880,1	152	136	33	137	284	45	94	6,3	4,0
	1⅝"- 8UN	HM08BP-NRS1625U08	5869	880,1	155	139	34	137	284	48	95	6,3	4,1
	1¾"- 8UN	HM08BP-NRS1750U08	5869	880,1	158	142	39	137	285	51	97	6,3	4,4
HM09-LC	M39 x 4	HM09BPM-NRS03940	6834	1024,9	152	136	33	145	278	45	98	6,5	5,0
	M42 x 4,5	HM09BPM-NRS04245	6834	1024,9	155	139	34	145	281	48	100	6,5	6,1
	M45 x 4,5	HM09BPM-NRS04545	6834	1024,9	158	142	39	145	285	51	101	6,5	5,1
	M48 x 5	HM09BPM-NRS04850	6834	1024,9	161	145	43	145	288	54	103	6,5	5,5
	1½"- 8UN	HM09BP-NRS1500U08	6834	1024,9	152	136	33	145	278	45	98	6,5	5,1
	1⅝"- 8UN	HM09BP-NRS1625U08	6834	1024,9	155	139	34	145	281	48	99	6,5	5,1
	1¾"- 8UN	HM09BP-NRS1750U08	6834	1024,9	158	142	39	145	285	51	101	6,5	5,0
	1⅞"- 8UN	HM09BP-NRS1875U08	6834	1024,9	161	145	43	145	288	54	102	6,5	5,4
HM10-LC	M42 x 4,5	HM10BPM-NRS04245	7868	1179,8	159	143	34	156	289	48	105	8,3	5,7
	M45 x 4,5	HM10BPM-NRS04545	7868	1179,8	162	146	39	156	293	51	107	8,3	5,7
	M48 x 5	HM10BPM-NRS04850	7868	1179,8	165	149	43	156	296	54	108	8,3	6,1
	M52 x 5	HM10BPM-NRS05250	7868	1179,8	169	153	44	156	301	58	110	8,3	6,3
	1⅝"- 8UN	HM10BP-NRS1625U08	7868	1179,8	159	143	34	156	289	48	105	8,3	5,7
	1¾"- 8UN	HM10BP-NRS1750U08	7868	1179,8	162	146	39	156	293	51	106	8,3	5,6
	1⅞"- 8UN	HM10BP-NRS1875U08	7868	1179,8	165	149	43	156	296	54	108	8,3	6,0
	2"- 8UN	HM10BP-NRS2000U08	7868	1179,8	169	153	44	156	301	58	109	8,3	6,3

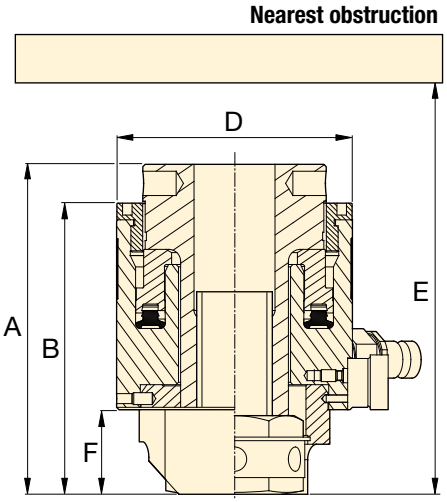
* Load Cell with Tommy Bar.



Minimum Stud Protrusion



X = Minimum socket rotation 60°



HM Series

Bolt Range:
M45 - M100, 1¾ - 4"

Maximum Load Capacity at 1500 bar:
1522 - 4650 kN

Stroke:
15 mm

Load Cell Model Number *	Thread Size **	Adaptor and Bridge Kit Model Number	Cylinder Effective Area	Maximum Load Capacity	Dimensions (mm)							Load Cell Weight	Adaptor and Bridge Kit Weight
			(mm^2)	(kN)	A	B	C	D	E min.	F	N min.	(kg)	(kg)
HM11-LC	M45 x 4,5	HM11BPM-NRS04545	10152	1522,5	167	146	39	175	297	51	116	10,5	7,4
	M48 x 5	HM11BPM-NRS04850	10152	1522,5	170	149	43	175	301	54	118	10,5	7,9
	M52 x 5	HM11BPM-NRS05250	10152	1522,5	174	153	44	175	306	58	120	10,5	8,1
	M56 x 5,5	HM11BPM-NRS05655	10152	1522,5	182	161	50	175	318	66	122	10,5	9,1
	M60 x 5,5	HM11BPM-NRS06055	10152	1522,5	182	161	50	175	323	66	124	10,5	8,7
	1¾"- 8UN	HM11BP-NRS1750U08	10152	1522,5	167	146	39	175	297	51	116	10,5	7,5
	1⅞"- 8UN	HM11BP-NRS1875U08	10152	1522,5	170	149	43	175	301	54	117	10,5	7,9
	2"- 8UN	HM11BP-NRS2000U08	10152	1522,5	174	153	44	175	306	58	119	10,5	8,1
	2¼"- 8UN	HM11BP-NRS2250U08	10152	1522,5	182	161	50	175	318	66	122	10,5	8,8
HM12-LC	M48 x 5	HM12BPM-NRS04850	12722	1907,7	170	149	43	194	301	54	127	13,3	9,7
	M52 x 5	HM12BPM-NRS05250	12722	1907,7	174	153	44	194	306	58	129	13,3	9,8
	M56 x 5,5	HM12BPM-NRS05655	12722	1907,7	182	161	50	194	318	66	131	13,3	10,7
	M60 x 5,5	HM12BPM-NRS06055	12722	1907,7	182	161	50	194	323	66	133	13,3	10,4
	M64 x 6	HM12BPM-NRS06460	12722	1907,7	186	165	56	194	320	70	135	13,3	11,1
	1⅞"- 8UN	HM12BP-NRS1875U08	12722	1907,7	170	149	43	194	301	54	127	13,3	9,6
	2"- 8UN	HM12BP-NRS2000U08	12722	1907,7	174	153	44	194	306	58	128	13,3	9,8
	2¼"- 8UN	HM12BP-NRS2250U08	12722	1907,7	182	161	50	194	318	66	132	13,3	10,4
	2½"- 8UN	HM12BP-NRS2500U08	12722	1907,7	186	165	56	194	320	70	135	13,3	10,8
HM13-LC	M64 x 6	HM13BPM-NRS06460	16964	2544,0	195	172	56	219	337	70	148	17,6	14,5
	M68 x 6	HM13BPM-NRS06860	16964	2544,0	195	180	63	219	350	78	150	17,6	16,5
	M72 x 6	HM13BPM-NRS07260	16964	2544,0	203	185	69	219	347	82	152	17,6	16,0
	M76 x 6	HM13BPM-NRS07660	16964	2544,0	207	185	69	219	352	82	154	17,6	16,3
	2½"- 8UN	HM13BP-NRS2500U08	16964	2544,0	195	172	56	219	337	70	147	17,6	14,2
	2¾"- 8UN	HM13BP-NRS2750U08	16964	2544,0	203	180	63	219	350	78	150	17,6	15,8
	3"- 8UN	HM13BP-NRS3000U08	16964	2544,0	207	185	69	219	352	82	161	17,6	15,8
HM14-LC	M72 x 6	HM14BPM-NRS07260	23451	3516,7	203	185	69	259	351	82	172	25,8	20,8
	M76 x 6	HM14BPM-NRS07660	23451	3516,7	207	185	69	259	352	82	174	25,8	21,3
	M80 x 6	HM14BPM-NRS08060	23451	3516,7	207	193	70	259	367	91	176	25,8	21,2
	M85 x 6	HM14BPM-NRS08560	23451	3516,7	216	193	70	259	374	91	178	25,8	22,9
	M90 x 6	HM14BPM-NRS09060	23451	3516,7	221	198	79	259	389	96	181	25,8	23,3
	3"- 8UN	HM14BP-NRS3000U08	23451	3516,7	207	185	69	259	352	82	174	25,8	20,4
	3¼"- 8UN	HM14BP-NRS3250U08	23451	3516,7	216	193	70	259	374	91	177	25,8	22,7
	3½"- 8UN	HM14BP-NRS3500U08	23451	3516,7	221	198	79	259	389	96	184	25,8	23,9
HM15-LC	M90 x 6	HM15BPM-NRS09060	31008	4650,0	221	199	79	296	389	96	199	32,5	30,0
	M95 x 6	HM15BPM-NRS09560	31008	4650,0	226	205	81	296	405	101	202	32,5	33,7
	M100 x 6	HM15BPM-NRS10060	31008	4650,0	232	211	90	296	421	107	204	32,5	35,1
	3½"- 8UN	HM15BP-NRS3500U08	31008	4650,0	221	199	79	296	389	96	198	32,5	29,5
	3¾"- 8UN	HM15BP-NRS3750U08	31008	4650,0	226	205	81	296	405	101	202	32,5	32,8
	4"- 8UN	HM15BP-NRS4000U08	31008	4650,0	232	211	90	296	421	107	210	32,5	34,0

* Load Cell with Tommy Bar.

** Contact Enerpac for different thread or pitch sizes. Alternative size adaptor kits can be supplied upon request.

▼ Shown: **GT-Series Topside Bolt Tensioners**

Accurate & Reliable Extreme Performance Bolt Tensioner

- **Seven load cells from M16 to M105 or from ⅝" to 4"**
- **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 – increased access to socket**
- **Captive socket – eliminates falling object risk**
- **Piston stroke indicator**
- **Black surface treatment protects against corrosion**
- **Anti-slip grip for more secure handling**
- **Universal and multi-use tool**
- **GT-Series Tensioners comply to Machine Directive 2006/42/CE, ASME B30.1, EN-ISO 4413:2010 and EN-ISO 12100:2010**

Tensioning Pumps, Hoses and Couplers

High pressure pumps, hoses and fittings matched for use with the Enerpac Bolt Tensioners.
See enerpac.com

Page: 78

Bolting Integrity Software

The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application data sheet and Joint completion report. Custom Joint information can also be entered.

Page: 126

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 M36 x 4 threaded bolt order:
1 x Load Cell and Bridge: **GT2-LCB**
1 x Adaptor Kit: **GT2PM-NRS03640**

Load Cell * and Bridge Model Number	Thread Size	Adaptor Kit Model Number	Cylinder Effective Area (mm^2)	Maximum Load Capacity (kN)	Dimensions (mm) A	B	C	D	E min.	F	N min.	Load Cell and Bridge Weight (kg)	Adaptor Kit Weight (kg)
GT1-LCB	M16 x 2	GT1PM-NRS01620	1495,4	224,3	135	113	27	86	243	44	57	3,0	1,6
	M18 x 2,5	GT1PM-NRS01825	1495,4	224,3	135	113	27	86	243	44	58	3,0	1,5
	M20 x 2,5	GT1PM-NRS02025	1495,4	224,3	135	113	27	86	243	44	59	3,0	1,4
	M24 x 3	GT1PM-NRS02430	1495,4	224,3	135	113	27	86	243	44	61	3,0	1,3
	M27 x 3	GT1PM-NRS02730	1495,4	224,3	135	113	27	86	243	44	64	3,0	1,2
	M30 x 3,5	GT1PM-NRS03035	1495,4	224,3	135	113	27	86	243	44	66	3,0	1,0
	⅝"- 11UN	GT1P-NRS0625U11	1495,4	224,3	135	113	27	86	243	44	57	3,0	1,6
	¾"- 10UN	GT1P-NRS0750U10	1495,4	224,3	135	113	27	86	243	44	59	3,0	1,4
	⅞"- 9UN	GT1P-NRS0875U09	1495,4	224,3	135	113	27	86	243	44	62	3,0	1,3
	1"- 8UN	GT1P-NRS1000U08	1495,4	224,3	135	113	27	86	243	44	64	3,0	1,2
	1⅛"- 8UN	GT1P-NRS1125U08	1495,4	224,3	135	113	27	86	243	44	66	3,0	1,0
GT2-LCB	M30 x 3,5	GT2PM-NRS03035	2677,2	401,5	136	111	35	107	226	41	75	4,1	2,6
	M33 x 3,5	GT2PM-NRS03335	2677,2	401,5	136	111	35	107	226	41	76	4,1	2,4
	M36 x 4	GT2PM-NRS03640	2677,2	401,5	136	111	35	107	226	41	79	4,1	2,2
	M39 x 4	GT2PM-NRS03940	2677,2	401,5	136	111	35	107	226	41	82	4,1	1,9
	1⅛"- 8UN	GT2P-NRS1125U08	2677,2	401,5	136	111	35	107	226	41	74	4,1	2,6
	1¼"- 8UN	GT2P-NRS1250U08	2677,2	401,5	136	111	35	107	226	41	76	4,1	2,4
	1⅜"- 8UN	GT2P-NRS1375U08	2677,2	401,5	136	111	35	107	226	41	79	4,1	2,2
	1½"- 8UN	GT2P-NRS1500U08	2677,2	401,5	136	111	35	107	226	41	82	4,1	2,0

* Load Cell with tommy bar.

Thread and Pitch Sizes

Contact Enerpac for different thread or pitch sizes. Alternative size adaptor kits can be supplied upon request.

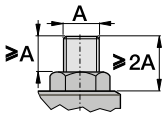
GT Series

Bolt Range:
M16 - M105, ⅝" - 4"

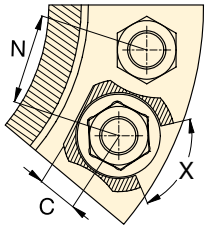
Maximum Load Capacity at 1500 bar:
224 - 3958 kN

Stroke:
10 mm

Maximum Operating Pressure:
1500 bar

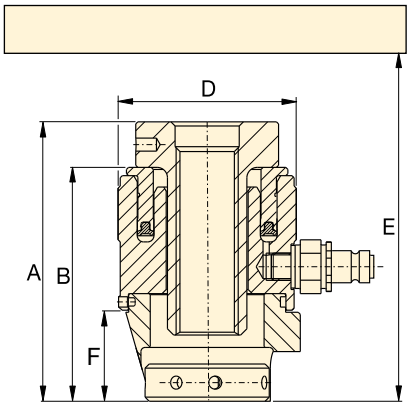


Minimum Stud Protrusion



X = Minimum socket rotation 60°

Nearest obstruction



Load Cell * and Bridge Model Number	Thread Size	Adaptor Kit Model Number	Cylinder Effective Area (mm^2)	Maximum Load Capacity (kN)	Dimensions (mm) A	B	C	D	E min.	F	N min.	Load Cell and Bridge Weight (kg)	Adaptor Kit Weight (kg)
GT3-LCB	M39 x 4	GT3PM-NRS03940	5127,1	768,9	160	126	46	138	256	56	96	7,0	5,7
	M42 x 4,5	GT3PM-NRS04245	5127,1	768,9	160	126	46	138	256	56	98	7,0	5,4
	M45 x 4,5	GT3PM-NRS04545	5127,1	768,9	160	126	46	138	256	56	101	7,0	5,0
	M48 x 5	GT3PM-NRS04850	5127,1	768,9	160	126	46	138	256	56	104	7,0	4,7
	M52 x 5	GT3PM-NRS05250	5127,1	768,9	160	126	46	138	256	56	107	7,0	4,2
	1½"- 8UN	GT3P-NRS1500U08	5127,1	768,9	160	126	46	138	256	56	95	7,0	5,7
	1⅝"- 8UN	GT3P-NRS1625U08	5127,1	768,9	160	126	46	138	256	56	98	7,0	5,3
	1¾"- 8UN	GT3P-NRS1750U08	5127,1	768,9	160	126	46	138	256	56	101	7,0	5,0
	1⅞"- 8UN	GT3P-NRS1875U08	5127,1	768,9	160	126	46	138	256	56	104	7,0	4,6
	2"- 8UN	GT3P-NRS2000U08	5127,1	768,9	160	126	46	138	256	56	106	7,0	4,2
GT4-LCB	M52 x 5	GT4PM-NRS05250	9782,1	1466,9	180	141	62	174	281	71	121	12,2	10,7
	M56 x 5,5	GT4PM-NRS05655	9782,1	1466,9	180	141	62	174	281	71	124	12,2	10,1
	M60 x 5,5	GT4PM-NRS06055	9782,1	1466,9	180	141	62	174	281	71	127	12,2	9,4
	M64 x 6	GT4PM-NRS06460	9782,1	1466,9	180	141	62	174	281	71	129	12,2	8,8
	M68 x 6	GT4PM-NRS06860	9782,1	1466,9	180	141	62	174	281	71	132	12,2	8,1
	2"- 8UN	GT4P-NRS2000U08	9782,1	1466,9	180	141	62	174	281	71	120	12,2	10,7
	2¼"- 8UN	GT4P-NRS2250U08	9782,1	1466,9	180	141	62	174	281	71	126	12,2	9,7
	2½"- 8UN	GT4P-NRS2500U08	9782,1	1466,9	180	141	62	174	281	71	132	12,2	8,5
GT5-LCB	M68 x 6	GT5PM-NRS06860	15079,7	2261,4	202	157	78	210	302	86	148	18,7	17,3
	M72 x 6	GT5PM-NRS07260	15079,7	2261,4	202	157	78	210	302	86	149	18,7	16,4
	M76 x 6	GT5PM-NRS07660	15079,7	2261,4	202	157	78	210	302	86	152	18,7	15,5
	M80 x 6	GT5PM-NRS08060	15079,7	2261,4	202	157	78	210	302	86	155	18,7	14,6
	2½"- 8UN	GT5P-NRS2500U08	15079,7	2261,4	202	157	78	210	302	86	148	18,7	17,8
	2¾"- 8UN	GT5P-NRS2750U08	15079,7	2261,4	202	157	78	210	302	86	153	18,7	16,3
	3"- 8UN	GT5P-NRS3000U08	15079,7	2261,4	202	157	78	210	302	86	158	18,7	14,8
	3¼"- 8UN	GT5P-NRS3250U08	15079,7	2261,4	202	157	78	210	302	86	161	18,7	13,1
GT6-LCB	M80 x 6	GT6PM-NRS08060	18972,1	2845,1	219	173	82	240	323	95	167	27,8	22,3
	M85 x 6	GT6PM-NRS08560	18972,1	2845,1	219	173	82	240	323	95	170	27,8	21,0
	M90 x 6	GT6PM-NRS09060	18972,1	2845,1	219	173	82	240	323	95	175	27,8	19,4
	M95 x 6	GT6PM-NRS09560	18972,1	2845,1	219	173	82	240	323	95	179	27,8	18,0
	3¼"- 8UN	GT6P-NRS3250U08	18972,1	2845,1	219	173	82	240	323	95	173	27,8	20,7
	3½"- 8UN	GT6P-NRS3500U08	18972,1	2845,1	219	173	82	240	323	95	181	27,8	18,8
	3¾"- 8UN	GT6P-NRS3750U08	18972,1	2845,1	219	173	82	240	323	95	188	27,8	16,8
GT7-LCB	M100 x 6	GT7PM-NRS10060	26389,4	3958,4	243	182	89	277	332	110	196	38,2	28,5
	M105 x 6	GT7PM-NRS10560	26389,4	3958,4	243	182	89	277	332	110	199	38,2	27,3
	4"- 8UN	GT7P-NRS4000U08	26389,4	3958,4	243	182	89	277	332	110	204	38,2	27,3

* Load Cell with tommy bar.

▼ Aquajack® Tensioner EAJ2LC with Quick Fastening Nut

The most cost effective solution to subsea bolt or stud tightening

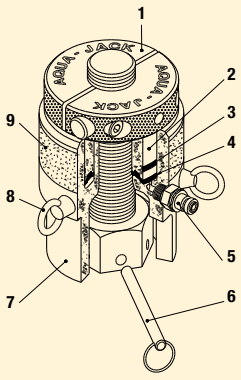
- **Compact design**
- **Long piston stroke**
- **Misalignment compensation**
- **Quick, simple hose connection**
- **Visible piston stroke indication**
- **'No spill' overstroke elimination**
- **Quick fastening or solid reaction nut.**

Quick Fastening Nut Design

Easily positioned in poor visibility conditions, Aquajack® subsea tensioners feature a compact design and long piston stroke. The unique Split Nut® design of these tools allows rapid application to long bolts and damaged threads, and rapid tool removal.

No Oil Spillage or Over-Stroking

Innovative tool design ensures maximum tool strokes can be used without over stroking the piston or oil spillage. Guaranteed to save time and increase efficiency, Aquajack® subsea tensioners improve diver safety, productivity and reduce diver fatigue.

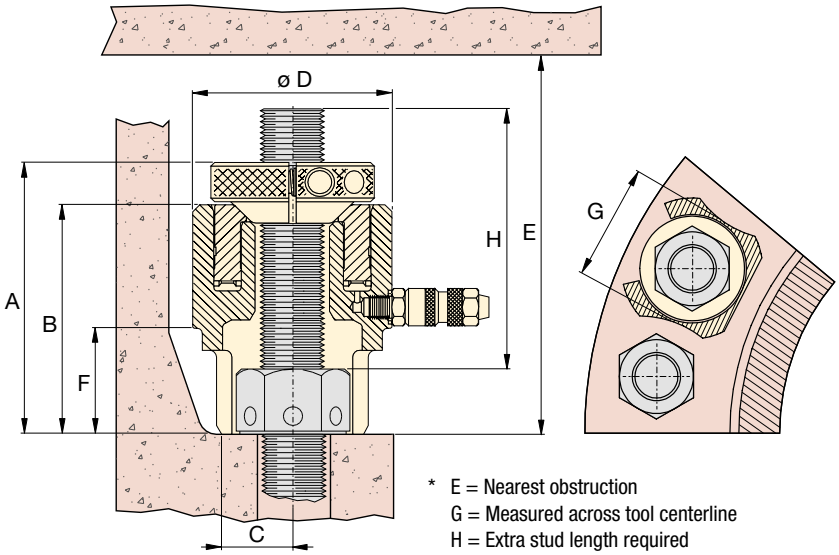


1. Quick Fastening Reaction Nut
2. Long Piston Stroke
3. Maximum Stroke Indicator Band
4. Self-Energising Seals
5. Hose Connections (2x)
6. Tommy Bar
7. Compact Body Design
8. Lifting Eyes
9. Anti-Slip Tool Surface

Hose Reel and Stand

Stainless steel stand with 1500 bar hoses from 30 upto 270 metres lengths. All hose reels are built up with multiple 30 metre length hoses.

▼ *Guaranteed to save time and increase efficiency, Aquajack® tensioners improve diver safety, productivity and reduce diver fatigue.*



* E = Nearest obstruction
G = Measured across tool centerline
H = Extra stud length required

EAJ Series

Bolt Range:
M20 - M90 | ¾ - 3½ inch

Maximum Load Capacity:
151,3 - 2320,9 kN

Maximum Operating Pressure:
1500 bar

Load Cell Model Number *	Thread Size	Quick Fastening Nut Model Number	Cylinder Effective Area (mm²)	Maximum Load Capacity (kN)	Stroke (mm)	Dimensions (mm) A	B	C	D	E *	F	G *	H *	Tool Weight (kg)
EAJ1LC	¾" - 10 UN	EAJ1QFN0750U10	1008,7	151,3	20	114	91	19	66	217	35	53	96	1,5
	7/8" - 9 UN	EAJ1QFN0875U09												
	M20 x 2,5	EAJ1QFNM02025												
	M22 x 2,5	EAJ1QFNM02225												
EAJ2LC	1" - 8 UN	EAJ2QFN1000U08	1658,4	248,7	30	147	120	25	82	289	50	62	125	3,0
	M24 x 2,5	EAJ2QFNM02425												
	M27 x 3,0	EAJ2QFNM02730												
	1⅛" - 8 UN	EAJ2QFN1125U08												
	M30 x 3,5	EAJ2QFNM03035												
EAJ3LC	1¼" 8 UN	EAJ3QFN1250U08	2524,3	378,6	30	158	131	28	98	307	58	78	130	4,5
	M33 x 3,5	EAJ3QFNM03335												
	1⅜" - 8 UN	EAJ3QFN1375U08												
	M36 x 3,5	EAJ3QFNM03635												
EAJ4LC	1½" - 8 UN	EAJ4QFN1500U08	3686,7	553,0	30	171	136	33	114	319	63	91	135	6,0
	M39 x 4,0	EAJ4QFNM03040												
	1⅝" - 8 UN	EAJ4QFN1625U08												
	M42 x 4,5	EAJ4QFNM04245												
EAJ5LC	1¾" - 8 UN	EAJ5QFN1750U08	5908,7	886,3	30	184	146	40	193	342	70	114	140	9,0
	M45 x 4,5	EAJ5QFNM04545												
	1⅞" - 8 UN	EAJ5QFN1875U08												
	M48 x 5,0	EAJ5QFNM04850												
	2" - 8 UN	EAJ5QFN2000U08												
	M52 x 5,0	EAJ5QFNM05250												
EAJ6LC	M56 x 5,5	EAJ6QFNM05655	8312,8	1246,9	30	201	161	49	164	367	82	138	150	13,0
	2¼" - 8 UN	EAJ6QFN2250U08												
	M60 x 5,5	EAJ6QFNM06055												
	2½" - 8 UN	EAJ6QFN2500U08												
	M64 x 6,0	EAJ6QFNM06460												
EAJ7LC	M68 x 6,0	EAJ7QFNM06860	12.369,0	1855,4	30	230	178	75	192	400	95	154	165	19,0
	2¾" - 8 UN	EAJ7QFN2750U08												
	M72 x 6,0	EAJ7QFNM07260												
	M76 x 6,0	EAJ7QFNM07660												
	3" - 8 UN	EAJ7QFN3000U08												
EAJ8LC	M80 x 6,0	EAJ8QFNM08060	15.473,0	2320,9	30	247	193	68	216	412	109	182	165	24,5
	3¼" - 8 UN	EAJ8QFN3250U08												
	M85 x 6,0	EAJ8QFNM08560												
	3½" - 8 UN	EAJ8QFN3500U08												
	M90 x 6,0	EAJ8QFNM09060												

* Tommy Bar included with Load Cell.

▼ **PGT-Series Single Stage and Double Deck Tensioners**

High Precision, Low Maintenance

Tensioning Pumps

Electric, pneumatic and manual high-pressure tensioning pumps are available for use with Enerpac hydraulic tensioners.

Hoses and Fittings

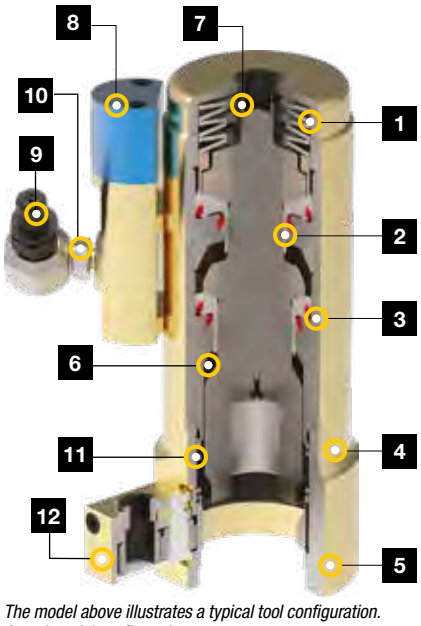
High-pressure hoses and fittings for use with Enerpac tensioning systems are available.

Page: 78

- **PGT-Series Bolt Tensioners are designed for critical fastening applications in wind, steam and gas turbines**
- **A broad range of single stage and double deck tensioners provide high performance in tight spaces associated with Power Generation applications**
- **PGT-Series Bolt Tensioners are loaded with performance enhancing features such as Auto-Retract Pistons, Cycle Counters and a premium coating to offer the ultimate in efficiency, durability and ease of use.**

Description	PGTS Single Stage	PGTD Double Deck
Auto-Retract Piston	✔	✔
Zinc Coating	✔	✔
Geared Nut-Rundown	✔	✔
Over-stroke Indicator	✔	✔
Over-stroke Preventer	✔	✔
Single Male Fitting	✔	✔
Swivel Manifold	✚	✚
Cycle Counter	–	✚

✔ = **Standard on tensioner**
✚ = **Possible option**
– = **Option not available**



▲ *The model above illustrates a typical tool configuration. Actual model configurations vary.*

1. **Auto-retract piston:** Simplifies use and improves speed of operation.
2. **Long-life puller:** For maximum durability.
3. **Long-life seals:** For maximum durability and extended service life intervals.
4. **Corrosion protection:** Zinc coating provides best-in-class corrosion resistance.
5. **Interchangeable bridge:** For optimal application fit.
6. **Over-stroke preventer:** Mechanically prevents over-stroke, extending cylinder life.
7. **Over-stroke indicator:** Extends cylinder life by helping to prevent over-stroking of cylinder.
8. **Optional counter:** Helps indicate when maintenance is due to maximize uptime.
9. **Quick-disconnect coupler:** For safe, simple hydraulic connection.
10. **Optional 360° swivel:** available for additional hose positioning flexibility.
11. **Spring-loaded nut engagement:** Keeps socket positioned on nut for faster and easier seating process.
12. **Auto-engage nut rundown:** For rapid and accurate seating of nuts.

Options

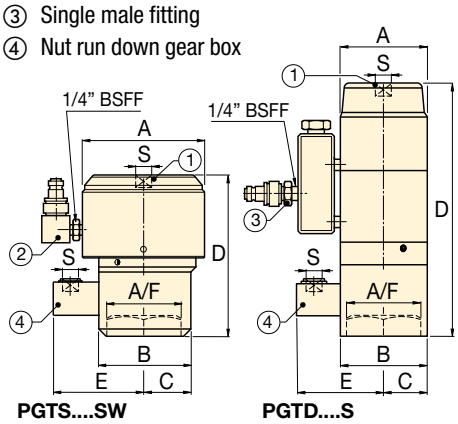
Fitting Type

SW = Swivel manifold with single male fitting
Example: **PGTS2436SW**

Cycle-Counter

C = Cycle Counter (not available on PGTS-models)
Example: **PGTD3655SWC**

① Puller bar square drive
② Swivel manifold with single male fitting
③ Single male fitting
④ Nut run down gear box



PGT Series

Bolt Range:
M20 - M72

Maximum Load Capacity:
203,7 - 2969,6 kN

Maximum Operating Pressure [1]:
1350 - 1500 bar

[1] Max. pressure varies, see specifications table for details.

Tensioner Type	Thread Diameter (mm)	Model Number with single male fitting	Nut Size A/F (mm)	Maximum Pressure (bar)	Hydraulic Pressure Area (mm²)	Maximum Load Capacity (kN)	Stroke (mm)	Dimensions (mm) A	B	C	D	E	S * (inch)	(kg)	Bolt Potrusion (mm) min.	max.
Single Stage	M20 x 2,5	PGTS2030S	30	1500	1358	203,7	7,0	64	64	32	81	78	⅜	2,0	44	55
	M24 x 3,0	PGTS2436S	36	1500	1947	292,1	7,0	77	77	31	98	81	⅜	2,9	49	62
	M27 x 3,0	PGTS2742S	42	1500	2646	396,9	8,0	92	75	34	129	83	⅜	4,8	60	70
	M30 x 3,5	PGTS3046S	46	1500	3204	480,7	8,0	99	85	38	134	88	⅜	5,8	68	73
	M33 x 3,5	PGTS3350S	50	1500	3960	594,0	8,0	106	90	40	142	90	⅜	6,8	75	100
	M36 x 4,0	PGTS3655S	55	1500	4467	670,1	9,0	111	90	56	128	95	½	6,4	71	95
	M39 x 4,0	PGTS3960S	60	1500	5561	834,1	10,0	123,5	104	46	160	96	⅜	9,8	89	115
	M42 x 4,5	PGTS4265S	65	1500	6259	938,8	10,0	134	115	67	177	99	½	9,5	79	115
	M45 x 4,5	PGTS4570S	70	1500	7505	1125,8	10,0	143	119	53	168	102	⅜	13,2	98	116
	M48 x 5,0	PGTS4875S	75	1500	8390	1258,4	10,0	152	125	56	158	106	⅜	13,3	103	119
	M52 x 5,0	PGTS5280S	80	1500	10.094	1514,1	10,0	165	134	59	171	108	⅜	17,9	106	118
	M56 x 5,5	PGTS5685S	85	1500	11.663	1749,5	10,0	177	142	62	170	112	⅜	20,4	116	128
	M60 x 5,5	PGTS6090S	90	1500	13.474	2021,2	10,0	190	152	66	186	115	⅜	24,8	123,5	137
	M64 x 6,0	PGTS6495S	95	1500	15.315	2297,3	10,0	200	159	69	207	118	½	30,7	137	150
	M68 x 6,0	PGTS68100S	100	1500	17.493	2623,9	10,0	213,5	169	73	206	123	½	34,3	136	148
	M72 x 6,0	PGTS72105S	105	1500	19.797	2969,6	10,0	225	178	76	223	126	½	40,3	151	167
Double Deck	M24 x 3,0	PGTD2436S	36	1350	2293	309,6	6,0	61,5	77	31	185	81	⅜	4,6	53	59,5
	M27 x 3,0	PGTD2742S	42	1350	2939	396,8	6,0	68	75	34	196	83,4	⅜	5,3	60	68
	M30 x 3,5	PGTD3046S	46	1350	3426	462,6	7,0	73	85	37	195	88	⅜	5,8	60	70
	M33 x 3,5	PGTD3350S	50	1350	4272	576,7	7,0	78	77	38,5	208	90	⅜	6,7	65	77
	M36 x 4,0	PGTD3655S	55	1350	4995	674,3	8,0	84	83	41	218	93	½	7,7	70	87
	M39 x 4,0	PGTD3960S	60	1350	6260	845,0	10,0	95	104	48	266	96	⅜	12,5	84	93
	M42 x 4,5	PGTD4265S	65	1350	6865	926,8	10,0	98	104	52	248,4	99	½	11,4	82	91
	M45 x 4,5	PGTD4570S	70	1350	8339	1125,8	10,0	108	119	53	294	104	⅜	17,7	97	107
	M48 x 5,0	PGTD4875S	75	1350	9430	1273,1	10,0	115	125	57,5	304	106	⅜	20,1	103	113
	M52 x 5,0	PGTD5280S	80	1350	11.288	1523,8	10,0	124	134	61	328	108	⅜	26,1	110	125,5
	M56 x 5,5	PGTD5685S	85	1350	12.942	1747,1	10,0	132	142	65	346	112	⅜	30,0	117	132,5
	M60 x 5,5	PGTD6090S	90	1350	15.032	2029,3	10,0	141	152	70,5	372	115	⅜	37,2	125	143
	M64 x 6,0	PGTD6495S	95	1350	17.123	2311,6	10,0	151	159	76	386	119	½	43,0	133	152,5
	M68 x 6,0	PGTD68100S	100	1350	19.514	2634,4	10,0	160	170	80	398	123	½	49,5	138	160
	M72 x 6,0	PGTD72105S	105	1350	21.977	2966,9	10,0	171	177	88,5	429	126	½	60,1	146	171

* Dimension S = Square Drive of Puller Bar and Gear Box.

▼ FTR-Series, Foundation Bolt Tensioners Round

High Precision, Low Maintenance

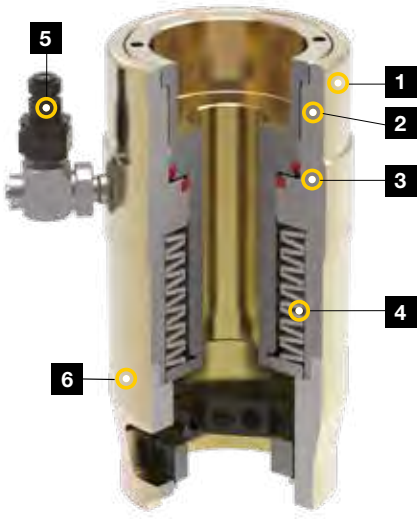
- **FTR-Series Foundation Bolt Tensioners provide fast, accurate and easy tightening of external or internal-ring wind tower foundations**
- **Standard models are available for 75, 150 ksi and metric style Williams, Dyson and Macalloy® bar types**
- **Long-stroke options accelerate process with single-pull tensioning.**

FTR-Series Foundation Bolt Tensioners

FTR-Series Foundation Bolt Tensioners are designed specifically for tensioning wind tower foundation bolts. These tensioners provide the speed and precision required by this critical application.

Potential thread fit problems are eliminated through the use of existing rebar hex nuts as a reaction point.

The FTR-Series includes long-stroke models, which provide greater speed and ease of use by enabling applications to be completed in a single pull.



1. **Corrosion protection:** Zinc coating provides best-in-class corrosion resistance.
2. **Over-stroke indicator:** Extends life by helping to prevent over-stroking of cylinder.
3. **Long-life seals:** For maximum durability and extended service life intervals.
4. **Auto-retract piston:** Simplifies use and improves speed of operation.
5. **Quick-disconnect coupler:** For safe, simple hydraulic connection. Optional 360° swivel available for additional hose positioning flexibility.
6. **Interchangeable bridge:** For optimal application fit.

▼ *FTR-Series Foundation Bolt Tensioner. Manual wrench (not included) required to apply up to 30 Nm of torque during installation of models that feature run down gears.*

▼ **This is how a FTR-Series Foundation Bolt Tensioner model number is built up:**

FTR	75	14	20	SW	G
1 Product Type	2 Bar Grade	3 Bar Size Designation	4 Stroke	5 Fitting Type	6 Run Down Gear *

1 Product Type
FTR = Foundation Tensioner, Round

2 Bar Grade
75 = 75 ksi
150 = 150 ksi
(or metric designation)

3 Bar Size Designation
Example
14 = No. 14 bar size

4 Maximum Stroke
Example:
20 = 20 mm max. stroke

5 Fitting Type
SW = Includes swivel manifold with single male fitting

6 Run Down Gear
G = Includes Nut Run Down Gear
* available in select models

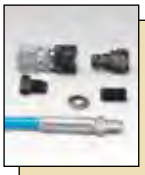
FTR Series

Maximum Load Capacity:
2736 kN

Maximum Operating Pressure [1]:
1500 bar

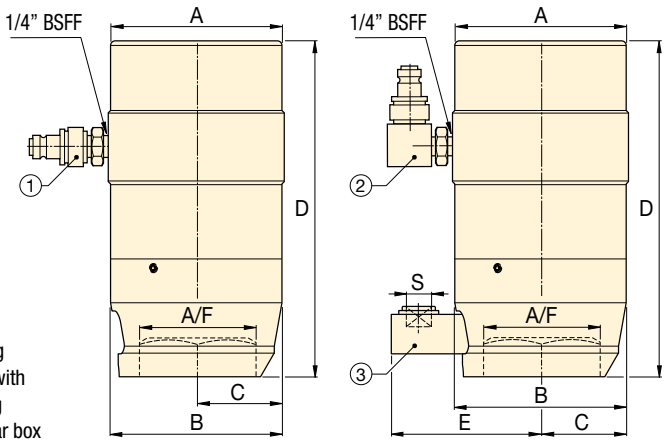
[1] Max. pressure varies, see specifications table for details.

Tensioning Pumps
Electric, pneumatic and manual high-pressure tensioning pumps are available for use with Enerpac hydraulic tensioners.



Hoses and Fittings
High-pressure hoses and fittings for use with Enerpac tensioning systems are available.

Page: 78



① Single male fitting
② Swivel manifold with single male fitting
③ Nut run down gear box

FTR....S **FTR.....SWG**

▼ **SPECIFICATION TABLE**

Bar Grade	Bolt Diameter (mm)	Bolt Diameter (inch)	Bar Size Designation	Model Number with single male fitting	Nut Size A/F (mm)	Max. Pressure (bar)	Hydraulic Pressure Area (mm^2)	Max. Load Capacity (kN)	Stroke (mm)	Dimensions (mm) A	B	C	D	E	(kg)	Minimum Bolt Potrusion (mm)
75 ksi	35	1.38	#10	**FTR751010S**	51	1200	3134	376,1	10,0	99	88,5	44,3	163	–	5,8	200
	35	1.38	#10	**FTR751025S**	51	1200	3123	374,8	25,0	115	102	42	220	–	10,9	250
	38	1.50	#11	**FTR751110S**	57	1500	3134	470,1	10,0	99	98	38	178	–	5,5	220
	38	1.50	#11	**FTR751125SG**	57	1500	3123	468,5	25,0	115	102	51	226	96	11,5	260
	48	1.88	#14	**FTR751420S**	70	1170	6093	712,9	20,0	132	132	66	268	–	18,2	315
150 ksi	37	1.44	1.25	**FTR15012510S**	57	1170	5383	629,8	10,0	111	110	40	178	–	8,2	220
	40	1.56	1.37	**FTR15013810S**	64	1500	5383	807,5	10,0	111	110	38	178	–	8,1	225
	70	2.75	2.50	**FTR15025025S**	108	1500	18.238	2736,0	25,4	215	212	86	348	–	58,0	450
10.9	36	1.42	36	**FTR1093610SG**	60	1500	3820	573,0	10,0	102	99	40	176	95	8,6	195

Gear box square drive dimension S = ½ inch.

▼ FTE-Series, Foundation Bolt Tensioner Elliptical

High Precision, Low Maintenance

- **FTE-Series Foundation Bolt Tensioners provide fast and accurate performance in difficult, narrow access foundation tensioning applications**
- **Standard models are available for 75, 150 ksi and metric style Williams, Dyson and Macalloy® bar types**
- **Ideal universal solution that fits both standard and narrow access applications.**

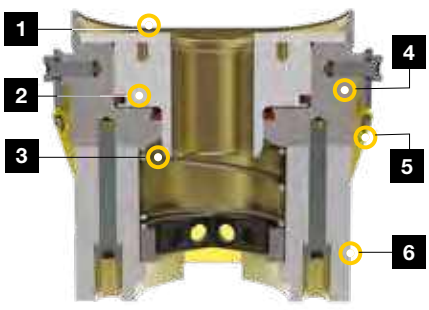
FTE-Series, Foundation Bolt Tensioners

Similar to Standard Foundation Tensioners, Elliptical tensioners were designed specifically for foundation fastening applications on wind towers, and utilize the existing hex nut as a reaction point in order to eliminate thread fit misalignment.

Unlike standard FTR-Series Tensioners, the FTE-Series Tensioners feature an elliptical geometry, which enables fit in narrow access foundation applications, without reducing load capabilities.

Operators may access the nut with a Tommy bar rather then employing the use of an offset rundown gear.

Elliptical tensioners are ideal for close clearance applications, or as a universal tool that will work in nearly any foundation application, whether standard or narrow access.



1. **Maximum stroke Indicator:** Extends life by helping to prevent over-stroking of cylinder.
2. **Long-life seals:** For maximum durability and extended service life intervals.
3. **Auto-retract piston:** Simplifies use and improves speed of operation.
4. **Elliptical form:** Provides access to close clearance applications.
5. **Corrosion protection:** Zinc coating provides best-in-class corrosion resistance.
6. **Quick-disconnect coupler:** *(not shown)* For safe, simple hydraulic connection. Optional 360° swivel available for additional hose positioning flexibility.

▼ *FTE-Series, Foundation Bolt Tensioner, designed to fit both standard and narrow access foundation applications.*

Foundation Bolt Tensioners, Elliptical

▼ **This is how a FTE-Series Foundation Bolt Tensioner model number is built up:**

FTE	75	10	SW
1 Product Type	2 Bar Grade	3 Bar Size Designation	4 Fitting Type

1 Product Type

FTE = Foundation Tensioner, Elliptical

2 Bar Grade

75 = 75 ksi
150 = 150 ksi
(or metric designation)

3 Bar Size Designation

Example
10 = No. 10 bar size

4 Fitting Type

SW = Includes swivel manifold with single male fitting

FTE Series

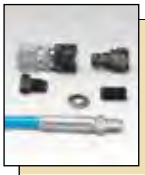
Maximum Load Capacity:
761,1 kN

Maximum Operating Pressure [1]:
1500 bar

[1] Max. pressure varies, see specifications table for details.

Tensioning Pumps

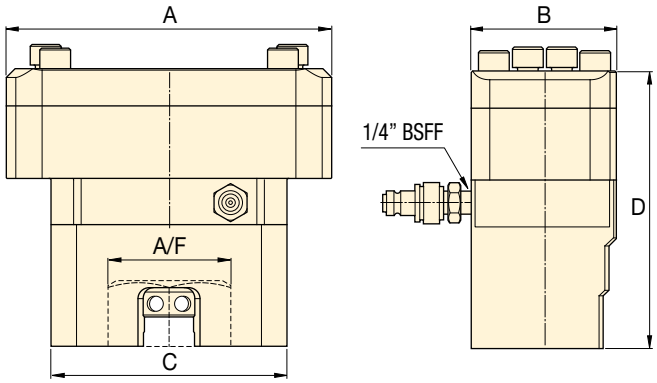
Electric, pneumatic and manual high-pressure tensioning pumps are available for use with Enerpac hydraulic tensioners.



Hoses and Fittings

High-pressure hoses and fittings for use with Enerpac tensioning systems are available.

Page: 78



▼ **SPECIFICATION TABLE**

Bar Grade	Bolt Diameter (mm)	Bolt Diameter (inch)	Bar Size Designation	Model Number with single male fitting	Nut Size A/F (mm)	Max. Pressure (bar)	Hydraulic Pressure Area (mm^2)	Max. Load Capacity (kN)	Stroke (mm)	Dimensions (mm) A	B	C	D	(kg)	Minimum Bolt Potrusion (mm)
75 ksi	35	1.38	#10	**FTE7510S**	51	1200	3108	373,0	10,0	170	82	142	147,5	8,3	200
	38	1.50	#11	**FTE7511S**	57	1500	3108	466,2	10,0	170	82	142	147,5	8,3	200
150 ksi	40	1.56	1.375	**FTE150138S**	64	1500	5074	761,1	10,0	222	99	161	203,4	18,5	230
	37	1.44	1.250	**FTE150125S**	57	1200	5074	608,9	10,0	222	99	161	203,4	18,9	240
8.8	36	1.42	36	**FTE8836S**	60	1500	3108	466,2	10,0	142	82	142	147,5	9,7	180

Tensioning every single stud in a joint simultaneously

▲ *Multi Stud Tensioning Set-Up.*

MULTI STUD TENSIONERS

Enerpac Multi Stud Tensioning (MST) systems are capable of tensioning every single stud in a joint simultaneously. By applying a predictable and accurate pre-load to all studs, problems associated with conventional bolt tightening techniques are avoided. Typical Enerpac Multi Stud Tensioning applications include:

Manway, Hand Hole & Inspection Covers

MST systems are the fastest and most accurate means of loosening and tightening studs on Primary & Secondary Manway Covers, Hand-Hole and Inspection Ports in nuclear facilities. Using special ram areas and strong lightweight materials, the MST's reduce bolting time by as much as 75%.

Coolant Pump

A custom slimline tensioning system for a Nuclear Reactor Coolant Pump, using six equally spaced tensioners and tightening studs in four passes, has reduced bolting times by 25% and significantly increased tensioning accuracy.

Wind Turbine Blade Assembly

Using an Enerpac MST has allowed wind turbine blade assembly times to be reduced by approx. 65% while bolt load accuracy and consistency have improved, resulting in better joint life and reduced maintenance requirements. The MST, comprising four tool segments, is capable of simultaneously tensioning up to 88 bolts connecting a 125 ft long blade to a bearing slew ring.

MST - Multi Stud Tensioners

This tool can be custom-designed, and built, for virtually any nuclear facility. We specialise in addressing difficult projects that demand accurate loads within tight space envelopes, while also seeking ease of operation and performance.

- Designed in segments enabling the operator to easily and quickly connect each segment to the joint and link together to provide simultaneous loading.
- Very accurate and fast closure system for large tensioning applications on pumps, valves, and steam-generators, for example.
- For ease of handling on-site, Enerpac MST systems can be supplied with an integral lifting frame and trolley.

▲ *Multi Stud Tensioner.*

▲ *Multi Stud Tensioning application.*

A simple and effective method of tensioning large bolts in difficult to access areas

▲ *Tensioning with hydraulic nuts.*

HYDRAULIC NUTS

Enerpac hydraulic nuts are used in many process-critical bolting applications where the ease of installation and manpower time savings are substantial and on-going. Moreover, they eliminate many of the uncertainties of torque arising from friction, point loading and load scatter.

Enerpac Hydraulic Nuts are a simple and effective method of tensioning large bolts in difficult to access areas with insufficient space for standard tensioners. Typically used when installing and maintaining bolting systems, hydraulic nuts can replace both conventional hexagon nuts and standard round nuts providing a high and predictable degree of tensioning accuracy.

Threaded directly onto the stud, Enerpac hydraulic nuts apply a direct axial elongation by means of hydraulic force generated via the nut's integral hydraulic cylinder. The nut is held in place either by means of a top or bottom load retaining collar externally located on the nut or by the insertion of mechanical shims. Enerpac hydraulic nuts can be retrofitted to existing plant providing an accurate solution to mechanical jointing problems.

Benefits of Enerpac Hydraulic Nuts

- Highly Accurate & Repeatable Bolt Loads
- Ideal where space limitations prevent use of standard detachable tensioners
- Direct Axial Loading - No nut rotation required
- Multiple Nuts can be connected and tightened / loosened simultaneously
- Eliminates issues with Friction
- Substantial time savings due to the quick set-up and hydraulic nuts remaining in-situ
- No stud or flange damage (Galling, Seizure)
- No need to change joint hardware – system works with existing studs
- Ideal when the tension in bolts needs to be checked regularly such as vibration loosening.

Enerpac hydraulic nut applications have included:

The Hydraulic Nut is a permanent fixture, replacing the conventional nut and retaining the high bolt load and extension in small space envelopes where there may not be sufficient space to use tensioners.

- Flange Clamps: Pipeline, Structural
- Turbines: Gas, Wind, Steam
- Pressure & Reactor Vessels
- Diesel Engines
- Nuclear Applications: Steam Generators
- Hydraulic and Mechanical Presses
- Heat Exchangers
- Pipeline Flanges, Valves and Control Systems
- Valves & Pumps
- Cranes – Slew Ring Bolts, Tower Cranes
- Shaft Couplings
- Mining: Grinders, Cutters, Earth Moving Equipment.

▲ *Hydraulic nuts on a diesel engine.*

▼ HPT-1500

HPT, HT, B Series

Reservoir Capacity:
2,5 litres

Flow at Rated Pressure:
0,61 cm³/stroke

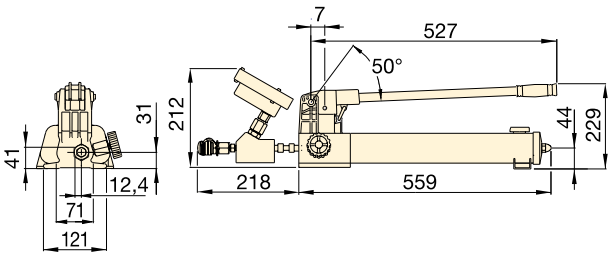
Maximum Operating Pressure:
1500 bar

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

Applications
The hand pump is ideally suited for use with hydraulic bolt tensioning tools and hydraulic nuts.

Page: 62

- **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 pressure gauge and coupler for direct connection to Enerpac Bolt Tensioners**
- **Integrated relief valve set at 1500 bar.**



1500 bar ULTRA-HIGH PRESSURE PUMP

Pump Type	Useable Oil Capacity (litres)	Model Number	Pressure Rating (bar) 1st stage	Pressure Rating (bar) 2nd stage	Oil Displacement per Stroke (cm^3) 1st stage	Oil Displacement per Stroke (cm^3) 2nd stage	High Pressure Oil Port with female coupler	(kg)
Two Speed	2,54	**HPT-1500**	14	1500	16,22	0,61	1/4" BSPP + BR-150	9,0

1500 bar HOSES

Model Number		Hose End 1	Hose End 2	Length (m)
HT-1503		1/4" BSPM 120° Cone	1/4" BSPM 120° Cone	1,0
HT-1510		1/4" BSPM 120° Cone	1/4" BSPM 120° Cone	3,0
HT-1503HR*		**BH-150**	**BR-150**	1,0
HT-1510HR*		**BH-150**	**BR-150**	3,0

* Includes dust caps.

1500 bar COUPLERS

Description		Complete Set	Female Half	Male Half
Quick Disconnect Coupler *		**B-150**	**BR-150**	**BH-150**
Quick Disconnect Coupler and Adaptor Kit *		**BW-150AW**	–	–
Quick Disconnect Blanking Coupler Set *		**B-150B**	–	–

* Includes dust caps.

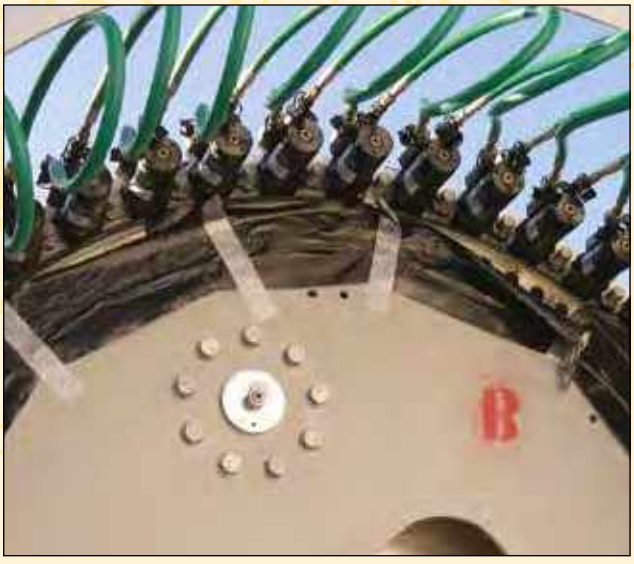
Safe, reliable and repeatable, the use of hydraulic tensioners has many advantages over other less accurate tightening methods. Tensioning requires longer bolts, and a seating area on the assembly around the nut. Tensioning can be done using detachable Bolt Tensioners or Hydraulic Nuts.

Enerpac subsea tensioners apply uniform bolt load to MORGRIP™ Mechanical Connectors

MORGRIP™ Mechanical Connectors have unique pipe gripping and sealing systems which allows them to withstand high internal pressure and external load conditions. As a result, they have a 100% leak-free in-service record, providing the ultimate in-service assurance for all types of metal pipe work, onshore, offshore and subsea.

Safe, reliable, and repeatable tensioning with compact HydraMax® Tensioners to complete joint integrity

With their compact fit and high load generation, and the flexibility to work with all standard flanges, the Enerpac HM-Series HydraMax® tools can be used in almost every industry and in many different applications.



On-Site tensioning wind turbines

Versatile – tensioning allows for loading multiple fasteners in a joint at the same time. Reliable – uniform bolt loading ensures a high level of accuracy by applying a consistent force.

▼ ZUTP-1500SE-H

Reliability, Power and Precision

- **Solenoid-operated valve with 6 m pendant for remote control of valve and one-man operation**
- **Easily accessible manual override valve to release pressure if power is lost**
- **Safety relief valve limits output pressure**
- **Two-stage pump design provides high flow at low pressure for fast system fills and controlled flow at high pressure for accurate operation**
- **1,25 kW heavy-duty universal motor provides the best performance-to-weight ratio**
- **Replaceable 10 micron reservoir breather and inline high pressure filter helps maintain oil cleanliness for optimum performance**
- **Panel-mounted 153 mm pressure gauge, with polycarbonate cover, is set into the protective metal shroud for improved visibility.**

Applications

The Enerpac ZUTP-Series electric pump is ideally suited for use with hydraulic bolt tensioning tools and hydraulic nuts. See our Bolting Tools catalogue and website.

Page: 62

Ultra-high pressure

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

Page: 78

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.

Page: 126

◀ *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-Tensioning Pumps

The ZUTP-Series of pumps achieve high pressure without the need for an intensifier. This allows for low maintenance, resulting in less cost for the end-user.

ZUTP-S with Solenoid Valve

The **ZUTP1500-S Series** with pendant-operated solenoid valve is ideal for multiple bolt tensioning applications as it allows for single-person operation. The operator can pressurize and depressurize the tensioner directly from the pendant.

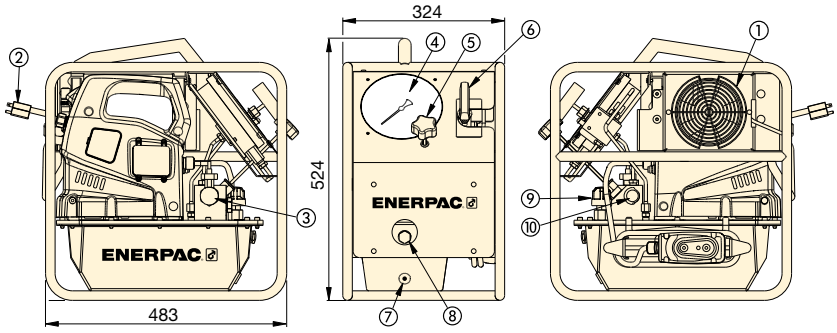
ZUTP Series

Reservoir Capacity:
4,0 litres

Flow at Rated Pressure:
0,33 l/min

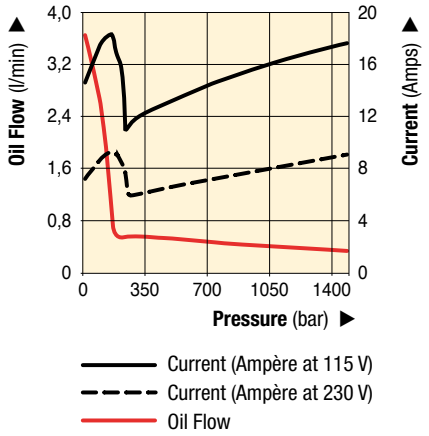
Motor Size:
1,25 kW

Maximum Operating Pressure:
1500 bar



① Heat Exchanger (optional)
② Power Cord
③ Solenoid Dump Valve
④ Pressure Gauge
⑤ User Adjustable Relief Valve
⑥ Manual Release Valve
⑦ Oil Drain
⑧ Oil Level Sight Glass
⑨ Breather
⑩ Outlet Port with CEJN Coupler (116 Series)

OIL FLOW VERSUS PRESSURE



1500 bar HIGH PRESSURE PUMP

Pump Type	Useable Oil Capacity (litres)	Valve Type	Model Number [1]	Pressure Rating (bar)	Output Flow Rate at 0 bar (l/min)	Output Flow Rate at 1500 bar (l/min)	Motor Electrical Specification (50 Hz)	Motor Size (kW)	Sound Level (dBA)	(kg)
Two speed	4,0	Solenoid	ZUTP-1500SB	1500	3,80	0,33	115 VAC, 1-ph	1,25	89	29,5
			ZUTP-1500SE [2]				230 VAC, 1-ph [2]			
			ZUTP-1500SI [3]				230 VAC, 1-ph [3]			
Two speed	4,0	Solenoid	ZUTP-1500SB-H [4]	1500	3,80	0,33	115 VAC, 1-ph	1,25	89	34,0
			ZUTP-1500SE-H [2] [4]				230 VAC, 1-ph [2]			
			ZUTP-1500SI-H [3] [4]				230 VAC, 1-ph [3]			
Two speed	4,0	Jog	ZUTP-1500B	1500	3,80	0,33	115 VAC, 1-ph	1,25	89	29,5
			ZUTP-1500E [2]				230 VAC, 1-ph [2]			
			ZUTP-1500I [3]				230 VAC, 1-ph [3]			

[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] H = with heat exchanger.

▼ ATP-1500

ATP Series

Reservoir Capacity:
3,8 litres

Flow at Rated Pressure:
0,07 l/min

Maximum Operating Pressure:
1500 bar

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

Page: 78

Applications

The ATP-pump is ideally suited for use with HM and GT-Series hydraulic bolt tensioning tools and hydraulic nuts. See our Bolting Tools catalogue or enerpac.com

Page: 62

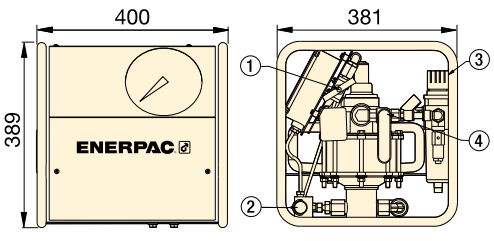
ATEX Certified

The ATP-Pump is tested and certified according ATEX.

Ex II 2 GD ck T4

Page: 116

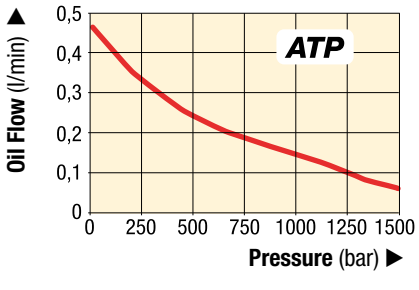
- **General purpose, high pressure air driven two speed pump unit for products requiring up to 1500 bar hydraulic pressure**
- **Compact, lightweight, rugged steel frame for protection and easy handling**
- **Prelubricated pump element, does not require an airline lubricator**
- **Easily adjustable output pressure control**
- **Integrated and protected easy to read glycerin filled gauge**
- **Safety relief valve limits output pressure.**



① Shut-off Valve
② Out Port 1/4" BSPM with BR-150 coupler
③ Filter/Regulator
④ Air On/Off Valve
Air Inlet 1/2" NPTF

OIL FLOW VERSUS PRESSURE

Flow (l/min) at 6,2 bar air input



1500 bar HIGH PRESSURE AIR PUMP

Pump Type	Useable Oil Capacity (litres)	Pressure Rating (bar)	Model Number	Output Flow Rate at 0 bar (l/min)	Output Flow Rate at 1500 bar (l/min)	Air Pressure Range (bar)	Air Consumption (l/min)	Sound Level (dBA)	(kg)
Two-speed	3,8	1500	**ATP-1500**	0,43	0,07	5,5 - 6,2	594	70	32

▼ **SCR154PGH**

SC, SL, SR ,SW Series

Capacity:
1 - 45 ton

Stroke:
11 - 156 mm

Maximum Operating Pressure:
700 bar

- **Easy to carry sturdy tool box**
- **Complete and ready-to-use hydraulic sets**
- **Includes a single-acting cylinder, P-392 two-speed lightweight hand pump, gauge adaptor assembly, 1,8 metre hose and couplers**
- **All components ship inside tool box as one package.**

Gauge Adaptor Assembly

Power Box Sets include 45 degree angled gauge adaptor assembly **GA45GC** for improved safe working conditions.

	Cylinder Model	Cylinder Stroke (mm)	Cylinder Capacity ton (kN)	(kg)	Power Box Model Number
	**Lifting Wedge**				
	LW-16	21	**16** (157)	9,0	**SLW16PGH** [2]
	**Wedge Spread Cylinder**				
	WR-5	94 [1]	**1,0** (8,9)	12,0	**SWR5PGH**
	**General Purpose Cylinders**				
	RC-102	54	**10** (101)	12,3	**SCR102PGH**
	RC-106	156	**10** (101)	14,4	**SCR106PGH**
	RC-154	101	**15** (142)	15,0	**SCR154PGH**
	RC-156	152	**15** (142)	16,8	**SCR156PGH**
	**Low Height Cylinders**				
	RCS-101	38	**10** (101)	14,1	**SCL101PGH**
	RCS-201	45	**20** (201)	15,0	**SCL201PGH**
	**Flat-Jac® Cylinders**				
	RSM-100	11	**10** (101)	11,4	**SRS100PGH**
	RSM-200	11	**20** (201)	13,1	**SRS200PGH**
	RSM-300	13	**30** (295)	14,5	**SRS300PGH**
	RSM-500	16	**45** (435)	16,8	**SRS500PGH**

[1] Maximum spread of WR-5.
[2] With P-142 two-speed lightweight hand pump.

▼ *The Power Box – the portable tool set – applicable everywhere.*

▼ SCR-1010H cylinder-pump set

The Quickest and Easiest Way to Start Working Right Away

Power Box

Tool box with hand pump, gauge adaptor assembly, hose and LW-, RC-, RCS, RSM-or WR-Serie cylinder.

Page: 83

- **Optimum match of individual components**
- **All sets are ready-for-use**
- **Sets include 1,8 m safety hose and gauge with gauge adaptor**
- **All pumps are two-speed**
- **Choice between handpump, air driven foot pump or cordless (battery-powered) pump**
- **RC-Series DUO, General Purpose Cylinders: for maximum versatility**
- **RCS-Series, Low Height Cylinders: ideal where space is restricted**
- **RCH-Series, Hollow Plunger Cylinders: for pushing and pulling applications.**

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

1 Cylinder Selection	Set Capacity ton (kN)	Cylinder Model Number	Stroke (mm)	Collapsed Height (mm)
	**5** (45)	RC-55	127	215
	10 (101)	RC-102	54	121
		RC-106	156	247
		RC-1010	257	349
	15 (142)	RC-154	101	200
		RC-156	152	271
	25 (232)	RC-252	50	165
		RC-254	102	215
		RC-256	158	273
		RC-2514	362	476
	50 (498)	RC-506	159	282
	**10** (101)	RCS-101	38	88
	20 (201)	RCS-201	45	98
	30 (295)	RCS-302	62	117
	45 (435)	RCS-502	60	122
	90 (887)	RCS-1002	57	141
	**13** (125)	RCH-121	42	120
	20 (215)	RCH-202	49	162
	30 (326)	RCH-302	64	178
	60 (576)	RCH-603	76	247
	95 (933)	RCH-1003	76	254

Single-Acting Cylinder-Pump Sets

SET SELECTION:

1. **Select the cylinder**
2. **Select the pump**
3. **Find the set model number in the gray matrix**

SELECTION EXAMPLE

Selected cylinder:
- RC-106, Single-Acting cylinder with 156 mm stroke

Selected pump:
- P-392, Lightweight hand pump

Set model number:
- SCR-106H

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

SC Series

Capacity:
5 - 95 ton

Stroke:
38 - 362 mm

Maximum Operating Pressure:
700 bar

2 Pump selection (See the Pump Section in 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	XC-Series Cordless Pump XC-1201ME [2]	Accessories included: Hose Model Number	Gauge Model Number	Gauge Adaptor Model Nr.
								
3								
SCR-55H	–	–	–	–	–	HC-7206	GP-10S	GA-4
–	**SCR-102H**	–	**SCR-102FP**	**SCR-102XA**	**SCR-102XCE**	HC-7206	GF-10B	GA-2
–	**SCR-106H**	–	**SCR-106FP**	**SCR-106XA**	**SCR-106XCE**	HC-7206	GF-10B	GA-2
–	**SCR-1010H**	–	**SCR-1010FP**	**SCR-1010XA**	**SCR-1010XCE**	HC-7206	GF-10B	GA-2
–	**SCR-154H**	–	**SCR-154FP**	**SCR-154XA**	**SCR-154XCE**	HC-7206	GP-10S	GA-2
–	**SCR-156H**	–	**SCR-156FP**	**SCR-156XA**	**SCR-156XCE**	HC-7206	GP-10S	GA-2
–	**SCR-252H**	–	**SCR-252FP**	**SCR-252XA**	**SCR-252XCE**	HC-7206	GF-20B	GA-2
–	**SCR-254H**	–	**SCR-254FP**	**SCR-254XA**	**SCR-254XCE**	HC-7206	GF-20B	GA-2
–	**SCR-256H**	–	–	**SCR-256XA**	**SCR-256XCE**	HC-7206	GF-20B	GA-2
–	–	**SCR-2514H**	–	**SCR-2514XA** [1]	–	HC-7206	GF-20B	GA-2
–	–	**SCR-506H**	–	**SCR-506XA** [1]	–	HC-7206	GF-50B	GA-2
–	**SCL-101H**	–	**SCL-101FP**	**SCL-101XA**	–	HC-7206	GF-10B	GA-2
–	**SCL-201H**	–	**SCL-201FP**	**SCL-201XA**	–	HC-7206	GF-230B	GA-2
–	**SCL-302H**	–	**SCL-302FP**	**SCL-302XA**	**SCL-302XCE**	HC-7206	GF-230B	GA-2
–	**SCL-502H**	–	**SCL-502FP**	**SCL-502XA**	**SCL-502XCE**	HC-7206	GF-510B	GA-2
–	–	**SCL-1002H**	–	–	**SCL-1002XCE**	HC-7206	GF-510B	GA-2
SCH-121H	–	–	–	–	–	HB-7206	GF-120B	GA-4
–	**SCH-202H**	–	**SCH-202FP**	**SCH-202XA**	**SCH-202XCE**	HC-7206	GF-813B	GA-3
–	**SCH-302H**	–	**SCH-302FP**	**SCH-302XA**	**SCH-302XCE**	HC-7206	GF-813B	GA-3
–	–	**SCH-603H**	–	**SCH-603XA** [1]	**SCH-603XCE**	HC-7206	GF-813B	GA-3
–	–	**SCH-1003H**	–	–	–	HC-7206	GP-10S	GA-2

[1] With XA-12 air pump.

[2] Cordless Pump includes 230V Charger. For 115V charger replace the "E" by the "B" in the model number.

▼ HF-95X, HF-95Y, THQ-706T

HF, THQ
Series

Contents Hydraulic Oil:
1, 5 and 20 litres

Hose Lengths:
2, 6 and 12 metres

Maximum Operating Pressure:
700 bar

Premium Hydraulic Oil

- Maximum pump volumetric efficiency
- Maximum internal heat transfer
- Prevents pump cavitation
- Additives prevent rust, oxidation and sludge
- High viscosity index
- Maximum film protective lubricity.

Hydraulic Oil

Contents *	Model Number *	Use only genuine Enerpac Hydraulic Oil. The use of any other fluid will render your Enerpac warranty null and void.
1 litre	HF-95X	
5 litres	HF-95Y	
20 litres	HF-95T	

* Oil model numbers and contents may vary by region, contact Enerpac.

Twin Torque Wrench Hose

- Thermo-plastic safety dual hoses for RSL, S and W-Series hydraulic torque wrenches and torque wrench pumps
- For demanding applications, featuring a 4:1 safety factor
- Maximum working pressure of 700 bar
- Outside jacket is polyurethane, to provide maximum abrasion resistance
- Exhibits low volumetric expansion under pressure to enhance overall system efficiency
- Crimped-on rubber strain relief for improved life and durability on all models.

▼ OIL SPECIFICATION CHART

Viscocity Index	100 min
Viscocity (cSt @ 40 ˚C)	32
API Gravity	31-33
Density (cSt @ 15 ˚C)	875
Flash point	204 ˚C
Pour point	-32 ˚C
Colour	Blue
Working Temperature Range	0 - 60 ˚C
Ideal working temperature	40 ˚C

Internal Diameter (mm)	Hose Ends Assemblies and Couplers * Hose one	Hose two	Hose Length (m)	Model Number	(kg)
6,4	female half + male half	male half + female half	2,0	THQ-702T	10
	female half + male half	male half + female half	6,0	THQ-706T	30
	female half + male half	male half + female half	12,0	THQ-712T	60

* 1/4" Spin-on Torque Wrench Couplers. **TR-630** female half, **TH-630** male half.

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

A, WR Series

Capacity:
0,75 - 1,0 ton

Tip Clearance:
12,8 - 35 mm

Maximum Spread:
94 - 292 mm

Maximum Operating Pressure:
700 bar

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

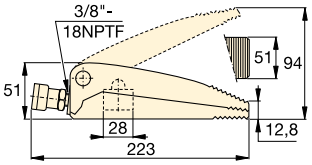
Power Box

Tool box with P-392 hand pump, gauge adaptor assembly, hose and WR-5.

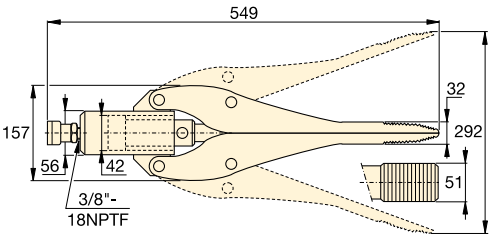
Page: 83

Best Match Hand Pump

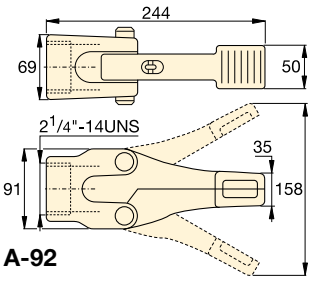
To power your WR-5 and WR-15 the **P-392** hand pump is an ideal choice. Use Enerpac H700-Series hose for hydraulic connection. www.enerpac.com



WR-5



WR-15



A-92

Cylinder Capacity ton (kN)	Tip Clearance (mm)	Model Number	Maximum Spread (mm)	Cylinder Effective Area (cm^2)	Oil Capacity (cm^3)	(kg)
1,0 (8,9)	12,8	**WR-5**	94	6,5	10	2,3
0,75 (6)	32,0	**WR-15**	292	14,5	64	11,3
1,0 (8,9)	35,0	**A-92 ***	158	–	–	3,6

* Maximum system pressure must be limited to half the rated pressure (350 bar).

▼ *A WR-5 wedgie cylinder is used to loosen a bridge bearing.*

▼ From left to right: **ATM-4, ATM-9, ATM-2** (ATM-9 shown without pump and hose)

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**
- **Reduces set-up time: no need for chains, pulleys or rigs**
- **Safety strap helps provide secure operation**
- **Can be installed and used in any position**
- **Stays stable in position under full load**
- **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 ATM-4 and ATM-9 allow precise alignment.

Gauge and Adaptor

The ATM-9 includes P-142 hand pump and HC-7206C 1,8 m long hose. Enerpac recommend the use of the pressure gauge **GP-10S** and gauge adaptor **GA-4** for easy mounting of the gauge onto your system or use **GA45GC** Gauge Adapotor Assembly.

▼ *The compact ATM-2 is actuated by simply hand turning the crank.*

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

Applications

Enerpac ATM-Series Tools help correct flange misalignment, and allow bolts to be placed into joints. This alignment takes place during pipework 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.

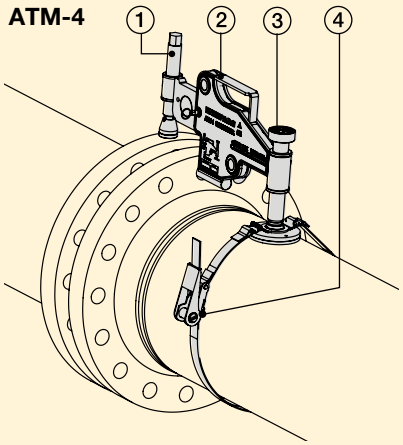
① Extendable wing provides usage on wide variety of flanges.

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

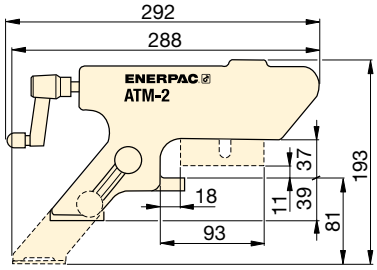


ATM Series

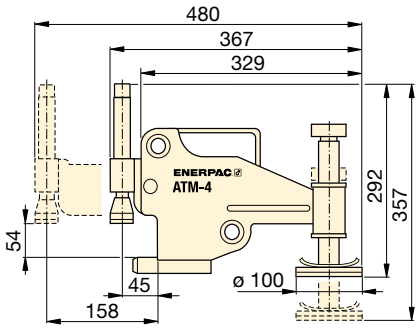
Minimum Bolt Size:
16 - 35,5 mm

Flange Wall Thickness:
14 - 228 mm

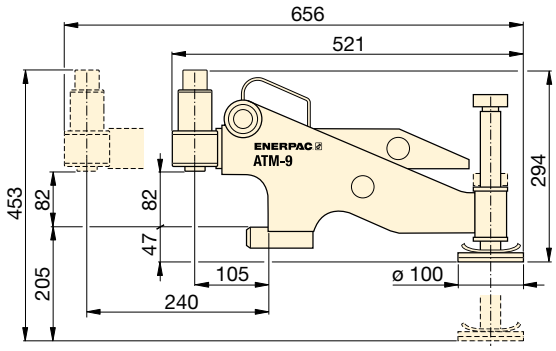
Maximum Lifting Force:
1 - 9 ton (10 - 90 kN)



ATM-2



ATM-4



ATM-9

Maximum Lifting Force (ton)	Maximum Lifting Force (kN)	Model Number	Minimum Bolt Size (mm)	Minimum Bolt Size (inch)	Flange Wall Thickness (mm)	Flange Wall Thickness (inch)	(kg)
1	10	**ATM-2**	16	.63	14 - 82	.55 - 3.29	1,6
4	40	**ATM-4**	24	.95	30 - 133	1.18 - 5.23	8,6
9	90	**ATM-9 ***	35,5	1.40	93 - 228	3.66 - 9.00	14,5

* ATM-9 includes an Enerpac hand pump and hydraulic hose (gauge and adaptor sold separately). ATM-9 weight includes tool only.

Cylinder-Pump Sets

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

Page: 85

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.

Page: 96

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

▼ FSC-14, FSM-8 and FSH-14 with safety blocks SB-1

- **Unique interlocking wedge design - no first step bending and risk of slipping out of joint**
- **Requires very small access gap of only 6 mm**
- **Few moving parts mean durability and low maintenance**
- **Safety block SB-1 and ratchet spanner SW-22 included with FSM-8 mechanical wedge spreader**
- **Safety block SB-1 and single-acting cylinder included with FSC and FSH hydraulic wedge spreader.**

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

Practical, portable and lightweight

FSC-14 with integrated hand pump

Powered by a built-in hydraulic hand pump, the FSC-14 is a ready-to-use tool – no making or breaking hydraulic connections. This compact tool delivers 14 US tons of force and requires a clearance gap as small as 6 mm.

Stepped Blocks FSB-1

Use stepped blocks to increase wedge opening up to 80 mm. Fits both FSC, FSH and FSM-models.

AM-Series Control Manifolds

For simultaneously and even spreading of flange joints, 180° apart with FSH-14.

Flange Maintenance Tools

Secure-Grip and Zero-Gap flange speading tools for application on flanges with a zero or small gap. See pages 104 - 109.

Page: 104

Flange Spreading Wedges

The flange spreading tools have been developed to aid and simplify the maintenance of flange joints. No longer will those tasked with separating flanges have to rely on using ropes and pulleys, podgers, tirfors, come-alongs or hammers – there is a safe, quick and effective alternative, the Enerpac range of spreaders.

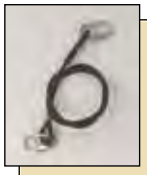
These spreaders use mechanical and hydraulic principles for separating flanges and can spread small, medium or large flange joints. Tool selection is made on the basis of the access gap between the flange faces, the flange size and the required scope of work.

FSC, FSH, FSM, Series

Tip Clearance / Maximum Spread [1]:
6 mm / 80 mm

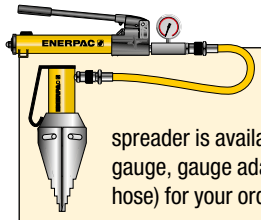
Maximum Spread Force:
8 - 14 US tons

Maximum Operating Pressure:
700 bar (FSH-14)



Safety Lanyard FSC-1

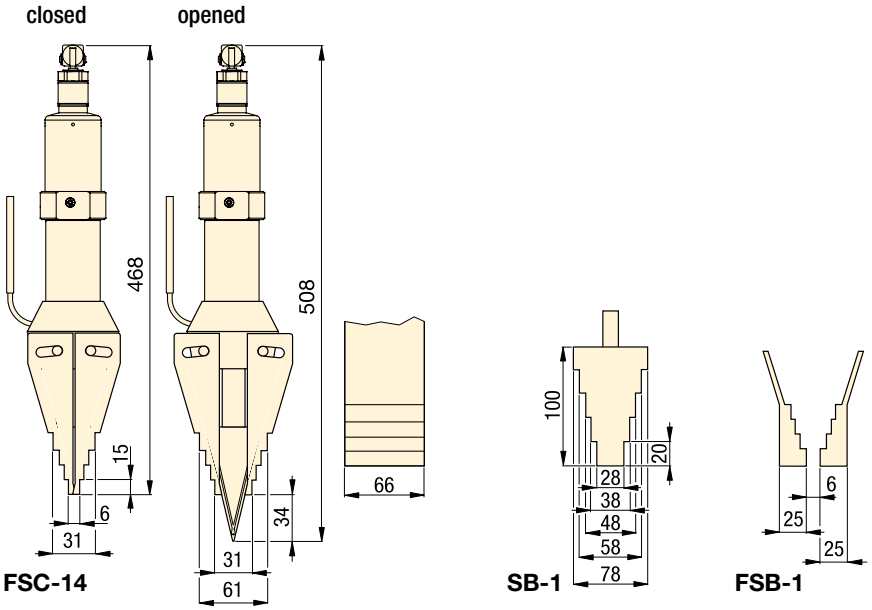
Recommended safety accesory to compliment the safe hands-free bolting. Includes steel cable with carabiners.



Tool-Pump Sets

The hydraulic flange spreader is available as set (pump, tool, gauge, gauge adaptor, couplers and hose) for your ordering convenience.

Spreader Model Nr.	Handpump Model Nr.	Set Model Number
FSH-14	P-392	**STF-14H**



Maximum Spreading Force US tons (kN)	Model Number	Tip Clearance (mm)	Maximum Spread [1] (mm)	Spreader Type	Oil Capacity (cm^3)	(kg)
14 (118)	**FSC-14**	6	80	Integral hydraulics	–	9,0
14 (125)	**FSH-14 ***	6	80	External hydraulics	78	7,1
8 (72)	**FSM-8**	6	80	Mechanical	–	6,5

[1] Using stepped blocks FSB-1

* Available as pump-tool set, see note on this page.

▼ *Flange maintenance and joint separation with FSH-14 Hydraulic Wedge Spreader.*

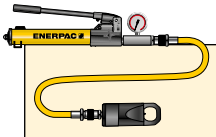
Single-Acting Hydraulic Nut Splitters

ENERPAC

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

The safest and easiest way to remove corroded and frozen nuts

- **Compact and ergonomic design, easy to use**
- **Unique angled head design**
- **Two blade design (NC-D models) for time saving operation – nuts are split from two sides in one action**
- **Single-acting, spring return cylinder**
- **Heavy duty chisels can be reground**
- **Nut Splitters include spare chisel, spare set screw and wrench used to secure the chisel. A CR-400 coupler is standard.**



Tool-Pump Sets

Hydraulic Nut Splitters are available as sets (pump, tool, gauge, gauge adaptor, couplers and hose) for your ordering convenience.

Nut Splitter Model Nr.	Hand Pump Model Nr.	Set Model Nr
NC-1924	P-392	**STN-1924H**
NC-2432	P-392	**STN-2432H**
NC-3241	P-392	**STN-3241H**

High Pressure Hoses

Enerpac offers a complete line of high quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

GA45GC Gauge Adaptor Assembly

Protect yourself from system overloading by simply ordering one part number for a pre-assembled gauge, adaptor block and coupler.

▼ *Enerpac hydraulic nut splitters – the safest and easiest way to remove corroded and frozen nuts*

Single-Acting Hydraulic Nut Splitters

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.

Hydraulic Nut Cutters

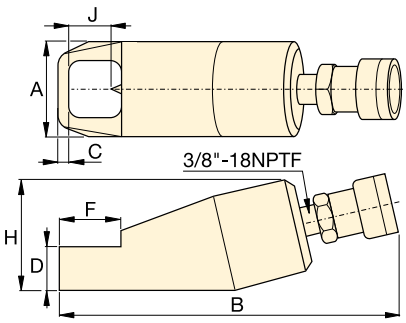
Nut splitting with the Enerpac Hydraulic Nut Cutters is the safest method. It takes less time and avoids costly damage to joint components. The head design fitted with heavy-duty chisels permits the splitting of nuts on a wide variety of applications. With the two blades models nuts are split from two side in one action.

NC STN Series

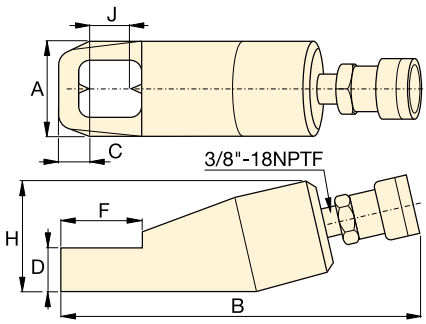
Capacity:
49 - 882 kN (5 - 90 ton)

Bolt Range:
M6 - M48

Maximum Operating Pressure:
700 bar



Single Blade Models (NC)



Double Blade Models (NC-D)

For Nut Splitter Model Nr.	Replacement Chisel Model Numbers	
	Moving	Static
NC-1319	**NCB-1319**	–
NC-1924	**NCB-1924**	–
NC-2432	**NCB-2432**	–
NC-3241	**NCB-3241**	–
NC-4150	**NCB-4150**	–
NC-5060	**NCB-5060**	–
NC-6075	**NCB-6075**	–
NC-1924D	**NCB-1924**	**NCB-1924D**
NC-2432D	**NCB-2432**	**NCB-2432D**
NC-3241D	**NCB-3241**	**NCB-3241D**

	Bolt Range (mm)	Hexagon Nut Range (mm)	Capacity ton (kN)	Oil Capacity (cm^3)	Model Number	Dimensions (mm) A	B	C	D	F	H	J	(kg)
	**M6 - M12**	10 - 19	**5** (49)	15	**NC-1319**	40	170	7	19	28	48	21	1,2
	M12 - M16	19 - 24	**10** (98)	20	**NC-1924 ***	54	191	10	26	40	62	25	2,0
	M16 - M22	24 - 32	**15** (147)	60	**NC-2432 ***	64	222	13	29	51	72	33	3,0
	M22 - M27	32 - 41	**20** (196)	80	**NC-3241 ***	75	244	17	36	66	88	43	4,4
	M27 - M33	41 - 50	**35** (343)	155	**NC-4150**	94	288	21	45	74	105	54	8,2
	M33 - M39	50 - 60	**50** (490)	240	**NC-5060**	106	318	23	54	90	128	60	11,8
	M39 - M48	60 - 75	**90** (882)	492	**NC-6075**	156	393	26	72	110	181	80	34,1
	**M12 - M16**	19 - 24	**10** (98)	20	**NC-1924D**	54	168	22	25	50	66	26	3,8
	M16 - M22	24 - 32	**15** (147)	60	**NC-2432D**	64	275	25	31	65	78	33	5,4
	M22 - M27	32 - 41	**20** (196)	80	**NC-3241D**	77	305	31	37	80	90	43	7,2

Ordering Notes: Maximum allowable hardness to split is HRc-44. Not to be used on square nuts or stainless steel.
* Available as Tool-Pump Set, see note on this page.

▼ Shown: **NS-Series Hydraulic Nut Splitters**

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 manoeuvrability**
- **Nickel-plated cylinder body for excellent corrosion protection and improved durability in harsh environments**
- **Internal Pressure Relief Valve for overload protection**
- **CR-400 coupler and dustcap included on all models.**

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 10 - 75 mm hexagon nuts.

Page: 92

Joint Separation Tools

Flange Spreading Wedges (FSC, FSH, FSM-Serie) provide quick and easy joint separation using hydraulic or mechanical force.

Page: 90

Flange Alignment Tools

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

Page: 88

◀ *Heavily corroded and weathered nuts are quickly split and removed using a 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:
917 - 1711 kN

Hexagon Nut Size:
70 - 130 mm

Bolt Range:
M45 - M90

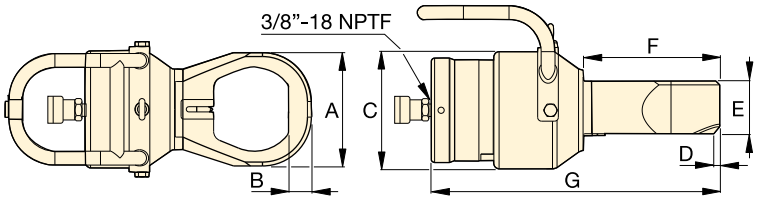
Maximum Operating Pressure:
700 bar

▼ TOOL-PUMP SET SELECTION CHART

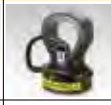
1 Nut Splitter Model Nr.	Tool-Pump Set Model Nr.	2 Pump Selection				Accessories Included			
		Hand Pump Model Nr.	Air Pump Model Nr.	Cordless Pump (230V) Model Nr.	Electric Pump (230V) Model Nr.	Pressure Gauge Model Nr.	Gauge Adaptor Model Nr.	Hydraulic Hose Model Nr.	Storage Case Model Nr.
									
NS-70105	**NS-70105SH**	P-392	–	–	–	GP-10S	GA-2	HC-7206	CM-4
	NS-70105SA	–	XA-11G [2]	–	–	[2]	–	HC-7206	CM-4
	NS-70105SCE [1]	–	–	XC-1202ME	–	GA45GC		HC-7206	CM-4
	NS-70105SEE [1]	–	–	–	PUD-1100E	GP-10S	GA-2	HC-7206	CM-7
NS-110130	**NS-110130SH**	P-802	–	–	–	GP-10S	GA-2	HC-7206	CM-4
	NS-110130SA	–	XA-11G [2]	–	–	[2]	–	HC-7206	CM-4
	NS-110130SCE [1]	–	–	XC-1202ME	–	GA45GC		HC-7206	CM-4
	NS-110130SEE [1]	–	–	–	PUD-1100E	GP-10S	GA-2	HC-7206	CM-7

[1] For set with 115 Volt pump application replace last suffix "E"with "B" in model number.
Example : **NS-70105SCB** (set with XC-cordless pump, 115V);
Example: **NS-110130SEB** (set with PU-Series electric pump, 115 V)

[2] XA-11G air pump features an integrated pressure gauge.



▼ NUT SPLITTER SPECIFICATIONS

Bolt Range (mm)	Hexagon Nut Range [1] (mm)	Capacity ton (kN)	Oil Capacity (cm³)	Model Number [2] 	Dimensions (mm) A	B	C	D	E	F	G	 (kg)	Cylinder [3] 	Cutting Head [3] 	Replacement Blade 
M45 - M52	70 - 80	**103** (917)	377	**NS-7080**	132	28	180	8,0	81	186	412	37,0	NSC-70	NSH-7080	NSB-70
M45 - M56	70 - 85	**103** (917)	377	**NS-7085**	145	30	180	8,0	81	196	422	37,0	NSC-70	NSH-7085	NSB-70
M45 - M64	70 - 95	**103** (917)	377	**NS-7095**	160	32	180	8,0	81	201	432	38,5	NSC-70	NSH-7095	NSB-70
M45 - M72	70 - 105	**103** (917)	377	**NS-70105**	174	35	180	9,0	81	209	443	39,5	NSC-70	NSH-70105	NSB-70
M76 - M80	110 - 115	**193** (1711)	819	**NS-110115**	189	36	234	3,7	111	234	472	69,0	NSC-110	NSH-110115	NSB-110
M76 - M90	110 - 130	**193** (1711)	819	**NS-110130**	219	41	234	2,5	111	242	493	71,5	NSC-110	NSH-110130	NSB-110

[1] Maximum allowable hardness to split is HRc-44. See page 128 for hexagon bolt and nut sizes and related thread diameters.

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

[3] Both, the NSH-head and the NSC-cylinder include a cutting blade.

FF-Series, Mechanical Pipe Flange Face Tool

ENERPAC

▼ FF-120

Safe, efficient and accurate refacing of flat pipe flange surfaces

- **Makes refacing easy – hand operated machine tool can be set up anywhere without the need for air, electric or hydraulic power**
- **Lightweight and portable (15 kg in storage box)**
- **Adjustable cutting head for reface of flat flange surfaces of pipes with flange outside diameter facing range 25,4 - 304,8 mm [1 - 12 inch]**
- **Interchangeable collets for ID mounting range 25,4 - 152,4 mm [1-6 inch] allow 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.**

▼ *The Enerpac FF-120 used to face a pipe flange.*

Complete in Wheeled Carrying Case

The **FF-120** comes as portable set (15 kg). Can be transported, easy set-up and operated by a single technician. Set includes:
FFL-kit with locators, O-Rings and extensions;
FSS-kit with feed screw and nut ½"-20 UN for surface roughness Ra 1,6 - 2,4 µ.
FSF-kit with feed screw and nut ½"-11 UNF for surface roughness Ra 3,2 - 6,3 µ.

Joint Separation Tools

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

Page: 90

Flange Alignment Tools

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

Page: 88

Controlled Tightening and Loosening

Use Enerpac Bolting Tools to seal the joint to the precise torque or tension required: torque multipliers, torque wrenches and hydraulic bolt tensioners.

Page: 1

QuickFace – Mechanical Pipe Flange Face Tool

Mechanical Flange Face Tool

Portable, hand powered tool makes even the hardest to reach pipe flanges resurface-able in a safe and convenient way.

Makes refacing easy

A simple and cost effective solution – the FF-120 turns a two man operation with heavy equipment, compressors and portable generators into a one man job.

The FF-120 has interchangeable lead screws that make it suitable for resurfacing damaged flat-faced, raised-face or lens-ring joint flanges to the high safety standards required. After selecting the correct lead screw for the operation, the tool body is inserted in the pipe end and centres itself with adjustable locators to provide real concentric operation.

The tool arm is then rotated by hand using a worm-gear mechanism to provide a perfect spiral "gramophone" finish. The tool can be adjusted with a calibrated slide to define cut depth and the correct finish.

Surface finish & accuracy

A serrated finish with 30-55 grooves per inch and a resultant roughness of between Ra 3,2-12,5 µ (125-500 micro inches). The FF-120 has same precision and quality of finish as a lathe.

Cost effective solution

Small and portable enough to be a permanent addition to your equipment range, Enerpac's FF-120 is the perfect solution to all of your small diameter facing problems.

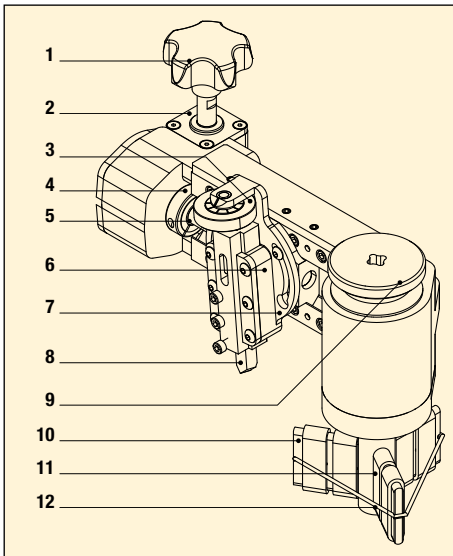
FF Series

Pipe Flange Cutting Diameter Range:
ø 25-305 mm / 1-12"

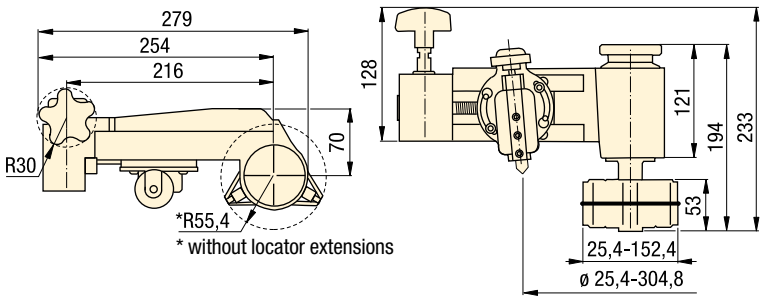
Internal Pipe Mounting Range:
ø 25-152 mm / 1-6"

Cutting Resultant Roughness:
Ra 3,2 - 12,5 µ

1. Hand-operated cold work tool – no need for external power and hot work permits.
2. Calibrated cross slide for accurate cutting control.
3. Adjustable cutting head for reface of flat flange surfaces of pipes with flange OD facing range ø 25,4-304,8 mm [1-12 inch].
4. Interchangeable lead screws enable selection of surface finish between Ra 3,2-12,5 µ.
5. Utilizes standard 3/8 inch or 10 mm tool steel.
6. Range of interchangeable collets allow the tool to accommodate ø 25,4 - 152,4 mm (1 - 6 inch) pipe ID.
7. Tool body with expanding collets centers in the bore ensuring concentric and accurate set-up.



1. Feed Knob
2. Gear Box
3. Cutting Depth Adjustment with indicator: 0,127 mm (.005 inch) per mark
4. Locking Collar
5. Lead/Feed Screw
6. Tool Block
7. Swivel Slide
8. HSS 3/8" Tool Bits
9. Mandrel Locking Knob
10. Locator Extensions
11. Adjustable Locators
12. O-Ring



▼ *The Enerpac FF-120 QuickFace has same precision and quality of finish as a lathe.*

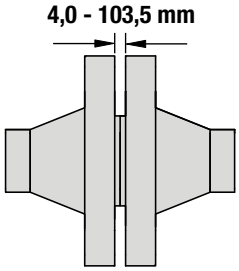
▼ SELECTION CHART

Pipe Flange Cutting Diameter Range		Internal Pipe Mounting Diameter Range		Cutting Resultant Roughness	Model Number	
(mm)	(inch)	(mm)	(inch)	(Ra µ)		(kg)
25,4 - 304,8	1,0 - 12,0	25,4 - 152,4	1,0 - 6,0	3,2 - 12,5	**FF-120**	6,8

Equalizer Flange Spreading Tools

The Equalizer™ range of patented flange spreading tools have been developed to aid and simplify the maintenance of flange joints. No longer will those tasked with separating flanges have to rely on using ropes and pulleys, podgers, tirfors, come-alongs or hammers – there is a safe, quick and effective alternative, the Equalizer™ range of spreaders. These spreaders use mechanical and hydraulic principles for separating flanges and can spread small, medium or large flange joints. Tool selection is made on the basis of the access gap between the flange faces, the flange size and the required scope of work.

SWi Flange Spreading Wedges:

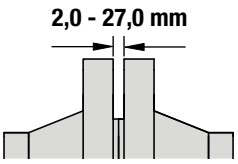


An innovative flange spreading wedge for use on small, medium or large flange joints with a minimum access gap of 4 mm. The SWi range includes ATEX approved options.

The SWi range has set the new standard for spreading flange joints powerfully, efficiently, effectively and safely. The tools offer the following features and benefits:

- Wider spreading - using the Standard Stepped Block accessories means the SWi range offers up to 30% more flange spreading distance than a traditional SW tool.
- Unrivalled power - the tools now offer up to 240 kN of spreading force when used in pairs, which provides additional confidence when spreading.
- Narrower jaws - the SWi5T tools are only 50 mm wide to help them fit more easily between flange bolts.
- Fully rotational handle – the handle swivels 360-degrees around the wedge head, so that the SWi tools can be used comfortably in all orientations.
- Easier maintenance – end-users will appreciate the ease with which the tools can be maintained. The supplied hex-key and a two step-process is all that's required to disassemble and reassemble the tools.
- No pinch points – the SWi range of tools has been engineered to overcome finger pinch-points.

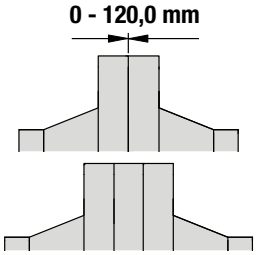
MG Flange Spreading Tool:



A mechanical tool for small diameter, low pressure flanges with a minimum access gap of 2 mm.

For use on smaller, lower pressure flange joints, this portable and flexible tool can be assembled in two alternative configurations that gives it twice the application range from one tool. The tool is locked onto the flange joint by the spreading bar preventing the risk of it falling from the flange joint.

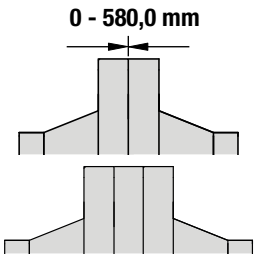
SG Flange Spreading Tools:



A unique flange spreader, ideal for situations where there is no access gap, or where there is a spacer, a wafer or butterfly valve positioned between the flanges.

Equalizer's unique Secure-Grip tools spread by locking into the flange bolt holes and pulling the mating flanges away from each other, the Secure Grip flange spreaders are locked on to the flanges when under load making them arguably the world's safest flange spreading tools.

VC Valve Change-Out Tools:



Using the same technology as the SG flange spreaders the VC range has been developed for valve removal applications.

The Equalizer™ VC Range of Valve Change-Out tools has been developed to assist in the removal of valves, spades/spacers or gaskets from large flange joints. The span of the tool is longer than a standard Secure-Grip Flange Spreader and is adjustable to enable the tool to operate in a range of aplications.

Equalizer Flange Spreading Tools

▼ **MG7TM**

MG

FLANGE
SPREADING TOOL

Spreading Force:
68,0 kN

Spreading Distance:
2,0 - 27,0 mm

Range of Application

For a detailed range of application please request the MG7TM Operator Instruction Sheet.

- **Reversible leg design giving greater range of applications**
- **Unique double-angled wedge produces a greater spreading force without reducing spreading distance**
- **Robust lightweight tool**
- **Spreading force of 68,0 kN**

Caution

A minimum of two Flange Spreading Tools must be used when opening flange joints. This will enable the operator to maintain an equal spreading distance across the flange faces.

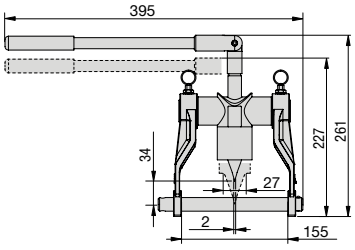
OPERATING BENEFITS

- **Locks on to flange joint**
- **Safe, quick and easy operation**
- **Saves time and cost**

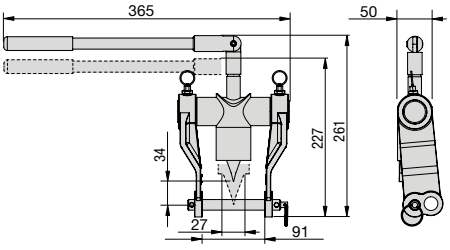
MG7TMSTD Standard Kit

1 x MG7TM Tool
2 x Spreading Bar
1 x Moulded Plastic Carry Case

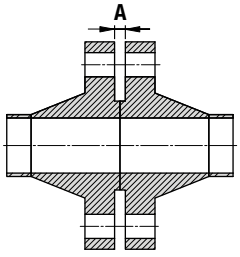
Tool retracted and advanced using large (Ø 20mm) spreading bar



Tool retracted and advanced using small (Ø 16mm) spreading bar



Flange Dimensions



Model Number Tool Kit	Type	Maximum Spreading Force Per Tool (kN)	Spreading Distance Maximum (mm)	Flange Dimensions Minimum Access Gap A (mm)	Wedge Width (mm)	Tool Weight (kg)	Kit Weight (kg)	Case Dimensions (mm)	Tool Number
MG7TMSTD	Mechanical	68,0	27,0	2,0	45,0	5,0	5,5	360 x 300 x 90	MG7TM

▼ SWi2025TI

SWi

FLANGE
SPREADING WEDGES

Spreading Force:
77,0 - 240,0 kN

Spreading Distance:
4,0 - 103,5 mm

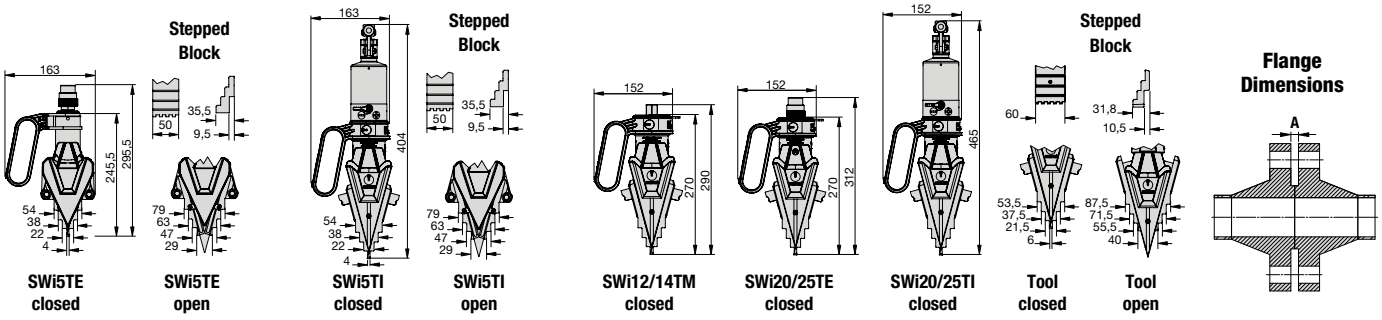
Maximum Operating Pressure:
700 bar *

* Only relevant for hydraulic tools

- **Practical, portable and lightweight**
- **Revolving handle to aid horizontal or vertical spreading**
- **Removable handle for improved access**
- **No finger pinch-point**
- **Increased step-depth on upper steps**
- **Safety lanyard – 1,0 m length**
- **Forged key components for strength and reliability**
- **Rapid disassembly and assembly**
- **Narrow jaw teeth – improved tool wear.**

Caution

A minimum of two Flange Spreading Tools must be used when opening flange joints. This will enable the operator to maintain an equal spreading distance across the flange faces.



Model Number Tool Kit	Type	Maximum Spreading Force Per Tool (kN)	Spreading Distance Maximum * (mm)	Flange Dimensions Minimum Access Gap A (mm)	Jaw Width (mm)	Tool Weight (kg)	Kit Weight (kg)	Case Dimensions (mm)	Tool Number
SWi5TE-S	External Hydraulic	77,0	101,0	4,0	50,0	5,2	8,7	580 x 340 x 180	SWi5TE
SWi5TE-T	External Hydraulic	77,0	101,0	4,0	50,0	5,2	14,4	580 x 340 x 180	SWi5TE
SWi5TI-S	Integral Hydraulic	77,0	101,0	4,0	50,0	7,0	10,5	580 x 330 x 180	SWi5TI
SWi1214TMSTDSPB	Mechanical	140,0	103,5	6,0	60,0	6,2	13,0	580 x 330 x 165	SWi12/14TM
SWi2025TEMINSPB	External Hydraulic	240,0	103,5	6,0	60,0	6,4	11,6	580 x 330 x 165	SWi20/25TE
SWi2025TESTDSPB	External Hydraulic	240,0	103,5	6,0	60,0	6,4	20,7	920 x 500 x 205	SWi20/25TE
SWi2025TEMAXSPB	External Hydraulic	240,0	103,5	6,0	60,0	6,4	33,0	920 x 500 x 205	SWi20/25TE
SWi2025TISTDSPB	Integral Hydraulic	240,0	103,5	6,0	60,0	8,5	13,8	580 x 330 x 165	SWi20/25TI

* Using stepped blocks.

Equalizer Flange Spreading Tools

SWi5TE - Hydraulic Flange Spreading Wedge

SWi5TE-S - SWi5TE S Kit

1 x SWi5TE Flange Spreading Tool
1 x Standard Safety Block
1 x Lanyard
1 x Moulded Plastic Carry Case with Protective Foam Inserts

SWi5TE-T - SWi5TE T Kit

2 x SWi5TE Flange Spreading Tools
2 x Standard Safety Blocks
2 x Lanyards
1 x Moulded Plastic Carry Case with Protective Foam Inserts

1640016-01 - SWi5TE Stepped Block Kit

1 x Pair of SWi5TE Stepped Blocks
2 x M6 CSK Hex Screw
2 x Retaining Washer
1 x SWi5TE Large Safety Block
2 x Hex Key

SWi12/14TM - Mechanical Flange Spreading Wedge

SWi1214TMSTDSPB - SWi12/14TM STD Kit

1 x SWi12/14TM Flange Spreading Tool
1 x Torque Wrench with 22 mm Socket
1 x Set of Safety Blocks
1 x Pair of Stepped Blocks
1 x Lanyard
1 x Hex Key
1 x Moulded Plastic Carry Case

SWi20/25TE - Hydraulic Flange Spreading Wedge

SWi2025TEMINSPB - SWi20/25TE MIN Kit

1 x SWi20/25TE Flange Spreading Tool
1 x Set Safety Blocks
1 x Pair of Stepped Blocks
1 x Lanyard
1 x Hex Key
1 x Moulded Plastic Carry Case

SWi2025TESTDSPB - SWi20/25TE STD Kit

1 x SWi20/25TE Flange Spreading Tool
1 x 700 bar Hydraulic Hose, 2 m with 90° Elbow
1 x 700 bar HP350S Single-Port Sealed Hand Pump with Gauge
1 x Set Safety Blocks
1 x Pair of Stepped Blocks
1 x Lanyard
1 x Hex Key
1 x Moulded Plastic Carry Case

SWi2025TEMAXSPB - SWi20/25TE MAX Kit

2 x SWi20/25TE Flange Spreading Tools
2 x 700 bar Hydraulic Hoses, 2 m with 90° Elbow
1 x 700 bar HP550D Twin-Port Sealed Hand Pump with Gauge
2 x Set Safety Blocks
2 x Pair of Stepped Blocks
2 x Lanyards
2 x Hex Keys
1 x Moulded Plastic Carry Case

SWi5TI - Integral Hydraulic Flange Spreading Wedge

SWi5TI-S - SWi5TI S Kit

1 x SWi5TI Flange Spreading Tool
1 x Standard Safety Block
1 x Lanyard
1 x Moulded Plastic Carry Case with Protective Foam Inserts

1640016-01 - SWi5TE Stepped Block Kit

1 x Pair of SWi5TE Stepped Blocks
2 x M6 CSK Hex Screw
2 x Retaining Washer
1 x SWi5TE Large Safety Block
2 x Hex Key

SWi20/25TI - Integral Hydraulic Flange Spreading Wedge

SWi2025TISTDSPB - SWi20/25TI STD Kit

1 x SWi20/25TI Flange Spreading Tool
1 x Set of Safety Blocks
1 x Pair of Stepped Blocks
1 x Lanyard
1 x Hex Key
1 x Carry-Strap
1 x Moulded Plastic Carry Case

▼ SWi20/25TEEX

SWi

ATEX CERTIFIED FLANGE SPREADING WEDGES

Spreading Force:
140,0 - 240 kN

Spreading Distance:
6,0 - 103,5 mm

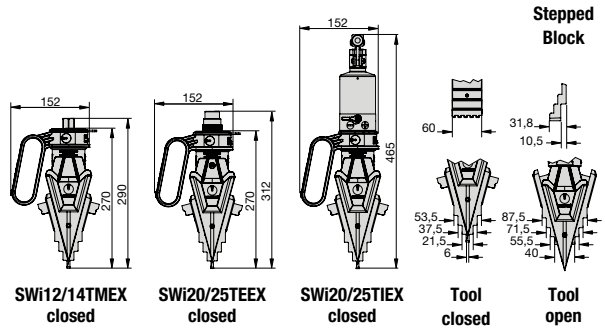
Maximum Operating Pressure:
700 bar *

* Only relevant for hydraulic tools

- **ATEX certified**
- **Practical, portable and lightweight**
- **Revolving handle to aid horizontal or vertical spreading**
- **Removable handle for improved access**
- **No finger pinch-point**
- **Increased step-depth on upper steps**
- **Safety lanyard – 1,0 m length**
- **Forged key components for strength and reliability**
- **Rapid disassembly and assembly**
- **Narrow jaw teeth – improved tool wear.**

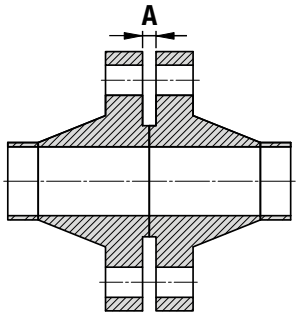
Caution

A minimum of two Flange Spreading Tools must be used when opening flange joints. This will enable the operator to maintain an equal spreading distance across the flange faces.



SWi12/14TMEX closed | SWi20/25TEEX closed | SWi20/25TIEX closed | Tool closed | Tool open

Flange Dimensions



Model Number Tool Kit	Type	Maximum Spreading Force Per Tool (kN)	Spreading Distance Maximum * (mm)	Flange Dimensions Minimum Access Gap A (mm)	Jaw Width (mm)	Tool Weight (kg)	Kit Weight (kg)	Case Dimensions (mm)	Tool Number
SWi1214TMSTDEX	Mechanical	140,0	103,5	6,0	60,0	6,2	17,0	580 x 400 x 180	SWi12/14TMEX
SWi2025TEMINEX	External Hydraulic	240,0	103,5	6,0	60,0	6,4	15,0	580 x 400 x 180	SWi20/25TEEX
SWi2025TESTDEX	External Hydraulic	240,0	103,5	6,0	60,0	6,4	27,5	680 x 560 x 180	SWi20/25TEEX
SWi2025TEMAXEX	External Hydraulic	240,0	103,5	6,0	60,0	6,4	38,8	930 x 600 x 180	SWi20/25TEEX
SWi2025TISTDEX	Integral Hydraulic	240,0	103,5	6,0	60,0	8,5	17,5	580 x 400 x 180	SWi20/25TIEX

* Using stepped blocks.

Equalizer Flange Spreading Tools

SWi12/14TMEX -
ATEX Certified Mechanical Flange Spreading Wedge

II 2G Ex h IIB T5 Gb
II 2D Ex h IIIC T85°C Db

SWi1214TMSTDEX - SWi12/14TMEX STD Kit

1 x SWi12/14TMEX Flange Spreading Tool
1 x ATEX Torque Wrench with 22 mm Socket
1 x Set of Safety Blocks
1 x Pair of Stepped Blocks
1 x Lanyard
1 x Hex Key
1 x Aluminium Carry Case with Protective Foam Inserts

SWi20/25TIEX -
ATEX Certified Integral Hydraulic Flange Spreading Wedge

II 2G Ex h IIB T5 Gb
II 2D Ex h IIIC T100°C Db

SWi2025TISTDEX - SWi20/25TIEX STD Kit

1 x SWi20/25TIEX Flange Spreading Tool
1 x Set of Safety Blocks
1 x Pair of Stepped Blocks
1 x Lanyard
1 x Hex Key
1 x Carry-Strap
1 x Aluminium Carry Case with Protective Foam Inserts

SWi20/25TEEX -
ATEX Certified Hydraulic Flange Spreading Wedge

II 2G Ex h IIB T5 Gb
II 2D Ex h IIIC T100°C Db

SWi2025TEMINEX - SWi20/25TEEX MIN Kit

1 x SWi20/25TEEX Flange Spreading Tool
1 x Set Safety Blocks
1 x Pair of Stepped Blocks
1 x Lanyard
1 x Hex Key
1 x Aluminium Carry Case with Protective Foam Inserts

SWi2025TESTDEX - SWi20/25TEEX STD Kit

1 x SWi20/25TEEX Flange Spreading Tool
1 x 700 bar ATEX Hydraulic Hose, 2 m with 90° Elbow
1 x 700 bar HP350S ATEX Single-Port Sealed Hand Pump with Gauge
1 x Set Safety Blocks
1 x Pair of Stepped Blocks
1 x Lanyard
1 x Hex Key
1 x Aluminium Carry Case with Protective Foam Inserts

SWi2025TEMAXEX - SWi20/25TEEX MAX Kit

2 x SWi20/25TEEX Flange Spreading Tools
2 x 700 bar ATEX Hydraulic Hose, 2 m with 90° Elbow
1 x 700 bar HP550D ATEX Twin-Port Sealed Hand Pump with Gauge
2 x Set Safety Blocks
2 x Pair of Stepped Blocks
2 x Lanyards
2 x Hex Keys
1 x Aluminium Carry Case with Protective Foam Inserts

These tools have been designed for use in potentially explosive atmospheres which is:

- Group II (Non-mining equipment)
- Equipment **category 2** where explosive atmosphere is likely to occur in normal operation
- Can be applied in **zones 1 and 2** of gaseous explosive atmospheres and in **zones 21 and 22** of dust explosive atmosphere
- **Gas G** or **Dust D** with type of protection **Ex h** for non-electrical equipment
- Suitable for use with **Group IIB** of a gases and vapours (Ethylene group) and **Group IIIC** of dust (conductive dust)
- For hydraulic tools **T5** means that minimum ignition temperature of gas or vapor >**100°C**; **T100°C** means that minimum ignition temperature of a dust cloud ≥**150°C** and minimum ignition temperature of a 5mm dust layer ≥ **175°C**
- For mechanical tools **T6** means that minimum ignition temperature of gas or vapor >**85°C**; **T85°C** means that minimum ignition temperature of a dust cloud ≥**127,5°C** and minimum ignition temperature of a 5mm dust layer ≥ **160°C.**

These tools have been designed and manufactured in accordance with the following transposed harmonized European standards:

- **EN ISO 80079-36:2016** Explosive atmospheres - Part 36: Non-electrical equipment for explosive atmospheres - Basic method and requirements;
- **EN ISO 80079-37:2016** Explosive atmospheres - Part 37: Non-electrical type of protection constructional safety "c", control of ignition sources "b", liquid immersion "k":

Equalizer Flange Spreading Tools

EQUALIZER™ AN ENERPAC BRAND

▼ **SG11TM**

SG

FLANGE SPREADING TOOLS

Spreading Force:
37,0 - 150,0 kN

Spreading Distance:
0 - 115 mm

Maximum Operating Pressure:
700 bar *

* Only relevant for hydraulic tools

- **For use on all flange types with bolt-hole sizes ranging from 17,5 mm to 62,0 mm**
- **Unique expanding collet technology**
- **Little or no access gap required**
- **Secure bolt-hole locking mechanism**

Range of Application

For a detailed range of application please request the Secure-Grip Mechanical or Hydraulic Operator Instruction Sheet.

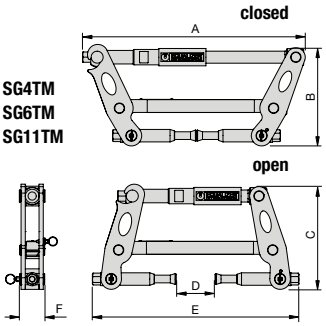
Caution

A minimum of two Flange Spreading Tools must be used when opening flange joints. This will enable the operator to maintain an equal spreading distance across the flange faces.

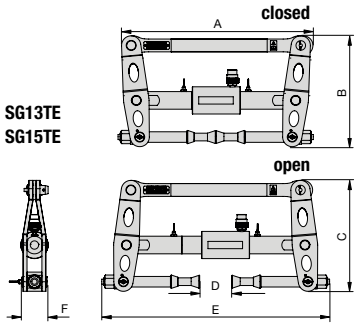
OPERATING BENEFITS

- **Time-saving, simple operation**
- **Measurable, controlled flange spreading force**
- **Virtually universal, the Secure-Grip Flange Spreader range covers ANSI, DIN, SPO, ASME, API and BS flanges**

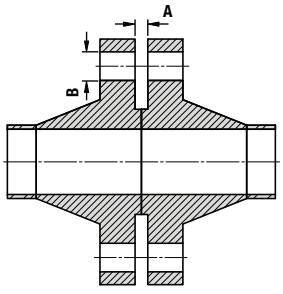
SG4TM
SG6TM
SG11TM



SG13TE
SG15TE

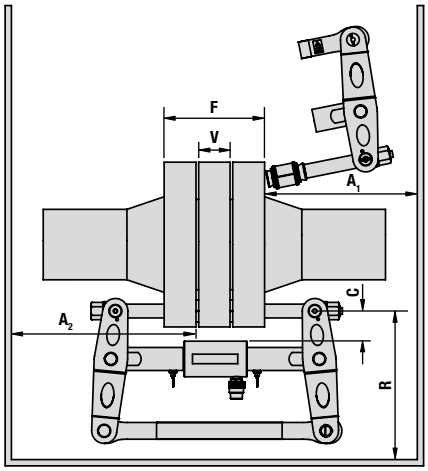


Flange Dimensions



Model Number Tool Kit	Type*	Maximum Spreading Force Per Tool (kN)	Spreading Distance Maximum (mm)	Flange Dimensions (mm)		Tool Dimensions (mm)						Tool Weight (kg)	Kit Weight (kg)	Case Dimensions (mm)	Tool Number
				Minimum Access Gap A	Bolt-hole Diameter B	A	B	C	D	E	F				
SG4TMSTD	M	37,0	75	0	17,5 - 23	398	190	182	75	385	48	4,5	12,8	520x375x165	SG4TM
SG6TMSTD	M	60,0	80	0	24 - 30	468	245	252	80	444	52	7,5	16,0	640x540x165	SG6TM
SG11TMSTD	H	110,0	90	0	30 - 39	516	250	263	90	462	60	10,5	20,0	640x540x165	SG11TM
SG13TESTD	H	130,0	115	0	38 - 49	516	303	314	115	630	72	21,5	40,5	890x570x165	SG13TE
SG15TESTD	H	150,0	100	0	47,5 - 62	600	346	380	100	720	80	26,0	45,0	890x570x165	SG15TE

* M = Mechanical
H = Hydraulic



SG

FLANGE
SPREADING TOOLS

Model Number	Flange Joint Thickness F			Valve / Spacer Thickness V			Flange Clearance C		Radial Space R		Axial Space (for installation) A_1		Axial Space (installed) A_2		Tool Number
	Min. (mm)	Max. (mm)	Measured: From / To	Min. (mm)	Max. (mm)	Measured: From / To	Max. (mm)	Measured: From / To	Min. (mm)	Measured: From / To	Min. (mm)	Measured: From / To	Min. (mm)	Measured: From / To	
SG4TMSTD	60	185	Outside face of flange / Outside face of flange	0*	45*	Inside face of flange / Inside face of flange	50	Bolt-hole circle / Largest OD of valve/spacer	170	Bolt-hole circle / Closest obstruction	170	Outside face of flange / Closest obstruction	200	Inner face of flange / Closest obstruction	SG4TM
SG6TMSTD	60	210		0*	50*		55		230		200		234		SG6TM
SG11TMSTD	96	240		0*	60*		60		240		223		258		SG11TM
SG13TESTD	120	310		0*	95*		70		280		310		260		SG13TE
SG15TESTD	140	400		0*	80*		80		370		380		315		SG15TE

* Short Collet Holder Kits (SCH) are available which can offer improved range of application.

SG4TM MECHANICAL TOOL KIT

1 X SG4TM Tool
1 X 150 mm Vernier Calliper
1 X 3/8" Drive Torque Wrench and 16 mm Socket
1 X Safety Block
2 X M16 (5/8") Collets
2 X M20 (3/4") Collets
1 x Aluminium Carry Case with Protective Foam Inserts

SG6TM MECHANICAL TOOL KIT

1 x SG6TM Tool
1 X 150 mm Vernier Calliper
1 X 3/8" Drive Torque Wrench and 21 mm Socket
1 x Safety Block
2 x M24 (7/8") Collets
2 x M27 (1") Collets
1 x Aluminium Carry Case with Protective Foam Inserts

SG11TM MECHANICAL TOOL KIT

1 x SG11TM Tool
1 x 150 mm Vernier calliper
1 x 1/2" Drive torque wrench and 24 mm socket
1 x Safety block
2 x M30 (1-1/8") Collets
2 x M33 (1-1/4") Collets
2 x M36 (1-3/8") Collets
1 x Aluminium Carry Case with Protective Foam Inserts

SG13TE HYDRAULIC TOOL KIT

1 x SG13TE Tool
1 x 700 bar HP550S Single Port Sealed Hand Pump with Gauge
1 x 700 bar Hydraulic Hose, 2 m
1 x 150 mm Vernier Calliper
1 x 1/2" Square Drive Flexible Handle
1 x 30 mm Socket
1 x Safety Block
2 x M39 (1-1/2") Collets
2 x M42 (1-5/8") Collets
2 x M45 (1-3/4") Collets
1 x Aluminium Carry Case with Protective Foam Inserts

SG15TE HYDRAULIC TOOL KIT

1 x SG15TE Tool
1 x 700 bar HP550S Single Port Sealed Hand Pump with Gauge
1 x 700 bar Hydraulic Hose, 2 m
1 x 300 mm Vernier Calliper
1 x 1/2" Square Drive Flexible Handle
1 x 36 mm Socket
1 x Safety Block
2 x M48 (1-7/8") Collets
2 x M52 (2") Collets
2 x M56 (2-1/4") Collets
1 x Aluminium Carry Case with Protective Foam Inserts

Equalizer Flange Spreading Tools

EQUALIZER™ AN ENERPAC BRAND

▼ SG18TE & SG25TE

SG

FLANGE SPREADING TOOLS

Spreading Force:
180,0 - 250,0 kN

Spreading Distance:
0 - 120 mm

Maximum Operating Pressure:
700 bar

- **Applicable for larger-sized flanges**
- **Actuated by an external hand pump**
- **Suitable for bolt holes from 59,5 mm to 108 mm**

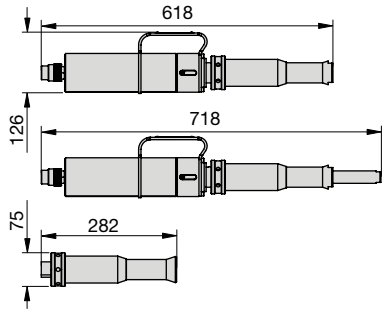
Range of Application

For a detailed range of application please request the Secure-Grip In-Line Hydraulic Operator Instruction Sheet.

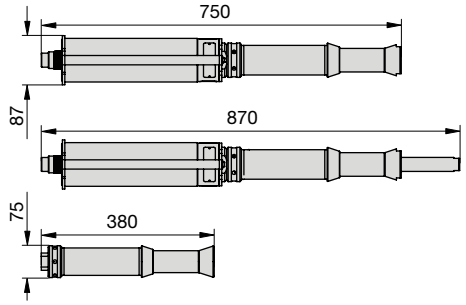
Caution

A minimum of two Flange Spreading Tools must be used when opening flange joints. This will enable the operator to maintain an equal spreading distance across the flange faces.

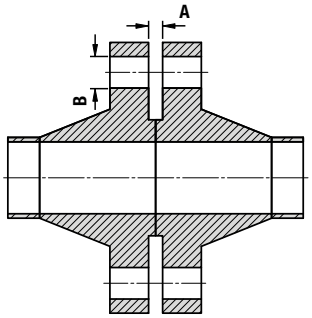
SG18TE



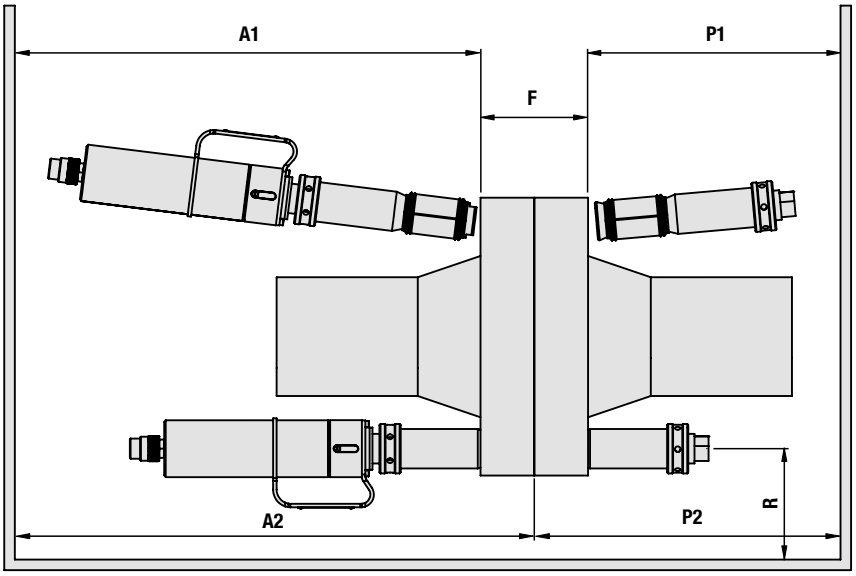
SG25TE



Flange Dimensions



Model Number Tool Kit	Type	Maximum Spreading Force Per Tool (kN)	Spreading Distance Maximum (mm)	Flange Dimensions (mm)		Tool Weight (kg)	Kit Weight (kg)	Case Dimensions (mm)	Tool Number
				Minimum Access Gap A	Bolt-hole Diameter B				
SG18TESTD	Hydraulic	180,0	100	0	59,5 - 75	14	45	890 x 570 x 165	SG18TE
SG25TESTD	Hydraulic	250,0	120	0	75 - 108	24	50	890 x 570 x 165	SG25TE



SG

FLANGE
SPREADING TOOLS

Model Number Tool Kit	Flange Joint Thickness F			Radial Space R		Axial Space (for installation) A1		Axial Space (installed) A2		Axial Plug Space (for installation) P1		Axial Plug Space (installed) P2		Tool Number
	Min. (mm)	Max. (mm)	Measured: From / To	Min. (mm)	Measured: From / To	Min. (mm)	Measured: From / To	Min. (mm)	Measured: From / To	Min. (mm)	Measured: From / To	Min. (mm)	Measured: From / To	
SG18TESTD	190	450	Outside face of flange/ Outside face of flange	55	Bolt-hole circle / Closest obstruction	620	Outside face of flange/ Closest obstruction	900	Inner face of flange/ Closest obstruction	283	Outside face of flange/ Closest obstruction	283	Inner face of flange/ Closest obstruction	SG18TE
SG25TESTD	210	570		55		750		1100		380		380		SG25TE

SG18TE HYDRAULIC TOOL KIT

1 x SG18TE Tool
1 x Spreading Plug
1 x 700 bar HP550S Single Port Sealed Hand Pump with Gauge
1 x 700 bar Hydraulic Hose, 2 m
1 x 300 mm Vernier Calliper
1 x 12.5 mm Spacer Plate
1 x 5mm Allen Key
1 x 50 mm Spacer
1 x Safety Block
2 x M60 (2-3/8") Collets
2 x M64 (2-1/2") Collets
2 x M70 (2-3/4") Collets
1 x Aluminium Carry Case with Protective Foam Inserts

SG25TE HYDRAULIC TOOL KIT

1 x SG25TE Tool
1 x Spreading Plug
1 x 700 bar HP550S Single Port Sealed Hand Pump with Gauge
1 x 700 bar Hydraulic Hose, 2 m
1 x 300 mm Vernier Calliper
1 x 12.5 mm Spacer Plate
1 x Safety Block
1 x Aluminium Carry Case with Protective Foam Inserts

SG25TE COLLETS (AVAILABLE SEPARATELY)

Model Number	Description
673601-01	2 x M76 (3") Collets
674801-01	2 x M90 (3-1/2") Collets
673901-01	2 x M80 (3-1/4") Collets
675101-01	2 x M95 (3-3/4") Collets
674501-01	2 x M84 (3-3/8") Collets
675601-01	2 x M100 (4") Collets

▼ VC10TE

VC

VALVE CHANGE-OUT TOOLS

Spreading Force:
100 kN

Spreading Distance:
0 - 580 mm

Maximum Operating Pressure:
700 bar

- **Assists in the removal of wafer/butterfly valves, spades/spacers or gaskets from large flange joints**
- **Tool span is longer than a standard Secure-Grip Flange Spreader**
- **Adjustable to enable the tool to operate in a range of situations**

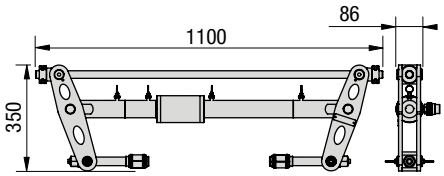
PATENTED SECURE-GRIP SYSTEM:

- **Unique expanding collet technology**
- **Secure bolt-hole locking mechanism**
- **Unique technology makes the Secure-Grip arguably the safest flange spreader available in the world today**
- **Virtually universal, the Secure-Grip Flange Spreader range will cover ANSI, DIN, Norsok L005, ASME, API and BS Flanges**
- **Time-saving, simple operation**

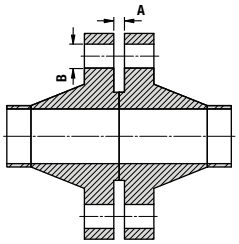
Caution

A minimum of two Flange Spreading Tools must be used when opening flange joints. This will enable the operator to maintain an equal spreading distance across the flange faces.

The Actuator and Extension Subassembly can be assembled into 4 different configurations to suit a variety of applications. For a detailed range of application please request the VC10 Operator Instruction Sheet.

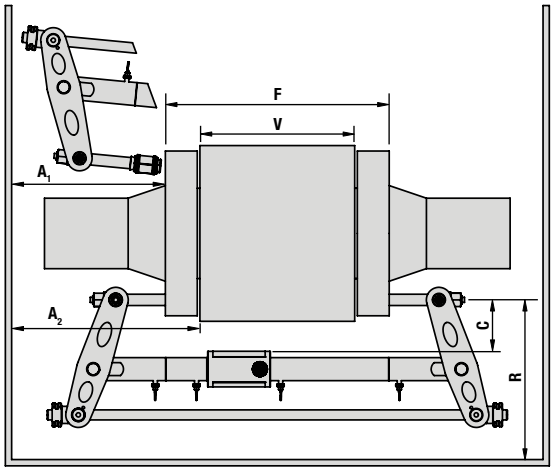


Flange Dimensions



Model Number Tool Kit	Type*	Maximum Spreading Force Per Tool (kN)	Spreading Distance Maximum (mm)	Flange Dimensions (mm)		Tool Kit Weight (kg) (2 per Maxi Kit)	Pump Kit Weight (kg)	Gross Kit Weight (kg)	Tool Case Dimensions (mm)	Pump Case Dimensions (mm)	Tool Number
				Minimum Access Gap A	Bolt-hole Diameter B						
VC10/13TESTD	H	100	580	0	38 - 49	50	27	77	550x1200x170	550x1200x170	VC10/13TE
VC10/13TEMAX	H	100	580	0	38 - 49	50	30	130	550x1200x170	550x1200x170	VC10/13TE
VC10/15TESTD	H	100	560	0	47,5 - 62	53	27	80	550x1200x170	550x1200x170	VC10/15TE
VC10/15TEMAX	H	100	560	0	47,5 - 62	53	30	136	550x1200x170	550x1200x170	VC10/15TE
VC10/18TESTD	H	100	514	0	59,5 - 75	58	27	85	550x1200x170	550x1200x170	VC10/18TE
VC10/18TEMAX	H	100	514	0	59,5 - 75	58	30	146	550x1200x170	550x1200x170	VC10/18TE
VC10/25TESTD	H	100	490	0	75 - 108	58	27	85	550x1200x170	550x1200x170	VC10/25TE
VC10/25TEMAX	H	100	490	0	75 - 108	58	30	146	550x1200x170	550x1200x170	VC10/25TE

* H = Hydraulic



VC

VALVE
CHANGE-OUT TOOLS

Model Number Tool Kit	Flange Joint Thickness F			Valve / Spacer Thickness V			Flange Clearance C	Radial Space R	Axial Space (for installation) A_1	Axial Space (installed) A_2	Tool Number
	Min. (mm)	Max. (mm)	Measured: From / To	Min. (mm)	Max. (mm)	Measured: From / To	Measured: From / To	Measured: From / To	Measured: From / To	Measured: From / To	
VC10/13TESTD	110	690	Outside face of flange / Outside face of flange	0*	580*	Inside face of flange / Inside face of flange	Bolt-hole circle / Largest OD of valve/spacer - max. 130 mm	Bolt-hole circle / Closest obstruction - min. 360 mm	Outside face of flange / Closest obstruction - min. 300 mm	Inner face of flange / Closest obstruction - min. 370 mm	VC10/13TE
VC10/13TEMAX	110	690		0*	580*						VC10/13TE
VC10/15TESTD	130	690		0*	560*						VC10/15TE
VC10/15TEMAX	130	690		0*	560*						VC10/15TE
VC10/18TESTD	176	690		0*	514*						VC10/18TE
VC10/18TEMAX	176	690		0*	514*						VC10/18TE
VC10/25TESTD	200	690		0*	490*						VC10/25TE
VC10/25TEMAX	200	690		0*	490*						VC10/25TE

* Short Collet Holder Kits (SCH) are available which can offer improved range of application.

TOOL KITS
(1 PER STD KIT, 2 PER MAX KIT)

VC10/13TE
1 x VC10/13TE Tool
2 x M39 (1-1/2") Collets
2 x M42 (1-5/8") Collets
2 x M45 (1-3/4") Collets
1 x Aluminium Carry Case with Protective Foam Inserts

VC10/18TE
1 x VC10/18TE Tool
2 x M60 (2-3/8") Collets
2 x M64 (2-1/2") Collets
2 x M70 (2-3/4") Collets
1 x Aluminium Carry Case with Protective Foam Inserts

VC10/15TE
1 x VC10/15TE Tool
2 x M48 (1-7/8") Collets
2 x M52 (2") Collets
2 x M56 (2-1/4") Collets
1 x Aluminium Carry Case with Protective Foam Inserts

VC10/25TE
1 x VC10/25TE Tool
1 x Aluminium Carry Case with Protective Foam Inserts

PUMP KITS

For STD Tool Kits
1 x 700 bar HP550S Single Port Hydraulic Hand Pump
1 x Hydraulic Gauge with Manifold
1 x 700 bar Hydraulic Hose, 2,0 m
1 x Secure Grip Safety Block
1 x Square Drive Flexible Handle
1 x Vernier Calliper
1 x Aluminium Carry Case with Protective Foam Inserts

For MAX Tool Kits
1 x 700 bar HP1000D Twin Port Hydraulic Hand Pump
2 x Hydraulic Gauges with Manifolds
2 x 700 bar Hydraulic Hoses, 2,0 m
2 x Secure Grip Safety Blocks
1 x Square Drive Flexible Handle
1 x Vernier Calliper
1 x Aluminium Carry Case with Protective Foam Inserts

Collet Sizing

It is important that the correct size of collet is used. An undersized collet could allow the collet holder to pull through its bore. An oversized collet has the potential to become jammed in the bolt-hole.

Range of Application

For a detailed range of application please request the Hydraulic Secure-Grip Valve Change-Out Tool Operator Instruction Sheet.

VC10/25TE COLLETS (AVAILABLE SEPARATELY)

Model Number	Description
673601-01	2 x M76 (3") Collets
673901-01	2 x M80 (3-1/4") Collets
674501-01	2 x M84 (3-3/8") Collets
674801-01	2 x M90 (3-1/2") Collets
675101-01	2 x M95 (3-3/4") Collets
675601-01	2 x M100 (4") Collets

▼ **TFA15TI**

TFA

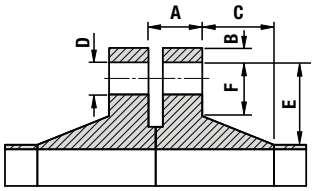
WIND TURBINE TOWER
FLANGE ALIGNMENT TOOLS

Hook Force:
40 - 270 kN

Aligning Distance:
42 - 65 mm

The TFA Wind Turbine Tower Flange Alignment Tools have been developed to aid the alignment of large flanges on the inside of wind turbine towers during their assembly or installation.

- **Assists in aligning / de-ovalizing large internal pipe flanges**
- **Helps resolve bolt-hole misalignment within tower sections of wind turbine towers**
- **Can be used both on and offshore**



Flange Dimensions

TFA4TM Mechanical Tool Kit

1 x TFA4TM Tool
1 x Torque Wrench
1 x Moulded Plastic Carry Case

TFA12TE / TFA15TE External Hydraulic Tool Kit

1 x TFA12TE or TFA15TE Tool
1 x Safety Lanyard
1 x Aluminium Carry Case with Protective Foam Inserts

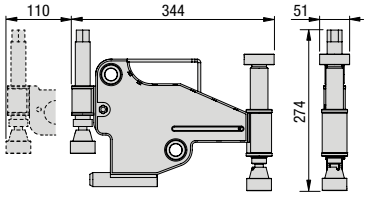
TFA12TI / TFA15TI Internal Hydraulic Tool Kit

1 x TFA12TI or TFA15TI Tool
1 x Aluminium Carry Case with Protective Foam Inserts

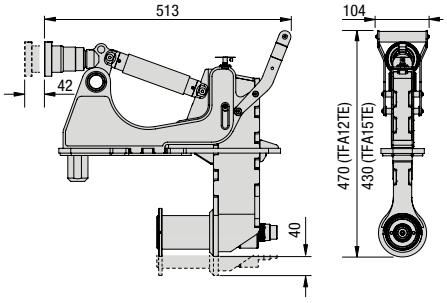
Model Number Tool Kit	Type*	Maximum Hook Force Per Tool (kN)	Maximum Aligning Distance (mm)	Maximum Operating Pressure (bar)	Flange Dimensions (mm)						Tool Weight (kg)	Kit Weight (kg)	Box/Case Dimensions (mm)	Tool Number
					A	B	C	D min	E	F min				
TFA4TMSTD	M	40	42	-	36-135	0-55	0-231	25	0-105	24	8,1	18,0	600x370x200	TFA4TM
TFA12TEMIN	H	240	65	510	129-178	110-241	0-167	45	87-125	62	19,3	28,4	640x540x165	TFA12TE
TFA15TEMIN	H	270	65	700	89-138	110-241	0-167	45	87-125	62	18,9	28,0	640x540x165	TFA15TE
TFA12TIMIN	H	240	65	-	129-178	113-241	0-167	45	87-125	62	21,9	31,0	585x900x160	TFA12TI
TFA15TIMIN	H	270	65	-	89-138	113-241	0-167	45	87-125	62	21,5	30,6	585x900x160	TFA15TI

* M = Mechanical
H = Hydraulic

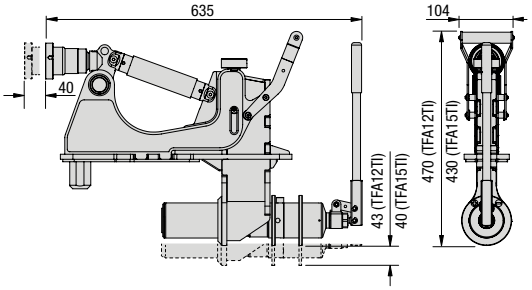
TFA4TM



TFA12TE
TFA15TE



TFA12TI
TFA15TI



Equalizer Flange Pulling Tool

▼ **FC10TE**

FC

FLANGE
CLOSING TOOLS

Closing Force:
100 kN

Closing Distance:
570 - 0 mm

Maximum Operating Pressure:
700 bar

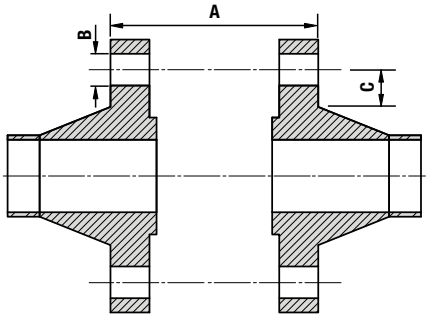
Caution

A minimum of two flange closing tools must be used when flange pulling. This will enable the operator to maintain an even gap between flange faces and prevent flange / gasket damage.

- **Applicable to all flanges with a bolt-hole diameter of 1 inch or greater, including ANSI, DIN, Norsok L005, ASME and BS flanges**
- **Slide and lock collet system**
- **Low profile tool**
- **Can be used on all vertical and horizontal flanges including ANSI, API, BS, DIN & Norsok L005**
- **Robust yet light weight**
- **Subsea compatible**
- **Reciprocating hydraulic action**

OPERATING BENEFITS

- **Reduction in operator fatigue**
- **Reduction in pinch point**
- **Quick and easy to use**



Flange Dimensions

FC10TESTD STD Kit

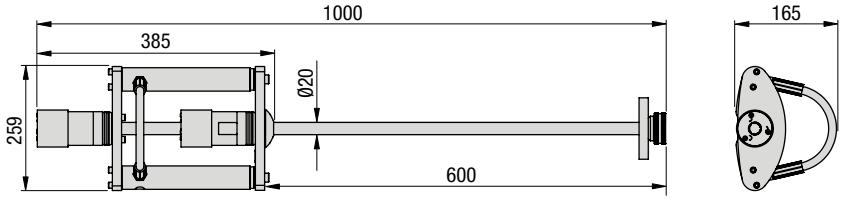
1 x FC10TE Tool
1 x 700 bar Hydraulic Hose, 2 m long
1 x 700 bar HP550S Single Port Sealed Hand Pump with Gauge
1 x Aluminium Carry Case with Protective Foam Inserts

FC10TEMAX MAX Kit

2 x FC10TE Tool
2 x 700 bar Hydraulic Hoses, 2 m long
1 x 700 bar HP550D Twin Port Sealed Hand Pump with Gauge
1 x Aluminium Carry Case with Protective Foam Inserts

Model Number Tool Kit	Type	Maximum Closing Force Per Tool (kN)	Closing Distance (mm)	Flange Dimensions (mm)			Tool Weight (kg)	Kit Weight (kg)	Box/Case Dimensions (mm)	Tool Number
				A	B min	C min				
FC10TESTD	Hydraulic	100	570	16-570	25,4*	32	11	23,5	890 x 570 x 165	FC10TE
FC10TEMAX	Hydraulic	100	570	16-570	25,4*	32	11	36,5	890 x 570 x 165	FC10TE

* For hole diameter greater than 45mm, please contact Enerpac.



▼ HP350D

HP

HYDRAULIC SEALED HAND PUMPS

Maximum Pressure Rating:

1st Stage: 13,8 bar
2nd Stage: 700 bar

Pump Type:

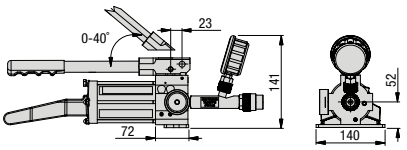
2-Speed

- **HP-S , HP-D and HP-SD pump ranges are operable at all angles and are highly resistant to accidental spillage of hydraulic fluid. (certified)**
- **The Single-Port and Twin-Port Hand Pumps are also available with ATEX rating, which are certified for use in hazardous areas II 2G Ex h IIB T5 Gb, II 2D Ex h IIIC T100°C Db**

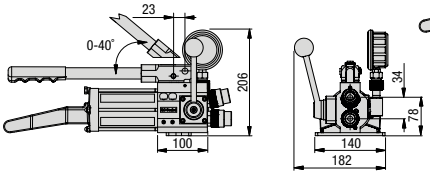
Pump Ratings

The Hydraulic Single Port,Twin Port and Double-Acting Hand-Pump (and hoses) are tailored for use with hydraulic equipment. Each pump's output is regulated to 700 bar and is delivered from threaded 3/8" NPT output ports. The pumps and hoses can be used with any 700 bar rated hydraulic equipment within their oil capacity specification. The HP range of hydraulic hand-pumps have been designed with a seal oil reservoir, which allows the pumps to be used in any orientation without the risk of oil spills or air contamination

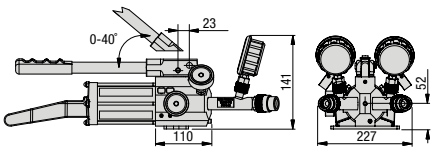
HP350/550/1000S



HP350/550/1000SD



HP350/550/1000D



700 BAR HOSES

AVAILABLE TO PURCHASE SEPARATELY

Model Number	Description
302701-01	HYDRAULIC HOSE 2M
302702-01	HYDRAULIC HOSE 4M
302705-01	HYDRAULIC HOSE 3M
302706-01	HYDRAULIC HOSE 5M
302707-01	HYDRAULIC HOSE 6M
1440008-01	ATEX HYDRAULIC HOSE 2M
1440013-01	ATEX HYDRAULIC HOSE 4M
1440014-01	ATEX HYDRAULIC HOSE 6M

Model Number Hand Pump Kit		Type*	Nominal Oil Capacity (cc)	Useable Oil Capacity (cc)	Oil Volume per Stroke (cc)		Max. Handle Effort (kgf)	Piston Stroke (mm)	Overall Length (mm)	Box Dimensions (mm)	Pump Weight (kg)	Kit Weight (kg)	Tool Number
Standard	ATEX				1st Stage	2nd Stage							
HP350SMIN	HP350SMINEX	SA, SP	350	300	3,62	0,77	33	18	554	250 x 180 x 600	4,4	4,9	HP350S
HP550SMIN	HP550SMINEX	SA, SP	550	580	3,62	0,77	25	18	643	250 x 180 x 700	5,1	5,9	HP550S
HP1000SMIN	HP1000SMINEX	SA, SP	1000	1110	3,62	0,77	21	18	867	250 x 180 x 900	6,1	7,1	HP1000S
HP350DMIN	HP350DMINEX	SA, TP	350	300	3,62	0,77	33	18	580	250 x 180 x 600	6,5	7,2	HP350D
HP550DMIN	HP550DMINEX	SA, TP	550	580	3,62	0,77	25	18	669	250 x 180 x 700	7,2	8,1	HP550D
HP1000DMIN	HP1000DMINEX	SA, TP	1000	1110	3,62	0,77	21	18	893	250 x 180 x 900	7,1	9,3	HP1000D
HP350SDMIN	–	DA	350	300	3,62	0,77	33	18	456	250 x 180 x 600	5,3	5,7	HP350SD
HP550SDMIN	–	DA	550	580	3,62	0,77	25	18	579	250 x 180 x 700	5,7	6,0	HP550SD
HP1000SDMIN	–	DA	1000	1110	3,62	0,77	31	18	769	250 x 180 x 900	5,9	6,3	HP1000SD

* SA = Single Acting DA = Double Acting
SP = Single Port TP = Twin Port

Product Training and Demonstration

Product training

Equalizer designs and builds products of the highest quality, using the best components. This quality ethos extends to training and a range of training components are offered to ensure the optimal use of the tools. In addition to online training materials, Equalizer has a hands-on training facility, class-room based training and an onsite training system with a mobile demo trailer which travels around providing on-site introductions and training. Through this, users can experience first-hand how quick, simple and easy the tools are to apply and use on a series of custom-built flanges.

Class-room based training

Commercial and technical presentations provide distributors with the necessary information to respond to a wide range of customer enquiries and challenges.

On-site training

- Custom built trailer, containing the full range of Equalizer™ tools
- Portable training rig with flange joints
- Flange aligning, spreading and pulling tool demonstrations.

Hands-on training and demonstration

Practical demonstrations and hands-on training provide distributors and customers with valuable knowledge, information and experience to safely use the full range of Equalizer products. This in turn strengthens Equalizer's reputation as the expert in tools for flange maintenance within the oil and gas, chemical, power generation, nuclear, water, mining and renewable energy sectors world-wide.

For the toughest on-site machining jobs

▲ *Flange facing machining.*

FLANGE FACING MACHINES

If you mention flange facing machines to an on-site machinist, the chances are the first manufacturer they'll think of is Mirage. This success stems from their precision construction, the results they deliver, and how easy they are to set-up on-site. Choose from external and internal mount options in a wide range of sizes.

LINEAR MILLING MACHINES

These are available in 2 and 3 axis configurations. Each includes the latest workshop tool technology in a portable format. Choose our optional switch magnets and chain clamps for a fast and efficient set-up onto pipe diameters.

ORBITAL MILLING MACHINES

Mirage orbital milling machines deliver fast material removal and achieve high accuracy across large diameters. The WP orbital milling range is designed especially for companies manufacturing wind turbine rotor blades and towers.

HOT TAPPING MACHINES

Hot tapping is a high pressure intervention and the Mirage range of machines can help you achieve a safe and effective solution. Innovations used include a helical gear drive located close to the cutting head to ensure maximum efficiency, rotary pressure seals, and four fixed feeds.

Portable machine tools to power your success

Decades of engineering knowhow combined with a continuing drive to innovate has resulted in a wide range of world-class portable machining products - each one robust enough to handle the toughest of on-site machining challenges.

▲ *Flange facing machines to ensure flange joint integrity.*

▲ *Orbital milling machines used in shipbuilding and power generation industries.*

▲ *Orbital milling machines for wind turbine manufacture.*

Our mission is to help you create success stories, for both you and your customers

▲ *Pipe cutters and weld preparation.*

LINE BORING MACHINES

Mirage Line Boring Machines produce workshop quality tolerances on site - eliminating costly dismantling and production downtime. Many configurations are possible by choosing different bar diameters and lengths, along with a wide range of inserts, boring arms and facing heads.

DECOMMISSIONING SAWS

Mirage provides a range of saws for a diverse range of heavy duty tubular severance projects. Band saws deliver a cost effective solution to cold cutting requirements and our diamond wire saws are ideal for quickly cutting through dissimilar materials.

DRILLING AND TAPPING MACHINES

Mirage heavy duty drilling and tapping machines offer high torque and easy operation through their heavy duty spindles with ISO standard tapers. Optional switch magnet mounts and chain clamps enable a quick and easy setup. For large scale offshore decommissioning projects Mirage casing pin drills provide an effective solution for creating lift holes in casings.

DL RICCI CLAMSHELL CUTTERS

Throughout the world, the DL Ricci name is synonymous with pipe cutting and bevelling. Mirage is now able to offer these pioneering machines, each capable of delivering an outstanding performance in industries such as construction, decommissioning, maintenance, fabrication and refurbishment.

High Performing Portable Machine Tools

Creating machines to deal with the toughest machining challenges doesn't just happen by accident. It comes from decades of engineering know-how, from the relentless need to innovate - and above all, from placing the customer at the heart of everything we do.

▲ *Pipe cutters and weld preparation.*

▲ *Line boring machines for power generation and maintenance of construction vehicles.*

▲ *High torque portable drilling machines.*

Enerpac 'Yellow Pages' stand for technical information!

If selecting bolting tools is not your daily routine, then you will appreciate these pages. The 'Yellow Pages' are designed to help you work with hydraulics. They will help you to better understand the basics of bolting system set-ups and of the most commonly used bolting techniques.

The better your choice of equipment, the better you will appreciate these tools. Take the time to go through these 'Yellow Pages' and you will benefit even more from Enerpac Bolting Solutions.

Enerpac Warranty Statement

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

ISO 9001 REGISTERED
ENERPAC, 720 W. James St., Columbus, WI 53925 USA

Enerpac is certified for several quality standards. These standards require compliance with standards for management, administration, product development and manufacturing. Enerpac worked hard to earn the quality rating ISO 9001, in its ongoing pursuit of excellence.

DIN-ISO 1402: 2009, ISO 4672, ISO 6803

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

Ex II 2 GD ck T4

ATEX 95 Certified

The ATP, ZA and XA-Series air 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 zone area 1), in gas and/or dust atmospheres.
ATP, ZA and XA-Series air pumps are marked: Ex II 2 GD ck T4.

Product Design Criteria

All hydraulic components are designed and tested to be safe for use at maximum 700 bar (10.000 psi) pressure unless otherwise specifically noted.

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 TÜV and by CSA, national recognized testing laboratories.

EMC Directive

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

CE

CE Marking & Conformity

Enerpac provides a Declaration of Conformity and CE marking for products that conform with the European Community Directives.

ASME B30.1-2015

Our cylinders fully comply with the criteria set forth by the American National Standards Institute (except RD, BRD, HCL, LPL, CUSP and JHA-Series).

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: _____

Appl. Operating Temperature, °C or °F:

_____

Known Bolting Values:

☐ **Load**

(kN / lbs) _____ % of Yield (N/mm² /psi)

☐ **Stretch-Bolt Length**

(mm / inch) _____

☐ **Turn of Nut**

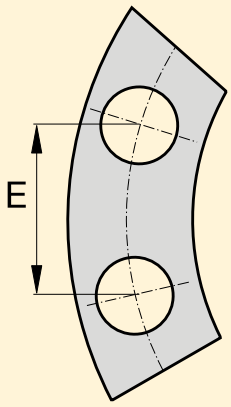
(Preload / Degrees) _____

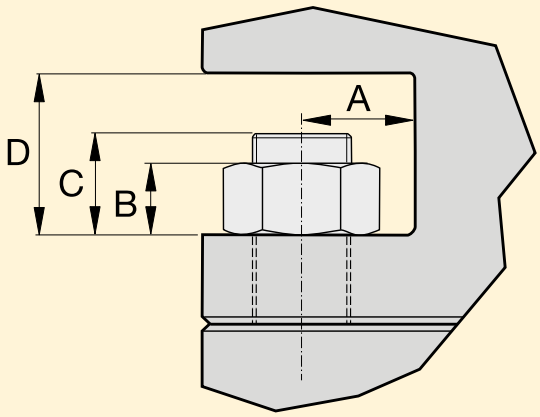
☐ **Torque**

(Nm / Kgm / Ft.lbs) _____

Application Position:

☐ Top-side ☐ Vertical ☐ Inverted





Specify Dimensions: **INCH** **MM (Metric)**

A _____ **B** _____ **C** _____ **D** _____ **E** _____

Distance to Closure: _____

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

Safety Instructions

When used correctly, hydraulic power is one of the safest methods of applying force to your work. And to that end we offer some DO's and DON'Ts, simple common sense points which apply to practically all Enerpac hydraulic products.

- **Lift slowly and check the load often**
- **Avoid standing in the line of force**
- **Anticipate possible problems and take steps to avoid them.**

The line drawings and application photo's of Enerpac products throughout this catalog are used to portray how some of our customers have used hydraulics in industry.

In designing similar systems, care must be taken to select the proper components that provide safe operation and fit your needs.

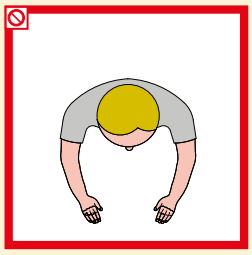
Check to see if all safety measures have been taken to avoid the risk of injury and property damage from your application or system.

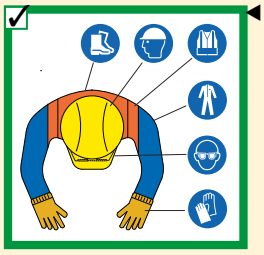
Enerpac can not be held responsible for damage or injury, caused by unsafe use, maintenance or application of its products.

Please contact the Enerpac office or a representative for guidance when you are in doubt as to the proper safety precautions to be taken in designing and setting up your particular system.

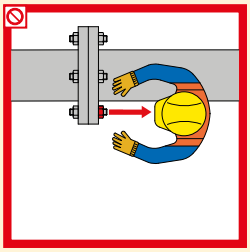
In addition to these tips, every Enerpac product comes with instructions spelling out specific safety information. Please read them carefully.

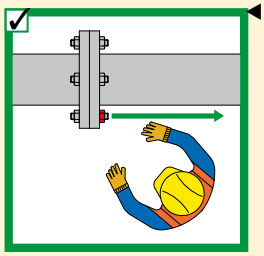
Bolting Tools



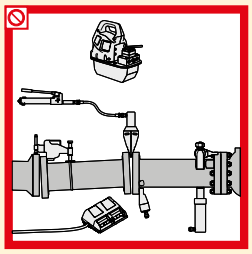


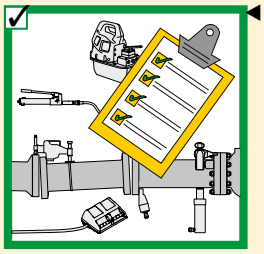
Always use the proper personal protection equipment (PPE).



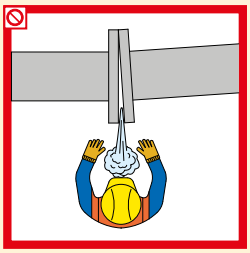


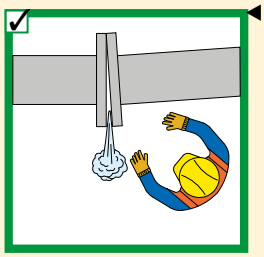
Never stand in-line with the bolt axis.



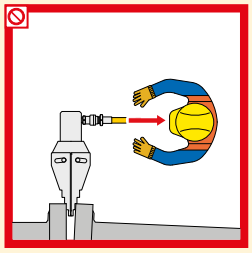


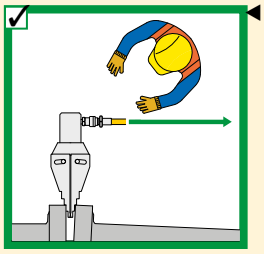
Always check your system set-up and follow the correct bolting procedures.



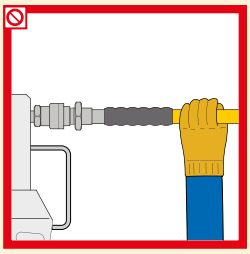


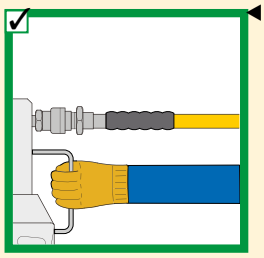
Never stand in-line with the flange or pipe opening.



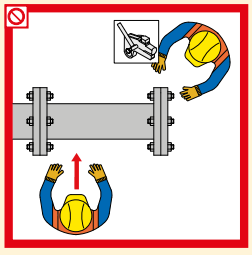


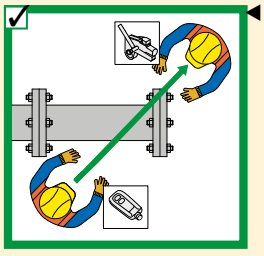
Never stand in-line with the pressure, couplers or hoses.



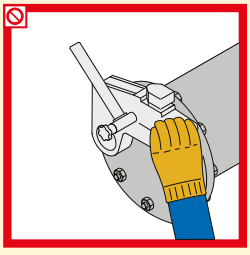


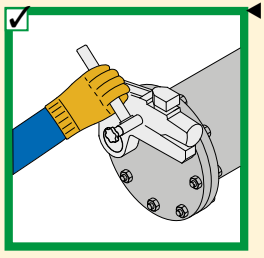
Never hold pressurized hoses.





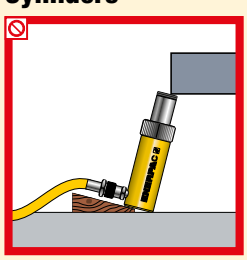
The torque wrench (or tool) operator is always in charge.

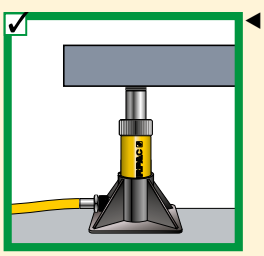




Hold torque wrench (or tool) at handle only. Do not place any part of body between wrench and reaction point.

Cylinders



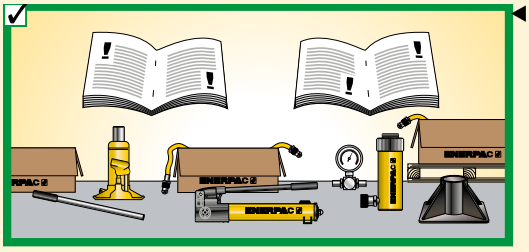


Provide a solid support for the entire cylinder base area. Use cylinder base attachment for more stability.

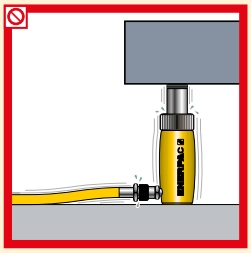
As with jacks, never place any part of your body under the load. Load must be on cribbing before venturing under.

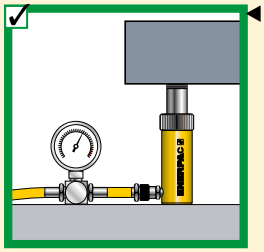
General

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



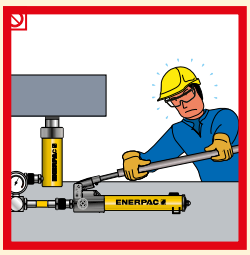
Always read instructions and safety warnings that come with your Enerpac hydraulic equipment.

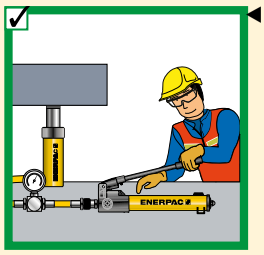




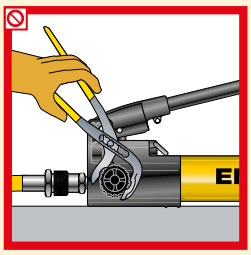
Don't override the factory setting of relief valves. Always use a gauge to check system pressure.

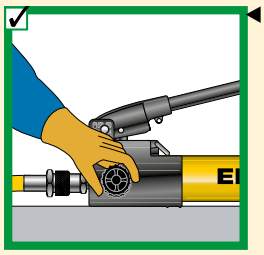
Pumps



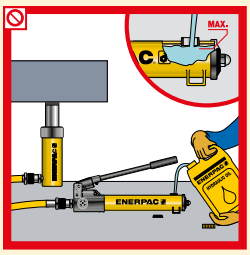


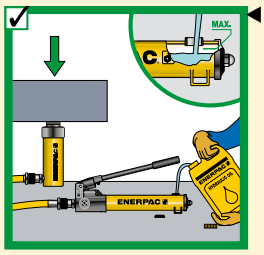
Don't use handle extenders. Hand pumps should be easy to operate when used correctly.



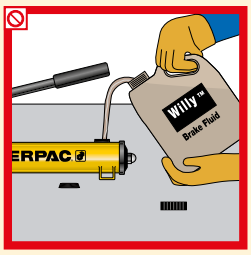


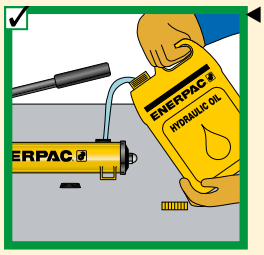
Close release valve finger tight. Using force will ruin the valve.





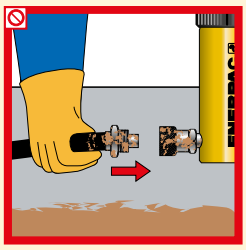
Fill pump only to recommended level. Fill only when connected cylinder is fully retracted.

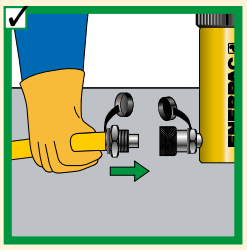




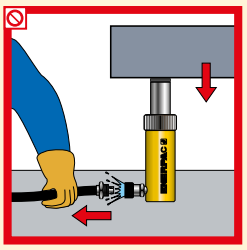
Use only genuine Enerpac hydraulic oil. Wrong fluid can destroy seals and pump and will render your warranty null and void your guarantee.

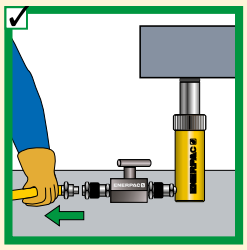
Hoses and couplers



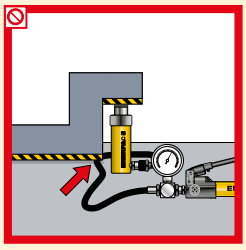


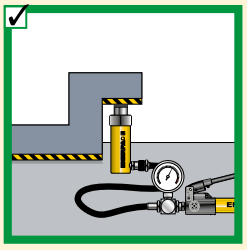
Clean both coupler parts before connecting. Use dust caps when coupler parts are not connected.



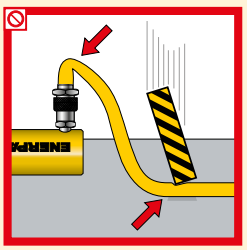


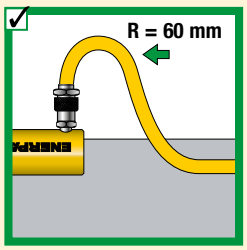
Detach cylinder only when fully retracted or use shut-off valves or safety valves to lock-in cylinder pressure.



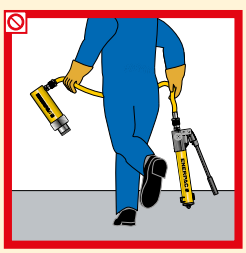


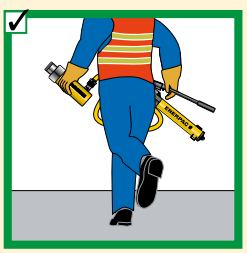
Keep hoses away from the area beneath loads.



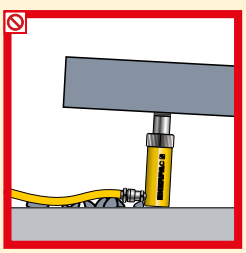


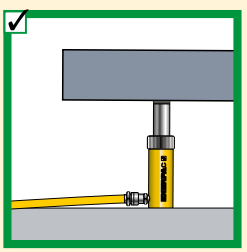
Don't kink hoses. Bending radius should be at least 60 millimetres. Don't drive over or drop heavy objects on hoses.





Don't lift hydraulic equipment by the hoses.





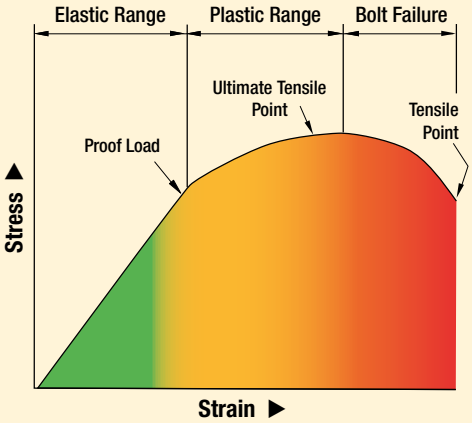
Never allow the cylinder to be lifted off of the ground through the couplers.

Function of Bolts and Nuts

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

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

Hooke's Law of Physics



Behavior of Bolts and Nuts

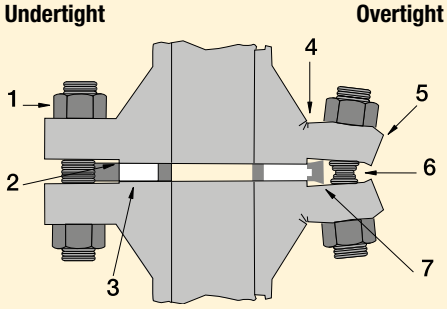
Elasticity is defined in Hooke's Law of physics: The stress in a bolt is directly proportional to its strain. The stress-strain of a bolt has an **elastic range** and a **plastic range**. In the elastic range Hooke's Law is true.

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

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

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

Uniform preload (residual load)



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

Preload

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

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

Uneven bolt loads can result in:

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

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

Tightening Methods

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

Uncontrolled tightening

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

Controlled tightening

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

1. Torque tightening

Achieves preload in a bolt and nut assembly via the nut in a controlled manner using a tool.

2. Bolt tensioning

Achieves preload in a bolt and nut assembly by stretching the bolt axially using a tool.

Advantages of Controlled Tightening

Known, controllable and accurate bolt loads

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

Uniformity of bolt loading

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

Safe operation following prescribed procedures

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

Reduces operational time resulting in increased productivity

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

Reliable and repeatable results

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

The right results first time

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

Bolting Integrity Software

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

Integral databases hold data for:

- ASME B16.5, ASME B16.47, API 6A and API 17D flanged joints
- Common gasket materials and configurations
- Comprehensive range of bolt materials
- Comprehensive range of lubricants
- Enerpac's Controlled Bolting Equipment includes: Torque Multipliers, Hydraulic Wrenches and Bolt Tensioners.

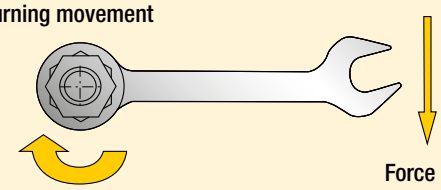
Custom Joint information can also be entered.

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

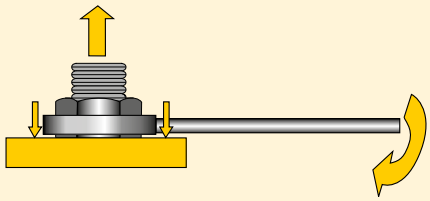
Page: 126

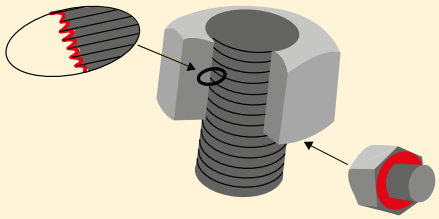
Torque Tightening

Turning movement



Stretch of Fastener (Pre-load)





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).

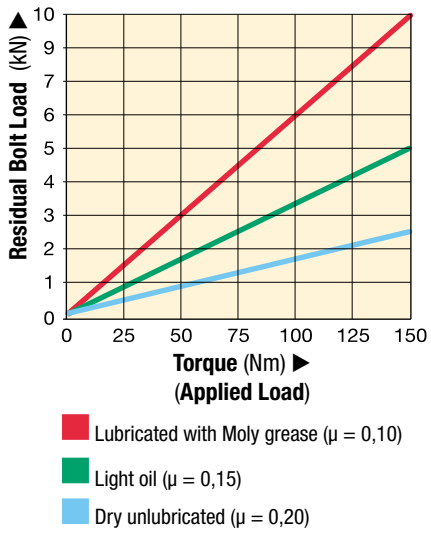
Preload (residual load) = Applied Torque minus Frictional Losses

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.

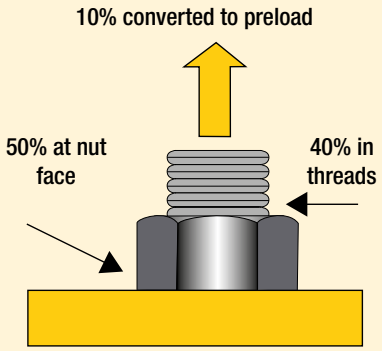
The value for the friction coefficient provided by the lubricant manufacturer must be known to accurately establish the required torque value. Lubricant or anti-seizure compounds should be applied to both the nut bearing surface and the male threads.

LUBRICATION REDUCES FRICTION



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

Frictional Losses



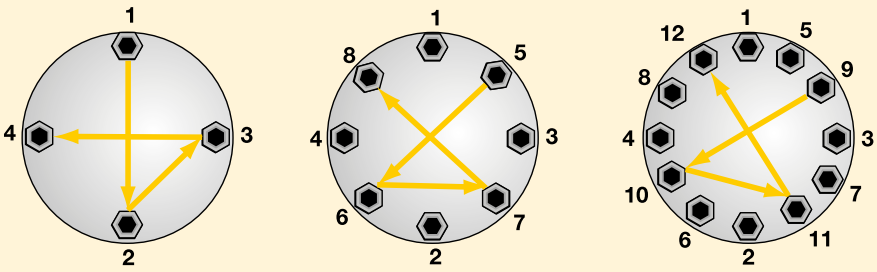
Frictional Losses (dry steel bolt)

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

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 (⅓) of the final required torque following the pattern as shown above.

Step 3 Increase the torque to two-thirds (⅔) 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 Right 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 **2 times** 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.

Bolting Integrity Software

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

Integral databases hold data for:

- ASME B16.5, ASME B16.47, API 6A and API 17D flanged joints
- Common gasket materials and configurations
- Comprehensive range of bolt materials
- Comprehensive range of lubricants
- Enerpac's Controlled Bolting Equipment includes: Torque Multipliers, Hydraulic Wrenches and Bolt Tensioners.

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.

Page: 126

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.

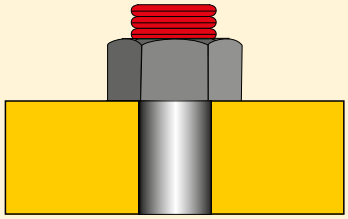
The use of penetrating oils or anti-seize products is always recommended when performing breakout operations.

Tensioning

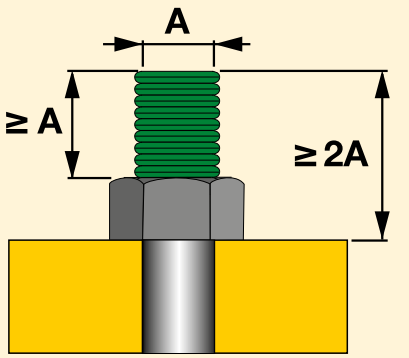
ENERPAC

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.

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

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.

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.

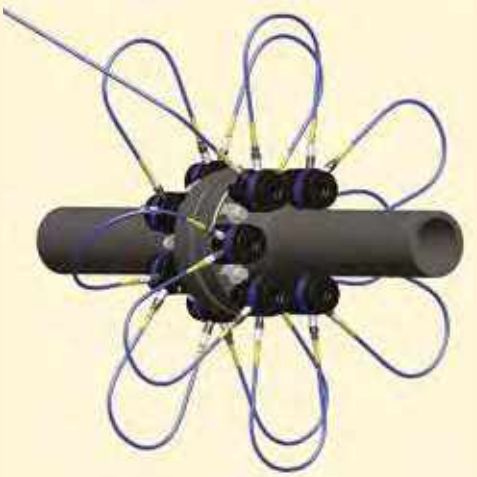
Yield Strength:
The point at which a bolt begins to plastically deform under tensile loading.

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

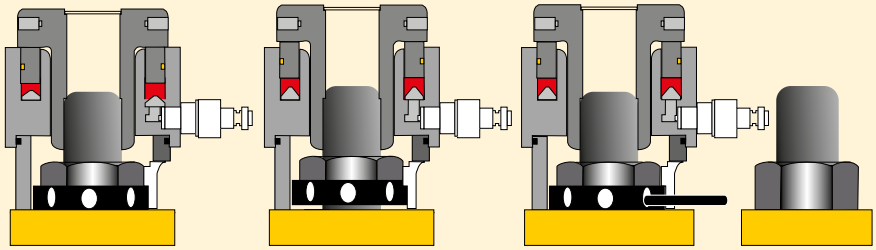
80% **Manufacturer's rating of pressure and load are maximum safe limits. Good practice encourages using only 80% of these ratings!** **80%**

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 Step 2 Step 3 Step 4

Step 1: The bolt tensioner is fitted over the stud.

Step 2: Hydraulic pressure is applied to the tensioner which then stretches the stud (bolt).

Step 3: The stud's nut is wound down against the joint face

Step 4: Hydraulic pressure is released and the tensioner removed.

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

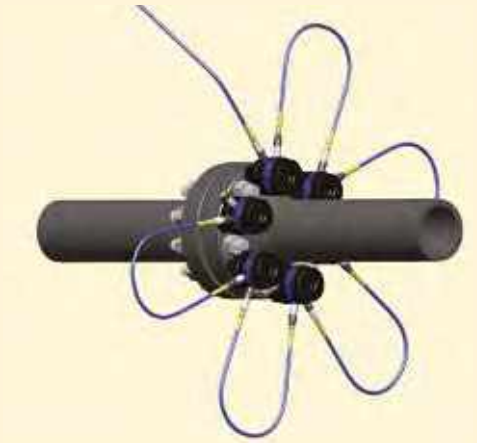
Less than 100% Tensioning

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.

Bolting Integrity Software

Enerpac Bolting Integrity Software Solutions play a key role in implementing and managing an Integrity Programme for bolted connections. The software is used extensively within Enerpac and increasingly by a wide range of clients worldwide often interfacing with maintenance, construction and commissioning management systems.

- First developed over 20 years ago, we have continued to update and enhance the software based on user feedback, technology advances and our roles on Industry standard committees, to produce the most comprehensive suite of joint integrity software available.
- Recommended bolt loads for standard joints are derived from independently verified calculation methods and traceable back to standards

Integral databases hold data for:

- ASME B16.5, ASME B16.47, API 6A and API 17D flanged joints
- Common gasket materials and configurations
- Comprehensive flange and bolt materials
- Comprehensive range of lubricants
- Enerpac controlled bolting equipment includes torque, multipliers, hydraulic wrenches and bolt tensioners.
- Custom joint information can also be entered.

Bolting Integrity Software

The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application data sheet and Joint completion report.
This software includes following hydraulic tools selections:

- RSL, S and W-Series Torque Wrenches,
- HM-Series HydraMax® and GT-Series Bolt Tensioners.

Software Model Nr.	INFORMATE Subscriptions Contact Enerpac for details
BSOFIN1	1x user license
BSOFIN1 S	1x user license + dedicated support
BSOFIN5	5x user licenses
BSOFIN5 S	5x user licenses + dedicated support

▲ Standard flange calculation menu (INFORMATE)

The Enerpac Bolting Software Suite includes:

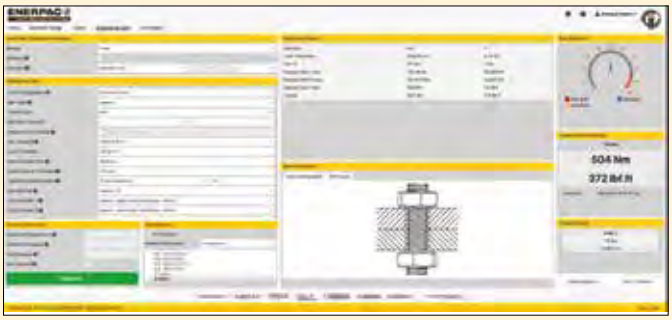
- **Bolt-Up** - Online bolt load calculator. Free access and use on www.enerpac.com.
- **INFORMATE** - Advanced calculation and procedure software. Contact Enerpac for user licenses and dedicated support.
- **IDMS Integrity Data Management System** - A complete Integrity Assurance project management package for managing bolted joints from cradle to grave. Contact Enerpac for user licenses and dedicated support.

Bolt-Up

Bolt-Up is a simple to use online calculator, built upon the Informate calculation engine, providing reliable, repeatable bolt loads for:

- Carbon steel weldneck ANSI 16.5 standard flanges, using a limited range of bolt materials; selected gasket options and a fixed lubrication value.
- Inputting basic joint configuration information allows Bolt-Up to to determine: bolt load; bolt stress and the required torque. These outputs are displayed alongside basic flange and bolt information e.g. joint thickness and bolt size/quantity.

Bolting Integrity Software



▲ Engineered Joint menu (INFORMATE)

▲ Clamp menu (INFORMATE)

INFORMATE Bolt Load Calculation Software

INFORMATE can be used on a huge range of flanged joints and clamped connections in virtually any situation from process piping to custom-designed flange connections.

- Calculate bolt loads and stresses, determine tooling pressures for Enerpac torque and tensioning equipment; analyse existing connections and test custom designed connections.
- Extensive material database covering all common standards:
  - Common and industry specific lubricants
  - 200+ bolting materials
  - 500+ flange materials
  - 60+ gasket materials
- Engineered Joint Calculation Features - allows for different types of bolted application for non-circular or structural applications.
- Installed direct to the desktop or accessed via the internet, Informate is available in a single version that is configurable to client requirements and includes multiple international standards and the latest and forthcoming regulatory data, when taken with a maintenance package.

Integrity Data Management System (iDMS)

iDMS is a flexible data management and activity planning system specifically for use on assets featuring bolted connections.

Designed to store the entire lifecycle data relating to every critical bolted joint on an installation, it aids planning, ensures joint integrity, as well as reducing construction and maintenance schedules and costs.

- Provides managers and technicians with essential information about joint components used in assembly, in addition it specifies the tools and the torque or tension values to deliver a leak-free joint.
- Allows planner and maintenance engineers to rapidly build packages of work complete with all documentation and then track them to completion
- Whenever a joint is worked on, all of the previous history and experience of that joint is available, allowing any particular requirements of the joint to be taken into account proactively prior to joint assembly and tightening.

iDMS Custom Tailored Solutions available to meet client needs, for example:

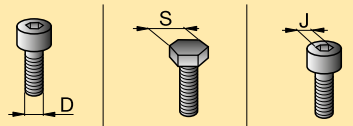
- Embedded Informate bolted joint calculator
- Export and import of data to asset management systems
- Exporting data to populate customer documentation
- Colour coding of the joint provides an instant review of the status.

Contact Enerpac for User License

Hexagon Nut and Bolt Sizes

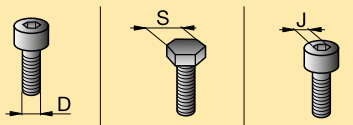
ENERPAC

METRIC SIZES



Thread Size D (mm)	Hexagon Size S (mm)	Hexagon Size J (mm)
M10	17	8
M12	19	10
M14	22	12
M16	24	14
M18	27	14
M20	30	17
M22	32	17
M24	36	19
M27	41	19
M30	46	22
M33	50	24
M36	55	27
M39	60	27 (30)
M42	65	32
M45	70	-
M48	75	36
M52	80	36
M56	85	41
M60	90	46
M64	95	46
M68	100	50
M72	105	55
M76	110	60
M80	115	65
M85	120	70
M90	130	70 (75)
M95	135	-
M100	145	85
M105	150	-
M110	155	-
M115	165	-
M120	170	-
M125	180	-
M130	185	-
M140	200	-
M150	210	-

IMPERIAL SIZES



Thread Size D (inch)	Hexagon Size * S (inch)	Hexagon Size J (inch)
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
3 3⁄4	5 3⁄4	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.

BSH-Series Sockets

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

Page: **10**

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
1 kgf	= 9,8 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 inch	= 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

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

Bolting Integrity Software

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

Integral databases hold data for:

- ASME B16.5, ASME B16.47, API 6A and API 17D flanged joints
- Common gasket materials and configurations
- Comprehensive range of bolt materials
- Comprehensive range of lubricants
- Enerpac's Controlled Bolting Equipment includes: Torque Multipliers, Hydraulic Wrenches and Bolt Tensioners.

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.

Page: 126

Enerpac Demo-Van

Offering full bolting tool service and maintenance wherever you need it. We provide you with personalized bolting demonstrations and training, and the bolting service vehicle is equipped to perform torque wrench and other equipment calibrations and repairs on site.

We can give you advice on the best solutions and the bolting tools that are most suited to your application, thus enabling safe and controlled performance of your bolting activities.

- On-site demonstrations of Enerpac bolting tools
- Repair and calibration services
- Training for the safe and efficient use of Enerpac bolting tools

Schedule a Bolting Service Demonstration

Use the distributor search at enerpac.com to find the nearest Enerpac bolting service van to schedule a demonstration. These distributors display the bolting service icon.

At Enerpac, we are committed to safety

Unfortunately, serious incidents can happen on a job site. Nevertheless, such mishaps may be avoidable if workers pay attention to the hazards and potential risks, and know how to use tools correctly. Whether you work in maintenance or production, power plant, shipyard, mine, shop floor or construction site; learning to use hydraulic tools safely is mandatory.

Our Goal Zero initiative is part of our global commitment to improve workplace safety. We are committed to achieve the Goal of Zero harm to customers and end-users of our products.

Worldwide Catalogue Coverage

Enerpac Catalogues are printed in many languages. If your requirements call for product use in a different country, please send your request to the applicable country listed on www.enerpac.com – the Enerpac catalogue of the country serving your specific market area will be forwarded promptly.

WCC2018

9508

E329e

E215e

WCC2018 The World Class Collection brochure

16 page brochure provides a selection of the most popular Enerpac industrial tools and solutions, collected from all categories.

9508 Capability Brochure Heavy Lifting Technology

Enerpac's Heavy Lifting Technology provides solutions to meet customer requirements for safe, precise control of movement and positioning of heavy loads.

E329e Industrial Tools Catalogue

This 284 pages catalogue contains our full line of cylinders, pumps, presses, pullers, tools, valves and system components, bolting solutions and integrated solutions.

E215e Workholding Catalogue

Offers innovative products and solutions to provide powerful clamping and positioning force to every type of manufacturing process. Workholding solutions increase product quality and production output.

Enerpac Academy & Enerpac Maintenance Program

Do you work with high-pressure hydraulic tools regularly or even every day? Operating such tools requires sound knowledge of how they work and this should be maintained.

Effective use of these tools boosts safety and reduces risk - both for you as the operator and for the environment within which the tools are used. Having the right training will enable you to use the tools safely and properly.

Enerpac Academy is our in-house training centre, set up exclusively for Enerpac business partners, Enerpac users and Enerpac employees: training programs ranging from tool expertise, repairs and maintenance, to safe operation of high-pressure hydraulic tools.

Putting theory into practice
The training courses are interactive and benefit from a highly diverse program that puts the covered theory into practice right away. Our training services are grounded in many years of experience in providing and applying Enerpac tools.

Tailored training
Enerpac Academy offers you the exclusive opportunity to train your (new) employees in making proper use of Enerpac tools. Our trainings can also be done on-site.

Safety training
Safe use of Enerpac high pressure hydraulic tools, user and environmental safety.

Controlled bolting trainings
Bolting tool theory, tool applications, hands-on training on safe and efficient use of torque wrenches, tensioners and pumps.

General hydraulic sales training
Knowledge of hydraulics, hydraulic tools and applications. Tool repair training: Repair and maintenance of general Enerpac tools.

Application training
Tool feature and benefits, tool application review, safe use of hydraulic tools and market information.

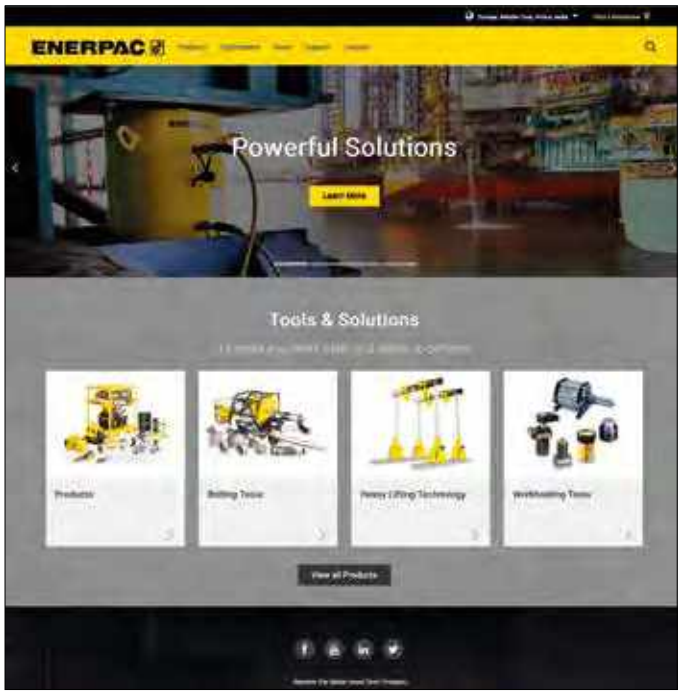
Enerpac Academy – The Power of Knowledge
- Specialist in-house Enerpac training center
- Standard and tailored training programs
- Highly experienced trainers
- Selection of training courses with a proven (value adding) track record
- Knowledge and experience sharing
- User and tool safety come first.

Training Centre Locations
- Ede (The Netherlands)
- Hosur, Tamil Nadu (India)
- Columbus, Wisconsin (USA)
- Sydney (Australia)
- Singapore

EMP – Enerpac Maintenance Program

EMP is a preventive maintenance program. Your Enerpac Authorised Service Centre will check the tools on essential points: leaking, oil level and quality, maximum pressure setting, and damage. EMP reduces operational risks, increases safety and minimises extremely expensive delays in your operations. You will be advised about regular maintenance of the Enerpac tools.

- Work more safely
- Minimise operational risk
- Ensure tools are always available and in tip-top shape
- As good as new after repair
- Prevent downtime
- Advice on safe and effective use
- Maintenance when tools are not used.



Enerpac is the leading global provider of high-pressure hydraulic tools and solutions with a broad range of products, local expertise and worldwide distribution network. With a proven track record in a wide range of markets, Enerpac designs and manufactures high-quality tools and solutions for all industrial applications.

Enerpac has gained unique experience in delivering hydraulic solutions for the controlled movement and positioning of heavy objects. Enerpac supports your business by offering the right solutions and service to help you get your work done efficiently and safely.

www.enerpac.com

- Online Bolting Calculator
- Learn more about hydraulics
- Promotions
- New products
- Electronic Catalogues
- Trade shows
- Manuals (instruction & repair sheets)
- Nearest Distributors & Service Centers
- Enerpac products in action
- Heavy Lifting Technology

Ordering Products and Catalogues

To find the name of the closest Enerpac distributor or service center, to request literature or technical application assistance, contact Enerpac at one of the addresses on the next page or pose your question through E-mail: info@enerpac.com

While every care has been taken in the preparation of this catalogue and all data contained within is deemed accurate at the time of printing, Enerpac does reserve the right to make changes to the specifications of any product, or discontinue any product, contained within this catalogue without prior notice.

All illustrations, performance specifications, weights and dimensions reflect the nominal values and slight variations may occur due to manufacturing tolerances. Please consult Enerpac if final dimensions are critical.

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

Model Number Index & Enerpac Worldwide Locations

Australia and New Zealand
Actuant Australia Pty Ltd.
P.O. Box 6867, Wetherill Park, NSW 1851
Block V Unit 3, Regents Park Estate
391 Park Road, Regents Park NSW 2143,
Australia
Tel: +61 287 177 200
Fax: +61 297 438 648
Australia Toll Free: +1800 225 084
New Zealand Toll Free: +0800 363 772

Brazil
Power Packer do Brasil Ltda.
Rua Luiz Lawrie Reid, 548
09930-760 - Diadema (SP)-Brasil
Tel: +55 11 5687 2211
Toll Free: 0800 891 5770

China (Taicang)
Actuant (China) Industries Co.Ltd.
No. 6 Nanjing East Road,
Taicang Economic Dep Zone, Jiangsu, China
Tel: +86 0512 5328 7500
Fax: +86 0512 5335 9690
Toll Free:
Tel: +86 400 885 0369

Enerpac Heavy Lifting Technology B.V.
Zuidelijke Havenweg 3, 7554 RR Hengelo
P.O. Box 421, 7550 AK Hengelo
The Netherlands
Tel: +31 74 242 20 45
Fax: +31 74 243 03 38

France and French speaking Switzerland
ENERPAC
Une division d'ACTUANT France S.A.S.
6 rue du 4 septembre,
Immeuble Le Poversy, Bâtiment B - 6ème étage,
92130 Issy-les-Moulineaux, France
Tel: +33 1 60 13 68 68
Fax: +33 1 69 20 37 50

Germany, Austria, German speaking Switzerland, Central and Eastern Europe, Baltic States and CIS countries
Actuant GmbH
P.O. Box 300113, D-40401 Düsseldorf
Willstätterstrasse 13, D-40549 Düsseldorf
Germany
Tel: +49 211 471 490
Fax: +49 211 471 49 28

India
Actuant India Private Limited
No. 10, Bellary Road, Sadashivanagar,
Bangalore, Karnataka - 560 080 India
Tel: +91 80 3928 9000

Italy, Greece and Turkey
ENERPAC S.p.A.
Via Leonardo da Vinci, 97
20090 Trezzano sul Naviglio (Milano)
Italy
Tel: +39 02 4861 111
Fax: +39 02 4860 1288

Japan
Enerpac Co., Ltd.
Besshocho 85-7
Kita-ku, Saitama-shi 331-0821, Japan
Tel: +81 48 662 4911
Fax: +81 48 662 4955

Middle East, North Africa and Caspian Sea Countries
ENERPAC Middle East FZE
Swiss Tower, Office 902, Cluster Y,
Jumeirah Lake Towers
Dubai-United Arab Emirates
Tel: +971 4 527 0700

Norway
ENERPAC AS
Kirkegata 3, NO-2000, Lillestrom
P.O. Box 3051, NO-2028, Lillestrom, Norway
Tel: +47 91 578 300

Russia
Rep. office Enerpac
Russian Federation
Admirala Makarova Street 8
125212 Moscow, Russia
Tel: +7 495 98090 91
Fax: +7 495 98090 92

Southeast Asia, Hong Kong and Taiwan
Actuant Asia Pte Ltd.
83 Joo Koon Circle,
Singapore 629109
T +65 68 63 0611
F +65 64 84 5669
Toll Free:
Tel: +1800 363 7722

South Korea
Actuant Korea Ltd.
3Ba 717, Shihwa Industrial Complex
Jungwang-Dong, Shihung-Shi
Kyunggi-Do
Republic of Korea 429-450
Tel: +82 31 434 4506
Fax: +82 31 434 4507

Spain and Portugal
ENERPAC SPAIN, S.L.
Avenida Valdelaparra N° 27 3ª - L8
28108 Alcobendas (Madrid), Spain
Tel: +34 91 884 86 06
Fax: +34 91 884 86 11

South Africa and other English speaking African countries
ENERPAC AFRICA (PTY) Ltd.
Cambridge Office Park, Block E
5 Bauhinia Avenue
Highveld Techno Park, Centurion 0157
Republic of South-Africa
Tel: 0027 (0) 12 940 0656

Sweden, Denmark, Finland and Iceland
Enerpac Scandinavia AB
Box 83, 82222 Alfta, Sweden
Tel: +46 (0) 415 000

The Netherlands, Belgium, Luxembourg
ENERPAC B.V.
Galvanistraat 115, 6716 AE Ede
P.O. Box 8097, 6710 AB Ede
The Netherlands
Tel: +31 318 535 911
Fax: +31 318 535 848

United Kingdom and Ireland
Actuant Operations UK LTD
5 Coopies Field, Morpeth, Northumberland
NE61 6JR, England
Tel: +44 1670 5016 50
Fax: +44 1670 5016 51

USA, Latin America and Caribbean
ENERPAC World Headquarters
P.O. Box 3241
Milwaukee, WI 53201-3241 USA
N86 W12500 Westbrook Crossing
Menomonee Falls, Wisconsin 53051
Tel: +1 262 293 1600
Fax: +1 262 293 7036
User inquiries:
Tel: +1 800 433 2766
Distributor inquiries/orders:
Tel: +1 800 558 0530
Fax: +1 800 628 0490

CONTROLLED TIGHTENING and LOOSENING

TORQUE WRENCH PUMPS

TENSIONING TOOLS and PUMPS

JOINT ASSEMBLY, POSITIONING and SEPARATION

FLANGE MAINTENANCE TOOLS

YELLOW PAGES

ENERPAC®

www.enerpac.com

ENERPAC | SIMPLEX | LARZEP HYDRAULIC | biach | EQUALIZER INTERNATIONAL | MIRAGE | SWEENEY | hydratight