



**LEGENDARY
RELIABILITY
SINCE 1927**

Products Guide

Quality Driven – from the Tools we Make to the Service we offer – We Are PETOL

*ISO9001
Quality System
Certified*



The PETOL™ GEARENCH manufacturing facility is centrally located in Bosque County, Texas, about one mile south of Clifton on State Highway 6.

4450 S. Hwy. 6 | P.O. Box 192
Clifton, TX 76634 USA | www.PETOL.com
254.675.8651 | fax 254.675.6100 | sales@petol.com

About Us...

Founded in 1927 in partnership with J.A. Peterson and C.E. "Pat" Olsen, GEARENCH has been the name customers have depended on for reliable tools and expert services for nearly a century. In October of 1978, Chester Posey purchased the company, including facilities in Houston and Clifton, Texas. We are proud to announce that we are returning to our roots under the name first created by our founders – PETOL™.

We are a small-town, global company whose integrity has been forged by decades of doing what's right for each customer. Through the years, our company has grown and developed over 40 product lines for use across a range of vital industries. As a family company that is trusted to deliver what others cannot, the products our craftsmen design and build still set the standard for quality and dependability today.

As PETOL™, we will continue to build on our legacy of reliability, innovation and commitment to quality for years to come.

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For the latest and most complete engineering data and specifications available for PETOL products, please visit our website at www.PETOL.com

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**LEGENDARY
RELIABILITY
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Chain Tongs - Single Jaw



- » Hardened drop-forged jaws
- » Equipped with heat-treated chain
- » High-quality steel throughout
- » Replacement parts interchangeable with other standard brands

Specifications

Part No.	Pipe Size	Gripping Width	Tong Length	Weight
C11-P	1/8" - 1-1/2"	1.76"	20"	6 lbs.
C12-P	1/4" - 2-1/2"	2.25"	27"	10 lbs.
C13-P	3/4" - 4"	2.67"	37"	20 lbs.
C135-P	1" - 6"	2.89"	45"	27 lbs.
C14-P	1-1/2" - 8"	3.09"	51"	31 lbs.
C15-P	2" - 12"	3.35"	65"	56 lbs.
C16-P	4" - 18"	4.63"	87"	147 lbs.

NOTE: Tongs are also available with extra long chains.
See product page on website.



WARNING! Use as a hand tool only. Do Not Strike, use a "cheater" or extend handle. SERIOUS INJURY may result if used improperly. Read Safe Practices & Procedures Manual prior to operation. Follow OSHA, NSC, etc. standards, safe practices, and procedures.



NOTE: Safe Practices & Procedures Manual can be found on pages 31-37 of this product guide.

Chain Tongs - Reversible



- » Turn pipe in either direction without removing from workpiece or unhooking chain
- » I-beam design handles and heat-treated forged jaws
- » Equipped with heat-treated chain
- » Replacement parts interchangeable with other standard brands

Specifications

Part No.	Pipe Size	Gripping Width	Tong Length	Weight
C27-P	1/4" - 2-1/2"	2.19"	27"	11 lbs.
C37-P	3/4" - 4"	2.69"	37"	19 lbs.
C47-P	1" - 6"	3.00"	47"	30 lbs.
C57-P	1-1/2" - 8"	3.38"	57"	42 lbs.
C67-P	2" - 12"	3.69"	67"	59 lbs.

NOTE: Tongs are also available with extra long chains.
See product page on website.



WARNING! Use as a hand tool only. Do Not Strike, use a "cheater" or extend handle. SERIOUS INJURY may result if used improperly. Read Safe Practices & Procedures Manual prior to operation. Follow OSHA, NSC, etc. standards, safe practices, and procedures.



NOTE: Safe Practices & Procedures Manual can be found on pages 31-37 of this product guide.

Fitting Tongs



- » Work narrow or confined gripping areas
- » Easily applied and removed from workpiece
- » Equipped with heat-treated chain

Specifications

Part No.	Pipe Size	Gripping Width	Tong Length	Weight
C27-F	1/4" - 2-1/2"	.69"	23-1/4"	8 lbs.
C57-F	1-1/2" - 8"	1.13"	54-1/2"	32 lbs.

NOTE: Tongs are also available with extra long chains.
See product page on website.



WARNING! Use as a hand tool only. Do Not Strike, use a "cheater" or extend handle. SERIOUS INJURY may result if used improperly. Read Safe Practices & Procedures Manual prior to operation. Follow OSHA, NSC, etc. standards, safe practices, and procedures.



NOTE: Safe Practices & Procedures Manual can be found on pages 31-37 of this product guide.

Chain Tongs



- » Vee-shaped jaw
- » Grips in downward motion, ratchets in upward motion
- » Equipped with heat-treated chain
- » Sizes capable of delivering up to 3,000 ft.-lbs. torque

Specifications

Part No.	O.D.	Gripping Width	Handle Length*	Weight
STEEL				
CPA13	1-1/2" - 6"	2.62"	30"	18 lbs.
CPA14	2" - 10"	3.13"	44"	35 lbs.
ALUMINUM (for light-duty applications only)				
CPA14-L60AL	2" - 10"	3.13"	60"	25 lbs.

*Call factory for torque arm lengths.

>>> **Maximum Working Loads** <<<

Torques vary according to O.D.

See Torque Tables on product page of website.

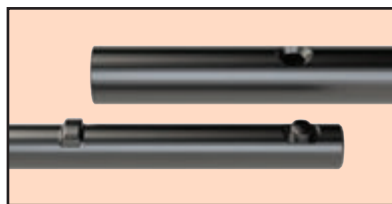


WARNING! Do Not Exceed Maximum Working Load! Overloading may result in SERIOUS INJURY or DEATH! Always use a load cell or other calibrated indicating device to monitor the line pull on the tong to avoid overload. Read Safe Practices & Procedures Manual prior to operation. Follow OSHA, NSC, etc. standards, safe practices, and procedures.



NOTE: Safe Practices & Procedures Manual can be found on pages 31-37 of this product guide.

Tube Handle Wrench



- » 12-point offset box end wrench
- » Detachable tube handle provides additional torque when needed
- » Attach and detach handle by a spring-loaded locking button
- » Surface coated for rust protection

Specifications

Part No.	Opening / Nut Size	Length	Weight
Wrenches fitting the SWTH-24 Tube Handle			
SWT20TW	1-1/16"	10-1/2"	1-5/8 lbs.
SWT21TW	1-1/8"	10-3/4"	1-3/4 lbs.
SWT21ATW	1-3/16"	10-3/4"	1-3/4 lbs.
SWT22TW	1-1/4"	10-3/4"	1-3/4 lbs.
SWT23TW	1-5/16"	10-7/8"	1-7/8 lbs.
SWT23ATW	1-3/8"	10-7/8"	1-7/8 lbs.
SWT24TW	1-7/16"	10-7/8"	1-7/8 lbs.
SWT25TW	1-1/2"	11"	2-1/8 lbs.
SWT26TW	1-5/8"	11"	2-1/8 lbs.
Wrenches fitting the SWTH-36 Tube Handle			
SWT27TW	1-11/16"	13-1/4"	3-7/8 lbs.
SWT28TW	1-3/4"	13-1/4"	3-3/4 lbs.
SWT29TW	1-13/16"	13-1/4"	3-3/4 lbs.
SWT30TW	1-7/8"	13-1/2"	4-1/8 lbs.
SWT31TW	1-15/16"	13-1/2"	4-1/8 lbs.
SWT32TW	2"	13-1/2"	4 lbs.
SWT33TW	2-1/8"	13-1/2"	4-3/8 lbs.
SWT34TW	2-3/16"	13-1/2"	4-1/4 lbs.
SWT35TW	2-1/4"	13-3/4"	4-7/8 lbs.
SWT36TW	2-5/16"	13-3/4"	4-3/4 lbs.
SWT37TW	2-3/8"	13-3/4"	4-5/8 lbs.
SWT38TW	2-1/2"	14"	5-7/8 lbs.
SWT39TW	2-9/16"	14"	5-3/4 lbs.
SWT40TW	2-5/8"	14"	5-5/8 lbs.
SWT41TW	2-3/4"	14"	5-1/4 lbs.
SWT42TW	2-7/8"	14-1/4"	6-3/4 lbs.
SWT43TW	2-15/16"	14-1/4"	6-1/2 lbs.
SWT44TW	3"	14-1/4"	6-7/8 lbs.
SWT45TW	3-1/8"	14-1/4"	5-7/8 lbs.
Tube Handles			
SWTH-24	n/a	24"	2-5/8 lbs.
SWTH-36	n/a	36"	8 lbs.



WARNING! Use as a hand tool only. DO NOT STRIKE.
SERIOUS INJURY may result if used improperly.



Striking Wrench

6-pt. Straight



- » I-beam design for greater handle strength
- » Clearance in overall head diameter when working flange connections
- » Large striking surface
- » Forged from alloy steel and heat-treated for strength and maximum tool life



WEAR EYE PROTECTION



Specifications

Part No.	Stud Size	Nut Size	Head Diameter	Weight
SW01	5/8"	1-1/16"	1-11/16"	1-7/8 lbs.
SW02	3/4"	1-1/4"	1-15/16"	2 lbs.
SW03	7/8"	1-7/16"	2-1/4"	3-1/4 lbs.
SW04	1"	1-5/8"	2-1/2"	4-5/8 lbs.
SW05	1-1/8"	1-13/16"	2-11/16"	4-3/4 lbs.
SW06	1-1/4"	2"	2-15/16"	5-5/8 lbs.
SW07	1-3/8"	2-3/16"	3-3/16"	6-7/8 lbs.
SW08	1-1/2"	2-3/8"	3-7/16"	7-5/8 lbs.
SW09	1-5/8"	2-9/16"	3-11/16"	8-1/2 lbs.
SW10	1-3/4"	2-3/4"	3-7/8"	8-3/4 lbs.
SW11	1-7/8"	2-15/16"	4-1/4"	9-7/8 lbs.
SW12	2"	3-1/8"	4-3/8"	10-1/4 lbs.
SW13	2-1/4"	3-1/2"	4-7/8"	11-3/8 lbs.
SW14	2-1/2"	3-7/8"	5-1/4"	13-1/4 lbs.

Striking Face Box Wrench

12-pt. Offset



- » Drop-forged alloy steel
- » Surface coated for rust protection
- » 45° offset head with a 12-point opening



WEAR EYE PROTECTION

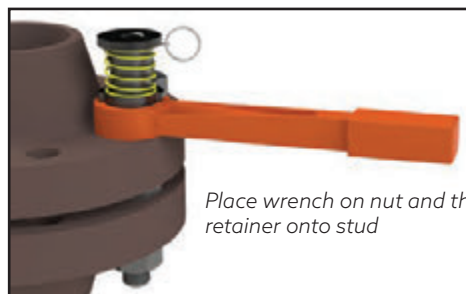


Specifications

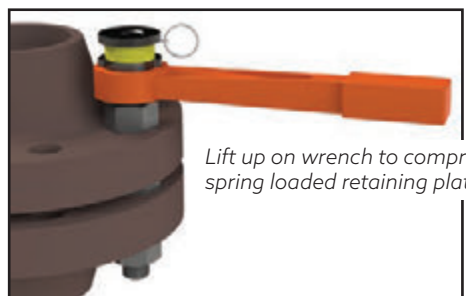
Part No.	Opening / Nut Size	Length	Weight
SWT20	1-1/16"	10-1/2"	2-1/4 lbs.
SWT21	1-1/8"	10-1/2"	2-1/4 lbs.
SWT22	1-1/4"	11"	2-3/4 lbs.
SWT23	1-5/16"	11"	2-3/4 lbs.
SWT24	1-7/16"	11-3/4"	3-3/8 lbs.
SWT25	1-1/2"	11-3/4"	3-1/4 lbs.
SWT26	1-5/8"	12"	4 lbs.
SWT27	1-11/16"	12"	4 lbs.
SWT28	1-3/4"	12-1/2"	5-7/8 lbs.
SWT29	1-13/16"	12-1/2"	5-7/8 lbs.
SWT30	1-7/8"	12-1/2"	5-3/4 lbs.
SWT31	1-15/16"	13-1/4"	6-3/4 lbs.
SWT32	2"	13-1/4"	6-1/2 lbs.
SWT33	2-1/8"	13-1/2"	6-3/4 lbs.
SWT34	2-3/16"	13-1/2"	6-5/8 lbs.
SWT35	2-1/4"	13-1/2"	6-5/8 lbs.
SWT36	2-5/16"	14"	9-1/8 lbs.
SWT37	2-3/8"	14"	9 lbs.
SWT38	2-1/2"	14-3/4"	9-1/4 lbs.
SWT39	2-9/16"	14-3/4"	9-1/4 lbs.
SWT40	2-5/8"	14-3/4"	9-1/8 lbs.
SWT41	2-3/4"	16"	13 lbs.
SWT42	2-7/8"	16"	12-5/8 lbs.
SWT43	2-15/16"	16"	12-3/4 lbs.
SWT44	3"	16-1/2"	15-1/4 lbs.
SWT45	3-1/8"	16-1/2"	15-1/8 lbs.

HAMMERTIGHT™

Wrench Retainer Patent #9,079,300



Place wrench on nut and thread
retainer onto stud



Lift up on wrench to compress
spring loaded retaining plate



Reposition wrench on nut and
release spring loaded plate to
continue

- » Designed to hold a striking wrench on a nut
- » Safer, hands free, one man operation
- » Suitable for 6-pt. and 12-pt. straight or offset wrenches
- » Surface coated for rust protection

Specifications

Imperial Sizes

Part No.	Fits Stud Size	Nut Size	Overall Length	Weight
HTS58	5/8" - 11	1-1/16"	1-11/16"	8 ozs.
HTS34	3/4" - 10	1-1/4"	1-3/4"	10 ozs.
HTS78	7/8" - 9	1-7/16"	2"	13 ozs.
HTS100	1" - 8	1-5/8"	2-1/4"	1 lb.
HTS118	1-1/8" - 8	1-13/16"	2-5/16"	1-1/8 lbs.
HTS114	1-1/4" - 8	2"	2-1/2"	1-3/8 lbs.
HTS138	1-3/8" - 8	2-3/16"	2-11/16"	1-1/2 lbs.
HTS112	1-1/2" - 8	2-3/8"	2-7/8"	1-5/8 lbs.
HTS158	1-5/8" - 8	2-9/16"	3-1/16"	1-7/8 lbs.
HTS134	1-3/4" - 8	2-3/4"	3-1/16"	2-1/8 lbs.
HTS178	1-7/8" - 8	2-15/16"	3-1/8"	2-3/8 lbs.
HTS200	2" - 8	3-1/8"	3-3/16"	2-1/2 lbs.
HTS214	2-1/4" - 8	3-1/2"	3-1/4"	2-7/8 lbs.
HTS212	2-1/2" - 8	3-7/8"	3-11/16"	3-5/8 lbs.

Imperial Sets

Part No.	Description	Weight
HTS34178	Set of 10, 1 each of HTS34 thru HTS178	22 lbs.

Metric Sizes

Part No.	Fits Stud Size	Nut Size	Overall Length	Weight
HTSM16	16mm - 2.0	24mm	1-11/16"	8 ozs.
HTSM18	18mm - 2.5	27mm	1-11/16"	9 ozs.
HTSM20	20mm - 2.5	30mm	1-3/4"	10 ozs.
HTSM22	22mm - 2.5	32mm	1-3/4"	11 ozs.
HTSM24	24mm - 3.0	36mm	2"	13 ozs.
HTSM27	27mm - 3.0	41mm	2-1/4"	1 lb.
HTSM30	30mm - 3.5	46mm	2-5/16"	1-1/8 lbs.
HTSM33	33mm - 3.5	50mm	2-1/2"	1-3/8 lbs.
HTSM36	36mm - 4.0	55mm	2-11/16"	1-1/2 lbs.
HTSM39	39mm - 4.0	60mm	2-7/8"	1-5/8 lbs.
HTSM42	42mm - 4.5	65mm	3-1/16"	1-7/8 lbs.
HTSM46	46mm - 5.0	72mm	3-1/16"	2-1/8 lbs.
HTSM48	48mm - 5.0	75mm	3-1/8"	2-3/8 lbs.
HTSM52	52mm - 5.0	80mm	3-1/4"	2-1/2 lbs.
HTSM56	56mm - 5.5	85mm	3-1/4"	2-5/8 lbs.
HTSM60	60mm - 5.5	90mm	3-11/16"	2-7/8 lbs.
HTSM64	64mm - 6.0	95mm	3-11/16"	3-5/8 lbs.

Metric Sets

Part No.	Description	Weight
HTSM1639	Set of 10, 1 each of HTSM16 thru HTSM39	20-1/2 lbs.
HTSM1842	Set of 10, 1 each of HTSM18 thru HTSM42	22 lbs.
HTSM2046	Set of 10, 1 each of HTSM20 thru HTSM46	23-1/2 lbs.

NOTE: Custom sizes and pitches available upon request.

Run Ticket Box

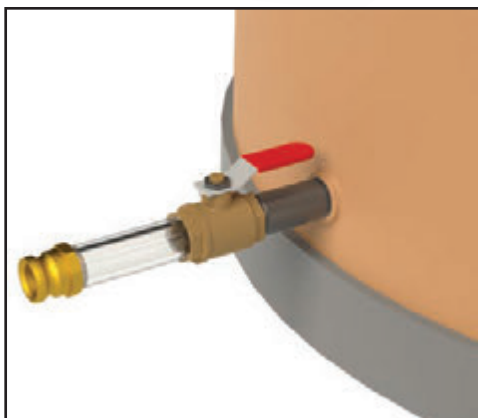
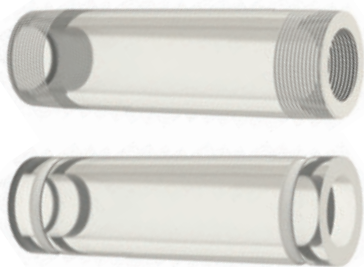


- » Keep run tickets safe, clean and dry at location
- » Durable polyethylene with a plastic see through window
- » Designed for angled or horizontal mounting
- » Mounting components and instructions included
- » RTB1 keeps lid closed during windy conditions
- » RTB2 aims to see that the clipboard remains at the tank site

Specifications

Part No.	Description	Weight
RTB1	Spring Loaded Hinged Lid	1-1/2 lbs.
RTB2	Clipboard Mounted Lid	1-1/2 lbs.

Sight Glass



- » Provides a clear view of flow through drain lines at all times
- » Shatter-resistant polycarbonate
- » Withstands prolonged exposure to Ultraviolet rays and can be used in temperatures from -150° to 165°F

Specifications

Part No.	O.D. x L	Wall Thickness	Connection	Weight
SG0500	2" x 8"	0.406"	Threaded	15 ozs.
SG0500V	2" x 8"	0.406"	Victaulic Groove	15 ozs.
SG1000*	2" x 8"	0.500"	Threaded	1 lb.
SG1000V*	2" x 8"	0.500"	Victaulic Groove	1-1/16 lbs.
SG0500-3	3" x 8"	0.312"	Threaded	1-1/16 lbs.
SG0500V-3	3" x 8"	0.312"	Victaulic Groove	1-3/16 lbs.
SG0500-4	4" x 8"	0.500"	Threaded	2-3/16 lbs.
SG0500V-4	4" x 8"	0.500"	Victaulic Groove	2-1/4 lbs.

*Special lengths available upon request.

*Chemical Compatability/UV Stability information
available on product page of website.*



WARNING! Always place the pipe wrench on the metal connections and not the sight glass itself when tightening. Do not tighten or loosen while under pressure. Avoid direct contact with strong acids or chemicals such as carbon disulfide acetone, etc. The PETOL™ Sight Glass is to be used on drain lines ONLY. NEVER use on flow lines.

Always use an oily rag when cleaning the sight glass.



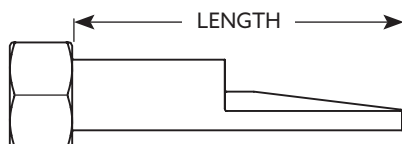
Flange Aligning Tool



- » Effective solution for tough flange alignment jobs
- » Tapered shaft eliminates the need for hammering or prying
- » Made of alloy steel and surface coated for rust protection
- » Sold individually and in sets

Find a bolt hole aligned enough for the tapered shaft to fit through and turn

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



Specifications

Part No.	Bolt Hole Size	Length	Weight
FT00	3/8"	2-1/8"	3/4 ozs.
FT0	1/2"	2-3/8"	2-3/8 ozs.
FT01	5/8"	2-3/4"	4 ozs.
FT02	3/4"	3-1/4"	7 ozs.
FT03	7/8"	3-1/2"	10 ozs.
FT04	1"	4"	15 ozs.
FT06	1-1/8"	5"	1-1/2 lbs.
FT08	1-1/4"	5-1/2"	2 lbs.
FT1012	1-3/8"	6-1/4"	2-7/8 lbs.
FT14	1-1/2"	6-1/2"	3-1/4 lbs.
FT16	1-5/8"	7-1/4"	4-1/8 lbs.
FT1820	1-3/4"	7-7/8"	4-3/4 lbs.
FT22	1-7/8"	8-3/8"	5-7/8 lbs.
FT2426	2"	9"	6-5/8 lbs.
FT30	2-1/8"	12"	10-3/4 lbs.
FT34	2-3/8"	13-1/4"	13-1/2 lbs.
FT3642	2-5/8"	14"	17 lbs.
FT48	2-7/8"	13-5/8"	24-3/8 lbs.
FT5054	3-1/8"	18"	35-3/4 lbs.
FT60	3-5/8"	20"	55-1/4 lbs.

Sets

Part No.	Description	Weight
FTS24	Set of 6, 2 ea. of FT02, FT03, FT04	8-1/8 lbs.
FTS26	Set of 8, 2 ea. of FT02, FT03, FT04, FT06	11 lbs.
FTS28	Set of 10, 2 ea. of FT02, FT03, FT04, FT06, FT08	15 lbs.
FTS212	Set of 12, 2 ea. of FT02, FT03, FT04, FT06, FT08, FT1012	20-1/2 lbs.
FTS1426	Set of 8, 2 ea. of FT14, FT16, FT1820, FT2426	47 lbs.

Specifications

Extra Long Part No.	Bolt Hole Size	Length	Weight
FT0L	1/2"	5-3/8"	5 ozs.
FT01L	5/8"	5-3/4"	8 ozs.
FT02L	3/4"	6-1/4"	14 ozs.
FT03L	7/8"	6-1/2"	1-1/8 lbs.
FT04L	1"	7"	1-1/2 lb.
FT06L	1-1/8"	8"	2-1/4 lbs.
FT08L	1-1/4"	8-1/2"	3 lbs.
FT1012L	1-3/8"	9-1/4"	4 lbs.
FT14L	1-1/2"	9-1/2"	4-5/8 lbs.
FT16L	1-5/8"	10-1/4"	5-3/4 lbs.
FT1820L	1-3/4"	10-7/8"	6-5/8 lbs.
FT22L	1-7/8"	11-3/8"	8-1/8 lbs.
FT2426L	2"	12"	9-1/4 lbs.
FT30L	2-1/8"	15"	13-1/2 lbs.
FT34L	2-3/8"	16-1/4"	17-1/4 lbs.
FT3642L	2-5/8"	17"	21 lbs.

Extra Long Sets

Part No.	Description	Weight
FTS24L	Set of 6, 2 ea. of FT02L, FT03L, FT04L	12-3/4 lbs.
FTS26L	Set of 8, 2 ea. of FT02L, FT03L, FT04L, FT06L	17-1/4 lbs.
FTS28L	Set of 10, 2 ea. of FT02L, FT03L, FT04L, FT06L, FT08L	20-1/8 lbs.
FTS212L	Set of 12, 2 ea. of FT02L, FT03L, FT04L, FT06L, FT08L, FT1012L	31 lbs.

NOTE: Special lengths available upon request.

To determine appropriate tool for job requirement, see the Flange Aligning Tool Selection Guide available on product page of website.

Flange Lifter

Patent #8,434,800 and 8,434,801



FLA112 and FLA212
for blind flanges



FLA1000, FLA5000 and
FLA14000 for blind or
weld neck flanges

- » Safe & easy installation and removal of blind and weld neck flanges without the need for a lifting eye
- » Designed to comply with ASME Specifications B30.20 and BTH-1, Design Category B, Service Class 4
- » Serialized and stamped with Load Rating
- » Supplied with Data Book containing operating instructions, warnings, load test certificates and MPI certificate

Specifications

Part No.	Fits Bolt Size	Fits Flange Thickness	Weight	Rated Load
FLA112	3/4" - 1-1/2"	1/2" - 3-3/4"	20 lbs.	1,000 lbs.
FLA212	1-1/2" - 2-1/2"	1/2" - 7"	37-1/4 lbs.	2,000 lbs.
FLA1000	3/4" - 2-1/4"	1" - 6-3/16"	20-3/8 lbs.	1,000 lbs.
FLA5000	3/4" - 4"	1" - 11-1/16"	52-7/8 lbs.	5,000 lbs.
FLA14000	3/4" - 4"	1" - 11-1/16"	60 lbs.	14,000 lbs.

To determine appropriate tool for job requirement, see the Flange Lifter Selection Guide available on product page of website.



WARNING! A falling load may cause **SERIOUS INJURY** or **DEATH!**
Do Not Exceed Rated Load! Read Operating Instructions prior to operation.
Before using, inspect the lifter daily to ensure it is in proper operating condition.
Follow OSHA, NSC, etc. standards, safe practices and procedures.



Flange Lifting Shackle

Patent #10,703,611



No lifting eye
required

- » Designed to securely attach to flanges when installing and removing blind and weld neck flanges
- » Automatically adjusts to bolt hole spacing
- » Complies with ASME Specifications B30.20 and BTH-1, Design Category B, Service Class 4
- » Stamped with Load Rating and serial number
- » Supplied Data Book contains operating instructions, warnings, load test certificates and MPI certificate

Specifications

Part No.	Fits Bolt Size	Fits Flange Thickness	Weight	Rated Load
FLS3	5/8" min.	up to 3"	18-1/2 lbs.	2,000 lbs.
FLS6	7/8" min.	up to 6"	32 lbs.	5,000 lbs.
FLS11	1-1/8" min.	up to 11"	49-5/8 lbs.	14,000 lbs.

To determine appropriate tool for job requirement, see the Flange Lifting Shackle Selection Guide available on product page of website.



WARNING! A falling load may cause **SERIOUS INJURY** or **DEATH!**
Do Not Exceed Rated Load! Read Operating Instructions prior to operation.
Before using, inspect the lifting shackle daily to ensure it is in proper operating condition. Follow OSHA, NSC, etc. standards, safe practices and procedures.



POP-IT™

Flange Spreader & Prying Tool



- » Versatile and easy to use
- » Replaces using hammers, wedges and prybars when working with flanges
- » Precision adjustment and holds setting without drifting
- » Used in a wide range of industries as well as emergency rescue

Specifications

Part No.	Minimum Spread	Maximum Spread	Capacity	Weight
P95-525	1/16"	5-1/4"	10,000 lbs.	11 lbs.
PHD0535	1/2"	5-1/2"	30,000 lbs.	33 lbs.
	3"	8-1/2"	20,000 lbs.	33 lbs.

Chock for P95-525/PHD0535

Part No.	Weight
PCH1	6 ozs.



WARNING! Improper use of POP-IT tools may result in INJURY or DEATH! Do Not Exceed Rated Load. Always chock your work. Never use "cheaters." Follow operating procedures. Always follow OSHA guidelines for Process Safety Management.



Always Chock Your Work!

Flange Spreader



Most efficient flange separation is achieved using spreaders in pairs

- » Separates pipe flanges and ring-type-joint flanges
- » Safe and easy to use
- » Suitable for use in a wide range of industries

Specifications

Part No.	Inside Frame Width	Flange Pin Diameter*	Weight
N14	2-3/4"	5/8"	8 lbs.
N48	3-3/4"	3/4"	9 lbs.
N812	4-7/8"	7/8"	10 lbs.
N1216	6-1/8"	1"	15 lbs.
N1620	7-1/2"	1-1/8"	18 lbs.
N2024	9-1/8"	1-1/4"	20 lbs.

*Special smaller flange pins may be required for some flange sizes. Call factory for assistance.

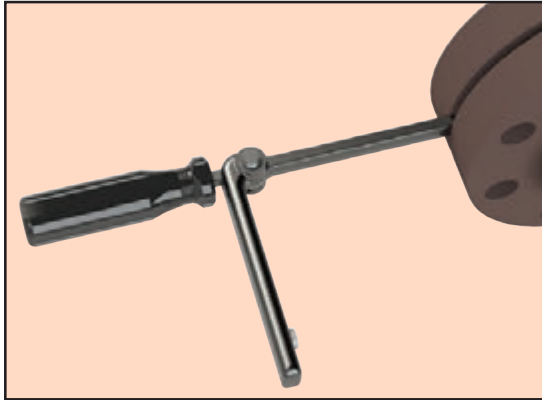
To determine appropriate tool for job requirement, see the Flange Spreader Selection Guide available on product page of website.



WARNING! Improper use of flange spreaders may result in INJURY or DEATH! Always follow OSHA guidelines or Process Safety Management.



TITAN™ Flange Key



- » Heat-treated steel blade with 3/32" end point
- » Easily driven between two flanges to separate
- » Hinged handle lever will not exceed 90° when opened
- » Magnet holds tool closed when in pocket or tool box

Specifications

Part No.	Length	Weight
FK100	11"	1-1/4 lbs.



WARNING! Protect yourself and others from **SERIOUS INJURY!**
Never use a "cheater" or other means to extend handle!
If wrench slips you can be hurt or injure other workers!
Always follow OSHA guidelines for Process Safety Management.



Flange Spray Deflector



- » Minimizes spray when breaking flange sets
- » Deflects spray in a known direction
- » Helps protect from chemical exposure and burns
- » Suitable applications include first line breaks, low point breaks, hot bolting, blinding, draining deflection and/or guiding

Specifications

Part No.	Strap Width	Fits Flange O.D. Up to	Weight
FD1	2"	22"	2 lbs.
FD2	2"	45"	2-3/4 lbs.



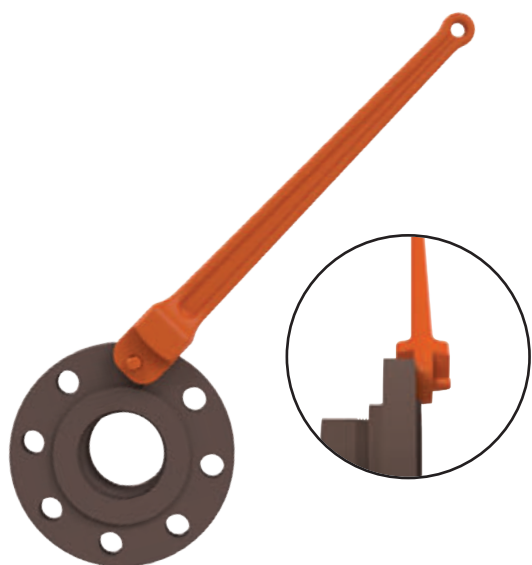
WARNING! Improper use of flange spray deflectors may result in **INJURY OR DEATH!** Read Operating Instructions prior to operation. This device **IS NOT** intended to replace any personal protective equipment (PPE). Before using, inspect the strap for cuts, tears, burns or damage and replace or return any damaged tool. **DO NOT** use to seal or contain any pressure. **DO NOT** use for lifting or support of any load. **DO NOT** use to hold flanges in alignment. **DO NOT** use to support an unbolted line, blind, valve or fitting. **DO NOT** use on surfaces that exceed 275° F. Always follow OSHA guidelines for Process Safety Management.





**LEGENDARY
RELIABILITY
SINCE 1927**

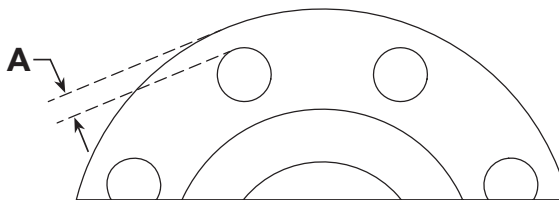
Flange Wrench



- » Quickly tighten or loosen threaded flanges
- » Replaces other methods often used in the field
- » Pins fit easily into flange bolt holes

Specifications

Part No.	Pin Diameters	Works Wall Thickness (A)	Length	Weight
FW1	1/2" 5/8"	up to 1/2" up to 3/4"	18"	5-5/8 lbs.



WARNING! Use as a hand tool only. Do Not Strike, use a "cheater" or extend handle. **SERIOUS INJURY** may result if used improperly.



Refinery Wrench



- » Combination pipe wrench/valve wheel wrench
- » Handles are cast from alloy steel or aluminum
- » Designed for multiple uses in the refining, petrochemical and gas processing industries

Specifications

Part No.	Pipe Capacity	Wheel Wrench Opening	Length (Closed)	Weight
STEEL				
RW1	1/8" - 1"	3/4"	10"	1-1/2 lbs.
RW2	1/8" - 1-1/2"	1/2"	10"	1-3/4 lbs.
ALUMINUM (for light-duty applications only)				
RW1AL	1/8" - 1"	3/4"	10"	12 ozs.
RW2AL	1/8" - 1-1/2"	1/2"	10"	1 lb.
STEEL (with SURGRIP™ valve wheel wrench opening)				
RW1SG	1/8" - 1"	3/4"	10"	1-5/8 lbs.
RW2SG	1/8" - 1-1/2"	1/2"	10"	2-1/4 lbs.



WARNING! Protect yourself and others from **SERIOUS INJURY!**
Never use a "cheater" or other means to extend handle!
If wrench slips you can be hurt or injure other workers!



NOTE: Safe Practices & Procedures can be found on page 38 of this product guide.

Valve Wheel Wrench



- » Provides leverage when opening or closing hand operated valve wheels
- » Each wrench fits a variety of sizes and shapes of valve wheels
- » Opening shape reduces the chance of slippage in overhead or crowded positions

Specifications

Part No.	Description	Length*	Weight
STEEL			
VW0	Forged, Double-end	8"	14 ozs.
VW0CPTC**	Forged, Double-end	8"	12 ozs.
VW10	Forged, Double-end	10"	1-3/4 lbs.
VW1	Forged, Single-end	15"	2-3/8 lbs.
VW12	Forged, Double-end	18"	4-1/4 lbs.
VW2	Forged, Single-end	22"	4-3/4 lbs.
VW3	Forged, Single-end	27"	10 lbs.
VW4	Forged, Single-end	48"	16-1/4 lbs.
VW5	Cast, Single-end	48"	16 lbs.
VW6	Cast, Single-end	48"	15-3/4 lbs.
BRONZE			
VW0BR	Cast, Double-end	8"	15-1/4 ozs.
VW10BR	Cast, Double-end	10"	1-7/8 lbs.
VW1BR	Cast, Single-end	15"	2-3/8 lbs.
VW12BR	Cast, Single-end	15-1/2"	2-7/8 lbs.
VW2BR	Cast, Single-end	22"	4-3/4 lbs.
VW3BR	Cast, Single-end	30"	9-1/8 lbs.
ALUMINUM			
VW0AL	Cast, Double-end	8"	5 ozs.
VW10AL	Cast, Double-end	10"	10-1/2 ozs.

*Overall Length is approximate

**Cadmium plated, Teflon coated

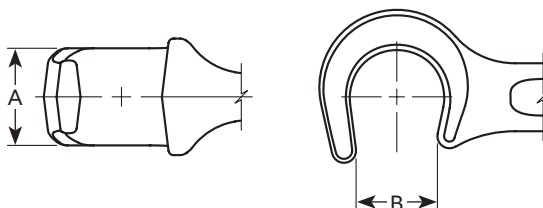


WARNING! Use as a hand tool only. Do Not Strike, use a "cheater" or extend handle. SERIOUS INJURY may result if used improperly.



NOTE: Safe Practices & Procedures can be found on page 38 of this product guide.

DIMENSIONS



Size	A		B	
	Small	Large	Small	Large
0	5/8"	3/4"	1/2"	21/32"
0CPTC	7/16"	7/16"	1/2"	21/32"
10	7/8"	1-1/8"	11/16"	1"
1		1-1/4"		1"
12	1-1/8"	1-13/16"	1"	1-5/16"
12BR		1-3/8"		1-3/8"
2		1-13/16"		1-5/16"
3		2-1/2"		2"
4		2-11/16"		2-1/4"
5		2-3/4"		2-1/2"
6		2-7/8"		2-3/4"



LEGENDARY
RELIABILITY
SINCE 1927

Valve Wheel Wrench

SURGRIP™



- » Significantly reduce the chance of wrench slippage when opening and closing valves
- » Cast from durable, ductile iron
- » Head design provides a better grip and longer handles provide more leverage

Specifications

Part No.	Pattern	Overall Length*	Weight
VW0SG	Double-end	8"	14 ozs.
VW0LSG	Double-end	15"	1-3/8 lbs.
VW10SG	Double-end	10"	1-1/2 lbs.
VW12SG	Double-end	22"	4-5/8 lbs.
VW1SG	Single-end	22"	5 lbs.
VW2SG	Single-end	27"	5-5/8 lbs.
VW3SG	Single-end	27"	12 lbs.

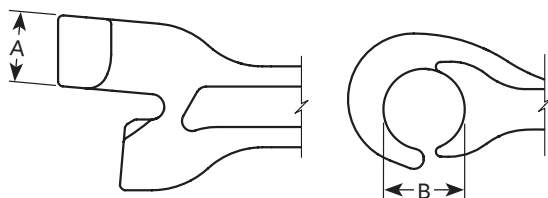
*Overall Length is approximate



WARNING! Use as a hand tool only. Do Not Strike, use a "cheater" or extend handle. SERIOUS INJURY may result if used improperly.



NOTE: Safe Practices & Procedures can be found on page 38 of this product guide.



DIMENSIONS

Size	A		B	
	Small	Large	Small	Large
VW0SG	1/2"	3/4"	1/2"	21/32"
VW0LSG	1/2"	3/4"	1/2"	21/32"
VW10SG	9/10"	1"	11/16"	1"
VW12SG	1-1/10"	1-1/4"	1"	1-5/16"
VW1SG		1-1/10"		1"
VW2SG		1-1/4"		1-5/16"
VW3SG		2-1/10"		2"

Valve Wheel Wrench

100 Series



- » Made from aluminum-magnesium to reduce the chance of sparks when opening stubborn valves
- » Comfortable rounded gripping area on handle end
- » Base pad provides a better grip on valve wheel

Specifications

Part No.	Opening	Overall Length*	Weight
VW101AL	1-3/8"	13-5/8"	2-1/8 lbs.
VW102AL	1-3/4"	17-5/8"	3-1/2 lbs.
VW103AL	2-1/2"	25-1/2"	7-3/4 lbs.

*Overall Length is approximate



WARNING! Protect yourself and others from SERIOUS INJURY! Use as a hand tool for gripping! NOT FOR STRIKING! Never use a "CHEATER" or other means to extend handle! Always pull toward base pad!

If wrench slips you can be hurt or injure others!



NOTE: Safe Practices & Procedures can be found on page 38 of this product guide.

Valve Wheel Wrench

El-Mac SURGRIP™



- » Made from aluminum-magnesium to minimize sparking
- » "Fist-like" head design reduces slipping on stubborn valves
- » Suitable for use in various industries

Specifications

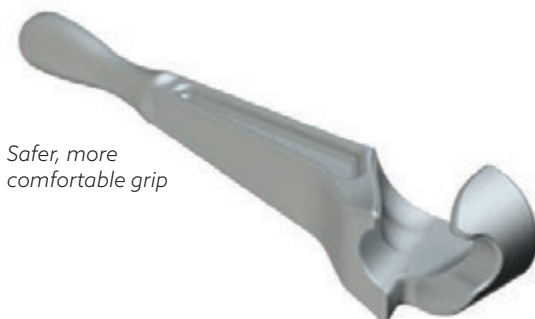
Part No.	Opening	Overall Length*	Weight
EM9	7/8"	9"	13 ozs.
EM11	1"	11"	1-1/4 lbs.
EM15	1-3/8"	15"	2-1/4 lbs.
EM19	1-3/4"	19"	3-5/8 lbs.
EM28	2"	28"	7 lbs.

*Overall Length is approximate

! WARNING! Protect yourself and others from SERIOUS INJURY! Use as a hand tool for gripping! NOT FOR STRIKING! Never use a "CHEATER" or other means to extend handle! Always pull toward base pad! **!**
If wrench slips you can be hurt or injure others!

NOTE: Safe Practices & Procedures can be found on page 38 of this product guide.

Valve Wheel Wrench



Safer, more
comfortable grip

- » Safely open and close stubborn valves
- » Deeper, more rounded design fits valve wheel rim better
- » Special feature fits over the spoke of valve wheel
- » Made from aluminum magnesium

Specifications

Part No.	Opening	Overall Length*	Weight
VWP1	1-3/8"	13-5/8"	2-1/4 lbs.
VWP2	1-3/4"	17-5/8"	3-7/8 lbs.
VWP3	2-1/2"	25-1/2"	7-5/8 lbs.

*Overall Length is approximate

! WARNING! Protect yourself and others from SERIOUS INJURY! Use as a hand tool for gripping! NOT FOR STRIKING! Never use a "CHEATER" or other means to extend handle! Always pull toward base pad! **!**
If wrench slips you can be hurt or injure others!

NOTE: Safe Practices & Procedures can be found on page 38 of this product guide.

Valve Wheel Latch Wrench



- » Grips rim of valve wheel to prevent slipping
- » Latching mechanism pivots freely allowing wrench to be easily applied or removed from valve wheel
- » Made from alloy steel for strength and durability

Specifications

Part No.	Opening	Length	Weight
VWL1	1-3/16"	11-1/4"	3-1/2 lbs.

! WARNING! Protect yourself and others from SERIOUS INJURY! **!**
Never use a "cheater" or other means to extend handle!
If wrench slips you can be hurt or injure other workers!

NOTE: Safe Practices & Procedures can be found on page 38 of this product guide.

Tubing Tongs



- » Design allows operator to “snap” the tool onto the workpiece for positive grip
- » Cam lever serves to both lock and open the jaws
- » Replaceable hardened steel bits

Specifications

Part No.	O.D.	Gripping Width	Handle Length	Weight
Medium Heavy Duty				
TMA2002375	2.375"	1.25"	31-1/2"	17 lbs.
TMA2502875	2.875"	1.25"	33-13/16"	19 lbs.
TMA2503063	3.063"	1.25"	33-13/16"	19 lbs.
TMA3003500	3.500"	1.25"	35"	25 lbs.
TMA3003668	3.668"	1.25"	35"	26 lbs.
TMA3504000	4.000"	1.25"	35-1/2"	28 lbs.
TMA3504250	4.250"	1.25"	35-1/2"	29 lbs.
Heavy Duty				
THA2002375	2.375"	2.00"	33-3/8"	27 lbs.
THA2502875	2.875"	2.00"	39-5/8"	30 lbs.
THA3003500	3.500"	2.00"	40"	35 lbs.



WARNING! Use as a hand tool only. Do Not Strike, use a “cheater” or extend handle. SERIOUS INJURY may result if used improperly.



TITAN™ Tubing Elevator



License
No. 8C-0069

- » Equipped with a double locking retainer assembly for maximum safety
- » Made from heat-treated alloy steel for strength and durability
- » Flame hardened load collar for increased abrasion resistance
- » Manufactured and tested to API 8C

Specifications — API CERTIFIED

Part No.	Tubing Size	Weight	Rated Load
TEA035-238N	2-3/8" Non-Upset	53 lbs.	35 tons
TEA035-238U	2-3/8" External Upset	53 lbs.	35 tons
TEA035-278N	2-7/8" Non-Upset	52 lbs.	35 tons
TEA035-278U	2-7/8" External Upset	52 lbs.	35 tons
TEA100-238N	2-3/8" Non-Upset	116 lbs.	100 tons
TEA100-238U	2-3/8" External Upset	116 lbs.	100 tons
TEA100-278N	2-7/8" Non-Upset	114 lbs.	100 tons
TEA100-278U	2-7/8" External Upset	114 lbs.	100 tons
TEA100-312N	3-1/2" Non-Upset	112 lbs.	100 tons
TEA100-312U	3-1/2" External Upset	112 lbs.	100 tons



WARNING! Improper use of tubing elevators may result in INJURY or DEATH! Do Not Exceed Rated Load! Follow safe practices listed in Data Book.



Suckerrod Elevator

- » Hand-operable front and rear retainers provide simple, fast and smooth operation
- » Plate-type and solid body elevators available
- » Made from heat-treated alloy steel for strength and durability

Specifications – API CERTIFIED

Part No.	Rod Size	Weight	Rated Load
REA025H	(see plates below)	31 lbs.	25 tons
Plate Inserts			
REI025-058	5/8", 3/4"	8 ozs.	---
REI025-034	3/4", 7/8"	8 ozs.	---
REI025-100	1"	8 ozs.	---
REI025H-118	1", 1-1/8"	8 ozs.	---

NOTE: Plate Inserts are sold separate from Rod Elevator.

Solid Body			
REAS025H-058	5/8", 3/4"	33 lbs.	25 tons
REAS025H-034	3/4", 7/8"	33 lbs.	25 tons
REAS025H-100	1"	33 lbs.	25 tons
REAS025H-118	1-1/8"	33 lbs.	25 tons
REAS025H-125F1	1-1/4" (for 1-1/8" fiberglass rods)	33 lbs.	25 tons

API Certificate can be viewed from product page of website.



Specifications – NON-API

Part No.	Rod Size	Weight	Rated Load
REA025	(see plates below)	30 lbs.	25 tons
Plate Inserts			
REI025-058	5/8", 3/4"	8 ozs.	---
REI025-034	3/4", 7/8"	8 ozs.	---
REI025-100	1"	8 ozs.	---

NOTE: Plate Inserts are sold separate from Rod Elevator.

Solid Body			
REAS025-058	5/8", 3/4"	32 lbs.	25 tons
REAS025-034	3/4", 7/8"	32 lbs.	25 tons
REAS025-100	1"	32 lbs.	25 tons



WARNING! Improper use of sucker rod elevators may result in INJURY or DEATH! Do Not Exceed Rated Load of 25 Tons! Follow safe practices listed in Data Book.



Suckerrod Transfer

Specifications

Part No.	Rod Size	Weight	Rated Load
QT1	5/8"	5-3/4 lbs.	400 lbs.
QT2	3/4", 7/8"	5-3/4 lbs.	400 lbs.
QT2R (for EL Rods)	3/4", 7/8"	5-3/4 lbs.	400 lbs.
QT4	1"	5-3/4 lbs.	400 lbs.
QT5	1-1/8"	6-1/2 lbs.	400 lbs.
Transfers with Springs			
QT1S	5/8"	6 lbs.	400 lbs.
QT2S	3/4", 7/8"	6 lbs.	400 lbs.
QT2RS (for EL Rods)	3/4", 7/8"	6 lbs.	400 lbs.
QT4S	1"	6 lbs.	400 lbs.
QT5S	1-1/8"	7 lbs.	400 lbs.

- » Easily transfer sucker rods to and from racking platform
- » Made from alloy steel for strength and durability



WARNING! Improper use of sucker rod transfers may result in INJURY or DEATH! Do Not Exceed Rated Load of 400 pounds!



Suckerrod Wrench



- » Quickly break tough sucker rod or coupling joints
- » "Snap-up" hammer-action
- » Made of high-quality, heat-treated alloy steel

Specifications

Part No.	Wrench Square	Rod Size	Length	Weight
QA0-14	5/8"	1/2"	14"	4 lbs.
QA1-19	7/8"	5/8"	19"	6 lbs.
QA2-19	1"	3/4", 7/8"	19"	7 lbs.
QA2-19R (for EL Rods)	1-1/8"	3/4", 7/8"	19"	6 lbs.
QA4-19	1-5/16"	1"	19"	7 lbs.
QA5-19	1-1/2"	1-1/8"	19"	7 lbs.



WARNING! Protect yourself and others from **SERIOUS INJURY!**
Never use a "cheater" or other means to extend handle!
If wrench slips you can be hurt or injure other workers!



Suckerrod Spin Wrench



- » Make up sucker rods when a snap-type wrench is not necessary
- » Made of heat-treated alloy steel to withstand rugged use

Specifications

Part No.	Wrench Square	Rod Size	Length	Weight
QS1-16	7/8"	5/8"	16"	4-7/8 lbs.
QS2-16	1"	3/4", 7/8"	16"	4-3/4 lbs.



WARNING! Protect yourself and others from **SERIOUS INJURY!**
Never use a "cheater" or other means to extend handle!
If wrench slips you can be hurt or injure other workers!



SURGRIP™ Friction Tongs

for use on
Rod Box/Couplings



- » Make up and break out rod box/couplings without marring surfaces
- » Three piece precision machined jaws grip entire circumference by friction
- » Ratcheting ability prevents frequent tong adjustment or removal
- » Each component is heat-treated for durability
- » Sizes capable of delivering up to 2,300 ft.-lbs. torque

Specifications

Part No.	Rod Size or Nominal Coupling Size	Coupling O.D.	Weight
Full Size Couplings and Subcouplings			
ZT2:1.500	5/8"	1-1/2"	10-1/2 lbs.
ZT3:1.625	3/4"	1-5/8"	11-1/2 lbs.
ZT3:1.812	7/8"	1-13/16"	11-1/2 lbs.
ZT3:2.188	1"	2-3/16"	11-1/2 lbs.
ZT3:2.375	1-1/8"	2-3/8"	11-1/2 lbs.
Slimhole Couplings and Subcouplings			
ZT1:1.000	1/2"	1"	6-1/2 lbs.
ZT1:1.250	5/8"	1-1/4"	6-1/2 lbs.
ZT2:1.500	3/4"	1-1/2"	10-1/2 lbs.
ZT3:1.625	7/8"	1-5/8"	11-1/2 lbs.
ZT3:2.000	1"	2"	11-1/2 lbs.
ZT3:2.250	1-1/8"	2-1/4"	11-1/2 lbs.

>>> **Maximum Working Loads** <<<

Torques vary according to tong being used.

See Max. Working Loads on product page of website.



WARNING! Protect yourself and others from **SERIOUS INJURY!**
Never use a "cheater" or other means to extend handle!
If wrench slips you can be hurt or injure other workers!



Suckerrod Coupling Spinner

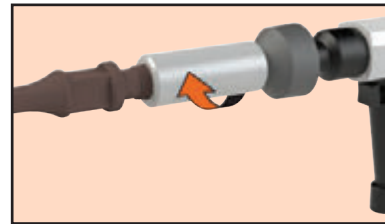
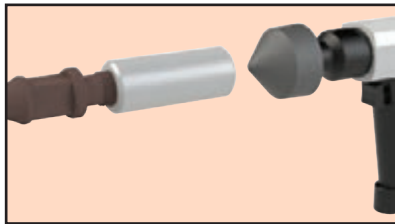


- » Quickly threads rod couplings onto sucker rods
- » Made of neoprene
- » One size fits all couplings

Specifications

Part No.	Drive Size	Overall Dimensions	Weight
QS1S	1/2"	2-3/8" O.D. x 2-1/4"	6-1/2 ozs.

⚠ WARNING! Keep hands clear of rotating parts. ⚠



Stabbing Tongs



- » Quickly spins up couplings or small pipe
- » Easily applied and removed
- » Lightweight tool provides proper leverage

Specifications

Part No.	O.D.	Gripping Width	Tong Length	Weight
SSA1	1-1/4" - 4"	2.13"	13"	9 lbs.
SSA2	2" - 4"	2.25"	16"	10 lbs.

⚠ WARNING! Use as a hand tool only. Do Not Strike, use a "cheater" or extend handle. SERIOUS INJURY may result if used improperly. Read Safe Practices & Procedures Manual prior to operation. Follow OSHA, NSC, etc. standards, safe practices, and procedures. ⚠

NOTE: Safe Practices & Procedures Manual can be found on pages 31-37 of this product guide.

Shothole Casing Tongs



- » Lightweight full opening tongs for easy and rapid application
- » Friction jaws ratchet easily and will not crush or mar workpiece

Specifications

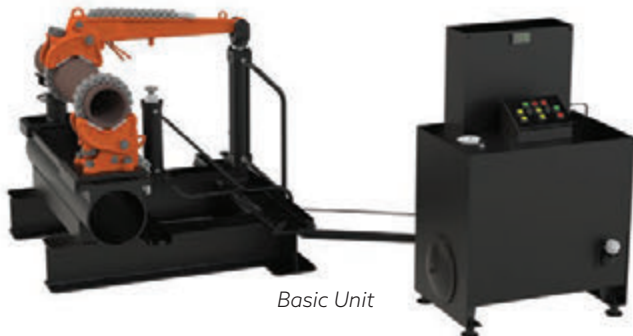
Part No.	O.D.	Gripping Width	Handle Length	Weight
SHA3	3.000"	2.00"	26"	8 lbs.

⚠ WARNING! Use as a hand tool only. Do Not Strike, use a "cheater" or extend handle. SERIOUS INJURY may result if used improperly. ⚠



LEGENDARY
RELIABILITY
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HYDRA-TORK™ Units



Basic Unit



Skid-Mounted Unit

- » Provides fast and easy operation when making up or breaking out pipe and tool joints
- » Equipped with PETOL™ Pulldown Visetong and Tongvise (see page 21)
- » Heat-treated chains are easily adjusted without disassembly of chain sections
- » Control console for hydraulics provides gauges with exact read-out in both ft.-lbs. of torque and PSI
- » For added safety, the pressure relief valve can be set to a specific working pressure at which point the system will stop torquing
- » Customizable to meet the specific requirements
- » Sizes capable of delivering up to 200,000 ft.-lbs. torque

Specifications

Part No.	O.D.	Weight*
U115H	2" - 8"	1,255 lbs.
U116H	4" - 14"	2,860 lbs.
U118	4" - 24"	3,380 lbs.
U120	6" - 24"	5,500 lbs.

*Weights are for Basic Units.

>>> **Maximum Working Loads** <<<

*Torques vary according to unit being used.
See Max. Working Loads on product page of website.*

Portable Units



Electric or Gas Power
consoles with hose assemblies
are available (sold separately)

- » Safely provides convenience and speed in breaking out drill stem and drilling tools at the jobsite
- » Equipped with PETOL™ Drill Pipe Tongs (see page 22)
- » Heat-treated chains are equipped with heavy duty bolts to quickly adjust from one O.D. to another
- » Sizes capable of delivering up to 95,000 ft.-lbs. torque

Specifications

Part No.	O.D.	Weight
U1344	1" - 6"	180 lbs.
U4174	3" - 8-1/4"	510 lbs.
U8184	4" - 14"	1,400 lbs.

>>> **Maximum Working Loads** <<<

*Torques vary according to O.D.
See Torque Tables on product page of website.*

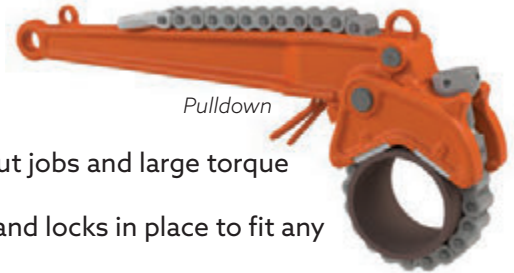
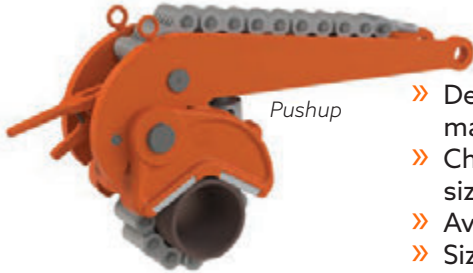


WARNING! Do Not Exceed Maximum Working Load! Overloading may result in SERIOUS INJURY or DEATH!
Always use a load cell or other calibrated indicating device to monitor the line pull on the tong to avoid overload. Read Safe Practices & Procedures Manual prior to operation. Do not operate without a manual.
Follow OSHA, NSC, etc. standards, safe practices, and procedures.



NOTE: Safe Practices & Procedures Manual can be found on pages 31-37 of this product guide.

Visetongs



- » Designed for heavy load breakout jobs and large torque makeup requirements
- » Chain easily slides through jaw and locks in place to fit any size in the O.D. range
- » Available in pulldown and pushup designs
- » Sizes capable of delivering up to 200,000 ft.-lbs. torque

Specifications – Pushup

Part No.	O.D.*	Gripping Width	Handle Length**	Weight***
VTUA118-4D	4" – 24"	9.00"	54"	328 lbs.
VTUA118-4D-L36	4" – 24"	9.00"	36"	294 lbs.
VTUA120	6" – 24"	12.63"	42"	559 lbs.

Specifications – Pulldown

Part No.	O.D.*	Gripping Width	Handle Length**	Weight***
VTDA115H	2" – 8"	5.25"	24"	74 lbs.
VTDA116H-4D	4" – 14"	7.25"	36"	170 lbs.
VTDA118-4D	4" – 24"	9.00"	46"	313 lbs.
VTDA120	6" – 24"	12.63"	36"	575 lbs.

*Chain assemblies must be ordered separately. See Chain Selection Guide on product page of website.

**Call factory for torque arm lengths.

***Weights do not include chain.

>>> **Maximum Working Loads** <<<

Torques vary according to tong being used.

See Max. Working Loads on product page of website.



WARNING! Do Not Exceed Maximum Working Load! Overloading may result in **SERIOUS INJURY** or **DEATH!**
Always use a load cell or other calibrated indicating device to monitor the line pull on the tong to avoid overload. Read Safe Practices & Procedures Manual prior to operation. Do not operate without a manual.
Follow OSHA, NSC, etc. standards, safe practices, and procedures.



NOTE: Safe Practices & Procedures Manual can be found on pages 31-37 of this product guide.

Tongvise

Specifications

Part No.	O.D.*	Gripping Width	Weight***
TVA115H	2" – 8"	5.25"	41 lbs.
TVA116	4" – 14"	7.00"	107 lbs.
TVA116H	4" – 14"	7.25"	121 lbs.
TVA118	4" – 24"	9.00"	247 lbs.
TVA120	6" – 24"	12.63"	472 lbs.

*Chain assemblies must be ordered separately. See Chain Selection Guide on product page of website.

**Weights do not include chain.

>>> **Maximum Working Loads** <<<

Torques vary according to vise being used.

See Max. Working Loads on product page of website.



- » Suitable for heavy-duty breakout or makeup operations
- » Chain easily slides through jaw and locks in place to fit any size in the O.D. range
- » Self-tightening feature increases grip as torque increases
- » Sizes capable of delivering up to 200,000 ft.-lbs. torque



WARNING! Do Not Exceed Maximum Working Load! Overloading may result in **SERIOUS INJURY** or **DEATH!**
Always use a load cell or other calibrated indicating device to monitor the line pull on the tong to avoid overload. Read Safe Practices & Procedures Manual prior to operation. Do not operate without a manual.
Follow OSHA, NSC, etc. standards, safe practices, and procedures.

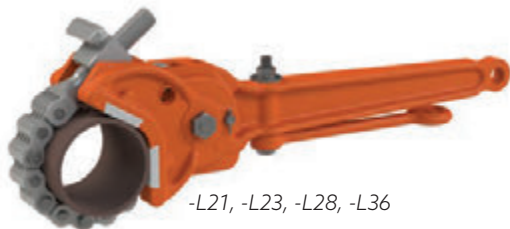


NOTE: Safe Practices & Procedures Manual can be found on pages 31-37 of this product guide.

Drill Pipe Tongs



DA4174-L08



-L21, -L23, -L28, -L36



-C09, -C10, -C12, -C18

- » Designed for making up and breaking out drill pipe, casing and pneumatic drills on light rigs
- » Easy to handle, is quickly applied to workpiece, and withstands rugged use
- » Often furnished as original equipment by rig manufacturers
- » Sizes capable of delivering up to 95,000 ft.-lbs. torque

Specifications

Part No.	O.D.*	Gripping Width	Handle Length**	Weight***
DA1344	1" - 6"	4"	8"	13 lbs.
DA2344-C12	2-1/8" - 5"	4.44"	12"	29 lbs.
DA2344-L21	2-1/8" - 5"	4.44"	21"	35 lbs.
DA4174-L08	3" - 8-1/4"	5.00"	8"	33 lbs.
DA4174-C12	3" - 8-1/4"	5.00"	12"	41 lbs.
DA4174-L21	3" - 8-1/4"	5.00"	21"	45 lbs.
DA4174-L36	3" - 8-1/4"	5.00"	36"	58 lbs.
DA6184-C10	4-1/4" - 10-3/4"	4.88"	10"	49 lbs.
DA6184-L36	4-1/4" - 10-3/4"	4.88"	36"	76 lbs.
DA8184-C09	4" - 14"	7.25"	9"	91 lbs.
DA8184-C18	4" - 14"	7.25"	18"	100 lbs.
DA8184-L23	4" - 14"	7.25"	23"	120 lbs.
DA8184-L28	4" - 14"	7.25"	28"	129 lbs.
DA8184-L36	4" - 14"	7.25"	36"	134 lbs.

*Chain assemblies must be ordered separately. See Chain Selection Guide on product page of website.

**Call factory for torque arm lengths.

***Weights do not include chain.

>>> Maximum Working Loads <<<

Torques vary according to O.D.

See Torque Tables on product page of website.



WARNING! Do Not Exceed Maximum Working Load! Overloading may result in SERIOUS INJURY or DEATH!
Always use a load cell or other calibrated indicating device to monitor the line pull on the tong to avoid overload. Read Safe Practices & Procedures Manual prior to operation. Do not operate without a manual.
Follow OSHA, NSC, etc. standards, safe practices, and procedures.



NOTE: Safe Practices & Procedures Manual can be found on pages 31-37 of this product guide.

Tong Jack



TJA35 with
Machine Tong

TJA35 with
SlimGrip Tong

Linkage with quick release pins
connect clevis or loop-style handles

- » Portable, pneumatic powered machine for working connections with multiple makeup or breakout points
- » Suitable for use with a variety of PETOL tongs to meet specific O.D., gripping width and torque requirements (*tongs sold separately*)
- » Includes a gauge that reads out in PSI and a chart to convert to pounds of force
- » TJA35 lifts the tong handle 23" to 39" (approx.) from floor
- » TJA35T lifts the tong handle 35" to 51" (approx.) from floor
- » Capable of delivering up to 3,500 force (see note below)

Specifications

Part No.	Overall Dimensions (W x H)	Weight
TJA35	20.85" x 45.70"	260 lbs.
TJA35T	20.85" x 55.81"	295 lbs.

>>> Maximum Working Loads <<<

The Tong Jack may be capable of providing more force than the rating of the tong being used. See Torque Table on tong product page of website.



WARNING! Do Not Exceed Maximum Working Load! Overloading may result in SERIOUS INJURY or DEATH!
Always use a load cell or other calibrated indicating device to monitor the line pull on the tong to avoid overload. Read Safe Practices & Procedures Manual prior to operation. Do not operate without a manual.
Follow OSHA, NSC, etc. standards, safe practices, and procedures.



NOTE: Safe Practices & Procedures Manual can be found on pages 31-37 of this product guide.

Machine Tongs



- » Positive grip in upward motion
- » Ratchets in downward motion
- » Non-crushing, non-jamming action
- » Sizes capable of delivering up to 35,000 ft.-lbs. torque

Specifications

Part No.	O.D.*	Gripping Width	Handle Length**	Weight***
MA15S	2" - 10"	4.00"	28"	37 lbs.
MA15S-16S	3" - 16"	5.00"	32"	54 lbs.
MA16HS	4" - 16"	5.25"	35"	82 lbs.

*Chain assemblies must be ordered separately. See Chain Selection Guide on product page of website.

**Call factory for torque arm lengths.

***Weights do not include chain.

>>> Maximum Working Loads <<<

*Torques vary according to O.D.
See Torque Tables on product page of website.*



WARNING! Do Not Exceed Maximum Working Load! Overloading may result in SERIOUS INJURY or DEATH!
Always use a load cell or other calibrated indicating device to monitor the line pull on the tong to avoid overload. Read Safe Practices & Procedures Manual prior to operation. Follow OSHA, NSC, etc. standards, safe practices, and procedures.



NOTE: Safe Practices & Procedures Manual can be found on pages 31-37 of this product guide.

SlimGrip Tongs



*Suitable for use
in any position*

- » Designed to work connections with narrow gripping areas
- » Self-adjusting, ratcheting "pipe wrench" with a torque rating
- » Can easily be placed either on top of or underneath the workpiece
- » Sizes capable of delivering up to 7,500 ft.-lbs. torque

Specifications

Part No.	O.D.	Gripping Width	Handle Length	Weight
SLG10	1" - 2"	1.19"	16"	9 lbs.
SLG13	2-3/8" - 4"	1.75"	28"	44-1/2 lbs.
SLG15	3-3/4" - 6-1/2"	1.25"	33"	65 lbs.

>>> Maximum Working Loads <<<

*Torques vary according to tong being used.
See Torque Table on product page of website.*



WARNING! Do Not Exceed Maximum Working Load! Overloading may result in SERIOUS INJURY or DEATH!
Always use a load cell or other calibrated indicating device to monitor the line pull on the tong to avoid overload.
Do not operate without a manual. Follow OSHA, NSC, etc. standards, safe practices, and procedures.



Rig Wrench



- » For fast makeup or breakout of drill pipe on water well and blast hole rigs
- » Self-adjusting, non-jamming ratchet action
- » Easily applied or removed from the workpiece
- » Capable of delivering up to 16,000 ft.-lbs. torque

Specifications

Part No.	O.D.*	Gripping Width	Torque Arm Length	Weight
PRWA01	3-1/2" - 5"	2.25"	approx. 18"***	53 lbs.
PRWA01-D	3-1/2" - 5"	2.25"	approx. 22"***	55 lbs.

*T-4 or T-7 Inserts must be used to work used to work 3-1/2" O.D.

Diamond Point or Teeth Inserts can be used to work all other O.D.s

**Torque Arm Length will vary from 17.38" to 19.38" depending on O.D. being worked

***Torque Arm Length will vary from 21.25" to 22.63" depending on O.D. being worked

>>> Maximum Working Loads <<<

*Torques vary according to tong being used.
See Torque Table on product page of website.*



WARNING! Do Not Exceed Maximum Working Load! Overloading may result in SERIOUS INJURY or DEATH!
Always use a load cell or other calibrated indicating device to monitor the line pull on the tong to avoid overload.
Follow OSHA, NSC, etc. standards, safe practices, and procedures.



SURGRIP™ BELT TONG™

Strap Wrench Patent #7,275,463



- » Originally developed and widely accepted for high torque offshore makeup and breakout applications
- » Lightweight composite belt weighs significantly less than heavy link chains, grips better and delivers higher torques
- » Strap will not "fly apart" even if over-torqued and broken
- » Adjustable hanger keeps wrench in perfect balance for easy application and ratcheting
- » Safely and easily handled by only two rig personnel
- » SCT1020, SCT1020H, SCT1838 and SCT2036 can be adjusted to grip the main body of pipe or pipe coupling
- » Every wrench is load tested and mag particle inspected (MPI)
- » Supplied with Data Book containing operating instructions, warnings, load test and MPI certificates
- » Sizes capable of delivering up to 198,600 ft.-lbs. torque

Specifications

Part No.	O.D.*	Gripping Width	Handle Length**	Weight***
SCT306	2-7/8" - 6"	3.87"	30"	101 lbs.
SCT516	5" - 17"	9.50"	36"	280 lbs.
SCT614H	6" - 14-7/8"	13.75"	33"	412 lbs.
SCT1020	9-5/8" - 20"	9.50"	36"	181 lbs.
SCT1020H	9-5/8" - 20"	13.75"	33"	366 lbs.
SCT1838	18" - 38"	12.00"	63"	665 lbs.
SCT2036	18" - 38"	12.00"	33"	295 lbs.
SCT3672	36" - 72"	14.50"	33"	387 lbs.

*Straps must be ordered separately. See BELT TONG Strap Guide on product page of website.

**Call factory for torque arm lengths.

***Weights do not include straps.

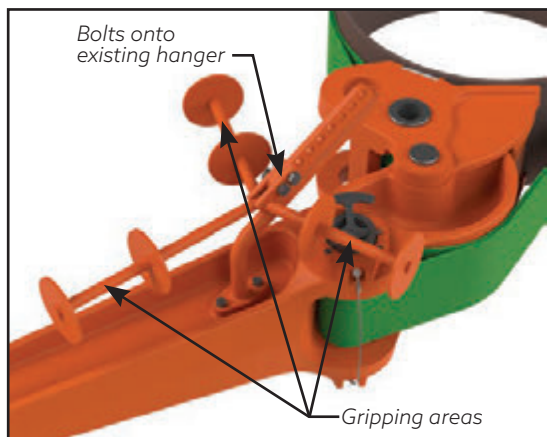
>>> Maximum Working Loads <<<

Torques vary according to O.D.

See Torque Tables on product page of website.

⚠ WARNING! Do Not Exceed Maximum Working Load! Overloading may result in SERIOUS INJURY or DEATH! ⚠
Always use a load cell or other calibrated indicating device to monitor the line pull on the tool to avoid overload.
Read safe practices & procedures in Data Book prior to operation. Do not operate without a Data Book.
Follow OSHA, NSC, etc. standards, safe practices, & procedures.

Grip Assembly



- » Optional accessory for SURGRIP™ BELT TONG™
- » Gripping areas provide added safety and convenience during operation
- » Comes with hardware for attachment

Specifications

Part No.	Fits Tong Sizes	Weight
SCTG	SCT516, SCT1020, SCT1020H, SCT1838, SCT2036, SCT3672	17 lbs.
SCTG614H	SCT614H	17-1/4 lbs.

Bull Tongs



LA118 latches with an adjustable chain screw nut rather than the typical chain hook

- » Versatile tool for making up or breaking out tool and pipe joints in the shop as well as on drilling rigs
- » Non-crushing, non-jamming positive grip in downward motion
- » Ratchets in upward motion
- » Sizes capable of delivering up to 155,900 ft.-lbs. torque

Specifications

Part No.	O.D.*	Gripping Width	Handle Length**	Weight***
LA155-16	3-1/2" - 16"	4.38"	32"	67 lbs.
LA16H	4" - 16"	6.88"	36"	98 lbs.
LA116-C09	6" - 17"	7.55"	9"	90 lbs.
LA116-C18	6" - 17"	7.55"	18"	124 lbs.
LA116-23	6" - 17"	7.55"	23"	118 lbs.
LA116-28	6" - 17"	7.55"	28"	128 lbs.
LA116	5" - 17"	7.55"	36"	134 lbs.
LA118	5-1/2" - 20"	8.94"	48"	357 lbs.
LA120	6" - 22"	10.00"	72"	409 lbs.
LA116H	16" - 40"	7.63"	36"	187 lbs.
LA116HX	30-1/8" - 65-7/8"	7.56"	36"	238 lbs.

*Chain assemblies must be ordered separately. See Chain Selection Guide on product page of website.

**Call factory for torque arm lengths.

***Weights do not include chain.

>>> Maximum Working Loads <<<

Torques vary according to O.D.

See Torque Tables on product page of website.



WARNING! Do Not Exceed Maximum Working Load! Overloading may result in SERIOUS INJURY or DEATH!
Always use a load cell or other calibrated indicating device to monitor the line pull on the tong to avoid overload. Read Safe Practices & Procedures Manual prior to operation. Do not operate without a manual.
Follow OSHA, NSC, etc. standards, safe practices, and procedures.



NOTE: Safe Practices & Procedures Manual can be found on pages 31-37 of this product guide.

Bukup Tongs



BA118 latches with an adjustable chain screw nut rather than the typical chain hook

- » Originally designed for use with a pipe machine for "bucking up" and "bucking off" tool joints
- » Larger sizes are suitable for breaking out drill collars, reamers and other heavy jobs
- » Grips in upward motion, ratchets in downward motion
- » Sizes capable of delivering up to 151,900 ft.-lbs. torque

Specifications

Part No.	O.D.*	Gripping Width	Handle Length**	Weight***
BA115H	2" - 8"	4.66"	48"	64 lbs.
BA116	4" - 10"	6.00"	48"	102 lbs.
BA116H	4-1/4" - 10-3/4"	6.06"	48"	151 lbs.
BA118	5-1/2" - 20"	8.94"	48"	373 lbs.
BA120	6" - 22"	10.88"	72"	546 lbs.

*Chain assemblies must be ordered separately. See Chain Selection Guide on product page of website.

**Call factory for torque arm lengths.

***Weights do not include chain.

>>> Maximum Working Loads <<<

Torques vary according to O.D.

See Torque Tables on product page of website.



WARNING! Do Not Exceed Maximum Working Load! Overloading may result in SERIOUS INJURY or DEATH!
Always use a load cell or other calibrated indicating device to monitor the line pull on the tong to avoid overload. Read Safe Practices & Procedures Manual prior to operation. Do not operate without a manual.
Follow OSHA, NSC, etc. standards, safe practices, and procedures.

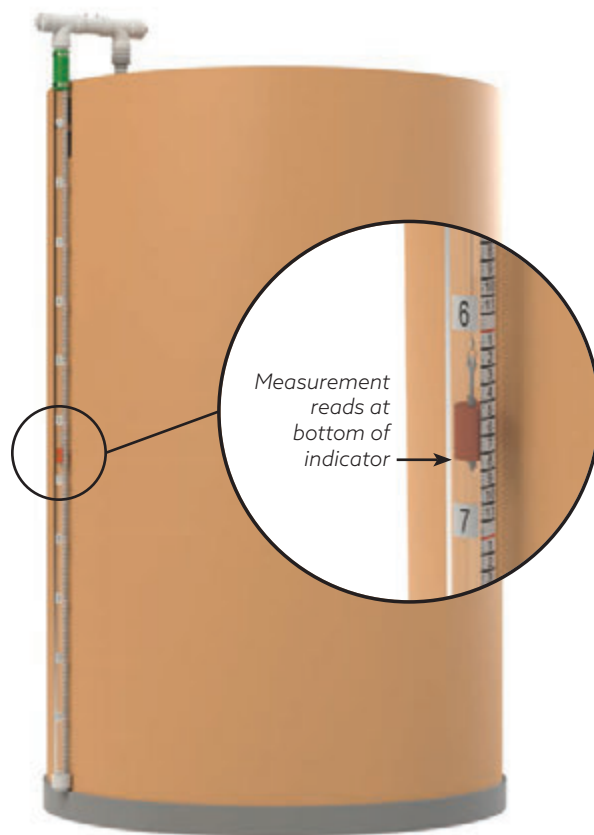
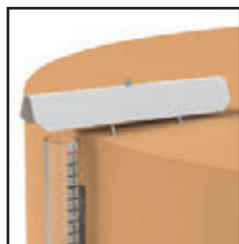


NOTE: Safe Practices & Procedures Manual can be found on pages 31-37 of this product guide.

Tank Safety Gauge

(for Vertical Storage Tanks)

- » Easy to install tank level gauging system
- » Accurate and virtually maintenance free
- » Helps reduce the risk of injuries due to falls and H₂S exposure when checking fluid levels
- » All systems include the following components:
 - Gauge body produced from highly durable weather-resistant, clear UV protected polycarbonate material
 - Stainless steel pulleys with deep grooved nylon inserts
 - Nylon coated, stainless steel cable
 - Tank attachments for welded, bolted, or fiberglass tanks
 - Custom stainless steel floats
 - Reflective vinyl measurement decals
 - Nylon tank plug with minimal clearance for cable



Hut Systems have a stainless steel, low-profile A-frame with coated heavy gauge metal housing covering the pulley mechanism

Enclosed Assembly Systems have a fully enclosed PVC housing for the pulley mechanism which reduces the risk of H₂S escaping into the environment

Specifications

Part No.	Tank Height
Enclosed Assembly System	
TSG8-EA	8'
TSG10-EA	10'
TSG11-EA	11'
TSG12-EA	12'
TSG15-EA	15'
TSG16-EA	16'
TSG18-EA	18'
TSG20-EA	20'
TSG24-EA	24'
TSG25-EA	25'
TSG28-EA	28'
TSG30-EA	30'

Specifications

Part No.	Tank Height
Standard Hut System	
TSG6	6'
TSG8	8'
TSG10	10'
TSG11	11'
TSG12	12'
TSG1212	12-1/2'
TSG15	15'
TSG16	16'
TSG18	18'
TSG20	20'
TSG24	24'
TSG25	25'
TSG28	28'
TSG30	30'

Specifications

Part No.	Tank Height
Enclosed Hut System	
TSG6-EH	6'
TSG8-EH	8'
TSG10-EH	10'
TSG11-EH	11'
TSG12-EH	12'
TSG1212-EH	12-1/2'
TSG15-EH	15'
TSG16-EH	16'
TSG18-EH	18'
TSG20-EH	20'
TSG24-EH	24'
TSG25-EH	25'
TSG28-EH	28'
TSG30-EH	30'

Note: Standard hut systems are open at each end; Enclosed hut systems are covered at each end and are recommended for winter climates with blowing snow conditions

Note: Larger systems available upon request.

>>> **RETROFIT KITS** are available to convert from a Hut System to an Enclosed Assembly System <<<

Gears & Pinions

Pumping Units & Mud Pumps

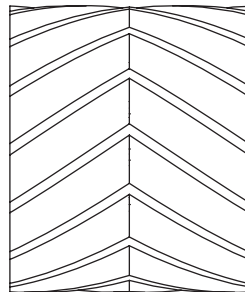


- » Replacement gears and pinions for pumping units and mud pumps
- » Many brands and sizes available from stock for immediate delivery
- » Manufactured to meet the standard of quality expected of all our products

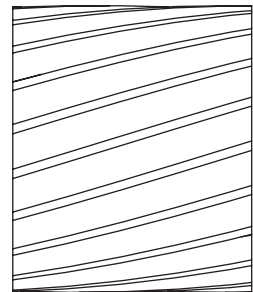
Capacity:

- Gears:
 - 2" to 16" OD Pinions up to 64" in length
 - Up to 58" OD Gears and 20" face width
- Metrology:
 - (X)62" (Y)118" (Z)55"

Common Oilfield Gear Types

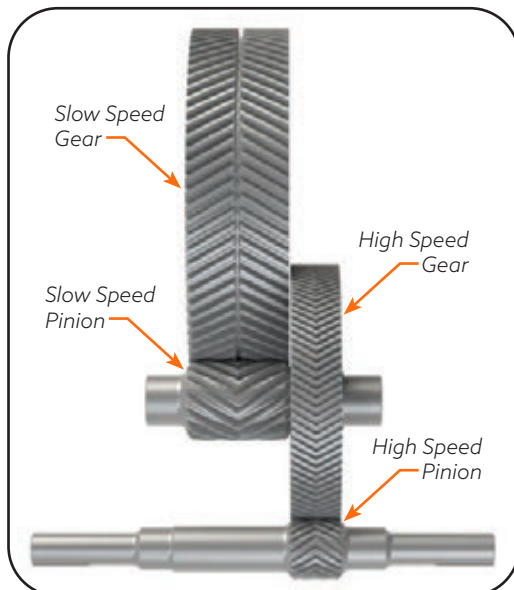


Herringbone



Helical

Identifying Gears in Pumping Unit Gear Box



Gears and pinions for many brand name pumping units and mud pumps are available from stock including:

Lufkin • American • National • Cabot/CMI Baker • Gardner Denver





**LEGENDARY
RELIABILITY
SINCE 1927**

Gearing

Full Service
Standard & Custom
Gear Milling



Services

- » Gear Milling of external involute gear forms including, but not limited to:
 - Helical - Double Helical - Spur - Herringbone
- » Reverse Engineering of Standard & Metric tooth forms
- » Up to AGMA 12 Quality Level (Standard 2000-A88)
- » Tooth Profile Modification for prototypes or production
- » Custom Metrology
- » Gear Inspection Services
- » Prototype Manufacturing



Capacity

- » Gears:
 - 2" to 16" OD Pinions up to 64" in length
 - Up to 58" OD Gears and 20" face width
- » Metrology:
 - (X)62" (Y)118" (Z)55"

Production Equipment

DMG MORI

- » DMC 160 FD duoBLOCK® - 5 axis vertical Mill-Turn
- » DMU 80 FD duoBLOCK® - 5 axis vertical Mill-Turn
- » CTX Beta 1250 TC Linear - 5 axis Turn-Mill
- » NT 5400/1800 DCG® - 5 axis Turn-Mill

ZEISS

- » PRISMO® Navigator - 3D CMM with rotary axis



SAFE PRACTICES & PROCEDURES MANUAL

(for Tongs and Vises with Chain)



**LEGENDARY
RELIABILITY
SINCE 1927**

RESPONSIBILITY, REPLACEMENT PARTS, SAFETY & SAFE PRACTICES

RESPONSIBILITY

"It is the responsibility of the employer to train the employee in the proper selection and usage of tools, chains, etc., and to ensure that they are selected and used in that manner. In many instances, injury results because it is assumed that anybody knows how to use common hand tools. Observations and the record show that this is not the case. A part of every job instruction program should therefore be detailed training in the proper use of hand tools (and of all other special tools and equipment needed to accomplish the job)."

(Source - NATIONAL SAFETY COUNCIL)

"Employers are responsible for the safe condition of tools and equipment used by employees, including tools and equipment which may be furnished by employees."

(Source - OSHA 1910.242A)

REPLACEMENT PARTS

Use only PETOL™ replacement parts - no other parts are of comparable strength, quality and interchangeability.

SAFETY

While we pride ourselves on the quality and dependability we build into PETOL GEARENCH tools and products, we caution users that it is only prudent to know and follow the simple rules of safety when using our products, or anyone else's.

Always follow safe practices and procedures in accordance with the recommendations of OSHA, The National Safety Council (NSC), The Hand Tools Institute (HTI), The International Association of Drilling Contractors (IADC), etc. All applicable Governmental rules, regulations or restrictions, now in effect or which may be promulgated, take precedence over the suggestions in this publication. The information in this publication is designed to supplement standard safe practices and procedures, not in lieu of, or replacement thereof.

SAFE PRACTICES (Source - The National Safety Council)

Failure to observe one or more of the following five safe practices accounts for most hand and powered tool accidents:

1. ALWAYS WEAR SAFETY GOGGLES TO PROTECT EYES
2. SELECT THE RIGHT TOOL FOR THE JOB
3. KEEP TOOLS IN GOOD CONDITION
4. USE TOOLS CORRECTLY
5. KEEP TOOLS IN A SAFE PLACE

Safety Goggles must always be worn by persons in any area where hand and powered tools are being used.

Never apply excess leverage to a wrench or tool by means of a "Cheater Bar." Never strike wrenches and tools with hammers or other objects.

All tools should be kept clean, inspected on a regular basis, and replaced when they show signs of wear.

Be especially careful not to place yourself in a position that could result in bodily injury in the event of a failure. Brace yourself firmly and pull rather than push when wrenching. (If necessary to push, do so with the flat of the hand rather than gripping around the wrench.)

Never stand under or near loads being hoisted off the ground.

READ SAFE PRACTICES AND PROCEDURES MANUAL, CATALOG INFORMATION AND PRODUCT LABELING PRIOR TO OPERATION.

NOTE: In view of the fact that the actual use determines whether safety requirements have been met, the ultimate responsibility to comply rests with the end user.

SAFETY SOURCES AND PUBLICATIONS

In the interest of safety PETOL GEARENCH recommends the following sources of safety related information:

HTI - The Hand Tools Institute
25 North Broadway • Tarrytown, New York 10591
(914)332-0040 • fax (914)332-1541 • www.hti.org

The National Safety Council (NSC)
1121 Spring Lake Drive • Itasca, Illinois 60143-3201
(630)285-1121 • fax (630)285-1434 • www.nsc.org

International Safety Council
1121 Spring Lake Drive • Itasca, Illinois 60143-3201
(630)285-1121 • fax (630)285-1434 • www.nsc.org

RESPONSIBILITY OF DISTRIBUTORS

IT IS THE RESPONSIBILITY OF THE PURCHASERS OF PETOL GEARENCH PRODUCTS TO CONVEY THE INFORMATION IN THIS PUBLICATION, AND ANY OTHER INFORMATION RELATING TO THE INDIVIDUAL PRODUCT, THROUGH THE CHANNELS OF DISTRIBUTION, DOWN TO AND INCLUDING THE INDIVIDUAL USING THE PRODUCT.

TONG AND VISE CHAIN INSPECTION

The service life of leaf chains can be altered by a variety of adverse operating conditions. The following information discusses the most important of these conditions for consideration when operating or scheduling replacement of leaf chain systems.

OVERLOADING / SHOCK LOAD / SIDE LOADING

- Attempting to "inch" loads which are beyond the rated capacity of the tool.
- Striking the tool with a hammer or other object while force is being exerted in an attempt to loosen a frozen joint.
- Side pull on the chain. Side pull can be caused by pulling or pushing on the tong in a direction that is not along a perpendicular plane, unlevel mounting of the vise, inadequate support of the part being broken out, and improper seating of the part being broken out in the tong or vise. Improper seating will occur when the O.D. of the part is not consistent within the width of the tong or vise jaw.

ENVIRONMENTAL CONDITIONS

Wrench and vise chains operate in widely varying environments, from wet outdoor conditions to mildly or highly corrosive industrial atmospheres. They can also be exposed to abrasives such as sand and grit.

The possible effects include:

Moisture - corrosion and rust reduce chain strength by causing pitting and cracking.

Temperature - very cold temperatures reduce chain strength by embrittlement.

Chemical Solutions or Vapors - Corrosive attack of the chain components grain structure and/or the mechanical connections between the chain components (crevice corrosion) may occur. Cracking often is microscopic. Propagation to complete failure can be eventual or sudden.

Abrasives - Accelerated wearing and scoring of the articulating chain members (pins and plates) may occur, with a corresponding reduction in chain strength. Due to inaccessibility of the bearing surfaces (pin surfaces and plate apertures), wear and scoring are not readily noticeable.

These conditions, when coupled with normal chain wear and inherent residual stress (normally in the chain as constructed), can result in environmentally assisted failure.

It is impossible to predict chain life under complex conditions, as the degree of hostility and its effects are dependent on many variables such as temperature, time of exposure, concentration of corrosive atmosphere or medium, degree of abrasive wear, etc. Establishing the degree and frequency of unpredictable dynamic loading is also difficult.

NORMAL LIFE EXPECTANCY

A leaf chain's normal life expectancy can be expressed as a maximum percent of elongation. This is generally between 2% to 3% of pitch. As the chain flexes back and forth, the bearing joints (pins and inside link plates) gradually wear from articulation.

As with all steel bearing surfaces, the precision, hardened steel joints of leaf chain require a constant film of oil between mating parts to prevent wear and to resist corrosion.

LUBRICATION

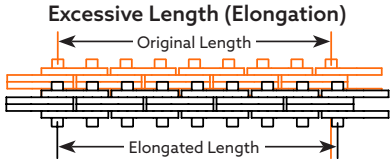
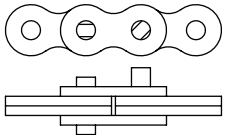
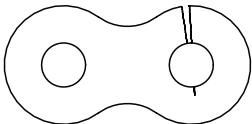
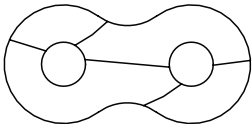
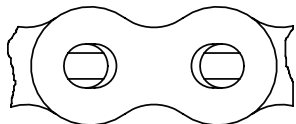

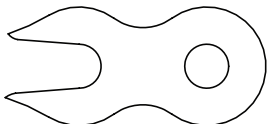
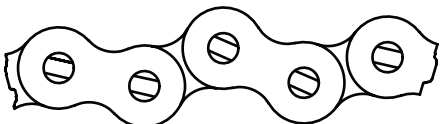
One of the most important but often overlooked factors is adequate lubrication. In addition to reducing internal friction, maintaining a film of oil on all chain surfaces will inhibit rusting and corrosion. This is important as corrosion of highly stressed hardened steel chain components can cause a major reduction in the load capacity of leaf chain and result in link plate cracking.

Protection from corrosion is important in storage as well as in service. The factory lubricant applied to PETOL™ Chain is a "Fingerprint Neutralizing Water Displacing Corrosion Preventive." This is an excellent rust and corrosion inhibitor for chains in storage. When installing these chains new, do not attempt to steam clean or degrease this lubricant. A grade of SAE30 or 40 weight, nondetergent motor oil should be used as supplemental lubricant and a film of this oil should be maintained on all surfaces and internal bearing joints. Also, do not attempt to paint new chains. Though painting may help inhibit corrosion, it will seal off critical clearances and restricts oil from reaching the pin surfaces where it is needed for good joint lubrication.

When operating in dusty environments, lubricated chains will accumulate a pastelike buildup of grime. At periodic intervals, this buildup should be removed by cleaning and the chain should be immediately relubricated. Do not use caustic or acid type cleaners; use a stiff brush and a certified safe petroleum base solvent.

PERIODIC INSPECTION LIST FOR PETOL™ SPECIAL CHAIN

1. Prior to each use, Leaf Chain and tools should be inspected for serviceability and lubrication.
2. Use Only PETOL™ Replacement Parts – No other parts are of comparable strength, quality, and interchangeability.

APPEARANCE AND/OR SYMPTOM	PROBABLE CAUSE	CORRECTION
Excessive Length (Elongation) 	<p>Normal Wear</p> <p>Permanent deformation (stretch) from overload</p>	<p>Replace chain</p> <p>Replace chain and correct cause of overload</p>
Abnormal Protrusion of Pins 	<p>Overloading</p> <p>Inadequate lubrication</p> <p>Side Loading</p>	<p>Replace chain and correct cause of overload</p> <p>Replace chain and improve lubrication</p> <p>Replace chain and correct cause of side load</p>
Cracked Plates (Fatigue) 	<p>Overloading</p> <p>Side Loading</p>	<p>Replace chain and correct cause of overload</p> <p>Replace chain and correct cause of side load</p>
Arc-Like Cracked Plates (Stress Corrosion) 	<p>Severe rusting or exposure to acidic or caustic medium, plus static stress at press fit between pin and plate.</p>	<p>Replace chain and protect from hostile environment</p>
Enlarged Holes 	<p>Overloading</p>	<p>Replace chain and correct cause of overload</p>
Cracked Plates (Corrosion Fatigue) Perpendicular to Pitch Line, plus rust or other evidence of chemical corrosion 	<p>Corrosive Environment</p>	<p>Replace chain and protect from hostile environment</p>
Fractured Plates (Tension Mode) 	<p>Overloading</p>	<p>Replace chain and correct cause of overload</p>
Tight Joints 	<p>Dirt or foreign substance packed in joints</p> <p>Corrosion and rust</p> <p>Bent Pins</p>	<p>Clean and relube</p> <p>Replace chain and protect from hostile environment</p> <p>Replace chain</p>

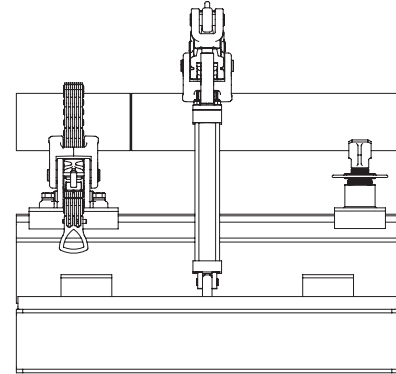
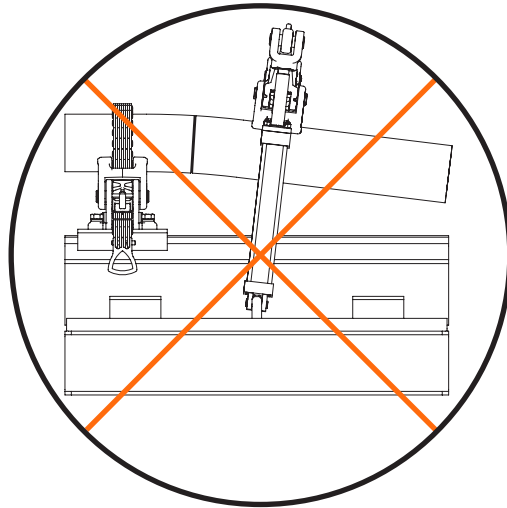
See definitions and diagrams on pages 36 and 37

Safety Precautions

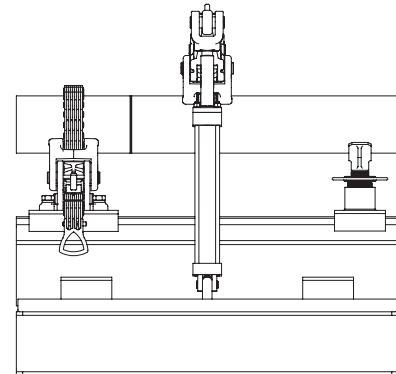
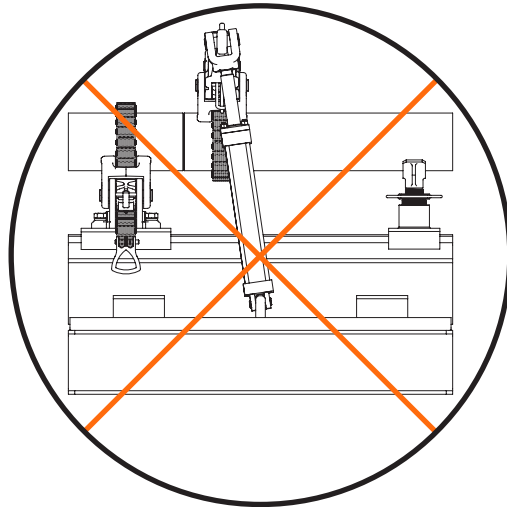
1. Always wear safety goggles to protect eyes.
2. Select the right tool for the job.
3. Keep tools in good condition.
4. Use tools correctly.
5. Keep tools in a safe place.
6. Wear protective clothing, gloves and safety shoes as appropriate.
7. Use lengths of assembled chain. Do not build lengths from individual components.
8. Do not attempt to rework damaged chain by replacing only the components obviously faulty. The entire chain may be compromised and should be discarded.
9. Never electroplate assembled leaf chains or components. Plating will result in failure from hydrogen embrittlement.
10. Do not weld any chain or component. Welding spatter should never be allowed to come in contact with chain or components.
11. Leaf chains are manufactured exclusively from heat-treated steels and therefore must not be annealed. If heating a chain with a cutting torch is absolutely necessary for removal, the chain should not be reused.
12. Inspect chains frequently and regularly for link plate cracking, pin turning, pin protrusion and corrosion.
13. Use only PETOL™ replacement parts to ensure proper strength.

COMMON CAUSES AND CORRECTION OF SIDE LOADING

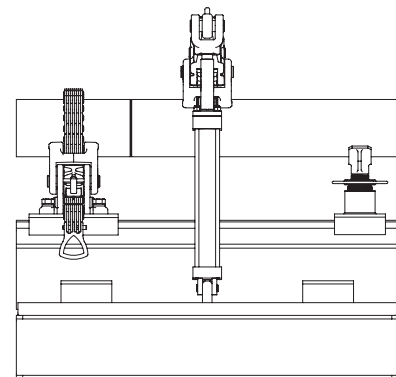
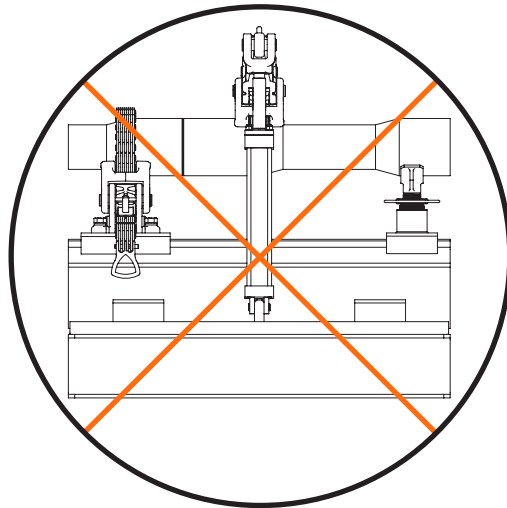
INADEQUATE
SUPPORT
OF WORKPIECE



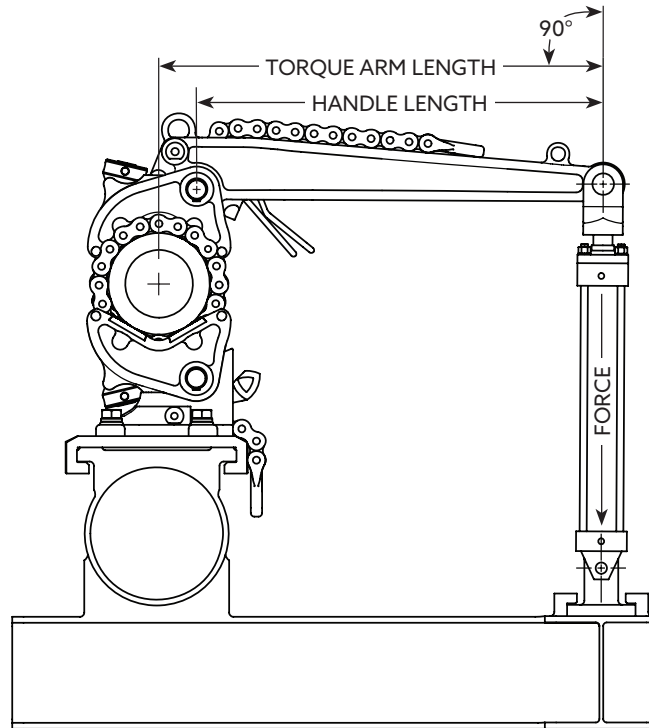
FORCE
BEING APPLIED
IS NOT IN LINE
WITH TONG



IMPROPER
SEATING OF
THE PART
DUE TO AN
INCONSISTENT
O.D.



TORQUE ARM LENGTH, HANDLE LENGTH, FT.-LBS. (TORQUE)

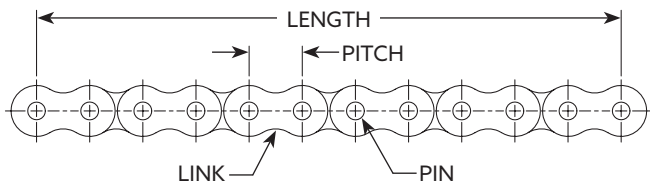


$$\text{TORQUE (FT.-LBS.)} = \text{FORCE (LBS.)} \times \text{LENGTH (IN)} / 12$$

WORKING LOAD IS THE MAXIMUM FORCE THAT MAY BE APPLIED TO A TOOL DURING OPERATION. DO NOT EXCEED THE PUBLISHED WORKING LOADS.

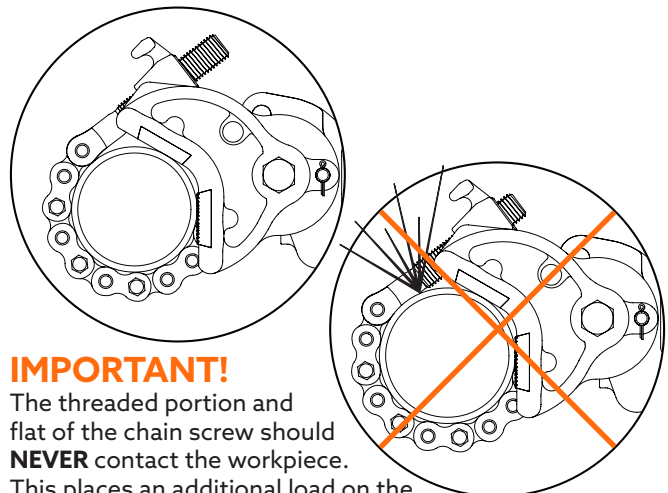
PROPER CHAIN ADJUSTMENT for PETOL™ DRILL PIPE TONGS

CHAIN DETAIL



$$\text{ELONGATION (\%)} = \frac{\text{ACTUAL LENGTH}}{\text{ORIGINAL LENGTH}} \times 100$$

Nominal Chain Size	11	12	13 (131)	135	14 (141)	15 (151)	16 (161)	181	201
Pitch Length	.714	.809	.934	1.00	1.00	1.25	1.688	2.25	2.91



IMPORTANT!

The threaded portion and flat of the chain screw should **NEVER** contact the workpiece.

This places an additional load on the chain screw which could result in breakage. Only the end radius of the chain screw should contact the workpiece, if at all. Such contact can be prevented by adding a 2 link section of chain. (see **CHAIN SELECTION GUIDE for PETOL Drill Pipe Tongs at www.petol.com**)



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SAFE PRACTICES & PROCEDURES for VALVE WHEEL WRENCHES and REFINERY WRENCHES

1. Valve Wheel Wrenches should fit over the valve wheel rim completely. Make sure that the wheel rim is in contact with the top of the wrench opening when applying force.
2. Brace yourself firmly and pull rather than push when wrenching. (If necessary to push, do so with the flat of the hand rather than gripping around the wrench.)
3. Keep the wrench in the plane of the valve wheel rim when pulling. Pulling at an angle increases the chance of slippage.
4. Never apply excess leverage to a wrench by means of a "cheater bar."
5. Never strike wrenches with hammers or other objects.
6. Safety Goggles must always be worn by persons in any area where hand and powered tools are being used.

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NOTES



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NOTES

PETOL™ GEARENCH Limited Warranty

WHAT IS COVERED

PETOL™ GEARENCH Tools are expressly warranted to you, the purchaser, to be free of defects in material and workmanship.

HOW LONG COVERAGE LASTS

This express warranty lasts for the lifetime of the PETOL GEARENCH tool. Warranty coverage ends when the tool becomes unusable for reasons other than defects in workmanship or material.

HOW CAN YOU GET WARRANTY SERVICE

To obtain the benefit of this warranty, contact a PETOL GEARENCH sales representative in Clifton, Texas.

PETOL GEARENCH • 4450 S. Hwy. 6 • P. O. Box 192 • Clifton, TX 76634

WHAT WILL WE DO TO CORRECT PROBLEMS

Warranted products will be repaired or replaced, at PETOL GEARENCH's option, and returned at no charge to you, the original purchaser; or, if after three attempts at repair or replacement during the warranty period, the product defect in material or workmanship persists, you can elect to receive a full refund of your original purchase price for the product.

WHAT IS NOT COVERED

Defects, failures or conditions that are due to normal wear and tear, abuse or misuse, are not covered by this limited warranty. In addition, this limited warranty is in lieu of all other warranties, express or implied, verbal or written. To the maximum extent allowed by law PETOL GEARENCH disclaims all implied warranties, including implied warranties of merchantability and/or fitness for a particular purpose. PETOL GEARENCH also specifically denies any liability for any incidental damages and/or consequential damages, including but not limited to property damage to property other than the product itself, loss of sales, profits, down time, costs or any other damages measurable in money, whether or not included in the foregoing enumeration.

Please be advised that some states do not allow the exclusion or limitation of incidental or consequential damages, so this limitation or exclusion may not apply to you. This warranty gives you specific rights, and you may also have other rights, which vary, from state to state, province to province, or country to country.

ARE PERSONAL INJURIES COVERED

In the event you, someone working for you, or any other person sustain a personal injury as a result of using the PETOL GEARENCH tool, PETOL GEARENCH limits its potential liability for such a claim or injury to the fullest extent allowed by law, and disclaims and denies any liability for such personal injury.

Please be advised that some states do not allow the exclusion or limitation of liability for personal injuries, so the above limitation or exclusion may not apply to you, or the individual claiming injury.

NO OTHER EXPRESS WARRANTY APPLIES

This PETOL GEARENCH LIMITED WARRANTY is the sole and exclusive warranty, express or implied for PETOL GEARENCH products. No employee, agent, dealer or other person is authorized to alter, modify, expand or reduce the terms of this warranty or to make any other warranty on behalf of PETOL GEARENCH.

LAW APPLICABLE

All matters related to the sale and/or use of the PETOL GEARENCH tool that is the subject of this limited warranty, along with the construction and enforcement of the terms of this limited warranty itself, shall be subject to the substantive and procedural laws of the state of Texas, not the conflicts of laws provisions of Texas, but rather the laws of Texas themselves.

FORUM SELECTION CLAUSE

Any dispute arising out of the sale and/or use of the PETOL GEARENCH tool that is the subject of this limited warranty shall be presented in the form of a claim or lawsuit to the offices of PETOL GEARENCH in Clifton, Bosque County, Texas. No claim or suit may be brought against PETOL GEARENCH, arising out of the sale and/or use of the tool, or arising out of the terms of this warranty, except in such forum. Purchase and/or use of the PETOL GEARENCH tool makes you subject to the benefits and limitations of this limited warranty. Accordingly, any writ, judgment or other enforcement, obtained from a jurisdiction, county, parish, state or federal court or other country, other than from the forum identified above, shall be void and unenforceable against PETOL GEARENCH.

ARBITRATION CLAUSE

In the event of dispute or claim arises out of the sale and/or use of the PETOL GEARENCH tool that is the subject of this limited warranty, or arises out of the interpretation or enforcement of the terms and conditions of this limited warranty, such dispute shall be submitted to binding arbitration pursuant to the rules of the American Arbitration Association. If required to accomplish the purpose of this Arbitration clause, the purchaser hereby expressly waives any right to demand trial by jury.

COMPLETE AGREEMENT

This express limited warranty contains the entire agreement regarding express or implied warranties related to the PETOL GEARENCH tool that is the subject of it. No writing or language contained in the purchase order or any other document of the purchaser, or invoice of PETOL GEARENCH or any intermediate seller, shall be construed as modifying, in any way, the rights and liabilities contained in this limited warranty. PETOL GEARENCH expressly disclaims any obligations expressed in any customer purchase order or document that are contrary to the terms and limitations of this warranty.

SEVERABILITY

If any term or limitation contained in this limited warranty is deemed unenforceable by law, then that term shall be severed from the remaining portions of the limited warranty which shall remain enforceable.

All communications to PETOL GEARENCH regarding the use of the tool and any aspect of the sale of the tool or this limited warranty should be addressed to PETOL GEARENCH.

PETOL GEARENCH • 4450 S. Hwy. 6 • P. O. Box 192 • Clifton, TX 76634



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4450 S. Hwy. 6 | P.O. Box 192 | Clifton, TX 76634 USA | www.PETOL.com
254.675.8651 | sales@petol.com | fax 254.675.6100