

Petol Bull Tong

LA116HX

Operating Manual

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LA116HX Petol Bull Tong Description

The Petol Bull Tongs were designed for making up and breaking out casing, drill pipe, and tubular products requiring substantial torque. The LA116HX will work diameters from 30-1/8 inches to 65-7/8 inches at torques up to 83,100 foot pounds.

The tong is adjusted by exchanging chain sections and chain hooks to work the various diameters.

The Bull Tongs have the following features:

- A high strength, heat treated alloy chain for rugged, dependable service.

- High strength alloy steels used throughout for long life with the toughest jobs.

- A hanger attached to the tong handle to suspend the tong during operation when used on vertical pipe applications.

Warranty

What Is Covered

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 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 GEARENCH sales representative in Clifton, Texas.

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What Will We Do To Correct Problems

Warranted products will be repaired or replaced, at 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 GEARENCH disclaims all implied warranties, including implied warranties of merchantability and/or fitness for a particular purpose. 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 GEARENCH tool, 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 GEARENCH LIMITED WARRANTY is the sole and exclusive warranty, express or implied for 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 GEARENCH.

Law Applicable

All matters related to the sale and/or use of the 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 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 GEARENCH in Clifton, Bosque County, Texas. No claim or suit may be brought against 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 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 that from the forum identified above, shall be void and unenforceable against GEARENCH.

Arbitration Clause

In the event of dispute or claim arises out of the sale and/or use of the 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 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 GEARENCH or any intermediate seller, shall be construed as modifying, in any way, the rights and liabilities contained in this limited warranty. 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 the term shall be severed from the remaining portions of the limited warranty which shall remain enforceable.

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

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Safe Practices and Procedures

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 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 National Association of Chain Manufacturers (NACM), 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.

Spinning and drill pipe chain, cathead chain, and the PETOL Connecting Link attachment are designed for the specific purpose for which the name indicates. Chains and attachments that are to be used for any other purpose should be selected in accordance with the recommendations of ASTM, NACM, Rigger's Handbook, and the commercial chain manufacturer's technical manuals.

Safety Sources and Publications

In the interest of Safety the following sources of Safety information is furnished:

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

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

International Safety Council
1121 Spring Lake Drive
Itasca, Illinois 60143-3201
(630) 285-1121

Responsibility of Distributors

IT IS THE RESPONSIBILITY OF THE PURCHASERS OF 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

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.

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 Loads / 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 can be caused by pulling or pushing on the tong in a direction that is not along a perpendicular plane, unlevelled mounting of the tong or 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 diameter of the part is not consistent within the width of the tong or vise jaw.

Environmental Conditions

Wrench 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 or 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% and 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

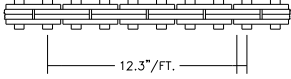
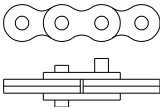

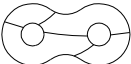




One of the most important but often-overlooked factors is adequate lubrication. In addition to reducing internal friction, maintaining a film of oil on all chain surfaces will inhibit rusting and corrosion. This is important as corrosion of highly stressed, hardened steel chain components can cause a 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 Preventative”. 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 SAE 30 or 40 weight, non-detergent 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 paste-like buildup of grime. At periodic intervals, this buildup should be removed by cleaning and the chain should be immediately re-lubricated. 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 AND TITAN REPLACEMENT PARTS - NO OTHER PARTS ARE OF COMPARABLE STRENGTH, QUALITY, AND INTERCHANGEABILITY.

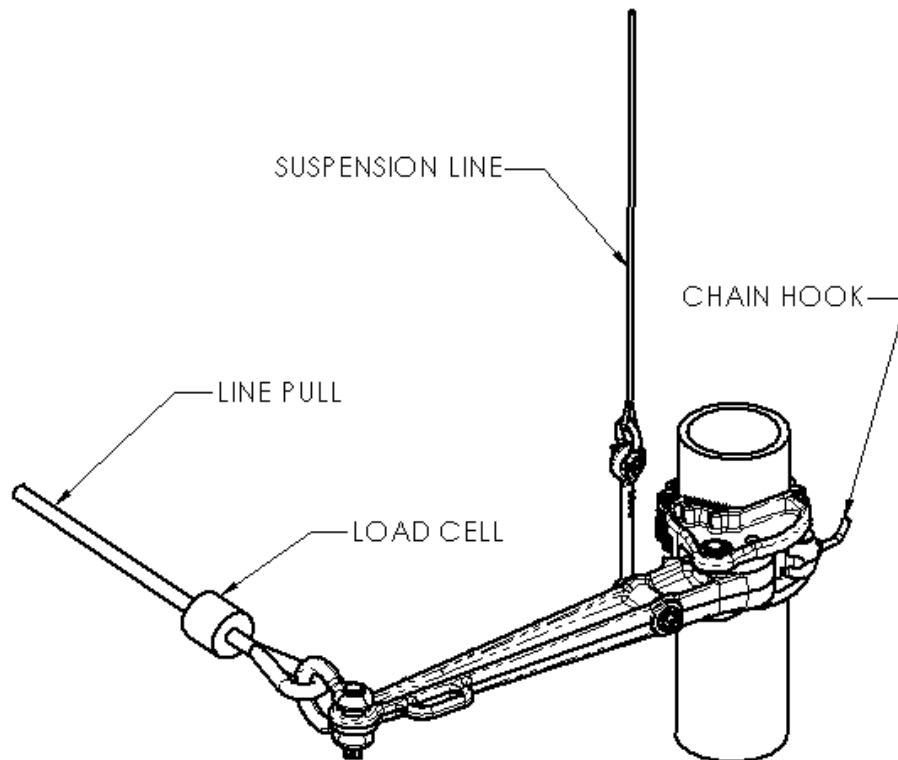
APPEARANCE AND/OR SYMPTOM	PROBABLE CAUSE	CORRECTION
<p>Excessive Length (Elongation)</p> 	<p>Normal wear</p> <p>Permanent deformation (stretch) from overload</p>	<p>Replace chain</p> <p>Replace chain and correct cause of overload</p>
<p>Abnormal Protrusion of Pins</p> 	<p>Overloading</p> <p>Inadequate 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>
<p>Cracked Plates (Fatigue)</p> 	<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>
<p>Arc-Like Cracked Plates (Stress Corrosion)</p> 	<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>
<p>Enlarged Holes</p> 	<p>Overloading</p>	<p>Replace chain and correct cause of overload</p>
<p>Cracked Plates (Corrosion Fatigue) Perpendicular to Pitch Line, plus rust or other evidence of chemical corrosion</p> 	<p>Corrosive environment</p>	<p>Replace chain and protect from hostile environment</p>
<p>Fractured Plates (Tension Mode)</p> 	<p>Overloading</p>	<p>Replace chain and correct cause of overload</p>
<p>Tight Joints</p> 	<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>

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 into 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 & TITAN replacement parts to ensure proper strength.

Operation

The typical application of one Bull Tong is shown in the figure below. Normally an additional tong is used as a backup. The backup tong is not shown for clarity. The tong will exert torque in the direction shown. The tong will ratchet when moved in a direction opposite to the line pull. Ratcheting is used when the tong must be pulled more than once to completely makeup or breakout the connection.

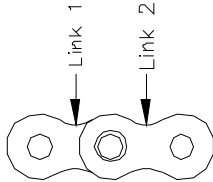


Suspension

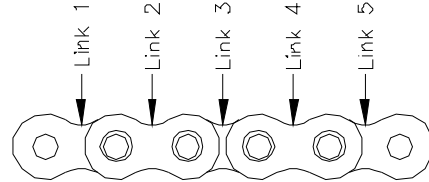
When working vertical pipe, the tong should be suspended by the attached hanger. Adjust the hanger to obtain the best possible balance of the tong. Always use a suspension line of adequate capacity to safely hold up the tong during operation.

Chain Identification Guide

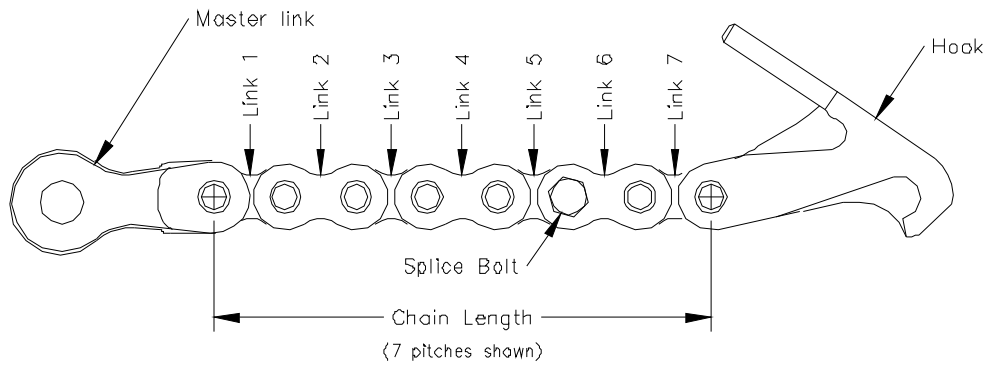
2 LINK SECTION



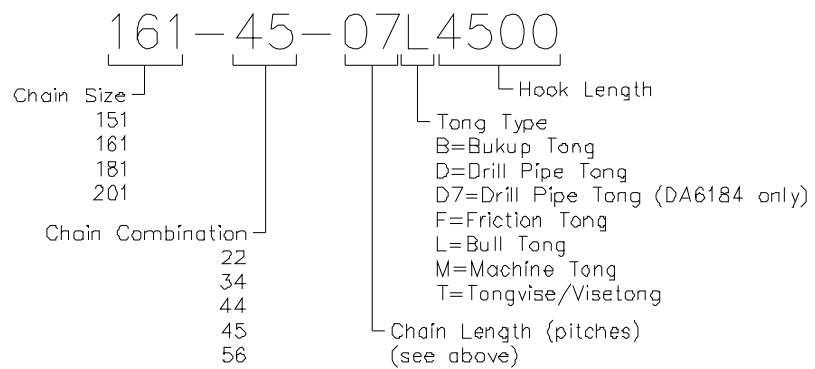
5 LINK SECTION



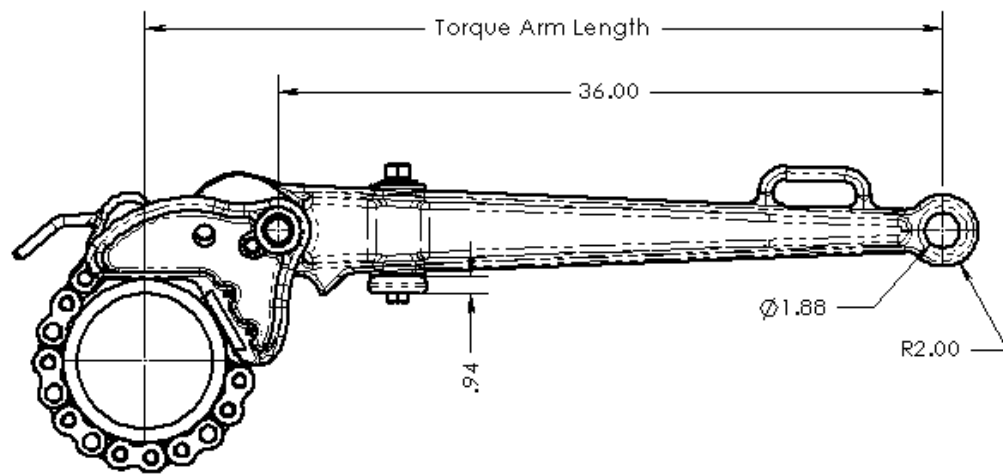
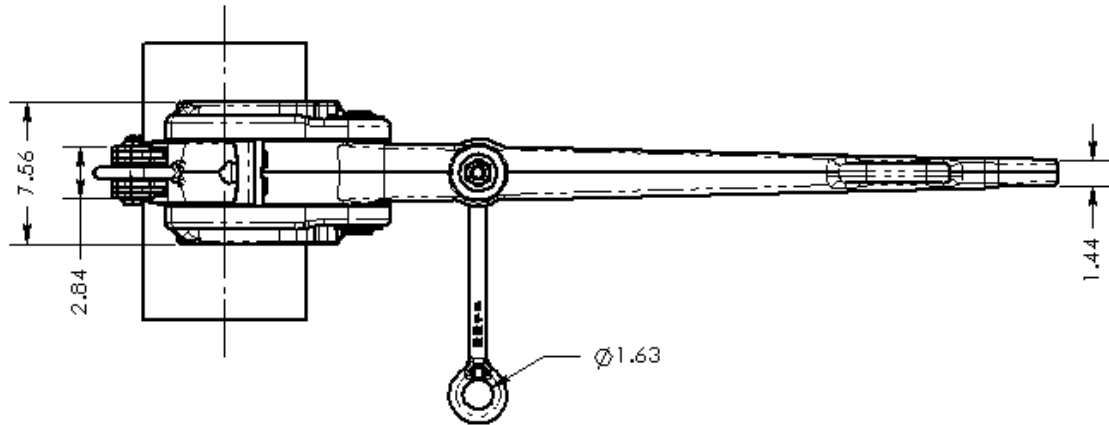
CHAIN ASSEMBLY



THIS IS WHAT A CHAIN PART NUMBER TELLS YOU



Dimensions



Torque and Diameter Capacity

The following table lists the maximum working torques and the corresponding handle loads for the diameter range of the tong.

Diameter	Torque Arm Length (inches)	Maximum Torque (foot-pounds)	Maximum Line Pull (pounds)
30-1/8	48.04	83,100	20,800
32	48.29	82,700	20,600
34	48.56	82,300	20,300
36	48.82	82,000	20,200
38	49.09	81,700	20,000
40	49.36	81,400	19,800
42	49.63	81,200	19,600
44	49.90	80,900	19,500
46	50.16	80,700	19,300
48	50.43	80,600	19,200
50	50.70	80,400	19,000
52	50.97	80,200	18,900
54	51.24	80,100	18,800
56	51.50	80,000	18,600
58	51.77	79,900	18,500
60	52.04	79,800	18,400
62	52.31	79,800	18,300
64	52.57	79,700	18,200
65-7/8	52.83	79,700	18,100

WARNING: Under no circumstances should the maximum working load be exceeded. Overloading may result in injury or death. Always use a load cell or other calibrated indicating device to monitor the line pull on the tong to avoid an overload.

Chain Selection

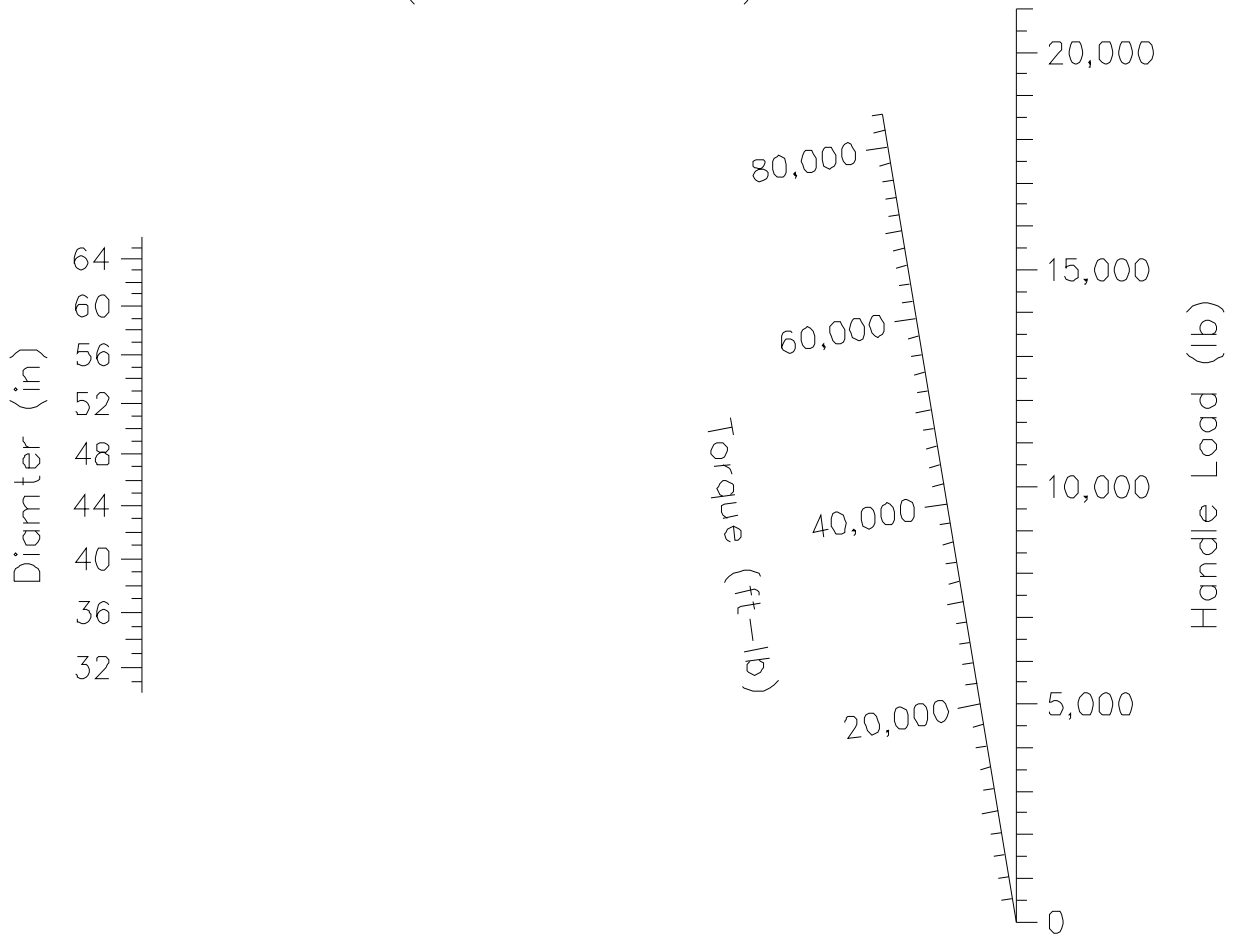
The following table lists the diameter range of all chain assemblies used with this tong.

Chain	Min Dia. (inches)	Max Dia. (inches)	Chain	Min Dia. (inches)	Max Dia. (inches)
161-45-51L5375	30-1/8	30-3/8	161-45-75L5375	43	43-3/4
161-45-51L6250	30-1/8	30-5/8	161-45-75L6250	43-1/4	44-1/8
161-45-53L4500	30-1/2	31-5/8	161-45-77L4500	43-7/8	44-5/8
161-45-53L5375	30-7/8	31-7/8	161-45-77L5375	44-1/8	44-7/8
161-45-53L6250	31-1/8	32-1/8	161-45-77L6250	44-3/8	45-1/8
161-45-55L4500	31-5/8	32-5/8	161-45-79L4500	44-7/8	45-3/4
161-45-55L5375	32	33	161-45-79L5375	45-1/4	46
161-45-55L6250	32-1/4	33-1/4	161-45-79L6250	45-1/2	46-1/4
161-45-57L4500	32-3/4	33-3/4	161-45-81L4500	46	46-3/4
161-45-57L5375	33-1/8	34	161-45-81L5375	46-1/4	47
161-45-57L6250	33-3/8	34-3/8	161-45-81L6250	46-3/4	47-3/8
161-45-59L4500	33-7/8	34-7/8	161-45-83L4500	47-1/8	47-7/8
161-45-59L5375	34-1/4	35-1/8	161-45-83L5375	47-3/8	48-1/8
161-45-59L6250	34-1/2	35-3/8	161-45-83L6250	47-5/8	48-3/8
161-45-61L4500	35	36	161-45-85L4500	48-1/8	49
161-45-61L5375	35-1/4	36-1/4	161-45-85L5375	48-1/2	49-1/4
161-45-61L6250	35-5/8	36-1/2	161-45-85L6250	48-3/4	49-1/2
161-45-63L4500	36-1/8	37	161-45-87L4500	49-1/4	50
161-45-63L5375	36-3/8	37-1/4	161-45-87L5375	49-1/2	50-1/4
161-45-63L6250	36-3/4	37-5/8	161-45-87L6250	49-7/8	50-5/8
161-45-65L4500	37-1/4	38-1/8	161-45-89L4500	50-3/8	51-1/8
161-45-65L5375	37-1/2	38-3/8	161-45-89L5375	50-5/8	51-3/8
161-45-65L6250	37-3/4	38-5/8	161-45-89L6250	50-7/8	51-5/8
161-45-67L4500	38-1/4	39-1/4	161-45-91L4500	51-3/8	52-1/8
161-45-67L5375	38-5/8	39-1/2	161-45-91L5375	51-3/4	52-1/2
161-45-67L6250	38-7/8	39-3/4	161-45-91L6250	52	52-3/4
161-45-69L4500	39-3/8	40-1/4	161-45-93L4500	52-1/2	53-1/4
161-45-69L5375	39-3/4	40-5/8	161-45-93L5375	52-3/4	53-1/2
161-45-69L6250	40	40-7/8	161-45-93L6250	53-1/8	53-3/4
161-45-71L4500	40-1/2	41-3/8	161-45-95L4500	53-5/8	54-3/8
161-45-71L5375	40-7/8	41-5/8	161-45-95L5375	53-7/8	54-5/8
161-45-71L6250	41-1/8	41-7/8	161-45-95L6250	54-1/8	54-7/8
161-45-73L4500	41-5/8	42-1/2	161-45-97L4500	54-5/8	55-3/8
161-45-73L5375	41-7/8	42-3/4	161-45-97L5375	55	55-5/8
161-45-73L6250	42-1/4	43	161-45-97L6250	55-1/4	56
161-45-75L4500	42-3/4	43-1/2	161-45-99L4500	55-3/4	56-1/2

Chain	Min Dia. (inches)	Max Dia. (inches)	Chain	Min Dia. (inches)	Max Dia. (inches)
161-45-99L5375	56	56-3/4	161-45-109L4500	61-1/4	61-7/8
161-45-99L6250	56-3/8	57	161-45-109L5375	61-1/2	62-1/8
161-45-101L4500	56-7/8	57-5/8	161-45-109L6250	61-3/4	62-3/8
161-45-101L5375	57-1/8	57-7/8	161-45-111L4500	62-3/8	63
161-45-101L6250	57-3/8	58-1/8	161-45-111L5375	62-1/2	63-1/4
161-45-103L4500	58	58-5/8	161-45-111L6250	62-7/8	63-1/2
161-45-103L5375	58-1/4	58-7/8	161-45-113L4500	63-3/8	64
161-45-103L6250	58-1/2	59-1/4	161-45-113L5375	63-5/8	64-1/4
161-45-105L4500	59-1/8	59-3/4	161-45-113L6250	63-7/8	64-5/8
161-45-105L5375	59-1/4	60	161-45-115L4500	64-3/8	65-1/8
161-45-105L6250	59-3/8	60-1/4	161-45-115L5375	64-3/4	65-3/8
161-45-107L4500	60-1/8	60-3/4	161-45-115L6250	65	65-5/8
161-45-107L5375	60-3/8	61-1/8	161-45-117L4500	65-1/2	65-7/8
161-45-107L6250	60-5/8	61-3/8			

Torque – Handle Load Diagram

Handle Load – Torque Chart
LA116HX Petrol Bull Tong
(161–45 chain)



To use chart:

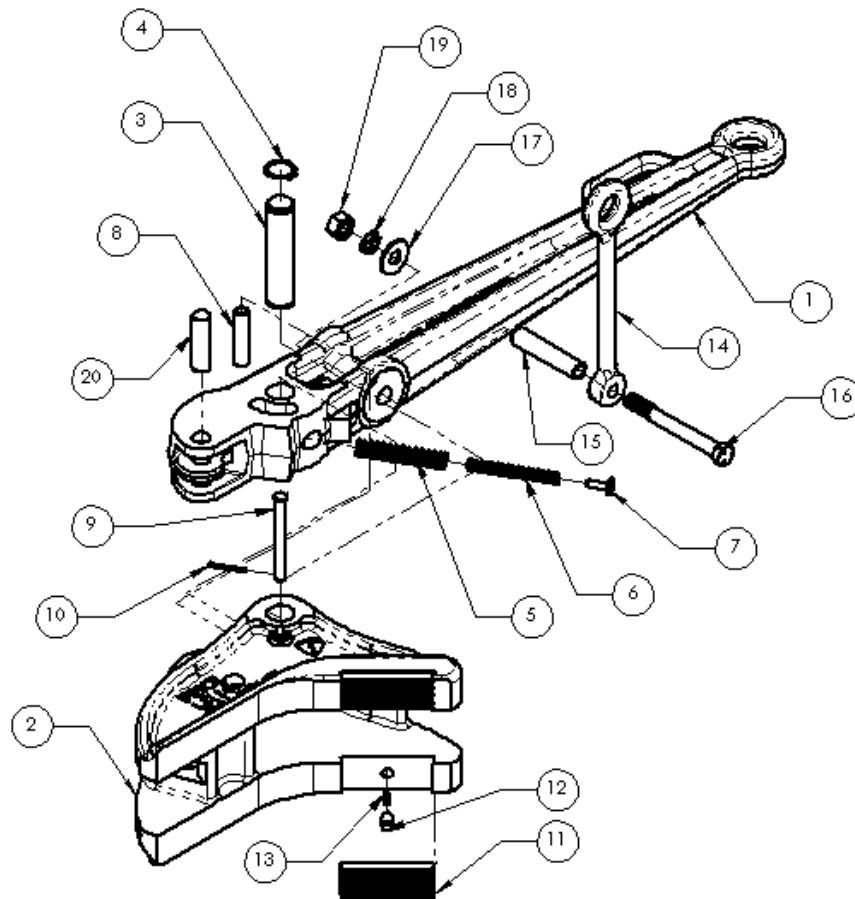
Draw a line from the diameter of the pipe through the desired torque. Read the handle load from the right hand column.

Parts List

The following drawings, diagrams, and parts lists describe all parts, which may be needed as replacement items.

All tong components are manufactured only by GEARENCH. DO NOT ATTEMPT TO SUBSTITUTE THESE COMPONENTS. The tong will not work properly unless these components are matched to the specific application. Consult our factory as your requirements change. Any non-GEARENCH substitutions of these components void all warranties and subject the user to assumption of liabilities resulting from subsequent use.

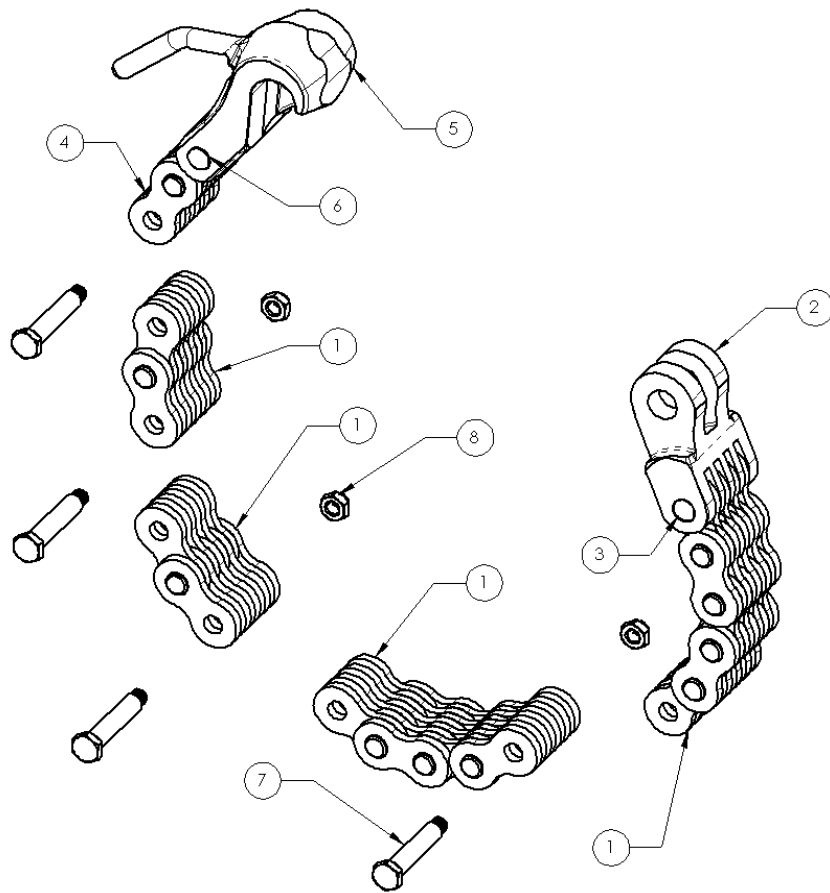
Tong Assembly Parts List



Tong Assembly Parts List

Item	Qty.	Part Number	Description
1	1	LH116H	Handle
2	1	LJ116HX	Jaw
3	1	HP249	Jaw-handle pin with kliplings
4	2	HXRR150	Retaining ring only
5	1	HS18	Spring (outside)
6	1	HS09	Spring (inside)
7	1	HG09	Spring guide
8	1	HU36	Spring pin bushing
9	1	HP250	Spring pin with cotter
10	1	HXC003	Spring pin cotter only
11	2	HI06D	Diamond point insert
12	2	HP904	Insert key
13	2	HS21	Insert key spring
14	1	HH16	Bar hanger
15	1	HU49	Hanger bushing
16	1	HB19	Hanger bolt with nut
17	1	HXW001	Hanger flat washer
18	1	HXW002	Hanger lock washer
19	1	HXN023	Hanger nut only
20	1	HP234	Master link – handle pin
21	1	See tables	Chain assembly (not shown)

Chain Assembly Parts List



Item	Part No.	Description
1	161-45-02	Special chain only
1	161-45-04	Special chain only
1	161-45-05	Special chain only
1	161-45-07	Special chain only
2	HM06-45	Master link
3	HP247	Master link – chain rivet
4	161-45-02-4500	Chain hook assembly
4	161-45-02-5375	Chain hook assembly
4	161-45-02-6250	Chain hook assembly
5	HC01-45-4500	Chain hook only
5	HC01-45-5375	Chain hook only
5	HC01-45-6250	Chain hook only
6	HP247	Chain hook rivet
7	HB52	Splice bolt with nut
8	HXN016	Splice bolt nut only