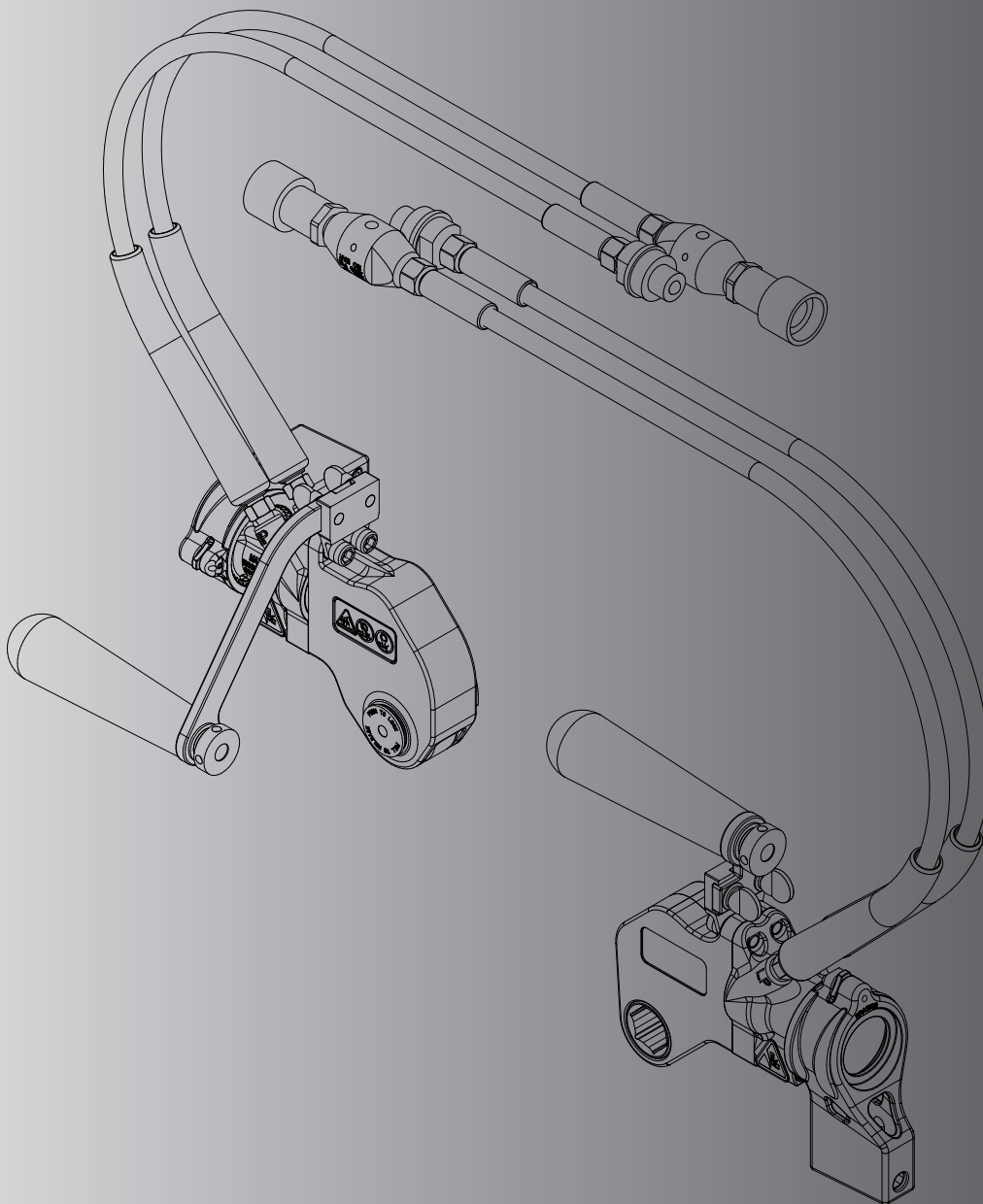


L4386
Rev. C

10/21

RSL Torque Wrench Handle



Contents

1.0	INTRODUCTION	2
2.0	SAFETY	2
3.0	DESCRIPTION.....	5
4.0	INSTRUCTIONS	6

1.0 INTRODUCTION

Overview

The Enerpac RSL torque wrench is designed for controlled tightening and loosening of fasteners in industrial bolting applications. The RSL torque wrench features a low profile cassette, compact drive unit and integrated reaction arm, making it ideal for use in locations where workspace is limited.

Interchangeable RSL hexagon and square drive cassettes are available in a large assortment of both metric and imperial sizes to suit specific customer requirements.

The RSL torque wrench can be used with a wide range of Enerpac bolting pumps. Electric and air pumps are available (sold separately).

Delivery Instructions

Upon delivery, all components must be inspected for damage incurred during shipping. If damage is found, the carrier should be notified at once. Shipping damage is not covered by the Enerpac warranty.

Warranty

- Enerpac guarantees the product only for the purpose for which is intended.
- Refer to the Enerpac Global Warranty document for terms and conditions of the product warranty.

Any misuse or alteration invalidates the warranty.

- Observe all instructions as communicated in this manual.
- When replacement parts are needed, use only genuine Enerpac replacement parts.

Modification to any part of the equipment outlined in this manual should not be attempted, nor any component part be replaced without first consulting Enerpac. Modifications may render the equipment dangerous. Component parts are each rated to suit the demands of the overall equipment design and replacement with similar items without provenance may lead to unexpected and dangerous accidental features.

If any equipment abuse is evident, the warranty will be invalidated and Enerpac will not be made responsible for an injury due to misuse or failure to comply with the above safety notes.

Part Replacement

Check the Repair Parts Sheets (RPS), available at www.enerpac.com, to order replacement parts when required.

Conformance to National and International Standards



Enerpac declares that the product(s) have been tested and conforms to applicable standards and the product(s) are compatible to all EU and UK Requirements.

Copies of the EU Declaration as well as the UK Self-Declaration are enclosed with each shipment.

2.0 SAFETY

Read all instructions carefully. Follow all recommended safety precautions to avoid personal injury as well as damage to the product and / or damage to other property. Enerpac cannot be responsible for any damage or injury from unsafe use, lack of maintenance, or incorrect operation. Do not remove warning labels, tags, or decals. In the event of any questions or concerns arising, contact Enerpac or a local Enerpac distributor for clarification.

If you have never been trained on high-pressure hydraulic safety, consult your distributor or service center for information about Enerpac Hydraulic Safety Courses.

This manual follows a system of safety alert symbols, signals, words, and safety messages to warn the user of specific hazards. Failure to comply with these warnings could result in death or serious personal injury, as well as damage to the equipment or other property.



The Safety Alert Symbol appears throughout this manual. It is used to alert you to potential physical injury hazards. Pay close attention to Safety Alert Symbols and obey all safety messages that follow this symbol to avoid the possibility of death or serious injury.

Safety Alert Symbols are used in conjunction with certain Signal Words that call attention to safety messages or property damage messages and designate a degree or level of hazard seriousness. The Signal Words used in this manual are DANGER, WARNING, CAUTION, and NOTICE.

⚠ DANGER Indicates a hazardous situation that, if not avoided, will result in death or serious personal injury.

⚠ WARNING Indicates a hazardous situation that, if not avoided, could result in death or serious personal injury.

⚠ CAUTION Indicates a hazardous situation that, if not avoided, could result in minor or moderate personal injury.

NOTICE Indicates information considered important, but not hazard related (e.g. messages relating to property damage). Please note that the Safety Alert Symbol will not be used with this signal word.

2.1 Safety Precautions - RSL Torque Wrenches



Failure to observe and comply with the following precautions could result in death or serious personal injury. Property damage could also occur.

- Always wear protective head-wear, ear protectors, footwear and gloves (at a minimum, rigger type gloves) suitable for safe operation of the tool. The protective clothing must not interfere with safe operation of the tool or restrict the ability to communicate with co-workers.
- Be sure your workplace is safe. Follow the instructions in your workplace's standard operating procedures and be sure to observe all communicated safety precautions.
- Do not place any part of the body between the wrench reaction arm and the reaction point.
- Do not place any objects between the wrench reaction arm and the reaction point. **K e e p** the hoses away from the reaction points.
- Do not stand in the line of movement of the tool when it is in operation. If the tool separates from the nut or bolt during operation, it will detach in that direction.
- Be aware that a nut or bolt that breaks off during operation of the tool may become a high velocity projectile.
- Be sure appropriate guards are securely in position and free from damage.
- Keep your hands away from the fastener being loosened or tightened. Tightening and loosening nuts and bolts involves little visible movement. However, the pressures and loads are extreme.
- Stop operation immediately if a gap appears between the torque wrench drive and hex cassette or square drive cassette. Have the tool inspected and repaired before it is operated again.
- Maximum allowable pressure for the RSL torque wrench is 10,000 psi [690 bar]. Do not exceed this pressure setting.
- Always be sure that pump is stopped and all pressure is fully relieved (0 psi/ bar) before disconnecting or connecting hydraulic hoses. The sudden and uncontrolled release of pressurized oil could occur if hoses are disconnected while under pressure.
- Never attempt to connect or disconnect hoses while the pump is on and/or the system is pressurized.
- Be certain that all hose couplings are fully connected at both the pump and wrench ends before applying any hydraulic pressure. If the couplings are not fully connected, oil flow will be blocked, and the drive unit could be subjected to excessive hydraulic pressures. Catastrophic failure of wrench could result.
- Never attempt to force the drive unit onto the cassette if it becomes difficult to install. Have the drive unit and cassette inspected and repaired before placing the wrench back into service.
- Never apply more hydraulic pressure to any tool, hose, fitting or accessory than the maximum allowable pressure as stated in the manufacturer's specifications. The system operating pressure must not exceed the pressure rating of the lowest rated component in the system.
- Be sure the operator has completed safety induction training, specific to the work surroundings. The operator should be thoroughly familiar with the controls and the proper use of the tool.
- The operator must be of at least the minimum age required by applicable local regulations, laws and the facility standard operating procedures.
- Do not abuse or overstress the hoses in any way. Do not bend the hoses excessively.
- Take every precaution to prevent oil leaks from occurring. High pressure oil leaks can penetrate the skin, resulting in serious injury.
- Never strike the tool while it is pressurized or under load. Components under tension may become dislodged, allowing them to become dangerous projectiles. Uncontrolled release of pressurized hydraulic oil could also occur.
- Avoid striking the tool at any time, even when it is not pressurized or under load. Striking the tool could cause permanent damage to wrench components and may affect the wrench calibration.
- Use only a high quality non-flammable solvent for cleaning and degreasing parts during wrench repair procedures. To reduce the risk of fire or explosion, do not use flammable solvents.
- Be sure to wear proper eye and hand protection when using solvent. Always follow the solvent manufacturer's safety and use instructions and any additional instructions included in the standard operating procedures for your work-site. Be certain there is adequate ventilation when using solvent.

⚠ CAUTION

Failure to observe and comply with the following precautions could result in minor or moderate personal injury. Property damage could also occur.

- Always carry the wrench by its housing. The positioning handle is designed only as an aid to help position the wrench on the bolt or nut.
- Be sure that the backup wrench (on the opposite end of nut or bolt being tightened or loosened) is secured so it cannot drop or become disengaged during bolting procedures.
- Be sure that the hex ratchet size corresponds to the size of the fastener being loosened or tightened. Failure to observe this precaution can result in the wrench becoming unstable and can lead to catastrophic failure of the tool.
- Always position the wrench for maximum stability. A positioning handle is available to properly position tool during operation.
- Be sure reaction points are adequate for the forces at work during operation of the tool.
- Be sure the reaction point is of a suitable shape. If possible, use an adjacent nut or bolt as a reaction point.
- When the hex ratchet is placed on the nut or bolt a gap may exist between the reaction arm and the reaction point. When the tool is operated the reaction arm and point will make forceful contact. Be sure the wrench is stable before applying hydraulic pressure.
- Provide adequate support in vertical and inverted applications.
- The torque required to loosen a nut is variable and may exceed the torque capacity of the wrench. Never operate the wrench at or above 75 percent of its rated maximum torque when loosening a nut or bolt.
- Be sure to minimize torsional and bending stresses in the wrench, the hex ratchet and any accessories.
- Bolt lubricants and anti-seize compounds will have a rated coefficient of friction. Be sure to know the coefficient of friction for the lubricant or anti-seize compound that is being used. To ensure proper tightening of nuts and bolts, always use this coefficient of friction when calculating required torque values.
- Take care to avoid all pinch points.

NOTICE

Failure to observe and comply with the following precautions could result in property damage and/or void the product warranty.

- Never carry the wrench by its hoses.
- Always use Enerpac pumps and hoses.
- Always use Enerpac replacement parts.
- The maximum torque output of the wrench must always exceed the torque required to loosen or tighten the nut or bolt.
- Never operate the wrench with a hydraulic supply connection to the advance side only as this may damage the internal parts.
- In severe service conditions, be aware that the wrench must be inspected, cleaned and lubricated more frequently than normal.
- If oil leakage is present from drive unit, replace seals as required before placing the drive unit back into service.
- If the wrench is dropped from a significant height, have the tool inspected and checked for proper operation before placing it back into service.
- Always follow the inspection and maintenance instructions contained in this manual. Perform maintenance and inspection activities at the specified time intervals.
- Remove handle and brackets when needed.

3.0 DESCRIPTION

3.1 Parts Description: RSL1500-RSL11000

1. Bracket, Handle
2. Cap Screw, Socket Head
3. Handle, Steel
4. Screw, Thumb
5. Handle
6. Nut, Jam
7. Washer, Flat
8. Washer, Lock
9. Nut, Thumb, Round, Knurled
10. Thread Locker

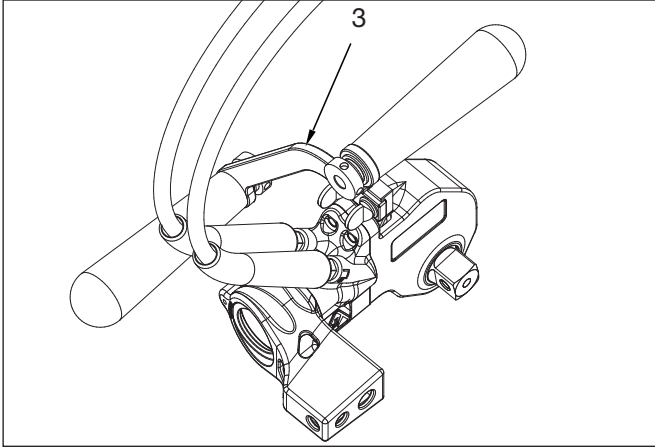


Figure 1: Sq. Dr. Handle Configuration 1

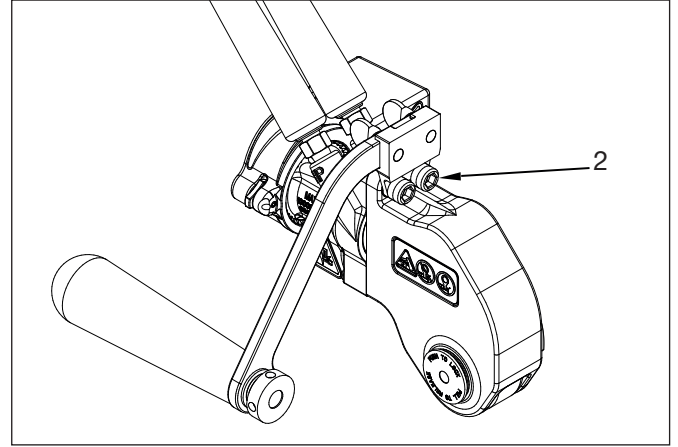


Figure 4: Sq. Dr. Handle Configuration 2

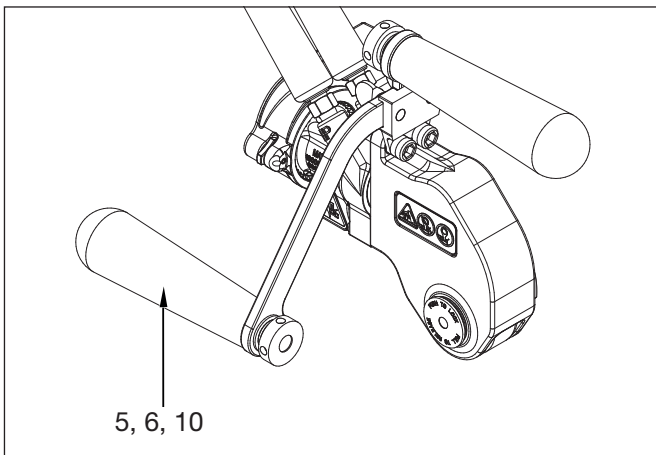


Figure 2: Sq. Dr. Handle Configuration 1

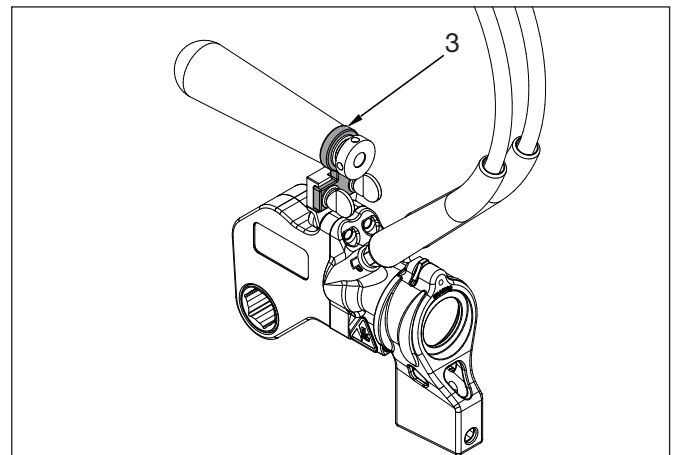


Figure 5: Hex. Dr. Handle Configuration 3

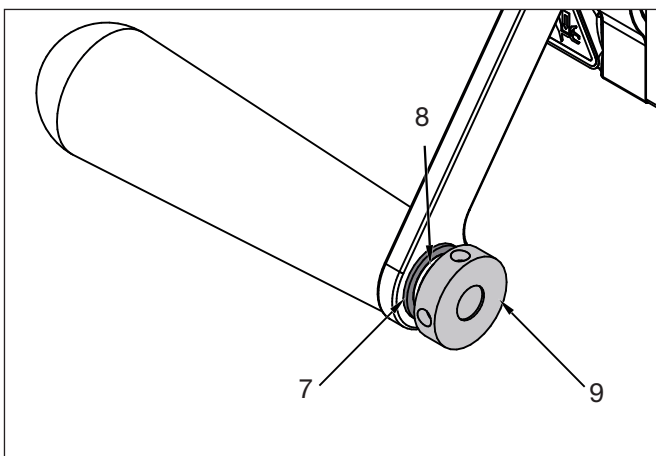


Figure 3: Fasteners

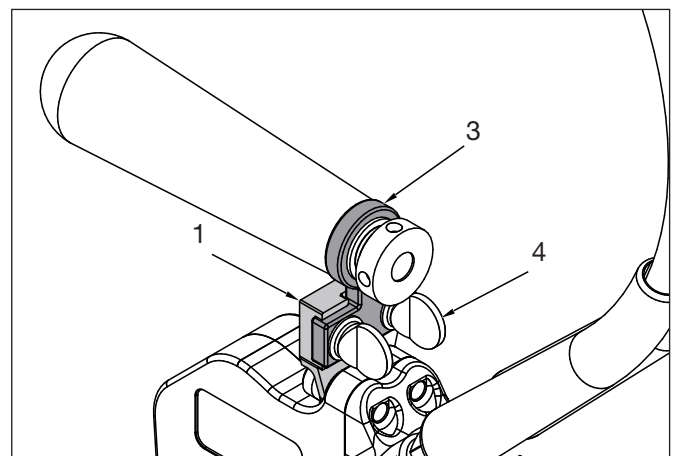


Figure 6: Fasteners

3.2 Parts Description: RSL19000, RSL28000

1. Bracket, Handle
2. Cap Screw, Socket Head
3. Handle

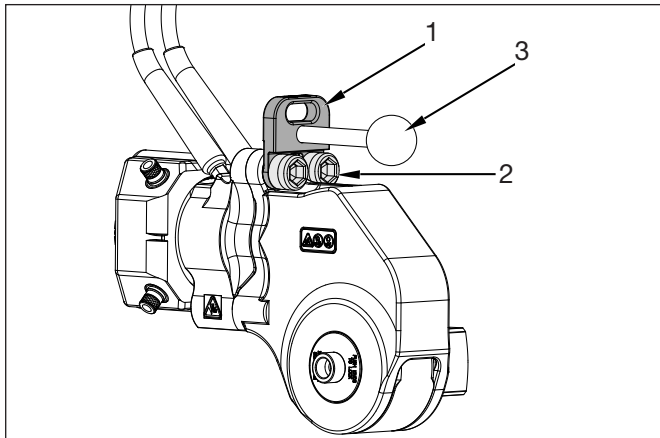


Figure 7: RSL19000 and RSL28000 Handle Configuration

4.0 INSTRUCTIONS

CAUTION Take care to avoid all pinch points.

Always position handle assembly away from socket, flange, pinch points, etc.

As needed:

- Keep a firm grip on handle
- Use two hands to place tool onto application
- Use a single hand on handle to hold tool in place

4.1 Installation (Refer to Figures Section 3 as needed):

1. Remove drive unit & cassette top two bolts (same location as (2)).
2. Install bracket (1) on tool.
 - a. Use longer bolts (2) - included.
 - b. Orient bracket's groove to face hoses
 - c. Torque bolts (2) to "Short Bolt" manual specification (Table 1).
3. Assemble thin hex head nut (6) to handle (5).
 - a. Use thread lock (10) on handle's stud & thin hex head nut
 - b. Tighten nut against handle shoulder
4. Position steel handle (3) properly (refer to Figure 1, 2, 4, or 5), away from reaction foot (or flange for a hex wrench).
5. Assemble handle (3) to bracket (1) with thumb screws (4).
6. Position handle (5) per desired configuration (refer to Figure 1, 2, 4, or 5) & assemble to handle (3) with flat washer (7), lock washer (8), & knurled nut (9)

TABLE 1				
TORQUE WRENCH DRIVE BOLT TORQUE				
MODEL	Long Bolts		Short Bolts	
	ft*lb	N*m	ft*lb	N*m
RSL1500	19	26	23	31
RSL3000	35	48	45	61
RSL5000	85	116	105	142
RSL8000	170	231	210	285
RSL11000	110	149	110	149
RSL19000	90	122	90	122
RSL28000	150	203	150	203
Notes:	1. Use lubricant (oil).			
	2. Similar bolts have different torque values because required clamp loads vary.			

4.2 Move handle to opposite side:

1. Support tool assembly
2. Hold plastic handle (5) & remove fasteners ((7), (8), & (9)). Set to side.
3. Hold handle (3) & remove thumb screws (4).
4. Move handle (3) to other side of wrench & install thumb screws (4).
5. Properly position handle (5) (refer to Figure 1, 2, 4, or 5) & assemble to handle (3) with fasteners ((7), (8), & (9)).

4.3 Use of Handles

The handles are only to be used for positioning the tools and stabilising the tool during operation.

WARNING Do not use the handle to lift the tools.

In the case of RSL19000 and RSL28000 tools, the handle brackets have integral lifting points.

Safe lifting technique should be used when lifting these tools.

Maximum allowed tool and socket weights:

TABLE 2	
RSL19000, RSL28000 WEIGHT	
MODEL	WEIGHT
RSL19000	154 lbs (70 kg)
RSL28000	165 lbs (75 kg)

NOTES

[illegible]



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