

The image features two precision-machined metal tools against a dark blue background. The top tool is a complex assembly with a cylindrical handle and a rectangular head, with a small pin protruding from its side. The bottom tool is similar but has a more prominent cylindrical section. Both tools are highly detailed, showing various bolts, nuts, and machined surfaces. The lighting highlights the metallic textures and sharp edges of the components.

ZEPHYR[®]

T O O L

LOK-FAST

AEROSPACE FASTENER TOOLS

FRANGIBLE COLLAR TOOLS

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QRS® - Quick Release System is a Registered Trademark of ZEPHYR MANUFACTURING CO., INC./LOK-FAST
U.S. Patent Number 5,305,666

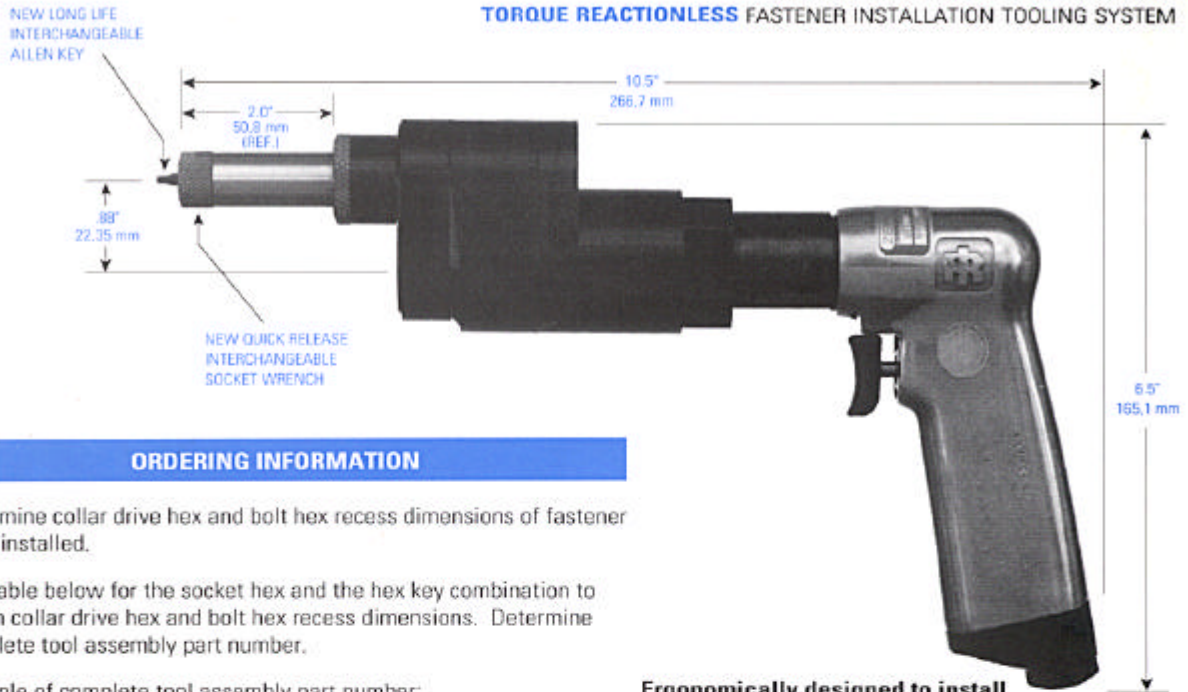
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SMALL NUTRUNNER SERIES 1 TORQUE REACTIONLESS FASTENER INSTALLATION TOOLING SYSTEM



ORDERING INFORMATION

1. Determine collar drive hex and bolt hex recess dimensions of fastener to be installed.
2. See table below for the socket hex and the hex key combination to match collar drive hex and bolt hex recess dimensions. Determine complete tool assembly part number.
3. Example of complete tool assembly part number:

ZT945-312-078

Second dash number indicates the hex key to match bolt hex recess. (.078 = 5/64")

First dash number indicates the socket hex to match collar drive hex. (.312 = 5/16")

Basic part number includes 1 each of ZT945028 motor assembly, ZT945051 head assembly, ZT945044 series socket and ZT945040 series hex key.

Zephyr Tool.

Ergonomically designed to install HI-LOK®, HI-LITE®, HI-TIGUE® two-piece frangible hex fasteners.

- Zero reaction torque
- Light weight; low noise
- Quick change sockets and hex keys
- Self-engaging hex key mechanism
- Increases productivity; reduces cost

TECHNICAL DATA

| WEIGHT | | STALL TORQUE | | SOCKET FREE SPEED | POWER RATING | |
|--------|-----|--------------|------|-------------------|--------------|-----|
| LB | KG | IN-LB | N•m | RPM | HP | kw |
| 2.5 | 1.1 | 118.8 | 13.4 | 500 | .25 | .19 |

| FASTENER SIZE DASH | FASTENER SIZE | | COMPLETE ASS'Y PART NUMBER | SOCKET SIZE | | SOCKET PART NUMBER | HEX KEY SIZE | | HEX KEY PART NUMBER | SOCKET SPEED AT TORQUE-OFF RPM | |
|--------------------|---------------|------|----------------------------|-------------|-------|--------------------|--------------|------|---------------------|--------------------------------|-------|
| | IN | MM | | IN | MM | | IN | MM | | | |
| -5 | 5/32 | 3.97 | ZT945-187-062 | 3/16 | 4.76 | ZT945044-187 | 1/16 | 1.59 | ZT945040-062 | ALUM | STEEL |
| | | | ZT945-218-062 | 7/32 | 5.56 | ZT945044-218 | 1/16 | 1.59 | ZT945040-062 | | |
| | | | ZT945-250-062 | 1/4 | 6.35 | ZT945044-250 | 1/16 | 1.59 | ZT945040-062 | | |
| | | | ZT945-281-062 | 9/32 | 7.14 | ZT945044-281 | 1/16 | 1.59 | ZT945040-062 | 420 | NR |
| | | | ZT945-312-062 | 5/16 | 7.94 | ZT945044-312 | 1/16 | 1.59 | ZT945040-062 | | |
| | | | ZT945-343-062 | 11/32 | 8.73 | ZT945044-343 | 1/16 | 1.59 | ZT945040-062 | | |
| -6 | 3/16 | 4.76 | ZT945-218-078 | 7/32 | 5.56 | ZT945044-218 | 5/64 | 1.98 | ZT945040-078 | 375 | NR |
| | | | ZT945-250-078 | 1/4 | 6.35 | ZT945044-250 | 5/64 | 1.98 | ZT945040-078 | | |
| | | | ZT945-281-078 | 9/32 | 7.14 | ZT945044-281 | 5/64 | 1.98 | ZT945040-078 | | |
| | | | ZT945-312-078 | 5/16 | 7.94 | ZT945044-312 | 5/64 | 1.98 | ZT945040-078 | | |
| | | | ZT945-343-078 | 11/32 | 8.73 | ZT945044-343 | 5/64 | 1.98 | ZT945040-078 | | |
| | | | ZT945-375-078 | 3/8 | 9.53 | ZT945044-375 | 5/64 | 1.98 | ZT945040-078 | | |
| -8 | 1/4 | 6.35 | ZT945-312-094 | 5/16 | 7.94 | ZT945044-312 | 3/32 | 2.38 | ZT945040-094 | 210 | NR |
| | | | ZT945-343-094 | 11/32 | 8.73 | ZT945044-343 | 3/32 | 2.38 | ZT945040-094 | | |
| | | | ZT945-375-094 | 3/8 | 9.53 | ZT945044-375 | 3/32 | 2.38 | ZT945040-094 | | |
| | | | ZT945-437-094 | 7/16 | 11.11 | ZT945044-437 | 3/32 | 2.38 | ZT945040-094 | | |

PATENT 5236461

MOTOR HAS 1/4" NPT INLET; 5/16" (8MM) MINIMUM HOSE SIZE RECOMMENDED. PERFORMANCE DATA IS AT 90 PSI (620 kPa) AIR PRESSURE. NR = NOT RECOMMENDED. USE ZT946

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SMALL NUTRUNNER SERIES 1 TORQUE REACTIONLESS FASTENER INSTALLATION TOOLING SYSTEM



ORDERING INFORMATION

1. Determine collar drive hex and bolt hex recess dimensions of fastener to be installed.
2. See table below for the socket hex and the hex key combination to match collar drive hex and bolt hex recess dimensions. Determine complete tool assembly part number.
3. Example of complete tool assembly part number:

ZT946-343-094

Second dash number indicates the hex key to match bolt hex recess. (.094 = 3/32")

First dash number indicates the socket hex to match collar drive hex. (.343 = 11/32")

Basic part number includes 1 each of ZT946028 motor assembly, ZT946051 head assembly, ZT945044 series socket and ZT945040 series hex key.

Zephyr Tool.

Ergonomically designed to install HI-LOK®, HI-LITE®, HI-TIGUE® two-piece frangible hex fasteners.

- Zero reaction torque
- Light weight; low noise
- Quick change sockets and hex keys
- Self-engaging hex key mechanism
- Increases productivity; reduces cost

TECHNICAL DATA

| WEIGHT | | STALL TORQUE | | SOCKET FREE SPEED | POWER RATING | |
|--------|-----|--------------|------|-------------------|--------------|-----|
| LB | KG | IN-LB | N·m | RPM | HP | kw |
| 2.5 | 1.1 | 198 | 22.4 | 300 | .25 | .19 |

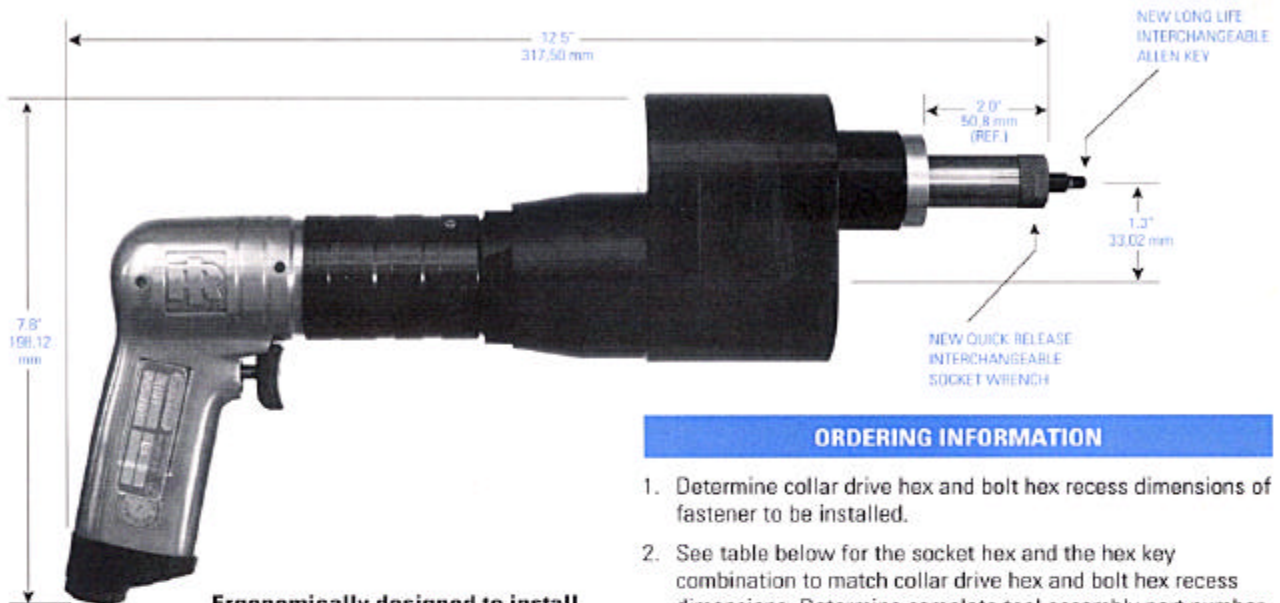
| FASTENER SIZE DASH | FASTENER SIZE | | COMPLETE ASS'Y. PART NUMBER | SOCKET SIZE | | SOCKET PART NUMBER | HEX KEY SIZE | | HEX KEY PART NUMBER | SOCKET SPEED AT TORQUE-OFF RPM | |
|--------------------|---------------|------|-----------------------------|-------------|-------|--------------------|--------------|------|---------------------|--------------------------------|-------|
| | IN | MM | | IN | MM | | IN | MM | | | |
| -5 | 5/32 | 3.97 | ZT946-187-062 | 3/16 | 4.76 | ZT945044-187 | 1/16 | 1.59 | ZT945040-062 | ALUM | STEEL |
| | | | ZT946-218-062 | 7/32 | 5.56 | ZT945044-218 | 1/16 | 1.59 | ZT945040-062 | | |
| | | | ZT946-250-062 | 1/4 | 6.35 | ZT945044-250 | 1/16 | 1.59 | ZT945040-062 | | |
| | | | ZT946-281-062 | 9/32 | 7.14 | ZT945044-281 | 1/16 | 1.59 | ZT945040-062 | | |
| | | | ZT946-312-062 | 5/16 | 7.94 | ZT945044-312 | 1/16 | 1.59 | ZT945040-062 | | |
| | | | ZT946-343-062 | 11/32 | 8.73 | ZT945044-343 | 1/16 | 1.59 | ZT945040-062 | | |
| -6 | 3/16 | 4.76 | ZT946-218-078 | 7/32 | 5.56 | ZT945044-218 | 5/64 | 1.98 | ZT945040-078 | 270 | 250 |
| | | | ZT946-250-078 | 1/4 | 6.35 | ZT945044-250 | 5/64 | 1.98 | ZT945040-078 | | |
| | | | ZT946-281-078 | 9/32 | 7.14 | ZT945044-281 | 5/64 | 1.98 | ZT945040-078 | | |
| | | | ZT946-312-078 | 5/16 | 7.94 | ZT945044-312 | 5/64 | 1.98 | ZT945040-078 | | |
| | | | ZT946-343-078 | 11/32 | 8.73 | ZT945044-343 | 5/64 | 1.98 | ZT945040-078 | | |
| | | | ZT946-375-078 | 3/8 | 9.53 | ZT945044-375 | 5/64 | 1.98 | ZT945040-078 | | |
| -8 | 1/4 | 6.35 | ZT946-312-094 | 5/16 | 7.94 | ZT945044-312 | 3/32 | 2.38 | ZT945040-094 | 200 | 120 |
| | | | ZT946-343-094 | 11/32 | 8.73 | ZT945044-343 | 3/32 | 2.38 | ZT945040-094 | | |
| | | | ZT946-375-094 | 3/8 | 9.53 | ZT945044-375 | 3/32 | 2.38 | ZT945040-094 | | |
| | | | ZT946-437-094 | 7/16 | 11.11 | ZT945044-437 | 3/32 | 2.38 | ZT945040-094 | | |

PATENT 5238481

MOTOR HAS 1/4" NPT INLET; 5/16" (8MM) MINIMUM HOSE SIZE RECOMMENDED. PERFORMANCE DATA IS AT 90 PSI (620 kPa) AIR PRESSURE.

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LARGE NUTRUNNER SERIES 1 TORQUE REACTIONLESS FASTENER INSTALLATION TOOLING SYSTEM



Ergonomically designed to install HI-LOK®, HI-LITE®, HI-TIGUE® two-piece frangible hex fasteners.

- Zero reaction torque
- Light weight; low noise
- Quick change sockets and hex keys
- Self-engaging hex key mechanism
- Increases productivity; reduces cost

ORDERING INFORMATION

1. Determine collar drive hex and bolt hex recess dimensions of fastener to be installed.
2. See table below for the socket hex and the hex key combination to match collar drive hex and bolt hex recess dimensions. Determine complete tool assembly part number.
3. Example of complete tool assembly part number:

ZT928-750-187

Second dash number indicates the hex key to match bolt hex recess. (.187 = 3/16")

First dash number indicates the socket hex to match collar drive hex. (.750 = 3/4")

Basic part number includes 1 each of ZT928028 motor assembly, ZT927050 head assembly, ZT927044 series socket and ZT92704 series hex key.

Zephyr Tool.

TECHNICAL DATA

| WEIGHT | | INSTALLATION MAX. TORQUE | | SOCKET FREE SPEED | POWER RATING | |
|--------|-----|--------------------------|------|-------------------|--------------|----|
| LB | KG | IN-LB | N•m | RPM | HP | kw |
| 5.0 | 2,2 | 500 | 56,5 | 175 | .7 | .5 |

| FASTENER SIZE DASH | FASTENER SIZE | | COMPLETE ASS'Y PART NUMBER | SOCKET SIZE | | SOCKET PART NUMBER | HEX KEY SIZE | | HEX KEY PART NUMBER |
|--------------------|---------------|-------|----------------------------|-------------|-------|--------------------|--------------|------|---------------------|
| | IN | MM | | IN | MM | | IN | MM | |
| -10 | 5/16 | 7,94 | ZT928-375-125 | 3/8 | 9,53 | ZT927044-375 | 1/8 | 3,18 | ZT92804-125 |
| | | | ZT928-437-125 | 7/16 | 11,11 | ZT927044-437 | 1/8 | 3,18 | ZT92804-125 |
| -12 | 3/8 | 9,53 | ZT928-437-156 | 7/16 | 11,11 | ZT927044-437 | 5/32 | 3,97 | ZT92804-156 |
| | | | ZT928-500-156 | 1/2 | 12,70 | ZT927044-500 | 5/32 | 3,97 | ZT92804-156 |
| -14 | 7/16 | 11,11 | ZT928-562-187 | 9/16 | 14,29 | ZT927044-562 | 3/16 | 4,76 | ZT92804-187 |
| | | | ZT928-750-187 | 3/4 | 19,05 | ZT927044-750 | 3/16 | 4,76 | ZT92804-187 |
| -16 | 1/2 | 12,70 | ZT928-687-218 | 11/16 | 17,46 | ZT927044-687 | 7/32 | 5,56 | ZT92804-218 |
| -18 | 9/16 | 14,29 | ZT928-875-250 | 7/8 | 22,23 | ZT927044-875 | 1/4 | 6,35 | ZT92804-250-18 |
| -20 | 5/8 | 15,88 | ZT928-1000-250 | 1.000 | 25,40 | ZT927044-1000 | 1/4 | 6,35 | ZT92804-250-20 |

U.S.A. PATENT NO. 5238461

MOTOR HAS 1/4" NPT INLET; 5/16" (8MM) MINIMUM HOSE SIZE RECOMMENDED
PERFORMANCE DATA IS AT 90 PSI (620 kPa) AIR PRESSURE.

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Hi-Lok® Type Fastener Installation Tools

| | |
|--|---------|
| Quick Release System (QRS®) | 04 |
| QRS® Socket Assemblies | 05 |
| L-Head Assemblies | |
| L-Head Assembly, Short with Extended Socket | 06 |
| L-Head Assembly, Short without Extended Socket | 06 |
| L-Head Assembly, Long with Extended Socket | 07 |
| L-Head Assembly, Long without Extended Socket | 07 |
| Straight Drive Assembly | 08 |
| Straight Drive Socket Assemblies | 08 |
| Ratchet Assemblies | |
| Straight Ratchet without Extended Socket | 09 |
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Quick Change System

Hi-Lok® Type Fastener Tools

| | |
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Hi-Lok® Type Fastener
Installation Tools

Quick Release System[®]

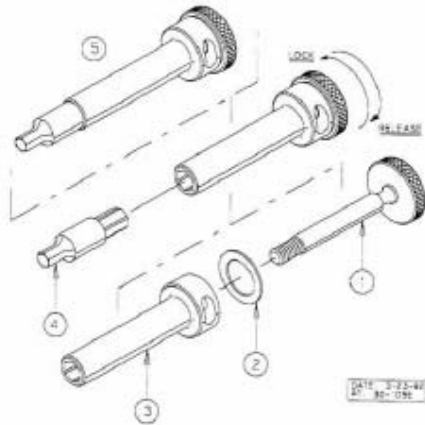
The Quick-Release System (QRS[®]) is an innovative, proprietary system offered by LOK-FAST to install Hi-loks[®] and other non-interference fit fasteners. QRS[®] is a hex tip holder assembly providing a higher strength quick-change hex tip which allows the operator to change the tip key both quickly and at the work station with no additional tooling or conversion kits. This process eliminates costly down time and removes the need to return a tool to the tool crib to replace a broken hex tip.

Benefits of the Quick-Release System (QRS[®])

- Fewer Holders - Only One Holder for All Hex Keys
- Quick Change of Hex Keys with tool fully assembled
- No Tools or Conversion Kits Required
- Tips Will Not Jam in the Holder
- Sealant Contamination is Minimized
- Economical to Implement - May Be Used With Existing Drivers

Part Description

1. Retaining Shaft
2. Nylon Washer
3. Hex Tip Holder
4. Hex Tip
5. QRS[®] Holder Assembly



How It Works:

The hex tip is held into a fitted holder by a threaded retaining shaft. The hex tip is drawn into the holder when the retaining shaft is rotated clockwise, and is expelled when shaft is rotated counterclockwise. If the hex tip breaks this action prevents the tip from being jammed into the holder.

Installation:

1. Slide retaining shaft through the back of the holder
2. Insert holder assembly into the drive gear or socket
3. Insert spring into the slot in the assembly, this will hold the retaining shaft in place.
4. The hex tip can now be inserted. Do not overtighten. The nylon washer will prevent the shaft from vibrating loose
5. Installation is now complete

To Replace Hex Key:

1. Rotate the retaining shaft until the hex tip falls out
2. Replace and tighten retaining shaft

To Replace Hex Key Size:

Follow same procedure as when replacing broken hex tip

Quick Release System[®]

How To Order:

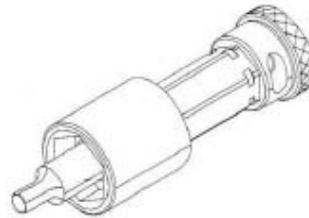
1. Determine the hex recess size of the fastener pin to be installed (column 1)
2. Determine the hex size of the driving collar to be installed onto the pin (column 2).
3. Select the socket length required. Use a dash number equal or greater than the extension required.

Example: QSA281-5-5

- socket hex size is 9/32"
- socket length 1/2"
- hex tip size is 1/16"

Part number includes the following

1. 1/2" retaining shaft
2. 1/2" holder
3. Retaining clip
4. 1/2" long extended socket with 9/32" hex recess
5. 5/64" QRS[®] hex tip

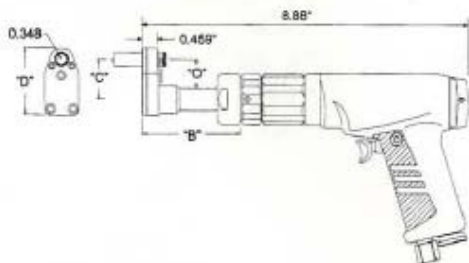


| Hex Tip | Socket Hex | Complete Part # | Socket | Holder | Retaining Shaft |
|------------------|------------|-------------------|---------------|-----------|-----------------|
| 1/16" QRK - 5 | 7/32 | QSA218 - (E) - 5 | HS - 22 - (E) | QRH - (E) | QRS - (E) |
| | 1/4 | QSA250 - (E) - 5 | HS - 25 - (E) | | |
| | 9/32 | QSA281 - (E) - 5 | HS - 28 - (E) | | |
| | 5/16 | QSA312 - (E) - 5 | HS - 31 - (E) | | |
| 5/64" QRK - 6 | 11/32 | QSA343 - (E) - 5 | HS - 34 - (E) | QRH - (E) | QRS - (E) |
| | 7/32 | QSA218 - (E) - 6 | HS - 22 - (E) | | |
| | 1/4 | QSA250 - (E) - 6 | HS - 25 - (E) | | |
| | 9/32 | QSA281 - (E) - 6 | HS - 28 - (E) | | |
| | 5/16 | QSA312 - (E) - 6 | HS - 31 - (E) | | |
| 3/32" QRK - 8 | 11/32 | QSA343 - (E) - 6 | HS - 34 - (E) | QRH - (E) | QRS - (E) |
| | 3/8 | QSA375 - (E) - 6 | HS - 37 - (E) | | |
| | 5/16 | QSA312 - (E) - 8 | HS - 31 - (E) | | |
| | 11/32 | QSA343 - (E) - 8 | HS - 34 - (E) | | |
| 1/8" QRK - 10 | 3/8 | QSA375 - (E) - 8 | HS - 37 - (E) | QRH - (E) | QRS - (E) |
| | 7/16 | QSA437 - (E) - 8 | HS - 43 - (E) | | |
| | 7/16 | QSA437 - (E) - 10 | HS - 43 - (E) | | |
| | 9/16 | QSA562 - (E) - 10 | HS - 56 - (E) | | |
| | 1/2 | QSA500 - (E) - 10 | HS - 50 - (E) | | |

| (E) | Socket Length |
|-----|---------------|
| 4 | 0.25" |
| 5 | 0.50" |
| 10 | 1.00" |
| 15 | 1.50" |
| 20 | 2.00" |
| 25 | 2.50" |
| 30 | 3.00" |

L-Head Assembly, Short Tube

Reversible With Extended Socket



| (R) | (E) | (D) |
|-----------|---------------|------------------|
| Motor RPM | Socket Length | Front/Back Drive |
| 3 = 350 | 1 = flush | B = back |
| 5 = 540 | 4 = .25" | () = front |
| | 5 = .50" | |
| | 7 = .75" | |
| | 10 = 1.0" | |
| | 15 = 1.5" | |
| | 20 = 2.0" | |
| | 25 = 2.5" | |
| | 30 = 3.0" | |

| (G) | "B" | "C" | "D" | "O" |
|---------------|-------|------|------|------|
| Offset Number | | | | |
| 3 | | 1.30 | 2.20 | 0.88 |
| 4 | 2.125 | 2.00 | 2.80 | 1.70 |
| 5 | | 2.80 | 3.60 | 2.40 |
| 7 | | 4.30 | 5.10 | 3.90 |

To Order:

1. Determine the RPM required.
2. Determine the needed offset.
2. Determine the QRS[®] Socket Hex Size needed.
3. Determine the length of the Required Socket.

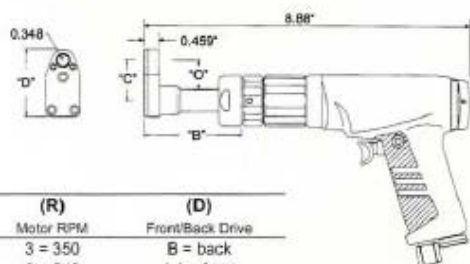
Example: **IQLA35S22-10-5B**

- IQLA : Master Part Number.
- 350 RPM motor.
- 5 gear L-Head.
- Short Tube Length.
- 7/32 socket.
- 1.0" extended socket, with QRS System
- Back drive.

| Hex Tip | Socket Hex | Complete Tool Part # | Head Assy # |
|-----------------|------------|----------------------------|---------------------|
| | 7/32 | IQLA(R)(G)S22 - (E) - 5(D) | IQL(G)S22 - (E) - 5 |
| 1/16 QRK - 5 | 1/4 | IQLA(R)(G)S25 - (E) - 5(D) | IQL(G)S25 - (E) - 5 |
| | 9/32 | IQLA(R)(G)S28 - (E) - 5(D) | IQL(G)S28 - (E) - 5 |
| | 5/16 | IQLA(R)(G)S31 - (E) - 5(D) | IQL(G)S31 - (E) - 5 |
| | 11/32 | IQLA(R)(G)S34 - (E) - 5(D) | IQL(G)S34 - (E) - 5 |
| 5/64 QRK - 6 | 7/32 | IQLA(R)(G)S22 - (E) - 6(D) | IQL(G)S22 - (E) - 6 |
| | 1/4 | IQLA(R)(G)S25 - (E) - 6(D) | IQL(G)S25 - (E) - 6 |
| | 9/32 | IQLA(R)(G)S28 - (E) - 6(D) | IQL(G)S28 - (E) - 6 |
| | 5/16 | IQLA(R)(G)S31 - (E) - 6(D) | IQL(G)S31 - (E) - 6 |
| | 11/32 | IQLA(R)(G)S34 - (E) - 6(D) | IQL(G)S34 - (E) - 6 |
| | 3/8 | IQLA(R)(G)S37 - (E) - 6(D) | IQL(G)S37 - (E) - 6 |
| | 5/16 | IQLA(R)(G)S31 - (E) - 8(D) | IQL(G)S31 - (E) - 8 |
| | 11/32 | IQLA(R)(G)S34 - (E) - 8(D) | IQL(G)S34 - (E) - 8 |
| 3/32 QRK - 8 | 3/8 | IQLA(R)(G)S37 - (E) - 8(D) | IQL(G)S37 - (E) - 8 |
| | 7/16 | IQLA(R)(G)S43 - (E) - 8(D) | IQL(G)S43 - (E) - 8 |

L-Head Assembly, Short Tube

Reversible Flush w/ Flush Drive Socket



| (R) | (D) |
|-----------|------------------|
| Motor RPM | Front/Back Drive |
| 3 = 350 | B = back |
| 5 = 540 | () = front |

| (G) | "B" | "C" | "D" | "O" |
|---------------|-------|------|------|------|
| Offset Number | | | | |
| 3 | | 1.30 | 2.20 | 0.88 |
| 4 | 2.125 | 2.00 | 2.80 | 1.70 |
| 5 | | 2.80 | 3.60 | 2.40 |
| 7 | | 4.30 | 5.10 | 3.90 |

To Order:

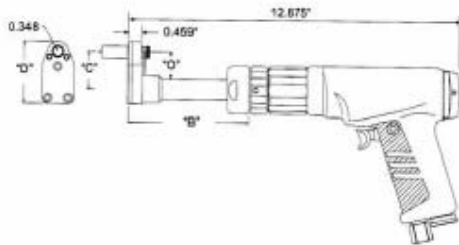
1. Determine the RPM required.
2. Determine the needed offset.
2. Determine the Drive Socket Hex Size needed.

Example: **IL3-5-22-S**

- 350 RPM motor
- 5 gear L-Head
- 7/32 flush socket
- Short tube length

| Drive Gear | Complete Part # | Head Assy # |
|------------|-------------------|-----------------|
| 7/32 | IL(R)(G) - 22 - S | ILH(G) - 22 - S |
| 1/4 | IL(R)(G) - 25 - S | ILH(G) - 25 - S |
| 9/32 | IL(R)(G) - 28 - S | ILH(G) - 28 - S |
| 5/16 | IL(R)(G) - 31 - S | ILH(G) - 31 - S |
| 11/32 | IL(R)(G) - 34 - S | ILH(G) - 34 - S |
| 3/8 | IL(R)(G) - 37 - S | ILH(G) - 37 - S |

L-Head Assembly, Long Tube
 Reversible With Extended Socket



To Order:

1. Determine the RPM required.
2. Determine the needed offset.
2. Determine the QRS® Socket Hex Size needed.
3. Determine the length of the Required Socket .

Example: **IQL A55L22-5-5**

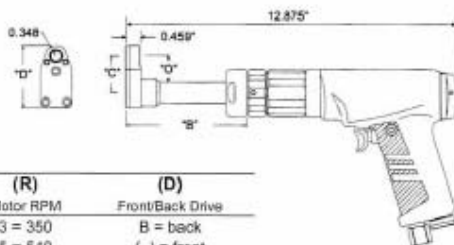
- IQLA : Master Part Number.
- 450 RPM motor.
- 5 gear L-Head.
- Long Tube Length.
- 7/32 socket.
- 0.5" extended socket, with QRS System
- Front drive.

| (R) | (E) | (D) |
|-----------|---------------|------------------|
| Motor RPM | Socket Length | Front/Back Drive |
| 3 = 350 | 4 = .25" | B = back |
| 5 = 540 | 5 = .50" | () = front |
| | 7 = .75" | |
| | 10 = 1.0" | |
| | 15 = 1.5" | |
| | 20 = 2.0" | |
| | 25 = 2.5" | |
| | 30 = 3.0" | |

| (G) | "B" | "C" | "D" | "O" |
|---------------|------|------|------|------|
| Offset Number | | | | |
| 3 | | 1.30 | 2.20 | 0.88 |
| 4 | | 2.00 | 2.80 | 1.70 |
| 5 | 6.00 | 2.80 | 3.60 | 2.40 |
| 7 | | 4.30 | 5.10 | 3.90 |

| Hex Tip | Socket Hex | Complete Tool Part # | Head Assy # |
|-----------------|------------|----------------------------|---------------------|
| | 7/32 | IQLA(R)(G)L22 - (E) - 5(D) | IQL(G)L22 - (E) - 5 |
| 1/16 QRK - 5 | 1/4 | IQLA(R)(G)L25 - (E) - 5(D) | IQL(G)L25 - (E) - 5 |
| | 9/32 | IQLA(R)(G)L28 - (E) - 5(D) | IQL(G)L28 - (E) - 5 |
| | 5/16 | IQLA(R)(G)L31 - (E) - 5(D) | IQL(G)L31 - (E) - 5 |
| | 11/32 | IQLA(R)(G)L34 - (E) - 5(D) | IQL(G)L34 - (E) - 5 |
| 5/64 QRK - 6 | 7/32 | IQLA(R)(G)L22 - (E) - 6(D) | IQL(G)L22 - (E) - 6 |
| | 1/4 | IQLA(R)(G)L25 - (E) - 6(D) | IQL(G)L25 - (E) - 6 |
| | 9/32 | IQLA(R)(G)L28 - (E) - 6(D) | IQL(G)L28 - (E) - 6 |
| | 5/16 | IQLA(R)(G)L31 - (E) - 6(D) | IQL(G)L31 - (E) - 6 |
| | 11/32 | IQLA(R)(G)L34 - (E) - 6(D) | IQL(G)L34 - (E) - 6 |
| 3/8 QRK - 8 | 3/8 | IQLA(R)(G)L37 - (E) - 6(D) | IQL(G)L37 - (E) - 6 |
| | 5/16 | IQLA(R)(G)L31 - (E) - 8(D) | IQL(G)L31 - (E) - 8 |
| | 11/32 | IQLA(R)(G)L34 - (E) - 8(D) | IQL(G)L34 - (E) - 8 |
| | 3/8 | IQLA(R)(G)L37 - (E) - 8(D) | IQL(G)L37 - (E) - 8 |
| 7/16 | 7/16 | IQLA(R)(G)L43 - (E) - 8(D) | IQL(G)L43 - (E) - 8 |

L-Head Assembly, Long Tube
 Reversible Flush w/ Drive Socket



To Order:

1. Determine the RPM required.
2. Determine the needed offset.
2. Determine the Drive Socket Hex Size needed.

Example: **IL3-5-22-L**

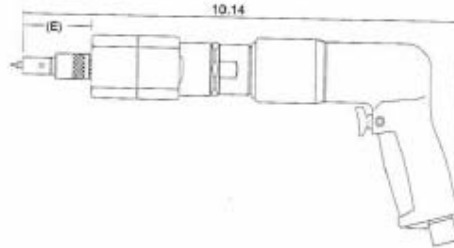
- 350 RPM motor
- 5 gear L-Head
- 7/32 flush socket
- Long tube length

| (R) | (D) |
|-----------|------------------|
| Motor RPM | Front/Back Drive |
| 3 = 350 | B = back |
| 5 = 540 | () = front |

| (G) | "B" | "C" | "D" | "O" |
|---------------|------|------|------|------|
| Offset Number | | | | |
| 3 | | 1.30 | 2.20 | 0.88 |
| 4 | | 2.00 | 2.80 | 1.70 |
| 5 | 6.00 | 2.80 | 3.60 | 2.40 |
| 7 | | 4.30 | 5.10 | 3.90 |

| Drive Gear | Complete Part # | Head Assy # |
|------------|-------------------|-----------------|
| 7/32 | IL(R)(G) - 22 - L | ILH(G) - 22 - L |
| 1/4 | IL(R)(G) - 25 - L | ILH(G) - 25 - L |
| 9/32 | IL(R)(G) - 28 - L | ILH(G) - 28 - L |
| 5/16 | IL(R)(G) - 31 - L | ILH(G) - 31 - L |
| 11/32 | IL(R)(G) - 34 - L | ILH(G) - 34 - L |

Straight Drive



To Order:

1. Select the required socket hex size.
2. Determine the required socket length.
3. Determine the hex tip size.

Example: **SDA4 - 22 - 2 - 5**

- 400 rpm motor.
- 2.0" long socket with QRS[®] System.
- Including 1/16" hex tip.

| (E) |
|----------|
| Length |
| 2 = 2.0" |
| 4 = 4.0" |

| Hex Tip | Socket Hex | Complete Tool Part # |
|---------|------------|----------------------|
| | 7/32 | SDA4 - 22 - (E) - 5 |
| | 1/4 | SDA4 - 25 - (E) - 5 |
| 1/16 | 9/32 | SDA4 - 28 - (E) - 5 |
| QRK - 5 | 5/16 | SDA4 - 31 - (E) - 5 |
| | 11/32 | SDA4 - 34 - (E) - 5 |
| | 7/32 | SDA4 - 22 - (E) - 6 |
| | 1/4 | SDA4 - 25 - (E) - 6 |
| 5/64 | 9/32 | SDA4 - 28 - (E) - 6 |
| QRK - 6 | 5/16 | SDA4 - 31 - (E) - 6 |
| | 11/32 | SDA4 - 34 - (E) - 6 |
| | 3/8 | SDA4 - 37 - (E) - 6 |
| | 5/16 | SDA4 - 31 - (E) - 8 |
| 3/32 | 11/32 | SDA4 - 34 - (E) - 8 |
| QRK - 8 | 3/8 | SDA4 - 37 - (E) - 8 |
| | 7/16 | SDA4 - 43 - (E) - 8 |

Straight Drive Socket

To Order:

1. Select the required hex size of the socket.
2. Determine the required socket length.
2. Select the size for the hex tip.

Example: **SDSA22-2-5**

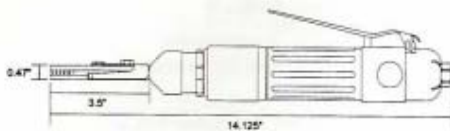
- 2.0" long socket, with QRS[®] System.
- Includes 1/16" hex tip.



| (E) |
|----------|
| Length |
| 2 = 2.0" |
| 4 = 4.0" |

| Hex Tip | Socket Hex | Complete Tool Part # | Socket | Holder Assembly |
|---------|------------|----------------------|-------------|-----------------|
| | 7/32 | SDSA22(E)5 | SDS - 22(E) | |
| | 1/4 | SDSA25(E)5 | SDS - 25(E) | |
| 1/16 | 9/32 | SDSA28(E)5 | SDS - 28(E) | SDQRA |
| QRK - 5 | 5/16 | SDSA31(E)5 | SDS - 31(E) | |
| | 11/32 | SDSA34(E)5 | SDS - 34(E) | |
| | 7/32 | SDSA22(E)6 | SDS - 22(E) | |
| | 1/4 | SDSA25(E)6 | SDS - 25(E) | |
| 5/64 | 9/32 | SDSA28(E)6 | SDS - 28(E) | SDQRA |
| QRK - 6 | 5/16 | SDSA31(E)6 | SDS - 31(E) | |
| | 11/32 | SDSA34(E)6 | SDS - 34(E) | |
| | 3/8 | SDSA37(E)6 | SDS - 37(E) | |
| | 5/16 | SDSA31(E)8 | SDS - 31(E) | |
| 3/32 | 11/32 | SDSA34(E)8 | SDS - 34(E) | SDQRA |
| QRK - 8 | 3/8 | SDSA37(E)8 | SDS - 37(E) | |
| | 7/16 | SDSA43(E)8 | SDS - 43(E) | |

Straight Ratchet Head
 Flush



| (R) | Socket RPM | Socket Torque |
|-----------|------------|---------------|
| Motor RPM | | @ 90 PSI |
| 4 = 400 | 55 | 489 in lbs |
| 6 = 600 | 85 | 204 in lbs |
| 10 = 1000 | 145 | 115 in lbs |
| 15 = 1500 | 215 | 97 in lbs |
| 20 = 2000 | 285 | 85 in lbs |

To Order:

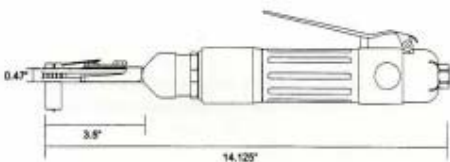
1. Specify the RPM rating of the motor.
2. Determine the drive socket hex size.

Example: **SR10 - 28**

- 1000 RPM motor.
- 9/32" flush socket.

| Socket Hex | Complete Tool Part # | Head Assy # |
|---------------|----------------------|----------------|
| 7/32 | SR(R) - 22 | SRHA8200 - 22 |
| 1/4 | SR(R) - 25 | SRHA8200 - 25 |
| 9/32 | SR(R) - 28 | SRHA8200 - 28 |
| 5/16 | SR(R) - 31 | SRHA8200 - 31 |
| 11/32 | SR(R) - 34 | SRHA8200 - 34 |
| 3/8 | SR(R) - 37 | SRHA8200 - 37 |
| 7/16 | SR(R) - 43 | SRHA8200 - 43 |
| 9/32 thru hex | SR(R) - 932 | SRHA8200 - 932 |

Straight Ratchet Head
 With Flush or Extended Socket



| (R) | Socket RPM | Socket Torque |
|-----------|------------|---------------|
| Motor RPM | | @ 90 PSI |
| 4 = 400 | 55 | 489 in lbs |
| 6 = 600 | 85 | 204 in lbs |
| 10 = 1000 | 145 | 115 in lbs |
| 15 = 1500 | 215 | 97 in lbs |
| 20 = 2000 | 285 | 85 in lbs |

| (E) |
|---------------|
| Socket Length |
| 1 = flush |
| 4 = 0.25" |
| 5 = 0.50" |
| 7 = 0.75" |
| 10 = 1.0" |
| 15 = 1.5" |
| 20 = 2.0" |
| 25 = 2.5" |
| 30 = 3.0" |

To Order:

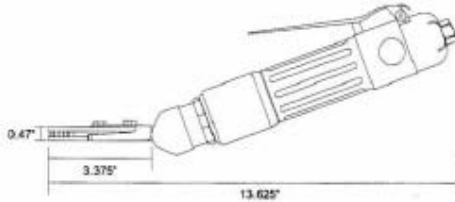
1. Determine the RPM required.
2. Determine the required socket hex size.
2. Determine the Drive Socket Size needed.

Example: **QSR A6 - 22 - 10 - 5**

- 600 RPM motor.
- 7/32" socket.
- 1.0" extended socket with QRS[®] System.
- Includes 1/16" hex lip.

| Hex Tip | Socket Hex | Complete Tool Part # | Head Assy # |
|-----------------|------------|------------------------|--------------------|
| 1/16 QRK - 5 | 7/32 | QSRA(R) - 22 - (E) - 5 | QSR - 22 - (E) - 5 |
| | 1/4 | QSRA(R) - 25 - (E) - 5 | QSR - 25 - (E) - 5 |
| | 9/32 | QSRA(R) - 28 - (E) - 5 | QSR - 28 - (E) - 5 |
| | 5/16 | QSRA(R) - 31 - (E) - 5 | QSR - 31 - (E) - 5 |
| | 11/32 | QSRA(R) - 34 - (E) - 5 | QSR - 34 - (E) - 5 |
| 5/64 QRK - 6 | 7/32 | QSRA(R) - 22 - (E) - 6 | QSR - 22 - (E) - 6 |
| | 1/4 | QSRA(R) - 25 - (E) - 6 | QSR - 25 - (E) - 6 |
| | 9/32 | QSRA(R) - 28 - (E) - 6 | QSR - 28 - (E) - 6 |
| | 5/16 | QSRA(R) - 31 - (E) - 6 | QSR - 31 - (E) - 6 |
| | 11/32 | QSRA(R) - 34 - (E) - 6 | QSR - 34 - (E) - 6 |
| 3/8 QRK - 8 | 3/8 | QSRA(R) - 37 - (E) - 6 | QSR - 37 - (E) - 6 |
| | 5/16 | QSRA(R) - 31 - (E) - 8 | QSR - 31 - (E) - 8 |
| | 11/32 | QSRA(R) - 34 - (E) - 8 | QSR - 34 - (E) - 8 |
| | 3/8 | QSRA(R) - 37 - (E) - 8 | QSR - 37 - (E) - 8 |
| | 7/16 | QSRA(R) - 43 - (E) - 8 | QSR - 43 - (E) - 8 |

20° Offset Ratchet Head
 Flush



| (R) Motor RPM | Socket RPM | Socket Torque @ 90 PSI |
|------------------|------------|---------------------------|
| 4=400 | 55 | 489 in lbs |
| 6=600 | 85 | 204 in lbs |
| 10=1000 | 145 | 115 in lbs |
| 15=1500 | 215 | 97 in lbs |
| 20=2000 | 285 | 85 in lbs |

To Order:

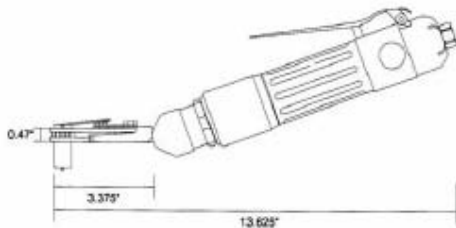
1. Specify the RPM rating of the motor.
2. Determine the drive socket hex size.

Example: **R1000 - 28**

- 1000 RPM motor.
- 9/32" flush socket.

| Socket Hex | Complete Tool Part # | Head Assy # |
|---------------|-------------------------|----------------|
| 7/32 | R(R) - 22 | RHA8200 - 22 |
| 1/4 | R(R) - 25 | RHA8200 - 25 |
| 9/32 | R(R) - 28 | RHA8200 - 28 |
| 5/16 | R(R) - 31 | RHA8200 - 31 |
| 11/32 | R(R) - 34 | RHA8200 - 34 |
| 3/8 | R(R) - 37 | RHA8200 - 37 |
| 7/16 | R(R) - 43 | RHA8200 - 43 |
| 9/32 thru hex | R(R) - 932 | RHA8200 - 932 |

20° Offset Ratchet Head
 With Flush or Extended Socket



| (R) Motor RPM | Socket RPM | Socket Torque @ 90 PSI |
|------------------|------------|---------------------------|
| 4=400 | 55 | 489 in lbs |
| 6=600 | 85 | 204 in lbs |
| 10=1000 | 145 | 115 in lbs |
| 15=1500 | 215 | 97 in lbs |
| 20=2000 | 285 | 85 in lbs |

| (E) Socket Length |
|----------------------|
| 1 = flush |
| 4 = .25" |
| 5 = .50" |
| 7 = .75" |
| 10 = 1.0" |
| 15 = 1.5" |
| 20 = 2.0" |
| 25 = 2.5" |
| 30 = 3.0" |

To Order:

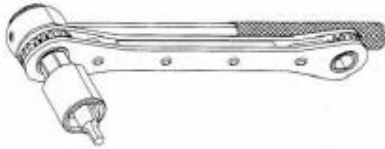
1. Determine the RPM required.
2. Determine the required Socket Hex size.
2. Determine the socket length and hex key size.

Example: **QRA6 - 22 - 10 - 5**

- 600 RPM motor.
- 7/32" socket.
- 1.0" extended socket with QRS® System.
- Including 1/16" hex tip.

| Hex Tip | Socket Hex | Complete Tool Part # | Head Assy # |
|-----------------|------------|-------------------------|-------------------|
| 1/16 QRK - 5 | 7/32 | QRA(R) - 22 - (E) - 5 | QR - 22 - (E) - 5 |
| | 1/4 | QRA(R) - 25 - (E) - 5 | QR - 25 - (E) - 5 |
| | 9/32 | QRA(R) - 28 - (E) - 5 | QR - 28 - (E) - 5 |
| | 5/16 | QRA(R) - 31 - (E) - 5 | QR - 31 - (E) - 5 |
| | 11/32 | QRA(R) - 34 - (E) - 5 | QR - 34 - (E) - 5 |
| 5/64 QRK - 6 | 7/32 | QRA(R) - 22 - (E) - 6 | QR - 22 - (E) - 6 |
| | 1/4 | QRA(R) - 25 - (E) - 6 | QR - 25 - (E) - 6 |
| | 9/32 | QRA(R) - 28 - (E) - 6 | QR - 28 - (E) - 6 |
| | 5/16 | QRA(R) - 31 - (E) - 6 | QR - 31 - (E) - 6 |
| | 11/32 | QRA(R) - 34 - (E) - 6 | QR - 34 - (E) - 6 |
| 3/32 QRK - 8 | 3/8 | QRA(R) - 37 - (E) - 6 | QR - 37 - (E) - 6 |
| | 5/16 | QRA(R) - 31 - (E) - 8 | QR - 31 - (E) - 8 |
| | 11/32 | QRA(R) - 34 - (E) - 8 | QR - 34 - (E) - 8 |
| | 7/16 | QRA(R) - 43 - (E) - 8 | QR - 43 - (E) - 8 |

Ratchet Hand Tools



| (E) |
|---------------|
| Socket Length |
| 4 = .25" |
| 5 = .50" |
| 7 = .75" |
| 10 = 1.0" |
| 15 = 1.5" |
| 20 = 2.0" |
| 25 = 2.5" |
| 30 = 3.0" |

To Order:

1. Determine the socket hex and the socket length.
2. Determine the size of the hex key.

Example: **QHRA - 22 - 10 - 5**

- 7/32" socket
- 1.0" extended socket with QRS® System.
- Including 1/16" hex tip

| Hex Tip | Socket Hex | Complete Part # |
|-----------------|------------|---------------------|
| | 7/32 | QHRA - 22 - (E) - 5 |
| 1/16 QRK - 5 | 1/4 | QHRA - 25 - (E) - 5 |
| | 9/32 | QHRA - 28 - (E) - 5 |
| | 5/16 | QHRA - 31 - (E) - 5 |
| | 11/32 | QHRA - 34 - (E) - 5 |
| | 7/32 | QHRA - 22 - (E) - 6 |
| | 1/4 | QHRA - 25 - (E) - 6 |
| 5/64 QRK - 6 | 9/32 | QHRA - 28 - (E) - 6 |
| | 5/16 | QHRA - 31 - (E) - 6 |
| | 11/32 | QHRA - 34 - (E) - 6 |
| | 3/8 | QHRA - 37 - (E) - 6 |
| | 5/16 | QHRA - 31 - (E) - 8 |
| 3/32 QRK - 8 | 11/32 | QHRA - 34 - (E) - 8 |
| | 3/8 | QHRA - 37 - (E) - 8 |
| | 7/16 | QHRA - 43 - (E) - 8 |

Glossary for QRS® Systems

20° or 90° Geared Angle Head: An offset internal gear driven unit in which driving torque is transmitted to hex gear or socket accessory assemblies held at angles of 20 or 90 degrees to the axis of the motor spindle.

20° or 90° Offset Angle Head Ratchet: Rotational torque of the air motor is converted into pulses through an internal cam which transmits the torque via the pawl to the drive gear which may be configured flush or with extended socket accessory assemblies to drive frangible collars at an angle of 20 or 90 degrees to the axis of the motor spindle.

Back Drive: The socket and other accessory assemblies are attached on the opposite side of the geared head for limited access applications. The rotation of the motor must be opposite to that of the conventional side for identical gear trains. This is not an option for offset ratchet drivers.

Collar: The body component of a frangible type threaded fastener which remains on the threaded pin after the hex drive has been sheared off.

Drive Gear: The terminal gear of a geared head which is configured either to accept the hex shank of an extended socket or which has a flush hex configuration for transmitting torque to the frangible collar.

Extended Socket: A socket designed to fit into a drive gear at one end and at the opposite end having a recessed hex dimensioned to accept the hex drive of a frangible collar for transmitting torque for tightening onto a mating pin until sheared off.

Extended Socket Accessory Assembly: Adapter assembly which consists of an extended socket and hex tip holder and a hex tip as well as other necessary components required to attach the assembly driver as a complete unit for installation of frangible collars.

Extended Socket Assembly: Adapter assembly consisting of the extended socket and retaining ring supplied as a unit to be used with an extended hex holder assembly on an angle driver.

Frangible (Torque-Off) Collar: A threaded collar in which the hex wrenching portion is sheared off from its body, the collar remaining on the threaded pin after torque-off. Torque control is controlled by the engineering of the collar.



Glossary for QRS® Systems

Flush Gear: Terminal drive gear which has a recessed hex on the drive side to engage the hex portion of the collar in a close quarter application not requiring an extended socket.

Flush Tool: Complete assembly driver which is designed for close quarter applications without use of extended socket.

Hex Holder: The assembly component of a socket accessory assembly which is held stationary within the drive gear and through the socket or drive gear. It is used to hold the hex wrench tip stationary during installation.

Hex Holder Assembly: The hex holder and hex wrench tip supplied as an assembly unit for use with a socket or drive gear for installation of frangible collars.

Hex Recess: The hexagon wrench cavity at the threaded end of the pin which accepts the hex wrench tip. The hex recess allows the wrench tip to keep the pin stationary during installation.

Hex Wrench Tip: The wrench which is held stationary by the hex tip holder. This fits into the hex recess of the pin and keeps it stationary during installation.

Interference Fit Hole: A hole prepared in material that is slightly smaller than the shank diameter of the pin. This prevents the pin from spinning during installation and negates the need for hex tips.

Matched Hex Pairs: Dimensions for sockets and hex wrench tips, the larger of which refers to the hex drive dimensions of the collar, and the smaller of which refers to the hex recess dimensions in the threaded end of the pin into which the hex wrench tip is inserted during installation.

Non-Interference Fit Holes: A hole prepared in material with a slightly larger diameter than that of the pin which allows the pin to rotate during installation, therefore needing the use of hex tips during installation.

Non Torque-Control Tool: Installation tool which does not contain a clutch or other torque-control device to control the torque output.

Offset Handle: Grip portion of a pistol type pneumatic motor which extends approximately at a 90 degree angle to the axis of rotation of the motor spindle.

Quick Release System (QRS™): Hex tip holder which the hex holder holds the hex tip by means of a retaining shaft which allows for quick and easy replacement of the hex tip. Eliminates the need for external tools to replace the hex tip. Used in non-interference fit holes.

Ratchet Gear: Single drive gear used only on ratchet heads. Same application as drive gear in a geared head tool, except ratchet gears cannot be used in back drive applications.

Retention Shaft: A small shaft which is threaded at one end and retains the hex tip in the holder, and when rotated pulls or pushes the hex tip in or out.

RPM of Tool: The rotation speed of the motor spindle measured at the gear case outlet.

Socket: See extended socket definition.

Torque: Rotation force measured in inch pounds either at the spindle shaft or the drive gear, depending upon the specification.

Quick Change System™
Hi-Lok® Type Fastener
Installation Tools

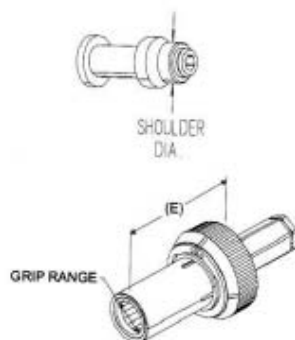
Quick Change System[®]

The **Quick Change System[®]** was designed to save time when changing from one size tool to another, or when changing from installation to removal of fasteners. This system was also designed to be used with existing Hi-Lok[®] tooling purchased as complete, ready to use assemblies.

Lok-Fast offers the quick change installation sockets in all the standard hex sizes used with our current Hi-Lok[®] tooling, and removal sockets to remove the full range of fasteners.

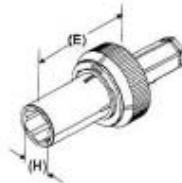
Removal

The illustration below shows the shoulder diameter that dictates the grip range referred to in the following pages

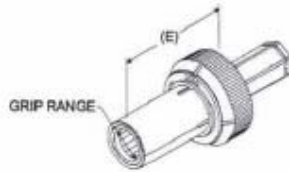


Installation

The illustration below shows the socket hex size referred to in the following pages.



Quick Change Removal Socket



| (H) |
|----------|
| Hex Tip |
| 5 = 1/16 |
| 6 = 5/64 |
| 8 = 3/32 |
| 10 = 1/8 |

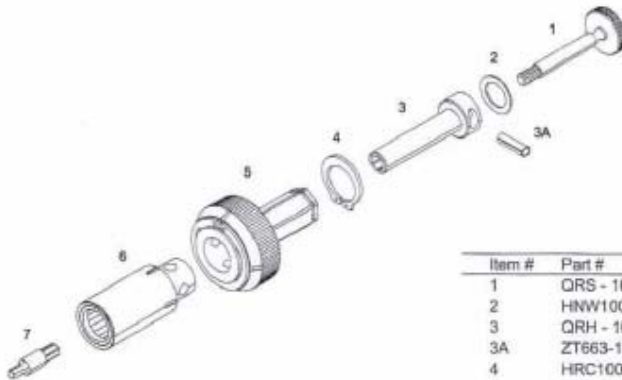
To Order:

1. Determine the grip size needed.
2. Select the size of the hex tip.

Example: **QCRA235 - 10 - 6**

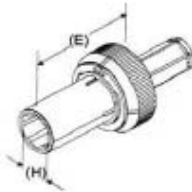
- 1" long socket with grip range 0.235 - 0.255.
- 5/64" hex tip.

| Complete Assembly | Removal Socket(R) | Grip Range |
|----------------------|---|---------------|
| QCRA235 - (10) - (H) | QCHR235 - (10) | 0.235 - 0.255 |
| QCRA245 - (10) - (H) | QCHR245 - (10) | 0.245 - 0.265 |
| QCRA255 - (10) - (H) | QCHR255 - (10) | 0.255 - 0.275 |
| QCRA265 - (10) - (H) | QCHR265 - (10) | 0.265 - 0.285 |
| QCRA275 - (10) - (H) | QCHR275 - (10) | 0.275 - 0.295 |
| QCRA285 - (10) - (H) | QCHR285 - (10) | 0.285 - 0.305 |
| QCRA295 - (10) - (H) | QCHR295 - (10) | 0.295 - 0.315 |
| QCRA305 - (10) - (H) | QCHR305 - (10) | 0.305 - 0.325 |
| QCRA315 - (10) - (H) | QCHR315 - (10) | 0.315 - 0.335 |
| QCRA325 - (10) - (H) | QCHR325 - (10) | 0.325 - 0.345 |
| QCRA335 - (10) - (H) | QCHR335 - (10) | 0.335 - 0.355 |
| QCRA355 - (10) - (H) | QCHR355 - (10) | 0.355 - 0.375 |
| QCRA375 - (10) - (H) | QCHR375 - (10) | 0.375 - 0.395 |
| QCRA395 - (10) - (H) | QCHR395 - (10) | 0.395 - 0.415 |
| QCRA415 - (10) - (H) | QCHR415 - (10) | 0.415 - 0.435 |
| QCRA435 - (10) - (H) | QCHR435 - (10) | 0.435 - 0.455 |
| QCRSS23 - 43 | Complete Removal Socket Set (14 Sockets) Includes Four Hex Tips Does not include Holder Accessories | |



| Item # | Part # | Description |
|--------|--------------|-----------------------------|
| 1 | ORS - 10 | Retention Shaft |
| 2 | HNW100 | Nylon Washer |
| 3 | QRH - 10 | Holder |
| 3A | ZT663-18 | For Hand Tools Only |
| 4 | HRC100 | Retaining Clip |
| 5 | QCR - 281 | Quick Change Receptacle |
| 6 | QCHR(R) - 10 | Quick Change Removal Socket |
| 7 | QRK - (H) | Hex Tip |

Quick Change Installation Socket



To Order:

1. Determine the fastener hex and pin recess size.
2. Determine the socket length required.

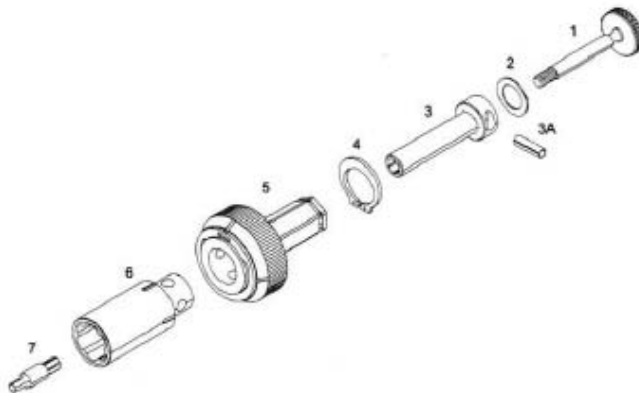
Example: **QCA250 - 10 - 6**

- 1" long socket with 1/4" socket.
- 5/8" hex tip.

| (E) | (H) |
|---------------|----------|
| Socket Length | Hex Tip |
| 10 = 1.00" | 5 = 1/16 |
| 15 = 1.50" | 6 = 5/64 |
| 20 = 2.00" | 8 = 3/32 |
| 25 = 2.50" | 10 = 1/8 |
| 30 = 3.00" | |

| Socket Hex | Complete Assembly | Installation Socket | Holder | Retention Shaft |
|------------|--------------------|---------------------|-----------|-----------------|
| 7/32 | QCA218 - (E) - (H) | QCHS218 - (E) | | |
| 1/4 | QCA250 - (E) - (H) | QCHS250 - (E) | | |
| 9/32 | QCA281 - (E) - (H) | QCHS281 - (E) | | |
| 5/16 | QCA312 - (E) - (H) | QCHS312 - (E) | QRH - (E) | QRS - (E) |
| 11/32 | QCA343 - (E) - (H) | QCHS343 - (E) | | |
| 3/8 | QCA375 - (E) - (H) | QCHS375 - (E) | | |
| 7/16 | QCA437 - (E) - (H) | QCHS437 - (E) | | |

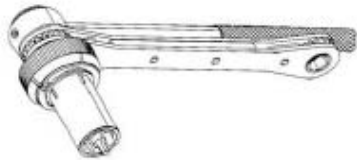
QCSS23 - 43 - (E) Complete Installation Socket Set
 Includes Four Hex Tips
 Does not include Holder Accessories



| Item # | Part # | Description |
|--------|-----------------|----------------------------------|
| 1 | QRS - (E) | Retention Shaft |
| 2 | HNW100 | Nylon Washer |
| 3 | QRH - (E) | Holder |
| 3A | ZT663-18 | For Hand Tools Only |
| 4 | HRC100 | Retaining Clip |
| 5 | QCR - 281 | Quick Change Receptacle |
| 6 | QCHS(XXX) - (E) | Quick Change Installation Socket |
| 7 | QRK - (H) | Hex Tip |



Quick Change Hand Installation Tool



To Order:

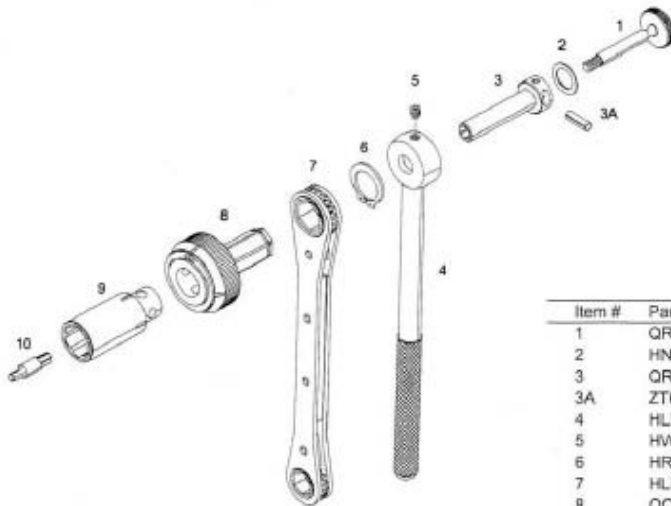
1. Determine the fastener hex and pin recess size.
2. Determine the socket length required.

Example: **QCHA218 - 10 - 6**

- 1" long socket with 7/32" hex.
- 5/64" hex tip.

| (E) | (H) |
|---------------|----------|
| Socket Length | Hex Tip |
| 10 = 1.00" | 5 = 1/16 |
| 15 = 1.50" | 6 = 5/64 |
| 20 = 2.00" | 8 = 3/32 |
| 25 = 2.50" | 10 = 1/8 |
| 30 = 3.00" | |

| Socket Hex | Complete Tool Assy |
|------------|---------------------|
| 7/32 | QCHA218 - (E) - (H) |
| 1/4 | QCHA250 - (E) - (H) |
| 9/32 | QCHA281 - (E) - (H) |
| 5/16 | QCHA312 - (E) - (H) |
| 11/32 | QCHA343 - (E) - (H) |
| 3/8 | QCHA375 - (E) - (H) |
| 7/16 | QCHA437 - (E) - (H) |



| Item # | Part # | Description |
|--------|------------------|----------------------------------|
| 1 | QRS - (E) | Retention Shaft |
| 2 | HNW100 | Nylon Washer |
| 3 | QRH - (E) | Holder |
| 3A | ZT663-18 | For Hand Tools Only |
| 4 | HLH350 | Handle |
| 5 | HW103 | Set Screw |
| 6 | HRC100 | Retaining Clip |
| 7 | HLR - 7 | Ratchet Wrench |
| 8 | QCR - 281 | Quick Change Receptacle |
| 9 | QCHS (XXX) - (E) | Quick Change Installation Socket |
| 10 | QRK - (H) | Hex Tip |

Quick Change Hand Removal Tool



| (H) |
|----------|
| Hex Tip |
| 5 = 1/16 |
| 6 = 5/64 |
| 8 = 3/32 |
| 10 = 1/8 |

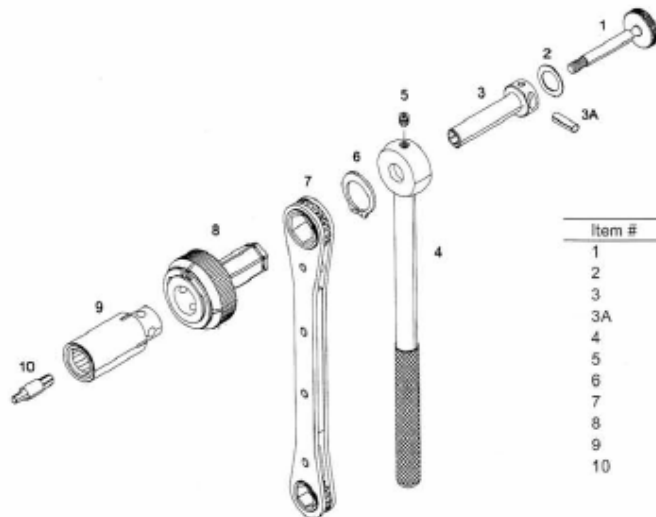
To Order:

1. Determine the fastener hex and pin recess size.
2. Determine the socket length required.

Example: **QCHRA255 - 10 - 8**

- 1" long socket with grip range of 0.255 - 0.275
- 3/32" hex tip.

| Complete Assembly | Removal Socket(R) | Grip Range |
|-----------------------|-------------------|---------------|
| QCHRA235 - (10) - (H) | QCHR235 - (10) | 0.235 - 0.255 |
| QCHRA245 - (10) - (H) | QCHR245 - (10) | 0.245 - 0.265 |
| QCHRA255 - (10) - (H) | QCHR255 - (10) | 0.255 - 0.275 |
| QCHRA265 - (10) - (H) | QCHR265 - (10) | 0.265 - 0.285 |
| QCHRA275 - (10) - (H) | QCHR275 - (10) | 0.275 - 0.295 |
| QCHRA285 - (10) - (H) | QCHR285 - (10) | 0.285 - 0.305 |
| QCHRA295 - (10) - (H) | QCHR295 - (10) | 0.295 - 0.315 |
| QCHRA305 - (10) - (H) | QCHR305 - (10) | 0.305 - 0.325 |
| QCHRA315 - (10) - (H) | QCHR315 - (10) | 0.315 - 0.335 |
| QCHRA325 - (10) - (H) | QCHR325 - (10) | 0.325 - 0.345 |
| QCHRA335 - (10) - (H) | QCHR335 - (10) | 0.335 - 0.355 |
| QCHRA355 - (10) - (H) | QCHR355 - (10) | 0.355 - 0.375 |
| QCHRA375 - (10) - (H) | QCHR375 - (10) | 0.375 - 0.395 |
| QCHRA395 - (10) - (H) | QCHR395 - (10) | 0.395 - 0.415 |
| QCHRA415 - (10) - (H) | QCHR415 - (10) | 0.415 - 0.435 |
| QCHRA435 - (10) - (H) | QCHR435 - (10) | 0.435 - 0.455 |

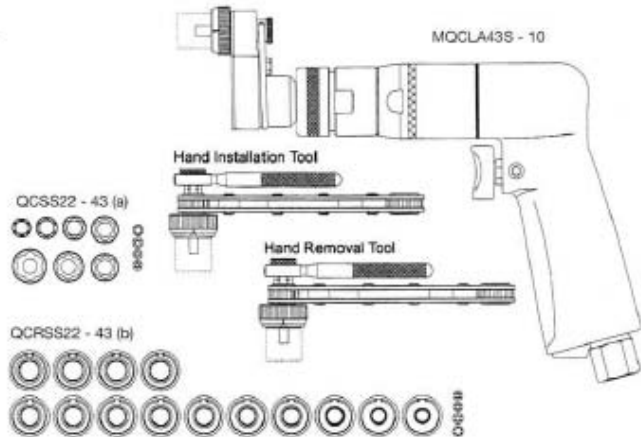


| Item # | Part # | Description |
|--------|---------------|----------------------------------|
| 1 | QRS - (E) | Retention Shaft |
| 2 | HNW100 | Nylon Washer |
| 3 | QRH - (E) | Holder |
| 3A | ZT663-1B | For Hand Tools Only |
| 4 | HLH350 | Handle |
| 5 | HW103 | Set Screw |
| 6 | HRC100 | Retaining Clip |
| 7 | HLR - 7 | Ratchet Wrench |
| 8 | QCR - 281 | Quick Change Recepticle |
| 9 | QCHR(R) - (E) | Quick Change Installation Socket |
| 10 | QRK - (H) | Hex Tip |

QCK-4000

Pneumatic and Hand Tool Installation and Removal Kit

| Removal Grip Range of | Installation Socket Hex Sizes of | Hex Tip Sizes |
|-----------------------------|--|------------------|
| QCRSS23 - 43 | QCSS23 - 43 | |
| 0.235 - 0.255 | 7/32 | 1/16 |
| 0.245 - 0.265 | 1/4 | 5/64 |
| 0.255 - 0.275 | 9/32 | 3/32 |
| 0.265 - 0.285 | 5/16 | 1/8 |
| 0.275 - 0.295 | 11/32 | |
| 0.285 - 0.305 | 3/8 | |
| 0.295 - 0.315 | 7/16 | |
| 0.305 - 0.325 | | |
| 0.315 - 0.335 | | |
| 0.325 - 0.345 | | |
| 0.335 - 0.355 | | |
| 0.355 - 0.375 | | |
| 0.375 - 0.395 | | |
| 0.395 - 0.415 | | |

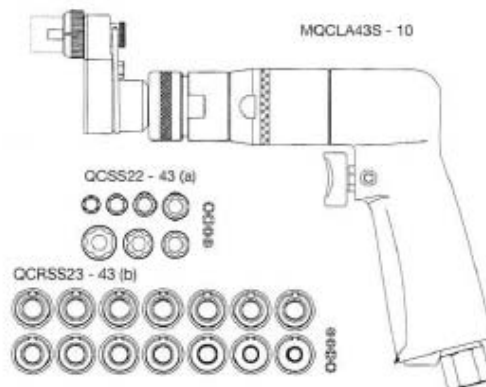


(a) See Page 16
 (b) See Page 15

QCK-4010

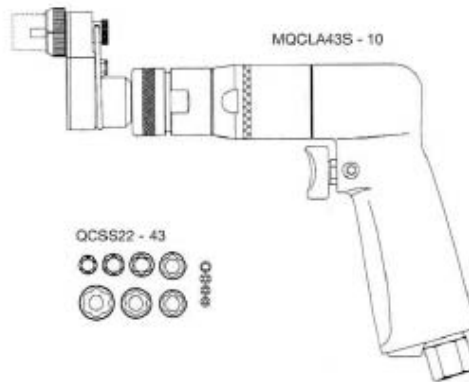
Pneumatic Installation and Removal Kit

| Removal Grip Range of | Installation Socket Hex Sizes of | Hex Tip Sizes |
|-----------------------------|--|------------------|
| QCRSS23 - 43 | QCSS23 - 43 | |
| 0.235 - 0.255 | 7/32 | 1/16 |
| 0.245 - 0.265 | 1/4 | 5/64 |
| 0.255 - 0.275 | 9/32 | 3/32 |
| 0.265 - 0.285 | 5/16 | 1/8 |
| 0.275 - 0.295 | 11/32 | |
| 0.285 - 0.305 | 7/16 | |
| 0.295 - 0.315 | 3/8 | |
| 0.305 - 0.325 | | |
| 0.315 - 0.335 | | |
| 0.325 - 0.345 | | |
| 0.335 - 0.355 | | |
| 0.355 - 0.375 | | |
| 0.375 - 0.395 | | |
| 0.395 - 0.415 | | |



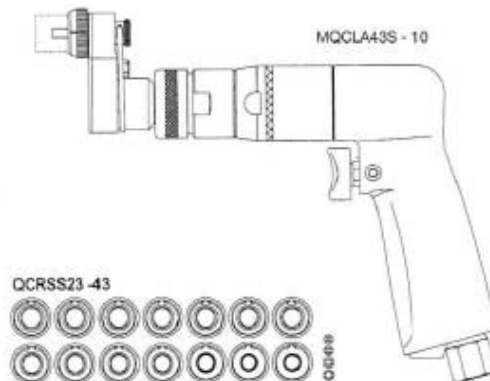
QCK-4020
Pneumatic Installation Kit

| Socket Hex Sizes of QCSS23 - 43 | Hex Tip Sizes |
|---------------------------------|---------------|
| 7/32 | 1/16 |
| 1/4 | 5/64 |
| 9/32 | 3/32 |
| 5/16 | 1/8 |
| 11/32 | |
| 3/8 | |
| 7/16 | |



QCK-4030
Pneumatic Removal Kit

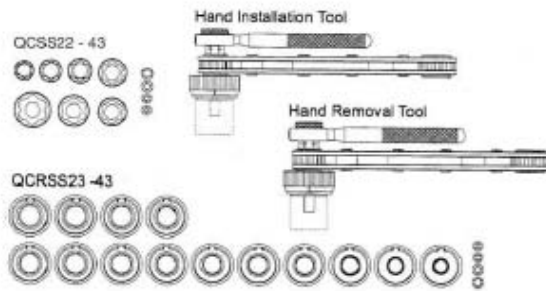
| Grip Range of QCRSS23 - 43 | Hex Tip Sizes |
|----------------------------|---------------|
| 0.235 - 0.255 | 1/16 |
| 0.245 - 0.265 | 5/64 |
| 0.255 - 0.275 | 3/32 |
| 0.265 - 0.285 | 1/8 |
| 0.275 - 0.295 | |
| 0.285 - 0.305 | |
| 0.295 - 0.315 | |
| 0.305 - 0.325 | |
| 0.315 - 0.335 | |
| 0.325 - 0.345 | |
| 0.335 - 0.355 | |
| 0.355 - 0.375 | |
| 0.375 - 0.395 | |
| 0.395 - 0.415 | |



QCK-4040

Hand Installation and Removal Kit

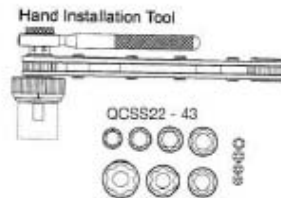
| Removal Grip Range of | Installation Socket Hex Sizes of | Hex Tip Sizes |
|-----------------------------|--|------------------|
| QCRSS23 - 43 | | |
| 0.235 - 0.255 | 7/32 | 1/16 |
| 0.245 - 0.265 | 1/4 | 5/64 |
| 0.255 - 0.275 | 9/32 | 3/32 |
| 0.265 - 0.285 | 5/16 | 1/8 |
| 0.275 - 0.295 | 11/32 | |
| 0.285 - 0.305 | | |
| 0.295 - 0.315 | 3/8 | |
| 0.305 - 0.325 | 7/16 | |
| 0.315 - 0.335 | | |
| 0.325 - 0.345 | | |
| 0.335 - 0.355 | | |
| 0.355 - 0.375 | | |
| 0.375 - 0.395 | | |
| 0.395 - 0.415 | | |



QCK-4050

Hand Installation Kit

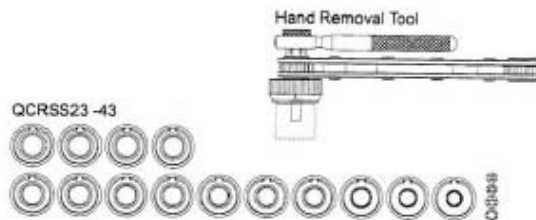
| Socket Hex Sizes of | Hex Tip Sizes |
|------------------------|------------------|
| QCSS23 - 43 | |
| 7/32 | 1/16 |
| 1/4 | 5/64 |
| 9/32 | 3/32 |
| 5/16 | 1/8 |
| 11/32 | |
| 3/8 | |
| 7/16 | |



QCK-4060

Hand Removal Kit

| Grip Range of | Hex Tip Sizes |
|---------------------|------------------|
| QCRSS23 - 43 | |
| 0.235 - 0.255 | 1/16 |
| 0.245 - 0.265 | 5/64 |
| 0.255 - 0.275 | 3/32 |
| 0.265 - 0.285 | 1/8 |
| 0.275 - 0.295 | |
| 0.285 - 0.305 | |
| 0.295 - 0.315 | |
| 0.305 - 0.325 | |
| 0.315 - 0.335 | |
| 0.325 - 0.345 | |
| 0.335 - 0.355 | |
| 0.355 - 0.375 | |
| 0.375 - 0.395 | |
| 0.395 - 0.415 | |





Glossary for Quick Change System™

QCA: (Quick Change Installation Assembly) This assembly includes the basic items needed to use the quick change system for Hi-Lok® fastener installation with existing Hi-Lok hand and pneumatic tools.

QCR: (Quick Change Removal Assembly) This assembly includes the basic items needed to use the quick change system for Hi-Lok® fastener removal with existing Hi-Lok hand and pneumatic tools.

QCR: (Quick Change Receptacle) The receptacle is used to adapt the quick change system to your tooling. All sizes of removal and installation sockets will work with one receptacle. QCR-281 has a standard male hex size of 0.281 (9/32") to adapt to a 9/32 through hex gear on a pneumatic tool or a hand tool.

QCHR: (Quick Change Removal Socket) The QCHR is designed to remove Hi-Lok® Fasteners after the hex has been broken off. The QCHR has a roller pin system that located on the shoulder of the installed fastener. Each socket has a grip range of 0.02" and is offered in 16 sizes to remove fasteners with shoulder sizes from 0.235" - 0.455".

QCRSS: (Quick Change Removal Socket Set) QCRSS is a set of 14 quick change removal sockets and includes 4 QCK hex tips.

QCHS: (Quick Change Installation Socket) QCHS is designed to be interchangeable with the QCRS and used with the same receptacle for installing Hi-Lok® fasteners. The QCHS comes in 7 standard sizes from QCHS218 (7/32") to QCHS437 (7/16).

QCSS: (Quick Change Installation Socket Set) QCSS is a set of all 7 installation sockets, including 4 QRK hex tips.

QCHA: (Quick Change Hand Installation Assembly)

QCHRA: (Quick Change Hand Removal Assembly)

QCK-4000: Pneumatic tool with complete removal and installation socket sets, including the hand installation and removal assembly.

QCK-4010: Pneumatic tool with installation and removal socket sets.

QCK-4020: Pneumatic tool with installation socket set.

QCK-4030: Pneumatic tool with removal socket set.

QCK-4040: Hand tool with installation and removal socket sets.

QCK-4050: Hand tool with installation socket set.

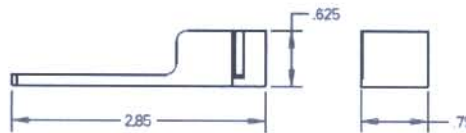
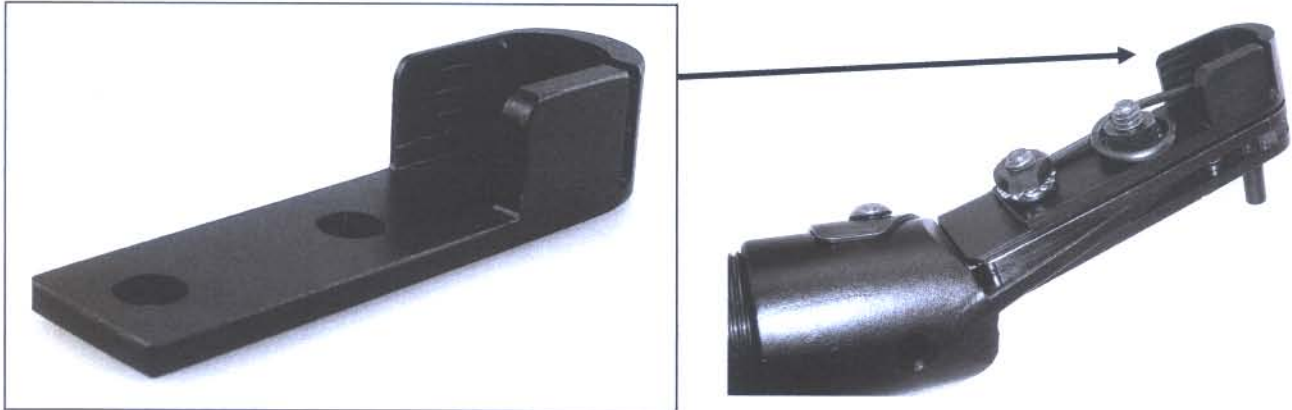
QCK-4060: Hand tool with removal socket set.

QCK-4070: Pneumatic tool with complete removal and installation socket sets, including the hand installation, removal assembly and additional 4 gear "L" head assembly.

NEW

ZEPHYR[®]
TOOL

8105-H Ratchet Reaction Bracket



HI-LOK RATCHET SPRING SAVER REACTION BRACKET

With the use of today's modern composite materials, the aircraft industry faces new problems with the installation of frangible-collar type fasteners. These fasteners have, historically, had the benefit of interference fit holes. The loss of this benefit has created new challenges for installation tooling, resulting in excess hex key breakage, and coiling of hex key tension springs. Zephyr's new reaction bracket is designed to fit Zephyr series QSRA straight ratchet and series QRA 20° offset ratchet installation tools (See Zephyr's Lok-Fast "Frangible Collar Tools" catalog pages 9-10). Bracket dimensions are within the normal operating envelop of the tool. Broken hex keys are easily replaced using Zephyr's QSA[®] (Quick-Release System). The entire system eliminates costly down time and removes the need to return the tool to the tool crib to replace a broken hex key or coiled spring.

Order Part Number: 8105-H

Patent Applied For

For further information, contact: Zephyr Manufacturing Co., Inc. 201 Hindry Avenue, Inglewood, CA 90301-1519
1-310-410-4907 (Tel) * 1-310-410-2913 (FAX) E-mail : sales@zephyrtool.com Web: <http://www.zephyrtool.com>

May 2009

Reversible Ratchet Wrench Assembly

ZRWA



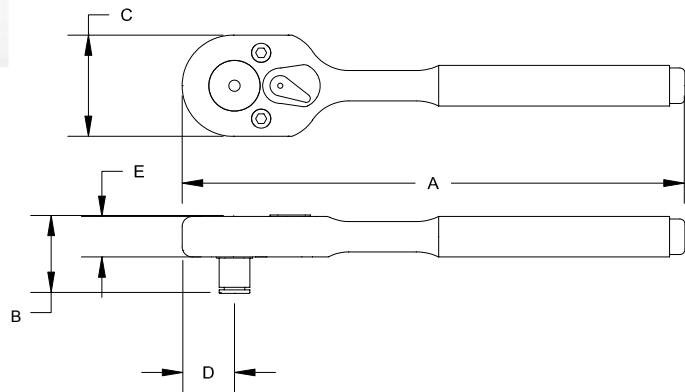
Zephyr Ratchet Wrench Assemblies are for the installation of any frangible hex collar such as Hi-Lok, Hi-Lite, Hi-Tigue, Veri-Lite and C-Lok fasteners. The ZATHR series ratchet wrenches feature a 72 teeth ratchet for close quarter applications. The assembly consists of a 1/4" or 3/8" square drive reversible ratchet wrench with a through hole, a socket with a set screw and hex key with either a plastic screwdriver handle or a "T" handle.

All the components listed below are completely interchangeable and can be ordered as an assembly or separately.

How to select a tool: From the parts lists below determine the ratchet wrench 1/4" or 3/8" square drive, then select the appropriate socket hex and the hex key sizes that match the fastener pin and collar.

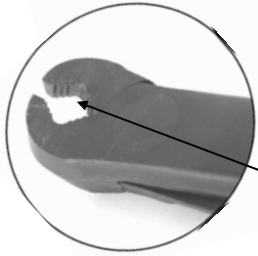
ZRWA25-37-6 Includes:

- ZATHR250 1/4" SQ Drive Ratchet Wrench
- ZRWS25-37 3/8" Drive Hex Socket
- ZRWK-6 5/64" Hex Key with Handle



| Socket Hex Size | Hex Key Size | Complete Tool Part Number | Ratchet Wrench Part Number | Socket Part Number | Hex Key Part Number | | | | | | Handle Swing | | |
|-----------------|--------------|---------------------------|----------------------------|---------------------------|---------------------|----------|----------|----------|----------|---------|--------------|-----------|-----------|
| | | | | | | A | B | C | D | E | | | |
| 3/16 | 1/16" | ZRWA25-18-5 | ZATHR250 1/4" SQ Drive | ZRWS25-18 | ZRWK-5P | 5 11/32" | 13/16" | 1 1/16" | 17/32" | 7/16" | 4 Degrees | | |
| 7/32 | | ZRWA25-22-5 | | ZRWS25-22 | | | | | | | | | |
| 1/4 | | ZRWA25-25-5 | | ZRWS25-25 | | | | | | | | | |
| 9/32 | | ZRWA25-28-5 | | ZRWS25-28 | | | | | | | | | |
| 5/16 | | ZRWA25-31-5 | | ZRWS25-31 | | | | | | | | | |
| 11/32 | | ZRWA25-34-5 | | ZRWS25-34 | | | | | | | | | |
| 7/32 | 5/64" | ZRWA25-22-6 | | ZATHR250 1/4" SQ Drive | ZRWS25-22 | ZRWK-6P | 5 11/32" | 13/16" | 1 1/16" | 17/32" | 7/16" | 4 Degrees | |
| 1/4 | | ZRWA25-25-6 | | | ZRWS25-25 | | | | | | | | |
| 9/32 | | ZRWA25-28-6 | | | ZRWS25-28 | | | | | | | | |
| 5/16 | | ZRWA25-31-6 | | | ZRWS25-31 | | | | | | | | |
| 11/32 | | ZRWA25-34-6 | | | ZRWS25-34 | | | | | | | | |
| 3/8 | | ZRWA25-37-6 | | | ZRWS25-37 | | | | | | | | |
| 3/8 | 3/32" | ZRWA37-37-6 | ZATHR375 | | ZRWS37-37 | ZRWK-8P | 7 27/32" | 1 1/8" | 1 13/32" | 23/32" | 1/2" | 5 Degrees | |
| 5/16 | | ZRWA25-31-8 | ZATHR250 1/4" SQ Drive | | ZRWS25-31 | | ZRWK-8T | 5 11/32" | 13/16" | 1 1/16" | 17/32" | 7/16" | 4 Degrees |
| 11/32 | | ZRWA25-34-8 | | | ZRWS25-34 | | | | | | | | |
| 3/8 | | ZRWA25-37-8 | | | ZRWS25-37 | | | | | | | | |
| 3/8 | | ZRWA37-37-8 | | | ZRWS37-37 | | | | | | | | |
| 7/16 | | ZRWA37-43-8 | | | ZRWS37-43 | | | | | | | | |
| 1/2 | ZRWA37-50-8 | ZRWS37-50 | | | | | | | | | | | |
| 3/8 | 3/32" | ZRWA37-37-10 | | ZATHR375 3/8" SQ Drive | ZRWS37-37 | ZRWK-10T | 7 27/32" | 1 1/8" | 1 13/32" | 23/32" | 1/2" | 5 Degrees | |
| 7/16 | | ZRWA37-43-10 | | | ZRWS37-43 | | | | | | | | |
| 1/2 | | ZRWA37-50-10 | | | ZRWS37-50 | | | | | | | | |
| 7/16 | | ZRWA37-43-12 | | | ZRWS37-43 | | | | | | | | |
| 1/2 | | ZRWA37-50-12 | | | ZRWS37-50 | | | | | | | | |

ZHP-100 **ZEPHYR**[®]
TOOL
HI-LOK[®] **PLIERS**



The notched jaws are designed for maximum gripping from the top or bottom of the offset pliers head.

ZEPHYR Hi-Lok[®] Removal Pliers offer a quick and inexpensive alternative for removing any frangible hex collar such as Hi-Lok, Hi-Lite, Hi-Tigue, Veri-Lite and C-Lok fasteners. The hardened steel jaws are specially designed to maximize the gripping surface around the collar. This allows the ZHP-100 pliers to grip 5/32", 3/16", 1/4" and 5/16" fastener sizes.

For non-interference fit holes, the ZHP-100 removal pliers should be used in conjunction with a hex key such as ZEPHYR's ZRWK series plastic or T-handle hex wrench's.

QRS[®] Ratchet Wrench Assembly
QHRA



To Order:

1. Determine the socket hex and the socket length.
2. Determine the size of the hex tip.

Example: **QHRA-22-10-5**

- 7/32" socket
- 1.0" extended socket with QRS[®] system
- QRK-5 Hex Tip

| (E) Socket Length |
|----------------------|
| 4 = 0.25" |
| 5 = 0.50" |
| 10 = 1.00" |
| 15 = 1.50" |
| 20 = 2.00" |
| 30 = 3.00" |

| Hex Tip | Socket Hex | Complete Part Number |
|---------|------------|----------------------|
| | 7/32 | QHRA-22-(E)-5 |
| 1/16 | 1/4 | QHRA-25-(E)-5 |
| QRK-5 | 9/32 | QHRA-28-(E)-5 |
| | 5/16 | QHRA-31-(E)-5 |
| | 11/32 | QHRA-34-(E)-5 |
| | 7/32 | QHRA-22-(E)-6 |
| 5/64 | 1/4 | QHRA-25-(E)-6 |
| QRK-6 | 9/32 | QHRA-28-(E)-6 |
| | 5/16 | QHRA-31-(E)-6 |
| | 11/32 | QHRA-34-(E)-6 |
| | 3/8 | QHRA-37-(E)-6 |
| | 5/16 | QHRA-31-(E)-8 |
| 3/32 | 11/32 | QHRA-34-(E)-8 |
| QRK-8 | 3/8 | QHRA-37-(E)-8 |
| | 7/16 | QHRA-43-(E)-8 |

The **QRS[®]** Quick Release System is a quick and easy way to replace the QRK hex tip. QRS[®] eliminates the need for any external tools to replace a hex tip.

Roller Drive Wrench Assembly

ZRDA80



ZRDA80-31

ZRDW80S-250

Zephyr's Roller Drive Wrench Assemblies are ideal for the installation of any frangible hex collar fastener system such as Hi-Lok[®], Hi-Lite[®], Hi-Tigue[®], Veri-Lite[®] and C-Lok[®] and the removal of any hex nut or hex collar in the most difficult close quarter applications.

Features

- One piece hot forged handle construction for maximum strength.
- Bright yellow knurled handle for easy visibility reducing chance of FOD.
- Minimum edge and height clearance plus a minimum handle swing angle allows easy access to those most restricted close quarters applications.
- The 1/4" square drive spindle and all ZRDS sockets feature a through hole for those applications that require the use of a hex keys.
- The ZRDW roller drive wrench also accepts all standard 1/4" square drive sockets.

All the components listed below are completely interchangeable and can be ordered separately or as an assembly.

How to select a tool: To order a complete assembly select the roller drive wrench 6.0" or 3.0" length from the parts list to the right. Then select the appropriate ZRDS socket hex that match the collar or nut hex. Example:

- ZRDA80-31 Includes:
- ZRDW80 Roller Drive Wrench 6.0" OAL
 - ZRDS-31 5/16" Drive Hex Socket

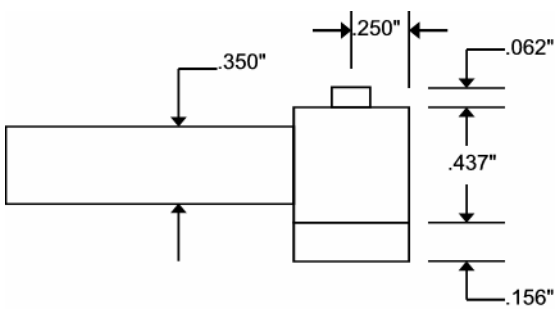
To order the Roller Drive Wrench equipped with a 1/4" square drive the part numbers are:

- ZRDW80S-250 3.0" Handle
- ZRDW80-250 6.0" Handle

| Socket Hex Size | Complete Tool Part Number | Roller Drive Wrench Part Number | Socket Part Number |
|-----------------|---------------------------|---------------------------------|--------------------|
| 3/16 | ZRDA80-18S | ZRDW80S 80 in lbs 3" OAL | ZRDS-18 |
| 7/32 | ZRDA80-22S | | ZRDS-22 |
| 1/4 | ZRDA80-25S | | ZRDS-25 |
| 9/32 | ZRDA80-28S | | ZRDS-28 |
| 5/16 | ZRDA80-31S | | ZRDS-31 |
| 11/32 | ZRDA80-34S | | ZRDS-34 |
| 3/8 | ZRDA80-37S | | ZRDS-37 |
| 7/16 | ZRDA80-43S | | ZRDS-43 |
| 3/16 | ZRDA80-18 | ZRDW80 80 in lbs 6" OAL | ZRDS-18 |
| 7/32 | ZRDA80-22 | | ZRDS-22 |
| 1/4 | ZRDA80-25 | | ZRDS-25 |
| 9/32 | ZRDA80-28 | | ZRDS-28 |
| 5/16 | ZRDA80-31 | | ZRDS-31 |
| 11/32 | ZRDA80-34 | | ZRDS-34 |
| 3/8 | ZRDA80-37 | | ZRDS-37 |
| 7/16 | ZRDA80-43 | | ZRDS-43 |

Caution: Maximum torque rating is 100 in lbs.

For higher torque requirements use our ZATHR250, 1/4" square drive ratchet wrench with a maximum torque rating of 500 in lbs.





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201 Hindry Avenue - Inglewood, CA 90301-1518 • (310) 410-4907 • FAX (310) 410-2913 • www.zephyrtool.com • email: zephyr@zephyrtool.com