



Torque Products

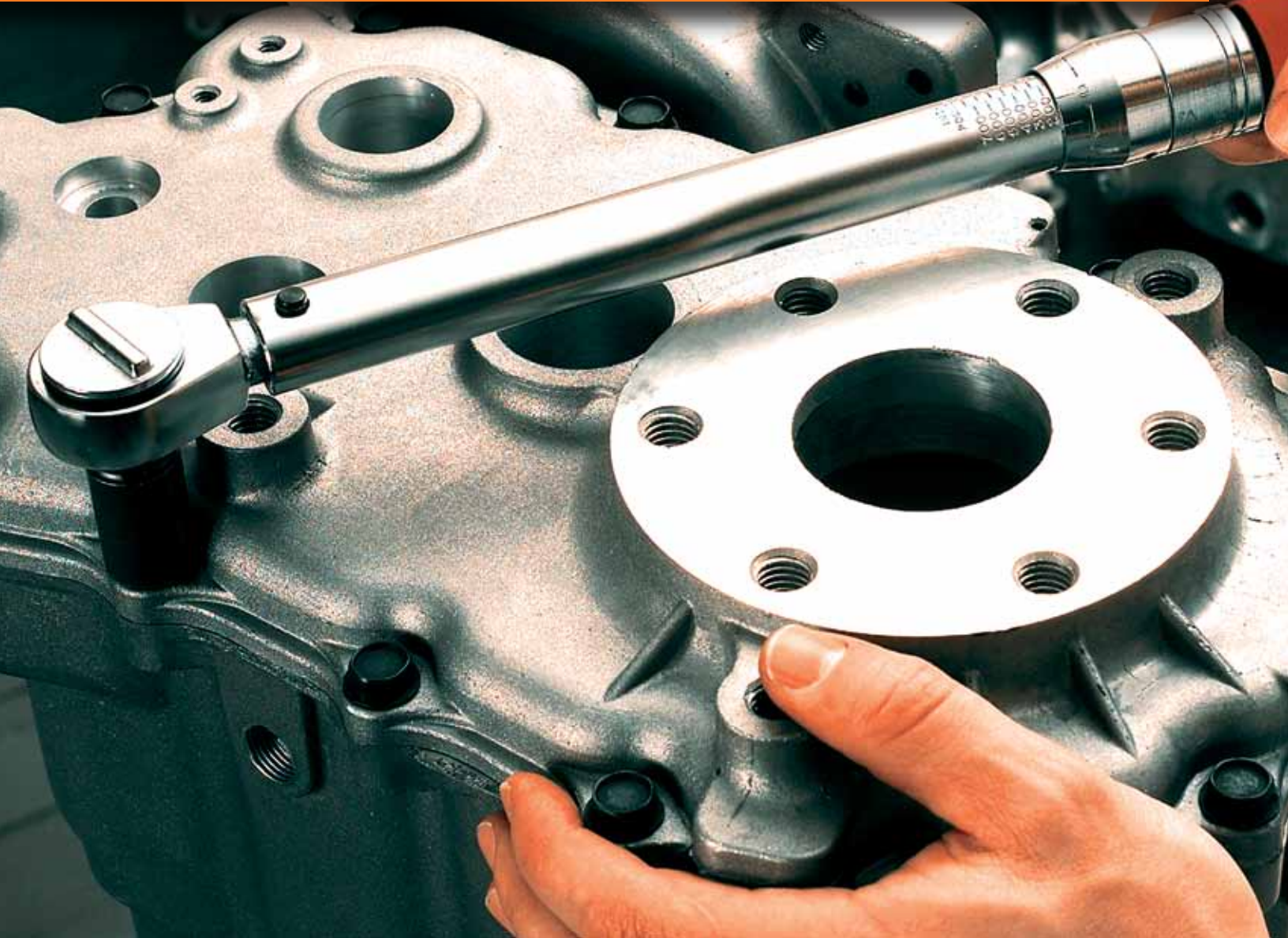


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Torque Wrench Cautions

1. Do not use torque wrench to loosen tightened fasteners beyond maximum tool capacities.
2. Never use an extension unless authorized by the manufacturer.
3. Torque wrenches are precision instruments – provide adequate storage to protect from damage.
RETURN MICROMETER WRENCHES TO LOWEST SETTING AFTER EACH USE.
4. ALWAYS WEAR APPROVED EYE PROTECTION.

Model Number Index



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| 185-1X | 7 | HX 52 | 15 | MB 154 | 17 | PS 122 | 15 | | |
| 185-2X | 7 | HX 62 | 15 | MB 164 | 17 | PS 82 | 15 | | |
| 185-3X | 7 | HX 72 | 15 | MB 174 | 17 | RS 122 | 15 | | |
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Utica Torque Products

Introduction



A Name You Can Trust

Utica products offer high quality solutions for your torque applications. Utica products add value to the assembly process by enabling you to assess, control and improve product reliability, which leads to customer satisfaction. Whether the application is cellular phone assembly involving fine threaded screws or an automotive assembly operation fastening bolts, Utica torque products are the right choice.



Quality

Our goal is to provide high quality torque tools that will maintain accuracy as long as possible. All Utica torque products are made of top grade materials. Working parts are heat treated for added strength and durability. Each Utica torque tool is calibrated according

to ASME B107.14M before leaving the plant, using test equipment traceable to NIST. Utica manufacturing processes are ISO 9001 certified, which means that the Utica brand is manufactured to the highest standards.

Warranty

Torque Products (excluding accessories) are warranted as follows:

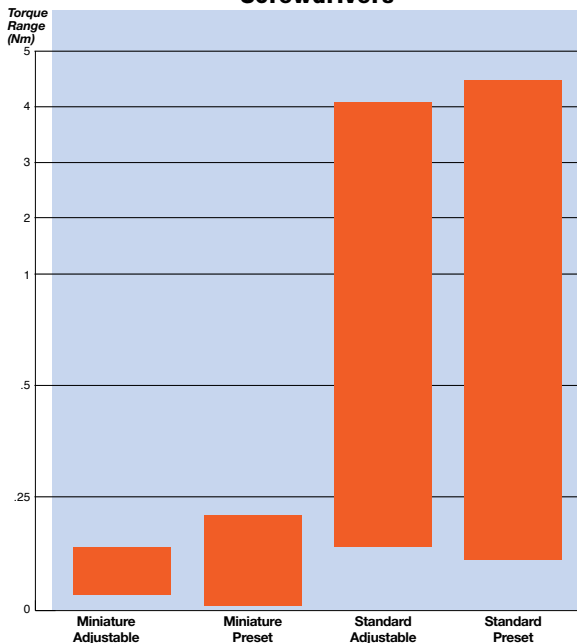


Product – One (1) year from date of purchase to be free of defects in materials and workmanship.

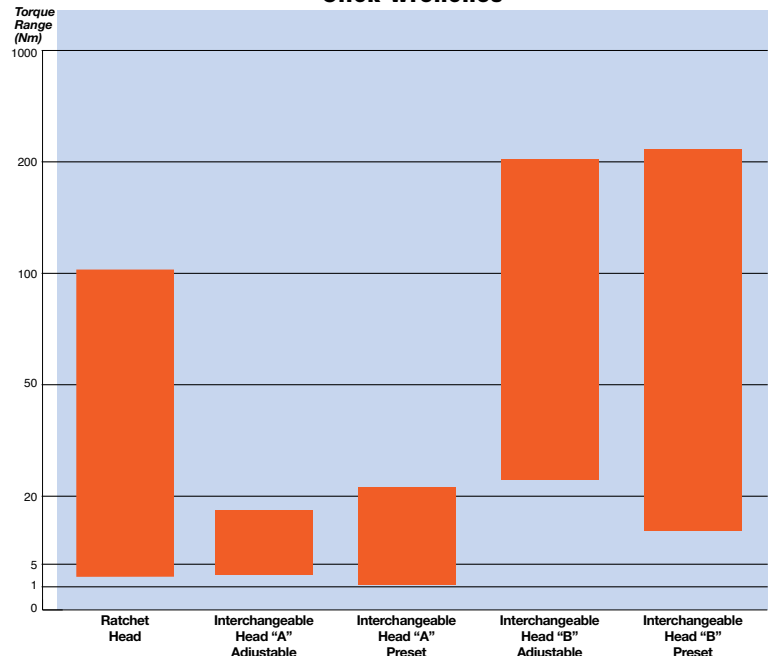
Calibration – Ninety (90) days from date of purchase.

This warranty does not extend to any product, which has been altered or abused.

Screwdrivers



Click Wrenches



Calibration Intervals

As a general rule, we recommend calibrating Utica torque products every six months. However, accurate calibration intervals need to be based on quality objectives, number of cycles and other application related details.



To locate your nearest Utica Service Center for calibration, simply visit our website at www.uticatools.com.

Ordering Information

Utica products are distributed world-wide. To locate your nearest Utica distributor, visit our website at www.uticatools.com or contact us at 1-800-845-5629 or fax (803) 951-7576.

What Is Torque?

The concept of torque is a mystery for many people. Ask a group of people to define torque and you'll probably receive a variety of answers. Open a dictionary to the definition of torque and you'll be greeted with terms such as torsion, axis, and vector. However, if the definition of torque is boiled down to layman's terms, it's the measurement of a turning or twisting force.



A simple example is the force required to turn the head of a bolt on an automobile chassis. Most tool boxes would include some of the most common tools used to apply torque, such as screwdrivers, wrenches, and impact tools.

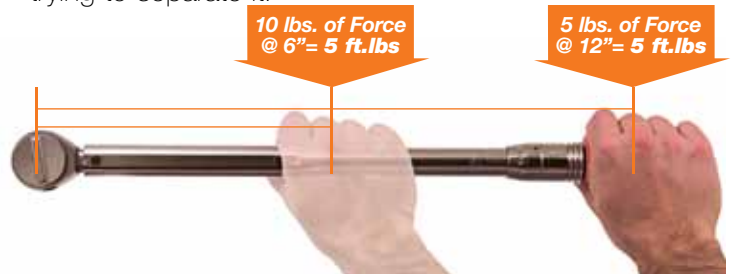
When torque is applied to the head of a bolt during a fastening process,

there are actually two main forces at work. First, we are applying a force - torque to the bolt head to tighten it. The second force at work is the tension or stretch created that runs the length of the bolt. These two forces are closely related. The more torque applied to the bolt head, the more tension or "stretch" is applied to the length of the bolt.

Why Is Torque Important?

When we apply torque to fasteners such as bolts and screws, we are actually clamping parts together. The amount of torque applied determines how well the fastener does its job in the long run. If we apply too little torque, the fastener can vibrate and eventually loosen.

On the other hand, if we apply too much torque, the fastener will over stress and can break or strip the threads. Either way, the fastener doesn't do what its suppose to do – hold something together. The objective is to apply enough torque to a fastener, creating tension that is greater than any external force trying to separate it.



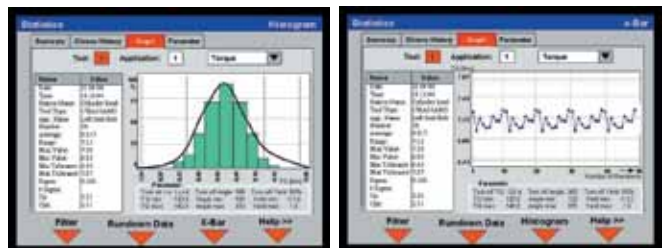
How Is Torque Measured?

Torque is measured by multiplying the amount of force applied by the distance from the point we are turning. For instance, if we are turning a bolt and apply 5 lbs. of force at the end of a wrench measuring 1 ft., the torque would equal 5 ft. lbs. This doesn't tell us what the optimal torque is for the fastener, but it does allow us to quantify the amount of torque we are applying to a fastener.

What Is The Correct Torque Level For A Fastener?

When an engineer calculates the correct torque level for a fastener, several issues must be addressed. The first issue is the maximum load that the fastener will experience. Second is the strength of the material that the fastener will clamp. Third is whether the joint is hard or soft. The fourth issue is the nature of the external force acting on the joint, such as vibration, pulling, or twisting.

Through statistical analysis, an engineer can determine the optimal level of torque that should be applied to a joint for maximum performance.



Torque Limiting Screwdrivers

Introduction



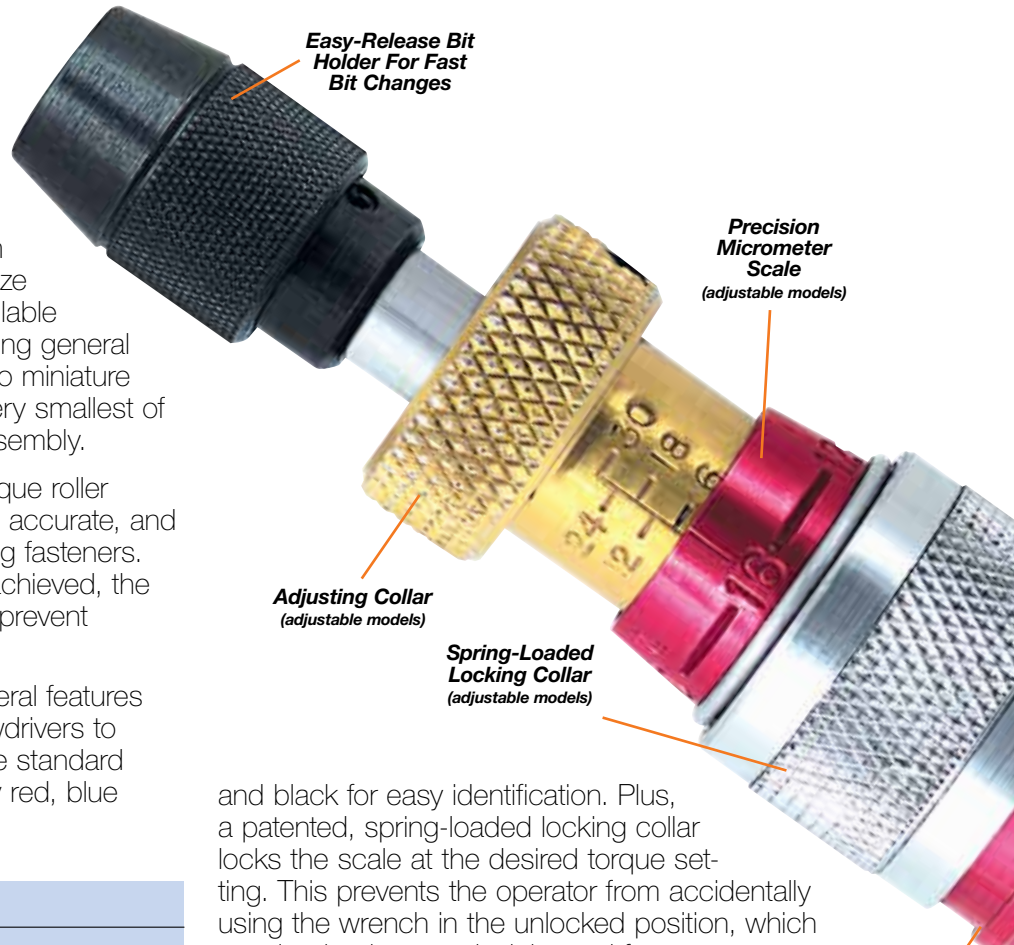
Torque Limiting Screwdrivers

Utica offers a complete line of torque limiting screwdrivers covering a range of 2-640 in.-oz.

All Utica screwdrivers feature aluminum housings to reduce weight and maximize durability. Six standard models are available for light duty torque applications including general electronic and computer assembly. Two miniature models offer reliable fastening of the very smallest of applications such as cellular phone assembly.

Utica torque screwdrivers feature a unique roller bearing cam, which produces smooth, accurate, and consistent performance when tightening fasteners. When the maximum torque setting is achieved, the cam mechanism automatically slips to prevent over-tightening.

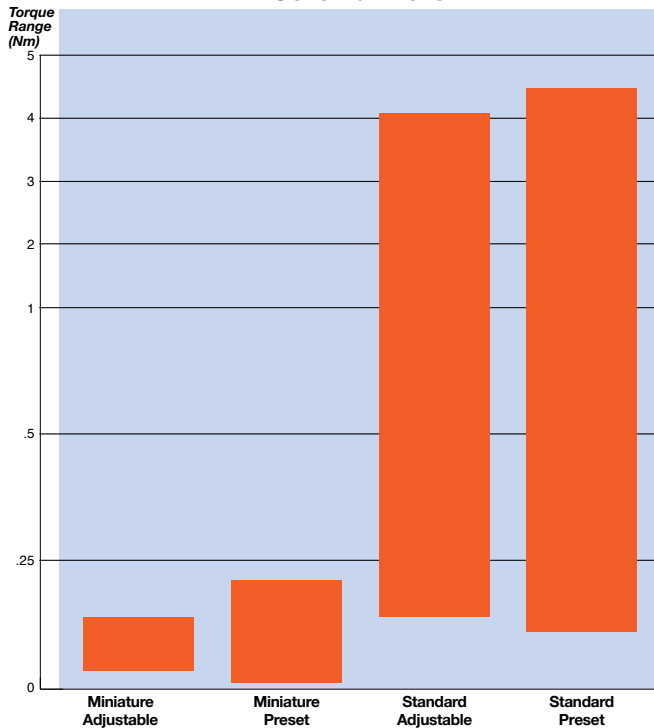
In addition to being highly durable, several features have been engineered into Utica screwdrivers to increase ease of use. Each of the three standard adjustable models are distinguished by red, blue



and black for easy identification. Plus, a patented, spring-loaded locking collar locks the scale at the desired torque setting. This prevents the operator from accidentally using the wrench in the unlocked position, which may lead to incorrectly tightened fasteners.

All models feature an easy-release bit holder, which securely retains bits during operation, while permitting easy removal.

Screwdrivers



Quality

Electronics assembly and other light screw assembly applications demand precision that can only be accomplished with the use of precision tools.

All Utica torque screwdrivers are made of top grade materials machined to exacting tolerances. Working parts are heat treated for added strength and durability. Then, each tool is carefully assembled by our experienced technicians.

Each Utica screwdriver is calibrated according to ASME B107.14M before leaving the plant, using test equipment traceable to NIST.



Our manufacturing processes are ISO 9001 certified, which means that Utica products are manufactured to the highest standards. Quality materials, precision machining and assembly is what makes Utica torque screwdrivers the tool of choice.

Calibration Intervals

As a general rule, we recommend calibrating Utica torque products every six months. However, the quality objectives of the operator's organization will ultimately determine the frequency of tool calibration.

To locate your nearest Utica Service Center for calibration, visit our website at www.uticatools.com.



Torque Limiting Screwdrivers

Standard Models



- Standard product calibrated right hand only. Left hand calibration on request.
- Choice of adjustable models with precision micrometer scale or factory preset models.
- U.S. Standard or metric scales
- Precision micrometer scale (adjustable models) calibrated in inch-ounces or inch-pounds. Metric models: cm-kg.
- Easy-release bit holders securely retain bits during operation while permitting easy removal.
- Anti-backlash design for repeatability.
- Meets or exceeds ASME B107.14M and ISO 6789 specifications.
- Adjustable model accuracy is $\pm 6\%$ of setting, starting at 20% of full scale to full scale. Right hand only.
- Calibration certificate can be requested when ordering.

Adjustable Models

| Model No. | Range | Collar Color | Increments | Hex Drive | Weight | |
|----------------------|------------------|--------------|------------|------------|--------|-----|
| | | | | | lbs. | kg. |
| U.S. Standard | | | | | | |
| TS-100 | 20–100 in.-oz. | Black | 2 in.-oz. | 1/4 Female | .50 | .23 |
| TS-30 | 6.0–30.0 in.-lb. | Red | 1 in.-lb. | 1/4 Female | .50 | .23 |
| TS-35 | 6.0–36.0 in.-lb. | Blue | 1 in.-lb. | 1/4 Female | .50 | .23 |
| Metric | | | | | | |
| TS-3M* | 0.7–3.5 Nm | Gold | .1 Nm | 1/4 Female | .50 | .23 |

Preset Models (Preset models are designed for highly repetitive assembly line operations.)

| Model No. | Range | | | | Hex Drive |
|-----------|---------|-----------|-----------|------------|------------|
| | in.-oz. | in.-lb. | Nm | cm-kg | |
| TS-SN-1 | 20–150 | 1.25–9.38 | 0.14–1.06 | 1.44–10.81 | 1/4 Female |
| TS-SN-2 | 128–640 | 8.0–40.0 | 0.9–4.52 | 9.22–46.1 | 1/4 Female |

NOTE: When ordering preset tools, specify desired torque setting.



TS-30

TS-SN-1

Torque Limiting Screwdrivers

Standard Model Accessories & Kits



Hex Bits



| Part No. | Hex Size | Cap Screw Size | Set Screw Size | Flathead Screw Size |
|----------|----------|----------------|----------------|---------------------|
| 185-000X | 050 | 0 | 3,4 | 1,2 |
| 185-00X | 1/16 | 1 | 5,6 | 3,4 |
| 185-0X | 5/64 | 2,3 | 8 | 5,6 |
| 185-1X | 3/32 | 4,5 | 10 | 8 |
| 185-9X | 7/64 | 6 | - | - |
| 185-2X | 1/8 | - | 1/4 | 10 |
| 185-10X | 9/64 | 8 | - | - |
| 185-3X | 5/32 | 10 | 5/16 | 1/4 |
| 185-4X | 3/16 | 1/4 | 3/8 | - |

Phillips Bits



| Part No. | Point Size | Screw Size |
|----------|------------|------------|
| 446-0X | 0 | 0,1 |
| 446-1X | 1 | 2,3,4 |
| 446-2X | 2 | 5,6,7,8,10 |
| 440-3X | 3 | 12,14 |

Screwdriver Bits



| Part No. | Blade Width | Blade Thickness | Screw Size |
|----------|-------------|-----------------|------------|
| 445-00X | .134 | .028 | 2,3 |
| 445-0X | .155 | .030 | 3,4 |
| 445-10X | .185 | .034 | 4,5 |
| 445-20X | .214 | .036 | 5,6 |
| 445-30X | .250 | .040 | 6,8 |

Square Drive Adapter



| Part No. | Description |
|----------|------------------------|
| 44-71-B | 1/4 Hex to 1/4 Square. |

Bit Holders



| Part No. | Square Drive (in.) | Female Hex (in.) | Description |
|----------|--------------------|------------------|-------------|
| 825 | 1/4 | 1/4 | |
| M-825 | 1/4 | 1/4 | Magnetic |

SAE Size Sockets



| Part No. | Square Dr. (in.) | Hex Opening (in.) |
|----------|------------------|-------------------|
| 1108 | 1/4 | 1/4 |
| 1110 | 1/4 | 5/16 |
| 1112 | 1/4 | 3/8 |
| 1114 | 1/4 | 7/16 |

Metric Size Sockets

| Part No. | Square Dr. (in.) | Hex Opening (mm) |
|----------|------------------|------------------|
| 6mm11 | 1/4 | 6mm |
| 7mm11 | 1/4 | 7mm |
| 8mm11 | 1/4 | 8mm |
| 10mm11 | 1/4 | 10mm |

Miniature Bit Holders



| Part No. | Description |
|----------|---|
| HW19 | To adapt miniature accessories for use in standard models. See page 11 for accessories. |

Kit No. KT-100

Range 20-100 in.-oz.

20 piece

| Qty. | Part No. Comp. | Description |
|------|----------------|--|
| 1 | TS-100 | Adj. torque screwdriver 1/4" fm. hex |
| 1 | TW3D | Torque screwdriver bld. .000 |
| 1 | TW4D | Torque screwdriver bld. .100 |
| 1 | TW6D | Hex socket 3/32" |
| 1 | TW7D | Hex socket 7/64" |
| 1 | TW12D | Hex key .028 |
| 1 | TW13D | Hex key .035 |
| 1 | 185-000X | Screwdriver hex bit .050 |
| 1 | 185-00X | Screwdriver hex bit 1/16" |
| 1 | 185-0X | Screwdriver hex bit 5/64" |
| 1 | 445-00X | Screwdriver bld. torque screw SZ. 2, 3 |
| 1 | 445-10X | Screwdriver bld. torque screw SZ. 4, 5 |
| 1 | 446-0X | Phillips bld. torque screw SZ. 0, 1 |
| 1 | 446-1X | Phillips bld. torque screw SZ. 2, 3, 4 |
| 1 | 44-71-B | Adapter 1/4" drive |
| 1 | HW19 | Bit holder mini. torque |
| 1 | 1104 | 1/4" Dr. reg. socket 1/8" |
| 1 | 1106 | 1/4" Dr. reg. socket 3/16" |
| 1 | | Plas/case |
| 1 | | Insert |

Kit No. KT-30

Range 6 to 30 in.-lb.

24 piece

| Qty. | Part No. Comp. | Description |
|------|----------------|--|
| 1 | TS-30 | Adj. torque screwdriver 1/4" fm. hex |
| 1 | TW4D | Torque screwdriver bld. .100 |
| 1 | TW7D | Hex socket 7/64" |
| 1 | TW13D | Hex key .035 |
| 1 | 185-000X | Screwdriver hex bit .050 |
| 1 | 185-00X | Screwdriver hex bit 1/16" |
| 1 | 185-0X | Screwdriver hex bit 5/64" |
| 1 | 185-1X | Screwdriver hex bit 3/32" |
| 1 | 185-2X | Screwdriver hex bit 1/8" |
| 1 | 185-3X | Screwdriver hex bit 5/32" |
| 1 | 445-00X | Screwdriver bld. torque screw SZ. 2, 3 |
| 1 | 445-10X | Screwdriver bld. torque screw SZ. 4, 5 |
| 1 | 445-20X | Screwdriver bld. torque screw SZ. 5, 6 |
| 1 | 445-30X | Screwdriver bld. torque screw SZ. 6, 8 |
| 1 | 446-0X | Phillips bld. torque screw SZ. 0, 1 |
| 1 | 446-1X | Phillips bld. torque screw SZ. 2, 3, 4 |
| 1 | 44-71-B | Adapter 1/4" drive |
| 1 | HW19 | Bit holder mini. torque |
| 1 | 1104 | 1/4" Dr. reg. socket 1/8" |
| 1 | 1106 | 1/4" Dr. reg. socket 3/16" |
| 1 | 1108 | 1/4" Dr. reg. socket 1/4" |
| 1 | 1110 | 1/4" Dr. reg. socket 5/16" |
| 1 | | Plas/case |
| 1 | | Insert |

Kit No. KT-130

Range 20 in.-oz. to 30 in.-lb.

43 piece

| Qty. | Part No. Comp. | Description |
|------|----------------|---|
| 1 | TS-30 | Adj. torque screwdriver 1/4" fm. hex |
| 1 | TS-100 | Adj. torque screwdriver 1/4" fm. hex |
| 1 | TW3D | Torque screwdriver bld. .080 |
| 2 | TW4D | Torque screwdriver bld. .100 |
| 1 | TW6D | Hex socket 3/32" |
| 2 | TW7D | Hex socket 7/64" |
| 1 | TW12D | Hex key .028 |
| 2 | TW13D | Hex key .035 |
| 2 | 185-000X | Screwdriver hex bit .050 |
| 2 | 185-00X | Screwdriver hex bit 1/16" |
| 2 | 185-0X | Screwdriver hex bit 5/64" |
| 1 | 185-3X | Screwdriver hex bit 3/32" |
| 1 | 185-2X | Screwdriver hex bit 1/8" |
| 1 | 185-3X | Screwdriver hex bit 5/32" |
| 2 | 445-00X | Screwdriver bld. torque screw SZ. 2, 3 |
| 2 | 445-10X | Screwdriver bld. torque screw SZ. 4, 5 |
| 1 | 445-20X | Screwdriver bld. torque screw SZ. 5, 6 |
| 1 | 445-30X | Screwdriver bld. torque screw SZ. 6, 8 |
| 2 | 446-0X | Phillips bld. torque screw SZ. 0, 1 |
| 2 | 446-1X | Phillips bld. torque screw SZ. 2, 3, 4 |
| 1 | 446-2X | Phillips bld. torque screw SZ. 4, 6, 7, 8, 10 |
| 2 | 44-71-B | Adapter 1/4" drive |
| 2 | HW19 | Bit holder mini. torque |
| 1 | 1104 | 1/4" Dr. reg. socket 1/8" |
| 1 | 1105 | 1/4" Dr. reg. socket 5/32" |
| 2 | 1106 | 1/4" Dr. reg. socket 3/16" |
| 1 | 1108 | 1/4" Dr. reg. socket 1/4" |
| 1 | 1110 | 1/4" Dr. reg. socket 5/16" |
| 1 | | Plas/case |
| 1 | | Insert |



CAUTION: 1. Under normal use, periodic recalibration may be necessary to ensure accurate readings and applied torque.
2. FOR EXTENDED SPRING LIFE, RETURN TO LOWEST SETTING AFTER EACH USE.

Torque Limiting Screwdrivers

Miniature Models



- Specifically designed for reliable tightening of the very smallest threaded fasteners.
- Largest model weighs only 1 oz.
- Operate in same manner as standard models — reach set torque and slip to prevent over-torquing of delicate components.
- Accuracy $\pm 6\%$, right hand only. Meets or exceeds ASME B107.14M and ISO 6789 specifications.
- Choice of micrometer adjustable or factory preset models.
- Calibration certificate can be requested when ordering.

Adjustable Models

| Model No. | Range | Increments | Drive | Length | | Weight | |
|-----------|-------|------------|-------|--------|----|--------|----|
| | | | | in. | mm | lbs. | kg |

U.S. Standard

| | | | | | | | |
|------|--------------|-------------|-------|-------|----|-----|-----|
| TT-1 | 5–20 in.-oz. | 1/4 in.-oz. | Univ. | 3.625 | 92 | .06 | .03 |
|------|--------------|-------------|-------|-------|----|-----|-----|

Preset Models

| Model No. | Range | | | Drive | Length | | Weight | |
|-----------|---------|---------|----------|-------|--------|----|--------|-----|
| | in.-oz. | Nm | cm-kg | | in. | mm | lbs. | kg |
| TT-SN-1 | 5–30 | .04–.21 | .36–2.16 | Univ. | 3.625 | 92 | .06 | .03 |

NOTE: When ordering preset tools, specify desired torque setting



TT-1

TT-SN-1

Torque Limiting Screwdrivers

Miniature Model Accessories & Kit



Slotted Bits

| Part No. | Blade Width | Blade Thickness | Screw Size |
|----------|-------------|-----------------|------------|
| TW0 | .040 | .004 | 0000,000 |
| TW1D | .055 | .006 | 0000,000 |
| TW2D | .070 | .006 | 000,00 |
| TW3D | .080 | .008 | 00,0,1 |
| TW4D | .100 | .010 | 0,1,2 |



Hex Sockets

| Part No. | Hex Size | Screw Size | Nut Size |
|----------|----------|------------|----------|
| TW5D | 5/64 | 000,00 | 000,00 |
| TW6D | 3/32 | 0 | - |
| TW7D | 7/64 | 1 | - |
| TW8D | 1/8 | 2 | - |
| TW9 | 5/32 | - | 0,1 |



Phillips Bits

| Part No. | Point Size | Screw Size |
|----------|------------|------------|
| TW10D | 0 | 0,1 |
| TW11D | 1 | 2, 3, 4 |

Miniature Kit No. KTT-1

Range 5-20 in.-oz. 29 piece

| Qty. | Part No. Comp. | Description |
|------|----------------|---------------------------------|
| 1 | TT-1 | Adj. torque screwdriver |
| 1 | TW0 | Torque screwdriver bld. .040 |
| 1 | TW1D | Torque screwdriver bld. .055 |
| 1 | TW2D | Torque screwdriver bld. .070 |
| 1 | TW3D | Torque screwdriver bld. .080 |
| 1 | TW4D | Torque screwdriver bld. .100 |
| 1 | TW10D | Phillips screwdriver SZ. 0,1 |
| 1 | TW11D | Phillips screwdriver SZ. 2,3,4 |
| 1 | 28715-01 | Spline key size .048 - 4 Flutes |
| 1 | 28715-02 | Spline key size .048 - 6 Flutes |
| 1 | 28715-03 | Spline key size .060 - 6 Flutes |
| 1 | 28715-04 | Spline key size .069 - 6 Flutes |
| 1 | 28715-05 | Spline key size .072 - 6 Flutes |
| 1 | 28715-06 | Spline key size .076 - 4 Flutes |
| 1 | 28715-07 | Spline key size .096 - 6 Flutes |
| 2 | HW20 | Bit holder universal torque |
| 1 | TW5D | Hex socket 5/64" |
| 1 | TW6D | Hex socket 3/32" |
| 1 | TW7D | Hex socket 7/64" |
| 1 | TW8D | Hex socket 1/8" |
| 1 | TW9 | Hex socket 5/32" |
| 1 | TW12D | Hex key .028 |
| 1 | TW13D | Hex key .035 |
| 1 | TW14D | Hex key .050 |
| 1 | TW15D | Hex key 1/16 |
| 1 | TW16D | Hex key 5/64 |
| 1 | Case | |
| 1 | Insert | |



Hex Keys

| Part No. | Hex Size | Cap Screw Size | Set Screw Size | Flathead Screw Size |
|----------|----------|----------------|----------------|---------------------|
| TW12D | .028 | - | 0 | - |
| TW13D | .035 | - | 1, 2 | 0 |
| TW14D | .050 | 0 | 3, 4 | 1, 2 |
| TW15D | 1/16 | 1 | 5, 6 | 3, 4 |
| TW16D | 5/64 | 2, 3 | 8 | 5, 6 |



Spline Key

| Part No. | Spline Size | No. of Flutes |
|----------|-------------|---------------|
| 28715-01 | .048 | 4 |
| 28715-02 | .048 | 6 |
| 28715-03 | .060 | 6 |
| 28715-04 | .069 | 6 |
| 28715-05 | .072 | 6 |
| 28715-06 | .076 | 4 |
| 28715-07 | .096 | 6 |



Universal Bit Holder

| Part No. | Description |
|----------|---|
| HW20 | This holder can be drilled out to accommodate odd keys and bits. Also used as an adapter for checking light duty torque screwdrivers on Torque Testers. |

CAUTION: 1. Under normal use, periodic recalibration may be necessary to ensure accurate readings and applied torque.
2. FOR EXTENDED SPRING LIFE, RETURN TO LOWEST SETTING AFTER EACH USE.

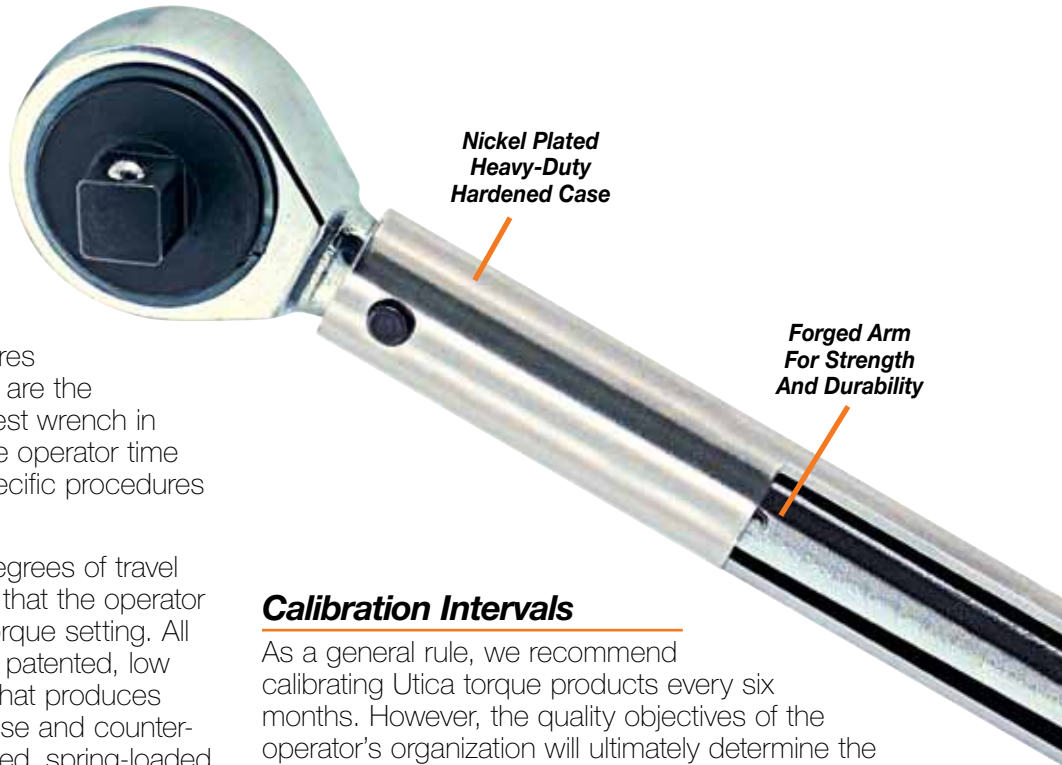
“Click” Type Torque Sensing Wrenches

Introduction



Utica click style torque wrenches are built to exacting standards to maintain maximum accuracy. Only top grade materials are used in Utica click wrenches. Working parts are heat-treated to increase durability and service life. Each wrench is tested with equipment traceable to NIST standards. Because of a high commonality of parts, the procedures for calibrating Utica click wrenches are the same from the smallest to the largest wrench in our product offering. This saves the operator time and the expense of developing specific procedures for different wrench sizes.

Utica's audible “click” plus a few degrees of travel provides a simple, quick indication that the operator has achieved the predetermined torque setting. All Utica click wrenches incorporate a patented, low friction torque control mechanism that produces highly accurate readings in clockwise and counter-clockwise directions. Plus, a patented, spring-loaded locking collar locks the scale on the desired torque setting. This prevents the operator from accidentally using the wrench in the unlocked position.



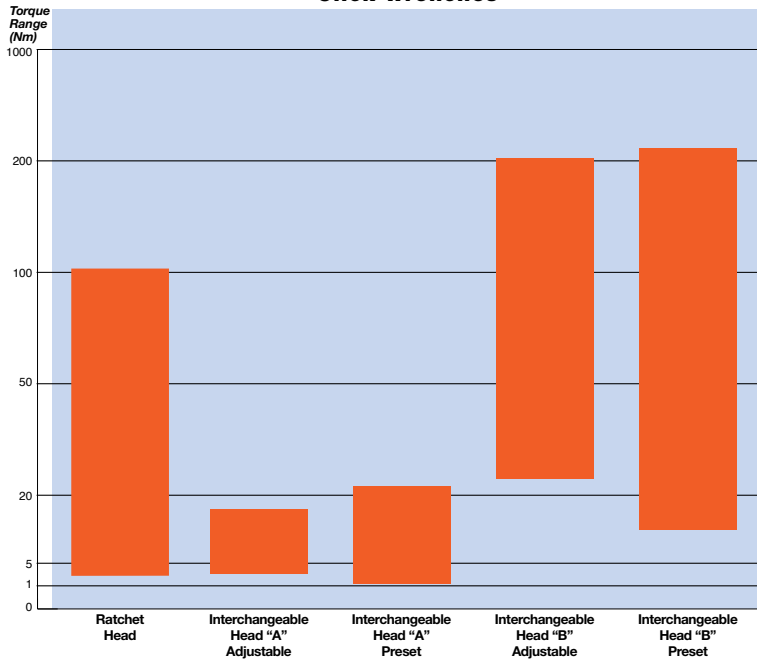
Calibration Intervals

As a general rule, we recommend calibrating Utica torque products every six months. However, the quality objectives of the operator's organization will ultimately determine the frequency of tool calibration.

Visit our website at www.uticatools.com to locate your nearest Utica Service Center for calibration.



Click Wrenches



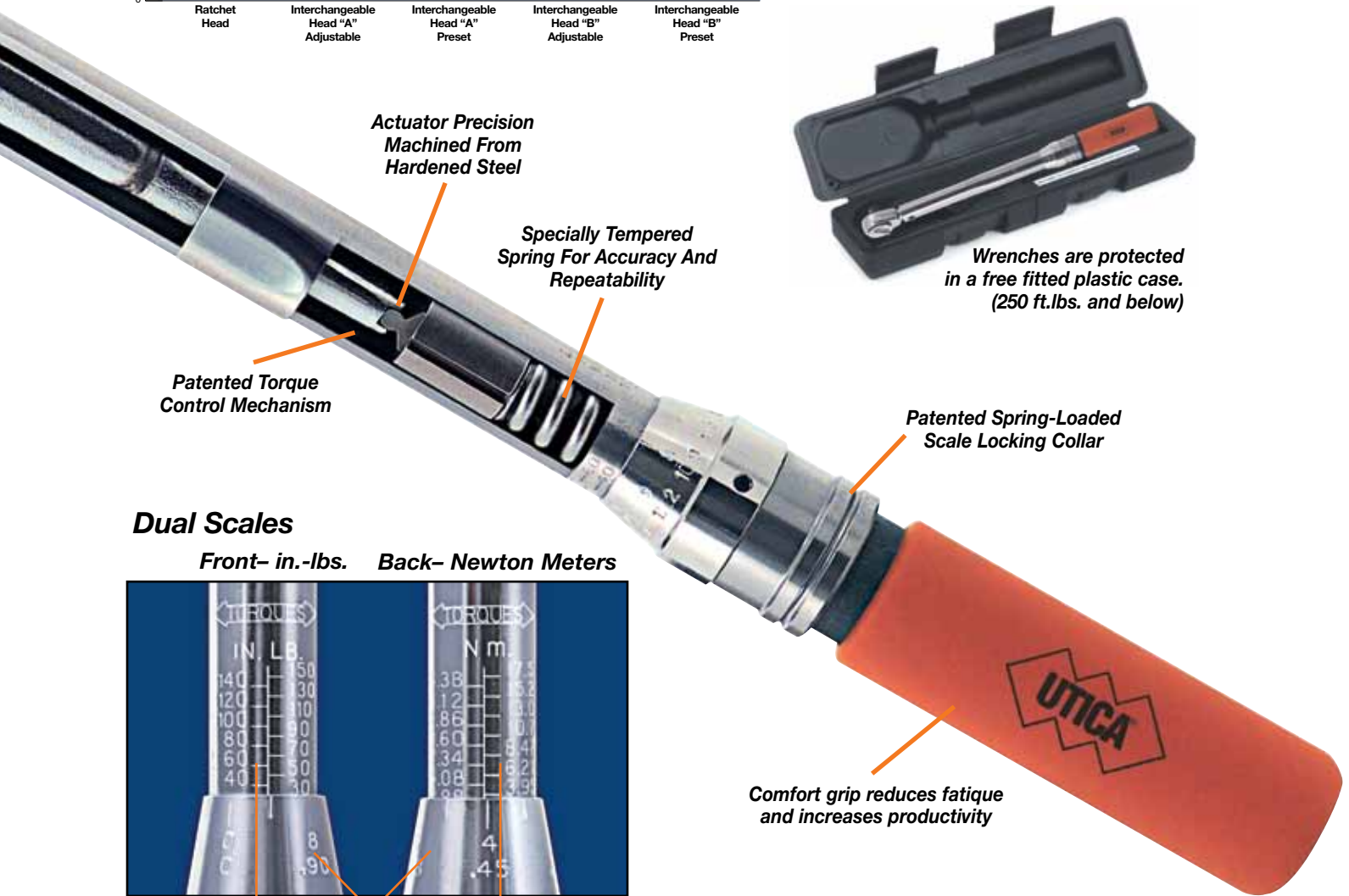
Ratchet Head Wrenches

Ratchets are mainly used in maintenance and assembly applications and provide fastening in both clockwise and counter-clockwise directions. A quick shift lever allows for easy single-hand shifting.



Interchangeable Head Wrenches

Interchangeable head wrenches accept a variety of heads, allowing for greater versatility. Bi-directional versatility is obtained by simply removing the head, turning the wrench over and replacing the head.



Actuator Precision Machined From Hardened Steel

Specially Tempered Spring For Accuracy And Repeatability

Patented Torque Control Mechanism

Patented Spring-Loaded Scale Locking Collar



Wrenches are protected in a free fitted plastic case. (250 ft.lbs. and below)

Dual Scales

Front- in.-lbs. Back- Newton Meters



Fine Adjustment
Major Adjustment

Comfort grip reduces fatigue and increases productivity

“Click” Type Torque Sensing Wrenches

Ratchet Head



- Drive Sizes: 1/4" through 1/2"
- Audible “click” and/or a few degrees of travel provide simple, fast indication of micrometer – accurate torque settings.
- Patented, low friction torque control mechanism produces accurate readings in either direction.
- Accuracy is $\pm 4\%$ of setting right hand (clockwise) and $\pm 6\%$ of setting left hand (counterclockwise) within upper 80% of scale.
- Two calibration adjustments (major and fine) permit easy and precise torque settings. Most conventional torque wrenches have only one adjustment.
- Dual scale models give readings in in.-lbs./Newton Meters or ft.-lbs./Newton Meters.
- Patented spring-loaded locking collar locks scale on desired reading and remains in locked position. Wrench cannot be left inadvertently unlocked.
- Heavy-duty, reversible ratchet models have quick-shift lever to allow easy single-hand shifting.
- Slim, lightweight design reduces fatigue and facilitates use in confined work areas.
- Store all adjustable models at their lowest torque setting.
- Calibration certificate can be requested when ordering.



“Click” Type Torque Sensing Wrenches

Ratchet Head



Ratchet Head (in.-lb. Graduations)

| Drive Size (in.) | Model No. | Range | | Graduations | | Length | | Weight | |
|------------------|----------------|---------|----------|-------------|-----|--------|-------|--------|-----|
| | | in.-lb. | Nm | in.-lb. | Nm | in. | mm | lb. | kg |
| 1/4 | TCI-150RA* | 30-150 | 3.4-17.0 | 1.0 | .11 | 9.5 | 241.3 | 0.9 | 0.4 |
| 3/8 | TCI-150RA-3/8* | 30-150 | 3.4-17.0 | 1.0 | .11 | 9.5 | 241.3 | 0.9 | 0.4 |
| 3/8 | TCI-250R* | 50-250 | 5.7-28.3 | 1.0 | .11 | 12.5 | 317.5 | 3.0 | 1.4 |
| 3/8 | TCI-750R | 150-750 | - | 5.0 | - | 14.25 | 362.0 | 3.4 | 1.5 |
| 1/2 | TCI-750R-1/2 | 150-750 | - | 5.0 | - | 14.5 | 368.3 | 2.5 | 1.1 |

Ratchet Head (ft.-lb. Graduations)

| Drive Size (in.) | Model No. | Range | | Graduations | | Length | | Weight | |
|------------------|------------|---------|----------|-------------|-----|--------|-------|--------|-----|
| | | ft.-lb. | Nm | ft.-lb. | Nm | in. | mm | lb. | kg |
| 3/8 | TCI-75FRN* | 15-75 | 20.3-102 | 0.5 | 0.7 | 14.25 | 362.0 | 2.2 | 1.0 |

*Dual Scale Models: Either in.-lb./Nm graduations, or ft.-lb./Nm graduations.

Torque Wrench Repair Kits



| Part No. | Repair Kit For: |
|----------|-------------------------|
| V702KR | TCI-150RA |
| V152KR | TCI-150RA3/8, TCI-250R |
| T702KR | TCI-75FRN, TCI-750R |
| T153KR | TCI-750R-1/2, TCI-1600R |

NOTE: Unless otherwise specified, all Utica® micrometer adjustable torque sensing wrenches are calibrated for use in both left and right hand directions.

“Click” Type Torque Sensing Wrenches

Interchangeable Head “A” Size Series



- Drive Sizes: 1/4" through 3/4"
- Accept variety of heads to suit specific application requirements.
- Common center principal allows simple exchange or replacement of heads without need for recalibration.
- Choice of micrometer adjustable or single setting (preset) models.
- Accuracy is $\pm 4\%$ of setting right hand and $\pm 6\%$ of setting left hand within upper 80% of scale.
- Calibration certificate can be requested when ordering.

Micrometer Adjustable Wrench – “A” Size

| Model No. | Range | | Graduations | | Length | | Weight | |
|-----------|---------|----------|-------------|-----|--------|-------|--------|-----|
| | in.-lb. | Nm | in.-lb. | Nm | in. | mm | lb. | kg |
| CH-150* | 30-150 | 3.4-17.0 | 1.0 | .11 | 9.0 | 228.6 | 1.0 | 0.5 |

*Note: Dual Scale Models: Either in.-lb./Nm graduations, or ft.-lb./Nm graduations.

Single Setting (Preset) Wrench – “A” Size*

| Model No. | Range | | | | Length | | Weight | |
|-----------|---------|--------|---------|--------|--------|-------|--------|------|
| | in.-lb. | Nm | ft.-lb. | cm-kg | in. | mm | lb. | kg |
| CHA-6 | 10-50 | 1.2-6 | 0.9-4.5 | 12-60 | 5.32 | 135.1 | 0.17 | 0.08 |
| CHA-11 | 20-100 | 2.2-11 | 1.6-8 | 22-110 | 5.75 | 146.1 | 0.3 | 0.14 |
| CHA-23 | 40-200 | 4.6-23 | 3.4-17 | 46-230 | 7.75 | 196.9 | 0.4 | 0.18 |

NOTE: Single setting wrenches do not have a scale and must be set on torque tester.
When ordering these preset tools, specify desired torque setting.



Head changes are quick and easy without the need for recalibration.

CH-150



CHA-23



"Click" Type Torque Sensing Wrenches

"A" Size Interchangeable Heads



Open End U.S. Standard "A"

| Opening Size | Part No. | Maximum Torque Load | | |
|--------------|----------|---------------------|---------|-----|
| | | in.-lb. | ft.-lb. | Nm |
| 1/8 | OP 42 | 20 | 1.7 | 2.3 |
| 5/32 | OP 52 | 35 | 2.9 | 4.0 |
| 3/16 | OP 62 | 45 | 3.8 | 5.1 |
| 7/32 | OP 72 | 50 | 4.2 | 5.6 |
| 1/4 | OP 82 | 67 | 5.6 | 7.6 |
| 9/32 | OP 92 | 78 | 6.5 | 8.8 |
| 5/16 | OP 102 | 138 | 12 | 16 |
| 11/32 | OP 112 | 193 | 16 | 22 |
| 3/8 | OP 122 | 275 | 23 | 31 |
| 7/16 | OP 142 | 410 | 34 | 46 |
| 1/2 | OP 162 | 420 | 35 | 48 |
| 9/16 | OP 182 | 420 | 35 | 48 |
| 5/8 | OP 202 | 420 | 35 | 48 |
| 11/16 | OP 222 | 420 | 35 | 48 |
| 3/4 | OP 242 | 420 | 35 | 48 |

Open End Metric "A"

| Opening Size | Part No. | Maximum Torque Load | | |
|--------------|----------|---------------------|---------|----|
| | | in.-lb. | ft.-lb. | Nm |
| 6mm | MO 62 | 62 | 5.1 | 7 |
| 7mm | MO 72 | 71 | 5.9 | 8 |
| 8mm | MO 82 | 133 | 11 | 15 |
| 9mm | MO 92 | 186 | 16 | 21 |
| 10mm | MO 102 | 274 | 23 | 31 |
| 11mm | MO 112 | 410 | 34 | 46 |
| 12mm | MO 122 | 420 | 35 | 48 |
| 13mm | MO 132 | 420 | 35 | 48 |
| 14mm | MO 142 | 420 | 35 | 48 |
| 15mm | MO152 | 420 | 35 | 48 |



Plain Square Drive "A"

| Drive Size | Part No. | Maximum Torque Load | | |
|------------|----------|---------------------|---------|----|
| | | in.-lb. | ft.-lb. | Nm |
| 1/4 | PS 82 | 203.41 | 16.95 | 23 |
| 3/8 | PS 122 | 203.41 | 16.95 | 23 |



Ratcheting Square Drive "A"

| Drive Size | Part No. | Maximum Torque Load | | |
|------------|----------|---------------------|---------|----|
| | | in.-lb. | ft.-lb. | Nm |
| 1/4 | RS 82 | 203.41 | 16.95 | 23 |
| 3/8 | RS 182 | 203.41 | 16.95 | 23 |

Ratchet Repair Kits

| Part No. | Repair Kit |
|----------|------------|
| RS 82 | V702KR |
| RS 182 | V152KR |



12 Point Box U.S. Standard "A"

| Opening Size | Part No. | Maximum Torque Load | | |
|--------------|----------|---------------------|---------|-----|
| | | in.-lb. | ft.-lb. | Nm |
| 7/32 | LB 72 | 50 | 4.0 | 5.6 |
| 1/4 | LB 82 | 67 | 5.6 | 7.6 |
| 5/16 | LB 102 | 138 | 12 | 7.6 |
| 3/8 | LB 122 | 275 | 23 | 31 |
| 7/16 | LB 142 | 410 | 34 | 48 |
| 1/2 | LB 162 | 420 | 35 | 48 |
| 9/16 | LB 182 | 420 | 35 | 48 |
| 5/8 | LB 202 | 420 | 35 | 48 |
| 11/16 | LB 222 | 420 | 35 | 48 |
| 3/4 | LB 242 | 420 | 35 | 48 |

12 Point Box Metric "A"

| Opening Size | Part No. | Maximum Torque Load | | |
|--------------|----------|---------------------|---------|----|
| | | in.-lb. | ft.-lb. | Nm |
| 6mm | MB 62 | 62 | 5.2 | 7 |
| 7mm | MB 72 | 71 | 5.9 | 8 |
| 8mm | MB 82 | 133 | 11 | 15 |
| 9mm | MB 92 | 186 | 15 | 21 |
| 10mm | MB 102 | 274 | 23 | 31 |
| 11mm | MB 112 | 410 | 34 | 46 |
| 12mm | MB 122 | 420 | 35 | 48 |
| 13mm | MB 132 | 420 | 35 | 48 |
| 14mm | MB 142 | 420 | 35 | 48 |
| 15mm | MB 152 | 420 | 35 | 48 |



SAE Size Sockets

| Part No. | Square Drive (in.) | Hex Opening (in.) |
|----------|--------------------|-------------------|
| 1108 | 1/4 | 1/4 |
| 1110 | 1/4 | 5/16 |
| 1112 | 1/4 | 3/8 |
| 1114 | 1/4 | 7/16 |
| 3108 | 3/8 | 1/4 |
| 3110 | 3/8 | 5/16 |
| 3112 | 3/8 | 3/8 |
| 3114 | 3/8 | 7/16 |
| 3116 | 3/8 | 1/2 |
| 3118 | 3/8 | 9/16 |
| 3120 | 3/8 | 5/8 |

Metric Size Sockets

| Part No. | Square Drive (in.) | Hex Opening (mm) |
|----------|--------------------|------------------|
| 6mm11 | 1/4 | 6mm |
| 7mm11 | 1/4 | 7mm |
| 8mm11 | 1/4 | 8mm |
| 10mm11 | 1/4 | 10mm |
| 10mm13 | 3/8 | 10mm |
| 11mm13 | 3/8 | 11mm |
| 12mm13 | 3/8 | 12mm |
| 13mm13 | 3/8 | 13mm |
| 14mm13 | 3/8 | 14mm |
| 15mm13 | 3/8 | 15mm |
| 16mm13 | 3/8 | 16mm |



Flare Nut U.S. Standard "A"

| Opening Size | Part No. | Maximum Torque Load | | |
|--------------|----------|---------------------|---------|----|
| | | in.-lb. | ft.-lb. | Nm |
| 3/8 | LF 122 | 130 | 11 | 15 |
| 7/16 | LF 142 | 140 | 12 | 16 |
| 1/2 | LF 162 | 200 | 17 | 23 |
| 9/16 | LF 182 | 275 | 23 | 31 |
| 5/8 | LF 202 | 325 | 27 | 37 |
| 11/16 | LF 222 | 396 | 33 | 45 |
| 3/4 | LF 242 | 420 | 35 | 48 |



Hex Keys U.S. Standard "A"

| Hex Key Size | Part No. | Maximum Torque Load | | |
|--------------|----------|---------------------|---------|-----|
| | | in.-lb. | ft.-lb. | Nm |
| 1/16 | HX 42 | 8 | 0.6 | 0.9 |
| 5/64 | HX 52 | 16 | 1.3 | 1.8 |
| 3/32 | HX 62 | 28 | 2.3 | 3.2 |
| 7/64 | HX 72 | 44 | 3.6 | 5.0 |
| 1/8 | HX 82 | 65 | 5.4 | 7.3 |
| 9/64 | HX 92 | 95 | 7.9 | 11 |
| 5/32 | HX 102 | 128 | 11 | 14 |
| 3/16 | HX 122 | 222 | 18 | 25 |
| 7/32 | HX 142 | 350 | 29 | 40 |
| 1/4 | HX 162 | 420 | 35 | 48 |



Bit Holders

| Part No. | Square Drive (in.) | Female Hex (in.) |
|----------|--------------------|------------------|
| 825 | 1/4 | 1/4 |
| M-825 | 1/4 | 1/4 Magnetic |
| 838 | 3/8 | 1/4 |
| M-838 | 3/8 | 1/4 Magnetic |

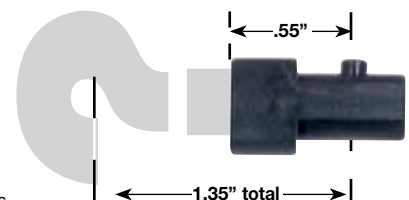


Adapters

| Part No. | Female Square Drive (in.) | Male Square Drive (in.) |
|----------|---------------------------|-------------------------|
| EX-372 | 1/4 | 3/8 |
| EX-254 | 3/8 | 1/4 |
| EX-503 | 3/8 | 1/2 |

Head Adapter "A" 28522

Weld custom heads to adapters to couple with "A" handles to meet specific applications.



NOTES: 1. "A" series drive heads are not interchangeable with "B" series heads.

2. Utica torque heads when used with Utica torque wrenches, meet the accuracy statements for Utica wrenches. We cannot guarantee accuracy when other manufacturers heads or wrenches are interchanged with a Utica part.

“Click” Type Torque Sensing Wrenches

Interchangeable Head “B” Size Series



- Designed for higher torque applications than “A” size series.
- Accept a variety of head configurations to suit many fastener requirements.
- Common center principal allows simple exchange or replacement of heads without need for recalibration.
- Choice of micrometer adjustable or single setting (preset) models with same “click” action and features as “A” series wrenches.
- Accuracy is $\pm 4\%$ of setting right hand and $\pm 6\%$ of setting left hand within upper 80% of scale.
- Calibration certificate can be requested when ordering.

Micrometer Adjustable Wrench – “B” Size

| Model No. | Range | | Graduations | | Length | | Weight | |
|-----------|---------|----------|-------------|-----|--------|-------|--------|-----|
| | ft.-lb. | Nm | ft.-lb. | Nm | in. | mm | lb. | kg |
| CH-75F* | 15-75 | 20.3-102 | 0.5 | 0.7 | 14.0 | 355.6 | 2.0 | 0.9 |
| CH-150F* | 30-150 | 40.7-203 | 1.0 | 1.4 | 17.1 | 435.0 | 2.5 | 1.1 |

*Note: Dual Scale Models: Either in.-lb./Nm graduations, or ft.-lb./Nm graduations.

Single Setting (Preset) Wrench – “B” Size*

| Model No. | Range | | | | Length | | Weight | |
|-----------|----------|--------|-----------|----------|--------|-------|--------|-----|
| | in.-lb. | Nm | ft.-lb. | cm-kg | in. | mm | lb. | kg |
| CHB-55 | 100-500 | 11-55 | 8-40 | 112-560 | 8.25 | 209.6 | 1.0 | 0.5 |
| CHB-85 | 150-750 | 17-85 | 12.5-62.5 | 172-860 | 10.5 | 266.7 | 1.3 | 0.6 |
| CHB-110 | 200-1000 | 22-110 | 16-80 | 224-1120 | 12.5 | 317.5 | 1.5 | 0.7 |
| CHB-170 | 300-1500 | 34-170 | 25-125 | 346-1730 | 14.25 | 362.0 | 1.7 | 0.8 |
| CHB-225 | 400-2000 | 45-225 | 33-165 | 460-2300 | 16.25 | 412.8 | 1.9 | 0.9 |

NOTE: Single setting wrenches do not have a scale and must be set on torque tester.
When ordering these preset tools, specify desired torque setting.



CH-75F



CHB-110



"Click" Type Torque Sensing Wrenches

"B" Size Interchangeable Heads



12 Point Flare Nut U.S. Standard "B"

| Opening Size | Part No. | Maximum Torque Load | | |
|--------------|----------|---------------------|---------|-----|
| | | in.-lb. | ft.-lb. | Nm |
| 1/2 | LF 164 | 200 | 17 | 23 |
| 9/16 | LF 184 | 275 | 23 | 31 |
| 5/8 | LF 204 | 325 | 27 | 37 |
| 11/16 | LF 224 | 396 | 33 | 45 |
| 3/4 | LF 244 | 500 | 42 | 56 |
| 7/8 | LF 284 | 800 | 67 | 90 |
| 1 | LF 324 | 1000 | 83 | 113 |
| 1 1/8 | LF 364 | 1000 | 83 | 113 |



Open End U.S. Standard "B"

| Opening Size | Part No. | Maximum Torque Load | | |
|--------------|----------|---------------------|---------|-----|
| | | in.-lb. | ft.-lb. | Nm |
| 1/2 | OP 164 | 550 | 46 | 62 |
| 9/16 | OP 184 | 770 | 64 | 87 |
| 5/8 | OP 204 | 1100 | 92 | 124 |
| 11/16 | OP 224 | 1375 | 115 | 155 |
| 3/4 | OP 244 | 1650 | 138 | 186 |
| 13/16 | OP 264 | 2100 | 175 | 237 |
| 7/8 | OP 284 | 2100 | 175 | 237 |
| 15/16 | OP 304 | 2100 | 175 | 237 |
| 1 | OP 324 | 2100 | 175 | 237 |
| 1 1/16 | OP 344 | 2100 | 175 | 237 |
| 1 1/8 | OP 364 | 2100 | 175 | 237 |
| 1 3/16 | OP 384 | 2100 | 175 | 237 |
| 1 1/4 | OP 404 | 2100 | 175 | 237 |



12 Point Box U.S. Standard "B"

| Opening Size | Part No. | Maximum Torque Load | | |
|--------------|----------|---------------------|---------|-----|
| | | in.-lb. | ft.-lb. | Nm |
| 1/2 | LB 164 | 550 | 46 | 62 |
| 9/16 | LB 184 | 770 | 64 | 87 |
| 5/8 | LB 204 | 1100 | 92 | 124 |
| 11/16 | LB 224 | 1375 | 115 | 155 |
| 3/4 | LB 244 | 1650 | 138 | 186 |
| 13/16 | LB 264 | 2100 | 175 | 237 |
| 7/8 | LB 284 | 2100 | 175 | 237 |
| 15/16 | LB 304 | 2100 | 175 | 237 |
| 1 | LB 324 | 2100 | 175 | 237 |
| 1 1/16 | LB 344 | 2100 | 175 | 237 |
| 1 1/8 | LB 364 | 2100 | 175 | 237 |



RS 124

Ratcheting Square Drive "B"

| Drive Size | Part No. | Maximum Torque Load | | |
|------------|----------|---------------------|---------|-------|
| | | in.-lb. | ft.-lb. | Nm |
| 3/8 | RS 124 | 1199.25 | 99.94 | 135.6 |
| 1/2 | RS 164 | 1992.0 | 166.0 | 225.0 |

Ratchet Repair Kits

| Part No. | Repair Kit |
|----------|------------|
| RS124 | T702KR |
| RS164 | T153KR |



SAE Size Sockets

| Part No. | Square Drive (in.) | Hex Opening (in.) |
|----------|--------------------|-------------------|
| 3108 | 3/8 | 1/4 |
| 3110 | 3/8 | 5/16 |
| 3112 | 3/8 | 3/8 |
| 3114 | 3/8 | 7/16 |
| 3116 | 3/8 | 1/2 |
| 3118 | 3/8 | 9/16 |
| 3120 | 3/8 | 5/8 |
| 5110 | 1/2 | 5/16 |
| 5112 | 1/2 | 3/8 |
| 5114 | 1/2 | 7/16 |
| 5116 | 1/2 | 1/2 |
| 5118 | 1/2 | 9/16 |
| 5120 | 1/2 | 5/8 |
| 5122 | 1/2 | 11/16 |
| 5124 | 1/2 | 3/4 |
| 7120 | 3/4 | 5/8 |
| 7124 | 3/4 | 3/4 |
| 7128 | 3/4 | 7/8 |
| 7130 | 3/4 | 15/16 |
| 7132 | 3/4 | 1 |

Open End Metric "B"

| Opening Size | Part No. | Maximum Torque Load | | |
|--------------|----------|---------------------|---------|-----|
| | | in.-lb. | ft.-lb. | Nm |
| 12mm | MO 124 | 434 | 36 | 49 |
| 13mm | MO 134 | 549 | 46 | 62 |
| 14mm | MO 144 | 761 | 63 | 86 |
| 15mm | MO 154 | 920 | 77 | 104 |
| 16mm | MO 164 | 1097 | 92 | 124 |
| 17mm | MO 174 | 1230 | 103 | 139 |
| 18mm | MO 184 | 1372 | 114 | 155 |
| 19mm | MO 194 | 1646 | 137 | 186 |
| 20mm | MO 204 | 1921 | 160 | 217 |
| 22mm | MO 224 | 2100 | 175 | 237 |
| 36mm | MO 364 | 2100 | 175 | 237 |

Metric Size Sockets

| Part No. | Square Drive (in.) | Hex Opening (mm) |
|----------|--------------------|------------------|
| 10mm13 | 3/8 | 10mm |
| 11mm13 | 3/8 | 11mm |
| 12mm13 | 3/8 | 12mm |
| 13mm13 | 3/8 | 13mm |
| 14mm13 | 3/8 | 14mm |
| 15mm13 | 3/8 | 15mm |
| 16mm13 | 3/8 | 16mm |
| 13mm15 | 1/2 | 13mm |
| 14mm15 | 1/2 | 14mm |
| 15mm15 | 1/2 | 15mm |
| 16mm15 | 1/2 | 16mm |
| 17mm15 | 1/2 | 17mm |
| 18mm15 | 1/2 | 18mm |
| 19mm15 | 1/2 | 19mm |
| 20mm15 | 1/2 | 20mm |
| 21mm15 | 1/2 | 21mm |
| 19mm17 | 3/4 | 19mm |
| 21mm17 | 3/4 | 21mm |
| 22mm17 | 3/4 | 22mm |
| 14mm17 | 3/4 | 24mm |
| 30mm17 | 3/4 | 30mm |

12 Point Box Metric "B"

| Opening Size | Part No. | Maximum Torque Load | | |
|--------------|----------|---------------------|---------|-----|
| | | in.-lb. | ft.-lb. | Nm |
| 12mm | MB 124 | 434 | 36 | 49 |
| 13mm | MB 134 | 549 | 46 | 62 |
| 14mm | MB 144 | 761 | 63 | 86 |
| 15mm | MB 154 | 920 | 77 | 104 |
| 16mm | MB 164 | 1097 | 92 | 124 |
| 17mm | MB 174 | 1230 | 103 | 139 |
| 18mm | MB 184 | 1372 | 114 | 155 |
| 19mm | MB 194 | 1646 | 137 | 186 |
| 20mm | MB 204 | 1921 | 160 | 217 |
| 22mm | MB 224 | 2100 | 175 | 237 |

Bit Holders



| Part No. | Square Drive (in.) | Female Hex (in.) |
|----------|--------------------|------------------|
| 825 | 1/4 | 1/4 |
| M-825 | 1/4 | 1/4 Magnetic |
| 838 | 3/8 | 1/4 |
| M-838 | 3/8 | 1/4 Magnetic |
| 858 | 1/2 | 1/4 |
| M-858 | 1/2 | 1/4 Magnetic |

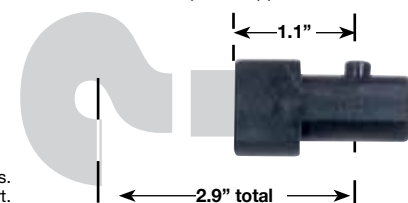
Adapters



| Part No. | Female Square Drive (in.) | Male Square Drive (in.) |
|----------|---------------------------|-------------------------|
| EX-254 | 3/8 | 1/4 |
| EX-503 | 3/8 | 1/2 |
| EX-375 | 1/2 | 3/8 |
| EX-623 | 1/2 | 5/8 |
| EX-751 | 1/2 | 3/4 |

Head Adapter "B" 28523

Weld custom heads to adapters to couple with "B" handles to meet specific applications.



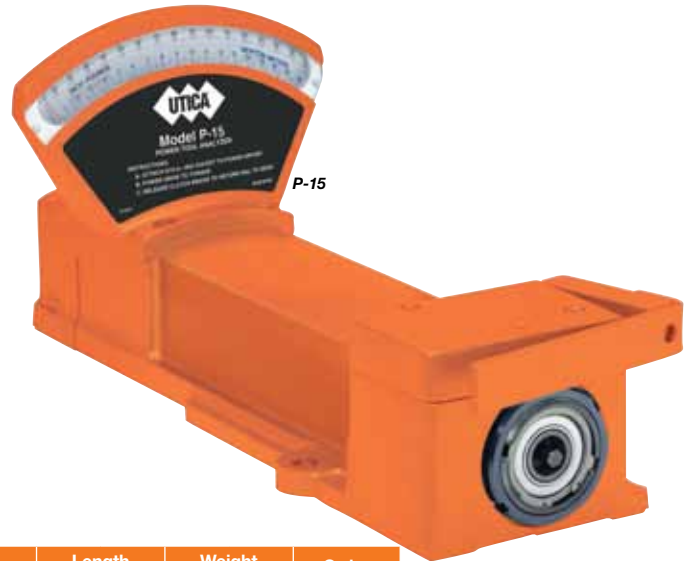
NOTES: 1. "A" series drive heads are not interchangeable with "B" series heads.

2. Utica torque heads when used with Utica torque wrenches, meet the accuracy statements for Utica wrenches. We cannot guarantee accuracy when other manufacturers heads or wrenches are interchanged with a Utica part.



Torque Analyzers

- Ideal for setting torque on pneumatic tools
- Accuracy of +/- 1% to nearest increment
- English or metric scale
- Quick brake release
- Easy to read dial



P-15 Torque Analyzer

| Model No. | Graduations | Capacity | Height | | Width | | Length | | Weight | | Order No. |
|----------------|-------------|---------------|--------|-----|-------|-----|--------|-----|--------|------|-----------|
| | | | In. | mm | In. | mm | In. | mm | Lbs. | kg | |
| P-15 | 2 in.-lbs. | 5-150 in.lbs. | 8 | 203 | 5 | 127 | 18 | 457 | 23 | 10.4 | 810002PT |
| MP-15 (metric) | 5 cm-kg | 5-173 cm-kg | 8 | 203 | 5 | 127 | 18 | 457 | 23 | 10.4 | 810151 |

General

Drive Size: 5/16" male hex

APEX®

Quality Fastener Tools

For more than half a century Apex has maintained the position of world leader in industrial fastening tools. Many power and insert bits, socket combinations and other drivers/adapters pioneered by Apex have today become industry standards, while Apex quality, service and selection give you unsurpassed value.

■ More Quality For Your Money

Apex quality starts with the selection of raw materials. Only carefully chosen, high grade tool steel is used to make Apex industrial fastener tools. Next, each tool is precision machined from solid bar stock to exacting standards of accuracy. You always get a snug, secure fit – a fit that is not possible from stamped tools.

Finally, each Apex fastener tool is tempered with our exclusive heat treating process. During this step the degree of hardness is determined based upon the application.

■ Fast Delivery

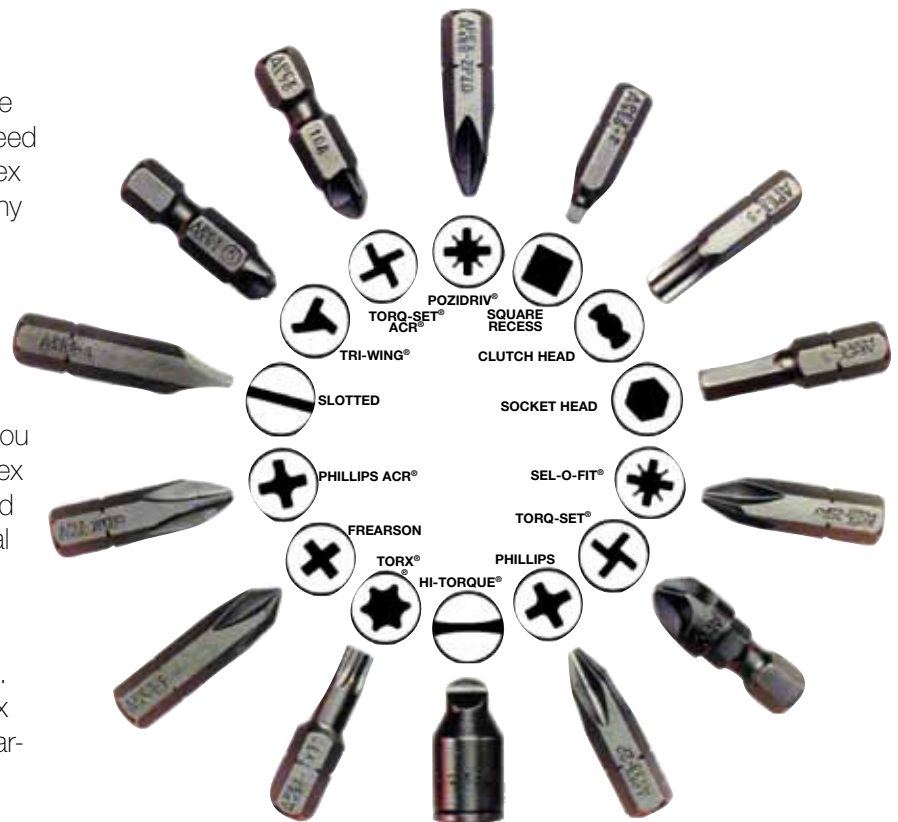
All Apex standard catalog items are available off-the-shelf for immediate delivery. If you need special assistance with your order, your Apex manufacturer's representative can handle any questions you may have.

■ Special Orders

Apex offers the broadest selection of screw driver and nut runner tools available, from bits, sockets and universal wrenches to extensions, adapters and nut setters. If you have a special application, contact your Apex representative. We may have what you need in stock, or can design and produce special fastener tools for almost any application.

■ Ordering Information

Apex products are distributed world-wide. For a catalog of the complete line of Apex quality fastener tools or to locate your nearest Apex distributor, visit our website at www.apex-tools.com.



Conversion Tables

Torque – Miscellaneous



| Torque Conversion – In. Lbs. (Nm)* | | | | | |
|------------------------------------|-----|----------|------|----------|------|
| In. Lbs. | Nm | In. Lbs. | Nm | In. Lbs. | Nm |
| 5 | 0.6 | 50 | 5.7 | 140 | 15.8 |
| 10 | 1.1 | 60 | 6.8 | 150 | 17.0 |
| 15 | 1.7 | 70 | 7.9 | 160 | 18.1 |
| 20 | 2.3 | 80 | 9.0 | 170 | 19.2 |
| 25 | 2.8 | 90 | 10.2 | 180 | 20.3 |
| 30 | 3.4 | 100 | 11.3 | 190 | 21.5 |
| 35 | 4.0 | 110 | 12.4 | 200 | 22.6 |
| 40 | 4.5 | 120 | 13.6 | | |
| 45 | 5.1 | 130 | 14.7 | | |

*Rounded values.

| Torque Conversion – Ft. Lbs. (Nm)* | | | | | |
|------------------------------------|------|----------|-------|----------|-------|
| Ft. Lbs. | Nm | Ft. Lbs. | Nm | Ft. Lbs. | Nm |
| 1 | 1.36 | 43 | 58.3 | 85 | 115.3 |
| 2 | 2.7 | 44 | 60.0 | 86 | 117.0 |
| 3 | 4.1 | 45 | 61.0 | 87 | 118.0 |
| 4 | 5.4 | 46 | 62.4 | 88 | 119.3 |
| 5 | 6.8 | 47 | 63.7 | 89 | 121.0 |
| 6 | 8.1 | 48 | 65.1 | 90 | 122.0 |
| 7 | 9.5 | 49 | 66.4 | 91 | 123.4 |
| 8 | 10.9 | 50 | 67.8 | 92 | 125.0 |
| 9 | 12.2 | 51 | 69.2 | 93 | 126.1 |
| 10 | 13.6 | 52 | 70.5 | 94 | 127.5 |
| 11 | 14.9 | 53 | 71.9 | 95 | 129.0 |
| 12 | 16.3 | 54 | 73.2 | 96 | 130.2 |
| 13 | 17.6 | 55 | 74.6 | 97 | 131.5 |
| 14 | 19.0 | 56 | 75.9 | 98 | 133.0 |
| 15 | 20.3 | 57 | 77.3 | 99 | 134.2 |
| 16 | 21.7 | 58 | 78.7 | 100 | 135.6 |
| 17 | 23.1 | 59 | 80.0 | 110 | 149.2 |
| 18 | 24.4 | 60 | 81.4 | 115 | 156.0 |
| 19 | 25.8 | 61 | 82.7 | 120 | 163.0 |
| 20 | 27.1 | 62 | 84.1 | 125 | 170.0 |
| 21 | 28.5 | 63 | 85.4 | 130 | 176.3 |
| 22 | 29.8 | 64 | 86.8 | 135 | 183.1 |
| 23 | 31.2 | 65 | 88.1 | 140 | 190.0 |
| 24 | 32.5 | 66 | 90.0 | 145 | 197.0 |
| 25 | 33.9 | 67 | 90.9 | 150 | 203.4 |
| 26 | 35.3 | 68 | 92.2 | 155 | 210.2 |
| 27 | 36.6 | 69 | 93.6 | 160 | 217.0 |
| 28 | 38.0 | 70 | 94.9 | 165 | 224.0 |
| 29 | 39.3 | 71 | 96.3 | 170 | 231.0 |
| 30 | 40.7 | 72 | 97.6 | 175 | 237.3 |
| 31 | 42.0 | 73 | 99.0 | 180 | 244.1 |
| 32 | 43.4 | 74 | 100.3 | 185 | 251.0 |
| 33 | 44.8 | 75 | 102.0 | 190 | 258.0 |
| 34 | 46.1 | 76 | 103.1 | 195 | 264.4 |
| 35 | 47.5 | 77 | 104.4 | 200 | 271.2 |
| 36 | 48.8 | 78 | 105.8 | 225 | 305.1 |
| 37 | 50.2 | 79 | 107.1 | 250 | 339.0 |
| 38 | 52.0 | 80 | 108.5 | 275 | 373.0 |
| 39 | 52.9 | 81 | 110.0 | 300 | 407.0 |
| 40 | 54.2 | 82 | 111.2 | 350 | 475.0 |
| 41 | 55.6 | 83 | 112.6 | 400 | 542.4 |
| 42 | 57.0 | 84 | 114.0 | | |

*Rounded values.

| Torque Conversion Factors | | |
|---------------------------|---------------|-------------|
| To Convert | Into | Multiply By |
| Inch Pounds | Foot Pounds | 0.0835 |
| Inch Pounds | Newton meters | 0.1130 |
| Inch Pounds | Kg-meters | 0.0115 |
| Inch Pounds | Kg-Cm | 1.1519 |
| Foot Pounds | Inch Pounds | 12.000 |
| Foot Pounds | Newton meters | 1.3560 |
| Foot Pounds | Kg-meters | 0.1382 |
| Foot Pounds | Kg-Cm | 13.8240 |
| Newton Meters | Inch Pounds | 8.8440 |
| Newton Meters | Foot Pounds | 0.7370 |
| Newton Meters | Kg-meters | 0.1020 |
| Newton Meters | Kg-Cm | 10.2000 |
| Kg meters | Inch Pounds | 86.8100 |
| Kg meters | Foot Pounds | 7.2340 |
| Kg meters | Newton-meters | 9.8040 |
| Kg Cm | Inch Pounds | 0.8681 |
| Kg Cm | Foot Pounds | 0.0723 |
| Kg Cm | Newton-meters | 0.0980 |

| Miscellaneous Conversion Factors | | |
|----------------------------------|-------------|-------------|
| To Convert | Into | Multiply By |
| Inches | Millimeters | 25.4000 |
| Millimeters | Inches | 0.0394 |
| Pounds | Kilograms | 0.4536 |
| Kilograms | Pounds | 2.2050 |
| psi | bar | 0.069 |
| bar | psi | 14.5 |

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