

# Torque Products

Utica®



 **COOPER** Power Tools

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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.

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825	9,17,19	185-1X	9	DA-35	20	MB 164	19	T154KR	15
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3118	17,19	440-3X	9	HW-20	11	OP 122	17	TCI-150RA	15
3120	17,19	445-00X	9	HX 102	17	OP 142	17	TCI-150RA-3/8	15
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5114	19	445-20X	9	HX 162	17	OP 182	17	TCI-250FRN	15
5116	19	445-30X	9	HX 42	17	OP 184	19	TCI-250R	15
5118	19	446-0X	9	HX 52	17	OP 202	17	TCI-600FRN	15
5120	19	446-1X	9	HX 62	17	OP 204	19	TCI-7250R	15
5122	19	446-2X	9	HX 72	17	OP 222	17	TCI-750	15
5124	19	6mm11	9,17	HX 82	17	OP 224	19	TCI-750R	15
7120	19	7mm11	9,17	HX 92	17	OP 242	17	TCI-750R-1/2	15
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185-00X	9	CHB-85	18	M-858	19	RS 164	19	V702KR	15
185-0X	9	DA-8	20	MB 134	19	RS 82	17		
185-10X	9	DA-16	20	MB 154	19	T153KR	15		

Cooper Power Tools Division has attained ISO 9001 Quality System Certification for seven of our facilities. The driving force behind the implementation of the Quality System is the commitment "to provide our customers with the **best value delivered** by offering only products and services **that meet or exceed their expectations**".



Lexington, South Carolina



Dayton, Ohio



Hicksville, Ohio



Springfield, Ohio



Braunschweig, Germany



Westhausen, Germany



Ozoir-la-Ferrière, France

# Utica® Torque Products

## Introduction



Utica products offer high quality solutions for your torque applications ranging from torque screwdrivers, click-, dial- and beam wrenches, to electronic torque analyzers. 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. Certification may be provided with each tool for a nominal charge. Cooper Power Tools 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.

### 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.

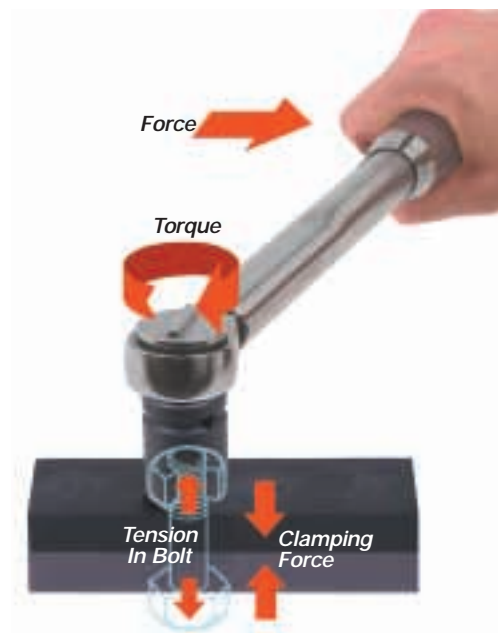
To locate your nearest Utica Service Center for calibration, simply visit our website at [www.uticatools.com](http://www.uticatools.com).

### Ordering Information

Utica products are distributed world-wide. To locate your nearest Utica distributor, visit our website at [www.uticatools.com](http://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 is 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.



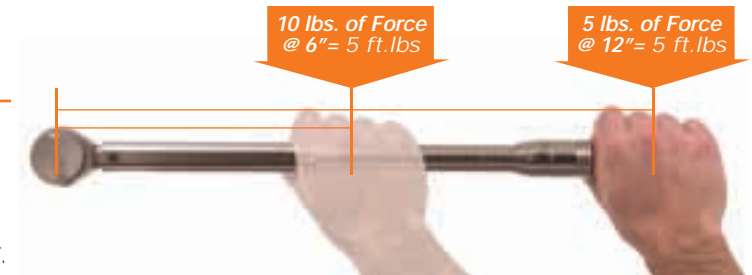
When torque is applied to the head of a bolt during a fastening process, there are actually two main forces at work. First, we are applying a force - torque to the bolt head to tighten it. The second force at work is the tension or stretch created that runs the length of the bolt. These two forces are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



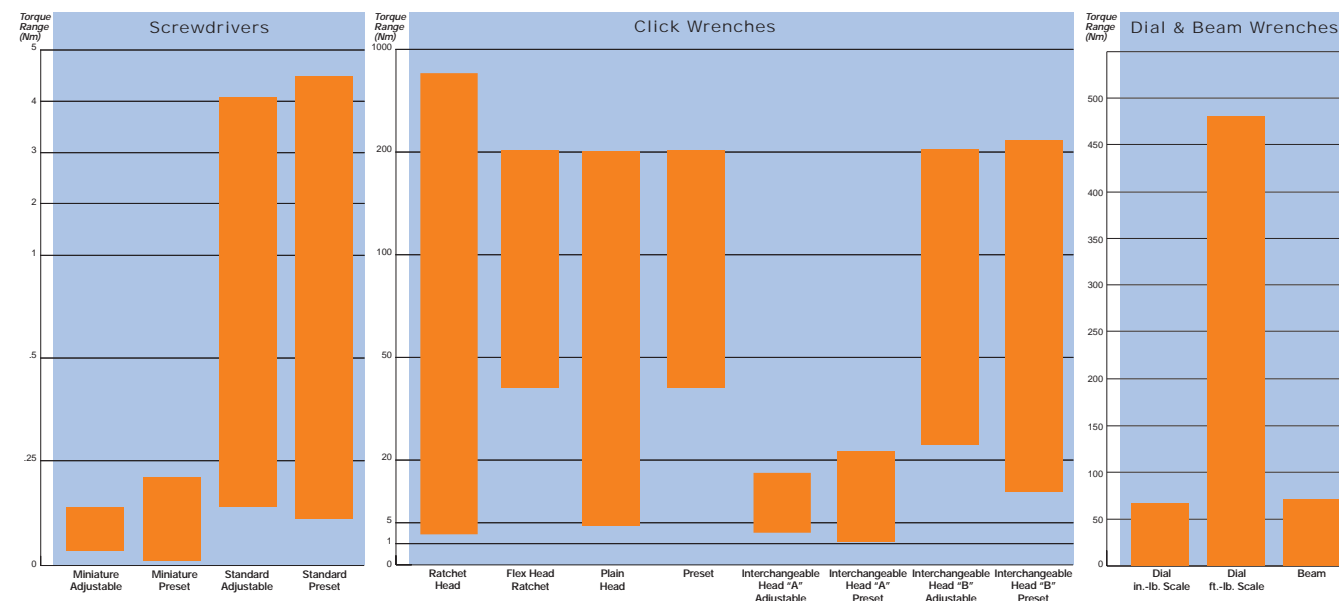
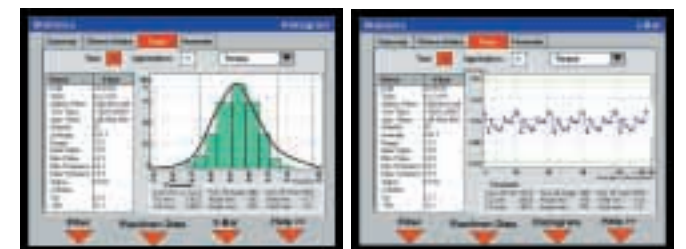
### How Is Torque Measured?

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.



# Utica® Torque Limiting Screwdrivers

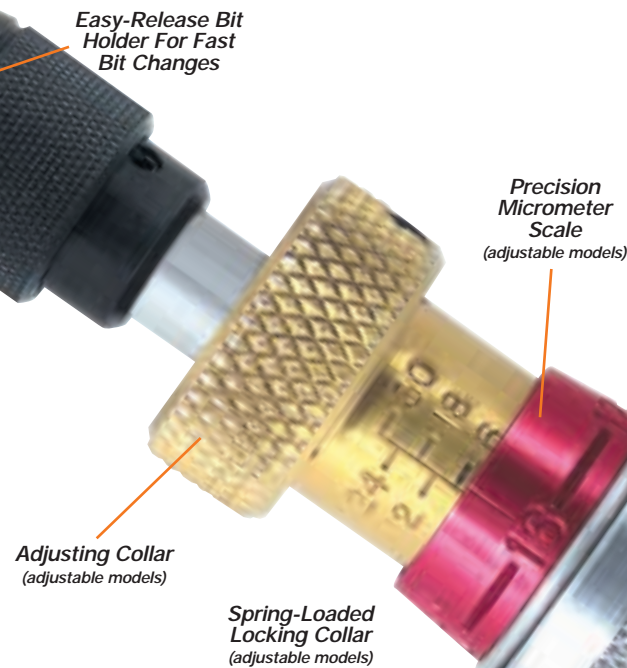
## Introduction



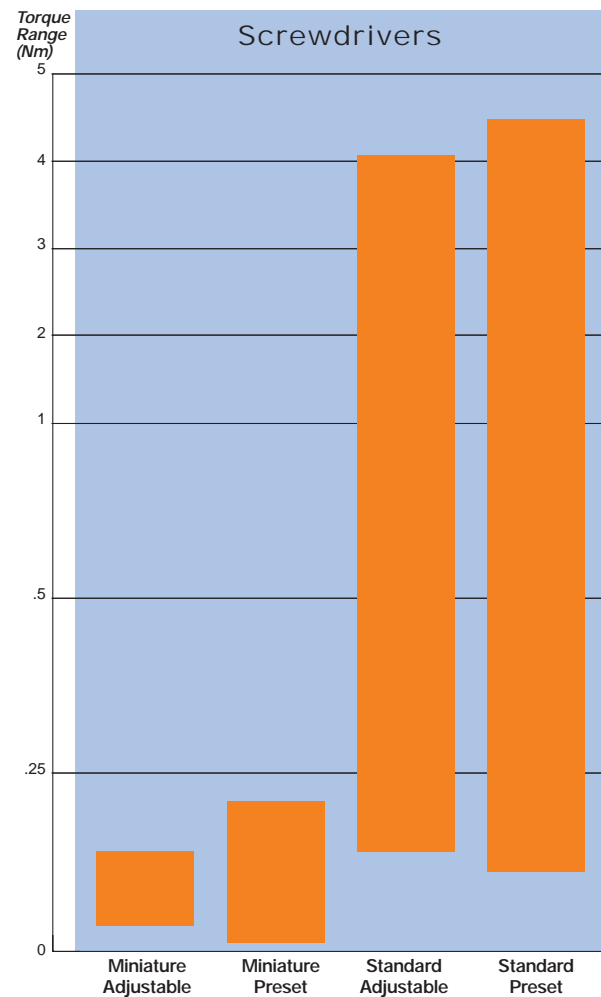
Utica offers a complete line of torque limiting screwdrivers covering a range of 2-640 in.-oz. All Utica screwdrivers feature aluminum housings to reduce weight and maximize durability. Six standard models are available for light duty torque applications including general electronic and computer assembly. 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.



## 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 which are 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.

Cooper Power Tools manufacturing processes are ISO 9001 certified, which

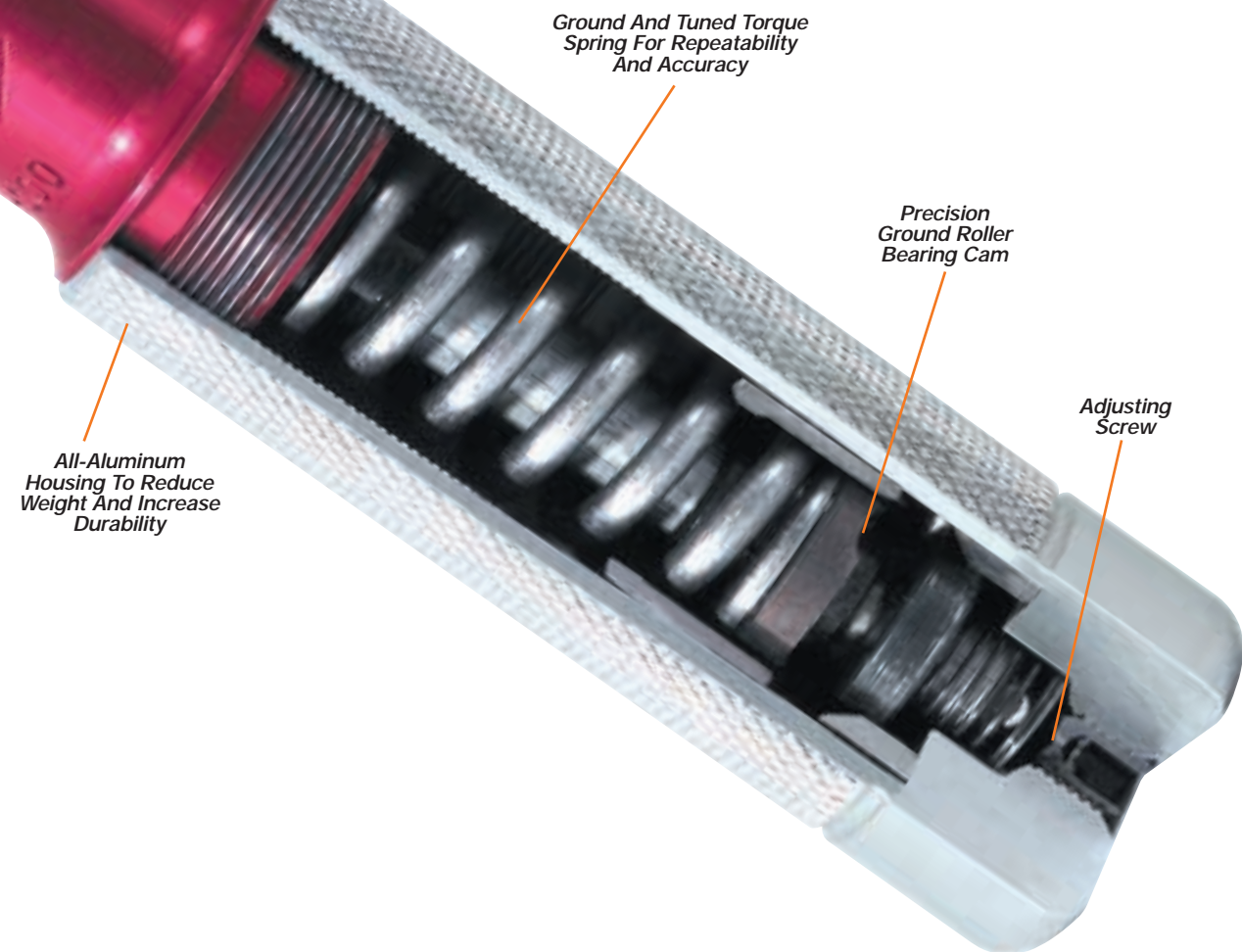


means that Utica products are manufactured to the highest standards. Quality materials, precision machining and assembly is what makes Utica torque screwdrivers the tool of choice.

## 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](http://www.uticatools.com).



# Utica® 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 ±6% of setting, starting at 20% of full scale to full scale. Right hand only.

### Adjustable Models

Model No.	Range	Collar Color	Increments	Hex Drive	Weight lbs.	kg.
<b>U.S. Standard</b>						
TS-100	20–100 in.-oz.	Black	2 in.-oz.	1/4 Female	.50	.23
TS-30	6–30 in.-lb.	Red	1 in.-lb.	1/4 Female	.50	.23
TS-35	6–36 in.-lb.	Blue	1 in.-lb.	1/4 Female	.50	.23

### Metric

TS-3M*	.7–3.5 Nm	Gold	.1 Nm	1/4 Female	.50	.23
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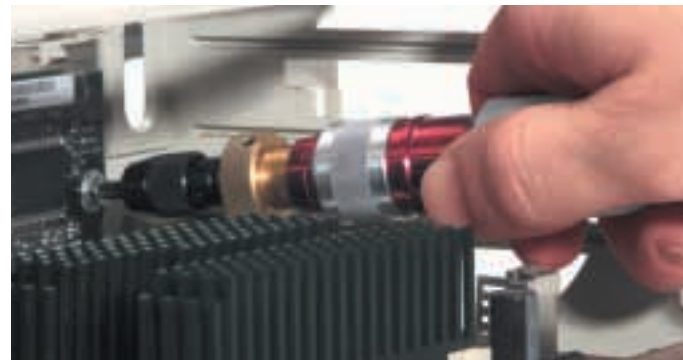
If calibration certification is required, request at time of purchase (extra charge).

### 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	1.5–10	.15–1.1	1.5–12	1/4 Female
TS-SN-2	128–640	8–40	1–4.5	9–45	1/4 Female

If calibration certification is required, request at time of purchase (extra charge).

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



TS-30

TS-SN-1

# Utica® Torque Limiting Screwdrivers

## Standard Model Accessories & Kits

### Hex Bits

Part No.	Hex Size	Cap Screw Size	Set Screw Size	Flathead Screw Size
185-00X	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

### Kit No. KT-100

Range 20-100 in.-oz. 20 piece

Qty.	Description
1	Adj. torque screwdriver 1/4" fm. hex
1	Torque screwdriver bld. .000
1	Torque screwdriver bld. .100
1	Hex socket 3/32"
1	Hex socket 7/64"
1	Hex key .028
1	Hex key .035
1	Screwdriver hex bit .050
1	Screwdriver hex bit 1/16"
1	Screwdriver hex bit 5/64"
1	Screwdriver bld. torque screw SZ. 2, 3
1	Screwdriver bld. torque screw SZ. 4, 5
1	Screwdriver bld. torque screw SZ. 5, 6
1	Screwdriver bld. torque screw SZ. 6, 8
1	Phillips bld. torque screw SZ. 0, 1
1	Phillips bld. torque screw SZ. 2, 3, 4
1	Adapter 1/4" drive
1	Bit holder mini. torque
1	1/4" Dr. reg. socket 1/8"
1	1/4" Dr. reg. socket 3/16"
1	1/4" Dr. reg. socket 1/4"
1	1/4" Dr. reg. socket 5/16"
1	Plas/case
1	Insert

### Kit No. KT-30

Range 6 to 30 in.-lb. 24 piece

Qty.	Description
1	Adj. torque screwdriver 1/4" fm. hex
1	Torque screwdriver bld. .100
1	Hex socket 7/64"
1	Hex key .035
1	Screwdriver hex bit .050
1	Screwdriver hex bit 1/16"
1	Screwdriver hex bit 5/64"
1	Screwdriver hex bit 3/32"
1	Screwdriver hex bit 1/8"
1	Screwdriver hex bit 5/32"
1	Screwdriver bld. torque screw SZ. 2, 3
1	Screwdriver bld. torque screw SZ. 4, 5
1	Screwdriver bld. torque screw SZ. 5, 6
1	Screwdriver bld. torque screw SZ. 6, 8
1	Phillips bld. torque screw SZ. 0, 1
1	Phillips bld. torque screw SZ. 2, 3, 4
1	Adapter 1/4" drive
1	Bit holder mini. torque
1	1/4" Dr. reg. socket 1/8"
1	1/4" Dr. reg. socket 3/16"
1	1/4" Dr. reg. socket 1/4"
1	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.	Description
1	Adj. torque screwdriver 1/4" fm. hex
1	Adj. torque screwdriver 1/4" fm. hex
1	Torque screwdriver bld. .080
2	Torque screwdriver bld. .100
1	Hex socket 3/32"
2	Hex socket 7/64"
1	Hex key .028
2	Hex key .035
2	Screwdriver hex bit .050
2	Screwdriver hex bit 1/16"
2	Screwdriver hex bit 5/64"
1	Screwdriver hex bit 3/32"
1	Screwdriver hex bit 1/8"
1	Screwdriver hex bit 5/32"
2	Screwdriver bld. torque screw SZ. 2, 3
2	Screwdriver bld. torque screw SZ. 4, 5
1	Screwdriver bld. torque screw SZ. 5, 6
1	Screwdriver bld. torque screw SZ. 6, 8
2	Screwdriver bld. torque screw SZ. 2, 3
2	Screwdriver bld. torque screw SZ. 4, 5
1	Screwdriver bld. torque screw SZ. 5, 6
1	Screwdriver bld. torque screw SZ. 6, 8
2	Phillips bld. torque screw SZ. 0, 1
2	Phillips bld. torque screw SZ. 2, 3, 4
1	Phillips bld. torque screw SZ. 4, 6, 7, 8, 10
2	Adapter 1/4" drive
2	Bit holder mini. torque
1	1/4" Dr. reg. socket 1/8"
1	1/4" Dr. reg. socket 5/32"
2	1/4" Dr. reg. socket 3/16"
1	1/4" Dr. reg. socket 1/4"
1	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.

# Utica® Torque Limiting Screwdrivers

Miniature Models & Accessories



- 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 ±6%, right hand only. Meets or exceeds ASME B107.14M and ISO 6789 specifications.
- Choice of micrometer adjustable or factory preset models.

## 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
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Calibration certification must be requested at time of purchase. (extra charge)

### Preset Models

Model No.	Range			Drive	Length		Weight	
	in.-oz.	Nm	cm-kg		in.	mm	lbs.	kg

TT-SN-1	5-30	.33-2.0	.33-2	Univ.	3.625	92	.06	.03
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Calibration certification must be requested at time of purchase. (extra charge)

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



# Utica® Torque Limiting Screwdrivers

Miniature Model Accessories & Kit



## Slotted Bits

Part No.	Blade Width	Blade Thick.	Screw Size
TW2D	.070	.006	000, 00



## Phillips Bits

Part No.	Point Size	Screw size
TW11D	1	2, 3, 4



## 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
28715-04	.069	6

## Miniature Kit No. KTT-1

Range 5-20 in.-oz. 29 piece

Qty.	Description
1	Adj. torque screwdriver
1	Torque screwdriver bld. .040
1	Torque screwdriver bld. .055
1	Torque screwdriver bld. .070
1	Torque screwdriver bld. .080
1	Torque screwdriver bld. .100
1	Phillips screwdriver SZ. 0,1
1	Phillips screwdriver SZ. 2,3,4
1	Spline key size .048 - 4 Flutes
1	Spline key size .048 - 6 Flutes
1	Spline key size .060 - 6 Flutes
1	Spline key size .069 - 6 Flutes
1	Spline key size .072 - 6 Flutes
1	Spline key size .076 - 4 Flutes
1	Spline key size .096 - 6 Flutes
2	Bit holder universal torque
1	Hex socket 5/64"
1	Hex socket 3/32"
1	Hex socket 7/64"
1	Hex socket 1/8"
1	Hex socket 5/32"
1	Hex key .028
1	Hex key .035
1	Hex key .050
1	Hex key 1/16
1	Hex key 5/64
1	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.

# Utica® "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](http://www.uticatools.com) to locate your nearest Utica Service Center for calibration.



## 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.

## Flex Head Ratchet Wrenches

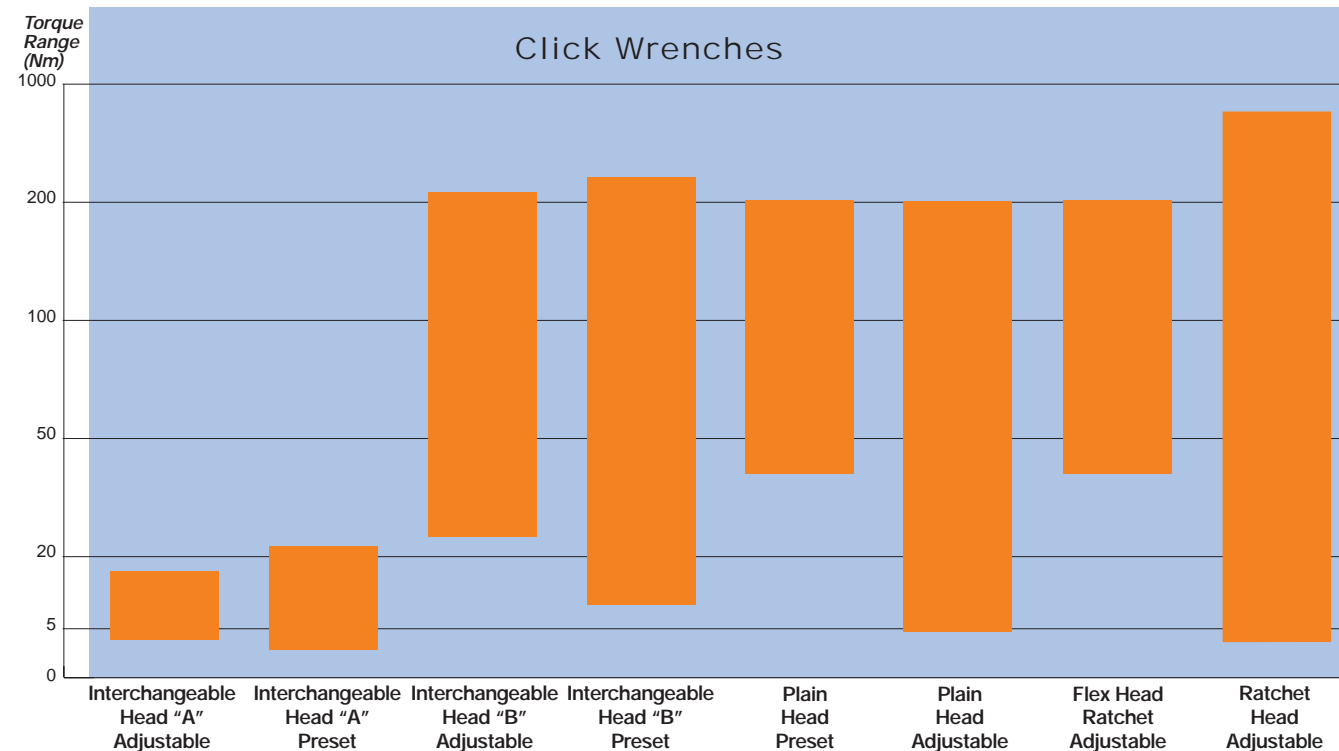
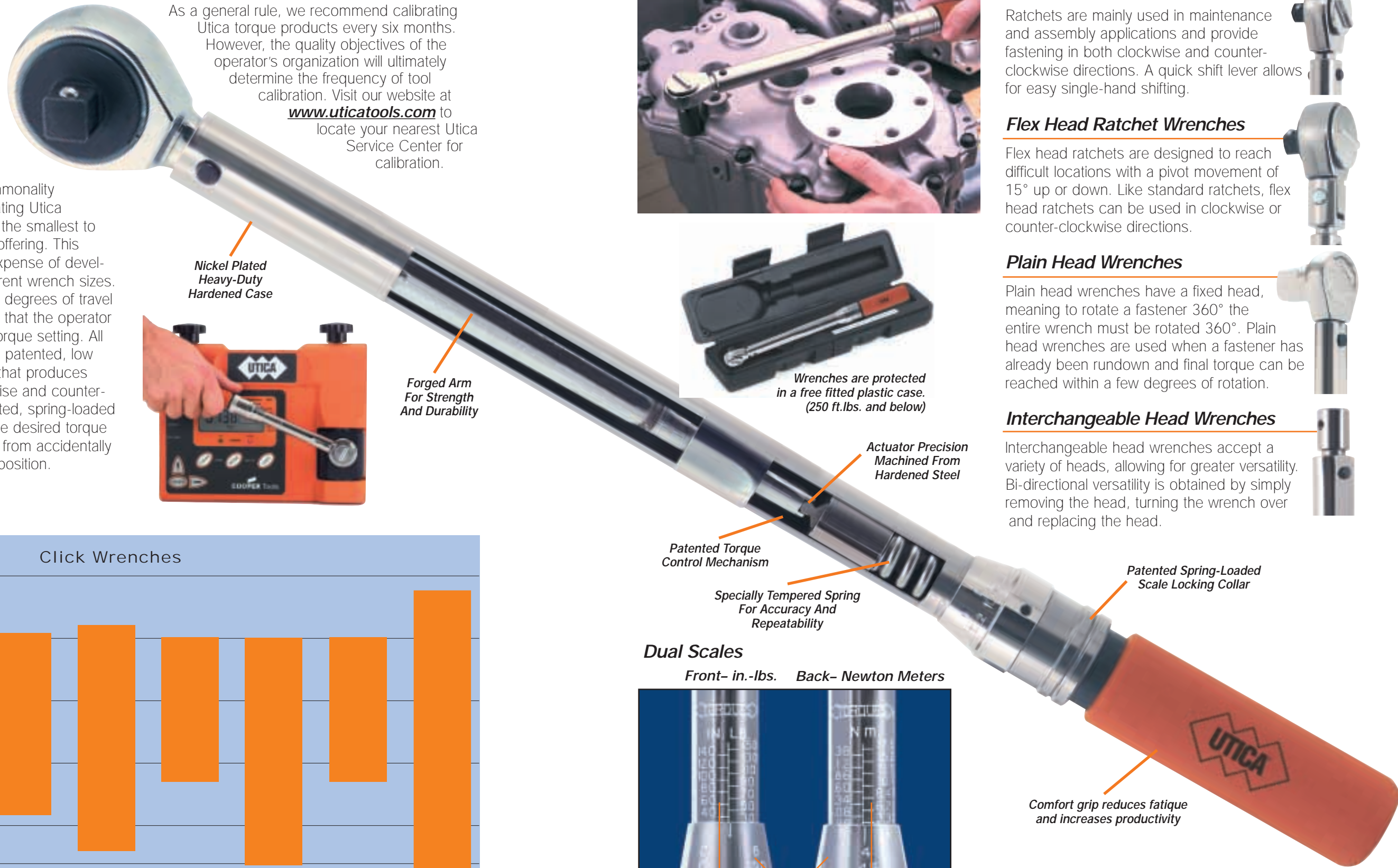
Flex head ratchets are designed to reach difficult locations with a pivot movement of 15° up or down. Like standard ratchets, flex head ratchets can be used in clockwise or counter-clockwise directions.

## Plain Head Wrenches

Plain head wrenches have a fixed head, meaning to rotate a fastener 360° the entire wrench must be rotated 360°. Plain head wrenches are used when a fastener has already been rundown and final torque can be reached within a few degrees of rotation.

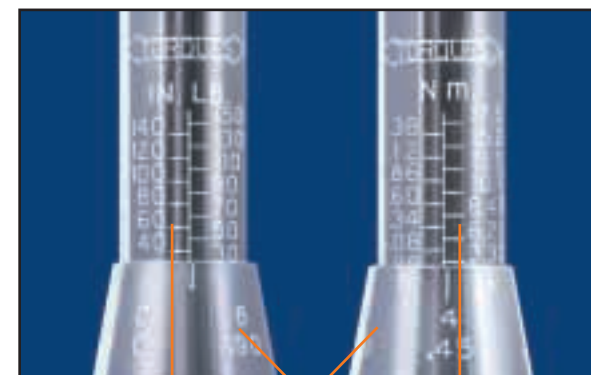
## Interchangeable Head Wrenches

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.



## Dual Scales

Front- in.-lbs. Back- Newton Meters



Fine Adjustment  
Major Adjustment



# Utica® "Click" Type Torque Sensing Wrenches

Ratchet Head, Flex Head Ratchet, Plain Head & Preset



- Drive Sizes: 1/4" through 3/4"
- 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 ± 4% of setting right hand (clockwise) and ± 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.



CH-1800



TCI-150



TCM-75R



FH-150FRN

# Utica® "Click" Type Torque Sensing Wrenches

Ratchet Head, Flex Head Ratchet, Plain Head & Preset

## 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	2.8-17.5	1.0	.113	9.5	241.3	0.9	0.4
3/8	TCI-150RA-3/8*	30-150	2.8-17.5	1.0	.113	9.5	241.3	0.9	0.4
3/8	TCI-750R	150-750	-	5.0	-	14.25	362.0	3.4	1.5
3/8	TCI-250R*	50-250	5.0-28	1.0	.113	12.5	317.5	3.0	1.4
1/2	TCI-750R-1/2	150-750	-	5.0	-	14.5	368.3	2.5	1.1
1/2	TCI-1600R	700-1600	-	10.0	-	18.5	469.9	2.5	1.1
3/4	TCI-7250R*†	1500-7250	183-805	25.0	2.8	44	1117.6	13.5	6.1

## 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	24-105	.5	1.4	14.25	362.0	2.2	1.0
1/2	TCI-150FRN*†	30-150	47-210	1.0	1.4	18.5	469.9	3.1	1.4
1/2	TCI-150FRD*	30-150	47-210	1.0	1.4	18.5	469.9	2.8	1.3
1/2	TCI-250FRN*	50-250	75-346	1.0	1.4	21.5	546.1	3.5	1.6
3/4	TCI-600FRN*†	120-600	176-827	2.0	2.7	44	1117.6	13.5	6.1

\*Dual Scale Models: Either in.-lb./Nm graduations, or ft.-lb./Nm graduations. ▼ Heavy duty ratchet head model. † Calibrated right hand only.

## Ratchet Head (Nm Graduations)

Drive Size (in.)	Model No.	Range		Graduation		Length		Weight	
		ft.-lb.	Nm	ft.-lb.	Nm	in.	mm	lb.	kg
3/8	TCM-75R	-	15-75	-	.5	14.75	375	2.2	1.0

## Flex Head Ratchet (ft.-lb. Graduations)

Drive Size (in.)	Model No.	Range		Graduations		Length		Weight	
		ft.-lb.	Nm	ft.-lb.	Nm	in.	mm	lb.	kg
1/2	FH-150FRN*	30-150	47-210	1	1.4	19.875	504.8	3.5	1.6

\*Dual Scale Model: ft.-lb./Nm graduations. Flex Head Pivot Allows 15° Up or down movement in head.

## Plain 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-150*	30-150	2.8-17.5	1	.113	9	228.6	0.8	0.4
3/8	TCI-150-3/8*	30-150	2.8-17.5	1	.113	9	228.6	1.2	0.5
3/8	TCI-750	150-750	-	5	-	13.5	342.9	1.5	0.7
1/2	TCI-1600	700-1600	-	10	-	17	431.8	2.5	1.1

\*Dual Scale Model: in.-lb./Nm graduations.

## Plain Head (ft.-lb. Graduations)

Drive Size (in.)	Model No.	Range		Graduations		Length		Weight	
		ft.-lb.	Nm	ft.-lb.	Nm	in.	mm	lb.	kg
1/2	TCI-150FN*	30-150	47-210	1.0	1.4	17	431.8	2.7	1.2

\*Dual Scale Model: ft.-lb./Nm graduations.

## Plain Head Preset (Formerly 28538)

Drive Size (in.)	Model No.	Capacity		Length		Weight	
		ft.-lb.	Nm	in.	mm	lb.	kg
3/4	CH-1800	150	204	26.5	673.1	3.2	1.5

Preset to your exact specifications. 150 ft.-lb. (204Nm) capacity.

## 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
A253KR	TCI-150FRN, TCI-250FRN, FH-150FRN
T154KR	TCI-150FRD
R702KR	TCI-600FRN, TCI-7250R

If calibration certification is required, request at time of purchase.

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

# Utica® "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 ±4% of setting right hand and ±6% of setting left hand within upper 80% of scale.

## 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	1.0	.113	9	228.6	1.0	0.5

If calibration certification is required, request at time of purchase.

## Single Setting (Preset) Wrench – "A" Size\*

Model No.	Range				Length		Weight	
	Nm	in.-lb.	ft.-lb.	cm-kg	in.	mm	lb.	kg
CHA-6	1.2-6	10-50	.8-4.2	12-60	5.32	135.0	0.17	0.075
CHA-11	2.2-11	20-100	1.6-8	23-115	5.75	146.1	0.3	0.1
CHA-23	4.6-23	40-200	3.4-17	46-230	7.75	196.9	0.4	0.2

If calibration certification is required, request at time of purchase (extra charge).

**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.



# Utica® "Click" Type Torque Sensing Wrenches

"A" Size Interchangeable Heads

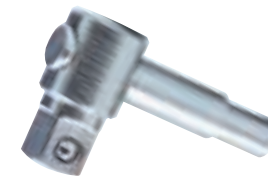


## Open End U.S. Standard "A"

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
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
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



## Plain Square Drive "A"

Drive Size (in.)	Part No.
1/4	PS 82
3/8	PS 122



## Ratcheting Square Drive "A"

Drive Size (in.)	Part No.
1/4	RS 82
3/8	RS 122

## Ratchet Repair Kits

Part No.	Repair Kit:
RS82	V702KR
RS122	V152KR

- 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.



## 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
9/16	LB 182	420	35	48

## 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
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 Dr. (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

## 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



## Flare Nut U.S. Standard "A"

Opening Size	Part No.	Maximum Torque Load		
		in.-lb.	ft.-lb.	Nm
7/16*	LF 142	140	12	16
9/16**	LF 182	275	23	31

\*6 point  
\*\*12 point



## 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
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

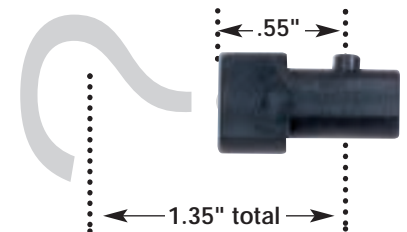
Part No.	Square Drive (in.)	Female Hex (in.)
825	1/4	1/4
M-825	1/4	1/4 Magnetic
838	3/8	1/4
M-838	3/8	1/4 Magnetic

## Head Adapter "A"

Weld custom heads to adapters to couple with "A" handles.



The 28522 head adapter allows you to weld on custom heads to meet specific applications.



# Utica® "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 ±4% of setting right hand and ±6% of setting left hand within upper 80% of scale.

## 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	23.7-105.1	0.5	0.7	14	355.6	2.0	0.9
CH-150F	30-150	47.4-210.1	1.0	1.4	17.125	435.0	2.5	1.1

## Single Setting (Preset) Wrench – "B" Size\*

Model No.	Nm	Range			Length		Weight	
		in.-lb.	ft.-lb.	m-kg	in.	mm	lb.	kg
CHB-55	10-55	100-500	8-40	1.1-5.5	8.25	209.6	1.0	0.4
CHB-85	16-85	150-750	12-60	1.6-8	10.5	266.7	1.3	0.6
CHB-110	22-110	200-1000	16-80	2.2-11	12.5	317.5	1.5	0.7
CHB-170	34-170	300-1500	24-125	3.8-17	14.25	362.0	1.7	0.8
CHB-225	44-225	400-2000	32-166	4.6-23	16.25	412.8	1.9	0.9

If calibration certification is required, request at time of purchase (extra charge).  
**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.



# Utica® "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
7/8	LF 284	800	67	90
1 1/8	LF 364	1000	83	113



Ratcheting Square Drive "B"

Drive Size (in.)	Part No.
3/8	RS 124
1/2	RS 164*

\*Up to 75 ft. lb.

## Ratchet Repair Kits

Part No.	Repair Kit:
RS124	V702KR
RS164	V153KR



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 1/4	OP 404	2100	175	237

## Open End Metric "B"

Opening Size	Part No.	Maximum Torque Load		
		in.-lb.	ft.-lb.	Nm
13mm	MO 134	549	46	62
17mm	MO 174	1230	103	139
18mm	MO 184	1372	114	155

## SAE Size Sockets

Part No.	Square Dr. (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

## Metric Size Sockets

Part No.	Square Dr. (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
21mm15	1/2	21mm
19mm17	3/4	19mm
21mm17	3/4	21mm
22mm17	3/4	22mm
24mm17	3/4	24mm
30mm17	3/4	30mm

## Head Adapter "B" 28523

Weld custom heads to adapters to couple with "B" handles.



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
3/4	LB 244	1650	138	186

## 12 Point Box Metric "B"

Opening Size	Part No.	Maximum Torque Load		
		in.-lb.	ft.-lb.	Nm
13mm	MB 134	549	46	62
15mm	MB 154	920	77	104
16mm	MB 164	1097	92	124
17mm	MB 174	1230	103	139
18mm	MB 184	1372	114	155
22mm	MB 224	2100	175	237



Bit Holders

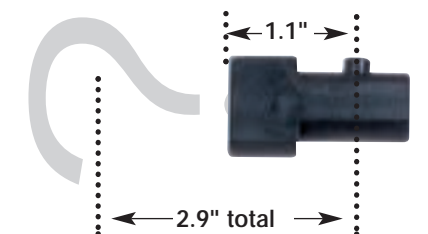
Part No.	Square Drive (in.)	Female Hex (in.)
825	1/4	1/4
M-825	1/4	1/4 Magnetic
838	3/8	1/4
M-838	3/8	1/4 Magnetic
858	1/2	1/4
M-858	1/2	1/4 Magnetic



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

The 28523 head adapter allows you to weld on custom heads to meet specific applications.



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

# Utica® Dial Indicating Torque Wrenches



Utica series dial torque wrenches are ideal for engineering departments, quality control, inspection and laboratory applications which require exact torque readings during tightening. Utica beam wrenches feature a patented counterbalanced indicator mechanism. This maintains torque accuracy by preventing the pointer from "dropping off" when the wrench is shifted from a horizontal to a vertical position.

The dial design of the Utica dial wrench is unique for several reasons. First, a parallax mirror provides correct dial readouts from any position. When reading the dial at an angle, the true torque reading is halfway between the pointer and the pointer reflections. Second, the one-piece crystal and bezel is injection molded to increase strength and reliability compared to typical multi-piece crystal designs. Third, the dial design also incorporates sturdy integral indicator guards to reduce the potential for crystal breakage.

- Allow determination of applied right or left hand torque with accuracy of ±4% in either direction. Accuracy of ±2% available on special order.
- Slim drive end allows use in tight work areas.
- Memory indicator locks on previous reading.

## Nm/in.-lb. Scale

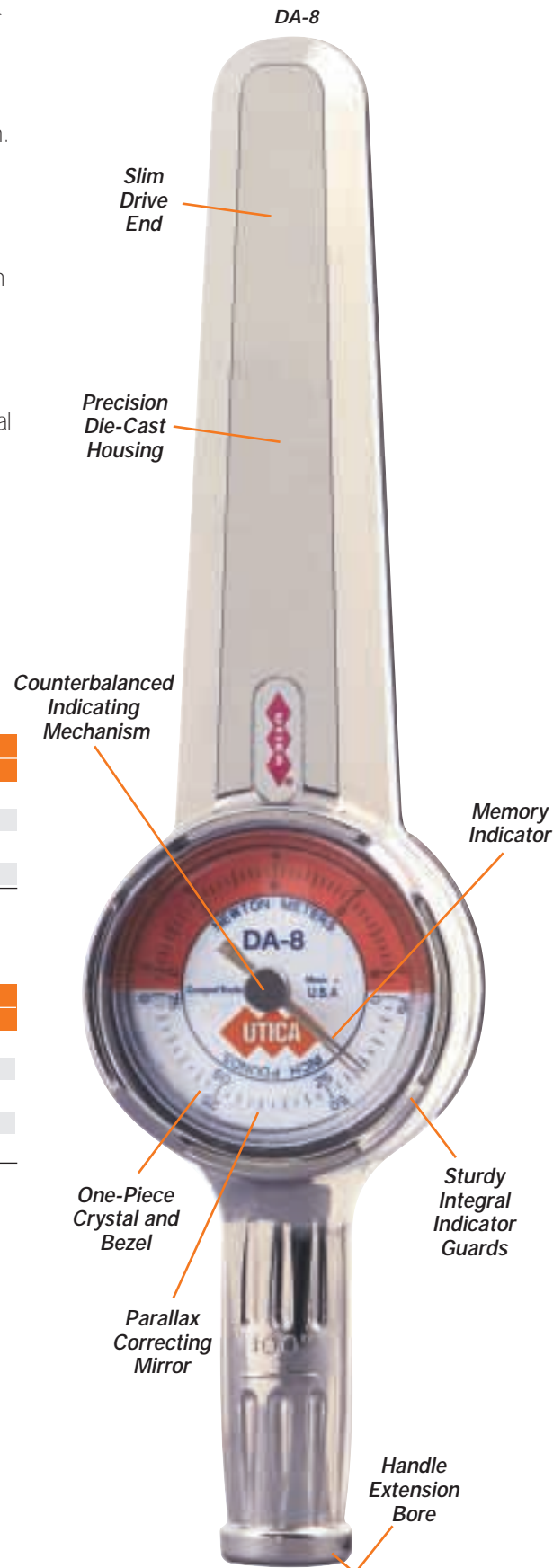
Model No.	Drive Size (in.)	Range		Graduations		Weight	
		Nm	in.-lb	Nm	in.-lb	lb.	kg
DA-8	1/4	0-8.2	0-75	0.2	2.5	1.8	0.8
DA-16	3/8	0-16.5	0-150	0.5	2.5	1.9	0.9
DA-35	3/8	0-35.0	0-300	0.5	5.0	1.9	0.9
DA-70	3/8	0-70.0	0-600	1.0	10.0	2.0	0.9

## Nm/ft.-lb. Scale

Model No.	Drive Size (in.)	Range		Graduations		Weight	
		Nm	ft.-lb	Nm	ft.-lb	lb.	kg
DA-70F	3/8	0-70	0-50	1.0	1.0	2.0	0.9
DA-140F	1/2	0-140	0-100	2.0	2.0	3.3	1.5
DA-240F	1/2	0-240	0-175	5.0	5.0	6.7	3.0
DA-320F*x	1/2	0-320	0-250	10.0	5.0	5.5	2.5
DA-480F*x	3/4	0-480	0-350	10.0	10	12.4	5.6

\*x includes extension bar    \*z includes extension bar and helper bar

Calibration certification may be provided with each tool for a nominal charge.



# Utica® Beam Type Torque Wrenches



Utica beam wrenches are recommended for quality control testing including non-destructive and destructive applications. A contoured plastic grip reduces operator fatigue and has a unique hand guard, which prevents the operator's hand from slipping into the indicator plate. The satin finish on the scale plate reduces glare for easy reading, regardless of direction of pull.

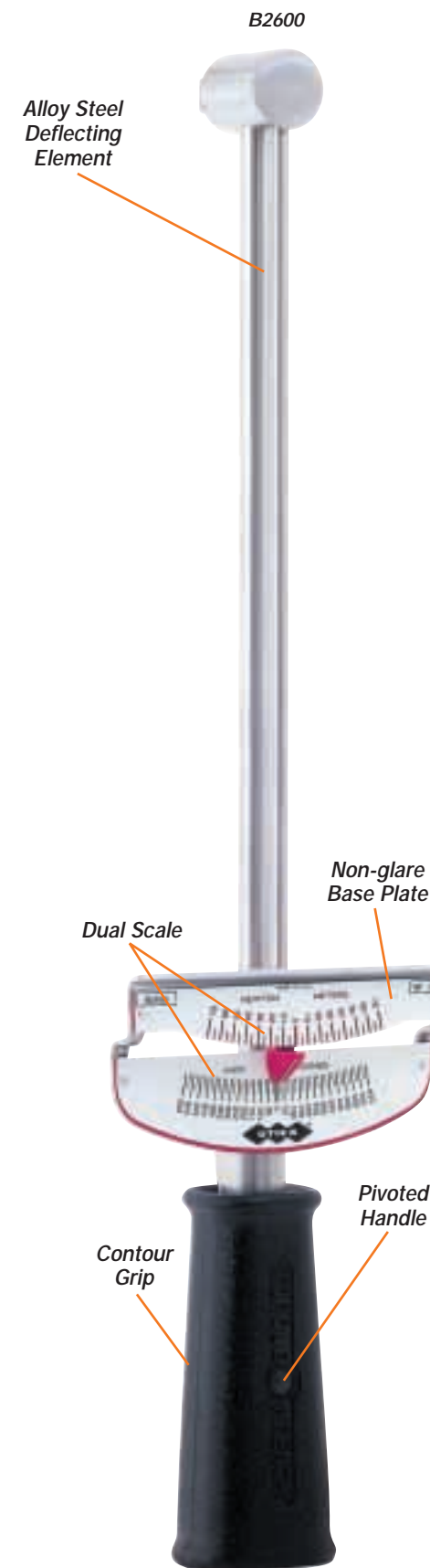
Utica beam wrenches feature exceptional accuracy retention, which means calibration intervals can be extended. The deflecting element is made of alloy steel, while the head is heat treated, polished and nickel-plated for corrosion resistance. Plus, the beam has no holds or welds, which can reduce wrench life. All of these features combined translate into lower total wrench cost.

- The most economical and reliable torque tool for general use.
- Measures torque in both right and left hand directions.
- Accuracy is ±4% of indicated reading.

## in.-lb./Nm Scale

Model No.	Drive Size (in.)	Range		Graduations		Weight	
		in.-lb	Nm	in.-lb	Nm	lb.	kg
B2600	3/8	0-600	0-70	25	5	1.3	0.6

Calibration certification may be provided with each tool for a nominal charge.





The Utica TA4 is a great asset to any quality assurance program where torque analysis is required.

The TA4 provides torque verification for a wide range of hand and power tools. This includes dial, beam and click type torque wrenches and most screwdrivers. This versatile analyzer offers the operator a variety of ways to easily verify torque applied with a selection of seven engineering units: Oz In, Lb In, Lb Ft, Nm, cNm, KgCm, Kgfm. Plus, three modes of operation are available – track, peak, and first peak.

Data output can be viewed via the LCD display, or downloaded to a computer at high speed. Data is compatible with Windows 95, NT, and Windows 98 for easy downloading. Each TA4 includes an RS-232 cable to complete the connection between torque analyzer and computer. Plus, instructions are included on how to implement downloads.



- CE certified.
- Internal accuracy +/-0.5% from 20% to 100% of range; +/-1.0% from 10% to 19% of range.
- Clockwise and counterclockwise operation.
- Selectable filtering speeds: 500Hz, 1000Hz, 1500Hz, and 3000Hz – for accurate torque readings on pulse tools made by a variety of manufacturers.
- NiMH rechargeable batteries provide 8-10 hours of continuous use.
- Can be mounted vertically or horizontally for added flexibility.
- Manual and auto reset functions to clear displayed values.
- Built-in sleep mode to save power when not in use.
- Includes an audio and visual alarm when high or low torque limit is reached.
- Certificate of calibration supplied with each unit traceable to the National Institute of Standards and Technology (NIST).
- 110 volt and 220 volt models available.

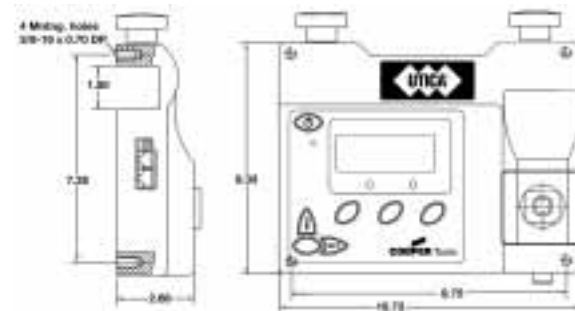
110V Model	220V Model	Torque Range		Square Drive	
		English	Metric	In.	mm
TA4-05B-1	TA4-05B-2	5-50 in.-lb.	.56-5.64 Nm	1/4	6.35
TA4-10B-1	TA4-10B-2	10-100 in.-lb.	1.13-11.29 Nm	1/4	6.35
TA4-05F-1	TA4-05F-2	5-50 ft.-lb.	6.78-67.79 Nm	3/8	9.53
TA4-25F-1	TA4-25F-2	25-250 ft.-lb.	33.90-338.95 Nm	1/2	12.7

### Run Down Adapters\* (required for use with power tools)

Part No.	English	Metric	Sq. Drive
01-9232	5-50 in.-lb	56-564 cNm	1/4"
01-9233	10-100 in.-lb	112-1129 cNm	1/4"
01-9240	5-50 ft.-lb.	6-67 Nm	3/8"
01-9242	25-250 ft.-lb.	33-338 Nm	1/2"

Square drives conform to ASME B107 standards for proper fit with transducer.

\*Each TA4 unit comes complete with the appropriate rundown fixture, power supply, RS-232 cable and case.



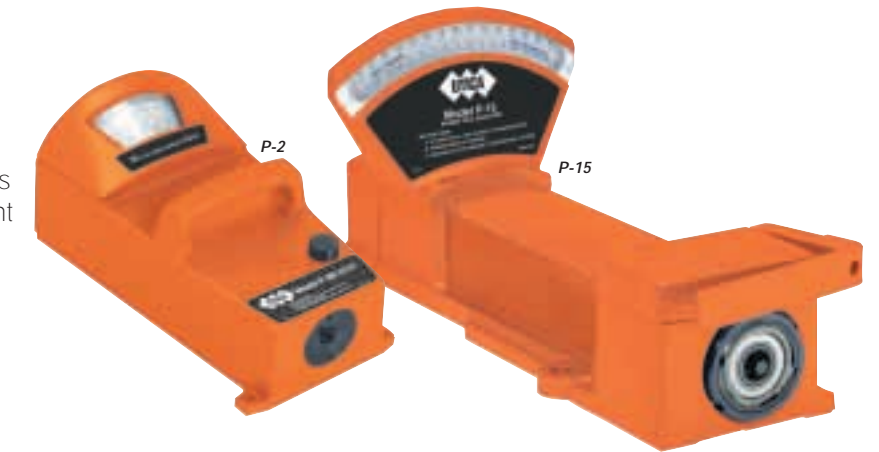
### Power Supplies\*

Part No.	Description
01-9201	110V power supply for all TA4 systems
01-9202	220V power supply for all TA4 systems



### 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



Model No.	Graduations	Capacity	Height		Width		Length		Weight		Ordering No.
			In.	mm	In.	mm	In.	mm	Lb.	kg	
P-2B	.5 in.-lbs.	20-2 in.lbs.	5.6	143	7.3	184	12	305	18	8.2	810681
MP-2B (metric)	.5 cm-kg	22-2 cm-kg	5.6	143	7.3	184	12	305	18	8.2	810682
P-15	2 in.-lbs.	150-5 in.lbs.	8	203	5	127	18	457	23	10.4	810002
MP-15 (metric)	5 cm-kg	180-5 cm-kg	8	203	5	127	18	457	23	10.4	810151

### GENERAL

Drive Size: 1/4" male hex (P-2 series)  
5/16" male hex (P-15 series)

### OPTIONAL EQUIPMENT

Calibration Kit (P-2 series) – 810629  
Calibration Kit (P-15 series) – 810080



### Torque Multipliers

- Multiply force to turn fasteners easily when working space is limited and unusually high torque is required.
- Rugged, precision-manufactured gear wrenches designed for accurate torquing of large fasteners and for generating high power output for loosening "frozen" nuts and bolts.
- Manual torque input from ratchet or torque wrench is multiplied through planetary gearing and applied to the fastener.
- Minimum effort allows one man operation.

**NOTE:** Input and output rotation is in the same direction. Therefore, rotation of the reaction bar is in the opposite direction. It is necessary that the reaction bar rest securely against a stationary object strong enough to withstand the force being generated. Power loss due to friction in the gear train is approximately 15%.

Model No.	Output ft.-lb.	Cap. Nm	Female Input Dr. (in.)	Male Output Dr. (in.)	Gear Ratio	Weight*		Length*	
						lb.	kg	in.	mm
TMX1000F	1000	1350	1/2	3/4	4 to 1	7.0	3.2	22	559
TMX2000F	2000	2700	3/4	1	4 to 1	14.0	6.4	25	635

\*Includes reaction bar.



**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 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.

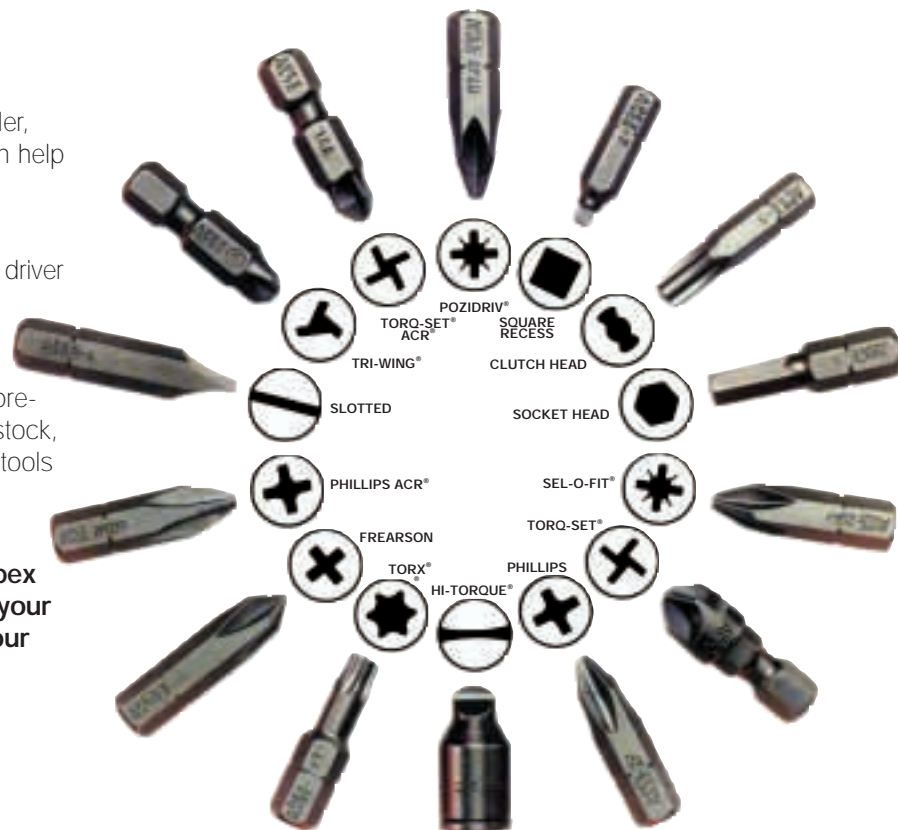
**Fast Delivery**

If you need special assistance with your order, your Apex manufacturer's representative can help with any questions that 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.

For a catalog of the complete line of Apex Quality Fastener Tools, please contact your local Apex Distributor or you can visit our website at [www.apex-tools.com](http://www.apex-tools.com).



Torque Conversion – In. Lbs. (Nm)					
In.	Nm	In.	Nm	In.	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		

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		

Torque Conversion Factors		
To Convert	Into	Multiply By
Inch Pounds	Foot Pounds	0.0833
Inch Pounds	Newton meters	0.1130
Inch Pounds	Kg-meters	0.0115
Inch Pounds	Kg-Cm	1.1521
Foot Pounds	Inch Pounds	12.000
Foot Pounds	Newton meters	1.3558
Foot Pounds	Kg-meters	0.1382
Foot Pounds	Kg-Cm	13.8240
Newton Meters	Inch Pounds	8.8507
Newton Meters	Foot Pounds	0.7375
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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## The Total Solution

The total solution from Cooper Power Tools includes not only a complete line of quality industrial tools and accessories but also a professional engineering and product support staff to help customize each tool to specific application requirements. All are as close as a telephone or e-mail.

Cooper Power Tools maintains company-owned Service Centers in strategic locations throughout the world, staffed with professional tool repair technicians who use genuine Cooper Power Tools parts and who are outfitted with the very latest in testing, calibration and inspection equipment.



Each tool that is returned to a customer from one of our Service Centers carries with it a warranty that is Cooper Power Tools' assurance that it will perform just like it did when it was purchased new.

Our support personnel are fully capable of helping to diagnose problems and promptly recommend solutions.

Our complete line of tools are carefully designed and built from the finest materials available in order to pro-

vide years of trouble free service. But, as with any piece of equipment, service problems can occur. All tools are designed to be easy to service ... that is, of course, with properly trained personnel.

To facilitate quick repairs, and limit downtime ...

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Introductory training seminars are designed to fully acquaint students with the entire line of tools and their fundamental operation. Advanced training seminars, which are often tailored to individual needs, are designed to hone the skills of the experienced student. Hands-on experience, with an emphasis on troubleshooting and repairing, are the focus of this training.

Service literature, product information, brand catalogs and FAQs are also available around the clock on the Web. Just access [www.cooperpowertools.com](http://www.cooperpowertools.com) for the latest information available about any of our products and services.

# TRAINING



**Note:** All locations may not service all products. Please contact the nearest Sales & Service Center for the appropriate facility to handle your service requirements.

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Fax: (972) 641-9674

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Lexington, SC 29072  
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Fax: (803) 359-0822

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