

## CH & TCI Series Click Type Torque Sensing Wrenches



Ratchet Head



Micrometer Adjustable



Single Setting

Ratchet Head ( <i>in.-lb. Graduations</i> )					
Model No.	Torque Range		Graduations		Drive Size
	in.-lb.	Nm	in.-lb.	Nm	
TCI-150RA *	30-150	3.4-17.0	1.0	0.11	1/4"
TCI-150RA-3/8 *	30-150	3.4-17.0	1.0	0.11	3/8"
TCI-250R *	50-250	5.7-28.3	1.0	0.11	3/8"
TCI-750R	150-750	-----	5.0	-----	3/8"
TCI-750R-1/2	150-750	-----	5.0	-----	1/2"

\* Note: Dual Scale Model

Ratchet Head ( <i>ft.-lb. Graduations</i> )					
Model No.	Torque Range		Graduations		Drive Size
	ft.-lb.	Nm	ft.-lb.	Nm	
TCI-75FRN *	15-75	20.3-102	0.5	0.7	3/8"

\* Note: Dual Scale Model

Micrometer Adjustable Wrench ( <i>in.-lb. Graduations</i> )					
Model No.	Torque Range		Graduations		Drive Size
	in.-lb.	Nm	in.-lb.	Nm	
CH-150 *	30-150	3.4-17.0	1.0	0.11	---

\* Note: Dual Scale Model

Micrometer Adjustable Wrench ( <i>ft.-lb. Graduations</i> )					
Model No.	Torque Range		Graduations		Drive Size
	ft.-lb.	Nm	ft.-lb.	Nm	
CH-75F *	15-75	20.3-102	0.5	0.7	---
CH-150F *	30-150	40.7-203	1.0	1.4	---

\* Note: Dual Scale Model

Single Setting (Preset) Wrench					
Model No.	Torque Range				Drive Size
	in.-lb.	Nm	ft.-lb.	cm-kg	
CHA-6	10-50	1.2-6	0.9-4.5	12-60	---
CHA-11	20-100	2.2-11	1.6-8	22-110	---
CHA-23	40-200	4.6-23	3.4-17	46-230	---
CHB-55	100-500	11-55	8-40	112-560	---
CHB-85	150-750	17-85	12.5-62.5	172-860	---
CHB-110	200-1000	22-110	16-80	224-1120	---
CHB-170	300-1500	34-170	25-125	346-1730	---
CHB-225	400-2000	45-225	33-165	460-2300	---

Note: Single setting wrenches do not have a scale and must be set on a torque tester.

# Utica® “Click” Type Torque Sensing Wrenches

## Micrometer Adjustable Torque Sensing Wrenches:

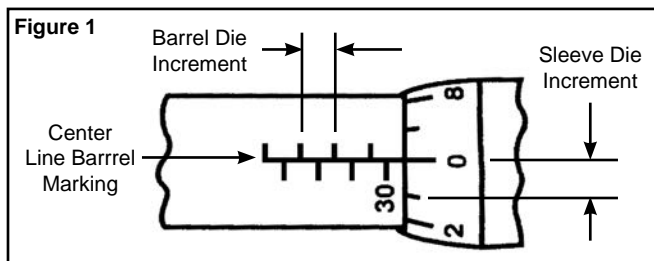
These torque sensing wrenches automatically signal by **SOUND** and **IMPULSE** when the desired torque is reached. These wrenches are calibrated for right hand (clockwise) and left hand (counter clockwise) torque applications.

### Setting a Torque:

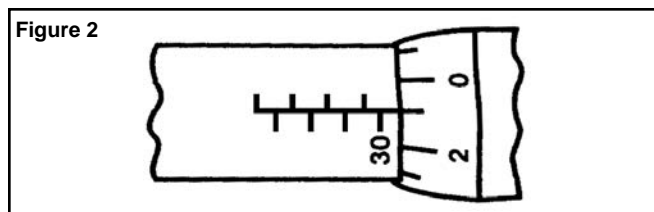
**Unlock:** Pull back, fully, and hold the automatic lock collar. While holding the lock collar, advance the handle up the barrel by turning it in a clockwise direction or counter clockwise to move down the barrel. The barrel is marked in even increments of torque and one complete turn of the handle will change the torque setting one complete barrel increment.

If the barrel is marked in increments of ten, each complete turn of the handle would change the torque setting by ten. The sleeve die is marked around the circumference with intermediate increments.

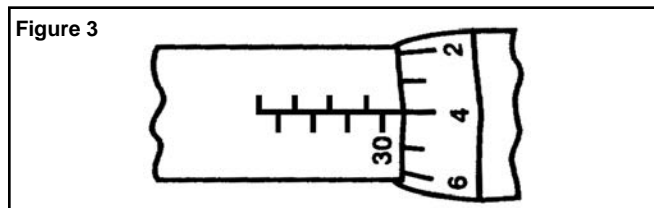
The sleeve die markings start at 10 and are divided into ten equal marks. Every other mark is numbered. To set at an even barrel increment the zero marking on the sleeve die should line up with the center of the barrel marking, see Figure 1.



By advancing the handle one sleeve die mark you have increased the torque an amount equal to 1/10th the increase between two barrel increments, see Figure 2.



If the barrel increments are 10, 20, etc. and the original setting was 30, by moving the handle on the sleeve die one increment you increase the torque an amount equal to 1. Your new torque setting would be 31. If you turned the handle four (4) sleeve die marks in a clockwise direction from zero you have advanced the torque four (4) increments and your new torque setting would be 34, see Figure 3.



### Lock:

When you have lined up a sleeve die mark with the center line barrel mark, you can release the lock collar and it will automatically move forward and lock the handle to the barrel.

### To Use:

Attach the appropriate socket wrench or adapter to the torque wrench square drive and apply to the application. Hold the torque wrench by the padded handle and tighten the fastener. Apply force with a steady, smooth action.

Do not apply force by holding any part of the wrench, other than the padded handle. Do not use an extension or other lever aid on the handle. When the torque setting is reached, the wrench will momentarily release with a feel impulse and audible click. The wrench will move freely through a small arc of approximately two (2) degrees. At this point the set torque has been achieved and force on the handle must be released. The wrench will automatically snap back to its original position and is ready for the next torque application.

*NOTE: When set at the lower torque range, the audible signal will be much lower. However, there is an audible sound which in conjunction with the feel impulse should present no difficulty in operating the wrench at the lower scale settings.*

### Torque Extensions:

When an extension is used on the drive end of the torque wrench, the torque applied at the end of the extension is **NOT** the same as the torque setting on the wrench. The method of determining the actual torque produced using various types of extensions is as follows:

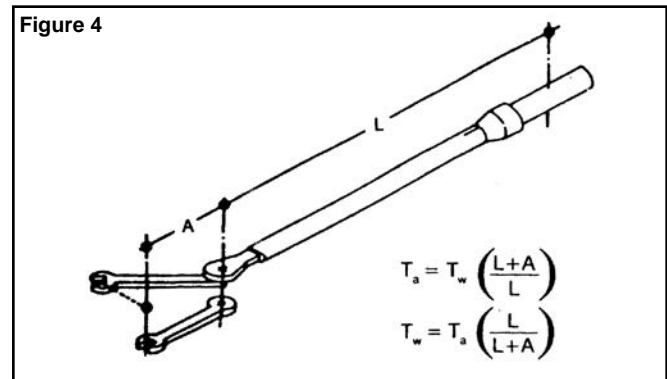
$T_a$  = Torque applied at the end of extension

$T_w$  = Torque Wrench setting

$L$  = Length of wrench (center of handle to drive)

$A$  = Length of extension \*

\* Note: Dimension always taken parallel to the line of the wrench regardless of extension configuration.



*NOTE: To obtain the actual torque values as calculated, force must be applied only at the center point of the handle.*

## “Click” Type Torque Sensing Wrenches

### Torque Settings for Dual Scale Models

**TCI-150RA, TCI-150RA-3/8, TCI-250R, TCI-75FRN, CH-150, CH-75F and CH-150F:**

The torque settings of these wrenches are read from two micrometer scales: Major and Fine. These wrenches can be utilized in Foot-Pounds (ft-lbs) or Inch-Pounds (in-lbs) and Newton meters (Nm) applications. Therefore there are two major and fine scales. The ft-lb or in-lb and Nm scales are on opposite sides of the barrel.

#### Scale increments:

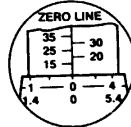
TCI-75FRN and CH-75F:

Major ft-lb = 5 ft-lbs

Fine ft-lb = 0.5 ft-lbs

Major Nm = 6.8 Nm

Fine Nm = 0.7 Nm (*rounded*)



TCI-150RA, TCI-150RA-3/8, TCI-250RA and CH-150:

Major in-lb = 10 in-lbs

Fine in-lb = 1 in-lbs

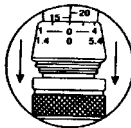
Major Nm = 1.1 Nm

Fine Nm = 0.11 Nm (*rounded*)

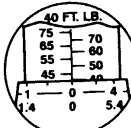
Setting the wrench is accomplished by considering all torque settings as being made up of two parts, major scale plus fine scale. *Example: A torque setting of 42 ft-lbs would be 40 ft-lbs on the major scale plus 2 ft-lbs on the fine scale.*

These wrenches can be set to the desired torque as follows:

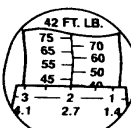
1. Grasp the locking collar between the thumb and forefinger and pull it toward the wrench handle as far as possible. Hold it in this position.



2. While holding the barrel of the wrench securely in one hand, rotate the handle until the major scale increment below the torque desired is even with the edge of the sleeve and the 0 increment on the sleeve is in line with the zero line of the barrel.

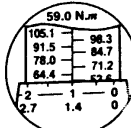


3. Rotate the handle clockwise until the fine scale torque increment desired lines up with the zero line on the barrel. Release the lock collar and the wrench is automatically locked at the torque setting selected.



**NOTE:** The lock collar will not lock until an increment line on the sleeve lines up with the zero line on the barrel.

4. For Newton meter torque settings, use the same procedure as described in steps 1-3 but using the Newton meter major scale on the barrel and the fine scale on the sleeve. The illustration shows a setting of 59.0 Nm. This can be accomplished by setting 57.6 on the major scale plus 1.4 on the fine scale. **NOTE:** The fine scale values have been rounded to the nearest whole decimal.



### Single Setting (Preset) Torque Wrenches:



These wrenches are designed so when torque is applied to a fastener, it will momentarily release and signal by impulse and audible click (or snap) that the preset torque value has been reached.

The preset torque wrench is calibrated and sealed at the factory to the torque value specified by the customer. Wrenches are also available not preset or sealed when requested. Wrenches preset at the factory are set to an accuracy tolerance of  $\pm 4\%$  of the specified torque value.

#### To Use:

Attach the appropriate adapter to the torque wrench and apply to the application. Hold the torque wrench by the padded handle and tighten the fastener. Apply force with a steady, smooth action.

Do not apply force by holding any part of the wrench, other than the padded handle. Do not use an extension or other lever aid on the handle. When the torque setting is reached, the wrench will momentarily release with a feel impulse and audible click (or snap). The wrench will move through a small arc about the pivot pin. At this point the set torque has been achieved and force on the handle must be released. The wrench will automatically snap back to its original position and is ready for the next torque application.

**CAUTION:** Do not apply force after the wrench releases, clicks (or snaps) at the set torque. If the fastener is over torqued, loosen it and repeat the operation.

Always actuate the wrench a few times before use and after a period when the wrench has not been in use.

#### To Calibrate or Re-Calibrate:

1. Calibration of this torque wrench should only be done on a certified Torque Tester for the required torque range.
2. Using a suitable adapter, attach the wrench to the torque tester.
3. Using a hex key, loosen the lock plug in the rear of the handle.
4. Using a hex key (CHB models) or screwdriver (CHA models), turn the adjusting plug clockwise to increase the torque value or counter clockwise to decrease. Turn the adjusting plug in small increments at a time. Actuate the wrench by applying force on the handle and observe the readings on the torque tester. Continue this procedure until the desired torque setting has been reached.
5. Tighten the lock plug and recheck the torque reading on the torque tester.
6. Make sure the seal washer is in place before applying any liquid seal over the lock plug.