







**TORQUE TESTERS AND CALIBRATION EQUIPMENT** 

### THE MOST RESPECTED NAME IN TORQUE TOOLS, **TESTERS AND CALIBRATION EQUIPMENT.**

CDI was founded in 1968 and over the years has developed into a world class torque products manufacturing company. The company earned its ISO 9001 International Quality System Certification in 1998, demonstrating a commitment to provide our customers with the highest quality torque measurement and torque limiting devices in the world. Today, the CDI Brand is now part of Snap-on Specialty Tools a unique member of the Snap-on Incorporated family of companies and responsible for ATI Tools brand. Specialty Tools manufacturers products for other Snap-on business and select OEM and Industrial customers world-wide.

CDI is the primary supplier of torque wrenches and torque screwdrivers to the GSA (General Service Administration of the U.S. Government) since 1968. All CDI products are individually serialized and meet or exceed appropriate ASME and ISO standards.

CDI's mechanical torque product lines include click type torque wrenches, dial indicating torque wrenches, torque limiting screwdrivers and a number of special application torque products. CDI has long been a major innovator and leader in electronic torque measurement and torque calibration equipment. We manufacture more electronic torque wrenches than any other company and are a recognized leader in electronic torque testing and calibration equipment.

We work with our customers to develop the tools they need to solve torque-related problems. CDI's mission is to remain the world's largest developer and supplier of quality torque tools, torque testing equipment and calibration services.

All Snap-on Specialty Tools employees recognize the importance of our customers' satisfaction with our products and services. We have a full time **Product Development Team dedicated to develop** and deliver innovative new torque products.

Thank you for providing us the opportunity to serve you.



#### WWW.CDITORQUE.COM

#### **CDI TORQUE TESTERS AND CALIBRATION EQUIPMENT**

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TORQUE TOOLS

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The MULTITEST Torque, Force and Tension Calibration System is the most sophisticated system available in the industry. This system will test and calibrate most types of torque wrenches, torque screwdrivers, torque multipliers, cable tensiometers, tension and compression gauges and non-impact power tools such as nutrunners and electric screwdrivers.

The Multitest Calibration System can be ordered several ways. Each system begins with the same three basic components: the Multitest Digital Monitor, the Roller Cabinet and the 2000 ft. lb. Mechanical Loader. We offer three different systems, the "Premier", the "Supreme" and the "Basic". These systems and their components are described in detail on the next few pages.

In addition, you may order any component separately to build your own "custom" system.

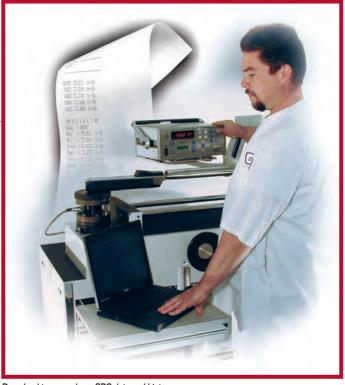


- Automatic sensor recognition with "smart" transducers
- Range: 5 in. oz. to 2000 ft. lb. torque (bi-directional)
- Accuracy: ± 0.25% of indicated value, CW & CCW, from 10% to 100% of full scale, (except 2000-4-02\*)
- Built-in, low profile serial printer
- Date and time stamp for stored values
- . Statistical analysis performed on stored data
- Programmable manual or automatic options for clear, store and print functions
- Recall and review of stored torque values
- Track, peak, first peak, power tool modes
- RS232C port, analog output
- Eight torque measurement units:
   in. oz., in. lb., ft. lb., Nm, dNm, cNm, mkg and cmkg
- Six force units: ounce, pound, newton, deciNewton, kilopound (kilogram) and gram
- Automatic lock-up for transducer protection
- All transducers supplied with certification
- Individually serialized with matching certificate of calibration traceable to N.I.S.T.



Multitest Digital Monitor with Soft Touch Keys.





Download torque values, SPC data and histograms.





TORQUE TOOLS

#### **MULTITEST PREMIER CALIBRATION SYSTEM MODEL 2000-1**

**CDI's All Inclusive Calibration System** 

#### **FEATURES**

- Our most comprehensive calibration system for torque and force
- Calibrate torque wrenches up to 2000 ft. lbs.
- Check the accuracy and calibrate cable tensiometers, tension and compression gauges
- Includes the easy-to-use 4-in-1 transducer kit
- Eleven single transducers ranging from 5 in. oz. up to 2000 ft. lbs.
- Includes torque screwdriver testing kit
- Automatic safety feature locks system to prevent overloading and possible damage to transducers
- Displays eight units of torque and six units of force
- Also includes a calibration stand and all necessary calibration wheels, arms, weights and trays
- Downloading software included



#### TORQUE TOOLS

# CALIBRATION SYSTEMS

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#### **MODEL 2000-1 INCLUDES ALL OF THE FOLLOWING:**

Product Code	Description	Product Code	Description
2000-610-02	MULTITEST Monitor	2000-550-02	Extension Arm Kit for Long Torque Wrenches
2000-600-02	Mechanical Loader 2000 ft. lb. capacity	2000-750-02	Torque Screwdriver Testing Kit
2000-100-02	Roller Cabinet	2000-320-0	No. 1 Weight Set
2000-400-02	4 in 1 Transducer Kit, 4 in. lbs. to 250 ft. lbs.	2500-50-0	2-1/2" Calibration Wheel
2000-500-02	4 In 1 Transducer Adapter Kit	2000-151-0	5" Calibration Wheel
2000-4-02*	Transducer Range From 5 - 50 in. ozs. (*± 0.5%)	2000-152-0	10" Butterfly Wheel
2000-5-02	Transducer Range From 15 - 200 in. ozs.	2000-154-0	40" Calibration Arm
2000-6-02	Transducer Range From 4 - 50 in. lbs.	390-2-2	4 oz. Weight Hanger
2000-65-02	Transducer Range From 15 - 150 in. lbs.	2000-301	8 oz. Weight Hanger
2000-7-02	Transducer Range From 30 - 400 in. lbs.	2000-304-0	7.5 lb. Weight Hanger
2000-8-02	Transducer Range From 80 - 1000 in. lbs.	2000-302-0	15 lb. Weight Hanger
2000-10-02	Transducer Range From 10 - 125 ft. lbs.	2000-303-0	50 lb. Weight Hanger
2000-11-02	Transducer Range From 20 - 250 ft. lbs.	2000-250-02	Calibration Stand Kit
2000-12-02	Transducer Range From 60 - 600 ft. lbs.	2000-260-0	Tensiometer Testing Kit
2000-13-02	Transducer Range From 100 - 1000 ft. lbs.	2000-261-0	Tension Gauge Testing Kit
2000-14-02	Transducer Range From 200 - 2000 ft. lbs.	2000-262-0	Compression Gauge Testing Kit
900-0-1KIT	Joint Rate Simulator 50 in. lbs. capacity	2000-263-02	Force Arm Kit
900-2-01KIT	Joint Rate Simulator 400 in. lbs. capacity	2000-SW	PC Software
900-3-01KIT	Joint Rate Simulator 1000 in. lbs. capacity	2000-50-1	Cable from MULTITEST to PC
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4 in 1 Transducer Kit with Mounting Adapter



Add suffix 220V for 220 volt applications.



#### WARNING

- Do not exceed rated torque.
- Periodic recalibration is necessary to maintain accuracy.
- Do not use a torque wrench to break fasteners loose.
- Frequently inspect, clean and lubricate ratchet mechanism with light oil.

CDI's Torque-Only System. Listed below are all of the components to CDI's "Supreme" MULTITEST Torque Calibration System. This is our midrange system for torque, which has a range from 15 in. ozs. to 2000 ft. lbs. Designed for the user who requires precision accuracy and reliability in a torque calibration system. This set includes an extension arm for long torque wrenches and 3 joint rate simulators for testing power tools. (Not for use with impact and pulse tools.) PC compatible software and cables are also included.

#### **MODEL 2000-2 INCLUDES ALL OF THE FOLLOWING:**

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	Product Code	Description
	2000-610-02	Multitest Digital Monitor
	2000-600-02	Mechanical Loader Max 2000 ft.lb.
	2000-100-02	Roller / Storage Cabinet 45" W x 24" D x 33" H
	2000-400-02	4 in 1 Transducer Kit-Range 4 in. lb. to 250 ft. lb.
	2000-500-02	4 in 1 Transducer Adapter Kit
	2000-4-02	Transducer Kit-Range 5-50 in. oz.
	2000-5-02	Transducer Kit-Range 15-200 in. oz.
	2000-12-02	Transducer Kit-Range 60-600 ft. lb.
	2000-13-02	Transducer Kit-Range 100-1000 ft. lb.
	2000-14-02	Transducer Kit-Range 200-2000 ft. lb.
	2000-550-02	Extension Arm for Long Torque Wrench, Reach up to 80"
	900-0-1KIT	$\ensuremath{\mbox{\sc 4}}\xspace$ drive, 50 in. lb. Capacity Joint Rate Simulator
	900-2-01KIT	%" drive, 400 in. lb. Capacity Joint Rate Simulator
	900-3-01KIT	% drive, 1000 in. lb. Capacity Joint Rate Simulator
	2000-SW	Wedgelink Software
	2000-50-1	Cable from MULTITEST or SURETEST to PC





#### **MULTITEST BASIC CALIBRATION SYSTEM MODEL 2000-3**

Listed below are all of the components to CDI's "Basic" MULTITEST Calibration System. The system includes the 4 in 1 transducer, which is capable of calibrating torque tools from 4 in. lbs. through 250 ft. lbs. Also included is the 2000 ft. lb. loader and the MULTITEST monitor.

#### **MODEL 2000-3 INCLUDES ALL OF THE FOLLOWING:**

Product Code	Description
2000-610-02	Multitest Digital Monitor
2000-600-02	Mechanical Loader Max 2000 ft.lb.
2000-100-02	Roller / Storage Cabinet 45" W x 24" D x 33" H
2000-400-02	4 in 1 Transducer Kit-Range 4 in. lb. to 250 ft. lb.
2000-500-02	4 in 1 Transducer Adapter Kit



4 in 1 Transducer Kit with Mounting Adapter.

#### **CUSTOM CALIBRATION SYSTEMS**

Don't see the exact system you're looking for? Please call customer service to request a quotation on a custom calibration system. We will provide assistance designing a testing system to fit your application and specifications.











TORQUE TOOLS

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#### **MULTITEST MOTORIZED SYSTEM MODEL 2800-1**

CDI has taken torque calibration to a higher level. Increase your productivity with the 2000 ft. lb. fully automatic motorized loader. Designed for the high volume calibration laboratory that requires a high-speed, automatic torque calibration system. In the automatic mode, the **MULTITEST Motorized System** will cycle, test and calibrate most torque wrenches. With our optional kits, you can calibrate torque screwdrivers, cable tensiometers, tension and compression gauges utilizing the manual mode, (hand crank only).

The MULTITEST Motorized System consists of the Monitor, Motorized Loader, Roller Cabinet and Extension Arm. Please order the transducers separately based on your individual needs. (Not for use with impact and pulse tools.)

#### **FEATURES**

- Automatic sensor recognition with "smart" transducers
- Range: 5 in. oz. to 2000 ft. lb. torque (bi-directional)
- Accuracy: ± 0.25% of indicated value, CW & CCW, from 10% to 100% of full scale
- Dual mode function (manual & automatic)
- Automatic speed control
- · Built-in, low profile serial printer
- Date and time stamp for stored values
- · Statistical analysis performed on stored data
- Emergency stop button
- Programmable manual or automatic options for clear, store and print functions
- Recall and review of stored torque values
- Track, peak, first peak, power tool modes
- RS232C port, analog output
- Eight torque measurement units: in. oz., in. lb., ft. lb., Nm, dNm, cNm, mkg and cmkg
- Six force units: ounce, pound, newton, deciNewton, kilopound (kilogram) and gram
- Automatic lock-up for transducer protection
- All transducers are individually serialized with matching certificate of calibration traceable to N.I.S.T.



TORQUE TOOLS

## CALIBRATION SYSTEMS

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#### **MODEL 2800-1 INCLUDES ALL OF THE FOLLOWING:**

Product Code Description
2000-810-01 MULTITEST Digital Monitor
2000-800-02 Motorized Loader with roller cabinet
2000-550-02 Extension Arm for Long Torque Wrench, Reach up to 80"



**Dual Mode Function Manual and Automatic** 



Add suffix 220V for 220 volt applications



#### MARNING

- Do not exceed rated torque.
- Periodic recalibration is necessary to maintain accuracy.
- Do not use a torque wrench to break fasteners loose.
- Frequently inspect, clean and lubricate ratchet mechanism with light oil.

The **SURETEST** is a laboratory grade instrument which captures torque measurements with a user friendly interface. It features a large LCD graphical display. It may be used with a single transducer or can be used as the principal component of a Torque Calibration System.

The SURETEST features versatile data acquisition capabilities including measurement storage, retrieval, statistical analysis and automatic downloading to an external printer/computer. The SURETEST stores, recalls and downloads up to 3000 torque readings. The system provides readings with an accuracy of  $\pm$  .25% of indicated value and features multiple languages: English, Spanish, French, Japanese and German.

The SURETEST Torque Calibration System may be ordered in three different combinations. The "Premier", the "Supreme" and the "Basic" systems are described on these pages. In addition, you may order any component separately to build your own "custom" system.

#### **FEATURES**

- Large LCD graphical display
- Five built-in languages
- Date and time stamp
- Dual RS-232 ports, analog output
- SPC built-in
- Automatic downloading
- Accuracy: ± 0.25% of indicated value, CW & CCW, from 10% to 100% of full scale
- Transducers available from 5 in. ozs. to 2000 ft. lbs. of torque
- All transducers are "smart" (plug and play)
- · Readout in eight different engineering units
- Stores and recalls 3000 torque values (date & time)
- Fully automatic voltage input adaptation (100 240 VAC input)
- Data is saved when SURETEST is turned off
- · All transducers are individually serialized with matching certificate of calibration traceable to N.I.S.T.





Set-up is quick and easy utilizing soft touch keys.

#### **MODEL 5000-1 INCLUDES ALL OF THE FOLLOWING:**



Easy, quick change transducers.

Product Code	Description	Product Code	Description
5000-ST	Suretest Monitor w/Cable and Case	2000-320-0	Weight Set #1
2000-600-02	Mechanical Loader Max 2000 ft.lb.	2500-50-0	2½" Calibration Wheel
2000-100-02	Roller / Storage Cabinet 45" W x 24" D x 33" H	2000-151-0	5" Calibration Wheel
2000-400-02	4 in 1 Transducer Kit-Range 4 in. lb. to 250 ft. lb.	2000-152-0	10" Butterfly Calibration Wheel
2000-500-02	4 in 1 Transducer Adapter Kit	2000-154-0	40" Calibration Arm
2000-4-02	Transducer Kit-Range 5-50 in. oz.	390-2-2	4 oz. Hanger Calibration Weight Tray
2000-5-02	Transducer Kit-Range 15-200 in. oz.	2000-301	8 oz. Hanger Calibration Weight Tray
2000-12-02	Transducer Kit-Range 60-600 ft. lb.	2000-304-0	7.5 lb. Calibration Weight Tray
2000-13-02	Transducer Kit-Range 100-1000 ft. lb.	2000-302-0	15 lb. Calibration Weight Tray
2000-14-02	Transducer Kit-Range 200-2000 ft. lb.	2000-303-0	50 lb. Calibration Weight Tray
2000-550-02	Extension Arm for Long Torque Wrench, Reach up to 80"	2000-250-02	Calibration Stand Kit
900-0-1KIT	1/4" drive, 50 in. lb. Capacity Joint Rate Simulator	2000-SW	Wedgelink Software
900-2-01KIT	%" drive, 400 in. lb. Capacity Joint Rate Simulator	2000-50-1	Cable from MULTITEST or SURETEST to PC
900-3-01KIT	%" drive, 1000 in. lb. Capacity Joint Rate Simulator	2000-50-2	Cable from MULTITEST or SURETEST to External
2000-750-02	Torque Screwdriver Testing Kit for 2000-600-02 Loader		Serial Printer



Add suffix 220V for 220 volt applications.





TORQUE TOOLS

#### **SURETEST SUPREME CALIBRATION SYSTEM MODEL 5000-2**

CDI's Mid-Range Torque System. Listed below are all of the components to CDI's "Supreme" SURETEST Torque Calibration System. This mid-range torque system has a range from 5 in. ozs. to 2000 ft. lbs. Choose SURETEST for unsurpassed accuracy and reliability in a torque calibration system. Also includes an extension arm for long torque wrenches and 3 joint rate simulators for testing power tools. (Not for use with impact and pulse tools.) PC compatible software and cables are included.

#### **MODEL 5000-2 INCLUDES ALL OF THE FOLLOWING:**

ı	MODEL	OOG-E HIGHORES WEE OF THE LOI
	Product Code	Description
	5000-ST	Suretest Monitor w/Cable and Case
	2000-600-02	Mechanical Loader Max 2000 ft.lb.
	2000-100-02	Roller / Storage Cabinet 45" W x 24" D x 33" H
	2000-400-02	4 in 1 Transducer Kit-Range 4 in. lb. to 250 ft. lb.
	2000-500-02	4 in 1 Transducer Adapter Kit
	2000-4-02	Transducer Kit-Range 5-50 in. oz.
	2000-5-02	Transducer Kit-Range 15-200 in. oz.
	2000-12-02	Transducer Kit-Range 60-600 ft. lb.
	2000-13-02	Transducer Kit-Range 100-1000 ft. lb.
	2000-14-02	Transducer Kit-Range 200-2000 ft. lb.
	2000-550-02	Extension Arm for Long Torque Wrench, Reach up to 80"
	900-0-1KIT	1/4" drive, 50 in. lb. Capacity Joint Rate Simulator
	900-2-01KIT	% drive, 400 in. lb. Capacity Joint Rate Simulator
	900-3-01KIT	%" drive, 1000 in. lb. Capacity Joint Rate Simulator
	2000-SW	Wedgelink Software
	2000-50-1	Cable from MULTITEST or SURETEST to PC
	2000-50-2	Cable from MULTITEST or SURETEST to External Serial Printer



4 in 1 Transducer Slides Easily into Adapter Kit

#### **SURETEST BASIC CALIBRATION SYSTEM MODEL 5000-3**

Listed below are all of the components to CDI's "Basic" SURETEST Calibration System. This system, by itself is capable of calibrating torque tools from 4 in. lbs. up to 600 ft. lbs. The set includes our 4 in 1 Transducer, adapter, 600 ft. lb. transducer, loader and monitor.

#### **MODEL 5000-3 INCLUDES ALL OF THE FOLLOWING:**

Product Code	Description
5000-ST	Suretest Monitor w/Cable and Case
600TL2	Mechanical Loader 600 ft. lb.
2000-400-02	4 in 1 Transducer Kit-Range 4 in. lb. to 250 ft. lb.
2000-500-02	4 in 1 Transducer Adapter Kit
2000-12-02	Transducer Kit-Range 60-600 ft. lb.

#### **CUSTOM CALIBRATION SYSTEMS**

Don't see the exact system you're looking for? Please call customer service to request a quotation on a custom calibration system. We will provide assistance designing a testing system to fit your application and specifications.



Add suffix 220V for 220 volt applications.



#### MARNING

- Do not exceed rated torque.
- Periodic recalibration is necessary to maintain accuracy.
- Do not use a torque wrench to break fasteners loose.
- Frequently inspect, clean and lubricate ratchet mechanism with light oil.

## CALIBRATION SYSTEMS

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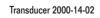
Female by Female socket adapters are used in a variety of torque testing and torque calibration applications.





4 in 1 Transducer 2000-400-02







Adapter Kit 2000-500-02

#### **MULTITEST/SURETEST ACCESSORIES**

Product Code	Description
2000-610-02	MULTITEST Monitor

SURETEST Monitor 5000-ST

Product Code	Description
2000-600-02	Mechanical Loader, 2000 ft. lbs.

600TL2 Mechanical Loader, 600 ft. lbs.

#### **Socket Adapters Female X Female**

Product Code	Opening	Χ	Opening
260-27	1/4" hex	χ	1/4" sq.
342-40	¼" sq.	Χ	1/4" sq.
342-41-1	¼" sq.	Χ	%" sq.
342-41-2	%" sq.	Χ	%" sq.
65-26-2	½" sq.	Χ	%" sq.
65-26-3	½" sq.	Χ	½" sq.
65-78-1	½" sq.	Χ	¾" sq.
65-78-2	¾" sq.	Χ	¾" sq.
75-25-1	1 sq.	Χ	¾" sq.
75-20	1 sq.	Χ	1 " sq.

Product Code	Description
2000-100-02	Boller Cahinet

Product Code	Description	
2000-400-02	4 in 1 Transducer	(Shown)
2000-500-02	4 in 1 Transducer Adapter Kit	(Shown)
2000-4-02	Transducer Range 5 - 50 in. ozs.	(Not Shown)
2000-5-02	Transducer Range 15 - 200 in. ozs.	(Not Shown)
2000-6-02	Transducer Range 4 - 50 in. lbs.	(Shown)
2000-65-02	Transducer Range 15 - 150 in. lbs.	(Not Shown)
2000-7-02	Transducer Range 30 - 400 in. lbs.	(Not Shown)
2000-8-02	Transducer Range 80 - 1000 in. lbs.	(Not Shown)
2000-10-02	Transducer Range 10 - 125 ft. lbs.	(Not Shown)
2000-11-02	Transducer Range 20 - 250 ft. lbs.	(Not Shown)
2000-12-02	Transducer Range 60 - 600 ft. lbs.	(Not Shown)
2000-13-02	Transducer Range 100 - 1000 ft. lbs.	(Not Shown)
2000-14-02	Transducer Range 200 - 2000 ft. lbs.	(Shown)







#### **MULTITEST/SURETEST ACCESSORIES**

Build Your Own Torque Calibration System.

#### **MULTITEST/SURETEST ACCESSORIES**

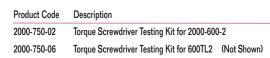
**Product Code** Description

2000-550-02 Extension Arm Kit for Long Torque Wrenches

(For Torque Wrenches over 45 inches long)



Product Code	Description	
900-0-1KIT	Joint Rate Simulator 50 in. lbs. capacity	(Not Shown)
900-2-01KIT	Joint Rate Simulator 400 in. lbs. capacity	(Shown)
900-3-01KIT	Joint Rate Simulator 1000 in. lbs. capacity	(Not Shown)



**Product Code** Description 2000-261-0 Tension Gauge Testing Kit (Tension Gauge, Force Arms not included)

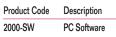
Product Code Description 2000-260-0 Tensiometer Testing Kit (Tensiometer, Force Arms not included)

**Product Code** Description 2000-263-02 Force Arm Kit (Only one required for any testing kit)

**Product Code** Description 2000-262-0 Compression Gauge Testing Kit (Compression Gauge, Force Arms not included)

**Product Code** Description 2000-50-1 Cable from MULTITEST/SURETEST to PC

Product Code Description Cable from MULTITEST/SURETEST to external serial printer 2000-50-2









• Do not exceed rated torque.

· Periodic recalibration is necessary to maintain accuracy.

 Do not use a torque wrench to break fasteners loose. • Frequently inspect, clean and lubricate ratchet mechanism with light oil. **TORQUE TOOLS** 

**ACCESSORIES** 

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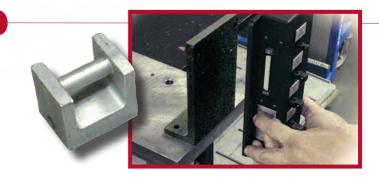


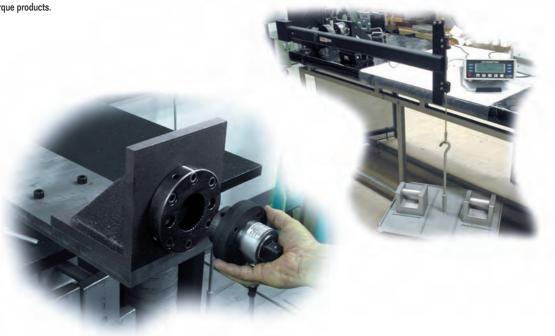






CDI's calibration equipment is expressly designed to calibrate the complete line of CDI Torque Transducers. All weight trays, arms and brackets supplied by CDI Torque Products are built with precision accuracy to meet the demanding needs of the calibration professional. All calibration wheels and arms are certified as to length, and supplied with a certificate of accuracy, which is traceable to N.I.S.T. (National Institute of Standards and Technology). Weights, trays and hangers are weight certified and are also supplied with a certificate of accuracy traceable to N.I.S.T. Mating adapters are available to facilitate the use of the various components. Written procedures are available upon request for calibrating any of CDI's manufactured torque products.







#### **CALIBRATION EQUIPMENT**

**Product Code** Description

2000-250-02 Calibration Stand Kit





Transducer mounting adapters included with stand.







Qty

#### **CALIBRATION EQUIPMENT**

#### **CALIBRATION EQUIPMENT**

Product Code	Description
390-2-2	4 oz. Weight Hanger
2000-301	8 oz. Weight Hanger
2000-304-0	7.5 lb. Weight Hanger
2000-302-0	15 lb. Weight Hanger
2000-303-0	50 lb. Weight Hanger



#### Weight Sets Itemized

Product Code Description

2000-320-0	Weight Set #1 (not shown)				
Consists of the following:					
	50 lb. Block Weight	8			
	20 lb. Block Weight	5			
	10 lb. Block Weight	4			
	5 lb. Slotted Weight	6			
	2 lb. Slotted Weight	4			

1 lb. Slotted Weight 1/2 lb. Slotted Weight 4 oz. Slotted Weight 2 oz. Slotted Weight

(For All Transducers)

Product Code	Description	Qty		
2000-321-0	Weight Set #2 (not shown)			
Consists of the following:				
	50 lb. Block Weight	4		
	20 lb. Block Weight	4		
	10 lb. Block Weight	4		
	5 lb. Slotted Weight	6		
	2 lb. Slotted Weight	4		
	1 lb. Slotted Weight	2		
	1/2 lb. Slotted Weight	1		
	4 oz. Slotted Weight	1		
	2 oz. Slotted Weight	1		

Product Code	Description	Qty		
2000-322-0	Weight Set #3 (not shown)			
Consists of the				
	50 lb. Block Weight	8		
	20 lb. Block Weight	5		
	10 lb. Block Weight	4		
	5 lb. Slotted Weight	2		
	2 lb. Slotted Weight	1		
	1 lb. Slotted Weight	1		

(For 600 ft. lbs. to 2000 ft. lbs.)

(For 200 in. oz. to 600 ft. lbs.)

Note: Weights not sold separately





- Do not exceed rated torque.
- Periodic recalibration is necessary to maintain accuracy.
- Do not use a torque wrench to break fasteners loose.
- Frequently inspect, clean and lubricate ratchet mechanism with light oil.

**TORQUE** TOOLS

CALIBRATION EQUIPMENT



#### **CALIBRATION EQUIPMENT**





## CALIBRATION EQUIPMENT Product Code Description

Product Code	Description
2000-152-3	½" x ¾" Sq. Drive Reducer
2000-226-3	¾" x ½" Sq. Drive Reducer
2000-226-2	1" x ¾" Sq. Drive Reducer
2000-0154-18	1¼" x¾" Sq. Drive Reducer
(for 600 ft. lbs.	transducer)
S/2000-221-0	11/4" Flange Adapter

Product Code	Description
2500-50-0	2½" Calibration Wheel, ¼" Dr.
2000-151-0	5" Calibration Wheel, ¼" Dr.
2000-152-0	10" Butterfly Wheel, ½" Dr. (Includes 3/8" drive adapter)
2000-154-0	40" Calibration Arm, 1¼" Dr. (Includes 3/4" drive adapter)

Product Code	Description
342-35	Transducer Bracket, 5-1000 in. lbs.
342-36	Transducer Bracket, 125-600 ft. lbs.
343-25	Transducer Bracket, 4 in 1 / ETT
2000-150-03	Transducer Bracket, 1000-2000 ft. lbs.

Product Code	Description
2344-0050-03	Table Mounting Bracket for DTT Series Testers

Product Code	Description
900-0-1KIT	1/4" drive, 50 in. lb. Capacity Joint Rate Simulator / ETT
900-2-01KIT	% " drive, 400 in. lb. Capacity Joint Rate Simulator / ETT
900-3-01KIT	% drive, 1000 in. lb. Capacity Joint Rate Simulator / ETT







#### **CALIBRATION EQUIPMENT**

**Master Transducer Component List** 

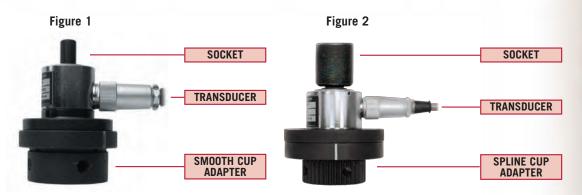


Figure 3



Transducer Kits include all items listed below except brackets. Brackets sold separately.

#### **CALIBRATION EQUIPMENT**

Transducer Kit			Fig.		_	Cup		Sq. Drive	
Product Code	Range	Drive	No.	Transducer	Socket	Adapter	Flange	Adapter	Bracket
2000-4-02	5-50 in. ozs.	1/4"	1	342-17-01	342-40	2000-225-5	none	none	342-35
2000-5-02	15-200 in. ozs.	1/4"	1	342-2-01	342-40	2000-225-5	none	none	342-35
2000-6-02	4-50 in. lbs.	1/4"	1	342-4-01	342-40	2000-225-5	none	none	342-35
2000-65-02	15-150 in. lbs.	1/4"	1	S/342-5-0	342-40	2000-225-5	none	none	342-35
2000-7-02	30-400 in. lbs.	3/8"	1	342-7-0	342-41-2	2000-225-5	none	none	342-35
2000-8-02	80-1000 in. lbs.	3/8"	1	342-9-0	342-41-2	2000-225-5	none	none	342-35
2000-10-02	10-125 ft. lbs.	1/2"	1	342-10-0	65-26-3	2000-225-4	none	none	342-36
2000-11-02	20-250 ft. lbs.	1/2"	1	342-11-0	65-26-3	2000-225-4	none	none	342-36
2000-12-02	60-600 ft. lbs.	3/4"	2	342-12-0	65-78-2	S/2000-225-4	none	none	342-36
2000-13-02	100-1000 ft. lbs.	1"	3	S/2000-13-0	none	S/2000-225-3	S/2000-219-2	2000-226-2	2000-150-03
2000-14-02	200-2000 ft. lbs.	1"	3	S/2000-14-0	none	S/2000-227-2	S/2000-219-2	2000-226-2	2000-150-03



#### WARNING

- Do not exceed rated torque.
- Periodic recalibration is necessary to maintain accuracy.
- Do not use a torque wrench to break fasteners loose.
- Frequently inspect, clean and lubricate ratchet mechanism with light oil.

TORQUE TOOLS

CALIBRATION ACCESSORIES

1 a

#### DIGITAL TORQUE TESTER™ (DTT)

The CDI **Digital Torque Tester™** (DTD utilizes the testing protocol and standards developed by the American Society of Mechanical Engineers (ASME) and is designed to be an affordable torque tester that can be mounted on a wall or used in a bench-top vise to allow the operator to conveniently test torque wrenches and torque screwdrivers. It features an easy to use touch pad screen to capture peak torque values during a test in real time, and download stored torque data to a PC. All DTT torque testers are sold in a kit with the complete tester, hard carrying case, two socket driver reducer adapters and AC/DC power supply.

#### **FEATURES**

- Integral Transducer and sturdy housing allow mounting in virtually any position
- Integral Transducer: Full bridge strain gage, 350 ohm, 1500uE, 3mV/V F.S, 3.75 excitation
- Units of Torque: Nm, kgcm, ft.lb., in.lb., in-oz.
- Audible (tone)
- Torque Accuracy: ±0.5% ±1 count CW and CCW from 10 to 100% of full scale at 25° C
- LCD Touch Screen: 4.7 in. color graphics display
- Screen resolution: 480 X 272 pixels
- Display Accuracy: 4 digits, 9999 cycle counts
- Six "AA" Alkaline cells for battery power included
- Track, Peak and First Peak modes of operation
- Operating Temperature: 40 to 110° F (5 to 42° C)
- Storage Temperature: 0 to 122° F (-20 to 50° C)
- Humidity up to 85% non-condensing
- EU/CE-DE, ES, FR, IT, NL, PT, UK and Japanese language manual
- ISO-6789-2003 and ASME B107-28-2005 standards compliant
- Certificate of N.I.S.T. traceability from 10% to 100% of full scale
- Includes storage case, AC adapter and USB cable







Digital Torque Tester with optional table mounting bracket.

#### **DIGITAL TORQUE TESTERS**

Product Code	Square Drive	Range English	Range, Nm	Range, kgcm		
1001-O-DTT	1/4"	10 - 100 in.oz.	.07706	.72 - 7.20		
501-I-DTT	1/4"	5 - 50 in.lb.	.56 - 5.65	5.76 - 57.60		
2502-I-DTT	3/8"	25 - 250 in.lb.	2.82 - 28.25	28.80 - 288.0		
2503-F-DTT	1/2"	25 - 250 ft.lb.	33.90 - 338.9	345.6 - 3456		
6004-F-DTT	3/4"	60 - 600 ft.lb.	81.35 - 813.5	829.5 - 8295		
2344-0050-03	Table Mounting Bracket for DTT Series Testers					

Accuracy: ± 0.50% ±1 count 10% to 100% CW &

CCW of indicated test value @ 25° C

Units of Measure: Nm, kgcm, ft.lb., in.lb., in.oz.
Operation Modes: TRACK, PEAK, FIRST PEAK
Operating Temperature: 10 to 32° C (50 to 90° F)
Storage Temperature: -20 to 50° C (-2 to 122° F)

Humidity: 85% Relative Humidity @ 21° C (70° F)
Power Supply: Included 9-volt A/C D/C adapter. 6 AA

batteries included.

Data Storage/Recall: Memory Capacity – 500 Records

(Complete Check Mode Only.)

TORQUE TOOLS







#### 800-525-6319

#### Sequential Process







TORQUE TOOLS

TORQUE TESTERS

0





American Society of Mechanical Engineers (ASME) Emulation test of 20% / 60% / 100%



Portable, quick and accurate tester for all click wrenches.

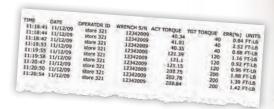


Perfect for checking dial torque wrenches.



Product Code Description

2344-0050-03 Table Mounting Bracket for DTT Series Testers



Sample torque data report from DTT





- Do not exceed rated torque.
- Periodic recalibration is necessary to maintain accuracy.
- Do not use a torque wrench to break fasteners loose.
- Frequently inspect, clean and lubricate ratchet mechanism with light oil.

#### **MULTITORO TORQUE & DATA COLLECTION SYSTEMS**

The MULTITORQ portable electronic torque meter displays torque readings from sensors that attach between sockets and driver. MULTITORO is a highly versatile torque analyzer/data acquisition system that can be used with sockets, extensions, universal joints, ratcheting drivers or any combination of these. Sensors are sold separately, available in 8 ranges from 2-20 in. ozs. to 150-1500 ft. lb. Accuracy  $\pm$  1% of reading ( $\pm$  2% reading for 20 in. oz., and 10 in. lb.) 10-100% of sensor range.

The torque analyzer features a wide angle viewing LCD display with selectable readouts; ft. lb., in. lb., in. oz., Nm, dNm, mkg, and cmkg units. Torque target settings are entered via a push button membrane keyboard. High and low torque limits are adjustable to give an audible and visual alarm. The user selects Track mode to display torque values as they are applied, or Peak mode to display the highest torque value applied.



- 4 digit w/ alpha & numerical function flags
- 4 digit, 8000 counts display capacity
- Accuracy: ± 1% of indicated value, cw & ccw, from 10% to 100% of full scale, 201-O-MT and 101-I-MT are  $\pm$  2%
- · Soft touch keys: hi/lo alarm, zero tare, set-up, units, store/ recall/clear, send, statistics, enter
- Units of measurement: ft. lb., in. lb., in. oz., Nm, dNm, mkg and cmkg
- Storage: -20 to 50 degrees C (-2 to 122 degrees F)
- Humidity: up to 90%, non-condensing
- Dimensions: 3" wide, 2.5" high (3" with belt clip), 6" deep
- Weight: 1 pound
- Charge life (full charge to shutoff): 20 hours continuous
- Battery chargers: 120 VAC or 220 VAC (50-60Hz)
- Output: 9VDC, 200mA
- Data storage/recall: 3500 measurements
- Serial output port: RS-232 (true), 300-19.2k baud, and mitutoyo (statistical protocol)
- Rechargeable Ni-Cad batteries
- · Reads bi-directionally (cw and ccw)



Turns any ordinary ratchet wrench.....



...into a highly accurate digital torque tool.



#### **MULTITORO TORQUE & DATA COLLECTION SYSTEMS**

#### Standard Set Includes

Stanuaru Set	mciuues:
Product Code	Description

1600-MT MULTITORQ Unit includes: power pack/charger (P115-30) and case (1600-50)

#### Sensors: (sold separately)

Product Code	Torque Range	Drive	
201-0-MT	2 - 20 in. oz.	1/4"	
101-I-MT	1 - 10 in. lb.	1/4"	
501-I-MT	5 - 50 in. lb.	1/4"	
2001-I-MT	20 - 200 in. lb.	1/4"	
1002-F-MT	10 - 100 ft. lb.	3/8"	
2503-F-MT	25 - 250 ft. lb.	1/2"	
6004-F-MT	60 - 600 ft. lb.	3/4"	
15005-F-MT	150 - 1500 ft. lb.	1"	

Certificate of accuracy traceable to N.I.S.T. supplied with each transducer. All components ordered separately.

#### **Optional Accessories:**

Product Code	Description
1600-10	Interface Cable: RS-232 to serial printer
1600-20	Interface Cable: RS-232 to P.C.
82-66	220 Volt Charger



Add suffix 220V for 220 volt applications.







#### VWW.CDITORQUE.COM



Headphone jack, on-off switch, and serial port for downloading to a PC.

Optional charger available for 220 Volt application.



PC Statistical Analysis Output: Download histogram, minimum and maximum reading, mean, sigma N, sigma, CP, Cpk, % error, number of readings under and over tolerances.



Smart Sensors: "Plug-and-Play" built-in EEPROM memory chip that stores sensor identification and calibration factors. Factory calibrated, a sensor retains its accuracy with all MULTITORQ meters.



From 2 in. ozs. all the way to 1500 ft. lbs., Multitorq fills all of your torque needs.



#### WARNING

- Do not exceed rated torque.
- Periodic recalibration is necessary to maintain accuracy.
- Do not use a torque wrench to break fasteners loose.
- Frequently inspect, clean and lubricate ratchet mechanism with light oil.

**TORQUE** TOOLS

DATA **COLLECTORS** 

The CDI Model DPT series of torque multipliers are constructed of a two piece aluminum housing, special gear train, a stainless steel reaction device and a digital torque display. The display measures output torque directly in foot pounds when the load is reacted through the two pins on the output side of the housing. This reaction force is transferred to the electronics, which in turn sends the signal to the digital display for precise torque readings to the nearest foot pound. An adapter is required to interface with the application.

#### **FEATURES**

- Digital readout
- Accuracy: ± 2% of indicated value, cw and ccw, from 10% to 100% of full scale
- Easy zero adjust
- · Powered by a 9 volt battery
- Balanced precision gear train
- Heavy duty pawl ratchet for quick and easy alignment
- Side loading eliminated
- Zero back-lash
- · Indicates fastener relaxation to nearest foot pound
- Accurate from -25 to 120 degrees Fahrenheit







#### **DIGITAL POWER TORQUE MULTIPLIERS - DPT SERIES**

Part Number	Capacity	Incr.	Size	Wt. Lbs.	Input	Output
DPT1200	0-1200 ft. lb.	1 ft. lb.	9½" W 6%" H 5½6" D	20 lbs.	%" female with %" sq. drive supplied	34" sq. female with 6" long 34" sq. male drive supplied
DPT2500	0-2500 ft. lb.	1 ft. lb.	11" W 8" H 6¼" D	38 lbs.	%" female with %" sq. drive supplied	1" sq. female with 8" long 1" sq. male drive supplied

1200 KIT contains - carrying case, output shaft and crank handle. 2500 KIT contains - carrying case, output shaft and crank handle.









#### **TORQUE FACTS**

#### **ELECTRONIC TORQUE TESTER INFORMATION**

Issues to consider when selecting an electronic torque tester:

- 1 **ACCURACY:** Generally there are two ways of stating accuracy:
  - A. % of full-scale deflection or FSD
  - B. % of indicated value or reading

The following example will show the difference between the two methods:

 $\begin{tabular}{lll} \textbf{Case 1} - Assume you have a 100 ft. lb. tester (maximum), and that the stated accuracy is +/- 0.5% of full scale. \\ \end{tabular}$ 

At 100 ft. lb. +/- 0.5% full scale error = .5 ft, lb. This represents the "best case" error of the system. However, when a lower range is utilized, this .5 ft-lb becomes more significant. That is, on the same 100 ft. lb. tester;

at 50 ft. lb. - .5 ft. lb. error = 1% accuracy at 10 ft, lb. - .5 ft. lb. error = 5% accuracy at 1 ft. lb. - .5 ft. lb. error = 50% accuracy

Therefore, what looks to be a good accuracy reading at fullscale actually translates into substantial error at the low range of the tester.

Case 2 - Assume you have a 100 ft. lb. tester (maximum), and that the stated accuracy is +/- 0.5% of indicated value

at 100 ft. lb. - .5% error .5 ft. lb. at 50 ft. lb. - .5 % error .25 ft. lb. at 10 ft. lb. - .5% error .05 ft. lb.

As can be seen by the above examples, error as related to full-scale value increases significantly as you go lower in the range, while error as related to indicated value stays constant throughout the useful range of the tester.

**2 RANGE:** Generally when manufacturers advertise % error of full-scale, their useful ranges will be advertised from zero to full-scale. That is, +/- 0.5% accurate (full-scale) from 0-100 ft. lb. This is interesting because at zero ft. lb., the system is only accurate to within +/- 0.5 ft. lb. Basically, error goes to infinity at zero.

Furthermore, transducers which are used to convert the mechanical torque into an electrical signal may become inconsistent below 10% of full-scale deflection.

It is for the above stated reason that systems which have accuracy as related to indicated value should state the useful range to be 10% to 100% of the tester range.

Therefore, if a tester has 100 ft. lb. maximum range, it should not be used at less than 10 ft. lbs. if the desired accuracy is needed.

It is CDI's belief that in order to be completely honest to the customer, accuracy should always be stated as a percent of indicated value and the useful range should correspond to that stated accuracy. This will prevent the user from having to calculate what the real error is at any given range.

- 3 **CIRCUITRY:** There are two basic ways of measuring the output of a torque transducer.
  - 1. Analog (non-microprocessor based pure analog)
  - 2. Digital (microprocessor based plus analog input)

Without in-depth explanations of these two systems, the following advantages of having digital circuitry are well known throughout the electronics industry.

- 1. Digital systems are economical, flexible and compact.
- 2. Digital systems improve reliability in the face of hardware imperfections.
- Digital systems allow the ability to make logical decisions, carry out digital computations (unlimited unit conversion) and store the results in memory.

Basically, full digital systems are computer controlled. It is important that the terms "digital display" or "digital memory" do not necessarily mean that the system has full digital circuitry.

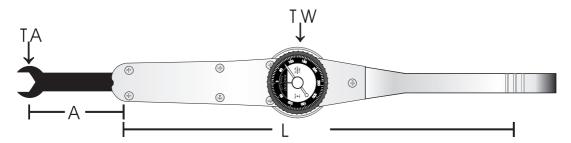
# TORQUE FACTS



#### **TORQUE FACTS**

#### FORMULA FOR CALCULATING ADDITION OF AN ADAPTER TO A TORQUE WRENCH





**Length (L)** = Effective length of the wrench as described below.

**Dial Wrenches** = The measured distance from the center of the square drive to the center ring or notch on the handle.

**Micrometer** 

**Wrenches** = The measured length from the center of the square drive to the center of the handle, with the wrench set at the desired torque reading.

**Desired** 

**Torque (TA)** = The torque value designated for the fastener with or without an adapter.

**Added Length** 

**of Adapter (A)** = The measured length from the center of the adapter drive to the center of the wrench square drive.

**New Setting (TW)** = The torque setting on the wrench allowing for the added length of the adapter. This reading will be lower than the desired torque.

**Example:** 250 ft. lb. Dial Wrench using a 2" long crowfoot adapter

L = Effective Length: 18.75" Desired Torque = 250 ft. lb. Length of Adapter = 2"

**Result:**  $\frac{18.75^{\circ} \times 250 \text{ ft. lb.}}{18.75^{\circ} + 2^{\circ}} = \text{Pull Wrench to 226 ft. lb.}$ 





#### **REPAIR & SERVICE CENTER**

For over 30 years the CDI Repair and Service Center has been providing quality torque tool repair and calibration services performed by highly trained technicians. CDI Torque Products is a premier torque wrench and torque calibration equipment manufacturer that has been ISO 9001 certified since 1998. Mechanical torque tools and electronic torque equipment are designed, built and serviced in our City of Industry, California facility. CDI's mechanical and electronic torque tools are repaired and calibrated with N.I.S.T. (National Institute of Standards and Technology) traceable calibration equipment. CDI Torque Products meets or exceeds ASME and ISO standards. All of CDI's primary torque wrench calibration equipment used in manufacturing and repair are calibrated on a monthly basis — that's twelve times a year!!

In addition to repair and calibration services, CDI offers training in several areas. **Technical training is available at our facility for any CDI manufactured torque calibration system.** Training in mechanical and electronic torque wrench repair, torque theory, torque basics and safety training is also available.

All electronic torque checking, testing and calibration equipment sent to CDI for servicing is returned to factory standards and a certificate of calibration is provided at no extra cost. Rely on the CDI Repair and Service Center to do the job right the first time.



TORQUE TOOLS

SERVICE/ WARRANTY



#### MECHANICAL AND ELECTRONIC TORQUE PRODUCTS FULL 12-MONTH WARRANTY

CDI TORQUE PRODUCTS WARRANTS TO THE ORIGINAL PURCHASER OF TORQUE PRODUCTS THAT THE COMPANY'S TORQUE PRODUCTS ARE FREE FROM DEFECTS IN WORKMANSHIP AND MATERIALS. CDI TORQUE PRODUCTS will repair or replace torque products which fail to give satisfactory service due to defective workmanship or materials (excluding calibration) for 12 months from the date of original purchase. CDI TORQUE PRODUCTS warrants "initial, out of box calibration" of each new, unused torque product. Repair, replacement or recalibration shall be at the election and expense of CDI TORQUE PRODUCTS, and is your exclusive remedy in place of all other rights and remedies. Products must be returned with proof of purchase, freight prepaid, to a CDI TORQUE PRODUCTS repair center for warranty service. CDI TORQUE PRODUCTS does not provide any warranty for products subjected to abnormal use. Abnormal use includes misuse, accident, modification, unreasonable use, neglect, lack of maintenance, or use after the tool is significantly worn.

"NO OTHER WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, SHALL APPLY, AND ALL SUCH WARRANTIES ARE HEREBY EXPRESSLY EXCLUDED."

In no event shall Seller be liable to Buyer or anyone claiming through or against Buyer for any special, indirect or consequential damages (including, without limitation, lost profits, revenues, anticipated sales, business opportunities or goodwill; interruption of business; or loss of business information).





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342-41-1	1/4" sq. x 3/6" sq. Socket Adapter	8
342-41-2	%" sq. x %" sq. Socket Adapter	8
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#### **WARRANTY STATIONS**

#### **United States**

#### **CDI Torque Products**

a Snap-on® company 19220 San Jose Avenue

City of Industry, CA 91748 Phone: (626) 965-0668 Fax: (626) 965-2410

E-Mail: sales@cditorque.com Web Site: www.cditorque.com

#### **United States**

#### Team Torque, Inc.

A2LA Accredited to ISO 17025 2910 E. Broadway #24 Bismarck, ND 58501

Phone: 701.223.4552 or 888.682.8675

Fax: 701.222.3731

E-Mail: service@teamtorque.com

#### **United States**

#### **Angle Repair**

175 Angle Drive Beckley, WV 25801 Phone: 304.253.5729 Fax: 304.252.0481

E-Mail: estimate@anglerepair.com

#### Canada

#### Etaltech

587 Adanac Beauport, Quebec Canada G1C 7G6 Phone: 418.660.6081 Fax: 418.660.6554 E-Mail: etaltech@qc.aira.com

#### Mexico

#### Arjessiger de Mexico, S.A. de C.V.

PH: 01 (800) 522.22.65 PH: 01 (800) 228.11.44 PH: 011 (52) 553.91.06.65 PH: 011 (52) 553.91.07.49 FAX: 011 (52) 553.91.51.87 E-Mail: ventas@arjessiger.com

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ASME B107.28 - 2005 - Electronic Torque Instruments

ASME B107.29 - 2005 - Electronic Testers and Hand Torque Tools

 $US\ Air\ Force\ /\ Navy\ requirements\ for\ NSN\ \#\ 6635\ -\ 01\ -\ 327\ -\ 4461\ -\ Multitest\ Calibration\ System\ (TFC 2000\ -\ 0\ -\ 03)$ 

CDI is a member of HTI and sits on the ASME Committee on Torque Instruments and NCSL International Metrology Group.



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