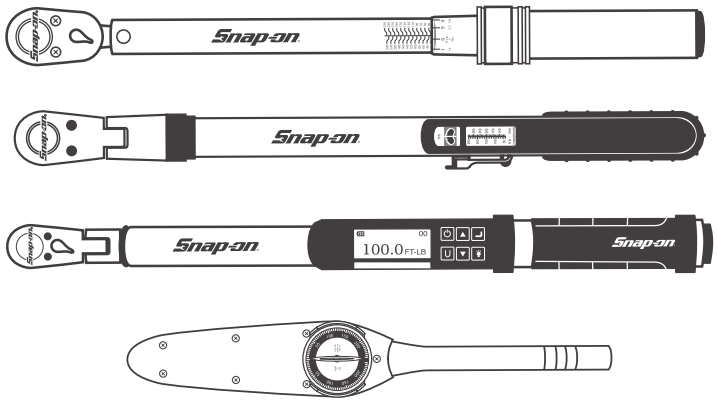
Snap-on Industrial

INDUSTRIAL TORQUE SOLUTIONS

INNOVATION | ACCURACY | DURABILITY



TORQUE 101

TORQUE TERMS

A.S.M.E. – American Society of Mechanical Engineers, known for setting codes and standards for mechanical devices, including torque.

CW (Clockwise) / CCW (Counter Clockwise) – Used in all accuracy statements & Certs. Some tools have different accuracy depending on direction of use.

Calibration – Adjusting a torque tool or a torque transducer in order to bring it back within spec, which is performed on a calibration system such as the Snap-on TTC2200 or TTC2800. Typical calibration accuracy is ± 4% CW of indicated value.

Certification – A form which lists the results of the calibration test. Almost all Snap-on tools are supplied with a N.I.S.T. traceable cert. Snap-on also conforms to the ISO 6789, which is the standard set forth by the International Organization for Standardization (ISO) for torque measurement.

Cycling – For mechanical torque wrenches, to "exercise" the wrench for use. With a new wrench, and for first use of the day, set the wrench at the desired torque value and pull for several clicks on a stationary fastener. This exercises the internal wrench mechanism and ensures smooth and accurate operation.

ISO 17025 – A laboratory accreditation standard. Most all torque wrenches (including Snap-on) do not come with ISO 17025 accredited certifications. But torque wrenches can receive accredited certification for an additional fee (range of $50-$200 depending on tool) if the end-user desires.

N.I.S.T. – National Institute of Standards and Technology is a non-regulatory agency of the US Department of Commerce. They are the federal agency that sets standards for all weights and measures in the U.S. All Snap-on torque products are calibrated on testers calibrated with weights and arms that are all traceable back to N.I.S.T.

Newton – A common unit of weight used for torque from the SI system (not metric). Equivalent to 102 grams / .273 pounds.

Rolling Torque – Measuring the prevailing torque, or resistance, of a rotating shaft.

Strain Gage – Electronic device used to measure the bend (turn resistance) of an object. The measured strain is then translated into torque.

Testing – Determines the accuracy of the tool. It does not include adjusting the tool. Commonly called "as found" data.

Torque Then Angle – Tightening the fastener to a specific torque, then further turning a specific number of degrees (angle) of rotation. Example: 70 ft. lbs. + 40 degrees.

Torque to Yield (TTY) – Same method as T&A except utilizes "single use" or "TTY" fasteners (special one-time-use fasteners which are stretched into their yield zone and cannot be used again).

Q: WHY CHOOSE...?

Snap-on®

A: Snap-on has innovative torque solutions for any industry.
Snap-on manufactures and sells an extensive array of torque products to cover the needs of professionals within important industries such as:

- Automotive
- Aviation/Aerospace
- Marine
- Construction
- Energy / Oil & Gas
- Manufacturing
- Mining
- Military

A: Snap-on offers a wide range of torque wrenches.
Snap-on's product line is diverse and there is a wide selection of choices regarding accuracy level, torque ranges, mechanical and electronic designs, ratchet types, swing arc, physical dimensions, ergonomics and overall features. If a unique application exists, Snap-on will have the torque solution for it.

A: Snap-on services what they sell.
Snap-on stands by their product with industry-leading warranties, calibration, maintenance and servicing.

A: The vast majority of Snap-on torque products are designed, made and assembled in the USA.
Snap-on believes in the importance of local manufacturing. Wherever possible, Snap-on uses American-made parts, American production facilities and a quality American workforce.

A: Snap-on knows torque.
Snap-on knows that torque is critical. And with vehicle manufacturers investing heavily to reduce weight and increase fuel mileage by using a wide array of materials such as high-strength alloys, aluminum and engineered composites, torque is more important than ever. Improved capabilities and technology mean manufacturers can maintain exceptional tolerances on components that are contingent on accurate, consistent torque and angle application. Because of that, Snap-on has torque solutions for any application and are the established benchmark of quality and precision in all industries.

Q: WHY IS APPLYING PROPER TORQUE IMPORTANT?

A: Creating proper Clamp Load prevents damage and equipment failures.

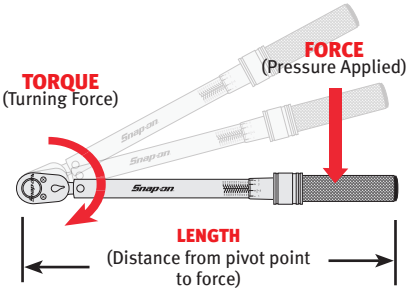
- Safety & Performance: Applying accurate torque is critical to assembly applications, engines and precision equipment.
- Creating a proper clamp load is the main objective when applying torque to a fastener. Engine cylinder heads, pipe coupling, wheels, all need to be "clamped" uniformly to specific torque values.
- There are three main factors that affect the correct application of torque: (1) Condition of components, (2) Accuracy of torque instrument, (3) Properly applied torque values.
- Applying torque incorrectly can lead to stripped threads, premature loosening or broken fasteners that can cause catastrophic failure. Leaking joints may cause engine or equipment failures.

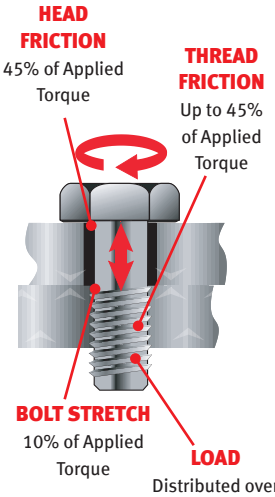
Q: WHAT IS TORQUE?

A: Torque is rotational or turning force. Torque is measured in length and force: Length means distance from "center of drive" to "center of handle". Force means "pounds", "Newtons" etc.

Q: HOW DO YOU CALCULATE TORQUE?

A: Torque = Length × Force
The standard torque formula used to calculate torque is: "L x F = T"
Example: 2 ft. (length) x 30 lbs. (amount of force at center of handle) =
60 ft. lbs. of torque (60 Ft. Lbs.)





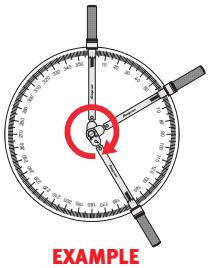
Q: WHAT DOES TORQUE DO?

A: Torque creates a "Clamp Load" to join two pieces of material.

- Bolts (or threaded fasteners), are designed to create clamping force, also called "clamp load".
- When torque is applied to a threaded fastener, it draws together the joint, (two pieces of material).
- As additional torque is applied to the fastener, the joint is pulled together creating a clamp load as the fastener begins the stretching process. It's this fastener stretch that creates and maintains clamping force, like a stretched bungee cord maintaining tension.
- The actual amount of clamp load is determined by several factors:
  - The amount of torque applied to the fastener.
  - The material and grade of the fastener.
  - The external friction on the joint – friction under the fastener head, and friction between the threads of the fastener and material it's connected to.

Q: WHAT IS TORQUE PLUS ANGLE?

A: Torque Plus Angle creates a more exact clamp load for torque-sensitive equipment. Auto manufacturers and makers of other high performance equipment are increasingly specifying fasteners with a combination of torque value followed by additional tightening with "angle", or degrees of wrench turn. Manufacturers can calculate a more exact final "clamp load" for their applications, since "torque & angle" minimizes the impact of thread or under-head friction.

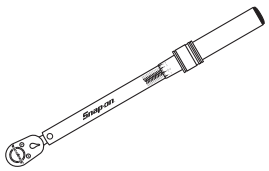


EXAMPLE
Apply 80 ft. lbs. of torque, then apply 90 degrees of rotation

Q: WHAT IS A TORQUE INSTRUMENT AND WHAT DOES IT DO?

A: Any device that applies a pre-determined amount of torque to a fastener.

- It may be mechanical or electronic in design.
- A torque wrench has some type of indicating device which lets the operator know when the correct torque has been achieved: "click" or "impulse-break" feel; sound; lights; gauge; or some combination of these.

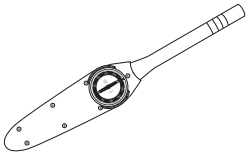


MICROMETER (CLICK TYPE)

The most popular type of mechanical torque wrench. An internal spring is tightened by turning the handle. The spring pushes against a block, and both are calibrated so the block pivots when the torque setting is reached. This quick pivoting creates the "click" sound. When the force at the handle is released, the block resets to it's original position and is ready for the next torque application.

SPLIT BEAM (QUICK ADJUST)

Also called a "Quick Adjust" wrench, this type is most popular for automotive tire and wheel installation and other heavy use environments. Torque value is set by turning a small knob on the side of the wrench. Two internal arms (the "split beam") bend when force is applied at the handle, and a trigger device reacts when the set torque is reached, causing a "click" that can be felt and heard.

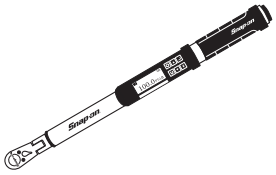


MECHANICAL DIAL

Uses a fixed, non-ratcheting square drive. Available in single scale and dual scale models. As force is applied at the handle, an internal beam flexes against a precision movement which rotates a needle pointing to the torque value against the dial scale. A memory needle indicates the highest torque value achieved.

DIGITAL DIAL

More accurate, easier to use and read than a mechanical dial because of large LCD readout and color LED light bar. Utilizes an internal electronic strain gage to measure torque. Uses a fixed, non-ratcheting square drive as do the mechanical dial wrenches. The strain gage positioning on the torsion drive allows this instrument to be non-length sensitive.



ELECTRONIC

Most versatile and accurate torque wrench. Operates by means of a internal electronic strain gage with digital readout. Torque value setting can be heard (beep) felt and seen (digital screen and lights). Snap-on TechAngle models enable fast and easy application of desired torque, plus additional angle application through internal Gyro chip which measures up to 360 degrees of rotation.

TORQUE SCREWDRIVERS

Used for applying torque in low torque applications, such as electronic assembly manufacturing, medical devices, etc. The cam-over design prevents over-torquing. Ergonomic tri-lobe handle design. Available in adjustable models, or factory preset to a single torque value.

U.S. Patents

Snap-on has always been at the forefront of tool innovation, and torque products is no exception. Illustrated here are the US Patent numbers granted to Snap-on for the Control Tech & TechAngle models.

U.S. Patent No.	Model
9156148	Control Tech & TechAngle
9242356 / 9839997	Control Tech & TechAngle
9395257	Control Tech & TechAngle
9523618	Control Tech
D699531	Control Tech
D702519	TechAngle

INTELLIGENT CORDLESS TORQUE

Specifically designed to improve performance and data traceability in safety critical and heavy industrial operations, the CTM is perfectly suited for all applications where conventional electric or pneumatic power is not available or simply in situations where the removal of hoses and cables is highly desirable for workplace safety

3/4" & 1" DRIVE
HEAVY DUTY CORDLESS TORQUE MULTIPLIERS

POWERFUL DUAL-SPEED TORQUE
CTM1000 (250-1,000 ft. lbs.)
CTM2000 (500-2,000 ft. lbs.)
CTM3000 (750-3,000 ft. lbs.)

ACCURATE RESULTS
CTM is a transducer controlled battery powered torque tool designed for accurately applying torque to threaded fasteners. The unique 'intelligent joint sensing' technology continually measures the joint during tightening and when necessary, employs dynamic braking to avoid torque over-shoot due to motor inertia, consistently achieving highly accurate results of ±3% of setting.

SAFETY
The CTM 'safe to start' button (which needs to be pressed at the same time as the trigger), ensures hands are safely positioned at start up. Once the tool is running, the operator can relocate their hand securely to the supplied secondary handle.

OVERHEAT PREVENTION
Most torque tool users want to know how many tightening cycles the tool will perform from a battery, but the more relevant question usually is, how many cycles will the tool perform before it overheats? The new CTM is designed to offer outstanding performance while minimizing the traditional overheating problem of battery-operated tools. In short, under the same conditions the CTM will keep working when most competitors have to be stopped to cool.

TWO-WAY COMMUNICATION
The CTM allows two-way communication via Bluetooth or USB cable, downloading up to 3,000 time and date stamped readings or live streaming data from the tool. It is also possible to upload information to the tool, such as tightening sequences. To manage this data, toolsare supplied with a complimentary software. As an added benefit, data can be output in CSV format to communicate directly with customers' own data management systems. In addition, the CTM can communicate with smart devices, such as mobile phones and tablets, which enables the ability to gather tightening data specific to a known set of GPS coordinates. When working in safety critical applications, such as railway infrastructure, this enables the CTM to provide invaluable traceability data.

AUDIT MODE
The new CTM is also equipped with an 'Audit Mode', which offers the ability to perform a check on pre-tightened bolts. Most electric tools if applied to a tight bolt will further tighten it. So, even if the bolt was fastened correctly, the test will destroy the original tightening integrity. Under 'Audit Mode' the CTM will run at a speed that allows it to stop almost instantaneously once the set torque is achieved. If a bolt is found to be loose then the tool will tighten it to the desired level, recording the angle of turn required to do so.

KEY FEATURES
- Multiple units of torque measurement, including ft. lbs. and Nm
- Torque, Torque & Angle with Final Torque and Torque Audit functionality available in 'Advanced' mode
- Optional 'Ease of Use' functionality when in 'Torque Only' mode, minimizing operator error
- Clear indication of successful joint application

PRECISE TORQUE

± 3% Accurate

Brushless motor for low maintenance

Handle and trigger designed for optimum comfort

'Safe to start' button ensures hands are safely positioned at start up

Key lock feature prevents unauthorised usage

OLED display ensures visibility in all solutions

USB and Bluetooth® 4.0 data transfer plus software for data management

USB

CORDLESS CONVENIENCE

3/4" & 1" Square Drives are quickly and easily replacable

Tried and tested gear box design is reliable and proven over more than a decade

Robust steel reaction supplied as standard

High powered LED to illuminate application

18v, 5.0Ah Battery and efficient motor gives outstanding fastening performance per charge

ASK YOUR ACCOUNT MANAGER FOR A DEMO!

USER-SPECIFIC FUNCTIONALITY

- 12 user IDs can be downloaded to the tool and results can be stored against individual users
- 20 unique stand-alone targets plus 20 unique work group targets for each work group
- Maximum Audit Mode target angle (720°)

DATA DRIVEN

- Display and on-board storage of final torque or torque and angle values
- Save up to 3,000 time and date stamped readings
- Results can be output in CSV (comma-separated values format for users not able to use included software
- Ability to produce and store real time graphs via included software
- Usage counter gives the ability to see the amount of times the tool has been used since the last reset
- Allows tool integration into third party control systems

PRECISE OPERATION

- Operation Direction feature designed primarily for undoing bolts (when doing sequence tightening, it is possible to undo an incorrectly tightened bolt without interrupting the sequence)
- 2-stage tightening gives faster application of a Snug Torque & Angle Target
- Turn Angle option can be used to check if bolts have already been tightened in an assembly process

TWO-WAY COMMUNICATION

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INTELLIGENT TOOL CONECTIVITY

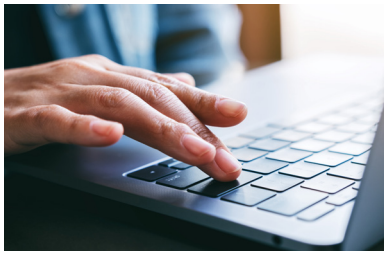
CTM comes supplied as standard with complimentary PC software for data management and tool configuration. CTM also offers great flexibility in connection possibilities as it can be interfaced with third party production control software. recording the angle of turn required to do so.

DID YOU KNOW?

The CTM Wrenches offer untethered access (no power cable or hose to tangle and get in yom way} improving safety, convenience and versatility,

Model*	Drive Size	Range ft-lbs	Range N•m	Tool Weight lbs (kg)	Max Output Speed (RPM)
CTM600SS	3/4"	118-600	160-800	8.14 (3.69)	11.3
CTM1000	3/4" & 1"	250-1,000	200-1,350	13.67 (6.2)	32
CTM2000	1"	500-2,000	400-2,700	14.33 (6.5)	13
CTM3000	1"	750-3,000	800-4,000	18.74 (8.5)	9.5

DATA-DRIVEN RESULTS



Produce and Store real time graphs

Send 'Log Results' in real time

Output Results in CSV Format for users not able to use included software

CONTROL TECH™ LINK SYSTEM

ControlTech™ Link System

WIRELESS CONNECTIVITY FOR REAL TIME PROCESS CONTROLS

Controller
CTLNKCTRL

Barcode Scanner Manager
CTLNKBCSM

External I/O Module
CTLNKEXTIOM

ControlTech™ Link Host Software
CTLNKHOST

Internal 1/0 Cable
CTLNKINTIOC

- **Wirelessly link to plant level manufacturing execution systems (MES) through Snap-on'snew, cutting-edge controller**
- **Provides real time process controls for multiple operators and documents every torque event; eliminating redundant operations, mistakes, rework and reducing warranty costs**
- **Can also be configured as a standalone data collection system, or control system**
- **Contact your sales representative for more information**

CTLNKCTRL

DUAL 80® TECHNOLOGY

Provides precise yet strong ratchet function with minimal ratcheting arc and very little lost motion, allowing you to ratchet in tighter areas (refer to specification chart for applicable models).

DUAL 80® TECHNOLOGY

CTLNK1JM300

CTLNK1MR100

CTLNKMS80F

ASK YOUR ACCOUNT MANAGER FOR A DEMO!

CONTROLLER LINKS TO 16 DIGITAL TORQUE WRENCHES

MES INTEGRATION
The Snap-on ControlTech-Link System can be linked to plant level manufacturing execution systems (MES) through Snap-on's new, cutting-edge controller. The Link system can also be configured as a standalone data collection system, or control system if integration with MES is not desired.

TWO MODES OF OPERATION

REPORT MODE
- The technician uses the wrench as they normally would, but data that is typically stored on the wrench's internal memory is transmitted to the controller, and then relayed to a database, if desired. This function provides automatic electronic signature and documentation for QA purposes.
- When in "Report" mode, the controller allows up to eight tools to report operator activity simultaneously.

CONTROL MODE
- The controller sends preset torque, angle and batch instructions to the wrench. The wrench becomes a "slave" to the controller and only allows the technician to carry out predetermined presets and jobs.
- When in "Control" mode, controller can be linked to as many as 16 torque wrenches, and control as many as 4 wrenches simultaneously.

INDUSTRY LEADING FEATURES
- The controller's color display can be used to program P-Sets, groups and jobs.
- Torque history can be viewed on the controller's screen.
- For standalone applications, the controller's on board memory can store up to 10,000 torque events, which then can be saved to a database in CSV format and accessed via the optional Global Manager software.

NETWORKING CAPABILITIES
The system can be integrated into a customer's automated network via multiple protocols or through 24 V 1/0 for PLC controlled systems. The controller is delivered with three protocols enabled: Ethernet IP, ACOP and ToolsNET.

CONNECTIVITY
- The system's 2.4 GHz ZigBee® radio allows for long range (up to 100 meters, depending upon conditions) communication with low power consumption.
- Controllers can be connected in a daisy chain allowing for system expansion.
- Utilizes 12 radio channels; a scan feature automatically finds the best channel for the environment, ensuring optimal communication between the torque tools and controller.

PROGRAMMABLE
- Extremely configurable allowing the customer to build their own process.
- Each controller can be programmed with up to 100 parameters, 100 groups of parameters and 100 jobs.
- Utility software (included with the controller) can be used to build torqueP-Set (a specific joint or a set of joints all having the same tightening specifications), groups (up to 4 operators each performing their own P-Set) and jobs (a series of steps, up to 35, consisting of P-Sets and or Groups organized in a specific predetermined order).
- The controller's programming screens can be accessed by password or by using a physical key to unlock the device.
- The controller has an advanced feature for scanning a customer's Part Number and/or VIN to determine what operation (P-Set, Group, or Job) is required.
- The controller can receive instructions in multiple ways: via serial input (from a computer or barcode scanner), TCP/IP messages via Ethernet connection and via 24 V 1/0 connection. Instructions can then be relayed to the worker through the linked wrench wirelessly via radio.

ROBUST AND RELIABLE DATA TRANSFER
ControlTech-Link wrenches are powered by

ZigBee® wireless communication technology for receiving instruction and transmitting job data to the controller unit. ZigBee is a global, standards-based wireless solution that connects devices in industrial, communications, residential and other critical environments.

DURABILITY
The rugged, all-steel body is designed to stand-up to industrial use

and each Snap-on Controllech-Link Digital Torque Wrench is backed by an Industry-leading 2 year warranty.

Approaching Target

Target Achieved

Over Torque

LED INDICATOR LIGHTS
Dual, multi-colored side LED indicator lights with configurable settings provide operational guidance.

MULTI-SENSORY INDICATORS
Ideal for any working condition thanks to audible, tactile and visual indicators. The easy-to-read LCD screen, LED indicator lights, audible beep and handle vibration work together to signal when torque is within the targeted range.

ControlTech™ Link Electronic Torque Wrenches

Drive Size	Model*	Range (in-lb)	Range (ft-lb)	Range (N•m)
1/4"	CTLNK1R240	12-240	1-20	1.4-27.2
3/8"	CTLNK2R100	60-1,200	5-100	6.8-135.6
1/2"	CTLNK3R250	150-3,000	12.5-250	16.9-339
3/4"	CTLNK4R600	360-7,200	30-600	40.7-813.5
J (0.425")	CTLNK1J240	12-240	1-20	1.4-27.2
Y (0.560")	CTLNK2Y100	60-1,200	5-100	6.8-135.6
Y (0.560")	CTLNK2Y125	75-1500	6.25-125	8.5-135.6
X (0.735")	CTLNK3X250	150-3,000	12.5-250	16.9-339
Z (0.560")	CTLNK4Z600	360-7,200	30-600	40.7-813.5

ControlTech™ Link Micro Electronic Torque Wrenches

Drive Size	Model*	Range (in-lb)	Range (ft-lb)	Range (N•m)
1/4"	CTLNK1MR100	5-100	0.4-8.3	0.6-11.3
3/8"	CTLNK2MR100	5-100	0.4-8.3	0.6-11.3
1/4"	CTLNK1MR240	12-240	1-20	1.4-27.2
3/8"	CTLNK2MR240	12-240	1-20	1.4-27.2
J (0.425")	CTLNK1JM300	15-300	1.25-25	1.7-34
3/8"	CTLNK2MR1200	60-1200	5-100	6.8-135.6
Y (0.560")	CTLNKYM1200	60-1200	5-100	6.8-135-6

ControlTech™ Link Micro Electronic Torque Screwdrivers

Drive Size	Model*	Range (in-lb)	Range (in-oz)
1/4 HEX	CTLNKMS100F	0.31-6.25	5-100
1/4 SQUARE	CTLNKMS100M	0.31-6.25	5-100
1/4 HEX	CTLNKMS80F	4-80	64-1280
1/4 SQUARE	CTLNKMS80M	4-80	64-1280

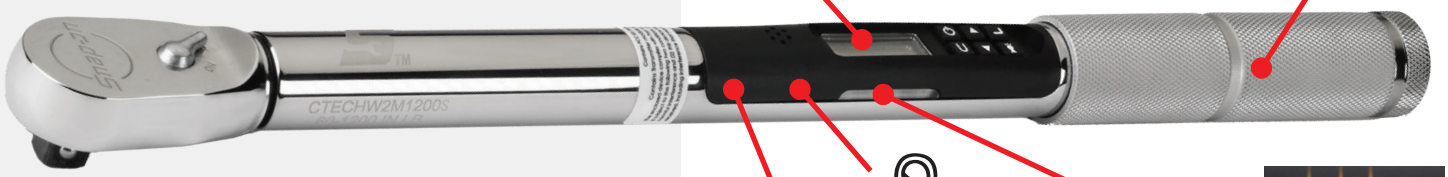
CONTROL TECH™

BLUETOOTH® LOW ENERGY

BLUETOOTH® CONVENIENCE COMES TO CONTROLTECH™

ControlTech™ Bluetooth® Wireless Electronic Torque Wrenches

NOW WITH BLUETOOTH LOW ENERGY CAPABILTIY



- Real time information with data logging
- Each wrench displays multiple torque unitsand angle
- Customizable features: 50 presets, torque then angle, torque and angle, low profile buttons, power interruption technology, cycle counter, battery level indicator and more
- Precise multi-axis gyroscope and unique algorithm provides automatic flex compensation
- Meets or exceeds ISO 6789 standard
- Improved Torque accuracy: +/-4°/o CW +/-6% CCW (5 to 19°/o of full scale)
- +/-2% CW+ /-3°/o CCW (20 to 100% of full scale)
- Rugged all-steel body is designed for industrial use (aluminum handle for 1,200 in-lb models)
- Two year warranty
- Angle range 0 - 360'

MULTIPLE TORQUE INDICATORS

with configurable settings provide operational guidance. Click-type torque wrenches can easily be over-torqued by as much as 20% because the user doesn't stop pulling the wrench the instant it clicks. Electronic wrenches have an LED Screen display yellow/ green/red lights, plus vibration and audible beeping that tell the user when targeted torque is within range, achieved or over torqued.

Torque & Angle Combo Mode
The most accurate and fastest way to achieve torque plus angle in a single motion

ControlTech™ Bluetooth® Electronic Torque Wrenches

Drive Size	Model*	Head Type	Range in-lbs	Range ft-lbs	Range N•m
Y (0.560")	CTECHWY100AS	Interchangeable	60-1,200	5-100	6.8-135.6
3/8"	CTECHW2F100AS	Flex Head	60-1,200	5-100	6.8-135.6
3/8"	CTECHW2R100AS	Fixed Ratchet	60-1,200	5-100	6.8-135.6
X (0.735")	CTECHWX250AS	Interchangeable	150-3,000	12.5-250	16.9-339
1/2"	CTECHW3F250AS	Flex Head	150-3,000	12.5-250	16.9-339
1/2"	CTECH3R250AS	Fixed Ratchet	150-3,000	12.5-250	16.9-339
IZO.ISO (9x12mm)	CTECHWAN135AS	Interchangeable	60-1,195	5-99.6	6.8-135
IZO/ISO (14x18mm)	CTECHWBN340AS	Interchangeable	150-3,009	12.5-250.8	17-340
Z (0.560")	CTECHWZN650AS	Interchangeable	288-5,754	24-479.5	32.5-650
3/4"	CTECHW4R650AS	Fixed Ratchet	288-5,754	24-479.5	32.5-650
Z (0.560")	CTECHWZ600AS	Interchangeable	360-7,200	30-600	40.7-813.5
3/4"	CTECHW4R600AS	Fixed Ratchet	360-7,200	30-600	40.7-813.5

ControlTech™ Bluetooth® Electronic Torque Wrenches

All of the same, great features you come to expect from the ControlTech line of wrenches, but in a smaller, more compact scale

Drive Size	Model*	Head Type	Range in-lbs	Range ft-lbs	Range N•m
1/4"	CTECHW1MR100S	Fixed Ratchet	5-100	0.42-8.33	0.57-11.30
3/8"	CTECHW2MR100S	Fixed Ratchet	5-100	0.42-8.33	0.57-11.30
1/4"	CTECHW1MR240S	Fixed Ratchet	12-240	1-20	1.36-27.12
3/8"	CTECHW2MR240S	Fixed Ratchet	12-240	1-20	1.36-27.12
IZO/ISO (9x12mm)	CTECHWANM30S	Interchangeable	13.3-265.5	1.11-22.13	1.5-30
j (0.425")	CTECHWJM300S	Interchangeable	15-300	1.25-25	1.7-34
IZO/ISO (9x12mm)	CTECHWANM135S	Interchangeable	60-1,195	5-99.6	6.8-135
Y (0.560")	CTECHWYM1200S	Interchangeable	60-1,200	5-100	6.8-135.6
3/8"	CTECHW2M1200S	Fixed Ratchet	60-1,200	5-100	6.8-135.6

Bluetooth®

WIDE SELECTION OF INTERCHANGEABLE HEADS AVAILABLE

J-Shank, Y-Shank, X-Shank Z-Shank & ISO/IZO

Contact your Snap-on Industrial Representative for delails.

CONNECTORQ APP

- QR and barcode scanning available for quick job mode set ups
- Quality control management with lock out functions
- 105, Windows and Android compatible

DOWNLOAD CONNECTORQ NOW!
in the App Store, Google Play or Microsoft Store and sync to the tool to take readings, diagnose and then store and share results on your existing mobile device

ANDROID APP ON Google play
Download on the App Store
Get it from Microsoft

ControlTech™ 1/4" Drive Bluetooth® Micro Torque Screwdrivers

- Four modes of operation: Torque, Angle, Torque Then Angle, and Torque and Angle
- Durable composite tri-lobe hinge grip for better finger control; won't roll off uneven surfaces
- Program up to 50 pre-sets
- Job mode with ability to lockout users store up to 1500 torque and angle readings
- Accuracy: ±4% CW and ±6% CCW at 5 to 19 % of full scale and ±2% CW and ±3% CCW at 20 to 100% of full scale

MULTI-SENSORY INDICATORS
The easy-to-read, backlit LCD screen, LED indicator lights, audible beep and handle vibration work together to signal when torque is within the targeted range

Approaching

Achieved

Over Torque

CTECHWMS80MS

CTECHWMS80FS

4 MODELS AVAILABLE

4-80 in.-lbs. Torque Range
CTECHWMS80FS (Female)
CTECHWMS80MS (Male)

5-100 in.-oz. Torque Range
CTECHWMS100FS (Female)
CTECHWMS100MS (Male)

NEW Intrinsically Safe ControlTech™ Bluetooth® Wireless Electronic Torque Wrenches

INTRINSICALLY SAFE MODELS ENABLE OPERATIONS IN CLASS 1 DIV 2 ENVIRONMENTS

- On board rechargeable NiMH battery and smart charging system via USB
- Ingress protected for water and dust rated to IP55
- Real time information with data logging
- Customizable features: 50 presets, torque then angle, torque and angle, low profile buttons, power interruption technology, cycle counter, battery level indicator and more
- Meets or exceeds ISO 6789 standard
- Improved Torque accuracy: +/-2% CW +/-3% CCW (20 to 100% of full scale)
- Rugged all-steel body is designed for industrial use
- Two year torque wrench warranty and one year battery warranty, plus storage case included
- Angle range 0 - 360˚

MULTIPLE TORQUE INDICATORS with configurable settings provide operational guidance. Electronic wrenches have an LED Screen display yellow/green/red lights, plus vibration and audible beeping that tell the user when targeted torque is within range, achieved or over torqued.

NEW INCREASED MOBILITY Bluetooth® Low Energy (BLE 4.1) communication enables the user to record the torque and turn angle data in real time and connect directly to their own operating system or Snap-on's CONNECTORQ app, increasing the quality and traceability of the work.

Head Type	Shank / Drive Size	Model*	Range in-lbs	Range ft-lbs	Range N•m	UL Intrinsically Safe
ISO Shank	9x12mm	CTECHW1UA135	60-1,195	5-99.6	6.8-135	Class 1 Div 2
ISO Shank	14x18mm	CTECHW1UB400	177-3,540	14.8-295	20-400	Class 1 Div 2
Sealed Fixed Ratchet	3/4"	CTECHW1UR650	288-5,753	24-479.4	32.5-650	Class 1 Div 2

CONTROL TECH™

With robust features such as multi-sensory torque indicators, multi-lingual display, USB data downloads, programmable settings and built-in calibration, Snap-on Control Tech™ digital torque wrenches deliver high performance in the most demanding fields.

Control Tech™ Electronic Torque Wrenches

Control Tech™ Electronic Torque Wrenches provide instant data on the exact torque actually applied, enabling a more precise torque application across multiple fasteners. Every model features a large, backlit LCD screen for better visibility in a variety of working conditions and a high capacity memory for storage of 1,500 readings. And unlike click-type wrenches, digital wrenches tell the user when calibration is due, can be programmed for specific settings, and stores a data trail for an extra measure of validation.

Training VIDEO

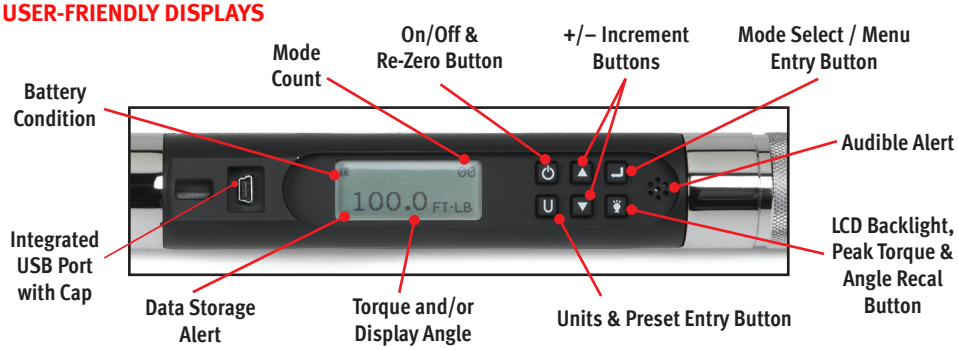
MULTI-SENSORY INDICATORS
- Ideal for any working condition thanks to audible, tactile and visual indicators
- The easy-to-read LCD screen, LED indicator lights, audible beep and handle vibration work together to signal when torque is within the targeted range

TORQUE & ANGLE COMBO MODE
- The most accurate and fastest way to achieve torque plus angle in a single motion
- Control torque accuracy to +/- 2% CW and +/- 3% CCW
- Control angle accuracy to +/- 1% of reading and +/- 1˚

CALCULATES ROLLING TORQUE
- All models measure the rotating resistance of a fastener or a component such as a cam or vehicle differential preload

MULTILINGUAL DISPLAY
- Programmable to display commands and settings in English, Spanish, French or German

USER-FRIENDLY DISPLAYS

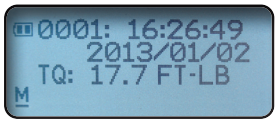


CONVENIENT DATA DOWNLOAD
- USB plug and play technology allows data download without additional software for an audit proof trail and process control

DUAL 80 TECHNOLOGY

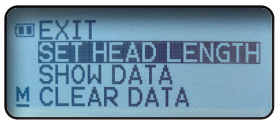
DUAL 80® TECHNOLOGY
- Precise yet strong ratchet function with minimal ratcheting arc and very little lost motion

CALIBRATION DUE INDICATOR*
- Alerts you when calibration is needed



RELIABLE DATA TRAIL
- Time stamped data trail for quality control, job auditing and torque verification

LED INDICATOR LIGHTS
- Dual-side LED indicator lights with configurable settings provide operational guidance
- Click-types can easily be overtorqued by as much as 20% because the user doesn't stop pulling the wrench the instant it clicks. Digital wrenches have yellow/green/red lights that tell the user when to stop pulling



BUILT-IN CALIBRATION FACTOR*
- Eliminates the need to perform manual calculations (use with interchangeable heads and torque adapters)

FULLY PROGRAMMABLE
- 50 memory presets with a batch count of 99
- Presets can be locked to prevent inadvertent changes or tampering

SEQUENCE PROGRAMMING
- Program different torque applications in sequence and lock-in job mode to ensure the operator follows sequence without error

Product DEMO

USB | 01 Digital | Reversible | ± 2-3% Accurate

Control Tech™ Electronic Torque Wrench

Square Drive	Model*	Handle Color	Head Style	Gear Teeth	Swing Arc	Range (in.-lb.)	Range (ft.-lb.)	Range (N•m)	Length (inches/mm)	Weight without batteries	Battery Type (qty)
1/4"	**CTECH1FR240A**	Chrome	Sealed Flex Head	72	5º	12–240	1-20	1.4–27.2	14 1/8" (358 mm)	2 lb. (0.9 kg)	AAA Lithium (3)
3/8"	**CTECH2FR100A**	Chrome	Sealed Flex Head	80	4.5º	60–1,200	5-100	6.8–135.6	17 1/4" (437 mm)	2.7 lb. (1.2 kg)	AA Lithium (3)
1/2"	**CTECH3FR250A**	Chrome	Sealed Flex Head	80	4.5º	150–3,000	12.5-250	16.9–339	26 3/4" (678 mm)	4.5 lb. (2.10 kg)	AA Lithium (3)
3/4"	**CTECH4R600A**	Chrome	Sealed Fixed Head	32	11º	360-7,200	30-600	40.7–813.5	48 5/8" (1,234 mm)	10.5 lb. (4.8)	AA Lithium (3)

SHORTER, SLIMMER, LIGHTWEIGHT DESIGN FACTOR!

- Features a one-piece compact body and low profile head
- Perfect for restricted access areas where normal torque wrenches can't fit

CONVENIENT FEATURES

- New 1-piece design for improved strength
- Easy battery replacement
- One AA Lithium battery yields 40 hours of continuous use (also accepts Alkaline or NiMH re-chargeable - Not included)

TORQUE & ANGLE COMBO MODE

- The most accurate and fastest way to achieve torque plus angle in a single motion
- Torque accuracy:

+/-4% CW +/-6% CCW (5 to 19% of full scale)
+/-2% CW +/-3% CCW (20 to 100% of full scale)

- Angle range 0 - 360˚

FOD Compliant Integrated USB Port with Sliding Door

Control Tech™ Micro Electronic Torque Wrench

THE SAME GREAT FEATURES OF THE CONTROL TECH IN A SMALLER SCALE

The Control Tech™ Micro Electronic Torque Wrench boasts all of the same, great features you come to expect from the Control Tech line of wrenches, but in a smaller, more compact scale.

Product DEMO

Square Drive	Model*	Handle Color	Head Style	Gear Teeth	Swing Arc	Range (in.-lb.)	Range (ft.-lb.)	Range (N•m)	Accuracy	Length (inches/mm)	Weight without batteries	Battery Type (qty)
1/4"	**CTECH1MR100**	Chrome	Fixed Head	72	5˚	5-100	0.42-8.33	0.56-11.3	± 2% CW ± 3% CCW	11" (279.4 mm)	0.9 lb. (0.42 kg)	AA Lithium (1)
1/4"	**CTECH1MR240**	Chrome	Fixed Head	72	5˚	12-240	1-20	1.36-27.12	± 4% CW ± 6% CCW	11 5/8" (294.64 mm)	0.93 lb. (0.42 kg)	AA Lithium (1)
3/8"	**CTECH2MR100**	Chrome	Fixed Head	72	5˚	5-100	0.42-8.33	0.57-11.3	± 2% CW ± 3% CCW	11" (279.4 mm)	0.9 lb. (0.42 kg)	AA Lithium (1)
3/8"	**CTECH2MR240**	Chrome	Fixed Head	80	4.5˚	12-240	1-20	1.36-27.12	± 4% CW ± 6% CCW	11 5/8" (294.64 mm)	0.93 lb. (0.42 kg)	AA Lithium (1)

ASK YOUR ACCOUNT MANAGER FOR MORE INFORMATION ON ADAPTERS

Control Tech™ Now with Interchangeable ISO/IZO Wrench Head Models!

- Smaller, interchangeable adaptors allow users to adapt to applications
- Forged construction for added strength and durability
- Used in areas where there is minimal clearance

Model*	Handle Color	Head Style	Range (in.-lb.)	Range (ft.-lb.)	Range (N•m)	Length (inches/mm)	Weight without batteries	Battery Type (qty)
CTECH1J240A	Chrome	Interchangable Head	12–240	1-20	1.4–27.2	12.5" (318mm)	1.8 lb. (0.8kg)	AAA Lithium (3)
CTECH2Y100A	Chrome	Interchangable Head	60–1,200	5-100	6.8–135.6	17.2" (437mm)	2.7 lb. (1.2kg)	AA Lithium (3)
CTECH3X250A	Chrome	Interchangable Head	150–3,000	12.5-250	16.9–339	24.1" (612mm)	3.6 lb. (1.6kg)	AA Lithium (3)
CTECH4Z600A	Chrome	Interchangable Head	360-7,200	30-600	40.7–813.5	44.8" (1138mm)	7.6 lb. (3.5kg)	AA Lithium (3)
CTECHAN135A	Chrome	Interchangable Head	60–1,195	5.0–99.6	6.8–135	17.8" (452mm) BODY ONLY	2.85 lb. (1.2kg) BODY ONLY	AA Lithium (3)
CTECHAN30A	Chrome	Interchangable Head	1.11–22.13	13.3–365.5	1.50–30	13.3" (338mm) BODY ONLY	2 lb. (0.9kg) BODY ONLY	AA Lithium (3)
CTECHBN340A	Chrome	Interchangable Head	150–3,009	12.5–250.8	17.0–340.0	23.9" (607mm) BODY ONLY	3.75 lb. (1.7kg) BODY ONLY	AA Lithium (3)
CTECHANM30	Chrome	Interchangable Head	13.3–265.5	1.11–22.13	1.5–30	9.5" (242mm) BODY ONLY	0.93 lb. (0.42kg) BODY ONLY	AAA Lithium (3)

ATECH™

The advanced technology and intuitive design of the new TechAngle® Torque Wrench from Snap-on® makes it possible to tighten fasteners to exacting standards, under even the most demanding conditions, faster and with more accuracy than ever before.

TechAngle® Electronic Torque Wrenches

Advanced Features
- DUAL PROGRESSIVE LEDs allow user to see active torque at various work positions; enables user to anticipate torque target for more accurate torque application
- LARGE LCD SCREEEN with bright backlight; numbers become larger and bolder during active torque for optimal viewing
- FOUR ALERT MODES (LCD, LED, Audible, Vibratory) provide excellent feedback in all working conditions
- LOW PROFILE BUTTONS protect against accidental activation

Multiple Measurement Modes
- SEVEN MEASUREMENT MODES (in-oz, in-lb, ft-lb, Nm, cNm, kg-cm, and angle) at the touch of a button

Programmable
- TEN PRESETS allow programming of common torque applications which saves time
- ADVANCED FEATURES include cycle counter, customizable sleep timer, language selection, auto torque calculation for torque adapters, calibration alerts, battery level indication, and numerous alert mode customizations. These features allow you to customize the torque wrench to your work preferences
- TORQUE THEN ANGLE MODE allows the user to torque fasteners and then switch to angle mode without removing the torque wrench from a fastener

Multi-Lingual Display
- Programmable to display commands and settings in English, Spanish, French or German

Highly Accurate
- Torque measurement; 2% CW and 3% CCW

Durability
- POWER INTERRUPTION TECHNOLOGY prevents loss of continuity if dropped; prevents loss of work during head bolt pattern applications
- 2-YEAR WARRANTY on TechAngle® and Control Tech™ models
- STORAGE CASE included

Training VIDEO

Product DEMO

SEALED HEAD: Keeps contamination out and lubrication in for better performance and longer tool life.

DUAL 80® TECHNOLOGY: Precise yet strong ratchet function with minimal ratcheting arc and very little lost motion, for ratcheting in tighter areas.

ANGLE HEAD CONTROL: Head moves ±15˚ to avoid obstructions. Torque accuracy: ±2%CW, ±3%CCW, 20% to 100% of full scale. Angle accuracy: ±1% of reading, ±1° at angular velocity ›10°/sec.

STRONG AND DURABLE 100% STEEL BODY CONSTRUCTION: Features chrome plating for superior oxidation resistance

TechAngle® Steel Models

01 Digital

Reversible

± 2-3% Accurate

CE

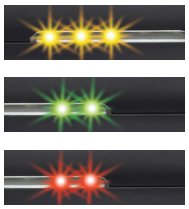
CALCULATES ROLLING TORQUE: Some models measure the rotating resistance of a fastener or a component such as a cam or vehicle differential preload.

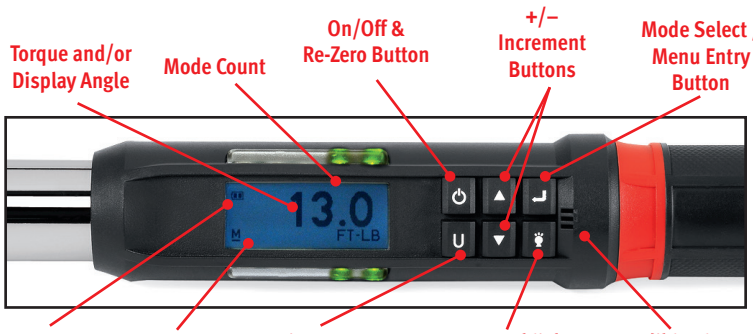
Techangle® All Steel Torque Wrenches

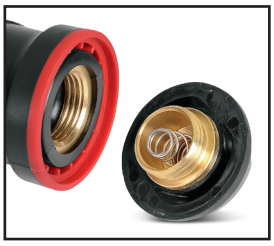
Square Drive	Model*	Handle Color	Head Style	Gear Teeth	Swing Arc	Range (in.-lb.)	Range (ft.-lb.)	Range (N•m)	Length (in.)	Head Width (in.)	Head Depth (in.)	Weight w/o batteries lb.(kg)	Battery Type (qty)
1/4"	**ATECH1FS100**	Chrome	Sealed Flex Head	72	5º	4-100	0.33-8.33	0.45-11.3	11 5/8"	7/8"	7/16"	0.93 (0.42)	Lithium (1)
1/4"	**ATECH1FS240**	Chrome	Sealed Flex Head	72	5º	12-240	1-20	1.36-27.12	11 5/8"	7/8"	7/16"	0.93 (0.42)	Lithium (1)
3/8"	**ATECH2CS100**	Chrome	Sealed Flex Head	72	5º	4-100	0.33-8.33	0.45-11.3	11 5/8"	7/8"	7/16"	0.93 (0.42)	Lithium (1)
3/8"	**ATECH2CS240**	Chrome	Sealed Flex Head	72	5º	12-240	1-20	1.36-27.12	11 5/8"	7/8"	7/16"	0.93 (0.42)	Lithium (1)
3/8"	**ATECH2FS100**	Chrome	Sealed Flex Head	80	4.5º	60-1,200	5-100	6.8-135	15 7/16"	1 1/4"	9/16"	2.85 (1.29)	AA Alkaline (3)
1/2"	**ATECH3FS250**	Chrome	Sealed Flex Head	80	4.5º	150-3,000	12.5-250	16.9-339	26 3/4"	1 5/8"	3/4"	4.35 (1.97)	AA Alkaline (3)
3/4"	**ATECH4RS600**	Chrome	Sealed Flex Head	32	11º	360-7,200	30-600	40.7-813.5	48 11/16"	2 1/2"	1 1/4"	10.95 (4.96)	AA Alkaline (3)

EASY-TO-READ BACKLIT LCD DISPLAY: Large LCD screen-numbers become larger and bolder during active torque making it easier to read during use.

DUAL PROGRESSIVE LED'S: Allows user to see active torque at various work positions. Enables user to anticipate torque and slow down as they get closer to desired torque level.







PROTECTED BATTERY CAP: Designed with solid brass contacts prevents accidental loosening and ensures continuity.

LOW PROFILE BUTTONS: Protects against accidental activation.

MULTI-SENSORY INDICATORS: Along with the easy-to-read LCD screen and LED indicator lights, the audible beep and handle vibration work together to signal when torque is within the targeted range.

COMFORT GRIP WITH FLARED END: "Motorcycle-style" handle with seamless textured grip offers a comfortable, non-slip surface. Flared end prevents your hand from slipping off during high leverage applications.

FULLY PROGRAMMABLE: Quickly change units of measure appropriate for specific applications.

CALCULATES ROLLING TORQUE: All models measure the rotating resistance of a fastener or a component such as a cam or vehicle differential preload.

DURABLE HOUSING: Temperature and chemical resistant housing protects internal electronics from drops, collisions and more.

TechAngle®
Soft Grip Models

Available in Multiple Housing Colors

Techangle® Torque Wrenches

Square Drive	Model*	Handle Color	Head Style	Gear Teeth	Swing Arc	Range (in.-lb.)	Range (ft.-lb.)	Range (N•m)	Length (in.)	Head Width (in.)	Head Depth (in.)	Weight w/o batteries lb. (kg)	Battery Type (qty)
3/8"	**ATECH2F125GB**	Green	Sealed Flex Head	80	4.5°	60-1, 500	5-125	6.8-169.5	17 15/16"	1 1/4"	9/16"	2.3 (1.04)	AA Alkaline (3)
3/8"	**ATECH2F125OB**	Orange	Sealed Flex Head	80	4.5°	60-1,500	5-125	6.8-169.5	17 15/16"	1 1/4"	9/16"	2.3 (1.04)	AA Alkaline (3)
3/8"	**ATECH2F125RB**	Red	Sealed Flex Head	80	4.5°	60-1,500	5-125	6.8-169.5	17 15/16"	1 1/4"	9/16"	2.3 (1.04)	AA Alkaline (3)
3/8"	**ATECH2FR125B**	Black	Sealed Flex Head	80	4.5°	60-1,500	5-125	6.8-169.5	17 15/16"	1 1/4"	9/16"	2.3 (1.04)	AA Alkaline (3)
1/2"	**ATECH3F250GB**	Green	Sealed Flex Head	80	4.5°	150-3,000	12.5-250	16.9-339	26 5/8"	1 5/8"	3/4"	3.75 (1.68)	AA Alkaline (3)
1/2"	**ATECH3F250OB**	Orange	Sealed Flex Head	80	4.5°	150-3,000	12.5-250	16.9-339	26 5/8"	1 5/8"	3/4"	3.75 (1.68)	AA Alkaline (3)
1/2"	**ATECH3F250RB**	Red	Sealed Flex Head	80	4.5°	150-3,000	12.5-250	16.9-339	26 5/8"	1 5/8"	3/4"	3.75 (1.68)	AA Alkaline (3)
1/2"	**ATECH3FR250B**	Black	Sealed Flex Head	80	4.5°	150-3,000	12.5-250	16.9-339	26 5/8"	1 5/8"	3/4"	3.75 (1.68)	AA Alkaline (3)
1/2"	**ATECH3FR300B**	Black	Sealed Flex Head	80	4.5°	1,480-3,600	15-300	20.3-406.7	30"	1 5/8"	3/4"	3.95 (1.79)	AA Alkaline (3)

QE SERIES

NEW QE Series High Precision Adjustable Click-Type Torque Wrenches

Unique cam design minimizes friction due to reduced contact area between cam and internal tube wall:

- Cam retains and releases lubricant
- where needed, reducing friction for more accurate and repeatable torque values
- Hardened chrome cam and spring results in improved durability and calibration

Roll-marked scale con torque tube for improved durability and visibility

Accurate to ±3% clockwise from 20–100% full scale

Sealed ratchet head keeps out dirt and moisture, while being virtually maintenance free

Dual80® Technology features an 80-tooth gear with dual pawls allowing for reduced swing arc. This makes it easier to use within tighter areas with less clearance such as engine compartments.

DUAL 80 TECHNOLOGY

FEATURES AND BENEFITS

- Redesigned hardened chrome cam and spring results in improved durability and calibration retention
- 7,500 cycles between tool re-calibration
- Improved manufacturing process increases overall torque application accuracy
- Accurate to ±3% clockwise from 20-100% full scale
- New knurled handle design improves overall look and feel of QE Series tools
- Roll-marked scale on torque tube for improved durability nd improved visibility
- Each torque instrument, as calibrated at the factory, is certified to meet the accuracy specified in ASME® B107.3
- High-strength sealed ratchet head keeps out dirt and moisture while being virtually maintenance free
- Dual80 Technology features an 80-tooth gear with dual pawls that allows for reduced swing arc enabling the technician to use within tighter areas with less clearance
- Includes plastic storage case and calibration certificate

Model*	Square Drive	Head Style	Gear Teeth	Swing Arc	Range (min)	Range (max)	Incre-ments	Overall Length	Head Width	Head Depth
QE1R200	1/4”	Fixed Ratchet	80	4.5”	40 in-lb	200 in-lb	1 in-lb	11-1/16”	7/8”	7/16”
QE2FR75	3/8”	Fixed Ratchet	80	4.5”	5 ft-lb	75 ft-lb	0.5 ft-lb	15-3/4”	1-5/32”	9/16”
QE2R100	3/8”	Fixed Ratchet	80	4.5”	20 ft-lb	100 ft-lb	0.5 ft-lb	15-9/16”	1-5/32”	9/16”
QE3R250	1/2”	Fixed Ratchet	80	4.5”	50 ft-lb	250 ft-lb	1 ft-lb	24-3/16”	1-5/8”	3/4”

QD SERIES

The QD Series of click-type Torque Instruments feature an innovative design that provides consistently accurate readings and rugged, trouble-free performance.

QD Series Adjustable Click-Type Torque Wrenches

The torque value is preset by turning the handle in a clockwise or counter-clock wise direction and then "clicks" when the user pulls and achieves the preset value.

FOUR DIFFERENT HEAD STYLES AVAILABLE

- QD models are available in Fixed, Compact, Fixed Ratchet and Flex head versions

EASY-TO-READ ROLL-MARKED SCALE

- QD models with the "A or B" suffix have roll-marked scales for better performance and visibility in varying light conditions

CERTIFICATE OF CALIBRATION

- Actual certification readings and individual instrument serial number are included
- Each factory-calibrated torque instrument, is certified to meet ASME B107.300-2010 (B107.14) and was calibrated on a torque standard traceable to the National Institute of Standards Technology (NIST®)

ACCURACY

- All QD Series Torque Instruments are accurate to ±4% CW and ±6% CCW from 20% of full scale to full scale unless otherwise noted

LONG LIFE RATCHET HEAD

- The QD Series features maintenance free, high strength, sealed ratchet head which keeps out dirt and moisture

MINIMAL FRICTION "HOUR GLASS" CAM

- Retains and releases lubricant where needed to reduce friction

POSITIVE STOP

- Instrument can not be accidentally disassembled if wound down past scale

KNURLED HANDLE

- For a secure non-slip grip

INCLUDES CASE

- For safe transport and storage

Reversible

± 4-6% Accurate

QD3FR250A

Made in U.S.A.

Square Drive	Model*	Head Style	Gear Teeth	Swing Arc	Range	Increments	Length	Head Width	Head Depth
QD Series Adjustable Click-Type (in.-lb.)									
1/4"	QD150A	Fixed	–	–	10-50 in.-lb.	0.5 in.-lb.	9 3/4"	5/8"	13/16"
1/4"	QD1R50	Fixed Ratchet	36	10°	10-50 in.-lb.	0.5 in.-lb.	9 7/8"	7/8"	7/16"
1/4"	QD1200	Fixed	–	–	40-200 in.-lb.	1 in.-lb.	10 15/16"	5/8"	13/16"
1/4"	QD1R200	Fixed Ratchet	36	10°	40-200 in.-lb.	1 in.-lb.	11 1/16"	7/8"	7/16"
3/8"	QD2R200	Compact	36	10°	40-200 in.-lb.	1 in.-lb.	11 1/16"	7/8"	7/16"
3/8"	QD21000A	Fixed	–	–	200-1,000 in.-lb.	5 in.-lb.	14 9/16"	1"	1 3/16"
3/8"	QD2R1000A	Fixed Ratchet	80	4.5°	200-1,000 in.-lb.	5 in.-lb.	15 9/16"	1 5/32"	9/16"
1/2"	QD3R1600A	Fixed Ratchet	80	4.5°	300-1,600 in.-lb.	10 in.-lb.	19"	1 5/8"	3/4"
1/2"	QD32500A	Fixed	–	–	500-2,500 in.-lb.	10 in.-lb.	18 1/8"	1"	1 1/4"
1/2"	QD3R2500A	Fixed Ratchet	80	4.5°	500-2,500 in.-lb.	10 in.-lb.	19 1/8"	1 5/8"	3/4"
QD Series Adjustable Click-Type (ft.-lb.)									
3/8"	QD2100A	Fixed	–	–	20-100 ft.-lb.	0.5 ft.-lb.	14 9/16"	1"	1 3/16"
3/8"	QD275A	Fixed	–	–	15-75 ft.-lb.	0.5 ft.-lb.	14 9/16"	1"	1 3/16"
3/8"	QD2FR75B †	Flex	80	4.5°	5-75 ft.-lb.	0.5 ft.-lb.	15 5/8"	1 5/32"	9/16"
3/8"	QD2R100A	Fixed Ratchet	80	4.5°	20-100 ft.-lb.	0.5ft.-lb.	15 9/16"	1 5/32"	9/16"
1/2"	QD3150A	Fixed	–	–	30-150 ft.-lb.	1 ft.-lb.	18"	1"	1 1/4"
1/2"	QD3250A	Fixed	–	–	50-250 ft.-lb.	1 ft.-lb.	23 3/16"	1"	1 1/4"
1/2"	QD3R150A	Fixed Ratchet	80	4.5°	30-150 ft.-lb.	1 ft.-lb.	19"	1 5/8"	3/4"
1/2"	QD3R250A	Fixed Ratchet	80	4.5°	50-250 ft.-lb.	1 ft.-lb.	24 3/16"	1 5/8"	3/4"
1/2"	QD3FR250A* †	Flex	80	4.5°	50-250 ft.-lb.	1 ft.-lb.	25 3/4"	1 5/8"	3/4"
1/2"	BRUTUS3R300**	Fixed Ratchet	36	10°	60-300 ft.-lb.	2 ft.-lb.	32 1/2"	1 3/4"	3/4"
3/4"	QD4400A	Fixed	–	–	75-400 ft.-lb.	2.5 ft.-lb.	33 3/4"	1 1/2"	1 1/2"
3/4"	QD4600A	Fixed	–	–	100-600 ft.-lb.	5 ft.-lb.	40 3/4"	1 1/2"	1 1/2"
3/4"	QD4R400A	Fixed Ratchet	32	11°	75-400 ft.-lb.	2.5 ft.-lb.	35 3/4"	2 1/2"	1 1/4"
3/4"	QD4R600A	Fixed Ratchet	32	11°	100-600 ft.-lb.	5 ft.-lb.	42 3/4"	2 1/2"	1 1/4"
1"	QD5R1000A	Fixed Ratchet	30	12°	200-1,000 ft.-lb.	5 ft.-lb.	71"	3 1/8"	1 1/2"
QD Series Metric Adjustable Click-Type (kg-m, kg-cm)									
3/8"	QD2RM1000A	Flex	80	4.5°	200-1,000 kg-cm	5 kg-cm	15 9/16"	1 5/32"	9/16"
1/2"	QD3RM30A	Fixed Ratchet	80	4.5°	6-30 kg-m	0.2 kg-m	19"	1 5/8"	3/4"
QD Series Newton Meter Adjustable Click-Type (N•m)									
1/4"	QD1RN6A	Fixed Ratchet	36	10°	1-6 N•m	0.5 N•m	9 7/8"	7/8"	7/16"
1/4"	QD1RN25A	Fixed Ratchet	36	10°	5-25 N•m	0.1 N•m	11 3/4"	7/8"	7/16"
3/8"	QD2RN25A	Compact	36	10°	5-25 N•m	0.1 N•m	11 3/4"	7/8"	7/16"
3/8"	QD2RN50A	Fixed Ratchet	80	4.5°	10-50 N•m	0.5 N•m	15 9/16"	1 5/32"	9/16"
3/8"	QD2RN100A	Fixed Ratchet	80	4.5°	20-100 N•m	0.5 N•m	15 9/16"	1 5/32"	9/16"
1/2"	QD3RN200A	Fixed Ratchet	80	4.5°	40-200 N•m	2 N•m	19"	1 5/8"	3/4"
1/2"	QD3RN350A	Fixed Ratchet	80	4.5°	70-350 N•m	2 N•m	24 3/16"	1 5/8"	3/4"
3/4"	QD4RN800A	Fixed Ratchet	32	11°	150-800 N•m	5 N•m	42 3/4"	2 1/2"	1 1/4"
1"	QD5RN1500A	Fixed Ratchet	30	12°	300-1,500 N•m	10 N•m	68 7/16"	3 1/8"	1 1/2"

* Unidirectional wrench (Clockwise only) ** Heavy duty main tube and yoke, +/- 6% accuracy † Heavy duty yoke/new long-life cam

TORQUE DRIVERS

Torque Drivers are ideal for low torque applications and are available in adjustable torque, torque preset and torque limiting models.

± 6% Accurate

Torque Screwdrivers

- Ideal for low torque assemblies, precision applications and dash/under dash work on most domestic and imported vehicles
- Drivers accept all standard 1/4" hex screwdriver bits
- Cam over torque limiting clutch free wheels when set torque is achieved
- Accuracy is ±6% from 20–100% of full scale in clockwise direction only
- Lightweight, red aluminum body with stainless steel shank
- Comfortable ergonomic tri-lobe grip and magnetic bit retention
- Textured body provides a nonslip grip
- Not supplied with certificate of calibration

QDRIVER1P

Preset

Model	Range	Increments	Length
QDRIVER1P	6-32 in.-oz. (4-22 N•cm)	–	4 9/16"
QDRIVER2P	10-100 in.-oz. (7-70 N•cm)	1 in. oz.	5 5/8"
QDRIVER3P	1.5-15 in.-lb. (16-169 N•cm)	0.02 in. lb.	5 5/8"
QDRIVER4P	4-40 in.-lb. (45-451 N•cm)	0.5 in. lb.	6"

ASME® B107.300-2010 Type III, Class A, Style 2, Design A

QDRIVER2

Adjustable

Model	Range	Increments	Length
QDRIVER2	20-100 in.-oz. (14-70 N•cm)	1 in.-oz.	5 7/16"
QDRIVER3	3-15 in.-lb. (3-169 N•cm)	0.2 in.-lb.	6 1/4"
QDRIVER4	5-40 in.-lb. (56-451 N•cm)	0.5 in.-lb.	6 11/16"
QDRIVER4NM	50-450 N•cm	5 N•cm	6 11/16"

ASME® B107.300-2010 Type III, Class A, Style 1, Design A

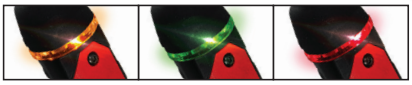
TPMS Adjustable Torque Screwdriver

- For maintaining/installing popular styles of tire pressure monitoring sensors
- Manufactured from aircraft-grade aluminum
- Dedicated torque measurements for popular TPMS ratings (4, 12, 35 in-lb)

Model	Range, Detected	Length	Accuracy
QDTPMS35	4 in.-lb., 12 in.-lb., 35 in.-lb.	6 5/8"	+/- 6%

ATECHMS80M

ATECHMS80F



Approaching Target | Target Achieved | Over Torque

TechAngle® Screwdriver

- Four alert modes (LCD, LED, Audible, Vibratory)
- Advanced features: programmable sleep timer, cycle counter, overload indication, calibration alert, battery level, language selection and torque record memory including 10 presets and storage for up to 50 records
- Three modes of operation: Torque, Angle, Torque Then Angle
- Displays in 6 units of measure: in-lb., in-oz., ft-lb., Nm, Kg-cm, cNm, angle
- Guaranteed accuracy +/- 2% CW and 3%CCW at 20%-100% full scale
  (+/- 4%CW and 6% CCW at 5% to 19% of full scale)

Model	Drive	Range	Increments	Length
ATECHMS80F	1/4" Female Hex Drive	4-80 in.-lbs. (0.45-9 Nm)	0.01 in. lbs.	7 1/2"
ATECHMS80M	1/4" Male Drive	4-80 in.-lbs. (0.45-9 Nm)	0.01 in. lbs.	7 1/2"

Torque Limiting Drivers

QDRIVER2A

Preset

- Cam over torque limiting clutch free wheels when set torque is achieved
- Ideal selection for assembly line work where same requirement is constant

Model	Range	Increments	Length
QDRIVER2A	20-100 in-oz (14–70 N•cm)	1 in.-oz.	5 7/16"
QDRIVER3A	3-15 in-lb (34–169 N•cm)	0.2 in.-lb.	6 1/4"
QDRIVER4A	5-40 in-lb (56–451 N•cm)	0.5 in.-lb.	6 11/16"
QDRIVER4NMA	50-450 N•cm	5 N•m	6 11/16"

QTS135

Adjustable

- Micrometer type adjustment
- Clutch allows 25° of free rotation on reaching set torque
- Guaranteed accuracy: within ±4% of setting from 20% of capacity to full capacity clockwise and counterclockwise

Model	Range	Increments	Length
QTS135	5-35 in.-lb.	0.5 in-lb	7"
QTSP135	5-35 in.-lb.	0.5 in-lb	7- 1/2"

TORQUE ADAPTERS

For use with torque wrenches where the type of fastener, clearance, and obstructions dictate the use of a wrench adapter versus a standard socket.

Radius Edges resists damage/ nicks

Flank Drive® Wrenching System for better grip and more turning power

TRDHM8

Made in U.S.A.

FRDHM17

Thicker Construction than competitive models for strength

Center-to-Center Length on adapter for easy torque calculations

12-Point Torque Adapters

Torque adapters get into tighter areas where standard sockets cannot reach. Manufactured from special alloy steel, precision forged and heat treated for optimum strength and durability, Snap-on's larger torque adapter sizes are forged thicker than competitor's models for strength when you need it. The double hex (12-point) configuration allows the socket to engage a single hex fastener every 30° rather than every 60°, allowing for better access in restricted areas. And unlike competitor's offerings, these high-strength adapters are made with pride in the USA, insuring the finest quality and durability.

1/2" DRIVE SAE

Stock No.	Size	Working Torque
SRDH321	1"	4,312 in. lbs.
SRDH341	1 1/16"	3,564 in. lbs.
SRDH361	1 1/8"	5,192 in. lbs.
SRDH401	1 1/4"	5,600 in. lbs.
SRDH441	1 3/8"	5,600 in. lbs.

3/8" DRIVE SAE

Stock No.	Size	Working Torque
FRDH101	5/16"	190 in. lbs.
FRDH121	3/8"	420 in. lbs.
FRDH141	7/16"	500 in. lbs.
FRDH161	1/2"	710 in. lbs.
FRDH181	9/16"	1,050 in. lbs.
FRDH201	5/8"	1,400 in. lbs.
FRDH221	11/16"	1,400 in. lbs.
FRDH241	3/4"	1,400 in. lbs.
FRDH281	7/8"	2,000 in. lbs.
FRDH301	15/16"	2,706 in. lbs.

3/8" DRIVE METRIC

Stock No.	Size	Working Torque
FRDHM8	8 mm	212 in. lbs.
FRDHM10	10 mm	420 in. lbs.
FRDHM12	12 mm	690 in. lbs.
FRDHM13	13 mm	720 in. lbs.
FRDHM14	14 mm	1,050 in. lbs.
FRDHM15	15 mm	1,200 in. lbs.
FRDHM16	16 mm	1,400 in. lbs.
FRDHM17	17 mm	804 in. lbs.
FRDHM18	18 mm	1,400 in. lbs.
FRDHM19	19 mm	1,400 in. lbs.
FRDHM21	21 mm	2,000 in. lbs.

1/4" DRIVE SAE

Stock No.	Size	Working Torque
TRDHL81	1/4"	176 in. lbs.
TRDHL101	5/16"	220 in. lbs.
TRDHL121	3/8"	484 in. lbs.
TRDHL141	7/16"	560 in. lbs.

1/4" DRIVE METRIC

Stock No.	Size	Working Torque
TRDHM6	6 mm	144 in. lbs.
TRDHM7	7 mm	192 in. lbs.
TRDHM8	8 mm	212 in. lbs.

FRESL28

Made in U.S.A.

Precise, radial spline teeth engage the fastener teeth over a wider area to minimize stress

Low Profile Splines Available for limited clearance fasteners

SRES24

Center-to-Center Length on adapter for easy torque calculations

12-Point Spline Torque Adapters

Snap-on® spline wrenching tools have been developed to service high tensile strength spline nuts and bolts widely used on both military and commercial aircraft. Precise, radial spline teeth engage the fastener teeth over a wider area to minimize stress, and allow application of high torque to reduce risk of damage to the fastener or to the tool. Chrome tools comply with Military Spec. MS-33787 and MIL-W-89823. The unique spline wrenching configuration can also be used on ordinary six- and 12-point fasteners with an advantage similar to the Snap-on Flank Drive® wrenching system.

1/2" DRIVE SPLINE

Stock No.	Size	Working Torque
SRES18	#18 - 9/16"	2,275 in. lbs.
SRES20	#20 - 5/8"	2,450 in. lbs.
SRES22	#22 - 11/16"	2,975 in. lbs.
SRES24	#24 - 3/4"	3,500 in. lbs.
SRES26	#26 - 13/16"	4,410 in. lbs.
SRES28	#28 - 7/8"	4,900 in. lbs.
SRES30A	#30 - 15/16"	6,000 in. lbs.

3/8" DRIVE LOW PROFILE SPLINE

Stock No.	Size	Working Torque
FRESL24	#24-3/4"	465 in. lbs.
FRESL28	#28-7/8"	605 in. lbs.

3/8" DRIVE SPLINE

Stock No.	Size	Working Torque
FRES7	#7 - 7/32"	140 in. lbs.
FRES8	#8 - 1/4"	195 in. lbs.
FRES9	#9 - 9/32"	220 in. lbs.
FRES10	#10 - 5/16"	250 in. lbs.
FRES12	#12 - 3/8"	515 in. lbs.
FRES14	#14 - 7/16"	875 in. lbs.
FRES16	#16 - 1/2"	1,575 in. lbs.
FRES18	#18 - 9/16"	1,750 in. lbs.
FRES20	#20 - 5/8"	1,750 in. lbs.
FRES22	#22 - 11/16"	1,750 in. lbs.
FRES24	#24 - 3/4"	1,750 in. lbs.

TORQUE EQUIPMENT

Accuracy is the most important aspect of any Torque Instrument. Digital torque testers give you fast, precise readings to help keep your torque instruments error-free.

CE

1/2" & 3/8" Dual Drive Digital Torque Checker

QUICKLY CHECK BOTH MECHANICAL AND ELECTRONIC TORQUE WRENCHES ANY TIME

QCDTC3250

- A quick and easy way to determine the accuracy of mechanical and electronic torque wrenches
- Large, easy-to-read backlight LCD display
- Range: 25 ft. lbs. to 250 ft. lbs. (34-339 Nm)
- Reads in ft. lbs. in. lbs. and Nm
- Accuracy: +/- 1% CW and +/- 1% CCW, 10% to 100% of full scale
- Tough, composite housing with integrated adapter storage
- Torque check functions: Track/Peak Hold/First Peak
- Adjustable auto shutoff feature
- CE approved
- Mounting hardware included

Torque Comparators

DETERMINE IF A TORQUE WRENCH REQUIRES CALIBRATION TO MAINTAIN PROPER APPLICATION OF TORQUE

- Compact design with 1/4" steel mounting plate allows for convenient installation in any direction: horizontally on a bench, vertically on a wall, or on any other sturdy, flat surface
- Does not include certificate of calibration

TCR600

1/2" Drive TCR175

- 1/2" female square drive input and 175 ft-lb capacity with 5 ft-lb graduations and 230 N•m capacity with 10 N•m increments is a perfect fit for the most popular torque wrenches
- Integrated exercise adapter makes it easy to break in simple, providing the most accurate results (as per B107-300 standard)
- 2% accurate within ±2% of the reading from 20% of full scale to full scale clockwise and counterclockwise
- Can check a 3/8" drive torque wrench by using an A2A or GAF2A adapter

3/4" Drive TCR600

- Similar to TCR175 except for these differences:
- 3/4" female square drive input and 600 ft-lb capacity with 10 ft-lb graduations and 800 N•m capacity with 20 N•m increments

Stock No.	Drive Size	Capacity (ft.-lb./N•m)	Increments (ft.-lb./N•m)
TCR175	1/2"	175 (230)	5 (10)
TCR600	3/4"	600 (800)	10 (20)

Easy-to-Use Color Touchscreen

- Color-coded numbers indicate low, good and high torque readings
- Color bar at the top allows the user to see progress relative to the target torque

1/2" or 3/8" Drive Digital Torque Testers

CONVENIENTLY TEST TORQUE SETTINGS ON TORQUE WRENCHES PRIOR TO USE

QC2DTT250 (3/8" Drive)
QC3DTT250 (1/2" Drive)

- Can be mounted on a wall or in a bench-top vise
- Features an easy-to-use touch screen to capture peak torque values during a test in real time
- Download stored torque data to a PC
- Testing options: quick check or ASME® style test
- Refresh rate of 1,000 data points per second
- Record and track torque wrench test results by serial number, plus adds traceability by using wrench serial numbers and technician I.D.
- Choose your wrench type
- Reads in Nm, kg cm, ft. lbs., in. lbs., in. oz.
- ±0.5% of indicated test value from 10%–100% or rated capacity
- Memory Capacity: 500 records (complete check mode only)
- Includes AC/DC power supply, six AA batteries, USB cable and carrying case
- Also available in 1/4" & 3/4" drive versions; ask your Rep for details

CE

Stock No.	Drive Size	Range	
QC2DTT250	3/8"	25-250 in. lb.	28.2-282.5 dNm
QC3DTT250	1/2"	25-250 ft. lb.	33.9-339.0 Nm

MORE IN THE TORQUE FAMILY

MTM Series Torque Multipliers

Torque multipliers are ideal for use in the Oil & Gas, Mining, Railroad, Heavy Fleet, Power Gen and Aviation industries. They are calibrated to give exact multiplication ratio and have a guaranteed accuracy of +/-4%. Their compact dimensions allow excellent access and easy handling in any environment. Robust construction means minimal maintenance and long life in demanding work environments. Compact carrying case included and a variety of optional reaction fixtures available separately.

Use of torque multipliers are essential when high torque is needed and are ideal in heavy industries. Multiple reaction fixtures available for true torque multiplication.

Dial Torque Wrenches allow the user to easily apply and monitor torque. Available in a wide selection of models, drive sizes, ranges, scales and dial configurations.

TORQOMETER® Torque Wrenches

Dial torque wrenches allow the user to easily apply and monitor torque with high accuracy and reliability. With a wide selection of models to choose from (1/4"–1 1/2" drives) and multiple ranges, scales, and dial configurations, there is a dial wrench to cover nearly every need. A certificate of calibration is available if needed, plus, most dial-type torque wrenches include a rugged hard case for safe transport and storage.

Steel Welded Bodies with bright nickel-chrome finish

Heat Treated Dial Guards Protects the dial crystal from damage

Patented Torsion Bar machined from aircraft quality alloy steel for long life and precise performance across the entire scale

Multiple Dial Configurations Scale readings available for Newton Meter, US, Combination Newton Meter/US and Combination US/Metric

Made in U.S.A.

± 1-2% Accurate

The TQ Series use a 'split beam' measuring element providing accurate, reliable readings and eliminate the heavier coil springs used in conventional click-type wrenches.

Comfort Grip

± 4% Accurate

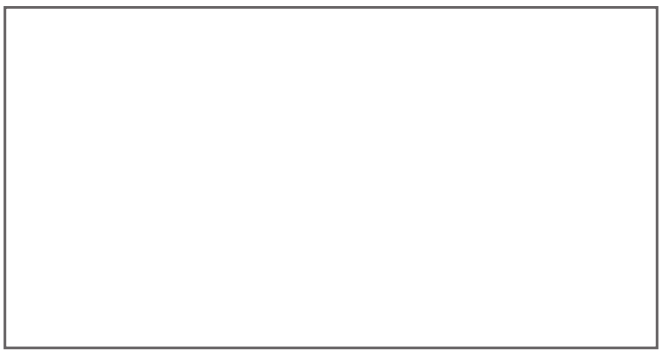
MULTIPLE COLORS AVAILABLE

SPEAK TO YOUR ACCOUNT MANAGER FOR MORE INFORMATION ON TORQUE PRODUCTS.

Snap-on Industrial

INDUSTRIAL TORQUE SOLUTIONS

INNOVATION | ACCURACY | DURABILITY



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