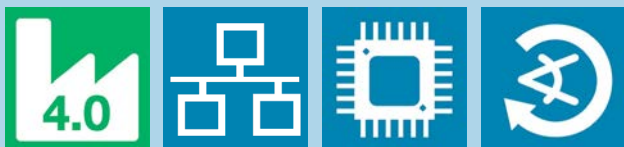




Torque Measurement

2022
2023



ZEMO
www.zemo-tools.de



Tightening Tools and Technology for Assembly Improvement



Finest Brand Quality all around

Since 1987 ZEMO is the sole authorized distribution and service partner for torque application tools and testers from the global going industry's number one Sturtevant Richmond (USA) in the German-speaking world, additionally offering repair and calibration service for all SR customers in other EU countries.



In 1995 ZEMO is starting the distribution partnership with UK's „Force in Torque Management“ Crane Electronics. The distinctive expertise of the year 1971 founded company covers the patented technology of rotating torque transducers for impulse wrench testing as well as QA capable torque readouts and data collectors, digital torque wrenches and joint rate simulators.



Additionally ZEMO also offers selected high-quality torque products of the leading Japanese manufacturer Tohnichi, who is primarily specialized on solutions for small batch production. Focused on screw and bolt tightening control right from the beginning, Tohnichi developed and patented their first torque wrench in the year 1951. Tohnichi is ISO-9001 and ISO-14001 certified.



Customers (excerpt)



- ▶ Efficient Tightening Tools
- ▶ Controlled Results
- ▶ Lean Production
- ▶ Service – Quality – Competence

Services

- ▶ Approved torque application tools and high class EC tightening systems
- ▶ Face-to-face counselling based on fact
- ▶ Professional on-site support service
- ▶ Effective user training
- ▶ Individual demonstration, trial installation, startup operation
- ▶ Authorised testing, calibration and certification
- ▶ Experienced maintenance / repairs
- ▶ e-Newsletter

Meaning of Symbols used

- new in catalog
- with wireless signal transmission (RF)
- uses radio standard IEEE 802.15.4 (XBee Pro – no Zigbee)
- complies with FCC regulations for communication devices
- networkable for data link / Ethernet interface
- equipped with USB port
- uses Bluetooth standard IEEE 802.15.1
- works in battery mode
- provides protocol/report functionality
- complies with Hazardous Substances Directive 2011/65 / EU
- with micro-processor / electronically controlled
- with hardwired signal transmission
- tools / accessories / setup
- with rotation angle function
- works in both directions
- works only in the specified direction of rotation (shown: clockwise)
- with Android operating system/software platform
- uses radio standard IEEE 802.11 (WiFi)
- with CE mark according to EU regulation
- suitable for digitized production (Industry 4.0)



Torque Measurement – Content



Torque Gauges for very low torque up to 200 cNm 4



Torque Meters for bottle caps up to 2000 cNm 6



Torque Testers for torque screwdrivers up to 600 cNm 11



Torque Testers for torque wrenches up to 800 Nm 12



Torque Testers for screwdrivers upto 30 Nm; impulse tools up to 500 Nm 14



Torque Data Collectors & Transducers from Crane Electronics up to 5000 Nm 16



Torque Readouts & Transducers from Sturtevant Richmond up to 2700 Nm 28



Torque Calibration Equipment electrical / mechanical up to 2700 Nm 32



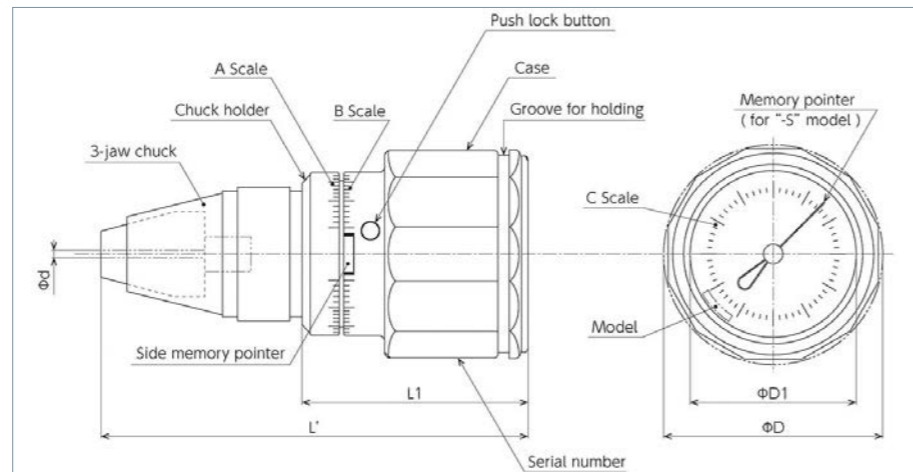
PC Software for tool & torque data management 34



Torque Gauge – ATG



Fig.: ATG with 322



High precision Torque Gauge for measuring of micro torque and tightening

Suitable for fine torque measurements required in inspection, research and assembly of small parts, such as precision instruments, electronic products. There are various application types, e.g. for measuring rotating objects, also for measuring torque on orthodontic springs et al.

Graduation and memory pointer (except smallest model) are on the body side. This ensures excellent visibility.

ATG models have a three-jaw chuck which firmly grasp the object. Main body and chuck are locked when pushing "push lock button". Push lock button makes body and chuck secured while using chuck.



Resin Chuck #322 Steel Chuck #321

Options

- Resin cover and chuck (#322) for ATG.
- Metric scale (gf-cm) on request.
- Calibration kit ATGTCL24CN.

INFO

Note

When operating with the ATG/BTG (-S) torque gauge series, make sure that at least 10 mm of the object to be measured is clamped in the chuck.

INFO

- ▶ Accuracy ± 2%.
- ▶ Bi-directional peak torque measuring – clockwise or counterclockwise.
- ▶ Dial scaled 270 degrees each direction, built-in overload protection.
- ▶ Equipped with aluminium cover and steel chuck (#321) as standard.
- ▶ Models -S have additional memory pointer in top display.
- ▶ Shipped in firm safe box incl. traceable calibration certificate.

| ATG (cN·m) | | | | | | |
|--------------|-----------|-------------------|------------|-------|-------|-------|
| Model (SI) * | Item No. | Torque Range cN·m | Grad. cN·m | L' mm | øD mm | ød mm |
| ATG045CN | T251001 | 0.05 - 0.45 | 0.01 | 90 | 43.5 | 1-6.5 |
| ATG09CN | T251004 | 0.1 - 0.9 | 0.02 | 90 | 43.5 | 1-6.5 |
| ATG09CN-S | T251004-S | | | | | |
| ATG1.5CN | T251007 | 0.2 - 1.5 | 0.02 | 90 | 43.5 | 1-6.5 |
| ATG1.5CN-S | T251007-S | | | | | |
| ATG3CN | T251010 | 0.3 - 3.0 | 0.05 | 90 | 43.5 | 1-6.5 |
| ATG3CN-S | T251010-S | | | | | |
| ATG6CN | T251013 | 0.6 - 6.0 | 0.1 | 90 | 43.5 | 1-6.5 |
| ATG6CN-S | T251013-S | | | | | |
| ATG12CN | T251016 | 1.0 - 12 | 0.2 | 90 | 43.5 | 1-6.5 |
| ATG12CN-S | T251016-S | | | | | |
| ATG24CN | T251019 | 3.0 - 24 | 0.5 | 90 | 43.5 | 1-6.5 |
| ATG24CN-S | T251019-S | | | | | |

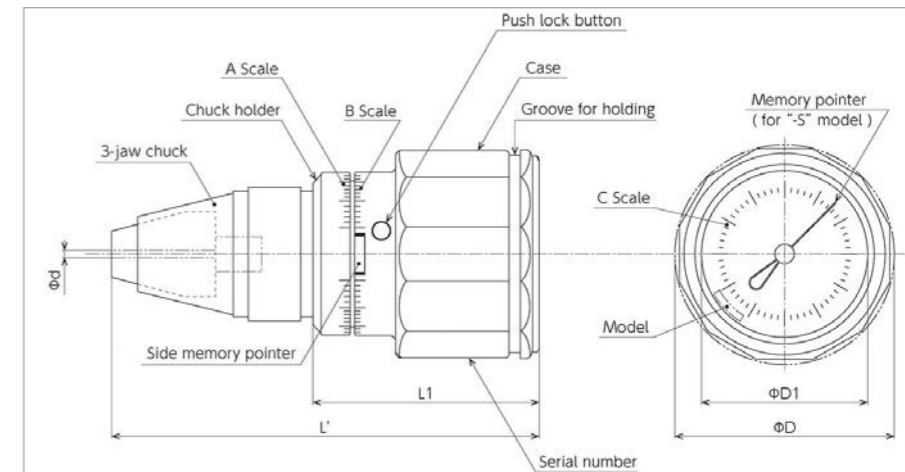
| ATG (ozf-in) | | | | | | |
|--------------|-----------|---------------------|--------------|-------|-------|-------|
| Model * | Item No. | Torque Range ozf-in | Grad. ozf-in | L' mm | øD mm | ød mm |
| ATG06Z | T251003 | 0.06 - 0.6 | 0.01 | 90 | 43.5 | 1-6.5 |
| ATG1.5Z | T251006 | 0.2 - 1.5 | 0.02 | 90 | 43.5 | 1-6.5 |
| ATG1.5Z-S | T251006-S | | | | | |
| ATG2.4Z | T251009 | 0.3 - 2.4 | 0.05 | 90 | 43.5 | 1-6.5 |
| ATG2.4Z-S | T251009-S | | | | | |
| ATG4.5Z | T251012 | 0.5 - 4.5 | 0.1 | 90 | 43.5 | 1-6.5 |
| ATG4.5Z-S | T251012-S | | | | | |
| ATG9Z | T251015 | 1.0 - 9.0 | 0.2 | 90 | 43.5 | 1-6.5 |
| ATG9Z-S | T251015-S | | | | | |
| ATG18Z | T251018 | 2.0 - 18 | 0.5 | 90 | 43.5 | 1-6.5 |
| ATG18Z-S | T251018-S | | | | | |
| ATG36Z | T251021 | 4.0 - 36 | 0.5 | 90 | 43.5 | 1-6.5 |
| ATG36Z-S | T251021-S | | | | | |

* Models with suffix -S have an additional memory pointer in the upper display; except for ATG-045CN and ATG06Z: these require only a very small torque, therefore no lateral memory indicator and no option for the upper memory pointer available.

Further information available on our website – 24/7.



Torque Gauge – BTG



High precision Torque Gauge for measuring of micro torque and tightening

Suitable for fine torque measurements required in inspection, research and assembly of small parts, such as precision instruments, electronic products. Graduation and memory pointer on the body side ensure excellent visibility from different operating positions.

There are various application types, e.g. measuring of rotating objects, or also for measuring torque on orthodontic springs, et al.

BTG models have a three-jaw chuck which firmly grasp the object. Main body and chuck are locked when pushing "push lock button". Push lock button makes body and chuck secured while using chuck.

- ▶ Accuracy ± 2%.
- ▶ Bi-directional peak torque measuring – cw/ccw.
- ▶ Dial scaled 270 degrees each direction, built-in overload protection.
- ▶ Equipped with aluminium cover and steel chuck (#321) as standard.
- ▶ Models with -S suffix have additional memory pointer in top display.
- ▶ Shipped in firm safe box incl. traceable calibration certificate.

Options

- Metric scale (kgf-cm) on request.
- Calibration kit BTGTCL150CN.

INFO

Note

When operating with the ATG/BTG (-S) torque gauge series, make sure that at least 10 mm of the object to be measured is clamped in the chuck.

INFO

| BTG (cN·m) | | | | | | |
|--------------|-----------|-------------------|------------|-------|-------|-------|
| Model (SI) * | Item No. | Torque Range cN·m | Grad. cN·m | L' mm | øD mm | ød mm |
| BTG15CN | T251052 | 2 - 15 | 0.2 | 118 | 64.2 | 1-8.5 |
| BTG15CN-S | T251052-S | | | | | |
| BTG24CN | T251055 | 3 - 24 | 0.5 | 118 | 64.2 | 1-8.5 |
| BTG24CN-S | T251055-S | | | | | |
| BTG36CN | T251058 | 4 - 36 | 0.5 | 118 | 64.2 | 1-8.5 |
| BTG36CN-S | T251058-S | | | | | |
| BTG60CN | T251061 | 6 - 60 | 1.0 | 118 | 64.2 | 1-8.5 |
| BTG60CN-S | T251061-S | | | | | |
| BTG90CN | T251064 | 10 - 90 | 1.0 | 118 | 64.2 | 1-8.5 |
| BTG90CN-S | T251064-S | | | | | |
| BTG150CN | T251067 | 20 - 150 | 2.0 | 118 | 64.2 | 1-8.5 |
| BTG150CN-S | T251067-S | | | | | |

| BTG (ozf-in) | | | | | | |
|--------------|-----------|---------------------|--------------|-------|-------|-------|
| Model * | Item No. | Torque Range ozf-in | Grad. ozf-in | L' mm | øD mm | ød mm |
| BTG60Z-S | T251050-S | 6 - 60 | 1 | 118 | 64.2 | 1-8.5 |
| BTG120Z-S | T251051-S | 10 - 120 | 2 | 118 | 64.2 | 1-8.5 |

| BTG (lbf-in) | | | | | | |
|--------------|-----------|---------------------|--------------|-------|-------|-------|
| Model * | Item No. | Torque Range lbf-in | Grad. lbf-in | L' mm | øD mm | ød mm |
| 1.5BTG-A-S | T251054-S | 0.1 - 1.5 | 0.02 | 118 | 64.2 | 1-8.5 |
| 2.4BTG-A-S | T251057-S | 0.3 - 2.4 | 0.02 | 118 | 64.2 | 1-8.5 |
| 3.6BTG-A-S | T251060-S | 0.4 - 3.6 | 0.05 | 118 | 64.2 | 1-8.5 |
| 6BTG-A-S | T251063-S | 0.6 - 6 | 0.1 | 118 | 64.2 | 1-8.5 |
| 9BTG-A-S | T251066-S | 1 - 9 | 0.1 | 118 | 64.2 | 1-8.5 |
| 15BTG-A-S | T251069-S | 2 - 15 | 0.2 | 118 | 64.2 | 1-8.5 |

* Models ending with -S have an additional memory pointer in the upper display.

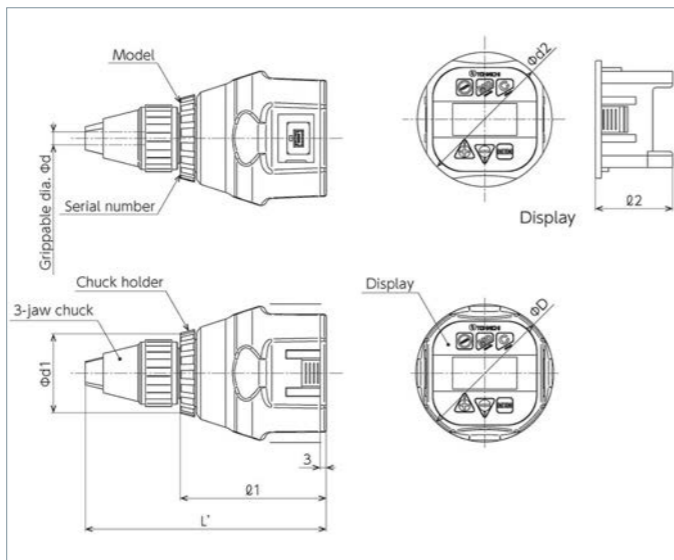


Further information available on our website – 24/7.

Torque Gauge – ATGE-G



Img: ATGE10CN



Digital Torque Gauge with pull-out LC-Display

High precision handheld digital gauge with integrated LC display to measure small torque. Ideal for torque measurement like rotating torque, click torque of precision machinery, electronic devices, and various assembly components.

The digital display simply slides out of the housing and is attached with a curly cord. Use the optional testing stand to secure the gauge while testing or add fixture to secure your test piece. Combined with Measurement Stand (#808), it can be fixed to use as torque screwdriver checker, et al.

ATGE-G series devices are manufactured for the global market and offer a selection of SI, metric and American units of measurement. Equipped with SI calibration as standard, optionally available with calibration in english (ozf-in) or in metric (gf-cm) units.

Optional Accessories

- Measurement Stand #808
- Testing Fixture #800 (clamp diam. 10-58 mm)
- USB Cable #384 (free Data Receiver Software available*)
- AC Adaptor #BA-7 (requires cable #384)
- Battery Pack #BP-C1 (for up to 50 hrs continuous use)
- Resin Chuck #322
- Calibration Adaptor #806
- Calibration Kit #ATGTCL24CN

INFO



- ▶ Accuracy $\pm 2\% + 1$ digit.
- ▶ 7 segment LCD: Torque unit, Battery indicator, Direction, Counter 3 digits, Torque value 4 digits.
- ▶ 2 measurement modes: Peak, Track.
- ▶ 3-way configuration: Hand-held, Table top, or as a Torque meter with testing fixture.
- ▶ Aluminum cover and 3-jaw keyless steel chuck as standard.
- ▶ Physical stopper prevents accidental over-loading.
- ▶ 999 readings can be saved with computing function for max/min/mean.
- ▶ Coin-type lithium battery (CR2450) allows 10-hour continuous operation.
- ▶ USB cable can be used for data transfer to PC.

Delivery in firm storage box incl. traceable calibration certificate (ISO/JCSS), operating manual and Lithium coin cell CR-2450.

ATGE-G

| Model | Item No. | Torque Range | | | | Dimensions | | Chuck | Weight | | |
|------------|----------|--------------|---------|------------|---------|------------|-------|-----------|---------|---------|------|
| | | cN-m | | gf-cm | | L' | øD | | | | |
| | | Min - Max | 1 Digit | Min - Max | 1 Digit | | | Min - Max | 1 Digit | mm | mm |
| ATGE05CN-G | T251100 | 0.1 - 0.5 | 0.001 | 10 - 50 | 0.1 | 0.15 - 0.7 | 0.001 | 120 | 67 | 1 - 6.5 | 0.31 |
| ATGE1CN-G | T251101 | 0.2 - 1 | 0.001 | 20 - 100 | 0.1 | 0.3 - 1.4 | 0.001 | 120 | 67 | 1 - 6.5 | 0.31 |
| ATGE2CN-G | T251102 | 0.4 - 2 | 0.002 | 40 - 200 | 0.2 | 0.6 - 2.8 | 0.002 | 120 | 67 | 1 - 6.5 | 0.31 |
| ATGE5CN-G | T251103 | 1 - 5 | 0.005 | 100 - 500 | 0.5 | 1.5 - 7 | 0.005 | 120 | 67 | 1 - 6.5 | 0.31 |
| ATGE10CN-G | T251104 | 2 - 10 | 0.01 | 200 - 1000 | 1 | 3 - 14 | 0.01 | 120 | 67 | 1 - 6.5 | 0.31 |
| ATGE20CN-G | T251105 | 4 - 20 | 0.02 | 400 - 2000 | 2 | 6 - 28 | 0.02 | 120 | 67 | 1 - 6.5 | 0.31 |

* Data Receiver software is a data input tool for Excel® data management. It can be downloaded for free. Note: Excel® is a registered trademark of Microsoft Corporation.

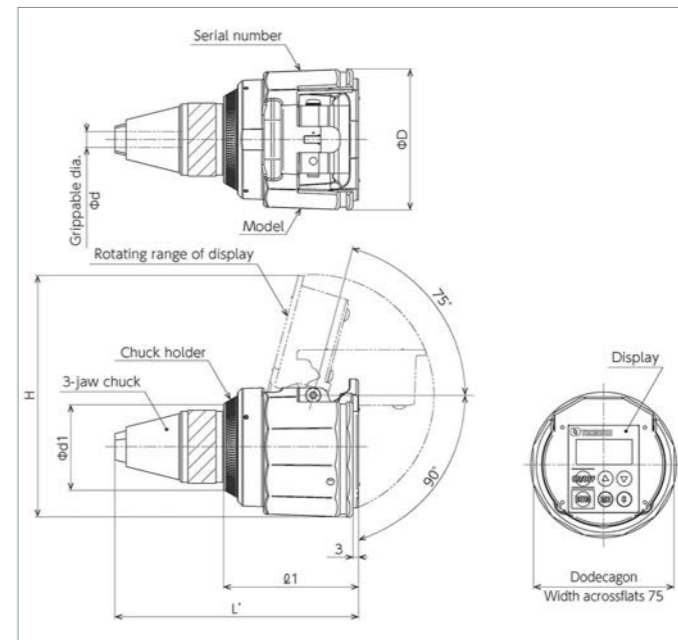
Further information available on our website - 24/7.



Torque Gauge – BTGE-G



Img: BTGE10CN



Digital Torque Gauge with flip-up LC-Display

High precision handheld digital torque gauge with integrated LC display to measure small torque. Ideal for torque measurement on precision machinery, electronic devices, and various assembly components. Flip-up display can be adjusted for optimal reading and accommodates various testing positions.

BTGE-G series products are manufactured for the global market and offer a selection of SI, metric and American units of measurement. Equipped with SI calibration as standard, optionally available with calibration in english (ozf-in) or in metric (kgf-cm) units.

There are various application types, even for measuring rotating objects. Combined with Measurement Board (#809), it can be fixed to use as torque screwdriver checker, et al.

Delivery in firm storage case including traceable calibration certificate, operating manual and Lithium battery CR2450.

Optional USB cable can be used for data transfer to PC (free Data Receiver Software available*).

- ▶ Accuracy $\pm 2\% + 1$ digit.
- ▶ Bi-directional measuring – cw / ccw.
- ▶ Physical stopper prevents accidental over-loading.
- ▶ 999 readings can be saved with computing function for max/min/mean.
- ▶ Coin-type lithium battery allows 10-hour continuous operation.
- ▶ 4 selectable torque units: cN-m, kgf-cm, ozf-in, lbf-in.
- ▶ Applicable for international use including the EU region. Compliant with CE and RoHS directives.

Optional Accessories

- Measurement stand #809.
- Battery pack #BP-C1 for up to 50 hours continuous use.
- USB cable #384, Data Receiver Software.*
- AC adaptor #BA-5 (requires cable #384).
- Calibration Kit #BTGTCL150CN.

INFO



BTGE-G

| Model | Item No. | Torque Range | | | | Dimensions | | Chuck span | Weight | | |
|-------------|----------|--------------|---------|-----------|---------|------------|-------|------------|---------|---------|------|
| | | cN-m | | ozf-in | | L' | øD | | | | |
| | | Min - Max | 1 Digit | Min - Max | 1 Digit | | | Min - Max | 1 Digit | mm | mm |
| BTGE10CN-G | T251120 | 2 - 10 | 0.01 | 3 - 14 | 0.01 | 0.2 - 0.88 | 0.001 | 130 | 75 | 1 - 8.5 | 0.65 |
| BTGE20CN-G | T251121 | 4 - 20 | 0.02 | 6 - 28 | 0.02 | 0.4 - 1.7 | 0.002 | 130 | 75 | 1 - 8.5 | 0.65 |
| BTGE50CN-G | T251122 | 10 - 50 | 0.05 | 15 - 70 | 0.05 | 1 - 4.4 | 0.005 | 130 | 75 | 1 - 8.5 | 0.65 |
| BTGE100CN-G | T251123 | 20 - 100 | 0.1 | 30 - 140 | 0.1 | 2 - 8.8 | 0.01 | 130 | 75 | 1 - 8.5 | 0.65 |
| BTGE200CN-G | T251124 | 40 - 200 | 0.1 | 60 - 280 | 0.2 | 4 - 17 | 0.02 | 130 | 75 | 1 - 8.5 | 0.65 |

* Data Receiver software is a data input tool for Excel® data management. It can be downloaded for free. Note: Excel® is a registered trademark of Microsoft Corporation.



Further information available on our website - 24/7.

Torque Tester – CapStar



Fig.: CapStar (2018)

Digital Bottle Cap Tester

The new CapStar cap closure torque tester is a simple and easy-to-operate digital torque tester, specifically designed for applications within the pharmaceutical, food & beverage industries, and many more. By measuring torque, the CapStar can ensure the correct level of tension is in place on a wide range of caps and closures such as on medicinal or cosmetics containers, drinks bottles or food jars etc. With the CapStar's clear display and easy-to-view torque results, operators are able to guarantee production quality whilst ensuring contents – which could be potentially harmful – remain sealed and secured.

The CapStar helps to ensure the safety of products, prevent leaks and reduce the ergonomic issues associated with these products without compromising on safety, quality or freshness.

For optimal power management, the CapStar automatically switches to the highest voltage power source to save on battery life, yet still giving the option to pick it up and unplug to seamlessly run on battery power.

The CapStar is supplied with an adjustable component fixture for measuring bottles and containers, and is available in 2Nm, 4Nm and 6Nm ranges.



- ▶ Accurate digital measurement of bottle cap/closure release torque (sigma, mean and range).
- ▶ Accuracy $\pm 0.25\%$ FSD.
- ▶ Automatic detection of the direction of rotation (right/left).
- ▶ Strong, durable and robust – perfect for production, quality and testing environments.
- ▶ Built-in transducer and adjustable clamp fixture available in 2Nm, 4Nm and 6Nm sizes.
- ▶ Memory for 999 date- and time-stamped readings for complete traceability.
- ▶ Easy download of all measurement readings to a PC via Micro-USB port.
- ▶ Energy-saving and clear to read **OLED** display.
- ▶ 3-colour LED indication of torque measurement status.
- ▶ Drip-proof (IP45).
- ▶ Automatically switches to highest voltage power source (mains/USB/batteries).

INFO
Delivery incl. object clamping device, 2 Alkaline batteries Type C („Baby“), operating instructions (English) and traceable factory calibration certificate (UKAS).

CapStar

| Model | Item Code | Part No. | Torque Range | | | | Weight kg |
|--------------|-------------------|----------|--------------|----------|----------|---------|--------------|
| | | | ozf-in | lbf-in | cN-m | N-m | |
| 2 Nm CapStar | RSCS2-0002-CRXXXX | C718361 | 28 - 283 | 1.8 - 18 | 20 - 200 | 0.2 - 2 | 3.0 |
| 4 Nm CapStar | RSCS2-0004-CRXXXX | C718351 | 57 - 566 | 3.5 - 35 | 40 - 400 | 0.4 - 4 | 3.0 |
| 6 Nm CapStar | RSCS2-0006-CRXXXX | C718371 | 85 - 849 | 5.3 - 53 | 60 - 600 | 0.6 - 6 | 3.0 |

Optional Components

| Model | Item Code | Part No. | Description |
|-----------|-------------------|----------|--------------------------------------|
| Long Pegs | BT-479-1-0 | C718314 | Long pegs for clamping large objects |
| PSU 5 VDC | RSXXA-0000-CRPXXX | C718XXX | Mains adaptor (no charging) 5 VDC |

Recommendation: A torque tester should be chosen so that it is mainly used in its medium range. If you regularly have to work close to the max. load capacity, a larger model would be more advisable.

Further information available on our website – 24/7.



Torque Meter – TM



Fig.: 2TM400CN

Analog Torque Meter

Suitable for measuring torque on bottle caps, spring force, starting torque test, strength test, and twisting test, etc.

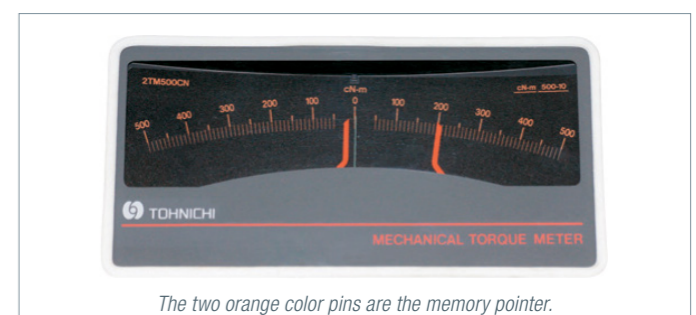
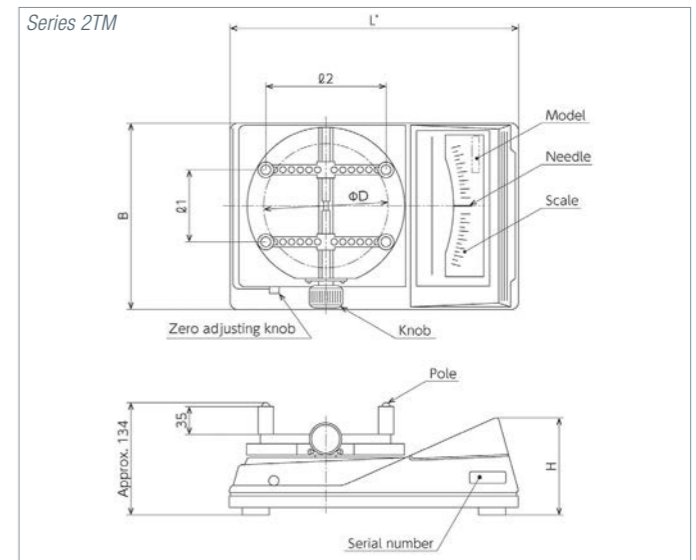
The TM unit is equipped with 4 poles that can change positions according to the object's shape and hold it firmly during testing.

There is no need to fix the tester on the table with bolts, which gives greater portability. With the optional calibration equipment, the torque tester can be calibrated at the customer side.

Models with “-S” are equipped with a memory pointer, which is useful for measuring the peak torque.

Ergonomically designed and adapted for Color Vision Deficiencies (Tohnichi Unified Design).

Shipping includes operating manual and traceable calibration certificate.



The two orange color pins are the memory pointer.

- ▶ Bi-directional measuring – CW or CCW.
- ▶ Accuracy $\pm 2\%$.
- ▶ Models with “-S” is equipped with a memory pointer.
- ▶ Clamping device with 4 adjustable poles.
- ▶ Slanted display with large scale for easy reading.
- ▶ Ergonomic design and user-friendly color design.

Options, Accs & Spares

- English Scale (lbf-in) on request.
- SI models (mN-m, cN-m) available without memory pointer.
- Calibration Kit 2TMTCL for series 2TM.
- Calibration Kit 3TMTCL for series 3TM / 4TM.

INFO

4TM (mN-m)

| Model (SI) | Item No. | Torque Range mN-m | Grad. mN-m | L1 mm | L2 mm | Wght. kg |
|------------|-----------|----------------------|---------------|----------|----------|-------------|
| 4TM10MN-S | T251220-S | 1 - 10 | 0.2 | 14-90 | 17-85 | 3 |
| 4TM15MN-S | T251223-S | 1.5 - 15 | 0.5 | 14-90 | 17-85 | 3 |
| 4TM25MN-S | T251226-S | 2.5 - 25 | 0.5 | 14-90 | 17-85 | 3 |
| 4TM50MN-S | T251229-S | 5 - 50 | 1 | 14-90 | 17-85 | 3 |
| 4TM75MN-S | T251232-S | 8 - 75 | 2 | 14-90 | 17-85 | 3 |

3TM (cN-m)

| Model (SI) | Item No. | Torque Range cN-m | Grad. cN-m | L1 mm | L2 mm | Wght. kg |
|------------|-----------|----------------------|---------------|----------|----------|-------------|
| 3TM10CN-S | T251235-S | 1 - 10 | 0.2 | 14-90 | 17-85 | 3 |
| 3TM15CN-S | T251238-S | 1.5 - 15 | 0.5 | 14-90 | 17-85 | 3 |
| 3TM25CN-S | T251241-S | 2.5 - 25 | 0.5 | 14-90 | 17-85 | 3 |
| 3TM50CN-S | T251244-S | 5 - 50 | 1 | 14-90 | 17-85 | 3 |
| 3TM75CN-S | T251247-S | 8 - 75 | 2 | 14-90 | 17-85 | 3 |

2TM (cN-m)

| Model | Item No. | Torque Span cN-m | Grad. cN-m | L1 mm | L2 mm | Wght. kg |
|------------|-----------|---------------------|---------------|----------|----------|-------------|
| 2TM100CN-S | T251250-S | 10 - 100 | 2 | 20-154 | 20-140 | 10.5 |
| 2TM150CN-S | T251253-S | 20 - 150 | 2 | 20-154 | 20-140 | 10.5 |
| 2TM200CN-S | T251256-S | 30 - 200 | 5 | 20-154 | 20-140 | 10.5 |
| 2TM300CN-S | T251259-S | 30 - 300 | 5 | 20-154 | 20-140 | 10.5 |
| 2TM400CN-S | T251262-S | 40 - 400 | 5 | 20-154 | 20-140 | 10.5 |
| 2TM500CN-S | T251265-S | 50 - 500 | 10 | 20-154 | 20-140 | 10.5 |
| 2TM600CN-S | T251268-S | 60 - 600 | 10 | 20-154 | 20-140 | 10.5 |
| 2TM750CN-S | T251271-S | 80 - 750 | 10 | 20-154 | 20-140 | 10.5 |



Further information available on our website – 24/7.

Torque Meter – TME2



Fig.: TME500CN2

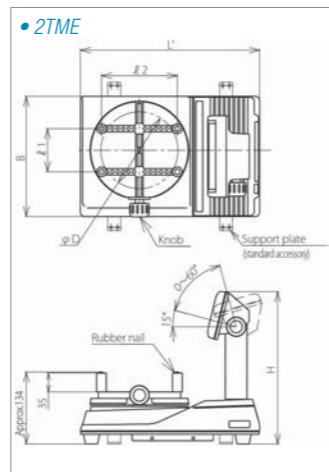
Digital Torque Meter with Data Processing Function

Suitable for measuring torque on bottle caps, also for spring force, starting torque test, strength test, and twisting test, etc.

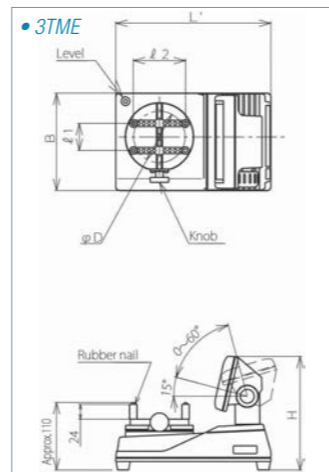
The TME is equipped with 4 poles that can change positions according to the object's shape and hold it firmly during testing. As there is no need to fix the tester on the table with bolts, this gives greater portability.

Its angle-adjustable display with a large fluorescent indicator panel gives greater visibility. With the optional calibration equipment, the torque tester can be calibrated at the customer side.

Up to 99 data readings can be saved in the internal memory. Saved data can be transferred to PC or printer through RS232C output (equipped as standard). Analog output terminal (approx.±4V) allows connection to recorder, etc.



- ▶ Bi-directional measuring – CW or CCW.
- ▶ Measuring modes: Peak, Run (Track).
- ▶ Accuracy: ± 1% + 1 digit.
- ▶ Statistical Processing: sampling, max, min, means, variation range, standard deviation.
- ▶ Clamping device with 4 adjustables pylons.
- ▶ Angle-adjustable display with large indicator.
- ▶ Up to 99 readings can be saved in on-board memory..
- ▶ RS232C compliant output for serial data export..
- ▶ Operating environment: 0-40°C, non-condensing.
- ▶ Power supply: AC 100-240 Volt ±10% / 50-60 Hz (autom. shift).
- ▶ Power consumption: < 5 W.
- ▶ incl. AC adaptor BA-4, rubber pylons, support plate for fixing (w 2TME), op. manual, traceable calibration cert.



- Options & Accs** **INFO**
- PC cable/printer cable D-Sub 9-Pin #383.
 - Data Receiver Software.*
 - Thermal line dot printer #EPP16M3.
 - paper roll #1408.
 - Li-Po battery #BP-100-4.
 - Calibration Kit #TMTCL.
 - Models for english (ozf-in/lbf-in) or metric (gf-cm/kgf-cm) units on request.



Fig.: EPP16M3



Fig.: BA-4

| 3TME | | | | | | |
|------------|----------|-------------------|------------|-------|-------|----------|
| Model (SI) | Item No. | Torque Range cN-m | Grad. cN-m | L1 mm | L2 mm | Wght. kg |
| 3TME10CN2 | T251300 | 2 - 10 | 0,01 | 14-90 | 17-85 | 3,5 |
| 3TME20CN2 | T251303 | 4 - 20 | 0,02 | 14-90 | 17-85 | 3,5 |
| 3TME50CN2 | T251306 | 10 - 50 | 0,05 | 14-90 | 17-85 | 3,5 |
| 3TME100CN2 | T251309 | 20 - 100 | 0,1 | 14-90 | 17-85 | 3,5 |

| 2TME | | | | | | |
|-------------|----------|------------------|------------|--------|--------|----------|
| Model | Item No. | Torque Span cN-m | Grad. cN-m | L1 mm | L2 mm | Wght. kg |
| 2TME200CN2 | T251312 | 40 - 200 | 0,2 | 20-154 | 20-140 | 12 |
| 2TME500CN2 | T251315 | 100 - 500 | 0,5 | 20-154 | 20-140 | 12 |
| 2TME1000CN2 | T251318 | 200 - 1000 | 1 | 20-154 | 20-140 | 12 |
| 2TME2000CN2 | T251321 | 400 - 2000 | 2 | 20-154 | 20-140 | 12 |



Torque Tester – TDT3-G



Fig.: TDT60CN3

Ideal for Screwdriver Testing

Digital type torque screwdriver tester eliminates visual reading errors. The loading device keeps stable measuring conditions to avoid reading errors.

High-accuracy digital torque screwdriver tester with loading device eliminates measurement errors. Can also calibrate small capacity torque wrenches when using optional TDTLA.

The measuring range is wide and applicable for various types of torque drivers. Comes with Pass/Fail judgement feature. Judgement results are shown in three colors (white/red/blue), for easy result recognition.

Scope of Supply

- TDT3 unit
- AC adaptor BA-6.
- Loading device STA for testing torque screwdrivers (e.g. LTD and RTD).
- Clamp block
- Operating manual (eng)
- Traceable calibration certificate (ISO/JCSS)



Fig.: TDT3 w TDTLA3



Fig.: TDT3 w LTA



Fig.: EPP16M3



Fig.: BA-6

- ▶ Bi-directional measuring – CW / CCW.
- ▶ Measuring modes: Peak, Run (Track).
- ▶ Accuracy ± 1% + 1 digit.
- ▶ Upper/Lower Limit: 10 settings.
- ▶ Auto zero adjust.
- ▶ Statistical processing: samples, max, min, mean value.
- ▶ Memory for 1000 readings (99 in M99 mode).
- ▶ RS232C / USB output for data transfer to printer / PC.
- ▶ Status indication in 3 colors (white/blue/red).

- Options & Accs** **INFO**
- PC cable D-Sub 9-Pin #383
 - Data Receiver software free of charge (download)*
 - Loading device #LTA for direct reading torque screwdrivers (e.g. FTD, STC etc.)
 - Loading device #TDTLA3 for calibrating small torque wrenches (1/4").
 - Thermal line dot printer #EPP16M3.
 - Printer cable #382.
 - Li-Po battery #BP-100-4.
 - Calib. Kit #TDTCL60CN rsp. #TDTCL600CN.
 - PC software ,DFS' for data archiving.

| Model | STA | LTA | TDTLA3 |
|--------------------|------------|-----|--------|
| Grip diameter [mm] | 7-50 | | |
| Grip height [mm] | Std Bit H1 | 105 | 211 |
| | Bit S H2 | 80 | 286 |
| | Bit L H3 | – | 154 |
| SqD input [inch] | – | – | 1/4 |
| Eff. length [mm] | – | – | 90-220 |

| TDT3-G | | Torque Range | | | | | | | | Hex Drive | Weight |
|-------------|----------|--------------|---------|-----------|---------|-----------|---------|-----------|---------|-----------|--------|
| Model | Item No. | cN-m | | ozf-in | | lbf-in | | kgf-cm | | inch | kg |
| | | Min - Max | 1 Digit | Min - Max | 1 Digit | Min - Max | 1 Digit | Min - Max | 1 Digit | | |
| TDT60CN3-G | T252001 | 2 - 60 | 0,005 | 3 - 80 | 0,005 | 0,2 - 5 | 0,0005 | 0,2 - 6 | 0,0005 | 1/4 | 11 |
| TDT600CN3-G | T252002 | 20 - 600 | 0,05 | 30 - 800 | 0,05 | 2 - 50 | 0,005 | 2 - 60 | 0,005 | 1/4 | 11 |



Torque Tester – Torq-Tronics 2®

Units of 300 inch-pound (34 Nm) capacity and below are optimized for bench mounting.



Larger units may be mounted vertically or horizontally providing better safety and efficiency.



Digital Torque Tester with Fail Safe Engineering

Sturtevant Richmond invented the first torque analyzers and torque testers. Those inventions shaped both the manufacturing and the torque tool industry. The TT2 takes the industry to another level by being the first torque tester to let the workers and supervisors know that the tester may have been pulled out of spec.

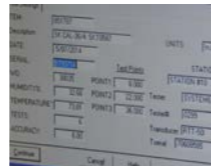
This is the only digital torque tester with fail safe engineering! What good is testing torque tools with a tester that could be out of spec and you don't know it? Torq-Tronics 2 solves this long standing challenge.

Torq-Tronics 2 error proofs your error proofing program by letting you know when the unit has been stretched to 120% or more of capacity and may no longer be in calibration. Torq-Tronics 2 has an LED that flashes red to alert you to the problem. It doesn't stop until you reset the unit. The display also tells you the unit has been stretched over capacity.

Torq-Tronics 2 captures the over capacity data even if the memory was turned off. If memory was turned on and the unit is pulled over 120% capacity and a worker tries to erase the memory to stop the LED from flashing, the display tells the worker to "See Supervisor 120% Over Capacity".

TT2 reporting identifies all tests completed between overload and reset. Every aspect of the torque tool testing process has been engineered to fail safe specifications to protect your quality and your reputation. No other torque tester on the market does this.

- Accuracy ± 0.5% of indicated value from 10-100% of rated capacity.
- Meets or exceeds ASME B107.300-2010, ASME B107.4M, ISO 5393, ISO 1773, ISO 1774-2 and EN ISO 6789.
- Tests in both directions – CW/CCW.
- Floating decimal point, 6 digit display is easy to read.
- Four modes of operation – Track, Peak, Initial Peak and Power Tool – provide excellent versatility.
- Runs on four AA NiMH rechargeable batteries. Quick charge unit is available.
- Memory stores up to 999 records that can be downloaded to hyperterminal/terminal program to create testing reports and data storage.
- Four line vacuum florescent display (VFD) is easy to read. Red/Green LED indicates whether a measurement is within the target torque value.
- Includes Power Supply Unit, Blow Molded Plastic Box, Quick Start Guide and free ISO/IEC 17025 Calibration Cert.



Optional: Torque Tool Manager TTM.



Optional: Square Adapters in misc sizes.



Optional: Rundown Fixtures (RDF) up to 340 Nm.

Torq-Tronics 2®

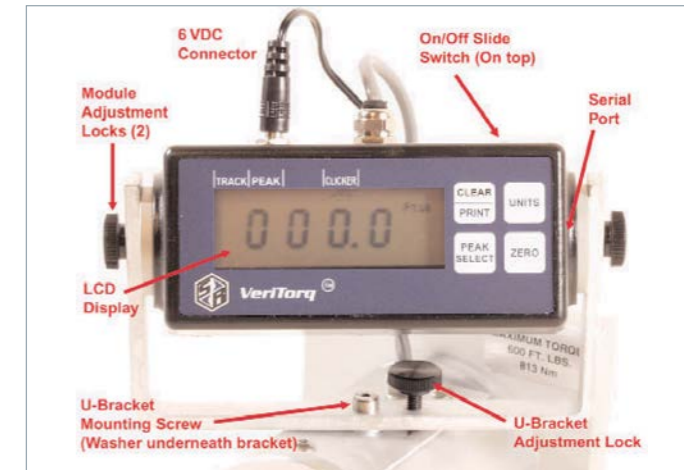
| Model | Item No. | Torque Range | | | | Graduation | | | | Hex inch | SqD inch | Weight kg |
|-------------|----------|--------------|----------|-------------|-------------|------------|--------|--------|-------|----------|----------|-----------|
| | | lbf-in | lbf-ft | kgf-cm | N-m | lbf-in | lbf-ft | kgf-cm | N-m | | | |
| TT2-10 I * | R10691 | 1 - 10 | – | 1.15 - 11.5 | 0.13 - 1.13 | 0.01 | – | 0.01 | 0.001 | 1/4 m | – | n. a. |
| TT2-50 I * | R10692 | 5 - 50 | – | 5.76 - 57.6 | 0.56 - 5.65 | 0.04 | – | 0.04 | 0.004 | 1/4 m | – | n. a. |
| TT2-100 I * | R10693 | 10 - 100 | – | 11.5 - 115 | 1.13 - 11.3 | 0.07 | – | 0.1 | 0.01 | 3/8 m | – | n. a. |
| TT2-300 I * | R10694 | 30 - 300 | – | 34.5 - 345 | 3.39 - 33.9 | 0.22 | 0.02 | 0.3 | 0.03 | 3/8 m | – | n. a. |
| TT2-80 ** | R10695 | 96 - 960 | 8 - 80 | 110 - 1106 | 11 - 108 | 0.7 | 0.06 | 1 | 0.08 | – | 1/2 f | n. a. |
| TT2-150 ** | R10696 | 180 - 1800 | 15 - 150 | 207 - 2074 | 20 - 203 | 1 | 0.11 | 2 | 0.1 | – | 1/2 f | n. a. |
| TT2-250 ** | R10697 | 300 - 3000 | 25 - 250 | 345 - 3456 | 34 - 339 | 2 | 0.18 | 3 | 0.3 | – | 1/2 f | n. a. |
| TT2-600 ** | R10698 | 720 - 7200 | 60 - 600 | 829 - 8295 | 81 - 813 | 5 | 0.4 | 6 | 0.6 | – | 3/4 f | n. a. |

* Horizontal Shape
** Vertical Shape

Further information available on our website – 24/7.



Torque Tester – VeriTorg®



Accurate torque wrench testing at a very affordable price!

VeriTorg is an excellent tester for intermediate checks (simple checks between calibrations) of all types of manual torque tools and for calibration of clicker-type torque wrenches and clutch-type torque screwdrivers.

VeriTorg brings accurate torque wrench testing to the "That can save me money!" level – for companies large and small. If you have 10 or more torque wrenches that you send out for calibration – whether to the manufacturer or an independent laboratory – you can now bring those calibrations in-house and turn expense to profit. VeriTorg is so simple to use and so affordable that it can even be put at the assembly line for use at the start of each shift.

How simple? Perhaps 15 minutes to install. Maybe another 15 minutes to learn to use accurately and efficiently. Four buttons operate everything simple. You could have your first two torque wrenches calibrated within an hour of opening the box.

And talk about return on investment! If you have 10 torque wrenches that you calibrate twice a year, and you spend \$50 per tool per calibration (including shipping both ways), your VeriTorg may pay for itself in less than 18 months. It's time to increase your profits instead of your overhead!

- Accuracy of ± 1% of Indicated Value from 10% to 100% of rated capacity meets or exceeds ASME B107.29.
- 3 modes of operation – Track, Peak and Clicker – provide excellent versatility.
- Units of measure include English, Standard International and metric.
- Integral L-bracket permits mounting on horizontal or vertical support.
- With only four buttons VeriTorg is amazingly simple to operate.
- Electronics module with large display rotates horizontally and vertically for easy viewing from any angle.
- Serial port for output of test results to computer or laptop.



Incl.: Universal Power Converter 120-240V



Incl.: Plastic carry & storage case



VT-80F and higher incl. Square Adaptor

Shipped with...

- ✓ Universal mains convertor 120 VAC or 240 VAC to 6 VDC
- ✓ Square adaptor (w VT-80 to VT-600)
- ✓ Custom plastic carrying & storage case
- ✓ Serial cable
- ✓ Quick start instructions (engl.)
- ✓ FREE certificate of calibration from ISO/IEC 17025 Accredited Calibration Laboratory

INFO

VeriTorg®

| Model | Item No. | | Torque Range | | | | Hex inch | SqD inch | Weight kg | | |
|----------------------|----------|--------|--------------|----------|-------------|----------|------------|-------------|-----------|-------|------|
| | 240 V | 120 V | lbf-in | lbf-ft | kgf-cm | kgf-m | | | | cN-m | N-m |
| VT-50 I | R10372 | R10363 | 5 - 50 | – | 5.76 - 57.6 | – | 56 - 565 | 0.56 - 5.65 | 1/4 m | – | n.a. |
| VT-100 I | R10373 | R10364 | 10 - 100 | – | 11.5 - 115 | – | 113 - 1130 | 1.13 - 11.3 | 3/8 m | – | n.a. |
| VT-300 I | R10374 | R10365 | 30 - 300 | – | 34.5 - 345 | – | 339 - 3390 | 3.39 - 33.9 | 3/8 m | – | n.a. |
| VT-80 ¹⁾ | R10375 | R10366 | – | 8 - 80 | – | 1.1 - 11 | – | 11 - 108 | – | 1/2 f | n.a. |
| VT-150 ¹⁾ | R10376 | R10367 | – | 15 - 150 | – | 2 - 20 | – | 20 - 203 | – | 1/2 f | n.a. |
| VT-250 ¹⁾ | R10377 | R10368 | – | 25 - 250 | – | 3 - 34 | – | 34 - 339 | – | 1/2 f | n.a. |
| VT-600 ²⁾ | R10378 | R10369 | – | 60 - 600 | – | 8 - 83 | – | 81 - 813 | – | 3/4 f | n.a. |

¹⁾ incl. 1/2" m SqDrv to 3/8" f SqDrv Adapter.

²⁾ incl. 3/4" m SqDrv to 1/2" f SqDrv, and 1/2" m SqDrv to 3/8" f SqDrv Adapter.

Note: „m“ = male; „f“ = female.



Further information available on our website – 24/7.

Torque Tester – ReadStar TT

Fig.: RSTT-12



Fig.: Standard Rundown Adapter



Fig.: Premium Joint-Kit



Fig.: usage example

Torque tester for assembly tool torque testing and auditing

The ReadStar TT torque tester is ideal for the concise measurement and collection of assembly tool torque audit data for manufacturing and quality personnel.

Our basic, easy-to-use readouts include a built-in torque transducer and a variety of measurement modes including track, peak, pulse and click. The torque tester can also be used as either a portable device or fixed permanently using the mounting bars.

Incorporating a large, clear OLED screen display to view readings and results, the easy to use keypad offers a familiar feel with simple function keys to effortlessly switch between modes and settings.

The new internal memory allows for up to 999 readings to be stored and the addition of a new micro USB port allows for a wider range of connections for exporting data. The new port also allows for additional power options alongside the general 5V power supply and internal battery option for added portability.

For optimal power management, the ReadStar TT automatically switches to the highest

voltage power source to save battery life. If unplugged it can seamlessly continue to operate on batteries.

Simple and recognisable function keys to switch effortlessly between measurement-modes, results and readings, statistics and ReadStar TT settings.

The clear and sharp OLED screen display on the ReadStar TT allows for easy-to-view readings, data and statistics.

The ReadStar TT is supplied with a built-in transducer and a standard rundown adapter, and is available in 0.5Nm, 1Nm, 4Nm, 12Nm and 30Nm ranges. A premium joint kit is also available, sold separately.

Options, Accs & Spares

INFO

- 5 Volt PSU #RSXXA-0000-CRPXXX
- Standard Joint-Kit #TAXXA-00NN-CRRAXX*
- Premium Joint-Kit #TAXXA-00NN-CRJKXX*
- Replace Bolt-Kit Standard #TAXXS-00NN-CRRASX*
- Replace Bolt-Kit Premium #TAXXS-00NN-CRJKSX*

* Where 'NN' appears in the product code above, replace with the Nm size required e.g. 01, 04, 12 or 30. (Please note: the 0.5Nm ReadStar TT utilises a 1Nm rundown adapter or joint kit)

- ▶ Bi-directional (cw/ccw).
- ▶ Choice of measurement modes including track, peak, pulse and click.
- ▶ Choice of units: Nm, cNm, lbft, lbin, ozin, kgcm, kgm (depending on model).
- ▶ Accuracy $\pm 0,25\%$ FSD.
- ▶ 3-colour LED indication of torque measurement status.
- ▶ Clear easy-read white OLED screen for basic torque data readings and alerts.
- ▶ Memory for 999 date- and time-stamped readings for complete traceability.
- ▶ Statistik: Anzahl, Bereich, Mittelwert, Min, Max und Standardabweichung.
- ▶ Easy download of all measurement readings to a PC via micro-USB port.
- ▶ Automatically switches to highest voltage power source (mains/USB/batteries).
- ▶ Ingress protection IP45.
- ▶ Incl. standard rundown adapter, LR14 batteries, operating instructions, traceable calibration certificate (UKAS).

ReadStar TT

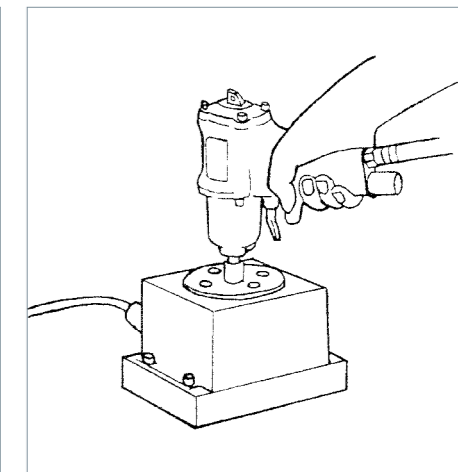
| Model | Product Code | Item No. | Torque Range | | | | Weight kg |
|----------------------|-------------------|----------|--------------|----------|------------|-----------|-----------|
| | | | N-m | kgf-cm | lbf-in | ozf-ft | |
| ReadStar TT – 0.5 Nm | RSTT2-X0.5-CRXXXX | C718490 | 0.05 - 0.5 | 0.5 - 5 | 0.44 - 4.4 | 0.6 - 5.9 | n. a. |
| ReadStar TT – 1 Nm | RSTT2-0001-CRXXXX | C718491 | 0.1 - 1.0 | 1 - 10 | 0.88 - 8.8 | 1.2 - 12 | n. a. |
| ReadStar TT – 4 Nm | RSTT2-0004-CRXXXX | C718492 | 0.4 - 4.0 | 4 - 40 | 3.5 - 35 | 4.7 - 47 | n. a. |
| ReadStar TT – 12 Nm | RSTT2-0012-CRXXXX | C718493 | 1.2 - 12 | 12 - 122 | 10.6 - 106 | 14 - 141 | n. a. |
| ReadStar TT – 30 Nm | RSTT2-0030-CRXXXX | C718493 | 3.0 - 30 | 30 - 305 | 26.5 - 265 | 35 - 354 | n. a. |

Recommendation: A torque tester should be chosen so that it is mainly used in its medium range. If you regularly have to work close to the max. load capacity, a larger model would be more advisable.

Further information available on our website – 24/7.



Torque Tester – YET



Digital Torque Tester with built-in pulse counter

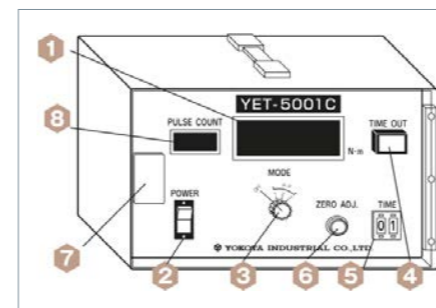
Management of tightening screws begins on checking fastening tools. YET testers are designed for high precision torque control of mainly impulse type tightening tools. Also usable for angle nutrunners, screw drivers, ratchet wrenches or the like. However impact wrenches can be tested also, you should not exceed approximately 2/3 of the testers rated capacity.

Install the YET torque tester in a tool maintenance shop, test laboratory, or at production lines for effective control of fastening such as

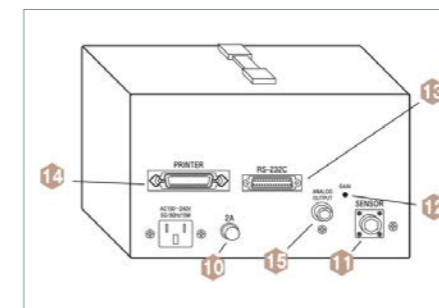
acceptance inspection, periodical check and torque adjustment.

Measuring time setting function (0.1-9.9 sec) allows torque measurement with measuring time setting in the graduation step of 0.1 sec. YET torque testers feature a parallel centronics printer port and a serial RS-232C computer interface enabling simultaneous protocol as well as external data recording.

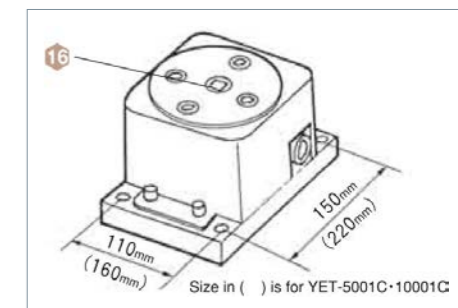
- ▶ Peak measurement for both right and left direction.
- ▶ Meas. units: Nm, cNm, mNm, kNm, lbfft, lbf-in, ozin, kgfcm, kgfm.
- ▶ High accuracy within R.O. $\pm 0.5\%$ (static load).
- ▶ Measuring time adjustable by every 0.1 sec within 9.9 sec.
- ▶ Selectable off-time w LED display.
- ▶ Large digital torque display (LED).
- ▶ Built-in auto pulse counter.
- ▶ Serial computer interface RS-232C.
- ▶ Parallel printer port (Centronics).
- ▶ Analog output for waveform measuring.



- 1) LED display
- 2) Power Switch
- 3) Mode selector
- 4) Timeout Lamp
- 5) Timeout Selector
- 6) Zero Adj.
- 7) Dust Protector.
- 8) Pulse Count



- 9) Fuse 2A
- 10) Sensor Input
- 11) Gain Adjust
- 12) RS232C Output
- 13) Printer Output
- 14) Analog Terminal



- 15) Tool Insert

YET

| Model | Item No. | Torque Range * | | Graduation | | Accuracy \pm N-m | Sq.Drv. inch | Weight (kg) | | Standard Accs | |
|--------------------------|----------|----------------|----------|------------|-------|--------------------|--------------|-------------|--------|---------------|-------------|
| | | N-m | kgf-m | N-m | kgf-m | | | Amp | Sensor | Sq. bit | Sq. adaptor |
| YET 501 C | 420902 | 5 - 50 | 1 - 5 | 0.01 | – | 0.25 | 3/8 | 3.0 | 9.9 | 1x | – |
| YET 1001 C ¹⁾ | 420906 | 20 - 100 | 2 - 10 | 0.1 | – | 0.5 | 1/2 | 3.0 | 10.0 | 1x | 3/8x1/2 |
| YET 2001 C ¹⁾ | 420915 | 50 - 200 | 5 - 20 | 0.1 | – | 1.0 | 1/2 | 3.0 | 10.0 | – | 3/8x1/2 |
| YET 5001 C ²⁾ | 420925 | 100 - 500 | 10 - 50 | 0.2 | – | 2.5 | 3/4 | 3.0 | 22.7 | – | 1/2x3/4 |
| YET 10001 C | 420930 | 200 - 1000 | 20 - 100 | 1.0 | – | 5.0 | 1 | 3.0 | 22.7 | – | – |

* The specified range applies only to impulse and angle screwdrivers. Impact wrenches may only be tested up to 70% of the tester's max. load capacity.

¹⁾ incl. square adapter 1/2m x 3/8f ²⁾ incl. square adapter 3/4m x 1/2f



Further information available on our website – 24/7.

Torque Data Collector – TorqueStar Lite



Torque Data Collector

The TorqueStar Lite is the latest basic torque data collector in the revolutionary TorqueStar series, offering a simple and easy-to-use solution for the measurement and collection of torque data.

The TorqueStar Lite data collector is ideal for users who want a quick and straight-forward 'plug-and-play' product with the added precision that the Crane Electronics brand guarantees.

The clear and sharp OLED screen on the TorqueStar Lite enables easy-to-view data and statistics. It also has an added screen-saving ability to ensure there is no screen burn-in damage.

The easy-to-use function keys offer simple operation of the TorqueStar Lite, including 'Measurement Modes' to switch between the numerous measurement modes, 'Statistics/Results' to view all of the current collected

data results, View to quick view the readings taken, 'Delete' to clear and remove selected results and data and 'Settings' to view and edit the TorqueStar Lite configurations:

- [Mode] – Select the desired measurement algorithm.
- [Statistics] – Evaluation of the stored measurement results.
- [View] – quick listing of the collected measurement data.
- [Delete] – Delete single or all measurement data.
- [Settings] – Configure the system and application settings.

Options, Accs & Spares

INFO

- C718479 = Li-Ion Battery Pack
- C718486 = External Charger
- C718485 = Mains Adaptor (PSU)
- C718487 = Blow-Molded Carry Case

- ▶ Meas. Modes: Track, Peak, Pulse, Click.
- ▶ Torque Units: Nm, cNm, mNm, kNm, MNm, lbf.ft, lbf.in, oz.in, kgf.cm, kgf.m.
- ▶ Angle display to 0.1 degrees, sampling every 1000 micro seconds.
- ▶ Automatic sensor recognition (CheckStar/Stationary UTA, CheckStar Multi).
- ▶ Static accuracy $\pm 0,25\%$ FSD of connected transducer.
- ▶ Basic statistics: count, range, mean, min, max, standard deviation.
- ▶ Three-colour LED display of torque status (HI/OK/LO), optionally supplemented by audible buzzer signal.
- ▶ Data storage for 999 readings in storage mode.
- ▶ Easy selectable data export by AutoPrint via Micro-USB port.
- ▶ User swappable Li-Ion battery with long running time. 3 hours charge time via USB or Universal 5V charger.
- ▶ Construction: High-strength injection moulding and soft rubber rim. Tough internal chassis (can survive 1.8 m drop). White OLED display 79x21 mm. Easy clean keypad 11 keys incl 5 function keys.
- ▶ 25 Pin D-Sub transducer port, basic USB 2.0 micro, 5V DC power port.
- ▶ Operating environment: Temperature -20 to 50 °C, Humidity 10-75% non-condensing.
- ▶ Zero stability: 0.01% FSD/°C.
- ▶ Ingress protection rating: IP45.
- ▶ Incl. battery, neck strap, USB cable, 5V DC charger, operating manual, calibration certificate (UKAS).
- ▶ Warranty 12 months on parts and labour against faulty workmanship or materials.



TorqueStar Lite

| Model Code | Measurement Modes / Algorithms | | | | | | | | | Statistics / Analysis | | | Jobs & Rounds | Data Export | |
|-------------------|--------------------------------|------|-------|-------|-------|-------|--------|-------|------------|-----------------------|------------------------|--------|---------------|-------------|-------------------|
| | Track | Peak | Pulse | Click | Force | Audit | MoveOn | Yield | Re-tighten | Basic | Advanced ¹⁾ | Graphs | | USB | CSV ²⁾ |
| TSLIX-0000-CRXXXX | • | • | • | • | - | - | - | - | - | • | - | - | - | • | - |



Torque Data Collector – TorqueStar Plus / Pro



Audit Readout/Data Collector

The **TorqueStar Plus** data collector is part of the latest innovative range of torque data collectors from Crane Electronics. The TorqueStar Plus adds a completely updated and fresh-looking torque indicator and data collector to our current product portfolio.

With a whole host of measurement modes available, a series of basic and advanced statistics, visual graphical analysis, a high-quality backlit screen and expansive storage; the TorqueStar Plus offers an effective solution for torque measurement applications in the manufacturing, quality and auditing environments.

The simple menu and page structure allows for easy navigation and straight-forward use. The clear values and readings within all measurement modes improves the user experience. The TorqueStar Plus also offers users the ability to upgrade their data collector to TorqueStar Pro software at a later date if required.

The **TorqueStar Pro** is the most complete and fully equipped torque indicator and data collector in the TorqueStar range. All of the features and benefits of the TorqueStar Plus model are included but with the addition of a series of more advanced measurement modes, graphical reading analysis, plus advanced statistics and connection capabilities.



TorqueStar Plus

Features as TorqueStar Lite, but additionally/differently:

- ▶ Additional measurement mode: Audit.
- ▶ Data export via Auto-Print (Micro-USB cable) or CSV (USB data storage).
- ▶ Backlit colour display 86x52 mm (4"), adjustable brightness.
- ▶ Compatible with serial printer (via USB).

TorqueStar Pro

Features as TorqueStar Plus, but additionally/differently:

- ▶ Additional measuring modes: MoveOn, Yield, Retighten.
- ▶ Advanced statistics: count, range, mean, min, max, standard deviation, Cm, Cmk, Cp, Cpk. (Optional available for TS Plus.)
- ▶ Jobs & Rounds data capability and storage.
- ▶ Graphs & graphic analysis; export trace to USB flash drive (Optional available for TS Plus.)
- ▶ 16 GB storage – internal Micro SDHC. (Optional available for TS Plus.)
- ▶ RF capability for up to 5 txd.
- ▶ Compatible with UTA transducers, WrenchStar Multi, CheckStar Multi, RFm, OMS, OMS Lite.

○ Barcode capability optional.



TorqueStar Plus / Pro

| Model | Item No. | Measurement Modes / Algorithms | | | | | | | | | Statistics / Analysis | | | Jobs & Rounds | Data Export | |
|-----------------|----------|--------------------------------|------|-------|-------|-------|-------|--------|-------|-----------|-----------------------|------------------------|--------|---------------|-------------|-------------------|
| | | Track | Peak | Pulse | Click | Force | Audit | MoveOn | Yield | Retighten | Basic | Advanced ¹⁾ | Graphs | | USB | CSV ²⁾ |
| TorqueStar Plus | C718481 | • | • | • | • | - | • | - | - | - | • | Option | Option | - | • | • |
| TorqueStar Pro | C718483 | • | • | • | • | - | • | • | • | • | • | • | • | • | • | • |



¹⁾ as standard, additionally also Cm, Cmk, Cp, Cpk.
²⁾ via USB data storage.

Rotary Transducers – CheckStar Multi



Compatible with IQVu (Plus)

Rotating torque sensor with tri-colour light ring and high resolution angle encoder

The CheckStar Multi is the latest generation of Crane Electronics market leading CheckStar in line rotary torque transducer. It raises the standard for dynamic torque and angle measurement of all continuous drive and impulse tools, with proven reliable performance in thousands of applications worldwide.

The CheckStar Multi fits in-line between the assembly tool and the fastener, measuring the actual torques applied and angular rotation of the fastener, under production conditions. If angle is specified, the CheckStar Multi rotary torque transducer will include an angle encoder giving 0.125° resolution (720 PPR). It also incorporates a light ring, giving the user visual feedback of the status of a tightening, when used with a Crane readout or data collector.

Whatever the vibration and shock loads experienced, CheckStar Multi's patented contact system ensures a connection is always maintained between the readout and the strain gauges. Inferior systems suffer from "brush bounce" that leads to unreliable torque readings.

The low inertia design of the CheckStar Multi ensures accurate and repeatable measurement of high speed transients, such as the point of shut-off on continuous drive tools and the pulsing of impulse tools.

Using on-board intelligence the CheckStar Multi is automatically recognised by a Crane data collector or readout device, eliminating set-up errors and enabling logging of serial number against measurements for complete traceability.

The CheckStar Multi can also be used where a user needs the advanced features of the transducer but already has a data collector or readout device from another manufacturer.

- ▶ Measurement accuracy $\pm 0.25\%$ of capacity (right/left).
- ▶ High-resolution angle encoder (0,125°)
- ▶ Zero stability $< \pm 0,1\%$ FSD/°C.
- ▶ Patented slip ring contact system prevents „brush bounce“.
- ▶ Suitable for all continuously rotating tools, impulse tools and torque wrenches.
- ▶ Compatible with most industry standard measuring devices.
- ▶ Auto-Ident on Crane data collectors.
- ▶ Easily visible light ring showing status in three colors (in conjunction with IQVu).
- ▶ Rugged and durable construction, aluminum housing, stainless steel shaft.
- ▶ Ingress Protection IP40.
- ▶ Traceable factory calibration certificate.
- ▶ Output interface acc. to MIL-C-26482 / BS 9522 - F0017, type 14-19S.
- ▶ Connection to the measuring device optionally via optional signal cable or via optional RFm radio module*.



Compatible with TorqueStar Plus/Pro



Compatible with TorqueStar Lite



Compatible with Table Top Joint Kits

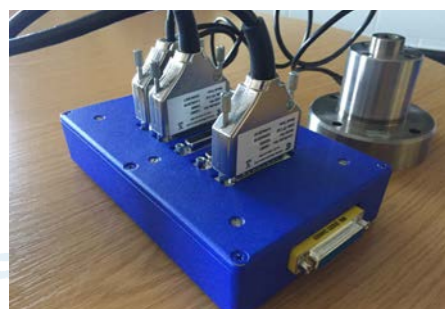


Img.: RFm

Optional Accs

INFO

- C718620 = RFm* radio module (for CheckStar Multi only)
- C718259 = Signal cable D-Sub 25
- C718321 = 5-way Auto T-Switch



Img. left: Optional Auto Transducer Switch 5-way sensor switch for Crane UTA or Multi sensors. An LED indicates the currently active transducer. The connected Crane meter then suggests the most suitable sensor.



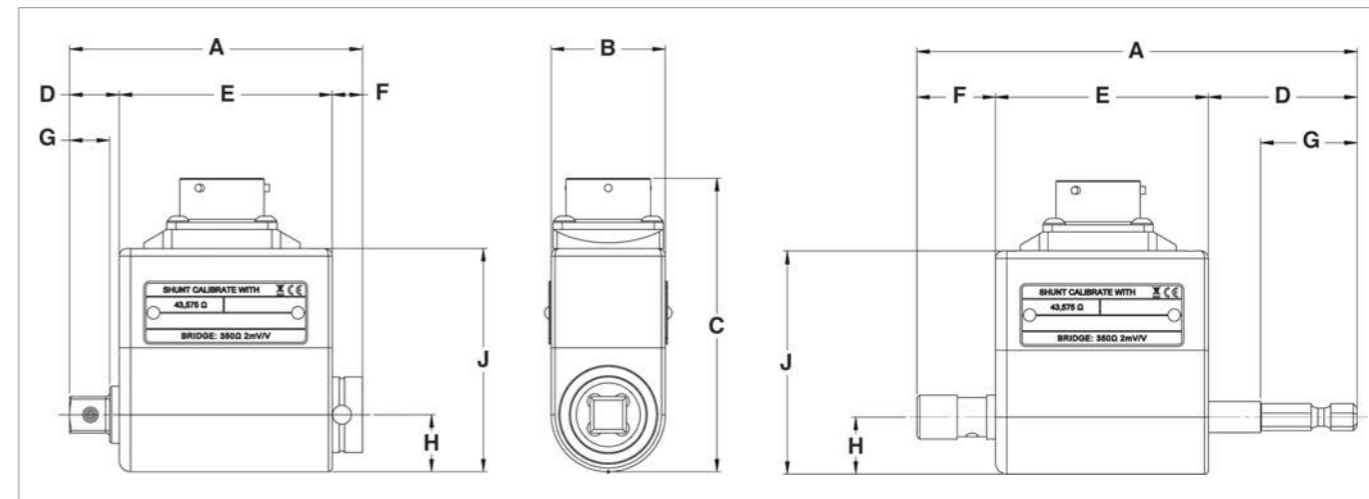
Img. left: CheckStar Multi with radio module „RFm“ for wireless communication with the measuring device.

- RF 2.4 GHz (GFSK)
- Buffer memory for 200 readings
- Li-Ion battery 3.7 V
- Protection IP40

* Compatible with Crane data collectors IQVu, TCI, TCI Multi and TorqueStar Pro.



Rotary Transducers – CheckStar Multi



CheckStar Multi

| Model | Art.-Nr. | Range N-m | Angle encoder | Dimensions (mm) | | | | | | | | | hex inch | sqd | Weight kg |
|----------------------------|----------|------------|---------------|-----------------|-----|-----|----|----|----|----|----|-----|----------|-----|-----------|
| | | | | A | B | C | D | E | F | G | H | J | | | |
| Hex CS Multi 1 Nm | C718607 | 0.1 - 1 | – | 116 | 30 | 73 | 39 | 56 | 21 | 26 | 13 | 55 | 1/4 | – | 0.21 |
| Hex CS Multi 1 Nm + Angle | C718640 | 0.1 - 1 | • | 116 | 30 | 73 | 39 | 56 | 21 | 26 | 13 | 55 | 1/4 | – | 0.21 |
| Hex CS Multi 2 Nm | C718621 | 0.2 - 2 | – | 116 | 30 | 73 | 39 | 56 | 21 | 26 | 13 | 55 | 1/4 | – | 0.21 |
| Hex CS Multi 2 Nm + Angle | C718641 | 0.2 - 2 | • | 116 | 30 | 73 | 39 | 56 | 21 | 26 | 13 | 55 | 1/4 | – | 0.21 |
| Hex CS Multi 5 Nm | C718622 | 0.5 - 5 | – | 116 | 30 | 73 | 39 | 56 | 21 | 26 | 13 | 55 | 1/4 | – | 0.21 |
| Hex CS Multi 5 Nm + Angle | C718642 | 0.5 - 5 | • | 116 | 30 | 73 | 39 | 56 | 21 | 26 | 13 | 55 | 1/4 | – | 0.21 |
| Hex CS Multi 10 Nm | C718623 | 1 - 10 | – | 116 | 30 | 73 | 39 | 56 | 21 | 26 | 13 | 55 | 1/4 | – | 0.21 |
| Hex CS Multi 10 Nm + Angle | C718643 | 1 - 10 | • | 116 | 30 | 73 | 39 | 56 | 21 | 26 | 13 | 55 | 1/4 | – | 0.21 |
| Hex CS Multi 20 Nm | C718624 | 2 - 20 | – | 116 | 30 | 73 | 39 | 56 | 21 | 26 | 13 | 55 | 1/4 | – | 0.21 |
| Hex CS Multi 20 Nm + Angle | C718644 | 2 - 20 | • | 116 | 30 | 73 | 39 | 56 | 21 | 26 | 13 | 55 | 1/4 | – | 0.21 |
| CS Multi 5 Nm | C718625 | 0.5 - 5 | – | 72 | 30 | 73 | 10 | 56 | 5 | 7 | 13 | 55 | – | 1/4 | 0.20 |
| CS Multi 5 Nm + Angle | C718645 | 0.5 - 5 | • | 72 | 30 | 73 | 10 | 56 | 5 | 7 | 13 | 55 | – | 1/4 | 0.20 |
| CS Multi 10 Nm | C718626 | 1 - 10 | – | 72 | 30 | 73 | 10 | 56 | 5 | 7 | 13 | 55 | – | 1/4 | 0.20 |
| CS Multi 10 Nm + Angle | C718646 | 1 - 10 | • | 72 | 30 | 73 | 10 | 56 | 5 | 7 | 13 | 55 | – | 1/4 | 0.20 |
| CS Multi 20 Nm | C718627 | 2 - 20 | – | 72 | 30 | 73 | 10 | 56 | 5 | 7 | 13 | 55 | – | 1/4 | 0.20 |
| CS Multi 20 Nm + Angle | C718647 | 2 - 20 | • | 72 | 30 | 73 | 10 | 56 | 5 | 7 | 13 | 55 | – | 1/4 | 0.20 |
| CS Multi 25 Nm | C718628 | 2.5 - 25 | – | 77 | 30 | 77 | 13 | 56 | 8 | 11 | 15 | 59 | – | 3/8 | 0.24 |
| CS Multi 25 Nm + Angle | C718648 | 2.5 - 25 | • | 77 | 30 | 77 | 13 | 56 | 8 | 11 | 15 | 59 | – | 3/8 | 0.24 |
| CS Multi 50 Nm | C718629 | 5 - 50 | – | 77 | 30 | 77 | 13 | 56 | 8 | 11 | 15 | 59 | – | 3/8 | 0.24 |
| CS Multi 50 Nm + Angle | C718649 | 5 - 50 | • | 77 | 30 | 77 | 13 | 56 | 8 | 11 | 15 | 59 | – | 3/8 | 0.24 |
| CS Multi 75 Nm | C718630 | 7.5 - 75 | – | 77 | 30 | 77 | 13 | 56 | 8 | 11 | 15 | 59 | – | 3/8 | 0.24 |
| CS Multi 75 Nm + Angle | C718650 | 7.5 - 75 | • | 77 | 30 | 77 | 13 | 56 | 8 | 11 | 15 | 59 | – | 3/8 | 0.24 |
| CS Multi 180 Nm | C718631 | 18 - 180 | – | 87 | 42 | 88 | 17 | 58 | 12 | 15 | 21 | 70 | – | 1/2 | 0.43 |
| CS Multi 180 Nm + Angle | C718651 | 18 - 180 | • | 87 | 42 | 88 | 17 | 58 | 12 | 15 | 21 | 70 | – | 1/2 | 0.43 |
| CS Multi 250 Nm | C718632 | 25 - 250 | – | 106 | 52 | 99 | 25 | 60 | 21 | 21 | 26 | 80 | – | 3/4 | 0.76 |
| CS Multi 250 Nm + Angle | C718652 | 25 - 250 | • | 106 | 52 | 99 | 25 | 60 | 21 | 21 | 26 | 80 | – | 3/4 | 0.76 |
| CS Multi 500 Nm | C718633 | 50 - 500 | – | 106 | 52 | 99 | 25 | 60 | 21 | 21 | 26 | 80 | – | 3/4 | 0.76 |
| CS Multi 500 Nm + Angle | C718653 | 50 - 500 | • | 106 | 52 | 99 | 25 | 60 | 21 | 21 | 26 | 80 | – | 3/4 | 0.76 |
| CS Multi 750 Nm | C718634 | 75 - 750 | – | 125 | 63 | 110 | 32 | 65 | 29 | 26 | 32 | 92 | – | 1 | 1.50 |
| CS Multi 750 Nm + Angle | C718654 | 75 - 750 | • | 125 | 63 | 110 | 32 | 65 | 29 | 26 | 32 | 92 | – | 1 | 1.50 |
| CS Multi 1400 Nm | C718635 | 140 - 1400 | – | 125 | 63 | 110 | 32 | 65 | 29 | 26 | 32 | 92 | – | 1 | 1.50 |
| CS Multi 1400 Nm + Angle | C718655 | 140 - 1400 | • | 125 | 63 | 110 | 32 | 65 | 29 | 26 | 32 | 92 | – | 1 | 1.50 |
| CS Multi 3000 Nm | C718636 | 300 - 3000 | – | 181 | 102 | 154 | 44 | 87 | 51 | 39 | 51 | 136 | – | 1.5 | 5.7 |
| CS Multi 3000 Nm + Angle | C718656 | 300 - 3000 | • | 181 | 102 | 154 | 44 | 87 | 51 | 39 | 51 | 136 | – | 1.5 | 5.7 |
| CS Multi 5000 Nm | C718637 | 500 - 5000 | – | 181 | 102 | 154 | 44 | 87 | 51 | 39 | 51 | 136 | – | 1.5 | 5.7 |
| CS Multi 5000 Nm + Angle | C718657 | 500 - 5000 | • | 181 | 102 | 154 | 44 | 87 | 51 | 39 | 51 | 136 | – | 1.5 | 5.7 |



Note: Various connecting cables are optionally available for connection to measuring instruments of other are optionally available. If required, please contact our technical consultants.

Rotary Transducers – CheckStar UTA

UTA Version with Smart-Chip and curly cable



up to 20 Nm also available with hex drive

IndustrieStandard Version available on request

- ▶ Static accuracy $\pm 0.25\%$ FSD (bidirectional).
- ▶ Angle option (0.5° resolution).
- ▶ Zero stability $< \pm 0.1\%$ FSD/°C.
- ▶ Patented slip ring mechanism eliminating signal losses due to brush bounce.
- ▶ Aluminium housing, stainless steel shaft. Ingress protection IP40.
- ▶ Traceable calibration certificate.
- ▶ UTA incl. 1m integral curly cable with strain relief; 25-pin 'D' port (male) connector; Incorporated data chip with torque range, angle encoder data, serial number, calibration due date. Plug & Play with Crane readouts (Auto ID).

In-line torque transducers with angle measurement option

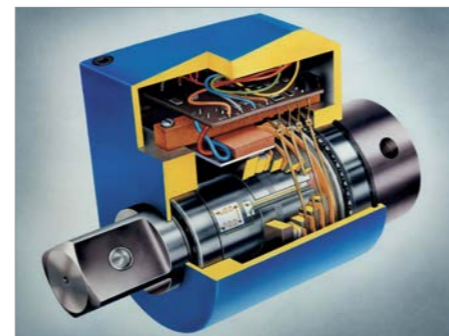
Crane's CheckStar sets the standard for dynamic torque and angle measurement of all continuous drive and impulse tools, with proven reliable performance in thousands of applications worldwide. CheckStar transducers fit in-line between the assembly tool and the fastener, measuring the actual torques applied under production conditions.

The low inertia design of CheckStar ensures accurate and repeatable measurement of high speed transients, such as the point of shut-off on continuous drive tools and the pulsing of impulse tools.

Whatever the vibration and shock loads experienced, CheckStar's patented contact system ensures contact is always maintained between the readout and the strain gauges. Inferior systems suffer from "brush bounce" that leads to unreliable torque readings.



UTA Version



CheckStar forms an essential part of the Crane UTA torque system, enabling plug and play operation with Crane readout devices. On board intelligence means the UTA CheckStar is automatically recognised by the Crane readout device, eliminating setup errors and enabling logging of serial number against measurements for complete traceability.

An Industry Standard (IS) version is also available where a user needs the advanced features of the CheckStar but already has a readout device from another manufacturer. Both versions can be specified to include an angle encoder with 0.5° resolution.

Compatible with Joint Simulators, Table Top Joint Kits'



Plug-&-Play with Crane measuring devices, e.g. the 'TorqueStar' series ...



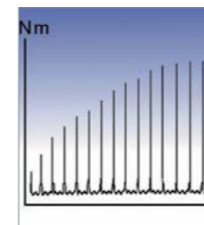
... or 'IQVu' (Tablet)



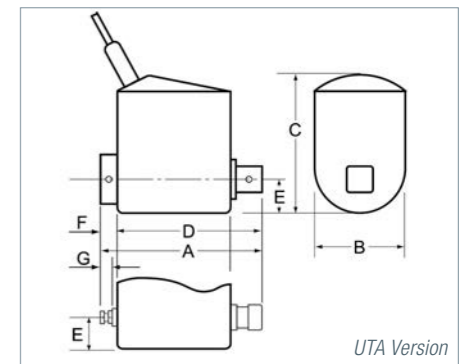
Picture left: Optional Auto Transducer Switch. 5-way sensor switch for Crane 'UTA' or 'Multi' sensors. An LED indicates the currently active transducer. The connected Crane measuring device suggests the most suitable sensor in the display.



Rotary Transducers – CheckStar UTA



Proven reliable measurement of impulse tools



UTA Version

UTA CheckStar

| Model | Item No. | Torque Range N-m | Angle Encoder | max. rpm | | Dimensions mm | | | | | | | Hex inch | SqD | Weight kg | |
|----------------------|----------|------------------|---------------|----------|-------|---------------|------|------|------|------|------|------|----------|-----|-----------|-------|
| | | | | cont. | puls. | A | B | C | D | E | F | G | | | | |
| UT-449-01CR-1-0 | C718056 | 0.1 - 1 | - | 5000 | 11000 | - | 116 | 30 | 56 | 56 | 13 | 39 | 26 | 1/4 | - | 0.486 |
| UT-449-02CR-1-A | C718066 | 0.1 - 1 | • | 5000 | 11000 | 2500 | 116 | 30 | 56 | 56 | 13 | 39 | 26 | 1/4 | - | 0.486 |
| UTA-449-0002-0 | C718040 | 0.2 - 2 | - | 5000 | 11000 | - | 116 | 30 | 56 | 56 | 13 | 39 | 26 | 1/4 | - | 0.486 |
| UTA-449-0002-A | C718070 | 0.2 - 2 | • | 5000 | 11000 | 2500 | 116 | 30 | 56 | 56 | 13 | 39 | 26 | 1/4 | - | 0.486 |
| UTA-449-0005-0 | C718041 | 0.5 - 5 | - | 5000 | 11000 | - | 116 | 30 | 56 | 56 | 13 | 39 | 26 | 1/4 | - | 0.486 |
| UTA-449-0005-A | C718071 | 0.5 - 5 | • | 5000 | 11000 | 2500 | 116 | 30 | 56 | 56 | 13 | 39 | 26 | 1/4 | - | 0.486 |
| UTA-450-0010-0 | C718042 | 1 - 10 | - | 5000 | 11000 | - | 116 | 30 | 56 | 56 | 13 | 39 | 26 | 1/4 | - | 0.486 |
| UTA-450-0010-A | C718072 | 1 - 10 | • | 5000 | 11000 | 2500 | 116 | 30 | 56 | 56 | 13 | 39 | 26 | 1/4 | - | 0.486 |
| UTA-450-0020-0 | C718043 | 2 - 20 | - | 5000 | 11000 | - | 116 | 30 | 56 | 56 | 13 | 39 | 26 | 1/4 | - | 0.486 |
| UTA-450-0020-A | C718073 | 2 - 20 | • | 5000 | 11000 | 2500 | 116 | 30 | 56 | 56 | 13 | 39 | 26 | 1/4 | - | 0.486 |
| UT-451-06CR-5-0P | C718053 | 0.5 - 5 | - | 5000 | 11000 | - | 72 | 30 | 56 | 56 | 13 | 6 | - | - | 1/4 | 0.497 |
| UT-451-02CR-5-AP | C718063 | 0.5 - 5 | • | 5000 | 11000 | 2500 | 72 | 30 | 56 | 56 | 13 | 6 | - | - | 1/4 | 0.497 |
| UTA-451-0010-0P | C718086 | 1 - 10 | - | 5000 | 11000 | - | 72 | 30 | 56 | 56 | 13 | 6 | - | - | 1/4 | 0.497 |
| UTA-451-0010-AP | C718074 | 1 - 10 | • | 5000 | 11000 | 2500 | 72 | 30 | 56 | 56 | 13 | 6 | - | - | 1/4 | 0.497 |
| UTA-451-0020-0P | C718045 | 2 - 20 | - | 5000 | 11000 | - | 72 | 30 | 56 | 56 | 13 | 6 | - | - | 1/4 | 0.497 |
| UTA-451-0020-AP | C718075 | 2 - 20 | • | 5000 | 11000 | 2500 | 72 | 30 | 56 | 56 | 13 | 6 | - | - | 1/4 | 0.497 |
| UTA-452-0025-0P | C718046 | 2.5 - 25 | - | 2500 | 10000 | - | 77 | 30 | 60 | 56 | 15 | 8 | - | - | 3/8 | 0.550 |
| UTA-452-0025-AP | C718076 | 2.5 - 25 | • | 2500 | 10000 | 2500 | 77 | 30 | 60 | 56 | 15 | 8 | - | - | 3/8 | 0.550 |
| UTA-452-0050-0P | C718085 | 5 - 50 | - | 2500 | 10000 | - | 77 | 30 | 60 | 56 | 15 | 8 | - | - | 3/8 | 0.550 |
| UTA-452-0050-AP | C718083 | 5 - 50 | • | 2500 | 10000 | 2500 | 77 | 30 | 60 | 56 | 15 | 8 | - | - | 3/8 | 0.550 |
| UTA-452-0075-0P | C718047 | 7.5 - 75 | - | 2500 | 10000 | - | 77 | 30 | 60 | 56 | 18 | 8 | - | - | 3/8 | 0.550 |
| UTA-452-0075-AP | C718077 | 7.5 - 75 | • | 2500 | 10000 | 2500 | 77 | 30 | 60 | 56 | 18 | 8 | - | - | 3/8 | 0.550 |
| UTA-677-0-75-0-0P | C718084 | 7.5 - 75 | - | 2500 | 7600 | - | 87 | 42 | 70 | 58 | 21 | 12 | - | - | 1/2 | 0.725 |
| UTA-677-0-75-0-AP | C718044 | 7.5 - 75 | • | 2500 | 7600 | 2500 | 87 | 42 | 70 | 58 | 21 | 12 | - | - | 1/2 | 0.725 |
| UTA-453-0180-0P | C718048 | 18 - 180 | - | 2500 | 7600 | - | 87 | 42 | 70 | 58 | 21 | 12 | - | - | 1/2 | 0.725 |
| UTA-453-0180-AP | C718078 | 18 - 180 | • | 2500 | 7600 | 2500 | 87 | 42 | 70 | 58 | 21 | 12 | - | - | 1/2 | 0.725 |
| UT-454-05CR-250-0P | C718057 | 25 - 250 | - | 2000 | 5000 | - | 87 | 42 | 70 | 58 | 21 | 12 | - | - | 1/2 | 0.725 |
| UT-454-05CR-250-AP | C718087 | 25 - 250 | • | 2000 | 5000 | 2500 | 87 | 42 | 70 | 58 | 21 | 12 | - | - | 1/2 | 0.725 |
| UTA-454-0250-0P | C718049 | 25 - 250 | - | 2000 | 5000 | - | 106 | 52 | 81 | 60 | 26 | 21 | - | - | 3/4 | 1.05 |
| UTA-454-0250-AP | C718079 | 25 - 250 | • | 2000 | 5000 | 2000 | 106 | 52 | 81 | 60 | 26 | 21 | - | - | 3/4 | 1.05 |
| UTA-454-0500-0P | C718050 | 50 - 500 | - | 2000 | 5000 | - | 106 | 52 | 81 | 60 | 26 | 21 | - | - | 3/4 | 1.05 |
| UTA-454-0500-AP | C718080 | 50 - 500 | • | 2000 | 5000 | 2000 | 106 | 52 | 81 | 60 | 26 | 21 | - | - | 3/4 | 1.05 |
| UTA-455-0750-0P | C718051 | 75 - 750 | - | 1000 | 4400 | - | 125 | 63 | 92 | 65 | 32 | 29 | - | - | 1 | 1.80 |
| UTA-455-0750-AP | C718081 | 75 - 750 | • | 1000 | 4400 | 1000 | 125 | 63 | 92 | 65 | 32 | 29 | - | - | 1 | 1.80 |
| UTA-455-1400-0P | C718052 | 140 - 1400 | - | 1000 | 4400 | - | 125 | 63 | 92 | 65 | 32 | 29 | - | - | 1 | 1.80 |
| UTA-455-1400-AP | C718082 | 140 - 1400 | • | 1000 | 4400 | 1000 | 125 | 63 | 92 | 65 | 32 | 29 | - | - | 1 | 1.80 |
| UTA-477-3000-0P | C718054 | 300 - 3000 | - | 1000 | 4400 | - | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | - | - | 1.5 | 5.7 |
| UTA-477-3000-AP | C718064 | 300 - 3000 | • | 1000 | 4400 | 500 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | - | - | 1.5 | 5.7 |
| UTA-477-01CR-5000-0P | C718055 | 500 - 5000 | - | 500 | 1500 | - | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | - | - | 1.5 | 14 |
| UTA-477-5000-AP | C718065 | 500 - 5000 | • | 500 | 1500 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | - | - | 1.5 | 14 |



Static Transducers – Stationary



Workbench mounted static torque transducers

The stationary transducer with fixed shaft is ideal for testing mechanical torque wrenches and screwdrivers. With the use of a suitable joint simulator (Joint Kit), continuously rotating nutrunners (non-shut-off) can also be tested with repeatable accuracy.

Combined with a „Female Joint Kit“ joint tightening simulator, which can be used to simulate manufacturing conditions, the Stationary Torque Sensor is an effective „off-line“ testing tool for verifying tool performance. They can be used in workshops or test laboratories as well as on mobile test trolleys next to the production line.

Stationary torque transducers combine compact dimensions, low weight and superior quality. The UTA version has an integrated smart chip on which the torque range, serial number, calibration date, bridge resistance and sensitivity are stored. This means that the UTA transducers work „plug & play“ with Crane's readout devices, e.g. TorqueStar, IQVu or ReadStar II. Automatic recognition avoids possible setup errors and shortens set-up times.



- ▶ Static accuracy $\pm 0.25\%$ FSD (bi-directional).
- ▶ Zero stability $< \pm 0.1\%$ FSD/°C.
- ▶ Overload capacity 125%.
- ▶ Suitable for the measurement of all continuous drive and impulse power tools and all hand torque tools.
- ▶ Rugged and durable construction, aluminium housing, stainless steel shaft.
- ▶ Ingress protection IP40.
- ▶ Built-in workbench mounting flange.
- ▶ Incorporate into custom-built mobile test stations.



Compatible: data collector IQVu (Plus)



Compatible: data collector TorqueStar Plus/Pro



Compatible: data collector TorqueStar Lite



Compatible: Joint simulator (Female Joint-Kits)

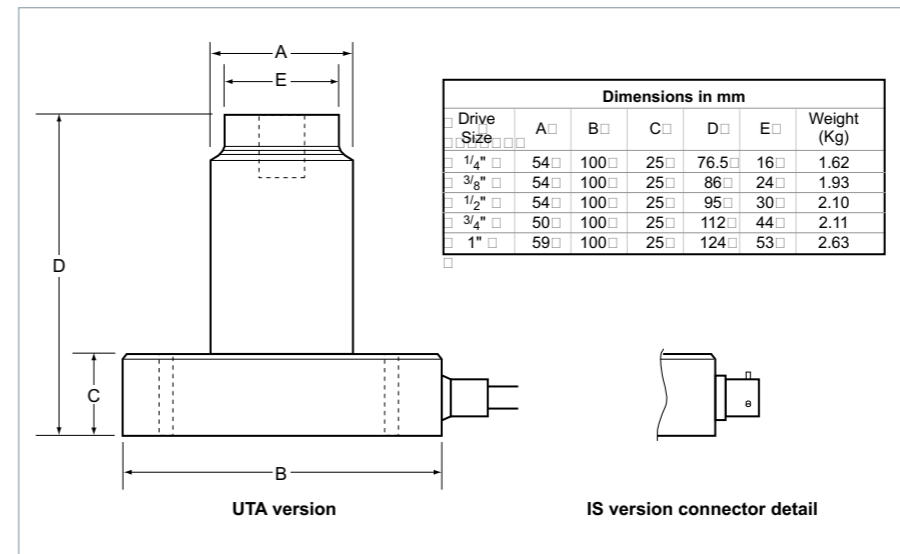
Optional auto transducer switch: 5-way sensor switch for Crane „UTA“ or „Multi“ sensors. An LED indicates the currently active transducer. The connected Crane measuring device suggests the most suitable sensor in the display.

Optional Accs

| Model | Item No. | Short Name | Description |
|-----------------|----------|-------------------|--|
| TO-899-09CR-0-0 | C718321 | Auto TXD Switch | 5-way auto transducer switch (UTA, Multi only) with LED indicator; connects to TorqueStar or IQVu. |
| 700-1500 | C718307 | IS Straight Cable | Straight cable IS Stationary to Crane readout TorqueStar / IQVu / ReadStar. |
| CBL-760-0-0-0-0 | C718308 | IS Curly Cable | Curly cable IS Stationary to Crane readout TorqueStar / IQVu / ReadStar. |



Static Transducers – Stationary



Crane UTA Version

INFO

incl. 1 metre spiral cable with strain relief and 25-pin D-Sub connector. Integrated data chip contains torque range, calibration date, serial number. This saves manual entries by the user and also prevents accidental incorrect entries. Works „plug&play“ with Crane readout devices / data collectors.

Industry Standard Version

INFO

For use with measuring instruments of other makes (bridge resistance 350 Ohm). Equipped without data chip and without cable, but with output interface according to MIL-C-26482 / BS 9522 - F0017, shell size 8-4P.

| STANDARD INTERFACE | | |
|--------------------|--------------|--|
| Connector | Function | |
| A | + Excitation | |
| B | - Excitation | |
| C | + Signal | |
| D | - Signal | |

Compatible with BS 9522 - F0017
4 Pole Cable Mounting socket. Shell Size 8.

UTA Stationary

| Model | Item No. | Torque Range | | | Dimensions (mm) | | | | | SqD inch | Weight kg |
|----------------------|----------|--------------|------------|-------------|-----------------|-----|----|-----|----|----------|-----------|
| | | lbf-in | lbf-ft | N-m | A | B | C | D | E | | |
| UTA-164-0-3.54-0-0 | C718089 | 31.36 | – | 0.35 - 3.54 | 54 | 100 | 25 | 77 | 16 | 1/4 | 1.62 |
| UTA-164-0-25 | C718090 | 5 - 50 | – | 0.57 - 5.65 | 54 | 100 | 25 | 77 | 16 | 1/4 | 1.62 |
| UTA-165-0-25 | C718091 | 10 - 100 | – | 1.1 - 11.3 | 54 | 100 | 25 | 77 | 16 | 1/4 | 1.62 |
| UTA-166-0-25 | C718092 | 25 - 250 | – | 2.8 - 28.2 | 54 | 100 | 25 | 77 | 16 | 1/4 | 1.62 |
| UTA-167-0-35 | C718093 | 60 - 600 | 5 - 50 | 6.8 - 67.8 | 54 | 100 | 25 | 86 | 24 | 3/8 | 1.93 |
| UTA-168-0-35 | C718094 | 120 - 1200 | 10 - 100 | 14 - 135 | 54 | 100 | 25 | 86 | 24 | 3/8 | 1.93 |
| UTA-169-0-35 | C718095 | 240 - 2400 | 20 - 200 | 27 - 271 | 54 | 100 | 25 | 95 | 30 | 1/2 | 2.10 |
| UTA-170-0-35 | C718096 | – | 40 - 400 | 54 - 542 | 50 | 100 | 25 | 112 | 44 | 3/4 | 2.11 |
| UTA-171-0-35 | C718097 | – | 75 - 750 | 102 - 1017 | 50 | 100 | 25 | 112 | 44 | 3/4 | 2.11 |
| UTA-172-0-35 | C718098 | – | 125 - 1250 | 170 - 1695 | 59 | 100 | 25 | 124 | 53 | 1 | 2.63 |
| UTA-115-00CR-3000-0* | C718100 | – | 221 - 2213 | 300 - 3000 | – | – | – | – | – | 1 1/2 | 3.20 |
| UTA-115-00CR-5000-0* | C718099 | – | 369 - 3687 | 500 - 5000 | – | – | – | – | – | 1 1/2 | 3.20 |

*) male Square Drive (m)

IS Stationary (2 mV/V)

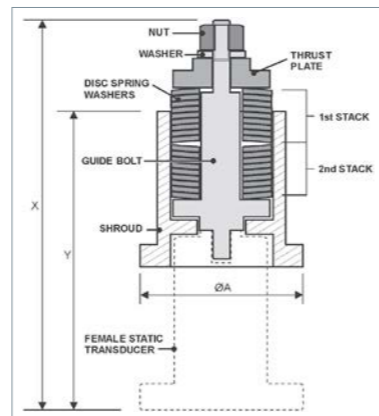
| Model | Item No. | Torque Range | | | Dimensions (mm) | | | | | SqD inch | Weight kg |
|--------------------|----------|--------------|------------|------------|-----------------|-----|----|-----|----|----------|-----------|
| | | lbf-in | lbf-ft | N-m | A | B | C | D | E | | |
| IS-873-08CR-11-0 | C719100 | 10 - 100 | – | 1.1 - 11.3 | 54 | 100 | 25 | 77 | 16 | 1/4 | 1.62 |
| IS-873-10CR-28-0 | C719101 | 25 - 250 | – | 2.8 - 28.2 | 54 | 100 | 25 | 77 | 16 | 1/4 | 1.62 |
| IS-873-12CR-67-0 | C719103 | 60 - 600 | 5 - 50 | 6.8 - 67.8 | 54 | 100 | 25 | 86 | 24 | 3/8 | 1.93 |
| IS-873-14CR-135-0 | C719105 | 120 - 1200 | 10 - 100 | 14 - 135 | 54 | 100 | 25 | 86 | 24 | 3/8 | 1.93 |
| IS-873-16CR-271-0 | C719107 | – | 20 - 200 | 27 - 271 | 54 | 100 | 25 | 95 | 30 | 1/2 | 2.10 |
| IS-873-18CR-1017-0 | C719109 | – | 75 - 750 | 102 - 1017 | 50 | 100 | 25 | 112 | 44 | 3/4 | 2.11 |
| IS-873-20CR-1695-0 | C719111 | – | 125 - 1250 | 170 - 1695 | 59 | 100 | 25 | 124 | 53 | 1 | 2.63 |



Joint Simulators – Female Joint-Kits



Can be used on static torque transducer



Soft to hard joint representation

The performance of an assembly tool is highly dependent on the conditions of the actual production joint on which it is used. Tooling engineers are well aware of the “mean shift” term used to describe the different torque delivered by the same tool when applied to a soft or a hard joint as defined by ISO 5393. It is therefore essential in testing and setting up tools off the production line to allow for the joint conditions which the tool will experience on the job.

Crane's joint kits satisfy this requirement by using a bolt and suitably configured disc washers allowing free running of the bolt and a subsequent torque gradient to closely match the production joint condition.

Transducer Top Joint Kits are used in combination with Stationary torque transducers. Recommended for accurate off-line testing of continuous drive power tools, e.g. screwdrivers and angle nutrunners.

- ▶ Used in combination with stationary torque transducers
- ▶ Represent production joint conditions off the production line.
- ▶ Can be adjusted to include joint conditions specified by ISO 5393.
- ▶ Allows free running of bolt before torque gradient.
- ▶ Major benefit to accurate tool test and set-up.

Female Joint-Kits

| Model | Item No. | Size inch | Maximum Torque Load (soft → medium → hard) | | | | Ø mm | Nut mm | Bolt mm |
|--------------------|----------|-----------|--|------|------|-------|------|--------|---------|
| | | | N-m | N-m | N-m | N-m | | | |
| JK-874-06CR-28-0 | C718151 | 1/4 | 5.6 | 13.6 | 21.5 | 28.25 | 100 | 13 | M8 |
| JK-874-07CR-135-0 | C718152 | 3/8 | 67.8 | 120 | 100 | 100 | 100 | 19 | M12 |
| JK-874-08CR-271-0 | C718153 | 1/2 | 135.6 | 220 | 271 | 271 | 100 | 24 | M16 |
| JK-874-09CR-1017-0 | C718154 | 3/4 | 460 | 830 | 775 | 1017 | 150 | 36 | M24 |
| JK-874-10CR-1695-0 | C718156 | 1 | 847 | 1600 | 1400 | 1695 | 150 | 46 | M30 |

Replacement Parts

| Size | Bolt Kit | Thrust Plate | Spacer Set | Disk Spring Washers | Hard Washer | Shroud |
|------|----------|--------------|------------|---------------------|-------------|---------|
| 1/4 | C718183 | C718221 | C718230 | C718224 (x24) | C718227 | C718233 |
| 3/8 | C718184 | C718222 | C718231 | C718225 (x18) | C718228 | C718234 |
| 1/2 | C718185 | C718223 | C718232 | C718226 (x18) | C718229 | C718235 |
| 3/4 | C718186 | C718242 | C718243 | C718244 (x20) | C718245 | C718246 |
| 1 | C718187 | 1401414 | 1401415 | 1401419 (x10) | 1401509 | 1403812 |

Other spare parts available on request as required.

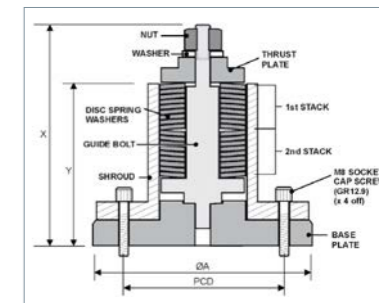
Further information available on our website – 24/7.



Joint Simulators – Table-Top Joint-Kits



Can be used with dynamic torque transducer, e.g. CheckStar



Simulator for dynamic transducers

‘Table Top’ joint kits are used with our series of CheckStar rotary transducers. The Table-Tops are fixed to a work-bench and are particularly suitable for off-line testing of non-impacting screwdrivers, angle nutrunners and impulse tools.

The spring pack in the joint kit simulator can be configured in various gradations to vary the bolt joint hardness. It is important to ensure that the hardness to be simulated is achieved as accurately as possible and that the maximum torque is not exceeded.

Tooling engineers are well aware of the ‘mean shift’ term used to describe the different torque levels delivered by the same tool when applied to a soft or hard joint. It is therefore essential in the testing and setup of tools off of the production line, to allow for the joint condition which the tool will experience on the job.

- ▶ Used in combination with rotary torque transducers, e.g. CheckStars.
- ▶ Represent production joint conditions off the production line.
- ▶ Can be adjusted to include joint conditions specified by ISO 5393.
- ▶ Allows free running of bolt before torque gradient.
- ▶ Major benefit to accurate tool test and set-up.

Table-Top Joint-Kits

| Model | Item No. | Size inch | Maximum Torque Load (soft → medium → hard) | | | | Ø mm | Nut mm | Bolt mm | Pitch |
|--------------------|----------|-----------|--|------|------|-------|------|--------|---------|-------|
| | | | N-m | N-m | N-m | N-m | | | | |
| JK-875-06CR-28-0 | C718150 | 1/4 | 5.6 | 13.6 | 21.5 | 28.25 | 100 | 13 | M8 | 1.25 |
| JK-875-07CR-135-0 | C718155 | 3/8 | 67.8 | 120 | 100 | 100 | 100 | 19 | M12 | 1.75 |
| JK-875-08CR-271-0 | C718158 | 1/2 | 135.6 | 220 | 271 | 271 | 100 | 24 | M16 | 2.00 |
| JK-875-09CR-1017-0 | C718159 | 3/4 | 460 | 830 | 775 | 1017 | 150 | 36 | M24 | 3.00 |
| JK-875-10CR-1695-0 | C718157 | 1 | 847 | 1600 | 1400 | 1695 | 150 | 46 | M30 | n. a. |

Replacement Parts

| Size | Bolt Kit | Thrust Plate | Spacer Set | Disk Spring Washers | Hard Washer | Shroud |
|------|----------|--------------|------------|---------------------|-------------|---------|
| 1/4 | C718183 | C718221 | C718230 | C718224 (x24) | C718227 | C718233 |
| 3/8 | C718184 | C718222 | C718231 | C718225 (x18) | C718228 | C718234 |
| 1/2 | C718185 | C718223 | C718232 | C718226 (x18) | C718229 | C718235 |
| 3/4 | C718186 | C718242 | C718243 | C718244 (x20) | C718245 | C718246 |
| 1 | C718187 | 1401414 | 1401415 | 1401419 (x10) | 1401509 | 1403812 |

Other spare parts available on request as required.



Further information available on our website – 24/7.

Digital Torque Tester – System 8®



Option: 4-way Transducer Switch Module (TSM)

Option: Static Torque Transducers



Secure connection via 19-pin Amphenol connector

High accuracy torque tester with fail-safe engineering

The new System 8 is the most accurate digital torque tester with Fail Safe Engineering! What good is testing torque tools with a tester that could be out of spec and you don't know it? System 8 solves this long standing challenge. Like all Sturtevant Richmond tools it is built for accuracy and durability.

The System 8 Digital Torque Testers is ideal for interim or daily torque testing programs for clicker torque wrenches, camover torque tools, torque screwdrivers, and non-impact power tools. The ten (10) filters for testing impulse tools expand your control and achieves greater accuracy during testing.

System 8 allows you to set a target torque value and establish a percent of accuracy to meet the standards required for the tool that is being tested. When downloading the test results the nominal (target) torque value is displayed, along with the actual torque value, direction of torque, unit of measure, mode of operation, OK/NOK status, System 8 serial number, date/time stamp. The information is supplied as a CSV file for easy export to Excel or other database software programs.

System 8 error proofs your error-proofing program by letting you know when the unit has been stretched to 120% or more of capacity and may no longer be in calibration.

System 8 has an LED that flashes red to alert you to the problem. It doesn't stop until you reset the unit. The display also tells you the unit has been stretched over capacity.

System 8 captures the over capacity data even if the memory was turned off. If memory was turned on and the unit is pulled over 120% capacity and a worker tries to erase the memory to stop the LED from flashing, the display tells the worker to "See Supervisor 120% Over Capacity".

System 8 reporting identifies all tests completed between overload and reset.

Every aspect of the torque tool testing process has been engineered to fail safe specifications to protect your quality and your reputation.

No other torque tester on the market does this.

Because you configure the Sturtevant Richmond System 8 to your specific needs calibration range flexibility is at your fingertips. The Transducer Switch Module allows you to immediately change to a different transducer without having to dismount, mount, and wire a transducer to create a new range of torque values. System 8, Transducer Switch Module, and transducers are sold separately so you can design your own system and only buy what you need.

- ▶ Accuracy ± 0.25% of indicated value.
- ▶ Meets or exceeds ASME B107.300-2010, ASME B107.4M (except impact tools), ISO 5393, ISO 1773 and ISO 1774-2.
- ▶ 4 modes of operation: Track, Peak, Initial Peak, and Power Tool.
- ▶ Power Tool mode has 10 frequency filters.
- ▶ Simply to operate via 8 buttons.
- ▶ Easy-to-read four-line vacuum fluorescent display (VFD).
- ▶ Red/Green LED indicates torque status.
- ▶ Overload (120% of capacity) warning.
- ▶ Runs on four AA 1.2V NiMH rechargeable batteries.
- ▶ Memory stores up to 999 records.
- ▶ RS232 interface (3.5 mm Jack) for data export to computer.
- ▶ Incl. plastic box, op. manual, PSU, calibration cert from SR's ISO/IEC 17025 Accredited Calibration Laboratory.



Option: Rundown Fixtures (RDF) up to 340 Nm



Option: PC software Torque Tool Manager

DTT System 8®

| Model | Item No. | Description | Accuracy % | Resolution (digits) | Signal:Noise dB | Weight kg |
|--------------|----------|---|------------|---------------------|-----------------|-----------|
| DTT System 8 | R10600 | Torque tester with vacuum fluorescent display (VFD) | 0.25 | 6 | n. a. | n. a. |
| TSM-4 | R10601 | Manual switch box for connecting up to 4 (four) transducers | - | - | - | n. a. |

Please note: While you can test impulse tools and battery-powered tools, UNDER NO CIRCUMSTANCES SHOULD YOU EVER TEST AN IMPACT WRENCH ON A STURTEVANT RICHMONT TESTER. DOING SO IMMEDIATELY VOIDS THE WARRANTY.

Further information available on our website - 24/7.



Static Torque Transducers – TT / QC

Highly accurate torque sensors with integrated mounting flange. Optional signal cable R10293 is required for connection to DTT System 8 or Switchbox (except *).

Series TT (-P)

This series can be mounted on the ML-250 and ML-600 Mechanical Loader. Up to 250 lbf-ft, the optional 4-way „Quad-Plate“ swivel plate can also be used. On mobile test trolleys or stationary

workbenches, the small models up to 300 lbf-in can be mounted on angle brackets STMB, the large sensors (from 500 lbf-ft) can be mounted on UMB.

Series QC

The „Quick Connect“ connection makes these torque transducers particularly suitable for use with our EC calibration system. When used with the Mechanical Loader, the DTT System 8 readout device

is provided as an indicator.

The QC connection system significantly speeds up the replacement of transducers. Ideal when torque tools with different ranges are to be tested. It's a matter of seconds!

The two large models of the TT-QC torque transducers are designed for use on the ML-1000 or ML-2000 in conjunction with the DTT System 8 measuring device.

Both torque transducers have a permanently installed signal cable with 19-pin Amphenol connector.

Series TT-L

These have an L-shaped mounting flange and can be mounted either horizontally or vertically. The DTT System 8 torque indicator serves as the readout device.

TT(-P)

| Model | Item No. | Torque Range | | | | | | | | Hex inch | SqD inch |
|------------|----------|--------------|------------|------------|------------|------------|------------|------------|-----|----------|----------|
| | | ozf-in | lbf-in | lbf-ft | cN-m | N-m | kgf-cm | kgf-m | | | |
| TT 25 IO* | R10009 | 2.5 - 25 | 0.16 - 1.6 | - | 1.7 - 17.6 | - | 0.18 - 1.8 | - | 1/4 | - | |
| TT-P 10 I | R10285 | 16 - 160 | 1 - 10 | - | 11 - 113 | - | 1.2 - 12 | - | 1/4 | - | |
| TT-P 50 I | R10286 | 80 - 800 | 5 - 50 | - | 56 - 564 | - | 5.7 - 57 | - | 1/4 | - | |
| TT-P 100 I | R10287 | - | 10 - 100 | - | 113 - 1130 | 1.1 - 11 | 11.5 - 115 | - | 3/8 | - | |
| TT-P 300 I | R10288 | - | 30 - 300 | 2.5 - 25 | - | 3.4 - 34 | 34.5 - 345 | - | 3/8 | - | |
| TT-P 80 | R10289 | - | 96 - 960 | 8 - 80 | - | 11 - 108 | 111 - 1106 | 1.1 - 11 | - | 1/2 | |
| TT-P 150 | R10290 | - | 180 - 1800 | 15 - 150 | - | 20 - 203 | - | 2.1 - 20.7 | - | 1/2 | |
| TT-P 250 | R10291 | - | 300 - 3000 | 25 - 250 | - | 34 - 339 | - | 3.5 - 34.5 | - | 3/4 | |
| TT-P 600 | R10292 | - | - | 60 - 600 | - | 81 - 813 | - | 8.3 - 83 | - | 3/4 | |
| TT 1000* | R10026 | - | - | 100 - 1000 | - | 135 - 1355 | - | 13.8 - 138 | - | 1 | |
| TT 2000* | R10027 | - | - | 200 - 2000 | - | 271 - 2711 | - | 27.7 - 276 | - | 1 | |

TT-QC

| Model | Item No. | Torque Range | | | | | | | | Hex inch | SqD inch |
|--------------|----------|--------------|------------|------------|------------|------------|------------|------------|-----|----------|----------|
| | | ozf-in | lbf-in | lbf-ft | cN-m | N-m | kgf-cm | kgf-m | | | |
| TT-QC 25 IO* | R10211 | 2.5 - 25 | 0.16 - 1.6 | - | 1.7 - 17.6 | - | 0.18 - 1.8 | - | 1/4 | - | |
| TT-QC 10 I | R10300 | 16 - 160 | 1 - 10 | - | 11 - 113 | - | 1.2 - 12 | - | 1/4 | - | |
| TT-QC 50 I | R10301 | 80 - 800 | 5 - 50 | - | 56 - 564 | - | 5.7 - 57 | - | 1/4 | - | |
| TT-QC 100 I | R10302 | - | 10 - 100 | - | 113 - 1130 | 1.1 - 11 | 11.5 - 115 | - | 3/8 | - | |
| TT-QC 300 I | R10303 | - | 30 - 300 | 2.5 - 25 | - | 3.4 - 34 | 34.5 - 345 | - | 3/8 | - | |
| TT-QC 80 | R10304 | - | 96 - 960 | 8 - 80 | - | 11 - 108 | 111 - 1106 | 1.1 - 11 | - | 1/2 | |
| TT-QC 150 | R10305 | - | 180 - 1800 | 15 - 150 | - | 20 - 203 | - | 2.1 - 21 | - | 1/2 | |
| TT-QC 250 | R10306 | - | 300 - 3000 | 25 - 250 | - | 34 - 339 | - | 3.5 - 35 | - | 3/4 | |
| TT-QC 600 | R10307 | - | - | 60 - 600 | - | 81 - 813 | - | 8.3 - 83 | - | 3/4 | |
| TT-QC 1000* | R10209 | - | - | 100 - 1000 | - | 135 - 1355 | - | 13.8 - 138 | - | 1 | |
| TT-QC 2000* | R10210 | - | - | 200 - 2000 | - | 271 - 2711 | - | 27.6 - 276 | - | 1 | |

TT-L

| Model | Item No. | Torque Range | | | | | | | | Hex inch | SqD inch |
|------------|----------|--------------|------------|----------|------------|----------|------------|------------|-----|----------|----------|
| | | ozf-in | lbf-in | lbf-ft | cN-m | N-m | kgf-cm | kgf-m | | | |
| TT-L 10 I | R10257 | 16 - 160 | 1 - 10 | - | 11 - 113 | - | 1.2 - 12 | - | 1/4 | - | |
| TT-L 50 I | R10258 | 80 - 800 | 5 - 50 | - | 56 - 564 | - | 5.7 - 57 | - | 1/4 | - | |
| TT-L 100 I | R10259 | - | 10 - 100 | - | 113 - 1130 | 1.1 - 11 | 11.5 - 115 | - | 3/8 | - | |
| TT-L 300 I | R10260 | - | 30 - 300 | 2.5 - 25 | - | 3.4 - 34 | 34.5 - 345 | - | 3/8 | - | |
| TT-L 80 | R10261 | - | 96 - 960 | 8 - 80 | - | 11 - 108 | 111 - 1106 | 1.1 - 11 | - | 1/2 | |
| TT-L 150 | R10262 | - | 180 - 1800 | 15 - 150 | - | 20 - 203 | - | 2.1 - 20.7 | - | 1/2 | |
| TT-L 250 | R10263 | - | 300 - 3000 | 25 - 250 | - | 34 - 339 | - | 3.5 - 34.5 | - | 3/4 | |
| TT-L 600 | R10264 | - | - | 60 - 600 | - | 81 - 813 | - | 8.3 - 83 | - | 3/4 | |

For TT-L, TT-P and TT-QC an additional signal cable is required (# R10293), except for * incl. signal cable with 19 pin Amphenol plug to connect to Digital Torque Tester System 8 (# R10600) or Switch Box (# R10601).



Further information available on our website - 24/7.

Rundown Fixtures – RDF



Adapters for Power Tool Testing

Like any other torque tool, power tools need to be tested. How they are tested has some significant differences than with other torque tools. The reason for the difference is that power tools move at faster rates of speed. It takes time to overcome inertia and get the fastener moving and it takes time to slow it down. Another difference is that power tools require filters to block out noise in the frequencies.

SR digital torque testers have ten resident filters to help improve accuracy of power tool testing.

Rundown Fixtures assist in testing the output of pulse, stall and clutch power tools. **Neither our testers nor our rundown fixtures are designed, engineered, or suited for impact tools. Testing impact tools on our equipment can damage the torque tester and immediately voids the warranty.** Testing pulse and clutch power tools are accomplished by allowing the tool to achieve rotational speed prior to torque measurement. The rundown fixtures all include components to emulate either a hard or medium joint, thus assuring greater test accuracy. The Rundown Fixtures work with Sturtevant Richmond System 4, System 5, System 8®, and Torq-Tronics®. Both Torq-Tronics 2 and the System 8 digital torque testers have power tool testing filters built. Matching tool capacity, rundown fixture capacity, and the transducer capacity is the basis for creating accurate test results.

Power tools are generally accurate 10% to 100% of rated capacity. In selecting a run down fixture match tool capacity with the rundown fixture kit. *Example:* If you have a 150 Nm or even a 200 Nm power tool you would select the 204 Nm run down fixture. When repairing the run down fixture be sure to match the repair kit capacity to the power tool capacity.

RDF Repair Kits

Each Run Down Fixture Repair Kit is the complete parts replacement for your fixture. With the included parts you can create a test to evaluate medium and hard joints.

The kit includes the appropriate number of Bushings, Washers, Screws, Belleville Washers, Washers, and Power Bits for the corresponding fixture. Not all kits contain a power bit.

When replacing parts in your Run Down Fixture be sure to replace ALL the parts and not just the part that may be worn out. In the long run the complete replacement approach saves time, headaches and ensures greater test accuracy.

| | |
|---------|----------------|
| R816037 | Rep Kit 1 Nm |
| R816038 | Rep Kit 3 Nm |
| R816039 | Rep Kit 6 Nm |
| R816040 | Rep Kit 17 Nm |
| R816041 | Rep Kit 34 Nm |
| R816042 | Rep Kit 68 Nm |
| R816043 | Rep Kit 108 Nm |
| R816044 | Rep Kit 203 Nm |
| R816045 | Rep Kit 339 Nm |

Note: Each repair kit contains parts for 2-3 replacements.

| RDF Model | Item No. | Torque Capacity | | | Drive | | Weight kg |
|------------|----------|-----------------|----------|-------------------|---------|------------|-----------|
| | | lbf-in | lbf-ft | N-m | Hex (f) | Square (m) | |
| RDF 10 i | R10349 | 1 - 10 | – | 0.11 - 1.1 | 1/4 | – | n. a. |
| RDF 25 i | R10350 | 2.5 - 25 | – | 0.28 - 2.8 | 1/4 | – | n. a. |
| RDF 50 i | R10351 | 5 - 50 | – | 0.56 - 5.6 | 1/4 | – | n. a. |
| RDF 150 i | R10352 | 15 - 150 | – | 1.7 - 16.9 | 3/8 | – | n. a. |
| RDF 300 i | R10353 | 30 - 300 | – | 3.4 - 33.9 | 3/8 | – | n. a. |
| RDF 300 i | R10354 | 30 - 300 | – | 3.4 - 33.9 | – | 1/2 | n. a. |
| RDF 600 i | R10355 | 60 - 600 | 5 - 50 | 6.8 - 67.8 | – | 1/2 | n. a. |
| RDF 960 i | R10356 | 96 - 960 | 8 - 80 | 11 - 108 | – | 1/2 | n. a. |
| RDF 1800 i | R10357 | 180 - 1800 | 15 - 150 | 20 - 203 | – | 1/2 | n. a. |
| RDF 3000 i | R10358 | 300 - 3000 | 25 - 250 | 34 - 339 | – | 3/4 | n. a. |

Note: Each Repair Kit contains parts for 2-3 replacements.



Mechanical Calibration Device for Torque Wrenches – ML



Image shows ML-1000 with System 5, Switch Box and Transducers on Large Cart (not incl.)



Options: Transducers, Tester, Signal Cable, Switchbox a.o.m.



Fig.: ML-250



Option: Quad Plate for ML-250

High-Capacity Torque Wrench Calibration

Torque wrench calibration can be done by hand – more or less. Since distance is a key component in the calculation of “force times distance”, the maintenance of the correct distance during calibration is extremely important in obtaining accuracy. Since the human hand is about 4” wide, the “load point” where force is applied to the tool is a variable – a variable that works against, instead of for, you. Well designed mechanical loaders eliminate that variable, as well as errors caused by applying force at other than a 90 degree angle. They also reduce operator fatigue and improve productivity.

Mechanical loaders increase the accuracy of torque test results while simultaneously reducing technician fatigue from pulling or pushing on torque wrenches during testing. SR Mechanical Loaders use the highest quality ball screws to assure smooth operation and extended service life. Welded steel frames and rigid transducer mounting plates assure torque load is properly resisted. Optimized gearing selection reduces physical effort to operate, enhancing productivity and ergonomic safety.

The design of each loader makes it very easy to hold direct-reading torque tools (dial, beam and digital torque wrenches) at a specific and stable torque during testing. ML 250 and ML 600 loaders use a swing arm to rotate the tool about the center of the transducer, while ML 1000 and ML 2000 loaders hold the tool in a stable position and rotate the torque transducer around its center.

- ▶ Every SR *Mechanical Loader* assures true 90-degree force application to eliminate force angle error in testing.
- ▶ SR Mechanical Loaders meet or exceed requirements for ASME B107.29M Type 1 loaders.
- ▶ Mechanical advantage reduces technician effort and fatigue, particularly in high-capacity tool testing.
- ▶ Four capacities available; 250, 600, 1 000 and 2 000 foot-pounds.
- ▶ ML 250 accepts an optional Quad Plate for connecting and switching among up to four transducers quickly and efficiently.
- ▶ ML 1000 and ML 2000 use the SR Quick Connect system for rapid switching among transducers.
- ▶ Two sizes of cart are available for mounting the loader and holding the tester and transducers.

Mechanical Loader

| Model | Item No. | Description | Torque Capacity | | Weight ~kg |
|---------|----------|---|-----------------|------------|------------|
| | | | lbf-ft | N-m | |
| ML-250 | R10160 | Mechanical Loader 250 Foot-Pounds (339 Newtonmeter) | 25 - 250 | 34 - 338 | 41 |
| ML-600 | R10431 | Mechanical Loader 600 Foot-Pounds (813 Newtonmeter) | 60 - 600 | 81 - 813 | n.a. |
| ML-1000 | R10167 | Mechanical Loader 1000 Foot-Pounds (1355 Newtonmeter) | 100 - 1000 | 135 - 1355 | 118 |
| ML-2000 | R10168 | Mechanical Loader 2000 Foot-Pounds (2711 Newtonmeter) | 200 - 2000 | 271 - 2711 | 163 |

Optional Accessories

| Model | Item No. | Description | Dimensions [cm] | | | Weight ~kg |
|---------------|----------|---|-----------------|----|-----|------------|
| | | | W | D | H | |
| Standard Cart | R10161 | Cart suitable for ML-250 | 117 | 61 | 117 | n.a. |
| Large Cart | R10208 | Cart suitable for ML-1000 | 163 | 76 | 76 | n.a. |
| Quad Plate | R10308 | Permits mounting up to 4 torque transducers on the ML 250 | – | – | – | n.a. |
| Switch Box | R10601 | Connects up to 4 torque transducers to DTT System 4 / 5 / 8 | – | – | – | n.a. |



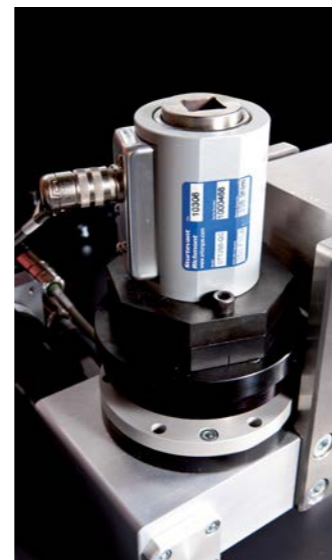
EC Calibration Bench for Torque Wrenches – Z-Pro TTB



Image is also showing optional components

Key Features

- ▶ Covering torque ranges from 0.5 to 1355 N-m.
- ▶ Automatable calibration according to EN ISO 6789:2017.
- ▶ Freely programmable calibration and test procedures.
- ▶ Tool capability test procedures (Cm/Cmk).
- ▶ Tool continuous load analysis.
- ▶ Customizable calibration certificates.
- ▶ Recognized as a calibration standard for torque wrenches and measuring range sensors.
- ▶ Software-integrated LED shelf for measuring range sensors.
- ▶ Fast and uncomplicated changing of the measuring torque transducers.
- ▶ Touchscreen monitor with industrial PC.
- ▶ Editable software according to customer requirements.
- ▶ Software password protection and assignment of rights per operator / user.
- ▶ Data export (formats by arrangement).
- ▶ Comprehensive input options for individual control of the servo drive for optimal torque development.
- ▶ Joystick with a step function in manual operation mode.
- ▶ Reaction arm can be extended up to 160 cm for long torque wrenches.
- ▶ Spring-loaded, precisely adjustable brace on the reaction arm.
- ▶ Robust and solid workmanship of all components for industrial approach.



The EC calibration system for torque wrenches is characterized by the highest torque measurement accuracy, an exemplary sensitive and freely parameterizable control of the servo drive as well as simple and uncomplicated software parameterization.

The system is just as suitable for tough everyday use for testing a large number of torque wrenches as it is for demanding torque analyzes in the QA laboratory.

The various torque transducers are housed in an LED shelf, which is equipped with proximity sensors, so that the operator always clearly uses the transducer suitable for the test object. The software integration of the LED shelf prevents possible operator errors.

The torque sensors can be changed quickly and easily. Different industrial standard (I/S) transducers in the torque range from 0.5 to 1400 Newton meters are available.

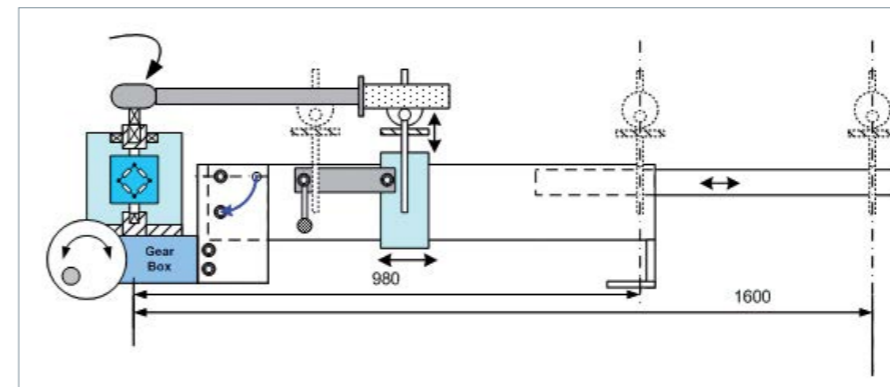
The fully automatic testing or calibration of torque wrenches in accordance with EN ISO 6789 or individual test procedures can be parameterized on the very user-friendly software interface.

The individual test methods include the possibility to parameterize the torque ramp in the pre-tightening and in the final tightening, so that in deviation from EN ISO 6789 (between 80% - 100% of the target value within 1s to 4 s) a different torque / angle of rotation-time ratio can be parameterized.

Furthermore, the servo drive of the calibration device can be controlled very sensitively using a joystick or the torque can be applied with an individually adjustable step control.



Sensor shelf with LED display



Its manifold capabilities make this calibration device a flexible and practical torque measurement system.

Collected measurement data can be transferred to customer-specific ERP / QS systems via an USB interface. Calibration certificates can e.g. can be created individually in Excel or generated using the in-house QA software via the measurement data import.

Photos/images of the test objects can be stored in the database so that the operator gets a visual comparison in addition to the written technical information. This supports operational error proofing and efficient work.

Barcode readers and barcode printers are optionally available. Remote maintenance via RAC software (Remote Access Control) is possible via the internet.

Applications

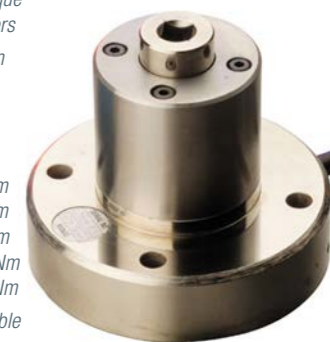
This test bench provides the necessary metrological properties and drive methods to carry out torque wrench testing in accordance with EN ISO 6789 or other test methods. The operator can freely program customized test

procedures and carry out tests or calibrations automatically.

The test method according to EN ISO 6789 distinguishes between signaling and indicating torque tools and, depending on the type and class, allows an uncertainty of $\pm 4\%$ or $\pm 6\%$. Each and every torque wrench should be calibrated after 12 months or 5000 load changes. The measurement deviation of the calibration device may be max. 1/4 of the maximum allowable deviation of the tool; the torque should be applied between 80% and 100% of the respective test point target value within 1 to 4 seconds. Mechanical signaling torque wrenches (type II) are calibrated to 20%, 60% and 100% of the capacity only with increasing force, i.e. always from lower to higher value.

Static torque transducers

- 3.5 Nm
 - 6 Nm
 - 11 Nm
 - 28 Nm
 - 68 Nm
 - 135 Nm
 - 270 Nm
 - 540 Nm
 - 1000 Nm
 - 1700 Nm
- are available separately.



Rotating torque transducers

- 5 Nm
 - 10 Nm
 - 20 Nm
 - 75 Nm
 - 180 Nm
 - 500 Nm
 - 1400 Nm
- are available separately.



Basic Unit:

- Model Z-PRO TTB-1400, ingress protection IP54.

Operating and visualization unit:

- Industrial PC with touchscreen monitor, ingress protection IP54.

Dimensions:

- H: 170 cm (incl. Touchscreen Monitor).
- W: 150 cm (incl. Control Unit).
- D: 80 cm.
- Working height: 85 cm.
- Weight: 128.8 kg.

Standard Accs*:

- Square adaptors for 1/4", 3/8", 1/2", 3/4".
- keyboard with USB connector.

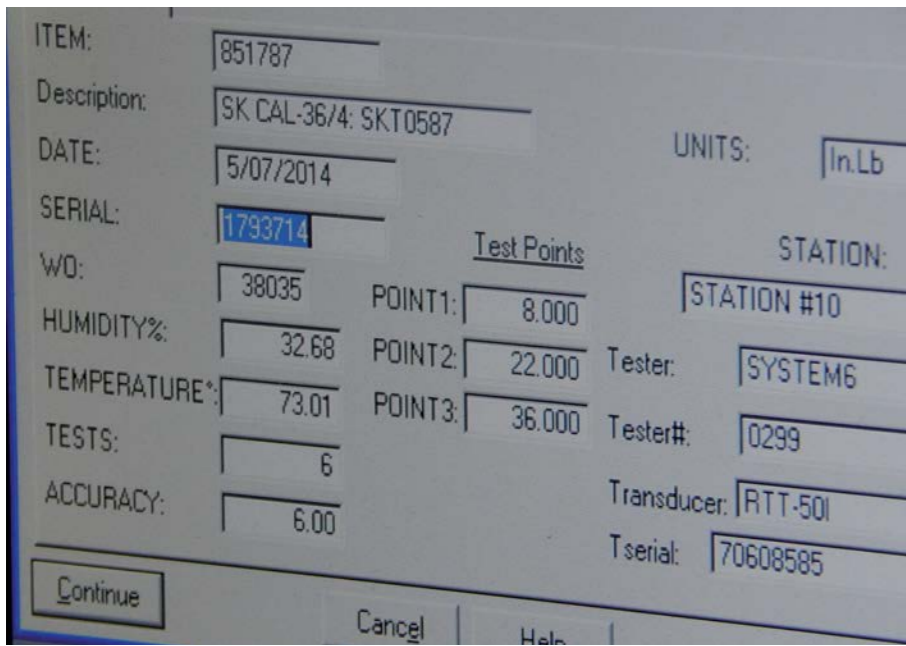
Optional Accs:

- Lockable drawer base cabinet.
- 2D barcode scanner.
- 2D barcode label printer.
- Torque transducers (see above).
- Signal cable (w/o image).
- B/W laser printer.



* Standard accessories (except optional accessories) are included.

PC Software – Torque Tool Manager



Tool management, calibration, certificates

Torque Tool Manager 4.0 is a specially developed calibration and certification software for Sturtevant Richmond's System 8® and Torq-Tronics 2® digital torque meters. It enables cost-effective implementation of your ISO and QA requirements for calibration and certification of your torque tools.

One can use one of the standard calibration routines or create one's own to ensure the appropriate test procedure and measurement accuracy at all times. The Torque Tool Manager is flexible and takes into account new tool types and adaptations of the test procedure.

Calibration procedures are hereby „error-proofed“ and make control checks due to possible user errors superfluous. The TTM downloads the appropriate parameters to your tester and sets the tester to the tool. The software will only accept test results that are in accordance with the test protocol. Errors resulting from failure to follow the programmed procedure are thereby automatically rejected.

The TTM stores complete records for each tool, including calibration date, serial number, operator, before/after results, NIST traceability numbers, and any other data necessary for ISO and QA compliance.

TTM shows the results of each test run in the display immediately upon receipt from the tester. Updated information is stored, analyzed and displayed with „IO“ or „NOK“ for each test run. Certificates are printed in clear and logical format and include all test and traceability information.

With TTM you comfortably manage future calibration dates, based on user selectable intervals. TTM provides a list of those torque tools that are due for calibration.

The TTM application requires minimal computer resources. A time-limited trial version is available.

A serial RS232 interface on the PC or laptop is required for connection to the tester.



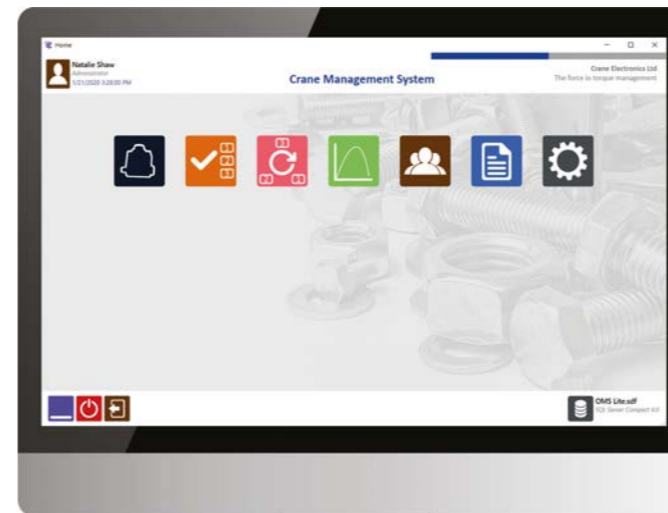
- ▶ Compatible with Windows® XP / Vista / 7 / 8 / 8.1 / 10.
- ▶ Requires minimal computer resources.
- ▶ Intuitive user interface.

Torque Tool Manager

| Model | Item No. | Description |
|---------|----------|--|
| TTM 4.0 | R10599 | PC software for tool management, calibration and certificate generation (English), compatible with Windows®. |



PC Software – OMS Lite



Torque Data Management Software

OMS Lite is an intuitive torque management software package, in a more compact and easy-to-use format than most other torque software packages.

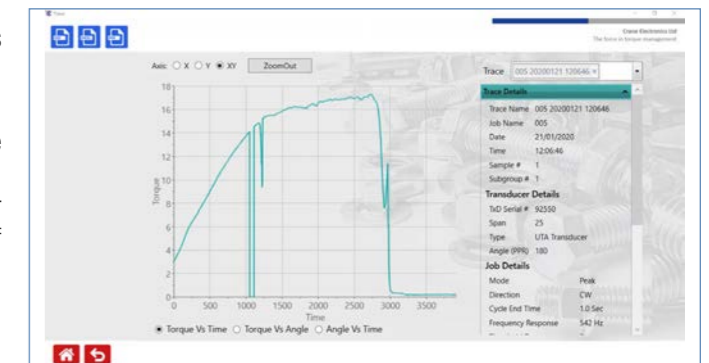
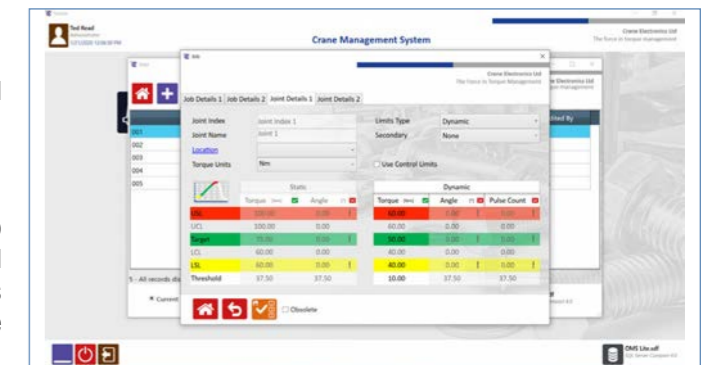
OMS Lite offers an updated interface, following our recognisable and user-friendly icon-based navigation system for faster speed of use, ideal for production process and quality verification as well as assembly tool auditing.

The torque software is also quick and easy to install and simple to configure for users, making it our most efficient and uncomplicated torque software package to date. Used in conjunction with Crane's existing portfolio of torque measurement products, OMS Lite is able to provide the perfect quality system for periodic sampling of both residual and dynamic torque and angle measurements.

With features such as 'Jobs', 'Rounds', torque traces and reports, it's the ideal software system to manage all of your critical assembly tool and quality audit data, in one place.

With colour-coded data results and graphs, OMS Lite makes it simple to view and understand critical data. All visible data and reports can be filtered and configured to show only the required information for all reports, which can be downloaded to Excel or PDF at the click of a button.

- ▶ Single database to store all torque information from all depts.
- ▶ All data is completely traceable and secure.
- ▶ User-friendly operation with intuitive icons for mouse or touch screen functionality.
- ▶ Management of all test tools: sensors/transducers, torque wrenches and data collectors/readers.
- ▶ SQL Compact database with the ability to use full SQL features on a server if required.
- ▶ Selection of Excel reports with graphs come as standard. Bespoke reports are available upon request, designed by Crane Electronics.
- ▶ Trace functionality available as standard with the ability to overlay multiple torque curves.
- ▶ Management of all audit tooling – transducers, wrenches and data collectors/readouts.



Convenient management of torque sensors, digital wrenches, readouts, data collectors.



Define jobs with job IDs, descriptions, measurement modes, target, torque limits and angle specifications.



Create rounds that combine a series of jobs into an orderly process.



Simplified user management and enhanced access, rights and shift management for admins.



Curve function allows overlaying several torque curves in one diagram. Export option in xls, csv or pdf format.



The user can filter the available information and statistics to be displayed in the reports. Exportable (e.g. xls, csv, pdf).

OMS Lite

| Model Code | Item No. | Description |
|------------------|----------|--|
| OMSL1-0001-CRXXX | C718348 | PC software package for torque measurement data management, compatible with Windows® 10 / 11 |





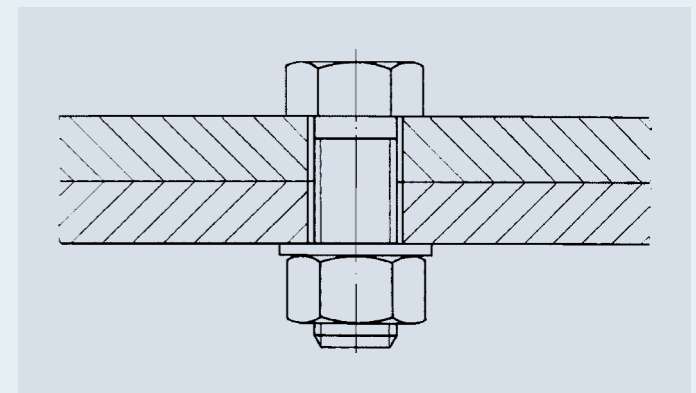
Factors to convert Torque Units

| from unit | multiplied by | gives |
|---|---------------|------------------|
| Ounce-force inch (ozf-in), a.k.a.: Inch-Ounces (in-ozs) | 0,706156 | cN-m |
| | 0,072007 | kgf-cm (kp-cm) * |
| | 0,0625 | lbf-in |
| Pound-force inch (lbf-in), a.k.a.: Inch-Pounds (in-lbs) | 11,298483 | cN-m |
| | 1,1298483 | dN-m |
| | 0,11298483 | N-m |
| | 1,1521246 | kgf-cm (kp-cm) * |
| | 0,011521246 | kgf-m (kp-m) * |
| | 16 | ozf-in |
| | 0,083333333 | lbf-ft |
| Pound-force foot (lbf-ft), a.k.a.: Foot-Pounds (ft-lbs) | 1,35581795 | N-m |
| | 13,5581795 | dN-m |
| | 135,581795 | cN-m |
| | 0,13825495 | kgf-m (kp-m) * |
| | 13,825495 | kgf-cm (kp-cm) * |
| | 12 | lbf-in |
| | 192 | ozf-in |
| Kilogram-force meter (kgf-m), * a.k.a.: Kilopond meter (kp-m) * | 9,80665 | N-m |
| | 98,0665 | dN-m |
| | 980,665 | cN-m |
| | 7,2330139 | lbf-ft |
| | 86,796166 | lbf-in |
| Kilogram-force Centimeter (kgf-cm), * a.k.a.: Kilopond-centimeter (kp-cm) * | 0,0980665 | N-m |
| | 0,980665 | dN-m |
| | 9,80665 | cN-m |
| | 0,072330139 | lbf-ft |
| | 0,86796166 | lbf-in |
| Newtonmeter (N-m) | 0,10197162 | kgf-m (kp-m) * |
| | 10,197162 | kgf-cm (kp-cm) * |
| | 8,8507458 | lbf-in |
| | 0,73756215 | lbf-ft |
| | 10 | dN-m |
| | 100 | cN-m |
| Deci-Newtonmeter (dN-m) | 14,161184 | ozf-in |
| | 0,88507458 | lbf-in |
| | 0,1 | N-m |
| | 10 | cN-m |
| Centi-Newtonmeter (cN-m) | 1,4161184 | ozf-in |
| | 0,088507458 | lbf-in |
| | 0,1 | dN-m |
| | 0,01 | N-m |

Standard Values for Tightening Torque acc. to DIN 13

The torque values mentioned here are guidelines, applying to **regular metric threads (ISO thread) according DIN 13** and bolt head contact dimensions according to DIN 912, 931, 934, 6912, 7984, 7990. They give a 90-percent use of bolt yield strength.

It should be noted that the coefficient of friction depending on the surface state of the bolts and nuts and the lubrication state of the thread does have an influence on the values indicated and has to be corrected as may be the case.



| Nominal Size # | A/F (f) mm | A/F (m) mm | Friction Coefficient μ | Tightening Torque M_A for Bolt Strength Class acc. DIN 267, ISO 898/1 | | | | | |
|----------------|------------|------------|----------------------------|---|---------|---------|---------|----------|----------|
| | | | | 3.6 N-m | 5.6 N-m | 6.9 N-m | 8.8 N-m | 10.9 N-m | 12.9 N-m |
| M2 | - | 4 | 0,10 | - | - | 0,26 | 0,32 | 0,47 | 0,55 |
| | | | 0,14 | - | 0,31 | 0,38 | 0,56 | 0,65 | |
| M3 | - | 5,5 | 0,10 | 0,30 | 0,51 | 0,81 | 1,1 | 1,5 | 1,8 |
| | | | 0,14 | 0,37 | 0,62 | 0,99 | 1,3 | 1,9 | 2,2 |
| M4 | 3 | 7 | 0,10 | 0,70 | 1,2 | 1,9 | 2,4 | 3,3 | 4,0 |
| | | | 0,14 | 0,85 | 1,4 | 2,3 | 2,9 | 4,1 | 4,9 |
| M5 | 4 | 8-9 | 0,10 | 1,4 | 2,3 | 3,6 | 4,9 | 7,0 | 8,0 |
| | | | 0,14 | 1,7 | 2,8 | 4,5 | 6,0 | 8,5 | 10 |
| M6 | 5 | 10 | 0,10 | 2,4 | 3,9 | 6,3 | 8,0 | 12 | 14 |
| | | | 0,14 | 2,9 | 4,8 | 7,7 | 10 | 14 | 17 |
| M8 | 6 | 13-14 | 0,10 | 5,7 | 9,5 | 15 | 20 | 28 | 34 |
| | | | 0,14 | 7,0 | 12 | 19 | 25 | 35 | 41 |
| M10 | 8 | 15-17 | 0,10 | 11 | 19 | 30 | 40 | 56 | 67 |
| | | | 0,14 | 14 | 23 | 37 | 49 | 69 | 83 |
| M12 | 10 | 19-21 | 0,10 | 20 | 33 | 52 | 69 | 98 | 115 |
| | | | 0,14 | 24 | 40 | 65 | 86 | 120 | 145 |
| M14 | 12 | 22-23 | 0,10 | 31 | 52 | 83 | 110 | 155 | 185 |
| | | | 0,14 | 39 | 64 | 105 | 135 | 190 | 230 |
| M16 | 14 | 24-26 | 0,10 | 48 | 79 | 125 | 170 | 240 | 285 |
| | | | 0,14 | 59 | 98 | 155 | 210 | 295 | 355 |
| M18 | 14 | 27 | 0,10 | 66 | 110 | 175 | 235 | 330 | 395 |
| | | | 0,14 | 81 | 135 | 215 | 290 | 405 | 485 |
| M20 | 17 | 30 | 0,10 | 92 | 155 | 245 | 330 | 465 | 560 |
| | | | 0,14 | 115 | 190 | 305 | 410 | 580 | 690 |
| M22 | 17 | 34 | 0,10 | 125 | 205 | 330 | 445 | 620 | 750 |
| | | | 0,14 | 165 | 260 | 415 | 550 | 780 | 930 |
| M24 | 19 | 36 | 0,10 | 160 | 265 | 425 | 570 | 800 | 960 |
| | | | 0,14 | 200 | 330 | 530 | 710 | 1000 | 1200 |
| M27 | - | 41 | 0,10 | 235 | 390 | 630 | 840 | 1200 | 1400 |
| | | | 0,14 | 295 | 490 | 780 | 1050 | 1500 | 1800 |
| M30 | - | 46 | 0,10 | 320 | 530 | 850 | 1150 | 1600 | 1950 |
| | | | 0,14 | 395 | 660 | 1050 | 1450 | 2000 | 2400 |
| M33 | - | 50 | 0,10 | 430 | 720 | 1150 | 1550 | 2150 | 2600 |
| | | | 0,14 | 540 | 900 | 1450 | 1900 | 2700 | 3250 |
| M36 | - | 55 | 0,10 | 550 | 920 | 1500 | 1950 | 2750 | 3300 |
| | | | 0,14 | 690 | 1150 | 1850 | 2450 | 3450 | 4150 |

* The obsolete non-standard unit Kilogram-force resp. Kilopond is only stated for purposes of converting usage. Newtonmeter is the current SI Metric System compliant unit, although the Foot, Inch and Ounce based units are (still) common in the English-speaking world.

Further information available on our website - 24/7.



Further information available on our website - 24/7.

Product Groups

● Torque Applications

- Screwdrivers
- Clicker Wrenches
- Indicating Wrenches

● Impulse Tools

- Battery Impulse Tools
- Pneumatic Impulse Tools
- EC Tightening Systems

● Torque Measurement

- Torque Gauges
- Testers & Transducers
- Calibration Equipment

● Pneumatic Pliers

- Cutters
- Squeezers
- Automat Pliers

● Power Sockets

- Magnetic/Non-Magnetic
- With Sleeve Drive
- Adaptors

● Screwdriver Bits

- Bits & Holders
- Nutsetter
- Adaptors

● Air & Handling Accs

- Air Treatment
- Spiral Hoses & Couplings
- Spring Balancers

This catalog replaces all prior editions. Images and technical specifications correspond to status at printing. Subject to change without prior notice. Errors and omissions excepted.

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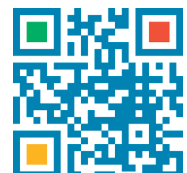


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