

Ingersoll Rand fastening portfolio

Ingersoll Rand offers a full line of production fastening equipment, including air and electric screwdrivers, nutrunners, drills, riveters, pulse tools, as well as hand-held and multispindle fixtured DC nutrunners. Whether you need a solution for a single, specific application or an entire assembly line, you can trust our century of tool design experience to meet your needs.



CALIBRATION EQUIPMENT



EXTT tester

- Compact bench-mount unit
- Integrated torque transducer in (4) ranges from 1 to 30 Nm
- Large LCD screen
- Full keypad and easy-to-navigate menus
- Full statistical capabilities
- Variable rate rundown adapter included
- Rechargeable battery with auto-shutdown feature

Ideal for testing and calibration of lower torque assembly tools in a tool crib, calibration lab, or workstation.



EXTA analyzer

- Lightweight portable unit
- Compatible with full range of Industry Standard (IS) and Smart external transducers
- Large LCD screen
- Full keypad and easy-to-navigate menus
- Full statistical capabilities
- Rechargeable battery with auto-shutdown feature

Ideal for use with a broad range of external transducers to test output of assembly tools on the application or wherever torque verification is required.



Accessories

- Rotary transducers
- Stationary transducers
- Joint simulator kits
- Rundown adapters
- Printer and PC cables
- Transducer cables
- PC download software
- Battery charger (100-240V)
- Torque wrenches
- Calibration service

Take advantage of our extensive line of accessories and services to optimize your assembly and quality assurance processes.

Transducers		Joint Simulator Kits			Torque Wrench	Other Accessories	
Rotary	Stationary	Rotary	Stationary	Rundown Adaptor	Cordless		
						Cable - IS transducer Cable - PC Cable - printer Neck strap Port saver - 9 pin Port saver - 25 pin Battery charger	ETA2-TC ETA2-PC99 ETA2-P925 ETA2-STRAP EXT-PS9 ETA2-P525 EXT-BC



Ingersoll Rand Industrial Technologies provides products, services and solutions that enhance our customers' energy efficiency, productivity and operations. Our diverse and innovative products range from complete compressed air systems, tools and pumps to material and fluid handling systems and environmentally friendly microturbines. We also enhance productivity through solutions created by Club Car®, the global leader in golf and utility vehicles for businesses and individuals.

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Distributed by:



Expert EXT Series Calibration Equipment





Competition is driving product quality requirements to new levels. Meeting these demands requires keeping your processes in control and your tools working within specifications.

The solution:
Expert EXT Series calibration equipment

Our Expert EXT Series calibration equipment is the ideal quality-control companion for assembly operations with stringent torque control standards. Choose from our offering of easy-to-use torque testers, analyzers, transducers, and joint kits to set up and calibrate your full portfolio of precision tools.

EXTT Series torque testers

The EXTT Series torque testers comprises four models of torque testers with integrated transducers that allow rapid and accurate torque checking of lower torque fastening tools from 0.1 to 30 Nm (1 to 265 in-lb). The EXTT's enhanced features include track and peak modes for most hand and power tools, a pulse mode that measures and counts pulses of pulse tools, and a click mode for hand-click wrenches.

EXTA Series torque analyzer

The EXTA Series torque analyzer shares the same compact, sleek design but is designed for portability and use with a broad range of external transducers: whether torque only or torque and angle. It can dynamically measure and record the output of precision fastening tools on the application or the workbench in both directions when coupled with our automatically recognized Smart or Industry Standard transducers. Joint simulators are also available to emulate different joint rates from hard to soft and can be used with both stationary and rotary transducers when working away from the application.

Expert EXT Series — torque testers and analyzers

Power and hand tool compatibility means only one system is needed to setup and calibrate all of your precision tools.

Durable, ESD-safe construction holds up to factory environments.

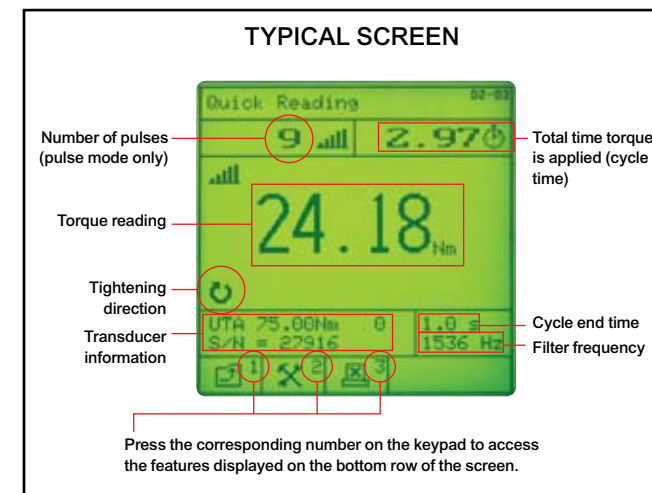
Full statistical capabilities include Cp, Cpk, Pp, Ppk, CMK, CAM, range, mean, and standard deviation.

Compact and lightweight with rechargeable battery provides ease of use and portability on the assembly line and space savings on the workbench.



EXTT-30 shown with integrated transducer and rundown adapter.

Large LCD screen shows clear, easy-to-read test results and menus.



TYPICAL SCREEN
Number of pulses (pulse mode only) — 9
Torque reading — 24.18 Nm
Tightening direction — 0
Transducer information — UTA 75.00Nm S/N = 27916
Total time torque is applied (cycle time) — 2.970
Cycle end time — 1.0 s
Filter frequency — 1536 Hz
Press the corresponding number on the keypad to access the features displayed on the bottom row of the screen.

- ➔ Monitors torque, angle, time, and pulse count
- ➔ Reads in peak, click, pulse, or track mode
- ➔ Stores 200 time-stamped readings
- ➔ Auto-recognition of Smart transducers
- ➔ Seven units of measure
- ➔ Selectable filter frequencies
- ➔ DC tool calibration via ICS software
- ➔ Selectable power-save settings
- ➔ Selectable languages include English, French, German, Italian, and Spanish

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EXTA SERIES — EXPERT TORQUE ANALYZER

Model	External Transducer	Data Transfer	Auto Recognition	LCD Screen
EXTA	Smart (UTA) or Industry Standard (IS)	PC or Printer	Yes	62 x 62 mm

EXTT SERIES — EXPERT TORQUE TESTERS

Model	in-lb	Nm	Rundown Adapter*	Rundown Adapter Service Kit
EXTT-1	0.88 – 8.8	0.1 – 1	EIT-RA-1	EIT-RA-1-KIT
EXTT-4	3.50 – 35	0.4 – 4	EIT-RA-4	EIT-RA-4-KIT
EXTT-12	10.6 – 106	1.2 – 12	EIT-RA-12	EIT-RA-12-KIT
EXTT-30	26.5 – 265	3.0 – 30	EIT-RA-30	EIT-RA-30-KIT

* EXTT tester includes rundown adapter, carrying case, battery charger, manuals, and a certificate of calibration. EXTA analyzer includes carrying case, battery charger, manuals, and neck strap.



Rotary transducers and Stationary transducer with joint simulator

Soft-touch keypad makes menu navigation and test setup simple.

Audible and visible indicators give High, Low, and Pass cycle status.

Quick download of results to printer or PC for data analysis, graphing, and documentation or calibration of DC electric tools using ICS software.



Dimensions
209 x 194 x 78 mm
Weight
2.2 lb / 1.0 kg (EXTA)
4.5 lb / 2.1 kg (EXTT)

Accessories

Transducers

Industry Standard	Smart Transducers		(in-lb) ft-lb	Nm	in
	Torque only	Torque and Angle			
ROTARY					
TR2H4	-	-	(1.0 - 18)	0.10 - 2	1/4
TR5H4	TRD5H4	TRDA5H4	(2.2 - 44)	0.25 - 5	1/4
TR20H4	TRD20H4	TRDA20H4	(9.0 - 180)	1 - 20	1/4
TR20S4	TRD20S4	TRDA20S4	(9.0 - 180)	1 - 20	1/4
TR7S56	TRD7S56	TRDA7S56	2.8 - 55	3.8 - 75	3/8
TR180S8	TRD180S8	TRDA180S8	6.7 - 133	9 - 180	1/2
TR250S12	-	-	9.2 - 185	12.5 - 250	3/4
TR500S12	TRD500S12	TRDA500S12	18.5 - 370	25 - 500	3/4
STATIONARY					
TS30S4	TSD28S4	-	1.1 - 22	1.5 - 30	1/4
TS150S6	TSD135S6	-	5.5 - 110	7.5 - 150	3/8
TS300S8	TSD270S8	-	11 - 221	15 - 300	1/2
TS1000S12	TSD1000S12	-	37 - 738	50 - 1000	3/4

Joint Simulators

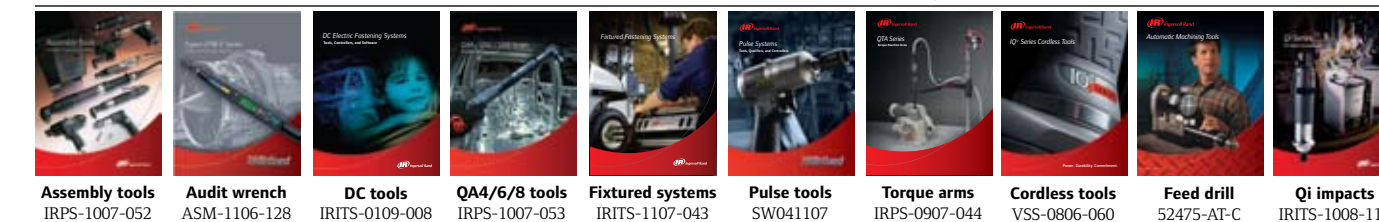
Model	Includes Transducer	Joint Simulator Bolt Service Kit	ft-lb	Nm	in
ROTARY					
JKR20	No	JKS30-BKIT	0.75 - 15	1.0 - 20	1/4
JKR75	No	JKS150-BKIT	2.8 - 55	3.8 - 75	3/8
JKR180	No	JKS300-BKIT	6.7 - 133	9.0 - 180	1/2
JKR500	No	JKS1000-BKIT	18.5 - 370	25.0 - 500	3/4
STATIONARY					
JKS30	No	JKS30-BKIT	1.1 - 22	1.5 - 30	1/4
JKS150	No	JKS150-BKIT	5.5 - 110	7.5 - 150	3/8
JKS300	No	JKS300-BKIT	11.0 - 221	15.0 - 300	1/2
JKS1000	No	JKS1000-BKIT	37.0 - 738	50.0 - 1000	3/4
JKST30	TS30S4	JKS30-BKIT	1.1 - 22	1.5 - 30	1/4
JKST150	TS150S6	JKS150-BKIT	5.5 - 110	7.5 - 150	3/8
JKST300	TS300S8	JKS300-BKIT	11.0 - 221	15.0 - 300	1/2
JKST1000	TS1000S12	JKS1000-BKIT	37.0 - 738	50.0 - 1000	3/4

Manuals

Series	User Manual	Quick Start Guide	Safety
EXT Series	45652906	45655859	45654696

To find manuals on the Web: www.irtechpubs.com.

Literature



Assembly tools IRPS-1007-052, Audit wrench ASM-1106-128, DC tools IRITS-0109-008, QA4/6/8 tools IRPS-1007-053, Fixtured systems IRITS-1107-043, Pulse tools SW041107, Torque arms IRPS-0907-044, Cordless tools VSS-0806-060, Feed drill 52475-AT-C, Qi impacts IRITS-1008-118

To order Ingersoll Rand literature please e-mail irlitorders@kencook.com.

IR Assembly Solutions

ETW-A Series Expert™ Electronic Torque Audit Wrench



ETW-A Series Expert Electronic Torque Audit Wrench

The new Ingersoll-Rand **ETW-A Expert** Electronic Torque Audit Wrench is designed to operate in two distinct modes. First, it can be used as a torque audit wrench for accurately auditing the residual torque on previously tightened threaded fasteners. It can also be used as a standard digital electronic torque wrench, either in peak torque or dynamic (track) torque mode.



To audit the residual torque dynamically, only two settings are required:

- Set the threshold 'snug' torque to approximately 50% of the expected residual torque.
- Set the capture angle.

With the initial application of torque, no rotation occurs. Torque is applied until the static friction is overcome and forward breakaway occurs, causing the fastener to rotate. At this point, the torque usually drops as the friction changes from static friction to dynamic friction.

Torque Mode (Normal)

When used in the **Normal (peak)** mode, the status of the tightening is compared to the upper and lower set process limits and is indicated by the tri-colored LED. This provides the user with a clear indication of the current tightening status at any point during the assembly process.

- Applied torque is between the set low torque and high torque limits – Green light is lit.
- Applied torque is between the set threshold and low torque limit – Yellow light is lit.
- Applied torque exceeds the set high torque limit – Red light is lit.

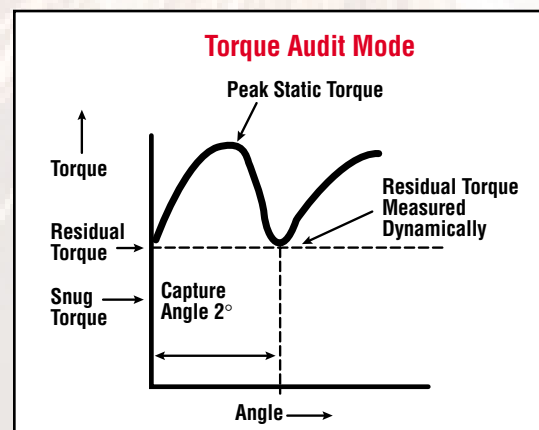
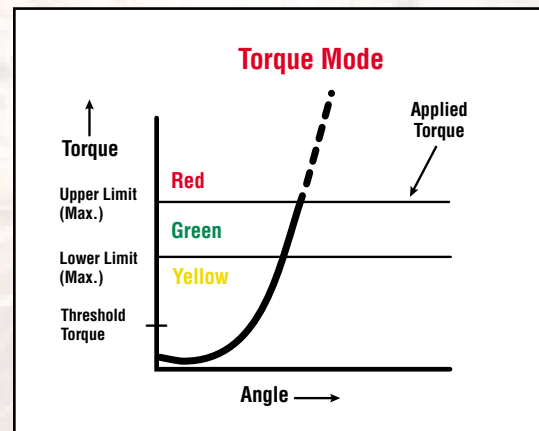
When used in the **Normal (track)** mode:

- The display shows the applied torque at the current moment in time.
- As the torque is released, the display will return to zero.

Torque Audit Mode (Instant)

When used in the **Instant** mode:

- The residual torque of a fastener is measured dynamically in the fastening direction.
- The torque is captured as the fastener is rotated through a pre-set small angle, usually 2° to 4°.
- The wrench ignores the static peak torque required to start the fastener and then takes a dynamic torque measurement.
- Variation due to operator influence in the process is reduced or eliminated by this mode.



Features and Benefits

- Large character LCD display for ease of programming and visual monitoring of torque values.
- Two modes, Normal for use as an electronic torque wrench and Instant for use as a torque audit wrench.
- Suitable for use with many styles of Sturtevant Richmond® interchangeable heads.
- Tri-color LED indicates cycle status.
- Right and left hand operation.
- Multiple torque units (Nm, Ncm, Kgm, Kgcm, lbft, lbin) to comply with global standards.
- Data transfer function to PC or printer via RS 232 port.
- Password protected.
- Stores data from last 200 cycles.
- Features IR TouchSync™ asset management connector.
- Powered by two 'C' cells (either 1.5v alkaline manganese or 3.6V lithium chloride cells).
- Low battery indicator with auto power-down to conserve battery life when not in use.
- On-board statistics (mean, range, sigma, max, min, %NOK, Cp, Cpk).
- Diagnostics for testing on-board circuits.
- Requires no ground reference for angle measurement.



Included with each ETW-A kit:

- ETW-A Torque Audit Wrench (25Nm, 75Nm or 180Nm).
- Carrying Case.
- User Operation and Maintenance Manual.
- Calibration Certificate traceable to NIST (National Institute of Standards and Technology).

Optional Accessories:

Printer Cable..... Part Number 80097777
PC Cable.....Part Number 80097793

Technical Data:

Model Number		ETW-A25	ETW-A75	ETW-A180
Torque Capacity	Nm/lbft	25 / 18	75 / 55	180 / 133
Torque Range	Nm/lbft	2.5-25 / 1.8-18	7.5-75 / 5.5-55	18-180 / 13-133
Torque Accuracy	%	±0.5 FS		
Torque Overload Capacity	Nm/lbft	30 / 22	90 / 66	225 / 164
Torque Modes		Normal: Peak / Track		Instant: Dynamic Torque Audit
Torque Units		Ncm-Nm Kgcm – Kgm ozin – lbin – lbft		Ncm-Nm Kgcm – Kgm lbin – lbft
Tightening Direction		CW/CCW		
Audit Angle Range		1° – 20°		
Angle Resolution		1°		
Operating Temperature		5° – 40° Celsius (42° – 104° Fahrenheit)		
Temperature Stability		±0.1% per °C		
Humidity		5% – 75% non-condensing		
Sealing		IP 40		
Weight		1Kg (2.2 lb)		
Length		510 mm (20 inch)		
Handle Diameter		38mm (1.5 inch)		
Square Drive A/F inches		1/4	3/8	1/2
Power		2 'C' Cells 1.5V alkaline manganese (3 months life approx.) 2 'C' Cells 3.6V lithium chloride (6 months life approx.)		



NEW



Expert ETW-E Series

Cordless Electronic Torque Wrenches



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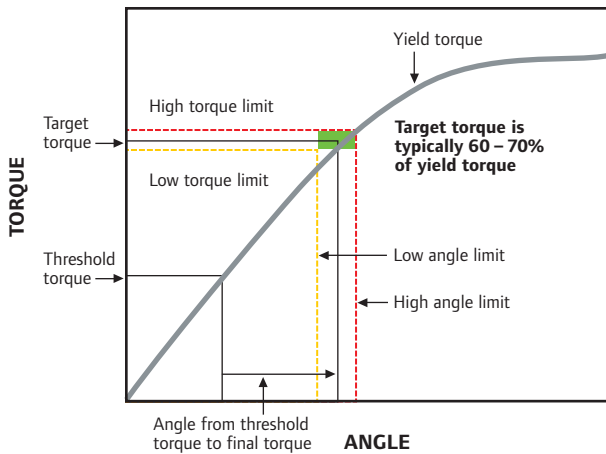
ETW-E Series wrenches are in a class of their own — complete fastening systems built into compact hand-held packages, and available in three torque ranges: **25, 75, and 180 Nm**. They are far more capable than standard operator-dependent torque wrenches, and are the perfect backup and supplement to powered precision fastening tools.

Based on the highly regarded Sensor I wrench — for more than 20 years, the industry standard for portable tightening systems — ETW-E Series wrenches are indispensable for developing, meeting, and verifying virtually any tightening specification for bolted assemblies, whether in a laboratory or on a production line. They perform advanced tightening strategies including **closed-loop torque control, angle control, and yield control**, and can **record and store data** and then **download the results to a PC** via the included ETW-Connect software.



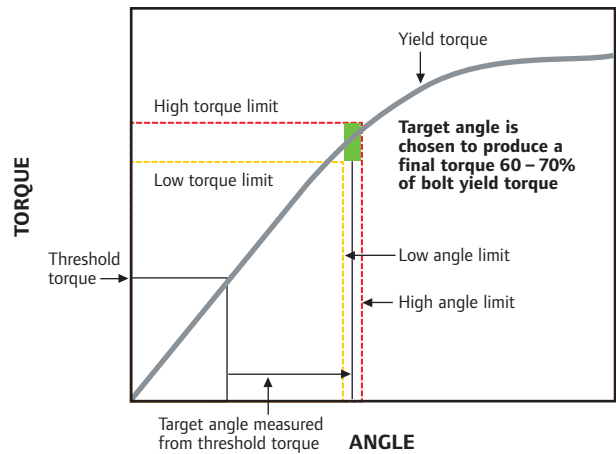
ETW-E tightening strategies

Torque control with angle monitoring



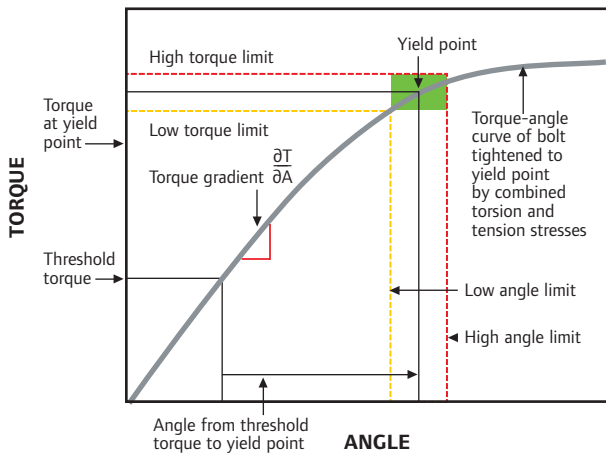
- Yellow light is on when final torque or angle fall below the set low torque or angle limits
- Green light is on when final torque or angle fall between the set low and high torque and angle limits
- Red light is on when final torque or angle fall above the set high torque or angle limits

Angle control with torque monitoring



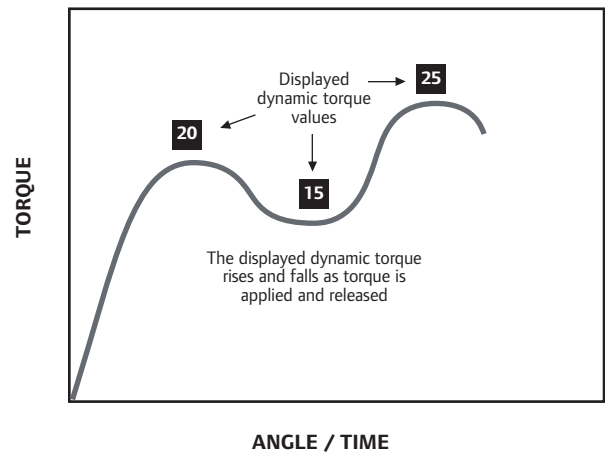
- Yellow light is on when final torque or angle fall below the set low torque or angle limits
- Green light is on when final torque or angle fall between the set low and high torque and angle limits
- Red light is on when final torque or angle fall above the set high torque or angle limits

Yield control with torque and angle monitoring



- Yellow light is on when yield torque or angle fall below the set low torque or angle limits
- Green light is on when yield torque or angle fall between the set low and high torque and angle limits
- Red light is on when yield torque or angle fall above the set high torque or angle limits

Dynamic torque tracking



Lights are not active in this mode



Advanced tightening strategies in a com



Interchangeable head design

Ratchet, box, open end, flare nut, and hex drive heads available.

Data storage

Up to 1,500 final tightening values per application set-up (2,500 max) and up to 10 tightening traces can be stored in the system.

Three torque capacities —

Choose from 25, 75, and 180 Nm.

Tri-color LED display and buzzer

LED provides visual and audible indication of cycle status.

Additional features

- Right- and left-hand operation
- Low battery indicator
- Onboard diagnostics
- Seven onboard languages:
 - Czech, English, French, German, Italian, Spanish, Swedish
- Contact-less angle measurement
- Password protection
- ETW-Connect software
- Multiple torque units of measure: Nm, Ncm, kgm, kgcm, ft-lb, in-lb

compact cordless package



Backlit LCD display
Enables easy programming and monitoring of values.

Simple main menus
Easy set-up menus for fast programming.

Integral RS232 port
Port allows for direct connection to computer for downloading data.

Lightweight design
Unit weighs only 2.2 lb (1 kg).

Battery operation
ETW-E Series uses a rechargeable NiMH battery pack.

Tightening Data Chart

- Statistics can be saved for up to 30 samples in each of 50 possible subgroups
- Sample statistics include mean, standard deviation, Cp, Cpk, R, Cm, Cmk, and Cam
- Tightening data can be transferred to a PC via the included RS232 cable
- Saved traces are uploaded directly into Microsoft Excel for easy creation of charts and graphs

	A	B	C	D	E	F	G
1							
2	Characteristic Name		TORQUE		Angle	Torque	
3	Reading	1			1	2.3	
4	Subgroup	2			2	2.45	
5	Date	8/19/05			3	2.61	
6	Time	#####			5	2.76	
7	Threshold Torque	1.25			6	2.92	
8	Cycle End Time	5.0 s			7	3.02	
9	Measurement Type	Torque			9	3.14	
10	Display Units	N m			10	3.26	
11	Measurement Direction	Right			12	3.38	
12					13	3.47	
13					14	3.55	
14					17	3.64	
					18	3.73	



Specifications and Accessories

Specifications

MODEL	
Torque Capacity	ETW-E25 25 (18)
Nm (ft-lb)	ETW-E75 75 (55)
	ETW-E180 180 (133)
Torque Units	Nm, Ncm, ft-lb, Kgm, Kgcm, in-lb
Overload Capacity	125% max capacity of wrench
Torque Accuracy	+ / - 0.5% capacity of wrench
Angle Range	0 – 3,000°
Tightening Direction	CW & CCW
Operating Temperature Range	41° – 104° F (5° – 40° C)
Storage Temperature Range	32° – 122° F (0° – 50° C)
Temperature Stability	+ / - 0.1% per °C
Humidity Range	5% – 75% non-condensing
Sealing	IP54
Weight – lb (kg)	2.2 (1)
Length – in (mm)	18.4 (468)
Width – in (mm)	1.9 (48)
Depth – in (mm)	1.5 (38)
Power Source	Rechargeable NiMH cell pack

Accessories







DESCRIPTION	PART NUMBER
PC software	ETW-CONNECT
PC cable	ETW-EDB9
1/4" square ratchet head	ETW-E25-R04
3/8" square ratchet head	ETW-E75-R06
1/2" square ratchet head	ETW-E180-R08
Universal battery charger	ETW-EBC
Rechargeable battery pack	ETW-EBP
Carrying case	ETW-ECC
Colored boots (red)	ETW-BOOT-RD
(green)	ETW-BOOT-GN
(yellow)	ETW-BOOT-YL

Each wrench comes with a carrying case, rechargeable battery pack, battery charger, PC cable, operating manual, ETW-Connect software, and calibration certificate.



Other calibration equipment and services

Ingersoll Rand offers additional tools to optimize your fastening strategies.

 <p>ETA Series Expert Torque Analyzers</p> <p>Designed for use with a broad range of transducers to dynamically measure and record the torque output of all types of fastening tools — plus full statistical and data download capability.</p>	 <p>ETA Series Stationary Transducers</p> <p>Mountable to a table or cart, our stationary transducers span the range from 1.5 to 1000 Nm (1.1 to 738 ft-lb), and will work with a variety of tools to measure torque and angle of rotation.</p>
 <p>ETT Series Expert Torque Testers</p> <p>Our torque testers are recommended for most hand screwdrivers, wrenches, or power tools, and are ideal for testing output torque on assembly tools in lab, repair crib, or production line settings.</p>	 <p>ETA Series Rotary Transducers</p> <p>Ingersoll Rand transducers feature a patented wrap-around brush system that reduces the chance of noise in the signal and eliminates the possibility of contact loss. Rotary transducers can be used right on the job.</p>
 <p>ETW-A Torque Audit Wrenches</p> <p>These wrenches give an accurate measurement of the residual torque on a previously tightened threaded fastener, and can also be used to tighten fasteners to a preset high-low range.</p>	 <p>ETA Series Joint Simulators</p> <p>Our joint simulators are useful in tool cribs to preset tools for production and test capabilities under controlled joint rates. They're also ideal for simulating a variety of hard or soft joints. Available in ranges up to 1000 Nm (738 ft-lb).</p>



Services

Ingersoll Rand delivers world-class service for precision fastening systems.

- Equipment calibration
- Audit services
- Repairs
- Joint analysis



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