

The best equipment deserves the best service

At Ingersoll Rand, we know how important your equipment is to your livelihood. That's why for the past 100 years we've been setting the standard for not just powerful and durable products, but also for providing total solutions that help you get the job done right.

As tough as our equipment is, we also know that it needs to be maintained. When the time comes, let Ingersoll Rand meet your service and repair needs through our expansive Certified Service Network.

Each Certified Service provider has the specialized testing equipment, genuine parts, and skilled training to ensure you're back up and running at original equipment manufacturer (OEM) specifications.

Global reach, local service

No matter where your facility is located, Ingersoll Rand is committed to serving you 24 hours a day, seven days a week. Our worldwide network of distributors, certified, factory-trained technicians, and engineers are a phone call away — ready to support you with innovative and cost-effective solutions that will keep you running at peak performance.



Repairs done right.
Service made simple.

irtools.com/tools/fastening



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.
(800) 376-8665 • irtools.com

DC Electric Fastening Systems

Tools, Controllers, and Software



Because every assembly is critical



You've got a critical job to do, and there are a lot of people counting on you to get it done right. At Ingersoll Rand, we know what's at stake, too. That's why we deliver the most innovative and reliable fastening systems in the industry.

Fastening applications involve more than simply selecting tools from a catalog. It's an intricate matter of linking users, applications, and systems to deliver an uncompromised combination of accuracy, durability, speed and ergonomics to maximize your line's productivity. The solution: Ingersoll Rand DC Electric Fastening Systems.

We understand that the ever increasing demand for higher quality, safer, and more environmentally friendly products at a competitive price means our customers need their processes to be best-in-class and cost effective. That is why our dedicated team of professionals design, test, manufacture, and support every component, assembly, and detail of our systems and services to deliver best-in-class, cost-effective solutions for our customers. We do this because we know that we all have a lot riding on our efforts. Work with our team and learn how Ingersoll Rand delivers the complete solution to meet your requirements, including the after-sales service and support you should expect from a leader in the industry.

Trusted tools, proven experience

Ingersoll Rand has extensive experience with threaded fastening processes. For more than 100 years, we've worked with many of the world's leading manufacturers in various industries. We understand the interface between the tool and operator; we know how to leverage the power of ergonomically designed equipment to maximize productivity and inspire progress.

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 handheld 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.



DC ELECTRIC FASTENING SYSTEMS

Handheld Tools




Tools

- True closed-loop transducerized control delivers exceptional accuracy and traceability
- Non-contacting switches, heavy-duty gear trains, superior cables and DC brushless motors provide exceptional reliability
- Inline, angle, pistol, offset, and motor configurations allow the flexibility to choose the exact tool required
- Bright LEDs provide visible status indicators while TactAlert provides tactile feedback on handheld tools without distracting the operator from the task
- World-class ergonomic designs improve operator comfort
- Compact, high-speed, easily accessible controls
- Torque ranges: 0.3 – 2500 Nm

Offering a full line of handheld and fixtured tools — we take accuracy, ergonomics, and reliability to new levels. With inline, angle, pistol, and offset configurations, our tools are engineered to maximize your productivity.

Fixtured Tools




Controls

- Quick setup and advanced tightening strategies
- Complete line of standard and custom communication protocols
- SQL server database archiving, searching and statistics processing
- Compact, space-saving designs
- Crisp, high-visibility full-color 1/4 VGA or one line displays
- Standard Ethernet and I/O connections optimize communications and line integration
- Remote monitoring and preventive maintenance alerts
- Multiple languages

Delivering a powerful combination — the ICD&M controllers and ICS Software offer industry leading functionality in a compact size. Advanced tightening strategies and data communications improve process and product quality.

Controllers and Software



Quick and Custom Multiples

- Pre-engineered modular or custom engineered designs
- Quick multis — for common applications using off-the-shelf components that are quickly configured to meet the job requirements
- Custom multis — for more complex applications requiring custom engineering
- Use world-class QE, QM, and QA Series tools
- Configurable handle and operator interface modules
- Quick quoting and delivery
- Full engineering and project management capabilities

Providing more than just the building blocks for your fastening applications — we offer the global depth of engineering expertise to design and build turnkey, multispindle solutions for nearly any industrial application.

Fixtured Systems



Tools

QE and QM Series

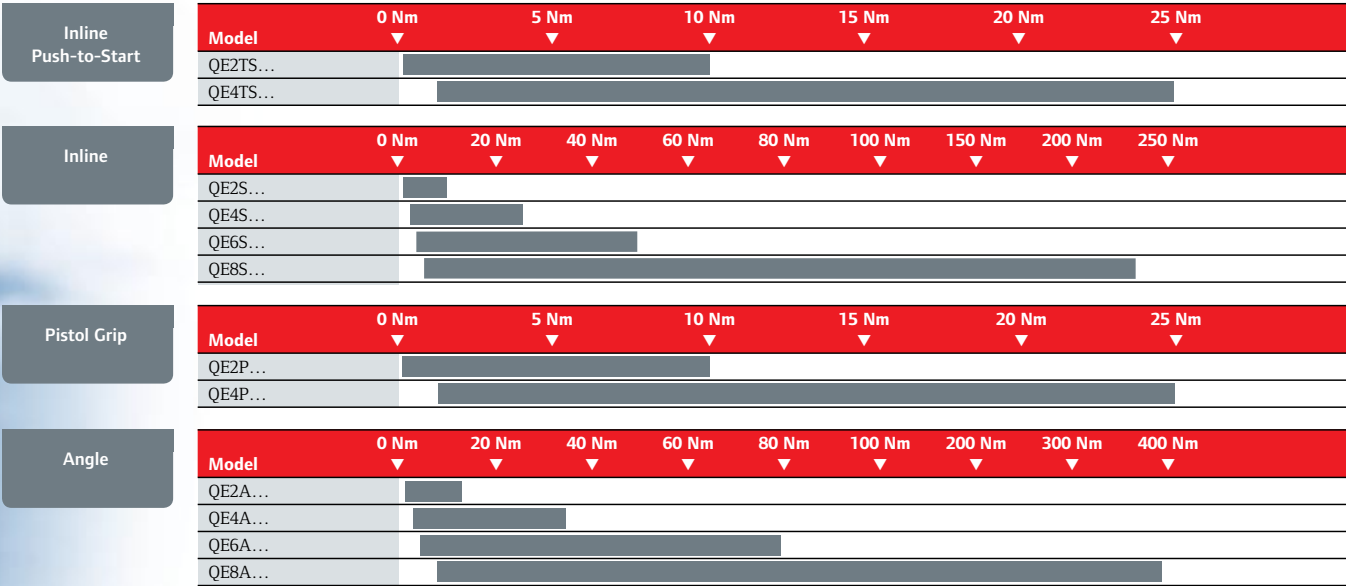
Delivering a full line of world-class tools — whether handheld or fixtured, Ingersoll Rand provides superior accuracy, ergonomics, and durability to meet your critical fastening requirements. Whether you are in the motor vehicle, aerospace, electronics, white goods, or general industries, we can help maximize your productivity.

Features

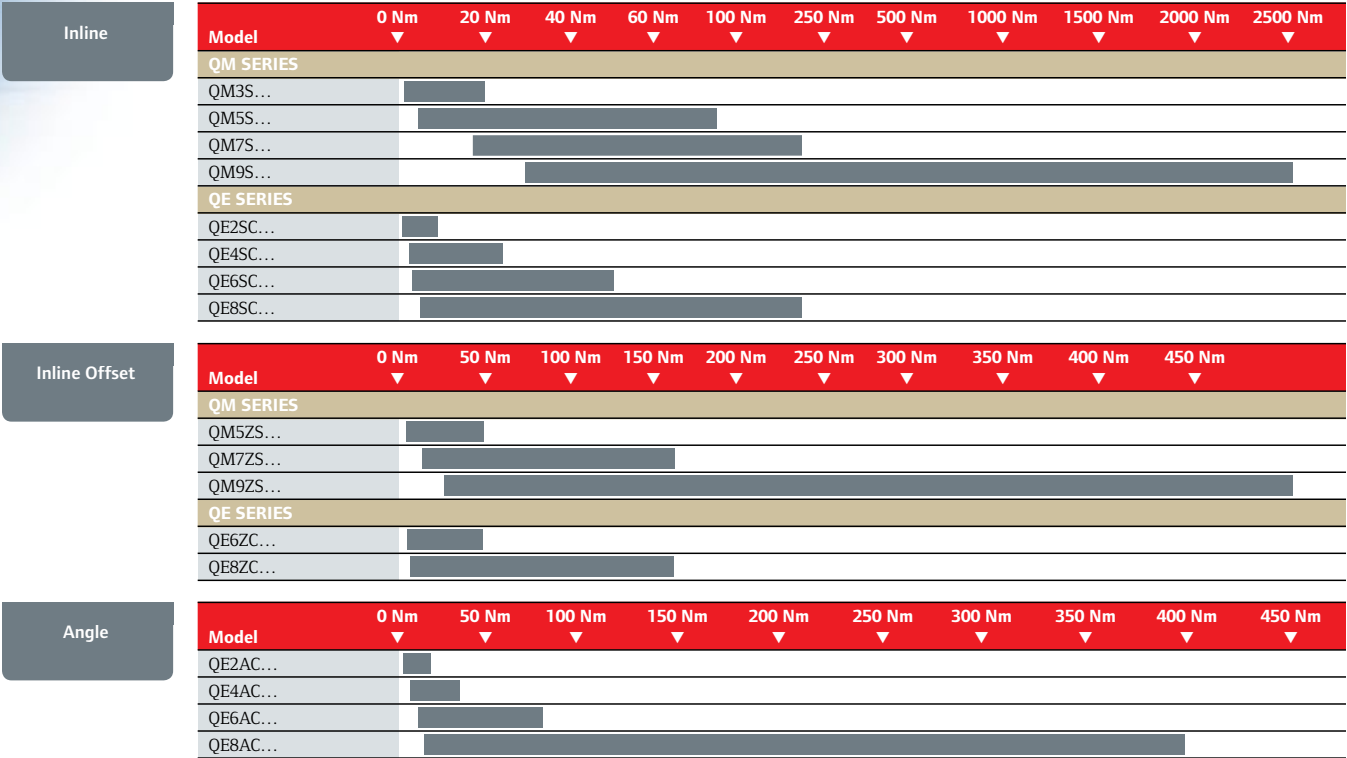
- Torque coverage from 0.3 to 2500 Nm
- Full closed-loop transducerized control delivers excellent capability
- Highly configurable platforms allow selection of the perfect tool for the application including inline, pistol, angle, offset, and motor configurations
- All models are compatible with both ICD and ICM Insight controllers and ICS software
- Excellent durability
- Compact, lightweight, and high-speed designs
- Easy to use interfaces allow the operator to focus on the job, not the tool — including bright LED headlights and status indicator lights, low force actuation and reverse functions, and patented TactAlert that provides tactile feedback to the operator
- ESD-safe and RoHS-compliant model options
- Super durability cables keep life cycle costs low
- Comfortable, ergonomically contoured grips enhance operator comfort
- Complete line of accessories to maximize productivity



Handheld tools



Fixtured tools



Refer to Assembly Tool catalog, IRPS-1007-052, or irtools.com for a complete list of models and specifications.



We design our tools with the end user and your bottom line in mind. Keeping the operator happy is one key factor in making your line run efficiently. But we don't stop there. Our feature-rich line of tools provides best-in-class performance and cost-effective solutions to meet your critical fastening requirements.



All Ingersoll Rand tools are designed with durability in mind and are tested to the extreme to prove it. We drop, flex, torque, shock, and literally abuse the tools for millions of cycles to ensure that whatever the real world throws at them, our tools will perform to the same high standards as they do on day one.



All QE Series tools offer the performance and ergonomics operators love. Our commitment to the highest quality products means your operators will focus on the workpiece and forget about the tool.

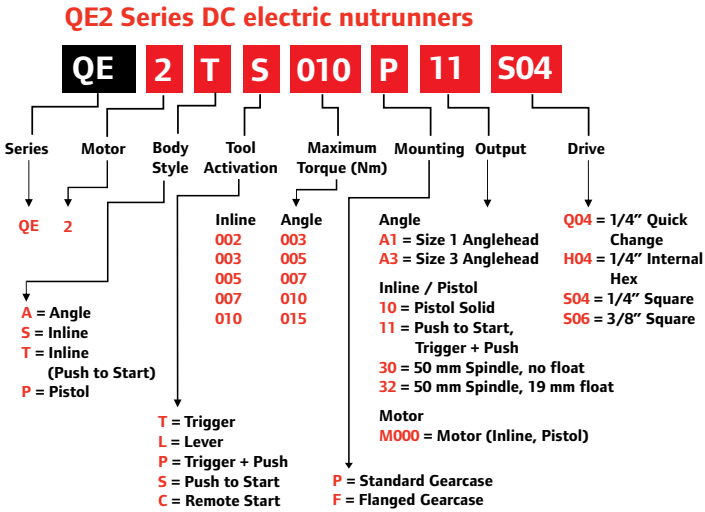
Tools

QE2 Series

The ultimate world-class combination — QE2 Series tools and IC Series controllers team up to provide superior accuracy, ergonomics and durability to meet your critical fastening requirements. Full closed-loop transducerized control in a compact, lightweight package allows you to maximize your productivity on low-torque applications.

Features

- Torque coverage from 0.3 to 15 Nm
- Full closed-loop transducerized control delivers excellent capability and traceability
- Compact, lightweight, high-speed design
- Bright LED headlights illuminate work space
- Multicolored light ring shows cycle status
- Seamlessly runs on either ICD or ICM controllers
- Highly configurable platform allows users to select output torque, body style, actuation and spindle type to create the perfect tool for the application
- ESD-safe and RoHS-compliant
- High durability cable
- Comfortable, ergonomically contoured grip
- Easy-to-use push-button reverse and indicator light



True closed-loop transducerized control provides exceptional accuracy and traceability

Non-contacting switches, heavy-duty gear train, and brushless DC motor provide exceptional reliability

ESD-safe design helps protect sensitive electronics

Bright multicolored light ring provides highly visible status signal

Super bright LED headlights illuminate workpiece

High durability cable and connections keep lifecycle costs low

RoHS compliant

Ergonomically contoured grips enhance operator comfort

Compatible with all ICD and ICM controllers and ICS software

Super durable cable flex tested to over 3 million cycles without failure

Multiple cable lengths in inline and 90 degree configurations

Pistol, inline, angle, and motor configurations

Multiple drive and head sizes including inline floating spindle

Complete line of accessories available to enhance your productivity

Preventative Maintenance Alarms

High temperature motor protection

TactAlert provides positive tactile operator feedback without distraction from the task at hand

Compact, lightweight, high-speed designs with easily accessible controls

Brilliant blue reverse indicator light signals mode to operator

Ideally positioned push-button reverse allows easy, one-handed control

Ergonomically contoured grips enhance operator comfort

Sculpted hand rest helps reduce operator fatigue and slipping

Available with trigger, lever, push-to-start, trigger/lever permit, and remote start actuation options

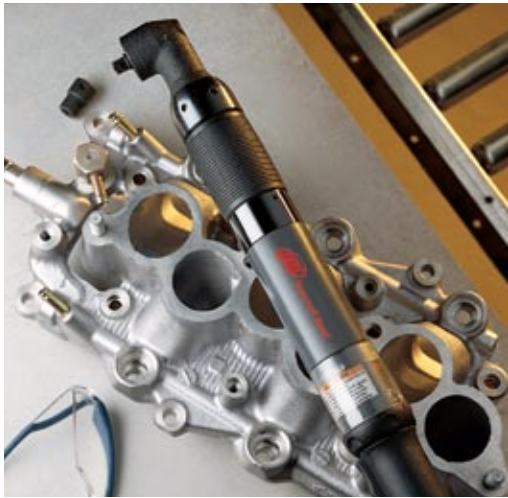
Tools

QE4 / 6 / 8 Series

QE4 / 6 / 8 Series handheld and fixtured tools take productivity, ergonomics, and reliability to new levels. With angle, inline, pistol, push-to-start, and offset configurations, three motor platforms, and torque coverage to 400 Nm, the QE Series tools are engineered for enhanced productivity with impressive features. When matched with an ICD or ICM controller and ICS software, the QE Series will take your operations to the next level.

Features

- Torque coverage from 1 to 400 Nm
- Full closed-loop transducerized control delivers excellent capability and traceability
- Seamlessly runs on either ICD or ICM controllers
- Compact, high-speed, easily accessible controls
- Easy-to-use reverse ring
- Comfortable ergonomic grips
- Bright LEDs provide visible status indicators
- Highly configurable platform allows users to select output torque, body style, and spindle type to create the perfect tool for the application
- An onboard sensor monitors the motor temperature and protects the unit from excessive heat
- Advanced tightening strategies
- Preventive maintenance alerts



QE Series DC electric nutrunners

| Series | Motor | Body Style | Tool Activation | Maximum Torque (Nm) | Mounting | Output | Drive |
|-----------------------|----------------------|-----------------------------------|-----------------------------------|--|---|---|--|
| QE | 4 6 8 | Angle 013 020 027 034 | Angle 030 040 055 080 | Angle 065 070 090 115 150 225 400 | Angle A2 = Size 2 Anglehead A4 = Size 4 Anglehead A5 = Size 5 Anglehead A6 = Size 6 Anglehead A7 = Size 7 Anglehead A8 = Size 8 Anglehead | Inline / Pistol 10 = Pistol Solid 11 = Push to Start, Trigger Permit 20 = 50 mm Spindle, no float 21 = 50 mm Spindle, 19 mm float 41 = 100 mm Spindle, 19 mm float 61 = 150 mm Spindle, 38 mm float 81 = 200 mm Spindle, 38 mm float 62 = 150 mm Spindle, 50 mm float 82 = 200 mm Spindle, 50 mm float 02 = 250 mm Spindle, 50 mm float 22 = 300 mm Spindle, 50 mm float | Q04 = 1/4" Quick Change H04 = 1/4" Internal Hex S04 = 1/4" Square S06 = 3/8" Square S08 = 1/2" Square S12 = 3/4" Square |
| A = Angle | S = Inline | T = Inline | (Push to Start) | Z = Offset | M = Motor | P = Pistol | |
| T = Trigger | L = Lever | E = Extended Lever | P = Trigger + Push | S = Push to Start | C = Remote Start | | |
| P = Standard Gearcase | F = Flanged Gearcase | R = Reaction Bar | B = Bolt on Flange, 1pc. | J = Bolt on Flange, 2pc. | | | |



True closed-loop transducerized control provides exceptional accuracy and traceability

Non-contacting switches, heavy-duty gear train, and brushless DC motor provide exceptional reliability

Ideally positioned, easy-to-use reverse ring

Available with trigger, lever, push-to-start, trigger/lever permit, and remote start actuation options

Multiple drive and head size options

Bright LED headlight illuminates work area

Preventive maintenance alarms

Ergonomically contoured grips enhance operator comfort

Offset heads available for tight clearance applications

Configured solutions available to meet your needs including crows foot, tube nut, and other geared offset heads

Compatible with all ICD and ICM controllers and ICS software

Complete line of accessories available to enhance your productivity

Advanced tightening strategies

High temperature motor protection

Programmable momentary switch

TactAlert provides positive tactile operator feedback without distraction from the task at hand

Clevis attachment allows for easy connection to torque arms while offering the operator optimal hand positioning and workpiece visibility

Multicolored status indicator lights provide OK / NOK signals

Compact, lightweight, high-speed designs with easily accessible controls

Sculpted hand rest helps reduce operator fatigue

Pistol, inline, angle, offset and motor configurations available

High durability cable and connections keep lifecycle costs low

Tools

QM Series

QM Series tools are the workhorse of your multispindle application. With four platforms that provide broad torque and speed coverage, Ingersoll Rand QM spindles deliver at the highest levels of performance, durability, and reliability in the industry. The QM3, QM5, QM7, and QM9 platforms are so durable, in fact, that we stopped testing them after three million fault-free cycles.

Features

- Torque coverage from 0.8 to 2500 Nm
- Full closed-loop transducerized control delivers better than five percent capability across all four motor platforms
- Highly durable with little preventive maintenance required
- Seamlessly runs on either ICD or ICM controllers
- Flexible mounting options include front-mounting or sandwich-mounting for any unit
- External electronics pod simplifies mounting and connectivity
- Highly configurable platform allows users to select output torque, body style, and spindle type to create the perfect tool for the application
- An onboard sensor monitors the motor temperature and protects the unit from excessive heat
- Easy to service — no special tools required



QM Series DC electric fixtured spindles

| QM 7 S S 190 L 62 S08 | | | | | | | | | |
|-----------------------|------------------|--|---|---------------------|--|--|--|--|---|
| Series | Motor | Body Style | Sensor | Maximum Torque (Nm) | | | | Spring Tension | Spindle |
| QM | 3 5 7 9 | S = Inline M = Motor Z = Offset S = Single Transducer | QM3 QM5 QM7 QM9 008 035 150 315 012 050 190 435 016 055 220 450 020 090 | | | | | 520 650 01K = 1000 15C = 1500 18C = 1750 20C = 2000 22C = 2200 25C = 2500 | S06 = 3/8" Square S08 = 1/2" Square S12 = 3/4" Square S16 = 1" Square 62 = 150 mm Spindle, 50 mm float 92 = 225 mm Spindle, 50 mm float 22 = 300 mm Spindle, 50 mm float L = Light H = Heavy S = Solid |

True closed-loop transducerized control provides exceptional accuracy and traceability

Heavy-duty gear train and brushless DC motor provide exceptional reliability and durability

Torque ranges from 0.8 to 2500 Nm

Better than five percent capability across all four motor platforms

Multiple drive and spindle length options

Available with or without spindles

Compatible with all ICD and ICM controllers and ICS software

Offset heads available for tight clearance applications

Preventative maintenance alarms

Advanced tightening strategies

Flexible mounting options include front-mounting or sandwich mounting for any unit

Solid, heavy or light spindle spring options

External electronics pod simplifies integration

Custom Multiples are engineered systems designed and built to your unique requirements

High temperature motor protection

Complete line of accessories available to enhance your productivity

Compatibility with Quick Multiple systems that allows fast quoting and delivery of common multispindle systems (see brochure IRTS-1107-043 for details)

High durability cable and connections keep lifecycle costs low



Controllers

Insight IC Series controllers are powerfully precise, fully programmable, and can be seamlessly integrated with any QE or QM Series tools to deliver real performance advantages. We pack extensive torque and angle control, as well as process management capabilities into a small package. Standard features like Ethernet and I/O connections on every unit mean no hidden charges for maximizing communication to your network and there's no need for expensive hardware keys or back-up units.

IC1M controllers

The IC1M Insight controller is a basic single line display controller that works with all Ingersoll Rand QE and QM DC electric tools and can be either rack- or cabinet-mounted as a single unit or in groups of up to 40 units for multiple-spindle systems.



Controller transfer key
enables quick upload,
recovery, transfer,
and storage of
configuration sets

Dual-mode power supply:
90 – 120 VAC and
200 – 240 VAC

One-line digital display
shows torque or angle

**200 cycles of end-of-run
automatic data storage**

Use ICS Connect to program and select from 256 user configurations stored in memory

Internal maximum ambient operating temperatures of 0° – 60° C (32° – 140° F) ensure reliable use in demanding conditions without risk of overheating

- **Front-mounted cable** allows top-to-bottom stacking of units for multispindle applications

- **Easy installation** and setup with a convenient bracketing system

- Extruded aluminum cooling fins

- **Power switch** is enclosed in rubber boot for protection

IC1D controllers

The IC1D Insight controllers give you full closed-loop control in a compact package. With features like a 1/4-VGA color display and easy, intuitive, quick setup programming, the IC1D provides unmatched performance.

**Standard Ethernet
and I/O connections**
optimize communication
and line integration

**1,000 cycles of end-of-run
automatic data storage**

Dual-mode power supply:
90 – 120 VAC and
200 – 240 VAC

**Internal maximum
ambient operating
temperatures of**
0° – 50° C (32° – 122° F)
ensure reliable use in
demanding conditions
without risk of
- overheating

- **Easy installation** and set-up with convenient bracketing system

- **Comfortable and tactile membrane** facilitates easy programming and screen navigation

- Extruded aluminum cooling fins

**Professional 1/4 VGA
216-color display** is
visible from 20 ft (6.1 m)

Program up to eight basic fastening configurations and access all 256 stored in memory

Removable cover — provides easy access to connections and terminals, even when the unit is installed

Controller transfer key
enables quick upload,
recovery, transfer,
and storage of
configuration sets

Power switch is enclosed —
in rubber boot for protection

IC Series DC electric controllers

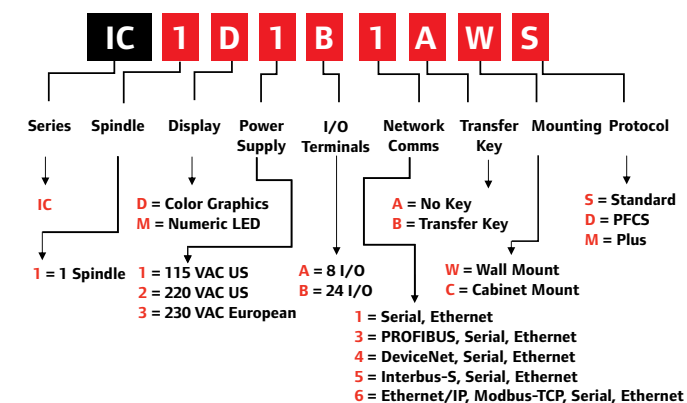


Diagram illustrating the rear panel of a PLC with the following components labeled:

- Optional fieldbus
- Serial port
- Rotary switches (CAN2 address)
- Termination resistance switch
- Transfer key port
- Powerhead synchronization bus
- Ethernet port
- Optional inputs / outputs
- Base inputs / outputs
- E-stop
- 24 V DC

Expand the capabilities of the ICM and ICD controllers with ICS software.
See page 15.



Controllers

Insight IC1Display and IC1Module

| | |
|--|--|
| Measurement torque: Accuracy | ±0.2% of torque full scale ±1 count of angle (degrees) |
| Measurement resolution | ±0.025% of torque full scale |
| Torque transducer bridge excitation | ±5V DC/GND |
| Torque transducer zero offset / drift compensation | ±0.4% of full scale |
| Input signal sensitivity | 2.0 mV/V |
| Calibration | Values read from spindle memory Automatic digital correction |
| Frequency response (torque filter) | Selectable 75 Hz, 150 Hz, 350 Hz, 500 Hz, 750 Hz |
| Keypad (IC-D only) | Membrane keypad containing 4 hot keys, 4 function keys, numerical keypad and directional keypad |
| Display | IC-D: 3.5-inch diagonal, 320 px by 240 px, 8-bit 65K backlit color (QVGA) flat panel display IC-M: 5-character, 7-segment numerical LED display |
| Parameter sets | 256 |
| Number of cycles stored in memory | IC-D: 1,000 IC-M: 200 |
| Communication | Serial RS232, Ethernet, optional PROFIBUS, DeviceNet, Interbus-S, EtherNet / IP, Modbus - TCP |
| I/O | 8 inputs / 8 outputs, with behavior assignable through ISC software: with optional I/O card, an additional 16 inputs and outputs are available |
| Indicators | Power ON lamp |
| Input voltage | Single-phase 120 volts, 50/60 Hz, 16 amps Single-phase 230 volts, 50/60 Hz, 8 amps |
| Ambient operating conditions | 0 – 50° C, 20/90% non-condensing humidity |
| Enclosure | IP-52 |
| System weight | 5.6 kg (12.4 lb) |
| Dimensions (mm) | 152 h x 191 w x 23 d |

All QE and QM Series tools run on every single controller. Programming is quick and easy and can either be done on-screen (with the ICD), from a computer with ICS Connect, or with the controller transfer key. Having all these features means you'll spend less time on set-up and more time assembling product.



Software

ICS software suite

Paired with an Insight IC1D or IC1M controller and a computer, our groundbreaking ICS software suite makes it possible to more precisely control and monitor your fastening process. Optimizing your system is as simple as selecting one of four packages.

Features

- Four software packages allow you to select the best fit for your requirements
- Compatible with all tools, no exceptions
- Connect, manage, view and program controllers remotely over local area network
- Advanced tightening strategies, including yield control and prevailing torque, improve joint quality
- Generate detailed statistical charts and graphs
- Program and view preventive maintenance alarms, cycle and event logs
- Allows remote monitoring, data collection and data archiving
- View and overlay tightening curves
- Available in Chinese, English, French, German, Italian and Spanish



| Advanced Tightening Strategies |
|--------------------------------------|
| Torque control |
| Torque control with angle monitoring |
| Torque control with yield override |
| Angle control |
| Angle control with torque monitoring |
| Angle control with yield override |
| Yield control |
| Prevailing torque |
| Drag torque |
| Backout |
| Fault backout |
| Final fault backout |
| Retorque |
| Wait |
| Jog |
| Bypass |



Custom software

Engineered to your unique specifications

Ingersoll Rand also develops custom software to meet the specific needs of our customers. Whether you need to link data from our controllers into your factory control system, download to a special database or need another customized software solution, our experienced team of software engineers and project managers have the capabilities to get the job done. Our installed base of custom software, running at facilities across the globe, handle local requirements for process line control, quality analysis, data archiving, special printing and many other unique needs.

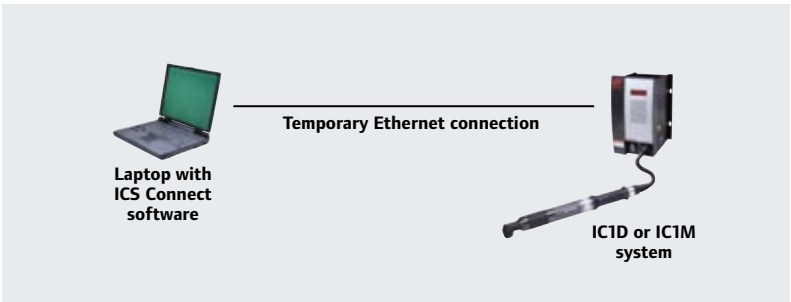
Software

ICS Connect

ICS Connect provides operators the ability to access and program basic fastening strategies, as well as view cycle data with a single IC1D or IC1M controller via a one-to-one Ethernet connection. ICS Connect is supplied standard with all IC1D and IC1M controllers.

Features

- Enables access to and basic programming of all 256 configurations on IC1D and IC1M controllers
- Provides the primary means of programming an IC1M controller
- Provides quick functionality setup for single-step torque and angle strategies on the IC1D and IC1M controllers
- Captures cycle log, event log, and statistical data
- Enables runtime viewing of fastening data with live screen updating

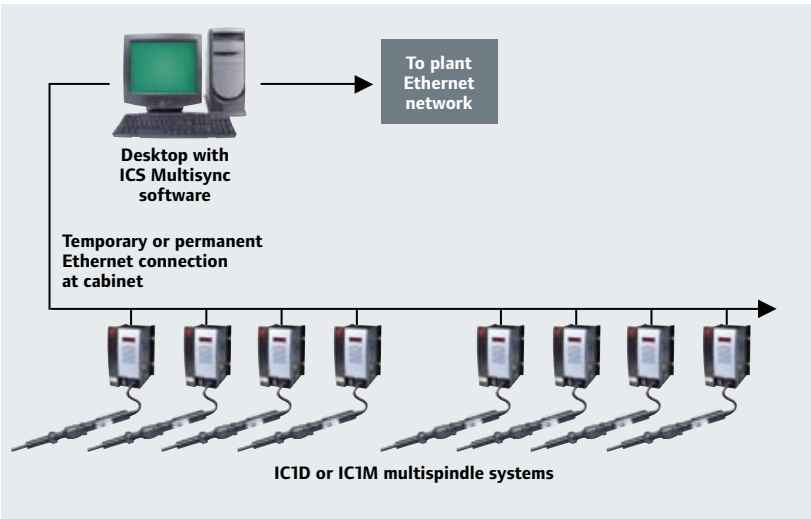


ICS MultiSync

ICS MultiSync facilitates setup and control of multiple spindle systems consisting of up to 100 spindles in groups of up to 40 spindles. This versatile package offers advanced multiple-spindle fastening strategies such as fault back-out, as well as remote monitoring and data archiving.

Features

- Programs all regular and powerhead tightening strategies within IC1D and IC1M controllers
- Enables programming and synchronization of up to 100 connected QE Series tools or QM Series spindles
- Enables advanced multispindle strategies such as back-out, fault back-out, final fault back-out, and torque recovery
- Programs and synchronizes spindles to function without software intervention
- Archives tightening data to an internal data table when running in stand-alone powerhead mode
- Collects and supplies data as required when used with ICS Enterprise
- Archives data for all spindles connected

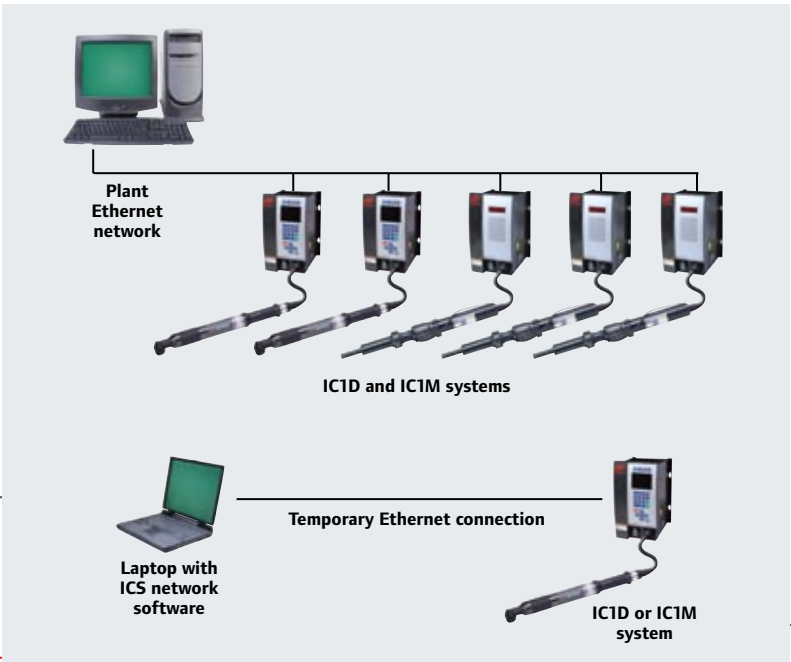


ICS Network

ICS Network enables programming of multiple IC1D and IC1M controllers connected through a local area network (LAN) or direct connection. This option also allows operators to program advanced fastening strategies including yield and prevailing torque control.

Features

- Allows operators to connect, manage, view, and program up to 500 IC1D or IC1M controllers (depending on license) through a local area network
- Enables programming of advanced multistep tightening strategies including drag torque and prevailing torque on IC1D and IC1M controllers
- Activates the innovative TactAlert capability of QE Series tools
- Generates detailed statistical charts and graphs
- Enables viewing of a single tightening curve
- Programs preventive maintenance (PM) alarms
- Enables "stats alarms" function
- Provides bar code and field bus interfaces

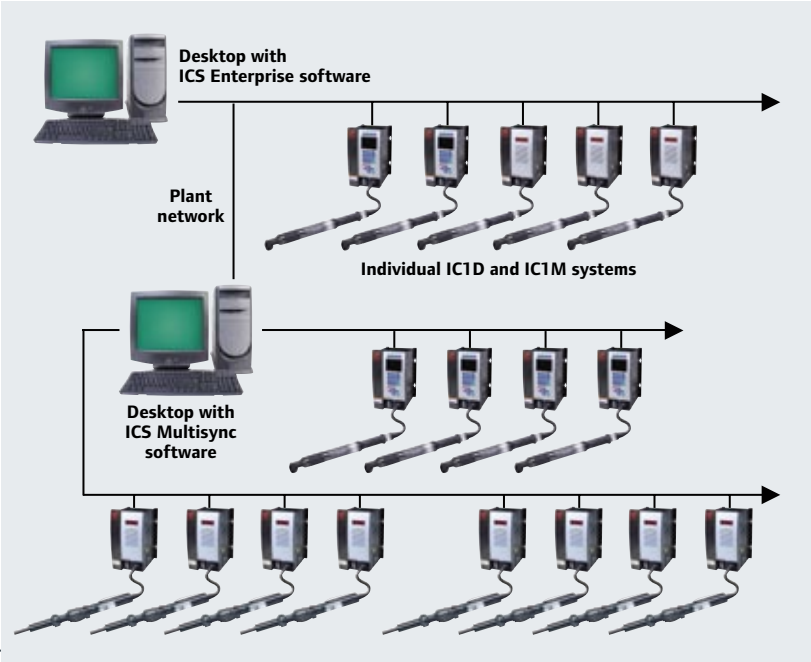


ICS Enterprise

ICS Enterprise offers advanced programming and management of a network of up to 500 IC1D and IC1M controllers using QE, QM, and multiple-spindle systems. This package includes all elements of ICS MultiSync and SQL Server database archiving, searching, and statistics processing.

Features

- Provides all of the functionality of ICS Connect, ICS Network, and ICS MultiSync
- Offers advanced programming and network management of up to 500 IC1D or IC1M controllers with QE Series tools, QM Series spindles, or multispindle systems (depending on license)
- Enables output of data to SQL Server database to archive cycle data, curves, parameter settings, diagnostics, event logs, and statistics
- Schedules regular archiving based on time or number of cycles
- Enables data sorting, searching, and reporting by shift, tool ID, VIN, and more
- Provides 10-curve, on-screen tightening curve overlay



Quick multiples

Modular designs, flexible solutions

Quick multiples consist of pre-engineered modular component designs that allow quick quoting, manufacture, and delivery of more common fixtured fastening solutions for up to six spindles. Depending on the application, vertical, horizontal, or rotating horizontal systems can be assembled with easily customized handles, displays, fixtures, and integrated handling devices for optimal operator ergonomics and performance.

Modular design provides for easy customization of open- or closed-frame fixtures in vertical, horizontal, or rotating horizontal configurations

Mounts are available in several options that adjust to give operators the most ergonomic position, visibility, and control possible

Handle module provides multiple switch options based on the application

Customizable interface provides the control and feedback you desire. Standard LED display shows individual spindle and master OK / NOK signals.

Modular design offers flexibility for easy customization, rapid quotes, and lead-times.

World-class tools deliver accuracy and durability to maximize your line's productivity.

- QM and QE Series
- QA4 / 6 / 8 Series

Cable tray provides secure routing path, which keeps cables safe and out of the way, and reduces sharp bends.

Multiple suspension and torque reaction options:

- Balancers
- Torque tubes
- Articulating arms
- Custom devices
- Jib cranes
- Pneumatic suspension

Heavy-duty bearing delivers smooth rotation and adjustable stops for up to six spindles and provides for an ideal cable exit.

Circular handle allows rapid positioning of sockets on bolts.

Mounting plates can be quickly and easily machined to the exact job specifications.

VERTICAL AND HORIZONTAL FIXTURE

ROTATING HORIZONTAL FIXTURE

Interface module

The **Interface's** modular design provides for easy customization to meet your needs. The module comes standard with a configurable LED display to match your bolt pattern, an E-Stop switch, label kit, and enclosure assembly, and can be customized with any four of the six additional display and control options to suit your application.

Modular design provides flexibility for easy customization.

Additional options include:

- Push button
- 2-position switch
- 3-position switch
- 3-position key switch
- Red and green lamps
- Buzzer

Standard module includes:

- Enclosure and PCB
- E-Stop, whip cable
- LED display, label kit

Durable metal reinforced composite enclosure.

Standard E-stop.

Standard LED display shows individual and master OK / NOK signal for up to six spindles, and can be organized to match bolt pattern.

Flexible design provides for panel, tube, or ball joint mounting.

Flexible design allows cable exits from top, bottom, sides, or back of enclosure.

Handle module

The **Handle's** modular design provides the flexibility to order exactly what you need for your job. Whether you need to outfit your fixture with trigger or slide-electronic switching, pneumatic control, or only a dead handle, we offer the solution to fit your application.

Actuation options include:

- Trigger, slide switch, or both
- Pneumatic
- Dead handle (none)

Slide switch can be configured as momentary or detent style.

Ball, flange, or direct mounting options allow optimal handle orientation with the operator.

20 possible configurations deliver the exact combination needed.

Ergonomic grip provides both comfort and durability.

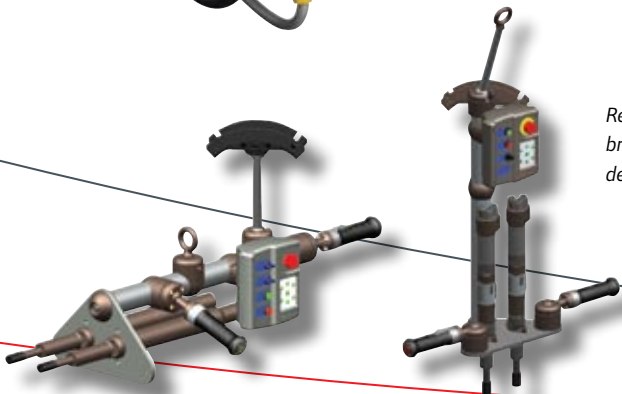
Trigger and slide switch can be aligned (shown left) or rotated 90 degrees based on desired hand positioning.

Custom multiples

Engineered to your unique specifications

Custom engineered fixtured fastening systems are available for more complex jobs with requirements such as adjustable bolt centers, more than six spindles, specialized clamping, indexing, custom fixture design, and automation.

Ingersoll Rand's worldwide network of solution centers can serve your "Rail-to-Floor" project requirements from start to finish. Our full-range offering starts with joint analysis and process audits, and spans system design, project management, installation, and after-sales support.



Refer to Fixtured Fastening System brochure, IRITS-1107-043, for detailed specifications.



QTA torque arms

Ingersoll Rand offers an impressive line of ergonomic torque reaction arms that help operators work more safely and comfortably while maximizing efficiency, to ensure product quality and minimize downtime. See the full QTA torque arm brochure (IRPS-0907-044) for a complete listing of torque arm products and specifications.

360-degree rotation adds greater flexibility (models up to 100 Nm)

Spring balancer adjusts easily and offers effortless vertical movement

Simple, proven design for trouble-free setup and dependability

Anodized aluminum body delivers durability in a lightweight design

Adjustable reach for ease of use and convenience

QTA 150 Bench Mount

QTA 150 Floor Mount

QTA 270 Floor Mount

The QTA150 can be easily configured as either a bench-mounted or floor-mounted torque arm, and reconfigured as the job demands

Standard inline clamp included for models up to 100 Nm

Multiple tool holder options

Right angle

Ingersoll Rand angle or inline

Rotating

Pistol

Ingersoll Rand push to start

1/4" NPT

QTA100-10 Bench Mount

| Model | Max Torque (ft-lb) Nm | Max Weight Capacity lb (kg) | Max. Working Reach in (mm) | Approx. Vertical Travel in (mm) | Overall Height in (mm) |
|--------|-----------------------|-----------------------------|----------------------------|---------------------------------|------------------------|
| QTA010 | 7.4 (10) | 2.64 (1.20) | 15 (381) | 13.0 (330) | 27.8 (706) |
| QTA020 | 14.8 (20) | 5.00 (2.27) | 20 (508) | 14.5 (368) | 31.8 (808) |
| QTA040 | 29.5 (40) | 6.50 (2.95) | 25 (635) | 17.5 (445) | 39.7 (1008) |
| QTA100 | 73.8 (100) | 8.00 (3.63) | 30 (762) | 17.5 (445) | 39.7 (1008) |
| QTA150 | 110.6 (150) | 10.00 (4.54) | 52 (1321) | 22.0 (559) | 78.7 (2000) |
| QTA270 | 199 (270) | 22.00 (10.00) | 60 (1524) | 18.8 (477) | 78.7 (2000) |
| QTA475 | 350 (475) | 50.60 (23.00) | 79 (2007) | 23.2 (590) | 78.7 (2000) |

Global support

Productivity beyond product

When you work with Ingersoll Rand, you get Productivity Beyond Product. Our experts know assembly environments inside and out, and we have the sales, engineering, and service teams in place around the world to deliver a local solution tailored to your unique operational needs.

Our 360-degree approach to maximizing your productivity includes world-class auditing, products, integration, and service in all areas of the assembly process. It's an integrated approach that will not only meet your needs, but exceed your expectations.

Audits

Ingersoll Rand consultants can spend time with you, observing and auditing the layout, ergonomic design, and productivity of your assembly process. Our service and sales teams are uniquely qualified to assess your individual applications and recommend solutions that make sense for you. You can also take advantage of our best-in-class joint consulting capabilities by sending your components and fasteners to one of our application labs. We'll recommend a fastening strategy that gives you the clamp load you need and the quality your customers demand.

- ▶ Application testing
- ▶ Systems capability study
- ▶ Ergonomic audit

Products

Innovative products are the core of our integrated "rail-to-floor" approach. From world-class DC electric fastening tools, controllers, and software to ergonomic handling systems, our product portfolio spans the full fastening continuum to provide you with the best technology for your application. Add calibration equipment and choose from our full line of accessories including user interfaces, cabinets, cables, selector switches, and sockets to complete your system design.

- ▶ World-class tools
- ▶ World-class controllers
- ▶ World-class software
- ▶ World-class ergonomic handling

Integration

Our extensive knowledge of systems integration makes connecting your new equipment to your existing facilities a seamless process. The Ingersoll Rand service team has years of experience in program management, custom networking and software, PLC programming, and line integration — exactly the combination you need to get up and running.

- ▶ Installation support
- ▶ Acceptance testing
- ▶ System commissioning
- ▶ Networking and programming
- ▶ Financing

Service

Want to minimize downtime? No problem. Ingersoll Rand provides unmatched customer service, and a variety of services to keep you running at your peak productivity — from installation and training to preventive maintenance, calibration, and repairs.

- ▶ Operator and skilled trades training
- ▶ Calibration and repair
- ▶ Preventive maintenance contracts
- ▶ Refurbishment programs
- ▶ Global network coverage

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Accessories and literature

Controller accessories

| Part Number | Description |
|----------------|-------------------------------------|
| IC-PALM-RESET | Palm button reset station |
| IC-ESTOP | Emergency stop button |
| IC-LIGHT-TOWER | Light tower |
| 3002007 | Wall mounting bracket for IC1D/M |
| 3002010 | Cabinet mounting bracket for IC1D/M |
| IC-SELECT-2 | 2-position remote selector switch |
| IC-SELECT-4 | 4-position remote selector switch |
| IC-SELECT-6 | 6-position remote selector switch |
| PC80150113 | Controller transfer key |

Angle head boots

| | A2 & A3 | A4 | A5 | A6 | A7 |
|----------|-----------|-----------|-----------|-----------|-----------|
| Standard | GEA40-171 | GEA40-172 | GEA40-172 | GEA40-173 | GEA40-173 |
| Extended | GAA2-170 | GAA4-170 | GAA5-170 | GAA6-170 | GAA7-170 |

Lever kits

| Part Number | Description |
|-------------|--------------------|
| GEA40-K98SL | Short lever kit |
| GEA40-K98EL | Extended lever kit |

Hanging and mounting accessories

| Part Number | Description | For Use With |
|-------------|----------------------|---|
| GEA15-K364 | Swivel hanger kit | QE4 |
| GEA40-K364 | Swivel hanger kit | QE6 & QE8 |
| CPS2-A365 | Angle tool hanger | QE2 Series |
| 7L-365 | Suspension bail | All QE Series |
| CPS2-48 | Pistol reaction Bar | QE2 Series |
| GEA15-K48 | Reaction bar kit | QE4, QA4 inline up to 27 Nm |
| GEPTS15-K48 | Reaction bar kit | QE4TS |
| DEA120-K48 | Reaction bar kit | QE6 & QE8, QA4 inline 46 Nm |
| 15E4-K48 | Flanged mounting kit | QE4, QA4 / QA8 inline up to 55 Nm, angle up to 55 Nm |
| GEM120-K48 | Flanged mounting kit | QE6 & QE8 , QA6 / QA8 inline 70 / 90 Nm, angle 115 / 150 Nm |
| GEA4-K48 | Mounting plate kit | QE4 , QA6 / QA8 inline up to 55 Nm, angle up to 90 Nm |
| DAM120-K48 | Mounting plate kit | QE6 & QE8 , QA6 / QA8 inline 70 / 90 Nm, angle 115 / 150 Nm |
| SBB4-QE2 | Bio brace | QE2 Series |

Bit and socket trays and accessories

| Part Number | Description |
|---------------|--------------------------------|
| IC-BIT-8 | 8-position bit tray |
| IC-SOCKET-4 | 4-position socket tray |
| IC-SOCKET-8 | 8-position socket tray |
| IC-10PIN-6M | 6 m cable for 4-position tray |
| IC-10PIN-10M | 10 m cable for 4-position tray |
| IC-19PIN-5M | 5 m cable for 8-position tray |
| IC-19PIN-10M | 10 m cable for 8-position tray |
| GEA15-38KIT-5 | 3/8" socket pin kit |
| GEA40-12KIT-5 | 1/2" socket pin kit |
| IRPS-0506-016 | Impact socket brochure |



Palm reset



Emergency stop



Light tower



Angle head boots



Lever kit



Flange mounting kit



Mounting plate kit



Swivel hanger kit



Bio brace



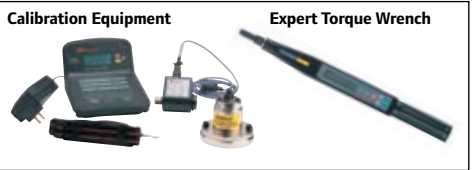
4-position socket tray



Impact sockets

Cable accessories

| Handle Module Extension Cables | (2 m) | (4 m) | (6 m) |
|----------------------------------|------------------|------------------|-------------------|
| Handle extension cordset | QMMC-46-2M | QMMC-46-4M | QMMC-46-6M |
| Interface Module Cables | | | |
| Interface extension cable (10 m) | | | QMMC-A240-10 |
| Interface extension cable (20 m) | | | QMMC-A240-20 |
| Powerhead cable (2 m) | | | QMMC-A240-2 |
| DC Tool Cables | (3 m) | (6 m) | (10 m) |
| Tool cable (QE2) | GPS2-CORD-3M | GPS2-CORD-6M | GPS2-CORD-10M |
| 90° tool cable (QE2) | — | GPS2-CORD-6M-90 | — |
| Tool cable (QM, QE4/6/8) | GEA40-CORD-3M | GEA40-CORD-6M | GEA40-CORD-10M |
| 90° tool cable (QM, QE4/6/8) | GEA40-CORD-3M-90 | GEA40-CORD-6M-90 | GEA40-CORD-10M-90 |
| DC Tool Extension Cables | (10 m) | (20 m) | (40 m) |
| Extension cable | GEA40-EXT-10M | GEA40-EXT-20M | GEA40-EXT-40M |
| | (50") | (60") | (70") |
| 90° extension cable | GEA40-INT-01 | GEA40-INT-02 | GEA40-INT-03 |
| | (80") | (90") | (100") |
| 90° extension cable | GEA40-INT-04 | GEA40-INT-05 | GEA40-INT-06 |
| | (110") | (120") | (130") |
| 90° extension cable | GEA40-INT-07 | GEA40-INT-08 | GEA40-INT-08 |



Calibration equipment

| EXPERT TORQUE WRENCH | | | | |
|------------------------|---------------------|------------------------|------------------------|------|
| | ft-lb (Nm) | in | | |
| ETW-E25 | 18 (25) | 1/4" | | |
| ETW-E75 | 40 (55) | 3/8" | | |
| ETW-E180 | 133 (180) | 1/2" | | |
| ROTARY TRANSDUCERS | | | | |
| Industry Standard* | "Smart" Torque | "Smart" Torque & Angle | in-lb (Nm) | in |
| 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" |
| TR75S6 | TRD75S6 | TRDA75S6 | 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 TRANSDUCERS | | | | |
| Stationary Transducer | "Smart" Transducers | ft-lb (Nm) | in | |
| 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" | |

*Industry-standard transducers require ETA2-TC cable.

Literature

| Catalog Name | Form Number | Catalog Name | Form Number |
|--------------------|----------------|--------------------|----------------|
| QA4/6/8 air tools | IRPS-1007-053 | Torque arms | IRPS-0907-044 |
| Impact screwdriver | IRITS-1107-044 | Pulse tools | SW041107 |
| Audit wrench | ASM-1106-128 | Fixtured fastening | IRITS-1107-043 |
| Assembly tools | IRPS-1007-052 | Cordless tools | VSS-0806-060 |
| Feed drill | 52475-AT-C | Ergonomic handling | MHD55226 |

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

Suspension and reaction devices

| TORQUE TUBES | | See literature listed below for more details | | | |
|--------------|-------------|--|-------------------------|-------------------------|----------------|
| Model | Description | Lift Capacity @100 psi lb (kg) | Torque Capacity lb (kg) | Vertical Travel in (mm) | Weight lb (kg) |
| 54044227 | IRZ-TT-100 | 60 (27) | 74 (100) | 20 (508) | 40 (18) |
| 54041819 | IRZ-TT-250 | 60 (27) | 184 (250) | 24 (610) | 50 (23) |
| 54044417 | IRZ-TT-500 | 400 (182) | 368 (500) | 36 (914) | 75 (75) |
| BALANCERS | | See literature listed below for more details | | | |
| Model | Type | Lift Capacity lb (kg) | Vertical Travel in (m) | Weight lb (kg) | |
| BLD Series | Spring | 0.9-6.6 (0.4-3.3) | 5.2 (1.6) | 1.3-1.5 (0.6-0.7) | |
| BMD Series | Spring | 2.2-22 (1-10) | 6.5-8.2 (2-2.5) | 4.4-8.8 (2-4) | |
| BHD Series | Spring | 22-143 (10-65) | 6.5 (2.0) | 23-30 (10-14) | |
| BSD Series | Spring | 33-363 (15-165) | 8.2 (2.5) | 42-106 (19-48) | |
| BSDL Series | Spring | 33-330 (15-150) | 9.8 (3.0) | 42-100 (19-46) | |
| BA/ZA Series | Pneumatic | up to 2000 (907) | up to 120 (3.0) | up to 225 (102) | |



QA4/6/8 air tools



Impact screwdrivers



Audit wrench



Assembly tools



Feed drill



Torque arms



Pulse tools



Fixtured fastening



Cordless tools



Cordless accessories