DC Electric Fastening Systems

Tools, Controllers, and Software

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

High durability cable and connections keep lifecycle costs low

Bright LED headlight illuminates work area

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

Preventive maintenance alarms

Ergonomically contoured grips enhance operator comfort

Multicolored status indicator lights provide OK / NOK signals

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

Offset heads available for tight clearance applications

Optional line of accessories available to enhance your productivity

Sculpted hand rest helps reduce operator fatigue

Pistol, inline, angle, offset and motor configurations available

Compatible with all ICD and ICM controllers and ICS software

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

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

Advanced tightening strategies

High temperature motor protection

Programmable momentary switch

Ingersoll Rand®

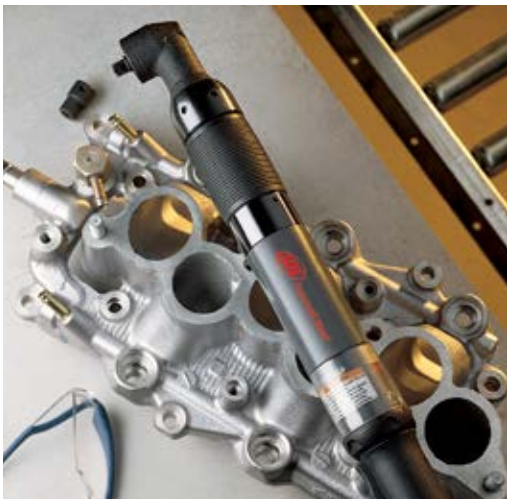
Handheld Tools

QE Series

The ultimate world-class combination — QE 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 applications.

Features

- Torque range from 0.3 - 400 Nm
- Full closed-loop transducerized control delivers excellent capability and traceability
- Compact, lightweight, high-speed design
- Optional 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 options
- High durability cable
- Comfortable, ergonomically contoured grip
- Easy-to-use push-button reverse and indicator light options



Software

ICS software suite

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

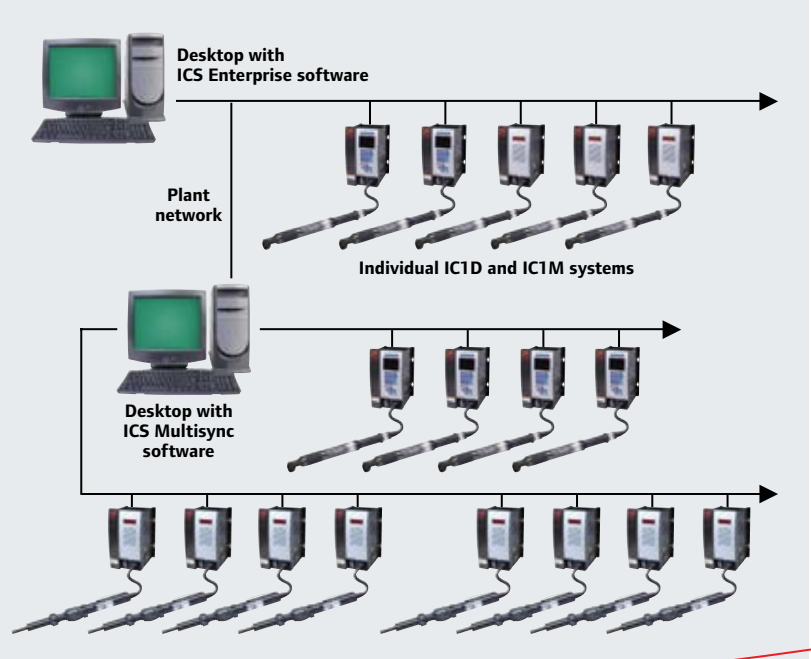
Features

- Four software packages allow you to select the best fit for your requirements (highest available package highlighted below)
- 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

ICS Enterprise

ICS Enterprise is our highest license level and 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 the lower license level ICS MultiSync along with SQL Server database archiving, searching, and statistics processing.



Features

- Provides all of the functionality of ICS Connect, ICS Network, and ICS MultiSync licenses
- 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

Controllers

Insight IC1Display and **IC1M**odule

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, Open Protocol
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 are compatible with all controller models. Programming is quick and easy and can either be done on-screen (with the ICD), from a computer with ICS Connect software, or with the controller transfer key. Having these options mean you'll spend less time on set-up and more time assembling product.

ICD/M controllers

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

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

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

Up to 1,000 cycles of end-of-run automatic data storage

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

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

Program up to eight basic fastening configurations (ICM access 256 configurations 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

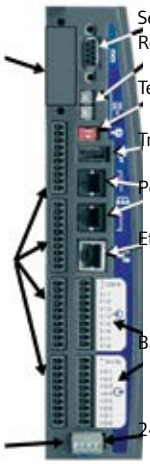
ICD Model

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 (ICD models only)

Extruded aluminum cooling fins



ICM Model

Fixtured Tools

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

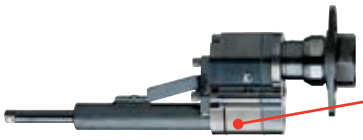
Better than five percent capability across all four motor platforms

Multiple drive and spindle length options

High durability cable and connections keep lifecycle costs low

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

High temperature motor protection

Advanced tightening strategies

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

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

Solid, heavy or light spindle spring options

External electronics pod simplifies integration

QM Series

QM Series tools are the workhorse of your fixed spindle 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

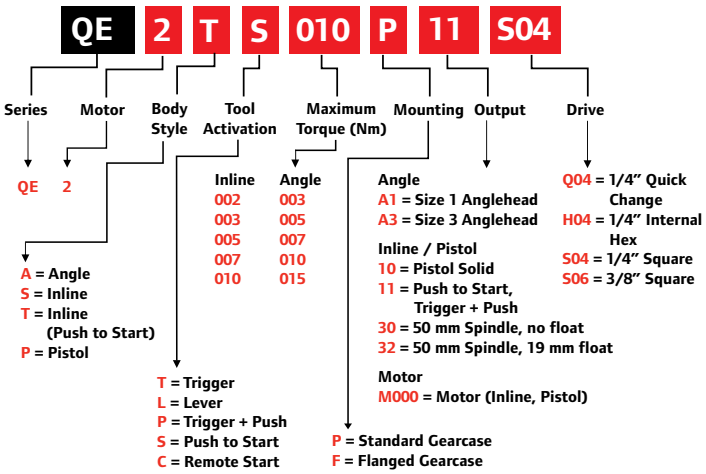
Custom multiples

Engineered to your unique specifications

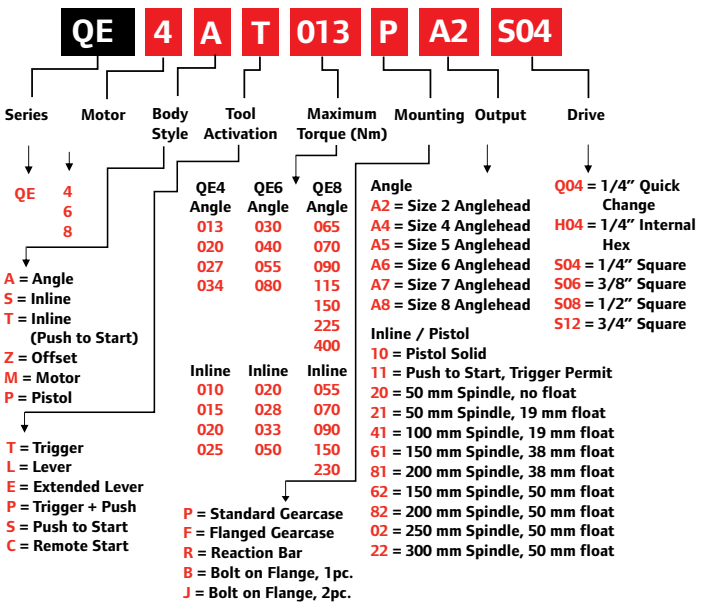
Custom engineered fixtured fastening systems are available for more complex jobs with requirements such as adjustable bolt centers, more than six spindles, specialized clamping, indexing, custom fixture design, and automation.

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.

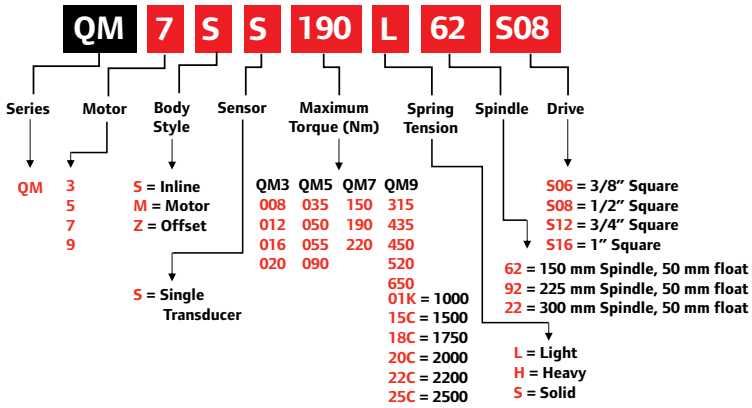
QE2 Series DC electric nutrunners



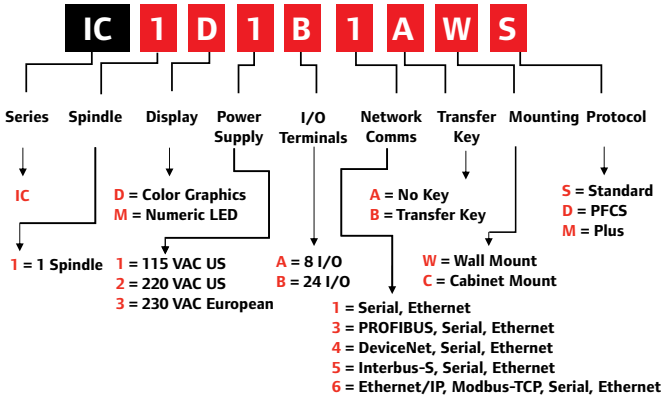
QE Series DC electric nutrunners



QM Series DC electric fixtured spindles



IC Series DC electric controllers



Cable accessories

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")**
90º extension cable	GEA40-INT-01	GEA40-INT-02	GEA40-INT-03
	(80")	**(90")**	**(100")**
90º extension cable	GEA40-INT-04	GEA40-INT-05	GEA40-INT-06
	(110")	**(120")**	**(130")**
90º extension cable	GEA40-INT-07	GEA40-INT-08	GEA40-INT-08

Ingersoll Rand

REAL TOOLS FOR REAL WORK.

Ingersoll Rand (NYSE:IR) advances the quality of life by creating comfortable, sustainable and efficient environments. Our people and our family of brands—including Club Car®, Ingersoll Rand®, Thermo King® and Trane®—work together to enhance the quality and comfort of air in homes and buildings; transport and protect food and perishables; and increase industrial productivity and efficiency. We are a $13 billion global business committed to a world of sustainable progress and enduring results.