

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

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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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Fixtured Fastening Systems



Because every assembly is critical



Fixtured fastening applications involve more than merely selecting tools from a catalog. They're an intricate matter of linking users, applications, and systems to deliver an uncompromised combination of ergonomics, speed, durability, and accuracy. The solution: Ingersoll Rand Fixtured Fastening Systems.

With Fixtured Fastening Systems from Ingersoll Rand, you get the benefits of our world-class portfolio of tools, controllers, software, and handling devices, backed up by our global team of experts. Whether you need a simple, single-fixtured spindle or a sophisticated set of custom-engineered multi-spindle systems, we offer a full line of solutions that provide superior ergonomics, reduced cycle times, more even clamp loads, and exceptional durability.

Whether your operations are local or across the globe, our worldwide network of Solutions and Customer Centers will support your needs. From joint analysis and system design to complete project management and on-site run-off, 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

At Ingersoll Rand, we have 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, and 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 hand-held and multi-spindle 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.



FIXTURED FASTENING SYSTEMS

Vertical



Horizontal



Rotating horizontal



Quick multiples

- Pre-engineered modular designs
- Quick quoting and delivery
- Vertical, horizontal, and rotating horizontal designs
- Up to six DC electric or air spindles per system
- Configurable handle options
- Configurable operator interface module
- Used with world-class QE, QM, and QA spindles, and ICD and M controllers
- Integrated handling devices

For common applications where off-the-shelf modular components can be quickly and easily configured to meet the job requirements.

Custom multiples

- Custom-engineered solutions
- Specialized fixture design
- Automated stations
- Adjustable bolt centers
- Custom suspensions and reaction systems
- Specialized clamping
- Angle indexing
- Custom displays and HMIs
- Station integration
- Custom attachments

For more complex applications requiring custom engineering.

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:

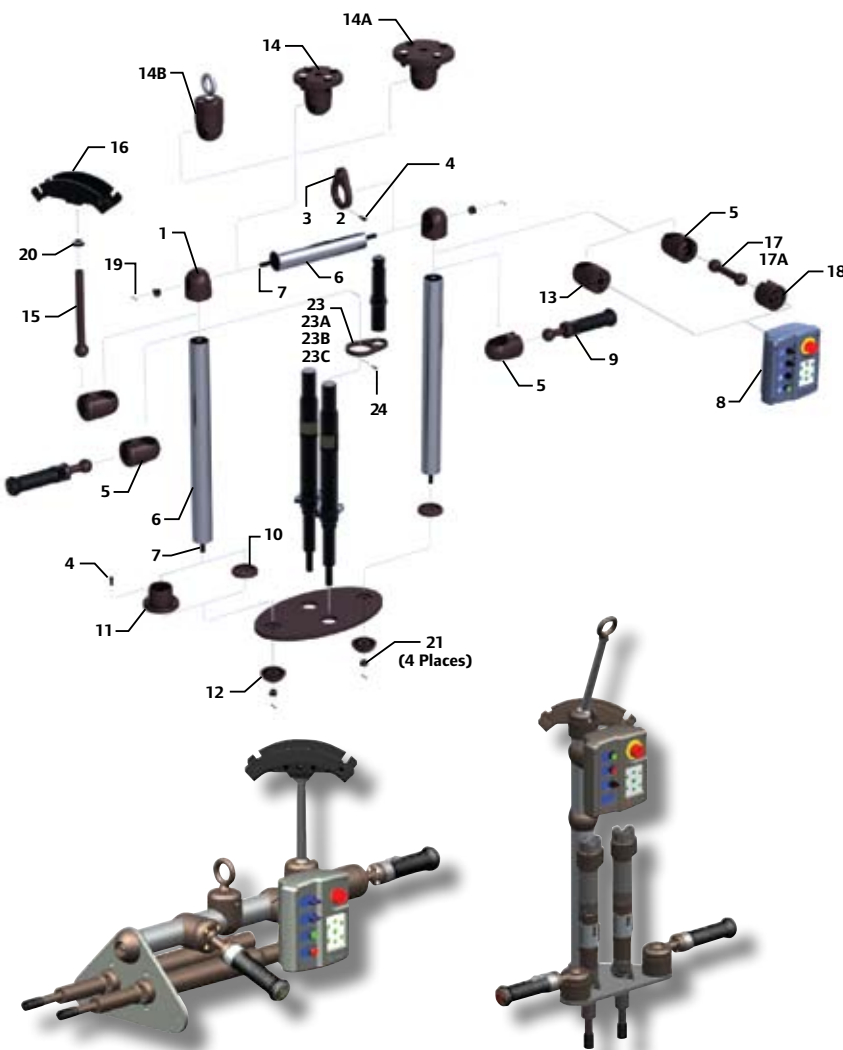
- Balancers
- Custom devices
- Torque tubes
- Jib cranes
- Articulating arms
- Pneumatic suspension

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.

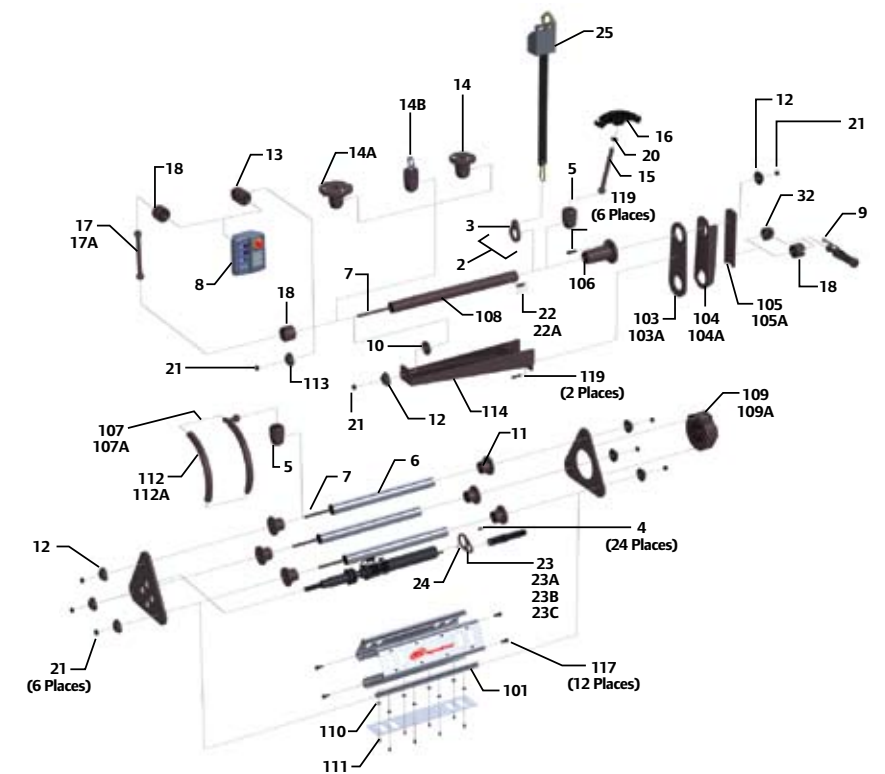
VERTICAL AND HORIZONTAL FIXTURE



Item	Description	Part Number
QUICK MULTIPLE FIXTURES		
1	Tube elbow joint	QMM-712
2	Redundant eye assembly	QMM-A463
3	Redundant eye	QMM-463-2
4	Cap head screw (M6 x 1 x 6)	QMM-F1-638
5	Tube holder assembly	QMM-A30
6	Tube - standard 1M	QMM-809-1M
7	Tie rod - standard 1M	QMM-763-1M
8	Interface module	-
9	Handle module	-
10	Tube bracket vertical	QMMV-601
11	Tube bracket horizontal	QMM-601
12	Spherical washer	QMM-248
13	Interface mount assembly	QMML-A763
14	Suspension joint - 100 Nm	QMM-TA
14A	Suspension joint - 500 Nm	QMM-TAA
14B	Suspension joint - eye bolt	QMM-T
15	Ball end shaft	QMM-221-763
16	Cable tray	QMM-221
17	Ball to ball shaft - short	QMM-696-100
17A	Ball to ball shaft - long	QMM-696-200
18	Flat / tube holder assembly	QMM-A208
19	Cotter pin	QMM-15
20	Lock nut	QMM-582
21	Hex nut (M12 x 1.75)	QMM-H1-638
22	QMM warning label	QMM-99
22A	QMM branding label	QMM-301
23	POD mount bracket - tube	QMM-765-T
23A	POD mount bracket - QM9	QMM-765-9
23B	POD mount bracket - QM7	QMM-765-7
23C	POD mount bracket - QM5	QMM-765-5
24	Cap head screw (M3 x 0.5 x 16)	QMM-765-638
25	Retractable safety strap	QMM-298
26	Custom mounting plate	-

ROTATING HORIZONTAL FIXTURE

Item	Description	Part Number
QUICK MULTIPLE FIXTURES		
31	Eye bolt (M12 x 1.75)	QMM-34
32	Plate holder assembly	QMM-A293
101	Corner spacer - 1 meter	QMM-93-1M
103	Back plate - small	QMMR-28C
103A	Back plate - large	QMMR-28
104	Back plate rib - small	QMMR-767C
104A	Back plate rib - large	QMMR-767
105	Back plate - small	QMMR-756C
105A	Back plate - large	QMMR-756
106	Suspension tube bracket	QMM-602
107	Circular handle - small	QMMR-A48C
107A	Circular handle - large	QMMR-A48
108	Suspension tube - 1M	QMM-810-1M
109	Small bearing assembly	QMMR-A24C
109A	Large bearing assembly	QMMR-A24
110	Channel nut (M6)	QMMR-305
111	Button head screw (M6)	QMMR-638
112	Grip - circular handle - small	QMMR-144GC
112A	Grip - circular handle - large	QMMR-144G
113	Tube end cap	QMM-202
114	Suspension support	QMMR-766
116	Cap head screw (M8 x 1.25 x 25)	QMM-T6-638
117	Cap head screw (M10 x 1.5 x 25)	QMM-F8-638
119	Cap head screw (M10 x 1.5 x 35)	QMM-F10-638
231	Cap head screw (M8 x 1.25 x 20)	QMM-T63-638



Customizable to your needs

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 the application.

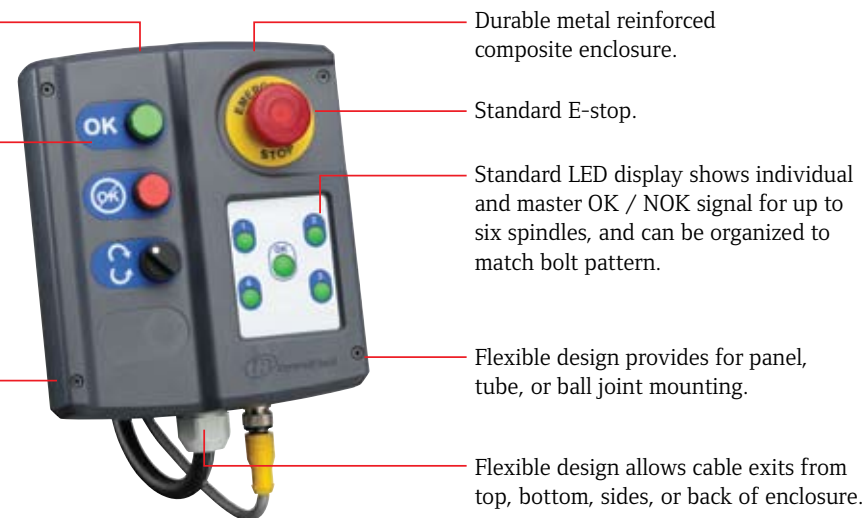
Modular design provides flexibility for easy customization.

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



Interface Module Kits and Options

Kit	QMML-A424-Kit	
Interface Options	Style 1*	Style 2*
3-position switch	QMMC-75-1	QMMC-75-2
2-position switch	QMMC-76-1	QMMC-72-2
Push button	QMMC-77-1	QMMC-77-2
Buzzer	QMMC-78-1	QMMC-78-2
Red pilot light	QMMC-79-1	QMMC-79-2
Green pilot light	QMMC-80-1	QMMC-80-2
3-position key switch	QMMC-81-1	QMMC-81-2

*Idec® **Telemechanique®



Mounting and Suspension

Display	QMM-A763 QMM-A30 QMM-A208		
Handle	QMM-A293 QMM-A30 QMM-A208		
Balancer and Torque Tube	QMM-T 250 kg - QMM-TA 250 kg 100 Nm QMM-TAA 300 kg 500 Nm		

The modular design allows for a variety of methods to mount operator interfaces and ergonomic equipment including tube, plate, and ball mounting. This intelligent approach gives you the flexibility to easily customize your system for optimal operator ergonomics and system integration.

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, the easy selection chart below provides a shortcut to getting the handle that fits your application.

Actuation options include:

- Trigger, slide switch, 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.



Handle Configurations

Configuration	Dead Handle	Trigger Only	Pneumatic Pendant	Slide Switch Only	Slide Switch Type	Slide Switch + Trigger	
						Aligned	Rotated
Ball mount	✓ QMMHB	✓ QMMHBT	✓ QMMH-A35	✓ QMMHBD QMMHBM	← Detent → ← Momentary →	✓ QMMHBTDA QMMHBTMA	✓ QMMHBTDP QMMHBTMP
Flange mount	✓ QMMHF	✓ QMMHFT	✓ QMMH-A36	✓ QMMHFD QMMHFM	← Detent → ← Momentary →	✓ QMMHFTDA QMMHFTMA	✓ QMMHFTDP QMMHFTMP
Direct mount	✓ QMMH	✓ QMMHT					

Custom engineered systems



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, spans system design, project management, installation, and after-sales support.

Proven products, proven results

World-class controllers and tools

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 set-up programming, the IC1D provides unmatched performance.

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.

Standard features

- 1/4-VGA color display (IC1D)
- Full keypad and navigation keys (IC1D)
- One-line LED display (IC1M)
- Ethernet connection
- RS232
- Eight I/O
- 1,000-cycle storage (IC1D)
- 200-cycle storage (IC1M)
- Eight instant configurations
- 256 stored configurations
- Dual power mode 120-240 V AC
- Quick set-up feature
- Small footprint (mm)
152h x 191w x 238d

Optional features

- All units are available with the following options:
- 115 V AC power cord
 - 220 V AC power cord
 - 230 V AC EU pigtail power cord
 - Cabinet mount / wall mount
 - PFCS software package
 - Plus software package
 - 16 additional I/O
 - Fieldbus cards

Languages available

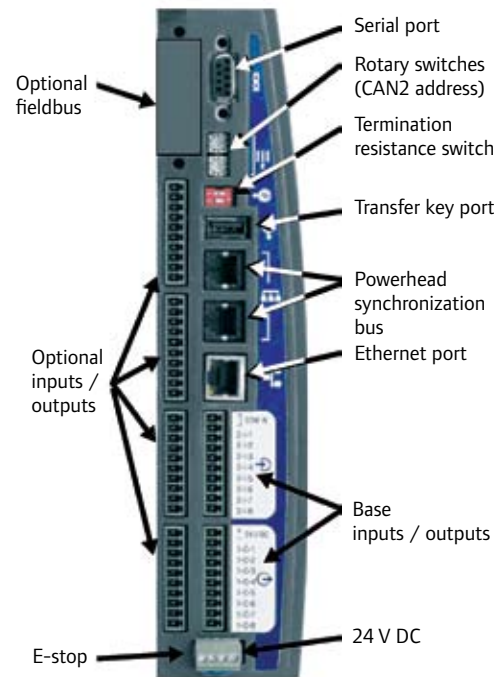
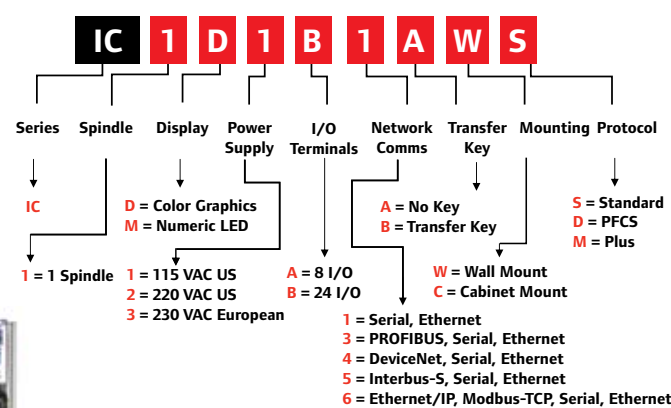
- Chinese
- English
- French
- German
- Italian
- Portuguese
- Spanish

Services and accessories

- Complete installation and repair service available
- Light tower
- Transfer key: 80150113
- Custom racks



IC Series DC Electric Controllers



QM Series

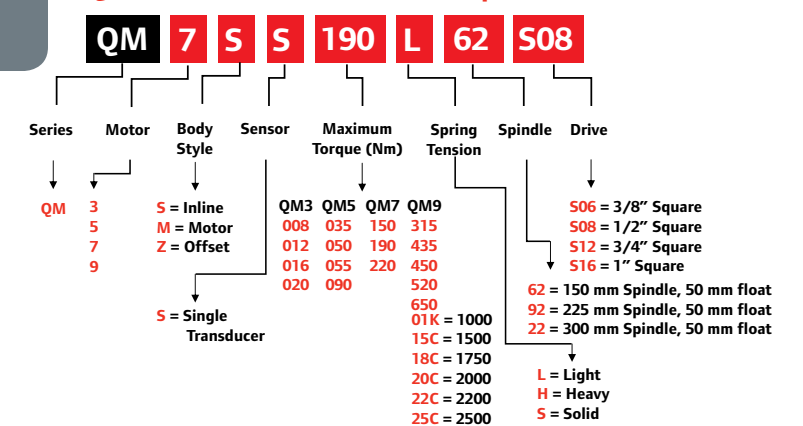


Heavy-duty motors offer excellent accuracy, maximum durability, and complete control over your fastening application. Whether used in single-spindle or multiple-spindle configurations, these world-class tools provide top-quality performance and long life.

Features

- Torque range 0.59 – 1844 ft-lb (0.8 – 2500 Nm).
- Speeds: Adjustable to 1382 rpm.
- Fully transducerized closed-loop control.
- High-duty cycle motors and components provide excellent durability.
- External electronic pod simplifies integration.
- Available with or without spindles in a variety of length and drive options.

QM Series DC Electric Fixed Spindles



World-class software



Paired with an Insight IC1D or IC1M controller and a computer, our groundbreaking ICS Software makes it possible to more precisely control and monitor your fastening processes. Optimizing your system is as simple as selecting one of two packages. Visibility of real-time data and controller status can be viewed from your desktop or other remote locations connected to your network.

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.

- Nothing new to learn — same groundbreaking software and controllers as used on our handheld series of tools.
- Available in Chinese, English, French, German, Italian and Spanish.
- Advanced tightening strategies improve joint quality.

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 ODBC-compliant database archiving, searching, and statistics processing.

Advanced Tightening Strategies

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

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

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Telephone: +52 (55) 8503 6600

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

India

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Accessories and literature

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 (10m)			QMMC-A240-10
Interface extension cable (20m)			QMMC-A240-20
Powerhead cable (2m)			QMMC-A240-2
DC Tool Cables	(3 m)	(6 m)	(10 m)
Tool cable	GEA40-CORD-3M	GEA40-CORD-6M	GEA40-CORD-10M
90° tool cable	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



Accessories

System Accessories			
Light tower			IC-LIGHT-TOWER
Palm button reset			IC-PALM-RESET
Remote selector switch	IC-SELECT-2	IC-SELECT-4	IC-SELECT-6
Retractable safety strap			QMM-298
Calibration Equipment			
ETT torque tester	3 - 30 Nm torque range		ETT-30-US
ETA torque analyzer			ETA5
Rotary transducer	3/8" sq dr, 3.8 - 75 Nm, standard		TR75S6
	3/8" sq dr, 3.8 - 75 Nm, Smart		TRD75S6
	1/2" sq dr, 9 - 180 Nm, standard		TR180S8
	1/2" sq dr, 9 - 180 Nm, Smart		TRD180S8
	3/4" sq dr, 12.5 - 250 Nm, standard		TR250S12
Stationary transducer	3/8" sq dr, 7.5 - 150 Nm, standard		TS150S6
	1/2" sq dr, 15 - 300 Nm, standard		TS300S8
	3/4" sq dr, 50 - 1000 Nm, standard		TS1000S12
Expert torque wrench	ETW-E75	ETW-E75	ETW-E180

Literature

Catalog Name	Form Number	Catalog Name	Form Number
DC tools	AS-0206-061	Torque arms	IRPS-0907-044
QA4/6/8 air tools	IRPS-1007-053	Accessories	IR-0605-097
Audit wrench	ASM-1106-128	Pulse tools	SW041107
Assembly tools	IRPS-1007-052	Ergonomic handling	MHD55226
Feed drill	52475-AT-C	Impact sockets	IRPS-0506-016

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

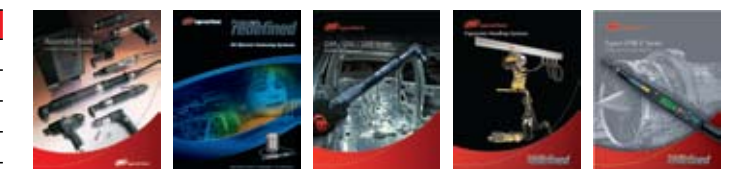
Suspension and Reaction Devices

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)	
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)	
Torque Reaction Arms					
See Literature listed below for more details					
Model	Max Reach in (mm)	Lift Capacity @ 90 psi lb (kg)	Torque Capacity ft-lbs (Nm)	Vertical Travel in (mm)	Height in (mm)
QTA270	60 (1524)	22 (10)	270 (199)	18.8 (477)	79 (2000)
QTA475	79 (2007)	50 (23)	475 (350)	23.2 (590)	79 (2000)

Manuals

Series	Product	Parts	Safety
Fixture systems	16607228	16607103	16607095

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



Assembly Tools DC Fastening QA4/6/8 Tools Ergo Handling Audit Wrench