Assembly Solutions INDUSTRIAL

REAL TOOLS FOR REAL WORK

Ingersoll Rand

Tập đoàn Ingersoll Rand là một trong những tập đoàn công nghiệp hàng đầu thế giới, với hơn 150 năm kinh nghiệm phát triển các giải pháp và sản phẩm công nghiệp chất lượng cao. Công ty đã có mặt tại hơn 190 quốc gia với ảnh hưởng toàn cầu và là một thương hiệu nổi tiếng trong lĩnh vực công nghiệp bao gồm các thương hiêu như ARO, Ingersoll Rand, Club Car,Therm King và Trane. Tính đến tháng 1 năm 2016, doanh số của tập đoàn là hơn 15 tỷ USD với tổng số nhân viên là 50.000 người.

Lịch sử hình thành và phát triển của Ingersoll Rand bắt đầu từ năm 1871 khi các nhà sáng lập Simon Ingersoll và người anh em kết hợp tạo ra máy khoan đất đầu tiên. Trong những năm sau đó, công ty tiếp tục phát triển và mở rộng sản xuất ra các thiết bị khác như máy nén khí, dụng cụ, thiết bị nâng hạ, bơm chuyên dụng và các sản phẩm công nghiệp khác.

Trong lĩnh vực chế tạo, lắp ráp, sản xuất ingersoll rand đã và đang phát triển, nâng cấp các dụng cụ thông minh. Cho phép người dùng không mất thời gian đào tạo mà vẫn hoàn thành được các công việc phức tạp trong các nhà máy, dây chuyền lắp ráp

Ngoài các công cụ thông minh, ARO - Thương hiệu của tập đoàn Ingersoll Rand cũng là chuyên gia trong lĩnh vực cung cấp các giải pháp về bơm keo nắp động cơ, keo dán cửa, chất bịt kín nắp động cơ, chất làm kín kính chắn gió, bơm dầu trục chuyển động, dầu trợ lực lái, dầu động cơ, bơm mỡ vòng bi, bơm tuần hoàn sơn, bơm nước thải... Với tiêu chí đặt chất lượng lên hàng đầu, sản phẩm sẽ luôn mang lại giá trị năng suất và hiệu quả làm việc tốt nhất.

Các sản phẩm của Ingersoll Rand không chỉ đáp ứng các yêu cầu về hiệu suất và năng suất, mà còn đảm bảo an toàn cho người sử dụng. Sự an toàn luân được đặt lên hàng đầu, các thiết kế sản phẩm với các tính năng bảo vệ để giảm thiểu nguy cơ tai nạn và thương tích cho người sử dụng. Chính vì vậy Ingersoll Rand là luân là lựa chọn số 1 về chất lượng, an toàn và năng suất lao động.

Tân Việt Phát Equipment.,JSC - Vinh hạnh là đại diện chính hãng cho tập đoàn Ingersoll Rand - USA tại Việt Nam. Chúng tôi cam kết sẽ là người thay mặt của tập đoàn Ingersoll Rand mang tới những sản phẩm và giải pháp tốt nhất đến với khách hàng.

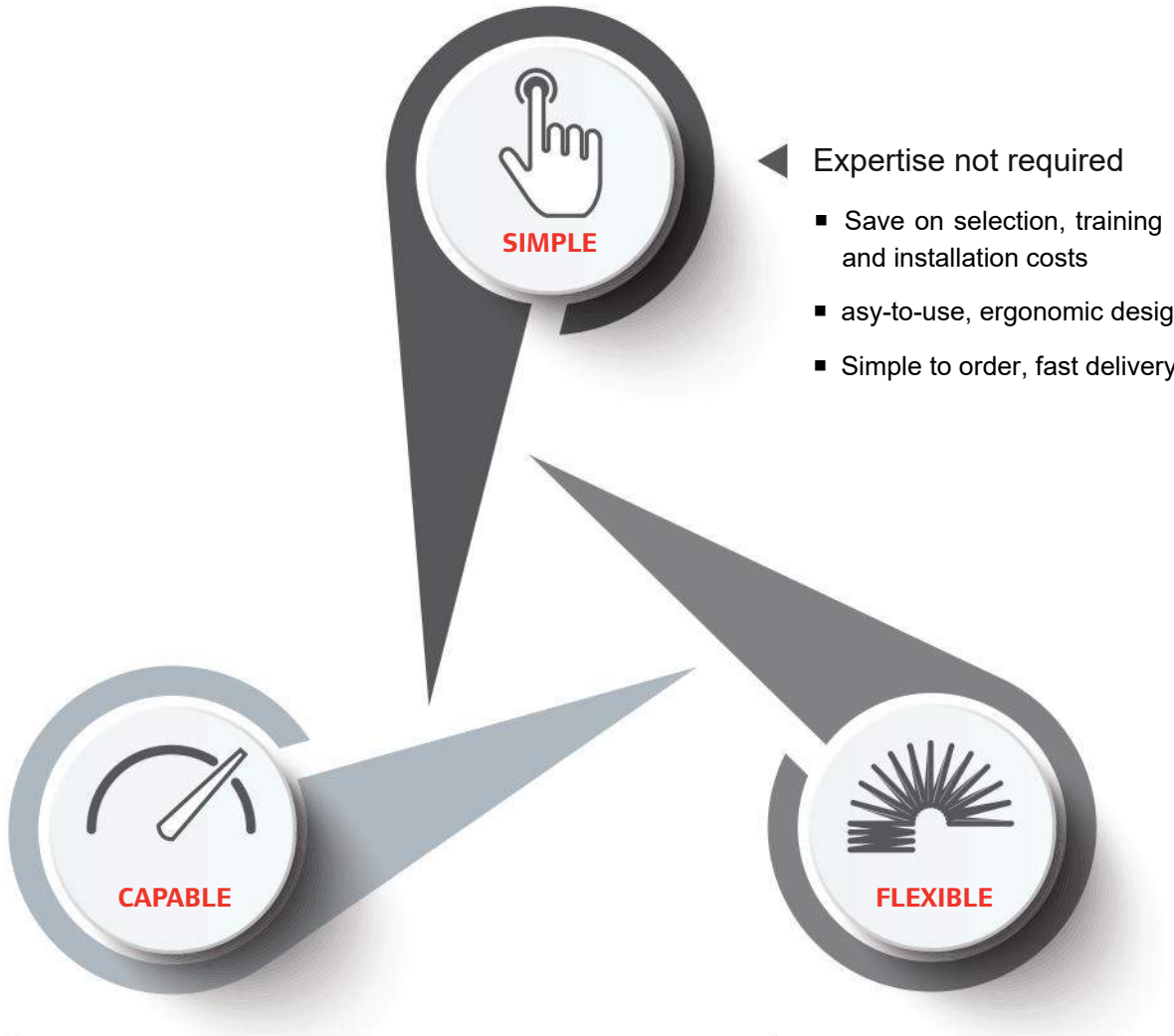
DC ELECTRIC FASTENING SYSTEMS

DC Electric High Precision Tools

Descriptions

Taking total control of your fastening process doesn't have to be complicated. Our comprehensive family of DC electric fastening systems deliver simple, flexible and capable solutions for all of your assembly requirements. No matter the industry or application, you can count on Ingersoll Rand® as a trusted partner to help you get the job done right.

Different,by design



Expertise not required

- Save on selection, training and installation costs
- asy-to-use, ergonomic designs
- Simple to order, fast delivery

Meet your requirements

- Performance that optimizes your productivity
- Durable designs lower cost of ownership
- Advanced diagnostics identify problems and enhance safety

Easily implement change

- Easy line integration and rebalancing
- Multiple product options

Custom solutions available

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

Fixtured 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.

Controllers and Software

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.

Fixtured Systems

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.

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

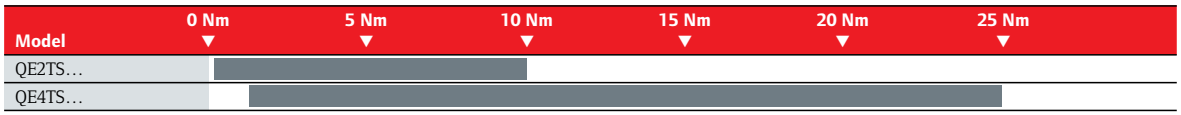
We design our tools with the end user and your bottom line in mind. Keeping the operator happy is one key factor in making your line run efficiently. But we don't stop there. Our feature-rich line of tools provides best-in-class performance and cost-effective solutions to meet your critical fastening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

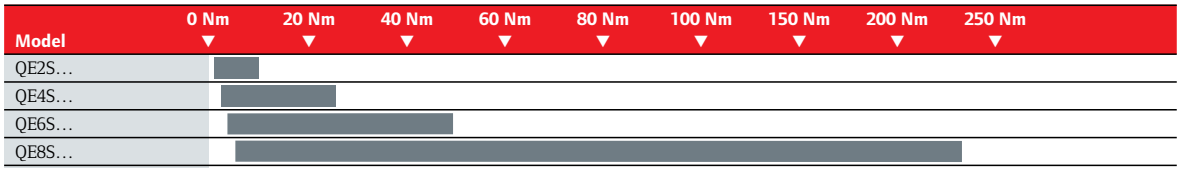
All QE Series tools offer the performance and ergonomics operators love. Our commitment to the highest quality products means your operators will focus on the workpiece and forget about the tool.

Handheld tools

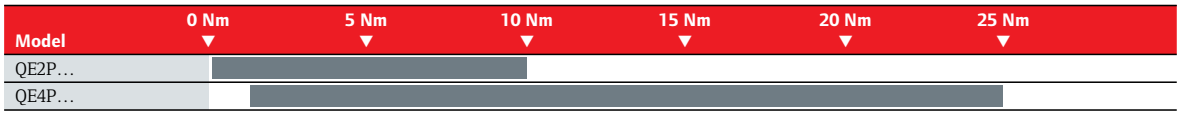
Inline Push-to-Start



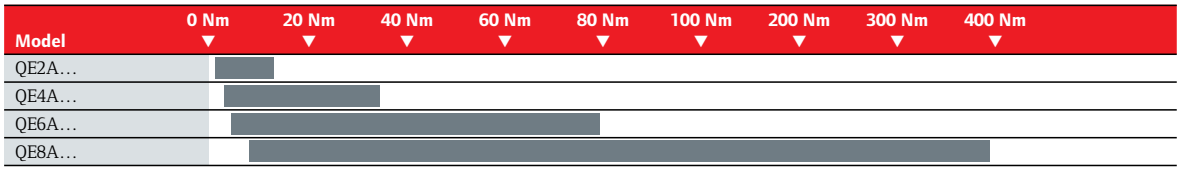
Inline



Pistol Grip

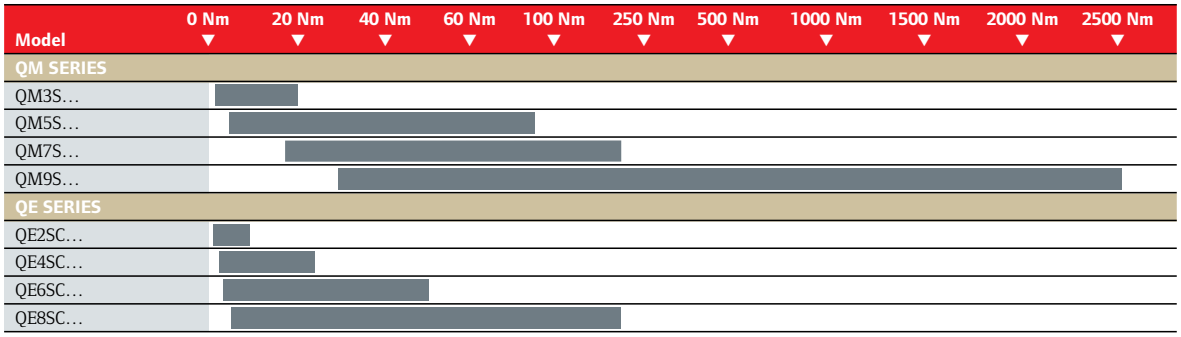


Angle

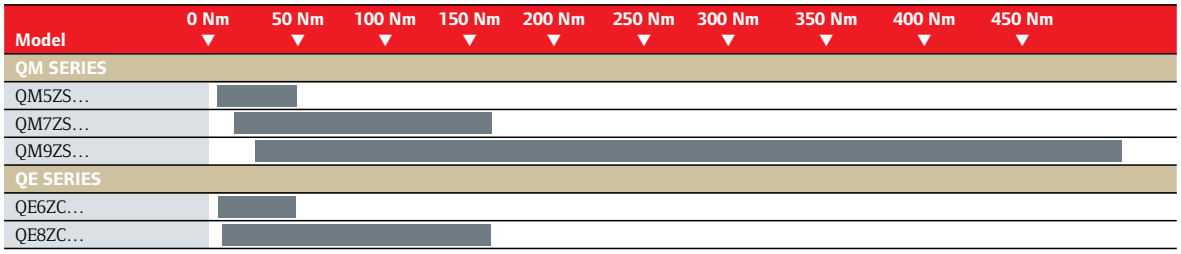


Fixtured tools

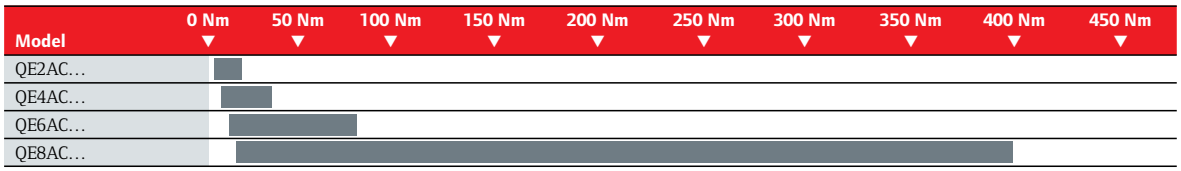
Inline



Inline Offset



Angle



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

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

QE 2 T S 010 P 11 S04

Series
QE

Motor
2

Body Style
A = Angle
S = Inline
T = Inline (Push to Start)
P = Pistol

Tool Activation
T = Trigger
L = Lever
P = Trigger + Push
S = Push to Start
C = Remote Start

Maximum Torque (Nm)

Inline	Angle
002	003
003	005
005	007
007	010
010	015

Mounting
Angle
A1 = Size 1 Anglehead
A3 = Size 3 Anglehead

Inline / Pistol
10 = Pistol Solid
11 = Push to Start, Trigger + Push
30 = 50 mm Spindle, no float
32 = 50 mm Spindle, 19 mm float

Motor
M000 = Motor (Inline, Pistol)

P = Standard Gearcase
F = Flanged Gearcase

Output
Q04 = 1/4" Quick Change
H04 Hex
S04 = 1/4" Square
S06 = 3/8" Square
= 1/4" Internal

Drive

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

High durability cable and connections keep lifecycle costs low

Super bright LED headlights illuminate workpiece

RoHS compliant

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

Ergonomically contoured grips enhance operator comfort

Brilliant blue reverse indicator light signals mode to operator

Compatible with all ICD and ICM controllers and ICS software

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

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

Ergonomically contoured grips enhance operator comfort

Multiple cable lengths in inline and 90 degree configurations

Sculpted hand rest helps reduce operator fatigue and slipping

Pistol, inline, angle, and motor configurations

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

Multiple drive and head sizes including inline floating spindle

Complete line of accessories available to enhance your productivity

Preventative Maintenace Alarms

High temperature motor protection

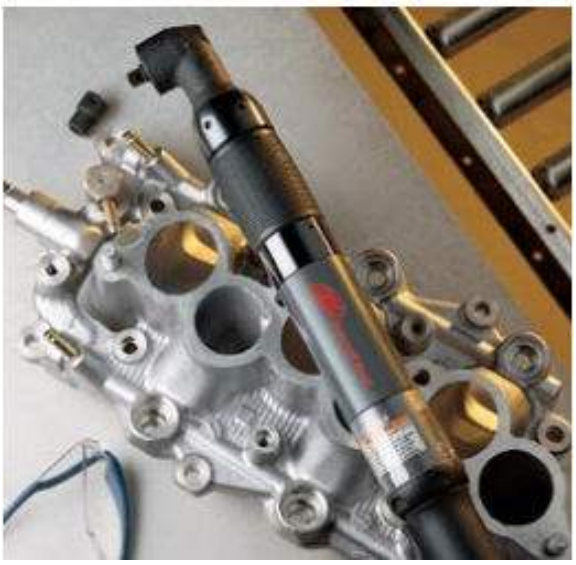
TactAlert provides positive tactile operator feedback without distraction from the task at hand

QE4 / QE6 / QE8 Series

QE4 / QE6 /QE 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 4 A T 013 P A2 S04

Series
QE

Motor
4
6
8

Body Style
A = Angle
S = Inline
T = Inline (Push to Start)
Z = Offset
M = Motor
P = Pistol

Tool Activation
T = Trigger
L = Lever
E = Extended Lever
P = Trigger + Push
S = Push to Start
C = Remote Start

Maximum Torque (Nm)

QE4 Angle	QE6 Angle	QE8 Angle
013	030	065
020	040	070
027	055	090
034	080	115
		150
		225
		400
Inline	**Inline**	**Inline**
010	020	055
015	028	070
020	033	090
025	050	150
		230

Mounting
P = Standard Gearcase
F = Flanged Gearcase
R = Reaction Bar
B = Bolt on Flange, 1pc.
J = Bolt on Flange, 2pc.

Output

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

Drive
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

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

Sculpted hand rest helps reduce operator fatigue

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

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

Complete line of accessories available to enhance your productivity

Advanced tightening strategies

High temperature motor protection

Programmable momentary switch

Descriptions

QM Series tools are the workhorse for your fixtured spindle applications. With four motor size platforms that provide broad torque, speed and size flexibility, Ingersoll Rand® QM spindles are different, by design. They are not only simple to use, but also offers excellent versatility that enables them to deliver the highest levels of performance in the industry. This series of spindles can be used in a wide range of assembly applications and fixture designs, offering ultimate flexibility.

Ki exyvi w

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UQ Wi vri wxss pw

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	Drive

- **Series:** QM
- **Motor:** 3, 5, 7, 9
- **Body Style:** S = Inline; M = Motor; Z = Offset
- **Sensor:** S = Single Transducer
- **Maximum Torque (Nm):**

QM3	QM5	QM7	QM9
008	035	150	315
012	050	190	435
016	055	220	450
020	090		520
			650

- **Spring Tension:** 01K = 1000; 15C = 1500; 18C = 1750; 20C = 2000; 25C = 2500
- **Spindle:** L = Light; H = Heavy; S = Solid
- **Drive:** S06 = 3/8" Square; S08 = 1/2" Square; S12 = 3/4" Square; S16 = 1" Square
- **Spindle:** 62 = 150 mm Spindle, 50 mm float; 92 = 225 mm Spindle, 50 mm float; 22 = 300 mm Spindle, 50 mm float

UQ Wi vri w Ki exyvi w

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

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

Offset heads available for tight clearance applications

Preventative maintenance alarms

Complete line of accessories available to enhance your productivity

Advanced tightening strategies

High temperature motor protection

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

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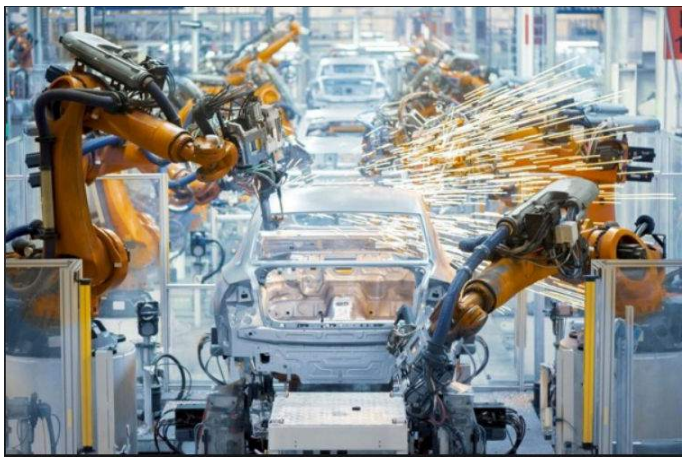

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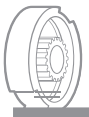

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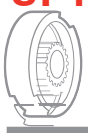
UI 2QU002Q10R04	46774634	0.3 ° 1.2	1.5	N2	3000	0.66	250	19	¼" ⬡	RDE Dpouspnfst
UI 2QU002Q10T04	46774642	0.3 ° 1.2	1.5	N2	3000	0.66	242	19	¼" □	RDE Dpouspnfst
UI 2QU003Q10R04	46774667	0.6 ° 2.4	3	N2	2450	0.66	250	19	¼" ⬡	RDE Dpouspnfst
UI 2QU003Q10T04	46774675	0.6 ° 2.4	3	N2	2450	0.66	242	19	¼" □	RDE Dpouspnfst
UI 2QU005Q10R04	46774691	1.0 ° 4.0	5	N2	1700	0.66	250	19	¼" ⬡	RDE Dpouspnfst
UI 2QU005Q10T04	46774709	1.0 ° 4.0	5	N2	1700	0.66	242	19	¼" □	RDE Dpouspnfst
UI 2QU007Q10R04	46774725	1.3 ° 5.6	7	N2	1250	0.66	250	19	¼" ⬡	RDE Dpouspnfst
UI 2QU007Q10T04	46774733	1.3 ° 5.6	7	N2	1250	0.66	242	19	¼" □	RDE Dpouspnfst
UI 2QU010Q10R04	46774758	2.0 ° 8.0	10	N4	850	0.66	250	19	¼" ⬡	RDE Dpouspnfst
UI 2QU010Q10T04	46774766	2.0 ° 8.0	10	N4	850	0.66	242	19	¼" □	RDE Dpouspnfst
UI 4QU010Q10R04	80175607	2.0 ° 8.0	10	N4	1820	1.20	243		¼" ⬡	RDE Dpouspnfst
UI 4QU010Q10T04	80175615.5J	2.0 ° 8.0	10	N4	1820	1.20	230		¼" □	RDE Dpouspnfst
UI 4QU015Q10R04	80175706.5J	3.0 ° 12.0	15	N5	1220	1.20	243		¼" ⬡	RDE Dpouspnfst
UI 4QU015Q10T04	80175714.5J	3.0 ° 12.0	15	N5	1220	1.20	230		¼" □	RDE Dpouspnfst
UI 4QU020Q10T06	80175805.5J	4.0 ° 16.0	20	N6	900	1.20	234		¼" □	RDE Dpouspnfst
UI 4QU025Q10T06	80175888.5J	5.0 ° 20.0	25	N6	710	1.20	234		¼" □	RDE Dpouspnfst
USJHHFS + QVTI TUBSU										
UI 2QQ002Q11R04	46774337	0.3 ° 1.2	1.5	N2	3000	0.66	250	19	¼" ⬡	RDE Dpouspnfst
UI 2QQ002Q11T04	46774345	0.3 ° 1.2	1.5	N2	3000	0.66	242	19	¼" □	RDE Dpouspnfst
UI 2QQ003Q11R04	46774360	0.6 ° 2.4	3	N2	2450	0.66	250	19	¼" ⬡	RDE Dpouspnfst
UI 2QQ003Q11T04	46774378	0.6 ° 2.4	3	N2	2450	0.66	242	19	¼" □	RDE Dpouspnfst
UI 2QQ005Q11R04	46774394	1.0 ° 4.0	5	N2	1700	0.66	250	19	¼" ⬡	RDE Dpouspnfst
UI 2QQ005Q11T04	46774402	1.0 ° 4.0	5	N2	1700	0.66	242	19	¼" □	RDE Dpouspnfst
UI 2QQ007Q11R04	46774428	1.3 ° 5.6	7	N2	1250	0.66	250	19	¼" ⬡	RDE Dpouspnfst
UI 2QQ007Q11T04	46774436	1.3 ° 5.6	7	N2	1250	0.66	242	19	¼" □	RDE Dpouspnfst
UI 2QQ010Q11R04	46774451	2.0 ° 8.0	10	N4	850	0.66	250	19	¼" ⬡	RDE Dpouspnfst
UI 2QQ010Q11T04	46774469	2.0 ° 8.0	10	N4	850	0.66	242	19	¼" □	RDE Dpouspnfst
QVTI TUBSU										
UI 2QT002Q11R04	46774485	0.3 ° 1.2	1.5	N2	3000	0.66	250	19	¼" ⬡	RDE Dpouspnfst
UI 2QT002Q11T04	46774493	0.3 ° 1.2	1.5	N2	3000	0.66	242	19	¼" □	RDE Dpouspnfst
UI 2QT003Q11R04	46774519	0.6 ° 2.4	3	N2	2450	0.66	250	19	¼" ⬡	RDE Dpouspnfst
UI 2QT003Q11T04	46774527	0.6 ° 2.4	3	N2	2450	0.66	242	19	¼" □	RDE Dpouspnfst
UI 2QT005Q11R04	46774543	1.0 ° 4.0	5	N2	1700	0.66	250	19	¼" ⬡	RDE Dpouspnfst
UI 2QT005Q11T04	46774550	1.0 ° 4.0	5	N2	1700	0.66	242	19	¼" □	RDE Dpouspnfst
UI 2QT007Q11R04	46774576	1.3 ° 5.6	7	N2	1250	0.66	250	19	¼" ⬡	RDE Dpouspnfst
UI 2QT007Q11T04	46774584	1.3 ° 5.6	7	N2	1250	0.66	242	19	¼" □	RDE Dpouspnfst
UI 2QT010Q11R04	46774600	2.0 ° 8.0	10	N4	850	0.66	250	19	¼" ⬡	RDE Dpouspnfst
UI 2QT010Q11T04	46774618	2.0 ° 8.0	10	N4	850	0.66	242	19	¼" □	RDE Dpouspnfst

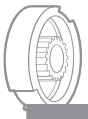
UI 41UI 61UI 81UI AWi vni wMer hmi ph Xss pwErl pi



RF2BM003QB1T04

Vi lO	GGR	Rq	Rq		vtq	ol	qq	qq	qq	rr	a
MFWFS DPOUSPM											
UI 2BM003QB1T04	46774006	0.8 ° 3.2	4	N2	1750	0.83	312	27	9	¼" □	RDE Dpouspnfst
UI 2BM005QB3I 04	46774196	1.0 ° 4.0	5	N2	1590	0.95	318	34	13	¼" ○	RDE Dpouspnfst
UI 2BM005QB3R04	46774204	1.0 ° 4.0	5	N2	1590	0.95	318	34	13	¼" ○	RDE Dpouspnfst
UI 2BM005QB3T04	46774170	1.0 ° 4.0	5	N2	1590	0.95	318	34	13	¼" □	RDE Dpouspnfst
UI 2BM005QB3T06	46774188	1.0 ° 4.0	5	N2	1590	0.95	318	34	13	⅜" □	RDE Dpouspnfst
UI 2BM007QB3I 04	46774238	1.4 ° 5.6	7	N2	1100	0.95	318	34	13	¼" ○	RDE Dpouspnfst
UI 2BM007QB3R04	46774246	1.4 ° 5.6	7	N2	1100	0.95	318	34	13	¼" ○	RDE Dpouspnfst
UI 2BM007QB3T06	46774220	1.4 ° 5.6	7	N2	1100	0.95	318	34	13	⅜" □	RDE Dpouspnfst
UI 2BM010QB3I 04	46774279	2.0 ° 8.0	10	N4	730	0.95	318	34	13	¼" ○	RDE Dpouspnfst
UI 2BM010QB3R04	46774287	2.0 ° 8.0	10	N4	730	0.95	318	34	13	¼" ○	RDE Dpouspnfst
UI 2BM010QB3T04	46774253	2.0 ° 8.0	10	N4	730	0.95	318	34	13	¼" □	RDE Dpouspnfst
UI 2BM010QB3T06	46774261	2.0 ° 8.0	10	N4	730	0.95	318	34	13	⅜" □	RDE Dpouspnfst
UI 2BM015QB3I 04	46774311	3.0 ° 12.0	15	N4	560	0.95	318	34	13	¼" ○	RDE Dpouspnfst
UI 2BM015QB3R04	46774329	3.0 ° 12.0	15	N4	560	0.95	318	34	13	¼" ○	RDE Dpouspnfst
UI 2BM015QB3T04	46774295	3.0 ° 12.0	15	N4	560	0.95	318	34	13	¼" □	RDE Dpouspnfst
UI 2BM015QB3T06	46774303	3.0 ° 12.0	15	N4	560	0.95	318	34	13	⅜" □	RDE Dpouspnfst
UI 4BU013QB2I 04	16676876	3.0 ° 10.0	13	N5	1200	1.30	383	32	13	¼" ○	RDE Dpouspnfst
UI 4BU013QB2R04	16676884	3.0 ° 10.0	13	N5	1200	1.30	383	32	13	¼" ○	RDE Dpouspnfst
UI 4BU013QB2T04	18427146	3.0 ° 10.0	13	N5	1200	1.30	383	32	13	¼" □	RDE Dpouspnfst
UI 4BU013QB2T06	18427153	3.0 ° 10.0	13	N5	1200	1.30	383	32	13	⅜" □	RDE Dpouspnfst
UI 4BU020QB2I 04	16676918	4.0 ° 16.0	20	N6	820	1.30	383	32	13	¼" ○	RDE Dpouspnfst
UI 4BU020QB2R04	16676926	4.0 ° 16.0	20	N6	820	1.30	383	32	13	¼" ○	RDE Dpouspnfst
UI 4BU020QB2T04	18427179	4.0 ° 16.0	20	N6	820	1.30	383	32	13	¼" □	RDE Dpouspnfst
UI 4BU020QB2T06	16675464.5J	4.0 ° 16.0	20	N6	820	1.30	383	32	13	⅜" □	RDE Dpouspnfst
UI 4BU027QB4T06	18427187	5.0 ° 22.0	27	N8	600	1.30	387	42	17	⅜" □	RDE Dpouspnfst
UI 4BU027QB4T08	18427195	5.0 ° 22.0	27	N8	600	1.30	387	42	17	½" □	RDE Dpouspnfst
UI 4BU034QB4T06	16675167	7.0 ° 27.0	34	N8	470	1.30	387	42	17	⅜" □	RDE Dpouspnfst
UI 4BU034QB4T08	16676967	7.0 ° 27.0	34	N8	470	1.30	387	42	17	½" □	RDE Dpouspnfst
UI 6BU030QB2T06	16674749	6.0 ° 24.0	30	N8	1230	1.90	442	32	13	⅜" □	RDE Dpouspnfst
UI 6BU030QB4T08	18427351	6.0 ° 24.0	30	N8	1230	1.90	447	42	17	½" □	RDE Dpouspnfst
UI 6BU040QB4T06	16675472	8.0 ° 32.0	40	N8	910	1.90	447	42	17	⅜" □	RDE Dpouspnfst
UI 6BU040QB4T08	16675480	8.0 ° 32.0	40	N8	910	1.90	447	42	17	½" □	RDE Dpouspnfst
UI 6BU055QB5T08	47130174	11.0 ° 44.0	55	N10	650	1.90	453	45	22	½" □	RDE Dpouspnfst
UI 6BU080QB5T08	16674947	16.0 ° 64.0	80	N10	440	1.90	453	45	22	½" □	RDE Dpouspnfst
UI 8BU065QB5T08	18427526	13.0 ° 52.0	65	N10	1200	2.90	516	45	22	½" □	RDE Dpouspnfst
UI 8BU070QB5T08	18427534	14.0 ° 56.0	70	N10	1100	2.90	516	45	22	½" □	RDE Dpouspnfst
UI 8BU090QB5T08	16675662	17.0 ° 72.0	90	N10	850	2.90	516	45	22	½" □	RDE Dpouspnfst
UI 8BU115QB6T08	15969975	23.0 ° 92.0	115	N12	660	2.90	520	50	24	½" □	RDE Dpouspnfst
UI 8BU150QB6T08	16675779	30.0 ° 120.0	150	N12	510	2.90	520	50	24	½" □	RDE Dpouspnfst
UI 8BU225QB7T12	16679086	45.0 ° 180.0	225	N16	310	4.10	575	55	28	¾" □	RDE Dpouspnfst
UI 8BU400QB8T12	16679094	80.0 ° 320.0	400	N18	170	6.00	635	69	33	¾" □	RDE Dpouspnfst

UI 41UI 61UI 81UI AWi vri wMer hmi ph Xs spwNt pr i

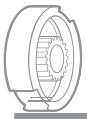


RF2TM005Q10R04

RF4TU010C21R04

Vi lO	GGR	Rq	Rq		vtq	ol	qq	qq	qq	qq	rr	a
MFWFS DPOUSPM												
UI 2TM002G32T06	46774832	0.3 ° 1.2	1.5	N2	3000	0.91	342	19	32	19	3⁄8" □	RDE Dpouspmfist
UI 2TM002Q10R04	46774881	0.3 ° 1.2	1.5	N2	3000	0.60	250			22	1⁄4" ⬡	RDE Dpouspmfist
UI 2TM002Q10T04	46774899	0.3 ° 1.2	1.5	N2	3000	0.60	242			22	1⁄4" □	RDE Dpouspmfist
UI 2TM003G32T06	46774840	0.6 ° 2.4	3	N2	2450	0.91	342	19	32	19	3⁄8" □	RDE Dpouspmfist
UI 2TM003Q10R04	46774915	0.6 ° 2.4	3	N2	2450	0.60	250			22	1⁄4" ⬡	RDE Dpouspmfist
UI 2TM003Q10T04	46774923	0.6 ° 2.4	3	N2	2450	0.60	242			22	1⁄4" □	RDE Dpouspmfist
UI 2TM005G32T06	46774857	1.0 ° 4.0	5	N2	1700	0.91	342	19	32	19	3⁄8" □	RDE Dpouspmfist
UI 2TM005Q10R04	46774949	1.0 ° 4.0	5	N2	1700	0.60	250			22	1⁄4" ⬡	RDE Dpouspmfist
UI 2TM005Q10T04	46774956	1.0 ° 4.0	5	N2	1700	0.60	242			22	1⁄4" □	RDE Dpouspmfist
UI 2TM007G32T06	46774865	1.3 ° 5.6	7	N2	1250	0.91	342	19	32	19	3⁄8" □	RDE Dpouspmfist
UI 2TM007Q10R04	46774972	1.3 ° 5.6	7	N2	1250	0.60	250			22	1⁄4" ⬡	RDE Dpouspmfist
UI 2TM007Q10T04	46774980	1.3 ° 5.6	7	N2	1250	0.60	242			22	1⁄4" □	RDE Dpouspmfist
UI 2TM010G32T06	46774873	2.0 ° 8.0	10	N4	850	0.91	342	19	32	19	3⁄8" □	RDE Dpouspmfist
UI 2TM010Q10R04	46775003	2.0 ° 8.0	10	N4	850	0.60	250			22	1⁄4" ⬡	RDE Dpouspmfist
UI 2TM010Q10T04	46775011	2.0 ° 8.0	10	N4	850	0.60	242			22	1⁄4" □	RDE Dpouspmfist
UI 4TU010C20T06		2.0 ° 8.0	10	N4	1820	1.20	386		40	25	3⁄8" □	RDE Dpouspmfist
UI 4TU010C21T06	16985327	2.0 ° 8.0	10	N4	1820	1.20	386	19	40	25	3⁄8" □	RDE Dpouspmfist
UI 4TU015C20T06	48389555	3.0 ° 11.0	15	N5	1220	1.20	386		40	25	3⁄8" □	RDE Dpouspmfist
UI 4TU015C21T06	16985350	3.0 ° 11.0	15	N5	1220	1.20	386	19	40	25	3⁄8" □	RDE Dpouspmfist
UI 4TU020C20T06	45501988	4.0 ° 16.0	20	N6	900	1.20	386		40	25	3⁄8" □	RDE Dpouspmfist
UI 4TU020C21T06	16985384	4.0 ° 16.0	20	N6	900	1.20	386	19	40	25	3⁄8" □	RDE Dpouspmfist
UI 4TU025C20T06	48394746	5.0 ° 20.0	25	N6	710	1.20	386		40	25	3⁄8" □	RDE Dpouspmfist
UI 4TU025C21T06	16985418	5.0 ° 20.0	25	N6	710	1.20	386	19	40	25	3⁄8" □	RDE Dpouspmfist
UI 6TU020C41T06	10564946.5J	4.0 ° 16.0	20	N6	1840	2.10	501	19	113	27	3⁄8" □	RDE Dpouspmfist
UI 6TU020G61T06	10565638	4.0 ° 16.0	20	N6	1840	2.10	544	38	144	27	3⁄8" □	RDE Dpouspmfist
UI 6TU028C41T06	16985434	6.0 ° 22.0	28	N8	1360	2.10	501	19	113	27	3⁄8" □	RDE Dpouspmfist
UI 6TU028G61T06	10565786	6.0 ° 22.0	28	N8	1360	2.10	544	38	144	27	3⁄8" □	RDE Dpouspmfist
UI 6TU033C41T06	16985442	7.0 ° 26.0	33	N8	1130	2.10	501	19	113	27	3⁄8" □	RDE Dpouspmfist
UI 6TU033G61T06	10566321.5J	7.0 ° 26.0	33	N8	1130	2.10	544	38	144	27	3⁄8" □	RDE Dpouspmfist
UI 6TU050C41T08	16985459	10.0 ° 40.0	50	N10	760	2.10	501	19	113	27	1⁄2" □	RDE Dpouspmfist
UI 6TU050G61T08	10566826.5J	10.0 ° 40.0	50	N10	760	2.10	544	38	144	27	1⁄2" □	RDE Dpouspmfist
UI 8TU055C41T08	10567956.5J	11.0 ° 44.0	55	N10	1470	3.00	557	19	109	30	1⁄2" □	RDE Dpouspmfist
UI 8TU055G61T08	10568004.5J	11.0 ° 44.0	55	N10	1470	3.00	608	38	141	30	1⁄2" □	RDE Dpouspmfist
UI 8TU070C41T08	16985475	14.0 ° 56.0	70	N10	1160	3.00	557	19	109	30	1⁄2" □	RDE Dpouspmfist
UI 8TU070G61T08	10568178.5J	14.0 ° 56.0	70	N10	1160	3.00	608	38	141	30	1⁄2" □	RDE Dpouspmfist
UI 8TU090C41T08	16675753	18.0 ° 72.0	90	N10	900	3.00	557	19	109	30	1⁄2" □	RDE Dpouspmfist
UI 8TU090G61T08	10568277.5J	18.0 ° 72.0	90	N10	900	3.00	608	38	141	30	1⁄2" □	RDE Dpouspmfist
UI 8TU150C41T08	16985483	30.0 ° 120.0	150	N12	500	3.40	572	19	109	31	1⁄2" □	RDE Dpouspmfist
UI 8TU150G61T08	10568327.5J	30.0 ° 120.0	150	N12	500	3.40	623	38	150	31	1⁄2" □	RDE Dpouspmfist
UI 8TU230G61T08	45497187	46.0 ° 184.0	230	N18	340	5.50	710	38	150	36	1⁄2" □	RDE Dpouspmfist
UI 8TU230G62T12	18427674	46.0 ° 184.0	230	N18	340	5.50	717	38	155	36	3⁄4" □	RDE Dpouspmfist
UI 8TU230G82T12	45601366	46.0 ° 184.0	230	N18	340	5.50	768	38	155	36	3⁄4" □	RDE Dpouspmfist

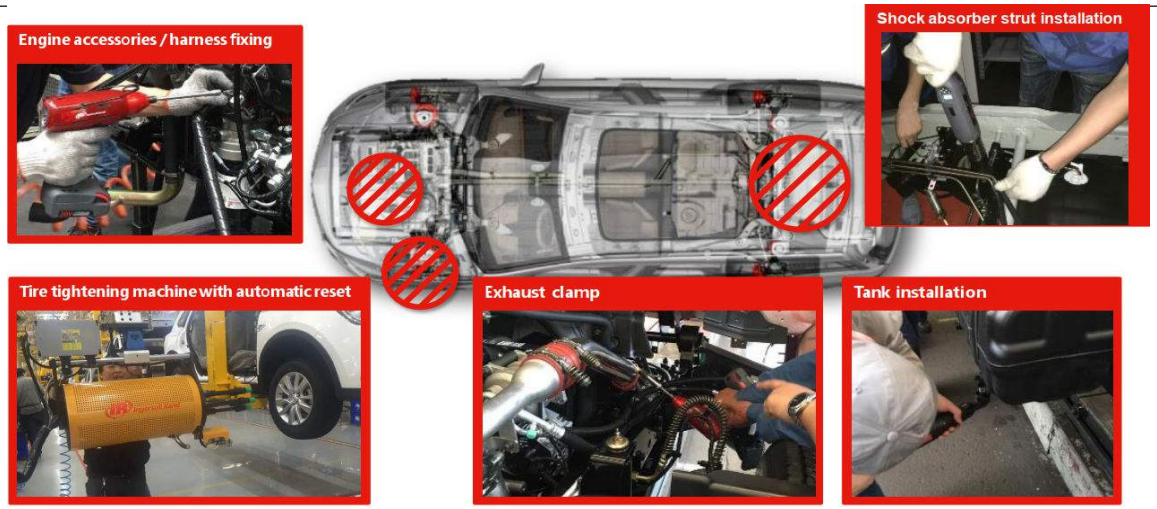
UI 41UI 6 Wi vri wMer hmi ph Xs s pwNt pr i



RF2UT002Q10R04

RF4UT015S11R04

Vi lO	GGR	Rq	Rq		vtq	ol	q q	q q	q q	q q	rr	a
MFWFS + QVTI TUBSU												
UI 2TQ002Q11R04	46775037	0.3 ° 1.2	1.5	N2	3000	0.60	250			22	¼"	RDE Dpouspmfst
UI 2TQ002Q11T04	46775045	0.3 ° 1.2	1.5	N2	3000	0.60	242			22	¼"	RDE Dpouspmfst
UI 2TQ003Q11R04	46775060	0.6 ° 2.4	3	N2	2450	0.60	250			22	¼"	RDE Dpouspmfst
UI 2TQ003Q11T04	46775078	0.6 ° 2.4	3	N2	2450	0.60	242			22	¼"	RDE Dpouspmfst
UI 2TQ005Q11R04	46775094	1.0 ° 4.0	5	N2	1700	0.60	250			22	¼"	RDE Dpouspmfst
UI 2TQ005Q11T04	46775102	1.0 ° 4.0	5	N2	1700	0.60	242			22	¼"	RDE Dpouspmfst
UI 2TQ007Q11R04	46775128	1.3 ° 5.6	7	N2	1250	0.60	250			22	¼"	RDE Dpouspmfst
UI 2TQ007Q11T04	46775136	1.3 ° 5.6	7	N2	1250	0.60	242			22	¼"	RDE Dpouspmfst
UI 2TQ010Q11R04	46775151	2.0 ° 8.0	10	N4	850	0.60	250			22	¼"	RDE Dpouspmfst
UI 2TQ010Q11T04	46775169	2.0 ° 8.0	10	N4	850	0.60	242			22	¼"	RDE Dpouspmfst
QVTI TUBSU												
UI 2UT002Q11R04	46775185	0.3 ° 1.2	1.5	N2	3000	0.57	250			22	¼"	RDE Dpouspmfst
UI 2UT002Q11T04	46775193	0.3 ° 1.2	1.5	N2	3000	0.57	242			22	¼"	RDE Dpouspmfst
UI 2UT003Q11R04	46775219	0.6 ° 2.4	3	N2	2450	0.57	250			22	¼"	RDE Dpouspmfst
UI 2UT003Q11T04	46775227	0.6 ° 2.4	3	N2	2450	0.57	242			22	¼"	RDE Dpouspmfst
UI 2UT005Q11R04	46775243	1.0 ° 4.0	5	N2	1700	0.57	250			22	¼"	RDE Dpouspmfst
UI 2UT005Q11T04	46775250	1.0 ° 4.0	5	N2	1700	0.57	242			22	¼"	RDE Dpouspmfst
UI 2UT007Q11R04	46775276	1.3 ° 5.6	7	N2	1250	0.57	250			22	¼"	RDE Dpouspmfst
UI 2UT007Q11T04	46775284	1.3 ° 5.6	7	N2	1250	0.57	242			22	¼"	RDE Dpouspmfst
UI 2UT010Q11R04	46775300	2.0 ° 8.0	10	N4	850	0.57	250			22	¼"	RDE Dpouspmfst
UI 2UT010Q11T04	46775318	2.0 ° 8.0	10	N4	850	0.57	242			22	¼"	RDE Dpouspmfst
UI 4UT010S11R04	16678955	2.0 ° 8.0	10	N4	1820	1.20	363			25	¼"	RDE Dpouspmfst
UI 4UT010S11T04	16678963	2.0 ° 8.0	10	N4	1820	1.20	343			25	¼"	RDE Dpouspmfst
UI 4UT010S11T06	16678971	2.0 ° 8.0	10	N4	1820	1.20	343			25	⅜"	RDE Dpouspmfst
UI 4UT015S11R04	18427278	3.0 ° 12.0	15	N5	1220	1.20	363			25	¼"	RDE Dpouspmfst
UI 4UT015S11T04	16678989	3.0 ° 12.0	15	N5	1220	1.20	343			25	¼"	RDE Dpouspmfst
UI 4UT015S11T06	16678997	3.0 ° 12.0	15	N5	1220	1.20	343			25	⅜"	RDE Dpouspmfst
UI 4UT020S11T06	16679003	4.0 ° 16.0	20	N6	900	1.20	343			25	⅜"	RDE Dpouspmfst
UI 4UT025S11T06	16679011	5.0 ° 20.0	25	N6	710	1.20	343			25	⅜"	RDE Dpouspmfst

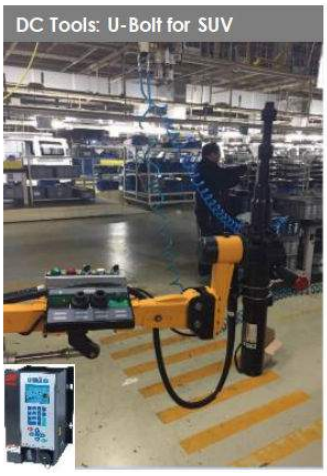


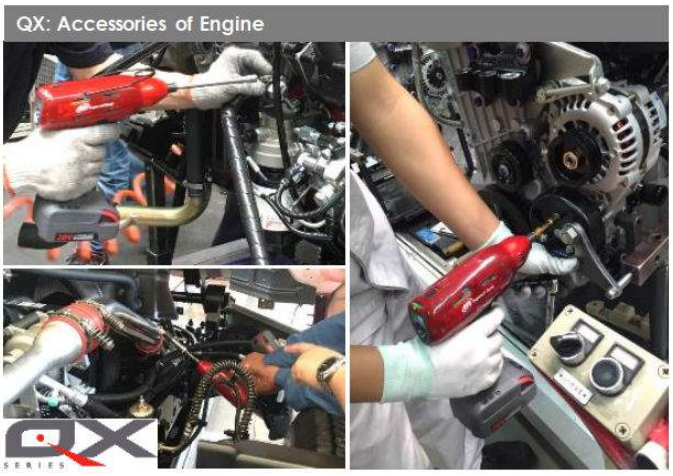
GF Hvpn tn Mtr s V pnt tzy dzzv . dzzv c™pntqtnl tzy

UI 61UI 81UI AWi vri wKn™xyvi h Xss pwErl p

RF6BD040CB4T06

Vi kO	GGR	Rq	Rq		vtq	ol	q q	q q	q q	rr	a
SFN PUF TUBSU											
UI 4BD013CB2I 04		3.0 ° 10.0	13	N 5	1200	1.30	383	32	13	¼" ⬡	RDE Dpouspmfist
UI 4BD013CB2R04		3.0 ° 10.0	13	N 5	1200	1.30	383	32	13	¼" ⬡	RDE Dpouspmfist
UI 4BD013CB2T04	47125729	3.0 ° 10.0	13	N 5	1200	1.30	383	32	13	¼" □	RDE Dpouspmfist
UI 4BD013CB2T06		3.0 ° 10.0	13	N 5	1200	1.30	383	32	13	⅜" □	RDE Dpouspmfist
UI 4BD020CB2I 04		4.0 ° 16.0	20	N 6	820	1.30	383	32	13	¼" ⬡	RDE Dpouspmfist
UI 4BD020CB2R04		4.0 ° 16.0	20	N 6	820	1.30	383	32	13	¼" ⬡	RDE Dpouspmfist
UI 4BD020CB2T04		4.0 ° 16.0	20	N 6	820	1.30	383	32	13	¼" □	RDE Dpouspmfist
UI 4BD020CB2T06	45669959	4.0 ° 16.0	20	N 6	820	1.30	383	32	13	⅜" □	RDE Dpouspmfist
UI 4BD027CB4T06	80235666	5.0 ° 22.0	27	N 8	600	1.30	387	42	17	⅜" □	RDE Dpouspmfist
UI 4BD027CB4T08		5.0 ° 22.0	27	N 8	600	1.30	387	42	17	½" □	RDE Dpouspmfist
UI 6BD030CB2T06		6.0 ° 24.0	30	N 8	1230	1.90	442	32	13	⅜" □	RDE Dpouspmfist
UI 6BD030CB4T08	47526343001	6.0 ° 24.0	30	N 8	1230	1.90	447	42	17	½" □	RDE Dpouspmfist
UI 4BD034CB4T06	45645041	7.0 ° 27.0	34	N 8	470	1.30	387	42	17	⅜" □	RDE Dpouspmfist
UI 4BD034CB4T08		7.0 ° 27.0	34	N 8	470	1.30	387	42	17	½" □	RDE Dpouspmfist
UI 6BD040CB4T06		8.0 ° 32.0	40	N 8	910	1.90	447	42	17	⅜" □	RDE Dpouspmfist
UI 6BD040CB4T08	47082037	8.0 ° 32.0	40	N 8	910	1.90	447	42	17	½" □	RDE Dpouspmfist
UI 6BD055CB5T08	47096227	11.0 ° 44.0	55	N 10	650	1.90	453	45	22	½" □	RDE Dpouspmfist
UI 8BD065CB5T08		13.0 ° 52.0	65	N 10	1200	2.90	516	45	22	½" □	RDE Dpouspmfist
UI 8BD070CB5T08	18427450	14.0 ° 56.0	70	N 10	1100	2.90	516	45	22	½" □	RDE Dpouspmfist
UI 6BD080CB5T08		16.0 ° 64.0	80	N 10	440	1.90	453	45	22	½" □	RDE Dpouspmfist
UI 8BD090CB5T08	47096656	18.0 ° 72.0	90	N 10	850	2.90	516	45	22	½" □	RDE Dpouspmfist
UI 8BD115CB6T08	80217300	23.0 ° 92.0	115	N 12	660	2.90	520	50	24	½" □	RDE Dpouspmfist
UI 8BD150CB6T08	45634664	30.0 ° 120.0	150	N 12	510	2.90	520	50	24	½" □	RDE Dpouspmfist
UI 8BD225CB7T12	80217292	45.0 ° 180.0	225	N 16	310	4.10	575	55	28	¾" □	RDE Dpouspmfist
UI 8BD400CB8T12	18427468	80.0 ° 320.0	400	N 18	170	6.00	635	69	33	¾" □	RDE Dpouspmfist





UI 41UI 61UI 81UI AW vri wKn™xyvi h Xs spvNt pr i

RF4TD010C20T06

RF8TD150C61T08

Vi lO	GGR	Rq	Rq		vtq	ol	q q	q q	q q	rr	a
SFN PUF TUBSU											
UI 2TD002G32T06	46774782	0.3 ° 1.2	1.5	N 2	3000	0.91	342	19	32	⅜" □	RDE Dpouspmfist
UI 2TD003G32T06	46774790	0.6 ° 2.4	3	N 2	2450	0.91	342	19	32	⅜" □	RDE Dpouspmfist
UI 2TD005G32T06	46774808J5J	1.0 ° 4.0	5	N 2	1700	0.91	342	19	32	⅜" □	RDE Dpouspmfist
UI 2TD007G32T06	46774816	1.3 ° 5.6	7	N 2	1250	0.91	342	19	32	⅜" □	RDE Dpouspmfist
UI 2TD010G32T06	46774824	2.0 ° 8.0	10	N 4	850	0.91	342	19	32	⅜" □	RDE Dpouspmfist
UI 4TD010C20T06		2.0 ° 8.0	10	N 4	1820	1.20	386		40	⅜" □	RDE Dpouspmfist
UI 4TD010C21T06	80239049	2.0 ° 8.0	10	N 4	1820	1.20	386	19	40	⅜" □	RDE Dpouspmfist
UI 4TD010C41T06	16986721	2.0 ° 8.0	10	N 4	1820	1.20	437	19	74	⅜" □	RDE Dpouspmfist
UI 4TD015C20T06		3.0 ° 11.0	15	N 5	1220	1.20	386		40	⅜" □	RDE Dpouspmfist
UI 4TD015C21T06	45506961	3.0 ° 11.0	15	N 5	1220	1.20	386	19	40	⅜" □	RDE Dpouspmfist
UI 4TD015C41T06	16986739	3.0 ° 11.0	15	N 5	1220	1.20	437	19	74	⅜" □	RDE Dpouspmfist
UI 4TD020C20T06		4.0 ° 16.0	20	N 6	900	1.20	386		40	⅜" □	RDE Dpouspmfist
UI 4TD020C21T06	45659398	4.0 ° 16.0	20	N 6	900	1.20	386	19	40	⅜" □	RDE Dpouspmfist
UI 4TD020C41T06	16986747	4.0 ° 16.0	20	N 6	900	1.20	437	19	74	⅜" □	RDE Dpouspmfist
UI 4TD025C20T06		5.0 ° 20.0	25	N 6	710	1.20	386		40	⅜" □	RDE Dpouspmfist
UI 4TD025C21T06	47100953	5.0 ° 20.0	25	N 6	710	1.20	386	19	40	⅜" □	RDE Dpouspmfist
UI 4TD025C41T06	16986754	5.0 ° 20.0	25	N 6	710	1.20	437	19	74	⅜" □	RDE Dpouspmfist
UI 6TD020C41T06	18427369	4.0 ° 16.0	20	N 6	1840	2.10	501	19	113	⅜" □	RDE Dpouspmfist
UI 6TD020C61T06	16986762	4.0 ° 16.0	20	N 6	1840	2.10	544	38	144	⅜" □	RDE Dpouspmfist
UI 6TD020C81T06	18427377	4.0 ° 16.0	20	N 6	1840	2.10	594	38	195	⅜" □	RDE Dpouspmfist
UI 6TD028C41T06	16993685	6.0 ° 22.0	28	N 8	1360	2.10	501	19	113	⅜" □	RDE Dpouspmfist
UI 6TD028C61T06	16986770	6.0 ° 22.0	28	N 8	1360	2.10	544	38	144	⅜" □	RDE Dpouspmfist
UI 6TD028C81T06		6.0 ° 22.0	28	N 8	1360	2.10	594	38	195	⅜" □	RDE Dpouspmfist
UI 6TD033C41T06	18427385	7.0 ° 26.0	33	N 8	1130	2.10	501	19	113	⅜" □	RDE Dpouspmfist
UI 6TD033C61T06	16986788	7.0 ° 26.0	33	N 8	1130	2.10	544	38	144	⅜" □	RDE Dpouspmfist
UI 6TD033C81T06	48376503	7.0 ° 26.0	33	N 8	1130	2.10	594	38	195	⅜" □	RDE Dpouspmfist
UI 6TD050C41T08	18427419	10.0 ° 40.0	50	N 10	760	2.10	501	19	113	½" □	RDE Dpouspmfist
UI 6TD050C61T08	16986796	10.0 ° 40.0	50	N 10	760	2.10	544	38	144	½" □	RDE Dpouspmfist
UI 6TD050C81T08		10.0 ° 40.0	50	N 10	760	2.10	594	38	195	½" □	RDE Dpouspmfist
UI 8TD055C41T08	80240401	11.0 ° 44.0	55	N 10	1470	3.00	557	19	109	½" □	RDE Dpouspmfist
UI 8TD055C61T08	16986804	11.0 ° 44.0	55	N 10	1470	3.00	608	38	140	½" □	RDE Dpouspmfist
UI 8TD055C81T08	47087101	11.0 ° 44.0	55	N 10	1470	3.00	659	38	191	½" □	RDE Dpouspmfist
UI 8TD070C41T08	18427575	14.0 ° 56.0	70	N 10	1160	3.00	557	19	109	½" □	RDE Dpouspmfist
UI 8TD070C61T08	16986812	14.0 ° 56.0	70	N 10	1160	3.00	608	38	140	½" □	RDE Dpouspmfist
UI 8TD070C81T08		14.0 ° 56.0	70	N 10	1160	3.00	659	38	191	½" □	RDE Dpouspmfist
UI 8TD090C41T08	18427609	18.0 ° 72.0	90	N 10	900	3.00	557	19	109	½" □	RDE Dpouspmfist
UI 8TD090C61T08	16985517	18.0 ° 72.0	90	N 10	900	3.00	608	38	140	½" □	RDE Dpouspmfist
UI 8TD090C81T08	16985509	18.0 ° 72.0	90	N 10	900	3.00	659	38	191	½" □	RDE Dpouspmfist
UI 8TD150C41T08	80165962	30.0 ° 120.0	150	N 12	500	3.40	572	19	109	½" □	RDE Dpouspmfist
UI 8TD150C61T08	16986820	30.0 ° 120.0	150	N 12	500	3.40	623	38	140	½" □	RDE Dpouspmfist
UI 8TD150C81T08	45634656	30.0 ° 120.0	150	N 12	500	3.40	674	38	191	½" □	RDE Dpouspmfist
UI 8TD230C02T12		45.0 ° 185.0	230		340	5.50	812	50	241	¾" □	RDE Dpouspmfist
UI 8TD230C22T12		45.0 ° 185.0	230		340	5.50	853	50	291	¾" □	RDE Dpouspmfist
UI 8TD230C62T12	16989055	45.0 ° 185.0	230		340	5.50	710	50	140	¾" □	RDE Dpouspmfist
UI 8TD230C82T12	16986838	45.0 ° 185.0	230		340	5.50	761	50	191	¾" □	RDE Dpouspmfist

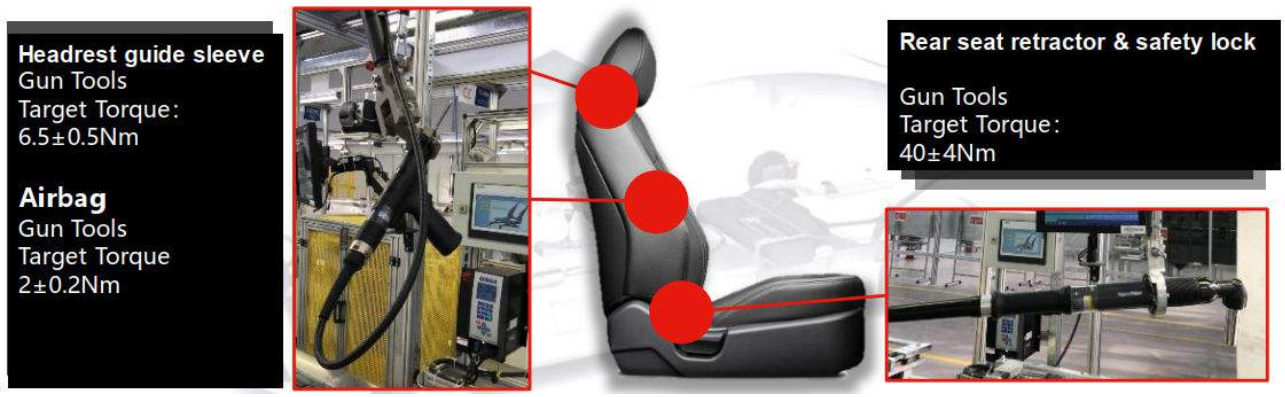
GF Hvpn tn Mtr s V pnt tzy dzzv . dzzv c™pntqtnl tzy

UI 81UI A Wi vri wKn™xyvi h Xs s pwS kkwi x

RF6a D020Q52T06

Vi lO	GGR	Rq	Rq		vt q	ol	q q	q q	q q	rr	a
UI 6a D020Q42T06	10567030.5J	4.0 ° 16.0	20	N 6	1840	2.50	664	51	130	⅜" □	R DE Dpouspmfist
UI 6a D020Q52T06	16986846.5J	4.0 ° 16.0	20	N 6	1840	2.50	647	51	130	⅜" □	R DE Dpouspmfist
UI 6a D028Q52T06	16987315	5.0 ° 20.0	28	N 8	1360	2.50	647	51	130	⅜" □	R DE Dpouspmfist
UI 6a D033Q52T06	10567436.5J	7.0 ° 26.0	33	N 8	1130	2.50	647	51	130	⅜" □	R DE Dpouspmfist
UI 6a D050Q52T06	16678039	10.0 ° 40.0	50	N 10	760	2.50	647	51	130	⅜" □	R DE Dpouspmfist
UI 8a D055G52T06	10568376.5J	11.0 ° 44.0	55	N 10	1470	3.00	723	51	130	⅜" □	R DE Dpouspmfist
UI 8a D070G02T08		14.0 ° 56.0	70	N 10	1160	3.00	888	51	295	½" □	R DE Dpouspmfist
UI 8a D070G22T08		14.0 ° 56.0	70	N 10	1160	3.00	939	51	346	½" □	R DE Dpouspmfist
UI 8a D070G62T08	18427682	14.0 ° 56.0	70	N 10	1160	3.00	786	51	194	½" □	R DE Dpouspmfist
UI 8a D070G82T08		14.0 ° 56.0	70	N 10	1160	3.00	837	51	245	½" □	R DE Dpouspmfist
UI 8a D090G02T08		18.0 ° 72.0	90	N 10	900	4.00	888	51	295	½" □	R DE Dpouspmfist
UI 8a D090G22T08		18.0 ° 72.0	90	N 10	900	4.00	939	51	346	½" □	R DE Dpouspmfist
UI 8a D090G62T08	16985491	18.0 ° 72.0	90	N 10	900	4.00	786	51	194	½" □	R DE Dpouspmfist
UI 8a D090G82T08		18.0 ° 72.0	90	N 10	900	4.00	837	51	245	½" □	R DE Dpouspmfist
UI 8a D150G02T08		30.0 ° 120.0	150	N 12	500	4.00	888	51	295	½" □	R DE Dpouspmfist
UI 8a D150G22T08	42709741	30.0 ° 120.0	150	N 12	500	4.00	939	51	346	½" □	R DE Dpouspmfist
UI 8a D150G62T08	42712901	30.0 ° 120.0	150	N 12	500	4.00	786	51	194	½" □	R DE Dpouspmfist
UI 8a D150G82T08		30.0 ° 120.0	150	N 12	500	4.00	837	51	245	½" □	R DE Dpouspmfist

Seat frame assembly - DC Assembly Tools



Seat - Automatic application and assembly

UQ Wi vri wKn™kyvi h Xs spw Nt pr i

Vi kO	GGR	Rq	Rq		vtq	ol	q q	q q	q q	rr	a
SFN PUF TLBSU											
UQ 3TT008I 22T06	18453217	2.0 ° 6.0	8	N4	1382	2.70	599	50	300	⅜" □	RDE Dpouspmfist
UQ 3TT008I 22T08	18453225	2.0 ° 6.0	8	N4	1382	2.70	599	50	300	½" □	RDE Dpouspmfist
UQ 3TT008I 62T06	18453175	2.0 ° 6.0	8	N4	1382	2.40	449	50	150	⅜" □	RDE Dpouspmfist
UQ 3TT008I 62T08	18453183	2.0 ° 6.0	8	N4	1382	2.40	449	50	150	½" □	RDE Dpouspmfist
UQ 3TT008I 92T06	18453191	2.0 ° 6.0	8	N4	1382	2.40	524	50	225	⅜" □	RDE Dpouspmfist
UQ 3TT008I 92T08	18453209	2.0 ° 6.0	8	N4	1382	2.50	524	50	225	½" □	RDE Dpouspmfist
UQ 3TT012I 22T06	18453266	3.0 ° 10.0	12	N4	927	2.70	599	50	300	⅜" □	RDE Dpouspmfist
UQ 3TT012I 22T08	18453274	3.0 ° 10.0	12	N4	927	2.70	599	50	300	½" □	RDE Dpouspmfist
UQ 3TT012I 62T06	18427690	3.0 ° 10.0	12	N4	927	2.40	449	50	150	⅜" □	RDE Dpouspmfist
UQ 3TT012I 62T08	18453233	3.0 ° 10.0	12	N4	927	2.40	449	50	150	½" □	RDE Dpouspmfist
UQ 3TT012I 92T06	18453241	3.0 ° 10.0	12	N4	927	2.50	524	50	225	⅜" □	RDE Dpouspmfist
UQ 3TT012I 92T08	18453258	3.0 ° 10.0	12	N4	927	2.50	524	50	225	½" □	RDE Dpouspmfist
UQ 3TT016I 22T06	18453324	4.0 ° 13.0	16	N4	686	2.70	599	50	300	⅜" □	RDE Dpouspmfist
UQ 3TT016I 22T08	18453332	4.0 ° 13.0	16	N4	686	2.70	599	50	300	½" □	RDE Dpouspmfist
UQ 3TT016I 62T06	18453282	4.0 ° 13.0	16	N4	686	2.40	449	50	150	⅜" □	RDE Dpouspmfist
UQ 3TT016I 62T08	18453290	4.0 ° 13.0	16	N4	686	2.40	449	50	150	½" □	RDE Dpouspmfist
UQ 3TT016I 92T06	18453308	4.0 ° 13.0	16	N4	686	2.50	524	50	225	⅜" □	RDE Dpouspmfist
UQ 3TT016I 92T08	18453316	4.0 ° 13.0	16	N4	686	2.50	524	50	225	½" □	RDE Dpouspmfist
UQ 3TT020I 22T06	18453373.5J	5.0 ° 16.0	20	N5	545	2.70	599	50	300	⅜" □	RDE Dpouspmfist
UQ 3TT020I 22T08	18453381	5.0 ° 16.0	20	N5	545	2.70	599	50	300	½" □	RDE Dpouspmfist
UQ 3TT020I 62T06	18427708	5.0 ° 16.0	20	N5	545	2.40	449	50	150	⅜" □	RDE Dpouspmfist
UQ 3TT020I 62T08	16992604	5.0 ° 16.0	20	N5	545	2.40	449	50	150	½" □	RDE Dpouspmfist
UQ 3TT020I 92T06	18453357	5.0 ° 16.0	20	N5	545	2.50	524	50	225	⅜" □	RDE Dpouspmfist
UQ 3TT020I 92T08	18453365	5.0 ° 16.0	20	N5	545	2.40	524	50	225	½" □	RDE Dpouspmfist
UQ 5TT035I 22T06	18453431	9.0 ° 28.0	35	N6	590	4.20	673	50	300	⅜" □	RDE Dpouspmfist
UQ 5TT035I 22T08	18453449	9.0 ° 28.0	35	N6	590	4.20	673	50	300	½" □	RDE Dpouspmfist
UQ 5TT035I 62T06	18453399.5J	9.0 ° 28.0	35	N6	590	3.90	523	50	150	⅜" □	RDE Dpouspmfist
UQ 5TT035I 62T08	18453407	9.0 ° 28.0	35	N6	590	3.90	523	50	150	½" □	RDE Dpouspmfist
UQ 5TT035I 92T06	18453415	9.0 ° 28.0	35	N6	590	4.00	598	50	225	⅜" □	RDE Dpouspmfist
UQ 5TT035I 92T08	18453423	9.0 ° 28.0	35	N6	590	4.00	598	50	225	½" □	RDE Dpouspmfist
UQ 5TT055I 22T06	18453480	14.0 ° 44.0	55	N6	507	4.20	673	50	300	⅜" □	RDE Dpouspmfist
UQ 5TT055I 22T08	18453498	14.0 ° 44.0	55	N6	507	4.20	673	50	300	½" □	RDE Dpouspmfist
UQ 5TT055I 62T06	16992612	14.0 ° 44.0	55	N6	507	3.90	523	50	150	⅜" □	RDE Dpouspmfist
UQ 5TT055I 62T08	18453456.5J	14.0 ° 44.0	55	N6	507	3.90	523	50	150	½" □	RDE Dpouspmfist
UQ 5TT055I 92T06	18453464	14.0 ° 44.0	55	N6	507	4.00	598	50	225	⅜" □	RDE Dpouspmfist
UQ 5TT055I 92T08	18453472	14.0 ° 44.0	55	N6	507	4.00	598	50	225	½" □	RDE Dpouspmfist
UQ 5TT090I 22T08	18453514	23.0 ° 72.0	90	N8	280	4.20	673	50	300	½" □	RDE Dpouspmfist
UQ 5TT090I 62T08	18427716	23.0 ° 72.0	90	N8	280	3.90	523	50	150	½" □	RDE Dpouspmfist
UQ 5TT090I 92T08	18453506.5J	23.0 ° 72.0	90	N8	280	4.00	598	50	225	½" □	RDE Dpouspmfist

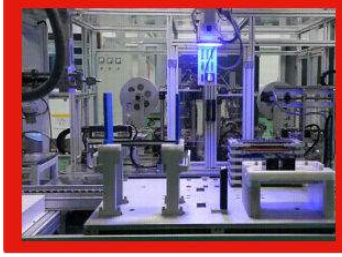
UQ W vni wKn™xyvi h Xs s pv Nt pr i


RN 7TT220I


RN 9TT520I

Vi lO	GGR	Rq	Rq		vtq	ol	q q	q q	q q	rr	a
UQ 7TT190I 22T08	18453548.5 J	48.0 ° 152.0	190	N 10	273	8.90	794	50	300	½" □	RDE Dpouspmfst
UQ 7TT190I 22T12	18453555	48.0 ° 152.0	190	N 10	273	8.90	794	50	300	¾" □	RDE Dpouspmfst
UQ 7TT190I 62T08	18453522	48.0 ° 152.0	190	N 10	273	8.40	645	50	150	½" □	RDE Dpouspmfst
UQ 7TT190I 62T12	18427724	48.0 ° 152.0	190	N 10	273	8.40	645	50	150	¾" □	RDE Dpouspmfst
UQ 7TT190I 92T08	18453530	48.0 ° 152.0	190	N 10	273	8.60	720	50	225	½" □	RDE Dpouspmfst
UQ 7TT190I 92T12		48.0 ° 152.0	190	N 10	273	8.60	720	50	225	¾" □	RDE Dpouspmfst
UQ 7TT220I 22T12	18453563	55.0 ° 176.0	220	N 10	233	8.90	794	50	300	¾" □	RDE Dpouspmfst
UQ 7TT220I 62T12	18427732.5 J	55.0 ° 176.0	220	N 10	233	8.40	645	50	150	¾" □	RDE Dpouspmfst
UQ 7TT220I 92T12	80176076	55.0 ° 176.0	220	N 10	233	8.60	720	50	225	¾" □	RDE Dpouspmfst
UQ 9TT315I 22T12	18453605	79.0 ° 250.0	315	N 10	278	19.50	860	50	300	¾" □	RDE Dpouspmfst
UQ 9TT315I 22T16	18453613.5 J	79.0 ° 250.0	315	N 10	278	19.60	860	50	300	1" □	RDE Dpouspmfst
UQ 9TT315I 62T12	18427740	79.0 ° 250.0	315	N 10	278	18.60	711	50	150	¾" □	RDE Dpouspmfst
UQ 9TT315I 62T16	18453571	79.0 ° 250.0	315	N 10	278	18.70	711	50	150	1" □	RDE Dpouspmfst
UQ 9TT315I 92T12	18453589	79.0 ° 250.0	315	N 10	278	19.10	786	50	225	¾" □	RDE Dpouspmfst
UQ 9TT315I 92T16	18453597	79.0 ° 250.0	315	N 10	278	19.20	786	50	225	1" □	RDE Dpouspmfst
UQ 9TT435I 22T12	18453662	109.0 ° 346.0	435	N 12	203	19.50	860	50	300	¾" □	RDE Dpouspmfst
UQ 9TT435I 22T16	18453670	109.0 ° 346.0	435	N 12	203	19.60	860	50	300	1" □	RDE Dpouspmfst
UQ 9TT435I 62T12	18453621	109.0 ° 346.0	435	N 12	203	18.60	711	50	150	¾" □	RDE Dpouspmfst
UQ 9TT435I 62T16	18453639	109.0 ° 346.0	435	N 12	203	18.70	711	50	150	1" □	RDE Dpouspmfst
UQ 9TT435I 92T12	18453647	109.0 ° 346.0	435	N 12	203	19.10	786	50	225	¾" □	RDE Dpouspmfst
UQ 9TT435I 92T16	18453654	109.0 ° 346.0	435	N 12	203	19.20	786	50	225	1" □	RDE Dpouspmfst
UQ 9TT520I 22T12	18453720	130.0 ° 410.0	520	N 12	170	19.50	860	50	300	¾" □	RDE Dpouspmfst
UQ 9TT520I 22T16	18453738	130.0 ° 410.0	520	N 12	170	19.60	860	50	300	1" □	RDE Dpouspmfst
UQ 9TT520I 62T12	18453688	130.0 ° 410.0	520	N 12	170	18.60	711	50	150	¾" □	RDE Dpouspmfst
UQ 9TT520I 62T16	18453696	130.0 ° 410.0	520	N 12	170	18.70	711	50	150	1" □	RDE Dpouspmfst
UQ 9TT520I 92T12	18453704	130.0 ° 410.0	520	N 12	170	19.10	786	50	225	¾" □	RDE Dpouspmfst
UQ 9TT520I 92T16	18453712	130.0 ° 410.0	520	N 12	170	19.20	786	50	225	1" □	RDE Dpouspmfst
UQ 9TT650I 62T16	18427757.5 J	163.0 ° 516.0	650	N 14	136	18.70	711	50	150	1" □	RDE Dpouspmfst
UQ 9TT650I 92T16	18453746	163.0 ° 516.0	650	N 14	136	19.60	786	50	225	1" □	RDE Dpouspmfst
UQ 9TT01LI 62T16	80204761	250.0 ° 800.0	1000	N 16+	51	24.50	857	50	150	1" □	RDE Dpouspmfst
UQ 9TT15DI 62T24	80220718	250.0 ° 1300.0	1500	N 16+	51	32.00	869	50	150	1½" □	RDE Dpouspmfst
UQ 9TT18DI 62T24	80220734	270.0 ° 1500.0	1800	N 16+	37	32.00	869	50	150	1½" □	RDE Dpouspmfst
UQ 9TT20DI 62T24	80220759	300.0 ° 1700.0	2000	N 16+	31	32.00	869	50	150	1½" □	RDE Dpouspmfst
UQ 9TT22DI 62T24	45487535	330.0 ° 1900.0	2250	N 16+	25	32.00	869	50	150	1½" □	RDE Dpouspmfst

Automatic battery assembly: tightening system with mechanical arm and nail feeding mechanism




NRWWL MXug Gsrxvspjv HG Ipigxvrg Mrlmr Tvigrwsr Xsspv

Descriptions

Xifo uszjoh up bdijfwf tjn qrfn bovgbduvsjoh hpbrnjo b dpn qrfnyn bovgbduvsjoh xpsrnx, voefstuboejoh uif gbtufojoh qspdfttepfto'uibwf up cf dpn qrjdbufe. Uif ofx Johfstpmfs Sboe JOTJHI Urd jt ejggfsfou, cz eftjho. Uijt dpouspmfs jt eftjhofe up cf fbtz up vtf boe joufhsbuf, xijrfn qspwjejoh b dpn n po qrbugpsn up nffuzpvs bttfn cmzsfrvjsn fout xpsrnexjef. Uif JOTJHI Urd pggfst bewbodfe ujhi ufojoh dpouspmboe btjn qrfn vtfs fyqfsjfodf up jn qspwf fggjdjfodz po qspevdujpo njoft, xijrfn hfuujoh uif kpc epof sjhiu, fwfsz ujnf.

SIMPLE

FLEXIBLE

CAPABLE

	I cTI VXNW RSX VI UYNVI H	I EWNPd NQTPI QI RX GMERLI	QI I XdSYV VI UYNVI QI RXW
b MEXHSI W XMNWQI ER XS QI D	■ Tbwf po tfrnfndujpo, usbjojoh boe jotubmbujpo dptut ■ Sfevdf fsspst boe epx oujnf ■ Sfn pwf vtfs efqfoefodjft	■ Sfevdf njof sfcbrbodjoh dptut ■ Fbtz njof jouf hsbujpo ■ Sfn pwf efwjdf efqfo-efodz	■ Hfuuif kpc sjhiu, fwfsz ujnf ■ Bttvsbodf wjb usbdfbcjnjuz ■ Pqujnj'f zpvs qspevd-ujwjuz
MSb HSI W NRLI VVSPPVERH TVSaNHI aEPYI D	■ Jouvjujwf, wjtvbmqsp-hsbn n joh jouf sgbdf ■ Qnvh boe qrbz bddfttp-sjft boe qspupdprn ■ Cbdl x bset dbqbcjnjuz ■ Jouf hsbufe cbdl vq boe sfdpwfsz ■ Cvoerfie dpouspmfs pqujpot ■ Dpouf yutqf djgjd jouf hsb-ufe I FMQ	■ X fc cbtfe qsphsbn n -joh vtf boz pqf sbujoh tztufn wjb boz cspx tfs ■ N ffut dvssfoujoevtusz dpn n vojdbujpo offet ■ Bekvtubcrfh up n ffu boz ujhi ufojoh dpouspm sfrvjsfn fout ■ Jouf hsbufe mphjd dpouspmn ■ Fbtz i bsex bsf boe tpgux bsf vqhsbefts	■ Upvdi tdsffo jouf sgbdf ■ Jbevtusz rfnbejoh dzdrfh ebubtupsbhf ■ Spcvtubvejuboe tztufn mpht ■ Bewbodfe ujhi ufojoh tusbuf hjft boe gf buvsft ■ Pocpbse ejbhoptujdt ■ Jouf hsbufe tubujtujdbm qspdftt dpouspmn ■ Qsfwfoubujwf n bjoufobo-df brbsn t ■ Dpogjhvsbcrfh fn bjmbrfhsut

Wfq tp® Nt wrl mxkyp

Uif dpouspmfs™ x fc-cbtfe tpgux bsf frjn jobuft efwjdf efqfoefodjft boe fobcrfht gvmmqsphsbn n joh dbqbcjnjuz xjui boz efwjdf ui budbo svo bo jouf sofucspx tfs, jodmvejoh tn bsuqi poft, ubcrfhut ps dpn qvufst. Uif JOTJHI Urd dpouspmfs jt fbtz up jouf hsbuf xjui ui f n bovgbduvsjoh njof, qspwjeft grfhyjcrfh mphjd dpouspmn gps kpc tfrvfodjoh boe i frqt sfevdf njof sfcbrbodjoh dptut ui spvhi b tjn qrfn boe jouvjujwf vtfs jouf sgbdf.

Ki exyvi w


NRXI LVEXI H
GEVVdNRL MERHPI
TSb I V NRHNGEXSV
NRXI LVEXI H
b EPPQSYRX
WWH MEVH
HVNvI
? KYPP GSPSYV XSYGM
WGVI I R
QN brbsn t, Upprntubuvt
Sftvmq Ubshfu& N pojupsfe
wbnnf
Ofux psl dpoofdujpo tubuvt
Ubbdf
Ebuf boe Ujn f
WdVWXI Q NRHNGEXSVW
Cbdupsz Dpoofdujpo
X jsfnftt Dpoofdujpo (gvuvsf)
Mjol Tubuvt
CbvmaEfufdufe
b MNXI FSEVH ERH
UV GSHI
I XMI VRI X TSVXW
210211 * 210211020
8 TSWXKNSR GSRRI GXSV
30 , 47f
40 47f FTR
50 H cdTV
60 H cdTV FTR
70 MNKMcVHHG cdTV
80 MNKMcVHHG cdTV FTR
YWF 402
TSVXW(6)
NT VI WI X
FYXXSR
KNPHFYWGEVH WPSX
TSb I V
SR1SKKWb NXGM
LKNXI WK
FYXXSR
TSb I V
I RXVd
QSHYPI
XSSPGSRRI GXSV
b EVRNRL
PEFI P
LKN42 EQT
GNVGYNX FVI EOI V

Qshipw

Uif JOTJHI Urd Dpouspmfs jt 100% dpn qbujcmf x jui pvs RF boe RN upprt. X jui uif JOTJHI Urd , uif tf upprtx jmmi bwf 50L ujhi uf ojoh sfdpset boe 50L ujhi uf ojoh usbdft ° dpn qbsfe up 10 up 30L jo dpn qf ujupst' qspevdut ° x i jdi x jmmfuvtfst voefstuboe bmmgbdut pguif ujhi uf ojoh qspdftt ° upsr vf, bohmf, ujn f boe ebuf.

	WdWXI Q STXNSRW				KNPHFYWSTXNSRW				QIWSTXNSRW				
Qship	Wvriw	Hmvtpe®	Ts`iv	Mevh`evi	Ixmivrix1NT	TvskaRix	TvskFYW	Hi"rgiRIX	NVIxmivrix ISV	Stir Tvsxsgsp	XsspwRix	ab cQP 40	Rnwwer Wvrep1SV
RDE31	RD	Ejtqmbz	230WBD	Tuboebse					•				
RDE31-G	RD	Ejtqmbz	230WBD	Tuboebse	•	•			•				
RDE31-N	RD	Ejtqmbz	230WBD	Tuboebse					•	•	•	•	•
RDE31-GN	RD	Ejtqmbz	230WBD	Tuboebse	•	•			•	•	•	•	•
RDE32-G	RD	Ejtqmbz	230WBD	Tuboebse + Qspgj-CVT Dbse	•	•	•		•				
RDE32-GN	RD	Ejtqmbz	230WBD	Tuboebse + QspgjCVT Dbse	•	•	•		•	•	•	•	•
RDE33-G	RD	Ejtqmbz	230WBD	Tuboebse + Efwjdf Of uDbse	•	•		•	•				
RDE33-GN	RD	Ejtqmbz	230WBD	Tuboebse + Efwjdf Of uDbse	•	•		•	•	•	•	•	•

HGXsspwGefpiw

	Pirlxm5q		Pirlxm8q		Pirlxm32q	
HGXsspGefpiw	Tevxryqfiv	GGR	Tevxryqfiv	GGR	Tevxryqfiv	GGR
UppnDbcnh (RF2)	DQT2-DPSE-3N	45553393	DQT2-DPSE-6N	45612173	DQT2-DPSE-10N	45612199
90 uppndbcnh (RF2)**	-		DQT2-DPSE-6N-90	45612272	-	
Uppndbcnh (RN, RF4/6/8)	HFB40-DPSE-3N	22039887	HFB40-DPSE-6N	80162043	HFB40-DPSE-10N	80101959
90 uppndbcnh (RN, RF4/6/8)**	HFB40-DPSE-3N-90	80101496	HFB40-DPSE-6N-90	80162050	HFB40-DPSE-10-90	80120785
	Pirlxm32q		**Pirlxm42q**		**Pirlxm62q**	
HGXsspl™xirwsr Gefpiw	Tevxryqfiv	GGR	Tevxryqfiv	GGR	Tevxryqfiv	GGR
Fyufotjpo dbcnh	HFB40-FYU-10N	80101959	HFB40-FYU-20N	80120793	HFB40-FYU-40N	80120801
	Pirlxm3.47q		**Pirlxm4q**		**Pirlxm5q**	
90 fyufotjpo dbcnh***	HFB40-JOU-01		HFB40-JOU-04	80181449	HFB40-JOU-08	80181480

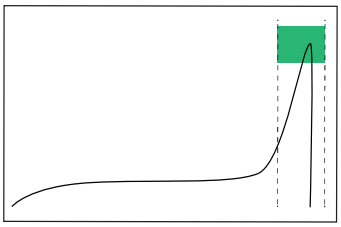
*** 90° on tool side.*
**** 90° on controller side. Extension cable requires a tool cable. Other lengths available.*

Get ef mpxni w

Wslkx` evi Get ef mpx®

	Wker hevh	K	Q	KQ		Wker hevh	K	Q	KQ
Fn cfeefe Tpgux bsf	•	•	•	•	Mdfotf Vqebuf	•	•	•	•
I pn f Tdsffo	•	•	•	•	Mdfotf Bdujwbuf	•	•	•	•
KPC Tfuvq	•	•	•	•	Ebuf & Ujn f Tfujoht	•	•	•	•
QTFU Tfuvq	•	•	•	•	Tztufn Jojujbmj'bujpo	•	•	•	•
Nvmujqmf Ujhi uf ojoh Tusbufhjft	•	•	•	•	Tqjoefs Nbobhfn fou	•	•	•	•
Rvjdl Qsphsbn n joh	•	•	•	•	JQ Beesftt Tfujoht	•	•	•	•
Bewbodfe Qsphsbn n joh	•	•	•	•	Fn bjmBnfsut	•	•	•	•
Dzdmf Sftvmt	•	•	•	•	EjhjubmP Tfujoht	•	•	•	•
KPC Sftvmt	•	•	•	•	FPS Ebub Pvu	•	•	•	•
BvejuMph	•	•	•	•	Cbsdpef	•	•	•	•
FwfouMph	•	•	•	•	Vtfs Nbobhfn fou	•	•	•	•
Tztufn Ejbhoptujdt	•	•	•	•	Tztufn Mpht		•		•
UppmEjbhoptujdt	•	•	•	•	Gjfmf cvt Ejbhoptujdt		•		•
EjhjubmP Ejbhoptujdt	•	•	•	•	Gjfmf cvt Tfujoht		•		•
Tubujtujdt Tfujoht	•	•	•	•	Fui fsofu JQ		•		•
Tubujtujdt Tvn n bsz	•	•	•	•	QspgjOfu		•		•
Tubujtujdt Brbsn Tfujoht	•	•	•	•	QspgjCvt		•		•
Tubujtujdt Brbsn Tvn n bsz	•	•	•	•	Efwjdf Ofu		•		•
Cbdl vq boe Sftupsf	•	•	•	•	NFT Qspupdpmt Tfujoht			•	•
Gjsn x bsf Vqebuf	•	•	•	•	Pqfo Qspupdpmt			•	•
Qsfwfoubujwf Nbjouf obodf Brbsn t	•	•	•	•	UppmtOfu			•	•
UppmtDbmjcsbujpo	•	•	•	•	WX YN M2.1			•	•
Cbdupsz Sftfu	•	•	•	•	Ojttbo TfsjbmFPS			•	•
Ofux psl Tztufn Ejtdpwfsz	•	•	•	•					

dz p0Dyr vp Fzy zv



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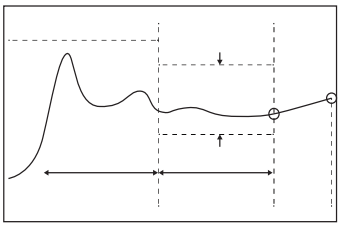

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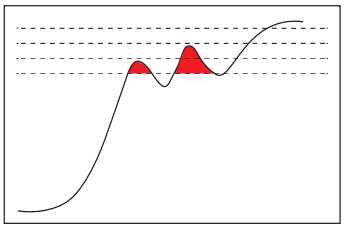
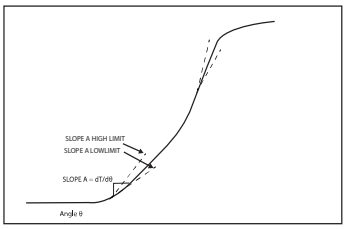


Wkexnwxrgep Tvs gi vwv Gs r xvs p

Wkexnwxrg Wkexyw	Hi vgvmt xrs r
Nfbo	Tubujtujdbmbwfsbhf - vtfe up efsjwf ui f dfousbmufoefodz pgui f ujhi uf ojoh ebub pg b qbsujdvmbs QTFU
Dbqbcjmjuz	Dbmdvmbuf bt (6* tjhn b / Nfbo) * 100 po b qbsujdvmbs QTFU
Qbtt %	Jbejdbuft ui f % pgui f dzdmft ui bui bwf b dzdmf sftvmtpg QBTT gspn ui f tbn qmf qpqvmbujpo pgb qbsujdvmbs QTFU
Gbjm%	Jbejdbuft ui f % pgui f dzdmft ui bui bwf b dzdmf sftvmtpg GBJMgspn ui f tbn qmf qpqvmbujpo pgb qbsujdvmbs QTFU
Nfbo Ti jgu	Dbmdvmbuf bt: NFBO Sftvmt Wbmvf - UBSHFU Sftvmt Wbmvf gps b qbsujdvmbs QTFU
Sbohf	Dbmdvmbuf bt: NBY Sftvmt Wbmvf - NJO Sftvmt Wbmvf pgb qbsujdvmbs QTFU
Tuboebse Efwjbujpo (σ)	Ui f dbmdvmbuf tuboebse efwjbujpo (σ) pgui f Sftvmt Wbmvf pgb qbsujdvmbs QTFU
QQ	Qspdftt Qfsgpsn bodf, dbmdvmbuf bt: (VTM- MTM) / (6 * σ)
DBN	Dbmdvmbuf bt: (VTM- VTM) / (6* (X / e * T))
QQL	Qspdftt Qfsgpsn bodf Jbefy, Dbmdvmbuf bt: NJO ((NFBO - MTM) / (3 * σ) PS (VTM - NFBO) / (3 * σ)

K l otpy 0 cvz™p Dyl v t



Wti grkrgexrns r

Mevh~evi	
X fjhi u(Lh)	5.6
Wpmn f (en 3)	10.9
Dpnpvs Upvdi tdsf f o	7 jodi
Fui fsofu Qpsu(10/100)	1
Fui fsofu Qpsu(10/100/1L)	1
VTC 2.0 Qpsut	4
I puTx bq Upprtn	Z
CppuUjn f (tf dpoet)	40
Wpnbhf / Dvssfou Sfr vjsf n fou	230W/8B
JQ Sbujoh (n pvoufe wfsujdbmz)	JQ52
Pocpbse Djsdvju Csfbl fs	Z
Jouf hsbuf e F-Tupq	Z

Wslox~evi	
QD Tpgux bsf	Opu Sfr vjsf e
QD Mjdf otf	Opu Sfr vjsf e
Ovn cfs pg KPCt	256
Ovn cfs pg QTFUt (qfs KPC)	256
Ovn cfs pg Tuf qt (qfs QTFU)	31
Mbhjd Svrnt gps KPC Tfr vf odjoh	Z
Cbsdpef gvodujpo: VTC, Tfsjbm Fui fsofu	Z
N bovbm Cbsdpef Fousz Pqujpo	Z
Uvcf ovu Dpousprn (Dpoghvsbcrfh n peft)	Z
Ovn cfs pg Dpoghvsbcrfh Vtfs Mbhjot	Vorjm juf e
Rvjdl Qsphsbn n joh N pef	Z
Bewbodf e Qsphsbn n joh N pef	Z
Vosf tusjduf e qsphsbn n joh gvodujpo gspn dpouspmfs tdsf f o	Z
Vosf tusjduf e sf n puf qsphsbn n joh gspn boz ef wjdf wjb boz bvui psj'f e cspx tfs	Z
Fn cf eef e, Dpouf yu-Tqf dj gjd I fnq	Z
Fn bjm Tubujtujdt Brbsn t Ejsf du Gspn Dpouspmfs*	Z
Fn bjm Qsfwf oubujwf N bjouf obodf Brbsn t Ejsf dug spn Dpouspmfs*	5
N vnj-rbohvbhf Tvqqpsu	Z
Pocpbse Upprn Ejbhoptujdt	Z
,bp tp ™z™p l sz t l tzy l yo yp z u p tyr m ™N y Nd Dowtyt l z qz pl ns nzy zwp	

Srfsevh Hexe Wksvel i	
Sf n pwf bcrfh TTE I bse Esjwf ui bu tupsf t BMM tf uujoht boe ebub	Z
Dpn qrfhuf dpouspmfs tf uujoht boe ebub sf dpwf sz ui spvhi TTE tx bq	Z
Ujhi uf ojoh Sf tvmt	50,000
Ujhi uf ojoh Dvswf	50,000
Ujhi uf ojoh dvswf ejtqmbzf e po I pn f tdsf f o pg dpouspmfs	Z
Bvej u Mbh	50,000
Fwf ou Mbh	50,000
Tztuf n Mbh	50,000
Gvmm Cbdl vq boe Sf tupsf Gvodujpo (VTC ps gspn dpn qvuf s/Ubcrfhu)	Z

Gsr r i gxrf'nx®	
I tpvom T™tzy	
Fui fsofu JQ Qspgj Ofu, Qspgj Cvt, Ef wjdf Ofu	
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Pqf o Qspupdpm Upprtofu, WX YN M2.1, Ojttbo Tfsjbm FPS, JS Fui fsofu FPS	

Wyttsvxi h Perl yel i w
Fohrjti , Gsf odi , Hf sn bo, Jubrjbo, Tqbojti , D'f di , Svttjbo, Qpsuvhvf tf , Qprjti , Tjn qrjgjf e Di jof tf

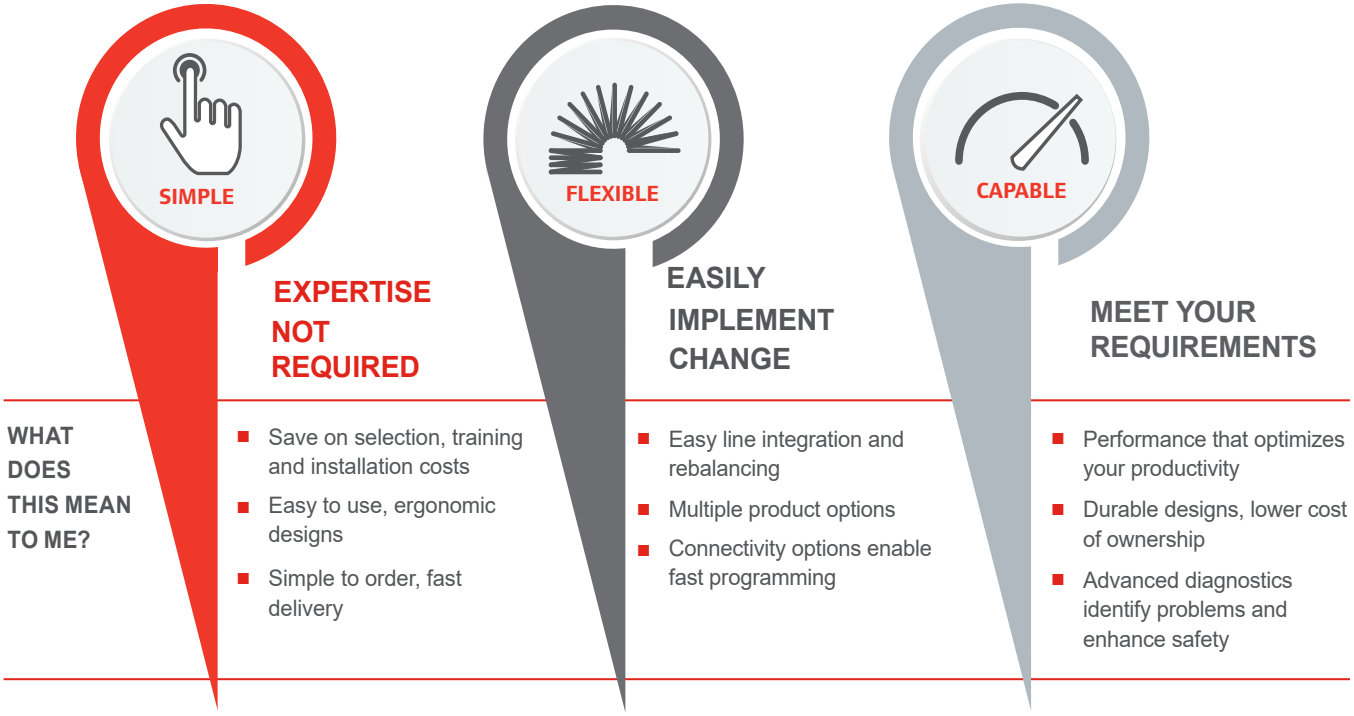
CORDLESS FASTENING SYSTEMS

Cordless High Precision Tools

Take Total Control

Taking total control of your fastening process doesn't have to be complicated. Our comprehensive QX Connect Series™ family of fastening systems deliver simple, flexible and capable solutions for all of your assembly requirements. No matter the industry or application, you can count on Ingersoll Rand as a trusted partner to help you get the job done right.

DIFFERENT, BY DESIGN



ICON IDENTIFIERS

Compatibility Reference

USB compatible

Insight Connect App

ETS (Ergonomic Tightening System)

Wireless

Bluetooth compatible

SIMPLY PRODUCTIVE WITH CONNECTIVITY

The innovative QX Connect Series™ is simple for anyone to use. It offers flexibility because of its feature-rich configurations, and can manage everything from data and fast programming to modifications on your line. The QX Connect Series™ increases productivity and lowers costs — all at a price you can afford.

SIMPLE

- Multi-function display module for quick setup and feedback
- Compact, lightweight and ergonomically balanced so the operator can work without restraints
- The intuitive INSIGHT Connect app will help you stay productive & mobile on the plant floor via Bluetooth or wired connection.

QX Connect Series™ Precision Screwdriver

MTC Controller

FLEXIBLE

- Provides up to 32 fully programmable configurations on a single tool, reducing costs and workspace clutter
- Fast and intuitive programming makes the tool easily adaptable to any needed changes on your assembly line
- Cordless and portable, allowing for effortless movement around your facility

QX Connect Series™ Angle Wrenches

CAPABLE

- At the heart of every tool is the closed-loop transducer control that delivers precise torque and accurate, traceable results
- Available in a variety of configurations, including pistol grip, angle wrench, multiplied, and ETS
- Wireless & Bluetooth communication options enable flexible line integration, remote monitoring and simple system programming across a plant-wide network
- Manage cycle data, control the process, receive system status alerts and implement configuration adjustments in real time with INSIGHTqcx™ using Ethernet, Fieldbus and digital I/O

QX Series™ Multiplier 1,000 Nm Pistol

QX Connect ETS (Ergonomic Tightening System)

SIMPLE FLEXIBLE CAPABLE

QX Series Features

** Not available on all models*

How To Select The Right Tools

When it comes to fastening, non-transducerized tools don't stand a chance. The QX Connect Series™ line of products give you closed-loop control of your fastening process, and the ease of mobiity with different connectivity options. Each and every tool allows for programmable tightening strategies to deliver higher quality fastened joints and a level of control that is unmatched by other solutions. The diversity of the QX Series™ lineup offers a simple, flexible and capable solution for any fastening need.

FEATURES

	QXFN	QXFD	QXBN	QXBD	QXXN	QXXD
Display & Keybad	x	✓	x	✓	x	✓
Bluetooth	x	x	✓	✓	✓	✓
Wireless Radio Connectivity to INSIGHTqcx	x	x	x	x	✓	✓
Programmable with INSIGHT Connect via Bluetooth	x	x	✓	✓	✓	✓
Programmable with INSIGHT Connect and INSIGHT qcx via USB	✓	✓	✓	✓	✓	✓
ETS Optional	✓	✓	✓	✓	✓	✓
Number of PSETs	32*	32*	32	32	32*	32

*Note: For QXFN, QXBN, QXXN models, uses can program abd selet Psets using the INSIGHT Connect App.

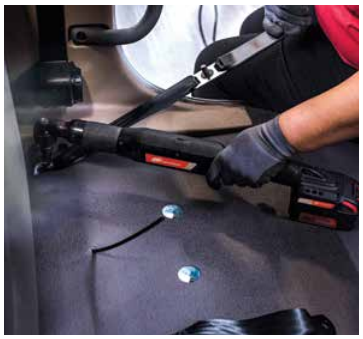
QXFN,QXFD Series

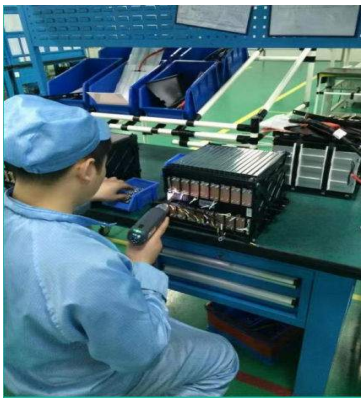
QXFN,QXFD offers superior transducerized control and operator feedback in a way that is easy to use and simple to setup. This unique series features 32 tightening configuration that can be programmed via USB using the INSIGHT Connect app. All QXFN,QXFD tools have no wireless communication and can only be programmed via USB using the INSIGHT Connect app.

FEATURES

- 32 tightening configuration
- Transducerized for precise torque measurement
- Closed-loop control of torque, speed and degrees of rotation
- Simple to program via USB using the INSIGHT Connect app
- Visual operator feedback using green, yellow and red lights
- Programmable preventative maintenance alarms
- Maintenance indicator for troubleshooting and diagnostics
- 1200 cycles of data storage – accessible via the INSIGHT Connect app

SIMPLE FLEXIBLE CAPABLE





Cordless High Precision Tools

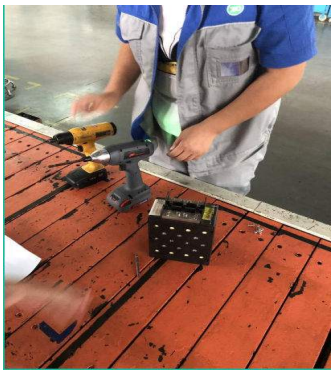
QXBN & QXBD Series

The versatile QXBN/QXBD series feature 32 tightening configurations, offering the ability to consolidate the number of tools needed in your bag or bench. The series also enhances the feedback provided from the tool by displaying the measured torque or angle results to the operator. The QXBN & QXBD models further add Bluetooth connectivity & program the tools via wireless using the INSIGHT Connect app.

32 IN

FEATURES

- Flexibility to utilize the same tool on multiple applications
- Program 32 PSETs configurations into one tool
- Visual torque validation on display
- Transducerized for precise torque measurement
- Closed-loop control of torque, speed and degrees of rotation
- Flexible Connectivity options with Bluetooth for simple programming using the INSIGHT Connect app or back of tool programming.
- Visual operator feedback using green, yellow and red lights
- Programmable preventative maintenance alarms
- Maintenance indicator for troubleshooting and diagnostics
- 1200 cycles of data storage



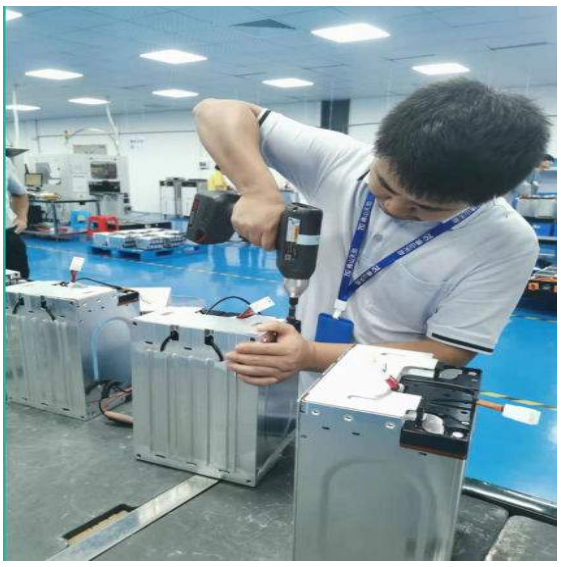
SIMPLE FLEXIBLE CAPABLE

QXXD, QXXN Series

The easy to use QXXD and QXXN, have the unique ability to integrate with line control systems for error proofing and data collection. The series also allows remote monitoring and integration with standard fastening system accessories.

FEATURES

- With INSIGHTqcx™, complete integration into plant wide Ethernet network, for increased productivity and control
- Remote access and integrated data collection capability
- Use of INSIGHTqcx™ enables transmission of tightening data and line control integration via Ethernet, Fieldbus or I/O
- Flexibility to utilize the same tool on multiple applications
- Program 32 configurations into one tool
- Visual torque validation on display
- Transducerized for precise torque measurement
- Closed-loop control of torque, speed and degrees of rotation
- Simple to program via USB cable or back of tool programming
- Visual operator feedback using display screen and green and red lights
- Programmable preventative maintenance alarms
- Maintenance indicator for troubleshooting and diagnostics



SIMPLE FLEXIBLE CAPABLE

QX Ergonomic Tightening systems

Reducing the torque reaction in your fastening process doesn't have to be complicated. Control and ergonomics, not compromise - that is what the QX ETS is all about. The QX ETS offers all the capabilities found in the QX Connect Series™ platform, with less the torque reaction.

FEATURES

- Ergonomically enhanced motor control algorithm significantly reduces the average force experienced by the operator during the tightening process
- Red foot label provides clear indication of ETS tool identity vs standard QX tool
- Continuously flashing purple light above keypad provides operator assurance that ETS is ACTIVE
- All the capability of the QX platform, without the torque reaction
- Common software and battery platform for simple integration
- ETS features are available for all QX Connect models and available in pistol grip, low torque angle and high torque angle
- Onboard 'pulse' counter supports proper optimization and application of ETS tools on ideal applications (10 pulses or less per cycle)

SIMPLE SETUP

In addition to standard direct drive mode, each tool configuration can be independently programmed to utilize one of the three available single-parameter ETS modes, simplifying setup:

Ergonomic Mode, with the lowest energy pulses, is ideal for hard joints or when arm, wrist or tool angles are most difficult.

Performance Mode, with medium energy pulses, is the best all-purpose mode.

Productivity Mode, with the highest energy pulses, is the fastest mode. Ideal for soft joints or when high production rates are required.

QXM Series - Torque Multiplier

The easy to use QXXD and QXXN, have the unique ability to integrate with line control systems for error proofing and data collection. The series also allows remote monitoring and integration with standard fastening system accessories.

FEATURES

- With INSIGHTqcx™, complete integration into plant wide Ethernet network, for increased productivity and control
- Remote access and integrated data collection capability
- Use of INSIGHTqcx™ enables transmission of tightening data and line control integration via Ethernet, Fieldbus or I/O
- Flexibility to utilize the same tool on multiple applications
- Program 32 configurations into one tool
- Visual torque validation on display
- Transducerized for precise torque measurement
- Closed-loop control of torque, speed and degrees of rotation
- Simple to program via USB cable or back of tool programming
- Visual operator feedback using display screen and green and red lights
- Programmable preventative maintenance alarms
- Maintenance indicator for troubleshooting and diagnostics

SIMPLE FLEXIBLE CAPABLE

NEXT- GENERATION PRODUCTIVITY

The next generation QX Series™ 40V Cordless Torque Multiplier, will reduce your bolting time and cost, while ensuring repeatable accuracy for all torque-critical joints. Designed with a premium Norbar® gearbox and an efficient, time-tested closed-loop transducer, the Torque Multiplier offers proven quality, control and programmable configurations to maximize your productivity.

TRACEABLE CONFIDENCE IN EVERY HIGH TORQUE FASTENING

Accuracy:

- Ingersoll Rand's closed-loop transducer control at the heart of the tool delivers precise torque and accurate, traceable results—it's precision where you need it most Automatically trace every tightening cycle to the day and minute with a persistent internal clock. Forget manual pen and paper recording.

Control:

- A multi-function display module allowing for quick setup and real time feedback on every QX Series™ tool
- User-programmable configurations such as torque, angle and gang count that reduce the number of tools needed for multiple applications

Comfort:

- Cordless and compact, the QX Series™ Torque Multiplier allows operators to move freely without the need of bulky air or hydraulic hoses, electrical cords,compressors, generators or powerpacks
- Integrated tethering ring included to safely secure the tools

Communication:

- USB standard, Bluetooth and wireless communication optional.
- Direct connect the tool to the Insight Connect app on your bluetooth enabled device.
- Data management, process control and the ability to adjust tool configurations (Ethernet, fieldbus and I/O capable)

Versatility:

- Fast programming that makes the tool adaptable to multiple applications
- Cordless and portable to allow operators to move freely around any workplace or environment
- Available in either pistol or angle configurations

QX™ Series 40V Torque Multiplier 1000NM Pistol Grip

QX Series™ Torque Multiplier 1620NM High Torque Angle Wrench

Adaptable to your Application

From pipeline flange bolts to truck frame assembly, the QX Series™ 40V Cordless Torque Multiplier has the range, accuracy and configurations to tackle your bolting needs. Sharing the same IQV40 Series power platform with our High Torque Angle Wrench, assembly tools, the Torque Multiplier expands our broad range of cordless bolting solutions.

Agriculture & Heavy Equipment

- Chassis & Suspension
- Wheels
- Diesel & Gas Engines
- Tracks

Infrastructure

- Bridges
- Road Ways
- Steel Structures

Oil & Gas

- Flanges
- Heat Exchangers
- High Pressure Valves

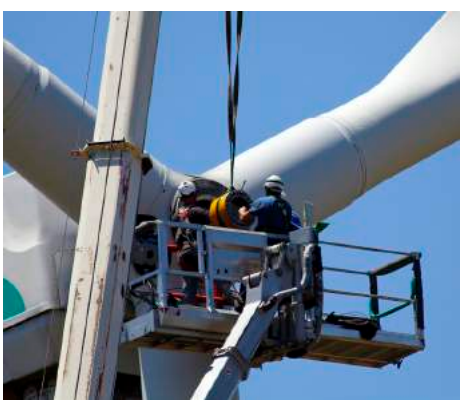
Rail

- Rail Car Manufacturing
- Locomotive Assembly
- General Maintenance

Truck & Bus

- Wheels
- Suspension
- Chassis

Wind



- Nacelles
- Gear Boxes
- General Maintenance
- Break-ins

Precision Engineered

Premium Norbar® gearbox provides proven quality and accuracy

Tethering Ring included for safety and drop prevention

Optional Bluetooth and wireless communications for process control with I/O and data collection

Closed-loop transducer control delivers precise torque and accurate, traceable results

USB port for convenient programming and data transfer

Proven QX Series™ brushless motor provides maximum durablity

Standard or custom reaction arms meet multiple application needs

Cooling fan operates independent of the drive motor keeping the motor operating in high cycle, large gang count applications

Durable drop resistant steel reinforced motor housing protects against damage.

Dual Axis 360' handle provides instant adjustablility, maximizing comfort and flexibility when working on multiple joints and applications

Non-contacting trigger and reverse switch maximizes durability

Ergonomic design comfortable, lightweight and balanced

Lithium Ion battery provides maximum run time and portability using power platform common to all Ingersoll Rand IQV40 cordless families

Cycle status lights and audible alarm provide instant validation during each operation
Red – Above set high limit
Yellow – Below set low limit
Green – Within set range
Blue – Active alarm condition

Backlit display offers quick set-up and easy to read visual feedback

Real time results displayed for every fastening

Bluetooth pairing to your Apple iOS or Goggle Android device

Fully integrated with the INSIGHTqcx™ Controller and INSIGHT Connect app for automatic data capture, easy results sharing and tool programming

Superior Communication And Control

Ingersoll Rand® doesn't just give you unprecedented technology, we give you total control of that technology. With up to 32 programmable configurations per tool, the QX Series™ 40V Torque Multiplier allows operators to transition seamlessly between different bolting applications. You'll be able to use bolting strategies individually, or combined in one strategy depending on what works best for you.

COMMON BOLTING STRATEGIES

Torque
Achieve desired torque within high and low limits

Angle
Achieve target rotation within high and low limits

Gang Count
Counts all rundowns to ensure all bolts have been fastened

+ If additional control is needed, Ingersoll Rand's INSIGHTqcx Controller or Insight Connect app gives you even more options to adapt to the most complicated bolting applications.

ADVANCED COMMUNICATION OPTIONS FOR PROCESS CONTROL AND REAL-TIME MONITORING

When not using the wireless INSIGHTqcx™ Controller the optional Bluetooth enable tool can communicate with the INSIGHT™ Connect App.

Tool models without over the air commutation capability can be connected via USB only.

The INSIGHT™ Connect app will help you stay productive, mobile and in control of your fastening process. It programs any Ingersoll Rand® QX Connect Series™ tool without the need for additional technical training, special software, plant network permissions or a laptop computer. Working from a smartphone or tablet, operators can use the app to quickly program the torque and angle control configurations on these closed-loop, transducerized tools.

You can quickly perform key tasks with your mobile device, including:

SIMPLE

- Common Setting & General Tool Setup
- Multiple Language Support
- Retrieve Cycle Log and Share via Email
- Audit Logs
- Error Codes with Description

FLEXIBLE

- Program All Standard QX Platform Tool
- Clone- Back Up and Restore
- Save and Load Configurations
- Firmware Update
- Virtual tool programming

CAPABLE

- Program Torque, Angle, Speed
- Multiple Configurations
- Multiple Step Programming
- End of Run (EOR) data on App
- Calibration and Cp/Cpk
- Programming via Bluetooth

QXSERIES™ 40V SPECIFICATION

QX SERIES™ 40V CORDLESS TORQUE MULTIPLIER

Model	Torq. Max (ft-lb)	Torq. Max (Nm)	Torq. Min (ft-lb)	Torq. Min (Nm)	Speed (RPM)	Weight (lbs) w/Reaction Arm, w/o Battery	Weight (kg) w/Reaction Arm, w/o Battery	Length (in)	Length (mm)	Drive Size (in)
QXBD5PT200PM12 QXXD5PT200PM12 QXFD5PT200PM12	148.5	200	29.5	40	83	13.9	6.3	15.4	390.4	3/4”
QXBD5PT500PM12 QXXD5PT500PM12 QXFD5PT500PM12	369.9	500	73.8	100	27	13.9	6.3	15.5	392.9	3/4”
QXBD5PT10CPM12 QXXD5PT10CPM12 QXFD5PT10CPM12	737.6	1000	147.5	200	15	20	9.1	16.7	422.4	3/4”
QXBD5PT13CPM16 QXXD5PT13CPM16 QXFD5PT13CPM16	995.7	1350	199.1	270	11	20	9.1	16.7	423.2	1
QXBD5PT20CPM16 QXXD5PT20CPM16 QXFD5PT20CPM16	1475.1	2000	295.0	400	6.8	21	9.5	18	456.7	1
QXBD5PT27CPM16 QXXD5PT27CPM16 QXFD5PT27CPM16	1991.4	2700	398.3	540	5.5	21	9.5	16.9	430	1
QXBD5PT40CPM16 QXXD5PT40CPM16 QXFD5PT40CPM16	2950.2	4000	590.0	800	3.3	27.5	12.5	18.9	480.3	1
QXX5A45T0180PS12	132	180	27	16	110	11.4	4.25	10.4	264	3/4”
QXX5A45T0270PS12	200	270	40	54	77	11.4	4.25	10.4	264	3/4”
QXX2A52T0396PS12	291	395	59	79	21	9.5	3.54	8.5	216	3/4”
QXX2A52T0594PS12	438	594	88	119	14	10.9	4.06	8.5	216	3/4”
QXX5A52T0880PS12	650	880	130	180	23	12.3	4.6	10.4	264	3/4”
QXX5A72T1080PS16	797	1080	160	216	19	16	5.97	10.4	264	1
QXX5A72T1620PS16	1195	1620	239	324	13	16	5.97	10.4	264	1

All models available in the following configuration:
QXX – 802.15.4 and Bluetooth
QXB – Bluetooth Only
QXF – No Wireless Functionality

MODELS

30-148 ft-lbs (40-200 nm)
74-369 ft-lbs (100-500 nm)

295-1,475 ft-lbs (400-2,000 nm)

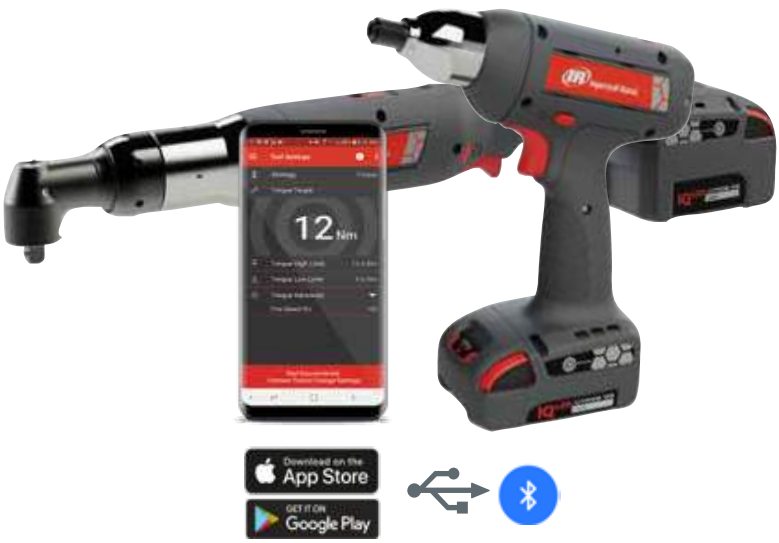
27-132 ft-lbs (16-180 nm)
40-200 ft-lbs (54-270 nm)

130-650 ft-lbs (180-880 nm)
160-797 ft-lbs (216-1,080 nm)
239-1,19 ft-lbs (324-1,620 nm)

INSIGHT ™CONNECT APP

The INSIGHT™ Connect app will help you stay productive, mobile and in control of your fastening process. It programs any Ingersoll Rand® QX Connect Series™ tool without the need for additional technical training, special software, plant network permissions or a laptop computer. Working from a smartphone or tablet, operators can use the app to quickly program the torque and angle control configurations on these closed-loop, transducerized tools.

Once installed, the INSIGHT™ Connect app can operate offline, so it functions in large facilities or other locations where Internet signal loss may be a problem, reducing downtime and maximizing ease of use. The INSIGHT Connect App is a perfect companion to complement QX Connect Series™ tools*. With Bluetooth capability, the INSIGHT Connect App can communicate wirelessly via Bluetooth with the QX Connect tools.



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- Firmware Update
- Virtual tool programming

CAPABLE

- Program Torque, Angle, Speed
- Multiple Configurations
- Multiple Step Programming
- End of Run (EOR) data on App
- Calibration and Cp/Cpk
- Programming via Bluetooth

Customize For Special Applications

QX Pistol Special Head Adapter

The QX Pistol Special Head Adapter is the perfect solution to simply increase the flexibility of your QX pistol screwdriver. Using this adapter leverages the closed-loop capability of the QX tool to the most unique applications. The adapter helps manufacturers meet the requirements of applications where restricted access requires a custom head to reach the fastener. Common applications requiring a special head adapter, include assembling aircraft wings or installing door hinges on cars and trucks.

Special Head Adapter

SIMPLE
Ready made and easy to install

FLEXIBLE
Use your QX pistol grip tool for unique applications

CAPABLE
Employ closed-loop control capabilities on specialty applications

QXFN/QXFD SERIES™

Model	Torque in-lbs	Torque Nm	1 min rpm	Weight lbs (kg)	Length in (mm)	Side to center distance in (mm)	Voltage	Drive	Communications	Communication Type	Display Type
QXFN											
QXFN2PT004PQ04	7–35	(0.8–4)	1,500	2.0 (0.91)	8.48 (215.4)	0.8–1.0 (20.3-26.0)	20V	1/4" Quick Change	Via USB Cable	Via USB Cable	NO
QXFN2PT004PS04	7–35	(0.8–4)	1,500	2.0 (0.91)	8.2 (208.3)	0.8–1.0 (20.3-26.0)	20V	1/4" Square	Via USB Cable	Via USB Cable	NO
QXFN2PT004PS06	7–35	(0.8–4)	1,500	2.0 (0.91)	8.35 (212)	0.8–1.0 (20.3-26.0)	20V	3/8" Square	Via USB Cable	Via USB Cable	NO
QXFN2PT008PQ04	14–70	(1.6–8)	1,150	2.0 (0.91)	8.48 (215.4)	0.8–1.0 (20.3-26.0)	20V	1/4" Quick Change	Via USB Cable	Via USB Cable	NO
QXFN2PT008PS04	14–70	(1.6–8)	1,150	2.0 (0.91)	8.2 (208.3)	0.8–1.0 (20.3-26.0)	20V	1/4" Square	Via USB Cable	Via USB Cable	NO
QXFN2PT008PS06	14–70	(1.6–8)	1,150	2.0 (0.91)	8.35 (212)	0.8–1.0 (20.3-26.0)	20V	3/8" Square	Via USB Cable	Via USB Cable	NO
QXFN2PT012PQ04	21–106	(2.4–12)	750	2.0 (0.91)	8.48 (215.4)	0.8–1.0 (20.3-26.0)	20V	1/4" Quick Change	Via USB Cable	Via USB Cable	NO
QXFN2PT012PS04	21–106	(2.4–12)	750	2.0 (0.91)	8.2 (208.3)	0.8–1.0 (20.3-26.0)	20V	1/4" Square	Via USB Cable	Via USB Cable	NO
QXFN2PT012PS06	21–106	(2.4–12)	750	2.0 (0.91)	8.35 (212)	0.8–1.0 (20.3-26.0)	20V	3/8" Square	Via USB Cable	Via USB Cable	NO
QXFN2PT018PQ04	32–159	(3.6–18)	500	2.0 (0.91)	8.48 (215.4)	0.8–1.0 (20.3-26.0)	20V	1/4" Quick Change	Via USB Cable	Via USB Cable	NO
QXFN2PT018PS06	32–159	(3.6–18)	500	2.0 (0.91)	8.35 (212)	0.8–1.0 (20.3-26.0)	20V	3/8" Square	Via USB Cable	Via USB Cable	NO
QXFN2AT005PQ04	9–44	(1.0–5)	1213	2.5 (1.14)	21.73 (552)	0.36 (9.2)	20V	1/4" Quick Change	Via USB Cable	Via USB Cable	NO
QXFN2AT010PS06	18–89	(2.0–10)	936	2.6 (1.18)	20.67 (525)	0.49 (12.5)	20V	3/8" Square	Via USB Cable	Via USB Cable	NO
QXFN2AT015PS06	27–133	(3.0–15)	600	2.6 (1.18)	20.67 (525)	0.49 (12.5)	20V	3/8" Square	Via USB Cable	Via USB Cable	NO
QXFN2AT018PQ04	32–159	(3.6–18)	500	2.8 (1.27)	24.34 (542)	0.51 (13)	20V	1/4" Quick Change	Via USB Cable	Via USB Cable	NO
QXFN2AT018PS06	32–159	(3.6–18)	500	2.8 (1.27)	24.34 (542)	0.51 (13)	20V	3/8" Square	Via USB Cable	Via USB Cable	NO
QXFN2AT027PS06	48–239	(5.4–27)	330	3.7 (1.68)	21.73 (552)	0.67 (17)	20V	3/8" Square	Via USB Cable	Via USB Cable	NO
	ft-lbs										
QXFN5AT020PS06	2.95–14.75	(4.0–20)	1045	4.5 (2.04)	22.74 (577.7)	0.52 (13.1)	40V	3/8" Square	Via USB Cable	Via USB Cable	NO
QXFN5AT030PS06	4.40–22.10	(6.0–30)	775	4.8 (2.18)	22.91 (581.8)	0.68 (17.2)	40V	3/8" Square	Via USB Cable	Via USB Cable	NO
QXFN5AT030PS08	4.40–22.10	(6.0–30)	775	4.8 (2.18)	22.91 (581.8)	0.68 (17.2)	40V	1/2" Square	Via USB Cable	Via USB Cable	NO
QXFN5AT035PS06	5.20–25.80	(7.0–35)	640	4.8 (2.18)	22.91 (581.8)	0.68 (17.2)	40V	3/8" Square	Via USB Cable	Via USB Cable	NO
QXFN5AT035PS08	5.20–25.80	(7.0–35)	640	4.8 (2.18)	22.91 (581.8)	0.68 (17.2)	40V	1/2" Square	Via USB Cable	Via USB Cable	NO
QXFN5AT040PS08	5.90–29.50	(8.0–40)	545	5.0 (2.27)	23.07 (586.1)	0.85 (21.6)	40V	1/2" Square	Via USB Cable	Via USB Cable	NO
QXFN5AT080PS08	8.80–59.0	(12.0–80)	375	5.0 (2.27)	23.07 (586.1)	0.85 (21.6)	40V	1/2" Square	Via USB Cable	Via USB Cable	NO
QXFD											
QXFD2PT004PQ04	7–35	(0.8–4)	1,500	2.0 (0.91)	8.48 (215.4)	0.8–1.0 (20.3-26.0)	20V	1/4" Quick Change	Via USB Cable	Via USB Cable	YES
QXFD2PT004PS04	7–35	(0.8–4)	1,500	2.0 (0.91)	8.2 (208.3)	0.8–1.0 (20.3-26.0)	20V	1/4" Square	Via USB Cable	Via USB Cable	YES
QXFD2PT004PS06	7–35	(0.8–4)	1,500	2.0 (0.91)	8.35 (212)	0.8–1.0 (20.3-26.0)	20V	3/8" Square	Via USB Cable	Via USB Cable	YES
QXFD2PT008PQ04	14–70	(1.6–8)	1,150	2.0 (0.91)	8.48 (215.4)	0.8–1.0 (20.3-26.0)	20V	1/4" Quick Change	Via USB Cable	Via USB Cable	YES
QXFD2PT008PS04	14–70	(1.6–8)	1,150	2.0 (0.91)	8.2 (208.3)	0.8–1.0 (20.3-26.0)	20V	1/4" Square	Via USB Cable	Via USB Cable	YES
QXFD2PT008PS06	14–70	(1.6–8)	1,150	2.0 (0.91)	8.35 (212)	0.8–1.0 (20.3-26.0)	20V	3/8" Square	Via USB Cable	Via USB Cable	YES
QXFD2PT012PQ04	21–106	(2.4–12)	750	2.0 (0.91)	8.48 (215.4)	0.8–1.0 (20.3-26.0)	20V	1/4" Quick Change	Via USB Cable	Via USB Cable	YES
QXFD2PT012PS04	21–106	(2.4–12)	750	2.0 (0.91)	8.2 (208.3)	0.8–1.0 (20.3-26.0)	20V	1/4" Square	Via USB Cable	Via USB Cable	YES
QXFD2PT012PS06	21–106	(2.4–12)	750	2.0 (0.91)	8.35 (212)	0.8–1.0 (20.3-26.0)	20V	3/8" Square	Via USB Cable	Via USB Cable	YES
QXFD2PT018PQ04	32–159	(3.6–18)	500	2.0 (0.91)	8.48 (215.4)	0.8–1.0 (20.3-26.0)	20V	1/4" Quick Change	Via USB Cable	Via USB Cable	YES
QXFD2PT018PS06	32–159	(3.6–18)	500	2.0 (0.91)	8.35 (212)	0.8–1.0 (20.3-26.0)	20V	3/8" Square	Via USB Cable	Via USB Cable	YES
QXFD2AT005PQ04	9–44	(1.0–5)	1213	2.5 (1.14)	21.73 (552)	0.36 (9.2)	20V	1/4" Quick Change	Via USB Cable	Via USB Cable	YES
QXFD2AT010PS06	18–89	(2.0–10)	936	2.6 (1.18)	20.67 (525)	0.49 (12.5)	20V	3/8" Square	Via USB Cable	Via USB Cable	YES
QXFD2AT015PS06	27–133	(3.0–15)	600	2.6 (1.18)	20.67 (525)	0.49 (12.5)	20V	3/8" Square	Via USB Cable	Via USB Cable	YES
QXFD2AT018PQ04	32–159	(3.6–18)	500	2.8 (1.27)	24.34 (542)	0.51 (13)	20V	1/4" Quick Change	Via USB Cable	Via USB Cable	YES
QXFD2AT018PS06	32–159	(3.6–18)	500	2.8 (1.27)	24.34 (542)	0.51 (13)	20V	3/8" Square	Via USB Cable	Via USB Cable	YES
QXFD2AT027PS06	48–239	(5.4–27)	330	3.7 (1.68)	21.73 (552)	0.67 (17)	20V	3/8" Square	Via USB Cable	Via USB Cable	YES
	ft-lbs										
QXFD5AT020PS06	2.95–14.75	(4.0–20)	1045	4.5 (2.04)	22.74 (577.7)	0.52 (13.1)	40V	3/8" Square	Via USB Cable	Via USB Cable	YES
QXFD5AT030PS06	4.40–22.10	(6.0–30)	775	4.8 (2.18)	22.91 (581.8)	0.68 (17.2)	40V	3/8" Square	Via USB Cable	Via USB Cable	YES
QXFD5AT030PS08	4.40–22.10	(6.0–30)	775	4.8 (2.18)	22.91 (581.8)	0.68 (17.2)	40V	1/2" Square	Via USB Cable	Via USB Cable	YES
QXFD5AT035PS06	5.20–25.80	(7.0–35)	640	4.8 (2.18)	22.91 (581.8)	0.68 (17.2)	40V	3/8" Square	Via USB Cable	Via USB Cable	YES
QXFD5AT035PS08	5.20–25.80	(7.0–35)	640	4.8 (2.18)	22.91 (581.8)	0.68 (17.2)	40V	1/2" Square	Via USB Cable	Via USB Cable	YES
QXFD5AT040PS08	5.90–29.50	(8.0–40)	545	5.0 (2.27)	23.07 (586.1)	0.85 (21.6)	40V	1/2" Square	Via USB Cable	Via USB Cable	YES
QXFD5AT080PS08	8.80–59.0	(12.0–80)	375	5.0 (2.27)	23.07 (586.1)	0.85 (21.6)	40V	1/2" Square	Via USB Cable	Via USB Cable	YES

QXBN/QXBD SERIES™

Model	Torque in-lbs	Torque Nm	1 min rpm	Weight lbs (kg)	Length in (mm)	Side to center distance in (mm)	Voltage	Drive	Communications	Communication Type	Display Type
QXBN											
QXBN2PT004PQ04	7–35	(0.8–4)	1,500	2.0 (0.91)	8.48 (215.4)	0.8–1.0 (20.3-26.0)	20V	1/4" Quick Change	Via USB Cable	Bluetooth Only	NO
QXBN2PT004PS04	7–35	(0.8–4)	1,500	2.0 (0.91)	8.2 (208.3)	0.8–1.0 (20.3-26.0)	20V	1/4" Square	Via USB Cable	Bluetooth Only	NO
QXBN2PT004PS06	7–35	(0.8–4)	1,500	2.0 (0.91)	8.35 (212)	0.8–1.0 (20.3-26.0)	20V	3/8" Square	Via USB Cable	Bluetooth Only	NO
QXBN2PT008PQ04	14–70	(1.6–8)	1,150	2.0 (0.91)	8.48 (215.4)	0.8–1.0 (20.3-26.0)	20V	1/4" Quick Change	Via USB Cable	Bluetooth Only	NO
QXBN2PT008PS04	14–70	(1.6–8)	1,150	2.0 (0.91)	8.2 (208.3)	0.8–1.0 (20.3-26.0)	20V	1/4" Square	Via USB Cable	Bluetooth Only	NO
QXBN2PT008PS06	14–70	(1.6–8)	1,150	2.0 (0.91)	8.35 (212)	0.8–1.0 (20.3-26.0)	20V	3/8" Square	Via USB Cable	Bluetooth Only	NO
QXBN2PT012PQ04	21–106	(2.4–12)	750	2.0 (0.91)	8.48 (215.4)	0.8–1.0 (20.3-26.0)	20V	1/4" Quick Change	Via USB Cable	Bluetooth Only	NO
QXBN2PT012PS04	21–106	(2.4–12)	750	2.0 (0.91)	8.2 (208.3)	0.8–1.0 (20.3-26.0)	20V	1/4" Square	Via USB Cable	Bluetooth Only	NO
QXBN2PT012PS06	21–106	(2.4–12)	750	2.0 (0.91)	8.35 (212)	0.8–1.0 (20.3-26.0)	20V	3/8" Square	Via USB Cable	Bluetooth Only	NO
QXBN2PT018PQ04	32–159	(3.6–18)	500	2.0 (0.91)	8.48 (215.4)	0.8–1.0 (20.3-26.0)	20V	1/4" Quick Change	Via USB Cable	Bluetooth Only	NO
QXBN2PT018PS06	32–159	(3.6–18)	500	2.0 (0.91)	8.35 (212)	0.8–1.0 (20.3-26.0)	20V	3/8" Square	Via USB Cable	Bluetooth Only	NO
QXBN2AT005PQ04	9–44	(1.0–5)	1213	2.5 (1.14)	21.73 (552)	0.36 (9.2)	20V	1/4" Quick Change	Via USB Cable	Bluetooth Only	NO
QXBN2AT010PS06	18–89	(2.0–10)	936	2.6 (1.18)	20.67 (525)	0.49 (12.5)	20V	3/8" Square	Via USB Cable	Bluetooth Only	NO
QXBN2AT015PS06	27–133	(3.0–15)	600	2.6 (1.18)	20.67 (525)	0.49 (12.5)	20V	3/8" Square	Via USB Cable	Bluetooth Only	NO
QXBN2AT018PQ04	32–159	(3.6–18)	500	2.8 (1.27)	24.34 (542)	0.51 (13)	20V	1/4" Quick Change	Via USB Cable	Bluetooth Only	NO
QXBN2AT018PS06	32–159	(3.6–18)	500	2.8 (1.27)	24.34 (542)	0.51 (13)	20V	3/8" Square	Via USB Cable	Bluetooth Only	NO
QXBN2AT027PS06	48–239	(5.4–27)	330	3.7 (1.68)	21.73 (552)	0.67 (17)	20V	3/8" Square	Via USB Cable	Bluetooth Only	NO
	ft-lbs										
QXBN5AT020PS06	2.95–14.75	(4.0–20)	1045	4.5 (2.04)	22.74 (577.7)	0.52 (13.1)	40V	3/8" Square	Via USB Cable	Bluetooth Only	NO
QXBN5AT030PS06	4.40–22.10	(6.0–30)	775	4.8 (2.18)	22.91 (581.8)	0.68 (17.2)	40V	3/8" Square	Via USB Cable	Bluetooth Only	NO
QXBN5AT030PS08	4.40–22.10	(6.0–30)	775	4.8 (2.18)	22.91 (581.8)	0.68 (17.2)	40V	1/2" Square	Via USB Cable	Bluetooth Only	NO
QXBN5AT035PS06	5.20–25.80	(7.0–35)	640	4.8 (2.18)	22.91 (581.8)	0.68 (17.2)	40V	3/8" Square	Via USB Cable	Bluetooth Only	NO
QXBN5AT035PS08	5.20–25.80	(7.0–35)	640	4.8 (2.18)	22.91 (581.8)	0.68 (17.2)	40V	1/2" Square	Via USB Cable	Bluetooth Only	NO
QXBN5AT040PS08	5.90–29.50	(8.0–40)	545	5.0 (2.27)	23.07 (586.1)	0.85 (21.6)	40V	1/2" Square	Via USB Cable	Bluetooth Only	NO
QXBN5AT080PS08	8.80–59.0	(12.0–80)	375	5.0 (2.27)	23.07 (586.1)	0.85 (21.6)	40V	1/2" Square	Via USB Cable	Bluetooth Only	NO
QXBD											
QXBD2PT004PQ04	7–35	0.8–4	1,500	2 (0.91)	8.48 (215.4)	0.8–1.0 (20.3–26.0)	20V	1/4" Quick Change	Via USB Cable	Bluetooth Only	YES
QXBD2PT004PS04	7–35	0.8–4	1,500	2 (0.91)	8.2 (208.3)	0.8–1.0 (20.3–26.0)	20V	1/4" Square	Via USB Cable	Bluetooth Only	YES
QXBD2PT004PS06	7–35	0.8–4	1,500	2 (0.91)	8.35 (212)	0.8–1.0 (20.3–26.0)	20V	3/8" Square	Via USB Cable	Bluetooth Only	YES
QXBD2PT008PQ04	14–70	1.6–8	1,150	2 (0.91)	8.48 (215.4)	0.8–1.0 (20.3–26.0)	20V	1/4" Quick Change	Via USB Cable	Bluetooth Only	YES
QXBD2PT008PS04	14–70	1.6–8	1,150	2 (0.91)	8.2 (208.3)	0.8–1.0 (20.3–26.0)	20V	1/4" Square	Via USB Cable	Bluetooth Only	YES
QXBD2PT008PS06	14–70	1.6–8	1,150	2 (0.91	8.35 (212)	0.8–1.0 (20.3–26.0)	20V	3/8" Square	Via USB Cable	Bluetooth Only	YES
QXBD2PT012PQ04	21–106	2.4–12	750	2 (0.91)	8.48 (215.4)	0.8–1.0 (20.3–26.0)	20V	1/4" Quick Change	Via USB Cable	Bluetooth Only	YES
QXBD2PT012PS04	21–106	2.4–12	750	2 (0.91)	8.2 (208.3)	0.8–1.0 (20.3–26.0)	20V	1/4" Square	Via USB Cable	Bluetooth Only	YES
QXBD2PT012PS06	21–106	2.4–12	750	2 (0.91)	8.35 (212)	0.8–1.0 (20.3–26.0)	20V	3/8" Square	Via USB Cable	Bluetooth Only	YES
QXBD2PT018PQ04	32–159	3.6–18	500	2 (0.91)	8.48 (215.4)	0.8–1.0 (20.3–26.0)	20V	1/4" Quick Change	Via USB Cable	Bluetooth Only	YES
QXBD2PT018PS06	32–159	3.6–18	500	2 (0.91)	8.35 (212)	0.8–1.0 (20.3–26.0)	20V	3/8" Square	Via USB Cable	Bluetooth Only	YES
QXBD2AT005PQ04	9–44	1.0–5	1,213	3 (1.14)	21.73 (552)	0.36 (9.2)	20V	1/4" Quick Change	Via USB Cable	Bluetooth Only	YES
QXBD2AT010PS06	18–89	2.0–10	936	2.6 (1.18)	20.67 (525)	0.49 (12.5)	20V	3/8" Square	Via USB Cable	Bluetooth Only	YES
QXBD2AT015PS06	27–133	3.0–15	600	2.6 (1.18)	20.67 (525)	0.49 (12.5)	20V	3/8" Square	Via USB Cable	Bluetooth Only	YES
QXBD2AT018PQ04	32–159	3.6–18	500	2.8 (1.27)	24.34 (542)	0.51 (13)	20V	1/4" Quick Change	Via USB Cable	Bluetooth Only	YES
QXBD2AT018PS06	32–159	3.6–18	500	2.8 (1.27)	24.34 (542)	0.51 (13)	20V	3/8" Square	Via USB Cable	Bluetooth Only	YES
QXBD2AT027PS06	48–239	5.4–27	330	3.7 (1.68)	21.73 (552)	0.67 (17)	20V	3/8" Square	Via USB Cable	Bluetooth Only	YES
	ft-lbs										
QXBD5AT020PS06	2.95–14.75	4.0–20	1,045	5 (2.04)	22.74 (577.7)	0.52 (13.1)	40V	3/8" Square	Via USB Cable	Bluetooth Only	YES
QXBD5AT030PS06	4.40–22.10	6.0–30	775	4.8 (2.18)	22.91 (581.8)	0.68 (17.2)	40V	3/8" Square	Via USB Cable	Bluetooth Only	YES
QXBD5AT030PS08	4.40–22.10	6.0–30	775	4.8 (2.18)	22.91 (581.8)	0.68 (17.2)	40V	1/2" Square	Via USB Cable	Bluetooth Only	YES
QXBD5AT035PS06	5.20–25.80	7.0–35	640	4.8 (2.18)	22.91 (581.8)	0.68 (17.2)	40V	3/8" Square	Via USB Cable	Bluetooth Only	YES
QXBD5AT035PS08	5.20–25.80	7.0–35	640	4.8 (2.18)	22.91 (581.8)	0.68 (17.2)	40V	1/2" Square	Via USB Cable	Bluetooth Only	YES
QXBD5AT040PS08	5.90–29.50	8.0–40	545	5 (2.27)	23.07 (586.1)	0.85 (21.6)	40V	1/2" Square	Via USB Cable	Bluetooth Only	YES
QXBD5AT080PS08	8.80–59.0	12.0–80	375	5 (2.27)	23.07 (586.1)	0.85 (21.6)	40V	1/2" Square	Via USB Cable	Bluetooth Only	YES

QXXD/QXXN SERIES™

Model	Torque in-lbs	Torque Nm	1 min rpm	Weight lbs (kg)	Length in (mm)	Side to center distance in (mm)	Voltage	Drive	Communications	Communication Type	Display Type
QXXD											
QXXD2PT004PQ04	7–35	0.8–4	1,500	2.0 (0.91)	8.48 (215.4)	0.8–1.0 (20.3–26.0)	20V	1/4" Quick Change	Wireless + USB	Wireless	YES
QXXD2PT004PS04	7–35	0.8–4	1,500	2.0 (0.91)	8.2 (208.3)	0.8–1.0 (20.3–26.0)	20V	1/4" Square	Wireless + USB	Wireless	YES
QXXD2PT004PS06	7–35	0.8–4	1,500	2.0 (0.91)	8.35 (212)	0.8–1.0 (20.3–26.0)	20V	3/8" Square	Wireless + USB	Wireless	YES
QXXD2PT008PQ04	14–70	1.6–8	1,150	2.0 (0.91)	8.48 (215.4	0.8–1.0 (20.3–26.0)	20V	1/4" Quick Change	Wireless + USB	Wireless	YES
QXXD2PT008PS04	14–70	1.6–8	1,150	2.0 (0.91)	8.2 (208.3)	0.8–1.0 (20.3–26.0)	20V	1/4" Square	Wireless + USB	Wireless	YES
QXXD2PT008PS06	14–70	1.6–8	1,150	2.0 (0.91)	8.35 (212)	0.8–1.0 (20.3–26.0)	20V	3/8" Square	Wireless + USB	Wireless	YES
QXXD2PT012PQ04	21–106	2.4–12	750	2.0 (0.91)	8.48 (215.4)	0.8–1.0 (20.3–26.0)	20V	1/4" Quick Change	Wireless + USB	Wireless	YES
QXXD2PT012PS04	21–106	2.4–12	750	2.0 (0.91)	8.2 (208.3)	0.8–1.0 (20.3–26.0)	20V	1/4" Square	Wireless + USB	Wireless	YES
QXXD2PT012PS06	21–106	2.4–12	750	2.0 (0.91)	8.35 (212)	0.8–1.0 (20.3–26.0)	20V	3/8" Square	Wireless + USB	Wireless	YES
QXXD2PT018PQ04	32–159	3.6–18	500	2.0 (0.91)	8.48 (215.4)	0.8–1.0 (20.3–26.0)	20V	1/4" Quick Change	Wireless + USB	Wireless	YES
QXXD2PT018PS06	32–159	3.6–18	500	2.0 (0.91)	8.35 (212)	0.8–1.0 (20.3–26.0)	20V	3/8" Square	Wireless + USB	Wireless	YES
QXXD2AT005PQ04	9–44	1.0–5	1213	2.5 (1.14)	21.73 (552)	0.36 (9.2)	20V	1/4" Quick Change	Wireless + USB	Wireless	YES
QXXD2AT010PS06	18–89	2.0–10	936	2.6 (1.18)	20.67 (525)	0.49 (12.5)	20V	3/8" Square	Wireless + USB	Wireless	YES
QXXD2AT015PS06	27–133	3.0–15	600	2.6 (1.18)	20.67 (525)	0.49 (12.5)	20V	3/8" Square	Wireless + USB	Wireless	YES
QXXD2AT018PQ04	32–159	3.6–18	500	2.8 (1.27)	24.34 (542)	0.51 (13)	20V	1/4" Quick Change	Wireless + USB	Wireless	YES
QXXD2AT018PS06	32–159	3.6–18	500	2.8 (1.27)	24.34 (542)	0.51 (13)	20V	3/8" Square	Wireless + USB	Wireless	YES
QXXD2AT027PS06	48–239	5.4–27	330	3.7 (1.68)	21.73 (552)	0.67 (17)	20V	3/8" Square	Wireless + USB	Wireless	YES
	ft-lbs										
QXXD5AT020PS06	2.95–14.75	4.0–20	1045	4.5 (2.04)	22.74 (577.7)	0.52 (13.1)	40V	3/8" Square	Wireless + USB	Wireless	YES
QXXD5AT030PS06	4.40–22.10	6.0–30	775	4.8 (2.18)	22.91 (581.8)	0.68 (17.2)	40V	3/8" Square	Wireless + USB	Wireless	YES
QXXD5AT030PS08	4.40–22.10	6.0–30	775	4.8 (2.18)	22.91 (581.8)	0.68 (17.2)	40V	1/2" Square	Wireless + USB	Wireless	YES
QXXD5AT035PS06	5.20–25.80	7.0–35	640	4.8 (2.18)	22.91 (581.8)	0.68 (17.2)	40V	3/8" Square	Wireless + USB	Wireless	YES
QXXD5AT035PS08	5.20–25.80	7.0–35	640	4.8 (2.18)	22.91 (581.8)	0.68 (17.2)	40V	1/2" Square	Wireless + USB	Wireless	YES
QXXD5AT040PS08	5.90–29.50	8.0–40	545	5 (2.27)	23.07 (586.1)	0.85 (21.6)	40V	1/2" Square	Wireless + USB	Wireless	YES
QXXD5AT080PS08	8.80–59.0	12.0–80	375	5 (2.27)	23.07 (586.1)	0.85 (21.6)	40V	1/2" Square	Wireless + USB	Wireless	YES
QXXN											
QXXN5AT020PS06	2.9 -14.9	4.0-21	1045	4.5(2.04)	22.74(577.8)	0.52(13.2)	40V	3/8" Square	Wireless + USB	Wireless	No
QXXN5AT030PS06	4.4-22.1	6.0-30	775	4.8(2.18)	22.91(581.8)	0.68(17.2)	40V	3/8" Square	Wireless + USB	Wireless	No
QXXN5AT030PS08	4.4-22.1	6.0-30	775	4.8(2.18)	22.91(581.8)	0.68(17.2)	40V	1/2" Square	Wireless + USB	Wireless	No
QXXN5AT035PS06	5.2-25.8	7.0-35	640	4.8(2.18)	22.91(581.8)	0.68(17.2)	40V	3/8" Square	Wireless + USB	Wireless	No
QXXN5AT035PS08	5.2-25.8	7.0-35	640	4.8(2.18)	22.91(581.8)	0.68(17.2)	40V	1/2" Square	Wireless + USB	Wireless	No
QXXN5AT040ES08	5.9-29.5	8.0-40	545	5(2.27)	23.07(586.1)	0.85(21.6)	40V	1/2" Square	Wireless + USB	Wireless	No
QXXN5AT040PS08	5.9-29.5	8.0-40	545	5(2.27)	23.07(586.1)	0.85(21.6)	40V	1/2" Square	Wireless + USB	Wireless	No
QXXN5AT080ES08	8.8-59.0	12.0-80	375	5(2.27)	23.07(586.1)	0.85(21.6)	40V	1/2" Square	Wireless + USB	Wireless	No
QXXN5AT080PS08	8.8-59.0	12.0-80	375	5(2.27)	23.07(586.1)	0.85(21.6)	40V	1/2 " Square	Wireless + USB	Wireless	No

QX CONNECT SERIES™

QX ETS

Model	Torque in-lbs	Torque Nm	1 min rpm	Weight lbs (kg)	Length in (mm)	Side to center distance in (mm)	Voltage	Drive	Communications	Communication Type	Display Type
QXFN2PT008ES06	14–70	1.6-8	1150	2.0 (0.91)	7.99 (203)	1.02 (26)	20V	3/8" Square	Via USB Cable	Via USB Cable	NO
QXFD2PT008ES06	14–70	1.6-8	1150	2.0 (0.91)	7.99 (203)	1.02 (26)	20V	3/8" Square	Via USB Cable	Via USB Cable	YES
QXBN2PT008ES06	14–70	1.6-8	1150	2.0 (0.91)	7.99 (203)	1.02 (26)	20V	3/8" Square	Via USB Cable	Bluetooth Only	NO
QXFN2PT008EQ04	14–70	1.6-8	1150	2.0 (0.91)	8.13 (206.5)	1.02 (26)	20V	1/4" Quick Change	Via USB Cable	Via USB Cable	NO
QXFN2PT012ES06	21–106	2.4-1.2	750	2.0 (0.91)	7.99 (203)	1.02 (26)	20V	3/8" Square	Via USB Cable	Via USB Cable	NO
QXFD2PT012ES06	21–106	2.4-1.2	750	2.0 (0.91)	7.99 (203)	1.02 (26)	20V	3/8" Square	Via USB Cable	Via USB Cable	YES
QXBN2PT012ES06	21–106	2.4-1.2	750	2.0 (0.91)	7.99 (203)	1.02 (26)	20V	3/8" Square	Via USB Cable	Bluetooth Only	NO
QXFN2PT012EQ04	21–106	2.4-1.2	750	2.0 (0.91)	8.13 (206.5)	1.0 (26)	20V	1/4" Quick Change	Via USB Cable	Via USB Cable	NO
QXFN2PT018ES06	32–159	3.6-18	500	2.0 (0.91)	7.99 (203)	1.02 (26)	20V	3/8" Square	Via USB Cable	Via USB Cable	NO
QXFD2PT018ES06	32–159	3.6-18	500	2.0 (0.91)	7.99 (203)	1.02 (26)	20V	3/8" Square	Via USB Cable	Via USB Cable	YES
QXBN2PT018ES06	32–159	3.6-18	500	2.0 (0.91)	7.99 (203)	1.02 (26)	20V	3/8" Square	Via USB Cable	Bluetooth Only	NO
QXFN2PT018EQ04	32–159	3.6-18	500	2.0 (0.91)	8.13 (206.5)	1.02 (26)	20V	1/4" Quick Change	Via USB Cable	Via USB Cable	NO
QXFN2PT024ES06	42–212	4.8-24	500	2.0 (0.91)	8.35 (212)	1.02 (26)	20V	3/8" Square	Via USB Cable	Via USB Cable	NO
QXFD2PT024ES06	42–212	4.8-24	500	2.0 (0.91)	8.35 (212)	1.02 (26)	20V	3/8" Square	Via USB Cable	Via USB Cable	YES
QXBN2PT024ES06	42–212	4.8-24	500	2.0 (0.91)	8.35 (212)	1.02 (26)	20V	3/8" Square	Via USB Cable	Bluetooth Only	NO
QXBD2PT008ES06	14–70	1.6-8	1150	2.0 (0.91)	7.99 (203)	1.02 (26)	20V	3/8" Square	Via USB Cable	Bluetooth Only	YES
QXBD2PT008EQ4	14–70	1.6-8	1150	2.0 (0.91)	8.13 (206.5)	1.02 (26)	20V	1/4" Quick Change	Via USB Cable	Bluetooth Only	YES
QXBD2PT012ES06	21–106	2.4-12	750	2.0 (0.91)	7.99 (203)	1.02 (26)	20V	3/8" Square	Via USB Cable	Bluetooth Only	YES
QXBD2PT012EQ4	21–106	2.4-12	750	2.0 (0.91)	8.13 (206.5)	1.02 (26)	20V	1/4" Quick Change	Via USB Cable	Bluetooth Only	YES
QXBD2PT018ES06	32–159	3.6-18	500	2.0(0.91)	7.99 (203)	1.02 (26)	20V	3/8" Square	Via USB Cable	Bluetooth Only	YES
QXBD2PT018EQ4	32–159	3.6-18	500	2.0 (0.91)	8.13 (206.5)	1.02 (26)	20V	1/4" Quick Change	Via USB Cable	Bluetooth Only	YES
QXBD2PT024ES06	42–212	4.8-24	500	2.0 (0.91)	8.35 (212)	1.02 (26)	20V	3/8" Square	Via USB Cable	Bluetooth Only	YES
QXBD2AT027ES06	48–239	5.4-27	330	3.7 (1.68)	21.7 (552)	0.68 (17.2)	20V	3/8" Square	Via USB Cable	Bluetooth Only	YES
QXFN2AT027ES06	48–239	5.4-27	330	3.7 (1.68)	21.7 (552)	0.68 (17.2)	20V	3/8" Square	Via USB Cable	Via USB Cable	NO
QXFD2AT027ES06	48–239	5.4-27	330	3.7 (1.68)	21.7 (552)	0.68 (17.2)	20V	3/8" Square	Via USB Cable	Via USB Cable	YES
QXBN2AT027ES06	48–239	5.4-27	330	3.7 (1.68)	21.7 (552)	0.68 (17.2)	20V	3/8" Square	Via USB Cable	Bluetooth Only	NO
QXXD2PT008ES06	14–70	1.6-8	1150	2.0 (0.91)	7.99 (203)	1.02 (26)	20V	3/8" Square	Wireless + USB	Wireless + USB	YES
QXXD2PT008EQ04	14–70	1.6-8	1150	2.0 (0.91)	8.13 (206.5)	1.02 (26)	20V	1/4" Quick Change	Wireless + USB	Wireless + USB	YES
QXXD2PT012ES06	21–106	2.4-12	750	2.0 (0.91)	7.99 (203)	1.02 (26)	20V	3/8" Square	Wireless + USB	Wireless + USB	YES
QXXD2PT012EQ04	21–106	2.4-12	750	2.0 (0.91)	8.13 (206.5)	1.02 (26)	20V	1/4" Quick Change	Wireless + USB	Wireless + USB	YES
QXXD2PT018ES06	32–159	3.6-18	500	2.0 (0.91)	7.99 (203)	1.02 (26)	20V	3/8" Square	Wireless + USB	Wireless + USB	YES
QXXD2PT018EQ04	32–159	3.6-18	500	2.0 (0.91)	8.13 (206.5)	1.02 (26)	20V	1/4" Quick Change	Wireless + USB	Wireless + USB	YES
QXXD2PT024ES06	42–212	4.8-24	500	2.0 (0.91)	8.35 (212)	1.02 (26)	20V	3/8" Square	Wireless + USB	Wireless + USB	YES
QXXD2AT027ES06	48–239	5.4-27	330	3.7 (1.68)	21.7 (552)	0.68 (17.2)	20V	3/8" Square	Wireless + USB	Wireless + USB	YES
	ft-lbs										
QXFN5AT040ES08	5.90–29.50	8.0-40	545	5.0 (2.27)	23.1 (586.1)	0.85 (21.6)	40V	1/2" Square	Via USB Cable	Via USB Cable	NO
QXFN5AT080ES08	8.80–59.0	12.0-80	375	5.0 (2.27)	23.1 (586.1)	0.85 (21.6)	40V	1/2" Square	Via USB Cable	Via USB Cable	NO
QXBD5AT040ES08	5.90–29.50	8.0-40	545	5.0 (2.27)	23.1 (586.1)	0.85 (21.6)	40V	1/2" Square	Via USB Cable	Bluetooth Only	YES
QXBD5AT080ES08	8.80–59.0	12.0-80	375	5.0 (2.27)	23.1 (586.1)	0.85 (21.6)	40V	1/2" Square	Via USB Cable	Bluetooth Only	YES
QXXD5AT040ES08	5.90–29.50	8.0-40	545	5.0 (2.27)	23.1 (586.1)	0.85 (21.6)	40V	1/2" Square	Wireless + USB	Wireless + USB	YES
QXXD5AT080ES08	8.80–59.0	12.0-80	375	5.0 (2.27)	23.1 (586.1)	0.85 (21.6)	40V	1/2" Square	Wireless + USB	Wireless + USB	YES

INSIGHTqc™ Controller Cordless High Precision Tools

The Power To Reduce Costs & Increase Flexibility

When trying to achieve simple manufacturing goals in a complex manufacturing world, understanding the fastening process doesn't have to be complicated. The new Ingersoll Rand® INSIGHTqcx™ is different, by design. This cordless controller is designed to be easy to use and integrate, while providing a common platform to meet your assembly requirements worldwide.

With the new Multi Tools Controller (MTC) software option, you also have the ability to control up to 6 tools with just one INSIGHTqcx controller. Ingersoll Rand's innovative solution with our QX Series & INSIGHTqcx MTC controller provides some of the best value available on the market, with one of the lowest total costs of ownership & cost per spindle available.

	SIMPLE EXPERTISE REQUIRED	FLEXIBLE IMPLEMENT CHANGE	CAPABLE MEET YOUR REQUIREMENTS
WHAT DOES THIS MEAN TO ME?	■ Save on selection, training and installation costs ■ Reduce errors and downtime ■ Remove user dependencies	■ Reduce line rebalancing costs ■ Easy line integration ■ Remove device dependency	■ Get the job right, every time ■ Assurance via traceability ■ Optimize your productivity
HOW DOES INGERSOLL RAND PROVIDE VALUE?	■ Intuitive, visual programming interface ■ Plug and play accessories and protocols ■ Integrated backup and recovery ■ Bundled controller options ■ Easy Wireless Pairing (up to 6 tools with MTC option) ■ Tightening configurations can be shared between tools (MTC)	■ Web based programming use any operating system via any browser ■ Meets current industry communication needs ■ Integrated logic controls ■ Easy hardware and software upgrades ■ Onboard wireless energy scan	■ Touch screen interface ■ Optimal cycle data storage: 500,000 results & trace ■ Robust audit and system logs ■ Advanced tightening strategies and features ■ Onboard diagnostics ■ Integrated statistical process controls

SIMPLY INSIGHTFUL

The controller's web-based software eliminates device dependencies and enables full programming capability with any device that can run an internet browser, including smart phones, tablets or computers. The INSIGHTqcx™ controller is easy to integrate with the manufacturing line, provides flexible logic controls for job sequencing and helps reduce line rebalancing costs through a simple and intuitive user interface.

Control up to 6 Tools

Only need 1 Controller (with MTC option)

- Integrated carrying handle
- Integrated wait mount
- Holds 500,000 records for results & trace
- Configure up to 256 jobs & 32 Psets per tool
- 7-m full color touch screen
- SSD card
- System indicators
  - Factory connection
  - Wireless connection
  - Link status
  - Fault detected
- Whiteboard & QR code

Sku#	Tools to Pair
MTC-SW-OPT2	2
MTC-SW-OPT4	4
MTC-SW-OPT6	6

- Ethernet ports 10/100/1000
- USB 2.0 ports (4)
- Fieldbus card slot
  - Ethernet IP
  - Profinet
  - Profibus
  - Devicenet
  - Others

MTC OPTIONS

- Up to 6 tools per controller
- Unlock Multi tool dashboard view
- Upgradeable software
- Backwards compatibility with INSIGHTqcx™ & QX™ tools

SIMPLE FLEXIBLE CAPABLE

Models

The INSIGHTqcx™ Controller is 100% compatible with our QXX tools. With the INSIGHTqcX™, the controller can store 50K tightening records and 50K tightening traces– which will let users understand all facts of the tightening process – torque, angle, time and date.

		Fieldbus Options					Mes Options			
Model	Display	Ethernet I/P	ProfiNET	ProfiBUS	DeviceNET	CC-Link	IR Ethernet EOR	Open Protocol	PFCS	Nissan Serial EOR
QCXD11	YES						•			
QCXD11-F	YES	•	•				•			
QCXD11-M	YES						•	•	•	•
QCXD11-FM	YES	•	•				•	•	•	•
QCXD12-F	YES	•	•	•			•			
QCXD12-FM	YES	•	•	•			•	•	•	•
QCXD13-F	YES	•	•		•		•			
QCXD13-FM	YES	•	•		•		•	•	•	•
QCXD15-F	YES	•	•			•	•			
QCXD15-FM	YES	•	•			•	•	•	•	•
QCXM11	NO						•			
QCXM11-F	NO	•	•				•			
QCXM11-M	NO						•	•	•	•
QCXM11-FM	NO	•	•				•	•	•	•
QCXM12-F	NO	•	•	•			•			
QCXM12-FM	NO	•	•	•			•	•	•	•
QCXM13-F	NO	•	•		•		•			
QCXM13-FM	NO	•	•		•		•	•	•	•
QCXM15-F	NO	•	•			•	•			
QCXM15-FM	NO	•	•			•	•	•	•	•

QX Series™ Process Communication Module (PCM)

Power Cord	EU and UK cable	IC-PCM-2-EU
Tool Connections	Wireless tool connections (compatible with QXX)	Up to 10
Software	ICS Connect software	•
Power Supply	100-240V AC input, 5V DC output	•
Communication	Ethernet to ICS	•
Fieldbus Options	Ethernet/IP, DeviceNet, Interbus-S, Profibus, Modbus-TCP	•
Protocols	Open Protocol, Ethernet EOR, Serial EOR	•
Printers/Devices	Serial RS232, bar code, label printing	•
I/O	8 inputs/8 outputs, with behavior assignable through ICS software, operates at 24V DC	•
I/O Power Supply	100-240V AC input, 24V DC output	•
Indicators	Power ON, System Ready, Wireless Activity, Ethernet Activity	•
Ambient Operating Conditions	0-50°C, 20/90% non-condensing humidity	•
Enclosure	IP52 mounted in upright vertical position	•
System Weight	1.4 kg	•
Overall Dimensions	291 mm x 103 mm x 210 mm	•

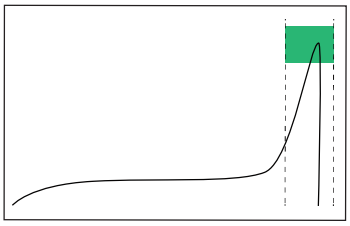
Process Communication Module
IC-PCM-2-EU

Capabilities

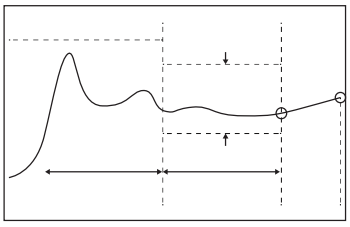
Software Capability

	Standard	F	M	FM		Standard	F	M	FM
Embedded Software	•	•	•	•	Factory Reset	•	•	•	•
Home Screen	•	•	•	•	Network System Discovery	•	•	•	•
JOB Setup	•	•	•	•	License Update	•	•	•	•
PSET Setup	•	•	•	•	License Activate	•	•	•	•
Multiple Tightening Strategies	•	•	•	•	Date & Time Settings	•	•	•	•
Quick Programming	•	•	•	•	System Initialization	•	•	•	•
Advanced Programming	•	•	•	•	IP Address Settings	•	•	•	•
Cycle Results	•	•	•	•	Digital IO Settings	•	•	•	•
JOB Results	•	•	•	•	EOR Data Out	•	•	•	•
Audit Log	•	•	•	•	Barcode	•	•	•	•
Event Log	•	•	•	•	User Management	•	•	•	•
System Diagnostics	•	•	•	•	System Logs		•		•
Tool Diagnostics	•	•	•	•	Fieldbus Diagnostics		•		•
Digital IO Diagnostics	•	•	•	•	Fieldbus Settings		•		•
Statistics Settings	•	•	•	•	Ethernet IP		•		•
Statistics Summary	•	•	•	•	ProfiNet		•		•
Statistics Alarm Settings	•	•	•	•	ProfiBus		•		•
Statistics Alarm Summary	•	•	•	•	DeviceNet		•		•
Backup and Restore	•	•	•	•	MES Protocols Settings			•	•
Firmware Update	•	•	•	•	Open Protocol			•	•
Preventative Maintenance Alarms	•	•	•	•	ToolsNet			•	•
Tool Calibration	•	•	•	•	VW XML 2.1			•	•

Torque/Angle Control



Prevailing Torque



Statistical Process Control

Statistic Status	Description
Mean	Statistical average - used to derive the central tendency of the tightening data of a particular PSET
Capability	Calculated as (6* sigma / Mean) * 100 on a particular PSET
Pass %	Indicates the % of the cycles that have a cycle result of PASS from the sample population of a particular PSET
Fail %	Indicates the % of the cycles that have a cycle result of FAIL from the sample population of a particular PSET
Mean Shift	Calculated as: MEAN Result Value - TARGET Result Value for a particular PSET
Range	Calculated as: MAX Result Value - MIN Result Value of a particular PSET.
Standard Deviation (σ)	The calculated standard deviation (σ) of the Result Value of a particular PSET.
PP	Process Performance, calculated as: (USL - LSL) / (6 * σ)
CAM	Calculated as: (USL - USL) / (6* (W / d * S))
PPK	Process Performance Index, Calculated as: MIN ((MEAN - LSL) / (3 * σ) OR (USL - MEAN) / (3 * σ)

Specification

Hardware	Features
Weight (Kg)	2.5
Volume (dm3)	7.5
Colour Touchscreen	7 inch
Ethernet Port (10/100)	1
Ethernet Port (10/100/1K)	1
USB 2.0 Ports	4
Boot Time (seconds)	40
Voltage / Current Requirement	24V / 2A
IP Rating (mounted vertically)	IP52
Software	
PC Software	Not Required
PC License	Not Required
Number of JOBs	256
Number of PSETs (per JOB)	32
Number of Steps (per PSET)	8
Logic Rules for JOB Sequencing	Y
Barcode function: USB, Serial, Ethernet	Y
Manual Barcode Entry Option	Y
Tubenut Controls (Configurable modes)	Y
Number of Configurable User Logins	Unlimited
Quick Programming Mode	Y
Advanced Programming Mode	Y
Unrestricted programming function from controller screen	Y
Unrestricted remote programming from any device via any authorized browser	Y
Embedded, Context-Specific Help *	Y
Email Statistics Alarms Direct From Controller**	N
Email Preventative Maintenance Alarms Direct from Controller	N
Multi-language Support	Y
Onboard Tool Diagnostics	Y (when connected via USB)
Wireless Energy Scan	Y
Easy Pairing	Y
Onboard Data Storage	
Removeable SSD Hard Drive that stores ALL settings and data	Y
Complete controller settings and data recovery through SSD swap	Y
Tightening Results	50,000
Tightening Curve	50,000
Tightening curve displayed on Home screen of controller	Y
Audit Log	50,000
Event Log	50,000
System Log	50,000
Full Backup and Restore Function (USB or from computer/Tablet)	Y
Connectivity	
Fieldbus Options	Ethernet IP, ProfiNet , ProfiBus, DeviceNet
MES Protcool Options	Open Protocol, Ford Open, PFCS, Toolsnet*** 3.2 & 8.0 , VW XML 2.0/ 2.1, IR Ethernet EOR, TOHO,
Supported Languages	
English, French, German, Italian, Spanish, Czech, Russian, Portuguese, Polish, Simplified Chinese	

* Available from June 2020
** Requires proper authorization and network settings by plant IT Administrator for each controller
*** No Trace Transfer

PULSE TOOLS

Because every assembly is critical

There's much more to an assembly application than merely putting wrench to bolt. It's an intricate matter of linking tool users and fasteners to deliver an uncompromised combination of ergonomics, speed, and accuracy.

The solution: Ingersoll Rand Pulse Systems.

At Ingersoll Rand, we have extensive experience with threaded fastening processes. For over 100 years, we've worked with many of the world's leading manufacturers in various industries, and we understand the interface of the tool and operator. We know how to leverage the power of ergonomicaly designed equipment to maximize productivit and inspire progress.

Durability

- High-speed, reactionless fastening with a power-to-weight ratios similar to impact tools

Comfort

- Enhanced ergonomics for operator providing comfortable grip, low vibration and noise, and reactionless one handed operation

Reliability

- Consistent torque with fully customizeable operator feedback, process control, and data output options
- Proven performance in high and low torque models

Speed

- Non-Shut Off: 5,500 - 7,000 RPM
- Shut Off: 5,000 - 10,000 RPM

Standard Pulse Tools

Q Series

Ingersoll Rand offers a full line of standard shutoff and non-shutoff pulse tools in pistol, angle, and in-line configurations to meet your needs. These extremely lightweight tools offer excellent power, speed, accuracy, and ergonomics.

The Q-Series is the latest generation of pulse tools engineered with the end-user in mind — making them the tools of choice for operators looking for the best combination of speed, ergonomics, and accuracy.

Improved life-cycle costs
Patented cooling system, improved sealing, and dual bearing support mechanism

Environmentally enhanced
Lube-free, dual chamber air motor, and self-lubricating blades and cylinder reduce oil mist in the environment and provide extended durability

Quick and easy torque adjustment
One screw on both shutoff and non-shutoff models speeds the setup process while still providing good repeatability

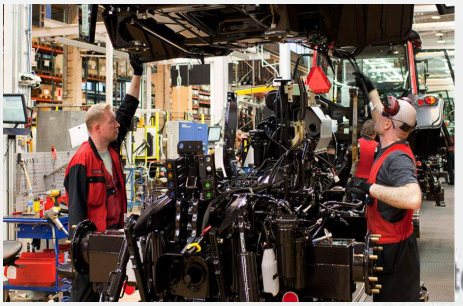
Rapid reset mechanism
Responds quickly to speed up cycle times on shut-off models

Comfortable soft-touch grip
Ergonomically contoured to reduce operator fatigue

Reactionless one-handed operation
Low-force trigger and easily accessible reverse lever lets operators concentrate on their task

Ergonomic improvements
Provide greater useability with lighter, smaller, quieter, and lower vibration designs

Directional air exhaust
Silencer projects noise and exhaust away from the user and the workpiece



Shut off Pulse Tools

Features

- Torque range: 3 - 155 ft lbs (4.5 - 210 NM)
- Speeds: 4,000 - 7,000 rpm
- Easy torque adjustment for quick setup
- Auto-shut off feature stops airflow to tool when cycle is complete
- High-speed, compact, lightweight design
- Ergonomic design provides comfortable grip, low vibration and noise and reactionless one-handed operation
- Auto-shut off limits air consumption and tool wear
- Deters early throttle release; recommended when improved error-proofing is desired

Model	Fastener Size	ft-lbs (Nm)	1 min. rpm	lbs (kg)	in (mm)	in (mm)	in	cfm
PISTOL								
QS50P3	M5	3 - 6 (4.5 - 8)	4300	2.1 (0.95)	6.5 (164)	0.9 (23)	3/8″	8.9
QS50PQ1	M5	3 - 6 (4.5 - 8)	4300	2.1 (0.95)	6.5 (164)	0.9 (23)	1/4″	8.9
QS60P3	M6	5.1 - 11.4 (7 - 15.5)	5300	2.4 (1.1)	6.5 (164)	0.9 (23)	3/8″	12
QS60PQ1	M6	4.4 - 9.6 (6 - 13)	5300	2.1 (1)	6.5 (164)	0.9 (23)	1/4″	12
QS70P3	M6 - M8	11.1 - 23.6 (15 - 32)	6800	2.4 (1.1)	7 (177)	0.9 (23)	3/8″	13
QS70PQ1	M6 - M8	9.6 - 20.7 (13 - 28)	6800	2.4 (11)	7 (177)	0.9 (23)	1/4″	13
QS80P3	M8	22.1 - 40.6 (30 - 55)	6800	2.4 (1.1)	7.4 (187)	1 (25)	3/8″	16
QS110P4	M10 - M12	37 - 64 (50 - 85)	5800	3.3 (1.51)	7.6 (194)	2.2 (57)	1/2″	17.7
QS120P4	M12	52 - 85 (70 - 115)	5400	3.9 (1.8)	7.9 (201)	2.4 (62)	1/2″	18.4
QS140P4	M14	81 - 110 (110 - 150)	5200	4.6 (2.1)	8.4 (214)	2.6 (65)	1/2″	25
QS150P6	M16	103 - 155 (140 - 210)	4400	6.5 (3)	9.3 (237)	1.5 (39)	3/4″	25

Model			Ø
QS50 - QS80	70 - 78 dba	1/4″ NPT	3/8″ (10 mm)
QS110 - QS150	80 - 86 dba	1/4″ NPT	3/8″ (10 mm)

Non-Shut off Pulse Tools

Features

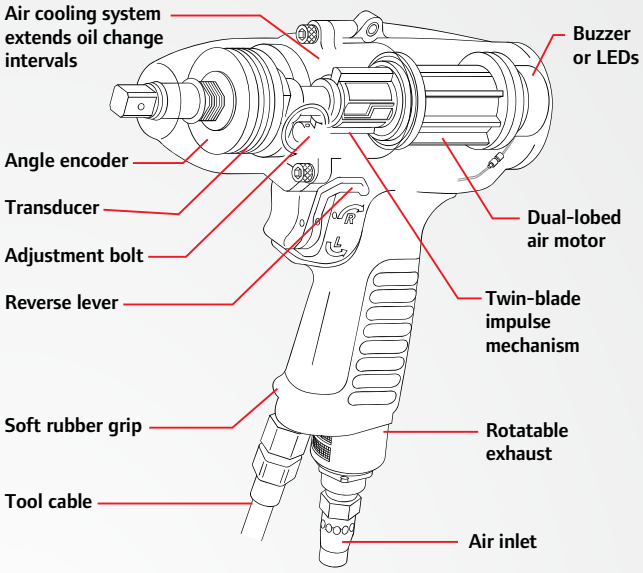
- Torque range: 6 - 258 ft-lbs (7.5 - 350 NM)
- Speeds: 4,000 - 9,300 rpm
- Easy torque adjustment for quick setup
- Extremely lightweight, compact, and fast
- World-class power-to-weight ratio
- Ergonomic design provides comfortable grip, low vibration and noise, and reactionless one-handed operation
- Environmentally enhanced lube-free, dual-chamber air motor, and self-lubricating blades and cylinder reduce oil mist
- Non-shut-off tools are recommended for the majority of applications where speed and ergonomics are important

Model	Fastener Size	ft-lbs (Nm)	1 min. rpm	lbs (kg)	in (mm)	in (mm)	in	cmf
PISTOL								
100PQ1	M4 - M5	5.5 - 8 (7.5 - 11)	9300	1.6 (0.7)	5.6 (142)	0.7 (18)	1/4″	12
Q60P3	M6	10 - 16 (13 - 22)	4000	1.8 (0.8)	5.1 (130)	0.9 (22)	3/8″	11
Q60PQ1	M6	8 - 15 (11 - 20)	4000	1.8 (0.8)	5.1 (130)	0.9 (22)	1/4″	11
Q70P3	M6 - M8	18 - 25 (24 - 35)	7000	1.8 (0.8)	5.2 (131)	0.9 (22)	3/8″	11
Q70PQ1	M6 - M8	15 - 20 (20 - 28)	7000	1.8 (0.8)	5.2 (131)	0.9 (22)	1/4″	12
Q80PQ1	M8	18 - 25 (24 - 35)	7000	1.9 (0.9)	5.4 (138)	0.9 (22)	1/4″	12
Q80P3	M8	24 - 37 (34 - 50)	7000	1.9 (0.9)	5.4 (138)	0.9 (22)	3/8″	12
Q90P3	M8 - M10	35 - 48 (47 - 65)	6500	2.1 (1.0)	5.8 (148)	0.9 (23)	3/8″	14
Q110P4	M10 - M12	44 - 70 (60 - 95)	5500	3.0 (1.4)	6.5 (164)	1.1 (27)	1/2″	20
Q120P4	M12	70 - 95 (95 - 130)	6600	3.7 (1.7)	6.9 (175)	1.3 (29)	1/2″	20
Q140P4	M14	95 - 118 (130 - 160)	5400	4.9 (2.2)	7.5 (190)	1.3 (33)	1/2″	30
140P6	M16	118 - 199 (160 - 270)	3200	6.8 (3.1)	8.9 (226)	1.4 (36)	3/4″	26
3000P	M16 - M18	170 - 258 (230 - 350)	4700	10.1 (4.6)	9.7 (246)	1.6 (40)	3/4″	10
INLINE								
180SQ1	M4 - M6	11 - 18 (15 - 24)	9000	20 (0.9)	8.7 (221)	0.9 (22)	1/4″	9
280SQ1	M6 - M8	15 - 23 (20 - 31)	8000	21 (10)	9.0 (229)	0.9 (22)	1/4″	11
380SQ1	M8	21 - 30 (29 - 40)	8500	26 (1.2)	9.1 (231)	1.0 (25)	1/4″	11
ANGLE								
500A	M6 - M8	21 - 29 (29 - 39)	7000	3.3 (1.5)	10.5 (267)	1.1 (27)	3/8″	11

Model			Ø
Q60 - Q80	71 - 75 dBa	1/4″ NPT	3/8″ (10 mm)
Q790P - Q140	78 - 83 dBa	1/4″ NPT	3/8″ (10 mm)
100 - 3000	76 – 83 dBa	1/4″ NPT	3/8″ (10 mm)

Transducerized Pulse Tools

Ingersoll Rand combines the power, speed and ergonomics of the pulse tool with the sophistication of a torque transducer and microprocessor to create a more powerful, convenient and accurate fastening system. The closed-loop system offers all the advantages of a pulse tool, while providing advanced torque control and data output typically found in a DC fastening system. The new angle encoded series includes the ability to monitor the fastening angle during the tightening process.



- Strain gauge on output shaft and close to the socket for more accurate measurement of torque.
- Non-contacting pick-up reduces signal noise, improving torque repeatability.
- Angle monitoring available
- Torque readout.
- End-of-run data.
- Operator visual and audible notification.
- I/O signals for line control.
- Simple programming for fast and easy set-up.

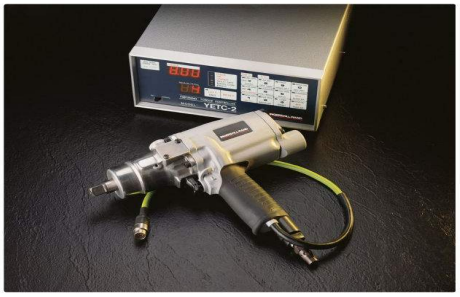
The new QXP Series pulse tools offer a new level of speed, convenience, accessibility, and comfort to the assembly process.

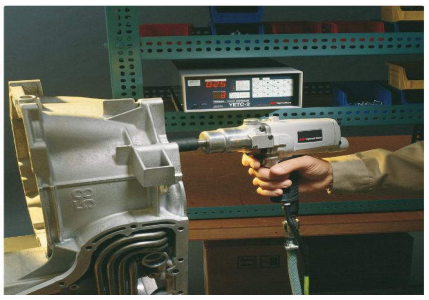
Model		ft-lbs (Nm)	1 min. rpm	lbs (kg)	in (mm)	in (mm)	in	cmf
PISTOL								
QXP60P6	M6	7.4 – 14.5 (10 – 19.5)	6,000	2.8 (1.26)	7.0 (179)	0.8 (21)	3/8″	9.5
QXP60Q4	M6	6.3 –11.8 (8 – 16)	6,000	2.8 (1.26)	7.0 (179)	0.8 (21)	1/4″	9.5
QXP70P6	M6 – M8	13 – 24 (18 – 33)	7,000	2.8 (1.26)	7.0 (179)	0.8 (21)	3/8″	11.3
QXP70Q4	M6 – M8	11 – 20 (15 – 27)	7,000	2.8 (1.26)	7.0 (179)	0.8 (21)	1/4″	11.3
QXP80P6	M8	17 – 33 (24 – 46)	7,000	3 (1.3)	7.3 (186)	0.8 (21)	3/8″	11.3
QXP90P6	M8 – M10	26 – 44 (35 – 60)	6,500	3.3 (1.5)	7.7 (195)	0.9 (23)	3/8″	14.5
QXP110P8	M10 – M12	35 – 70 (48 – 95)	5,500	4.1 (1.86)	8.2 (209)	1.0 (25.6)	1/2″	18.7
QXP120P8	M12	48 – 92 (65 – 125)	5,900	5.4 (2.46)	8.8 (223)	1.1 (29.0)	1/2″	21.2
QXP140P8	M14	55 – 114 (75 – 155)	5,200	6.3 (2.86)	9.3 (235)	1.1 (29.0)	1/2″	27.7
QXP150P8	M16	81 – 162 (110 – 220)	4,200	7.5 (3.41)	9.6 (241)	1.3 (32.5)	1/2″	27.9

Model			
QXP60 - QXP150	75 - 87 dba	1/4″ NPT	3/8″ (10 mm)

Controllers Pulse Tools

YETC-200 Series





Combine the power and ergonomics of reactionless pulse tools with closed-loop electronic control to maximize productivity in torque-critical applications.

Features

- Easy setup and programming of up to 8 parameter groups
- Closed-loop torque control for QXP and YE Series tools
- Torque readout and data output
- Detects rehits, cross-threads, and early throttle release
- Cycle and batch OK/NOK signals
- I/O for process flow control
- Advanced tightening strategies available
- Recommended for applications requiring data output, closed-loop torque accuracy, process control, and operator feedback

Programmable parameters:

- Maximum torque
- Minimum torque
- Target torque
- Threshold torque
- Tool coefficient
- Fast error (pre-tightened)
- Slow error (cross thread)
- Gang control
- Additional advanced parameters

Additional Equipment

Standard equipment:	
Controller	
10-meter tool cable	Y-7642-0908-0117
Solenoid valve	
Tool air hose with quick couplers	
Air regulator	

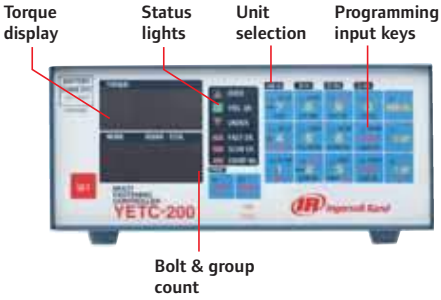
Optional equipment:	
15-meter tool cable	Y-7642-0908-0119
20-meter extension tool cable	Y-7642-0908-0122
3/8″ solenoid valve	Y-9191-1026-0000
1/2″ solenoid valve	YETV-12KIT
Printer	Y-CTZ

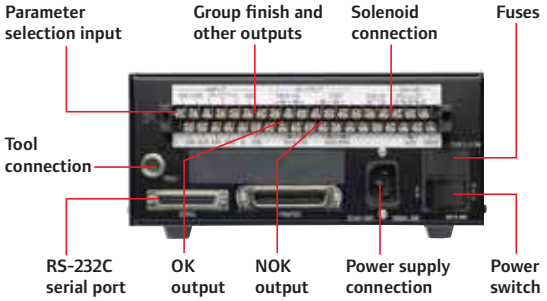
Manuals:

P7395

P7396

Model	in (mm)	in (mm)	in (mm)	lb (kg)	volts	Configs	
YETC-200ETB	9″ (230)	4.3″ (110)	11.4″ (290)	11.4 (5.2)	117 V AC	8	1
YETC-200ETB-4	9″ (230)	4.3″ (110)	11.4″ (290)	11.4 (5.2)	117 V AC	4 x 2	4
YETC-200ETF	9″ (230)	4.3″ (110)	11.4″ (290)	11.4 (5.2)	117 V AC	8	1





Pulse Systems

We offer a robust portfolio of pulse tools that deliver consistent performance and accuracy.
Select the best solution for your application.

Pulse Systems			
FEATURES	**Standard Pulse Tools**		**Transducerized Pulse Tools**
	Non shut-off	**Shut-off**	
Fastening Strategies			✓
Angle Monitoring			✓
Torque Traceability			✓
Closed-Loop Torque Control			✓
Visible OK / Not OK Signaling			✓
Process Control			✓
Batch & Cycle Counting			✓
Operator Error Proofing		✓	✓
Lube Free Air Motors	✓	✓	✓
Easy Torque Adjustment	✓	✓	✓
High Speed, Compact, Lightweight	✓	✓	✓
Reactionless One-Handed Operation	✓	✓	✓

Tool

YS-e600
YS-e800
YS-e900

No. of Models

Wireless unit

WU-1

Multifunctional special unit

Multifunctional wireless unit that can support YS-e, DS-1 and PC-1. Also, connected with external devices, it can support tightening, pokayoke and traceability in total.

Model	Bolt capacity	Torque range※1 (N・m)	Weight (kg) ( ) without battery	Tightening number/ min. (bolt)	Tightening number/ charge (bolt)	Vibration (m/s²)	Noise (dB)	Overall length (mm)	Overall height (mm)	Spindle offset (mm)	Sq. drive / bit size (mm)	RPM at no load (rpm)
YS-e600	M6	7～20	1.75 (1.34)	10	1300	<2.5	72	214	244	32.5	■9.5	4,800
YS-e600A	M6	5～18	1.75 (1.34)	10	1300	<2.5	72	214	244	32.5	●6.35	4,800
YS-e800	M6～M8	15～35	1.80 (1.39)	8	800	<2.5	76	219	244	32.5	■9.5	4,800
YS-e800A	M6～M8	10～30	1.80 (1.39)	8	800	<2.5	76	219	244	32.5	●6.35	4,800
YS-e900	M8～M10	30～50	1.90 (1.49)	6	700	<2.5	78	226	244	32.5	■9.5	4,800

Standard accessories: 1 protector (for tool), 1 TF pin (2×90)
Option: BPL-1820 (battery), BC0075G (charger), and Power cord (for charger).

*1; The upper limit value measured on hard joint

DIGITAL TORQUE WRENCH

ETC Series Digital Torque Wrench

Reaching narrow space and high accuracy are the common requirements from the modern manufacturer. The torque wrench is playing an important role as a modern production partner.

Ingersoll Rand ETC series focus in production which is integrated modern requirements. It combines the wireless connection, the data tracing with the open protocol, the light weight material, the ±1% accuracy for both direction and the many choices for the drive head.

Torque Control

- 3~1000Nm torque coverage
- Light weight design
- Torque accuracy ±1%, Angle accuracy ±1°
- Colorful display/LED ring/Buzzer/Vibration
- Job & Pset
- Serial port on controller for the barcode scanner

Data Trace

- Trace data
- 1200 EOR data storage and 10 trace data storage
- Open protocol integrated with the controller
- Max 1:8 wrench connection

Wireless Connection

- Reliable wireless connection
- Low power consumption design for 8 hours usage

PC Software Interface as Free

Specification

ETC Series	Specification
Torque Range (Nm)	3~1000
Torque Accracy	+/- 1%
Angle Measurement	Angle sensor & Gyroscope
Angle Accuracy	+/- 1°
Battery Capacity	8 hours work or 500 bolts with wireless connection
LED Indicate	R/G/B ring
Weight (kg)	Check the following table
Wireless Connection	LoRa, 50m distance without occlusion
Controller IO Port	8I/8O
EOR Output	Open Protocol
Max. Job	100
Data Storage	1200 EOR & 10 Trace
Tighten Strategy	Torque/Torque Control & Angle Monitor/ Torque Monitor & Angle Control
Barcode Scanner	Integrated Serial Port
Display	130*42 Colorful Display

Item Number

Max. Torque	1:1 Kit Module	1:8 Kit Module
30Nm	ETC2-30-L	ETC2-30-D
100Nm	ETC2-100-L	ETC2-100-D
200Nm	ETC2-200-L	ETC2-200-D
400Nm	ETC2-400-L	ETC2-400-D
600Nm	ETC2-600-L	ETC2-600-D
800Nm	ETC2-800-L	ETC2-800-D
1000Nm	ETC2-1000-L	ETC2-1000-D

Accessory

Controller	
1:1 Module	**QCWC1-M**
1:8 Module	**QCWC1-D**

Battery & Charger	
Charger	**BC1141-W**
Battery	**BL2015**

Length & Weight

Torque Range	Driver Plug-in	Ratchet Head in Kit	Length	Weight
Nm	mm	in	mm	kg
3~30	9*12	1/4″	463	1
10~100	9*12	1/2″	523	1.2
20~200	14*18	1/2″	533	1.2
40~400	14*18	3/4″	658	1.63
60~600	24*32	3/4″	880	3.1
80~800	24*32	3/4″	1170	4.1
100~1000	24*32	3/4″	1170	4.1
Kit Package			Wrench*1, Battery*2, Charger*1, Ratchet Head*1, Programing Cable*1	

Drive Head

Wrench	Drive Plug-in
ETC2-30-L	9*12
ETC2-100-L	9*12
ETC2-200-L	14*18
ETC2-400-L	14*18
ETC2-600-L	24*32
ETC2-800-L	24*32
ETC2-1000-L	24*32

Open End

Box End

Bolt Size

Flared End

Reversible Ratchet Head

Drive Plug-in	Square Size
9*12	1/4″
	3/8″
	1/2″
14*18	1/2″
	3/4″
24*32	3/4″
	1″

Drive Head List

Drive Type	Item Name	Plug-in (mm)	Square Size (in)	Tooth Number	Weight (g)
Reversible Ratchet Head					
	ET9-R-14	9*12	1/4"	45	135
	ET9-R-38	9*12	3/8"	45	160
	ET9-R-12	9*12	1/2"	45	160
	ET14-R-12	14*18	1/2"	45	265
	ET14-R-34	14*18	3/4"	45	305
	ET24-R-34	24*32	3/4"	45	1040
	ET24-R-1	24*32	1"	45	1140
Drive Type	**Item Name**	**Plug-in (mm)**	**Square Size (in)**	**Tooth Number**	**Weight (g)**
Open End					
	ET9-O-7	9*12	7	22	5
	ET9-O-8	9*12	8	22	5
	ET9-O-9	9*12	9	26	5.5
	ET9-O-10	9*12	10	26	5.5
	ET9-O-11	9*12	11	26	5.5
	ET9-O-12	9*12	12	30	7
	ET9-O-13	9*12	13	30	7
	ET9-O-14	9*12	14	35	8
	ET9-O-15	9*12	15	35	8
	ET9-O-16	9*12	16	38	8
	ET9-O-17	9*12	17	38	8
	ET9-O-18	9*12	18	42	8
	ET9-O-19	9*12	19	42	8
	ET9-O-20	9*12	20	48	8
	ET9-O-21	9*12	21	50	8
	ET9-O-22	9*12	22	50	8
	ET9-O-23	9*12	23	53	8
	ET9-O-24	9*12	24	53	8
	ET9-O-27	9*12	27	64	8

DC ELECTRIC SCREWDRIVERS

Versatec Series

- Low Voltage DC Electric Screwdrivers
- Adjustable Shut off clutch for precision torque control
- Electro-static discharge (ESD) models offer added protection for sensitive electronic assembly applications
- Brushless models deliver increased durability and accuracy
- Micro, Low & High Torque options available
- Recommended for tightening small bolts and screws

ES Series

- Low Voltage DC Electric Screwdrivers
- Automatic Shut off clutch for precision torque control
- Controller features variable speeds and soft-start
- Low torque, high torque and clean room models available.

Versatec Series Micro Torque Screwdrivers

– Inline Only

Torque Range: 0.18 - 3.5 in-lbs (0.02 - 0.40 Nm)

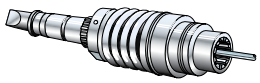
Features

- Speeds: 600 – 1,000 rpm
- 40 V DC from controller (ECM24N)
- Electro-static discharge (ESD) models offer added protection for sensitive electronic assembly applications
- Extremely lightweight and compact ergonomic design
- Variable speed and soft-start features built into controller
- Detachable 1.5 m cable, hanger bail, and two bits included
- Recommended for low-torque applications requiring additional ESD protection along with precise torque and speed control

Model	V	in-lbs (Nm)	in-lbs (Nm)	rpm	lb (kg)	in (mm)	in (mm)	Controller Required
INLINE LEVER START								
ELM0107N	24 V DC	0.18 – 0.62 (0.02 – 0.07)	0.35 – 1.77 (0.04 – 0.20)	750	0.51 (0.23)	6.52″ (165.5)	0.16″ (4.0)	ECM24N
ELM0110N	24 V DC	0.18 – 0.62 (0.02 – 0.07)	0.35 – 1.77 (0.04 – 0.20)	1,000	0.51 (0.23)	6.52″ (165.5)	0.16″ (4.0)	ECM24N
ELM0306N	24 V DC	1.33 – 3.54 (0.15 – 0.40)	–	600	0.51 (0.23)	6.52″ (165.5)	0.16″ (4.0)	ECM24N

CONTROLLER

Model	Input Voltage	Output Voltage	lb (kg)	in (mm)	Soft Start	Speed Adjust	ESD Control
CONTROLLER							
ECM24N	115 V AC	24 V DC	1.98 (0.90)	5.9″ x 3.6″ x 2.1″ (150 x 91 x 52)	YES	YES	YES



Adjustable Shut-Off Clutch

Service and Accessories

Manuals:

45549169
45549144
45549177

Controller Manuals:

45549193
45549185
45549201

Accessories:
Balancer
Shaker box
Bits

Versatec Series Low Torque Screwdrivers - *Inline Only*

Torque Range: 0.26 - 10.4 in-lbs (0.03 - 1.2 Nm)

ESD & Non-ESD version available

Features

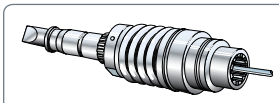
- Speeds: 500 – 1,000 rpm
- 24 V DC from controller (EC24N)
- Ergonomic package features contoured soft-touch grip, two-finger lever actuation, and easy forward reverse control providing the ultimate in operator comfort and productivity
- Variable speed and soft-start features built into controller
- Lightweight, compact design
- Externally adjustable torque control
- Clean room models available without soft-touch grip
- Two bits, 1.5 m cable, and hanger bail included
- Recommended for low-torque applications requiring precise torque and speed control

Model	V	in-lbs (Nm)	rpm	lb (kg)	in (mm)	in (mm)	Controller Required
LEVER START ESD ONLY MODEL							
EL1007BC-ESD	24 V DC	1.7 – 10.4 (0.19 - 1.2)	500 – 700	0.77 (0.35)	10.5″ (267)	1/4″	EC24N-ESD
LEVER START SOFT STOP ESD MODELS							
EL0410BC-SS-ESD	24 V DC	1.7 – 3.5 (0.2 – 0.4)	700 – 1000	0.88 (0.4)	10.5″ (267)	0.16″ (4.0)	EC24N-ESD
EL0510BC-SS-ESD	24 V DC	2.2 – 4.8 (0.2 – 0.5)	700 – 1000	0.88 (0.4)	10.5″ (267)	0.16″ (4.0)	EC24N-ESD
EL0807BC-SS-ESD	24 V DC	3.9 – 8.2 (0.4 – 0.9)	500 – 700	0.88 (0.4)	10.5″ (267)	0.16″ (4.0)	EC24N-ESD
EL1007BC-SS-ESD	24 V DC	4.8 – 10.4 (0.5 – 1.2)	700 – 1000	0.88 (0.4)	10.5″ (267)	0.16″ (4.0)	EC24N-ESD
INLINE LEVER START							
EL0109B	24 V DC	0.26 – 1.30 (0.03 – 0.15)	650 – 950	0.7 (0.32)	9.25″ (235)	0.16″ (4.06)	EC24N
EL0410B	24 V DC	0.44 – 4.79 (0.05 – 0.54)	750 – 1000	0.8 (0.32)	9.25″ (235)	0.25″ (6.35)	EC24N
EL1007B*	24 V DC	0.5 – 10.44 (0.06 – 1.2)	500 – 700	0.8 (0.32)	9.25″ (235)	0.25″ (6.35)	EC24N
INLINE LEVER START CLEAN ROOM							
EL0410BC	24 V DC	0.44 – 4.79 (0.05 – 0.54)	750 – 1000	0.8 (0.32)	9.25″ (235)	0.25″ (6.35)	EC24N
EL1007BC*	24 V DC	0.5 – 10.44 (0.06 – 1.2)	500 – 700	0.8 (0.32)	9.25″ (235)	0.25″ (6.35)	EC24N

*Two clutch springs are furnished to cover torque range.
Tool is shipped with heavier clutch spring installed.

CONTROLLER

Model	Input Voltage	Output Voltage	lb (kg)	in (mm)	Soft Start	Speed Adjust	ESD Control
CONTROLLER							
EC24N	115 V AC	24 V DC	5.1 (2.31)	10.5″ x 3.3″ x 4.1″ (267 x 83 x 104)	YES	YES	NO



Adjustable Shut-Off Clutch

Service and Accessories

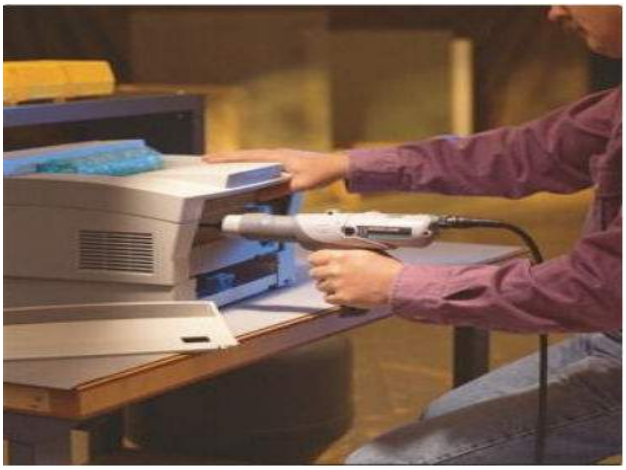
Manuals:

45530128
45527595
45530136

Controller Manuals:

45532066
45532041
45532058

Accessories:
Balancer
Shaker box
Bits



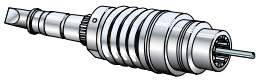
Versatec Series High Torque Brushless Screwdrivers - *Inline/Pistol/Angle*

Torque Range: 5.0 - 60.0 in-lbs (0.6 - 6.8 Nm)

Features

- Torque Range: 3.5 – 26.5 in-lbs (0.4 – 3.0 Nm)
- Speeds: 1,200 – 2,000 rpm
- 115 V AC plug in with integral 3 m cable
- Excellent accuracy and durability resulting from improved clutch and brushless motor design
- Wide torque range allows expanded application coverage from a single tool
- Ergonomic soft-touch grip improves operator comfort
- RoHS-compliant
- Bit, hanger bail, and low-torque spring included
- Recommended for higher duty cycle applications where precise torque control is required

Model	V	in-lbs (Nm)	in-lbs (Nm)	rpm	lb (kg)	in (mm)	in (mm)
INLINE PUSH-TO-START							
EPB2612N	115 V AC	3.54 – 14.16 (0.4 – 1.6)	10.62 – 26.55 (1.2 – 3.0)	1,200	1.54 (0.7)	10.9″ (276)	0.25″ (6.4)
EPB2620N	115 V AC	3.54 – 14.16 (0.4 – 1.6)	10.62 – 26.55 (1.2 – 3.0)	2,000	1.54 (0.7)	10.9″ (276)	0.25″ (6.4)
INLINE LEVER START							
ELB2612N	115 V AC	3.54 – 14.16 (0.4 – 1.6)	10.62 – 26.55 (1.2 – 3.0)	1,200	1.54 (0.7)	10.8″ (274)	0.25″ (6.4)
ELB2620N	115 V AC	3.54 – 14.16 (0.4 – 1.6)	10.62 – 26.55 (1.2 – 3.0)	2,000	1.54 (0.7)	10.8″ (274)	0.25″ (6.4)


Adjustable Shut-Off Clutch

Versatec Series High Torque Screwdrivers - *Inline Only*

Torque Range: 5.0 - 40.0 in-lbs (0.6 - 4.5 Nm)

Features

- Speeds: 300 – 2,000 rpm
- 115 V AC plug in with detachable 8 foot cable
- Ergonomic package features contoured soft-touch grip, two-finger lever actuation, and easy forward reverse control providing the ultimate in operator comfort and productivity
- Removable contoured flange and torque adjustment cover protects torque setting while giving instant visible confirmation in readout window
- Brush replacement light signals when maintenance is required
- Dual-position cord allows optimal cable routing
- Two bits, two brushes, and hanger bail included
- Recommended for applications where precise torque control is required


EP4007N

Model	V	in-lbs (Nm)	rpm	lb (kg)	in (mm)	in (mm)
INLINE PUSH-TO-START						
EP1520N	115 V AC	5.0 – 15.0 (0.6 – 1.7)	2,000	1.6 (0.73)	11.25″ (286)	0.25″ (6.35)
EP1510N	115 V AC	5.0 – 15.0 (0.6 – 1.7)	1,000	1.6 (0.73)	11.25″ (286)	0.25″ (6.35)
EP2612N	115 V AC	11.0 – 26.0 (1.2 – 2.9)	1,200	1.6 (0.73)	11.25″ (286)	0.25″ (6.35)
EP2607N	115 V AC	11.0 – 26.0 (1.2 – 2.9)	700	1.6 (0.73)	11.25″ (286)	0.25″ (6.35)
EP2603N	115 V AC	11.0 – 26.0 (1.2 – 2.9)	300	1.6 (0.73)	11.25″ (286)	0.25″ (6.35)
INLINE LEVER START						
EL1520N	115 V AC	5.0 – 15.0 (0.6 – 1.7)	2,000	1.63 (0.74)	11.25″ (286)	0.25″ (6.35)
EL1510N	115 V AC	5.0 – 15.0 (0.6 – 1.7)	1,000	1.63 (0.74)	11.25″ (286)	0.25″ (6.35)
EL2612N	115 V AC	11.0 – 26.0 (1.2 – 2.9)	1,200	1.63 (0.74)	11.25″ (286)	0.25″ (6.35)
EL2607N	115 V AC	11.0 – 26.0 (1.2 – 2.9)	700	1.63 (0.74)	11.25″ (286)	0.25″ (6.35)
EL2603N	115 V AC	11.0 – 26.0 (1.2 – 2.9)	300	1.63 (0.74)	11.25″ (286)	0.25″ (6.35)
TRIGGER START WITH PISTOL ATTACHMENT						
ET4007N	115 V AC	18.0 – 40.0 (2.0 – 4.5)	700	1.83 (0.83)	11.25″ (286)	0.25″ (6.35)
PUSH-TO-START WITH PISTOL ATTACHMENT						
EP4007N	115 V AC	18.0 – 40.0 (2.0 – 4.5)	700	1.83 (0.83)	11.25″ (286)	0.25″ (6.35)

ES Series Low Torque Screwdrivers *- Inline Only*

Torque Range: 0.4 - 9.0 in-lbs (0.05 - 1.0 Nm)

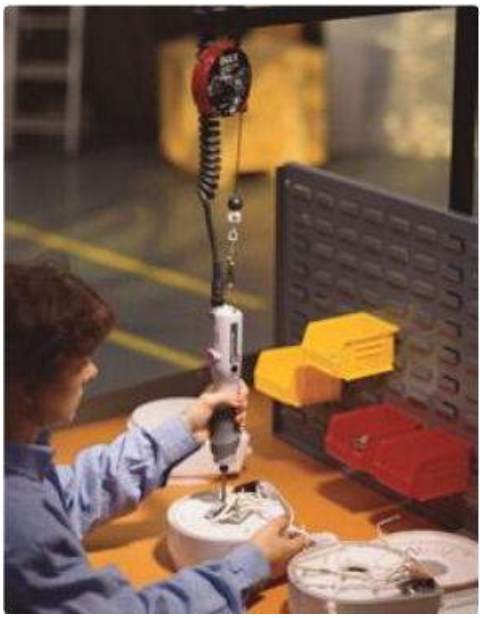
Features
- Speeds: 500 – 900 rpm
- 24 V DC from controller (ESCB50)
- Precise torque control for more efficient and accurate production
- Variable speed and soft-start features built into controller
- Externally adjustable torque control
- Clean room models available
- Two bits, 1.5 m cable, and hanger bail included
- Recommended for low-torque applications requiring precise torque and speed control

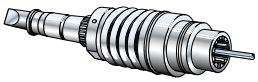
ES50T & ESCB50

Model	V	in-lbs (Nm)	in-lbs (Nm)	rpm	lb (kg)	in (mm)	in (mm)	Controller Required
INLINE LEVER START								
ES45T	24 V DC	0.5 – 4.7 (0.06 – 0.53)	1.7 – 6.0 (0.19 – 0.68)	600 – 900	0.75 (0.34)	8.87″ (225)	0.25″ (6.35)	ESCB50
ES50T	24 V DC	0.4 – 4.7 (0.05 – 0.53)	2.0 – 9.0 (0.23 – 1.02)	500 – 650	0.75 (0.34)	8.88″ (226)	0.25″ (6.35)	ESCB50
INLINE CLEAN ROOM LEVER START								
ES50TC	24 V DC	0.4 – 4.7 (0.05 – 0.53)	2.0 – 9.0 (0.23 – 1.02)	500 – 650	0.88 (0.40)	10.50″ (267)	0.25″ (6.35)	ESCB50

CONTROLLER

Model	Input Voltage	Output Voltage	lb (kg)	in (mm)	Soft Start	Speed Adjust
CONTROLLER						
ESCB50	115 V AC	24 V DC	4.4 (1.9)	6.8″ x 5.8″ x 4.3″ (171 x 146 x 108)	YES	YES





Adjustable Shut-Off Clutch

Service and Accessories

Manuals:
- 45527777
- 45527702
- 45527801

Controller Manuals:
- 45532090
- 45532074
- 45532082

Accessories:
Balancer
Shaker box
Bits

ES Series High Torque Screwdrivers *- Inline/Pistol/Angle*

Torque Range: 4.0 - 56.0 in-lbs (0.5 - 6.3 Nm)

Features

- Torque Range: 4.0 – 56.0 in-lbs (0.45 – 6.3 Nm)
- Speeds: 250 – 1,850 rpm
- 115 V AC plug in with integral 3 m cable
- Precise torque control for more efficient and accurate production
- Two bits, two brushes, and hanger bail included
- Recommended for applications where precise torque control is required

ES100T

Model	V	in-lbs (Nm)	rpm	lb (kg)	in (mm)	in (mm)
INLINE PUSH-TO-START						
ES90P	115 V AC	4.4 – 16.0 (0.5 – 1.8)	2,000	1.50 (0.68)	10.00″ (254)	0.25″ (6.35)
ES60P	115 V AC	4.4 – 17.0 (0.5 – 1.9)	1,000	1.50 (0.68)	10.00″ (254)	0.25″ (6.35)
ES80P	115 V AC	12.0 – 24.0 (1.4 – 2.7)	1,200	1.50 (0.68)	10.00″ (254)	0.25″ (6.35)
ES70P	115 V AC	10.0 – 26.0 (1.1 – 2.9)	700	1.50 (0.68)	10.00″ (254)	0.25″ (6.35)
INLINE LEVER START						
ES90T	115 V AC	4.4 – 16.0 (0.5 – 1.8)	2,000	1.53 (0.69)	10.00″ (254)	0.25″ (6.35)
ES60T	115 V AC	4.4 – 17.0 (0.5 – 1.9)	1,000	1.53 (0.69)	10.00″ (254)	0.25″ (6.35)
ES70T	115 V AC	10.0 – 26.0 (1.1 – 2.9)	700	1.53 (0.69)	10.00″ (254)	0.25″ (6.35)
TRIGGER START WITH PISTOL ATTACHMENT						
ES100T	115 V AC	15.0 – 40.0 (1.9 – 4.5)	400	1.68 (0.76)	10.00″ (254)	0.25″ (6.35)
PUSH-TO-START WITH PISTOL ATTACHMENT						
ES100P	115 V AC	15.0 – 40.0 (1.9 – 4.5)	400	1.65 (0.75)	10.00″ (254)	0.25″ (6.35)

Adjustable Shut-Off Clutch

Service and Accessories

Manuals:

45527769

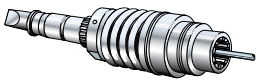
45527678

Accessories:
Extension cord
Balancer
Pistol grip handle: EP4007N-48
Sockets, see form # IR-0506-016

ES60T

ES70T2S3

Model	V	in-lbs (Nm)	rpm	lb (kg)	in (mm)	in (mm)	in (mm)	in
LEVER START LARGE ANGLE HEAD								
ES90T2S3	115 VAC	6 – 19 (0.68 – 2.2)	1,300	2.1 (0.95)	16.89″ (429)	0.52″ (13.21)	1.99″ (50.55)	1/4″
ES60T2S3	115 VAC	6 – 23 (0.68 – 2.6)	650	2.1 (0.95)	16.89″ (429)	0.52″ (13.21)	1.99″ (50.55)	1/4″
ES70T2S3	115 VAC	11 – 36 (1.2 – 4.1)	450	2.1 (0.95)	16.89″ (429)	0.52″ (13.21)	1.99″ (50.55)	1/4″
ES100T2S3	115 VAC	14 – 56 (1.6 – 6.3)	250	2.1 (0.95)	16.89″ (429)	0.52″ (13.21)	1.99″ (50.55)	1/4″
ES60T2S5	115 VAC	6 – 23 (0.68 – 2.6)	650	2.1 (0.95)	16.89″ (429)	0.52″ (13.21)	1.73″ (43.94)	1/4″
ES100T2S5	115 VAC	14 – 56 (1.6 – 6.3)	250	2.1 (0.95)	16.89″ (429)	0.52″ (13.21)	1.73″ (43.94)	1/4″
LEVER START SMALL ANGLE HEAD								
ES60T1S5	115 VAC	4 – 17 (0.45 – 1.9)	950	1.9 (0.86)	16.70″ (424)	0.33″ (8.38)	1.47″ (37.34)	1/4″



Adjustable Shut-Off Clutch

Service and Accessories

Manuals:

45527751

45527611

45527785

Accessories:
Balancer
Shaker box
Bits
Pistol grip handle: DLW2100TP

CALIBRATION EQUIPMENT

FASTENING INDUSTRY

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

INSIGHTqcT™ Series calibration equipment

Our INSIGHTqcT™ 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.

IQCTT SERIES TORQUE TESTERS

The IQCTT Series of torque testers includes four different models with integrated transducers that allow rapid and accurate torque checking of fastening tools from 0.1 to 30 Nm (1 to 265 in-lb). The IQCTT's enhanced features include track and peak modes for most hand and power tools, a pulse mode that measures and counts pulses for pulse tools, and a click mode for hand-click wrenches. Included trace and statistical functions support even the most detailed joint analysis and proper decision making.

IQCTA SERIES TORQUE ANALYZER

The IQCTA Series torque analyzer shares the same compact, sleek design and impressive feature set, but is designed for portability. 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.

PORTFOLIO OVERVIEW

Ingersoll Rand® offers a full line of production fastening equipment, including pneumatic 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

IQCTT TESTER

- Compact bench-mount unit
- Integrated torque transducer in (4) ranges from 1 to 30 Nm
- Large color screen
- Simple programming and navigation
- Full statistical and tightening trace analysis
- Variable rate rundown adapter included
- Rechargeable Li-Ion battery with auto-shutdown feature
- USB port for data export

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

IQCTA ANALYZER

- Lightweight portable unit
- Compatible with full range of Industry Standard (IS) and Smart external transducers
- Large color screen
- Simple programming and navigation
- Full statistical and tightening trace analysis
- Rechargeable Li-Ion battery with auto-shutdown feature
- USB port for data export

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
- Transducer cables
- Battery charger
- Calibration service

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

TRANSDUCERS

Rotary	Stationary

JOINT SIMULATION KITS

Rotary	Stationary	Rundown Adaptor

OTHER ACCESSORIES

Cable - IS transducer
Neck strap
Port saver - 25 pin
Power Supply

ETA2-TC
ETA2-STRAP
ETA2-P525
IQC-PS5

INSIGHTqcT™ 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

FULL STATISTICAL CAPABILITIES Include Count, Range, Mean, MIN, MAX, Standard Deviation, Cm, Cmk, Cp, Cpk

COMPACT AND LIGHTWEIGHT with rechargeable Li-Ion battery provides ease of use and portability on the assembly line and space savings on the workbench

LARGE COLOR SCREEN shows clear, easy-to-read test results, menus, and traces

SOFT-TOUCH KEYPAD and intuitive menus make navigation and test setup quick and simple

AUDIBLE AND VISIBLE INDICATORS give High, Low, and Pass cycle status

TYPICAL SCREEN

- Monitors bi-directional torque, angle, time, RPM & pulse count
- Supports onboard trace analysis and data export
- Reads in peak, click, pulse, or track mode
- Stores 999 time-stamped readings
- Auto-recognition of Smart transducers
- Selectable filter frequencies
- USB data export for readings and trace data
- Configurable Auto-print function via USB
- Eleven (11) units of measure
- Adjustable power-save settings
- Multi-language support for English, French, German, Italian, and Spanish

IQCTA SERIES – INSIGHTqcT™ TORQUE ANALYZER

Model	Compatible Transducer	Data Transfer	Auto Recognition	Screen Size (mm)
IQCTA	TRD TR TRDA TSD TS Industry Standard UTA	USB (csv) Printer	Yes	85x50 mm

Rotary transducers

Stationary transducer with joint simulator

IQCTT SERIES – INSIGHTqcT™ TORQUE TESTER

Model	in-lb Range	Nm Range	Rundown Adaptor*	Service Kit
IQCTT-1	0.88 - 8.8	0.1 - 1	ETT-RA-1	ETT-RA-1-KIT
IQCTT-4	3.50 - 35	0.4 - 4	ETT-RA-4	ETT-RA-4-KIT
IQCTT-12	10.6 - 106	1.2 - 12	ETT-RA-12	ETT-RA-12-KIT
IQCTT-30	26.5 - 265	3.0 - 30	ETT-RA-30	ETT-RA-30-KIT

** IQCTT tester includes rundown adaptor, carrying case, power supply, manuals, and a certicficate of calibration. IQCTA analyzer includes carrying case, power supply, manuals, and neck strap.*

QUICK DOWNLOAD OF results to printer or USB for data analysis, graphing, documentation, or calibration

Dimensions
209 x 194 x 78 mm

Weight
2.2 lb / 1.0 kg (IQCTA)
4.5 lb / 2.1 kg (IQCTT)

TRANSDUCERS

	Industry Standard	Smart Transducers Torque Only	Smart Transducers Torque and Angle	(in-lb) ft-lb	Nm	in
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
	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	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

	Industry Standard	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 - 300	1/2
	JKS1000	No	JKS1000-BKIT	37.0 - 738	50 - 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 - 300	1/2
	JKST1000	TS1000S12	JKS1000-BKIT	37.0 - 738	50 - 1000	3/4

Spring Balancers

Cable

BLD Series

Features
- Self-lubricating bushings
- Adjustable capacity and stroke limiting device
- Auxiliary safety suspension

u O

BLD

Model	SWL lbs (kg)	ft (m)	lbs (kg)
BLD SERIES			
BLD1	0.9 – 2.2 (0.4 – 1.0)	5.2 (1.6)	1.3 (0.6)
BLD2	2.2 – 4.4 (1.0 – 2.0)	5.2 (1.6)	1.3 (0.6)
BLD3	4.4 – 6.6 (2.0 – 3.0)	5.2 (1.6)	1.5 (0.7)

BMD Series

Features
- Safety device prevents dropping of load due to spring breakage (except on BMDS-2)
- Anti-friction cable guide
- Adjustable stroke-limiting device

u O

BMDL4 BMDS2

BMDLL BMDS4

Model	SWL lbs (kg)	ft (m)	lbs (kg)
BMD SERIES			
BMDS-2	2.2 – 5.5 (1.0 – 2.5)	6.5 (2.0)	4.4 (2.0)
BMDS-4	4.4 – 8.8 (2.0 – 4.0)	6.5 (2.0)	4.4 (2.0)
BMDL-4	4.4 – 8.8 (2.0 – 4.0)	8.2 (2.5)	6.4 (2.9)
BMDS-6	8.8 – 13.2 (4.0 – 6.0)	6.5 (2.0)	5.1 (2.3)
BMDL-6	8.8 – 13.2 (4.0 – 6.0)	8.2 (2.5)	7.1 (3.2)
BMDS-8	13.2 – 17.6 (6.0 – 8.0)	6.5 (2.0)	5.5 (2.5)
BMDL-8	13.2 – 17.6 (6.0 – 8.0)	8.2 (2.5)	7.7 (3.5)
BMDL-10	17.6 – 22.0 (8.0 – 10.0)	8.2 (2.5)	8.2 (3.7)
BMDL-12	22.0 – 26.5 (10.0 – 12.0)	8.2 (2.5)	8.8 (4.0)
BMDLL-4 (1)	4.4 – 8.8 (2.0 – 4.0)	8.2 (2.5)	6.6 (3.0)
BMDLL-6 (1)	8.8 – 13.2 (4.0 – 6.0)	8.2 (2.5)	7.3 (3.3)
BMDLL-8 (1)	13.2 – 17.6 (6.0 – 8.0)	8.2 (2.5)	7.9 (3.6)
BMDLL-10 (1)	17.6 – 22.0 (8.0 – 10.0)	8.2 (2.5)	8.4 (3.8)

Zimmerman Series Pneumatic Balancers

B	ZA	BA	EA	Capacity lb (kg)	Travel in (mm)	Net Weight lb (kg)
SINGLE WIRE ROPE						
BW015080[1]	ZAW015080[1]	BAW015080[1]	EAW015080[1]	150 (68)	80" (2032)	50 (23)
BW020120	ZAW020120	BAW020120	EAW020120	200 (90)	120" (3048)	62 (28)
BW020120S[2]	ZAW020120S[2]	BAW020120S[2]	EAW020120S[2]	200 (90)	120" (3048)	62 (28)
BW032080S[2]	ZAW032080S[2]	BAW032080S[2]	EAW032080S[2]	325 (147)	80" (2032)	62 (28)
BW035080[1]	ZAW035080[1]	BAW035080[1]	EAW035080[1]	350 (158)	80" (2032)	62 (28)
BW050080	ZAW050080	BAW050080	EAW050080	500 (227)	80" (2032)	110 (50)
BW050080S[2]	ZAW050080S[2]	BAW050080S[2]	EAW050080S[2]	500 (227)	80" (2032)	110 (50)
REEVED WIRE ROPE						
BW040060	ZAW040060	BAW040060	EAW040060	400 (181)	60" (1524)	67 (30)
BW040060S[2]	ZAW040060S[2]	BAW040060S[2]	EAW040060S[2]	400 (181)	60" (1524)	67 (30)
BW065040S[2]	ZAW065040S[2]	BAW065040S[2]	EAW065040S[2]	650 (294)	40" (1016)	67 (30)
BW070040[1]	ZAW070040[1]	BAW070040[1]	EAW070040[1]	700 (317)	40" (1016)	67 (30)
BW100040	ZAW100040	BAW100040	EAW100040	1,000 (453)	40" (1016)	115 (52)
BW100040S[2]	ZAW100040S[2]	BAW100040S[2]	EAW100040S[2]	1,000 (453)	40" (1016)	115 (52)
TANDEM WIRE ROPE						
BW040120	ZAW040120	BAW040120	EAW040120	400 (181)	120" (3048)	124 (56)
BW040120S[2]	ZAW040120S[2]	BAW040120S[2]	EAW040120S[2]	400 (181)	120" (3048)	124 (56)
BW065080S[2]	ZAW065080S[2]	BAW065080S[2]	EAW065080S[2]	650 (294)	80" (2032)	124 (56)
BW070080[1]	ZAW070080[1]	BAW070080[1]	EAW070080[1]	700 (317)	80" (2032)	124 (56)
BW100080	ZAW100080	BAW100080	EAW100080	1,000 (453)	80" (2032)	220 (100)
BW100080S[2]	ZAW100080S[2]	BAW100080S[2]	EAW100080S[2]	1,000 (453)	80" (2032)	220 (100)
TANDEM REEVED WIRE ROPE						
BW080060	ZAW080060	BAW080060	EAW080060	800 (360)	60" (1524)	129 (59)
BW080060S[2]	ZAW080060S[2]	BAW080060S[2]	EAW080060S[2]	800 (360)	60" (1524)	129 (59)
BW130040S[2]	ZAW130040S[2]	BAW130040S[2]	EAW130040S[2]	1,300 (589)	40" (1016)	129 (59)
BW140040[1]	ZAW140040[1]	BAW140040[1]	EAW140040[1]	1,400 (620)	40" (1016)	129 (59)
BW200040	ZAW200040	BAW200040	EAW200040	2,000 (900)	40" (1016)	225 (102)
BW200040S[2]	ZAW200040S[2]	BAW200040S[2]	EAW200040S[2]	2,000 (900)	40" (1016)	225 (102)

Control options:

Accesories

We offer a wide range of accessories that offer ease of use and flexibility to meet your specific application needs. QX Precision Fastening Systems are compatible with a variety of plug and play accessories to maximize productivity for your manufacturing line.

ACCESSORIES FOR ANY APPLICATION

- Battery chargers
- Battery packs
- Boots
- Bit selector trays
- Socket selector trays
- Suspension bales
- Auxiliary handles
- Selector tray cables
- Torque testers
- Spring balancers
- Socket kits

IQ^{V40} Series 40V, 2.5Ah Battery Charger

IQ^{V40} Series 40V, 2.5Ah Lithium Ion Battery Pack

IQ^{V20} Series 20V Battery Charger

IQ^{V20} Series 20V, 5.0Ahr Lithium Ion Battery

IQ^{V20} Series 20V, 2.5Ahr Lithium Ion Battery Pack

Boot

Bit Selector Tray

Socket Selector Tray

Suspension

Socket Kit

Auxiliary Handle

Selector Tray Cables

Torque Tester

Spring Balancer

For a specific part number and ordering details, please refer to the accessories guide at irtools.com/assemblyaccessories

INSIGHTqc™ Controller

We offer a wide range of accessories that offer ease of use and flexibility to meet your specific application needs. The INSIGHTqc™ controller is compatible with a variety of **plug and play*** accessories to maximize productivity for your manufacturing line. And with four onboard USB ports, up to four accessories can be used simultaneously.

DIO Box

QC-DIO-8CH

CCN: 47617332001

- 8 Inputs/8 Outputs with behavior assignable. In-build 24V power supply.

USB to Serial Adapter

QC-ADPT-1

CCN: 47601630001

- For RS232 connection.

Socket Tray

QC-SKTR

CCN: 47615828001

- 4 Positions.
- Connection USB cable included

Bit Tray

IC-BIT-8

- Bit Selector Tray Cables and DIO Box are required to install Bit Tray

Accessories

Light Tower

QC-TL-4
CCN: 47601629001
- 4 LEDs: Red, Orange, Green, Blue.

Bit Selector Tray Cables

IC-19PIN-5M
CCN: 80202922
IC-19PIN-10M
CCN: 80202930

Bar Code Scanners

QC-BC-SCAN-WL
WIRELESS
CCN: 47625756001
QC-BC-SCAN-1
WIRED-HEAVY DUTY
CCN: 47625754001
QC-BC-SCAN-2
WIRED-LIGHT DUTY
CCN: 47625755001

Torque Arms & Tool Holders

Bench Mounted Torque Reaction Arms

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Standard Equipment

- Anodized aluminum body on bearing and chrome-plated pole
- Die-cast aluminum spring balancer
- Standard inline tool holder up to 100 Nm(1)
- Cable management clips to route air hose or DC tool cable

Ref.	MAX Nm Nm	kg	A mm	B mm	C mm
QTA010	10	1.2	380	330	706
QTA020	20	2.3	508	368	808
QTA040	40	3.0	635	445	1008
QTA100	100	3.6	762	445	1008
QTA150(2)	150	4.5	1321	559	2000

QTA150, position 1 QTA150, position 2

Floor Mounted Torque Reaction Arms

Standard Equipment

- Adjustable arm height at column
- Air cylinders and regulator
- Cable management clips to route air hose or DC tool cable
- Safety stop

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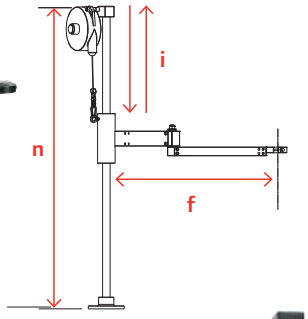
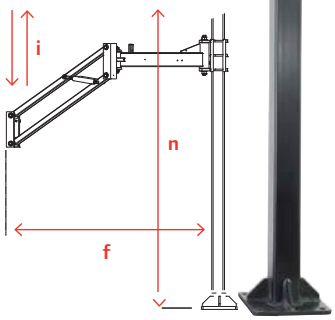
Ref.	MAX Nm Nm	kg	A mm	B mm	C mm
QTA270	270	10	1524	477	2000
QTA475	475	23	2007	590	2000

QTA040



Generic clamp style tool holders

QTA270



Type – Tipo	QTA010	QTA020	QTA040	QTA100
Inline (included with arm)	ITC010-1C	ITC040-1C	ITC040-1C	ITC100-1C
3 Right Angle	ATC010-1C	ATC040-1C	ATC040-1C	ATC100-1C
4 Pistol	PTC010-1C	PTC040-1C	PTC040-1C	–
A Rotating	RTC010-1C	RTC040-1C	RTC040-1C	–
B 1/4" NPT	NTC010-1T	–	–	–

Generic tool holders are available for arms up to 100 Nm (these arms are delivered with an inline tool holder as standard).

Flange mounting is recommended for inline tools with torque capacity above 40 Nm.

Please note the tool diameter range for generic holders: QTA010: 25 – 40 mm, QTA020/QTA040/QTA100: 28 – 52 mm.

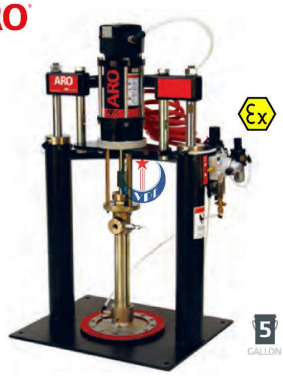
ARO

Bơm keo nắp động cơ/Engine cap glue pump

ARO

Bơm keo dán cửa/Door glue pump

ARO



Bơm chất bịt kín nắp động cơ/Pump engine cover sealant

ARO

Bơm chất làm kín kính chắn gió/ Windshield sealer pump

Bơm màng hóa chất/Diaphragm pump - Chemical

Bơm chuyển bột màu sơn/Diaphragm pump - Color powder

Bơm dầu động cơ/Engine oil pump

Bơm dầu hộp số/Gearbox oil pump

Bơm dầu trợ lực lái/ Oil pump - power steering

Bơm dầu trợ lực lái/ Oil pump - Power steering

Industrial pump solutions

Bơm mỡ vòng bi, trục truyền động/Grease piston pump bearings, drive shafts

Bơm nước thải/ Diaphragm pump - Sewage

Bơm sơn tuần hoàn/Circulating paint pump

Bơm sơn/Paint pump

Power Tools
11F, L'Avenue Shanghai, 99
Xianxia Road, Shanghai
20051, China
Tel: 86-21-2221 6000
Fax: 86-21-2221 6028
FMT_ChannelDevelopment@irco.com

1st November, 2022

To Whom It May Concern

Dear Sir/Madam,

Subject: Authorization to Market Ingersoll Rand Product

This is to inform that **TAN VIET PHAT EQUIPMENT., JSC** at **20B TTDKDX, Tho Lao, Dong Nhan ward, Hai Ba Trung district, Ha Noi, Viet Nam** is authorized* to promote and market designated Ingersoll Rand products in **Viet Nam**

The company purchases, imports and promotes the following designated Ingersoll Rand products and spare parts, and provided sales and service support to customers in **Viet Nam**. The designated products are:

- Surface Preparation
- Impact Tools
- Auto Air Tool
- Auto Buyout Tool
- Accessories
- Air & Electrical Hoist
- Manual Hoist
- Construction Tools

We are confident that **TAN VIET PHAT EQUIPMENT., JSC** will provide best service to our customers in **Viet Nam** with full support from Ingersoll Rand Singapore Enterprises Private Limited.

Should you require any further information, please contact the undersigned.

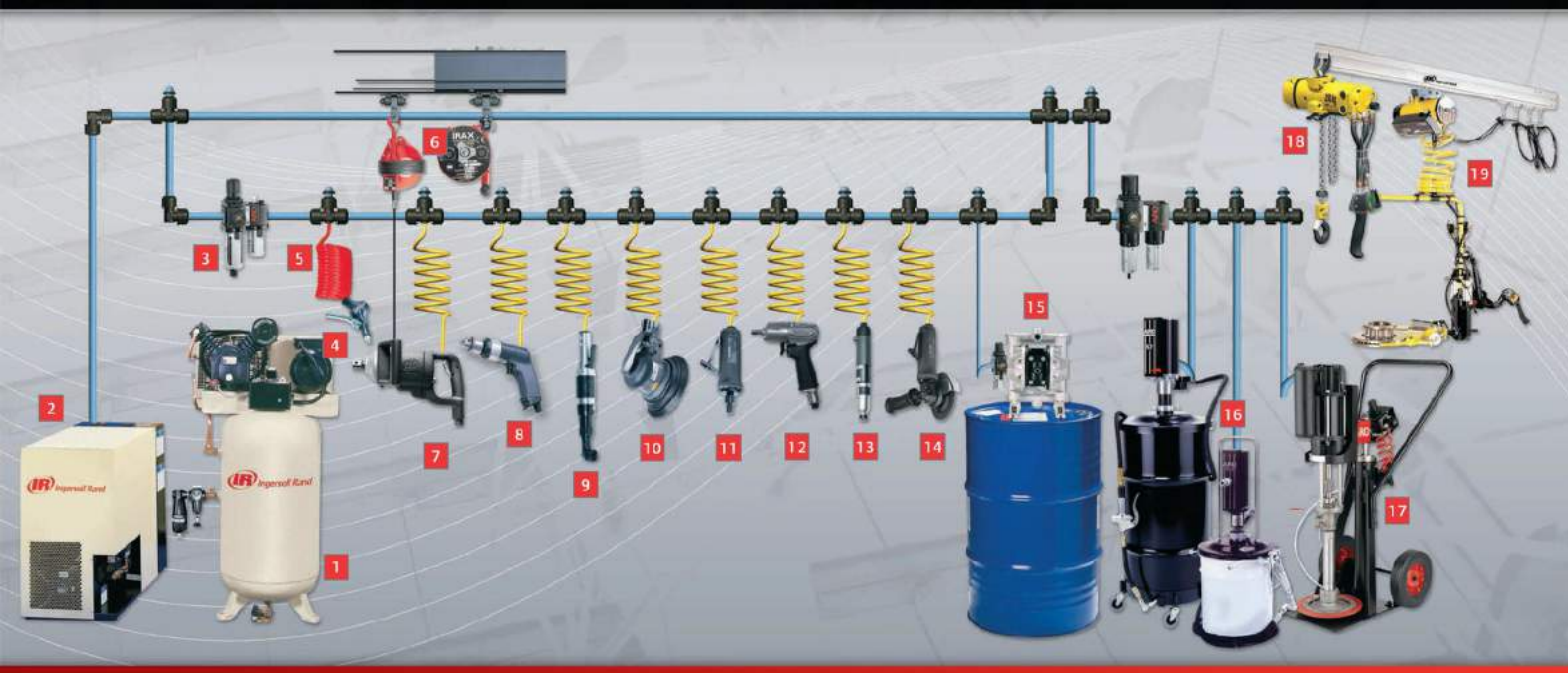
Yours Sincerely,
For & On Behalf of Ingersoll Rand Singapore Enterprises Private Limited

Cherry Wang
ROA PT Commercial Leader & AP Commercial Excellence Leader
Power Tools and Lifting
Asia Pacific

*Note: This appointment letter will valid till 2023.

Đại diện Ingersoll Rand:

Cung cấp các giải pháp tích hợp với danh mục sản phẩm công nghiệp của Ingersoll Rand.



CÔNG TY CỔ PHẦN THIẾT BỊ TÂN VIỆT PHÁT

TRỤ SỞ CHÍNH

Địa chỉ: Số 21/27, Đại Cồ Việt,P. Cầu Dền, Q. Hai Bà Trưng, Hà Nội
Website: www.tvpe.vn II www.tvpe.com.vn
Email: sales@tvpe.vn II Hotline: 0937.366.889

CHI NHÁNH QUẢNG NINH

Địa chỉ: Số 16 lô A1, Khu 9, Phường Cao Xanh, TP. Hạ Long, Tỉnh Quảng Ninh
Tel: 02033.656.628
Fax: 02033.656.628

CHI NHÁNH VŨNG TÀU

Số 222 Trần Phú, Phường 5, TP. Vũng Tàu, Tỉnh Bà Rịa - Vũng Tàu
Tel: 02543.522.688
Fax: 02543.52.688

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.

Tan Viet Phat Equipment JSC

Công ty CP Thiết bị Tân Việt Phát

Tan Viet Phát Equipment Joint Stock Company (TVPE.,JSC)

Tan Viet Phat JSC