

Pulse Nutrunners/Screwdrivers



Ingersoll-Rand pulse tools meet the new demands of assembly operations with high speed rundown of fasteners, exceptional accuracy and consistency in torque delivery, and operator-oriented design. A unique hydraulic impulse mechanism – driven by an air motor – applies torque to fasteners with a degree of control not possible in conventional tools. The result is precision fastening, with virtually no over-torquing in critical applications. Plus, tool users benefit from the added pluses of reduced transmission of torque reaction and vibration, as well as improved balance and quiet operation.

The line includes the YE Series, which adds electronic torque control capabilities for torque-critical applications, as well as the compact, comfortable Power-Pulse Plus models, and performance-proven Power-Pulse tools. The model range includes shut-off and cordless battery-powered versions as well.

The shut-off models share all of the advantages of the Power-Pulse line, along with automatic shut-off capability:

- Twin blade pulse mechanism delivers two instantaneous, balanced pulses for higher output torque and faster rundown speed.
- Two speed trigger provides slow speed for precise, gradual starts, as well as high speed for fast rundown.
- Excellent power-to-weight ratios for more comfortable, convenient operation.
- Easy, external hex wrench torque adjustments, without disassembling the tool or removing it from the production line.
- Superior cooling system for long mechanism life.

Power-Pulse shut-off models also share many parts and components with the rest of the line, and require only one repair jig fixture.



Air power with a unique hydraulic mechanism – Ingersoll-Rand pulse nutrunners and screwdrivers deliver superior torque control and repeatability for a variety of demanding assembly applications.



When properly adjusted, the shut-off function provides outstanding torque repeatability, making it virtually impossible to over-torque with shut-off models. This means fewer stripped and broken fasteners, and increased productivity with reduced scrap and rework. The Power-Pulse models are quiet (most operate below 83 dBa), and offer excellent value.

Joint rate is the most significant factor that should be considered when recommending a pulse tool. The difference between a hard slam and a soft draw is significant for a pulse tool. The hard slam torque range that Ingersoll-Rand shows for a fastener is reached at a maximum of 30° rotation from hand tight. The soft draw torque range is reached at a minimum of 180° rotation from hand tight before tool shuts off.

About Pulse Tools...

- The impulse mechanism operates by means of a pressure differential, which is developed through the mechanism's rotation around the drive shaft and blade.
- When the pulse cycle begins, the blade maintains constant contact with the inner wall of the cylinder during the rotation of the outer mechanism.
- The fluid pressure is equal on each side of the drive shaft. By the time the mechanism has rotated 90°, both the blade and the front face of the drive shaft are in contact with the inner wall of the cylinder. At this point, the fluid on the right side of the drive shaft is becoming compressed by the mechanism's rotation. The compression is what converts the inertia of the rotating mechanism into a torque impulse on the drive shaft, and ultimately to the fastener.
- The degree of compression and impulse is controlled by the hex adjustment screw. The adjustment of this screw controls the amount of hydraulic fluid that is allowed to bypass the compression stage, thus increasing or decreasing the inertia transferred, and consequently the tool's torque output as well.
- Air pressure can move the torque up or down. Decreasing the air pressure not only lowers the torque range but also increases the life of the pulse mechanism. Air pressure should not be lowered to any less than 50-60 psi, as levels below this can decrease the torque accuracy. Increasing the air pressure to above 100 psi is also not recommended. This can decrease the life of the mechanism and the motor.



YE Series Torque Control Pulse Tools

Ingersoll-Rand has combined the power and ergonomics of pulse tools with an accurate, convenient electronic interface to create the YE Series – a productivity enhancement for torque-critical assembly applications. The tools provide an excellent power-to-weight ratio, as well as accurate torque repeatability and speed, with minimal noise, vibration, and torque reaction. Plus, the transducer and controller provide visible and audible cues to the operator on fastening performance, along with a full range of documentation capabilities for quality assurance.

The advantages of the YE Series package:

Tools

- Twin blade pulse mechanism for compact size, low weight
- Minimal noise, vibration and reaction for operator comfort
- Patented cooling system reduces maintenance, extends life
- Adjustable pulse mechanism provides greater versatility
- Integral audible signal helps operator focus attention on the fastening operation
- Outboard solenoid valve reduces tool weight, enhances operator convenience

Transducer/Controller

- Strain gauge is located on tool anvil close to the socket for a more accurate measurement of torque
- Non-contacting pick-up reduces signal noise, improving torque repeatability
- Calibration programming is fast and easy

A Full Range of Programmable Features

The YE Series package provides a host of capabilities:

- Torque readout for fastening confirmation
- Solenoid valve shut-off for accuracy
- Fastener count for complete production records
- Group control and selection with multiple parameters for maximum flexibility
- Visual, audible, and electronic output signals for torque value, over, under, OK, group finish, and slow/fast errors
- Serial (RS232) and parallel ports, and inputs/outputs for PLC process control and documentation



The YE Series package is perfect for tightening threaded fasteners where accuracy is essential. It can also be used to provide the signals or data required for quality assurance, reporting and statistics, assembly line control, or verification systems. The YE Series is already delivering productivity benefits and torque accuracy in the following applications:

- Automotive
 - final assembly
 - powertrain
 - components/subassemblies
 - chassis
- Construction equipment
- Lawn and garden equipment
- Locomotive
- Motorcycle/bicycle
- Golf cars/utility vehicles
- Furniture/seating
- General machinery

Consult your Ingersoll-Rand representative or distributor today, and improve your applications with the YE Series.



Outboard Solenoid Valve

YE Series Specifications

Model Number	Min Torque Nm/ft. lbs.	Max Torque Nm/ft. lbs.	Free Speed rpm	Length mm/in.	Typical Bolt Capacity	Spindle Off-Set mm/in.	Weight less socket kg/lb.	Spindle Size in.
Pistol-Grip								
YEX-120A	3.5/2.6	8.8/6.5	5500	223/8.8	M5-M6	23.5/0.93	1.43/3.2	1/4" QC
YEX-120	3.9/2.9	9.8/7.2	5500	222/8.7	M5-M6	23.5/0.93	1.43/3.2	3/8"
YEX-150A	4.9/3.6	15/11.1	9000	223/8.8	M5-M6	23/0.91	1.43/3.2	1/4" QC
YEX-150	5.4/4.0	18/13.3	9000	222/8.7	M5-M6	23/0.91	1.43/3.2	3/8"
YEX-501A	15/11.0	43/31.7	8200	227/8.9	M6-M8	26.5/1.04	2/4.4	1/4" QC
YEX-501	17/12.5	48/35.4	8200	234/9.2	M6-M8	26.5/1.04	2/4.4	3/8"
YED-60A	22/16.2	39/28.8	6000	223/8.8	M6-M8	23/0.91	1.5/3.3	1/4" QC
YED-60	25/18.4	44/32.5	6000	222/8.7	M6-M8	23/0.91	1.5/3.3	3/8"
YED-70	34/25	70/52	7000	239/9.4	M8-M10	26/0.97	2.05/4.5	3/8"
YEX-701	25/18.4	75/55.3	8000	246/9.7	M8-M10	26.5/1.04	2.2/4.9	3/8"
YEX-901	32/23.6	88/64.9	6100	257/10.1	M10	33.5/1.32	2.7/5.9	1/2"
YED-90	54/39.8	108/79.7	6000	249/9.8	M10-M12	29.5/1.16	2.45/5.4	1/2"
YEX-1400	52/38.4	142/104.7	5900	266/10.5	M10-M12	34/1.34	3.5/7.7	1/2"
YEX-1900	58/42.8	167/123.2	5800	277/10.9	M12	39/1.54	4.1/9.0	1/2"
YEX-3000	122/90	284/209.5	4000	309/12.2	M16	40/1.57	6.4/14.1	3/4"
YED-200	175/129	360/265	2300	307/12	M18-20	40/1.6	6.8/15	3/4"

Straight Handle

YEX-120SA	3.6/2.7	7.2/5.3	10000	267/10.5	M5-M6	31/1.22	1.18/2.6	1/4" QC
YEX-120S	4.0/3.0	8/5.9	10000	266/10.5	M5-M6	31/1.22	1.18/2.6	3/8"
YEX-150SA	4.9/3.6	15/11.1	9000	276/10.9	M5-M6	23/0.91	1.43/3.2	1/4" QC
YEX-150S	5.4/4.0	18/13.3	9000	275/10.8	M5-M6	23/0.91	1.43/3.2	3/8"
YEX-300SA	7.8/5.8	20/14.8	8000	313/12.3	M6	27/1.06	1.8/4.0	1/4" QC
YEX-300S	8.8/6.5	22/16.2	8000	312/12.3	M6	27/1.06	1.8/4.0	3/8"
YEX-500SA	11/8.1	37/27.3	7800	334/13.2	M6-M8	27/1.06	2.1/4.6	1/4" QC
YEX-500S	13/9.6	41/30.2	7800	333/13.1	M6-M8	27/1.06	2.1/4.6	3/8"
YEX700S	20/14.8	61/45	7500	333/13.1	M8	27/1.06	2.3/5.1	3/8"

Controllers

Model Number	Tool Connections	Configurations	Size W x H x D mm.	Weight kg/lb.	Power
YETC-200ETB	1	8	230 x 110 x 290	5.2kg/11.4	117 VAC
YECT-200ETB-4	4	4 x 2	230 x 110 x 290	5.3kg/11.5	117 VAC
YECT-200ETF	1	8	230 x 110 x 290	5.2kg/11.4	117 VAC

Controllers include 10 meter tool cable, solenoid valve, air regulator, tool hose and fittings.

Power-Pulse Plus Series

Nutrunners/Screwdrivers

Features

- Torque range 13 to 96 Nm
- Model range includes new shut-off versions (45PS3, 45PSQ1, 55PS3, 55PSQ1, 70PS3, 90PS4)

Accessories

- EQ106S-365 Suspension bail (fits 45P3, 45PQ1, 55P3, 55PQ1, 60P3, 60PQ1)
- EQ106P-365 Split-ring suspension bail (fits 70P3, 90P4)



55PS3
(Shut-Off Model)



60P3



70P3

Power-Pulse Shut-Off Models

Model	Free Speed rpm	Soft Draw Torque Range Guide			Hard Slam Torque Range Guide			Weight lb.	Length in.	Side to Center in.	Square Drive in.	CFM
		ft.-lb.	Nm	kgf/cm	ft.-lb.	Nm	kgf/cm					
45PS3	10,000	9.6 - 14.8	13 - 20	133 - 204	5.9 - 11.1	8 - 15	82 - 153	2.4	7.3	.83	3/8"	12
45PSQ1	10,000	9.6 - 14.8	13 - 20	133 - 204	5.9 - 11.1	8 - 15	82 - 153	2.4	7.3	.83	(QC)*	12
55PS3	7,000	11.8 - 20.7	16 - 28	163 - 286	7.4 - 14.8	10 - 20	102 - 204	2.4	7.3	.83	3/8"	15
55PSQ1	7,000	11.8 - 20.7	16 - 28	163 - 286	7.4 - 14.8	10 - 20	102 - 204	2.4	7.3	.83	(QC)*	15
70PS3	6,000	27.3 - 42.8	37 - 58	377 - 591	26.6 - 34.7	36 - 47	367 - 480	3.5	8.1	.97	3/8"	17
90PS4	6,000	43.5 - 59.0	59 - 80	602 - 816	37.6 - 57.6	51 - 78	520 - 795	4.4	7.9	1.15	1/2"	18

Power-Pulse Plus Models

Model	Free Speed rpm	Soft Draw Torque Range Guide			Hard Slam Torque Range Guide			Weight lb.	Length in.	Side to Center in.	Square Drive in.	CFM
		ft.-lb.	Nm	kgf/cm	ft.-lb.	Nm	kgf/cm					
45P3	9000	12 - 23.6	16 - 32	163 - 326	10.3 - 22.0	14 - 30	143 - 306	2.0	5.6	.85	3/8"	12
45PQ1	9000	10.3 - 21.4	14 - 29	143 - 296	9.6 - 20.6	13 - 28	133 - 286	2.0	5.6	.85	1/4" hex	12
55P3	8000	16.2 - 26.5	22 - 36	220 - 370	19.2 - 28.0	26 - 38	270 - 390	2.1	5.7	.93	3/8"	12
55PQ1	8000	14.6 - 23.9	19.8 - 32.4	202 - 330	17.3 - 25.2	23.4 - 34.2	239 - 349	2.1	5.7	.93	1/4" hex	12
60P3	6600	20.7 - 33.2	28 - 45	290 - 460	22.1 - 33.2	30 - 45	310 - 460	2.2	6.5	.93	3/8"	14
60PQ1	6600	18.6 - 29.9	25.2 - 40.5	257 - 413	19.9 - 29.9	27 - 40.5	275 - 413	2.2	6.5	.93	1/4" hex	14
70P3	7000	34.7 - 51.7	47 - 70	480 - 710	33.2 - 50.2	45 - 68	460 - 690	3.1	7.0	.98	3/8"	14
90P4	6000	50.2 - 64.9	68 - 88	690 - 900	50.2 - 70.8	68 - 96	690 - 980	4.0	7.2	1.16	1/2"	16

* Quick Change drive has 1/4" hex size.

Note: Torque ranges are provided as a guide only.

Actual torque output will depend on joint type, air pressure, and type of accessories used.

Power-Pulse Shut-Off Nutrunners

Features

- Torque range (pistol-grip models)
14 to 190 Nm

Accessories

- Rubber boot covers:
(Protects tool and workpiece)
 - 500PS3-2 (500PS3)
 - 700PS3-2 (700PS3)
 - 900PS4-2 (900PS4)
 - 1100PS4-2 (1100PS4)
 - 1900PS4-2 (1900PS4)
- Split-ring suspension bail
(fits models on this page)
 - EQ106P-365



700P



900PS4



500PS3



1900PS4

Model	Free Speed rpm	Soft Draw Torque Range Guide			Hard Slam Torque Range Guide			Weight lb.	Length in.	Side to Center in.	Square Drive in.	CFM
		ft.-lb.	Nm	kgf/cm	ft.-lb.	Nm	kgf/cm					
Reversible Pistol Handle (Trigger Start)												
500PS3	10500	10 - 20	14 - 27	138 - 277	20 - 40	28 - 54	271 - 542	4.0	7.9	1.2	3/8	12
700PS3	9250	20 - 30	27 - 41	277 - 415	35 - 60	47 - 81	483 - 830	4.5	8.5	1.2	3/8	14
900PS4	8000	30 - 40	41 - 54	415 - 553	55 - 70	75 - 95	745 - 968	5.9	9.1	1.3	1/2	14
1100PS4	6500	40 - 50	54 - 68	553 - 692	65 - 85	90 - 115	881 - 1153	6.2	9.2	1.3	1/2	16
1900PS4	7000	70 - 100	108 - 136	1110 - 1383	90 - 140	122 - 190	1242 - 1936	8.6	10.2	1.5	1/2	18

Performance figures are at 90 psi (620kPa).

All tools have 1/4" NPT inlet and should use 3/8" air hose.

Torque ranges should be used as a guide only. For best performance, use tools at mid-torque range.

Final torque may vary depending on air pressure and type of joint.

Soft Draw is based on fastener being hand tight and then tightened with no less than 180° rotation of the fastener.

Hard Slam is based on fastener being hand tight and then tightened to full torque with no more than 30° rotation of the fastener.

Power-Pulse Shut-Off

Cordless Battery Pulse Model

Features

- Torque range 8.1 to 19 Nm

Standard Equipment

- 9.6 Volt, 2000 mA battery pack

Optional Equipment

- Boot (BP10P-32)

Accessories

- BP10P3-951-UL 1 hour charger
- BP10P3-952-UL 9 minute charger
- BP10PK-UL 3/8" square drive kit includes BP10P3 Impulse tool, BP10P3-950 extra battery pack, BP10P3-951-UL 1 hour charger

- BP10PQK-UL 1/4" hex drive quick change kit includes BP10PQ1 Impulse tool, BP10P3-950 extra battery pack, BP10P3-951-UL 1 hour charger

- BP10PK2-UL 3/8" square drive kit includes BP10P3 Impulse tool, BP10P3-950 extra battery pack, BP10P3-952-UL 9 minute charger

- BP10PQK2-UL 1/4" hex drive quick change kit includes BP10PQ1 Impulse tool, BP10P3-950 extra battery pack, BP10P3-952-UL 9 minute charger

- Kits for Canada utilize "CSA" suffix, rather than "UL"

- Kits for Europe utilize "EU" suffix, rather than "UL"



BP10P3

Model	Free Speed rpm	Soft Draw Torque Range Guide			Hard Slam Torque Range Guide			Weight lb.	Length in.	Side to Center in.	Drive
		ft.-lb.	Nm	kgf/cm	ft.-lb.	Nm	kgf/cm				
BP10PQ1	2200	6.0 - 10.6	8.1 - 14.4	83 - 147	7.3 - 12.6	9.9 - 17.1	101 - 174	3.8*	8.1	1.0	1/4" hex
BP10P3	2200	6.6 - 11.8	9 - 16	90 - 160	8.1 - 14.0	11 - 19	110 - 190	3.8*	8.1	1.0	3/8"

* Weight includes battery.

Power-Pulse**Nutrunners/Screwdrivers****Features**

- Torque range (straight models)
4 to 44 Nm
- Torque range (angle models)
16 to 49 Nm

Accessories

- EQ106S-365 Suspension bail
- Rubber boot covers: (protects tool and workpiece)
 - 180SQ-2 (180SQ1)
 - 280SQ-2 (280SQ1)
 - 380SQ-2 (380SQ1)
- EQ106S-BF400-1
1-gallon fluid



500A



180SQ1

Model	Free Speed rpm	Soft Draw Torque Range Guide			Hard Slam Torque Range Guide			Weight lb.	Length in.	Side to Center in.	Square Drive in.	CFM
		ft.-lb.	Nm	kgf/cm	ft.-lb.	Nm	kgf/cm					
Straight (Lever Start)												
100SQ1	10000	3 - 6	4 - 8	45 - 83	4 - 9	5 - 12	60 - 120	1.8	8.9	0.8	1/4" Q.C.	12
180SQ1	9000	6 - 11	8 - 15	83 - 152	12 - 22	16 - 30	166 - 304	2	8.7	0.9	1/4" Q.C.	9
280SQ1	8000	7 - 14	10 - 19	97 - 194	13 - 26	18 - 35	180 - 360	2.1	9	0.9	1/4" Q.C.	11
380SQ1	8500	15 - 32	20 - 44	207 - 443	22 - 32	30 - 44	304 - 443	2.6	9.1	1	1/4" Q.C.	11
Angle (Lever Start)												
500A	7000	12 - 24	16 - 33	166 - 332	22 - 30	30 - 41	304 - 415	3.3	10.5	1.1	3/8" SQ.	11
700A	5500	19 - 30	26 - 41	263 - 415	26 - 36	35 - 49	360 - 498	4.4	11.2	1.1	3/8" SQ.	12

Performance figures are at 90 psi (620kPa). Torque can be regulated by air pressure.

All tools have 1/4" NPT inlet and should use 3/8" air hose.

Torque ranges should be used as a guide only. For best performance, use tools at mid-torque range.

Final torque may vary depending on air pressure and type of joint.

Soft Draw is based on fastener being hand tight and then tightened with no less than 720° rotation of the fastener.

Hard Slam is based on fastener being hand tight and then tightened to full torque with no more than 30° rotation of the fastener.

Nutrunners/Screwdrivers

Features

- Torque range (pistol-grip models)
4 to 286 Nm

Accessories

- EQ106P-365 Suspension bail
(fits 500PQ1, 500P, 700P, 900P, 1100P, 1410P, 1900P, 3000P)
- EQ106S-365 Suspension bail
(fits 100PQ1, 180PQ1, 280PQ1, 280P, 380PQ1, 380P)
- Rubber boot covers:
(protects tool and workpiece)
 - 100PQ-2 (100PQ1)
 - 180PQ-2 (180PQ1)
 - 280PQ-2 (280P, PQ1)
 - 380PQ-2 (380P, PQ1)
 - 500PQ-2 (500P, PQ1)
 - 700P-2 (700P)
 - 900P-2 (900P)
 - 1100P-2 (1100P)
 - 1410P-2 (1410P)
 - 1900P-2 (1900P)
 - 3000P-2 (3000P)



Model	Free Speed rpm	Soft Draw Torque Range Guide			Hard Slam Torque Range Guide			Weight lb.	Length in.	Side to Center in.	Square Drive in.	CFM
		ft.-lb.	Nm	kgf/cm	ft.-lb.	Nm	kgf/cm					
100PQ1	9300	3 - 6	4 - 8	41 - 83	3 - 8	4 - 11	41 - 111	1.6	5.6	0.7	1/4" O.C.	12
180PQ1	10500	6 - 11	8 - 15	83 - 152	14 - 22	19 - 30	194 - 304	2.2	6.5	0.9	1/4" O.C.	9
280PQ1	9500	10 - 16	14 - 22	138 - 221	16 - 26	22 - 35	221 - 360	2.5	7	0.9	1/4" O.C.	11
280P	9500	12 - 18	16 - 24	138 - 221	18 - 28	24 - 38	249 - 387	2.5	7	0.9	3/8" SQ.	11
380PQ1	8500	15 - 23	20 - 31	207 - 318	22 - 32	30 - 44	304 - 443	2.9	7	1	1/4" Q.C.	11
380P	8500	18 - 25	24 - 34	249 - 346	25 - 36	34 - 49	346 - 498	2.9	7	1	3/8" SQ.	11
500PQ1	8500	18 - 27	24 - 37	249 - 373	22 - 38	30 - 52	304 - 526	3.2	6.5	1.2	1/4" Q.C.	12
500P	8500	20 - 30	27 - 41	277 - 415	25 - 43	34 - 58	346 - 595	3.2	6.5	1.2	3/8" SQ.	12
700P	8500	24 - 43	33 - 58	332 - 595	34 - 58	46 - 79	470 - 802	3.6	6.5	1.2	3/8" SQ.	14
900P	7500	30 - 50	41 - 68	415 - 692	55 - 80	75 - 109	761 - 1106	4.6	7.9	1.3	1/2" SQ.	14
1100P	5000	35 - 60	48 - 82	484 - 830	60 - 90	82 - 122	830 - 1245	4.9	8.2	1.4	1/2" SQ.	16
1410P	6000	40 - 70	54 - 95	553 - 968	71 - 120	97 - 163	982 - 1660	6.2	8.5	1.4	1/2" SQ.	18
1900P	5000	50 - 85	68 - 116	692 - 1176	86 - 146	117 - 199	1189 - 2019	7.9	8.9	1.5	1/2" SQ.	18
3000P	4500	60 - 110	82 - 150	830 - 1521	124 - 210	169 - 286	1715 - 2904	10.8	9.7	1.7	3/4" SQ.	21

Performance figures are at 90 psi (620kPa). Torque can be regulated by air pressure.

All tools have 1/4" NPT inlet and should use 3/8" air hose.

Torque ranges should be used as a guide only. For best performance, use tools at mid-torque range.

Final torque may vary depending on air pressure and type of joint.

Soft Draw is based on fastener being hand tight and then tightened with no less than 720° rotation of the fastener.

Hard Slam is based on fastener being hand tight and then tightened to full torque with no more than 30° rotation of the fastener.