Assembly Tools

- Air Screwdrivers and Drills
- Air Nutrunners
- Air Ratchets
- Workstations
- Torque Arms
- Full Line of Screwdriver Bits

Proven Source. Proven Solutions.

Notes

Production processes throughout industry are changing rapidly. Tolerances have tightened. The quest for efficiency brings almost constant reexamination in the best use of resources. Accuracy and precision in assembly and fastening operations have taken on new significance. These considerations are fast becoming the critical measure of product quality in a super-competitive global marketplace.

Likewise, assembly technicians today are the key factors in ultimate product quality – men and women who depend on resources that encourage and maximize the skills that they bring to their tasks. Today's assembly technicians deserve tools that contribute to quality of performance…and quality of life.

As a major worldwide supplier of assembly tools, systems, and accessories, Ingersoll-Rand is a valuable technology resource for your business. The Ingersoll-Rand assembly tool line covers virtually every application in the plant facility, from the most basic drill…to award winning angle wrenches with precision torque control and electronic interfaces.

But there is more to today's assembly function than the tools of the trade. Ingersoll-Rand is also an information resource for your business. By encouraging a complete review of the complex issues surrounding a rapidly changing marketplace, IR can assist in more effective and productive workplace configurations, as well as tool selections. For this reason, each section of this catalog begins with helpful details that should make easier, better choices.

Your selection and purchase of assembly tools has a direct effect on process and product quality. Your decision can make a difference in improved efficiency, and in properly tightened fasteners. The real cost of assembly tools reflects the following considerations:

Cost of acquisition

- Purchase price, as well as installation costs

Cost of operation

- Power consumption
- Training for operators and service technicians
- Positive vs. negative ergonomics and safety factors
- Frequency of repair and time requirements
- Inventory of spare tools, replacement parts, and service parts

Cost of related equipment

- Equipment specific to the tools of one manufacturer

Cost of quality

- Quality control audit procedures
- Correction of improperly tightened fasteners
- Warranty claims
- Loyalty of satisfied customers vs. long-term effects of lost customers

Cost of salvage

- Residual value of a tool or components

Some of these considerations may seem obvious, while others are often difficult to identify…or quantify. All contribute to the total cost of precision fastening. All reflect the new significance of assembly operations and processes.

On the following page, The Forces at Work explores related issues of rising importance throughout industrial production – the relationship between performance factors and human factors. Whatever the consideration, you can rely on your Ingersoll-Rand representative or distributor for expert consultation, as well as superior products.

The Forces at Work

"Highly sophisticated, mechanical products subject to rigid requirements of standardization and interchangeability." This is how a recognized industry authority described threaded fasteners. This is not a reference to advanced equipment designed for fastening or measurement functions, but a definition of the seemingly simple screws, bolts, and nuts on which the process is based.

Imagine the additional impact of precise fastening requirements and evaluation:

- Clamp loads and fastener tension
- Hard draw versus soft draw joints
- Stress and strain curves
- Yield points
- Bolt signatures and appropriate fastening methods

All of these issues are addressed in the product sections which follow, and also in related materials available from Ingersoll-Rand. They represent the specification performance aspect of fastening and assembly.

A very different, yet equally important set of forces is also at work. They represent the human factors, or ergonomics – a widely and often too casually used term that describes the interaction of task, tool, and tool user.

Every **task** in fastening and assembly is different. The size, the shape, the tolerance of the workpiece. The setting, the positioning, the process in the workplace.

Tool users represent varying degrees of size and strength. They are tall. Small. Male. Female. Hand sizes, grip forces, and natural movements reflect a wide range of proportions.

The **tool** is the link.

Ingersoll-Rand considers this human performance aspect an essential element in all of its new product development activity in power tools. All of our recent and new designs reflect the extensive input of assembly technicians and production managers, as well as plant health and safety experts.

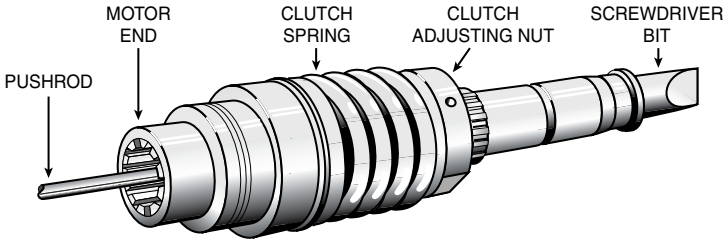
There are many forces at work in the dynamic field of fastening and assembly. Critical tolerance joints. Standards of consistency for product quality and safety. Specification performance. Human performance.

IR Assembly Solutions address the interaction of task, tool, and tool user... with a unique fusion of ergonomics and performance.

Selection of the appropriate clutch arrangement for your application is the first critical step in screwdriver specification. IR offers four basic types – adjustable precision shut-off, adjustable cushion clutch, positive jaw, and direct drive. The following introduction, coupled with the "Types of Joints" table on the following page, will help you define your requirements.

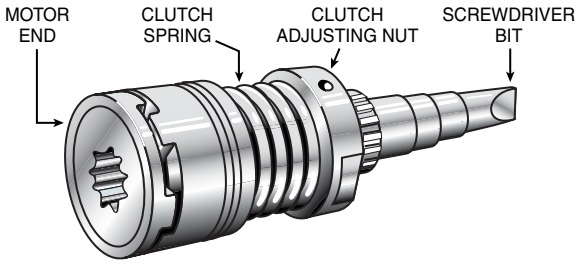
Adjustable Precision Shut-Off Clutch

Designed for critical fastening applications involving plastics, composites, or metals that require precise torque control. Automatic shut-off reduces air consumption and torque reaction.



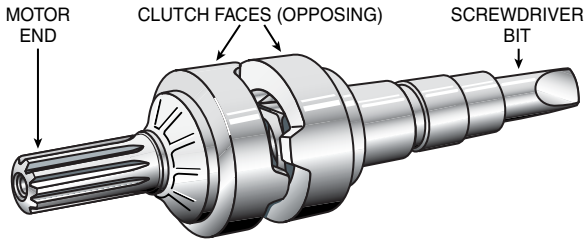
Adjustable Cushion Clutch

Steel balls rolling between indented plates provide smooth disengaging at preset torque while minimizing vibration to the operator. Very good general purpose torque limiting clutch.



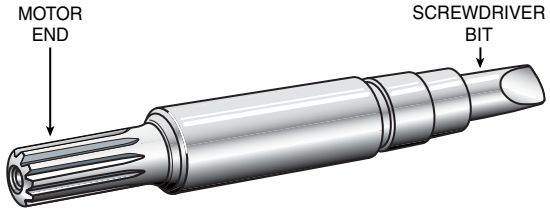
Positive Jaw Clutch

Designed for applications where driving torque may exceed final seating torque as in wood and self-tapping applications. Applied torque is controlled by the operator and can be limited by regulating air line pressure.



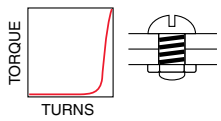
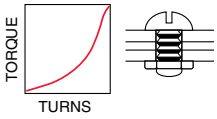
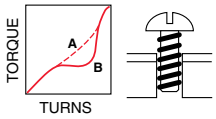
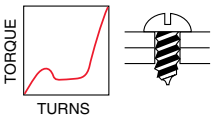
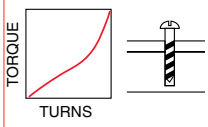
Direct Drive

Designed for soft pull applications in wood and other materials not requiring critical torque control. Applied torque is controlled by the operator and can be limited by regulating air line pressure.



Clutch Selection Chart

Types of Joints

	Free Running-Slam (Hard Drive)	Compressing Gaskets (Soft Draw)	Self-Tapping Screws	Sheet Metal Screws	Wood Screws
Select the Clutch to Fit Your Job	 Resistance low at start and during rundown but peaks suddenly as bolt head seats.	 Turning resistance gradually increases as squeeze progresses to final turn.	 Initial resistance high through tapping travel, easing off until sudden (B) or gradual (A)	 Starting torque builds until penetration made, then resistance slacks off until head seats.	 Low resistance at start builds gradually through entire rundown until head seats.
Adjustable Precision Shut-Off Clutch	EXCELLENT for all screw sizes where precise torque control is required.	BEST for all screw sizes where precise torque control is required.	BEST for all screw sizes except where tapping torque exceeds final torque.	EXCELLENT for all size screws—not suitable if tapping torque exceeds stripping torque.	Not recommended
Adjustable Cushion Clutch	VERY GOOD for most screw sizes where torque control is IMPORTANT.	VERY GOOD for most screw sizes where torque control is IMPORTANT.	VERY GOOD for all screw sizes where tapping torque does not exceed final torque.	GOOD for most screws where final torque exceeds tapping torque.	FAIR for all screw sizes.
Positive Jaw Clutch	FAIR for all sizes where close torque control is not required.	GOOD for most screws where close torque control is not required.	GOOD where tapping torque greatly exceeds final torque.	VERY GOOD where sheets are not aligned...GOOD where tapping torque is higher than final torque.	BEST for all screw sizes.
Direct Drive	GOOD for all screw in hands of experienced operators.	GOOD for large and medium screws – must be adjusted to run rather slowly for small screws.	Not recommended unless stripping torque is considerably higher than tapping torque.	Not recommended unless stripping torque is considerably higher than tapping torque.	GOOD for large and sizes medium screws – must be adjusted to turn slowly for small screws.

Screw Torque Guide

Maximum Torque for Screws

Torquing values for screws are offered as a guide. Tests were conducted on dry, or near dry, product. Fastener tension is held at a factor somewhat less than yield point.

Screw Size	Low Carbon Steel		18-8 Stainless		Brass		Silicon Bronze		Aluminum 2024-T4		316 Stainless		Monel	
	in.-lb.	Nm	in.-lb.	Nm	in.-lb.	Nm	in.-lb.	Nm	in.-lb.	Nm	in.-lb.	Nm	in.-lb.	Nm
2 - 56	2.2	.25	2.5	.28	2.0	.23	2.3	.26	1.4	.16	2.6	.29	2.5	.28
2 - 64	2.7	.31	3.0	.34	2.5	.28	2.8	.32	1.7	.19	3.2	.36	3.1	.35
3 - 48	3.5	.40	3.9	.44	3.2	.36	3.6	.41	2.1	.24	4.0	.45	4.0	.45
3 - 56	4.0	.45	4.4	.50	3.6	.41	4.1	.46	2.4	.27	4.6	.52	4.5	.51
4 - 40	4.7	.53	5.2	.59	4.3	.49	4.8	.54	2.9	.33	5.5	.62	5.3	.60
4 - 48	5.9	.67	6.6	.75	5.4	.61	6.1	.69	3.6	.41	6.9	.78	6.7	.76
5 - 40	6.9	.78	7.7	.87	6.3	.71	7.1	.80	4.2	.48	8.1	.92	7.8	.88
5 - 44	8.5	.96	9.4	1.06	7.7	.87	8.7	.98	5.1	.58	9.8	1.11	9.6	1.09
6 - 32	8.7	.98	9.6	1.09	7.9	.89	8.9	1.01	5.3	.60	10.1	1.14	9.8	1.11
6 - 40	10.9	1.23	12.1	1.37	9.9	1.12	11.2	1.27	6.6	.75	12.7	1.44	12.3	1.39
8 - 32	17.8	2.01	19.8	2.24	16.2	1.83	18.4	2.08	10.8	1.22	20.7	2.34	20.2	2.28
8 - 36	19.8	2.24	22.0	2.49	18.2	2.01	20.4	2.31	12.0	1.36	23.0	2.60	22.4	2.53
10 - 24	20.8	2.35	22.8	2.58	18.6	2.10	21.2	2.40	13.8	1.59	23.8	2.69	25.9	2.93
10 - 32	29.7	3.36	31.7	3.58	25.9	2.93	29.3	3.31	19.2	2.17	33.1	3.74	34.9	3.94
1/4- 20	65.0	7.35	75.2	8.50	61.5	6.95	68.8	7.77	45.6	5.15	78.8	8.90	85.3	9.64
1/4 - 28	90.0	10.20	90.0	10.20	77.0	8.70	87.0	9.83	57.0	6.44	99.0	11.20	106.0	12.00
15/16 - 18	129.0	14.60	132.0	14.90	107.0	12.10	123.0	13.90	80.0	9.04	138.0	15.60	149.0	16.80
15/16 - 24	139.0	15.70	142.0	16.10	116.0	13.10	131.0	14.80	86.0	9.72	147.0	16.60	160.0	18.10

Source: "Fasteners" published by Industrial Fasteners Institute.

Air Screwdrivers

1 Series Industrial Production Class

Ingersoll Rand

Ingersoll-Rand Quality And Performance At An Affordable Price

The new 1 Series air screwdrivers from Ingersoll-Rand combine proven quality and performance with economy for a variety of light assembly applications. They deliver accuracy and durability, comfort and control to build productivity in the 1.5 to 46 in.-lbs. category. The 1 Series models are available in straight, pistol-grip, and angle configurations, with automatic shut-off or cushion clutches, and speeds ranging from 500 to 2800 rpm. They are lightweight, with coated grip areas for easy handling, and will help enhance the productivity of your assembly tasks.

1RPNS1

1RTNS1

1RLN253

NEW

Model	Speed (rpm)	Torque (in-lb)	Weight (lb)	Length (in)	Bit Holder
Inline --- Push-to-Start --- Automatic Shut-off-Clutch					
1RPLS1	2800	3.50 - 13.00	1.00	8.38	1/4" QC
1RPMS1	1650	2.50 - 20.00	1.06	8.75	1/4" QC
1RPNS1	1000	1.50 - 30.00	1.06	8.75	1/4" QC
1RPQS1	500	1.50 - 45.00	1.06	8.75	1/4" QC
Inline --- Lever Start --- Auto Shut-Off Clutch					
1RLNS1	1000	1.50 - 30.00	1.13	9.19	1/4" QC
Pistol Grip --- Push-to-Start --- Auto Shut-off Clutch					
1RTMS1	1650	2.50 - 20.00	1.50	8.56	1/4" QC
1RTNS1	1000	1.50 - 30.00	1.50	8.56	1/4" QC
1RTQS1	500	1.50 - 45.00	1.50	8.75	1/4" QC
Angle Head --- Lever Start --- Auto Shut-off Clutch					
1RLN2S3	700	2.00 - 46.00	1.75	12.50	1/4" QC
1RLN2S5	700	2.00 - 46.00	1.75	12.50	1/4" SQ
Inline --- Push-to-Start --- Cushion Clutch					
1RPMC1	1650	2.50 - 20.00	1.06	8.75	1/4" QC
1RPNC1	1000	1.50 - 30.00	1.06	8.75	1/4" QC
Inline --- Lever Start --- Cushion Clutch					
1RLNC1	1000	1.50 - 30.00	1.13	9.19	1/4" QC
Pistol Grip --- Trigger Start --- Cushion Clutch					
1RAMC1	1650	2.50 - 20.00	1.50	8.56	1/4" QC
1RANC1	1000	1.50 - 30.00	1.50	8.56	1/4" QC

HPe™

High Performance Ergonomics

Industrial Production Class Adjustable Precision Shut-Off Clutch

Features

- Torque range (soft draw) 15 to 100 in.-lb.
- Recommended for assembling where precise torque control is required

Standard Equipment

- Clutch spring(s)
- 41 Series has the Skinsulate housing

Skinsulate® Comfort Coating

41PA8TPQ4

Adjustable Precision Shut-Off Clutch Model Specifications

Model	Torque Range (Soft Draw) in.-lb.	Nm	Free Speed rpm	Weight lb.	Length in.	Side to Center Distance in.	Clutch Spring**	CFM
Reversible Pistol Handle (Trigger Permit)								
41PA16TPQ4	15 - 60	1.7 - 6.8	1600	3.00	9.80	0.86	L, M	28
41PA10TPQ4	15 - 80	1.7 - 9.0	1000	3.00	9.80	0.86	L, M, H	28
41PA8TPQ4	15 - 100	1.7 - 11.3	800	3.00	9.80	0.86	L, M, H	28
Reversible Pistol Handle (Push to Start)								
41PA24PSQ4	15 - 40	1.7 - 4.5	2400	2.80	9.40	0.86	L	28
41PA16PSQ4	15 - 60	1.7 - 6.8	1600	3.00	9.80	.86	L, M	28
41PA10PSQ4	15 - 80	1.7 - 9.0	1000	3.00	9.80	.86	L, M, H	28
41PA8PSQ4	15 - 100	1.7 - 11.3	800	3.00	9.80	.86	L, M, H	28
Reversible Pistol Handle (Trigger Start)								
41PA24TSQ4	15 - 40	1.7 - 4.5	2400	2.80	9.40	0.86	L	28
41PA16TSQ4	15 - 60	1.7 - 6.8	1600	3.00	9.80	0.86	L, M	28
41PA10TSQ4	15 - 80	1.7 - 9.0	1000	3.00	9.80	0.86	L, M, H	28
41PA8TSQ4	15 - 100	1.7 - 11.3	800	3.00	9.80	0.86	L, M, H	28

Tool Series	Sound Approx. dBa	Air Inlet NPT	Hose Size	Installed Spring
41	78	1/4"	5/16"	Heaviest

**T = located at the end of the model number indicates top air inlet*
***Clutch Spring: L = Light, M = Medium, H = Heavy.*
Performance figures are at 90 psi (620 kPa).
Q4, S1 = 1⁄4" Quick Change Chuck
S3 = Requires Bit Guide or Finder

Features

- Torque range (soft draw) 15 to 100 in.-lb.
- Recommended for assembling where precise torque control is required

Standard Equipment

- Suspension bail
- Clutch spring(s)
- 41 Series has the Skinsulate housing

Skinsulate® Comfort Coating

41SA10PSQ4

Adjustable Precision Shut-Off Clutch Model Specifications

Model	Torque Range (Soft Draw) in.-lb.	Nm	Free Speed rpm	Weight lb.	Length in.	Side to Center Distance in.	Clutch Spring**	CFM
Reversible Straight Handle (Push to Start)								
41SA17PSQ4	15 - 60	1.7 - 6.8	1700	2.70	10.90	0.80	L, M	30
41SA10PSQ4	15 - 80	1.7 - 9.0	1000	2.70	10.90	0.80	L, M, H	30
41SA8PSQ4	15 - 100	1.7 - 11.3	800	2.70	10.90	0.80	L, M, H	30
Reversible Straight Handle (Lever Permit)								
41SA25LPQ4	15 - 40	1.7 - 4.5	2500	2.50	10.40	0.80	L	30
41SA17LPQ4	15 - 60	1.7 - 6.8	1700	2.70	10.90	0.80	L, M	30
41SA10LPQ4	15 - 80	1.7 - 9.0	1000	2.70	10.90	0.80	L, M, H	30
41SA8LPQ4	15 - 100	1.7 - 11.3	800	2.70	10.90	0.80	L, M, H	30

Tool Series	Sound Approx. dBa	Air Inlet NPT	Hose Size	Installed Spring
41	78	¼"	5⁄16"	Heaviest

***Clutch Spring: L = Light, M = Medium, H = Heavy.*
Performance figures are at 90 psi (620 kPa).
Q4, S1 = 1⁄4" Quick Change Chuck
S3 = Requires Bit Guide or Finder

Industrial Production Class Adjustable Cushion Clutch

Features

- Torque range (soft draw) 10 to 110 in.-lb.
- Recommended for assembling that requires a torque limiting clutch

Skinsulate® Comfort Coating

Standard Equipment

- Clutch spring(s)
- 41 Series has the Skinsulate housing

5RALC1

41PC8TSQ4

Adjustable Cushion Clutch Model Specifications

Model	Torque Range (Soft Draw) in.-lb.	Nm	Free Speed rpm	Weight lb.	Length in.	Side to Center Distance in.	Clutch Spring**	CFM
Reversible Pistol Handle (Trigger Start)								
5RAKC1	14 - 25	1.6 - 2.8	2600	2.56	8.75	0.81	L	17
41PC25TSQ4	10 - 40	1.1 - 4.5	2500	2.80	8.90	0.80	L	20
5RALC1	13 - 35	1.5 - 4.0	2000	2.56	8.75	0.81	L	17
5RALC3	13 - 35	1.5 - 4.0	2000	2.56	9.00	0.81	L	17
7RALC1	15 - 75	1.7 - 8.5	1800	3.13	10.00	0.88	L, M	27
41PC17TSQ4	10 - 60	1.1 - 6.0	1700	3.00	9.40	0.80	L, M	20
41PC10TSQ4	10 - 80	1.1 - 9.0	1000	3.00	9.40	0.80	L, M	20
7RAMC1	20 - 110	2.3 - 12.5	1000	3.38	10.56	0.88	M, H	27
5RANC1	13 - 70	1.5 - 8.0	900	2.81	9.50	0.81	L, H	17
5RANC3	13 - 70	1.5 - 8.0	900	2.81	9.75	0.81	L, H	17
41PC8TSQ4	10 - 100	1.1 - 11.3	800	3.00	9.40	0.80	L, M, H	20

Tool Series	Sound Approx. dBa	Air Inlet NPT	Hose Size	Installed Spring
5	75	¼"	¼"	L
41	78	¼"	5⁄16"	Heaviest
7	79	¼"	5⁄16"	Lightest

**T = located at the end of the model number indicates top air inlet*
***Clutch Spring: L = Light, M = Medium, H = Heavy.*
Performance figures are at 90 psi (620 kPa).
Q4, S1 = 1⁄4" Quick Change Chuck
S3 = Requires Bit Guide or Finder

Features

- Torque range (soft draw) 3.0 to 110 in.-lb.
- Recommended for assembling that requires a torque limiting clutch

Standard Equipment

- Suspension bail
- Clutch spring(s)
- Dead handle (Model 7RLMC1 & 5RLNC1)
- 41 Series has the Skinsulate housing

Skinsulate® Comfort Coating

41SC8LTQ4

7RLMC1

Adjustable Cushion Clutch Model Specifications

Model	Torque Range (Soft Draw) in.-lb.	Nm	Free Speed rpm	Weight lb.	Length in.	Side to Center Distance in.	Clutch Spring**	CFM
Reversible Straight Handle (Lever Throttle)								
41SC25LTQ4	10 - 40	1.1 - 4.5	2500	2.80	10.40	0.80	L	20
5RLLC1	13 - 40	1.5 - 4.6	2100	2.56	10.00	0.81	L	16
5RLLC3	13 - 40	1.5 - 4.6	2100	2.56	10.25	0.81	L	16
7RLLC1	15 - 75	1.7 - 8.5	2100	2.88	11.31	0.88	L, M	27
41SC17LTQ4	10 - 60	1.1 - 6.8	1700	3.00	10.90	0.80	L, M	20
5RLNC1	13 - 75	1.5 - 8.5	1000	2.81	10.75	0.81	L, H	16
5RLNC3	13 - 75	1.5 - 8.5	1000	2.81	11.00	0.81	L, H	16
41SC10LTQ4	10 - 80	1.1 - 9.0	1000	3.00	10.90	0.80	L, M	20
7RLMC1	20 - 110	2.3 - 12.5	1200	3.06	11.88	0.88	M, H	13
41SC8LTQ4	10 - 100	1.1 - 11.3	800	3.00	10.90	0.80	L, M, H	20
Reversible Straight Handle (Push-to-Start)								
41SC25PSQ4	10 - 40	1.1 - 4.5	2500	2.80	10.40	0.80	L	20
41SC17PSQ4	10 - 60	1.1 - 6.8	1700	3.00	10.90	0.80	L, M	20
41SC10PSQ4	10 - 80	1.1 - 9.0	1000	3.00	10.90	0.80	L, M	20
41SC8PSQ4	10 - 100	1.1 - 11.3	800	3.00	10.90	0.80	L, M, H	20

Tool Series	Sound Approx. dBa	Air Inlet NPT	Hose Size	Installed Spring
5	75	¼"	¼"	L
41	78	¼"	5⁄16"	Heaviest
7	79	¼"	5⁄16"	Lightest

**T = located at the end of the model number indicates top air inlet*
***Clutch Spring: L = Light, M = Medium, H = Heavy.*
Performance figures are at 90 psi (620 kPa).
Q4, S1 = 1⁄4" Quick Change Chuck
C3, S3 = Requires Bit Guide or Finder

Air Screwdrivers

Industrial Production Class Positive Jaw Clutch

Features

- Torque range (soft draw) 14 to 165 in.-lb.
- Recommended for assembling that requires more driving torque than final seating torque

Standard Equipment

- Dead handle (Model 7RANP1 only)
- 41 Series has the Skinsulate housing

Skinsulate® Comfort Coating

5RALP1

41PP25TSQ4

41SP10LTQ4

Positive Jaw Clutch Model Specifications

Model	Torque (Soft Draw)* 50 psi in.-lb.	50 psi Nm	90 psi in.-lb.	90 psi Nm	Free Speed rpm	Weight lb.	Length in.	Side to Center Distance in.	CFM
Reversible Pistol Handle (Trigger Start)									
5RAKP1	14	1.6	25	2.8	2600	1.88	7.25	.81	17
5RALP1	19	2.2	35	4.0	2000	1.88	7.25	.81	17
41PP25TSQ4	25	2.8	45	5.1	2500	2.30	7.20	.80	20
41PP17TSQ4	37	4.1	65	7.3	1700	2.50	7.60	.80	20
5RANP1	39	4.4	70	8.0	900	2.13	8.00	.81	17
41PP10TSQ4	50	5.7	90	10.2	1000	2.50	7.60	.80	20
7RAMP1	63	7.2	115	13.1	1000	3.13	9.34	.88	27
41PP8TSQ4	67	7.6	120	13.6	800	2.50	7.60	.80	20
7RANP1	91	10.3	165	18.8	700	3.13	9.34	.88	27
Reversible Straight Handle (Lever Throttle)									
41SP25LTQ4	25	2.8	45	5.1	2500	2.30	8.60	.80	20
41SP17LTQ4	37	4.1	65	7.3	1700	2.50	9.10	.80	20
41SP10LTQ4	50	5.7	90	10.2	1000	2.50	9.10	.80	20
41SP8LTQ4	67	7.6	120	13.6	800	2.50	9.10	.80	20

Q4, P1 = 1/4" Quick Change Chuck
** Torque may be adjusted by varying the air pressure.*
Air Inlet: All Models 1/4" NPT.
Size Hose Recommended: Series 41, 7, 5/16" All others 1/4".

Features

- Torque range (soft draw) 14 to 120 in.-lb.
- Recommended for soft pull applications not requiring critical torque control

Standard Equipment

- Suspension bail (for lever throttle models only)
- 41 Series has the Skinsulate housing

Skinsulate® Comfort Coating

41PD10TSQ4

41SD10LTQ4

Direct Drive Model Specifications

Model	Torque (Soft Draw)* 50 psi in.-lb.	50 psi Nm	90 psi in.-lb.	90 psi Nm	Free Speed rpm	Weight lb.	Length in.	Side to Center Distance in.	CFM
Reversible Pistol Handle (Trigger Start)									
5RAKD1	14	1.6	25	2.8	2600	1.88	7.25	.81	17
5RALD1	19	2.1	35	4.0	2000	1.88	7.25	.81	17
41PD25TSQ4	25	2.8	45	5.1	2500	2.10	6.90	.80	20
41PD17TSQ4	37	4.1	65	7.3	1700	2.30	7.40	.80	20
5RAND1	39	4.4	70	8.0	900	2.13	8.00	.81	17
7RALD1	39	4.4	70	8.0	1800	2.75	8.63	.88	27
41PD10TSQ4	50	5.7	90	10.2	1000	2.30	7.40	.80	20
41PD8TSQ4	67	7.6	120	13.6	800	2.30	7.40	.80	20
Reversible Straight Handle (Lever Throttle)									
41SD25LTQ4	25	2.8	45	5.1	2500	2.10	8.10	.80	20
41SD17LTQ4	37	4.1	65	7.3	1700	2.30	8.90	.80	20
41SD10LTQ4	50	5.7	90	10.2	1000	2.30	8.90	.80	20
41SD8LTQ4	67	7.6	120	13.6	800	2.30	8.90	.80	20

Q4, D1 = 1/4" Quick Change Chuck
** Torque may be adjusted by varying the air pressure.*
Air Inlet: Series 3, 1/8" NPT. All others 1/4" NPT.
Size Hose Recommended: Series 41, 7, 5/16". All others 1/4".

Maintenance/Automotive Class* Direct Drive

IR371

Standard Duty

Pistol-Grip Reversible Screwdriver

A new economical maintenance tool, the IR371 is an excellent choice for soft-draw applications. This tool is well-suited for service work on HVAC systems, instrument panels, and trim components. It delivers reliable performance for driving of sheet metal, self tapping, and wood screws.

- Positive action clutch, for full torque throughout rundown
- Convenient one-handed operation, with reverse control at trigger
- Variable speed throttle for easy starts
- Through-handle exhaust
- Compact, lightweight and maneuverable

Model Number	Performance Rating	Free Speed (rpm)	Chuck Size in. (mm)	Rated Power hp (kW)	Net Weight lbs. (kg)	Overall Length in. (mm)	Average Air Consumption cfm (l/min.)	@ Load cfm (l/min.)	Sound dBA (Pressure/ Power)	Air Inlet in.	Min. Hose Size in. (mm)
IR371	Standard Duty	1,800	1/4 Hex	.44 (.33)	2.54 (1.15)	7.4 (188)	4 (113)	29 (825)	78/91	1/4	3/8 (10)

***** *Maintenance/Automotive class tools are designed for maintenance and automotive applications involving intermittent use.*

Air Screwdrivers (Angle)
Industrial Production Class Adjustable Precision Shut-Off Clutch

Features

- Torque range (soft draw) 20 to 130 in.-lb.
- Recommended for assembling where precise torque control is required

Standard Equipment

- Suspension bail
- Clutch spring(s)

41AA9LTH4

Adjustable Precision Shut-Off Clutch Model Specifications

Model	Torque Range (Soft Draw) in.-lb.	Nm	Free Speed rpm	Weight lb.	Length in.	Angle Head Side to Center in.	Height to Base of Bit in.	Clutch Spring**	CFM
Reversible Angle (Lever Start)									
41AA24LTH4	20 - 40	2.2 - 4.5	2400	3.60	13.50	0.58	1.50	L	31
41AA16LTH4	25 - 58	2.8 - 6.5	1650	3.80	13.50	0.58	1.50	L	31
41AA9LTH4	25 - 90	2.8 - 10.2	950	3.90	14.20	0.58	1.50	L, M	31
41AA6LTH4	23 - 130	2.6 - 14.7	600	4.00	14.20	0.65	1.90	L, M, H	31

***Clutch Spring: L = Light, M = Medium, H = Heavy.*
S9L, S5L, S9XL = Requires standard 1⁄4" hex detented shank bit
H4 = Requires standard 1⁄4" hex insert bit
S1L, S1XL = 1⁄4" quick change
Square drive tools available – see Air Nutrunners section

Air Screwdrivers (Angle)
Adjustable Cushion Clutch

Features

- Torque range (soft draw) 35 to 110 in.-lb.
- Recommended for assembling that requires a torque limiting clutch

Standard Equipment

- Suspension bail
- Clutch spring(s)

5RLN2C3

Adjustable Cushion Clutch Model Specifications

Model	Torque Range (Soft Draw) in.-lb.	Nm	Free Speed rpm	Weight lb.	Length in.	Angle Head Side to Center in.	Height to Base of Bit in.	Clutch Spring**	CFM
Reversible Angle (Lever Start)									
5RLK2C3	10 - 40	1.1 - 4.5	1800	3.125	12.375	0.53	0.53	L, H	16
5RLL2C3	15 - 55	1.7 - 6.2	1300	3.125	12.375	0.53	0.53	L, H	16
5RLN2C3	15 - 110	1.7 - 12.4	600	3.125	13.125	0.53	0.53	L, H	16

Tool Series	Sound Approx. dBa	Air Inlet NPT	Hose Size	Installed Spring
5	75	1⁄4"	1⁄4"	L
41	78	1⁄4"	5⁄16"	Heaviest

C3, C9L = Requires standard 1⁄4" hex detented shank bit
C1L = 1⁄4" quick change
***Clutch Spring: L = Light, M = Medium, H = Heavy.*
Performance figures are at 90 psi (620 kPa)
Square drive tools available – see Air Nutrunners section

Description	Series 41 Part Number	Series 5 Part Number	Series 7 Part Number
Horizontal Hanger (for Pistol Models only)	IR48934	7RA-A366	7RA-A366
Dead Handle	IR48931	728N-A48	R1A-A48
Dead Handle Adapter (two required for above)		5A-49	7A-49
31" Exhaust Hose	IR46490 (hose) IR46477 (clip)		
Piped-Away Exhaust Kit (Straight Models only)		5L-K184	7L-K284
Comfort Grip (Straight Lever)	New Skinsulate Housing	CG-5RL	CG-7RL
Comfort Grip (Straight Push-to-Start)		–	–
Comfort Grip (Pistol) Small		CG-5RA	CG-7RA
Top Air Inlet Kit (use with Push-to-Start Auto Shut-Off only)	IR48995		
Suspension Bail (Straight Models only)	R46328	5RL-365	7L-365

Air Screwdriver
Accessories

Ergo-Grip™ and Bio Brace™

Give your assembly tool operators the comfort advantage...

- Both of these accessories enhance operator comfort by allowing the operator to reduce grip pressure
- Soft, resilient foam coating.
- More consistent torque output is achieved by encouraging completion of the tool shut-off cycle

Ingersoll-Rand Screwdrivers Series & Speed	Ergo-Grip Part No.	Bio Brace Part No.
Series 3 (1650 rpm or less)	SEG3A-IR	—
Series 3 (over 1650 rpm)	SEG3A-IR	—
Series 41 (1700 rpm or less)	SEG4-IR	SBB4-AR41
Series 41 (over 1700 rpm)	SEG4H-IR	—
VersaTec (all speeds)	—	SBB4-VS

Replacement Foam Grip Kit	
Part No. SEG3-CGK	For Series SEG3
Part No. SEG3A-CGK	For Series SEG3A
Part No. SEG4-CGK	For Series SEG4

Ergo-Grip™

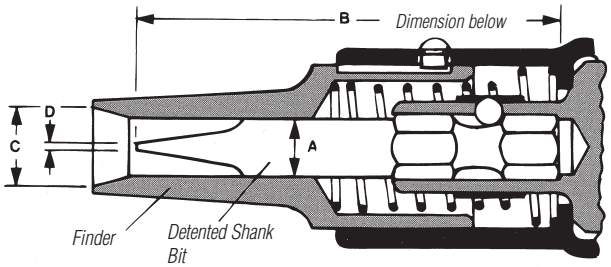
Rotating against a spring mechanism, the Ergo-Grip modifies start-up and shut-off reaction experienced by the operator. Provides a flange which enables the operator to apply axial pressure through the heel of the hand. Easy to install – unscrew the clutch housing, slip on the Ergo-Grip, and reattach the clutch housing.

Bio Brace™

The Bio Brace modifies start-up and shut-off reaction force experienced by the operator. Rotating against a padded lever, torque reaction is referred to the operator's arm. Eliminates need for a dead handle, freeing the operator's other hand. Provides a flange which enables the operator to apply axial pressure through the heel of the hand.

Standard 1/4" Hex Detented Shank Bits and Non-Rotating Finders

For use with all screwdriver models ending with a "3"

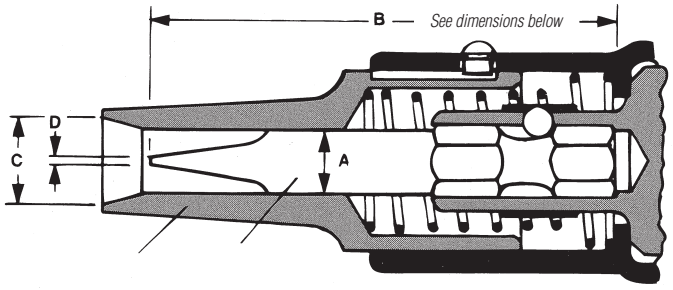


Selection Guide

Tool Series	Clutch Type	Handle	rpm	Ratio	Spring Identification Part No.	Spring Identification Duty/Color	Torque (Soft Draw) Min. - Max. in.-lb.	Torque (Soft Draw) Min. - Max. Nm
41PA, 41SA Reversible	Precision Shut-Off	Pistol or Straight	2400/2500	24, 25	IR48096	Light (Green)	15 - 40	1.69 - 4.52
			1600/1700	16, 17	IR48096	Light (Green)	15 - 40	1.69 - 4.52
					IR48095	Medium (Brown)	25 - 60	2.82 - 6.78
			1000	10	IR48096	Light (Green)	15 - 40	1.69 - 4.52
					IR48095	Medium (Brown)	25 - 60	2.82 - 6.78
					IR48047	Heavy (Yellow)	35 - 80	3.95 - 9.04
			800	8	IR48096	Light (Green)	15 - 40	1.69 - 4.52
					IR48095	Medium (Brown)	25 - 60	2.82 - 6.78
					IR48047	Heavy (Yellow)	35 - 100	3.95 - 11.30
41AA Reversible	Precision Shut-Off	Angle	2400	24	IR48096	Light (Green)	20 - 40	2.26 - 4.52
			1650	17	IR48096	Light (Green)	25 - 58	2.82 - 6.60
			950	10	IR48096	Light (Green)	25 - 58	2.82 - 6.60
					IR48095	Medium (Brown)	25 - 90	2.82 - 10.17
			600	6	IR48096	Light (Green)	23 - 52	2.50 - 5.8
					IR48095	Medium (Brown)	23 - 81	2.50 - 9.10
					IR48047	Heavy (Yellow)	35 - 130	3.95 - 14.69
41PC, 41SC Reversible	Cushion Clutch	Pistol or Straight	2500	25	IR47066	Light (Yellow)	10 - 40	1.13 - 4.52
			1700	17	IR47066	Light (Yellow)	10 - 40	1.13 - 4.52
					IR46728	Medium (Blue)	15 - 60	1.69 - 6.78
			1000	10	IR47066	Light (Yellow)	10 - 40	1.13 - 4.52
					IR46728	Medium (Blue)	15 - 80	1.69 - 9.04
			800	8	IR47066	Light (Yellow)	10 - 40	1.13 - 4.52
					IR46728	Medium (Blue)	15 - 80	1.69 - 9.04
					IR46473	Heavy (Gray)	45 - 100	5.08 - 11.30
5RA, 5RL Reversible	Cushion Clutch C1, C3	Pistol or Straight	2600	K	5C1-L583	Light (Black)	14 - 25	1.60 - 2.84
			2000	L	5C1-L583	Light (Black)	13 - 35	1.48 - 3.98
			2100				13 - 40	1.48 - 4.55
			900	N	5C1-L583	Light (Black)	13 - 54	1.48 - 6.14
					5C1-H583	Heavy (Green)	55 - 70	6.26 - 7.96
			1000	N	5C1-L583	Light (Black)	13 - 54	1.48 - 6.30
					5C1-H583	Heavy (Green)	55 - 75	6.26 - 8.53
5RL Reversible	Cushion Clutch 2C3, 2C5, 2C6	Angle	1800	K	5C1-L583	Light (Black)	10 - 40	1.14 - 4.55
					5C1-H583	Heavy (Green)	15 - 35	1.71 - 3.98
			1300	L	5C1-L583	Light (Black)	15 - 55	1.71 - 6.26
					5C1-H583	Heavy (Green)	20 - 55	2.28 - 6.26
			600	N	5C1-L583	Light (Black)	15 - 80	1.71 - 9.10
					5C1-H583	Heavy (Green)	50 - 110	5.69 - 12.51
7RA, 7RL Reversible	Cushion Clutch C1	Pistol or Straight	1800, 2100	L	7C-L583A	Light (Black)	15 - 55	1.71 - 6.26
					7C-583A	Medium (Yellow)	15 - 75	1.71 - 8.53
			1000, 1200	M	7C-583A	Medium (Yellow)	20 - 85	2.28 - 9.67
					7C-H583A	Heavy (Green)	25 - 110	2.84 - 12.51
7RL Reversible	Cushion Clutch 3C6	Angle	1400	L	7C-L583A	Light (Black)	25 - 80	2.84 - 9.10
					7C-583A	Medium (Yellow)	25 - 110	2.84 - 12.51
			800	M	7C-583A	Medium (Yellow)	25 - 90	2.84 - 10.24
					7C-H583A	Heavy (Green)	25 - 130	2.84 - 14.79

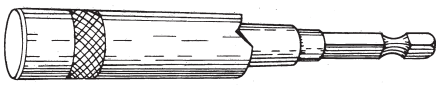
Standard 1/4" Hex Detented Shank Bits and Non-Rotating Finders

- For use with all screwdriver models ending with a “3”
- Finders for 41 Series screwdrivers are located in the parts bulletin



Bit Part Number	Bit Dia. ‘A’ in.	Blade Thickness ‘D’ in.	Finder Part Number	Screw Head Opening ‘C’ in.
Bit and Finder Dimensions				
XF164	.122	.026	F164F1	.22
XF165	.154	.032	F165F1	.25
XF166	.187	.034	F166F1	.28
XF167	.215	.036	F167F1	.31
XF168	.250	.038	F168F1	.34
XF169	.275	.042	F169F1	.38
XF1610	.312	.046	F1610F1	.41
XF1612	.360	.050	F1612F1	.47
XF1645	.134	.028	F1645F1	.20
XF244	.122	.026	F244F	.22
XF246	.187	.034	F246F	.28
XF247	.215	.036	F247FF	.31
XF248	.250	.038	F248F	.34
XF250	.312	.046	F250F	.41
XF2512	.360	.050	F2512F	.47

Bits with Rotating Finders for Use with All Screwdrivers

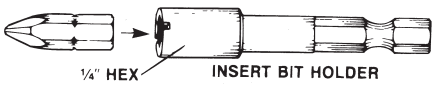


Round Head Machine Screw Size	Part Number
1/4" Hex Shank Bits	
No. 6	XR306
No. 8	XR308
No. 10	XR3010
No. 12	XR3012

1/4" Hex Shank Insert Bit Holders

For use with all screwdriver models

A



B

Type of Bit Holder	Part Number
Bit Holder	
Magnetic	M631-4
Non-Magnetic	RX2-631-4

		Insert Bit Part Number	Length in.	Point Size	Round Head	Flat or Oval Head	Binding Machine Head and Pan Head	Fillister Machine Head	Truss Head
1/4" Hex Shank Insert Bits									
A	For Phillips Head	XPB071	1	No. 1	2, 3, 4	2, 3, 4	2, 3, 4, 5	2, 3, 4	2, 3, 4, 5
		XPB072	1	No. 2	5, 6, 7, 8, 9, 10	5, 6, 7, 8, 9, 10	5, 6, 7, 8, 10	5, 6, 8, 10	6, 8, 10
		XPB073	1	No. 3	12 to 1/4"	12 to 1/4"	12 to 1/4"	12 to 1/4"	12 to 1/4"
B	For Pozidriv Head	XPZB071	1	No. 1	2, 3, 4	2, 3, 4	2, 3, 4, 5	2, 3, 4	2, 3, 4, 5
		XPZB072	1	No. 2	5, 6, 7, 8, 9, 10	5, 6, 7, 8, 9, 10	5, 6, 7, 8, 10	5, 6, 8, 10	6, 8, 10
		XPZB073	1	No. 3	12 to 1/4"	12 to 1/4"	12 to 1/4"	12 to 1/4"	12 to 1/4"

1/4" Hex Detented Shank Socket Drivers and Sockets

For use with all screwdriver models

Size of Square Drive in.	Socket Driver Part Number and Length	
Socket Drivers		
A	**2"**	**4"**
1/4	7102	–
3/8	–	7106

Power Hex to Square Adapters

Power Hex to Square Adapters are used to furnish a square drive when inserted into a hex quick change chuck. They are furnished to fill applications where a driver extension is needed.

Hex Magnetic Socket for Self-Tapping Screws Part Number	Hex Socket Part Number	Square Socket Part Number	Hex Socket Part Number	Hex and Square Machine Screw Nuts	Hex Head Machine and Cap Screws	Distance Across Flats in.
Sockets 1/4" Square Drive		**3/8" Square Drive**		**Screw and Nut Size Chart**		
6906PKM	6906H	–	–	2, 3	3, 4, 5	3/16
6908PKM	6908H	–	–	4	6, 8	1/4
6910PKM	6910H	–	7210H	5, 6	10, 12	5/16
6911PKM	6911H	–	7211H	8	–	11/32
6912PKM	6912H*	7212S*	7212H	10	1/4"	3/8
6914PKM	6914H	7214S*	7214H	12, 1/4"	–	7/16
6916PKM	6916H	7216S*	7216H	–	5/16"	1/2
–	–	7218S*	7218H	5/16"	3/8"	9/16
–	–	7220S*	7220H	3/8"	7/16"	5/8

Standard 1/4" Hex Detented Shank Bits

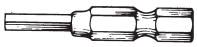
For use with all screwdriver models

A

B

C

		Round Head	Flat or Oval Head	Binding Machine Head and Pan Head	Fillister Machine Head	Truss Head	Point Size	Bit Part No. and Length			
								$1\frac{15}{16}$"	$2\frac{3}{4}$"	$3\frac{1}{2}$"	6"
A	For Phillips Head	2, 3, 4	2, 3, 4	2, 3, 4	2, 3, 4	2, 3, 4, 5	No. 1	XP161	XP221	XP281	XP481
		5, 6, 7, 8, 9, 10	5, 6, 7, 8, 9, 10	5, 6, 7, 8, 10	5, 6, 8, 10	6, 8, 10	No. 2	XP162	XP222	XP282	XP482
		12 to $\frac{5}{16}$"	12 to $\frac{1}{4}$"	12 to $\frac{1}{4}$"	12 to $\frac{5}{16}$"	12, $\frac{1}{4}$"	No. 3	XP163	XP223	XP283	XP483
B	For Pozidriv Head	2, 3, 4	2, 3, 4	2, 3, 4	2, 3, 4	2, 3, 4, 5	No. 1	XPZ161	–	–	–
		5, 6, 7, 8, 9, 10	5, 6, 7, 8, 9, 10	5, 6, 7, 8, 10	5, 6, 8, 10	6, 8, 10	No. 2	XPZ162	–	–	–
		12 to $\frac{5}{16}$"	12 to $\frac{1}{4}$"	12 to $\frac{1}{4}$"	12 to $\frac{5}{16}$"	12, $\frac{1}{4}$"	No. 3	XPZ163	–	–	–
C	For Reed and Prince Head										
		2, 3, 4	2, 3, 4	2, 3, 4	2, 3, 4	2, 3, 4, 5	No. 1	XRP161	–	–	–



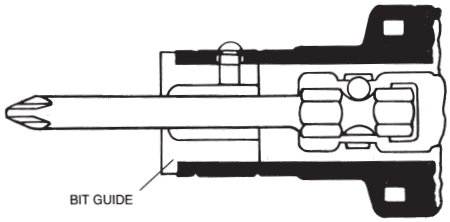
D

	Cap Screws	Safety Set Screws	Hex Across Flats (AF) in.	Bit Part Number
D For hex Socket Head	2, 3	8	$\frac{5}{64}$	HX1325
	4, 5	10	$\frac{3}{32}$	HX133
	6	–	$\frac{7}{64}$	HX1335
	–	$\frac{1}{4}$"	$\frac{1}{8}$	HX134
	8	–	$\frac{9}{64}$	HX1345
	10	$\frac{5}{16}$"	$\frac{5}{32}$	HX135
	$\frac{1}{4}$", $\frac{3}{8}$"	$\frac{3}{8}$"	$\frac{3}{16}$	HX136
	–	$\frac{7}{16}$"	$\frac{7}{32}$	HX137
	$\frac{5}{16}$"	–	$\frac{1}{4}$	HX138

Bit Guide

For use with all pistol and lever screwdriver models ending with a “3”

Point Size	Part Number
For use with bit lengths 1 15/16" and 2 3/4"	
No. 1 Point	5RA-P730-1
No. 2 Point	5RA-P730-2
No. 3 Point	5RA-P730-3



Advantages

- Increased torque accuracy
- Decreased bit run out
- Decreased workpiece damage
- Decreased bit wobble

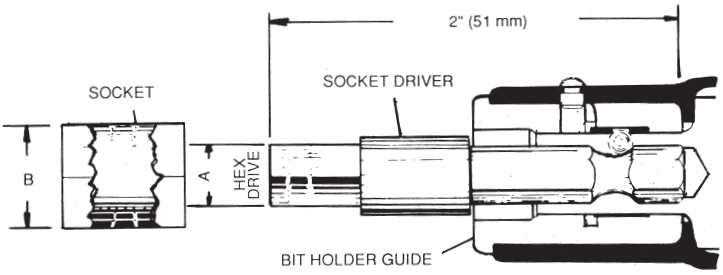
Square Drive to Hex Adapters

1/4" Hex Shank Socket Driver		Socket			
Part Number	A in.	Part Number	A in.	B in.	B mm
HD168	1/4	HS8	1/4	7/16	11.1
HD1610	5/16	HS10	5/16	1/2	12.7

Sockets and Socket Drivers

For Hex Head Self-Tapping Screws

For driving hex head, self-tapping screws. The Driver takes a long bearing in the Socket, leaving only enough depth of opening on the opposite end to engage the full thickness of the screw head. The Socket is pinned to the Driver and when worn, may be removed and turned end for end on the Driver, thus doubling the normal life of the Socket.



Air Nutrunners

Focused innovation is transforming and expanding the Ingersoll-Rand line of air nutrunners and angle wrenches.

The standard and high capacity lines of IR air angle wrenches incorporate seven different model series, which vary according to type of clutch, reverse mechanism, and torque capacity. Reversible adjustable precision shut-off models include Series 41 models, with a torque range of 20-130 in.-lb. The high capacity reversible shut-off types include Series 6, 8, and 9 models, with a torque range of 3.8 to 24 ft.-lb. Reversible adjustable cushion clutch types include Series 5 and 7 models, with a torque range of 10-110 ft.-lb., as do the reversible stall types with a torque range of 40-265 in.-lb. High capacity reversible stall types include models from the Series 6, 8, and 9 lines.

The D Series air tools are available in straight, angle, and fixtured versions covering a torque range of 9 to 60 Nm. Transducer models add the electronic interface capability, and cover a torque range of 9 to 60 Nm. Likewise, the high capacity transducer types incorporate Series 6, 8, and 9 models, with a torque range of 4.8 to 90 ft.-lb.

IR Torque Management Systems perform basic to highly advanced monitoring and control functions. The TMS units are available in six different configurations, dependent on the type of tools employed. Air tool applications include the TMAC system, for torque monitoring and angle control, with dual or single spindles. The TMC system provides torque monitoring and control with dual or single spindles, while the TM system simply provides torque monitoring, again with dual or single spindles.

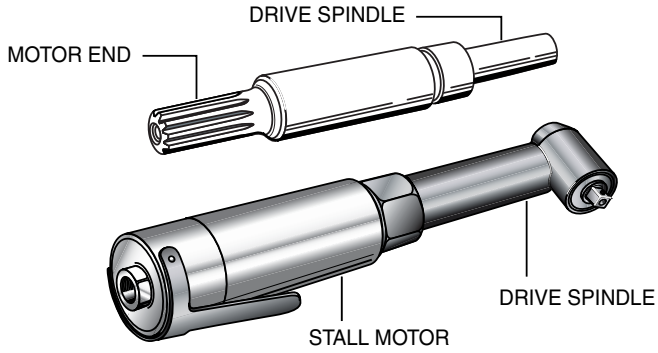
Production processes and levels of precision are changing rapidly – and Ingersoll-Rand is changing with them – to anticipate and meet your requirements.

Ingersoll-Rand angle wrenches incorporate various types of drive and clutch configurations to match the types of joints and fasteners involved in specific applications. On the next several pages you will find a basic review of angle wrench functions, along with additional details on fastening torque issues – stress and strain curves, types of joints, and torque values. Your IR representative or distributor can also assist with specific expertise that will help you make the best tool and system selection.

Select the Tool to Fit Your Assembly Needs

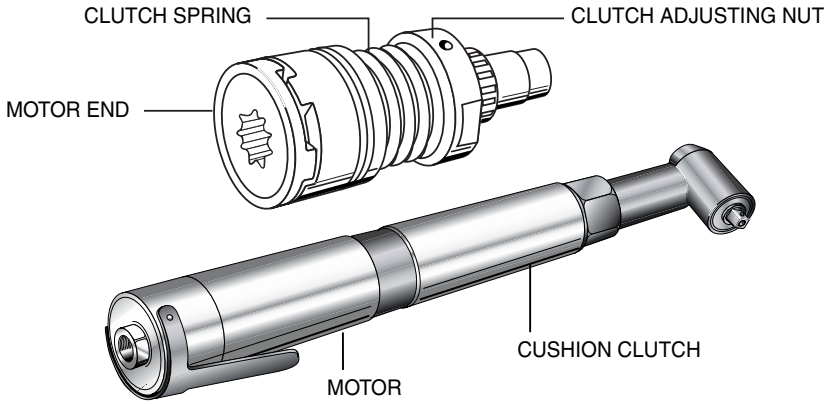
Direct Drive Tools

Motor runs to stall providing reasonably consistent torque repeatability. Applied torque can be adjusted by regulating air pressure, but must be absorbed by the operator or reaction device. Recommended for non-critical applications.



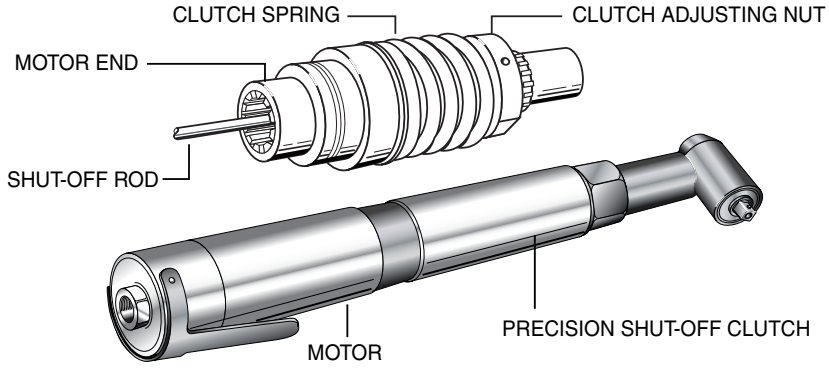
Adjustable Cushion Clutch Tools

Steel balls rolling between indented plates provide smooth disengagement at preset torque while minimizing vibration to the operator. Very good general purpose torque limiting clutch.



Adjustable Precision Shut-Off Clutch Tools

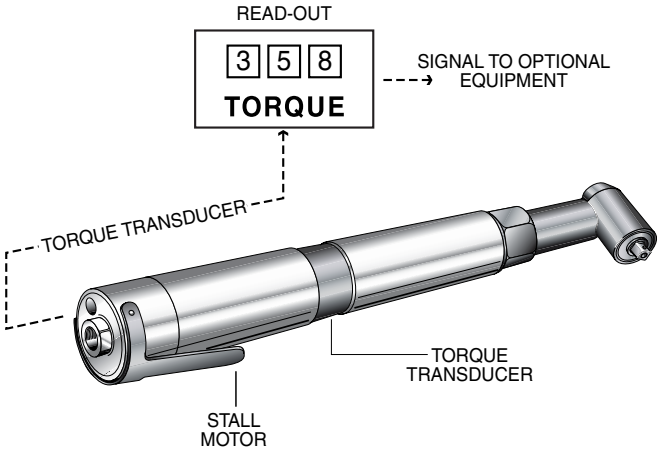
Tool shuts off when preset torque is achieved, providing excellent repeatability with minimal torque reaction. The most accurate clutch available. Automatic shut-off reduces air consumption. Recommended for assemblies where precise torque control is required.



Tool Selection Options

Torque Monitored Tools

Applied torque is monitored dynamically by an electronic transducer. May be used in either stall or shut-off type tools. No direct control of tension. Recommended where measure and assurance of torque accuracy is important.

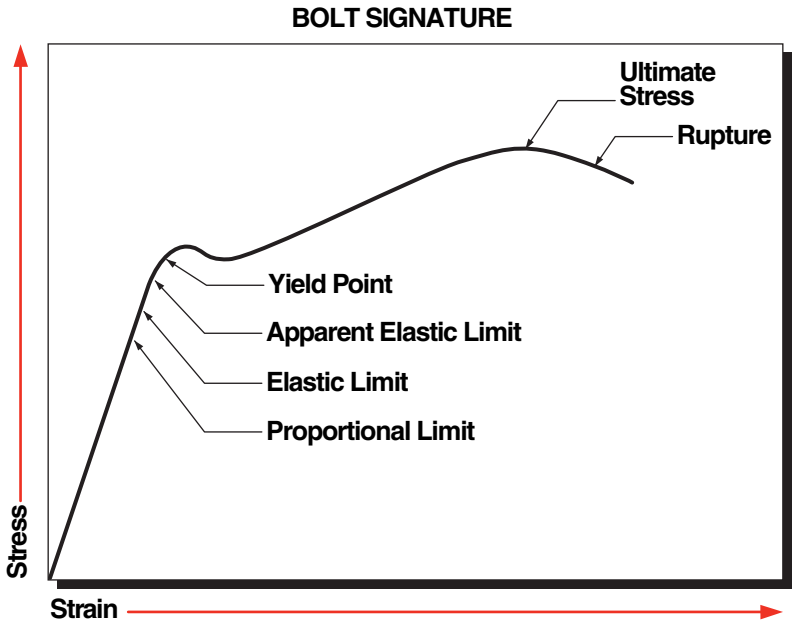


Air Nutrunners

Stress-Strain Curves

Tension in the fastener is all-important in joining two pieces together. Let's look more closely at what happens to the fastener as the tension increases. The usual way that this is represented is in a stress-strain curve like the one above. The stress or the tension in the bolt is plotted vertically. The strain or the resultant elongation of the bolt is plotted horizontally. This is also referred to as the bolt signature.

As the stress increases from zero, the strain is proportional at first. It's also true in this region of lower stress that the bolt is elastic – if we remove the stress, the bolt returns to its original length. But with further increase in stress we pass the elastic limit. Now if the force were to be removed, the bolt would not return to its original length. With further tension we reach the yield point of the fastener. As the name implies, it no longer resists stretching and gives or yields, with only modest increase in the tension. With still further increases in stress, the bolt does elongate further at a relatively rapid rate, finally rupturing.



Now think about this: the strain, the elongation of the bolt, is proportional to the amount by which we rotate the fastener. (That's the whole idea behind the screw. A certain number of degrees of rotation is equal to a proportional travel of the nut along the bolt.) And correspondingly, there's a direct relationship between the torque we apply and the tension we achieve for each particular bolt and lubrication condition. As a result, we can replace stress and strain with torque and degrees of fastener rotation.

The table on the following page gives an estimate of this torque.

Suggested Tightening-Torque Values for Nonferrous Threaded Fasteners

Torque Table

The following suggested tightening torques provide an excellent starting point for determining torque requirements. Remember, you may need to increase or reduce these numbers somewhat based on the individual joint.

Bolt Size	18-8 Stainless Steel	Brass	Silicon Bronze	Aluminum 2024-T4	316 Stainless Steel	Monel	Nylon
Values (in.-lbs.)							
2 - 56	2.5	2.0	2.3	1.4	2.6	2.5	0.44
2 - 64	3.0	2.5	2.8	1.7	3.2	3.1	
3 - 48	3.9	3.2	3.6	2.1	4.0	4.0	
3 - 56	4.4	3.6	4.1	2.4	4.6	4.5	
4 - 40	5.2	4.3	4.8	2.9	5.5	5.3	1.19
4 - 48	6.6	5.4	6.1	3.6	6.9	6.7	
5 - 40	7.7	6.3	7.1	4.2	8.1	7.8	
5 - 44	9.4	7.7	8.7	5.1	9.8	9.6	
6 - 32	9.6	7.9	8.9	5.3	10.1	9.8	2.14
6 - 40	12.1	9.9	11.2	6.6	12.7	12.3	
8 - 32	19.8	16.2	18.4	10.8	20.7	20.2	4.30
8 - 36	22.0	18.0	20.4	12.0	23.0	22.4	
10 - 24	22.8	18.6	21.2	13.8	23.8	25.9	6.61
10 - 32	31.7	25.9	29.3	19.2	33.1	34.9	8.20
1/4" - 20	75.2	61.5	68.8	45.6	78.8	85.3	16.00
1/4" - 28	94.0	77.0	87.0	57.0	99.0	106.0	20.80
5/16" - 18	132.0	107.0	123.0	80.0	138.0	149.0	34.90
5/16" - 24	142.0	116.0	131.0	86.0	147.0	160.0	
3/8" - 16	236.0	192.0	219.0	143.0	247.0	266.0	
3/8" - 24	259.0	212.0	240.0	157.0	271.0	294.0	
7/16" - 14	376.0	317.0	349.0	228.0	393.0	427.0	
7/16" - 20	400.0	327.0	371.0	242.0	418.0	451.0	
1/2" - 13	517.0	422.0	480.0	313.0	542.0	584.0	
1/2" - 20	541.0	443.0	502.0	328.0	565.0	613.0	
9/16" - 12	682.0	558.0	632.0	413.0	713.0	774.0	
9/16" - 18	752.0	615.0	697.0	456.0	787.0	855.0	
5/8" - 11	1110.0	907.0	1030.0	715.0	1160.0	1330.0	
5/8" - 18	1244.0	1016.0	1154.0	798.0	1301.0	1482.0	
3/4" - 10	1530.0	1249.0	1416.0	980.0	1582.0	1832.0	
3/4" - 16	1490.0	1220.0	1382.0	958.0	1558.0	1790.0	
7/8" - 9	2328.0	1905.0	2140.0	1495.0	2430.0	2775.0	
7/8" - 14	2318.0	1895.0	2130.0	1490.0	2420.0	2755.0	
1" - 8	3440.0	2815.0	3185.0	2205.0	3595.0	4130.0	
1" - 14	3110.0	2545.0	2885.0	1995.0	3250.0	3730.0	
1 1/8" - 7	413.0	337.0	383.0	265.0	432.0	499.0	
1 1/8" - 12	390.0	318.0	361.0	251.0	408.0	470.0	
1 1/4" - 7	523.0	428.0	485.0	336.0	546.0	627.0	
1 1/4" - 12	480.0	349.0	447.0	308.0	504.0	575.0	
1 1/2" - 6	888.0	727.0	822.0	570.0	930.0	1064.0	
1 1/2" - 12	703.0	575.0	651.0	450.0	732.0	840.0	

This table is offered as the suggested maximum torquing values for threaded products and is only a guide. Actual tests were conducted on dry, or near-dry, products. Mating parts were wiped clean of chips and foreign matter. A lubricated bolt requires less torque to attain the same clamping force as a nonlubricated bolt. All values shown on chart except for nylon represent a safe working torque; in the case of nylon only, the figures represent breaking torque.

Industrial Production Class Adjustable Precision Shut-Off Clutch

Features

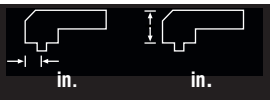
- Torque range (soft draw) 20 to 130 in.-lb.

Standard Equipment

- Vertical hanger

41AA9LTS6

Adjustable Precision Shut-Off Model Specifications

Model	Torque Range (Soft Draw) in.-lb.	Nm	Free Speed rpm	Weight lb.	Length in.	 in.	in.	Square Drive in.	Clutch Spring**	CFM
Reversible Angle (Lever Start)										
41AA24LTS4	20 - 40	2.2 - 4.5	2400	3.60	13.50	0.58	1.5	1/4	L	31
41AA16LTS4	25 - 58	2.8 - 6.5	1650	3.80	13.50	0.58	1.50	1/4	L	31
41AA9LTS6	25 - 90	2.8 - 10.2	950	3.90	14.20	0.58	1.50	3/8	L, M	31
41AA6LTS6	23 - 130	2.6 - 14.7	600	4.00	14.20	0.65	1.90	3/8	L, M, H	31

Tool Series	Sound Approx. dBa	Air Inlet NPT	Hose Size	Installed Spring
41	79	1/4"	5/16"	Heaviest

Designed for use on close quarter applications.
Not intended for continuous disassembly.
***Clutch Spring: L = Light, M = Medium, H = Heavy.*
Performance figures are at 90 psi (620 kPa).

Features

- Torque range (soft draw) 3.8 to 85 ft.-lb.

6WRTN3

9TN53

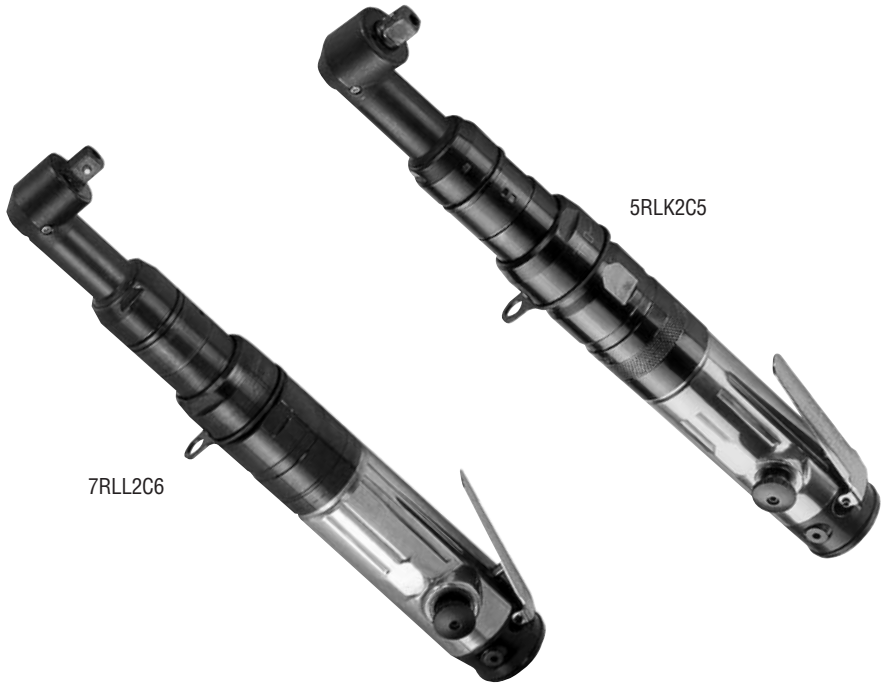
Model	Torque Range (Soft Draw) 50 psi Pressure ft.-lb.	Nm	90 psi Pressure ft.-lb.	Nm	Free Speed rpm	Weight lb.	Length in.	in.	in.	Square Drive in.	CFM
Reversible (Lever Throttle)											
6WRTL3	3.8	5.2	6.7	9.1	1250	3.25	11.38	.69	1.50	3/8	26
6WRTM3	5.3	7.2	9.5	12.2	875	3.50	12.13	.69	1.50	3/8	26
6WRTN3	6.4	8.7	11.5	14.9	750	3.50	12.13	.69	1.50	3/8	26
6WRTP3	8.1	11.0	14.5	19.0	550	3.50	12.13	.69	1.50	3/8	26
6WRTQ3	10.6	14.4	19.0	25.8	425	3.50	12.13	.69	1.50	3/8	26
6WRTR3	13.4	18.2	24.0	32.5	350	3.50	12.13	.69	1.50	3/8	26
Nonreversible (Lever Throttle)											
6WTL3	4.2	5.7	7.5	10.2	1450	3.00	10.63	.69	1.50	3/8	26
6WTM3	5.9	8.0	10.5	14.2	1000	3.25	11.38	.69	1.50	3/8	26
6WTN3	7.0	9.5	12.5	16.9	850	3.25	11.38	.69	1.50	3/8	26
6WTP3	9.2	12.5	16.5	22.4	650	3.25	11.38	.69	1.50	3/8	26
6WTQ3	12.0	16.3	21.5	29.2	500	3.25	11.38	.69	1.50	3/8	26
6WTR3	15.4	20.9	27.5	37.3	400	3.50	11.38	.69	1.50	3/8	26
8TM32	16.0	21.7	23.0	31.3	1110	5.38	15.75	.67	1.50	3/8	55
8TN32	21.0	28.5	30.0	40.8	840	5.69	16.63	.67	1.50	3/8	55
9TM53	27.0	36.6	40.0	54.4	780	6.50	16.50	.86	1.63	1/2	65
8TP53	28.0	38.0	40.0	54.4	610	5.94	16.75	.86	1.63	1/2	55
8TQ53	35.0	47.5	50.0	68.0	520	5.94	16.75	.86	1.63	1/2	53
9TN53	35.0	47.5	50.0	68.0	630	7.06	17.50	.86	1.63	1/2	65
9TP53	42.0	57.0	65.0	88.4	500	7.06	17.50	.86	1.63	1/2	65
9TQ83	50.0	67.8	85.0	115.6	355	7.50	17.63	.97	1.81	1/2	65

Tool Series	Air Inlet NPT	Air Hose
6	1/4"	3/8"
8	1/2"	1/2"
9	1/2"	1/2"

Industrial Production Class Adjustable Cushion Clutch

Features

- Torque range (soft draw) 10 to 130 in.-lb.



Adjustable Cushion Clutch Models Specifications

Model	Torque Range (Soft Draw) in.-lb.	Nm	Free Speed rpm	Weight lb.	Length in.	in.	in.	Square Drive in.	Clutch Spring**	CFM
Reversible Angle (Lever Start)										
5RLK2C5	10 - 40	1.1 - 4.6	1800	3.13	12.38	0.53	1.31	1/4	L	17
5RLL2C5	15 - 55	1.7 - 6.3	1300	3.13	12.38	0.53	1.31	1/4	L	17
7RLL2C6	15 - 100	1.7 - 11.3	1400	3.38	13.19	0.53	1.31	3/8	H	27
7RLL3C6	25 - 110	2.8 - 12.5	1400	4.75	14.31	0.69	1.50	3/8	M	27
7RLM3C6	25 - 130	2.8 - 14.8	800	5.00	14.31	0.69	1.50	3/8	M	27
5RLN2C6	15 - 110	1.7 - 12.5	600	3.38	13.13	0.53	1.31	3/8	H	17

Tool Series	Sound Approx. dBa	Air Inlet NPT	Hose Size	Installed Spring
5	75	1/4"	1/4"	Lightest
7	80	1/4"	5/16"	Lightest

***Clutch Spring: L = Light, M = Medium, H = Heavy.*
Performance figures are at 90 psi (620 kPa).

Features

- Torque range (soft draw) 40 to 265 in.-lb.

7RLM3D6

Direct Drive/Stall Model Specifications

Model	Torque Range (Soft Draw) in.-lb.	Nm	Free Speed rpm	Weight lb.	Length in.	 in.	in.	Square Drive in.	CFM
Reversible Angle (Lever Start) except as noted									
5RLK2D6	40	4.6	1800	2.69	10.13	0.53	1.31	3/8	17
5RLL2D6	55	6.3	1300	2.69	10.13	0.53	1.31	3/8	17
5LL2D6*	60	6.8	1500	2.38	9.38	0.53	1.31	3/8	16
7RLL3D6	100	11.3	1400	3.25	11.00	0.69	1.50	3/8	27
5RLN2D6	110	12.5	600	3.00	10.88	0.53	1.31	3/8	17
7RLM3D6	175	19.8	800	3.50	11.63	0.69	1.50	3/8	27
7RLN3D6	265	29.9	500	3.50	11.63	0.69	1.50	3/8	27

Tool Series	Sound Approx. dBa	Air Inlet NPT	Air Hose
5	75	1/4"	1/4"
7	80	1/4"	5/16"

** Nonreversible model.*

Performance figures are at 90 psi (620 kPa).

Industrial Production Class Direct Drive/Stall Models

Features

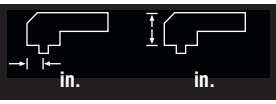
- Torque range (soft draw) 3.8 to 85 ft.-lb.

6WRS3

9RSQ83

8SM32

Direct Drive/Stall Model Specifications

Model	Torque Range (Soft Draw) 50 psi Pressure ft.-lb.	Nm	90 psi Pressure ft.-lb.	Nm	Free Speed rpm	Weight lb.	Length in.	 in.	in.	Square Drive in.	CFM
Reversible (Lever Throttle)											
6WRSL3	3.8	5.2	6.7	9.1	1175	3.00	10.50	.69	1.50	3/8	26
6WRSM3	5.3	7.2	9.5	12.2	825	3.25	11.25	.69	1.50	3/8	26
6WRSN3	6.4	8.7	11.5	14.9	700	3.25	11.25	.69	1.50	3/8	26
6WRSP3	8.1	11.0	14.5	19.0	550	3.25	11.25	.69	1.50	3/8	26
6WRSQ3	10.6	14.4	19.0	25.8	400	3.25	11.25	.69	1.50	3/8	26
8RSL32	12.0	16.3	18.0	24.5	1200	5.50	16.13	.67	1.50	3/8	55
6WRSR3	13.4	18.2	24.0	32.6	325	3.25	11.25	.69	1.50	3/8	26
8RSM32	15.0	20.3	23.0	31.3	930	5.50	16.13	.67	1.50	3/8	55
8RSN32	19.0	25.8	30.0	40.8	700	5.81	17.00	.67	1.50	3/8	55
9RSM53	25.0	33.9	40.0	54.4	665	6.56	16.75	.86	1.63	1/2	65
8RSP53	26.0	35.3	40.0	54.4	510	6.06	17.13	.86	1.63	1/2	55
9RSN53	32.0	43.4	50.0	68.0	535	7.19	17.75	.86	1.63	1/2	65
8RSQ53	32.0	43.4	50.0	68.0	430	6.06	17.13	.86	1.63	1/2	55
9RSP53	39.0	52.9	58.0	78.9	425	7.19	17.75	.86	1.63	1/2	65
9RSQ83	45.0	61.0	82.0	111.5	300	7.63	17.88	.97	1.81	1/2	65
Nonreversible (Lever Throttle)											
8SM32	16.0	21.7	23.0	31.3	1110	4.75	14.38	.67	1.50	3/8	55
8SN32	21.0	28.5	30.0	40.8	840	5.06	15.25	.67	1.50	3/8	55
8SP53	28.0	38.0	40.0	54.4	610	5.31	15.38	.86	1.63	1/2	55
9SQ83	50.0	67.8	85.0	115.6	355	6.69	15.88	.97	1.81	1/2	65

Tool Series	Air Inlet NPT	Air Hose
6	1/4"	3/8"
8	1/2"	1/2"
9	1/2"	1/2"

Power Quick Change Chucks

For greatest versatility on screwdriving jobs, snap a Quick Change Chuck on your angle wrench. A variety of hex shank bits can be inserted and changed by merely pushing on the spring loaded collar.

Square Driver Size, in. Female	Part Number	Hex Chuck Size, in. Female
3/8	2U-A925-4	1/4
3/8	502-A925-7	7/16
1/2	4U-A925-7	7/16

Power Universal Joints

Universal joints make it easy to work around difficult angles and hard-to-reach nuts.

Driver Description	Part Number	Length in.	Major Diam. in.
3/8" Sq.	7270P	2 3/8	15/16
1/2" Sq.	7470P	2 3/4	1 1/8

Power Socket Adapters

Socket adapters are used to increase or decrease driver size to accommodate available sockets.

Driver Size, in. Female	Male	Part Number
3/8	1/2	2U-215

Power Driver Extensions

Used when extra length is needed for close quarters applications.

Square Driver Size in.	Part Number	Length in.
3/8	7175P	3
1/2	7181P	5

Power Screwdriver Adapters

For Phillips, Pozidriv or Reed & Prince Screws, use these Screwdriver adapters with the Insert Bits listed below.

Square Driver Size in.	Part Number
3/8	2U-812
1/2	4U-812

Power Square Insert Bits

The square shank Phillips, Reed & Prince and Hexagon bits listed are used with the above adapters.

Description	Part Number
Phillips Bit No. 2 Point	SPB082-5
Phillips Bit No. 3 Point	SPB083-5
Phillips Bit No. 4 Point	SPB084-5

Independent Power Regulators

These Regulators can be screwed into the air inlet and adjusted to reduce the torque output.

Pipe Tap Size in.	Part Number
1/4	AV11-A915

Air Ratchets

Compact. Convenient. Real time-savers. Air ratchet wrenches have become essential elements in every serious toolbox. They combine access and power to make jobs more productive and profitable. And Ingersoll-Rand ratchets feature unique qualities that you won't find anywhere else.

Maintenance/Automotive Class* Air Rachets

The IR1103 model packs all the features you need into a compact size, measuring just 7 1/2 inches in length and weighing just 1 3/4 pounds! Its two-speed power grip ring and ample power and speed mean you'll get in and out of the tightest spaces with ease. The IR1103 is so versatile and convenient, it may just change the way you work.

Ingersoll-Rand also offers the exclusive IR111 Reactionless Ratchet™, which eliminates the effects of torque kickback after running down nuts and bolts. That's why we call it the Knuckle Saver™. Whatever your requirements, IR can offer a ratchet to fit your budget and your toolbox.

XP EXTRA PERFORMANCE

The XP mark identifies tools upgraded with enhanced features to deliver Extra Performance.

Model Number	Performance Rating	Square Drive in.	Maximum Torque ft.-lb. (Nm)	Free Speed (rpm)	Weight lb. (kg)	Length in. (mm)	Av. Air Consumption cfm (l/min)	@ Load cfm (l/min)	Sound dBA (Pressure/ Power)	Air Inlet NPTF in.	Min. Hose Size in. (mm)
IR103	Standard Duty	1/4	20 (27)	200	1.1 (0.50)	6.5 (165)	2.5 (71)	15 (410)	87.7/100.7	1/4	1/4 (6)
IR1033	Standard Duty	3/8	20 (27)	200	1.1 (0.50)	6.5 (165)	2.5 (71)	15 (410)	87.7/100.7	1/4	1/4 (6)
IR1103	Ultra Duty	1/4	25 (34)	270	1.35 (0.61)	7.5 (190)	4 (113)	21 (600)	89/102.2	1/4	1/4 (6)
IR1133	Ultra Duty	3/8	25 (34)	270	1.35 (0.61)	7.5 (190)	4 (113)	21 (600)	89/102.2	1/4	1/4 (6)
IR104	Standard Duty	1/4	20 (27)	200	1.1 (0.50)	7.8 (198)	2.5 (71)	13 (368)	90.8/103.8	1/4	1/4 (6)
IR107XP	Heavy Duty	3/8	50 (68)	160	2.49 (1.13)	10.5 (267)	4 (113)	18 (504)	92.5/105.5	1/4	5/16 (8)
IR1077XP	Heavy Duty	1/2	50 (68)	160	2.49 (1.13)	10.5 (267)	4 (113)	18 (504)	92.5/105.5	1/4	5/16 (8)
IR1200	Ultra Duty	3/8	60 (81)	270	2.53 (1.2)	10.75 (273)	4 (113)	16 (453)	98/111	1/4	5/16 (8)
IR1210	Ultra Duty	1/2	60 (81)	270	2.53 (1.2)	10.75 (273)	4 (113)	16 (453)	98/111	1/4	5/16 (8)
IR109XP	Super Duty	3/8	70 (95)	300	3.1 (1.4)	11.9 (302)	4 (113)	24 (672)	93.6/106.6	1/4	5/16 (8)
IR1099XP	Super Duty	1/2	70 (95)	300	3.1 (1.4)	11.9 (302)	4 (113)	24 (672)	93.6/106.6	1/4	5/16 (8)
IR111	Super Duty	3/8	50 (68)	300	2.7 (1.22)	10.5 (267)	4 (113)	12 (340)	89.6/102.6	1/4	5/16 (8)
IR1111	Super Duty	1/2	50 (68)	300	2.7 (1.22)	10.5 (267)	4 (113)	12 (340)	89.6/102.6	1/4	5/16 (8)

** Maintenance/Automotive class tools are designed for maintenance and automotive applications involving intermittent use.*

Maintenance/Automotive Class* Air Rachets

IR1003

1/4" Stubby Standard Duty

Air Ratchet Wrench

The “Stubby” lets you squeeze into very snug spaces without feeling squeezed while you run small fasteners. Excellent for body shop repair jobs and light duty work under the dashboard.

- The smallest air ratchet, only 6-1⁄2" long
- Lightweight, only 1-1⁄8 lbs.
- 20 ft.-lbs. maximum torque

IR1033

3/8" Stubby Standard Duty

Air Ratchet Wrench

Same specifications as the IR103 model, but with 3/8" drive.

IR1103

1/4" Ultra Duty

Air Ratchet Wrench

The IR1103 puts the power and speed of a larger tool neatly in the palm of your hand. It’s perfect for under the hood, under the dash, collision repair, and more-wherever access is the key.

- Exclusive TwinPawl Plus™ head design for durability and long life
- Two-speed power grip ring; ergonomic textured grip
- 25 ft.-lbs. of maximum torque; 270 rpm

IR1133

3/8" Ultra Duty

Air Ratchet Wrench

Same specifications as the IR1103 model, but with 3/8” drive.

IR104

1/4" Standard Duty

Air Ratchet Wrench

Made to fit in the palm of your hand, this compact ratchet is great for small engine repair, headlight service work, and bench work. So easy to maintain, just dip the head in oil.

- Extra compact
- Easy to maintain
- 20 ft.-lbs. maximum torque

IR107XP

3/8" Heavy Duty

EXTRA PERFORMANCE

Air Ratchet Wrench

Based on the industry’s most popular ratchet, the 107XP delivers an extra measure of durability with an advanced head design, plus a host of other features.

- 50 ft.-lbs. of maximum torque
- Variable speed lever-style throttle
- 360˚ adjustable exhaust directs air away from the operator and the work

IR1077XP

1/2" Heavy Duty

EXTRA PERFORMANCE

Air Ratchet Wrench

Same specifications as the IR107XP model, but with 1/2" drive.

Model Number	Performance Rating	Square Drive in.	Working Torque Range ft.-lb. (Nm)	Maximum Torque ft.-lb. (Nm)	Free Speed (rpm)	Standard Bolt Size in. (mm)	Weight lb. (kg)	Length in. (mm)	Av. Air Consumption CFM (l/min)	@ Load CFM (l/min)	Sound dBA (Pressure/ Power)	Air Inlet NPTF in.	Min. Hose Size in. (mm)
IR103	Standard Duty	1/4	5–20 (7–27)	20 (27)	200	3/8 (10)	1.1 (0.50)	6.5 (165)	2.5 (71)	15 (410)	87.7/100.7	1/4	1/4 (6)
IR1033	Standard Duty	3/8	5–20 (7–27)	20 (27)	200	3/8 (10)	1.1 (0.50)	6.5 (165)	2.5 (71)	15 (410)	87.7/100.7	1/4	1/4 (6)
IR1103	Ultra Duty	1/4	5–25 (7–34)	25 (34)	270	3/8 (10)	1.75 (0.79)	7.5 (190)	4 (113)	21 (608)	89/102.2	1/4	1/4 (6)
IR1133	Ultra Duty	3/8	5–25 (7–34)	25 (34)	270	3/8 (10)	1.75 (0.79)	7.5 (190)	4 (113)	21 (608)	89/102.2	1/4	1/4 (6)
IR104	Standard Duty	1/4	5–20 (7–27)	20 (27)	200	3/8 (10)	1.1 (0.50)	7.8 (198)	2.5 (71)	13 (368)	90.8/103.8	1/4	1/4 (6)
IR107XP	Heavy Duty	3/8	10–45 (14–61)	50 (68)	160	3/8 (10)	2.49 (1.13)	10.5 (267)	4 (113)	18 (504)	92.5/105.5	1/4	5/16 (8)
IR1077XP	Heavy Duty	1/2	10–45 (14–61)	50 (68)	160	3/8 (10)	2.49 (1.13)	10.5 (267)	4 (113)	18 (504)	92.5/105.5	1/4	5/16 (8)

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Maintenance/Automotive Class* Air Rachets

IR1200

3/8" Ultra Duty

Air Ratchet Wrench

Superior comfort and control meet durability and productivity in this tough, high-speed ratchet.

- Lightweight composite handle for superior comfort and grip
- New head design features IR exclusive slip resistant friction disc for longer life and added durability

R1210

1/2" Ultra Duty

Air Ratchet Wrench

Same specifications as the IR1200 Model, but with 1/2" drive.

IR109XP

3/8" Super Duty

Air Ratchet Wrench

This is the fastest ratchet in its class, with an optimized gear ratio and airflow for Extra Performance, coupled with exceptional durability.

- 70 ft.-lbs. maximum torque at 300 rpm free speed
- Exclusive IR TwinPawl Plus™ head design for exceptional durability
- 360˚ adjustable exhaust directs air away from the operator and the work

IR1099XP

1/2" Super Duty

Air Ratchet Wrench

Same specifications as the IR109XP model, but with 1/2" drive.

IR111

The Knuckle Saver™ 3/8" Super Duty

Reactionless Air Ratchet Wrench

This revolutionary Reactionless Ratchet™ has a unique reactionless mechanism. It makes gearing unnecessary and it absorbs kickback when the nut runs tight.

- The fastest air ratchet you can buy
- Up to 50 ft.-lbs. torque
- Rear exhaust directs air away from work
- External grease fitting

IR1111

The Knuckle Saver™ 1/2" Super Duty

Reactionless Air Ratchet Wrench

Same specifications as the IR111 model, but with 1/2" drive.

Model Number	Performance Rating	Square Drive in.	Maximum Torque ft.-lb. (Nm)	Free Speed (rpm)	Weight lb. (kg)	Length in. (mm)	Av. Air Consumption cfm (l/min)	@ Load cfm (l/min)	Sound dBA (Pressure/ Power)	Air Inlet NPTF in.	Min. Hose Size in. (mm)
IR1200	Ultra Duty	3/8	60 (81)	270	2.53 (1.2)	10.75 (273)	4 (113)	16 (453)	98/111	1/4	5/16 (8)
IR1210	Ultra Duty	1/2	60 (81)	270	2.53 (1.2)	10.75 (273)	4 (113)	16 (453)	98/111	1/4	5/16 (8)
IR109XP	Super Duty	3/8	70 (95)	300	3.1 (1.4)	11.9 (302)	4 (113)	24 (672)	93.6/106.6	1/4	5/16 (8)
IR1099XP	Super Duty	1/2	70 (95)	300	3.1 (1.4)	11.9 (302)	4 (113)	24 (672)	93.6/106.6	1/4	5/16 (8)
IR111	Super Duty	3/8	50 (68)	300	2.7 (1.22)	10.5 (267)	4 (113)	12 (340)	89.6/102.6	1/4	5/16 (8)
IR1111	Super Duty	1/2	50 (68)	300	2.7 (1.22)	10.5 (267)	4 (113)	12 (340)	89.6/102.6	1/4	5/16 (8)

***** *Maintenance/Automotive class tools are designed for maintenance and automotive applications involving intermittent use.*

DOBCO EQUIPMENT LTD

Industrial Production Air Drills

Compact size and excellent power-to-weight ratios distinguish the Ingersoll-Rand line of air drills for production and maintenance applications. Choose from three different series, with models suited to various levels of precision and capacity. They include pistol-grip, straight, and angle configurations, along with tappers and specific accessories.

In addition, IR offers the Series 5, 6, and 7 models, all with Skinsulate comfort grip surfaces for enhanced control. Series 5 models produce .4 hp and cover the 900-5000 rpm range, adding reversible pistol-grip models. Series 6 models deliver .51 hp in the 350 to 20,000 rpm range in pistol-grip and lever throttle variations, with easy to service modular design. Cantilever-mounted planetary gears also offer easy accessibility, without the need to press from the gear frame. Series 7 models share these features in pistol-grip configurations, covering the 600-20,000 rpm range with a .75 hp output.

Production angle drills in Series 5, 6 and 7 provide 360 degree angle head rotation for ideal tool, task, and tool user orientation and throttle position. They cover a 400-6000 rpm range.

The Series 728 models are powerful, economical solutions for general-purpose maintenance applications. They deliver .5 hp and cover a 950-3800 range. In addition, IR offers powerful, accurate tappers for threading holes on-site, as well as lightweight riveters and hammers for related assembly applications.

And…for super duty specialty applications in maintenance or construction, IR offers a complete line of large-configuration low-speed drills and angle drills. These reversible or non-reversible units feature ball bearing support for long life, self-closing throttles and built-in lubricators. Consult your IR representative or distributor for more details on these models.

Whatever the need, IR can respond with a high performance drill perfectly matched to your application. Consult the Drill Selection Chart to define your requirements.

Drills

Selection Chart

Suggested surface speeds for high speed steel drills in various materials

Material	Speed in SFM
Alloy Steel (300 to 400 Brinnel)	20 to 30
Stainless Steel	30 to 40
Automotive Steel Forgings	40 to 50
Tool Steel, 1.2C	50 to 60
Steel, .4C to .5C	70 to 80
Mild Machinery, .2C to .3C	80 to 110
Hard Chilled Cast Iron	30 to 40
Medium Hard Cast Iron	70 to 100
Soft Cast Iron	100 to 150
Malleable Iron	80 to 90
Monel Metal	40 to 50
High Tensile Strength Bronze	70 to 150
Ordinary Brass and Bronze	200 to 300
Aluminum and its alloys	200 to 300
Magnesium and its alloys	250 to 400
Slate, Marble and Stone	15 to 25
Bakelite and similar material	100 to 150
Wood	300 to 400

Note: Carbon steel twist drills should be run at speeds of 40 to 50 percent of those given above.

Drilling Speed (rpm) = 0.75 x Free Speed (rpm)

Hole Diameter In.	Surface Speed, Feet Per Minute 30	40	50	60	70	80	90	100	110	150	200	300	400
Drilling Speed, rpm (Optimum Operating Speed – Not Cataloged Free Speed)													
1/16	1800	2400	3000	3600	4200	4900	5500	6100	6700	9000	12,000	18,000	24,000
1/8	900	1200	1500	1800	2100	2400	2700	3000	3400	4600	6100	9200	12,000
3/16	600	800	100	1200	1400	1600	1800	2000	2200	3100	4100	6100	8100
1/4	450	600	750	900	1100	1200	1400	1500	1700	2300	3100	4600	6100
5/16	350	500	600	750	850	1000	1100	1200	1300	1800	2400	3700	4900
3/8	300	400	500	600	700	800	900	1000	1100	1500	2000	300	4000
1/2	200	300	400	450	550	600	650	750	850	1100	1500	2300	3000

1-Series Air Drills

Legendary IR Performance and Durability

The new 1-Series air drills from Ingersoll-Rand combine power and speed in a compact package to deliver productivity-enhancing performance. Seven new models in pistol grip, inline, and angle configurations provide the flexibility you need to tackle drilling jobs in both open and confined spaces. Pistol grip and inline models feature a 1/4" capacity chuck while the precision angle drills offer the popular 1/4"-28 female threaded spindle, allowing you to match the bit to the job at hand. With speeds ranging from 600 to 3800 rpm, 1-Series drills allow users in aerospace, woodworking, and general industry environments to easily handle a wide variety of materials and hole sizes. The black coated grip area on all models allows for easy handling and improved productivity.

1-Series drills offer an unparalleled value - performance and reliability for day-in, day-out production drilling. Exactly the kind of solution you'd expect from Ingersoll-Rand.


1S30MF4


1LL1A1


1AL1

1-Series Performance Specifications

Model	Free Speed (rpm)	Stall Torque (in-lb)	Stall Torque (Nm)	Length (in)	Length (mm)	Weight (lb)	Weight (kg)	Chuck or Spindle	Side to Center (in)	Side to Center (mm)	Air Usage (CFM)	Inlet
Pistol Grip Drills												
1P38ST4	3800	20	2.3	6.25	159	1.44	0.65	1/4" chuck	21/32	16.5	11	1/4" NPT
1AL1	2800	15	1.7	6.25	159	1.44	0.65	1/4" chuck	21/32	16.5	11	1/4" NPT
1P09ST4	900	67	7.6	6.75	172	1.50	0.68	1/4" chuck	21/32	16.5	11	1/4" NPT
1P06ST4	600	100	11.3	6.75	172	1.50	0.68	1/4" chuck	21/32	16.5	11	1/4" NPT
Angle Drills - Lever Throttle - 90 Degrees												
1LJ1A1	3700	10	1.1	8.63	219	1.19	0.54	1/4" x 28 female	21/64	8.0	11	1/4" NPT
1LL1A1	2700	14	1.6	8.13	206	1.13	0.51	1/4" x 28 female	21/64	8.0	11	1/4" NPT
Inline Drills - Lever Throttle												
1S30MF4	3000	17	1.9	7.31	186	1.13	0.51	1/4" chuck	21/32	16.5	11	1/4" NPT

** Other speeds are forthcoming; additional model configurations available on request.*

HPe
High Performance Ergonomics

Series 5

- 900-5000 rpm
- .40 hp
- Chuck capacity 1/4" to 1/2"

Features

- Double row ball bearings assure maximum TIR of .005" for precise, concentric holes
- Variable speed control allows slow speed starting and high speed for fast drilling
- Skinsulate housing for operator comfort and productivity. (Pistol Only)
- Excellent power-to-weight ratio gets the job done with less fatigue

Standard Equipment

- Drill chuck and key
- Vertical hanger
- For Model 5LN3, Dead handle assembly and required adapters:
  - 728N-A48 Dead handle assembly
  - 5A-49 Adapter (two required)
- For Model 5RAN2T8, Dead handle assembly and required adapters:
  - RIA-A48 Dead handle assembly
  - 5A-ST49 Adapter (two required)

Accessories

- For H, J, K and L ratio models
  - 5A-309 Chuck shield
  - 5L-K184 Piped-away exhaust kit
  - 7RA-A366 Horizontal hanger

Skinsulate® Comfort Coating

5LK1B1

5AJST4

Model	Free Speed rpm	Stall Torque in.-lb.	Nm	Length with Chuck in.	mm	Weight with Chuck lb.	kg	Chuck Capacity in.	mm	Side to Center Distance in.	mm	CFM
Reversible Pistol-Grip												
5RALST6	2000	35	4.0	6.19	173	2.25	1.0	3/8	10	13/16	21	17
5RANST6	900	70	8.0	8.25	210	3	1.4	3/8	13	13/16	21	17
5RANST8	900	70	8.0	8.25	210	3	1.4	1/2	13	13/16	21	17
Nonreversible Pistol-Grip												
5AHST4	5000	20	2.3	6.81	173	2	.09	1/4	6	13/16	21	17
5AJST4	4500	20	2.3	6.81	173	2	.09	1/4	6	13/16	21	17
5AKST4	3000	30	3.4	6.81	173	2	.09	1/4	6	13/16	21	17
5ALST4	2200	40	4.5	6.81	173	2	.09	1/4	6	13/16	21	17
5ANST6	1000	80	9.0	8.13	206	2.75	1.2	3/8	10	13/16	21	17
Nonreversible Lever Throttle												
5LJ1	4800	20	2.3	8.06	205	2.06	.09	1/4	6	13/16	21	16
5LK1	3100	30	3.4	8.06	205	2.06	.09	1/4	6	13/16	21	16
5LL1	2300	40	4.5	8.06	205	2.06	.09	1/4	6	13/16	21	15
5LN3	1000	80	9.0	9.38	238	3.25	1.5	3/8	10	13/16	21	15

Air Inlet = 1/4" NPT
Recommended Hose = 1/4" (6mm)
Performance figures are at 90 psi (620 kPa)
Spindle = 3/8" x 24
Sound Level = Approx. 75 dBa
To order without chuck delete last digit.

Industrial Production Drills

Series 6

- 350 - 20,000 rpm
- .51 hp
- Chuck capacity 1/4" to 3/8"

Features

- Double row ball bearing construction assures maximum TIR of .005" for precise, concentric holes
- Variable speed control permits slow speed starting and high speed for fast drilling
- Skinsulate housing for operator comfort and productivity
- Cantilever-mounted planetary gears are easily accessible without need to press from gear frame; simplifies maintenance

Standard Equipment

- Drill chuck and key
- Dead handle on Model 6LR3

Accessories

- 6WS-366 Horizontal hanger
- 7L-365 Vertical hanger
- 7L-K284 Piped-away exhaust kit (lever models only)
- Dead Handle
  - R1A-A48 Assembly
  - 6A-49 Adapters (two required)

6LH1

6ALST4

Skinsulate® Comfort Coating

Model	Free Speed rpm	Stall Torque in.-lb.	Stall Torque Nm	Length with Chuck in.	Length with Chuck mm	Weight with Chuck lb.	Weight with Chuck kg	Chuck Capacity in.	Chuck Capacity mm	Side to Center Distance in.	Side to Center Distance mm	CFM
Pistol-Grip												
6ADST4	20,000	7	.8	7.00	178	2.19	1.00	1/4	6	51/64	21	20
6AHST4	6000	23	2.6	7.00	178	2.19	1.00	1/4	6	51/64	21	20
6AJST4	5100	27	3.1	7.00	178	2.19	1.00	1/4	6	51/64	21	20
6AJJST4	3950	35	4.0	7.00	178	2.19	1.00	1/4	6	51/64	21	20
6AKST4	3100	45	5.1	7.00	178	2.19	1.00	1/4	6	51/64	21	20
6ALST4	2150	64	7.3	7.00	178	2.19	1.00	1/4	6	51/64	21	20
6AMST6	1500	89	10.1	8.00	203	2.75	1.25	3/8	10	51/64	21	20
6ARST6	500	220	25.1	8.25	210	3.00	1.36	3/8	10	51/64	21	20
6ASST6	350	313	35.7	8.25	210	3.00	1.36	3/8	10	51/64	21	20
Lever Throttle												
6LH1	6000	23	2.6	7.91	201	2.13	.95	1/4	6	51/64	21	20
6LJ1	5100	27	3.1	7.91	201	2.13	.95	1/4	6	51/64	21	20
6LJJ1	3950	35	4.0	7.91	201	2.13	.95	1/4	6	51/64	21	20
6LK1	3100	45	5.1	7.91	201	2.13	.95	1/4	6	51/64	21	20
6LL1	2150	64	7.3	7.91	201	2.13	.95	1/4	6	51/64	21	20
6LR3	500	220	25.1	9.19	233	2.94	1.33	3/8	10	51/64	21	20

Air Inlet = 1/4" NPT
Recommended Hose = 3/8" (10mm)
Performance figures are at 90 psi (620 kPa)

Spindle = 3/8" x 24
Sound Level = Approx. 74 dBa
To order without chuck delete last digit.

Industrial Production Drills

Series 7

- 600 - 20,000 rpm
- .75 hp
- Chuck capacity 1/4" to 1/2"

Features

- Double row ball bearing construction assures maximum TIR of .005” for precise, concentric holes
- Variable speed control permits slow speed starting and high speed for fast drilling
- Skinsulate housing for operator comfort and productivity
- Cantilever-mounted planetary gears are easily accessible without need to press from gear frame; simplifies maintenance

Standard Equipment

- Drill chuck and key
- Vertical hanger
- Horizontal hanger
- Dead handle on N and Q ratio models

Accessories

- R1A-48 Dead handle and 7A-49 Dead handle adapter (2 adapters required)
- For D, H, J, JJ, and K ratio models
  7AH-K309 Chuck shield kit
- 7RA-A366 Horizontal hanger

Skinsulate® Comfort Coating

7AMST6

Model	Free Speed rpm	Stall Torque in.-lb.	Stall Torque Nm	Length with Chuck in.	Length with Chuck mm	Weight with Chuck lb.	Weight with Chuck kg	Chuck Capacity in.	Chuck Capacity mm	Side to Center Distance in.	Side to Center Distance mm	CFM
Pistol-Grip												
7ADST4	20,000	10	1.13	7.44	189	2.25	1.02	1/4	6	7/8	22	25
7AHST4	6000	33	3.73	7.44	189	2.31	1.05	1/4	6	7/8	22	25
7AJST4	4800	40	4.52	7.44	189	2.31	1.05	1/4	6	7/8	22	25
7AJJST4	4000	47	5.53	7.44	189	2.31	1.05	1/4	6	7/8	22	25
7AKST6	3200	58	6.55	7.63	194	2.38	1.08	3/8	10	7/8	22	25
7ALST6	2400	78	8.81	7.44	198	2.69	1.22	3/8	10	7/8	22	25
7AMST6	1400	130	14.69	8.50	216	2.94	1.33	3/8	10	7/8	22	25
7ANST8	900	185	20.91	8.75	222	3.19	1.45	1/2	13	7/8	22	25
7AQST8	600	270	30.51	8.75	222	3.25	1.47	1/2	13	7/8	22	25

Air Inlet = 1/4" NPT
Recommended Hose = 5/16" (8mm)
Performance figures are at 90 psi (620 kPa)
Spindle = 3/8" x 24
Sound Level = Approx. 82 dBa

Industrial Production Angle Drills

Series 5, 6, and 7

- 400 - 3250 rpm
- 1/4"-1/2" Chuck capacity

Features

- Maximum TIR runout of .005" ensures precision holes for critical applications
- Infinitely variable speed allows slow speed starting and high speed drilling
- Angle head may be rotated 360° to allow ideal orientation with the throttle
- Ergonomically designed housing provides a secure surface for operator grip
- Modular design allows maximum parts interchangeability and easy, low cost maintenance

Accessories

- 7L-365 Vertical hanger
- 6WS-366 Horizontal hanger
- 7L-K284 Piped-away exhaust kit

6LL2A42

7LN3A44

Model	Free Speed rpm	Stall Torque in.-lb.	Nm	Length with Chuck in.	mm	Height of Head with Chuck lb.	kg	Weight with Chuck lb.	kg	Chuck Capacity in.	mm	Side to Center Distance in.	mm	CFM
Lever Throttle Angle Drills														
7LJ2A41	3250	51	5.6	10.00	254	2.97	75	3.00	1.36	1/4	6	17/32	14	26
5LK2A41	2000	45	5.1	9.41	240	2.97	75	2.63	1.20	1/4	6	17/32	14	15
6LK2A41	2000	65	7.3	9.47	240	2.97	75	2.75	1.25	1/4	6	17/32	14	20
7LL3A42	1550	112	12.7	10.38	263	3.66	93	3.44	1.56	3/8	10	11/16	18	26
5LL2A41	1500	60	6.8	9.41	240	2.97	75	2.63	1.20	1/4	6	17/32	14	15
6LL2A42	1400	95	10.7	9.53	242	3.19	81	2.81	1.27	3/8	10	17/32	14	20
7LM3A43	900	170	18.7	11.06	281	3.91	99	4.00	1.79	3/8	10	11/16	18	26
5LN2A43	700	120	13.6	10.19	258	3.59	91	3.44	1.60	3/8	10	17/32	14	15
6LP3A43	600	190	21.7	10.63	270	3.91	99	3.75	1.70	3/8	10	11/16	18	20
7LN3A44	600	255	28.1	11.06	281	4.13	105	4.19	1.90	1/2	12	11/16	18	26
6LR3A44	400	320	36.2	10.69	271	4.13	105	4.00	1.81	1/2	13	11/16	18	20

Air Inlet = 1/4" NPT
Recommended Hose = 1/4" (6mm)
Spindle = 3/8" x 24
Performance figures are at 90 psi (620 kPa)

Industrial Production Angle Drills

Production Angle Drills Model Specifications

Model	Free Speed rpm	Stall Torque in.-lb.	Nm	Length with Chuck in.	mm	Weight with Chuck lb.	kg	Chuck Capacity in.	mm	Side to Center Distance in.	mm	CFM
Lever Throttle Angle Drills (90 Degree Angle Head)												
6LH1A1	6000	23	2.6	9.69	246	1.13	28	2.13	.95	21/64	8	20
7LH1A1	6000	31	3.5	10.38	263	1.13	28	2.25	1.02	21/64	8	26
6LJ1A1	5100	27	3.1	9.69	246	1.13	28	2.13	.95	21/64	8	20
5LH1A1	4800	20	2.3	9.81	249	1.13	28	2.19	1.00	21/64	8	15
7LJ1A1	4800	40	4.5	10.38	263	1.13	28	2.25	1.02	21/64	8	26
6LJJ1A1	3950	35	4.0	9.69	246	1.13	28	2.13	.95	21/64	8	20
7LK1A1	3200	57	6.4	10.38	263	1.13	28	2.25	1.02	21/64	8	26
6LK1A1	3100	45	5.1	9.69	246	1.13	28	2.13	.95	21/64	8	20
5LK1A1	3000	31	3.5	9.81	249	1.13	28	2.19	1.00	21/64	8	15
5LL1A1	2200	40	4.5	9.81	249	1.13	28	2.19	1.00	21/64	8	15
6LL1A1	2150	64	7.3	9.69	246	1.13	28	2.13	.95	21/64	8	20
Lever Throttle Angle Drills (45 Degree Angle Head)												
5LH1B1	4800	20	2.2	9.75	248	1.27	32	2.13	1.00	21/64	9	15
5LK1B1	3000	31	3.5	9.75	248	1.27	32	2.13	1.00	21/64	9	15

Tool Series	Sound Approx. dBa	Air Inlet NPT	Hose Recommended
5	75	1/4"	1/4" (6mm)
6	74	1/4"	1/4" (6mm)
7	81	1/4"	1/4" (6mm)

Repeated stalling of these models is not recommended.
Performance figures are at 90 psi (620 kPa) air pressure.

Industrial Maintenance Drills

Series 728

- 1250 to 3800 rpm
- 0.5 hp

Models with keyless chucks now available!

728LA2

728L6K

Features

- Powerful and economical
- Excellent for general purpose applications

Standard Equipment

- Dead handle assembly on Model 728NA3

Model	Free Speed rpm	Stall Torque in.-lb.	Nm	Length with Chuck in.	mm	Weight with Chuck lb.	kg	Chuck Capacity in.	mm	Side to Center Distance in.	mm	CFM
728JA1	3800	30	3.4	7.0	177	2.4	1.1	3/8	8	29/32	23	19
728LA2	2550	54	6.1	7.3	184	2.5	1.2	3/8	10	29/32	23	19
728NA3	1250	120	14.0	8.4	212	3.1	1.4	1/2	13	29/32	23	19
728J6K	3800	30	3.4	7.0	177	2.4	1.1	3/8	13	29/32	23	19
728L6K	2550	54	6.1	7.3	184	2.5	1.2	3/8	10	29/32	23	19
728N8K	1250	120	14.0	8.4	212	3.1	1.4	1/2	13	29/32	23	19

Air Inlet = 1/4" NPT
Recommended Hose = 1/4" (6mm)
Spindle = 3/8" x 24
Performance figures are at 90 psi (620 kPa) air pressure.
Keyless Chucks – 3/8" Part # 728-99-KC5
1/2" Part # 728-99-KC8

Drill Chucks

Chuck Size	Part Number	Thread	Key Part Number	Standard Equipment on Air Drills
0 - 1/4" (6mm) Medium Duty	ROH-99	3/8" x 24	R1H-J253	5A, 5L (D,H,J,K,K2,L,L2), 7L (J2)
0 - 1/4" (6mm) Heavy Duty	ROA-99	3/8" x 24	R00A-J253	6A (K,H,J,JJ,K,L,), 6L (H,J,JJ,K,K2,L), 7A (D,H,J,JJ)
0 - 3/8" (10mm) Heavy Duty	6A-99	3/8" x 24	R0J-J253	6A (M,P), 6L (L2,M,M2,P), 7A (K), 7L (L3), 728JA1, 5A, 5L (N,N2), 5R, 6A (R,S), 6L (P3,R), 7A (L,M), 7L (M3)
0 - 3/8" (10mm) Standard Duty	7801-99-6	3/8" x 24	728N-253	728LA2
0 - 3/8" Keyless (10 mm)	728-99-KC5	3/8" x 24	—	728J6K, 728L6K
0 - 1/2"	7803-99	3/8" x 24	R1T-J253	—
0 - 1/2" (13mm) Standard Duty	7806-99-8	3/8" x 24	728N-253	728NA3, 7806
0 - 1/2" Keyless (13mm)	728-99-KC8	3/8" x 24	—	728N8K
5/64" - 1/2" (2-13mm) Heavy Duty	ROK-99	3/8" x 24	R1T-J253	5R, 7A (N,Q), 7L (N3)

Square Drive Adapter

Chuck Size	Part Number	Thread
3/8"	RH-P212-3⁄8	3/8" x 24

Quick Change Screwdriver Bit Adapter

Hexagon Drive Size	Part Number	Thread
1/4"	RH-A925-4	3/8" x 24

Maintenance/Automotive Class* Air Drills

An air drill's chuck does most of the work. That's why all Ingersoll-Rand air drills are engineered with high quality chucks that resist wear and tear. Our new family of air drills have industrial grade chucks and keyless chuck versions that are extra tough for drilling, sawing, valve guide reaming, cylinder honing, and wire brushing. They are more powerful, efficient, and durable than previous models, with smooth, quiet operation.

***** *Maintenance/Automotive class tools are designed for maintenance and automotive applications involving intermittent use.*

The complete line includes 3/8" and 1/2" air drills. Reversible drills in each size make it easy to back out tight screws. With free speeds of up to 2500 rpm, several 3/8" air drills make fast work of driving and removing screws. The 1/2" air drills run at a free speed of 400-500 rpm to deliver higher power necessary for heavy drilling. The IR7804R and IR7807R models provide extra convenience with angle head configurations. All are compact and lightweight for easy handling. Their variable speed throttles make Ingersoll-Rand air drills easy to start holes and maintain control as you work.

Model Number	Performance Rating	Free Speed (rpm)	Chuck Size in. (mm)	Rated Power hp (kW)	Net Weight lbs. (kg)	Overall Length in. (mm)	Average Air Consumption cfm (l/min.)	@ Load cfm (l/min.)	Sound dBA (Pressure/ Power)	Air Inlet in.	Min. Hose Size in. (mm)
3/8" Chuck											
IR7802	Heavy Duty	2,500	3/8 (10)	.5 (.38)	2.4 (1.09)	7.8 (198)	4 (113)	20 (556)	90.1/103.1	1/4	3/8 (10)
IR7802R	Heavy Duty	2,000	3/8 (10)	.5 (.38)	2.5 (1.13)	6.4 (163)	4 (113)	26 (736)	92.8/105.8	1/4	3/8 (10)
IR7802RKC	Heavy Duty	2,000	3/8 (10)	.5 (.38)	2.5 (1.13)	6.4 (163)	4 (113)	26 (736)	92.8/105.8	1/4	3/8 (10)
IR7804R	Super Duty	1,200	3/8 (10)	.5 (.38)	2.7 (1.22)	8.4 (213)	4 (113)	15 (425)	91.4/104.4	1/4	3/8 (10)
IR7807R	Standard Duty	1,800	3/8 (10)	.33 (.25)	2.47 (1.12)	8.1 (206)	4 (113)	17 (485)	89/102	1/4	3/8 (10)
1/2" Chuck											
IR7803	Heavy Duty	500	1/2 (13)	.5 (.38)	3.2 (1.45)	9 (229)	4 (113)	21 (595)	88.8/101.8	1/4	3/8 (10)
IR7803R	Heavy Duty	400	1/2 (13)	.5 (.38)	3.3 (1.50)	8.7 (221)	4 (113)	27 (764)	92.9/105.9	1/4	3/8 (10)

NOTE: KC Denotes Keyless Chuck models.
R Denotes reversible models.
All Pistol Grip Drills are available with Jacobs® Keyless Chucks.
When ordering this option, place "KC" at the end of the part number, ie: 7802KC.

***** *Maintenance/Automotive class tools are designed for maintenance and automotive applications involving intermittent use.*

Maintenance/Automotive Class* Air Drills

IR7802

3/8" Heavy Duty

Air Drill

With its industrial grade 3/8" chuck, this economical choice includes high quality features for general drilling and hole sawing jobs. The planetary gear reduction balances the load on bearings and gears for increased tool life.

- Variable speed throttle
- Lightweight, compact drill
- Handles smoothly

IR7802R

3/8" Heavy Duty

Air Reversible Drill

Use this economical, high quality 3/8" drill for all your general purpose drilling, honing, reaming, and hole sawing. With its reversible 1/2 hp motor, you can also drive and remove screws, including backing out tight screws without a struggle.

- Reversible motor with a quick reverse lever
- Variable speed throttle for starting holes easily
- Handles smoothly, a lightweight, compact drill

IR7802RKC

3/8" Heavy Duty

Air Reversible Drill/Keyless Chuck

Same features and specifications as the IR7802R, but with a keyless chuck for fast and easy bit changes.

Replacement Chucks and Chuck Keys

Capacity	Cat. No. (boxed)	Thread	Chuck Key Cat. No.	Tool No.
3/8" (10 mm)	728-99-KC5	3/8"x24	(keyless)	7802, 7802R, 7811
3/8" (10 mm)	7802-99	3/8"x24	R000B2J70-J253	7802, 7802R, 7811R
1/2" (13 mm)	728-99-KC8		(keyless)	7806, 7803, 7803R, 7816R
1/2" (13 mm)	7803-99	3/8"x24	7803-253	7803, 7803R, 7816R

Model Number	Performance Rating	Free Speed (rpm)	Chuck Size in. (mm)	Rated Power hp (kW)	Net Weight lbs. (kg)	Overall Length in. (mm)	Average Air Consumption cfm (l/min.)	@ Load cfm (l/min.)	Sound dBA (Pressure/ Power)	Air Inlet in.	Min. Hose Size in. (mm)
3/8" Chuck											
IR7802	Heavy Duty	2,500	3/8 (10)	.5 (.38)	2.4 (1.09)	7.8 (198)	4 (113)	20 (556)	90.1/103.1	1/4	3/8 (10)
IR7802R	Heavy Duty	2,000	3/8 (10)	.5 (.38)	2.5 (1.13)	6.4 (163)	4 (113)	26 (736)	92.8/105.8	1/4	3/8 (10)
IR7802RKC	Heavy Duty	2,000	3/8 (10)	.5 (.38)	2.5 (1.13)	6.4 (163)	4 (113)	26 (736)	92.8/105.8	1/4	3/8 (10)

** Maintenance/Automotive class tools are designed for maintenance and automotive applications involving intermittent use.*

Maintenance/Automotive Class* Air Drills

IR7804R

3/8" Super Duty

Air Angle Reversible Drill

This premium quality drill provides the convenience of an angle head for working in confined areas. Variable speed lever throttle adds precision for all applications.

- Rear exhaust keeps exhaust air away from the work area
- Forward/reverse control locks in both positions
- Plenty of power and torque, with 1/2 hp motor and 1,200 rpm free speed

IR7807R

3/8" Standard Duty

Air Angle Reversible Drill

One in a new family of economical, standard duty tools, the IR7807R is an excellent choice for service work requiring a compact, low profile angle head. It's a durable, reliable tool for drilling in all types of materials, including sheet metal, wood, and composites.

- Durable Jacobs multi-craft chuck
- Reversible, with convenient control
- Comfortable lever throttle
- Grease plug for easy preventative maintenance
- Precision machine gearing ensures maximum power transfer and durability

IR7803

1/2" Heavy Duty

Air Drill

Here's the economical choice for power, a high quality air drill designed for drilling, hole sawing, cylinder honing, and any other job that calls for a 1/2" size. Its quality features for long life, include the industrial grade 1/2" chuck, ball and needle bearing construction, and double reduction planetary gearing.

- No-load speed of 500 rpm
- Auxiliary side handle

IR7803R

1/2" Heavy Duty

Air Reversible Drill

A powerful choice for drilling, honing, reaming, and hole sawing, this drill has extra advantages. The reversible motor lets you drive and remove screws too. Even the tightest screws back out with ease under the force of the 1/2 hp motor.

- Quick reverse lever
- Variable speed throttle
- Heavy duty ball and needle bearing
- More power and long tool life
- Planetary gear reduction balances the load

Model Number	Performance Rating	Free Speed (rpm)	Chuck Size in. (mm)	Rated Power hp (kW)	Net Weight lbs. (kg)	Overall Length in. (mm)	Average Air Consumption cfm (l/min.)	@ Load cfm (l/min.)	Sound dBA (Pressure/ Power)	Air Inlet in.	Min. Hose Size in. (mm)
3/8" Chuck											
IR7804R	Super Duty	1,200	3/8 (10)	.5 (.38)	2.7 (1.22)	8.4 (213)	4 (113)	15 (425)	91.4/104.4	1/4	3/8 (10)
IR7807R	Standard Duty	1,800	3/8 (10)	.33 (.25)	2.47 (1.12)	8.1 (206)	4 (113)	17 (485)	89/102	1/4	3/8 (10)
1/2" Chuck											
IR7803	Heavy Duty	500	1/2 (13)	.5 (.38)	3.2 (1.45)	9 (229)	4 (113)	21 (595)	88.8/101.8	1/4	3/8 (10)
IR7803R	Heavy Duty	400	1/2 (13)	.5 (.38)	3.3 (1.50)	8.7 (221)	4 (113)	27 (764)	92.9/105.9	1/4	3/8 (10)

** Maintenance/Automotive class tools are designed for maintenance and automotive applications involving intermittent use.*

Air Drill Accessories

Designed specifically to match your Ingersoll-Rand air drills and saws, these are high quality parts constructed for great strength and durability.

Replacement Chucks and Chuck Keys

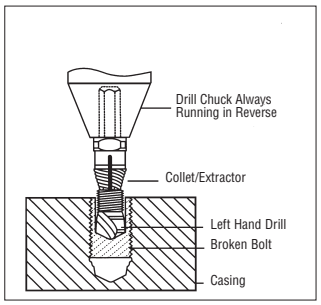
Capacity	Cat. No. (boxed)	Thread	Chuck Key Cat. No.	Tool No.
3/8" (10 mm)	728-99-KC5	3/8"x24	(keyless)	7802, 7802R, 7811
3/8" (10 mm)	7802-99	3/8"x24	R000B2J70-J253	7802, 7802R, 7811R
1/2" (13 mm)	728-99-KC8		(keyless)	7806, 7803, 7803R, 7816R
1/2" (13 mm)	7803-99	3/8"x24	7803-253	7803, 7803R, 7816R

Saw Blades

High speed, flexible, heat treated saw blades for use with IR 329.

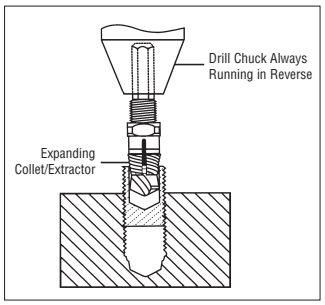
Cat. No.	Quantity	Description
329-F500 6	Fine 32 teeth/inch (red)	
329-C500 6	Coarse 24 teeth/inch (gray)	

Broken Bolt? The answer is…Drill-Out® Power Extractor



Step 1: Drilling

Choose the correct size DRILL-OUT. Place the DRILL-OUT into a 3/8" reversible variable speed drill, thread the collet back to the chuck and drill on a centered hole to a depth just before extractor engagement (3/8" – 1/2").



Step 2: Extracting

Turn the collet five (5) turns from chuck. Bring the drill up to the recommended RPM speed and plunge the DRILL-OUT into the hole. The collet will engage the broken bolt and extract it.

Ordering Information

Drill-Out Size	Part Number
1/4 (6 mm)	DO-1/4
5/16 (8 mm)	DO-5/16
3/8 (10 mm)	DO-3/8
1/2 (13 mm)	DO-1/2
4 piece kit	DO-4C

Industrial Riveters and Tappers

Lightweight Riveters

For driving 1/8"- 3/8" (3-10mm) rivets

AVC10A1

AVC13A1

Features

- Accurate and easily controlled tease throttle
- Standard beehive retainer – allows use of a wide variety of accessories
- Built-in power regulators on A1 and B1 Models – the operator can change power on the job with no downtime
- Model 772 – Unitized "easy-out" throttle valve assembly
- Model 772 – Furnished with two retainers for use with a wide variety of accessories

Model	Cold Rivet Capacity Diameter Aluminum in.	mm	Dural & Soft Iron in.	mm	Handle	Length Less Accessory in.	mm	Weight Less Accessory lb.	kg	Piston Stroke in.	mm	Blows per Minute	Bore in.	mm	For Use with Rivet Set Shank Diameter in.	CFM
Industrial/Aerospace																
AVC10A1	1/8	3	1/8	3	Pistol	6	152	2 3/16	1.28	1 7/8	48	3200	9/16	14	.401	12
AVC10C1	1/8	3	1/8	3	Straight	6 25/32	172	2 1/16	.94	1 7/8	48	3200	9/16	14	.401	12
AVC12A	13/16	5	3/16	5	Pistol	7 3/4	197	3 3/8	1.53	3	76	2100	9/16	14	.401	13
AVC13A1	1/4	6	1/4	6	Pistol	8 3/4	222	3 11/16	1.67	4	101	1725	9/16	14	.401	13
AVC26A1	3/8	10	5/16	8	Pistol	11 5/16	287	5 1/8	2.32	6	152	1120	3/4	19	.498	14
AVC26B1	3/8	10	5/16	8	Goose Neck	13 15/16	354	7	3.18	6	152	1120	3/4	19	.498	14
General Purpose																
772	For light duty cutting & hammering				Pistol	7 3/8	187	3 5/8	1.64	2 1/4	57	3000	3/4	19	.401	–

Air Inlet = 1/4" NPT, Recommended Hose = 5/16" (8mm), AVC 26 use 1/2" (13mm), Performance figures are at 90 psi (620 kPa)

Features

- Air-thrown reverse valve for instant reversal
- Ergonomically designed for operator comfort and high production
- Variable throttle for maximum control and minimum tap breakage
- Modular design makes servicing easy and economical

Standard Equipment

- Dead handle assembly for Model 7RAQT4: RIA-A48 handle 7A-49A adapter (two required)

7RAQT4

Tappers

Examples of Popular Models

Model	Free Speed rpm	Chuck Capacity in.	mm	Tapping Capacity in.	mm	Weight lb.	kg	Length in.	mm	Side to Center Distance in.	mm	CFM
7RAQT4	475	.383	13	1/2	3	3.38	1.5	11.81	300	.875	22	27

Tool Series	Sound Approx. dBa	Air Inlet NPT	Hose Size	Horse Power
7	79	1/4"	5/16"	.50

Performance figures are at 90 psi (6.2 BAR) air pressure.

Support Products/Workstations

Parallel Torque Arms
(maximum weight 10 lbs.)

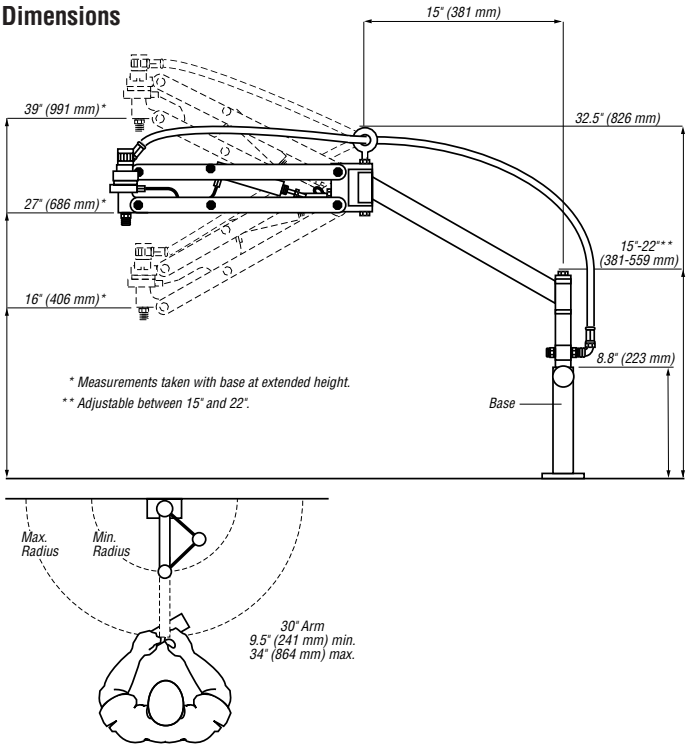
IRBP3-E30

Features/Benefits
- *Air Bias Support System*
  - – Air adjustment by mini-regulator with air cylinder, for proper positioning of different size tools
  - – Eliminates the clumsy spring adjustment of competitive models
  - – Tool positioning is effortless
- *Parallel Arm Torque Absorber*
  - – Absorbs torque reaction up to 120 in. lbs.
  - – Increases torque repeatability through shift changes by reducing operator influence on fastener
  - – Keeps tools off the floor
- *Steel & Aluminum Construction*
  - – Anodized finish
  - – Lightweight
  - – Heavy duty for high volume production
  - – Corrosion resistant
- *Auto-Orientation System*
  - – Tool fixture is designed to allow constant perpendicular orientation of the tool, which ensures proper fastener alignment

Model Number	Size (Length)	Tool Use	Torque Absorber
IRBP3-N30	30"	Air	Yes
IRBP3-E30*	30"	Electric	Yes

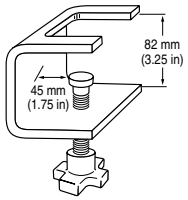
**Includes clamps to fit high torque Delvo (49380) & VersaTec (49380-1) tools.*

Dimensions



Accessories

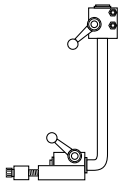
- 48732-1 — Bench clamp for mounting arm in place



- P29144-620 — Filter/Regulator (¼")

- L26141-120 — Lubricator (¼")

- IR49541 — Swivel Mount Kit Grip and Angle Tools (adapts pistol to the workstation)



Single Arm Workstations
(maximum weight 15 lbs.)

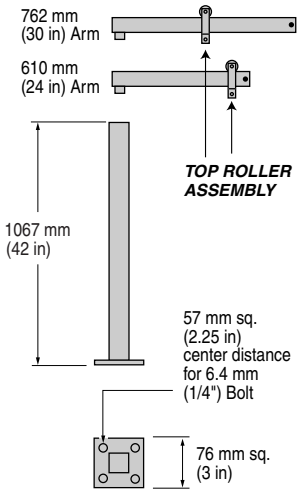
IRBS3-N30 (hose, FRL and balancer not included)

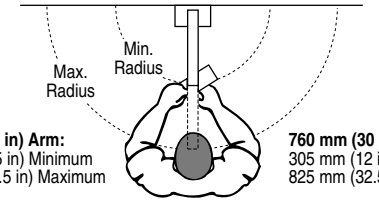
IRBS3-E0

Model Number	Size (Length)	Tool Use	Torque Absorber
IRBS2-NO	24"	Air	No
IRBS2-N24	24"	Air	Yes
IRBS2-EO	24"	Electric	No
IRBS2-E24*	24"	Electric	Yes
IRBS3-NO	30"	Air	No
IRBS3-N30	30"	Air	Yes
IRBS3-EO	30"	Electric	No
IRBS3-E30*	30"	Electric	Yes

**Includes clamps to fit high torque Delvo & VersaTec models.*

Dimensions

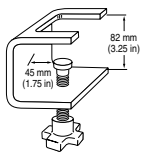




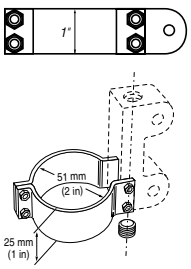
610 mm (24 in) Arm:
208 mm (8.5 in) Minimum
625 mm (25.5 in) Maximum

760 mm (30 in) Arm:
305 mm (12 in) Minimum
825 mm (32.5 in) Maximum

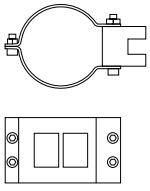
Bench Clamp
48732-1



Electric Tool Clamp
49091 (Delvo)



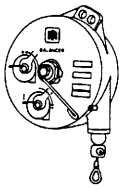
Electric Tool Clamp
49091-1 (VersaTec)



Features/Benefits
- *Steel Construction with E-Coat*
  - – Lightweight but durable for continuous duty
  - – Corrosion resistant
- *Flexible*
  - – Your choice of 30" or 24" lengths for electric or air tools
- *Balancer Hanger*
  - – All arms are equipped with a roller mounted balancer hanger for smooth motion of the tool
- *Electric Cord Clamp Kit*
  - – Standard with appropriate models

Options
- *Single Arm Torque Absorber*
  - – Telescoping torque arm improves flexibility. Eliminates torque reaction from the tool
- IR48723-2 24"
- IR48723-3 30"

Accessories
- Balancers – choice of balancers
  - 7/8 to 2¼ lb. = BLD1
  - 2 to 4 lb. = BLD2
  - 4 to 6 lb. = BLD3



P29144-620 Filter/Regulator (¼")

L26141-120 Lubricator (¼")

Warranty

WARRANTY

ASSEMBLY TOOLS

Ingersoll-Rand warrants to the original user its assembly tool products to be free of defects in material and workmanship for a period of one year from the date of purchase. IR will repair, without cost, any Product found to be defective, including parts and labor charges, or at its option, will replace such Products or refund the purchase price less a reasonable allowance for depreciation, in exchange for the Product. Repairs or replacements are warranted for the remainder of the original warranty period.

If any product proves defective within its original one year warranty period, it should be returned to an appropriate Ingersoll-Rand Service Distributor, transportation prepaid with proof of purchase or warranty card.

This warranty does not apply to Products which IR has determined to have been misused or abused, improperly maintained by the purchaser: or where the malfunction or defect can be attributed to the use of non-genuine IR parts.

IR makes no other warranty, and all implied warranties including any warranty of merchantability or fitness for a particular purpose are limited to the duration of the expressed warranty period as set for the above. IR's maximum liability is limited to the purchase price of the Product and in no event shall IR be liable for any consequential, indirect, incidental, or special damages of any nature arising from the sale or use of the Product, whether based on contract, tort, or otherwise.