

# Ingersoll Rand®

## Industrial Surface Preparation



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The new **IR Ingersoll Rand** corporate and brand identity, introduced in 2000, is now being incorporated into product identification and packaging, as well as all communications. While most product photography in this catalog still reflects the previous symbol and logotype signature, you will soon see our new look on everything IR.



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# Finishing Tools



Advancements in manufacturing and production have transformed the world of industrial finishing. While the need for traditional, heavy-duty material removal continues in many segments, increases in precision and reductions in waste have changed overall demands. New materials require different tool speeds and attachments. A greater focus on product quality has tightened the standards of finishing. Parts and components must match surrounding surfaces with impeccable accuracy. With these changes in materials and processes, exactness and finesse in finishing operations have taken on new significance.

Likewise, finishing technicians are a key factor in producing ultimate product quality. These are men and women who depend on resources that encourage and maximize their special set of skills. Today's operators deserve and require tools that contribute to quality of performance...and quality of life.

Ingersoll-Rand has provided tools for industry for more than a century, combining the best engineering talent, top-quality materials, and the strongest support in the business. Our classic designs have set performance standards that endure today. Our latest introductions reflect emerging trends in tool use, changing technology, and new materials. Whatever the application, Ingersoll-Rand industrial tools bring out the best in your operator's skills, and contribute to the ultimate quality of your products and processes.

## Revolution Series Finishing Tools

We created the new Revolution Series for non-production industrial applications, delivering high performance at an affordable price. Ergonomic design and light weight make these tools comfortable and easy to use for material removal and finishing. The full range of models includes straight, extended, and angle configurations.

## Cyclone Finishing Tools

Cited by the Industrial Design Excellence Award program for their pioneering ergonomic design, Ingersoll-Rand's Cyclone finishing tools were created for a wide variety of tasks. These innovative tools are lighter and easier to maneuver, yet have more power and less vibration than competitive models. There's a complete range of speeds and configurations, plus a full selection of Cyclone accessories.

## Sanders / Polishers / Buffers

Reflecting the rapidly changing demands of industrial finishing, sanders, polishers and buffers have emerged as a key segment. Constant process improvement throughout industry now results in less waste on castings and molded parts, shifting emphasis from material removal to surface finishing. The Ingersoll-Rand line of sanders, buffers and polishers includes models based on the popular Cyclone and Pro Series tool lines...and features a complete range of Cyclone random orbital sanders as well.

## ErgoPro Series Grinders

Ingersoll-Rand's ErgoPro Series offers a complete line of heavy-duty tools designed with outstanding safety features and state-of-the-art ergonomic enhancements for increased operator comfort and superior performance. This line comes equipped with interchangeable internal parts to simplify stocking and repairs. The excellent power-to-weight ratio makes your operators top performers. ErgoPro Series models feature best-in-class vibration dampening technologies, the Ingersoll-Rand motor controller, integral guard, and self-locking throttle lever to prevent accidental operation.

These products reflect the IR philosophy of High Performance Ergonomics — user oriented design that provides real-world productivity benefits...based on a systematic, objective measure of ergonomic factors for validation and value.



High Performance Ergonomics

## Choosing and Using Grinder Accessories

For safety and performance, always select the proper abrasive wheel for your job. Cup wheels remove large amounts of metal and are good for open spaces. Depressed center wheels are ideal for use in rough grinding operations and all-around heavy material removal. In applications where a horizontal grinder is required, choose Type One wheels.

Choose tools with enough horsepower to drive the abrasive wheel you are using, and allow the grinder's speed to work for you. Bearing down on under-powered tools slows the rpm output and reduces overall efficiency.

## Grinder Safety Tips

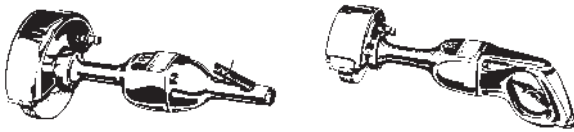
Always use eye protection. Use only recommended equipment and adapters. Inspect grinding wheels closely for any imperfections or damage such as cracks, pitting, or broken edges. Always make sure that the tool speed does not exceed the maximum operating speed marked on the wheel or wheel package. Use correct size guards, flanges, blotters, spindles, and mounting practices to ensure operator safety.

## Mounting a Grinding Wheel

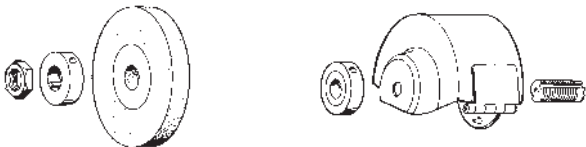
When mounting a grinding wheel on any portable power tool, be sure to:

- Inspect the grinding wheel closely for any imperfections or damage such as cracks, pitting or broken edges.
- Verify that the tool's spindle does not exceed the maximum operating speed marked on the wheel or wheel package.
- Use correct size guards, flanges, blotters, spindles and mounting practice as shown below.

### Horizontal Grinders



#### TYPE 1 Straight Wheels



Wheel Sizes: 6" and 8"

Spindle Sizes: 5/8" (16mm) and 1" (25mm)

### Vertical and Angle Grinders



#### TYPE 27 Depressed Center Flat Wheels

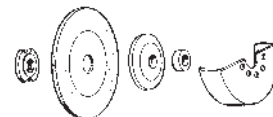


Threaded Wheel Sizes: 7" and 9"

Type: Spindle Sizes: 5/8" and 7/8"

Threaded Wheel Sizes: 7" and 9"

Type: Spindle Sizes: 5/8" and 7/8"

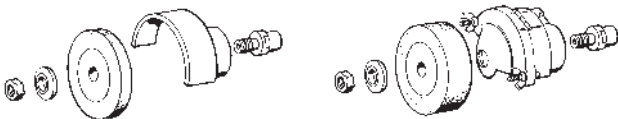


Spindle Size: 3/8"

### Small Horizontal Grinders



#### TYPE 1 Straight Wheels



Wheel Sizes: 2", 3" and 4"

Spindle Sizes: 3/8" (10mm) and 1/2" (12mm)

Wheel Sizes: 2", 3" and 4"

Spindle Sizes: 3/8" (10mm) and 1/2" (12mm)

#### TYPE 28 Depressed Center Saucer Wheels



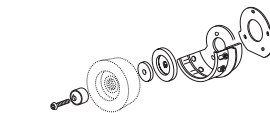
Threaded Wheel Sizes: 7" and 9"

Type: Spindle Sizes: 5/8" and 7/8"

Non-Threaded Wheel Sizes: 7" and 9"

Type: Spindle Sizes: 5/8" and 7/8"

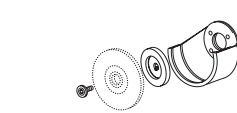
#### TYPE 6 and 11 Cup Wheels



Wheel Sizes: 5" and 6"

Spindle Sizes: 5/8" and 7/8"

#### TYPE 13-1" Thick Saucer Wheels



Wheel Size: 7"

Spindle Size: 5/8"

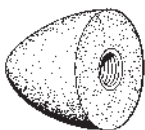
**WARNING:** Always use eye protection. Use only recommended equipment and adapters. Consult parts bulletin for details. Do not use if actual tool RPM is greater than nameplate RPM. Check RPM each shift or upon changing accessory. For further safety information, consult ANSIB7.1 and ANSIB186.1.

# Finishing Tools

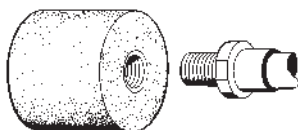
## Cone and Plug Wheel Grinders



TYPE 16, 17, 18, 18R and 19 Cone and Plug Wheels



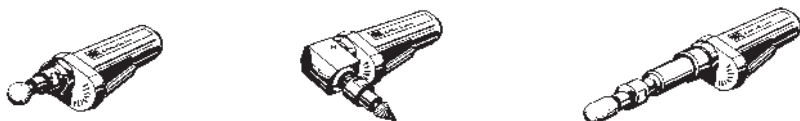
Wheel Sizes: 1 1/4" and 3" (max. dia.)



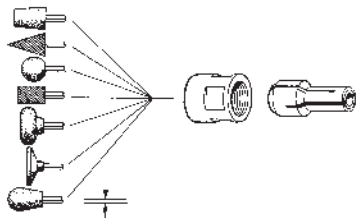
Spindle Sizes: 3/8", 1/2" and 5/8"

There's more to today's finishing process than the tools of the trade. Ingersoll-Rand is an information resource for your business, and can assist in creating more effective and productive workplace configurations, as well as tool recommendations. Your selection and purchase of finishing tools has a direct effect on process and product quality. Your decision can make a difference in finishing efficiency – and in the improved quality and durability of finishes. So before you make your next purchase decision, contact your local IR representative or distributor for assistance and information regarding the latest IR product and technology developments.

## Collet Type Grinders



Mounted Wheels and High Speed Steel or Carbide Burs



Collet Sizes: 1/8", 1/4" and 3/8"  
(3, 6 and 10mm)  
Mandrel Diameters: 1/8", 1/4" and 3/8"  
(3, 6 and 10mm)

## Revolution Finishing Tools

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### **High performance at an affordable price.**

Ingersoll-Rand has created a new line of finishing tools designed for non-production industrial applications. The Revolution Series meets the need for high quality tools at an affordable price. Its ergonomic design and light weight makes it comfortable and easy to use for material removal and finishing. Available with straight, extended or 90-degree angle heads, multiple speeds and attachments, the Series has a configuration for any surface preparation job. The quality and durable performance of Ingersoll-Rand is now within reach with the Revolution Series.

### **Designed in the tradition of quality.**

The Revolution Series is the latest example of Ingersoll-Rand's tradition of engineering quality. Recognized for high performance, Ingersoll-Rand has won five Business Week/IDSA product design excellence awards. IR user-oriented features are always based on real-world research and testing to ensure they meet the operators' needs for optimal comfort and productivity.

# Revolution Finishing Tools

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**Ingersoll-Rand's Revolution Series Tools are reshaping the industry's view of high-quality tools.**

# Revolution Finishing Tools



Revolution Series tools feature both ergonomic design and light weight that makes them comfortable and easy to use for material removal and finishing.



## Performance

Its precision gearing and components contribute to a long and reliable life. Whether removing material, weld cleaning, deburring, cutting, blending, grinding, sanding, or polishing, the Revolution Series offers smooth operation and maximum performance at an affordable price.

## Comfort

Weighing only .9 to 1.2 pounds, the Revolution Series requires minimal operator effort. And, its compact, contoured shape fits naturally in the operator's hands for easy maneuverability. A composite surface area covering the polished aluminum housing provides excellent grip and control, while insulating the operator from temperature effects. And, operating at only 77 dBA, these low-vibration tools are very quiet.

## Power

Powerful .3 hp air motors deliver plenty of strength in speeds from 12,000 to 35,000 rpm. The Revolution Series offers the torque and muscle required for a wide range of applications.

- automotive
- general assembly
- metal fabrication
- plant maintenance
- production prep
- aerospace
- shipbuilding
- utilities
- tool and die

With a broad range of features, the Revolution Series is reshaping the industry's view of finishing tools, with Ingersoll-Rand quality at an affordable price.



Internal wick lubricator extends gear life on angle tools.



Aluminum motor cap resists abrasion and removes easily for service access.



Wraparound exhaust ports direct air away from work and operator. A threaded fitting allows for optional piped-away exhaust.



Composite grip over rugged aluminum housing reduces vibration and noise.



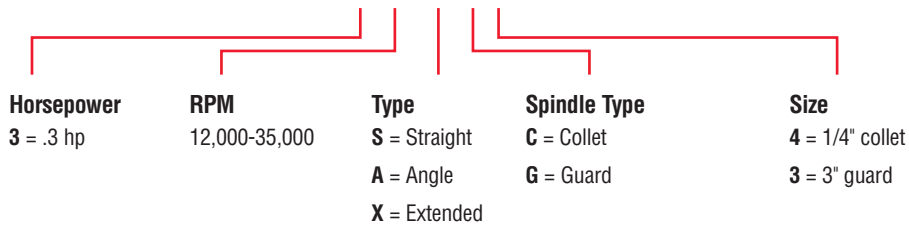
Integral trigger safety lock adds convenience and control while protecting against accidental starts.



Angle models feature a compact, infinitely rotatable head with a removable cover.

## Product Identification Guide

### TYPICAL MODEL 325SC4



Model 330SC4 shown.

# Revolution Finishing Tools



312AC4



325XC4



320AG3



335SC4

Model Number	Rated Power hp	Maximum Free Speed rpm	Weight lb.	Length in.	Height Over Spindle in.	Side to Center Distance in.	Configuration	CFM
<b>Straight</b>								
325SC4	.3	25,000	13/16	6	N/A	3/4	1/4" collet	15
330SC4	.3	30,000	13/16	6	N/A	3/4	1/4" collet	15
335SC4	.3	35,000	13/16	6	N/A	3/4	1/4" collet	15
325XC4	.3	25,000	1 1/4	9	N/A	3/4	1/4" collet, 3" extended	15
330XC4	.3	30,000	1 1/4	9	N/A	3/4	1/4" collet, 3" extended	15
<b>Angle</b>								
312AC4	.3	12,000	1 1/8	6 1/8	2 17/32	3/4	1/4" collet angle	15
314AC4	.3	14,000	1 1/8	6 1/8	2 17/32	3/4	1/4" collet angle	15
320AC4	.3	20,000	1 1/8	6 1/8	2 17/32	3/4	1/4" collet angle	15
312AG3	.3	12,000	1 3/8	6 1/4	2 17/32	3/4	3" angle guarded 3/8"-24 spindle	15
314AG3	.3	14,000	1 3/8	6 1/4	2 17/32	3/4	3" angle guarded 3/8"-24 spindle	15
320AG3	.3	20,000	1 3/8	6 1/4	2 17/32	3/4	3" angle guarded 3/8"-24 spindle	15

NOTES: Air inlet for all models is 1/4"NPT.  
All models are rear exhaust  
5/16" air hose recommended  
Performance figures are at 90 psi  
Collet Wrenches are standard.

## Cyclone Finishing Tools

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For the best in power, comfort, and versatility, Ingersoll-Rand created the Cyclone Finishing Tools Series to match a wide variety of finishing tasks. With a complete range of models, speeds, and configurations, plus a full selection of accessories, Cyclone tools combine versatility with innovation. Included in the line are three multi-purpose accessory tools — CycloCut, CycloFile, and CycloRout/ Trimmer — that offer specialty finishing capabilities for the most challenging situations.

Cited by the Industrial Design Excellence Award Program for their pioneering ergonomic design, Cyclone finishing tools will help your business reduce costs and improve working conditions. These innovative tools are lighter and easier to use than competitive finishing tools, yet have more power and less vibration — you'll feel the difference when you work.

# Cyclone Finishing Tools



The ergonomic design of Cyclone finishing tools provides a unique combination of performance and proven user satisfaction.

Through pioneering efforts to provide workers with lighter, quieter, more comfortable tools, IR is extending a tradition of excellence in finishing tool design and performance.

## Innovative Ergonomics

The unique D-shaped housing makes it easier to grip and operate the tool — it's a natural fit to the human hand. Advanced composites keep the housing from becoming cold to the touch, and reduce vibration so effectively, you can work steadily with less hand fatigue.

## Comfort, Safety, and Control

The unique high-profile safety flange not only protects the operator's hand from the work, but also provides a pivot-point for improved control while preventing accidental throttle-starts. If preferred, the standard flange can be replaced with an optional low-profile flange. As the operator varies speed to match the task, the standard low-profile throttle responds smoothly; where required or specified, it can also be replaced with an optional locking lever.

## Durability And Reliability

Cyclone housings feature one-piece construction: advanced composites molded over a steel liner. Angle heads and extensions are of steel construction.

## Remarkably Simple To Service

You can take apart and reassemble a Cyclone finishing tool in just minutes. Once inside, you'll find fewer parts than any other tool in the industry. The patented



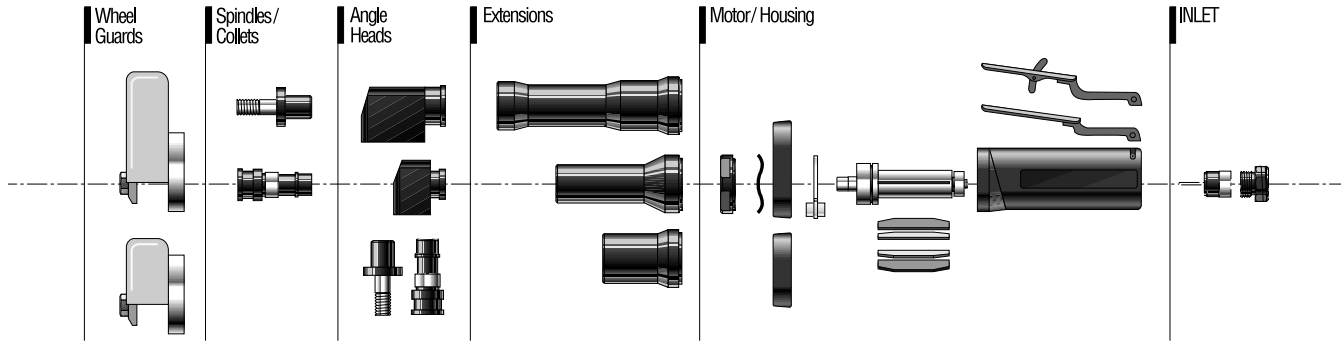
“drop-in” motor and vanes make routine maintenance easy. These features make repairs quick and fast, but Cyclone tools' outstanding durability means service is less likely — less down-time, lower cost.

## Three Exhaust Options

The patented Flow Ring offers the flexibility of front or rear exhaust without additional equipment. Piped-away exhaust is also available.

## Modular Design For Simplicity

The finishing tools within each Cyclone series share most parts in common, reducing your inventory requirements and simplifying maintenance.



## Product Identification Guide

### TYPICAL MODEL CD350RG4L

Series	Type	RPM	Exhaust	Spindle Type	Accessories
<b>C</b> = .35 Cyclone	<b>D</b> = Die Grinder	<b>X100</b> = Rated RPM	<b>R</b> = Rear	<b>G4</b> = 1/4" Collet	<b>L</b> = Locking Lever
<b>T</b> = .70 Cyclone	<b>X</b> = Extended		<b>F</b> = Front	<b>S4</b> = 1/4" - .20 THD (Angle)	<b>C</b> = Concentric Flange
<b>H</b> = 1.0 Cyclone	<b>A</b> = Angle			<b>H63 + P63</b> = 3" Guarded	
	<b>XA</b> = Extended Angle			<b>H64 + P64</b> = 4" Guarded	
	<b>XD</b> = 2" Extended			<b>P1045</b> = 4 1/2" Guarded	

- NOTES:**
1. Exhaust direction can easily be switched from rear to front with no additional parts.
  2. Low profile concentric flange comes with locking lever and rear exhaust only.
  3. 1/4" Erickson Collet and Collet Wrenches are standard.

# Cyclone Finishing Tools

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## C Series

The C Series is a compact, versatile .35 hp tool used for light material removal: cleaning rough castings, de-burring parts after machining, weld-cleaning, and other finishing tasks. Offering superior power in a small package, the C Series includes straight, angle, and extended straight versions.

## T Series

For general finishing work and heavier material removal, T-Series grinders provide more power, .70 hp, with low vibration. Used for grinding, cutting, cleaning, and polishing, these tools are available in a variety of configurations for comfortable operation in tight spaces and contours. The T-Series includes straight, extended, angle, and extended-angle tools.

## H Series

When you need the torque and horsepower for heavy material removal with burs, coated abrasives, and grinding wheels, the 1.0 hp H-Series grinders give you the ultimate in power and control. Choose from straight, extended, angle, and extended-angle configurations.



# Cyclone Straight Extended Grinders

## Carbide Bur and Mounted Wheel



CX250RG4



TX250RG4



HX180RG4

### Standard Equipment

- 1/4" Erickson collet  
DG110-700-G4 (C)  
G160HD-700-1/4 (T and H)
- Collet wrenches  
DG20-69A 7/16" x 11/16" (C)  
DG10-69 1/2" x 9/16" (T and H)  
DG120-69 5/8" x 3/4" (T and H)

### Accessories

- DG110-700-G2 1/8" collet (C)
- DG120-700-G6 3/8" collet (T and H)
- LG1-A400 (C) locking lever
- LG2-A400 locking lever
- LG1R-23 (C) concentric flange
- LG3R-23 (T and H) concentric flange
- LG1-A1015 (C) variable-speed regulator
- LG2-K284 exhaust deflector (T and H)

G4 = 1/4" Erickson collet

Model	Rated Power hp	Free Speed rpm	Weight lb.	Length in.	Side to Center Distance in.	CFM
CX200RG4 ●	.35	20,000	1 <sup>3</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>	3/4	11
CX250RG4 ● ■	.35	25,000	1 <sup>3</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>	3/4	12
CX300RG4 ● ■	.35	30,000	1 <sup>3</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>	3/4	14
TX120RG4	.70	12,000	2 <sup>5</sup> / <sub>8</sub>	12 <sup>7</sup> / <sub>16</sub>	3/4	24
TX180RG4 ● ■	.70	18,000	2 <sup>5</sup> / <sub>8</sub>	12 <sup>7</sup> / <sub>16</sub>	3/4	23
TX200RG4 ● ■	.70	20,000	2 <sup>5</sup> / <sub>8</sub>	12 <sup>7</sup> / <sub>16</sub>	3/4	31
TX250RG4 ■	.70	25,000	2 <sup>5</sup> / <sub>8</sub>	12 <sup>7</sup> / <sub>16</sub>	3/4	26
HX120RG4 ● ■	1.00	12,000	2 <sup>7</sup> / <sub>8</sub>	13 <sup>5</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>32</sub>	43
HX150RG4 ■	1.00	15,000	2 <sup>7</sup> / <sub>8</sub>	13 <sup>5</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>32</sub>	40
HX180RG4 ●	1.00	18,000	2 <sup>7</sup> / <sub>8</sub>	13 <sup>5</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>32</sub>	43

Air Inlet: All Models 1/4" NPT.

Size Hose Recommended: Series C, 5/16". Series T and H, 3/8".

All standard models have dual exhaust capabilities except TX120 and HX120, which are rear exhaust only.

Exhaust direction can easily be switched from front to rear.

Performance figures are at 90 psi air pressure.

To order front exhaust, replace "R" with "F" in model number. To order locking lever, add "L" to end of model number. To order concentric/low profile flange, add "C" to end of model number. Examples: CD200FG4, CD200RG4L, CD200RG4C.

● Not Available with "C"

■ Not Available with "L"

# Cyclone Straight Grinders

## Carbide Bur and Mounted Wheel



CD350RG4



TD180RG4



HD180RG4



TD250RG4K

### Standard Equipment

- 1/4" Erickson collet  
G160HD-700-1/4 (T and H)  
DG110-700-G4 (C)
- Collet wrenches  
DG20-69A 7/16" x 11/16" (C)  
DG10-69 1/2" x 9/16" (T and H)  
DG120-69 5/8" x 3/4" (T and H)

### Accessories

- DG110-700-G2 (C) 1/8" collet
- DG120-700-G6 (T and H) 3/8" collet
- LG1-K1 bur kit includes:  
DG10-RF case (4 1/4" x 9 3/4")  
DG20-RF 20 (9" foam insert)  
(7 3/4" molded part)  
IRSD-1 Bur (1/4" ball)  
IRSF-1 Bur (1/4" tree radius)  
IRSA-1 Bur (1/4" cylindrical)  
IRSL-1 Bur (1/4" cone)
- LG1-K284 (C) exhaust kit
- LG2-K284 (T and H) exhaust kit
- LG1R-23 (C) concentric flange
- LG3R-23 (T and H) concentric flange
- LG1-A400 (C) locking lever
- LG2-A400 (T and H) locking lever
- LG2K-302 carrying case

G4 = 1/4" Erickson collet

Model	Rated Power hp	Free Speed rpm	Weight lb.	Length in.	Side to Center Distance in.	CFM
CD200RG4	.35	20,000	1 <sup>3</sup> / <sub>16</sub>	6 <sup>3</sup> / <sub>16</sub>	3/4	11
CD250RG4	.35	25,000	1 <sup>3</sup> / <sub>16</sub>	6 <sup>3</sup> / <sub>16</sub>	3/4	12
CD250RG4K	.35	25,000	1 <sup>3</sup> / <sub>16</sub>	6 <sup>3</sup> / <sub>16</sub>	3/4	12
CD300RG4 ●	.35	30,000	1 <sup>3</sup> / <sub>16</sub>	6 <sup>3</sup> / <sub>16</sub>	3/4	14
CD350RG4	.35	32,000	1 <sup>3</sup> / <sub>16</sub>	6 <sup>3</sup> / <sub>16</sub>	3/4	15
TD120RG4 ● ■	.70	12,000	1 <sup>5</sup> / <sub>8</sub>	7 <sup>3</sup> / <sub>4</sub>	3/4	20
TD180RG4 ●	.70	18,000	1 <sup>5</sup> / <sub>8</sub>	7 <sup>3</sup> / <sub>4</sub>	3/4	23
TD200RG4 ●	.70	20,000	1 <sup>5</sup> / <sub>8</sub>	7 <sup>3</sup> / <sub>4</sub>	3/4	24
TD250RG4	.70	25,000	1 <sup>5</sup> / <sub>8</sub>	7 <sup>3</sup> / <sub>4</sub>	3/4	26
TD250RG4K	.70	25,000	1 <sup>5</sup> / <sub>8</sub>	7 <sup>3</sup> / <sub>4</sub>	3/4	26
HD120RG4 ●	1.00	12,000	1 <sup>7</sup> / <sub>8</sub>	8 <sup>9</sup> / <sub>16</sub>	31/32	43
HD150RG4 ● ■	1.00	15,000	1 <sup>7</sup> / <sub>8</sub>	8 <sup>9</sup> / <sub>16</sub>	31/32	40
HD180RG4 ● ■	1.00	18,000	1 <sup>7</sup> / <sub>8</sub>	8 <sup>9</sup> / <sub>16</sub>	31/32	43
HD180RG4K	1.00	18,000	1 <sup>7</sup> / <sub>8</sub>	8 <sup>9</sup> / <sub>16</sub>	31/32	43

Air Inlet: All Models 1/4" NPT.

Size Hose Recommended: Series C, 5/16". Series T and H 3/8".

All standard models have dual exhaust capabilities except TD120 and HD120, which are rear exhaust only.

Exhaust direction on other units can easily be switched from front to rear.

Performance figures are at 90 psi air pressure.

To order front exhaust, replace "R" with "F" in model number. To order locking lever, add "L" to end of model number. To order concentric/low profile flange, add "C" to end of model number. Examples: CD200FG4, CD200RG4L, CD200RG4C.

● Not Available with "C"

■ Not Available with "L"

## Type 1 Wheel



CD200RH63



TXD180RH63



HX180RH63

H63 = 3/8"- 24 Spindle, 3" Guard

H64 = 3/8"- 24 Spindle, 4" Guard

### Standard Equipment

- Wheel guard, flanges and nut

### Accessories

- LG1-A400 (C) locking lever
- LG2-A400 (T and H) locking lever
- LG1R-23 (C) concentric flange
- LG2R-23 (T and H) concentric flange

Model	Rated Power hp	Maximum Wheel Size in.	Free Speed rpm	Weight lb.	Length in.	Side to Center Distance in.	CFM
CD200RH63 ●	.35	3 x 1/4	20,000	17 <sup>1</sup> / <sub>16</sub>	6 <sup>1</sup> / <sub>8</sub>	3/4	11
CD250RH63 ●	.35	3 x 1/4	25,000	17 <sup>1</sup> / <sub>16</sub>	6 <sup>1</sup> / <sub>8</sub>	3/4	12
TXD180RH63	.70	3 x 1/2	18,000	2 <sup>5</sup> / <sub>8</sub>	9 <sup>5</sup> / <sub>16</sub>	3/4	23
TX180RH63 ●	.70	3 x 1/2	18,000	3 <sup>1</sup> / <sub>4</sub>	12 <sup>5</sup> / <sub>16</sub>	3/4	23
HX150RH64 ●	1.0	4 x 1/4	15,000	3 <sup>11</sup> / <sub>16</sub>	13 <sup>3</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>32</sub>	40
HXD180RH63 ●	1.0	3 x 1/2	18,000	3 <sup>11</sup> / <sub>16</sub>	10 <sup>3</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>32</sub>	43
HX180RH63 ●	1.0	3 x 1/2	18,000	3 <sup>11</sup> / <sub>16</sub>	13 <sup>3</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>32</sub>	43
HX180RH64 ●	1.0	4 x 1/4	18,000	3 <sup>11</sup> / <sub>16</sub>	13 <sup>3</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>32</sub>	43
HX120RH64 ●	1.0	4 x 1/4	12,000	3 <sup>11</sup> / <sub>16</sub>	13 <sup>3</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>32</sub>	43

To order front exhaust, replace "R" with "F" in model number. To order locking lever, add "L" to end of model number. To order concentric/low profile flange, add "C" to end of model number. Examples: CD200FG4, CD200RG4L, CD200RG4C.

● Not Available with "C"

Air Inlet = 1/4"

## Pencil Grinders

### Carbide Bur and Mounted Stone

#### Standard Equipment

- Collet with 1/8" insert
- Collet wrenches – 47579, 47580
- 6' long x 7/32" ID (1.8m x 6mm) air hose and 18" long exhaust overhose

#### Accessories

- 3mm Collet – 47568-2
- 3/32" Collet – 47568-3
- DG600G2K grinder kit  
Kit contains Model DG600G2 die grinder plus a molded carrying case, collet wrenches, exhaust hose assembly, inlet hose assembly and six 1/8" shank carbide burs – ball, tapered, tree and assorted cylindrical.



DG600G2

Model	Free Speed rpm	Throttle Style	Standard Collet Size in.	Exhaust Location	Spindle Offset in. mm	Tool Length in. mm	Air Consumption @ Free Speed cfm L/s	Sound Level @ Free Speed dB(A)	Std. Collet Insert Part#
DG600G2	60,000	Twist	1/8	Rear	.34 9	5.3 136	7 3.3	77	47568-1
DG600G2K	60,000	Twist	1/8	Rear	.34 9	5.3 136	7 3.3	77	47568-1

Grinders have 1/8" NPT inlet; 7/32" hose is recommended.

Performance figures are at 90 psi air pressure.

# Air Engraving Pen Kit

## Features

- Knurled zoom throttle provides positive control
- Steel housing dampens vibration, improves operator control
- Variable speed permits tool to be used on a wide selection of materials
- Carbide tipped stylus holds percussive point
- Easy to repair, reducing down-time
- Three sets of tool flats eliminate need for special repair tools

## EP50K Engraving Pen Kit

- Model EP50 Engraving Pen
- (Medium stylus standard.)
- Flexible hose (DG100-130: 6' x 3/16")
- Three assorted styluses (Fine, Medium, Coarse)
- Molded plastic carrying case (#DG10-RF)

## Equipment at Extra Price

- Fine point stylus EP50-515 (Black)
- Medium point stylus EP50-516 (Steel color)
- Coarse point stylus EP50-517 (Green)
- Hose assembly (includes 1/8" NPT fittings) DG100-130
- Stylus Grinding Collet EP50-514



The Ingersoll-Rand EP50 Engraving Pen is designed to meet your industrial engraving needs. Variable zoom throttle permits a wide range of engraving possibilities from hard alloys to brittle ceramics. The Engraving Pen can be easily disassembled with standard mechanic's tools. Comfort, quietness and power have been ergonomically designed into this versatile tool. The Engraving Pen, including a standard stylus, can be purchased separately as Model EP50.

Model	Weight		Length		Side to Center Distance		Blows per Minute	Hose Conn. Pipe Tap in.	Size Hose Recomm.	
	oz.	kg	in.	mm	in.	mm			in.	mm
EP50	5	.14	5 <sup>5</sup> / <sub>8</sub>	137	5 <sup>5</sup> / <sub>16</sub>	.8	18,750	1/8	5 <sup>5</sup> / <sub>16</sub>	5

Sound level of EP50 is 75.5 dBA.  
Medium point stylus included with EP50 tool.

# Cyclone Angle Grinders

## Carbide Bur and Mounted Wheel



CA200RG4



TA120RG4

### Standard Equipment

- 1/4" Erickson collet
- Collet body wrench
- Collet nut wrench

### Accessories

- LG1-K284 (C) exhaust kit
- LG2-K284 (T and H) exhaust kit
- DG110-700-G2 1/8" collet (C)
- DG120-700-G6 3/8" collet (T and H)
- LG1-A400 (C) locking lever
- LG2-A400 (T and H) locking lever
- LG1R-23 (C) concentric flange
- LG3R-23 (T and H) concentric flange
- LG2-A48A dead handle (T and H)

G4 = 1/4" Erickson collet

Model	Rated Power hp	Free Speed rpm	Weight lb.	Length in.	Height Over Spindle in.	Side to Center Distance in.	CFM
CA120RG4	.35	12,000	1 <sup>5</sup> / <sub>16</sub>	6 <sup>1</sup> / <sub>16</sub>	3	3/4	12
CA200RG4	.35	20,000	1 <sup>5</sup> / <sub>16</sub>	6 <sup>1</sup> / <sub>16</sub>	3	3/4	14
TA120RG4	.70	12,000	2 <sup>3</sup> / <sub>8</sub>	7 <sup>13</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>32</sub>	3/4	26
TA180RG4 ●	.70	18,000	2 <sup>3</sup> / <sub>8</sub>	7 <sup>13</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>32</sub>	3/4	26
HA90RG4 ●	1.00	9,000	2 <sup>5</sup> / <sub>8</sub>	8 <sup>13</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>32</sub>	3/4	43
HA120RG4 ●	1.00	12,000	2 <sup>5</sup> / <sub>8</sub>	8 <sup>13</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>32</sub>	3/4	43
<b>Extended Angle Grinders</b>							
TXA135RG4	.70	13,500	2 <sup>1</sup> / <sub>2</sub>	10 <sup>3</sup> / <sub>8</sub>	3	3/4	25
TXA140RG4	.70	14,000	2 <sup>1</sup> / <sub>2</sub>	10 <sup>3</sup> / <sub>8</sub>	3	3/4	25

Air Inlet: All Models 1/4" NPT.

Size Hose Recommended: Series C, 5/16".  
Series T and H, 3/8".

All standard models have dual exhaust capabilities.

Exhaust direction can easily be switched from front to rear.

Performance figures are at 90 psi air pressure.

To order front exhaust, replace "R" with "F" in model number.  
To order locking lever, add "L" to end of model number. To  
order concentric/low profile flange, add "C" to end of model  
number. Examples: CD200FG4, CD200RG4L, CD200RG4C.

● Not Available with "C"

# Cyclone Angle Grinders

## Type 1 Angle Cutoff Tools



TXA160RH64

H63 = 3/8"- 24 Spindle, 3" Guard

H64 = 3/8"- 24 Spindle, 4" Guard

Model	Rated Power hp	Free Speed rpm	Weight lb.	Length Along Throttle in.	Height Over End of Spindle in.	Side to Center Distance in.	CFM
CA200RH63	.35	20,000	1 <sup>9</sup> / <sub>16</sub>	6 <sup>1</sup> / <sub>8</sub>	2 <sup>11</sup> / <sub>16</sub>	3/4	14
TXA140RH64 ●	.70	14,000	3 <sup>1</sup> / <sub>8</sub>	10 <sup>3</sup> / <sub>8</sub>	2 <sup>11</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>32</sub>	25
TXA160RH64	.70	16,000	3 <sup>1</sup> / <sub>8</sub>	10 <sup>3</sup> / <sub>8</sub>	2 <sup>11</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>32</sub>	25
TA150RH64*	.70	15,000	2 <sup>11</sup> / <sub>16</sub>	7 <sup>11</sup> / <sub>16</sub>	2 <sup>11</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>32</sub>	26
TA180RH64*	.70	18,000	2 <sup>11</sup> / <sub>16</sub>	7 <sup>11</sup> / <sub>16</sub>	2 <sup>11</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>32</sub>	26
HXAX125RH64**●	1.00	12,500	3 <sup>1</sup> / <sub>8</sub>	11	2 <sup>11</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>32</sub>	43

\* Optional LG2-A48A Ergo Handle available.

\*\* Model incorporates the small CA Series extended angle head on an H Series motor.

Air Inlet: All models 1/4" NPT.

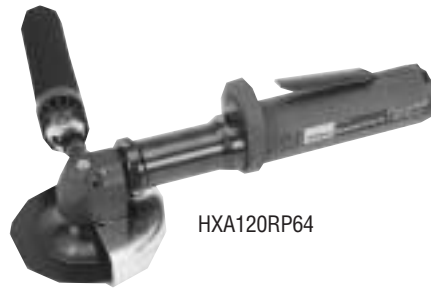
Size Hose Recommended: Series C, 5/16". Series T and H, 3/8".

● Not Available with "C"

## Type 27 & 28 Wheels



CA200RP63



HXA120RP64

P63 = 3/8"-24 Spindle, 3" Guard

P64 = 3/8"-24 Spindle, 4" Guard

P1045 = 5/8"-11 Spindle, 4 1/2" Guard (Plain Hole Wheels Only)

### Standard Equipment

- Wheel guard, flanges and nut
- Spindle and wheel nut wrenches

### Accessories

- LG1-K284 (C) exhaust kit
- LG2-K284 (T and H) exhaust kit
- LG1-A400 (C) locking lever
- LG2-A400 (T and H) locking lever
- LG1R-23 (C) concentric flange
- LG3R-23 (T and H) concentric flange

Model	Rated Power hp	Free Speed rpm	Weight lb.	Length Along Throttle in.	Height Over End of Spindle in.	Side to Center Distance in.	CFM
<b>Angle Grinders</b>							
CA200RP63 ●	.35	20,000	1 <sup>9</sup> / <sub>16</sub>	6 <sup>1</sup> / <sub>16</sub>	1 <sup>7</sup> / <sub>8</sub>	3/ <sub>4</sub>	14
TA180RP63 ●	.70	18,000	2 <sup>9</sup> / <sub>16</sub>	7 <sup>11</sup> / <sub>16</sub>	2 <sup>17</sup> / <sub>32</sub>	3 <sup>1</sup> / <sub>32</sub>	26
TA120RP64	.70	12,000	2 <sup>11</sup> / <sub>16</sub>	7 <sup>11</sup> / <sub>16</sub>	2 <sup>17</sup> / <sub>32</sub>	3 <sup>1</sup> / <sub>32</sub>	26
TXA135RP64	.70	13,500	2 <sup>15</sup> / <sub>16</sub>	10 <sup>3</sup> / <sub>8</sub>	2 <sup>11</sup> / <sub>32</sub>	3 <sup>1</sup> / <sub>32</sub>	25
TXA140RP64	.70	14,000	2 <sup>5</sup> / <sub>16</sub>	10 <sup>3</sup> / <sub>8</sub>	2 <sup>11</sup> / <sub>32</sub>	3 <sup>1</sup> / <sub>32</sub>	25
HA120RP1045*	1.00	12,000	3	8 <sup>13</sup> / <sub>16</sub>	2 <sup>9</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>32</sub>	43
HA120RP64	1.00	12,000	2 <sup>5</sup> / <sub>8</sub>	8 <sup>13</sup> / <sub>16</sub>	2 <sup>9</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>32</sub>	43
HA90RP64 ●	1.00	9,000	2 <sup>5</sup> / <sub>8</sub>	8 <sup>13</sup> / <sub>16</sub>	2 <sup>9</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>32</sub>	43
<b>Extended Angle Grinders</b>							
HXA120RP64 ●	1.00	12,000	3 <sup>13</sup> / <sub>16</sub>	11 <sup>13</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>32</sub>	43
HXA120RP1045**	1.00	12,000	3 <sup>7</sup> / <sub>8</sub>	11 <sup>13</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>32</sub>	43

\* Optional LG2-A48A Dead Handle.

\*\* Standard LG2-A48A Dead Handle.

Air Inlet: All Models 1/4" NPT.

Size Hose Recomm.: Series C, 5/16". Series T and H, 3/8".

All standard models have dual exhaust capabilities.

Exhaust direction can easily be switched from front to rear.

Performance figures are at 90 psi air pressure.

To order front exhaust, replace "R" with "F" in model number.  
To order locking lever, add "L" to end of model number. To  
order concentric/low profile flange, add "C" to end of model  
number. Examples: CD200FG4, CD200RG4L, CD200RG4C.

● Not Available with "C"

## Accessories

Description	Series CA, CD and CX Part Number	Series TA, TD, HA, HD, HX and HXA Part Number	Series TXA Part Number
1/8" Erickson Collet	DG110-700-G2	–	DG110-700-G2
1/4" Erickson Collet	DG110-700-G4	G160HD-700-1/4	DG110-700-G4
3/8" Erickson Collet	–	DG120-700-G6	–
Spindle Wrench	DG20-69A	DG10-69	DG10-69
Collet Nut Wrench	DG20-69A	DG120-69	DG120-69
Wheel Nut Wrench	D32-26	D32-26	D32-26
Inlet Hose Assembly	RO-130	R1A-130	R1A-130
Exhaust Hose Assembly	LG1-K284	LG2-K284	LG2-K284
Side Handle Kit	–	LG2-A48A*	–
3" & 4" Type 1 Inner Wheel Flange ■	DG120-86 3/8" Hole	DG120-86	DG120-86
3" & 4" Type 1 Outer Wheel Flange ■	DG120-16 3/8"-24 Thrd Hole	DG120-16	DG120-16

\* Available for angle tools only. ■ To use Cutoff Wheels on Type 27 Arbor

# Cyclone Routers/Trimmers

18,000-32,000 rpm

## CycloRout/Trimmer

Created as part of the complete Cyclone line of finishing tools, the CycloRout/ Trimmer is a multi-purpose accessory tool. The attachment's adjustable nosepiece assures positive depth-of-cut for precision channel and bevel cuts. Ideal for cleaning up edges, cutting out panels, and trimming metal, composites, plastics, and wood. Take off the router/trimmer attachment and you're ready for general deburring and material-removal tasks.

CycloRout/Trimmer is an essential finishing tool for aerospace and automotive industries, as well as metal work, woodworking, and general maintenance.



HD180RT4

## Features

- Pioneering design combines outstanding durability and comfort via advanced composites over solid steel structure
- Rear exhaust directs air, dust and cuttings away from the operator and the workpiece
- Rugged all-steel Erickson collet assures smooth accurate cuts and minimum runout
- Sturdy steel nosepiece with double-shielded bearing provides minimum vibration and better work quality
- Adjustable nosepiece for positive depth-of-cut and quick accessory changes

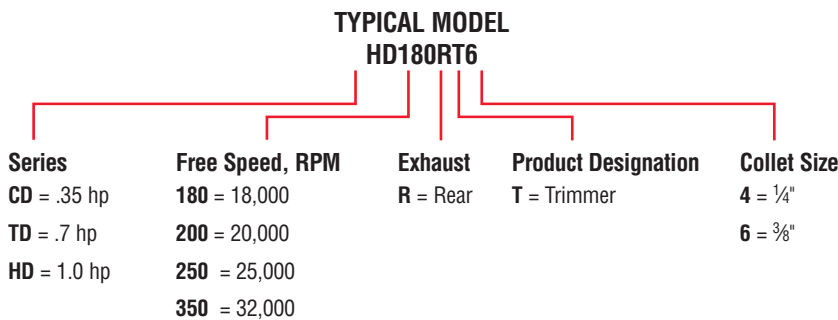
## Standard Equipment

- Erickson collet
- Collet body wrench
- Collet nut wrench
- Coupling nut wrench

## Accessories

- CD-RK4 1/4" (1/2"-20) Router Attachment Kit
- TD-RK4 1/4" (1/2"-20) Router Attachment Kit
- TD-RK6 3/8" (5/8"-11) Router Attachment Kit
- LG3R-23 concentric flange
- LG2-A400 locking throttle lever

## Product Identification Guide



Model	Bit Shank in.	Free Speed rpm	Weight lb.	Length without Bit Guide in.	Side to Center Distance in.
CD250RT4	1/4	25,000	1 <sup>5</sup> / <sub>8</sub>	6 <sup>7</sup> / <sub>8</sub>	3/4
CD350RT4	1/4	32,000	1 <sup>5</sup> / <sub>8</sub>	6 <sup>7</sup> / <sub>8</sub>	3/4
TD200RT4	1/4	20,000	2 <sup>3</sup> / <sub>8</sub>	8 <sup>3</sup> / <sub>8</sub>	3/4
TD200RT6	3/8	20,000	2 <sup>3</sup> / <sub>8</sub>	8 <sup>3</sup> / <sub>8</sub>	3/4
TD250RT4	1/4	25,000	2 <sup>3</sup> / <sub>8</sub>	8 <sup>3</sup> / <sub>8</sub>	3/4
TD250RT6	3/8	25,000	2 <sup>3</sup> / <sub>8</sub>	8 <sup>3</sup> / <sub>8</sub>	3/4
HD180RT4	1/4	18,000	2 <sup>1</sup> / <sub>2</sub>	9 <sup>3</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>32</sub>
HD180RT6	3/8	18,000	2 <sup>1</sup> / <sub>2</sub>	9 <sup>3</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>32</sub>

All standard models have dual exhaust capabilities. Exhaust direction can be easily switched from front to rear.

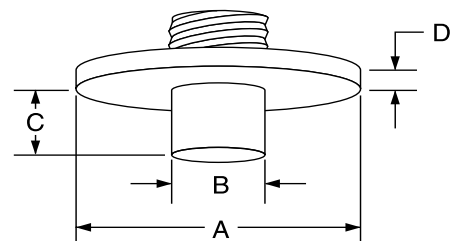
Performance figures are at 90 psi air pressure.

## Trimmer Guides (see drawing at right).

Part Number	For Bits with Shank Size in.	Thread	A in.	B in.	C in.	D in.
R120-128-2	1/4	1/2 - 20	1 <sup>1</sup> / <sub>2</sub>	3/8	3/8	1/8
R120-128-7	1/4	1/2 - 20	2 <sup>1</sup> / <sub>2</sub>	1/2	1/2	3/16
LG2-129-1	3/8	5/8 - 18	2 <sup>1</sup> / <sub>2</sub>	1/2	3/8	1/8

Guides for 1/4" models have 1/2" - 20 UNF thread.

Guides for 3/8" models have 5/8" - 18 UNF thread.





## Sanders/Polishers/Buffers



Reflecting the rapidly changing demands of industrial finishing, sanders, polishers and buffers have emerged as key segments. Constant process improvements throughout industry now result in less waste on castings and molded parts, shifting emphasis from material removal to surface finishing. The Ingersoll-Rand line of sanders, buffers and polishers includes models based on the popular Cyclone tools, as well as configurations from the larger, heavier-duty ErgoPro and Pro Series tool offerings. All give you the ability to match capacity and attachments precisely to the workpiece and material, for finessing a high-quality finish.

Ingersoll-Rand offers two distinct lines of Sanders/Polishers/Buffers in an effort to match all levels of finishing applications. From the smaller Cyclone Series, to the heavy-duty ErgoPro and Pro Series offerings, there is a tool to match all surface preparation and material fabrication applications. Like other finishing tools IR offers, these sanders/polishers/buffers have the same user-friendly, safety-oriented features that make them the benchmark against which all competitive tools are judged.

# Sanders/Polishers/Buffers



The design of Ingersoll-Rand's Sanders/Polishers/Buffers reflects the industry-wide changes in both processes and materials.

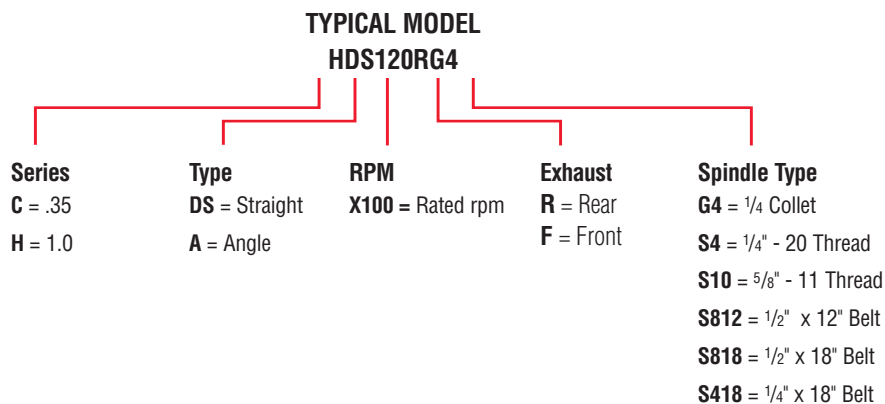
## CycloFinish Sanders/Polishers/Buffers

CycloFinish Sanders, Polishers, and Buffers have been developed as part of the Cyclone finishing tool line for specific use in surface preparation and final finishing applications. The CycloFinish tools — offered in both angle and straight configurations — are lower-speed versions of the highly successful Cyclone Series. They are based on the .70 and 1.0 horsepower T and H series, with a variety of speed offerings and accessories for sanding, polishing, blending and smoothing opera-

tions. The CycloFinish models are multi-purpose accessory tools used in aerospace, shipbuilding, utilities, woodworking and furniture production, vehicle and marine assembly, and general maintenance.

Like all Cyclone Series finishing tools, the CycloFinish line has fewer internal parts than other competitive products in the category. The patented “drop-in” motor requires no alignment or shims. Vanes can be removed or replaced quickly. This innovative design reduces the expense of down-time, repair, and replacement parts.

### Product Identification Guide

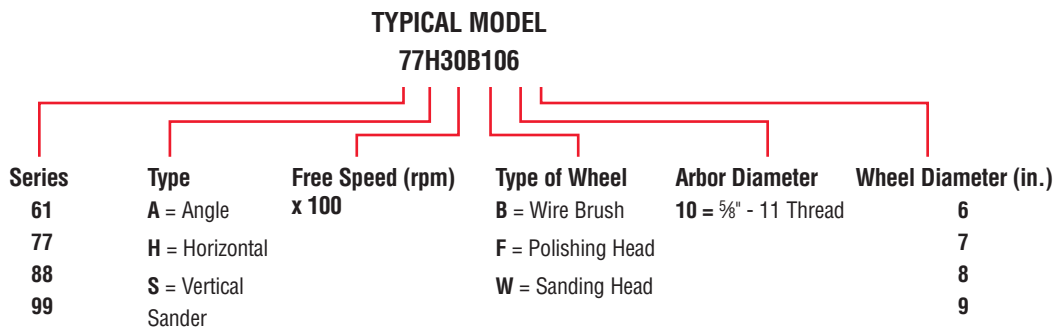


## ErgoPro and Pro Series Sanders/Polishers/Buffers

Designed for applications involving larger areas and heavier-duty materials, ErgoPro and Pro Series sanders, polish-

ers and buffers range from .80 to 2.0 horsepower, in straight, angle and vertical configurations. They incorporate many of the same unique features as their counterpart grinder models.

### Product Identification Guide



# Sanders/Polishers/Buffers CycloFinish Tools



## Standard Equipment

### Collet Models

- Erickson collet
- Collet wrenches H models
- Ergo handle

## Accessories

### C Series

- Rear exhaust kit LG1-K284
- Low-profile concentric flange LG1-23R
- Safety locking lever LG1-A400
- Variable-speed regulator LG1-A1015
- Color-coded abrasive kits
- 2" Pad LG1-K2
- 3" Pad LG1-K3

### H Series

- Wire brush adapter LS2-A4-B10 straight
- Rear exhaust kit LG2-K284
- Safety locking lever LG2-A400
- Low-profile concentric flange LG3R-23
- 77A-AM825-5 5" medium pad
- 77A-AM825-7 7" medium pad
- 77A-BM825-7 7" firm pad

G4 = 1/4" Collet  
S10 = 5/8" Arbor

Model (Rear Exhaust)	Maximum Free Speed rpm	Standard Spindle	Overall Length in.	Weight lb.	Side to Center Distance in.	CFM
<b>Straight Tools</b>						
HDS90RG4	9,000	1/4" collet	13 <sup>3</sup> / <sub>4</sub>	4 <sup>1</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>16</sub>	43
HDS60RG4	6,000	1/4" collet	13 <sup>3</sup> / <sub>4</sub>	4 <sup>1</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>16</sub>	43
HDS45RG4	4,500	1/4" collet	12 <sup>7</sup> / <sub>8</sub>	3 <sup>13</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>16</sub>	43
HDS30RG4	3,000	1/4" collet	12 <sup>7</sup> / <sub>8</sub>	3 <sup>13</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>16</sub>	43
HDS10RG4	1,000	1/4" collet	13 <sup>3</sup> / <sub>4</sub>	4 <sup>1</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>16</sub>	43
<b>Angle Tools</b>						
CA120RS4	12,000	1/4" - 20	6 <sup>1</sup> / <sub>16</sub>	1 <sup>5</sup> / <sub>16</sub>	3/4	12
CA200RS4	20,000	1/4" - 20	6 <sup>1</sup> / <sub>16</sub>	1 <sup>5</sup> / <sub>16</sub>	3/4	14
<b>Sanders</b>						
HXA19RS10	1,900	5/8" - 11	13 <sup>3</sup> / <sub>8</sub>	4 <sup>9</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>16</sub>	43
HXA27RS10	2,700	5/8" - 11	13 <sup>3</sup> / <sub>8</sub>	4 <sup>9</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>16</sub>	43
HA40RSG4	4,000	1/4" collet	8 <sup>3</sup> / <sub>16</sub>	2 <sup>5</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>16</sub>	43
HA40RS10	4,000	5/8" - 11	8 <sup>3</sup> / <sub>16</sub>	2 <sup>5</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>16</sub>	43
HA50RS10	5,000	5/8" - 11	8 <sup>3</sup> / <sub>16</sub>	2 <sup>5</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>16</sub>	43
HA60RSG4	6,000	1/4" collet	8 <sup>3</sup> / <sub>16</sub>	2 <sup>5</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>16</sub>	43
HA60RS10	6,000	5/8" - 11	8 <sup>3</sup> / <sub>16</sub>	2 <sup>5</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>16</sub>	43
HXA60RS10	6,000	5/8" - 11	11 <sup>3</sup> / <sub>16</sub>	3 <sup>5</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>16</sub>	43
HA80RS10	8,000	5/8" - 11	8 <sup>3</sup> / <sub>16</sub>	2 <sup>5</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>16</sub>	43
HXA80RS10	8,000	5/8" - 11	11 <sup>3</sup> / <sub>16</sub>	3 <sup>5</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>16</sub>	43
HA100RS10	10,000	5/8" - 11	8 <sup>3</sup> / <sub>16</sub>	2 <sup>5</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>16</sub>	43
HXA100RS10	10,000	5/8" - 11	11 <sup>3</sup> / <sub>16</sub>	3 <sup>5</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>16</sub>	43
HA120RS10	12,000	5/8" - 11	8 <sup>3</sup> / <sub>16</sub>	2 <sup>5</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>16</sub>	43
HXA120RS10	12,000	5/8" - 11	11 <sup>3</sup> / <sub>16</sub>	3 <sup>5</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>16</sub>	43
HA140RS10	14,000	5/8" - 11	8 <sup>3</sup> / <sub>16</sub>	2 <sup>5</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>16</sub>	43

Air Inlet: 1/4" NPT.

Size Hose Recommended: 3/8".

Performance figures are at 90 psi air pressure.

Sound levels range 76-82 dBA.

All models are easily switched to rear or front exhaust.

\* Shown with LS2-A4-B10 adapter and pump wheel.

\* Pump wheel sold separately.

# Sanders/Polishers/Buffers

## Belt Sanders

### CycloFinish Tools

#### Standard Equipment

- One 60 grit belt
- One 80 grit belt
- One 100 grit belt



CA120RS812  
(Shown without standard shield)

#### Accessories

- LG1-K284 Rear Exhaust Kit
- DG110-700-G2 (C) Erickson Collet 1/8"
- LG1-A350-812 1/2" x 12" Belt sander attachment
- LG1-A350-818 1/2" x 18" Belt sander attachment
- LG1-A350-418 1/4" x 18" Belt sander attachment

Attachments may be mounted on either a CA120RG4 or CA200RG4 Cyclone tool.

#### Sanding Belts/10 pack

- LG1-SB418-60-10, 60 grit 1/4" x 18" belt
- LG1-SB418-80-10, 80 grit 1/4" x 18" belt
- LG1-SB418-100-10, 100 grit 1/4" x 18" belt
- LG1-SB818-60-10, 60 grit 1/2" x 18" belt
- LG1-SB818-80-10, 80 grit 1/2" x 18" belt
- LG1-SB818-100-10, 100 grit 1/2" x 18" belt
- LG1-SB812-60-10, 60 grit 1/2" x 12" belt
- LG1-SB812-80-10, 80 grit 1/2" x 12" belt
- LG1-SB812-100-10, 100 grit 1/2" x 12" belt

Note - Surface feet per minute at 12,000 rpm = 2700  
Surface feet per minute at 20,000 rpm = 4500

Model	Rated Power hp	Maximum Free Speed rpm	Standard Spindle	Length with Belt Attachment	Weight lb.	Belt Size	CFM
CA120RS812	.35	12,000	1/4" collet	10 <sup>3</sup> / <sub>4</sub> "	1 <sup>1</sup> / <sub>2</sub>	1/2 x 12"	12
CA120RS418	.35	12,000	1/4" collet	14"	1 <sup>5</sup> / <sub>8</sub>	1/4 x 18"	12
CA120RS818	.35	12,000	1/4" collet	14"	1 <sup>3</sup> / <sub>4</sub>	1/2 x 18"	12
CA200RS812	.35	20,000	1/4" collet	10 <sup>3</sup> / <sub>4</sub> "	1 <sup>1</sup> / <sub>2</sub>	1/2 x 12"	14
CA200RS418	.35	20,000	1/4" collet	14"	1 <sup>5</sup> / <sub>8</sub>	1/4 x 18"	14
CA200RS818	.35	20,000	1/4" collet	14"	1 <sup>3</sup> / <sub>4</sub>	1/2 x 18"	14

Air Inlet: All Models 1/4" NPT.

Size Hose Recommended: All Models 5/16".

Performance figures are at 90 psi air pressure.

Sound levels range 76-82 dBA.

To order your CycloFinish tool preset for front exhaust, refer to model numbers above and substitute F for R.

## Angle Tools

### ErgoPro Series

Features state-of-the-art vibration dampening technologies!

See page 27 for more details.



77A25F107

#### Standard Equipment

- Back up pads with nut  
77A-BM825-7 7" Firm (F107)  
77A-AM825-9 9" Medium (W109)
- P500-850 polishing bonnet (Model 77A25F107 only)

#### Accessories

- 77A-AM825-5 5" medium pad
- 77A-AM825-7 7" medium pad
- AG230-26M spanner

F107 = 5/8" -11 Spindle, 7" Polishing Bonnet

W107 = 5/8" -11 Spindle, 7" Back Up Pad

W109 = 5/8" -11 Spindle, 9" Back Up Pad

Model	Vibration m/s <sup>2</sup>	Rated Power hp	Free Speed rpm	Weight lb.	Length in.	Height Over End of Spindle in.	Side to Center Distance in.	CFM
77A25F107	3.4	1.5	2500	8 <sup>3</sup> / <sub>8</sub>	17 <sup>9</sup> / <sub>16</sub>	3 <sup>3</sup> / <sub>32</sub>	1 <sup>5</sup> / <sub>16</sub>	37
77A45W109	1.5	1.5	4500	7 <sup>13</sup> / <sub>16</sub>	17 <sup>9</sup> / <sub>16</sub>	3 <sup>3</sup> / <sub>32</sub>	1 <sup>5</sup> / <sub>16</sub>	37
77A60W107	1.2	1.5	6000	7 <sup>3</sup> / <sub>16</sub>	17 <sup>9</sup> / <sub>16</sub>	3 <sup>3</sup> / <sub>32</sub>	1 <sup>5</sup> / <sub>16</sub>	39

Air Inlet: All Models 3/8" NPT.

Performance figures are at 90 psi air pressure.

Size Hose Recommended: All Models 1/2".

# Sanders / Polishers / Buffers

## Vertical Tools

### ErgoPro Series



88S60W107

W107 = 5/8" -11 Spindle, 7" Back Up Pad

W109 = 5/8" -11 Spindle, 9" Back Up Pad

#### Standard Equipment

- Back-up pads  
77A-AM825-7  
7" Medium pad  
77A-AM825-9  
9" Pad

#### Accessories

- Comfort grips  
CG-88V, CG99V
- 77A-BM825-7  
7" firm pad
- AG230-26M spanner
- AG230-26M spanner  
wrench
- Piped-away exhaust Kits  
88V60-K184, 99V60-  
K184

Model	Vibration m/s <sup>2</sup>	Rated Power hp	Free Speed rpm	Weight lb.	Height Over End of Arbor in.	Side to Center Distance at Spindle in.	CFM
88S45W109	1.0	1.8	4,500	7 1/8	6	2 1/8	50
88S60W107	1.0	2.0	6,000	7 1/8	6	2 1/8	61
99S45W109	0.6	2.5	4,500	9 1/2	6 1/4	2 15/16	70
99S60W107	0.9	3.0	6,000	9 1/2	6 1/4	2 15/16	84

Air Inlet: Both Models 1/2" NPT. Size Hose Recommended: Both Models 3/4". Performance figures are at 90 psi air pressure.

### Pro Series



7S60L

P = 5/8" - 11 Spindle, 7" Polishing Bonnet

S = 5/8" - 11 Spindle, 7" Back Up Pad

#### Standard Equipment

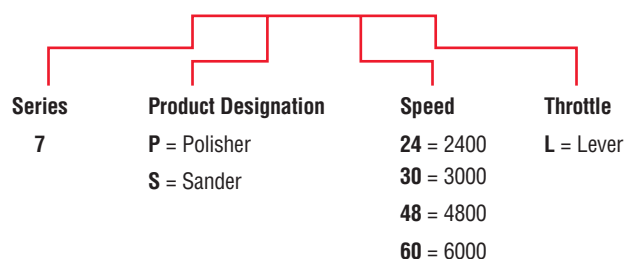
- 77A-8M825-7  
Back-up pad
- P500-850  
Polishing bonnet  
(Model 7P24L only)

Model	Rated Power hp	Free Speed rpm	Weight without Pad lb.	Height Over End of Arbor in.	Side to Center Distance in.	CFM
7P24L	.80	2,400	3 1/4	6 3/8	3/8	22
7S30L	.80	3,000	3 1/4	6 3/8	3/8	22
7S48L	.80	4,800	3 1/4	6 3/8	3/8	22
7S60L	.80	6,000	3 1/4	6 3/8	3/8	22

Air Inlet: All Models 1/4" NPT. Size Hose Recommended: All Models 5/16". Performance figures are at 90 psi air pressure.

### Product Identification Guide

#### TYPICAL MODEL 7S60L



# Sanders / Polishers / Buffers

## Straight Tools

### Pro Series



77H30B106

#### Standard Equipment

- Wheel flanges and nut

#### Accessories

- 7RAQT4-254  
Wheel bearing nut wrench 1"
- 7S60-24818  
Wire brush nut wrench

B106 = 5/8"-11 x 2" Spindle (for Flap Wheels, Wire Brushes, etc.)

Spindle is 2 3/4" Long

Threads are 2" Long

Model	Rated Power hp	Free Speed rpm	Weight lb.	Length in.	Side to Center Distance at Spindle in.	CFM
77H30B106	1.5	3,000	7 <sup>5</sup> / <sub>16</sub>	17 <sup>11</sup> / <sub>16</sub>	1 <sup>5</sup> / <sub>16</sub>	37
77H50B106	1.5	5,000	7 <sup>5</sup> / <sub>16</sub>	17 <sup>11</sup> / <sub>16</sub>	1 <sup>5</sup> / <sub>16</sub>	39

Air Inlet: Both Models 3/8" NPT.

Size Hose Recommended: Both Models 1/2".

Performance figures are at 90 psi air pressure.

### Accessories

Description	Series C Part #	Series 7 Part #	Series T&H Part #	Series 77A Part #	Series 88S Part #	Series 99S Part #
5" Sanding Pad Assembly (med.)	–	77A-AM825-5	77A-AM825-5	77A-AM825-5	77A-AM825-5	77A-AM825-5
7" Sanding Pad Assembly (med.)	–	77A-AM825-7	77A-AM825-7	77A-AM825-7	77A-AM825-7	77A-AM825-7
7" Sanding Pad Assembly (firm)	–	77A-BM825-7	77A-BM825-7	77A-BM825-7	77A-BM825-7	77A-BM825-7
9" Sanding Pad Assembly (firm)	–	77A-AM825-9	–	77A-AM825-9	77A-AM825-9	77A-AM825-9
7" Wool Polishing Bonnet	–	P500-850	P500-850	P500-850	–	–
Pad Nut	–	D94SK-226	D94SK-226	D94SK-226	D94SK-226	D94SK-226
Pad Nut Wrench	–	D94SK-26	D94SK-26	D94SK-26	D94SK-26	D94SK-26
Spindle Wrench	–	7S60-24818*	–	DG120-69	DG120-69	DG120-69**
2" Abrasive Kit	LG1-K2	–	–	–	–	–
3" Abrasive Kit	LG1-K3	–	–	–	–	–
Inlet Hose Assembly 5/16" x 8' 1/4 Male + 3/8 Female Ends	RO-130	–	RO-130	–	–	–
Piped-Away Exhaust Kit	LG1-K184	–	LG2-K284	–	88V60-K184	99V60-K184
Controller Wrench	–	–	–	77H-950	88V60-950	99V60-950
Pad Nut Kit	–	77A-826	77A-826	77A-826	77A-826	77A-826
Pad Nut Spanner	AG230-26M	–	AG230-26M	–	–	–
Comb. Wrench 1/2 - 9/16"	DG10-69	–	–	–	–	–
Comb. Wrench 7/16 - 11/16"	–	–	DG20-69A	–	–	–

\* 5/16" OE

\*\* 5/8" x 3/4" OE

# Cyclone Random Orbital Sanders



## **Cyclone Sanders – Another Performance Standard from Ingersoll-Rand**

Cyclone grinders and finishing tools have established new standards for ergonomic design, power, and speed in material removal applications. Ingersoll-Rand has extended the same innovative philosophy to random orbital sanders, establishing another performance standard – with the Cyclone Series.

### **Cyclone Select Series**

The ultimate in lightweight, efficient design, with comfort and performance to match. One-piece precision-molded composite housing, with color-keyed grip rings that meet operator hand sizes. Available in non-vac and vac-ready models.

### **CycloVac System**

This version of the Select Series features unique new self-generated vacuum system – the most powerful and effective available!

### **Cyclone Standard Series**

These models incorporate traditional aluminum housings with textured comfort grips. Available in non-vac, vac-ready, and venturi-vac models.

All Cyclone sanders deliver unsurpassed reliability, with moisture-resistant composite rotors, fully machined counterweights, and large counterweight bearings. All are lube-free, when used with conventional air systems. Their high performance air motors ensure high speed under load, and the finest in swirl-free finishes.

# Cyclone Random Orbital Sanders Cyclone Select Series

## Cyclone Select Series

The Select Series composite housing keeps overall weight at just 1.83 lbs., with reduced vibration and quiet operation at just 78 dBa.

- High efficiency air motors deliver true 12,000 rpm performance.
- One sander fits all hand sizes, with interchangeable soft rubber grip rings that fit securely around the top of the housing:
- Black for medium hands (standard)
- Grey for small hands
- Blue for large hands



- Vacuum-ready models extract dust and particulates through and around the pad...and then up and directly out a dedicated port, keeping foreign matter away from the motor. Special shroud material prevents surface marring, and lightweight, flexible hoses provide excellent maneuverability

### Another unique feature:

Non-vacuum models can easily be converted to vacuum-ready status with the simple addition of a vacuum adapter, petal pad, and different shroud, if desired.

Choose from four non-vac models, with 5-inch or 6-inch pads, and duck or vinyl pad faces, four vacuum-ready models, for use with central or portable vacuum systems, Or... 2 CycloVac models, self-generated vacuum models. Select short shrouds for maximum workpiece visibility, or long shrouds for maximum dust evacuation.

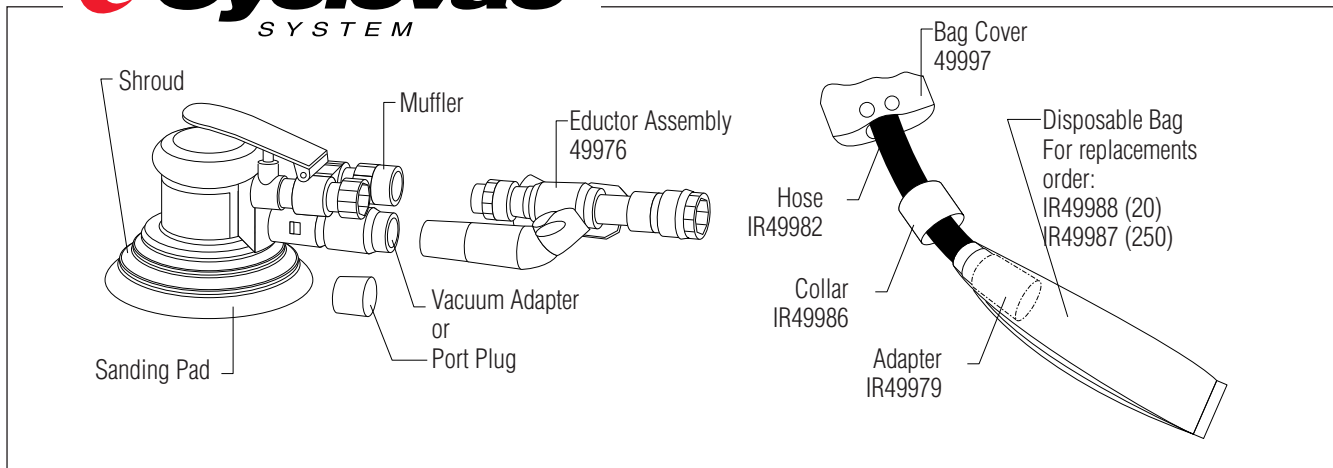


# Cyclone Random Orbital Sanders CycloVac System

- Unique “double bagging” integral vacuum system that provides a cleaner work environment. This arrangement also promotes the proper disposal of collected particulates for maximum total effect
- Delivers twice the vacuum power of the nearest competitor, and uses a disposable dust bag enclosed in a protective cover
- The sander’s eductor assembly employs a nozzle to produce a high velocity “vac” of tool exhaust air that entrains the air and dust from the sanding area. The diffuser then channels both streams of air through the hose and into the collection bag
- The result: A truly effective, self-contained, self-generated vacuum sanding system in one compact, convenient package

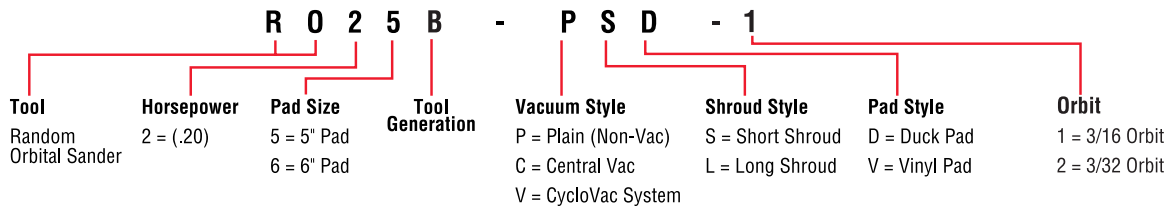


- Available in 5" and 6" pad models, with disposable vacuum bags prepackaged in quantities of 20 or 250. Other Select Series models can be converted to the CycloVac System with an available kit





# Cyclone Random Orbital Sanders Cyclone Select Series/CycloVac System



Model Number	Shroud Style	Pad Size		Pad Face	Rated Max Free Speed rpm	Power hp	Air Consp. @ Free Speed scfm	Spindle Thread (female)	Weight lb.	kg
<b>Non-Vacuum</b>										
R025B-PSV-1*	Short	5	127	Vinyl	12,000	.20	15.8	5/16"-24	1.83	.83
R026B-PSV-1	Short	6	152	Duck	12,000	.20	15.8	5/16"-24	1.92	.87
<b>Vacuum-Ready</b>										
R025B-CSV-1	Short	5	127	Vinyl	12,000	.20	15.8	5/16"-24	1.83	.83
R025B-CSV-1*	Short	5	127	Vinyl	12,000	.20	15.8	5/16"-24	1.92	.87
R026B-CSV-1	Short	6	152	Vinyl	12,000	.20	15.8	5/16"-24	1.92	.87
R026B-CSV-1	Long	6	152	Vinyl	12,000	.20	15.8	85/16"-24	1.92	.87
<b>CycloVac</b>										
R025B-VSV-1	Long	5	127	Vinyl	12,000	.20	15.8	5/16"-24	1.92	.87
R026B-VSV-1	Long	6	152	Vinyl	12,000	.20	15.8	5/16"-24	1.92	.87

\*Most popular model

Sanding pads have industry-standard hole pattern for "thru-the-pad" vacuum pickup. For use with coated sanding discs with pre-punched holes.

Alir inlet: 1/4" NPT Female      Recommended air pressure: 90psi (6.2 bar)      Recommended hose size: 5/16" (8mm) I.D.

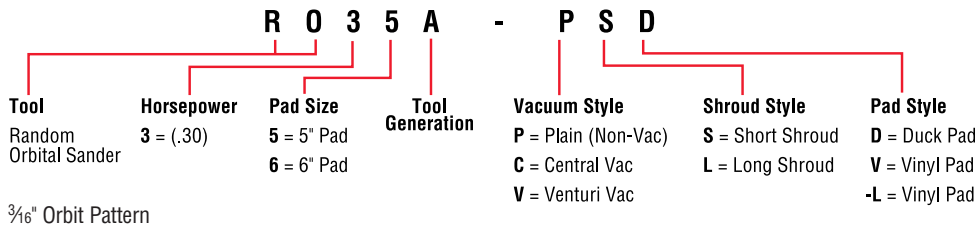
Std Equipment: 3 49973      Bag  
 1 49997      Bag Cover  
 1 IR49979      Adapter  
 1 IR49982      Hose  
 1 IR49986      Collar

## Cyclone Random Orbital Sanders Cyclone Standard Series

- Select from non-vac models, vac-ready models for use with central or portable vacuum systems, or venturi-vac models with a self-contained hose and dust collection bag in the Cyclone Standard Series
- Non-vac models can be converted to vac-ready status with an available conversion kit
- Comfortable cushion grip provides excellent feel and control



# Cyclone Random Orbital Sanders Cyclone Standard Series



3/16" Orbit Pattern

Model Number		Pad Size		Pad Face	Free Speed	Power	Air Consp.	Spindle	Weight (lb./kg)	
Palm Style	Long Handle	in.		mm	rpm	hp	@ Free Speed scfm	Thread (female)	Palm style	Long handle
<b>Non-Vacuum</b>										
RO35A-PSD	RO35A-PSD-L	5	127	Duck	10,000	.30	18.5	5/16"-24	2.3 1.0	2.6 1.2
RO35A-PSV*	RO35A-PSV-L	5	127	Vinyl	10,000	.30	18.5	5/16"-24	2.3 1.0	2.6 1.2
RO36A-PSD	RO36A-PSD-L	6	152	Duck	10,000	.30	18.5	5/16"-24	2.3 1.0	2.6 1.2
RO36A-PSV*	RO36A-PSV-L	6	152	Vinyl	10,000	.30	18.5	5/16"-24	2.3 1.0	2.6 1.2
<b>Vacuum-Ready</b>										
RO35A-CSV*		5	127	Vinyl	10,000	.30	18.5	5/16"-24	2.4	1.2
RO36A-CSV		6	152	Vinyl	10,000	.30	18.5	5/16"-24	2.4	1.2
<b>Venturi-Vac</b>										
RO35A-VLV		5	127	Vinyl	10,000	.30	18.5	5/16"-24	2.4	1.1
RO36A-VLV		6	152	Vinyl	10,000	.30	18.5	5/16"-24	2.4	1.1

\*Most popular model

Sanding pads have industry-standard hole pattern for "thru-the-pad" vacuum pickup. For use with coated sanding discs with pre-punched holes.

AIR INLET: 1/4" NPT Female

Recommended Air Pressure: 90psi (6.2 bar)

Recommended Hose Size: 5/16" (8mm) I.D.

## Accessories

### Premium Quality Low-Profile Pads

#### Non-vacuum-3/8" (9.5 mm) Thick

(Select and CycloVac only)

- IR49877-1 5" Duck Face
- IR49878-1 5" Vinyl Face
- IR49879-1 6" Vinyl Face
- IR49880-1 6" Duck Face



(Standard only)

- IR49094-1 5" (127 mm) dia., Vinyl Face "diamond" pattern.
- IR49095-1 5" (127 mm) dia., Duck Face

- 351-825-6A 6" (152 mm) dia., Vinyl Face "diamond" pattern.

- IR49098-1 6" (152 mm) dia., Duck Face

#### Vacuum\* 3/8" (9.5 mm) Thick

- IR49096-1 5" (127 m) dia., Vinyl Face "petal" pattern.
- 49099-1 6" (152 m) dia., Vinyl Face "petal" pattern.



### Pad Wrenches

Use to remove sanding pad. Included with every tool.

- 351-69 for Standard non-vacuum models.
- 354-69 for all Standard vacuum models.



### Spanner Wrenches

Use to remove the lock ring securing the motor assembly.

- 48869 for all CycloVac models.
- 44548 for all Standard Series models.



### Grip Rings

Alternate grip rings for Select models.

- IR49801 Small, Grey (optional)
- 49798 Medium, Black (standard)
- IR49799 Large, Blue (optional)



### Vacuum Adapters

- 49802 (Select)

### Vacuum Hoses

- IR49600 6' (1.8m) Hose

Equipped with molded 1" I.D. cuffs at each end.



### Dust Collection Bag (Select)

- 355-402 Dust Collection Bag



### CycloVac Disposable Vacuum Bags

- IR49988 Vacuum Bag (20 Pack)
- IR49987 Vacuum Bag (250 Pack)
- 49973 Vacuum Bag (single)

### CycloVac Conversion Kits

- IR49977 Conversion Kit 5"
- IR49978 Conversion Kit 6"  
(To convert non-vac tools to vacuum)

### Service Kits

Contains all the necessary genuine I-R replacement parts for proper preventative maintenance.

- IR49837 (Select) IR49846 (Standard)

\*For use with PSA coated sanding discs with industry-standard pre-punched holes.

# ErgoPro and Pro Series Grinders



Ingersoll-Rand has leveraged over 60 years of finishing industry experience and the innovation of today's state-of-the-art technologies to create ErgoPro Series grinders and sanders. By uniting the classic features of the flagship Pro Series line with world-class vibration dampening technologies, the ErgoPro Series offers the highest level of operator comfort in the industry. The most established, time-tested line of grinders and sanders in the industry is now the most comfortable to operate too!

## **Lowest Vibration Levels in the Industry**

Through the ErgoPro Series, Ingersoll-Rand now offers grinders and sanders with vibration levels 40% below those of the nearest competitor! Technological improvements made in the areas of "dead" handle design and grinding wheel autobalancing work in concert to decrease vibration levels and increase operator comfort.

# ErgoPro and Pro Series Grinders



The unique motor controller design of the ErgoPro and Pro Series increases productivity while enhancing operator safety.

## Motor Controller

Ingersoll-Rand's ErgoPro and Pro Series finishing tools incorporate a patented motor controller which is designed to increase productivity while enhancing operator safety. The controller regulates air flow through the end plate and into the motor to control the speed and power of the tool. There is no need for an additional over-speed shut-off device.

## Additional Features

The Ingersoll-Rand ErgoPro and Pro Series grinders also incorporate additional ergonomic features that can help reduce operator fatigue. The adjustable side handles can be easily adjusted for better handling and control. For increased operator comfort, the ergonomic handle design makes it easy for the operator to hold and use the tool – even with gloved hands. Both grip and lever handles are equipped with the self-locking throttle lever feature.

## Locking Throttle Lever

Ingersoll-Rand's locking throttle lever is a spring-loaded latch that resets each time the lever is released. This unique system prevents accidental throttle operation — even if the tool is dropped.

## Integral Guards

Both ErgoPro and Pro Series grinders are equipped with patented integral guards that prevent the tool from operating if they are removed. When removed, the tool's motor is not properly supported, and the tool will not operate. Cup-type grinding tools have the exclusive Ingersoll-Rand 180° integral guard for better visibility and greater wheel usage. All guards are made of steel for extra protection.



# ErgoPro and Pro Series Finishing Tool Features

## ErgoPro and Pro Series 88 and 99

- Powerful 2 hp and 3 hp motors for high, efficient performance.
- Patented stainless steel motor controller with industry's only lifetime guarantee.
- Self-locking throttle lever prevents accidental operation.
- Integral steel guard provides extra strength for added operator protection.
- Four-position exhaust adds to operator comfort on horizontal models.
- Adjustable ergonomic side handles increase operator control on vertical models.
- Built-in mist lubricator automatically oils motor each time tool is used.



## ErgoPro and Pro Series 77

- Powerful 1½ hp motor produces high, efficient performance.
- Patented stainless steel motor controller with industry's only lifetime guarantee.
- Self-locking throttle lever prevents accidental operation.
- Integral steel guard provides extra strength for added operator protection.
- Low-profile angle head improves close-quarter applications.
- Built-in mist lubricator automatically oils motor when tool is started.



## Pro Series 61

- Solid steel motor and arbor housing provide maximum durability.
- Powerful 1½ hp motor produces high, efficient performance.
- Patented stainless steel motor controller is maintenance- and adjustment-free.
- Heavy-duty, double-row ball bearings assure long life and smooth operation.
- Exclusive grit-rejection system keeps motor and bearings clean for extended life.
- Built-in mist lubricator automatically oils motor when throttle is activated.



## Product Identification Guide

### TYPICAL MODEL 88HL60H106

Series	Type	Throttle	Free Speed (rpm)	Type of Wheel	Diameter and Thread of Arbor	Diameter of Wheel or Collet	
61	A = Angle	L = Lever	45 = 4,500	G = Collet			
77	H = Horizontal	G = Grip	60 = 6,000	H = Type 1 Wheel	6 = 3/8" - 24 Thread	4 = 1/4" Collet	
88	V = Vertical		77 = 7,700	L = Cone Wheel	8 = 1/2" - 13 Thread	3 = 3" Wheel	
99			90 = 9,000	P = Type 27 Wheel	10 = 5/8" - 11 Thread	4 = 4" Wheel	
			120 = 12,000	S = Type 11 Wheel			6 = 6" Wheel
			150 = 15,000				7 = 7" Wheel
						8 = 8" Wheel	
						9 = 9" Wheel	

# Pro Series Straight Grinders

## Carbide Bur and Mounted Wheel



61H120G4

### Standard Equipment

- G160HD-700-1/4  
1/4" Erickson collet
- DG10-69  
Collet body wrench
- DG120-69  
Collet nut wrench

### Accessories

- DG120-700-G6  
3/8" Collet

G4 = 1/4" Erickson Collet

Model (Side Exhaust)	Rated Power hp	Free Speed rpm	Weight lb.	Length in.	Spindle Housing Diameter in.	CFM
61H120G4	1.25	12,000	4 1/4	15 1/2	1 7/16	37
61H150G4	1.33	15,000	4 1/4	15 1/2	1 7/16	40

Air Inlet: Both Models 3/8".

Size Hose Recommended: Both Models 1/2".

Performance figures are at 90 psi air pressure.

## Cone and Plug Wheel



61H120L6



88HL90L10

L6 = 3/8" - 24 Spindle

L10 = 5/8" - 11 Spindle

Model (Side Exhaust)	Rated Power hp	Free Speed rpm	Weight lb.	Length in.	Spindle Housing Diameter in.	CFM
61H120L6	1.25	12,000	4 1/4	14 3/4	1 7/16	37
61H150L6	1.33	15,000	4 1/4	14 3/4	1 7/16	40
77H90L10	1.50	9,000	6	16 7/16	1 7/8	37
77H120L10	1.50	12,000	6	16 7/16	1 7/8	39
88HL90L10	2.20	9,000	8 3/8	18 1/4	2 1/4	66

Air Inlet: Series 88H, 1/2" NPT. All others 3/8" NPT.

Size Hose Recommended: Series 88H, 3/4". All others 1/2".

\* Maximum wheel diameter 3".

Performance figures are at 90 psi air pressure.

## Type 1 Wheel



## Standard Equipment

- Wheel Guard, Flanges and Nut

H63 = 3/8" - 24 Spindle, 3" Guard  
 H64 = 3/8" - 24 Spindle, 4" Guard  
 H84 = 1/2" - 13 Spindle, 4" Guard

H106 = 5/8" - 11 Spindle, 6" Guard  
 H108 = 5/8" - 11 Spindle, 8" Guard

Model	Handle	Rated Power hp	Free Speed rpm	Weight with Guard & Flanges lb.	Length in.	Spindle Housing Diameter in.	Wheel Size in.	CFM
61H120H63	Lever	1.25	12,000	4 <sup>3</sup> / <sub>4</sub>	15 <sup>3</sup> / <sub>4</sub>	1 <sup>7</sup> / <sub>16</sub>	3 x 1/2	37
61H120H64	Lever	1.25	12,000	4 <sup>3</sup> / <sub>4</sub>	15 <sup>3</sup> / <sub>4</sub>	1 <sup>7</sup> / <sub>16</sub>	4 x 1/2	37
61H150H63	Lever	1.33	15,000	4 <sup>3</sup> / <sub>4</sub>	15 <sup>3</sup> / <sub>4</sub>	1 <sup>7</sup> / <sub>16</sub>	3 x 1/2	40
77H120H63	Lever	1.50	12,000	6 <sup>1</sup> / <sub>8</sub>	16 <sup>5</sup> / <sub>8</sub>	2 <sup>5</sup> / <sub>8</sub>	3 x 1/2	39
77H90H84	Lever	1.50	9000	6 <sup>1</sup> / <sub>2</sub>	17 <sup>1</sup> / <sub>4</sub>	2 <sup>5</sup> / <sub>8</sub>	4 x 1	37
77H120H84	Lever	1.50	12,000	6 <sup>1</sup> / <sub>2</sub>	17 <sup>1</sup> / <sub>4</sub>	2 <sup>5</sup> / <sub>8</sub>	4 x 1	39
88HL60H106*	Lever	2.00	6,000	11 <sup>5</sup> / <sub>16</sub>	20	3 <sup>3</sup> / <sub>8</sub>	6 x 1	61
88HG60H106*	Grip	2.00	6,000	11 <sup>11</sup> / <sub>16</sub>	19 <sup>3</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>8</sub>	6 x 1	61
99HL60H106*	Lever	3.00	6,000	13 <sup>1</sup> / <sub>2</sub>	20 <sup>1</sup> / <sub>2</sub>	3 <sup>7</sup> / <sub>8</sub>	6 x 1	84
99HG60H106*	Grip	3.00	6,000	14 <sup>5</sup> / <sub>16</sub>	20 <sup>3</sup> / <sub>8</sub>	3 <sup>7</sup> / <sub>8</sub>	6 x 1	84
99HL45H108**	Lever	2.35	4,500	14 <sup>13</sup> / <sub>16</sub>	20 <sup>1</sup> / <sub>4</sub>	3 <sup>7</sup> / <sub>8</sub>	8 x 1	70
99HG45H108**	Grip	2.35	4,500	15 <sup>5</sup> / <sub>8</sub>	20 <sup>1</sup> / <sub>8</sub>	3 <sup>7</sup> / <sub>8</sub>	8 x 1	70
99HL60H108**	Lever	3.00	6,000	14 <sup>13</sup> / <sub>16</sub>	20 <sup>1</sup> / <sub>4</sub>	3 <sup>7</sup> / <sub>8</sub>	8 x 1	84

\*Net weight of Guard and Flanges is 3.2 lbs.  
 \*\*Net weight of Guard and Flanges is 4.5 lbs.

Air Inlet: Series 61H and 77H, 3/8" NPT.  
 Series 88H and 99H, 1/2" NPT.

Size Hose Recommended: Series 61H and 77H, 1/2".  
 Series 88H and 99H, 3/4"

Performance figures are at 90 psi air pressure.

## Accessories

Description	Series 61H Part Number	Series 77H Part Number	Series 88H Part Number
1/4" Erickson Collet	G160-HD-700-1/4	-	-
1/4" Erickson Collet Assembly	DG220-A290-G4	-	-
3/8" Erickson Collet	DG120-700-G6	-	-
3/8" Erickson Collet Assembly	DG220-A290-G6	-	-
Collet Body Wrench	DG10-69	-	-
Collet Nut Wrench	DG120-69	-	-
3/8"-24 Cone Wheel Spindle	DG220-104-L6	-	-
Cone Wheel Spindle Wrench	DG20-69A	7RAQT4-254	7RAQT4-254
Controller Wrench	R15-169	77H-950	88V60-950

# Pro Series Angle Grinders

## Depressed Center Wheel Type 27 and 28 Wheel



77A60P107



88V60P107

### Standard Equipment

- Wheel guard, flanges and nut for threaded and plain depressed center wheels

### Accessories

- For vertical grinder 88V60-K184 (for 88V)
- Piped away exhaust kit 99V60-K184 (for 99V)

P107 = 5/8" - 11 Spindle, 7" Guard

P109 = 5/8" - 11 Spindle, 9" Guard

Model	Vibration m/s <sup>2</sup>	For Type 27 & 28 Wheels Size in.	Rated Power hp	Free Speed rpm	Weight lb.	Length in.	Height Over End of Spindle in.	Side to Center Distance at Spindle in.	CFM
<b>Angle Grinders*</b>									
77A60P107	1.9	7	1.5	6,000	9	17 <sup>9</sup> / <sub>16</sub>	3 <sup>7</sup> / <sub>8</sub>	1 <sup>5</sup> / <sub>16</sub>	39
77A60P109	1.8	9	1.5	6,000	9 <sup>3</sup> / <sub>16</sub>	17 <sup>9</sup> / <sub>16</sub>	3 <sup>7</sup> / <sub>8</sub>	1 <sup>5</sup> / <sub>16</sub>	39
77A75P107	2.0	7	1.5	7,500	9 <sup>3</sup> / <sub>16</sub>	17 <sup>9</sup> / <sub>16</sub>	3 <sup>7</sup> / <sub>8</sub>	1 <sup>5</sup> / <sub>16</sub>	39
<b>Vertical Grinders **</b>									
88V60P107	1.5	7	2.1	6,000	8 <sup>3</sup> / <sub>4</sub>	–	6 <sup>3</sup> / <sub>32</sub>	2 <sup>1</sup> / <sub>8</sub>	61
88V60P109	1.0	9	2.1	6,000	9 <sup>1</sup> / <sub>16</sub>	–	6 <sup>3</sup> / <sub>32</sub>	2 <sup>1</sup> / <sub>8</sub>	61
88V77P107	1.2	7	2.2	7,700	8 <sup>3</sup> / <sub>4</sub>	–	6 <sup>3</sup> / <sub>32</sub>	2 <sup>1</sup> / <sub>8</sub>	68
88V85P107	1.5	7	2.2	8,500	8 <sup>3</sup> / <sub>4</sub>	–	6 <sup>3</sup> / <sub>32</sub>	2 <sup>1</sup> / <sub>8</sub>	66
99V60P107	1.5	7	3.0	6,000	11 <sup>1</sup> / <sub>4</sub>	–	6 <sup>7</sup> / <sub>8</sub>	2 <sup>5</sup> / <sub>16</sub>	84
99V60P109	0.9	9	3.0	6,000	11 <sup>5</sup> / <sub>16</sub>	–	6 <sup>7</sup> / <sub>8</sub>	2 <sup>5</sup> / <sub>16</sub>	84
99V77P107	0.9	7	3.0	7,700	11 <sup>1</sup> / <sub>4</sub>	–	6 <sup>7</sup> / <sub>8</sub>	2 <sup>5</sup> / <sub>16</sub>	84
99V85P107	1.4	7	3.0	8,500	11 <sup>1</sup> / <sub>4</sub>	–	6 <sup>7</sup> / <sub>8</sub>	2 <sup>5</sup> / <sub>16</sub>	88

\*Air Inlet: All Models 3/8" NPT.

Size Hose Recommended: All Models 1/2".

Performance Figures are at 90 psi air pressure.

\*\*Air Inlet: All Models 1/2" NPT.

Size Hose Recommended: All Models 3/4".

Performance figures are at 90 psi air pressure.

## Accessories

Description	Series 77A Part Number	Series 88V Part Number	Series 99V Part Number
6" Type 6 or 11 Cup Wheel Guard	–	88V60-A216	99V60-A216A
Piped-Away Exhaust Kit	–	88V60-K184	99V60-K184
Wheel Retaining Screw Wrench	88V-562	88V-562	88V-562
Controller Wrench	77H-950	88V60-950	99V60-950
Comfort Grips	–	CG-88V	CG-99V

\*For use with Type 27 "Plain Hole" Depressed Center Wheels



# ErgoPro Series Vertical Grinders

## Cup Wheel Type 6 and 11 Wheel



88V60S106



99V60S106

### Standard Equipment

- Wheel guard, flanges and nut

### Accessories

- For vertical grinder
  - 88V60-K184 (for 88V)  
Piped away exhaust kit
  - 99V60-K184 (for 99V)  
Piped away exhaust kit

S106 = 5/8"-11 Spindle, 6" Guard

Model	Vibration m/s <sup>2</sup>	For Type 6 & 11 Wheels Size in.	Rated Power hp	Free Speed rpm	Weight lb.	Height Over End of Spindle in.	Side to Center Distance at Spindle in.	CFM
88V60S106	0.8	5 or 6	2.1	6,000	8 <sup>3</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>32</sub>	2 <sup>1</sup> / <sub>8</sub>	61
99V45S106	1.1	5 or 6	2.5	4,500	10 <sup>3</sup> / <sub>4</sub>	6 <sup>7</sup> / <sub>8</sub>	2 <sup>15</sup> / <sub>16</sub>	70
99V60S106	0.6	5 or 6	3.0	6,000	10 <sup>3</sup> / <sub>4</sub>	6 <sup>7</sup> / <sub>8</sub>	2 <sup>15</sup> / <sub>16</sub>	84

Air Inlet : All Models 1/2" NPT.

Size Hose Recommended: All Models 3/4".

Performance figures are at 90 psi air pressure.

## Accessories

Description	Series 88V Part Number	Series 99V Part Number
7" Type 27 Wheel Guard	88V60-106-7	99V77-106-7
9" Type 27 Wheel Guard	88V60-106-9	99V60-106-9
7" and 9" Type 27 Wheel Adapter Kit*	R3F-AS337	R3F-AS337
Piped-Away Exhaust Kit	88V60-K184	99V60-K184
Wheel Retaining Screw Wrench	88V-562	88V-562
Controller Wrench	88V60-950	99V60-950
Comfort Grips	CG-88V	CG-99V

\*For use with Type 27 "Plain Hole" Depressed Center Wheels

# Finishing Tools General Accessories

## Type 1 Wheel Grinder Equipment



Description	Series TX and HX Part Number	Series 61H Part Number	Series 77H Part Number	Series 88H Part Number	Series 99H Part Number
1/4" Erickson Collet	G160HD-700-1/4	RO-A390-1/4*			
3/8" Erickson Collet	DG120-700-G6	-			
Collet Body Wrench	DG10-69	DG120-69			
Collet Nut Wrench	DG120-69	DG20-69A			
3/8"-24 Cone Wheel Adapter	LE2-104-L6 ( 3/8"-24 F x 3/8"-24 Male)				
Type 1 Wheel Flange Nut Wrench	-	DG10-69			
Inlet Hose Assembly	R1A-130	-			
Wire Brush Adapter	LS2-A4-B10 ( 3/8"-24 F x 5/8"-11 Male)				
Controller Wrench		R15-169	77H-950	88V60-950	99V60-950

\*When ordering this two-piece Collet Assembly, Wheel End Bearing Cap No. 61H-K-19 and Dust Washer No. 61H-35 must also be ordered.



## Carbide Grinding Burs

Ingersoll-Rand now offers a perfect complement to its innovative grinders and finishing tools – a complete range of versatile, durable, high-precision burs.

IRAX carbide burs reflect unrivaled quality of manufacture, as well as superior quality of service...in types, styles, and sizes; easy and quick ordering and delivery, and extended product life.

Consider the cutting edge differences:

**Hand-ground construction** eliminates the harmonic frequencies that cause "bur bounce". This means less operator effort to hold the bur on the work piece, resulting in longer grinder and bur life and less operator fatigue.

**Flexible shanks** for hard-to-reach places are an integral part of our product offering. You can choose from diameters of 1/8", 3/16", 1/4" and 3/8" ...in lengths up to 50", with any shape bur.

**Extended length shanks** provide still more versatility, whether you need a 10" long steel shank, a 9" flexible shank, or a 6" long solid carbide bur.

**Quick turnaround** for all of our bur products means improved efficiency for your operation. Our manufacturing flexibility makes possible a five day order-to-shipment cycle, in most cases.

**The Ingersoll-Rand Carbide Bur Refurbishing Program** offers another option, extending the life of used burs. Our refurbishing center will sharpen, recondition or salvage your used carbide grinding burs as appropriate, at a fraction of new replacement cost.

For complete details on the IRAX carbide bur line, refer to the IRAX Accessories catalog, Form 52225G.

## Filters, Regulators and Lubricators

Increase tool performance, extend tool life, and reduce repair costs by installing IRAX Filters, Regulators and Lubricators.

Refer to the IRAX Accessories catalog (Form 52225G) for complete features and specifications information.



# Safety Information for Finishing Tools

## In General...

- Always operate, inspect and maintain tools in accordance with American National Standards Institute Safety Code for Portable Air Tools (ANSI B186.1).
- For safety, top performance, and maximum durability of parts, operate tools at 90 psi (6.2 bar/620 kPa) maximum air pressure at the inlet.
- Air powered tools can vibrate in use. Vibration, repetitive motions or uncomfortable positions may be harmful to your hands and arms. Stop using any tool if discomfort, tingling feeling or pain occurs. Seek medical advice before resuming use.
- Always turn off the air supply and disconnect the air supply hose before installing, removing or adjusting any accessory on a tool, or before performing any maintenance on a tool.
- Keep hands, loose clothing and long hair away from rotating end of tools.
- Anticipate and be alert for sudden changes in motion during start up and operation of any power tool.
- Check for excessive speed and vibration before operating.
- Tool shafts may continue to rotate briefly after throttle is released.
- Do not lubricate tools with flammable or volatile liquids such as kerosene, diesel, or jet fuel.
- Do not remove any labels. Replace any damaged label.
- Use accessories recommended by Ingersoll-Rand.

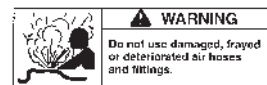
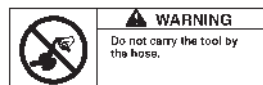
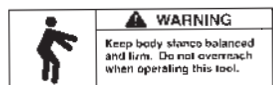
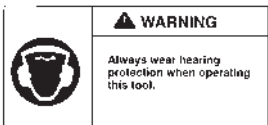
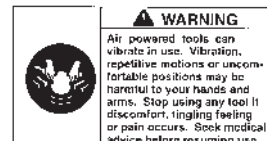
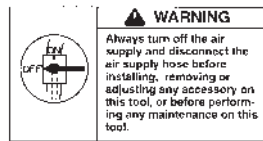
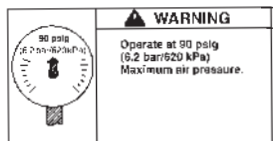
*Note: Always read the operators' manual before using any air tool.*

## When Using Grinders...

- Do not use tools if actual free speed exceeds the nameplate rpm.
- Before mounting a wheel, after all tool repairs and whenever a grinder is issued for use, check the free speed of the grinder with a tachometer to make certain its actual speed at 90 psig (6.2 bar/620 kPa) does not exceed the rpm stamped or printed on the nameplate. Grinders in use on the job must be similarly checked at least once each shift.
- Always use the Ingersoll-Rand wheel guard furnished with the grinder. Failure to do so could result in injury.
- Do not use a grinder without the recommended wheel guard. Do not use any wheel for which the operating speed listed on the blotter is lower than the actual free speed of the grinder.
- Inspect all grinding wheels for chips or cracks prior to mounting. Do not use a wheel that is chipped or cracked or otherwise damaged. Do not use a wheel that has been soaked in water or any other liquid.
- Make certain the grinding wheel properly fits the arbor. The wheel should not fit too snugly or too loosely. Plain hole wheels should have about 0.007" (0.17mm) maximum diametral clearance. Do not use reducing bushings to adapt a wheel to any arbor unless such bushings are supplied by or recommended by the wheel manufacturer.
- After mounting a new wheel, hold the grinder under a steel workbench or inside a casting and run it for at least 60 seconds. Make certain no one is within the operating plane of the grinding wheel. If the wheel is defective, improperly mounted or the wrong size and speed, this is the time it will usually fail.
- When starting a cold wheel, apply it to the work slowly until the wheel gradually warms up. Make smooth contact with the work, and avoid any bumping action or excessive pressure.
- Always replace a damaged, bent or severely worn wheel guard. Do not use a wheel guard that has been subjected to a wheel failure.
- Make certain the wheel flanges are at least 1/3 the diameter of the grinding wheel, free of nicks and burrs and sharp edges. Always use the wheel flanges furnished by the manufacturer; never use a makeshift flange or a plain washer.
- Guard opening must face away from operator. Bottom of wheel must not project beyond guard.
- Always use a wheel blotter between each wheel flange and the wheel. The blotters must be at least as large in diameter as the wheel flanges.
- Do not attempt to disassemble the controller. The controller is available only as a unit and is guaranteed for the life of the tool if it is not abused.

# Warning Label Identification

*Failure to observe the following warnings could result in injury.*



# Heavy Duty Finishing Tools

For applications requiring specialized, heavy-duty finishing tools, we've included excerpts from our Construction Tools catalog here. Check out our scalers, needle scalers, piston scalers, drills, and accessories on the next few pages — and consult our website, or your distributor or Ingersoll-Rand representative for more details on our complete product line.

## Scalers/Needle Scalers

### Features

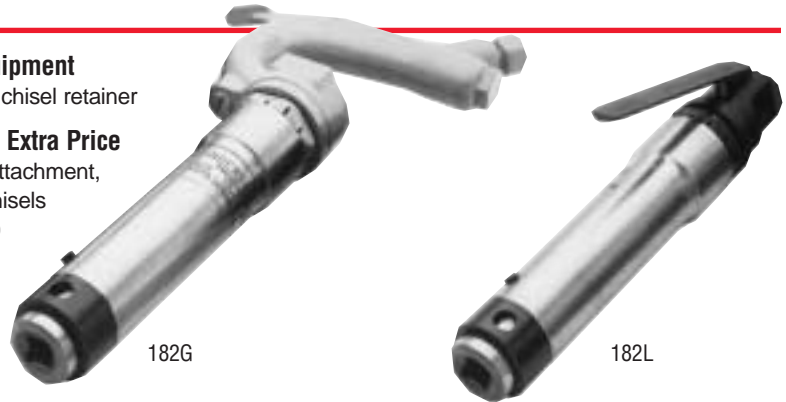
- Long nozzle section extends retainer life and permits the use of a variety of accessories
- Positive chisel retainer is simple to operate
- Strengthened head block holds up under the most extreme conditions

### Standard Equipment

- Positive lock chisel retainer

### Equipment at Extra Price

- For needle attachment, needles & chisels  
See page 39



Model	Throttle	Weight less Chisel		Length		Piston Stroke		Bore		Blows per Minute	Hose Connector Pipe Tap in.	Size Hose Recomm.		CFM
		lb.	kg	in.	mm	in.	mm	in.	mm			in.	mm	
172L	Lever	3 <sup>11</sup> / <sub>16</sub>	1.69	7 <sup>5</sup> / <sub>8</sub>	194	9 <sup>1</sup> / <sub>16</sub>	14	1 <sup>5</sup> / <sub>16</sub>	24	5,500	1/4	5 <sup>1</sup> / <sub>16</sub>	8	12
182G	Grip	5 <sup>5</sup> / <sub>16</sub>	2.41	12 <sup>13</sup> / <sub>16</sub>	325	1 <sup>1</sup> / <sub>16</sub>	27	1 <sup>5</sup> / <sub>16</sub>	24	4,000	1/4	5 <sup>1</sup> / <sub>16</sub>	8	13
182L	Lever	4 <sup>1</sup> / <sub>16</sub>	1.84	9	229	1 <sup>1</sup> / <sub>16</sub>	27	1 <sup>5</sup> / <sub>16</sub>	24	4,000	1/4	5 <sup>1</sup> / <sub>16</sub>	8	13

Performance figures are at 90 psi (620 kPa) air pressure.

## Needle Scaler Kit

### 182K1 Scaler Kit

- Model 182L scaler
- Complete NS11A needle attachment (with 5" long needles)
- One extra set of NS11-22-19 needles (5" long)
- One set of NS11-122-19 needles (7" long)
- One WF-14A-6<sup>1</sup>/<sub>8</sub> angle chisel
- One WF-14B-6<sup>1</sup>/<sub>8</sub> straight chisel
- One WF-14F-7 flat chisel
- PKB-1 or vinyl carrying case



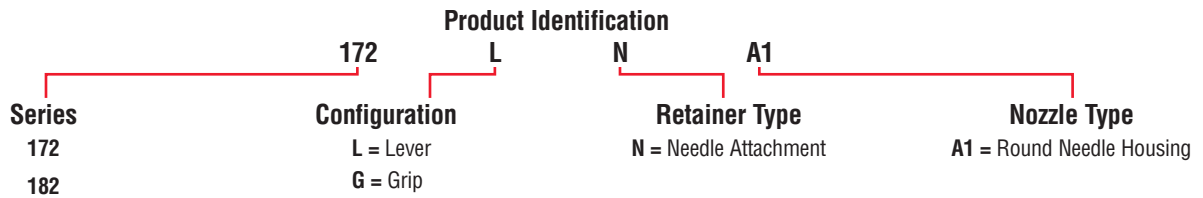
# Needle Scalers

## Features

- Adjustable bayonet-type needle housing lock allows adjustment without special tools
- Choice of three needle materials permits custom selection for various surfaces
- Rubber-faced throttle valve means positive sealing
- Tested and approved in accordance with MIL-S-23492A (Ships)
- Precision heat-treated needles for maximum performance

## Standard Equipment

- Lever throttle
- Nineteen 1/8" (3 mm) diameter steel needles, 5" (127 mm) long. NS11-22-19



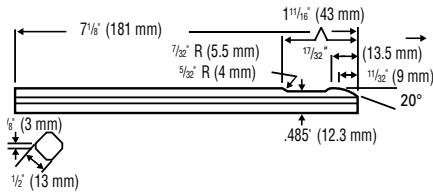
Model	Needle Housing Shape	Weight		Length		Piston Stroke		Bore		Blows per Minute	Hose Connector Pipe Tap in.	Size Hose Recomm.		CFM
		lb.	kg	in.	mm	in.	mm	in.	mm			in.	mm	
172LNA1	Round	5 1/4	2.38	13 3/4	349	5/16	14	15/16	24	5,500	1/4	5/16	8	12
182LNA1	Round	5 3/4	2.61	15	381	1 1/16	27	15/16	24	4,000	1/4	5/16	8	13

Performance figures are at 90 psi (620 kPa) air pressure.

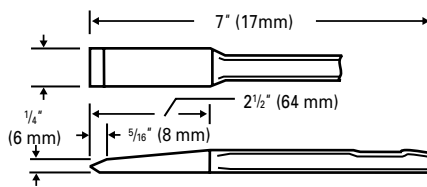
# Scaler/Needle Scaler Accessories

## Chisels and Star Drills for Series 172 and 182 Scalers

WF-14-7 $\frac{1}{8}$  Chisel Blank

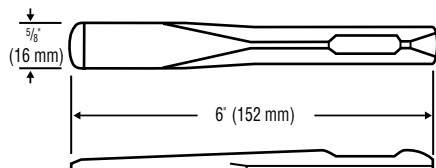


WF-14F-7 Flat Scaling Chisel

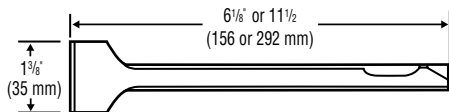


WF-14G-6 Gouge Chisel

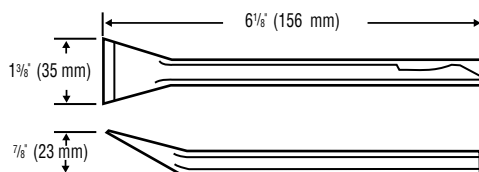
No. WF-14G-6 Gouge Chisel



WF-14B-6 $\frac{1}{8}$  or WF-14B-11 $\frac{1}{2}$  " Straight Scaling Chisel



WF-14A-6 $\frac{1}{8}$  Angle Scaling Chisel



## Needle Scaler Attachments

Needle Scaler Attachments are available for use on Series 172 or 182 Scalers already in service. Order by one of the symbols shown.

Attachment Symbol	Description	
NS11A	5" (127 mm) Steel Needles Std.	Round Needle Housing
NS11AS	5" (127 mm) Stainless Steel Needles	
NS11A7	7" (178 mm) Extended Steel Needles	
NS11BB	5" (127 mm) Beryllium Copper Needles	Rectangular Needle Housing
NS11BS	5" (127 mm) Stainless Steel Needles	
NS11B7	7" (178 mm) Extended Steel Needles	

## Replacement Needles

Set of 19 Needles

Part Number	Description
NS11-22-19	5" (127 mm) Steel Needles-Standard
NS11-B22-19	5" (127 mm) Beryllium Copper Needles-Optional
NS11-S22-19	5" (217 mm) Stainless Steel Needles-Optional
NS11-122-19	7" (178 mm) Extended Steel Needles-Optional

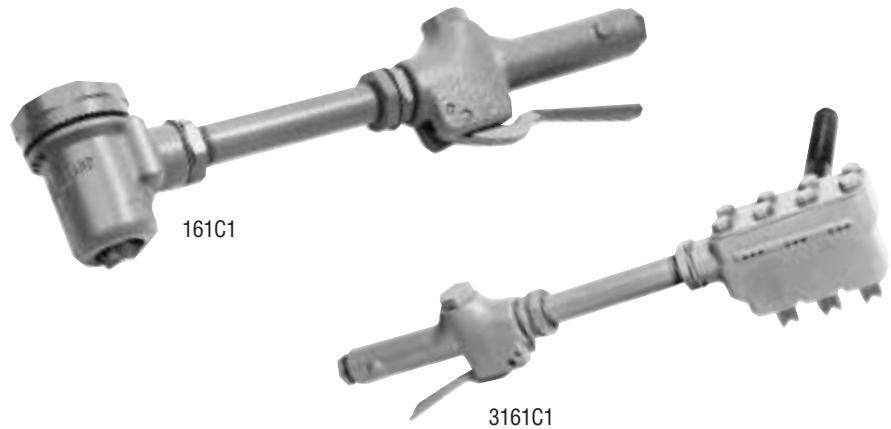
# Piston Scalers

## Features

- The handle containing the lever throttle on Model 3161C1 is interchangeable with the dead handle — thus it may be used parallel to, or at 90° to the three pistons
- The vibration and rotation of the piston does the scaling. A chisel is not used with this tool

## Standard Equipment

- 2<sup>3</sup>/<sub>4</sub>" (70 mm) short steel piston (one for Model 161C1, three for Model 3161C1)



Model	Piston Description	Blows per Minute	Operating Height		Length		Side to Center Distance		Weight		Throttle	CFM
			in.	mm	in.	mm	in.	mm	lb.	kg		
161C1	One Short Steel	3300	4 <sup>1</sup> / <sub>8</sub>	105	13 <sup>1</sup> / <sub>4</sub>	337	1 <sup>3</sup> / <sub>16</sub>	30	6 <sup>1</sup> / <sub>2</sub>	2.94	Lever	9
3161C1	Three Short Steel	3800	4	102	*15 <sup>3</sup> / <sub>8</sub>	*391	7/8	22	9 <sup>3</sup> / <sub>8</sub>	4.25	Lever	15

*\*With Lever Throttle attached to narrow end of Barrel.  
Both of the above Scalers have 1/4" NPT air inlet, 5/16" (8 mm) size hose is recommended.  
Performance figures are at 90 psi (620 kPa) air pressure.*

## Pistons for Models 161C1 and 3161C1 Scalers

For Model 161C1 one required	Description
N16-5A	Short Steel 2 <sup>3</sup> / <sub>4</sub> " (70 mm)-Standard

For Model 3161C1 three required	Description
316-5	Short Steel 2 <sup>5</sup> / <sub>8</sub> " (67 mm)-Standard
316-C5	Short Carbide-Tipped 2 <sup>5</sup> / <sub>8</sub> " (67 mm)
316-L5	Long Steel 3 <sup>5</sup> / <sub>8</sub> " (92 mm)
316-CL5	Long Carbide-Tipped 3 <sup>5</sup> / <sub>8</sub> " (92 mm)



## Series 728, 950-3800 rpm, .5 HP Maintenance Drills

### Features

- Powerful and economical
- Excellent for general purpose applications

### Standard Equipment

- Dead handle assembly on Model 728NA3 (728N-A48 dead handle)



728LA2

Model	Free Speed rpm	Stall Torque		Length with Chuck		Weight with Chuck		Chuck Capacity		Side to Center Distance		CFM
		in.-lb.	Nm	in.	mm	lb.	kg	in.	mm	in.	mm	
<b>Pistol Grip</b>												
728JA1	3800	30	3.39	7	177	2 <sup>7</sup> / <sub>16</sub>	1.1	3 <sup>5</sup> / <sub>8</sub>	8	2 <sup>9</sup> / <sub>32</sub>	23	19
728LA2	2550	54	6.10	7 <sup>1</sup> / <sub>4</sub>	184	2 <sup>1</sup> / <sub>2</sub>	1.1	3 <sup>5</sup> / <sub>8</sub>	10	2 <sup>9</sup> / <sub>32</sub>	23	19

Series 728 Drills have 1/4" NPT air inlet; 1/4" (6 mm) size hose is recommended. Performance figures are at 90 psi (620 pKa) air pressure. All models have 3/8" x 24 spindle.

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(Alpha order / Numerical order by first letter / Digit of model)

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