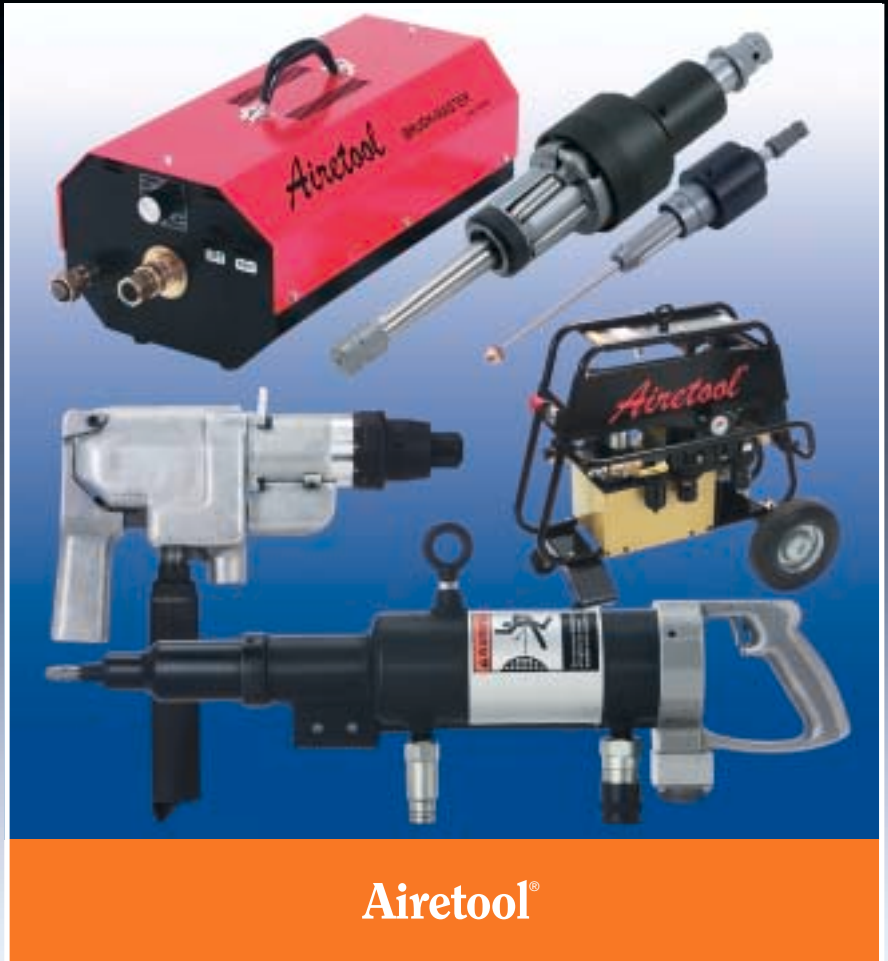


Cooper Tools



TUBE CLEANERS & EXPANDERS

**COOPER** Tools

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CooperTools Division has attained ISO 9001 Quality System Certification for eight of our facilities. The driving force behind the implementation of the Quality System is the commitment “to provide our customers with the **best value delivered** by offering only products and services **that meet or exceed their expectations**”.



Lexington, South Carolina



Dayton, Ohio



Hicksville, Ohio



Houston, Texas



Springfield, Ohio



Westhausen, Germany



Ozoir-la-Ferrière, France



Braunschweig, Germany

Cooper Industries, CooperTools Division

Warranty

Subject to the terms and conditions hereinafter set forth, CooperTools Division (the company) warrants products and parts sold by it, insofar as they are of its own manufacture, against defects of material and workmanship, under use and service in accordance with Company's written instructions, recommendations, and ratings for installation, operating, maintenance, and service of products, for a period of ONE YEAR FROM THE DATE OF SHIPMENT by Company, or any of Company's authorized Distributors.

This warranty is limited to the repair or replacement, as Company may elect, of any defective parts, regarding which, upon discovery of the defects, the purchaser has given immediate written notice.

Installation and transportation costs are not included. Company shall have the option of requiring the return to it of the defective material, transportation prepaid, for inspection.

COMPANY DOES NOT WARRANT THE MERCHANTABILITY OF ITS PRODUCTS AND DOES NOT MAKE ANY WARRANTY, EXPRESS OR IMPLIED OTHER THAN THE WARRANTY CONTAINED HEREIN, COMPANY HAS NOT AUTHORIZED ANYBODY TO MAKE ANY REPRESENTATION OR WARRANTY OTHER THAN THE WARRANTY CONTAINED HEREIN.

Lubrication Products

CooperTools' products are classified as non-hazardous manufactured items, defined in the OSHA 1910.1200 Hazard Communication Standard as "Articles". These products, under conditions of normal use, do not release or cause exposure to a hazardous chemical.

Under normal conditions of use, lubrication products sold separately for or used within these tools should not cause an exposure hazard. Refer to the Material Safety Data Sheet (M.S.D.S.) for Safety and Disposal Information. M.S.D.S. sheets are available upon request from CooperTools.

CooperTools is also aware of, and complies with, the provisions of section 611 amendments to the Clean Air Act of 1990. No ozone depleting chemicals

have been used in the manufacture of our products.

If you resell or distribute these products, you have the responsibility for ensuring that the Material Safety Data Sheets are provided to the purchaser.

Proper lubrication is essential to the economical operation of pneumatic tools. Tools perform better and their life is extended by using the recommended lubricants. All lubricants that are listed in the accessory section of this catalog have undergone extensive testing and are recommended for use with CooperTools products.

Airetool Products and Services

Airetool Tube Cleaners and Tube Expanders are used to fabricate and maintain boilers, heat exchangers, condensers and other tubular type equipment. Job proven in a variety of industries, Airetool products serve such facilities as petro chemical plants, oil refineries, nuclear and non-nuclear power plants, paper, sugar and metal mills, air-conditioning servicing and maintenance plants.

Products described in this catalog are representative of the complete Airetool Tube Cleaner and Tube Expander product lines. If a need develops which can not be satisfied by our standard products, please contact your CooperTools Distributor, or your CooperTools Sales and Service Center.

The Airetool® family of tools is one on the most diverse in the heat transfer industry. With a broad selection of tube expanders, tube-rolling controls, tube cleaners, and re-tubing tools to cover various applications.

Airetool®

Tools that perform

Improving production rates and decreasing cost are critical to the success of today's manufacturer or contractor. The Airetool line of tools are designed and manufactured to perform time after time fast and consistently. When it comes to performance and reliability, there is no doubt as to why manufacturers and contractors around the world have come to rely on the Airetool brand of products.

Tools of the highest quality

When we say our tools are built well, we really mean it. CooperTools manufacturing processes are ISO 9001 certified... that means the Airetool brand is manufactured to the highest standard.

Tools that work with the operator

It is simple... give an operator a tool that is comfortable to use and the operator will work better. Airetool balance systems do just that, coupled with extending expander or other tooling life.

Rapid Select means fast delivery

Models indicated with the **Rapid Select** icon

represent our most popular tools, and are available for fast delivery in limited quantities.



Airetool Heat Exchanger – Condenser Expanders

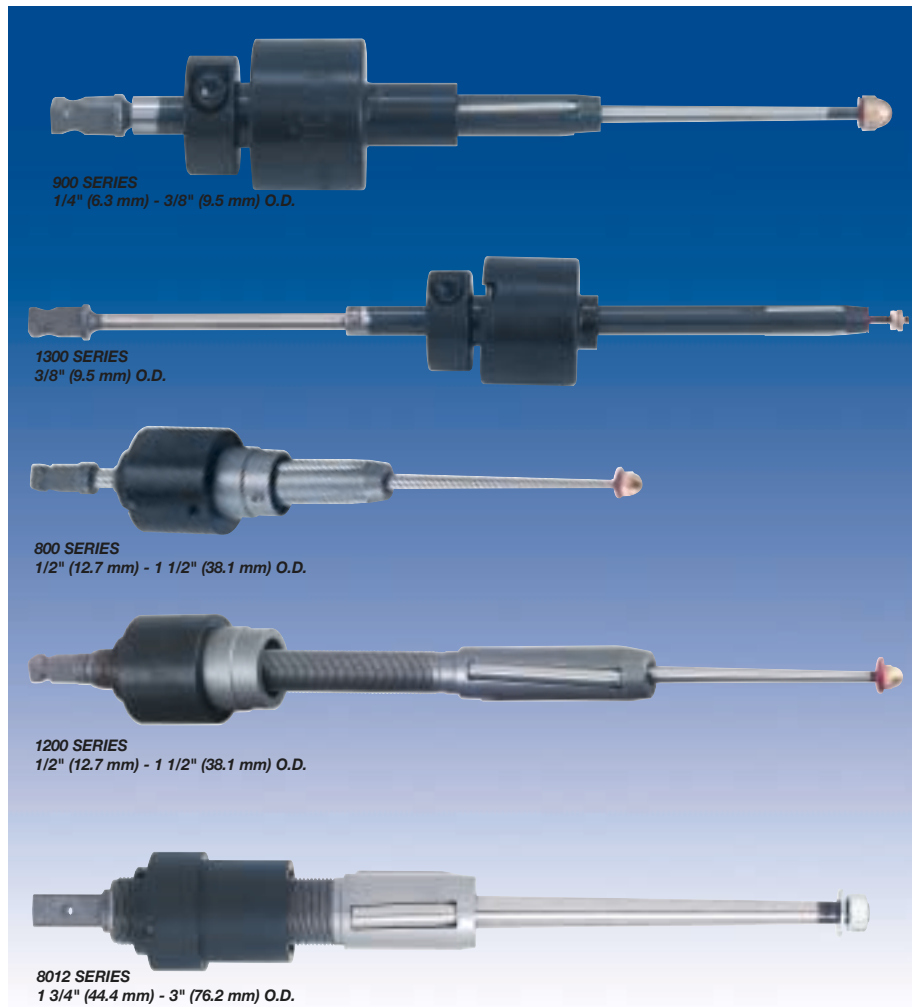
Airetool®

The world standard in tube expanders

Airetool heat exchanger- condenser expanders have long been recognized as the standard to which all other brands are measured. The extra time spent manufacturing our expanders results in consistent performance and incredible durability that Original Heat Exchanger Manufacturers expect.

To select the correct tube expander the following information is required:

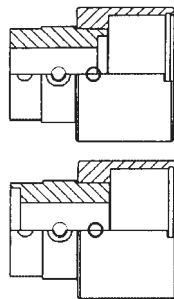
- Tube OD
- Tube wall thickness or BWG
- Tube sheet thickness
- Tube material
- Special Conditions, i.e. double tube sheet, tubes close to tube sheet channel, tubes, or protrusions.
- Long reach expanders are available upon request in 6" increments. Contact the Springfield office for special assistance.



Collars

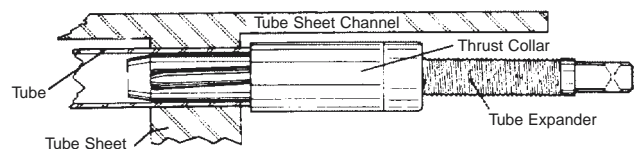
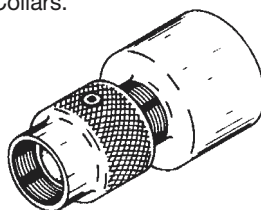
Flip Collar

800/1200 Series tube expanders are supplied with a flip collar with a 10-32 UNF auto-lube port. The flip collar allows for flush and recessed tube rolling. The standard expander is supplied with a recess of 1/8" (3 mm). The Auto-lube port when used with the ATR lubricators shown on page 29 extends expander component life. Other recess lengths are available. Contact Customer Service for details. #5 Roll Expanders do not have Flip Collars.



Adjustable Recess Thrust Collar

The adjustable recess collar accommodates tube projections up to 1/2" (12.7 mm) from the tube sheet.

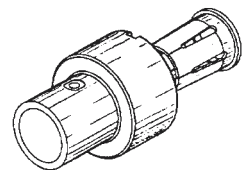


Small Diameter Thrust Collar

Small diameter thrust collars are recommended for rolling tubes in confined areas.

Thin Wall Thrust Collar

Thin wall thrust collars are recommended when expanding 22BWG .028" (.71 mm) or lighter wall tubes. This design limits the possibility of the tube being drawn up inside the thrust collar.



Removing the collar's collet allows the expander to be used as a full recess style compensating for various length tube projections from the tube sheet.

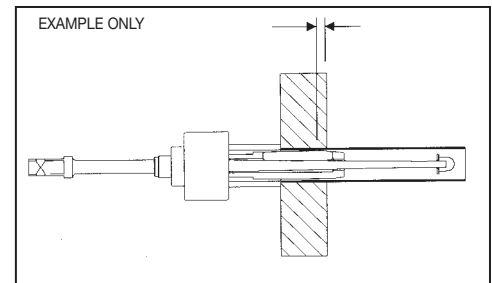
Airetool Heat Exchanger – Condenser Expanders

Five roll expander vs. Three roll expander

Many manufacturers prefer the five-roll expander for applications that use tube materials that work harden quickly such as stainless steel and titanium. Also used in applications with closely spaced tubes having triangular pitch. The five-roll expander inherently has more contact area with the tube than the three-roll. This extra contact with the tube reduces the amount of work hardening and spring back effect, which is common with these tube materials. The thinner the tube walls, 18 BWG (.049"/1.25mm) and thinner, the more apt this is to occur.

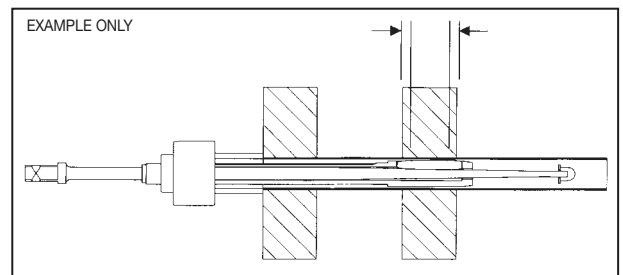
Setting the tube expander's collar

It is very important to set the tube expander's collar in the correct position inside the tube sheet to EL pinch point. The expander's roll high point should be positioned away from the inner side of the tube sheet as shown in the figure below. The purpose for setting the expander's collar this way is to allow for thermal expansion and contraction of the tube while it is in service. If the tube is expanded beyond the tube sheet, the thermal expansion and contraction of the tube will cause stress on the tube, which may cause the tube to crack or rupture at the inner tube sheet location. When tightening the setscrew on the expander's collar, be sure it is aligned with the cage groove.



Double Tube Sheet Application

In a double tube sheet application additional information is required. The thickness of the outer tube sheet (primary tube sheet) and inner tube sheet (secondary tube sheet) and the distance between the two tube sheets must be shown. When expanding the tube in the primary tube sheet the expanders collar is positioned as in the figure above with an 800 series tube expander. For the secondary tube sheet a 1200 series expander is required with "S" type (double radius) rolls. The "S" type rolls are required to allow the expander to have clearance on each side of the secondary tube sheet. This is to reduce stresses in the tube due to thermal expansion and contraction.



Airetool Heat Exchanger – Condenser Expanders

Step Rolling

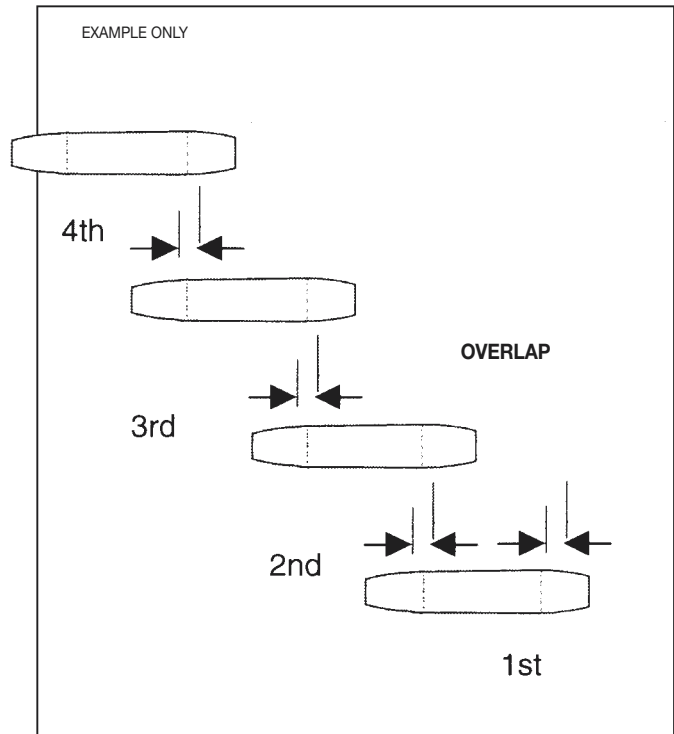
Step rolling is required when expanding tubes in thick tube sheets. Typically the first expansion is made at the innermost location, away from the inner side of the tube sheet. This is extremely important when rolling the opposite end of the vessel. This allows the tube material to grow in the proper direction towards the operator and keeps the tube from being stressed. After all the tubes have been expanded in this location, adjust the expander's collar to overlap the perviously rolled area. Repeat as necessary until the complete thickness of the tube sheet has been expanded. "S" type rolls (double radius) are recommended for step rolling to provide a smooth transition on the I.D. of the tube.

Care and Maintenance of Tube Expanders

Tube expanders are precision tools and should be treated as such. The service demanded of them is severe. Therefore, they must be given a reasonable amount of care to insure long life and satisfactory operation.

Hand-Held Rolling Applications

1. Before using, clean the expander thoroughly to remove any dirt or foreign matter.
2. Check thrust bearing and grease if needed. This should be done daily.
3. Proper lubrication of the expander during the rolling operation is a must to keep the mandrel and rolls cool, to extend mandrel and roll life, and to insure uniform tube to tube sheet joints.
4. Depending on the severity of the rolling application, the expander should be washed periodically (every 25-100 tubes) in any commercial solvent. For best expander life, the expander should be left in solvent to cool while a second expander is used to continue rolling.
5. Replace scarred or chipped rolls or mandrels immediately. One small chip in a roll can cause the complete set of rolls and the mandrel to be damaged in a single rolling cycle.
6. When the rolling job is complete, wash the expander thoroughly and then oil and grease generously to prevent rusting during storage.



DAS Automated Tube Rolling Applications

1. Before installing the expander into the "ATR" rolling machine, clean the expander thoroughly to remove any dirt or foreign matter.
2. Check thrust bearing and grease if needed. This should be done daily.
3. Lubrication of the expander during the operation is a must to keep the mandrel and rolls cool, to extend mandrel and roll life, and to insure uniform tube to tube sheet joints. An optional automatic lubrication system is offered for the automatic "ATR" tube rolling systems.
4. Hand cleaning is virtually eliminated with the use of the automatic lubricating system as the air pressure that blows the lubrication into the expander to cool it also blows away dirt or foreign matter during each cycle.
5. Replace scarred or chipped rolls or mandrels immediately. One small chip in a roll can cause the complete set of rolls and the mandrel to be damaged in a single rolling cycle.
6. When the rolling job is complete, wash the expander thoroughly and then oil and grease generously to prevent rusting during storage.

Airetool Condenser Expanders

Selection Guide G-900 Series Heat Exchanger and Condenser Tube Expanders



Airetool®

G-900 Series

Range:

1/4 – 3/8 Inches
6.3 – 9.5 mm

- Expander with 3/4 in. (19.0 mm) long rolls will accommodate tube sheet thicknesses from 1/4 in. to 3/4 in. (6.3 mm to 19.0 mm)
- Expander with 1-1/4 in. (31.7 mm) long rolls will accommodate tube sheet thicknesses from 3/4 in. to 1-1/4 in. (19.0 mm to 31.7 mm)
- These expanders will accommodate a wide range of tube sheet thicknesses.

NOTE: Information on any size of tube not listed will be furnished upon request.

Tube O.D. In. (mm)	Tube Gauge bwg In. (mm)		Tube I.D. In. (mm)	Tube Sheet Thickness				Min. I.D. Tool Enters In. (mm)	Max. Expan. of Tool In. (mm)	Mandrel No. (Part No.) 1/4 in. Sq. Dr. / 6.3 mm	Recommended Controlled Rolling Motors Airetool
				1/4 in. to 3/4 in. (6.3 mm to 19.0 mm)		3/4 in. to 1-1/4 in. (19.0 mm to 31.7 mm)					
				Tool No. (Part No.)	Roll No. (Part No.)	Tool No. (Part No.)	Roll No. (Part No.)				
1/4 (6.3)	18	.049 (1.24)	.152 (3.6)	921 (5016710)	921 (5175610)			.151 (3.8)	.173 (4.4)	M-39 (2520300)	720-2500B (8405541)
	19	.042 (1.06)	.166 (4.2)	922 (5016800)	923 (5175700)			.165 (4.1)	.185 (4.7)		
	20	.035 (.88)	.180 (4.5)	923 (5016901)	923 (5175700)			.175 (4.4)	.200 (5.1)	M-40 (2520500)	
	21	.032 (.81)	.186 (4.7)	924 (5017000)	924 (5175800)			.180 (4.5)	.207 (5.2)		
	22	.028 (.71)	.194 (4.9)	925 (5017100)	925 (5175900)			.190 (4.8)	.216 (5.5)		
	23	.025 (.63)	.200 (5.0)	926 (5017200)	923 (5175700)			.195 (4.9)	.222 (5.6)	M-41 (2520700)	
	24	.022 (.55)	.206 (5.2)	927 (5017300)	924 (5175800)			.201 (5.1)	.230 (5.8)		
	28	.014 (.35)	.222 (5.6)								
	29	.013 (.33)	.224 (5.7)	928 (5017400)	903 (5174700)			.222 (5.6)	.238 (6.0)	928 (2161300)	
	30	.012 (.30)	.226 (5.7)								
3/8 (9.5)	14	.083 (2.10)	.209 (5.3)	927 (5017300)	924 (5175800)			.201 (5.1)	.232 (5.8)	M-41 (2520700)	720-2500B (8405541)
	15	.072 (1.82)	.231 (5.8)	915 (5016410)	903 (5174700)			.230 (5.8)	.265 (6.7)	M-42 (2520900)	
	16	.065 (1.65)	.245 (6.2)	916* (5016500)	916 (5175600)			.240 (6.1)	.275 (6.9)	M-36 (2519700)	
						916L (5512156)	916L (5512157)			M-36L (2968803)	
	17	.058 (1.47)	.259 (6.5)	918 (5016600)	903 (5174700)	920 (5016700)	904 (5174800)	.255 (6.4)	.289 (7.3)	M-38 (2520100)	
	18	.049 (1.24)	.277 (7.0)	901 (5015200)	903 (5174700)	902 (5015300)	904 (5174800)	.272 (6.9)	.307 (7.8)	M-30 (2518400)	
	19	.042 (1.06)	.291 (7.3)	903 (5015400)	903 (5174700)	904 (5015500)	904 (5174800)	.286 (7.2)	.330 (8.1)	M-31 (2518700)	
	20	.035 (.88)	.305 (7.7)	905 (5015600)	907 (5174900)	906 (5015700)	908 (5175000)	.300 (7.6)	.334 (8.4)	M-32 (2518900)	
	21	.032 (.81)	.311 (7.9)	907 (5015800)	907 (5174900)	908 (5015900)	908 (5175000)	.306 (7.7)	.340 (8.6)	M-33 (2519100)	
	22	.028 (.71)	.319 (8.1)	909 (5016000)	909 (5175100)	910 (5016100)	910 (5175200)	.314 (7.9)	.349 (8.8)		
	23	.025 (.63)	.325 (8.2)	911 (5016200)	911 (5175300)	912 (5016300)	912 (5175400)	.320 (8.1)	.357 (9.0)	M-34 (2519300)	
	24	.022 (.55)	.331 (8.4)	911 (5016200)	911 (5175300)	912 (5016300)	912 (5175400)				

*This expander has 1" long rolls.

Refer to page 5 for description of Rapid Select.

Airetool Condenser Expanders

Selection Guide G-1300 Series Heat Exchanger and Condenser Tube Expanders

Airetool®

G-1300 Series

Range:
3/8 Inches
9.5 mm

- Expanders with 3/4 in. (19.0 mm) long rolls will accommodate tube sheet thicknesses of 3/4 in. to 3 in. (19 mm to 76.2 mm)
- Expanders with 1-1/4 in. (31.7 mm) long rolls will accommodate tube sheet thicknesses from 1-1/4 in. to 3-1/2 in. (31.7 mm to 88.9 mm)
- These expanders will accommodate a wide range of tube sheet thicknesses.



Tube O.D. In. (mm)	Tube Gauge bwg In. (mm)		Tube I.D. In. (mm)	Tube Sheet Thickness				Min. I.D. Tool Enters In. (mm)		Max. Expan. of Tool In. (mm)		Mandrel No. (Part No.) 1/4 in. Sq. Dr. / 6.3 mm	Recommended Controlled Rolling Motors Airetrol
				3/4 in. to 3 in. (19.0 mm to 76.0 mm)*		1-1/4 in. to 3-1/2 in. (31.7 mm to 88.9 mm)*							
				Tool No. (Part No.)	Roll No. (Part No.)	Tool No. (Part No.)	Roll No. (Part No.)	In. (mm)	In. (mm)				
3/8 (9.5)	15	.072 (1.82)	.231 (5.8)	1315 (5512183)	1315 (5512184)	1316 (5512185)	1316 (5512180)	.230 (5.8)	.265 (6.7)	M-86 (2541400)	720-2500B (8405541)		
	16	.065 (1.65)	.245 (6.2)	1319 (5512187)	903 (5174700)	1319-L (5512190)	916-L (5512157)	.240 (6.1)	.275 (6.9)				
	17	.058 (1.47)	.259 (6.5)	1317 (5512191)		1318 (5512192-5)	904 (5174800)	.255 (6.4)	.289 (7.3)	M-88 (2541600)			
	18	.049 (1.24)	.277 (7.0)	1301 (5055100)	1302 (5055200)	.272 (6.9)		.307 (7.8)	M-80 (2540000)				
	19	.042 (1.06)	.291 (7.3)	1303 (5055300)	1304 (5055400)	.286 (7.2)	.320 (8.1)	M-81 (2540200)					
	20	.035 (.88)	.305 (7.7)	1305 (5055500)	1306 (5055600)	908 (5175000)	.300 (7.6)	.334 (8.4)	M-82 (2540400)				
	21	.032 (.81)	.311 (7.9)	1307 (5055700)	1308 (5055800)		.306 (7.7)	.340 (8.6)	M-83 (2540600)				
	22	.028 (.71)	.319 (8.1)	1309 (5055900)	909 (5175100)	910 (5175200)	.314 (7.9)	.349 (8.8)	M-84 (2540800)				
	23	.025 (.63)	.325 (8.2)	1311 (5056100)	911 (5175300)	1312 (5056200)	912 (5175400)	.320 (8.1)		.357 (9.0)			
	24	.022 (.55)	.331 (8.4)										



Tube Expander Lubricant "LUBE-A-TUBE"

- A water soluble lubricant especially compounded for use with tube expanders. It prevents rust, acts as a coolant for longer life and smoother rolling.

2981695 (5 gallon)

*NOTE: Step expanding becomes necessary if the tube sheet thickness exceeds the length of the roll.

Refer to page 5 for description of Rapid Select.

Airetool Condenser Expanders

Selection Guide G-800 Series Heat Exchanger and Condenser Tube Expanders



Airetool®

G-800 Series – 3-Roll

Range:

1/2 – 1-1/2 Inches
12.7 – 38.1 mm

- Expanders with 1-1/2 in. (38.1 mm) long rolls will accommodate tube sheet thicknesses of 1/2 in. to 1-1/2 in. (12.7 mm to 38.1 mm)
- Expanders with 2-1/4 in. (57.1mm) long rolls will accommodate tube sheet thicknesses from 1-1/4 in. to 2-1/4 in. (31.7 mm to 57.1 mm)

New Reversible Thrust Collar Design

- One expander allows flush and 1/8 in. recess tube rolling. Collars have lubrication port for ATR Airetrol Auto-Lube. (See page 29)

Tube O.D. In. (mm)	Tube Gauge bwg In. (mm)		Tube I.D. In. (mm)		Tube Sheet Thickness				Min. I.D. Tool Enters In. (mm)	Max. Expan. of Tool In. (mm)	Mandrel No. (Part No.) 3/8 in. Sq. Dr. / 9.5 mm	Recommended Controlled Rolling Motors	
					1/2 in. to 1-1/2 in. (12.7 mm to 38.1 mm)		1-1/4 in. to 2-1/4 in. (31.7 mm to 57.1 mm)					Airetrol	Electric Control
					Tool No. (Part No.)	Roll No. (Part No.)	Tool No. (Part No.)	Roll No. (Part No.)					
1/2 (12.7)	14	.083 (2.10)	.334 (8.4)	Airetool 797 (5005780)	Airetool 797 (5512194)			.324 (8.2)	.374 (9.5)	Airetool 797 (2131300)	Airetool 720-550-B (8405391)		
	15	.072 (1.82)	.356 (9.0)	Airetool 799 (5005782)	Airetool R-1 (5284800)			.348 (8.8)	.398 (10.1)	Airetool 799 (2131900)			
	16	.065 (1.65)	.370 (9.4)	Airetool 801 (5005800)				.360 (9.1)	.410 (10.4)				
	17	.058 (1.47)	.384 (9.7)	Airetool 803 (5005900)	Airetool R-2 (5285000)			.374 (9.5)	.424 (10.7)	Airetool M-1 (2511800)	Airetool 720-1800-B-3/8 (8405512)		
	18	.049 (1.24)	.402 (10.2)	Airetool 805 (5006000)	Airetool R-3 (5285200)			.392 (9.9)	.447 (11.3)	Airetool M-2 (2512100)			
	20	.035 (.88)	.430 (10.9)	Airetool 807 (5006100)	Airetool R-4 (5285400)			.420 (10.7)	.480 (12.1)	Airetool M-3 (2512400)			
12	.109 (2.76)	.407 (10.3)	Airetool 805 (5006000)	Airetool R-3 (5285200)			.392 (9.9)	.447 (11.3)	Airetool M-2 (2512100)	Airetool 850-600-A (8405398)		966-C-400/ ATC-900	
13	.095 (2.41)	.435 (11.0)	Airetool 807 (5006100)	Airetool R-4 (5285400)			.420 (10.7)	.480 (12.1)	Airetool M-3 (2512400)				
5/8 (15.8)	14	.083 (2.10)	.459 (11.6)	Airetool 809 (5006200)		Airetool 810 (5006300)	Airetool R-4-A (5285500)	.449 (11.4)	.509 (12.9)	Airetool M-4 (2512700)	Airetool 850-600-A (8405398)	966-C-725/ ATC-900	
	15	.072 (1.82)	.481 (12.2)	Airetool 811 (5006400)	Airetool R-5 (5285800)	Airetool 812 (5006500)	Airetool R-5-A (5285900)	.471 (11.9)	.536 (13.6)	Airetool M-5 (2513000)			
	16	.065 (1.65)	.495 (12.5)	Airetool 813 (5006600)	Airetool R-6 (5286200)	Airetool 814 (5006700)	Airetool R-6-A (5286300)	.485 (12.3)	.550 (13.9)				
	17	.058 (1.47)	.509 (12.9)	Airetool 815 (5006800)		Airetool 816 (5006900)		.499 (12.6)	.564 (14.3)		Airetool 850-1250-A (8405399)		
	18	.049 (1.24)	.527 (13.3)	Airetool 817 (5007000)		Airetool 818 (5007100)		.517 (13.1)	.582 (14.8)	Airetool M-6 (2513300)			
	19	.042 (1.06)	.541 (13.7)		Airetool R-7 (5286600)								
	20	.035 (.88)	.555 (14.1)			Airetool 820 (5007300)	Airetool R-7-A (5286700)						
	21	.032 (.81)	.561 (14.2)	Airetool 819 (5007200)				.531 (13.5)	.596 (15.1)	Airetool M-8 (2513900)			
	22	.028 (.71)	.569 (14.4)										

Refer to page 5 for description of Rapid Select.

Airetool Condenser Expanders

Selection Guide G-800 Series Heat Exchanger and Condenser Tube Expanders – continued

Tube O.D. In. (mm)	Tube Gauge bwg In. (mm)		Tube I.D. In. (mm)	Tube Sheet Thickness				Min. I.D. Tool Enters In. (mm)	Max. Expan. of Tool In. (mm)	Mandrel No. (Part No.) 3/8 in. Sq. Dr. / 9.5 mm	Recommended Controlled Rolling Motors									
				1/2 in. to 1-1/2 in. (12.7 mm to 38.1 mm)		1-1/4 in. to 2-1/4 in. (31.7 mm to 57.1 mm)					Airetrol	Electric Control								
				Tool No. (Part No.)	Roll No. (Part No.)	Tool No. (Part No.)	Roll No. (Part No.)													
3/4 (19.0)	10	.134 (3.40)	.482 (12.2)	811 (5006400)	R-5 (5285800)	812 (5006500)	R-5-A (5285900)	.471 (11.9)	.536 (13.6)	M-5 (2513000)	850-600-A (8405398)	979-C-650/ ATC-900								
	11	.120 (3.04)	.510 (12.9)	815 (5006800)	R-6 (5286200)	816 (5006900)	R-6-A (5286300)	.499 (12.6)	.564 (14.3)	M-6 (2513300)										
	12	.109 (2.76)	.532 (13.5)	817 (5007000)	R-7 (5286600)	818 (5007100)	R-7-A (5286700)	.517 (13.1)	.582 (14.8)	M-8 (2513900)										
	13	.095 (2.41)	.560 (14.2)	821 (5007400)	R-8 (5287000)	822 (5007500)	R-8-A (5287100)	.550 (13.9)	.615 (15.6)											
	14	.083 (2.10)	.584 (14.8)	823 (5007600)	R-9 (5287400)	824 (5007700)	R-9-A (5287500)	.574 (14.5)	.639 (16.2)											
	15	.072 (1.82)	.606 (15.3)	825 (5007800)	R-10 (5287800)	826 (5007900)	R-10-A (5287900)	.596 (15.1)	.661 (16.7)	M-9 (2514200)			850-1250-A (8405399)	966-C-400/ ATC-900						
	16	.065 (1.65)	.620 (15.7)	827 (5008000)	R-10 (5287800)	828 (5008100)	R-10-A (5287900)	.605 (15.3)	.685 (17.4)											
	17	.058 (1.47)	.634 (16.1)	829 (5008200)	R-11 (5288200)	830 (5008300)	R-11-A (5288300)	.619 (15.7)	.699 (17.7)											
	18	.049 (1.24)	.652 (16.5)	831 (5008400)	R-12 (5288600)	832 (5008500)	R-12-A (5288700)	.642 (16.3)	.722 (18.3)											
	19	.042 (1.06)	.666 (16.9)																	
	20	.035 (.88)	.680 (17.2)																	
	21	.032 (.81)	.686 (17.4)	825 (5007800)	R-10 (5287800)	826 (5007900)	R-10-A (5287900)	.596 (15.1)	.661 (16.7)						M-8 (2513900)	850-600-A (8405398)	979-C-650/ ATC-900			
11	.120 (3.04)	.635 (16.1)	829 (5008200)								R-11 (5288200)	830 (5008300)						R-11-A (5288300)	.619 (15.7)	.699 (17.7)
12	.109 (2.76)	.657 (16.6)	831 (5008400)	R-12 (5288600)	832 (5008500)	R-12-A (5288700)	.642 (16.3)	.722 (18.3)	M-10 (2514500)		850-600-A (8405398)	979-C-650/ ATC-900								
13	.095 (2.41)	.685 (17.4)	833 (5008600)	R-13 (5289000)	834 (5008700)	R-13-A (5289100)	.670 (17.0)	.750 (19.0)												
14	.083 (2.10)	.709 (18.0)	835 (5008800)	R-14 (5289400)	836 (5008900)	R-14-A (5289500)	.685 (17.4)	.774 (19.6)							M-11 (2514800)					
15	.072 (1.82)	.731 (18.5)	837 (5009000)	R-15 (5289800)	838 (5009100)	R-15-A (5289900)	.712 (18.0)	.801 (20.3)												
16	.065 (1.65)	.745 (18.9)	839 (5009200)		840 (5009300)	R-15-A (5289900)	.726 (18.4)	.815 (20.7)		M-12 (2515100)			850-1250-A (8405399)	966-C-725/ ATC-900						
17	.058 (1.47)	.759 (19.2)	843 (5009600)	R-16 (5290200)	844 (5009700)	R-16-A (5290300)	.740 (18.8)	.829 (21.0)												
18	.049 (1.24)	.777 (19.7)																		
1 (25.4)	8	.165 (4.19)	.670 (17.0)	841 (5009400)	R-13 (5289000)	842 (5009500)	R-13-A (5289100)	.655 (16.6)							.735 (18.6)			M-9 (2514200)	1050-400-A (8404200)	979-C-300/ ATC-900
	9	.148 (3.75)	.704 (17.8)	835 (5008800)	R-14 (5289400)	836 (5008900)	R-14-A (5289500)	.685 (17.4)							.774 (19.6)					
	10	.134 (3.40)	.732 (18.5)	837 (5009000)	R-15 (5289800)	838 (5009100)	R-15-A (5289900)	.712 (18.0)							.801 (20.3)			M-11 (2514800)		
	11	.120 (3.04)	.760 (19.3)	843 (5009600)	R-16 (5290200)	844 (5009700)	R-16-A (5290300)	.740 (18.8)							.829 (21.0)					
	12	.109 (2.76)	.782 (19.8)	845 (5009800)	R-17 (5290600)	846 (5009900)	R-17-A (5290700)	.763 (19.3)							.852 (21.6)	M-12 (2515100)				
	13	.095 (2.41)	.810 (20.5)	847 (5010000)	R-18 (5291000)	848 (5010100)	R-18-A (5291100)	.791 (20.0)	.880 (22.3)											
	14	.083 (2.10)	.834 (21.1)	849 (5010200)	R-18 (5291000)	850 (5010300)	R-18-A (5291100)	.810 (20.5)	.909 (23.0)		M-13 (2515400)	850-600-A (8405398)			979-C-300/ ATC-900					
	15	.072 (1.82)	.856 (21.7)	851 (5010400)	R-19 (5291400)	852 (5010500)	R-19-A (5291500)	.837 (21.2)	.936 (23.7)											
	16	.065 (1.65)	.870 (22.1)																	
	17	.058 (1.47)	.884 (22.4)	855 (5010800)	R-21 (5292200)	856 (5010900)	R-21-A (5292300)	.865 (21.9)	.964 (24.4)	M-9 (2514200)			850-1250-A (8405399)	979-C-650/ ATC-900						
	18	.049 (1.24)	.902 (22.9)																	

Refer to page 5 for description of Rapid Select.

Airetool Condenser Expanders

Selection Guide G-800 Series Heat Exchanger and Condenser Tube Expanders – continued

Tube O.D. In. (mm)	Tube Gauge bwg In. (mm)		Tube I.D. In. (mm)	Tube Sheet Thickness				Min. I.D. Tool Enters In. (mm)	Max. Expan. of Tool In. (mm)	Mandrel No. (Part No.) 1/2 in. Sq. Dr. / 12.7 mm	Recommended Controlled Rolling Motors																									
				1/2 in. to 1-1/2 in. (12.7 mm to 38.1 mm)		1-1/4 in. to 2-1/4 in. (31.7 mm to 57.1 mm)					Airetool	Electric Control																								
				Tool No. (Part No.)	Roll No. (Part No.)	Tool No. (Part No.)	Roll No. (Part No.)																													
1 (25.4)	19	.042 (1.06)	.916 (23.2)	855 (5010800)	R-21 (5292200)	856 (5010900)	R-21-A (5292300)	.865 (21.9)	.964 (24.4)	M-13 *(2515400)	850-1250-A (8405399)	979-C-650/ ATC-900																								
	20	.035 (.88)	.930 (23.6)	853 (5010600)	R-20 (5291800)	854 (5010700)	R-20-A (5291900)	.776 (19.7)	.875 (22.2)		M-14 (2515700)	1050-400 (8404200)	979-C-300/ ATC-900																							
1-1/8 28.5	8	.165 (4.19)	.795 (20.1)	853 (5010600)	R-20 (5291800)	854 (5010700)	R-20-A (5291900)	.776 (19.7)	.875 (22.2)	M-15 (2516000)				1050-400 (8404200)	979-C-650/ ATC-900																					
	9	.148 (3.75)	.829 (21.0)	849 (5010200)	R-18 (5291000)	850 (5010300)	R-18-A (5291100)	.810 (20.5)	.909 (23.0)							M-16 (2516300)	1050-400 (8404200)	979-C-650/ ATC-900																		
	10	.134 (3.40)	.857 (21.7)	851 (5010400)	R-19 (5291400)	852 (5010500)	R-19-A (5291500)	.837 (21.2)	.936 (23.7)										M-17 (2516600)	1050-400 (8404200)	979-C-650/ ATC-900															
	11	.120 (3.04)	.885 (22.4)	855 (5010800)	R-21 (5292200)	856 (5010900)	R-21-A (5292300)	.865 (21.9)	.964 (24.4)													M-18 (2516900)	1050-400 (8404200)	979-C-650/ ATC-900												
	12	.109 (2.76)	.907 (23.0)	857 (5011000)	R-21 (5292200)	858 (5011100)	R-21-A (5292300)	.883 (22.4)	.982 (24.9)																M-19 (2517200)	1050-400 (8404200)	979-C-650/ ATC-900									
	13	.095 (2.41)	.935 (23.7)	859 (5011200)	R-22 (5292600)	860 (5011300)	R-22-A (5292700)	.916 (23.2)	1.015 (25.7)																			M-20 (2517500)	1050-400 (8404200)	979-C-650/ ATC-900						
	14	.083 (2.10)	.959 (24.3)	861 (5011400)	R-23 (5293000)	862 (5011500)	R-23-A (5293100)	.935 (23.7)	1.044 (26.5)																						M-21 (2517800)	1050-400 (8404200)	979-C-650/ ATC-900			
	15	.072 (1.82)	.981 (24.9)	863 (5011600)	R-24 (5293400)	864 (5011700)	R-24-A (5293500)	.962 (24.4)	1.071 (27.2)																									M-22 (2518100)	1050-400 (8404200)	979-C-650/ ATC-900
	16	.065 (1.65)	.995 (25.2)	867 (5012000)	R-26 (5294200)	868 (5012100)	R-26-A (5293500)	.990 (25.1)	1.099 (27.9)																											
	17	.058 (1.47)	1.009 (25.6)	865 (5011800)	R-25 (5293800)	866 (5011900)	R-25-A (5293900)	.901 (22.8)	1.010 (25.6)		M-24 (2518700)	1050-400 (8404200)	979-C-650/ ATC-900																							
18	.049 (1.24)	1.027 (26.0)	861 (5011400)	R-23 (5293000)	862 (5011500)	R-23-A (5293100)	.935 (23.7)	1.044 (26.5)	M-25 (2519000)	1050-400 (8404200)				979-C-650/ ATC-900																						
1-1/4 31.7	8	.165 (4.19)	.920 (23.3)	863 (5011600)	R-24 (5293400)	864 (5011700)	R-24-A (5293500)	.962 (24.4)							1.071 (27.2)	M-26 (2519300)	1050-400 (8404200)	979-C-650/ ATC-900																		
	9	.148 (3.75)	.954 (24.2)	867 (5012000)	R-26 (5294200)	868 (5012100)	R-26-A (5294300)	.990 (25.2)							1.099 (27.9)				M-27 (2519600)	1050-400 (8404200)	979-C-650/ ATC-900															
	10	.134 (3.40)	.982 (24.9)	869 (5012200)	R-27 (5294600)	870 (5012300)	R-27-A (5294700)	1.013 (25.7)							1.122 (28.5)							M-28 (2519900)	1050-400 (8404200)	979-C-650/ ATC-900												
	11	.120 (3.04)	1.010 (25.6)	871 (5012400)	R-28 (5295000)	872 (5012500)	R-28-A (5295100)	1.041 (26.4)							1.150 (29.2)										M-29 (2520200)	1050-400 (8404200)	979-C-650/ ATC-900									
	12	.109 (2.76)	1.032 (26.2)	873 (5012600)	R-29 (5295400)	874 (5012700)	R-29-A (5295500)	1.060 (26.9)							1.169 (29.6)													M-30 (2520500)	1050-400 (8404200)	979-C-650/ ATC-900						
	13	.095 (2.41)	1.060 (26.9)	875 (5012800)	R-30 (5295800)	876 (5012900)	R-30-A (5295900)	1.087 (27.6)							1.196 (30.3)																M-31 (2520800)	1050-400 (8404200)	979-C-650/ ATC-900			
	14	.083 (2.10)	1.084 (27.5)	879 (5013200)	R-30 (5295800)	880 (5013300)	R-30-A (5295900)	1.115 (28.3)							1.224 (31.0)																			M-32 (2521100)	1050-400 (8404200)	979-C-650/ ATC-900
	15	.072 (1.82)	1.106 (28.0)	877 (5013000)	R-31 (5296200)	878 (5013100)	R-31-A (5296300)	1.026 (26.0)							1.135 (28.8)																					
	16	.065 (1.65)	1.120 (28.4)	873 (5012600)	R-29 (5295400)	874 (5012700)	R-29-A (5295500)	1.060 (26.9)			1.169 (29.6)	M-34 (2521700)	1050-400 (8404200)		979-C-650/ ATC-900																					
	17	.058 (1.47)	1.134 (28.8)	875 (5012800)	R-30 (5295800)	876 (5012900)	R-30-A (5295900)	1.087 (27.6)	1.196 (30.3)	M-35 (2522000)	1050-400 (8404200)			979-C-650/ ATC-900																						
18	.049 (1.24)	1.152 (29.2)	879 (5013200)	R-30 (5295800)	880 (5013300)	R-30-A (5295900)	1.115 (28.3)	1.224 (31.0)	M-36 (2522300)							1050-400 (8404200)	979-C-650/ ATC-900																			
1-3/8 34.9	8	.165 (4.19)	1.045 (26.5)	877 (5013000)	R-31 (5296200)	878 (5013100)	R-31-A (5296300)	1.026 (26.0)										1.135 (28.8)	M-37 (2522600)	1550-250 (8404280)	979-C-210/ ATC-900															
	9	.148 (3.75)	1.079 (27.4)	873 (5012600)	R-29 (5295400)	874 (5012700)	R-29-A (5295500)	1.060 (26.9)										1.169 (29.6)				M-38 (2522900)	1550-250 (8404280)	979-C-210/ ATC-900												
	10	.134 (3.40)	1.107 (28.1)	875 (5012800)	R-30 (5295800)	876 (5012900)	R-30-A (5295900)	1.087 (27.6)										1.196 (30.3)							M-39 (2523200)	1550-250 (8404280)	979-C-210/ ATC-900									
	11	.120 (3.04)	1.135 (28.8)	879 (5013200)	R-30 (5295800)	880 (5013300)	R-30-A (5295900)	1.115 (28.3)										1.224 (31.0)										M-40 (2523500)	1550-250 (8404280)	979-C-210/ ATC-900						
	12	.109 (2.76)	1.157 (29.3)	881 (5013400)	R-32 (5296600)	882 (5013500)	R-32-A (5296700)	1.133 (28.7)										1.242 (31.5)													M-41 (2523800)	1550-250 (8404280)	979-C-210/ ATC-900			
	13	.095 (2.41)	1.185 (30.1)	883 (5013600)	R-33 (5297000)	884 (5013700)	R-33-A (5297100)	1.160 (29.4)										1.275 (32.3)																M-42 (2524100)	1550-250 (8404280)	979-C-210/ ATC-900
	14	.083 (2.10)	1.209 (30.7)	885 (5013800)	R-34 (5297400)	886 (5013900)	R-34-A (5297500)	1.179 (29.9)										1.294 (32.8)																		
	15	.072 (1.82)	1.231 (31.2)	887 (5014000)	R-35 (5297800)	888 (5014100)	R-35-A (5297900)	1.206 (30.6)				1.321 (33.5)	M-44 (2524700)		1550-250 (8404280)			979-C-210/ ATC-900																		
16	.065 (1.65)	1.245 (31.6)	889 (5014200)	R-36 (5298200)	890 (5014300)	R-36-A (5298300)	1.233 (31.3)	1.349 (34.2)		M-45 (2525000)	1550-250 (8404280)	979-C-210/ ATC-900																								


*3/8 in. Square Drive / 9.5 mm

Refer to page 5 for description of Rapid Select.

Airetool Condenser Expanders

Selection Guide G-800 Series Heat Exchanger and Condenser Tube Expanders – continued

Tube O.D. In. (mm)	Tube Gauge bwg In. (mm)		Tube I.D. In. (mm)	Tube Sheet Thickness				Min. I.D. Tool Enters In. (mm)	Max. Expan. of Tool In. (mm)	Mandrel No. (Part No.) 1/2 in. Sq. Dr. / 12.7 mm	Recommended Controlled Rolling Motors	
				1/2 in. to 1-1/2 in. (12.7 mm to 38.1 mm)		1-1/4 in. to 2-1/4 in. (31.7 mm to 57.1 mm)					Airetrol	Electric Control
				Tool No. (Part No.)	Roll No. (Part No.)	Tool No. (Part No.)	Roll No. (Part No.)					
1-1/2 (38.1)	8	.165 (4.19)	1.170 (29.7)	889 (5014200)	R-34 (5297400)	890 (5014300)	R-34-A (5297500)	1.145 (29.0)	1.260 (32.0)	M-19 (2517200)	1550-250 (8404280)	979-C-210/ ATC-900
	9	.148 (3.75)	1.204 (30.5)	885 (5013800)	R-34 (5297400)	886 (5013900)	R-34-A (5297500)	1.177 (29.9)	1.294 (32.8)	M-20 (2517500)		
	10	.134 (3.40)	1.232 (31.2)	887 (5014000)	R-35 (5297800)	888 (5014100)	R-35-A (5297900)	1.206 (30.6)	1.321 (33.5)			
	11	.120 (3.04)	1.260 (32.0)	891 (5014400)	R-36 (5298200)	892 (5014500)	R-36-A (5298300)	1.235 (31.3)	1.350 (34.2)			
	12	.109 (2.76)	1.282 (32.5)	893 (5014600)	R-37 (5298600)	894 (5014700)	R-37-A (5298700)	1.257 (31.9)	1.372 (34.8)			
	13	.095 (2.41)	1.310 (33.2)	895 (5014800)	R-37 (5298600)	896 (5014900)	R-37-A (5014900)	1.285 (32.6)	1.400 (35.5)	M-21 (2517800)	1550-900 (8404290)	979-C-300/ ATC-900
	14	.083 (2.10)	1.334 (33.8)									
	15	.072 (1.82)	1.356 (34.4)	897 (5015000)	R-38 (5299000)	898 (5015100)	R-38-A (5299100)	1.331 (33.8)	1.446 (36.7)			
	16	.065 (1.65)	1.370 (34.8)									
	17	.058 (1.47)	1.384 (35.1)	899 (5015120)	R-38 (5299000)	900 (5015150)	R-38-A (5299100)	1.331 (33.8)	1.472 (37.3)	M-22 (2518100)		
	18	.049 (1.24)	1.402 (35.6)									
	19	.042 (1.06)	1.416 (35.9)									
	20	.035 (.88)	1.430 (36.3)									

 Refer to page 5 for description of Rapid Select.

Airetool Condenser Expanders

Selection Guide G-800 Type Five-Roll Expanders



Airetool®

G-800 Series – 5-Roll

Range:
5/8 – 1-1/2 Inches
15.8 – 38.1 mm

- Expanders with 1-1/2 in. (38.1 mm) long rolls will accommodate tube sheets from 1/2 in. to 1-1/2 in. (12.7mm to 38.1 mm)
- Expanders with 2-1/4 in. (57.1 mm) long rolls will accommodate tube sheets from 1-1/4 in. to 2-1/4 in. (31.7mm to 57.1 mm)

NOTE: For best results the Airetool Five-Roll expander should be fitted with a thin wall thrust collar when being used to roll tubing with 19 thru 22 gage walls.

Sizes not listed available upon request.

Tube O.D. In. (mm)	Tube Gauge bwg In. (mm)		Tube I.D. In. (mm)	Tube Sheet Thickness				Min. I.D. Tool Enters In. (mm)	Max. Expan. of Tool In. (mm)	Mandrel No. (Part No.) 3/8 in. Sq. Dr. / 9.5 mm	Recommended Controlled Rolling Motors	
				1/2 in. to 1-1/2 in. (12.7 mm to 38.1 mm)		1-1/4 in. to 2-1/4 in. (31.7 mm to 57.1 mm)					Airetrol	Electric Control
				Tool No. (Part No.)	Roll No. (Part No.)	Tool No. (Part No.)	Roll No. (Part No.)					
5/8 (15.8)	17	.058 (1.47)	.509 (12.9)	815-5 (5517135)	R-4-5 (5513832)	816-5 (5519516)	R-4-A-5 (5517897)	.499 (12.6)	.564 (14.3)	816-5 (2975477)	850-1250-A (8405399)	966-C-725/ ATC-900
	18	.049 (1.24)	.527 (13.4)	817-5 (5514294)	R-4-5 (5513832)		R-4-A-5 (5517897)	.517 (13.1)	.576 (14.6)	817-5 (2514200)		
	19	.042 (1.07)	.541 (13.7)									
	20	.035 (0.89)	.555 (14.1)	819-5 (5514295)	R-4-5 (5513832)	820-5 (5515647)	R-4-A-5 (5517897)	.531 (13.5)	.596 (15.1)	819-5 (2514800)		
	21	.032 (0.81)	.561 (14.2)									
	22	.028 (0.71)	.569 (14.5)									
3/4 (19.0)	13	.095 (2.41)	.560 (14.2)	821-5 (5513230)	R-5-5 (5513231)	822-5 (5514482)	R-5-A-5 (5518189)	.550 (14.0)	.615 (15.6)	822-5 (2973154)	850-600-A (8405398)	979-C-650/ ATC-900
	14	.083 (2.11)	.584 (14.8)	823-5 (5515375)	R-6-5 (5518187)	824-5 (5514171)	R-6-A-5 (5517898)	.574 (14.6)	.629 (15.9)	824-5 (2976194)		
	15	.072 (1.83)	.606 (15.4)	825-5 (5522104)	R-7-5 (5514393)	826-5 (5518376)	R-7-A-5 (5517899)	.590 (15.0)	.661 (16.8)	826-5 (2985022)		
	16	.065 (1.65)	.620 (15.7)	827-5 (5513799)	R-7-5 (5514393)	828-5 (5513542)	R-7-A-5 (5517899)	.605 (15.4)	.680 (17.2)	827-5 (2515400)	850-1250-A (8405399)	966-C-725/ ATC-900
	17	.058 (1.47)	.634 (16.1)									
	18	.049 (1.24)	.652 (16.6)	829-5 (5513426)	R-7-5 (5514393)	830-5 (5513413)	R-7-A-5 (5517899)	.619 (15.7)	.699 (17.8)	830-5 (2972695)		
	19	.042 (1.07)	.666 (16.9)									
	20	.035 (0.89)	.680 (17.3)									
	21	.032 (0.81)	.666 (17.4)	831-5 (5513427)	R-9-5 (5517888)	832-5 (5513264)	R-9-A-5 (5517900)	.642 (16.3)	.729 (18.5)	831-5 (2515400)		
22	.028 (0.71)	.694 (17.6)										
7/8 (22.2)	13	.095 (2.41)	.685 (17.4)	833-5 (5517076)	R-9-5 (5517888)	834-5 (5514704)	R-9-A-5 (5517900)	.670 (17.0)	.747 (18.9)	M-14-3/8 (2972840)	850-600-A (8405398)	979-C-650/ ATC-900
	14	.083 (2.11)	.709 (18.0)	835-5 (5517735)	R-10-5 (5518191)	836-5 (5515680)	R-10-A-5 (5517901)	.685 (17.4)	.774 (19.6)	M-15-3/8 (2977108)		
	16	.065 (1.65)	.745 (18.9)	839-5 (5518154)	R-11-5 (5517889)	840-5 (5514564)	R-11-A-5 (5517902)	.685 (17.4)	.750 (19.0)			
	17	.058 (1.47)	.759 (19.3)								850-1250-A (8405399)	
	18	.049 (1.24)	.777 (19.7)	843-5 (5517922)	R-11-5 (5517889)	844-5 (5517923)	R-11-A-5 (5517902)	.740 (18.8)	.824 (20.9)	M-17-3/8 (2983632)		
	19	.042 (1.07)	.791 (20.1)	845-5 (5513810)	R-11-5 (5517889)	846-5 (5517924)	R-11-A-5 (5517902)	.763 (19.4)	.851 (21.6)	M-18-3/8 (2983633)		

Refer to page 5 for description of Rapid Select.

Airetool Condenser Expanders

Selection Guide G-800 Type Five-Roll Expanders – continued

Tube O.D. In. (mm)	Tube Gauge In. (mm)		Tube I.D. In. (mm)	Tube Sheet Thickness				Min. I.D. Tool Enters In. (mm)	Max. Expan. of Tool In. (mm)	Mandrel No. (Part No.) 3/8 in. Sq. Dr. / 9.5 mm *1/2 in. Sq. Dr./12.7 mm	Recommended Controlled Rolling Motors	
				1/2 in. to 1-1/2 in. (12.7 mm to 38.1 mm)		1-1/4 in. to 2-1/4 in. (31.7 mm to 57.1 mm)					Airetrol	Electric Control
				Tool No. (Part No.)	Roll No. (Part No.)	Tool No. (Part No.)	Roll No. (Part No.)					
7/8 (22.2)	20	.035 (0.89)	.805 (20.4)	845-5 (5513810)	R-11-5 (5517889)	846-5 (5515924)	R-11-A-5 (5517902)	.763 (19.4)	.851 (21.6)	M-18-3/8 (2983633)	850-1250-A (8405399)	966-C-725/ ATC-900
	21	.032 (0.81)	.811 (20.6)									
	22	.028 (0.71)	.819 (20.8)									
1 (25.4)	12	.109 (2.77)	.782 (19.9)	845-5 (5513810)	R-11-5 (5517889)	846-5 (5517924)	R-11-A-5 (5517902)	.763 (19.4)	.852 (21.6)	M-18-3/8 (2983633)	850-600-A (8405398)	979-C-650/ ATC-900
	13	.095 (2.41)	.810 (20.6)	847-5 (5513379)	R-13-5 (5513741)	848-5 (5517099)	R-13-A-5 (5517903)	.791 (20.1)	.880 (22.4)			
	14	.083 (2.11)	.834 (21.2)	849-5 (5514922)	R-12-5 (5517890)	850-5 (5513331)	R-12-A-5 (5515825)	.810 (20.6)	.909 (22.3)			
	15	.072 (1.83)	.856 (21.7)	851-5 (5513778)	R-13-5 (5513741)	852-5 (5513330)	R-13-A-5 (5517903)	.837 (21.3)	.936 (23.7)	M-20 (2517500)		
	16	.065 (1.65)	.870 (22.1)									
	17	.058 (1.47)	.884 (22.5)									
	18	.049 (1.24)	.902 (22.9)	855-5 (5515194)	R-13-5 (5513741)	856-5 (5513745)	R-13-A-5 (5517903)	.865 (22.0)	.965 (24.5)	856-5 (2974859)		
	19	.042 (1.07)	.916 (23.3)									
	20	.035 (0.89)	.930 (23.6)									
	21	.032 (0.81)	.936 (23.8)									
22	.028 (0.71)	.944 (24.0)	857-5 (5513825)	R-15-5 (5513833)	858-5 (5515935)	R-15-A-5 (5517907)	.883 (22.4)	.997 (25.3)	M-21 (2517800)			
1-1/8 (28.5)	12	.109 (2.77)	.907 (23.0)	857-5 (5513825)	R-15-5 (5513833)	858-5 (5515935)	R-15-A-5 (5517907)	.883 (22.4)	.997 (25.3)	M-21 (2517800)	1050-400 (8404200)	979-C-300/ ATC-900
	13	.095 (2.41)	.935 (23.7)	859-5 (5514397)	R-16-5 (5518056)	860-5 (5513392)	R-16-A-5 (5517904)	.916 (23.3)	1.000 (25.4)	860-5 *(2975673)		
	14	.083 (2.11)	.959 (24.1)	861-5 (5513325)	R-17-5 (5517891)	862-5 (5513747)	R-17-A-5 (5517905)	.935 (23.7)	1.043 (26.4)	862-5 *(2974860)		
1-1/4 (31.8)	15	.072 (1.83)	1.106 (28.1)	875-5 (5513884)	R-21-5 (5517887)	876-5 (5519970)	R-21-A-5 (5513291)	1.087 (27.6)	1.196 (30.4)	880-5 *(2968789)	1050-400 (8404200)	979-C-650/ ATC-900
	16	.065 (1.65)	1.120 (28.4)									
	17	.058 (1.47)	1.134 (28.8)									
	18	.049 (1.24)	1.152 (29.3)									
	19	.042 (1.07)	1.166 (29.6)	879-5 (5513993)	R-21-5 (5517887)	880-5 (5512151)	R-21-A-5 (5513291)	1.115 (28.3)	1.231 (31.3)			
	20	.042 (0.80)	1.180 (30.0)									
	21	.032 (0.81)	1.186 (30.1)									
	22	.028 (0.71)	1.194 (30.3)									
23	.028 (0.71)	1.194 (30.3)										
1-3/8 (34.9)	12	.109 (2.77)	1.154 (29.3)	881-5 (5516001)	R-21-5 (5517887)	882-5 (5514657)	R-21-A-5 (5513291)	1.133 (28.8)	1.242 (31.5)	882-5 *(2973230)	1550-250 (8404280)	979-C-210/ ATC-900
	14	.083 (2.11)	1.209 (30.7)	885-5 (5513252)	R-23-5 (5517892)	886-5 (5515778)	R-23-A-5 (5518192)	1.179 (29.9)	1.296 (32.9)			
1-1/2 (38.1)	17	.058 (1.47)	1.384 (35.2)	899-5 (5513850)	R-29-5 (5517893)	900-5 (5517605)	R-29-A-5 (5517906)	1.331 (33.8)	1.489 (37.8)	900-5 *(2975232)	1550-900 (8404290)	979-C-300/ ATC-900
	18	.049 (1.24)	1.402 (35.2)									
	19	.042 (1.07)	1.416 (36.0)									
	20	.035 (0.89)	1.430 (36.3)									
	21	.032 (0.81)	1.436 (36.5)									
	22	.028 (0.71)	1.444 (36.7)									

Airetool Condenser Expanders

G-1200 Series Heat Exchanger and Condenser Tube Expanders



NOTE: Step expanding becomes necessary if the tube sheet thickness exceeds the length of the roll. Longer reaches available upon request in 2 inch (50.8 mm) increments.

Airetool®

G-1200 Series – 3-Roller

Range: 1/2 – 1-1/2 Inches 12.7 – 38.1 mm

- Expanders with 1-1/2 in. (38.1 mm) long rolls will accommodate tube sheet thicknesses as follows:
 STD. REACH 1/2" to 5" (12.7 mm to 127.0 mm)
 "A" REACH 1/2" to 7" (12.7 mm to 177.8 mm)
 "C" REACH 1/2" to 11" (12.7 mm to 279.4 mm)
- Expanders with 2-1/4 in. (57.1 mm) long rolls will accommodate tube sheet thicknesses as follows:
 STD. REACH 1-1/4" to 5-3/4" (31.7 mm to 146.0 mm)
 "A" REACH 1-1/4" to 7-3/4" (31.7 mm to 196.8 mm)
 "C" REACH 1-5/8" to 11-3/4" (41.3 mm to 298.4 mm)

New Reversible Thrust Design

- One expander allows flush and 1/8 in. recess tube rolling. Collars have lubrication port for ATR Airetool Auto-Lube. (See page 29)

Tube O.D. In. (mm)	Tube Gauge bwg In. (mm)	Tube I.D. In. (mm)	Tube Sheet Thickness				Min. I.D. Tool Enters In. (mm)	Max. Expan. of Tool In. (mm)	Mandrel No. (Part No.) 3/8 in. Sq. Dr. / 9.5 mm	Recommended Controlled Rolling Motors	
			1/2 in. to 5 in. (12.7 mm to 133.3 mm)		1-1/4 in. to 5-3/4 in. (31.7 mm to 152.4 mm)					Airetool	Electric Control
			Tool No. (Part No.)	Roll No. (Part No.)	Tool No. (Part No.)	Roll No. (Part No.)					
1/2 (12.7)	14 .083 (2.10)	.334 (8.4)	1197 (5017460)	797 (5512194)			.324 (8.2)	.374 (9.5)	1197 (2165300)	720-550-B (8405391)	Not Available
	15 .072 (1.82)	.356 (9.0)	1199 (5056204)	R-1 (5284800)			.348 (8.8)	.398 (10.1)	1199 (2166400)		Not Available
	16 .065 (1.65)	.370 (9.4)	1201 (5017500)				.360 (9.1)	.410 (10.4)	M-51 (2521100)		Not Available
	17 .058 (1.47)	.384 (9.7)	1203 (5017900)	R-2 (5285000)			.374 (9.5)	.424 (10.7)		720-1800-B (8405512)-3/8	Not Available
	18 .049 (1.24)	.402 (10.2)	1205 (5018300)	R-3 (5285200)			.392 (9.9)	.447 (11.3)	M-52 (2522000)		Not Available
	20 .035 (0.88)	.430 (10.9)	1207 (5018700)	R-4 (5285400)			.420 (10.7)	.480 (12.1)	M-53 (2522900)		Not Available
5/8 (15.8)	12 .109 (2.76)	.407 (10.3)	1205 (5018300)	R-3 (5285200)			.392 (9.9)	.447 (11.3)	M-52 (2522000)	850-600-A (8405398)	966-C-400/ ATC-900
	13 .095 (2.41)	.435 (11.0)	1207 (5018700)	R-4 (5285400)			.420 (10.7)	.480 (12.1)	M-53 (2522900)		
	14 .083 (2.10)	.459 (11.6)	1209 (5019100)		1210 (5019500)	R-4-A (5285500)	.449 (11.4)	.509 (12.9)	M-54 (2523800)		
	15 .072 (1.82)	.481 (12.2)	1211 (5019900)	R-5 (5285800)	1212 (5020300)	R-5-A (5285900)	.471 (11.9)	.536 (13.6)	M-55 (2524700)	850-1250-A (8405399)	966-C-725/ ATC-900
	16 .065 (1.65)	.495 (12.5)	1213 (5020700)	R-6 (5286200)	1214 (5021100)	R-6-A (5286300)	.485 (12.3)	.550 (13.9)			
	17 .058 (1.47)	.509 (12.9)	1215 (5021500)		1216 (5021900)		.499 (12.6)	.564 (14.3)	M-56 (2525600)		
	18 .049 (1.24)	.527 (13.3)	1217 (5022300)		1218 (5022700)		.517 (13.1)	.582 (14.8)			
	19 .042 (1.06)	.541 (13.7)		R-7 (5286600)		R-7-A (5286700)					
	20 .035 (0.88)	.555 (14.1)	1219 (5023100)		1220 (5023500)		.531 (13.5)	.596 (15.1)	M-58 (2527400)		
	21 .032 (0.81)	.561 (14.2)									
22 .028 (0.71)	.569 (14.4)										
3/4 (19.0)	10 .134 (3.40)	.482 (12.2)	1211 (5019900)	R-5 (5285800)	1212 (5020300)	R-5-A (5285900)	.471 (11.9)	.536 (13.6)	M-55 (2524700)	850-600-A (8405398)	979-C-650/ ATC-900
	11 .120 (3.04)	.510 (12.9)	1215 (5021500)	R-6 (5286200)	1216 (5021900)	R-6-A (5286300)	.499 (12.6)	.564 (14.3)	M-56 (2525600)		
	12 .109 (2.76)	.532 (13.5)	1217 (5022300)	R-7 (5286600)	1218 (5022700)	R-7-A (5286700)	.517 (13.1)	.582 (14.8)			
	13 .095 (2.41)	.560 (14.2)	1221 (5023900)	R-8 (5287000)	1222 (5024300)	R-8-A (5287100)	.550 (13.9)	.615 (15.6)	M-58 (2527400)		
	14 .083 (2.10)	.584 (14.8)	1223 (5024700)	R-9 (5287400)	1224 (5025100)	R-9-A (5287500)	.574 (14.5)	.639 (16.2)			

Refer to page 5 for description of Rapid Select.

Airetool Condenser Expanders

G-1200 Series Heat Exchanger and Condenser Tube Expanders – Continued

Tube O.D. In. (mm)	Tube Gauge In. (mm)		Tube I.D. In. (mm)	Tube Sheet Thickness				Min. I.D. Tool Enters In. (mm)	Max. Expan. of Tool In. (mm)	Mandrel No. (Part No.) 3/8 in. Sq. Dr. / 9.5 mm	Recommended Controlled Rolling Motors	
				1/2 in. to 5-1/4 in. (12.7 mm to 133.3 mm)		1-1/4 in. to 6 in. (31.7 mm to 152.4 mm)					Airetrol	Electric Control
				Tool No. (Part No.)	Roll No. (Part No.)	Tool No. (Part No.)	Roll No. (Part No.)					
3/4 (19.0)	15	.072 (1.82)	.606 (15.3)	1225 (5025500)	R-10 (5287800)	1226 (5025900)	R-10-A (5287900)	.596 (15.1)	.661 (16.7)	M-58 (2527400)	850-600-A (8405398)	979-C-650/ATC-900
	16	.065 (1.65)	.620 (15.7)	1227 (5026300)		1228 (5026700)		.605 (15.3)	.685 (17.4)			
	17	.058 (1.47)	.634 (16.1)		R-11 (5288200)	1230 (5027500)	R-11-A (5288300)					
	18	.049 (1.24)	.652 (16.5)	1229 (5027100)				.619 (15.7)	.699 (17.7)			
	19	.042 (1.06)	.666 (16.9)							M-59 (2528300)	850-1250-A (8405399)	966-C-725/ATC-900
	20	.035 (0.88)	.680 (17.2)									
	21	.032 (0.81)	.686 (17.4)	1231 (5027900)	R-12 (5288600)	1232 (5028300)	R-12-A (5288700)	.642 (16.3)	.722 (18.3)			
	22	.028 (0.71)	.694 (17.6)									
7/8 (22.2)	10	.134 (3.40)	.607 (15.4)	1225 (5025500)	R-10 (5287800)	1226 (5025900)	R-10-A (5287900)	.596 (15.1)	.661 (16.7)	M-58 (2527400)		
	11	.120 (3.04)	.635 (16.1)	1229 (5027100)	R-11 (5288200)	1230 (5027500)	R-11-A (5288300)	.619 (15.7)	.699 (17.7)	M-59 (2528300)		
	12	.109 (2.76)	.657 (16.6)	1231 (5027900)	R-12 (5288600)	1232 (5028300)	R-12-A (5288700)	.642 (16.3)	.722 (18.3)			
	13	.095 (2.41)	.685 (17.4)	1233 (5028700)	R-13 (5289000)	1234 (5029100)	R-13-A (5289100)	.670 (17.0)	.750 (19.0)	M-60 (2529200)	850-600-A (8405398)	979-C-650/ATC-900
	14	.083 (2.10)	.709 (18.0)	1235 (5029500)	R-14 (5289400)	1236 (5029900)	R-14-A (5289500)	.685 (17.4)	.774 (19.6)	M-61 (2530100)		
	15	.072 (1.82)	.731 (18.5)	1237 (5030300)	R-15 (5289800)	1238 (5030700)	R-15-A (5289900)	.712 (18.0)	.801 (20.3)			
	16	.065 (1.65)	.745 (18.9)	1239 (5031100)		1240 (5031500)		.726 (18.4)	.815 (20.7)			
	17	.058 (1.47)	.759 (19.2)		R-16 (5290200)	1244 (5033100)	R-16-A (5290300)			M-62 (2531000)	850-1250-A (8405399)	966-C-725/ATC-900
1 (25.4)	8	.165 (4.19)	.670 (17.0)	1241 (5031900)	R-13 (5289000)	1242 (5032300)	R-13-A (5289100)	.665 (16.8)	.735 (18.6)	M-59 (2528300)		
	9	.148 (3.75)	.704 (17.8)	1235 (5029500)	R-14 (5289400)	1236 (5029900)	R-14-A (5289500)	.685 (17.4)	.774 (19.6)	M-61 (2530100)		
	10	.134 (3.40)	.732 (18.5)	1237 (5030300)	R-15 (5289800)	1238 (5030700)	R-15-A (5289900)	.712 (18.0)	.801 (20.3)		1050-400 (8404200)	
	11	.120 (3.04)	.760 (19.3)	1243 (5032700)	R-16 (5290200)	1244 (5033100)	R-16-A (5290300)	.740 (18.8)	.829 (21.0)			
	12	.109 (2.76)	.782 (19.8)	1245 (5033500)	R-17 (5290600)	1246 (5033900)	R-17-A (5290700)	.763 (19.3)	.852 (21.6)	M-62 (2531000)		979-C-300/ATC-900
	13	.095 (2.41)	.810 (20.5)	1247 (5034300)		1248 (5034700)		.791 (20.0)	.880 (22.3)			
	14	.083 (2.10)	.834 (21.1)	1249 (5035100)	R-18 (5291000)	1250 (5035500)	R-18-A (5291100)	.810 (20.5)	.909 (23.0)			
	15	.072 (1.82)	.856 (21.7)								850-600-A (8405398)	
	16	.065 (1.65)	.870 (22.1)	1251 (5035900)	R-19 (5291400)	1252 (5036300)	R-19-A (5291500)	.837 (21.2)	.936 (23.7)	M-63 (2531900)		
	17	.058 (1.47)	.884 (22.4)									
	18	.049 (1.24)	.902 (22.9)									
19	.042 (1.06)	.916 (23.2)	1255 (5037500)	R-21 (5292200)	1256 (5037900)	R-21-A (5292300)	.865 (21.9)	.964 (24.4)		850-1250-A (8405399)	979-C-650/ATC-900	
1-1/8 (28.5)	8	.165 (4.19)	.795 (20.1)	1253 (5036700)	R-20 (5291800)	1254 (5037100)	R-20-A (5291900)	.776 (19.7)	.875 (22.2)			
	9	.148 (3.75)	.829 (21.0)	1249 (5035100)	R-18 (5291000)	1250 (5035500)	R-18-A (5291100)	.810 (20.5)	.909 (23.0)	M-63 (2531900)	1050-400 (8404200)	979-C-300/ATC-900

Refer to page 5 for description of Rapid Select.

Airetool Condenser Expanders

G-1200 Series Heat Exchanger and Condenser Tube Expanders – Continued

Tube O.D. In. (mm)	Tube Gauge bwg In. (mm)		Tube I.D. In. (mm)	Tube Sheet Thickness				Min. I.D. Tool Enters In. (mm)	Max. Expan. of Tool In. (mm)	Mandrel No. (Part No.) 1/2 in. Sq. Dr. / 21.7 mm	Recommended Controlled Rolling Motors	
				1/2 in. to 5-1/4 in. (12.7 mm to 133.3 mm)		1-1/4 in. to 6 in. (31.7 mm to 152.4 mm)					Airetool	Electric Control
				Tool No. (Part No.)	Roll No. (Part No.)	Tool No. (Part No.)	Roll No. (Part No.)					
1-1/8 (28.5)	10	.134 (3.40)	.857 (21.7)	1251 (5035900)	R-19 (5291400)	1252 5036300	R-19-A (5291500)	.837 (21.2)	.936 (23.7)	M-63* (2531900)	1050-400 (8404200)	979-C-300/ ATC-900
	11	.120 (3.04)	.885 (22.4)	1255 (5037500)	R-21 (5292200)	1256 (5037900)	R-21-A (5292300)	.865 (21.9)	.964 (24.4)			
	12	.109 (2.76)	.907 (23.0)	1257 (5038300)	R-21 (5292200)	1258 (5038700)	R-21-A (5292300)	.883 (22.4)	.982 (24.9)	M-64 (2532800)	1050-400 (8404200)	979-C-650/ ATC-900
	13	.095 (2.41)	.935 (23.7)	1259 (5039100)	R-22 (5292600)	1260 (5039500)	R-22-A (5292700)	.916 (23.2)	1.015 (25.7)			
	14	.083 (2.10)	.959 (24.3)	1261 (5039900)	R-23 (5292600)	1262 (5040300)	R-23-A (5293100)	.935 (23.7)	1.044 (26.4)	M-65 (2533700)	1050-400 (8404200)	979-C-650/ ATC-900
	15	.072 (1.82)	.981 (24.9)	1263 (5040700)	R-24 (5293400)	1264 (5041100)	R-24-A (5293500)	.962 (24.4)	1.071 (27.2)			
	16	.065 (1.65)	.995 (25.2)	1267 (5042300)	R-26 (5294200)	1268 (5042700)	R-26-A (5294300)	.990 (25.1)	1.099 (27.9)	M-66 (2534600)	1050-400 (8404200)	979-C-650/ ATC-900
	17	.058 (1.47)	1.009 (25.6)	1265 (5041500)	R-25 (5293800)	1266 (5041900)	R-25-A (5293900)	.901 (22.8)	1.010 (25.6)	M-65 (2533700)		
18	.049 (1.24)	1.0279 (26.0)	1261 (5039900)	R-23 (5293000)	1262 (5041900)	R-23-A (5293100)	.935 (23.7)	1.044 (26.5)				
1-1/4 (31.7)	8	.165 (4.19)	.920 (23.3)	1263 (5040700)	R-24 (5293400)	1264 (5041100)	R-24-A (5293500)	.962 (24.4)	1.071 (27.2)	M-66 (2534600)	1550-250 (8404250)	979-C-300/ ATC-900
	9	.148 (3.75)	.954 (24.2)	1267 (5042300)	R-26 (5294200)	1268 (5042700)	R-26-A (5294300)	.990 (25.1)	1.099 (27.9)			
	10	.134 (3.40)	.982 (24.9)	1269 (5043100)	R-27 (5294600)	1270 (5043500)	R-27-A (5294700)	1.013 (25.7)	1.122 (28.5)	M-67 (2535500)	1050-400 (80404200)	979-C-650/ ATC-900
	11	.120 (3.04)	1.010 (25.6)	1271 (5043900)	R-28 (5295000)	1272 (5044300)	R-28-A (5295100)	1.041 (26.4)	1.150 (29.2)			
	12	.109 (2.76)	1.032 (26.2)	1273 (5044700)	R-29 (5295400)	1274 (5045100)	R-29-A (5295000)	1.060 (26.9)	1.169 (29.6)	M-68 (2536400)	1550-250 (8404280)	979-C-210/ ATC-900
	13	.095 (2.41)	1.060 (26.9)	1275 (5045500)	R-30 (5295800)	1276 (5045900)	R-30-A (5295900)	1.087 (27.6)	1.196 (30.3)			
	14	.083 (2.10)	1.084 (27.5)	1279 (5047100)	R-30 (5295800)	1280 (5047500)		R-30-A (5295900)	1.115 (28.3)	1.224 (31.0)		
	15	.072 (1.82)	1.106 (28.0)	1277 (5046300)	R-31 (5296200)	1278 (5046700)	R-31-A (5295900)		1.026 (26.0)	1.135 (28.8)	M-67 (2535500)	1550-250 (8404280)
	16	.065 (1.65)	1.120 (28.4)	1273 (5044700)	R-29 (5295400)	1274 (5045100)	R-29-A (5295500)	1.060 (26.9)	1.169 (29.6)			
	17	.058 (1.47)	1.134 (28.8)	1275 (5045500)	R-30 (5295800)	1276 (5045900)	R-30-A (5295900)	1.087 (27.6)	1.196 (30.3)	M-68 (2536400)	1550-250 (8404280)	979-C-210/ ATC-900
18	.049 (1.24)	1.152 (29.2)	1279 (5047100)	R-30 (5295800)	1280 (5047500)	R-30-A (5295900)	1.115 (28.3)	1.224 (31.0)				
1-3/8 (34.9)	8	.165 (4.19)	1.045 (26.5)	1281 (5047900)	R-32 (5295800)	1282 (5048300)	R-32-A (5296700)	1.133 (28.7)	1.242 (31.5)	M-69 (2537300)	1550-900 (8404290)	979-C-300/ ATC-900
	9	.148 (3.75)	1.079 (27.4)	1283 (5048700)	R-33 (5297000)	1284 (5049100)	R-33-A (5297100)	1.160 (29.4)	1.275 (32.3)			
	10	.134 (3.40)	1.107 (28.1)	1285 (5049500)	R-34 (5297400)	1286 (5049900)	R-34-A (5297500)	1.179 (29.9)	1.294 (32.8)	M-70 (2538200)	1550-900 (8404290)	979-C-300/ ATC-900
	11	.120 (3.04)	1.135 (28.8)	1287 (5050300)	R-35 (5297800)	1288 (5050700)	R-35-A (5297900)	1.206 (30.6)	1.321 (33.5)			
	12	.109 (2.76)	1.157 (29.3)	1289 (5051100)	R-34 (5297400)	1290 (5051500)	R-34-A (5297500)	1.145 (29.0)	1.260 (32.0)	M-69 (2537300)	1550-250 (8404280)	979-C-210/ ATC-900
	13	.095 (2.41)	1.185 (30.1)	1291 (5051900)	R-34 (5297400)	1292 (5052300)	R-34-A (5297500)	1.179 (29.9)	1.294 (32.8)			
	14	.083 (2.10)	1.209 (30.7)	1293 (5052700)	R-34 (5297400)	1294 (5053100)	R-34-A (5297500)	1.206 (30.6)	1.321 (33.5)	M-70 (2538200)	1550-900 (8404290)	979-C-300/ ATC-900
	15	.072 (1.82)	1.231 (31.2)	1295 (5053500)	R-34 (5297400)	1296 (5053900)	R-34-A (5297500)	1.233 (31.1)	1.349 (34.3)			
16	.065 (1.65)	1.245 (31.6)	1297 (5054300)	R-34 (5297400)	1298 (5054700)	R-34-A (5297500)	1.260 (32.0)	1.376 (34.9)	M-70 (2538200)	1550-900 (8404290)	979-C-300/ ATC-900	
17	.058 (1.47)	1.269 (32.2)	1299 (5055100)	R-34 (5297400)	1300 (5055500)	R-34-A (5297500)	1.287 (32.4)	1.403 (35.5)				
1-1/2 (38.1)	8	.165 (4.19)	1.170 (29.7)	1289 (5051100)	R-34 (5297400)	1290 (5051500)	R-34-A (5297500)	1.145 (29.0)	1.260 (32.0)	M-69 (2537300)	1550-250 (8404280)	979-C-210/ ATC-900
	9	.148 (3.75)	1.204 (30.5)	1291 (5051900)	R-34 (5297400)	1292 (5052300)	R-34-A (5297500)	1.179 (29.9)	1.294 (32.8)			


* 3/8 square drive / 4.5 mm

Refer to page 5 for description of Rapid Select.

Airetool Condenser Expanders

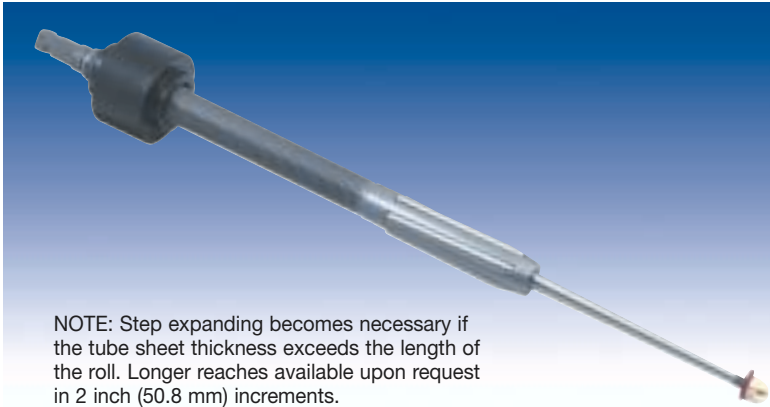
G-1200 Series Heat Exchanger and Condenser Tube Expanders – Continued

Tube O.D. In. (mm)	Tube Gauge bwg In. (mm)		Tube I.D. In. (mm)	Tube Sheet Thickness				Min. I.D. Tool Enters In. (mm)	Max. Expan. of Tool In. (mm)	Mandrel No. (Part No.) 1/2 in. Sq. Dr. / 21.7 mm	Recommended Controlled Rolling Motors	
				1/2 in. to 5-1/4 in. (12.7 mm to 133.3 mm)		1-1/4 in. to 6 in. (31.7 mm to 152.4 mm)					Airetrol	Electric Control
				Tool No. (Part No.)	Roll No. (Part No.)	Tool No. (Part No.)	Roll No. (Part No.)					
1-1/2 (38.1)	10	.134 (3.40)	1.232 (31.2)	1287 (5050300)	R-35 (5297800)	1288 (5050700)	R-35-A (5297900)	1.206 (30.6)	1.321 (35.5)	M-70 (2538200)	1550-250 (8404280)	979-C-210/ ATC-900
	11	.120 (3.04)	1.260 (32.0)	1291 (5051900)	R-36 (5297800)	1292 (5052300)	R-36-A (5298300)	1.235 (31.3)	1.350 (34.2)			
	12	.109 (2.76)	1.282 (32.5)	1293 (5052700)	R-37 (5298600)	1294 (5053100)	R-37-A (5298700)	1.257 (31.9)	1.372 (34.8)			
	13	.095 (2.41)	1.310 (33.2)	1295 (5053500)	R-37 (5298600)	1296 (5053900)		1.285 (32.6)	1.400 (35.5)	M-71 (2539100)		
	14	.083 (2.10)	1.334 (33.8)				1297 (5054300)				1298 (5054700)	1.446 (36.7)
	15	.072 (1.82)	1.356 (34.4)	1299 (5512167)	R-38 (5299000)	1300 (5055075)	R-38-A (5299100)	1.331 (33.8)	1.472 (37.3)	M-72 (2539920)	1550-900 (8404290)	979-C-300/ ATC-900
	16	.065 (1.65)	1.370 (34.8)									
	17	.058 (1.47)	1.384 (35.1)									
	18	.049 (1.24)	1.402 (35.6)									
	19	.042 (1.06)	1.416 (35.9)									
20	.035 (0.88)	1.430 (36.3)										

 Refer to page 5 for description of Rapid Select.

Airetool Condenser Expanders

G-1200 Type Five-Roll Expander



NOTE: Step expanding becomes necessary if the tube sheet thickness exceeds the length of the roll. Longer reaches available upon request in 2 inch (50.8 mm) increments.

Airetool®

G-1200 Series – 5-Roll

Range: 5/8 – 1-1/2 Inches 15.8 – 38.1 mm

- Expanders with 1-1/2 in. (38.1 mm) long rolls will accommodate tube sheet thicknesses as follows:
 STD. REACH 1-1/2" to 6" (38.1 mm to 152.4 mm)
 "A" REACH 1-1/2" to 8" (38.1 mm to 203.1 mm)
 "C" REACH 1-1/2" to 12" (38.1 mm to 304.6 mm)
 - Expanders with 2-1/4 in. (57.1 mm) long rolls will accommodate tube sheet thicknesses as follows:
 STD. REACH 2-1/4" to 6-3/4" (57.1 mm to 171.4 mm)
 "A" REACH 2-1/4" to 8-3/4" (57.1 mm to 222.1 mm)
 "C" REACH 2-1/4" to 12-3/4" (57.1 mm to 323.8 mm)
- Longer reaches available upon request in 2 inch (50.8 mm) increments.

Tube O.D. In. (mm)	Tube Gauge bwg In. (mm)		Tube I.D. In. (mm)	Tube Sheet Thickness				Min. I.D. Tool Enters In. (mm)	Max. Expan. of Tool In. (mm)	Mandrel No. (Part No.) 3/8 in. Sq. Dr. / 9.5 mm *1/2 in. Sq. Dr./12.7 mm	Recommended Controlled Rolling Motors	
				1/2 in. to 5 in. (12.7 mm to 133.5 mm)		1-1/4 in. to 5-3/4 in. (31.7 mm to 152.4 mm)					Airetrol	Electric Control
				Tool No. (Part No.)	Roll No. (Part No.)	Tool No. (Part No.)	Roll No. (Part No.)					
5/8 (15.8)	17	.058 (1.47)	.509 (12.9)	1215-5 (5519905)	R-4-5 (5513832)	1216-5 (5516284)	R-4-A-5 (5517897)	.499 (12.6)	.564 (14.3)	1216-5 (2981677)	850-1250-A (8405399)	966-C-725/ ATC-900
	18	.049 (1.24)	.527 (13.4)	1217-5 (5517561)	R-4-5 (5513832)	1218-5 (5516230)	R-4-A-5 (5517897)	.517 (13.1)	.576 (14.6)	M-59 (2528300)		
	19	.042 (1.07)	.541 (13.7)	1219-5 (5517601)	R-4-5 (5513832)	1220-5 (5515836)	R-4-A-5 (5517897)	.531 (13.5)	.596 (15.1)	M-61 (2530100)		
	20	.035 (0.89)	.555 (14.1)									
	21	.032 (0.81)	.561 (14.2)									
	22	.028 (0.71)	.569 (14.5)									
3/4 (19.0)	13	.095 (2.41)	.560 (14.2)	1221-5 (5518046)	R-5-5 (5513231)	1222-5 (5515972)	R-5-A-5 (5518189)	.550 (14.0)	.615 (15.6)	M-61 (2530100)	850-600-A (8405398)	979-C-650/ ATC-900
	14	.083 (2.11)	.584 (14.8)	1223-5 (5514699)	R-6-5 (5518187)	1224-5 (5513968)	R-6-A-5 (5517898)	.574 (14.6)	.629 (15.9)	1224-5 (2975590)		
	15	.072 (1.83)	.606 (15.4)	1225-5 (5515940)	R-7-5 (5514393)	1226-5 (5523014)	R-7-A-5 (5517899)	.590 (15.0)	.661 (16.8)	1226-5 (2995961)		
	16	.065 (1.65)	.620 (15.7)	1227-5 (5514698)	R-7-5 (5514393)	1228-5 (5512230)	R-7-A-5 (5517899)	.605 (15.4)	.680 (17.2)	1228-5 (2972977)		
	17	.058 (1.47)	.634 (16.1)	1229-5 (5515536)	R-7-5 (5514393)	1230-5 (5513536)	R-7-A-5 (5517899)	.619 (15.7)	.699 (17.8)	1230-5 (2973118)		
	18	.049 (1.24)	.652 (16.6)									
	19	.042 (1.07)	.666 (16.9)									
	20	.035 (0.89)	.680 (17.3)									
	21	.032 (0.81)	.666 (17.4)	1231-5 (5514862)	R-9-5 (5517888)	1232-5 (5513488)	R-9-A-5 (5517900)	.642 (16.3)	.729 (18.5)	M-63 (2531900)		
	22	.028 (0.71)	.694 (17.6)									
7/8 (22.2)	13	.095 (2.41)	.685 (17.4)	1233-5 (5515915)	R-9-5 (5517888)	1234-5 (5518158)	R-9-A-5 (5517900)	.670 (17.0)	.747 (18.9)	M-64-3/8 SQ (2980730)	850-600-A (8405398)	979-C-650/ ATC-900
	14	.083 (2.11)	.709 (18.0)	1235-5 (5518682)	R-10-5 (5518191)	1236-5 (5520939)	R-10-A-5 (5517901)	.685 (17.4)	.774 (19.6)	M-65-3/8 SQ (2901312)		
	16	.065 (1.65)	.745 (18.9)	1239-5 (5525733)	R-11-5 (5517889)	1240-5 (5525734)	R-11-A-5 (5517902)	.685 (17.4)	.750 (19.0)	M-66-3/8 SQ (2985119)		
	17	.058 (1.47)	.759 (19.3)	1243-5 (5518366)	R-11-5 (5517889)	1244-5 (5521320)	R-11-A-5 (5517902)	.740 (18.8)	.824 (20.9)	M-67 (2535500)		
	18	.049 (1.24)	.777 (19.7)									
	19	.042 (1.07)	.791 (20.1)									

Refer to page 5 for description of Rapid Select.

Airetool Condenser Expanders

Selection Guide G-1200 Type Five-Roll Expanders – continued

Tube O.D. In. (mm)	Tube Gauge		Tube I.D. In. (mm)	Tube Sheet Thickness				Min. I.D. Tool Enters In. (mm)	Max. Expan. of Tool In. (mm)	Mandrel No. (Part No.) 3/8 in. Sq. Dr. / 9.5 mm *1/2 in. Sq. Dr./12.7 mm	Recommended Controlled Rolling Motors	
	bwg	In. (mm)		1/2 in. to 5-1/4 in. (12.7 mm to 133.5 mm)		1-1/4 in. to 6 in. (31.7 mm to 152.4 mm)					Airetrol	Electric Control
				Tool No. (Part No.)	Roll No. (Part No.)	Tool No. (Part No.)	Roll No. (Part No.)					
7/8 (22.2)	20	.035 (0.89)	.805 (20.4)									
	21	.032 (0.81)	.811 (20.6)	1245-5 (5525740)	R-11-5 (5517889)	1246-5 (5517924)	R-11-A-5 (5517902)	.763 (19.4)	.851 (21.6)	M-18-3/8 (2983633)	850-1250-A (8405399)	966-C-725/ ATC-900
	22	.028 (0.71)	.819 (20.8)									
1 (25.4)	12	.109 (2.77)	.782 (19.9)	1245-5 (5525740)	R-11-5 (5517889)	1246-5 (5515924)	R-11-A-5 (5517902)	.763 (19.4)	.852 (21.6)	M-18-3/8 (2983633)	850-600-A (8405398)	979-C650/ ATC-900
	13	.095 (2.41)	.810 (20.6)	1247-5 (5516336)	R-13-5 (5513741)	1248-5 (5517558)	R-13-A-5 (5517903)	.791 (20.1)	.880 (22.4)			
	14	.083 (2.11)	.834 (21.2)	1249-5 (5514121)	R-12-5 (5517890)	1250-5 (5514700)	R-12-A-5 (5515825)	.810 (20.6)	.909 (23.0)			
	15	.072 (1.83)	.856 (21.7)							M-70 (2538200)		
	16	.065 (1.65)	.870 (22.1)	1251-5 (5513797)	R-13-5 (5513741)	1252-5 (5512231)	R-13-A-5 (5517903)	.837 (21.3)	.936 (23.7)			
	17	.058 (1.47)	.884 (22.5)							1256-5 (2974854)	850-1250-A (8405399)	
	18	.049 (1.24)	.902 (22.9)									
	19	.042 (1.07)	.916 (23.3)	1255-5 (5513740)	R-13-5 (5513741)	1256-5 (5513809)	R-13-A-5 (5517903)	.865 (22.0)	.965 (24.5)			
	20	.035 (0.89)	.930 (23.6)									
	21	.032 (0.81)	.936 (23.8)									
22	.028 (0.71)	.944 (24.0)	1257-5 (5514329)	R-15-5 (5513833)	1258-7 (5513627)	R-15-A-5 (5517907)	.883 (22.4)	.997 (25.3)	M-71* (2539100)			
1-1/8 (28.5)	12	.109 (2.77)	.907 (23.0)	1257-5 (5514329)	R-15-5 (5513833)	1258-5 (5513627)	R-15-A-5 (5517907)	.883 (22.4)	.997 (25.3)	M-71* (2539100)	1050-400 (8404200)	979-C-300/ ATC-900
	13	.095 (2.41)	.935 (23.7)	1259-5 (5524563)	R-16-5 (5518056)	1260-5 (5525735)	R-16-A-5 (5517904)	.916 (23.3)	1.000 (25.4)	1260-5* (2998975)		
	14	.083 (2.11)	.959 (24.1)	1261-5 (5525736)	R-17-5 (5517891)	1262-5 (5514470)	R-17-A-5 (5517905)	.935 (23.7)	1.043 (26.4)	M-71* (2539100)		
1-1/4 (31.8)	15	.072 (1.83)	1.106 (28.1)							1276-5* (2982367)	1050-400 (8404200)	979-C-650/ ATC-900
	16	.065 (1.65)	1.120 (28.4)	1275-5 (5521923)	R-21-5 (5517887)	1276-5 (5516623)		1.087 (27.6)	1.196 (30.4)			
	17	.058 (1.47)	1.134 (28.8)							1280-5* (2983613)		
	18	.049 (1.24)	1.152 (29.3)									
	19	.042 (1.07)	1.166 (29.6)									
	20	.042 (0.80)	1.180 (30.0)	1279-5 (5525540)	R-21--5 (5517887)	1280-5 (5517875)		1.115 (28.3)	1.231 (31.3)			
	21	.032 (0.81)	1.186 (30.1)									
	22	.028 (0.71)	1.194 (30.3)									
1-3/8 (34.9)	12	.109 (2.77)	1.154 (29.3)	1281-5 (5518823)	R-21-5 (5517887)	1282-5 (5525737)	R-21-A-5 (5513291)	1.133 (28.8)	1.242 (31.5)	1282-5* (2988615)	1550-250 (8404280)	979-C-210 ATC-900
	14	.083 (2.11)	1.209 (30.7)	1285-5 (5522166)	R-23-5 (5517982)	1286-5 (5525869)	R-23-A-5 (5518192)	1.179 (29.9)	1.296 (32.9)			
1-1/2 (38.1)	17	.058 (1.47)	1.384 (35.2)							1299-5* (2973869)	1550-900 (8404290)	979-C-300/ ATC-900
	18	.049 (1.24)	1.402 (35.2)									
	19	.042 (1.07)	1.416 (36.0)									
	20	.035 (0.89)	1.430 (36.3)	1299-5 (5513442)	R-29-5 (5517893)	1300-5 (5514833)	R-29-A-5 (5517906)	1.331 (33.8)	1.489 (37.8)			
	21	.032 (0.81)	1.436 (36.5)									
	22	.028 (0.71)	1.444 (36.7)									

Airetool Condenser Expanders

G-8012 Series Heat Exchanger and Condenser Tube Expanders



Airetool®

G-8012 Series

Range:

1-3/4 – 4 Inches
44.4 – 76.2 mm

- Expanders with 2-1/4 in. (57.1mm) long rolls will accommodate tube sheet thicknesses of 1/2 in. to 4 in. (12.7 mm to 101.6 mm)

NOTE: Step expanding becomes necessary if the tube sheet thickness exceeds the length of the roll.

Tube O.D. In. (mm)	Tube Gauge bwg In. (mm)		Tube I.D. In. (mm)		Tube Sheet Thickness		Min. I.D. Tool Enters In. (mm)	Max. Expan. of Tool In. (mm)	Mandrel No. (Stock No) 3/4 in. Sq. Dr. / 19.0 mm	Recommended Controlled Rolling Motors	
					1/2 in. to 4 in. (12.7 mm to 101.6 mm)					Airetrol	Electric Control
					Tool No. (Stock No.)	Roll No. (Stock No.)					
1-3/4 (44.4)	8	.165 (4.2)	1.420 (36.1)	8012-1-3/4-8 (5518639)	R-33-A (5297100)	1.368 (34.7)	1.550 (39.4)	M-90 2541900	1550-250 (8404280)	979-C-210/ ATC-900	
	10	.134 (3.4)	1.482 (37.6)	8012-1-3/4-10 (5139000)	R-37-A (5298700)	1.420 (36.0)	1.607 (40.8)				
	11	.120 (3.0)	1.510 (38.3)	8012-1-3/4-11 (5139100)	R-42 (5299400)	1.454 (36.9)	1.635 (41.5)				
	12	.109 (2.7)	1.532 (38.9)	8012-1-3/4-12 (5139200)	R-44 (5299500)	1.482 (37.6)	1.657 (42.0)				
	13	.095 (2.4)	1.560 (39.6)	8012-1-3/4-13 (5139300)	R-46 (5299600)	1.510 (38.3)	1.685 (42.7)				
	14	.083 (2.1)	1.584 (40.2)	8012-1-3/4-14 (5139400)	R-48 (5299700)	1.532 (38.9)	1.709 (43.4)				
2 (50.8)	8	.165 (4.2)	1.670 (42.4)	8012-2-8 (5518643)	R-48 (5299700)	1.595 (40.5)	1.795 (45.6)	M-91 2542200	1550-250 (8404280)	979-C-210/ ATC-900	
	10	.134 (3.4)	1.732 (43.9)	8012-2-10 (5139500)	R-50 (5299800)	1.640 (41.6)	1.857 (47.1)				
	11	.120 (3.0)	1.760 (44.7)	8012-2-11 (5139600)	R-52 (5299900)	1.670 (42.4)	1.885 (47.8)				
	12	.109 (2.7)	1.782 (45.2)	8012-2-12 (5139700)	R-54 (5300000)	1.704 (43.2)	1.907 (48.4)				
	13	.095 (2.4)	1.810 (45.9)	8012-2-13-18 (5139800)	R-56 (5300100)	1.732 (43.9)	1.956 (49.6)				
	14	.083 (2.1)	1.834 (46.5)								
	15	.072 (1.8)	1.856 (47.1)								
	16	.065 (1.6)	1.870 (47.4)								
	17	.058 (1.5)	1.884 (47.9)								
18	.049 (1.2)	1.902 (48.3)									
2-1/4 (57.1)	10	.134 (3.4)	1.982 (50.3)	8012-2-1/4-10 (5140100)	R-56 (5300100)	1.890 (48.0)	2.107 (53.5)	M-92 2542300	1550-250 (8404280)	999-C-45/ ATC-900	
	11	.120 (3.0)	2.010 (51.0)	8012-2-1/4-11 (5140200)	R-58 (5300200)	1.920 (48.7)	2.135 (54.2)				
	12	.109 (2.7)	2.032 (51.6)	8012-2-1/4-12 (5140300)	R-60 (5300300)	1.954 (49.6)	2.157 (54.7)				
	13	.095 (2.4)	2.060 (52.3)	8012-2-1/4-12-16 (5140400)	R-62 (5300400)	1.982 (50.3)	2.185 (55.4)				
	14	.083 (2.1)	2.084 (52.9)								
	15	.072 (1.8)	2.106 (53.4)								
16	.065 (1.6)	2.120 (43.8)									
2-1/2 (63.5)	10	.134 (3.4)	2.232 (56.6)	8012-2-1/2-10-12 (5139900)	R-64 (5300500)	2.140 (54.3)	2.407 (61.1)	M-93 2542400	1550-250 (8404280)	999-C-45/ ATC-900	
	11	.120 (3.0)	2.260 (57.4)								

Refer to page 5 for description of Rapid Select.

Airetool Condenser Expanders

G-8012 Series Heat Exchanger and Condenser Tube Expanders

Tube O.D. In. (mm)	Tube Gauge bwg In. (mm)		Tube I.D. In. (mm)		Tube Sheet Thickness		Min. I.D. Tool Enters In. (mm)	Max. Expan. of Tool In. (mm)	Mandrel No. (Stock No) 3/4 in. Sq. Dr. / 19.0 mm	Recommended Controlled Rolling Motors			
					1/2 in. to 4 in. (12.7 mm to 101.6 mm)					Tool No. (Stock No.)	Roll No. (Stock No.)	Airetrol	Electric Control
2-1/2 (63.5)	12	.109 (2.7)	2.282 (57.9)	8012-2-1/2-10-12 (5139900)	R-64 (5300500)	2.140 (54.3)	2.407 (61.1)	M-93 (2542400)	1550-250 (8404280)	999-C-45/ ATC-900			
	13	.095 (2.4)	2.310 (58.6)										
	14	.083 (2.1)	2.334 (59.2)										
	15	.072 (1.8)	2.356 (59.8)										
	16	.065 (1.6)	2.370 (60.1)										
	17	.058 (1.5)	2.384 (60.6)										
	18	.049 (1.3)	2.402 (61.0)										
2-3/4 (69.8)	10	.134 (3.4)	2.482 (63.0)	8012-2-3/4-10-16 (5140500)	R-66 (5300700)	2.390 (60.7)	2.702 (68.6)	M-96 (2542700)	1850-90 (8405315)	999-C-45/ ATC-900			
	11	.120 (3.0)	2.510 (63.7)										
	12	.109 (2.7)	2.532 (64.3)										
	13	.095 (2.4)	2.560 (64.3)										
	14	.083 (2.1)	2.584 (65.6)										
	15	.072 (1.8)	2.606 (66.1)										
	16	.065 (1.6)	2.620 (66.5)										
3 (76.2)	8	.165 (4.1)	2.670 (67.8)	8012-3-8-9 (5512193)	R-67 (5300800)	2.560 (65.0)	2.829 (71.8)	M-97 (2968867)	1850-90 (8405315)	999-C-45/ ATC-900			
	9	.148 (3.7)	2.704 (68.6)										
	10	.134 (4.3)	2.732 (69.3)	8012-3-10-18 (5140600)									
	11	.120 (3.0)	2.760 (70.1)										
	12	.109 (2.7)	2.782 (70.6)										
	13	.095 (2.4)	2.810 (71.3)										
	14	.083 (2.1)	2.834 (71.9)										
	15	.072 (1.8)	2.856 (72.5)										
	16	.065 (1.6)	2.870 (72.8)										
	17	.058 (1.5)	2.884 (73.3)										
	18	.049 (1.2)	2.902 (73.7)										



Linsen Flaring Expander

This special expander enlarges the ends of copper, brass and aluminum tubing so that another tube of the same size may be inserted into the expanded section for a soldered joint.



Diesel Engine Expander

Diesel engine expanders are a special line of expanders designed for rolling the injector sleeves into the heads of diesel engines. These expanders are made to order for each application, and a detailed drawing of the injector sleeve and engine head must accompany the order to insure proper expander design.



Step Rolling Expander

Step rolling expanders are ideally suited for faster tube rolling in thick tube sheets. The rolling process can be completed without removing the expander from the tube. Step rolling expanders are available in protractive and retractive models. The expander cage has grooves that accept a spring-loaded, quick-spacing thrust collar that permits fast step rolling throughout the full thickness of the tube sheet.



"PST" Pipe Sizing Tool

Airetool's PST Series pipe sizing expanders are designed to true pipe ends, and to enlarge the pipe diameter to provide the correct clearance between the pipe O.D. and the I.D. of a fitting before making a silver solder or brazed joint. The threaded mandrel allows minute adjustments for accurate sizing of the pipe end.



SR Expander

The rapid taper on this mandrel allows full expansion of a tube with minimum travel of the mandrel. The mandrel is retained at the rear of the expander to shorten mandrel length and to allow use near sharp tube bends.



Collins Expander

These nonparallel rolling, self-feeding expanders are excellent for close-quarter tube expanding and expanding tubes within thin tube sheets. Self-contained rolls give slight flare to tube ends. Sizes: 1/2 - 4-1/2 in. (12.7 - 113.8 mm) OD tubes.

Rolling Controls

Tools that set the standard

Outstanding performance, incredible durability, plus the ease of maintenance have made Airetool tube rolling controls the standard which all others are measured against.

Why use torque control when expanding tubes?

Torque controlled tube rolling increases productivity by achieving the desired tube wall reduction each and every time a tube is being expanded. Torque-controlled tube rolling compensates for variations in the tube wall thickness and the tube sheet hole dimensions.



What is tube wall reduction?

Tube wall reduction is the percent the tube wall is reduced after the tube OD has contacted the tube sheet ID. The amount of tube wall reduction varies with the tube material, the tube sheet material and the design requirements of the unit. Several factors including pull-out strength, freedom from leaks are considered in determining the optimum wall reduction.

Tube Rolling Set – Up Guide

Pick five tubes in the vessel to be rolled and complete the work sheet below. It is important that the measurements used in the set up are actual. Never use averaged dimensions.

Condenser Tubes 5% Wall reduction Boiler Tubes 10% Wall Reduction

Satisfactory joints are produced using the above listed percentage of tube wall reduction.

- Step A – Measure tube sheet hole
- Step B – Measure tube OD
- Step C – Calculate clearance (A-B)
- Step D – Measure tube ID
- Step E – Calculate wall thickness (B-D)

- Step F – Calculate 5% wall reduction (.05 x E)
- Step G – Calculate finished rolled ID (C+D+F)

After the work sheet is finished, start setting up the torque control motor by test rolling the first of the five tubes. The first test roll must be done with the Airetrol or Electric tube rolling motor set for low torque to avoid over rolling.

Measure the tube ID after rolling the first tube. If more expansion is needed, increase the torque setting on the control and roll the second tube. Check the finished ID. This step may require repeating on tube three, but by the fifth tube you should have achieved your desired finished rolled ID of step G below. The tubes rolled to calibrate the tube wall reduction can now be re-rolled at the correct setting.

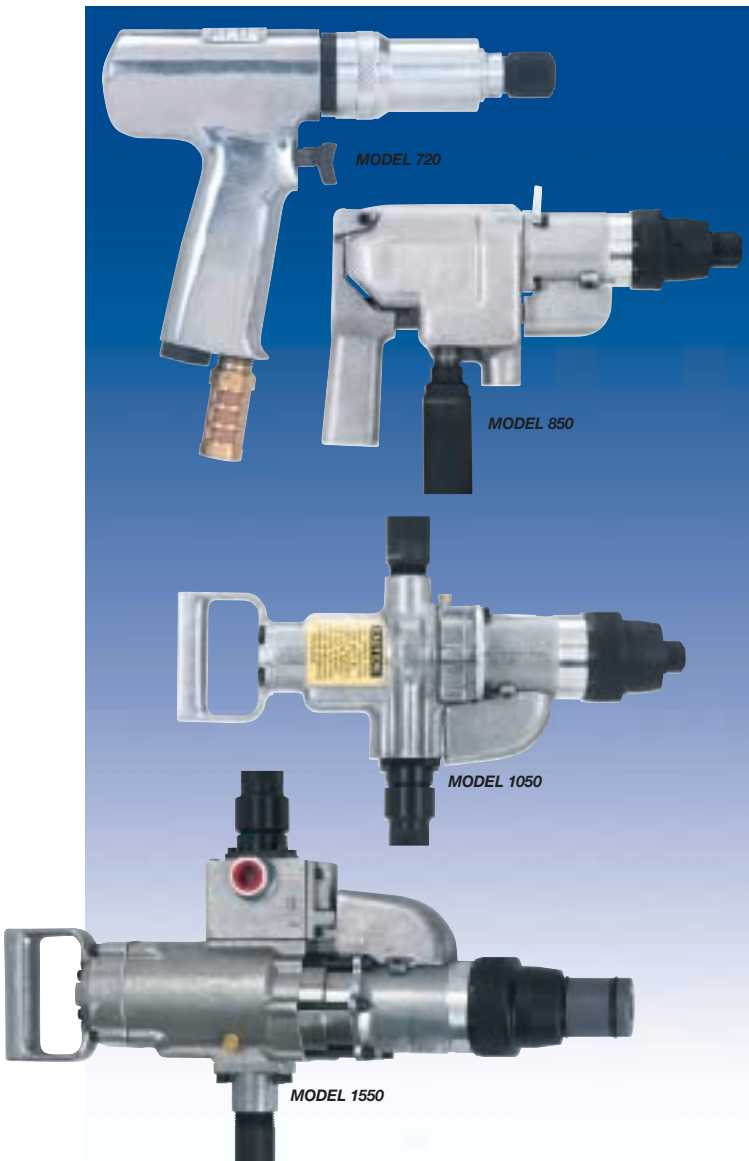
STEP	EXAMPLE	Joint#				
		1	2	3	4	5
A	Tube Sheet Hole	.760"				
B	- Tube OD	.750"				
C	= Clearance	.010"				
D	Tube ID	.620"				
E	2 x Wall Thickness	.130"				
F	+5% Wall Reduction	.006"				
G	= Finish Rolled ID	.636"				

Airetool Rolling Controls

Airetool Torque Controlled Rolling Motors

Airetrol Air Driven Motors

Airetool motors control expansion by accurate measurement of torque. They automatically stop expansion accurately according to predetermined setting. This prevents over- and under- expansion of tubes, assuring uniformly tight tube joints, providing maximum holding strength for individual tubes. Strong, lightweight aluminum housing provide easier handling and less fatigue. Rugged drive combines precision control which measures torque output. All AIRETROL motors include a torque sensing cam designed and engineered specifically for tube expanding applications.



Model No.	Part No.	Speed & Torque 90 psig Air Pressure*						Overall Length		Weight		Side to Center		Operating Hose		CFM	Square Drive	Tube Capacities*				Chucks	
		Free Speed RPM	Maximum Torque		Minimum Torque		In.											mm	Lbs.	Kg	In.	mm	In.
			In. lbs.	Nm	In. Lbs.	Nm		In.	mm	In.	mm	In.	mm	incl.	opt.								
720-2500B	8405541	2500	20	2.29	2	0.23	7-7/8"	198	2.4	1.09	13/16"	20.6	3/8"	7	17	1/4"	1/4"	6.3	1/4"QC	3/8"QC			
720-1800B†	8405383	1800	27	3.05	2	0.23	7-7/8"	200	2.4	1.09	13/16"	20.6	3/8"	7	17	1/4"	3/8"	9.5	1/4"QC	3/8"QC			
720-550B	8405391	550	75	8.47	2	0.23	8-5/8"	219	2.7	1.23	13/16"	20.6	3/8"	7	17	3/8"	1/2"	12.7	3/8"QC	1/4"QC			
850-1250A	8405399	1066	126	14.2	9.6	1.08	12-1/4"	311	10.5	4.76	1-7/16"	36.5	1/2"	10	48	3/8"	3/4"	19	3/8"QC	1/2"QC			
850-600A	8405398	486	230	26	14.4	1.63	12-1/4"	311	10.5	4.76	1-7/16"	36.5	1/2"	10	48	3/8"	1"	25.4	3/8"QC	1/2"QC			

Model No.	Part No.	Speed & Torque 90 psig Air Pressure*						Overall Length		Weight		Side to Center		Operating Hose		CFM	Square Drive	Tube Capacities*				Chucks	
		Free Speed RPM	Maximum Torque		Minimum Torque		In.											mm	Lbs.	Kg	In.	mm	In.
			Ft. lbs.	Nm	Ft. Lbs.	Nm		In.	mm	In.	mm	In.	mm	incl.	opt.								
1050-400	8404200	388	26.4	35.8	3.3	4.5	13-5/8"	346	14	6.35	1-15/16"	50	3/4"	13	68	1/2"	1-1/4"	31.7	3/8"QC	3/4-1"QC			
1550-900	8404290	756	30.7	41.6	4.7	6.4	18"	457	27	12.25	1-15/16"	50	3/4"	13	70	1/2"	1-1/2"	38.1	3/8-1/2"QC	3/4-1"QC			
1550-250	8404280	220	109.9	149	14.3	19.4	18"	457	27	12.25	1-15/16"	50	3/4"	13	56	3/4"	2-1/2"	63.5	3/4-1"	3/8-1/2"QC			

* Varies depending on tube material, gauge, and tube sheet thickness.
 † Order 8405512 for ordering 720-1800B with 3/8" Q.C. chuck.

Refer to page 5 for description of Rapid Select.

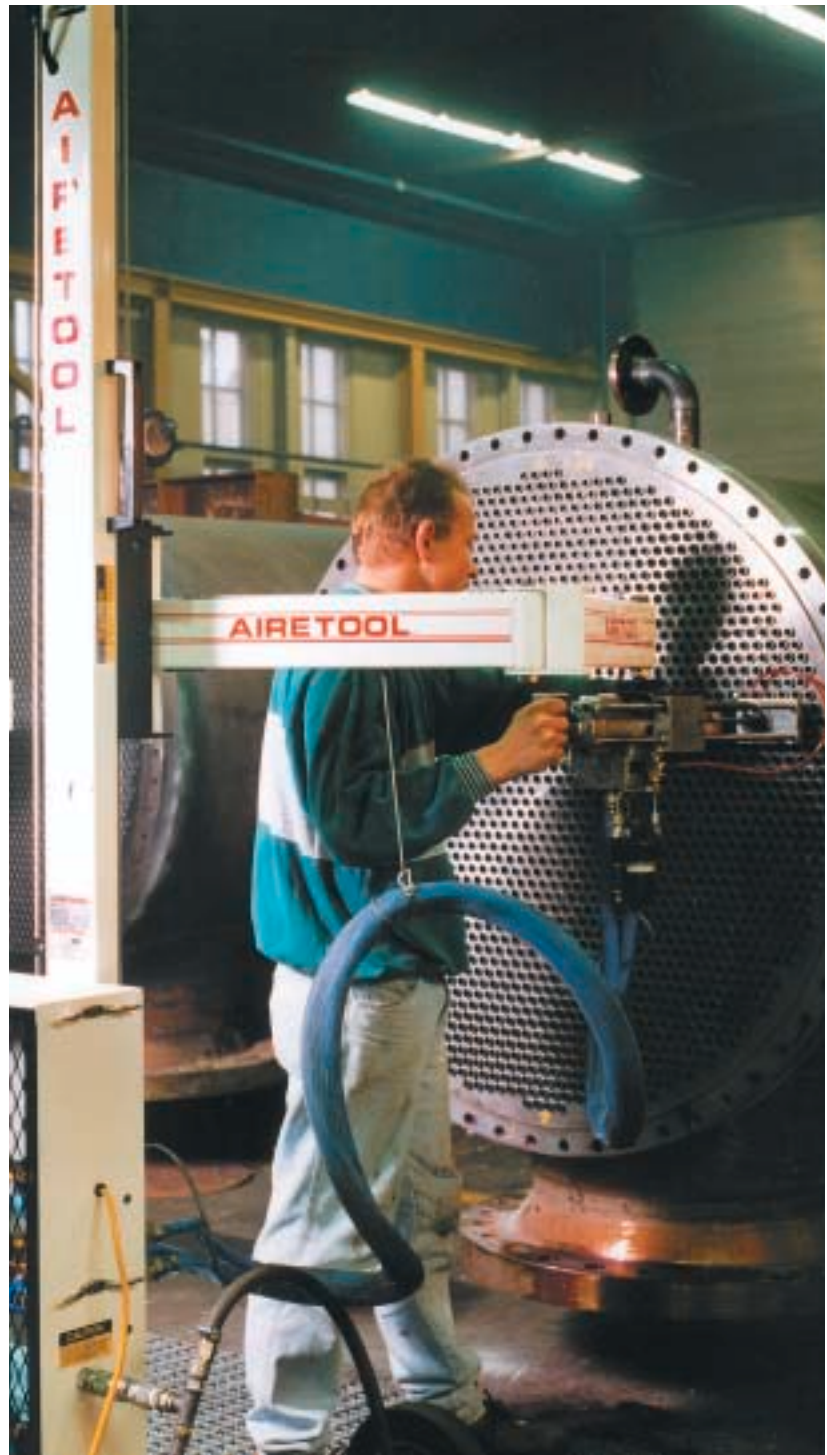
Airetool Rolling Controls

Tool Holding Systems

Ergonomic Airetool DAS tool holding system improves productivity

The Airetool DAS tool holding system is a major ergonomic development for tube installation and removal in providing an easy-to-use method of absorbing tool torque and counterbalancing the weight of the tool.

Virtually any tool used in rolling and removing tubes can be used with the DAS unit, including rolling motors, hydraulic tube pullers, tube end facers, as well as electric and pneumatic tube cutters.




Tool	Part Number	Stock Number
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Adapters for Attaching Tools to DAS Unit

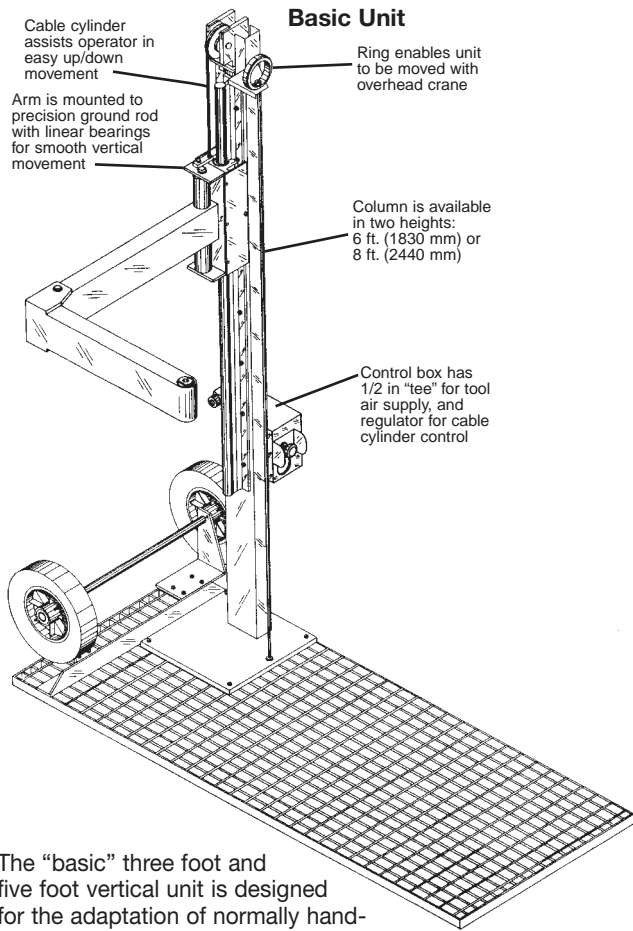
ATS/ATP	DAS-ATS	2991275
15 DP (CLECO)	DAS-15DP	8405406
EIC	DAS-EIC	8567173
600D/TIC	DAS-600D	8405389
966	DAS-966	8405405
979	DAS-979-MP	8567175
850	DAS-850	8405386
1050	DAS-1050	2991276
1550	DAS-1550	2991277

Model Number	Stock Number	Vertical Movement		Horizontal Movement		Lift Capacity		Operating Pressure		Supply Hose Required		Supply Voltage		Allowable Torque	
		Ft.	mm	Ft.	mm	Lbs.	kgs	PSI	Bar	Min.	mm	Volts	Hz	Ft. Lbs.	Nm
Basic Positioning Unit															
DAS-300-BU	5520474	3	915	5	1524	55	25	90	6.2	3/4"	19.0	-	-	125	169
DAS-500-BU	5520473	5	1524	5	1524	55	25	90	6.2	3/4"	19.0	-	-	125	169
Automatic Tube Rolling System Less Airetool															
DAS-300B-TRS	5521756	3	915	5	1524	55	25	90	6.2	3/4"	19.0	115	50/60	125	169
DAS-500B-TRS	5521755	5	1524	5	1524	55	25	90	6.2	3/4"	19.0	115	50/60	125	169

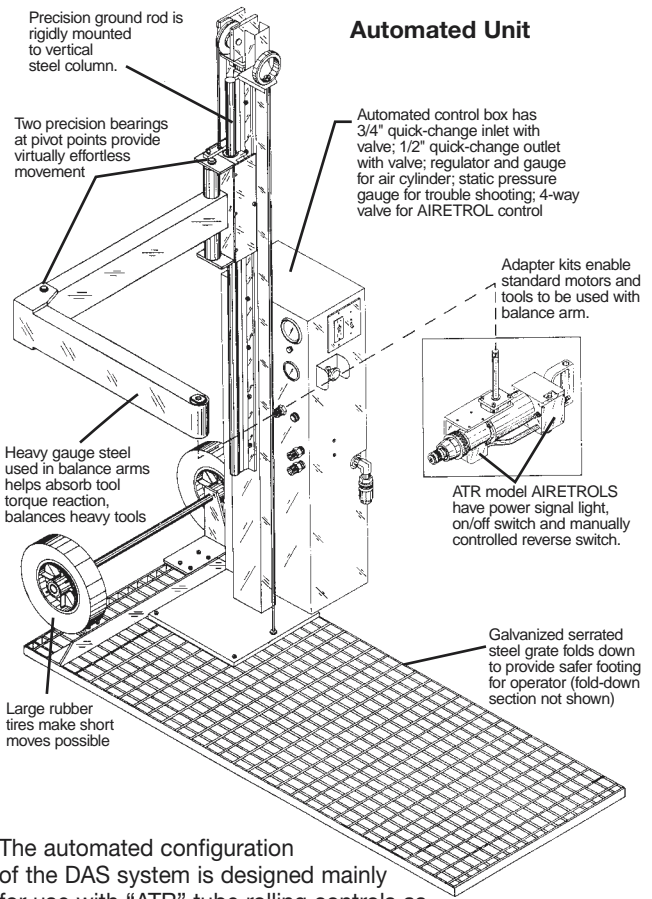
 Refer to page 5 for description of Rapid Select.

Airetool Rolling Controls

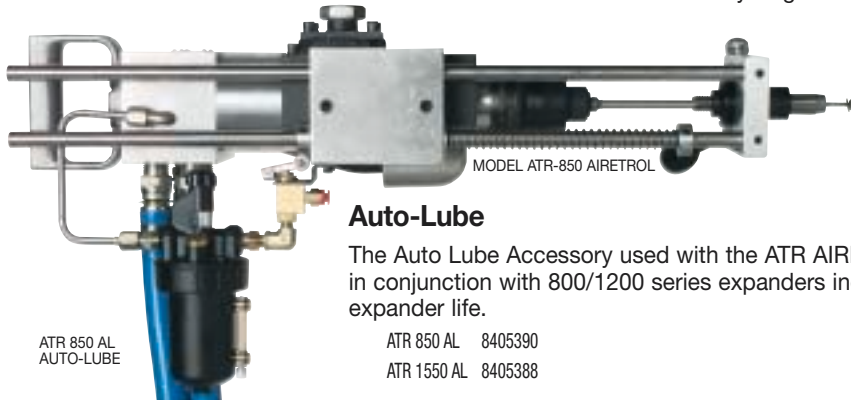
Tool Holding Systems



The "basic" three foot and five foot vertical unit is designed for the adaptation of normally hand-held applications such as tube end facing, tube cutting, tube pulling and tube expanding as well as many applications that are not related to the tube installation or removal process.



The automated configuration of the DAS system is designed mainly for use with "ATR" tube rolling controls as an automated tube rolling system. This unit is fitted with electrically actuated pneumatic controls that allow for the automatic cycling of the Airetools for increased production.



Auto-Lube

The Auto Lube Accessory used with the ATR AIRETROLS in conjunction with 800/1200 series expanders increases expander life.

ATR 850 AL 8405390
ATR 1550 AL 8405388

Model No.	Part No.	Speed & Torque 90 psig Air Pressure*				Overall Length		Weight		Side to Center		Operating Hose		CFM	Drive Square	Tube Capacities*		Chucks		
		Free Speed RPM	Maximum Torque	Minimum Torque												In.	mm	In.	mm	In.
			In. lbs.	Nm	In. lbs.	Nm														
ATR-850-1250	8405374	1300	126	14.2	9.6	1.08	17-3/4	450	15.3	6.9	3-1/8	79	1/2	10	64	3/8	3/4	19	3/8 Q.C.	1/2 Q.C.

Model No.	Part No.	Speed & Torque 90 psig Air Pressure*				Overall Length		Weight		Side to Center		Operating Hose		CFM	Drive Square	Tube Capacities*		Chucks		
		Free Speed RPM	Maximum Torque	Minimum Torque												In.	mm	In.	mm	In.
			Ft. lbs.	Nm	Ft. lbs.	Nm														
ATR-1550-900	8405375	745	33.8	45.8	4.8	6.5	18	457	24	10.9	3	76	1/2	13	74	1/2	1-1/2	38.1	3/8 & 1/2 Q.C.	3/4-1
ATR-1550-250	8405376	190	110	149.1	13.3	18	19-3/4	501	29	13.1	3	76	1/2	13	55	3/4	2-1/2	63.5	3/4	3/8 & 1/2 Q.C.

Refer to page 5 for description of Rapid Select. *Varies depending on tube material, gauge and tube sheet thickness.



Model DAS-100-TRS
Tube Rolling System For
Benchtop Tube Rolling
Applications 1/4" thru
5/8" O. D. Tubes

- Rugged Design
- Automated Tube Rolling Cycle
- Horizontally Aligns Expander to the Tube Sheet
- Absorbs Torque
- Supports Weight
- Improves Productivity
- Effortless Tube Rolling
- Eliminates Ergonomic Stresses
- Utilizes 900, 1300 and 800 Series Tube Expanders

Operation:

The arm is counterbalanced with air cylinders. The pressure can be adjusted to compensate for tool weight for operator comfort. The modified 720 Airetrol rolling motors are push to start activated. With the tube expander positioned inside the tube, slight forward pressure on the Airetrol starts the motor in forward direction to expand the tube. Once the preset torque is met, the motor automatically reverses and the tube expander can be removed from the tube.

The tube expander holder is spring loaded, keeping the tube expander in the retracted position to assist the expander entering the tube. The expander holder also helps keep the tube from spinning during the expansion process.



Three models are available:

- DAS 100 TRS 720 2500 for tube sizes 1/4" OD.*
- DAS 100 TRS 720 1800 for tube sizes 3/8" – 1/2" OD.*
- DAS 100 TRS 720 550 for tube sizes 1/2" – 5/8" OD.*

Post Height: 29"
Total Horizontal Travel: 77"
Vertical Travel: 14.5"

Model No.	Part No.	Speed & Torque 90 psig Air Pressure				CFM	Chucks		
		Free Speed RPM	Maximum Torque		Minimum Torque		Included	Optional	
			In. lbs.	Nm	In. Lbs.				Nm
DAS 100 TRS 720 –									
2500B	5525242	2500	20	2.29	2	0.23	17	1/4"	3/8"
1800B	5525243	1800	27	3.05	2	0.23	17	1/4"	3/8"
550B	5525244	550	75	8.47	2	0.23	17	3/8"	1/4"

*Varies depending on tube material, gauge and tube sheet thickness.

Airetool Rolling Controls

Airetool Heavy Duty Torque Controlled Rolling Motor



Airetool®

Model 1850-40

- For controlled torque up to 600 ft. lbs.
- This Airetool pneumatic powered torque controlled rolling motor offers the highest controlled torque of any rolling motor currently available.

Description	Part Number	Mandrel Square
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Optional and Replacement Chucks

720-720S-735S

720 250	1/4 CHUCK	8405334	1/4
720 375 B	3/8 CHUCK ASSY	8405403	3/8

850-ATR-850

850 375	CHUCK	8400100	3/8
850 500	CHUCK	8400200	1/2

1050-400 1550-900 ATR-1550-900

1000 375	QC CHUCK COMPLETE	8400700	3/8
1000 500	QC CHUCK COMPLETE	8400800	1/2
1000 750	CHUCK COMPLETE	8400900	3/4
1000 1000	CHUCK COMPLETE	8404820	1

1550-250 ATR-1550-250

QC 1550 375	QC CHUCK COMPLETE	8405272	3/8
QC 1550 500	QC CHUCK COMPLETE	8405271	1/2
1550 750	CHUCK COMPLETE	8405259	3/4
1550 1000	CHUCK COMPLETE	8405260	1

999/1850s

989 750	3/4 SQUARE CHUCK	8404700	3/8
989 1000	1" SQUARE CHUCK	8404960	1
1850 1250	CHUCK COMPLETE	8405319	1-1/4
1850 1500	CHUCK COMPLETE	8405437	1-1/2

1752

1770 110 3/4	CHUCK COMPLETE	8405299	3/4
1770 110 1	CHUCK COMPLETE	8405300	1
1770 110 1-1/4	CHUCK COMPLETE	8405400	1-1/4

1753

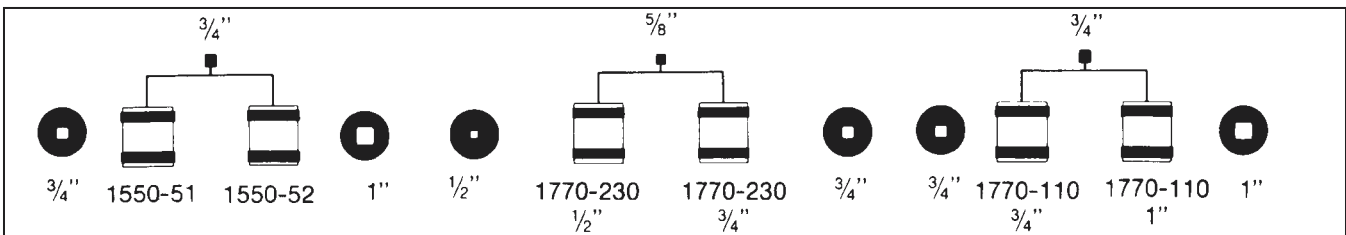
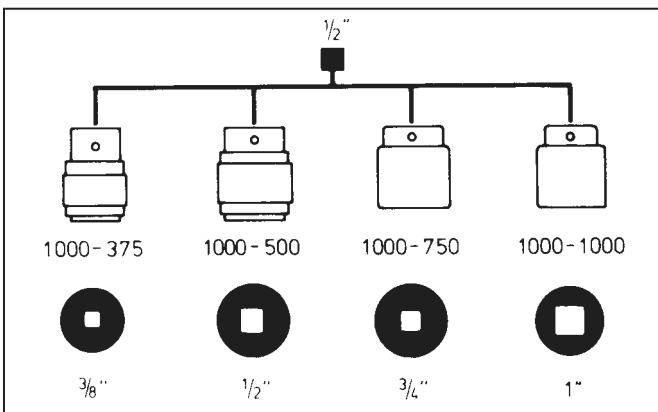
QC 1770 230 1/2	QC CHUCK COMPLETE	8405302	1/2
1770 230 3/4	CHUCK COMPLETE	8405298	3/4
1770 230 1	CHUCK COMPLETE	8405306	1

966s

850 375	CHUCK	8400100	3/8
---------	-------	---------	-----

979s

939 375	CHUCK	8400400	3/8
939 500	CHUCK	8400500	1/2
939 750	3/4 CHUCK	8401100	3/4



Model No.	Part No.	Speed & Torque 90 psig Air Pressure*						Overall Length		Weight		Side to Center		Operating Hose		CFM	Square Drive	Tube Capacities*		Chucks	
		Free Speed RPM	Maximum Torque		Minimum Torque																
			Ft. lbs.	Nm	Ft. Lbs.	Nm	In.	mm	Lbs.	Kg	In.	mm	In.	mm	In.	mm	Incl.	Opt.			
1850-40	8405314	35	598	810	219	297	15	380	52	23.6	3-5/8	92	1/2	13	60	1	4-1/2	114	3/4 - 1	1-1/4 - 1-1/2	

* Varies depending on tube material gauge and tube sheet thickness. Also see page 67 for additional drive accessories.

Refer to page 5 for description of Rapid Select.

Airetool Rolling Controls

Airetool Torque Controlled Rolling Motors for the Boiler Industry

Airetool®

Right Angle Torque Control for Rolling Tubes into drums of package and stationary boilers

- Externally adjusted torque control setting.
- Bevel gears specifically designed for longer life under high torque loading.
- Planetary gear train permits tool speed changes with minimal part replacement.
- All-steel angle head can be oriented in numerous positions in relation to throttle and torque mounting plate.
- Fully adjustable exhaust deflector has 360 degree rotation.
- Modular construction and absence of shims simplifies tool maintenance.
- Durable handle and throttle construction gives added tool life.



Model No.	Part No.	Speed & Torque 90 psig Air Pressure*						Overall Length				Weight				Head Dimensions				Standard Square Drive Size	Tube Capacities*		Chuck Size †
		Free Speed		Maximum Torque		Minimum Torque		In.		mm		Lbs.		Kg		Side to Center		Height Less Square Drive			In.	mm	
		RPM	Ft. lbs.	Nm	Ft. Lbs.	Nm	In.	mm	Lbs.	Kg	In.	mm	In.	mm	In.	mm							
Reversible – Roll Throttle																							
1753-R-190	8405420	190	140	190	70	95	20.1	530	13	5.8	1.1	28	2.6	65	5/8	2.5	63.5	3/4					
1752-R-90	8405421	90	305	410	150	200	21.7	550	14.75	6.7	1.5	37	2.75	70	3/4	4	101.5	3/4-1					
Reversible – Lever Throttle																							
1752-L-90	8405425	90	305	410	150	200	21.7	550	14.75	6.7	1.5	37	2.6	65	3/4	4	101.5	3/4-1					

† See page 31 for chuck size chart.

* Varies depending on tube gauge and tube sheet thickness.

Refer to page 5 for description of Rapid Select.

STANDARD EQUIPMENT

Air Inlet: 1/2" NPT

Minimum hose size: 1/2"

Splined torque reaction plate and reaction bar included.

Airetool Rolling Controls

Electronic Controller & Electric Rolling Motors

Airetool®

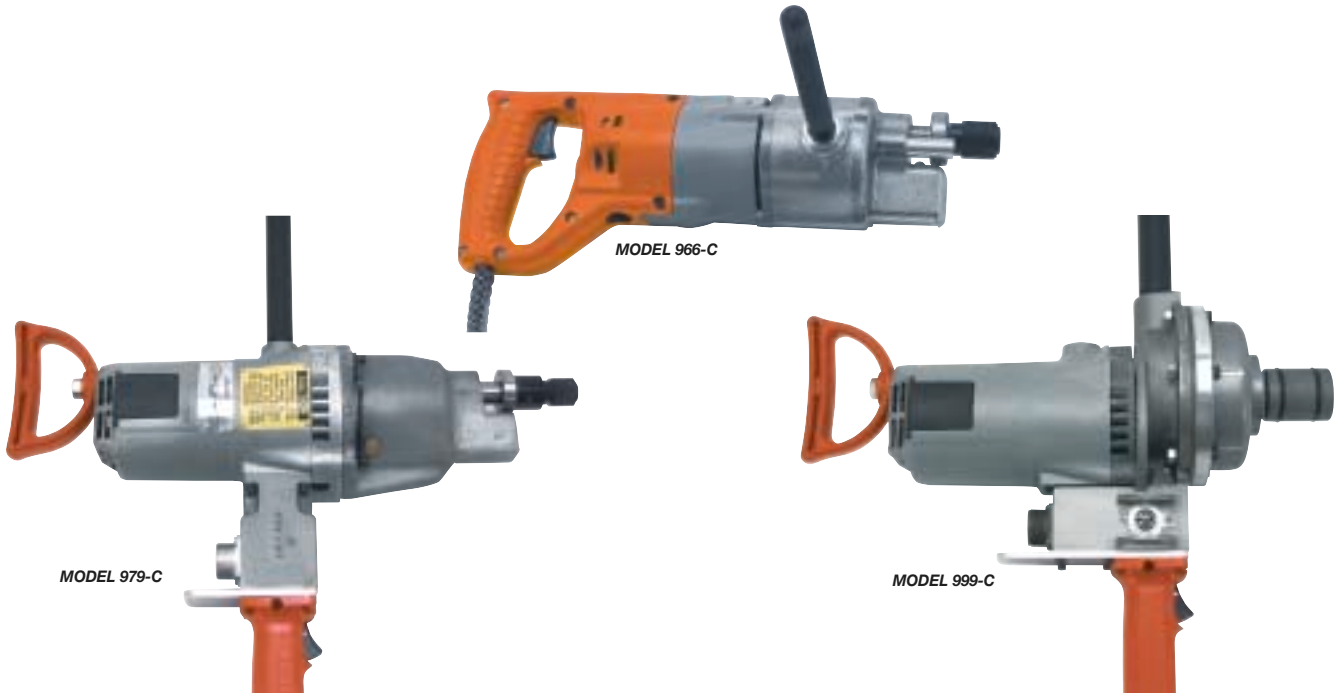
The ATC-900 (2996326) Electronic Controller is a compact, lightweight, durable, processor-based electronic motor controller. It is designed to provide accurate amperage/torque control for Airetool Electric Rolling Motors. Features include: motor identification, expansion counter, GFCI power cord, two key preset in 1/10th amp. intervals, auxiliary trip light receptacle and lubricator receptacle. 979 electric rolling motor may be used without the ATC-900 Electronic Controller, however a direct power cord must be used.

ATC-900 Electronic Controller Specifications

Volts:	120V
HZ:	50/60
Amperage:	20 AMP Supply Circuit Recommended
Amperage Adjustment:	0.10 Amperage Increments
Weight:	7.2 lbs. (3.27 Kilo)
Dimensions (LxWxH):	11-3/4" x 12"x 7-5/8" (298.45 x 365.76 x 193.68 mm)

Maximum Motor Amperage Settings:

966-C	8.0 Amp.
979-C	20.0 Amp.
999-C	20.0 Amp.



Model	Part Number	RPM	Tube Capacity*	Weight		Chucks	
				Lbs.	Kg.	Included	Optional

Electric Rolling Motor Specifications

966-C-400	8405491	400	5/8" - 7/8" (15.8 - 22.2 mm)	10.5	4.8	3/8" Q.C.	-
966-C-725	8405490	725	1/2" - 7/8" (15.8 - 22.2 mm)	10.5	4.8	3/8" Q.C.	-
979-C-210	8405489	210	3/4" - 2" (19.0 - 50.8 mm)	32.0	14.5	3/8" - 1/2 Q.C.	-
979-C-300	8405488	300	3/4" - 1-1/2" (19.0 - 38.1 mm)	32.0	14.5	3/8" - 1/2 Q.C.	-
979-C-650	8405487	650	5/8" - 1-1/4" (15.8 - 31.7 mm)	32.0	14.5	3/8" - 1/2 Q.C.	-
999-C-45	8405492	45	2" - 4" (50.8 - 101.6 mm)	32.0	14.5	3/4" - 1	-

* May vary due to tube wall, material and/or tube sheet thickness.

Refer to page 5 for description of Rapid Select.

Airetool Rolling Controls

Tube Expansion Process Control for Exchanger Manufacturers

Airetool

This system utilizes a microprocessor controlled expanding cycle with programmable expansion parameters. This includes torque, speed and expansion times for uniform bonding of the tube, to the tube sheet with accuracy and repeatability. Expansion modules are available for single or multiple spindle (independently controlled) tube expansion heads with fixed, or multiple pitch design.

The tooling is designed for robot or articulating tool-holding systems, resulting in ergonomic and virtually effortless productivity. The tube expander bracket combined with the automatic through-cage lubricant-injection-system greatly extends the life of the tooling.

Expansion modules designed according to customer requirement & application.

Benefits:

- Fully programmable microprocessor expansion cycle
- Automatic expansion cycle
- Process documentation
- Multiple-expansion spindle unit (up to 16 independently operated and controlled cycles)
- Fixed or multiple-pitch adjustment
- Improves productivity up to 60%
- Reduces tooling cost



Airetool Rolling Controls

Torque Analyzers for Airetrol Rolling Controls



Models P-2B & P-15

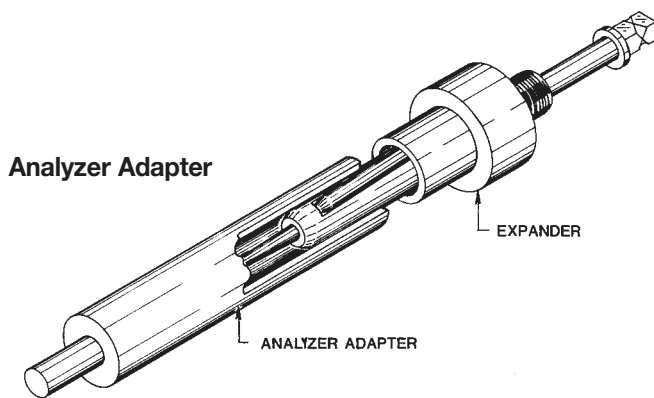
The Utica torque analyzers allow the Airetrol rolling controls to be set at a specific torque value. The analyzer readings may also be used as a standard for the Airetrols performance giving you greater quality control over your rolled tube joints.

The torque analyzers are also a great time saver on applications where several Airetrols are being used. Once the desired wall reduction is achieved on the first Airetrol, its torque value is obtained on the analyzer, then the same torque value can be set to the remaining Airetrols.



Model P-2B

Model P-15



Analyzer Adapter

Adapter No.	Expander No.
-------------	--------------

Adapters for Analyzer P-2B

AD-0	927 & A-25024
AD-01	921 & A-25018
AD-02	923, 924, & A-25020, A-25021
AD-03	916, 918 & A-37516, A-37517
AD-04	925, 926 & A-25022, A-25023
AD-05	928 & A-25028
AD-06	911 & A-37523
AD-07	901 & A-37518
AD-08	905, 907 & A-37520, A-37521

Adapters for Analyzer P-15

AD-1	1201 thru 1203 & 801 thru 803
AD-2	1205 & 805
AD-3	1207 thru 1210 & 807 thru 810
AD-4	1211 thru 1214 & 811 thru 814
AD-5	1215 thru 1220 & 815 thru 820
AD-6	1221 thru 1224 & 821 thru 824
AD-7	1225 thru 1230 & 825 thru 830
AD-8	1231 thru 1234 & 831 thru 834
AD-9	1235 thru 1240 & 835 thru 840
AD-8	1241 thru 1242 & 831 thru 842
AD-10	1243 thru 1248 & 843 thru 846
AD-11	1247 thru 1254 & 847 thru 854
AD-12	1255 thru 1260 & 855 thru 860
AD-13	1261 thru 1266 & 861 thru 866
AD-14	1267 thru 1272 & 867 thru 872
AD-15	1273 thru 1276 & 873 thru 878
AD-16	1279 thru 1288 & 870 thru 888
AD-17	1289 thru 1290 & 889 thru 890
AD-18	1291 thru 1294 & 891 thru 894
AD-19	1295 thru 1300 & 895 thru 900

Model No.	Graduations	Capacity	Accuracy	Height		Width		Length		Weight		Ordering No.
				In.	mm	In.	mm	In.	mm	Lb.	kg	
P-2B	.5 in.-lbs.	22-2 in. lbs.	± 1/4 in.-lbs.	5.6	143	7.3	184	12	305	18	8.2	810681
MP-2B (metric)	.5 cm.-kg.	22-2 cm.-kg	± .3 cm.-kg	5.6	143	7.3	184	12	305	18	8.2	810682
P-15	2 in.-lbs.	150-5 in. lbs.	± 1%+1/2 in.-lbs.	8	203	5	127	18	457	23	10.4	810002
MP-15 (metric)	5 cm.-kg.	180-5 cm.-kg	± 1%+1 cm.-kg	8	203	5	127	18	457	23	10.4	810151

GENERAL

Drive Size: 1/4" male hex (P-2 series)
5/16" male hex (P-15 series)

OPTIONAL EQUIPMENT

Calibration Kit (P-2 series) – 810629
Calibration Kit (P-15 series) – 810080

Airetool Tube Installation Tools

Tube Installation Tools



Cleco® Drill Series 15 DP

For use with Airetool Tube End Facer and push-type tube cutters.

Model Number	RPM	Chuck Capacity		Weight	
		In.	mm	Lbs.	Kg.
15DP-1.6B-53	160	1/2	13	6	.27
15DP-4B-53	400	1/2	13	5-1/2	2.5
15DP-8B-53	800	1/2	13	5-1/2	2.5
15DP-14B-49	1400	3/8	10	4-1/2	2.0



Cleco® Drill Series 135 DPV

Variable Speed Governed Drills – One tool for many applications. For use with Airetool Tube End Facer and push type tube cutters.

Model Number	RPM		Chuck Capacity		Weight	
	Free	Governed	In.	mm	Lbs.	Kg.
135-DPV-7B-43	600	150-550	3/8	10	3-5/8	1.6
135-DPV-14B-51	1250	400-1200	3/8	8	3-3/8	1.5
135-DPV-28B-51	2600	700-2400	3/8	8	3-1/8	1.4



GS Serrating Tool

Improved design grooving tool features one-piece mandrel and short design making it compatible with CNC applications. GS serrating tools accommodate reaches of 7/8" to 2-1/8" (22.2 mm to 53.9mm).

Tube O.D.		Tool Number	Standard Tool Bits	
In.	mm		1/8 x 1/4 x 1/8" Spacing	1/8 x 3/8 x 1/8" Spacing
1/2	12.7	GS-500-1270 (5519900)	ST-5003-S (2655710)	ST-5003 (2655707)
5/8	15.8	GS-625-1588 (5519901)	ST-6203-S (2656300)	ST-6203 (2656200)
3/4	19.0	GS-750-1900 (5519903)	ST-7503-S (2658500)	ST-7503 (2658400)
7/8	22.2	GS-875-2220 (5519904)	ST-7503-S (2658500)	ST-7503 (2658400)
1	25.4	GS-1000-2540 (5519875)	ST-7503-S (2658500)	ST-7503 (2658400)

Other sizes are also available. Contact Customer Service for details.



Belling and Flaring Tools

Belling tool – pilot end fits tube I.D. with Type 01 shank. Specify tool OD, gauge, radius in tube sheets.



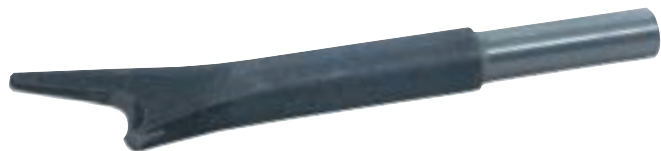
FT-515 – 60° included angle flaring tool – designed to flare tubes 1/2 - 1-1/2 in. (12.7-38.1 mm) OD. Furnished with Type 01 or type 06 round shank for use with standard chipping hammers.



Tube End Facer

Tube O.D.		Tool Number	Gauge	Spare Bits	
In.	mm			non-ferrous or carbon steel	stainless
3/8	9.5	TEF-375 (5519632)	16-20	TEF-376 (2987908)	TEF-376-SS (2991788)
1/2	12.7	TEF-500 (5332415)	16-20	TEF-506 (2662531)	TEF-506-SS (2983169)
5/8	15.8	TEF-625 (5332425)	14-18	TEF-626 (2662558)	TEF-626-SS (2983170)
3/4	19.0	TEF-750 (5332450)	10-18	TEF-756 (2662585)	TEF-756-SS (2983162)
7/8	22.2	TEF-875 (5332460)	14-18	TEF-876 (2662603)	TEF-876-SS (2983163)
1	25.4	TEF-1000 (5332475)	10-18	TEF-1006 (2662633)	TEF-1006-SS (2983164)

A set of even gauge pilots are supplied with tube end facing tools shown above. Other sizes are also available. Contact Customer Service for details.



Beading Tool

Part Number	Stock Number	Radius	Shank Type
12-RM-9-5/32-R-01	2968677	5/32"	Type 01
12-RM-9-1/4-R-01	2968676	1/4"	(.680" round x 2 3/8" long)

Refer to page 5 for description of Rapid Select.

Airetool Tube Installation Accessories

Heat Exchanger and Condenser Tube Expander Accessories



Extensions with Quick-Change Chuck

Varying extension lengths are used for hard-to-reach tubes. Quick-change chuck enables operator to change expanders quickly. Specify size of square drive and extension length.

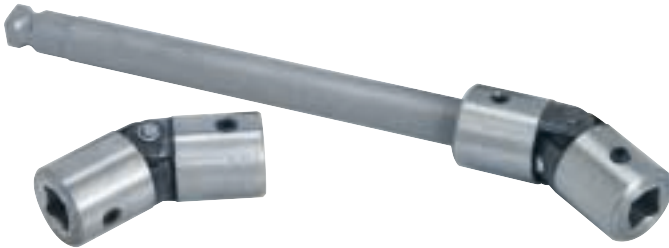
Quick Change Extension Complete	Stock Number	Square Drive Size Male/Female	Overall Length	
			In.	mm

Extensions with Quick-Change Chuck

866-375-6	5501200	3/8" (9.5 mm)	6	152
866-375-8	5501600	3/8" (9.5 mm)	8	203
866-375-12	5502000	3/8" (9.5 mm)	12	305
866-375-18	5503000	3/8" (9.5 mm)	18	457
866-375-24	5504000	3/8" (9.5 mm)	24	610
866-375-30	5504500	3/8" (9.5 mm)	30	762
866-375-36	5505000	3/8" (9.5 mm)	36	915
QC-500-12	5507000	1/2" (12.7 mm)	12	305
QC-500-18	5508000	1/2" (12.7 mm)	18	457
QC-500-24	5509000	1/2" (12.7 mm)	24	610
QC-500-30	5510000	1/2" (12.7 mm)	30	762
QC-500-36	5511000	1/2" (12.7 mm)	36	915

Sleeve Type Extensions

Designed for use where tubes are close to the shell of the condenser. Small diameter of female end allows access to these tubes.



Sleeve Type Extension Complete	Stock Number	Square Drive Size Male/Female	Overall Length	
			In.	mm

Male/Female Extensions

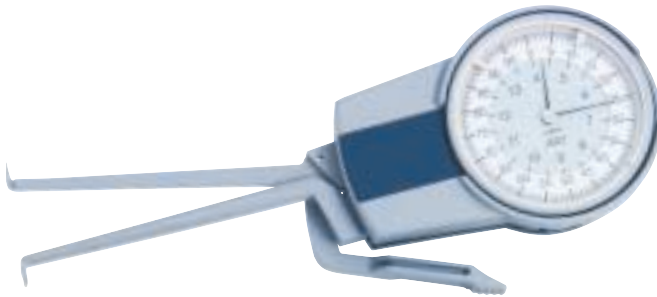
3/8 x 12	5515758	3/8" (9.5 mm)	12	305
3/8 x 18	5513774	3/8" (9.5 mm)	18	457
3/8 x 24	5515759	3/8" (9.5 mm)	24	610
3/8 x 36	5515761	3/8" (9.5 mm)	36	915
1/2 x 12	5515733	1/2" (12.7 mm)	12	305
1/2 x 18	5513775	1/2" (12.7 mm)	18	457
1/2 x 24	5515734	1/2" (12.7 mm)	24	610
3/4 x 12	5515735	3/4" (19.0 mm)	12	305
3/4 x 18	5515736	3/4" (19.0 mm)	18	457
3/4 x 24	5515737	3/4" (19.0 mm)	24	610

Universal Joints and Extensions

Designed for hard-to-reach tubes, the universal joint performs smoothly without binding. Specify size of square drive and extension length.

Universal Joint	Stock Number	Square Drive Size Female	Overall Length	
			In.	mm

3/8 x 3/8	2115300	3/8" (9.5 mm)	2-1/2	64
1/2 x 1/2	2039800	1/2" (12.7 mm)	2-3/4	70
3/4 x 3/4	2974913	3/4" (19.0 mm)	3-1/2	89



Internal Tube Calipers

For fast, accurate measurement of tubes. Now available in English and Metric styles.

Universal Extensions	Stock Number	Square Drive Size Male/Female	Overall Length	
			In.	mm

GP-3/8 x 6	5514896	3/8" (9.5 mm)	6	152
GP-3/8 x 12	5514898	3/8" (9.5 mm)	12	305
GP-3/8 x 18	5514899	3/8" (9.5 mm)	18	457

Part Number	Stock Number	Range
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Inch

IDC-0414 In.	1717053	.400-1.400
IDC-1020 In.	1717048	1.000-2.000
IDC-1626 In.	1717049	1.600-2.600
IDC-2232 In.	1717050	2.200-3.200
IDC-2838 In.	1717054	2.800-3.800

Metric

IDC-1030 mm	1717055	10-20 mm
IDC-2040 mm	1717056	20-40 mm
IDC-3050 mm	1717057	30-50 mm
IDC-4060 mm	1717058	40-60 mm
IDC-5070 mm	1717059	50-70 mm
IDC-6080 mm	1717060	60-80 mm
IDC-7090 mm	1717061	70-90 mm



Tube Wall Caliper

Ideal for quick measurement of tube or pipe wall thickness. Inch and metric models available.

Description	Part Number	Range		Graduations	
		In.	mm	In.	mm

TWC-500	2988840	.0-400	-	.001	-
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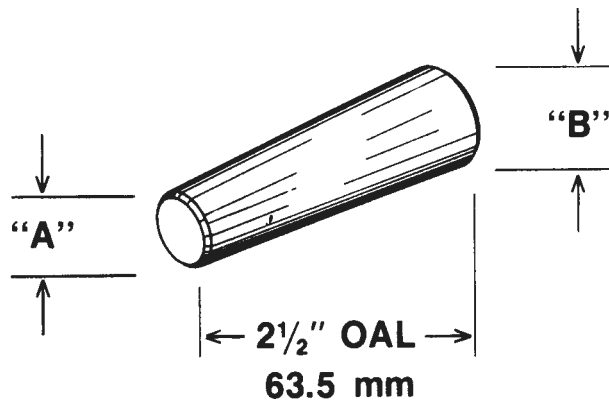
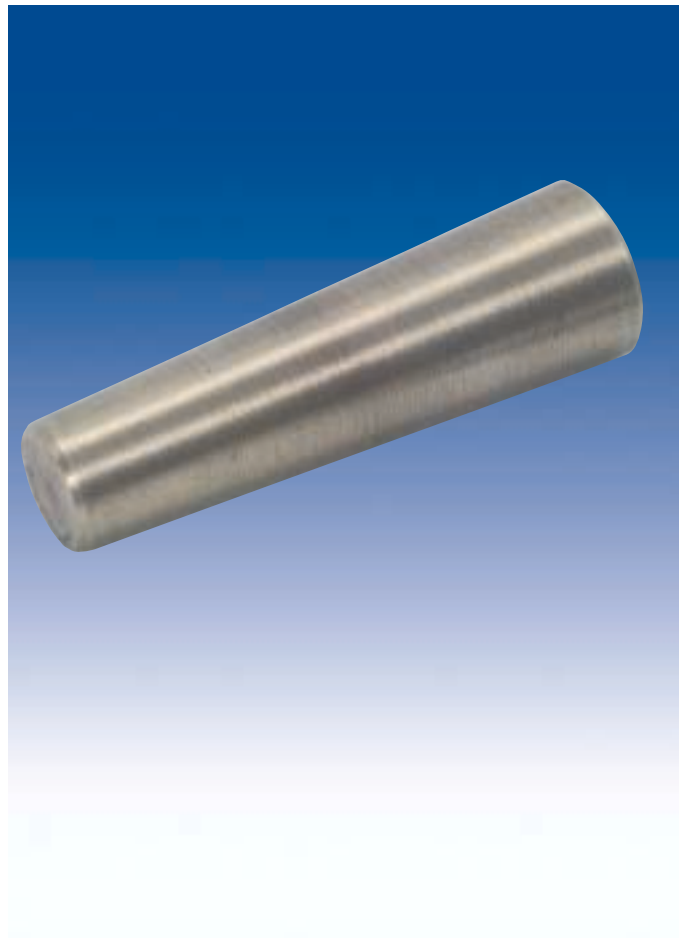
Airetool Accessories

Airetool One Piece Tube Plugs

Airetool®

Ideal for sealing leaky tubes in condensers or heat exchangers. Just drive a plug into each end of leaky tube.

Note: The Airetool RCM Series One Revolution Tube Cutter can be used to puncture the tube to ensure that pressure cannot build up in the tube and cause the plugs to loosen or blow out. See page 49 for detailed information on the Airetool RCM Series Tube Cutters.



O.D.	Gauge	"A"		"B"		Brass	Steel	316* S.S.	304* S.S.	416* S.S.	Aluminum*	Monel*
		In.	mm	In.	mm							
3/8"	15-22	.176	4.47	.388	9.86	3751-3	3752-3	3753-3	3754-3	3755-3	3756-3	3757-3
1/2"	11-14	.176	4.47	.388	9.86	2979536	2980392	2985475	3754-3*	3755-3*	3756-3*	3757-3*
1/2"	15-22	.301	7.65	.513	13.03	5001-4	5002-4	5003-4	5004-4	5005-4	5006-4	5007-4
5/8"	11-14	.301	7.65	.513	13.03	2979537	2980022	2981007	2986996	5005-4*	5006-4*	5007-4*
5/8"	15-22	.426	10.82	.638	16.20	6251-5	6252-5	6253-5*	6254-5	6255-5	6256-5	6257-5*
3/4"	11-14	.426	10.82	.638	16.20	2979231	2979232	2983587	2979413	6255-5*	6256-5*	2982825
3/4"	15-22	.551	14.00	.763	19.38	7501-6	7502-6	7503-6*	7504-6*	7505-6	7506-6	7507-6*
7/8"	11-14	.551	14.00	.763	19.38	2979233	2979234	2980988	2983589	7505-6*	7506-6*	2982944
7/8"	15-22	.676	17.17	.888	22.56	8751-7	8752-7	8753-7*	8754-7*	8755-7	8756-7	8757-7
1"	11-14	.676	17.17	.888	22.56	2979235	2979236	2981008	2983590	8755-7*	8756-7*	8757-7*
1"	15-22	.801	20.35	1.013	25.73	1001-8	1002-8	1003-8*	1004-8*	1005-8	1006-8	1007-8
1-1/8"	11-14	.801	20.35	1.013	25.73	2979237	2979238	2983588	2983591	1005-8*	1006-8*	1007-8*
1-1/8"	15-22	.926	23.52	1.138	28.90	1121-9	1122-9	1123-9*	1124-9	1125-9	1126-9	1127-9
1-1/4"	11-14	.926	23.52	1.138	28.90	2989650	2979553	2994101	1124-9	1125-9*	1126-9*	1127-9*
1-1/4"	15-22	1.015	25.78	1.263	32.08	1251-10	1252-10	1253-10*	1254-10	1255-10	1256-10	1257-10
1-3/8"	11-14	1.015	25.78	1.263	32.08			2994102	1254-10*	1255-10*	1256-10*	1257-10*
1-3/8"	15-22	1.176	29.87	1.388	35.26	1371-11	1372-11	1373-11	1374-11	1375-11	1376-11	1377-11
1-1/2"	11-14	1.176	29.87	1.388	35.26		2979748	1373-11*	1374-11*	1375-11*	1376-11*	1377-11*
1-1/2"	15-22	1.301	32.66	1.513	38.93	1501-12	1502-12	1503-13	1504-13	1505-13	1506-13	1507-13
1-1/2"	15-22	1.301	32.66	1.513	38.93		2991523	1503-13*	1504-13*	1505-13*	1506-13*	1507-13*

* Minimum order quantity 25 pieces each size.

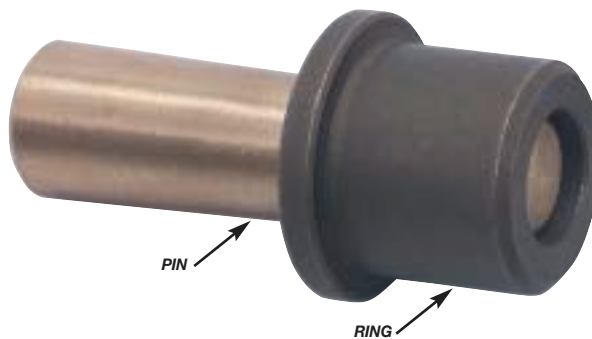
Refer to page 5 for description of Rapid Select.

Airetool Tube Installation Accessories

Brass – Two Piece Tube Plugs

For sealing leaky tubes in condensers or heat exchangers. The two piece design has more sealing area and reduces the risk of damaging the tube sheet.

Note: The Airetool One Revolution Tube Cutter is recommended to puncture the tube to ensure that pressure cannot build up in the tube to cause the plug to loosen or blow out. See page 49 for detailed information on the RCM Series Tube Cutters.

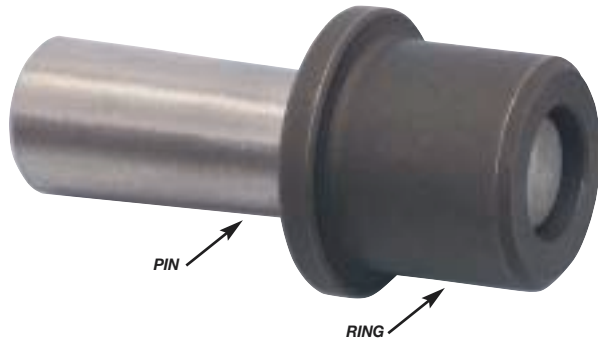


Tube Size				Brass Ring and Pin Set		Brass Pin Only		Brass Ring Only	
O.D.	Gauge	Tube ID		Part Number	Order Number	Part Number	Order Number	Part Number	Order Number
		In.	mm						
5/8"	12	.407	10.34	TP-6212-B	5521292	TP-6213-BP	2992475	TP-6212-BR	2992476
5/8"	13	.435	11.05	TP-6213-B	5523572	TP-6213-BP	2992475	TP-6213-BR	2996994
5/8"	14	.459	11.66	TP-6214-B	5522479	TP-6213-BP	2992475	TP-6214-BR	2995194
5/8"	15	.481	12.22	TP-6215-B	5523573	TP-6213-BP	2992475	TP-6215-BR	2996995
5/8"	16	.495	12.57	TP-6216-B	5520352	TP-6216-BP	2987585	TP-6216-BR	2989883
5/8"	17	.509	12.93	TP-6217-B	5523588	TP-6216-BP	2987585	TP-6217-BR	2997365
5/8"	18	.527	13.39	TP-6218-B	5519514	TP-6216-BP	2987585	TP-6218-BR	2987584
5/8"	19	.541	13.80	TP-6219-B	5520413	TP-6216-BP	2987585	TP-6219-BR	2990090
5/8"	20	.555	14.10	TP-6219-B	5520413	TP-6216-BP	2987585	TP-6219-BR	2990090
5/8"	21	.561	14.25	TP-6221-B	5520869	TP-6216-BP	2987585	TP-6221-BR	2991424
5/8"	22	.569	14.45	TP-6221-B	5520869	TP-6216-BP	2987585	TP-6221-BR	2991424
3/4"	12	.532	13.51	TP-6218-B	5519514	TP-6216-BP	2987585	TP-6218-BR	2991424
3/4"	13	.650	14.22	TP-6221-B	5520869	TP-6216-BP	2987585	TP-6221-BR	2991424
3/4"	14	.584	14.83	TP-7514-B	5519705	TP-7514-BP	2986820	TP-7514-BR	2988107
3/4"	15	.606	15.39	TP-7515-B	5520952	TP-7514-BP	2986820	TP-7515-BR	2991639
3/4"	16	.620	15.75	TP-7516-B	5519878	TP-7514-BP	2986820	TP-7516-BR	2988587
3/4"	17	.634	16.10	TP-7517-B	5520953	TP-7514-BP	2986820	TP-7517-BR	2991640
3/4"	18	.652	16.56	TP-7518-B	5519494	TP-7514-BP	2986820	TP-7518-BR	2986821
3/4"	19	.666	16.92	TP-7519-B	5518419	TP-7514-BP	2986820	TP-7519-BR	2987780
3/4"	20	.680	17.26	TP-7519-B	5518419	TP-7514-BP	2986820	TP-7519-BR	2987780
3/4"	21	.686	17.42	TP-7521-B	5519600	TP-7521-BP	2987783	TP-7521-BR	2987782
3/4"	22	.694	17.63	TP-7521-B	5519600	TP-7521-BP	2987783	TP-7521-BR	2987782
7/8"	12	.657	16.69	TP-7518-B	5519494	TP-7514-BP	2986820	TP-7518-BR	2986821
7/8"	13	.685	17.40	TP-7521-B	5519600	TP-7521-BP	2987783	TP-7521-BR	2987782
7/8"	14	.709	18.00	TP-8714-B	5522184	TP-7521-BP	2987783	TP-8714-BR	2994679
7/8"	15	.731	18.57	TP-8715-B	5523574	TP-7521-BP	2987783	TP-8715-BR	2997246
7/8"	16	.754	18.92	TP-8716-B	5522352	TP-7521-BP	2987783	TP-8716-BR	2994960
7/8"	17	.759	19.28	TP-8717-B	5523575	TP-7521-BP	2987783	TP-8717-BR	2996996
7/8"	18	.777	19.74	TP-8718-B	5520920	TP-8718-BP	2989708	TP-8718-BR	2989709
7/8"	19	.791	20.10	TP-8719-B	5523036	TP-8718-BP	2989708	TP-8719-BR	2995989
7/8"	20	.805	20.45	TP-8719-B	5523036	TP-8718-BP	2989708	TP-8719-BR	2995989
7/8"	21	.811	20.60	TP-8721-B	5523576	TP-8718-BP	2989708	TP-8721-BR	2996997
7/8"	22	.819	20.80	TP-8721-B	5523576	TP-8718-BP	2989708	TP-8721-BR	2996997
1"	12	.782	19.86	TP-8718-B	5520920	TP-8718-BP	2989708	TP-8718-BR	2995989
1"	13	.810	20.57	TP-8721-B	5523576	TP-8718-BP	2989708	TP-8721-BR	2996997
1"	14	.834	21.18	TP-1014-B	5521719	TP-8718-BP	2989708	TP-1014-BR	2989710
1"	15	.856	21.74	TP-1015-B	5523577	TP-8718-BP	2989708	TP-1015-BR	2996998
1"	16	.870	22.1	TP-1016-B	5519515	TP-1016-BP	2987587	TP-1016-BR	2987586
1"	17	.884	22.45	TP-1017-B	5522333	TP-1016-BP	2987587	TP-1017-BR	2994914
1"	18	.902	22.91	TP-1018-B	5519680	TP-1016-BP	2987587	TP-1018-BR	2988072
1"	19	.916	23.27	TP-1019-B	5520903	TP-1016-BP	2987587	TP-1019-BR	2989712
1"	20	.930	23.62	TP-1019-B	5520930	TP-1016-BP	2987587	TP-1019-BR	2989712
1"	21	.936	23.77	TP-1021-B	5523963	TP-1016-BP	2987587	TP-1021-BR	2996999
1"	22	.944	23.98	TP-1021-B	5523963	TP-1016-BP	2987587	TP-1021-BR	2996999

Refer to page 5 for description of Rapid Select.

Airetool Tube Installation Accessories

Steel - Two Piece Tube Plugs



For sealing leaky tubes in condensers or heat exchangers. The two piece design has more sealing area and reduces the risk of damaging the tube sheet.

Note: The Airetool One Revolution Tube Cutter is recommended to puncture the tube to ensure that pressure cannot build up in the tube to cause the plug to loosen or blow out. See page 49 for detailed information on the RCM Series Tube Cutters.

Tube Size				Steel Ring and Pin Set		Steel Pin Only		Steel Ring Only	
O.D.	Gauge	Tube ID							
		In.	mm	Part Number	Order Number	Part Number	Order Number	Part Number	Order Number
5/8"	12	.407	10.34	TP-6212-S	5520904	TP-6213-SP	2991531	TP-6212-SR	2991532
5/8"	13	.435	11.05	TP-6213-S	55233581	TP-6213-SP	2991531	TP-6213-SR	2997362
5/8"	14	.459	11.66	TP-6214-S	5520903	TP-6213-SP	2991531	TP-6214-SR	2991530
5/8"	15	.481	12.22	TP-6215-S	55233582	TP-6213-SP	2991531	TP-6215-SR	2997363
5/8"	16	.495	12.57	TP-6216-S	5519819	TP-6216-SP	2988414	TP-6216-SR	2988415
5/8"	17	.509	12.93	TP-6217-S	5523591	TP-6216-SP	2988414	TP-6217-SR	2997366
5/8"	18	.527	13.39	TP-6218-S	5520261	TP-6216-SP	2988414	TP-6218-SR	2989652
5/8"	19	.541	13.80	TP-6219-S	5523144	TP-6216-SP	2988414	TP-6219-SR	2996170
5/8"	20	.555	14.10	TP-6219-S	5523144	TP-6216-SP	2988414	TP-6219-SR	2996170
5/8"	21	.561	14.25	TP-6221-S	5523964	TP-6216-SP	2988414	TP-6221-SR	2990423
5/8"	22	.569	14.45	TP-6221-S	5523964	TP-6216-SP	2988414	TP-6221-SR	2990423
3/4"	12	.532	13.51	TP-6218-S	5520261	TP-6216-SP	2988414	TP-6218-SR	2996170
3/4"	13	.650	14.22	TP-6221-S	5523964	TP-6216-SP	2988414	TP-6221-SR	2990423
3/4"	14	.584	14.83	TP-7514-S	5520302	TP-7514-SP	2985933	TP-7514-SR	2989700
3/4"	15	.606	15.39	TP-7515-S	5520924	TP-7514-SP	2985933	TP-7515-SR	2991585
3/4"	16	.620	15.75	TP-7516-S	5519081	TP-7514-SP	2985933	TP-7516-SR	2985934
3/4"	17	.634	16.10	TP-7517-S	5521880	TP-7514-SP	2985933	TP-7517-SR	2994115
3/4"	18	.652	16.56	TP-7518-S	5519966	TP-7514-SP	2985933	TP-7518-SR	2988847
3/4"	19	.666	16.92	TP-7519-S	5523965	TP-7514-SP	2985933	TP-7519-SR	2989706
3/4"	20	.680	17.26	TP-7519-S	5523965	TP-7514-SP	2985933	TP-7519-SR	2989706
3/4"	21	.686	17.42	TP-7521-S	5523583	TP-7521-SP	2989707	TP-7521-SR	2989705
3/4"	22	.694	17.63	TP-7521-S	5523583	TP-7521-SP	2989707	TP-7521-SR	2989705
7/8"	12	.657	16.69	TP-7518-S	5519966	TP-7514-SP	2985933	TP-7518-SR	2988847
7/8"	13	.685	17.40	TP-7521-S	5523583	TP-7521-SP	2989707	TP-7521-SR	2989705
7/8"	14	.709	18.00	TP-8714-S	5521654	TP-7521-SP	2989707	TP-8714-SR	2993358
7/8"	15	.731	18.57	TP-8715-S	5523100	TP-7521-SP	2989707	TP-8715-SR	2990420
7/8"	16	.754	18.92	TP-8716-S	5522478	TP-7521-SP	2989707	TP-8716-SR	2995193
7/8"	17	.759	19.28	TP-8717-S	5522433	TP-7521-SP	2989707	TP-8717-SR	2995092
7/8"	18	.777	19.74	TP-8718-S	5519977	TP-8718-SP	2988874	TP-8718-SR	2988873
7/8"	19	.791	20.10	TP-8719-S	5523584	TP-8718-SP	2988874	TP-8719-SR	2996210
7/8"	20	.805	20.45	TP-8719-S	5523584	TP-8718-SP	2988874	TP-8719-SR	2996210
7/8"	21	.811	20.60	TP-8721-S	5520263	TP-8718-SP	2988874	TP-8721-SR	2989654
7/8"	22	.819	20.80	TP-8721-S	5520263	TP-8718-SP	2988874	TP-8721-SR	2989654
1"	12	.782	19.86	TP-8718-S	5519977	TP-8718-SP	2988874	TP-8718-SR	2988873
1"	13	.810	20.57	TP-8721-S	5520263	TP-8718-SP	2988874	TP-8721-SR	2989654
1"	14	.834	21.18	TP-1014-S	5520706	TP-8718-SP	2988874	TP-1014-SR	2989714
1"	15	.856	21.74	TP-1015-S	5523585	TP-8718-SP	2988874	TP-1015-SR	2997360
1"	16	.870	22.1	TP-1016-S	5522890	TP-1016-SP	2989655	TP-1016-SR	2989711
1"	17	.884	22.45	TP-1017-S	5523586	TP-1016-SP	2989655	TP-1017-SR	2997361
1"	18	.902	22.91	TP-1018-S	5520262	TP-1016-SP	2989655	TP-1018-SR	2989656
1"	19	.916	23.27	TP-1019-S	5523587	TP-1016-SP	2989655	TP-1019-SR	2989713
1"	20	.930	23.62	TP-1019-S	5523587	TP-1016-SP	2989655	TP-1019-SR	2989713
1"	21	.936	23.77	TP-1021-S	5520264	TP-1016-SP	2989655	TP-1021-SR	2989657
1"	22	.944	23.98	TP-1021-S	5520264	TP-1016-SP	2989655	TP-1021-SR	2989657

Airetool Accessories

Airetool Tube and Joint Testing Tools

Airetool®

The advanced design of the Airetool Tube Tester enables the operator to test the entire length of the tube between the tube sheets for leaks, merely by pressing a button. Up to 125 lbs. of air pressure is induced into the gun causing the seals to expand on both hand pieces. The gauge will show and will hold the pressure if there are no leaks. When the test is finished, a press of the release valve will relax the seals

preparing the unit for the next test. The

tester comes complete with two #ATT-15-312 support tubes, two

#ATT-15-405 support tubes

and two seals for the tube

size specified. Specify

tube O.D. and gauge when ordering.

The Airetool Joint Tester is designed to test for leaks between the tube & the tube sheet on both rolled and welded joints. A push of a button actuates the air cylinder to expand the seals inside the tube. Push the second button and the air

is directed through a venturi tube to draw a vacuum. Should the amount of vacuum shown on the gauge start dropping, a leak is indicated.

After the test, a press of the release valve releases the vacuum & the air pressure in the gun, preparing it for the next test. Joint tester comes complete with one manifold assembly and one seal for the tube size ordered. Specify tube O.D. and gauge when ordering.



ATT-6525 TUBE TESTER



AJT-6500 JOINT TESTER

Airetool Tube Installation Accessories

Airetool Tube Testing Tools – Continued

Tube Size		ATT-6525 (5518407) Tube Tester Replacement Parts				AJT-6500 Joint Tester Assembly	AJT-6500 Joint Tester Replacement Parts			
Tube	BWG	Seal Part Number 2 Required	Seal and Washer	Seal Description Number	Support Tube Assembly*	Assembly Number	Seal Part Number 1 Required	Seal Description Number	Manifold W/ Square O-Ring	Square O-Ring
5/8"	8-9	2996173	ATT-500-U 2984659-9	ATT 300 N	ATT-15-125 7.1 - 12.3 mm	AJT 6500 5/8SP 5525585	2996173	ATT 300 N	AJT 6500 5/8SP 2900823	AJT 16 5/8 2984663
	10-11	2900798		ATT 350 N			2900798	ATT 350 N		
	12-13	2988090		ATT 370-N			2988090	ATT 370 N		
	14-15	2984360		ATT 450 N			2984360	ATT 450 N		
	16-17	2900799		ATT 470 N			2900799	ATT 470 N		
5/8"	18-19	2984361	ATT-900-U 2984660-2	ATT 490 N	ATT-15-312 12.4 - 21.2 mm	AJT 6500 5/8 5525565	2984361	ATT 490 N	AJT6500 5/8 2984356	
	20-24	2984362		ATT 530 N			2984362	ATT 530 N		
3/4"	8-9	2995248	ATT-900-U 2984660-2	ATT 430 N	ATT-15-125 7.1 - 12.3 mm	AJT 6500 3/4SP 5525586	2995248	ATT 430 N	AJT 6500 3/4SP 2900824	AJT 16 3/4 2984664
	10-11	2984360		ATT 450 N			2984360	ATT 450 N		
	12-13	2984361		ATT 490 N			2984361	ATT 490 N		
	14-15	2984362		ATT 530 N			2984362	ATT 530 N		
	16-17	2984363		ATT 570 N			2984363	ATT 570 N		
	18-19	2984364		ATT 610 N			2984364	ATT 610 N		
7/8"	8-9	2984362	ATT-900-U 2984660-2	ATT 530 N	ATT-15-312 12.4 - 21.2 mm	AJT 6500 7/8 5525567	2984362	ATT 530 N	AJT 6500 7/8 2984358	AJT 16 7/8 2984665
	10-11	2984363		ATT 570 N			2984363	ATT 570 N		
	12-13	2984364		ATT 610 N			2984364	ATT 610 N		
	14-15	2984366		ATT 690 N			2984366	ATT 690 N		
	16-17	2900800		ATT 730 N			2900800	ATT 730 N		
	18-19	2984367		ATT 740 N			2984367	ATT 740 N		
	20-24	2984929		ATT 790 N 405			2984929	ATT 790 N 405		
1"	8-9	2984365	ATT-1250-U 2987062-7	ATT 650 N	ATT-15-312 12.4 - 21.2 mm	AJT 6500 1 5525568	2984365	ATT 650 N	AJT 6500 1 2984359	AJT 16 1 2984666
	10-11	2984366		ATT 690 N			2984366	ATT 690 N		
	12-13	2984367		ATT 740 N			2984367	ATT 740 N		
	14-15	2984368		ATT 790 N			2984368	ATT 790 N		
	16-17	2984369		ATT 840 N			2984502	AJT 840 N		
	18-19	2900801		ATT 870 N			2900810	AJT 870 N		
1-1/8"	8-9	2984929	ATT-1500-U 2984661-1	ATT 790 N 405	ATT-15-312/2984871 21.3 - 31.2 mm	AJT6500 1-1/8 5525569	2984933	AJT 790 N 405	AJT 6500 1-1/8 2984669	AJT 16 1-1/8 2984667
	10-11	2984369		ATT 840 N			2984369	ATT 840 N		
	12-13	2900801		ATT 870 N			2900801	ATT 870 N		
	14-15	2984492		ATT 940 N			2984492	ATT 940 N		
	16-17	2900802		ATT 980 N			2900802	ATT 980 N		
	18-19	2984671		ATT 990 N			2984671	ATT 990 N		
	20-24	2984672		ATT 1040 N			2984672	ATT 1040 N		
1-1/4"	8-9	2984370	ATT-1500-U 2984661-1	ATT 890 N	ATT-15-405 21.3 - 31.2 mm	AJT 6500 1-1/4 5525570	2984370	ATT 890 N	AJT 6500 1-1/4 2984670	AJT 16 1-1/4 2984668
	10-11	2984492		ATT 940 N			2984492	ATT 940 N		
	12-13	2984671		ATT 990 N			2984671	ATT 990 N		
	14-15	2900803		ATT-1080 N			2900803	ATT 1080 N		
	16-17	2984673		ATT 1090 N			2984673	ATT 1090 N		
	18-19	2900804		ATT 1100 N			2900804	ATT 1100 N		
20-24	2984674	ATT 1140 N	2984674	ATT 1140 N						



Refer to page 5 for description of Rapid Select.

* Support Tube Assembly consists of: Support Tube, Back-up Washer Set, Locknut

Airetool Tube Installation Tools



Airetool Hole Gauge for Heat Exchanger Tubes

Direct reading "in line," three-point contact, self-centering hole gauges, for 1/2", 5/8", 3/4", 7/8", 1" and 1 1/4" tubes, graduated in .002" (.05mm) increments for fast, accurate measurement. Hole gauges available in 6" (152.4mm) and 12" (304.8mm) reach. Each hole gauge has range to measure tube sheet holes in next smaller size.

Tube O.D.	Tool Number	Stock Number	Range (in.)	Range (mm)	Reach
1/2"	HG-500-6	5171001	.350 to .440	8.89 to 11.8	6"
1/2"	HG-500-12	5171100	.350 to .440	8.89 to 11.8	12"
5/8"	HG-625-6	5171200	.440 to .545	11.18 to 13.84	6"
5/8"	HG-625-12	5171300	.440 to .545	11.18 to 13.84	12"
3/4"	HG-750-6	5171400	.550 to .700	13.97 to 17.78	6"
3/4"	HG-750-12	5171500	.550 to .700	13.97 to 17.78	12"
7/8"	HG-875-6	5171600	.675 to .825	17.15 to 20.96	6"
7/8"	HG-875-12	5171700	.675 to .825	17.15 to 20.96	12"
1"	HG-1000-6	5171800	.800 to .950	20.32 to 24.13	6"
1"	HG-1000-12	5171900	.800 to .950	20.32 to 24.13	12"
1-1/4"	HG-1250-6	5172000	.955 to 1.105	24.26 to 28.07	6"
1-1/4"	HG-1250-12	5172100	.955 to 1.105	24.26 to 28.07	12"

All gauges are furnished with setting ring and carrying case.



Airetool (BTG) Tube Guide

Tube guide has tapered aluminum pilot with a replaceable nylon brush used to guide tubes through tube sheets and support plate holes. Speeds the assembly operation and prevents tube end damage during assembly. The nylon brush fits in the tube end, holding pilot firmly in place.

Tube O.D.		Gauge	Part Number	Stock Number
In.	mm			
1/2"	12.7	16-18	BTG-1	5342004
1/2"	12.7	19-20	BTG-2	5342006
1/2"	12.7	21-23	BTG-2-1/2	5515585
5/8"	15.8	12-13	BTG-3	5342008
5/8"	15.8	14-16	BTG-4	5342010
5/8"	15.8	17-20	BTG-5	5342012
5/8"	15.8	22-24	BTG-5-1/2	5512197
3/4"	19.0	10-12	BTG-6	5342014
3/4"	19.0	13-16	BTG-7	5342016
3/4"	19.0	17-20	BTG-8	5342018
3/4"	19.0	22-24	BTG-8-1/2	5515738
7/8"	22.2	10-12	BTG-9	5342020
7/8"	22.2	13-16	BTG-10	5342022
7/8"	22.2	17-20	BTG-11	5342024
7/8"	22.2	21-22	BTG-11-1/2	5342026
1	25.4	8-9	BTG-12-1/2	5516015
1	25.4	10-12	BTG-12	5342028
1	25.4	13-16	BTG-13	5342030
1	25.4	17-20	BTG-14	5342032
1	25.4	21-23	BTG-14-1/2	5512141
1-1/4"	31.8	10-13	BTG-15	5342034
1-1/4"	31.8	14-20	BTG-16	5342036

Other sizes are available upon request. Pilots made of other materials also available. A minimum order quantity of 50 per size applies for special sizes or materials.



Tube Sheet Hole Brush

Part Number	Tube Size		Stock Number
	(in.)	(mm)	
TSHB-1/2	1/2	12.7	1716654
TSHB-5/8	5/8	15.9	1716655
TSHB-3/4	3/4	19	1716656
TSHB-7/8	7/8	22.2	1716657
TSHB-1	1	25.4	1716658
TSHB-1-1/4	1 1/4	31.8	1716659

Refer to page 5 for description of Rapid Select.

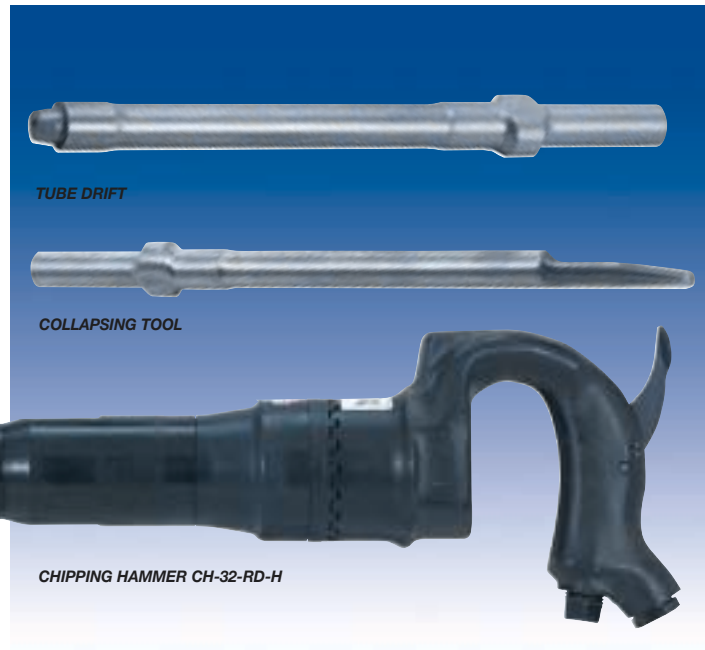
Airetool Tube Removal Tools

Tube Drifts and Collapsing Tools

Airetool®

Tube Drifts and Collapsing Tools quickly remove tube stubs from tube sheets. 1/2" - 1" OD tube size with 01 or 06 style shanks. Other sizes and shanks are available on request.

Note: Collapsing tool recommended for use on tubes 16 gauge or lighter.



Tube OD	Gauge	Description	Part Number
Tube Drifts*			
1/2	12	TD 500 12 01	2952840
		TD 500 12 06	2952890
1/2	14	TD 500 14 01	2953200
		TD 500 14 06	2953250
1/2	16	TD 500 16 01	2953560
		TD 500 16 06	2953610
1/2	18	TD 500 18 01	2953920
		TD 500 18 06	2953970
1/2	20	TD 500 20 01	2972633
		TD 500 20 06	2979763
5/8	10	TD 625 10 01	2954280
		TD 625 10 06	2954330
5/8	12	TD 625 12 01	2954640
		TD 625 12 06	2954690
5/8	13	TD 625 13 01	2954820
		TD 625 13 06	2954870
5/8	14	TD 625 14 01	2955000
		TD 625 14 06	2955050
5/8	15	TD 625 15 01	2955180
		TD 625 15 06	2955230
5/8	16	TD 625 16 01	2955360
		TD 625 16 06	2955410
5/8	17	TD 625 17 01	2955540
		TD 625 17 06	2955590
5/8	18	TD 625 18 01	2955720
		TD 625 18 06	2955770
5/8	19	TD 625 19 01	2972630
		TD 625 19 06	2979765
5/8	20	TD 625 20 01	2972631
		TD 625 20 06	2978637
3/4	10	TD 750 10 01	2956080
		TD 750 10 06	2956130
3/4	12	TD 750 12 01	2956440
		TD 750 12 06	2956490
3/4	13	TD 750 13 01	2956620
		TD 750 13 06	2956670
3/4	14	TD 750 14 01	2956800
		TD 750 14 06	2956850
3/4	15	TD 750 15 01	2956980
		TD 750 15 06	2957030

Tube OD	Gauge	Description	Part Number
3/4	16	TD 750 16 01	2957160
		TD 750 16 06	2957210
3/4	17	TD 750 17 01	2957340
		TD 750 17 06	2957390
3/4	18	TD 750 18 01	2957520
		TD 750 18 06	2957570
3/4	19	TD 750 19 01	2972617
		TD 750 19 06	2979767
3/4	20	TD 750 20 01	2972618
		TD 750 20 06	2979768
7/8	14	TD 875 14 01	2958600
		TD 875 14 06	2958650
7/8	15	TD 875 15 01	2958780
		TD 875 15 06	2958830
7/8	16	TD 875 16 01	2958960
		TD 875 16 06	2959010
7/8	18	TD 875 18 01	2959320
		TD 875 18 06	2959370
7/8	20	TD 875 20 01	2972620
		TD 875 20 06	2979771
1	10	TD 1000 10 01	2959680
		TD 1000 10 06	2959730
1	12	TD 1000 12 01	2960040
		TD 1000 12 06	2960090
1	13	TD 1000 13 01	2960220
		TD 1000 13 06	2960270
1	14	TD 1000 14 01	2960400
		TD 1000 14 06	2960450
1	15	TD 1000 15 01	2960580
		TD 1000 15 06	2960630
1	16	TD 1000 16 01	2960760
		TD 1000 16 06	2960810
1	17	TD 1000 17 01	2960940
		TD 1000 17 06	2960990
1	18	TD 1000 18 01	2961120
		TD 1000 18 06	2961170
1	19	TD 1000 19 01	2972622
		TD 1000 19 06	2979773
1	20	TD 1000 20 01	2972623
		TD 1000 20 06	2979774

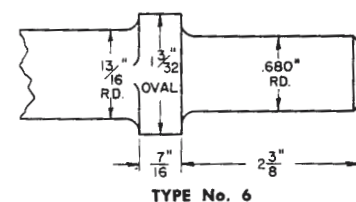
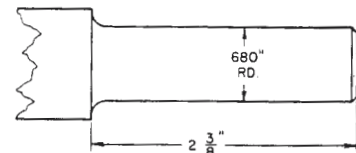
Tube OD	Gauge	Description	Part Number
Collapsing Tools			
3/8	16-22	CT-375-01	2950000
		CT-375-06	2980055
1/2	16-22	CT-500-01	2950030
		CT-500-06	2950080
5/8	16-22	CT-625-01	2950210
		CT-625-06	2950260
3/4	16-22	CT-750-01	2950390
		CT-750-06	2950440
7/8	16-22	CT-875-01	2950570
		CT-875-06	2950620
1	16-22	CT-1000-01	2950750
		CT-1000-06	2950800

Cleco Chipping Hammer CH-32-RD-H with Chisel Retainer

Blows Per Min.	Bore	Stroke	Weight
1650	1-1/8 in. (28.5 mm)	3-1/4 in. (82.5 mm)	15 lb. (6.79 kg)

Chipping Hammer

1650	1-1/8 in. (28.5 mm)	3-1/4 in. (82.5 mm)	15 lb. (6.79 kg)
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* Tube drifts and collapsing tools shown on this page have a .680 in. diameter shank. Other shank sizes are also available. Contact Customer Service for details.

Refer to page 5 for description of Rapid Select.

Airetool Tube Removal Tools

Airetool®

Reduces the wall of expanded tubes to facilitate removal of tube from tube sheet. Available with Morse taper shank.



Tube OD	Gauge	Description	Part Number	Morse Taper*	Tube Sheet Thickness**
3/8	16	TWRT-375-16	2980132	#1	2-7/8"
3/8	17	TWRT-375-17	2992775	#1	2-7/8"
3/8	18	TWRT-375-18	2974712	#1	2-7/8"
3/8	20	TWRT-375-20	2978341	#1	2-7/8"
3/8	21	TWRT-375-21	2976259	#1	2-7/8"
3/8	22	TWRT-375-22	2989963	#1	2-7/8"
1/2	17	TWRT-500-17	2677209	#2	2-7/8"
1/2	18	TWRT-500-18	2677210	#2	2-7/8"
1/2	19	TWRT-500-19	2998102	#2	2-7/8"
1/2	20	TWRT-500-20	2982800	#2	2-7/8"
1/2	21	TWRT-500-21	2998103	#2	2-7/8"
1/2	22	TWRT-500-22	2998104	#2	2-7/8"
5/8	12	TWRT-625-12	2677216	#2	3-3/8"
5/8	13	TWRT-625-13	2677217	#2	3-3/8"
5/8	14	TWRT-625-14	2677218	#2	3-3/8"
5/8	15	TWRT-625-15	2677219	#2	3-3/8"
5/8	16	TWRT-625-16	2677220	#2	3-3/8"
5/8	17	TWRT-625-17	2677221	#2	3-3/8"
5/8	18	TWRT-625-18	2677222	#2	3-3/8"
5/8	19	TWRT-625-19	2972480	#2	3-3/8"
5/8	20	TWRT-625-20	2972479	#2	3-3/8"
5/8	21	TWRT-625-21	2984261	#2	3-3/8"
5/8	22	TWRT-625-22	2993158	#2	3-3/8"
3/4	10	TWRT-750-10	2677226	#2	4-3/8"
3/4	11	TWRT-750-11	2677227	#2	4-3/8"
3/4	12	TWRT-750-12	2677228	#2	4-3/8"
3/4	13	TWRT-750-13	2677229	#2	4-3/8"
3/4	14	TWRT-750-14	2677230	#2	4-3/8"
3/4	15	TWRT-750-15	2677231	#2	4-3/8"
3/4	16	TWRT-750-16	2677232	#2	4-3/8"
3/4	17	TWRT-750-17	2677233	#2	4-3/8"
3/4	18	TWRT-750-18	2677234	#2	4-3/8"

Tube OD	Gauge	Description	Part Number	Morse Taper*	Tube Sheet Thickness**
3/4	19	TWRT-750-19	2972481	#2	4-3/8"
3/4	20	TWRT-750-20	2972482	#2	4-3/8"
3/4	21	TWRT-750-21	2998105	#2	4-3/8"
3/4	22	TWRT-750-22	2973036	#2	4-3/8"
7/8	10	TWRT-875-10	2677238	#3	4-5/8"
7/8	11	TWRT-875-11	2677239	#3	4-5/8"
7/8	12	TWRT-875-12	2677240	#3	4-5/8"
7/8	13	TWRT-875-13	2677241	#3	4-5/8"
7/8	14	TWRT-875-14	2677242	#3	4-5/8"
7/8	15	TWRT-875-15	2677243	#3	4-5/8"
7/8	16	TWRT-875-16	2677244	#3	4-5/8"
7/8	17	TWRT-875-17	2677245	#3	4-5/8"
7/8	18	TWRT-875-18	2677246	#3	4-5/8"
7/8	19	TWRT-875-19	2973201	#3	4-5/8"
7/8	20	TWRT-875-20	2973200	#3	4-5/8"
7/8	21	TWRT-875-21	2998106	#3	4-5/8"
7/8	22	TWRT-875-22	2973199	#3	4-5/8"
1	10	TWRT-1000-10	2677250	#3	4-7/8"
1	11	TWRT-1000-11	2677251	#3	4-7/8"
1	12	TWRT-1000-12	2677252	#3	4-7/8"
1	13	TWRT-1000-13	2677253	#3	4-7/8"
1	14	TWRT-1000-14	2677254	#3	4-7/8"
1	15	TWRT-1000-15	2677255	#3	4-7/8"
1	16	TWRT-1000-16	2677256	#3	4-7/8"
1	17	TWRT-1000-17	2677257	#3	4-7/8"
1	18	TWRT-1000-18	2677258	#3	4-7/8"
1	19	TWRT-1000-19	2998107	#3	4-7/8"
1	20	TWRT-1000-20	2974737	#3	4-7/8"
1	21	TWRT-1000-21	2985669	#3	4-7/8"
1	22	TWRT-1000-22	2984644	#3	4-7/8"

*Other shank styles and sizes available on request.

**Longer reach available on request.

Airetool Tube Removal Tools

Airetool Cutter Feed Assist

Airetool®

Increase your productivity with the Airetool Cutter Feed Assist. The Cutter Feed Assist is designed to aid the Airetool PIC Push Type Tube Cutters for OD tube sizes of 5/8" through 1" (15.9-25.4mm). Powered by Cleco® Series DPV-135 variable speed drills for optimum tube cutting speed.

- Constant pressure on tube cutting surface increases tool bit life, less time cutting tubes and less time changing bits.
- Independent cutter bit feed trigger for operator safety.
- Positive feed stop controls tube cutting depth.
- Easy operation reduces operator fatigue, increasing productivity.
- RPM speed control dial on powerful CLECO drills accommodates various tube sizes and materials for optimum tube cutting speed, increasing your productivity saving you valuable time and money.
- Simple tube cutter size changeover for easy set up.
- Compact design allows the Cutter Feed Assist easier access to confined areas.



PIC Tube Cutter sold separately. See page 47.

Two Models Available:


Part Number	Stock Number	RPM
CF-150/500	5523443	150-500
CF-400/1200	5523444	400-1200

HOW TO ORDER:

See selection chart below*. Select the AIRETOOL Cutter Feed Assist that corresponds to tube sizes and tube material.

Tube Material	Tube OD			
	5/8" (16mm)	3/4" (19mm)	7/8" (22mm)	1" (25mm)
Aluminum	CF-400/1200	CF-400/1200	CF-400/1200	CF-400/1200
Brass	CF-400/1200	CF-400/1200	CF-400/1200	CF-400/1200
Copper	CF-400/1200	CF-400/1200	CF-400/1200	CF-400/1200
Carbon Steel	CF-400/1200	CF-400/1200	CF-400/1200	CF-400/1200
Stainless	CF-150/500	CF-150/500	CF-150/500	CF-150/500
Titanium	CF-150/500	CF-150/500	CF-150/500	CF-150/500

* Refer to the Machinery's Handbook for actual recommended tube cutting speeds for specific materials.

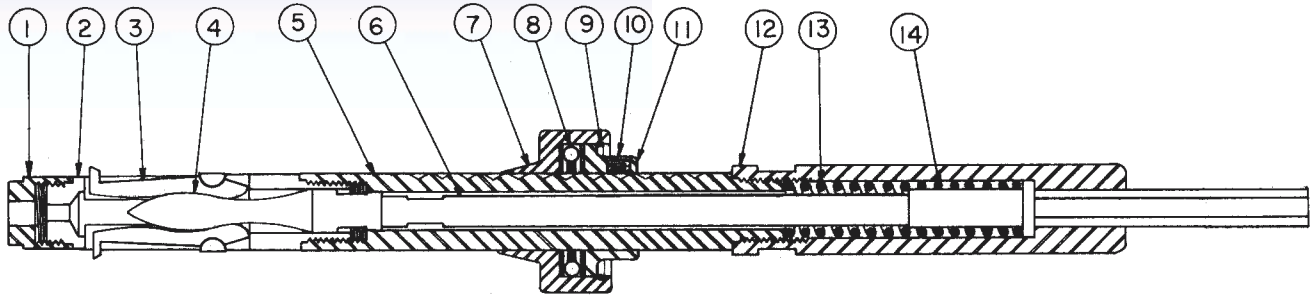
 Refer to page 5 for description of Rapid Select.

Airetool®

Airetool PIC Internal Tube Cutters

Available for tube sizes 5/8" - 1" OD (16 -25mm).
 Standard adjustable reach of 4-7/16" (110mm) with optional longer reaches available.
 "A" Reach = 7-7/16" (188mm),
 "C" Reach = 10-15/16" (277mm).

Two-piece body and mandrel construction allows for quick and easy tool bit replacement. Optimum tube cutting performance and tooling life are obtained when the Airetool CF Series Cutter Feed Assist is used. Cutter bits are now available with TiN coating, increasing the cutter bit life. Airetool PIC tube cutters are sold with a complete set of pilots and two spare tool bit sets. A trimming attachment for trimming tubes in front of the tube sheet is available. Contact Customer Service for details.



Number	Part Name	5/8" (16mm) 16-20GA	3/4" (19mm) 14-20GA	7/8" (22mm) 16-20GA	1" (25mm) 12-20GA
		Part No.	Part No.	Part No.	Part No.
	Complete PIC Cutter	PIC-625 5515553	PIC-750 5515560	PIC-875 5515562	PIC-1000 5515567
1	Pilot	TTC-46-16 2675000	TTC-6-14 2668900	TTC-56-15 2676400	TTC-36-12 2672500
1	Pilot	TTC-46-18 2675100	TTC-6-15 2669000	TTC-56-16 2990534	TTC-36-13 2672600
1	Pilot	TTC-46-19 2675200	TTC-6-16 2669100	TTC-56-17 2990535	TTC-36-14 2672700
1	Pilot	TTC-46-20 2675300	TTC-6-17 2669200	TTC-56-18 2676500	TTC-36-15 2672800
1	Pilot		TTC-6-18 2669300	TTC-56-19 2676600	TTC-36-16 2672900
1	Pilot		TTC-6-19 2669400	TTC-56-20 2676700	TTC-36-17 2673000
1	Pilot		TTC-6-20 2669500		TTC-36-18 2673100
1	Pilot				TTC-36-19 2673200
1	Pilot				TTC-36-20 2673300
2	Body Tip	IC-41 2979725	IC-1 2979306	IC-51 2979726	IC-31 2979419
3	Tool Bit* (Non-ferrous)	TTC-43 5338869	TTC-3 5338865	TTC-53 5338871	TTC-33 5338867
3	Tool Bit* (Ferrous)	TTC-43-S 5338870	TTC-3-S 5338866	TTC-53-S 5338872	TTC-33-S 5338868
3	Tool Bit* (Stainless)	TTC-43-SS 5518303	TTC-3-SS 5517614	TTC-53-S 5517757	TTC-33-SS 5516337
4	Mandrel Tip	IC-44-T 2979724	IC-4-T 2979308	IC-34-T 2979409	IC-34-T 2979409
5	Body Extension	IC-41X 2979688	IC-1X 2979672	IC-51X 2979692	IC-31X 2979680
6	Mandrel Extension	IC-4X 2979676	IC-4X 2979676	IC-34X 2979684	IC-34X 2979684
7	Thrust Body	TTC-47 2675400	TTC-7 2669600	TTC-57 2676800	TTC-37 2673300
8	Bearing	TTC-9 2670000	TTC-9 2670000	TTC-39 2673800	TTC-39 2673800
9	Thrust Spring	TTC-10 2670100	TTC-10 2670100	TTC-40 2673900	TTC-40 2673900
10	Set Screw	10-32X1/4 8000800	10-32X1/4 8000800	10-32X1/4 8000800	10-32X1/4 8000800
11	Thrust Nut	TTC-48 2675700	TTC-8 2669900	TTC-58 2677100	TTC-38 2673700
12	Spring Housing	PIC-21 2979752	PIC-21 2979752	PIC-21 2979752	PIC-21 2979752
13	Spring	PTC-5 2574180	PTC-5 2574180	PTC-5 2574180	PTC-5 2574180
14	Driver	PIC-4 2979751	PIC-4 2979751	PIC-4 2979751	PIC-4 2979751

*Bits sold as sets, 12 bits per set.

Refer to page 5 for description of Rapid Select.
 Other sizes and reaches are also available. Contact Customer Service for details.

Airetool Tube Removal Tools

Airetool®

Air Driven Tube Cutter

Powerful, portable air motor developed to handle internal cutting of all types tubes. Has accurate trigger control of motor speed and positive lever operation of cutter bits. Models available in speeds from 40 to 625 rpm for various steel and non-ferrous tubes. Trimming attachment for trimming tubes in front of the tube sheet is available.

Electric Tube Cutter 120VAC

Where air supply is unavailable, this motor will perform most small tube cutting jobs. Motor speed and operating controls similar to air-driven motor. A trimming attachment for trimming tubes in front of the tube sheet is available. Contact customer service for details.



RPM	Tube Material	Cutter Complete			
		5/8" OD	3/4" OD	7/8" OD	1" OD

Air Models

625	Non-ferrous	TIC-625-625 5515586	TIC625-750 5515590	TIC-625-875 5515594	TIC-625-1000 5515598
335	Non-ferrous/Ferrous	TIC-350-625 5515602	TIC-350-750 5515606	TIC-350-875 5515610	TIC-350-1000 5515614
265	Ferrous-Stainless	TIC-265-625 5515618	TIC-265-750 5515622	TIC-265-875 5515626	TIC-265-1000 5515630
200	Ferrous-Stainless	TIC-200-625 5518909	TIC-200-750 5518459	TIC-200-875 5522345	TIC-200-1000 5519460
100	Stainless & Titanium	TIC-100-625 5519526	TIC-100-750 5517806	TIC-100-875 5522125	TIC-100-1000 5518512
40	Titanium & Inconel	TIC-40-625 5521860	TIC-40-750 5518184	TIC-40-875	TIC-40-1000

Electric Models

550	Non-ferrous	EIC-625-625 5515772	EIC=625-750 5515635	EIC-625-875 5523035	EIC-625-1000 5518583
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Description	Tube OD			
	5/8" OD	3/4" OD	7/8" OD	1" OD

Cutter bodies complete for TIC & EIC models

Cutter Body Complete	IC-625 5515574	IC-750 5515577	IC-875 5515581	IC-1000 5515571
Tool Bit* (Non-ferrous)	TTC-43 5338869	TTC-3 5338865	TTC-53 5338871	TTC-33 5338867
Tool Bit* (Ferrous)	TTC-43-S 5338870	TTC-3-S 5338866	TTC-53-S 5338872	TTC-33-S 5338868
Tool Bit* (Stainless)	TTC-43-SS 5518303	TTC-3-SS 5517614	TTC-53-SS 5517757	TTC-33-SS 5516337

*Bits sold as sets, 2 bits per set.
Cutter Body Complete consists of all parts needed to convert models TIC & EIC to a different size.
Specify desired reach. 4-7/16" (112.7mm) shown

"A" Reach 7-7/16" (188.9mm);
"C" Reach 10-15/16" (277.8mm)
Other sizes and reaches are also available. Contact customer service for details.
 Refer to page 5 for description of Rapid Select.

Airetool Tube Removal Tools

Airetool RCM One Revolution Tube Cutters



Airetool RCM One Revolution Tube Cutters are sized for inch and Metric tube sizes

For cutting tubes in heat exchangers, condensers, and boilers. Available in standard reaches of 6" (152mm) and 10" (254mm), longer reaches are available in 10" increments on request. These tube cutters are designed for hand use by employing a ratchet or hand wrench. RCM series tube cutters are also an excellent tool for puncturing defective tubes prior to tube plugging, reducing possible pressure buildup in plugged tubes.



O.D.	BWG	Tube ID	Tool #	Bit
1/2"	18-19	.400"-.420" 10.2-10.7mm	RCM-105 5522994	RC-500-2 2993368
1/2"	20	.430"-.450" 11.0-11.3mm	RCM-110 5522929	RC-500-2 2993368
5/8"	14	.450"-.470" 11.4-11.9mm	RCM-115 5522995	RC-625-2 2993372
5/8"	15-16	.472"-.510" 12-12.9mm	RCM-120 5522930	RC-625-2 2993372
5/8"	17-18	.500"-.531" 12.7-13.5mm	RCM-130 5522931	RC-625-2 2993372
5/8"	19-20	.531"-.560" 13.5-14.2mm	RCM-135 5522996	RC-625-2 2993372
5/8"	22	.550"-.580" 14.0-14.7mm	RCM-140 5522932	RC-625-2 2993372
3/4"	12-13	.530"-.560" 13.5-14.2mm	RCM-135-3/4 5523115	RC-750-2A 2995865
3/4"	14-15	.580"-.610" 14.7-15.5mm	RCM-150 5522933	RC-750-2 2993374
3/4"	16	.600"-.630" 15.2-16.0mm	RCM-155 5522997	RC-750-2 2993374
3/4"	17-18	.625"-.650" 15.9-16.5mm	RCM-160 5522934	RC-750-2 2993374
3/4"	19-20	.660"-.690" 16.7-17.5mm	RCM-170 5522935	RC-750-2 2993374
7/8"	14-15	.700"-.730" 17.8-18.5mm	RCM-180 5522936	RC-875-2 2993384
7/8"	16-17	.740"-.770" 18.8-19.5mm	RCM-190 5522937	RC-875-2 2993384
7/8"	18	.760"-.790" 19.3-20.0mm	RCM-195 5522998	RC-875-2 2993384
7/8"	19-20	.780"-.810" 19.8-20.6mm	RCM-200 5522938	RC-875-2 2993384
1"	12	.760"-.790" 19.3-20.0mm	RCM-195 5522998	RC-875-2 2993384
1"	14	.820"-.850" 20.8-21.6mm	RCM-210 5522939	RC-1000-2 2993394
1"	15	.840"-.870" 21.3-22.1mm	RCM-215 5522999	RC-1000-2 2993394
1"	16-17	.860"-.890" 21.8-22.6mm	RCM-220 5522940	RC-1000-2 2993394

O.D.	BWG	Tube ID	Tool #	Bit
1"	18-19	.890"-.910" 22.6-23.1mm	RCM-230 5522941	RC-1000-2 2993394
1"	22	.940"-.970" 23.9-24.6mm	RCM-240 5522942	RC-1000-2 2993394
1-1/4"	12	1.020"-.1.050" 25.9-26.7mm	RCM-260 5523000	RC-1250-2 2993404
1-1/4"	13-14	1.050"-.1.080" 26.7-27.4mm	RCM-270 5523001	RC-1250-2 2993404
1-1/4"	15-16	1.100"-.1.130" 27.9-28.7mm	RCM-280 5523002	RC-1250-2 2993404
1-1/4"	17-19	1.130"-.1.160" 28.7-29.6mm	RCM-290 5523003	RC-1250-2 2993404
1-3/8"	13-14	1.180"-.1.210" 30-30.7mm	RCM-300 5523709	RC-1500-2 2993417
1-1/2"	12-13	1.280"-.1.310" 32.5-33.3mm	RCM-330 5523004	RC-1500-2 2993417
1-1/2"	14-15	1.330"-.1.360" 33.8-34.5mm	RCM-340 5523005	RC-1500-2 2993417
1-1/2"	16-17	1.360"-.1.390" 34.5-35.3mm	RCM-350 5523006	RC-1500-2 2993417
1-1/2"	18-19	1.390"-.1.420" 35.3-36.1mm	RCM-360 5523007	RC-2000-2 2993427
2"	12-13	1.770"-.1.810" 45.0-46.0mm	RC-2012 5521677	RC-2000-2 2993427
2"	14-15	1.820"-.1.860" 46.2-47.2mm	RC-2014 5521678	RC-2000-2 2993427
2"	16-17	1.860"-.1.900" 46.2-48.2mm	RC-2016 5521679	RC-2000-2 2993427
2"	18-19	1.890"-.1.930" 48.0-49.0mm	RC-2018 5521680	RC-2000-2 2993427
2-1/2"	12-13	2.270"-.2.310" 57.6mm-58.6	RC-2512 5521680	RC-2000-2 2993427
2-1/2"	14-15	2.320"-.2.360" 58.9-60.0mm	RC-2514 5521682	RC-2000-2 2993427
2-1/2"	16-17	2.360"-.2.400" 60.0-61.0mm	RC-2516 5521683	RC-2000-2 2993427
2-1/2"	18-19	2.390"-.2.430" 60.7-61.7mm	RC-2518 5521684	RC-2000-2 2993427

Refer to page 5 for description of Rapid Select.

Airetool Tube Removal Tools

ATP Tube Pullers

Airetool®

Electric/Hydraulic SemiAutomatic Tube Pullers For Light To Medium Duty Applications.

- The Airetool Model ATP-9400-A tube puller develops 13-3/4 tons of pulling power to easily remove tubes up to 1 in. O.D. from tube sheets up to 1-1/2 in. thickness.* Quick attaching grippers bite uniformly into the tube I.D. as the piston retracts, pulling the tube from the sheet.
- This puller provides a full 4-3/4 in. total pulling length through a double 2-3/8 in. pull. Cycle time is controlled from the handpiece through a 24 volt cycle control panel, providing better operator control and improving productivity. The puller reverses instantly at the end of the pulling cycle or when the trigger is released.
- The durable hydraulic pump has large wheels for easier movement over uneven surfaces and heavy duty lifting handles. A convenient hanger on the lifting handle allows handpiece to be neatly stored when moving unit or between jobs.
- Control cables and hoses are wrapped together for greater safety, and the hydraulic hoses have quick disconnect fittings for simplified attachment to the pump and cylinder.
- Power supply 120 volt 60 Hz. Other voltages available upon request.

*Puller capacity of the ATP will vary with tube wall thickness, tube sheet thickness and tube material. For an evaluation, contact your nearest CooperTools sales representative.



ATP9400P



ATP-9000B



ATP-9000B-HCA

The following components are required for most normal tube pulling applications:

Part Number	Description	Stock Number
ATP-9000B	RAM Assembly	5525469
ATP-9400-P	Pump Unit	2900589
ATP-9000B-HCA	Hose/Cord Assy-15'	5525470*
ATP-9022-	Gripper Kit	See Chart Page 54

Airetool Hydraulic Tube Pullers are also available 230 volt, 50 Hz 1 Ph. Contact customer service for details.

*15' long

Airetool Tube Removal Tools

PATP Tube Pullers

Airetool®

Pneumatic/Hydraulic SemiAutomatic Tube Pullers For Light To Medium Duty Applications.

- The Airetool Model PATP-9400 tube puller develops 13-3/4 tons of pulling power to easily remove tubes up to 1 in. O.D. from tube sheets up to 1-1/2 in. thickness.* Quick attaching grippers bite uniformly into the tube I.D. as the piston retracts, pulling the tube from the sheet.
- This puller provides a full 4-3/4 in. total pulling length through a double 2-3/8 in. pull. Cycle time is controlled from the handpiece through a pneumatic circuit, providing better operator control and improving productivity. The puller reverses instantly at the end of the pulling cycle or when the trigger is released.
- The durable hydraulic pump has large wheels for easier movement over uneven surfaces and heavy duty lifting handles. A convenient hanger on the lifting handle allows handpiece to be neatly stored when moving unit or between jobs.
- Control tubes and hoses are wrapped together for greater safety, and the hydraulic hoses have quick disconnect fittings for simplified attachment to the pump and cylinder.

*Puller capacity of the ATP will vary with tube wall thickness, tube sheet thickness and tube material. For an evaluation, contact your nearest CooperTools sales representative.



PATP-9400-P



PATP-9000-A



PATP-9000-HT



The following components are required for most normal tube pulling applications:

Part Number	Description	Stock Number
① PATP-9000	RAM Assembly	5524902
② PATP-9400-P	Pump Unit	2999307
③ PATP-9000-HT	Hose Tube Assy	5522512
⑤ ATP-9022-	Gripper Kit	See Chart Page 54

Optional pendant for use with HDP, HDQ and RAV.

Part Number	Description	Stock Number
④ PATP-HDP-	Optional Pendant	5524904

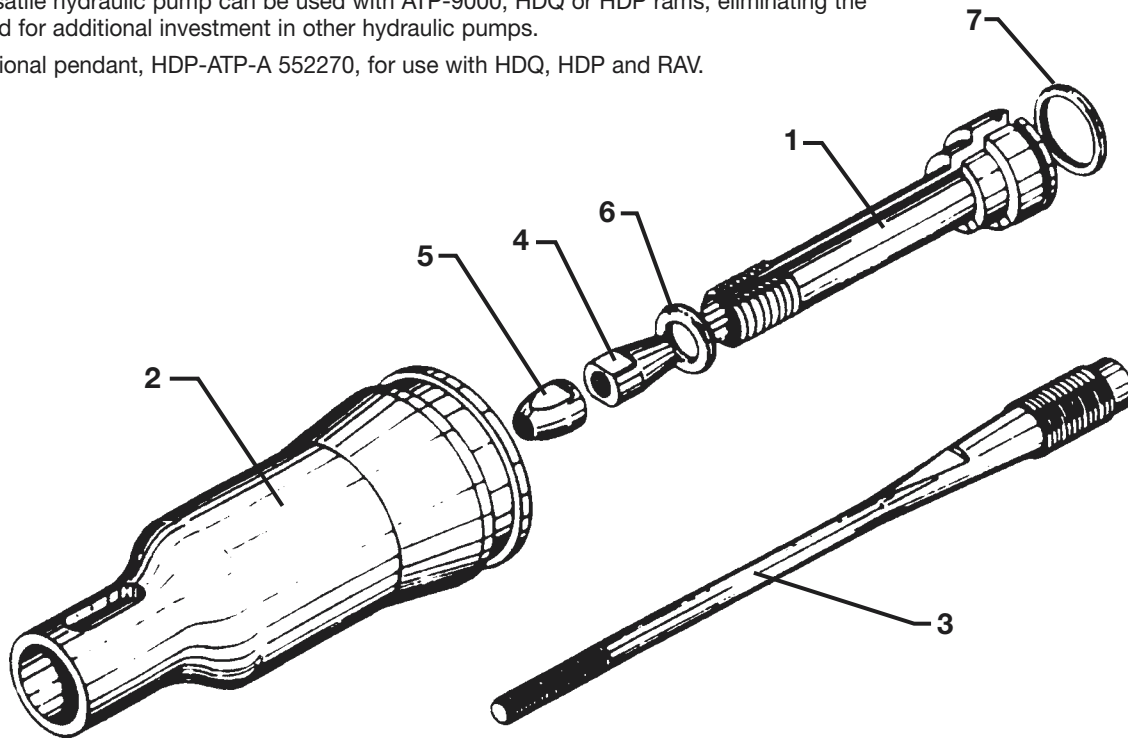
Airetool Tube Removal Tools

ATP 9000 Components

Airetool®

Features of the ATP-9000 Include:

- Free-floating gripper design allows uniform contact of the gripper teeth along the entire length of the gripper, giving longer gripper life and better pulling characteristics.
- Pressure relief valve exerts uniform pressure on the grippers, compensating for light variations in the tube I.D.
- Grippers are segmented, allowing replacement of single gripper segments in the event of tooth breakage.
- Max Pulling force is 13 3/4 tons, assuring ample power for quick, efficient tube pulling.
- Grippers are available from 5/8 in. through 1 in. and accommodate a wide range of tube gages.
- Optional 18 in. extension kit provides a useful method of removing hard-to-reach tubes.
- Intrinsically safe 24 volt control from the pump to the tool.
- Versatile hydraulic pump can be used with ATP-9000, HDQ or HDP rams, eliminating the need for additional investment in other hydraulic pumps.
- Optional pendant, HDP-ATP-A 552270, for use with HDQ, HDP and RAV.



Tube Size		Part No.* ATP-9022	Gripper Complete	GRIPPER KIT	Gripper Segment	Nose Bushing	Draw Rod	Expansion Nut	Lock Nut	Front O-Ring	Rear O-Ring
OD.	GA.										
5/8	16-18	568	5520793	5520782	2991196	2991245	2991237	2991238	2991239	3105400 200-9	3094500 RTV-65
5/8	20-22	522	5520794	5520783	2991197	ATP-9042-5/8	ATP-9034-5/8	ATP-9035-5/8	ATP-9036-5/8		
3/4	14-15	34	5520795	5520784	2991198	2991218 ATP-9014-3/4	2991224	2991226	2991227	3010453 2-113	3220900 900-83
3/4	16-18	368	5520796	5520785	2991199		ATP-9015-3/4	ATP-9016-3/4	ATP-9017-3/4		
3/4	20-22	322	5520797	5520786	2991200		2991240	2991241	2991242		
7/8	12-14	724	5520798	5520787	2991201	2991232 ATP-9027-7/8	ATP-9037-7/8-1	ATP-9038-7/8-1	ATP-9039-7/8		
7/8	16-18	768	5520799	5520788	2991202						
7/8	20-22	722	5520800	5520789	2991203						
1	12-14	124	5520801	5520790	2991204	2991244 ATP-9041					
1	16-18	168	5520802	5520791	2991205						
1	20-22	122	5520803	5520792	2991206						

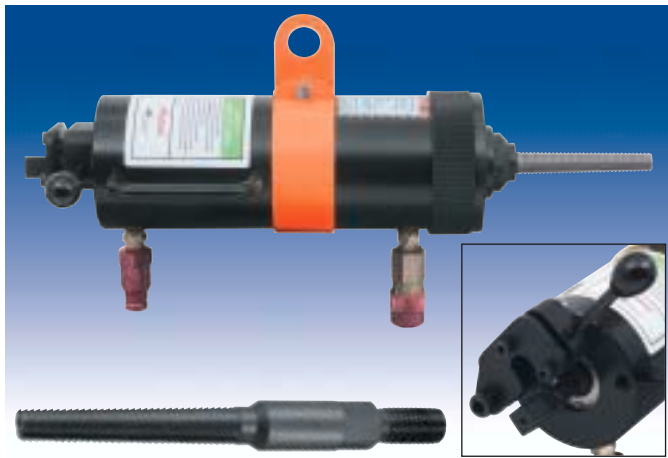
NOTE: A Gripper complete consists of 3 Gripper Segments and both O-Rings. A Gripper Kit consists of 3 Gripper Segments, both O-Rings, one draw rod, one expansion nut, one lock nut, and one nose bushing.

*Part No.1 is the same for Gripper Complete, Gripper Kit, and Gripper Segment eg: 3/4" x 16 ga. Gripper Complete = ATP-9022-368.

Refer to page 5 for description of Rapid Select.

Airetool HDP-99 Heavy Duty Tube Puller

HDP-99 Tube Puller (5525280)



ON BOARD ADAPTER LOCK STAYS WITH RAM AT ALL TIMES

Airetool®

For Tube Sizes 1/2" thru 1" the following accessories are required:

- HDP 99 3055 3 Spear Adapter (2900051)
- Tube Pulling Spear - refer to the chart below for size selection.
- Optional load cap may be required if surrounding tubes are protruding and are closely spaced.

For Tube Sizes 1-1/8" thru 2-1/2" the following accessories are required:

- HDP 99 3055 3 Spear Adapter (2900051)
- HDP 99 Adapter Kit - refer to the chart below for size selection
- Tube Pulling Spear - refer to the chart below for size selection.
- 5525280 HDP-99 Ram Kit includes 2900118 Ram, 5525283 Adapter Lock Assy. and 2900007 HDP 99 LC 1 Load Cap.

Tube Size	Part Number	Small Dia. End		Large Dia. End		Length	Flat Size
1/2" - 20 Ga.	2983511	.427	10.8mm	.499	12.7mm		
5/8" - 12-13 Ga.	2968758	.402	10.2mm	.610	15.5mm		
5/8" - 14-15 Ga.	2968759	.454	11.5mm	.662	16.8mm		
5/8" - 16-17 Ga.	2968760	.489	12.4mm	.625	15.9mm		
5/8" - 18-19 Ga.	2968761	.521	13.2mm	.625	15.9mm		
5/8" - 20 Ga.	2979942	.545	13.8mm	.620	15.7mm		
3/4" - 10 Ga.	2968759	.454	11.5mm	.662	16.8mm		
3/4" - 11-13 Ga.	2968762	.505	12.8mm	.713	18.1mm		
3/4" - 14-15 Ga.	2968764	.597	15.2mm	.750	19.1mm		
3/4" - 16-17 Ga.	2968765	.614	15.6mm	.750	19.1mm	8-3/4"	7/8" HEX
3/4" - 18-19 Ga.	2968766	.646	16.4mm	.750	19.1mm	222mm	22.2 mm
3/4" - 20 Ga.	2979941	.670	17.0mm	.745	18.9mm		
7/8" - 14-15 Ga.	2968769	.699	17.8mm	.875	22.2mm	3/4-10 MALE	
7/8" - 16-17 Ga.	2968768	.740	18.8mm	.948	24.1mm		
7/8" - 17-18 Ga.	2968770	.755	19.2mm	.963	24.5mm		
7/8" - 20 Ga.	2983512	.800	20.3mm	.874	22.2mm		
1" 9-10 Ga.	2968769	.699	17.8mm	.875	22.2mm		
1" - 11 Ga.	2968770	.755	19.2mm	.963	24.5mm		
1" - 12-13 Ga.	2968771	.777	19.7mm	.985	25.0mm		
1" - 14-15 Ga.	2968772	.829	21.1mm	1.000	25.4mm		
1" - 16-17 Ga.	2968773	.869	22.1mm	1.000	25.4mm		
1" - 18-20 Ga.	2968774	.896	22.8mm	1.000	25.4mm		
1-1/4" - 7-8 Ga.	2968775	.856	21.7mm	1.114	28.3mm		
1-1/4" - 10-11 Ga.	2968776	.977	24.8mm	1.206	30.6mm		
1-1/4" - 12-13 Ga.	2968778	1.027	26.1mm	1.256	31.9mm	5-1/2"	1-1/4" HEX
1-1/4" - 14-15 Ga.	2968780	1.079	27.4mm	1.308	33.2mm	140mm	38.8 mm
1-1/4" - 16-18 Ga.	2968781	1.115	28.3mm	1.344	34.1mm		
1-1/2" - 10-11 Ga.	2968782	1.227	31.2mm	1.456	37.0mm	3/4-10 FEMALE	
1-1/2" - 12-13 Ga.	2968784	1.277	32.4mm	1.500	38.1mm		
1-1/2" - 14 Ga.	2968786	1.329	33.8mm	1.500	38.1mm		

Larger sizes also available. Contact customer service for details.



HDP Adapter Kits

Include HDP 99 3055 5 Adapter extension and extension chair

Tube OD	Description	Part Number
1-1/8" - 1-1/2" (28.5 - 38.1mm)	HDP 99 3055 AK 1 1/2 Adapter Kit	5525287
1-3/4" (44.4mm)	HDP 99 3055 AK 1 3/4 Adapter Kit	5525288
2" (50.8mm)	HDP 99 3055 AK 2 Adapter Kit	5525289
2-1/2" (63.5mm)	HDP 99 3055 AK 2 1/2 Adapter Kit	5525290



HDP 99 & HTP 99 Ram Accessories

Description	Part Number
HDP 99 3055-3 Adapter	2900051
HDP 99 3055 5 Adapter Extension	2900011
HDP 99 3055 5 MF Adapter Extension	2900633
HDP 99 ALA Adapter Lock Assy w/ 2900007 HDP 99 LC 1 Load Cap	5525283
HDP 99 LC 1 QC Load Cap	2900007
HDP 99 LC 5/8 QC Load Cap	2900008
HDP 99 LC 3/4 QC Load Cap	2900009
HDP 99 LC 7/8 QC Load Cap	2900010

Refer to page 5 for description of Rapid Select.

Airetool® Tube Removal Tools

HDQ-99 Tube Puller (5525281)

■ HDQ 99 Gripper-type tube puller is designed for pulling 1-1/4" thru 2-1/2" OD tubes in heat exchangers and fire tube boilers. This gripper-type tube puller makes tube pulling faster and easier. See the selection charts below for ordering gripper assembly kits and components for the tube sizes being pulled.

■ For fast and easy operation of the HDQ gripper; bite into the tube for a secure tube pulling grip, then automatically release from the tube after it has been pulled.



Tube OD	Tube Wall BWG	Gripper Kit Complete*	Item Name	HDQ 99 Chair	Position Sleeve	Sleeve Adapter	Gripper	O-Ring	Mandrel	Stop Nut	Spring	Position Sleeve Set Screw	Retainer Ring	Drawbar	Stop Nut Set Screw
1-1/4	8-10	5525293	Description Part Number Quantity	HDQ 99 7 125F QC Chair 2999993 1	HDQ 125 PS 2985180 1	HDQ 125 SA 2985186 1	HDQ 125 1 2985168 6	RTV 60 3094100 1	HDQ 125 M 2985196 1	HDQ 125 1SN 2985191 1	HDQ 31 8 2985203 1	10 32 x 3/16 8009800 1	HDQ 125 2985357 1	HDQ 99 5 2900012 1	10 32x3/16 8009800 1
	11-14	5525294	Description Part Number Quantity	HDQ 99 7 125F QC Chair 2999993 1	HDQ 125 PS 2985180 1	HDQ 125 SA 2985186 1	HDQ 125 2 2985169 6	RTV 60 3094100 1	HDQ 125 M 2985196 1	HDQ 125 2SN 2985192 1	HDQ 31 8 2985203 1	10 32 x 3/16 8009800 1	HDQ 125 2985357 1	HDQ 99 5 2900012 1	10 32x3/16 8009800 1
	15-18	5525295	Description Part Number Quantity	HDQ 99 7 125F QC Chair 2999993 1	HDQ 125 PS 2985180 1	HDQ 125 SA 2985186 1	HDQ 125 3 2988629 6	RTV 60 3094100 1	HDQ 125 M 2985196 1	HDQ 125 3SN 2988630 1	HDQ 31 8 2985203 1	10 32 x 3/16 8009800 1	HDQ 125 2985357 1	HDQ 99 5 2900012 1	10 32x3/16 8009800 1
1-1/2	8-12	5525296	Description Part Number Quantity	HDQ 99 7 150F QC Chair 2999994 1	HDQ 150 PS 2985181 1	HDQ 150 SA 2985187 1	HDQ 150 1 2985170 4	2 213 8010303 1	HDQ 150 M 2985197 1	HDQ 150 1SN 2985193 1	HDQ 31 8 2985203 1	10 32 x 3/16 8009800 1	HDQ 150 2985668 1	HDQ 99 5 2900012 1	10 32x3/16 8009800 1
	13-18	5525297	Description Part Number Quantity	HDQ 99 7 150F QC Chair 2999994 1	HDQ 150 PS 2985181 1	HDQ 150 SA 2985187 1	HDQ 150 2 2985171 4	2 213 8010303 1	HDQ 150 M 2985197 1	HDQ 150 2SN 2985194 1	HDQ 31 8 2985203 1	10 32 x 3/16 8009800 1	HDQ 150 2985668 1	HDQ 99 5 2900012 1	10 32x3/16 8009800 1
1-3/4	18-12	5525298	Description Part Number Quantity	HDQ 99 7 175F QC Chair 2999995 1	HDQ 175 PS 2985182 1	HDQ 175 SA 2985189 1	HDQ 175 1 2985172 4	700-30 3203900 1	HDQ 150 M 2985197 1	HDQ 175 1SN 2985195 1	HDQ 31 8 2985203 1	10 32 x 3/16 8009800 1	1 3/8 2349000 1	HDQ 99 5 2900012 1	1/4-20 x 1/4 8006600 1
	13-18	5525299	Description Part Number Quantity	HDQ 99 7 175F QC Chair 2999995 1	HDQ 175 PS 2985182 1	HDQ 175 SA 2985189 1	HDQ 175 2 2985173 4	2 216 8010304 1	HDQ 150 M 2985197 1	HDQ 175 1SN 2985195 1	HDQ 31 8 2985203 1	10 32 x 3/16 8009800 1	1 3/8 2349000 1	HDQ 99 5 2900012 1	1/4-20 x 1/4 8006600 1
Tube OD	Tube Wall BWG	Gripper Kit Complete*	Item Number Item Name	HDQ 99 Chair	Drawbar	Stop Plate	Spring	Position Sleeve	Socket Set Screw	Sleeve Adapter	Gripper	O-Ring	Cam	Retainer Ring	Stop Nut
2	8-12	5525300	Description Part Number Quantity	HDQ 99 7 200F QC Chair 2999996 1	GRP 99 4 2900052 1	GRP 200 STP 2987488 1	GRP 200 SPR 2986930 1	HDQ 200 PS 2985183 1	10 32 x 1/2 8010346 1	GRP 200 SA 2986932 1	GRP 200 1 2987091 4	2 218 8010363 1	GRP 200 CAM 2988791 1	5160 98 8010362 1	GRP 200 SN 2986933 1
	13-18	5525301	Description Part Number Quantity	HDQ 99 7 200F QC Chair 2999996 1	GRP 99 4 2900052 1	GRP 200 STP 2987488 1	GRP 200 SPR 2986930 1	HDQ 200 PS 2985183 1	10 32 x 1/2 8010346 1	GRP 200 SA 2986932 1	GRP 200 2 2987090 4	2 221 8010408 1	GRP 200 CAM 2988791 1	5160 98 8010362 1	GRP 200 SN 2986933 1
2-1/4	8-12	5525302	Description Part Number Quantity	HDQ 99 7 225F QC Chair 2999997 1	GRP 99 4 2900052 1	GRP 200 STP 2987488 1	GRP 200 SPR 2986930 1	HDQ 225 PS 2985184 1	10 32 x 1/2 8010346 1	GRP 200 SA 2986932 1	GRP 225 1 2987092 4	2 222 8010409 1	GRP 225 CAM 2986929 1	5160 98 8010362 1	GRP 225 SN 2986934 1
	13-18	5525303	Description Part Number Quantity	HDQ 99 7 225F QC Chair 2999997 1	GRP 99 4 2900052 1	GRP 200 STP 2987488 1	GRP 200 SPR 2986930 1	HDQ 225 PS 2985184 1	10 32 x 1/2 8010346 1	GRP 200 SA 2986932 1	GRP 225 2 2987094 4	500 23 3165700 1	GRP 225 CAM 2982929 1	5160 98 8010362 1	GRP 225 SN 2986934 1
2-1/2	8-12	5525304	Description Part Number Quantity	HDQ 99 7 250F QC Chair 2999998 1	GRP 99 4 2900052 1	GRP 200 STP 2987488 1	GRP 200 SPR 2986930 1	HDQ 250 PS 2985185 1	10 32 x 1/2 8010346 1	GRP 200 SA 2986932 1	GRP 250 1 2987095 4	2 224 8010192 1	GRP 225 CAM 2986929 1	5160 98 8010362 1	GRP 225 SN 2986934 1
	13-18	5525305	Description Part Number Quantity	HDQ 99 7 250F QC Chair 2999998 1	GRP 99 4 2900052 1	GRP 200 STP 2987488 1	GRP 200 SPR 2986930 1	HDQ 250 PS 2985185 1	10 32 x 1/2 8010346 1	GRP 200 SA 2986932 1	GRP 250 2 2987093 4	2 226 2983713 1	GRP 225 CAM 2986929 1	5160 98 8010362 1	GRP 225 SN 2986934 1

5525281: HDQ 99 Ram Kit – Includes 2900118; HTP 99 Ram and 5525447: HDQ 99 APA Adapter Plate Assembly

*Gripper Kit Complete includes components to the right in the table.

Airetool Tube Removal Tools

RAV 99 Tube Puller

Airetool®

- RAV Semi-Continuous Tube Pulling Ram allows continuous pulling of tubes up to 1" (25.4mm) OD. Tubes over 1" have a maximum pulling length of 7" (177mm).
- To order: Select the desired RAV Ram Kit, Spear, and Collar. The universal design allows for easy size change over with minimal cost.
- RAV 99 Ram Kit includes: 290018-HTP 99 Ram, Jaw Holder Assembly and one set of Jaws.



ON BOARD JAW HOLDER FOR SEMI-CONTINUOUS PULLING.

Size	5/8"	3/4"	7/8"	1"
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RAV 99 Ram Kit with Jaw Holders & Jaws

Part Number	5525430	5525429	5525428	5525427
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RAV 99 Jaw Holders & Jaws

Part Number	5525308	5525309	5525310	5525311
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RAV 99 Jaw Set (Includes 4 springs)

Part Number	7025597	7025568	7025598	7025570
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Description	Part Number	Tube ID		Jaw Size	Square Size
		mm	inch		

RAV Spears*

RAV 99 406 5/8	2900189	5.5 - 6.5	.215 - .255	5/8"	1/2"
RAV 99 407 5/8	2900190	6.5 - 7.5	.255 - .295	5/8"	1/2"
RAV 99 408 5/8	2900191	7.5 - 8.5	.295 - .335	5/8"	1/2"
RAV 99 409 5/8	2900192	8.5 - 9.5	.335 - .375	5/8"	1/2"
RAV 99 410 5/8	2900193	9.5 - 10.5	.375 - .415	5/8"	1/2"
RAV 99 411 5/8	2900194	10.5 - 11.5	.415 - .455	5/8"	1/2"
RAV 99 412 5/8	2900195	11.5 - 12.5	.455 - .495	5/8"	1/2"
RAV 99 413 5/8	2900196	12.5 - 13.5	.495 - .535	5/8"	1/2"
RAV 99 414 5/8	2900197	13.5 - 14.5	.535 - .570	5/8"	1/2"
RAV 99 413 3/4	2900198	12.5 - 13.5	.495 - .535	3/4"	5/8"
RAV 99 414 3/4	2900199	13.5 - 14.5	.535 - .570	3/4"	5/8"
RAV 99 415 3/4	2900200	14.5 - 15.5	.570 - .615	3/4"	5/8"
RAV 99 416 3/4	2900201	15.5 - 16.5	.615 - .650	3/4"	5/8"
RAV 99 417 3/4	2900202	16.5 - 17.5	.650 - .695	3/4"	5/8"
RAV 99 418 3/4	2900203	17.5 - 18.5	.695 - .730	3/4"	5/8"
RAV 99 415 7/8	2900204	14.5 - 15.5	.570 - .615	7/8"	3/4"
RAV 99 416 7/8	2900205	15.5 - 16.5	.615 - .650	7/8"	3/4"
RAV 99 417 7/8	2900206	16.5 - 17.5	.650 - .695	7/8"	3/4"
RAV 99 418 7/8	2900207	17.5 - 18.5	.695 - .730	7/8"	3/4"
RAV 99 419 7/8	2900208	18.5 - 19.5	.730 - .770	7/8"	3/4"
RAV 99 420 7/8	2900209	19.5 - 20.5	.770 - .815	7/8"	3/4"
RAV 99 421 7/8	2900210	20.5 - 21.5	.815 - .850	7/8"	3/4"
RAV 99 419 1	2900211	18.5 - 19.5	.730 - .770	1"	3/4"
RAV 99 420 1	2900212	19.5 - 20.5	.770 - .815	1"	3/4"
RAV 99 421 1	2900213	20.5 - 21.5	.815 - .850	1"	3/4"
RAV 99 422 1	2900214	21.5 - 22.5	.850 - .885	1"	3/4"
RAV 99 423 1	2900215	22.5 - 23.5	.885 - .925	1"	3/4"
RAV 99 424 1	2900216	23.5 - 24.5	.925 - .965	1"	3/4"
RAV 99 425 1	2900217	24.5 - 25.5	.965 - 1.005	1"	3/4"
RAV 99 426 1	2900218	25.5 - 26.5	1.005 - 1.045	1"	3/4"

Description	Part Number	Tube ID		Jaw Size	Square Size
		mm	inch		

RAV 99 427 1	2900219	26.5 - 27.5	1.045 - 1.085	1"	3/4"
RAV 99 428 1	2900220	27.5 - 28.5	1.085 - 1.125	1"	3/4"
RAV 99 429 1	2900221	28.5 - 29.5	1.125 - 1.160	1"	3/4"
RAV 99 430 1	2900222	29.5 - 30.5	1.160 - 1.200	1"	3/4"
RAV 99 431 1	2900223	30.5 - 31.5	1.200 - 1.240	1"	3/4"
RAV 99 432 1	2900224	31.5 - 32.5	1.240 - 1.280	1"	3/4"
RAV 99 433 1	2900225	32.5 - 33.5	1.280 - 1.320	1"	3/4"
RAV 99 434 1	2900226	33.5 - 34.5	1.320 - 1.360	1"	3/4"
RAV 99 435 1	2900227	34.5 - 35.5	1.360 - 1.400	1"	3/4"
RAV 99 436 1	2900228	35.5 - 36.5	1.400 - 1.440	1"	3/4"
RAV 99 437 1	2900229	36.5 - 37.5	1.440 - 1.475	1"	3/4"
RAV 99 438 1	2900230	37.5 - 38.5	1.475 - 1.515	1"	3/4"



Tube OD	Description	Part Number	Collar ID	Collar OD
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RAV Collars**

1/2" (12.7mm)	RAV 99 316	2900176	.630"	16mm	.865"	22mm
5/8" (15.8mm)	RAV 99 319	2900177	.750"	19mm	.985"	25mm
3/4" (19.0mm)	RAV 99 323	2900178	.905"	23mm	1.140"	29mm
7/8" (22.2mm)	RAV 99 326	2900179	1.025"	26mm	1.260"	32mm
1" (25.4mm)	RAV 99 326	2900179	1.025"	26mm	1.260"	32mm
1-1/8" (28.5mm)	RAV 99 332	2900181	1.260"	32mm	1.495"	38mm
1-1/4" (31.7mm)	RAV 99 335	2900182	1.375"	35mm	1.610"	41mm
1-3/8" (34.9mm)	RAV 99 339	2900183	1.530"	39mm	1.770"	45mm
1-1/2" (38.1mm)	RAV 99 345	2900184	1.770"	45mm	2.005"	51mm
1-3/4" (44.4mm)	RAV 99 351	2900185	2.005"	51mm	2.240"	57mm
2" (50.8mm)	RAV 99 358	2900186	2.280"	58mm	2.515"	64mm

* Select the spear that corresponds to the tube ID.

** Select the collar that allows the tube to enter the collar's ID.

Airetool Tube Removal Tools

JSP Manual Tube Puller


Airetool®


Manual tube puller provides economical, fast method for tube removal

Features and Benefits:

- Easy to use – Inserting the spear into the tube and removing the tube requires only a hand wrench.
- No external power – manual operation eliminates the need for air or electricity, making the tube puller ideal for field service applications.
- Durable – the two major components are machined from high quality, high strength steel, heat-treated for extra long service life.
- Only two components – simplified design uses only 2 parts. No lost parts, no major assembly, limited parts inventory.
- Easier close-quarter operation – hex at back of spear allows the spear to be tightened into tube without disassembly of the thrust mechanism.
- Clearly marked sizes, both spear and thrust collar are marked with tube size for a quick matching of tool to job.
- Wide selection of sizes – specific pullers are made for 1/4, 3/8, 1/2, 5/8, 3/4, 7/8 and 1 inch O.D. tubes to match most popular applications.



Tube Size							Tube Puller Complete		Spare Spears	
OD		Gauge	Wall Thickness		I.D.		Part Number	Stock Number	Part Number	Stock Number
In.	mm		In.	mm	In.	mm				
1/4	6.35	18	.049	1.24	.152	3.86	JSP-250-18	5520136	JSP-1/4-18	2989364
3/8	9.52	16	.065	1.65	.245	6.22	JSP-375-16	5520914	JSP-3/8-16	2991563
3/8	9.52	18	.049	1.24	.277	7.04	JSP-375-18	5520030	JSP-3/8-18	2989016
3/8	9.52	20	.035	0.88	.305	7.75	JSP-375-20	5519932	JSP-3/8-20	2988750
1/2	12.7	14	.083	2.11	.334	8.48	JSP-500-14	5519689	JSP-1/2-14	2987297
1/2	12.7	16	.065	1.65	.370	9.40	JSP-500-16	5519690	JSP-1/2-16	2986892
1/2	12.7	18	.049	1.24	.402	10.21	JSP-500-18	5519070	JSP-1/2-18	2986893
1/2	12.7	20	.035	0.89	.430	10.92	JSP-500-20	5519691	JSP-1/2-20	2987298
5/8	15.88	14	.083	2.10	.459	11.66	JSP-625-14	5519692	JSP-5/8-14	2986894
5/8	15.88	16	.065	1.65	.495	12.57	JSP-625-16	5519693	JSP-5/8-16	2986895
5/8	15.88	18	.049	1.24	.527	13.39	JSP-625-18	5518868	JSP-5/8-18	2986771
5/8	15.88	20	.035	0.88	.555	14.10	JSP-625-20	5519694	JSP-5/8-20	2987182
3/4	19.05	14	.083	2.10	.585	14.86	JSP-750-14	5519695	JSP-3/4-14	2986896
3/4	19.05	16	.065	1.65	.620	15.75	JSO-750-16	5519696	JSP-3/4-16	2986897
3/4	19.05	18	.049	1.24	.652	16.56	 JSP-750-18	5518804	JSP-3/4-18	2986364
3/4	19.05	20	.035	0.88	.680	17.27	JSP-750-20	5519697	JSP-3/4-20	2986769
7/8	22.22	14	.083	2.10	.709	18.01	JSP-875-14	5519698	JSP-7/8-14	2986898
7/8	22.22	16	.065	1.65	.745	18.92	JSP-875-16	5519699	JSP-7/8-16	2986899
7/8	22.22	18	.049	1.24	.777	19.74	JSP-875-18	5519071	JSP-7/8-18	2986900
7/8	22.22	20	.035	0.88	.805	20.45	JSP-875-20	5518700	JSP-7/8-20	2987534
1	25.4	14	.083	2.10	.834	21.18	JSP-1000-14	5519701	JSP-1-14	2986901
1	25.4	16	.065	1.65	.870	22.10	JSP-1000-16	5519702	JSP-1-16	2986902
1	25.4	18	.049	1.24	.902	22.91	JSP-1000-18	5519072	JSP-1-18	2986903
1	25.4	20	2.035	0.88	.930	23.62	JSP-1000-20	5519703	JSP-1-20	2987209

 Refer to page 5 for description of Rapid Select.

Additional sizes are available. Contact customer service for details.

Airetool®

New “B” Series boiler tube expanders assure uniform joints and precise tube wall reduction.

- New B-2000 Series expanders use patented drift ball bearing thrust collars for use with torque controlled rolling motors.
- Produce uniformly tight joints.
- Positive depth setting of expander into tube for tube-to-tube consistency.
- Tube end is flared at proper location with controlled expander travel.
- Durable design and components extend service life.
- Many parts are interchangeable with other “B” series expanders.
- Three models provide the right expander for the application.
- Mandrels sold separately.



B-1000 Series

For use in limited access space such as water boxes and small diameter drums.

B-2000 Series

Uses patented drift ball bearing thrust collar for precise flare setting and torque controlled wall reduction.

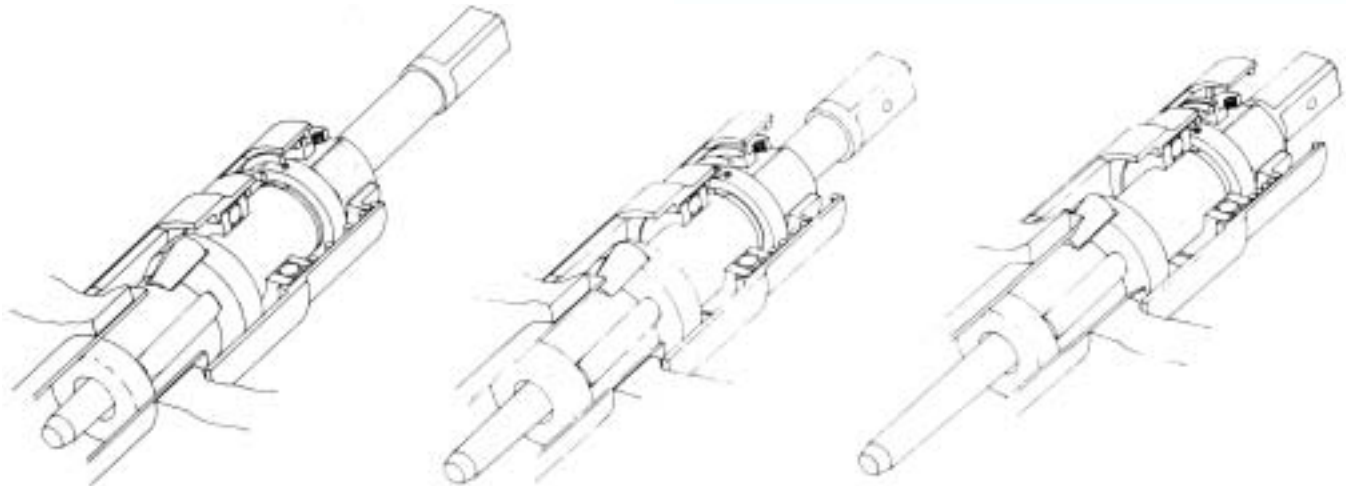
B-3000 Series

Straight roll expander for non-flare boiler tubes; or used in conjunction with flare type expanders in thicker tube sheet applications.

Airetool®

Boiler Tube Expanders B-2000 Series Patented Thrusts Assembly

- Airetool B-2000 Series boiler tube expander with its patented drift thrust assembly represents a major advancement in boiler tube expanding. Using a ball bearing, spring loaded drift thrust collar, the B-2000 Series expanders can be accurately positioned in the boiler tube in relation to the drum for consistent joint expansion.
- In operation, the initial positioning of the expander in the tube allows the self-feed rolls to draw the expander into the tube and to engage the flaring rolls at the proper point during the operation. The use of either an electric or air driven torque controlled rolling motor with the B-2000 Series expanders produces more uniform flares and very precise tube wall reduction.
- Accomplishes three unique functions in one operation



First

The unique depth adjustable ball bearing drift thrust collar enables the B-2000 Series expander to be positioned into the tube at exactly the same setting every time. Once set, the mandrel is inserted in the expander causing the rolls to be forced outward into contact with the tube I.D., starting the rolling process.

Second

As the mandrel is rotated, the initial rolling of the straight section takes place. As the mandrel rotation is continued, the drift thrust collar stops the expander at its final operating depth in the tube. During this phase the flaring rolls have also moved into their final depth position.

Third

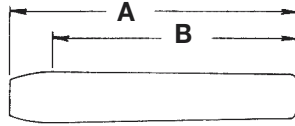
Continued mandrel rotation now will allow the straight rolled area to be finished. At this point the amount of torque required is greatly increased. The torque mechanism in the motor measures the torque and when the set torque is reached the motor automatically shuts off. During this phase the expander being held in place by the thrust collar allows the flare rolls to iron out the end of the tube to a smooth and precisely located flare. After shut-off, reversing the motor will back the expander out of the finished tube while at the same time resetting it for the next tube.

B1000 Series Boiler Expanders

Airetool®

B-1000 Series

-x signifies tube sheet thickness



X	Tube Sheet	"A" Dimension		"B" Dimension	
		In.	mm	In.	mm
-3	1/2" -3/4" (12.7-19.05mm)	1-7/16"	36.5	1-1/16"	26.9
-5	7/8" -1-1/4" (22.2-31.7mm)	1-15/16"	49.2	1-9/16"	39.6
-7	1-3/8" -1-3/4" (34.9-44.4mm)	2-7/16"	61.9	2-1/16"	52.3
-9	1-7/8" -2-1/4" (47.6-57.1mm)	2-15/16"	74.6	2-9/16"	65.0
-11	2-3/8" -2-3/4" (60.3-69.8mm)	3-7/16"	87.3	3-1/16"	77.7

Tube Size					Expander						
Expander Number	OD	Gauge	OD	Gauge	Exp. Range		St. Roll Set	Complete Roll Set	Mandrel Length	SQ.Size	Short Mandrels
					In.	mm					
B-1079-x* ‡	1	13-14			0.787-0.921	20.0-23.4	079-x-RS	079-x-FS	83-MP(9-13/32")	1/2	
B-1083-x* ‡	1	15-16			0.827-0.961	21.0-24.4	083-x-RS	083-x-FS	83-MP(9-13/32")	1/2	
B-1087-x* ‡	1-1/4	7			0.866-1.004	22.0-25.5	087-x-RS	087-x-FS	91-MP(9-13/32")	1/2	
B-1091-x* ‡	1-1/4	8-9			0.906-1.043	23.0-26.5	095-x-RS	095-x-FS	91-MP(9-13/32")	1/2	
B-1095-x* ‡	1-1/4	10			0.945-1.105	24.0-28.1	095-x-RS	095-x-FS	99-MP(10-1/16")	1/2	
B-1099-x* ‡	1-1/4	11-13			0.984-1.142	25.0-29.0	099-x-RS	099-x-FS	99-MP(10-1/16")	1/2	
B-1103-x* ‡	1-1/4	14-15			1.024-1.181	26.0-30.0	103-x-RS	103-x-FS	99-MP(10-1/16")	1/2	
B-1111-x ‡	1-1/4	16			1.105-1.299	28.1-33.0	111-x-RS	111-x-FS	118-MP(11-11/16")	3/4	MPS-1, 2, 3
B-1118-x ‡	1-1/2	10-12			1.221-1.378	31.0-35.0	118-x-RS	118-x-FS	118-MP(11-11/16")	3/4	MPS-1, 2, 3
B-1126-x ‡	1-1/2	13-16			1.300-1.496	33.0-38.0	126-x-RS	126-x-FS	126-MP(12-15/64")	3/4	MPS-2, 3, 4
B-1134-x	1-3/4	8-9	2	3	1.379-1.575	35.0-40.0	126-x-RS	126-x-FS	134-MP(12-23/32")	3/4	MPS-2, 3, 4
B-1142-x	1-3/4	10-12	2	4-5	1.457-1.673	37.0-42.5	142-x-RS	142-x-FS	150-MP(12-27/32")	3/4	MPS-3, 4, 5
B-1150-x	1-3/4	13-16	2	6	1.536-1.752	39.0-44.5	150-x-RS	150-x-FS	150-MP(12-27/32")	3/4	MPS-3, 4, 5, 6
B-1158-x	2	7-9	2-1/4	3	1.615-1.850	41.0-47.0	158-x-RS	158-x-FS	174-MP(13-27/32")	3/4	MPS-4, 5, 6, 7, 8
B-1166-x	2-	10-12	2-1/4	4-5	1.693-1.929	43.0-49.0	166-x-RS	166-x-FS	174-MP(13-27/32")	3/4	MPS-4, 5, 6, 7, 8
B-1174-x	2-	13-16	2-1/4	6	1.772-2.027	45.0-51.5	174-x-RS	174-x-FS	174-MP(13-27/32")	3/4	MPS-4, 5, 6, 7, 8
B-1181-x	2	16	2-1/2	3	1.851-2.126	47.0-54.0	181-x-RS	181-x-FS	197-MP(16-15/64")	1	MPS-7, 8, 9, 10, 11
B-1189-x	2-1/4	10-13	2-1/2	4-5	1.930-2.205	49.0-56.0	174-x-RS	174-x-FS	197-MP(16-15/64")	1	MPS-7, 8, 9, 10, 11
B-1197-x	2-1/4	14-16	2-1/2	6	2.009-2.362	51.0-60.0	205-x-RS	205-x-FS	197-MP(16-15/64")	1	MPS-6, 7, 8, 9, 10, 11
B-1205-x	2-1/2	7-10			2.087-2.441	53.0-62.0	205-x-RS	205-x-FS	221-MP(16-15/64")	1	MPS-7, 8, 9, 10, 11, 12
B-1213-x	2-1/2	11-13	3	2	2.116-2.520	55.0-64.0	213-x-RS	213-x-FS	221-MP(16-15/64")	1	MPS-7, 8, 9, 10, 11, 12
B-1221-x	2-1/2	14-16			2.245-2.598	57.0-66.0	221-x-RS	221-x-FS	221-MP(16-15/64")	1	MPS-7, 8, 9, 10, 11, 12
B-1229-x	2-3/4	7-9			2.323-2.677	59.0-68.0	221-x-RS	221-x-FS	244-MP(16-3/8")	1	MPS-8, 9, 10, 11, 12, 13
B-1237-x	2-3/4	10-12			2.402-2.756	61.0-70.0	237-x-RS	237-x-FS	244-MP(16-3/8")	1	MPS-8, 9, 10, 11, 12, 13
B-1244-x	2-3/4	13-16			2.481-2.835	63.0-72.0	252-x-RS	252-x-FS	244-MP(16-3/8")	1	MPS-8, 9, 10, 11, 12, 13
B-1252-x	3	7-8			2.560-2.913	65.0-74.0	252-x-RS	252-x-FS	268-MP(15-25/35")	1	MPS-10, 11, 12, 13, 14
B-1260-x	3	10-12			2.638-2.992	67.0-76.0	260-x-RS	260-x-FS	268-MP(15-25/35")	1	MPS-10, 11, 12, 13, 14
B-1268-x	3	13-14			2.717-3.071	69.0-78.0	268-x-RS	268-x-FS	268-MP(15-25/35")	1	MPS-10, 11, 12, 13, 14
B-1276-x	3	15-16			2.796-3.150	71.0-80.0	276-x-RS	276-x-FS	300-MP(16-1/4")	1	MPS-12, 13, 14, 15, 16
B-1284-x	3-1/4	7-11			2.874-3.228	73.0-82.0	284-x-RS	284-x-FS	300-MP(16-1/4")	1	MPS-12, 13, 14, 15, 16
B-1292-x	3-1/4	12-14			2.953-3.307	75.0-84.0	292-x-RS	292-x-FS	300-MP(16-1/4")	1	MPS-12, 13, 14, 15, 16
B-1300-x	3-1/4	15-16	3- 1/2	7-9	3.032-3.386	77.0-86.0	315-x-RS	315-x-FS	300-MP(16-1/4")	1	MPS-12, 13, 14, 15, 16
B-1308-x	3-1/2	10-12			3.111-3.465	79.0-88.0	284-x-RS	284-x-FS	347-MP(18-7/32")	1	MPS-15, 16, 17, 18, 19
B-1315-x	3-1/2	13-15			3.190-3.622	81.0-92.0	315-x-RS	315-x-FS	347-MP(18-7/32")	1	MPS-14, 15, 16, 17, 18, 19
B-1323-x	3-1/2	16	3-3/4	7-8	3.268-3.701	83.0-94.0	323-x-RS	323-x-FS	347-MP(18-7/32")	1	MPS-14, 15, 16, 17, 18, 19
B-1331-x	3-3/4	9-12			3.347-3.780	85.0-96.0	331-x-RS	331-x-FS	347-MP(18-7/32")	1	MPS-14, 15, 16, 17, 18, 19
B-1339-x	3-3/4	13-16			3.426-3.858	87.0-98.0	355-x-RS	355-x-FS	347-MP(18-7/32")	1	MPS-14, 15, 16, 17, 18, 19
B-1347-x	4	7-8			3.505-3.937	89.0-100.0	363-x-RS	363-x-FS	347-MP(18-7/32")	1	MPS-14, 15, 16, 17, 18, 19
B-1355-x	4	9-12			3.583-4.016	91.0-102.0	355-x-RS	355-x-FS	394-MP(18-17/64")	1	MPS-17, 18, 19, 20, 21
B-1363-x	4	13-15			3.662-4.094	93.0-104.0	363-x-RS	363-x-FS	394-MP(18-17/64")	1	MPS-17, 18, 19, 20, 21
B-1370-x	4	16	4-1/4	7-8	3.741-4.173	95.0-106.0	370-x-RS	370-x-FS	394-MP(18-17/64")	1	MPS-17, 18, 19, 20, 21
B-1378-x	4-1/4	9-11			3.820-4.252	97.0-108.0	378-x-RS	378-x-FS	394-MP(18-17/64")	1	MPS-17, 18, 19, 20, 21
B-1386x	4-1/4	12-16			3.898-4.331	99.0-110.0	386-x-RS	386-x-FS	394-MP(18-17/64")	1	MPS-17, 18, 19, 20, 21
B-1394-x	4-1/2	7-14			3.997-4.407	101.5-111.9	394-x-RS	394-x-FS	394-MP(18-17/64")	1	MPS-17, 18, 19, 20, 21

*B-1079-x to B-1103-x have mandrel retaining nut rather than metal roll retainer.
 ‡Indicates size 7, 9, & 11 roll lengths are not available.

Refer to page 5 for description of Rapid Select.

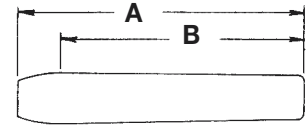
B-2000 Series Boiler Expanders



Airetool®

B-2000 Series

-x signifies tube sheet thickness



X	Tube Sheet	"A" Dimension		"B" Dimension	
		In.	mm	In.	mm
-3	1/2" -3/4" (12.7-19.05mm)	1-7/16"	36.5	1-1/16"	26.9
-5	7/8" -1-1/4" (22.2-31.7mm)	1-15/16"	49.2	1-9/16"	39.6
-7	1-3/8" -1-3/4" (34.9-44.4mm)	2-7/16"	61.9	2-1/16"	52.3
-9	1-7/8" -2-1/4" (47.6-57.1mm)	2-15/16"	74.6	2-9/16"	65.0
-11	2-3/8" -2-3/4" (60.3-69.8mm)	3-7/16"	87.3	3-1/16"	77.7

Tube Size					Expander						
Expander Number	OD	Gauge	OD	Gauge	Exp. Range		St. Roll Set	Complete Roll Set	Mandrel Length	SQ.Size	Short Mandrels
					In.	mm					
B-2079-x* ‡	1	13-14			0.787-0.921	20.0-23.4	079-x-RS	079-x-FS	83-M(13-27/32")	1/2	
B-2083-x* ‡	1	15-16			0.827-0.961	21.0-24.4	083-x-RS	083-x-FS	83-M(13-27/32")	1/2	
B-2087-x* ‡	1-1/4	7			0.866-1.004	22.0-25.5	087-x-RS	087-x-FS	91-M(13-27/32")	1/2	
B-2091-x* ‡	1-1/4	8-9			0.906-1.043	23.0-26.5	095-x-RS	095-x-FS	91-M(13-27/32")	1/2	
B-2095-x* ‡	1-1/4	10			0.945-1.105	24.0-28.1	095-x-RS	095-x-FS	99-M(14-3/8")	1/2	
B-2099-x* ‡	1-1/4	11-13			0.984-1.142	25.0-29.0	099-x-RS	099-x-FS	99-M(14-3/8")	1/2	
B-2103-x* ‡	1-1/4	14-15			1.024-1.181	26.0-30.0	103-x-RS	103-x-FS	99-M(14-3/8")	1/2	
B-2111-x ‡	1-1/4	16			1.105-1.299	28.1-33.0	111-x-RS	111-x-FS	118-M(15-27/32")	3/4	MS-1, 2, 3
B-2118-x ‡	1-1/2	10-12			1.221-1.378	31.0-35.0	118-x-RS	118-x-FS	118-M(15-27/32")	3/4	MS-1, 2, 3
B-2126-x ‡	1-1/2	13-16			1.300-1.496	33.0-38.0	126-x-RS	126-x-FS	126-M(16-31/64")	3/4	MS-2, 3, 4
B-2134-x	1-3/4	8-9	2	3	1.379-1.575	35.0-40.0	126-x-RS	126-x-FS	134-M(16-31/32")	3/4	MS-2, 3, 4
B-2142-x	1-3/4	10-12	2	4-5	1.457-1.673	37.0-42.5	142-x-RS	142-x-FS	150-M(17-3/32")	3/4	MS-3, 4, 5
B-2150-x	1-3/4	13-16	2	6	1.536-1.752	39.0-44.5	150-x-RS	150-x-FS	150-M(17-3/32")	3/4	MS-3, 4, 5, 6
B-2158-x	2	7-9	2-1/4	3	1.615-1.850	41.0-47.0	158-x-RS	158-x-FS	174-M(18-3/32")	3/4	MS-4, 5, 6, 7, 8,
B-2166-x	2	10-12	2-1/4	4-5	1.693-1.929	43.0-49.0	166-x-RS	166-x-FS	174-M(18-3/32")	3/4	MS-4, 5, 6, 7, 8,
B-2174-x	2	13-16	2-1/4	6	1.772-2.027	45.0-51.5	174-x-RS	174-x-FS	174-M(18-3/32")	3/4	MS-4, 5, 6, 7, 8,
B-2181-x	2	16	2-1/2	3	1.851-2.126	47.0-54.0	181-x-RS	181-x-FS	197-M(20-15/32")	1	MS-7, 8, 9, 10, 11
B-2189-x	2-1/4	10-13	2-1/2	4-5	1.930-2.205	49.0-56.0	174-x-RS	174-x-FS	197-M(20-15/32")	1	MS-7, 8, 9, 10, 11
B-2197-x	2-1/4	14-16	2-1/2	6	2.009-2.362	51.0-60.0	205-x-RS	205-x-FS	197-M(20-15/32")	1	MS-6, 7, 8, 9, 10, 11
B-2205-x	2-1/2	7-10			2.087-2.441	53.0-62.0	205-x-RS	205-x-FS	221-M(20-21/32")	1	MS-7, 8, 9, 10, 11, 12
B-2213-x	2-1/2	11-13	3	2	2.116-2.520	55.0-64.0	213-x-RS	213-x-FS	221-M(20-21/32")	1	MS-7, 8, 9, 10, 11, 12
B-2221-x	2-1/2	14-16			2.245-2.598	57.0-66.0	221-x-RS	221-x-FS	221-M(20-21/32")	1	MS-7, 8, 9, 10, 11, 12
B-2229-x	2-3/4	7-9			2.323-2.677	59.0-68.0	221-x-RS	221-x-FS	244-M(20-1/2")	1	MS-8, 9, 10, 11, 12, 13
B-2237-x	2-3/4	10-12			2.402-2.756	61.0-70.0	237-x-RS	237-x-FS	244-M(20-1/2")	1	MS-8, 9, 10, 11, 12, 13
B-2244-x	2-3/4	13-16			2.481-2.835	63.0-72.0	252-x-RS	252-x-FS	244-M(20-1/2")	1	MS-8, 9, 10, 11, 12, 13
B-2252-x	3	7-8			2.560-2.913	65.0-74.0	252-x-RS	252-x-FS	268-M(20-1/64")	1	MS-10, 11, 12, 13, 14
B-2260-x	3	10-12			2.638-2.992	67.0-76.0	260-x-RS	260-x-FS	268-M(20-1/64")	1	MS-10, 11, 12, 13, 14
B-2268-x	3	13-14			2.717-3.071	69.0-78.0	268-x-RS	268-x-FS	268-M(20-1/64")	1	MS-10, 11, 12, 13, 14
B-2276-x	3	15-16			2.796-3.150	71.0-80.0	276-x-RS	276-x-FS	300-M (20-1/2")	1	MS-12, 13, 14, 15, 16
B-2284-x	3-1/4	7-11			2.874-3.228	73.0-82.0	284-x-RS	284-x-FS	300-M (20-1/2")	1	MS-12, 13, 14, 15, 16
B-2292-x	3-1/4	12-14			2.953-3.307	75.0-84.0	292-x-RS	292-x-FS	300-M (20-1/2")	1	MS-12, 13, 14, 15, 16
B-2300-x	3-1/4	15-16	3- 1/2	7-9	3.032-3.386	77.0-86.0	315-x-RS	315-x-FS	300-M (20-1/2")	1	MS-12, 13, 14, 15, 16
B-2308-x	3-1/2	10-12			3.111-3.465	79.0-88.0	284-x-RS	284-x-FS	347-M (22-15/32")	1	MS-15, 16, 17, 18, 19
B-2315-x	3-1/2	13-15			3.190-3.622	81.0-92.0	315-x-RS	315-x-FS	347-M (22-15/32")	1	MS-14, 15, 16, 17, 18, 19
B-2323-x	3-1/2	16	3-3/4	7-8	3.268-3.701	83.0-94.0	323-x-RS	323-x-FS	347-M (22-15/32")	1	MS-14, 15, 16, 17, 18, 19
B-2331-x	3-3/4	9-12			3.347-3.780	85.0-96.0	331-x-RS	331-x-FS	347-M (22-15/32")	1	MS-14, 15, 16, 17, 18, 19
B-2339-x	3-3/4	13-16			3.426-3.858	87.0-98.0	355-x-RS	355-x-FS	347-M (22-15/32")	1	MS-14, 15, 16, 17, 18, 19
B-2347-x	4	7-8			3.505-3.937	89.0-100.0	363-x-RS	363-x-FS	347-M (22-15/32")	1	MS-14, 15, 16, 17, 18, 19
B-2355-x	4	9-12			3.583-4.016	91.0-102.0	355-x-RS	355-x-FS	394-M (22-33/64")	1	MS-17, 18, 19, 20, 21
B-2363-x	4	13-15			3.662-4.094	93.0-104.0	363-x-RS	363-x-FS	394-M (22-33/64")	1	MS-17, 18, 19, 20, 21
B-2370-x	4	16	4-1/4	7-8	3.741-4.173	95.0-106.0	370-x-RS	370-x-FS	394-M (22-33/64")	1	MS-17, 18, 19, 20, 21
B-2378-x	4-1/4	9-11			3.820-4.252	97.0-108.0	378-x-RS	378-x-FS	394-M (22-33/64")	1	MS-17, 18, 19, 20, 21
B-2386x	4-1/4	12-16			3.898-4.331	99.0-110.0	386-x-RS	386-x-FS	394-M (22-33/64")	1	MS-17, 18, 19, 20, 21
B-2394-x	4-1/2	7-14			3.997-4.407	101.5-111.9	394-x-RS	394-x-FS	394-M (22-33/64")	1	MS-17, 18, 19, 20, 21

*B-2079-x to B-2103-x have mandrel retaining nut rather than metal roll retainer.
 ‡Indicates size 7, 9, & 11 roll lengths are not available.

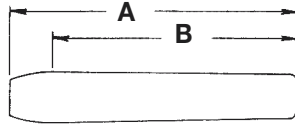
Refer to page 5 for description of Rapid Select.

B-3000 Series Boiler Expanders

Airetool®

B-3000 Series

The B-3000 Series Boiler Expanders are designed for secondary or hard rolling of tube sheets or headers. The B-3000 Series of expanders are normally used in conjunction with the Airetool B-1000 or B-2000 Series Flaring Tube Expanders.



X	Tube Sheet	"A" Dimension		"B" Dimension	
		In.	mm	In.	mm
-7	1/2" up to 4-3/8"	2-7/16	61.9	2-1/16	52.3
-11	1-1/2" up to 5-3/8"	3-7/16	87.3	3-1/16	77.7



Expander Number	Tube Size				Expander					
	OD	Gauge	OD	Gauge	Exp. Range		St. Roll Set	Mandrel Length	Square Size (in.)	Short Mandrels
					In.	mm				
B-3111-x ‡	1-1/4	16			1.105-1.299	28.1-33.0	111-x-RS	118-M (15-27/32")	3/4	MS-1, 2, 3
B-3118-x ‡	1-1/2	10-12			1.221-1.378	31.0-35.0	118-x-RS	118-M (15-27/32")	3/4	MS-1, 2, 3
B-3126-x ‡	1-1/2	13-16			1.300-1.496	33.0-38.0	126-x-RS	126-M (16-31/64")	3/4	MS-2, 3, 4
B-3134-x	1-3/4	8-9	2	3	1.379-1.575	35.0-40.0	126-x-RS	134-M (16-31/32")	3/4	MS-3, 4, 5
B-3142-x	1-3/4	10-12	2	4-5	1.457-1.673	37.0-42.5	142-x-RS	150-M (17-3/32")	3/4	MS-3, 4, 5, 6
B-3150-x	1-3/4	13-16	2	6	1.536-1.752	39.0-44.5	150-x-RS	150-M (17-3/32")	3/4	MS-3, 4, 5, 6
B-3158-x	2	7-9	2-1/4	3	1.615-1.850	41.0-47.0	158-x-RS	174-M (18-3/32")	3/4	MS-4, 5, 6, 7, 8
B-3166-x	2	10-12	2-1/4	4-5	1.693-1.929	43.0-49.0	166-x-RS	174-M (18-3/32")	3/4	MS-4, 5, 6, 7, 8
B-3174-x	2	13-16	2-1/4	6	1.772-2.027	45.0-51.5	174-x-RS	174-M (18-3/32")	3/4	MS-4, 5, 6, 7, 8
B-3181-x	2	16	2-1/2	3	1.851-2.126	47.0-54.0	181-x-RS	197-M (20-15/32")	1	MS-7, 8, 9, 10, 11
B-3189-x	2-1/4	10-13	2-1/2	4-5	1.930-2.205	49.0-56.0	174-x-RS	197-M (20-15/32")	1	MS-7, 8, 9, 10, 11
B-3197-x	2-1/4	14-16	2-1/2	6	2.009-2.362	51.0-60.0	205-x-RS	197-M (20-15/32")	1	MS-6, 7, 8, 9, 10, 11
B-3205-x	2-1/2	7-10	3	2	2.087-2.441	53.0-62.0	205-x-RS	221-M (20-21/32")	1	MS-7, 8, 9, 10, 11, 12
B-3213-x	2-1/2	11-13	3	2	2.116-2.520	55.0-64.0	213-x-RS	221-M (20-21/32")	1	MS-7, 8, 9, 10, 11, 12
B-3221-x	2-1/2	14-16	3	2	2.245-2.598	57.0-66.0	221-x-RS	221-M (20-21/32")	1	MS-7, 8, 9, 10, 11, 12
B-3229-x	2-3/4	7-9			2.323-2.677	59.0-68.0	221-x-RS	244-M (20-1/2")	1	MS-8, 9, 10, 11, 12, 13
B-3237-x	2-3/4	10-12			2.402-2.756	61.0-70.0	237-x-RS	244-M (20-1/2")	1	MS-8, 9, 10, 11, 12, 13
B-3244-x	2-3/4	13-16			2.481-2.835	63.0-72.0	252-x-RS	244-M (20-1/2")	1	MS-8, 9, 10, 11, 12, 13
B-3252-x	3	7-8			2.560-2.913	65.0-74.0	252-x-RS	268-M (20-1/64")	1	MS-10, 11, 12, 13, 14
B-3260-x	3	10-12			2.638-2.992	67.0-76.0	260-x-RS	268-M (20-1/64")	1	MS-10, 11, 12, 13, 14
B-3268-x	3	13-14	3-1/2	7-9	2.717-3.071	69.0-78.0	268-x-RS	268-M (20-1/64")	1	MS-10, 11, 12, 13, 14
B-3276-x	3	15-16	3-1/2	7-9	2.796-3.150	71.0-80.0	276-x-RS	300-M (20-1/2")	1	MS-12, 13, 14, 15, 16
B-3284-x	3-1/4	7-11	3-1/2	7-9	2.874-3.228	73.0-82.0	284-x-RS	300-M (20-1/2")	1	MS-12, 13, 14, 15, 16
B-3292-x	3-1/4	12-14	3-1/2	7-9	2.953-3.307	75.0-84.0	292-x-RS	300-M (20-1/2")	1	MS-12, 13, 14, 15, 16
B-3300-x	3-1/4	15-16	3-1/2	7-9	3.032-3.386	77.0-86.0	315-x-RS	300-M (20-1/2")	1	MS-12, 13, 14, 15, 16
B-3308-x	3-1/2	10-12	3-3/4	7-8	3.111-3.465	79.0-88.0	284-x-RS	347-M (22-15/32")	1	MS-14, 15, 16, 17, 18, 19
B-3315-x	3-1/2	13-15	3-3/4	7-8	3.190-3.622	81.0-92.0	315-x-RS	347-M (22-15/32")	1	MS-14, 15, 16, 17, 18, 19
B-3323-x	3-1/2	16	3-3/4	7-8	3.268-3.701	83.0-94.0	323-x-RS	347-M (22-15/32")	1	MS-14, 15, 16, 17, 18, 19
B-3331-x	3-3/4	9-12	3-3/4	7-8	3.347-3.780	85.0-96.0	331-x-RS	347-M (22-15/32")	1	MS-14, 15, 16, 17, 18, 19
B-3339-x	3-3/4	13-16	3-3/4	7-8	3.426-3.858	87.0-98.0	355-x-RS	347-M (22-15/32")	1	MS-14, 15, 16, 17, 18, 19
B-3347-x	4	7-8	3-3/4	7-8	3.505-3.937	89.0-100.0	363-x-RS	347-M (22-15/32")	1	MS-14, 15, 16, 17, 18, 19
B-3355-x	4	9-12	4-1/4	7-8	3.583-4.016	91.0-102.0	355-x-RS	394-M (22-33/64")	1	MS-17, 18, 19, 20, 21
B-3363-x	4	13-16	4-1/4	7-8	3.662-4.094	93.0-104.0	363-x-RS	394-M (22-33/64")	1	MS-17, 18, 19, 20, 21
B-3370-x	4	16	4-1/4	7-8	3.741-4.173	95.0-106.0	370-x-RS	394-M (22-33/64")	1	MS-17, 18, 19, 20, 21
B-3378-x	4-1/4	9-11	4-1/4	7-8	3.820-4.252	97.0-108.0	378-x-RS	394-M (22-33/64")	1	MS-17, 18, 19, 20, 21
B-3386-x	4-1/4	12-16	4-1/4	7-8	3.898-4.331	99.0-110.0	386-x-RS	394-M (22-33/64")	1	MS-17, 18, 19, 20, 21
B-3394-x	4-1/2	7-14	4-1/4	7-8	3.997-4.407	101.5-111.0	394-x-RS	394-M (22-33/64")	1	MS-17, 18, 19, 20, 21

‡ Indicates size 11 roll lengths are not available.

Airetool Boiler Expanders

Firetube Boiler Tube Expanders

Airetool®

FTE Series

Airetool Product Design Engineers have designed an economical, yet durable firetube boiler tube expander with a flip collar to accommodate tube sheets of 3/8" to 1" thick. This unique design with increased expansion range reduces the number of expanders a boiler manufacturer or repair contractor must inventory, reducing operating cost. As with all Airetool boiler expanders of this size, a metal roll retainer is provided to retain the rolls in the expander's cage when the mandrel is removed.

Available in tube OD sizes of 2", 2-1/2" and 3", the FTE Series are excellent tube expanders for expanding air heater tubes in power utility boilers.

- Flip collar
- Increased expansion range
- Ball bearing thrust collar
- Accessory short mandrels
- Mandrels sold separately



Expander	Part Number	Tube Size	Expansion Range w/ Drum Mandrel		Drum Mandrel Part Number	Mandrel Square		Mandrel Length	
			In.	mm		In.	mm	In.	mm
FTE-200	5523811	2" x 10-14 Ga.	1.656 / 1.940	42.1 / 49.2	FTE-200-M 2997688	3/4	19	11-3/4	298.5
FTE-250	5523812	2-1/2" x 10-14 Ga.	2.125 / 2.440	53.9 / 61.9	FTE-250-M 2997689	1	25.4	12-1/8	308
FTE-300	5523813	3" x 10-14 Ga.	2.565 / 2.940	65.0 / 74.6	FTE-300-M 2997690	1	25.4	13-1/8	333.4

Part Number	Expansion Ranges	
	In.	mm

Short Mandrels

FTE-200-SM1	2997994	1.656 / 1.780	42.1 / 45.2
FTE-200-SM2	2997995	1.730 / 1.854	44.0 / 47.1
FTE-200-SM3	2997996	1.820 / 1.940	46.3 / 49.2
FTE-250-SM1	2997997	2.125 / 2.265	53.9 / 57.5
FTE-250-SM2	2997998	2.205 / 2.353	56.0 / 59.7
FTE-250-SM3	2997999	2.290 / 2.440	58.2 / 62.0
FTE-300-SM1	2998000	2.565 / 2.730	65.1 / 69.3
FTE-300-SM2	2998001	2.660 / 2.835	67.6 / 72.0
FTE-300-SM3	2998002	2.770 / 2.940	70.3 / 74.6

Part Number	Expander Size
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Replacement Roll Sets

FTE-200-RS	5524570	2"
FTE-250-RS	5524571	2-1/2"
FTE-300-RS	5524572	3"

Refer to page 5 for description of Rapid Select.

Airetool®

FTF Series Firetube Boiler Flaring Tube Expanders

New Airetool FTF series expanders for flaring firetube boiler tubes are available in tube sizes of 2", 2-1/2" and 3" O.D. and 10-14 gauge wall thickness for tube sheets of 3/8" - 1" thick. All expanders are sold less the mandrel. For mandrel selection see chart below.

- 3-roll design: Expands and seals tubes in oval tube sheet holes.
- Offset flare rolls: Eliminate ridges produced by competitive models.
- Metal roll retainers: Keeps the rolls in tool when mandrel is removed. Fast and easy roll replacement.
- Increased expansion range: Accommodates more tube sizes, reducing inventory cost.
- Thrust collar: Provides uniform flared tube ends.
- Accessory short mandrels: Perform in confined work areas.
- Mandrels sold separately.



Expander	Part Number	Tube Size	Expansion Range w/ Drum Mandrel		Drum Mandrel Part Number	Mandrel Square		Mandrel Length	
			In.	mm		In.	mm	In.	mm

Tube Sheet Thickness 3/8" - 5/8"

FTF-200A	5524470	2" x 10-14 Ga.	1.656 / 1.940	42.1 / 49.2	FTE-200-M 2997688	3/4	19	11-3/4	298.5
FTF-250A	5524472	2-1/2" x 10-14 Ga.	2.125 / 2.440	53.9 / 61.9	FTE-250-M 2997689	1	25.4	12-1/8	308
FTF-300A	5524474	3" x 10-14 Ga.	2.565 / 2.940	65.0 / 74.6	FTE-300-M 2997690	1	25.4	13-1/8	333.4

Tube Sheet Thickness 3/4" - 1"

FTF-200B	5524471	2" x 10-14 Ga.	1.656 / 1.940	42.1 / 49.2	FTE-200-M 2997688	3/4	19	11-3/4	298.5
FTF-250B	5524473	2-1/2" x 10-14 Ga.	2.125 / 2.440	53.9 / 61.9	FTE-250-M 2997689	1	25.4	12-1/8	308
FTF-300B	5524475	3" x 10-14 Ga.	2.565 / 2.940	65.0 / 74.6	FTE-300-M 2997690	1	25.4	13-1/8	333.4

Part Number	Expansion Ranges	
	In.	mm

Short Mandrels

FTE-200-SM1	2997994	1.656 / 1.780	42.1 / 45.2
FTE-200-SM2	2997995	1.730 / 1.854	44.0 / 47.1
FTE-200-SM3	2997996	1.820 / 1.940	46.3 / 49.2
FTE-250-SM1	2997997	2.125 / 2.265	53.9 / 57.5
FTE-250-SM2	2997998	2.205 / 2.353	56.0 / 59.7
FTE-250-SM3	2997999	2.290 / 2.440	58.2 / 62.0
FTE-300-SM1	2998000	2.565 / 2.730	65.1 / 69.3
FTE-300-SM2	2998001	2.660 / 2.835	67.6 / 72.0
FTE-300-SM3	2998002	2.770 / 2.940	70.3 / 74.6

Part Number	Tube Sheet Thickness		Expander Size
	In.	mm	

Replacement Roll Sets

FTF-200-A FS	5524633	3/8 - 5/8	9.5 - 16	2"
FTF-200-B FS	5524634	3/4 - 1	19 - 25	2"
FTF-250-A FS	5524635	3/8 - 5/8	9.5 - 16	2-1/2"
FTF-250-B FS	5524636	3/4 - 1	19 - 25	2-1/2"
FTF-300-A FS	5524637	3/8 - 5/8	9.5 - 16	3"
FTF-300-B FS	5524638	3/4 - 1	19 - 25	3"

Refer to page 5 for description of Rapid Select.

Airetool®

FTC Series Firetube Tube Cutters

FTC Series Firetube Tube Cutters for 2", 2-1/2", and 3" O.D. tubes are air cylinder operated to increase productivity. A 2" x 13 gauge tube can be cut in less than ten seconds. The FTC series of Firetube Cutters are designed to operate on 90 PSI clean lubricated air.

One operator can easily position the cutter in the tube with the aid of a balancer or an Airetool DAS tool positioner (ATR-1550-250 required). The FTC cutters are modular in design, requiring only four parts to change when adapting to different tube ODs, reducing inventory cost. The FTC series tube cutter also incorporates a quick change cutter wheel feature for fast easy replacement.


The FTC Firetube Tube Cutters are excellent tools for cutting tubes to length prior to beading. These cutters can also be ordered with shorter collars allowing tubes to be cut inside the tube sheet for tube removal applications. Contact customer service for details.



Tube Size	Description	Part Number	Gauge	Front Pilots		Rear Pilots		Carriage		Collar	
2" size sensitive parts											
2"	FTC-200*	5524338	11	FTC 29 200 11	2998561	FTC 30 200 11	2998562	FTC 6 200	2998536	FTC 9 200	2998539
2"	FTC-200*	5524338	12	FTC 27 200 12	2998559	FTC 28 200 12	2998560	FTC 6 200	2998536	FTC 9 200	2998539
2"	FTC-200*	5524338	13	FTC 2 200 13	2998532	FTC 8 200 13	2998538	FTC 6 200	2998536	FTC 9 200	2998539
2-1/2" size sensitive parts											
2-1/2"	FTC-250*	5524339	10	FTC 35 250 10	2998567	FTC 36 250 10	2998568	FTC 43 250	2998575	FTC 45 250	2998577
2-1/2"	FTC-250*	5524339	11	FTC 33 250 11	2998565	FTC 34 250 11	2998566	FTC 43 250	2998575	FTC 45 250	2998577
2-1/2"	FTC-250*	5524339	12	FTC 31 250 12	2998563	FTC 32 250 12	2998564	FTC 43 250	2998575	FTC 45 250	2998577
3" size sensitive parts											
3"	FTC-300*	5524340	10	FTC 41 300 10	2998573	FTC 42 300 10	2998574	FTC 44 300	2998576	FTC 46 300	2998578
3"	FTC-300*	5524340	11	FTC 39 300 11	2998571	FTC 40 300 11	2998572	FTC 44 300	2998576	FTC 46 300	2998578
3"	FTC-300*	5524340	12	FTC 38 300 12	2998569	FTC 39 300 12	2998570	FTC 44 300	2998576	FTC 46 300	2998578

SPECIFICATIONS

Length: 22" (558.8mm)
 Weight: 15 3/4 lbs. (7.15 kg)
 Maximum PRM: 250
 Drive: 3/4" (19.04 mm) square
 Adjustable Cut Off Length: 3/16" - 3/4" (4.77 - 19 mm)
 Maximum Cut Off Length: 6" (152.4 mm)
 Maximum Working Pressure: 90 PSI (6.5 Bar)
 Minimum Cut Off: 1"

 Refer to page 5 for description of Rapid Select.
 * Tool comes complete with pilots for all three gauges.

RECOMMENDED SPARE PARTS

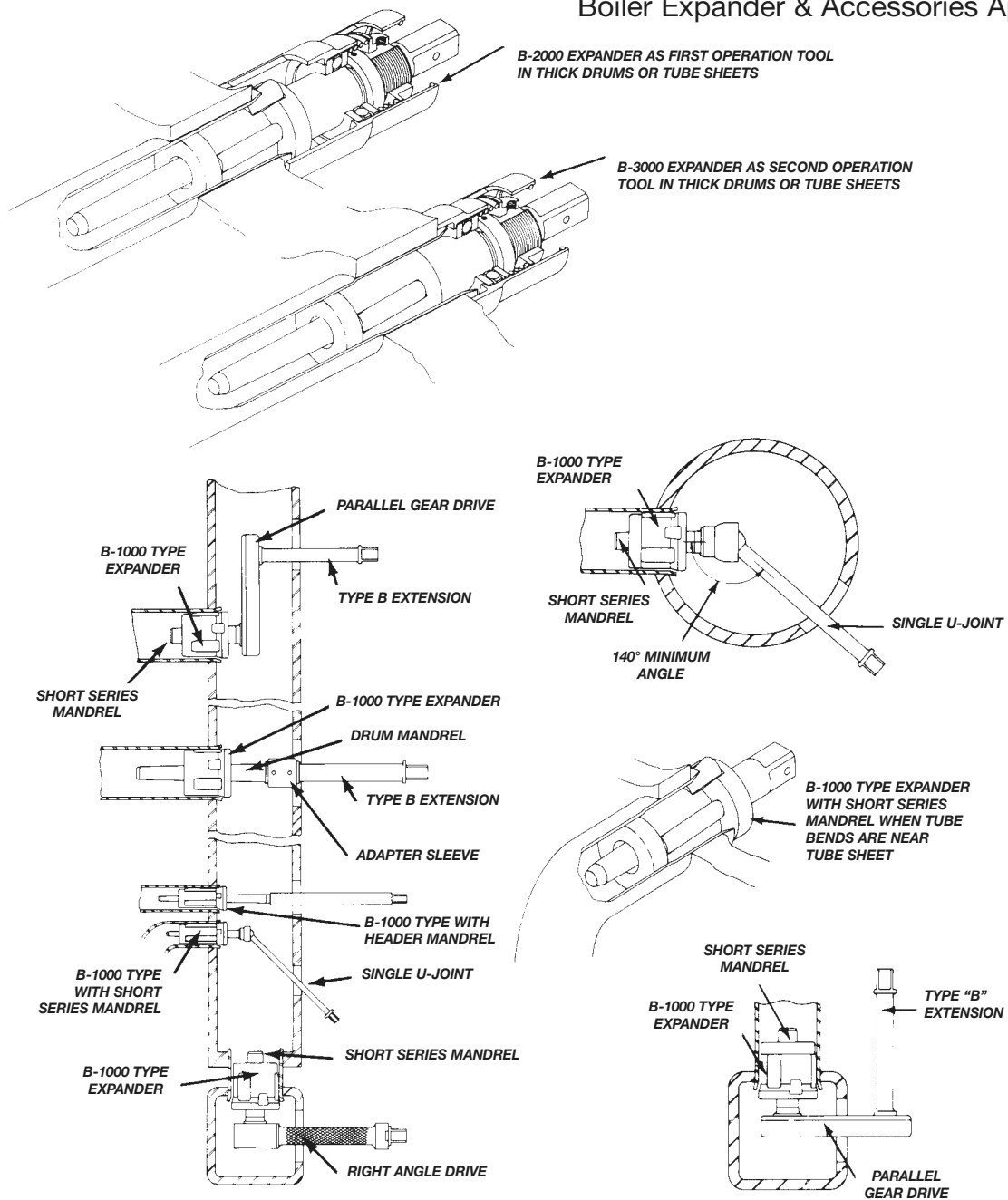
FTC 4 Cutter Wheel: 2998534
 FTC 5 Cutter Wheel Pin: 2998535
 FTC 7 Feed Wedge: 2998537
 FTC 10 Feed Rod: 2998540

ACCESSORIES

Valve Kits: A valve kit consists of a cylinder activation switch, anti-rotation rod and pneumatic plumbing hardware for adapting to the Airetool.
 1752 Valve Kit: 5524341
 1550 Valve Kit: 5524343
 1550 ATR Valve Kit: 524344

Airetool Boiler Expanders

Boiler Expander & Accessories Application



Accessories**

Ratchet Wrenches

Close-action ratchet wrenches designed for use with boiler expanders, universal joints, and extensions when air or electric power sources are unavailable.



Model	Part Number	Square Drive				Weight	
		Size Opening		Length			
		In.	mm	In.	mm	Lbs.	Oz.
21	2021700	3/8	9.5	7	177.8	1	
21	2021600	1/2	12.7	7	177.8	1	
23	2023000	1/2	12.7	12	304.8	3	12
24	2023900	3/4	19.0	15	381.0	6	
24	2023800	1	25.4	15	381.0	6	

** Also see page 31 for additional Drive accessories.

Adapter Sleeve

Part Number	Size Square Socket	Weight	
		Lbs.	Oz.
2113900	3/8" SQ (9.5 mm)		4
2038850	1/2" SQ (12.7 mm)		8
2113400	3/4" SQ (19 mm)	1	4
2001900	1" SQ (25.4 mm)	1	12



Universal Joint

Part Number	Size Square Socket	Weight	
		Lbs.	Oz.
2115300	3/8" SQ (9.5 mm)		5
2039800	1/2" SQ (12.7 mm)		5
2113500	3/4" SQ (19 mm)	1	2



Airetool Boiler Expanders

Accessories**

Right Angle Gear Drive and Parallel Gear Drive

Precision gear drives provide the means to expand tubes in close, hard-to-reach places.



RIGHT ANGLE GEAR DRIVE



PARALLEL GEAR DRIVE

Part Number	Gear Drive Number	Size Housing	Size Drive Square	Size Driven Square	Overall Length	Housing Width	Housing Thickness	Housing Length	Round Hand Hole Tool Enters	Weight of Tool
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Right Angle Gear Drive

5169900	RA-100	1/2"	1/2"	1/2"	10"	2-1/4"	1-3/8"	3-1/4"	3-1/4"	3 lbs. 12 oz.
5170000	RA-101	1/2"	1/2"	3/4"	10"	2-1/4"	1-3/8"	3-1/4"	3-1/4"	3 lbs. 12 oz.
5170100	RA-102	1/2"	3/4"	3/4"	10"	2-1/4"	1-3/8"	3-1/4"	3-1/4"	3 lbs. 12 oz.
5170500	RA-106	3/4"	3/4"	3/4"	11-7/16"	2-3/4"	1-7/8"	4"	4"	7 lbs. 8 oz.
5170900	RA-110	1"	1"	1"	12-15/16"	3-1/4"	1-7/8"	4-1/2"	4-1/4"	9 lbs

Part Number	Gear Drive Number	Size Square	Overall Length	Width	Thickness	Disance Between Square Centers	Weight
-------------	-------------------	-------------	----------------	-------	-----------	--------------------------------	--------

Parallel Gear Drive

5169400	P-200	1/2"	8-1/2"	2"	1-5/16"	6"	5 lb. 8 oz.
5169500	P-201	5/8"	8-1/2"	2"	1-5/16"	6"	5 lb. 8 oz.
5169600	P-202	3/4"	9-1/4"	2-3/4"	1-5/16"	6"	8 lb. 4 oz.
5169700	P-203	7/8"	9-1/4"	2-3/4"	1-5/16"	6"	8 lb. 4 oz.
5169800	P-204	1"	9-1/4"	2-3/4"	1-5/16"	6"	8 lb. 4 oz.

Universal Joints



SINGLE UNIVERSAL JOINT

DOUBLE UNIVERSAL JOINT

Part Number	Square Socket		Length		Weight	
	In.	mm	In.	mm	Lbs.	Oz.

Single Universal Joint

5343500	3/8" SQ	9.5	9	228.6	8	
5343600	3/8" SQ	9.5	12	203.2	10	
5342800	1/2" SQ	12.7	9	225.6	10	
5342900	1/2" SQ	12.7	12	203.2	12	
5343000	1/2" SQ	12.7	16	406.4	1	
5343100	1/2" SQ	12.7	20	508.0	1	2
5343200	3/4" SQ	19.0	12	203.2	2	4
5343300	3/4" SQ	19.0	16	406.4	2	12
5343400	3/4" SQ	19.0	20	508.0	3	4
5342500	1" SQ	25.4	12	203.2	4	
5342600	1" SQ	25.4	16	406.4	4	12
5342700	1" SQ	25.4	20	508.0	5	8

Part Number	Description	Weight	
		Lbs.	Oz.

Double Universal Joint

5342400	3/8" SQ x 3/8" SQ	(9.5 mm x 9.5 mm)	12
5342200	1/2" SQ x 1/2" SQ	(12.7 mm x 12.7 mm)	14
5342300	3/4" SQ x 3/4" SQ	(19 mm x 19 mm)	2
5342100	1" SQ x 1" SQ	(25.4 mm x 25.4 mm)	4

Extensions



EXTENSION TYPE A



EXTENSION TYPE B

Type	Size of Square		O.A.L. Length		Weight	
	In.	mm	In.	mm	Lbs.	Oz.
2114500	A	3/8	9.5	4	101.6	4
2037000	A	1/2	12.7	4	101.6	4
2111200	A	3/4	19.0	4	101.6	10
2002100	A	1	25.4	4	101.6	1 4
2114600	A	3/8	9.5	6	152.4	6
2037100	A	1/2	12.7	6	152.4	8
2111300	A	3/4	19.0	6	152.4	1
2002200	A	1	25.4	6	152.4	2
2114700	A	3/8	9.5	8	203.2	8
2037200	A	1/2	12.7	8	203.2	10
2114400	A	3/4	19.0	8	203.2	1 8
2002400	A	1	25.4	8	203.2	2 12
2114800	B	3/8	9.5	10	254.0	6
2037400	B	1/2	12.7	10	254.0	8
2111800	B	3/4	19.0	10	254.0	1 9
2973293	B	3/8	9.5	12	304.8	8
2037800	B	1/2	12.7	12	304.8	10
5112200	B	3/4	19.0	12	304.8	1 10
2003200	B	1	25.4	12	304.8	2 14
2115100	B	3/8	9.5	20	508.0	12
2038800	B	1/2	12.7	20	508.4	1
2113300	B	3/4	19.0	20	508.4	2 9
2004300	B	1	25.4	20	508.4	4 8

** Also see page 31 for additional Drive accessories.

Airetool Boiler Expanders

Tube Expanders for Refinery Fittings

Airetool refinery fitting tube expanders are self-feeding, with five expanding rolls which produce uniform tube expansion and tightness throughout the full thickness of the tube fitting. Contact customer service for ordering details.



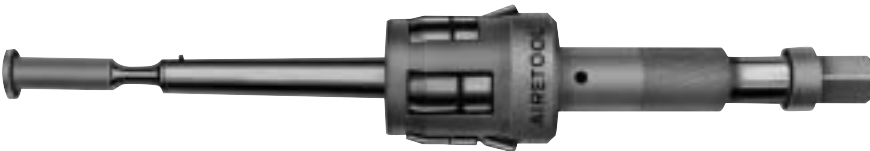
G-100 COMPLETE WITH IRONING OUT ATTACHMENT AND THRUST.



G-200 COMPLETE WITH IRONING OUT ATTACHMENT, WITHOUT THRUST.



G-300 WITH THRUST AND WITHOUT IRONING OUT ATTACHMENT.



G-400 WITHOUT THRUST OR IRONING OUT ATTACHMENT.



G-500 WITH THRUST AND IRONING OUT ATTACHMENT, WITHOUT FLARING ROLLS.



G-600 WITH THRUST ONLY AND WITHOUT FLARING ROLLS.

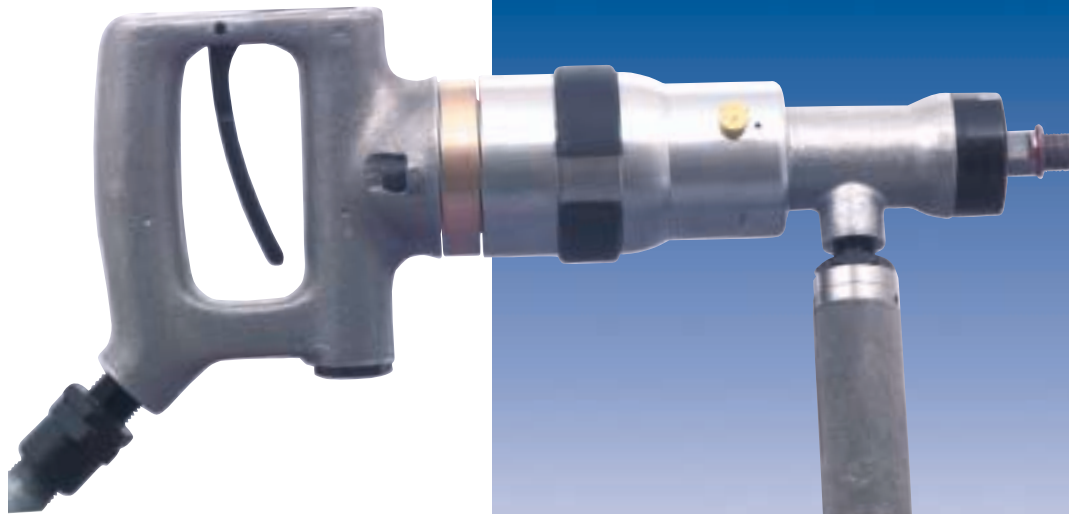
Tube Cleaners

Heat Exchanger and Condenser Tube Cleaners

Airetool®

Clean Tubes Equal Higher Efficiency

All piping, heat exchanger and boiler tubes accumulate scale over various periods of use. This scale decreases flow, retards heat transfer, and consequently increases fuel consumption and lowers efficiency.



Heat Exchanger and Condenser Tube Cleaners

- Complete cleaner consists of an air motor with integral water feed valve couplings; up to 22 ft. of shafting with necessary couplings (please specify shaft length required); motor shaft wrench and an extra set of motor blades.
- The CC 475 Cleaner Complete also includes two drills of any type or size up to 1", three spiral brushes up to 1" and 15 feet of 3/8 inch water hose.
- CC-375-1, 325-1 & 325-HP: Includes Ball bearing trolley and rope block.

Water Feed Attachment – WF 100

- For use with air drills. Available with various size coupling drives.
- Input and output drive thread: 5/8-18 UNF.
- Water inlet: 3/8 NPT.
- WF-107 Adapter required, 1/2 shank with 3 flats for drill chuck.



Model No.	Range	RPM	Weight		Length		Air Inlet	Operating Air Pressure	Water Inlet	Max. Water Pressure
			Lbs.	Kg	In.	mm				
Lightweight Condenser Cleaners										
CC-475	up to 1 in. (25.4 mm) ID Tubes	3800	10	4.53	15-3/4	400	1/2 in. NPT	90-100 psi (6-7 kg/cm ²)	3/8 in. NPT	100 psi (7 kg/cm ²)
CC-475-PS	up to 1-1/2 in. (38.1 mm) ID Tubes	2300	10	4.53	15-3/4	400	1/2 in. NPT	90-100 psi (6-7 kg/cm ²)	3/8 in. NPT	100 psi (7 kg/cm ²)
Geared Drive Cleaners*										
CC-375-1	up to 1-3/4 in. (44.4 mm) ID Tubes	1200	38	17.2	19	482.6	1 in. NPT	90-100 psi (6-7 kg/cm ²)	3/8 in. NPT	100 psi (7 kg/cm ²)
CC-325-1	up to 2 in. (50.8 mm) ID Tubes	800	42	19.0	19	482.6	1 in. NPT	90-100 psi (6-7 kg/cm ²)	3/8 in. NPT	100 psi (7 kg/cm ²)
CC-325-HP	up to 2 in. (50.8 mm) ID Tubes	800	44	19.9	19	482.6	1 in. NPT	90-100 psi (6-7 kg/cm ²)	1/2 in. NPT	5000 psi (350 kg/cm ²)

* Water hose not included.

ADDITIONAL EQUIPMENT

CC-475: Allen Wrench; Two drills of any type or size up to 1 in. Three spiral brushes up to 1 in.

Airetool Shafting



DRIVE COUPLING



DRIVE SHAFT



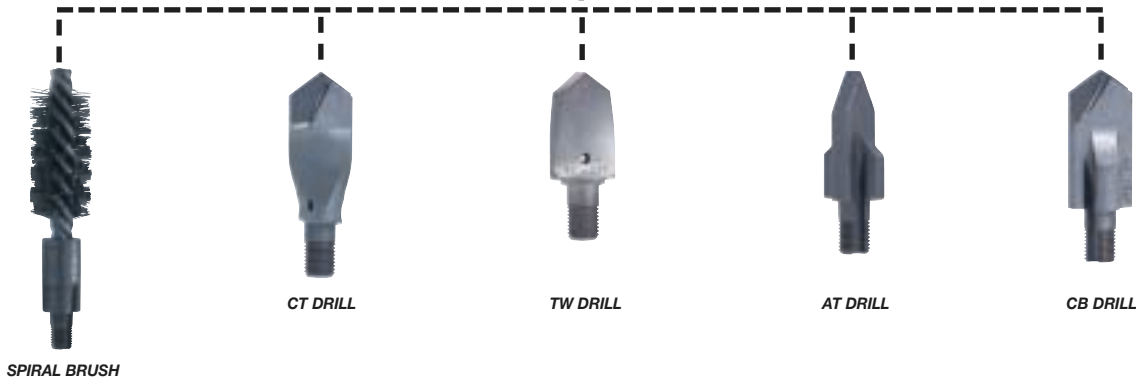
SHAFT COUPLING



DRIVEN SHAFT



Drills and Brushes



Tube ID		Shaft Diameter		Drive Shaft	Drive Shaft Thread	Driven Shaft	Driven Shaft Thread	Shaft Coupling	Shaft Coupling Thread	Drive Coupling For CC-475 CC-475-PS & WF-100	Drive Coupling Thread	Drive Coupling For CC-375-1 CC-325-1 CC-325-HP	Drive Coupling Thread
In.	mm	In.	mm										
.291-.358	7.39-9.09	1/4	6.35	CC-336	1/4" NFM x 10-32 F	CC-335	10-32 F x 10-32 F	CC-334	10-32M	AT-337-A	5/8" NF x 1/4" NF	—	—
.359-.420	9.09-10.67	5/16	7.94	CC-332	5/16" NFM x 1/4" NFF	CC-331	1/4" NFF x 1/4" NFF	CC-330	1/4" NFM	AT-333-A	5/8" NF x 5/16" NF	AT-333	1" NF x 5/16" NF
.421-.483	10.67-12.27	3/8	9.52	CC-324	3/8" NFM x 1/4" NFF	CC-323	1/4" NFF x 1/4" NFF	CC-322	1/4" NFM	AT-321-A	5/8" NF x 3/8" NF	AT-352	1" NF x 3/8" NF
.484-.608	12.27-15.44	7/16	11.11	CC-316	7/16" NFM x 5/16" NFF	CC-315	5/16" NFF x 5/16" NFF	CC-314	5/16" NFM	AT-313-A	5/8" NF x 7/16" NF	AT-353	1" NF x 7/16" NF
.609-.831	15.44-21.11	1/2	12.70	CC-312	1/2" NFM x 3/8" NFF	CC-311	3/8" NFF x 3/8" NFF	CC-310	3/8" NFM	AT-309-A	5/8" NF x 1/2" NF	AT-359	1" NF x 1/2" NF
.832-1.055	21.11-28.80	5/8	15.88	CC-304	5/8" NFM x 3/8" NFF	CC-303	3/8" NFF x 3/8" NFF	CC-302	3/8" NFM	AT-301-A	5/8" NF x 5/8" NF	AT-351	1" NF x 5/8" NF
1.056-1.561	28.80-39.65	3/4	19.05	CC-320	3/4" NFM x 7/16" NFF	CC-319	7/16" NFF x 7/16" NFF	CC-318	7/16" NFM	AT-317-A	5/8" NF x 3/4" NF	AT-357	1" NF x 3/4" NF
1.562-2.374	39.65-60.30	1	25.40	CC-328	1" NFM x 7/16" NFF	CC-327	7/16" NFF x 7/16" NFF	CC-326	7/16" NFM	AT-325-A	5/8" NF x 1" NF	AT-354	1" NF x 1" NF

Refer to page 5 for description of Rapid Select.

Airetool Condenser Cleaners

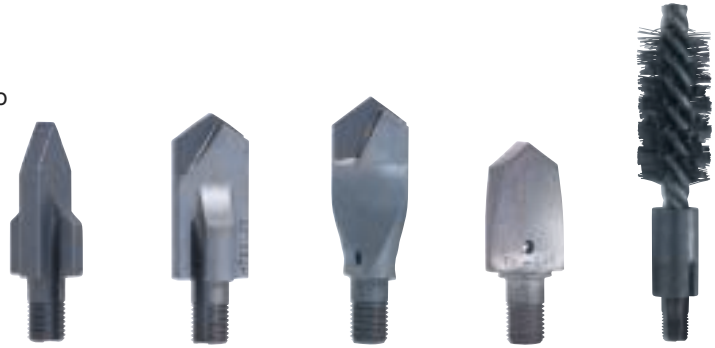
Selection Guide

Airetool®

Condenser Cleaner Drills and Brushes

Airetool drills are designed especially to prevent damage to the tube ID, and are available in a variety of shapes to remove all types of scale deposits. Passages in the drill shaft enable flushing fluid to reach the drill cutting edge.

Larger sizes are also available. Contact Customer Service for details.



Tube ID		Diameter of Drill or Brush		Stud Thread	AT (Std.) Drills Part No.	CB (Carbide) Drills Part No.	CT (Carbide Twist) Drills Part No.	TW (Twist) Drills Part No.	Wire Brush Part No.
In.	mm	In.	mm						
.291-.306	7.39-7.77	.281	7.14	10-32 UNC	AT-199	CB-199			199-B
.306-.321	7.77-8.15	.296	7.52	10-32 UNC	AT-199-5	CB-199-5			199-5-B
.322-.337	8.18-8.56	.312	7.92	10-32 UNC	AT-200	CB-200			200-B
.338-.353	8.59-8.97	.328	8.33	10-32 UNC	AT-200-5	CB-200-5			200-5-B
.359-.389	9.12-9.88	.343	8.71	1/4" UNF	AT-201	CB-201		TW-201	201-B
.390-.420	9.91-10.67	.375	9.52	1/4" UNF	AT-202	CB-202		TW-202	202-B
.421-.452	10.69-11.48	.406	10.31	1/4" UNF	AT-203	CB-203		TW-203	203-B
.452-.483	11.48-12.27	.437	11.10	1/4" UNF	AT-204	CB-204		TW-204	204-B
.484-.514	12.29-13.06	.468	11.89	5/16" UNF	AT-205	CB-205	CT-205	TW-205	205-B
.515-.545	13.08-13.84	.500	12.70	5/16" UNF	AT-206	CB-206	CT-206	TW-206	206-B
.546-.577	13.87-14.66	.531	13.49	5/16" UNF	AT-207	CB-207	CT-207	TW-207	207-B
.578-.608	14.68-15.44	.562	14.27	5/16" UNF	AT-208	CB-208	CT-208	TW-208	208-B
.578-.608	14.68-15.44	.562	14.27	3/8" UNF	AT-108	CB-108	CT-108	TW-108	108-B
.609-.639	15.47-16.23	.593	15.06	3/8" UNF	AT-209	CB-209	CT-209	TW-209	209-B
.640-.675	16.26-17.15	.625	15.88	3/8" UNF	AT-210	CB-210	CT-210	TW-210	210-B
.676-.706	17.17-17.93	.656	16.66	3/8" UNF	AT-211	CB-211	CT-211	TW-211	211-B
.707-.737	17.96-18.72	.687	17.45	3/8" UNF	AT-212	CB-212	CT-212	TW-212	212-B
.738-.769	18.75-19.53	.718	18.24	3/8" UNF	AT-213	CB-213	CT-213	TW-213	213-B
.770-.800	19.56-20.32	.750	19.05	3/8" UNF	AT-214	CB-214	CT-214	TW-214	214-B
.801-.831	20.35-21.11	.781	19.84	3/8" UNF	AT-215	CB-215	CT-215	TW-215	215-B
.832-.862	21.13-21.89	.812	20.62	3/8" UNF	AT-216	CB-216	CT-216	TW-216	216-B
.863-.894	21.92-22.71	.843	21.41	3/8" UNF	AT-217	CB-217	CT-217	TW-217	217-B
.895-.925	22.73-23.50	.875	22.23	3/8" UNF	AT-218	CB-218	CT-218	TW-218	218-B
.926-.956	23.52-24.28	.906	23.01	3/8" UNF	AT-219	CB-219	CT-219	TW-219	219-B
.957-.987	24.31-25.07	.937	23.80	3/8" UNF	AT-220	CB-220	CT-220	TW-220	220-B
.998-1.024	25.35-26.01	.968	24.59	3/8" UNF	AT-221	CB-221	CT-221	TW-221	221-B
1.025-1.055	26.04-26.80	1.000	25.40	3/8" UNF	AT-222	CB-222	CT-222	TW-222	222-B
1.056-1.086	26.82-27.58	1.031	26.19	7/16" UNF	AT-223	CB-223	CT-223	TW-223	223-B
1.087-1.117	27.61-28.37	1.062	26.97	7/16" UNF	AT-224	CB-224	CT-224	TW-224	224-B*
1.118-1.149	28.40-29.18	1.093	27.76	7/16" UNF	AT-225	CB-225	CT-225	TW-225	225-B*
1.150-1.180	29.21-29.97	1.125	28.58	7/16" UNF	AT-226	CB-226	CT-226	TW-226	226-B*
1.181-1.211	30.00-30.76	1.156	29.36	7/16" UNF	AT-227	CB-227	CT-227	TW-227	227-B*
1.212-1.242	30.78-31.55	1.187	30.15	7/16" UNF	AT-228	CB-228	CT-228	TW-228	228-B*
1.243-1.280	31.57-32.51	1.218	30.94	7/16" UNF	AT-229	CB-229	CT-229	TW-229	229-B*

Large Diameter Twist Brush (LDTB)



Diameter - Stock #	Stud Thread	Diameter - Stock #	Stud Thread	Diameter - Stock #	Stud Thread
1-1/2 - 1003700	5/8 NC	2-1/8 - 1005800	5/8 NC	3 - 1006500	5/8 NC
1-5/8 - 1004500	5/8 NC	2-1/4 - 1005700	5/8 NC	3-1/4 - 1007100	5/8 NC
1-3/4 - 1004300	5/8 NC	2-1/2 - 1005401	5/8 NC	3-1/2 - 1006900	5/8 NC
1-7/8 - 1004600	5/8 NC	2-3/4 - 1005900	5/8 NC	3-3/4 - 1007200	5/8 NC
2 - 1004900	5/8 NC	3 - 1006500	5/8 NC	4 - 1007300	5/8 NC

Refer to page 5 for description of Rapid Select.

*Minimum order 12 pieces.

Airetool Condenser Cleaners

Brush-Master Tube Cleaners

Airetool®

Tube cleaners for condensers, chillers, evaporators and other tubular heat transfer apparatus

Model ABM-1800

- Variable solid state speed control from 0 to 1750 RPM with constant torque.
- Quick-release shaft coupling for an easy, fast, positive connection every time.
- No o-rings or coupler nut.

The variable Speed feature allows the operator to operate the shaft at a safe, comfortable speed for the condition of the tubes being cleaned. The lack of o-rings and coupler nut eliminates the risk of the coupler nut loosening and leaking water, leading to possible shaft damage.

Model ABM-1800-R

Same features as ABM-1800 plus

- Bi-directional tube cleaner for the cleaning of internally enhanced tubes.
- Identified Forward and Reverse direction foot pedals are included with this model.

Model ABM-1900

- Variable solid state speed control from 0 to 1750 RPM with constant torque.
- Manifold for screw-on style shafting that is commonly used in competitive models.

Model ABM-1900-R

Same features as ABM-1900 plus

- Bi-directional shaft rotation for the cleaning of internally enhanced tubes.
- Identified Forward and Reverse direction foot pedals are included with this model.



Model Number	Part Number	Horsepower	Volts	Amps	RPM	Bi-directional	Dimensions	Weight (less shaft)	Shipping Dimensions	Shipping Weight (less shaft)
ABM-1800	2900398	1/2	115	6	0-1800	No	11" W x 17" L x 9" H	35 lbs.	12" W x 23" L x 11" H	39 lbs.
ABM-1800-R	2900399	1/2	115	6	0-1800	Yes	11" W x 17" L x 9" H	41 lbs.	12" W x 23" L x 11" H	45 lbs.
ABM-1900	2900400	1/2	115	6	0-1800	No	11" W x 17" L x 9" H	35 lbs.	12" W x 23" L x 11" H	39 lbs.
ABM-1900-R	2900401	1/2	115	6	0-1800	Yes	11" W x 17" L x 9" H	41 lbs.	12" W x 23" L x 11" H	45 lbs.
ABM-1900-R-230V	2900530	1/2	230	3	0-1800	Yes	11" W x 17" L x 9" H	41 lbs.	12" W x 23" L x 11" H	45 lbs.

Refer to page 5 for description of Rapid Select.

See page 75 for cleaning tools.

Airetool Condenser Cleaners

Brush-Master Tube Cleaner

Airetool®

Tube cleaners for condensers, chillers, evaporators and other tubular heat transfer apparatus

Model ABM-1200

- Set speed control
- Quick release shaft coupling for an easy fast positive connection every time.

The set speed feature allows tube cleaning applications where variable speed and reverse are not desired.

ABM Brush-Master Tube Cleaners are also available in 230 volt 50Hz 1 Ph and other voltages. Contact Customer Service for details.



Flexible shafts

To order the correct size Flexible Shaft, measure the tube ID and the length of the tube to be cleaned. Then refer to the chart below to select the proper shaft.

Tube ID Range	Shaft O.D.	Shaft Lengths in Feet		
		15	25	35

Flexible Shafts for ABM-1800, ABM-1800-R and ABM-1200

.280" - .406	1/4"	FS-1815-1/4	2900402		
.407" - .532"	3/8"			FS-1825-3/8	2900403
.533" - .812"	1/2"			FS-1825-1/2	2900405
				FS-1835-3/8	2900404
				FS-1835-1/2	2900406

Flexible Shafts for ABM-1900 and ABM-1900-R

.280" - .406	1/4"	FS-1915-1/4	2900407		
.407" - .532"	3/8"			FS-1925-3/8	2900408
.533" - .812"	1/2"			FS-1925-1/2	2900410
				FS-1935-3/8	2900409
				FS-1935-1/2	2900411

Model Number	Part Number	Horsepower	Volts	Amps	RPM	Bi-directional	Dimensions	Weight (less shaft)	Shipping Dimensions	Shipping Weight (less shaft)
ABM-1200	2900397	1/3	115	8	1140	No	11" W x 17" L x 9" H	40 lbs.	12" W x 23" L x 11" H	44 lbs.

Refer to page 5 for description of Rapid Select.

See page 75 for cleaning tools.

Airetool Condenser Cleaners

Brush-Master Cleaning Tools

Airetool®

Super 2D Brushes

Airetool Super 2D Brushes are for cleaning internally enhanced tubes. The brush is constructed from material that outcleans and outwears other tube brushes. Super 2 D Brushes have two cleaning diameters to assure all surfaces are being cleaned. The smaller diameter cleans the hard to reach internal surfaces of enhanced tubing, while the larger diameter lays back and cleans the minimum I.D. surfaces. These brushes are recommended for removing soft and light scale deposits.

Super Brushes

Super Brushes are for cleaning smooth bore tubing. They are made from the same long-lasting material as the Super 2D Brush. The longer brush cleaning surface reduces the tube cleaning time. They are recommended for removing soft and light scale deposits.



Part Number	Stock Number	Tube Inside Diameter	
		In.	mm

Super 2 D Brush

SCB-750	2996773	.500-.700	12.7-17.8
SCB-1000	2996774	.700-.950	17.8-24.1

Super Brush

SB-750	2996555	.437-.700	11.1-14.2
SB-1000	2996556	.625-1.000	15.8-17.5
SB-1250	2996557	1.000-1.200	19.0-25.4

Nylon, Brass and Stainless Steel Brushes

Nylon, brass and stainless steel brushes are available in brush diameters .250" - 1.000" (6.3-25.4mm) in 1/16" (1.6mm) increments. Select the brush size equal to or one size smaller than the I.D. of the tubes to be cleaned.

Brush Diameter		Brush Material					
In.	mm	Nylon		Brass		Stainless Steel	
1/4	6.35	N-250	2996528	B-250	2996515	SS-250	2996541
5/16	7.92	N-312	2996529	B-312	2996516	SS-312	2996542
3/8	9.52	N-375	2996530	B-375	2996517	SS-375	2996543
7/16	11.1	N-437	2996531	B-437	2996518	SS-437	2996544
1/2	12.7	N-500	2996532	B-500	2996519	SS-500	2996545
9/16	14.27	N-562	2996533	B-562	2996520	SS-562	2996546
5/8	15.88	N-625	2996534	B-625	2996521	SS-625	2996547
11/16	17.48	N-687	2996535	B-687	2996522	SS-687	2996548
3/4	19.05	N-750	2996536	B-750	2996523	SS-750	2996549
13/16	20.62	N-812	2996537	B-812	2996524	SS-812	2996550
7/8	22.22	N-875	2996538	B-875	2996525	SS-875	2996551
15/16	23.82	N-937	2996539	B-937	2996526	SS-937	2996552
1	25.4	N-1000	2996540	B-1000	2996527	SS-1000	2996553

Buffing Tools

Buffing Tools have size-adjusting stainless steel wire blades for the removal of mineral scale and sludge deposits. Buffing tools are not to be used on internally enhanced tubing.



Part Number	Stock Number	Tube Inside Diameter	
		In.	mm

Buffing Tool

BT-312	2996780	.312-.375	7.9-9.5
BT-375	2996781	.375-.500	9.5-12.7
BT-500	2996782	.500-.625	12.7-15.9
BT-625	2996783	.625-1.000	15.9-25.4

Replacement Blades for Buffing Tools

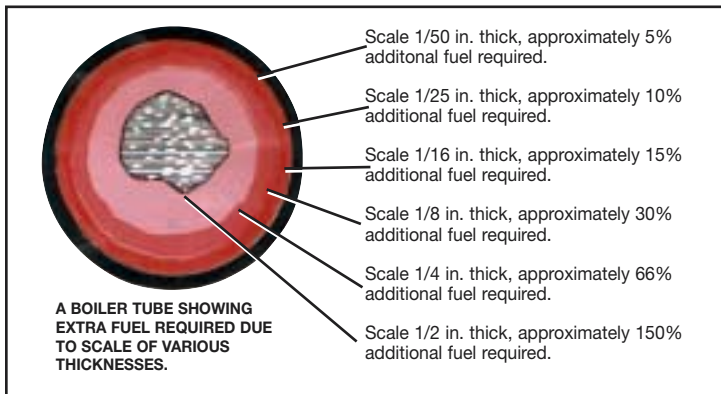
RB-312	2996784	Replacement Blades for BT-312 & BT-375
RB-500	2996785	Replacement Blades for BT-500
RB-625	2996786	Replacement Blades for BT-625

Airetool Boiler Tube Cleaners

Airetool®

Clean tubes mean lower fuel costs.

All piping, heat exchanger and boiler tubes accumulate scale over various periods of use. This scale decreases flow, retards heat transfer, and consequently increases fuel consumption and lowers efficiency.



1/2 inch scale in 6 inch pipe, 1000 feet long, has a transfer capacity loss of 150 gallons per minute.

For selecting the proper Airetool boiler tube cleaner the following information is required:

- Tube ID
- Tube length
- Type of deposit
- Thickness of deposit
- Straight or curved tube
- If curved, the minimum radius bend

See page 77 for cleaning head types recommended for cleaning straight tubes, then refer to pages 79 thru 82 for sizing the boiler tube cleaner.

See page 78 for cleaning heads recommended for cleaning curved tubes, then refer to pages 79 thru 82 for sizing the boiler tube cleaner.

Note: Operating hoses are not included with boiler tube cleaners, refer to page 99 for operating hose selection.

It is always recommended to use an in-line lubricator and foot valve when operating the Airetool Boiler Tube Cleaners. See page 99 for ordering information.

Other boiler tube cleaner applications include:

- Oil field drill pipe renewal
- Natural gas line renewal
- Aluminum smelter siphon tube cleaning
- Catalyst cleaners
- Process line cleaning

Scale Thickness	Approximate Loss of Heat Transfer Efficiency
1/50 inch	4%
1/32 inch	8%
1/8 inch	20%

Airetool Boiler Tube Cleaners

Tube Cleaners for Straight Tubes

**Complete series of motors and heads available for tube sizes
1/2" to 1-3/8" (12.7 to 34.9 mm) I.D.**



**MIDGET MOTOR
WITH OPTIONAL HEADS**

Complete cleaner consists of: air motor with extra set of blades; metal box; choice of single unit cutter head with four extra sets of cutters and two extra cutter pins. If "30" series head shown on page 78 is ordered, one extra flexible connection is furnished.

If expanding blade head is ordered, one extra set of blades is furnished. For operating hose (not included) refer to page 99.



Drill Head with Universal Joint
Range: 1/2 in. (12.7 mm) - 1-3/8 in. (34.9 mm)
Deposit: heavy-medium to soft



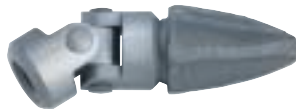
Single Unit Head with Universal Joint
Range: 1/2 in. (12.7 mm) - 1-3/8 in. (34.9 mm)
Deposit: light-hard to medium



Expanding Blade Cutter Head
Range: 1/2 in. (12.7 mm) - 4-1/2 in. (114.3 mm)
Deposit: light-hard to medium

**Complete series of motors and heads available for tube sizes
1-1/2" to 13-1/4" (38.1 to 336.5 mm) I.D.**

Drill Head with Universal Joint
Range: 1-1/2 in. (38.1 mm) -
11 in. (279.4 mm)
Deposit: 3/4 in. (19.0 mm)
thick-medium to hard and
plugged tubes



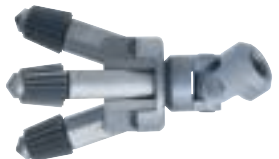
TYPE-3
P-Type Head
Range: 2-1/4 in. (57.1 mm) -
7 in. (177.8 mm) Self feeding
Deposit: 3/8 in. (9.5 mm)
thick-hard to medium



TYPE-5
Wing Arm Head
Range: 1-3/4 in. (44.4 mm) -
13 1/4 in. (336.5 mm)
Self feeding
Deposit: 1/2 in. (12.7 mm)
thick-hard to medium



TYPE-4
Forward Swing Head
Range: 1-3/4 in. (44.4 mm) -
4 1/4 in. (120.6 mm)
Self feeding
Deposit: 1/2 in. (12.7 mm)
thick-soft to medium



**3000 SERIES MOTOR
WITH OPTIONAL HEADS**

Complete cleaner consists of: air motor with extra set of blades; choice of cutter head with two extra sets of cutters and cutter pins; universal joint with two extra pins; two drills.

If single unit head is ordered, four extra sets of cutters are furnished. If arm-type heads are ordered, one extra set of arm pins is furnished. For operating hose (not included) refer to page 99.

Airetool Boiler Tube Cleaners

Tube Cleaners for Curved Tubes

Complete series of motors and heads available for tube sizes 13/16" to 2-1/8" (20.6 to 53.9 mm) I.D.



MIDGET MOTOR WITH
OPTIONAL HEADS

Complete cleaner consists of: air motor with extra set of blades; choice of cutter heads with two extra sets of cutters and pins; universal joint with two extra pins; two drills.

If single unit head is ordered, four extra cutters are furnished. For operating hose (not included) refer to page 99.



Drill Head with Universal Joint
Range: 1-1/2 in. (38.1 mm) - 2-1/8 in. (53.9 mm)
Deposit: light-hard to medium



TYPE-1
Single Unit Head with Universal Joint
Range: 1/2 in. (12.7 mm) - 2-1/8 in. (53.9 mm)
Deposit: light-medium to hard
40 Series



TYPE-2
Single Unit Head with Flexible Shaft
Range: 1/2 in. (12.7 mm) - 2-1/8 in. (53.9 mm)
Deposit: light-medium to hard
30 Series

Complete series of motors and heads available for tube sizes 1-1/2" to 13-1/4" (57.1 to 336.5 mm) I.D.



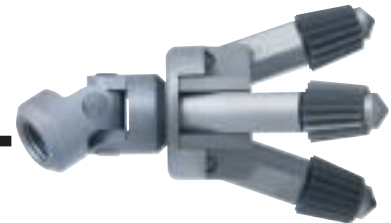
4000 SERIES MOTOR WITH
OPTIONAL HEADS

Complete cleaner consists of: air motor with extra set of blades; choice of cutter heads with two extra sets of cutters and cutter pins; universal joint with two extra pins; two drills.

If single unit head is ordered, four extra sets of cutters are furnished. If arm-type heads are ordered, one extra set of arm pins is furnished. For operating hose (not included) refer to page 99.



Drill Head with Universal Joint
Range: 1-1/2 in. (38.1 mm) - 11 in. (279.4 mm)
Deposit: 1/2 in. (12.7 mm) - thick-hard to medium



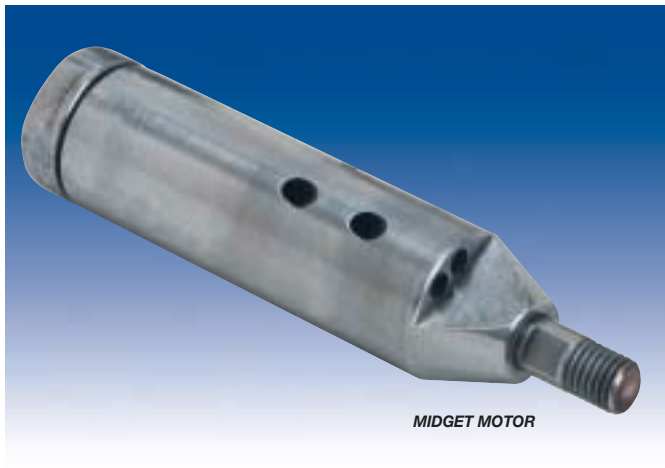
TYPE-4
Forward Swing with Universal Joint
Range: 1-3/4 in. (44.4 mm) - 4-3/4 in. (120.6 mm)
Deposit: 1/2 in. (12.7 mm) - thick-soft to medium



TYPE-5
Wing Arm Head with Universal Joint
Range: 1-3/4 in. (44.4 mm) - 13-1/4 in. (336.5 mm)
Self feeding
Deposit: 1/2 in. (12.7 mm) - thick-hard to medium

Airetool Boiler Tube Cleaners

Selection Guide



Airetool®

Midget Tube Cleaners – Curved and Straight

Range: 1/2 to 1-3/4 in.
12.7 to 44.4 mm

Complete cleaner consists of: motor; extra set of blades; shaft wrench; metal box; choice of single unit cutter head; four extra sets of cutters; two extra cutter pins.

If a “30 Series” head is ordered, an extra flexible connection is furnished. If expanding blade head is ordered, one extra set of blades is furnished. If expanding blade head is ordered, one extra set of blades is furnished.
(Less operating hose – refer to page 99.)

- Use for straight tubes.
- Use for curved tubes.

Tube ID		Min. Tube Centerline Radius in. (mm)	Motor Number	Motor OD		Rotor Thread In.	Air Coupling Pipe Tap (in.)	Hose Size		Heads Available			Drill*	Universal	Flexible
In.	mm			In.	mm			In.	mm	Universal Type1	Flexible Type 2	Blade Type 8			
1/2	12.7	Straight	24	15/32	11.9	10-32	18-20	3/16	4.7	2440	2430	2480	MD-1	2451	2461
5/8	15.8	Straight	30	37/64	14.6	1/4 NF	1/8	1/4	6.3	3040	3030	3080	MD-2	PA-3051	X-6461
3/4	19.0	Straight	27	11/16	17.4	1/4 NF	1/8	1/4	6.3	2740	2730	2780	MD-3	PA-3051	X-6461
13/16	20.6	Radius 5 (126.0)	X-64	11/16	17.4	1/4 NF	1/4	1/4	6.3	X-6440	X-6430		MD-3	6451	X-6461
7/8	22.2	Straight	29	25/32	19.8	3/8 NF	1/4	3/8	9.5	2940	2930	2980	MD-4	2651-A	
27/32	21.4	Straight	29	25/32	19.8	3/8 NF	1/4	3/8	9.5	2940	2930	2980	MD-4	2651-A	
1	25.4	Straight	26	29/32	23.0	3/8 NF	3/8	3/8	9.5	2640	2630	6180	MD-4	2651-A	
1-1/32	26.1	Radius 5 (127.0)	X-61	7/8	22.2	5/16 NF	1/4	1/4	6.3	X-6140	X-6130		MD-3	6151-C	X-6161
1-1/8	28.5	Straight	31	1-1/32	26.1	7/16 NF	3/8	3/8	9.5	3140	3130	3180	MD-5	3151	X-6361
1-1/4	31.7	Straight	X-63-A	1-1/16	26.9	3/8 NF	3/8	3/8	9.5	X-6340	X-6330	6380	MD-5	6651	X-6361
1-1/4	31.7	Radius 6 (152.4)	X-63	1-1/16	26.9	3/8 NF	3/8	3/8	9.5	X-6340	X-6330		MD-5	6651	X-6361
1-3/8	34.9	Straight	X-65-A	1-3/16	30.1	3/8 NF	3/8	3/8	9.5	X-6540	X-6530	6580	00	6651	X-6661
1-1/2	38.1	Radius 6 (152.4)	X-65	1-3/16	30.1	3/8 NF	3/8	3/8	9.5	X-6540	X-6530		MD-5	6651	X-6661
1-5/8	41.2	Radius 24 (609.6)	4200	1-1/2	38.1	5/8 NC	1/2	1/2	12.7	4140	4130		1	4151	4161
1-3/4	44.4	Radius 6 (152.4)	X-66	1-5/16	33.3	3/8 NF	3/8	3/8	9.5	X-6640	X-6630		00	6651	X-6661
1-3/4	44.4	Radius 15 (381.0)	4200	1-1/2	38.1	5/8 NC	1/2	1/2	12.7	4140	4130		1	4151	4161

* Drill must be used with Universal Joint or flexible connection.

Airetool Boiler Tube Cleaners

Selection Guide

Airetool®

3000 and 4000 Series Tube Cleaners – Curved and Straight

**Range: 1-1/2 to 13-1/4 in.
38.1 to 336.5 mm**

Complete cleaner consists of: motor; extra set of blades; shaft wrench; choice of cutter heads; two extra sets of cutters and cutter pins; universal joint with two extra pins; two drills. If single unit head is ordered, four extra cutters are furnished. If arm-type head is ordered, an extra set of arm pins is furnished. Operating hose not included.

Use for straight tubes.

Use for curved tubes.



Tube ID		Min. Tube Centerline Radius in. (mm)	Motor Number	Motor OD		Rotor Thread In.	Air Coupling Pipe Tap (in.)	Hose Size		Heads Available				Universal Joint	Drill*
				In.	mm			In.	mm	Single Expansion Type3	Forward Swing Type 4	Single Unit			
In.	mm							In.	mm			Flexible Type 2	Universal Type 1		
1-1/2	38.1	Straight	3150	1-3/8	34.9	9/16 NC	1/2	1/2	12.7	TC-14			1740	31551	0
1-5/8	41.2	Straight	3162	1-1/2	38.1	5/8 NC	3/4	1/2	12.7	TC-11	1840		1940	4151	1
1-3/4	44.4	Straight	3175	1-5/8	41.2	5/8 NC	3/4	1/2	12.7	TC-11	1840		1940	4151	1
1-7/8	47.6	Straight	3187	1-3/4	44.4	5/8 NC	3/4	3/4	19.0	TC-17-PY	2340		4140	4151	1
2	50.8	Straight	3200	1-7/8	47.6	5/8 NC	3/4	3/4	19.0	TC-16	2340		4140	4151	1
2	50.8	Radius 15 (381.0)	4225	1-3/4	44.4	5/8 NC	1/2	1/2	12.7			4130	4140	4151	1
2-1/8	53.9	Straight	3212	2	50.8	5/8 NC	3/4	3/4	19.0	TC-13-PY	2340		4140	4151	4
2-1/8	53.9	Radius 15 (381.0)	4225	1-3/4	44.4	5/8 NC	1/2	1/2	12.7			4130	4140	4151	1
2-1/4	57.1	Straight	3225	2-1/8	53.9	3/4 NC	3/4	3/4	19.0	P-15-PY	4470-A			2151	4
2-1/4	57.1	Radius 15 (381.0)	4250	1-7/8	47.6	5/8 NC	1/2	1/2	12.7		4470			4151	4
2-5/16	58.7	Radius 12 (304.8)	4250	1-7/8	47.6	5/8 NC	1/2	1/2	12.7		4470			4151	4
2-3/8	60.3	Straight	3225	2-1/8	53.9	3/4 NC	1	1	25.4	P-9-S	4470-A			2151	4
2-1/2	63.5	Straight	3250	2-5/16	58.7	7/8 NC	1	1	25.4	P-9	4470-B			21451	4
2-1/2	63.5	Radius 15 (381.0)	4250	1-7/8	47.6	5/8 NC	1/2	1/2	12.7			4470		4151	4

* Drill must be used with Universal Joint or flexible connection.

Refer to page 5 for description of Rapid Select.

Airetool Boiler Tube Cleaners

Selection Guide



Airetool®

3000 and 4000 Series Tube Cleaners – Curved and Straight

**Range: 1-1/2 to 13-1/4 in.
38.1 to 336.5 mm**

Complete cleaner consists of: motor; extra set of blades; shaft wrench; choice of cutter heads; two extra sets of cutters and cutter pins; universal joint with two extra pins; two drills. If single unit head is ordered, four extra cutters are furnished. If arm-type head is ordered, an extra set of arm pins is furnished. Operating hose not included.

- Use for straight tubes.
- Use for curved tubes.

Tube ID		Min. Tube Centerline Radius in. (mm)	Motor Number	Motor OD		Rotor Thread In.	Air Coupling Pipe Tap (in.)	Hose Size		Heads Available			Universal Joint	Drill*
				In.	mm			In.	mm	Single Expansion Type3	Wing Arm Type 5	Forward Swing Type 4		
2-5/8	66.6	Straight	3262	2-1/2	63.5	7/8 NC	1	1	25.4	P-7	2060	4470-A	21451	4
2-5/8	66.6	Radius 24 (609.6)	4300	2-1/4	57.1	3/4 NC	1	3/4	19.0		3360	3370	3551	5
2-3/4	69.8	Straight	3275	2-5/8	66.6	7/8 NC	1	1	25.4	P-7	2060	3370-A	651	5
2-3/4	69.8	Radius 12 (304.8)	4300	2-1/4	57.1	3/4 NC	1	3/4	19.0		3360	3370	3551	5
2-7/8	73.0	Straight	3275	2-5/8	66.6	7/8 NC	1	1	25.4	P-6-A	1060		651	5
2-7/8	73.0	Radius 28 (711.2)	4325	2-1/2	63.5	3/4 NC	1	3/4	19.0		3560	3270	3551	5
3	76.2	Straight	3300	2-13/16	71.4	1 NF	1	1	25.4	P-6	1060		21051	5
3	76.2	Radius 16 (406.4)	4300	2-1/2	63.5	3/4 NC	1	3/4	19.0		3560	3270	3551	5
3	76.2	Radius 12 (304.8)	4300	2-1/4	57.1	3/4 NC	1	3/4	19.0		3560	3270	3551	5
3-1/16	77.7	Straight	3300	2-13/16	71.4	1 NF	1	1	25.4	P-6	1060		21051	5
3-1/8	79.3	Straight	3312	2-15/16	74.6	1 NF	1	1	25.4	P-5	1060		1151	6
3-3/16	80.9	Straight	3318	3	76.2	1 NF	1	1	25.4	P-5	1060		1151	6
3-1/4	82.5	Straight	3318	3	76.2	1 NF	1	1	25.4	P-5	1060		1151	6
3-1/4	82.5	Radius 16 (406.4)	4350	2-3/4	69.8	7/8 NC	1	1	25.4		3560	970-B	651	5
3-3/8	85.7	Straight	3318	3	76.2	1 NF	1	1	25.4	P-5	960		1151	6
3-1/2	88.9	Straight	3350	3-5/16	84.1	1-1/8 NF	1	1	25.4	P-4	760		20751	6
3-1/2	88.9	Radius 20 (508.0)	4350	2-3/4	69.8	7/8 NC	1	1	25.4		4760	770-B	551	6

* Drill must be used with Universal Joint or flexible connection.

Refer to page 5 for description of Rapid Select.

Airetool Boiler Tube Cleaners

Selection Guide - continued

Use for straight tubes.

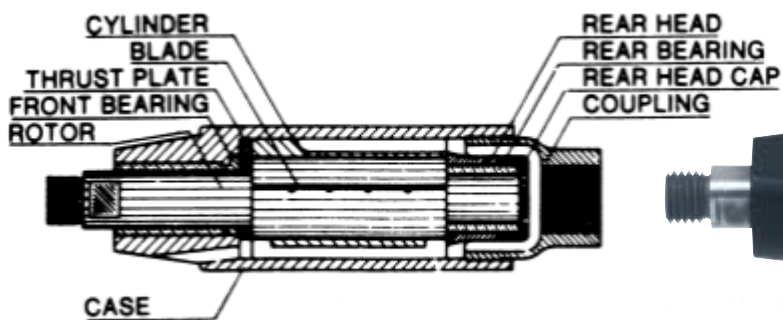
Use for curved tubes.

Tube ID		Min. Tube Centerline Radius in. (mm)	Motor Number	Motor OD		Rotor Thread In.	Air Coupling Pipe Tap (in.)	Hose Size		Heads Available			Universal Joint	Drill*
				In.	mm			In.	mm	Single Expansion Type3	Wing Arm Type 5	Forward Swing Type 4		
3-5/8	92.0	Straight	3350	3-5/16	84.1	1-1/8 NF	1	1	25.4	P-3	760		20751	6
3-3/4	95.2	Straight	3350	3-5/16	84.1	1-1/8 NF	1	1	25.4	P-3	760		20751	6
3-7/8	98.4	Straight	3350	3-5/16	84.1	1-1/8 NF	1	1	25.4	P-3	760		20751	6
4	101.6	Straight	3400	3-3/4	95.2	1-1/8 NF	1	1	25.4	P-2	760		20751	6
4	101.6	Radius 15 (381.0)	4450	3-1/8	79.3	7/8 NC	1	1	25.4		4760	770-B	551	6
4-1/8	104.7	Straight	3400	3-3/4	95.2	1-1/8 NF	1	1	25.4	P-2	760		20751	6
4-1/4	107.9	Straight	3400	3-3/4	95.2	1-1/8 NF	1	1	25.4	P-1	5060-AS		20751	6
4-1/4	107.9	Radius 36 (91.4)	4450	3-1/8	79.3	7/8 NC	1	1	25.4		4760	870-B	551	6
4-3/8	111.1	Straight	3400	3-3/4	95.2	1-1/8 NF	1	1	25.4	P-1	5060-AS		20751	6
4-1/2	114.3	Straight	3400	3-3/4	95.2	1-1/8 NF	1	1	25.4	P-0	5060-AS		20751	6
4-1/2	114.3	Radius 15 (381.0)	4450	3-1/8	79.3	7/8 NC	1	1	25.4		4760	870-B	551	6
4-1/2	114.3	Radius 24 (609.6)	4450	3-1/8	79.3	7/8 NC	1	1	25.4		4760	870-B	551	6
4-3/4	120.6	Straight	3400	3-3/4	95.2	1-1/8 NF	1	1	25.4	P-10	5060-AS		20751	6
4-13/16	122.2	Radius 18 (457.2)	4481	3-3/4	95.2	1-1/8 NF	1	1	25.4		5060-A		5051	6
5	127.0	Straight	3500	4-3/4	120.6	1-3/8 NF	1-1/4	1-1/4	31.8	TC-19-H-S	35260		21251-E	6
5	127.0	Radius 24 (609.6)	4481	3-3/4	95.2	1-1/8 NF	1	1-1/4	31.8	TC-19-H-S	35260		5051	6

For larger sizes please contact Customer Service.

* Drill must be used with Universal Joint or flexible connection.

Airetool 3000 Series Motors



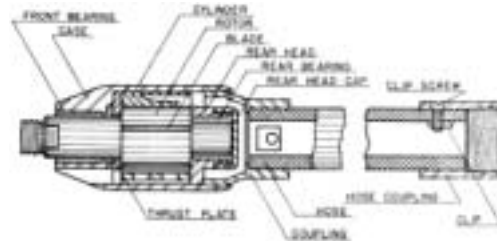
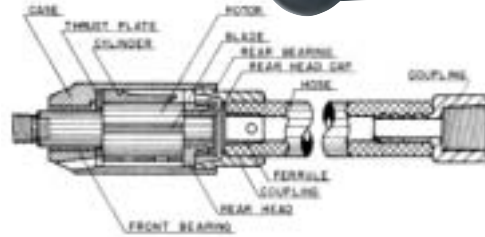
All Motors include Shaft Wrench

Motor No. Weight	Motor OD	Tube ID	Case & Frt. Brg	Cylinder	R. Cap & Brg.	Machine Coupling	Pipe Tap	Rotor	Blades Per Set	Thrust Plate	Front Bearing	Rear Bearing	Rear Head Cap	Front Dowel	Rear Dowel	Shaft Wrench	Rotor Thread	Hose
3150 Wt 2.4	1-3/8	1-1/2	31501 0.8#	31502 .25#	31503 .12#	31504 .25#	1/2	31505 .43#	1806 (4) .12#	1707 .03#	X 1708 .05#	31509 .02#		31511 .01#	31512 .01#	9/16 .1#	9/16 N.C.	1/2
3162 Wt 2.7	1-1/2	1-5/8	61621 0.9#	31622 .3#	31623 .15#	31624 .3#	3/4	31625 0.6#	1806 (4) .12#	1807 .04#	X 1808 .06#	31629 .03#		31511 .1#	31512 .1#	5/8 .1#	5/8 N.C.	1/2
3175 Wt 2.9	1-5/8	1-3/4	31751 1.1#	31622 .3#	31623 .15#	31624 .3#	3/4	31625 0.6#	1806 (4) .12#	1807 .04#	X 1808 .06#	31629 .03#		31511 .1#	31512 .1#	5/8 .1#	5/8 N.C.	1/2
3187 Wt 4	1-3/4	1-7/8	31871 1.5#	31872 .43#	31873 .18#	31874 .25#	3/4	31875 1.0#	2306 (4) .18#	22307 C .06#	2208 .12#	32129 .03#		31811 .01#	31812 .01#	5/8 .1#	5/8 N.C.	3/4
3200 Wt 4.6	1-7/8	2	32001 1.6#	32002 .6#	32003 .3#	32004 .5#	3/4	32005 1.2#	2306 (4) .18#	2307 .06#	2208 .12#	32009 .06#	3213 .06#	32011 .01#	32112 .01#	5/8 .1#	5/8 N.C.	3/4
3212 Wt 4.9	2	2-1/8	32121 1.8#	32122 .8#	32123 .3#	32124 .5#	3/4	32125 1.2#	21606 (4) .18#	21607 .06#	2208 .12#	32129 .06#	4413 .05#	32011 .01#	32112 .01#	5/8 .1#	5/8 N.C.	3/4
3225 Wt 6	2-1/8	2-1/4	32251 2#	32252 .8#	32253 .5#	32254 .6#	3/4	32255 1.5#	21506 (5) .25#	1507 .06#	1408 .25#	32009 .06#	3213 .06#	32011 .01#	32012 .01#	3/4 .2#	3/4 N.C.	3/4
3250 Wt 7.3	2-5/16	2-1/2	32501 2.5#	32502 1#	32503 .5#	32504 .6#	1	32505 2.2#	21406 (5) .3#	21407 .1#	21408 .3#	32009 .06#	3213 .06#	32511 .01#	32512 .01#	7/8 .3#	7/8 N.C.	1
3262 Wt 9.6	2-1/2	2-5/8	32621 3.4#	32622 1.06#	32623 .8#	32624 .8#	1	32755 2.7#	21306 (5) .4#	21907 .2#	1008 .4#	32759 .1#	213 .06#	32611 .01#	32612 .01#	7/8 .3#	7/8 N.C.	1
3275 Wt 10.6	2-5/8	2-3/4	32751 4#	32752 1.3#	32753 .8#	32754 .8#	1	32755 2.7#	21306 (5) .4#	21307 .2#	1008 .4#	32759 .1#	213 .06#	32611 .01#	32612 .01#	7/8 .3#	7/8 N.C.	1
3300 Wt 13	2-13/16	3	33001 4.5#	33002 1.5#	33003 1.1#	33004 1.2#	1	33005 3.5#	21006 (5) .5#	21007 .2#	1108 .5#	33009 .2#	713 .2#	32611 .01#	32612 .01#	1 .4#	1 N.F.	1
3318 Wt 14.5	3	3-3/16	33181 5.3#	33252 1.6#	33253 1.4#	33254 1.3#	1	33255 3.7#	20706 (5) .5#	20907 .25#	1108 .5#	33009 .2#	713 .2#	33211 .01#	33212 .01#	1 .4#	1 N.F.	1
3350 Wt 17.5	3-5/16	3-5/8	33501 6.1#	33502 2.3#	33503 1.5#	33504 1.5#	1	33505 4.6#	20706 (5) .5#	20707 .3#	20708 .6#	33009 .2#	713 .2#	33211 .01#	33212 .01#	1-1/8 .6#	1-1/8 N.F.	1
3400 Wt 22	3-3/4	4	34001 8.4#	34002 2.8#	34003 2#	34004 2#	1	34005 5.7#	20706 (5) .5#	34007 .3#	20708 .6#	33009 .2#	713 .2#	33211 .01#	33212 .01#	1-1/8 .6#	1-1/8 N.F.	1
3500 Wt 39.2	4-3/4	5	35001 15.9#	35502 3.7#	35503 2.8#	35504 3.5#	1-1/4	35505 9.6#	21206 (5) .8#	35507 .7#	21208 1.4#	33009 .2#	713 .2#	33211 .01#	33212 .01#	1-3/8 2#	1-3/8 N.F.	1

Motors for tube/pipe sizes larger than 5"ID are supplied with ribs or rib cage to center the motor in tube or pipe being cleaned.

Shaded items are Rapid Select. Refer to page 5 for description of Rapid Select.

Airetool 4000 Series Motors

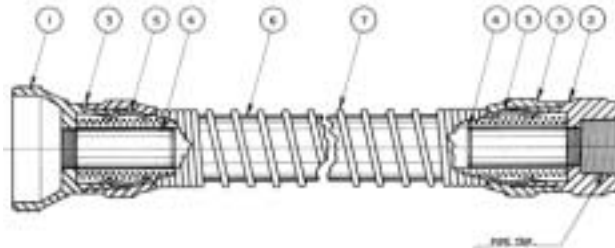


Motor No. / Weight	Motor OD	Tube ID & Radius	Case & Frt. Brg	Cylinder	R. Cap & Brg.	Machine Coupling	Rotor	Blades Per Set	Thrust Plate	Front Bearing	Rear Bearing	Rear Head Cap	Front Dowel	Rear Dowel	Tail Hose & Parts	Tail Hose Assy	Shaft Wrench	Rotor Thread	Hose
4250 Wt. 3.1#	1-7/8	2-1/4 X 15R 2-5/16 X 12R 2-1/2 X 15R	42501 .8#	42502 .2#	42503 .2#	42504 .2#	42505 .5#	4406 (4) .06#	2307 .03#	4408 .06#	42509 .03#	4413 .05#	32011 .01#	42512 .01#	Line A Below	42519 .8#	5/8 .1#	5/8 N.C.	1/2
4300 Wt. 4.7#	2-1/4	2-5/8 X 24R 2-3/4 X 12R	43001 1#	43002 .3#	43003 .5#	43004 .3#	43005 .8#	3306 (5) .06#	3307 .06#	3308 .1#	32009 .06#	3213 .06#	43011 .01#	43012 .01#	Line B Below	43019 1.6#	3/4 .2#	3/4 N.C.	3/4
4325 Wt. 5.6#	2-1/2	2-7/8 X 28R 3 X 16R	43251 1.6#	43252 .3#	43253 .5#	43254 .3#	43255 1.1#	3206 (5) .06#	3207 .06#	3308 .1#	32009 .06#	3213 .06#	43211 .01#	43212 .01#	Line B Below	43219 1.6#	3/4 .2#	3/4 N.C.	3/4
4350 Wt. 7.9#	2-3/4	3-1/4 X 16R 3-1/2 X 20R	43501 2.3#	43502 .6#	43503 .8#	43504 .7#	43505 1.6#	3706 (5) .1#	3307 .06#	3708 .2#	32759 .06#	213 .06#	32311 .01#	43512 .01#	Line B Below	43519 2#	7/8 .3#	7/8 N.C.	1
4450 Wt. 11.3#	3-1/8	4 X 15R	44501 3.6#	44502 1#	44503 1.4#	44504 1#	44505 2.1#	4705 (5) .2#	507 .3#	4708 .3#	33009 .2#	713 .2#	33211 .01#	44512 .01#	Line B Below	44519 23.3#	7/8 .3#	7/8 N.C.	1
4481 Wt. 19.3#	3-3/4	4-13/16 X 18R	44811 7.4#	44812 2.2#	34003 2#	34004 2#	44815 5#	5006 (5) .3#	34007 .3#	5008 .4#	33009 .2#	713 .2#	33211 .01#	44512 .01#	Not Req'd	Not Req'd	1-1/8 .6#	1.125 N.F.	1
4600 Wt. 24.6#	5	5-3/4 X 72R 6 X 26R	46001 12.7#	44812 2.2#	34003 2#	34004 2#	44815 5#	5006 (5) .3#	34007 .3#	5008 .4#	33009 .2#	713 .2#	33211 .01#	44512 .01#	Not Req'd	Not Req'd	1-1/8 .6#	1.125 N.F.	1

Motors are supplied with ribs or rib cage for tube/pipe sizes larger than 6" ID.

	Tap Size	Tail Hose	Hose Cpl.	Clip	Screw	Ferrule
Line A	1/2"	4115	4116			4418
Weight		.3#	.3#			0.01
Line B	1"	3315	3316	3317	3318	
Weight		.8#	.5#	.03#	.01#	

Accessory Heavy Duty Screw Type Tail Hose Assemblies with Wire Inserted Hose and Spring Protector for 4000 Series Motors



Motor Assy	Hose Cpl.	Machine Coupling	Hose Cpl. CPI.	Hose Pipe Tap	Compression Nut	Compression Ferrule	Comp Sleeve	Hose & Spr Protector
Detail #		1	2		3	4	5	6
Required		1	1		2	2	2	1
4250	425019	42504 B	425016	1/2"	42504 C	42504 D	42504 E	425015
4300	430019	43004 B	432516	3/4"	43254 C	43254 D	43254 E	432515 K
4325	432519	43254 B	432516	3/4"	43254 C	43254 D	43254 E	432515 K
4350	435019	43504 B	435016	1"	43504 C	43254 D	43254 E	432515 K
4450	445019	44504 B	435016	1"	43504 C	43254 D	43254 E	432515 K

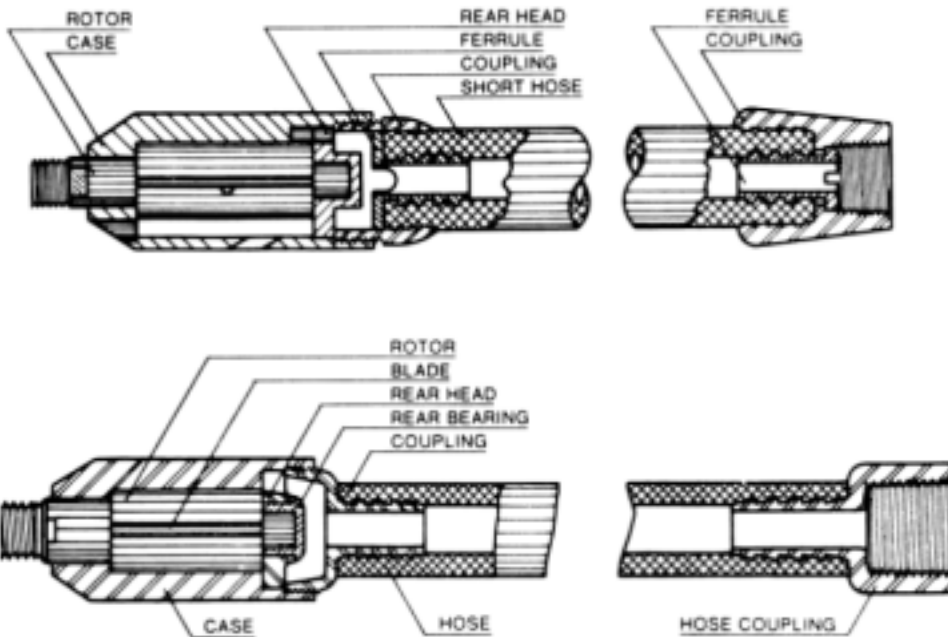
Shaded items are Rapid Select.

Refer to page 5 for description of Rapid Select.

Airetool 60 Series and 4000 Series Midget Motors

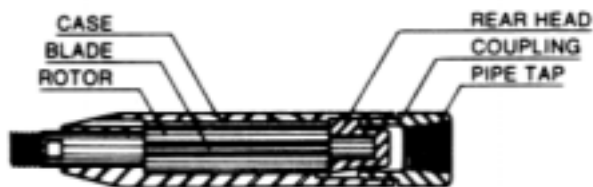


Motor No.	Motor OD	Tube ID & Radius	Case	R. Head & Bearing	Machine Cpl.	Rotor	Blade Set of 4	Rear Brg.	Rear Dowel	Tail Hose	Tail Hose Cpl	Pipe Tap	Tail Hose Assy	Front Ferrule	Rear Ferrule	Shaft Wrench	Rotor Thd	Hose Size
X 64 .26#	11/16	13/16" 5"	X 6401 .07#	X 6403 .01#	X 6404 .03#	X 6405 .05#	X 6406 .01#		X 6412 (2) .01#	X 6415 .02#	X 6416 .04#	1/4"	X 6419 .1#	X 6417 .01#	X 6418 .01#	3/16" .02#	1/4" N.F.	1/4"
X 61 .49#	7/8	1-1/32" 5"	X 6101 .12#	X 6103 .03#	X 6104 .05#	X 6105 .1#	X 6106 .02#		X 6112 (2) .01#	X 6115 .02#	X 6117 .08#	1/4"	X 6119 .17#	X 6117 .02#	X 6118 .01#	1/4" .04#	5/16" N.F.	1/4"
X 63 .63#	1-1/16	1-1/4" 6"	X 6301 .14#	X 6303 .04#	X 6304 .07#	X 6305 .12#	X 6306 .02#		X 6312C (2) .01#	X 6315 .07#	X 6316 .19#	3/8"	X 6319 .38#	X 6317 .03#	X 6318 .02#	5/16" .08#	3/8" N.F.	3/8"
X 65 .95#	1-3/16	1-1/2" 6"	X 6501 .22#	X 6503 .05#	X 6504 .09#	X 6505 .17#	X 6506 .03#		X 6312C (2) .01#	X 6315 .07#	X 6316 .19#	3/8"	X 6519 .4#	X 6517 .03#	X 6518 .02#	5/16" .08#	3/8" N.F.	3/8"
X 66 1.04#	1-5/16	1-3/4" 6"	X 6601 .28#	X 6603 .05#	X 6604 .11#	X 6605 .22#	X 6606 .03#		X 6312C (2) .01#	X 6315 .07#	X 6316 .19#	3/8"	X 6619 .42#	X 6617 .03#	X 6318 .03#	3/8" .08#	3/8" N.F.	3/8"
4200 2#	1-1/2	1-5/8" 24" 1-3/4" 15"	42001 .6#	42003 .06#	42004 .1#	42005 .3#	4106 .03#	42009 .01#	42012 .01#	4115 .2#	4116 .3#	1/2"	42019 .6#			5/8" .1#	5/8" N.C.	1/2"
4225 2.1#	1-3/4	2" 15"	42251	42003 .06#	42004 .1#	42005 .3#	4106 .03#	42009 .01#	42012 .01#	4115 .2#	4116 .3#	1/2"	42019 .6#			5/8" .1#	5/8" N.C.	1/2"



Airetool Midget Motors

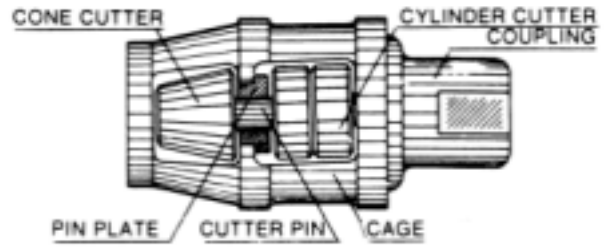
Straight Tubes 1/2" - 1-3/8"



Motor No.	Motor OD	Tube ID	Case	Rear Head	Machine Cpl.	Pipe Tap	Rotor	Blade Set of 4	Dowel Pin	Shaft Wrench	Rotor Thread	Hose
24 .12#	15/32"	1/2"	X 2401 .04#	2403 .01#	2404 .01#	18-20	2405 .02#	2406 .01#	2412 .01#	5/32" .02#	10-32	3/16"
30 .15#	37/64"	5/8"	X 3001 .05#	X 3003 .01#	X 3004 .01#	1/8"	2705 .03#	2706 .01#	3012 .01#	3/16" .02#	1/4" N.F.	1/4"
27 .2#	11/16"	3/4"	X 2701 .08#	2703 .08#	2704 .02#	1/8"	2705 .03#	2706 .01#	3012 .01#	3/16" .02#	1/4" N.F.	1/4"
29 .5#	25/32"	7/8"	2901 .18#	2903 .03#	2904 .06#	1/4"	2605 .12#	2606 .02#	2912 .01#	5/16" .08#	3/8" N.F.	3/8"
26 .64#	29/32"	1"	2601 G .3#	2603 .03#	2604 .08#	3/8"	2605 .12#	2606 .02#	X 6312 .01#	5/16" .08#	3/8" N.F.	3/8"
31 .65#	1-1/32"	1-1/8"	3101 .28#	3103 .04#	3104 .1#	3/8"	3105 .12#	3106 .01#	3111 .01#	5/16" .08#	3/8" N.F.	3/8"
X 63 A .5#	1-1/16"	1-1/4"	X 6301 .14#	X 6303 .04#	X 6304 A .09#	3/8"	X 6305 .12#	X 6306 .02#	X 6312 (2) .01# ea.	5/16" .08#	3/8" N.F.	3/8"
X 65 A .67#	1-3/16"	1-3/8"	X 6501 .22#	X 6503 .05#	X 6504 .12#	3/8"	X 6505 .17#	X 6506 .03#	X 6312 (2) .01# ea.	5/16" .08#	3/8" N.F.	3/8"

All Motors are furnished with a Shaft Wrench

Airetool Single Expansion "P" and "TC" Type 3 Heads



When ordering state the motor number and the motor's shaft thread size.

Head Number	Tube ID	Closed	Expand To	Cage	Pin Plate	Head Coupling	Tap Coupling	Cutter Pin	Cone Cutter	Cylinder Cutter
TC 14	1-1/2"	1-3/8"	1-23/32"	1781		1783	9/16"	1584 (1)	1787 (1)	1788 (2)
.87#				.5#		.12#	N.C.	1884 (1)	.06# ea.	.04# ea.
TC 11	1-3/4"	1-5/8"	2"	1881		1883	5/8"	1584 (1)	1587 (1)	1588 (2)
1.2#				.68#		.12#	N.C.	1884 (1)	.08# ea.	.05# ea.
TC 17 PY	1-7/8"	1-11/16"	2"	2281 TC 17 PY		2383	5/8"	1584 PY (3)	2287 (3)	2288 (6)
1.37#				#62		.18#	N.C.	.04# ea.	.05# ea.	.03# ea.
TC 16 PY	2"	1-13/16"	2-3/16"	2381 PY		2383	5/8"	1584 PY (3)	1787 (3)	1788 (6)
1.47#				.7#		.18#	U.N.C.	.04# ea.	.06# ea.	.04# ea.
TC 13 PY	2-1/8"	1-5/16"	2-5/16"	2381 A PY		2383	5/8"	1584 PY (3)	1787 (3)	1788 (6)
1.65#				.93#		.18#	U.N.C.	.04# ea.	.06# ea.	.04# ea.
P 15 PY	2-1/4"	2-1/16"	2-7/16"	P 1591 PY	P 1592	183	3/4"	2484 PY (3)	2487 (3)	3338 (9)
2.3#				1.3#	.18#	.37#	U.N.C.	.05# ea.	.08# ea.	.03# ea.
P 9 S	2-3/8"	2-3/16"	2-11/16"	P 991 S	P 992 S	183	3/4"	2484 (3)	C 52 (3)	C 76 (6)
2.43#				1#	.12#	.37#	N.C.	.05# ea.	.08# ea.	.06# ea.
P 9 PY	2-1/2"	2-1/4"	2-13/16"	P 991 PY	P 992	183		1584 PY (3)	1587 (3)	1588 (6)
2.6#				1.3	.18#	.37#		.04# ea.	.08# ea.	.05# ea.
P 8	2-5/8"	2-9/16"	2-7/8"	P 891	P 892	21483	7/8"	184 (3)	1087 (3)	1088 (6)
2.8#				1.2#	.19#	.37#	N.C.	.08# ea.	.12# ea.	.082# ea.
P 7	2-3/4"	2-9/16"	2-15/16"	P 791	P 792	983 S	7/8"	184 (3)	1087 (3)	1088 (6)
3.2#				1.5#	.25#	.8#	N.C.	.08# ea.	.12# ea.	.082# ea.
P 6 A PY	3"	2-11/16"	3-1/8"	P 691 AY	P 692 A	983 S	7/8"	184 (3)	1087 (3)	1088 (6)
3.5#				2#	.3#	.8#	N.C.	.08# ea.	.12# ea.	.082# ea.
P 6	3-1/8"	2-13/16"	3-1/4"	P 691 AY	P 692	983 S	7/8"	184 (3)	1087 (3)	1088 (6)
3.6#				2.1#	.3#	.8#	N.C.	.08# ea.	.12# ea.	.082# ea.
P 5	3-1/4"	3-1/16"	3-9/16"	P 591	P 592	983 S	7/8"	184 (3)	987 (3)	988 (6)
4.8#				2.3#	.37#	.8#	N.C.	.08# ea.	.18# ea.	.1# ea.
P 4	3-1/2"	3-3/16"	3-13/16"	P 491	P 492	883 F	7/8"	884 (3)	787 (3)	788 (6)
5.6#				2.8#	.5#	.9#	N.C.	.12# ea.	.2# ea.	.13# ea.
P 3	3-3/4"	3-9/16"	4-3/16"	P 391	P 392	883 F	7/8"	884 (3)	887 (3)	888 (6)
6.3#				3.3#	.6#	.9#	N.C.	.12# ea.	.25# ea.	.16# ea.
P 2	4"	3-3/4"	4-1/2"	P 291	P 292	883 F	7/8"	884 (3)	887 (3)	888 (6)
6.8#				3.4#	.6#	.9#	N.C.	.12# ea.	.25# ea.	.16# ea.
P 1	4-1/4"	3-13/16"	4-3/4"	P 191	P 192	883 F	1 1/8"	884 P (3)	887 (3)	888 (6)
8.6#				4.3#	.6#	.9#	N.F.	.13# ea.	.25# ea.	.16# ea.
P 0	4-1/2"	4-1/8"	4-15/16"	P 091	P 092	883 F	1 1/8"	884 P (3)	887 B (3)	888 B (6)
9#				5#	.68#	.9#	N.F.	.13# ea.	.25# ea.	.16# ea.
P 10	4-3/4"	4-3/8"	4-15/16"	P 1091	P 1092	883 F	1 1/8"	884 P (3)	887 (3)	888 (6)
9.8#				5.7#	.7#	.9#	N.F.	.13# ea.	.25# ea.	.16# ea.
TC 19 H S	5"	4-1/2"	5-9/16"	1991 H S		21283	1 3/8"	884 P (3)	1287 (3)	1288 (9)
13.8#				7.7#		2.2#	N.F.	.13#	.44# ea.	.25# ea.
TC 19 S	5-1/4"	4-7/8"	5-15/16"	1991 S		8293	1 3/8"	884 P (4)	1287 (4)	1288 (12)
16.5				8.5#		2.7#	N.F.	.13#	.44# ea.	.25# ea.
TC 20 S	6"	5-1/2"	6-1/2"	2091 S		8293	1 3/8"	884 P (4)	1287 (4)	1288 (12)
18				10#		2.7#	N.F.	.13#	.44# ea.	.25# ea.
TC 21 S	6-1/4"	5-3/4"	6-3/4"	2191 S		8293	1 3/8"	884 P (4)	11887 (4)	11888 (12)
20#				11#		2.7#	N.F.	.13#	.5# ea.	.3# ea.
TC 22 S	6-1/2"	6"	7-1/16"	2291 S		8293	1 3/8"	884 P (4)	11887 (4)	11888 (12)
22#				12#		2.7#	N.F.	.13#	.5# ea.	.3# ea.
TC 23 S	6-3/4"	6-1/4"	7-5/16"	2391 S		8293	1 3/8"	2484 S (4)	8287 (4)	8288 (12)
24#				13.5#		2.7#	N.F.	.3#	.5# EA.	.3# EA.
TC 24 S	7"	6-1/2"	7-9/16"	2491 S		8293	1 3/8"	2484 S (4)	8287 (4)	8288 (12)
26#				15.5#		2.7#	N.F.	.3#	.5# EA.	.3# EA.

Shaded items are Rapid Select.

Refer to page 5 for description of Rapid Select.

Airetool Forward Swing Heads Type 4

1-3/4" - 4-3/4" ID for Straight and Bent Tubes

Recommended spare parts:

Cone Cutters, Cutter Pins Arms, and Arm Pins.

Larger sizes are P.O.R

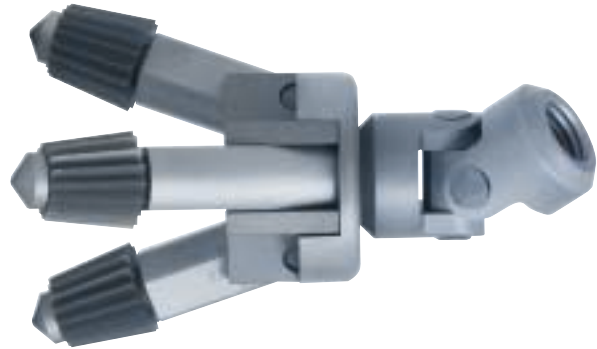
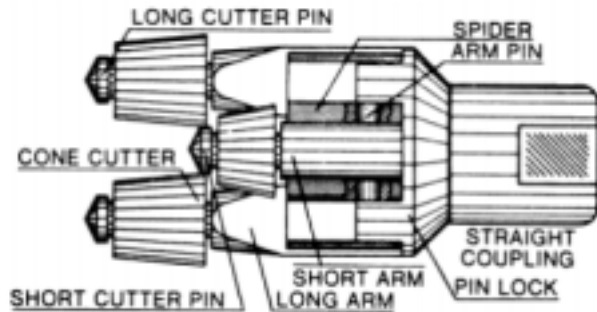


Figure 1 Shown with head coupling for straight tubes.

Figure 2 Shown with universal coupling for bent tubes.

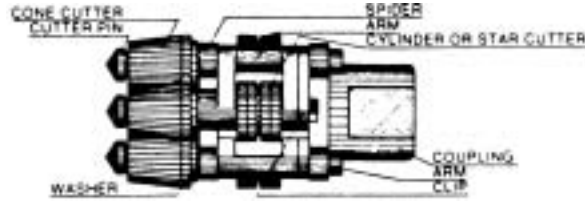
Head Number	Tube ID	Closed	Expand To	Spider	Figure	Long Arm	Short Arm	Head Cpl.	Cpl. Tap	Long Cutter Pin	Short Cutter Pin	Arm Pin	Pin Lock	Cone Cutter	Star Cutter	No. Of Arms
1840	1-3/4	1-1/2	2-1/8	1841	1	1842 (1)	1842 A (1)		5/8 N.C.	1834 (1)	1834 A (1)	1845 (2)	1846	337 (2)	338 (3)	2
Wt .64#				.2#		.06#	.05#			.04#	.03#	.01# ea.	.1#	.06# ea.	.01# ea.	
1840 B	2-1/4	1-1/2	2-1/8	1841	2	1842 (1)	1842 A (1)	4151	5/8 N.C.	1834 (1)	1834 A (1)	1845 (2)	1846	337 (2)	338 (3)	2
Wt .7#				.2#		.06#	.05#	.4#		.04#	.03#	.01# ea.	.1#	.06# ea.	.01# ea.	
2340	2	1-7/8	3	2341	1	1832 (1)	1832 A (1)		5/8 N.C.	1834 (1)	1834 A (1)	2345 (2)	2346	337 (2)	338 (3)	2
Wt .83#				.3#		.08#	.07#			.04#	.03#	.01# ea.	.15#	.06# ea.	.01# ea.	
4440	2	1-7/8	3	2341	2	1832 (1)	1832 A (1)	4151	5/8 N.C.	1834 (1)	1834 A (1)	2345 (2)	2346	337 (2)	338 (3)	2
Wt .93				.3#		.08#	.07#	.4#		.04#	.03#	.01# ea.	.15#	.06# ea.	.01# ea.	
4470	2-5/16	2	3-7/8	4471	2	4472 (3)		4151	5/8 N.C.	4474 (3)		4475 (3)	4476	C 19 (3)		3
Wt 1.63				.3#		.1# ea.		.4#		.07#		.01# ea.	.12#	.04# ea.		
4470 A	2-5/16	2	3-7/8	4471	1	4472 (3)		2383 B	3/4 N.C.	4474 (3)		4475 (3)	4476	C 19 (3)		3
Wt 1.3#				.3#		.1# ea.		.16#		.07#		.01# ea.	.12#	.04# ea.		
3370	2-1/4	2-1/4	3-5/8	3371	2	3372 (3)		3551	3/4 N.C.	3374 (3)		3375 (3)	3376	637 (3)		3
Wt 3.3#				.6#		.2# ea.		.8#		.01# ea.		.01 ea.	.4#	.1# ea.		
3370 A	2-3/4	2-1/4	3-5/8	3371	1	3372 (3)		2043	7/8 N.C.	3374 (3)		3375 (3)	3376	637 (3)		3
Wt 2.9#				.6#		.2# ea.		.4#		.01# ea.		.01 ea.	.4#	.1# ea.		
3270	3	2-1/2	4	3271	2	3472 (2)	3272 (2)	3551	7/8 N.C.	3474 (2)	3274 (2)	3275 (2)	3276	1047 (2)	2837 (2)	4
Wt 3.3#				.6#		.09# ea.	.09# ea.	.8#		.09 ea.	.09# ea.	.01# ea.	.3#	.06# ea.	.1# ea.	
3270 A	3	2-1/2	4	3271	1	3472 (2)	3272 (2)	2043	7/8 N.C.	3474 (2)	3274 (2)	3275 (2)	3276	1047 (2)	2837 (2)	4
Wt 2.9#				.6#		.09# ea.	.09# ea.	.4#	3/4 N.C.	.09 ea.	.09# ea.	.01# ea.	.3#	.06# ea.	.1# ea.	
970	3-1/4	2-3/4	4-7/8	971	1	972 (2)	972 A (2)	543	7/8 N.C.	974 (2)	974 A (2)	975 (4)	976 (4)	637 (4)		4
Wt 3.3#				.8#		.09# ea.	.06# ea.	.8#	1 N.C.	.2# ea.	.12# ea.	.02# ea.	.25# ea.	.1# ea.		
970 B	3-1/4	2-3/4	4-7/8	971	2	972 (2)	972 A (2)	551	7/8 N.C.	974 (2)	974 A (2)	975 (4)	976 (4)	637 (4)		4
Wt 4#				.8#		.09# ea.	.06# ea.	1.5#		.2# ea.	.12# ea.	.02# ea.	.25# ea.	.1# ea.		
770	3-1/2	3	4-3/4	771	1	772 (2)	772 A (2)	873 A	7/8 N.C.	774 (2)	774 A (2)	775 (4)	776	747 (4)		4
Wt 4.5#				1.1#		.34# ea.	.12# ea.	.8#		.2# ea.	.12# ea.	.03# ea.	.25#	.18# ea.		
770 B	3-1/2	3	4-3/4	771	2	772 (2)	772 A (2)	1151	7/8 N.C.	774 (2)	774 A (2)	775 (4)	776	747 (4)		4
Wt 5.7#				1.1#		.34# ea.	.12# ea.	2#		.2# ea.	.12# ea.	.03# ea.	.25#	.18# ea.		
870	3-1/4 - 4	3-3/8	5-1/8	871	1	772 (2)	772 A (2)	873 A	7/8 N.C.	774 (2)	774 A (2)	875 (4)	876	747 (4)		4
Wt 5#				1.6#		.34# ea.	.12# ea.	.8#		.2# ea.	.12# ea.	.03# ea.	.25#	.18# ea.		
870 B	3-1/4 - 4	3-3/8	5-1/8	871	2	772 (2)	772 A (2)	1151	7/8 N.C.	774 (2)	774 A (2)	875 (4)	876	747 (4)		4
Wt 6.2#				1.6#		.34# ea.	.12# ea.	2#		.2# ea.	.12# ea.	.03# ea.	.25#	.18# ea.		
770 S A	4-3/4	2-3/4	5-1/2	771 S	1	772 S (4)		543	7/8 N.C.	774 S (4)		775 (4)	776 S (4)	747 (4)		4
Wt 5.1#				1.1#		.37# ea.		.8#		.34# ea.		.03# ea.	.25# ea.	.18# ea.		
770 S	4-3/4	2-1/4	5-1/2	771 S	2	772 S (4)		551	7/8 N.C.	774 S (4)		775 (4)	776 S (4)	747 (4)		4
Wt 5.8#				1.1#		.37# ea.		1.5#		.34# ea.		.03# ea.	.25# ea.	.18# ea.		

Shaded items are Rapid Select.

Refer to page 5 for description of Rapid Select.

Airetool "Self Feed" Clip Type Wing Arm Heads Type 5

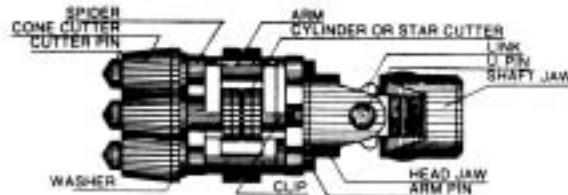
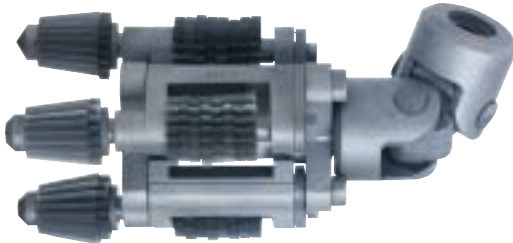
For Straight tubes and Pipe 1-3/4" – 8-3/4" I.D.



When ordering state the motor number and the motor's shaft thread size.

Head Number	Tube ID	Closed	Expand To	Spider	Arm	Coupling	Coupling Plate	Coupling Tap	Cutter Pin	Arm Pin	Clip	Cone Cutter	Cylinder Cutter	Washer
11740 Wt .84#	1- 3/4	1-1/2	2-1/8	11741 .18#	11742 (2) .09# Ea.	11743 B .25#		5/8 N.C.	11744 (2) .03# Ea.	11745 (2) .02# Ea.		11747 (2) .02# Ea.	11748 (8) .01# Ea.	
3060 Wt 1.7#	2-3/8	1-15/16	2-5/8	3061 .3#	3062 S (3) .14# Ea.	3043 .37#		5/8 - 3/4 N.C.	3364 (3) .06# Ea.	3365 (3) .05# Ea.	3068 (3) .1# Ea.	3047 (3) .04# Ea.	3048 (3) .04# Ea.	
2060 Wt .2#	2-1/2	2-1/4	3	3361 .43#	3062 S (3) .14# Ea.	2043 .4#		3/4 - 7/8 N.C.	3364 (3) .06# Ea.	3365 (3) .05# Ea.	3368 (3) .13# Ea.	337 (3) .06# Ea.	338 (15) .02# Ea.	339 (3) .01 Ea.
1060 Wt 3#	3	2-5/8	3-3/4	1061 .56#	1062 S (3) .25# Ea.	1033 .68#		3/4 - 7/8 1 N.C.	1064 (3) .1# Ea.	1065 (3) .09# Ea.	1068 (3) .14# Ea.	1047 (3) .06# Ea.	1048 (15) .02# Ea.	
960 Wt 5.3#	3-1/4	3-1/8	4-1/8	961 1.1#	762 S (3) .37# Ea.	543 .8#		7/8 1 N.C.	35264 (3) .2# Ea.	765 (3) .17# Ea.	35268 (3) .2# Ea.	947 (3) .12# Ea.	948 (27) .02# Ea.	749 (3) .01# Ea.
760 Wt 5.5#	3-1/2	3-1/4	4-1/2	761 1.2#	762 S (3) .37# Ea.	743 .8#		1 - 1-1/8 N.F.	35264 (3) .2# Ea.	765 (3) .17# Ea.	35268 (3) .2# Ea.	747 (3) .18# Ea.	748 (24) .03# Ea.	749 (3) .01# Ea.
5060 AS Wt 5.5#	4-1/2	3-7/8	5-5/8	5061 A 1.5#	562 S (3) .3# Ea.	843 .8#	5043 A .3#	1-1/8 N.F.	564 (3) .17# Ea.	565 (3) .13# Ea.	568 (3) .15# Ea.	747 (3) .18# Ea.	748 (24) .03# Ea.	749 (3) .01# Ea.
35260 Wt 8#	5-1/4	4-1/2	6	35261 2.2#	35262 S(4) .35# Ea.	35243 1.2#	35243 A .3#	1-3/8 N.F.	35264 (4) .2# Ea.	35265 (4) .14# Ea.	35268 (4) .2# Ea.	271 (4) .09# Ea.	C 79 (12) .09# Ea.	749 (4) .01# Ea.
36060 Wt 13.5	6	5-3/8	7-1/8	36041 2.8#	36562 S (4) .9# Ea.	36043 1.1#		1-1/8 - 1-3/8 N.F.	36564 (4) .3# Ea.	36545 (4) .2# Ea.	36546 (4) .2# Ea.	37697 (4) .2# Ea.	37688 (12) .15# Ea.	36549 (4) .01# Ea.
36560 Wt 15#	6-1/2	5-7/8	7-5/8	36541 C 3.2#	36562 S (4) .9# Ea.	35243 1.2#	36543 A .4#	1-3/8 N.F.	36564 (4) .3# Ea.	36545 (4) .2# Ea.	36546 (4) .2# Ea.	37697 (4) .2# Ea.	37288 (12) .2# Ea.	36549 (4) .01# Ea.
37260 Wt 16.8#	7-1/4	6-1/4	8	37241 4.2#	36562 S (4) .9# Ea.	8293 1.5#	37243 A .5#	1-3/8 N.F.	36564 (4) .3# Ea.	36545 (4) .2# Ea.	36546 (4) .2# Ea.	37697 (4) .2# Ea.	37288 (12) .2# Ea.	36549 (4) .01# Ea.
37660 Wt 18.5#	7-5/8	6-1/2	8-1/2	37641 5.4#	36562 S (5) .9# Ea.	8293 1.5#	37643 A .9#	1-3/8 N.F.	36564 (5) .3# Ea.	36545 (5) .2# Ea.	36546 (5) .2# Ea.	37697 (5) .2# Ea.	37288 (15) .2# Ea.	36549 (5) .01# Ea.
38760 Wt 20.1#	8-3/4	7-1/2	9-1/2	38741 6.4#	36562 S (5) .9# Ea.	8293 1.5#	38743 A 1.5#	1-3/8 N.F.	36564 (5) .3# Ea.	36545 (5) .2# Ea.	36546 (5) .2# Ea.	37697 (5) .2# Ea.	37288 (15) .2# Ea.	36549 (5) .01# Ea.

For Curved Tubes and Pipe 1-3/4" – 9" I.D.



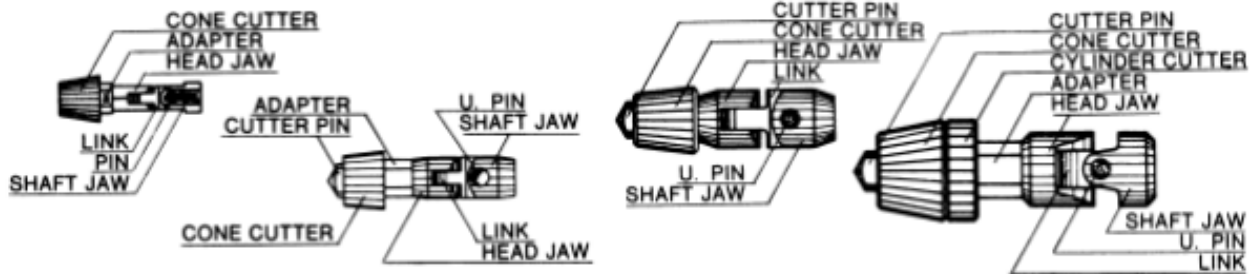
Head Number	Tube ID	Closed	Expand To	Spider	Arm	Universal Cpl	Coupling Plate	Coupling Tap	Cutter Pin	Arm Pin	Clip	Cone Cutter	Cylinder Cutter	Washer
11740 C Wt 1#	2	1-1/2	2-1/8	11741 .18#	11742 (2) .09# Ea.	4151 W .4#		5/8 N.C.	11744 (2) .03# Ea.	11745 (2) .02# Ea.		11747 (2) .02# Ea.	11748 (8) .01# Ea.	
3060 C Wt 1.8#	2-1/4	1-15/16	2-5/8	3061 .3#	3062 S (3) .14# Ea.	4151 .4#		5/8 N.C.	3364 (3) .06# Ea.	3365 (3) .05# Ea.	3068 (3) .1# Ea.	3047 (3) .04# Ea.	3048 (3) .04# Ea.	
3360 Wt .2#	2-5/8	2-1/4	3	3361 .43#	3362 S (3) .18# Ea.	3333 .85#		3/4 N.C.	3364 (3) .06# Ea.	3365 (3) .05# Ea.	3368 (3) .13# Ea.	337 (3) .06# Ea.	338 (15) .02# Ea.	339 (3) .01 Ea.
3560 3/4 3560 7/8 Wt 3.2#	2-7/8	2-5/8	3-3/4	1061 .56#	1062 S (3) .25# Ea.	3532 (3/4) 3531 (7/8) .8#		3/4 N.C.	1064 (3) .1# Ea.	1065 (3) .09# Ea.	1068 (3) .14# Ea.	1047 (3) .06# Ea.	1048 (15) .02# Ea.	
960 C Wt 6#	3-1/2	3-1/8	4-1/4	961 1.1#	762 S (3) .37# Ea.	551 1.5#		7/8 N.C.	35264 (3) .2# Ea.	765 (3) .17# Ea.	35268 (3) .2# Ea.	947 (3) .12# Ea.	948 (27) .02# Ea.	749 (3) .01# Ea.
760 C Wt. 6.8#	3-3/4	3-1/4	4-1/2	761 1.2#	762 S (3) .37# Ea.	1151 2#		7/8 N.C.	35264 (3) .2# Ea.	765 (3) .17# Ea.	35268 (3) .2# Ea.	747 (3) .18# Ea.	748 (24) .03# Ea.	749 (3) .01# Ea.
5060 A Wt 7.9#	4-13/16	3-7/8	5-5/8	5061 A 1.5#	562 S (3) .3# Ea.	5051 E 3.2#	5043 A .3#	1-1/8 N.F.	564 (3) .17# Ea.	565 (3) .13# Ea.	568 (3) .15# Ea.	747 (3) .18# Ea.	748 (24) .03# Ea.	749 (3) .01# Ea.
35260 C Wt 10#	5-1/4	4-1/2	6	35261 2.2#	35262 S(4) .35# Ea.	5051 H 3.1#	35243 A .3#	1-1/8 N.F.	35264 (4) .2# Ea.	35265 (4) .14# Ea.	35268 (4) .2# Ea.	271 (4) .09# Ea.	C 79 (12) .09# Ea.	749 (4) .01# Ea.
36060 C Wt 16#	6	5-3/8	7-1/8	36041 2.8#	36562 S (4) .9# Ea.	5051 H 3.1#	36043 A 1.1#	1-1/8 - 1-3/8 N.F.	36564 (4) .3# Ea.	36545 (4) .2# Ea.	36546 (4) .2# Ea.	37697 (4) .2# Ea.	37688 (12) .15# Ea.	36549 (4) .01# Ea.
36560 C Wt 17.3#	6-1/2	5-7/8	7-5/8	36541 C 3.2#	36562 S (4) .9# Ea.	5051 H 3.1#	36543 A .4#	1-1/8 - 1- 3/8 N.F.	36564 (4) .3# Ea.	36545 (4) .2# Ea.	36546 (4) .2# Ea.	37697 (4) .2# Ea.	37288 (12) .2# Ea.	36549 (4) .01# Ea.
37260 C Wt 20.1#	7-1/4	6-1/4	8	37241 4.2#	36562 S (4) .9# Ea.	21251 A 4.8#	37243 A .5#	1-3/8 N.F.	36564 (4) .3# Ea.	36545 (4) .2# Ea.	36546 (4) .2# Ea.	37697 (4) .2# Ea.	37288 (12) .2# Ea.	36549 (4) .01# Ea.
37660 C Wt 21.8#	7-5/8	6-1/2	8-1/2	37641 5.4#	36562 S (5) .9# Ea.	21251 A 4.8#	37643 A .9#	1-3/8 N.F.	36564 (5) .3# Ea.	36545 (5) .2# Ea.	36546 (5) .2# Ea.	37697 (5) .2# Ea.	37288 (15) .2# Ea.	36549 (5) .01# Ea.
38760 C Wt 23.4#	8-1/4	7-1/2	9-1/2	38741 6.4#	36562 S (5) .9# Ea.	21251 A 4.8#	38743 A 1.5#	1-3/8 N.F.	36564 (5) .3# Ea.	36545 (5) .2# Ea.	36546 (5) .2# Ea.	37697 (5) .2# Ea.	37288 (15) .2# Ea.	36549 (5) .01# Ea.

Shaded items are Rapid Select.

Refer to page 5 for description of Rapid Select.

Airetool Single Unit Heads

1/2" - 2-1/4" I.D. "SERIES 40"



When ordering state the motor number and the motor's shaft thread size.

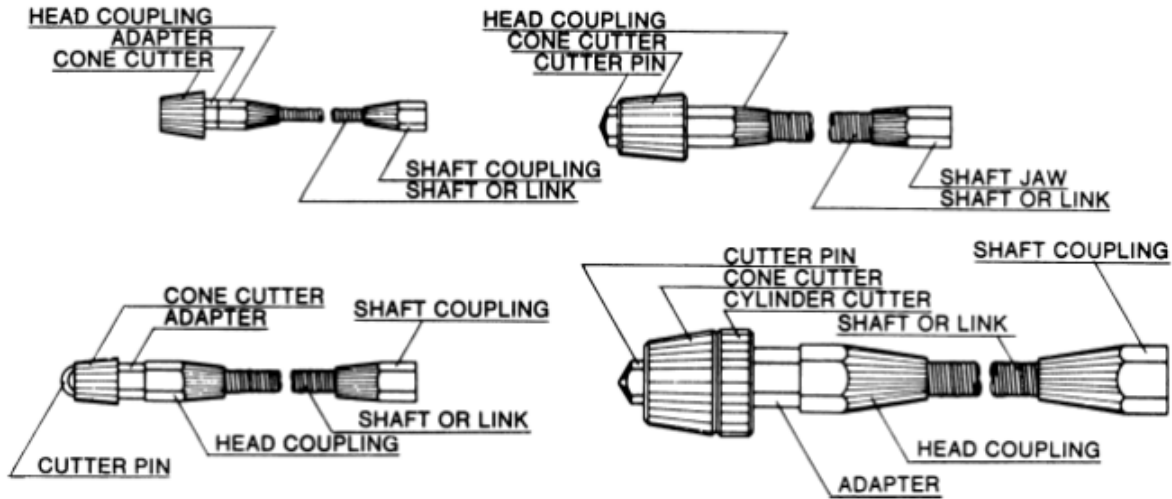
Head Number	Tube I.D.	Universal Joint	Shaft Jaw Tap	Adapter	Cutter Pin	Cone Cutter	Cylinder Cutter
2440 Wt. .03#	1/2	2451 .02#	10-32	2443 .01#		2487 S .01#	
3040 WT.07#	5/8 - 11/16	PA 3051 .04#	1/4 N.F.	2734 .02#		3037 .02#	
2740 WT.07#	3/4 - 13/16	PA 3051 .04#	1/4 N.F.	2734 .02#		C 3 .02#	
X 6440 Wt.15#	13/16	6451 .09#	1/4 N.F.		2944 .02#	2947 .03#	
2940 Wt. .18#	7/8 - 27/32	2651 .1#	3/8 N.F.	2943 .03#	2944 .02#	2947 .03#	
2640 Wt.22#	1	2651 .1#	3/8 N.F.	2643 .03#	2644 .03#	337 .03#	
X 6140 Wt. .18#	1-1/32	6151 .09#	5/16 N.F.		2644 .03#	337 .03#	
3140 Wt. .34#	1-1/8	6651 .19#	7/16 N.F.		3144 A .05#	2837 .1#	
X 6340 Wt. .37#	1-1/4	6651 .19#	3/8 N.F.		2544 S .06#	947 .12#	
12240 Wt. .37#	1-1/4 - 1-1/2	3151 .19#	7/16 N.F.		2544 S .06#	947 .12#	
X 6540 Wt. .37#	1-3/8	6651 .19#	3/8 N.F.		2544 S .06#	6547 .12#	
1740 Wt. .7#	1-1/2	31551 .37#	9/16 N.F.	1743 .1#	2844 .06#	1097 .1#	1088 .08#
1940 Wt. .9#	1-5/8	4151 .4#	5/8 N.C.	1943 .1#	1944 .08#	797 .2#	788 .13#
X 6640 Wt. .5#	1-3/4	6651 .19#	3/8 N.F.		2544 S .06#	797 .2#	
4140 Wt 1#	1-5/8 - 2	4151 .4#	5/8 N.C.	1943 .1#	1944 .08#	897 B 0.25	888 B .16#
4440 C Wt 1.1#	2-1/4	4151 .4#	5/8 N.C.	1943 .1#	1944 .08#	897 .3#	888 .19#

Shaded items are Rapid Select.

Refer to page 5 for description of Rapid Select.

Airetool Type 2 Single Unit Heads


1/2" - 2-1/8" I.D. "30 SERIES"



When ordering state the motor number and the motor's shaft thread size.

Head Number	Tube ID	Flex Connection	Shaft Cpl. Tap	Head Cpl. Tap	Adapter	Cutter Pin	Cone Cutter	Cylinder Cutter	Length	Diameter
2430 Wt. .05#	1/2	2461 .04#	10-32	10-32	2443 .01#		2487 S .01#		4	3/16"
3030 WT.06#	5/8	X 6461 .03#	1/4 N.F.	1/4 N.F.	2734 .02#		3037 .02#		4	3/16"
2730 WT.06#	3/4	X 6461 .03#	1/4 N.F.	1/4 N.F.	2734 .02#		C 3 .02#		4	3/16"
X 6430 Wt. .09#	13/16	X 6461 .03#	1/4 N.F.	1/4 N.F.		2944 .02#	2947 .03#		4	3/16"
2930 Wt. .18#	7/8	2961 .1#	3/8 N.F.	3/8 N.F.	2943 .03#	2944 .02#	2947 .03#		4-1/2	1/4"
12130 Wt. .19#	1	12161 .1#	5/16 N.F.	5/16 N.F.		2644 .03#	337 .03#		4-1/2	1/4"
2630 Wt. .19#	1	2661 .1#	3/8 N.F.	5/16 N.F.		2644 .03#	337 .03#		4-1/2	1/4"
X 6130 Wt. .13#	1-1/32	X 6161 .04#	5/16 N.F.	5/16 N.F.		2644 .03#	337 .03#		4	3/16"
3130 Wt. .25#	1-1/8	X 6361 .1#	7/16 N.F.	3/8 N.F.		3144 A .05#	2837 .1#		4-1/2	1/4"
X 6330 Wt. .28#	1-1/4	X 6361 .1#	3/8 N.F.	7/16 N.F.		2544 S .06#	947 .12#		4-1/2	1/4"
X 6530 Wt. .36#	1-1/2	X 6661 .18#	3/8 N.F.	7/16 N.F.		2544 S .06#	6547 .12#		6-1/2	3/8"
X 6630 Wt. .44#	1-3/4	X 6661 .18#	3/8 N.F.	7/16 N.F.		2544 S .06#	797 .2#		6-1/2	3/8"
4130 Wt. 2.2#	1-5/8 - 2-1/8	4161 .6#	5/8 N.C.	5/8 N.C.	1943 .1#	1944 .08#	897 B 0.25	888 B .16#	7	1/2"

Shaded items are Rapid Select.

 Refer to page 5 for description of Rapid Select.

Airetool Universal joints


10-32 - 7/8" N.C.

For Adapting Cleaning Heads to Cleaning Motors



Universal Joint No.	Shaft Jaw	Head Jaw	Link	Pin (2) Req.	Joint O.D.	Overall Length	Thread Size	Cleaners Kits Used On
2451 Wt .02#	2452 .01#	2452 .01#	2454 .01#	2454 .01# Ea.	5/16	1-1/4	10-32 X 10-32	24
PA 3051 Wt .04#	PA 3052 .02#	PA 3052 .02#	PA 3054 .01#	PA 3055 .01# Ea.	7/16 (3/8Hex)	1-3/8	1/4 X 1/4 N.F. N.F.	27, 27 A, 30, 30 A
6451 Wt .07#	6453 V .02#	6453 V .02#	6454 V .02#	6455 V .01# Ea.	1/2	1-11/16	1/4 X 1/4 N.F. N.F.	X 64
6451 B Wt .07#	6453 V .02#	6457 V .02#	6454 V .02#	6455 V .01# Ea.	1/2	1-11/16	1/4 X 5/16 N.F. N.C.	X 64
6151 C Wt .07#	6452 V .02#	6453 V .02#	6454 V .02#	6455 V .01# Ea.	1/2	1-11/16	5/16 X 1/4 N.F. N.F.	X 60, X 61
6151 Wt .07#	6452 V .02#	6452 V .02#	6454 V .02#	6455 V .01# Ea.	1/2	1-11/16	5/16 X 5/16 N.F. N.F.	X 61
6151 B Wt .07#	6457 V .02#	6457 V .02#	6454 V .02#	6455 V .01# Ea.	1/2	1-11/16	5/16 X 5/16 N.F. N.C.	X 61
2651 Wt .1#	2652 .03#	2652 .03#	2654 .02#	2655 .01# Ea.	5/8	1-19/32	3/8 X 3/8 N.F. N.F.	26, 29
6351 B Wt .19#	6652 .06#	6657 .06#	6654 .06#	6655 .01# Ea.	3/4	2-1/8	3/8 X 5/16 N.F. N.C.	X 63
6651 B Wt .19#	6652 .06#	6658 .06#	6654 .06#	6655 .01# Ea.	3/4	2-1/8	3/8 X 7/16 N.F. N.C.	X 65, X 66
6651 Wt .19#	6652 .06#	6653 .06#	6654 .06#	6655 .01# Ea.	3/4	2-1/8	3/8 X 7/16 N.F. N.F.	31, X 63, X 65, X 66
3151 Wt .19#	6653 .06#	6653 .06#	6654 .06#	6655 .01# Ea.	3/4	2-1/8	7/16 X 7/16 N.F. N.F.	31
31551 Wt .37#	4157 .1#	4153 .1#	4154 .06#	4155 .03# Ea.	1-1/8	2-1/16	9/16 X 1/2 N.C. N.C.	3150
4151 Wt .4#	4152 .1#	4153 .1#	4154 .06#	4155 .03# Ea.	1-1/8	2-1/16	5/8 X 1/2 N.C. N.C.	11740 C
4151 W Wt .4#	4152 .1#	4152 .1#	4154 .06#	4155 .03# Ea.	1-1/8	2-1/16	5/8 X 5/8 N.C. N.C.	3162, 3175, 3187, 3200, 3212 4200, 4225, 4237, 4250, 4275
3333 WT .8#	3552 .25#	3332 .25#	3554 0.2	3555 .05# Ea.	1-1/2	2-3/4	3/4 X 3/4 N.C. N.C.	3360 Head
3532 WT .8#	3552 .25#	3533 .25#	3554 0.2	3555 .05# Ea.	1-19/32	2-3/4	3/4 X 3/4 N.C. N.C.	3540, 3560 Head 3/4 N.C. Rotor Thread
3531 WT .8#	3557 .25#	3533 .25#	3554 0.2	3555 .05# Ea.	1-19/32	2-3/4	7/8 X 3/4 N.C. N.C.	3540, 3560 Head 7/8 N.C. Rotor Thread

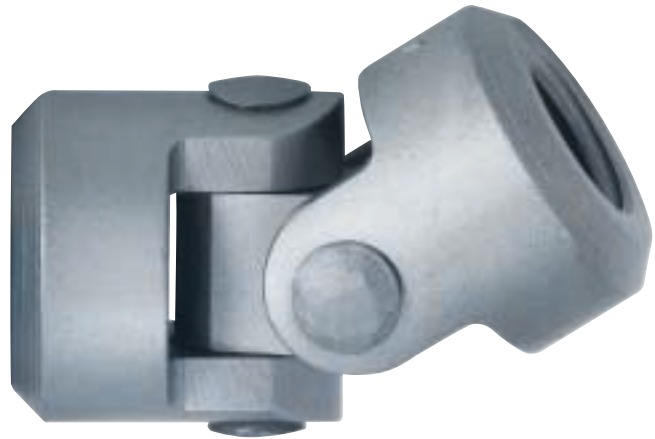
Shaded items are Rapid Select.

 Refer to page 5 for description of Rapid Select.

Airetool Universal Joints


5/8" N.C. - 1-3/8" N.F.

For Adapting Cleaning Heads to Cleaning Motors



Universal No. Joint	Shaft Jaw	Head Jaw	Link	Pin (2) Req.	Joint O.D.	Overall Length	Thread Size	Cleaners Kits Used On
2251 Wt. .9#	3553 .3#	3553 .3#	3554 .2#	3555 .05#	1.5	2.75	5/8 X5/8 N.C. N.C.	
2151 wt. .85	3552 .25#	3553 .3#	3554 .2#	3555 .05#	1.5	2.75	3/4 X 5/8 N.C. N.C.	3225, 3237
3551 wt. .8#	3552 .25#	3552 .25#	3554 .2#	3555 .05#	1.5	2.75	3/4 X 3/4 N.C. N.C.	4300, 4300 A, 4325
3551 A wt. .85	3552 .25#	3552 .25#	3554 A .25#	3555 .05#	1.5	2.625	3/4 X 3/4 N.C. N.C.	15 Deg. Restricted
1551 Wt. 1.5#	253 .5#	1553 .5#	654 .25#	255 .06#	1.625	3.4375	3/4 X 5/8 N.C. N.C.	
251 Wt. 1.5#	253 .5#	253 .5#	654 .25#	255 .06#	1.625	3.4375	3/4 X 3/4 N.C. N.C.	
21451 wt. 1.4#	21452 .4#	1553 .5#	654 .25#	255 .06#	1.625	3.4375	7/8 X 5/8 N.C. N.C.	3250, 3262,
651 H Wt. .1.7#	653 .6#	653 .6#	654 .25#	655 .07#	1-3/4	3.4375	3/4 X 3/4 N.C. N.C.	
651 wt. 1.6#	652 .5#	653 .6#	654 .25#	655 .07#	1-3/4	3.4375	7/8 X 3/4 N.C. N.C.	3275, 3287, 4350,
651 A wt. 1.6#	652 .5#	653 .6#	654 A .3#	655 .07#	1-3/4	3-7/32	7/8 X 3/4 N.C. N.C.	15 Deg. Restricted
551 wt. 1.5#	652 .5#	652 .5#	654 .25#	655 .07#	1-3/4	3.4375	7/8 X 7/8 N.C. N.C.	4400, 4450, 4425, 4450, 4450 A,
21051 wt. 2.1#	1152 .7#	21053 .8#	1154 .4#	1155 .1#	1-15/16	3.6875	1 X 3/4 N.F. N.C.	3300, 3306
1151 wt. 2#	1152 .7#	1153 .75#	1154 .4#	1155 .1#	1-15/16	3.6875	1 X 7/8 N.F. N.C.	3312, 3318, 3325, 3337
20751 wt. 2.6#	5052 1.1#	1153 .75#	1154 .4#	5055, 1155 .2# .1#	2-1/4	3-7/8	1-1/8 X 7/8 N.F. N.C.	3350 through 3475
5051 wt. 3.2	5052 1.1#	5057 1.2#	1154 .4#	5055 .2#	2-1/4	4.0625	1-1/8 X 7/8 N.F. N.C.	4481, 4500, 4537
5051 E wt. 3.2	5052 1.1#	5053 1.2#	1154 .4#	5055 .2#	2-1/4	4.0625	1-1/8 X 1 N.F. N.F.	4575, 4600, 4650, 4712, 4762
5051 H Wt. 3.1#	5052 1.1#	5052 1.1#	1154 .4#	5055 .2#	2-1/4	4.0625	1-1/8 X 1-1/8 N.F. N.F.	
21251 H wt. 5#	21252 1.6#	21257 1.8#	21254 1#	21255 .2#	2-7/16	5.3125	1-3/8 X 1 N.F. N.F.	3500 through 3900
21251 wt. 4.9#	21252 1.6#	21253 1.7#	21254 1#	21255 .2#	2-7/16	5.3125	1-3/8 X 1-1/8 N.F. N.F.	3975 through 31325
21251 A Wt. 4.8#	21252 1.6#	21252 1.6#	21254 1#	21255 .2#	2-7/16	5.3125	1-3/8 X 1-3/8 N.F. N.F.	

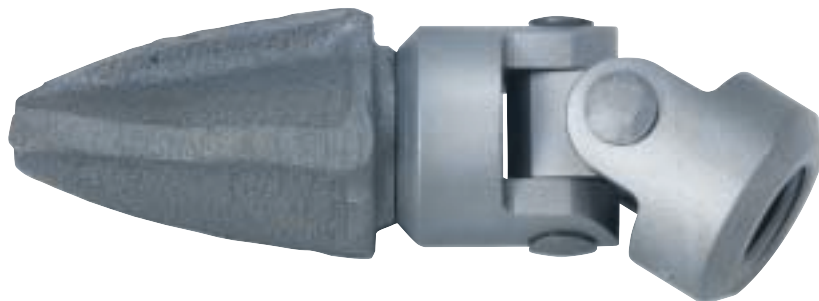
Shaded items are Rapid Select.

 Refer to page 5 for description of Rapid Select.

Airetool Drill Heads

Airetool Drill Heads are Made From Alloy Steel

Universal Coupling Must Be Ordered Separately



Tube I.D.	Std Drill	Hard Surface Drill	Thread Stud Size	Drill Diameter	Weight Lbs.
1/2	MD 1	N/A	10-32	7/16	0.01
5/8	MD 2	N/A	1/4 N.F.	1/2	0.02
11/16 - 13/16	MD 3	N/A	1/4 N.F.	5/8	0.03
7/8 - 1-1/8	MD 4	N/A	5/16 N.F.	5/8	0.05
1-1/8 - 1-1/4	MD 5	N/A	7/16 N.F.	13/16	0.06
1-3/8 - 1-3/4	00	00 S	7/16 N.F.	1-1/16	0.2
1-1/2	0	0 S	1/2 N.C.	1-5/16	0.25
1-5/8 - 2-1/4	1	1 S	5/8 N.C.	1-3/8	0.3
2-1/4 - 2-3/4	4	4 S	5/8 N.C.	1-3/4	0.5
2-3/4 - 3-1/4	5	5 S	3/4 N.C.	2-3/8	1.06
*3-1/4 - 4"	6	6 S	7/8 N.C.	2-5/8	1.6
*9 - 11"	21	21 S	1-1/8 NF	4-5/8	5.5

* Use this drill with drill extension for larger sizes


Drill Extensions

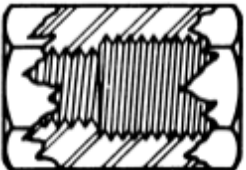
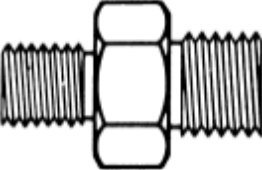
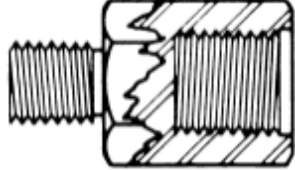
7/8 N.C. Male x 7/8 N.C. Female

Tube I.D.*	Length	Part Number	
4" - 5"	1-1/2	756	4" - 5"
4" - 5"	2	756 A	4" - 5"
4" - 5"	2-1/2	756 B	4" - 5"
5" - 6"	3	756 C	5" - 6"
6" - 10"	4	756 D	7" - 8"
6" - 10"	8	756 G	8" - 10"

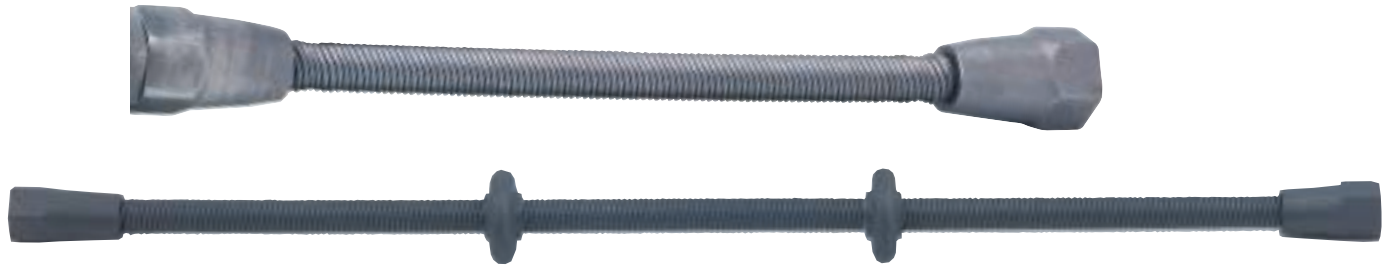
*Using number 6 or 6S Drill.

Shaded items are Rapid Select.

 Refer to page 5 for description of Rapid Select.

Female X Female		Male X Male		Male X Female	
					
Part Number	Female X Female	Part Number	Male X Male	Part Number	Male X Female
FF 1010	10-32 X 10-32	2443	10-32 X 10-32	MF 22	1/4 N.C. X 1/4 N.F.
FF 1031	10-32 X 5/16 N.C.	MM 1031	10-32 X 5/16 N.F.	MF 231	1/4 N.F. X 5/16 N.C.
FF 22	1/4 N.F. X 1/4 N.F.	MM 250	1/4 N.F. X 1/4 N.F.	MF 231 F	1/4 N.F. X 5/16 N.F.
FF 231	1/4 N.F. X 5/16 N.F.	2734	1/4 N.F. X 5/16 N.C.	MF 312	5/16 N.C. X 1/4 N.F.
FF 237	1/4 N.F. X 3/8 N.F.	MM 24	1/4 N.F. X 7/16 N.F.	MF 312 F	5/16 N.F. X 1/4 N.F.
FF 312	5/16 N.C. X 1/4 N.F.	MM 3034	5/16 N.F. X 1/4 N.F.	MF 3131	5/16 N.C. X 5/16 N.F.
FF 3131	5/16 N.C. X 5/16 N.F.	MM 3131	5/16 N.C. X 5/16 N.C.	MF 3131 F	5/16 N.F. X 5/16 N.C.
FF3137	5/16 N.C. X 3/8 N.F.	MM 3131 F	5/16 N.C. X 5/16 N.F.	MF 314	5/16 N.C. X 7/16 N.F.
FF314	5/16 N.C. X 7/16 N.F.	MM 3137	5/16 N.F. X 3/8 N.F.	MF 314 F	5/16 N.F. X 7/16 N.F.
FF 374	3/8 N.F. X 7/16 N.C.	MM 3737	3/8 N.C. X 3/8 N.C.	2943	3/8 N.F. X 1/4 N.F.
FF 374 F	3/8 N.F. X 7/16 N.F.	MM 3737 F	3/8 N.F. X 3/8 N.F.	MF 3731	3/8 N.F. X 5/16 N.C.
FF 376	3/8 N.C. X 5/8 N.C.	MM 374	3/8 N.C. X 7/16 N.C.	MF 3731 F	3/8 N.F. X 5/16 N.F.
FF 437	7/16 N.C. X 3/8 N.C.	MM 374 F	3/8 N.F. X 7/16 N.F.	2643	3/8 N.F. X 5/16 N.F.
FF 45	7/16 N.F. X 1/2 N.C.	MM 437	7/16 N.C. X 3/8 N.F.	MF 3737	3/8 N.C. X 3/8 N.F.
FF 456	7/16 N.F. X 9/16 N.C.	MM 44	7/16 N.F. X 7/16 N.F.	MF 374	3/8 N.C. X 7/16 N.C.
FF 46	7/16 N.F. X 5/8 N.C.	MM 456	7/16 N.F. X 9/16 N.C.	MF 374 F	3/8 N.F. X 7/16 N.F.
FF 47	7/16 N.C. X 3/4 N.C.	MM 46	7/16 N.F. X 5/8 N.C.	MF 431	7/16 N.C. X 5/16 N.C.
FF 54	1/2 N.F. X 7/16 N.C.	MM 5056	1/2 N.C. X 9/16 N.C.	MF 431 F	7/16 N.F. X 5/16 N.F.
FF 56	1/2 N.F. X 5/8 N.C.	MM 56	1/2 N.C. X 5/8 N.C.	MF 433	7/16 N.C. X 3/8 N.C.
FF 56 F	1/2 N.F. X 5/8 N.F.	MM 564	9/16 N.C. X 7/16 N.C.	MF 4343	7/16 N.C. X 7/16 N.F.
FF 564	9/16 N.C. X 7/16 N.C.	MM 5650	9/16 N.C. X 1/2 N.F.	MF 435	7/16 N.C. X 1/2 N.C.
FF 5656	9/16 N.C. X 9/16 N.C.	MM 5656	9/16 N.C. X 9/16 N.C.	MF 435 F	7/16 N.F. X 1/2 N.C.
FF 566	9/16 N.C. X 5/8 N.C.	MM 566	9/16 N.C. X 5/8 N.C.	MF 436	7/16 N.C. X 5/8 N.C.
FF 567	9/16 N.C. X 3/4 N.C.	MM 567	9/16 N.C. X 3/4 N.C.	MF 436 F	7/16 N.F. X 5/8 N.C.
FF 637	5/8 N.C. X 3/8 N.F.	MM 568	9/16 N.C. X 7/8 N.C.	MF 531	1/2 N.F. X 5/16 N.F.
FF 64	5/8 N.C. X 7/16 N.C.	MM 561	9/16 N.C. X 1 N.F.	1743	1/2 N.C. X 3/8 N.C.
FF 65	5/8 N.C. X 1/2 N.C.	MM 66	5/8 N.C. X 5/8 N.C.	MF 543	1/2 N.C. X 7/16 N.C.
FF 66	5/8 N.C. X 5/8 N.C.	MM 67	5/8 N.C. X 3/4 N.C.	MF 543 F	1/2 N.F. X 7/16 N.C.
FF 66 F	5/8 N.C. X 5/8 N.F.	MM 68	5/8 N.C. X 7/8 N.C.	MF 56	1/2 N.C. X 5/8 N.C.
FF 67	5/8 N.C. X 3/4 N.C.	MM 77	3/4 N.C. X 3/4 N.C.	MF 56 F	1/2 N.F. X 5/8 N.C.
FF 68	5/8 N.C. X 7/8 N.C.	MM 78	3/4 N.C. X 7/8 N.C.	MF 57	1/2 N.C. X 3/4 N.C.
FF 77	3/4 N.C. X 3/4 N.C.	MM 88	7/8 N.C. X 7/8 N.C.	MF 563	9/16 N.C. X 3/8 N.C.
FF 78	3/4 N.C. X 7/84 N.C.	MM 81	7/8 N.C. X 1 N.C.	MF 565	9/16 N.C. X 1/2 N.C.
FF 856	7/8 N.C. X 9/16 N.C.	MM 11	1 N.F. X 1 N.F.	MF 566	9/16 N.C. X 5/8 N.C.
FF 86	7/8 N.C. X 5/8 N.F.	MM 112	1 N.F. X 1-1/8 N.F.	MF 567	9/16 N.C. X 3/4 N.C.
FF 88	7/8 N.C. X 7/8 N.C.	MM 1111	1-1/8 N.F. X 1-1/8 N.F.	MF 568	9/16 N.C. X 7/8 N.C.
FF 81	7/8 N.C. X 1 N.F.	MM 1313	1-3/8 N.F. X 1-3/8 N.F.	MF 561	9/16 N.C. X 1 N.F.
FF 16	1 N.F. X 5/8 N.C.			MF 631	5/8 N.C. X 5/16 N.C.
FF 17	1 N.F. X 3/4 N.C.			MF 637	5/8 N.C. X 3/8 N.C.
FF 11	1 N.F. X 1 N.F.			1943	5/8 N.C. X 7/16 N.F.
FF 111	1 N.F. X 1-1/8 N.F.			MF 65	5/8 N.C. X 1/2 N.F.
FF 118	1-1/8 N.F. X 7/8 N.C.			MF 656	5/8 N.C. X 9/16 N.C.
FF 1111	1-1/8 N.F. X 1-1/8 N.F.			MF 68	5/8 N.C. X 7/8 N.C.
				MF 743	3/4 N.C. X 7/16 N.F.
				MF 743 F	3/4 N.F. X 7/16 N.C.
				MF 76	3/4 N.C. X 5/8 N.C.
				MF 71	3/4 N.C. X 1 N.C.
				MF 711	3/4 N.C. X 1-1/8 N.F.
				MF 86	7/8 N.C. X 5/8 N.C.
				MF 86 F	7/8 N.C. X 5/8 N.F.
				MF 87	7/8 N.C. X 3/4 N.C.
				MF 81	7/8 N.C. X 1 N.F.
				MF 811	7/8 N.C. X 1-1/8 N.F.
				MF 813	7/8 N.C. X 1-3/8 N.F.
				MF 16	1 N.F. X 5/8 N.F.
				MF 18	1 N.F. X 7/8 N.C.
				MF 1111	1 N.F. X 1-1/8 N.F.
				MF 1113	1-1/8 N.F. X 1-3/8 N.F.
				MF 138	1-3/8 N.F. X 7/8 N.C.
				MF 1311	1-3/8 N.F. X 1-3/8 N.F.

Airetool Flexible Connections



Number	Thread Size	Core Dia.	Cleaner Motor Options	Type "A"		Type C	
				Approx. Length	Wt.	Approx. Length	Wt.
2461	10-32 X 10-32	3/16	24	4"	.06#	13"	.2#
X 6461	1/4 N.F. X 1/4 N.F.		30,27, X 64				
X 6462	1/4 N.F. X 5/16 N.C.		27, X 64				
X 6161	5/16 N.F. X 5/16 N.F.		X 61				
X 6162	5/16 N.F. X 5/16 N.C.		X 61				
2661	3/8 N.F. X 5/16 N.F.	1/4	26	4-1/2"	.18#		.4#
X 6362	3/8 N.F. X 5/16 N.C.		26, 29, X 63				
2961	3/8 N.F. X 3/8 N.F.		29				
X 6361	3/8 N.F. X 7/16 N.F.		X 63,31				
3161	7/16 N.F. X 5/16 N.C.		31				
X 6661	3/8 N.F. X 7/16 N.F.	3/8	X 65, X 66	6-1/2"	.25#		.45#
X 6662	3/8 N.F. X 7/16 N.C.		X 65, X 66				
2561	7/16 N.F. X 7/16 N.F.						
4161	5/8 N.C. X 5/8 N.C.	1/2	3175, 4225	6-1/2"	.5#		1#
4162	5/8 N.C. X 9/16 N.C. Male		4200, 4225, 4250				
4163	5/8 N.C. X 7/16 N.C.		4200				
31561	9/16 N.C. X 1/2 N.C.		3150				
43061	3/4 N.C. X 3/4 N.C.	5/8	4300, 4325	Not Available		14"	1.5#
43062	3/4 N.C. X 9/16 N.C. Male		3225, 4300, 4325				
32261	3/4 N.C. X 5/8 N.C.		3225				
42561	5/8 N.C. X 5/8 N.C.		3200, 3300, 4250				
42562	5/8 N.C. X 9/16 N.C. Male		3200, 4250				
43561	7/8 N.C. X 3/4 N.C.	3/4	4350, 3250	Not Available		14"	2.6#
44061	7/8 N.C. X 7/8 N.C.		4350, 4450				
44062	7/8 N.C. X 7/8 N.C. Male		4450				
43562	7/8 N.C. X 9/16 N.C. Male		3250, 4350				
33061	1 N.F. X 1 N.F.	1	3300	Not Available		14"	3.1#
33063	1 N.F. X 7/8 N.C.		3300				
33561	1-1/8 N.F. X 1-1/8 N.F.		3350, 3400, 4600				
33562	1-1/8 N.F. X 1 N.F.		3350, 3400, 4600				
44861	1-1/8 N.F. X 7/8 N.C.		3350, 3400, 4600				
44862	1-1/8 N.F. X 7/8 N.C. Male		3350, 3400, 4600				
35061	1-3/8 N.F. X 1 N.F.		3500 and up				
35062	1-3/8 N.F. X 1- 1/8 N.F.		3500 and up				
35063	1-3/8 N.F. X 1-3/8 N.F. Male		3500 and up				

Airetool Expanding Blade Type Head

1/2" - 4-1/2" I.D.



When ordering state the motor number and the motor's shaft thread size.

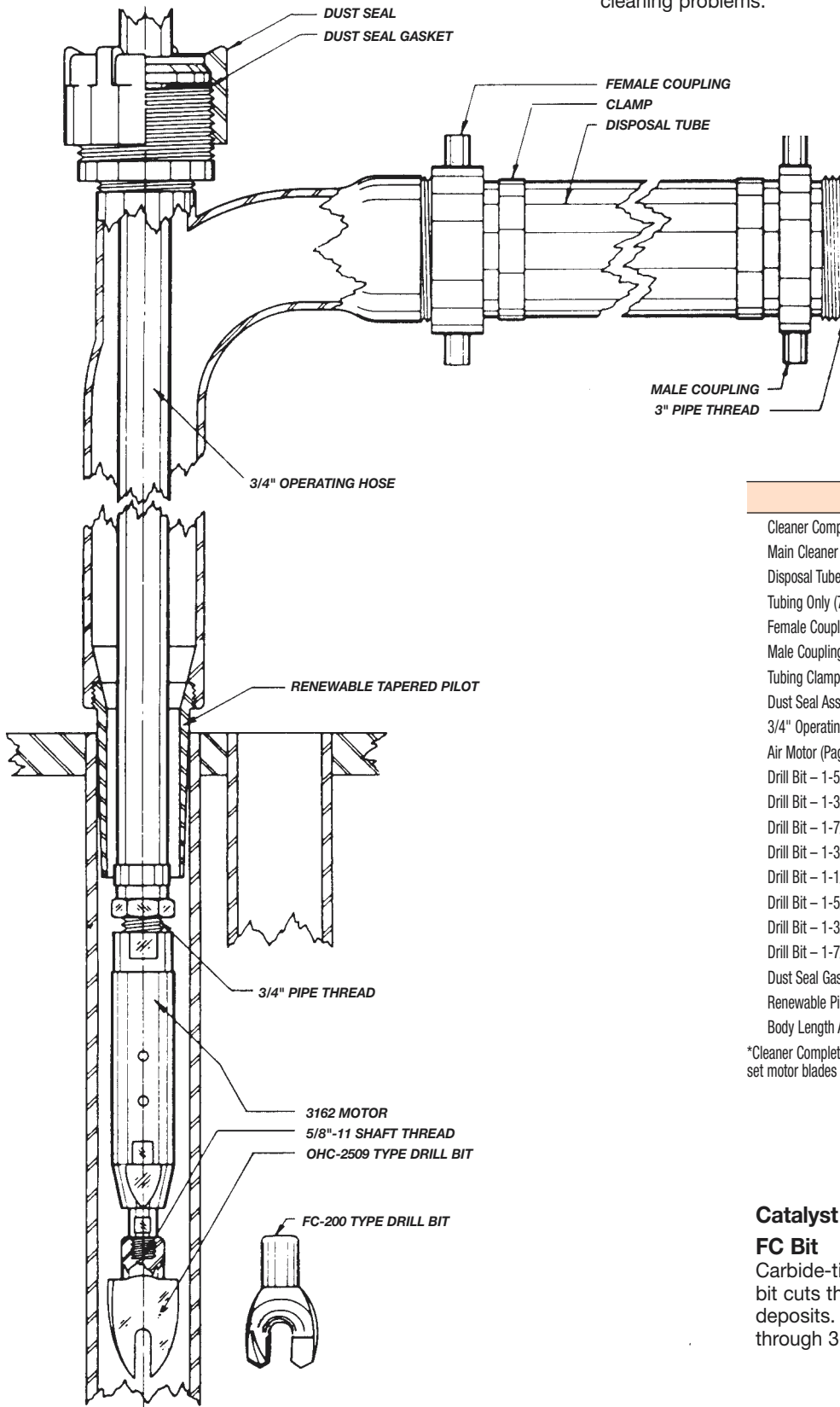
Head Number	Tube ID	Min. Diameter	Max. Diameter	Stud Size	Body & Ft Retainer	Rear Retainer	Blade Set	# of Blades	Coupling	Coupling Tap
2840 Wt .05	1/2	29/64	37/64	10-32	2481 .03#	2483 .01#	2487 .01#	4	FF 1010	10-32
3080 Wt .08	5/8	9/16	11/16	1/4 N.F.	3081 .06#	3083 .01#	3087 .01#	3	FF 22	1/4 N.F.
2780 Wt .1	3/4	11/16	13/16	1/4 N.F.	2781 .07#	2783 .01#	2787 .01#	3	FF 22	1/4 N.F.
6480 Wt .17	13/16	3/4	7/8	5/16 N.C.	2981 .12#	2983 .01#	6487 .02#	3	FF 312	1/4 N.F.
2980 Wt .18	7/8	25/32	29/32	5/16 N.C.	2981 .12#	2983 .01#	2987 .03#	3	FF 3137	3/8 N.F.
6180 Wt .25	1	7/8	1-3/32	5/16 N.C.	6181 .18#	6183 .02#	6187 .06#	4	FF3137 FF3131	3/8 N.F. 5/16 N.F.
2680 Wt .25	1	15/16	1-5/32	5/16 N.C.	6181 .18#	6183 .02#	2687 .07#	4	FF 3137	3/8 N.F.
3180 Wt .3	1-1/8	1-1/32	1-1/4	5/16 N.C.	3181 .2#	3183 .03#	3187 .08#	4	FF 314 FF 3131	7/16 N.F. 5/16 N.F.
6380 Wt .31	1-1/4	1-5/32	1-3/8	5/16 N.C.	3181 .2#	3183 .03#	6387 .09#	4	FF3137 FF 314	3/8 N.F. 7/16 N.F.
6580 Wt .33	1-3/8	1-9/32	1-1/2	5/16 N.C.	3181 .2#	3183 .03#	6587 .1#	4	FF3137 FF 314	3/8 N.F. 7/16 N.F.
1780 Wt .83	1-1/2	1-3/8	1-11/16	9/16 N.C.	1781 .6#	1783 .12#	1787 .11#	4	FF 5656	9/16 N.C.
1880 Wt .84	1-5/8	1-1/2	1-13/16	5/8 N.C.	1881 .6#	1883 .12#	1887 .12#	4	FF 66	5/8 N.C.
1980 Wt .84	1-3/4	1-5/8	1-15/16	5/8 N.C.	1981 .6#	1883 .12#	1987 .13#	4	FF 66	5/8 N.C.
2380 C Wt .85	1-7/8	1-3/4	2-1/16	5/8 N.C.	1881 .6#	1883 .12#	2387 C .14#	4	FF 66	5/8 N.C.
2380 Wt .86	2	1-7/8	2-3/16	5/8 N.C.	2381 .6#	1883 .12#	2387 .15#	4	FF 66	5/8 N.C.
21680 S Wt 1.1	2-1/8	1-3/4	2-1/4	5/8 N.C.	21681 S .9#	21683 S .13#	21587 .16#	4	FF 66	5/8 N.C.
21580 Wt 1.5	2-1/4	1-7/8	2-3/8	3/4 N.C.	21581 1.2#	21583 .15#	21587 .16#	4	FF 77	3/4 N.C.
21480 Wt 1.8	2-1/2	2-1/8	2-5/8	3/4 N.C.	21481 1.5#	21483 .18#	21587 .16#	4	FF 78	7/8 N.C.
21380 Wt 3	2-3/4	2-3/8	2-15/16	7/8 N.C.	21381 1.9#	21383 .4#	21087 .7#	6	FF 88	7/8 N.C.
21080 Wt 4	3	2-5/8	3-5/16	1 N.F.	21081 2.9#	21083 .4#	21087 .7#	6	FF 11	1 N.F.
20980 Wt 5.6	3-1/4	2-7/8	3-3/8	1 N.F.	20781 4#	20783 .8#	20987 .8#	6	FF 11	1 N.F.
20780 Wt 5.62	3-1/2	3-1/8	3-5/8	1 N.F.	20781 4#	20783 .8#	20787 .82#	6	FF 111	1-1/8 N.F.
20880 Wt 5.64	4	3-5/8	4-1/8	1 N.F.	20781 4#	20783 .8#	20887 .84#	6	FF 111	1-1/8 N.F.
20880 H Wt 5.68	4-1/2	4-1/8	4-5/8	1 N.F.	20781 4#	20783 .8#	20887 H .86#	6	FF 111	1-1/8 N.F.

Airetool Boiler Tube Cleaners

Cleaner Systems

FC-2000-3162

Shown below (1-5/8-2)



Catalyst Cleaner Systems

Catalyst cleaner systems are specially designed for safe removal of spent catalyst. The catalyst cleaner system removes spent catalyst from reactor units efficiently. The high-powered, high-performance, air-driven motor handles the toughest tube cleaning problems.

Overhead Type Cleaner: 1-3/16"-5"

Specialized overhead-type catalyst cleaner system enters the tube from the top of the reactor tower. The cleaner system automatically collects the catalyst carried by the exhaust air and discharges the spent catalyst into any suitable container. This system helps eliminate the danger of catalyst contacting the operator.

Cleaner systems are available for tubes up to 5 in. diameter. Specify tube size and gauge when ordering.

Description	Part Number
Cleaner Complete* (85 lb.)	OHC-250
Main Cleaner Body	OHC-2501
Disposal Tube Assembly	OHC-2502
Tubing Only (7'6" long)	OHC-2503
Female Coupling	OHC-2504
Male Coupling	OHC-2505
Tubing Clamp	OHC-2506
Dust Seal Assembly	OHC-2507
3/4" Operating Hose & Cpgs. (50')	OHC-2508
Air Motor (Page 83)	3162
Drill Bit - 1-5/8" Diameter	OHC-2509-1 5/8
Drill Bit - 1-3/4" Diameter	OHC-2509-1 3/4
Drill Bit - 1-7/8" Diameter	OHC-2509-1 7/8
Drill Bit - 1-3/8" Diameter	FC-200-1 3/8
Drill Bit - 1-1/2" Diameter	FC-200-1 1/2
Drill Bit - 1-5/8" Diameter	FC-200-1 5/8
Drill Bit - 1-3/4" Diameter	FC-200-1 3/4
Drill Bit - 1-7/8" Diameter	FC-200-1 7/8
Dust Seal Gasket	OHC-2510
Renewable Pilot	OHC-2511
Body Length App. 36-3/4" Overall	

*Cleaner Complete includes three drill bits, three extra dust seal gaskets, spare set motor blades and shaft wrenches.

Catalyst Cleaner Bits

FC Bit

Carbide-tipped, auger-style bit cuts through toughest deposits. Available in 1 in. through 3-1/4 in. sizes.



Airetool Boiler Tube Cleaners

Accessories



Gas Line Cleaner Motors

Used successfully by gas utilities for cleaning old service lines before insertion of replacement plastic pipe. Cleaning operation removes debris from old pipe. Barrel-shaped cutter head helps eliminate "hanging up" in pipe. Standard sizes: 1-1/4 in. and 1-1/2 in. Other sizes available upon request. Can be furnished as Complete Kit consisting of 25 or 50 ft. length of wire wound hose, 1/2 in. lubricator, motor and head, spare cutters and metal box.

Model	Inside Pipe Diameter		Motor Diameter		Air Inlet		Hose Size	
	In.	mm	In.	mm	In.	mm	In.	mm
X-63-A*	1-1/4	31.7	1-1/16	26.9	3/8	9.5	3/8	9.5
X-65-A*	1-1/2	38.1	1-3/16	30.1	3/8	9.5	3/8	9.5

* Other sizes available upon request.



4037400

Flexible Drive Shaft

Use for connecting cleaning head to motor when cleaning tubes with short radius bends. Complete with Female/Female couplings in lengths varying from 4 to 14 in. See page 96.

Air Hose Selection Guide

Note: Standard "WB-LHWW" braid hose has one layer wire braid and a left hand wire wound outside hose protector.

Hose Size In.	Working Pressure PSI	Length ft.	Part Number	Stock Number	Air Coupling Pipe Tap Size In.	Wire Wound (W/W) Not Wire Wound (N/W/W)	Hose OD (over wire) in.
Air Motor – 25							
3/16	250	25	3/16" -25 ft.-250	4105071	18-20	N/W/W	7/16
3/16	250	50	3/16" -50 ft.-250	4105072	18-20	N/W/W	7/16
Air Motors – 27, 27A, 30, 30A							
1/4	225	25	1/4" -25 ft.-225	4105075	1/8	N/W/W	17/32
1/4	225	50	1/4" -50 ft.-225	4105076	1/8	N/W/W	17/32
Air Motors – X-64, X-61							
1/4	225	25	1/4" -25 ft.-225	4105073	1/4	N/W/W	17/32
1/4	225	50	1/4" -50 ft.-225	4105074	1/4	N/W/W	17/32
Air Motor – 29							
3/8	205	25	3/8" -25 ft.-205	4105083	1/4	N/W/W	11/16
3/8	205	50	3/8" -50 ft.-205	4105084	1/4	N/W/W	11/16
Air Motors – 26, 31							
3/8	205	25	3/8" -25 ft.	4105088	3/8	N/W/W	11/16
3/8	205	50	3/8" -50 ft.	4105089	3/8	N/W/W	11/16
Air Motors – X-63, X-63A, X-65, X-65A, X-66							
3/8	625	25	3/8" -25 ft.-WB-LHWW	1717371	3/8	Left hand W/W	7/8
3/8	625	50	3/8" -50 ft.-WB-LHWW	1717372	3/8	Left hand W/W	7/8
Air Motors – 3150, 3175, 4200, 4225, 4250							
1/2	625	25	1/2" -25 ft.-WB-LHWW	1717373	1/2	Left hand W/W	1
1/2	625	50	1/2" -50 ft.-WB-LHWW	1717374	1/2	Left hand W/W	1
Air Motors – 3162, 3187, 3200, 3225, 3212, 4300, 4325							
3/4	625	25	3/4" -25 ft.-WB-LHWW	1717375	3/4	Left hand W/W	1-1/4
3/4	625	50	3/4" -50 ft.-WB-LHWW	1717376	3/4	Left hand W/W	1-1/4
All other air motors							
1	625	25	1" -25 ft.-WB-LHWW	1717377	1	Left hand W/W	1-5/8
1	625	50	1" -50 ft.-WB-LHWW	1717378	1	Left hand W/W	1-5/8
1-1/4	625	25	1-1/4" -25 ft.-WB-LHWW	4105410	1-1/4	Left hand W/W	1-7/8
1-1/4	625	50	1-1/4" -50 ft.-WB-LHWW	4105411	1-1/4	Left hand W/W	1-7/8

Model FV-100 Foot Valve

For quick control of air when cleaning tubes. Has LOCK ON-EASY OFF feature. Easily secured to working platform or most convenient location.



Length		Width		Height		NPT	Weight	
In.	mm	In.	mm	In.	mm		Lbs.	kg

Model FV-100 Foot Valve

10	254	6-1/2	165.1	4	101.6	1	12	5.45
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In-Line Lubricator

Hose Size In.	Lubricators Available	Bowl Capacity	Stock Number
1/2 NPT	#0	1/6 pt (7 cl)	3067800
3/4 NPT	#1	1/3 pt (15 cl)	3067900
3/4 NPT	#2	1/2 pt (23 cl)	3068000
1 NPT	#3	1 pt (47 cl)	3068100

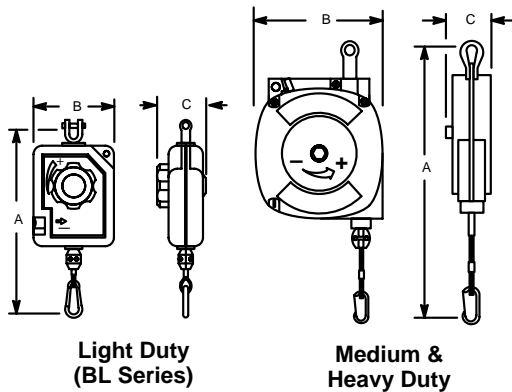
General Accessories

Ergonomic Tool Balancers

Capacity:

0.5 – 45.5 kg
1.0 – 100 Lbs.

- External Tension Adjustment
- 360° Swivel
- Retracting in-line Cable

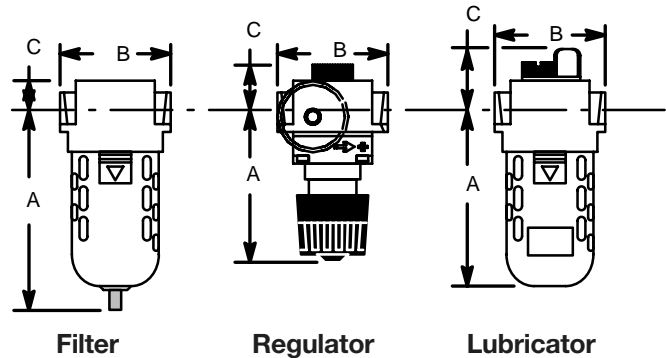


Model Number	Lock Feature	Capacity		"A"		"B"		"C"		Weight	
		lbs.	kg	in	mm	in	mm	in.	mm	lbs.	kg
Light Duty – 5.2 ft. (1.6m) Cable Travel											
BL-2A	–	2.0-1.0	0.9-0.5	10.4	263	4.0	102	2.2	56	1.1	0.5
BL-4A	–	4.0-2.0	1.8-0.9	10.4	263	4.0	102	2.2	56	1.1	0.5
Light Duty – 6.7 ft. (2.0m) Cable Travel											
BL-6A	–	6.0-4.0	2.7-1.8	12.9	327	5.5	140	3.1	79	3.3	1.5
BL-6A	Ratchet	6.0-4.0	2.7-1.8	12.9	327	5.5	140	3.1	79	3.3	1.5
BL-8A	–	8.0-6.0	3.6-2.7	12.9	327	5.5	140	3.1	79	3.3	1.5
BL-8A	Ratchet	8.0-6.0	3.6-2.7	12.9	327	5.5	140	3.1	79	3.3	1.5
Medium Duty – 6.6ft. (2.0m) Cable Travel											
BM-13A	Non-Locking	13-9.0	5.9-4.1	13.8	350	6.9	175	4.5	114	9.0	4.1
BM-13A	Lock/Release	13-9.0	5.9-4.1	13.8	350	6.9	175	4.5	114	9.0	4.1
BM-18A	Non-Locking	18-13	8.2-5.9	13.8	350	6.9	175	4.5	114	9.0	4.1
Medium Duty – 6.0ft. (1.8m) Cable Travel											
BM-25A	Automatic	25-18	11.4-8.2	20.7	527	7.8	197	6.6	169	19	8.6
BM-35A	Automatic	35-25	15.9-11.4	20.7	527	7.8	197	6.6	169	19	8.6
BM-45A	Automatic	45-35	20.5-15.9	20.7	527	7.8	197	6.6	169	19	8.6
Heavy Duty – 7.0ft. (2.1m) Cable Travel											
BH-45A	Automatic	45-30	20.5-13.6	25.2	640	9.3	235	7.9	200	40	18
BH-60A	Automatic	60-45	27.3-20.5	25.2	640	9.3	235	7.9	200	40	18
BH-70A	Automatic	70-60	31.8-27.3	25.2	640	9.3	235	7.9	200	40	18
BH-80A	Automatic	80-70	36.4-31.8	25.2	640	9.3	235	7.9	200	40	18
BH-90A	Automatic	90-80	40.9-36.4	25.2	640	9.3	235	7.9	200	40	18
BH-100A	Automatic	100-90	45.4-40.9	25.2	640	9.3	235	7.9	200	40	18



Filters, Regulators, Lubricators

Modular Construction



Model Number	NPT Size	Air Flow		Bowl Capacity		Dimensions					
						A		B		C	
						In.	SCFM	m3/min.	oz.	liter	in.

Filters

F02-M	1/4	35	9.9	5.0	0.15	5.6	142	3.0	76	0.9	23
F03-M	3/8	44	12.9	5.0	0.15	5.6	142	3.0	76	0.9	23
F04-M	1/2	138	39.1	10	0.30	6.4	163	3.4	86	1.0	25

Lubricators – Economist (Standard Mist)

L02-EP	1/4	28	3.7	5.0	0.15	4.8	122	3.0	76	1.6	41
L03-EP	3/8	48	6.2	5.0	0.15	4.8	122	3.0	76	1.6	41
L04-EP	1/2	102	13.6	10	0.30	5.4	137	3.4	86	1.6	41

Lubricators – Atomist (Fine Mist)

L02-AP	1/4	28	3.7	5.0	0.15	4.8	122	3.0	76	1.6	41
L03-AP	3/8	48	6.2	5.0	0.15	4.8	122	3.0	76	1.6	41
LO3-AP	1/2	102	13.6	10	0.30	5.4	137	3.4	86	1.6	41

Model Number	NPT Size	Air Flow		Pressure Range (maximum)		Dimensions					
						A		B		C	
						In.	SCFM	m3/min.	psig	bar	in.

Regulators

RO2-G	1/4	80	10.8	125	8.5	3.9	99	3.0	76	1.3	33
RO3-G	3/8	80	10.8	125	8.5	3.9	99	3.0	76	1.3	33
R04-G	1/2	195	26.1	125	8.5	5.6	142	3.4	86	1.4	36

Modular Sleeve (with O-Ring)

Model: MS101

Unique modular sleeve design easily and quickly connects one or more units and accessories together without pipe nipples. Hand tightening the threaded pin provides a tight seal between the units. Modular sleeves do not add length to combination assemblies, and make a more compact installation.



Modular End Blocks (sold in pairs)

Model: 1/4" NPTF – EB-102
3/8" NPTF – EB-103
1/2" NPTF – EB-104
3/4" NPTF – EB-106

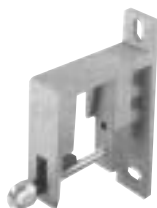
The threaded End Blocks, together with the modular sleeves, allow a single unit or a combination of units to be piped into the air system in the modular mode. This feature allows ease of unit servicing or replacement without disturbing the airline connections. End blocks add 1.19" (30mm) to each end of the unit where used.

NOTE: The 3/4" end blocks are designed only to adapt to 3/4" piping systems and do not increase flow ratings listed for any unit.

Modular Sleeve & Bracket (with O-Ring)

Model: MS101

Combination sleeve/wall mounting bracket as shown. Designed for mounting a single unit or combination of units directly to the wall. The sleeve and mounting bracket can be ordered assembled from the factory, or just the mounting bracket alone to be used on existing modular sleeves.



Automatic Drain Model: AD-101

Automatic Mechanical Drain is a float-type mechanism with a 1/8" NPT threaded drain port completely enclosed in the filter bowl. The float is constructed of rigid cellular rubber. The drain will operate automatically under air pressure ranging from 20 to 175 psig (1.5 to 12 bar).



Technical Information

Cutting Speeds

Speed, Feed & Power

Please use the chart below as a guide only. Many variables contribute to the optimum parameters for each application. These variables include: particular material characteristics, cutter design, cutter sharpness, airline pressure and flow capacity and cutter lubrication.

All portable drilling tools have limited power and thrust. In most cases, holes over 1/2 inch diameter cannot be produced at machine tool rates. Feed rates and/or speeds are reduced. Consult CooperTools for advise on particular applications.

For best results with your drilling system:

1. Maintain lubricated air to the tool with pressure of 90 psig *while the tool is running.*
2. Use high quality cutters.
3. Replace cutters when point dulls – hole diameter generally increases, cycle times lengthen (*except positive feed*) and hole finish worsens.
4. Whenever possible, provide lubricant mist to the drill point.
5. Insure there is an adequate flow path for drill chips (*swarf*).
6. Utilize fixtures that are secure and rigid.
7. Assure that accessory items are sized correctly and working properly.
8. Train operating personnel in the proper use of the tool.
9. **Please consult the machinery handbook for optimum cutting feeds and speeds.**

Material	Function	Drill Diameter						
		1/8	3/16	1/4	5/16	3/8	7/16	1/2
		.125	.188	.250	.313	.375	.437	.500
Aluminum (300 SFM)	Speed (RPM)	9000	6000	4600	3600	3000	2600	2300
	Feed Rate (IPR)	.002	.003	.004	.004	.004	.004	.004
	Power (HP)	.2	.3	.6	1.0	1.5	1.8	2.0
Mild Steel (90 SFM)	Speed (RPM)	2700	1800	1300	1100	900	750	650
	Feed Rate (IPR)	.005	.005	.005	.006	.006	.006	.006
	Power (HP)	.2	.3	.6	1.0	1.5	1.8	2.0
High Strength Steel Stainless Steel (30 SFM)	Speed (RPM)	900	600	450	375	300	250	220
	Feed Rate (IPR)	.001	.001	.001	.001	.001	.001	.001
	Power (HP)	.2	.3	.6	1.0	1.5	1.8	2.0
Titanium/Inconel (20 SFM)	Speed (RPM)	600	400	300	250	200	175	150
	Feed Rate (IPR)	.002	.003	.003	.003	.004	.004	.005
	Power (HP)	.2	.3	.6	1.0	1.5	1.8	2.0

Composites Graphite, kevlar, fiberglass, and other composite materials vary widely. Fiber, resin, processing method and type of cutting tool all affect the optimum drilling speed and feedrate. Little power or thrust is normally required, but controlled feedrates at the proper speed is mandatory. Carbide or diamond cutting tools are required. Contact your material supplier or experiment with an NC Drilling Machine.

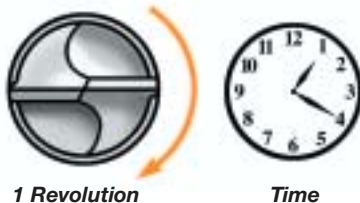
Stacks of Various Materials Use the lowest speed and feedrate of the materials in the stack. Peck feed drilling is best.

A. Peck Drilling permits higher drilling speeds B. Carbide cutting tools (when applicable) permits higher drilling speeds C. Oil hole cutting tools permit higher drilling speeds.

Speed (RPM)

Describes the number of revolutions of the spindle per unit of time.

Example: Revolutions per minute=RPM

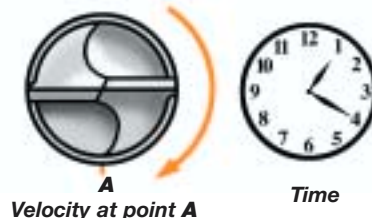


$$\text{Speed} = \text{Revolution} \div \text{Time}$$

Surface Speed (SFM)

Describes the velocity (*speed*) of the **outside** of the drill bit.

Example: 30 surface feet per minute (30 SFM)



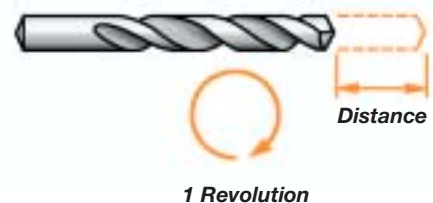
$$\text{Surface Speed} = \text{Distance} \div \text{Time}$$

(rotational)

Feed Rate (IPR)

Describes the distance the spindle travels during each revolution.

Example: 0.002 inches per revolution = .002 IPR



$$\text{Feed Rate} = \text{Distance} \div \text{Revolution}$$

Recommended Cutting Speeds for Tube Cutters and Tube Facers

The recommended cutting speeds in this chart are based on published speeds and feeds. A slower RPM may be necessary depending on tube material analysis and hardness. Proper lubrication must be used.

Tube Material	Tube O.D.									
	1/4"	3/8"	1/2"	5/8"	3/4"	7/8"	1"	1-1/4"	1-1/2"	2"
Aluminum (500 FPM)	7500 rpm	5000 rpm	3800 rpm	3000 rpm	2500 rpm	2200 rpm	1900 rpm	1500 rpm	1275 rpm	950 rpm
Brass (300 FPM)	4600 rpm	3050 rpm	2300 rpm	1825 rpm	1625 rpm	1300 rpm	1150 rpm	925 rpm	750 rpm	575 rpm
Copper (250 FPM)	3825 rpm	2550 rpm	1900 rpm	1525 rpm	1275 rpm	1100 rpm	950 rpm	750 rpm	625 rpm	500 rpm
Carbon Steel (FPM)	2150 rpm	1425 rpm	1075 rpm	850 rpm	700 rpm	625 rpm	525 rpm	425 rpm	350 rpm	275 rpm
Stainless Steel (65 FPM)	1000 rpm	660 rpm	500 rpm	400 rpm	330 rpm	285 rpm	250 rpm	200 rpm	165 rpm	125 rpm
Titanium (30 FPM)	450 rpm	300 rpm	230 rpm	185 rpm	155 rpm	130 rpm	115 rpm	95 rpm	75 rpm	60 rpm
Inconel (20 FPM)	305 rpm	205 rpm	155 rpm	125 rpm	100 rpm	90 rpm	75 rpm	60 rpm	50 rpm	40 rpm

Special Tables

Airetool Boiler Cleaner Motor Air Consumption Chart

Proper air supply and lubrication are imperative for proper operation of the Airetool boiler tube cleaner motors. 90 psi should be maintained at motor during operation for best cleaning results. Motor requires 20 to 30 drops of oil per minute.

Boiler Cleaner Motor – Air Consumption C.F.M.

Motor Number	Pressure			Motor Number	Pressure		
	60 Lbs.	80 Lbs.	100 Lbs.		60 Lbs.	80 Lbs.	100 Lbs.
3500	176	196	255	27A	09	10	11
3450	174	194	248	27	09	10	11
3400	174	194	248	30A	09	10	11
3350	155	178	207	30	09	10	11
3318	137	159	203	24	08	09	10
3312	129	149	200	4600	119	134	149
3300	129	149	200	4481	119	134	149
3275	127	147	172	4450	76	85	93
3262	95	109	132	4400	61	66	74
3250	93	106	127	4350	61	66	74
3225	86	95	115	4325	58	64	72
3212	79	87	103	4300	57	63	71
3187	65	72	90	4250	55	61	69
3175	57	69	86	4225	33	37	41
3150	51	60	74	4200	33	37	41
X-65-A	20	23	27	X-66	22	25	29
X-63-A	18	21	23	X-65	20	23	27
31	21	23	26	X-63	18	21	23
26	21	27	30	X-61	12	14	16
29	21	27	30	X-64	10	11	12

Decimal Equivalents															
In.	Dec.	In.	Dec.	In.	Dec.	In.	Dec.	In.	Dec.	In.	Dec.	In.	Dec.	In.	Dec.
1/64	.016	9/64	.141	17/64	.266	25/64	.391	33/64	.516	41/64	.641	49/64	.766	57/64	.891
1/32	.031	5/32	.156	9/32	.281	13/32	.406	17/32	.531	21/32	.656	25/32	.781	29/32	.906
3/64	.047	11/64	.172	19/64	.297	27/64	.422	35/64	.547	43/64	.672	51/64	.797	59/64	.922
1/16	.063	3/16	.188	5/16	.313	7/16	.438	9/16	.563	11/16	.688	13/16	.813	15/16	.938
5/64	.078	13/64	.203	21/64	.328	29/64	.453	37/64	.578	45/64	.703	53/64	.828	61/64	.953
3/32	.094	7/32	.219	11/32	.344	15/32	.469	19/32	.594	23/32	.719	27/32	.844	31/32	.969
7/64	.109	15/64	.234	23/64	.359	31/64	.484	39/64	.609	47/64	.734	55/64	.859	63/64	.984
1/8	.125	1/4	.250	3/8	.375	1/2	.500	5/8	.625	3/4	.750	7/8	.875	1	1.000

Special Tables

Tube Sizes – Birmingham Wire Gauges

OD of Tube (in.)	Birmingham Wire Gauge													
	00-.380	0-.340	1-.300	2-.284	3-.259	4-.238	5-.220	6-.203	7-.180	8-.165	9-.148	10-.134	11-.120	
1/4														
3/8														
5/8														
3/4												.482	.510	
7/8												.607	.635	
1										.670	.704	.732	.760	
1-1/4										.920	.954	.982	1.010	
1-1/2										1.170	1.204	1.232	1.260	
1-3/4							1.310	1.344	1.390	1.420	1.454	1.482	1.510	
2						1.524	1.560	1.594	1.640	1.670	1.704	1.732	1.760	
2-1/4	1.490	1.570	1.650	1.682	1.732	1.774	1.810	1.844	1.890	1.920	1.954	1.982	2.010	
2-1/2	1.740	1.820	1.900	1.932	1.982	2.024	2.050	2.094	2.140	2.170	2.204	2.232	2.260	
2-3/4	1.990	2.070	2.150	2.182	2.232	2.274	2.310	2.344	2.390	2.420	2.454	2.482	2.510	
3	2.240	2.320	2.400	2.432	2.482	2.524	2.560	2.594	2.640	2.670	2.704	2.732	2.760	
3-1/4	2.490	2.570	2.650	2.682	2.732	2.774	2.810	2.844	2.890	2.920	2.954	2.982	3.010	
3-1/2	2.740	2.820	2.900	2.932	2.982	3.024	3.060	3.094	3.140	3.170	3.204	3.232	3.260	
3-3/4	2.990	3.070	3.150	3.182	3.232	3.274	3.310	3.344	3.390	3.420	3.454	3.482	3.510	
4	3.240	3.320	3.400	3.432	3.482	3.524	3.560	3.594	3.640	3.670	3.704	3.732	3.760	
4-1/4	3.490	3.570	3.650	3.682	3.732	3.774	3.810	3.844	3.890	3.920	3.954	3.982	4.010	
4-1/2	3.740	3.820	3.900	3.932	3.982	4.024	4.060	4.094	4.140	4.170	4.204	4.232	4.260	
4-3/4	3.990	4.070	4.150	4.182	4.232	4.274	4.310	4.344	4.390	4.420	4.454	4.482	4.510	
5	4.240	4.320	4.400	4.432	4.482	4.524	4.560	4.594	4.640	4.670	4.704	4.732	4.760	
5-1/4	4.490	4.570	4.650	4.682	4.732	4.774	4.810	4.844	4.890	4.920	4.954	4.982	5.010	

OD of Tube (in.)	Birmingham Wire Gauge													
	12-.109	13-.095	14-.083	15-.072	16-.065	17-.058	18-.049	19-.042	20-.035	21-.032	22-.028	23-.025	24-.022	
1/4							.152	.166	.180	.186	.194	.200	.206	
3/8			.209	.231	.245	.259	.277	.291	.305	.311	.319	.325	.331	
1/2		.310	.334	.356	.370	.384	.402	.416	.430	.436	.444	.450	.456	
5/8	.407	.435	.459	.481	.495	.509	.527	.541	.555	.561	.569	.575	.581	
3/4	.532	.560	.584	.606	.620	.634	.652	.666	.680	.686	.694	.700	.706	
7/8	.657	.685	.709	.731	.745	.759	.777	.791	.805	.811	.819	.825	.831	
1	.782	.810	.834	.856	.870	.884	.902	.916	.930	.936	.944	.950	.956	
1-1/4	1.032	1.060	1.084	1.106	1.120	1.134	1.152	1.166	1.180	1.186	1.194	1.200	1.206	
1-1/2	1.282	1.310	1.334	1.356	1.370	1.384	1.402	1.416	1.430	1.436	1.444	1.450	1.456	
1-3/4	1.532	1.560	1.584	1.606	1.620	1.634	1.652	1.666	1.680	1.686	1.694	1.700	1.706	
2	1.782	1.810	1.834	1.856	1.870	1.884	1.902	1.916	1.930	1.936	1.944	1.950	1.956	
2-1/4	2.032	2.060	2.084	2.106	2.120	2.134	2.152							
2-1/2	2.282	2.310	2.334	2.356	2.370	2.384	2.402							
2-3/4	2.532	2.560	2.584	2.606	2.620	2.634	2.652							
3	2.782	2.810	2.834	2.856	2.870	2.884	2.902							
3-1/4	3.032	3.060	3.084	3.106	3.120	3.134	3.152							
3-1/2	3.282	3.310	3.334	3.356	3.370	3.384	3.402							
3-3/4	3.532	3.560	3.584	3.606	3.620	3.634	3.652							
4	3.782	3.810	3.834	3.856	3.870	3.884	3.902							
4-1/4	4.032	4.060	4.084	4.106	4.120	4.134	4.152							
4-1/2	4.282	4.310	4.334	4.356	4.370	4.384	4.402							
4-3/4	4.532	4.560	4.584	4.606	4.620	4.634	4.652							
5	4.782	4.810	4.834	4.856	4.870	4.884	4.902							
5-1/4	5.032	5.060	5.084	5.106	5.120	5.134	5.152							

Nominal Pipe Size (In.)	Outside Diameter (In.)	Schedule Number							
		Nominal Wall Thickness Inches / Nominal Inside Diameter Inches (ID)							
		40	ID	80	ID	120	ID	160	ID
1/8	.405	.068	.269	.095	.215				
1/4	.540	.088	.364	.119	.302				
3/8	.675	.091	.493	.126	.423				
1/2	.840	.109	.622	.147	.546			.187	.466
3/4	1.050	.113	.824	.154	.742			.218	.614
1	1.315	.133	1.049	.179	.957			.250	.815
1-1/4	1.660	.140	1.380	.191	1.278			.250	1.160
1-1/2	1.900	.145	1.610	.200	1.500			.281	1.338
2	2.375	.154	2.067	.218	1.939			.343	1.689
2-1/2	2.875	.203	2.469	.276	2.323			.375	2.125
3	3.500	.216	3.068	.300	2.900			.437	2.626
3-1/2	4.000	.226	3.548	.318	3.364				
4	4.500	.237	4.026	.337	3.826	.437	3.626	.531	3.438
5	5.563	.258	5.047	.375	4.813	.500	4.563	.625	4.313
6	6.625	.280	6.065	.432	5.761	.562	5.501	.718	5.189
8	8.625	.322	7.981	.500	7.625	.718	7.189	.906	6.813
10	10.750	.365	10.020	.593	9.564	.843	9.064	1.125	8.500
12	12.750	.406	11.938	.687	11.378	1.000	10.750	1.312	10.126

Thread Designations

Size		NC	NF
In.	mm		
10 -32	4.8	—	10-32 UNF
1/4	6.4	1/4-20 UNC	1/4-28 UNF
5/16	7.9	5/16-18 UNC	5/16-24 UNF
3/8	9.5	3/8-16 UNC	3/8-24 UNF
7/16	11.1	7/16-14 UNC	7/16-20 UNF
1/2	12.7	1/2-13 UNC	1/2-20 UNF
9/16	14.3	9/16-12 UNC	9/16-18 UNF
5/8	15.9	5/8-11 UNC	5/8-18 UNF
3/4	19.1	3/4-10 UNC	3/4-16 UNF
7/8	22.2	7/8-9 UNC	7/8-14 UNF
1	25.4	1-8 UNC	1-14 UNS
1-1/8	28.6	1-1/8-7 UNC	1-1/8-12 UNF
1-3/8	34.9	1-3/8-16 UNC	1-3/8-12 UNF

Metric Table Conversions

Fractional Inch	Decimal Inch	Millimeter	Fractional Inch	Decimal Inch	Millimeter	Fractional Inch	Decimal Inch	Millimeter
1/64	.016	0.40	23/64	.359	9.13	45/64	.703	17.86
1/32	.031	0.79	3/8	.375	9.53	23/32	.719	18.26
3/64	.047	1.19	25/64	.391	9.92	47/64	.734	18.65
1/16	.063	1.59	13/32	.406	10.32	3/4	.750	19.05
5/64	.078	1.98	27/64	.422	10.72	49/64	.766	19.45
3/32	.094	2.38	7/16	.438	11.11	25/32	.781	19.84
7/64	.109	2.78	29/64	.453	11.51	51/64	.797	20.24
1/8	.125	3.18	15/32	.469	11.10	13/16	.813	20.64
9/64	.141	3.57	31/64	.484	12.30	53/64	.828	21.03
5/32	.156	3.97	1/2	.500	12.70	27/32	.844	21.43
11/64	.172	4.36	33/64	.516	13.10	55/64	.860	21.83
3/16	.188	4.76	17/32	.531	13.50	7/8	.875	22.23
13/64	.203	5.16	35/64	.547	13.89	57/64	.891	22.62
7/32	.219	5.56	9/16	.563	14.29	29/32	.906	23.02
15/64	.234	5.95	37/64	.578	14.68	59/64	.922	23.42
1/4	.250	6.35	19/32	.594	15.08	61/64	.938	23.81
17/64	.266	6.75	39/64	.609	15.48	31/32	.969	24.61
9/32	.282	7.14	5/8	.625	15.88	63/64	.984	25.00
19/64	.297	7.54	41/64	.641	16.27	1	1.000	25.40
5/16	.313	7.94	21/32	.656	16.67	2	2.000	50.80
21/64	.328	8.33	43/64	.672	17.07	3	3.000	76.20
11/32	.344	8.73	11/16	.688	17.46			

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