

# Airetool®

## Product Catalog



Condenser & Boiler Expanders

Rolling Controls

Pipe & Tube Cleaners

Installation & Removal Tools



Equipment Group International





The Airetool® family of tube service tools is one of 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 consistently time after time. 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. Equipment Group International has brought back the exacting quality that Airetool brand is known for. While manufacturing in the USA 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 tool balancing systems do just that, coupled with extending expander or associated tooling life.



# Boiler Expanders

## Boiler Expanders

Tube expanding is the art of cold working the ends of tubes into intimate contact with the metal of the containing tube holes to form a leak proof mechanical seal and/ or joint. In other words, it is a mechanical method of establishing a mechanical joint between a tube and a tube hole. Boiler expanders do not include a mandrel when ordered because its possible to obtain them with three different types of mandrels depending on the application.

**Header Mandrel** – This is the longest mandrel that incorporates an extension that allows you to reach through manifolds or header boxes.

**Drum Mandrel** – This mandrel is used when you are expanding inside the boiler drum and can get to the tube at the end.

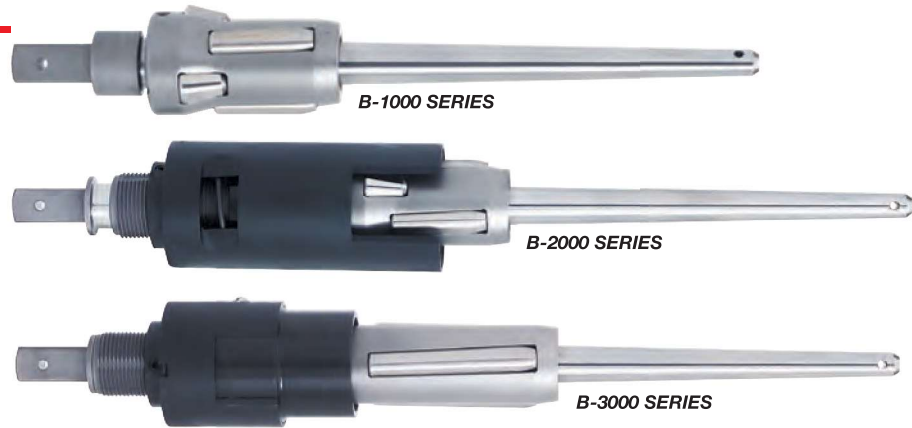
**Short Series Mandrel Sets** – There are times when the space inside a boiler drum will not allow use of the longer header or drum mandrels. Short series mandrel sets solve this problem by allowing you to expand the tube in multiple steps when space is limited. If you were to take the tapered portion of a header or drum mandrel, cut it in several pieces and add a drive to each section, you would have a short series mandrel set.

**Rolls** – A set of tapered cylindrical parts which are driven by mandrel and contact the tube wall to be expanded. The taper on the rolls is in the reverse direction and one-half the taper of the mandrel if it is a parallel roll expander.

**Flare or Bell Rolls** – This type roll is added to the back of the cage on boiler or furnace expanders to flare the tube end after it has been expanded.

**Cage** – This is the expander body or housing since it holds the mandrel and rolls in place. The slots which contain the rolls also provide a feed angle which helps pull the mandrel in to provide expansion of the rolls.

**Thrust Assembly** – This assembly attaches to the cage and allows adjustment of the expanding depth. The thrust collar will remain stationary against the tube sheet or tube end while the cage, mandrel and rolls expand the tube. A thrust assembly is used on condenser/heat exchanger expanders, some furnace expanders and special boiler expanders.



## When selecting a boiler expander, you must know:

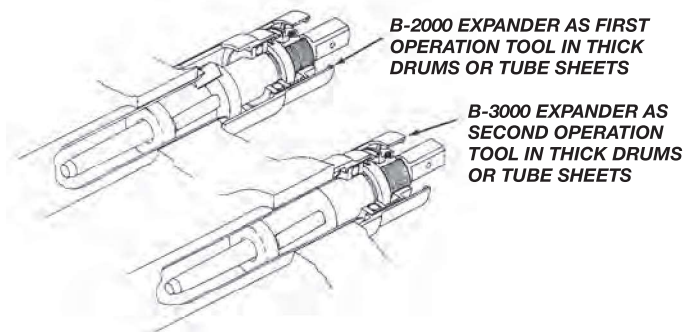
- Tube O.D.
- Tube wall thickness or BWG.
- Tube sheet or drum thickness.
- Minimum straight section at end of tube.
- Drum diameter if less than 18”.

This information will allow you to select the proper type boiler expander and mandrels.

**B-1000 Series Boiler Expanders** - The B-1000 series expanders incorporate tube expanding and tube flaring into one tool. They are used when torque control is not desired or where space is limited such as in a small diameter header. Both expanding and flaring rolls are self contained in the cage. The B-1000 series expanders are available for 1 – 4-1/2” O.D. tubes and can accommodate tube sheet thicknesses from 1/2 – 2-3/4”. Short series mandrels are also available. A B-1000 series expander can be converted to a B-2000 series by simply adding the thrust mechanism.

**B-2000 Series Boiler Expanders** - The B-2000 series expanders are the same basic expander as the B-1000 series except that they have an exclusive drift thrust assembly that makes torque control possible. The thrust assembly is adjustable and allows accurate positioning of the expander in the tube in relation to the drum for consistent joint expansion on every tube. The B-2000 series expanders are available for 1 – 4-1/4” O.D. tubes and can accommodate tube sheet thicknesses from 1/2 - 2-3/4”.

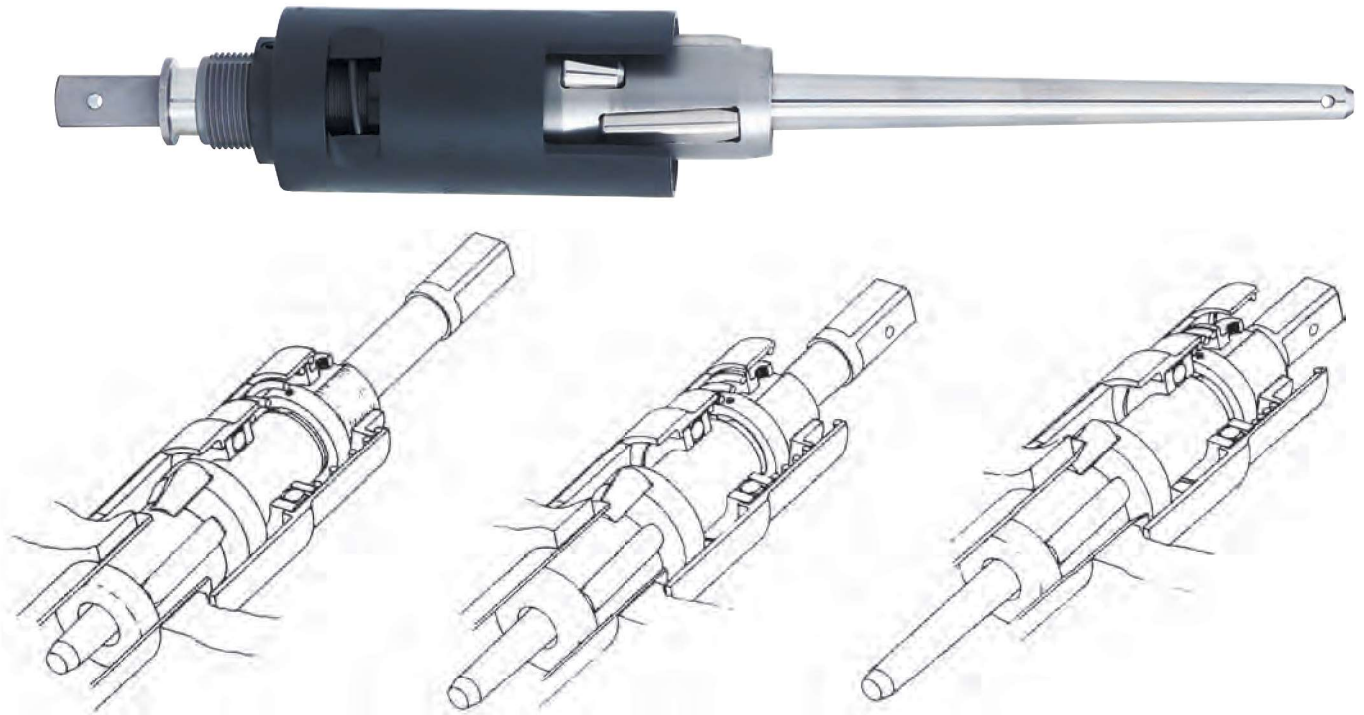
**B-3000 Series Boiler Expanders** - Straight roll expander for non-flare fire tube boiler applications. It can be used in conjunction with Airetool B-1000 or B-2000 flare type expanders in thicker tube sheet applications. The B-3000 expanders are available for 1-1/4 – 4-1/4” O.D. tubes and can accommodate drums up to 5-3/8” thick.





## B-2000 Operation Boiler Tube Expanders B-2000 Series Patented Thrusts Assembly

- Airetool B-2000 Series boiler tube expander with its exclusive 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.



# B-1000 Series Boiler Expanders

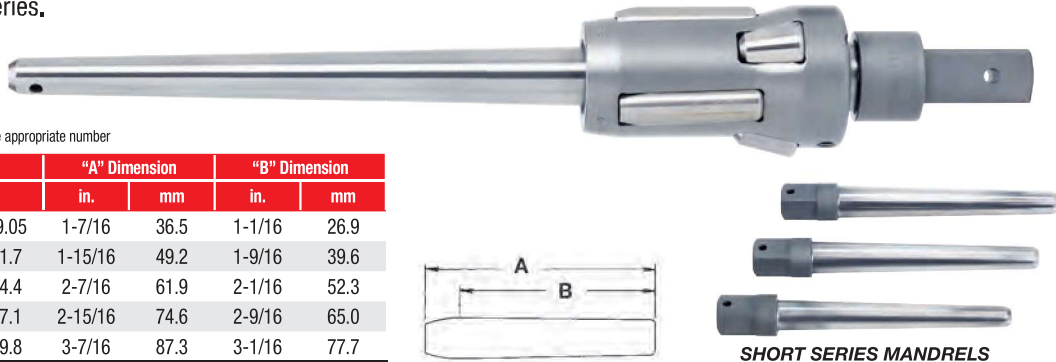
(Mandrels Sold Separately)

## B-1000 Series Boiler Expanders (Mandrels Sold Separately)

- Tube expanding & tube flaring in one tool combines operations.
- Used when torque control is not desired or when space is limited.
- Self contained rolls keep tool components together.
- Convertible to B-2000 series.



B-1000 Series: x = Tube Sheet Thickness  
Refer to the Expander Table: Replace the X with the appropriate number



SHORT SERIES MANDRELS

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

Expander Number*	Tube Size				Expander							
	O.D.	Gauge	O.D.	Gauge	Expansion Range		Straight Roll Set*	Complete Roll Set*	Mandrel Options			
					in.	mm			Long Mandrel		Square Drive	Short Mandrel**
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"		
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
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	1.722-2.027	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	59.0-66.0	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	15-25/32"	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	15-25/32"	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	15-25/32"	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	95.0-96.0	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-1386-x	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

\*x Signifies tube sheet thickness

\*\* Note: Short Mandrel lengths: MPS-1 thru MPS-10 = 7" (177.8mm), MPS-11 thru MPS-16 = 8" (203.2mm), MPS-17 thru MPS-21 = 9" (228.1mm)

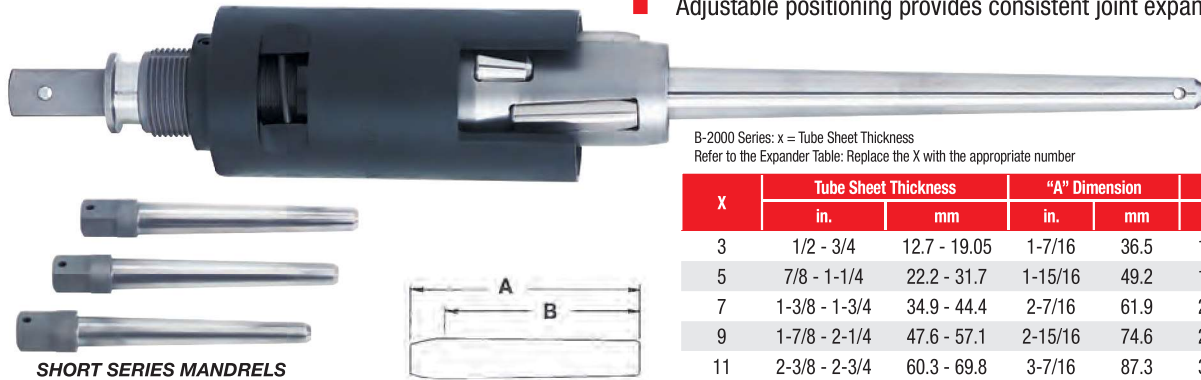
# B-2000 Series Boiler Expanders

(Mandrels Sold Separately)



## B-2000 Series Boiler Expanders (Mandrels Sold Separately)

- Incorporates exclusive drift thrust collar.
- Adjustable positioning provides consistent joint expansion every time.



B-2000 Series: x = Tube Sheet Thickness  
Refer to the Expander Table: Replace the X with the appropriate number



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

Tube Size					Expander							
Expander Number*	O.D.	Gauge	O.D.	Gauge	Expansion Range		Straight Roll Set*	Complete Roll Set*	Mandrel Options			
					in.	mm			Long Mandrel		Square Drive	Short Mandrel **
									Number	Length		
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-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	16-31/64"	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
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	1.722-2.027	45.0-51.5	174-x-RS	174-x-FS	197-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	67-076.0	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	95.0-96.0	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-2386-x	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

\*x Signifies tube sheet thickness

\*\* Note: Short Mandrel lengths: MPS-1 thru MPS-10 = 7" (177.8mm), MPS-11 thru MPS-16 = 8" (203.2mm), MPS-17 thru MPS-21 = 9" (228.1mm)



# B-3000 Series Boiler Expanders

(Mandrels Sold Separately)

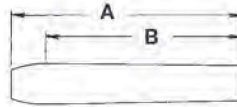
## B-3000 Series Boiler Expanders (Mandrels Sold Separately)

- Straight roll expander for non-flare tube rolling.
- Use in conjunction with B-1000 & B-2000 expanders for thicker tube sheet applications.
- Convertible to B-2000 series.



B-3000 Series: x = Tube Sheet Thickness  
Refer to the Expander Table: Replace the X with the appropriate number

X	Tube Sheet Thickness		"A" Dimension		"B" Dimension	
	in.	mm	in.	mm	in.	mm
7	1-3/8 - 1-3/4	34.9 - 44.4	2-7/16	61.9	2-1/16	52.3
11	2-3/8 - 2-3/4	60.3 - 69.8	3-7/16	87.3	3-1/16	77.7



SHORT SERIES MANDRELS

Expander Number*	Tube Size				Expander						
	O.D.	Gauge	O.D.	Gauge	Expansion Range		Straight Roll Set*	Mandrel Options			
					in.	mm		Long Mandrel	Square Drive	Short Mandrels **	
B-3111-7	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-3118-7	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-3126-7	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	16-31/64"	3/4	MS-2,3,4
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
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
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	1.722-2.027	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			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			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	67-076.0	260-x-RS	268-M	20-1/64"	1	MS-10,11,12,13,14
B-3268-x	3	13-14			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			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			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			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			3.111-3.465	79.0-88.0	284-x-RS	347-M	22-15/32"	1	MS-15,16,17,18,19
B-3315-x	3-1/2	13-15			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			3.347-3.780	95.0-96.0	331-x-RS	347-M	22-15/32"	1	MS-14,15,16,17,18,19
B-3339-x	3-3/4	13-16			3.426-3.858	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			3.505-3.937	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			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	13-15			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			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			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			3.997-4.407	101.5-111.9	394-x-RS	394-M	22-33/64"	1	MS-17,18,19,20,21

\*x Signifies tube sheet thickness

\*\* Note: Short Mandrel lengths: MPS-1 thru MPS-10 = 7" (177.8mm), MPS-11 thru MPS-16 = 8" (203.2mm), MPS-17 thru MPS-21 = 9" (228.1mm)





# Boiler Expanders

## B-1000 & B-2000 Series Boiler Expanders Material Descriptions & Ordering Numbers

Material Description	Material Number	Material Description	Material Number	Material Description	Material Number	Material Description	Material Number	Material Description	Material Number
B-1079-3	5522190	B-1150-3	5522796	B-1244-3		B-1339-3		B-2095-3	
B-1079-5		B-1150-5	5522197	B-1244-5		B-1339-5		B-2095-5	5521961
B-1079-7		B-1150-7	5521883	B-1244-7	5522181	B-1339-7		B-2095-7	
B-1079-9		B-1150-9	5521888	B-1244-9	5522842	B-1339-9		B-2095-9	
B-1079-11		B-1150-11	5521862	B-1244-11	5521952	B-1339-11	5522540	B-2095-11	
B-1083-3		B-1158-3	5521933PT	B-1252-3	5521953	B-1347-3	5526391	B-2099-3	
B-1083-5	5523808	B-1158-5	5521934	B-1252-5	5522327	B-1347-5		B-2099-5	
B-1083-7		B-1158-7	5521935	B-1252-7	5522477	B-1347-7	5522180	B-2099-7	
B-1083-9		B-1158-9	5521845	B-1252-9	5521954	B-1347-9		B-2099-9	
B-1083-11		B-1158-11	5521910	B-1252-11	5522320PT	B-1347-11	5523722	B-2099-11	
B-1087-3	5523735	B-1166-3	5521936	B-1260-3	5521955	B-1355-3		B-2103-3	
B-1087-5	5525513	B-1166-5	5521937	B-1260-5	5522094	B-1355-5		B-2103-5	5522411
B-1087-7		B-1166-7	5521938	B-1260-7	5522095	B-1355-7	5525944	B-2103-7	
B-1087-9		B-1166-9	5521939	B-1260-9	5522096	B-1355-9	5524221	B-2103-9	
B-1087-11		B-1166-11	5521940	B-1260-11	5522097	B-1355-11		B-2103-11	
B-1091-3		B-1174-3	5521941	B-1268-3		B-1363-3	5522062	B-2111-3	
B-1091-5		B-1174-5	5521942PT	B-1268-5	5521957	B-1363-5		B-2111-5	
B-1091-7		B-1174-7	5521943	B-1268-7		B-1363-7		B-2111-7	
B-1091-9		B-1174-9	5521944	B-1268-9		B-1363-9		B-2111-9	
B-1091-11		B-1174-11	5521945	B-1268-11		B-1363-11		B-2111-11	
B-1095-3		B-1181-3	5522017	B-1276-3	5523191	B-1370-3		B-2118-3	5521963
B-1095-5	5521927	B-1181-5	5522149	B-1276-5	5523270	B-1370-5		B-2118-5	
B-1095-7		B-1181-7	5522868	B-1276-7	5524555	B-1370-7		B-2118-7	
B-1095-9		B-1181-9	5522783	B-1276-9		B-1370-9		B-2118-9	
B-1095-11		B-1181-11	5522205PT	B-1276-11		B-1370-11		B-2118-11	
B-1099-3		B-1189-3	5525255	B-1284-3	5522173	B-1378-3		B-2126-3	5525355PT
B-1099-5	5525463	B-1189-5	5522393	B-1284-5	5521958	B-1378-5		B-2126-5	
B-1099-7	5525386	B-1189-7	5522179	B-1284-7		B-1378-7		B-2126-7	5524532PT
B-1099-9		B-1189-9	5522782	B-1284-9		B-1378-9		B-2126-9	
B-1099-11		B-1189-11	5523948	B-1284-11	5525545	B-1378-11		B-2126-11	
B-1103-3	5525904	B-1197-3	5525999	B-1292-3		B-1386-3		B-2134-3	
B-1103-5		B-1197-5		B-1292-5		B-1386-5		B-2134-5	
B-1103-7		B-1197-7	5522178	B-1292-7		B-1386-7		B-2134-7	5523729
B-1103-9		B-1197-9		B-1292-9	5525084	B-1386-9		B-2134-9	
B-1103-11		B-1197-11	5522223	B-1292-11		B-1386-11		B-2134-11	
B-1111-3	5522195	B-1205-3	5522426	B-1300-3		B-1394-3	5525605	B-2142-3	
B-1111-5	5521928	B-1205-5	5521946	B-1300-5	5523696PT	B-1394-5	5526042	B-2142-5	5523064
B-1111-7	5522147	B-1205-7	5521947	B-1300-7		B-1394-7		B-2142-7	5522063
B-1111-9	5526051	B-1205-9	5521948	B-1300-9		B-1394-9	5524597	B-2142-9	5521965
B-1111-11		B-1205-11	5521949	B-1300-11		B-1394-11	5525385	B-2142-11	5521966
B-1118-3	5521929	B-1213-3	5521950	B-1308-3	5523571	B-2079-3		B-2150-3	
B-1118-5	5522360	B-1213-5	5521951PT	B-1308-5	5524747	B-2079-5		B-2150-5	5522167
B-1118-7		B-1213-7	5522175	B-1308-7		B-2079-7		B-2150-7	5521967
B-1118-9		B-1213-9	5522146	B-1308-9		B-2079-9		B-2150-9	5521968
B-1118-11		B-1213-11	5522092	B-1308-11	5523694	B-2079-11		B-2150-11	5521902
B-1126-3	5522795	B-1221-3	5521889	B-1315-3		B-2083-3		B-2158-3	
B-1126-5		B-1221-5	5522313	B-1315-5		B-2083-5		B-2158-5	5521971
B-1126-7	5522204	B-1221-7		B-1315-7		B-2083-7		B-2158-7	5521972
B-1126-9		B-1221-9		B-1315-9		B-2083-9		B-2158-9	5521973
B-1126-11		B-1221-11		B-1315-11		B-2083-11		B-2158-11	5521974
B-1134-3	5526046	B-1229-3	5526082	B-1323-3		B-2087-3		B-2166-3	5521975PT
B-1134-5	5521930	B-1229-5		B-1323-5		B-2087-5		B-2166-5	5521897
B-1134-7	5524036	B-1229-7		B-1323-7	5525891	B-2087-7		B-2166-7	5521977
B-1134-9	5521846	B-1229-9		B-1323-9		B-2087-9		B-2166-9	5521978
B-1134-11		B-1229-11		B-1323-11		B-2087-11		B-2166-11	5521979
B-1142-3	5522196	B-1237-3		B-1331-3		B-2091-3		B-2174-3	5521892
B-1142-5	5522391	B-1237-5	5526020	B-1331-5		B-2091-5		B-2174-5	5521981
B-1142-7	5522423	B-1237-7		B-1331-7		B-2091-7		B-2174-7	5521982
B-1142-9	5521931	B-1237-9		B-1331-9		B-2091-9		B-2174-9	5521983
B-1142-11	5521932	B-1237-11	5523711	B-1331-11	5525198	B-2091-11		B-2174-11	5521984

## B-2000, B-3000 Series Boiler Expanders & Mandrel Material Descriptions & Ordering Numbers

Material Description	Material Number	Material Description	Material Number	Material Description	Material Number	Material Description	Material Number	Material Description	Material Number
B-2181-3		B-2276-3		B-2370-3		B-3276-11	5523194	83-M	
B-2181-5		B-2276-5	5523087	B-2370-5		B-3284-7	5523026	91-M	2995063
B-2181-7		B-2276-7		B-2370-7		B-3284-11		99-M	2995057
B-2181-9	5523784	B-2276-9		B-2370-9		B-3292-7	5524448	118-M	2993819
B-2181-11	5523785	B-2276-11		B-2370-11		B-3292-11		126-M	2993820
B-2189-3	5522452	B-2284-3		B-2378-3		B-3300-7	5526349	134-M	2902805
B-2189-5		B-2284-5		B-2378-5		B-3300-11		150-M	2993821
B-2189-7		B-2284-7		B-2378-7		B-3308-7		174-M	2993545
B-2189-9		B-2284-9	5525237	B-2378-9		B-3308-11		197-M	2994636
B-2189-11		B-2284-11		B-2378-11		B-3315-7	5523710	221-M	2993822
B-2197-3	5525873	B-2292-3		B-2386-3		B-3315-11		244-M	2993823
B-2197-5		B-2292-5		B-2386-5		B-3323-7	5523763	268-M	2993824
B-2197-7		B-2292-7		B-2386-7		B-3323-11		300-M	2994303
B-2197-9		B-2292-9		B-2386-9		B-3331-7	5523220	347-M	2994235
B-2197-11		B-2292-11		B-2386-11		B-3331-11	5525197	394-M	2994208
B-2205-3		B-2300-3		B-2394-3	5526218	B-3339-7			
B-2205-5		B-2300-5		B-2394-5		B-3339-11	5522269		
B-2205-7	5521986	B-2300-7		B-2394-7		B-3347-7	5522319	83-MP	2993831
B-2205-9	5521987	B-2300-9		B-2394-9		B-3347-11	5523311PT	91-MP	2995080
B-2205-11	5521988	B-2300-11		B-2394-11	5525608	B-3355-7	5524218	99-MP	2993832
B-2213-3	5521989	B-2308-3	5525607	B-3111-7	5522000	B-3355-11		118-MP	2993833
B-2213-5	5521990	B-2308-5		B-3118-7	5522001	B-3363-7	5522111	126-MP	2994714
B-2213-7	5522498	B-2308-7		B-3126-7	5522002PT	B-3363-11		134-MP	2994065
B-2213-9	5522499	B-2308-9		B-3134-7	5522206	B-3370-7	5522020	150-MP	2993834
B-2213-11	5522200	B-2308-11	5526011	B-3134-11		B-3370-11		174-MP	2993835
B-2221-3	5521991	B-2315-3		B-3142-7	5522003	B-3378-7		197-MP	2994196
B-2221-5	5522812	B-2315-5		B-3142-11	5522004	B-3378-11	5526556PT	221-MP	2993836
B-2221-7		B-2315-7		B-3150-7	5522005	B-3386-7		244-MP	2993837
B-2221-9		B-2315-9		B-3150-11	5521861	B-3386-11		268-MP	2993838
B-2221-11		B-2315-11		B-3158-7	5522006	B-3394-7	5522427	300-MP	2994133
B-2229-3		B-2323-3	5525510	B-3158-11	5522007	B-3394-11	5524626	347-MP	2994675
B-2229-5		B-2323-5	5525498	B-3166-7	5522008			394-MP	2994321
B-2229-7		B-2323-7		B-3166-11	5522009				
B-2229-9	5525606	B-2323-9		B-3174-7	5521692				
B-2229-11		B-2323-11	5523775	B-3174-11	5522010			MPS-1	2994289
B-2237-3		B-2331-3		B-3181-7	5522918			MPS-2	2994290
B-2237-5		B-2331-5		B-3181-11				MPS-3	2994070
B-2237-7		B-2331-7	5525050	B-3189-7				MPS-4	2994071
B-2237-9		B-2331-9		B-3189-11	5523691			MPS-5	2994072
B-2237-11	5524444PT	B-2331-11		B-3197-7	5522318PT			MPS-6	2994073
B-2244-3		B-2339-3		B-3197-11	5522032			MPS-7	2994074
B-2244-5		B-2339-5		B-3205-7	5522011PT			MPS-8	2994075
B-2244-7		B-2339-7		B-3205-11	5522012			MPS-9	2994192
B-2244-9		B-2339-9		B-3213-7	5522260			MPS-10	2994193
B-2244-11	5521992	B-2339-11	5522544	B-3213-11	5522121			MPS-11	2994194
B-2252-3		B-2347-3		B-3221-7	5522098			MPS-12	2994293
B-2252-5		B-2347-5		B-3221-11	5522099			MPS-13	2994294
B-2252-7	5523089	B-2347-7	5523730	B-3229-7	5522869			MPS-14	2994295
B-2252-9	5521994	B-2347-9		B-3229-11	5525863			MPS-15	2994296
B-2252-11	5522293	B-2347-11	5522240	B-3237-7	5522013			MPS-16	2994297
B-2260-3	5521995	B-2355-3		B-3237-11	5522014			MPS-17	2994298
B-2260-5	5523357PT	B-2355-5		B-3244-7	5522787			MPS-18	2994299
B-2260-7	5524223	B-2355-7	5524219	B-3244-11	5522425			MPS-19	2994300
B-2260-9	5525158	B-2355-9		B-3252-7	5521893			MPS-20	2994301
B-2260-11	5522294	B-2355-11		B-3252-11	5522015			MPS-21	2994302
B-2268-3		B-2363-3		B-3260-7	5521894				
B-2268-5		B-2363-5		B-3260-11	5522292				
B-2268-7		B-2363-7		B-3268-7	5524157				
B-2268-9		B-2363-9		B-3268-11	5523193				
B-2268-11		B-2363-11		B-3276-7	5522407PT				



# Boiler Expanders

## Roll Set Material Descriptions & Ordering Numbers

Material Description	Material Number	Material Description	Material Number	Material Description	Material Number	Material Description	Material Number	Material Description	Material Number	Material Description	Material Number
079-3-FS		103-9-RS		158-7-FS	5522373	221-3-RS		276-11-FS	5525382PT	355-7-RS	5524220
079-3-RS	5523172	103-11-FS		158-7-RS	5522225	221-5-FS	5522054	276-11-RS	5525381	355-9-FS	5524222PT
079-5-FS	5525164	103-11-RS		158-9-FS	5521848	221-5-RS		284-3-FS	5523578	355-9-RS	
079-5-RS		111-3-FS		158-9-RS	5522519	221-7-FS	5522055	284-3-RS		355-11-FS	5523010PT
079-7-FS	5526561PT	111-3-RS		158-11-FS	5522048PT	221-7-RS	5523687	284-5-FS	5522873	355-11-RS	5523011
079-7-RS		111-5-FS	5522312PT	158-11-RS	5521911	221-9-FS		284-5-RS	5523246	363-3-FS	5526393
079-9-FS		111-5-RS		166-3-FS	5522348	221-9-RS		284-7-FS		363-3-RS	5526392
079-9-RS		111-7-FS	5524554	166-3-RS	5523155	221-11-FS	5522056	284-7-RS	5523415	363-5-FS	
079-11-FS		111-7-RS	5522493	166-5-FS	5522049	221-11-RS	5522150	284-9-FS		363-5-RS	
079-11-RS		111-9-FS		166-5-RS	5522064	237-3-FS	5523599	284-9-RS		363-7-FS	5522182
083-3-FS	5523046	111-9-RS		166-7-FS	5522027	237-3-RS		284-11-FS	5523695	363-7-RS	5523024
083-3-RS		111-11-FS		166-7-RS	5522531	237-5-FS	5526021	284-11-RS		363-9-FS	
083-5-FS		111-11-RS		166-9-FS	5522036	237-5-RS		292-3-FS		363-9-RS	
083-5-RS		118-3-FS	5522786	166-9-RS	5522779	237-7-FS	5523399	292-3-RS		363-11-FS	5523309
083-7-FS	5526562PT	118-3-RS	5526018	166-11-FS	5522037	237-7-RS	5523818	292-5-RS		363-11-RS	5523310
083-7-RS		118-5-FS	5522361	166-11-RS	5522126	237-9-FS	5522144	292-5-RS		370-3-FS	
083-9-FS		118-5-RS		174-3-FS	5523113	237-9-RS		292-7-FS		370-3-RS	
083-9-RS		118-7-FS	5522814	174-3-RS	5523950	237-11-FS	5522142	292-7-RS	5524449	370-5-FS	
083-11-FS		118-7-RS	5522828	174-5-FS	5522051	237-11-RS	5522141	292-9-FS		370-5-RS	
083-11-RS		118-9-FS		174-5-RS	5525683PT	252-3-FS	5524791	292-9-RS		370-7-FS	
087-3-FS		118-9-RS	5523453	174-7-FS	5522050	252-3-RS		292-11-FS		370-7-RS	5522441
087-3-RS		118-11-FS		174-7-RS	5522271	252-5-FS	5522328	292-11-RS		370-9-FS	
087-5-FS		118-11-RS		174-9-FS	5522270	252-5-RS		315-3-FS		370-9-RS	
087-5-RS		126-3-FS	5522792PT	174-9-RS	5522992	252-7-FS	5522183	315-3-RS		370-11-FS	
087-7-FS		126-3-RS	5525356	174-11-FS	5522052	252-7-RS	5522436	315-5-FS	5523697PT	370-11-RS	
087-7-RS		126-5-FS	5522876	174-11-RS	5523215	252-9-FS	5522848	315-5-RS		378-3-FS	
087-9-FS		126-5-RS		181-3-FS	5524738	252-9-RS	5524331	315-7-FS		378-3-RS	
087-9-RS		126-7-FS	5523731	181-3-RS		252-11-FS	5522038	315-7-RS	5523762	378-5-FS	
087-11-FS		126-7-RS	5522989	181-5-FS	5522369	252-11-RS	5522087	315-9-FS		378-5-RS	
087-11-RS		126-9-FS	5521849	181-5-RS		260-3-FS	5523152	315-9-RS		378-7-FS	
095-3-FS	5522322	126-9-RS	5525691	181-7-FS	5522164	260-3-RS		315-11-FS		378-7-RS	
095-3-RS		126-11-FS	5525168	181-7-RS	5522913	260-5-FS	5522057PT	315-11-RS		378-9-FS	
095-5-FS	5522412	126-11-RS	5524958PT	181-9-FS	5522849	260-5-RS		323-3-FS		378-9-RS	
095-5-RS		142-3-FS		181-9-RS		260-7-FS	5522058	323-3-RS		378-11-FS	
095-7-FS		142-3-RS		181-11-FS	5523786	260-7-RS	5522911	323-5-FS	5525499	378-11-RS	5526557PT
095-7-RS		142-5-FS	5522392	181-11-RS	5522850	260-9-FS	5522059	323-5-RS	5525500	386-3-FS	
095-9-FS		142-5-RS	5525911PT	205-3-FS	5522867	260-9-RS		323-7-FS		386-3-RS	
095-9-RS		142-7-FS	5522066PT	205-3-RS		260-11-FS	5522060	323-7-RS	5523764	386-5-FS	
095-11-FS		142-7-RS	5522065	205-5-FS	5522395	260-11-RS	5522481	323-9-FS		386-5-RS	
095-11-RS		142-9-FS	5521850	205-5-RS	5522529	268-3-FS		323-9-RS		386-7-FS	
099-3-FS		142-9-RS	5522947	205-7-FS	5522177	268-3-RS		323-11-FS	5523776	386-7-RS	
099-3-RS		142-11-FS	5522235	205-7-RS	5522317	268-5-FS	5522370	323-11-RS	5522031	386-9-FS	
099-5-FS	5526003	142-11-RS	5522028	205-9-FS	5522316	268-5-RS	5522895	331-3-FS	5522893	386-9-RS	
099-5-RS		150-3-FS	5522813	205-9-RS		268-7-FS	5525323	331-3-RS		386-11-FS	
099-7-FS		150-3-RS		205-11-FS	5522221	268-7-RS	5525876	331-5-FS		386-11-RS	
099-7-RS		150-5-FS	5522781	205-11-RS	5522033	268-9-FS		331-5-RS		394-3-FS	
099-9-FS		150-5-RS	5524531	213-3-FS	5522339	268-9-RS		331-7-FS		394-3-RS	5526219
099-9-RS		150-7-FS	5521884	213-3-RS	5523777	268-11-FS	5522061	331-7-RS	5523221	394-5-FS	5523360
099-11-FS		150-7-RS	5522086	213-5-FS	5522805	268-11-RS	5521976	331-9-FS		394-5-RS	
099-11-RS		150-9-FS	5521891	213-5-RS	5522530	276-3-FS	5524737	331-9-RS		394-7-FS	
103-3-FS		150-9-RS	5522518	213-7-FS	5522176	276-3-RS		331-11-FS	5525200	394-7-RS	
103-3-RS	5526024	150-11-FS	5521864	213-7-RS	5522315	276-5-FS	5523091	331-11-RS	5525199	394-9-FS	
103-5-FS	5522390	150-11-RS	5521863	213-9-FS	5522314	276-5-RS		355-3-FS		394-9-RS	
103-5-RS		158-3-FS	5522238	213-9-RS		276-7-FS	5523092PT	355-3-RS		394-11-FS	
103-7-FS		158-3-RS		213-11-FS	5522053	276-7-RS	5524323	355-5-FS	5522483	394-11-RS	
103-7-RS		158-5-FS	5522302	213-11-RS	5522155	276-9-FS		355-5-RS			
103-9-FS		158-5-RS	5523693	221-3-FS		276-9-RS		355-7-FS	5523090		

## FTE Series Firetube Boiler Tube Expanders

Airetool product engineers have designed an economical, yet durable Firetube boiler tube expander for non-flaring (FTE) applications with 3/8" to 1" thick tube sheets. This unique design increases the expansion range for a given expander and includes a metal roll retainer that keeps the rolls in the expander's cage when the mandrel is removed. Mandrels are sold separately with choices based on application and space limitations.

Available for 2", 2-1/2" and 3" O.D. Tubes with 10-14 gauge tube walls. The FTE Series are excellent tube expanders for expanding air heater tubes in power utility boilers.

- Flip collar accommodates different tube sheet thicknesses.
- 3-roll design expands and seals tubes in round or oval tube sheet holes.
- Increased expansion range means less inventory and lower operating costs.
- Ball bearing thrust collar allows torque controlled tube rolling.
- Short mandrels for use in limited space applications.



### FTE Series Expanders

Expander		Tube Size			Expansion Range w/ Drum Mandrel		Drum Mandrel		Mandrel Square		Mandrel Length	
Model No.	Order No.	in.	mm	Gauge	in.	mm	Model No.	Order No.	in.	mm	in.	mm
FTE 200	5523811	2	50.8	10-14	1.656 - 1.940	42.1 - 49.2	FTE-200-M	2997688	3/4	19.0	11.75	298.5
FTE 250	5523812	2-1/2	63.5	10-14	2.125 - 2.440	53.9 - 61.9	FTE-250-M	2997689	1	25.4	12.13	308.0
FTE 300	5523813	3	76.2	10-14	2.565 - 2.940	65.0 - 74.6	FTE-300-M	2997690	1	25.4	13.13	333.4

### Short Mandrels for FTE Expanders

Expander		Expansion Range w/ Drum Mandrel	
Model No.	Order No.	in.	mm
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

### FTE Replacement Roll Sets

Expander		Tube Size	
Model No.	Order No.	in.	mm
FTE-200-RS	5524570	2	50.8
FTE-250-RS	5524571	2-1/2	63.5
FTE-300-RS	5524572	3	76.2

# Boiler Expanders

## FTF Series Firetube Boiler Flaring Tube Expanders

The FTF series expanders complement the FTE series boiler expanders but include tube flaring capabilities. This design incorporates a thrust collar for torque controlled tube rolling, roll retainers, and offset flare rolls.

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. Mandrels are sold separately with choices based on application and space limitations.

- 3-roll design expands and seals tubes in round or oval tube sheet holes.
- Offset flare rolls eliminate ridges produced by competitive models.
- Metal roll retainers keep the rolls in tool when mandrel is removed.
- Increased expansion range: Accommodates more tube sizes, reducing inventory cost.
- Thrust collar: Provides uniform flared tube ends.
- Short mandrel options for use in limited space applications.



### FTF Series Expanders

Expander		Tube Size			Tube Sheet Thickness		Expansion Range w/ Drum Mandrel		Drum Mandrel		Mandrel Square		Mandrel Length	
Model No.	Order No.	in.	mm	Gauge	in.	mm	in.	mm	Model No.	Order No.	in.	mm	in.	mm
<b>Tube Sheet Thickness 3/8 - 5/8" (9.5 - 15.8mm)</b>														
FTF 200 A	5524470	2	50.8	10-14	3/8 - 5/8	9.5 - 16.0	1.656 - 1.940	42.1 - 49.2	FTE-200-M	2997688	3/4	19.0	11.75	298.5
FTF 250 A	5524472	2-1/2	63.5	10-14	3/4 - 1	19.0 - 25.0	2.125 - 2.440	53.9 - 61.9	FTE-250-M	2997689	1	25.4	12.13	308.0
FTF 300 A	5524474	3	76.2	10-14	3/8 - 5/8	9.5 - 16.0	2.565 - 2.940	65.0 - 74.6	FTE-300-M	2997690	1	25.4	13.13	333.4
<b>Tube Sheet Thickness 3/4 - 1" (19.05 - 25.48mm)</b>														
FTF 200 B	5524471	2	50.8	10-14	3/4 - 1	19.0 - 25.0	1.656 - 1.940	42.1 - 49.2	FTE-200-M	2997688	3/4	19.0	11.75	298.5
FTF 250 B	5524473	2-1/2	63.5	10-14	3/8 - 5/8	9.5 - 16.0	2.125 - 2.440	53.9 - 61.9	FTE-250-M	2997689	1	25.4	12.13	308.0
FTF 300 B	5524475	3	76.2	10-14	3/4 - 1	19.0 - 25.0	2.565 - 2.940	65.0 - 74.6	FTE-300-M	2997690	1	25.4	13.13	333.4

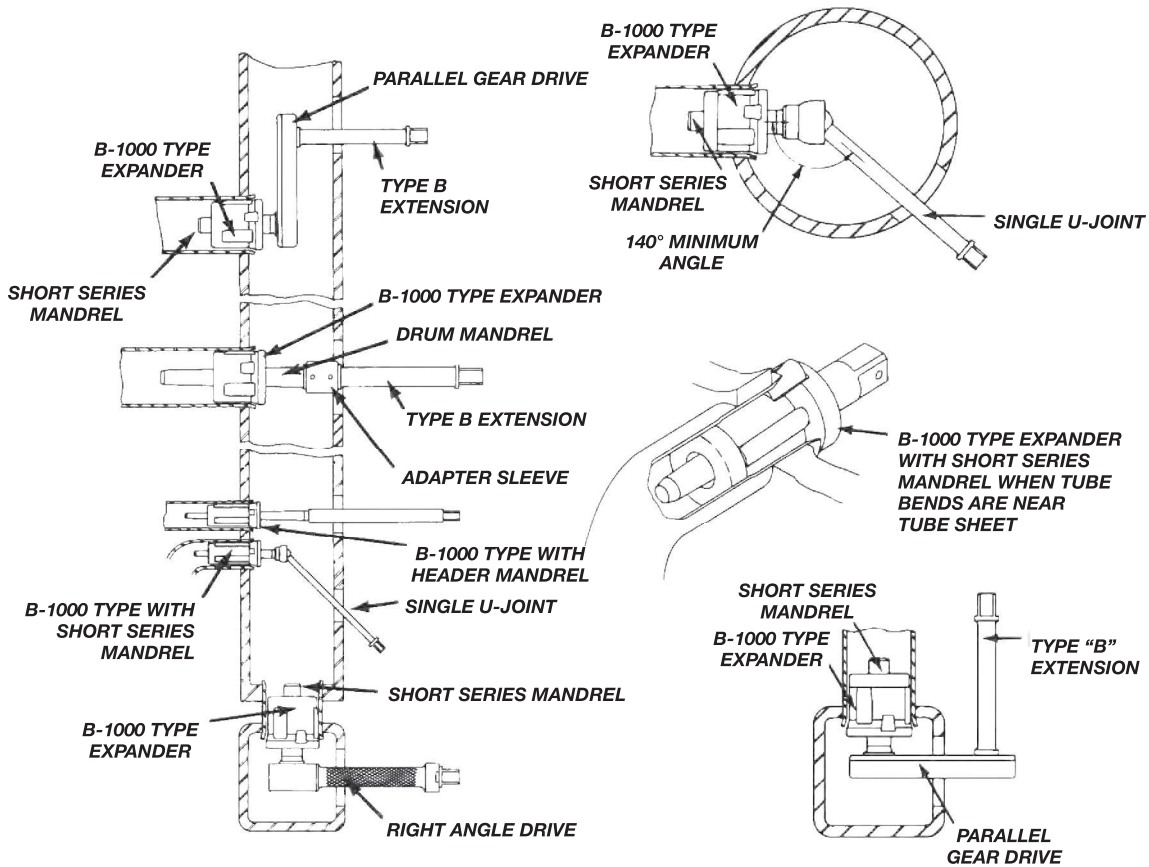
### Short Mandrels

Expander		Expansion Range w/ Drum Mandrel	
Model No.	Order No.	in.	mm
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
FTF 300 B FS	5524638	3	76.2

### FTF Replacement Roll Sets

Expander		Tube Size	
Model No.	Order No.	in.	mm
<b>Tube Sheet Thickness 3/8 - 5/8" (9.5 - 15.8mm)</b>			
FTF 200 A FS	5524633	2	50.8
FTF 250 A FS	5524635	2-1/2	63.5
FTF 300 A FS	5524637	3	76.2
<b>Tube Sheet Thickness 3/4 - 1" (19.05 - 25.48mm)</b>			
FTF 200 B FS	5524634	2	50.8
FTF 250 B FS	5524636	2-1/2	63.5
FTF 300 B FS	5524638	3	76.2





## 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 Number	Order Number	Female Square Drive		Overall Length		Weight	
		in.	mm	in.	mm	lbs.	Kg
21 3/8	2021700	3/8	9.5	7.0	177.8	1.0	0.45
21 1/2	2021600	1/2	12.7	7.0	177.8	1.0	0.45
23 1/2	2023000	1/2	12.7	13.0	330.2	3.75	1.70
24 3/4	2023900	3/4	19.0	15.0	381.0	6.0	2.73
24 1	2023800	1	25.4	15.0	381.0	6.0	2.73



## Adapter Sleeve



Model Number	Order Number	Female Square Drive		Weight	
		in.	mm	lbs.	Kg
3/8 X 3/8	2113900	3/8	9.5	0.25	0.11
1/2 X 1/2	2038850	1/2	12.7	0.50	0.23
3/4 X 3/4	2113400	3/4	19.0	1.25	0.57
1 X 1	2001900	1	25.4	1.75	0.80

## Universal Joint



Universal Joint	Order Number	Female Square Size		Overall Length	
		in.	mm	in.	mm
3/8 x 3/8	2115300	3/8	9.5	2.50	64
1/2 x 1/2	2039800	1/2	12.7	2.75	70
3/4 x 3/4	2974913	3/4	19.0	3.50	89

# Boiler Tube Expander 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



### Right Angle Gear Drives

Order Number	Model Number	Housing Size		Drive Square Drive		Driven Square Drive		Overall Length		Housing Dimensions & Weight								Round hole Tool Enters	
										Width		Thickness		Length		Weight			
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	Kg	in.	mm
5169900	RA 100	0.50	12.7	1/2	12.7	1/2	12.7	10.0	254.0	2.25	57.2	1.37	34.8	3.25	82.6	3.75	1.70	3.25	82.6
5170000	RA 101	0.50	12.7	1/2	12.7	3/4	19.0	10.0	254.0	2.25	57.2	1.37	34.8	3.25	82.6	3.75	1.70	3.25	82.6
5170100	RA 102	0.50	12.7	3/4	19.0	3/4	19.0	10.0	254.0	2.25	57.2	1.37	34.8	3.25	82.6	3.75	1.70	3.25	82.6
5170500	RA 106	0.75	19.0	3/4	19.0	3/4	19.0	11.4	289.6	2.75	69.9	1.87	47.5	4.00	101.6	7.50	3.41	4.00	101.6
5170900	RA 110	1.00	25.4	1	25.4	1	25.4	12.9	327.7	3.25	82.6	1.87	47.5	4.50	114.3	9.00	4.09	4.25	108.0

### Parallel Gear Drives

Order Number	Model Number	Female Square Drive		Distance between Square Centers		Housing Dimensions & Weight							
						Width		Thickness		Length		Weight	
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	Kg
5169400	P 200	1/2	12.7	6	716.9	2.00	50.8	1.31	33.3	8.50	215.9	5.50	2.50
5169500	P 201	5/8	15.8	6	716.9	2.00	50.8	1.31	33.3	8.50	215.9	5.50	2.50
5169600	P 202	3/4	19.0	6	716.9	2.75	69.9	1.31	33.3	9.25	235.0	8.25	3.75
5169700	P 203	7/8	22.2	6	716.9	2.75	69.9	1.31	33.3	9.25	235.0	8.25	3.75
5169800	P 204	1	25.4	6	716.9	2.75	69.9	1.31	33.3	9.25	235.0	8.25	3.75

## Universal Joints



SINGLE UNIVERSAL JOINT



DOUBLE UNIVERSAL JOINT



## Extensions



EXTENSION TYPE A



EXTENSION TYPE B



Order Number	Drive Socket		Male Square Drive		Overall Length		Weight	
	in.	mm	in.	mm	in.	mm	lbs.	Kg
<b>Single Universal Joint</b>								
5343500	3/8	9.5	3/8	9.5	9	228.6	0.50	0.23
5343600	3/8	9.5	3/8	9.5	12	203.2	0.62	0.28
5342800	1/2	12.7	1/2	12.7	9	225.6	0.62	0.28
5342900	1/2	12.7	1/2	12.7	12	203.2	0.75	0.34
5343000	1/2	12.7	1/2	12.7	16	406.4	1.00	0.45
5343100	1/2	12.7	1/2	12.7	20	508.0	2.12	0.96
5343200	3/4	19.0	3/4	19.0	12	203.2	4.24	1.93
5343300	3/4	19.0	3/4	19.0	16	106.4	2.75	1.25
5343400	3/4	19.0	3/4	19.0	20	508.0	3.25	1.48
5342500	1	25.4	1	25.4	12	203.2	4.00	1.82
5342600	1	25.4	1	25.4	16	406.4	4.75	2.16
5342700	1	25.4	1	25.4	20	508.0	5.50	2.50
<b>Double Universal Joint</b>								
5342400	3/8	9.5	3/8	9.5	3.50	88.9	0.75	0.34
5342200	1/2	12.7	1/2	12.7	3.75	95.3	0.88	0.40
5342300	3/4	19.0	3/4	19.0	4.75	120.7	2.00	0.91
5342100	1	25.4	1	25.4	6.69	169.9	4.50	2.05

Size of Square		Type	Ordering Number	O.A.L. Length		Weight	
in.	mm			in.	mm	lbs.	Kg
3/8	9.5	A	2114500	4.0	101.6	0.25	0.11
			2114600	6.0	152.4	0.38	0.17
2114700	8.0		203.2	0.50	0.23		
2037000	4.0		101.6	0.25	0.11		
2037100	6.0		152.4	0.50	0.23		
2037200	8.0		203.2	0.63	0.28		
1/2	12.7		2111200	4.0	101.6	0.63	0.28
			2111300	6.0	152.4	1.00	0.45
			2111400	8.0	203.2	1.50	0.68
3/4	19.0		2002100	4.0	101.6	1.25	0.57
			2002200	6.0	152.4	2.00	0.91
			2002400	8.0	203.2	2.75	1.25
		2114800	10.0	254	0.38	0.17	
1	25.4	2973293	12.0	304.8	0.50	0.23	
		2115100	20.0	508	0.75	0.34	
		2037400	10.0	254	0.50	0.23	
3/8	9.5	B	2037800	12.0	304.8	0.63	0.28
			2038800	20.0	508.4	4.00	1.82
			2111800	10.0	254	1.56	0.71
			5112200	12.0	304.8	1.63	0.74
1/2	12.7		2113300	20.0	508.4	2.56	1.17
			2003200	12.0	304.8	2.88	1.31
3/4	19.0		2004300	20.0	508.4	4.50	2.05
1	25.4						

## 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.**