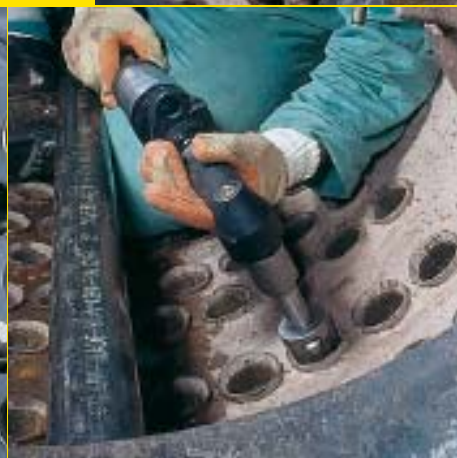




*Smarter Tools for
Smarter Work*

Boiler Tube Expanders and Accessories



- **TUBE EXPANDERS**
- **PNEUMATIC, AND ELECTRONIC ROLLING MOTORS**
- **BEADING, CUTTING AND FACING TOOLS**
- **ACCESSORIES**



Tools for the
maintenance
and repair of...

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BOILERS**

**WATER-TUBE
BOILERS**

SUPER HEATERS

**PRESSURE
VESSELS**

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The right tools for the job

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Thomas C. Wilson, Inc.

Wilson...

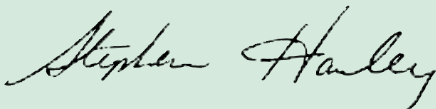
A Family Tradition

Thomas C. Wilson, Inc. was founded by my grandfather in 1925. The company originally developed a line of air, water and electrically driven tube cleaners which, with improvements from time to time to keep abreast of advances in metallurgy and tubular apparatus design, remains unsurpassed to the present day. These tools and other Wilson tools and accessories are now sold to the process, power, HVAC, commercial and military markets, both domestically and abroad.

Our engineering department is continually updating our current products and developing new ones to help increase the efficiency of those working to build, repair and maintain heat exchangers, boilers, condensers, chillers/absorbers and similar products.

Our success through the years has been a direct result of our commitment to outstanding customer service. From our service hotline to our money back guarantee, we are committed to insuring not only the quality of our products, but also the complete satisfaction of you, our customer.

Sincerely,



Stephen Hanley
Vice President



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Service Hotline

If you have technical questions about tube cleaning and expanding, or any Thomas C. Wilson, Inc. product, call us toll free at (800) 230-2636 and talk to a knowledgeable Thomas C. Wilson, Inc. representative.

There is a Thomas C. Wilson, Inc. representative or distributor in many major city, domestically and internationally. Please write (e-mail: sales@tcwilson.com), call (718-729-3360) or fax (718-361-2672) us to locate your area representative.



Customer Satisfaction/Money Back Guarantee

If, for any reason, you are not satisfied with your purchase, simply return it to us within 10 days, and we will refund the purchase price of the unit, exclusive of shipping and handling costs.



One Year Limited Warranty

All Thomas C. Wilson, Inc. products are manufactured, tested and inspected in accordance with strict engineering requirements and are warranted to be free from defects in materials and workmanship.*



Delivery

Thomas C. Wilson, Inc. products are delivered by all major common carriers, and next day delivery is available. We also have same day, counter-to-counter delivery on request.



What's On Your Mind

We're always interested in your comments! At Thomas C. Wilson Inc., we work every day to improve our product offerings and customer service. We want to know what you think. Please write, call or fax us with your comments or suggestions, or reach us via the Internet at <http://www.tcwilson.com>.

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fax: (718) 361-2872 • e-mail: tcwilson@tcwilson.com.

How to Order



Our sales engineers are available Monday - Friday, 8:30am to 6:00pm EST. The easiest way to order is to look up the product that you would like to purchase and note the corresponding part number. Then call toll free (800) 230-2636. If you are not sure exactly what tool you need, just give our experienced staff the details and they will help you to find the right product for your application.

You can use your Visa, Mastercard or American Express card to order.

* There is a minimum order of \$50.

All Thomas C. Wilson, Inc. products are designed and manufactured in the U.S.A.

* The warranty is subject to conditions and limitations. Call for details.

24 HOUR SERVICE
365 days a year...Call

1-800-230-2636

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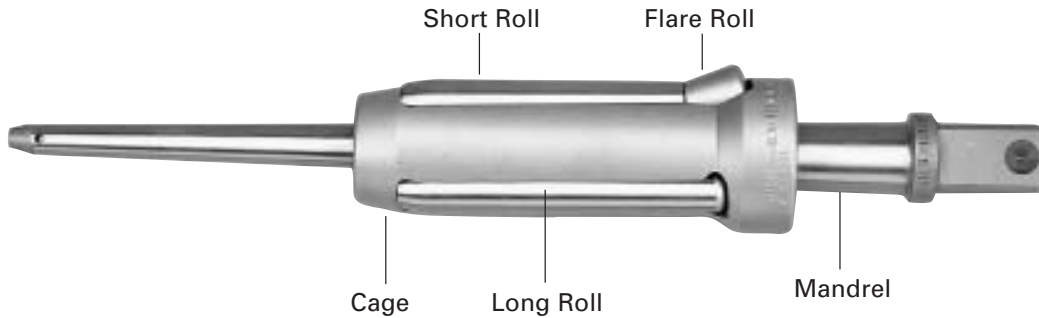
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Series 38 Expanders

Three Roll - Parallel Expanding - Single Flare Roll Type

38 EXPANDERS WITH DRUM MANDREL

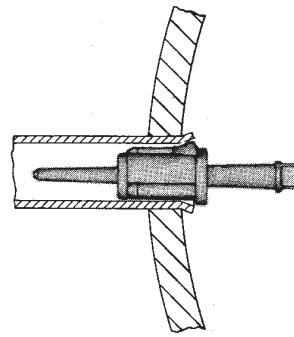


Applications

- Water Tube Boilers
- Superheaters
- Fire Tube Boilers
- Economizers

Features

- Self-Feeding
- Three-Roll
- Single Flare
- Self Contained Rolls
- Various Mandrels Available:
- Drum, Short, Header, Reverse



Steam/Mud Drum: 38 Series with drum mandrel.

OD Inches (mm)	GA	Range Inches (mm)		Tube Seat Thickness - Inches (mm)												Drum Mandrel 1/2" sq. Inches (mm)
				1/2 to 7/8 (12.7-22.2)		3/4 to 1 ¹ / ₈ (19.1-28.6)		1 ¹ / ₈ to 1 ¹ / ₂ (28.6-41.3)		1 ¹ / ₂ to 2 ¹ / ₈ (41.3-54.0)		2 ¹ / ₈ to 2 ⁵ / ₈ (54.0-66.7)				
				Expander Assembly*	Spare Rolls	Expander Assembly*	Spare Rolls	Expander Assembly*	Spare Rolls	Expander Assembly*	Spare Rolls	Expander Assembly*	Spare Rolls	Expander Assembly*	Spare Rolls	
1 (25.4)	8	.645-.719	(16.4-18.3)	31001	31446	31002	31450	31004	31456	31006	32626					32262
	9	.680-.786	(17.3-20.0)	31011		31012		31014		31016						7 ⁷ / ₈ " Lg (200)
	10	.703-.815	(17.9-20.7)	31021	31478	31022	31482	31024	31488	31026	32632					32263
	11	.734-.845	(18.6-21.5)	31031		31032		31034		31036						8 ¹ / ₂ " Lg (220)
	12-13	.760-.881	(19.3-22.4)	31041	31494	31042	31498	31044	31504	31046	31753		31048	32355		32264
1 ¹ / ₈ (28.6)	14	.813-.944	(20.7-24.0)	31051		31052		31054		31056						9 ¹ / ₄ " Lg (233)
	11-12	.859-1.004	(21.8-25.5)	31071	31510	31072	31514	31074	31520	31076	32641					32265
1 ¹ / ₄ (31.8)	13-14	.906-1.068	(23.0-27.1)	31081	31526	31082	31530	31084	31536	31086	32647	31088	31438			10 ¹ / ₄ " Lg (260)
	10-11	.939-1.118	(23.9-28.4)	31091		31092		31094		31096		31098				32266
1 ¹ / ₂ (38.1)	12-15	.990-1.193	(25.2-30.3)	31101	31542	31102	31546	31104	31552	31106	32653	31108	32249			11 ¹ / ₄ " Lg (284)
	8	1.053-1.257	(26.8-31.9)	31121		31122		31124		31126						32267
	9-11	1.156-1.349	(29.4-34.3)	31131	31558	31132	31562	31134	31568	31136	32656					32268
1 ³ / ₄ (44.5)	12-14	1.248-1.432	(31.7-36.4)	31151	31574	31152	31578	31154	31584	31156	32662					12" Lg (305)
	9-11	1.400-1.615	(35.6-41.0)	31161	40322	31162	40324	31164	40326	31166	40328	31168	40330			3/4" sq. 12" Lg (305)

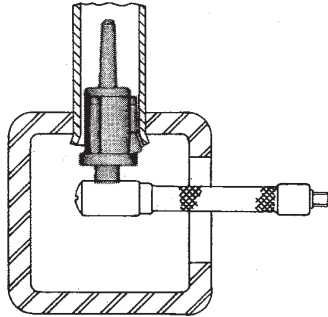
* No Mandrels included

TUBE WALL THICKNESS OF WALL IN BIRMINGHAM WIRE GAUGE

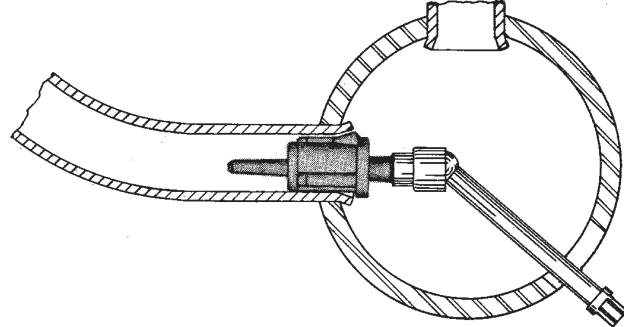
Gage	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Inch	.028	.032	.035	.042	.049	.058	.065	.072	.083	.095	.109	.120	.134	.148	.165	.180	.203	.220	.238	.259	.284	.300	.340
mm	.7	.8	.9	1.1	1.2	1.5	1.7	1.8	2.1	2.4	2.8	3.0	3.4	3.8	4.2	4.6	5.2	5.6	6.0	6.6	7.2	7.6	8.6

Header Tube Expansion

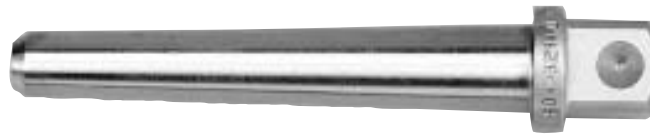
When water tube boilers do not offer easy access to the tube seat, Thomas C. Wilson, Inc. offers a variety of solutions. Our **Series 38** and **Series 114 Expanders** are available with a series of short mandrels. Used with gear trains, right angle drives or universal joints (See Pages 23-25), they make tube rolling possible through a header or handhole.



Square Header: **38 Series Expander** with short series mandrels connected to Right Angle Worm Gear Drive (pg 25).



Round Header: **38 Series Expander** with short series mandrels connected to Extension Universal Joint (pg 23).



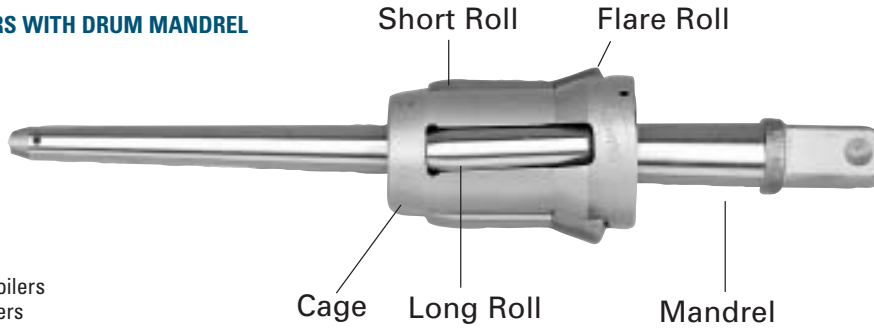
Tube OD Inches (mm)	GA	Expander Assembly*	Short Mandrels - 5/8" (136.6mm) lg. - 1/2" Square (12.7mm) Tube Seat Thickness = X					
			1/2 to 7/8 (12.7-22.2)	3/4 to 1 ¹ / ₈ (19.1-28.6)	1 ¹ / ₈ to 1 ¹ / ₂ (28.6-41.3)	1 ¹ / ₂ to 2 ¹ / ₈ (41.3-54.0)	2 ¹ / ₈ to 2 ¹ / ₂ (54.0-66.7)	
1 (25.4)	8	3100X	33624	33623 & 33624	33622 & 33624		—	
	9	3101X	33622 & 33624		33621 & 33624	33621, 33623 & 33624		—
	10	3102X	33624	33623 & 33624		33622 & 33624		—
	11	3103X	33623 & 32463		33622, 32351 & 32463		—	
	12	3104X	32351 & 32464		33622, 32351 & 32463		—	
1 ¹ / ₈ (28.6)	13	3104X	32465	32351 & 32464		32351 & 32463		
	14	3105X	33624		33624 & 32465		33624 & 32464	
	11	3107X	32464 & 32466		33622 & 33624		—	
	12	3107X	32467	32463 & 32466		32463 & 32466		—
1 ¹ / ₄ (31.8)	13	3108X	32465	32465 & 32467		32463 & 32465		—
	14	3108X	32464 & 32467		32463 & 32465		—	
	10	3109X	32465 & 32468		32464 & 32467		32465 & 32468	
	11	3109X	32467 & 32470		32465 & 32468		32468 & 32471	
	12	3110X	32465 & 32468		32464, 32466 & 32468		32464, 32465 & 32466	
1 ¹ / ₂ (38.1)	13	3110X	32469	32466 & 32469		32466, 32467 & 32468		
	14	3110X	32468 & 32471		32468, 32469 & 32470		32468, 32469 & 32470	
	15	3110X	32472	32469 & 32472		32469, 32470 & 32471		
	8	3112X	32470 & 32473		32469, 32471 & 32473		—	
	9	3113X	32472 & 32475		32471, 32473 & 32475		—	
	10	3113X	32474 & 32477		32473, 32475 & 32477		—	
1 ³ / ₄ (44.5)	11	3115X	32477 & 32480		32476, 32478 & 32480		—	
	12	3115X	32471 & 32474		—		—	
	13	3115X	32473 & 32476		—		—	
	14	3115X	32474 & 32477		—		—	
1 ³ / ₄ (44.5)	9	3116X	32307 & 32308		—		—	
	10	3116X	32308 & 32309		—		—	
	11	3116X	32309 & 32310	32308, 32309 & 32310		—		

* No Mandrels included

Series 114 Expanders

Four Roll - Parallel Expanding - Double Flare Roll Type

114 EXPANDERS WITH DRUM MANDREL



Applications

- Water Tube Boilers
- Fire Tube Boilers
- Economizers
- Air Heaters

Features

- Self-Feeding
- Four-Roll
- Double Flare Roll Type
- Self Contained Rolls
- Various Mandrels Available:
- Drum, Short, Header, Reverse

Tube OD Inches (mm)	GA	Range Inches (mm)	Tube Seat Thickness - Inches (mm)												Drum Mandrel 3/4" sq. (19.1) Inches (mm)
			1/2 to 7/8 (12.7-22.2)		3/4 to 1 ¹ / ₈ (19.1-28.6)		1 ¹ / ₈ to 1 ¹ / ₂ (31.8-41.3)		1 ¹ / ₂ to 2 ¹ / ₈ (41.3-54.0)		2 ¹ / ₈ to 2 ¹ / ₂ (54.0-66.7)		Inches (mm)		
			Expander Assembly*	Spare Rolls	Expander Assembly*	Spare Rolls	Expander Assembly*	Spare Rolls	Expander Assembly*	Spare Rolls	Expander Assembly*	Spare Rolls		Expander Assembly*	Spare Rolls
2 (50.8)	4-6	1.465-1.692 (37.2-43.0)	—	—	14172	34872	14174	34874	14176	34876	14178	34948	32269		
	7-8	1.585-1.826 (40.3-46.4)	14191	34878	14192	34879	14194	34881	14196	34883	14198	34949	32270		
	9-10	1.645-1.888 (41.8-48.0)	14201		14202		14204		14206		14208		32271		
	11-13	1.690-1.950 (43.0-49.5)	14211	34885	14212	34886	14214	34888	14216	34890	14218	34950	32270		
2 ¹ / ₂ (63.5)	4-6	1.906-2.259 (48.4-57.4)	—	—	14242	34893	14244	34895	14246	34897	14248	34951	32272		
	7-10	2.031-2.385 (51.6-60.6)	—	—	14252	34900	14254	34902	14256	34904	14258	34952	14 ¹ / ₈ " Lg (359)		
	11-13	2.156-2.510 (54.8-63.8)	14261	34899	14262		14264		14266		14268		32273		
3 (76.2)	1-3	2.250-2.625 (57.2-66.7)	—	—	14272	34907	14274	34909	14276	34911	14278	34953	14 ¹ / ₈ " Lg (360)		
	4-6	2.375-2.756 (60.3-70.0)	—	—	14282		14284		14286		14288		32274**		
	7-11	2.500-2.912 (63.5-74.0)	—	—	14292	34914	14294	34916	14296	34918	14298	34954	14 ¹ / ₈ " Lg (360)		
	10-12	2.625-3.047 (66.7-77.4)	14301	34913	14302		14304		14306		14308		32275**		
3 ¹ / ₂ (88.9)	1-4	2.750-3.156 (69.9-80.2)	—	—	14312	34921	14314	34923	14316	34925	14318	34955	14 ¹ / ₈ " Lg (360)		
	4-7	2.875-3.287 (73.0-83.5)	—	—	14322		14324		14326		14328		32275**		
	7-11	3.000-3.421 (76.2-86.9)	—	—	14332	34923	14334	34925	14336	34925	14338	34955	14 ¹ / ₈ " Lg (367)		
	10-12	3.125-3.537 (79.4-90.0)	—	—	14342		14344		14346		14348		32276**		
4 (101.6)	4-7	3.375-3.781 (85.7-96.0)	—	—	14362	34928	14364	34930	14366	34932	14368	34956	16 ¹ / ₂ " Lg (420)		
	7-11	3.500-3.884 (88.9-98.7)	—	—	14372		14374		14376		14378		32278**		
	8-12	3.563-4.031 (90.5-102.4)	—	—	14382	34935	14384	34937	14386	34939	14388	34957	16 ¹ / ₂ " Lg (420)		
4 ¹ / ₂ (114.3)	6-12	4.000-4.469 (101.6-113.5)	—	—	14412	34942	14414	34944	14416	34946	14418	34958	32278**		
													16" Lg (405)		

* No Mandrels included

** 1" sq.
(25.4)

TUBE WALL THICKNESS OF WALL IN BIRMINGHAM WIRE GAUGE

Gage	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Inch	.028	.032	.035	.042	.049	.058	.065	.072	.083	.095	.109	.120	.134	.148	.165	.180	.203	.220	.238	.259	.284	.300	.340
mm	.7	.8	.9	1.1	1.2	1.5	1.7	1.8	2.1	2.4	2.8	3.0	3.4	3.8	4.2	4.6	5.2	5.6	6.0	6.6	7.2	7.6	8.6

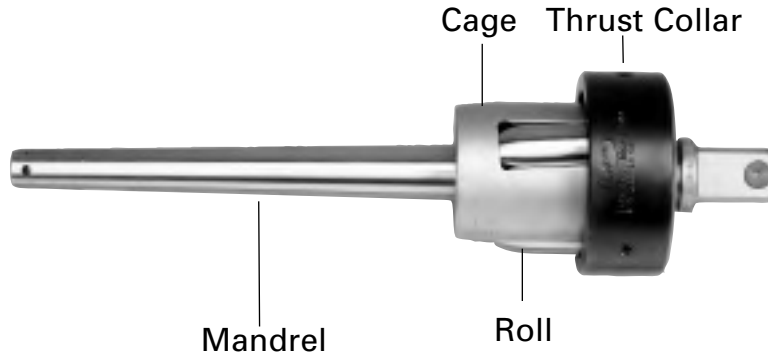


Tube		Expander Assembly*	Short Mandrels - 5/8" (130mm) lg. - 3/4" Square (19.1mm)			Mandrels 7 1/8" Long (181 mm)	Rev Taper Mandrels		
OD Inches (mm)	GA		Tube Seat Thickness = X						
			1/2 to 7/8 (12.7-22.2)	3/4 to 1 1/8 (19.1-28.6)	1 1/8 to 1 5/8 (28.6-41.3)			1 5/8 to 2 1/8 (41.3-54.0)	
2 (50.8)	4	1417X		32309 & 32310	32308, 32309 & 32310	—	20766		
	5			32310 & 32311	32309, 32310 & 32311	—			
	6					32309, 32310 & 32311		—	
	7	1419X		32310 & 32311		—	40040		
	8			32311 & 32312	32310, 32311 & 32312	—			
	9			32312 & 32313	32311, 32312 & 32313	—			
	10	1420X				32346	20768		
	11				32312 & 32313	—			
	12				32310 & 32311	—			
	13	1421X		32311	32310 & 32311	32345	40040		
						32346			
			32312		32311 & 32312	—			
	2 1/2 (63.5)	4	1424X		32313 & 32314	32312, 32313 & 32314	—	20770	
5				32314 & 32315	32313, 32314 & 32315	—			
6				32315 & 32316	32314, 32315 & 32316	—			
7		1425X		32313 & 32314	32312, 32313 & 32314	32348	20770		
8					32313, 32314 & 32315	—			
9					32314 & 32315	32349			
10		1426X		32315 & 32316	32314, 32315 & 32316	32349	40041		
11				32316	32315 & 32316	33630			
12				32316 & 32317	32315, 32316 & 32317	33631			
13		1427X		32317	32316 & 32317	33632	20771		
1				32315, 32317 & 32518	32315, 32316, 32317 & 32318	32314, 32315, 32316, 32317 & 32318		—	
2				32316, 32318 & 32519	32316, 32317, 32318 & 32319	32315, 32316, 32317, 32318 & 32319		—	
3				32317, 32319 & 32320	32317, 32318, 32319 & 32320	32316, 32317, 32318, 32319 & 32320		—	
4	1428X			32318 & 32320	32318, 32319 & 32320	32317, 32318, 32319 & 32320		—	
5				32319 & 32321	32319, 32320 & 32321	32318, 32319, 32320 & 32321		—	
6				32320 & 32322	32319, 32320, 32321 & 32322	—			
7	1429X			32317 & 32319	32317, 32318 & 32319	33632		20773	
8				32318 & 32320	32318, 32319 & 32320	32317, 32318, 32319 & 32320			33633
9				32319 & 32321	32319, 32320, 32321	32318, 32319, 32320 & 32321			33634
10	1430X			32320 & 32321	32319, 32320 & 32321	32319, 32320 & 32321		33634	
11				32320 & 32322	32320, 32321 & 32322	33635			
12			32321 & 32322	32320, 32321 & 32322	—				
3 (76.2)	1	1431X		32317, 32318, 32319 & 32320	32316, 32317, 32318, 32319 & 32320	—	20771		
	2			32318, 32319, 32320 & 32321	32317, 32318, 32319 & 32321	—			
	3			32319, 32320, 32321 & 32322	32318, 32319, 32320, 32321 & 32322	—			
	4	1432X		32320, 32321, 32322 & 32323	32319, 32320, 32321, 32322 & 32323	—	20771		
	5			32321, 32322 & 32323	32320, 32321, 32322 & 32323	—			
	6			32322, 32323 & 32324	32321, 32322, 32323 & 32324	—			
	7	1433X		32323, 32324 & 32325	32322, 32323, 32324 & 32325	—	20771		
	8				32323, 32324 & 32325	—			
	9				32324, 32325 & 32326	—			
	10	1434X		32325, 32326 & 32327	32324, 32325, 32326 & 32327	—	20771		
	11			32326 & 32327	32325, 32326 & 32327	—			
	12			32326, 32327 & 32328	32325, 32326, 32327 & 32328	—			
	3 1/2 (88.9)	4	1436X		32325, 32326, 32327 & 32328	32324, 32325, 32326 & 32327	—	20771	
5				32326, 32327, 32328 & 32329	32326, 32327, 32328 & 32329	—			
6				32327, 32328 & 32329	32327, 32328, 32329 & 32330	—			
7		1437X		32328, 32329 & 32330	32327, 32328, 32329 & 32330	—	20771		
8				32329, 32330 & 32331	32328, 32329, 32330 & 32331	—			
9				32330, 32331 & 32332	32329, 32330, 32331 & 32332	—			
10		1438X		32330, 32331 & 32332	32330, 32331 & 32332	—	20771		
11				32326 & 32327	32325, 32326 & 32327	—			
12				32326, 32327 & 32328	32325, 32326, 32327 & 32328	—			
4 (101.6)		6	1441X		32325, 32326, 32327 & 32328	32324, 32325, 32326, 32327 & 32328	—	20771	
		7			32326, 32327 & 32328	32325, 32326, 32327 & 32328	—		
		8			32327, 32328 & 32329	32326, 32327, 32328 & 32329	—		
		9	1441X		32327, 32328 & 32329	32327, 32328, 32329 & 32330	—	20771	
	10			32328, 32329 & 32330	32328, 32329 & 32330	—			
	11				32328, 32329 & 32330	—			
	12			32329, 32330 & 32331	32328, 32329, 32330 & 32331	—			
	4 1/2 (114.3)	6	1441X		32329, 32330 & 32331	32329, 32330 & 32331	—	20771	
		7					—		
		8					—		
		9	1441X				—	20771	
		10					—		
		11					—		
12						—			

Series 114-S Expanders

Four Roll - Parallel Expanding - Straight Roll Type

114-S EXPANDERS WITH DRUM MANDREL



Features

- Bearing Type Thrust Collar
- Self-Feeding
- Four-Roll
- Non-Flaring
- Self Contained Rolls
- Various Mandrels Available:
Drum, Short, Header, Reverse

Applications

- Water Tube Boilers
- Fire Tube Boilers
- Economizers
- Air Heaters

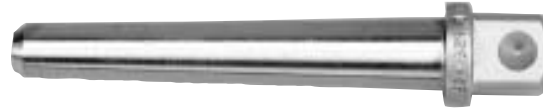
Tube			Tube Seat Thickness - Inches (mm)										Drum Mandrel
OD Inches (mm)	GA	Range Inches (mm)	1/2 to 1 (12.7-25.4)		3/4 to 1 1/4 (19.1-31.8)		1 1/2 to 1 3/4 (31.8-44.5)		1 3/4 to 2 1/4 (44.5-57.2)		2 1/2 to 3 (57.2-69.9)		3/4" sq. (19.1) Inches (mm)
			Expander Assembly*	Spare Rolls	Expander Assembly*	Spare Rolls	Expander Assembly*	Spare Rolls	Expander Assembly*	Spare Rolls	Expander Assembly*	Spare Rolls	11 1/2" Lg (294)
2 (50.8)	4-6	1.465-1.660 (37.2-42.2)	-	-	14172-1000	34853-0004	14174-1000	34857-0004	14176-1000	34861-0004	14178-1000	34866-0004	32269
	7-8	1.585-1.791 (40.3-45.5)	14191-1000	31591-0004	14192-1000	31595-0004	14194-1000	31601-1000	14196-1000	32669-0004	14198-1000	32675-0004	32270
	9-10	1.645-1.856 (41.8-47.1)	14201-1000		14202-1000	0004	14204-1000	0004	14206-1000	0004	14208-1000	0004	32271
	11-13	1.690-1.900 (43.0-48.3)	14211-1000	31607-0004	14212-1000	31611-0004	14214-1000	31617-0004	14216-1000	31757-0004	14218-1000	31751-0004	32270
2 1/2 (63.5)	4-6	1.906-2.226 (48.4-56.5)	-	-	14242-1000	31627-0004	14244-1000	31633-0004	14246-1000	32678-0004	14248-1000	32684-0004	32272
	7-10	2.031-2.352 (51.6-59.7)	-	-	14252-1000	31643-0004	14254-1000	31649-0004	14256-1000	32687-0004	14258-1000	32690-0004	32273
	11-13	2.156-2.450 (54.8-62.2)	14261-1000	31639-0004	14262-1000	0004	14264-1000	0004	14266-1000	0004	14268-1000	0004	32273
3 (76.2)	1-3	2.250-2.600 (57.2-66.0)	-	-	14272-1000	31659-0004	14274-1000	31665-1000	14276-1000	32694-0004	14278-1000	32700-0004	32274**
	4-6	2.375-2.721 (60.3-69.1)	-	-	14282-1000	0004	14284-1000	0004	14286-1000	0004	14288-1000	0004	32274**
	7-11	2.500-2.877 (63.5-73.1)	-	-	14292-1000	31675-0004	14294-1000	31681-1000	14296-1000	31760-0004	14298-1000	32703-0004	32275**
	10-12	2.625-3.008 (66.7-76.4)	14301-1000	31671-0004	14302-1000	0004	14304-1000	0004	14306-1000	0004	14308-1000	0004	32275**

* No Mandrels included

** 1" sq. (25.4)

TUBE WALL THICKNESS OF WALL IN BIRMINGHAM WIRE GAUGE

Gage	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Inch	.028	.032	.035	.042	.049	.058	.065	.072	.083	.095	.109	.120	.134	.148	.165	.180	.203	.220	.238	.259	.284	.300	.340
mm	.7	.8	.9	1.1	1.2	1.5	1.7	1.8	2.1	2.4	2.8	3.0	3.4	3.8	4.2	4.6	5.2	5.6	6.0	6.6	7.2	7.6	8.6



Tube OD Inches (mm)	GA	Expander Assembly*	Short Mandrels - 5/8" (130mm) lg.-3/4" Sq. (19.1mm) Tube Seat Thickness = X			Mandrels - 7/8" (181mm) lg.-3/4" Sq. (19.1mm) Tube Seat Thickness = X				Rev Taper Mandrels
			1/2 to 1 (12.7-25.4)	3/4 to 1 1/4 (19.1-31.8)	1/2 to 1 (12.7-25.4)	3/4 to 1 1/4 (19.1-31.8)	1 1/4 to 1 3/4 (31.8-44.5)	1 3/4 to 2 1/4 (44.5-57.2)	2 1/4 to 2 3/4 (57.2-69.9)	
2 (50.8)	4		—	32310 & 32311	—		32345	32344 & 32345	20766	
	5	1417X-1000	—	—	—		32345 & 32346	32345 & 32346	1/2" Sq. (12.7)	
	6		—	32311 & 32312	—	32346		32346	40040	
	7		—	—	—		32345	32344 & 32345	3/4" Sq. (19.1)	
	8	1419X-1000	32311 & 32312	32311,312&313	—	32346		32345 & 32346	20768	
	9		—	32312 & 32313	—		32345		3/4" Sq. (19.1)	
	10	1420X-1000	—	32313 & 32314	—		32346		40040	
	11		—	32311 & 32312	—		32345		3/4" Sq. (19.1)	
	12	1421X-1000	—	—	—			32345 & 32346		
	13		—	32312 & 32313	—		32346			
	2 1/2 (63.5)	4		—	32314 & 32315	—		32348	32347 & 32348	3/4" Sq. (19.1)
		5	1424X-1000	—	32315 & 32316	—	32349	32349	32348	
		6		—	—	—			32349	
7			—	32314 & 32315	—		32348	32347 & 32348		
8			—	—	—			32348		
9		1425X-1000	—	32315 & 32316	—		32349			
10			—	—	—					
12		1426X-1000	—	32316 & 32317	—		33630	32649 & 33630 33630	40041	
13			—	32317 & 32318	—		33631	33630 & 33631	3/4" Sq. (19.1)	
3 (76.2)		1		—	32315,316&317	—	33630	32349 & 33360		
	2	1427X-1000	—	32316 & 32517	—	33631	33630 & 33631	32349 & 33630	1" Sq. (25.4)	
	3		—	32317 & 32318	—	33632	33631 & 33632	33630 & 33631		
	4		—	—	—		33633			
	5	1428X-1000	—	—	—		33634	33633 & 33634		
	6		—	—	—	33635	33634 & 33635		20773	
	7		—	—	—		33632		1" Sq. (25.4)	
	8	1429X-1000	—	—	—		33633	33632 & 33633		
	9		—	—	—			33633		
	10		—	32320 & 32321	—	—		33634		
	11	1430X-1000	—	32321	—	—			20775	
	12		—	32321 & 32322	—	—		33635	1" Sq. (25.4)	

Expander Lube - Type B

Wilson Expander Lube is a water-soluble lubricant especially compounded for use with tube expanders. When rolling large or small, ferrous or non-ferrous tubes, use **Wilson Expander Lube** for smoother rolling and longer expander life. For clean tube ends after rolling, simply wash with water. **Wilson Type B** Expander Lube is used straight from the can without dilution.

Expander Lube Type B	Part No.
1 Quart Can	28115-0002
1 Gallon Can	28115-0009
5 Gallon Can	28115-0005
30 Gallon Drum	28115-0030
55 Gallon Drum	28115-0055



Tube Expander Lubrication, Care and Maintenance

The service demanded of tube expanders is severe, therefore, these precision tools require a reasonable degree of maintenance. For long, trouble-free and economical service, we suggest:

1. Remove all rust, mill scale and other foreign matter from the inside and outside of the tube. Foreign matter on the inside of the tube will become imbedded in the tube wall and may cause flaking or galling of the rolls and mandrel. Mill scale or grit left on the outer wall of the tube can cause damage to the tube seat and prevent formation of a pressure-tight joint. Cleaning tube ends is best accomplished with a wire brush or a tube end polisher (see Page 28).

2. Before using, the expander should be washed in a commercial solvent to remove anti-rust, dirt, grease and other foreign matter. Inspect the expander to make sure the rolls and mandrels are free and in good condition.

3. Before using, an expander should be properly lubricated with a pressure resistant lubricant such as Wilson Expander Lube (see Page 7). This water soluble lubricant was developed specifically for tube rolling and may be mixed with water to the desired consistency. For small diameter and light gage tubes, immerse the expander in Expander Lube or a light bodied oil* such as SAE 10 or 20. For large diameter and heavy gage tubes, swab or brush the Expander with Wilson Expander Lube or a mixture of SAE 40* and graphite.

4. Expanders should be rotated at a speed proportionate to the tube size, gage and the length of the tube seat. Tube metal must also be taken into consideration. The proper speed will provide safe cold working of the tube metal without crystallization or flaking. It will also insure maximum expander life without undue roll or mandrel breakdown. The ideal speed will keep to a minimum mandrel slippage and heating of the mandrels and rolls.

5. After rolling each tube, clean and cool the expander in a solvent or light oil*, then properly lubricate the expander. It is a good practice to use two expanders, if possible, so one can be cooling while the other is being used.

6. Inspect the rolls and the mandrel after rolling each tube. Replace a chipped roll or mandrel immediately! A small chip in a roll can damage the entire set of rolls and the mandrel if not replaced at once.

7. When the job is completed, the expander should be cleaned thoroughly with a commercial solvent or light oil*, and it should be stored in a manner which will avoid the possibility of the parts rusting.

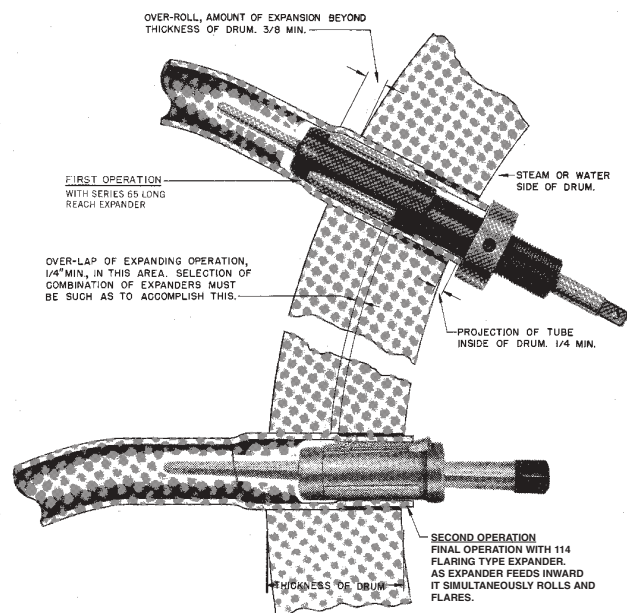
***CAUTION:** The presence of oil in the space between the tube and the tube seat can prevent the formation of a leak-tight joint. Do not allow excess lubrication to run down the face of the sheet so that it can seep into unrolled joints.

Step Rolling Tube Expansion

When boiler drums are 2½ inches (63.5mm) or thicker, tube expansion must be performed in two or three operations (or steps), depending on the tube seat thickness. Our **Series 65 Expanders** are specifically designed for "deep reach" expanding.

Step 1: Use a **Series 65 Expander** to "deep roll" the tube so the area of expansion is 3/8 inches (9.6mm) beyond the inside edge of the drum. (see page 10)

Step 2: Use a **Series 114 Expander** to roll and flare the remaining half of the tube length within tube seat. (see page 4)



Guidelines for Tube Expansion

Unproperly rolled joints create considerable additional expense: Under-rolled joints must be re-rolled, and over-rolled tubes must be removed and replaced. The optimum joint is one that develops a leak-tight joint with adequate strength for the intended service, but with the minimum amount of cold working (or tube wall reduction).

Here is an example of the application of this method for a 2-inch OD 10 Gage tube in a boiler.

Application Tube Wall Reduction*

Non-ferrous tubes in surface condensers	3% to 4%
Steel tubes in heat exchangers	5% to 10%
Soft copper and aluminum tubes in heat exchangers	8% to 12%
Boiler tubes	12% to 14%

*After metal-to metal contact of the tube OD with the tube sheet hole

Tube Sheet Hole:	<u>2.010</u>
Tube OD:	<u>-2.000</u>
Clearance:	<u>.010</u>
Tube ID:	<u>1.732</u>
Clearance:	<u>+.010</u>
Tube ID @ Metal-to-Metal:	<u>1.742</u>
13% of .134 x 2:	<u>.035</u>
Tube ID @ Metal-to-Metal:	<u>+1.742</u>
Expanded Tube ID:	<u>1.777</u>

Tube Rolling Worksheet

1. Tube Sheet Hole
Tube O.D. = _____
Clearance = _____
2. Tube I.D.
Clearance = _____
I.D. @ Metal to Metal = _____
3. ____% of ____ (Wall) x 2
Tube I.D. @ Metal to Metal = _____
Expanded Tube I.D. = _____

TUBE WALL THICKNESS OF WALL IN BIRMINGHAM WIRE GAUGE

Gage	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Inch	.028	.032	.035	.042	.049	.058	.065	.072	.083	.095	.109	.120	.134	.148	.165	.180	.203	.220	.238	.259	.284	.300	.340
mm	.7	.8	.9	1.1	1.2	1.5	1.7	1.8	2.1	2.4	2.8	3.0	3.4	3.8	4.2	4.6	5.2	5.6	6.0	6.6	7.2	7.6	8.6

Series 65 Expanders

Features

- Three Roll • Self Feeding • Parallel Expansion
- Adjustable Thrust Collar • Non-Flaring

This expander is primarily intended for deep reach expanding. Its parallel rolling and long effective roll length make this tool ideal for “touch up” rolling in thick tube sheets.

A thrust ball bearing collar gives friction-free operation and long tool life. Rolls are self retained in cage and will not fall in or out of cage when mandrel is withdrawn from expander



Tube OD Inches (mm)	GA	Wall Inches (mm)		Expander Assembly*	Reach Inches (mm)		Set of 3 Part No.	Roll Eff. Length Inches (mm)	Order Sep. Part No.	Mandrel Range Inches (mm)		Drive Square
		Min.	Max.		Inches	(mm)						
2 (50.8)	4-6	.238-.203	(6.0-5.2)	42891	3% (86)	5% (150)	32675-0003	3% (79)	42911	1.437-1.687 (36.5-42.8)		3/4" (19.1)
	7-8	.180-.165	(4.6-4.2)	42892						1.562-1.812 (39.7-46.0)		
	9-10	.148-.134	(3.8-3.4)	42893						1.625-1.875 (41.3-47.6)		
	11-13	.120-.095	(3.0-2.4)	42894						1.687-1.937 (42.8-49.2)		
2 1/2 (63.5)	4-6	.238-.203	(6.0-5.2)	42895	3 3/8 (87)	5% (150)	32690-0003	3 3/8 (81)	42912	1.937-2.250 (49.2-57.2)		1 (25.4)
	7-10	.180-.134	(4.6-3.4)	42896						2.063-2.375 (52.4-60.3)		
	11-13	.120-.095	(3.0-2.4)	42897						2.188-2.500 (55.6-63.5)		
3 (76.2)	4-6	.238-.203	(6.0-5.2)	42898	3 3/4 (83)	5% (143)	32700-0003	3 3/4 (83)	42913	2.406-2.781 (61.1-70.6)		1 (25.4)
	7-11	.180-.120	(4.6-3.0)	42899						2.531-2.906 (64.3-73.8)		
	10-13	.134-.095	(3.4-2.4)	42900						2.656-3.031 (67.5-77.0)		
3 1/2 (88.9)	4-6	.238-.203	(6.0-5.2)	42939	3 3/2 (89)	5% (143)	32712-0003	3 3/2 (83)	42915	2.906-3.281 (73.8-83.3)		1 (25.4)
	7-11	.180-.120	(4.6-3.0)	42940						3.031-3.406 (77.0-86.5)		
	10-13	.134-.095	(3.4-2.4)	42941						3.156-3.531 (80.2-89.7)		

* No Mandrels included

Series 22 Expanders

Features

- Three Roll • Self Feeding • Non-Parallel Expansion
- Revolving Collar Type • Non-Flaring

The **Series 22** self-feeding Tube Expander is especially designed for use in boiler rooms, boiler repair shops, railroads, Scotch marine boilers and for all general rolling in fire tube boilers where flaring is not required.

The revolving thrust collar, of hardened steel, bears against the tube seat and provides non-jamming operation with maximum resistance to abrasive action. Compact design permits working close to wall or adjacent tubes.

For sizes 2" and up, the rolls are self-retained and the expanders are suitable for far end rolling with Reverse Taper Mandrel and extension drive.



OD Inches (mm)	Tube		Assembly with Mandrel Part No.	Spares Standard Mandrel Square Part No.		Roll Set Part No.	Reverse Taper Mandrel Square Part No.		Expansion Range*	
	Gage	Wall (mm)		Inch (mm)	Inch (mm)		Inch (mm)			
1 1/2 (38.1)	13-18	(2.4-1.2)	30008	30564	3/4 (19.1)	30040	—	—	1.281-1.480"	
2 (50.8)	12-18	(2.8-1.2)	30012	30565		30044	20766	—	—	1.718-1.973"
2 1/4 (57.2)	11-18	(3.0-1.2)	30014	30566		30045	20767	1/2 (12.7)	—	1.973-2.229"
2 1/2 (63.5)	10-18	(3.4-1.2)	30018	30567		30047	20768	3/4 (19.1)	—	—
2 3/4 (69.9)					30048	20769	2.406-2.727"			
3 (76.2)	6-18	(5.2-1.2)	30020	30568	1 (25.4)	30049	21692	1 (25.4)	—	2.625-2.986"
3 1/4 (82.6)	9-18	(3.8-1.2)	30021			30050				2.875-3.237"

* Expander range is taken at front of thrust collar.

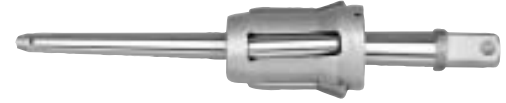
Series 116 Expanders

Features

- Four Roll • Self Feeding • Flaring Type
- Non-Parallel Expansion up to 3/4-Inch Tube Sheet

This non-parallel, self-feeding expander features a design embodying four (4) expanding rolls and two (2) flare rolls. It simultaneously flares and rolls an unusually fine surface with a minimum amount of indentation by the flare rolls. The flaring operation is ideal for HRT and other fire tube boilers where final beading of tube ends is the practice.

Mandrels and rolls are of alloy steel ground after hardening, to a fine surface finish. The rolls of these expanders are self-retained. The self-retained roll feature makes this expander suitable for use with reverse taper mandrels for far end tube expanding.



OD Inches (mm)	Tube		Assembly with Mandrel Part No.	Spares Standard Mandrel Square		Roll Set Part No.	Reverse Taper Mandrel Square		Expansion Range*
	Gage	Wall (mm)		Part No.	Inch (mm)		Part No.	Inch (mm)	
1½ (38.1)	11-14	(3.0-2.1)	36607	30064	3/4 (19.1)	36653	-	-	1.215-1.389"
2 (50.8)	10-16	(3.4-1.7)	36612	30566		36654	20768	3/4 (19.1)	1.680-1.959"
2½ (63.5)	10-18	(3.4-1.2)	36616	30567		36655	20771		2.192-2.453"
3 (76.2)	9-18	(3.8-1.2)	36620	30569	1 (25.4)	36656	20774	1 (25.4)	2.654-2.954"

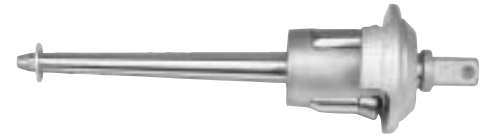
* Expander range is taken at front of thrust collar.

Series 28 Expanders

Features

- Three Roll • Self Feeding • Flaring Type
- Non-Parallel Expansion • Flaring type to 3/4-Inch Tube Sheet

The **Model 28** expander features three flare rolls and three straight self retained rolls. The use of this expander simultaneously flares the tube as a preliminary to beading operations. The revolving thrust collar sets the tube and is notched to clear adjacent tubes if on close centers. Ideal for most HRT and other fire tube boilers. The self retained roll feature also makes this expander a popular one for far end rolling when used in conjunction with reverse mandrels and extension drives.



OD Inches (mm)	Tube		Assembly with Mandrel Part No.	Spares Standard Mandrel Square		Roll Set Part No.	Reverse Taper Mandrel Square		Expansion Range*
	Gage	Wall (mm)		Part No.	Inch (mm)		Part No.	Inch (mm)	
2 (50.8)	10-16	(3.4-1.7)	35004	35024	3/4 (19.1)	35037	20766	1/2 (12.7)	1.687-2.000"
2½ (63.5)			35008	35026		35040	20769	3/4 (19.1)	2.156-2.500"
3 (76.2)			35012	35028	35043	20772	1 (25.4)	2.625-3.000"	

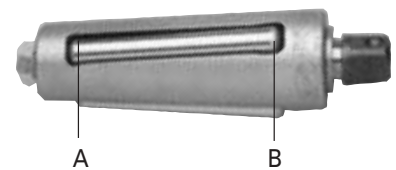
* Expander range is taken at front of thrust collar.

Series 92 Expanders

Features

- Three Roll • Self Feeding
- Non-Parallel Expansion • Non-Flaring type to 5/8-Inch Tube Sheet

The **Series 92** self-feeding Tube Expander was designed for both boiler erection and boiler repair, either complete retubing or just touching up leaky joints. Tube expansion is recommended in the tube sheet range from 1/8" to 5/8" thick. The short mandrel is used for expanding tubes in open tube sheets as found, for example, in most HRT, Scotch Marine and Package boilers and is included with expanders offered. The header mandrel is offered for expanding through a waterleg or other obstruction which necessitates reach; order header mandrel separately.



OD Inches (mm)	Tube		Assembly with Mandrel Part No.	Spares Standard Mandrel Square		Roll Set Part No.	Header Mandrel Square		Specifications Range*		
	Gage	Wall (mm)		Part No.	Inch (mm)		Part No.	Inch (mm)	Eff. Roll Length	Dim. A	Dim. B
1 (25.4)	10-13	(3.4-2.4)	36019	36054	1/2 (12.7)	36064	36093	1/2 (12.7)	3%	.681"	.937"
1½ (31.8)			36021	36055		36065	36094			.940"	1.206"
1¾ (38.1)			36023	36056		36066	36095	4"		1.156"	1.469"
2 (50.8)			36027	36057	3/4 (19.1)	36067	36096	3/4 (19.1)		3%	1.665"

* This self-feeding expander has no collar or flare to prevent the gage from pulling into the tube. Expansion corresponds to movement of tube rolling from Dim. A to Dim. B.

Wilson Combination Beading Expander

Features

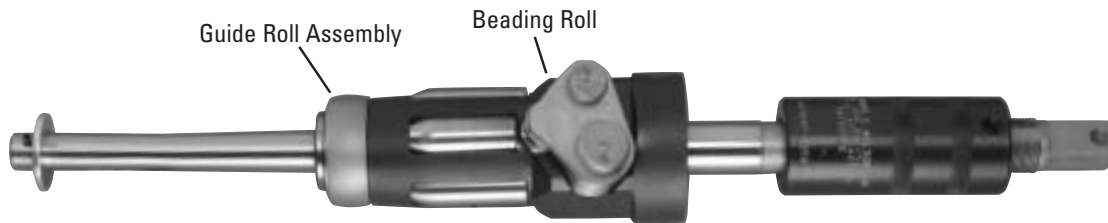
- Expand and Bead 2, 2½ and 3-Inch Tubes in One Operation

Applications

- Turn three operations (expanding, beading and re-rolling) into one time- saving, labor-reducing process performed by just one tool!
- Cut labor costs by 50 to 65%!
- Purchase and maintain one tool instead of three
- Minimal employee training or experience required.
- Produce a perfect, tight bead every time!

The **Wilson Combination Beading Expander** is one of our smartest tools! Rather than expand a tube, then manually bead it, and then re-roll it with a straight roll expander, the patented **Combination Beading Expander (CBE)** from Thomas C. Wilson, Inc. does all three jobs in one seamless process.

And the **Wilson CBE** doesn't just save time, cut labor costs and reduce your equipment investment: *It produces a perfect bead every time!* Designed primarily for the fabrication and re-tubing of fire-tube boilers, the **Combination Beading Expander** rolls and beads 2-inch, 2½-inch and 3 inch OD tubes, 10 to 13 gage.



Tube Inches OD (mm)	GA	Beading Expander Assembly*	Mandrel Part No.	Square	Rolls	Rolls for	Beading Roll Part No.	Guide Roll Assembly	Expansion Range
					Before 7/02 Part No.	Serialized Expanders			
2 (50.8)	10	41633-0010	42157	3/4" (19.1)	42811 Set of 4	41677 Set of 4	41631-0010	41701-0010	1.700-1.906" (43.2-48.4)
	11	41633-0011					41631-0011	41701-0011	
	12	41633-0012					41631-0012	41701-0012	
	13	41633-0013					41631-0013	41701-0013	
2½ (63.5)	10	41634-0010	42158	3/4" (19.1)	41673 Set of 5	41678 Set of 5	41651-0010	41702-0010	2.200-2.440" (55.9-62.0)
	11	41634-0011					41651-0011	41702-0011	
	12	41634-0012					41651-0012	41702-0012	
	13	41634-0013					41651-0013	41702-0013	
3 (76.2)	10	41359-0010	42159	1 (25.4)	41676 Set of 5	41679 Set of 5	41666-0010	41703-0010	2.700-2.940 (68.6-74.7)
	11	41359-0011					41666-0011	41703-0011	
	12	41359-0012					41666-0012	41703-0012	

* Assembly includes Standard Mandrel, Grease Gun (Part No. 53553) and Service Manual/Parts List (SM-140).

† Short Series Mandrels for wet back or tight turn around are available.

The **Wilson CBE** for 2-inch OD tubes is a 4-roll expander. For 2½-inch and 3-inch tubes, it is a 5-roll expander. And the **Combination Beading Expander** is a self-feeding, parallel-rolling unit. For best results, trim the tube to be expanded and beaded to 3/16-inch projection.

To order, simply locate your tube OD and gage. Each **CBE** assembly includes a standard mandrel, a grease gun (to lubricate the tool) and a service manual. You should order extra mandrels, straight rolls, beading rolls and guide roll assemblies, based on the number of tubes you will be expanding and beading. Your Wilson Product Application Specialist can help you determine how many spare mandrels, straight rolls, beading rolls and guide roll assemblies you should order. To prolong the life of your **Combination Beading Expander**, we recommend **B-Kool**.



Product Recommendations:

Prolong the life-and *improve the efficiency-of* the **Wilson Combination Beading Expander** with **B-Kool!** **B-Kool** dissipates the heat generated by the **CBE**, increasing this *Smart Tool's* longevity, performance and productivity. **B-Kool** is available as a concentrate. Mix 20-24 parts water to one part **B-Kool**.

Product Description	Part No.
B-Kool (Concentrate) 1 Quart	42161-0001
B-Kool (Concentrate) 1 Gallon	42161-0004

Series 985 Chipping Hammers

Product Description	Part No.
#2 Chipping Hammer (2-Inch Stroke)	985-0200
#3 Chipping Hammer (3-Inch Stroke)	985-0300
#4 Chipping Hammer (4-Inch Stroke)	985-0400
Includes:	
1- Collar Retainer - 1.970 Dia	53613-0001
1- Lock Spring	53613-0002
1- Rubber Bumper	53613-0003
Service Manual	SM-134



Tool Specification: **Part No. 985-0200**

1½" Dia and 16" O.A.L.
 2" Stroke, 2150 Blows per Min.
 Weight 13 lbs. (6 kg)
 Air Inlet 3/8 - 18 NPT, 90 PSI @ 25 SCFM MAX.

Optional Accessory:

3/8" I.D. Hose – 8 ft. **#50007**

Tools For Chipping Hammer



BEADING TOOLS .680 Diameter Straight Shank

Part No.	Radius Bead	Tube Gage
42689	9/64"	13 and lighter
42690	3/16"	10, 11 and 12
42691	7/32"	8 and 9



CHISELS .680 Diameter Straight Shank

Part No.	Cutter Blade Width	
	Inches	(mm)
53812	3/4	(19.1)
53815	7/8	(22.2)
53809	1	(25.4)
53839	1½	(38.1)



COLLAPSING TOOLS

Tube OD		Part No.	Overall Length		Type Shank
Inches	(mm)		Inches	(mm)	
1	(25.4)	21913	11½	(292.0)	.580/ .680
1½	(28.6)	40514	11½	(301.6)	Round
1½	(31.8)	21914			.680
1½	(38.1)	21915	12	(304.8)	Round
2	(50.8)	74010-0800	12½	(320.6)	

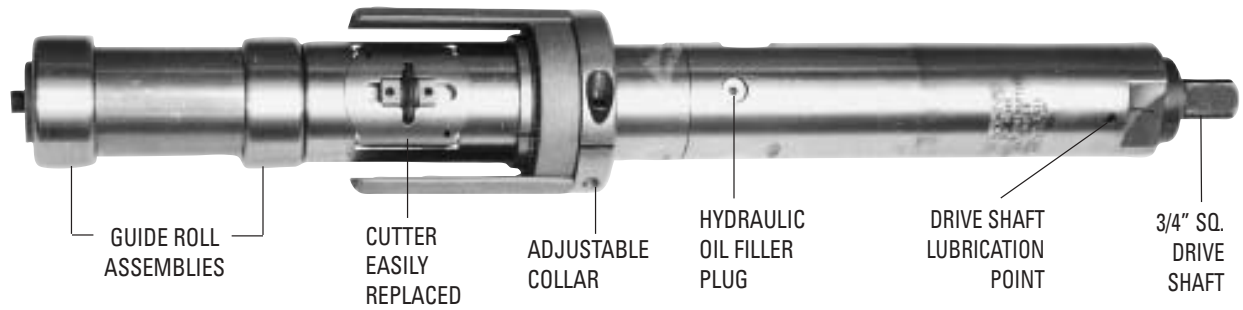


KNOCKOUT TOOL - For use with No. 80 Boyer Gun

Tube OD		Part No.	Overall Length	
Inches	(mm)		Inches	(mm)
1	(25.4)	73750	11	(279.4)
1½	(31.8)	72626	8	(203.2)
1½	(38.1)	72806	10	(254.0)
2	(50.8)	72230	10	(254.0)
		72940	12	(304.8)

Hydraulic Tube Cutters

For 2, 2½ and 3-Inch OD Tubes



The **Wilson Hydraulic Tube Cutter** quickly and efficiently cuts tubes in front of the tube sheet (prior to flaring and/or beading) in seconds. In fact, it cuts a 2" OD tube in just 8 seconds!

The **Wilson Hydraulic Tube Cutter** automatically raises the cutter wheel, cleanly cutting through the tube. When the rolling motor is reversed, the cutter wheel is automatically retracted.

This tool needs a minimum 1/2" projection to trim tubes, and an adjustable collar ensures that tubes are consistently cut at precisely the right position.

We recommend the **909** or **910 Series** Air-Driven Rolling Motor (Page 16) or the **22488** Electric Rolling Motor (Page 17). The **Wilson Hydraulic Tube Cutter** is available for rental.

U.S. Patent No. 4,424,629

Tube OD Inches (mm)	Wall GA (mm)	Hydraulic Tube Cutter Part No.	Guide Roll Assembly (2/Set)		Extra Set Supplied	Cutter Wheel Part No.	Wheel Pin Part No.	Length of Tube Cut-Off	
			Part No.	OD				Min	Max.
2 (50.8)	9 (3.8)	42741-0009	42366-0009	1.640"	To Suit Customer's Requirements	42752	42754	F	*4" (120.6)
	10 (3.4)	42741-0010	42366-0010	1.668"					
	11 (3.0)	42741-0011	42366-0011	1.696"					
	12 (2.8)	42741-0012	42366-0012	1.718"					
	13 (2.4)	42741-0013	42366-0013	1.746"					
2½ (63.5)	9 (3.8)	42742-0009	41735-0009	2.140"					
	10 (3.4)	42742-0010	41735-0010	2.168"					
	11 (3.0)	42742-0011	41735-0011	2.196"					
	12 (2.8)	42742-0012	41735-0012	2.218"					
	13 (2.4)	42742-0013	41735-0013	2.246"					
3 (76.2)	9 (3.8)	42743-0009	41771-0009	2.640"		42753	42755	F	9" (228.6)
	10 (3.4)	42743-0010	41771-0010	2.668"					
	11 (3.0)	42743-0011	41771-0011	2.696"					
	12 (2.8)	42743-0012	41771-0012	2.718"					
	13 (2.4)	42743-0013	41771-0013	2.746"					

Service Manual: SM-146

* 6" with modified collar

Torque-Controlled Rolling Motors

B Torq-Air Matic: 3/4 to 1½-Inch OD Tubes



B - Torq-Air-Matic Kit

Applications

- Rolling ferrous and non-ferrous tubes in boilers, heat exchangers and other pressure vessels with torque control

Specifications

- B Torq-Air-Matic Kit** - 3/4 to 1½-Inch O.D. Tubes

Weight: Drive: 14.5 lbs. (6.6 Kg)

Kit: 30.5 lbs. (13.8 Kg)

Air Consumption: 60 SCFM Maximum

Length: 12 Inches (305 mm)

Side to Center: 2 Inches (50.8 mm)

Drive: 1/2-Inch Spindle Square

- 2C Torq-Air-Matic Kit** - 1½ to 3-Inch O.D. Tubes

Weight: Drive: 24.5 lbs. (11 Kg) Kit: 40.5 lbs. (18.4 Kg)

Air Consumption: 70 SCFM Maximum

Length: 16.5 Inches (419.1 mm)

Side to Center: 2 Inches (50.8 mm)

Drive: 3/4-Inch Square Spindle

Torq-Air-Matic Kit Includes:

- Torq-Air-Matic Drive
- Set of Rotor Blades
- Operating Hose
- Mandrel Connectors
- Air Line Filter
- 1 Quart Expander Lube
- Hex Keys
- Carrying Case
- Service Manual

2C Torq-Air Matic: 1½ to 3-Inch OD Tubes



2C - Torq-Air-Matic Kit



The Torque Setting Dial makes it easy to calibrate this Smart Tool.

Accessories	Part No.
3/8" Square (9.5mm) Quick Mandrel Connector (B Kit)	41336
1/2" Square (12.7mm) Quick Mandrel Connector (B Kit)	21418
3/4" Square (19.1mm) Quick Mandrel Connector (2C Kit)	21137
1" Square (25.4mm) Quick Mandrel Connector (2C Kit)	21489
Filter-Lubricator Unit (3/4"/19.1mm) Coupling)	8598
1 Gallon Can (3.8 Liter) of Wilsolube	9047
1 Gallon Can (3.8 Liter) of Expander Lube	28115-0009
Rotor Blades (Set of 6)	21468

Model	Tube Capacities	Torq-Air-Matic Kit	Free Speed RPM	Maximum Torque		Minimum Torque	
		Part No.		Ft. Lbs.	Nm	Ft. Lbs.	Nm
B	3/4 to 1-Inch (19.1-25.4mm) O.D. Tubes	40515	750	24	33	3	4
	3/4 to 1½-Inch (19.1-38.1mm) O.D. Tubes	40516	600	30	41	3	4
	3/4 to 1½-Inch (19.1-38.1mm) O.D. Tubes	40517	450	40	54	3	4
2C	1½ to 2½-Inch (38.1-63.5mm) O.D. Tubes	40518	200	90	122	10	14
	1½ to 3-Inch (38.1-76.2mm) O.D. Tubes	40519	125	120	163	10	14

* Other Drives Available - Consult Factory

Air Driven Tube Rollers

Series 909 Right-Angle Tube Rollers: 1 to 4-Inch OD Tubes



- 909-1700 has lever throttle control (stall type)
- 909-2100 features torque control and roll throttle
- Ideal for tight spaces
- Right-angle design gives user built-in leverage
- Powerful

Accessories	Part No.
8-Foot (2.4 Meter) 1/2" (12.7mm) Diameter Air Hose	8973-0008
1/2" Square (12.7mm) Coupling (909-1700 only)	53782
3/4" Square (19.1mm) Coupling	53777
1" Square (25.4) Coupling	53778
Filter-Lubricator Unit (1/2" Coupling)	8597

Maximum Air Consumption: 72 CFM (909-1700) • 90 CFM (909-2100)
Service Manuals: SM-156 (909-1700) • SM-253 (909-2100)
 Tube OD capacity varies with tube gage and tube sheet thickness



Tube OD Inches (mm)	Free Speed RPM	Tube Roller Part No.	Max Torque @90PSIG Air Press.		Min Torque @90PSIG Air Press.		Lever and Controls	Weight	Length and Head Diameter
			Ft. Lbs.	NM	Ft. Lbs.	NM			
1 to 2½ (25.4-63.5)	95	909-1700	240	326	10	14	Lever Throttle Stall Type	13.3 lbs (6.0 Kg)	20.3" (52cm) by 2.2" (5.6cm)
1½ to 4 (38.1-101.6)	90	909-2100	305	414	150	214	Roll Throttle Torque Control	18.5 lbs (8.8 Kg)	21.7" (55cm) by 3" (7.6cm)
1½ to 4 (38.1-101.6)	90	909-2000	305	414	150	214	Lever Throttle Torque Control	18.5 lbs (8.8 Kg)	21.7" (55cm) by 3" (7.6cm)

Series 910/915: 1 to 4½-Inch OD Tubes



Maximum Air Consumption: 70 CFM
 Service Manual: SM-111

Features

- Roll Throttle
- Units are muffled to reduce user fatigue
- Reversible, so removing tube expander after expansion is easier and faster
- Dead handle gives operator added leverage



Maximum Air Consumption: 160 CFM
 Service Manual: SM-290

Accessories (For Series 910)	Part No.
25-Foot (7.6 Meter) 3/4" (19.1mm) Diameter Air Hose	*21190
1/2" Square (12.7mm) Quick Mandrel Connector	21138
3/4" Square (19.1mm) Quick Mandrel Connector	21137
1" Square (25.4) Quick Mandrel Connector	21489
Filter-Lubricator Unit	8598

Accessories (For Series 915)	Part No.
25-Foot (7.6 Meter) 1" (25.4mm) Diameter Air Hose	8976-0025
3/4" Square (19.1mm) Quick Mandrel Connector	21594
1" Square (25.4) Quick Mandrel Connector	21033
Filter-Lubricator Unit	8599

* Air Hose is 3/4" diameter with short 1/2" whip for maximum power and maneuverability.

Tube OD Inches (mm)	Free Speed RPM	Tube Roller Part No.	Max Torque @90PSIG Air Press.		Min Torque @90PSIG Air Press.		Drive Spindle	Weight	Dimensions
			Ft. Lbs.	NM	Ft. Lbs.	NM			
1 to 2½ (25.4-63.5)	200	910-2000	90	122	10	14	3/4" Square (19.1mm)	21 lbs (9.5 Kg)	15" (38cm) Long by 30" (76cm) Wide
1½ to 3 (38.1-76.2)	125	910-1200	120	163	150	214	#5 M.T.	69 lbs (31.4 Kg)	23" (58cm) Long by 32" (81cm) Wide

Electric Tube Rollers

Reversible Drive Units: 3/4 to 3-Inch OD Tubes

Applications:

- Exceeding stall point will not damage motor
- Dead handle gives operator added leverage and maneuverability
- Three-wire grounded plug offers added safety
- **22488** available in 220 volt version



The **22488** Electric Rolling Motor rolls tubes up to 3" OD.



The **41238** Electric Rolling Motor rolls tubes to 2½" OD

Wilson Electric Tube Rollers are durable, reliable and easy-to use. Exceeding their stall points will not damage these rugged machines.

Both the **41238** and **22488** feature dead handles for added leverage, and on-off and reverse switches are conveniently located on the fixed handle. For added safety, the **41238** Roller uses a three-conductor cord and grounded plug.

Tube OD Inches (mm)	Voltage and Frequency	Motor Part No.	Load Speed (RPM)	Amps/ Wattage	Drive Spindle	Weight	Overall Length
3/4 to 2½ (19.1-63.5)	110 Volts 50/60 Hz	41238	250 (No Load)	10 Amps	#3 Morse Taper Socket	19 lbs (8.6 Kg)	18½" (47cm)
2 to 3 (50.8-76.2)	110 Volts 60 Hz	22488	60	900 Watts	#4 Morse Taper Socket	23½ lbs (10.6 Kg)	16¾" (42cm)
	220 Volts 50 Hz	22488-0220					

41238 Accessories	Part No.
3/8" (9.5mm) Square Socket x 3 M.T.	41236
1/2" (12.7mm) Square Socket x 3 M.T.	41237
3/4" (19.1mm) Square Socket x 3 M.T.	20211
1" (25.4mm) Square Socket x 3 M.T.	20497
On/Off Forward/Reverse Switch	41238-0105
Set of Motor Brushes (must order 2 sets)	41238-0125
Service Manual	SM-133

22488 Accessories	Part No.
3/4" (19.1mm) Square Socket x 4 M.T.	20212
1" (25.4mm) Square Socket x 4 M.T.	20213
Forward/Reverse Switch	22488-8691
On/Off Switch	22488-0080
Set of Motor Brushes (must order 2 sets)	22488-0008
Service Manual	SM-188

Electronic Tube Expansion Wils-Tronic™ Tube Roller

Electronic Tube Expansion
For 1/2 to 3-Inch OD Tubes



**New
Product**

Patent Pending

Features

- Three Modes of Operation (Manual, Full Automatic and Programmable)
- Constant RPM at Various Torque Settings
- Auto Cycle for Continuous Rolling of Multiple Tubes
- Fully Programmable Keypad
- Security Lockout by Password
- Very Low Noise Level
- Telescopic Shaft Eliminates Operator Fatigue
- Flexible Tool that Allows for a Variety of Tools including Expanders, Cutters and Reamers.

Specifications

Power Requirements: 220V 3 Phase 50 or 60 Hz
- or -
440V 3 Phase 50 or 60 Hz

Speed: Up to 1,200 RPM

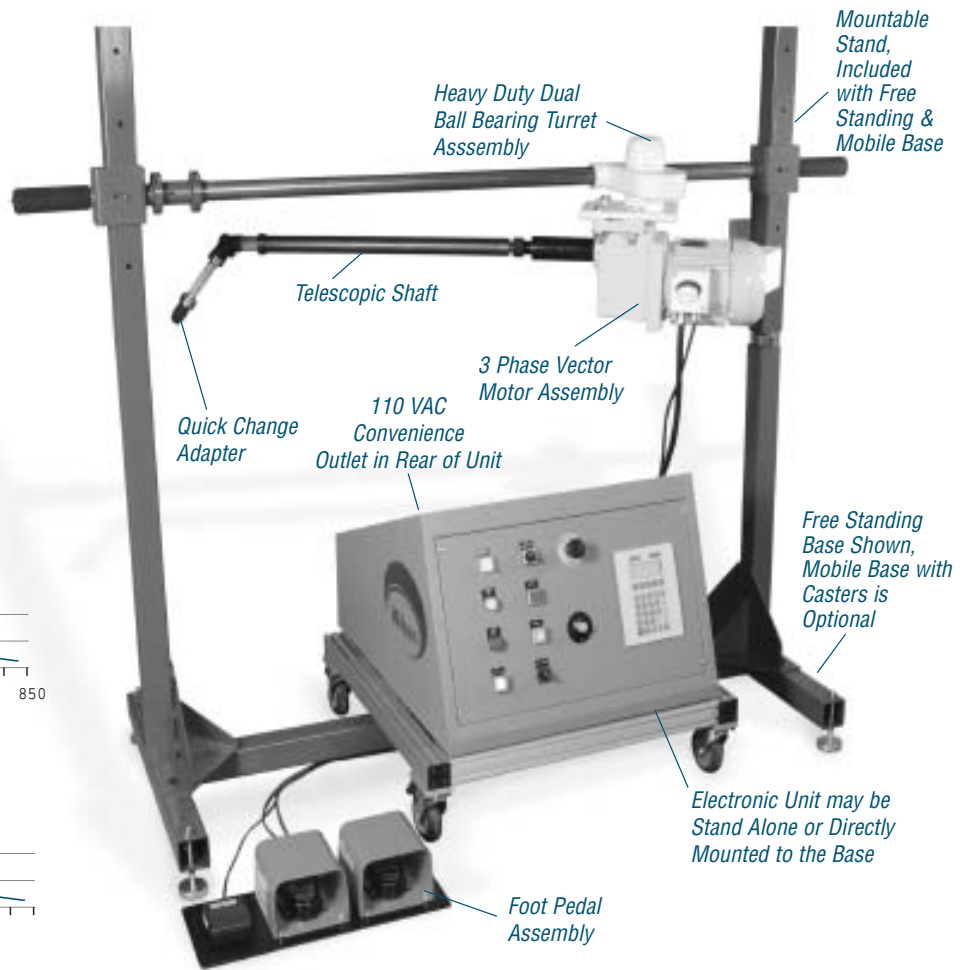
Torque (programmable): 1 to 300 ft. lbs.

Weight: 350 lb.

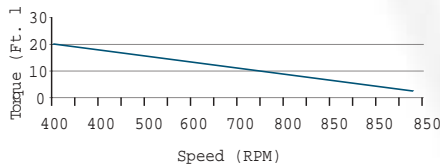
Work Envelope Dimensions: up to 10 ft. x 10 ft.
with standard cart



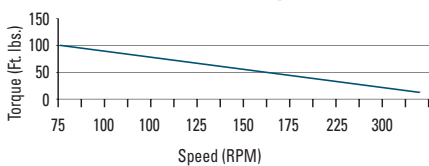
Wils-Tronic's most important feature is its ability to maintain constant speed during the entire rolling process even at various torque settings, making it faster and more efficient than conventional tube rollers. It also runs much quieter than any other tool on the market.



Performance Data - Low Torque



Performance Data - Mid Torque



3-phase asynchronous drive motor has an extremely flat torque curve. Tube rolling RPM is determined by desired output torque and pre-programmed into the Wils-Tronic. Vector drive technology will maintain that RPM throughout the rolling process.

Patent Pending

How to Order

Wils-Tronic Model	Low Torque	Mid Torque	High Torque
Technical Data			
Tube Capacity	1/2to 1¼-Inch Tubes	3/4 to 2½-Inch Tubes	Up to 3-Inch Tubes
RPM	400-1200 RPM	100-400 RPM	30-150 RPM
Torque Ranges	1-30 Ft.-lbs.	25-140 Ft.-lbs.	80-300 Ft.-lbs.
Wils-Tronic Kits			
	3ø 230V, 60 Hz	46000-0000	46500-0000
Consisting of Motor, Mount & Cables	3ø 230V, 50 Hz	46005-0000	47005-0000
Telescopic Shaft	3ø 440V, 60 Hz	46040-0000	47040-0000
Electronic Control Unit	3ø 440V, 50 Hz	46045-0000	47045-0000
Accessories			
Mobile Stand		46000-5000	
Stationary Stand		46000-5010	
3/8" Quick Change Adapter	46000-4200		
1/2" Quick Change Adapter	46000-4250		46500-4300
3/4" Quick Change Adapter			46500-4400
1" Quick Change Adapter			46500-4500
1/2" Jacobs Chuck	46000-4600		46500-4600
#2MT Adaptor			46500-6000

Tube Plugs - One Piece - 1 to 3-Inch OD Tubes

Wilson tube plugs offer a low-cost, quick, and effective method of sealing off leaky tubes. They are inserted easily, allowing the return of tubular units back on stream without undue interruption of process schedules. Only a minimum amount of driving is required to accomplish a positive seal without special tools. Plugs may also be welded. Certification and traceability are provided.

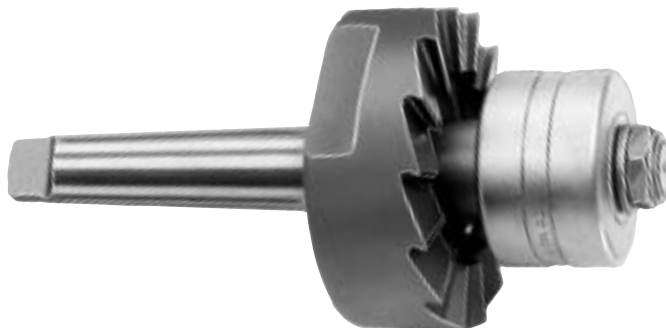
OD		Tube			Steel
Inches	(mm)	Gage	Inches	Wall (mm)	SA-105 Part No.
1	(25.4)	11-14	.120-.083	3.0-2.1	39710
1	(25.4)	15-22	.072-.028	1.8-0.7	22034
1 ¹ / ₈	(28.6)	15-22	.072-.028	1.8-0.7	40508
1 ¹ / ₄	(31.8)	15-22	.072-.028	1.8-0.7	42163
1 ³ / ₈	(34.9)	15-22	.072-.028	1.8-0.7	42164
1 ¹ / ₂	(38.1)	15-22	.072-.028	1.8-0.7	42162
1 ³ / ₄	(44.5)	10-13	.134-.095	3.4-2.4	42606
2	(50.8)	10-13	.134-.095	3.4-2.4	42600
2 ¹ / ₈	(63.5)	10-13	.134-.095	3.4-2.4	42601
3	(76.2)	10-13	.134-.095	3.4-2.4	42602



Packaged 10 Plugs per Box
Above 1¹/₂ OD quantity as ordered.
Custom sizes and material available.

Tube or Pipe End Cutters

Flat Seal Weld Removers
For 2 to 3-Inch OD Tubes, 1¹/₂ to 2¹/₂-Inch Pipe



This tool with high speed steel, multiple-tooth cutter and rotating pilot is used principally to remove seal welds of welded boiler tubes, but is also ideal for flat facing tube ends. The cutter diameters are large enough to cut a minimum of a quarter inch beyond the outside of the tubes.

There is complete interchangeability of cutters, pilots and shanks between inside or outside chamfering cutter and flat seal weld remover tools.

Tube OD Inches (mm)	Pipe Size Inches (mm)	Tool Assembly Part No.	OD	Spare Cutter Cut Diameter		Part No.	Standard Shank		Pilot Part No.
				Outer	Inner		M.T. No.	Part No.	
2 (50.8)	1 ¹ / ₂ (38.1)	40243	2 ¹ / ₂ "	2 ¹ / ₂ "	1 ¹ / ₈ "	39701	2	39671	39674
		39693					3	39672	
		40244					4	39673	
2 ¹ / ₂ (63.5)	2 (50.8)	40245	3"	3"	1 ¹ / ₂ "	39702	2	39671	
		39694					3	39672	
		40246					4	39673	
3 (76.2)	2 ¹ / ₂ (63.5)	40247	3 ¹ / ₂ "	3 ¹ / ₂ "	1 ¹ / ₈ "	39703	2	39671	
		39695					3	39672	
		40248					4	39673	

Tube or Pipe End Cutters

45° Outside Chamfering Tools for 2 to 3-Inch OD Tubes, 1½ to 2½-Inch Pipe

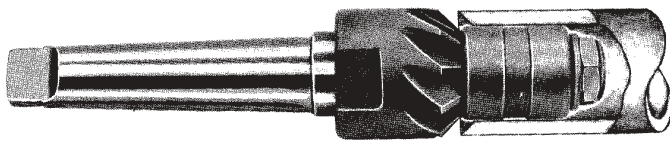


This tool with high speed steel cutters and rotating pilots is used for outside chamfering of tubes or pipe ends prior to welding. The replaceable cutters are of multiple-tooth design to avoid chattering and provide long life.

Tube OD Inches (mm)	Pipe Size Inches (mm)	Tool Assembly Part No.	OD	Spare Cutter Cut Diameter		Part No.	Standard Shank		Pilot Part No.
				Outer	Inner		M.T. No.	Part No.	
2 (50.8)	1½ (38.1)	40221	2¼"	2½"	1½"	39663	2	39671	39674
		39655					3	39672	
		40222					4	39673	
2½ (63.5)	2 (50.8)	40223	2¾"	2¾"	1½"	39664	2	39671	39674
		39656					3	39672	
		40224					4	39673	
3 (76.2)	2½ (63.5)	40225	3¼"	3¼"	1½"	39665	2	39671	39674
		39657					3	39672	
		40226					4	39673	

Tube or Pipe End Cutters

45° Inside Chamfering Tools for 2 to 3-Inch OD Tubes, 1½ to 2½-Inch Pipe



This tool with high speed steel cutters and rotating pilots is used for inside chamfering of tubes or pipe ends prior to welding. The replaceable cutters are of multiple-tooth design to avoid chattering and provide long life.

Tube OD Inches (mm)	Pipe Size Inches (mm)	Tool Assembly Part No.	OD	Spare Cutter Cut Diameter		Part No.	Standard Shank		Pilot Part No.
				Outer	Inner		M.T. No.	Part No.	
2 (50.8)	1½ (38.1)	40232	2¼"	2½"	1½"	39685	2	39671	39674
		39677					3	39672	
		40233					4	39673	
2½ (63.5)	2 (50.8)	40234	2¾"	2¾"	1½"	39686	2	39671	39674
		39678					3	39672	
		40235					4	39673	
3 (76.2)	2½ (63.5)	40236	3¼"	3¼"	1½"	39687	2	39671	39674
		39679					3	39672	
		40237					4	39673	

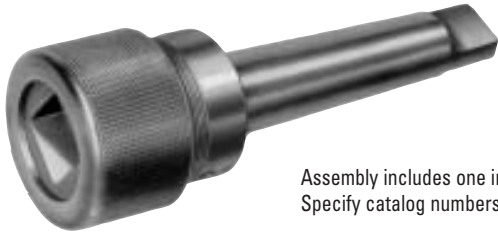
NOTE 1: Alternate Morse Taper Shanks are interchangeable on all tools and may be selected in place of the listed standard shanks.
#2 M.T., No. 39671 #3 M.T., No. 39672 #4 M.T., No. 39673

NOTE 2: The Pilots are furnished in a diameter to suit the specific Tube I.D.

When ordering: Either specify Pilot diameter desired, or the OD and Gauge or Wall Thickness of the tube or pipe that cutter is to be used with.

Mandrel Drives

Mandrel Drives serve the purpose of adapting tube expander mandrels to existing air or electric drills. Loosening the knurled nut releases the square insert type of socket for the introduction of another size.



Assembly includes one insert only.
Specify catalog numbers.

Morse Taper No.	Insert Square Size	Assembly Part No.	Extra Inserts	
			Square Size	Part No.
2	3/8"	20112-0037	3/8"	20123
	1/2"	20112-0050	1/2"	20124
3	3/8"	21288-0037	3/8"	21059
	1/2"	21288-0050	1/2"	20113
	3/4"	21288-0075	3/4"	20125
	1"	21288-0100	1"	20126
4	3/8"	20115-0037	3/8"	20159
	1/2"	20115-0050	1/2"	20113
	3/4"	20115-0075	3/4"	20125
	1"	20115-0100	1"	20126

Taper Shank - Female Square



Morse Taper No.	Square Size	Part No.
1	3/8"	20208
	1/2"	20209
2	3/8"	21290
	1/2"	20210
3	3/8"	41236
	1/2"	41237
	3/4"	20211
	1"	20497
4	3/4"	20212
	1"	20213

Triangle Shank - Female Square



Square Size	Chuck Size	Part No.
3/8"	1/4"	21359
	3/8"	21214
		21360
1/2"	1/2"	20215

Drive Extensions



General purpose drive extensions for use with universal joints and parallel gear trains, as well as with couplings for extending expander mandrels through water legs, header, etc.

Male Square Size	Overall Length	Diameter	Part No.	
3/8"	6"	1/2"	20041	
	12"		20043	
	18"		20197	
1/2"	4"	5/8"	20044	
	6"		20045	
	9"		20046	
	12"		20047	
	18"		20048	
	24"		20339	
	3/4"		4"	15/16"
6"		20050		
12"		20052		
18"		20053		
1"	24"	3/4"	20054	
	6"		1 1/4"	20056
	12"			20058
	14"			20196
	24"			20060

Extension Couplings



Wilson extension couplings are available in either a plain or reducing type. They are generously proportioned and heat treated to withstand applicable torque loads. Sockets have clearances to accommodate drive extensions, universals, etc.

Square Size	Overall Length	Diameter	Part No.
3/8" x 3/8"	1 ¹ / ₁₆ "	13/16"	20061
3/8" x 1/2"	1 ¹ / ₁₆ "	1 ¹ / ₁₆ "	20189
1/2" x 1/2"	1 ¹ / ₁₆ "	1 ¹ / ₁₆ "	20063
1/2" x 3/4"	2 ¹ / ₁₆ "	1 ³ / ₁₆ "	20191
1/2" x 1"	2 ⁵ / ₁₆ "	1 ⁷ / ₁₆ "	20193
3/4" x 3/4"	2 ¹ / ₁₆ "	1 ¹ / ₂ "	20065
3/4" x 1"	2 ³ / ₁₆ "	1 ⁷ / ₁₆ "	20202
1" x 1"	3"	1 ⁷ / ₁₆ "	20067

Universal Joints

"GP" Universal Joints

The Model GP is a female square type, smoothly rotating and deflecting upon a common axis. It has unusual strength for its size and is popular with all boiler makers. Minimum working angle is 135°.



Square Size Female	Square Size Female	Overall Length	Major Dia.	Part No.
3/8"	3/8"	2 ¹ / ₄ "	7/8"	42853
1/2"	1/2"	2 ³ / ₈ "	1"	20186
3/4"	3/4"	3 ¹ / ₄ "	1 ¹ / ₂ "	20187
1"	1"	3 ³ / ₄ "	1 ³ / ₄ "	20188

Bi-Universal Joints

The Bi-Universal Joint is suitable for the unusual situation requiring deflecting greater than provided by the Model GP Universal Joint.



Square Size Female	Square Size Female	Overall Length	Major Dia.	Part No.
3/8"	3/8"	3 ¹⁵ / ₁₆ "	1 ¹ / ₈ "	20081
1/2"	1/2"	4"	1 ⁵ / ₁₆ "	20083
3/4"	3/4"	4 ¹¹ / ₁₆ "	1 ¹ / ₈ "	20085
1"	1"	6 ¹ / ₃₂ "	2 ¹ / ₄ "	20087

Male-Female Universal Joints

The Male-Female Universal Joint is suitable for use in superheater headers. It has the same features as the Model GP.



Square Size Female	Square Size Male	Overall Length	Major Dia.	Part No.
3/8"	3/8"	2 ¹ / ₂ "	7/8"	42803
1/2"	1/2"	2 ¹⁹ / ₃₂ "	1"	21285
*1/2"	1/2"	2 ³ / ₈ "	1"	21356
3/4"	3/4"	3 ⁹ / ₃₂ "	1 ¹ / ₈ "	21286
1"	1"	4"	1 ³ / ₄ "	21287

*Male-Female Universal Joint, Part no. 21356, is extremely short and most suitable for work in crowded super-heater headers. It is only used with shortened shanks of expander mandrels.

Extension Universal Joints



Wilson Extension Universal Joints are useful for many applications when expanding tubes through waterwall headers, superheaters, water legs, etc. The integral design eliminates coupling an extension with a separate universal joint. The 140° working angle matches the standard location of many tubes from the accessible hand hole.

Square Size Female	Square Size Male	Overall Length	Major Dia.	Part No.
3/8"	3/8"	6	1 ¹ / ₈ "	21239
		12		20001
		9		21015
		16		21236
1/2"	1/2"	6	1 ¹ / ₁₆ "	21242
		12		20008
		16		20009
		20		20010
3/4"	3/4"	9	1 ¹ / ₈ "	21244
		16		20019
1"	1"	9	2 ¹ / ₄ "	21246
		16		20028

Parallel Gear Train Drives

Wilson Parallel Gear Drives are suitable for many expanding applications in various types of boiler headers. The inner gears have individual bronze bushings, rotating on shafts that are an integral part of the steel housing. These rigid gear shafts cannot come loose hence gears are maintained in perfect alignment under any operating conditions. The alloy steel gears are specially heat treated for maximum strength. All parts are readily replaceable. For maximum service lubricate with Texaco Starfak grease M or equivalent. Select the proper square hole size when ordering.



Square Size	No. Opgs.	Assembly Part No.	Replacement Parts			Sub-Assy. No Req d.	Distance Between Outer Squares	Length	Dimensions	
			Double Hub Part No.	Hub Gear No Req d.	Center Gear Part No.				Width	Thick
3/8"	2	20105	20108	2	20988	3	6"	8 1/2"	2"	1 1/16"
1/2"	3	20079	20080	3						
3/4"	2	20077	20078	2	20878	2		9"	2 1/2"	
	3	38134		3						
1"	2	20069	20072	2	2	2				

Reversible Ratchet Wrench

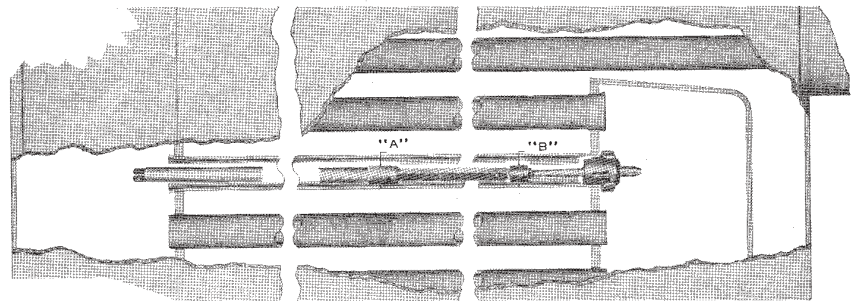


Wilson Ratchet Wrenches are suitable for tube expanding operations such as tube replacement and tube tightening. Reversing is accomplished by releasing the knurled knob at the handle end and turning it 180 degrees.

Square Size	Length	Width	Thickness	Part No.
3/8"	7"	1 1/8"	7/8"	20198
	10"	2 1/8"	1 1/8"	20036
1/2"	7"	1 1/8"	7/8"	20199
	10"	2 1/8"	1 1/8"	20200
3/4"	12"	2 3/8"	1 1/8"	20037
				20201
	15"	3 1/8"	1 1/8"	20038
1"	18"	3 3/8"	1 1/8"	20989
	15"	3 1/8"	1 1/8"	20039
	24"	3 3/8"	1 1/8"	20954

Extension Drives

This telescopic extension is suitable for the far end rolling of tubes in such HRT types of boilers as Fitzgibbons, Pacific and similar types. It is used with same expander used for the front sheet. The extension can be as short as 49" or extend as desired. It will perform in a space as small as 7" at the back end.



Square Sizes		Adjustable Telescopic Drive	Diameters		Reach		Female Square	Plain Square Extension	Added Reach	For Use With Assembly	Reach	
Male Driven	Female Driven		Dim. A	Dim. B	Max	Min					Max	Min
3/4"	1/2"	20405	1 1/8"	1 1/8"	49"	92"	1/2"	20471	47"	20405	96"	139"
	3/4"	21581	1 3/8"	1 1/4"			3/4"	21588		21581		
1"	1"	20412	2"	1 7/8"	1"	20473	20412					

Right Angle Gear Drives

Right Angle Worm Gear Drive

Wilson Worm Gear Drives were designed for maximum duty and service life and are expressly suitable for operating in very confined areas of boiler headers. The gear housing is specially shaped and the knurled shank is small enough to provide for expander feed movement when working thru a handhole. They will conveniently "reach in" for expanding tubes at right angles to, but offset from, a handhole.

The Wilson exclusive one piece steel housing and one piece worm shaft assures complete rigidity, continued gear alignment and extended service life. For maximum service lubricate with Vital E.P. SAE 250 oil or equivalent. Select the proper square hole size when ordering.

Features:

- One piece, steel housing with knurled shank.
- Replaceable bronze bushings and thrust washers
- One piece worm and shaft
- Hardened and ground alloy steel worm and shaft
- Gear ratio - see chart
- Handhole entrance - see chart



Male Square	Female Square	Overall Length	Gear Housing			Minimum Hand Hole Diameter	Gear Ratio	Part No.
			Length	Width	Thickness			
1/2"	1/2"	10 ³ / ₁₆ "	3 ³ / ₁₆ "	2 ¹ / ₄ "	1 ³ / ₁₆ "	3 ³ / ₈ "	4 ¹ / ₂ to 1	20135
	3/4"			2 ⁵ / ₈ "				20136
3/4"	1"	11 ¹ / ₃₂ "	4 ¹ / ₄ "	3 ¹ / ₁₆ "	1 ⁷ / ₁₆ "	4 ¹ / ₂ "	5 ¹ / ₂ to 1	20137
	3/4"			2 ⁷ / ₈ "				20138

Heavy Duty Bronze Type

Right Angle Bevel Gear Drive - Heavy Duty Bronze Housing Type

Enter handholes:
 Round - 3³/₄" diameter
 Oval - 3³/₈" x 3³/₄"
 Elliptical - 3³/₈" x 4¹/₄"

Male Square	Female Square	Overall Length	Width	Thickness	Part No.
1/2"	1/2"	11 ¹ / ₁₆ "	3 ³ / ₈ "	3 ³ / ₈ "	21885
3/4"	3/4"				21001
	1"				21000
1"	3/4"				21002
	1"	20972			



Light Duty

Right Angle Bevel Gear Drive - Maximum 2-Inch OD Tube



This small, all steel, bevel gear drive is used in small headers. It is generally used in conjunction with a universal joint and extension for tubes located approximately 100° radially from a hand hole. Its use is restricted to a maximum 2" diameter tube and for extended service life it should be rotated in the slower ranges of speed.

Features:

- All steel one piece housing
- Alloy steel gears
- Replaceable bronze bushing and thrust washer
- Exceptionally compact
- Gear ratio 1 to 1
- Will enter minimum 2¹/₄" round hand hole.

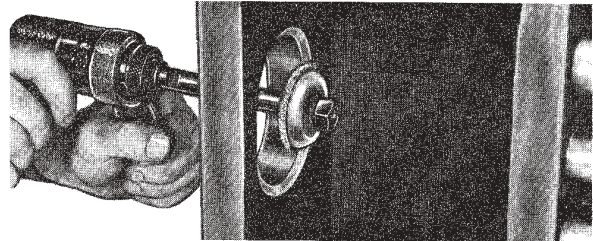
Male Square	Female Square	Overall Length	Width	Thickness	Part No.
3/8"	3/8"	6 ¹ / ₈ "	1 ¹ / ₄ "	2 ¹ / ₃₂ "	21601
1/2"	1/2"				21602

Handhole Seat Cleaning Kit



The **Wilson Handhole Seat Cleaning Kit** includes all the tools you need to remove rust, deposits, torn gaskets and other encrustations from boiler drums, sectional headers, plug seats, handholes and pipe flanges. It is also suitable for the surfacing of corners, as well as flat areas of tanks, stacks and bulkheads, prior to painting.

- Light rust and encrustation, a frequent cause of handhole leaks, are rapidly removed with the kit's special 2-inch diameter cup brush.
- The air motor that comes with the kit readily converts to a powerful 1/4-inch capacity 4500 rpm drill.
- The spindle and brush supplied with the kit clean drums and internals.
- Expanding brushes can be used with the extension spindle to clean tube seat holes to insure optimum rolled joints.



Light rust and gasket encrustations, a frequent cause of handhole leaks, are quickly removed with the special **Wilson Cup Brush**. A smooth seat is produced up to the corner of the outerbore. The short bristle will not damage the seat.

Handhold Seat Cleaning Kit (Part No. 9175-1)

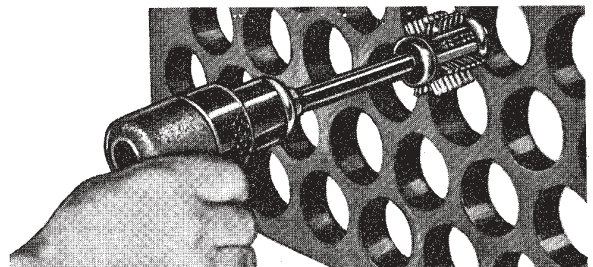
Includes:

Product Description	Part No.
Air Motor includes	93-2321
Dead handle	51199
Hex Key and Wrench (1/2" and 3/4" opening)	5760
Spare Set (4) of Rotor Blades	51139
Drill Chuck with Key (1/4" capacity)	51211
3 1/2" Cup Brush (1/2" A.H. Twisted Wire)	52066
4" Radial Brush (also 1/2" A.H.)	8122
2" Cup Brush for Handhole Seats	8399
Wrench Set for Cup Brush that includes	51841
1/2" Angle Wrench	52376
3/4" Socket Wrench	52377
4" Extension Spindle with Nut	51829-0004
2" Extension Spindle with Nut	51829-0002
Expanding Brush	2463-0003
Extension Spindle for Expanding Brush	51846-0004
3/8" I.D. Air Hose (with 1/4" NPT Couplings, 8 Ft)	50371
Tool Box/Carrying Case	6404-0003
Service Manual	SM-193

Air Motor Specifications

1/4" Capacity
 4500 RPM
 90 PSI
 30 SCFM
 1/4" NPT Inlet
 3 Lbs.
 3/8" x 24 Thread

Cup Brush Assembly	Part No.
2" Diam. Cup Brush with 2" Extension Spindle	8399-0002
2" Diam. Cup Brush with 4" Extension Spindle	8399-0004



Clean tube seat holes are essential to producing optimum rolled joints. Both the inside and outside of the drum or sheet hole, as well as the outside of the tube, must be cleaned. Expanding brushes may be used with the extension spindle furnished with the kit.

Handhole Seat Grinding Kit

The **Wilson Handhole Seat Grinding Kit** restores to a smooth flat service the gasket seal of any size handhole, insuring a perfect seal when the hole is closed. And the unique **Wilson Alignment Indicator** eliminates guesswork as to proper alignment of the grinding wheel with the seat to be ground.



The unique **Wilson Alignment Indicator (Part No. 1043)** is available as optional equipment and is included in the **Handhole Seat Grinding Kit No. 1041-2601**.

Optional Grinding Wheels

Product Description	Part No.
2¼" Diameter-Coarse Grit	1041-0081
2¼" Diameter-Fine Grit	1041-1081
2½" Diameter-Coarse Grit	1041-0082
2½" Diameter-Fine Grit	1041-1082
2¾" Diameter-Coarse Grit	1041-0083
2¾" Diameter-Fine Grit	1041-1083

Optional Carbide Surfacers

Product Description	Part No.
2" Diameter	62524
2¼" Diameter	62525
2½" Diameter	62526

Air Motor Specifications

- 12,600 RPM
- 90 PSI
- 22 SCFM
- 0.25 HP
- 3/8" NPT Inlet

Handhold Seat Grinding Kit (Part No. 1041-1601)

includes:

Product Description	Part No.
Air Motor (90 PSI, 22 SCFM Max)	1041-0088
2" Grinding Wheel (Coarse Grit)	1041-0029
2" Grinding Wheel (Fine Grit)	1041-1029
Extension Arm Assembly	1041-0093
2" Cup Brush	8340
Guide Roller (1½" diameter)	1041-0025
Guide Roller (1⅞" diameter)	1041-0026
Guide Roller (1½" diameter)	1041-0027
Guide Roller (1⅞" diameter)	1041-0028
MF Adapter (1"-8M x 7/8-9F)	1041-0035
MF Adapter (1"-8M x 3/4-10F)	1041-0036
5/16" Hex Key	52147
3/16" Hex Key	51254
5/64" Hex Key	52142
Filter/Lubricator	8596
Offset Socket Wrench (9/16" x 7/16")	1041-0072
Wheel Dressing Stone	1041-0066
Inspection Mirror	1041-0030
Mounting Assembly	1041-3067
Tool Box/Carrying Case	24939
Service Manual	SM-121

Handhole Seat Grinding Kit (Part No. 1041-2601)

includes items in Kit No. 1041-1601 plus

Product Description	Part No.
Alignment Indicator	1043
Motor Clamp Assembly	1041-0087
Service Manual	SM-122

Tube End Polishing Kits

Wilson Tube End Polishing Kits safely clean tube ends in just a few seconds, preparing them for sil-brazing, welding or tube rolling. The **9176 Kit** includes a 4,500 rpm motor that weighs just 5 pounds, and it uses a highly efficient, flexible, abrasive brush that does the job in one pass, saving time and money!

Tube End Polishing Kit (Part No. 9176) includes:

Product Description	Part No.
Polishing Motor 4500 RPM includes 1/2" - 20 Spindle Adapter to 1" OD, 1/4" NPT Hose Connection (includes dead handle, hex key and wrench)	936-82
Spare Rotor Blades (Set of 4)	51139
3/16" Hex Key	51254
Wrench (3/4" opening)	5760
Wrench (1 1/2" and 1 1/4")	51250
Flexible Abrasive Wheels, 6-inch diameter (2)	50369
Adapter Set for Abrasive Wheel	51388
Radial Wire Brush, 6-inch diameter	8114
Cone Wheel, 1 1/4" diameter	53667
Tool Box/Carrying Case	6404-0003
Service Manual	SM-73-1

Attachments

Cup Brush	8399
Adapter for Cup Brush	51288-0003
Expanding Brush Extension Assembly	51845-0004
Adapter (5/16-18F x 7/16-14M)	51296
Adapter (7/16-14F x 1/2-20F)	51290-0004



Wilson Midget Tube End Polishing Kit

The **Wilson Midget Tube End Polishing Kit** features a powerful motor that weighs just 2 pounds, and the entire kit weighs just 10 1/2 pounds! This kit saves time in repair and assembly for brazers, welders, pipe fitters or boiler makers, in the shop or onboard a ship.

Midget Tube End Polishing Kit (Part No. 9178) includes:

Product Description	Part No.
Air Motor 16,000 RPM 3/8" x 24 Thread Spindle, 1/4" NPT Hose Connection including	921-16
Rear Flange	50806
Front Flange	50807
Spindle Nut	50455
Spare Blades (set of 3)	50817
Wrench (1/2" x 3/4")	5760
Flexible Abrasive Wheel, 3 1/2" Diameter (2)	53544
Wheel Flange for Flex-Wheel	51942
Hub Nut for Flex-Wheel	53539
Hose Whip, 8 Ft	50371
Radial Wire Brush - 3" Diameter (2)	50312
Bushing for Wire Brush (2)	51545
Depressed Center Wheel 3" Diameter	50352
Adapter Set for Depressed Center Wheel including	50970
Adapter	50971
Wheel Nut	50889
Wheel Spacer	50887
Spanner Wrench	50897
3" Wheel Guard	53522
Tool Box/Carrying Case	6404-0003
Service Manual	SM-85



Boilermaker's Grinding Kit



The **Wilson Boilermaker's Grinding Kit** includes a variety of the tools and accessories that are needed on most boiler repair projects. Many combinations of tools are possible from the accessories supplied with the kit, so many boiler repair tasks can be performed with this comprehensive and affordable kit.

The powerful ball bearing-type **921-18 Air Motor** supplied with the kit uses 90 psi of air and consumes 25 SCFM, and it runs at 18,000 rpm. It is furnished with a 3/8-24 spindle and a 1/4" NPT hose connection. It weighs just 2 pounds and is less than 6 1/2 inches in overall length, permitting use in confined areas.

The accessories supplied with the **Boilermaker's Grinding Kit** makes these combinations of tools possible:

- **General Purpose Grinding and Handhole Dressing:** Use the 2" diameter all purpose wheel. Circular wire brushes can also be used.
- **Two-Inch OD Tube Hole Dressing and Weld Removal:** Attach the 1 1/4" diameter cone wheel and wheel adapter.
- **One-Inch OD Tube Hole Dressing:** Attach the 1" diameter Mounted Points with 1/4" Collet Chuck Adapter and the 1/4" Collet
- **Preparation of Weld and Dressing:** Use the 1/2" diameter Carbide Burr with the Collet Chuck Adapter and 1/4" Collet.

Boilermaker's Grinding Kit (Part No. 9189)

includes

Product Description	Part No.
921-18 Air Motor includes	921-1800
Wrench (1/2" and 3/4" Opening)	5760
Spare Set (3) of Rotor Blades	50817
Wheel Guard	53535
2" Grinding Wheels (2)	50123
1 1/4" Cone Wheel (2)	50177
Adapter for Cone Wheel	50834-0003
Spacer for Cone Wheel	50850
SF-13 Carbide Burr, 1/2" diameter	52793-0025
Collet Chuck Adapter	50833
1/4" Collet	50904
1" Diameter Mounted Points (2)	50370
2" Diameter Radial Wire Brush	50297
3" Diameter Radial Wire Brush	53264
8-Foot Length of Hose	50371
1/4" Hose Line Lubricator	52035
Tool Box/Carrying Case	6404-0003
Service Manual	SM-85

WilsoLube Rust Inhibiting Lubricant



WilsoLube

Oil Based (Gallon)
Water-Soluble (Quart)
Water-Soluble (Gallon)

Part No.

9047
9047-0002
9047-0009

Series 921 - Small Wheel Grinders

For Burring, Die Grinding, Contouring, Flash Removal, Snagging and Weld Smoothing

Features

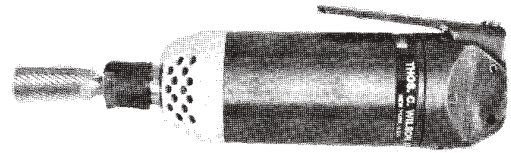
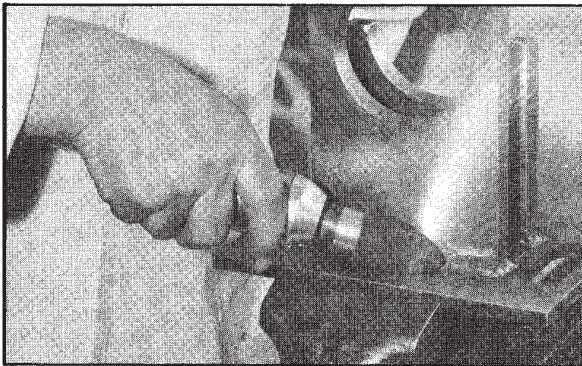
- Powerful – for high metal removal rate.
- Designed for continuous cool operations.
- Lever throttle control with safety lock.
- Powerful three-blade swastika type motor.
- True running collets (collet chuck models).
- Rugged steel body construction.
- Cylinder hardened, ground and honed for longer wear.
- Air cooled, heavy duty bearings front and rear.
- Adjustable exhaust deflector.
- Built-in speed regulator.

These small powerful grinders are designed for driving small grinding wheels, rotary files, carbide burs, routers and sanding or cutting discs. Metal is removed quickly and accurately with a minimum of effort and operator fatigue. These compact and perfectly balanced tools are available in spindle and collet chuck models with lever throttle control. The spindle and collet adapters available permit any one of the models to accommodate a wide choice of grinding wheels and mounted accessories.

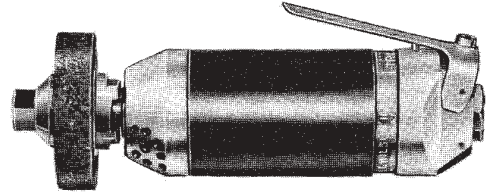
Air consumption: 25 SCFM MAX.

Recommended working pressure: 90PSI

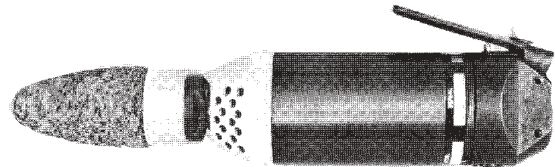
For lubrication use filter-lubrication unit **Part No. 8596** consisting of fog type lubricator and air filter.



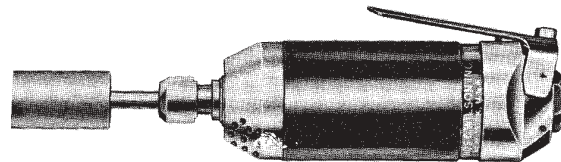
Model 921-2800 with 1/2" Carbide Bur



Model 921-1800 with 2" Straight Wheel



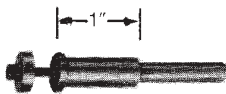
Model 921-1500 with 1 1/2" Cone Wheel & Spacer



Model 921-2100 with 3/4" Mounted Point

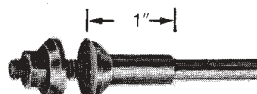
Adapters for Series 921 & 922 Grinders

1/4" Collet Chuck Adapter



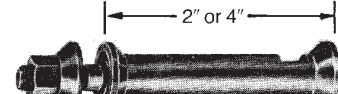
1/8" Thread—Part No. 50844-0001

1/4" Collet Chuck Adapters



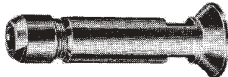
1/4" Thread—Part No. 50842-100
3/8" Thread—Part No. 50379

3/8"-24 Thread Spindle Adapters



1/2" Thread—Part No. 51829-0002
1/2" Thread—Part No. 51829-0004

3/8"-24 Thread Collet Adapter (Less Collet)

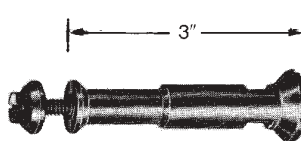


#50831—3/4" O.A.L.
#50833—2 1/4" O.A.L.

Interchangeable Collets for Above Assemblies

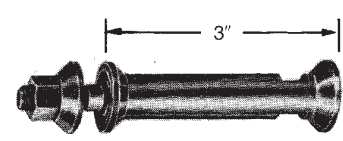
1/4" Collet - Part No. 50904
3/16" Collet—Part No. 50903
1/8" Collet—Part No. 50902

3/8"-24 Thread Spindle Adapters



1/4" Thread—Part No. 50836-0003
1/8" Thread—Part No. 50838-0003

3/8"-24 Thread Spindle Adapters



3/8" Thread—Part No. 50871-0003

Jacobs Collet Chuck
3/8"-24 Thread



3/8" Cap—Part No. 50884
1/4" Cap—Part No. 51817

Cone Wheel Spacer

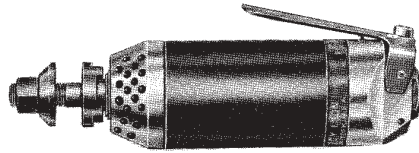


Part No. 50850
This Spacer Is Also Required
with Jacobs Collet Chucks

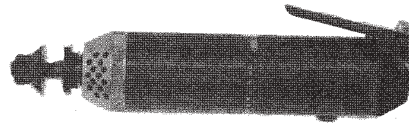
Jacobs Key Chuck—3/8"-24 Thread
(For Direct Drive Models Only)



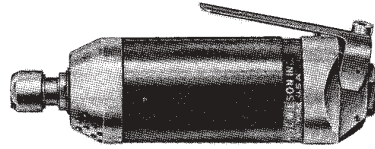
1/4" Cap—Part No. 51211



Type 1
3/8" X 24 Thread Spindle



Type 3
With Governor & Automatic Lubricator
3/8" X 24 Thread Spindle



Type 2
1/4" Collet Chuck Spindle



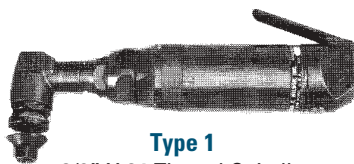
TYPE 4
With Governor & Automatic Lubricator - 1/4" Collet Chuck Spindle

Type	Part No.	Free Speed RPM	Length Inches	Body Dia. Inches	Weight Lbs.	Air Inlet In/NPT	Hole Size I.D./In	Grinding Wheel Capacity Dia x Width/Inch	Spindle Thread Inch	Spindle Thread Inch	SM No.
1	921-1600	16,000	6 ⁵ / ₁₆	1 ¹ / ₁₆	2 ¹ / ₂	1/4"	3/8"	2 ¹ / ₄ x 1/2	3/8-24	-	85
	921-1800	18,000						2 x 1/2			
	921-1000	20,000						1 ¹ / ₂ x 1/2			
	921-1500	25,000						1 ¹ / ₂ x 1/2			
2	921-2600	16,000	5 ⁵ / ₁₆	1 ¹ / ₁₆	2	1/4"	3/8"	-	-	1/4	85
	921-2800	18,000									
	921-2000	20,000									
	921-2200	22,000									
3	921-2500	25,000	8 ⁵ / ₁₆	1 ¹ / ₁₆	2 ¹ / ₂	1/4"	3/8"	3 x 1/2	3/8-24	-	92
	921-7200	12,000						2 ¹ / ₂ to 1/2			
	921-7500	15,000						2 x 1/2			
4	921-7800	18,000	7 ¹ / ₂	1 ¹ / ₁₆	2 ¹ / ₂	1/4"	3/8"	-	-	1/4	92
	921-8200	12,000									
	921-8500	15,000									
	921-8800	18,000									

Optional Accessories	Part No.
1/4" I.D. Hose - 8 ft.	50371
2-2 ¹ / ₂ " Wheel Guards } Types	53535
2 ¹ / ₂ -3" Wheel Guards } 1 & 3	53522
1/8" or 3/16" Collet - See Page 30	

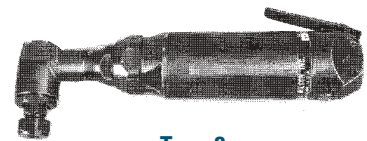
Wrenches Supplied	Part No.
With Types 1 & 3	5760
With Types 2 & 4	2014 & 5760
Spare Burs and Grinding Wheels are available. Contact the factory for pricing.	

Series 921 - Short Right Angle Grinders



Type 1
3/8" X 24 Thread Spindle

Recommended working pressure: 90 PSI.
Air Consumption: 25 SCFM MAX.
For lubrication use filter-lubrication unit **Part No. 8596** consisting of fog type lubricator and air filter.



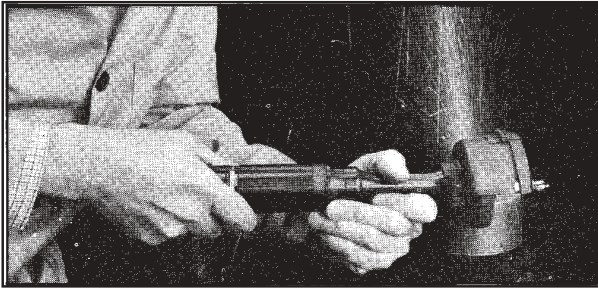
Type 2
1/4" Collet Chuck Spindle

Type	Part No.	Free Speed RPM	Length Inches	Body Dia. Inches	Weight Lbs.	Air Inlet In/NPT	Hole Size I.D./In	Spindle Thread Inch	Std Collet For Shank Dia./Inches
1	921-3170	12,000	8 ⁵ / ₁₆	1 ¹ / ₁₆	3	1/4"	3/8"	3/8-24	-
	921-3100	14,000							
	921-3130	16,000							
	921-3270	12,000							
2	*921-3200	14,000						-	1/4
	921-3230	16,000							

Type 1:	Part No.
4" Wheel Guard	53683
Depressed Center Wheel	
Adapter Set	53225
1/8" Collet	52209
3/16" Collet	52207
1/4" Collet	52206
5/32" Collet	52208

Wrenches Supplied:	Part No.	Optional Accessories:	Part No.
With Types 1	5760	1/8" I.D. Hose - 8 ft.	50371
With Types 2	2014 and 5760	Spare Burs and Grinding Wheels are available.	
Service Manual	SM-154	Contact the factory pricing.	

Series 922 - Small Wheel Grinders



This model grinder is provided with the rugged spindle bearing construction necessary to take full advantage of the speed and power provided by the Wilson Air Motor.

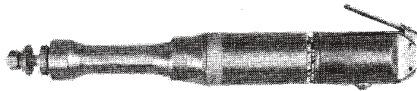
The extended spindle housing makes possible a comfortable, two-handed grip for maximum work capability.

Air consumption: 25 SCFM MAX

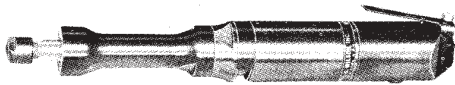
Recommended working pressure: 90 PSI.

For lubrication use filter-lubrication unit **Part No. 8596** consisting of fog type lubricator and air filter.

Horizontal Grinders



Type 1
3/8" X 24 Thread Spindle

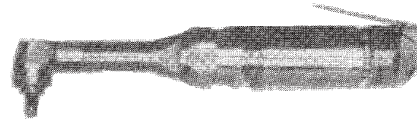


Type 2
1/4" Collet Chuck Spindle

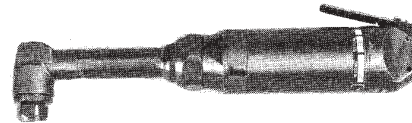


Type 3
With Governor & Automatic Lubricator
3/8"x24 Thread Spindle

Right Angle Grinders



Type 4
3/8" X 24 Thread Spindle



Type 5
1/4" Collet Chuck Spindle

Type	Part No.	Free Speed RPM	Length Inches	Body Dia. Inches	Weight Lbs.	Air Inlet In/NPT	Hole Size I.D./In	Grinding Wheel Capacity Dia x Width/Inch	Spindle Thread Inch	Stand. Collet Inch	SM No.
1	922-1160	16,000	10 ³ / ₁₆	1 ¹ / ₁₆	3	1/4"	3/8"	2 ¹ / ₄ x 1/2	3/8-24	-	98
	922-1180	18,000						2 x 1/2			
	922-1100	20,000						1 ¹ / ₂ x 1/2			
	922-1150	25,000						1 ¹ / ₄ x 1/2			
2	922-1260	16,000	12 ³ / ₁₆	3 ¹ / ₂	-	-	-	-	1/4	-	
	922-1250	25,000									
3	922-1720	12,000	10 ³ / ₁₆	1 ¹ / ₁₆	3 ¹ / ₂	1/4"	3/8"	3 x 1/2	3/8-24	-	128
	922-1750	15,000						2 ¹ / ₄ to 1/2			
	922-1780	18,000						2 x 1/2			
4	922-2170	12,000	10 ³ / ₁₆	1 ¹ / ₁₆	3	-	-	-	-	-	99
	922-2100	14,000									
5	922-2130	16,000	10 ³ / ₁₆	1 ¹ / ₁₆	3	-	-	-	-	1/4	-
	922-2270	12,000									
	922-2200	14,000									
	922-2230	16,000									

Optional Accessories	Part No.
3/8" I.D. Hose-8ft.	50371
For Horizontal Grinder - Type 1 & 3	
2-2 ¹ / ₂ " Wheel Guards	53536
2 ¹ / ₂ -3" Wheel Guards	53523
For Right Angle Grinder - Type 4	
4" Wheel Guards	53683

Wrenches Supplied:	Part No.
With Types 1, 3 & 4	5760
With Types 2 & 5	2014 and 5760
1/8" or 3/16" Collet - Type 2 - See Page 30	
1/8" or 3/16" Collet - Type 5 - See Page 30	
Spare Burs and Grinding Wheels are available.	
Contact the factory for pricing.	

Series 901 - Medium Duty Grinders



Part No.	Free Speed RPM	Spindle Thread Inches	Length Inches	Body Dia. Inches	Weight Lbs.	Air Inlet In/NPT	Hole Size I.D./In	Wheel Capacity 1/8" x 1" Wide x Diameter			Standard Wheel Guard Inches	No.
								Vitrified Inches	Organic Inches	Reinforced In.		
901-1600	12,000	5/8-11	17½	2¼	5%	3/8"	3/8"	2	3	3½	3	53520
901-1700	9,000							2½	4	4	4	53458

Air Supply 90 PSI
 Air Consumption 55 SCFM Max.
 Use 1/2" I.D. Min. Hose for Air Supply
 Limit Diameter of Radical Brushes to those of Organic Bonded Wheels.
 Grinder Supplied with Guard
 Service Manual SM-155

Optional Accessory: Part No. 50007
 3/8" I.D. Hose - 8 ft.
 Spare Grinding Wheels are available.
 Contact factory for pricing.

Series 924-1200 - Right Angle Grinder



- Features**
- Aluminum body & throttle housing for lighter weight
 - Removable dead handle
 - Helical gear for smoother operation & longer life
 - Takes up to 4" diameter wheel

Air Supply 90 PSI
 Air Consumption 30 SCFM Max.

Part No. 53664
 Supplied with Wheel Guard
 Wrenches Supplied
 Spanner 53268
 Open End 5760

Optional Accessories:
 3/8" I.D. Hose - 8ft. 50371
 3" Dia. x 1/4" Thick Depressed Center Wheel 50376
 4" Dia. x 1/4" Thick Depressed Center Wheel 50378

Part No.	Free Speed RPM	Length Inches	Height Inches	Body Dia. Inches	Weight Lbs.	Air Inlet In/NPT	Hole Size I.D./In	Grinding Wheel Capacity Dia x Width/Inch	Spindle Thread Inches	Max. H.P.	SM No.
924-1200	12,000	8¾	3½	1¼	3¾	1/4"	3/8"	4 x 1/4	3/8-24	.7	143

Expander Lube - Type B

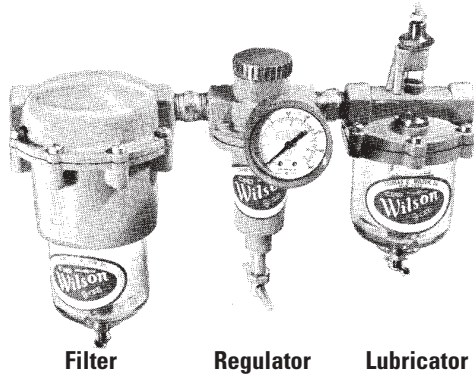
Wilson Expander Lube is a water-soluble lubricant especially compounded for use with tube expanders. When rolling large or small, ferrous or non-ferrous tubes, use **Wilson Expander Lube** for smoother rolling and longer expander life. For clean tube ends after rolling, simply wash with water. **Wilson Type B** Expander Lube is used straight from the can without dilution.

Expander Lube Type B	Part No.
1 Quart Can	28115-0002
1 Gallon Can	28115-0009
5 Gallon Can	28115-0005
30 Gallon Drum	28115-0030
55 Gallon Drum	28115-0055



Pneumatic Accessories

It is very important to provide every air-operated tool with clean, lubricated and properly pressurized air. Many job sites lack such conditions and the air provided may actually harm these air-operated tools. These popular assemblies, the Filter-Regulator-Lubricator and Filter-Lubricator, are offered as portable units.



Filter

Regulator

Lubricator

Manifold Type

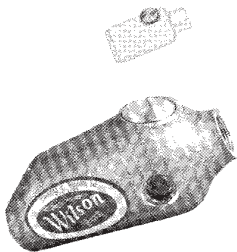
Portable Type



Pipe Thd.	Filter-Reg.-Lub.		Filter-Lubricator		Air Line Filter 150 PSI (Max)		Pressure Regulator Part No.	PSI Range	Air Line Lubricator	
	Manifold Type Part No.	Portable Type Part No.	Manifold Type Part No.	Portable Type Part No.	Part No.	Max. CFM @100 PSI			Part No.	PSI Range
*1/4"	8905	8905-0250	8595	8595-0250	8910	79	8915	5-125	8894	10
3/8"	8906	8906-0375	8596	8596-0375	8911	112	8916		3611	
1/2"	8907	8907-0500	8597	8597-0500	8912	138	8917		3612	
3/4"	8908	8908-0750	8598	8598-0750	8913	226	8918	10-125	3613	24
1"	8909	8909-1000	8599	8599-1000	8914	331	8919		3627	

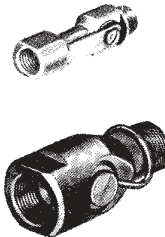
Air Line Lubricator

For use between supply Hose and Whip



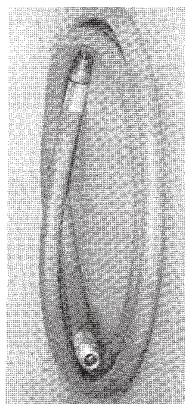
Pipe Thd.	Air Line Lubricator Part No.	Capacity Ozs.
1/4"	52035	.25
3/8"	52399	.25
1/2"	53360	2.6
3/4"	53361	5.3
	53362	8
1"	53363	16

Air Valve



Pipe Thd.	Air Valve Part No.	Major Diam. Inches
1/4"	9439	.735
3/8"	8774	.906
1/2"	8654	1.375
3/4"	8647	1.750
1"	8669	2.000

Hose Whips



These short lengths of hose are fitted with couplings and are used between the supply hose and the pneumatic tool. The hose is very flexible and lighter in weight than the operating or air supply hose. All hose used in Wilson hose whips is designed to withstand 250 pounds working pressure (p.s.i.).

Hose Size		Hose Whip Assembly with End Fittings		
I.D.	OD	Part No.	Length	Pipe Thread
3/16"	27/64"	50001	8 Ft.	1/8" x 1/4"
1/4"	15/32"	50003		1/4 x 1/4"
3/8"	39/64"	50371		1/4" x 3/8"
		50007		3/8" x 3/8"
1/2"	7/8"	8973-0008		1/2" x 1/2"

WilsoLube

Rust Inhibiting Lubricant



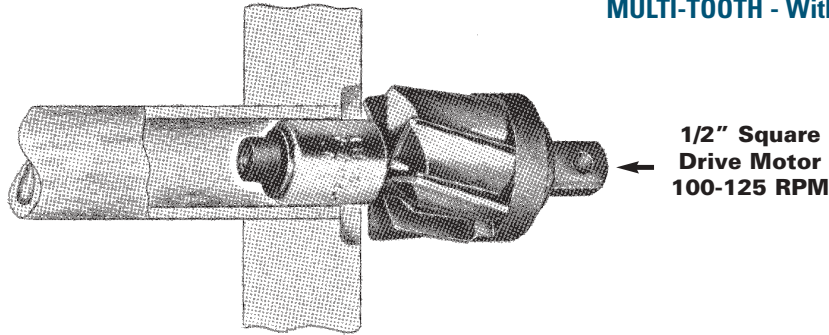
WilsoLube
Oil Based (Gallon)
Water-Soluble (Quart)
Water-Soluble (Gallon)

Part No.
9047
9047-0002
9047-0009

Superheater Tube Cutters

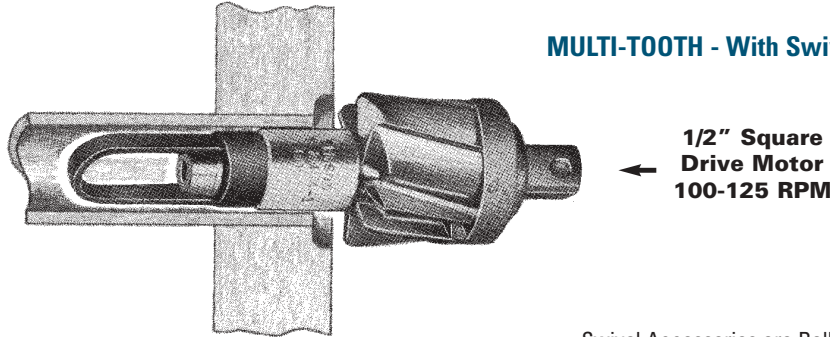
Seal Weld Facing or Counterbore Cutter - Flat Cut Type

MULTI-TOOTH - Without Swivel



Tube OD Inches (mm)	Pilot Diameter	Cutter Diameter	Cutter Assembly Part No.	Cutter Part No.	Shank Part No.	Cutter Assembly Parts Pilot Part No.	Washer Part No.	Screw Part No.
1 (25.4)	.805	1½"	73488-8053	72464-0001	72464-0002	72464-8053	30573	20784
1¼ (31.8)	1.010	1¾"	72537-0103	72537-0001		72464-0103		
		1½"	72915-0103	72941-0001		72464-2623		
1½ (38.1)	1.262	1¾"	73142-2623	72555-0004				

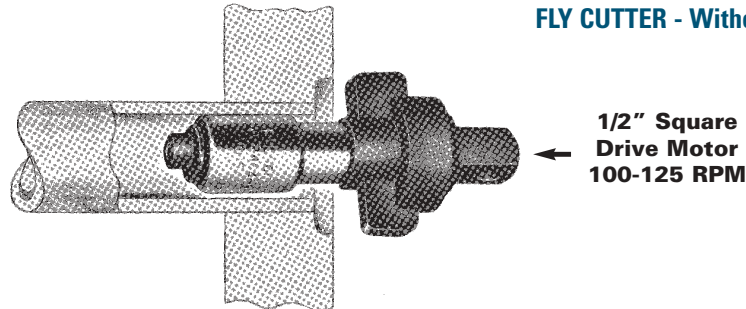
MULTI-TOOTH - With Swivel



Swivel Accessories are Ball Bearing for Tubes 1¼" OD and Up.

Tube OD Inches (mm)	Pilot Diameter	Cutter Diameter	Cutter Assembly Part No.	Cutter Part No.	Cutter Assembly Parts Shank Part No.	Cutter Assembly Parts Pilot Part No.	Swivel Assembly Part No.	Swivel Part No.	Swivel Assembly Parts Washer Part No.	Screw Part No.	Bearing Part No.
1 (25.4)	.805	1½"	72601-8053	72464-0001	72464-0002	72464-8053	72544-0002	72544-0008	72544-0007	38070	—
	1.035	1¾"	72546-0353	72537-0001		72464-0353					
1¼ (31.8)	1.010	1¾"	72914-0103	72914-0001		72464-0103	72951	72951-0001	—	39523	72951-0004
		2"	73292-0103	73292-0001							
1½ (38.1)	1.262	1¾"	72555-2623	72555-0001	72464-2623						
		2¾"	73510-2623	72906							

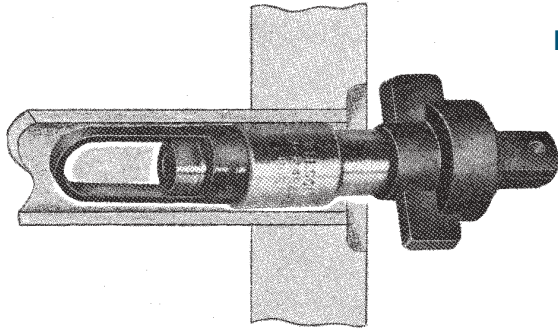
FLY CUTTER - Without Swivel



Tube OD Inches (mm)	Pilot Diameter	Cutter Diameter	Cutter Assembly Part No.	Blade Part No.	Shank Part No.	Cutter Assembly Parts Pilot Part No.	Washer Part No.	Screw Part No.
1 (25.4)	.805	1½"	72474-8053	72474-0001	72474-0002	72464-8053	2821	39924
	1.010	1¾"	72538-0103	38138		72464-0103		
1¼ (31.8)	.980	1¾"	72917-9803	72916-0001		72464-9803		
		1½"	73502-2623	73502-0001	72464-2623			

Superheater Tube Cutters

Seal Weld Facing or Counterbore Cutter - Flat Cut Type



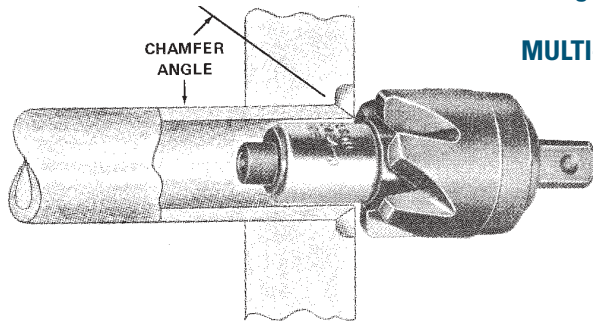
FLY CUTTER - With Swivel

**1/2" Square Drive Motor
100-125 RPM**

Fly blade set screw **Part No. 28207** is accessible by removing swivel and swivel screw. Swivel accessories are ball bearing for tubes 1/4" OD and up.

Tube OD Inches (mm)	Pilot Diameter	Cutter Diameter	Cutter Assembly Part No.	Blade Part No.	Cutter Assembly Parts Shank Part No.	Pilot Part No.	Swivel Assembly Part No.	Swivel Part No.	Swivel Assembly Parts Washer Part No.	Screw Part No.	Bearing Part No.
1 (25.4)	.805	1 1/2"	72661-8053	72474-0001	72474-0002	72464-8053	72544-0002	72544-0008	72544-0007	38070	—
1 1/4 (31.8)	1.010	1 3/4"	72557-0103	38138		72464-0103	72951	72951-0001	—	39523	72951-0004
1 1/2 (38.1)	1.262	1 7/8"	73503-2623	73502-0001	72464-2623						

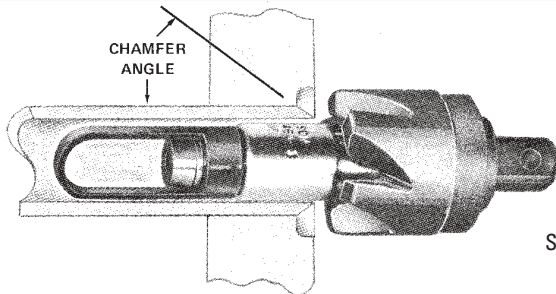
Seal Weld Groove and Tube End Outside Chamfer - Miscellaneous Angles



MULTI-TOOTH - Without Swivel

**1/2" Square Drive Motor
100-125 RPM**

Tube OD Inches (mm)	Pilot Diameter	Cutter Diameter	Chamfer Angle	Cutter Assembly Part No.	Cutter Part No.	Shank Part No.	Cutter Assembly Parts Pilot Part No.	Washer Part No.	Screw Part No.
1 (25.4)	.805	1 1/2"	22 1/2°	72659-8053	72600-0001	72464-0002	72464-8053	30573	20784
1 1/4 (31.8)	1.010	1 3/4"	28°	72660-0103	72545-0001		72464-0103		
	.980	1 1/2"		72937-9803	72936-0001		72464-9803		
1 1/2 (38.1)	1.145	1 7/8"		73501-1453	72554-0001		72464-1453		



MULTI-TOOTH - With Swivel

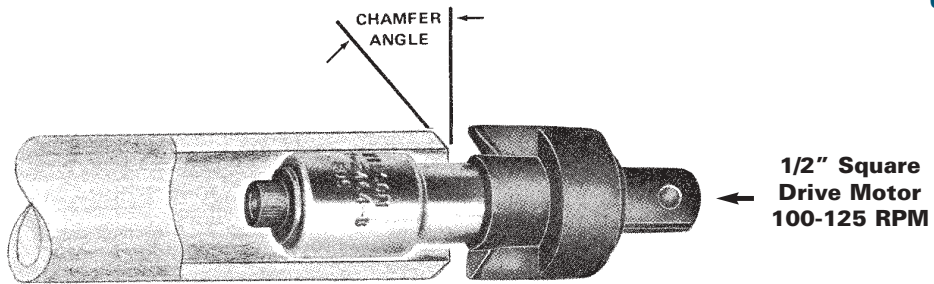
**1/2" Square Drive Motor
100-125 RPM**

Swivel accessories are ball bearing for tubes 1/4" OD and up.

Tube OD Inches (mm)	Pilot Diam.	Cutter Diam.	Chamfer Angle	Cutter Assembly Part No.	Cutter Part No.	Cutter Assembly Parts Shank Part No.	Pilot Part No.	Swivel Assem. Part No.	Swivel Part No.	Swivel Assembly Parts Washer Part No.	Screw Part No.	Bearing Part No.	
1 (25.4)	.805	1 1/2"	22 1/2°	72600-8053	72600-0001	72474-0002	72464-8053	72544-0002	72544-0008	72544-0007	38070	—	
	.980	2 1/4"	20°	73621-9803	73621-0001		72464-9803						
1 1/4 (31.8)	1.035	1 3/4"	28°	72545-0353	72545-0001	72474-0002	72464-0353	72951	72951-0001	—	39523	72951-0004	
		1 1/2"	20°	72936-0353	72936-0001								
1 3/8 (34.9)	1.130	1 3/4"	28°	73293-0353	73293-0001								72464-1303
	1.230	2"	20°	72655-1303	72655-0001								72464-2303
1 1/2 (38.1)	1.247	1 7/8"	28°	73620-2303	73620-0001	72464-2303							
		2 1/2"		72554-2473	72554-0001		72464-2473						
				72907-2473	72907-0001								

Superheater Tube Cutters

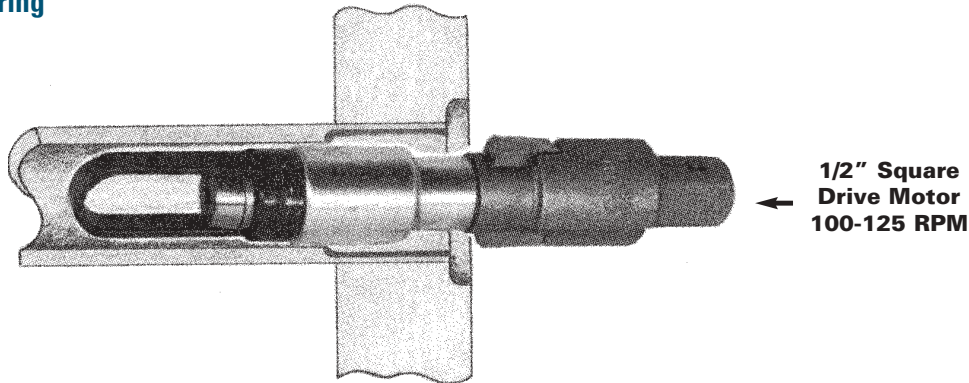
Tube End Outside Chamber Fly-Cutter - Miscellaneous Angles



CHAMFER

Tube OD Inches (mm)	Pilot Diameter	Blade Diameter	Chamfer Angle	Cutter Assembly Parts						
				Cutter Assembly Part No.	Blade Part No.	Shank Part No.	Pilot Part No.	Washer Part No.	Screw Part No.	Shim Part No.
1 (25.4)	.805	1 ³ / ₁₆ "	37 ¹ / ₂ °	72658-8053	72636-0001	72474-0002	72464-8053	2821	39924	72540-0003
1 ¹ / ₄ (31.8)	1.010	1 ¹ / ₂ "		72540-0103	72540-0001		72464-0103			
1 ¹ / ₂ (38.1)	1.262	1 ⁵ / ₈ "	20°	72638-2623	72638-0001		72464-2623			
2 (50.8)	1.540	2 ¹ / ₄ "	36°	73153-2623	73153-0001		72464-5403			

Tube Wall Boring Fly Cutter



BORE

Tube OD Inches (mm)	Pilot Diameter	Cutter Diameter	Cutter Assembly Part No.	Blade Part No.	Cutter Assembly Parts								
					Shank Part No.	Pilot Part No.	Screw Part No.	Swivel Assem.	Swivel Part No.	Washer Part No.	Screw Part No.	Bearing Part No.	
1 (25.4)	.775	.990"	72599-7753	72599-0001	72544-0004	72464-7753	28207	72951	72544-0002	72544-0008	72544-0007	38070	—
1 ¹ / ₄ (31.8)	.980	1 ¹ / ₂ "	72544-9803	72544-0001		72464-9803							
1 ³ / ₈ (38.1)	1.130	1 ⁵ / ₈ "	72654-1303	72654-0001		72464-1303							
1 ¹ / ₂ (50.8)	1.212	1 ⁵ / ₈ "	72556-2123	38137		72464-2123							

Fly blade set screw **Part No. 28207** is accessible by removing swivel and swivel screw. Swivel accessories are ball bearing for tubes 1¹/₄" OD and up.

Flo-Breaker - Safely Cuts Off Excess Air Flow

The powerful force of compressed air escaping from a broken air hose causes the hose to whip, creating a dangerous hazard to personnel and equipment. The FLO-BREAKER safely cuts off excess air flow. Hose will not whip.

Features

- Non-Clogging
- Automatic Reset
- No Adjustment Necessary
- Stainless Steel Springs (unaffected by temperature)
- Low Pressure Drop-means high productivity

New York State BSA approved-patent no. 3,561,471

Excerpt from the Department of Labor Occupational Safety and Health Administration regulation 29 CFR part 1926 for Construction.

§ 1926.302 Power-Operated hand tools:

(7) All hoses exceeding 1/2-inch inside diameter shall have a safety device at the source of supply or branch line to reduce pressure in case of hose failure.

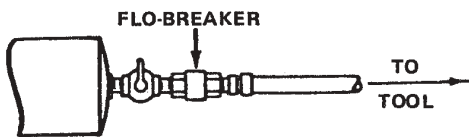
Standard Model – Inserts Between Male Pipe Threads



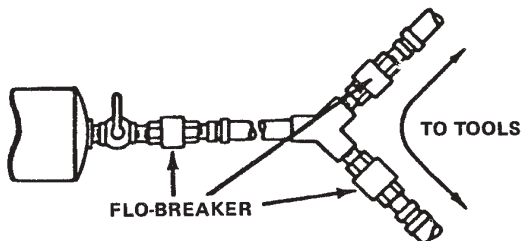
Pipe Size NPT	Outline Dimensions			
	A Inches	B Inches	C Inches	Hex Inches
3/8"	4 1/4	1 1/4	1 1/6	1
1/2"	3 3/2	1 1/4	1 1/6	1
3/4"	3 7/2	1 1/4	1 2/6	1 1/2
1"	4 1/2	2	2 1/6	1 3/4
1 1/4"	5	3	2 1/4	2 1/2
1 1/2"	5 1/4	3 1/2	2 3/4	2 3/4
2"	6 1/4	4 1/4	3 1/2	3 1/2

Pipe Size NPT	Shut-Off Flow Rate @90 PSI SCFM	Standard Model Part No.	Weight Pounds	Shut-Off Flow Rates at Selected Air Pressures				
				60 PSI SCFM	90 PSI SCFM	110 PSI SCFM	130 PSI SCFM	150 PSI SCFM
3/8"	45	1050-1040	1/4	38	45	49	52	56
1/2"	65	1051-1030		55	65	71	76	82
	80	1051-1040	3/8	68	80	87	94	100
3/4"	115	1052-1020		97	115	125	135	144
	135	1052-1030		114	135	147	159	169
1"	180	1052-1040	3/4	152	180	196	212	226
	250	1053-1020		211	250	273	294	314
1 1/4"	450	1054-1020	5 1/4	380	450	491	529	564
1 1/2"	650	1055-1020	7	549	650	709	764	815
2"	1200	1056-1200	13	845	1050	1120	1190	1250

3 Inch Pipe Size Also Available upon Request.



NOTE: EACH LINE MUST BE INDIVIDUALLY PROTECTED



Shut-off Flow Rate

Be certain to select a **Flo-Breaker** with a safe shut-off flow rating (i.e. a sufficiently low rating). This rating may be calculated from installation data or determined by a test which simulates hose rupture.

Any test should be in the actual installation and simulated hose failure should be at the farthest, protected downstream location from the **Flo-Breaker**. The simulated hose-rupture must trip the **Flo-Breaker**, safely shutting off air flow. If it does not, the test should be repeated with a **Flo-Breaker** of lower rating.

Precaution should be taken in the above tests to protect personnel and equipment against possible hose whip in the event that the **Flo-Breaker** rating is too high for the installation.

Thickness of Wall in Birmingham Wire Gage in Millimeters

TUBE			20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	
O.D. (IN.)	O.D. (MM)	I.D.	.9	1.1	1.2	1.5	1.7	1.8	2.1	2.4	2.8	3.0	3.4	3.8	4.2	4.6	5.2	5.6	6.0	6.6	7.2	7.6	8.6	
1/2	12.7	Min.	10.7	10.4	10.0	9.5	9.1	8.7	8.1	7.4	6.6	6.0												
		Nom.	10.9	10.6	10.2	9.8	9.4	9.0	8.5	7.9	7.2	6.6												
5/8	15.9	Min.	13.9	13.5	13.1	12.6	12.2	11.9	11.3	10.6	9.8	9.2	8.4	7.6	6.7	5.8								
		Nom.	14.1	13.7	13.4	12.9	12.6	12.2	11.7	11.0	10.3	9.8	9.1	8.4	7.5	6.7								
3/4	19.1	Min.	17.1	16.7	16.3	15.8	15.4	15.0	14.4	13.8	13.0	12.3	11.6	10.8	9.8	9.0	7.7	6.8	5.7	4.6				
		Nom.	17.3	16.9	16.6	16.1	15.7	15.4	14.8	14.2	13.5	13.0	12.2	11.5	10.7	9.9	8.7	7.9	7.0	5.9				
7/8	22.2	Min.	20.2	19.9	19.5	19.0	18.6	18.2	17.6	16.9	16.2	15.5	14.7	13.9	13.0	12.2	10.9	9.9	8.9	7.7				
		Nom.	20.4	20.1	19.7	19.3	18.9	18.6	18.0	17.4	16.7	16.1	15.4	14.7	13.8	13.1	11.9	11.0	10.1	9.1				
1	25.4	Min.	23.4	23.1	22.7	22.2	21.8	21.4	20.8	20.1	19.3	18.7	17.9	17.1	16.2	15.3	14.0	13.1	12.1	10.9	9.5	8.6	6.4	
		Nom.	23.6	23.3	22.9	22.5	22.1	21.7	21.2	20.6	19.9	19.3	18.6	17.9	17.0	16.3	15.1	14.2	13.3	12.2	11.0	10.2	8.1	
1-1/8	28.6	Min.	26.6	26.2	25.8	25.3	24.9	24.6	24.0	23.3	22.5	21.9	21.1	20.3	19.4	18.5	17.2	16.3	15.3	14.1	12.7	11.8	9.6	
		Nom.	26.8	26.4	26.1	25.6	25.3	24.9	24.4	23.7	23.0	22.5	21.8	21.1	20.2	19.4	18.3	17.4	16.5	15.4	14.1	13.3	11.3	
1-1/4	31.8	Min.	29.8	29.4	29.0	28.5	28.1	27.7	27.1	26.4	25.7	25.0	24.3	23.5	22.5	21.7	20.4	19.5	18.4	17.3	15.9	15.0	12.8	
		Nom.	30.0	29.6	29.3	28.8	28.4	28.1	27.5	26.9	26.2	25.7	24.9	24.2	23.4	22.6	21.4	20.6	19.7	18.6	17.3	16.5	14.5	
1-3/8	34.9	Min.	32.9	32.6	32.2	31.7	31.3	30.9	30.3	29.6	28.9	28.2	27.5	26.6	25.7	24.9	23.6	22.6	21.6	20.4	19.1	18.2	15.9	
		Nom.	33.1	32.8	32.4	32.0	31.6	31.3	30.7	30.1	29.4	28.8	28.1	27.4	26.5	25.8	24.6	23.7	22.8	21.8	20.5	19.7	17.7	
1-1/2	38.1	Min.	36.1	35.8	35.4	34.8	34.5	34.1	33.5	32.8	32.0	31.4	30.6	29.8	28.9	28.0	26.7	25.8	24.8	23.6	22.2	21.3	19.1	
		Nom.	36.3	36.2	35.6	35.2	34.8	34.4	33.9	33.3	32.6	32.0	31.3	30.6	29.7	29.0	27.8	26.9	26.0	24.9	23.7	22.9	20.8	
1-3/4	44.5	Min.	42.5	42.1	41.7	41.2	40.8	40.4	39.8	39.1	38.4	37.7	37.0	36.2	35.2	34.4	33.1	32.2	31.1	30.0	28.6	27.7	25.5	
		Nom.	42.7	42.3	42.0	41.5	41.1	40.8	40.2	39.6	38.9	38.4	37.6	36.9	36.1	35.3	34.1	33.3	32.4	31.3	30.0	29.2	27.2	
2	50.8	Min.	48.8	48.5	48.1	47.5	47.2	46.8	46.2	45.5	44.7	44.1	43.3	42.5	41.6	40.7	39.4	38.5	37.5	36.3	34.9	34.0	31.8	
		Nom.	49.0	48.7	48.3	47.9	47.5	47.1	46.6	46.0	45.3	44.7	44.0	43.3	42.4	41.7	40.5	39.6	38.7	37.6	36.4	35.6	33.5	
2-1/4	57.2	Min.	55.2	54.8	54.4	53.9	53.5	53.1	52.5	51.8	51.1	50.4	49.7	48.9	47.9	47.1	45.8	44.9	43.8	42.7	41.3	40.4	38.2	
		Nom.	55.4	55.0	54.7	54.2	53.8	53.5	52.9	52.3	51.6	51.1	50.3	49.6	48.8	48.0	46.8	46.0	45.1	44.0	42.7	41.9	39.9	
2-1/2	63.5	Min.	61.5	61.2	60.8	60.2	59.9	59.5	58.9	58.2	57.4	56.8	56.0	55.2	54.3	53.4	52.1	51.2	50.2	49.0	47.6	46.7	44.5	
		Nom.	61.7	61.4	61.0	60.6	60.2	59.8	59.3	58.7	58.0	57.4	56.7	56.0	55.1	54.4	53.2	52.3	51.4	50.3	49.1	48.3	46.2	
2-3/4	69.9	Min.	67.9	67.5	67.1	66.6	66.2	65.8	65.2	64.5	63.8	63.1	62.4	61.6	60.6	59.8	58.5	57.6	56.5	55.4	54.0	53.1	50.9	
		Nom.	68.1	67.7	67.4	66.9	66.5	66.2	65.6	65.0	64.3	63.8	63.0	62.3	61.5	60.7	59.5	58.7	57.8	56.7	55.4	54.6	52.6	
3	76.2	Min.	74.2	73.9	73.5	72.9	72.6	72.2	71.6	70.9	70.1	69.5	68.7	67.9	67.0	66.1	64.8	63.9	62.9	61.7	60.3	59.4	57.2	
		Nom.	74.4	74.1	73.7	73.3	72.9	72.5	72.0	71.4	70.7	70.1	69.4	68.7	67.8	67.1	65.9	65.0	64.1	63.0	61.8	61.0	58.9	
3-1/4	82.6	Min.	80.6	80.2	79.8	79.3	78.9	78.5	77.9	77.2	76.5	75.8	75.1	74.3	73.3	72.5	71.2	70.3	69.2	68.1	66.7	65.8	63.6	
		Nom.	80.8	80.4	80.1	79.6	79.2	78.9	78.3	77.7	77.0	76.5	75.7	75.0	74.2	73.4	72.2	71.4	70.5	69.4	68.1	67.3	65.3	
3-1/2	88.9	Min.	86.9	86.6	86.2	85.6	85.3	84.9	84.3	83.6	82.8	82.2	81.4	80.6	79.7	78.8	77.5	76.6	75.6	74.4	73.0	72.1	69.9	
		Nom.	87.1	86.8	86.4	86.0	85.6	85.2	84.7	84.1	83.4	82.8	82.1	81.4	80.5	79.8	78.6	77.7	76.8	75.7	74.5	73.7	71.6	
3-3/4	95.3	Min.	93.3	92.9	92.5	92.0	91.6	91.2	90.6	89.9	89.2	88.5	87.8	87.0	86.0	85.2	83.9	83.0	81.9	80.8	79.4	78.5	76.3	
		Nom.	93.5	93.1	92.8	92.3	91.9	91.6	91.0	90.4	89.7	89.2	88.4	87.7	86.9	86.1	84.9	84.1	83.2	82.1	80.8	80.0	78.0	
4	101.6	Min.	99.6	99.3	98.9	98.3	98.0	97.6	97.0	96.3	95.5	94.9	94.1	93.3	92.4	91.5	90.2	89.3	88.3	87.1	85.7	84.8	82.6	
		Nom.	99.8	99.5	99.1	98.7	98.3	97.9	97.4	96.8	96.1	95.5	94.8	94.1	93.2	92.5	91.3	90.4	89.5	88.4	87.2	86.4	84.3	
4-1/2	114.3	Min.	112.3	112.0	111.6	111.0	110.7	110.3	109.7	109.0	108.2	107.6	106.8	106.0	105.1	104.2	102.9	102.0	101.0	99.8	98.4	97.5	95.3	
		Nom.	112.5	112.2	111.8	111.4	111.0	110.6	110.1	109.5	108.8	108.2	107.5	106.8	106.0	105.2	104.0	103.1	102.2	101.1	99.9	99.1	97.0	
5	127.0	Min.	125.0	124.7	124.3	123.7	123.4	123.0	122.4	121.7	120.9	120.3	119.5	118.7	117.8	116.9	115.6	114.7	113.7	112.5	111.1	110.2	108.0	
		Nom.	125.2	124.9	124.5	124.1	123.7	123.3	122.8	122.2	121.5	120.9	120.2	119.5	118.6	117.9	116.7	115.8	114.9	113.8	112.6	111.8	109.7	

ADDITIONAL BIRMINGHAM WIRE GAGES

NUMBER	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	00	000	0000	00000
MM	.1	.1	.2	.2	.2	.3	.3	.3	.4	.4	.5	.5	.6	.6	.7	.8	9.7	10.8	11.5	12.7

Thickness of Wall in Birmingham Wire Gage in Inches

TUBE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
O.D.	I.D.	.035	.042	.049	.058	.065	.072	.083	.095	.109	.120	.134	.148	.165	.180	.203	.220	.238	.259	.284	.300	.340
1/2	Min.	.422	.408	.392	.373	.357	.342	.318	.291	.260	.236											
	Nom.	.430	.416	.402	.384	.370	.356	.334	.310	.282	.260											
5/8	Min.	.547	.533	.517	.498	.482	.467	.443	.417	.385	.361	.330	.299	.262	.229							
	Nom.	.555	.541	.527	.509	.495	.481	.459	.435	.407	.385	.357	.329	.295	.265							
3/4	Min.	.672	.658	.642	.623	.607	.592	.568	.542	.510	.486	.455	.424	.387	.354	.303	.266	.226	.180			
	Nom.	.680	.666	.652	.634	.620	.606	.584	.560	.532	.510	.482	.454	.420	.390	.344	.310	.274	.232			
7/8	Min.	.797	.783	.767	.747	.732	.717	.693	.666	.636	.611	.580	.549	.512	.479	.428	.391	.351	.305			
	Nom.	.805	.791	.777	.759	.745	.731	.709	.685	.657	.635	.607	.579	.545	.515	.469	.435	.399	.357			
1	Min.	.922	.908	.892	.873	.857	.842	.818	.791	.761	.736	.706	.675	.637	.604	.553	.516	.476	.430	.375	.340	.252
	Nom.	.930	.916	.902	.884	.870	.856	.834	.810	.782	.760	.732	.704	.670	.640	.594	.560	.524	.482	.432	.400	.320
1-1/8	Min.	1.047	1.033	1.017	.997	.982	.967	.943	.916	.886	.861	.831	.800	.762	.729	.678	.641	.601	.555	.500	.465	.377
	Nom.	1.055	1.041	1.027	1.009	.995	.981	.959	.935	.907	.885	.857	.829	.795	.765	.719	.685	.649	.607	.557	.525	.445
1-1/4	Min.	1.172	1.158	1.142	1.122	1.107	1.092	1.068	1.041	1.011	.986	.956	.925	.887	.854	.803	.766	.726	.680	.625	.590	.502
	Nom.	1.180	1.166	1.152	1.134	1.120	1.106	1.084	1.060	1.032	1.010	.982	.954	.920	.890	.844	.810	.774	.732	.682	.650	.570
1-3/8	Min.	1.297	1.283	1.267	1.247	1.232	1.217	1.192	1.166	1.136	1.111	1.081	1.049	1.012	.979	.928	.891	.851	.805	.750	.715	.627
	Nom.	1.305	1.291	1.277	1.259	1.245	1.231	1.209	1.185	1.157	1.135	1.107	1.079	1.045	1.015	.969	.935	.899	.857	.807	.775	.695
1-1/2	Min.	1.422	1.408	1.392	1.372	1.357	1.342	1.318	1.291	1.260	1.236	1.205	1.174	1.137	1.104	1.053	1.016	.976	.930	.875	.840	.752
	Nom.	1.430	1.426	1.402	1.384	1.370	1.356	1.334	1.310	1.282	1.260	1.232	1.204	1.170	1.140	1.094	1.060	1.024	.982	.932	.900	.820
1-3/4	Min.	1.672	1.658	1.642	1.622	1.607	1.592	1.568	1.541	1.510	1.486	1.455	1.424	1.387	1.354	1.303	1.266	1.226	1.180	1.125	1.090	1.002
	Nom.	1.680	1.666	1.652	1.634	1.620	1.606	1.584	1.560	1.532	1.510	1.482	1.454	1.420	1.390	1.344	1.310	1.274	1.232	1.182	1.150	1.070
2	Min.	1.922	1.908	1.892	1.872	1.857	1.842	1.817	1.791	1.760	1.736	1.705	1.674	1.637	1.604	1.553	1.516	1.476	1.430	1.375	1.340	1.252
	Nom.	1.930	1.916	1.902	1.884	1.870	1.856	1.834	1.810	1.782	1.760	1.732	1.704	1.670	1.640	1.594	1.560	1.524	1.482	1.432	1.400	1.320
2-1/4	Min.	2.172	2.158	2.142	2.122	2.107	2.092	2.067	2.041	2.010	1.986	1.955	1.924	1.887	1.854	1.803	1.766	1.726	1.680	1.625	1.590	1.502
	Nom.	2.180	2.166	2.152	2.134	2.120	2.106	2.084	2.060	2.032	2.010	1.982	1.954	1.920	1.890	1.844	1.810	1.774	1.732	1.682	1.650	1.570
2-1/2	Min.	2.422	2.408	2.392	2.372	2.357	2.342	2.317	2.291	2.260	2.236	2.205	2.174	2.137	2.104	2.053	2.016	1.976	1.930	1.875	1.840	1.752
	Nom.	2.430	2.416	2.402	2.384	2.370	2.356	2.334	2.310	2.282	2.260	2.232	2.204	2.170	2.140	2.094	2.060	2.024	1.982	1.932	1.900	1.820
2-3/4	Min.	2.672	2.658	2.642	2.622	2.607	2.592	2.567	2.541	2.510	2.486	2.455	2.424	2.387	2.354	2.303	2.266	2.226	2.180	2.125	2.090	2.002
	Nom.	2.680	2.666	2.652	2.634	2.620	2.606	2.584	2.560	2.532	2.510	2.482	2.454	2.420	2.390	2.344	2.310	2.274	2.232	2.182	2.150	2.070
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	Nom.	3.180	3.166	3.152	3.134	3.120	3.106	3.084	3.060	3.032	3.010	2.982	2.954	2.920	2.890	2.844	2.810	2.774	2.732	2.682	2.650	2.570
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3-3/4	Min.	3.672	3.658	3.642	3.622	3.607	3.592	3.567	3.541	3.510	3.486	3.455	3.424	3.387	3.354	3.303	3.266	3.226	3.180	3.125	3.090	3.002
	Nom.	3.680	3.666	3.652	3.634	3.620	3.606	3.584	3.560	3.532	3.510	3.482	3.454	3.420	3.390	3.344	3.310	3.274	3.232	3.182	3.150	3.070
4	Min.	3.922	3.908	3.892	3.872	3.857	3.842	3.817	3.791	3.760	3.736	3.705	3.674	3.637	3.604	3.553	3.516	3.476	3.430	3.375	3.340	3.252
	Nom.	3.930	3.916	3.902	3.884	3.870	3.856	3.834	3.810	3.782	3.760	3.732	3.704	3.670	3.640	3.594	3.560	3.524	3.482	3.432	3.400	3.320
4-1/2	Min.	4.422	4.408	4.392	4.372	4.357	4.342	4.317	4.291	4.260	4.236	4.205	4.174	4.137	4.104	4.053	4.016	3.976	3.930	3.875	3.840	3.752
	Nom.	4.430	4.416	4.402	4.384	4.370	4.356	4.334	4.310	4.282	4.260	4.232	4.204	4.170	4.140	4.094	4.060	4.024	3.982	3.932	3.900	3.820
5	Min.	4.922	4.908	4.892	4.872	4.857	4.842	4.817	4.791	4.760	4.736	4.705	4.674	4.637	4.604	4.553	4.516	4.476	4.430	4.375	4.340	4.252
	Nom.	4.930	4.916	4.902	4.884	4.870	4.856	4.834	4.810	4.782	4.760	4.732	4.704	4.670	4.640	4.594	4.560	4.524	4.482	4.432	4.400	4.320

ADDITIONAL BIRMINGHAM WIRE GAGES

NUMBER	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	00	000	0000	00000
INCH	.004	.005	.007	.008	.009	.010	.012	.013	.014	.016	.018	.020	.022	.025	.028	.032	.380	.425	.454	.500

Rental Equipment - Complete Equipment Kits Available for Rental

Series 909 Right Angle Air Motor Page 16

Kit includes:

- Rolling Motor with Level Throttle Control (909-1700) or Torque Control and Roll Throttle (909-2100)
- Service Manual

Tube OD		RPM	Controls	Rental Kit No.
Inches	(mm)			
1 - 2 ¹ / ₂	(25.4-63.5)	95	Lever Throttle Stall	R909-1700
1 ¹ / ₂ - 4	(38.1-101.6)	90	Type Roll Throttle Torque Control Type	R909-2100

Electric Tube Rollers Page 17

Kit includes:

- Rolling Motor with Dead Handle
- Service Manual

Tube OD		Local Speed	Voltage/ Frequency	Rental Equipment
Inches	(mm)	RPM		
3/4 - 2 ¹ / ₂	(19.1-63.5)	250 (No Load)	115 V/50/60 Hz	R41238
2 - 3	(50.8-76.2)	60	115 V/60 Hz 220 V/50 Hz	R22488 R22488-0220

Series 910 Air Motors Page 16

Kit includes:

- Rolling Motor with Dead Handle
- Service Manual

Tube OD		RPM	Drive Spindle	Rental Kit No.
Inches	(mm)			
1 - 2 ¹ / ₂	(25.4-63.5)	200	3/4"	R910-2000
1 ¹ / ₂ - 3	(38.1-76.2)	125	(19.1mm)	R910-1200

VLD (Vacuum Leak Detector)*

Kit includes:

- Vacuum Leak Detector
- T-Handle Tube Plug
- 1/4 to 3/4", 5/8 to 1 1/4" or 1 1/2 to 2" Nozzle (as requested)
- 3/8" ID Hose (12 Feet)
- Tool Box and Service Manual

Tube OD		Rental Kit No.
Inches	(mm)	
1/4 - 3/4	(6.4-19.1)	R9836-1002
5/8 - 1 ¹ / ₄	(15.9-31.8)	R9836-1003
1 ¹ / ₈ - 2	(28.6-50.8)	R9836-1004

See Heat Exchanger Tube Expander Catalog HE (page 24)

B Torq-Air-Matic Page 15

Kit includes:

- Torq-Air-Motor Drive with Dead Handle
- 3/8 and 1/2-Inch Square Quick Mandrel Connector
- Lubricator
- 3/4-Inch I.D. Hose (25 Feet)
- 1/8-Inch Dial Setting Key
- Tool Box with Service Manual

Tube OD		RPM	Drive Spindle	Rental Kit No.
Inches	(mm)			
3/4 - 1	(19.1-25.4)	750	1/2"	R40515
3/4 - 1 ¹ / ₂	(19.1-38.1)	600	(12.7mm)	R40516
		450	Square	R40517

Wils-Tronic™ Electronic Tube Roller Page 18-19

- Kit includes:**
- Electronic Control Unit
 - Motor - (Variable Speed)
 - Telescopic Shaft
 - Portable Rolling Stand

Tube OD		Weight	Kit No.
Inches	(mm)		
1/2 - 1 ¹ / ₄	(12.7 - 31.8)	350 lbs.	R46000-01
3/4 - 2 ¹ / ₂	(19.1 - 63.5)	400 lbs.	R46500-01
1 ¹ / ₂ - 3	(38.1 - 76.2)	450 lbs.	R47000-01

2C Torq-Air-Matic Page 15

Kit includes:

- Torq-Air-Motor Drive with Dead Handle
- 3/4 and 1-Inch Square Mandrel Connector
- Lubricator
- 3/4-Inch I.D. Hose (25 Feet)
- 1/8-Inch Dial Setting Key
- Tool Box with Service Manual

Tube OD		RPM	Drive Spindle	Rental Kit No.
Inches	(mm)			
1 ¹ / ₂ - 2 ¹ / ₂	(38.1-63.5)	200	3/4" (19.1mm)	R40518
1 ¹ / ₂ - 3	(38.1-76.2)	125	Square	R40519

Hydraulic Tube Cutter Page 14

Kit includes:

- Service Manual
- We recommend Series 909, Series 910 or 22488 tube rollers to power the Hydraulic Tube Cutter
- Be sure to specify tube OD and gage

Tube OD		Gage	Rental Kit No.
Inches	(mm)		
2	(50.8)		R42741
2 ¹ / ₂	(63.5)	9 - 13	R42742
3	76.2		R42743

Smarter Tools for Smarter Work

What are *Smart Tools*?

Smarter Tools for Smarter Work is more than just our tag line. We realize that the single-largest cost of fabricating, maintaining, repairing or cleaning a boiler, heat exchanger or other pressure vessel is labor. That's why we build time-saving, labor-reducing, error-preventing expertise into all of the tools we design, manufacture, sell, service and support.

The **Wilson Torq-Air Matic Expander Drive** is a good example of a *Smart Tool*. It prevents the operator from over-rolling or under-rolling a tube, saving both the material and labor costs of re-rolling under-rolled tubes, or pulling and replacing over-rolled tubes. The **Wilson i.d.mike, Combination Beading Expander** and the entire line of **Wils-Away Tube Cleaning Systems** are "expert" tools that have time-saving, labor-reducing features built into them.

We look forward to the opportunity to help you and your employees *Work Smarter* by using *Smarter Tools* from **Thomas C. Wilson, Inc.**



We're In the Solution Business!

Many of the innovative tools offered by **Thomas C. Wilson, Inc.** are the result of a customer who came to us with a problem, and we created a solution. If you have a tube cleaning, tube expanding or tube cutting, pulling, trimming, facing or plugging challenge, contact us, and give us the opportunity to suggest or invent a solution.

If you have drawings, you can mail or fax them to us. Or you can ship us a sample of the tube or device you are attempting to expand, clean, cut, taper, trim or otherwise work with. Or you can call us with the specifics of the job facing you, and we'll work with you to find a solution.

Before you call us, here's some of the information you should have:

- What type of vessel (fire tube boiler, condenser, chiller, heat exchanger, etc.) is involved?
- What is the O.D. (outer diameter) of the tube or tubes?
- What is the gauge or thickness of the tube wall?
- From what material are the tubes made?
- How many tubes are there?
- What is the thickness of the tube sheet?
- Is compressed air available at the work site?
- What type of electric power (voltage and Hertz) is available?
- If a cleaning application, is water available on-site?

We look forward to hearing from you!



Quick Reference Catalog

An easy-to-use overview of Wilson's electric and pneumatic tube cleaning systems for heat exchangers, fire-tube and water-tube boilers, condensers, chillers and absorbers, as well as other Wilson tools, accessories and supplies.



Heat Exchanger Tube Expanders and Accessories Catalog

A comprehensive guide to all the tools you need to tube or re-tube condensers, chillers, absorbers, evaporators and coolers. Includes pneumatic, electric and electronic tube rollers, tube pullers, tube sheet hole tools, tube cutting tools, micrometers and tube plugs.



Tube Cleaners and Accessories Catalog

A detailed guide to the most extensive line of tube cleaning equipment and accessories available anywhere, including electric, pneumatic and air-driven tube cleaning systems, spiral and expanding brushes, cutter heads and cutter bits, Blo Guns and Blo Brushes, and shafts and casings.



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