

# Tube Tools

## Boilers



*Enduring Solutions*



has been conceived  
by visionary technocrats having  
more than 15 years experience in Engineering Industry.

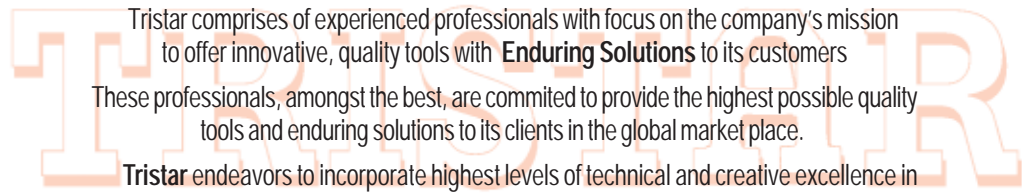
Tristar comprises of experienced professionals with focus on the company's mission  
to offer innovative, quality tools with **Enduring Solutions** to its customers

These professionals, amongst the best, are committed to provide the highest possible quality  
tools and enduring solutions to its clients in the global market place.

**Tristar** endeavors to incorporate highest levels of technical and creative excellence in  
every project it undertakes.

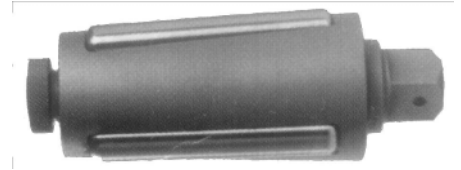
**Tristar** offers a wide range of tools and equipments for every application of  
Tube Expansion and Tube Removal and a broad spectrum of services.

Thier wide product range and round the clock customer support makes  
**Tristar** an ideal choice as a  
Business Partner.

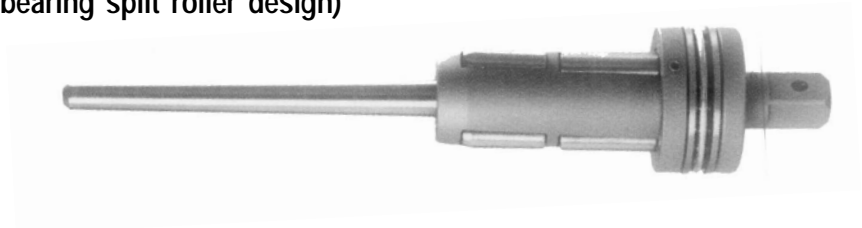


# Custom built Tube Expanders

**'TV' Series (Non parallel type)**  
for tube sizes 1" to 3" O.D.



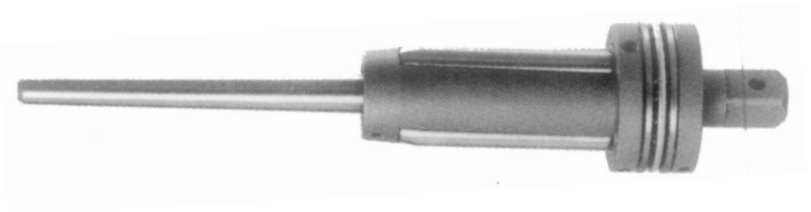
**'TABSR' Series (6 plain rollers & thrust bearing split roller design)**  
for tube sizes 7/8" to 4.1/2" O.D.  
for tube sheets 2.1/4" to 4"



**'TABF3' Series (3 plain rollers & 3 flare rollers & thrust bearing)**  
for tube sizes 7/8" to 4.1/2" O.D.  
for tube sheets 1/2" to 2.5/8"



**'TAB' Series (3 plain rollers & thrust bearing)**  
for tube sizes 7/8" to 4.1/2" O.D.  
for tube sheets 1/2" to 2.5/8"



**'TABLR' Series (3 plain rollers & thrust bearing split roller design)**  
for tube sizes 7/8" to 4.1/2" O.D.  
for tube sheets 1.1/2" to 3"



**'Refinery Expander'**  
for refinery fittings

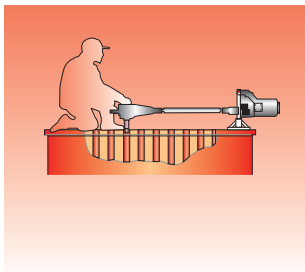


# 'T-114' Series [Flare] Boiler Tube Expanders

4 Plain Rollers  
2 Flare Rollers

- ❑ Multi purpose expander
- ❑ Popular choice for expanding and flaring
  - Boiler tubes
  - Water wall
  - Economizer
  - Riser and air heater tubes

Tristar offers solutions to overcome any installation problem.



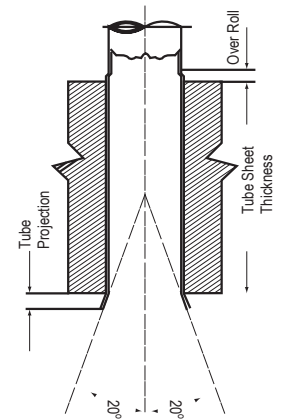
One of our drive systems helps overcome a problem caused by a difficult access...

- ❑ Reduces operator fatigue
- ❑ Ensures operator safety
- ❑ Increases productivity
- ❑ Maintains consistent accuracy

TUBE SIZE				Min I.D. Tool Enters		Max. Expansion of Tool		TUBE EXPANDER MODEL				
								Tube Sheet Thickness Range				
O.D inch	THK bwg	O.D. inch	THK bwg	mm	inch	mm	inch	1/2" to 7/8"	3/4" to 1.1/8"	1.1/8" to 1.5/8"	1.5/8" to 2.1/8"	2.1/8" to 2.5/8"
Tube Sheet Thickness Codes >								2	3	4	5	6
2	4 - 5	1.3/4	11 - 13	36.1	1.421	43.1	1.696	-	T14172	T14174	T14176	T14178
	6 - 7	1.3/4	14 - 16	37.6	1.480	44.6	1.755	-	T14182	T14184	T14186	T14188
	7 - 8			39.2	1.543	46.4	1.826	T14191	T14192	T14194	T14196	T14198
	9 - 10	2.1/4	13	40.8	1.606	48.0	1.889	T14201	T14202	T14204	T14206	T14208
	11-13	2.1/4	4 - 5	42.4	1.669	49.6	1.952	T14211	T14212	T14214	T14216	T14218
2. 1/2	2	2.1/4	6 - 8	45.2	1.779	52.6	2.070	-	T14222	T14224	T14226	T14228
	3 - 4	2.1/4	9 - 11	46.8	1.842	54.2	2.133	-	T14232	T14234	T14236	T14238
	4 - 6	2.1/4	12 - 15	48.4	1.905	57.3	2.255	-	T14242	T14244	T14246	T14248
	7 - 10	2.3/4	2 - 3	51.5	2.027	60.5	2.381	-	T14252	T14254	T14256	T14258
	11 -13	2.3/4	4 - 5	54.7	2.153	63.7	2.507	T14261	T14262	T14264	T14266	T14268
3	1 - 3	2.3/4	6 - 10	57.1	2.248	66.6	2.622	-	T14272	T14274	T14276	T14278
	4 - 6	2.3/4	11 - 15	60.3	2.374	70.0	2.755	-	T14282	T14284	T14286	T14288
	7 -11	3.1/4	1 - 4	63.5	2.500	73.9	2.909	-	T14292	T14294	T14296	T14298
	10 -12	3.1/4	4 - 7	66.6	2.622	77.3	3.043	T14301	T14302	T14304	T14306	T14308
3. 1/2	1 - 4	3.1/4	7 -11	69.8	2.748	80.1	3.153	-	T14312	T14314	T14316	T14318
	4 - 7	3.1/4	10 -15	73.0	2.874	83.4	3.283	-	T14322	T14324	T14326	T14328
	7 -11	3.3/4	2 - 3	76.2	3.000	86.8	3.417	-	T14332	T14334	T14336	T14338
	10 -12	3.3/4	4 - 5	79.3	3.122	89.8	3.535	-	T14342	T14344	T14346	T14348
4	1 - 4	3.3/4	6 -10	82.5	3.248	93.0	3.661	-	T14352	T14354	T14356	T14358
	4 - 7	3.3/4	11 -15	85.7	3.374	96.0	3.779	-	T14362	T14364	T14366	T14368
	7-11	4.1/4	2 - 3	88.9	3.500	98.6	3.881	-	T14372	T14374	T14376	T14378
	8 - 12	4.1/4	3 - 5	90.5	3.562	102.3	4.027	-	T14382	T14384	T14386	T14388
4.1/2	1 - 4	4.1/4	6 - 9	95.2	3.748	104.7	4.122	-	T14392	T14394	T14396	T14398
	3 - 8	4.1/4	10 -13	98.4	3.874	110.3	4.342	-	T14402	T14404	T14406	T14408
	6 -12			101.6	4.000	113.5	4.468	-	T14412	T14414	T14416	T14418



SPARE ROLLER SET MODEL					SPARE MANDREL MODEL				
Tube Sheet Thickness Range					Drum Type	Header Type	Short Series 5.1/8"	Short Series 7.1/8"	SQ
1/2" to 7/8"	3/4" to 1.1/8"	1.1/8" to 1.5/8"	1.5/8" to 2.1/8"	2.1/8" to 2.5/8"					
2	3	4	5	6					
-	34872	34874	34878	34948	32269	32289	32308, 9, 10, 11		3/4"
-	34879	34881	34883	34949			32309, 10, 11		
34878	34879	34881	34883	34949	32270	32290	32309, 10, 11, 12		
					32271	32291	32311, 12, 13	32346	
34885	34886	34888	34890	34950	32270	32290	32310, 11, 12	32345	
-	34893	34895	34897	34951			32310, 11, 12, 13		
-					32271	32291	32311, 12, 13, 14		
-					32272	32292	32312, 13, 14, 15, 16		
-	34900	34902	34904	34952			32312, 13, 14, 15, 16	32347, 48, 49	
-					32273	32293	32315, 16, 17	33630, 31	
-	34907	34909	34911	34953			32315, 16, 17, 18, 19		
-					32274	32294	32317, 18, 19, 20, 21		
-	34914	34916	34918	34954			32318, 19, 20, 21, 22	33632, 33, 34, 35	
34913					32275	32295	32320, 21, 22	33634, 35	
-	34921	34923	34925	34955	32274	32294	32318, 19, 20, 21, 22		
-					32275	32275	32321, 22, 23, 24, 25		
-					32276	32296	32323, 24, 25, 26, 27		
-					32277	32297	32324, 25, 26, 27, 28		
-	34928	34930	34932	34956	32276	32296	32324, 25, 26, 27, 28		
-					32277	32297	32326, 27, 28, 29, 30		
-					32278	32298	32328, 29, 30, 31, 32		
-	34935	34937	34939	34957	32277	32297	32324, 25, 26, 27, 28		
-	34935	34937	34939	34957	32278	32298	32329, 30, 31, 32, 50		
-					32279	32299	32331, 32, 50, 37, 38		
-	34942	34944	34946	34958	32278	32298	32326, 27, 28, 29, 30		

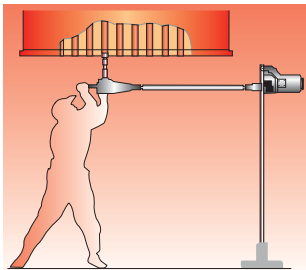


# 'TA' - Series [Parallel] Boiler Tube Expanders

## 3 Plain Rollers

- ❑ Excellent expander for re-rolling and new construction
- ❑ Popular choice for small No. of tubes

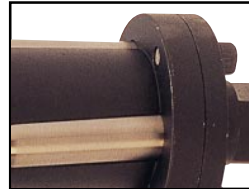
Tristar offers solutions to overcome any installation problem.



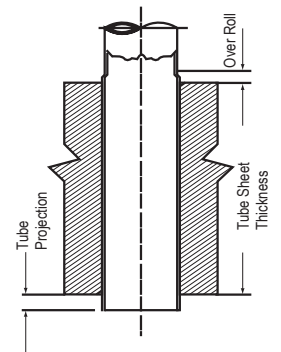
Tube expansion in vertical tubes

Drive in conjunction with telescopic shaft coupled to a right angled gear drive makes tube installations easier.

TUBE SIZE				Min I.D. Tool Enters		Max Expansion of Tool		TUBE EXPANDER MODEL				
								Tube Sheet Thickness Range				
O.D. inch	THK bwg	O.D. inch	THK bwg	mm	inch	mm	inch	1/2" to 7/8"	3/4" to 1.1/8"	1.1/8" to 1.5/8"	1.5/8" to 2.1/8"	2.1/8" to 2.5/8"
				Tube Sheet Thickness Codes >				2	3	4	5	6
7/8	15	1	10	18.1	0.712	20.4	0.803	TA-31/2	TA-31/3			
	16	-	-	18.4	0.724	20.7	0.814	TA-32/2	TA32/3			
	17	1	11	18.8	0.740	21.1	0.830	TA-33/2	TA-33/3			
	18	1	12	19.4	0.763	21.6	0.850	TA-34/2	TA-34/3			
	19 - 20	1.1/8	8	19.7	0.775	22.3	0.877	TA-35/2	TA-35/3			
1	13	-	-	20.1	0.791	22.4	0.881	TA-36/2	TA-36/3			
	14	1.1/8	9	20.6	0.811	23.1	0.909	TA-37/2	TA-37/3	TA-37/4		
	15 - 16	1.1/8	10	21.3	0.838	23.8	0.937	TA38/2	TA-38/3	TA-38/4		
	17 - 18	1.1/8	11	22.0	0.866	24.5	0.964	TA-39/2	TA-39/3	TA-39/4		
	19 - 20	1.1/8	12	22.4	0.881	25.0	0.984	TA-40/2	TA-40/3	TA-40/4		
1.1/4	8	1.1/8	13	23.3	0.917	25.9	1.019	TA-41/2	TA-41/3	TA-41/4		
	9	1.1/8	14	23.8	0.937	26.5	1.043	TA-42/2	TA-42/3	TA-42/4		
	10	1.1/8	15- 16	24.4	0.960	27.2	1.070	TA-43/2	TA-43/3	TA-43/4		
	11			25.2	0.992	28.0	1.102	TA-44/2	TA-44/3	TA-44/4		
	12			25.7	1.011	28.5	1.122	TA-45/2	TA-45/3	TA-45/4		
	13	1.3/8	8	26.1	1.027	28.8	1.133	TA-46/2	TA-46/3	TA-46/4		
	14			26.4	1.039	29.2	1.149	TA-47/2	TA-47/3	TA-47/4		
	15	1.3/8	9	26.9	1.059	29.7	1.169	TA-48/2	TA-48/3	TA-48/4		
	16	1.3/8	10	27.6	1.086	30.4	1.196	TA-49/2	TA-49/3	TA-49/4	TA-49/5	TA-49/6
1.1/2	7	1.3/8	11	28.3	1.114	31.2	1.228	TA-50/2	TA-50/3	TA-50/4	TA-50/5	TA-50/6
	8	1.3/8	12	28.8	1.133	31.7	1.248	TA-51/2	TA-51/3	TA-51/4	TA-51/5	TA-51/6
	9	1.3/8	13 - 14	29.5	1.161	33.4	1.314	TA-52/2	TA-52/3	TA-52/4	TA-52/5	TA-52/6
	10	1.3/8	15 - 16	30.0	1.181	34.1	1.342	TA-53/2	TA-53/3	TA-53/4	TA-53/5	TA-53/6
	11 - 12			30.6	1.204	34.8	1.370	TA-54/2	TA-54/3	TA-54/4	TA-54/5	TA-54/6
	13	1.3/4	5	31.4	1.236	35.6	1.401	TA-55/2	TA-55/3	TA-55/4	TA-55/5	TA-55/6



SPARE ROLLER SET MODEL					SPARE MANDREL MODEL			
Tube Sheet Thickness Range					Drum Type	Header Type	Short Series 5.1/8"	SQ
1/2" to 7/8"	3/4" to 1.1/8"	1.1/8" to 1.5/8"	1.5/8" to 2.1/8"	2.1/8" to 2.5/8"				
2	3	4	5	6				
152-RS	153-RS	-	-	-	TDM-11			3/8" □
152-RS	153-RS				TDM-12			
162-RS	163-RS							
202-RS	203-RS							
172-RS	173-RS				TDM-13			
182-RS	183-RS				TDM-12			
182-RS	183-RS	184-RS			TDM-13	THM-13	TSM-13	
192-RS	193-RS	194-RS						
212-RS	213-RS	214-RS						
212-RS	213-RS	214-RS			TDM-14	THM-14	TSM-14	
222-RS	223-RS	224-RS						1/2" □
232-RS	233-RS	234-RS			TDM-15	THM-15	TSM-15	
242-RS	243-RS	244-RS						
262-RS	263-RS	264-RS			TDM-16	THM-16	TSM-16	
272-RS	273-RS	274-RS						
312-RS	313-RS	314-RS						
282-RS	283-RS	284-RS			TDM-17	THM-17	TSM-17	
292-RS	293-RS	294-RS						
302-RS	303-RS	304-RS	305-RS	306-RS				
302-RS	303-RS	304-RS	305-RS	306-RS	TDM-18	THM-18	TSM-18	
322-RS	323-RS	324-RS	325-RS	326-RS				□
282-RS	283-RS	284-RS	285-RS	286-RS	TDM-20	THM-20	TSM-20	
292-RS	293-RS	294-RS	295-RS	296-RS				
302-RS	303-RS	304-RS	305-RS	306-RS				
332-RS	333-RS	334-RS	335-RS	336-RS				

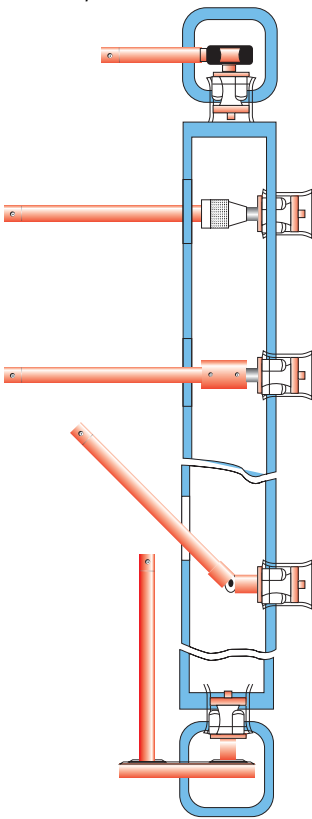


# 'TA' - Series [Parallel] Boiler Tube Expanders

## 3 Plain Rollers

- Excellent expander for re-rolling and new construction
- Popular choice for less No. of tubes

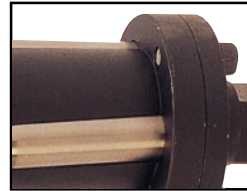
Tristar offers solutions to overcome any installation problem.



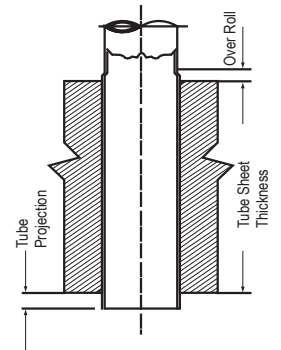
The various drive accessories developed are designed for optimum productivity and operator ease

TUBE SIZE				Min I.D. Tool Enters		Max Expansion of Tool		TUBE EXPANDER MODEL				
								Tube Sheet Thickness Range				
O.D inch	THK bwg	O.D. inch	THK bwg	mm	inch	mm	inch	1/2" to 7/8"	3/4" to 1.1/8"	1.1/8" to 1.5/8"	1.5/8" to 2.1/8"	2.1/8" to 2.5/8"
				Tube Sheet Thickness Codes >				2	3	4	5	6
1.1/2	14 - 5	1.3/4	6	32.6	1.283	36.8	1.448	TA-56/2	TA-56/3	TA-56/4	TA-56/5	TA-56/6
		1.3/4	7	33.4	1.314	38.1	1.500	TA-57/2	TA-57/3	TA-57/4	TA-57/5	TA-57/6
		1.3/4	8	34.2	1.346	38.7	1.523	TA-58/2	TA-58/3	TA-58/4	TA-58/5	TA-58/6
2	3	1.3/4	9 - 10	35.0	1.377	40.6	1.598	TA-59/2	TA-59/3	TA-59/4	TA-59/5	TA-59/6
		1.3/4	11 - 12	36.6	1.440	42.2	1.661	TA-60/2	TA-60/3	TA-60/4	TA-60/5	TA-60/6
	5 - 6	1.3/4	13 - 14	38.2	1.503	43.8	1.712	TA-61/2	TA-61/3	TA-61/4	TA-61/5	TA-61/6
		1.3/4	15 - 16	39.8	1.566	45.4	1.787	TA-62/2	TA-62/3	TA-62/4	TA-62/5	TA-62/6
		2.1/4	3	41.4	1.629	47.0	1.850	TA-63/2	TA-63/3	TA-63/4	TA-63/5	TA-63/6
	11 - 13	2.1/4	4	42.9	1.688	49.5	1.948	TA-64/2	TA-64/3	TA-64/4	TA-64/5	TA-64/6
		14 - 16	2.1/4	6 - 7	44.5	1.751	51.1	2.011	TA-65/2	TA-65/3	TA-65/4	TA-65/5
17 - 18	2.1/4		8 - 9	46.1	1.814	52.7	2.074	TA-66/2	TA-66/3	TA-66/4	TA-66/5	TA-66/6
2.1/2	3	2.1/4	10 - 11	47.7	1.877	54.3	2.137	TA-67/2	TA-67/3	TA-67/4	TA-67/5	TA-67/6
		2.1/4	12 - 13	49.3	1.940	55.9	2.200	TA-68/2	TA-68/3	TA-68/4	TA-68/5	TA-68/6
	6 - 7	2.1/4	14 - 16	50.8	2.000	57.8	2.275	TA-69/2	TA-69/3	TA-69/4	TA-69/5	TA-69/6
		2.3/4	3	52.4	2.062	59.4	2.338	TA-70/2	TA-70/3	TA-70/4	TA-70/5	TA-70/6
		2.3/4	4	54.0	2.125	61.0	2.401	TR-71/2	TA-71/3	TA-71/4	TA-71/5	TA-71/6
	12 - 14	2.3/4	5 - 6	55.6	2.188	64.0	2.519	TA-72/2	TA-72/3	TA-72/4	TA-72/5	TA-72/6
		2.3/4	7 - 8	57.2	2.251	65.6	2.582	TA-73/2	TA-73/3	TA-73/4	TA-73/5	TA-73/6
3	3	2.3/4	9 - 10	58.6	2.307	67.0	2.637	TA-74/2	TA-74/3	TA-74/4	TA-74/5	TA-74/6
		2.3/4	11 - 13	60.4	2.377	68.8	2.708	TA-75/2	TA-75/3	TA-75/4	TA-75/5	TA-75/6
	5 - 6	2.3/4	14 - 16	62.2	2.448	70.4	2.771	TA-76/2	TA-76/3	TA-76/4	TA-76/5	TA-76/6
		3.1/4	3	65.0	2.559	73.4	2.889	TA-78/2	TA-78/3	TA-78/4	TA-78/5	TA-78/6
		3.1/4	4	66.6	2.622	75.0	2.952	TA-79/2	TA-79/3	TA-79/4	TA-79/5	TA-79/6
	14 - 16	3.1/4	5 - 6	68.3	2.688	76.9	3.027	TA-80/2	TA-80/3	TA-80/4	TA-80/5	TA-80/6





SPARE ROLLER SET MODEL					SPARE MANDREL MODEL			
Tube Sheet Thickness Range					Drum Type	Header Type	Short Series	SQ
1/2" to 7/8"	3/4" to 1.1/8"	1.1/8" to 1.5/8"	1.5/8" to 2.1/8"	2.1/8" to 2.5/8"				
2	3	4	5	6				
342-RS	343-RS	344-RS	345-RS	346-RS	TDM-21	THM-21	TSM-21	1/2"
362-RS	363-RS	364-RS	365-RS	366-RS				
372-RS	373-RS	374-RS	375-RS	376-RS				
332-RS	333-RS	334-RS	335-RS	336-RS	TDM-22	THM-22	TSM-22	3/4"
372-RS	373-RS	374-RS	375-RS	376-RS				
382-RS	383-RS	384-RS	385-RS	386-RS				
392-RS	393-RS	394-RS	395-RS	396-RS				
402-RS	403-RS	404-RS	405-RS	406-RS				
402-RS	403-RS	404-RS	405-RS	406-RS	TDM-23	THM-23	TSM-23	
412-RS	413-RS	414-RS	415-RS	416-RS				
422-RS	423-RS	424-RS	425-RS	426-RS				
432-RS	433-RS	434-RS	435-RS	436-RS				
442-RS	443-RS	444-RS	445-RS	446-RS				
432-RS	433-RS	434-RS	435-RS	436-RS	TDM-24	THM-24	TSM-24	
442-RS	443-RS	444-RS	445-RS	446-RS				
452-RS	453-RS	454-RS	455-RS	456-RS				
472-RS	473-RS	474-RS	475-RS	476-RS				
462-RS	463-RS	464-RS	465-RS	466-RS	TDM-25	THM-25	TSM-25	1"
472-RS	473-RS	474-RS	475-RS	476-RS				
482-RS	483-RS	484-RS	485-RS	486-RS				
492-RS	493-RS	494-RS	495-RS	496-RS				
502-RS	503-RS	504-RS	505-RS	506-RS				
512-RS	513-RS	514-RS	515-RS	516-RS				
522-RS	523-RS	524-RS	525-RS	526-RS				
512-RS	513-RS	514-RS	515-RS	516-RS	TDM-26	THM-26	TSM-26	

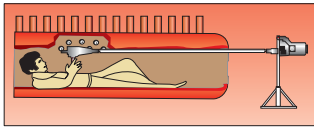


# 'TA' - Series [Parallel] Boiler Tube Expanders

## 3 Plain Rollers

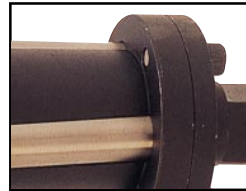
- ❑ Excellent expander for re-rolling and new construction
- ❑ Popular choice for less No. of tubes

Tristar offers solutions to overcome any installation problem.

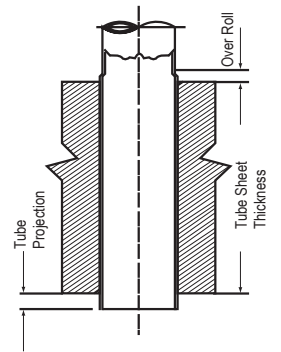


Typical example of solution oriented approach

TUBE SIZE				Min I.D. Tool Enters		Max Expansion of Tool		TUBE EXPANDER MODEL				
O.D inch	THK bwg	O.D. inch	THK bwg					Tube Sheet Thickness Range				
				mm	inch	mm	inch	1/2" to 7/8"	3/4" to 1.1/8"	1.1/8" to 1.5/8"	1.5/8" to 2.1/8"	2.1/8" to 2.5/8"
				Tube Sheet Thickness Codes >				2	3	4	5	6
3.1/2	2	3.1/4	7 - 8	69.9	2.751	78.5	3.090	TA-81/2	TA-81/3	TA-81/4	TA-81/5	TA-81/6
	3	3.1/4	9 - 10	71.5	2.814	80.1	3.153	TA-82/2	TA-82/3	TA-82/4	TA-82/5	TA-82/6
	4	3.1/4	11 - 13	73.1	2.877	81.7	3.216	TA-83/2	TA-83/3	TA-83/4	TA-83/5	TA-83/6
	5 - 6	3 1/4	14 - 16	74.6	2.937	84.2	3.314	TA-84/2	TA-84/3	TA-84/4	TA-84/5	TA-84/6
	7 - 8	3.3/4	2	76.2	3.000	85.5	3.366	TA-85/2	TA-85/3	TA-85/4	TA-85/5	TA-85/6
	9 - 11	3.3/4	3	77.8	3.062	87.4	3.440	TA-86/2	TA-86/3	TA-86/4	TA-86/5	TA-86/6
	12 - 16	3.3/4	4	79.4	3.125	89.0	3.503	TA-87/2	TA-87/3	TA-87/4	TA-87/5	TA-87/6
		3.3/4	5 - 6	81.0	3.188	90.6	3.566	TA-88/2	TA-88/3	TA-88/4	TA-88/5	TA-88/6
4	2	3.3/4	7 - 8	82.6	3.251	92.2	3.629	TA-89/2	TA-89/3	TA-89/4	TA-89/5	TA-89/6
	3	3.3/4	9 - 10	84.2	3.314	93.8	3.692	TA-90/2	TA-90/3	TA-90/4	TA-90/5	TA-90/6
	4	3.3/4	11 - 13	85.8	3.377	96.2	3.787	TA-91/2	TA-91/3	TA-91/4	TA-91/5	TA-91/6
	5 - 6	3.3/4	14 - 16	87.4	3.440	97.8	3.850	TA-92/2	TA-92/3	TA-92/4	TA-92/5	TA-92/6
	7 - 8	4.1/4	2	89.0	3.503	99.4	3.913	TA-93/2	TA-93/3	TA-93/4	TA-93/5	TA-93/6
	9 - 11	4.1/4	3	90.4	3.559	100.8	3.968	TA-94/2	TA-94/3	TA-94/4	TA-94/5	TA-94/6
	12 - 16	4.1/4	4	92.0	3.622	102.4	4.031	TA-95/2	TA-95/3	TA-95/4	TA-96/5	TA-95/6
		4.1/4	5 - 6	93.4	3.677	103.8	4.086	TA-96/2	TA-96/3	TA-96/4	TA-96/5	TA-96/6
4.1/2	2	4.1/4	7 - 8	95.0	3.740	105.4	4.149	TA-97/2	TA-97/3	TA-97/4	TA-97/5	TA-97/6
	3	4.1/4	9 - 11	96.6	3.803	107.0	4.212	TA-98/2	TA-98/3	TA-98/4	TA-98/5	TA-98/6
	4 - 5	4.1/4	11 - 13	98.2	3.866	108.6	4.275	TA-99/2	TA-99/3	TA-99/4	TA-99/5	TA-99/6
	6 - 7			101.2	3.984	110.0	4.330	TA-100/2	TA-100/3	TA-110/4	TA-100/5	TA-100/6
	8 - 9			102.8	4.047	111.6	4.393	TA-101/2	TA-101/3	TA-101/4	TA-101/5	TA-101-6
	10 - 12			104.4	4.110	113.2	4.456	TA-102/2	TA-102/3	TA-102/4	TA-102/5	TA-102/6



SPARE ROLLER SET MODEL					SPARE MANDREL MODEL			
Tube Sheet Thickness Range					Drum Type	Header Type	Short Series 5.1/8"	SQ
1/2" to 7/8"	3/4" to 1.1/8"	1.1/8" to 1.5/8"	1.5/8" to 2.1/8"	2.1/8" to 2.5/8"				
2	3	4	5	6				
522-RS	523-RS	524-RS	525-RS	526-RS	TDM-26	THM-26	TSM-26	1"
532-RS	533-RS	534-RS	535-RS	536-RS				
542-RS	543-RS	544-RS	545-RS	546-RS				
542-RS	543-RS	544-RS	545-RS	546-RS	TDM-27	THM-27	TSM-27	
552-RS	553-RS	554-RS	555-RS	556-RS				
562-RS	563-RS	564-RS	565-RS	566-RS				
572-RS	573-RS	574-RS	575-RS	576-RS				
582-RS	583-RS	584-RS	585-RS	586-RS				
592-RS	593-RS	594-RS	595-RS	596-RS				
602-RS	603-RS	604-RS	605-RS	606-RS				
592-RS	593-RS	594-RS	595-RS	596-RS	TDM-28	THM-28	TSM-28	
602-RS	603-RS	604-RS	605-RS	606-RS				
612-RS	613-RS	614-RS	615-RS	616-RS				
622-RS	623-RS	624-RS	625-RS	626-RS				
632-RS	633-RS	634-RS	635-RS	636-RS				
622-RS	623-RS	624-RS	625-RS	626-RS	TDM-29	THM-29	TSM-29	
632-RS	633-RS	634-RS	635-RS	636-RS				
642-RS	643-RS	644-RS	645-RS	646-RS				
632-RS	633-RS	634-RS	635-RS	646-RS	TDM-30	THM-30	TSM-30	
642-RS	643-RS	644-RS	645-RS	646-RS				
652-RS	653-RS	654-RS	655-RS	656-RS				
662-RS	663-RS	664-RS	665-RS	666-RS				

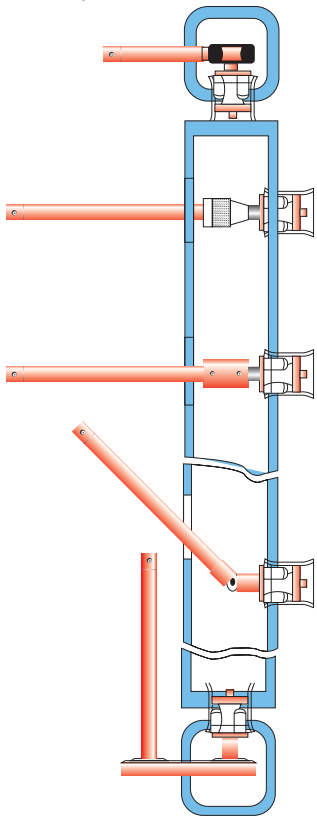


# 'TAF3' - Series [Flare] Boiler Tube Expanders

3 Plain Rollers  
3 Flare Rollers

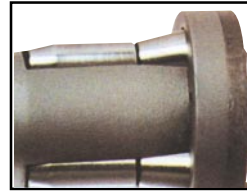
- ❑ Offset flare rolls eliminates ridges
- ❑ Rolls retained in cage when mandrel is removed

Tristar offers solutions to overcome any installation problem.

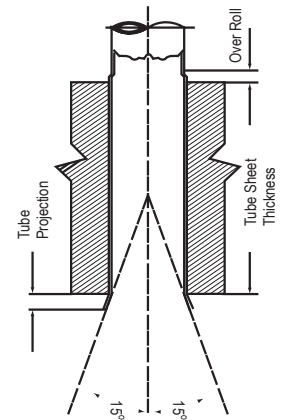


The various drive accessories developed are designed for optimum productivity and operator ease

TUBE SIZE				Min I.D. Tool Enters	Max Expansion of Tool	TUBE EXPANDER MODEL						
O.D. inch	THK GA.	O.D. inch	THK GA.			Tube Sheet Thickness Range						
				mm	inch	mm	inch	1/2" to 7/8"	3/4" to 1.1/8"	1.1/8" to 1.5/8"	1.5/8" to 2.1/8"	2.1/8" to 2.5/8"
				Tube Sheet Thickness Codes>				2	3	4	5	6
7/8	15	1	10	18.1	0.712	20.4	0.803	TAF3-31/2	TAF3-31/3			
	16			18.4	0.724	20.7	0.814	TAF3-32/2	TAF3-32/3			
	17	1	11	18.8	0.740	21.1	0.830	TAF3-33/2	TAF3-33/3			
	18	1	12	19.4	0.763	21.6	0.850	TAF3-34/2	TAF3-34/3			
	19 - 20	1.1/8	8	19.7	0.775	22.3	0.877	TAF3-35/2	TAF3-35/3			
1	13			20.1	0.791	22.4	0.881	TAF3-36/2	TAF3-36/3			
	14	1.1/8	9	20.6	0.811	23.1	0.909	TAF3-37/2	TAF3-37/3	TAF3-37/4		
	15 - 16	1.1/8	10	21.3	0.838	23.8	0.937	TAF3-38/2	TAF3-38/3	TAF3-38/4		
	17 - 18	1.1/8	11	22.0	0.866	24.5	0.964	TAF3-39/2	TAF3-39/3	TAF3-39/4		
	19 - 20	1.1/8	12	22.4	0.881	25.0	0.984	TAF3-40/2	TAF3-40/3	TAF3-40/4		
1.1/4	8	1.1/8	13	23.3	0.917	25.9	1.019	TAF3-41/2	TAF3-41/3	TAF3-41/4		
	9	1.1/8	14	23.8	0.937	26.5	1.043	TAF3-42/2	TAF3-42/3	TAF3-42/4		
	10	1.1/8	15 - 16	24.4	0.960	27.2	1.070	TAF3-43/2	TAF3-43/3	TAF3-43/4		
	11			25.2	0.992	28.0	1.102	TAF3-44/2	TAF3-44/3	TAF3-44/4		
	12			25.7	1.011	28.5	1.122	TAF3-45/2	TAF3-45/3	TAF3-45/4		
	13	1.3/8	8	26.1	1.027	28.8	1.133	TAF3-46/2	TAF3-46/3	TAF3-46/4		
	14			26.4	1.039	29.2	1.149	TAF3-47/2	TAF3-47/3	TAF3-47/4		
	15	1.3/8	9	26.9	1.059	29.7	1.169	TAF3-48/2	TAF3-48/3	TAF3-48/4		
16	1.3/8	10	27.6	1.086	30.4	1.196	TAF3-49/2	TAF3-49/3	TAF3-49/4	TAF3-49/5	TAF3-49/6	
1.1/2	7	1.3/8	11	28.3	1.114	31.2	1.228	TAF3-50/2	TAF3-50/3	TAF3-50/4	TAF3-50/5	TAF3-50/6
	8	1.3/8	12	28.8	1.133	31.7	1.248	TAF3-51/2	TAF3-51/3	TAF3-51/4	TAF3-51/5	TAF3-51/6
	9	1.3/8	13 - 14	29.5	1.161	33.4	1.134	TAF3-52/2	TAF3-52/3	TAF3-52/4	TAF3-52/5	TAF3-52/6
	10	1.3/8	15 - 16	30.0	1.181	34.1	1.342	TAF3-53/2	TAF3-53/3	TAF3-53/4	TAF3-53/5	TAF3-53/6
	11 - 12			30.6	1.204	34.8	1.370	TAF3-54/2	TAF3-54/3	TAF3-54/4	TAF3-54/5	TAF3-54/6



SPARE ROLLER SET MODEL					SPARE MANDREL MODEL			
1/2" to 7/8"	3/4" to 1.1/8"	1.1/8" to 1.5/8"	1.5/8" to 2.1/8"	2.1/8" to 2.5/8"	Drum Type	Header Type	Short Series 5.1/8"	SQ
2	3	4	5	6				
152-F3	153-F3				TDM-11			3/8" <input type="checkbox"/>
152-F3	153-F3				TDM-12			
162-F3	163-F3							
202-F3	203-F3							
172-F3	173-F3				TDM-13			
182-F3	183-F3				TDM-12			3/8" <input type="checkbox"/>
182-F3	183-F3	184-F3			TDM-13	THM-13	TSM-13	
192-F3	193-F3	194-F3						
212-F3	213-F3	214-F3						
212-F3	213-F3	214-F3			TDM-14	THM-14	TSM-14	
222-F3	223-F3	224-F3						1/2" <input type="checkbox"/>
232-F3	233-F3	234-F3			TDM-15	THM-15	TSM-15	
242-F3	243-F3	244-F3						
262-F3	263-F3	264-F3			TDM-16	THM-16	TSM-16	
272-F3	273-F3	274-F3						
312-F3	313-F3	314-F3						1/2" <input type="checkbox"/>
282-F3	283-F3	284-F3			TDM-17	THM-17	TSM-17	
292-F3	293-F3	294-F3						
302-F3	303-F3	304-F3	305-F3	306-F3				
302-F3	303-F3	304-F3	305-F3	306-F3	TDM-18	THM-18	TSM-18	
322-F3	323-F3	324-F3	325-F3	326-F3				1/2" <input type="checkbox"/>
282-F3	283-F3	284-F3	285-F3	286-F3	TDM-20	THM-20	TSM-20	
292-F3	293-F3	294-F3	295-F3	296-F3				
302-F3	303-F3	304-F3	305-F3	306-F3				



Can be supplied with 1 flare and 2 plane rollers

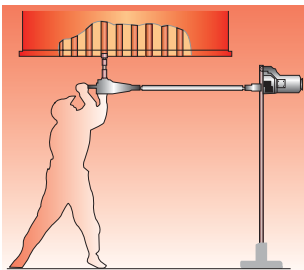
# 'TAF3' - Series [Flare] Boiler Tube Expanders

3 Plain Rollers

3 Flare Rollers

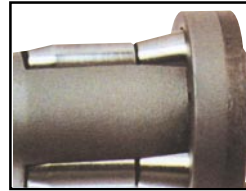
- ❑ Offset flare rolls eliminates ridges
- ❑ Rolls retained in cage when mandrel is removed

Tristar offers solutions to overcome any installation problem.

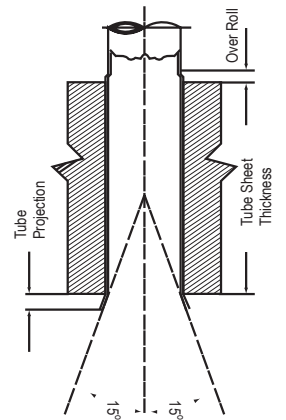


Drive in conjunction with telescopic shaft coupled to a right angled gear drive makes tube installations easier.

TUBE SIZE				Min I.D. Tool Enters		Max Expansion of Tool		TUBE EXPANDER MODEL				
								Tube Sheet Thickness Range				
O.D. inch	THK bwg	O.D. inch	THK bwg	mm	inch	mm	inch	1/2" to 7/8"	3/4" to 1.1/8"	1.1/8" to 1.5/8"	1.5/8" to 2.1/8"	2.1/8" to 2.5/8"
				Tube Sheet Thickness Codes >				2	3	4	5	6
1.1/2	13	1.3/4	5	31.4	1.236	35.6	1.401	TAF3-55/2	TAF3-55/3	TAF3-55/4	TAF3-55/5	TAF3-55/6
	14 - 15	1.3/4	6	32.6	1.283	36.8	1.448	TAF3-56/2	TAF3-56/3	TAF3-56/4	TAF3-56/5	TAF3-56/6
2	3	1.3/4	9 - 10	35.0	1.377	40.6	1.598	TAF3-59/2	TAF3-59/3	TAF3-59/4	TAF3-59/5	TAF3-59/6
		1.3/4	11 - 12	36.6	1.440	42.2	1.661	TAF3-60/2	TAF3-60/3	TAF3-60/4	TAF3-60/5	TAF3-60/6
	4	1.3/4	13 - 14	38.2	1.503	43.8	1.712	TAF3-61/2	TAF3-61/3	TAF3-61/4	TAF3-61/5	TAF3-61/6
	5 - 6	1.3/4	15 - 16	39.8	1.566	45.4	1.787	TAF3-62/2	TAF3-62/3	TAF3-62/4	TAF3-62/5	TAF3-62/6
2.1/2	3	2.1/4	10 - 11	47.7	1.877	54.3	2.137	TAF3-67/2	TAF3-67/3	TAF3-67/4	TAF3-67/5	TAF3-67/6
		2.1/4	12 - 13	49.3	1.940	55.9	2.200	TAF3-68/2	TAF3-68/3	TAF3-68/4	TAF3-68/5	TAF3-68/6
	2.1/4	14 - 16	50.8	2.200	57.8	2.275	TAF3-69/2	TAF3-69/3	TAF3-69/4	TAF3-69/5	TAF3-69/6	
	8 - 9	2.3/4	3	52.4	2.062	59.4	2.338	TAF3-70/2	TAF3-70/3	TAF3-70/4	TAF3-70/5	TAF3-70/6
	10 - 11	2.3/4	4	54.0	2.125	61.0	2.401	TAF3-71/2	TAF3-71/3	TAF3-71/4	TAF3-71/5	TAF3-71/6
	12 - 14	2.3/4	5 - 6	55.6	2.188	64.0	2.519	TAF3-72/2	TAF3-72/3	TAF3-72/4	TAF3-72/5	TAF3-72/6
3	3	2.3/4	7 - 8	57.2	2.251	65.6	2.582	TAF3-73/2	TAF3-73/3	TAF3-73/4	TAF3-73/5	TAF3-73/6
		2.3/4	9 - 10	58.6	2.307	67.0	2.637	TAF3-74/2	TAF3-74/3	TAF3-74/4	TAF3-74/5	TAF3-74/6
	4	2.3/4	11 - 13	60.4	2.377	68.8	2.708	TAF3-75/2	TAF3-75/3	TAF3-75/4	TAF3-75/5	TAF3-75/6
	5 - 6	2.3/4	14 - 16	62.2	2.448	70.4	2.771	TAF3-76/2	TAF3-76/3	TAF3-76/4	TAF3-76/5	TAF3-76/6
	7 - 8			63.6	2.503	72.0	2.834	TAF3-77/2	TAF3-77/3	TAF3-77/4	TAF3-77/5	TAF3-77/6
9 - 10	3.1/4	3	65.0	2.559	73.4	2.889	TAF3-78/2	TAF3-78/3	TAF3-78/4	TAF3-78/5	TAF3-78/6	



SPARE ROLLER SET MODEL					SPARE MANDREL MODEL			
Tube Sheet Thickness Range					Drum Type	Header Type	Short Series 5.1/8"	SQ
1/2" to 7/8"	3/4" to 1.1/8"	1.1/8" to 1.5/8"	1.5/8" to 2.1/8"	2.1/8" to 2.5/8"				
2	3	4	5	6				
332-F3	333-F3	334-F3	335-F3	336-F3	TDM20	THM-20	TSM-20	1/2"
342-F3	343-F3	344-F3	345-F3	346-F3	TDM-21	THM-21	TSM-21	
362-F3	363-F3	364-F3	365-F3	366-F3				
372-F3	373-F3	374-F3	375-F3	376-F3				3/4"
332-F3	333-F3	334-F3	335-F3	336-F3	TDM-22	THM-22	TSM-22	
372-F3	373-F3	374-F3	375-F3	376-F3				
382-F3	383-F3	384-F3	385-F3	386-F3				
392-F3	393-F3	394-F3	395-F3	396-F3				
402-F3	403-F3	404-F3	405-F3	406-F3				
402-F3	403-F3	404-F3	405-F3	406-F3	TDM-23	THM-23	TSM-23	
412-F3	413-F3	414-F3	415-F3	416-F3				
422-F3	423-F3	424-F3	425-F3	426-F3				
432-F3	433-F3	434-F3	435-F3	436-F3				
442-F3	443-F3	444-F3	445-F3	446-F3				1"
432-F3	433-F3	434-F3	435-F3	436-F3	TDM-24	THM-24	TSM-24	
442-F3	443-F3	444-F3	445-F3	446-F3				
452-F3	453-F3	454-F3	455-F3	456-F3				
472-F3	473-F3	474-F3	475-F3	476-F3				
462-F3	463-F3	464-F3	465-F3	466-F3	TDM-25	THM-25	TSM-25	
472-F3	473-F3	474-F3	475-F3	476-F3				1"
482-F3	483-F3	484-F3	485-F3	486-F3				
492-F3	493-F3	494-F3	495-F3	496-F3				
502-F3	503-F3	504-F3	505-F3	506-F3				
512-F3	513-F3	514-F3	515-F3	516-F3				

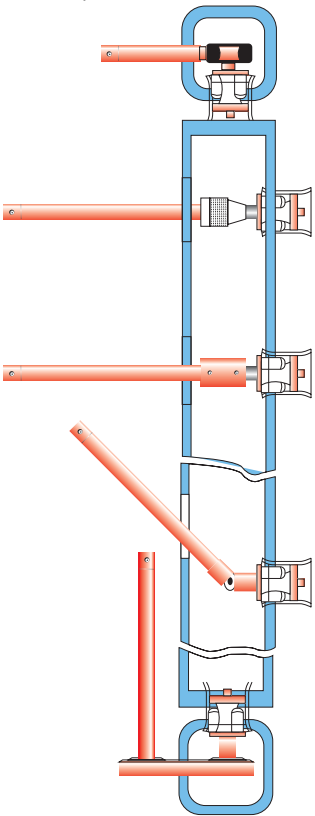


# 'TAF3' - Series [Flare] Boiler Tube Expanders

3 Plain Rollers  
3 Flare Rollers

- ❑ Offset flare rolls eliminates ridges
- ❑ Rolls retained in cage when mandrel is removed

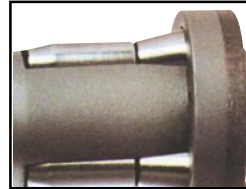
Tristar offers solutions to overcome any installation problem.



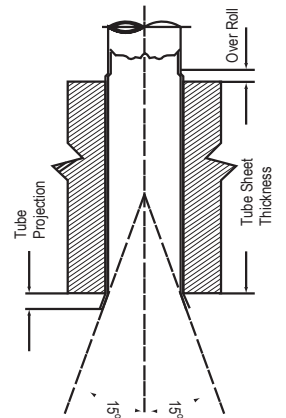
The various drive accessories developed are designed for optimum productivity and operator ease

TUBE SIZE				Min I.D. Tool Enters		Max Expansion of Tool		TUBE EXPANDER MODEL				
								Tube Sheet Thickness Range				
O.D inch	THK bwg	O.D. inch	THK bwg	mm	inch	mm	inch	1/2" to 7/8"	3/4" to 1.1/8"	1.1/8" to 1.5/8"	1.5/8" to 2.1/8"	2.1/8" to 2.5/8"
				Tube Sheet Thickness Codes >				2	3	4	5	6
3	11 - 13	3.1/4	4	66.6	2.622	75.0	2.952	TAF3-79/2	TAF3-79/3	TAF3-79/4	TAF3-79/5	TAF3-79/6
	14 - 16	3.1/4	5 - 6	68.3	2.688	76.9	3.027	TAF3-80/2	TAF3-80/3	TAF3-80/4	TAF3-80/5	TAF3-80/6
3.1/2	2	3.1/4	7 - 8	69.9	2.751	78.5	3.090	TAF3-81/2	TAF3-81/3	TAF3-81/4	TAF3-81/5	TAF3-81/6
	3	3.1/4	9 - 10	71.5	2.814	80.1	3.153	TAF3-82/2	TAF3-82/3	TAF3-82/4	TAF3-82/5	TAF3-82/6
	4	3.1/4	11 - 13	73.1	2.877	81.7	3.216	TAF3-83/2	TAF3-83/3	TAF3-83/4	TAF3-83/5	TAF3-83/6
	5 - 6	3.1/4	14 - 16	74.6	2.937	84.2	3.314	TAF3-84/2	TAF3-84/3	TAF3-84/4	TAF3-84/5	TAF3-84/6
	7 - 8	3.3/4	2	76.2	3.000	85.5	3.366	TAF3-85/2	TAF3-85/3	TAF3-85/4	TAF3-85/5	TAF3-85/6
	9 - 11	3.3/4	3	77.8	3.062	87.4	3.440	TAF3-86/2	TAF3-86/3	TAF3-86/4	TAF3-86/5	TAF3-86/6
	12 - 16	3.3/4	4	79.4	3.125	89.0	3.503	TAF3-87/2	TAF3-87/3	TAF3-87/4	TAF3-87/5	TAF3-87/6
4		3.3/4	5 - 6	81.0	3.188	90.6	3.566	TAF3-88/2	TAF3-88/3	TAF3-88/4	TAF3-88/5	TAF3-88/6
	2	3.3/4	7 - 8	82.6	3.251	92.2	3.629	TAF3-89/2	TAF3-89/3	TAF3-89/4	TAF3-89/5	TAF3-89/6
	3	3.3/4	9 - 10	84.2	3.314	93.8	3.692	TAF3-90/2	TAF3-90/3	TAF3-90/4	TAF3-90/5	TAF3-90/6
	4	3.3/4	11 - 13	85.8	3.377	96.2	3.787	TAF3-91/2	TAF3-91/3	TAF3-91/4	TAF3-91/5	TAF3-91/6
	5 - 6	3.3/4	14 - 16	87.4	3.440	97.8	3.850	TAF3-92/2	TAF3-92/3	TAF3-92/4	TAF3-92/5	TAF3-92/6
	7 - 8	4.1/4	2	89.0	3.503	99.4	3.913	TAF3-93/2	TAF3-93/3	TAF3-93/4	TAF3-93/5	TAF3-93/6
	9 - 11	4.1/4	3	90.4	3.559	100.8	3.968	TAF3-94/2	TAF3-94/3	TAF3-94/4	TAF3-94/5	TAF3-94/6
	12 - 16	4.1/4	4	92.0	3.622	102.4	4.031	TAF3-95/2	TAF3-95/3	TAF3-95/4	TAF3-96/5	TAF3-95/6
		4.1/4	5 - 6	93.4	3.677	103.8	4.086	TAF3-96/2	TAF3-96/3	TAF3-96/4	TAF3-96/5	TAF3-96/6
	4.1/2	2	4.1/4	7 - 8	95.0	3.740	105.4	4.149	TAF3-97/2	TAF3-97/3	TAF3-97/4	TAF3-97/5
3		4.1/4	9 - 11	96.6	3.803	107.0	4.212	TAF3-98/2	TAF3-98/3	TAF3-98/4	TAF3-98/5	TAF3-98/6
4 - 5		4.1/4	11 - 13	98.2	3.866	108.6	4.275	TAF3-99/2	TAF3-99/3	TAF3-99/4	TAF3-99/5	TAF3-99/6
6 - 7				101.2	3.984	110.0	4.330	TAF3-100/2	TAF3-100/3	TAF3-110/4	TAF3-100/5	TAF3-100/6
8 - 9				102.8	4.047	111.6	4.393	TAF3-101/2	TAF3-101/3	TAF3-101/4	TAF3-101/5	TAF3-101/6
10 - 12				104.4	4.110	113.2	4.456	TAF3-102/2	TAF3-102/3	TAF3-102/4	TAF3-102/5	TAF3-102/6





SPARE ROLLER SET MODEL					SPARE MANDREL MODEL			
Tube Sheet Thickness Range					Drum Type	Header Type	Short Series 5.1/8"	SQ
1/2" to 7/8"	3/4" to 1.1/8"	1.1/8" to 1.5/8"	1.5/8" to 2.1/8"	2.1/8" to 2.5/8"				
2	3	4	5	6				
522-F3	523-F3	524-F3	525-F3	526-F3	TDM-25	THM-25	TSM-25	1" SQ
512-F3	513-F3	514-F3	515-F3	516-F3	TDM-26	THM-26	TSM-26	
522-F3	523-F3	524-F3	525-F3	526-F3				
532-F3	533-F3	534-F3	535-F3	536-F3				
542-F3	543-F3	544-F3	545-F3	546-F3				
542-F3	543-F3	544-F3	545-F3	546-F3	TDM-27	THM-27	TSM-27	
552-F3	553-F3	554-F3	555-F3	556-F3				
562-F3	563-F3	564-F3	565-F3	566-F3				
572-F3	573-F3	574-F3	575-F3	576-F3				
582-F3	583-F3	584-F3	585-F3	586-F3				
592-F3	593-F3	594-F3	595-F3	596-F3				
602-F3	603-F3	604-F3	605-F3	606-F3				
592-F3	593-F3	594-F3	595-F3	596-F3	TDM-28	THM-28	TSM-28	
602-F3	603-F3	604-F3	605-F3	606-F3				
612-F3	613-F3	614-F3	615-F3	616-F3				
622-F3	623-F3	624-F3	625-F3	626-F3				
632-F3	633-F3	634-F3	635-F3	636-F3				
622-F3	623-F3	624-F3	625-F3	626-F3	TDM-29	THM-29	TSM-29	
632-F3	633-F3	634-F3	635-F3	636-F3				
642-F3	643-F3	644-F3	645-F3	646-F3				
632-F3	633-F3	634-F3	635-F3	636-F3	TDM-30	THM-30	TSM-30	
642-F3	643-F3	644-F3	645-F3	646-F3				
652-F3	653-F3	654-F3	655-F3	656-F3				
662-F3	663-F3	664-F3	665-F3	666-F3				

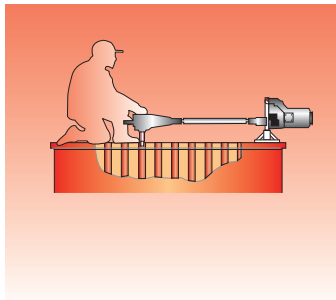


# 'T - 1000' - Series [Flare] Boiler Tube Expander

3 Plain Rollers  
3 Flare Rollers

- Most ideal for inaccessible areas
  - Water boxes
  - Small diameter drums

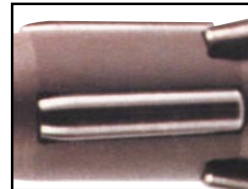
Tristar offers solutions to overcome any installation problem.



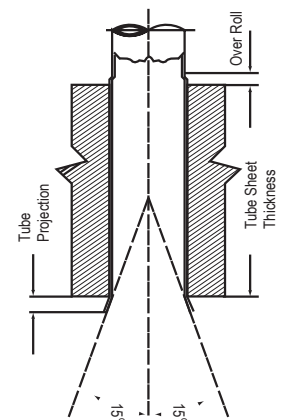
One of our drive systems helps overcome a problem caused by a difficult access...

- Reduces operator fatigue
- Ensures operator safety
- Increases productivity
- Maintains consistent accuracy

TUBE SIZE				Min I.D. Tool Enters	Max Expansion of Tool	TUBE EXPANDER MODEL						
						Tube Sheet Thickness Range						
O.D. inch	THK bwg	O.D. inch	THK bwg	mm	inch	mm	inch	1/2" to 3/4"	7/8" to 1.1/4"	1.3/8" to 1.3/4"	1.7/8" to 2.1/4"	2.3/8" to 2.3/4"
				Tube Sheet Thickness Codes >		3	5	7	9	11		
1	13 - 14			20.0	0.787	23.4	0.921	T1079/3	T1079/5			
	15 - 16			21.0	0.827	24.4	0.961	T1083/3	T1083/5			
1.1/4	7			22.0	0.866	25.5	1.004	T1087/3	T1087/5			
	8 - 9			23.0	0.906	26.5	1.043	T1091/3	T1091/5			
	10			24.0	0.945	28.1	1.105	T1095/3	T1095/5			
	11-13			25.0	0.984	29.0	1.142	T1099/3	T1099/5			
	14 -15			26.0	1.024	30.0	1.181	T1103/3	T1103/5			
1.1/2	16			28.1	1.105	33.0	1.299	T1111/3	T1111/5			
	10-12			31.0	1.221	35.0	1.378	T1118/3	T1118/5			
1.3/4	13-16			33.0	1.300	38.0	1.496	T1126/3	T1126/5			
	8 - 9	2	3	35.0	1.379	40.0	1.575	T1134/3	T1134/5	T1134/7	T1134/9	T1134/11
	10 - 12	2	4 - 5	37.0	1.457	42.5	1.673	T1142/3	T1142/5	T1142/7	T1142/9	T1142/11
2	13 - 16	2	6	39.0	1.536	44.5	1.752	T1150/3	T1150/5	T1150/7	T1150/9	T1150/11
	7 - 9	2.1/4	3	41.0	1.615	47.0	1.850	T1158/3	T1158/5	T1158/7	T1158/9	T1158/11
	10-12	2.1/4	4 - 5	43.0	1.694	49.0	1.929	T1166/3	T1166/5	T1166/7	T1166/9	T1166/11
	13-16	2.1/4	6	45.0	1.772	51.5	2.027	T1174/3	T1174/5	T1174/7	T1174/9	T1174/11
2.1/4	16	2.1/2	3	47.0	1.851	54.0	2.126	T1181/3	T1182/5	T1182/7	T1182/9	T1182/11
	10 - 13	2.1/2	4 - 5	49.0	1.930	56.0	2.205	T1189/3	T1189/5	T1189/7	T1189/9	T1189/11
	14 - 16	2.1/2	6	51.0	2.009	60.0	2.362	T1197/3	T1197/5	T1197/7	T1197/9	T1197/11
2.1/2	7-10			53.0	2.087	62.0	2.441	T1205/3	T1205/5	T1205/7	T1205/9	T1205/11
	11-13	3	2	55.0	2.116	64.0	2.520	T1213/3	T1213/5	T1213/7	T1213/9	T1213/11
	14-16			57.0	2.245	66.0	2.598	T1221/3	T1221/5	T1221/7	T1221/9	T1221/11



SPARE ROLLER SET MODEL					SPARE MANDREL MODEL		
Tube Sheet Thickness Range					Drum Type	Short Series Mandrels	SQ
1/2" to 3/4"	7/8" to 1.1/4"	1.3/8" to 1.3/4"	1.7/8" to 2.1/4"	2.3/8" to 2.3/4"			
3	5	7	9	11			
0793-FS	0795-FS				TMP-83		1/2" <input type="checkbox"/>
0833-FS	0835-FS						
0873-FS	0875-FS				TMP-91		1/2" <input type="checkbox"/>
0953-FS	0955-FS						
0953-FS	0955-FS				TMP-99		1/2" <input type="checkbox"/>
0993-FS	0995-FS						
1033-FS	1035-FS				TMP-118	TMPS-1,2,3	3/4" <input type="checkbox"/>
1113-FS	1115-FS						
1183-FS	1185-FS				TMP-126	TMPS-2,3,4	3/4" <input type="checkbox"/>
1263-FS	1265-FS						
1263-FS	1265-FS	1267-FS	1269-FS	12611-FS	TMP-134	TMPS-3,4,5	3/4" <input type="checkbox"/>
1423-FS	1425-FS	1427-FS	1429-FS	14211-FS			
1503-FS	1505-FS	1507-FS	1509-FS	15011-FS	TMP-150	TMPS-3,4,5,6	3/4" <input type="checkbox"/>
1583-FS	1585-FS	1587-FS	1589-FS	15811-FS			
1663-FS	1665-FS	1667-FS	1669-FS	16611-FS	TMP-174	TMPS-4,5,6,7,8	3/4" <input type="checkbox"/>
1743-FS	1745-FS	1747-FS	1749-FS	17411-FS			
1813-FS	1815-FS	1817-FS	1819-FS	18111-FS	TMP-197	TMPS-7,8,9,10,11	1" <input type="checkbox"/>
1743-FS	1745-FS	1747-FS	1749-FS	17411-FS			
2053-FS	2055-FS	2057-FS	2059-FS	20511-FS	TMP-221	TMPS-6,7,8,9,10,11	1" <input type="checkbox"/>
2053-FS	2055-FS	2057-FS	2059-FS	20511-FS			
2133-FS	2135-FS	2137-FS	2139-FS	21311-FS	TMP-221	TMPS-7,8,9,10,11,12	1" <input type="checkbox"/>
2213-FS	2215-FS	2217-FS	2219-FS	22111-FS			



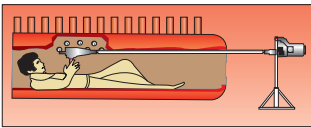
# 'T - 1000' - Series [Flare] Boiler Tube Expander

3 Plain Rollers  
3 Flare Rollers

□ Most ideal for inaccessible areas

- Water boxes
- Small diameter drums

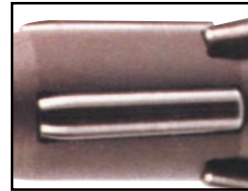
Tristar offers solutions to overcome any installation problem.



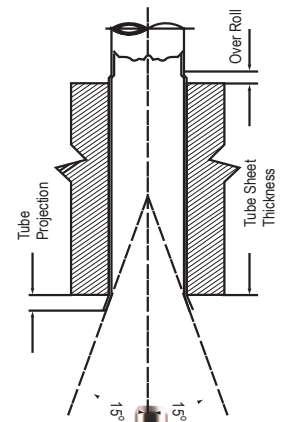
A typical example of an inaccessible area where Tristar drive system ensures..

- Reduced operator fatigue
- Operator safety
- Increased productivity
- Better accessibility

TUBE SIZE				Min I.D. Tool Enters		Max Expansion of Tool		TUBE EXPANDER MODEL				
								Tube Sheet Thickness Range				
O.D inch	THK bwg	O.D. inch	THK bwg	mm	inch	mm	inch	1/2" to 3/4"	7/8" to 1.1/4"	1.3/8" to 1.3/4"	1.7/8" to 2.1/4"	2.3/8" to 2.3/4"
				Tube Sheet Thickness Codes >				3	5	7	9	11
2.3/4	7 - 9			59.0	2.323	68.0	2.677	T1229/3	T1229/5	T1229/7	T1229/9	T-1229/11
	10 - 12			61.0	2.402	70.0	2.756	T1237/3	T1237/5	T1237/7	T1237/9	T-1237/11
	13 - 16			63.0	2.481	72.0	2.835	T1244/3	T1244/5	T1244/7	T1244/9	T1244/11
3	7 - 8			65.0	2.560	74.0	2.913	T1252/3	T1252/5	T1252/7	T1252/9	T1252/11
	10 - 12			67.0	2.638	76.0	2.992	T1260/3	T1260/5	T1260/7	T1260/9	T1260/11
	13 - 14			69.0	2.717	78.0	3.071	T1268/3	T1268/5	T1268/7	T1268/9	T1268/11
	15 - 16			71.0	2.796	80.0	3.150	T1276/3	T1276/5	T1276/7	T1276/9	T1276/11
3.1/4	7 - 11			73.0	2.874	82.0	3.228	T1284/3	T1284/5	T1284/7	T1284/9	T1284/11
	12 - 14			75.0	2.953	84.0	3.307	T1292/3	T1292/5	T1292/7	T1292/9	T1292/11
	15 - 16	3.1/2	7 - 9	77.0	3.032	86.0	3.386	T1300/3	T1300/5	T1300/7	T1300/9	T1300/11
3.1/2	10 - 12			79.0	3.111	88.0	3.465	T1308/3	T1308/5	T1308/7	T1308/9	T1308/11
	13 - 15			81.0	3.190	92.0	3.622	T1315/3	T1315/5	T1315/7	T1315/9	T1315/11
	16	3.3/4	7 - 8	83.0	3.268	94.0	3.701	T1323/3	T1323/5	T1323/7	T1323/9	T1323/11
3.3/4	9 - 12			85.0	3.347	96.0	3.780	T1331/3	T1331/5	T1331/7	T1331/9	T1331/11
	13 - 16			87.0	3.426	98.0	3.858	T1339/3	T1339/5	T1339/7	T1339/9	T1339/11
4	7 - 8			89.0	3.505	100.0	3.937	T1347/3	T1347/5	T1347/7	T1347/9	T1347/11
	9 - 12			91.0	3.583	102.0	4.016	T1355/3	T1355/5	T1355/7	T1355/9	T1355/11
	13 - 15			93.0	3.662	104.0	4.094	T1363/3	T1363/5	T1363/7	T1363/9	T1363/11
	16	4.1/4	7 - 8	95.0	3.741	106.0	4.173	T1370/3	T1370/5	T1370/7	T1370/9	T1370/11
4.1/4	9 - 11			97.0	3.820	108.0	4.252	T1378/3	T1378/5	T1378/7	T1378/9	T1378/11
	12 - 16			99.0	3.898	110.0	4.331	T1386/3	T1386/5	T1386/7	T1386/9	T1386/11
4.1/2	7 - 14			101.0	3.997	111.0	4.407	T1394/3	T1394/5	T1394/7	T1394/9	T1394/11



SPARE ROLLER SET MODEL					SPARE MANDREL MODEL			
Tube Sheet Thickness Range					Drum Type	Short Series Mandrels	SQ	
1/2" to 3/4"	7/8" to 1.1/4"	1.3/8" to 1.3/4"	1.7/8" to 2.1/4"	2.3/8" to 2.3/4"				
3	5	7	9	11				
2213-FS	2215-FS	2217-FS	2219-FS	22111-FS	TMP-244	TMPS-8,9,10,11,12,13		
2373-FS	2375-FS	2377-FS	2379-FS	23711-FS				
2523-FS	2525-FS	2527-FS	2529-FS	25211-FS				
2523-FS	2525-FS	2527-FS	2529-FS	25211-FS	TMP-268	TMPS-10,11,12,13,14		
2603-FS	2605-FS	2607-FS	2609-FS	26011-FS				
2683-FS	2685-FS	2687-FS	2689-FS	26811-FS	TMP-300	TMPS-12,13,14,15,16		
2763-FS	2765-FS	2767-FS	2769-FS	27611-FS				
2843-FS	2845-FS	2847-FS	2849-FS	28411-FS				
2923-FS	2925-FS	2927-FS	2929-FS	29211-FS	TMP-347	TMPS-15,16,17,18,19		1" SQ
3153-FS	3155-FS	3157-FS	3159-FS	31511-FS				
3233-FS	3235-FS	3237-FS	3239-FS	32311-FS		TMPS-14,15,16,17,18,19		
3313-FS	3315-FS	3317-FS	3319-FS	33111-FS				
3553-FS	3555-FS	3557-FS	3559-FS	35511-FS				
3633-FS	3635-FS	3637-FS	3639-FS	36311-FS				
3553-FS	3555-FS	3557-FS	3559-FS	35511-FS	TMP-394	TMPS-17,18,19,20,21		
3633-FS	3635-FS	3637-FS	3639-FS	36311-FS				
3703-FS	3705-FS	3707-FS	3709-FS	37011-FS				
3783-FS	3785-FS	3787-FS	3789-FS	37811-FS				
3863-FS	3865-FS	3867-FS	3869-FS	38611-FS				
3943-FS	3945-FS	3947-FS	3949-FS	39411-FS				



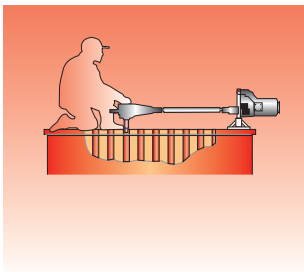
# 'T - 2000' Series [Flare] Boiler Tube Expander

3 Plain Rollers

3 Flare Rollers

- ❑ Controlled travel of expander
- ❑ Positive depth setting
- ❑ Uniform tight joints
- ❑ In-built thrust bearing

Tristar offers solutions to overcome any installation problem.



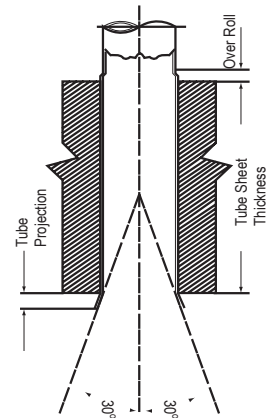
Tristar offers not just tube tools but complete solutions to overcome any installation problem

Our drive systems are designed to overcome most difficult installation problem

TUBE SIZE				Min I.D. Tool Enters	Max Expansion of Tool	TUBE EXPANDER MODEL						
						Tube Sheet Thickness Range						
O.D inch	THK bwg	O.D. inch	THK bwg	mm	inch	mm	inch	1/2" to 3/4"	7/8" to 1.1/4"	1.3/8" to 1.3/4"	1.7/8" to 2.1/4"	2.3/8" to 2.3/4"
				Tube Sheet Thickness Codes >				3	5	7	9	11
1	13 - 14			20.0	0.787	23.4	0.921	T2079/3	T2079/5			
	15 - 16			21.0	0.827	24.4	0.961	T2083/3	T2083/5			
1.1/4	7			22.0	0.866	25.5	1.004	T2087/3	T2087/5			
	8 - 9			23.0	0.906	26.5	1.043	T2091/3	T2091/5			
	10			24.0	0.945	28.1	1.105	T2095/3	T2095/5			
	11 - 13			25.0	0.984	29.0	1.142	T2099/3	T2099/5			
1.1/2	14 - 15			26.0	1.024	30.0	1.181	T2103/3	T2103/5			
	16			28.1	1.105	33.0	1.299	T2111/3	T2111/5			
1.3/4	10 - 12			31.0	1.221	35.0	1.378	T2118/3	T2118/5			
	13 - 16			33.0	1.300	38.0	1.496	T2126/3	T2126/5			
2	8 - 9	2	3	35.0	1.379	40.0	1.575	T2134/3	T2134/5	T2134/7	T2134/9	T2134/11
	10 - 12	2	4 - 5	37.0	1.457	42.5	1.673	T2142/3	T2142/5	T2142/7	T2142/9	T2142/11
	13 - 16	2	6	39.0	1.536	44.5	1.752	T2150/3	T2150/5	T2150/7	T2150/9	T2150/11
2.1/4	7 - 9	2.1/4	3	41.0	1.615	47.0	1.850	T2158/3	T2158/5	T2158/7	T2158/9	T2158/11
	10 - 12	2.1/4	4 - 5	43.0	1.694	49.0	1.929	T2166/3	T2166/5	T2166/7	T2166/9	T2166/11
	13 - 16	2.1/4	6	45.0	1.772	51.5	2.027	T2174/3	T2174/5	T2174/7	T2174/9	T2174/11
	16	2.1/2	3	47.0	1.851	54.0	2.126	T2181/3	T2181/5	T2181/7	T2181/9	T2181/11
2.1/2	10 - 13	2.1/2	4 - 5	49.0	1.930	56.0	2.205	T2189/3	T2189/5	T2189/7	T2189/9	T2189/11
	14 - 16	2.1/2	6	51.0	2.009	60.0	2.362	T2197/3	T2197/5	T2197/7	T2197/9	T2197/11
2.1/2	7 - 10			53.0	2.087	62.0	2.441	T2205/3	T2205/5	T2205/7	T2205/9	T2205/11
	11 - 13	3	2	55.0	2.116	64.0	2.520	T2213/3	T2213/5	T2213/7	T2213/9	T2213/11
	14 - 16			57.0	2.245	66.0	2.598	T2221/3	T2221/5	T2221/7	T2221/9	T2221/11



SPARE ROLLER SET MODEL					SPARE MANDREL MODEL		
Tube Sheet Thickness Range					Drum Type 2.3/4"	Short Series Mandrels	SQ ☐
1/2" to 3/4"	7/8" to 3/4"	1.3/8" to 1.1/4"	1.7/8" to 1.3/4"	2.3/8" to 2.1/4"			
3	5	7	9	11			
0793-FS	0795-FS				TM-83		1/2" ☐
0833-FS	0835-FS						
0873-FS	0875-FS				TM-91		
0953-FS	0955-FS						
0953-FS	0955-FS				TM-99		
0993-FS	0995-FS						
1033-FS	1035-FS						
1113-FS	1115-FS				TM-118	TMS-1,2,3	3/4" ☐
1183-FS	1185-FS						
1263-FS	1265-FS				TM-126	TMS-2,3,4	
1263-FS	1265-FS	1267-FS	1269-FS	12611-FS	TM-134	TMS-3,4,5	
1423-FS	1425-FS	1427-FS	1429-FS	14211-FS	TM-150	TMS-3,4,5,6	
1503-FS	1505-FS	1507-FS	1509-FS	15011-FS			
1583-FS	1585-FS	1587-FS	1589-FS	15811-FS	TM-174	TMS-4,5,6,7,8	
1663-FS	1665-FS	1667-FS	1669-FS	16611-FS			1" ☐
1743-FS	1745-FS	1747-FS	1749-FS	17411-FS			
1813-FS	1815-FS	1817-FS	1819-FS	18111-FS	TM-197	TMS-7,8,9,10,11	
1743-FS	1745-FS	1747-FS	1749-FS	17411-FS			
2053-FS	2055-FS	2057-FS	2059-FS	20511-FS		TMS-6,7,8,9,10,11	
2053-FS	2055-FS	2057-FS	2059-FS	20511-FS	TM-221	TMS-7,8,9,10,11,12	
2133-FS	2135-FS	2137-FS	2139-FS	21311-FS			



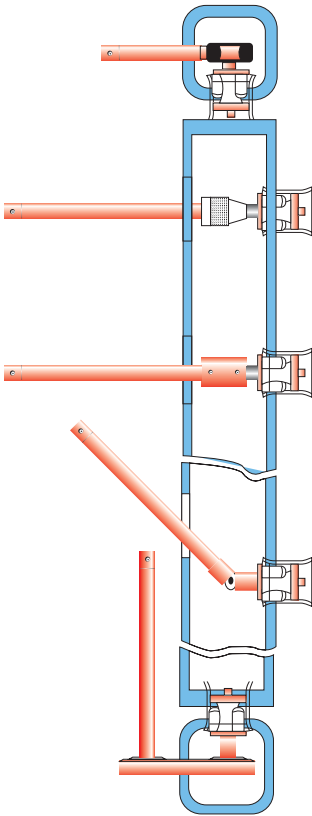
# 'T - 2000' Series [Flare] Boiler Tube Expander

3 Plain Rollers

3 Flare Rollers

- ❑ Controlled travel of expander
- ❑ Positive depth setting
- ❑ Uniform tight joints
- ❑ In-built thrust bearing

Tristar offers solutions to overcome any installation problem.



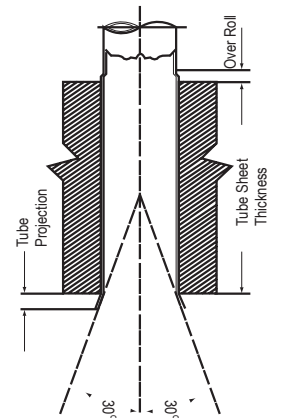
The various drive accessories developed are designed for optimum productivity and operator ease

TUBE SIZE				Min I.D. Tool Enters		Max Expansion of Tool		TUBE EXPANDER MODEL				
								Tube Sheet Thickness Range				
O.D. inch	THK bwg	O.D. inch	THK bwg	mm	inch	mm	inch	1/2" to 3/4"	7/8" to 1.1/4"	1.3/8" to 1.3/4"	1.7/8" to 2.1/4"	2.3/8" to 2.3/4"
				Tube Sheet Thickness Codes >				3	5	7	9	11
2.3/4	7 - 9			59.0	2.323	68.0	2.677	T2229/3	T2229/5	T2229/7	T2229/9	T2229/11
	10 - 12			61.0	2.402	70.0	2.756	T2237/3	T2237/5	T2237/7	T2237/9	T2237/11
	13 - 16			63.0	2.481	72.0	2.835	T2244/3	T2244/5	T2244/7	T2244/9	T2244/11
3	7 - 8			65.0	2.560	74.0	2.913	T2252/3	T2252/5	T2252/7	T2252/9	T2252/11
	10 - 12			67.0	2.638	76.0	2.992	T2260/3	T2260/5	T2260/7	T2260/9	T2260/11
	13 - 14			69.0	2.717	78.0	3.071	T2268/3	T2268/5	T2268/7	T2268/9	T2268/11
	15 - 16			71.0	2.796	80.0	3.150	T2276/3	T2276/5	T2276/7	T2276/9	T2276/11
3.1/4	7 - 11			73.0	2.874	82.0	3.228	T2284/3	T2284/5	T2284/7	T2284/9	T2284/11
	12 - 14			75.0	2.953	84.0	3.307	T2292/3	T2292/5	T2292/7	T2292/9	T2292/11
	15 - 16	3.1/2	7 - 9	77.0	3.032	86.0	3.386	T2300/3	T2300/5	T2300/7	T2300/9	T2300/11
3.1/2	10 - 12			79.0	3.111	88.0	3.465	T2308/3	T2308/5	T2308/7	T2308/9	T2308/11
	13 - 15			81.0	3.190	92.0	3.622	T2315/3	T2315/5	T2315/7	T2315/9	T2315/11
	16	3.3/4	7 - 8	83.0	3.268	94.0	3.701	T2323/3	T2323/5	T2323/7	T2323/9	T2323/11
3.3/4	9 - 12			85.0	3.347	96.0	3.780	T2331/3	T2331/5	T2331/7	T2331/9	T2331/11
	13 - 16			87.0	3.426	98.0	3.858	T2339/3	T2339/5	T2339/7	T2339/9	T2339/11
4	7 - 8			89.0	3.505	100.0	3.937	T2347/3	T2347/5	T2347/7	T2347/9	T2347/11
	9 - 12			91.0	3.583	102.0	4.016	T2355/3	T2355/5	T2355/7	T2355/9	T2355/11
	13 - 15			93.0	3.662	104.0	4.094	T2363/3	T2363/5	T2363/7	T2363/9	T2363/11
	16	4.1/4	7 - 8	95.0	3.741	106.0	4.173	T2370/3	T2370/5	T2370/7	T2370/9	T2370/11
4.1/4	9 - 11			97.0	3.820	108.0	4.252	T2378/3	T2378/5	T2378/7	T2378/9	T2378/11
	12 - 16			99.0	3.898	110.0	4.331	T2386/3	T2386/5	T2386/7	T2386/9	T2386/11
	7 - 14			101.0	3.997	111.0	4.407	T2394/3	T2394/5	T2394/7	T2394/9	T2394/11





SPARE ROLLER SET MODEL					SPARE MANDREL MODEL		
Tube Sheet Thickness Range					Drum Type	Short Series Mandrels	SQ
1/2" to 3/4"	7/8" to 1.1/4"	1.3/8" to 1.3/4"	1.7/8" to 2.1/4"	2.3/8" to 2.3/4"			
3	5	7	9	11			
2213-FS	2215-FS	2217-FS	2219-FS	22111-FS	TMP-244	TMPS-8,9,10,11,12,13	1" <input checked="" type="checkbox"/>
2373-FS	2375-FS	2377-FS	2379-FS	23711-FS			
2523-FS	2525-FS	2527-FS	2529-FS	25211-FS			
2523-FS	2525-FS	2527-FS	2529-FS	25211-FS	TMP-268	TMPS-10,11,12,13,14	
2603-FS	2605-FS	2607-FS	2609-FS	26011-FS			
2683-FS	2685-FS	2687-FS	2689-FS	26811-FS			
2763-FS	2765-FS	2767-FS	2769-FS	27611-FS	TMP-300	TMPS-12,13,14,15,16	
2843-FS	2845-FS	2847-FS	2849-FS	28411-FS			
2923-FS	2925-FS	2927-FS	2929-FS	29211-FS			
3153-FS	3155-FS	3157-FS	3159-FS	31511-FS			
2843-FS	2845-FS	2847-FS	2849-FS	28411-FS	TMP-347	TMPS-15,16,17,18,19	
3153-FS	3155-FS	3157-FS	3159-FS	31511-FS		TMPS-14,15,16,17,18,19	
3233-FS	3235-FS	3237-FS	3239-FS	32311-FS			
3313-FS	3315-FS	3317-FS	3319-FS	33111-FS			
3553-FS	3555-FS	3557-FS	3559-FS	35511-FS			
3633-FS	3635-FS	3637-FS	3639-FS	36311-FS			
3553-FS	3555-FS	3557-FS	3559-FS	35511-FS	TMP-394	TMPS-17,18,19,20,21	
3633-FS	3635-FS	3637-FS	3639-FS	36311-FS			
3703-FS	3705-FS	3707-FS	3709-FS	37011-FS			
3783-FS	3785-FS	3787-FS	3789-FS	37811-FS			
3863-FS	3865-FS	3867-FS	3869-FS	38611-FS			
3943-FS	3945-FS	3947-FS	3949-FS	39411-FS			

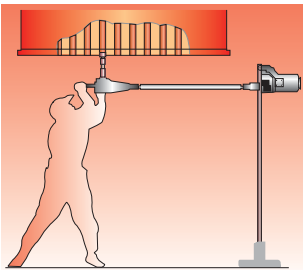


# 'T - 3000' Series [Parallel] Boiler Tube Expander

## 3 Plain Rollers

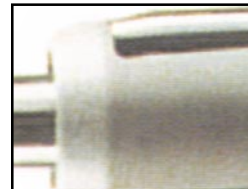
- ❑ More durable components
- ❑ Extended service life
- ❑ In built thrust bearing
- ❑ Heavy duty application

Tristar offers solutions to overcome any installation problem.

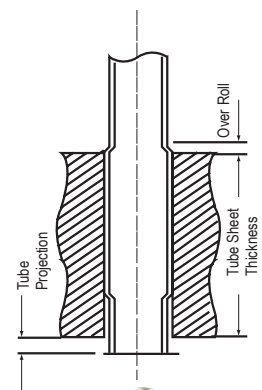


Our drive systems are designed to overcome any challenge posed by installation areas at any site

TUBE SIZE				Min I.D. Tool Enters		Max Expansion of Tool		TUBE EXPANDER MODEL	
								Tube Sheet Thickness Range	
O.D inch	THK bwg	O.D. inch	THK bwg	mm	inch	mm	inch	1.1/2" to 4.3/8"	1.1/2" to 5.3/8"
				Tube Sheet Thickness Codes>				7	11
1.1/4	16			28.1	1.105	33.0	1.299	T3111/7	
1.1/2	10 - 12			31.0	1.221	35.0	1.378	T3118/7	
	13 - 16			33.0	1.300	38.0	1.496	T3126/7	
1.3/4	8 - 9	2	3	35.0	1.379	40.0	1.575	T3134/7	T3134/11
	10 - 12	2	4 - 5	37.0	1.457	42.5	1.673	T3142/7	T3142/11
	13 - 16	2	6	39.0	1.536	44.5	1.752	T3150/7	T3150/11
2	7 - 9	2.1/4	3	41.0	1.615	47.0	1.850	T3158/7	T3158/11
	10 - 12	2.1/4	4 - 5	43.0	1.694	49.0	1.929	T3166/7	T3166/11
	13 - 16	2.1/4	6	45.0	1.772	51.5	2.027	T3174/7	T3174/11
	16	2.1/2	3	47.0	1.851	54.0	2.126	T3181/7	T3181/11
2.1/4	10 - 13	2.1/2	4 - 5	49.0	1.930	56.0	2.205	T3189/7	T3189/11
	14 - 16	2.1/2	6	51.0	2.009	60.0	2.362	T3197/7	T3197/11
2.1/2	7 - 10			53.0	2.087	62.0	2.441	T3205/7	T3205/11
	11 - 13	3	2	55.0	2.116	64.0	2.520	T3213/7	T3213/11
	14 - 16			57.0	2.245	66.0	2.598	T3221/7	T3221/11
2.3/4	7 - 9			59.0	2.323	68.0	2.677	T3229/7	T3229/11
	10 - 12			61.0	2.402	70.0	2.756	T3237/7	T3237/11
	13 - 16			63.0	2.481	72.0	2.835	T3244/7	T3244/11



SPARE ROLLERS SET MODEL			SPARE MANDREL MODEL	
Tube Sheet Thickness Range			Short Series Mandrel	SQ
1.1/2" TO 4.3/8"	1.1/2" TO 5.3/8"	Drum Type		
7	11			
1117-RS		TM-118	TMS-1,2,3	3/4"
1187-RS				
1267-RS		TM-126	TMS-2,3,4	
1267-RS	12611-RS	TM-134	TMS-3,4,5	
1427-RS	14211-RS	TM-150	TMS-3,4,5,6	
1507-RS	15011-RS			
1587-RS	15811-RS	TM-174	TMS-4,5,6,7,8	
1667-RS	16611-RS			
1747-RS	17411-RS			
1817-RS	18111-RS	TM-197	TMS-7,8,9,10,11,12	
1747-RS	17411-RS			
2057-RS	20511-RS		TMS-6,7,8,9,10,11,12	
2057-RS	20511-RS	TM-221	TMS-7,8,9,10,11,12	
2137-RS	21311-RS			
2217-RS	22111-RS			
2217-RS	22111-RS	TM-244	TMS-,8,9,10,11,12,13	
2377-RS	23711-RS			
2527-RS	25211-RS			



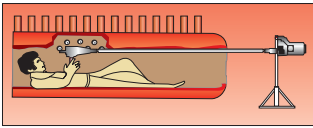
**Note:** 3000 Series Expander can also be supplied with 3" shorter mandrel for easy accessibility to limited access areas and is nomenclatured as **3000B Series**

# 'T - 3000' Series [Parallel] Boiler Tube Expander

## 3 Plain Rollers

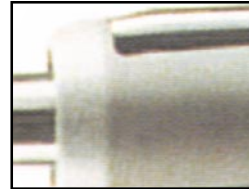
- ❑ More durable components
- ❑ Extended service life
- ❑ In built thrust bearing
- ❑ Heavy duty application

Tristar offers solutions to overcome any installation problem.

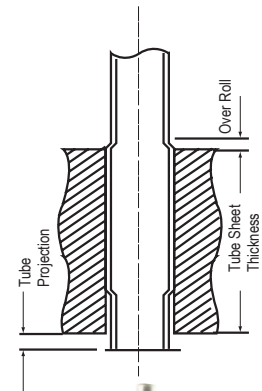


Typical example of solution oriented approach

TUBE SIZE				Min I.D. Tool Enters		Max Expansion of Tool		TUBE EXPANDER MODEL	
O.D. inch	THK bwg	O.D. inch	THK bwg					Tube Sheet Thickness Range	
				mm	inch	mm	inch	1.1/2" to 4.3/8"	1.1/2" to 5.3/8"
				Tube Sheet Thickness Codes>				7	11
3	7 - 8			65.0	2.560	74.0	2.913	T3252/7	T3252/11
	10 - 12			67.0	2.638	76.0	2.992	T3260/7	T3260/11
	13 - 14			69.0	2.717	78.0	3.071	T3268/7	T3268/11
	15 - 16			71.0	2.796	80.0	3.150	T3276/7	T3276/11
3.1/4	7 - 11			73.0	2.874	82.0	3.228	T3284/7	T3284/11
	12 - 14			75.0	2.953	84.0	3.307	T3292/7	T3292/11
	15 - 16	3.1/2	7 - 9	77.0	3.032	86.0	3.386	T3300/7	T3300/11
3.1/2	10 - 12			79.0	3.111	88.0	3.465	T3308/7	T3308/11
	13 - 15			81.0	3.190	92.0	3.622	T3315/7	T3315/11
	16	3.3/4	7 - 8	83.0	3.218	94.0	3.701	T3323/7	T3323/11
3.3/4	9 - 12			85.0	3.347	96.0	3.780	T3331/7	T3331/11
	13 - 16			87.0	3.426	98.0	3.858	T3339/7	T3339/11
4	7 - 8			89.0	3.505	100.0	3.937	T3347/7	T3347/11
	9 - 12			91.0	3.583	102.0	4.016	T3355/7	T3355/11
	13 - 15			93.0	3.662	104.0	4.094	T3363/7	T3363/11
	16	4.1/4	7 - 8	95.0	3.741	106.0	4.173	T3370/7	T3370/11
4.1/4	9 - 11			97.0	3.820	108.0	4.252	T3378/7	T3378/11
	12 - 16			99.0	3.898	110.0	4.331	T3386/7	T3386/11
4.1/2	7 - 14			101.0	3.997	111.0	4.407	T3394/7	T3394/11



SPARE ROLLERS SET MODEL			SPARE MANDREL MODEL		
Tube Sheet Thickness Range					
1/2" to 4.3/8"	1.1/2" to 5.3/8"	Drum Type	Short Series Mandrel	SQ	
7	11				
2527-RS	25211-RS	TM-268	TMS-10,11,12,13,14	1" SQ	
2607-RS	26011-RS				
2687-RS	26811-RS				
2767-RS	27611-RS	TM-300	TMS-12,13,14,15,16		
2847-RS	28411-RS				
2927-RS	29211-RS				
3157-RS	31511-RS				
2847-RS	28411-RS	TM-347	TMS-15,16,17,18,19		
3157-RS	31511-RS		TMS-14,15,16,17,18,19		
3237-RS	32311-RS				
3317-RS	33111-RS				
3557-RS	35511-RS				
3637-RS	36311-RS				
3557-RS	35511-RS	TM-394	TMS-17,18,19,20,21		
3637-RS	36311-RS				
3707-RS	37011-RS				
3787-RS	37811-RS				
3867-RS	38611-RS				
3947-RS	39411-RS				



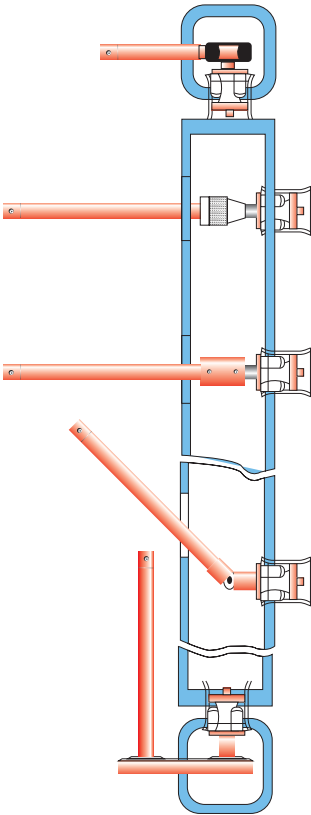
**Note:** 3000 Series Expander can also be supplied with 3" shorter mandrel for easy accessibility to limited access areas and is nomenclatured as **3000B Series**

# 'T-8012' Series

## Heat Exchanger and Boiler Tube Expander

- More durable components
- Extended service life
- In built thrust bearing
- Heavy duty application

Tristar offers solutions to overcome any installation problem.

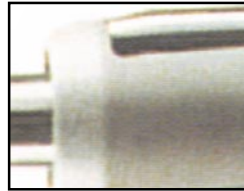


The various drive accessories developed are designed for optimum productivity and operator ease

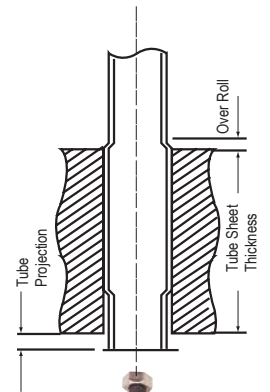
T-8012 expanders can be supplied with 4 and 5 rollers

Tube O.D. inch	Bwg	Tube I.D.		Min I.D.		Max Expansion		Expander with 2.1/4" (57.15 mm) long rollers		
		inch	mm	inch	mm	inch	mm	Model No.	Mandrel	Rollers Set.
1.3/4 (44.45)	8	1.420	36.1	1.368	34.7	1.550	39.3	T 8012-1.3/4-8	TM-90	TR33-A
	10	1.482	37.6	1.420	36.0	1.607	40.8	T 8012-1.3/4-10		TR37-A
	11	1.510	38.3	1.454	36.9	1.635	41.5	T 8012-1.3/4-11		TR-42
	12	1.532	38.9	1.482	37.6	1.657	42.0	T 8012-1.3/4-12		TR-44
	13	1.560	39.6	1.510	38.3	1.685	42.7	T 8012-1.3/4-13		TR-46
2 (50.8)	14	1.584	40.2	1.532	38.9	1.709	43.4	T 8012-1.3/4-14	TR-48	
	8	1.670	42.4	1.595	40.5	1.795	45.6	T 8012-2-8	TM-91	TR-48
	10	1.732	43.9	1.640	41.6	1.857	47.1	T 8012-2-10		TR-50
	11	1.760	44.7	1.670	42.4	1.885	47.8	T 8012-2-11		TR-52
	12	1.782	45.2	1.704	43.4	1.970	48.4	T 8012-2-12		TR-54
	13	1.810	45.9	1.732	43.9	1.956	49.6	T 8012-2-13-18		TR-56
	14	1.834	46.5	1.732	43.9	1.956	49.6	T 8012-2-13-18		TR-56
	15	1.856	47.1	1.732	43.9	1.956	49.6	T 8012-2-13-18		TR-56
	16	1.870	47.4	1.732	43.9	1.956	49.6	T 8012-2-13-18		TR-56
	17	1.884	47.9	1.732	43.9	1.956	49.6	T 8012-2-13-18		TR-56
18	1.902	48.3	1.732	43.9	1.956	49.6	T 8012-2-13-18	TR-56		
2.1/4	10	1.982	50.3	1.890	48.0	2.107	53.5	T8012-2.1/4-10	TM-92	TR-56
	11	2.010	51.0	1.920	48.7	2.137	54.2	T8012-2.1/4-11		TR-58
	12	2.032	51.6	1.954	49.6	2.157	54.7	T8012-2.1/4-12		TR-60
	13	2.060	52.3	1.982	50.3	2.185	55.4	T8012-2.1/4-13-16		TR-62
	14	2.084	52.9	1.982	50.3	2.185	55.4	T8012-2.1/4-13-16		TR-62
	15	2.106	53.4	1.982	50.3	2.185	55.4	T8012-2.1/4-13-16		TR-62
	16	2.120	53.8	1.982	50.3	2.185	55.4	T8012-2.1/4-13-16		TR-62
2.1/2"	10	2.232	56.6	2.140	54.3	2.407	61.1	T8012-2.1/2-10-12	TM-93	TR-64
	11	2.260	57.4	2.140	54.3	2.407	61.1	T8012-2.1/2-10-12		TR-64

T8012 Series	Adjustable Range	
	Roller Length	Min. Max.
2.1/4" (57.1 mm)	1/2" (12.7 mm)	4" (101.6 mm)



Tube O.D. inch	Thk bwg	Tube I.D.		Min I.D.		Max Expansion		Expander with 2.1/4" (57.15 mm) long rollers		
		inch	mm	inch	mm	inch	mm	Model No.	Mandrel	Rollers Set.
12	2.282	57.9	2.140	54.3	2.407	61.1	T8012-2.1/2-10-12	TM-94	TR-64	
	13	2.310	58.6	2.232	56.6	2.450	62.2	T8012-2.1/2-13-18	TR-64	
	14	2.334	59.2	2.232	56.6	2.450	62.2	T8012-2.1/2-13-18	TR-64	
	15	2.356	59.8	2.232	56.6	2.450	62.2	T8012-2.1/2-13-18	TR-64	
	16	2.370	60.1	2.232	56.6	2.450	62.2	T8012-2.1/2-13-18	TR-64	
	17	2.384	60.6	2.232	56.6	2.450	62.2	T8012-2.1/2-13-18	TR-64	
	18	2.402	61.0	2.232	56.6	2.450	62.2	T8012-2.1/2-13-18	TR-64	
	2.3/4	10	2.482	63.0	2.390	60.7	2.702	68.6	T8012-2.3/4-10-16	TM-96
11		2.510	63.7	2.390	60.7	2.702	68.6	T8012-2.3/4-10-16	TR-66	
12		2.532	64.3	2.390	60.7	2.702	68.6	T8012-2.3/4-10-16	TR-66	
13		2.560	65.0	2.390	60.7	2.702	68.6	T8012-2.3/4-10-16	TR-66	
14		2.584	65.6	2.390	60.7	2.702	68.6	T8012-2.3/4-10-16	TR-66	
15		2.606	66.1	2.390	60.7	2.702	68.6	T8012-2.3/4-10-16	TR-66	
16		2.620	66.6	2.390	60.7	2.702	68.6	T8012-2.3/4-10-16	TR-66	
3		8	2.670	67.8	2.560	65.0	2.829	71.8	T8012-3-8-9	TM-97
	9	2.701	68.6	2.560	65.0	2.829	71.8	T8012-3-8-9	TR-67	
	10	2.732	69.3	2.640	67.0	2.952	74.9	T8012-3-10-18	TM-96	TR-67
	11	2.760	70.1	2.640	67.0	2.952	74.9	T8012-3-10-18	TR-67	
	12	2.782	70.6	2.640	67.0	2.952	74.9	T8012-3-10-18	TR-67	
	13	2.810	71.3	2.640	67.0	2.952	74.9	T8012-3-10-18	TR-67	
	14	2.834	71.9	2.640	67.0	2.952	74.9	T8012-3-10-18	TR-67	
	15	2.856	72.5	2.640	67.0	2.952	74.9	T8012-3-10-18	TR-67	
	16	2.870	72.8	2.640	67.0	2.952	74.9	T8012-3-10-18	TR-67	
	17	2.884	73.3	2.640	67.0	2.952	74.9	T8012-3-10-18	TR-67	
18	2.902	73.7	2.640	67.0	2.952	74.9	T8012-3-10-18	TR-67		



# 'TSB & TCSB' Series - Sugar Industry Application

- ❑ More durable components
- ❑ Extended service life
- ❑ In built thrust bearing
- ❑ Heavy duty application
- ❑ Hard rolling of tubes



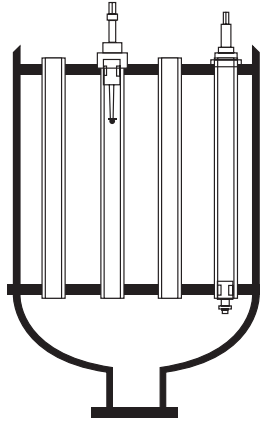
'TSB' Tube Expander

TUBE SIZE		Min I.D. Tool Enters		Max Expansion of Tool		TUBE EXPANDER MODEL			Spare Roller	Spare Mandrel
						Plate Thickness mm (inch)				
O.D inch	THK bwg	mm	inch	mm	inch	31.75 (1.25)	38.1 (1.5)	50.8 (2.0)	Model	Model
Tube Sheet Thickness Codes>						A	B	C		
1.1/2	11 - 12	29.0	1.141	31.9	1.256	TSB-00A	TSB-00B	TSB-00C	TSBR-1A, 1B, 1C	TSBM-1
	13 - 14	32.5	1.279	36.0	1.417	TSB-0A	TSB-0B	TSB-0C	TSBR-2A, 2B, 2C	TSBM-2
	15 - 16	33.5	1.319	37.2	1.465	TSB-1A	TSB-1B	TSB-1C	TSBR-3A, 3B, 3C	
1.3/4	9 - 10	35.2	1.386	39.1	1.539	TSB-2A	TSB-2B	TSB-2C	TSBR-3A, 3B, 3C	TSBM-3
	11 - 12	36.5	1.437	40.5	1.594	TSB-3A	TSB-3B	TSB-3C	TSBR-4A, 4B, 4C	
	13 - 14	38.1	1.500	42.7	1.681	TSB-4A	TSB-4B	TSB-4C	TSBR-5A, 5B, 5C	
	15 - 16	39.1	1.539	44.2	1.740	TSB-5A	TSB-5B	TSB-5C	TSBR-4A, 4B, 4C	TSBM-4
2	7 - 8	41.3	1.626	46.7	1.838	TSB-6A	TSB-6B	TSB-6C	TSBR-5A, 5B, 5C	
	9 - 10	42.8	1.685	48.3	1.901	TSB-7A	TSB-7B	TSB-7C	TSBR-6A, 6B, 6C	
	11 - 13	44.4	1.748	49.7	1.957	TSB-8A	TSB-8B	TSB-8C	TSBR-6A, 6B, 6C	TSBM-5
	14 - 16	46.0	1.811	52.3	2.055	TSB-9A	TSB-9B	TSB-9C	TSBR-7A, 7B, 7C	
2.1/4	9 - 10	47.6	1.874	53.8	2.118	TSB-10A	TSB-10B	TSB-10C	TSBR-8A, 8B, 8C	
	11 - 13	49.2	1.937	55.4	2.181	TSB-11A	TSB-11B	TSB-11C	TSBR-9A, 9B, 9C	
	14 - 16	50.7	1.996	57.8	2.275	TSB-12A	TSB-12B	TSB-12C	TSBR-8A, 8B, 8C	TSBM-6
2.1/2	9 - 10	54.9	2.161	61.0	2.401	TSB-13A	TSB-13B	TSB-13C	TSBR-10A, 10B, 10C	



**'TCSB' Tube Expander** Is used to expand tube at bottom plate of sugar evaporator. It is supplied with adjustable reach of 300mm from minimum to maximum of tube length given below:

Reach	Min (mm)	Max(mm)
Std Reach	700	1000
A	1000	1500
B	1500	2000
C	2000	2500
D	2500	3000



TUBE SIZE		Min I.D. Tool Enters		Max Expansion of Tool		TUBE EXPANDER MODEL			Spare Roller Model	Spare Mandrel Model
						Plate Thickness mm (inch)				
O.D inch	THK bwg	mm	inch	mm	inch	31.75 (1.25)	38.1 (1.5)	50.8 (2.0)		
Tube Sheet Thickness Codes>						A	B	C		
2.1/2	14 - 16	57.1	2.248	65.6	2.582	TSB-14A	TSB-14B	TSB-14C	TSBR-11A, 11B, 11C	TSBM-7
2.3/4	10 - 14	60.3	2.374	68.8	2.708	TSB-15A	TSB-15B	TSB-15C	TSBR-12A, 12B, 12C	
3	7 - 9	63.5	2.500	72.0	2.835	TSB-16A	TSB-16B	TSB-16C	TSBR-13A, 13B, 13C	TSBM-7
	10 - 14	66.5	2.618	75.0	2.953	TSB-17A	TSB-17B	TSB-17C	TSBR-14A, 14B, 14C	
3.1/4	7 - 8	69.8	2.748	78.5	3.090	TSB-18A	TSB-18B	TSB-18C	TSBR-14A, 14B, 14C	TSBM-8
3.1/2	4 - 5	73.0	2.874	81.7	3.216	TSB-19A	TSB-19B	TSB-19C	TSBR-15A, 15B, 15C	
	6 - 8	76.1	2.996	85.8	3.378	TSB-20A	TSB-20B	TSB-20C	TSBR-16A, 16B, 16C	TSBM-9
3.3/4	4 - 5	79.3	3.122	89.0	3.504	TSB-21A	TSB-21B	TSB-21C	TSBR-17A, 17B, 17C	
	6 - 8	82.5	3.248	92.2	3.629	TSB-22A	TSB-22B	TSB-22C	TSBR-18A, 18B, 18C	
4	3 - 4	85.7	3.374	96.2	3.787	TSB-23A	TSB-23B	TSB-23C	TSBR-18A, 18B, 18C	TSBM-10
	10 - 16	90.3	3.555	100.8	3.968	TSB-24A	TSB-24B	TSB-24C	TSBR-19A, 19B, 19C	
4.1/4	6 - 8	94.6	3.736	105.2	4.141	TSB-25A	TSB-25B	TSB-25C	TSBR-20A, 20B, 20C	TSBM-11
4.1/2	4 - 7	89.7	3.531	110.9	4.366	TSB-26A	TSB-26B	TSB-26C	TSBR-21A, 21B, 21C	
	8 - 10	104.3	4.106	113.1	4.452	TSB-27A	TSB-27B	TSB-27C	TSBR-21A, 21B, 21C	TSBM-12

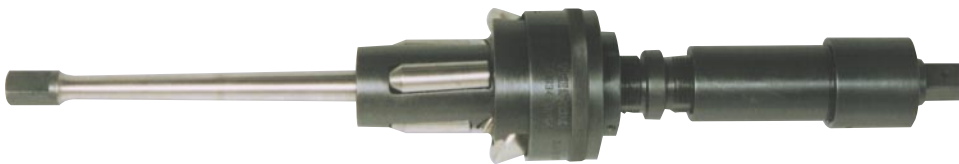


'TCSB' Tube Expander

# 'TCB' Combination Beading Tube Expander

This is a dual operation tool that simultaneously beads and expands in one operation...

- ❑ No initial flaring is required
- ❑ Reduced manhour and operator fatigue
- ❑ Smooth bead finish
- ❑ Less parts, thus low maintenance
- ❑ Two bead rollers for self centering of tool



TUBE SIZE		TUBE Gauge	EXPANDER Model	MANDREL No.	EXPANDER Rolls Set	BEADING Rolls.
inch	mm					
2	50.8	10-14	TCB-508	TBM-508	TRR-508	TBR-508
2.1/2	63.5	10-14	TCB-635	TBM-635	TRR-635	TBR-635
3	76.2	10-14	TCB-762	TBM-762	TRR-762	TBR-762

# Contipull

## Continuous tube pulling systems



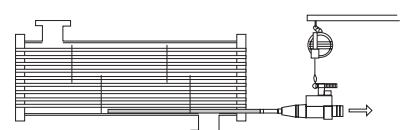
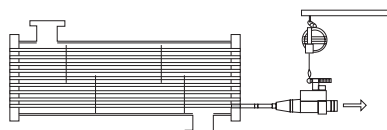
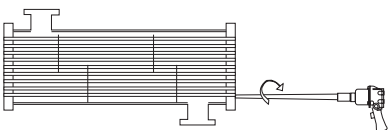
- ❑ Hydraulic tube pulling systems
- ❑ Light in weight higher mobility
- ❑ Small foot print suitable for confined areas
- ❑ Higher productivity
- ❑ Low maintenance
- ❑ Silent in operation easy on operator's ears

### Power pack (Continuous tube pulling)

	TTP-50	TTP-75	TPP-50
Oil tank capacity (lts)	90	100	60
Oil	ISO 68	ISO 68	ISO 68
Weight (kg/lbs)	230 (506)	255 (561)	230 (506)
Drive	Electric	Electric	Pneumatic
Voltage	415v +/- 10%	415v +/- 10%	N. A.
Power in kw	3.7	5.5	4.9
Air consumption (cfm)	N.A	N.A	150
Air Pressure (psig)	N. A.	N. A.	90 psi
Control Voltage (v)	24	24	24

### Tube pulling guns (Continuous)

	TPG - 15	TPG - 30	TPG - 45
Pulling capacity (T @350 bar)	15	30	45
Min to Max tube O.D.	3/8" - 1"	3/8" - 1.1/2"	1" - 3"
Stub pulling capacity	- 1.1/2" O.D.	- 3" O.D.	- 4" O.D.
Pull stroke (mm)	150	150	150
Weight (kg/lbs)	25	50	61



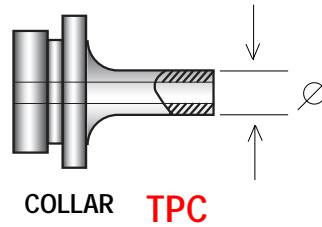
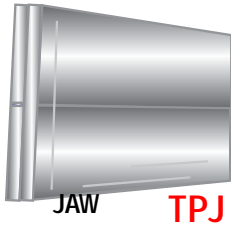
# Contipull - Consumables



MANDREL

TPM

TUBE		MANDREL				JAW			COLLAR	
DIA	BWG	d		TPM	SQ □	TPJ 15	TPJ 30	TPJ 45	TPC 15/30	TPC 45
		mm	inch							
3/8"	17 - 19	6.5 - 7.5	0.260 - 0.295	7	5/16"	1	1		11	
	20 - 24	7.5 - 8.5	0.295 - 0.0335	8						
1/2"	14 - 16	8.5 - 9.5	0.335 - 0.375	9	3/8	2	2		14	
	17 - 18	9.5 - 10.5	0.375 - 0.415	10						
	19 - 21	10.5 - 11.5	0.415 - 0.455	11						
	24	11.5 - 12.5	0.455 - 0.495	12						
5/8	16 - 17	12.5 - 13.5	0.495 - 0.535	13A	1/2"	3	3		18	
	19 - 21	13.5 - 14.5	0.535 - 0.570	14A						
	23 - 24	14.5 - 15.5	0.570 - 0.610	15A						
3/4"	11	12.5 - 13.5	0.495 - 0.535	13	5/8"	4	4		21	
	12 - 13	13.5 - 14.5	0.535 - 0.570	14						
	14 - 15	14.5 - 15.5	0.570 - 0.610	15						
	16 - 17	15.5 - 16.5	0.610 - 0.650	16						
	18 - 20	16.5 - 17.5	0.650 - 0.690	17						
	21 - 24	17.5 - 18.5	0.690 - 0.730	18						
7/8"	14	17.5 - 18.5	0.690 - 0.730	18S		4/A	4/A		25	
	16 - 17	18.5 - 19.5	0.730 - 0.770	19S						
	18 - 19	19.5 - 20.5	0.770 - 0.810	20S						
1"	10 - 11	18.5 - 19.5	0.730 - 0.770	19	3/4"	5	5	5	28	
	12	19.5 - 20.5	0.770 - 0.810	20						
	13 - 14	20.5 - 21.5	0.810 - 0.845	21						
	15 - 16	21.5 - 22.5	0.845 - 0.885	22						
	18	22.5 - 23.5	0.885 - 0.925	23						
	19 - 20	23.5 - 24.5	0.925 - 0.965	24						
1.1/4"	10	24.5 - 25.5	0.996 - 1.005	25	1"		7	7	34	
	11 - 12	25.5 - 26.5	1.005 - 1.045	26						
	13	26.5 - 27.5	1.045 - 1.085	27						
	14 - 15	27.5 - 28.5	1.085 - 1.125	28						
	16 - 18	28.5 - 29.5	1.125 - 1.165	29						
	19 - 22	29.5 - 30.5	1.165 - 1.200	30						
	23 - 24	30.5 - 31.5	1.200 - 1.240	31						
1.1/2"	10 - 11	31.5 - 32.5	1.240 - 1.280	32	1"	9	9	9	41	
	12 - 13	32.5 - 33.5	1.280 - 1.320	33						
	14	33.5 - 34.5	1.320 - 1.360	34						



TUBE		MANDREL				JAW			COLLAR $\varnothing$	
DIA	BWG	mm	inch	TPM	SQ	TPJ 15	TPJ 30	TPJ 45	TPC 15/30	TPC 45
	15 - 17	34.5 - 35.5	1.360 - 1.400	35						
	18 - 20	35.5 - 36.5	1.400 - 1.440	36						
	21 - 24	36.5 - 37.5	1.440 - 1.475	37						
1.3/4"	10 - 11	37.5 - 38.5	1.475 - 1.515	38/44	1"			11		48
	12	38.5 - 39.5	1.515 - 1.555	39/44						
	13 - 14	39.5 - 40.5	1.555 - 1.595	40/44						
	15 - 16	40.5 - 41.5	1.595 - 1.635	41/44						
	18 - 19	41.5 - 42.5	1.635 - 1.675	42/44						
	20 - 24	42.5 - 43.5	1.675 - 1.715	43/44						
2"	10	43.5 - 44.5	1.830 - 1.870	44/51	1"			13		54
	10 - 12	44.5 - 45.5	1.870 - 1.910	45/51						
	13	45.5 - 46.5	1.910 - 1.950	46/51						
	14 - 15	46.5 - 47.5	1.950 - 1.990	47/51						
	16 - 18	47.5 - 48.5	1.870 - 1.910	48/51						
	19 - 22	48.5 - 49.5	1.910 - 1.950	49/51						
2.1/4"	9 - 10	49.5 - 50.5	1.950 - 1.990	50/57	1.1/2"			14		60
	11	50.5 - 51.5	1.990 - 2.030	51/57						
	12 - 13	51.5 - 52.5	2.030 - 2.070	52/57						
2.1/2"	7	53.5 - 54.5	2.015 - 2.145	54/63	1.1/2"			16		63
	8	54.5 - 55.5	2.145 - 2.185	55/63						
	9	55.5 - 56.5	2.185 - 2.225	56/63						
	10	56.5 - 57.5	2.225 - 2.265	57/63						
3"	7	66.5 - 67.5	2.580 - 2.620	67/76	1.1/2"			17		66
	8	67.5 - 68.5	2.620 - 2.660	68/76						
	9 - 10	68.5 - 69.5	2.660 - 2.695	69/76						
	11	69.5 - 70.5	2.695 - 2.735	70/76						
3.1/2"	6	78.5 - 79.5	3.090 - 3.130	79/89	1.1/2"			18		80
	7	79.5 - 80.5	3.130 - 3.170	80/89						
	8 - 9	80.5 - 81.5	3.170 - 3.208	81/89						
	10	81.5 - 82.5	3.208 - 3.248	82/89						
4"	6	91.5 - 92.5	3.602 - 3.641	95/102				19		105
	7 - 8	92.5 - 93.5	3.641 - 3.681	93/103						
	9	93.5 - 94.5	3.681 - 3.720	94/102						
	10	94.5 - 95.5	3.720 - 3.759	95/102						

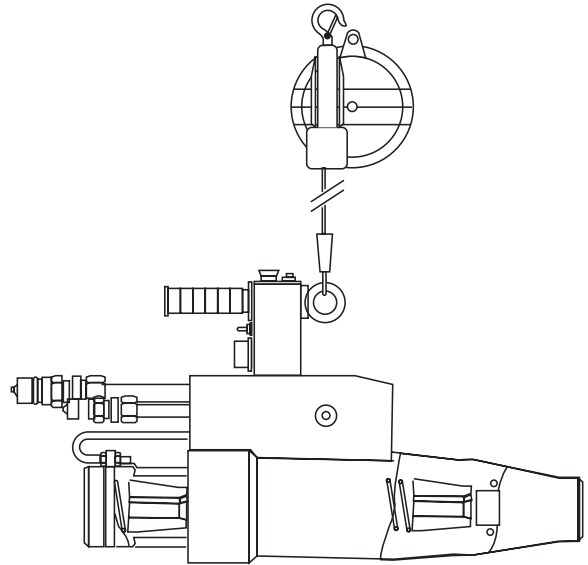


**Tool Balancer:**  
To suspend pulling gun

Model	Capacity	Wt. (kg)
E - 30	22 - 30 KG	9.5
E - 60	50 - 60 KG	12.6
E - 70	60 - 70 KG	13.2

**Sockets:**  
To drive mandrels with impact wrench

Model No.	A	B
TS - 1	3/4"	3/8"
TS - 2	3/4"	1/2"
TS - 3	3/4"	5/8"
TS - 4	3/4"	3/4"
TS - 5	3/4"	1"
TS - 6	1"	3/4"
TS - 7	1"	1"

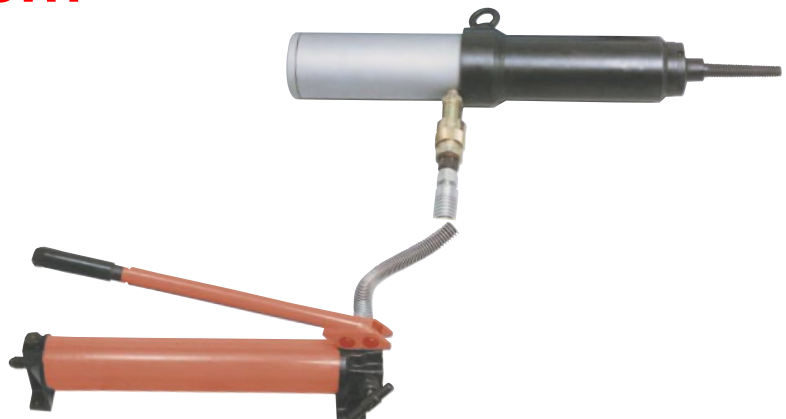


**Impact wrench:**  
To drive mandrels

Model	A	B	Tube Dia
IMT - 1	3/4"	3/8"	upto 2"
IMT - 2	1"	1/2"	upto 3"

# Stub pulling system

- ❑ Compact, light weight and Portable
- ❑ Most economical
- ❑ Suitable for tube size 3/8" to 1" O.D.
- ❑ Operated with Hydraulic hand pump or Air intensifier
- ❑ Low consumables
- ❑ Auto ejection
- ❑ Pulling capacity 10 ton



# Hydrive - Hydraulic tube expansion system



- ❑ Low noise level easy on operator's ears
- ❑ Best suited for boiler tube expansion inside drums
- ❑ Accurate torque control by pressure setting on power pack
- ❑ Safe in operation, 24 v control voltage
- ❑ Smooth
- ❑ Can expand from 3/4" to 4" O.D. in conjunction with 3 drives
- ❑ Competitive prices

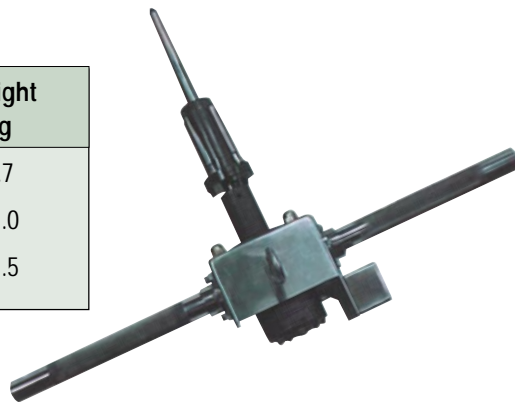
## Powerpack

Model	Oil Tank Capacity Its	Max Working Pr. (bar)	Net Weight kg	Overall Dimensions mm	Electric Motor	Voltage
THP-3	30	100	80	540 x 400 x 320	3 hp 1Ph	230 v
THP-5	45	100	100	540 x 400 x 320	5 hp 3 Ph	415 v
THP-10	138	100	220	860 x 550 x 425	10 hp 3 Ph	415 v

*Standard scope of supply includes 2 hoses of 1/2" 10 mts long each*

## Hydraulic expansion drive

Tube O.D. Steel	Drive Model	No Load Speed with THP -3/5/10	Weight kg
19-38	THD-4	350/480/400	9.7
38-76	THD-5	62/84/70	11.0
50-102	THD-6	40/62/54	11.5



# Torque Controllers

## Tristar wattage setting torque controller (TWTC Series)

Tristar introduces latest state of the art torque controller unit for tube expanding based on torque control by wattage setting. The new development is superior to the conventional torque unit based on current settings and has proven reliability and accuracy. These units are available in 2 models TWTC - 230 volts & TWTC - 110 volts



### Features:

- ❑ Wattage based torque setting
- ❑ Accuracy in torque setting with a resolution of a watt, thus accurate results
- ❑ Soft start feature for all drives, reduces the sudden impact of starting on the drive unit current to drive. Life of drive increases
- ❑ Any drive connected is automatically recognised with a LED indication against drive model on the panel.
- ❑ Wattage range for 4 drives is automatically set when connected.
- ❑ Display of...
  - Drive wattage (Torque)
  - Set wattage (Torque)
  - Drive current
  - Line voltage
- ❑ Adjustable trip time (1 to 25 secs)
- ❑ Reverse time setting (1 to 25 secs)
- ❑ PC/Printer Compatible



Drive Model		Free Speed rpm	Expansion Range		Drive Weight (lbs)
280 v	110 v		S. Steel Tube O.D.	Copper Tube O.D.	
TMP0N	TMP0L	2500	6 - 10	6 - 12	6
TMP1N	TMP1L	850	10 - 16	10 - 20	8
TMP2N	TMP2L	450	16 - 25	19 - 45	15
TMP3N	TMP3L	300	20 - 65	38 - 77	25

## SOLID State Torque Controller (TRSCP Series)

available in 230 /110 v

It is a digital display read out based control unit. Drive motor current setting is adjusted by the thumb wheel to deliver required precise torque.

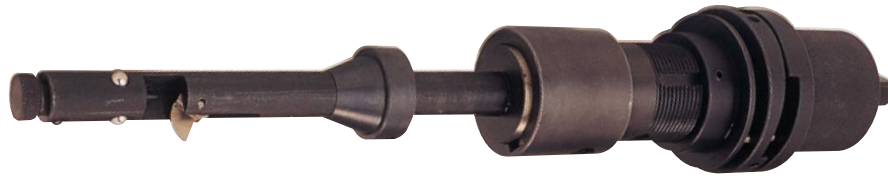
- ❑ Eliminates over or under rolling of tubes
- ❑ Assures uniform tube joint at predetermined setting
- ❑ Increases Production
- ❑ Extends life of Tube Expander
- ❑ Enhances productivity per operator at reduced skill





# TR - 68 Internal Tube Cutter

It is designed to cut thick tubes. The clutch mechanism and bevel spring housed in the cutter body provides self feed positive cutting force. This eliminates operator fatigue. This design also increases the life of the cutter blade. Piloting steel balls cover the range of tube I.D. and offer easy replacement and regrinding of tool bit. Depth of cut can also be adjusted.



Tool Model No.	Spare Bit No.	Tube I.D. Range		Max Tube O.D.		Body Diameter		Drive Square Model
		mm	inch	mm	inch	mm	inch	
101215	TC - 131419	10 - 12	0.394 - 0.472	15	0.591	9.5	0.374	3/8"
111318		11 - 13	0.453 - 0.512	18	0.709	10.5	0.413	
131419		13 - 14	0.472 - 0.551	19	0.748	11.5	0.453	
131520	TC - 161925	13 - 15	0.512 - 0.591	20	0.787	12.5	0.492	1/2"
141723		14 - 17	0.551 - 0.669	23	0.906	13.5	0.531	
161925		16 - 19	0.630 - 0.748	25	0.984	15.5	0.610	
182127	TC - 202534	18 - 21	0.709 - 0.827	27	1.063	17.5	0.689	
202534		20 - 25	0.787 - 0.984	34	1.339	19.5	0.768	
253038	TC - 253038	25 - 30	0.984 - 1.181	38	1.496	24.5	0.965	
303543	TC - 405058	30 - 35	1.181 - 1.378	43	1.693	29	1.142	
354048		35 - 40	1.378 - 1.575	48	1.890	33	1.299	
405058		40 - 50	1.575 - 1.969	58	2.126	38	1.296	
506068	TC - 657583	50 - 60	1.969 - 2.362	68	2.677	48	1.890	3/4"
556573		55 - 65	2.165 - 2.559	73	2.874	53	2.087	
657583		65 - 75	2.559 - 2.953	83	3.268	63	2.480	
758593	TC - 95105113	75 - 85	2.953 - 3.326	93	3.661	73	2.894	
8595103		85 - 95	3.326 - 3.740	103	4.055	83	3.268	
95105113		95 - 105	3.740 - 4.534	113	4.449	93	3.661	

# Tube Removal & Installation Accessories



### Serrating Tool

*Self centred tool for predetermined tube sheet hole size range: 3/8" to 2.1/2"*



### Recessing Tool

*Available in 4 models range: 3/8" to 4.1/2"*



### Internal Tube Cutter (TR 68)

*Designed to cut thick tubes with self feeding mechanism. Available from 10 mm I.D. to 105 mm I.D.*



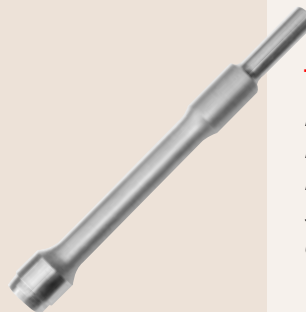
### Chip Hammer

*Used to remove stub tubes from tube sheets in conjunction with Knock out and collapsing tool  
Air consumption 42 cfm @ 90psi*



### Right Angled Gear Drive

*Designed for use inside header boxes where handholes are at right angle to the tube centreline.  
For hand or power use*



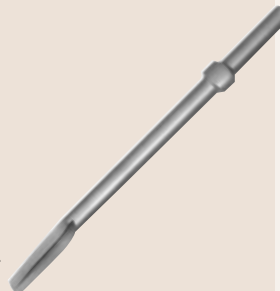
### Tube Drift

*Designed to remove tubes from the tube sheets, available from 1/2" to 1.1/2" O.D. with 06 shank  
other sizes on request*



### Parallel Gear Drive

*Designed for use inside header boxes where handholes are not in line with tube centreline.*



### Collapsing Tool

*Designed to collapse the tubes in the tube sheet after cutting, available from 1/2" to 1.1/2" O.D. with 06 shank  
other sizes on request*

**TUBE SIZES**

BMG Wall Thickness	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
	0.300	0.284	0.259	0.238	0.220	0.203	0.180	0.165	0.148	0.134	0.120	0.109	0.095	0.083	0.072	0.065	0.058	0.049	0.042	0.035	0.032	0.028	0.026	0.022

**Inside Diameter (inch)**

1	0.400	0.432	0.482	0.524	0.560	0.594	0.640	0.670	0.704	0.732	0.760	0.782	0.810	0.834	0.856	0.870	0.884	0.902	0.916	0.930	0.936	0.944	0.950	0.956
1.1/4	0.650	0.682	0.732	0.774	0.810	0.844	0.890	0.920	0.954	0.982	1.010	1.032	1.060	1.084	1.106	1.120	1.134	1.152	1.166	1.180	1.186	1.194	1.200	1.206
1.1/2	0.900	0.932	0.982	1.024	1.060	1.094	1.140	1.170	1.204	1.232	1.260	1.282	1.310	1.334	1.356	1.370	1.384	1.402	1.416	1.430	1.436	1.444	1.450	1.456
1.3/4	1.150	1.182	1.232	1.274	1.310	1.344	1.390	1.420	1.454	1.482	1.510	1.532	1.560	1.584	1.606	1.620	1.634	1.652	1.666	1.680	1.686	1.694	1.700	1.706
2	1.400	1.432	1.482	1.524	1.560	1.594	1.640	1.670	1.704	1.732	1.760	1.782	1.810	1.834	1.856	1.870	1.884	1.902	1.916	1.930	1.936	1.944	1.950	1.956
2.1/4	1.650	1.682	1.732	1.774	1.810	1.844	1.890	1.920	1.954	1.982	2.010	2.032	2.060	2.084	2.106	2.120	2.134	2.152	2.166	2.180	2.186	2.194	2.200	2.206
2.1/2	1.900	1.932	1.982	2.024	2.060	2.094	2.140	2.170	2.204	2.232	2.260	2.282	2.310	2.334	2.356	2.370	2.384	2.402	2.416	2.430	2.436	2.444	2.450	2.456
2.3/4	2.150	2.182	2.232	2.274	2.310	2.344	2.390	2.420	2.454	2.482	2.510	2.532	2.560	2.584	2.606	2.620	2.634	2.652	2.666	2.680	2.686	2.694	2.700	2.706
3	2.400	2.432	2.482	2.524	2.560	2.594	2.640	2.670	2.704	2.732	2.760	2.782	2.810	2.834	2.856	2.870	2.884	2.902	2.916	2.930	2.936	2.944	2.950	2.956
3.1/4"	2.650	2.682	2.732	2.774	2.810	2.844	2.890	2.920	2.954	2.982	3.010	3.032	3.060	3.084	3.106	3.120	3.134	3.152	3.166	3.180	3.186	3.194	3.200	3.206
3.1/2"	2.900	2.932	2.982	3.024	3.060	3.094	3.140	3.170	3.204	3.232	3.260	3.282	3.310	3.334	3.356	3.370	3.384	3.402	3.416	3.430	3.436	3.444	3.450	3.456
3.3/4"	3.150	3.182	3.232	3.274	3.310	3.344	3.390	3.420	3.454	3.482	3.510	3.532	3.560	3.584	3.606	3.620	3.634	3.652	3.666	3.680	3.686	3.694	3.700	3.706
4	3.400	3.432	3.482	3.524	3.560	3.594	3.640	3.670	3.704	3.732	3.760	3.782	3.810	3.834	3.856	3.870	3.884	3.902	3.916	3.930	3.936	3.944	3.950	3.956
4.1/4"	3.650	3.682	3.732	3.774	3.810	3.844	3.890	3.920	3.954	3.982	4.010	4.032	4.060	4.084	4.106	4.120	4.134	4.152	4.166	4.180	4.186	4.194	4.200	4.206
4.1/2"	3.900	3.932	3.982	4.024	4.060	4.094	4.140	4.170	4.204	4.232	4.260	4.282	4.310	4.334	4.356	4.370	4.384	4.402	4.416	4.430	4.436	4.444	4.450	4.456

**Inside Diameter (metric)**

BMG	7.620	7.214	6.579	6.045	5.588	5.156	4.572	4.191	3.759	3.404	3.048	2.769	2.413	2.108	1.829	1.651	1.473	1.245	1.067	0.889	0.813	0.711	0.635	0.559
1	10.160	10.972	12.242	13.310	14.224	15.088	16.256	17.018	17.882	18.592	19.304	19.862	20.574	21.184	21.742	22.098	22.454	22.910	23.266	23.622	23.774	23.978	24.130	24.282
1.1/4	16.510	17.322	18.592	19.660	20.574	21.438	22.606	23.368	24.232	24.942	25.654	26.212	26.924	27.534	28.092	28.448	28.804	29.260	29.616	29.972	30.124	30.328	30.480	30.632
1.1/2	22.860	23.672	24.942	26.010	26.924	27.788	28.956	29.718	30.582	31.292	32.004	32.562	33.274	33.884	34.442	34.798	35.154	35.610	35.966	36.322	36.474	36.678	36.830	36.982
1.3/4	29.210	30.022	31.292	32.360	33.274	34.138	35.306	36.068	36.932	37.642	38.354	38.912	39.624	40.234	40.792	41.148	41.504	41.960	42.316	42.672	42.824	43.028	43.180	43.332
2	35.560	36.372	37.642	38.710	39.624	40.488	41.656	42.418	43.282	43.992	44.704	45.262	45.974	46.584	47.142	47.498	47.854	48.310	48.666	49.022	49.174	49.378	49.530	49.682
2.1/4	41.910	42.722	43.992	45.060	45.974	46.838	48.006	48.768	49.632	50.342	51.054	51.612	52.324	52.934	53.492	53.848	54.204	54.660	55.016	55.372	55.524	55.728	55.880	56.032
2.1/2	48.260	49.072	50.342	51.410	52.324	53.188	54.356	55.118	55.982	56.692	57.404	57.962	58.674	59.284	59.842	60.198	60.554	61.010	61.366	61.722	61.874	62.078	62.230	62.382
2.3/4	54.610	55.422	56.692	57.760	58.674	59.538	60.706	61.468	62.332	63.042	63.754	64.312	65.024	65.634	66.192	66.548	66.904	67.360	67.716	68.072	68.224	68.428	68.580	68.732
3	60.960	61.772	63.042	64.110	65.024	65.888	67.056	67.818	68.682	69.392	70.104	70.662	71.374	71.984	72.542	72.898	73.254	73.710	74.066	74.422	74.574	74.778	74.930	75.082
3.1/4"	67.310	68.122	69.392	70.460	71.374	72.238	73.406	74.168	75.032	75.742	76.454	77.012	77.724	78.334	78.892	79.248	79.604	80.060	80.416	80.772	80.924	81.128	81.280	81.432
3.1/2"	73.660	74.472	75.742	76.810	77.724	78.588	79.756	80.518	81.382	82.092	82.804	83.362	84.074	84.684	85.242	85.598	85.954	86.410	86.766	87.122	87.274	87.478	87.630	87.782
3.3/4"	80.010	80.822	82.092	83.160	84.074	84.938	86.106	86.868	87.732	88.442	89.154	89.712	90.424	91.034	91.592	91.948	92.304	92.760	93.116	93.472	93.624	93.828	93.980	94.132
4	86.360	87.172	88.442	89.510	90.424	91.288	92.456	93.218	94.082	94.792	95.504	96.062	96.774	97.384	97.942	98.298	98.654	99.110	99.466	99.822	99.974	100.178	100.330	100.482
4.1/4"	92.710	93.522	94.792	95.860	96.774	97.638	98.806	99.568	100.432	101.142	101.854	102.412	103.124	103.734	104.292	104.648	105.004	105.460	105.816	106.172	106.324	106.528	106.680	106.832
4.1/2"	99.060	99.872	101.142	102.210	103.124	103.988	105.156	105.918	106.782	107.492	108.204	108.762	109.474	110.084	110.642	110.998	111.354	111.810	112.166	112.522	112.674	112.878	113.030	113.182



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