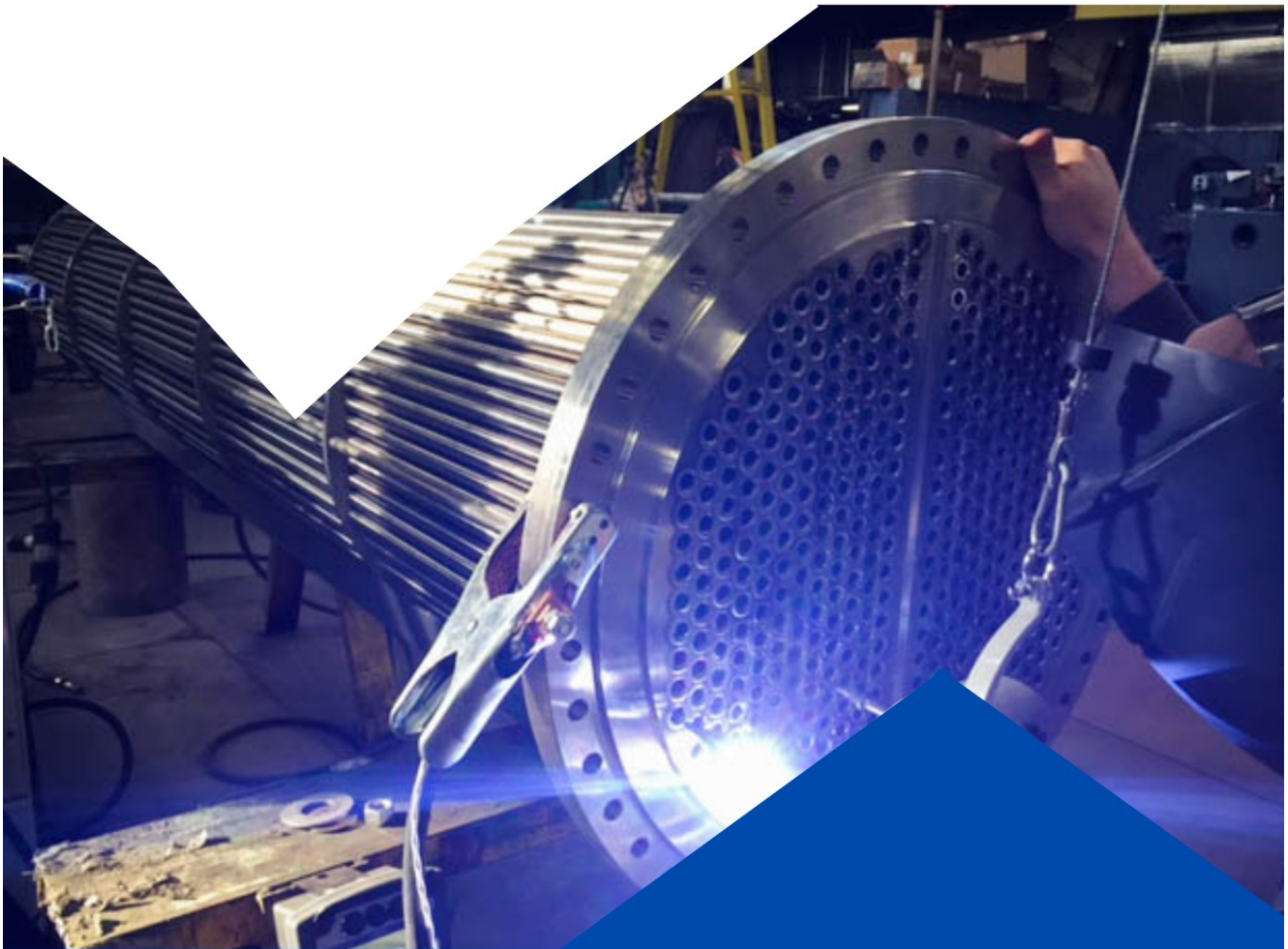


TOOLS FOR HEAT EXCHANGERS

TUBE EXPANDERS, TUBE EXPANSION POWERPACK, TUBE REMOVALS



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SUMMARY

Zeal India Tools & Equipment's, a pioneer manufacturer and exporter of Tube Tools , Material Handling & Lifting Products, Bolting Tools, Tube Cleaners and many more. Our Key persons vast experience in the field of Heat Exchangers , Material handling and lifting for more than two decades is the vital strength of organization which solved many problems in the field of lifting as well in Heat Exchangers.



INTRODUCTION

THE COMPANY

Zeal India Tools & Equipment's, a pioneer manufacturer and exporter of Tube Tools , Material Handling & Lifting Products, Bolting Tools, Tube Cleaners and many more. Our Key persons vast experience in the field of Heat Exchangers , Material handling and lifting for more than two decades is the vital strength of organization which solved many problems in the field of lifting as well in Heat Exchangers.

MANUFACTURING

We have most modern state of art Process, Manufacturing, Testing Equipment's & Tools. Most Experienced Technical Staff Engineers our product to excellent level to perform at it best. ZEAL products thus, being considered the standard of the Industry in India.

QUALITY

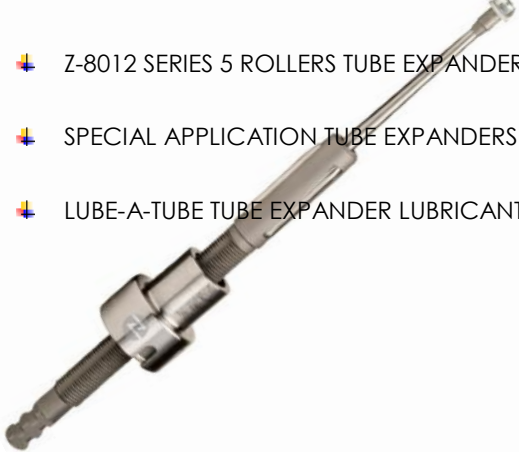
Latest Technology, Manufacturing excellence, customer service, Risk Management and comprehensive product range all voucher for when you buy ZEAL products, you buy more than products.





THE PRODUCTS

CONDENSOR TUBE EXPANDERS

- ✚ Z-900 SERIES 3 ROLLERS TUBE EXPANDERS
 - ✚ Z-1300 SERIES 3 ROLLERS TUBE EXPANDERS
 - ✚ Z-800 SERIES 3 ROLLERS TUBE EXPANDERS
 - ✚ Z-1200 SERIES 3 ROLLERS TUBE EXPANDERS
 - ✚ Z-800-5 SERIES 5 ROLLERS TUBE EXPANDERS.
 - ✚ Z-1200-5 SERIES 5 ROLLERS TUBE EXPANDERS.
 - ✚ Z-8012 SERIES 3 ROLLERS TUBE EXPANDERS.
 - ✚ Z-8012 SERIES 5 ROLLERS TUBE EXPANDERS.
 - ✚ SPECIAL APPLICATION TUBE EXPANDERS
 - ✚ LUBE-A-TUBE TUBE EXPANDER LUBRICANT
- 

BOILER TUBE EXPANDERS

- ✚ Z SERIES 3 PLAIN ROLLERS TUBE EXPANDERS
 - ✚ ZF3 SERIES 3 FLAIR ROLLERS TUBE EXPANDERS
 - ✚ ZF1 SERIES 2 PLAIN 1 FLAIR ROLLERS TUBE EXPANDERS
 - ✚ ZBF3 SERIES TUBE EXPANDERS.
 - ✚ TUBE BEADING TUBE EXPANDERS.
 - ✚ ZSB SERIES FOR SUGAR MILLS TUBE EXPANDERS.
 - ✚ ZCSB SERIES LONG REACH TUBE EXPANDERS.
- 

TUBE EXPANSION SYSTEMS

- ✚ ELECTRIC EXPANSION SYSTEMS
- ✚ HYDRAULIC EXPANSION SYSTEMS.
- ✚ PNEUMATIC EXPANSION SYSTEMS.



TUBE INSTALLATION TOOLS

- ✚ ZGT SERIES SERRATING TOOLS
- ✚ ZNWC1 SERIES SERRATING TOOLS
- ✚ ZTEF SERIES TUBE END FACER.
- ✚ TUBE FACING/BEVELING MACHINE. (INNER CLAMPING)
- ✚ TUBE FACING/BEVELING MACHINE. (OUTER CLAMPING).



TUBE REMOVALS TOOLS

- ✚ ITCP SERIES INTERNAL TUBE CUTTER TOOLS.
- ✚ ZR69 SERIES INTERNAL TUBE CUTTER TOOLS.
- ✚ ZSRTC SERIES SINGLE ROTATION TUBE CUTTER TOOLS.
- ✚ TUBE PULLER (MANUAL)
- ✚ TUBE PULLER (HYDRAULIC CONTINUOUS TUBES).
- ✚ TUBE PULLER (HYDRAULIC STUB REMOVER)



**INDIA FIRST '76 MM' ROLLING LENGTH SERIES
TUBE EXPANDER - *Z-76 SERIES***

ZEAL INDIA OVERVIEW

TOOLS THAT SET THE STANDARD

Outstanding performance, incredible durability, plus the ease of maintenance have made Zeal India Tube rolling controls the standard which all other Manufacturers are measured against.

TOOLS THAT PERFORM

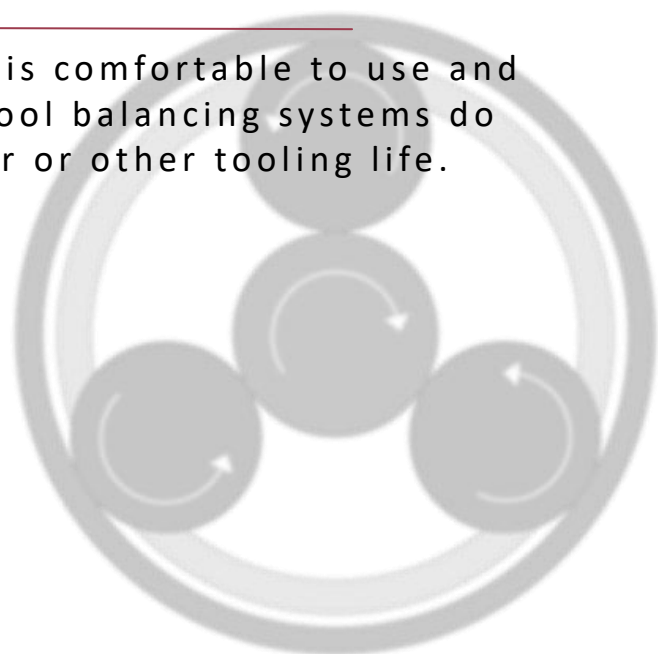
Improving production rates and decreasing cost are critical to the success of today's manufacturer or contractor. The Zeal India line of tools are designed and manufactured to perform consistently time after time. When it comes to performance and reliability, there is no doubt as to why manufacturers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

TOOLS OF THE HIGHEST QUALITY

When we say our tools are built well, we really mean it. Zeal India brand is manufactured to the highest standard.

TOOLS THAT WORK WITH THE OPERATOR

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



Z-900 SERIES TUBE EXPANDER

WORKING RANGE

FOR TUBE OUTER DIAMETER	FOR TUBES INTERNAL DIAMETER	FOR TUBE SHEET ADJUSTABLE RANGE
6.35 - 9.53 mm	3.86 to 8.4 mm	6.35 - 31.75 mm
1/4" - 3/8"	0.152" - 0.331"	1/4" - 1.1/4"



✚ Expander with 3/4" (19.05 mm) long rolls will accommodate tube sheet thicknesses from 1/4" to 3/4" (6.35 mm to 19.05 mm)

✚ Expander with 1.1/4" (31.75 mm) long rolls will accommodate tube sheet thicknesses from 3/4" to 1.1/4" (19.05 mm to 31.75 mm)

TUBE OD		TUBE GAUGE			TUBE ID		EXPANSION RANGE				TUBE SHEET THICKNESS				MANDREL	MANDREL SQUARE	
											1/4 TO 3/4"		3/4 TO 1-1/4"				
							[INCH]	[MM]	[BWG]	[INCH]	[MM]	[INCH]	[MM]	MIN		MAX	MIN
1/4	6,35	18	0,049	1,24	0,152	3,86	0,151	0,173	3,84	4,39	921	921	-	-	M-39	1/4"	6,3
		19	0,042	1,07	0,166	4,22	0,165	0,185	4,19	4,70	922	923	-	-	M-39	1/4"	6,3
		20	0,035	0,89	0,180	4,57	0,175	0,200	4,45	5,08	923	923	-	-	M-40	1/4"	6,3
		21	0,072	1,83	0,186	4,72	0,180	0,207	4,57	5,26	924	924	-	-	M-40	1/4"	6,3
		22	0,028	0,71	0,194	4,93	0,190	0,216	4,83	5,49	925	925	-	-	M-41	1/4"	6,3
		23	0,025	0,64	0,200	5,08	0,195	0,222	4,95	5,64	926	923	-	-	M-41	1/4"	6,3
		24	0,022	0,56	0,206	5,23	0,201	0,230	5,11	5,84	927	924	-	-	M-41	1/4"	6,3
		28	0,014	0,35	0,222	5,6	0,222	0,238	5,6	6,0	928	903	-	-	928	1/4"	6,3
		29	0,013	0,33	0,224	5,7	0,222	0,238	5,6	6,0	928	903	-	-	928	1/4"	6,3
		30	0,012	0,30	0,226	5,7	0,222	0,238	5,6	6,0	928	903	-	-	928	1/4"	6,3
3/8	9,5	14	0,83	2,10	0,209	5,3	0,201	0,232	5,1	5,8	927	924	-	-	M-41	1/4"	6,3
		15	0,072	1,83	0,231	5,87	0,230	0,265	5,84	6,73	915	903	-	-	M-42	1/4"	6,3
		16	0,065	1,65	0,245	6,22	0,240	0,275	6,10	6,99	916	916	916L	916L	M-36	1/4"	6,3
		17	0,058	1,47	0,259	6,58	0,255	0,289	6,48	7,34	918	903	920	904	M-38	1/4"	6,3
		18	0,049	1,24	0,277	7,04	0,272	0,307	6,91	7,80	901	903	902	904	M-30	1/4"	6,3
		19	0,042	1,07	0,291	7,39	0,286	0,320	7,26	8,13	903	903	904	904	M-31	1/4"	6,3
		20	0,035	0,89	0,305	7,75	0,300	0,334	7,62	8,48	905	907	906	908	M-32	1/4"	6,3
		21	0,032	0,81	0,311	7,90	0,306	0,340	7,77	8,64	907	907	908	908	M-33	1/4"	6,3
		22	0,028	0,71	0,319	8,10	0,314	0,349	7,98	8,86	909	909	910	910	M-34	1/4"	6,3
		23	0,025	0,64	0,325	8,26	0,320	0,357	8,13	9,07	911	911	912	912	M-34	1/4"	6,3
		24	0,022	0,56	0,331	8,41	0,319	0,357	8,10	9,07	911	911	912	912	M-34	1/4"	6,3

Z-1300 SERIES TUBE EXPANDER

WORKING RANGE

FOR TUBE OUTER DIAMETER	FOR TUBES INTERNAL DIAMETER	FOR TUBE SHEET ADJUSTABLE RANGE
9.5 mm	5.8-8.4 mm	19.05 - 88.90 mm
3/4"	0.231" - 0.331"	3/4" - 3.1/2"



- Expanders with 3/4" (19.05 mm) long rolls will accommodate tube sheet thicknesses of 3/4" to 3" (19.05 mm to 76.2 mm)
- Expanders with 1.1/4" (31.75 mm) long rolls will accommodate tube sheet thicknesses from 1.1/4" to 3.1/2" (31.75 mm to 88.90 mm)

TUBE OD		TUBE GAUGE			TUBE ID		EXPANSION RANGE				TUBE SHEET THICKNESS				MANDREL	MANDREL SQUARE	
											3/4" TO 3"		1-1/4" TO 3-1/2"				
							[INCH]		[MM]		19,0 TO 76,0 MM		31,7 TO 88,9 MM				
[INCH]	[MM]	[BWG]	[INCH]	[MM]	[INCH]	[MM]	MIN	MAX	MIN	MAX	TOOL NO.	ROLL NO.	TOOL NO.	ROLL NO.		[INCH]	[MM]
3/8	9,5	15	0,072	1,83	0,231	5,87	0,230	0,265	5,84	6,73	1315	1315	1316	1316	M-86	1/4"	6,3
		16	0,065	1,65	0,245	6,22	0,240	0,275	6,10	6,99	1319	1315	1319-L	916-L	M-86	1/4"	6,3
		17	0,058	1,47	0,259	6,58	0,255	0,289	6,48	7,34	1317	903	1318	904	M-88	1/4"	6,3
		18	0,049	1,24	0,277	7,04	0,272	0,307	6,91	7,80	1301	903	1302	904	M-80	1/4"	6,3
		19	0,042	1,07	0,291	7,39	0,286	0,320	7,26	8,13	1303	903	1304	904	M-81	1/4"	6,3
		20	0,035	0,89	0,305	7,75	0,300	0,334	7,62	8,48	1305	907	1306	908	M-82	1/4"	6,3
		21	0,032	0,81	0,311	7,90	0,306	0,340	7,77	8,64	1307	907	1308	908	M-83	1/4"	6,3
		22	0,028	0,71	0,319	8,10	0,314	0,349	7,98	8,86	1309	909	1310	910	M-84	1/4"	6,3
		23	0,025	0,64	0,325	8,26	0,320	0,357	8,13	9,07	1311	911	1312	912	M-84	1/4"	6,3
		24	0,022	0,56	0,331	8,41	0,319	0,357	8,10	9,07	1311	911	1312	912	M-84	1/4"	6,3

Z-800 SERIES TUBE EXPANDER

CONDENSOR TUBE EXPANDER

WORKING RANGE

FOR TUBE OUTER DIAMETER	FOR TUBES INTERNAL DIAMETER	FOR TUBE SHEET ADJUSTABLE RANGE
12.70 - 38.1 mm	8.4 - 36.3 mm	12.70 - 57.1 mm
1/2" - 1.1/2"	0.334" - 1.027"	1/2" - 2.1/4"



- Expanders with 1-1/2 in. (38.1 mm) long rolls will accommodate tube sheets from 1/2 in. to 1-1/2 in. (12.7mm to 38.1 mm)
- Expanders with 2-1/4 in. (57.1 mm) long rolls will accommodate tube sheets from 1-1/4 in. to 2-1/4 in. (31.7mm to 57.1 mm)
- REVERSIBLE THRUST COLLAR** design allows flush and 1/8 in. recess tube rolling. Collars have lubrication port for use with auto-lube configured ATR and DAS tube rolling systems. 20 BWG .035" (0.9 mm).

TUBE OD		TUBE GAUGE			TUBE ID		EXPANSION RANGE				TUBE SHEET THICKNESS				MANDREL	MANDREL SQUARE	
											1/2 TO 1-1/2"		1-1/4 TO 2-1/4"				
							[INCH]	[MM]	[BWG]	[INCH]	[MM]	[INCH]	[MM]	MIN		MAX	MIN
3/8	9,5	22-24	0,027	0,71	0,314	8,00	0,307	0,358	7,80	9,10	795	795	-	-	795	3/8	9,5
1/2	12,7	14	0,083	2,11	0,334	8,48	0,324	0,374	8,23	9,50	797	797	-	-	797	3/8	9,5
		15	0,072	1,83	0,356	9,04	0,348	0,398	8,84	10,11	799	R-1	-	-	799	3/8	9,5
		16	0,065	1,65	0,370	9,40	0,36	0,410	9,14	10,41	801	R-1	-	-	M-1	3/8	9,5
		17	0,058	1,47	0,384	9,75	0,374	0,424	9,50	10,77	803	R-2	-	-	M-1	3/8	9,5
		18	0,049	1,24	0,402	10,21	0,392	0,447	9,96	11,35	805	R-3	-	-	M-2	3/8	9,5
		20	0,035	0,89	0,430	10,92	0,406	0,461	10,31	11,71	805[S]	R-3	-	-	M-3	3/8	9,5
5/8	15,8	12	0,109	2,77	0,407	10,34	0,392	0,447	9,96	11,35	805	R-3	-	-	M-2	3/8	9,5
		13	0,095	2,41	0,435	11,05	0,425	0,480	10,80	12,19	807	R-4	-	-	M-3	3/8	9,5
		14	0,083	2,11	0,459	11,66	0,449	0,509	11,40	12,93	809	R-4	810	R-4-A	M-4	3/8	9,5
		15	0,072	1,83	0,481	12,22	0,471	0,536	11,96	13,61	811	R-5	812	R-5A	M-5	3/8	9,5
		16	0,065	1,65	0,495	12,57	0,485	0,550	12,32	13,97	813	R-6	814	R-6A	M-5	3/8	9,5
		17	0,058	1,47	0,509	12,93	0,499	0,564	12,67	14,33	815	R-6	816	R-6A	M-6	3/8	9,5
		18	0,049	1,24	0,527	13,39	0,517	0,572	13,13	14,53	817	R-7	818	R-7-A	M-7	3/8	9,5
		19	0,042	1,07	0,541	13,74	0,522	0,582	13,26	14,78	819	R-7	820	R-7-A	M-6	3/8	9,5
		20	0,035	0,89	0,555	14,10	0,536	0,596	13,61	15,14	819[S]	R-7	820[S]	R-7-A	M-8	3/8	9,5
		21	0,032	0,81	0,561	14,25	0,536	0,596	13,61	15,14	819[S]	R-7	820[S]	R-7-A	M-8	3/8	9,5
		22	0,028	0,71	0,569	14,45	0,536	0,596	13,61	15,14	819[S]	R-7	820[S]	R-7-A	M-8	3/8	9,5
3/4	19	10	0,134	3,40	0,482	12,24	0,471	0,536	11,96	13,61	811	R-5	812	R-5-A	M-5	3/8	9,5
		11	0,120	3,05	0,510	12,95	0,499	0,564	12,67	14,33	815	R-6	816	R-6-A	M-6	3/8	9,5
		12	0,109	2,77	0,532	13,51	0,522	0,582	13,26	14,78	819	R-7	820	R-7-A	M-6	3/8	9,5
		13	0,095	2,41	0,560	14,22	0,550	0,615	13,97	15,62	821	R-8	822	R-8-A	M-8	3/8	9,5
		14	0,083	2,11	0,584	14,83	0,574	0,639	14,58	16,23	823	R-9	824	R-9-A	M-8	3/8	9,5
		15	0,072	1,83	0,606	15,39	0,596	0,661	15,14	16,79	825	R-10	826	R-10-A	M-8	3/8	9,5
		16	0,065	1,65	0,620	15,75	0,605	0,685	15,37	17,40	827	R-10	828	R-10-A	M-9	3/8	9,5
		17	0,058	1,47	0,634	16,10	0,619	0,699	15,72	17,75	829	R-11	830	R-11-A	M-9	3/8	9,5
		18	0,049	1,24	0,652	16,56	0,619	0,699	15,72	17,75	829	R-11	830	R-11-A	M-9	3/8	9,5
		19	0,042	1,07	0,666	16,92	0,642	0,722	16,31	18,34	831	R-12	832	R-12-A	M-9	3/8	9,5
		20	0,035	0,89	0,680	17,27	0,642	0,722	16,31	18,34	831	R-12	832	R-12-A	M-9	3/8	9,5
		21	0,032	0,81	0,686	17,42	0,642	0,722	16,31	18,34	831	R-12	832	R-12-A	M-9	3/8	9,5
22	0,028	0,71	0,694	17,63	0,642	0,722	16,31	18,34	831	R-12	832	R-12-A	M-9	3/8	9,5		

CONDENSOR TUBE EXPANDER

TUBE OD		TUBE GAUGE			TUBE ID		EXPANSION RANGE				TUBE SHEET THICKNESS				MANDREL	MANDREL SQUARE	
											1/2 TO 1-1/2"		1-1/4 TO 2-1/4"				
							[INCH]		[MM]		12,7 TO 38,1 MM		31,7 TO 57,1 MM				
[INCH]	[MM]	[BWG]	[INCH]	[MM]	[INCH]	[MM]	MIN	MAX	MIN	MAX	TOOL NO.	ROLL NO.	TOOL NO.	ROLL NO.		[INCH]	[MM]
7/8	22,2	10	0,134	3,40	0,607	15,42	0,596	0,661	15,14	16,79	825	R-10	826	R-10-A	M-8	3/8	9,5
		11	0,120	3,05	0,635	16,13	0,619	0,699	15,72	17,75	829	R-11	830	R-11-A	M-9	3/8	9,5
		12	0,109	2,77	0,657	16,69	0,642	0,722	16,31	18,34	831	R-12	832	R-12-A	M-9	3/8	9,5
		13	0,095	2,41	0,685	17,40	0,670	0,750	17,02	19,05	833	R-13	834	R-13-A	M-10	3/8	9,5
		14	0,083	2,11	0,709	18,01	0,685	0,774	17,40	19,66	835	R-14	836	R-14-A	M-11	3/8	9,5
		15	0,072	1,83	0,731	18,57	0,712	0,801	18,08	20,35	837	R-15	838	R-15-A	M-11	3/8	9,5
		16	0,065	1,65	0,745	18,92	0,726	0,815	18,44	20,70	839	R-15	840	R-15-A	M-12	3/8	9,5
		17	0,058	1,47	0,759	19,28	0,740	0,829	18,80	21,06	843	R-16	844	R-16-A	M-12	3/8	9,5
		18	0,049	1,24	0,777	19,74	0,740	0,829	18,80	21,06	843	R-16	844	R-16-A	M-12	3/8	9,5
1	25,4	8	0,165	4,19	0,670	17,02	0,655	0,735	16,64	18,67	841	R-13	842	R-13-A	M-9	3/8	9,5
		9	0,148	3,76	0,704	17,88	0,685	0,774	17,40	19,66	835	R-14	836	R-14-A	M-11	3/8	9,5
		10	0,134	3,40	0,732	18,59	0,712	0,801	18,08	20,35	837	R-15	838	R-15-A	M-11	3/8	9,5
		11	0,120	3,05	0,760	19,30	0,740	0,829	18,80	21,06	843	R-16	844	R-16-A	M-12	3/8	9,5
		12	0,109	2,77	0,782	19,86	0,763	0,852	19,38	21,64	845	R-17	846	R-17-A	M-12	3/8	9,5
		13	0,095	2,41	0,810	20,57	0,791	0,880	20,09	22,35	847	R-18	848	R-18-A	M-12	3/8	9,5
		14	0,083	2,11	0,834	21,18	0,810	0,909	20,57	23,09	849	R-18	850	R-18-A	M-13	3/8	9,5
		15	0,072	1,83	0,856	21,74	0,837	0,936	21,26	23,77	851	R-19	852	R-19-A	M-13	3/8	9,5
		16	0,065	1,65	0,870	22,10	0,837	0,936	21,26	23,77	851	R-19	852	R-19-A	M-13	3/8	9,5
		17	0,058	1,47	0,884	22,45	0,865	0,964	21,97	24,49	855	R-21	856	R-21-A	M-13	3/8	9,5
		18	0,049	1,24	0,902	22,91	0,865	0,964	21,97	24,49	855	R-21	856	R-21-A	M-13	3/8	9,5
		19	0,042	1,07	0,916	23,27	0,865	0,964	21,97	24,49	855	R-21	856	R-21-A	M-13	3/8	9,5
20	0,035	0,89	0,930	23,62	0,865	0,964	21,97	24,49	855	R-21	856	R-21-A	M-13	3/8	9,5		
1-1/8	28,5	8	0,165	4,19	0,795	20,19	0,776	0,875	19,71	22,23	853	R-20	854	R-20-A	M-13	3/8	9,5
		9	0,148	3,76	0,829	21,06	0,810	0,909	20,57	23,09	849	R-18	850	R-18-A	M-13	3/8	9,5
		10	0,134	3,40	0,857	21,77	0,837	0,936	21,26	23,77	851	R-19	852	R-19-A	M-13	3/8	9,5
		11	0,120	3,05	0,885	22,48	0,865	0,964	21,97	24,49	855	R-21	856	R-21-A	M-13	3/8	9,5
		12	0,109	2,77	0,907	23,04	0,883	0,982	22,43	24,94	857	R-21	858	R-21-A	M-14	1/2	12,7
		13	0,095	2,41	0,935	23,75	0,916	1,015	23,27	25,78	859	R-22	860	R-22-A	M-14	1/2	12,7
		14	0,083	2,11	0,959	24,36	0,935	1,044	23,75	26,52	861	R-23	862	R-23-A	M-15	1/2	12,7
		15	0,072	1,83	0,981	24,92	0,962	1,071	24,43	27,20	863	R-24	864	R-24-A	M-15	1/2	12,7
		16	0,065	1,65	0,995	25,27	0,962	1,071	24,43	27,20	863	R-24	864	R-24-A	M-15	1/2	12,7
		17	0,058	1,47	1,009	25,63	0,990	1,099	25,15	27,91	867	R-26	868	R-26-A	M-16	1/2	12,7
18	0,049	1,24	1,027	26,09	0,990	1,099	25,15	27,91	867	R-26	868	R-26-A	M-16	1/2	12,7		

Z-800 SERIES TUBE EXPANDER

CONDENSOR TUBE EXPANDER

TUBE OD		TUBE GAUGE			TUBE ID		EXPANSION RANGE				TUBE SHEET THICKNESS				MANDREL	MANDREL SQUARE	
											1/2 TO 1-1/2"		1-1/4 TO 2-1/4"				
							[INCH]	[MM]	[BWG]	[INCH]	[MM]	[INCH]	[MM]	MIN		MAX	MIN
1-1/4	31,7	8	0,165	4,19	0,92	23,37	0,901	1,010	22,89	25,65	865	R-25	866	R-25-A		M-15	1/2
		9	0,148	3,76	0,954	24,23	0,935	1,044	23,75	26,52	861	R-23	862	R-23-A	M-15	1/2	12,7
		10	0,134	3,40	0,982	24,94	0,962	1,071	24,43	27,20	863	R-24	864	R-24-A	M-15	1/2	12,7
		11	0,120	3,05	1,010	25,65	0,990	1,099	25,15	27,91	867	R-26	868	R-26-A	M-16	1/2	12,7
		12	0,109	2,77	1,032	26,21	1,013	1,122	25,73	28,50	869	R-27	870	R-27-A	M-16	1/2	12,7
		13	0,095	2,41	1,060	26,92	1,041	1,150	26,44	29,21	871	R-28	872	R-28-A	M-17	1/2	12,7
		14	0,083	2,11	1,084	27,53	1,060	1,169	26,92	29,69	873	R-29	874	R-29-A	M-17	1/2	12,7
		15	0,072	1,83	1,106	28,09	1,087	1,196	27,61	30,38	875	R-30	876	R-30-A	M-17	1/2	12,7
		16	0,065	1,65	1,12	28,45	1,087	1,196	27,61	30,38	875	R-30	876	R-30-A	M-17	1/2	12,7
		17	0,058	1,47	1,134	28,80	1,115	1,224	28,32	31,09	879	R-30	880	R-30-A	M-18	1/2	12,7
		18	0,049	1,24	1,152	29,26	1,115	1,224	28,32	31,09	879	R-30	880	R-30-A	M-18	1/2	12,7
1-3/8	34,9	8	0,165	4,19	1,045	26,54	1,026	1,135	26,06	28,83	877	R-31	878	R-31-A	M-17	1/2	12,7
		9	0,148	3,76	1,079	27,41	1,060	1,169	26,92	29,69	873	R-29	874	R-29-A	M-17	1/2	12,7
		10	0,134	3,40	1,107	28,12	1,087	1,196	27,61	30,38	875	R-30	876	R-30-A	M-17	1/2	12,7
		11	0,120	3,05	1,135	28,83	1,115	1,224	28,32	31,09	879	R-30	880	R-30-A	M-18	1/2	12,7
		12	0,109	2,77	1,157	29,39	1,133	1,242	28,78	31,55	881	R-32	882	R-32-A	M-18	1/2	12,7
		13	0,095	2,41	1,185	30,10	1,160	1,275	29,46	32,39	883	R-33	884	R-33-A	M-19	1/2	12,7
		14	0,083	2,11	1,209	30,71	1,179	1,294	29,95	32,87	885	R-34	886	R-34-A	M-20	1/2	12,7
		15	0,072	1,83	1,231	31,27	1,206	1,321	30,63	33,55	887	R-35	888	R-35-A	M-20	1/2	12,7
1-1/2	38,1	16	0,065	1,65	1,245	31,62	1,206	1,321	30,63	33,55	887	R-35	888	R-35-A	M-20	1/2	12,7
		8	0,165	4,19	1,170	29,72	1,145	1,260	29,08	32,00	889	R-34	890	R-34-A	M-19	1/2	12,7
		9	0,148	3,76	1,204	30,58	1,179	1,294	29,95	32,87	885	R-34	886	R-34-A	M-20	1/2	12,7
		10	0,134	3,40	1,232	31,29	1,206	1,321	30,63	33,55	887	R-35	888	R-35-A	M-20	1/2	12,7
		11	0,120	3,05	1,260	32,00	1,235	1,350	31,37	34,29	891	R-36	892	R-36-A	M-20	1/2	12,7
		12	0,109	2,77	1,282	32,56	1,257	1,372	31,93	34,85	893	R-37	894	R-37-A	M-20	1/2	12,7
		13	0,095	2,41	1,310	33,27	1,285	1,400	32,64	35,56	895	R-37	896	R-37-A	M-21	1/2	12,7
		14	0,083	2,11	1,334	33,88	1,285	1,400	32,64	35,56	895	R-37	896	R-37-A	M-21	1/2	12,7
		15	0,072	1,83	1,356	34,44	1,331	1,446	33,81	36,73	897	R-38	898	R-38-A	M-21	1/2	12,7
		16	0,065	1,65	1,370	34,80	1,331	1,446	33,81	36,73	897	R-38	898	R-38-A	M-21	1/2	12,7
		17	0,058	1,47	1,384	35,15	1,331	1,472	33,81	37,39	899	R-38	900	R-38-A	M-22	1/2	12,7
		18	0,049	1,24	1,402	35,61	1,331	1,472	33,81	37,39	899	R-38	900	R-38-A	M-22	1/2	12,7
19	0,042	1,07	1,416	35,97	1,331	1,472	33,81	37,39	899	R-38	900	R-38-A	M-22	1/2	12,7		
20	0,035	0,89	1,430	36,32	1,331	1,472	33,81	37,39	899	R-38	900	R-38-A	M-22	1/2	12,7		

Z-800 SERIES TUBE EXPANDER

Z-800-5 SERIES TUBE EXPANDER (5 ROLLS)

WORKING RANGE

FOR TUBE OUTER DIAMETER	FOR TUBES INTERNAL DIAMETER	FOR TUBE SHEET ADJUSTABLE RANGE
15.8 - 38.10 mm	12.9 - 36.7 mm	12.7 - 57.1 mm
5/8"-1.1/2"	0.509" - 1.44"	3/4" - 3.1/2"



✚ Z-800-5 Rollers Tube Expanders are highly recommended for use on thin-walled tubes (19 thru 22 Gauge Walls) of Stainless Steel, Titanium, Nicolay and other exotic Materials.

TUBE OD		TUBE GAUGE			TUBE ID		EXPANSION RANGE				TUBE SHEET THICKNESS				MANDREL	MANDREL SQUARE	
											1/2" TO 1-1/2"		1-1/4" TO 2-1/4"				
							[INCH]		[MM]		12,7 TO 38,1 MM		31,7 TO 57,1MM				
[INCH]	[MM]	[BWG]	[INCH]	[MM]	[INCH]	[MM]	MIN	MAX	MIN	MAX							
5/8	15,8	17	0,058	1,47	0,509	12,93	0,499	0,564	12,67	14,33	815-5	R-4-5	816-5	R-4-A-5	M-816-5	3/8	9,5
		18	0,049	1,24	0,527	13,39	0,517	0,572	13,13	14,53	817-5	R-4-5	818-5	R-4-A-5	M-9	3/8	9,5
		19	0,042	1,07	0,541	13,74	0,522	0,582	13,26	14,78	819-5	R-4-5	820-5	R-4-A-5	M-820-5	3/8	9,5
		20	0,035	0,89	0,555	14,10	0,536	0,596	13,61	15,14	819-5[S]	R-4-5	820-5[S]	R-4-A-5	820-5[S]	3/8	9,5
		21	0,032	0,81	0,561	14,25	0,536	0,596	13,61	15,14	819-5[S]	R-4-5	820-5[S]	R-4-A-5	820-5[S]	3/8	9,5
		22	0,028	0,71	0,569	14,45	0,536	0,596	13,61	15,14	819-5[S]	R-4-5	820-5[S]	R-4-A-5	820-5[S]	3/8	9,5
3/4	19,0	13	0,095	2,41	0,560	14,22	0,550	0,615	13,97	15,62	821-5	R-5-5	822-5	R-5-A-5	M-822-5	3/8	9,5
		14	0,083	2,11	0,584	14,83	0,574	0,639	14,58	16,23	823-5	R-6-5	824-5	R-6-A-5	M-824-5	3/8	9,5
		15	0,072	1,83	0,606	15,39	0,590	0,661	14,99	16,79	825-5	R-7-5	826-5	R-7-A-5	M-826-5	3/8	9,5
		16	0,065	1,65	0,620	15,75	0,605	0,685	15,37	17,40	827-5	R-7-5	828-5	R-7-A-5	M-13	3/8	9,5
		17	0,058	1,47	0,634	16,10	0,619	0,699	15,72	17,75	829-5	R-7-5	830-5	R-7-A-5	M-830-5	3/8	9,5
		18	0,049	1,24	0,652	16,56	0,619	0,699	15,72	17,75	829-5	R-7-5	830-5	R-7-A-5	M-830-5	3/8	9,5
		19	0,042	1,07	0,666	16,92	0,642	0,722	16,31	18,34	831-5	R-9-5	832-5	R-9-A-5	M-13	3/8	9,5
		20	0,035	0,89	0,680	17,27	0,642	0,722	16,31	18,34	831-5	R-9-5	832-5	R-9-A-5	M-13	3/8	9,5
		21	0,032	0,81	0,686	17,42	0,642	0,722	16,31	18,34	831-5	R-9-5	832-5	R-9-A-5	M-13	3/8	9,5
		22	0,028	0,71	0,694	17,63	0,642	0,722	16,31	18,34	831-5	R-9-5	832-5	R-9-A-5	M-13	3/8	9,5
7/8	22,2	13	0,095	2,41	0,685	17,40	0,670	0,750	17,02	19,05	833-5	R-9-5	834-5	R-9-A-5	M-14-3/8	3/8	9,5
		14	0,083	2,11	0,709	18,01	0,685	0,774	17,40	19,66	835-5	R-10-5	836-5	R-10-A-5	M-15	3/8	9,5
		16	0,065	1,65	0,745	18,92	0,726	0,815	18,44	20,70	839-5	R-11-5	840-5	R-11-A-5	M-840-5	3/8	9,5
		17	0,058	1,47	0,759	19,28	0,740	0,829	18,80	21,06	843-5	R-11-5	844-5	R-11-A-5	M-17-3/8	3/8	9,5
		18	0,049	1,24	0,777	19,74	0,740	0,829	18,80	21,06	843-5	R-11-5	844-5	R-11-A-5	M-17-3/8	3/8	9,5
		19	0,042	1,07	0,791	20,09	0,763	0,852	19,38	21,64	845-5	R-11-5	846-5	R-11-A-5	M-18-3/8	3/8	9,5
		20	0,035	0,89	0,805	20,45	0,763	0,852	19,38	21,64	845-5	R-11-5	846-5	R-11-A-5	M-18-3/8	3/8	9,5
		21	0,032	0,81	0,811	20,60	0,763	0,852	19,38	21,64	845-5	R-11-5	846-5	R-11-A-5	M-18-3/8	3/8	9,5
22	0,028	0,71	0,819	20,80	0,763	0,852	19,38	21,64	845-5	R-11-5	846-5	R-11-A-5	M-18-3/8	3/8	9,5		

TUBE OD		TUBE GAUGE			TUBE ID		EXPANSION RANGE				TUBE SHEET THICKNESS				M ANDREL	MANDREL SQUARE	
											1/2" TO 1-1/2"		1-1/4" TO 2-1/4"				
							[INCH]		[MM]		12,7 TO 38,1 MM		31,7 TO 57,1MM				
[INCH]	[MM]	[BWG]	[INCH]	[MM]	[INCH]	[MM]	MIN	MAX	MIN	MAX	TOOL NO.	ROLL NO.	TOOL NO.	ROLL NO.		[INCH]	[MM]
1	25,4	12	0,109	2,77	0,782	19,86	0,763	0,852	19,38	21,64	845-5	R-11-5	846-5	R-11-A-5	M-18-3/8	3/8	9,5
		13	0,095	2,41	0,810	20,57	0,791	0,880	20,09	22,35	847-5	R-13-5	848-5	R-13-A-5	M-18-3/8	3/8	9,5
		14	0,083	2,11	0,834	21,18	0,810	0,909	20,57	23,09	849-5	R-12-5	850-5	R-12-A-5	M-850-5	3/8	9,5
		15	0,072	1,83	0,856	21,74	0,837	0,936	21,26	23,77	851-5	R-14-5	852-5	R-14-A-5	M-852-5	3/8	9,5
		16	0,065	1,65	0,87	22,10	0,837	0,936	21,26	23,77	851-5	R-13-5	852-5	R-13-A-5	M-852-5	3/8	9,5
		17	0,058	1,47	0,884	22,45	0,865	0,964	21,97	24,49	855-5	R-13-5	856-5	R-13-A-5	M-856-5	3/8	9,5
		18	0,049	1,24	0,902	22,91	0,865	0,964	21,97	24,49	855-5	R-13-5	856-5	R-13-A-5	M-856-5	3/8	9,5
		19	0,042	1,07	0,916	23,27	0,865	0,964	21,97	24,49	855-5	R-13-5	856-5	R-13-A-5	M-856-5	3/8	9,5
		20	0,035	0,89	0,93	23,62	0,865	0,964	21,97	24,49	855-5	R-13-5	856-5	R-13-A-5	M-856-5	3/8	9,5
		21	0,032	0,81	0,936	23,77	0,883	0,982	22,43	24,94	857-5	R-15-5	858-5	R-15-A-5	M-21-3/8	3/8	9,5
		22	0,028	0,71	0,944	23,98	0,883	0,982	22,43	24,94	857-5	R-15-5	858-5	R-15-A-5	M-21-3/8	3/8	9,5
1-1/8	28,5	12	0,109	2,77	0,907	23,04	0,883	0,982	22,43	24,94	857-5	R-15-5	858-5	R-15-A-5	M-21-3/8	3/8	9,5
		13	0,095	2,41	0,935	23,75	0,916	1,015	23,27	25,78	859-5	R-16-5	860-5	R-16-A-5	M-860-5	1/2	12,7
		14	0,083	2,11	0,959	24,36	0,935	1,044	23,75	26,52	861-5	R-17-5	862-5	R-17-A-5	M-862-5	1/2	12,7
1-1/4	31,7	15	0,072	1,83	1,106	28,09	1,087	1,196	27,61	30,38	875-5	R-21-5	876-5	R-21-A-5	M-876-5	1/2	12,7
		16	0,065	1,65	1,120	28,45	1,087	1,196	27,61	30,38	875-5	R-21-5	876-5	R-21-A-5	M-876-5	1/2	12,7
		17	0,058	1,47	1,134	28,80	1,115	1,231	28,32	31,27	879-5	R-21-5	880-5	R-21-A-5	M-880-5	1/2	12,7
		18	0,049	1,24	1,152	29,26	1,115	1,231	28,32	31,27	879-5	R-21-5	880-5	R-21-A-5	M-880-5	1/2	12,7
		19	0,042	1,07	1,166	29,62	1,115	1,231	28,32	31,27	879-5	R-21-5	880-5	R-21-A-5	M-880-5	1/2	12,7
		20	0,035	0,89	1,180	29,97	1,115	1,231	28,32	31,27	879-5	R-21-5	880-5	R-21-A-5	M-880-5	1/2	12,7
		21	0,032	0,81	1,186	30,12	1,115	1,231	28,32	31,27	879-5	R-21-5	880-5	R-21-A-5	M-880-5	1/2	12,7
1-3/8	34,9	22	0,028	0,71	1,194	30,33	1,115	1,231	28,32	31,27	879-5	R-21-5	880-5	R-21-A-5	M-880-5	1/2	12,7
		12	0,109	2,77	1,157	29,39	1,133	1,242	28,78	31,55	881-5	R-21-5	882-5	R-21-A-5	M-882-5	1/2	12,7
1-1/2	38,1	14	0,083	2,11	1,209	30,71	1,179	1,294	29,95	32,87	885-5	R-23-5	886-5	R-23-A-5	M-882-5	1/2	12,7
		17	0,058	1,47	1,384	35,15	1,331	1,472	33,81	37,39	899-5	R-29-5	900-5	R-29-A-5	M-900-5	1/2	12,7
		18	0,049	1,24	1,402	35,61	1,331	1,472	33,81	37,39	899-5	R-29-5	900-5	R-29-A-5	M-900-5	1/2	12,7
		19	0,042	1,07	1,416	35,97	1,331	1,472	33,81	37,39	899-5	R-29-5	900-5	R-29-A-5	M-900-5	1/2	12,7
		20	0,035	0,89	1,430	36,32	1,331	1,472	33,81	37,39	899-5	R-29-5	900-5	R-29-A-5	M-900-5	1/2	12,7
		21	0,032	0,81	1,436	36,47	1,331	1,472	33,81	37,39	899-5	R-29-5	900-5	R-29-A-5	M-900-5	1/2	12,7
		22	0,028	0,71	1,444	36,68	1,331	1,472	33,81	37,39	899-5	R-29-5	900-5	R-29-A-5	M-900-5	1/2	12,7

Z-800-5 SERIES TUBE EXPANDER (5 Rolls)

Z-1200 SERIES TUBE EXPANDER

WORKING RANGE

FOR TUBE OUTER DIAMETER	FOR TUBES INTERNAL DIAMETER	FOR TUBE SHEET ADJUSTABLE RANGE
12.70 - 38.1 mm	8.4 - 36.3 mm	See Table Below
1/2" - 1.1/2"	0.334" - 1.027"	



ROLLERS FITTED WITH TUBE EXPANDERS	REACH	TUBE SHEET THICKNESS	
		MM	Inches
38.1 mm (1.1/2")	STD REACH	38.1 - 152.4 mm	1.1/2" - 6"
	A REACH	38.1 - 203.2 mm	1.1/2" - 8"
	B REACH	38.1 - 254.0 mm	1.1/2" - 10"
	C REACH	38.1 - 304.8 mm	1.1/2" - 12"
	D REACH	38.1 - 355.6 mm	1.1/2" - 4"
57.1 mm (2.1/4")	STD REACH	57.1 - 171.4 mm	1.1/2" - 6.3/4"
	A REACH	57.1 - 222.2 mm	1.1/2" - 8.3/4"
	B REACH	57.1 - 273.0 mm	1.1/2" - 10.3/4"
	C REACH	57.1 - 323.8 mm	1.1/2" - 12.3/4"
	D REACH	57.1 - 374.6 mm	1.1/2" - 4.3/4"

Expanders with 1.1/2" (38.1 mm) long rolls will accommodate tube sheet thicknesses from 1.1/2" to 6" (31.7 mm to 152.4 mm Std). Long Reach Expander is also available as per your desire length

Expanders with 2-1/4 in. (57.1 mm) long rolls will accommodate tube sheet thicknesses from 2.1/4" to 6" (57.1 mm to 171.4 mm Std). Long Reach Expander is also available as per your desire length

TUBE OD		TUBE GAUGE			TUBE ID		EXPANSION RANGE				TUBE SHEET THICKNESS				MANDREL	MANDREL SQUARE	
											1/2" TO 6"		2-1/4" TO 6-3/4"				
							[INCH]	[MM]	[BWG]	[INCH]	[MM]	[INCH]	[MM]	MIN			
3/8	9,5	22-24	0,027	0,71	0,314	8,00	0,307	0,358	7,80	9,10	1195	795	-	-	M-1195	3/8	9,5
1/2	12,7	14	0,083	2,11	0,334	8,48	0,324	0,374	8,23	9,50	1197	797	-	-	1197	3/8	9,5
		15	0,072	1,83	0,356	9,04	0,348	0,398	8,84	10,11	1199	R-1	-	-	1199	3/8	9,5
		16	0,065	1,65	0,370	9,40	0,36	0,41	9,14	10,41	1201	R-1	-	-	M-51	3/8	9,5
		17	0,058	1,47	0,384	9,75	0,374	0,424	9,50	10,77	1203	R-2	-	-	M-51	3/8	9,5
		18	0,049	1,24	0,402	10,21	0,392	0,447	9,96	11,35	1205	R-3	-	-	M-52	3/8	9,5
		20	0,035	0,89	0,430	10,92	0,406	0,461	10,31	11,71	1205[S]	R-3	-	-	M-53	3/8	9,5
5/8	15,8	12	0,109	2,77	0,407	10,34	0,392	0,447	9,96	11,35	1205	R-3	-	-	M-52	3/8	9,5
		13	0,095	2,41	0,435	11,05	0,425	0,480	10,80	12,19	1207	R-4	-	-	M-53	3/8	9,5
		14	0,083	2,11	0,459	11,66	0,449	0,509	11,40	12,93	1209	R-4	1210	R-4-A	M-54	3/8	9,5
		15	0,072	1,83	0,481	12,22	0,471	0,536	11,96	13,61	1211	R-5	1212	R-5A	M-55	3/8	9,5
		16	0,065	1,65	0,495	12,57	0,485	0,550	12,32	13,97	1213	R-6	1214	R-6A	M-55	3/8	9,5
		17	0,058	1,47	0,509	12,93	0,499	0,564	12,67	14,33	1215	R-6	1216	R-6A	M-56	3/8	9,5
		18	0,049	1,24	0,527	13,39	0,517	0,572	13,13	14,53	1217	R-7	1218	R-7-A	M-57	3/8	9,5
		19	0,042	1,07	0,541	13,74	0,522	0,582	13,26	14,78	1219	R-7	1220	R-7-A	M-56	3/8	9,5
		20	0,035	0,89	0,555	14,10	0,536	0,596	13,61	15,14	1219[S]	R-7	1220[S]	R-7-A	M-58	3/8	9,5
		21	0,032	0,81	0,561	14,25	0,536	0,596	13,61	15,14	1219[S]	R-7	1220[S]	R-7-A	M-58	3/8	9,5
		22	0,028	0,71	0,569	14,45	0,536	0,596	13,61	15,14	1219[S]	R-7	1220[S]	R-7-A	M-58	3/8	9,5

CONDENSOR TUBE EXPANDER

TUBE OD		TUBE GAUGE		TUBE ID		EXPANSION RANGE				TUBE SHEET THICKNESS				MANDREL	MANDREL SQUARE		
										1/2" TO 6"		2-1/4" TO 6-3/4"					
						[INCH]		[MM]		38,1 TO 152,4 MM		57,1 TO 171,4 MM					
[INCH]	[MM]	[BWG]	[INCH]	[MM]	[INCH]	[MM]	MIN	MAX	MIN	MAX	TOOL NO.	ROLL NO.	TOOL NO.	ROLL NO.		[INCH]	[MM]
3/4	19	10	0,134	3,40	0,482	12,24	0,471	0,536	11,96	13,61	1211	R-5	1212	R-5-A	M-55	3/8	9,5
		11	0,120	3,05	0,510	12,95	0,499	0,564	12,67	14,33	1215	R-6	1216	R-6-A	M-56	3/8	9,5
		12	0,109	2,77	0,532	13,51	0,522	0,582	13,26	14,78	1219	R-7	1220	R-7-A	M-56	3/8	9,5
		13	0,095	2,41	0,560	14,22	0,55	0,615	13,97	15,62	1221	R-8	1222	R-8-A	M-58	3/8	9,5
		14	0,083	2,11	0,584	14,83	0,574	0,639	14,58	16,23	1223	R-9	1224	R-9-A	M-58	3/8	9,5
		15	0,072	1,83	0,606	15,39	0,596	0,661	15,14	16,79	1225	R-10	1226	R-10-A	M-58	3/8	9,5
		16	0,065	1,65	0,620	15,75	0,605	0,685	15,37	17,40	1227	R-10	1228	R-10-A	M-59	3/8	9,5
		17	0,058	1,47	0,634	16,10	0,619	0,699	15,72	17,75	1229	R-11	1230	R-11-A	M-59	3/8	9,5
		18	0,049	1,24	0,652	16,56	0,619	0,699	15,72	17,75	1229	R-11	1230	R-11-A	M-59	3/8	9,5
		19	0,042	1,07	0,666	16,92	0,642	0,722	16,31	18,34	1231	R-12	1232	R-12-A	M-59	3/8	9,5
		20	0,035	0,89	0,680	17,27	0,642	0,722	16,31	18,34	1231	R-12	1232	R-12-A	M-59	3/8	9,5
		21	0,032	0,81	0,686	17,42	0,642	0,722	16,31	18,34	1231	R-12	1232	R-12-A	M-59	3/8	9,5
22	0,028	0,71	0,694	17,63	0,642	0,722	16,31	18,34	1231	R-12	1232	R-12-A	M-59	3/8	9,5		
7/8	22,2	10	0,134	3,40	0,607	15,42	0,596	0,661	15,14	16,79	1225	R-10	1226	R-10-A	M-58	3/8	9,5
		11	0,120	3,05	0,635	16,13	0,619	0,699	15,72	17,75	1229	R-11	1230	R-11-A	M-59	3/8	9,5
		12	0,109	2,77	0,657	16,69	0,642	0,722	16,31	18,34	1231	R-12	1232	R-12-A	M-59	3/8	9,5
		13	0,095	2,41	0,685	17,40	0,67	0,750	17,02	19,05	1233	R-13	1234	R-13-A	M-60	3/8	9,5
		14	0,083	2,11	0,709	18,01	0,685	0,774	17,40	19,66	1235	R-14	1236	R-14-A	M-61	3/8	9,5
		15	0,072	1,83	0,731	18,57	0,712	0,801	18,08	20,35	1237	R-15	1238	R-15-A	M-61	3/8	9,5
		16	0,065	1,65	0,745	18,92	0,726	0,815	18,44	20,70	1239	R-15	1240	R-15-A	M-62	3/8	9,5
		17	0,058	1,47	0,759	19,28	0,740	0,829	18,80	21,06	1243	R-16	1244	R-16-A	M-62	3/8	9,5
18	0,049	1,24	0,777	19,74	0,740	0,829	18,80	21,06	1243	R-16	1244	R-16-A	M-62	3/8	9,5		
1	25,4	8	0,165	4,19	0,670	17,02	0,655	0,735	16,64	18,67	1241	R-13	1242	R-13-A	M-59	3/8	9,5
		9	0,148	3,76	0,704	17,88	0,685	0,774	17,40	19,66	1235	R-14	1236	R-14-A	M-61	3/8	9,5
		10	0,134	3,40	0,732	18,59	0,712	0,801	18,08	20,35	1237	R-15	1238	R-15-A	M-61	3/8	9,5
		11	0,120	3,05	0,760	19,30	0,740	0,829	18,80	21,06	1243	R-16	1244	R-16-A	M-62	3/8	9,5
		12	0,109	2,77	0,782	19,86	0,763	0,852	19,38	21,64	1245	R-17	1246	R-17-A	M-62	3/8	9,5
		13	0,095	2,41	0,810	20,57	0,791	0,880	20,09	22,35	1247	R-18	1248	R-18-A	M-62	3/8	9,5
		14	0,083	2,11	0,834	21,18	0,810	0,909	20,57	23,09	1249	R-18	1250	R-18-A	M-63	3/8	9,5
		15	0,072	1,83	0,856	21,74	0,837	0,936	21,26	23,77	1251	R-19	1252	R-19-A	M-63	3/8	9,5
		16	0,065	1,65	0,870	22,10	0,837	0,936	21,26	23,77	1251	R-19	1252	R-19-A	M-63	3/8	9,5
		17	0,058	1,47	0,884	22,45	0,865	0,964	21,97	24,49	1255	R-21	1256	R-21-A	M-63	3/8	9,5
		18	0,049	1,24	0,902	22,91	0,865	0,964	21,97	24,49	1255	R-21	1256	R-21-A	M-63	3/8	9,5
		19	0,042	1,07	0,916	23,27	0,865	0,964	21,97	24,49	1255	R-21	1256	R-21-A	M-63	3/8	9,5
20	0,035	0,89	0,930	23,62	0,865	0,964	21,97	24,49	1255	R-21	1256	R-21-A	M-63	3/8	9,5		
1-1/8	28,5	8	0,165	4,19	0,795	20,19	0,776	0,875	19,71	22,23	1253	R-20	1254	R-20-A	M-63	3/8	9,5
		9	0,148	3,76	0,829	21,06	0,810	0,909	20,57	23,09	1249	R-18	1250	R-18-A	M-63	3/8	9,5
		10	0,134	3,40	0,857	21,77	0,837	0,936	21,26	23,77	1251	R-19	1252	R-19-A	M-63	3/8	9,5
		11	0,120	3,05	0,885	22,48	0,865	0,964	21,97	24,49	1255	R-21	1256	R-21-A	M-63	3/8	9,5
		12	0,109	2,77	0,907	23,04	0,883	0,982	22,43	24,94	1257	R-21	1258	R-21-A	M-64	1/2	12,7
		13	0,095	2,41	0,935	23,75	0,916	1,015	23,27	25,78	1259	R-22	1260	R-22-A	M-64	1/2	12,7
		14	0,083	2,11	0,959	24,36	0,935	1,044	23,75	26,52	1261	R-23	1262	R-23-A	M-65	1/2	12,7
		15	0,072	1,83	0,981	24,92	0,962	1,071	24,43	27,20	1263	R-24	1264	R-24-A	M-65	1/2	12,7
		16	0,065	1,65	0,995	25,27	0,962	1,071	24,43	27,20	1263	R-24	1264	R-24-A	M-65	1/2	12,7
		17	0,058	1,47	1,009	25,63	0,990	1,099	25,15	27,91	1267	R-26	1268	R-26-A	M-66	1/2	12,7
18	0,049	1,24	1,027	26,09	0,990	1,099	25,15	27,91	1267	R-26	1268	R-26-A	M-66	1/2	12,7		

CONDENSOR TUBE EXPANDER

TUBE OD		TUBE GAUGE			TUBE ID		EXPANSION RANGE				TUBE SHEET THICKNESS				MANDREL	MANDREL SQUARE	
											1/2" TO 6"		2-1/4" TO 6-3/4"				
							[INCH]		[MM]		38,1 TO 152,4 MM		57,1 TO 171,4 MM				
[INCH]	[MM]	[BWG]	[INCH]	[MM]	[INCH]	[MM]	MIN	MAX	MIN	MAX	TOOL NO.	ROLL NO.	TOOL NO.	ROLL NO.		[INCH]	[MM]
1-1/4	31,7	8	0,165	4,19	0,92	23,37	0,901	1,010	22,89	25,65	1265	R-25	1266	R-25-A	M-65	1/2	12,7
		9	0,148	3,76	0,954	24,23	0,935	1,044	23,75	26,52	1261	R-23	1262	R-23-A	M-65	1/2	12,7
		10	0,134	3,40	0,982	24,94	0,962	1,071	24,43	27,20	1263	R-24	1264	R-24-A	M-65	1/2	12,7
		11	0,120	3,05	1,010	25,65	0,990	1,099	25,15	27,91	1267	R-26	1268	R-26-A	M-66	1/2	12,7
		12	0,109	2,77	1,032	26,21	1,013	1,122	25,73	28,50	1269	R-27	1270	R-27-A	M-66	1/2	12,7
		13	0,095	2,41	1,060	26,92	1,041	1,150	26,44	29,21	1271	R-28	1272	R-28-A	M-67	1/2	12,7
		14	0,083	2,11	1,084	27,53	1,060	1,169	26,92	29,69	1273	R-29	1274	R-29-A	M-67	1/2	12,7
		15	0,072	1,83	1,106	28,09	1,087	1,196	27,61	30,38	1275	R-30	1276	R-30-A	M-67	1/2	12,7
		16	0,065	1,65	1,12	28,45	1,087	1,196	27,61	30,38	1275	R-30	1276	R-30-A	M-67	1/2	12,7
		17	0,058	1,47	1,134	28,80	1,115	1,224	28,32	31,09	1279	R-30	1280	R-30-A	M-68	1/2	12,7
		18	0,049	1,24	1,152	29,26	1,115	1,224	28,32	31,09	1279	R-30	1280	R-30-A	M-68	1/2	12,7
1-3/8	34,9	8	0,165	4,19	1,045	26,54	1,026	1,135	26,06	28,83	1277	R-31	1278	R-31-A	M-67	1/2	12,7
		9	0,148	3,76	1,079	27,41	1,060	1,169	26,92	29,69	1273	R-29	1274	R-29-A	M-67	1/2	12,7
		10	0,134	3,40	1,107	28,12	1,087	1,196	27,61	30,38	1275	R-30	1276	R-30-A	M-67	1/2	12,7
		11	0,120	3,05	1,135	28,83	1,115	1,224	28,32	31,09	1279	R-30	1280	R-30-A	M-68	1/2	12,7
		12	0,109	2,77	1,157	29,39	1,133	1,242	28,78	31,55	1281	R-32	1282	R-32-A	M-68	1/2	12,7
		13	0,095	2,41	1,185	30,10	1,160	1,275	29,46	32,39	1283	R-33	1284	R-33-A	M-69	1/2	12,7
		14	0,083	2,11	1,209	30,71	1,179	1,294	29,95	32,87	1285	R-34	1286	R-34-A	M-70	1/2	12,7
		15	0,072	1,83	1,231	31,27	1,206	1,321	30,63	33,55	1287	R-35	1288	R-35-A	M-70	1/2	12,7
16	0,065	1,65	1,245	31,62	1,206	1,321	30,63	33,55	1287	R-35	1288	R-35-A	M-70	1/2	12,7		
1-1/2	38,1	8	0,165	4,19	1,170	29,72	1,145	1,260	29,08	32,00	1289	R-34	1290	R-34-A	M-69	1/2	12,7
		9	0,148	3,76	1,204	30,58	1,145	1,294	29,08	32,87	1285	R-34	1286	R-34-A	M-70	1/2	12,7
		10	0,134	3,40	1,232	31,29	1,206	1,321	30,63	33,55	1287	R-35	1288	R-35-A	M-70	1/2	12,7
		11	0,120	3,05	1,260	32,00	1,235	1,350	31,37	34,29	1291	R-36	1292	R-36-A	M-70	1/2	12,7
		12	0,109	2,77	1,282	32,56	1,257	1,372	31,93	34,85	1293	R-37	1294	R-37-A	M-70	1/2	12,7
		13	0,095	2,41	1,310	33,27	1,285	1,400	32,64	35,56	1295	R-37	1296	R-37-A	M-71	1/2	12,7
		14	0,083	2,11	1,334	33,88	1,285	1,400	32,64	35,56	1295	R-37	1296	R-37-A	M-71	1/2	12,7
		15	0,072	1,83	1,356	34,44	1,331	1,446	33,81	36,73	1297	R-38	1298	R-38-A	M-71	1/2	12,7
		16	0,065	1,65	1,370	34,80	1,331	1,446	33,81	36,73	1297	R-38	1298	R-38-A	M-71	1/2	12,7
		17	0,058	1,47	1,384	35,15	1,331	1,472	33,81	37,39	1299	R-38	1300	R-38-A	M-72	1/2	12,7
		18	0,049	1,24	1,402	35,61	1,331	1,472	33,81	37,39	1299	R-38	1300	R-38-A	M-72	1/2	12,7
		19	0,042	1,07	1,416	35,97	1,331	1,472	33,81	37,39	1299	R-38	1300	R-38-A	M-72	1/2	12,7
20	0,035	0,89	1,430	36,32	1,331	1,472	33,81	37,39	1299	R-38	1300	R-38-A	M-72	1/2	12,7		

Z-1200 SERIES TUBE EXPANDER

CONDENSOR TUBE EXPANDER

Z-1200-5 SERIES TUBE EXPANDER (5 ROLLS)

WORKING RANGE

FOR TUBE OUTER DIAMETER	FOR TUBES INTERNAL DIAMETER	FOR TUBE SHEET ADJUSTABLE RANGE
15.8 - 38.10 mm	12.9 - 36.7 mm	See Table Below
5/8"-1.1/2"	0.509" - 1.44"	



ROLLERS FITTED WITH TUBE EXPANDERS	REACH	TUBE SHEET THICKNESS	
		MM	Inches
38.1 mm (1.1/2")	STD REACH	38.1 - 152.4 mm	1.1/2" - 6"
	A REACH	38.1 - 203.2 mm	1.1/2" - 8"
	B REACH	38.1 - 254.0 mm	1.1/2" - 10"
	C REACH	38.1 - 304.8 mm	1.1/2" - 12"
	D REACH	38.1 - 355.6 mm	1.1/2" - 4"
57.1 mm (2.1/4")	STD REACH	57.1 - 171.4 mm	1.1/2" - 6.3/4"
	A REACH	57.1 - 222.2 mm	1.1/2" - 8.3/4"
	B REACH	57.1 - 273.0 mm	1.1/2" - 10.3/4"
	C REACH	57.1 - 323.8 mm	1.1/2" - 12.3/4"
	D REACH	57.1 - 374.6 mm	1.1/2" - 4.3/4"

Z-1200-5 Rollers Tube Expanders are highly recommended for use on thin-walled tubes (19 thru 22 Gauge Walls) of Stainless Steel, Titanium, Nicolay and other exotic Materials.

Expanders are available in regular and long reaches (Some diameters, up to 5 mm) and as the 3 rolls version. Many different shaped rolls are available.

TUBE OD		TUBE GAUGE			TUBE ID		EXPANSION RANGE				TUBE SHEET THICKNESS				MANDREL
											1/2" TO 6"		2-1/4" TO 6-3/4"		
							[INCH]		[MM]		38,1 TO 152,4 MM		57,1 TO 171,4 MM		
[INCH]	[MM]	[BWG]	[INCH]	[MM]	[INCH]	[MM]	MIN	MAX	MIN	MAX	TOOL NO.	ROLL NO.	TOOL NO.	ROLL NO.	
5/8	15,8	17	0,058	1,47	0,509	12,93	0,499	0,564	12,67	14,33	1215-5	R-4-5	1216-5	R-4-A-5	M-1216-5
		18	0,049	1,24	0,527	13,39	0,517	0,572	13,13	14,53	1217-5	R-4-5	1218-5	R-4-A-5	M-59
		19	0,042	1,07	0,541	13,74	0,522	0,582	13,26	14,78	1219-5	R-4-5	1220-5	R-4-A-5	M-1220-5
		20	0,035	0,89	0,555	14,10	0,536	0,596	13,61	15,14	1219-5[S]	R-4-5	1220-5[S]	R-4-A-5	M-1220-5[S]
		21	0,032	0,81	0,561	14,25	0,536	0,596	13,61	15,14	1219-5[S]	R-4-5	1220-5[S]	R-4-A-5	M-1220-5[S]
		22	0,028	0,71	0,569	14,45	0,536	0,596	13,61	15,14	1219-5[S]	R-4-5	1220-5[S]	R-4-A-5	M-1220-5[S]
3/4	19,0	13	0,095	2,41	0,560	14,22	0,550	0,615	13,97	15,62	1221-5	R-5-5	1222-5	R-5-A-5	M-1222-5
		14	0,083	2,11	0,584	14,83	0,574	0,639	14,58	16,23	1223-5	R-6-5	1224-5	R-6-A-5	M-1224-5
		15	0,072	1,83	0,606	15,39	0,590	0,661	14,99	16,79	1225-5	R-7-5	1226-5	R-7-A-5	M-1226-5
3/4	19,0	16	0,065	1,65	0,620	15,75	0,605	0,685	15,37	17,40	1227-5	R-7-5	1228-5	R-7-A-5	M-63
		17	0,058	1,47	0,634	16,10	0,619	0,699	15,72	17,75	1229-5	R-7-5	1230-5	R-7-A-5	M-1230-5
		18	0,049	1,24	0,652	16,56	0,619	0,699	15,72	17,75	1229-5	R-7-5	1230-5	R-7-A-5	M-1230-5
		19	0,042	1,07	0,666	16,92	0,642	0,722	16,31	18,34	1231-5	R-9-5	1232-5	R-9-A-5	M-63
		20	0,035	0,89	0,680	17,27	0,642	0,722	16,31	18,34	1231-5	R-9-5	1232-5	R-9-A-5	M-63
		21	0,032	0,81	0,686	17,42	0,642	0,722	16,31	18,34	1231-5	R-9-5	1232-5	R-9-A-5	M-63
		22	0,028	0,71	0,694	17,63	0,642	0,722	16,31	18,34	1231-5	R-9-5	1232-5	R-9-A-5	M-63

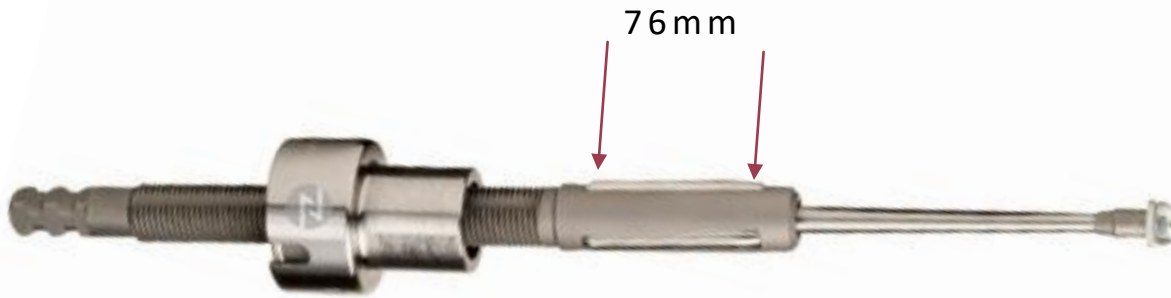
CONDENSOR TUBE EXPANDER

TUBE OD		TUBE GAUGE		TUBE ID		EXPANSION RANGE				TUBE SHEET THICKNESS				MANDREL	MANDREL SQUARE		
										1/2" TO 6"		2-1/4" TO 6-3/4"					
						[INCH]	[MM]	[INCH]	[MM]	[INCH]	[MM]	MIN	MAX		MIN	MAX	TOOL NO.
7/8	22,2	13	0,095	2,41	0,685	17,40	0,670	0,750	17,02	19,05	1233-5	R-9-5	1234-5	R-9-A-5	M-64-3/8	3/8	9,5
		14	0,083	2,11	0,709	18,01	0,685	0,774	17,40	19,66	1235-5	R-10-5	1236-5	R-10-A-5	M-65	3/8	9,5
		16	0,065	1,65	0,745	18,92	0,726	0,815	18,44	20,70	1239-5	R-11-5	1240-5	R-11-A-5	M-1240-5	3/8	9,5
		17	0,058	1,47	0,759	19,28	0,740	0,829	18,80	21,06	1243-5	R-11-5	1244-5	R-11-A-5	M-67-3/8	3/8	9,5
		18	0,049	1,24	0,777	19,74	0,740	0,829	18,80	21,06	1243-5	R-11-5	1244-5	R-11-A-5	M-67-3/8	3/8	9,5
		19	0,042	1,07	0,791	20,09	0,763	0,852	19,38	21,64	1245-5	R-11-5	1246-5	R-11-A-5	M-68-3/8	3/8	9,5
		20	0,035	0,89	0,805	20,45	0,763	0,852	19,38	21,64	1245-5	R-11-5	1246-5	R-11-A-5	M-68-3/8	3/8	9,5
		21	0,032	0,81	0,811	20,60	0,763	0,852	19,38	21,64	1245-5	R-11-5	1246-5	R-11-A-5	M-68-3/8	3/8	9,5
		22	0,028	0,71	0,819	20,80	0,763	0,852	19,38	21,64	1245-5	R-11-5	1246-5	R-11-A-5	M-68-3/8	3/8	9,5
1	25,4	12	0,109	2,77	0,782	19,86	0,763	0,852	19,38	21,64	1245-5	R-11-5	1246-5	R-11-A-5	M-68-3/8	3/8	9,5
		13	0,095	2,41	0,810	20,57	0,791	0,880	20,09	22,35	1247-5	R-13-5	1248-5	R-13-A-5	M-68-3/8	3/8	9,5
		14	0,083	2,11	0,834	21,18	0,810	0,909	20,57	23,09	1249-5	R-12-5	1250-5	R-12-A-5	M-1250-5	3/8	9,5
		15	0,072	1,83	0,856	21,74	0,837	0,936	21,26	23,77	1251-5	R-14-5	1252-5	R-14-A-5	M-1252-5	3/8	9,5
		16	0,065	1,65	0,87	22,10	0,837	0,936	21,26	23,77	1251-5	R-14-5	1252-5	R-14-A-5	M-1252-5	3/8	9,5
		17	0,058	1,47	0,884	22,45	0,865	0,964	21,97	24,49	1255-5	R-13-5	1256-5	R-13-A-5	M-1256-5	3/8	9,5
		18	0,049	1,24	0,902	22,91	0,865	0,964	21,97	24,49	1255-5	R-13-5	1256-5	R-13-A-5	M-1256-5	3/8	9,5
		19	0,042	1,07	0,916	23,27	0,865	0,964	21,97	24,49	1255-5	R-13-5	1256-5	R-13-A-5	M-1256-5	3/8	9,5
		20	0,035	0,89	0,93	23,62	0,865	0,964	21,97	24,49	1255-5	R-13-5	1256-5	R-13-A-5	M-1256-5	3/8	9,5
		21	0,032	0,81	0,936	23,77	0,883	0,982	22,43	24,94	1257-5	R-15-5	1258-5	R-15-A-5	M-71-3/8	3/8	9,5
		22	0,028	0,71	0,944	23,98	0,883	0,982	22,43	24,94	1257-5	R-15-5	1258-5	R-15-A-5	M-71-3/8	3/8	9,5
1-1/8	28,5	12	0,109	2,77	0,907	23,04	0,883	0,982	22,43	24,94	1257-5	R-15-5	1258-5	R-15-A-5	M-71-3/8	3/8	9,5
		13	0,095	2,41	0,935	23,75	0,916	1,015	23,27	25,78	1259-5	R-16-5	1260-5	R-16-A-5	M-1260-5	1/2	12,7
		14	0,083	2,11	0,959	24,36	0,935	1,044	23,75	26,52	1261-5	R-17-5	1262-5	R-17-A-5	M-1262-5	1/2	12,7
1-1/4	31,7	15	0,072	1,83	1,106	28,09	1,087	1,196	27,61	30,38	1275-5	R-21-5	1276-5	R-21-A-5	M-1276-5	1/2	12,7
		16	0,065	1,65	1,120	28,45	1,087	1,196	27,61	30,38	1275-5	R-21-5	1276-5	R-21-A-5	M-1276-5	1/2	12,7
		17	0,058	1,47	1,134	28,80	1,115	1,231	28,32	31,27	1279-5	R-21-5	1280-5	R-21-A-5	M-1280-5	1/2	12,7
		18	0,049	1,24	1,152	29,26	1,115	1,231	28,32	31,27	1279-5	R-21-5	1280-5	R-21-A-5	M-1280-5	1/2	12,7
		19	0,042	1,07	1,166	29,62	1,115	1,231	28,32	31,27	1279-5	R-21-5	1280-5	R-21-A-5	M-1280-5	1/2	12,7
		20	0,035	0,89	1,180	29,97	1,115	1,231	28,32	31,27	1279-5	R-21-5	1280-5	R-21-A-5	M-1280-5	1/2	12,7
		21	0,032	0,81	1,186	30,12	1,115	1,231	28,32	31,27	1279-5	R-21-5	1280-5	R-21-A-5	M-1280-5	1/2	12,7
		22	0,028	0,71	1,194	30,33	1,115	1,231	28,32	31,27	1279-5	R-21-5	1280-5	R-21-A-5	M-1280-5	1/2	12,7
1-3/8	34,9	12	0,109	2,77	1,157	29,39	1,133	1,242	28,78	31,55	1281-5	R-21-5	1282-5	R-21-A-5	M-1282-5	1/2	12,7
		14	0,083	2,11	1,209	30,71	1,179	1,294	29,95	32,87	1285-5	R-23-5	1286-5	R-23-A-5	M-1282-5	1/2	12,7
1-1/2	38,1	17	0,058	1,47	1,384	35,15	1,331	1,472	33,81	37,39	1299-5	R-29-5	1300-5	R-29-A-5	M-1300-5	1/2	12,7
		18	0,049	1,24	1,402	35,61	1,331	1,472	33,81	37,39	1299-5	R-29-5	1300-5	R-29-A-5	M-1300-5	1/2	12,7
		19	0,042	1,07	1,416	35,97	1,331	1,472	33,81	37,39	1299-5	R-29-5	1300-5	R-29-A-5	M-1300-5	1/2	12,7
		20	0,035	0,89	1,430	36,32	1,331	1,472	33,81	37,39	1299-5	R-29-5	1300-5	R-29-A-5	M-1300-5	1/2	12,7
		21	0,032	0,81	1,436	36,47	1,331	1,472	33,81	37,39	1299-5	R-29-5	1300-5	R-29-A-5	M-1300-5	1/2	12,7
		22	0,028	0,71	1,444	36,68	1,331	1,472	33,81	37,39	1299-5	R-29-5	1300-5	R-29-A-5	M-1300-5	1/2	12,7

Z-1200-5 SERIES TUBE EXPANDER (5 ROLLS)

INDIA FIRST '76 MM' ROLLING LENGTH SERIES TUBE EXPANDER - *Z-76 SERIES*

3" Long Rolls have Maximum Effective Length of 2.1/2" (57.1mm) in Single shot Expansion.



TUBE EXPANSION RANGE				TUBE SHEET THICKNESS		MANDREL MODEL	MANDREL SQUARE	
				5/8" TO 3"				
[INCH]		MM		15,8 TO 76 MM				
MIN	MAX	MIN	MAX	TOOL NO	ROLL NO	INCH	MM	
0.614	0.669	15.6	17	761	R-76-1	M-76-1	3/8	9.5
0.646	0.709	16.4	18	762	R-76-2	M-76-2	3/8	9.5
0.673	0.740	17.1	18.8	763	R-76-3	M-76-3	3/8	9.5
0.705	0.772	17.9	19.6	764	R-76-4	M-76-4	3/8	9.5
0.736	0.811	18.7	20.6	765	R-76-5	M-76-5	3/8	9.5
0.768	0.843	19.5	21.4	766	R-76-6	M-76-6	3/8	9.5
0.799	0.870	20.3	22.1	767	R-76-7	M-76-7	3/8	9.5
0.831	0.902	21.1	22.9	768	R-76-8	M-76-8	3/8	9.5
0.846	0.937	21.5	23.8	769	R-76-9	M-76-9	1/2	12.7
0.878	0.969	22.3	24.6	770	R-76-10	M-76-10	1/2	12.7
0.909	1.000	23.1	25.4	771	R-76-11	M-76-11	1/2	12.7
0.941	1.031	23.9	26.2	772	R-76-12	M-76-12	1/2	12.7
0.972	1.063	24.7	27	773	R-76-13	M-76-13	1/2	12.7
1.004	1.110	25.5	28.2	774	R-76-14	M-76-14	1/2	12.7
1.035	1.142	26.3	29	775	R-76-15	M-76-15	1/2	12.7
1.067	1.173	27.1	29.8	776	R-76-16	M-76-16	1/2	12.7
1.098	1.205	27.9	30.6	777	R-76-17	M-76-17	1/2	12.7
1.130	1.236	28.7	31.4	778	R-76-18	M-76-18	1/2	12.7
1.161	1.283	29.5	32.6	779	R-76-19	M-76-19	1/2	12.7
1.193	1.315	30.3	33.4	780	R-76-20	M-76-20	1/2	12.7
1.224	1.346	31.1	34.2	781	R-76-21	M-76-21	1/2	12.7
1.256	1.378	31.9	35	782	R-76-22	M-76-22	1/2	12.7
1.283	1.406	32.6	35.7	783	R-76-23	M-76-23	1/2	12.7
1.315	1.437	33.4	36.5	784	R-76-24	M-76-24	1/2	12.7
1.382	1.531	35.1	38.9	785	R-76-25	M-76-25	3/4	19.0
1.441	1.594	36.6	40.5	786	R-76-26	M-76-26	3/4	19.0
1.504	1.657	38.2	42.1	787	R-76-27	M-76-27	3/4	19.0

CONDENSOR TUBE EXPANDER

Z-8012 SERIES TUBE EXPANDER

WORKING RANGE

FOR TUBE OUTER DIAMETER	FOR TUBES INTERNAL DIAMETER	FOR TUBE SHEET ADJUSTABLE RANGE
44.4 - 76.2 mm	36.07 - 73.72	38.1 - 101.6 mm
1.3/4"-3"	1.42"-2.9"	1.1/2"-4"



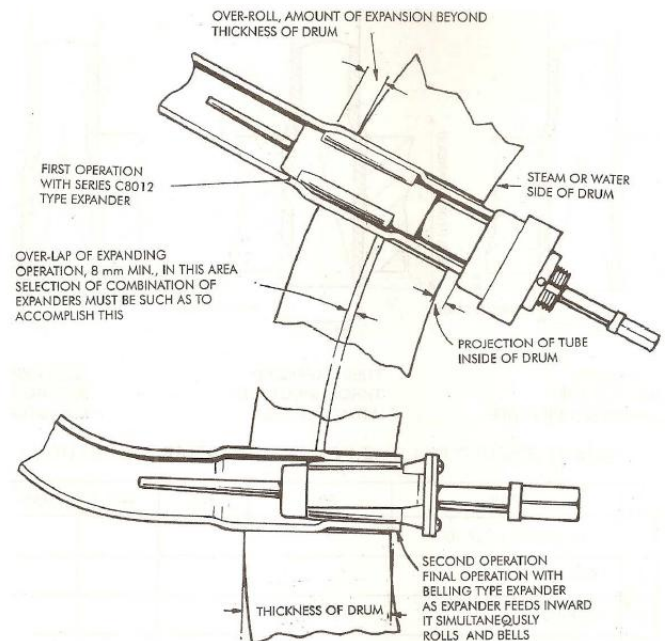
TUBE OD		TUBE GAUGE			TUBE ID		EXPANSION RANGE				TOOL NO.	ROLL NO.	MANDREL	MANDREL
[INCH]	[MM]	[BWG]	[INCH]	[MM]	[INCH]	[MM]	[INCH]		[MM]					
[INCH]	[MM]	[BWG]	[INCH]	[MM]	[INCH]	[MM]	MIN	MAX	MIN	MAX				[INCH]
1-3/4	44,4	8	0,165	4,19	1,42	36,07	1,368	1,55	34,75	39,37	8012-1-3/4-8	R-33-A	M-90	3/4
		10	0,134	3,40	1,482	37,64	1,420	1,607	36,07	40,82	8012-1-3/4-10	R-37-A	M-90	3/4
		11	0,120	3,05	1,510	38,35	1,454	1,635	36,93	41,53	8012-1-3/4-11	R-42	M-90	3/4
		12	0,109	2,77	1,532	38,91	1,482	1,657	37,64	42,09	8012-1-3/4-12	R-44	M-90	3/4
		13	0,095	2,41	1,560	39,62	1,510	1,685	38,35	42,80	8012-1-3/4-13	R-46	M-90	3/4
		14	0,083	2,11	1,584	40,23	1,532	1,709	38,91	43,41	8012-1-3/4-14	R-48	M-90	3/4
2	50,8	8	0,165	4,19	1,670	42,42	1,595	1,795	40,51	45,59	8012-2-8	R-48	M-91	3/4
		10	0,134	3,40	1,732	43,99	1,640	1,857	41,66	47,17	8012-2-10	R-50	M-91	3/4
		11	0,120	3,05	1,760	44,70	1,670	1,885	42,42	47,88	8012-2-11	R-52	M-91	3/4
		12	0,109	2,77	1,782	45,26	1,704	1,907	43,28	48,44	8012-2-12	R-54	M-91	3/4
		13	0,095	2,41	1,810	45,97	1,732	1,956	43,99	49,68	8012-2-13-18	R-56	M-91	3/4
		14	0,083	2,11	1,834	46,58	1,732	1,956	43,99	49,68	8012-2-13-18	R-56	M-91	3/4
		15	0,072	1,83	1,856	47,14	1,732	1,956	43,99	49,68	8012-2-13-18	R-56	M-91	3/4
		16	0,065	1,65	1,870	47,50	1,732	1,956	43,99	49,68	8012-2-13-18	R-56	M-91	3/4
		17	0,058	1,47	1,884	47,85	1,732	1,956	43,99	49,68	8012-2-13-18	R-56	M-91	3/4
		18	0,049	1,24	1,902	48,31	1,732	1,956	43,99	49,68	8012-2-13-18	R-56	M-91	3/4
2-1/4	57,1	10	0,134	3,40	1,982	50,34	1,890	2,107	48,01	53,52	8012-2-1/4-10	R-56	M-92	3/4
		11	0,120	3,05	2,010	51,05	1,920	2,135	48,77	54,23	8012-2-1/4-11	R-58	M-92	3/4
		12	0,109	2,77	2,032	51,61	1,954	2,157	49,63	54,79	8012-2-1/4-12	R-60	M-92	3/4
		13	0,095	2,41	2,060	52,32	1,982	2,185	50,34	55,50	8012-2-1/4-13-16	R-62	M-92	3/4
		14	0,083	2,11	2,084	52,93	1,982	2,185	50,34	55,50	8012-2-1/4-13-16	R-62	M-92	3/4
		15	0,072	1,83	2,106	53,49	1,982	2,185	50,34	55,50	8012-2-1/4-13-16	R-62	M-92	3/4
		16	0,065	1,65	2,120	53,85	1,982	2,185	50,34	55,50	8012-2-1/4-13-16	R-62	M-92	3/4
2-1/2	63,5	10	0,134	3,40	2,232	56,69	2,140	2,407	54,36	61,14	8012-2-1/2-10-12	R-64	M-93	3/4
		11	0,120	3,05	2,260	57,40	2,140	2,407	54,36	61,14	8012-2-1/2-10-12	R-64	M-93	3/4
		12	0,109	2,77	2,282	57,96	2,140	2,407	54,36	61,14	8012-2-1/2-10-12	R-64	M-93	3/4
		13	0,095	2,41	2,310	58,67	2,232	2,450	56,69	62,23	8012-2-1/2-13-18	R-64	M-94	3/4
		14	0,083	2,11	2,334	59,28	2,232	2,450	56,69	62,23	8012-2-1/2-13-18	R-64	M-94	3/4
		15	0,072	1,83	2,356	59,84	2,232	2,450	56,69	62,23	8012-2-1/2-13-18	R-64	M-94	3/4
		16	0,065	1,65	2,370	60,20	2,232	2,450	56,69	62,23	8012-2-1/2-13-18	R-64	M-94	3/4
		17	0,058	1,47	2,384	60,55	2,232	2,450	56,69	62,23	8012-2-1/2-13-18	R-64	M-94	3/4
		18	0,049	1,24	2,402	61,01	2,232	2,450	56,69	62,23	8012-2-1/2-13-18	R-64	M-94	3/4

CONDENSOR TUBE EXPANDER

TUBE OD		TUBE GAUGE			TUBE ID		EXPANSION RANGE				TOOL NO.	ROLL NO.	MANDREL	MANDREL
[INCH]	[MM]	[BWG]	[INCH]	[MM]	[INCH]	[MM]	[INCH]		[MM]					[INCH]
2-3/4	69,8	10	0,134	3,40	2,482	63,04	2,390	2,702	60,71	68,63	8012-2-3/4-10-16	R-66	M-96	1
		11	0,120	3,05	2,510	63,75	2,390	2,702	60,71	68,63	8012-2-3/4-10-16	R-66	M-96	1
		12	0,109	2,77	2,532	64,31	2,390	2,702	60,71	68,63	8012-2-3/4-10-16	R-66	M-96	1
		13	0,095	2,41	2,560	65,02	2,390	2,702	60,71	68,63	8012-2-3/4-10-16	R-66	M-96	1
		14	0,083	2,11	2,584	65,63	2,390	2,702	60,71	68,63	8012-2-3/4-10-16	R-66	M-96	1
		15	0,072	1,83	2,606	66,19	2,390	2,702	60,71	68,63	8012-2-3/4-10-16	R-66	M-96	1
		16	0,065	1,65	2,620	66,55	2,390	2,702	60,71	68,63	8012-2-3/4-10-16	R-66	M-96	1
3	76,2	8	0,165	4,19	2,670	67,82	2,560	2,829	65,02	71,86	8012-3-8-9	R-67	M-97	1
		9	0,148	3,76	2,704	68,68	2,560	2,829	65,02	71,86	8012-3-8-9	R-67	M-97	1
		10	0,134	3,40	2,732	69,39	2,640	2,952	67,06	74,98	8012-3-10-18	R-67	M-96	1
		11	0,120	3,05	2,760	70,10	2,640	2,952	67,06	74,98	8012-3-10-18	R-67	M-96	1
		12	0,109	2,77	2,782	70,66	2,640	2,952	67,06	74,98	8012-3-10-18	R-67	M-96	1
		13	0,095	2,41	2,810	71,37	2,640	2,952	67,06	74,98	8012-3-10-18	R-67	M-96	1
		14	0,083	2,11	2,834	71,98	2,640	2,952	67,06	74,98	8012-3-10-18	R-67	M-96	1
		15	0,072	1,83	2,856	72,54	2,640	2,952	67,06	74,98	8012-3-10-18	R-67	M-96	1
		16	0,065	1,65	2,870	72,90	2,640	2,952	67,06	74,98	8012-3-10-18	R-67	M-96	1
		17	0,058	1,47	2,884	73,25	2,640	2,952	67,06	74,98	8012-3-10-18	R-67	M-96	1
		18	0,049	1,24	2,902	73,72	2,640	2,952	67,06	74,98	8012-3-10-18	R-67	M-96	1

TO EXPAND TUBE IN AIR HEATERS,
BOILERS AND REFINERY STILL TUBES.
CAN BE USED TO EXPAND THICK TUBES
SHEETS UP TO 8"

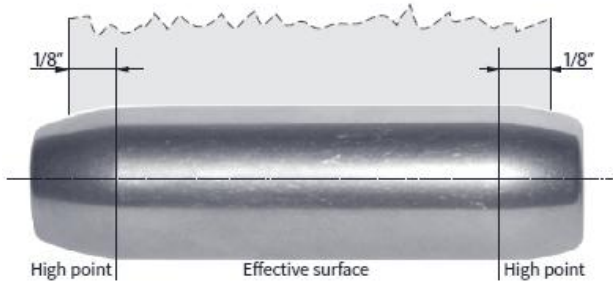
SIDE IMAGE IS OF TUBE EXPANSION
AND BELLMOUTHING IN TWO STAGES
IN DRUMS OF THICKNESS OVER 65 MM



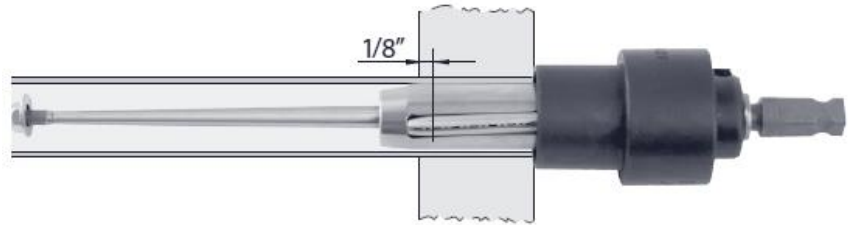
CONDENSOR TUBE EXPANDER

Note : 1.1/2" Long Rolls have maximum Effective Length of 1" (25.4mm), 2.1/4" (57.1mm) rolls have Maximum Effective Length of 1.3/4" (44.45mm)

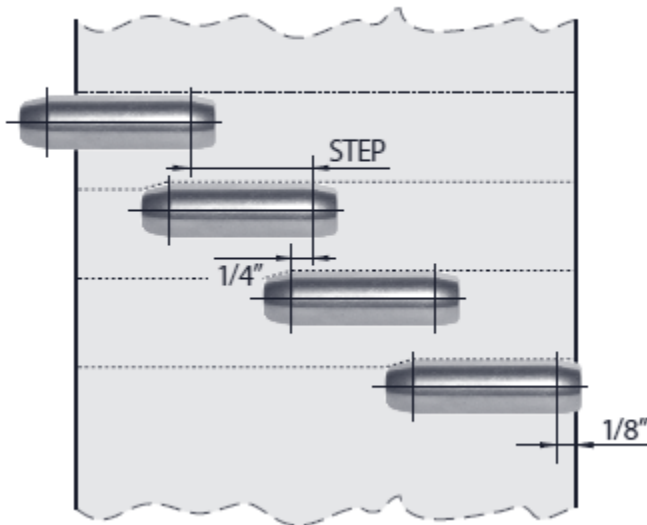
ANATOMY OF ROLL



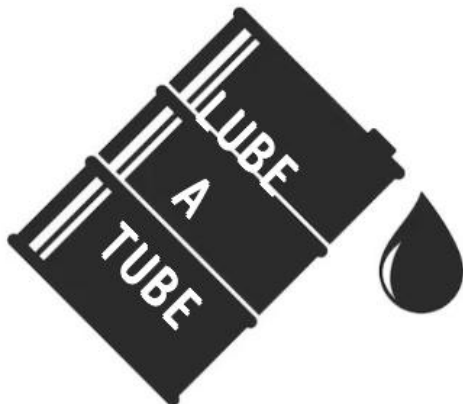
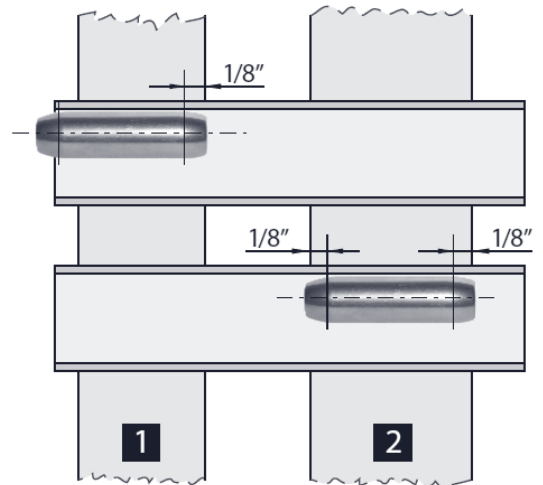
SETTING CONDENSER EXPANDER



STEP ROLLING (THICK TUBE SHEET)



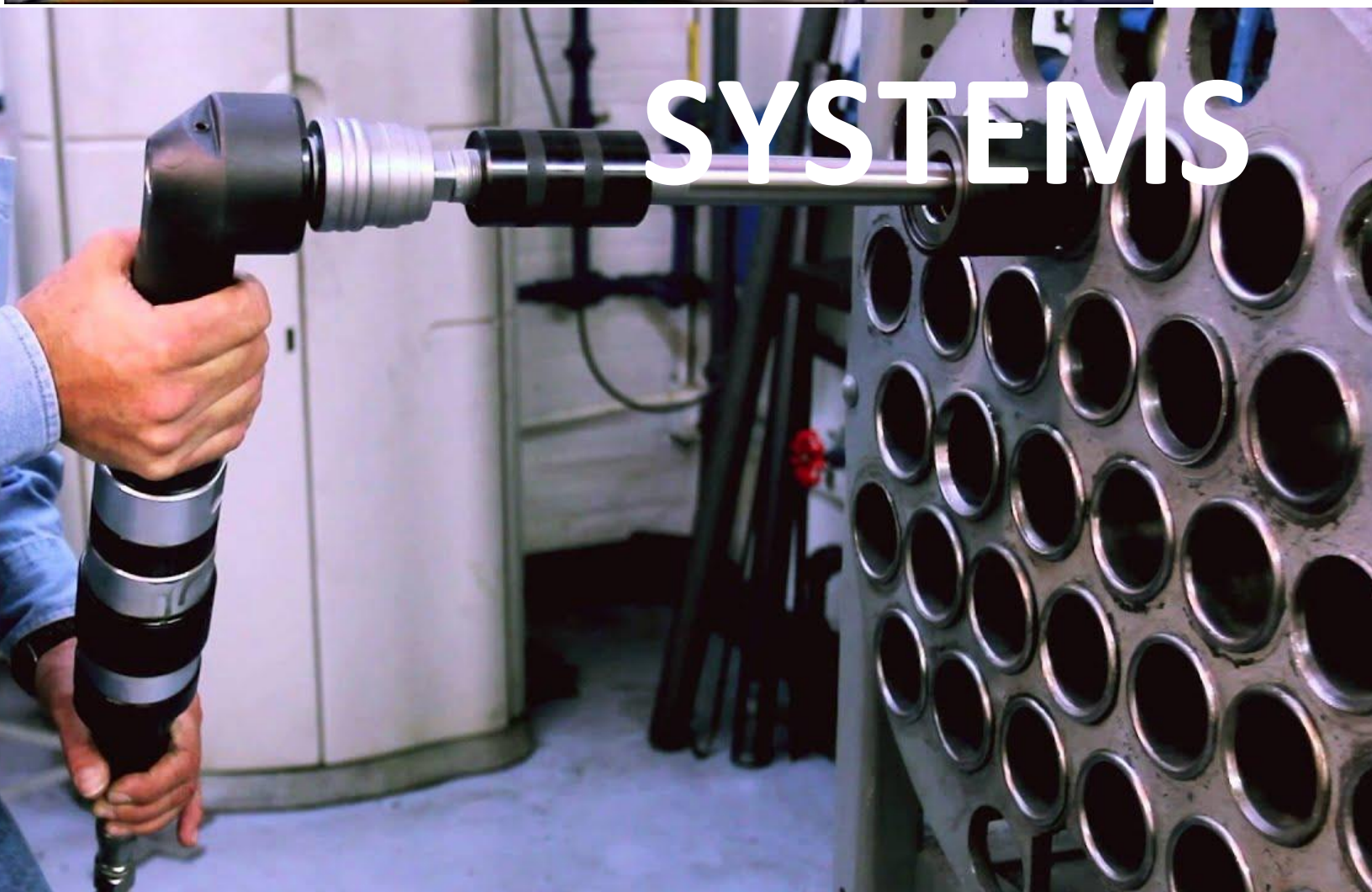
DOUBLE TUBE SHEET APPLICATION



Special water-Soluble grease for rolling tube ends into tube sheet. Easy application: just apply directly into inside of the tube ends; and easy removal all Lube-A-Tube excess will completely removed during Hydro test or ball out operation.



EXPANSION

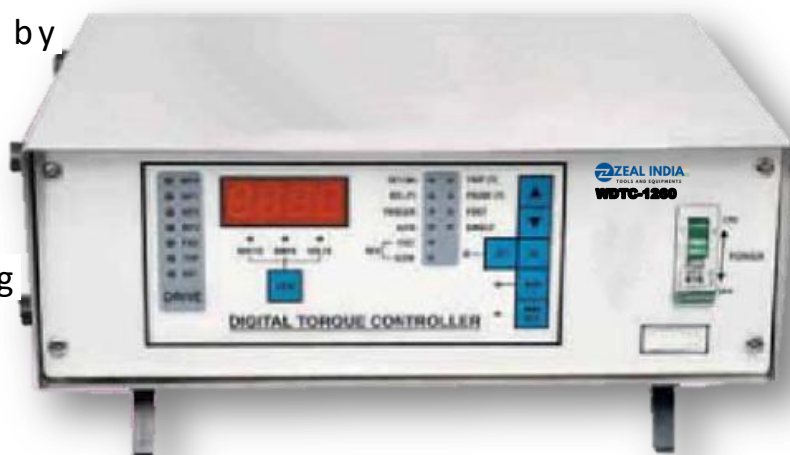


SYSTEMS

ELETRIC EXPANSION SYSTEMS

WATTAGE BASED DIGITAL TORQUE CONTROLLER

Tube expansion can best be done by expanding tubes at a set torque value. Torque is nothing but a rotary force acting on the tubes. For a given drive, the 'RPM' being constant, torque becomes proportional to the drive power



MODEL	VOLTAGE	MAX AMPS	MAX WATTAGE	WEIGHT
WDT-1260	110	20	1260	7.5 Kgs
WDT-1260	230	10	1260	7.5 Kgs
WDT-1650	110	32	1650	7.5 Kgs
WDT-1650	230	16	1650	7.5 Kgs

CURRENT BASED DIGITAL TORQUE CONTROLLER

Fully solid state with Digital Display.
No Moving parts like relay or contactors,
So, less wear and tear and long life.
Working satisfactory in market since
last 10 years with very successful
market report. Superior SCR
technology used over Triacs for
controlling the high voltage drives.



MODEL	VOLTAGE	MAX AMPS	WEIGHT
CDTC-Z110	110	20	8 Kgs
CDTC-Z230	230	10	7 Kgs

ELECTRIC EXPANSION DRIVE

MODEL – (ZED-0)



Model	Supply Voltage Single Phase	No Load R.P.M	Expansion Range				Weight
			Steel Tube OD		Copper Tube OD		
			inch	mm	inch	mm	
ZED-0	230 V	2200	1/4" - 3/8"	6 - 10 mm	1/4" - 1/2"	6 - 12 mm	2 Kgs
ZED-0L	110 V	2200	1/4" - 3/8"	6 - 10 mm	1/4" - 1/2"	6 - 12 mm	2 Kgs

MODEL – (ZED-1)



Model	Supply Voltage Single Phase	Speed I/II	No Load R.P.M	Expansion Range				Weight
				Steel Tube OD		Copper Tube OD		
				inch	mm	inch	mm	
ZED-1	230 V	Speed I	1000	3/8" - 5/8"	10 - 16 mm	3/8" - 3/4"	6 - 12 mm	2.5 Kgs
		Speed II	1900	5/16" - 1/2"	8 - 13 mm	5/16" - 1/2"	8 - 13 mm	
ZED-1L	110 V	Speed I	1000	3/8" - 5/8"	10 - 16 mm	3/8" - 3/4"	6 - 12 mm	2.5 Kgs
		Speed II	1900	5/16" - 1/2"	8 - 13 mm	5/16" - 1/2"	8 - 13 mm	

MODEL – (ZEDR-2)



Model	Supply Voltage Single Phase	Speed	No Load R.P.M	Expansion Range				Weight
				Steel Tube OD		Copper Tube OD		
				inch	mm	inch	mm	
ZEDR-2	230 V	Speed I	560	5/8" - 1.1/4"	16 - 28 mm	3/4" - 1.3/8"	19 - 34 mm	7.5 Kgs
	110 V			5/8" - 1.1/4"	16 - 28 mm	3/4" - 1.3/8"	19 - 34 mm	

MODEL – (ZEDR-2)



Model	Supply Voltage Single Phase	Speed	No Load R.P.M	Expansion Range				Weight
				Steel Tube OD		Copper Tube OD		
				inch	mm	inch	mm	
ZEDR-3	230 V	Speed I	380	1" - 1.3/4"	25 - 45 mm	1.1/2" - 2.1/4"	38 - 57 mm	11.3 Kgs
	110 V			1" - 1.3/4"	25 - 45 mm	1.1/2" - 2.1/4"	38 - 57 mm	

MODEL – (ZEHD-2)



Model	Supply Voltage Single Phase	Speed I/II	No Load R.P.M	Expansion Range				Weight
				Steel Tube OD		Copper Tube OD		
				inch	mm	inch	mm	
ZEHD-2	230 V	Speed I	480	5/8" - 1.3/4"	16 - 45 mm	5/8" - 2"	16 - 50 mm	7.5 Kgs
		Speed II	1080	5/8" - 1.1/4"	16 - 32 mm	5/8" - 1.1/2"	16 - 38 mm	
ZEHD-2L	110 V	Speed I	480	5/8" - 1.3/4"	16 - 45 mm	5/8" - 2"	16 - 50 mm	
		Speed II	1080	5/8" - 1.1/4"	16 - 32 mm	5/8" - 1.1/2"	16 - 38 mm	

MODEL – (ZEHD-3)



Model	Supply Voltage Single Phase	Speed I/II	No Load R.P.M	Expansion Range				Weight
				Steel Tube OD		Copper Tube OD		
				inch	mm	inch	mm	
ZEHD-3	230 V	Speed I	130	1" - 3"	25 - 76 mm	1" - 4"	25 - 102 mm	8.5 Kgs
		Speed II	430	1" - 2"	25 - 50 mm	1" - 3"	25 - 76 mm	
ZEHD-3L	110 V	Speed I	130	1" - 3"	25 - 76 mm	1" - 4"	25 - 102 mm	
		Speed II	430	1" - 2"	25 - 50 mm	1" - 3"	25 - 76 mm	

FEATURES:

- HEAVY DUTY GERMAN MOTORS FROM HEART OF THERE DRIVES
- HEAVY DUTY AND LIGHT WEIGHT DRIVES. CONTINUOUS DUTY CYCLE
- LESS SPARKING OF CARBON BRUSH UNDER LOAD CONDITION INCREASES THE LIFE OF CARBON BRUSHES AND ARMATURES

TUBE INSTALLATION TOOLS

TOOL FOR SERRATING TUBE SHEET – ZNW SERIES



Standard interchangeable pilot nose assemblies and stop collars quickly adapt one tool to pilot either in the work or in the fixture bushing. Changing of pilot nose and cutter allows one tool to cover a range of hole diameter. Simple to change cutter for different groove shapes. Location and depth of cut easy to adjust. Only light pressure required to cut precision groove. Ready to fit to drill machines, lathes and boring machine. The life of the cutter will be extendable by re sharpening.

Bore Range		Tool Model No.	Pilot Nose Model No.	Circular Form Cutter Model No.	Tool Bit Holder Model No.	Spare Tool Bit Model No.
mm	inch					
9.-32	3/8 – 1.1/4	1 ZZNW – 2 MT	1 ZNW – PN	1 ZNW – CF	1 ZNW – TBH	1 ZNW – TB
16 – 45	5/8 – 1.3/4	3 ZNW – 3 MT	3 ZNW – PN	3 ZNW – CF	3 ZNW – TBH	3 ZNW – TB
19 – 48	3/4 – 1.7/8	4 ZNW – 4 MT	4 ZNW – PN	4 ZNW – CF	4 ZNW – TBH	4 ZNW – TB
38 – 102	1.1/2 – 4	6 ZNW – 5 MT	6 ZNW – PN	6 ZNW – CF	6 ZNW – TBH	6 ZNW – TB

TOOL FOR SERRATING TUBE SHEET – ZST SERIES

We are offering Serrating/ Grooving Tool-'ST' Series For Grooving In Tube Sheet

FEATURES :

- High Production Tool
- Ideal For Tool where 1 Tool is need per bore
- One piece cryogenically treated tool bit ensures maximum life
- Tool is ideally suited for CNC applications on account of 1 piece mandrel construction and short design.

Tube O.D.		Tool Model No.	Spare Tool Bits		
			1/8" x 3/8" x 1/8"	1/8" x 1/4" x 1/8"	Special
mm	inch		Spacing	Spacing	Spacing
9.53	3/8	ST-375-970	ST-3703	ST-3703-S	ST-3703-SPEC
12.70	1/2	ST-500-1270	ST-5003	ST-5003-S	ST-5003-SPEC
15.87	5/8	ST-625-1588	ST-6203	ST-6203-S	ST-6203-SPEC
19.05	3/4	ST-750-1900	ST-7503	ST-7503-S	ST-7503-SPEC
22.22	7/8	ST-875-2220	ST-7503	ST-7503-S	ST-7503-SPEC
25.40	1	ST-1000-2540	ST-7503	ST-7503-S	ST-7503-SPEC
31.75	1.1/4	ST-1250-3175	ST-7503	ST-7503-S	ST-7503-SPEC
38.10	1.1/2	ST-1500-3810	ST-7503	ST-7503-S	ST-7503-SPEC
50.80	2	ST-2000-5080	ST-7503	ST-7503-S	ST-7503-SPEC
63.50	2.1/2	ST-2500-6350	ST-7503	ST-7503-S	ST-7503-SPEC



TUBE INSTALLATION TOOLS

TUBE END FACING TOOL – ZTEF SERIES

Typical application for TEF is the tube trimming of Heat Exchanger, Condenser and chiller tubes to a Uniform ½" (3mm) tube projection after tube Rolling. This will fit into all electric and pneumatic power tools equipped with a ½" Jacob Chuck. The tool is fitted with three slot collars for precision adjustment and features a very simple mechanism for tool bit replacement. TEF Equipped with hex shank as standard.



TUBE OD		TOOL NO.	PILOT RANGE	SPARE BITS	
[INCH]	[MM]			NON FERROUS OR CARBON STEEL	STAINLESS
3/8"	9,50	TEF-375	16 – 20	TEF-376	TEF-376-SS
1/2"	12,7	TEF-500	16 – 20	TEF-506	TEF-506-SS
5/8"	15,8	TEF-625	14 – 18	TEF-626	TEF-626-SS
3/4"	19,0	TEF-750	10 – 18	TEF-756	TEF-756-SS
7/8"	22,2	TEF-875	14 – 18	TEF-876	TEF-876-SS
1"	25,4	TEF-1000	10 – 18	TEF-1006	TEF-1006-SS
1-1/4"	31,7	TEF-1250	10 – 18	TEF-1256	TEF-1256-SS
1-1/2"	38,1	TEF-1500	10 – 18	TEF-1506	TEF-1506-SS
2"	50,8	TEF-2000	10 – 18	TEF-2006	TEF-2006-SS
2-1/2"	63,5	TEF-2500	10 – 18	TEF-2506	TEF-2506-SS

TUBE SHEET HOLE REAMER – RM SERIES

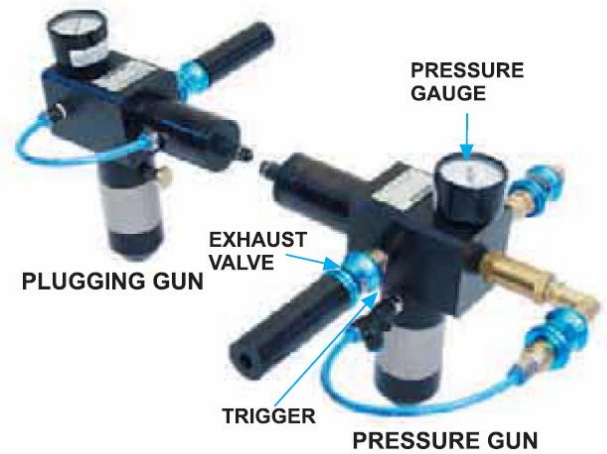
Tube O.D.		Reamer Size to "TEMA" Specification		Model No.	Flute Length		OAL		Shank: Morse Taper #
mm	inch	mm	inch		mm	inch	mm	inch	
9.53	3/8	9.65	.380	RM-095/66	66	2.60	146	5.70	1
				RM-095/101	101	3.97	181	7.12	
				RM-095/152	152	5.98	232	9.13	
12.70	1/2	12.83	.505	RM-127/76	76	2.99	156	6.14	1
				RM-127/101	101	3.97	181	7.12	
				RM-127/152	152	5.98	232	9.13	
15.87	5/8	16.03	.631	RM-158/87	87	3.42	187	7.36	2
				RM-158/152	152	5.98	252	9.92	
				RM-158/203	203	7.99	303	11.93	
16.00	-	16.16	.636	RM-160/87	87	3.42	187	7.36	2
				RM-160/152	152	5.98	252	9.92	
				RM-160/203	203	7.99	303	11.93	
19.05	3/4	19.25	.758	RM-190/100	100	3.90	200	7.87	2
				RM-190/152	152	5.98	252	9.92	
				RM-190/203	203	7.99	303	11.93	
20.00	-	20.20	.795	RM-200/100	100	3.90	200	7.87	2
				RM-200/152	152	5.98	252	9.92	
				RM-200/203	203	7.99	303	11.93	
22.00	-	22.22	.875	RM-220/107	107	4.21	207	8.15	2
				RM-220/152	152	5.98	252	9.92	
				RM-220/203	203	7.99	303	11.93	
22.22	7/8	22.42	.883	RM-222/107	107	4.21	207	8.15	2
				RM-222/152	152	5.98	252	9.92	
				RM-222/203	203	7.99	303	11.93	
25.00	-	25.25	.994	RM-250/115	115	4.53	242	9.53	3
				RM-250/203	203	7.99	330	12.99	
				RM-250/254	254	10.00	381	15.00	
25.40	1	25.65	1.010	RM-254/115	115	4.53	242	9.53	3
				RM-254/203	203	7.99	330	12.99	
				RM-254/254	254	10.00	381	15.00	
28.57	1.1/8	28.86	1.136	RM-285/124	124	4.88	251	9.88	3
				RM-285/203	203	7.99	330	12.99	
				RM-285/254	254	10.00	381	15.00	
31.75	1.1/4	32.07	1.262	RM-317/133	133	5.23	293	11.53	4
				RM-317/203	203	7.99	363	14.29	
				RM-317/254	254	10.00	414	16.30	



TUBE TO TUBE SHEET JOINT TESTING KIT

FEATURES

- Joint Testings Gun weighs less than 1.5 kg.
- Pressure Gun Simple, Quick and Reliable tube and joint testing.
- Test 7 to 8 tubes or 10 tube joints per minute.
- Interchangeable seal sets : Allows testing of tubes from 7.75mm to 30.63mm ID with easy to replace accessories.
- Air supply : Uses standard plant air supplies from 70 psi to 100psi (4.7 to 6.8 bar)
- Silent during use.
- Ergonomic design makes testing effortless.
- Each Kit packed in easy to carry case.



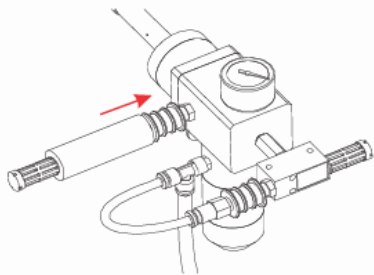
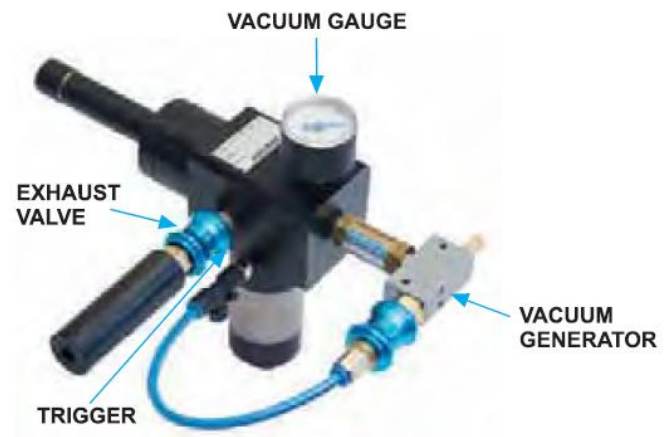
SIZE AVAILABLE: TUBE OD 5/8" to 1.1/4"

MODEL AVAILABLE: ZJTK - 6500

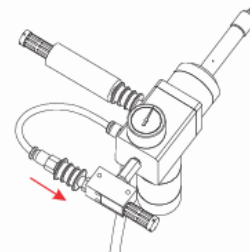
TUBE LEAK DETECTOR KIT

FEATURES :

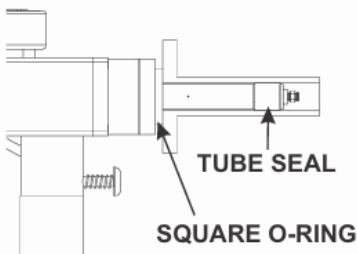
- Simple, Quick and Reliable tube joint testing.
- Test 10 tube joints per minute.
- Interchangeable seal sets : Allows testing of tube joints from 7.75 mm to 30.63 mm ID with easy to replace accessories.
- Joint Testing Gun weights less than 1.5 kg.
- Air supply : Uses standard plant air supplies from 70 psi to 100 psi (4.7 to 6.8 bar).
- Silent during use.
- Ergonomic design makes testing effortless.
- Each Kit packed in compact and handy case.



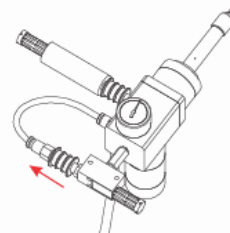
A) Close exhaust valve by sliding to extreme right



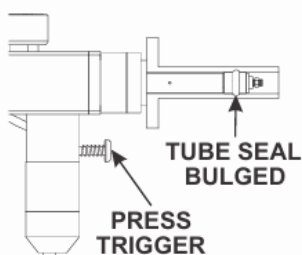
D) Slide vacuum valve to right to start generating vacuum. Gauge will indicate vacuum level.



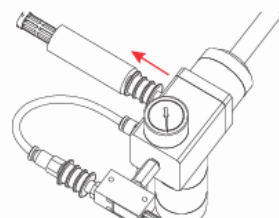
B) Insert manifold till square o-ring firmly sits on tube



E) Close vacuum slide valve by shifting to left. This will stop vacuum generation. Observe vacuum gauge. Vacuum level falls if the joint is leaking.

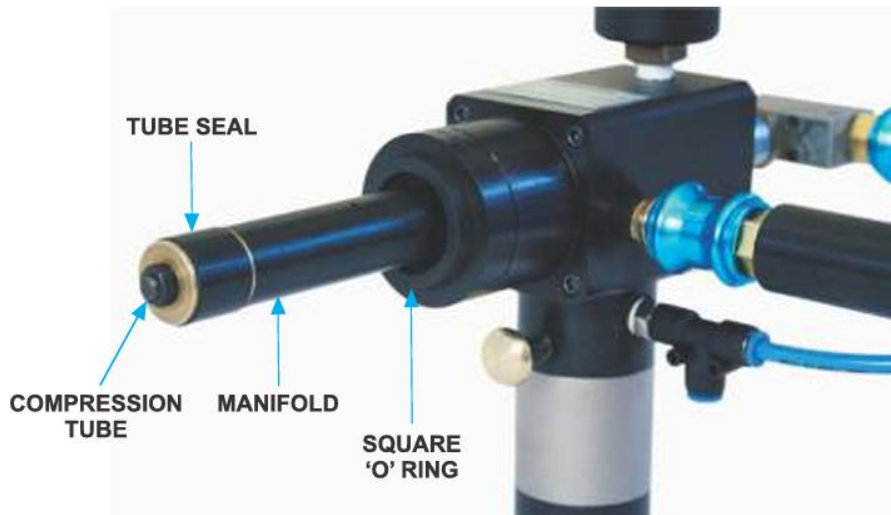


C)



F) After testing the joint release the tube seal by sliding the exhaust to the left. The Joint Testing Kit can be withdrawn after the tube seal collapses.

SPECIFICATION :



Tube Size		Tube ID Range		Tube Seal Part No.	Tube Seal Diameter		Manifold with Square O ring	Compression Tube Part No.	Square O ring
O.D.	bwg	mm	inch		mm	inch			
5/8"	9	8.37	.330	BJTK- 300N	7.5	.295	BJTK-15-125-5/8	BJTK-15-125	BJTK-16-5/8
	10-13	9.07 - 11.05	.357 - .435	BJTK-370N	9	.354			
	14-15	11.67 - 12.23	.459 - .481	BJTK-450N	11.6	.457			
	16-17	12.57 - 12.93	.495 - .509	BJTK-470N	12.2	.480	BJTK-15-312-5/8	BJTK-15-312	
	18-19	13.39 - 13.75	.527 - .541	BJTK-490N	13.3	.523			
	20-24	14.11 - 14.77	.555 - .581	BJTK-530N	13.8	.543			
3/4"	9	11.55	.455	BJTK-430N	10.8	.425	BJTK-15-312-3/4-1	BJTK-15-312	BJTK-16-3/4
	10 - 11	12.25 - 12.95	.482 - .510	BJTK-450N	11.6	.457	BJTK-15-125-3/4	BJTK-15-125	
	12 - 13	13.53 - 14.23	.532 - .560	BJTK-490N	13.3	.523	BJTK-15-312-3/4-2	BJTK-15-312	
	14 - 15	14.85 - 15.41	.584 - .606	BJTK-530N	13.8	.543			
	16 - 17	15.75 - 16.11	.620 - .634	BJTK-570N	15.4	.606			
	18 - 24	16.57 - 17.95	.652 - .706	BJTK-610N	16.5	.649			
7/8"	8-9	13.84 - 14.72	.544 - .579	BJTK-530N	13.8	.543	BJTK-15-312-7/8-1	BJTK-15-312	BJTK-16-7/8
	10-11	15.42 - 16.12	.607 - .635	BJTK-570N	15.4	.606			
	12-13	16.7 - 17.4	.657 - .685	BJTK-610N	16.5	.649			
	14-17	18.02 - 19.28	.709 - .759	BJTK-690N	18	.708	BJTK-15-312-7/8-2		
	18-19	19.74 - 20.1	.777 - .791	BJTK-740N	19.7	.775			
	20-24	20.46 - 21.12	.805 - .831	BJTK-790N	20.1	.791			
1"	8-9	17.02 - 17.9	.670 - .704	BJTK-610N	16.5	.649	BJTK-15-312-1	BJTK-15-312	BJTK-16-1
	10-11	18.6 - 19.3	.732 - .760	BJTK-690N	18	.708			
	12-13	19.88 - 20.58	.782 - .810	BJTK-740N	19.7	.775			
	14-15	21.2 - 21.76	.834 - .856	BJTK-790N	20.1	.791	BJTK-15-405-1	BJTK-15-405	
	16-17	22.1 - 22.46	.870 - .884	BJTK-840N	21.7	.854			
	18-19	22.92 - 23.28	.902 - .916	BJTK-870N	22.9	.901			
1.1/8"	20-24	23.64 - 24.3	.930 - .956	BJTK-890N	23.3	.917	BJTK-15-312-1.1/8	BJTK-15-312	BJTK-16-1.1/8
	8-9	20.19 - 21.07	.795 - .829	BJTK-790N	20.1	.791			
	10-11	21.77 - 22.47	.857 - .884	BJTK-840N	21.7	.854			
	12-13	23.05 - 23.75	.907 - .935	BJTK-870N	22.9	.901	BJTK-15-405-1.1/8	BJTK-15-405	
	14-15	24.37 - 24.93	.959 - .981	BJTK-890N	23.3	.917			
	16-17	25.27 - 25.63	.994 - 1.009	BJTK-980N	25.2	.992			
18-19	26.09 - 26.45	1.027 - 1.041	BJTK-990N	26.0	1.024				
1.1/4"	20-24	26.81 - 27.47	1.055 - 1.081	BJTK-1040N	26.8	1.055	BJTK-15-405-1.1/4	BJTK-15-405	BJTK-16-1.1/4
	8-11	23.37 - 25.65	.920 - 1.01	BJTK-890N	23.3	.917			
	12-13	26.23 - 26.93	1.032 - 1.060	BJTK-990N	26.0	1.024			
	14-17	27.55 - 28.81	1.084 - 1.134	BJTK-1090N	27.5	1.082			
	18-24	29.27 - 30.65	1.152 - 1.206	BJTK-1100N	29.2	1.149			



TUBE EXPANSION SYSTEM

FEATURES

- Drive communicates with the pump via 9v DC remote control. This ensures safety and eliminates the need of electrical cord between pump and drive that other manufacturers provide.
- Silent during use. In comparison electric and pneumatic tube expansion systems are noisy.
- Compact, therefore easy to use inside boiler drums.
- Compatibility - Same powerpack for all the 4 drives to expand 5/8" o.d. to 4" o.d. tube.
- Very High Torque Developed - can expand large diameter, thick wall tubes in thick tube sheets easily.
- Long life + low maintenance.
- Boiler erections get completed in record time.
- Can be use for long working hours because drive is unaffected by heat.
- Dual drive powerpack is available to connect 2 drives to a single powerpack to cut down tube expansion time cycle by a further 50%.

Microprocessor controls on the pump automate the expansion cycle. Trip, pause and reverse times for the drive are adjustable. No need for repeated manual STOP / START of the drive during the expansion cycle - completely automatic.

The Hydraulic pump supplied with hydraulic drive incorporates the latest state of the art technology resulting in a subcompact pump developing 100 bar pressure. The system is mounted on four wheels for on site maneuverability. Expansion of tubes is regulated by adjusting pressure setting on pump. Once required amount of wall thinning is achieved the drive trips automatically.

TUBE EXPANSION POWERPACK

- Low Noise Level easy to operator ears
- Best Suited for boiler tube expansion inside drums
- Safe in Operation, 24V Control voltage
- Can expand from ¾" to 4" OD tubes
- Accurate Torque control by pressing settlingon Powerpack.



Specification	Hydraulic Pump Models	
	ZHEP-300	ZHEP-500
Oil Tank Capacity (Litres)	30	45
Hydraulic Oil	SAE VG 68	SAE VG 68
Maximum Working Pressure (bar)	100	100
Net Weight (kgs)	80	100
Overall Dimensions (mm)	610*270*985	820*320*985
Electric Motor	3 hp. Single phase	5 hp. 3 phase
Voltage	230v / 110v	415v
Standard Hose Size (Length)	½" (10 mtrs.)	½" (10 mtrs.)

TUBE EXPANSION DRIVE



SPECIFICATION

Tube Expansion Range				Drive		Drive No Load Speed (RPM)	Drive Weight kgs.
Steel Tube O.D.		Copper Tube O.D.		Model No.	Square Socket inch	With ZHEP-300/500/1000	
mm	inch	mm	inch				
15 - 25	5/8 - 1	25 - 38	1 - 1.1/2	ZHED-3	3/8	620/954/800	9.6
19 - 38	3/4 - 1.1/2	32 - 64	1.1/4 - 2.1/2	ZHED-4	3/8 & 1/2	350/480/400	9.7
38 - 76	1.1/2 - 3	50 - 102	2 - 4	ZHED-5	1/2 & 3/4	62/84/70	11
50 - 102	2 - 4	-	-	ZHED-6	3/4 & 1	40/62/54	11.5



TUBE PULLING SYSTEM

FEATURES

- Pulling gun communicates with electric powerpack via 9v DC control. This ensures safety and eliminates the need of electrical cord between pump and gun that other manufacturers provide. In pneumatic version communication is via pneumatic control.
- Available with a choice of Electric-TPP System or Pneumatic-PPP System for hazardous, explosive working environments.
- Microprocessor controls on powerpack and gun ensure trouble free life.
- Removes tube without any damage to tube sheet.
- Low setup time and ease of operation.
- High power & High speed automatic cycling, for highest speed of pull available worldwide.
- Auto switchover from low pressure high flow to high pressure low flow on load and again back to low pressure high flow when load is released. Automatic slow start feature to minimize risk of breaking tubes and to conserve consumables.
- Compact design of Powerpack and Gun. Interchangeable pulling guns with same Powerpack. 15 ton gun for light duty high speed work, 30 ton gun for heavy duty tube pulling and 45 ton gun for tubes upto 3" O.D.
- Pulls up to 3" OD tubes continuously, pulls up to 4" O.D. stub.
- Low maintenance cost and worldwide availability of components.
- Significant saving of time and money over conventional systems.
- Unit is portable with handle and mounted on four wheels for easy handling.
- Unit will pull tubes continuously through the gun effortlessly, needing only one man for operation.

TUBE PULLING POWERPACK

SPECIFICATION



Model	Motor	Volts/ Phase	Power HP	Oil Tank Capacity Litrs.	Net Wt. Kgs	Dimensions mm	Hydraulic Hoses Size X Length inch x mtrs
ETPP-50	Siemens	415/3	5	90	220	1200 X 750 X 990	1/2"x5 & 3/4"x 5
ETPP-30	Siemens	230/1	3	12	42	500 X 410 X 750	1/2"5 & 3/4"5

Note : Max. Working Pressure 350 Bar

All Powerpack supplied with 5 mtrs. long Hydraulic Hose

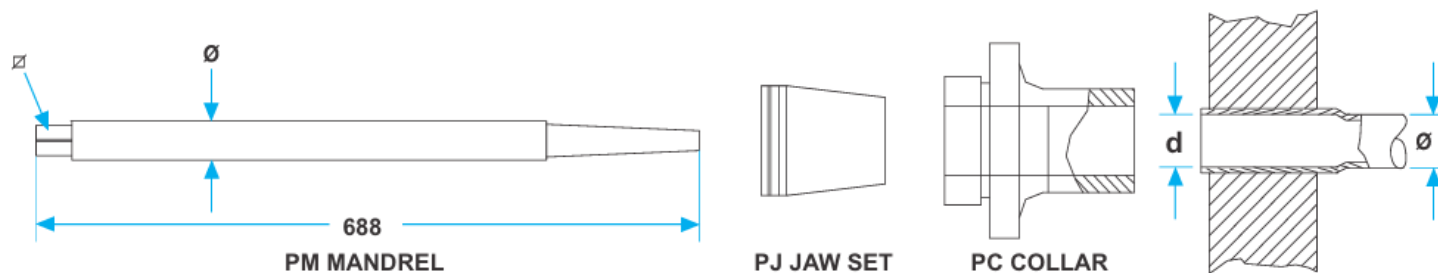
HYDRAULIC PULLING GUNS (ELECTRIC)

SPECIFICATION

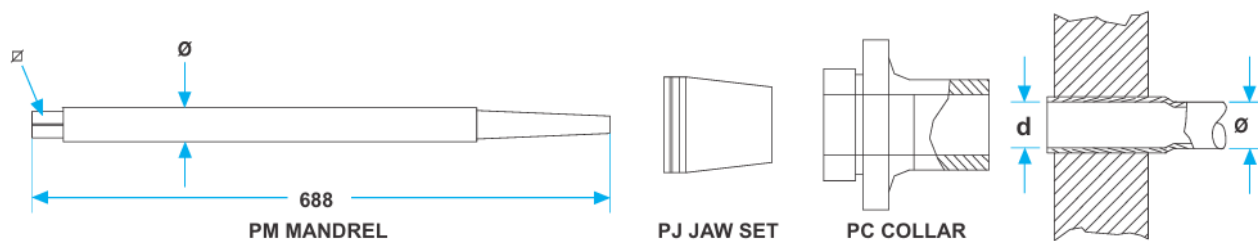


Gun Model	Pulling Capacity Tons	Max Tube OD thru Gun inch	Stub Pulling Capacity inch	Weight Kgs	Free Pulling Speed (meter/min) with	
					ETPP-50	ETPP-30
EHPG-15	15	1	1.1/2	26	5.2	5.6
EHPG-30	30	1.1/2	3	38	3	3.5
EHPG-45	45	3	4	78	2	2.3
EHPG-60	60	4	5	117	1.5	2

WORKING CONSUMABLES – HYDRAULIC TUBE PULLER



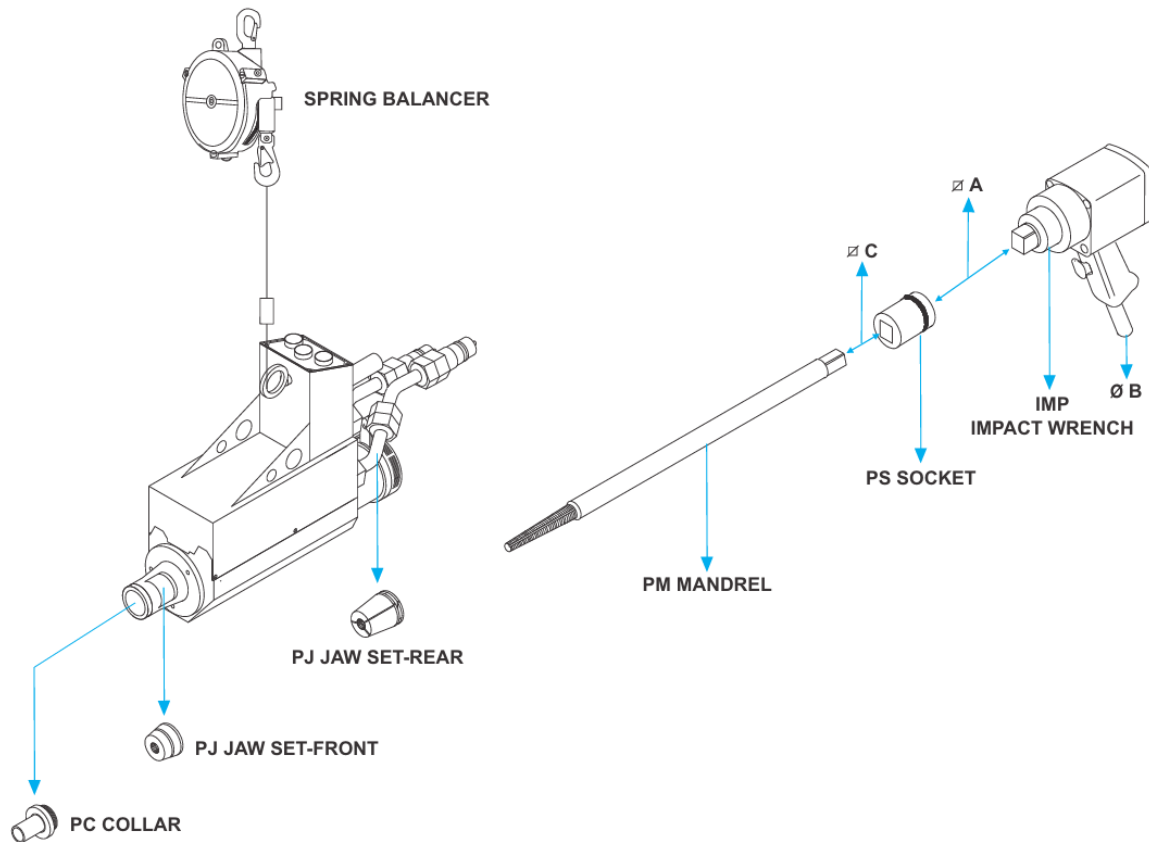
Tube Size		Tube I.D. after Expansion d		Mandrel		Jaw Set			Collar		
				Model	Square Size	Model For HPG-15	Model For HPG-30	Model For HPG-45	Model For HPG-15	Model For HPG-30	Model For HPG-45
Ø	bwg	mm	inch	PM	☐	PJ 15	PJ 30	PJ 45	PC 15	PC 30	PC 45
3/8"	17-19	6.5-7.5	0.260-0.295	7	5/16"	1	1		11	11	
	20-24	7.5-8.5	0.295-0.335	8							
1/2"	14-16	8.5-9.5	0.335-0.375	9	3/8"	2	2		15	15	
	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	13 A	1/2"	3	3		18	18	
	19-21	13.5-14.5	0.535-0.570	14 A							
	23-24	14.5-15.5	0.570-0.610	15 A							
3/4"	11	12.5-13.5	0.495-0.535	13	5/8"	4	4		21	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	18 S	5/8"	4/A	4/A		25	25	
	16-17	18.5-19.5	0.730-0.770	19 S							
	18-19	19.5-20.5	0.770-0.810	20 S							
1"	10-11	18.5-19.5	0.730-0.770	19	3/4"	5	5	5	28	28	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							
3/4" Gas	19-20	23.5-24.5	0.925-0.965	24	1"						
	13	21.5-22.5	0.845-0.886	22 G							
	14-15	22.5-23.5	0.886-0.925	23 G							
	16-17	23.5-24.5	0.925-0.965	24 G							
1.1/4"	19-21	24.5-25.5	0.965-1.005	25 G		6	6	6	31	31	
	10	24.5-25.5	0.965-1.005	25							
	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	1.125-1.160	29							
	19-22	29.5-30.5	1.160-1.200	30							
1" Gas	23-24	30.5-31.5	1.200-1.240	31		7	7	7	34	34	
	9	25.5-26.5	1.005-1.045	26 G							
	10	26.5-27.5	1.045-1.085	27 G							
	11-12	27.5-28.5	1.085-1.125	28 G							
1.1/2"	13-14	28.5-29.5	1.125-1.160	29 G		8	8	8	37	37	
	10-11	31.5-32.5	1.240-1.280	32							
	12-13	32.5-33.5	1.280-1.320	33							
	14	33.5-34.5	1.320-1.360	34							
	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							



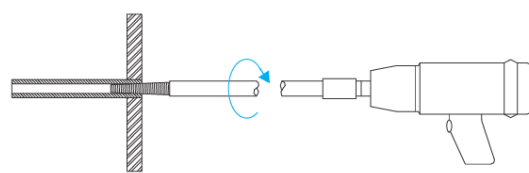
Tube Size		Tube I.D. after Expansion D		Mandrel		Jaw Set			Collar							
				Model	Square Size	Model For HPG-15	Model For HPG-30	Model For HPG-45	Model For HPG-15	Model For HPG-30	Model For HPG-45					
OD / Ø	bwg	mm	inch	PM	☒	PJ 15	PJ 30	PJ 45	PC 15	PC 30	PC 45					
1.1/4" Gas	12	36.5-37.5	1.440-1.475	37G	1"			10		44	44					
	13-14	37.5-38.5	1.475-1.515	38G												
	15-16	38.5-39.5	1.515-1.555	39G												
	17-19	39.5-40.5	1.555-1.595	40G												
	20-24	40.5-41.5	1.595-1.635	41G												
1.3/4"	10-11	37.5-38.5	1.475-1.515	38/44					11							
	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												
1.1/2" Gas	20-24	42.5-43.5	1.675-1.715	43/44					12							
	11-12	42.5-43.5	1.715-1.755	43G												
	13-14	43.5-44.5	1.755-1.795	44G												
	15-17	44.5-54.5	1.795-1.830	45G												
18-19	45.5-46.5	1.830-1.870	46G													
2"	10	43.5-44.5	1.830-1.870	44/51					13							
	11-12	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												
2.1/4"	19-22	48.5-49.5	1.910-1.950	49/51					14							
	9-10	49.5-50.5	1.950-1.990	50/57												
	11	50.5-51.5	1.990-2.030	51/57												
2" Gas	12-13	51.5-52.5	2.030-2.070	52/57									15			
	7	50.5-51.5	1.990-2.030	51G												
	8	51.5-52.5	2.030-2.070	52G												
2.1/2"	9	53.5-53.5	2.070-2.105	53G				16								
	7	53.5-54.5	2.015-2.145	54/63												
	8	54.5-55.5	2.145-2.185	55/63												
	9	55.5-56.5	2.185-2.225	56/63												
3"	10	56.5-57.5	2.225-2.265	57/63		17										
	7	66.5-67.5	2.580-2.620	67/76												
	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											80	

Note : For Tubes larger than 3" O.D., please contact us for larger size working consumables and larger size tube pulling guns. All models indicated above are for continuous tube pulling. When you are using equipment for stub pulling, please contact us for modifications needed.

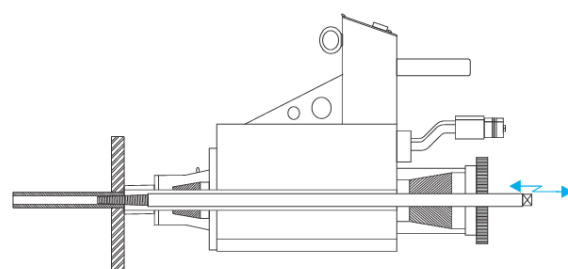
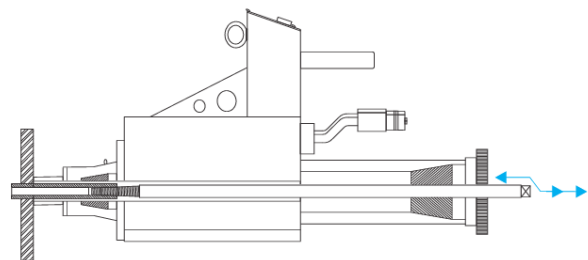
ACCESSORIES FOR HYDRAULIC TUBE PULLER



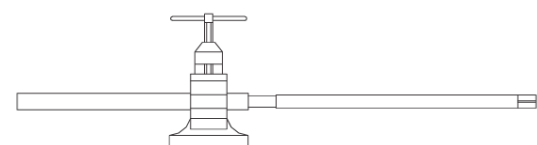
SEQUENCE OF OPERATION



A) Thread mandrel into tube with Impact Wrench



B) Mount Pulling Gun onto mandrel.
Automatic Slow Start to first break expanded joint.



D) Unscrew mandrel from pulled tube and proceed to next tube.

C) Switch to Auto Cycle by pressing 'AUTO' button till tube is completely removed. Gun will continue to cycle till one of the other buttons is pressed. When the tube is free, a tool can be inserted into the jaws to enable the tube to be pulled by hand.



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GSTIN - 27AYCPT0326N1Z5

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