



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
 - ✚ TUBE-A-TUBE TUBE EXPANDER LUBRICANT
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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.
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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

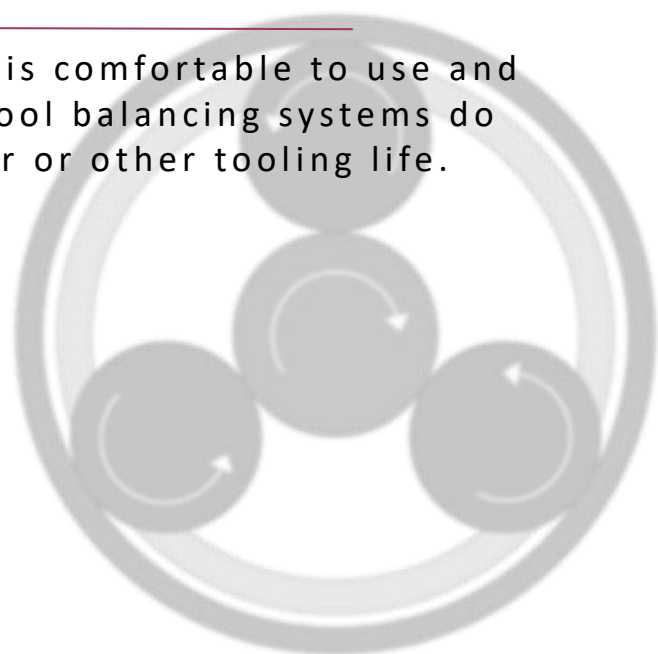
Improving production rates and decreasing cost are critical to the success of today's manufacturer or contractor. The Zeal India line of tools are designed and manufactured to perform consistently time after time. When it comes to performance and reliability, there is no doubt as to why manufacturers 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	TOOL NO.	ROLL NO.	TOOL NO.	ROLL NO.		[INCH]	[MM]
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]	[BWG]	[INCH]	[MM]	[INCH]	[MM]	MIN		MAX	MIN
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
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		
1-3/8	34,9	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
		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
1-1/2	38,1	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		MAX	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"



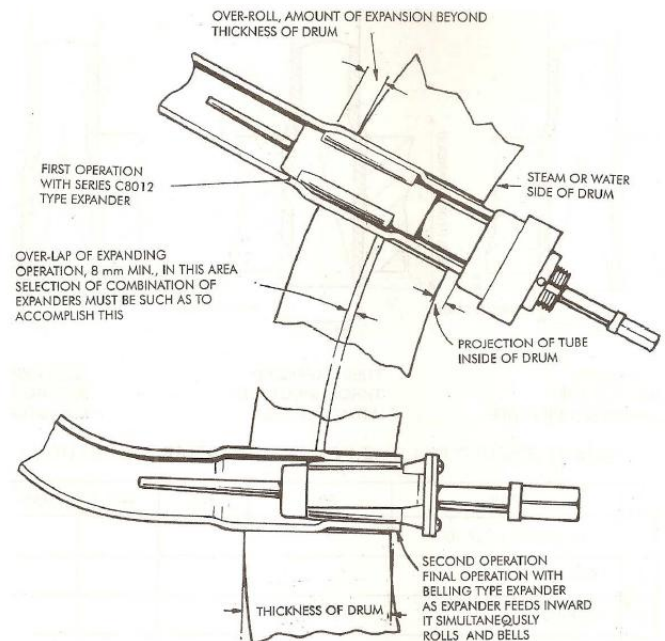
TUBE OD		TUBE GAUGE			TUBE ID		EXPANSION RANGE				TOOL NO.	ROLL NO.	MANDREL	MANDREL
[INCH]	[MM]	[BWG]	[INCH]	[MM]	[INCH]	[MM]	[INCH]		[MM]					
[INCH]	[MM]	[BWG]	[INCH]	[MM]	[INCH]	[MM]	MIN	MAX	MIN	MAX				[INCH]
1-3/4	44,4	8	0,165	4,19	1,42	36,07	1,368	1,55	34,75	39,37	8012-1-3/4-8	R-33-A	M-90	3/4
		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]	MIN	MAX	MIN	MAX				[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"

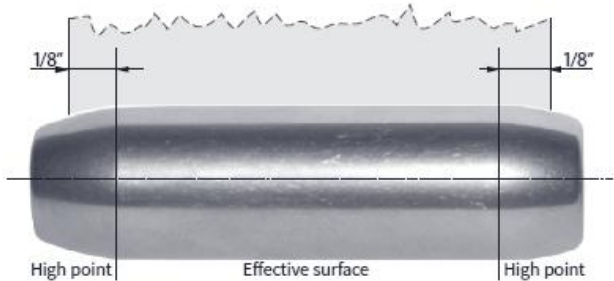
SIDE IMAGE IS OF TUBE EXPANSION
AND BELLMOUTHING IN TWO STAGES
IN DRUMS OF THICKNESS OVER 65 MM



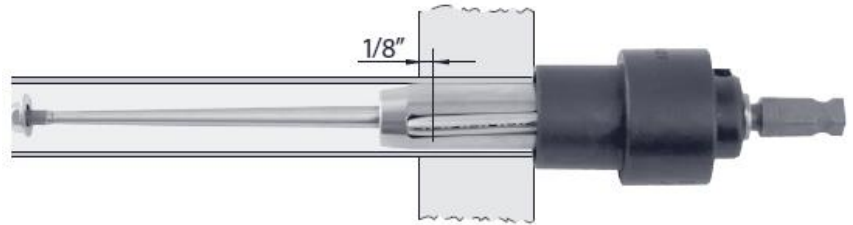
CONDENSOR TUBE EXPANDER

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)

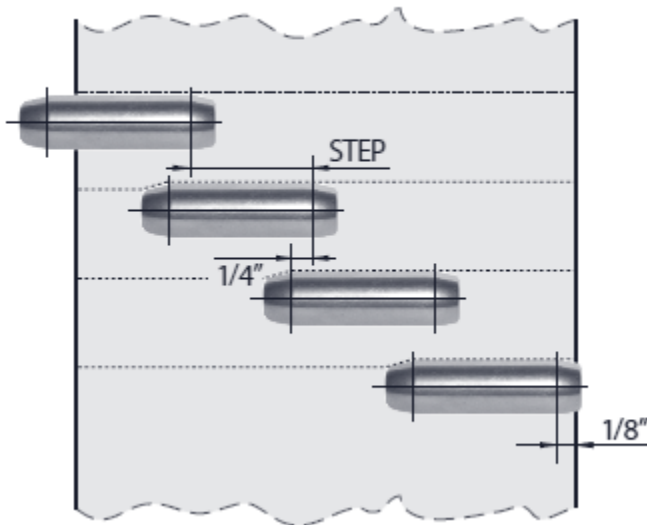
ANATOMY OF ROLL



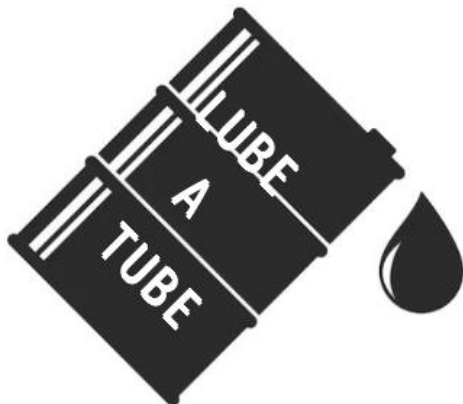
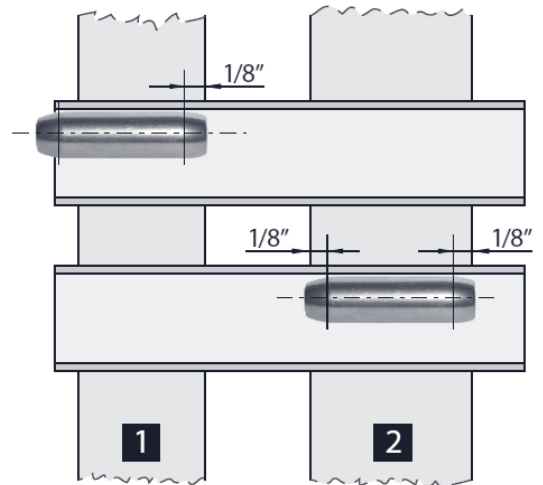
SETTING CONDENSER EXPANDER



STEP ROLLING (THICK TUBE SHEET)



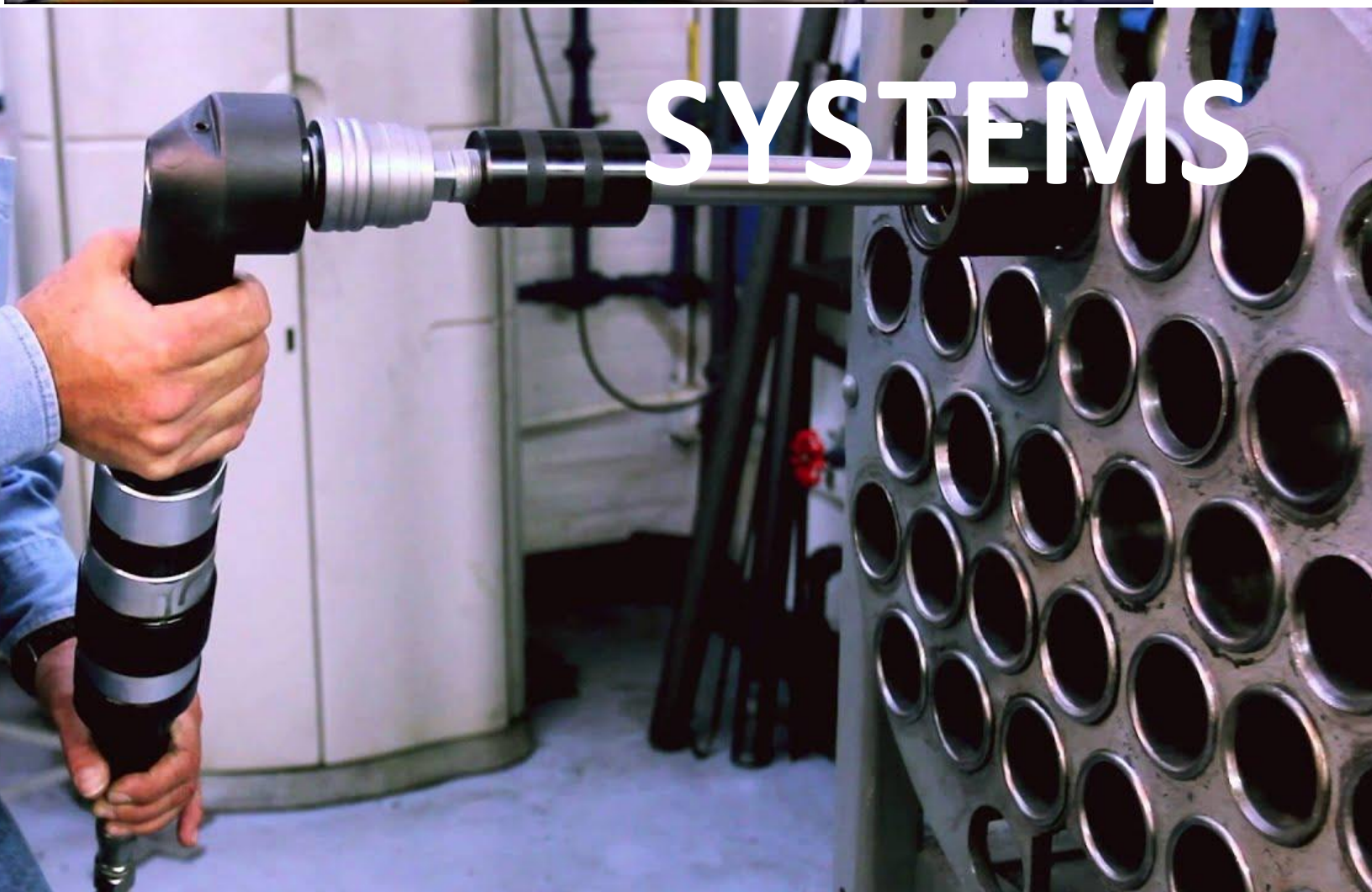
DOUBLE TUBE SHEET APPLICATION



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

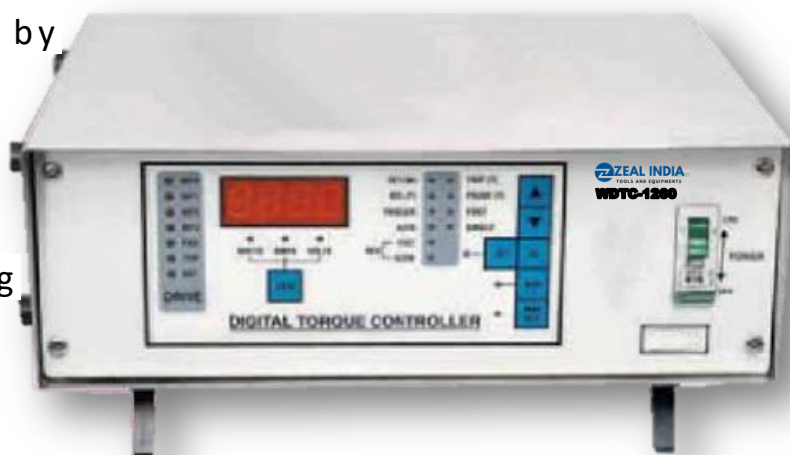


SYSTEMS

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

TUBE END FACING TOOL – ZTEF SERIES

Typical application for TEF is the tube trimming of Heat Exchanger, Condenser and chiller tubes to a Uniform 1/2" (3mm) tube projection after tube Rolling. This will fit into all electric and pneumatic power tools equipped with a 1/2" 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

TOOL FOR SERRATING TUBE SHEET – ZGT 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

TUBE REMOVAL TOOLS

INTERNAL TUBE CUTTER- PUSH TYPE – ITCP SERIES



ZEAL INDIA make “Internal Tube Cutter Push Type” quickly cuts through the walls of ferrous tubes in Condensers and Heat Exchangers as a step in their removal from the tube sheet. This sturdy “Push Type” Internal Tube Cutter can be used with a portable Electric or Air Drill Motor. “Push Type” Cutter is simple to operate. Merely insert it into the tube, apply power, press inward and the tube can be cut in a few seconds.. Standard adjustable reach is 4”(101.6mm) and they are available in optional increments of 2”(50.8mm). “A” reach = 6”(152.4mm). “B” reach = 8”(203.2mm). “C”

Tube OD	Tube Guage	Tube Cutting Model No (STD Reach)	Spare Cutting Bit
5/8"	14-22	ITCP-625	ITCP-625-SB
3/4"	14-22	ITCP-750	ITCP-750-SB
7/8"	14-22	ITCP-875	ITCP-875-SB
1"	14-22	ITCP-1000	ITCP-1000-SB
1.1/4"	14-22	ITCP-1250	ITCP-1250-SB
1.1/2"	14-22	ITCP-1500	ITCP-1500-SB

TUBE PULLER- MANUAL TYPE –TP- M SERIES

No power needed: Manual insertion and removal of tube with a hand wrench. Ideal for field service applications.

Simple Design: Only two major parts reduce inventory.

Ease of use: Hex at back of spear allows tightening without disassembly of thrust mechanism.

Range of Sizes: A wide range of sizes allows use on popular tube size.

Clarity of markings: Both spear and thrust collar are clearly marked for fast relating tool to job.

Tube Size							Tube Puller Model Number	Spare Spear Model Number
O.D.		BWG	Wall Thickness		I.D.			
mm	inch		mm	inch	mm	inch		
6.35	1/4	18	1.24	.049	3.86	.152	MTP-25-18	MPS-25-18
9.52	3/8	16	1.65	.065	6.22	.245	MTP-38-16	MPS-38-16
9.52	3/8	18	1.24	.049	7.04	.277	MTP-38-18	MPS-38-18
9.52	3/8	20	0.88	.035	7.75	.305	MTP-38-20	MPS-38-20
12.70	1/2	14	2.11	.083	8.48	.334	MTP-50-14	MPS-50-14
12.70	1/2	16	1.65	.065	9.40	.370	MTP-50-16	MPS-50-16
12.70	1/2	18	1.24	.049	10.21	.402	MTP-50-18	MPS-50-18
12.70	1/2	20	0.88	.035	10.92	.430	MTP-50-20	MPS-50-20
15.88	5/8	14	2.10	.083	11.66	.459	MTP-63-14	MPS-63-14
15.88	5/8	16	1.65	.065	12.57	.495	MTP-63-16	MPS-63-16
15.88	5/8	18	1.24	.049	13.39	.527	MTP-63-18	MPS-63-18
15.88	5/8	20	0.88	.035	14.10	.555	MTP-63-20	MPS-63-20
19.05	3/4	14	2.10	.083	14.86	.585	MTP-75-14	MPS-75-14
19.05	3/4	16	1.65	.065	15.75	.620	MTP-75-16	MPS-75-16
19.05	3/4	18	1.24	.049	16.56	.652	MTP-75-18	MPS-75-18
19.05	3/4	20	0.88	.035	17.27	.680	MTP-75-20	MPS-75-20
22.22	7/8	14	2.10	.083	18.01	.709	MTP-87-14	MPS-87-14
22.22	7/8	16	1.65	.065	18.92	.745	MTP-87-16	MPS-87-16
22.22	7/8	18	1.24	.049	19.74	.777	MTP-87-18	MPS-87-18
22.22	7/8	20	0.88	.035	20.45	.805	MTP-87-20	MPS-87-20
25.40	1	14	2.10	.083	21.18	.834	MTP-100-14	MPS-100-14
25.40	1	16	1.65	.065	22.10	.870	MTP-100-16	MPS-100-16
25.40	1	18	1.24	.049	22.91	.902	MTP-100-18	MPS-100-18
25.40	1	20	0.88	.035	23.62	.930	MTP-100-20	MPS-100-20



TUBE PULLING POWERPACK

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 ltrs.	Net Wt. kgs.	Dim. mm	Air Supply	Hyd.Hoses Size x Length inch x mtrs.
TPP-50	Siemens	415 / 3	5	90	220	1200 x 750 x 990	-	1/2"x5 & 3/4"x5
TPP-30	Siemens	230 / 1	3	12	42	500 x 410 x 750	-	1/2"x5 & 3/4"x5
PPP-50 (Pneumatic)	Gast	-	9	90	220	1200 x 750 x 990	180CFM AT 7 BAR	1/2"x5 & 3/4"x5

Note : Max. Working Pressure 350 Bar
ALL Powerpacks supplied with 5 mtr. long hydraulic hoses.

HYDRAULIC

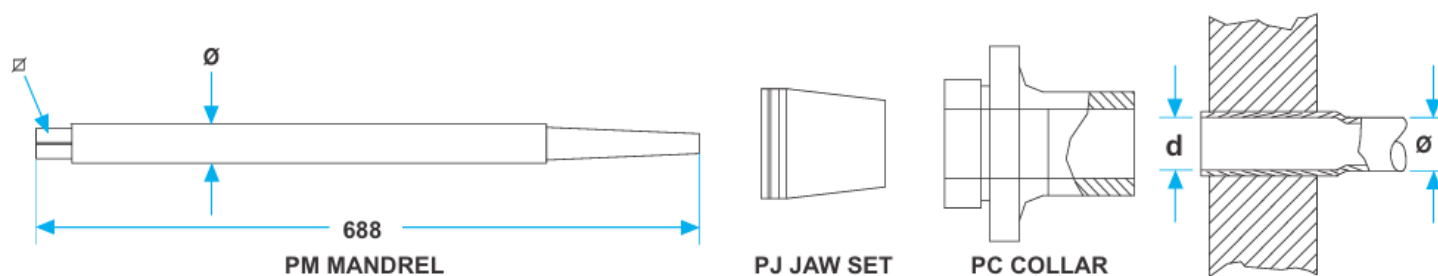
PULLING GUNS (ELECTRIC)

SPECIFICATION

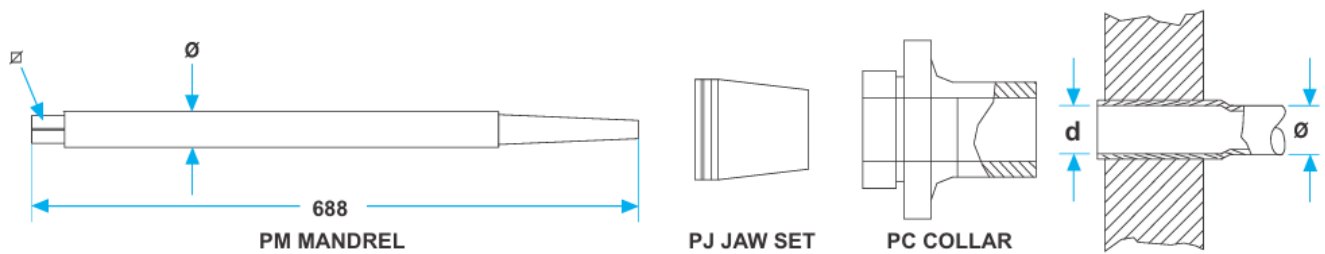


Gun Model	Pulling Capacity tons	Max. Tube O.D. Thru Gun inch	Stub Pulling Capacity inch	Weight		Free Pulling Speed (meter/min) with		
				kgs.	lbs.	TPP-50	TPP-30	PPP-50
HPG-15	15	1	1.1/2	26	57	5.2	1.8	5.6
HPG-30	30	1.1/2	3	38	84	3.0	2.4	3.5
HPG-45	45	3	4	78	172	2.0	2.0	2.3
HPG-60	60	4	5	117	257.9	1.5	1.5	2.0

WORKING CONSUMABLES – HYDRAULIC TUBE PULLER



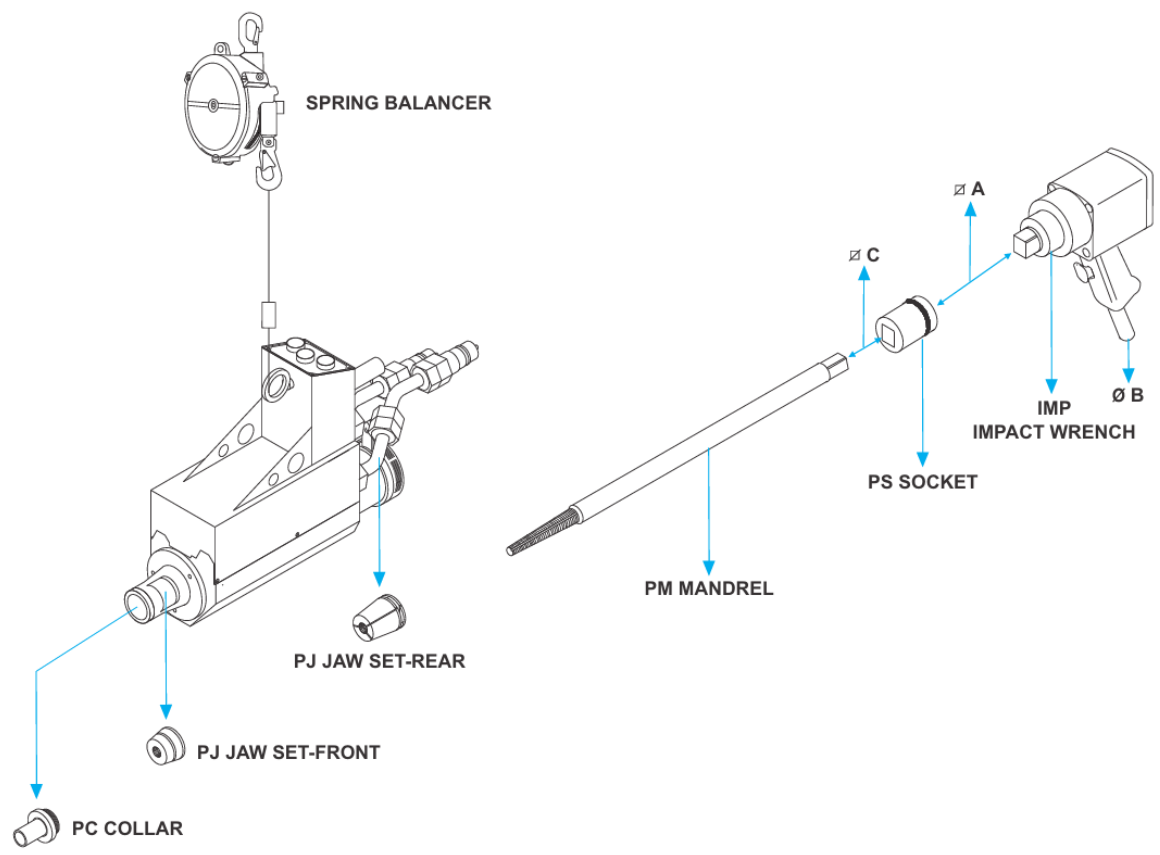
Tube Size		Tube I.D. after Expansion d		Mandrel		Jaw Set			Collar		
				Model	Square Size	Model For HPG-15	Model For HPG-30	Model For HPG-45	Model For HPG-15	Model For HPG-30	Model For HPG-45
Ø	bwg	mm	inch	PM	☒	PJ 15	PJ 30	PJ 45	PC 15	PC 30	PC 45
3/8"	17-19	6.5-7.5	0.260-0.295	7	5/16"	1	1		11	11	
	20-24	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	
	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							
3/4" Gas	13	21.5-22.5	0.845-0.886	22 G	1"		6	6	31	31	
	14-15	22.5-23.5	0.886-0.925	23 G							
	16-17	23.5-24.5	0.925-0.965	24 G							
	19-21	24.5-25.5	0.965-1.005	25 G							
1.1/4"	10	24.5-25.5	0.965-1.005	25			7	7	34	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	1.125-1.160	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			8	8	37	37	
	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			9	9	41	41	
	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							



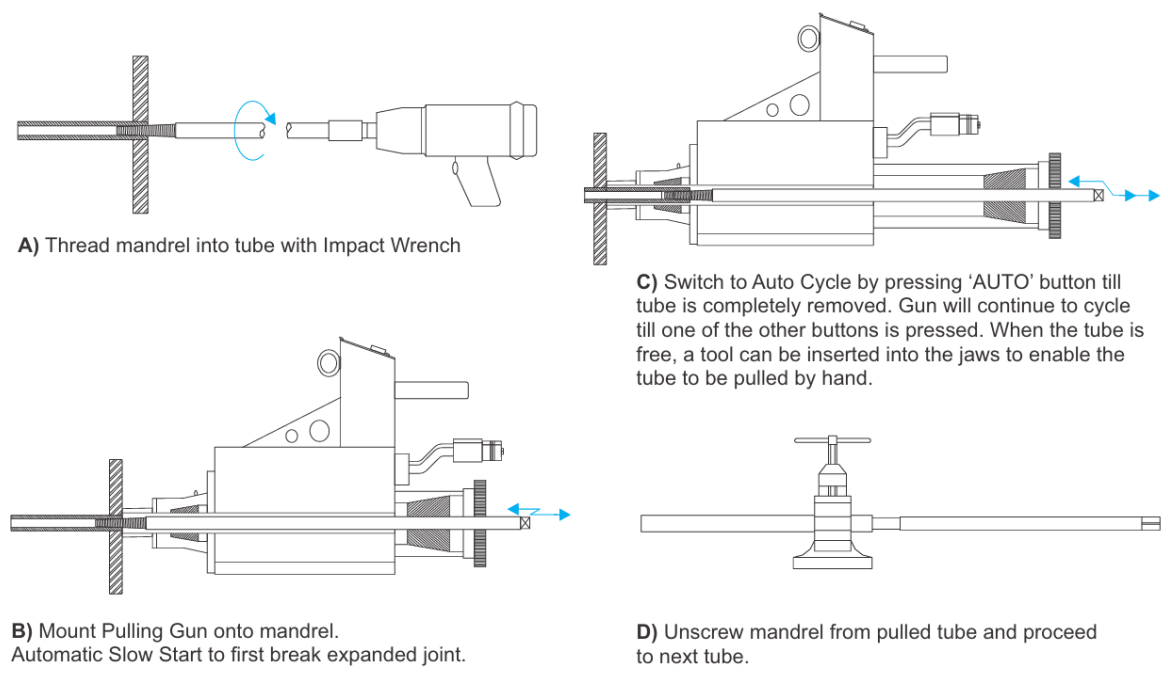
Tube Size		Tube I.D. after Expansion D		Mandrel		Jaw Set			Collar																	
OD / Ø	bwg	mm	inch	Model	Square Size	Model For HPG-15	Model For HPG-30	Model For HPG-45	Model For HPG-15	Model For HPG-30	Model For HPG-45															
				PM	Ø	PJ 15	PJ 30	PJ 45	PC 15	PC 30	PC 45															
1.1/4" Gas	12	36.5-37.5	1.440-1.475	37G	1"	PJ 15	10	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			1"	PJ 15		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																							
1.1/2" Gas	11-12	42.5-43.5	1.715-1.755	43G									1"	PJ 15		12		53								
	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					1"	PJ 15		13								54						
	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																						
	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"	PJ 15										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" Gas	7	50.5-51.5	1.990-2.030	51G																	1"	PJ 15		15		63
	8	51.5-52.5	2.030-2.070	52G																						
	9	53.5-53.5	2.070-2.105	53G																						
2.1/2"	7	53.5-54.5	2.015-2.145	54/63			1"	PJ 15				16								66						
	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"	PJ 15		17								
	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																						

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





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