

TOOLS FOR HEAT EXCHANGERS

TUBE EXPANDERS, TUBE EXPANSION POWERPACK, TUBE REMOVALS



SALES@ZEALINDIA.CO.IN

+91 7715922724 / 913725,
Mumbai, Maharashtra,
INDIA



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.

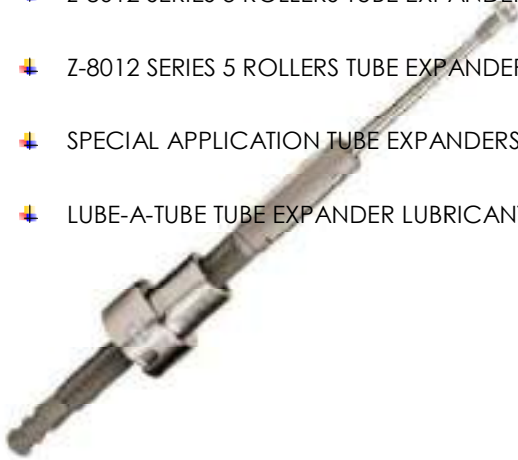




THE PRODUCTS

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

✚ ZNWGT 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

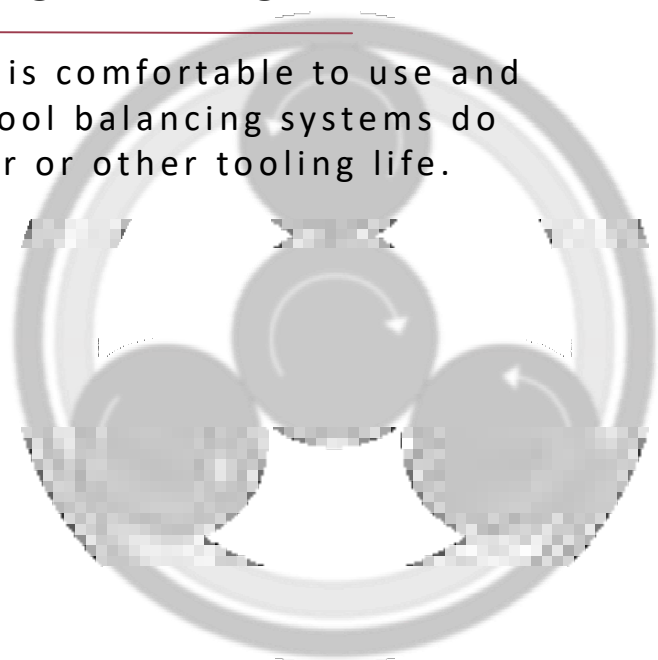
Improving production rates and decreasing cost are critical to the success of today's manufacturer or contractor. The Zeal India line of tools are designed and manufactured to perform consistently time after time. When it comes to performance and reliability, there is no doubt as to why manufacturers 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 |
| 3/4 | 19 | 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 |
| | | 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 | | | |
| 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 |
| 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 |
| | | 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 |
| 1-1/2 | 38,1 | 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 | | | 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 | 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 | | | | 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. | | | |
| 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 | 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] | | 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] |
| 3/8 | 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] | [INCH] | [MM] | [INCH] | [MM] | MIN | MAX | | | | MIN |
| 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 |

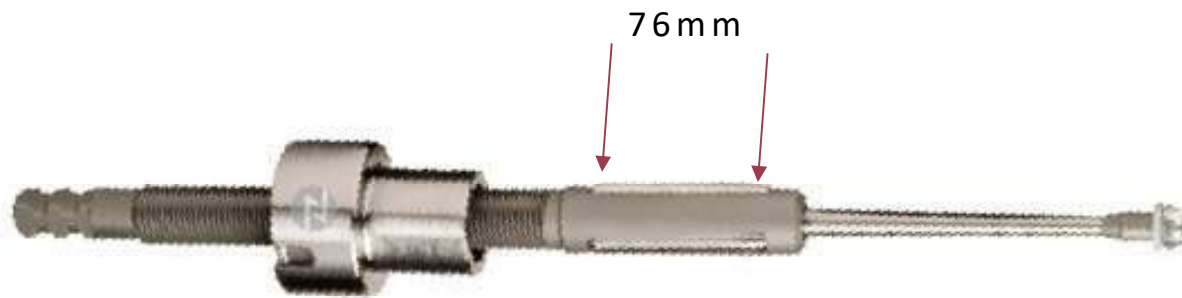
CONDENSOR TUBE EXPANDER

| 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] | | 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] |
| 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 |
| 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 | MANDREL SQUARE | |
|----------------------|-------|------|------|----------------------|---------|---------|----------------|------|
| | | | | 5/8" TO 3" | | | | |
| [INCH] | | MM | | 15,8 TO 76 MM | | MODEL | INCH | MM |
| MIN | MAX | MIN | MAX | TOOL NO | ROLL NO | | | |
| 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 |

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" |



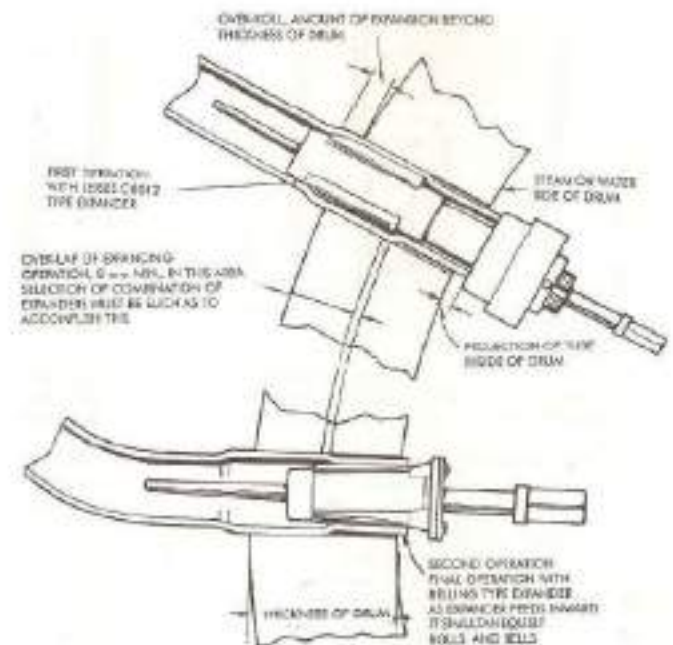
| TUBE OD | | TUBE GAUGE | | | TUBE ID | | EXPANSION RANGE | | | | TOOL NO. | ROLL NO. | MANDREL | MANDREL |
|---------|------|------------|--------|------|---------|-------|-----------------|-------|-------|-------|------------------|----------|---------|---------|
| | | | | | | | [INCH] | | [MM] | | | | | |
| [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] | | | | | |
| [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"

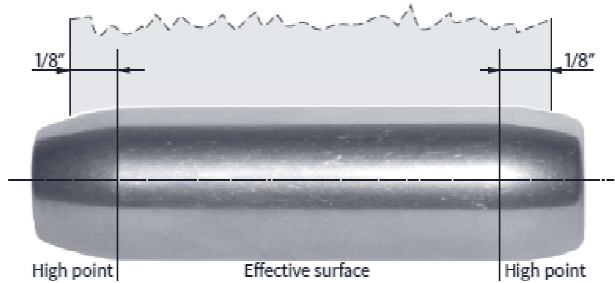
SIDE IMAGE IS OF TUBE EXPANSION
AND BELLMOUTHING IN TWO STAGES
IN DRUMS OF THICKNESS OVER 65 MM



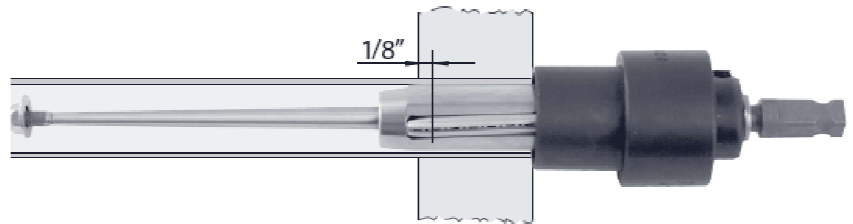
CONDENSOR TUBE EXPANDER

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)

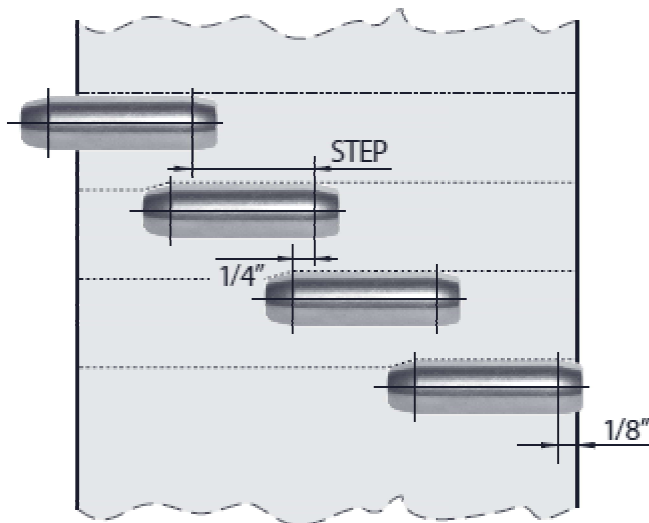
ANATOMY OF ROLL



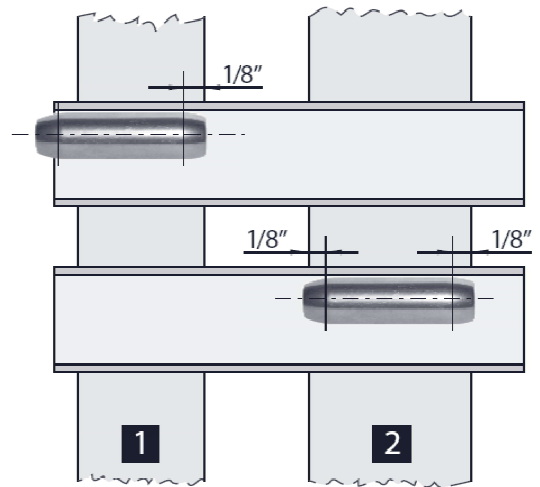
SETTING CONDENSER EXPANDER



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.



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



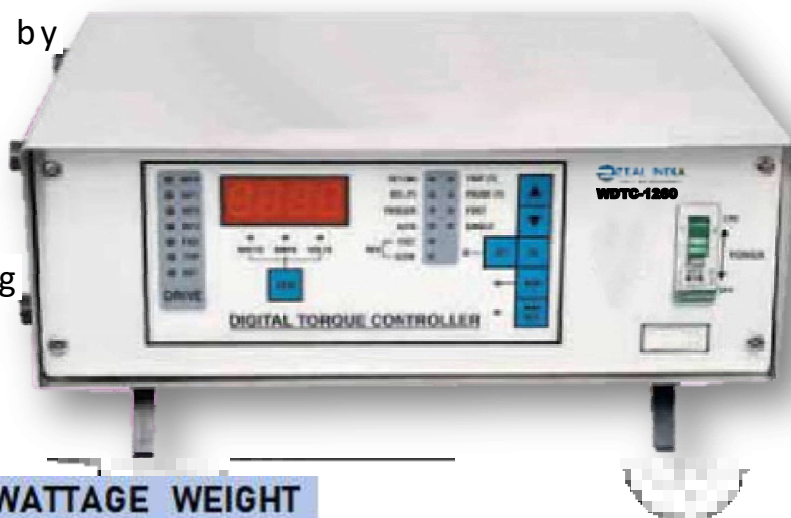
SPECIFICATION

| 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 |

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 |
|-----------|---------|----------|-------------|---------|
| WDTC-1260 | 110 | 20 | 1260 | 7.5 Kgs |
| WDTC-1260 | 230 | 10 | 1260 | 7.5 Kgs |
| WDTC-1650 | 110 | 32 | 1650 | 7.5 Kgs |
| WDTC-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-I | 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-IL | 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-3)



| 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 Serration / 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 | 283 | 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.



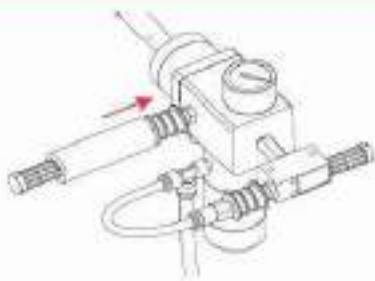
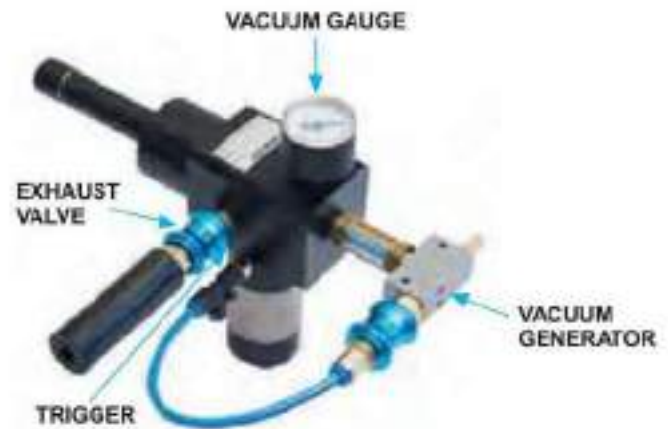
SIZE AVAILABLE: TUBE OD 5/8" to 1.1/4"

MODEL AVAILABLE: ZJTK - 6500

TUBE LEAK DETECTOR KIT

FEATURES :

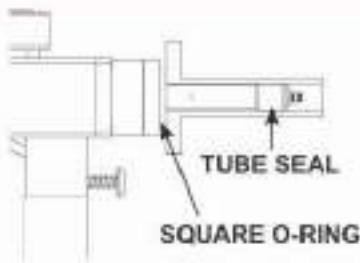
- Simple, Quick and Reliable tube joint testing.
- Test 10 tube joints per minute.
- Interchangeable seal sets : Allows testing of tube joints from 7.75 mm to 30.63 mm ID with easy to replace accessories.
- Joint Testing Gun weights less than 1.5 kg.
- Air supply : Uses standard plant air supplies from 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



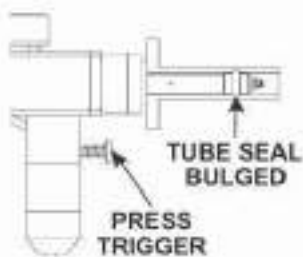
D) Slide vacuum valve to right to start generating vacuum. Gauge will indicate vacuum level.



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 | 8.07 - 11.05 | .367 - .435 | BJTK-370N | 9 | .354 | | | |
| | 14-15 | 11.87 - 12.23 | .459 - .481 | BJTK-450N | 11.6 | .457 | | | |
| | 16-17 | 12.57 - 12.93 | .495 - .509 | BJTK-470N | 12.2 | .480 | | | |
| | 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 | | | |
| | 12 - 13 | 13.53 - 14.23 | .532 - .560 | BJTK-490N | 13.3 | .523 | | | |
| | 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 | | | |
| | 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 | 19.68 - 20.56 | .782 - .810 | BJTK-740N | 19.7 | .775 | | | |
| | 14-15 | 21.2 - 21.76 | .834 - .856 | BJTK-790N | 20.1 | .791 | | | |
| | 16-17 | 22.1 - 22.48 | .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-15-405-1 | BJTK-15-405 | 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 | | | |
| | 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 | | | |
| 1 1/4" | 18-19 | 26.09 - 26.45 | 1.027 - 1.041 | BJTK-990N | 26.0 | 1.024 | BJTK-15-405-1 1/4 | BJTK-15-405 | BJTK-16-1 1/4 |
| | 20-24 | 26.81 - 27.47 | 1.055 - 1.081 | BJTK-1040N | 26.8 | 1.055 | | | |
| | 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 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

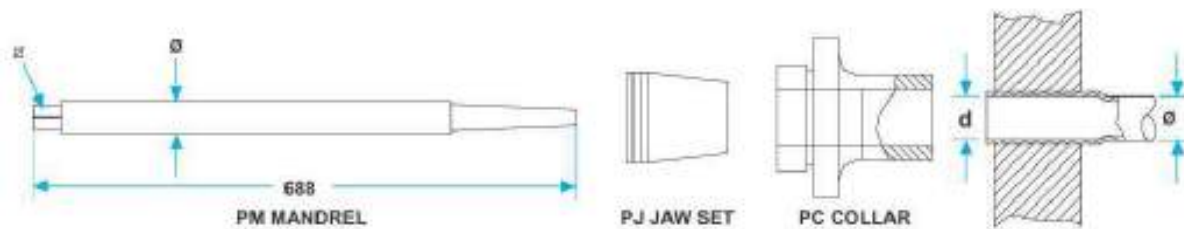
HYDRAULIC PULLING GUNS (ELECTRIC)

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 |

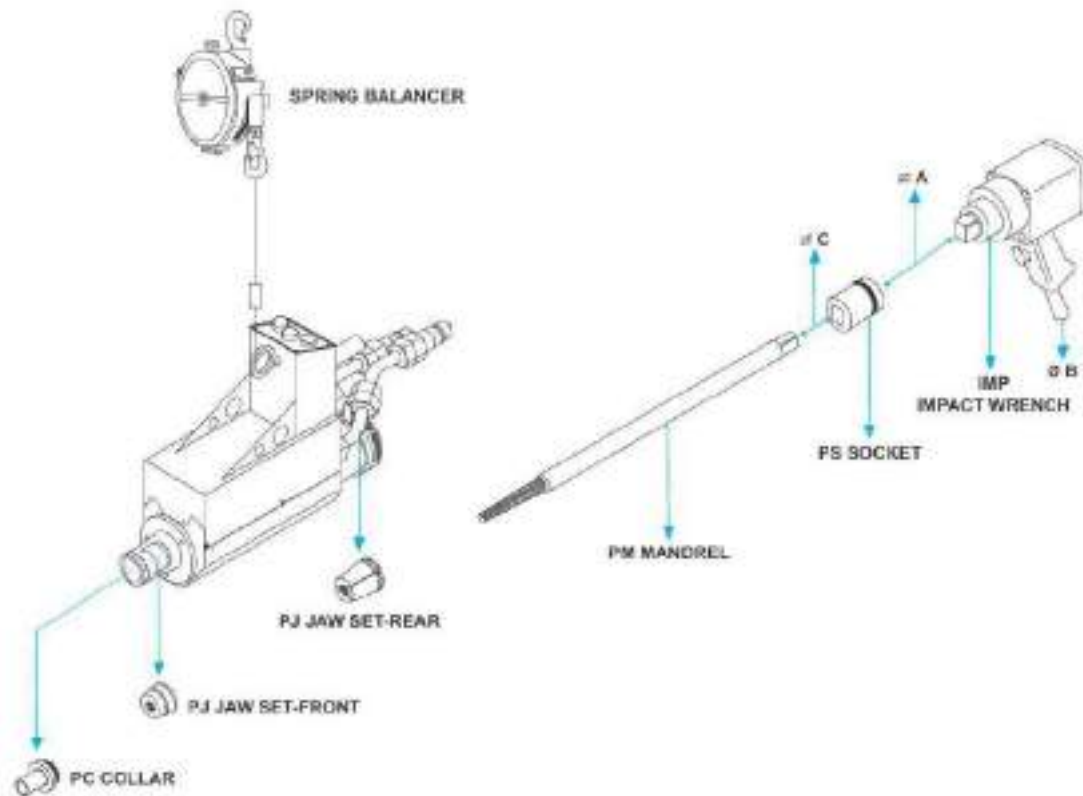
| Tube Size | | Tube I.D. after Expansion d | | Mandrel | | Jaw Set | | | Collar | | |
|-----------|-------|-----------------------------------|--------------|---------|----------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | | | | 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 | | | | | | | |



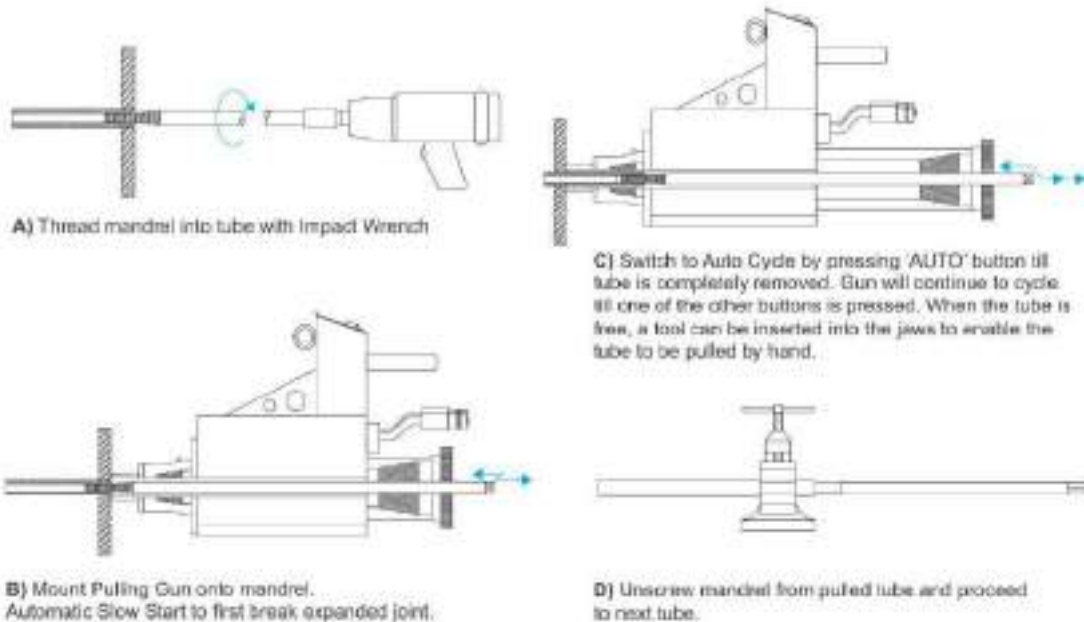
| Tube Size | | Tube I.D. after Expansion D | | Mandrel | | Jaw Set | | | Collar | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------|-------|-----------------------------------|-------------|---------|----------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|--|----|--|----|--|--|----|--|----|--|--|----|--|----|--|--|----|--|----|--|--|----|--|----|--|
| | | | | 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 | 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" | | 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 | | | | | | 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.1/2" Gas | 20-24 | 42.5-43.5 | 1.675-1.715 | 43/44 | | | | | | | | | | | 12 | | | 53 | | | | | | | | | | | | | | | | | | |
| | 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 | | | 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.1/4" | 19-22 | 48.5-49.5 | 1.910-1.950 | 49/51 | | | | | | | | | | | | | | | | | | | | | 14 | | | 60 | | | | | | | | |
| | 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 | | | 63 | | | |
| | 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 | | | | | | | | | | | | | | | | | 66 | | | | | | | | |
| | 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

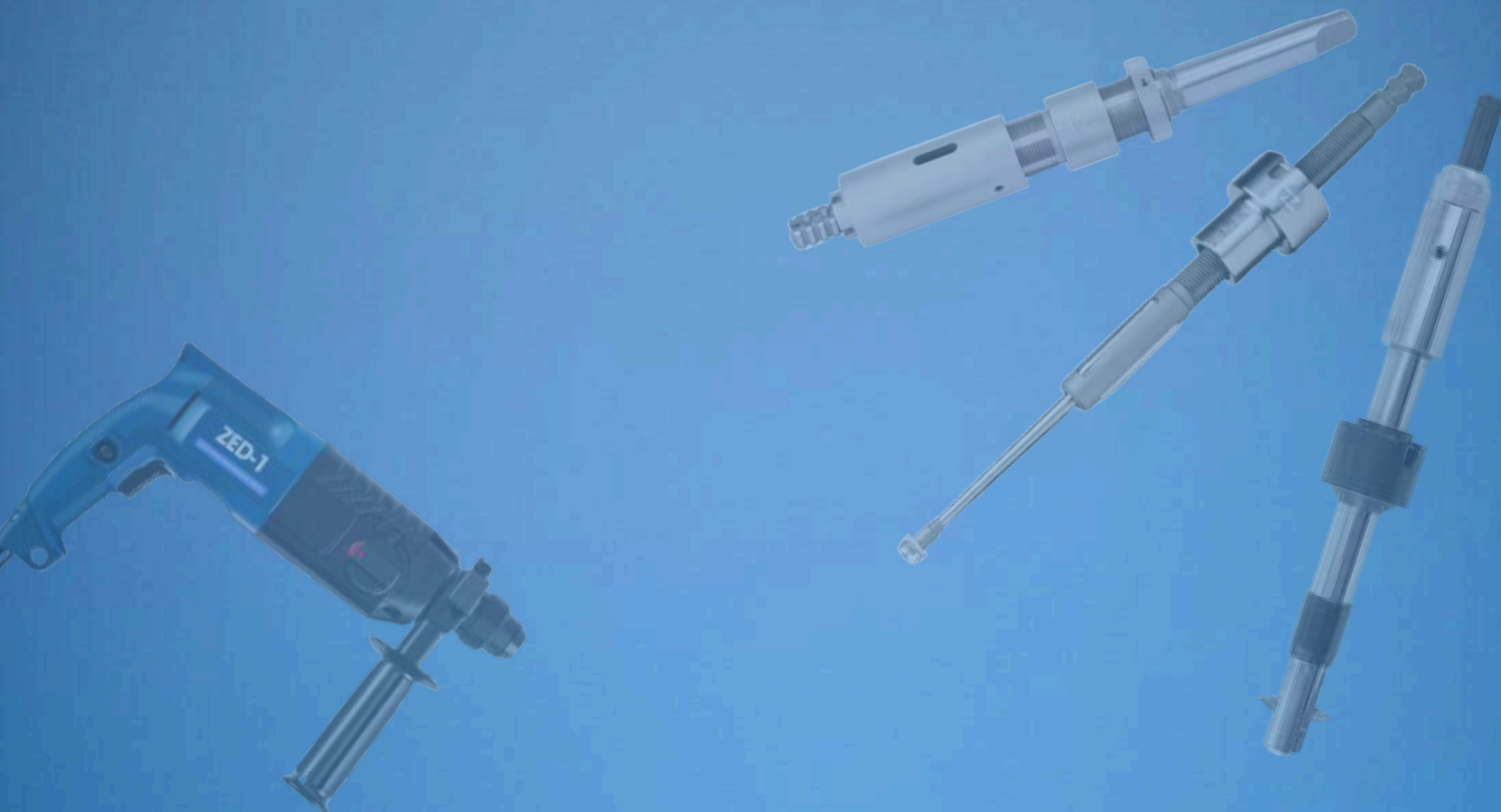
Note : For Tubes larger than 3" O.D., please contact us for larger size working consumables and larger size tube pulling guns. All models indicated above are for continuous tube pulling. When you are using equipment for stub pulling, please contact us for modifications needed.

ACCESSORIES FOR HYDRAULIC TUBE PULLER



SEQUENCE OF OPERATION





ZEAL INDIA

TOOLS AND EQUIPMENTS

EMAIL

sales@zealindia.co.in

WEB

www.zealindia.co.in

PHONE

+91 77159 22724 / +91 91372 52196



GSTIN - 27AYCPT0326N1Z5

