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ENGINEERING SELECTION CHART

| TYPE | AIR OPERATED | | | | | HYDRAULIC OPERATED | | | | | | |
|-------------------------------------|--------------|---------|---------|-----------|-----------|--------------------|-------------|---------|---------|-------------|-------------|-------------|
| MODEL | 206 | 220 | 222 | 260 | 264 | 320 | 322 | 360 | 364 | 7 | 7S | 7S-DS |
| Stroke/Cycle | 1 | 1 | 2 | 2 | 1 to 4 | 1 | 2 | 2 | 4 | 1 | 1 | 2 |
| Tube OD (in) | 1/8 - 3/4 | 1/4 - 2 | 1/4 - 2 | 1/8 - 3/4 | 1/8 - 3/4 | 1/4 - 2 1/2 | 1/4 - 2 1/2 | 1/8 - 1 | 1/8 - 1 | 1/4 - 3 1/2 | 1/4 - 3 1/2 | 1/4 - 3 1/2 |
| Forming stroke (in) | 2 | 4 | 4 | 1 1/2 | 1 1/2 | 4 | 6 | 4 | 4 | 6 | 15 | 15 |
| Forming force (ton) | 2 | 3.2 | 3.2 | 5 | 5 | 9.5 | 9.5 | 6.3 | 6.3 | 21 | 21 | 21 |
| based on (psi) ¹ | 80 | 80 | 80 | 80 | 80 | 1000 | 1800 | 1800 | 1000 | 1000 | 1000 | 1000 |
| Clamp stroke (in) | 3/4 | 1 1/2 | 1 1/2 | 7/8 | 7/8 | 1 7/8 | 1 7/8 | 1 | 1 | 2 | 2 | 2 |
| Clamp force (ton) | 3.2 | 4.5 | 4.5 | 5 | 5 | 12.5 | 12.5 | 10 | 10 | 28.5 | 28.5 | 28.5 |
| O/A Size L x W (in) | 34 x 24 | 39 x 26 | 42 x 24 | 34 x 26 | 34 x 26 | 40 x 86 | 47 x 86 | 34 x 60 | 34 x 60 | 55 x 60 | 85 x 66 | 85 x 66 |
| Shipping wieght (lb) | 800 | 1300 | 2000 | 1700 | 1700 | 300 | 3500 | 2200 | 2200 | 5500 | 6000 | 6500 |
| Production rate (pt/h) ² | 1200 | 1200 | 1200 | 1500 | 1500 | 1100 | 780 | 1100 | 1100 | 600 | 600 | 600 |
| Work center (in) | 17 | 43 | 39 | 38 | 38 | 39 | 39 | 38 | 38 | 42 | 42 | 42 |

¹For air operated machines 125 psi maximum and for hydraulically operated machines 1500 psi maximum

²Production rate is estimated on machine cycle time and dexterity of the operator to load and unload a part. Machine cycle varies with length of work stroke and number of strokes

FORMING FORCE EQUATION $P = C.A. \times T \times F$
C.A. = CROSS SECTIONAL AREA OF THE TUBE
T = TENSILE STRENGTH OF TUBE MATERIAL
F = FORMING FACTOR

| COMMON F VALUES | | COMMON T VALUES | |
|-----------------|-----|---------------------------|------------|
| Reduction | 0.7 | Soft materials | 30,000 psi |
| Expansion | 0.7 | (copper, aluminium, etc.) | |
| Single Flare | 0.7 | | |
| Double Flare | 1.5 | Mild Steel | 60,000 psi |
| Beading | 1.5 | | |
| Flanging | 1.0 | Specials steels | 90,000 psi |
| Coining | 3.0 | | |