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Punch Press Data

Hole Punching Tonnage "Quick Formula"

$$\frac{\text{Perimeter x Thickness x Shear Strength (In Thousands)}}{\text{divided by 2}} = \text{Tons}$$

Example 2" Square Hole in 1/4 M.S

$$\frac{8" \times .250 \times 50}{2} = 50 \text{ Tons}$$

Computation of Punching Pressures

Punching pressure required may be reduced by approximately one-half if shear is milled on the punch or die. Shear does not aid in reducing punching pressure when metal is 1/4" or more in thickness.

Example: To find punching pressure required to punch a 1" round hole through 16 gauge mild steel - 1" multiplied by 3.1416 (circumference) multiplied by .0598 (16 gauge) multiplied by 50,000 pounds (tensile strength) equals 9,817.5 pounds pressure required or approximately 5 tons.

Example: To find punching pressure required to punch a 1-1/2" square hole through 20 gauge stainless steel - 1-1/2 + 1-1/2 (circumference) multiplied by .0359 (20 gauge) multiplied by 90,000 pound (tensile strength) equals 22,500 pound pressure required or approximately 11 tons.

Steel Wt. Formula

LBS./FT.

Rounds - $2.67 \times \text{dia}^2$
Flats and sqs. - $3.4 \times \text{width} \times \text{thickness}$
Hexagon - $2.94 \times \text{dia}^2$ (Across Flats)
Round Tubing - $2.67 \times (D^2 - ID^2)$
Square Tubing - $3.4 \times (OD^2 - ID^2)$

LBS. PER SQ. FOOT

Plate - 4.8 thickness in inches