

Special Formulae For Stainless Steel Industry

1. Formulae for Sheet Weight & Circle Weight

- a. $L \text{ (in mm)} \times B \text{ (in mm)} \times \text{Thickness (in mm)} \times 0.0000081 = \text{Weight (in Kgs)}$
- b. $\text{Dia of Circle (in Inch)} \times (\text{Dia of Circle (in Inch)} \times \text{Thickness (in Thou)})/10 = \text{Weight of Circle in Kg}$
- c. $\text{Dia (in mm)} \times \text{DIA (in mm)} \times 0.00194 = \text{Weight of wire (in kg) per foot (12")}$

2. Shearing Force required for Punching Round Hole (assuming No Shear of die/punch)

$\text{Force (in kg)} = 155 \times \text{Dia of Hole (in mm)} \times \text{Thickness of sheet (in mm)}$

3. Drawing Speed of Various Material (This helps in calculating the maximum strokes per minute possible)

- a. Stainless Steel : 30-35 Foot per min (FPM)
- b. Mild Steel : 35-40 FPM
- c. Copper : 125- 150 FPM
- d. Brass : 175 -200 FPM
- e. Aluminium : 150-175 FPM

These speeds are for Double Action Presses for Drawing Cylindrical Cup Shaped Articles

4. Formula for Calculating Width of Sheet/Coil for Circle cutting:-

$\text{Width (in mm)} = 0.866 \times N \times D + 1.732 \times N + 3.464$

N = Number of Lines of Circles to be cut

D = Diameter of circle in mm

5. Formula for Calculating Circle Diameter : (for Straight shaped cup/vati)

$D = \text{Square Root } (4 \times d \times h + d \times d)$

D = Diameter of Circle in inch

d = Inside Dia of Cup in inch

h = Height of cup after draw in inch