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Rivet Dimensions Formulas

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List of 16 Rivet Dimensions Formulas

Rivet Dimensions

1) Diagonal pitch

Open Calculator

fx $$p_d = \frac{2 \cdot p_l + d}{3}$$

ex $$27.46667\text{mm} = \frac{2 \cdot 32.2\text{mm} + 18\text{mm}}{3}$$

2) Diameter of Rivet given Margin of Rivet

Open Calculator

fx $$d = \frac{m}{1.5}$$

ex $$18\text{mm} = \frac{27\text{mm}}{1.5}$$

3) Diameter of Rivet given Pitch along Caulking Edge

Open Calculator

fx $$d = p_c - 14 \cdot \left(\frac{(h_c)^3}{P_f} \right)^{\frac{1}{4}}$$

ex $$17.93051\text{mm} = 31.2\text{mm} - 14 \cdot \left(\frac{(14\text{mm})^3}{3.4\text{N/mm}^2} \right)^{\frac{1}{4}}$$

4) Diameter of rivets for lap joint

Open Calculator

fx $$d = \left(4 \cdot \frac{P}{\pi \cdot n \cdot \tau}\right)^{0.5}$$

ex $$18.03839\text{mm} = \left(4 \cdot \frac{46000\text{N}}{\pi \cdot 3 \cdot 60\text{N/mm}^2}\right)^{0.5}$$

5) Longitudinal pitch

Open Calculator

fx $$p_l = \frac{3 \cdot p_d - d}{2}$$

ex $$32.25\text{mm} = \frac{3 \cdot 27.5\text{mm} - 18\text{mm}}{2}$$

6) Margin of Rivet

Open Calculator

fx $$m = 1.5 \cdot d$$

ex $$27\text{mm} = 1.5 \cdot 18\text{mm}$$

7) Minimum transverse pitch as per ASME boiler code if ratio of p is to d is less than 4

Open Calculator

fx $$p_t = 1.75 \cdot d$$

ex $$31.5\text{mm} = 1.75 \cdot 18\text{mm}$$

8) Minimum transverse pitch as per ASME boiler code if ratio of p to d is greater than 4 (SI)

Open Calculator

fx $$p_t = 1.75 \cdot d + .001 \cdot (p_l - d)$$

ex $$31.5142\text{mm} = 1.75 \cdot 18\text{mm} + .001 \cdot (32.2\text{mm} - 18\text{mm})$$

9) Number of Rivets Per Pitch given Crushing Resistance of Plates

Open Calculator

fx $$n = \frac{P_c}{d \cdot t \cdot \sigma_c}$$

ex $$2.999688 = \frac{53800\text{N}}{18\text{mm} \cdot 10.6\text{mm} \cdot 94\text{N/mm}^2}$$

10) Pitch along caulking edge

Open Calculator

fx $$p_c = 14 \cdot \left(\left(\frac{(h_c)^3}{P_f} \right)^{\frac{1}{4}} \right) + d$$

ex $$31.26949\text{mm} = 14 \cdot \left(\left(\frac{(14\text{mm})^3}{3.4\text{N/mm}^2} \right)^{\frac{1}{4}} \right) + 18\text{mm}$$

11) Pitch of Rivet

Open Calculator

fx $$p = 3 \cdot d$$

ex $$54\text{mm} = 3 \cdot 18\text{mm}$$

12) Pitch of Rivets given Tensile Resistance of Plate between two Rivets

Open Calculator

fx $$p = \left(\frac{P_t}{t \cdot \sigma_t}\right) + d$$

ex $$54.03774\text{mm} = \left(\frac{28650\text{N}}{10.6\text{mm} \cdot 75\text{N/mm}^2}\right) + 18\text{mm}$$

13) Rivet Diameter given Thickness of Plate

Open Calculator

fx $$d = 0.2 \cdot \sqrt{t}$$

ex $$20.59126\text{mm} = 0.2 \cdot \sqrt{10.6\text{mm}}$$

14) Transverse pitch

Open Calculator

fx $$p_t = \sqrt{\left(\frac{2 \cdot p_l + d}{3}\right)^2 - \left(\frac{p_l}{2}\right)^2}$$

ex $$22.25326\text{mm} = \sqrt{\left(\frac{2 \cdot 32.2\text{mm} + 18\text{mm}}{3}\right)^2 - \left(\frac{32.2\text{mm}}{2}\right)^2}$$

15) Transverse Pitch for Zig-Zag riveting

Open Calculator

fx $$p_t = 0.6 \cdot p$$

ex $$32.4\text{mm} = 0.6 \cdot 54\text{mm}$$

16) Transverse Pitch of Rivet Chain Riveting

Open Calculator

fx $p_t = 0.8 \cdot p$

ex $43.2\text{mm} = 0.8 \cdot 54\text{mm}$

Variables Used

- **d** Diameter of Rivet *(Millimeter)*
- **h_c** Riveted Joint Cover Plate Thickness *(Millimeter)*
- **m** Margin of Rivet *(Millimeter)*
- **n** Rivets Per Pitch
- **p** Pitch of Rivet *(Millimeter)*
- **P** Tensile force on riveted plates *(Newton)*
- **p_c** Pitch along Caulking Edge *(Millimeter)*
- **P_c** Crushing Resistance of Riveted Plate per Pitch *(Newton)*
- **p_d** Diagonal Pitch of Rivet Joint *(Millimeter)*
- **P_f** Intensity of Fluid Pressure *(Newton per Square Millimeter)*
- **p_l** Longitudinal Pitch of Rivet Joint *(Millimeter)*
- **p_t** Transverse Pitch of Rivet *(Millimeter)*
- **P_t** Tensile Resistance of Plate Per Rivet Pitch *(Newton)*
- **t** Thickness of Plate of Riveted joint *(Millimeter)*
- **σ_c** Permissible Compressive Stress of Riveted Plate *(Newton per Square Millimeter)*
- **σ_t** Tensile Stress in Riveted Plate *(Newton per Square Millimeter)*
- **τ** Permissible Shear Stress for Rivet *(Newton per Square Millimeter)*

Constants, Functions, Measurements used

- Constant: **pi**, 3.14159265358979323846264338327950288
  Archimedes' constant
- Function: **sqrt**, sqrt(Number)
  Square root function
- Measurement: **Length** in Millimeter (mm)
  Length Unit Conversion
- Measurement: **Pressure** in Newton per Square Millimeter (N/mm²)
  Pressure Unit Conversion
- Measurement: **Force** in Newton (N)
  Force Unit Conversion

Check other formula lists

- **Rivet Dimensions Formulas**

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