

Important Rivet Dimensions Formulas PDF



Formulas Examples with Units

List of 16 Important Rivet Dimensions Formulas

1) Diagonal pitch Formula ↻

Formula

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

Example with Units

$$27.4667 \text{ mm} = \frac{2 \cdot 32.2 \text{ mm} + 18 \text{ mm}}{3}$$

Evaluate Formula ↻

2) Diameter of Rivet given Margin of Rivet Formula ↻

Formula

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

Example with Units

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

Evaluate Formula ↻

3) Diameter of Rivet given Pitch along Caulking Edge Formula ↻

Formula

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

Example with Units

$$17.9305 \text{ mm} = 31.2 \text{ mm} - 14 \cdot \left(\frac{(14 \text{ mm})^3}{3.4 \text{ N/mm}^2} \right)^{\frac{1}{4}}$$

Evaluate Formula ↻

4) Diameter of rivets for lap joint Formula ↻

Formula

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

Example with Units

$$18.0384 \text{ mm} = \left(4 \cdot \frac{46000 \text{ N}}{3.1416 \cdot 3 \cdot 60 \text{ N/mm}^2} \right)^{0.5}$$

Evaluate Formula ↻

5) Longitudinal pitch Formula ↻

Formula

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

Example with Units

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

Evaluate Formula ↻

6) Margin of Rivet Formula ↻

Formula

$$m = 1.5 \cdot d$$

Example with Units

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

Evaluate Formula ↻



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



Formula

$$p_t = 1.75 \cdot d$$

Example with Units

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

Evaluate Formula

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



Formula

$$p_t = 1.75 \cdot d + .001 \cdot (p_1 - d)$$

Example with Units

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

Evaluate Formula

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



Formula

$$n = \frac{P_c}{d \cdot t_1 \cdot \sigma_c}$$

Example with Units

$$2.9997 = \frac{53800 \text{ N}}{18 \text{ mm} \cdot 10.6 \text{ mm} \cdot 94 \text{ N/mm}^2}$$

Evaluate Formula

10) Pitch along caulking edge Formula



Formula

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

Example with Units

$$31.2695 \text{ mm} = 14 \cdot \left(\left(\frac{\left(\frac{14 \text{ mm}}{3.4 \text{ N/mm}^2} \right)^3}{\frac{1}{4}} \right) \right) + 18 \text{ mm}$$

Evaluate Formula

11) Pitch of Rivet Formula



Formula

$$p = 3 \cdot d$$

Example with Units

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

Evaluate Formula

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



Formula

$$p = \left(\frac{P_t}{t_1 \cdot \sigma_t} \right) + d$$

Example with Units

$$54.0377 \text{ mm} = \left(\frac{28650 \text{ N}}{10.6 \text{ mm} \cdot 75 \text{ N/mm}^2} \right) + 18 \text{ mm}$$

Evaluate Formula

13) Rivet Diameter given Thickness of Plate Formula



Formula

$$d = 0.2 \cdot \sqrt{t_1}$$

Example with Units

$$20.5913 \text{ mm} = 0.2 \cdot \sqrt{10.6 \text{ mm}}$$

Evaluate Formula



14) Transverse pitch Formula

Formula

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

Evaluate Formula 

Example with Units

$$22.2533 \text{ mm} = \sqrt{\left(\frac{2 \cdot 32.2 \text{ mm} + 18 \text{ mm}}{3}\right)^2 - \left(\frac{32.2 \text{ mm}}{2}\right)^2}$$

15) Transverse Pitch for Zig-Zag riveting Formula

Formula

$$p_t = 0.6 \cdot p$$

Example with Units

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

Evaluate Formula 

16) Transverse Pitch of Rivet Chain Riveting Formula

Formula

$$p_t = 0.8 \cdot p$$

Example with Units

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

Evaluate Formula 



Variables used in list of Rivet Dimensions Formulas above

- **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_1** Thickness of Plate 1 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)
- **T** Permissible Shear Stress for Rivet (Newton per Square Millimeter)

Constants, Functions, Measurements used in list of Rivet Dimensions Formulas above

- **constant(s):** π ,
3.14159265358979323846264338327950288
Archimedes' constant
- **Functions:** **sqrt**, sqrt(Number)
A square root function is a function that takes a non-negative number as an input and returns the square root of the given input number.
- **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 



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