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Rivet Dimensions Formulas

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List of 16 Rivet Dimensions Formulas

Rivet Dimensions

1) Diagonal pitch

$$fx \quad p_d = \frac{2 \cdot p_1 + d}{3}$$

[Open Calculator !\[\]\(a870788d6ed9b8fd294b7654a8c8526b_img.jpg\)](#)

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

2) Diameter of Rivet given Margin of Rivet

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

[Open Calculator !\[\]\(c50c8b7b2cc2cf9ff925edec0ee94c0d_img.jpg\)](#)

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

3) Diameter of Rivet given Pitch along Caulking Edge

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

[Open Calculator !\[\]\(f60b7a900783ac3fd531bfd9c111be6d_img.jpg\)](#)

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



4) Diameter of rivets for lap joint

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

[Open Calculator !\[\]\(cbe80b694ebd74fcfe136a095b608235_img.jpg\)](#)

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

5) Longitudinal pitch

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

[Open Calculator !\[\]\(3e2231b1ad3ca8da8658228c00dd08e0_img.jpg\)](#)

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

6) Margin of Rivet

$$\text{fx } m = 1.5 \cdot d$$

[Open Calculator !\[\]\(0d5ec72f61334709c3fc9450209b754f_img.jpg\)](#)

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

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

$$\text{fx } p_t = 1.75 \cdot d$$

[Open Calculator !\[\]\(b64b40baaee5acddc1eab8538ba84754_img.jpg\)](#)

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



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

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

[Open Calculator !\[\]\(e78f798d4ea5c530c9db49e7d26e6b95_img.jpg\)](#)

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

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

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

[Open Calculator !\[\]\(05be7c7a8995decd503647c99211f7c2_img.jpg\)](#)

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

10) Pitch along caulking edge

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

[Open Calculator !\[\]\(fe3aebe81acea8d45108cd2768939da7_img.jpg\)](#)

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

11) Pitch of Rivet

$$fx \quad p = 3 \cdot d$$

[Open Calculator !\[\]\(899d8b7697d64725bf017d3296cfcf1b_img.jpg\)](#)

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



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



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

Open Calculator

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

13) Rivet Diameter given Thickness of Plate

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

Open Calculator

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

14) Transverse pitch

$$fx \quad p_t = \sqrt{\left(\frac{2 \cdot p_1 + d}{3} \right)^2 - \left(\frac{p_1}{2} \right)^2}$$

Open Calculator

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

15) Transverse Pitch for Zig-Zag riveting

$$fx \quad p_t = 0.6 \cdot p$$

Open Calculator

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



16) Transverse Pitch of Rivet Chain Riveting

$$\text{fx } p_t = 0.8 \cdot p$$

[Open Calculator !\[\]\(d3fb9f94af8b26d1c844efa9a98805b0_img.jpg\)](#)

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






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_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

- **Constant:** **pi**, 3.14159265358979323846264338327950288
Archimedes' constant
- **Function:** **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 



Check other formula lists

- [Rivet Dimensions Formulas](#) 

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