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Bolted Joints Formulas

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List of 10 Bolted Joints Formulas

Bolted Joints

1) Axial Length of Sleeve of Muff Coupling

$$\text{fx } L = 2 \cdot d + 0.013$$

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

$$\text{ex } 67\text{mm} = 2 \cdot 27\text{mm} + 0.013$$

2) Diameter of Driving Shaft of Clamp Coupling given Length of Sleeve

$$\text{fx } d = \frac{L_{sh}}{3.5}$$

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

$$\text{ex } 27.14286\text{mm} = \frac{95\text{mm}}{3.5}$$

3) Diameter of Driving Shaft of Clamp Coupling given Outer diameter of Sleeve Halves

$$\text{fx } d = \frac{D_{so}}{2.5}$$

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

$$\text{ex } 27.2\text{mm} = \frac{68\text{mm}}{2.5}$$



4) Diameter of Driving Shaft of Muff Coupling given Axial Length of Sleeve



$$fx \quad d = \frac{L - 0.013}{2}$$

[Open Calculator](#)

$$ex \quad 27mm = \frac{67mm - 0.013}{2}$$

5) Diameter of Driving Shaft of Muff Coupling given Outer Diameter of Sleeve



$$fx \quad d = \frac{D_{so} - 0.013}{2}$$

[Open Calculator](#)

$$ex \quad 27.5mm = \frac{68mm - 0.013}{2}$$

6) Length of Sleeve Halves of Clamp Coupling



$$fx \quad L_{sh} = 3.5 \cdot d$$

[Open Calculator](#)

$$ex \quad 94.5mm = 3.5 \cdot 27mm$$

7) Outer Diameter of Sleeve Halves of Clamp Coupling



$$fx \quad D_{so} = 2.5 \cdot d$$

[Open Calculator](#)

$$ex \quad 67.5mm = 2.5 \cdot 27mm$$



8) Outer Diameter of Sleeve of Muff Coupling

$$fx \quad D_{so} = 2 \cdot d + 0.013$$

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

$$ex \quad 67mm = 2 \cdot 27mm + 0.013$$

9) Tensile Force on Each Bolt of Clamp Coupling

$$fx \quad P_t = \frac{2 \cdot N_{clamping}}{n}$$

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

$$ex \quad 12000N = \frac{2 \cdot 48000N}{8}$$

10) Tensile Force on Each Bolt of Clamp Coupling given Torque

$$fx \quad P_t = \frac{2 \cdot M_t}{\mu \cdot d \cdot n}$$

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

$$ex \quad 12268.52N = \frac{2 \cdot 397500N \cdot mm}{0.3 \cdot 27mm \cdot 8}$$






Variables Used

- **d** Diameter of Driving Shaft for Coupling (*Millimeter*)
- **D_{so}** Outer Diameter of Sleeve of Coupling (*Millimeter*)
- **L** Axial Length of Sleeve of Muff Coupling (*Millimeter*)
- **L_{sh}** Length of Sleeve Halves of Coupling (*Millimeter*)
- **M_t** Torque Transmitted by Coupling (*Newton Millimeter*)
- **n** Number of Bolts in Clamp Coupling
- **N_{clamping}** Clamping Force on Shaft for Clamp Coupling (*Newton*)
- **P_t** Tensile Force on Clamp Coupling Bolt (*Newton*)
- **μ** Coefficient of Friction for Clamp Coupling



Constants, Functions, Measurements used

- **Measurement: Length** in Millimeter (mm)
Length Unit Conversion 
- **Measurement: Force** in Newton (N)
Force Unit Conversion 
- **Measurement: Torque** in Newton Millimeter (N*mm)
Torque Unit Conversion 



Check other formula lists

- Bolted Joints Formulas 

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