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Design of Rigid Flange Coupling Formulas

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List of 14 Design of Rigid Flange Coupling Formulas

Design of Rigid Flange Coupling

Hub and Flange Dimensions

1) Diameter of Spigot and Recess of Rigid Flange Coupling

$$fx \quad d_r = 1.5 \cdot d$$

[Open Calculator !\[\]\(de95854c7ee024cfadc48187bbb781b2_img.jpg\)](#)

$$ex \quad 42\text{mm} = 1.5 \cdot 28\text{mm}$$

2) Length of Hub of Rigid Flange Coupling given Diameter of Driving Shaft

$$fx \quad l_h = 1.5 \cdot d$$

[Open Calculator !\[\]\(6a9b39b98eb945faa14c645ec99e4eaa_img.jpg\)](#)

$$ex \quad 42\text{mm} = 1.5 \cdot 28\text{mm}$$

3) Outside Diameter of Flange of Rigid Flange Coupling

$$fx \quad D_o = 4 \cdot d + 2 \cdot t_1$$

[Open Calculator !\[\]\(f1c5da15572e3e09d343161be98f508d_img.jpg\)](#)

$$ex \quad 126\text{mm} = 4 \cdot 28\text{mm} + 2 \cdot 7\text{mm}$$



4) Outside Diameter of Hub of Rigid Flange Coupling given Diameter of Driving Shaft

$$fx \quad d_h = 2 \cdot d$$

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

$$ex \quad 56\text{mm} = 2 \cdot 28\text{mm}$$

5) Pitch Circle Diameter of Bolts of Rigid Flange Coupling

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

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

$$ex \quad 84\text{mm} = 3 \cdot 28\text{mm}$$

6) Thickness of flanges of Rigid Flange Coupling

$$fx \quad t_f = 0.5 \cdot d$$

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

$$ex \quad 14\text{mm} = 0.5 \cdot 28\text{mm}$$

7) Thickness of Protecting Rim of Rigid Flange Coupling

$$fx \quad t_1 = 0.25 \cdot d$$

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

$$ex \quad 7\text{mm} = 0.25 \cdot 28\text{mm}$$



Shaft Dimensions

8) Diameter of Shaft of Rigid Flange Coupling given Diameter of Spigot and Recess

$$\text{fx } d = \frac{d_r}{1.5}$$

[Open Calculator !\[\]\(23d9fc146e83b5c3013cfa32c784f8d5_img.jpg\)](#)

$$\text{ex } 28\text{mm} = \frac{42\text{mm}}{1.5}$$

9) Diameter of Shaft of Rigid Flange Coupling given Length of Hub

$$\text{fx } d = \frac{l_h}{1.5}$$

[Open Calculator !\[\]\(aa53ad6fea213b8b2226d3077e30533a_img.jpg\)](#)

$$\text{ex } 27\text{mm} = \frac{40.500\text{mm}}{1.5}$$

10) Diameter of Shaft of Rigid Flange Coupling given Outside Diameter of Flange

$$\text{fx } d = \frac{D_o - 2 \cdot t_1}{4}$$

[Open Calculator !\[\]\(626ce8ac21792b9405bfddfea8e0c96a_img.jpg\)](#)

$$\text{ex } 27.9\text{mm} = \frac{125.6\text{mm} - 2 \cdot 7\text{mm}}{4}$$



11) Diameter of Shaft of Rigid Flange Coupling given Outside Diameter of Hub

$$fx \quad d = \frac{d_h}{2}$$

[Open Calculator !\[\]\(e2376d476d06eb31946dc01a69a4403a_img.jpg\)](#)

$$ex \quad 28mm = \frac{56mm}{2}$$

12) Diameter of Shaft of Rigid Flange Coupling given Pitch Circle Diameter of Bolts

$$fx \quad d = \frac{D_p}{3}$$

[Open Calculator !\[\]\(0b5e7e25e8775f7e7e80906ada4f0021_img.jpg\)](#)

$$ex \quad 28mm = \frac{84mm}{3}$$

13) Diameter of Shaft of Rigid Flange Coupling given Thickness of Flanges

$$fx \quad d = 2 \cdot t_f$$

[Open Calculator !\[\]\(bd3b31712ad9bab5a241210fa6925cdd_img.jpg\)](#)

$$ex \quad 28mm = 2 \cdot 14mm$$

14) Diameter of Shaft of Rigid Flange Coupling given Thickness of Protecting Rim

$$fx \quad d = 4 \cdot t_1$$

[Open Calculator !\[\]\(7bc43b319a082987e20f7bf78f4bab80_img.jpg\)](#)

$$ex \quad 28mm = 4 \cdot 7mm$$



Variables Used

- d Diameter of Driving Shaft for Coupling (*Millimeter*)
- d_h Outside Diameter of Hub of Coupling (*Millimeter*)
- D_o Outside Diameter of Flange of Coupling (*Millimeter*)
- D_p Pitch Circle Diameter of Bolts of Coupling (*Millimeter*)
- d_r Diameter of Spigot and Recess of Coupling (*Millimeter*)
- l_h Length of Hub for Coupling (*Millimeter*)
- t_1 Thickness of Protecting Rim for Coupling (*Millimeter*)
- t_f Thickness of Flanges of Coupling (*Millimeter*)



Constants, Functions, Measurements used

- **Measurement: Length** in Millimeter (mm)
Length Unit Conversion 



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