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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

### 1) Diameter of Spigot and Recess of Rigid Flange Coupling

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

[Open Calculator !\[\]\(a870788d6ed9b8fd294b7654a8c8526b\_img.jpg\)](#)

**ex**  $40.5\text{mm} = 1.5 \cdot 27\text{mm}$

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

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

[Open Calculator !\[\]\(c50c8b7b2cc2cf9ff925edec0ee94c0d\_img.jpg\)](#)

**ex**  $40.5\text{mm} = 1.5 \cdot 27\text{mm}$

### 3) Outside Diameter of Flange of Rigid Flange Coupling

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

[Open Calculator !\[\]\(f60b7a900783ac3fd531bfd9c111be6d\_img.jpg\)](#)

**ex**  $121.6\text{mm} = 4 \cdot 27\text{mm} + 2 \cdot 6.8\text{mm}$

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

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

[Open Calculator !\[\]\(83bbbd261710c59db0214aa27b2edc0d\_img.jpg\)](#)

**ex**  $54\text{mm} = 2 \cdot 27\text{mm}$



### 5) Pitch Circle Diameter of Bolts of Rigid Flange Coupling

$$\text{fx } D_p = 3 \cdot d$$

[Open Calculator !\[\]\(cbe80b694ebd74fcfe136a095b608235\_img.jpg\)](#)

$$\text{ex } 81\text{mm} = 3 \cdot 27\text{mm}$$

### 6) Thickness of flanges of Rigid Flange Coupling

$$\text{fx } t_f = 0.5 \cdot d$$

[Open Calculator !\[\]\(3e2231b1ad3ca8da8658228c00dd08e0\_img.jpg\)](#)

$$\text{ex } 13.5\text{mm} = 0.5 \cdot 27\text{mm}$$

### 7) Thickness of Protecting Rim of Rigid Flange Coupling

$$\text{fx } t_1 = 0.25 \cdot d$$

[Open Calculator !\[\]\(0d5ec72f61334709c3fc9450209b754f\_img.jpg\)](#)

$$\text{ex } 6.75\text{mm} = 0.25 \cdot 27\text{mm}$$

## Diameter of Shaft

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

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

[Open Calculator !\[\]\(84f47badaad7772cd95667a7c387a639\_img.jpg\)](#)

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



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

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

[Open Calculator !\[\]\(e78f798d4ea5c530c9db49e7d26e6b95\_img.jpg\)](#)

$$ex \quad 26.66667mm = \frac{40mm}{1.5}$$

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

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

[Open Calculator !\[\]\(05be7c7a8995decd503647c99211f7c2\_img.jpg\)](#)

$$ex \quad 27.85mm = \frac{125mm - 2 \cdot 6.8mm}{4}$$

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

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

[Open Calculator !\[\]\(fe3aebe81acea8d45108cd2768939da7\_img.jpg\)](#)

$$ex \quad 27.5mm = \frac{55mm}{2}$$



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

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

[Open Calculator !\[\]\(e2376d476d06eb31946dc01a69a4403a\_img.jpg\)](#)

$$\text{ex } 28.33333\text{mm} = \frac{85\text{mm}}{3}$$

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

$$\text{fx } d = 2 \cdot t_f$$

[Open Calculator !\[\]\(0b5e7e25e8775f7e7e80906ada4f0021\_img.jpg\)](#)

$$\text{ex } 28\text{mm} = 2 \cdot 14\text{mm}$$

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

$$\text{fx } d = 4 \cdot t_1$$

[Open Calculator !\[\]\(bd3b31712ad9bab5a241210fa6925cdd\_img.jpg\)](#)

$$\text{ex } 27.2\text{mm} = 4 \cdot 6.8\text{mm}$$



## 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 & 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* 



## Check other formula lists

- **Design of Rigid Flange Coupling Formulas** 

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