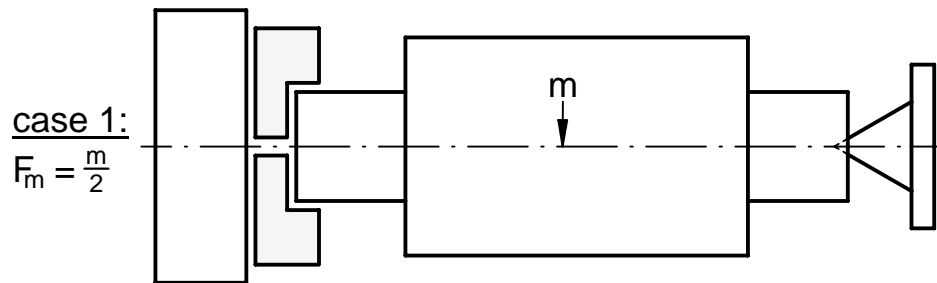
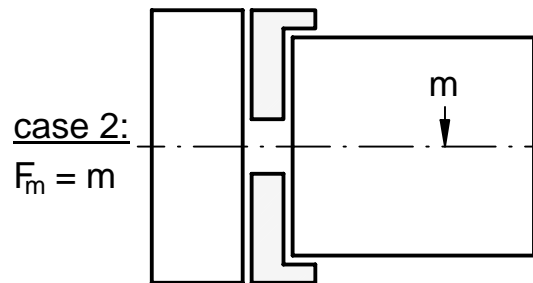


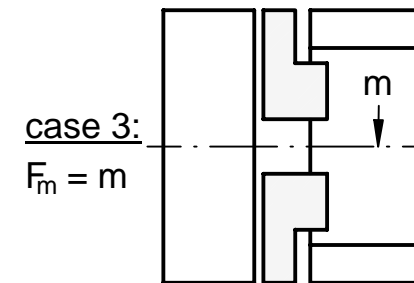
Dimensioning- Calculation for Power Clamping Screw MSP / MSPD



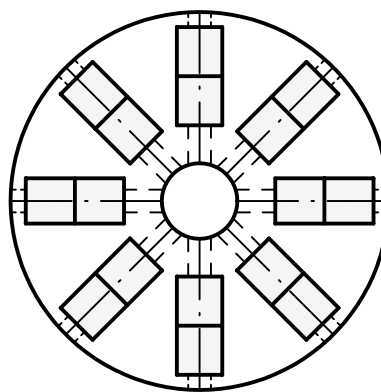
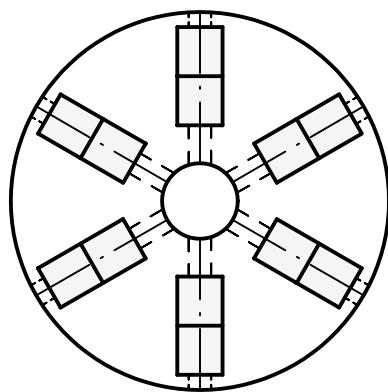
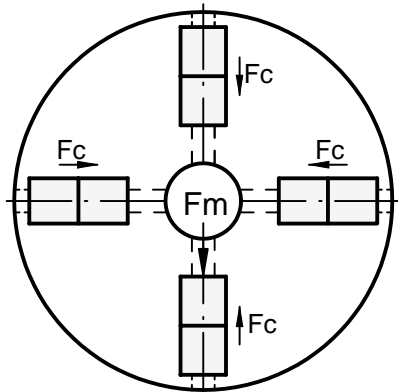
$n=4 \rightarrow f_n=1$



$n=6 \rightarrow f_n=1,5$



$n=8 \rightarrow f_n=2$



| MSP size | F_{sn} [kN] external / internal | $F_{smax.}$ [kN] |
|----------|--------------------------------------|------------------|
| 65 | 150 / 100 | 250 |
| 80 | 200 / 140 | 300 |
| 100 | 250 / 180 | 400 |
| 120 | 300 / 220 | 600 |
| 160 | 400 / 300 | 800 |
| 200 | 500 / 400 | 1200 |

The total amount of clamping force and weight of the working piece has to be less than the value of the max. allowed static load "Fs max" :

$$F_{total} = \frac{F_m}{f_n} + F_c \leq F_{smax} \quad \text{or} \quad F_{smax} - F_c \geq \frac{F_m}{f_n}$$

* Remark: The clamping force F_c should not succeed the nominal clamping force F_{sn} of the respective Power Clamping Screw size; reduced clamping force values are permitting a higher workpiece weight. Generally it is to say that $F_c = F_{sn}$. Specific application factors (unbalanced mass...) have to be respected.

- F_c → required clamping force per Power Clamping Screw [kN]
- F_{sn} → nominal clamping force of the Power Clamping screw [kN]
- F_{smax} → max. allowed static load [kN]
- n → number of Power Clamping Screws per face plat
- f_n → load factor (for adversial load distribution)
- m → weight of the workpiece [kg bzw. to]
- F_m → weight of workpiece in [kN] [1to $\hat{=}$ 10kN]

Calculation example: max. weight of workpiece: 80 to = 800 kN; case1: $F_m = m / 2 = 40\text{to} \hat{=} 400\text{kN}$; number of Power Clamping Screws: 4 → $f_n = 1$
necessary clamping force $F_c = 300$ kN; external clamping → series MSP

According to the clamping force - preselection of type MSP 120: $F_{smax} - F_c = 600 - 300 = 300$ kN and $F_m / f_n = 400 / 1 = 400$ kN
i.e. the sizing condition of 300 kN > 400 kN is not complied i. e. the next bigger screw size has to be chosen. Checkup with
MSP 160: $F_{smax} - F_c = 800 - 300 = 500$ kN respectively $F_{ges} = 400 + 300 = 700$ kN ≤ $F_{smax} = 800$ kN → Sizing is OK !