

- 4.12 $F_{Ax} = 300 \text{ N}$, $F_{Ay} = -300 \text{ N}$, $F_{Az} = 500 \text{ N}$, $F_A = 655,7 \text{ N}$,
 $S_1 = 300 \text{ N}$, $S_2 = 300 \text{ N}$, $S_3 = 800 \text{ N}$.
- 4.13 $S_1 = 541,8 \text{ N}$, $S_2 = 210,2 \text{ N}$,
 $F_{Ax} = -46,15 \text{ N}$, $F_{Ay} = 565,4 \text{ N}$, $F_{Az} = 207,7 \text{ N}$, $F_A = 604,1 \text{ N}$.
- 4.14 $F_S = 669,2 \text{ N}$, $F_{Ax} = 267,7 \text{ N}$, $F_{Ay} = 535,3 \text{ N}$, $F_{Az} = 700,8 \text{ N}$, $F_A = 921,5 \text{ N}$,
 $F_{Bx} = 0$, $F_{Bz} = 0$.
- 4.15 $F_B = 169,9 \text{ N}$, $F_S = 277 \text{ N}$.
- 4.16 $S_1 = 250 \text{ N}$, $S_2 = -175 \text{ N}$, $S_3 = 375 \text{ N}$, $S_4 = 0$, $S_5 = 250 \text{ N}$, $S_6 = -350 \text{ N}$.
- 4.17 $F_{AC} = F_{BC} = 240 \text{ N}$, $F_{CD} = -1046 \text{ N}$.
- 4.18 $F_{Ax} = 1,061 \text{ kN}$, $F_{Ay} = -2,121 \text{ kN}$, $F_{Az} = -1,5 \text{ kN}$, $F_A = 2,806 \text{ kN}$,
 $F_{Bx} = F_{Bz} = 0$, $F_S = 2,806 \text{ kN}$.
- 4.19 $F_{Ax} = -2,30 \text{ kN}$, $F_{Ay} = 7,5 \text{ kN}$, $F_{Az} = -1,422 \text{ kN}$, $F_A = 7,926 \text{ kN}$,
 $S_1 = 2,115 \text{ kN}$, $S_2 = 5,192 \text{ kN}$.
- 4.20 $F_{Ax} = -0,866 \text{ kN}$, $F_{Ay} = 0,5 \text{ kN}$, $F_{Az} = 1 \text{ kN}$, $F_{Bx} = 0 \text{ kN}$, $F_{Bz} = -2 \text{ kN}$, $S = 1,414 \text{ kN}$.
- 4.21 $F_{Ax} = -1 \text{ kN}$, $F_{Ay} = 0$, $F_{Az} = 1,732 \text{ kN}$, $M_{Ax} = 6,928 \text{ kN}\cdot\text{m}$, $M_{Ay} = 4,196 \text{ kN}\cdot\text{m}$,
 $M_{Az} = 4 \text{ kN}\cdot\text{m}$.
- 4.22 $F_{Ax} = 0$, $F_{Bx} = 0$, $F_{Az} = 250 \text{ N}$, $F_{Bz} = 1250 \text{ N}$, $F_{Cz} = -500 \text{ N}$, $F_{Cy} = 0$.
- 4.23 $F = 461,9 \text{ N}$, $F_B = 1139 \text{ N}$, $F_A = -122,9 \text{ N}$.
- 4.24 $F_{Ax} = 100 \text{ N}$, $F_{Ay} = 50 \text{ N}$, $F_{Az} = 75 \text{ N}$, $F_A = 135 \text{ N}$,
 $F_{By} = 250 \text{ N}$, $F_{Bz} = 75 \text{ N}$, $F_B = 261 \text{ N}$, $F_S = 350 \text{ N}$.
- 4.25 $S_1 = 3,29 \text{ kN}$, $S_2 = 1,5 \text{ kN}$, $F_{Ax} = 0$, $F_{Ay} = 2,76 \text{ kN}$, $F_{Az} = 0,095 \text{ kN}$.
- 4.26 $F_{Ax} = 0$, $F_{Az} = 0,4 \text{ kN}$, $F_{Bx} = 0$, $F_{Bz} = -0,93 \text{ kN}$, $F_S = 1,53 \text{ kN}$.
- 4.27 $F_{Ax} = 2,8 \text{ kN}$, $F_{Ay} = 0,58 \text{ kN}$, $F_{Az} = 6,50 \text{ kN}$, $S_1 = -2,89 \text{ kN}$, $S_2 = 5,19 \text{ kN}$.
- 4.28 $F_{Ax} = F_{Ay} = F_{Az} = F_{Bz} = 1 \text{ kN}$, $F_A = 1,732 \text{ kN}$, $F_{Bx} = 0$, $F_S = 1,732 \text{ kN}$.
- 4.29 $F_{Ax} = F_{Az} = 0$, $F_{Ay} = 4 \text{ kN}$, $F_{Bx} = 4 \text{ kN}$, $F_{Bz} = 1 \text{ kN}$, $F_S = 5657 \text{ N}$.
- 4.30 $F_{Ax} = 0$, $F_{Ay} = -1,732 \text{ kN}$, $F_{Az} = 1 \text{ kN}$,
 $M_{Ax} = -1,2 \text{ kN}\cdot\text{m}$, $M_{Ay} = -5 \text{ kN}\cdot\text{m}$, $M_{Az} = -3,46 \text{ kN}\cdot\text{m}$.
- 4.31 $F_{Ax} = -500 \text{ N}$, $F_{Ay} = 1000 \text{ N}$, $F_{Az} = 0$,
 $M_{Ax} = 125 \text{ N}\cdot\text{m}$, $M_{Ay} = 0$, $M_{Az} = 250 \text{ N}\cdot\text{m}$.
- 4.32 $S_1 = 0$, $S_2 = 4,95 \text{ kN}$, $S_3 = 2,4 \text{ kN}$, $F_{Ax} = 1,125 \text{ kN}$, $F_{Ay} = 5 \text{ kN}$, $F_{Az} = 2 \text{ kN}$.
- 4.33 $S_1 = -9 \text{ kN}$, $S_2 = 9,48 \text{ kN}$, $S_3 = 0$, $F_{Ax} = F_{Ay} = F_{Az} = 0$.
- 4.34 $F_{Ax} = 2 \text{ kN}$, $F_{Ay} = 4 \text{ kN}$, $F_{Az} = 0$, $S_1 = 6,298 \text{ kN}$, $S_2 = -2,828 \text{ kN}$, $S_3 = 0$.
- 4.35 $F_S = 6,5 \text{ kN}$, $F_{Ax} = 9,63 \text{ kN}$, $F_{Ay} = 4,25 \text{ kN}$, $F_A = 10,53 \text{ kN}$.
- 4.36 $F_S = 30 \text{ N}$, $F_{Bx} = -26 \text{ N}$, $F_{By} = 265 \text{ N}$, $F_B = 266,3 \text{ N}$.
- 4.37 $S_1 = 7,64 \text{ kN}$, $S_2 = 1,27 \text{ kN}$, $F_{Ax} = 6,3 \text{ kN}$, $F_{Ay} = -0,9 \text{ kN}$, $F_A = 6,43 \text{ kN}$,
 $F_B = 1,27 \text{ kN}$.