

- 7.22  $A = \frac{R^2 \pi}{2} - b \cdot h = 76,531 \text{ cm}^2$ ,  $y_S = 0$ ,  $z_S = 3,833 \text{ cm}$ ,  $I_y = I_z = 356,2 \text{ cm}^4$ ,  
 $I_{y'} = \frac{R^4 \pi}{8} - \frac{bh^3}{3} = 1480,5 \text{ cm}^4$ ,  $I_z = I_1 = 1536,5 \text{ cm}^4$ ,  $I_{yz} = 0$ ,  $\varphi_0 = 0^\circ$ .
- 7.23  $A = 96,4115 \text{ cm}^2$ ,  $y_S = 0$ ,  $z_S = 0,6534 \text{ cm}$ ,  $I_y = I_{y'} - A \cdot z_S^2 = 1246 \text{ cm}^4 = I_2$ ,  
 $I_z = I_{y'} = 1287 \text{ cm}^4 = I_1$ ,  $\varphi_0 = 0^\circ$
- 7.24  $A = 30,863 \text{ cm}^2$ ,  $y_S = 4,96 \text{ cm}$ ,  $z_S = 0$ ,  $I_y = I_1 = 116,691 \text{ cm}^4$ ,  
 $I_z = I_2 = 87,175 \text{ cm}^4$ ,  $I_{yz} = 0$ ,  $\varphi_0 = 0^\circ$ .
- 7.25  $A = 49,416 \text{ cm}^2$ ,  $y_S = 0,7285 \text{ cm}$ ,  $z_S = 1,6864 \text{ cm}$ ,  $I_y = 294,8763 \text{ cm}^4$ ,  
 $I_z = 598,1813 \text{ cm}^4$ ,  $I_{yz} = -114,7092 \text{ cm}^4$ ,  $I_1 = 636,678 \text{ cm}^4$ ,  $I_2 = 256,38 \text{ cm}^4$ ,  
 $\varphi_0 = -18,552^\circ$ .
- 7.26  $I_y = 928 \text{ cm}^4$ ,  $I_z = 430,47 \text{ cm}^4$ ,  $I_{yz} = -469,48 \text{ cm}^4$ ,  $\varphi_0 = 31,04^\circ$ ,  
 $I_1 = 1210,55 \text{ cm}^4$ ,  $I_2 = 147,92 \text{ cm}^4$ .
- 7.27 Iz priručnika za profil [ NP180:  $A_1 = 28 \text{ cm}^2$ ,  $e_y = 1,92 \text{ cm}$ ,  $I_{y1} = 1350 \text{ cm}^4$ ,  
 $I_{z1} = 114 \text{ cm}^4$ .  
 $I_y = 2 \cdot \left[ I_{y1} + \left( \frac{ab^3}{12} + a \cdot b \cdot \left( \frac{h+b}{2} \right)^2 \right) \right]$ ,  $I_z = 2 \cdot \left[ \left( I_{z1} + A_1 \cdot \left( \frac{d}{2} + e_y \right)^2 \right) + \frac{a^3 b}{12} \right]$ ,  
 $I_y = I_z = 7036 \text{ cm}^4$ ,  $d = 14,09 \text{ cm}$ .
- 7.28 Iz priručnika za profil [ NP160:  $A_1 = 24 \text{ cm}^2$ ,  $e_y = 1,84 \text{ cm}$ ,  $I_{y1} = 925 \text{ cm}^4$ ,  
 $I_{z1} = 85,3 \text{ cm}^4$ ,  $b_1 = 6,5 \text{ cm}$ .  $A = 2A_1 + bh = 96 \text{ cm}^2$ .  
 $I_y = I_1 = 2I_{y1} + \frac{bh^3}{12} = 2874 \text{ cm}^4$ ,  $I_z = 2 \cdot \left[ I_{z1} + A_1 \cdot \left( \frac{b}{2} + e_y \right)^2 \right] + \frac{b^3 h}{12}$ ,  
 $I_z = I_2 = 742,07 \text{ cm}^4$ ,  $W_y = \frac{I_y}{0,5h} = 359,25 \text{ cm}^3$ ,  $i_2 = 2,78 \text{ cm}$ ,  
 $W_z = \frac{I_z}{0,5b + b_1} = 92,76 \text{ cm}^3$ ,  $i_1 = 5,47 \text{ cm}$ .

## 8 LANČANICE

- 8.1  $f = 2,45 \text{ m}$ ,  $S_{\max} = F_A = F_B = 1681 \text{ N}$ ,  $F_H = 1633 \text{ N}$ ,  $\varphi_A = \varphi_B = 13,76^\circ$ .
- 8.2  $F_A = 6715 \text{ N}$ ,  $F_B = 6679 \text{ N}$ ,  $F_C = F_H = 6667 \text{ N}$ ,  $\varphi_A = 6,843^\circ$ ,  $\varphi_B = 3,434^\circ$ .
- 8.3  $q = 36,12 \text{ N/m}$ ,  $f = 29,024 \text{ m}$ ,  $S_{\max} = F_A = F_B = 1520 \text{ N}$ ,  $F_H = 471,5 \text{ N}$ ,  
 $\varphi_A = \varphi_B = 71,93^\circ$ .
- 8.4  $q = 53,74 \text{ N/m}$ ,  $a = 25,714 \text{ m}$ ,  $F_H = 9870 \text{ N}$ ,  $S_{\max} = F_B = 10041 \text{ N}$ ,  $\varphi_B = 10,57^\circ$ ,  
 $F_A = 9967 \text{ N}$ ,  $\varphi_A = 8^\circ$ .