

$$a) T_2 = i_{12} \cdot \eta_{12} \cdot T_1 \Rightarrow i_{12} = \frac{T_2}{\eta_{12} \cdot T_1} = \frac{52}{0,94 \cdot 12,93} = 4,34$$

$$T_1 = \frac{P_1}{\omega_1} = \frac{6000}{471} = 12,93 \text{ Nm}$$

$$\omega_1 = \frac{2\pi n_1}{60} = \frac{2\pi \cdot 4500}{60} = 471 \text{ s}^{-1}$$

$$i_{12} = \frac{d_2}{d_1} \cdot \frac{1}{1 - f_k} \Rightarrow d_2 = i_{12} \cdot d_1 \cdot (1 - f_k) ; f_k = 0,01 \div 0,03 = 0,02$$

$$d_2 = 4,34 \cdot 112 \cdot (1 - 0,02) = 476,3 \text{ mm}$$

$$a = (0,7 \div 2)(d_1 + d_2) = (0,7 \div 2)(112 + 476,3) = \overbrace{(0,7 \div 2)}^{1,317} (588,3) = 775 \text{ mm}$$

$$\sin \gamma = \frac{d_2 - d_1}{2 \cdot a} = \frac{476,3 - 112}{2 \cdot 775} = 0,235 \Rightarrow \gamma = \arcsin 0,235 = 13,6^\circ$$

$$\beta_1 = 180^\circ - 2 \cdot \gamma = 180^\circ - 2 \cdot 13,6^\circ = 152,8^\circ \Rightarrow T_{9.2} \text{ шпр 329}$$

$$\frac{F_t}{b} = 9 \frac{\text{N}}{\text{мм}^2} (\beta \approx 150^\circ)$$

$$b_r = \frac{C \cdot F_t}{(F_t/b)} = \frac{1,1 \cdot 227,3}{9} = 27,98 \text{ mm} \Rightarrow T_{9.2} \text{ шпр 329}$$

$$b = 32 \text{ mm}$$

→ шпонгроз на шпунта
в плоскост конуса

$$F_{t1} = \frac{2T_1}{d_1} = \frac{2 \cdot 12,93 \cdot 10^3}{112} = 227,3 \text{ N}$$

$$C_A = 1,1$$

$$\delta) L_r = 2 \cdot a \cos \gamma + (d_1 \cdot \beta_1 + d_2 \cdot \beta_2) \frac{\pi}{360^\circ} ;$$

$$\beta_2 = 180 + 2\gamma = 207,2$$

$$L_r = 2 \cdot 775 \cdot \cos 13,6^\circ + (112 \cdot 152,8^\circ + 476,3 \cdot 207,2^\circ) \frac{\pi}{360^\circ} =$$

$$L_r = 1506 + 1010 = 2516 \text{ mm}^* \Rightarrow T_{9.5} \text{ шпр 337} \quad \boxed{L = 2560 \text{ mm}}$$

* зокрушений на шпръ конус шпонгроз
гущинъ конуса

T 9.5 шпр 337, на гл шпроне

$$b) \quad u = 0,3 \quad S = 2$$

$$F_1 = \frac{e^{\mu \beta_1}}{e^{\mu \beta_1} - 1} \cdot S_{\mu} \cdot C_A \cdot F_{t1} \Rightarrow S_{\mu} = \frac{F_1}{\frac{e^{\mu \beta_1}}{e^{\mu \beta_1} - 1} \cdot C_A \cdot F_{t1}}$$

$$F_1 = \frac{b \cdot (F_m / b)}{S} = \frac{32 \cdot 225}{2} = 3600 \text{ N}$$

$$\text{TYP 10} \Rightarrow \text{T.92} \text{ при } 329 \Rightarrow \frac{F_m}{b} = 225 \frac{\text{N}}{\text{mm}}$$

$$\frac{e^{0,3 \cdot 152,8 \cdot \frac{\pi}{180}}}{e^{0,3 \cdot 152,8 \cdot \frac{\pi}{180}} - 1} = \frac{2,225}{2,225 - 1} = 1,816$$

$$\boxed{S_{\mu} = \frac{3600}{1,816 \cdot 1,1 \cdot 229,3} = 7,92}$$

Не постигнати обясности
ком: от окръжовата конусот
гора у дадени различни
условила!