

Rješenja zadataka:

Prijenos topline

1. $q=565,5 \text{ W/m}^2$
2. $q=5,582 \text{ kW/m}^2$
3. $q=1415 \text{ W/m}^2$; $l_{\max}=0,037 \text{ m}$
4. $T_1 = 1287 \text{ K}$; $T_2 = 1250 \text{ K}$
5. $q=839,81 \text{ W/m}^2$; $q_{iz}=587,86 \text{ W/m}^2$; $l_{iz}=0,025 \text{ m}$; $T_1 = 500,14 \text{ K}$
6. $T_v = 809,46 \text{ K}$; potrebno je dodatno izolirati peć
7. $Q = 9796 \text{ W}$; $Q_{iz} = 2406 \text{ W}$; ušteda: 0,754
8. $T_1 = 1285 \text{ K}$; $T_2 = 395,78 \text{ K}$
9. $A = 2,436 \text{ m}^2$
10. $\alpha_h = 121,98 \text{ W/m}^2\text{K}$; $\alpha_g = 118,59 \text{ W/m}^2\text{K}$
11. $\alpha_h = 8795 \text{ W/m}^2\text{K}$; $\alpha_g = 10420 \text{ W/m}^2\text{K}$

Izmjenjivači topline

1. $\Delta T_{\max} = 431 \text{ }^\circ\text{C}$; protustrujni: $\Delta T_{lm} = 242,28 \text{ }^\circ\text{C}$; istostrujni: $\Delta T_{lm} = 182,63 \text{ }^\circ\text{C}$
2. $Q = 135,7 \text{ kW}$
3. $K = 50,8 \text{ W/m}^2\text{K}$
4. $A = 6,96 \text{ m}^2$; $m_T = 0,205 \text{ kg/s}$
5. $T_{T2} = 20,25 \text{ }^\circ\text{C}$

Prijenos tvari

1. $l = 9,941 \cdot 10^{-4} \text{ m}$
2. $Q = 1093 \text{ W}$
3. $N_A = 9,234 \cdot 10^{-9} \text{ mol/s}$; $N_B = -9,234 \cdot 10^{-9} \text{ mol/s}$
4. $N_A = 0,01 \text{ mol/m}^2\text{s}$
5. $n=1,188 \text{ mol}$; $l = 0,786 \text{ m}$