

7. FÁZISJAVÍTÁS

$Q_{\theta} = Q_1 + Q_2 + Q_3 = 12 + 20,4 = 32,4 \text{ kvar}$ $S_e = \sqrt{P_{\theta}^2 + Q_{\theta}^2} = \sqrt{56^2 + 32,4^2} = 64,7 \text{ kvar}$ $\cos \varphi_e = \frac{P_{\theta}}{S_e} = \frac{56}{64,7} = 0,865$ b) $Q_1 = \frac{P_1 \cdot \sin \varphi_1}{\cos \varphi_1} = \frac{16 \cdot 0,866}{0,5} = 27,71 \text{ kvar}$ $Q_{c1} = Q_1' - Q_1 = 27,71 - 12 = 15,71 \text{ kvar}$ c) $Q_e = 20,4 + 27,71 = 48,14 \text{ kvar}$ $P_e = \sqrt{S^2 - Q_e^2} = \sqrt{64,7^2 - 48,14^2} = 43,22 \text{ kW}$ $\Delta P_2 = 56 - 43,22 = 12,78 \text{ kW}$	$S_e = 64,7 \text{ kvar}$ $\cos \varphi_e = 0,865$ $Q_{c1} = 15,71 \text{ kvar}$ $\Delta P_2 = 12,78 \text{ kW}$
a) $Q_{21} = P_{21} \cdot \tan \varphi_{21} = 60 \cdot 1,518 = 91,1 \text{ kvar}$ $Q_{22} = 80 \cdot 1,02 = 81,61 \text{ kvar}$ $Q_{20} = 90 \cdot 0,75 = 67,5 \text{ kvar}$ $\sum P = 230 \text{ kW}$ $\sum Q = 240,21 \text{ kvar}$ $S_e = \sqrt{\sum P^2 + \sum Q^2} = \sqrt{230^2 + 240,21^2} = 332,57 \text{ kV} \cdot \text{A}$ $\cos \varphi_e = \frac{P}{S_e} = \frac{230}{332,57} = 0,6916$ b) $Q_{Se} = P \cdot (\tan \varphi_e - \tan \varphi') = 230 \cdot (1,044 - 0,329) = 164,45 \text{ kvar}$ c) $C_{\Delta} = \frac{Q_{be}}{3 \cdot U_n^2 \cdot \omega} = \frac{164,45 \cdot 10^3}{3 \cdot 380^2 \cdot 314} = 1209 \mu\text{F}$	7.11. feladat $\sum P = 230 \text{ kW}$ $\sum Q = 240,21 \text{ kvar}$ $S_e = 332,57 \text{ kV} \cdot \text{A}$ $\cos \varphi_e = 0,6916$ $Q_{Se} = 164,45 \text{ kvar}$ $C_{\Delta} = 1209 \mu\text{F}$
a) Az egyes motorok által felvett látszólagos teljesítmények: $S_1 = \frac{P_1}{\cos \varphi_1} = \frac{110}{0,82} = 134,15 \text{ kV} \cdot \text{A}$ $S_2 = \frac{P_2}{\cos \varphi_2} = \frac{75}{0,7} = 107,14 \text{ kV} \cdot \text{A}$	7.12. feladat