

$n = \frac{\omega}{2 \cdot \pi} = \frac{139,94}{2 \cdot \pi} = 22,27 \text{ 1/s} = 1336,3 \text{ 1/min}$	$n = 1336,3 \text{ 1/min}$
$b) P = U_{kn} \cdot I_{an} = 220 \cdot 20 = 4400 \text{ W}$	$P = 4,4 \text{ kW}$
$c) \omega = \frac{U_{kn} - I_{an} \cdot (R_b + R)}{K \cdot \Phi} = \frac{220 - 20 \cdot (1,2 + 4)}{1,4} = 82,82 \text{ 1/s}$	$\omega = 82,82 \text{ 1/s}$
$n = \frac{\omega}{2 \cdot \pi} = \frac{82,82}{2 \cdot \pi} = 13,1818 \text{ 1/s} = 790,9 \text{ 1/min}$	
$P_k = I_n^2 \cdot R = 20^2 \cdot 4 = 1600 \text{ W}$	$P_k = 1600 \text{ W}$
$P_b = I_n^2 \cdot R_b = 20^2 \cdot 1,2 = 480 \text{ W}$	$P_b = 480 \text{ W}$
$d) \omega = \frac{U_k^* - I_{an} \cdot R_b}{K \cdot \Phi} = \frac{100 - 20 \cdot 1,2}{1,4} = 54,26 \text{ 1/s}$	$\omega = 54,26 \text{ 1/s}$
$n = \frac{\omega}{2 \cdot \pi} = \frac{54,26}{2 \cdot \pi} = 8,63 \text{ 1/s} = 518,18 \text{ 1/min}$	$n = 518,18 \text{ 1/min}$
$e) n^* = 2000 \text{ 1/min} = 33,33 \text{ 1/s}$	
$\omega^* = 2 \cdot \pi \cdot n^* = 2 \cdot \pi \cdot 33,33 = 209,43 \text{ 1/s}$	
$\omega^* = \frac{U_{kn} - I_{an} \cdot R_b}{m \cdot K \cdot \Phi}$	
$m = \frac{U_{kn} - I_{an} \cdot R_b}{K \cdot \Phi \cdot \omega^*} = \frac{220 - 20 \cdot 1,2}{209,43 \cdot 1,4} = 0,6684$	
$m \% = 66,84 \% \text{ -ra (33,16 \% -kal) kell csökkenteni.}$	csökkenteni kell 33,16 %-kal.
$\omega^* = \frac{U_{kn} - I_{an} \cdot R_b}{m \cdot K \cdot \Phi}, \text{ ha}$	
$I_{an} = 0 ; \rightarrow \omega_0^* = \frac{U_{kn}}{m \cdot K \cdot \Phi} = \frac{220}{0,6684 \cdot 1,4} = 235 \text{ 1/s}$	
$n_0^* = \frac{\omega_0^*}{2 \cdot \pi} = \frac{235}{2 \cdot \pi} = 37,41 \text{ 1/s} = 2245 \text{ 1/min}$	$n_0^* = 2245 \text{ 1/min}$