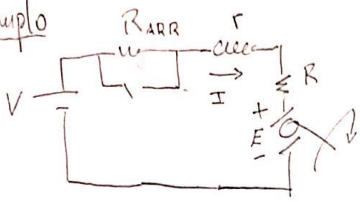


M.C.C. Serie.

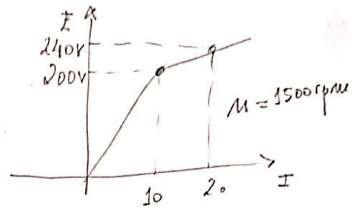
Ejemplo



$$R = 1 \Omega$$

$$r = 3 \Omega$$

$$V = 200 \text{ V}$$



$$1) R_{ARR} / I_{Arr} = 20 \text{ A.}$$

Arranque $m=0 \Rightarrow E=0 \Rightarrow I_{Arr} = \frac{V}{R+r+R_{ARR}} = \frac{200}{1+3+R_{ARR}} = \frac{200}{4+R_{ARR}} = 20 \text{ A} \Rightarrow \underline{R_{ARR} = 6 \Omega}$

2) Per de Arranque.

$$P_{M} = E \times I = C \times \omega \Rightarrow C = \frac{E \times I}{\omega} = \frac{30}{\pi} \frac{E I}{M} \quad \#$$

$$E = A \phi(I) \Rightarrow C = \frac{30}{\pi} A \phi(I) I$$

Arranque: $I_{Arr} = 20 \text{ A} \Rightarrow C_{Arr} = \frac{30}{\pi} A \phi(20) \times 20$

$$E_{1500}(20) = 240 = A \phi(20) \times 1500 \Rightarrow A \phi(20) = \frac{240}{1500}$$

$$\left. \begin{aligned} C_{Arr} &= \frac{30 \times 240 \times 20}{\pi \times 1500} \\ C_{Arr} &= 30,6 \text{ N} \cdot \text{m.} \end{aligned} \right\}$$

3) El motor mueva una carga mecánica / $C_r = 10 \text{ N} \cdot \text{m}$

$$C J \dot{\omega} = C - C_r \Rightarrow \boxed{C = C_r}$$

$$C = \frac{30}{\pi} A \phi(I) I = \frac{30}{\pi} \frac{240 I^2}{1500} = 10 \Rightarrow \underline{I = 2,56 \text{ A}}$$

↳ busco solución en zona lineal.

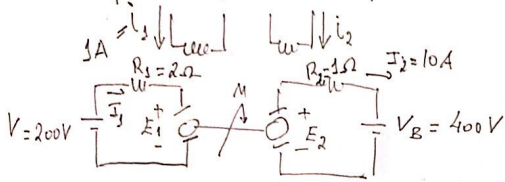
$$\Rightarrow V = 4 \times I + E \Rightarrow E = 200 - 4 \times 2,56 \Rightarrow \underline{E = 189,76 \text{ V} = A \phi(2,56) \times M.}$$

$$A \phi(2,56) = \frac{240 \times 2,56}{1500} = 0,41 \Rightarrow \underline{M = 463 \text{ rpm}}$$

$$E I = 189,76 \times 2,56 = C \times \omega = 10 \times \omega \Rightarrow \omega = 48,958 \text{ rad/s.}$$

$$\Rightarrow \underline{M = 463 \text{ rpm}}$$

Ejemplo Máquinas Acopladas



MCC1: $E_1 = 300 i_1$ @ 1500 rpm.

MCC2: $E_2 = 450 i_2$ @ 1500 rpm.

$i_1 = 1 \text{ A}$.

Determinar: i_2 y M .

$$E_2 = R_2 \times I_2 + 400 = 450 \text{ V} \Rightarrow P_{M_2} = E_2 I_2 = 4500 \text{ W}$$

$$P_{M_2} = P_{M_1} = E_1 I_1 \quad 200 = R_1 I_1 + E_1$$

$$\Rightarrow 4500 = (200 - R_1 I_1) I_1 \Rightarrow 2I_1^2 - 200I_1 + 4500 = 0$$

$$I_1 = \frac{200 \pm \sqrt{40,000 - 3280}}{4}$$

$$\Rightarrow I_1 = \frac{200 \pm 87,9}{4} \begin{cases} I_1 = 71,2 \text{ A} \\ I_1 = 28,8 \text{ A} \end{cases}$$

$$I_1 = 71,2 \text{ A} \Rightarrow E_1 = 57,6 \text{ V}$$

$$I_1 = 28,8 \text{ A} \Rightarrow E_1 = 142,4 \text{ V} \quad \#$$

$$A\phi(i_1) = \frac{300 \times 1}{1500} = 0,2 = \frac{E_1}{M} \Rightarrow M = \frac{E_1}{0,2}$$

$$M = \frac{142,4}{0,2} = 712 \text{ rpm} \quad \#$$

$$\frac{57,6}{0,2} = 288 \text{ rpm}$$

$$142,4 = A\phi(i_2) 712 \Rightarrow A\phi(i_2) = 0,2 = \frac{450 i_2}{1500} \Rightarrow \boxed{i_2 = 0,67 \text{ A}}$$