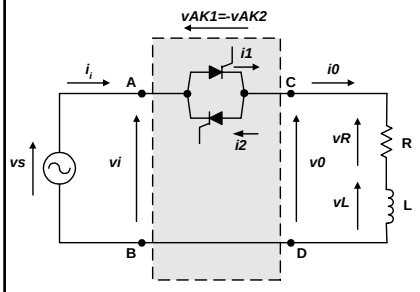
Controladores de Tensão CA Monofásicos

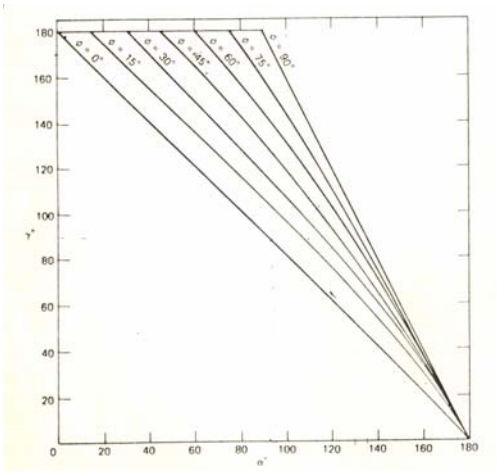
Curvas de Projeto

CONTROLADOR DE TENSÃO CA MONOFÁSICO
Ângulo de Condução – Carga RL



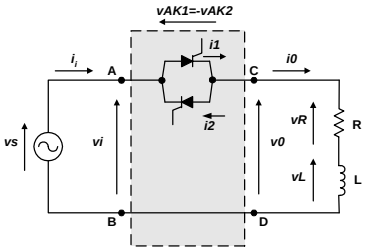
$$\text{sen}(\beta-\phi)=\text{sen}(\alpha-\phi).e^{[\alpha-\beta]/\tan\phi}$$

$$\gamma=\beta-\alpha\leq 180^0$$



CONTROLADOR DE TENSÃO CA MONOFÁSICO

Corrente Média Normalizada por Tiristor – Carga RL

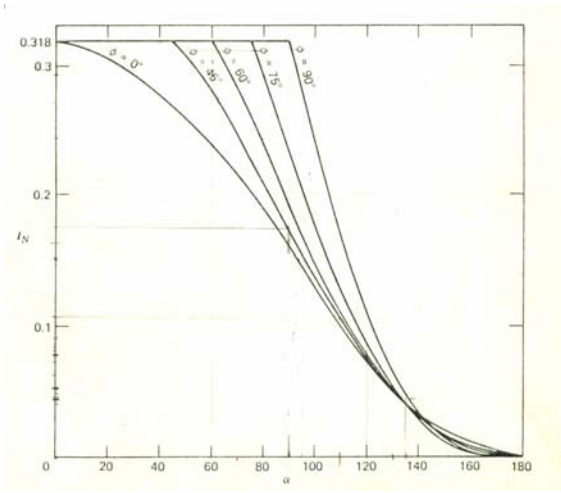


$$i_N = \text{sen}(\omega.t - \phi) - e^{(\alpha - \omega.t)/\tan\phi}.\text{sen}(\alpha - \phi)$$

$$i_N = i(\omega.t) \Big/ I_{base} \quad ; \quad I_{base} = \sqrt{2}.V \Big/ Z$$

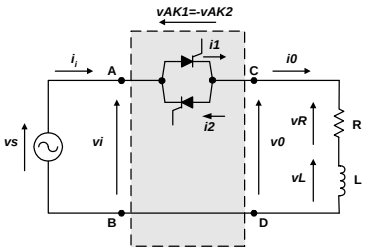
$$Z = \sqrt{R^2 + (\omega.L)^2} \quad ; \quad \phi = \arctan\left(\omega.L \Big/ R\right)$$

$$I_N = \frac{1}{2.\pi}\int_{\alpha}^{\beta=\gamma+\alpha} i_N .d\omega t$$



CONTROLADOR DE TENSÃO CA MONOFÁSICO

Corrente RMS Normalizada por Tiristor – Carga RL

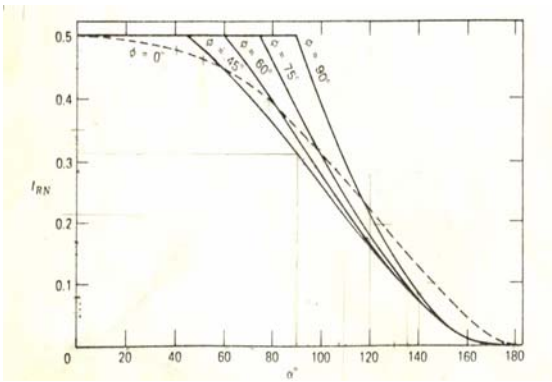


$$i_N = \text{sen}(\omega.t - \phi) - e^{(\alpha - \omega.t)/\tan\phi}.\text{sen}(\alpha - \phi)$$

$$i_N = i(\omega.t) \Big/ I_{base} \quad ; \quad I_{base} = \sqrt{2}.V \Big/ Z$$

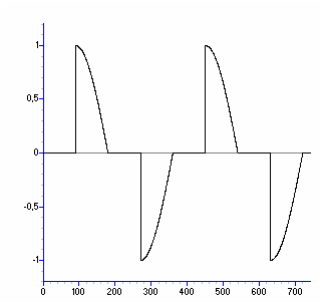
$$Z = \sqrt{R^2 + (\omega.L)^2} \quad ; \quad \phi = \arctan\left(\omega.L \Big/ R\right)$$

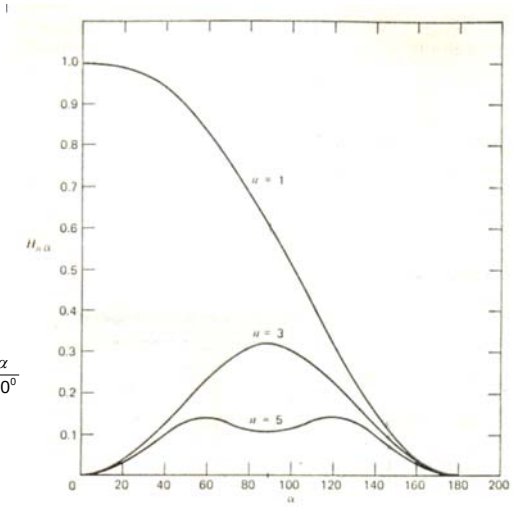
$$I_{RN} = \sqrt{\frac{1}{2.\pi}\int_{\alpha}^{\beta=\gamma+\alpha} i_N^2 .d\omega t}$$



CONTROLADOR DE TENSÃO CA MONOFÁSICO

Amplitude dos três primeiros Harmônicos
Carga Resistiva - R





$$H_{n\alpha} = \frac{\text{valor rms do n}^0\text{ harmônico no ângulo } \alpha}{\text{valor rms da corrente de linha para } \alpha = 0^0}$$

$$H_{n\alpha} = \frac{I_n(\alpha)}{I_1(\alpha = 0^0)}$$