# FORMULEBLAD

## DRIEFASE-WS-OPWEKKING

**STER**

$V_L = \sqrt{3}\,V_F$ en $V_F = I_F \times Z_F$

$I_L = I_F$

**DELTA**

$V_L = V_F$ en $I_L = \sqrt{3} \times I_F$

$V_F = I_F \times Z_F$

**DRYWING**

$S(P_a) = \sqrt{3} \times V_L \times I_L$

$Q(P_r) = \sqrt{3} \times V_L \times I_L \times \sin\theta$

$\cos\theta = \dfrac{P}{S}$

$P = \sqrt{3} \times V_L \times I_L \times \cos\theta$

**TWEEWATTMETERMETODE**

$P = P_1 + P_2$

## DRIEFASETRANSFORMATORS

**STER**

$V_L = \sqrt{3}\,V_F$ en $I_L = I_F$

**DELTA**

$I_L = \sqrt{3}\,I_F$ en $V_L = V_F$

**DRYWING**

$S(P_a) = \sqrt{3} \times V_L \times I_L$

$Q(P_r) = \sqrt{3} \times V_L \times I_L \times \sin\theta$

$\cos\theta = \dfrac{P}{S}$

## RLC-KRINGBANE

$X_L = 2\pi fL$ en $X_C = \dfrac{1}{2\pi fC}$

$F_O = \dfrac{1}{2\pi\sqrt{LC}}$

**SERIE**

$I_T = I_R = I_C = I_L$

$Z = \sqrt{R^2 + (X_L - X_C)^2}$

$V_L = IX_L$ en $V_C = IX_C$

$V_T = IZ$ en $V_T = \sqrt{V_R{}^2 + (V_L - V_C)^2}$

$I_T = \dfrac{V_T}{Z}$

$\cos\theta = \dfrac{R}{Z}$

$\cos\theta = \dfrac{V_R}{V_T}$

$Q = \dfrac{X_L}{Z} = \dfrac{X_C}{Z} = \dfrac{V_L}{V_T} = \dfrac{V_C}{V_T} = \dfrac{1}{R}\sqrt{\dfrac{L}{C}}$

**PARALLEL**

$V_T = V_R = V_C = V_L$

$I_R = \dfrac{V_R}{R}$ en $I_C = \dfrac{V_C}{X_C}$

$I_L = \dfrac{V_L}{X_L}$

$I_T = \sqrt{I_R{}^2 + (I_L - I_C)^2}$

$\cos\theta = \dfrac{I_R}{I_T}$

$Q = \dfrac{X_L}{Z} = \dfrac{X_C}{Z} = \dfrac{V_L}{V_T} = \dfrac{V_C}{V_T} = \dfrac{1}{R}\sqrt{\dfrac{L}{C}}$

 

$$P = \sqrt{3} \times V_L \times I_L \times \cos\theta$$

$$S(P_a) = \sqrt{3} \times V_L \times I_L$$

$$\frac{V_{F(p)}}{V_{F(s)}} = \frac{N_p}{N_s} = \frac{I_{F(s)}}{I_{F(p)}}$$

## DRIEFASEMOTORS EN -AANSITTERS

**STER**

$V_L = \sqrt{3}\, V_F$ en $I_L = I_F$

**DELTA**

$I_L = \sqrt{3}\, I_F$ en $V_L = V_F$

**DRYWING**

$$S(P_a) = \sqrt{3} \times V_L \times I_L$$

$$Q(P_r) = \sqrt{3} \times V_L \times I_L \times \sin\theta$$

$$\cos\theta = \frac{P}{S}$$

$$P = \sqrt{3} \times V_L \times I_L \times \cos\theta$$

$$\text{Rendement}(\eta) = \frac{P_{in} - \text{verliese}}{P_{in}}$$

**MOTORSPOED**

$$n_s = \frac{60 \times f}{p}$$

$$\text{Glip} = \frac{n_s - n_r}{n_s}$$