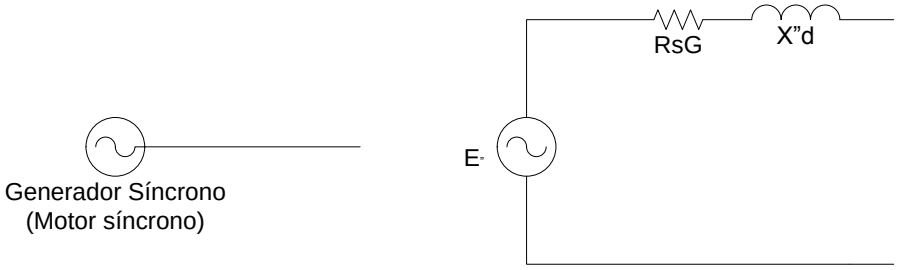
GENERADOR SINCRONO

(MOTOR SINCRONO)



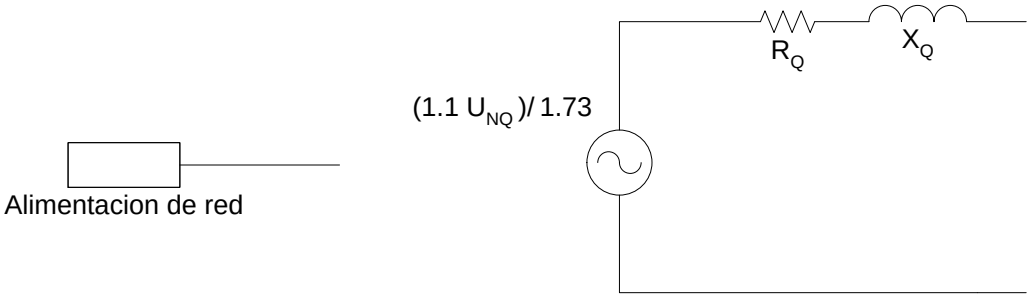
$$X''_d = x''_d \frac{U^2_N}{S}$$

U_N *Tension* Nominal

S_N Potencia nominal

X''_d Reactancia inicial

ALIMENTACION DE RED

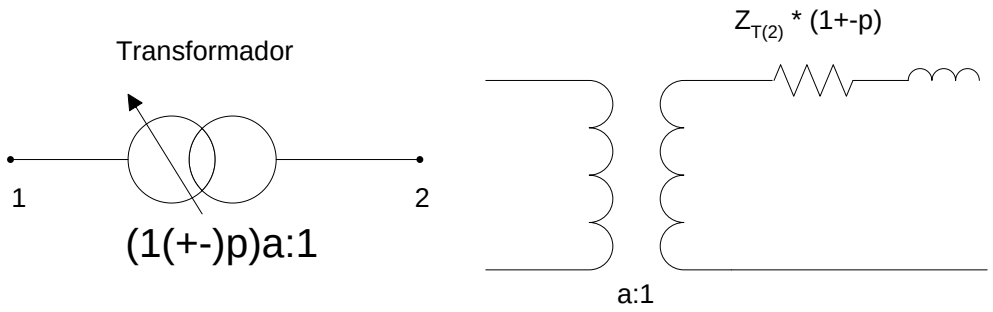


$$X_Q = 1.1 \frac{U^2_{NQ}}{S''_{kQ}}$$

U_{NQ} $TensionNo\min al$

S_{kQ} Potencia de corto circuito

TRANSFORMADOR



$$Z_{T(2)} = \frac{u_k\%}{100\%} * \frac{U^2_{n(2)}}{S_n}$$

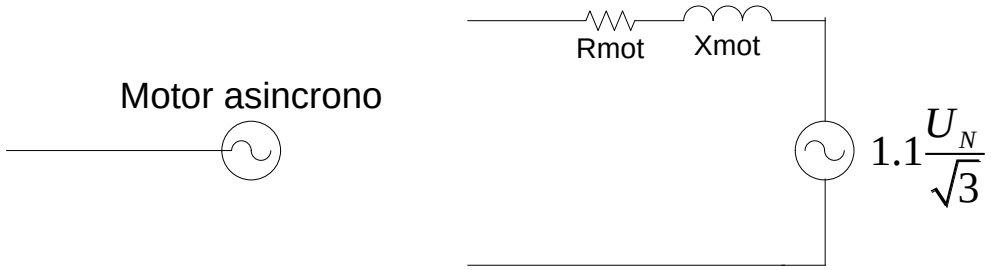
$$X_{T(2)} = \sqrt{Z^2_{T(2)} - R^2_{T(2)}}$$

S_n Potencia Nominal

u_k Tension de corto circuito %

a Relacion de transformacion en tap central

p Margen nominal de ajuste en p.u.



$$X_{Mot} = \frac{1}{I_{an}/I_{nmot}} * \frac{Un}{\sqrt{3} I_{nMot}}$$

$$I_{nMot} = \frac{P_{Mot}}{(\sqrt{3} U_{nMot} \cos\varphi)\eta}$$

U_{nMot} Tension nominal del motor

I_{nMot} Corriente nominal del motor

I_{an}/I_{nMot} Corriente relativa de arranque

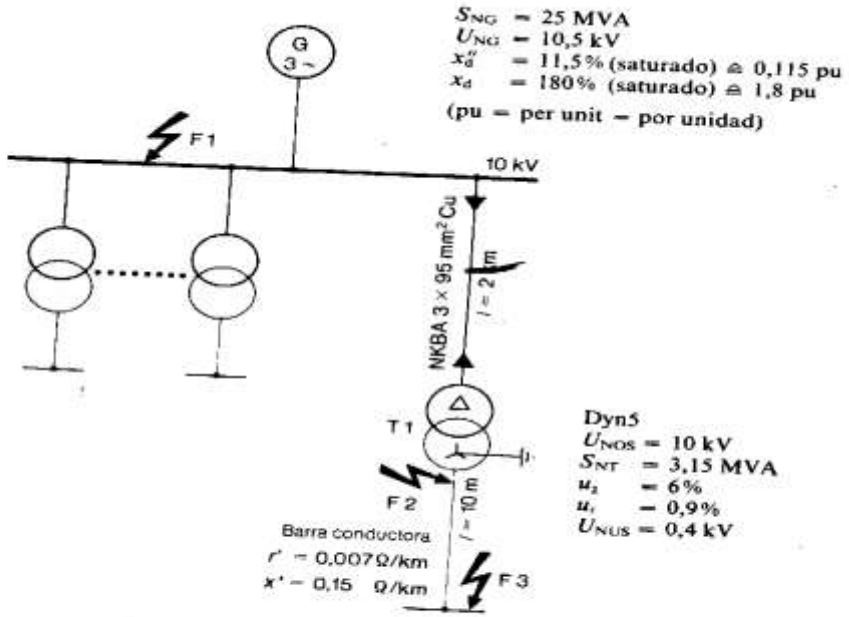


Fig. 1.3/6 Esquema de la red para el primer ejemplo de cálculo

Punto de defecto:
XG = Xd = (x"d * UNG)/(100%*SNG) = (11.5%*10.52 KV2) / (100%*25MVA) = 0.507 ohms
RG = 0.07*X"d = 0.07*0.507 = 0.0355 ohms
ZG = RG + jX"d = .0355 + j0.507 ohms

Zk = $\sqrt{R^2{}_G + X''^2{}_d} = \sqrt{0.0355^2 + 0.507^2} = 0.508$

Intensidad inicial de cortocircuito en corriente alterna:
I"k max 3 pol = (c*UN) / (*Zk) = (1.1*10KV) / (1.73*0.508) = 12.52 KA
Is max 3 pol = κ * * I"k max 3 pol = 1.8 * 1.41 * 12.52 = 31.87 KA