

T1

Upn.T1	6.3 kV
Usn.T1	0.44 kV
Sn.T1	300 kVA
Uz.T1	0.05 p.u.

T2

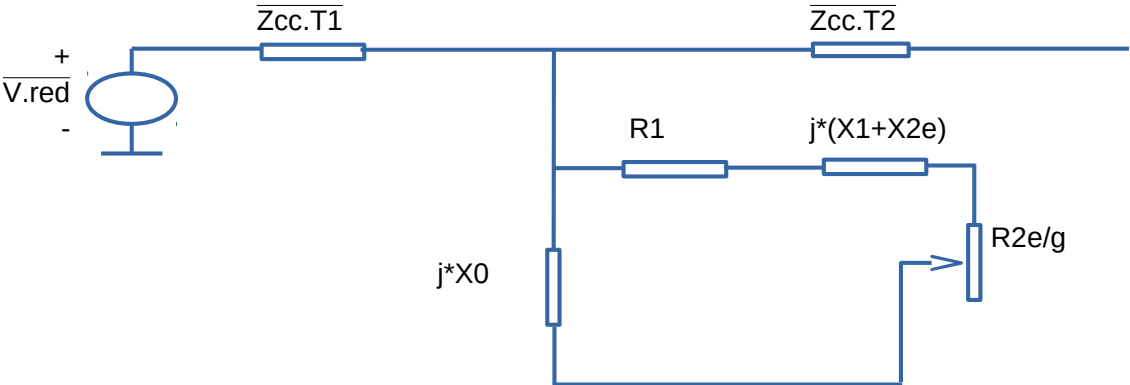
Upn.T2	0.44 kV
Usn.T2	0.22 kV
Sn.T2	300 kVA
Uz.T2	0.03 p.u.

U.red	6.1 kV
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MI

Un.MI	440 V
fn.MI	50 Hz
Pn.MI	120 kW
R1	0.07 Ohm
U.MI.RotorBloq	40 V
I.MI.RotorBloq	150 A
P.MI.RotorBloq	9 kW
U.MI.Vacio	440 V
I.MI.Vacio	4.5 A
P.MI.Vacio	0 W

parte (1) →



$\overline{V.red}$	246.0 V
$\overline{Zcc.T1}$	$= (Uz.T1 * (Usn.T1)^2 / Sn.T1) * j$ $= (0.05p.u. * (0.44kV)^2 / 300kVA) * j$ $0.0322666666666667j$ Rect: 0.03227j Polar: 0.03227 < 90° Ohm
$\overline{Zcc.T2}$	$= (Uz.T2 * (Usn.T1)^2 / Sn.T2) * j$ $= (0.03p.u. * (0.44kV)^2 / 300kVA) * j$ $0.01936j$ Rect: 0.01936j Polar: 0.01936 < 90° Ohm
$\overline{X0}$	56.45 Ohm
$\overline{Zcc.MI}$	$= (U.MI.RotorBloq / \sqrt{3}) / I.MI.RotorBloq < ACOS(P.MI.RotorBloq / (U.MI.RotorBloq * I.MI.RotorBloq * \sqrt{3}))$ $= ((40V / \sqrt{3}) / 150A) < ACOS(9kW / (40V * 150A * \sqrt{3}))$ $0.1333333333333333 + 0.0769800358919501j$ Rect: 0.1333+0.07698j Polar: 0.154 < 30° Ohm

X1+X2e	0.07698 Ohm
R1+R2e	0.1333 Ohm
R1	0.07000 Ohm
R2e	0.06333 Ohm

parte (2) →

(X1+X2e).Y	0.2309 Ohm	
R1.Y	0.2100 Ohm	
R2e.Y	0.1900 Ohm	
<u>Z.MI.Y</u>	0.3999999999999999+0.23094010767585j	Ohm
	Rect: 0.4+0.2309j	
	Polar: 0.4619 < 30°	
<u>I.arranque.MI.Y</u>	429.120545912079-282.368586734047j	A
	Rect: 429.1-282.4j	
	Polar: 513.7 < -33.35°	
<u>V.MI</u>	236.85845018947-13.8462896147635j	V
	Rect: 236.9-13.85j	
	Polar: 237.3 < -3.346°	
U.MI	411.0 V	
U.MI.220	205.5 V	

parte (3) →

T1:	Dy	
Usn.T1.D	254.0 V	
<u>V.red.T1.D</u>	142.0 V	
<u>Zcc.T1.D</u>	0.01075555555555556j	Ohm
	Rect: 0.01076j	
	Polar: 0.01076 < 90°	
<u>Z.MI</u>	0.1333333333333333+0.0769800358919501j	Ohm
	Rect: 0.1333+0.07698j	
	Polar: 0.154 < 30°	
<u>I.arranque.MI.D</u>	743.258588091414-489.076738684788j	A
	Rect: 743.3-489.1j	
	Polar: 889.7 < -33.35°	

MS1

Un.MS1	6000 V
fn.MS1	50 Hz
Sn.MS1	210 kVA
Xs.MS1	0.2 p.u.
E/i @ fn.MS1	1000 V/A

MS2

Un.MS2	400 V
fn.MS2	50 Hz
Sn.MS2	200 kVA
Xs.MS2	0.1 p.u.
E/i @ fn.MS2	100 V/A

T

Upn.T	6.3 kV
Usn.T	0.44 kV
Sn.T	500 kVA
Uz.T	0.05 p.u.

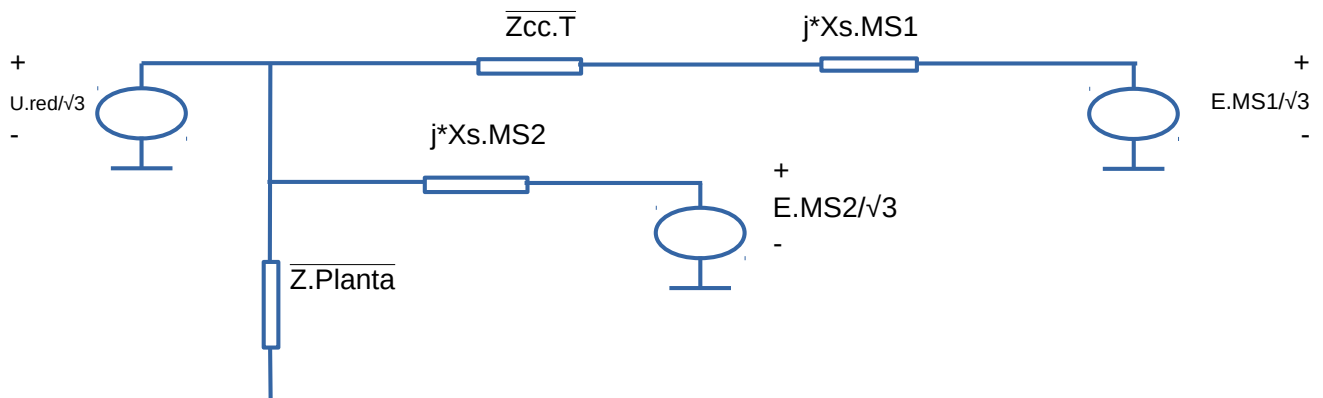
U.red

0.4 kV

Planta

S.Planta	300 kVA
cos.Phi.Planta	0.8 i

parte (1) →



U.red 0.4 kV

Z.Planta

$$= S.Planta / (\sqrt{3} * U.red) < ACOS(cos.Phi.Planta)$$

$$= 300kVA / (\sqrt{3} * 0.4kV) < ACOS(0.8)$$

$$346.410161513776+259.807621135332j$$

Ohm

Rect: 346.4+259.8j

Polar: 433 < 36.87°

Zcc.T

$$= (Uz.T * (Usn.T)^2 / Sn.T) * j$$

$$= (0.05p.u. * (0.44kV)^2 / 500kVA) * j$$

$$0.01936j$$

Ohm

Rect: 0.01936j

Polar: 0.01936 < 90°

j*Xs.MS1.6000

$$= (Xs.MS1 * (Un.MS1)^2 / Sn.MS1) * j$$

$$= (0.2p.u. * (6000V)^2 / 210kVA) * j$$

$$34.2857142857143j$$

Ohm

Rect: 34.29j

Polar: 34.29 < 90°

Xs.MS1.6000

34.29 Ohm

Xs.MS1

0.167 Ohm

j*Xs.MS2

$$= (Xs.MS2 * (Un.MS2)^2 / Sn.MS2) * j$$

$$= (0.1 \text{ p.u.} * (400 \text{ V})^2 / 200 \text{ kVA}) * j$$

0.08j

Rect: 0.08j

Polar: $0.08 < 90^\circ$

Ohm

Xs.MS2 **0.08 Ohm**

parte (2) →

P.MS1	200 kW
Q.MS1	0 KVAr
S.MS1	200 kVA
I.MS1	$= S.MS1 / (\sqrt{3} * U.\text{red})$
	$= 200 \text{ kVA} / (\sqrt{3} * 0.4 \text{ kV})$
	288.7 A
E.400.MS1	411 V
E.400/i	69.84 V/A
i.MS1	5.881 A

In.MS2	$= S_n.MS2 / (\sqrt{3} * U.\text{red})$
	$= 200 \text{ kVA} / (\sqrt{3} * 0.4 \text{ kV})$
	288.7 A
	75% 216.5 A
E.MS2	430.00 V
i.MS1	4.300 A

parte (3) →

P.generadores	200 kW
Q.generadores	150 kVAr
P.Planta	240 kW
Q.Planta	180 kVAr
P.a.la.red	-40 kW
Q.a.la.red	-30 kVAr
PF.visto.desde.red	0.8 inductivo

parte (4) →

P.MS2	0 kW
Q.MS2	180 kVAr
S.MS2	180 kVA
I.MS2	$= S.MS2 / (\sqrt{3} * U.\text{red})$
	$= 180 \text{ kVA} / (\sqrt{3} * 0.4 \text{ kV})$
	259.8 A
E.MS2	436.0 V
i.MS1	4.360 A