

DATA SHEET**Three Phase Induction Motor - Squirrel Cage Rotor**

Customer : BOLDROCCHI

Product line : W60

Frame	: 560	Service factor	: 1.00
Output	: 2800 kW (3755 hp)	Moment of inertia	: 85.38 kgm ²
Poles	: 4	Locked rotor time	: 25s (hot)
Frequency	: 50 Hz	Temperature rise ³	: class F
Rated voltage	: 6600 V Connect.: Y	Duty cycle	: S1
Rated current	: 283.7 A	Ambient temperature	: -10 °C up to 45 °C
Rotor voltage	: Not applicable	Altitude	: 1142 m
Rotor current	: Not applicable	Protection Degree	: IP55
Locked rotor current	: 1560 A	Cooling method	: IC611
LRC (p.u.)	: 5.5	Mounting	: B3R
No load current	: 65.25 A	Direction of rotation ¹	: Counterclockwise
Rated speed	: 1492 rpm	Noise level ²	: 80 dB(A)
Slip	: 0.53 %	Vibration	: A 2.3 mm/s rms
Rated torque	: 17922 Nm	Starting method	: Direct
Locked rotor torque	: 55 %	Coupling	: Direct
Breakdown torque	: 210 %		
Insulation class	: F		

Output	50%	75%	100%	Load type	: Fan
Efficiency(%)	96.6	97.1	97.0	Load torque	: 10255 Nm
Power factor	0.8	0.88	0.89	Load Inertia (J=GD ² /4)	: 1500 kgm ²

Notes:

- Stray load losses 0.50% of input power.
- Torque and current vs speed curve at CM-10822/2019
- Thermal limit curve at CM-13077/2019
- Performance vs output curve at CM-13078/2019
- Torque vs speed curve for vfd starting at CM-13079/2019
- Equivalent circuit at CM-13080/2019
- Starting method suitable for DOL / SOFTSTARTER / VFD
- TAG 1: Ejector Stack Fan
- TAG 2: Main Air Blower

Standards	Specification	: IEC 60034-1	Vibration	: IEC 60034-14
	Test	: IEC 60034-2	Tolerance	: IEC 60034-1
	Noise	: IEC 60034-9		

This revision replaces and cancel the previous one, which must be eliminated.

- (1) Looking the motor from the shaft end.
 (2) Measured at 1m and with tolerance of +3dB(A).
 (3) At the rated point.

These are average values based on tests with sinusoidal power supply, subject to the tolerances stipulated.

Rev.	Changes Summary		Performed	Checked	Date
4					
Performed by	VANIOJ	22128 / 2019			
Checked by	MATEUSGD				
Date	6/FEV/2019				
			Page 1 / 2	Revision 4	

DATA SHEET



Three Phase Induction Motor - Squirrel Cage Rotor

Customer : BOLDROCCHI

Product line : W60

Rev.	Changes Summary		Performed	Checked	Date
4					
Performed by	VANIOJ			22128 / 2019	
Checked by	MATEUSGD				
Date	6/FEV/2019			Page 2 / 2	Revision 4

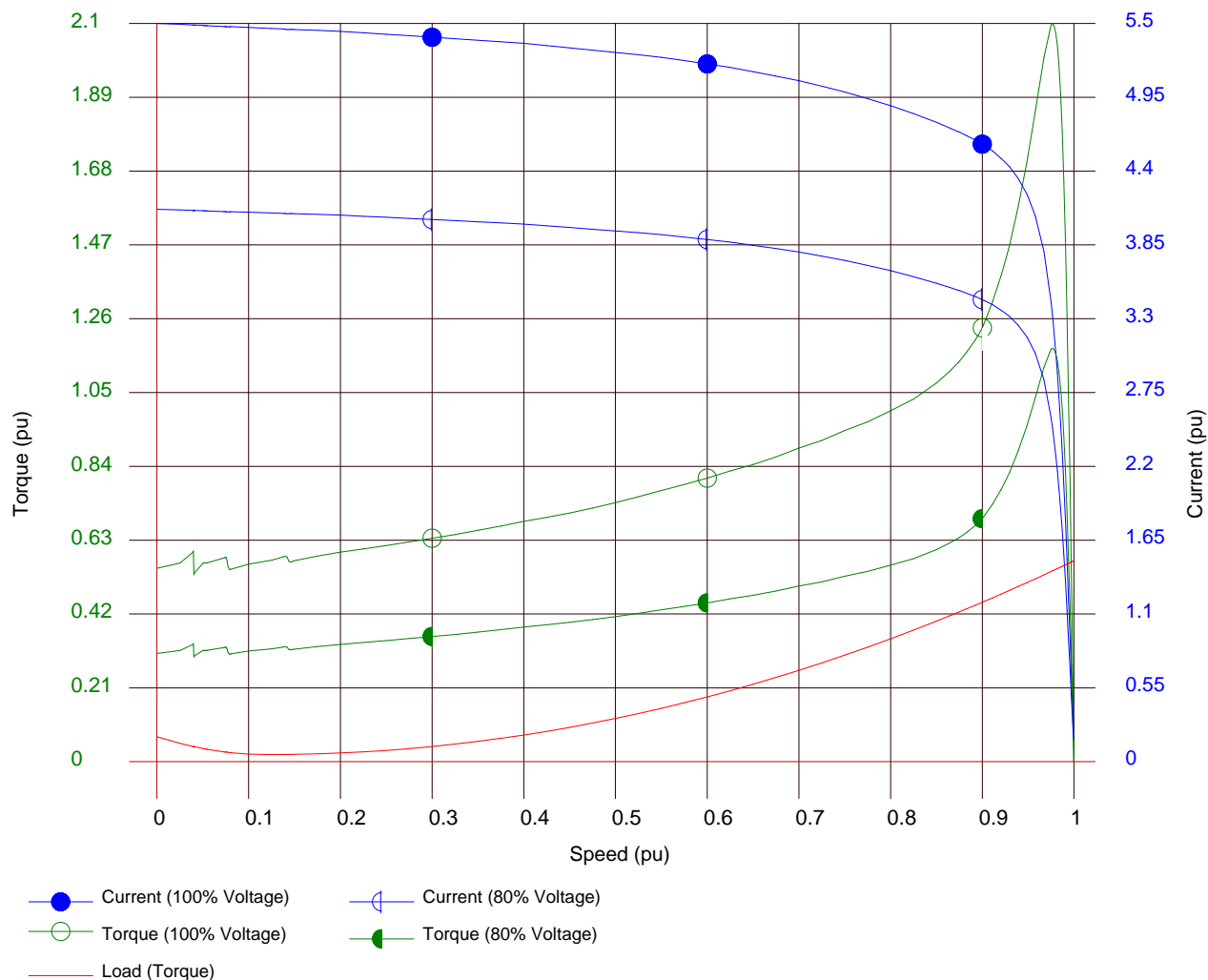
TORQUE AND CURRENT X SPEED CURVE

Three Phase Induction Motor - Squirrel Cage Rotor



Customer : BOLDROCCHI

Product line : W60



Performance : 2800 kW 6600 V 50 Hz 4P 560

Rated current : 283.7 A
LRC (p.u.) : 5.5
Rated torque : 17922 Nm
Locked rotor torque : 55 %
Breakdown torque : 210 %
Rated speed : 1492 rpm

Moment of inertia : 79.268 kgm²
Duty cycle : S1
Insulation class : F
Service factor : 1.00
Temperature rise : class F

Locked rotor time 100% : 25 s (hot)
Load Inertia (J=GD²/4) : 1500 Kgm²

Starting time 100% voltage : 22.1s
Starting time 80% voltage : 50.1s

Rev.	Changes Summary		Performed	Checked	Date
1	update		AMEDINA	ESCAMILLA	MAY/2/2019
Performed	VANIOJ	10822 / 2019			
Checked	MATEUSGD				
Date	6/FEV/2019				
		Page	Revision		
		1 / 1	1		

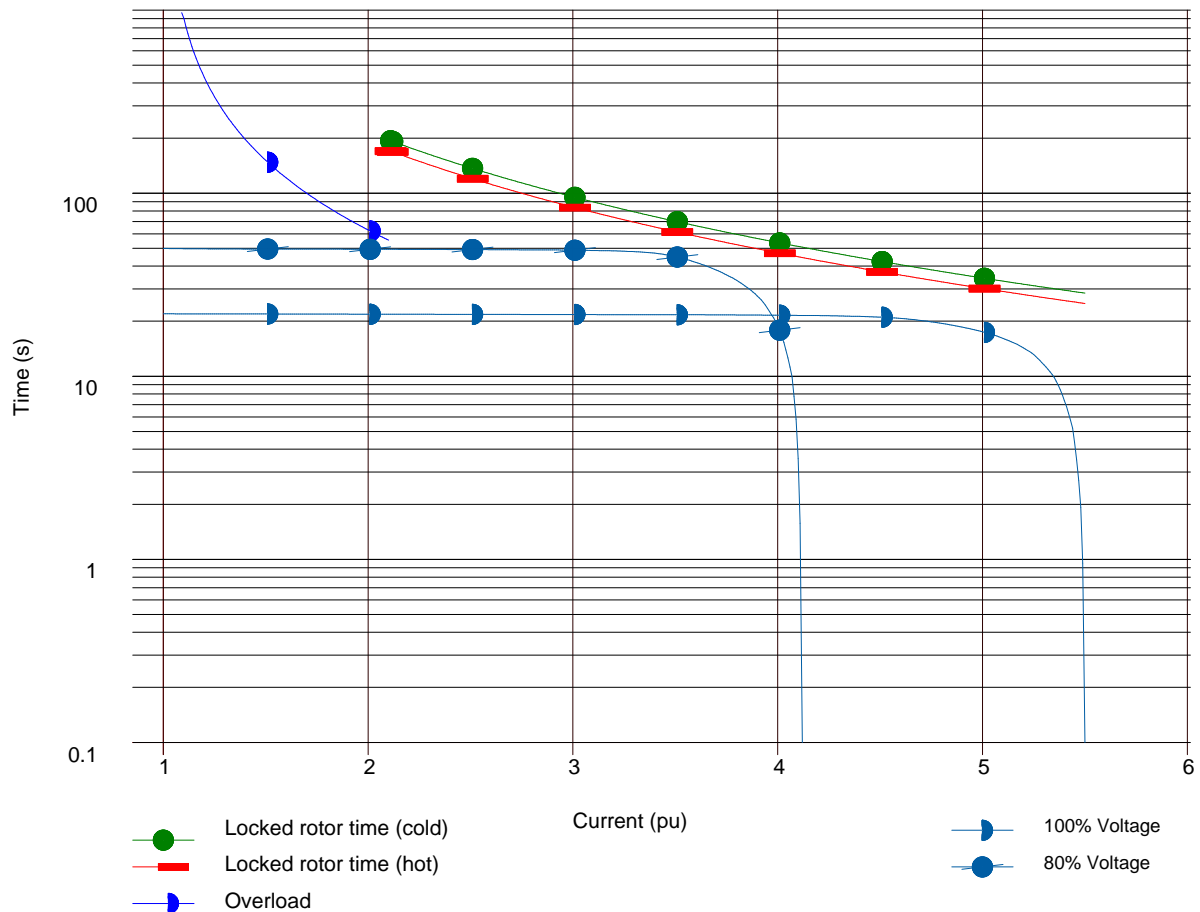
THERMAL LIMIT CURVE

Three Phase Induction Motor - Squirrel Cage Rotor



Customer : BOLDROCCHI

Product line : W60



Performance : 2800 kW 6600 V 50 Hz 4P 560

Rated current : 283.7 A
LRC (p.u.) : 5.5
Rated torque : 17922 Nm
Locked rotor torque : 55 %
Breakdown torque : 210 %
Rated speed : 1492 rpm

Moment of inertia : 79.268 kgm²
Duty cycle : S1
Insulation class : F
Service factor : 1.00
Temperature rise : class F

Rev.	Changes Summary		Performed	Checked	Date
Performed	AMEDINA		13077 / 2019		
Checked	ESCAMILLA		Page Revision		
Date	2/MAI/2019		1 / 1 0		

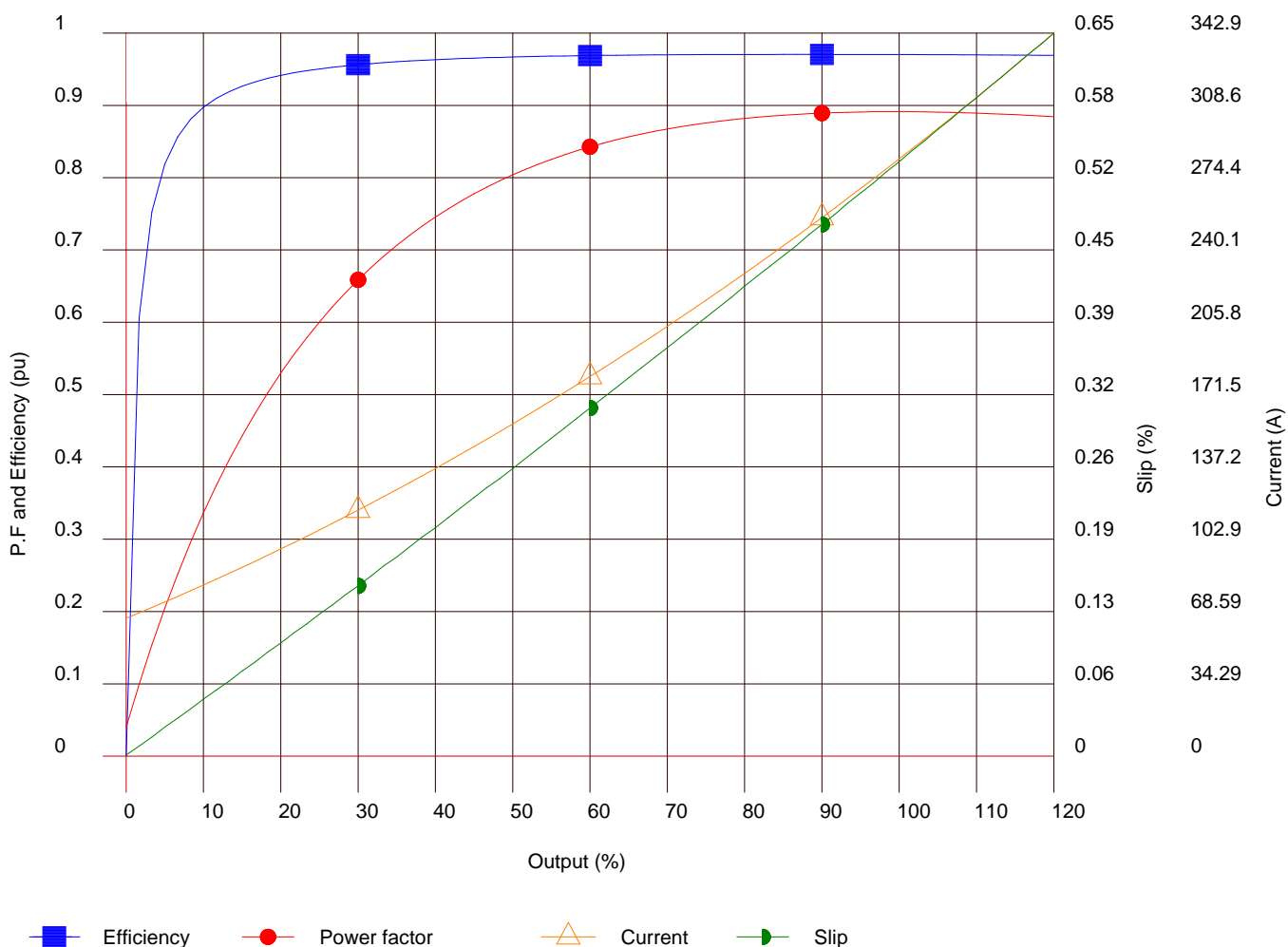
LOAD PERFORMANCE CURVE

Three Phase Induction Motor - Squirrel Cage Rotor



Customer : BOLDROCCHI

Product line : W60



Performance : 2800 kW 6600 V 50 Hz 4P 560

Rated current : 283.7 A
 LRC (p.u.) : 5.5
 Rated torque : 17922 Nm
 Locked rotor torque : 55 %
 Breakdown torque : 210 %
 Rated speed : 1492 rpm

Moment of inertia : 79.268 kgm²
 Duty cycle : S1
 Insulation class : F
 Service factor : 1.00
 Temperature rise : class F

Rev.	Changes Summary		Performed	Checked	Date
Performed	AMEDINA		13078 / 2019		
Checked	ESCAMILLA				
Date	2/MAI/2019		Page 1 / 1	Revision 0	

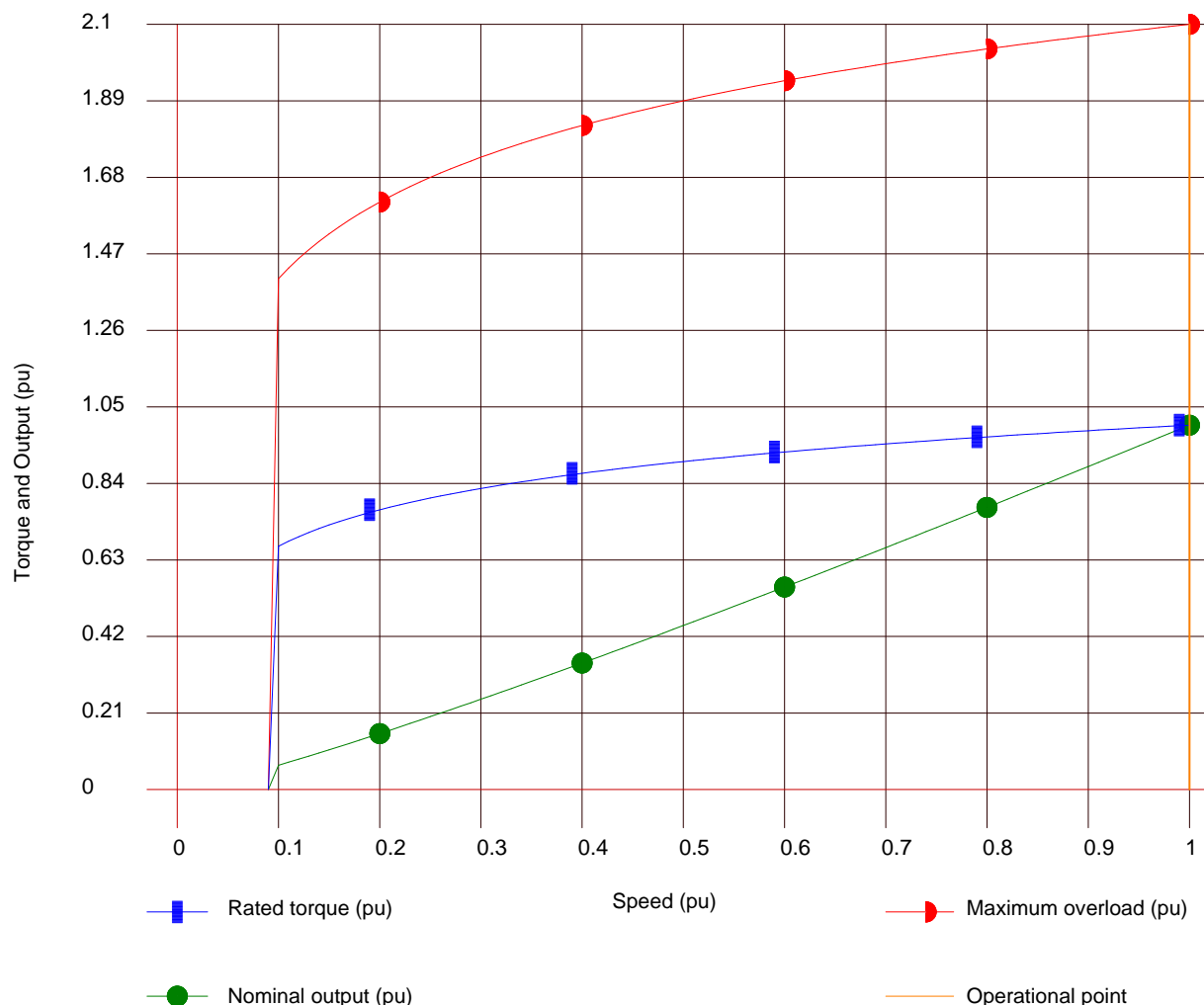
VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage Rotor



Customer : BOLDROCCHI

Product line : W60



Performance : 2800 kW 6600 V 50 Hz 4P 560

Rated current : 283.7 A
 LRC (p.u.) : 5.5
 Rated torque : 17922 Nm
 Locked rotor torque : 55 %
 Breakdown torque : 210 %
 Rated speed : 1492 rpm

Moment of inertia : 79.268 kgm²
 Duty cycle : S1
 Insulation class : F
 Service factor : 1.00
 Temperature rise : class F

Voltage Peak Phase-to-Ground : ≤ 6000 V
 Voltage Peak Phase-Phase : ≤ 10300 V
 dV/dt : ≤ 2700 V/us
 THD maximum : < 5%

Rev.	Changes Summary		Performed	Checked	Date
1	update		AMEDINA	ESCAMILLA	MAY/6/2019
Performed	AMEDINA	13079 / 2019			
Checked	ESCAMILLA				
Date	2/MAY/2019				
			Page 1 / 1	Revision 1	

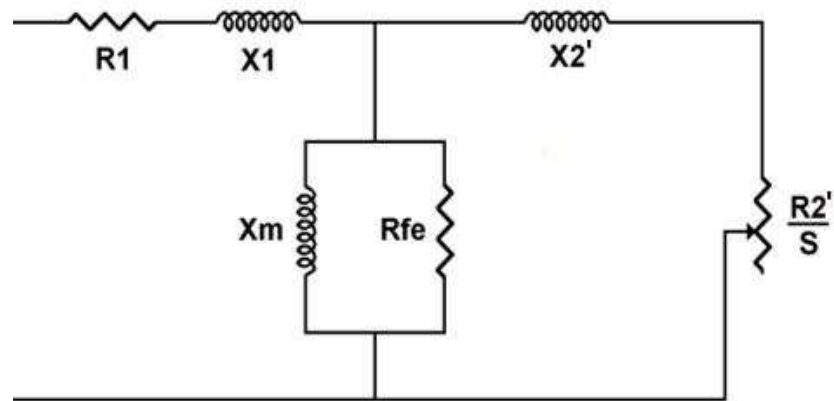
EQUIVALENT CIRCUIT

Three Phase Induction Motor - Squirrel Cage Rotor



Customer : WEG ITALIA S.R.L

Product line : W60



Rated			
R1	0.094 ohms / 0.007 pu	X1	2.070 ohms / 0.154 pu
R2	0.069 ohms / 0.005 pu	X2	1.715 ohms / 0.128 pu
Rfe	3281 ohms / 244.3 pu	Xm	63.95 ohms / 4.761 pu

Locked rotor			
R1	0.094 ohms / 0.007 pu	X1	1.629 ohms / 0.121 pu
R2	0.297 ohms / 0.022 pu	X2	0.925 ohms / 0.069 pu
Rfe	3218 ohms / 239.6 pu	Xm	62.65 ohms / 4.665 pu

T"do	3.028 s	X/R	27.15 pu
T"d	0.172 s	X'd	3.740 ohms / 0.278 pu
Ta	0.055 s	X" d	2.541 ohms / 0.189 pu
Z base	13.43 ohms		

All parameters reflected to stator side.

Per phase values, for connection Y.

Resistances at 155 °C, reactances at rated voltage and frequency.

R1 = Stator resistance	T"do = Open circuit AC time constant
R2 = Rotor resistance	T"d = Short circuit AC time constant
Rfe = Core loss resistance	Ta = Short circuit DC time constant
X1 = Stator leakage reactance	X/R = X/R ratio
X2 = Rotor leakage reactance	X'd = Transient reactance
Xm = Magnetizing reactance	X" d = Subtransient reactance
Z base = Base impedance	

Rev.	Changes Summary		Performed	Checked	Date
Performed	AMEDINA				
Checked	ESCAMILLA				
Date	2/MAI/2019				

13080 / 2019

Page
1 / 1

Revision
0