

DATA SHEET

Three Phase Induction Motor - Squirrel Cage



Customer : QUANTUM CONTROLS

Product line : W22 - IE3 Premium Efficiency Multivoltage Product code : 15833947

Frame	: L100L	Cooling method	: IC411 - TEFC
Insulation class	: F	Mounting	: B3T
Duty cycle	: S1	Rotation ¹	: Both
Ambient temperature	: -20 °C to +40 °C	Starting method	: Direct On Line
Altitude	: 1000 m.a.s.l	Approx. weight ³	: 37.5 kg
Protection degree	: IP55	Moment of inertia (J)	: 0.0120 kgm ²
Design	: N		

Output	3 kW	3 kW	3 kW
Poles	4	4	4
Frequency	50 Hz	50 Hz	50 Hz
Rated voltage	220/380 V	230/400 V	240/415 V
Rated current	10.8/6.26 A	10.7/6.15 A	10.5/6.07 A
L. R. Amperes	84.3/48.8 A	83.4/48.0 A	87.1/50.4 A
LRC	7.8	7.8	8.3
No load current	5.18/3.00 A	5.74/3.30 A	6.22/3.60 A
Rated speed	1430 rpm	1440 rpm	1445 rpm
Slip	4.67 %	4.00 %	3.67 %
Rated torque	20.0 Nm	19.9 Nm	19.8 Nm
Locked rotor torque	350 %	390 %	430 %
Pull up torque	295 %	330 %	365 %
Breakdown torque	280 %	320 %	360 %
Service factor	1.00	1.00	1.00
Noise level ²	53.0 dB(A)	53.0 dB(A)	53.0 dB(A)
Locked rotor time (hot)	15 s	15 s	15 s
Locked rotor time (cold)	27 s	27 s	27 s
Efficiency (%)	50%	87.7	86.3
	75%	88.0	87.7
	100%	87.7	88.1
Power Factor	50%	0.65	0.56
	75%	0.77	0.70
	100%	0.83	0.78

Bearing type	Drive end	Non drive end	Foundation loads	Max. traction	: 1601 N
	6206-ZZ	6205-ZZ			
Lubrication interval	-	-	Load type	:-	
Lubricant amount	-	-	Load torque	:-	
Lubricant type	MOBIL POLYREX EM		Load inertia (J=GD ² /4)	:-	

Notes
See notes on page 2.

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) Approximate weight, subject to be changed after manufacturing process.
- (4) At 100% of full load.

These are average values based on tests with sinusoidal power supply, subject to the tolerances stipulated in IEC 60034-1.

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Thermal protection

ID	Application	Type	Quantity	Sensing Temperature
1	Winding	Thermistor - 2 wires	1 x Phase	155°C

Space heater information

Voltage: 110-127 V

Output: 9.2-12 W

Notes

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

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THERMAL LIMIT CURVE

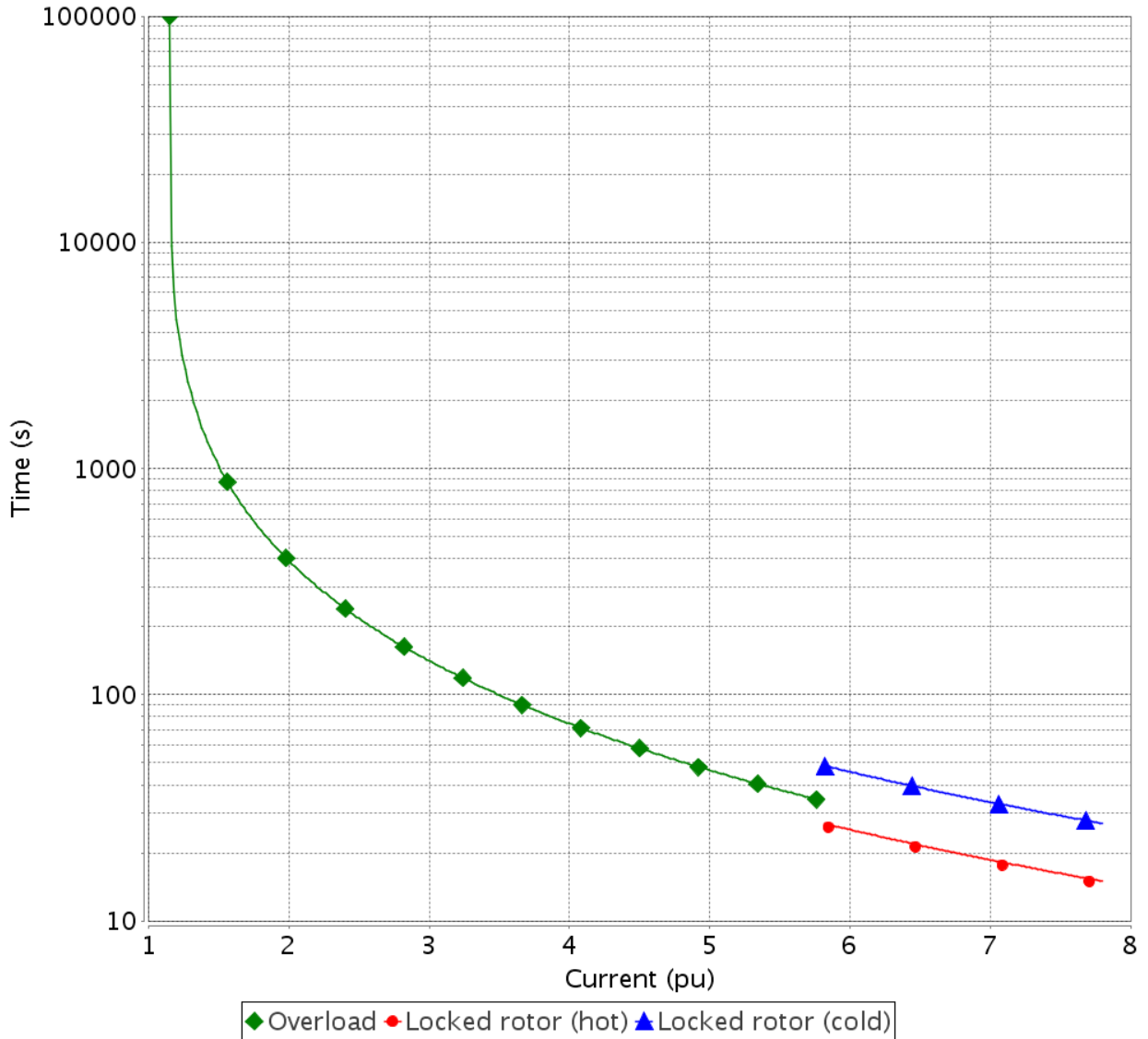
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Rated current : 10.8/6.26 A

Moment of inertia (J) : 0.0120 kgm²

LRC : 7.8

Duty cycle : S1

Rated torque : 20.0 Nm

Insulation class : F

Locked rotor torque : 350 %

Service factor : 1.00

Breakdown torque : 280 %

Temperature rise : 80 K

Rated speed : 1430 rpm

Design : N

Heating constant : 18.9 min

Cooling constant : 56.7 min

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LOAD PERFORMANCE CURVE

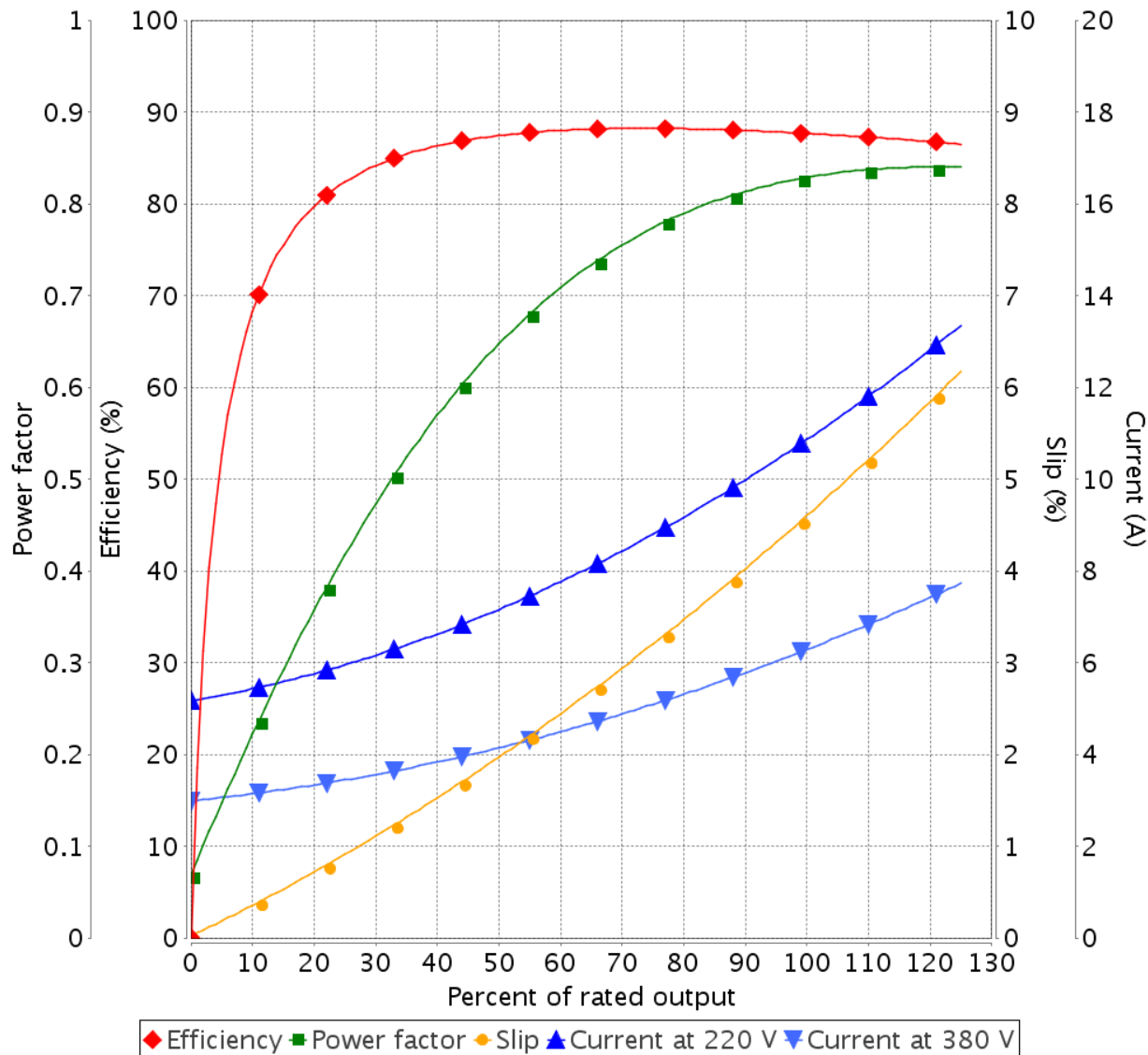
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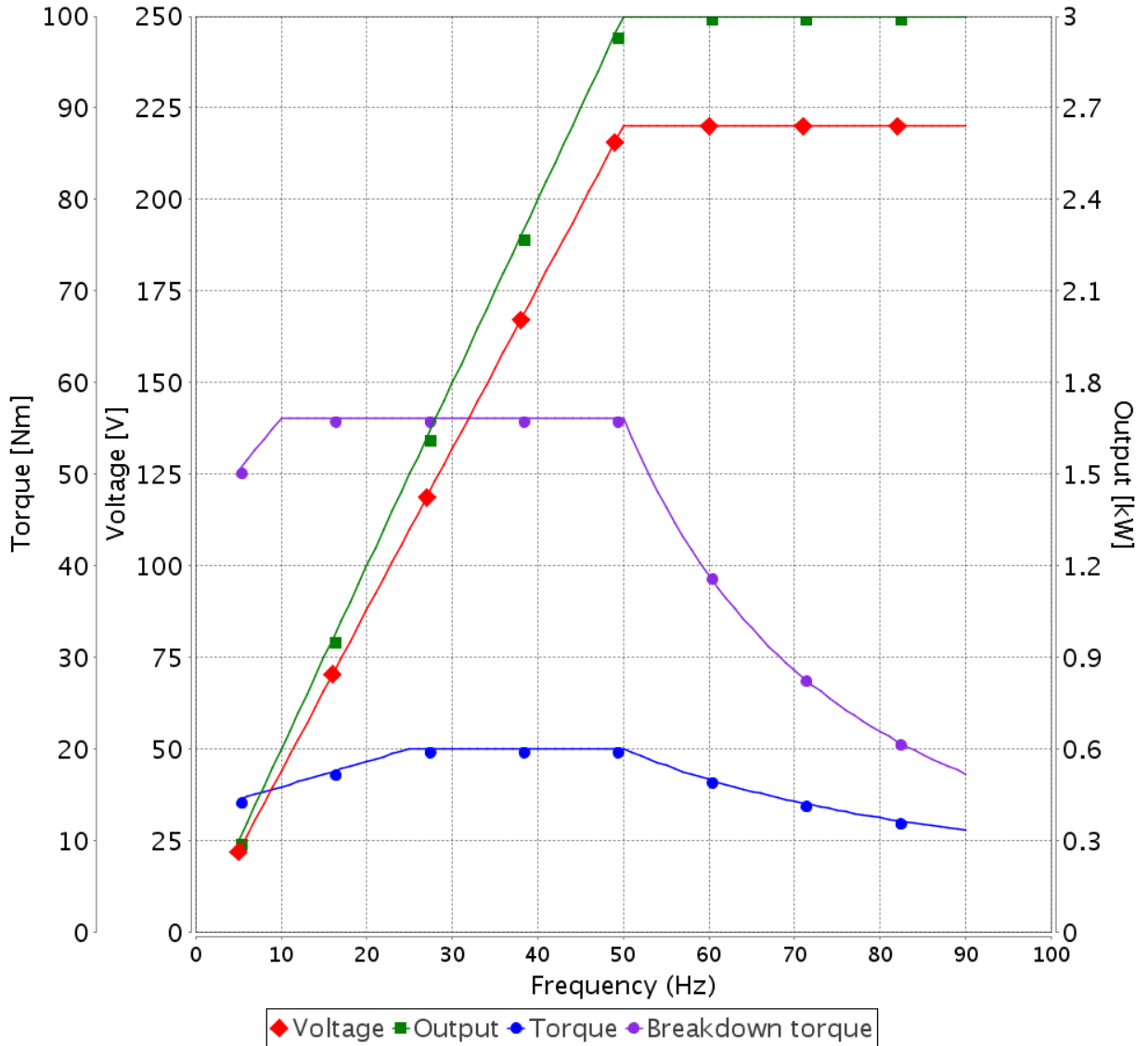
VFD OPERATION CURVE

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Moment of inertia (J) : 0.0120 kgm²
 Duty cycle : S1
 Insulation class : F
 Service factor : 1.00
 Temperature rise : 80 K
 Design : N

Voltage Peak Phase-Phase = 2000.0
 dV/dt = 6500.0
 Rise time = 0.1

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TORQUE AND CURRENT VS SPEED CURVE

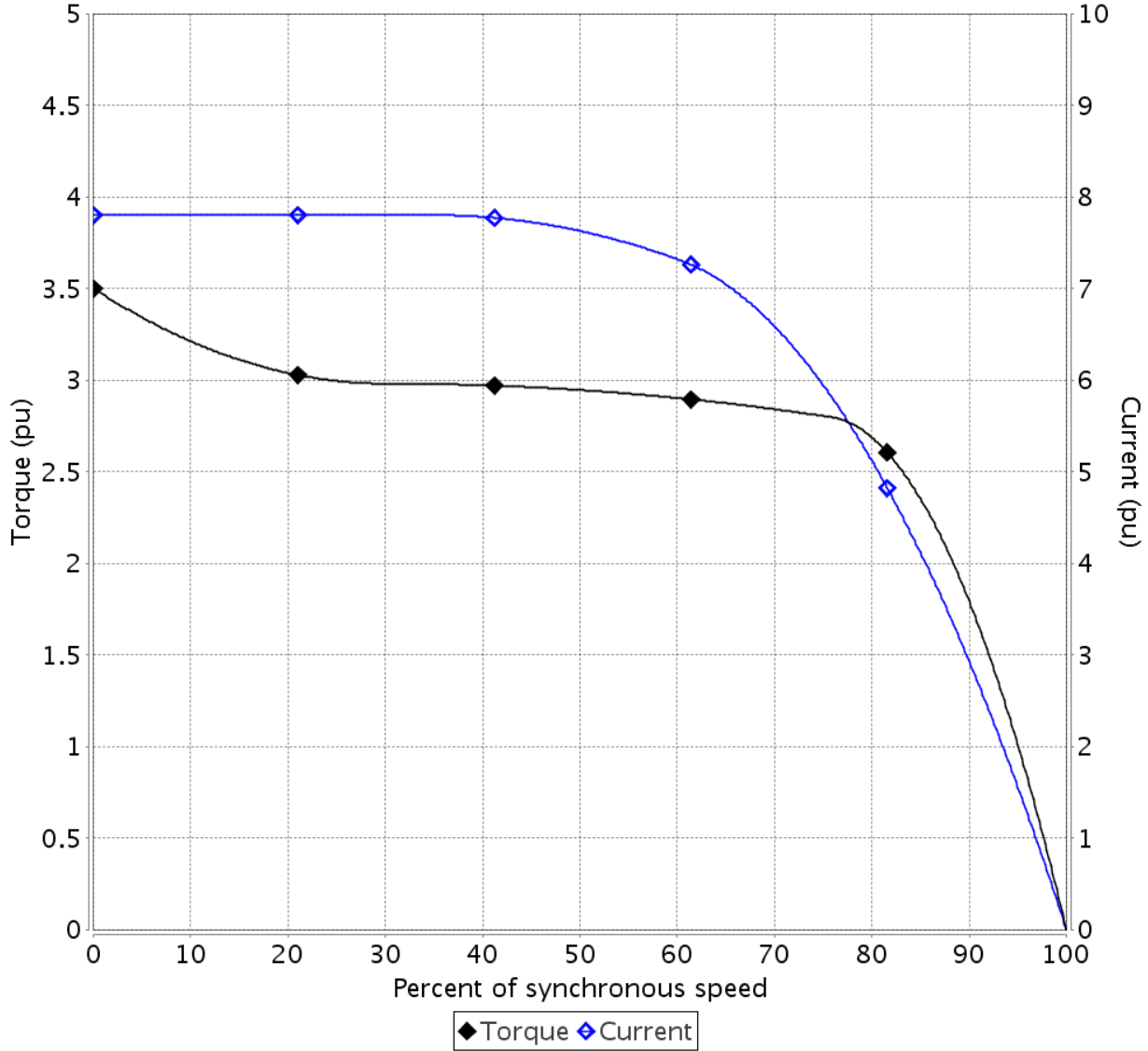
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Breakdown torque : 280 %

Rated speed : 1430 rpm

Moment of inertia (J) : 0.0120 kgm²

Duty cycle : S1

Insulation class : F

Service factor : 1.00

Temperature rise : 80 K

Design : N

Locked rotor time 100% : 15 s (hot) 27 s (cold)

Load inertia (J=GD²/4) : 0.0120 kgm²

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EQUIVALENT CIRCUIT

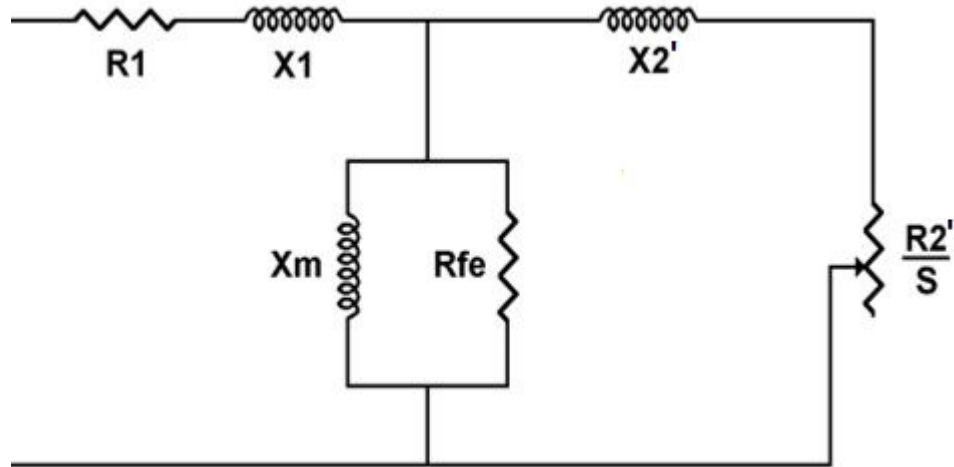
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Rated			
R1	1.1384 omhs / 0.0237 p.u.	X1	2.6991 omhs / 0.0561 p.u.
R2'	1.2444 omhs / 0.0259 p.u.	X2'	3.8772 omhs / 0.0806 p.u.
Rfe	1678.3790 omhs / 34.8694 p.u.	Xm	65.5903 omhs / 1.3627 p.u.

Locked rotor			
R1	1.3129 omhs / 0.0273 p.u.	X1	1.6241 omhs / 0.0337 p.u.
R2'	1.6915 omhs / 0.0351 p.u.	X2'	1.3649 omhs / 0.0284 p.u.
Rfe	1468.0690 omhs / 30.5001 p.u.	Xm	79.2383 omhs / 1.6462 p.u.

T''do	0.1502 s	X/R	2.1943 p.u.
T''d	0.0066 s	RS	0.4285 omhs / 0.0089 p.u.
Ta	0.0060 s	X''d = Xs	2.9891 omhs / 0.0621 p.u.
Zbase	48.1333 omhs	X2(-)	1.9077 omhs / 0.0396 p.u.

All parameters reflected to stator side.
 Per phase values, for Y connection.
 Resistances at 20.0 °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	RS	: Supplementary losses resistance
Xm	: Magnetizing reactance	X''d = Xs	: Subtransient reactance
Zbase	: Base impedance	X2(-)	: Negative sequence reactance

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