

DATA SHEET

Three Phase Induction Motor - Squirrel Cage



Customer : QUANTUM CONTROLS

Product line : W22 - IE3 Premium Efficiency Multivoltage Product code : 15833892

Frame	: 250S/M	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	: 500 kg
Protection degree	: IP55	Moment of inertia (J)	: 1.05 kgm ²
Design	: N		

Output	55 kW	55 kW	55 kW
Poles	4	4	4
Frequency	50 Hz	50 Hz	50 Hz
Rated voltage	380/660 V	400/690 V	415 V
Rated current	103/59.3 A	98.7/57.2 A	97.5 A
L. R. Amperes	742/427 A	760/441 A	800 A
LRC	7.2	7.7	8.2
No load current	36.0/20.7 A	39.0/22.6 A	42.0 A
Rated speed	1480 rpm	1482 rpm	1484 rpm
Slip	1.33 %	1.20 %	1.07 %
Rated torque	355 Nm	355 Nm	354 Nm
Locked rotor torque	240 %	270 %	300 %
Pull up torque	200 %	230 %	255 %
Breakdown torque	270 %	300 %	330 %
Service factor	1.00	1.00	1.00
Noise level ²	64.0 dB(A)	64.0 dB(A)	64.0 dB(A)
Locked rotor time (hot)	16 s	16 s	15 s
Locked rotor time (cold)	29 s	29 s	27 s
Efficiency (%)	50%	94.5	94.0
	75%	94.6	94.6
	100%	94.6	94.6
Power Factor	50%	0.73	0.60
	75%	0.82	0.78
	100%	0.86	0.83

Bearing type	Drive end	Non drive end	Foundation loads
	6314-C3	6314-C3	
Lubrication interval	14000 h	14000 h	Max. compression : 13966 N
Lubricant amount	27 g	27 g	Load type :-
Lubricant type	MOBIL POLYREX EM		Load torque :-
			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: 110-127/200-240 V
Output: 46-62/46-66 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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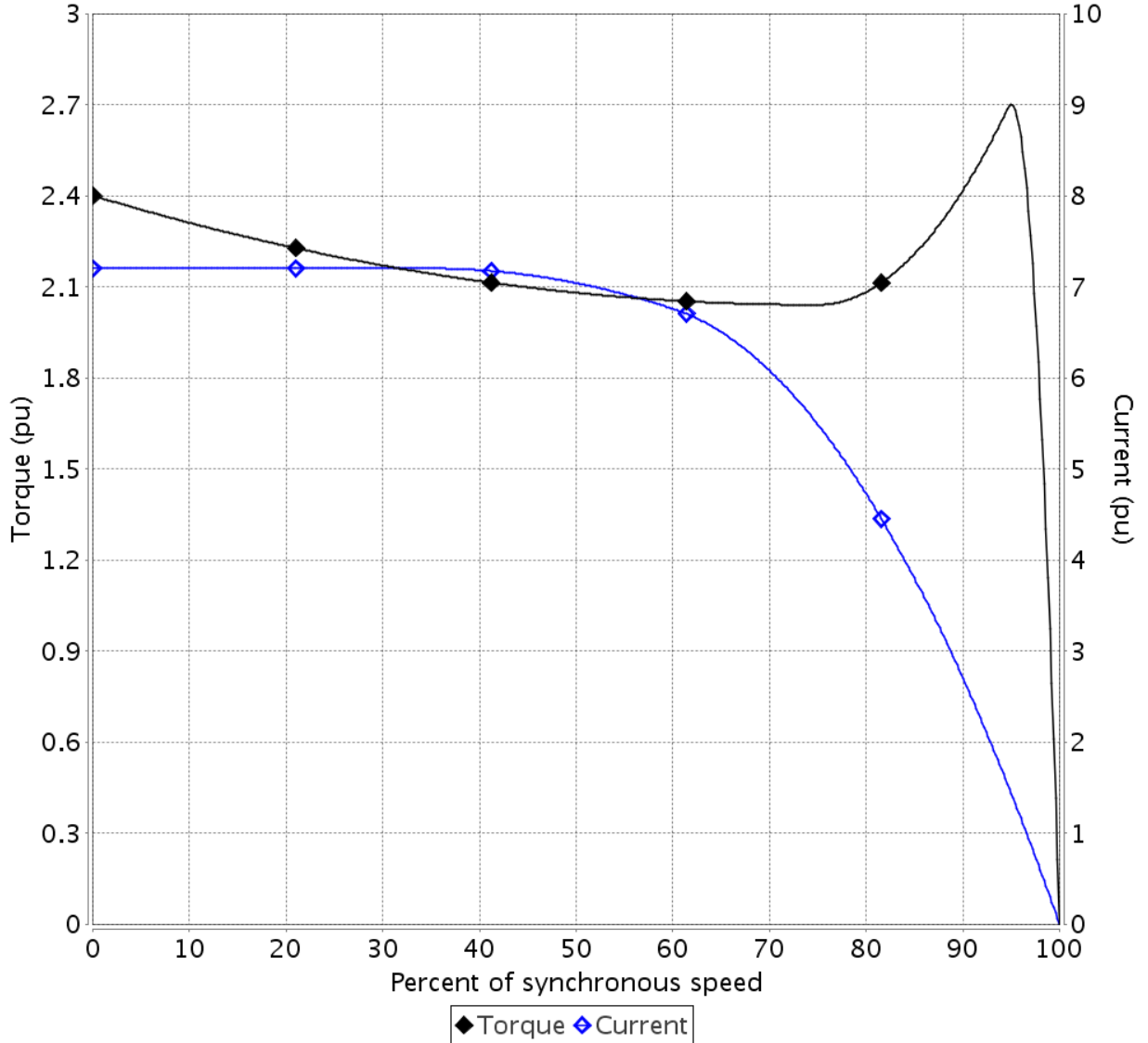
TORQUE AND CURRENT VS SPEED CURVE

Three Phase Induction Motor - Squirrel Cage



Customer : QUANTUM CONTROLS

Product line : W22 - IE3 Premium Efficiency Multivoltage Product code : 15833892



Performance : 55 kW 380/660 V 50 Hz 4P 250S/M

Rated current	: 103/59.3 A	Moment of inertia (J)	: 1.05 kgm ²
LRC	: 7.2	Duty cycle	: S1
Rated torque	: 355 Nm	Insulation class	: F
Locked rotor torque	: 240 %	Service factor	: 1.00
Breakdown torque	: 270 %	Temperature rise	: 80 K
Rated speed	: 1480 rpm	Design	: N

Locked rotor time 100% : 16 s (hot) 29 s (cold)
Load inertia (J=GD²/4) : 1.05 kgm²

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THERMAL LIMIT CURVE

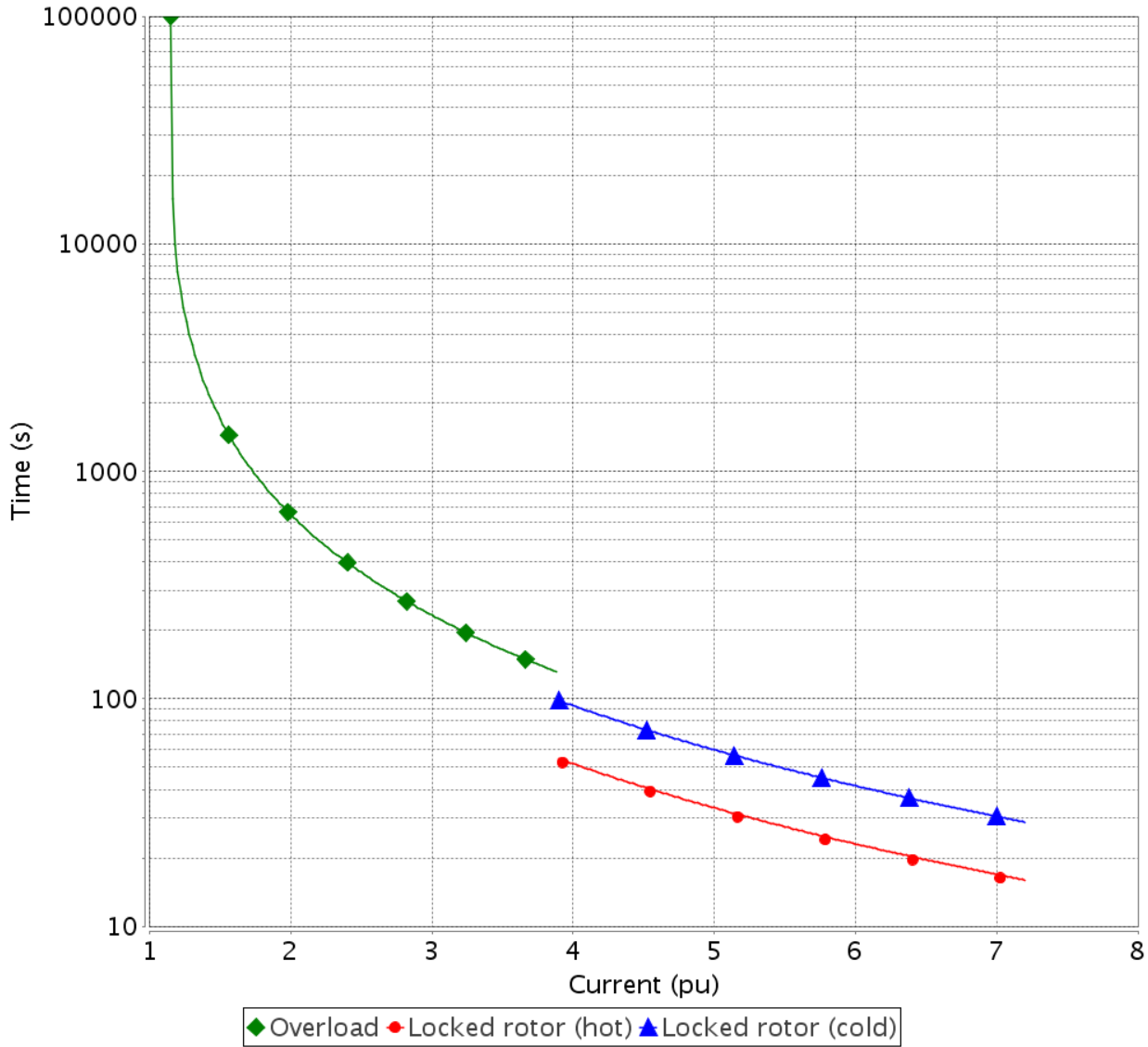
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Moment of inertia (J) : 1.05 kgm²

LRC : 7.2

Duty cycle : S1

Rated torque : 355 Nm

Insulation class : F

Locked rotor torque : 240 %

Service factor : 1.00

Breakdown torque : 270 %

Temperature rise : 80 K

Rated speed : 1480 rpm

Design : N

Heating constant : 31.2 min

Cooling constant : 93.6 min

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LOAD PERFORMANCE CURVE

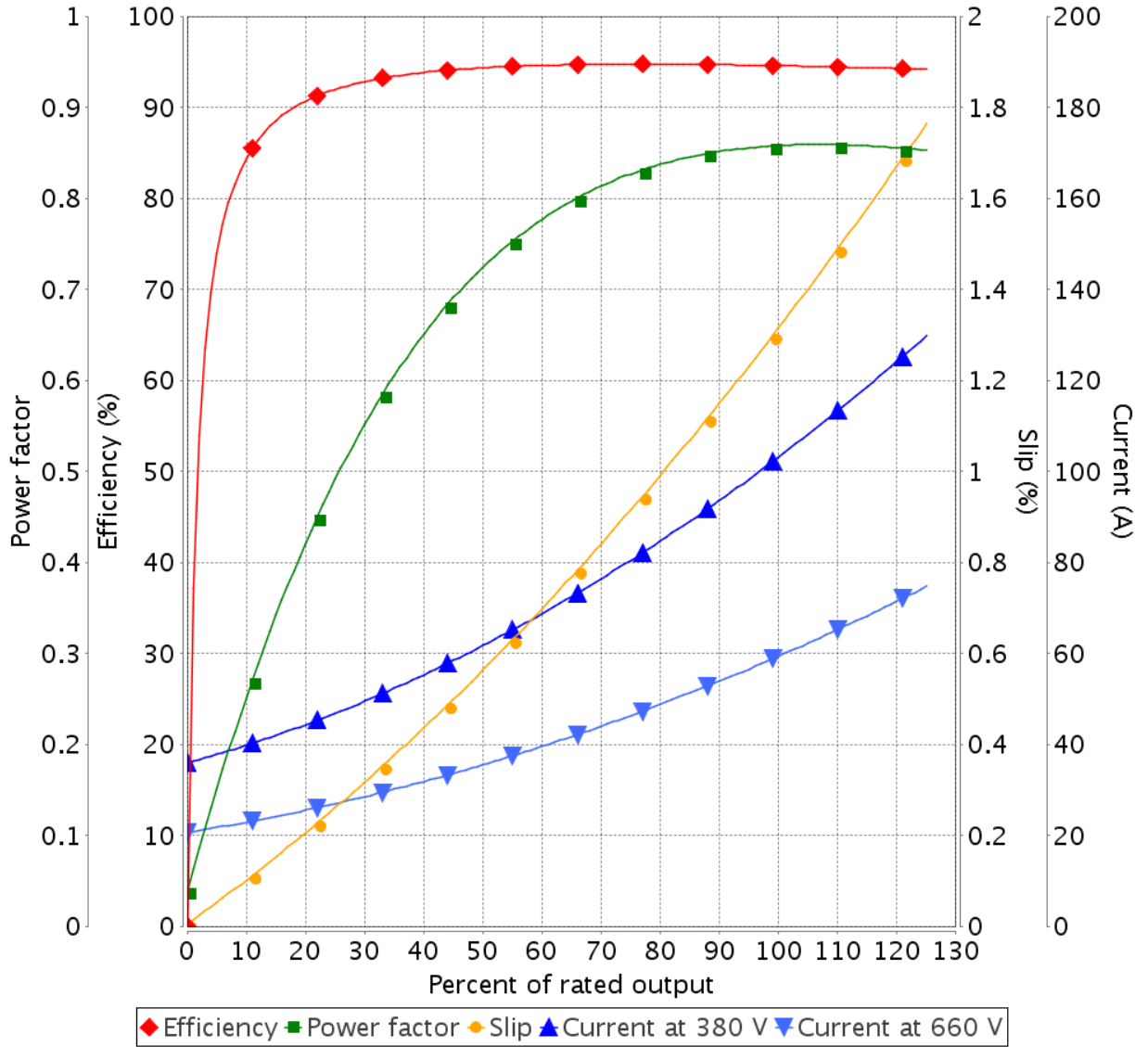
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Breakdown torque	: 270 %	Temperature rise	: 80 K
Rated speed	: 1480 rpm	Design	: N

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VFD OPERATION CURVE

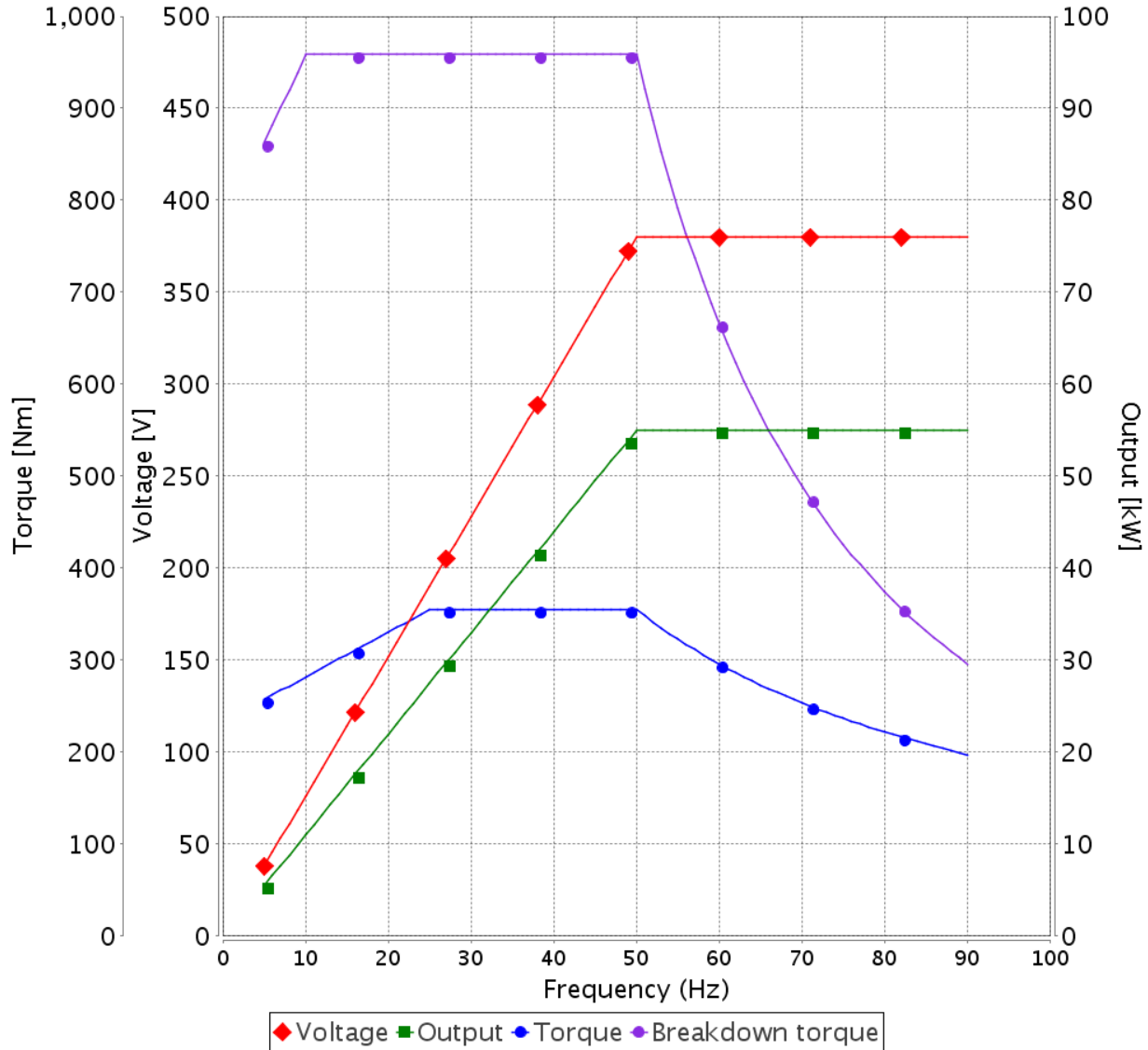
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Rated current : 103/59.3 A
 LRC : 7.2
 Rated torque : 355 Nm
 Locked rotor torque : 240 %
 Breakdown torque : 270 %
 Rated speed : 1480 rpm

Moment of inertia (J) : 1.05 kgm²
 Duty cycle : S1
 Insulation class : F
 Service factor : 1.00
 Temperature rise : 80 K
 Design : N

Voltage Peak Phase-Phase = 1600.0
 dV/dt = 5200.0
 Rise time = 0.1

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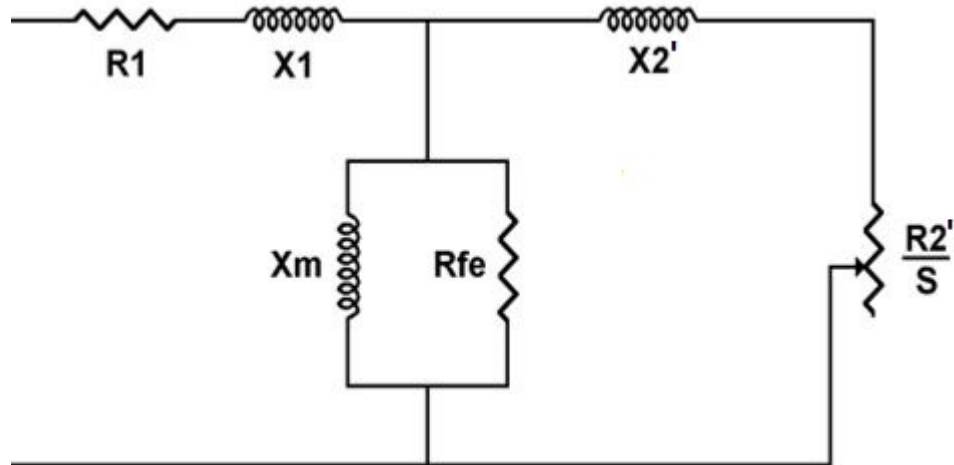
EQUIVALENT CIRCUIT

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Rated			
R1	0.1063 omhs / 0.0405 p.u.	X1	0.5162 omhs / 0.1966 p.u.
R2'	0.0586 omhs / 0.0223 p.u.	X2'	0.7283 omhs / 0.2774 p.u.
Rfe	639.5494 omhs / 243.5915 p.u.	Xm	15.4571 omhs / 5.8873 p.u.

Locked rotor			
R1	0.1201 omhs / 0.0457 p.u.	X1	0.4016 omhs / 0.1530 p.u.
R2'	0.2227 omhs / 0.0848 p.u.	X2'	0.3944 omhs / 0.1502 p.u.
Rfe	519.6370 omhs / 197.9193 p.u.	Xm	17.7522 omhs / 6.7615 p.u.

T"do	0.6550 s	X/R	5.0267 p.u.
T"d	0.0326 s	RS	0.0286 omhs / 0.0109 p.u.
Ta	0.0160 s	X"d = Xs	0.7960 omhs / 0.3032 p.u.
Zbase	2.6255 omhs	X2(-)	0.5559 omhs / 0.2117 p.u.

All parameters reflected to stator side.
 Per phase values, for T 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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