

DATA SHEET

Three Phase Induction Motor - Squirrel Cage



Customer : QUANTUM CONTROLS

Product line : W22 - IE3 Premium Efficiency Multivoltage Product code : 15838496

| | | | |
|---------------------|--------------------|-----------------------------|---------------------------|
| Frame | : 71 | Cooling method | : IC411 - TEFC |
| Insulation class | : F | Mounting | : B5T |
| 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 | : 10.5 kg |
| Protection degree | : IP55 | Moment of inertia (J) | : 0.0004 kgm ² |
| Design | : N | | |

| | | | |
|--------------------------|---------------|---------------|---------------|
| Output | 0.37 kW | 0.37 kW | 0.37 kW |
| Poles | 2 | 2 | 2 |
| Frequency | 50 Hz | 50 Hz | 50 Hz |
| Rated voltage | 220/380 V | 230/400 V | 240/415 V |
| Rated current | 1.51/0.876 A | 1.48/0.851 A | 1.45/0.840 A |
| L. R. Amperes | 9.08/5.26 A | 8.88/5.11 A | 8.72/5.04 A |
| LRC | 6.0 | 6.0 | 6.0 |
| No load current | 0.725/0.420 A | 0.783/0.450 A | 0.813/0.470 A |
| Rated speed | 2795 rpm | 2820 rpm | 2825 rpm |
| Slip | 6.83 % | 6.00 % | 5.83 % |
| Rated torque | 1.26 Nm | 1.25 Nm | 1.25 Nm |
| Locked rotor torque | 210 % | 250 % | 270 % |
| Pull up torque | 175 % | 210 % | 230 % |
| Breakdown torque | 230 % | 250 % | 280 % |
| Service factor | 1.00 | 1.00 | 1.00 |
| Noise level ² | 56.0 dB(A) | 56.0 dB(A) | 56.0 dB(A) |
| Locked rotor time (hot) | 12 s | 12 s | 12 s |
| Locked rotor time (cold) | 22 s | 22 s | 22 s |
| Efficiency (%) | 50% | 73.6 | 72.4 |
| | 75% | 74.3 | 73.8 |
| | 100% | 73.8 | 73.8 |
| Power Factor | 50% | 0.71 | 0.63 |
| | 75% | 0.82 | 0.76 |
| | 100% | 0.87 | 0.83 |

| | | | |
|----------------------|------------------|---------------|--|
| Bearing type | Drive end | Non drive end | Foundation loads |
| | 6202-ZZ | 6202-ZZ | |
| Lubrication interval | - | - | Max. compression : 176 N |
| Lubricant amount | - | - | 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.

| Rev. | Changes Summary | Rev. | Checked | Date |
|--------------|-----------------|------------|---------|------|
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| Performed by | dang | 1230992071 | | |
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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: 6.3-8.4 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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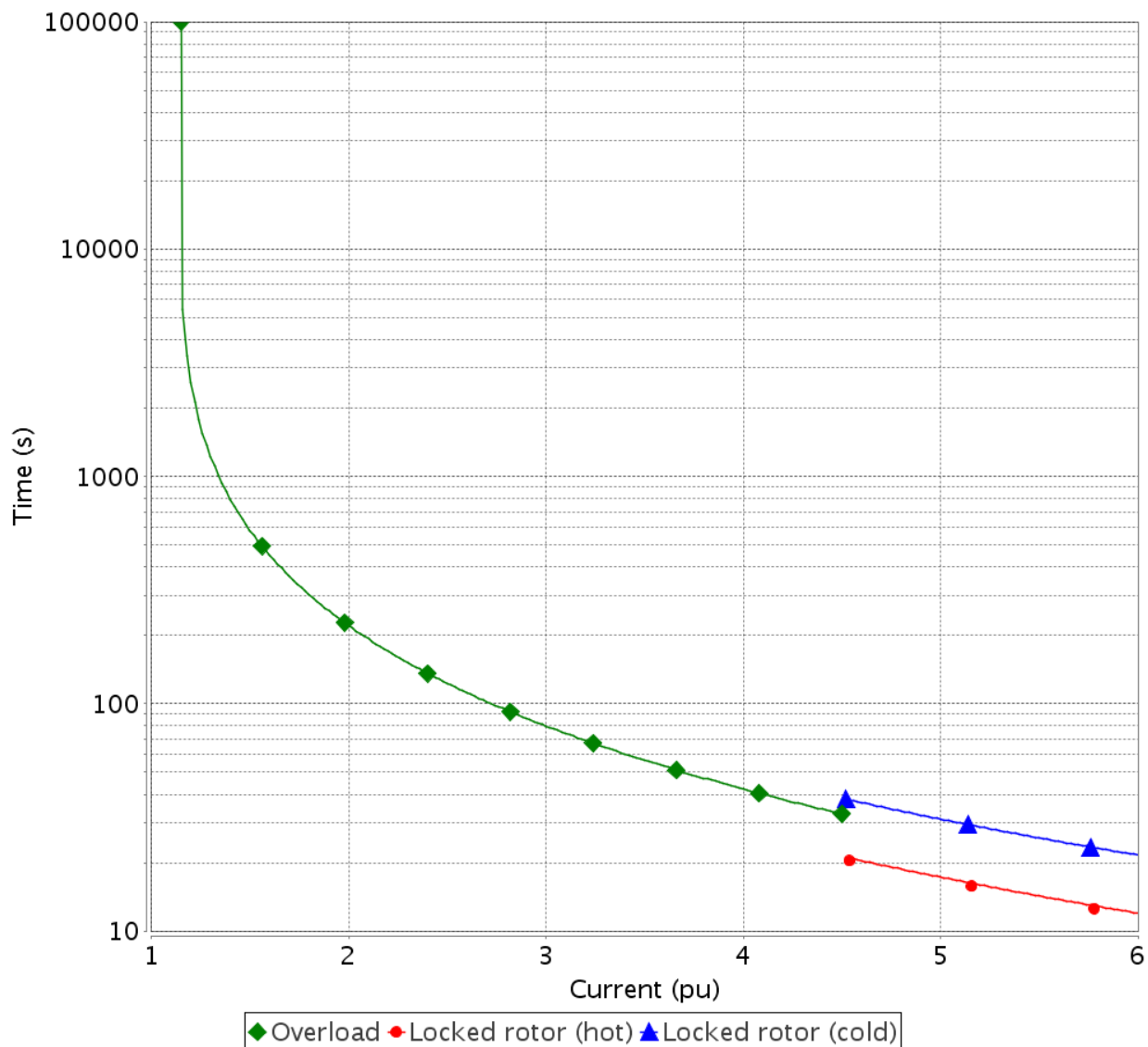
THERMAL LIMIT CURVE

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Performance : 0.37 kW 220/380 V 50 Hz 2P 71

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|---------------------|----------------|-----------------------|---------------------------|
| Rated current | : 1.51/0.876 A | Moment of inertia (J) | : 0.0004 kgm ² |
| LRC | : 6.0 | Duty cycle | : S1 |
| Rated torque | : 1.26 Nm | Insulation class | : F |
| Locked rotor torque | : 210 % | Service factor | : 1.00 |
| Breakdown torque | : 230 % | Temperature rise | : 80 K |
| Rated speed | : 2795 rpm | Design | : N |
| Heating constant | : 10.7 min | | |
| Cooling constant | : 32.1 min | | |

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LOAD PERFORMANCE CURVE

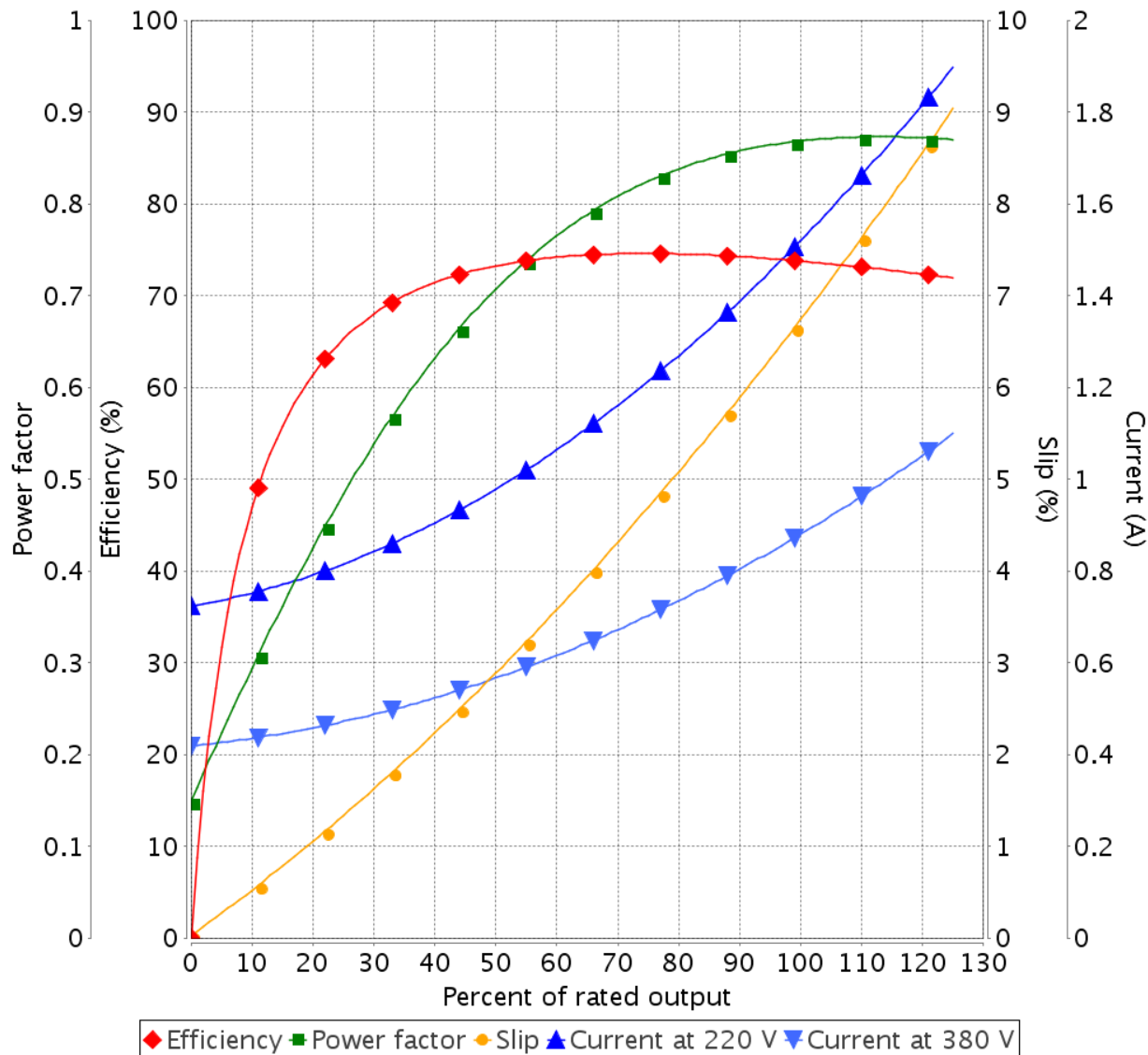
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 LRC : 6.0
 Rated torque : 1.26 Nm
 Locked rotor torque : 210 %
 Breakdown torque : 230 %
 Rated speed : 2795 rpm

Moment of inertia (J) : 0.0004 kgm²
 Duty cycle : S1
 Insulation class : F
 Service factor : 1.00
 Temperature rise : 80 K
 Design : N

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VFD OPERATION CURVE

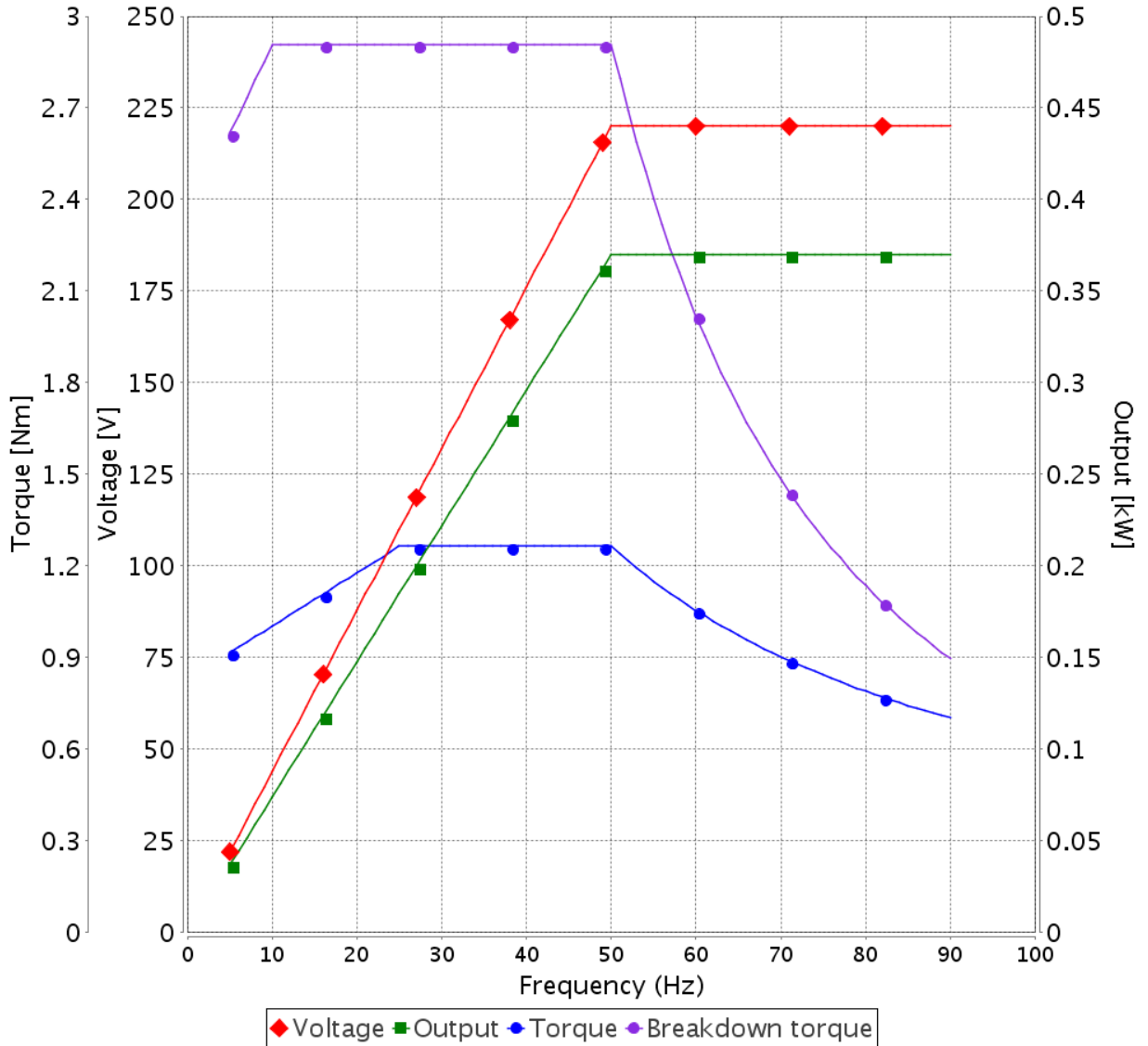
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 Rated torque : 1.26 Nm
 Locked rotor torque : 210 %
 Breakdown torque : 230 %
 Rated speed : 2795 rpm

Moment of inertia (J) : 0.0004 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

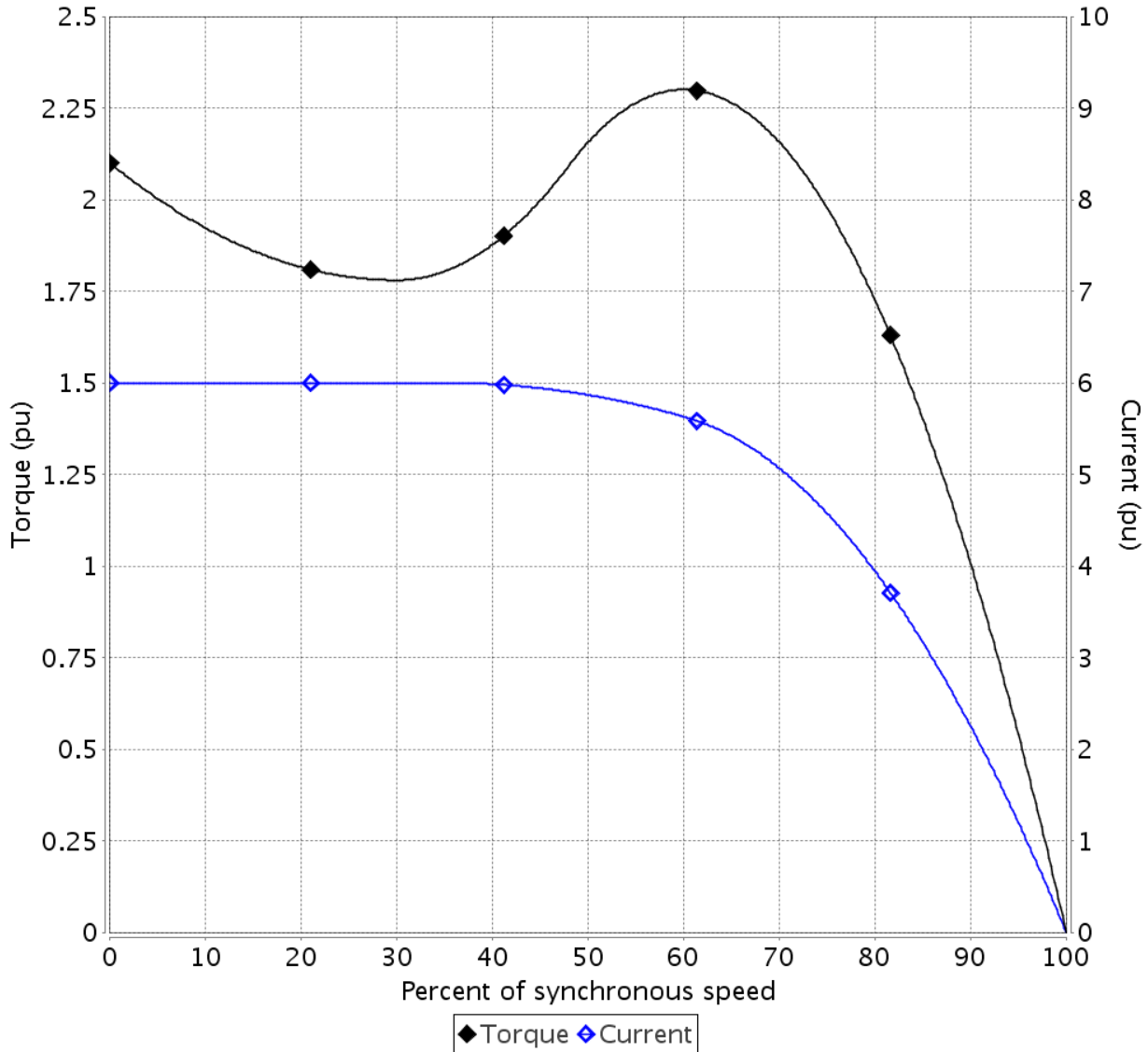
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Performance : 0.37 kW 220/380 V 50 Hz 2P 71

Rated current : 1.51/0.876 A

LRC : 6.0

Rated torque : 1.26 Nm

Locked rotor torque : 210 %

Breakdown torque : 230 %

Rated speed : 2795 rpm

Moment of inertia (J) : 0.0004 kgm²

Duty cycle : S1

Insulation class : F

Service factor : 1.00

Temperature rise : 80 K

Design : N

Locked rotor time 100% : 12 s (hot) 22 s (cold)

Load inertia (J=GD²/4) : 0.0004 kgm²

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EQUIVALENT CIRCUIT

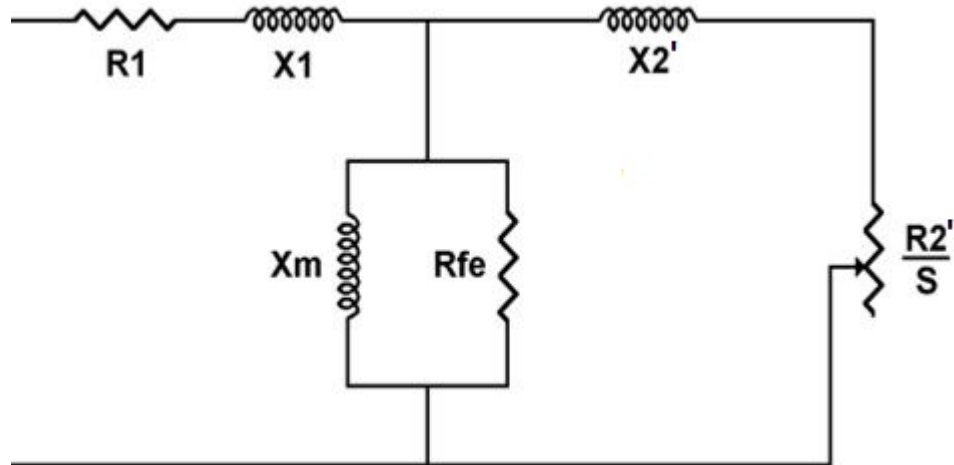
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| Rated | | | |
|------------|-------------------------------|------------|-----------------------------|
| R1 | 22.6345 omhs / 0.0580 p.u. | X1 | 13.5498 omhs / 0.0347 p.u. |
| R2' | 11.1965 omhs / 0.0287 p.u. | X2' | 14.7358 omhs / 0.0378 p.u. |
| Rfe | 7726.3900 omhs / 19.7975 p.u. | Xm | 462.9375 omhs / 1.1862 p.u. |

| Locked rotor | | | |
|--------------|-------------------------------|------------|-----------------------------|
| R1 | 26.0638 omhs / 0.0668 p.u. | X1 | 12.4856 omhs / 0.0320 p.u. |
| R2' | 12.8853 omhs / 0.0330 p.u. | X2' | 6.7427 omhs / 0.0173 p.u. |
| Rfe | 7207.7860 omhs / 18.4687 p.u. | Xm | 557.6984 omhs / 1.4290 p.u. |

| | | | |
|--------------|---------------|------------------|----------------------------|
| T''do | 0.1040 s | X/R | 0.8260 p.u. |
| T''d | 0.0042 s | RS | 1.3451 omhs / 0.0034 p.u. |
| Ta | 0.0021 s | X''d = Xs | 19.2283 omhs / 0.0493 p.u. |
| Zbase | 390.2703 omhs | X2(-) | 9.3713 omhs / 0.0240 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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