

DATA SHEET

Three Phase Induction Motor - Squirrel Cage



Customer :					
Product line		: NEMA Premium Efficiency Three-Phase	Product code :	14409581	
			Catalog # :	02009XT3E324T	
Frame	: 324T	Cooling method	: IC411 - TEFC		
Insulation class	: F	Mounting	: F-1		
Duty cycle	: Cont.(S1)	Rotation ¹	: Both (CW and CCW)		
Ambient temperature	: -20°C to +40°C	Starting method	: Direct On Line		
Altitude	: 1000 m.a.s.l.	Approx. weight ²	: 621 lb		
Protection degree	: IP55	Moment of inertia (J)	: 9.37 sq.ft.lb		
Design	: B				
Output [HP]	20	20	20	20	
Poles	8	8	8	8	
Frequency [Hz]	60	50	50	50	
Rated voltage [V]	230/460	380	400	415	
Rated current [A]	55.0/27.5	32.6	31.6	31.3	
L. R. Amperes [A]	292/146	173	167	166	
LRC [A]	5.3x(Code G)	5.3x(Code G)	5.3x(Code G)	5.3x(Code G)	
No load current [A]	28.8/14.4	14.1	15.6	17.0	
Rated speed [RPM]	880	720	725	730	
Slip [%]	2.22	4.00	3.33	2.67	
Rated torque [ft.lb]	119	146	145	144	
Locked rotor torque [%]	229	170	190	210	
Breakdown torque [%]	229	180	200	220	
Service factor	1.15	1.00	1.00	1.00	
Temperature rise	80 K	80 K	80 K	80 K	
Locked rotor time	45s (cold) 25s (hot)	45s (cold) 25s (hot)	45s (cold) 25s (hot)	45s (cold) 25s (hot)	
Noise level ²	56.0 dB(A)	56.0 dB(A)	56.0 dB(A)	56.0 dB(A)	
Efficiency (%)	25%	91.5	92.1	89.2	89.2
	50%	91.7	91.0	89.5	89.5
	75%	92.4	91.0	90.2	90.2
	100%	92.4	89.5	90.2	90.2
Power Factor	25%	0.32	0.38	0.35	0.32
	50%	0.56	0.63	0.59	0.55
	75%	0.67	0.73	0.69	0.67
	100%	0.74	0.78	0.76	0.74
Bearing type	: <u>Drive end</u> 6312 C3	<u>Non drive end</u> 6212 C3	Foundation loads		
Sealing	: Oil Seal	Lip Seal	Max. traction	: 904 lb	
Lubrication interval	: 20000 h	20000 h	Max. compression	: 1525 lb	
Lubricant amount	: 21 g	13 g			
Lubricant type	: Mobil Polyrex EM				
Notes USABLE @208V 60.8A SF 1.15 SFA 69.9A					
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 changes 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 NEMA MG-1.		
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Three Phase Induction Motor - Squirrel Cage



Customer : _____

Thermal protection

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

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TORQUE AND CURRENT VS SPEED CURVE



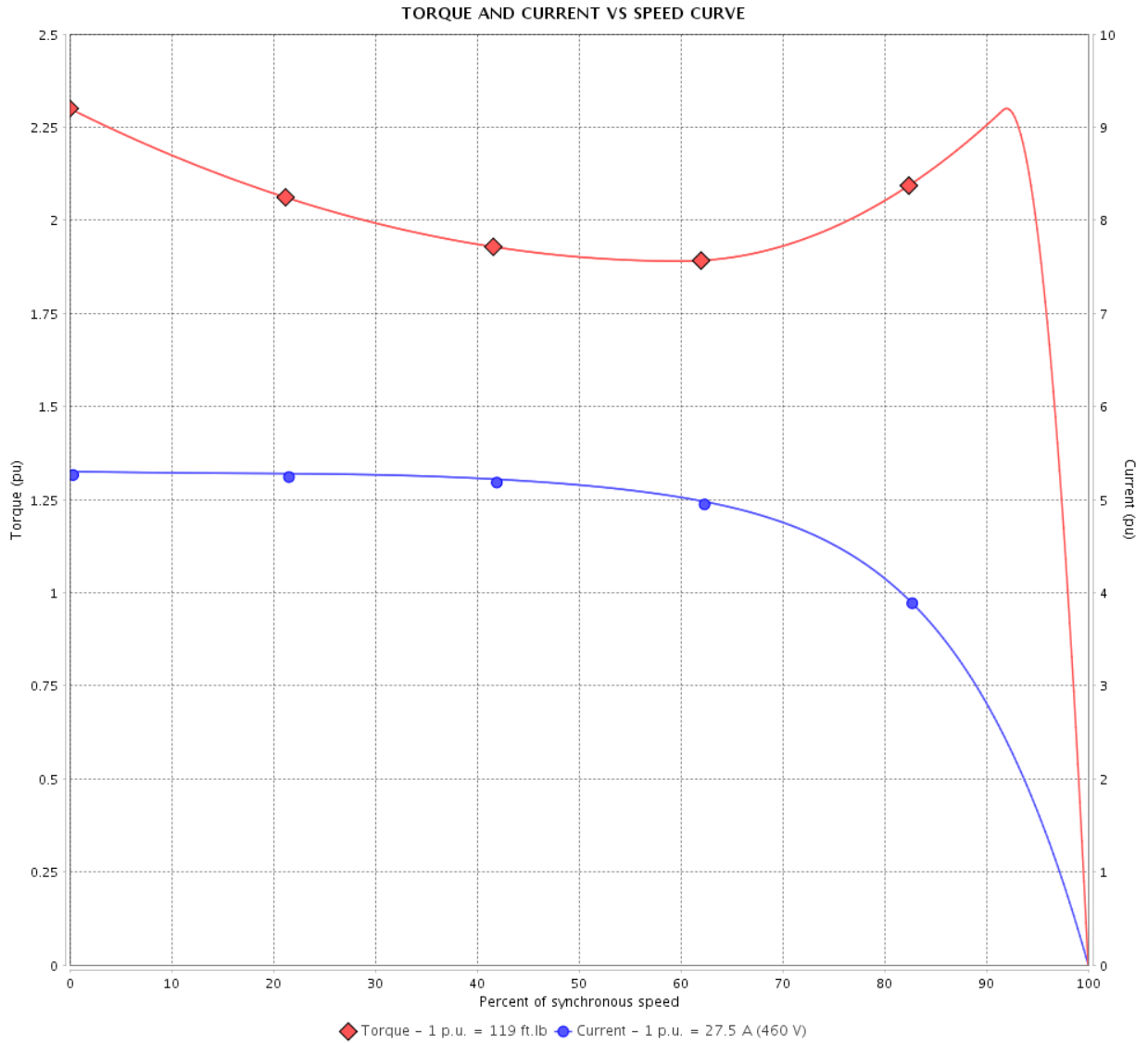
Three Phase Induction Motor - Squirrel Cage

Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 14409581

Catalog # : 02009XT3E324T



Performance : 230/460 V 60 Hz 8P

Rated current : 55.0/27.5 A
 LRC : 5.3
 Rated torque : 119 ft.lb
 Locked rotor torque : 229 %
 Breakdown torque : 229 %
 Rated speed : 880 rpm

Moment of inertia (J) : 9.37 sq.ft.lb
 Duty cycle : Cont.(S1)
 Insulation class : F
 Service factor : 1.15
 Temperature rise : 80 K
 Design : B

Locked rotor time : 45s (cold) 25s (hot)

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TORQUE AND CURRENT VS SPEED CURVE

Three Phase Induction Motor - Squirrel Cage



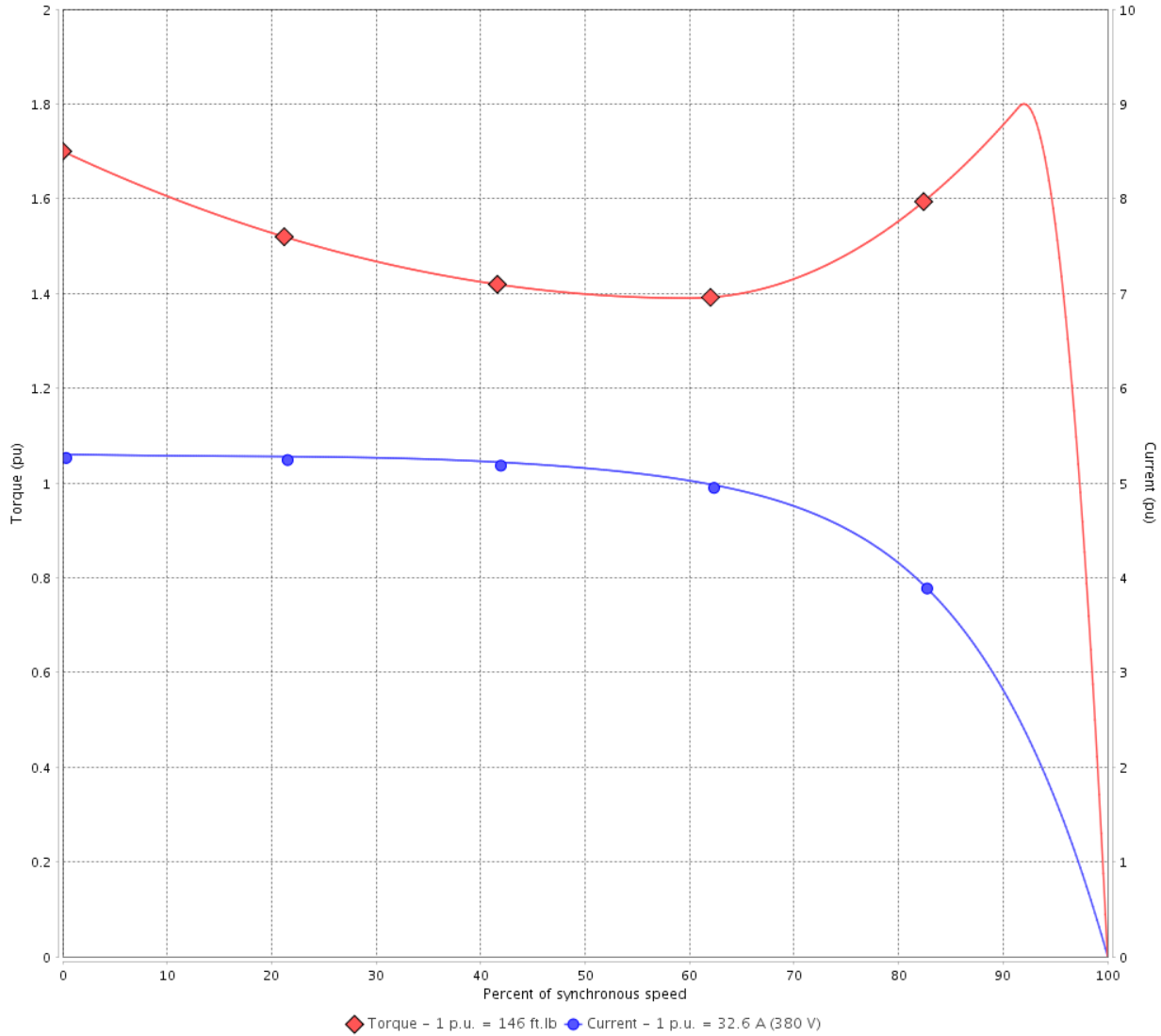
Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 14409581

Catalog # : 02009XT3E324T

TORQUE AND CURRENT VS SPEED CURVE



Performance : 380 V 50 Hz 8P IE2

Rated current	: 32.6 A	Moment of inertia (J)	: 9.37 sq.ft.lb
LRC	: 5.3	Duty cycle	: Cont.(S1)
Rated torque	: 146 ft.lb	Insulation class	: F
Locked rotor torque	: 170 %	Service factor	: 1.00
Breakdown torque	: 180 %	Temperature rise	: 80 K
Rated speed	: 720 rpm	Design	: B

Locked rotor time : 45s (cold) 25s (hot)

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TORQUE AND CURRENT VS SPEED CURVE



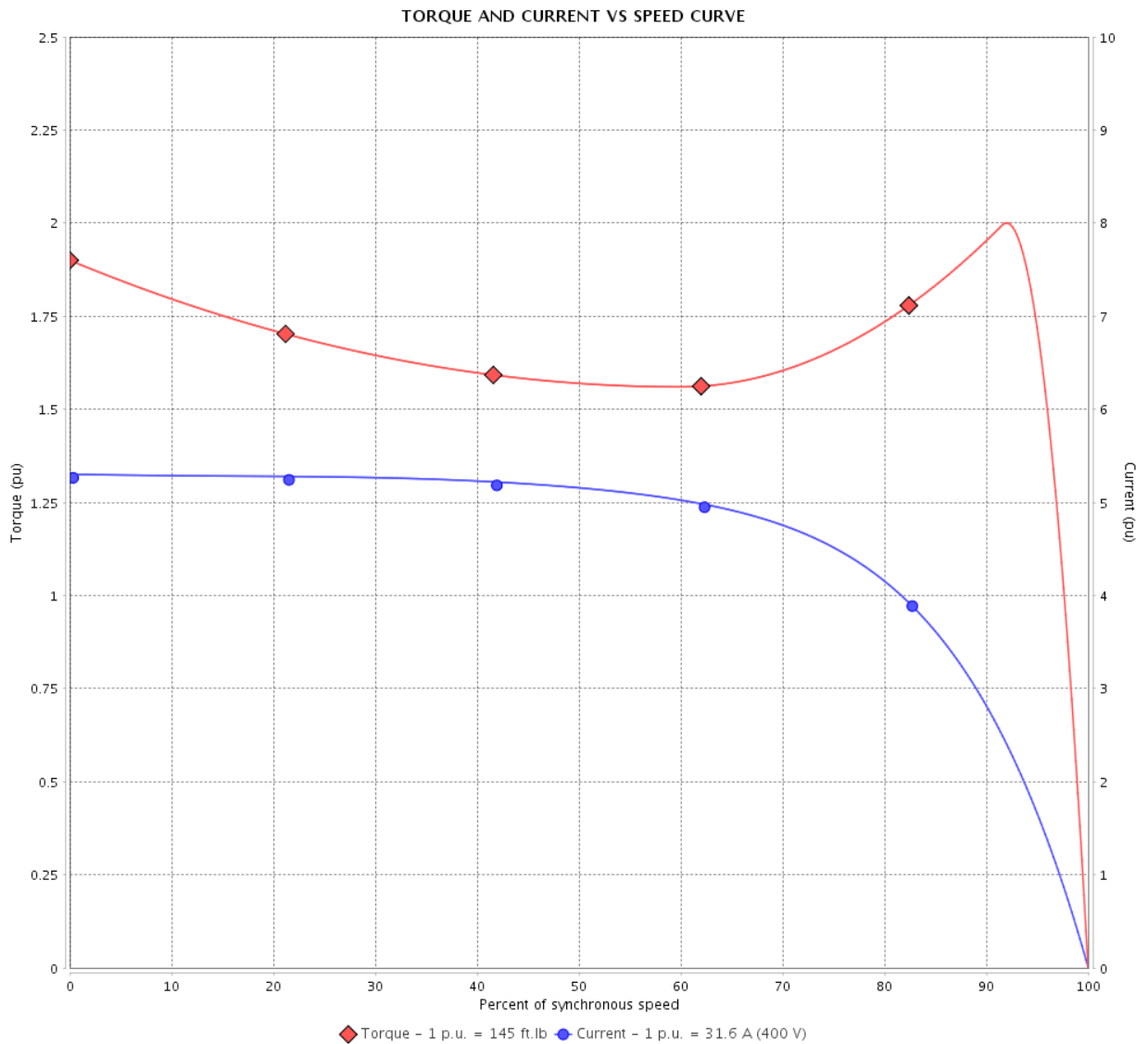
Three Phase Induction Motor - Squirrel Cage

Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 14409581

Catalog # : 02009XT3E324T



Performance : 400 V 50 Hz 8P IE3

Rated current	: 31.6 A	Moment of inertia (J)	: 9.37 sq.ft.lb
LRC	: 5.3	Duty cycle	: Cont.(S1)
Rated torque	: 145 ft.lb	Insulation class	: F
Locked rotor torque	: 190 %	Service factor	: 1.00
Breakdown torque	: 200 %	Temperature rise	: 80 K
Rated speed	: 725 rpm	Design	: B

Locked rotor time : 45s (cold) 25s (hot)

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TORQUE AND CURRENT VS SPEED CURVE

Three Phase Induction Motor - Squirrel Cage



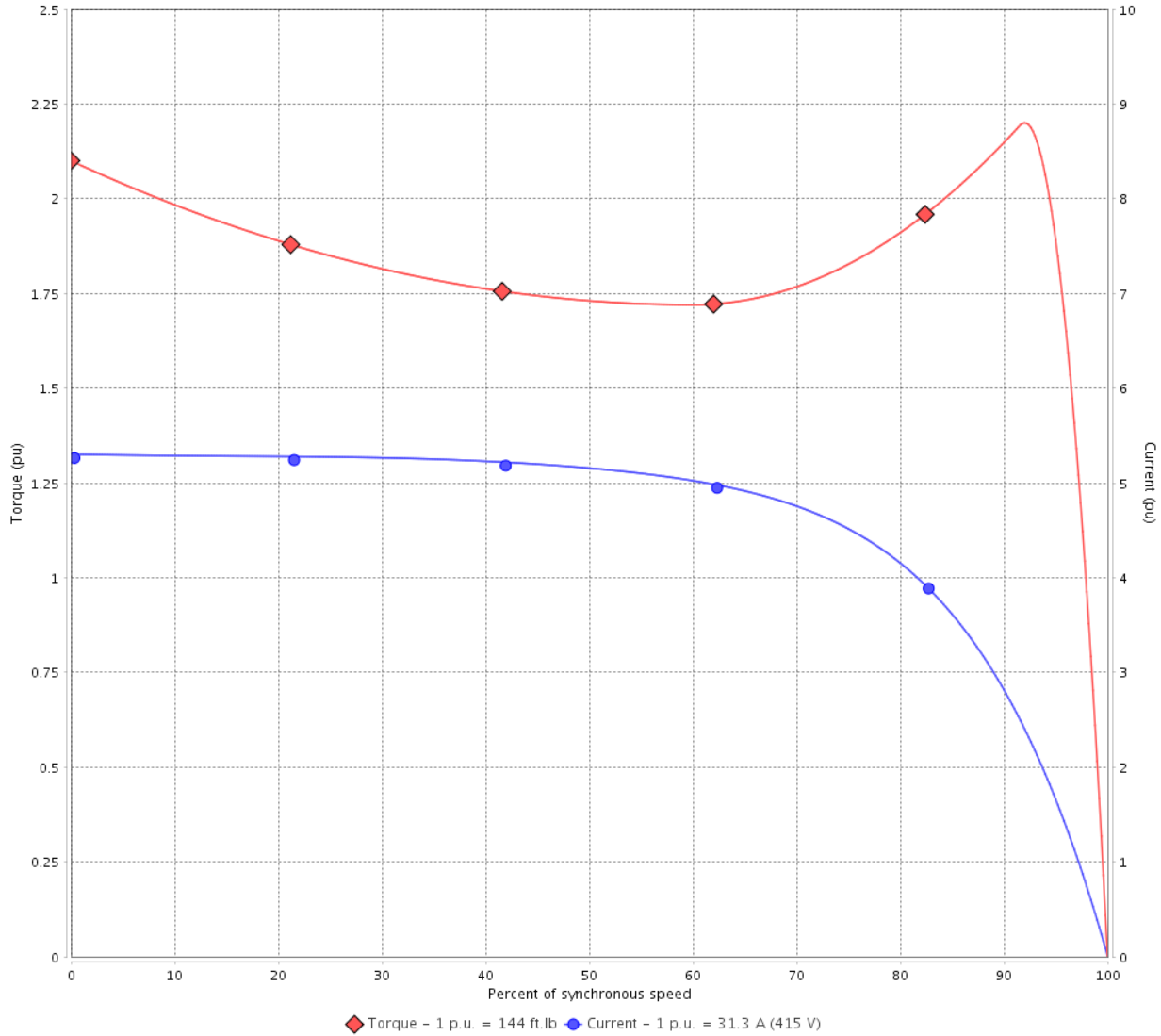
Customer :

Product line : NEMA Premium Efficiency Three-Phase

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TORQUE AND CURRENT VS SPEED CURVE



Performance : 415 V 50 Hz 8P IE3

Rated current	: 31.3 A	Moment of inertia (J)	: 9.37 sq.ft.lb
LRC	: 5.3	Duty cycle	: Cont.(S1)
Rated torque	: 144 ft.lb	Insulation class	: F
Locked rotor torque	: 210 %	Service factor	: 1.00
Breakdown torque	: 220 %	Temperature rise	: 80 K
Rated speed	: 730 rpm	Design	: B

Locked rotor time : 45s (cold) 25s (hot)

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LOAD PERFORMANCE CURVE

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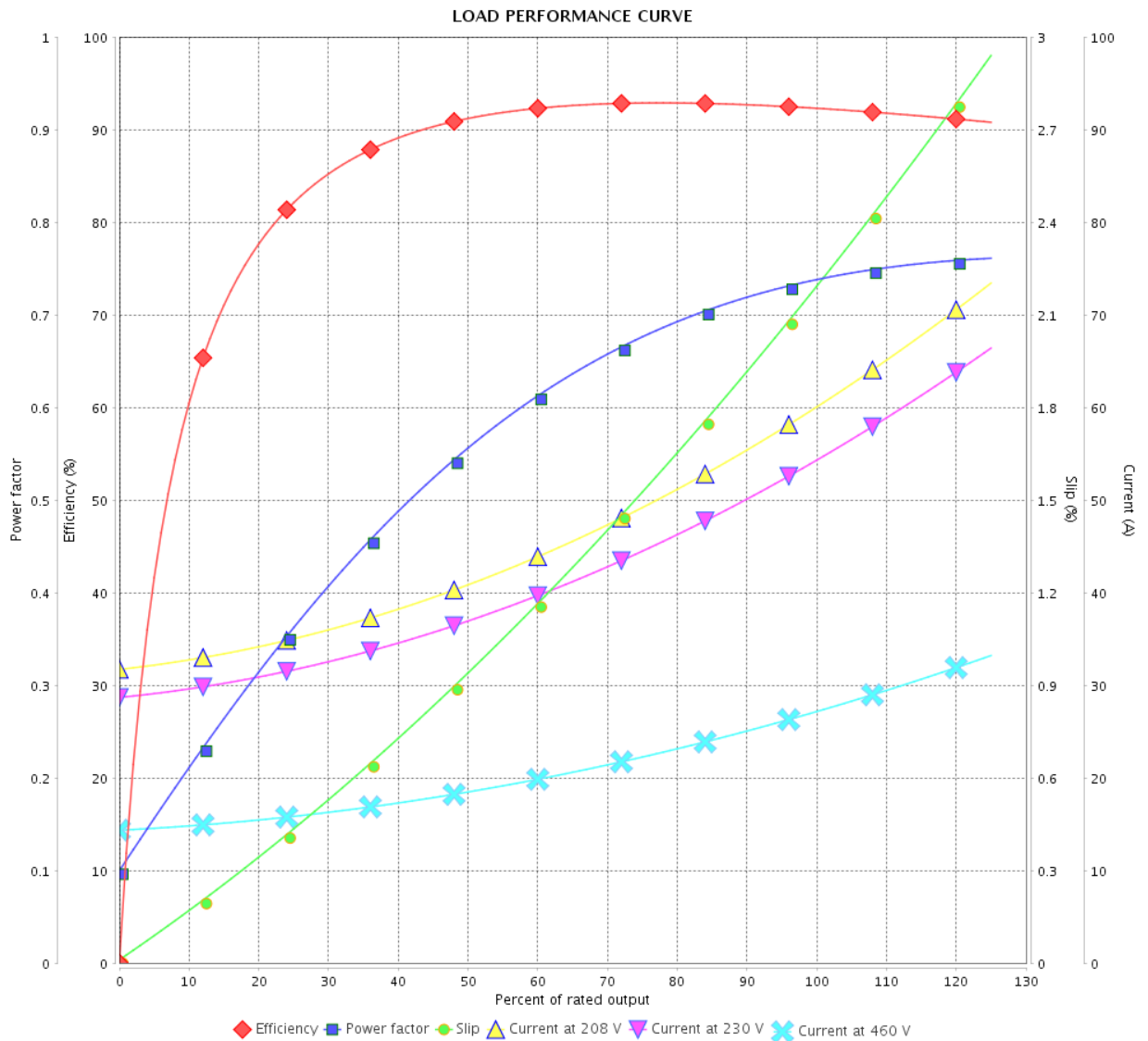


Customer :

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Performance : 230/460 V 60 Hz 8P

Rated current : 55.0/27.5 A
 LRC : 5.3
 Rated torque : 119 ft.lb
 Locked rotor torque : 229 %
 Breakdown torque : 229 %
 Rated speed : 880 rpm

Moment of inertia (J) : 9.37 sq.ft.lb
 Duty cycle : Cont.(S1)
 Insulation class : F
 Service factor : 1.15
 Temperature rise : 80 K
 Design : B

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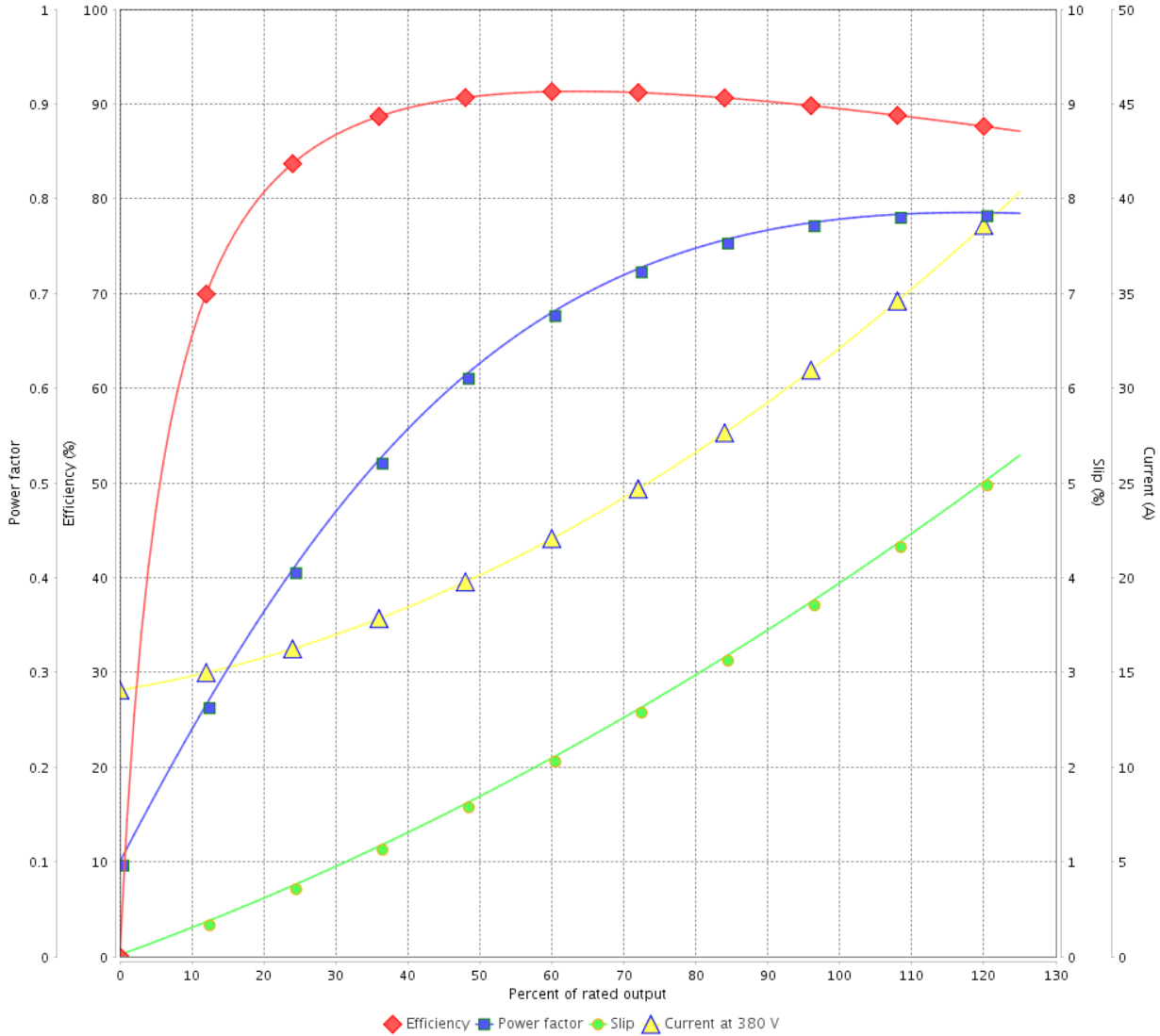
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Performance : 380 V 50 Hz 8P IE2

Rated current	: 32.6 A	Moment of inertia (J)	: 9.37 sq.ft.lb
LRC	: 5.3	Duty cycle	: Cont.(S1)
Rated torque	: 146 ft.lb	Insulation class	: F
Locked rotor torque	: 170 %	Service factor	: 1.00
Breakdown torque	: 180 %	Temperature rise	: 80 K
Rated speed	: 720 rpm	Design	: B

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Three Phase Induction Motor - Squirrel Cage

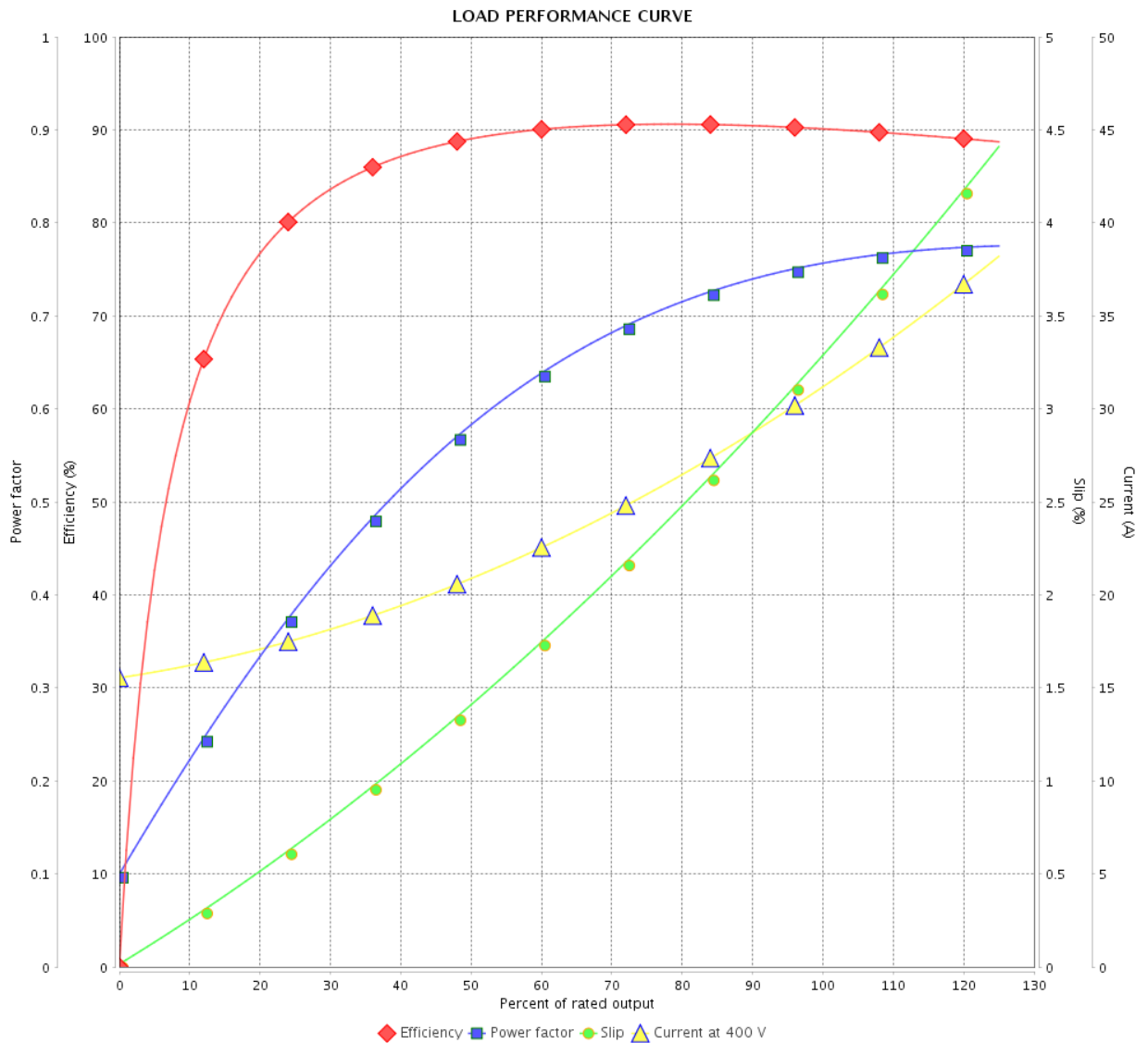


Customer : _____

Product line : NEMA Premium Efficiency Three-Phase

Product code : 14409581

Catalog # : 02009XT3E324T



Performance : 400 V 50 Hz 8P IE3

Rated current : 31.6 A
 LRC : 5.3
 Rated torque : 145 ft.lb
 Locked rotor torque : 190 %
 Breakdown torque : 200 %
 Rated speed : 725 rpm

Moment of inertia (J) : 9.37 sq.ft.lb
 Duty cycle : Cont.(S1)
 Insulation class : F
 Service factor : 1.00
 Temperature rise : 80 K
 Design : B

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Three Phase Induction Motor - Squirrel Cage



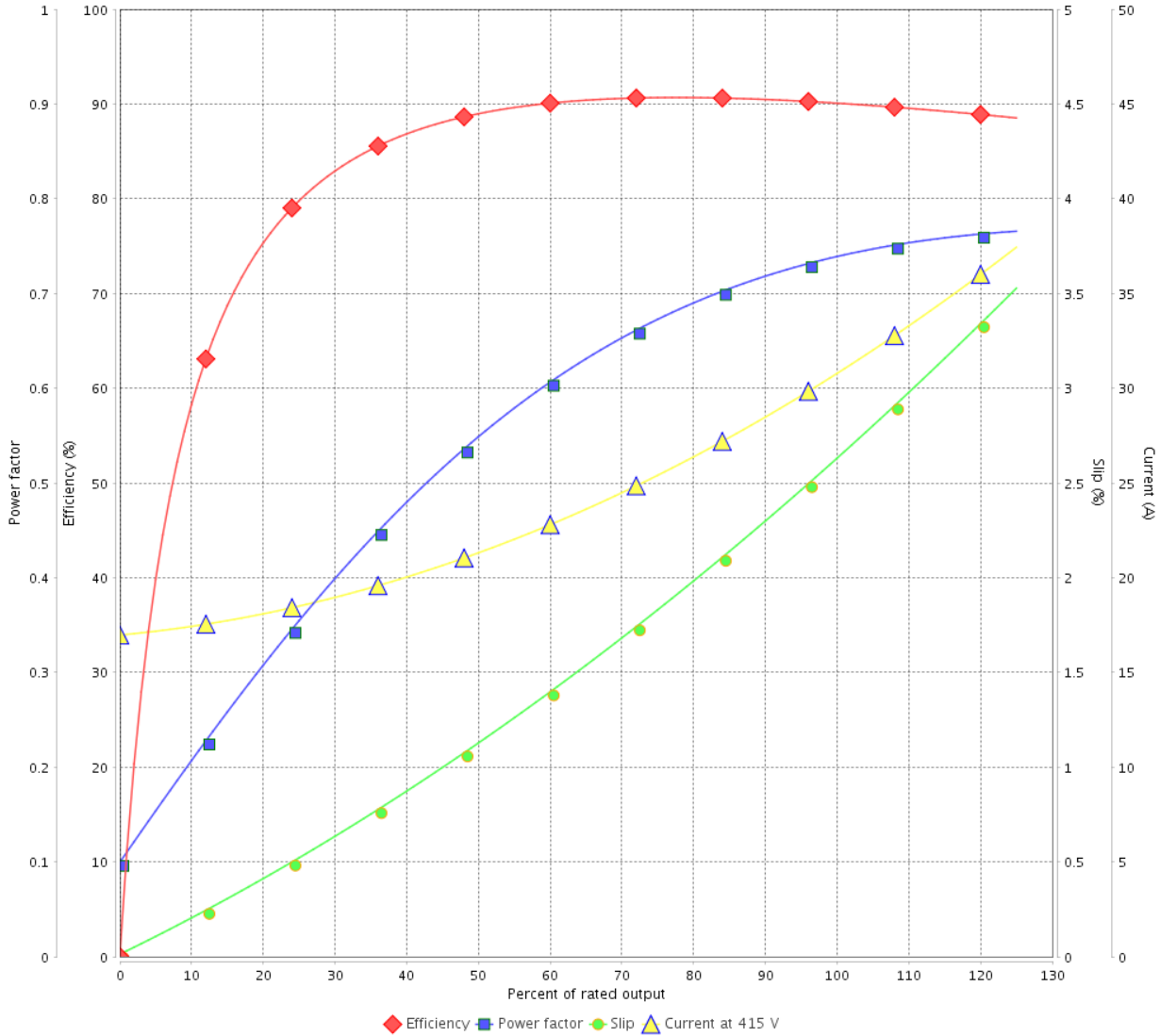
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THERMAL LIMIT CURVE



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Rated speed : 880 rpm	Design : B

Heating constant

Cooling constant

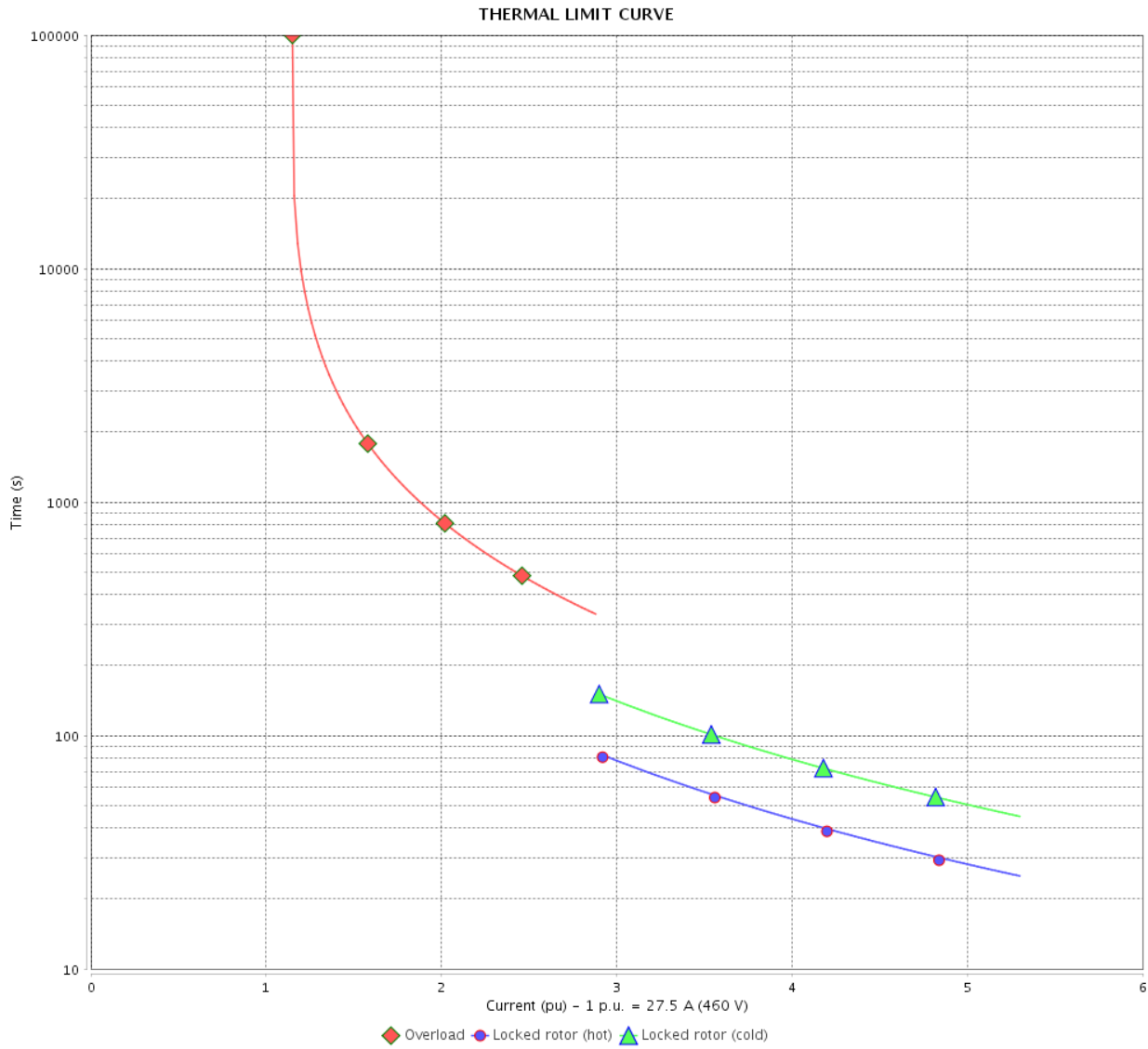
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THERMAL LIMIT CURVE

Three Phase Induction Motor - Squirrel Cage



Customer : _____



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Locked rotor torque : 170 %	Service factor : 1.00
Breakdown torque : 180 %	Temperature rise : 80 K
Rated speed : 720 rpm	Design : B

Heating constant

Cooling constant

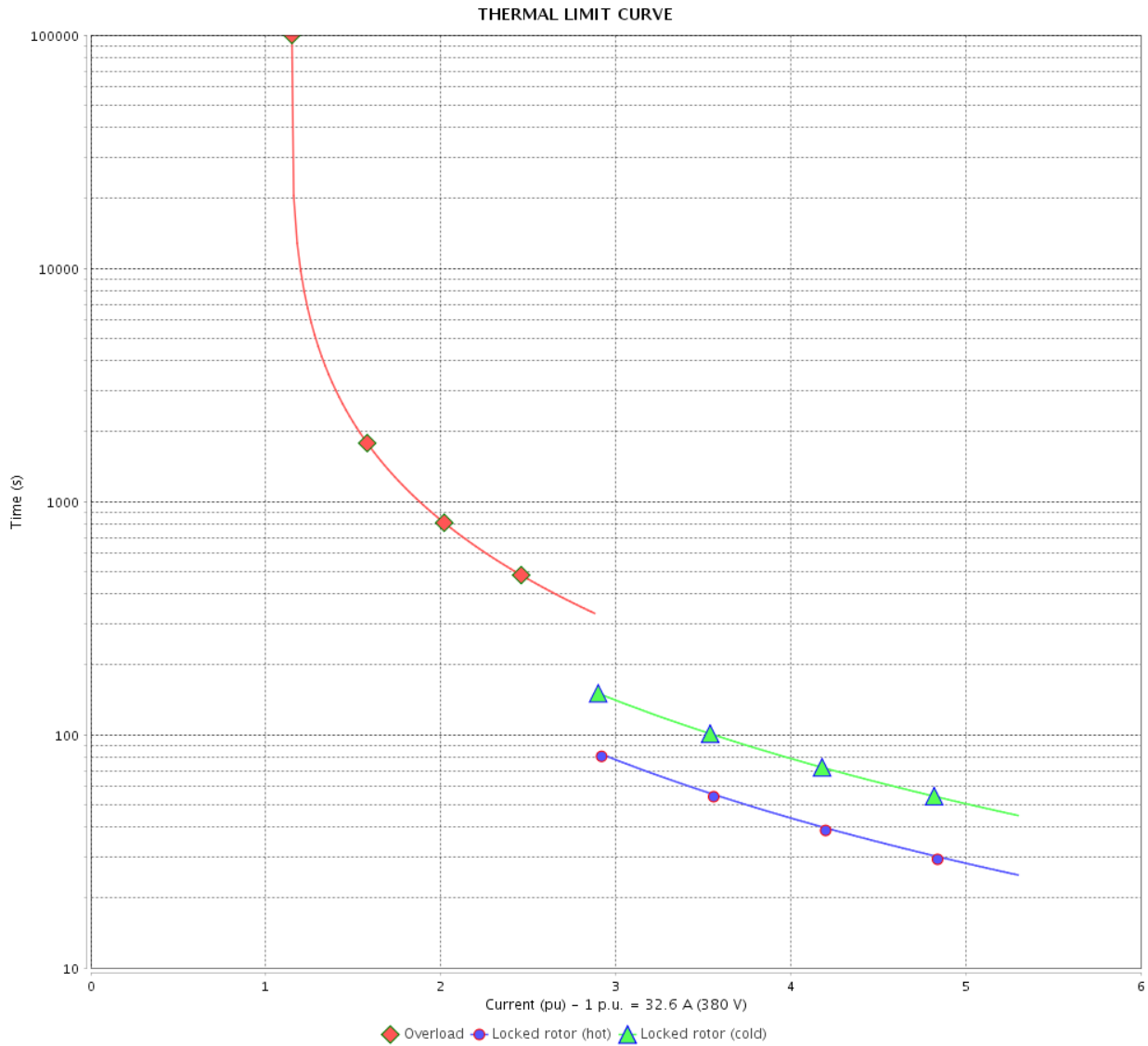
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LRC : 5.3	Duty cycle : Cont.(S1)
Rated torque : 145 ft.lb	Insulation class : F
Locked rotor torque : 190 %	Service factor : 1.00
Breakdown torque : 200 %	Temperature rise : 80 K
Rated speed : 725 rpm	Design : B

Heating constant

Cooling constant

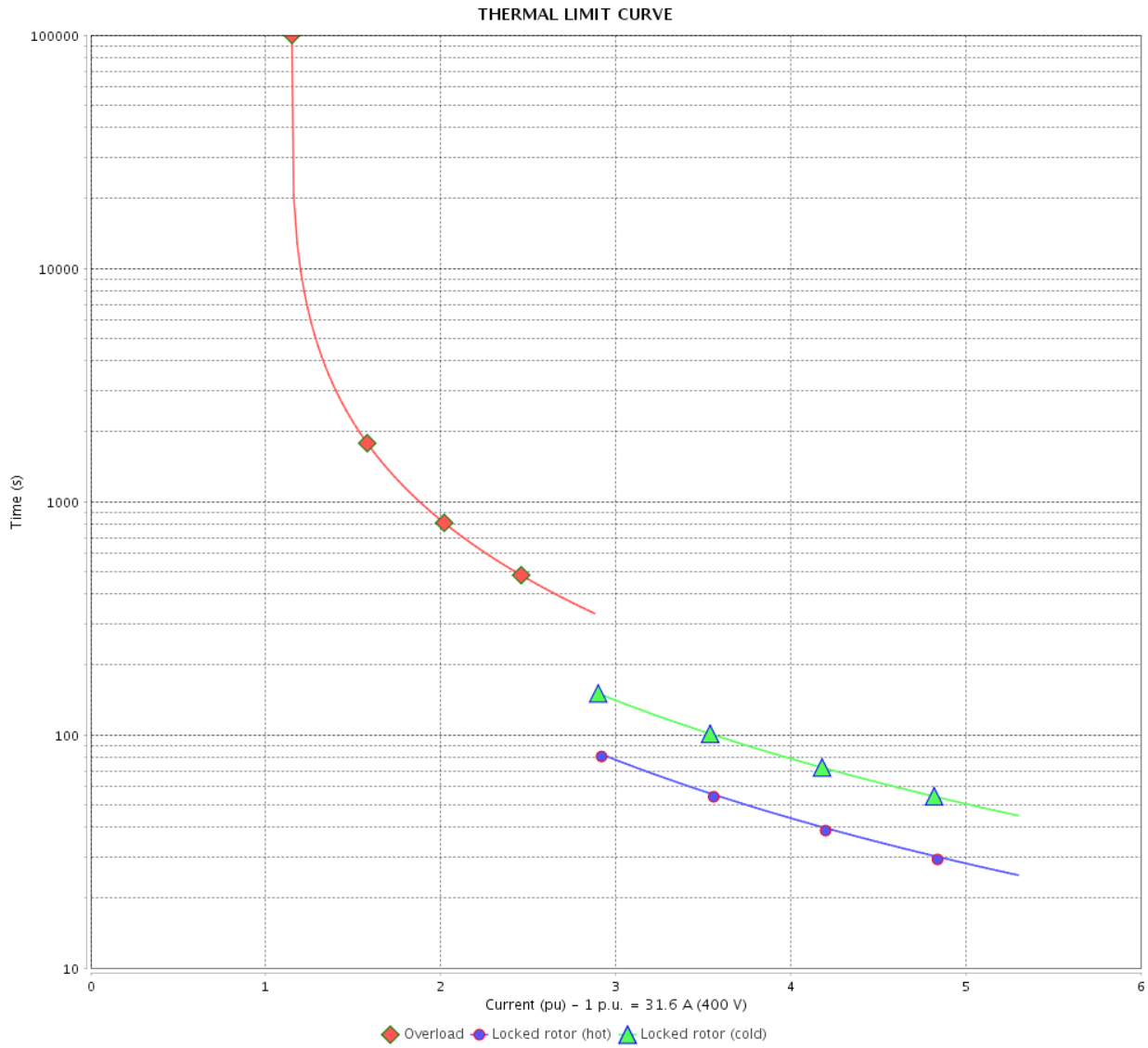
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Customer : _____



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THERMAL LIMIT CURVE



Three Phase Induction Motor - Squirrel Cage

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 Catalog # : 02009XT3E324T

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LRC : 5.3	Duty cycle : Cont.(S1)
Rated torque : 144 ft.lb	Insulation class : F
Locked rotor torque : 210 %	Service factor : 1.00
Breakdown torque : 220 %	Temperature rise : 80 K
Rated speed : 730 rpm	Design : B

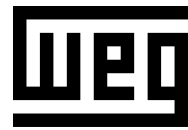
Heating constant

Cooling constant

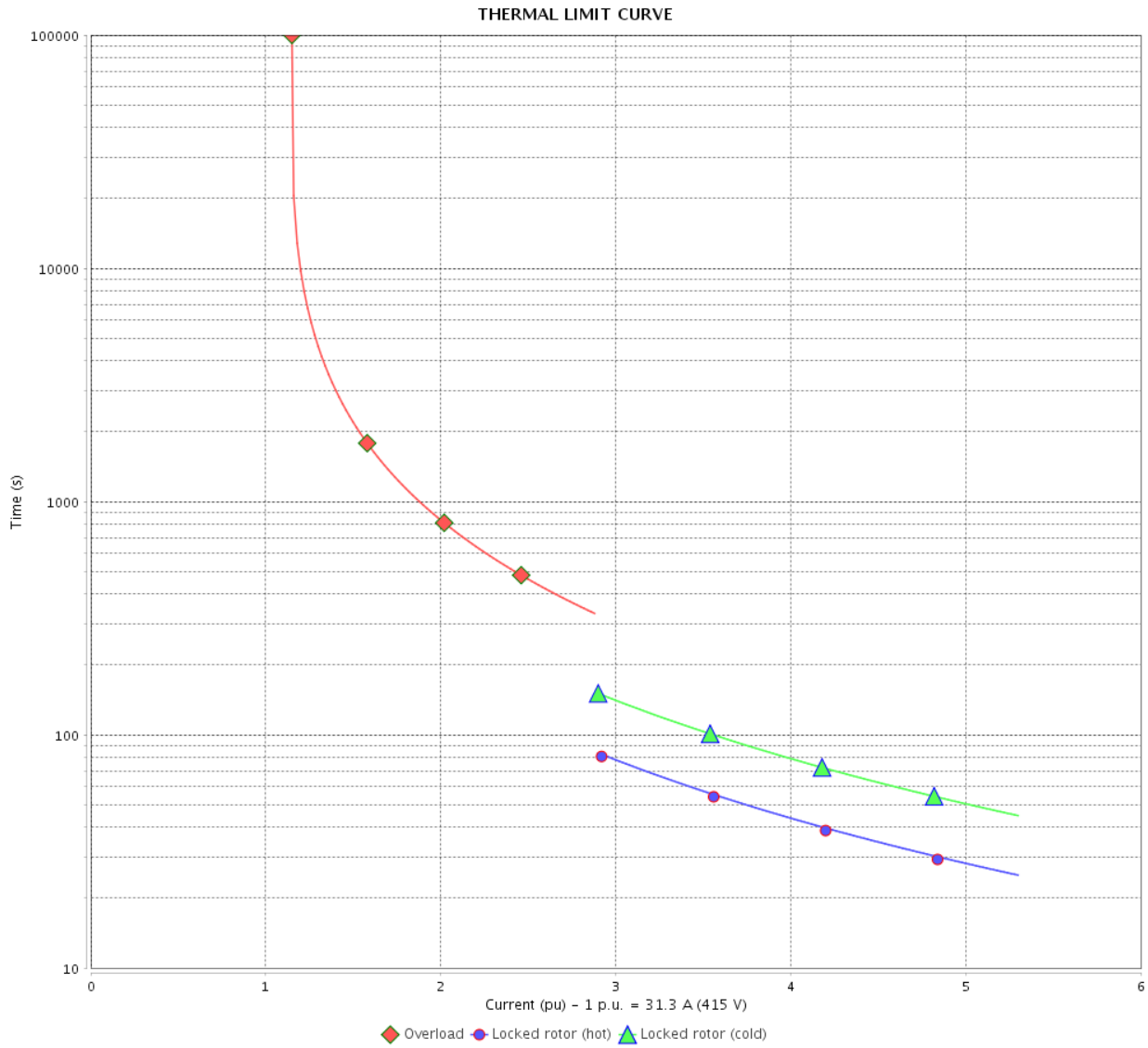
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THERMAL LIMIT CURVE

Three Phase Induction Motor - Squirrel Cage



Customer : _____



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Date				

VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage

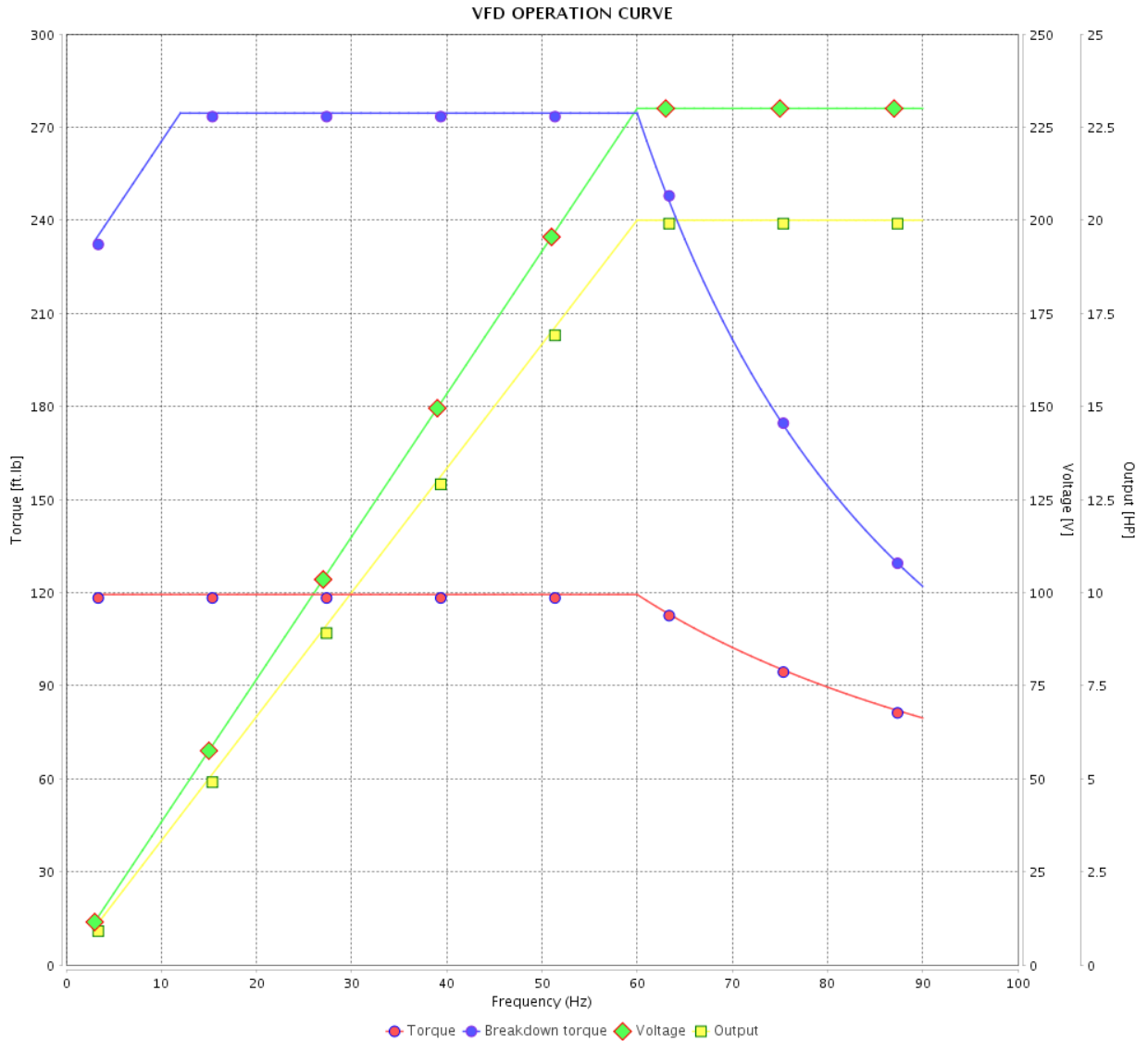


Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 14409581

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Performance : 230/460 V 60 Hz 8P

Rated current : 55.0/27.5 A
 LRC : 5.3
 Rated torque : 119 ft.lb
 Locked rotor torque : 229 %
 Breakdown torque : 229 %
 Rated speed : 880 rpm

Moment of inertia (J) : 9.37 sq.ft.lb
 Duty cycle : Cont.(S1)
 Insulation class : F
 Service factor : 1.15
 Temperature rise : 80 K
 Design : B

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VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage

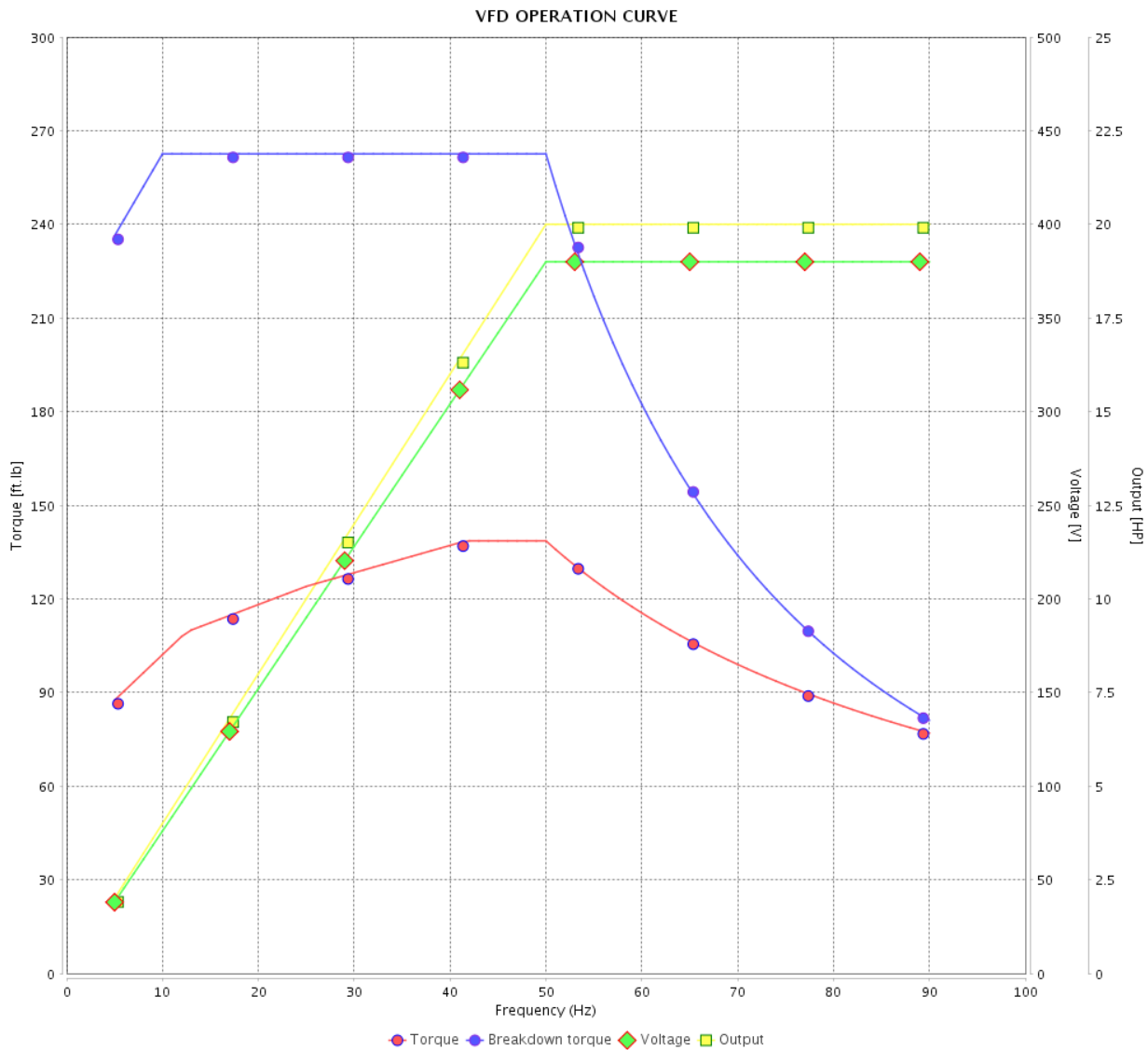


Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 14409581

Catalog # : 02009XT3E324T



Performance : 380 V 50 Hz 8P IE2

Rated current	: 32.6 A	Moment of inertia (J)	: 9.37 sq.ft.lb
LRC	: 5.3	Duty cycle	: Cont.(S1)
Rated torque	: 146 ft.lb	Insulation class	: F
Locked rotor torque	: 170 %	Service factor	: 1.00
Breakdown torque	: 180 %	Temperature rise	: 80 K
Rated speed	: 720 rpm	Design	: B

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Date	14/04/2022			

VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage

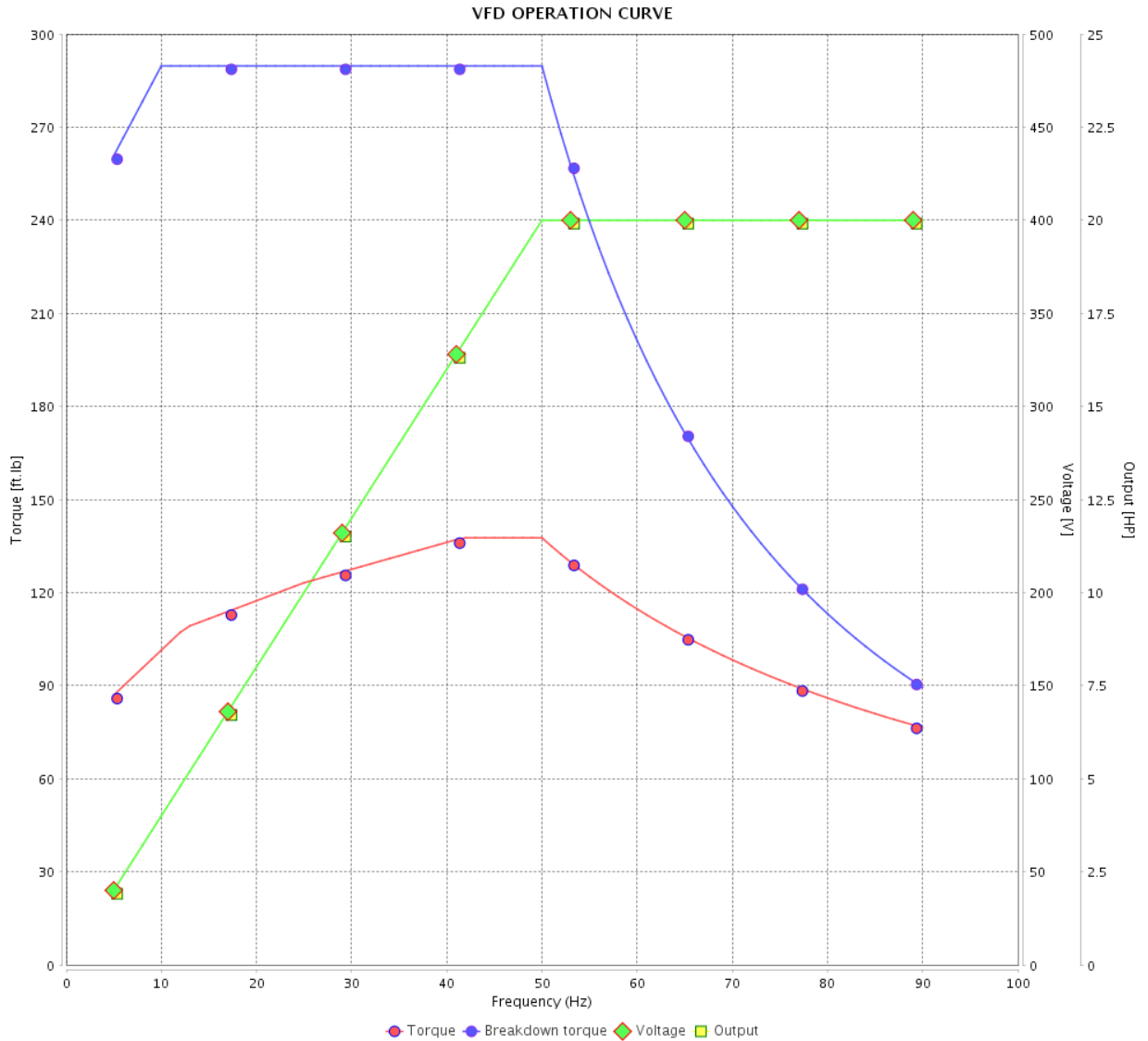


Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 14409581

Catalog # : 02009XT3E324T



Performance : 400 V 50 Hz 8P IE3

Rated current : 31.6 A
 LRC : 5.3
 Rated torque : 145 ft.lb
 Locked rotor torque : 190 %
 Breakdown torque : 200 %
 Rated speed : 725 rpm

Moment of inertia (J) : 9.37 sq.ft.lb
 Duty cycle : Cont.(S1)
 Insulation class : F
 Service factor : 1.00
 Temperature rise : 80 K
 Design : B

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VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage



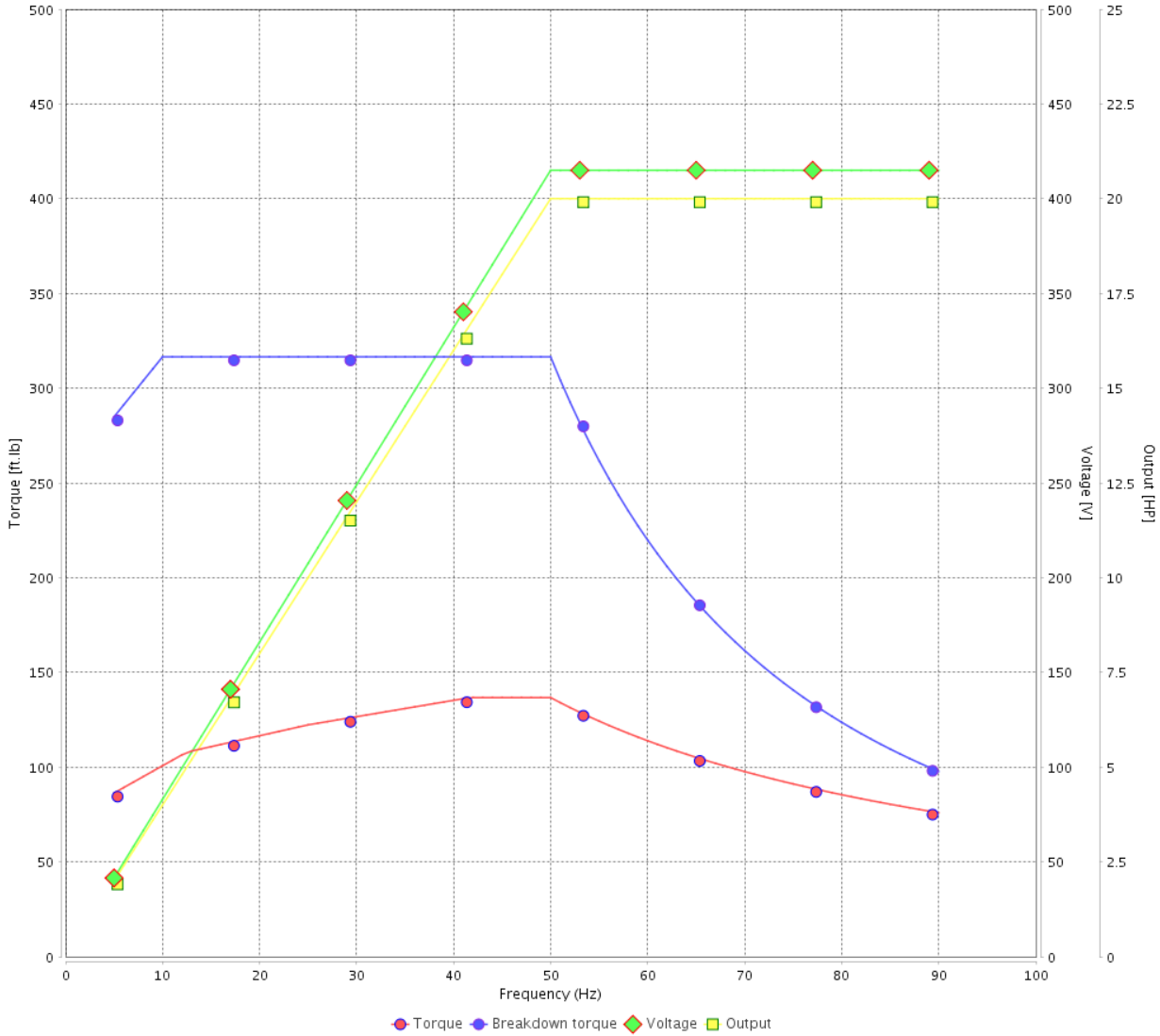
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VFD OPERATION CURVE

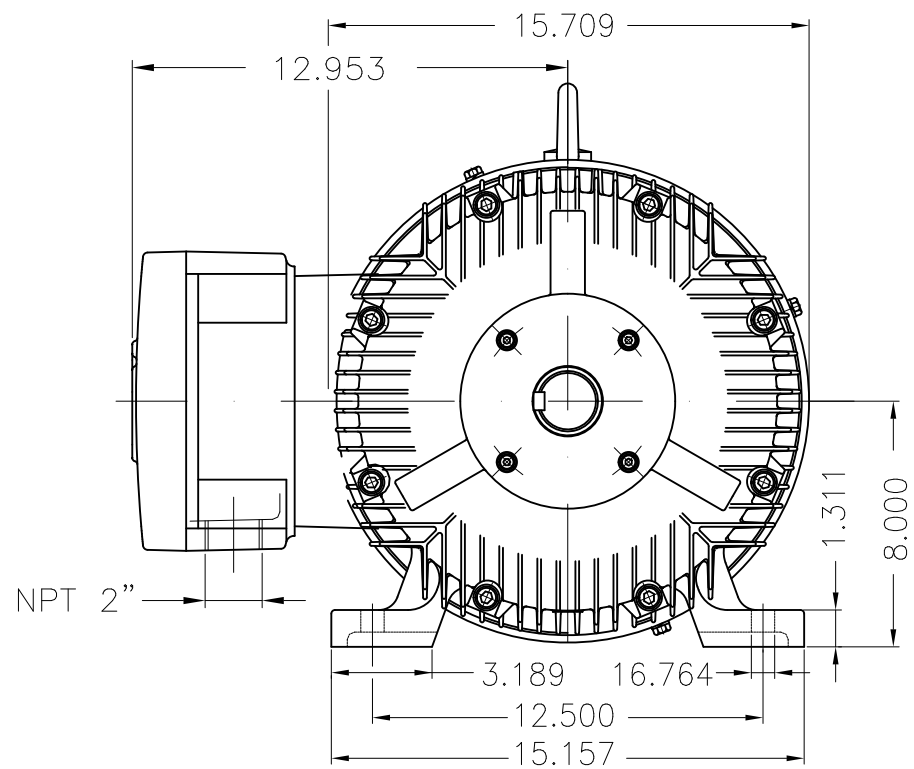


Performance : 415 V 50 Hz 8P IE3

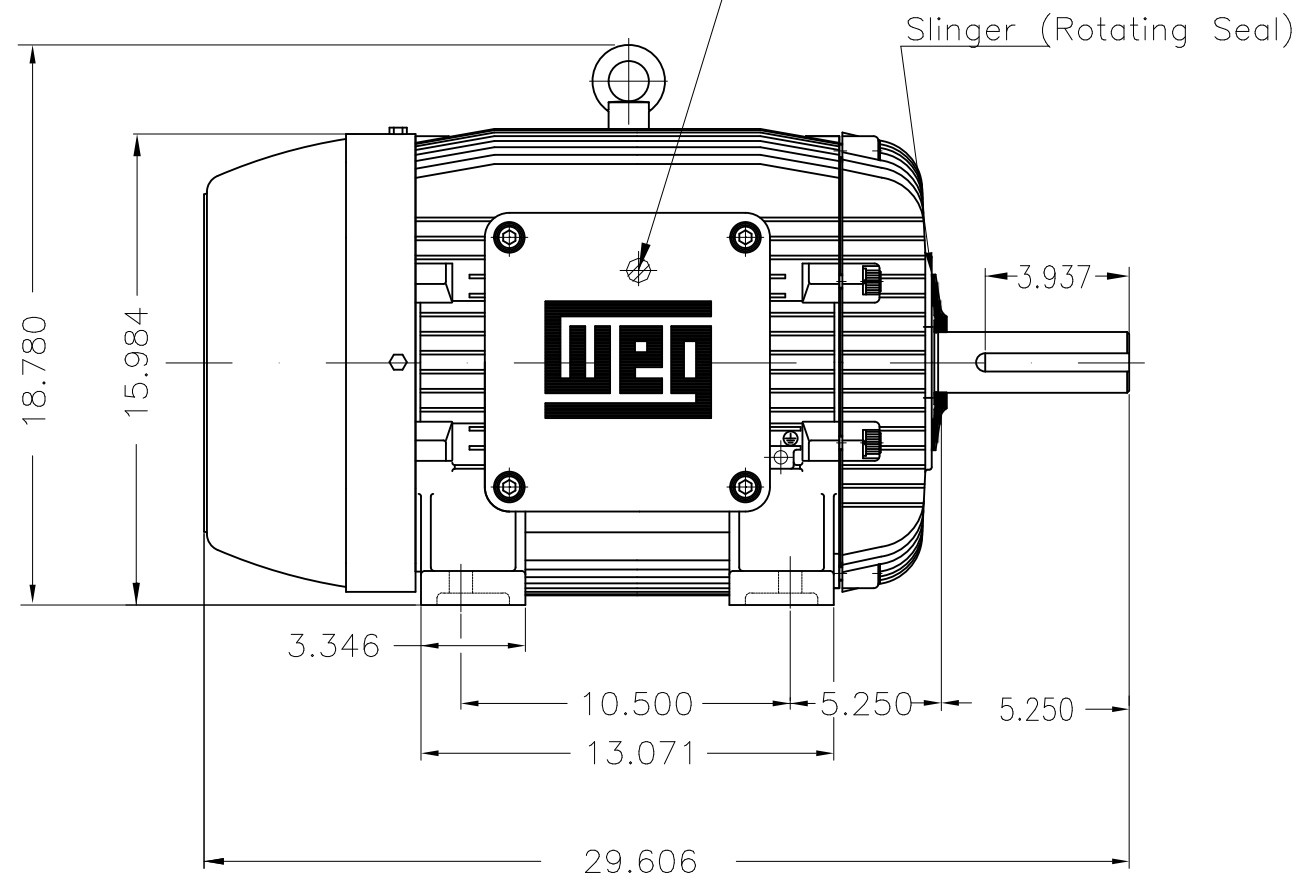
Rated current : 31.3 A
 LRC : 5.3
 Rated torque : 144 ft.lb
 Locked rotor torque : 210 %
 Breakdown torque : 220 %
 Rated speed : 730 rpm

Moment of inertia (J) : 9.37 sq.ft.lb
 Duty cycle : Cont.(S1)
 Insulation class : F
 Service factor : 1.00
 Temperature rise : 80 K
 Design : B

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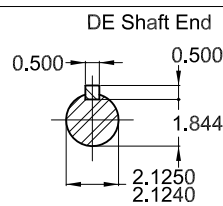
Grounding for leads 5.2–35 mm² / 10–2 AWG



20 HP 08 Poles 60 Hz

A

- With grease fitting
- Color RAL 5009
- Painting plan 202P
- Mounting NEMA F-1
- Mounting B3R(D)



ECM	LOC	SUMMARY OF MODIFICATIONS	EXECUTED	CHECKED	RELEASED	DATE	VER
EXECUTED	PIRWBUSER	THREE PH. MOTOR EXPLOSION PROOF PREM. EFF.					
CHECKED		FRAME 324T IP55 TEFC					
RELEASED							
REL DT.	WMO	Jaragua do Sul	Product Engineering	SHEET 1 / 1			

PREVIEW
WDD



MADE IN BRAZIL

**W21X NEMA**
Premium

14409581



LISTED

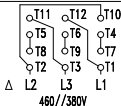
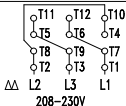
CC029A

Inverter Duty Motor
Severe Duty

MODEL 02009XT3E324T

PH 3	FR 324T	
HP(kW) 20.0(15.0)	HZ 60	IP55
V 230/460	A 55.0/27.5	
RPM 880	NEMA NOM EFF 92.4%	
PF 0.74	SFA 63.2/31.6	DES B
INS CL F Δ T 80 K	SF 1.15	ENCL TEFC
DUTY CONT.	CODE G	ALT 1000 m.a.s.l.
AMB 40°C	USABLE @208V	60.8 A SF 1.15 SFA 69.9
AMB 55°C	SF1.0	

20HP 15kW 50Hz 380V 32.6A 720RPM SF1.00 EFF 89.5% (IE2)



→ 6312-C3 MOBIL POLYREX EM

→ 6212-C3 21 g 20000 h

622 Lbs

TEMP CODE T3C
CSA/UL: Class I - Div. 1 - Groups C and D
CSA: Class II - Div. 1 - Groups F and G
CSA: Class I - Zone 1 - IIB

EXPLOSION PROOF MOTOR

FOR USE ON VPWM VFD 1000:1VT, 6:1CT, 1.0SF, T3C, AMB 40°C.