

# DATA SHEET

## Three Phase Induction Motor - Squirrel Cage



Customer :					
Product line	: NEMA Premium Efficiency Three-Phase	Product code :	14406917		
		Catalog # :	02018XT3E256TC		
Frame	: 256TC	Cooling method	: IC411 - TEFC		
Insulation class	: F	Mounting	: F-1		
Duty cycle	: Cont.(S1)	Rotation <sup>1</sup>	: Both (CW and CCW)		
Ambient temperature	: -20°C to +40°C	Starting method	: Direct On Line		
Altitude	: 1000 m.a.s.l.	Approx. weight <sup>2</sup>	: 393 lb		
Protection degree	: IP55	Moment of inertia (J)	: 2.89 sq.ft.lb		
Design	: B				
Output [HP]	20	20	20	20	
Poles	4	4	4	4	
Frequency [Hz]	60	50	50	50	
Rated voltage [V]	230/460	380	400	415	
Rated current [A]	50.0/25.0	29.8	29.0	28.4	
L. R. Amperes [A]	375/188	173	186	199	
LRC [A]	7.5x(Code J)	5.8x(Code G)	6.4x(Code H)	7.0x(Code J)	
No load current [A]	23.6/11.8	11.7	12.8	13.8	
Rated speed [RPM]	1770	1455	1460	1465	
Slip [%]	1.67	3.00	2.67	2.33	
Rated torque [ft.lb]	59.3	72.2	71.9	71.7	
Locked rotor torque [%]	300	210	240	260	
Breakdown torque [%]	300	220	240	260	
Service factor	1.15	1.00	1.00	1.00	
Temperature rise	80 K	80 K	80 K	80 K	
Locked rotor time	36s (cold) 20s (hot)	36s (cold) 20s (hot)	36s (cold) 20s (hot)	36s (cold) 20s (hot)	
Noise level <sup>2</sup>	69.0 dB(A)	67.0 dB(A)	67.0 dB(A)	67.0 dB(A)	
Efficiency (%)	25%	91.0	92.9	92.1	91.5
	50%	91.7	92.4	91.7	91.7
	75%	92.4	91.7	91.7	91.7
	100%	93.0	91.0	91.0	91.7
Power Factor	25%	0.38	0.43	0.40	0.37
	50%	0.63	0.69	0.65	0.62
	75%	0.75	0.79	0.77	0.74
	100%	0.81	0.84	0.82	0.80
Bearing type	: <u>Drive end</u> 6309 C3 <u>Non drive end</u> 6209 C3	Foundation loads			
Sealing	: Oil Seal Lip Seal	Max. traction	: 697 lb		
Lubrication interval	: 20000 h 20000 h	Max. compression	: 1091 lb		
Lubricant amount	: 13 g 9 g				
Lubricant type	: Mobil Polyrex EM				
Notes USABLE @208V 55.3A SF 1.15 SFA 63.6A					
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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# DATA SHEET

## 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



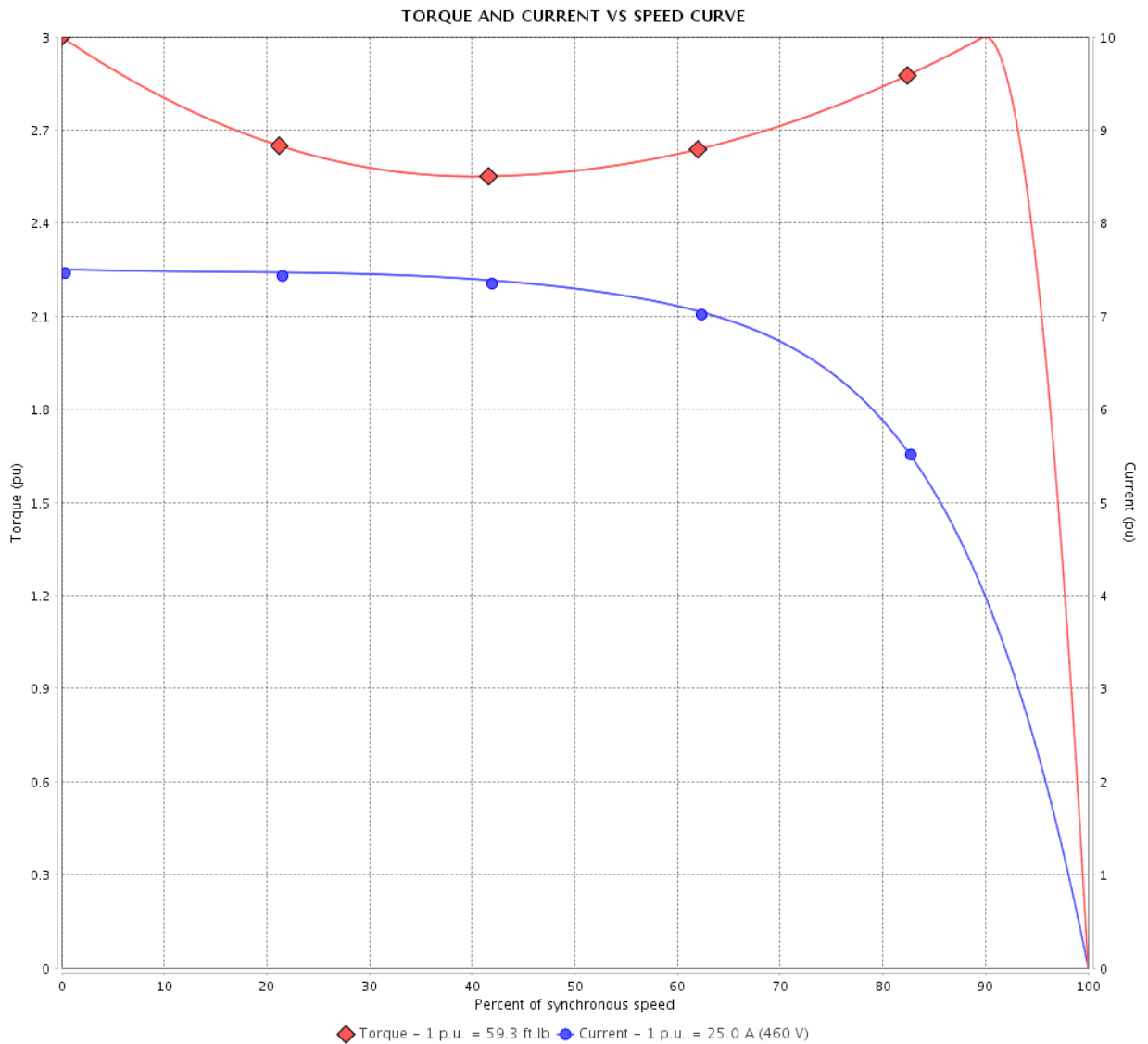
## Three Phase Induction Motor - Squirrel Cage

Customer : \_\_\_\_\_

Product line : NEMA Premium Efficiency Three-Phase

Product code : 14406917

Catalog # : 02018XT3E256TC



Performance : 230/460 V 60 Hz 4P

Rated current : 50.0/25.0 A  
 LRC : 7.5  
 Rated torque : 59.3 ft.lb  
 Locked rotor torque : 300 %  
 Breakdown torque : 300 %  
 Rated speed : 1770 rpm

Moment of inertia (J) : 2.89 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.15  
 Temperature rise : 80 K  
 Design : B

Locked rotor time : 36s (cold) 20s (hot)

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# TORQUE AND CURRENT VS SPEED CURVE

Three Phase Induction Motor - Squirrel Cage



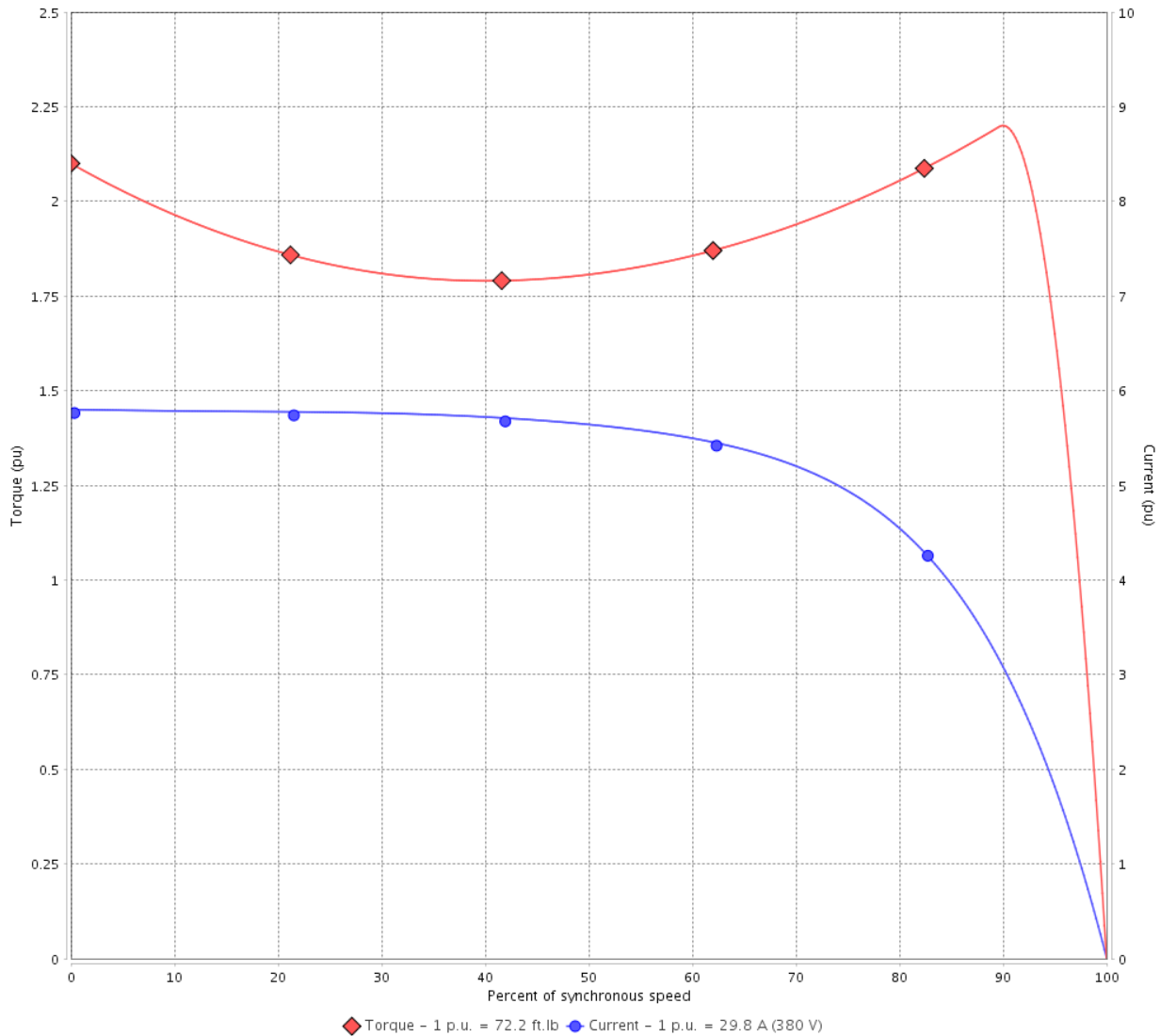
Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 14406917

Catalog # : 02018XT3E256TC

TORQUE AND CURRENT VS SPEED CURVE



Performance : 380 V 50 Hz 4P IE2

Rated current	: 29.8 A	Moment of inertia (J)	: 2.89 sq.ft.lb
LRC	: 5.8	Duty cycle	: Cont.(S1)
Rated torque	: 72.2 ft.lb	Insulation class	: F
Locked rotor torque	: 210 %	Service factor	: 1.00
Breakdown torque	: 220 %	Temperature rise	: 80 K
Rated speed	: 1455 rpm	Design	: B

Locked rotor time : 36s (cold) 20s (hot)

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# TORQUE AND CURRENT VS SPEED CURVE



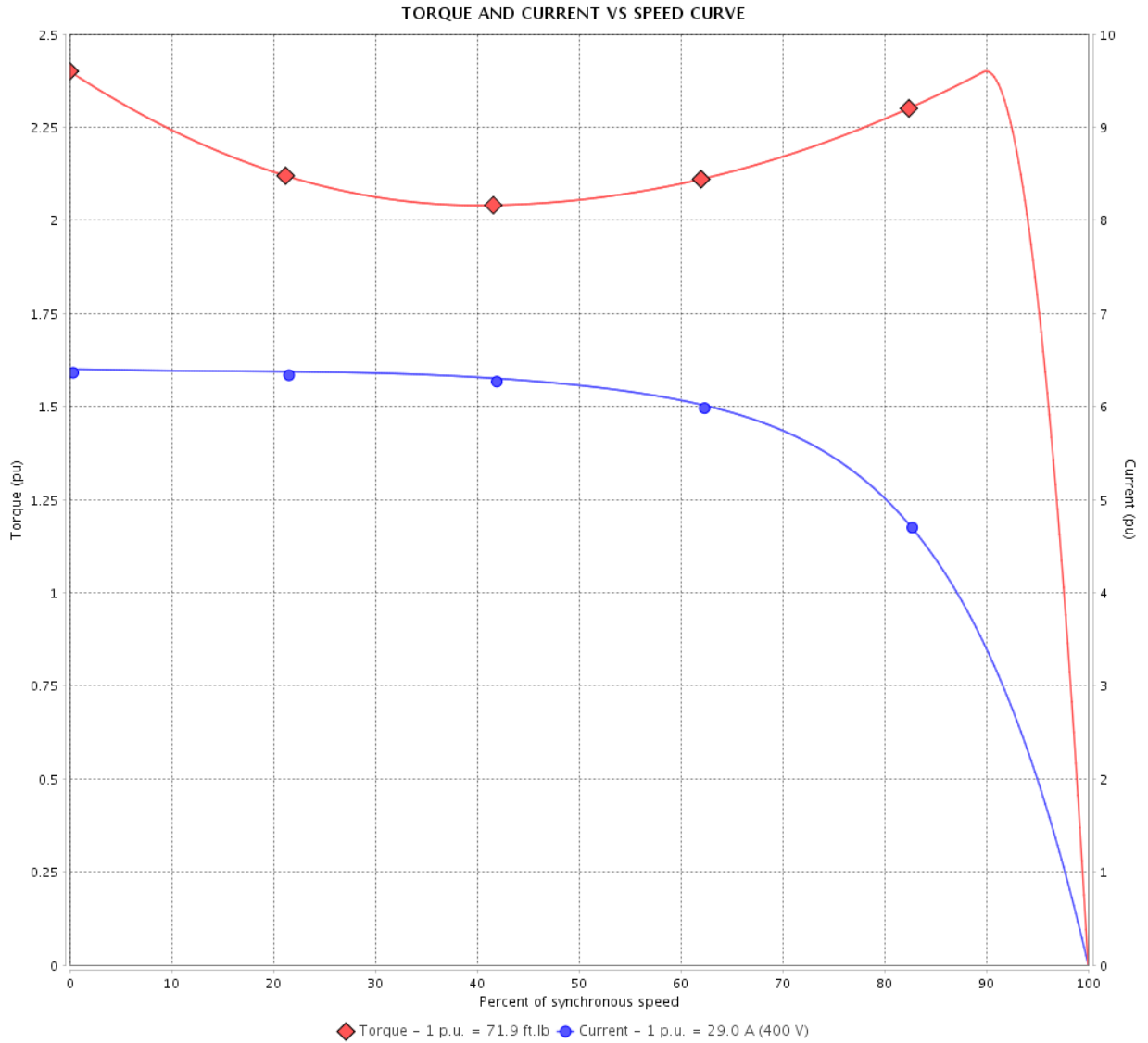
## Three Phase Induction Motor - Squirrel Cage

Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 14406917

Catalog # : 02018XT3E256TC



Performance : 400 V 50 Hz 4P IE2

Rated current : 29.0 A  
 LRC : 6.4  
 Rated torque : 71.9 ft.lb  
 Locked rotor torque : 240 %  
 Breakdown torque : 240 %  
 Rated speed : 1460 rpm

Moment of inertia (J) : 2.89 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
 Design : B

Locked rotor time : 36s (cold) 20s (hot)

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# TORQUE AND CURRENT VS SPEED CURVE

Three Phase Induction Motor - Squirrel Cage



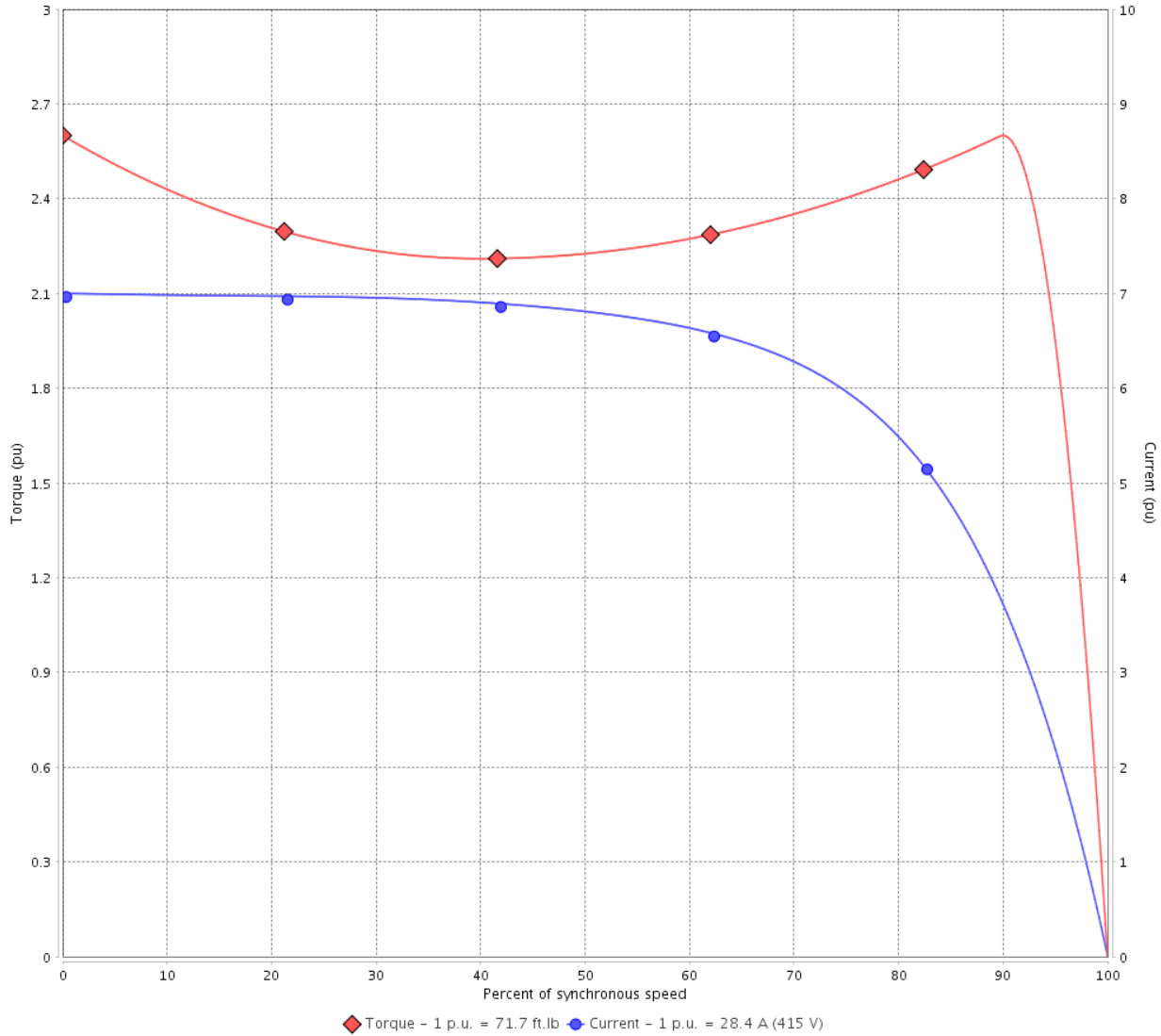
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Product line : NEMA Premium Efficiency Three-Phase

Product code : 14406917

Catalog # : 02018XT3E256TC

TORQUE AND CURRENT VS SPEED CURVE



Performance : 415 V 50 Hz 4P IE2

Rated current	: 28.4 A	Moment of inertia (J)	: 2.89 sq.ft.lb
LRC	: 7.0	Duty cycle	: Cont.(S1)
Rated torque	: 71.7 ft.lb	Insulation class	: F
Locked rotor torque	: 260 %	Service factor	: 1.00
Breakdown torque	: 260 %	Temperature rise	: 80 K
Rated speed	: 1465 rpm	Design	: B

Locked rotor time : 36s (cold) 20s (hot)

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# LOAD PERFORMANCE CURVE

## Three Phase Induction Motor - Squirrel Cage

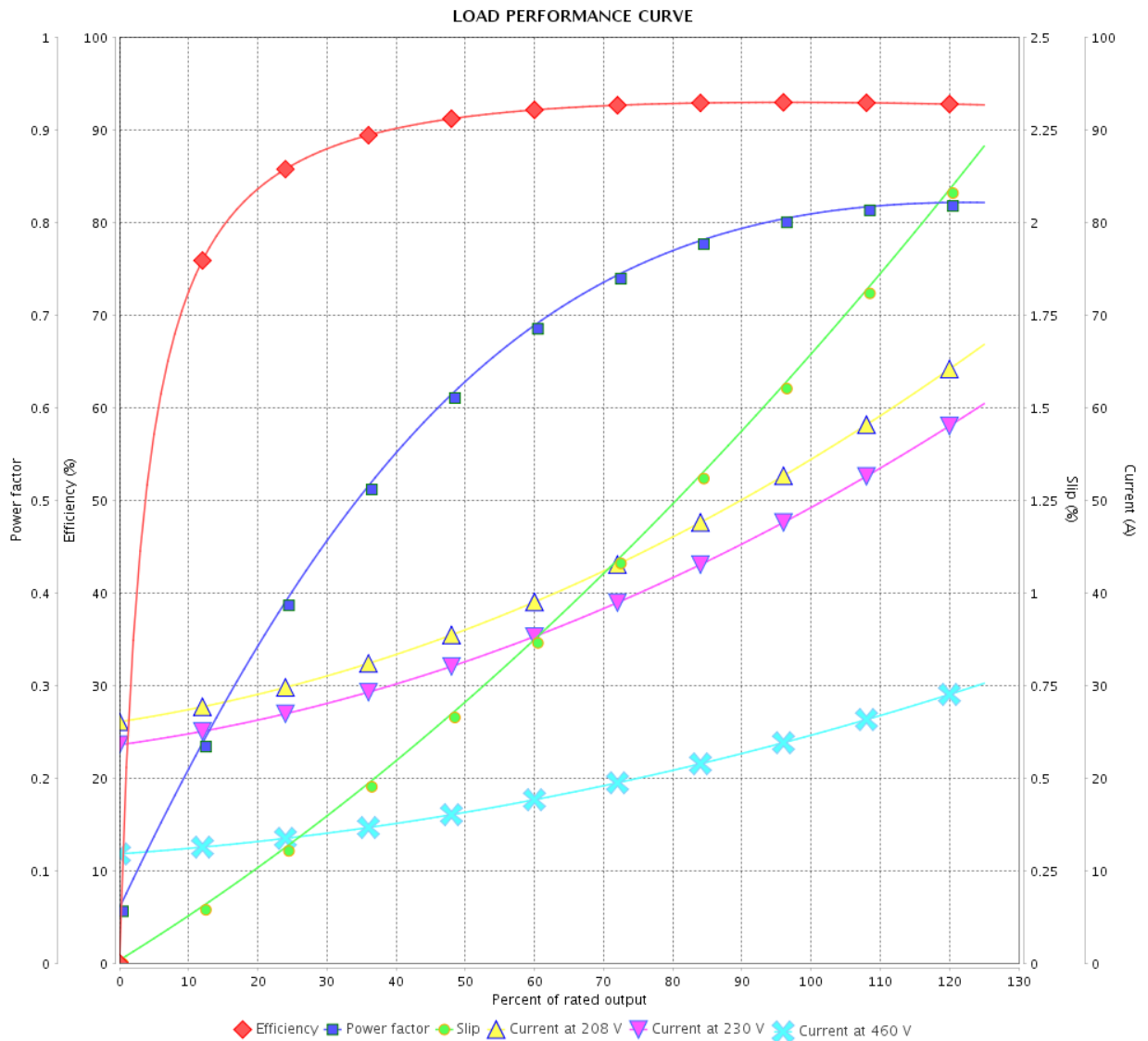


Customer : \_\_\_\_\_

Product line : NEMA Premium Efficiency Three-Phase

Product code : 14406917

Catalog # : 02018XT3E256TC



Performance : 230/460 V 60 Hz 4P

Rated current : 50.0/25.0 A  
 LRC : 7.5  
 Rated torque : 59.3 ft.lb  
 Locked rotor torque : 300 %  
 Breakdown torque : 300 %  
 Rated speed : 1770 rpm

Moment of inertia (J) : 2.89 sq.ft.lb  
 Duty cycle : Cont.(S1)  
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 Temperature rise : 80 K  
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Three Phase Induction Motor - Squirrel Cage



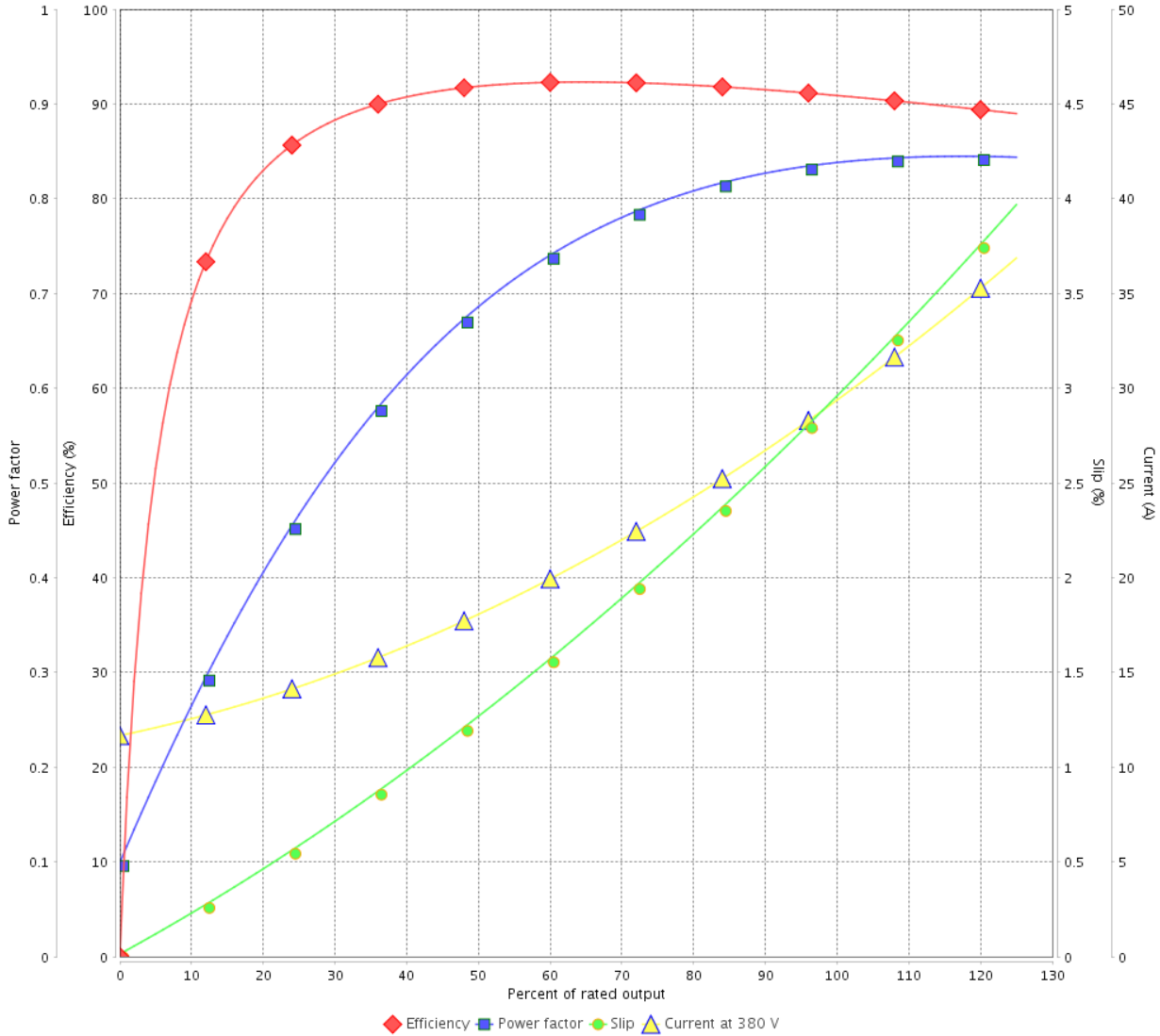
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LOAD PERFORMANCE CURVE



Performance : 380 V 50 Hz 4P IE2

Rated current : 29.8 A  
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 Locked rotor torque : 210 %  
 Breakdown torque : 220 %  
 Rated speed : 1455 rpm

Moment of inertia (J) : 2.89 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
 Design : B

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# LOAD PERFORMANCE CURVE

## Three Phase Induction Motor - Squirrel Cage

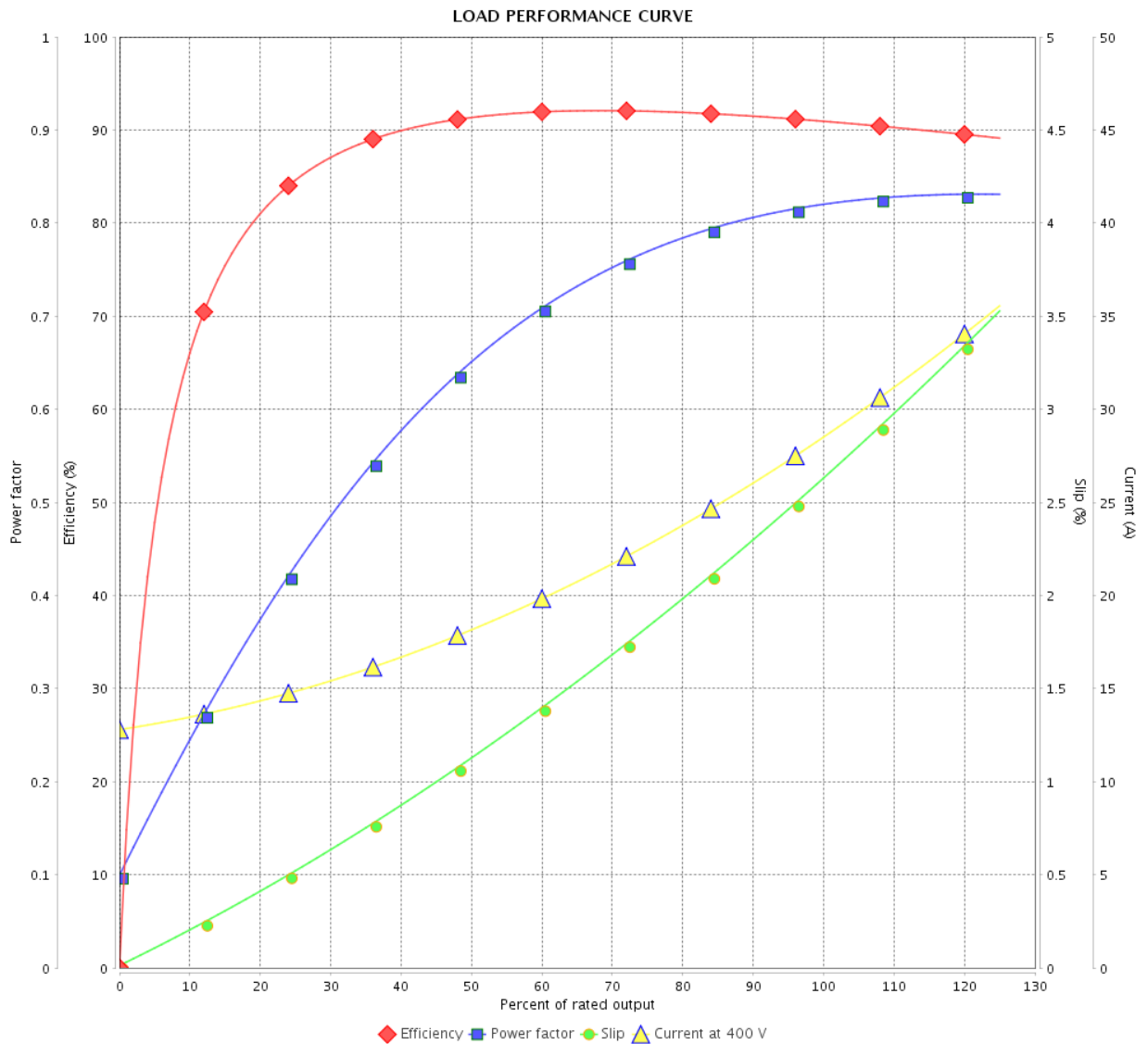


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Product line : NEMA Premium Efficiency Three-Phase

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Performance : 400 V 50 Hz 4P IE2

Rated current : 29.0 A  
 LRC : 6.4  
 Rated torque : 71.9 ft.lb  
 Locked rotor torque : 240 %  
 Breakdown torque : 240 %  
 Rated speed : 1460 rpm

Moment of inertia (J) : 2.89 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

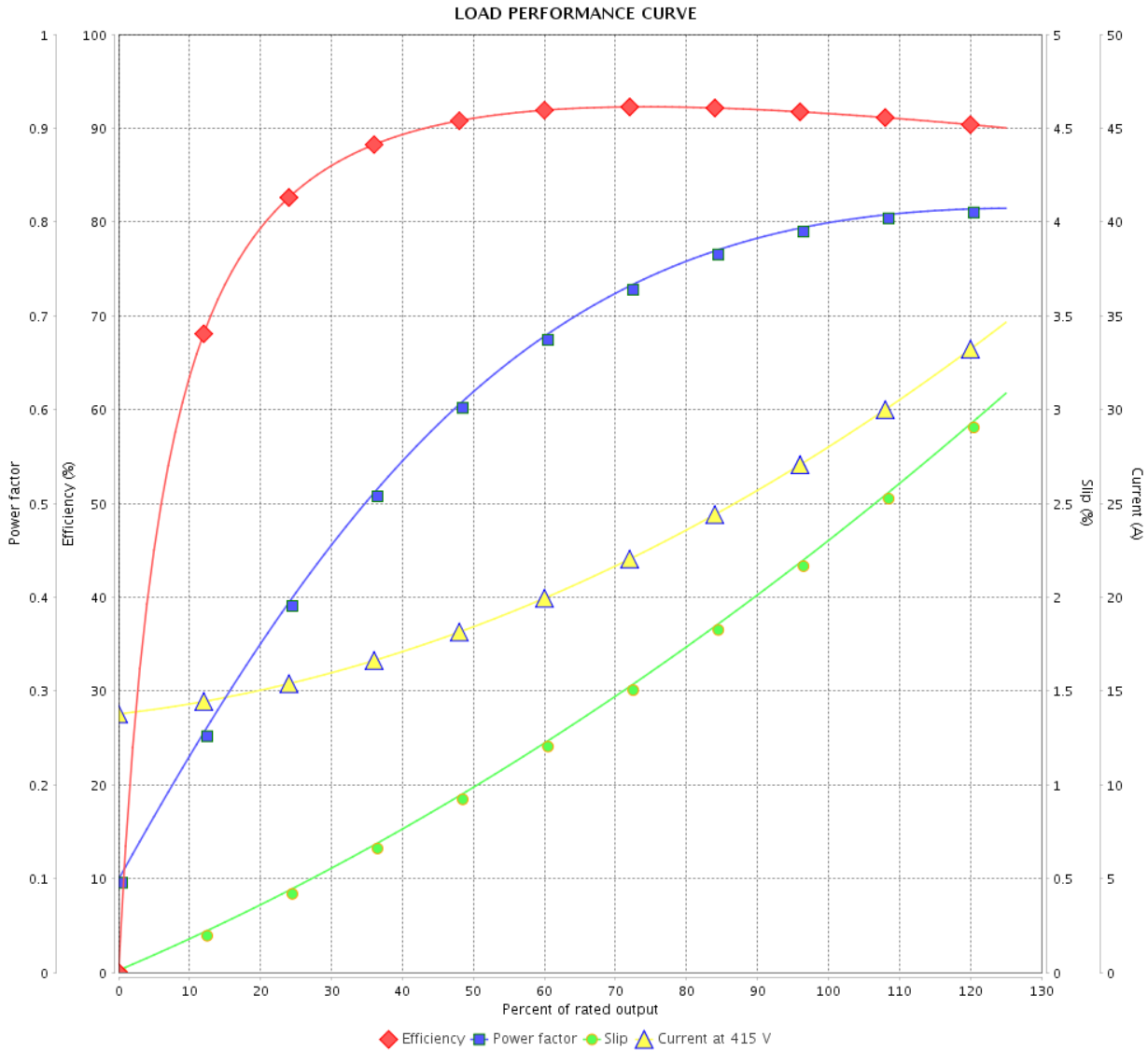


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 Insulation class : F  
 Service factor : 1.00  
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# THERMAL LIMIT CURVE



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Locked rotor torque : 300 %	Service factor : 1.15
Breakdown torque : 300 %	Temperature rise : 80 K
Rated speed : 1770 rpm	Design : B

Heating constant

Cooling constant

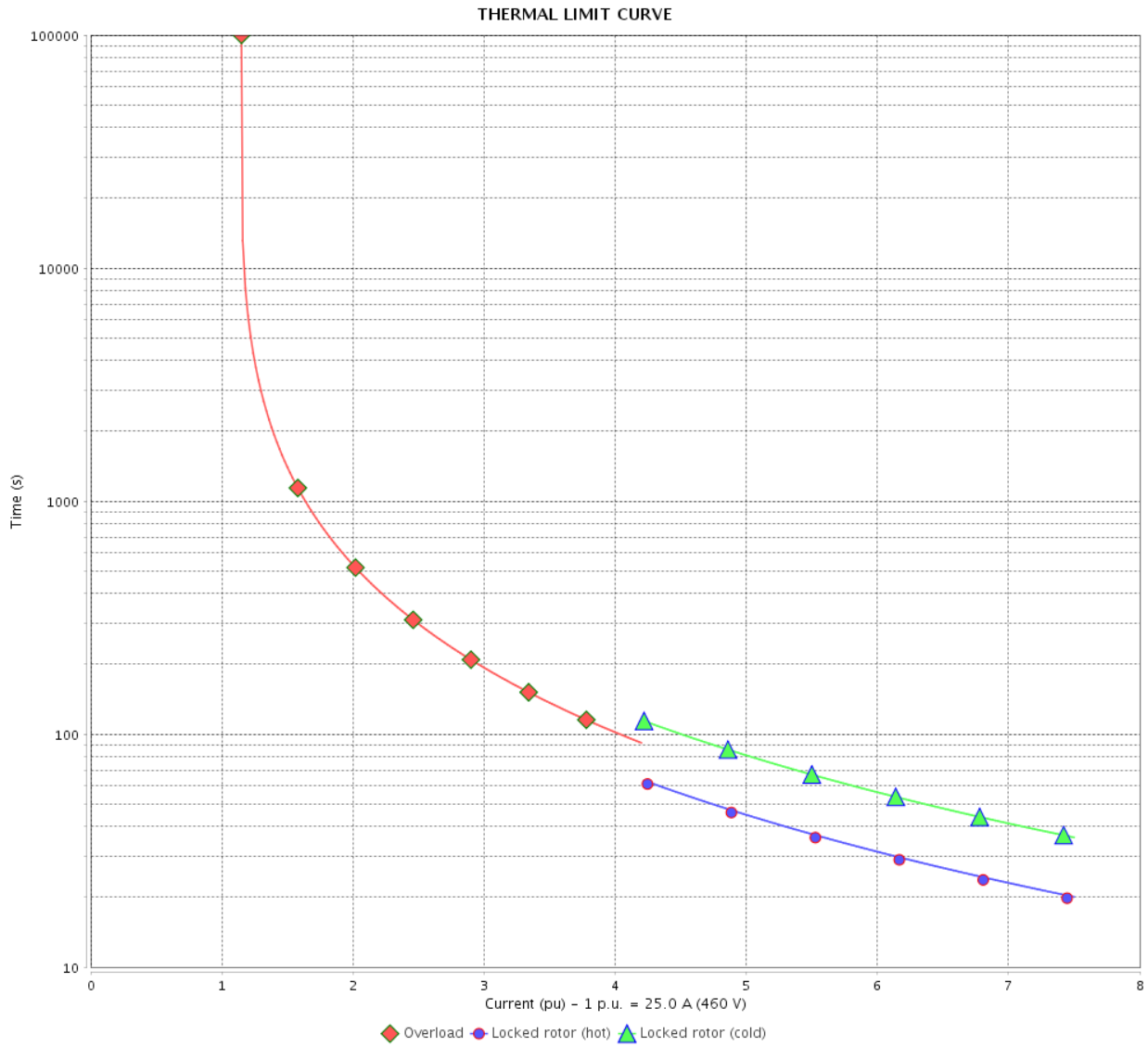
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Three Phase Induction Motor - Squirrel Cage



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 Service factor : 1.00  
 Temperature rise : 80 K  
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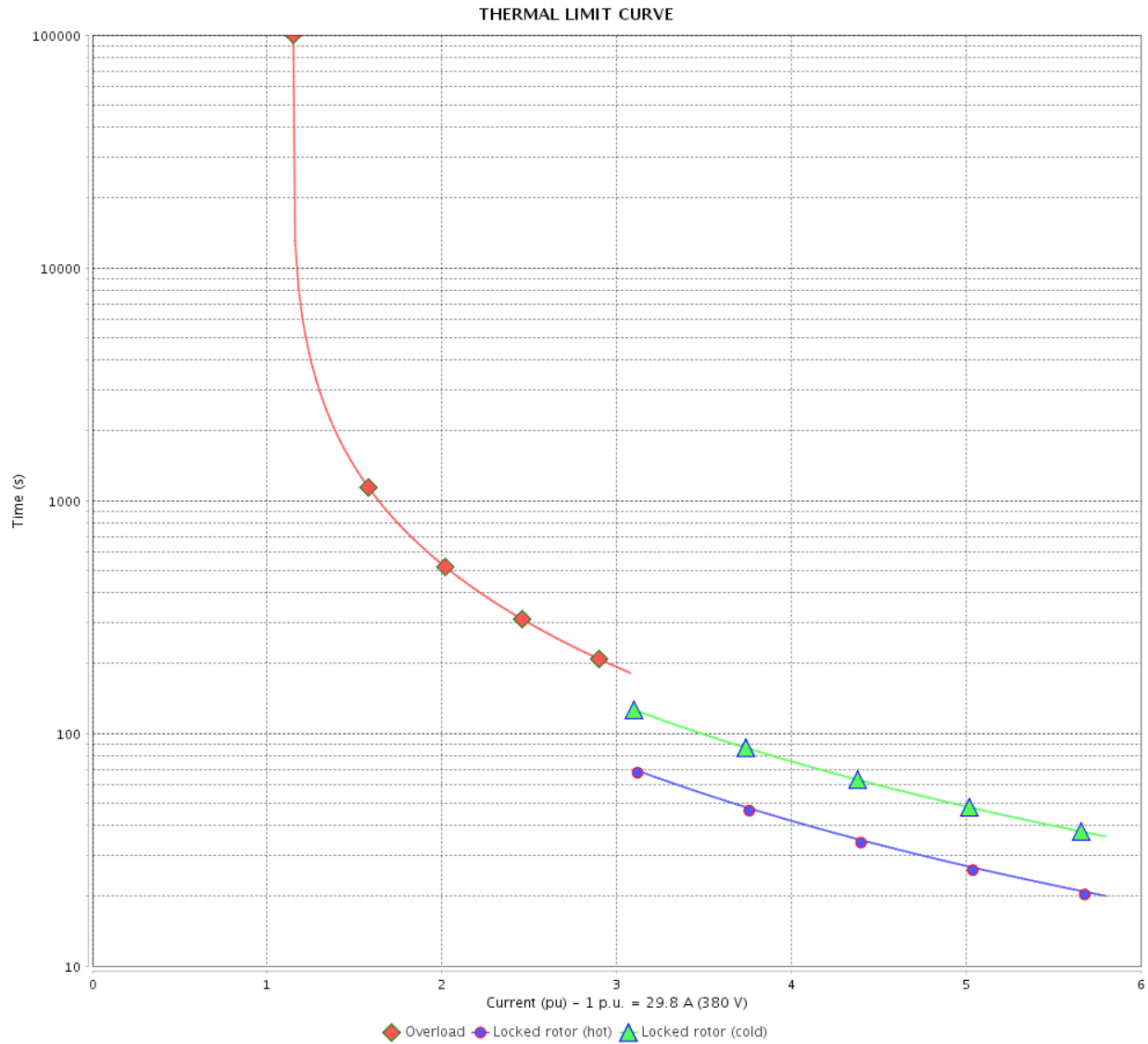
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 Breakdown torque : 240 %  
 Rated speed : 1460 rpm

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 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
 Design : B

Heating constant

Cooling constant

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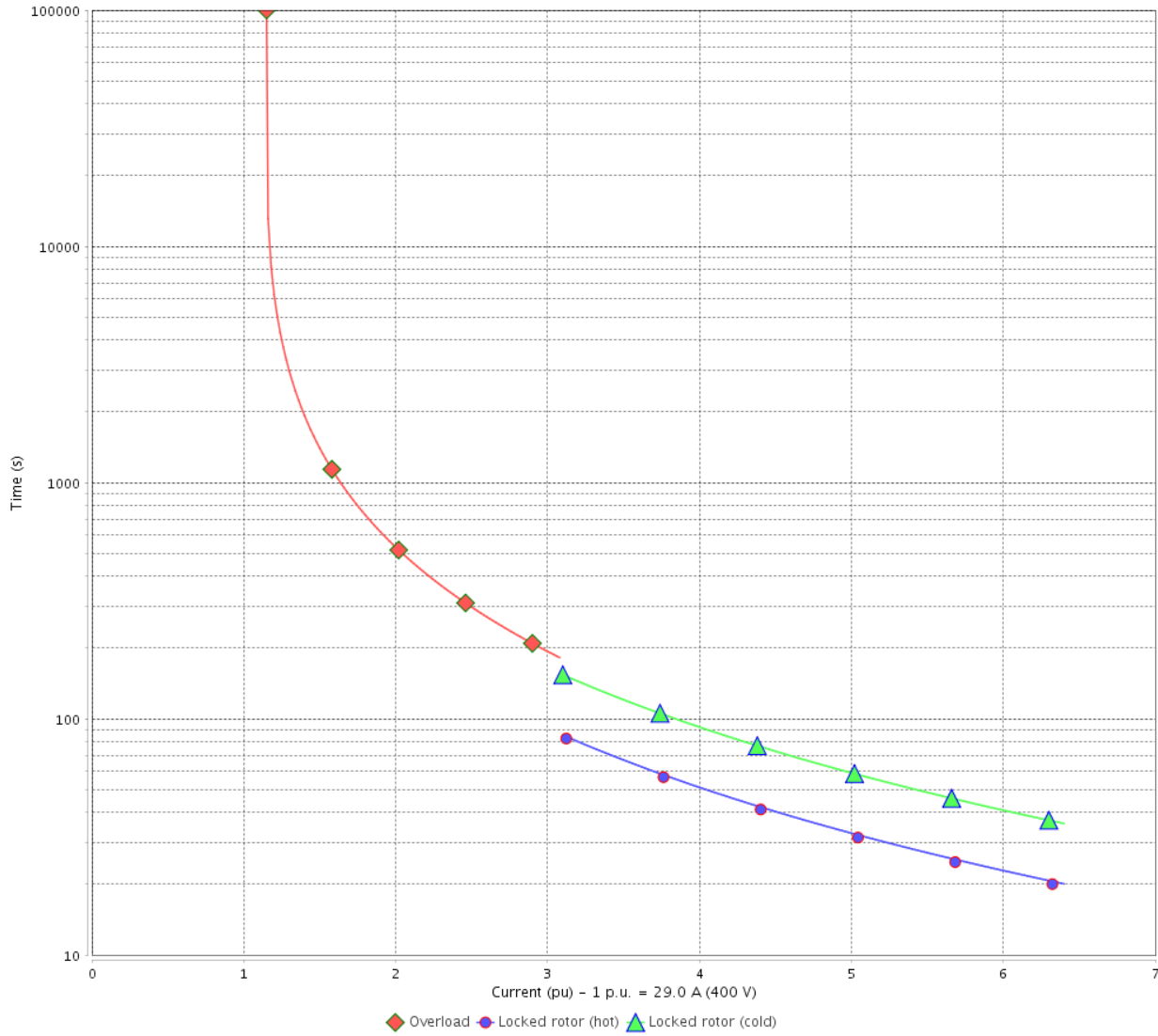
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Three Phase Induction Motor - Squirrel Cage



Customer : \_\_\_\_\_

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Locked rotor torque : 260 %	Service factor : 1.00
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Rated speed : 1465 rpm	Design : B

Heating constant

Cooling constant

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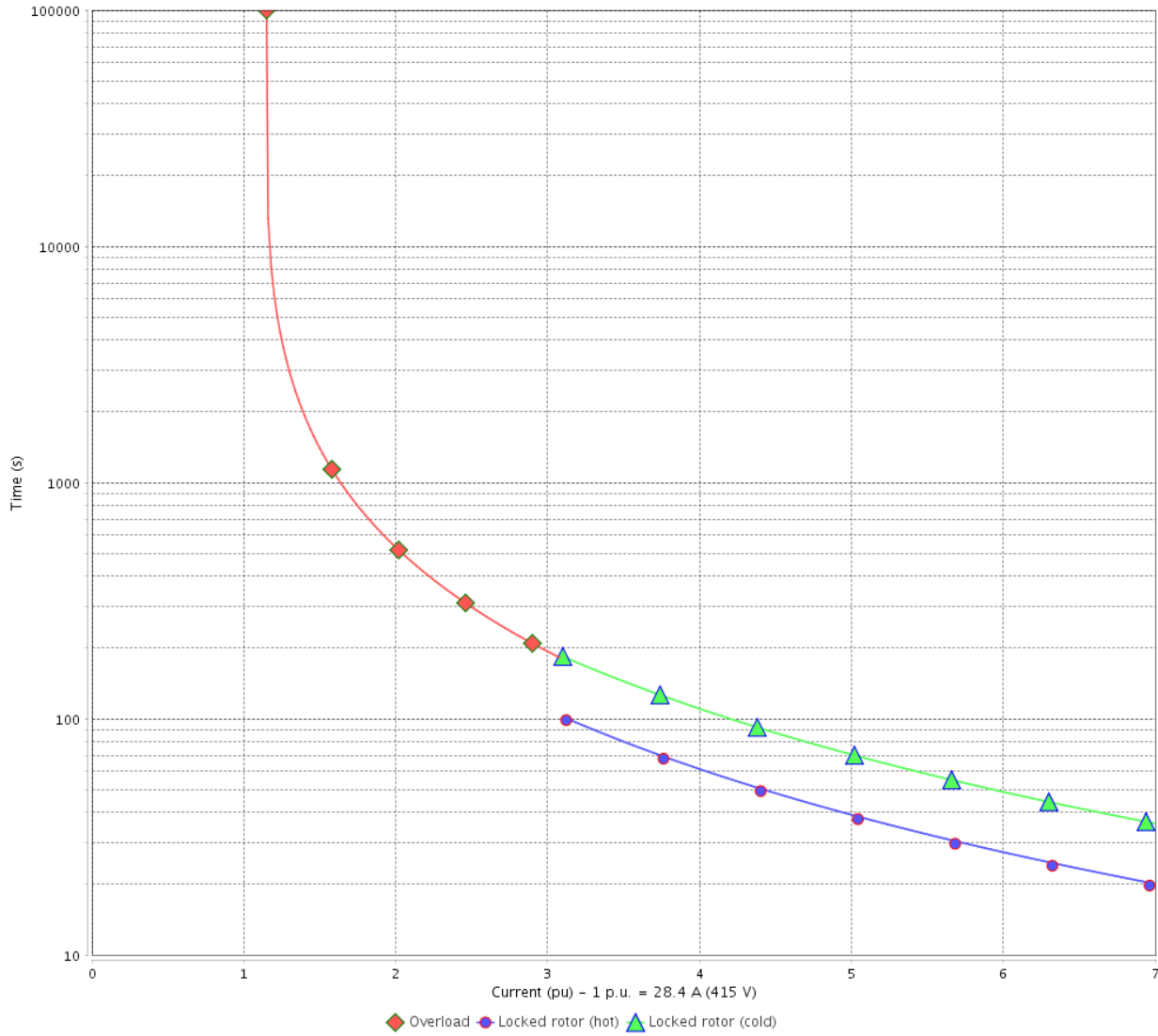
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THERMAL LIMIT CURVE



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# VFD OPERATION CURVE

## Three Phase Induction Motor - Squirrel Cage

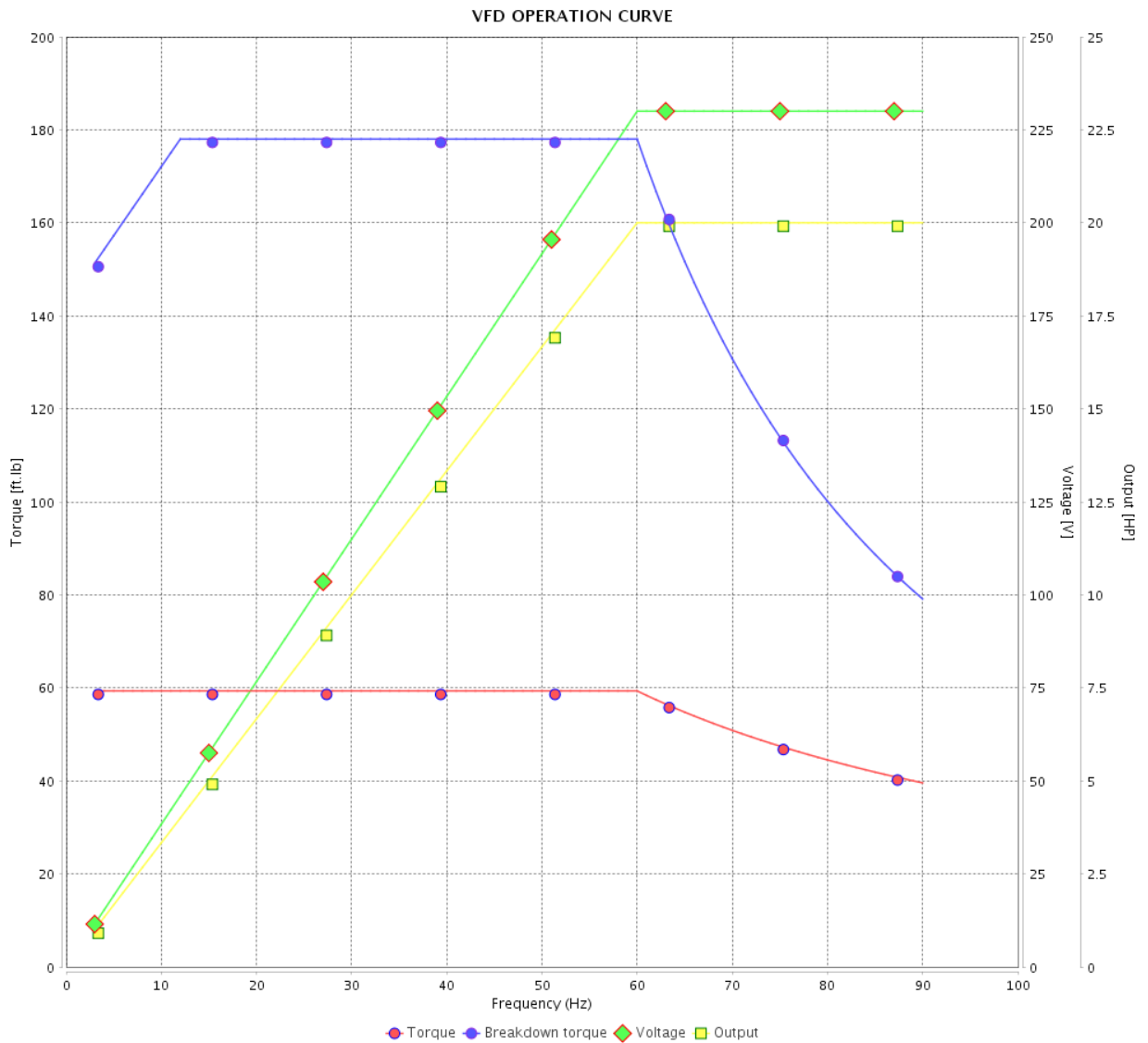


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Product code : 14406917

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Performance : 230/460 V 60 Hz 4P

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# VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage



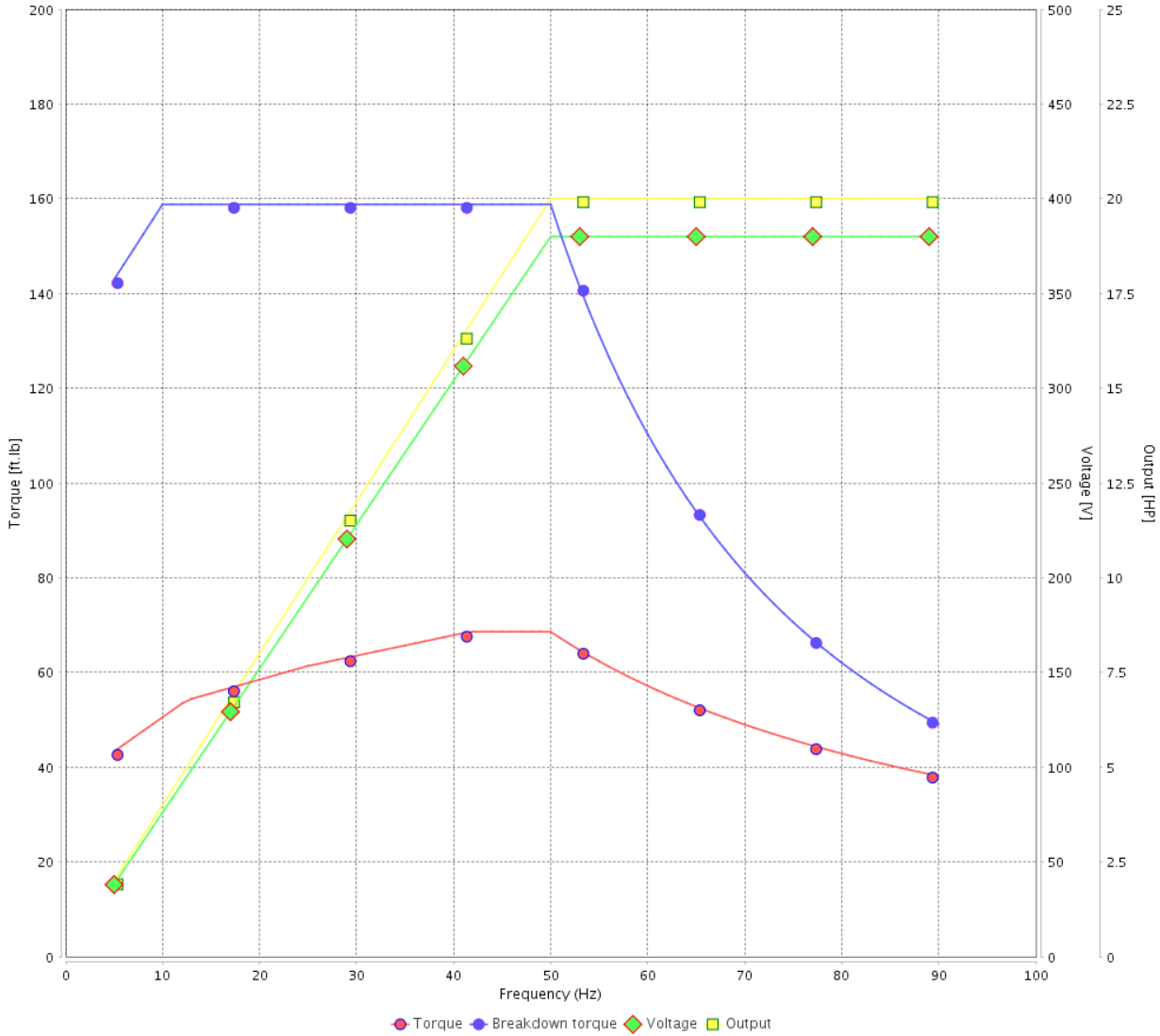
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VFD OPERATION CURVE



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# VFD OPERATION CURVE

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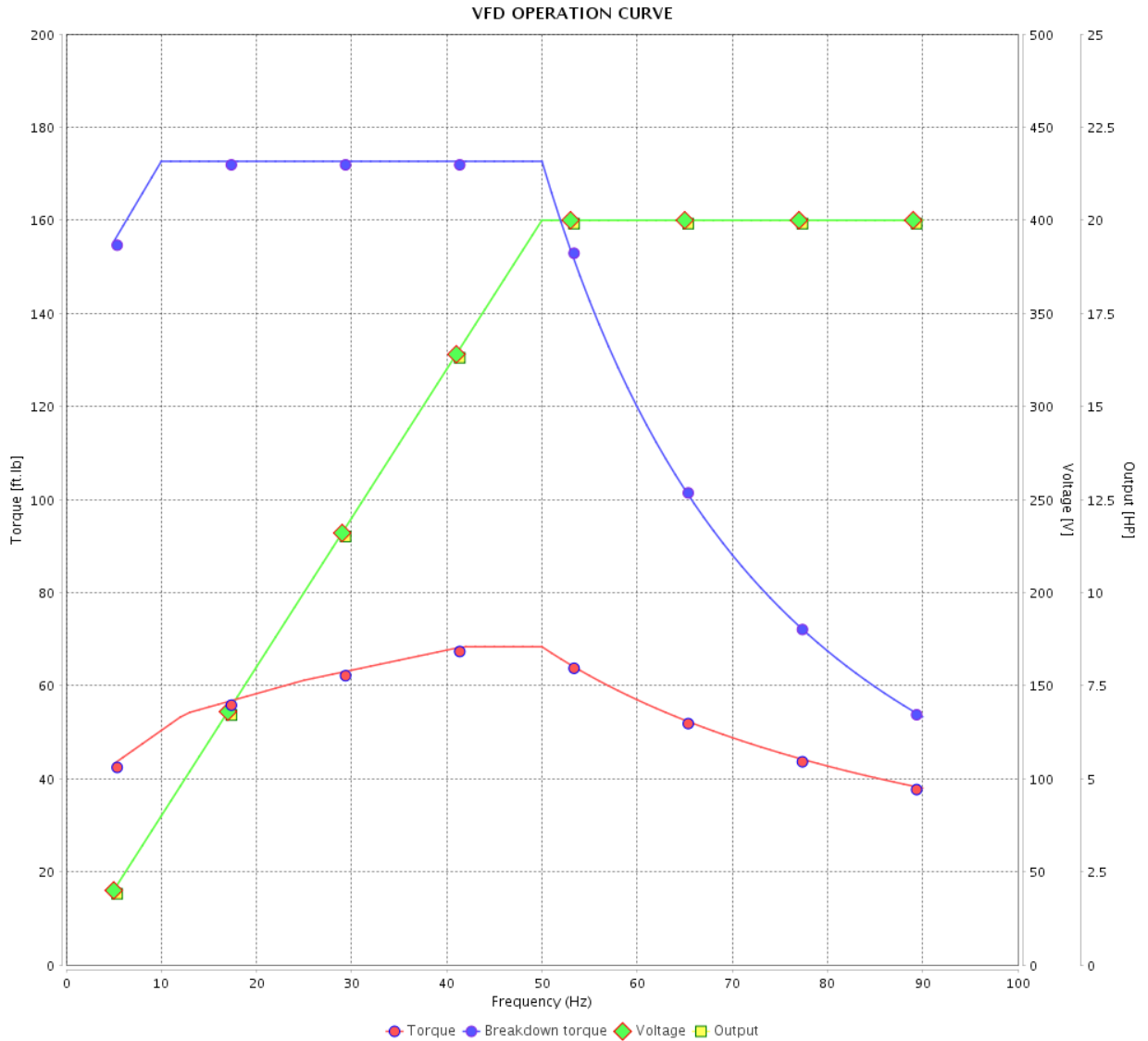


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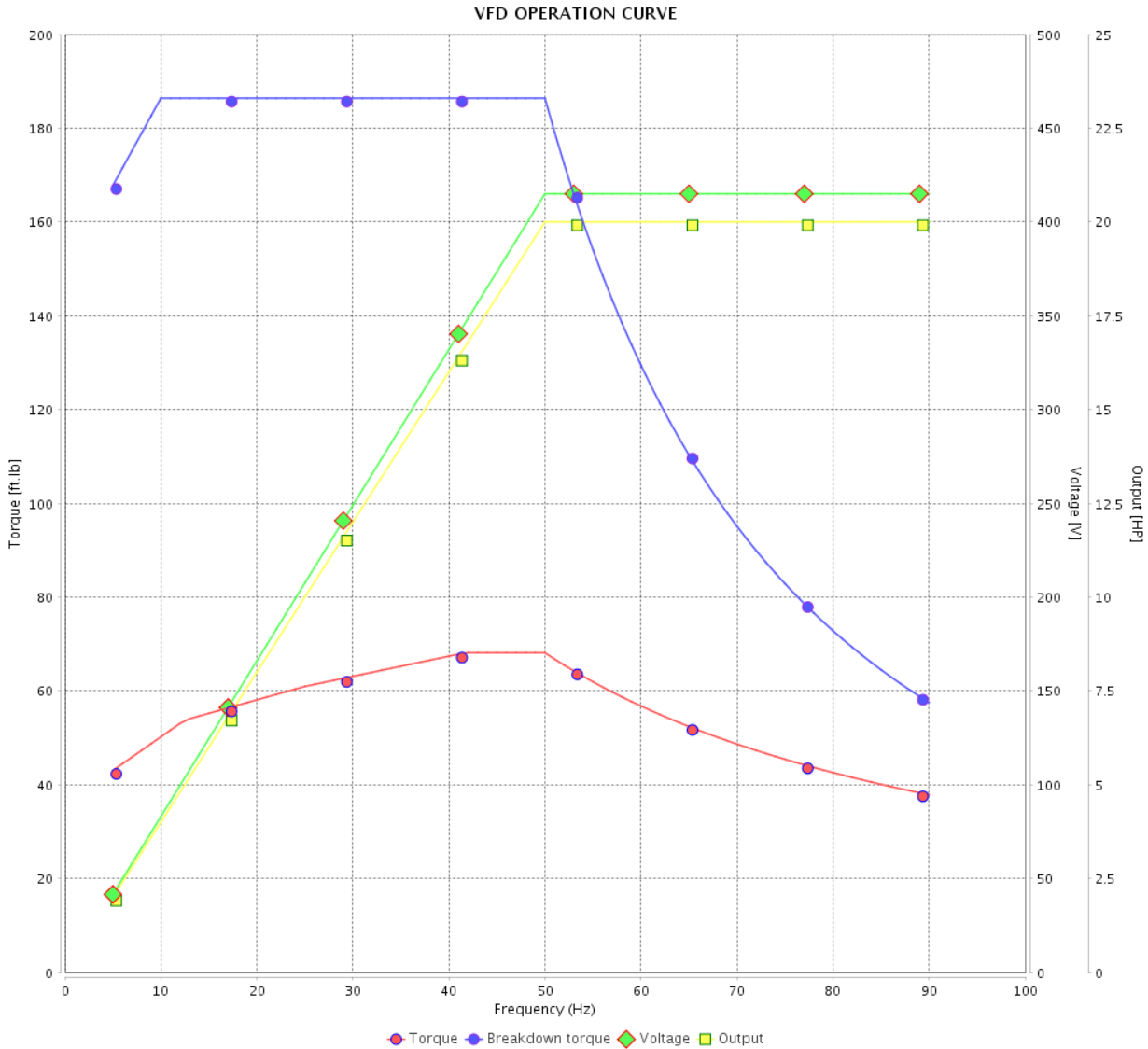


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LRC	: 7.0	Duty cycle	: Cont.(S1)
Rated torque	: 71.7 ft.lb	Insulation class	: F
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A

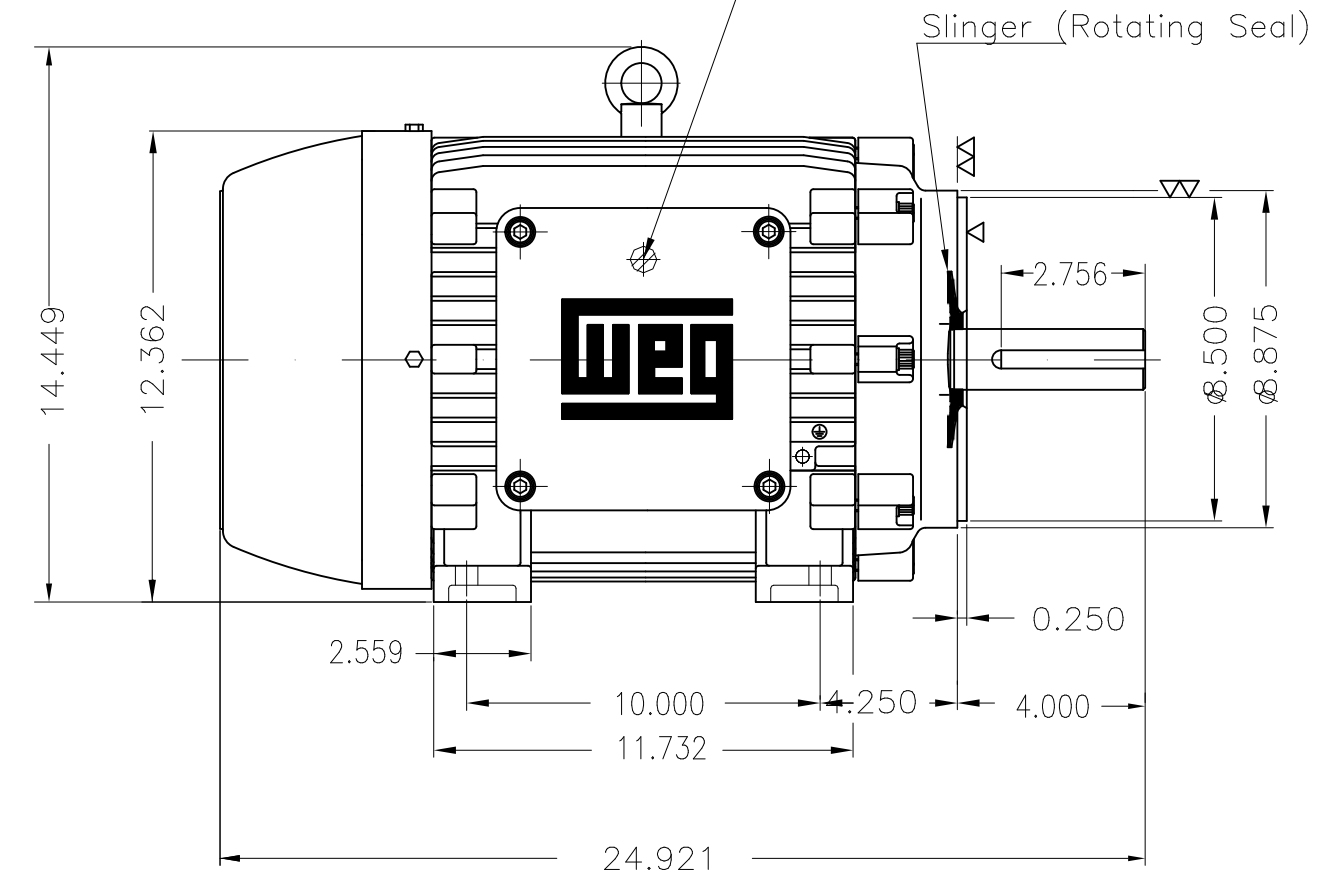
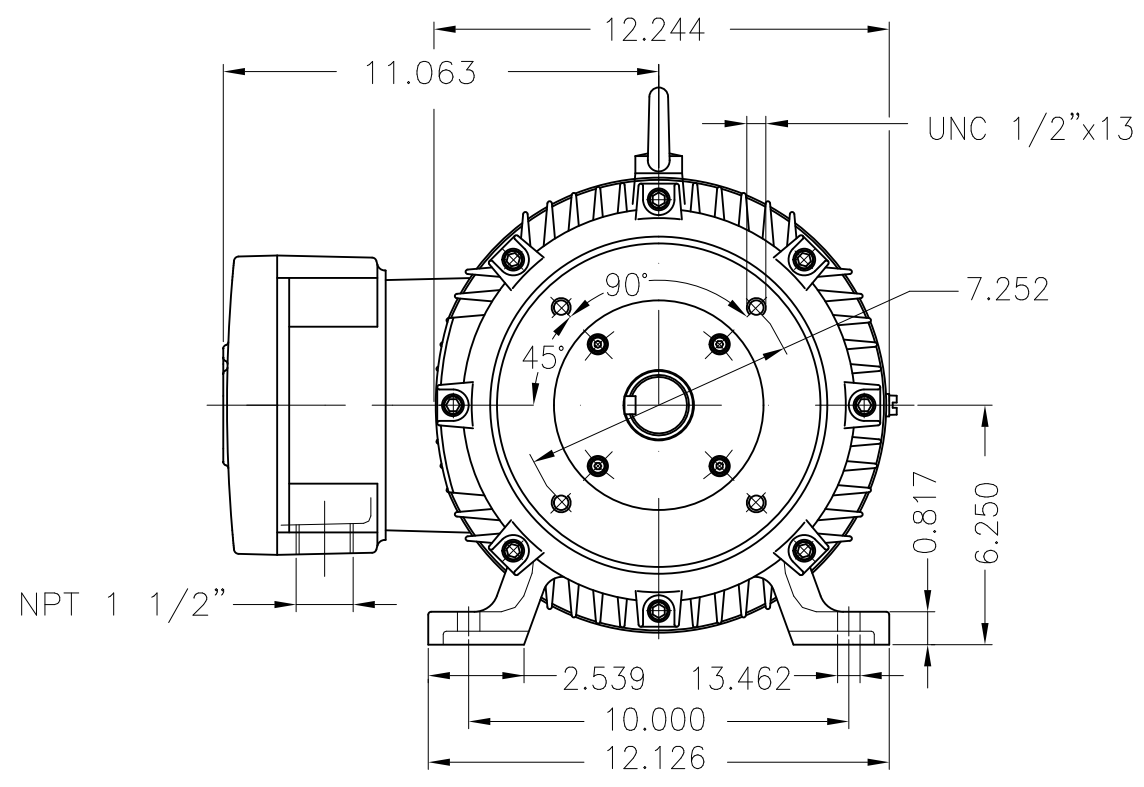
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C

D

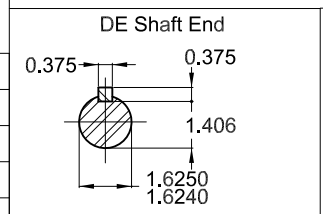
E

Grounding for leads 5.2–25 mm<sup>2</sup> / 10–4 AWG



20 HP 04 Poles 60 Hz A

- With grease fitting
- Color RAL 5009
- Painting plan 202P
- Mounting NEMA F-1
- Mounting B34R(D)



ECM	LOC	SUMMARY OF MODIFICATIONS	EXECUTED	CHECKED	RELEASED	DATE	VER
EXECUTED	PIRWBUSER	THREE PH. MOTOR EXPLOSION PROOF PREM. EFF.					
CHECKED		FRAME 256TC IP55 TEFC					
RELEASED							
REL DT.	WMO	Jaragua do Sul	Product Engineering	PREVIEW	WDD		

PREVIEW  
WDD

SHEET 1 / 1

MADE IN BRAZIL


**W21X NEMA**  
**Premium**

14406917



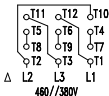
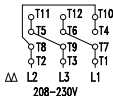
LISTED

CC029A

*Inverter Duty Motor*  
*Severe Duty*

MODEL 02018XT3E256TC

PH 3	FR 256TC		
HP(kW) 20.0(15.0)		HZ 60	IP55
V 230/460		A 50.0/25.0	
RPM 1770		NEMA NOM EFF 93.0%	
PF 0.81		SFA 57.5/28.7	DES B
INS CL F $\Delta$ T 80 K		SF 1.15	ENCL TEFC
DUTY CONT.		CODE J	ALT 1000 m.a.s.l.
AMB 40°C	USABLE @208V	55.3 A	SF 1.15 SFA 63.6
AMB 55°C SF1.0			
20HP 15kW 50Hz 380V 29.8A 1455RPM SF1.00 EFF 91.0% (IE2)			



→ 6309-C3 MOBIL POLYREX EM  
 → 6209-C3 13 g 20000 h

395 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.