

# DATA SHEET

## Three Phase Induction Motor - Squirrel Cage



Customer :				
Product line	: NEMA Premium Efficiency Three-Phase	Product code :	13163457	
		Catalog # :	02018OT3E256TC-SG	
Frame	: 254/6TC	Cooling method	: IC01 - ODP	
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>	: 227 lb	
Design	: B	Moment of inertia (J)	: 2.23 sq.ft.lb	
Output [HP]	20	20	20	
Poles	4	4	4	
Frequency [Hz]	60	50	50	
Rated voltage [V]	230/460	190/380	220/415	
Rated current [A]	50.0/25.0	59.8/29.9	54.0/28.6	
L. R. Amperes [A]	315/158	311/155	313/166	
LRC [A]	6.3x(Code G)	5.2x(Code F)	5.8x(Code G)	
No load current [A]	22.9/11.4	22.4/11.2	23.6/12.5	
Rated speed [RPM]	1770	1460	1465	
Slip [%]	1.67	2.67	2.33	
Rated torque [ft.lb]	59.3	71.9	71.7	
Locked rotor torque [%]	240	180	200	
Breakdown torque [%]	290	220	250	
Service factor	1.15	1.15	1.15	
Temperature rise	80 K	80 K	80 K	
Locked rotor time	27s (cold) 15s (hot)	0s (cold) 0s (hot)	0s (cold) 0s (hot)	
Noise level <sup>2</sup>	64.0 dB(A)	62.0 dB(A)	62.0 dB(A)	
Efficiency (%)	25%	91.7	93.0	92.2
	50%	92.4	91.8	91.4
	75%	92.4	91.2	91.3
	100%	93.0	89.7	90.2
Power Factor	25%	0.38	0.46	0.41
	50%	0.63	0.72	0.68
	75%	0.74	0.82	0.79
	100%	0.81	0.85	0.84
Bearing type	: <u>Drive end</u> 6309 Z C3 <u>Non drive end</u> 6208 Z C3	Foundation loads		
Sealing	: Without Without Bearing Seal Bearing Seal	Max. traction	: 746 lb	
Lubrication interval	: 20000 h 20000 h	Max. compression	: 973 lb	
Lubricant amount	: 13 g 8 g			
Lubricant type	: Mobil Polyrex EM			
Notes USABLE @208V 55.3A SF 1.00 SFA 55.3A				
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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# TORQUE AND CURRENT VS SPEED CURVE

Three Phase Induction Motor - Squirrel Cage



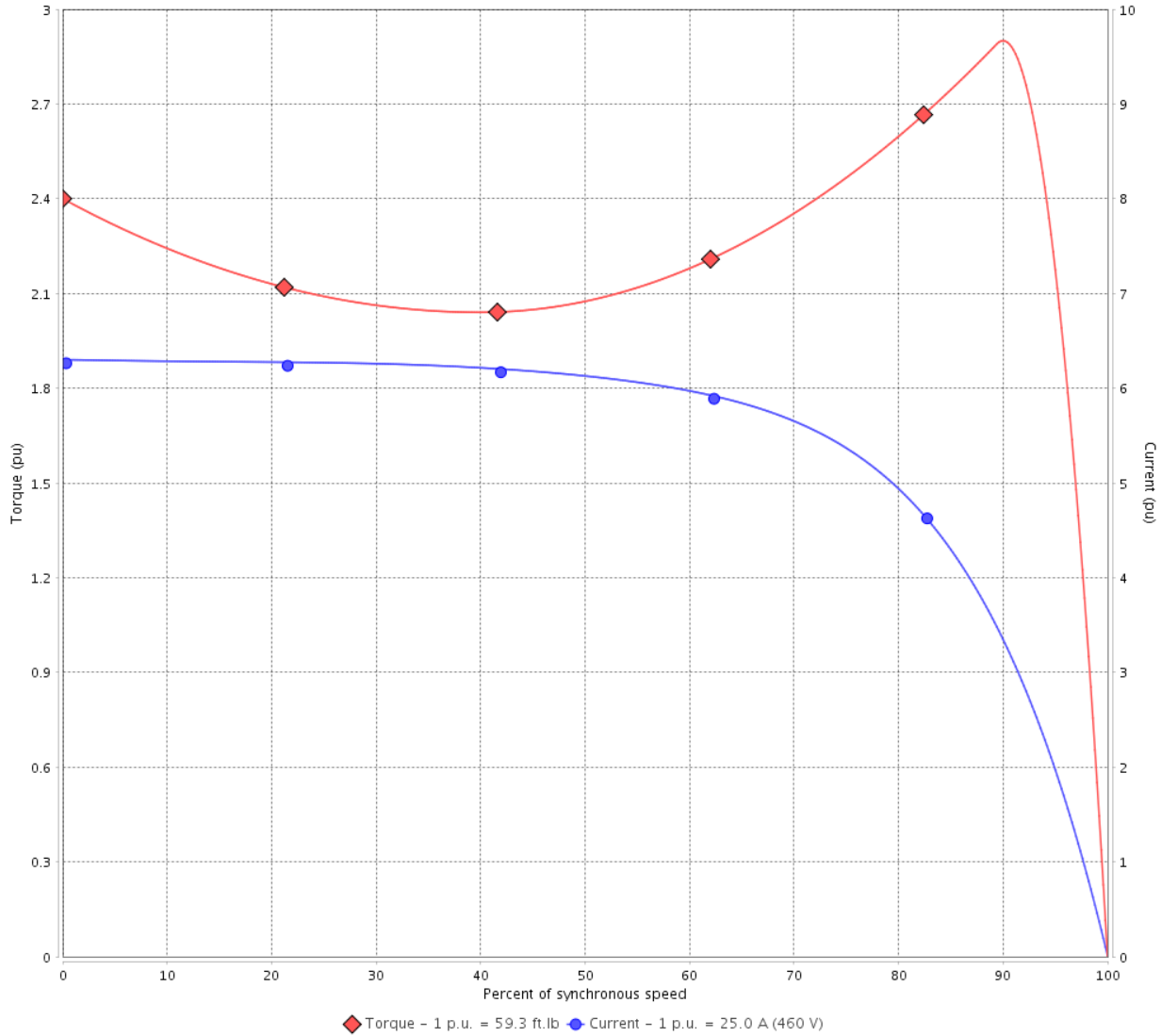
Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 13163457

Catalog # : 02018OT3E256TC-SG

TORQUE AND CURRENT VS SPEED CURVE



Performance : 230/460 V 60 Hz 4P

Rated current	: 50.0/25.0 A	Moment of inertia (J)	: 2.23 sq.ft.lb
LRC	: 6.3	Duty cycle	: Cont.(S1)
Rated torque	: 59.3 ft.lb	Insulation class	: F
Locked rotor torque	: 240 %	Service factor	: 1.15
Breakdown torque	: 290 %	Temperature rise	: 80 K
Rated speed	: 1770 rpm	Design	: B

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

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# TORQUE AND CURRENT VS SPEED CURVE



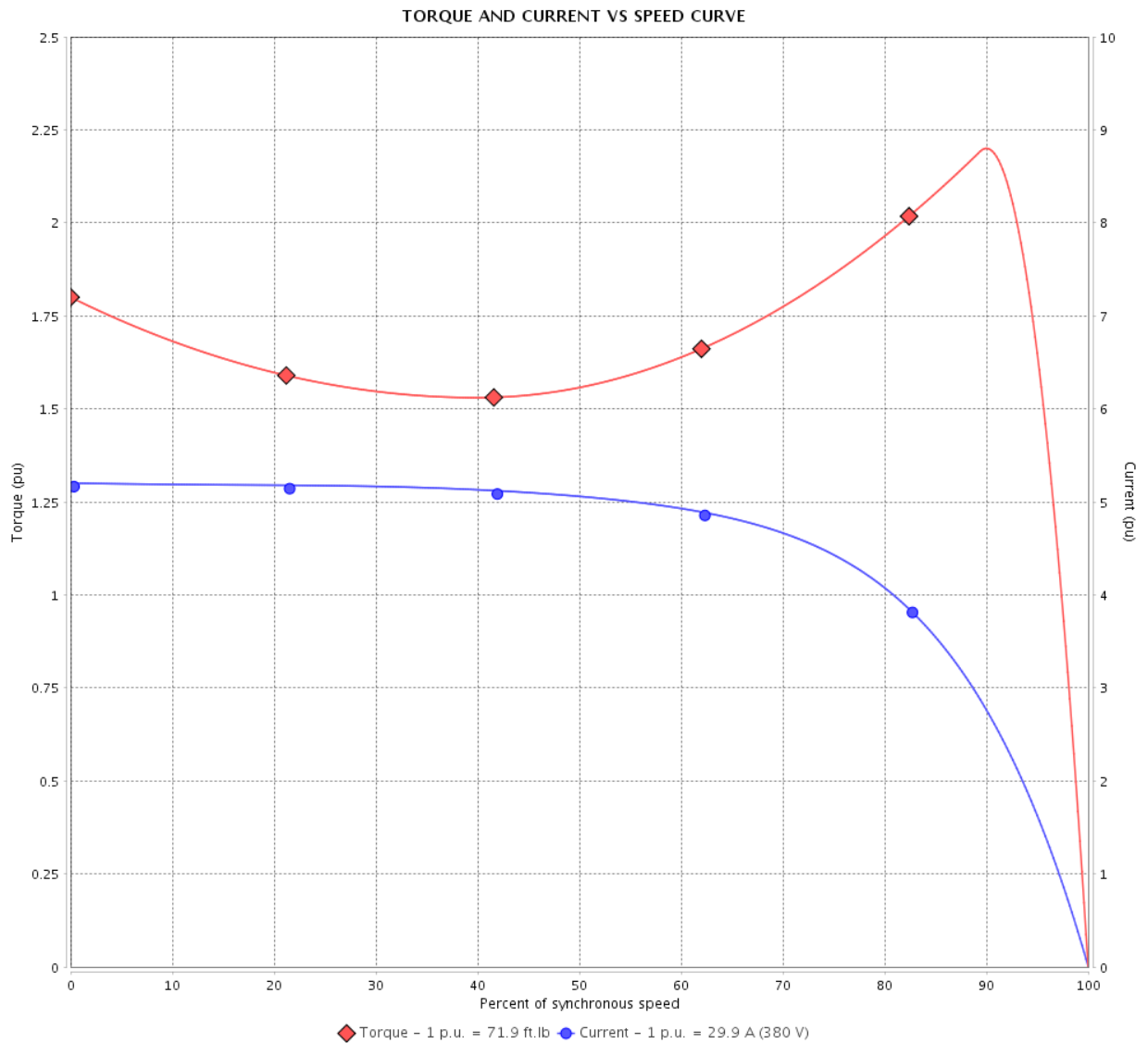
## Three Phase Induction Motor - Squirrel Cage

Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 13163457

Catalog # : 02018OT3E256TC-SG



Performance : 190/380 V 50 Hz 4P

Rated current : 59.8/29.9 A  
 LRC : 5.2  
 Rated torque : 71.9 ft.lb  
 Locked rotor torque : 180 %  
 Breakdown torque : 220 %  
 Rated speed : 1460 rpm

Moment of inertia (J) : 2.23 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.15  
 Temperature rise : 80 K  
 Design : B

Locked rotor time : 0s (cold) 0s (hot)

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# TORQUE AND CURRENT VS SPEED CURVE

## Three Phase Induction Motor - Squirrel Cage



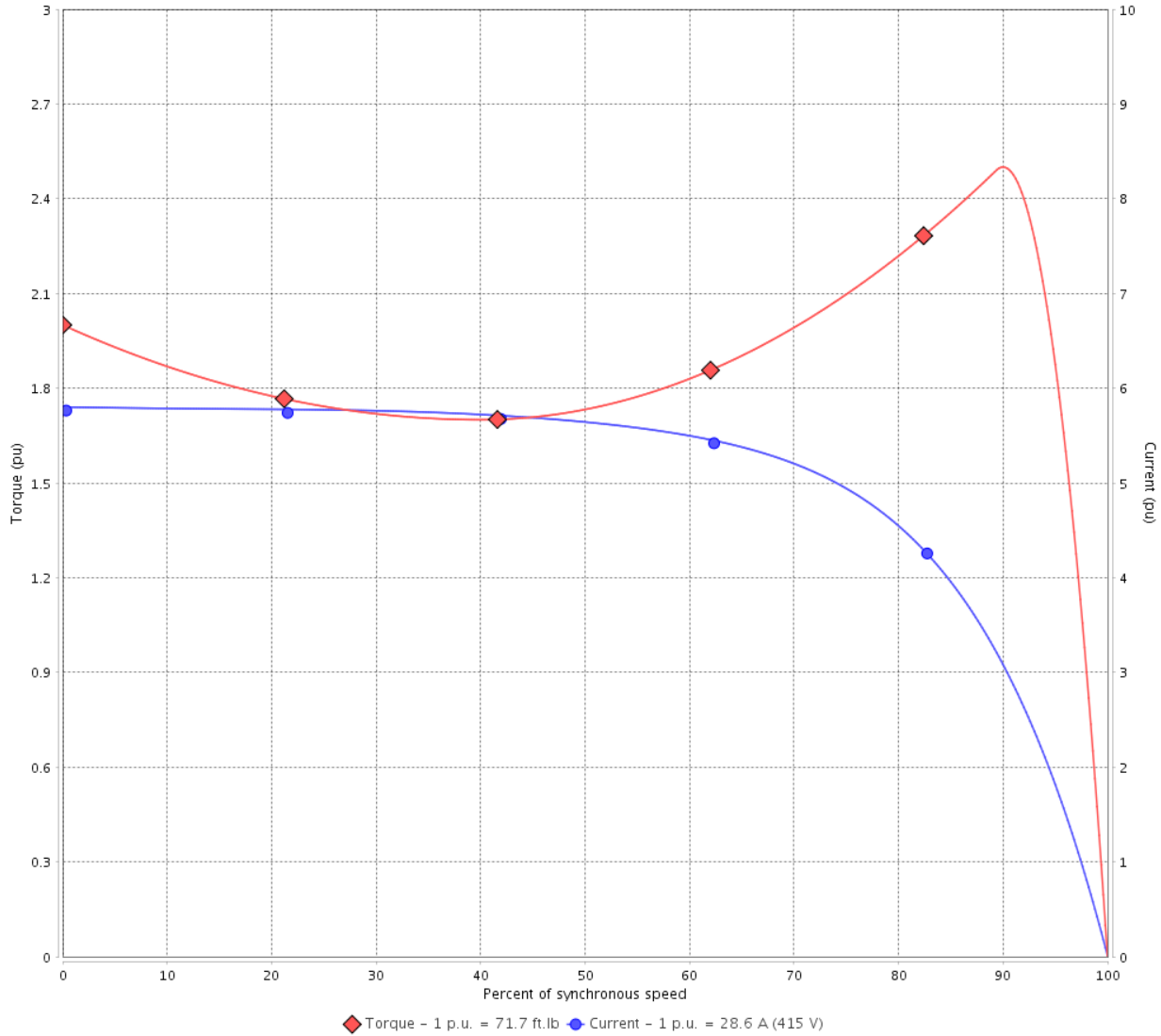
Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 13163457

Catalog # : 02018OT3E256TC-SG

TORQUE AND CURRENT VS SPEED CURVE



Performance : 220/415 V 50 Hz 4P

Rated current	: 54.0/28.6 A	Moment of inertia (J)	: 2.23 sq.ft.lb
LRC	: 5.8	Duty cycle	: Cont.(S1)
Rated torque	: 71.7 ft.lb	Insulation class	: F
Locked rotor torque	: 200 %	Service factor	: 1.15
Breakdown torque	: 250 %	Temperature rise	: 80 K
Rated speed	: 1465 rpm	Design	: B

Locked rotor time : 0s (cold) 0s (hot)

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# LOAD PERFORMANCE CURVE

## Three Phase Induction Motor - Squirrel Cage

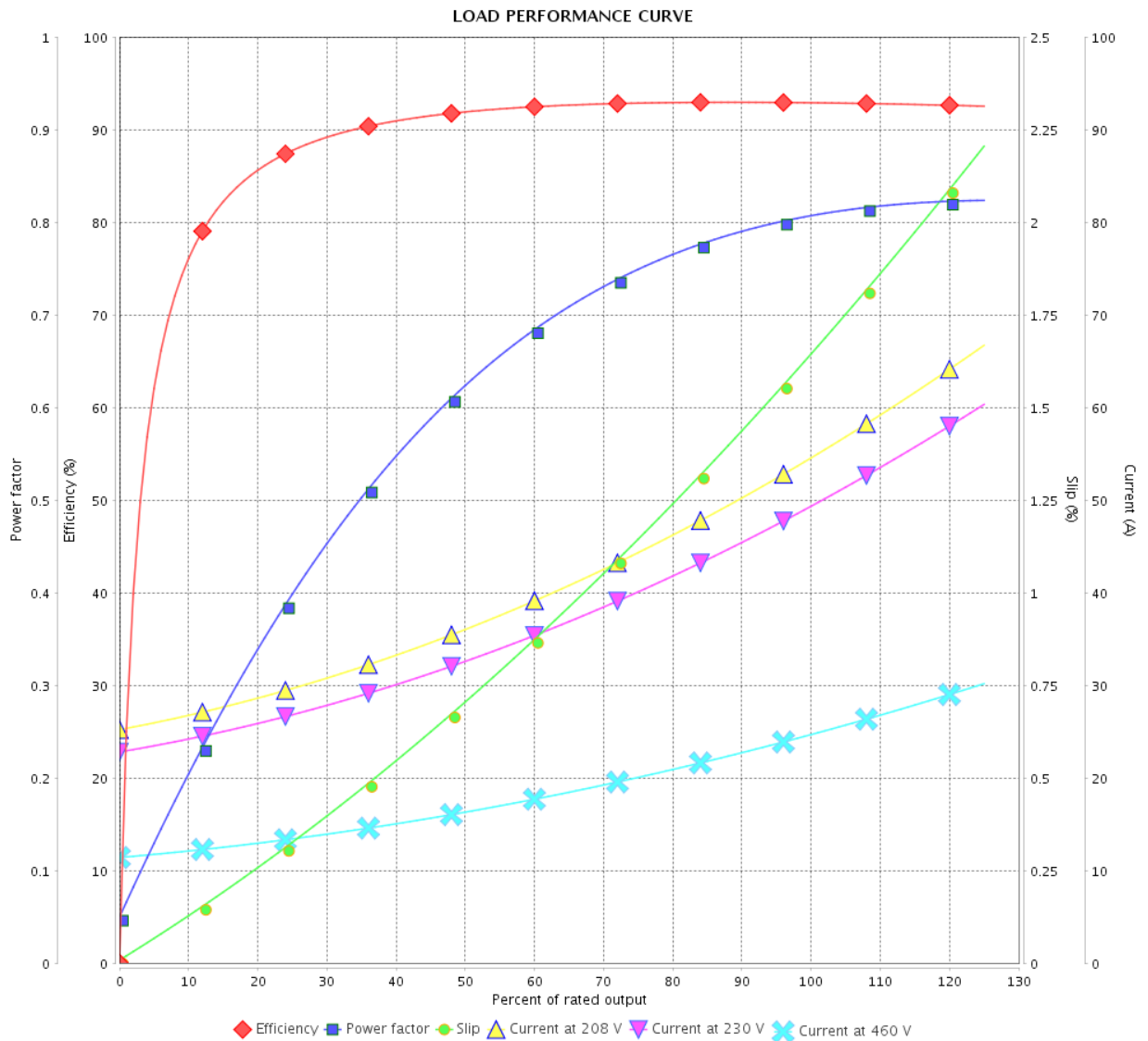


Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 13163457

Catalog # : 02018OT3E256TC-SG



Performance : 230/460 V 60 Hz 4P

Rated current : 50.0/25.0 A  
 LRC : 6.3  
 Rated torque : 59.3 ft.lb  
 Locked rotor torque : 240 %  
 Breakdown torque : 290 %  
 Rated speed : 1770 rpm

Moment of inertia (J) : 2.23 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.15  
 Temperature rise : 80 K  
 Design : B

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# LOAD PERFORMANCE CURVE

Three Phase Induction Motor - Squirrel Cage



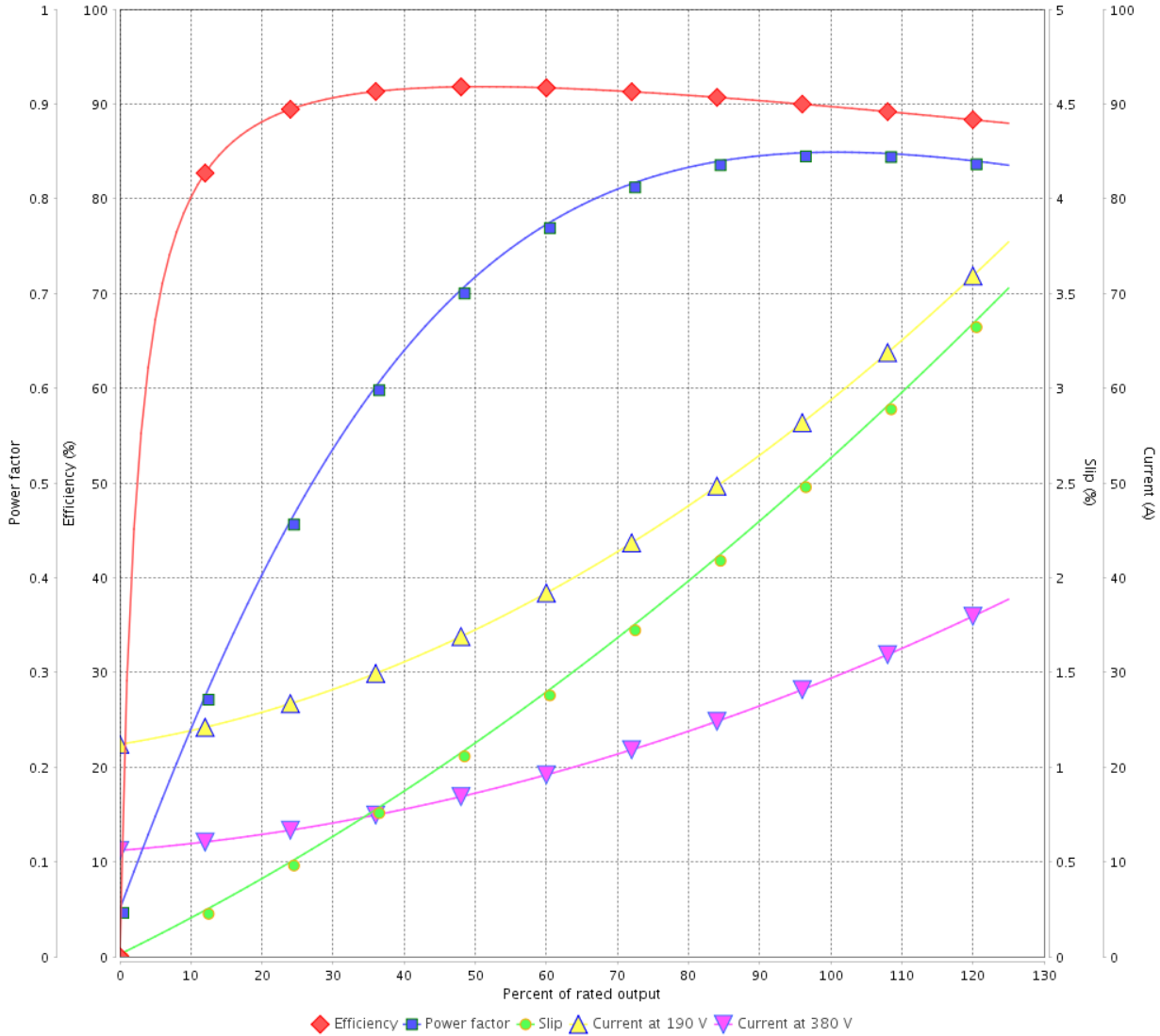
Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 13163457

Catalog # : 02018OT3E256TC-SG

LOAD PERFORMANCE CURVE



Performance : 190/380 V 50 Hz 4P

Rated current : 59.8/29.9 A  
 LRC : 5.2  
 Rated torque : 71.9 ft.lb  
 Locked rotor torque : 180 %  
 Breakdown torque : 220 %  
 Rated speed : 1460 rpm

Moment of inertia (J) : 2.23 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.15  
 Temperature rise : 80 K  
 Design : B

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# LOAD PERFORMANCE CURVE

## Three Phase Induction Motor - Squirrel Cage

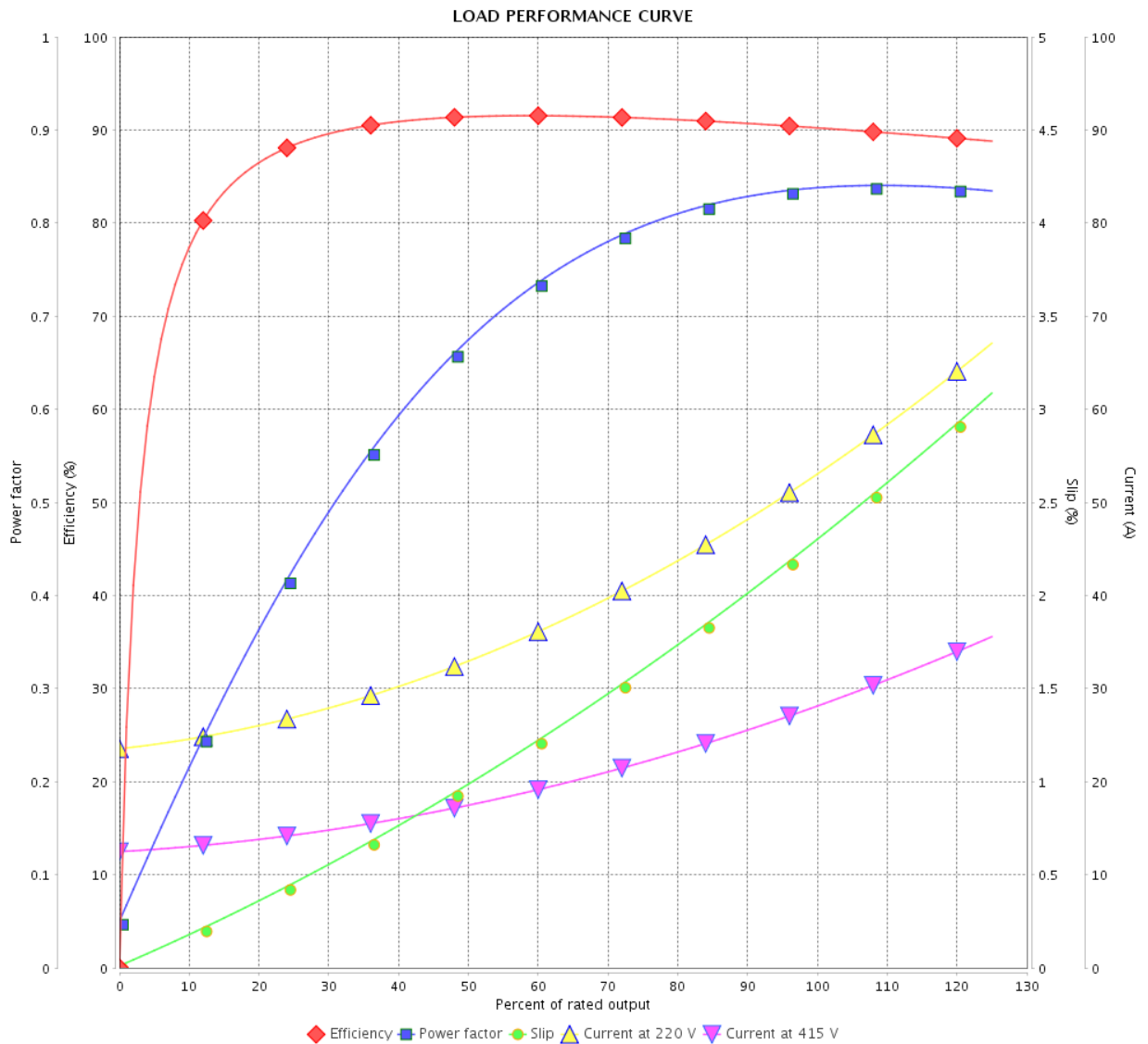


Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 13163457

Catalog # : 02018OT3E256TC-SG



Performance : 220/415 V 50 Hz 4P

Rated current : 54.0/28.6 A  
 LRC : 5.8  
 Rated torque : 71.7 ft.lb  
 Locked rotor torque : 200 %  
 Breakdown torque : 250 %  
 Rated speed : 1465 rpm

Moment of inertia (J) : 2.23 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.15  
 Temperature rise : 80 K  
 Design : B

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# THERMAL LIMIT CURVE

## Three Phase Induction Motor - Squirrel Cage



Customer :

Product line : NEMA Premium Efficiency Three-Phase  
Product code : 13163457  
Catalog # : 02018OT3E256TC-SG

Performance : 230/460 V 60 Hz 4P

Rated current : 50.0/25.0 A	Moment of inertia (J) : 2.23 sq.ft.lb
LRC : 6.3	Duty cycle : Cont.(S1)
Rated torque : 59.3 ft.lb	Insulation class : F
Locked rotor torque : 240 %	Service factor : 1.15
Breakdown torque : 290 %	Temperature rise : 80 K
Rated speed : 1770 rpm	Design : B

Heating constant

Cooling constant

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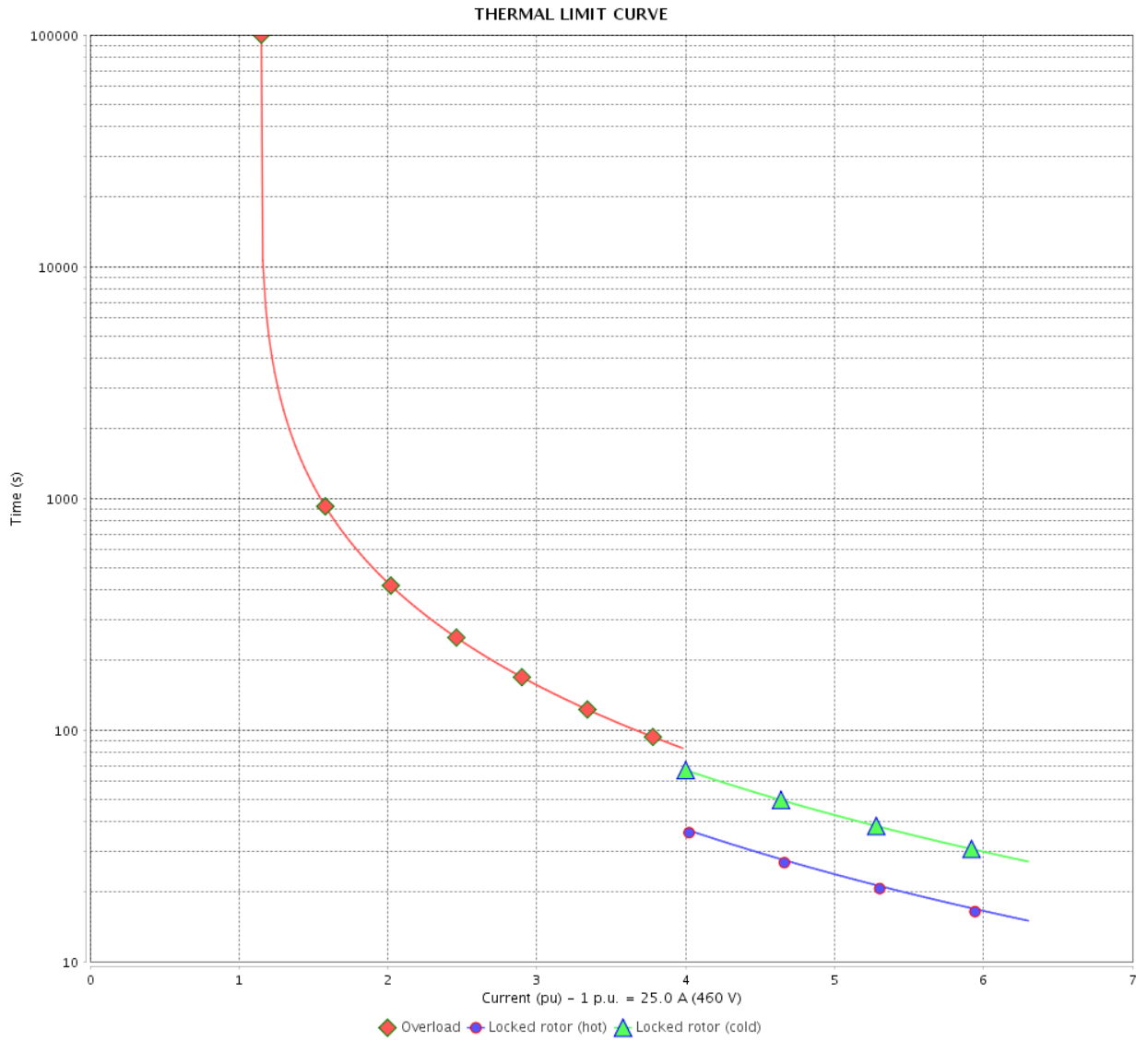


# THERMAL LIMIT CURVE

Three Phase Induction Motor - Squirrel Cage



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



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# THERMAL LIMIT CURVE



## Three Phase Induction Motor - Squirrel Cage

Customer :

Product line : NEMA Premium Efficiency Three-Phase  
Product code : 13163457  
Catalog # : 02018OT3E256TC-SG

Performance : 190/380 V 50 Hz 4P

Rated current	: 59.8/29.9 A	Moment of inertia (J)	: 2.23 sq.ft.lb
LRC	: 5.2	Duty cycle	: Cont.(S1)
Rated torque	: 71.9 ft.lb	Insulation class	: F
Locked rotor torque	: 180 %	Service factor	: 1.15
Breakdown torque	: 220 %	Temperature rise	: 80 K
Rated speed	: 1460 rpm	Design	: B

Heating constant

Cooling constant

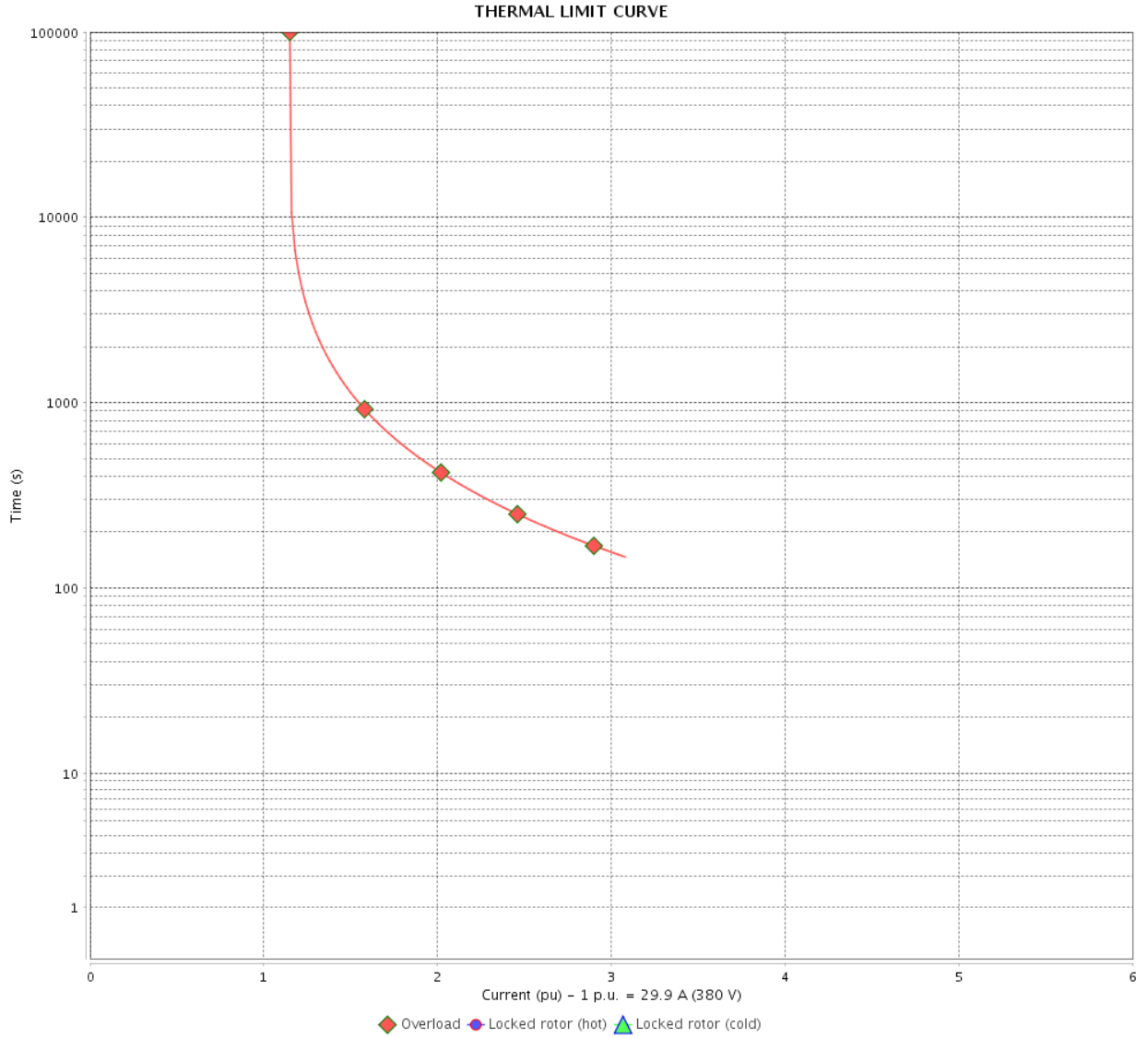
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# THERMAL LIMIT CURVE

Three Phase Induction Motor - Squirrel Cage



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



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Date				

# THERMAL LIMIT CURVE



## Three Phase Induction Motor - Squirrel Cage

Customer :

Product line : NEMA Premium Efficiency Three-Phase  
Product code : 13163457  
Catalog # : 02018OT3E256TC-SG

Performance : 220/415 V 50 Hz 4P

Rated current	: 54.0/28.6 A	Moment of inertia (J)	: 2.23 sq.ft.lb
LRC	: 5.8	Duty cycle	: Cont.(S1)
Rated torque	: 71.7 ft.lb	Insulation class	: F
Locked rotor torque	: 200 %	Service factor	: 1.15
Breakdown torque	: 250 %	Temperature rise	: 80 K
Rated speed	: 1465 rpm	Design	: B

Heating constant

Cooling constant

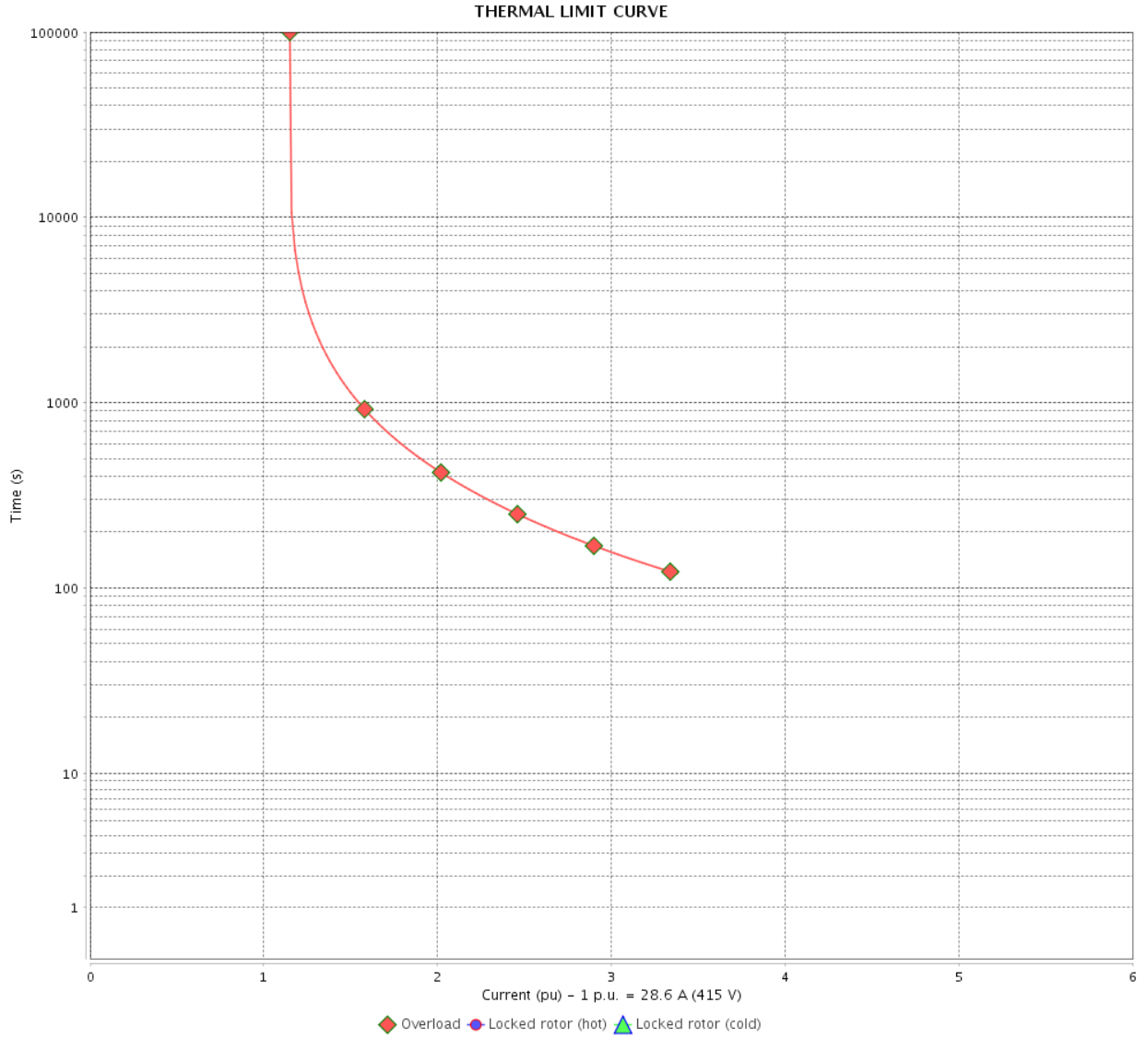
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# VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage

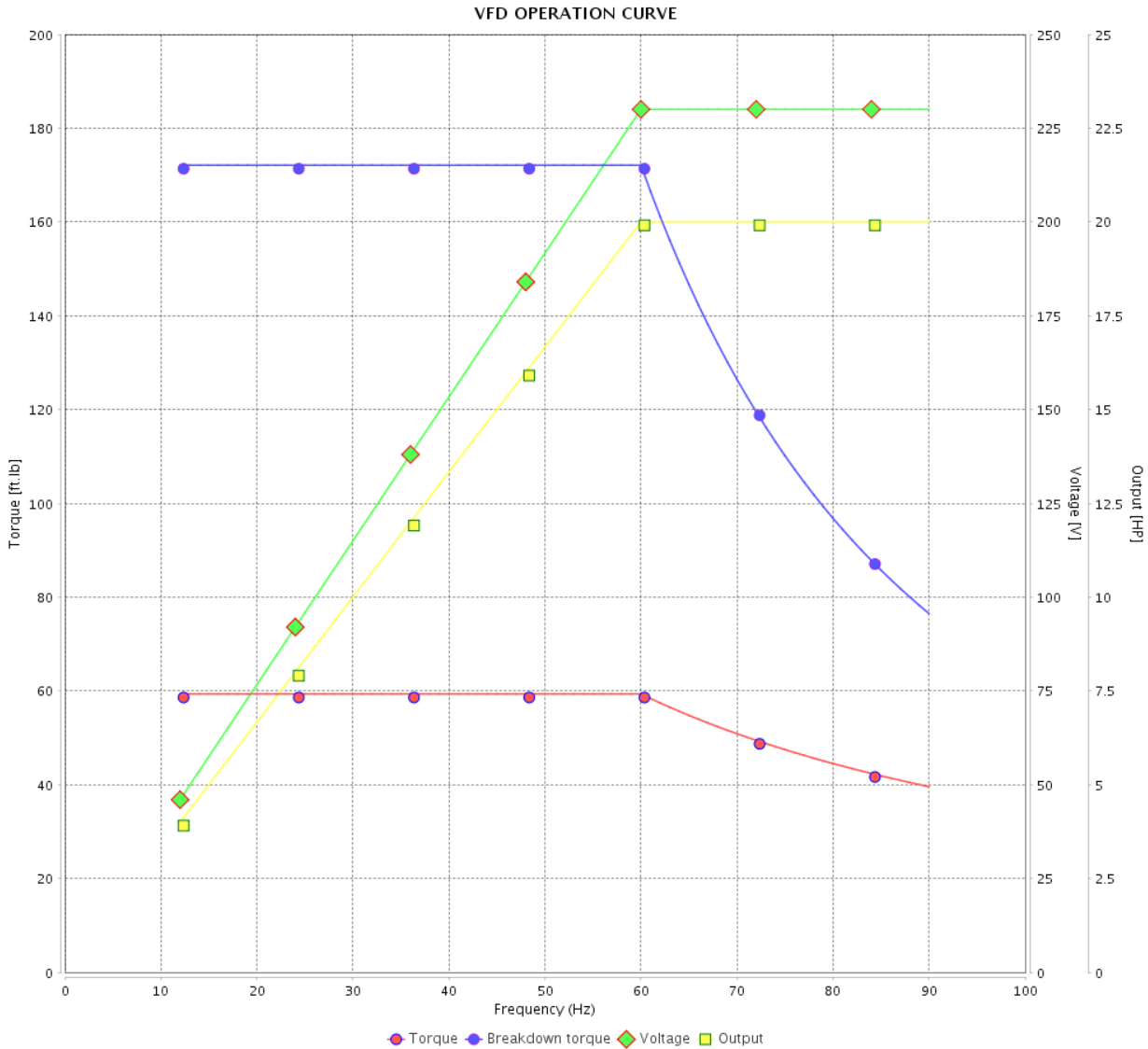


Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 13163457

Catalog # : 02018OT3E256TC-SG



Performance : 230/460 V 60 Hz 4P

Rated current : 50.0/25.0 A  
 LRC : 6.3  
 Rated torque : 59.3 ft.lb  
 Locked rotor torque : 240 %  
 Breakdown torque : 290 %  
 Rated speed : 1770 rpm

Moment of inertia (J) : 2.23 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.15  
 Temperature rise : 80 K  
 Design : B

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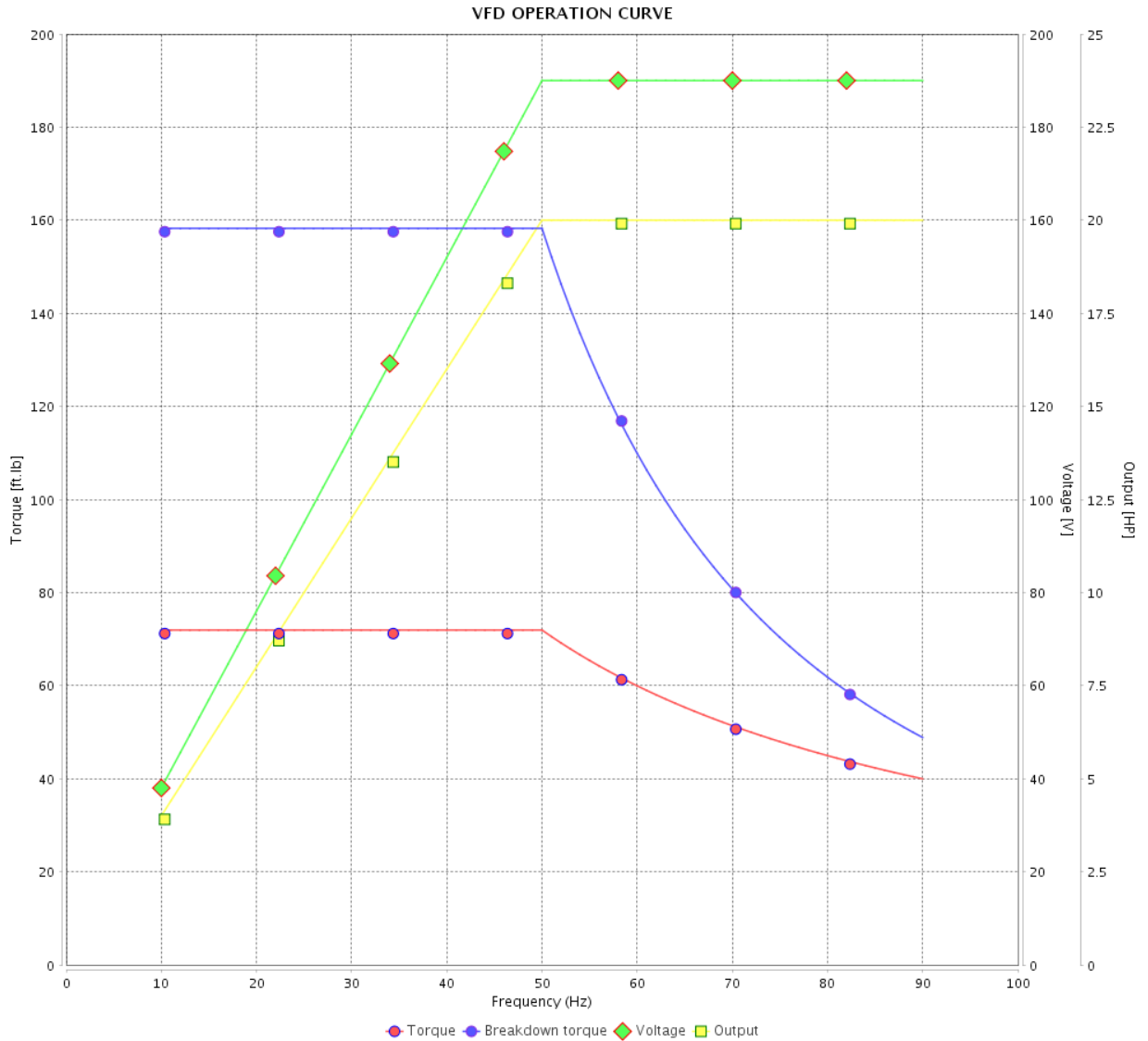
# VFD OPERATION CURVE

## Three Phase Induction Motor - Squirrel Cage



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

Product line : NEMA Premium Efficiency Three-Phase  
 Product code : 13163457  
 Catalog # : 02018OT3E256TC-SG



Performance : 190/380 V 50 Hz 4P

Rated current : 59.8/29.9 A  
 LRC : 5.2  
 Rated torque : 71.9 ft.lb  
 Locked rotor torque : 180 %  
 Breakdown torque : 220 %  
 Rated speed : 1460 rpm

Moment of inertia (J) : 2.23 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

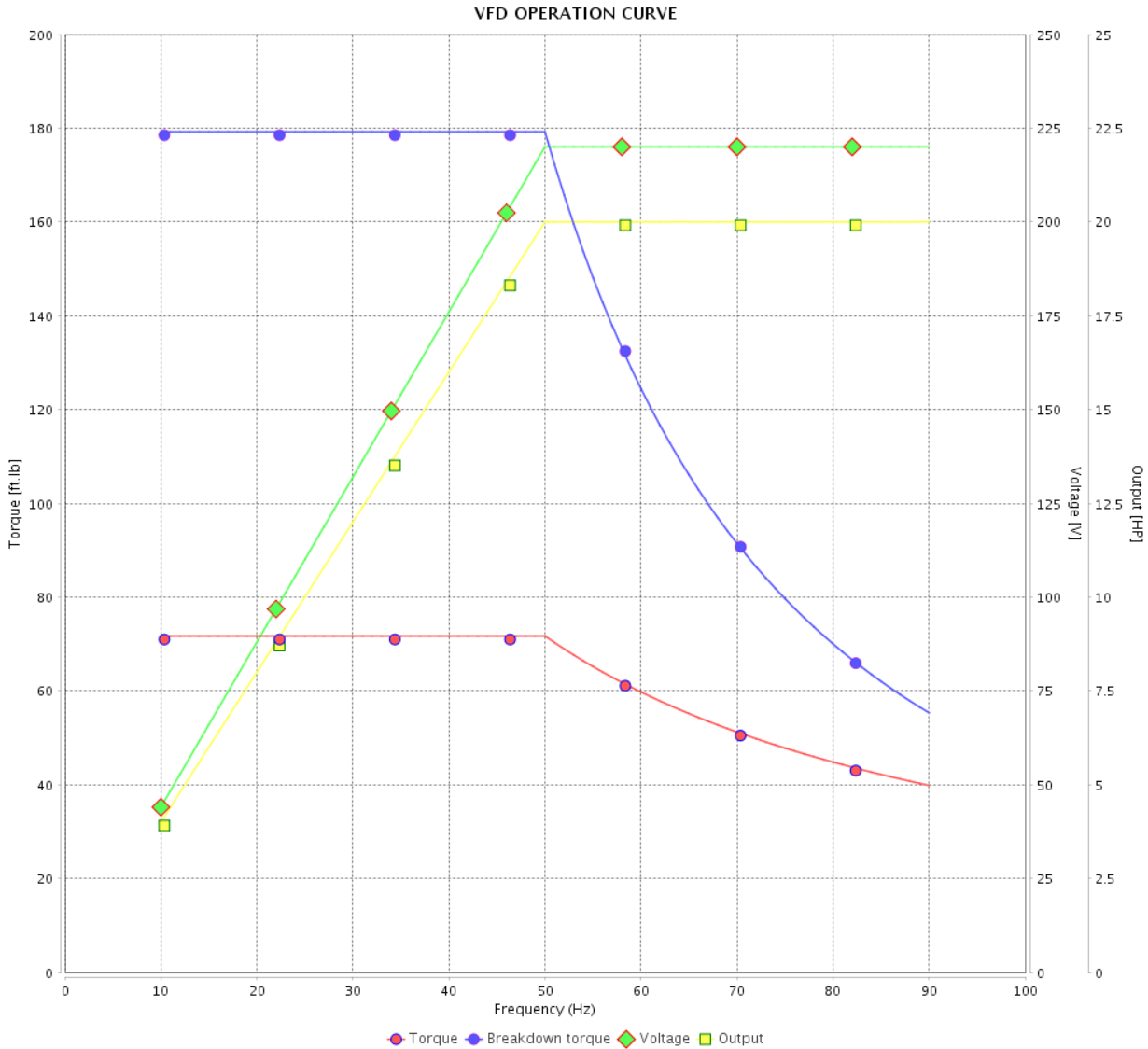


Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 13163457

Catalog # : 02018OT3E256TC-SG



Performance : 220/415 V 50 Hz 4P

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 Rated torque : 71.7 ft.lb  
 Locked rotor torque : 200 %  
 Breakdown torque : 250 %  
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Moment of inertia (J) : 2.23 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.15  
 Temperature rise : 80 K  
 Design : B

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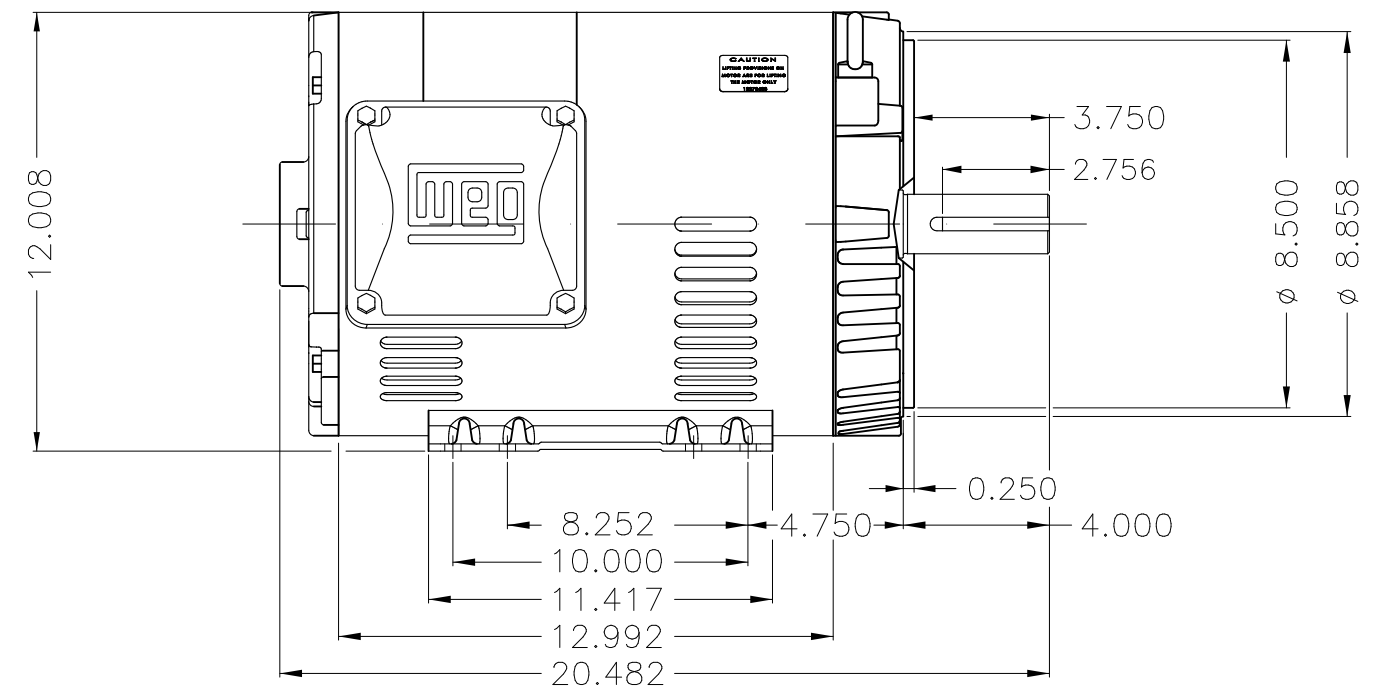
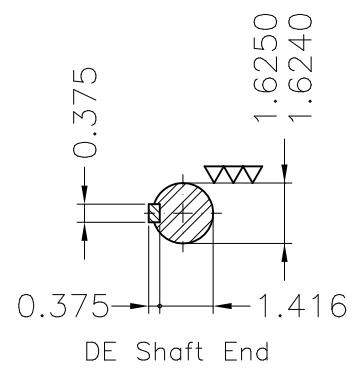
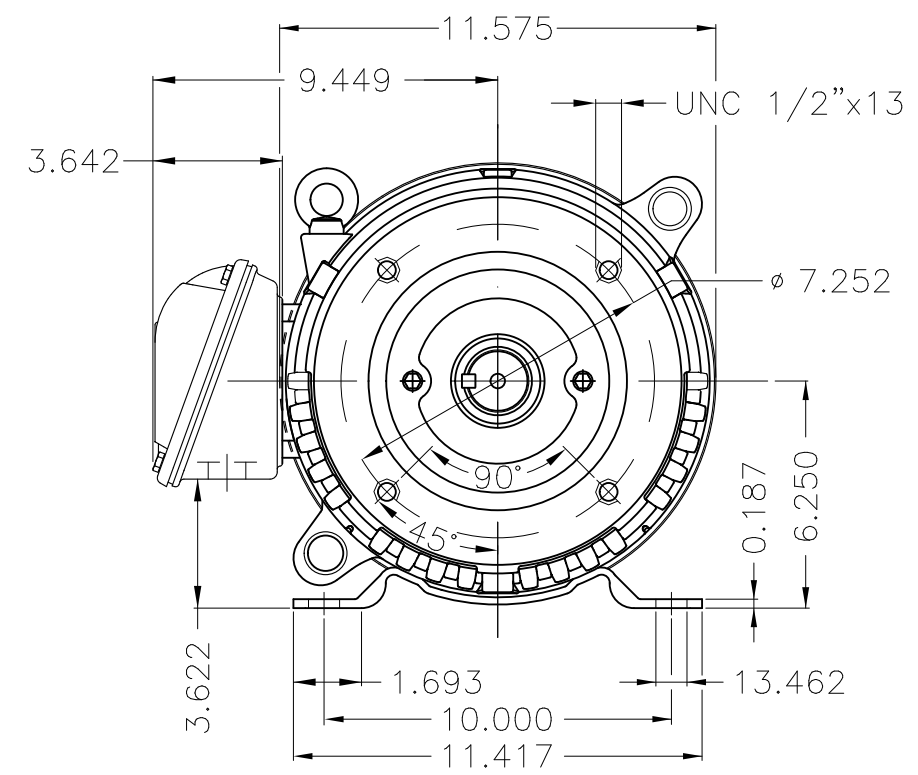
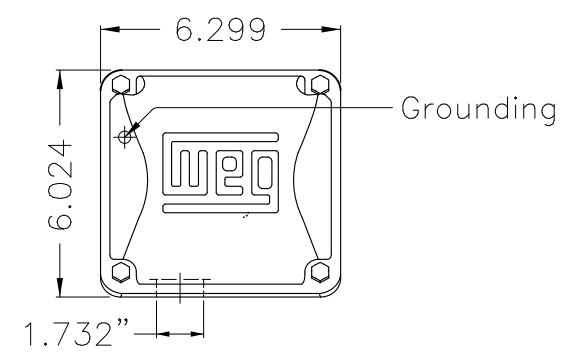
A

B

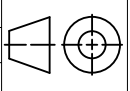
C

D

E



Internal AEGIS ground ring on the DE  
 Color Munsell N 1 matte black  
 Painting plan 207N  
 Mounting F-1/B34R(D)

ECM	LOC	SUMMARY OF MODIFICATIONS	EXECUTED	CHECKED	RELEASED	DATE	VER
EXECUTED	PIRWBUSER	 THREE PH. MOTOR ROLLED STEEL PREM. EFF. FRAME 254/6TC IP21 ODP					
CHECKED							
RELEASED							
REL DT.	WMO	Jaragua do Sul	Product Engineering	SHEET		1 / 1	

20 HP 04 Poles 60 Hz

A

PREVIEW  
WDD



Dimensions in inches XME A3

**NEMA  
Premium**

MADE IN MEXICO

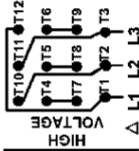
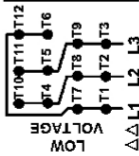
**MAT: 13163457 CC029A****W01.T00IC0X0N****MODEL 020180T3E256TC-SG****18MAR2022 S/N:**

<b>PH 3</b>	<b>Hz 60</b>	<b>HP 20</b>
<b>FR 254/6TC</b>		<b>KW 15</b>
<b>DUTY CONT.</b>		<b>V 230/460</b>
<b>ALT 1000 m.a.s.l.</b>		<b>A 50.0/25.0</b>
<b>INS CL F AT 80K</b>		<b>SFA 57.5/28.7</b>
<b>AMB 40°C</b>	<b>DES B</b>	<b>SF 1.15</b>
<b>ENCL ODP</b>	<b>CODE G</b>	<b>PF 0.81</b>
<b>USABLE @ 208V 55.3A</b>		<b>RPM 1770</b>
<b>SF1.00</b>		<b>NEMA NOM. EFF 93.0%</b>

**ALTERNATE RATING: 20HP 50Hz 190-220/380-415V SF1.15**  
**59.8-53.0/29.9-28.1A 1460RPM EFF 89.7% (IE1) IEC 60034-1**

Inverter duty motor For 80Hz use on VPWM 1000:1 VT, 5:1 CT

<b>DE 6309-Z-C3</b>	<b>ODE 6208-Z-C3</b>	<b>MOBIL POLYREX EM</b>	<b>20000h</b>
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T1-BLU T2-WHT  
 T3-ORG T4-YEL  
 T5-BLK T6-GRY  
 T7-PNK T8-RED  
 T9-BRK RED  
 T10-CURRY  
 T11-GRN T12-VLT

INTERCHANGE ANY TWO LINE WIRES TO REVERSE THE ROTATION



**WARNING:** Motor must be grounded in accordance with local and national electrical codes to prevent serious electrical shocks. Disconnect power source before servicing unit.



**AVERTISSEMENT:** Le moteur doit être mis à la terre

conformément aux codes électriques locaux et nationaux afin d'éviter tout choc électrique grave. Déconnectez l'alimentation avant l'entretien de la machine.

