

# DATA SHEET



## Three Phase Induction Motor - Squirrel Cage

Customer								
Product line	: NEMA Premium Efficiency Three-Phase	Product code	: 11431957					
		Catalog #	: 04018ST3QIE324TC-W2S					
Frame	: 324TC	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>	: 573 lb					
Protection degree	: IP55	Moment of inertia (J)	: 9.16 sq.ft.lb					
Design	: B							
Output [HP]	40	30	30	30	40	40	40	
Poles	4	4	4	4	4	4	4	
Frequency [Hz]	60	50	50	50	50	50	50	
Rated voltage [V]	460	380	400	415	380	400	415	
Rated current [A]	47.1	42.8	41.6	41.1	56.7	54.1	52.8	
L. R. Amperes [A]	287	218	241	255	221	243	259	
LRC [A]	6.1x(Code G)	5.1x(Code E)	5.8x(Code F)	6.2x(Code G)	3.9x(Code C)	4.5x(Code D)	4.9x(Code E)	
No load current [A]	16.0	15.7	17.3	18.6	15.7	17.3	18.6	
Rated speed [RPM]	1770	1470	1470	1470	1460	1465	1465	
Slip [%]	1.67	2.00	2.00	2.00	2.67	2.33	2.33	
Rated torque [ft.lb]	119	107	107	107	144	143	143	
Locked rotor torque [%]	220	229	250	280	170	190	210	
Breakdown torque [%]	240	250	290	310	180	210	229	
Service factor	1.25	1.00	1.00	1.00	1.00	1.00	1.00	
Temperature rise	80 K	80 K	80 K	80 K	105 K	105 K	80 K	
Locked rotor time	36s (cold) 20s (hot)	25s (cold) 14s (hot)	27s (cold) 15s (hot)	27s (cold) 15s (hot)	25s (cold) 14s (hot)	27s (cold) 15s (hot)	27s (cold) 15s (hot)	
Noise level <sup>2</sup>	66.0 dB(A)	63.0 dB(A)	63.0 dB(A)	63.0 dB(A)	63.0 dB(A)	63.0 dB(A)	63.0 dB(A)	
Efficiency (%)	25%	93.4	92.8	92.0	91.0	94.0	93.5	92.8
	50%	93.6	92.9	92.4	91.7	93.6	93.6	93.0
	75%	94.1	93.1	93.0	92.6	93.0	93.0	93.0
	100%	94.1	93.0	93.2	93.1	92.4	93.0	93.0
Power Factor	25%	0.47	0.44	0.40	0.38	0.54	0.49	0.47
	50%	0.72	0.68	0.64	0.62	0.78	0.74	0.72
	75%	0.80	0.78	0.75	0.73	0.84	0.82	0.80
	100%	0.85	0.84	0.82	0.80	0.87	0.86	0.85
Bearing type	: Drive end : 6312 C3	Non drive end : 6212 C3	Foundation loads					
Sealing	: Inpro/Seal	Inpro/Seal	Max. traction : 979 lb					
Lubrication interval	: 20000 h	20000 h	Max. compression : 1552 lb					
Lubricant amount	: 21 g	13 g						
Lubricant type	: Mobil Polyrex EM							
Notes								
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



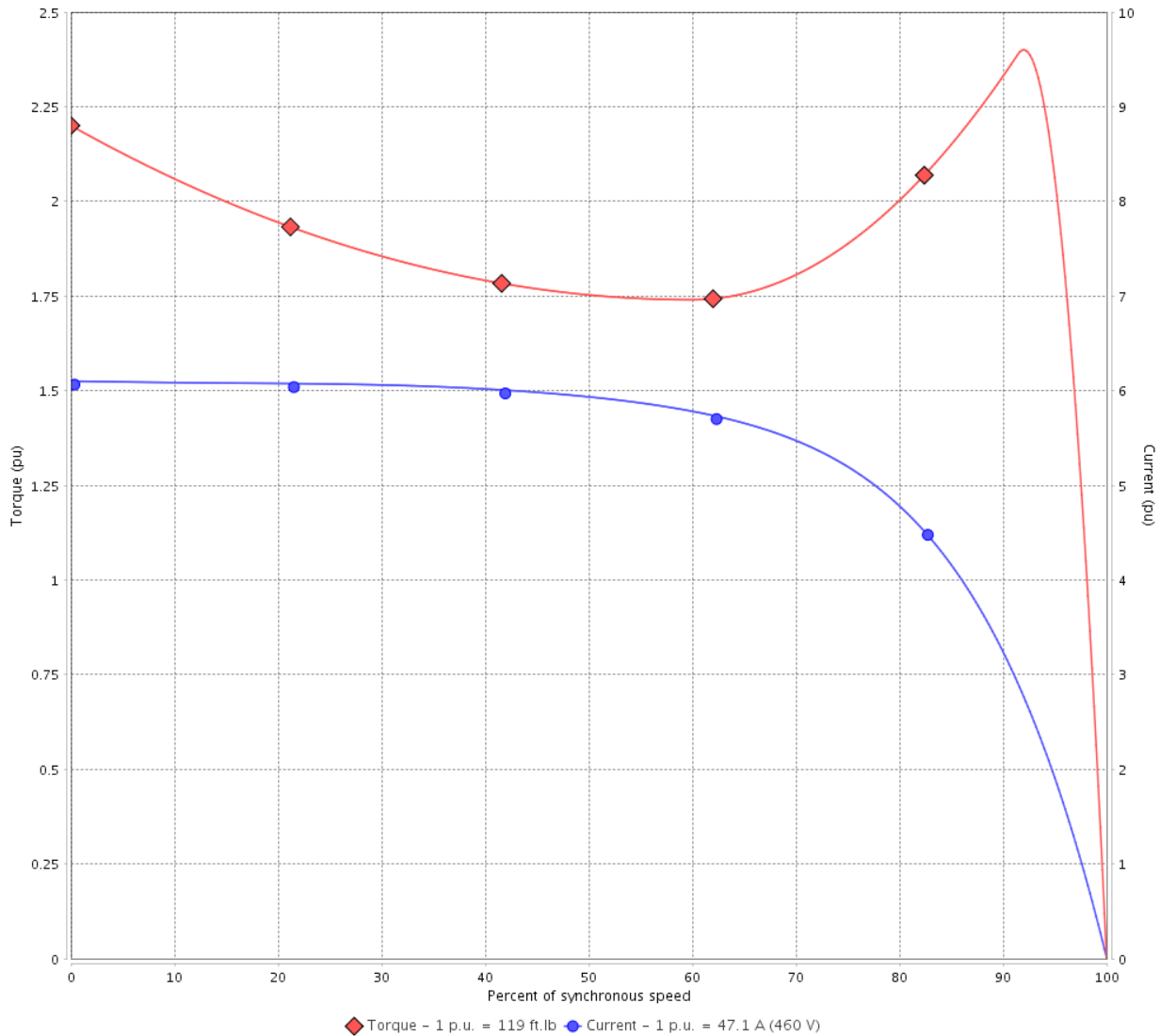
Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 11431957

Catalog # : 04018ST3QIE324TC-W2S

TORQUE AND CURRENT VS SPEED CURVE



Performance : 460 V 60 Hz 4P

Rated current	: 47.1 A	Moment of inertia (J)	: 9.16 sq.ft.lb
LRC	: 6.1	Duty cycle	: Cont.(S1)
Rated torque	: 119 ft.lb	Insulation class	: F
Locked rotor torque	: 220 %	Service factor	: 1.25
Breakdown torque	: 240 %	Temperature rise	: 80 K
Rated speed	: 1770 rpm	Design	: B

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

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# TORQUE AND CURRENT VS SPEED CURVE



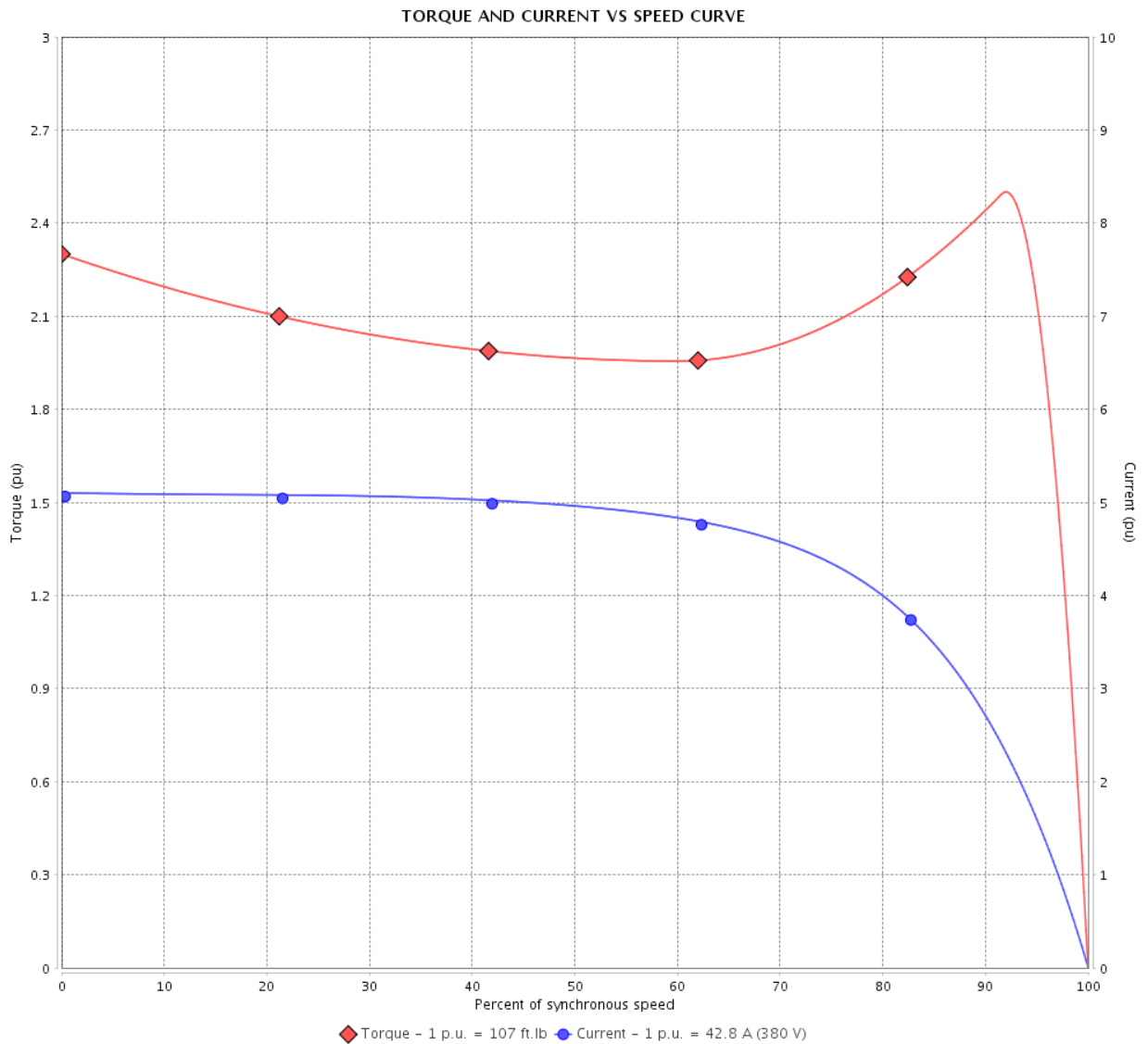
## Three Phase Induction Motor - Squirrel Cage

Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 11431957

Catalog # : 04018ST3QIE324TC-W2S



Performance : 380 V 50 Hz 4P IE3

Rated current	: 42.8 A	Moment of inertia (J)	: 9.16 sq.ft.lb
LRC	: 5.1	Duty cycle	: Cont.(S1)
Rated torque	: 107 ft.lb	Insulation class	: F
Locked rotor torque	: 229 %	Service factor	: 1.00
Breakdown torque	: 250 %	Temperature rise	: 80 K
Rated speed	: 1470 rpm	Design	: B

Locked rotor time : 25s (cold) 14s (hot)

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# TORQUE AND CURRENT VS SPEED CURVE

## Three Phase Induction Motor - Squirrel Cage



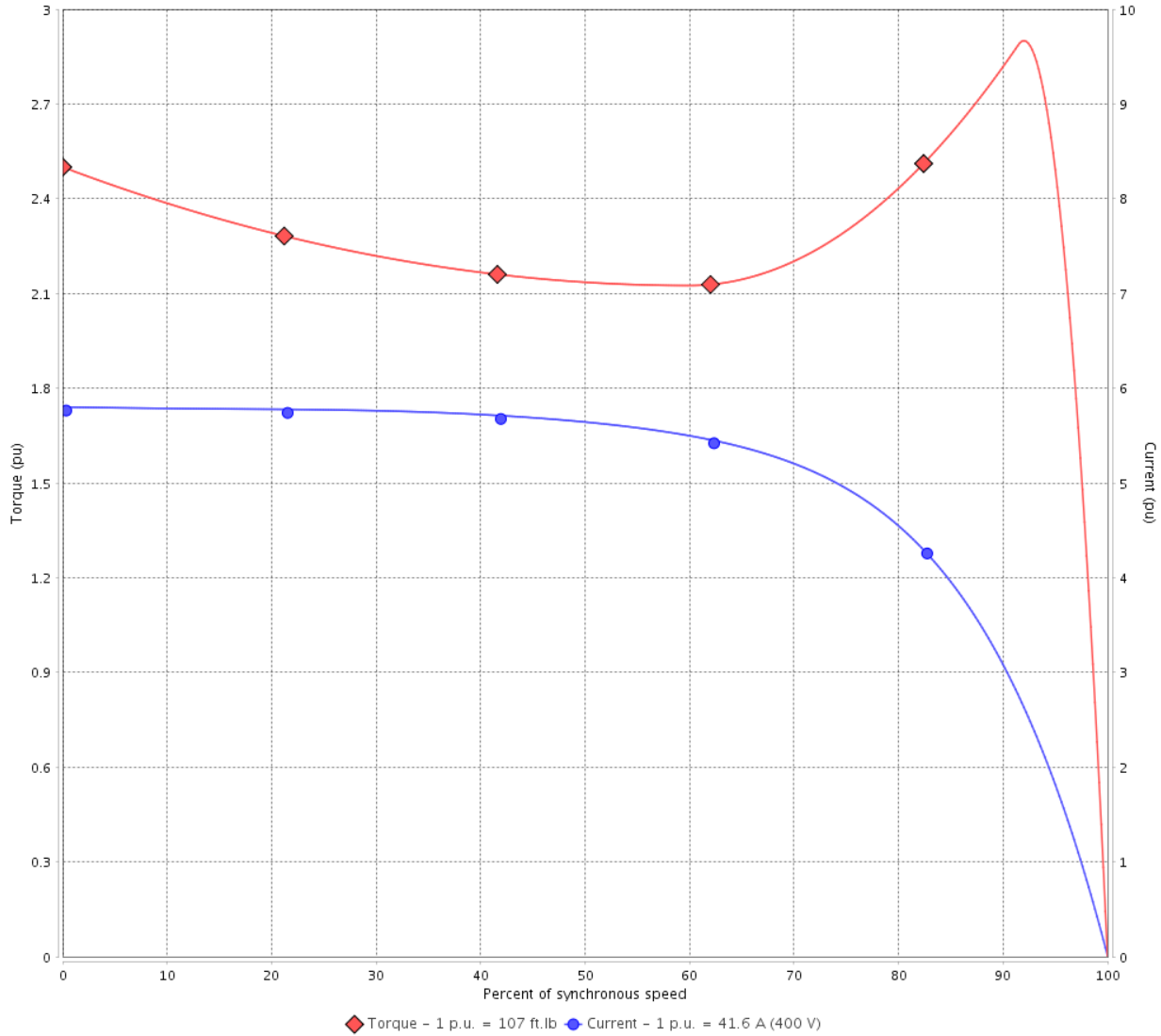
Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 11431957

Catalog # : 04018ST3QIE324TC-W2S

TORQUE AND CURRENT VS SPEED CURVE



Performance : 400 V 50 Hz 4P IE3

Rated current	: 41.6 A	Moment of inertia (J)	: 9.16 sq.ft.lb
LRC	: 5.8	Duty cycle	: Cont.(S1)
Rated torque	: 107 ft.lb	Insulation class	: F
Locked rotor torque	: 250 %	Service factor	: 1.00
Breakdown torque	: 290 %	Temperature rise	: 80 K
Rated speed	: 1470 rpm	Design	: B

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

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# TORQUE AND CURRENT VS SPEED CURVE



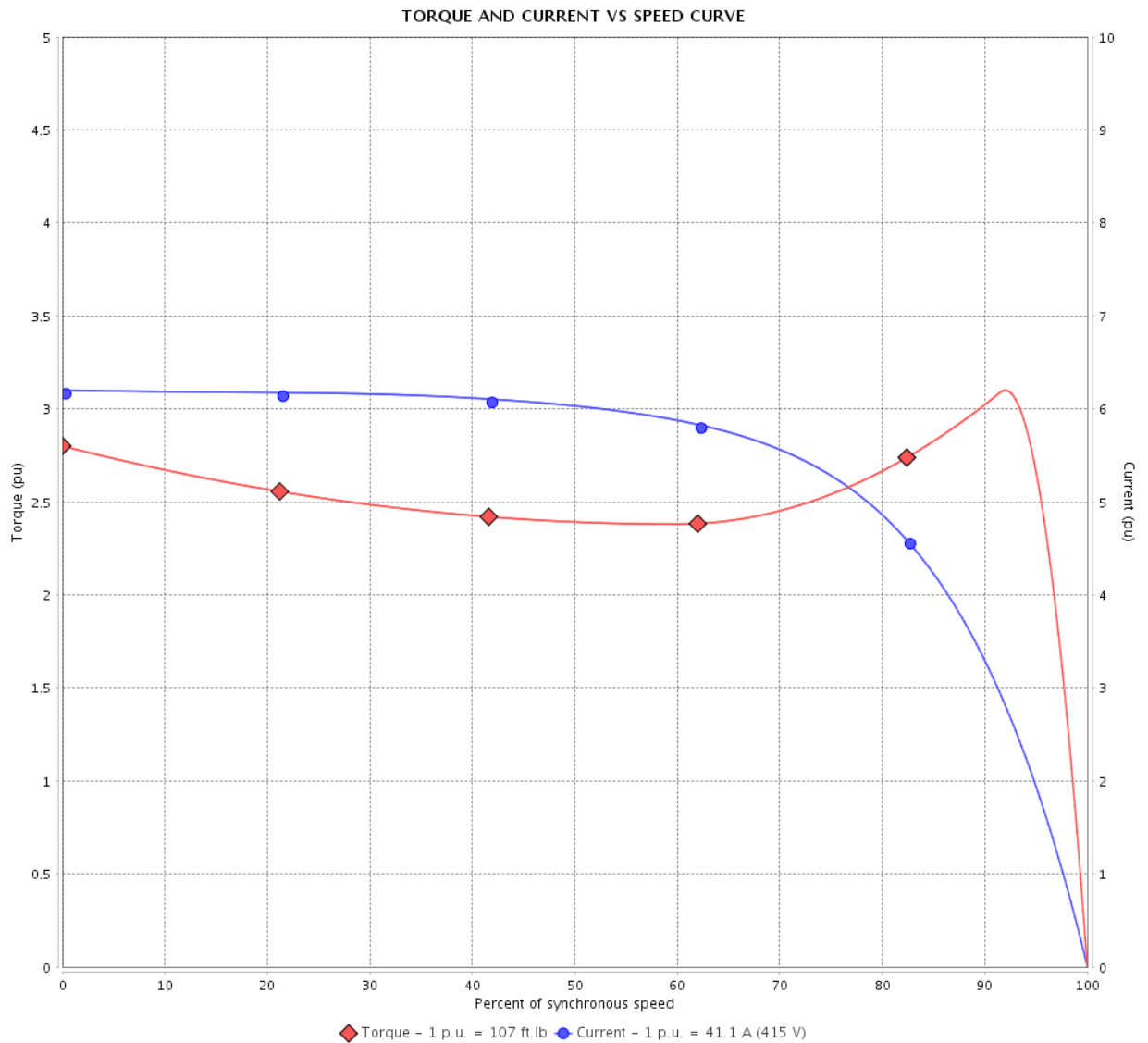
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Product code : 11431957

Catalog # : 04018ST3QIE324TC-W2S



Performance : 415 V 50 Hz 4P IE3

Rated current	: 41.1 A	Moment of inertia (J)	: 9.16 sq.ft.lb
LRC	: 6.2	Duty cycle	: Cont.(S1)
Rated torque	: 107 ft.lb	Insulation class	: F
Locked rotor torque	: 280 %	Service factor	: 1.00
Breakdown torque	: 310 %	Temperature rise	: 80 K
Rated speed	: 1470 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



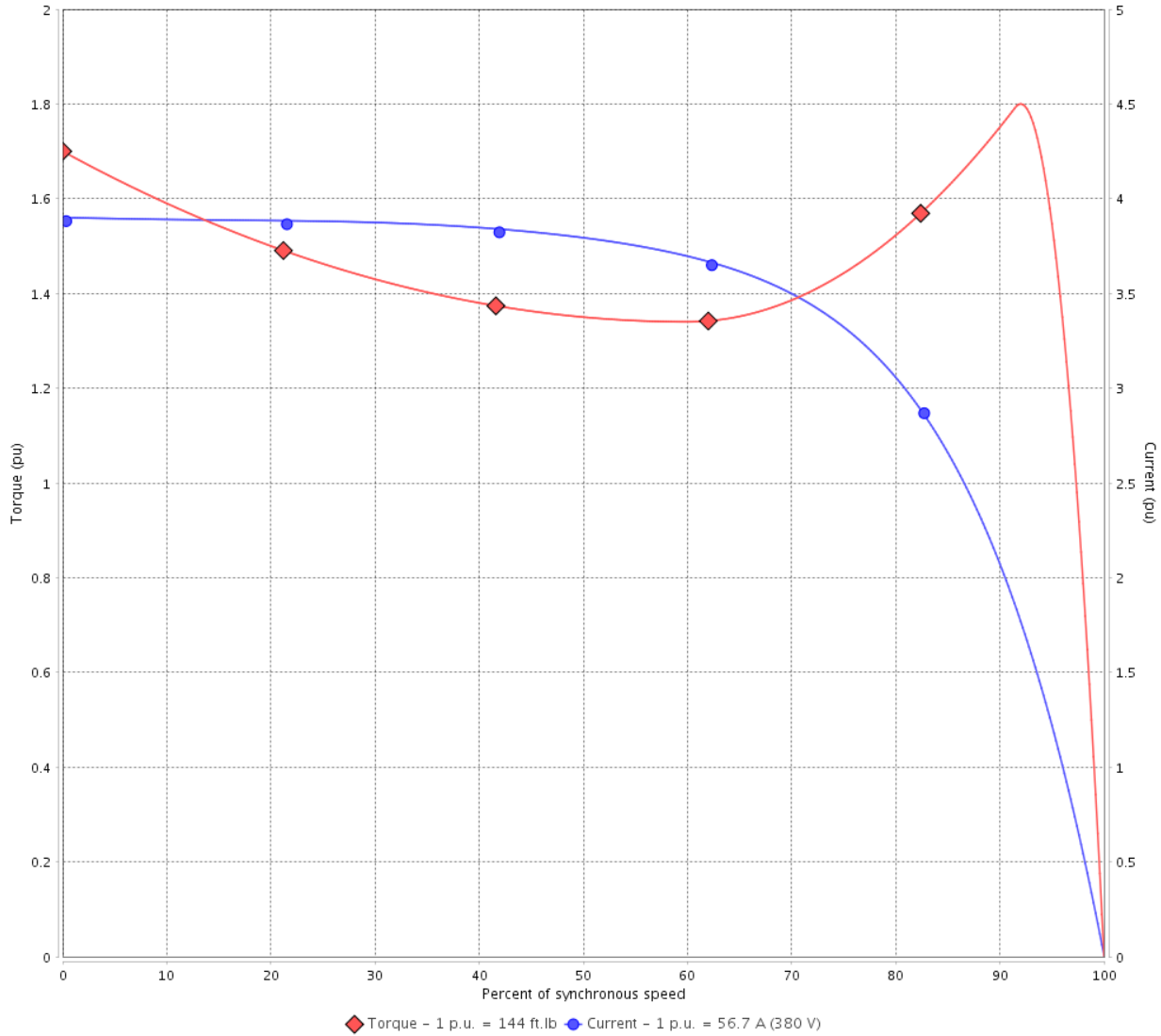
Customer :

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Product code : 11431957

Catalog # : 04018ST3QIE324TC-W2S

TORQUE AND CURRENT VS SPEED CURVE



Performance : 380 V 50 Hz 4P IE2

Rated current	: 56.7 A	Moment of inertia (J)	: 9.16 sq.ft.lb
LRC	: 3.9	Duty cycle	: Cont.(S1)
Rated torque	: 144 ft.lb	Insulation class	: F
Locked rotor torque	: 170 %	Service factor	: 1.00
Breakdown torque	: 180 %	Temperature rise	: 105 K
Rated speed	: 1460 rpm	Design	: B

Locked rotor time : 25s (cold) 14s (hot)

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# TORQUE AND CURRENT VS SPEED CURVE



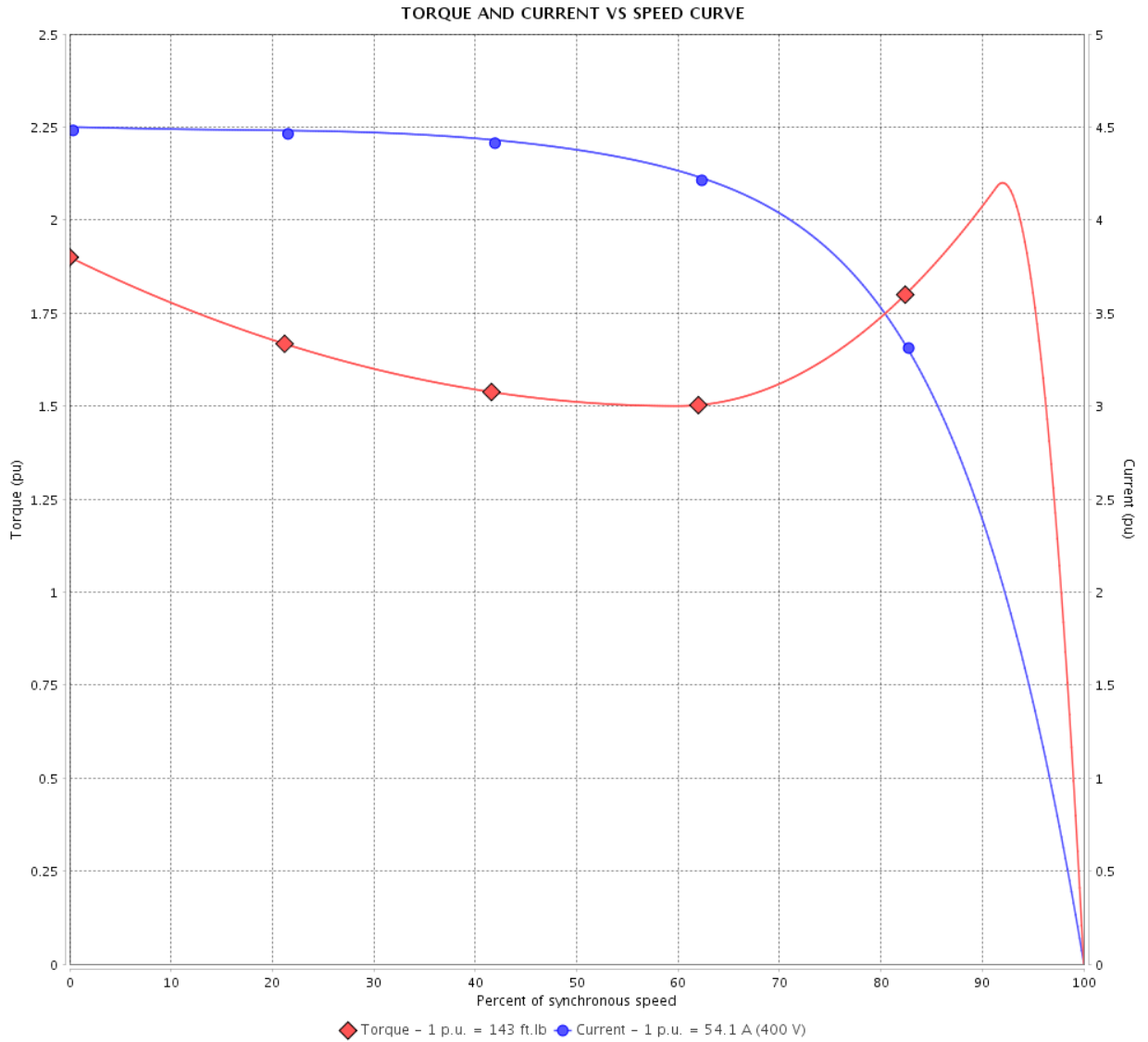
## Three Phase Induction Motor - Squirrel Cage

Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 11431957

Catalog # : 04018ST3QIE324TC-W2S



Performance : 400 V 50 Hz 4P IE2

Rated current	: 54.1 A	Moment of inertia (J)	: 9.16 sq.ft.lb
LRC	: 4.5	Duty cycle	: Cont.(S1)
Rated torque	: 143 ft.lb	Insulation class	: F
Locked rotor torque	: 190 %	Service factor	: 1.00
Breakdown torque	: 210 %	Temperature rise	: 105 K
Rated speed	: 1465 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

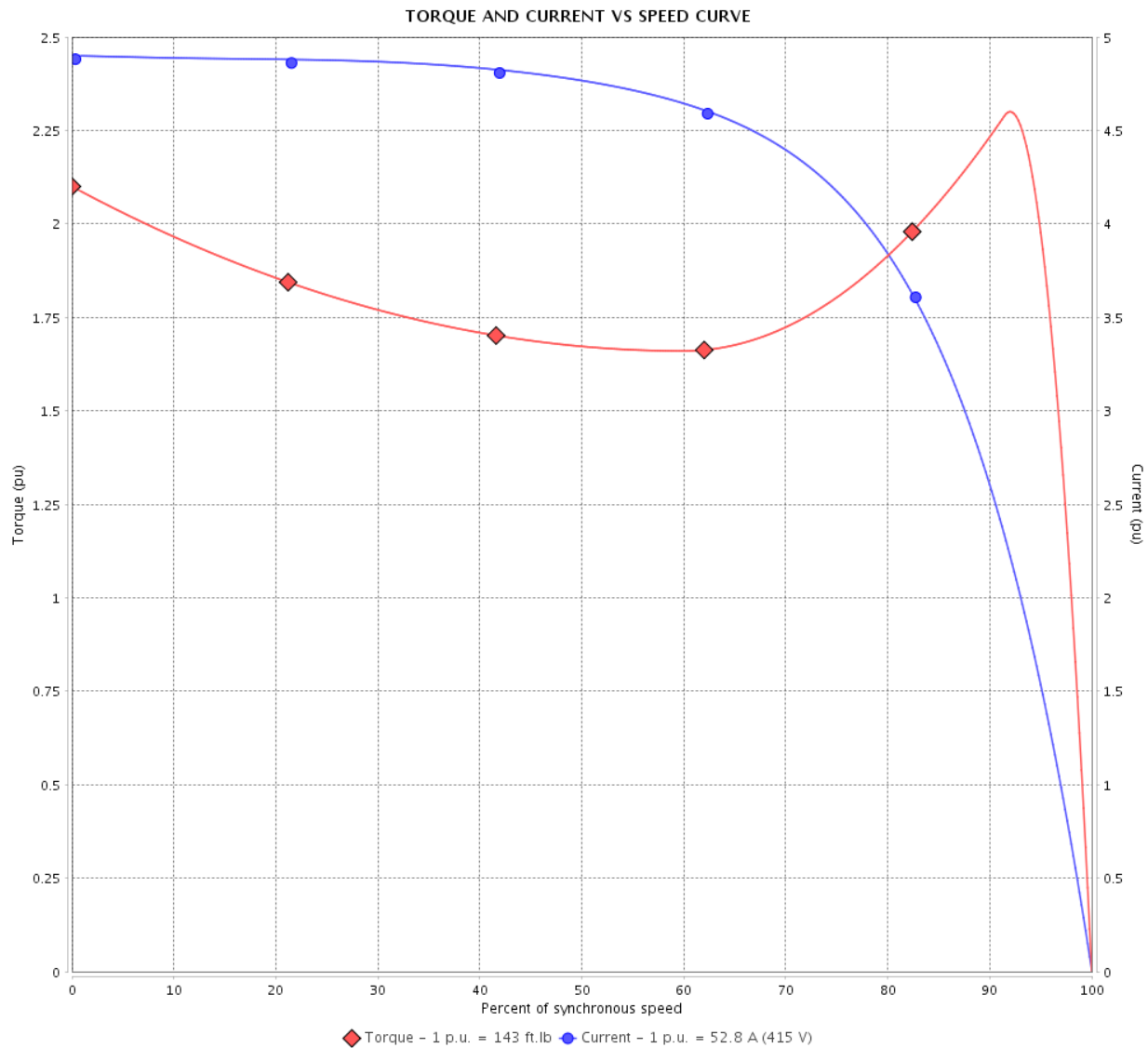


Customer :

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Product code : 11431957

Catalog # : 04018ST3QIE324TC-W2S



Performance : 415 V 50 Hz 4P IE2

Rated current	: 52.8 A	Moment of inertia (J)	: 9.16 sq.ft.lb
LRC	: 4.9	Duty cycle	: Cont.(S1)
Rated torque	: 143 ft.lb	Insulation class	: F
Locked rotor torque	: 210 %	Service factor	: 1.00
Breakdown torque	: 229 %	Temperature rise	: 80 K
Rated speed	: 1465 rpm	Design	: B

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

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# LOAD PERFORMANCE CURVE

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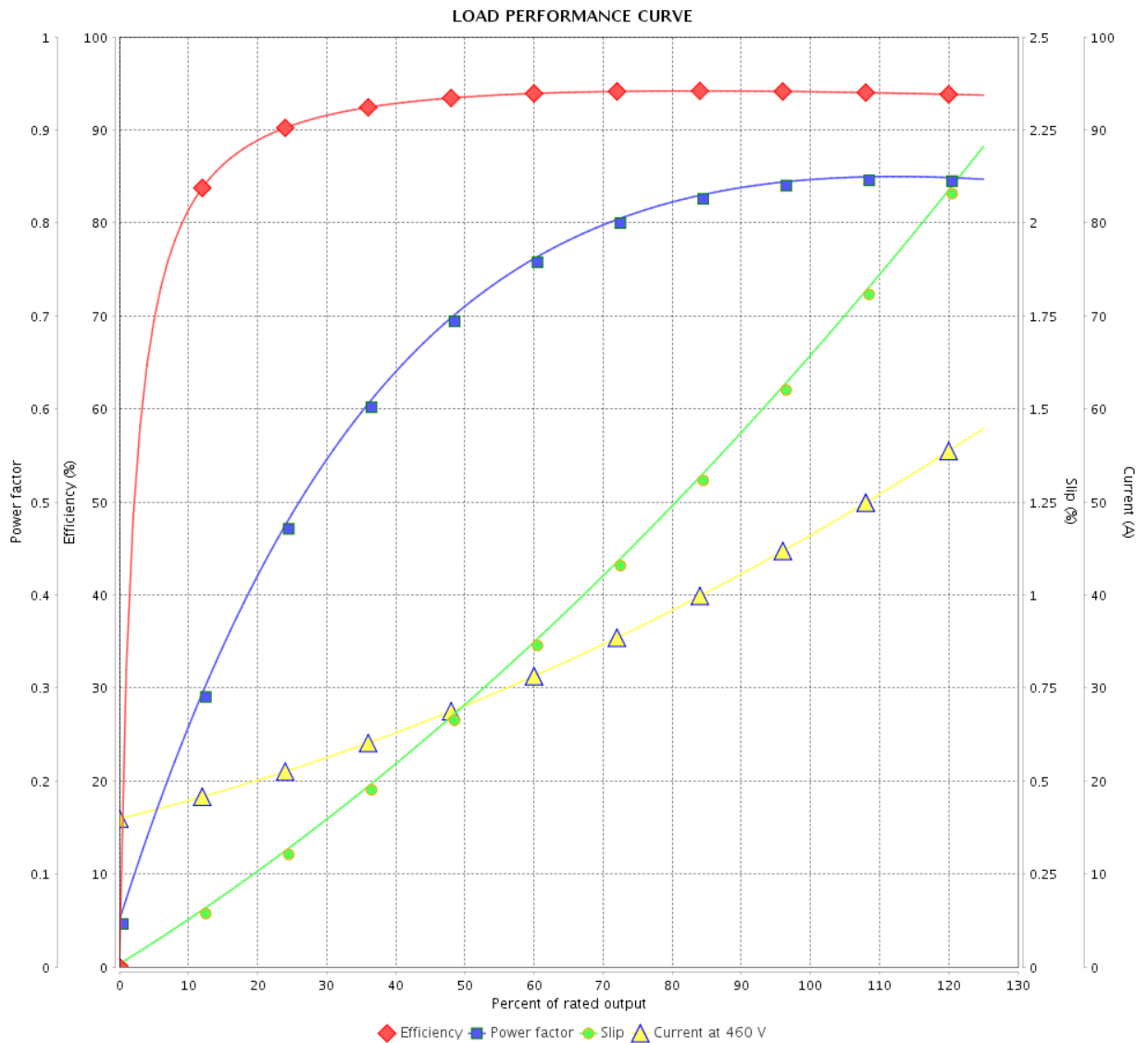


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Product code : 11431957

Catalog # : 04018ST3QIE324TC-W2S



Performance : 460 V 60 Hz 4P

Rated current : 47.1 A  
 LRC : 6.1  
 Rated torque : 119 ft.lb  
 Locked rotor torque : 220 %  
 Breakdown torque : 240 %  
 Rated speed : 1770 rpm

Moment of inertia (J) : 9.16 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.25  
 Temperature rise : 80 K  
 Design : B

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# LOAD PERFORMANCE CURVE

Three Phase Induction Motor - Squirrel Cage



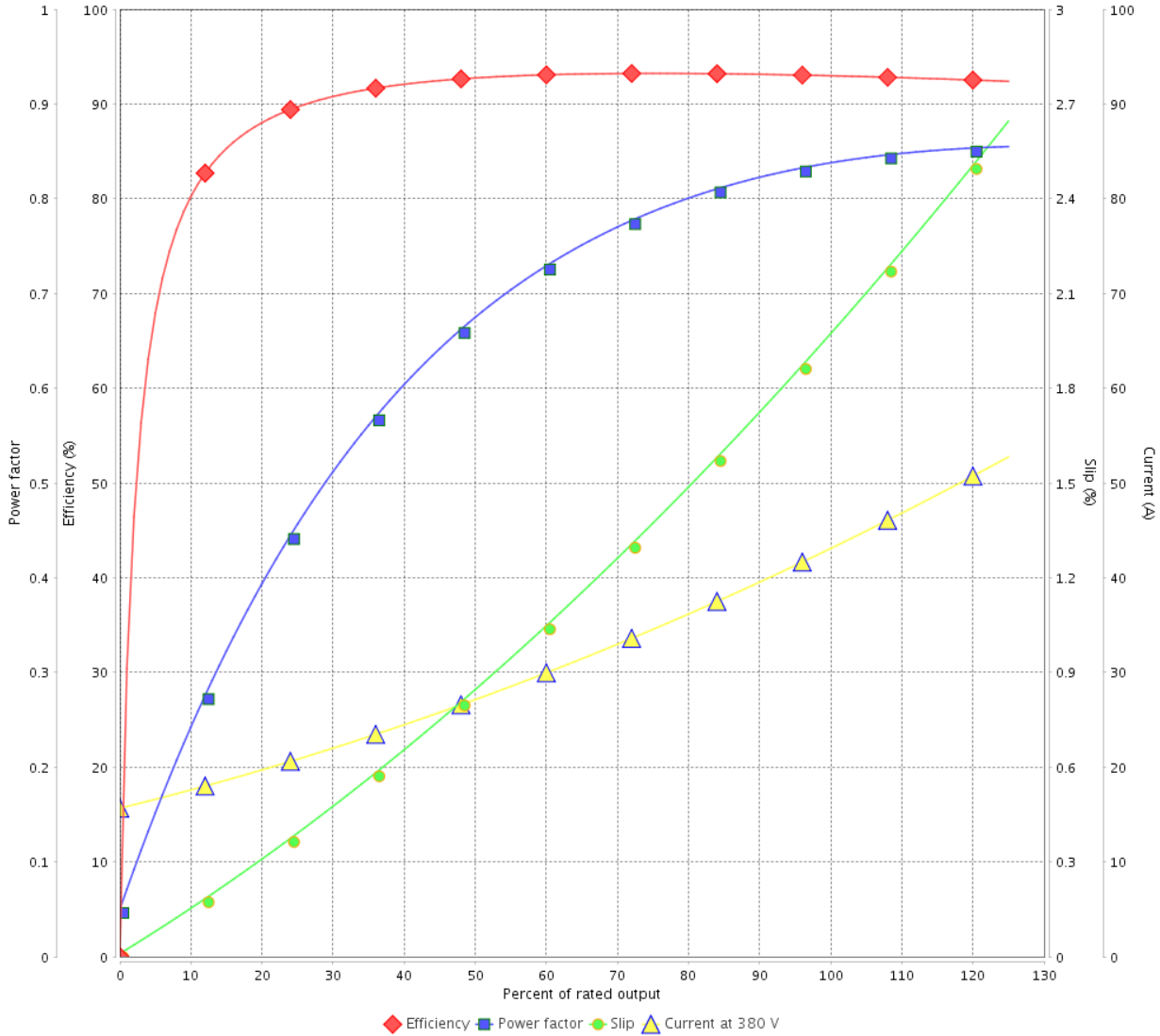
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LOAD PERFORMANCE CURVE



Performance : 380 V 50 Hz 4P IE3

Rated current : 42.8 A  
 LRC : 5.1  
 Rated torque : 107 ft.lb  
 Locked rotor torque : 229 %  
 Breakdown torque : 250 %  
 Rated speed : 1470 rpm

Moment of inertia (J) : 9.16 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

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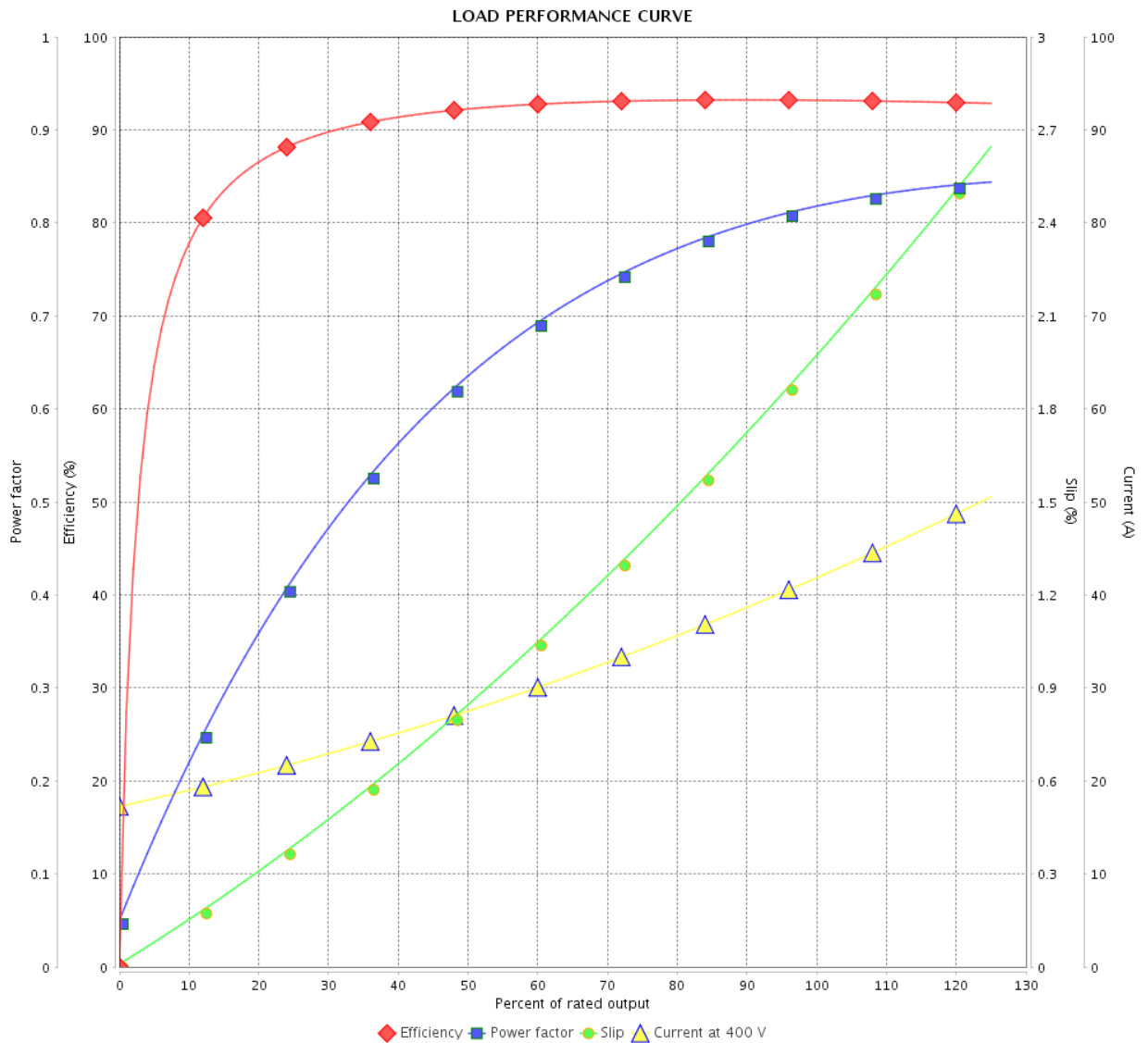


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Catalog # : 04018ST3QIE324TC-W2S



Performance : 400 V 50 Hz 4P IE3

Rated current : 41.6 A  
 LRC : 5.8  
 Rated torque : 107 ft.lb  
 Locked rotor torque : 250 %  
 Breakdown torque : 290 %  
 Rated speed : 1470 rpm

Moment of inertia (J) : 9.16 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
 Design : B

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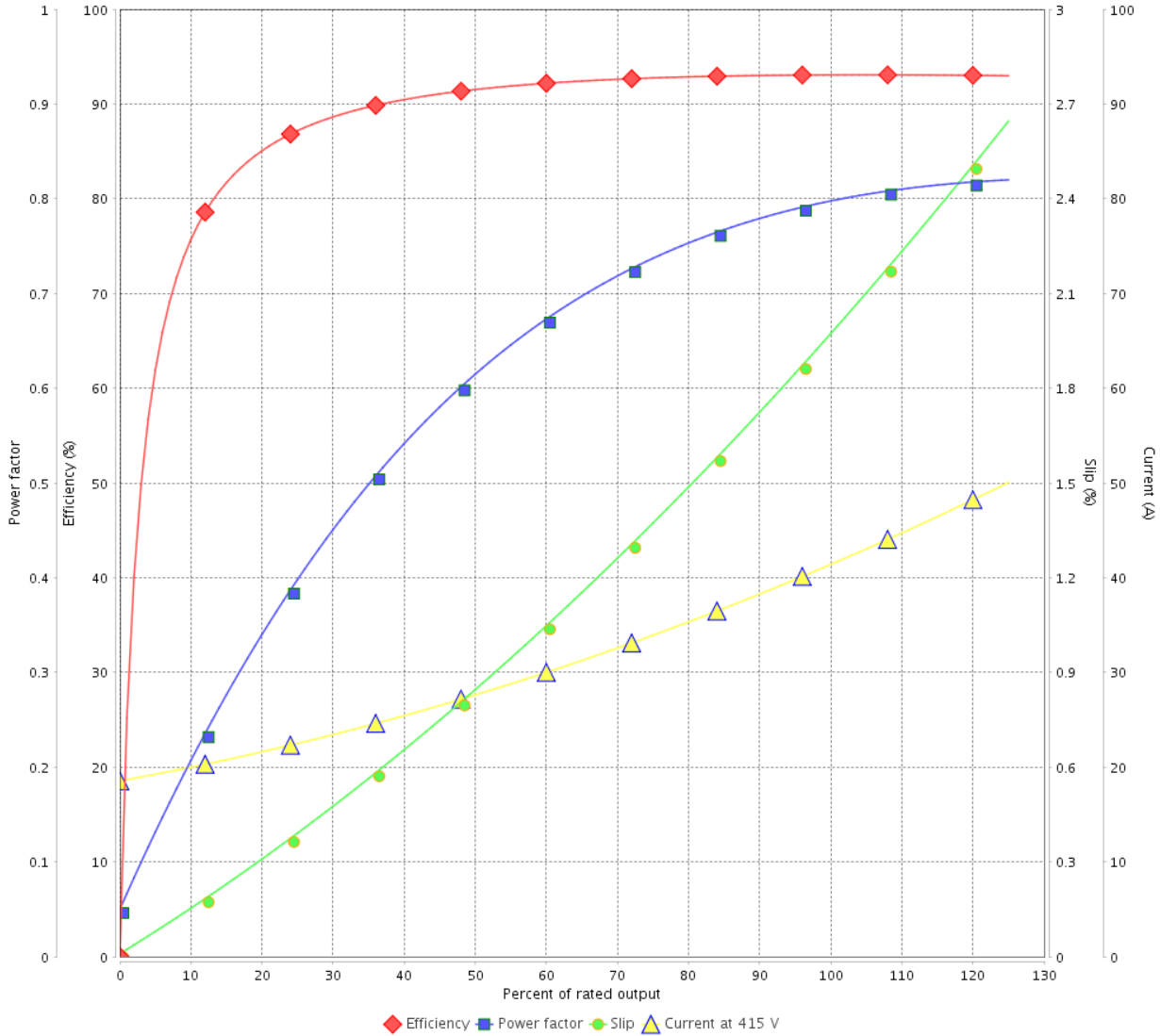
Customer :

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LOAD PERFORMANCE CURVE



Performance : 415 V 50 Hz 4P IE3

Rated current : 41.1 A  
 LRC : 6.2  
 Rated torque : 107 ft.lb  
 Locked rotor torque : 280 %  
 Breakdown torque : 310 %  
 Rated speed : 1470 rpm

Moment of inertia (J) : 9.16 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
 Design : B

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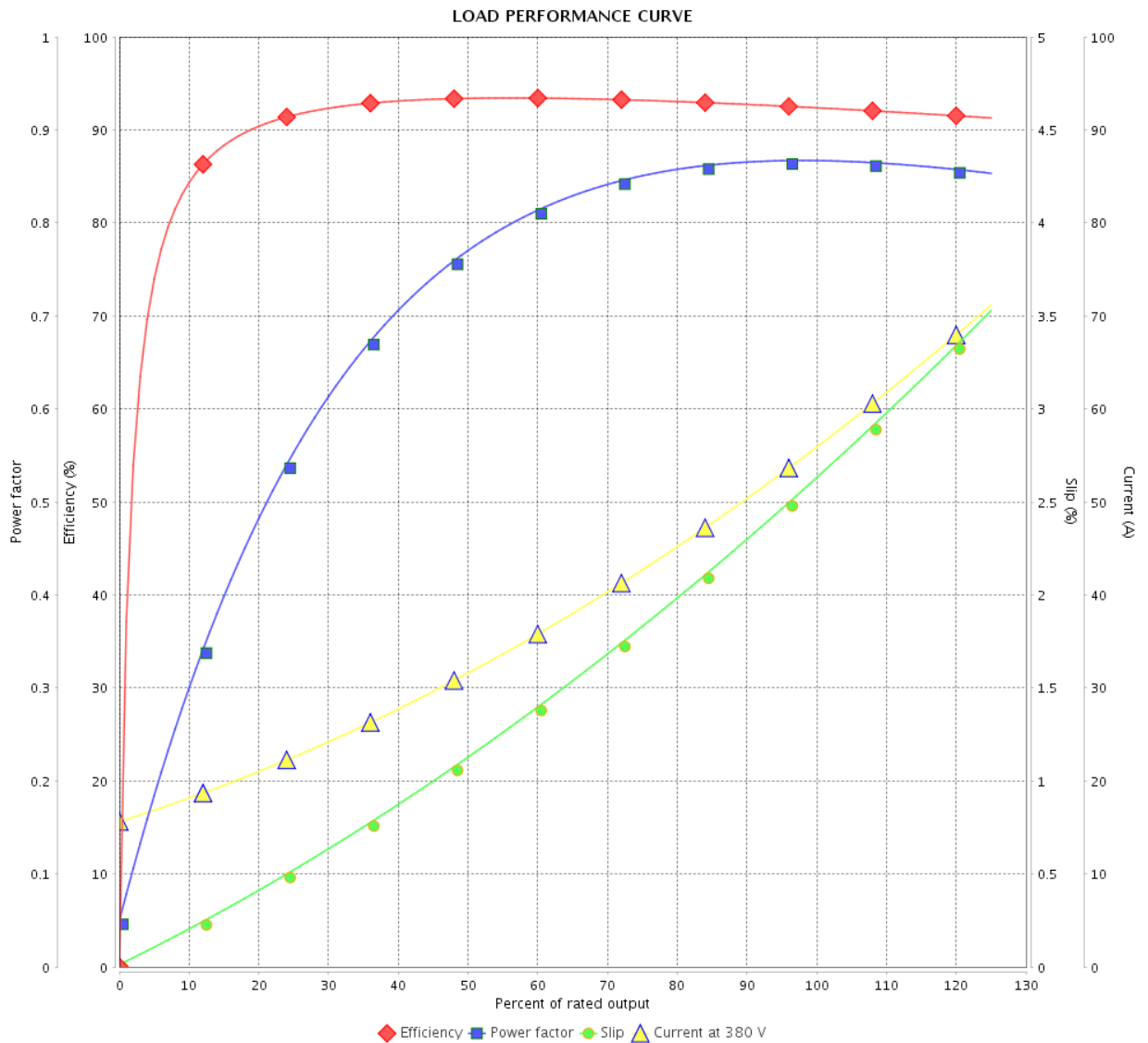


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Product line : NEMA Premium Efficiency Three-Phase

Product code : 11431957

Catalog # : 04018ST3QIE324TC-W2S



Performance : 380 V 50 Hz 4P IE2

Rated current : 56.7 A  
 LRC : 3.9  
 Rated torque : 144 ft.lb  
 Locked rotor torque : 170 %  
 Breakdown torque : 180 %  
 Rated speed : 1460 rpm

Moment of inertia (J) : 9.16 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 105 K  
 Design : B

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Three Phase Induction Motor - Squirrel Cage



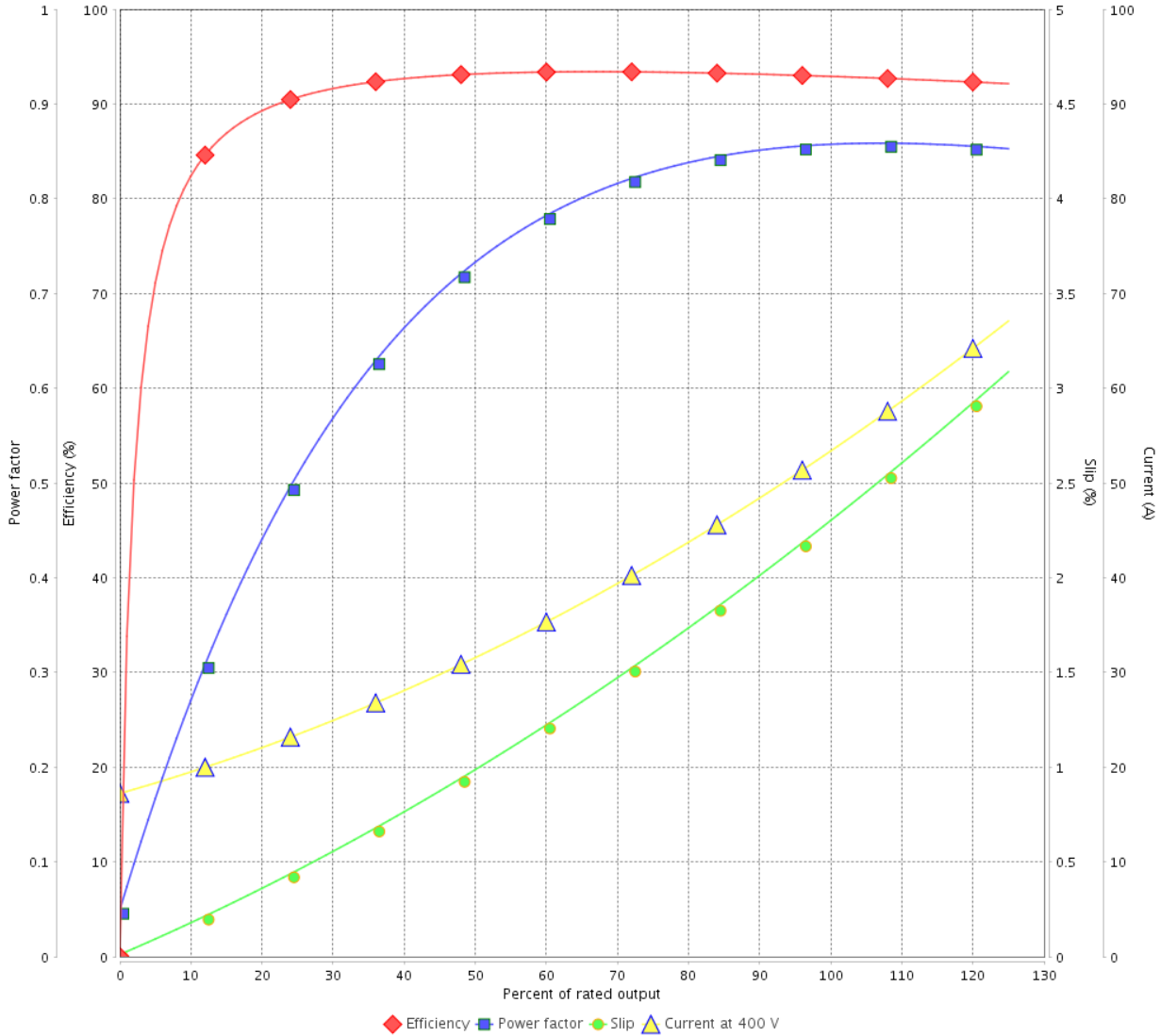
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LOAD PERFORMANCE CURVE



Performance : 400 V 50 Hz 4P IE2

Rated current : 54.1 A  
 LRC : 4.5  
 Rated torque : 143 ft.lb  
 Locked rotor torque : 190 %  
 Breakdown torque : 210 %  
 Rated speed : 1465 rpm

Moment of inertia (J) : 9.16 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 105 K  
 Design : B

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## Three Phase Induction Motor - Squirrel Cage

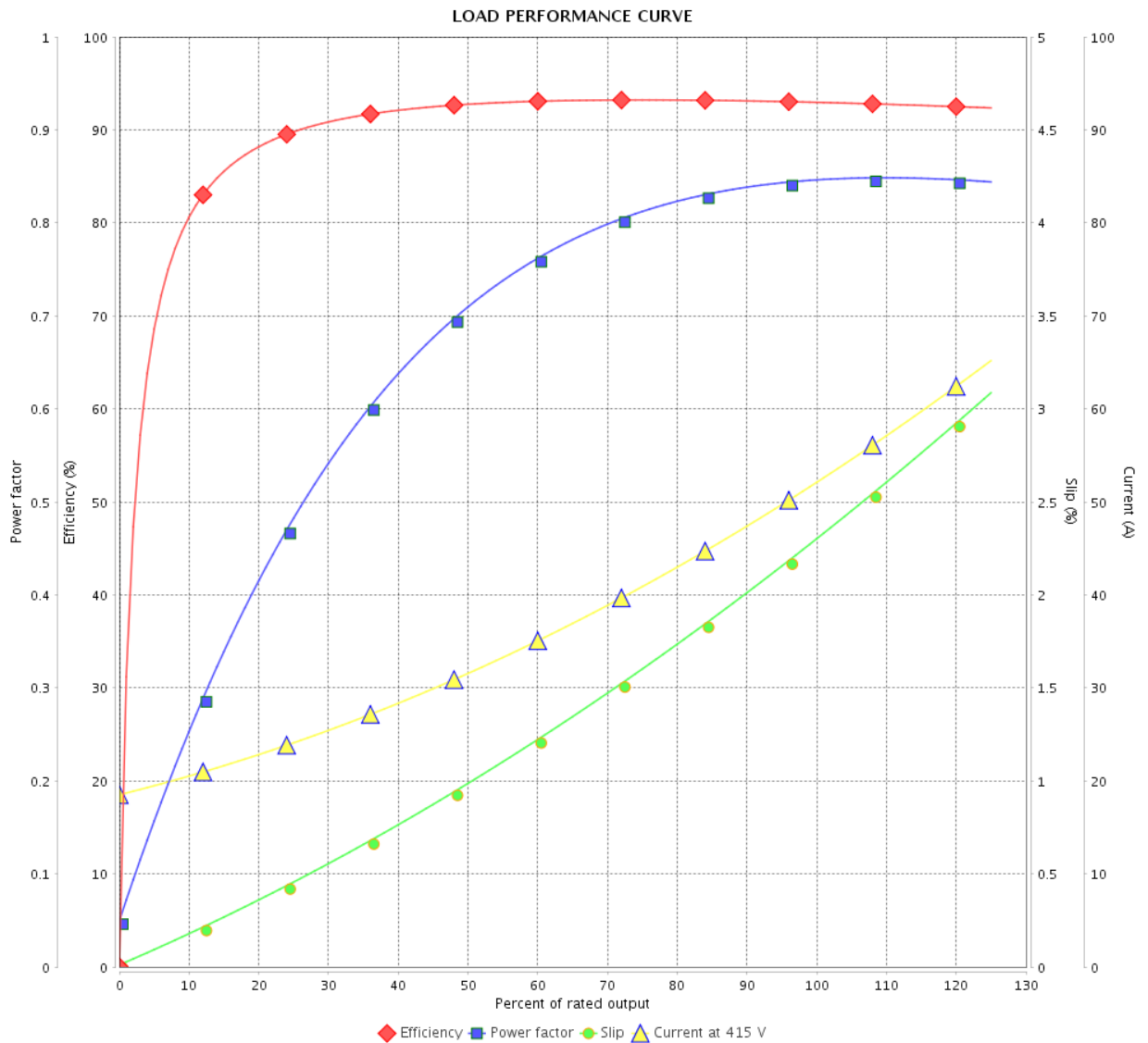


Customer : \_\_\_\_\_

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Catalog # : 04018ST3QIE324TC-W2S



Performance : 415 V 50 Hz 4P IE2

Rated current : 52.8 A  
 LRC : 4.9  
 Rated torque : 143 ft.lb  
 Locked rotor torque : 210 %  
 Breakdown torque : 229 %  
 Rated speed : 1465 rpm

Moment of inertia (J) : 9.16 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
 Design : B

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# THERMAL LIMIT CURVE



## Three Phase Induction Motor - Squirrel Cage

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Performance : 460 V 60 Hz 4P

Rated current	: 47.1 A	Moment of inertia (J)	: 9.16 sq.ft.lb
LRC	: 6.1	Duty cycle	: Cont.(S1)
Rated torque	: 119 ft.lb	Insulation class	: F
Locked rotor torque	: 220 %	Service factor	: 1.25
Breakdown torque	: 240 %	Temperature rise	: 80 K
Rated speed	: 1770 rpm	Design	: B

Heating constant

Cooling constant

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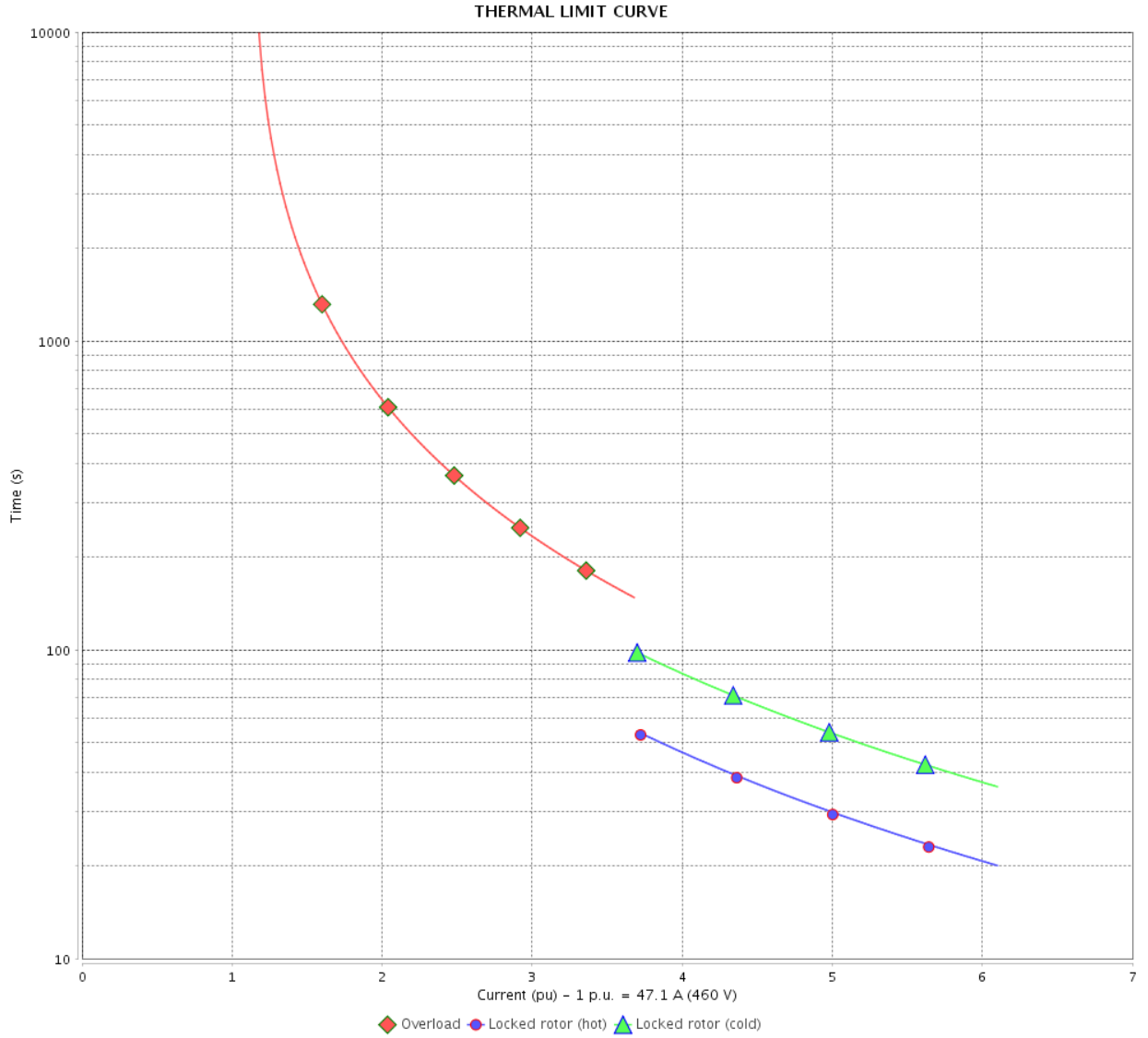


# THERMAL LIMIT CURVE

Three Phase Induction Motor - Squirrel Cage



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



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# THERMAL LIMIT CURVE



## Three Phase Induction Motor - Squirrel Cage

Customer :

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Performance : 380 V 50 Hz 4P IE3

Rated current : 42.8 A	Moment of inertia (J) : 9.16 sq.ft.lb
LRC : 5.1	Duty cycle : Cont.(S1)
Rated torque : 107 ft.lb	Insulation class : F
Locked rotor torque : 229 %	Service factor : 1.00
Breakdown torque : 250 %	Temperature rise : 80 K
Rated speed : 1470 rpm	Design : B

Heating constant

Cooling constant

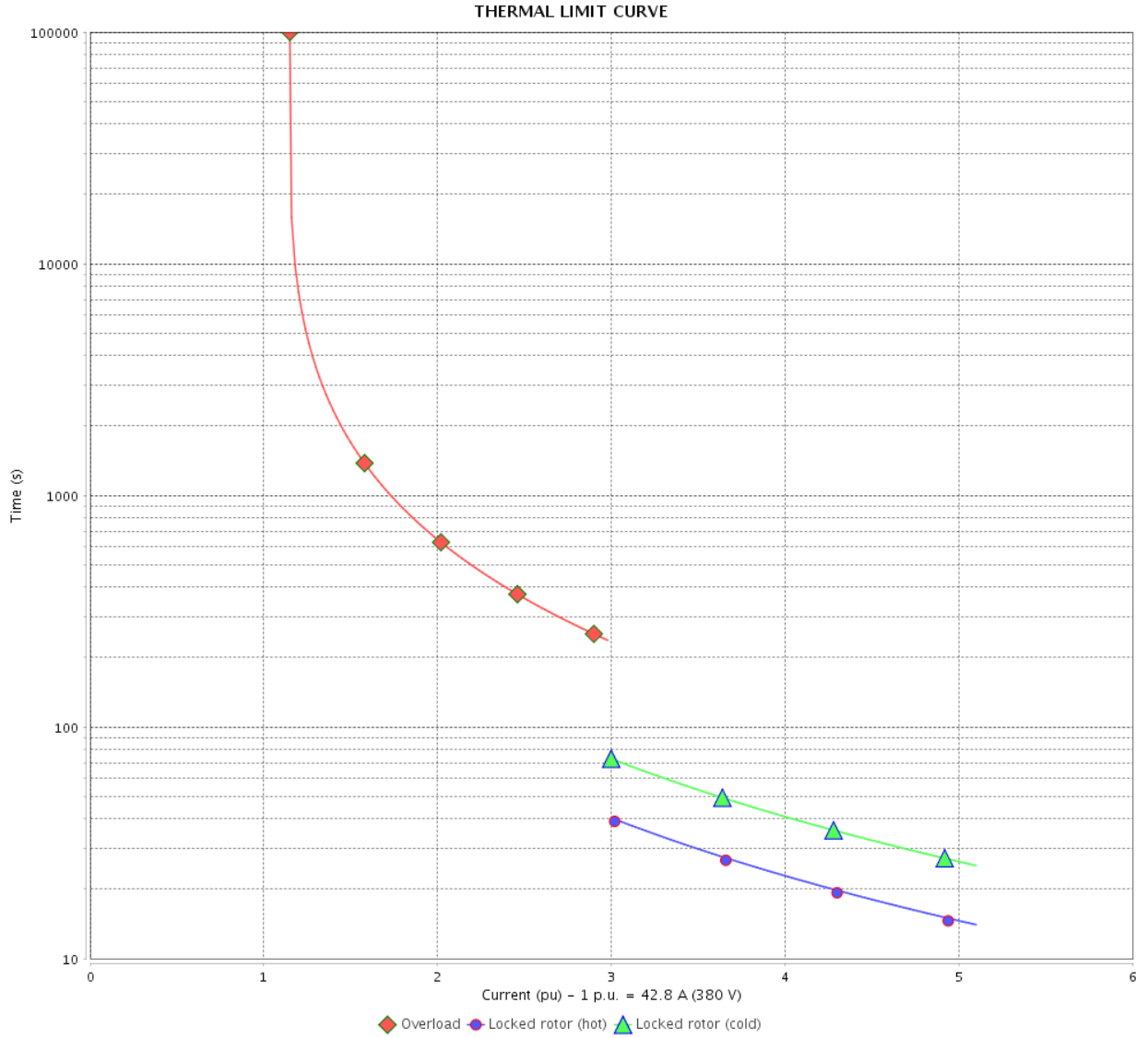
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Three Phase Induction Motor - Squirrel Cage



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



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Rated torque	: 107 ft.lb	Insulation class	: F
Locked rotor torque	: 250 %	Service factor	: 1.00
Breakdown torque	: 290 %	Temperature rise	: 80 K
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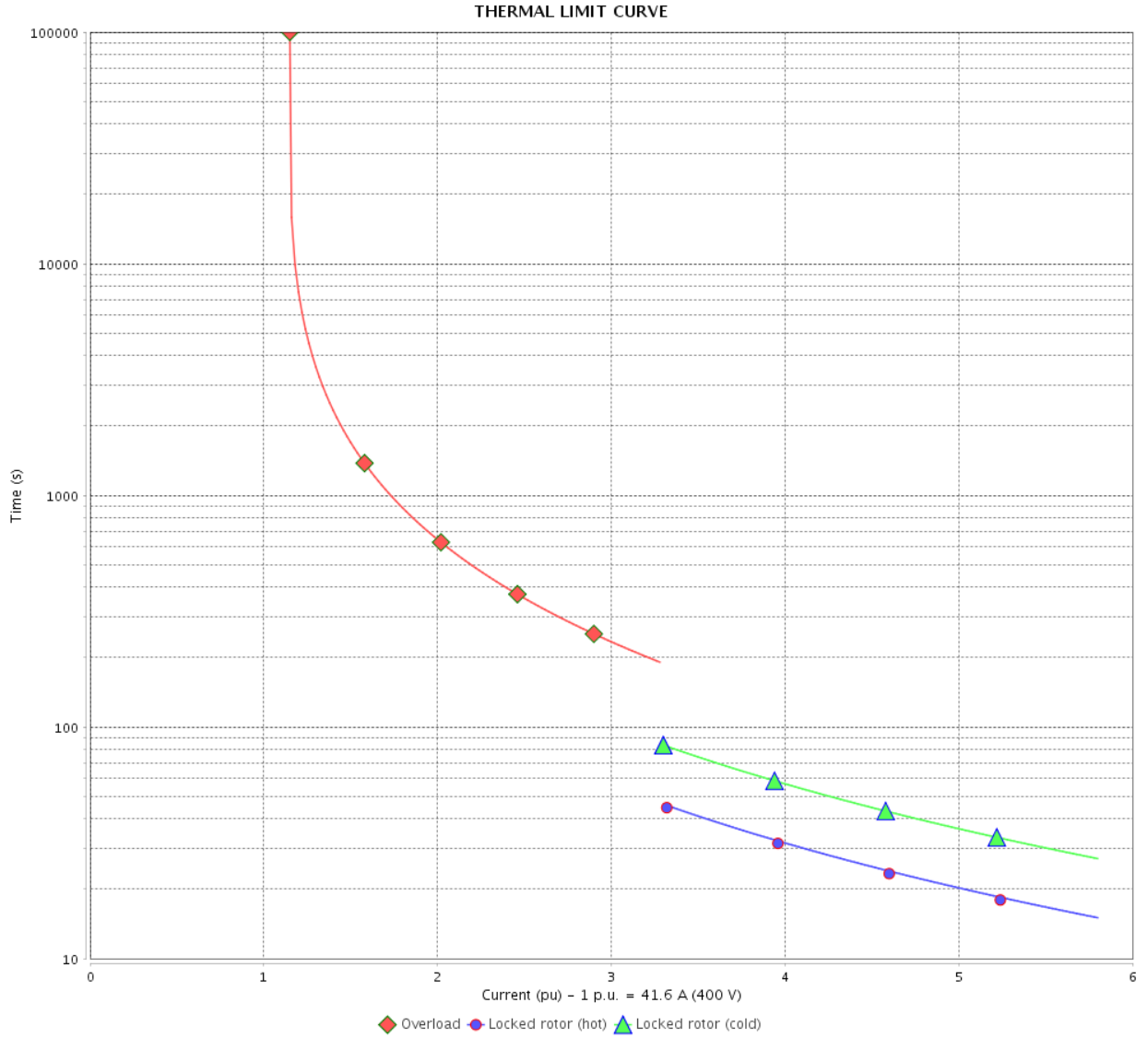
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# THERMAL LIMIT CURVE

Three Phase Induction Motor - Squirrel Cage



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LRC	: 6.2	Duty cycle	: Cont.(S1)
Rated torque	: 107 ft.lb	Insulation class	: F
Locked rotor torque	: 280 %	Service factor	: 1.00
Breakdown torque	: 310 %	Temperature rise	: 80 K
Rated speed	: 1470 rpm	Design	: B

Heating constant

Cooling constant

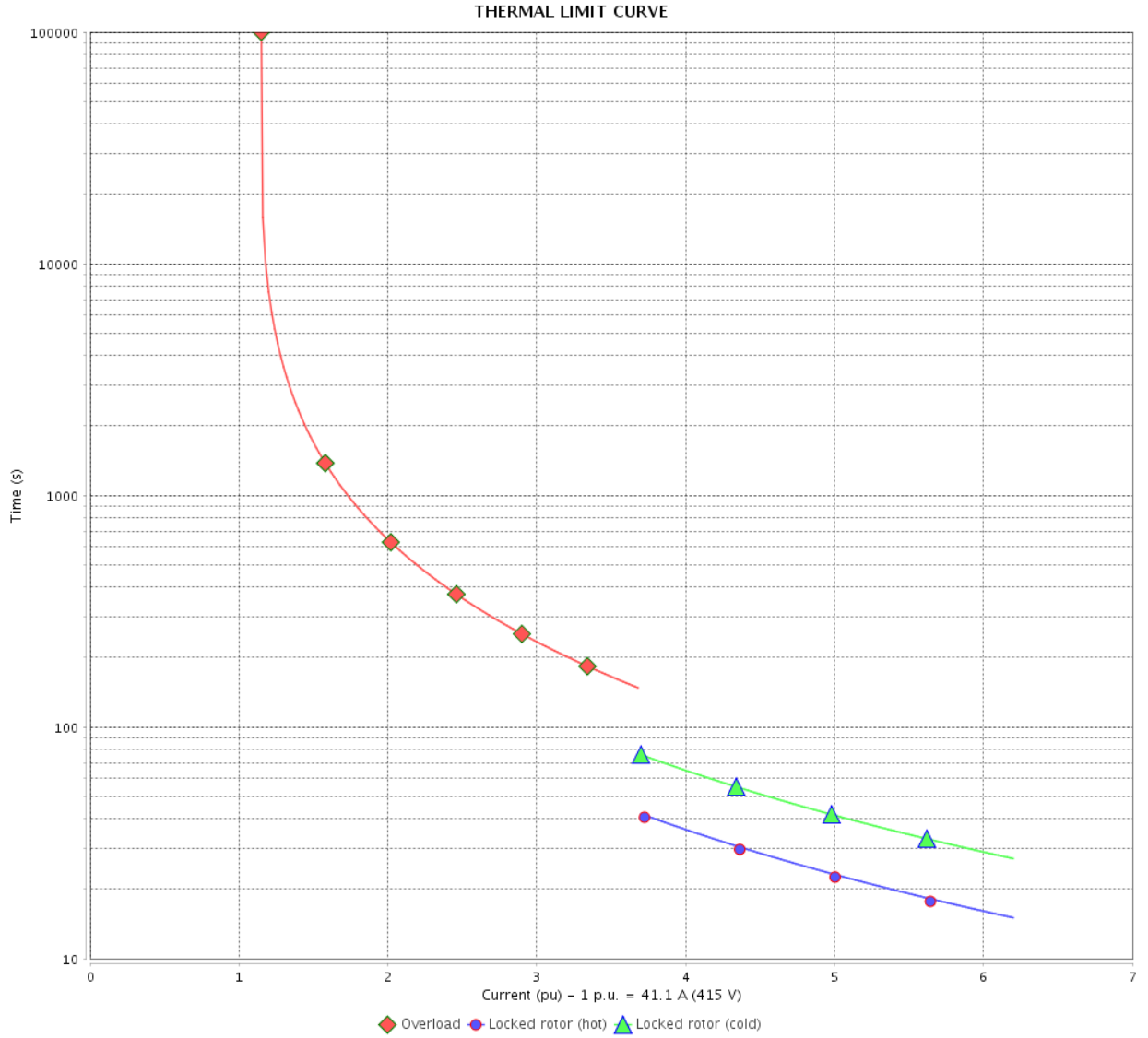
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Cooling constant

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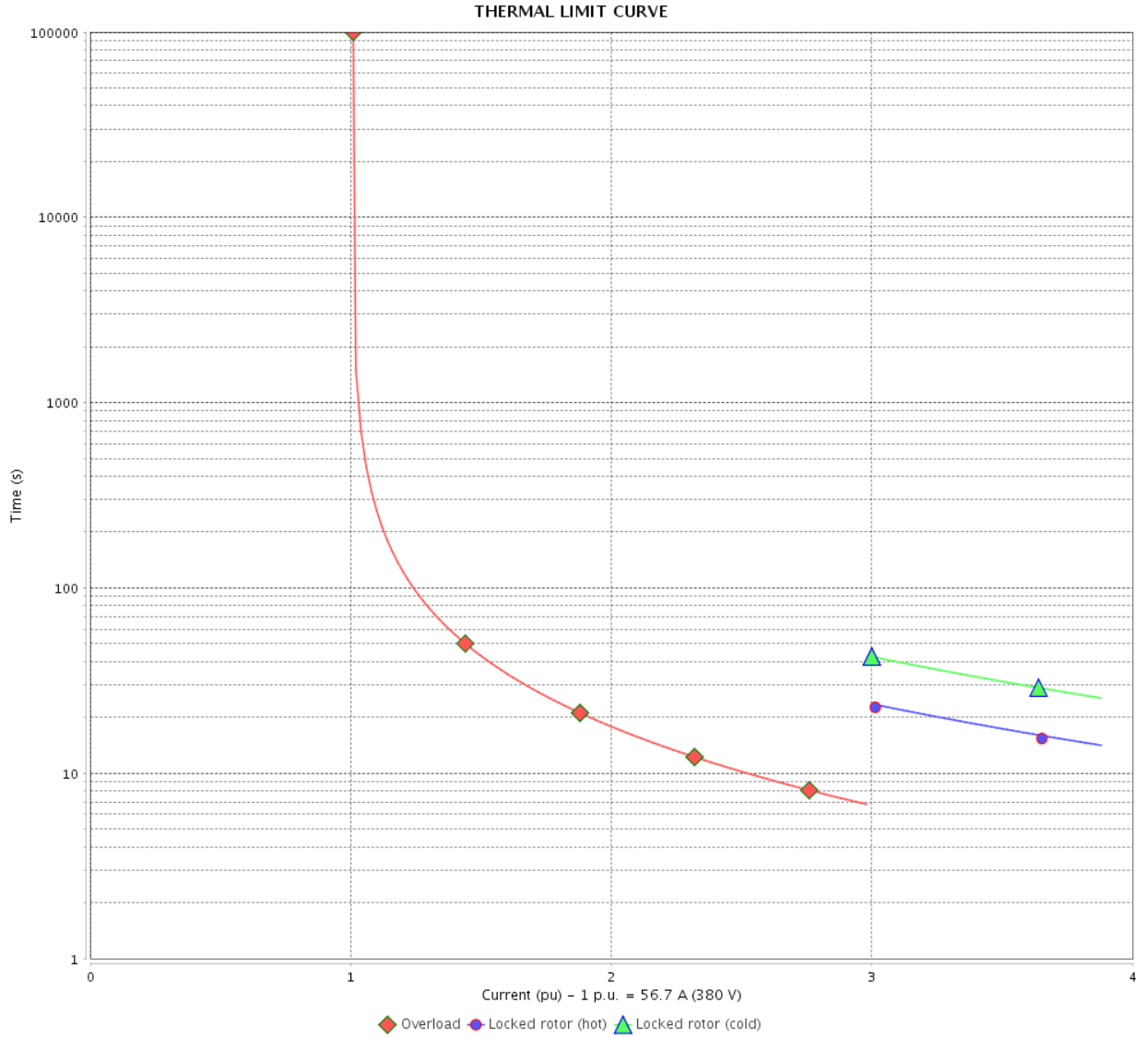


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# THERMAL LIMIT CURVE

## Three Phase Induction Motor - Squirrel Cage



Customer :

Product line : NEMA Premium Efficiency Three-Phase  
Product code : 11431957  
Catalog # : 04018ST3QIE324TC-W2S

Performance : 400 V 50 Hz 4P IE2

Rated current	: 54.1 A	Moment of inertia (J)	: 9.16 sq.ft.lb
LRC	: 4.5	Duty cycle	: Cont.(S1)
Rated torque	: 143 ft.lb	Insulation class	: F
Locked rotor torque	: 190 %	Service factor	: 1.00
Breakdown torque	: 210 %	Temperature rise	: 105 K
Rated speed	: 1465 rpm	Design	: B

Heating constant

Cooling constant

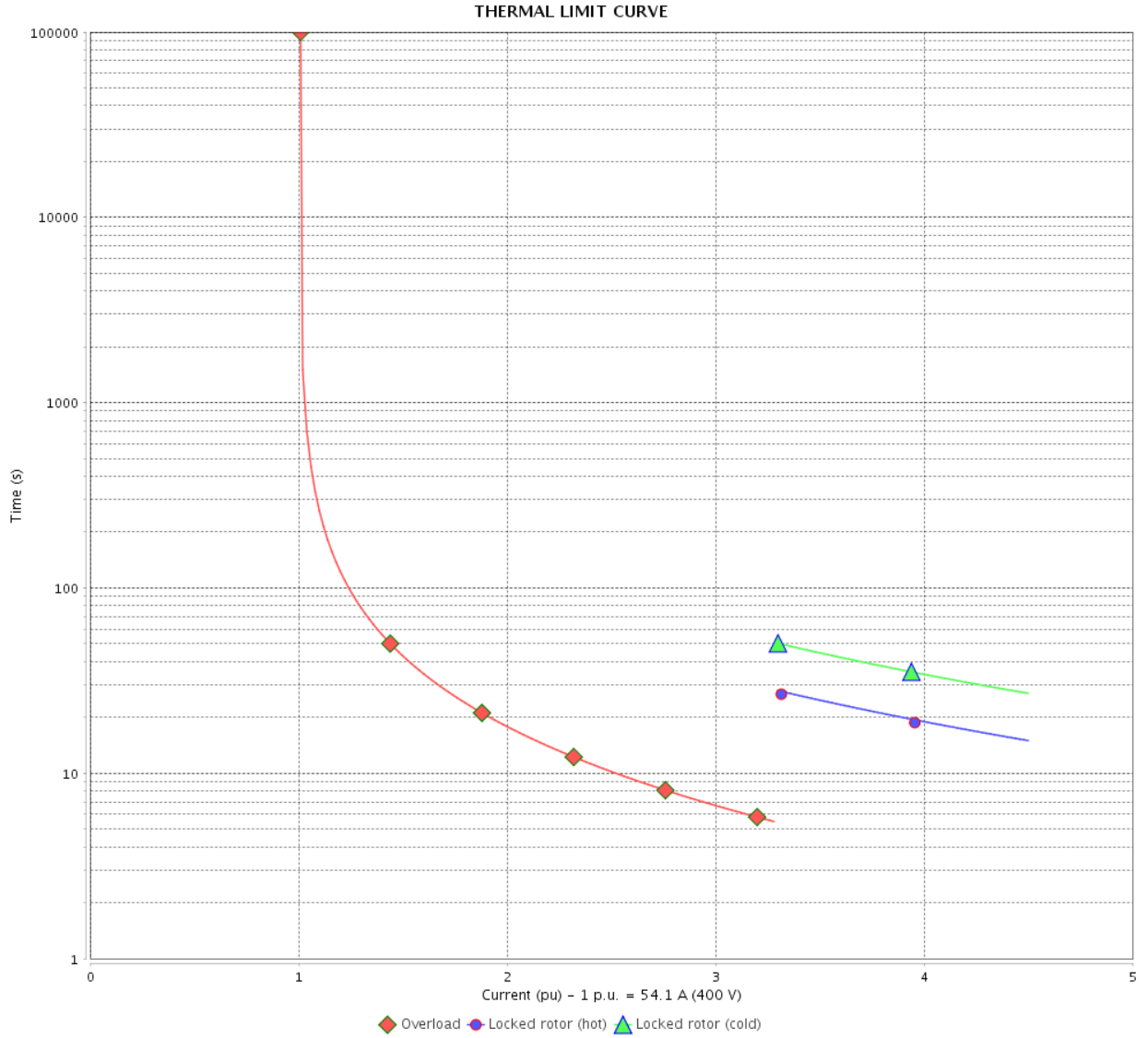
Rev.	Changes Summary	Performed	Checked	Date
Performed by				
Checked by			Page	Revision
Date	01/06/2022		26 / 36	

# THERMAL LIMIT CURVE

Three Phase Induction Motor - Squirrel Cage



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



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Date		01/06/2022		

# THERMAL LIMIT CURVE



## Three Phase Induction Motor - Squirrel Cage

Customer :

Product line : NEMA Premium Efficiency Three-Phase  
 Product code : 11431957  
 Catalog # : 04018ST3QIE324TC-W2S

Performance : 415 V 50 Hz 4P IE2

Rated current : 52.8 A	Moment of inertia (J) : 9.16 sq.ft.lb
LRC : 4.9	Duty cycle : Cont.(S1)
Rated torque : 143 ft.lb	Insulation class : F
Locked rotor torque : 210 %	Service factor : 1.00
Breakdown torque : 229 %	Temperature rise : 80 K
Rated speed : 1465 rpm	Design : B

Heating constant

Cooling constant

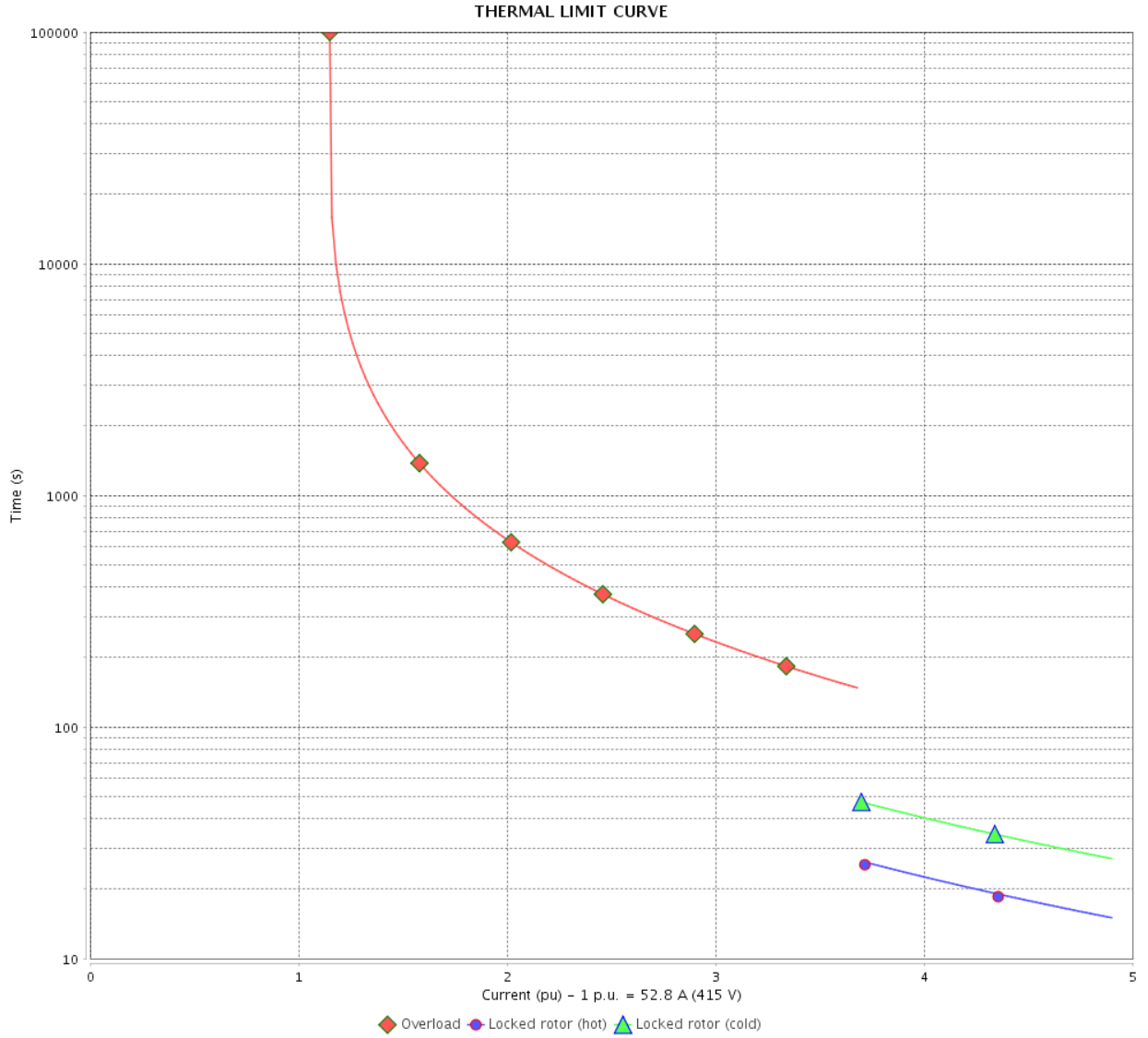
Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page 28 / 36	Revision
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Date	01/06/2022			

# THERMAL LIMIT CURVE

Three Phase Induction Motor - Squirrel Cage



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



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Performed by				
Checked by				
Date				
		Page 29 / 36	Revision	

# VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage

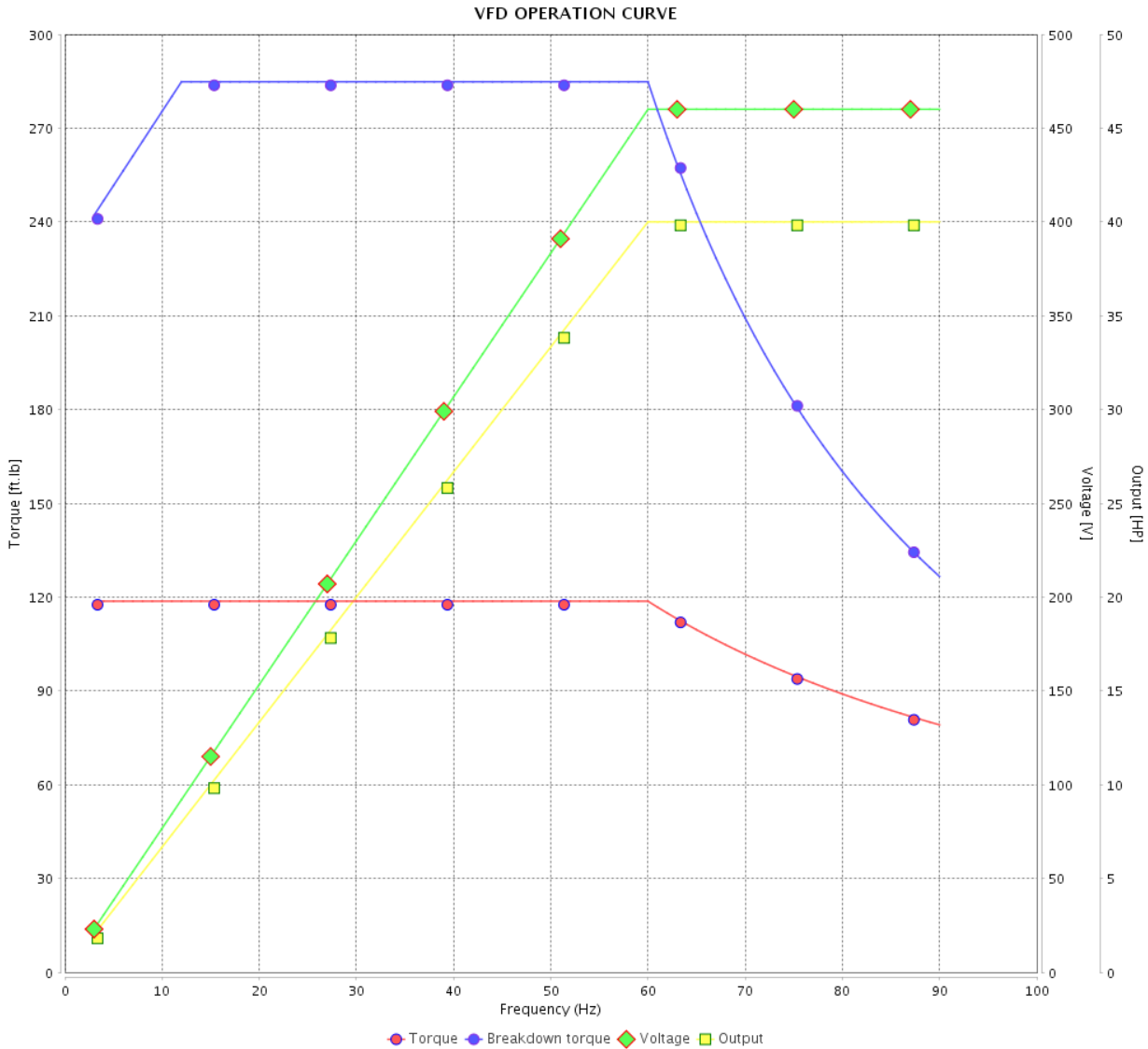


Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 11431957

Catalog # : 04018ST3QIE324TC-W2S



Performance : 460 V 60 Hz 4P

Rated current : 47.1 A  
 LRC : 6.1  
 Rated torque : 119 ft.lb  
 Locked rotor torque : 220 %  
 Breakdown torque : 240 %  
 Rated speed : 1770 rpm

Moment of inertia (J) : 9.16 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.25  
 Temperature rise : 80 K  
 Design : B

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Date	01/06/2022			

# VFD OPERATION CURVE

## Three Phase Induction Motor - Squirrel Cage

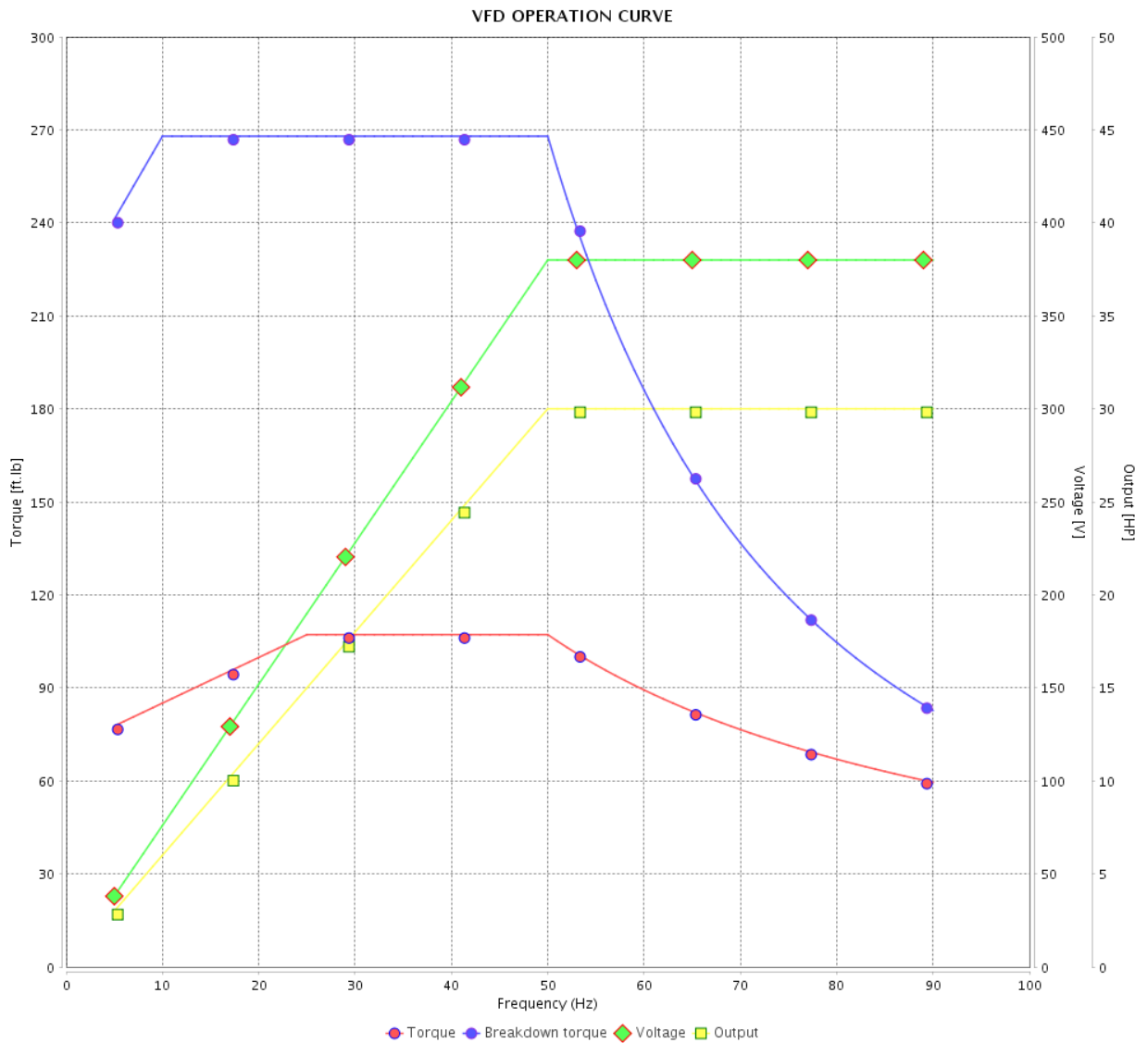


Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 11431957

Catalog # : 04018ST3QIE324TC-W2S



Performance : 380 V 50 Hz 4P IE3

Rated current : 42.8 A  
 LRC : 5.1  
 Rated torque : 107 ft.lb  
 Locked rotor torque : 229 %  
 Breakdown torque : 250 %  
 Rated speed : 1470 rpm

Moment of inertia (J) : 9.16 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
 Design : B

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Performed by			Page 31 / 36	Revision
Checked by				
Date	01/06/2022			

# VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage



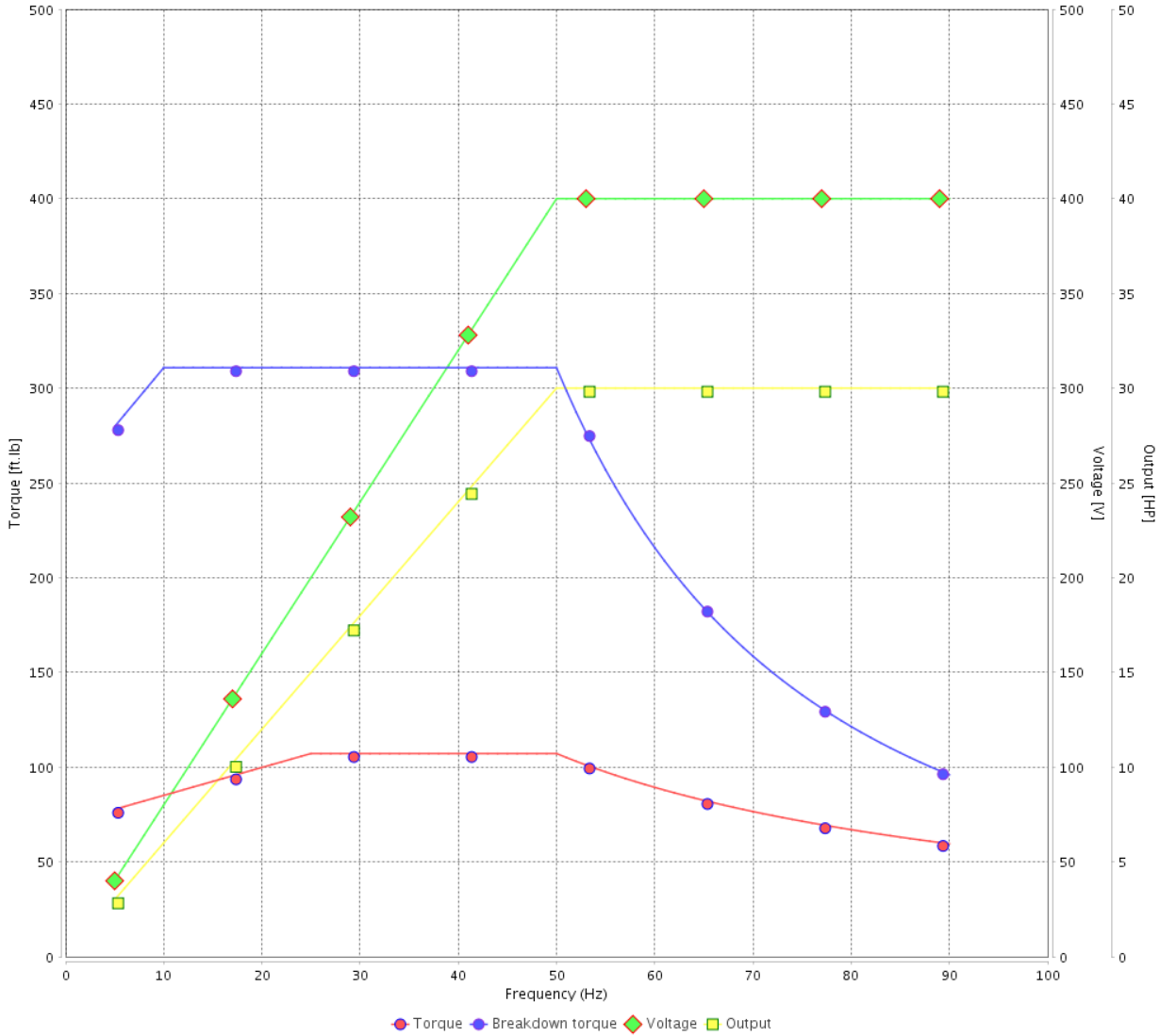
Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 11431957

Catalog # : 04018ST3QIE324TC-W2S

VFD OPERATION CURVE



Performance : 400 V 50 Hz 4P IE3

Rated current	: 41.6 A	Moment of inertia (J)	: 9.16 sq.ft.lb
LRC	: 5.8	Duty cycle	: Cont.(S1)
Rated torque	: 107 ft.lb	Insulation class	: F
Locked rotor torque	: 250 %	Service factor	: 1.00
Breakdown torque	: 290 %	Temperature rise	: 80 K
Rated speed	: 1470 rpm	Design	: B

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# VFD OPERATION CURVE

## Three Phase Induction Motor - Squirrel Cage

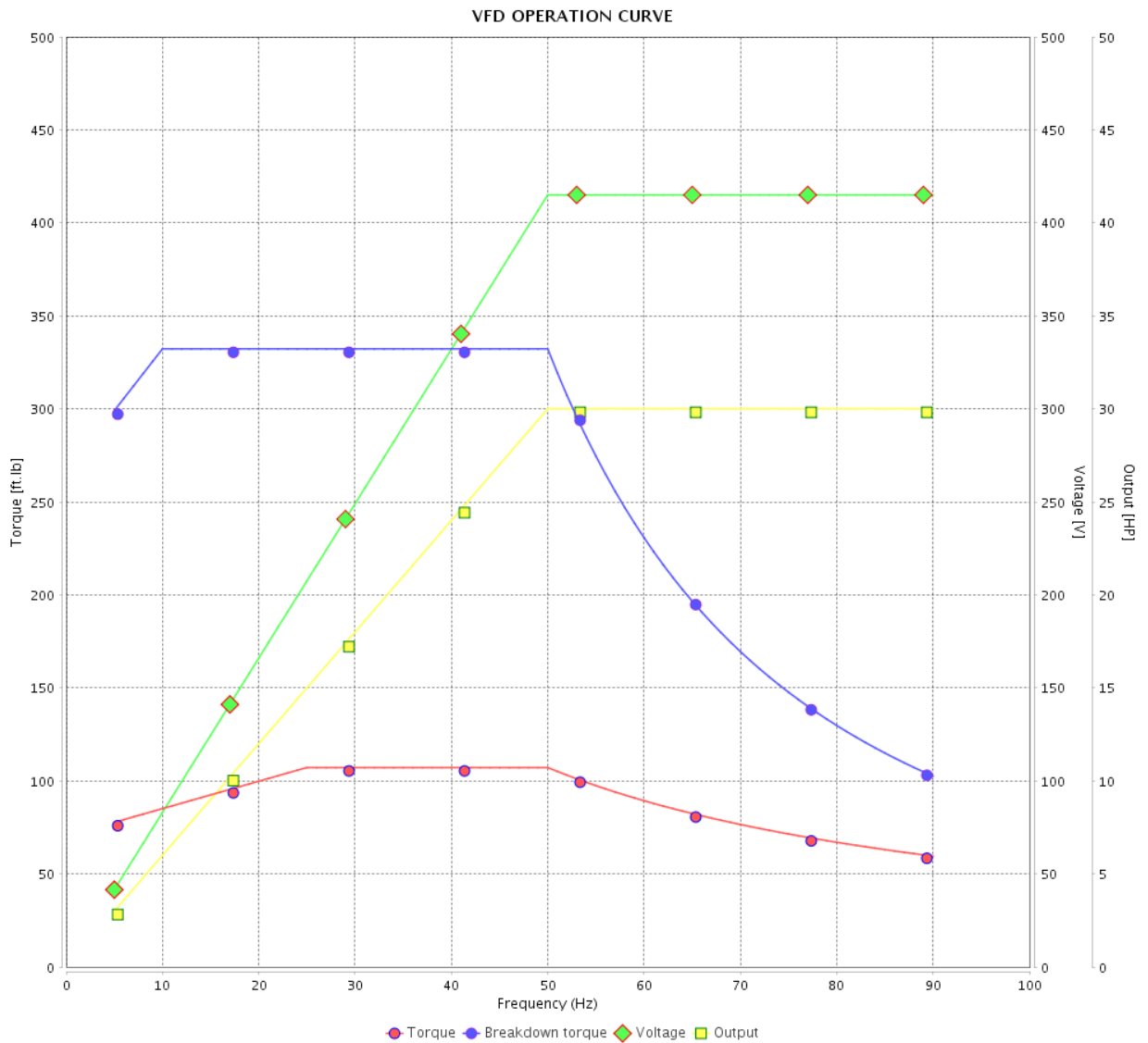


Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 11431957

Catalog # : 04018ST3QIE324TC-W2S



Performance : 415 V 50 Hz 4P IE3

Rated current : 41.1 A  
 LRC : 6.2  
 Rated torque : 107 ft.lb  
 Locked rotor torque : 280 %  
 Breakdown torque : 310 %  
 Rated speed : 1470 rpm

Moment of inertia (J) : 9.16 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
 Design : B

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				Revision

# VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage



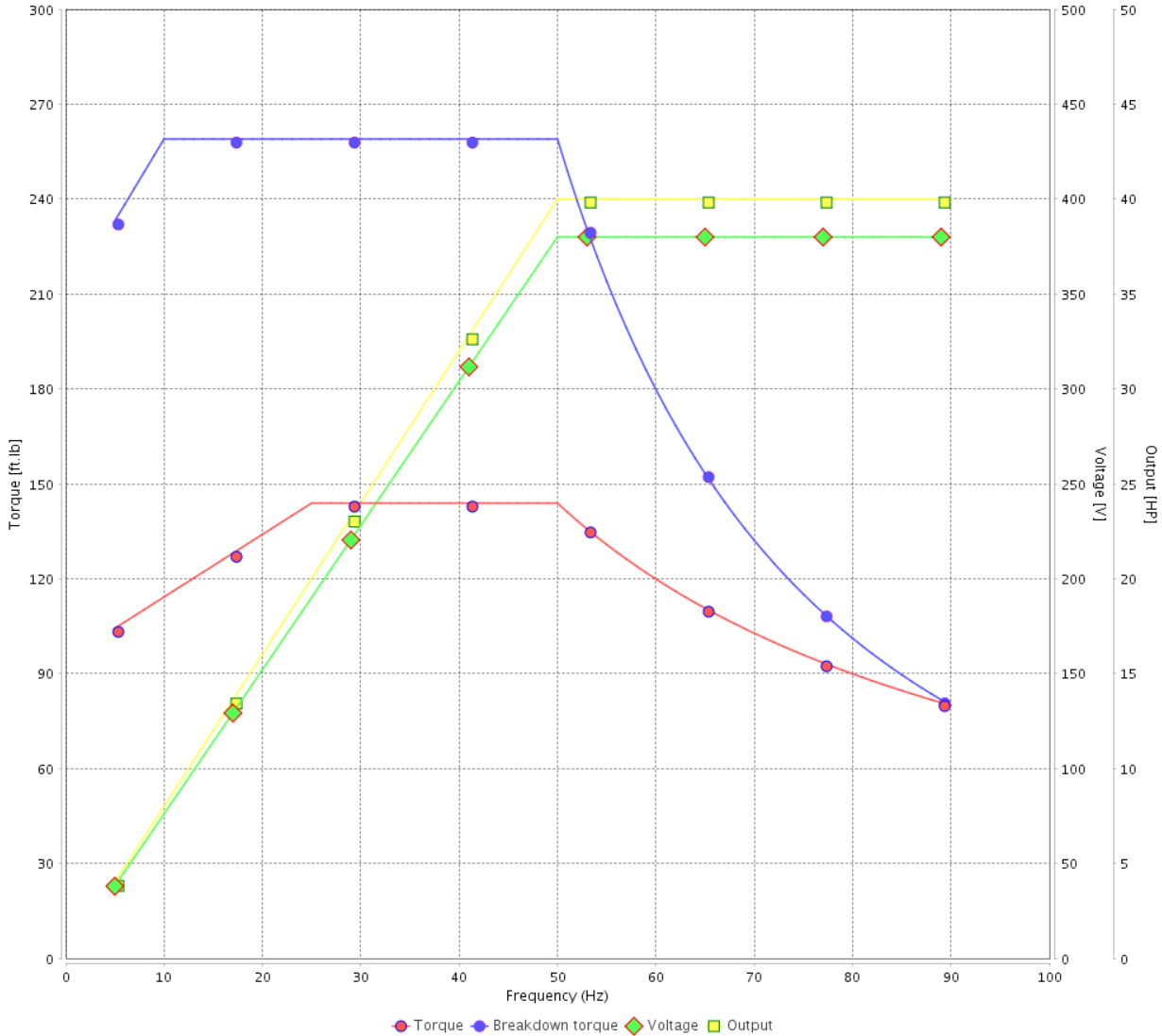
Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 11431957

Catalog # : 04018ST3QIE324TC-W2S

VFD OPERATION CURVE



Performance : 380 V 50 Hz 4P IE2

Rated current	: 56.7 A	Moment of inertia (J)	: 9.16 sq.ft.lb
LRC	: 3.9	Duty cycle	: Cont.(S1)
Rated torque	: 144 ft.lb	Insulation class	: F
Locked rotor torque	: 170 %	Service factor	: 1.00
Breakdown torque	: 180 %	Temperature rise	: 105 K
Rated speed	: 1460 rpm	Design	: B

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# VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage

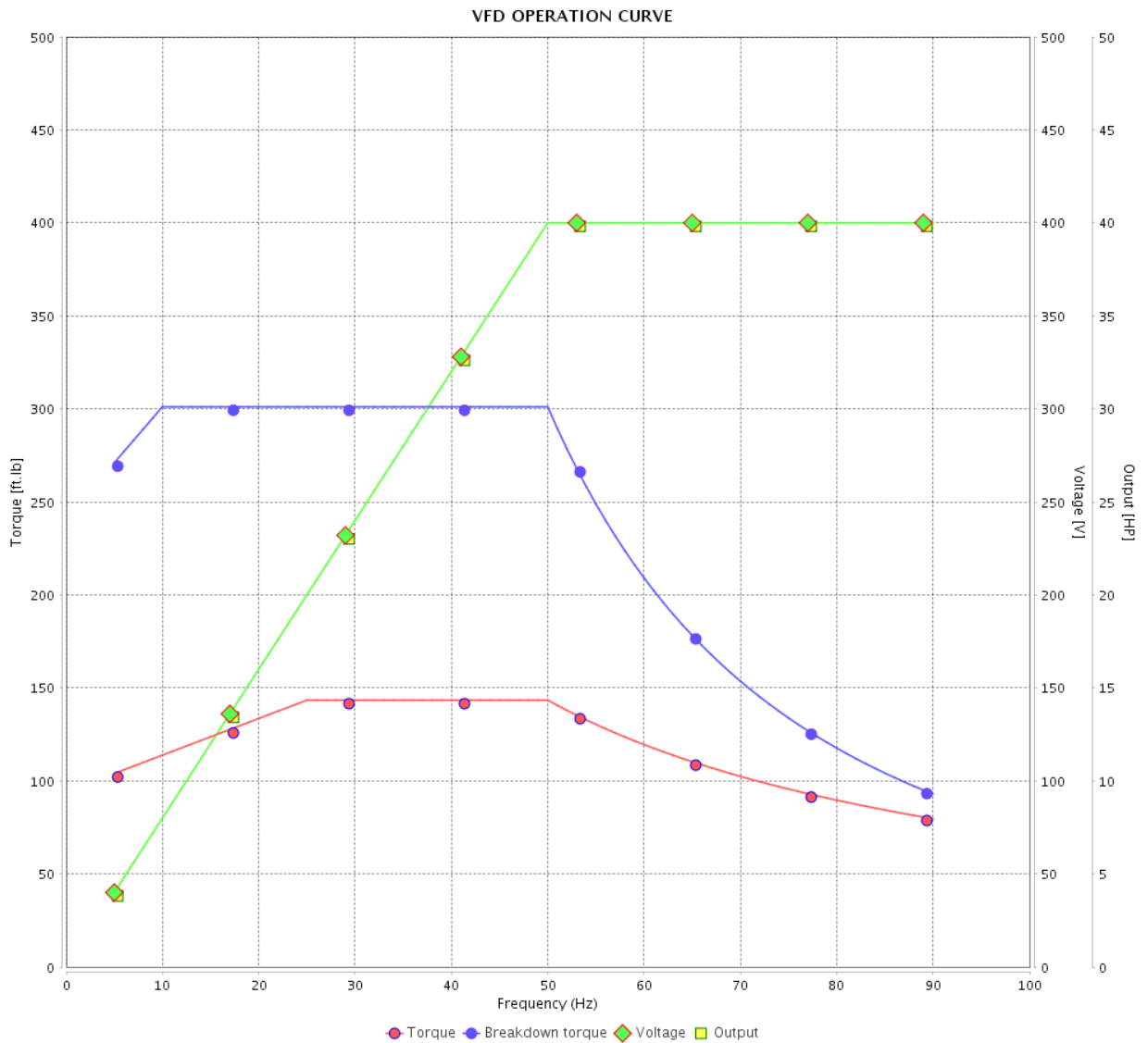


Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 11431957

Catalog # : 04018ST3QIE324TC-W2S



Performance : 400 V 50 Hz 4P IE2

Rated current : 54.1 A  
 LRC : 4.5  
 Rated torque : 143 ft.lb  
 Locked rotor torque : 190 %  
 Breakdown torque : 210 %  
 Rated speed : 1465 rpm

Moment of inertia (J) : 9.16 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 105 K  
 Design : B

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# VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage



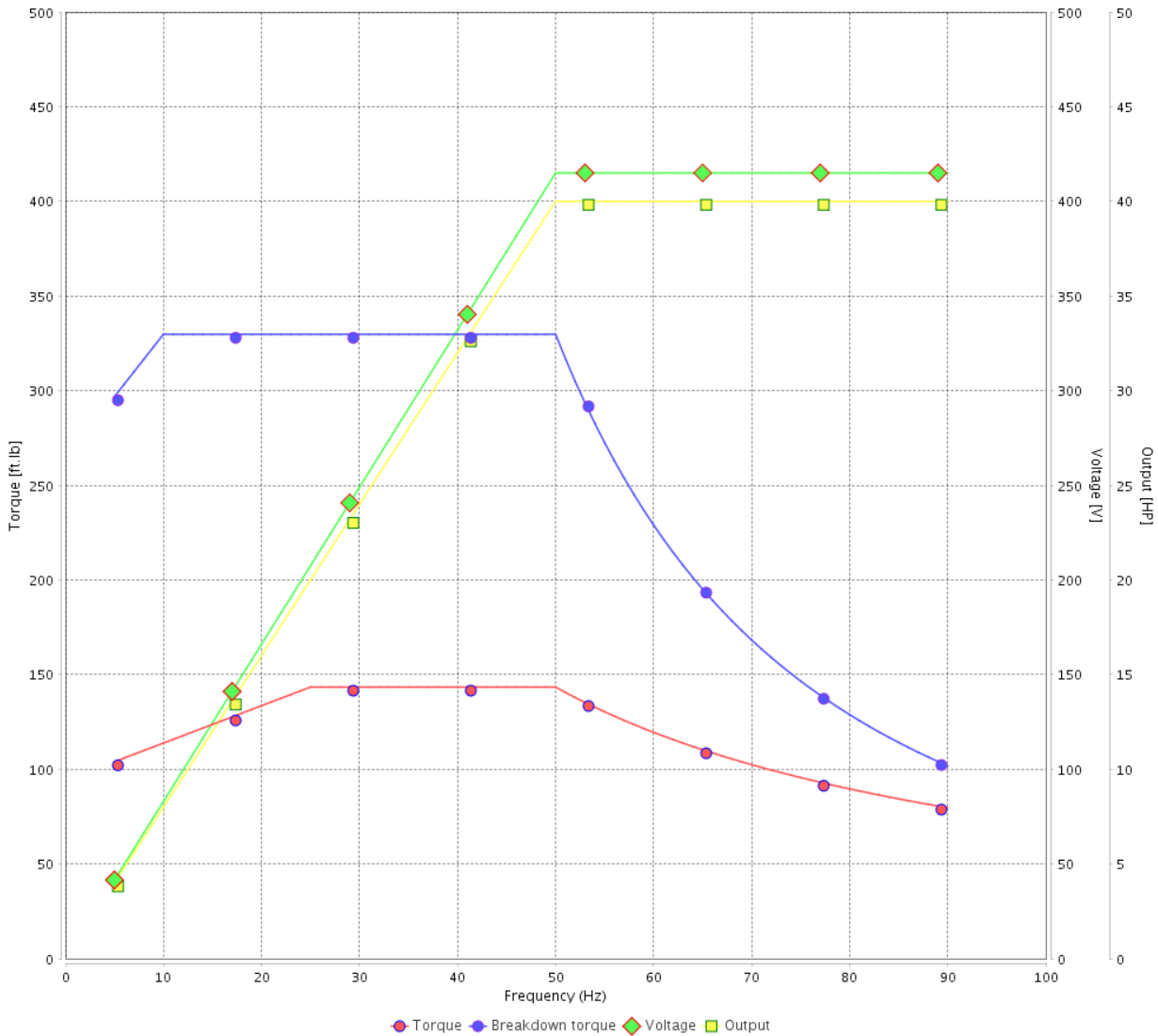
Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 11431957

Catalog # : 04018ST3QIE324TC-W2S

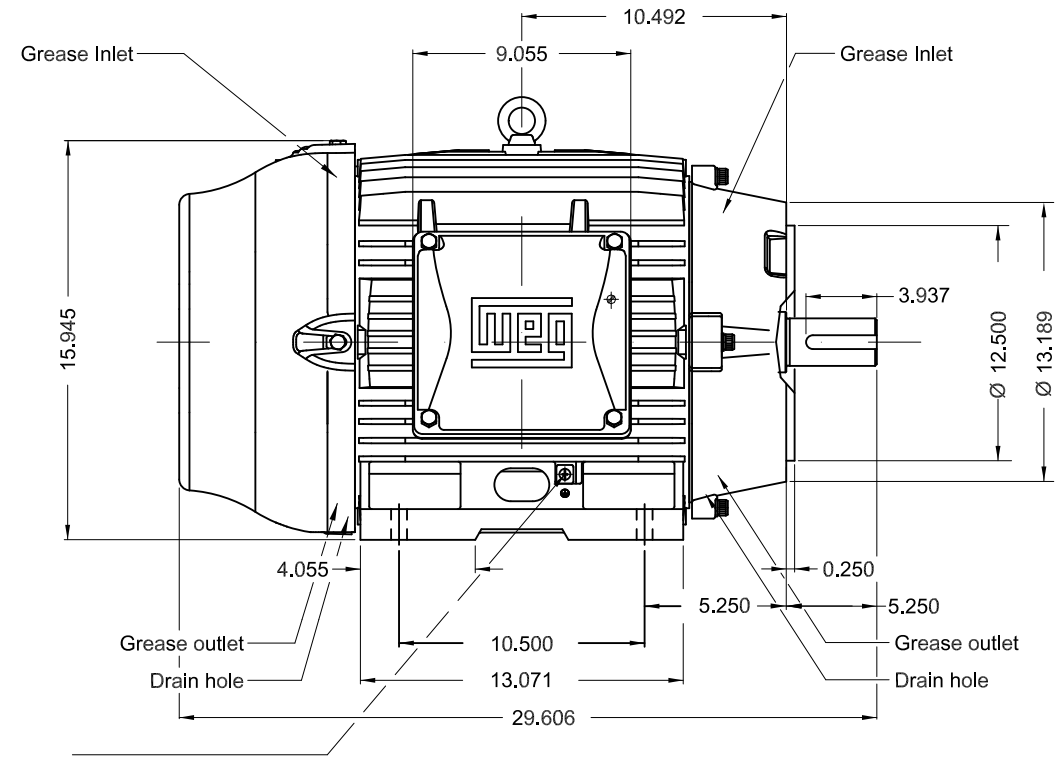
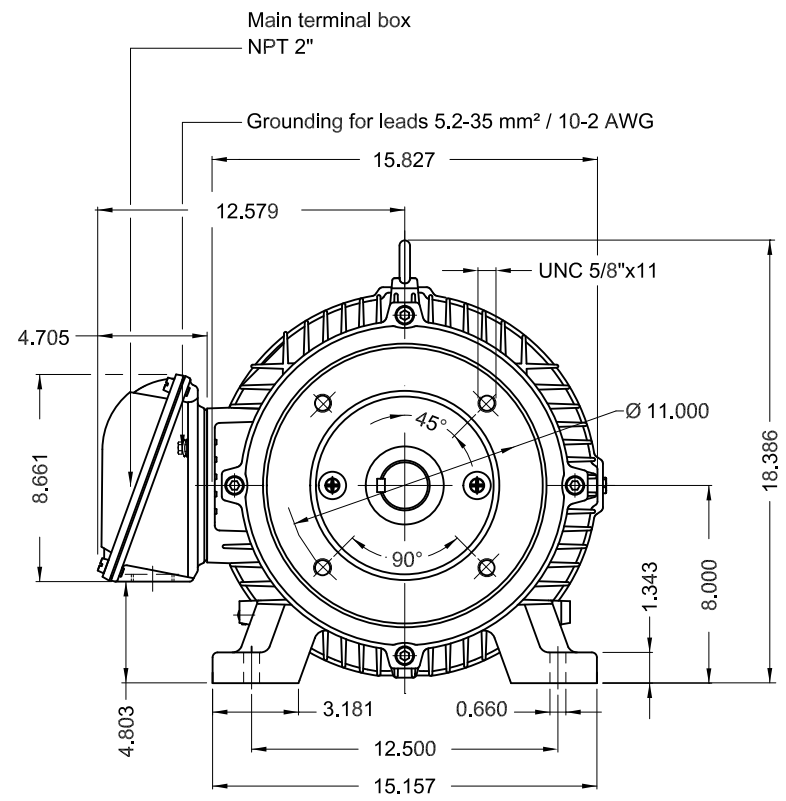
VFD OPERATION CURVE



Performance : 415 V 50 Hz 4P IE2

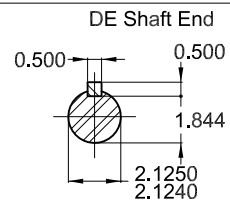
Rated current	: 52.8 A	Moment of inertia (J)	: 9.16 sq.ft.lb
LRC	: 4.9	Duty cycle	: Cont.(S1)
Rated torque	: 143 ft.lb	Insulation class	: F
Locked rotor torque	: 210 %	Service factor	: 1.00
Breakdown torque	: 229 %	Temperature rise	: 80 K
Rated speed	: 1465 rpm	Design	: B

Rev.	Changes Summary	Performed	Checked	Date
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Grounding for leads 5.2-35 mm² / 10-2 AWG

Without vertical jackscrews  
 Color RAL 5009  
 Painting plan 202E  
 Mounting B34R(D)



40 HP 04 Poles 60 Hz

ECM	LOC	SUMMARY OF MODIFICATIONS	EXECUTED	CHECKED	RELEASED	DATE	VER
EXECUTED	HYBRISUSER	THREE PH. MOTOR IEEE 841 W22 PREM. EFF.					
CHECKED		FRAME 324TC IP55 TEFC					
RELEASED							
REL DT.	WMO	Jaragua do Sul	Product Engineering				

**PREVIEW**  
 WDD



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