

DATA SHEET

Three Phase Induction Motor - Squirrel Cage



Customer								
Product line		: NEMA Premium Efficiency Three-Phase		Product code :		14325582		
				Catalog # :		05009ST3QIE404TC-W22		
Frame		: 404/5TC		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		: 1012 lb		
Protection degree		: IP55		Moment of inertia (J)		: 34.6 sq.ft.lb		
Design		: B						
Output [HP]	50	40	40	40	50	50	50	
Poles	8	8	8	8	8	8	8	
Frequency [Hz]	60	50	50	50	50	50	50	
Rated voltage [V]	460	380	400	415	380	400	415	
Rated current [A]	60.2	59.4	57.6	56.8	73.3	69.9	68.2	
L. R. Amperes [A]	433	404	420	443	403	419	443	
LRC [A]	7.2x(Code H)	6.8x(Code H)	7.3x(Code J)	7.8x(Code J)	5.5x(Code F)	6.0x(Code G)	6.5x(Code H)	
No load current [A]	22.5	22.5	24.0	25.5	22.5	24.0	25.5	
Rated speed [RPM]	880	730	733	735	720	725	725	
Slip [%]	2.22	2.67	2.27	2.00	4.00	3.33	3.33	
Rated torque [ft.lb]	298	288	287	286	365	362	362	
Locked rotor torque [%]	170	170	200	229	140	160	180	
Breakdown torque [%]	260	240	290	310	200	229	250	
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	105 K	
Locked rotor time	52s (cold)	57s (cold)	54s (cold)	50s (cold)	36s (cold)	37s (cold)	36s (cold)	
	29s (hot)	32s (hot)	30s (hot)	28s (hot)	20s (hot)	21s (hot)	20s (hot)	
Noise level ²	60.0 dB(A)	56.0 dB(A)	56.0 dB(A)	56.0 dB(A)	56.0 dB(A)	56.0 dB(A)	56.0 dB(A)	
Efficiency (%)	25%	92.8	93.7	92.0	92.0	93.5	92.8	92.8
	50%	93.0	92.9	91.8	91.8	92.4	92.4	92.4
	75%	93.0	92.3	92.2	92.2	91.7	91.7	91.7
	100%	93.0	91.3	91.7	91.8	90.2	91.0	91.0
Power Factor	25%	0.44	0.42	0.39	0.37	0.50	0.47	0.44
	50%	0.68	0.65	0.63	0.60	0.74	0.71	0.68
	75%	0.78	0.78	0.76	0.73	0.82	0.80	0.78
	100%	0.83	0.84	0.82	0.80	0.85	0.84	0.83
Bearing type		: <u>Drive end</u> 6316 C3 <u>Non drive end</u> 6314 C3		Foundation loads				
Sealing		: Inpro/Seal Inpro/Seal		Max. traction		: 2212 lb		
Lubrication interval		: 20000 h 20000 h		Max. compression		: 3224 lb		
Lubricant amount		: 34 g 27 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.				
Rev.	Changes Summary			Performed	Checked	Date		
Performed by								
Checked by					Page	Revision		
Date	12/04/2022				1 / 36			

TORQUE AND CURRENT VS SPEED CURVE

Three Phase Induction Motor - Squirrel Cage



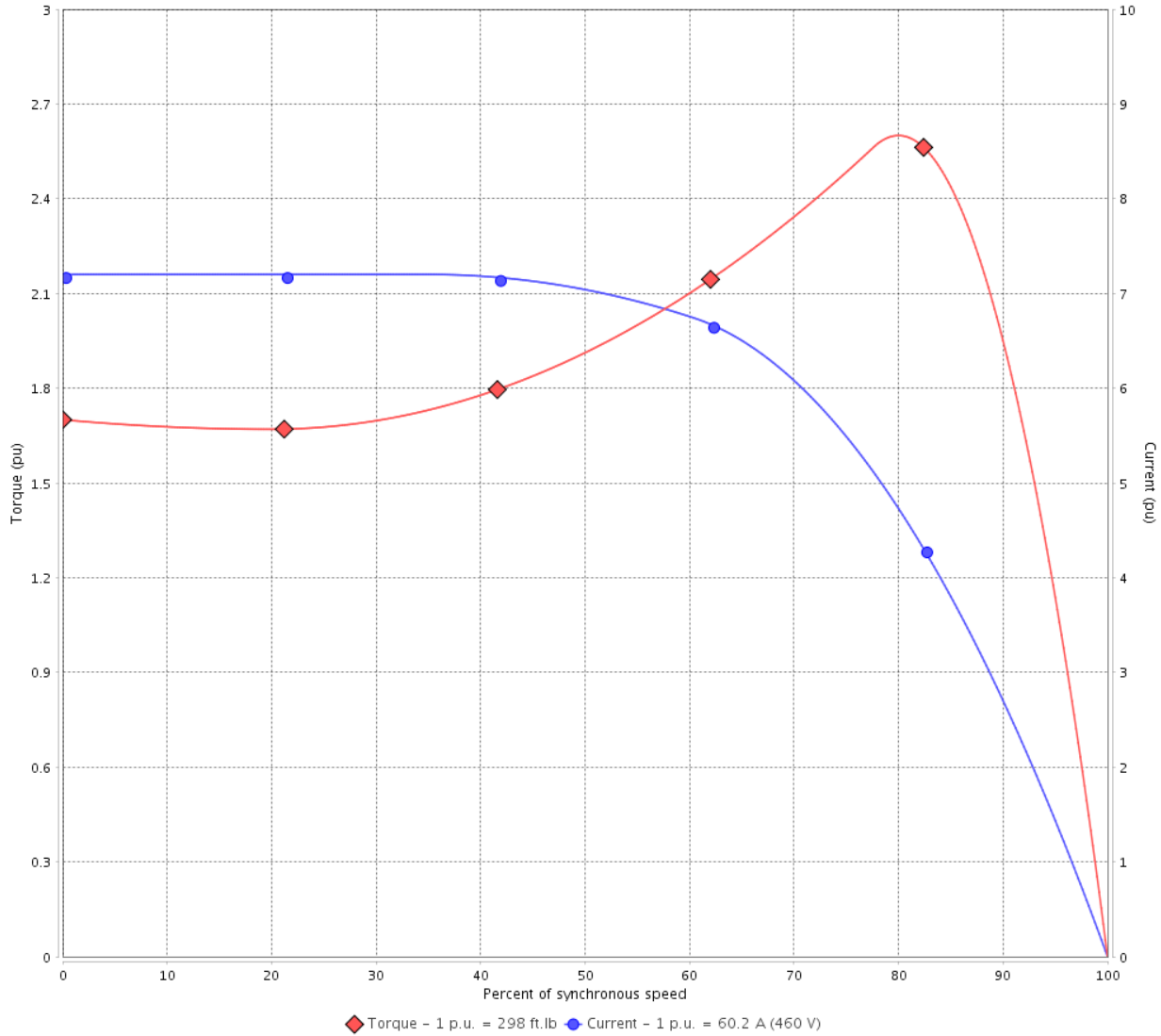
Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 14325582

Catalog # : 05009ST3QIE404TC-W22

TORQUE AND CURRENT VS SPEED CURVE



Performance : 460 V 60 Hz 8P

Rated current	: 60.2 A	Moment of inertia (J)	: 34.6 sq.ft.lb
LRC	: 7.2	Duty cycle	: Cont.(S1)
Rated torque	: 298 ft.lb	Insulation class	: F
Locked rotor torque	: 170 %	Service factor	: 1.25
Breakdown torque	: 260 %	Temperature rise	: 80 K
Rated speed	: 880 rpm	Design	: B

Locked rotor time : 52s (cold) 29s (hot)

Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page 2 / 36	Revision
Checked by				
Date	12/04/2022			

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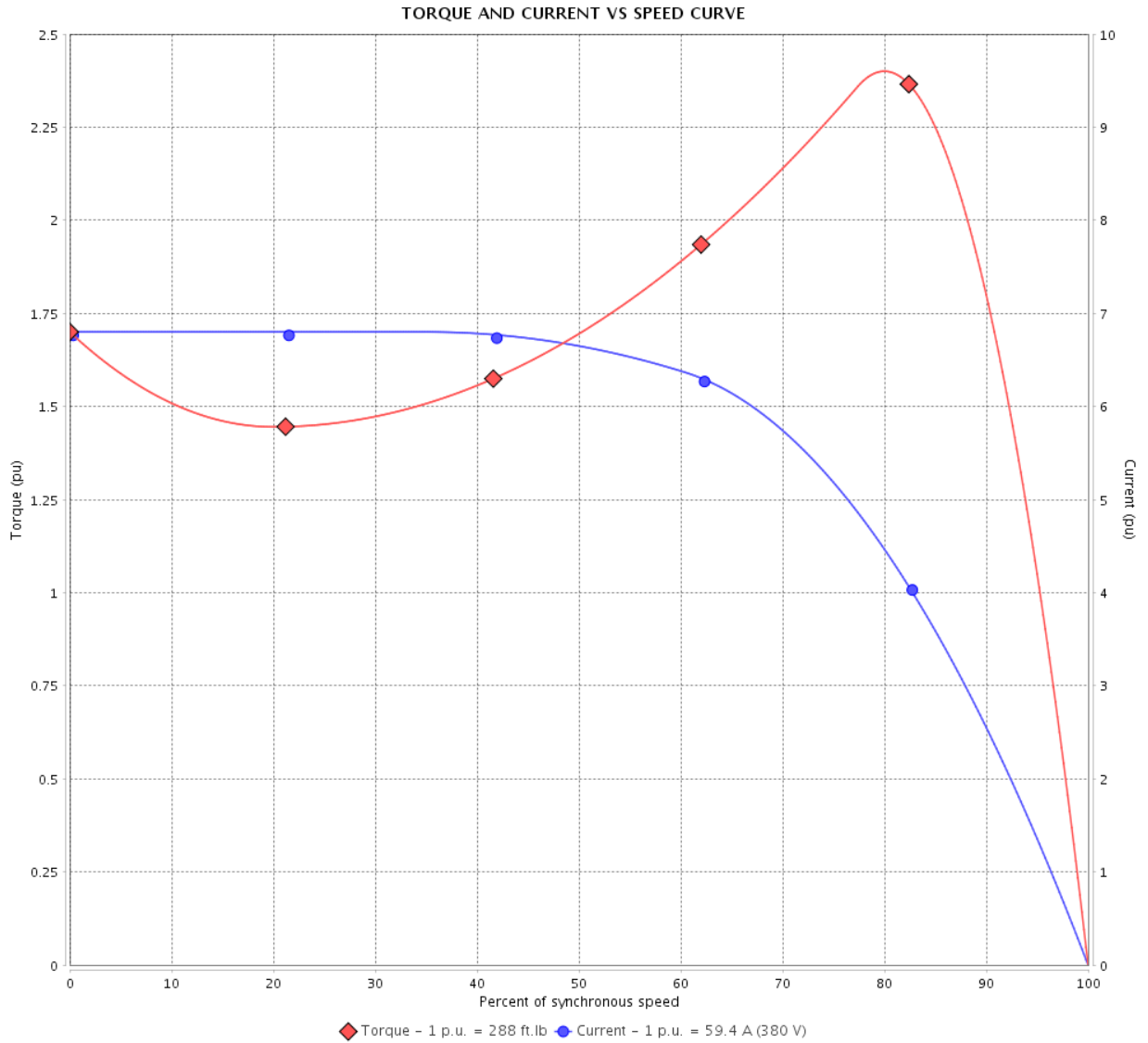
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Performance : 380 V 50 Hz 8P IE3

Rated current	: 59.4 A	Moment of inertia (J)	: 34.6 sq.ft.lb
LRC	: 6.8	Duty cycle	: Cont.(S1)
Rated torque	: 288 ft.lb	Insulation class	: F
Locked rotor torque	: 170 %	Service factor	: 1.00
Breakdown torque	: 240 %	Temperature rise	: 80 K
Rated speed	: 730 rpm	Design	: B

Locked rotor time : 57s (cold) 32s (hot)

Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page 3 / 36	Revision
Checked by				
Date	12/04/2022			

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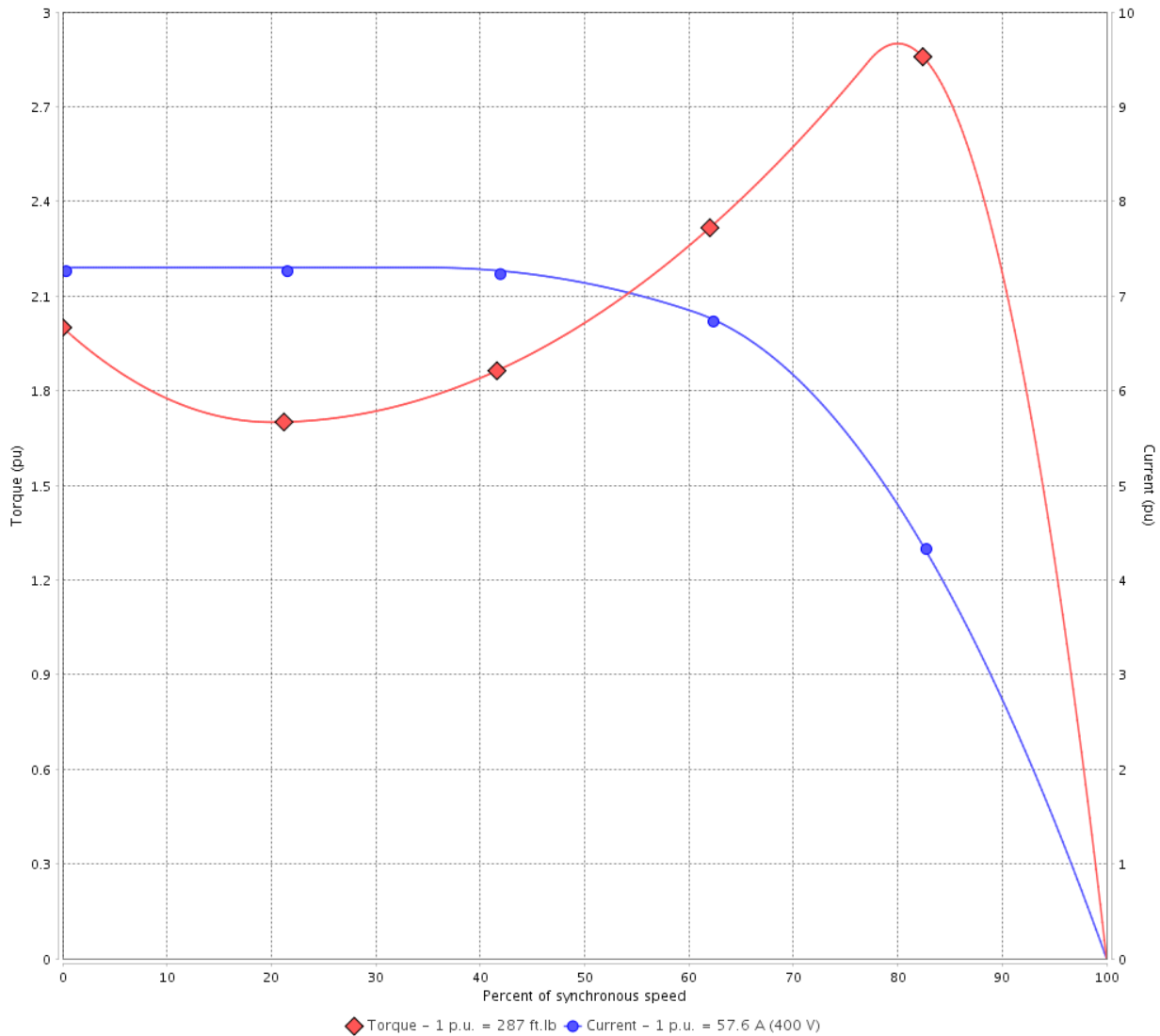
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TORQUE AND CURRENT VS SPEED CURVE



Performance : 400 V 50 Hz 8P IE3

Rated current	: 57.6 A	Moment of inertia (J)	: 34.6 sq.ft.lb
LRC	: 7.3	Duty cycle	: Cont.(S1)
Rated torque	: 287 ft.lb	Insulation class	: F
Locked rotor torque	: 200 %	Service factor	: 1.00
Breakdown torque	: 290 %	Temperature rise	: 80 K
Rated speed	: 733 rpm	Design	: B

Locked rotor time : 54s (cold) 30s (hot)

Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page 4 / 36	Revision
Checked by				
Date	12/04/2022			

TORQUE AND CURRENT VS SPEED CURVE



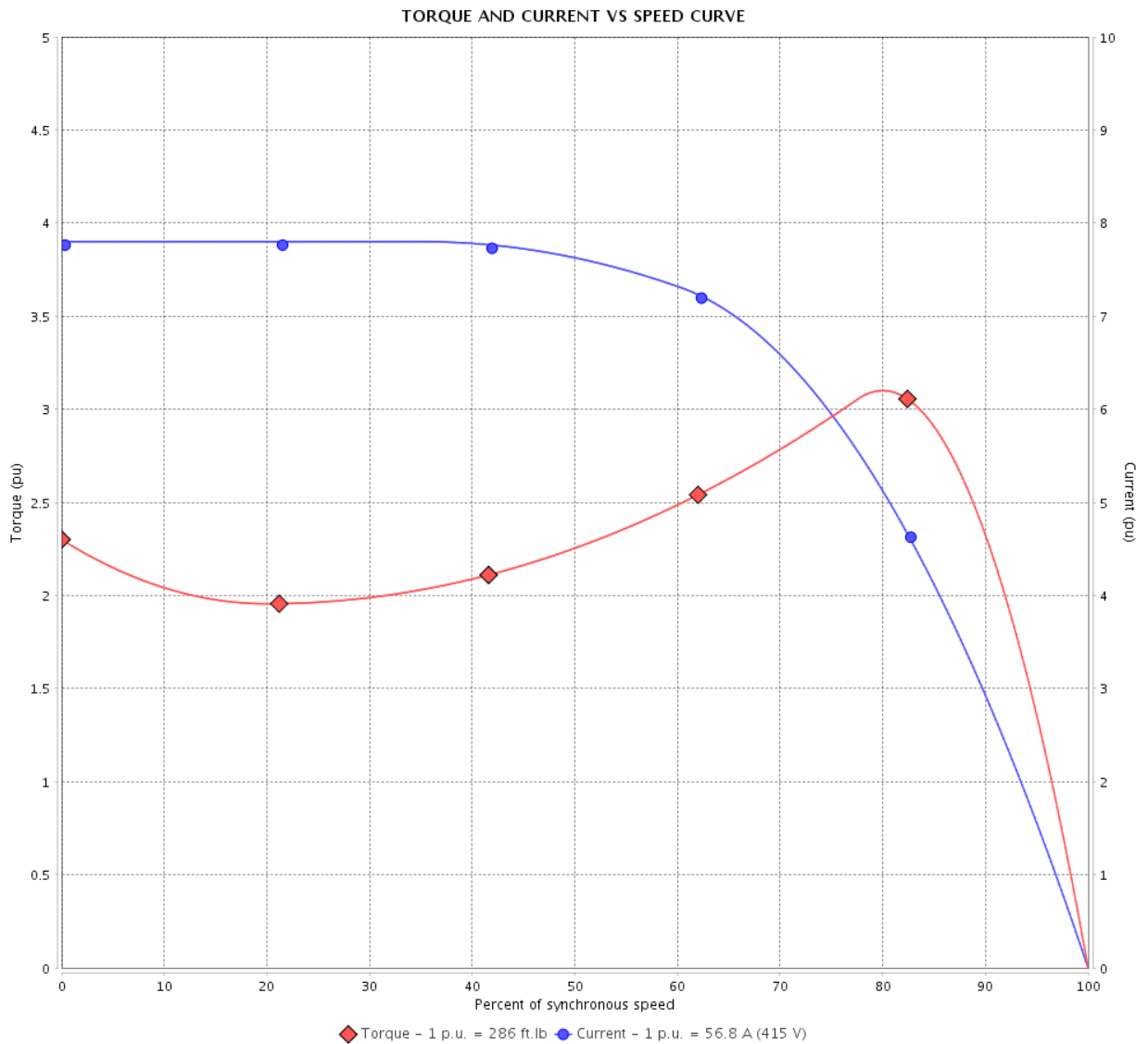
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Performance : 415 V 50 Hz 8P IE3

Rated current	: 56.8 A	Moment of inertia (J)	: 34.6 sq.ft.lb
LRC	: 7.8	Duty cycle	: Cont.(S1)
Rated torque	: 286 ft.lb	Insulation class	: F
Locked rotor torque	: 229 %	Service factor	: 1.00
Breakdown torque	: 310 %	Temperature rise	: 80 K
Rated speed	: 735 rpm	Design	: B

Locked rotor time : 50s (cold) 28s (hot)

Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page 5 / 36	Revision
Checked by				
Date	12/04/2022			

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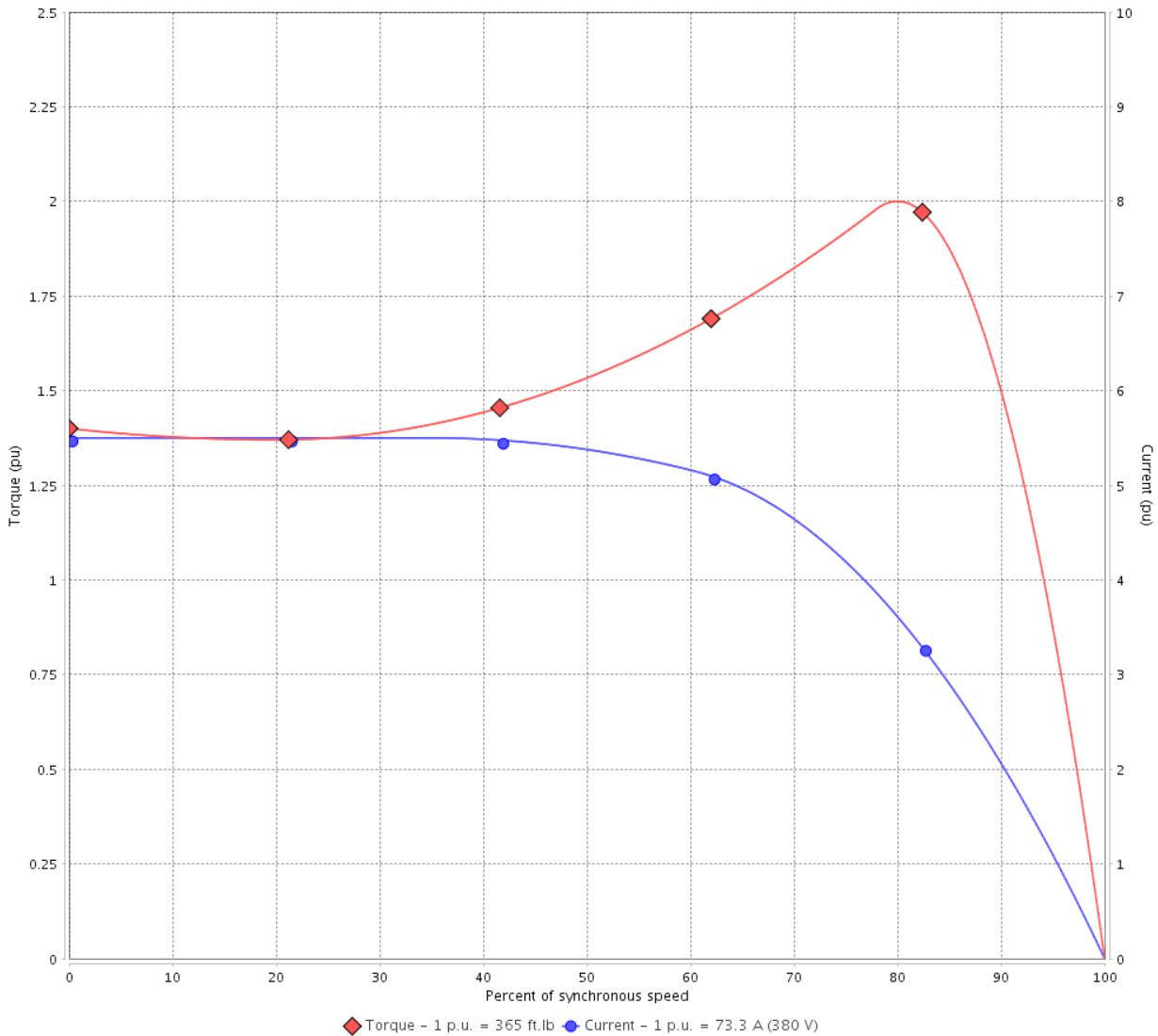
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TORQUE AND CURRENT VS SPEED CURVE



Performance : 380 V 50 Hz 8P IE1

Rated current	: 73.3 A	Moment of inertia (J)	: 34.6 sq.ft.lb
LRC	: 5.5	Duty cycle	: Cont.(S1)
Rated torque	: 365 ft.lb	Insulation class	: F
Locked rotor torque	: 140 %	Service factor	: 1.00
Breakdown torque	: 200 %	Temperature rise	: 105 K
Rated speed	: 720 rpm	Design	: B

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

Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page 6 / 36	Revision
Checked by				
Date	12/04/2022			

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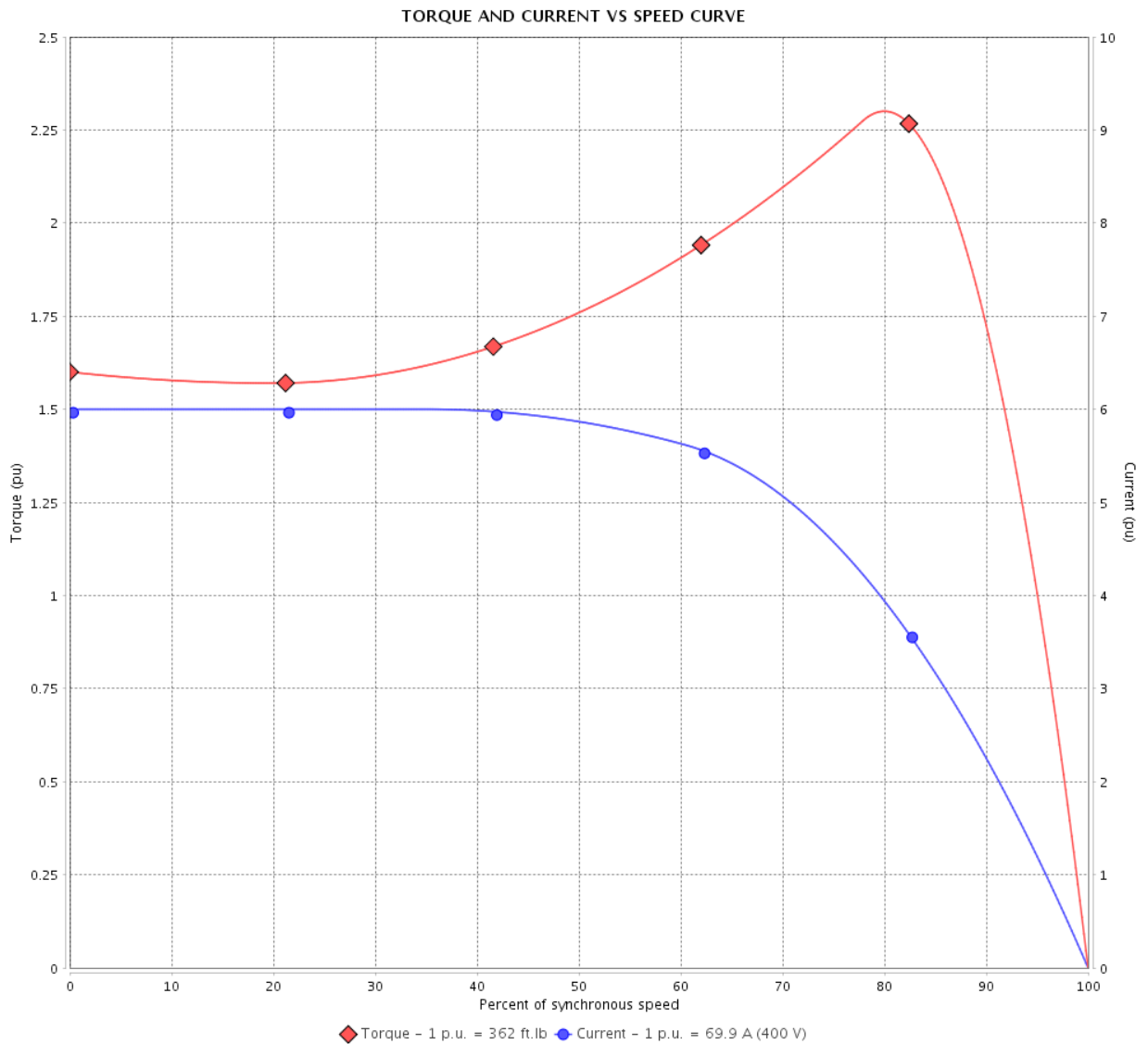
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Performance : 400 V 50 Hz 8P IE2

Rated current	: 69.9 A	Moment of inertia (J)	: 34.6 sq.ft.lb
LRC	: 6.0	Duty cycle	: Cont.(S1)
Rated torque	: 362 ft.lb	Insulation class	: F
Locked rotor torque	: 160 %	Service factor	: 1.00
Breakdown torque	: 229 %	Temperature rise	: 105 K
Rated speed	: 725 rpm	Design	: B

Locked rotor time : 37s (cold) 21s (hot)

Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page 7 / 36	Revision
Checked by				
Date	12/04/2022			

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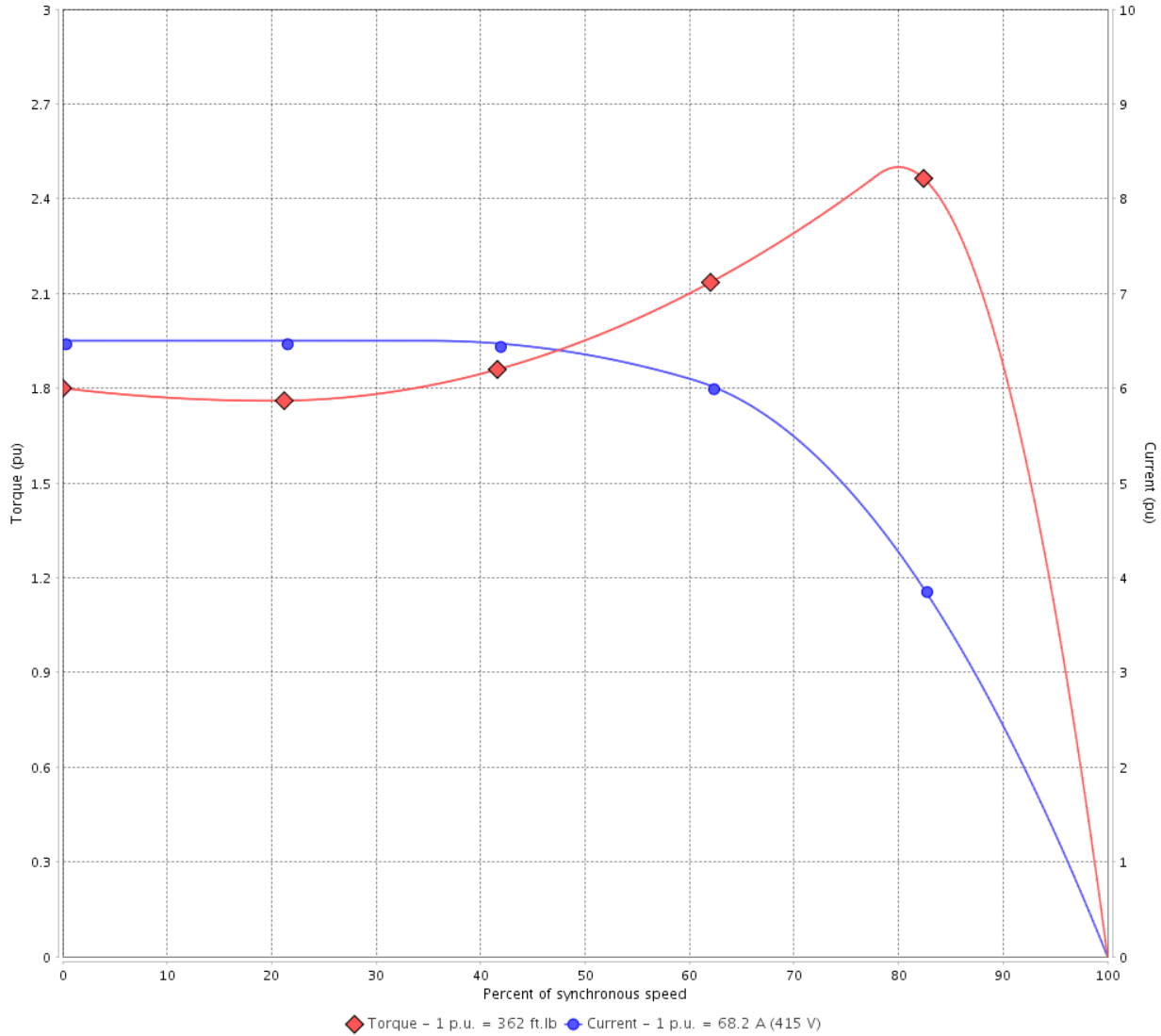
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TORQUE AND CURRENT VS SPEED CURVE



Performance : 415 V 50 Hz 8P IE2

Rated current	: 68.2 A	Moment of inertia (J)	: 34.6 sq.ft.lb
LRC	: 6.5	Duty cycle	: Cont.(S1)
Rated torque	: 362 ft.lb	Insulation class	: F
Locked rotor torque	: 180 %	Service factor	: 1.00
Breakdown torque	: 250 %	Temperature rise	: 105 K
Rated speed	: 725 rpm	Design	: B

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

Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page 8 / 36	Revision
Checked by				
Date	12/04/2022			

LOAD PERFORMANCE CURVE

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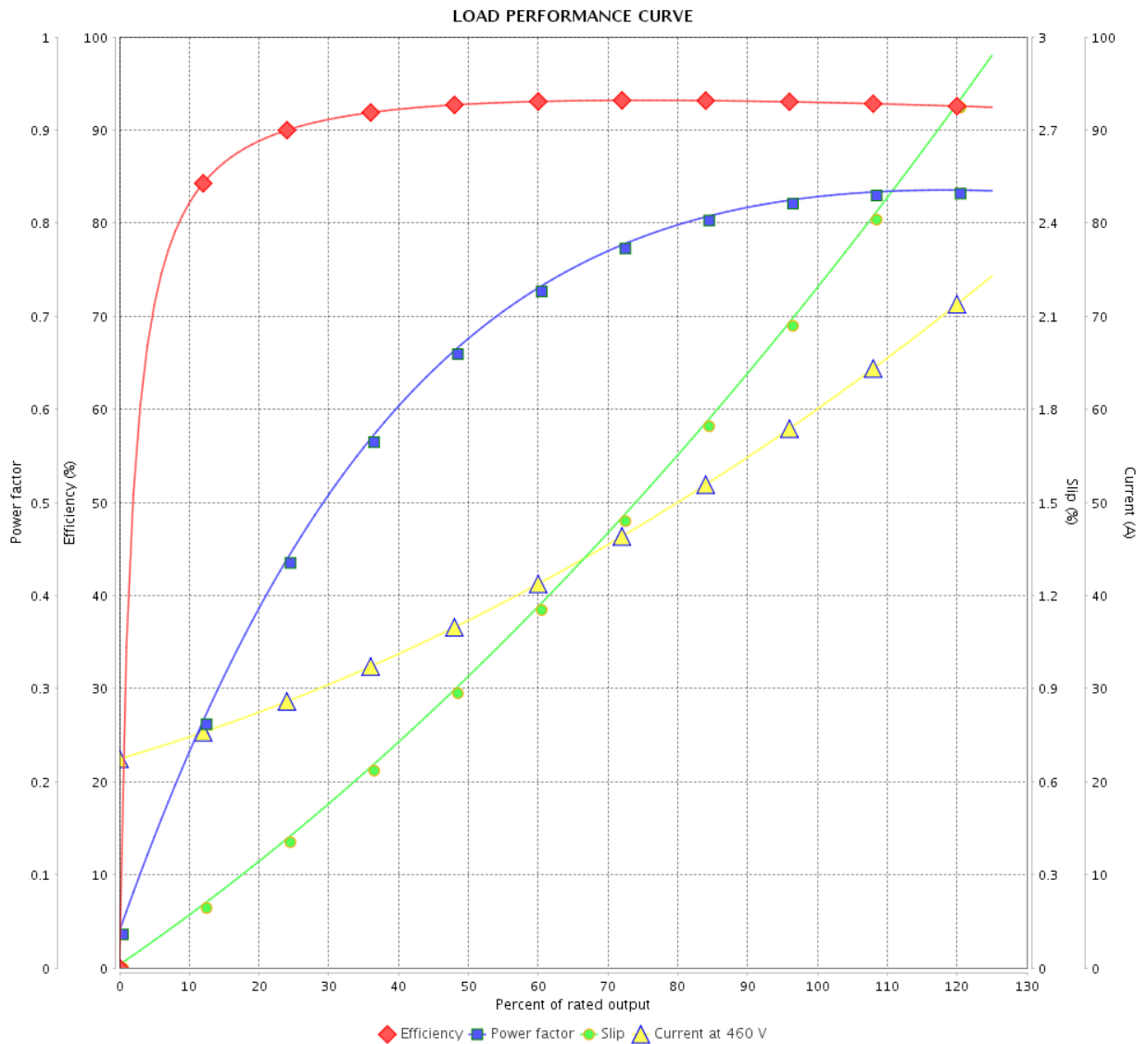


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Performance : 460 V 60 Hz 8P

Rated current : 60.2 A
 LRC : 7.2
 Rated torque : 298 ft.lb
 Locked rotor torque : 170 %
 Breakdown torque : 260 %
 Rated speed : 880 rpm

Moment of inertia (J) : 34.6 sq.ft.lb
 Duty cycle : Cont.(S1)
 Insulation class : F
 Service factor : 1.25
 Temperature rise : 80 K
 Design : B

Rev.	Changes Summary	Performed	Checked	Date
Performed by		Page		Revision
Checked by		9 / 36		
Date		12/04/2022		

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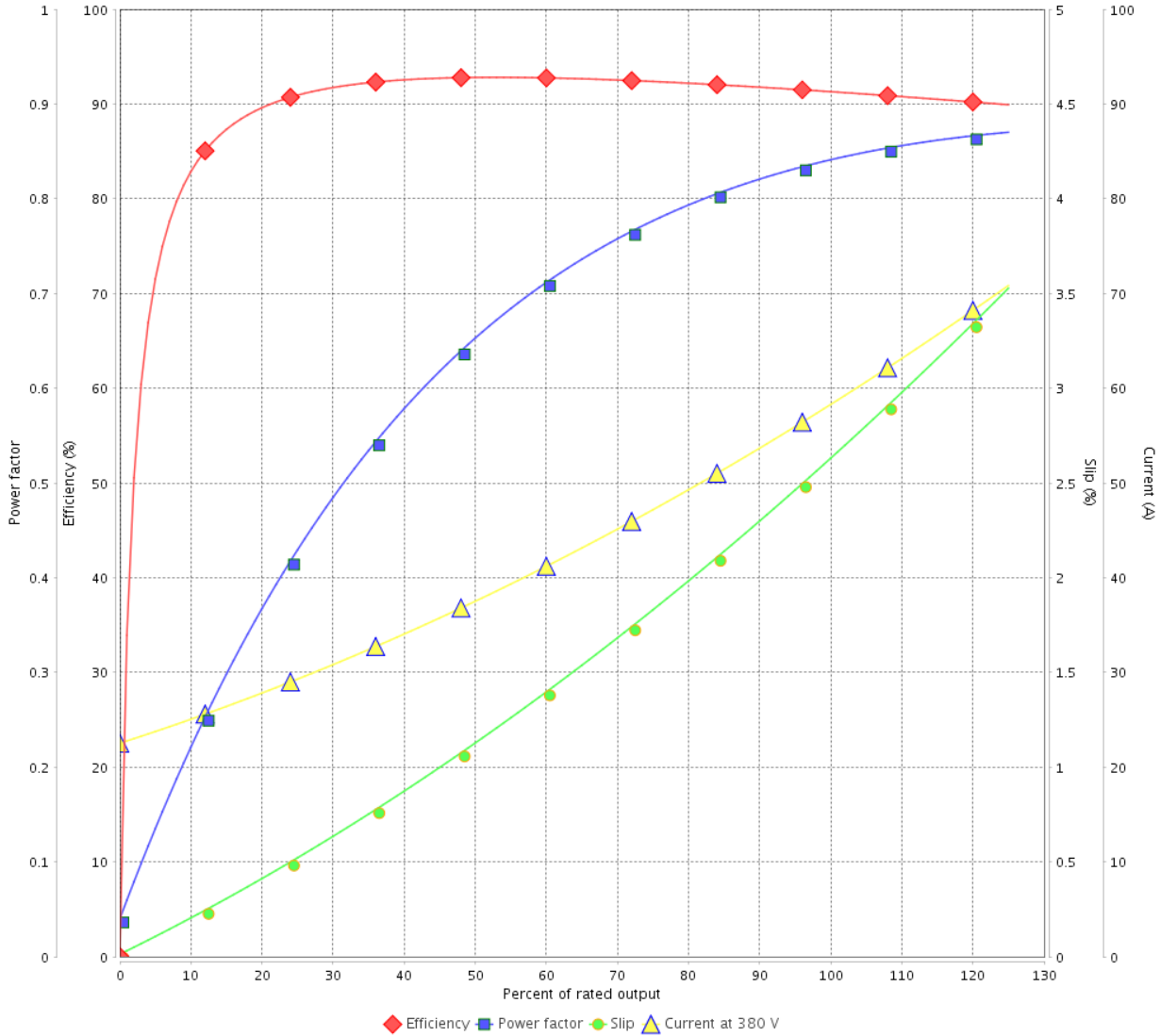
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Performance : 380 V 50 Hz 8P IE3

Rated current : 59.4 A
 LRC : 6.8
 Rated torque : 288 ft.lb
 Locked rotor torque : 170 %
 Breakdown torque : 240 %
 Rated speed : 730 rpm

Moment of inertia (J) : 34.6 sq.ft.lb
 Duty cycle : Cont.(S1)
 Insulation class : F
 Service factor : 1.00
 Temperature rise : 80 K
 Design : B

Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page 10 / 36	Revision
Checked by				
Date	12/04/2022			

LOAD PERFORMANCE CURVE

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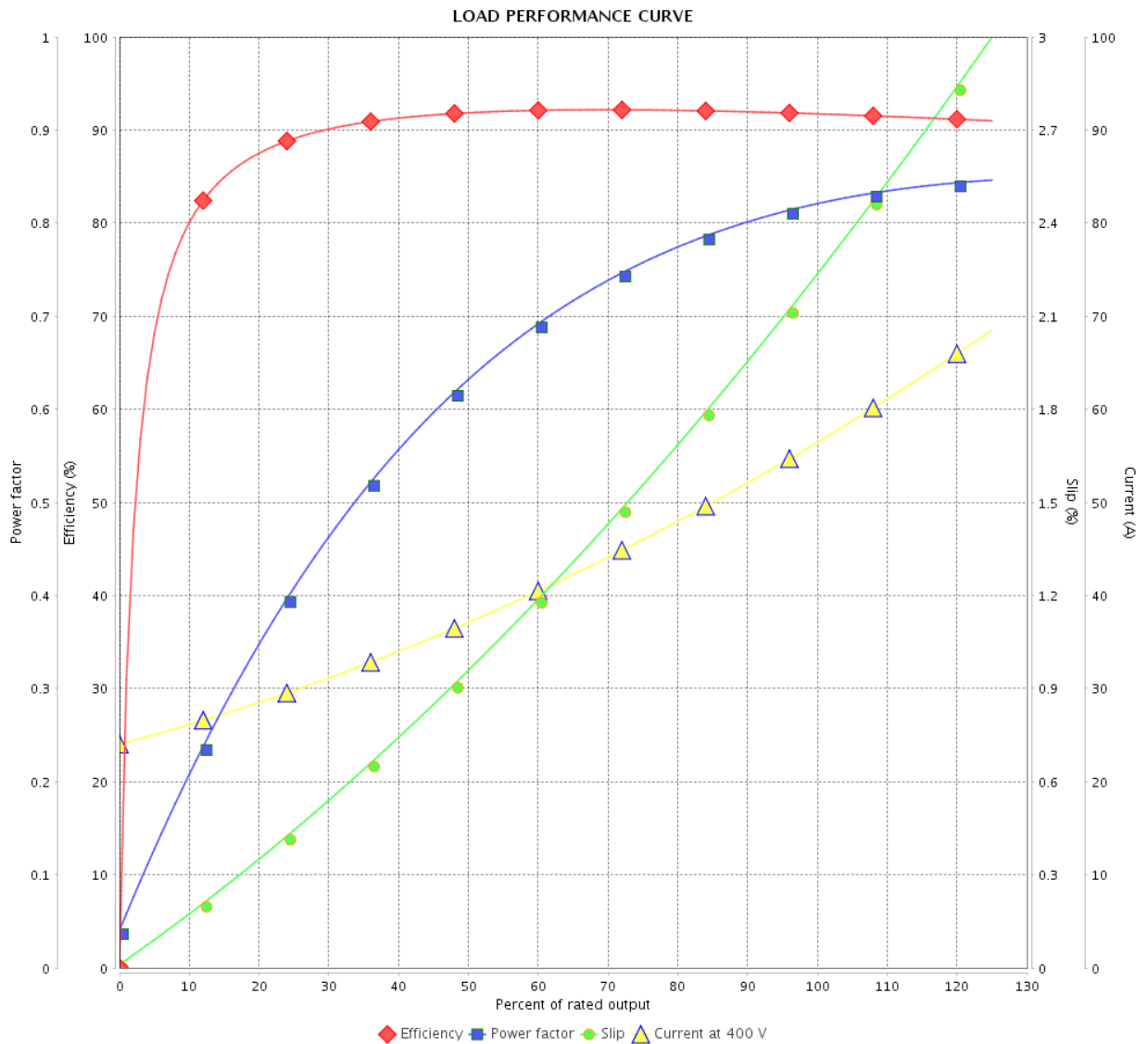


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Performance : 400 V 50 Hz 8P IE3

Rated current : 57.6 A
 LRC : 7.3
 Rated torque : 287 ft.lb
 Locked rotor torque : 200 %
 Breakdown torque : 290 %
 Rated speed : 733 rpm

Moment of inertia (J) : 34.6 sq.ft.lb
 Duty cycle : Cont.(S1)
 Insulation class : F
 Service factor : 1.00
 Temperature rise : 80 K
 Design : B

Rev.	Changes Summary	Performed	Checked	Date
Performed by		Page		Revision
Checked by		11 / 36		
Date		12/04/2022		

LOAD PERFORMANCE CURVE

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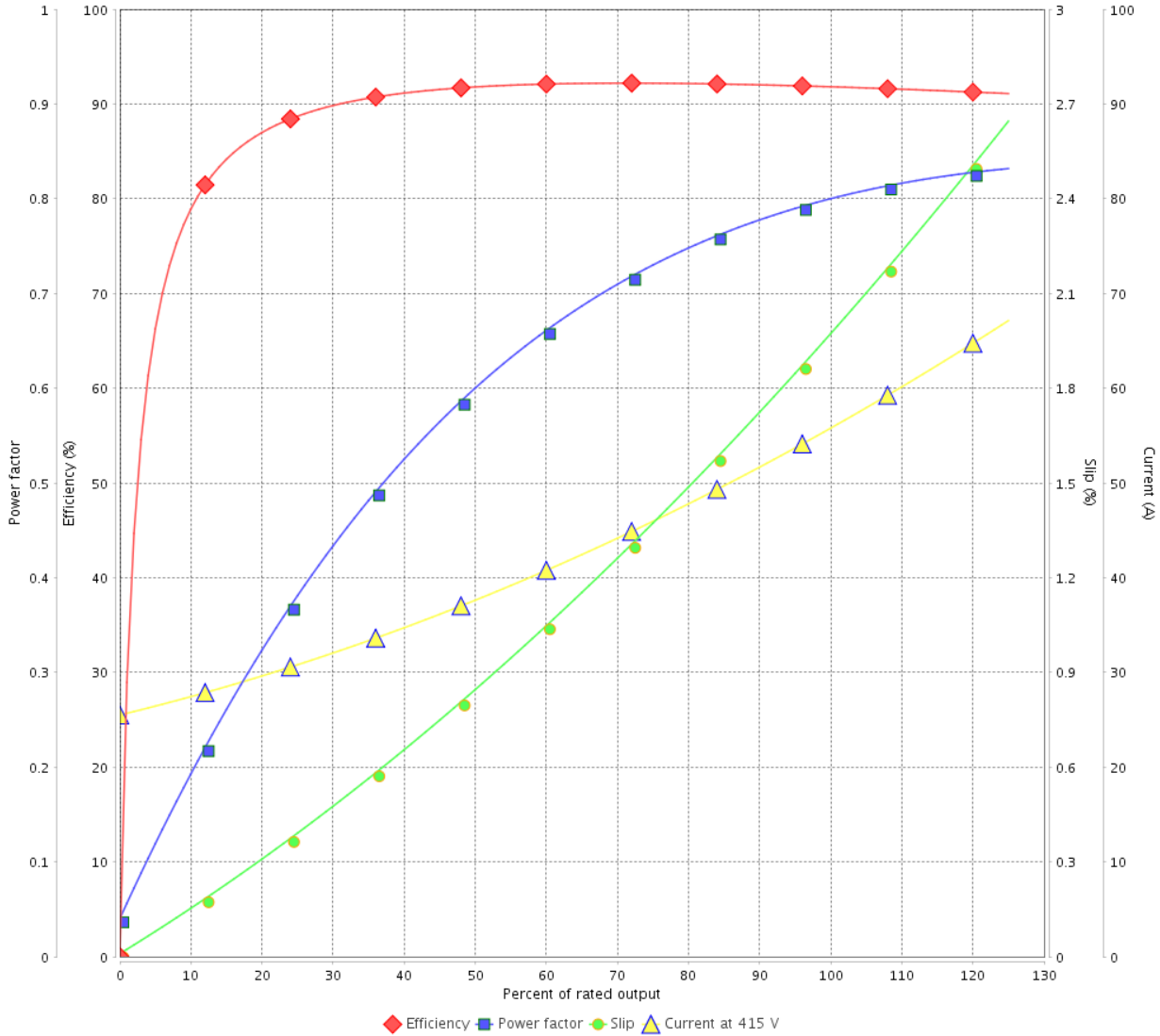
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Performance : 415 V 50 Hz 8P IE3

Rated current : 56.8 A
 LRC : 7.8
 Rated torque : 286 ft.lb
 Locked rotor torque : 229 %
 Breakdown torque : 310 %
 Rated speed : 735 rpm

Moment of inertia (J) : 34.6 sq.ft.lb
 Duty cycle : Cont.(S1)
 Insulation class : F
 Service factor : 1.00
 Temperature rise : 80 K
 Design : B

Rev.	Changes Summary	Performed	Checked	Date
Performed by		Page		Revision
Checked by		12 / 36		
Date	12/04/2022			

LOAD PERFORMANCE CURVE

Three Phase Induction Motor - Squirrel Cage

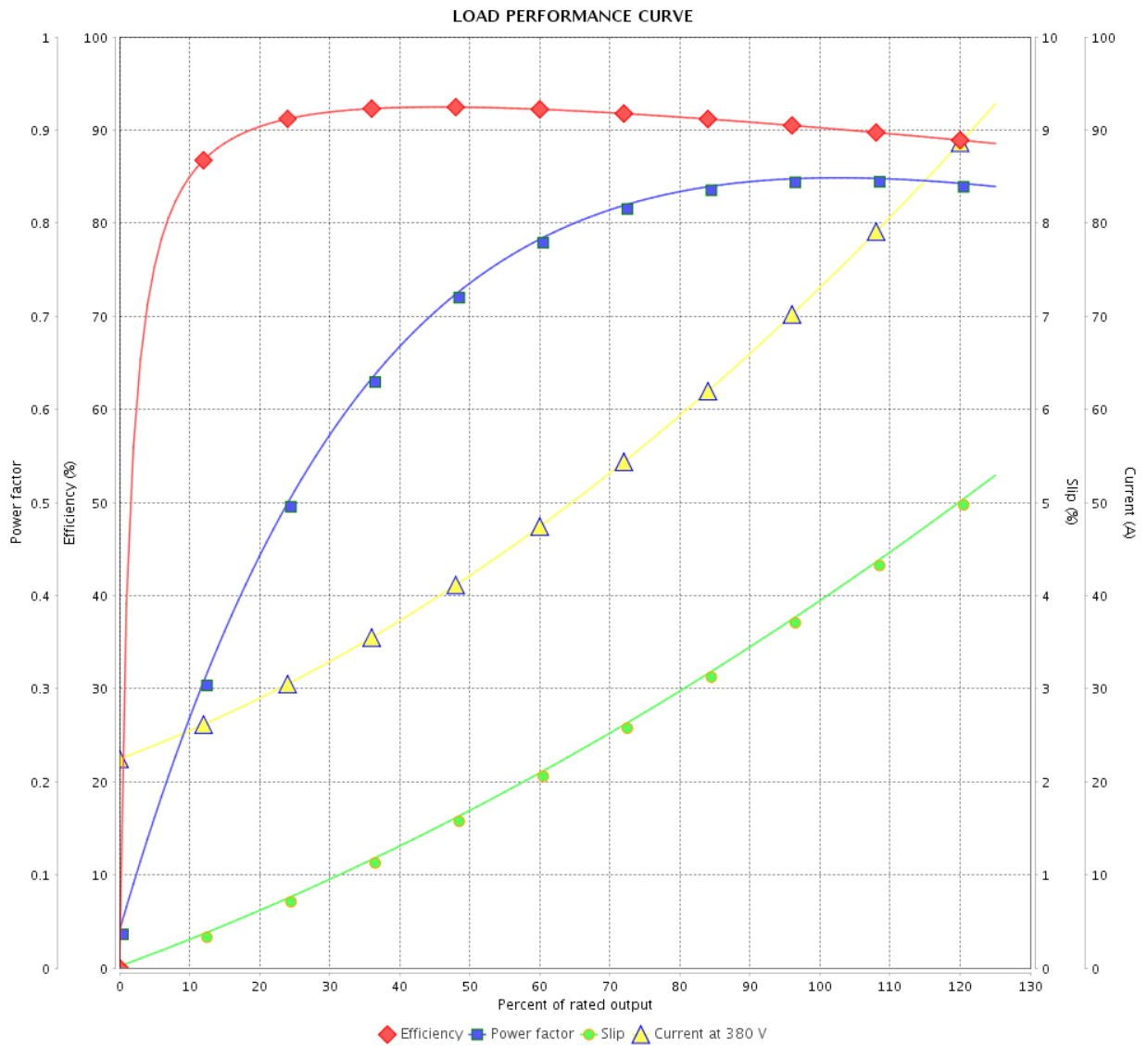


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Catalog # : 05009ST3QIE404TC-W22



Performance : 380 V 50 Hz 8P IE1

Rated current : 73.3 A
 LRC : 5.5
 Rated torque : 365 ft.lb
 Locked rotor torque : 140 %
 Breakdown torque : 200 %
 Rated speed : 720 rpm

Moment of inertia (J) : 34.6 sq.ft.lb
 Duty cycle : Cont.(S1)
 Insulation class : F
 Service factor : 1.00
 Temperature rise : 105 K
 Design : B

Rev.	Changes Summary	Performed	Checked	Date
Performed by		Page		Revision
Checked by		13 / 36		
Date		12/04/2022		

LOAD PERFORMANCE CURVE

Three Phase Induction Motor - Squirrel Cage



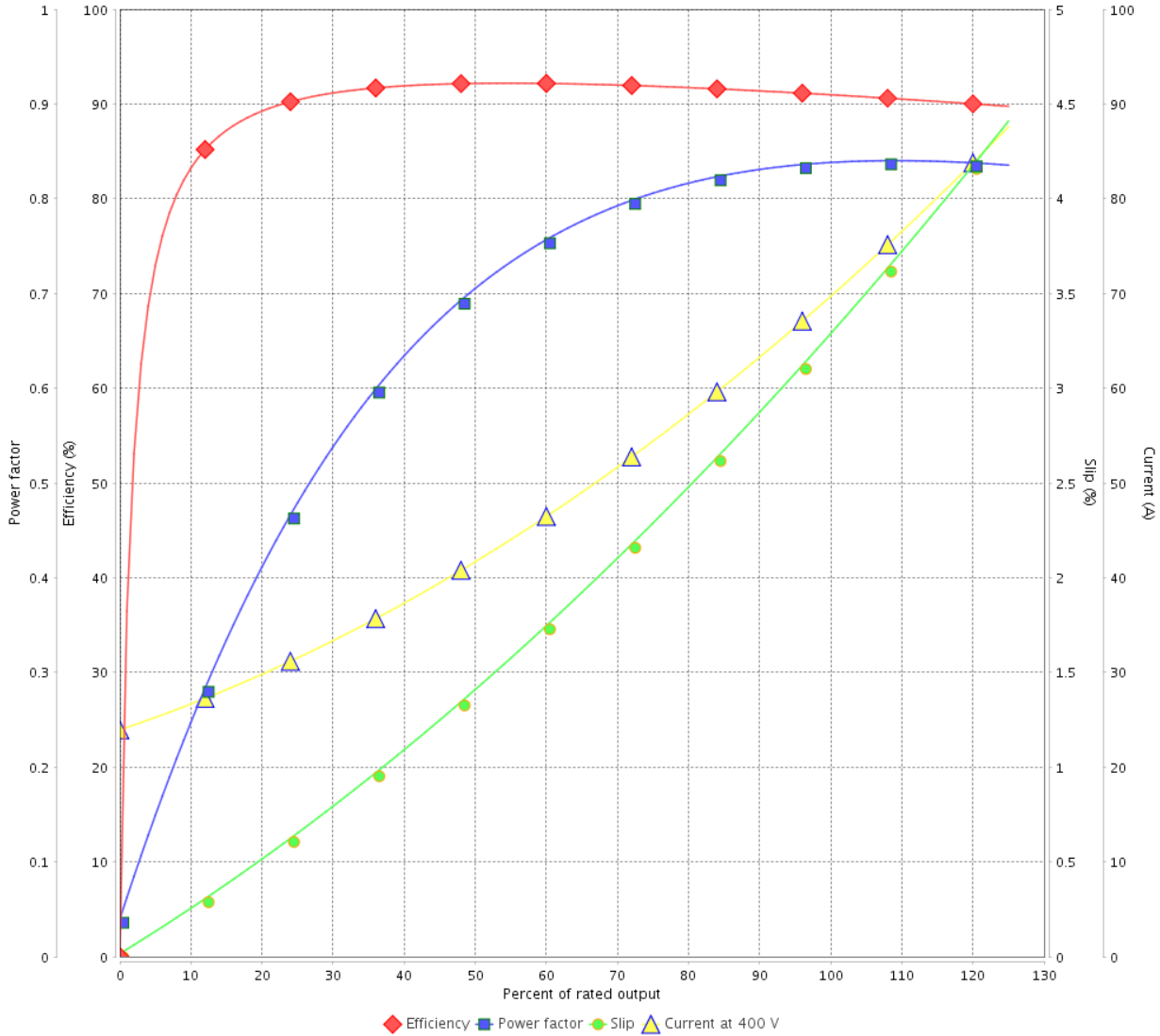
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Performance : 400 V 50 Hz 8P IE2

Rated current : 69.9 A
 LRC : 6.0
 Rated torque : 362 ft.lb
 Locked rotor torque : 160 %
 Breakdown torque : 229 %
 Rated speed : 725 rpm

Moment of inertia (J) : 34.6 sq.ft.lb
 Duty cycle : Cont.(S1)
 Insulation class : F
 Service factor : 1.00
 Temperature rise : 105 K
 Design : B

Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page	Revision
Checked by				
Date				
			14 / 36	

LOAD PERFORMANCE CURVE

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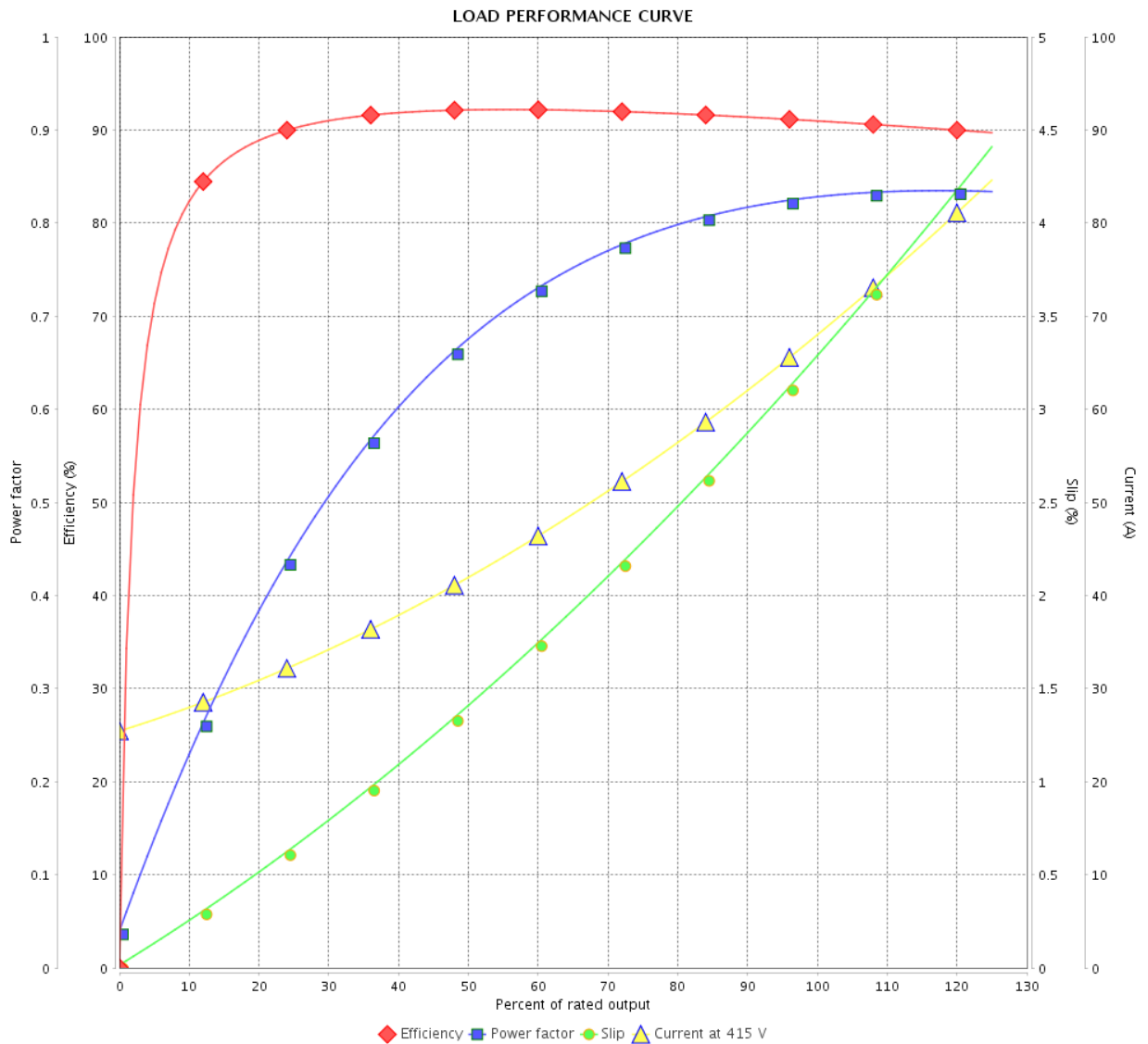


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Rev.	Changes Summary	Performed	Checked	Date
Performed by		Page		Revision
Checked by		15 / 36		
Date		12/04/2022		

THERMAL LIMIT CURVE



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Performance : 460 V 60 Hz 8P

Rated current : 60.2 A	Moment of inertia (J) : 34.6 sq.ft.lb
LRC : 7.2	Duty cycle : Cont.(S1)
Rated torque : 298 ft.lb	Insulation class : F
Locked rotor torque : 170 %	Service factor : 1.25
Breakdown torque : 260 %	Temperature rise : 80 K
Rated speed : 880 rpm	Design : B

Heating constant

Cooling constant

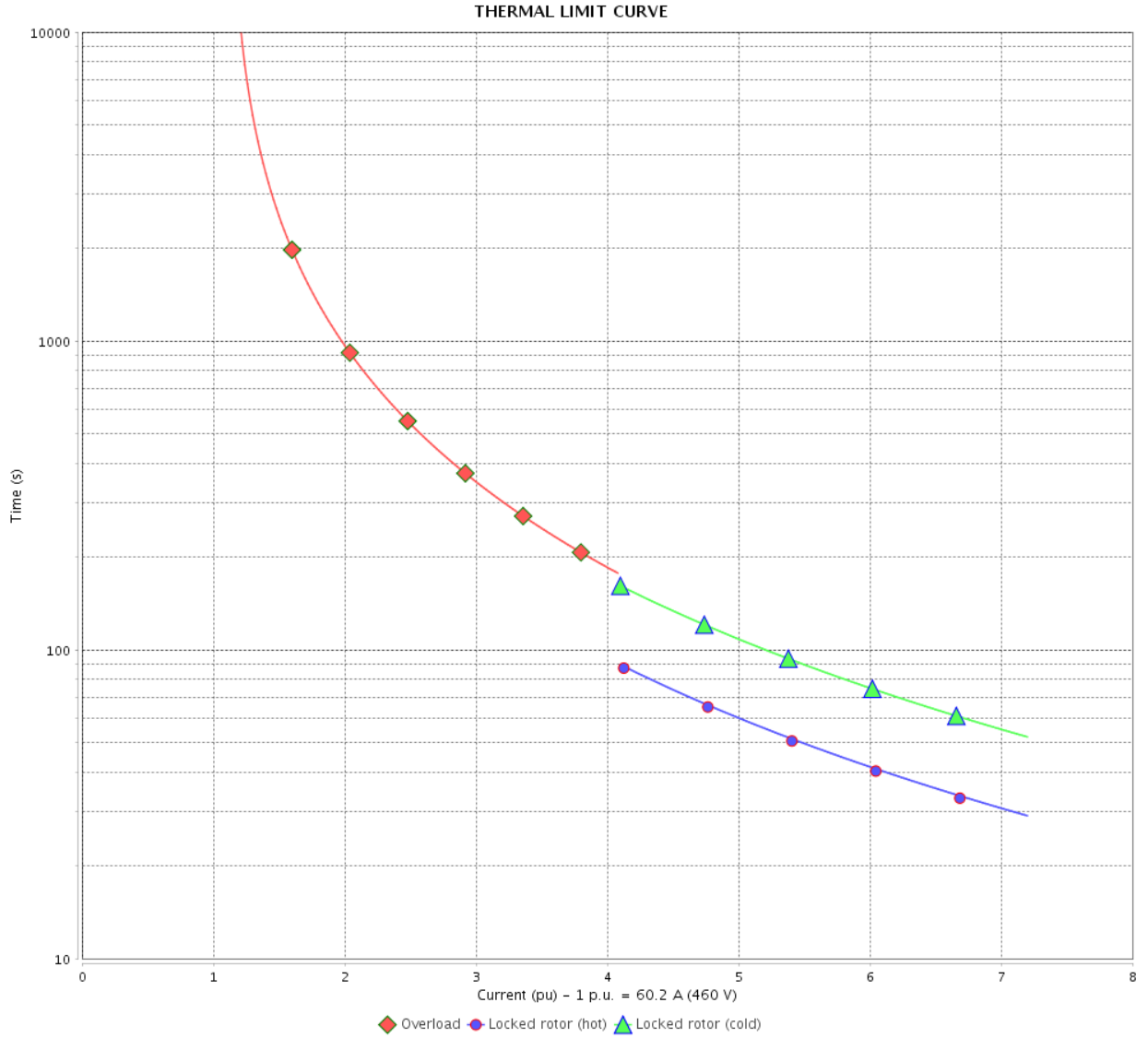
Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page 16 / 36	Revision
Checked by				
Date	12/04/2022			

THERMAL LIMIT CURVE

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Rev.	Changes Summary	Performed	Checked	Date
Performed by		Page 17 / 36		Revision
Checked by				
Date				

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Performance : 380 V 50 Hz 8P IE3

Rated current : 59.4 A	Moment of inertia (J) : 34.6 sq.ft.lb
LRC : 6.8	Duty cycle : Cont.(S1)
Rated torque : 288 ft.lb	Insulation class : F
Locked rotor torque : 170 %	Service factor : 1.00
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Rated speed : 730 rpm	Design : B

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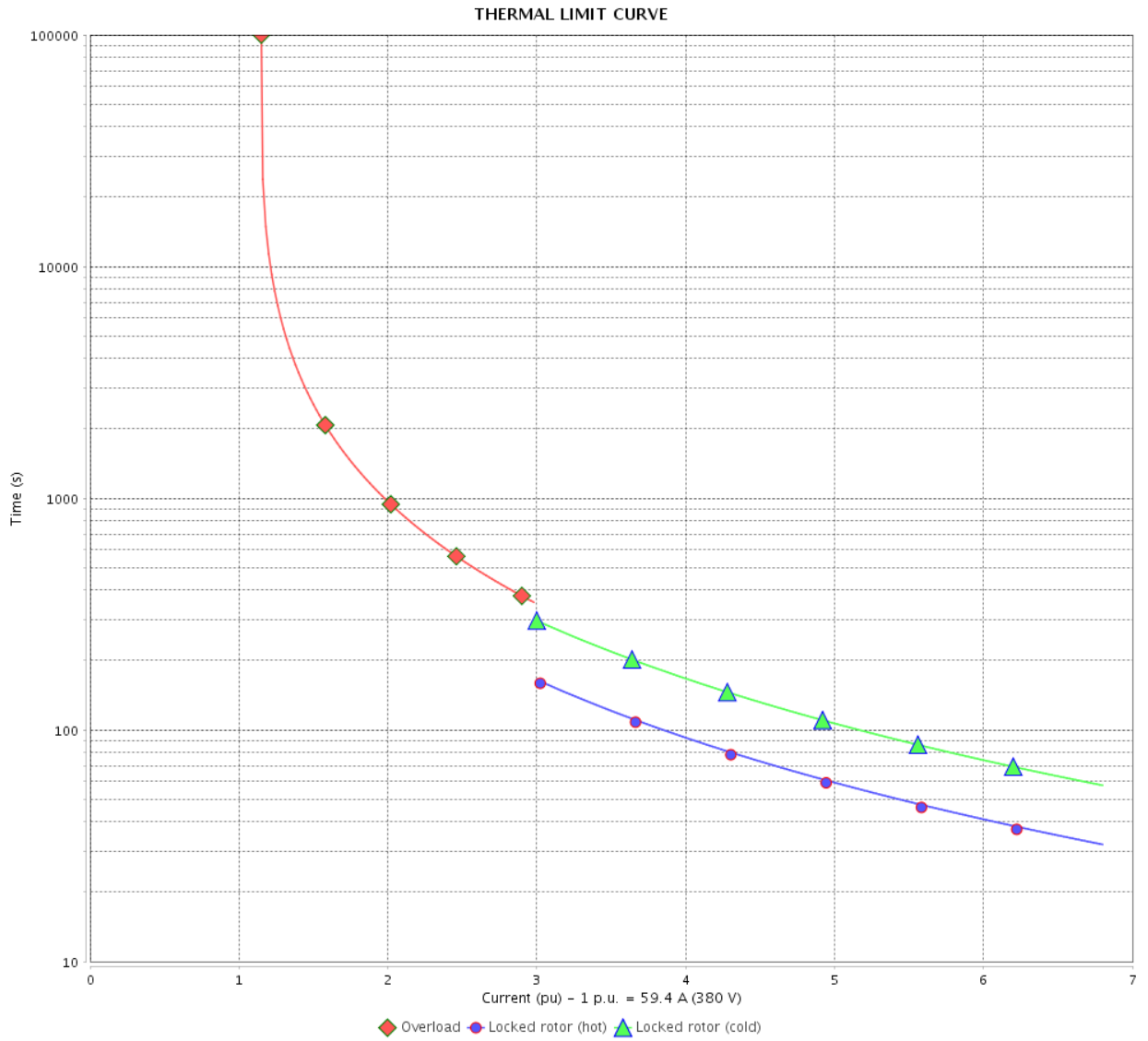
Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page 18 / 36	Revision
Checked by				
Date	12/04/2022			

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Rev.	Changes Summary	Performed	Checked	Date
Performed by		Page 19 / 36 Revision		
Checked by				
Date				

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Rated torque	: 287 ft.lb	Insulation class	: F
Locked rotor torque	: 200 %	Service factor	: 1.00
Breakdown torque	: 290 %	Temperature rise	: 80 K
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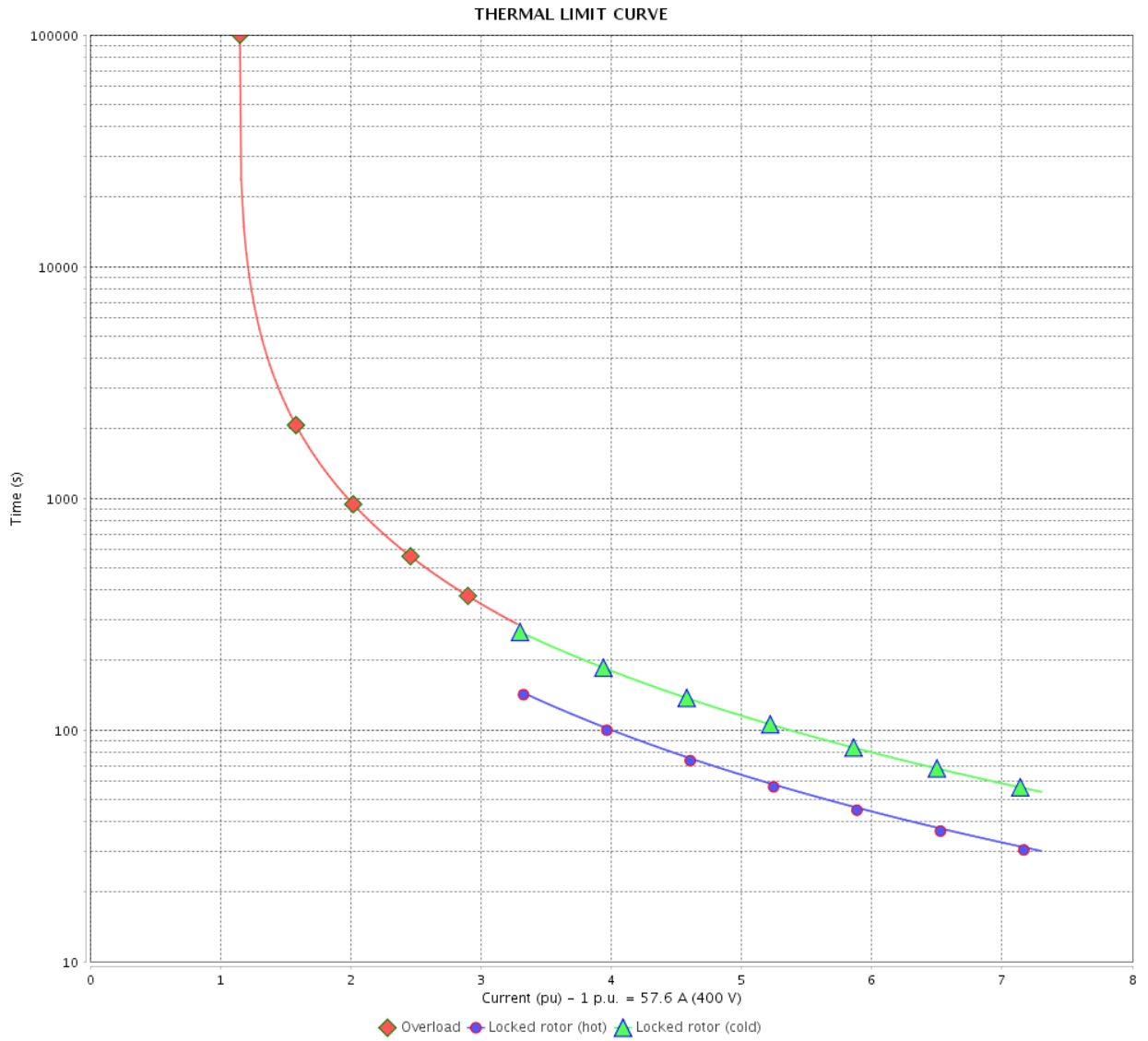
Rev.	Changes Summary	Performed	Checked	Date
Performed by				
Checked by			Page	Revision
Date	12/04/2022		20 / 36	

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Rev.	Changes Summary	Performed	Checked	Date
Performed by		Page		Revision
Checked by		21 / 36		
Date		12/04/2022		

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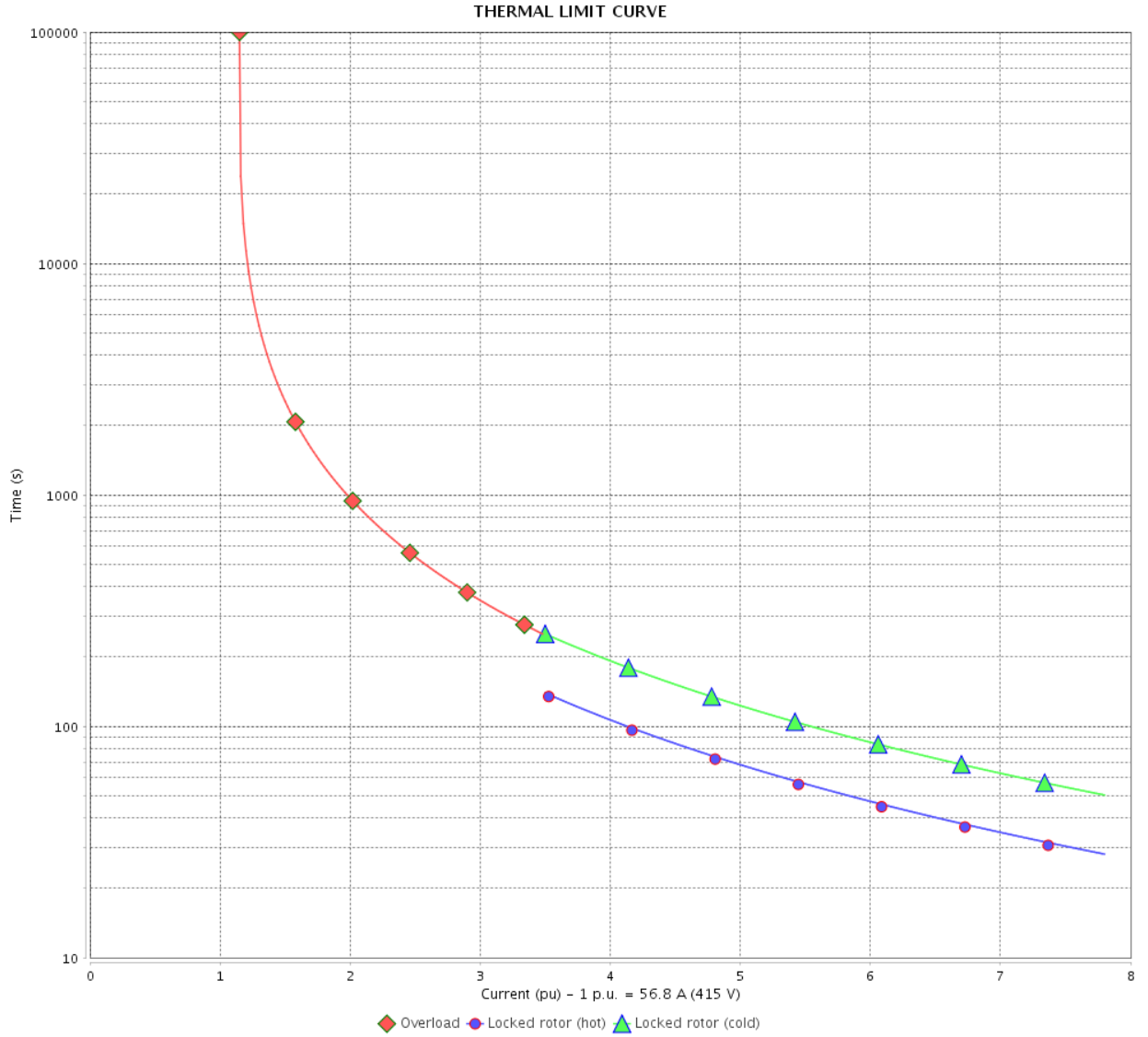
Rev.	Changes Summary	Performed	Checked	Date
Performed by				
Checked by			Page	Revision
Date	12/04/2022		22 / 36	

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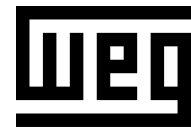


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Rev.	Changes Summary	Performed	Checked	Date
Performed by		Page		Revision
Checked by		23 / 36		
Date		12/04/2022		

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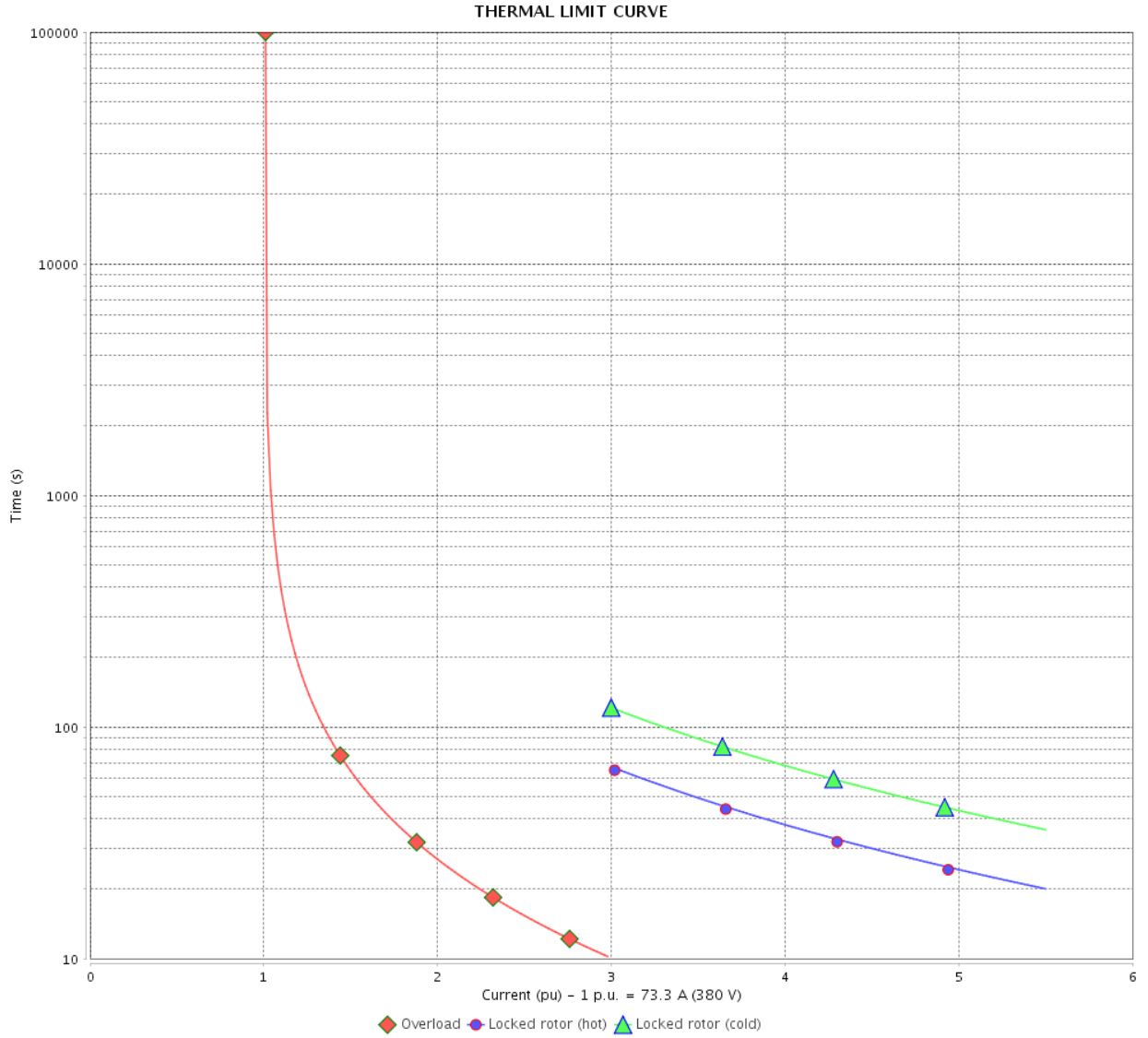
Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page 24 / 36	Revision
Checked by				
Date	12/04/2022			

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Rev.	Changes Summary	Performed	Checked	Date
Performed by				
Checked by				
Date				
			Page	Revision
			25 / 36	

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Catalog # : 05009ST3QIE404TC-W22

Performance : 400 V 50 Hz 8P IE2

Rated current	: 69.9 A	Moment of inertia (J)	: 34.6 sq.ft.lb
LRC	: 6.0	Duty cycle	: Cont.(S1)
Rated torque	: 362 ft.lb	Insulation class	: F
Locked rotor torque	: 160 %	Service factor	: 1.00
Breakdown torque	: 229 %	Temperature rise	: 105 K
Rated speed	: 725 rpm	Design	: B

Heating constant

Cooling constant

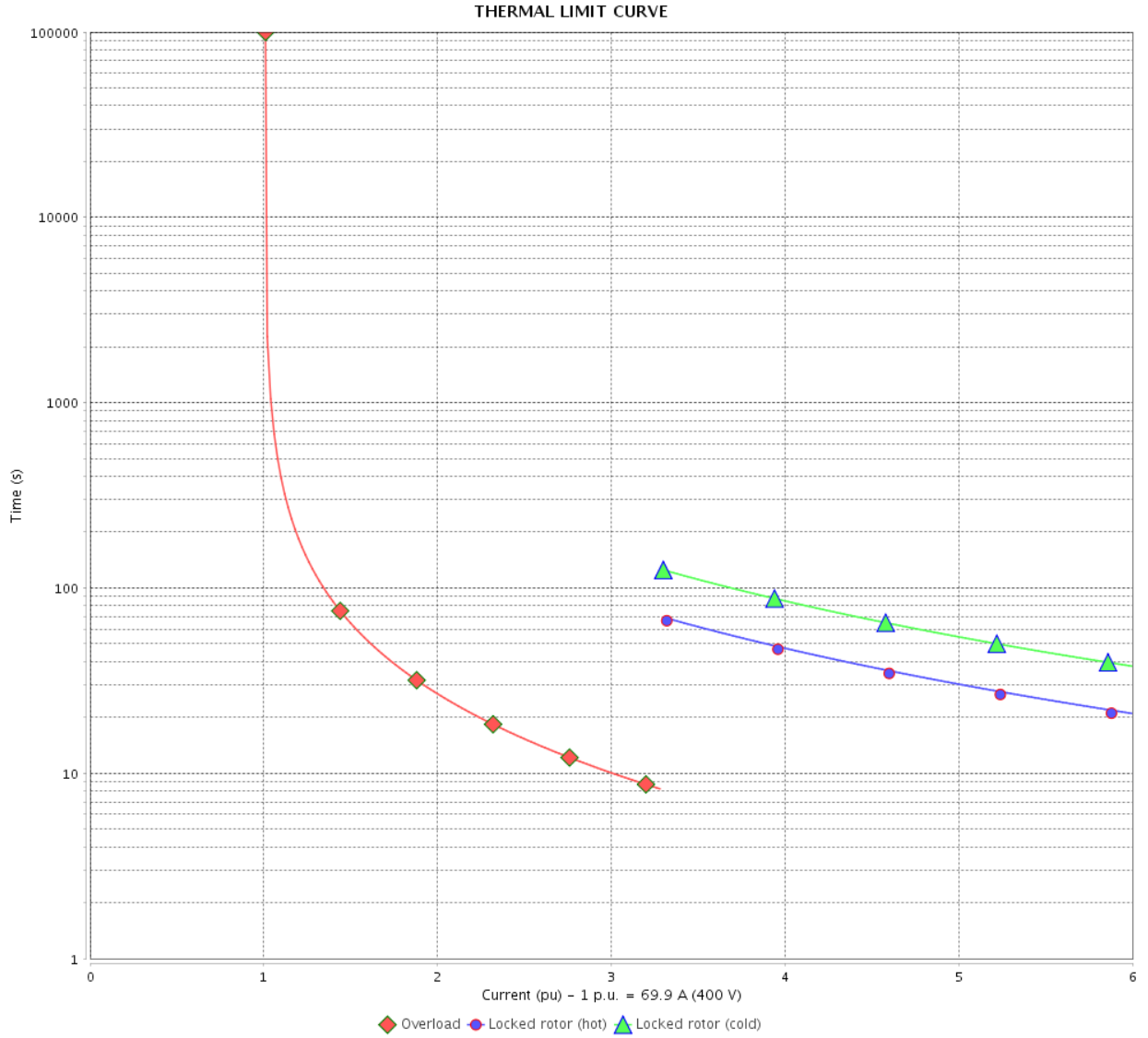
Rev.	Changes Summary	Performed	Checked	Date
Performed by				
Checked by			Page	Revision
Date	12/04/2022		26 / 36	

THERMAL LIMIT CURVE

Three Phase Induction Motor - Squirrel Cage



Customer : _____



Rev.	Changes Summary	Performed	Checked	Date
Performed by		Page 27 / 36		Revision
Checked by				
Date				

THERMAL LIMIT CURVE



Three Phase Induction Motor - Squirrel Cage

Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 14325582

Catalog # : 05009ST3QIE404TC-W22

Performance : 415 V 50 Hz 8P IE2

Rated current	: 68.2 A	Moment of inertia (J)	: 34.6 sq.ft.lb
LRC	: 6.5	Duty cycle	: Cont.(S1)
Rated torque	: 362 ft.lb	Insulation class	: F
Locked rotor torque	: 180 %	Service factor	: 1.00
Breakdown torque	: 250 %	Temperature rise	: 105 K
Rated speed	: 725 rpm	Design	: B

Heating constant

Cooling constant

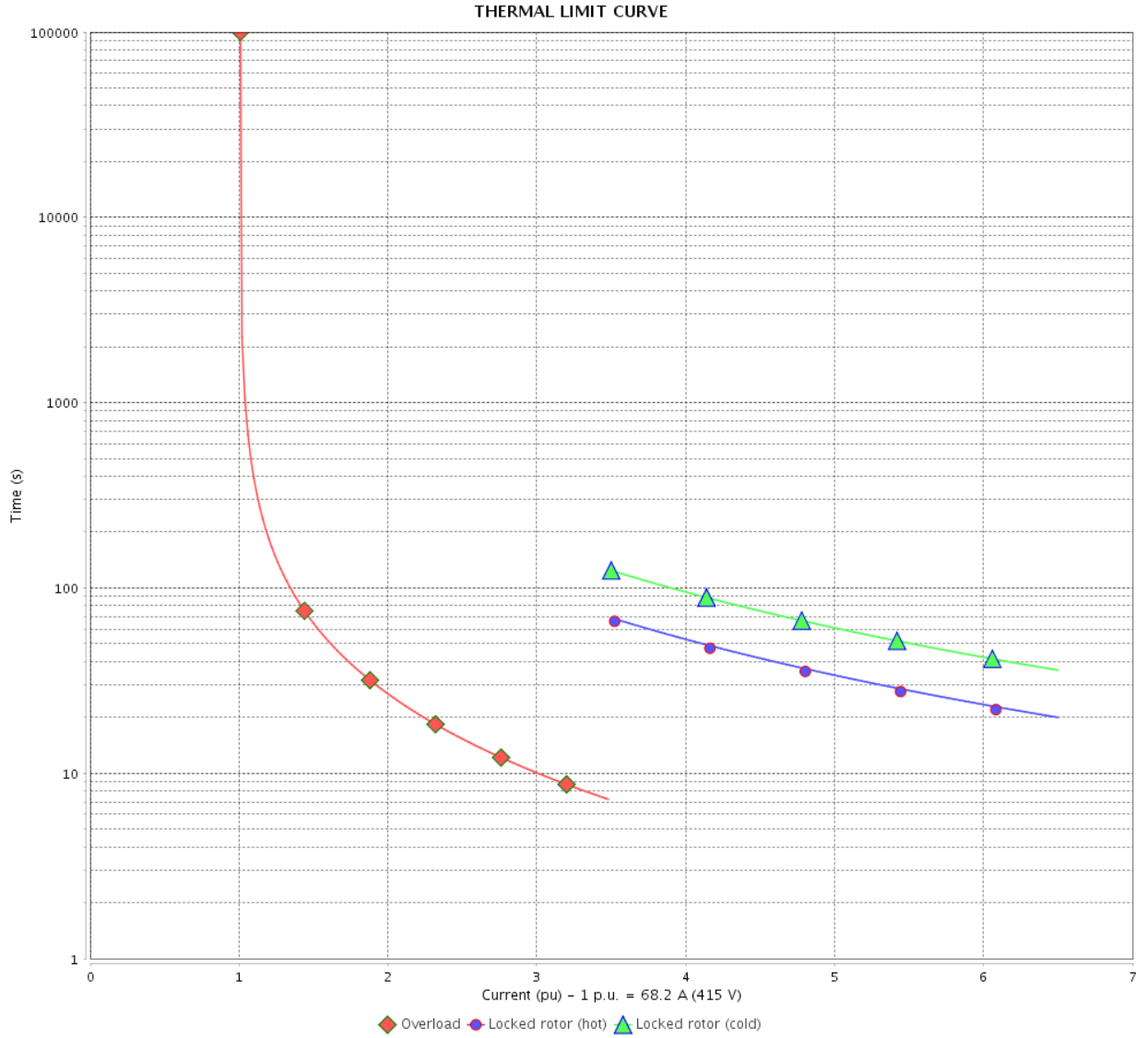
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Checked by			Page	Revision
Date	12/04/2022		28 / 36	

THERMAL LIMIT CURVE

Three Phase Induction Motor - Squirrel Cage



Customer : _____



Rev.	Changes Summary	Performed	Checked	Date
Performed by		Page		Revision
Checked by		29 / 36		
Date		12/04/2022		

VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage



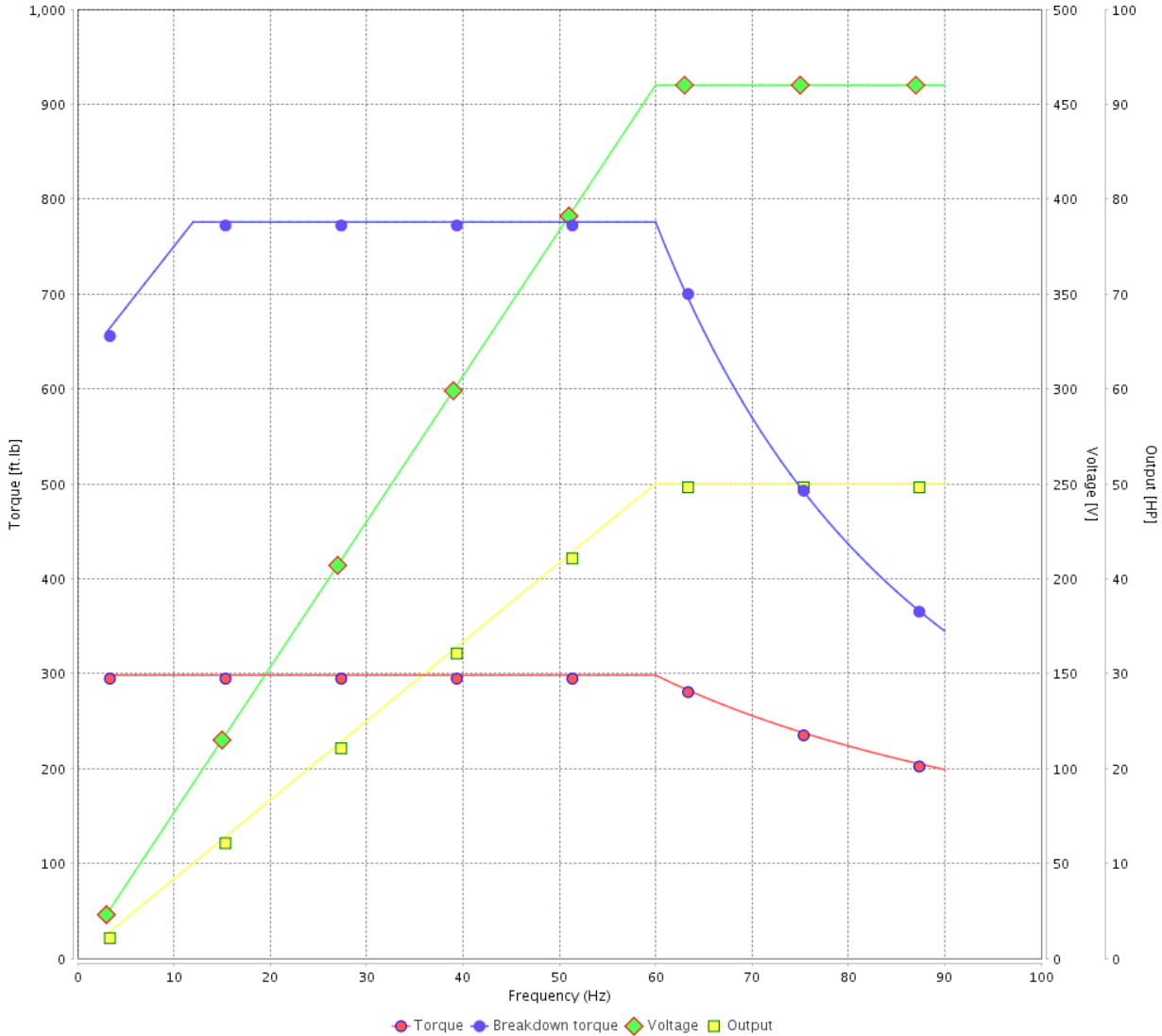
Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 14325582

Catalog # : 05009ST3QIE404TC-W22

VFD OPERATION CURVE



Performance : 460 V 60 Hz 8P

Rated current : 60.2 A
 LRC : 7.2
 Rated torque : 298 ft.lb
 Locked rotor torque : 170 %
 Breakdown torque : 260 %
 Rated speed : 880 rpm

Moment of inertia (J) : 34.6 sq.ft.lb
 Duty cycle : Cont.(S1)
 Insulation class : F
 Service factor : 1.25
 Temperature rise : 80 K
 Design : B

Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page	Revision
Checked by				
Date				

VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage

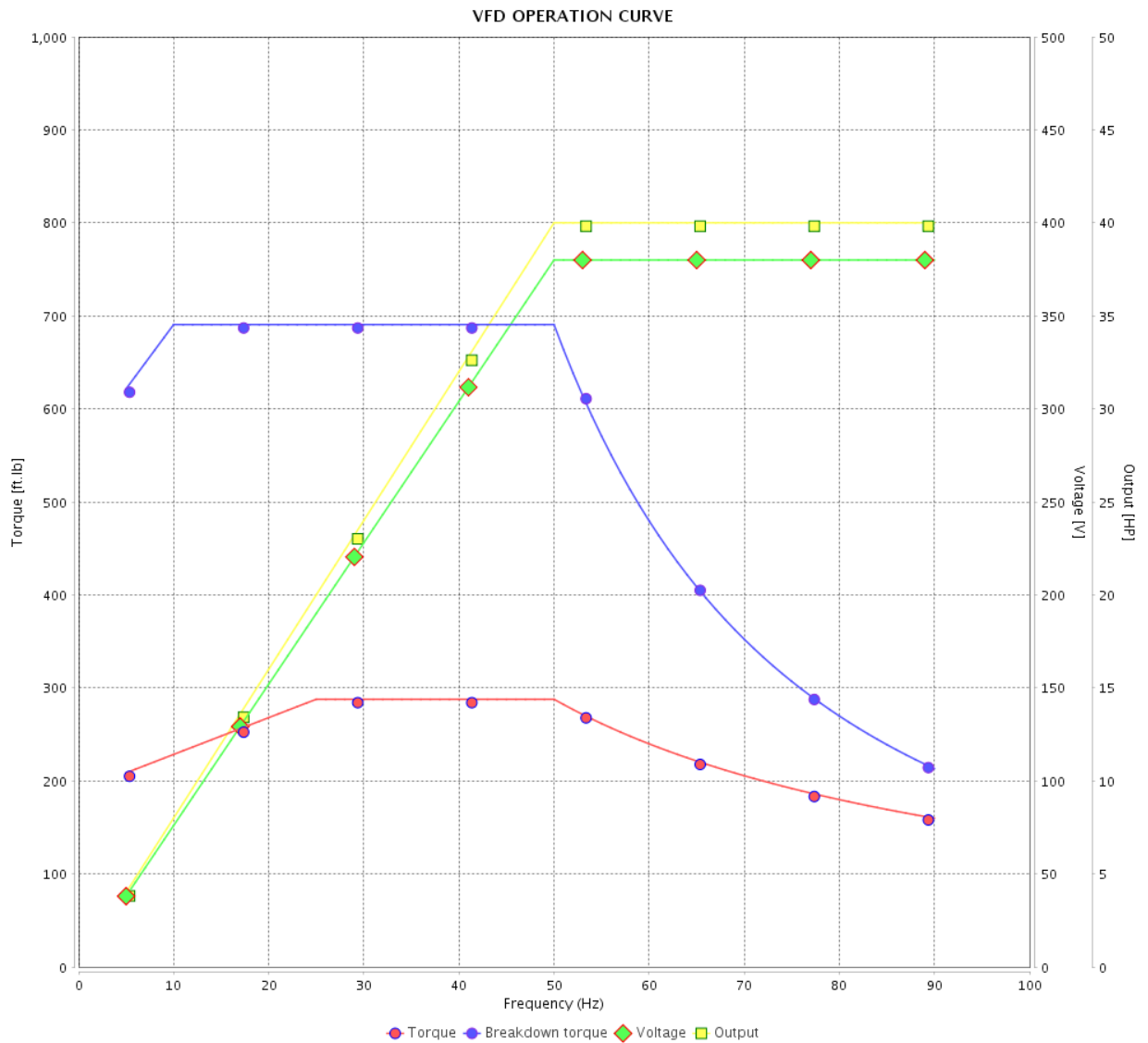


Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 14325582

Catalog # : 05009ST3QIE404TC-W22



Performance : 380 V 50 Hz 8P IE3

Rated current : 59.4 A
 LRC : 6.8
 Rated torque : 288 ft.lb
 Locked rotor torque : 170 %
 Breakdown torque : 240 %
 Rated speed : 730 rpm

Moment of inertia (J) : 34.6 sq.ft.lb
 Duty cycle : Cont.(S1)
 Insulation class : F
 Service factor : 1.00
 Temperature rise : 80 K
 Design : B

Rev.	Changes Summary	Performed	Checked	Date
Performed by		Page		Revision
Checked by		31 / 36		
Date	12/04/2022			

VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage



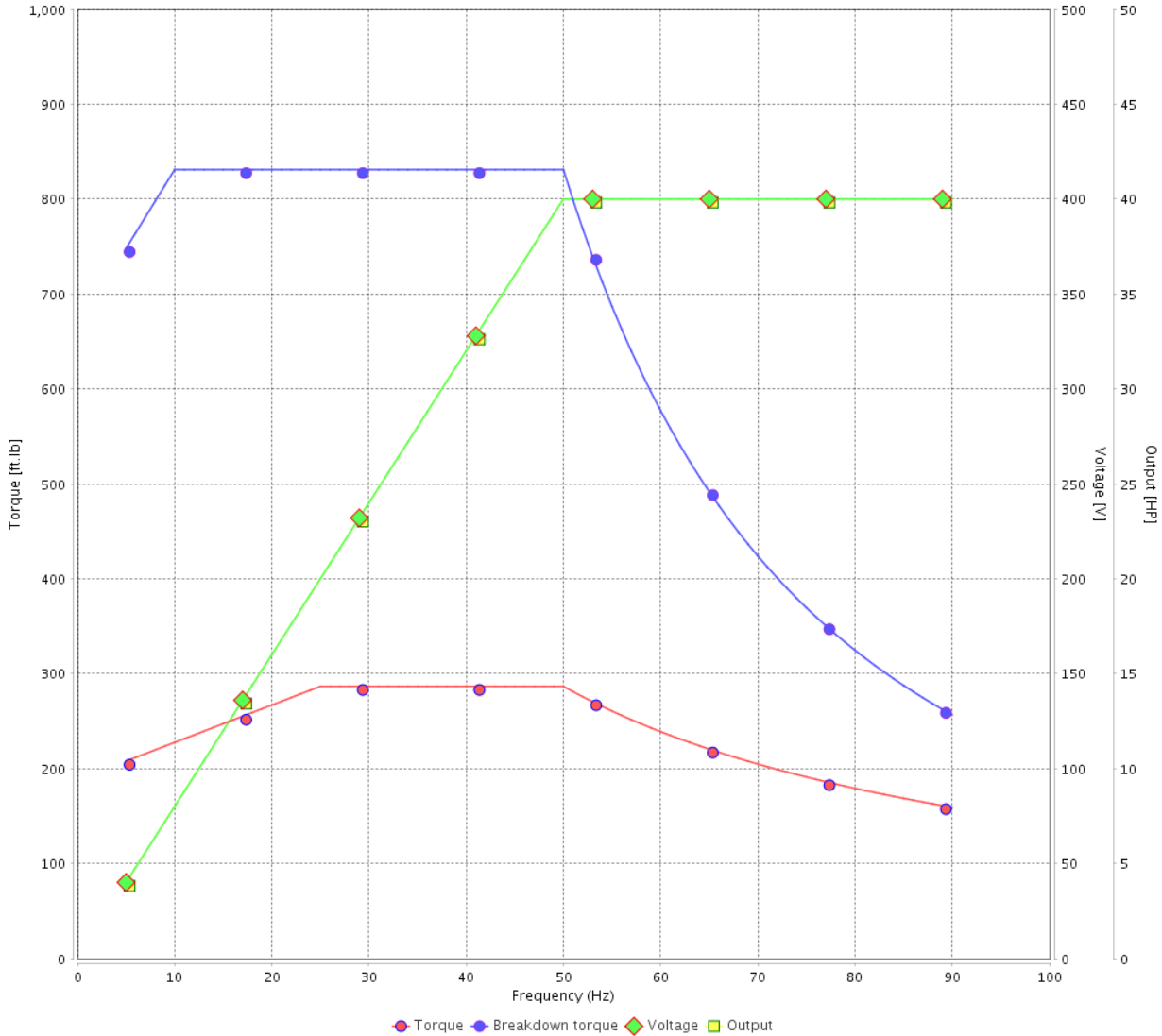
Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 14325582

Catalog # : 05009ST3QIE404TC-W22

VFD OPERATION CURVE



Performance : 400 V 50 Hz 8P IE3

Rated current	: 57.6 A	Moment of inertia (J)	: 34.6 sq.ft.lb
LRC	: 7.3	Duty cycle	: Cont.(S1)
Rated torque	: 287 ft.lb	Insulation class	: F
Locked rotor torque	: 200 %	Service factor	: 1.00
Breakdown torque	: 290 %	Temperature rise	: 80 K
Rated speed	: 733 rpm	Design	: B

Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page 32 / 36	Revision
Checked by				
Date	12/04/2022			

VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage

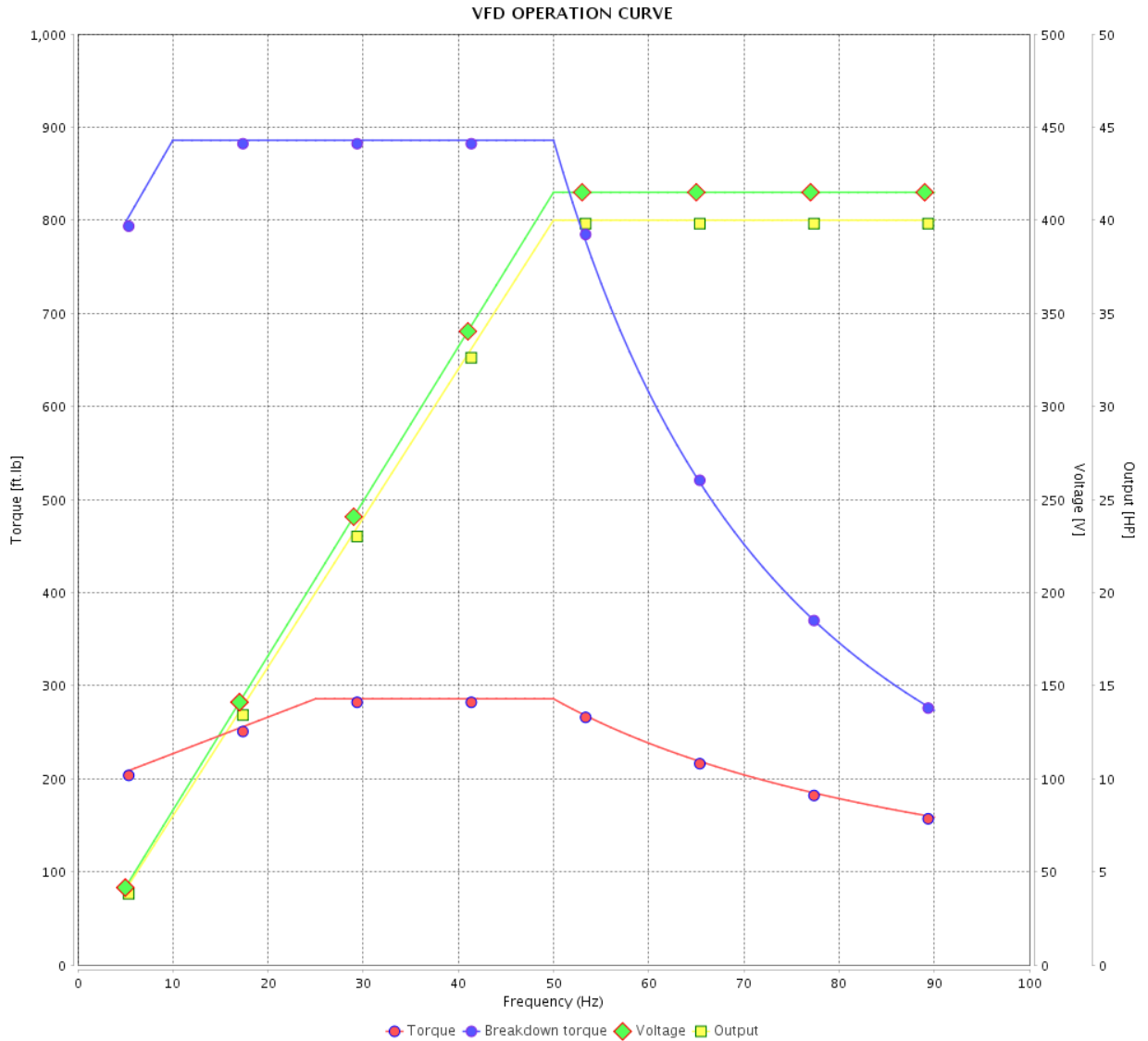


Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 14325582

Catalog # : 05009ST3QIE404TC-W22



Performance : 415 V 50 Hz 8P IE3

Rated current : 56.8 A
 LRC : 7.8
 Rated torque : 286 ft.lb
 Locked rotor torque : 229 %
 Breakdown torque : 310 %
 Rated speed : 735 rpm

Moment of inertia (J) : 34.6 sq.ft.lb
 Duty cycle : Cont.(S1)
 Insulation class : F
 Service factor : 1.00
 Temperature rise : 80 K
 Design : B

Rev.	Changes Summary	Performed	Checked	Date
Performed by		Page		Revision
Checked by		33 / 36		
Date	12/04/2022			

VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage



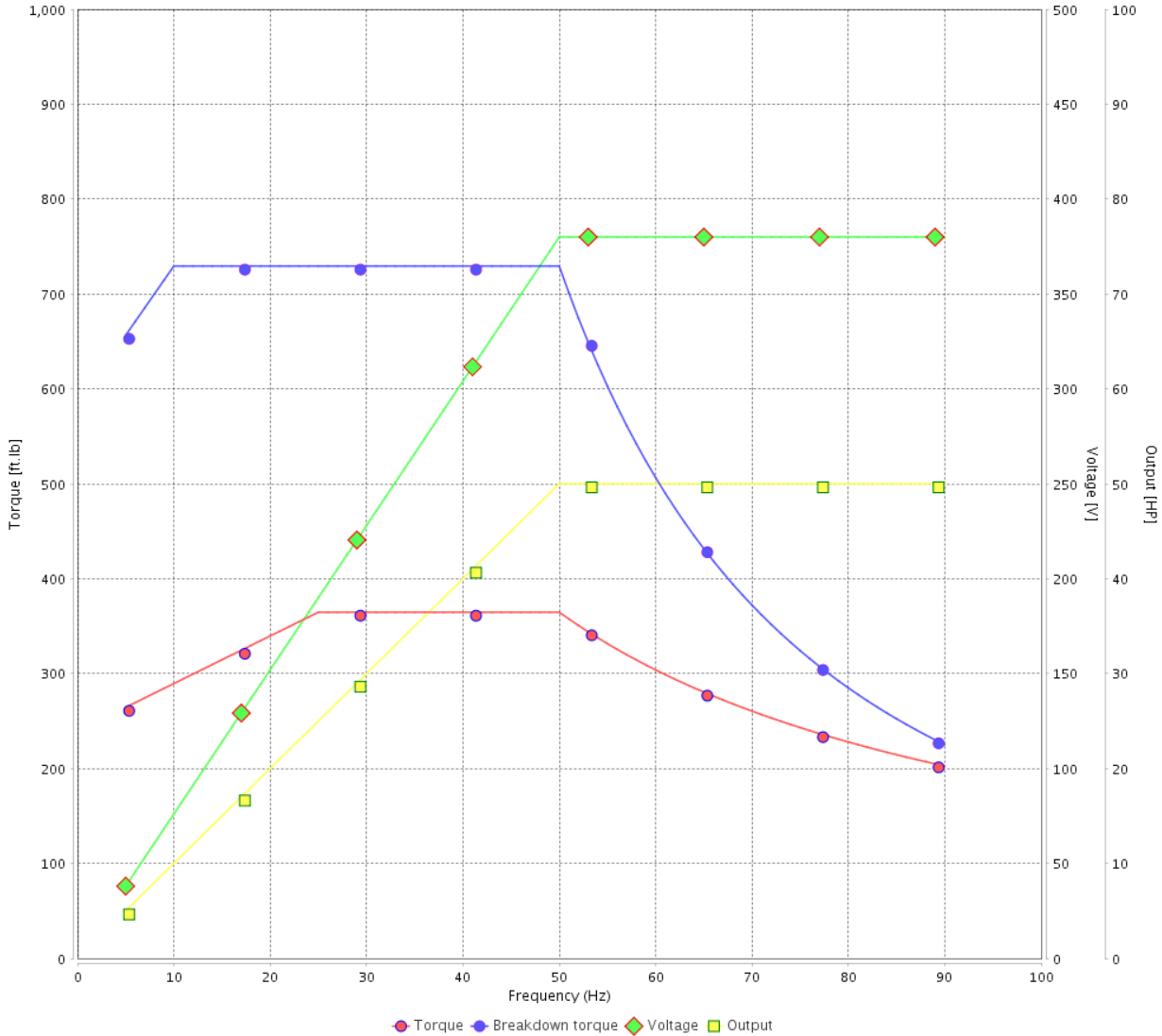
Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 14325582

Catalog # : 05009ST3QIE404TC-W22

VFD OPERATION CURVE



Performance : 380 V 50 Hz 8P IE1

Rated current : 73.3 A
 LRC : 5.5
 Rated torque : 365 ft.lb
 Locked rotor torque : 140 %
 Breakdown torque : 200 %
 Rated speed : 720 rpm

Moment of inertia (J) : 34.6 sq.ft.lb
 Duty cycle : Cont.(S1)
 Insulation class : F
 Service factor : 1.00
 Temperature rise : 105 K
 Design : B

Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page	Revision
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Date				

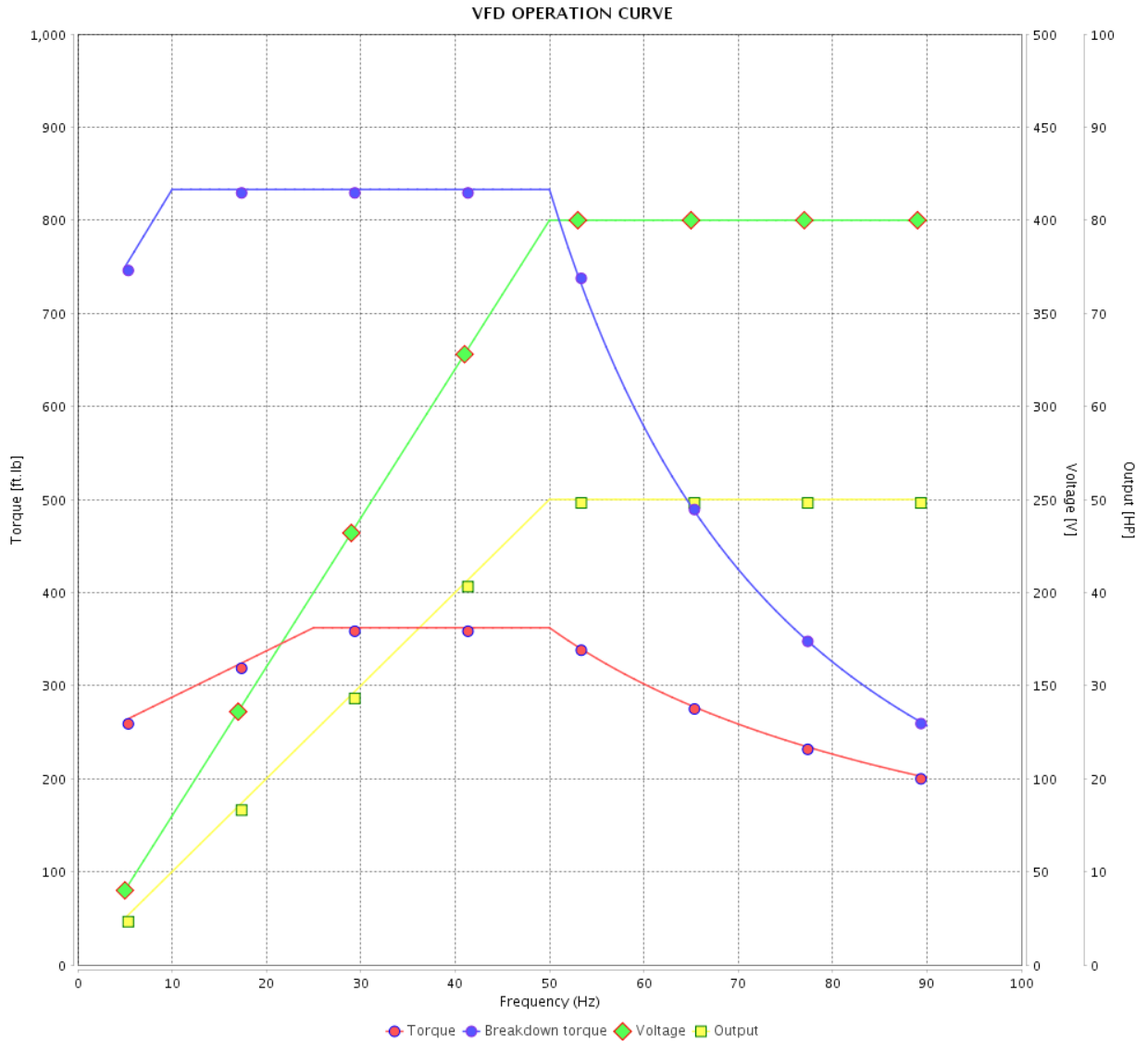
VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage



Customer :

Product line : NEMA Premium Efficiency Three-Phase
 Product code : 14325582
 Catalog # : 05009ST3QIE404TC-W22



Performance : 400 V 50 Hz 8P IE2

Rated current	: 69.9 A	Moment of inertia (J)	: 34.6 sq.ft.lb
LRC	: 6.0	Duty cycle	: Cont.(S1)
Rated torque	: 362 ft.lb	Insulation class	: F
Locked rotor torque	: 160 %	Service factor	: 1.00
Breakdown torque	: 229 %	Temperature rise	: 105 K
Rated speed	: 725 rpm	Design	: B

Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page 35 / 36	Revision
Checked by				
Date	12/04/2022			

VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage



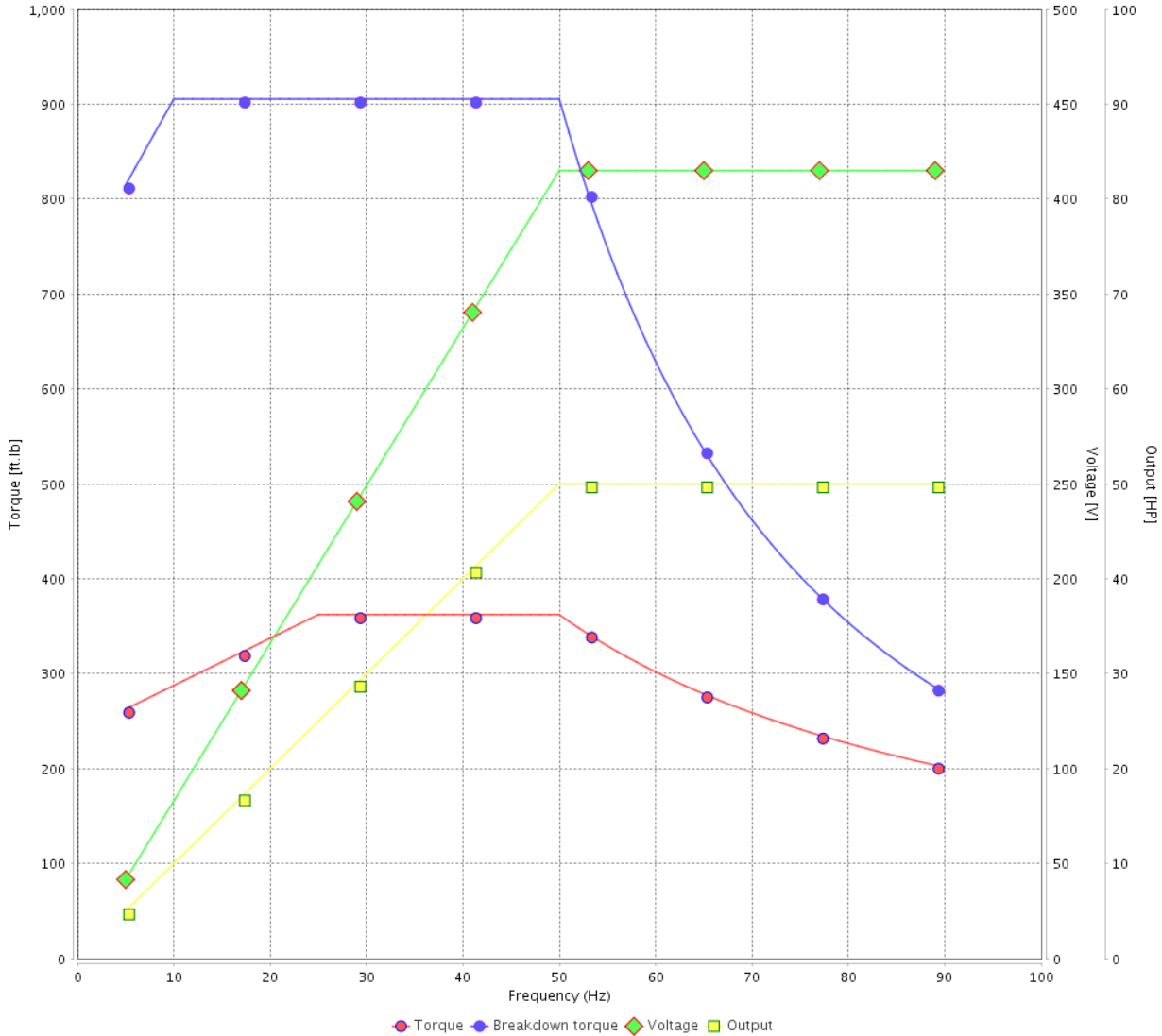
Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 14325582

Catalog # : 05009ST3QIE404TC-W22

VFD OPERATION CURVE



Performance : 415 V 50 Hz 8P IE2

Rated current	: 68.2 A	Moment of inertia (J)	: 34.6 sq.ft.lb
LRC	: 6.5	Duty cycle	: Cont.(S1)
Rated torque	: 362 ft.lb	Insulation class	: F
Locked rotor torque	: 180 %	Service factor	: 1.00
Breakdown torque	: 250 %	Temperature rise	: 105 K
Rated speed	: 725 rpm	Design	: B

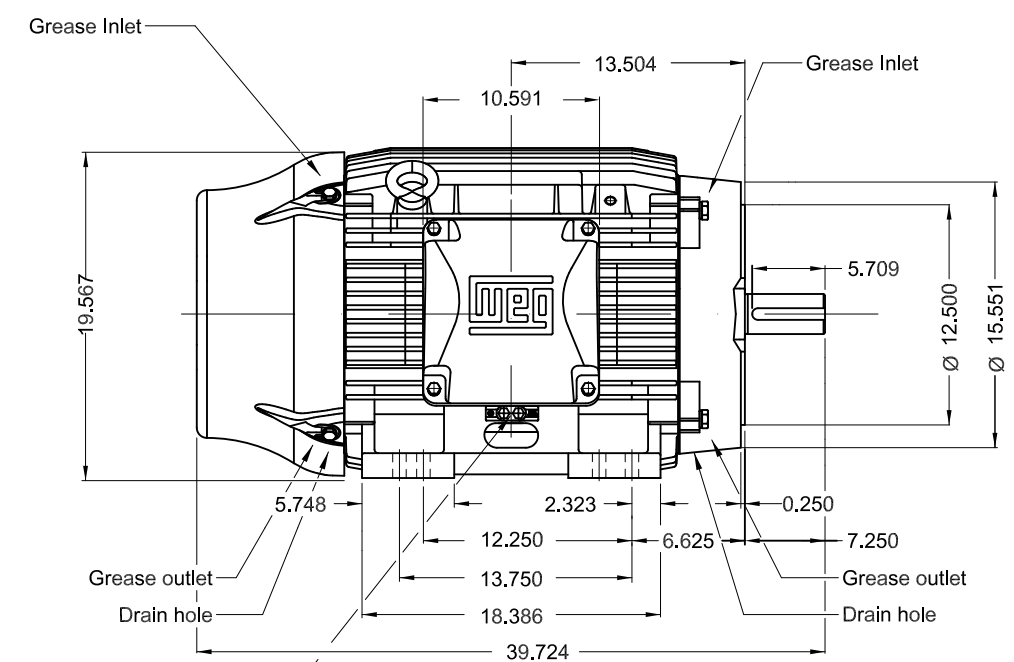
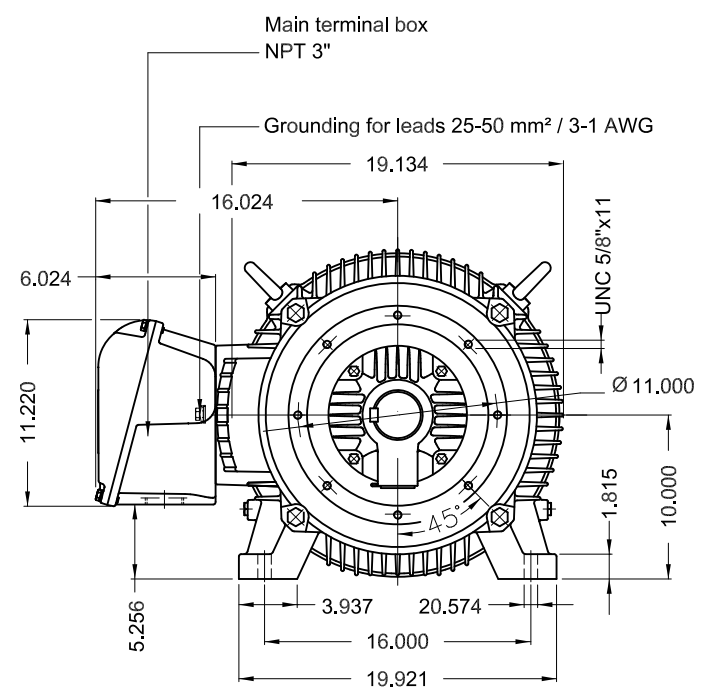
Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page	Revision
Checked by			36 / 36	
Date	12/04/2022			

1 2 3 4 5 6

A

B

C

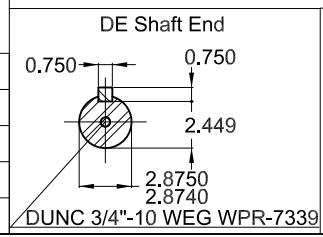


Grounding for leads 25-185 mm² / 3AWG-350MCM

D

E

Without vertical jackscrews
 Color RAL 5009
 Painting plan 202E
 Mounting NEMA F-1
 Mounting B34R(D)



50 HP 08 Poles 60 Hz A

ECM	LOC	SUMMARY OF MODIFICATIONS	EXECUTED	CHECKED	RELEASED	DATE	VER
EXECUTED	PIRWBUSER	THREE PH. MOTOR IEEE 841 W22 PREM. EFF.					
CHECKED		FRAME 404/5TC IP55 TEFC					
RELEASED							
REL DT.	WMO	Jaragua do Sul	Product Engineering	SHEET	1 / 1		

PREVIEW
WDD

