

# DATA SHEET

## Three Phase Induction Motor - Squirrel Cage



Customer :

Product line : W22 IEEE 841 NEMA Premium Efficiency Three-Phase      Product code : 17419277  
 Catalog # : 02012ST3QAP286T-W22

Frame : 284/6T	Cooling method : IC411 - TEFC
Insulation class : F	Mounting : W-8
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> : 2.2 lb
Protection degree : IP56	Moment of inertia (J) : 9.16 sq.ft.lb
Design : B	

Output [HP]	20	15	15	15	20	20	20
Poles	6	6	6	6	6	6	6
Frequency [Hz]	60	50	50	50	50	50	50
Rated voltage [V]	460	380	400	415	380	400	415
Rated current [A]	24.2	21.8	21.2	21.3	29.6	28.1	27.2
L. R. Amperes [A]	143	129	140	149	130	141	147
LRC [A]	5.9x(Code G)	5.9x(Code G)	6.6x(Code H)	7.0x(Code J)	4.4x(Code D)	5.0x(Code E)	5.4x(Code F)
No load current [A]	8.30	8.20	8.80	9.40	8.20	8.80	9.40
Rated speed [RPM]	1175	975	975	980	965	970	975
Slip [%]	2.08	2.50	2.50	2.00	3.50	3.00	2.50
Rated torque [ft.lb]	89.4	80.8	80.8	80.4	109	108	108
Locked rotor torque [%]	220	220	260	270	160	190	200
Breakdown torque [%]	250	260	280	310	190	210	229
Service factor	1.15	1.00	1.15	1.15	1.00	1.15	1.15
Temperature rise	80 K	80 K	80 K	80 K	105 K	105 K	105 K
Locked rotor time	28s (cold) 16s (hot)	21s (cold) 12s (hot)	21s (cold) 12s (hot)	21s (cold) 12s (hot)	21s (cold) 12s (hot)	21s (cold) 12s (hot)	21s (cold) 12s (hot)
Noise level <sup>2</sup>	59.0 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%						
	50%	91.0	90.0	89.3	89.3	90.2	90.2
	75%	91.7	90.3	90.3	90.6	90.2	90.2
	100%	91.7	90.3	90.3	90.8	88.5	89.5
Power Factor	25%						
	50%	0.70	0.66	0.63	0.60	0.76	0.73
	75%	0.80	0.79	0.76	0.73	0.84	0.82
	100%	0.85	0.85	0.83	0.81	0.87	0.86

Losses at normative operating points (speed;torque), in percentage of rated output power

Losses (%)	P1 (0,9;1,0)	9.9	11.9	11.9	11.2	14.5	13.0	12.0
	P2 (0,5;1,0)	8.5	10.4	10.4	9.7	13.0	11.5	10.5
	P3 (0,25;1,0)	7.9	9.8	9.8	9.2	12.4	11.0	10.0
	P4 (0,9;0,5)	5.2	6.0	6.0	5.7	7.2	6.5	6.1
	P5 (0,5;0,5)	3.7	4.4	4.4	4.1	5.4	4.8	4.4
	P6 (0,5;0,25)	2.6	3.1	3.1	2.9	3.8	3.4	3.2
	P7 (0,25;0,25)	1.8	2.3	2.3	2.1	2.9	2.5	2.3

	<u>Drive end</u>	<u>Non drive end</u>	Foundation loads
Bearing type	: NU-311 C3	6211 C3	Max. traction : 1079 lb
Sealing	: Inpro/Seal	Inpro/Seal	Max. compression : 1081 lb
Lubrication interval	: 17000 h	20000 h	
Lubricant amount	: 18 g	11 g	
Lubricant type	: Mobil Polyrex EM		

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## Three Phase Induction Motor - Squirrel Cage



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

Notes

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# TORQUE AND CURRENT VS SPEED CURVE



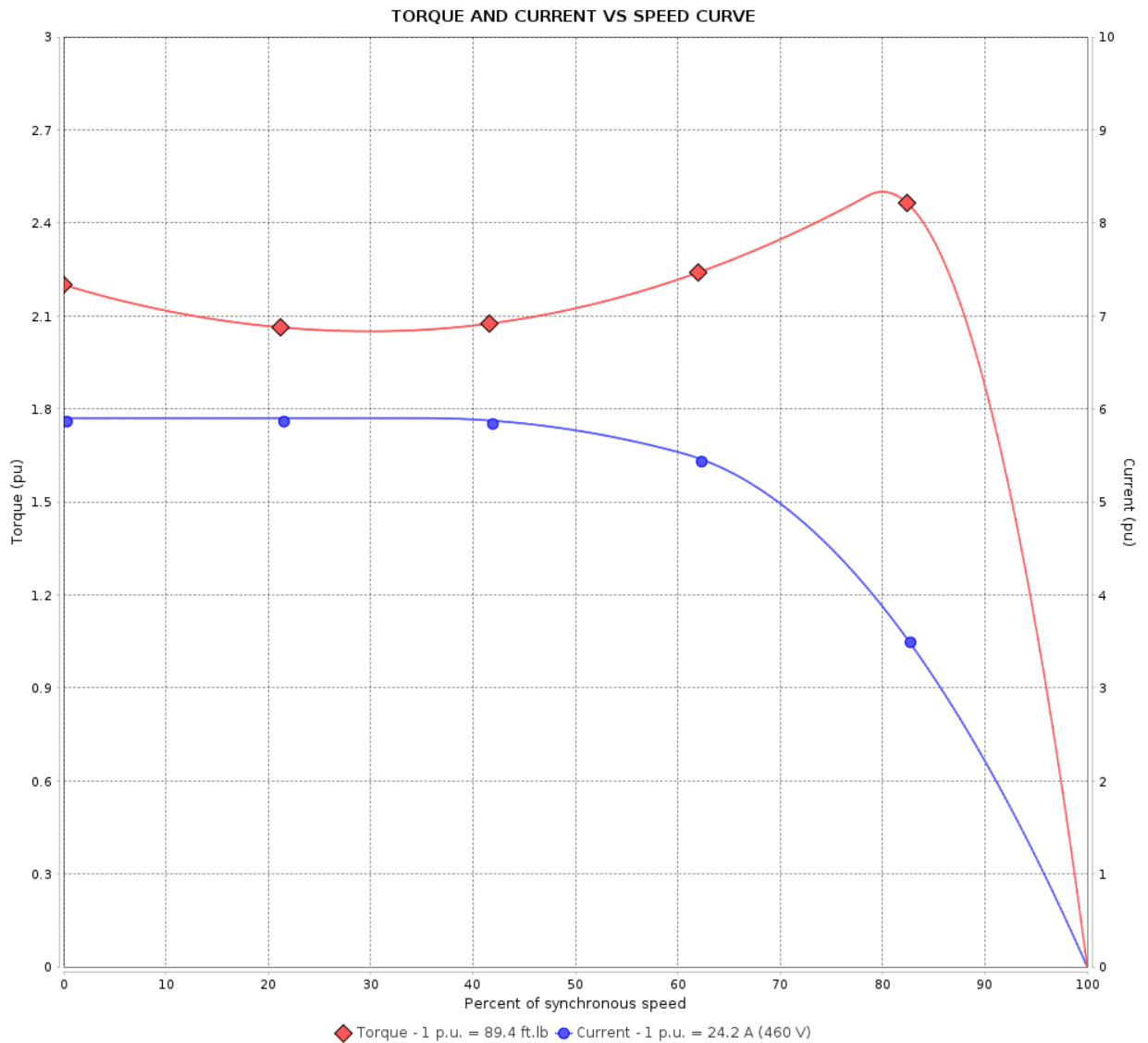
## Three Phase Induction Motor - Squirrel Cage

Customer :

Product line : W22 IEEE 841 NEMA Premium Efficiency Three-Phase

Product code : 17419277

Catalog # : 02012ST3QAP286T-W22



Performance : 460 V 60 Hz 6P

Rated current	: 24.2 A	Moment of inertia (J)	: 9.16 sq.ft.lb
LRC	: 5.9	Duty cycle	: Cont.(S1)
Rated torque	: 89.4 ft.lb	Insulation class	: F
Locked rotor torque	: 220 %	Service factor	: 1.15
Breakdown torque	: 250 %	Temperature rise	: 80 K
Rated speed	: 1175 rpm	Design	: B

Locked rotor time : 28s (cold) 16s (hot)

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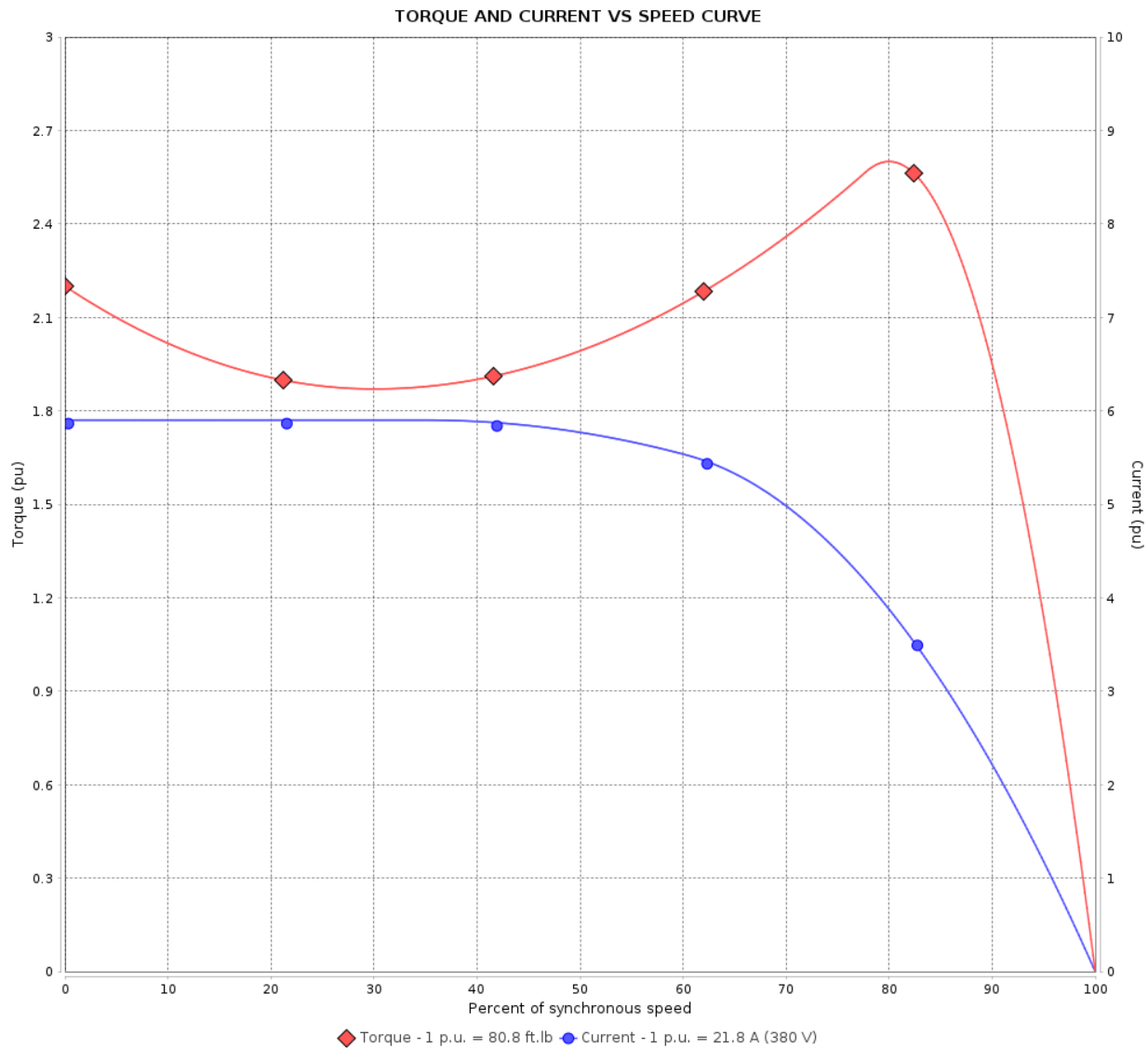


Customer :

Product line : W22 IEEE 841 NEMA Premium Efficiency  
Three-Phase

Product code : 17419277

Catalog # : 02012ST3QAP286T-W22



Performance : 380 V 50 Hz 6P IE3

Rated current	: 21.8 A	Moment of inertia (J)	: 9.16 sq.ft.lb
LRC	: 5.9	Duty cycle	: Cont.(S1)
Rated torque	: 80.8 ft.lb	Insulation class	: F
Locked rotor torque	: 220 %	Service factor	: 1.00
Breakdown torque	: 260 %	Temperature rise	: 80 K
Rated speed	: 975 rpm	Design	: B

Locked rotor time : 21s (cold) 12s (hot)

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# TORQUE AND CURRENT VS SPEED CURVE



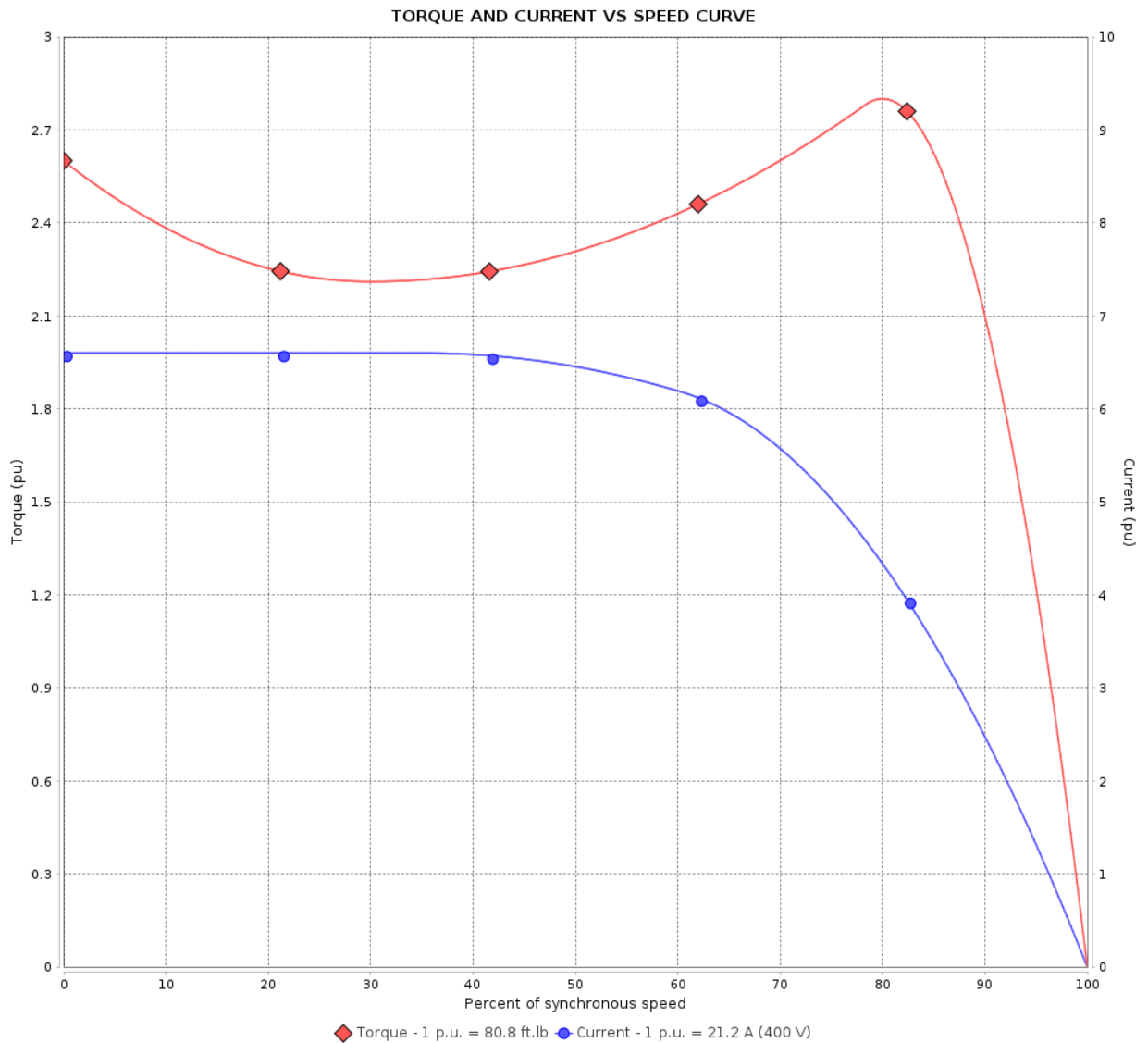
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Product code : 17419277

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Performance : 400 V 50 Hz 6P IE3

Rated current	: 21.2 A	Moment of inertia (J)	: 9.16 sq.ft.lb
LRC	: 6.6	Duty cycle	: Cont.(S1)
Rated torque	: 80.8 ft.lb	Insulation class	: F
Locked rotor torque	: 260 %	Service factor	: 1.15
Breakdown torque	: 280 %	Temperature rise	: 80 K
Rated speed	: 975 rpm	Design	: B

Locked rotor time : 21s (cold) 12s (hot)

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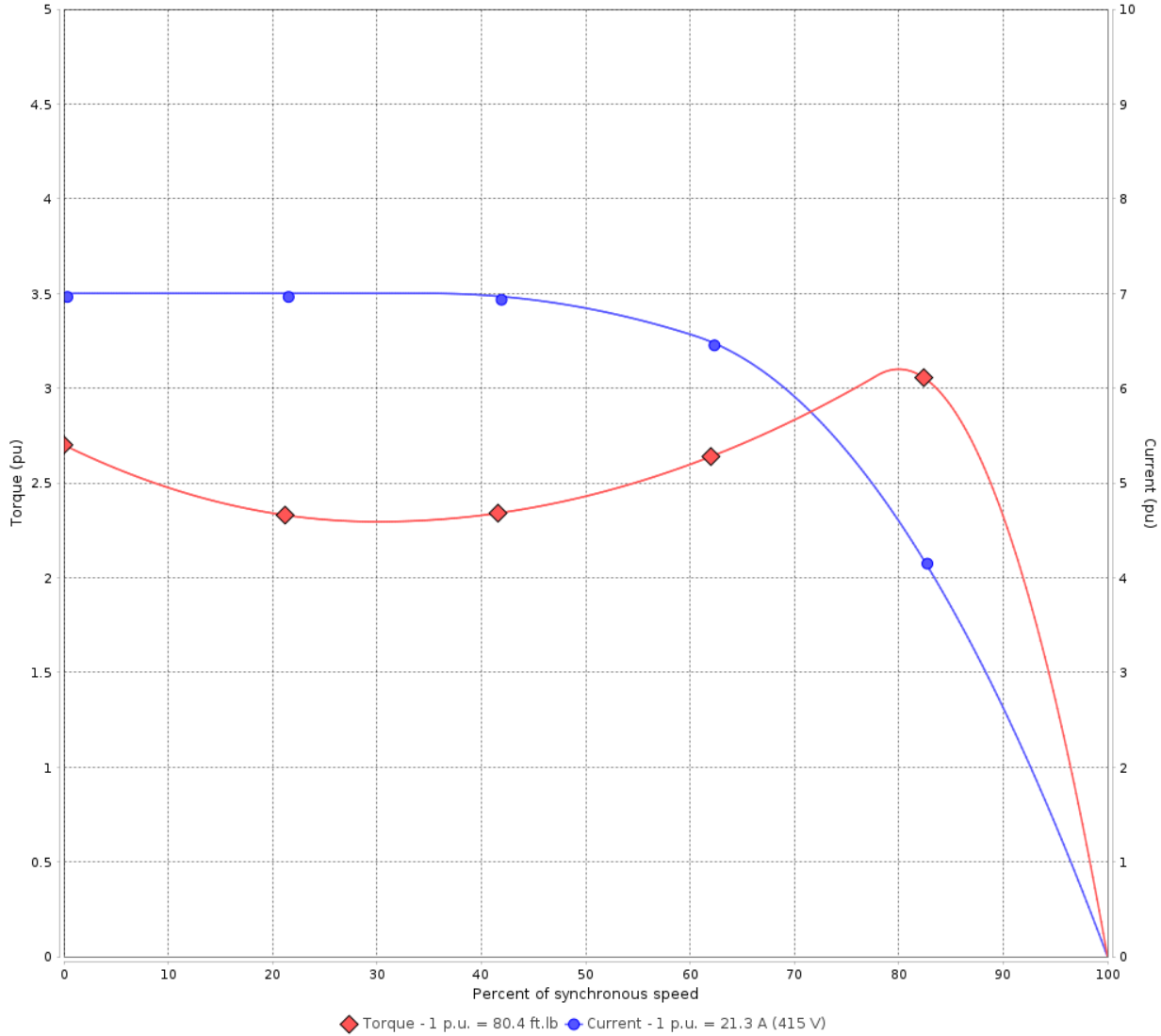
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TORQUE AND CURRENT VS SPEED CURVE



Performance : 415 V 50 Hz 6P IE3

Rated current	: 21.3 A	Moment of inertia (J)	: 9.16 sq.ft.lb
LRC	: 7.0	Duty cycle	: Cont.(S1)
Rated torque	: 80.4 ft.lb	Insulation class	: F
Locked rotor torque	: 270 %	Service factor	: 1.15
Breakdown torque	: 310 %	Temperature rise	: 80 K
Rated speed	: 980 rpm	Design	: B

Locked rotor time : 21s (cold) 12s (hot)

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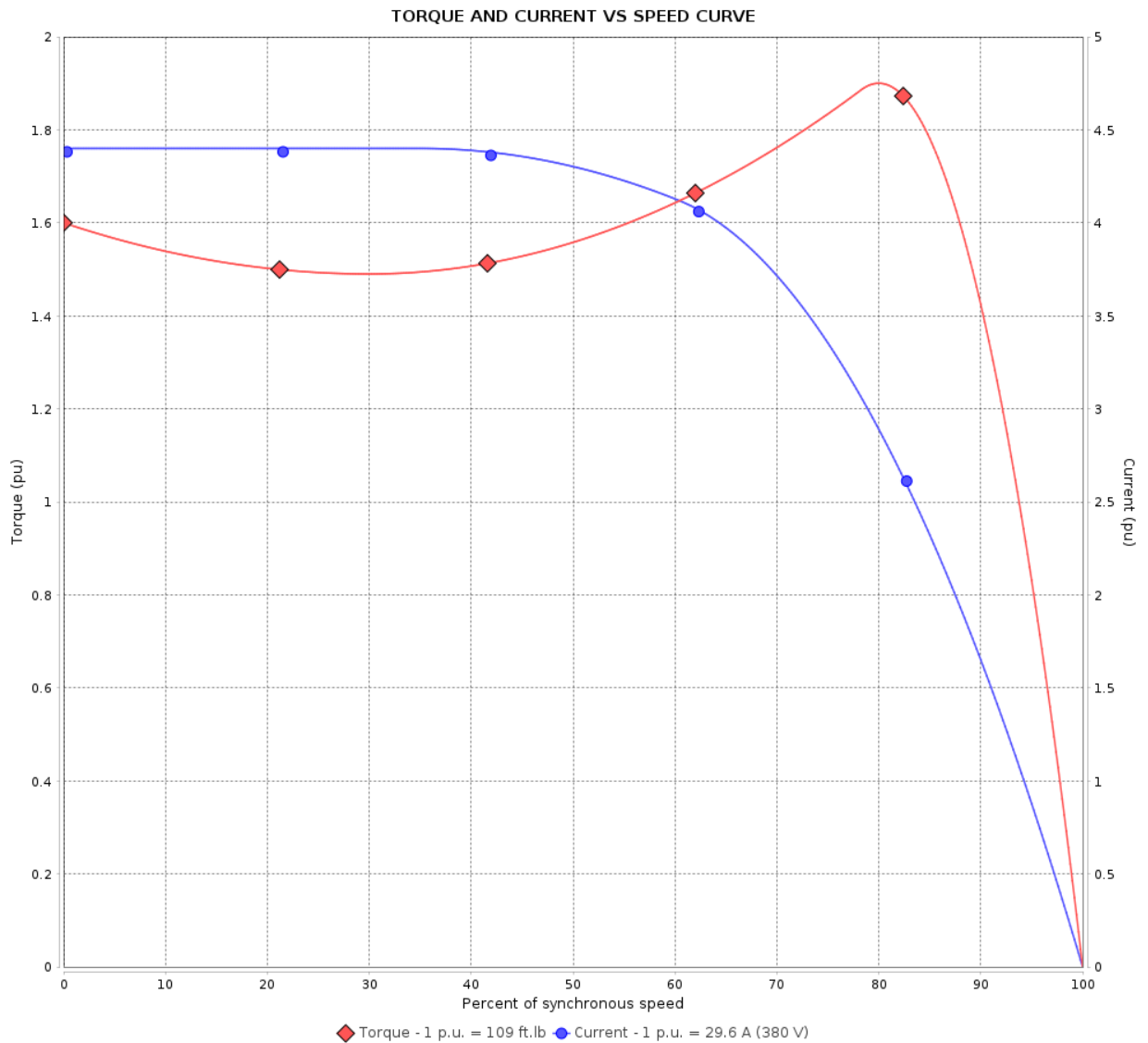
## Three Phase Induction Motor - Squirrel Cage

Customer :

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Performance : 380 V 50 Hz 6P IE1

Rated current	: 29.6 A	Moment of inertia (J)	: 9.16 sq.ft.lb
LRC	: 4.4	Duty cycle	: Cont.(S1)
Rated torque	: 109 ft.lb	Insulation class	: F
Locked rotor torque	: 160 %	Service factor	: 1.00
Breakdown torque	: 190 %	Temperature rise	: 105 K
Rated speed	: 965 rpm	Design	: B

Locked rotor time : 21s (cold) 12s (hot)

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# TORQUE AND CURRENT VS SPEED CURVE

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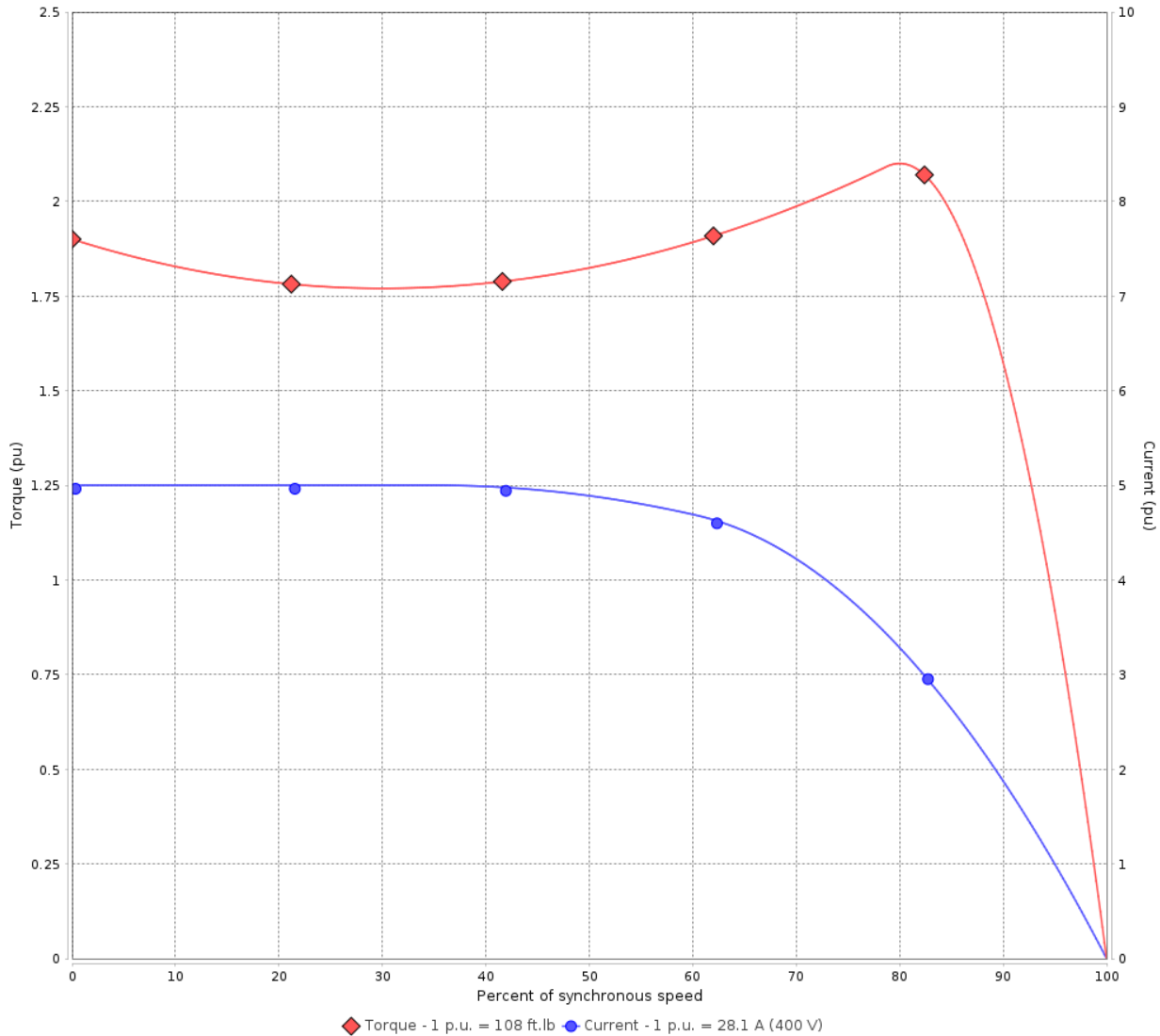
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Product code : 17419277

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TORQUE AND CURRENT VS SPEED CURVE



Performance : 400 V 50 Hz 6P IE1

Rated current	: 28.1 A	Moment of inertia (J)	: 9.16 sq.ft.lb
LRC	: 5.0	Duty cycle	: Cont.(S1)
Rated torque	: 108 ft.lb	Insulation class	: F
Locked rotor torque	: 190 %	Service factor	: 1.15
Breakdown torque	: 210 %	Temperature rise	: 105 K
Rated speed	: 970 rpm	Design	: B

Locked rotor time : 21s (cold) 12s (hot)

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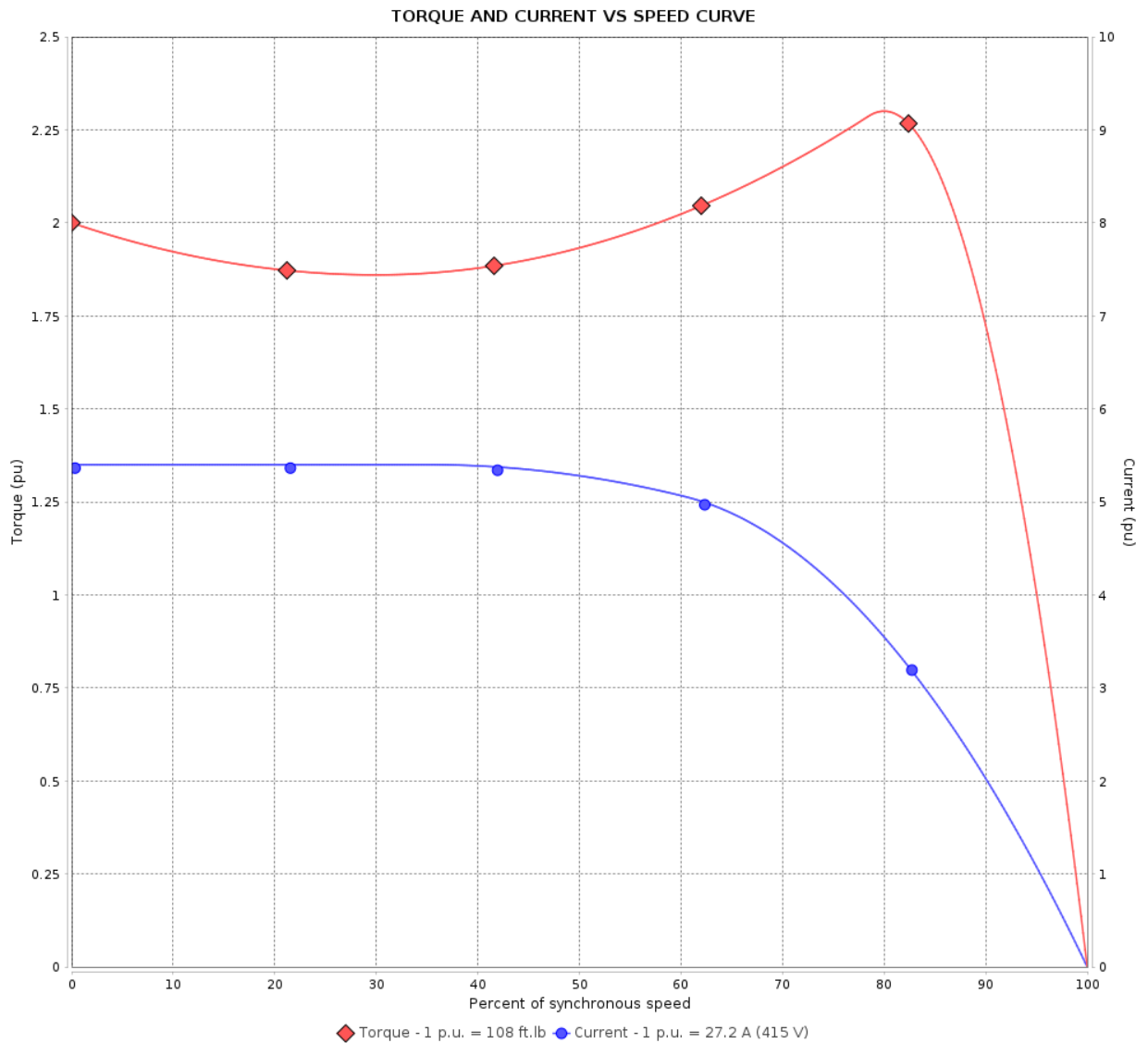
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Performance : 415 V 50 Hz 6P IE2

Rated current	: 27.2 A	Moment of inertia (J)	: 9.16 sq.ft.lb
LRC	: 5.4	Duty cycle	: Cont.(S1)
Rated torque	: 108 ft.lb	Insulation class	: F
Locked rotor torque	: 200 %	Service factor	: 1.15
Breakdown torque	: 229 %	Temperature rise	: 105 K
Rated speed	: 975 rpm	Design	: B

Locked rotor time : 21s (cold) 12s (hot)

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# LOAD PERFORMANCE CURVE

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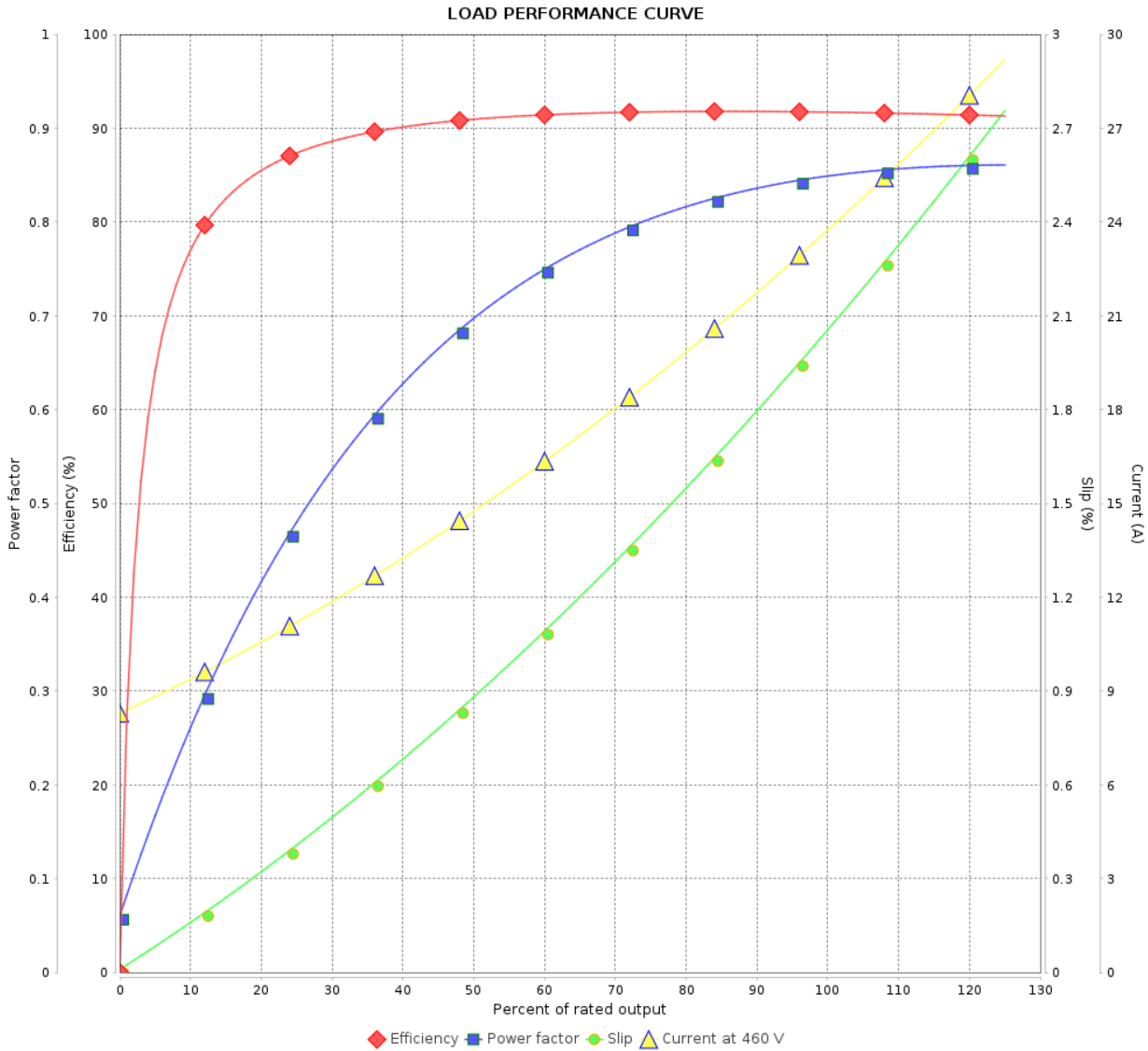


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Performance : 460 V 60 Hz 6P

Rated current : 24.2 A  
 LRC : 5.9  
 Rated torque : 89.4 ft.lb  
 Locked rotor torque : 220 %  
 Breakdown torque : 250 %  
 Rated speed : 1175 rpm

Moment of inertia (J) : 9.16 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.15  
 Temperature rise : 80 K  
 Design : B

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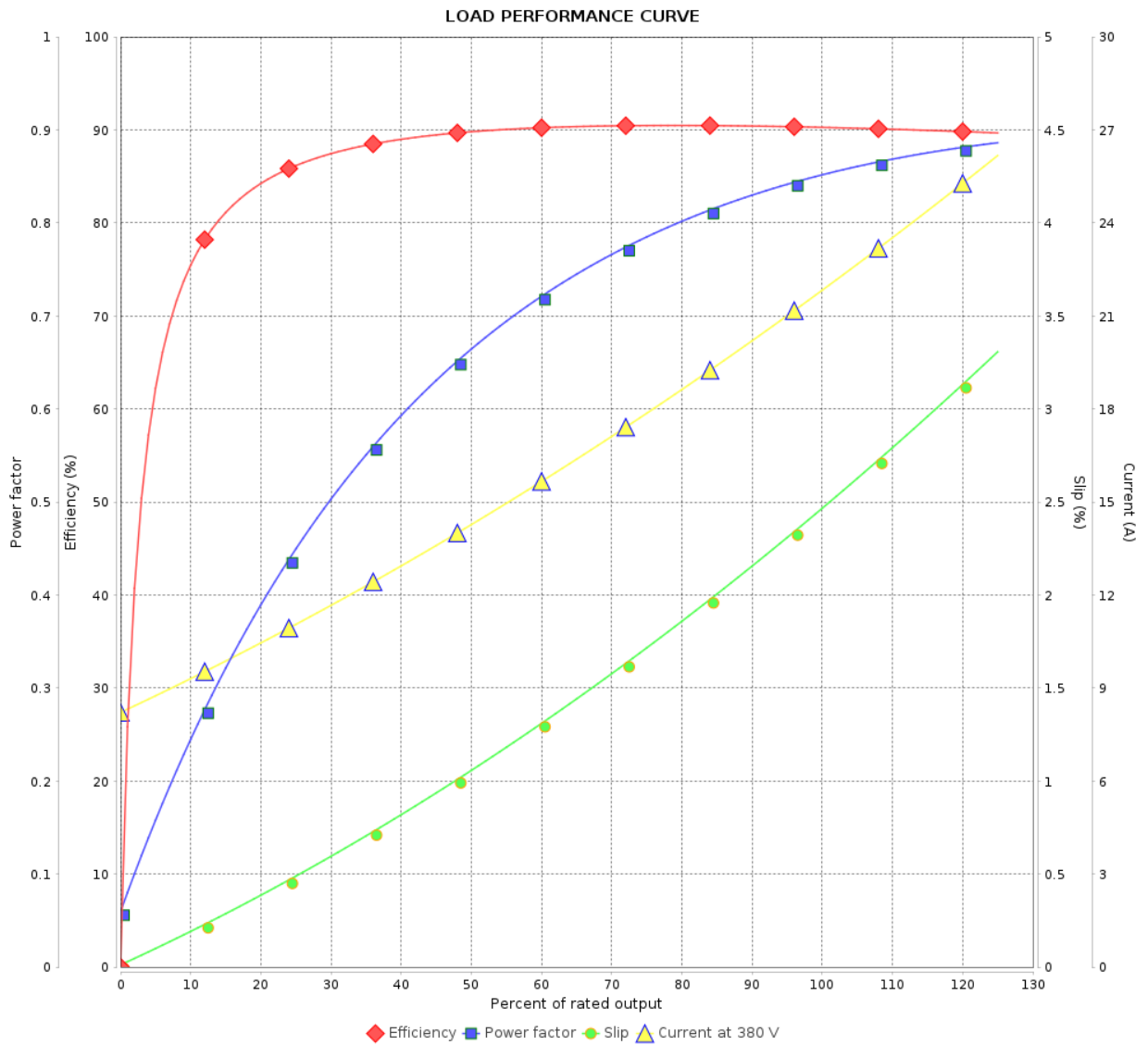


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Performance : 380 V 50 Hz 6P IE3

Rated current : 21.8 A  
 LRC : 5.9  
 Rated torque : 80.8 ft.lb  
 Locked rotor torque : 220 %  
 Breakdown torque : 260 %  
 Rated speed : 975 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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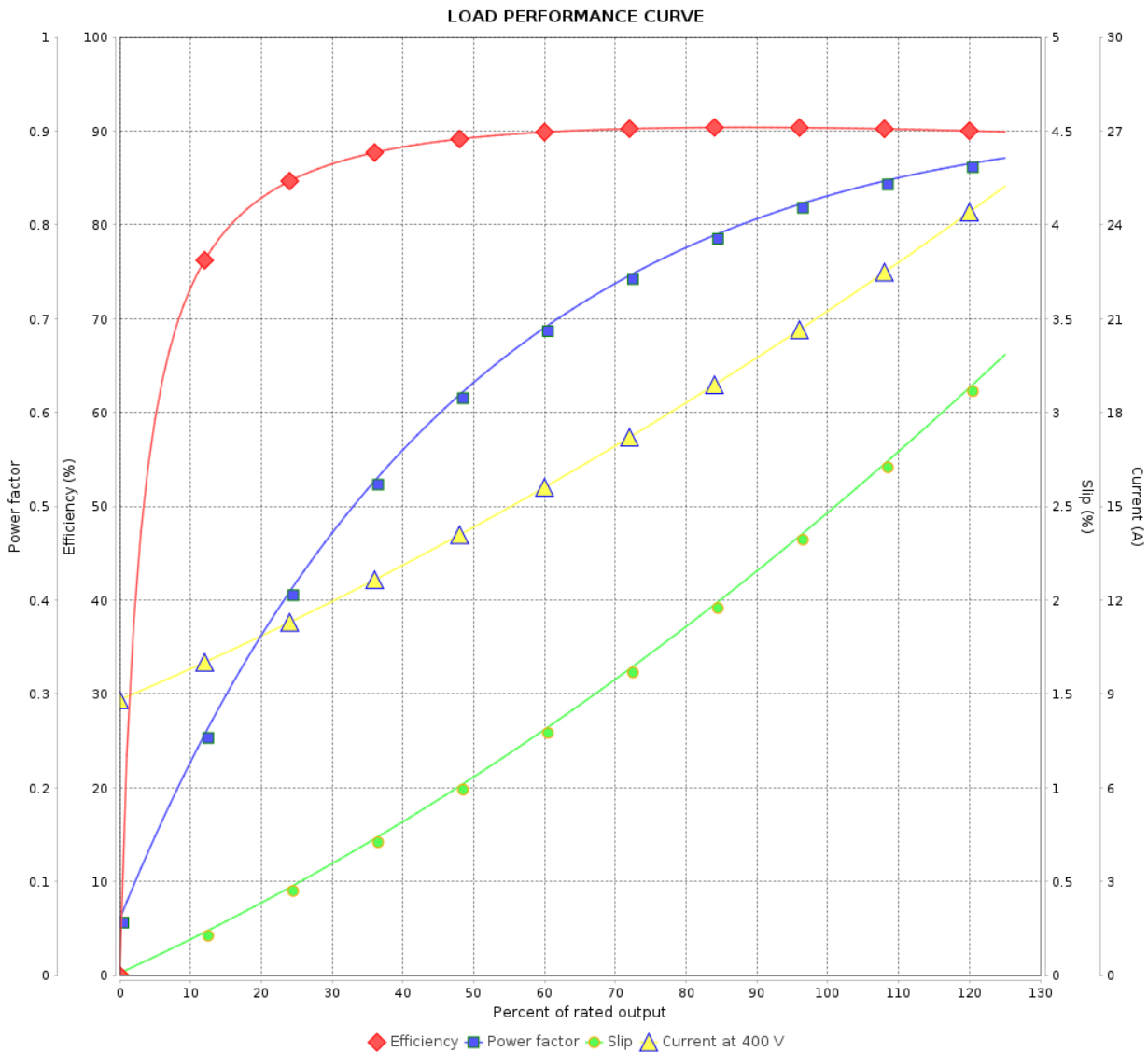


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Performance : 400 V 50 Hz 6P IE3

Rated current	: 21.2 A	Moment of inertia (J)	: 9.16 sq.ft.lb
LRC	: 6.6	Duty cycle	: Cont.(S1)
Rated torque	: 80.8 ft.lb	Insulation class	: F
Locked rotor torque	: 260 %	Service factor	: 1.15
Breakdown torque	: 280 %	Temperature rise	: 80 K
Rated speed	: 975 rpm	Design	: B

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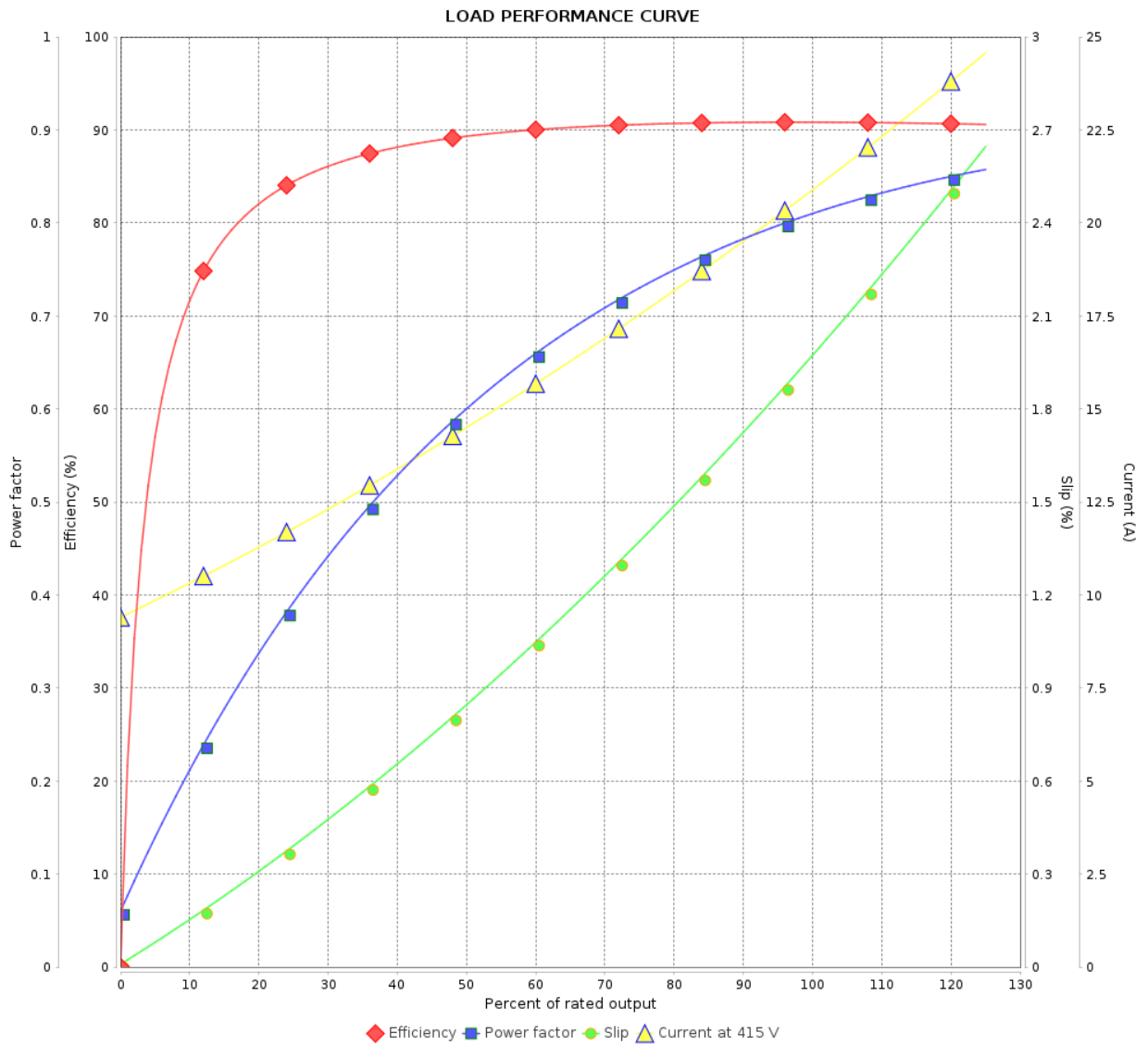


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Performance : 415 V 50 Hz 6P IE3

Rated current : 21.3 A  
 LRC : 7.0  
 Rated torque : 80.4 ft.lb  
 Locked rotor torque : 270 %  
 Breakdown torque : 310 %  
 Rated speed : 980 rpm

Moment of inertia (J) : 9.16 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.15  
 Temperature rise : 80 K  
 Design : B

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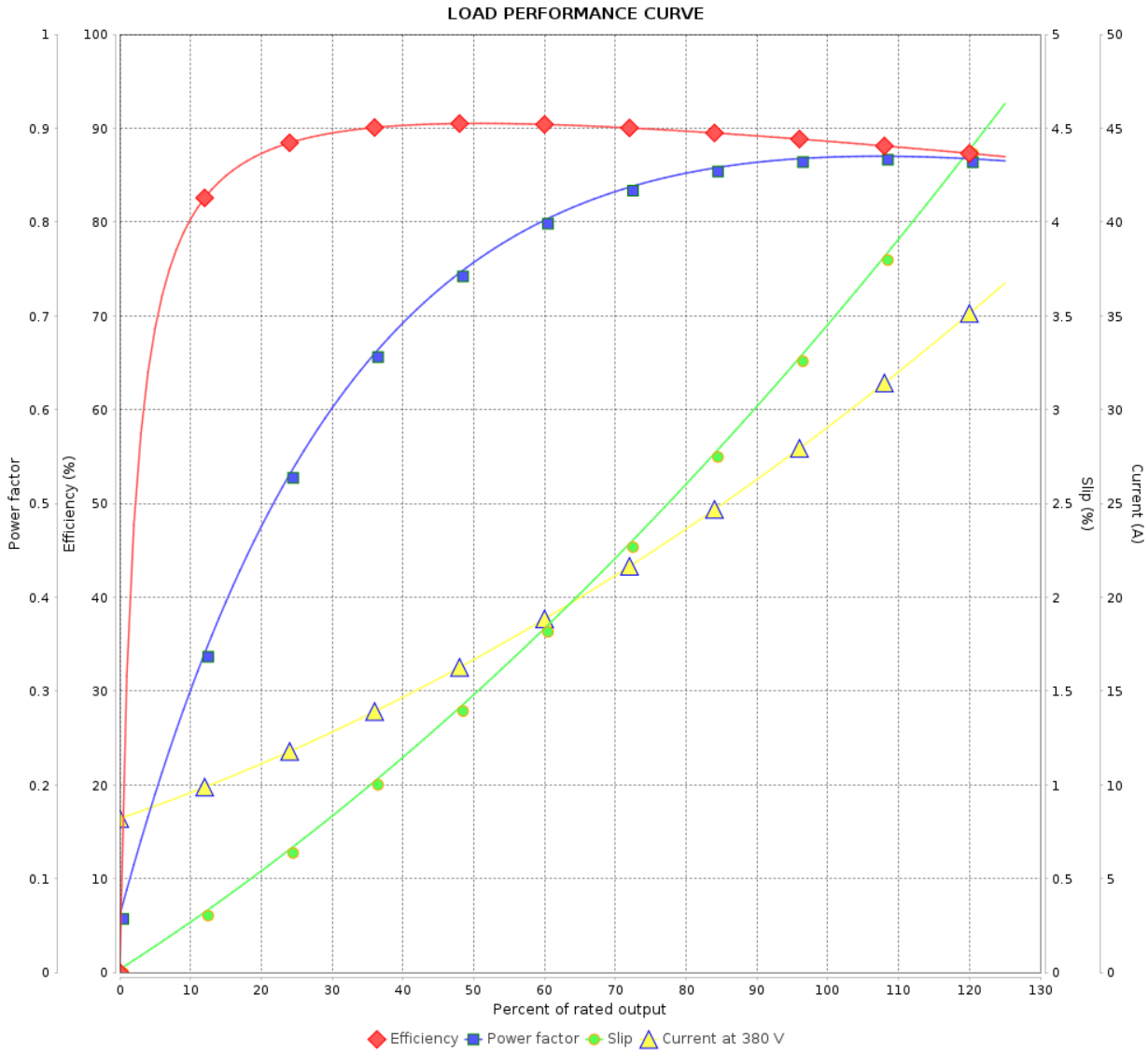


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Performance : 380 V 50 Hz 6P IE1

Rated current : 29.6 A  
 LRC : 4.4  
 Rated torque : 109 ft.lb  
 Locked rotor torque : 160 %  
 Breakdown torque : 190 %  
 Rated speed : 965 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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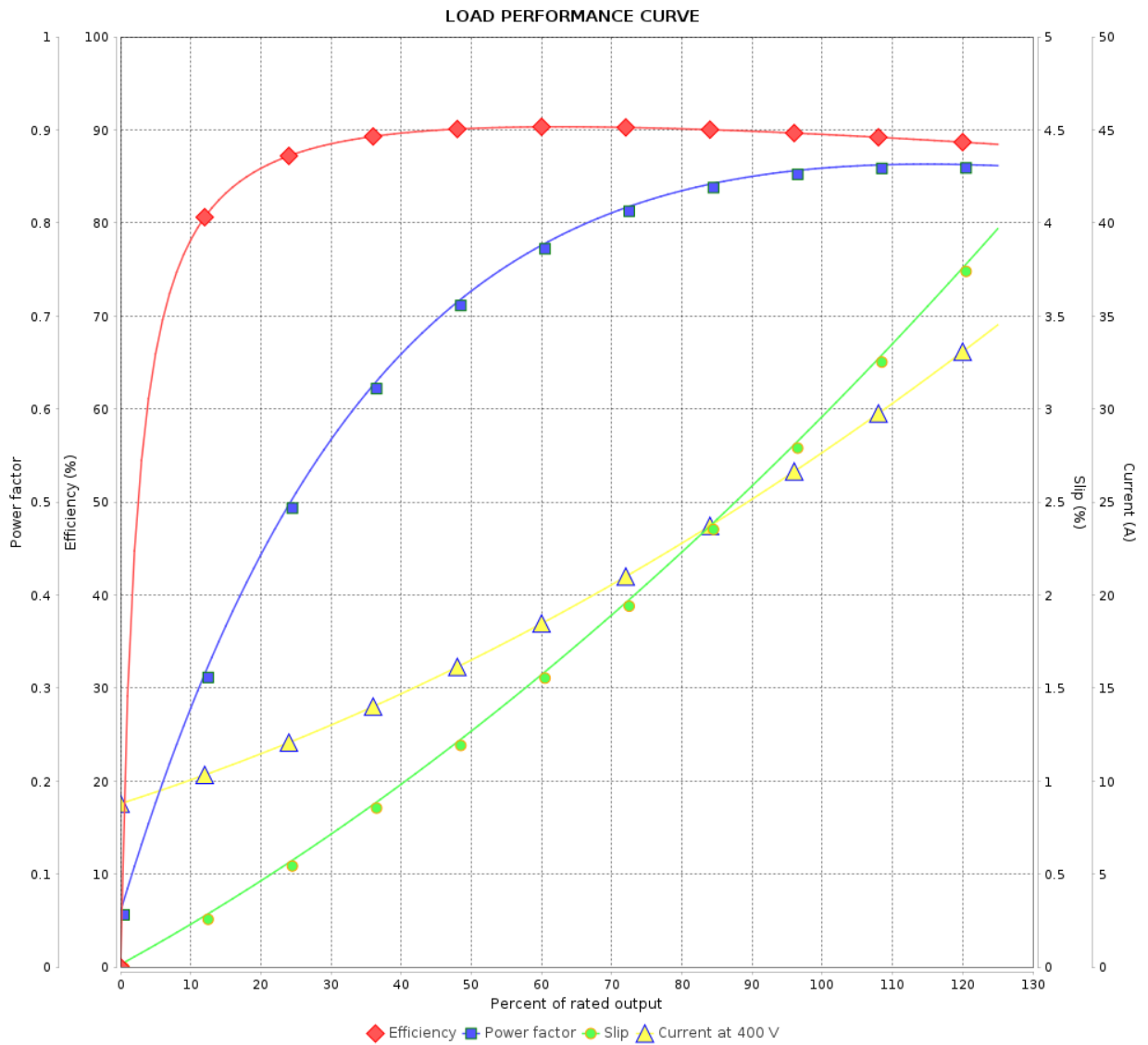


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Performance : 400 V 50 Hz 6P IE1

Rated current : 28.1 A  
 LRC : 5.0  
 Rated torque : 108 ft.lb  
 Locked rotor torque : 190 %  
 Breakdown torque : 210 %  
 Rated speed : 970 rpm

Moment of inertia (J) : 9.16 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.15  
 Temperature rise : 105 K  
 Design : B

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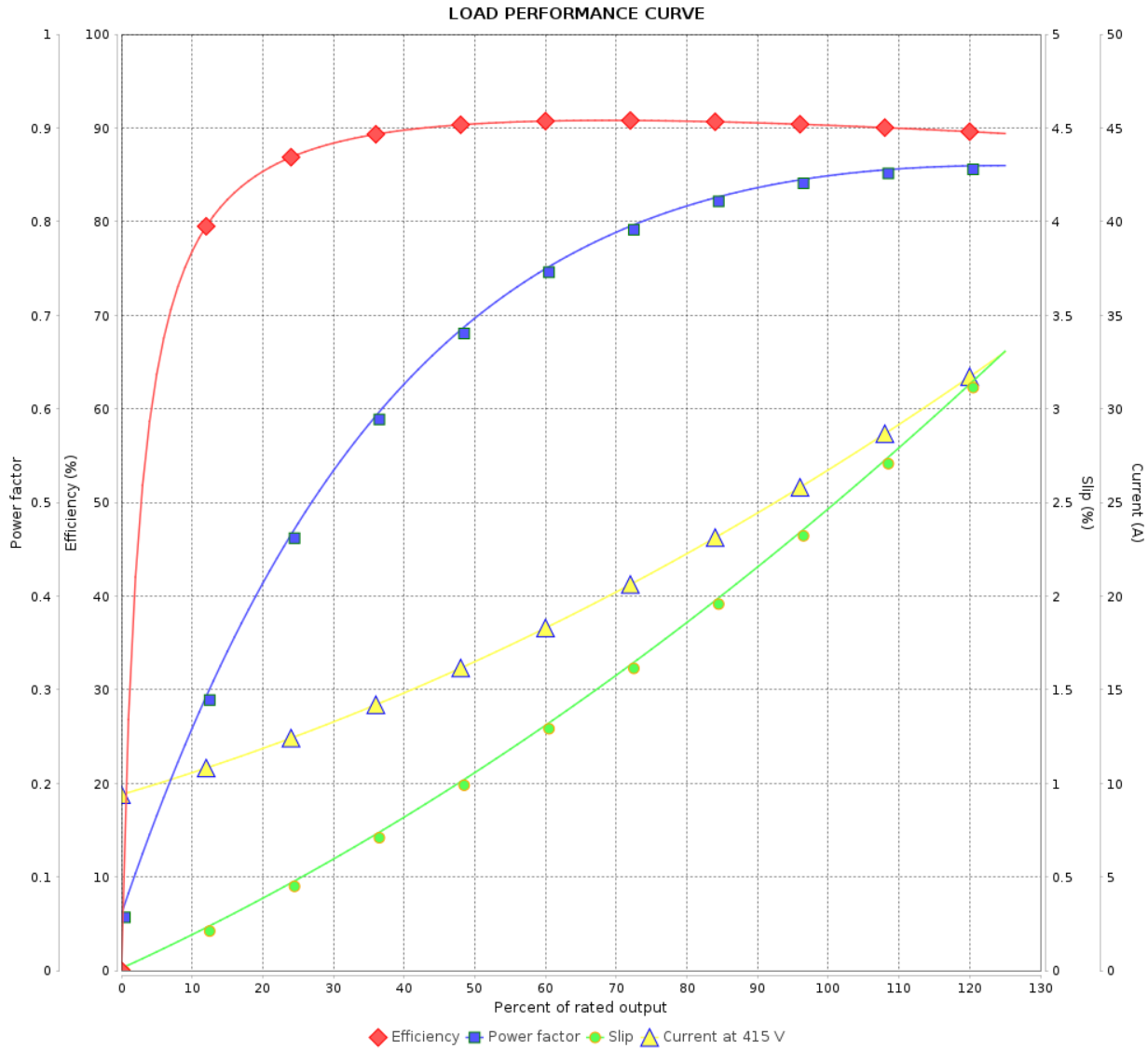


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Performance : 415 V 50 Hz 6P IE2

Rated current : 27.2 A  
 LRC : 5.4  
 Rated torque : 108 ft.lb  
 Locked rotor torque : 200 %  
 Breakdown torque : 229 %  
 Rated speed : 975 rpm

Moment of inertia (J) : 9.16 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.15  
 Temperature rise : 105 K  
 Design : B

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# THERMAL LIMIT CURVE



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Performance : 460 V 60 Hz 6P

Rated current : 24.2 A  
LRC : 5.9  
Rated torque : 89.4 ft.lb  
Locked rotor torque : 220 %  
Breakdown torque : 250 %  
Rated speed : 1175 rpm

Moment of inertia (J) : 9.16 sq.ft.lb  
Duty cycle : Cont.(S1)  
Insulation class : F  
Service factor : 1.15  
Temperature rise : 80 K  
Design : B

Heating constant

Cooling constant

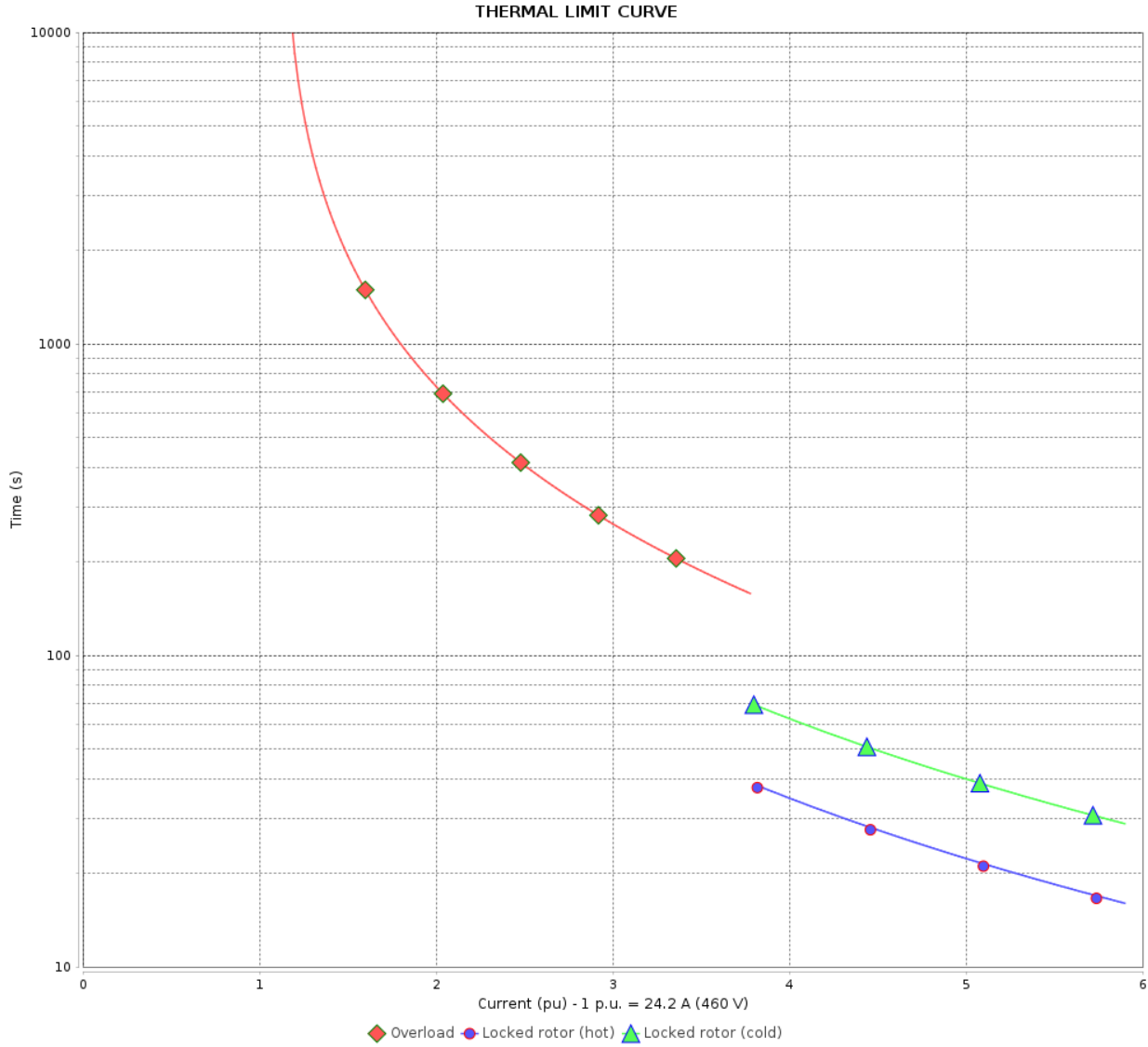
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Performance : 380 V 50 Hz 6P IE3

Rated current : 21.8 A	Moment of inertia (J) : 9.16 sq.ft.lb
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Rated torque : 80.8 ft.lb	Insulation class : F
Locked rotor torque : 220 %	Service factor : 1.00
Breakdown torque : 260 %	Temperature rise : 80 K
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Heating constant

Cooling constant

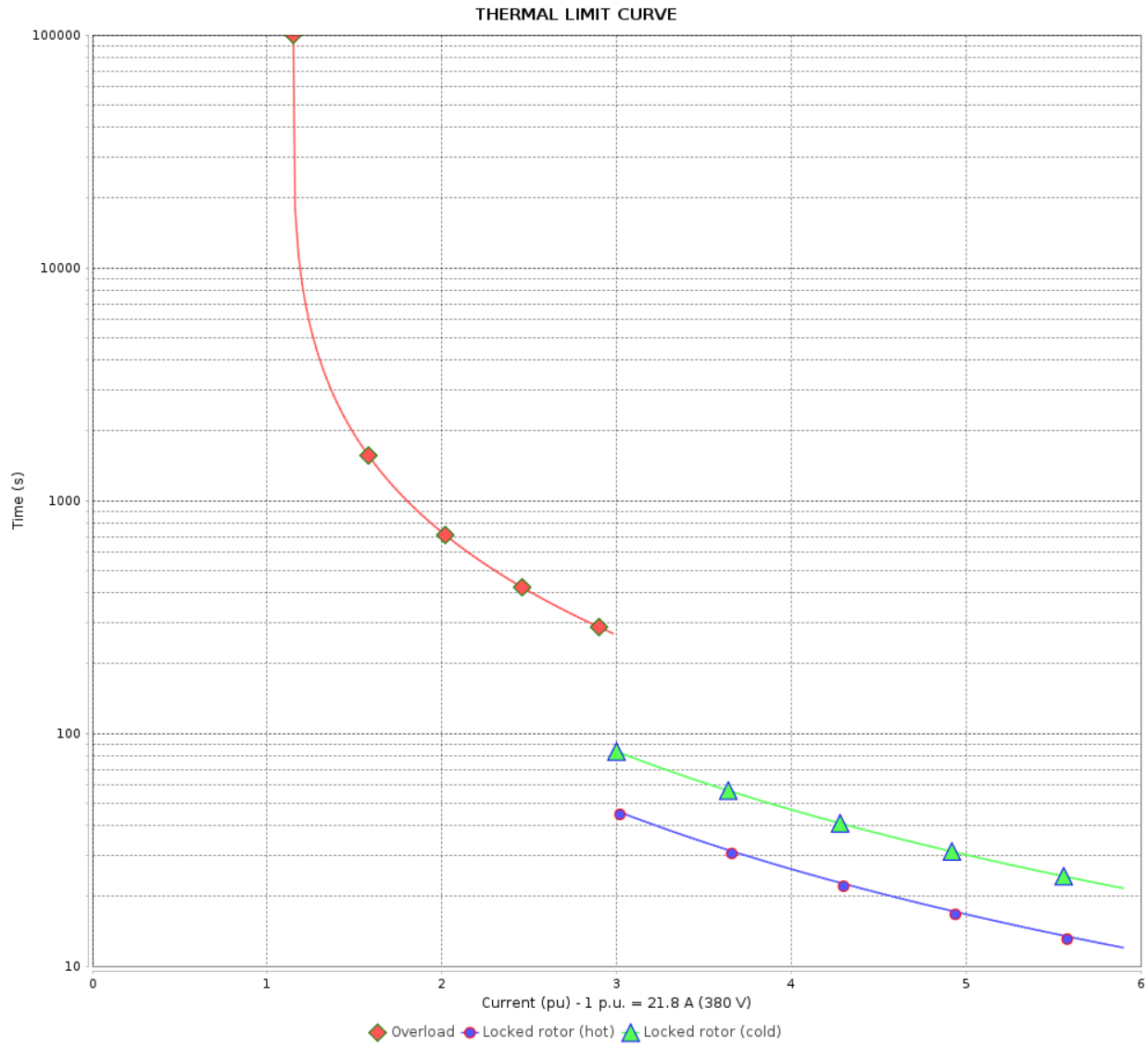
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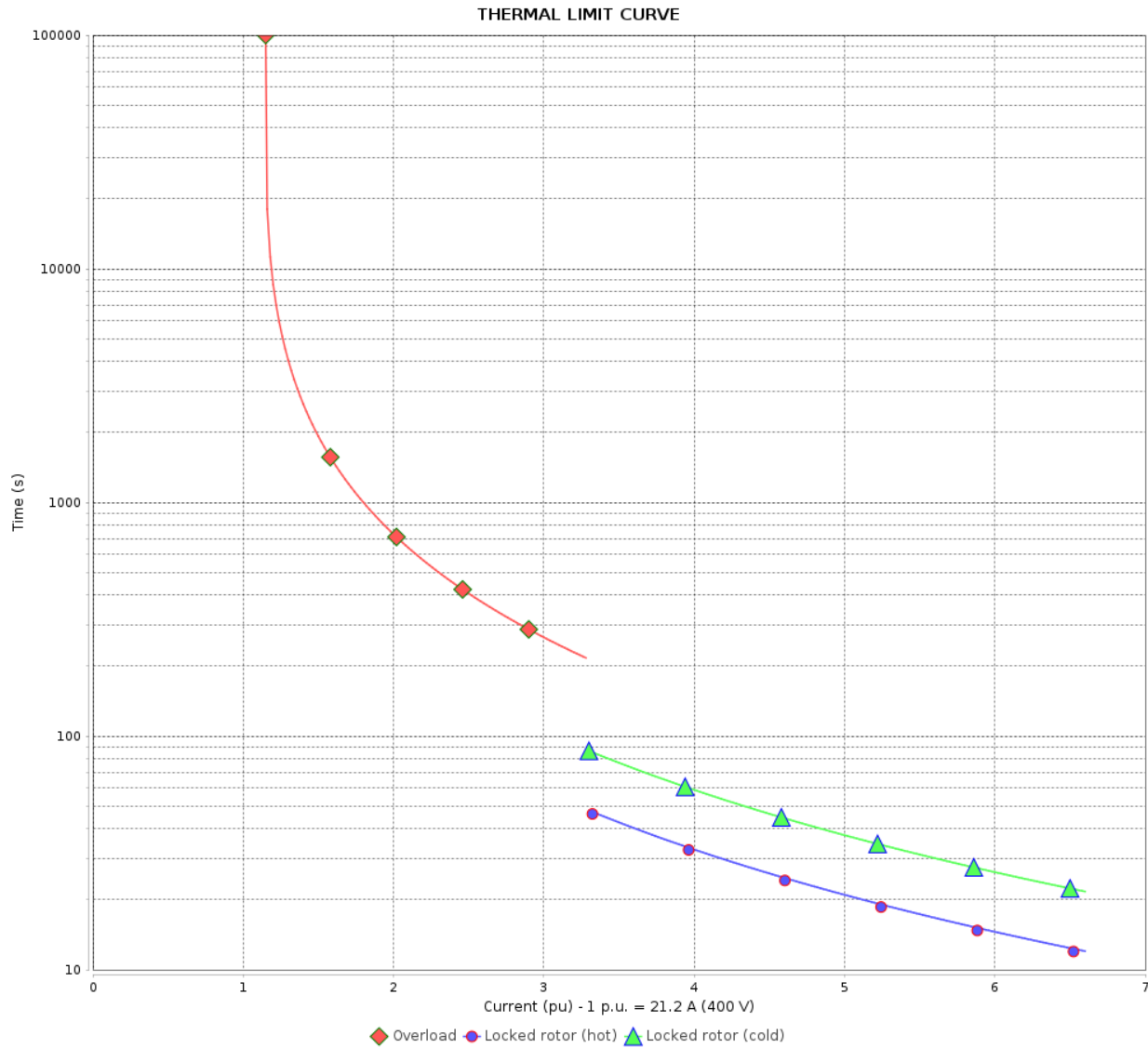
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Breakdown torque : 310 %	Temperature rise : 80 K
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Cooling constant

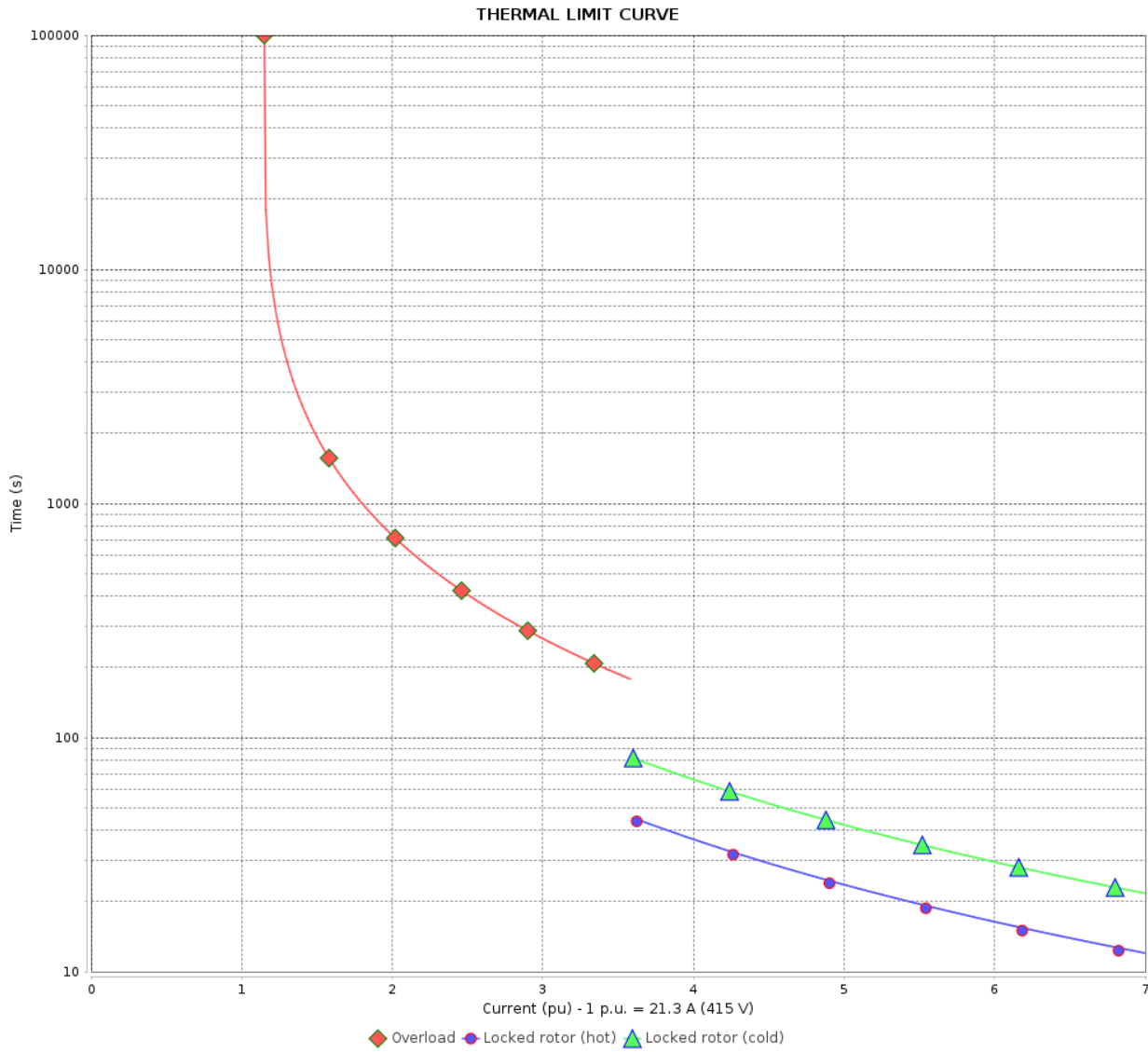
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Moment of inertia (J) : 9.16 sq.ft.lb  
Duty cycle : Cont.(S1)  
Insulation class : F  
Service factor : 1.00  
Temperature rise : 105 K  
Design : B

Heating constant

Cooling constant

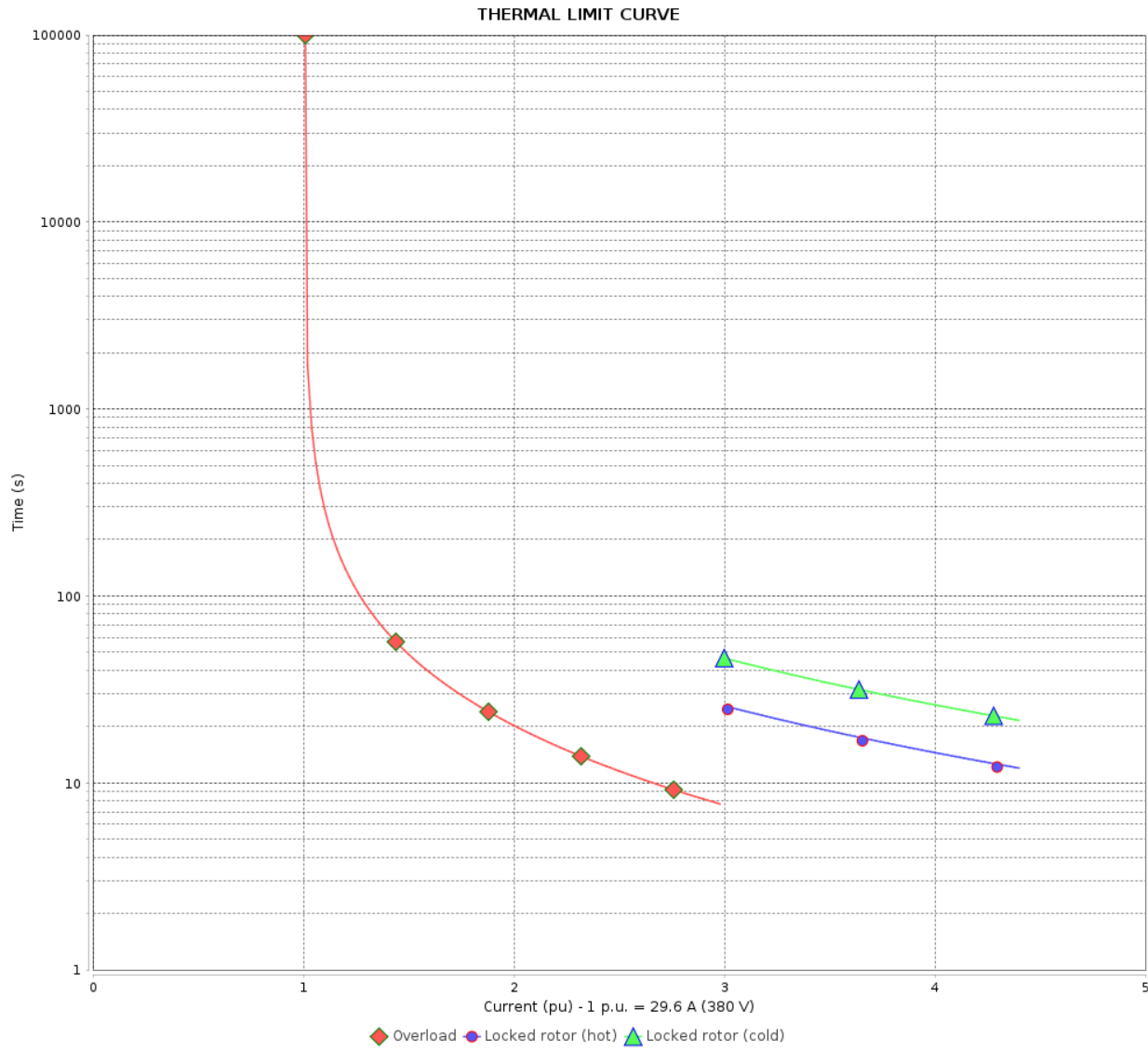
Rev.	Changes Summary	Performed	Checked	Date
Performed by				
Checked by			Page	Revision
Date	04/10/2023		25 / 37	

# THERMAL LIMIT CURVE

Three Phase Induction Motor - Squirrel Cage



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



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Date	04/10/2023			

# THERMAL LIMIT CURVE



## Three Phase Induction Motor - Squirrel Cage

Customer :

Product line : W22 IEEE 841 NEMA Premium Efficiency  
Three-Phase

Product code : 17419277

Catalog # : 02012ST3QAP286T-W22

Performance : 400 V 50 Hz 6P IE1

Rated current : 28.1 A  
LRC : 5.0  
Rated torque : 108 ft.lb  
Locked rotor torque : 190 %  
Breakdown torque : 210 %  
Rated speed : 970 rpm

Moment of inertia (J) : 9.16 sq.ft.lb  
Duty cycle : Cont.(S1)  
Insulation class : F  
Service factor : 1.15  
Temperature rise : 105 K  
Design : B

Heating constant

Cooling constant

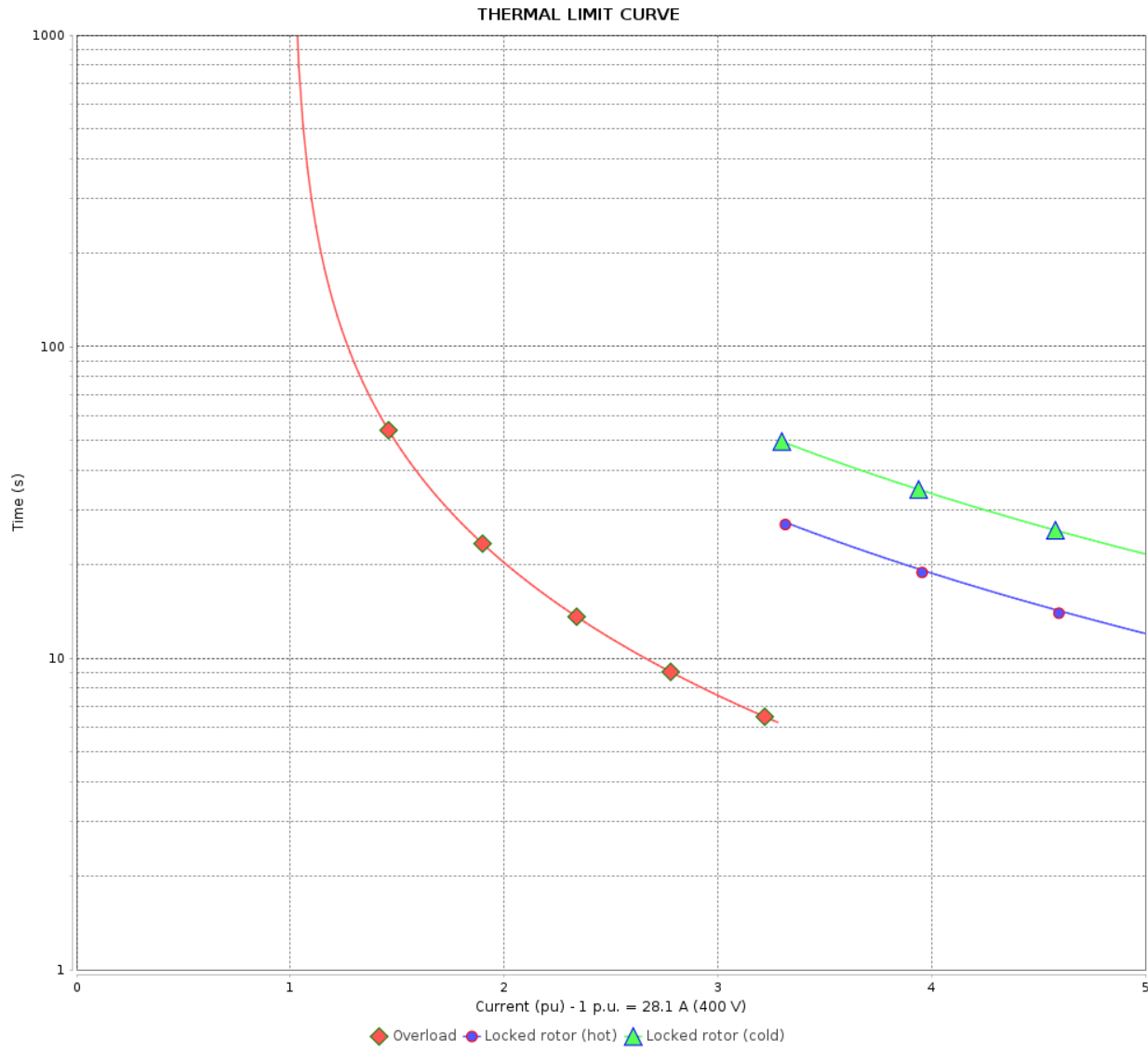
Rev.	Changes Summary	Performed	Checked	Date
Performed by				
Checked by			Page	Revision
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# THERMAL LIMIT CURVE

Three Phase Induction Motor - Squirrel Cage



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



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Date		04/10/2023		

# THERMAL LIMIT CURVE

## Three Phase Induction Motor - Squirrel Cage



Customer :

Product line : W22 IEEE 841 NEMA Premium Efficiency  
Three-Phase

Product code : 17419277

Catalog # : 02012ST3QAP286T-W22

Performance : 415 V 50 Hz 6P IE2

Rated current : 27.2 A  
LRC : 5.4  
Rated torque : 108 ft.lb  
Locked rotor torque : 200 %  
Breakdown torque : 229 %  
Rated speed : 975 rpm

Moment of inertia (J) : 9.16 sq.ft.lb  
Duty cycle : Cont.(S1)  
Insulation class : F  
Service factor : 1.15  
Temperature rise : 105 K  
Design : B

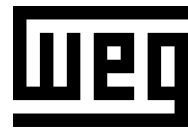
Heating constant

Cooling constant

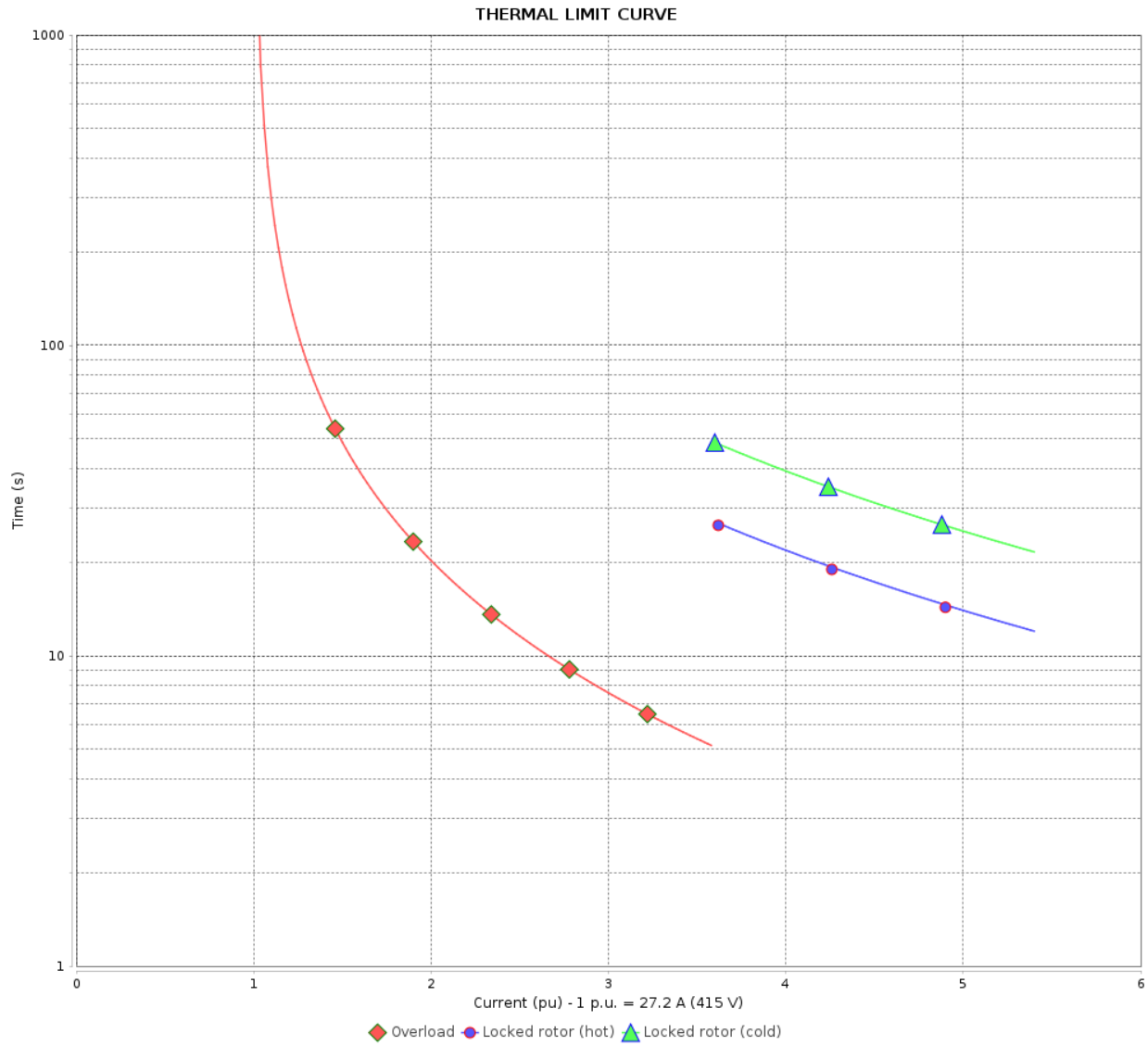
Rev.	Changes Summary	Performed	Checked	Date
Performed by				
Checked by			Page	Revision
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# THERMAL LIMIT CURVE

Three Phase Induction Motor - Squirrel Cage



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



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Performed by		Page		Revision
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Date		04/10/2023		

# VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage

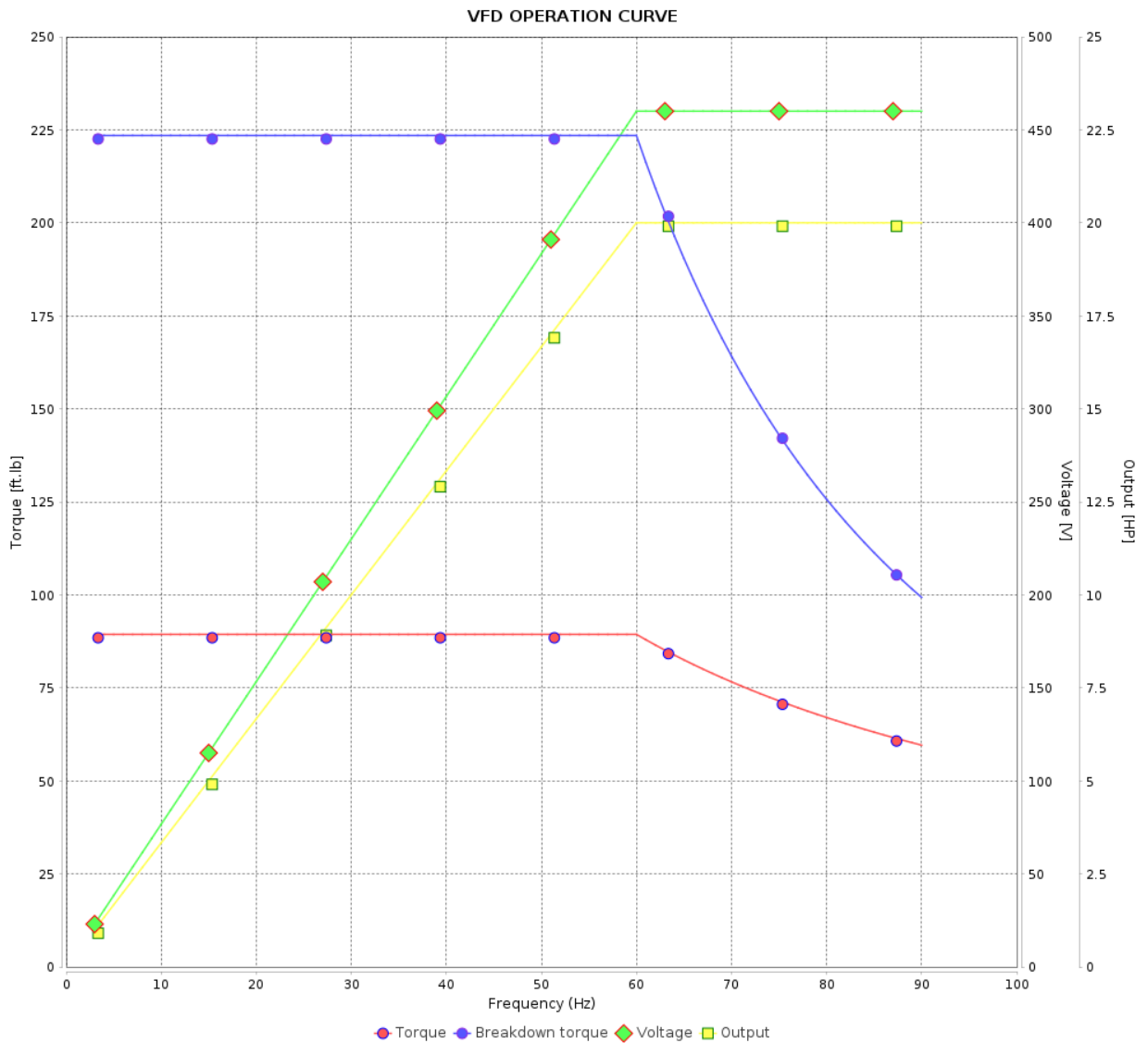


Customer :

Product line : W22 IEEE 841 NEMA Premium Efficiency Three-Phase

Product code : 17419277

Catalog # : 02012ST3QAP286T-W22



Performance : 460 V 60 Hz 6P

Rated current : 24.2 A  
 LRC : 5.9  
 Rated torque : 89.4 ft.lb  
 Locked rotor torque : 220 %  
 Breakdown torque : 250 %  
 Rated speed : 1175 rpm

Moment of inertia (J) : 9.16 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.15  
 Temperature rise : 80 K  
 Design : B

Rev.	Changes Summary	Performed	Checked	Date
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Checked by				
Date				

# VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage

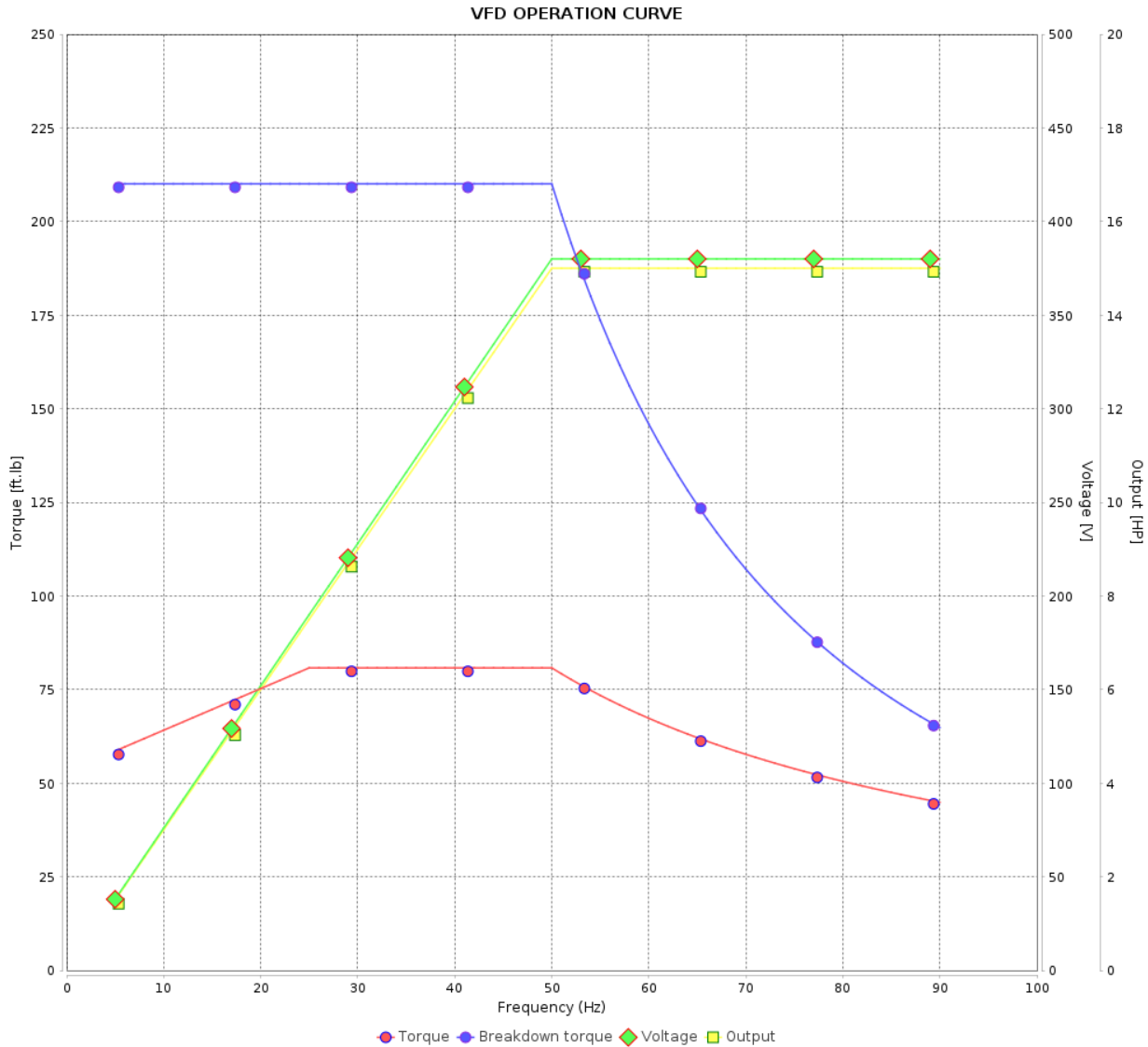


Customer :

Product line : W22 IEEE 841 NEMA Premium Efficiency  
Three-Phase

Product code : 17419277

Catalog # : 02012ST3QAP286T-W22



Performance : 380 V 50 Hz 6P IE3

Rated current	: 21.8 A	Moment of inertia (J)	: 9.16 sq.ft.lb
LRC	: 5.9	Duty cycle	: Cont.(S1)
Rated torque	: 80.8 ft.lb	Insulation class	: F
Locked rotor torque	: 220 %	Service factor	: 1.00
Breakdown torque	: 260 %	Temperature rise	: 80 K
Rated speed	: 975 rpm	Design	: B

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# VFD OPERATION CURVE

## Three Phase Induction Motor - Squirrel Cage

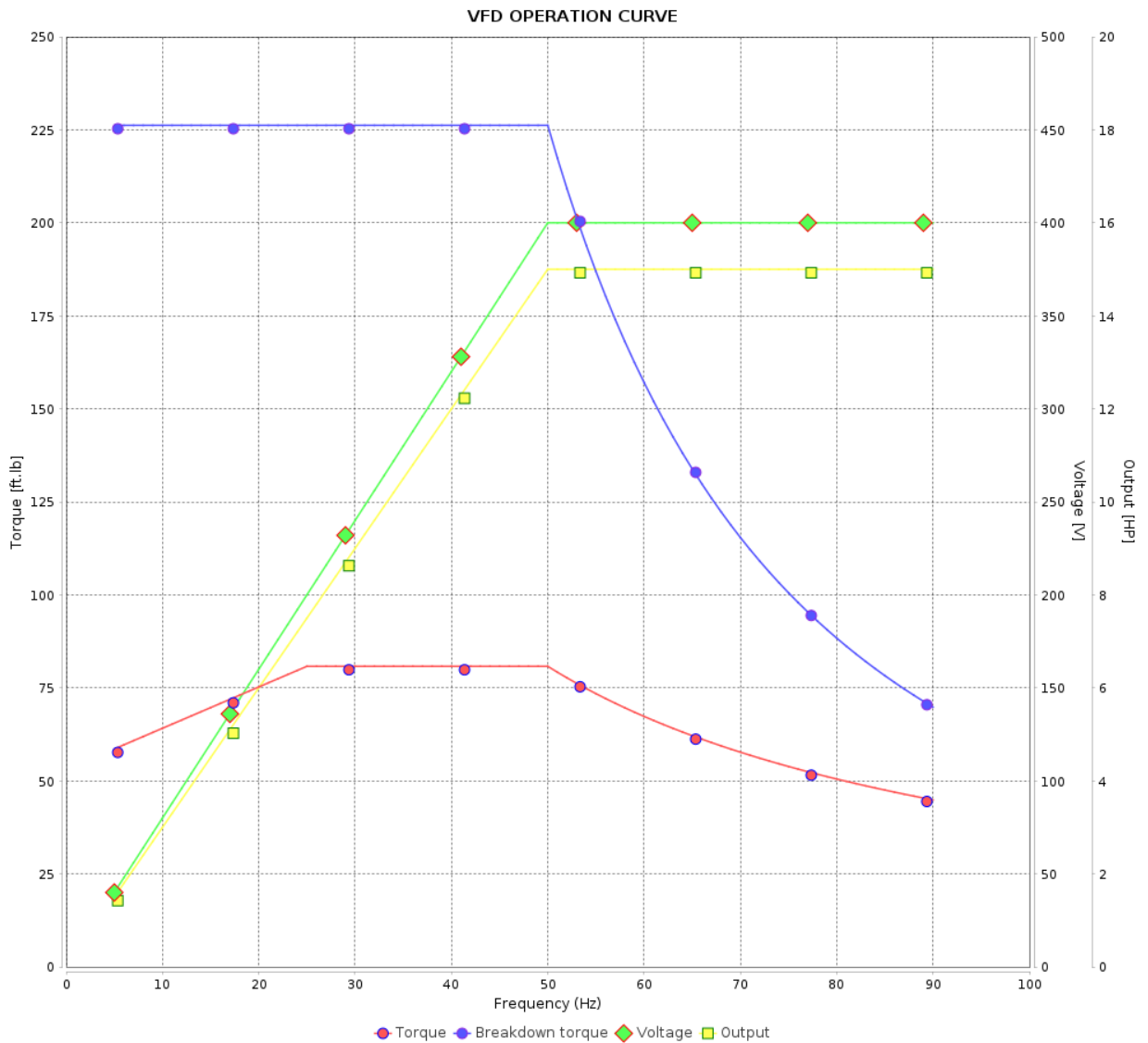


Customer :

Product line : W22 IEEE 841 NEMA Premium Efficiency Three-Phase

Product code : 17419277

Catalog # : 02012ST3QAP286T-W22



Performance : 400 V 50 Hz 6P IE3

Rated current : 21.2 A  
 LRC : 6.6  
 Rated torque : 80.8 ft.lb  
 Locked rotor torque : 260 %  
 Breakdown torque : 280 %  
 Rated speed : 975 rpm

Moment of inertia (J) : 9.16 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

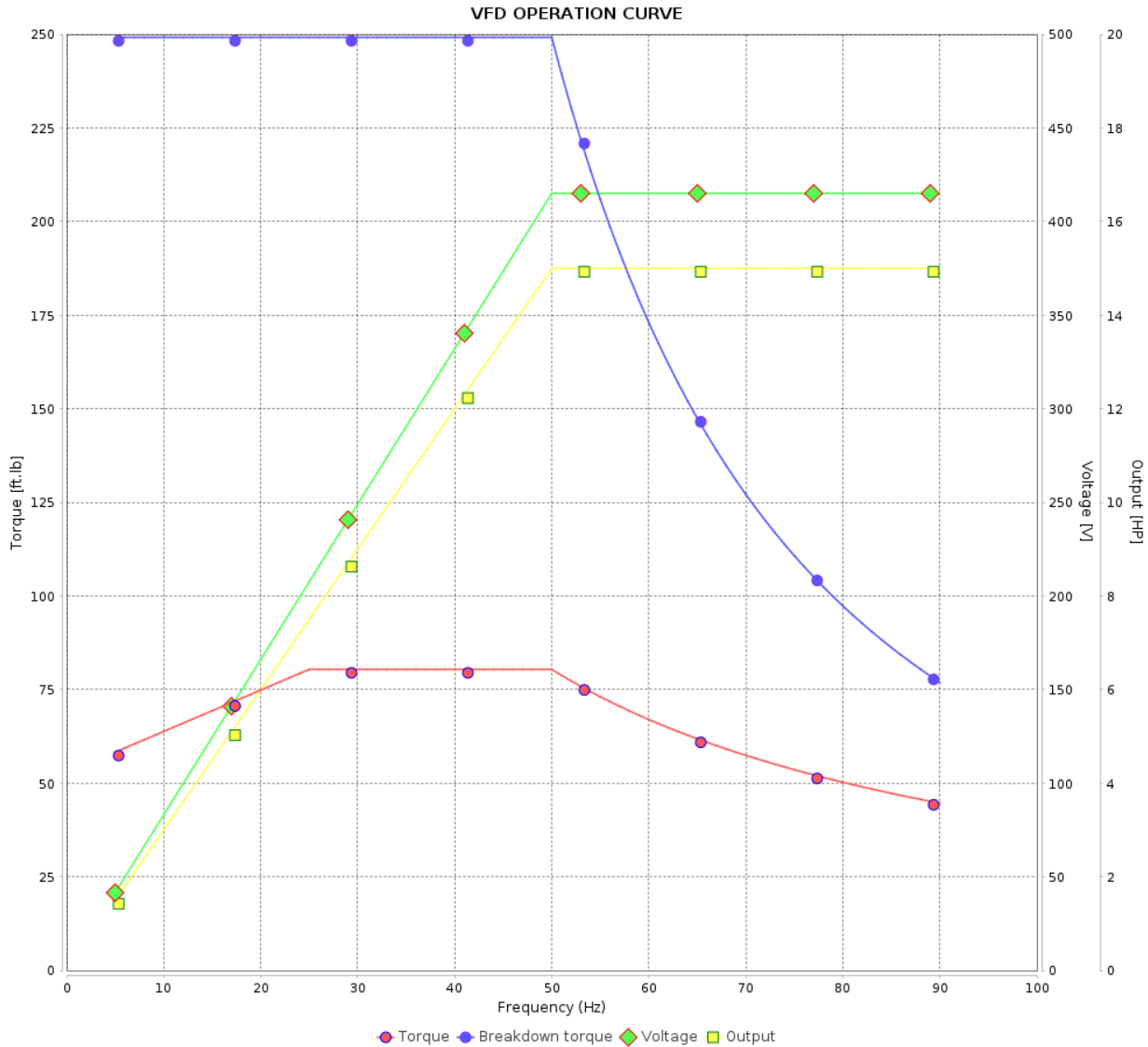


Customer :

Product line : W22 IEEE 841 NEMA Premium Efficiency Three-Phase

Product code : 17419277

Catalog # : 02012ST3QAP286T-W22



Performance : 415 V 50 Hz 6P IE3

Rated current : 21.3 A  
 LRC : 7.0  
 Rated torque : 80.4 ft.lb  
 Locked rotor torque : 270 %  
 Breakdown torque : 310 %  
 Rated speed : 980 rpm

Moment of inertia (J) : 9.16 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.15  
 Temperature rise : 80 K  
 Design : B

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Date	04/10/2023			

# VFD OPERATION CURVE

## Three Phase Induction Motor - Squirrel Cage

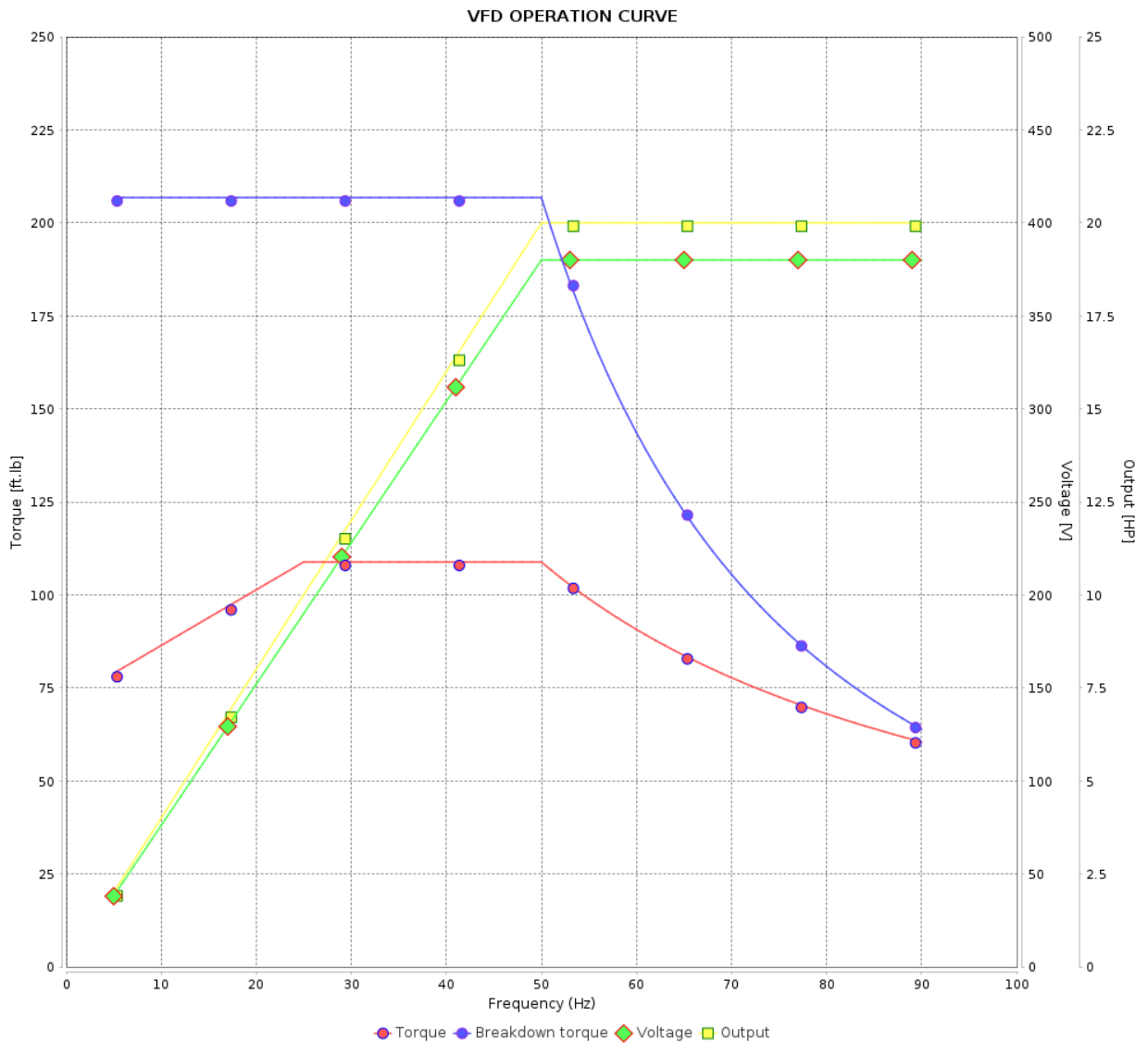


Customer :

Product line : W22 IEEE 841 NEMA Premium Efficiency Three-Phase

Product code : 17419277

Catalog # : 02012ST3QAP286T-W22



Performance : 380 V 50 Hz 6P IE1

Rated current : 29.6 A  
 LRC : 4.4  
 Rated torque : 109 ft.lb  
 Locked rotor torque : 160 %  
 Breakdown torque : 190 %  
 Rated speed : 965 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

Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page 35 / 37	Revision
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Date	04/10/2023			

# VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage

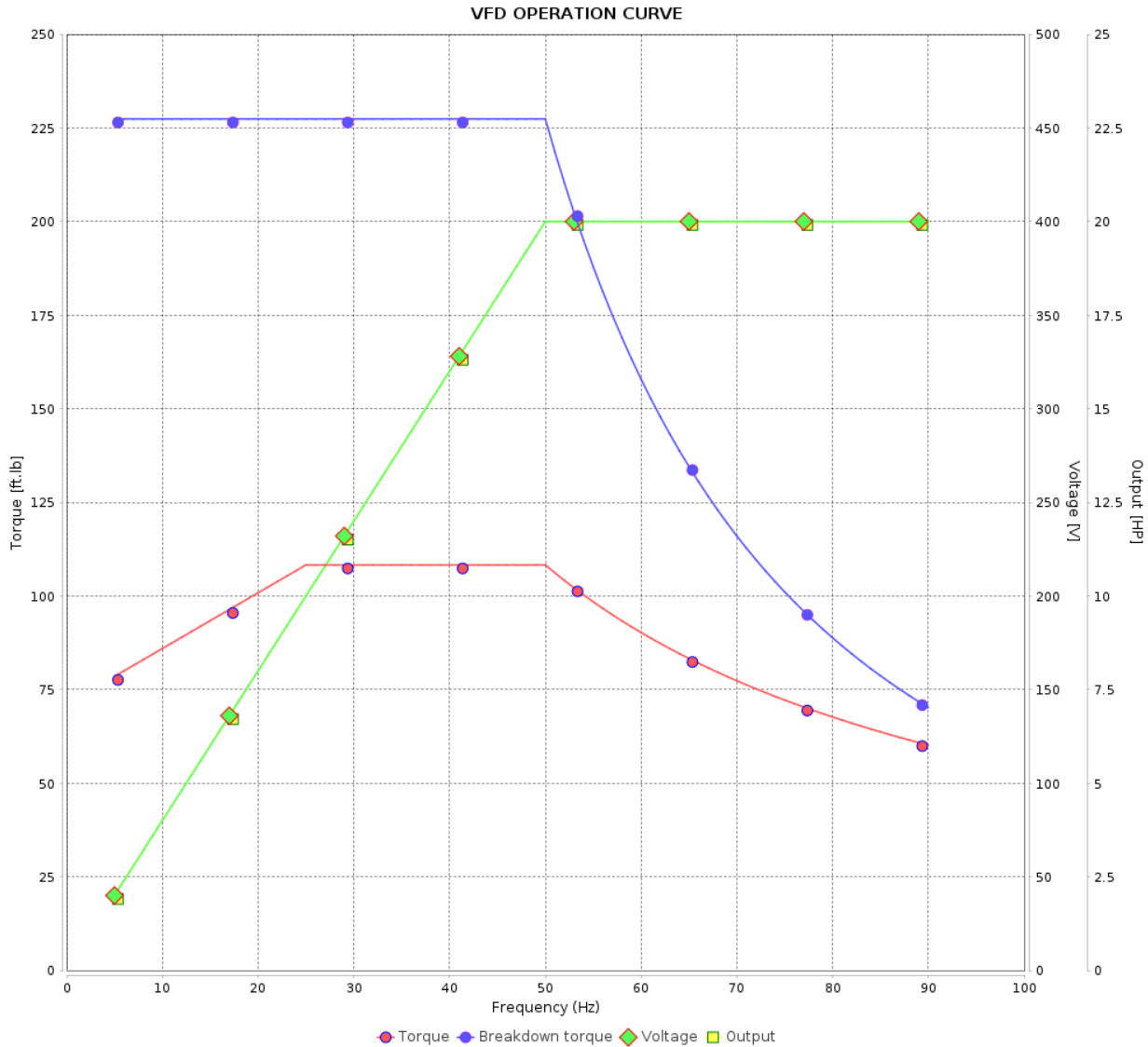


Customer :

Product line : W22 IEEE 841 NEMA Premium Efficiency Three-Phase

Product code : 17419277

Catalog # : 02012ST3QAP286T-W22



Performance : 400 V 50 Hz 6P IE1

Rated current : 28.1 A  
 LRC : 5.0  
 Rated torque : 108 ft.lb  
 Locked rotor torque : 190 %  
 Breakdown torque : 210 %  
 Rated speed : 970 rpm

Moment of inertia (J) : 9.16 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.15  
 Temperature rise : 105 K  
 Design : B

Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page 36 / 37	Revision
Checked by				
Date	04/10/2023			

# VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage

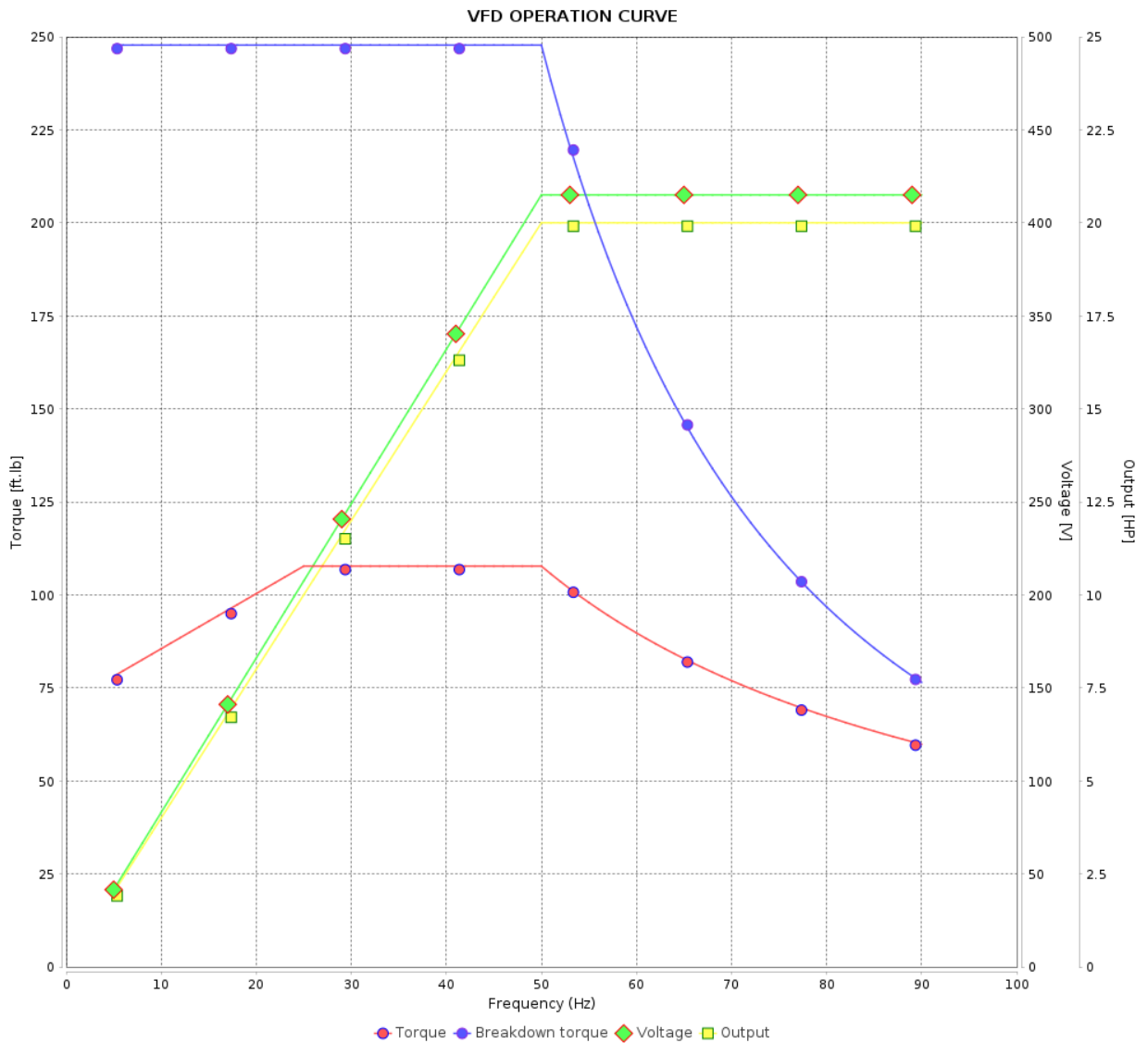


Customer :

Product line : W22 IEEE 841 NEMA Premium Efficiency Three-Phase

Product code : 17419277

Catalog # : 02012ST3QAP286T-W22

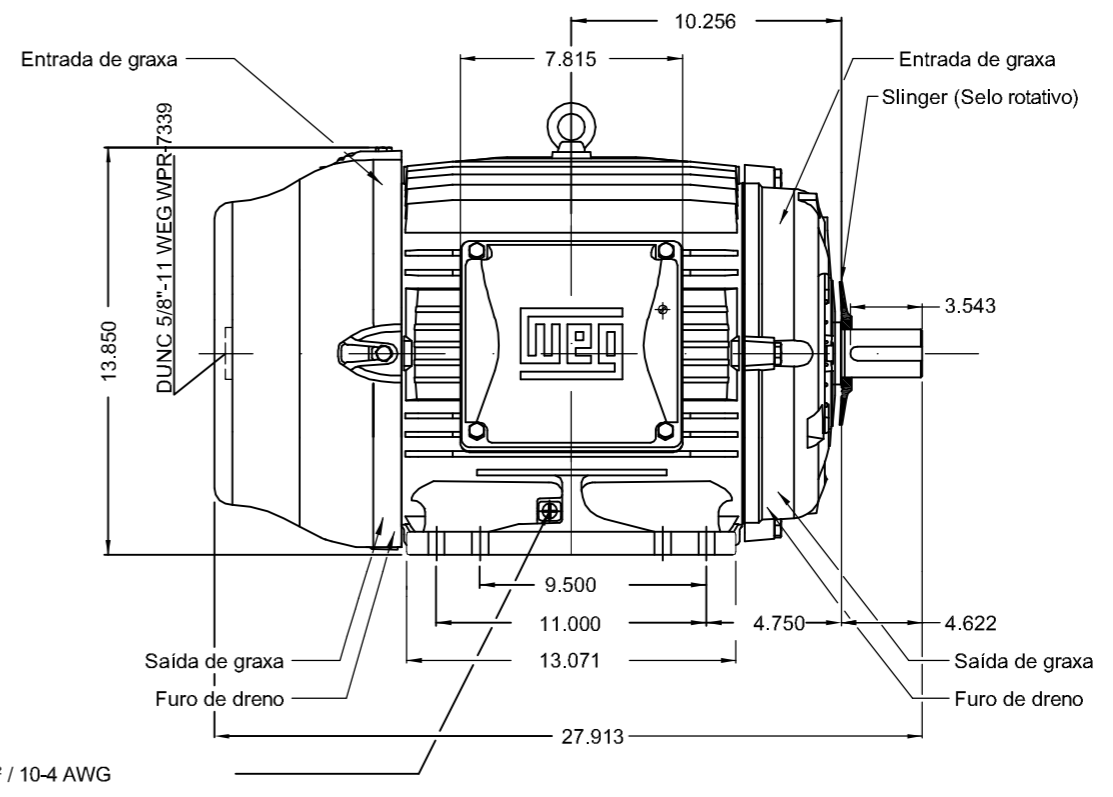
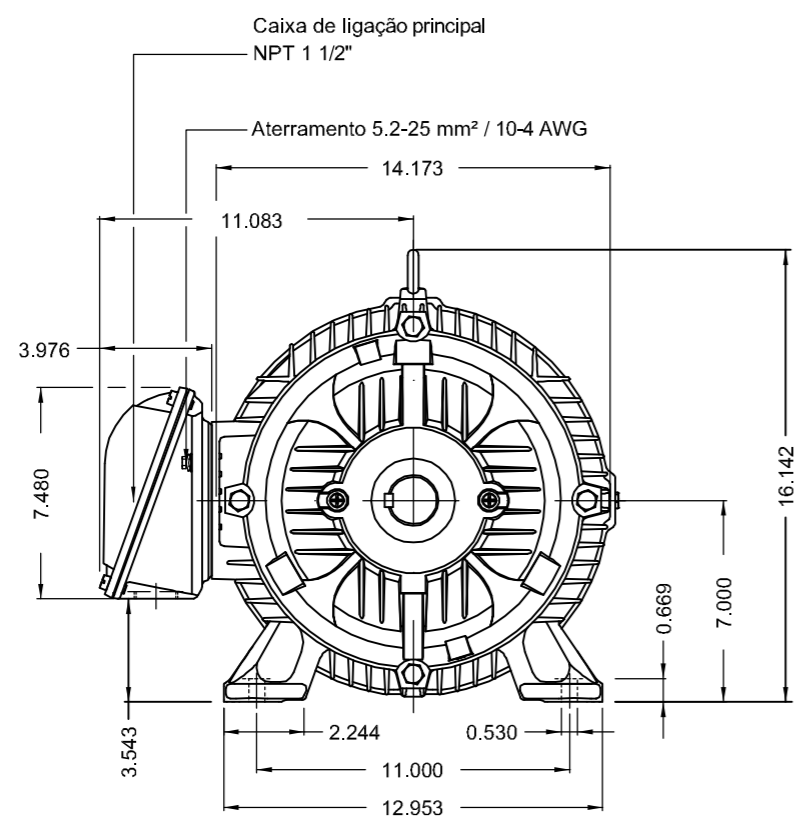


Performance : 415 V 50 Hz 6P IE2

Rated current : 27.2 A  
 LRC : 5.4  
 Rated torque : 108 ft.lb  
 Locked rotor torque : 200 %  
 Breakdown torque : 229 %  
 Rated speed : 975 rpm

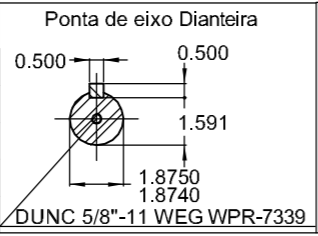
Moment of inertia (J) : 9.16 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.15  
 Temperature rise : 105 K  
 Design : B

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Aterramento 5.2-25 mm² / 10-4 AWG

Placa de identificação com a marcação API 661
Placa de identificação com marcação especial
Saida de graxa conforme IEEE841
Forma construtiva NEMA W-8
Forma construtiva V6D



20 HP 06 Polos 60 Hz A

WEC HOUSE ACCOUNT MOTORS

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LIBERADOR	MARLONN			000		FOLHA 1 / 1		
DATA LB.	02.08.2023	WMO	Jaragua do Sul	Engenharia de Produto				