

# DATA SHEET



## Three Phase Induction Motor - Squirrel Cage

Customer							
Product line		: W40 NEMA Premium Efficiency Three-Phase		Product code :		13621121	
				Catalog # :		20012OT3G447/9T-W40	
Frame		: 447/9T		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>		: 1996 lb	
Protection degree		: IP23		Moment of inertia (J)		: 98.2 sq.ft.lb	
Design		: A					
Output [HP]	200	175	175	175	200	200	200
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]	241	253	244	238	290	275	269
L. R. Amperes [A]	1398	1316	1415	1499	1305	1403	1506
LRC [A]	5.8x(Code F)	5.2x(Code E)	5.8x(Code G)	6.3x(Code G)	4.5x(Code D)	5.1x(Code E)	5.6x(Code F)
No load current [A]	95.0	93.7	101	108	93.7	101	108
Rated speed [RPM]	1185	980	980	980	980	980	980
Slip [%]	1.25	2.00	2.00	2.00	2.00	2.00	2.00
Rated torque [ft.lb]	886	938	938	938	1070	1070	1070
Locked rotor torque [%]	200	170	190	210	150	170	180
Breakdown torque [%]	220	190	220	240	170	190	210
Service factor	1.15	1.15	1.15	1.15	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	32s (cold)	18s (cold)	18s (cold)	18s (cold)	18s (cold)	18s (cold)	18s (cold)
	18s (hot)	10s (hot)	10s (hot)	10s (hot)	10s (hot)	10s (hot)	10s (hot)
Noise level <sup>2</sup>	79.0 dB(A)	79.0 dB(A)	79.0 dB(A)	79.0 dB(A)	79.0 dB(A)	79.0 dB(A)	79.0 dB(A)
Efficiency (%)	25%	94.9	93.4	93.2	93.1	94.2	94.2
	50%	95.0	94.3	94.1	94.0	94.5	94.5
	75%	95.4	94.6	94.6	94.6	94.5	94.5
	100%	95.4	95.4	95.4	95.4	94.7	94.7
Power Factor	25%	0.43	0.45	0.41	0.39	0.50	0.43
	50%	0.69	0.70	0.66	0.63	0.75	0.71
	75%	0.78	0.80	0.77	0.76	0.81	0.79
	100%	0.82	0.83	0.82	0.81	0.83	0.82
Bearing type	: Drive end Non drive end		Foundation loads				
	: 6319 C3 6314 C3		Max. traction : 5002 lb				
Sealing	: Without Without		Max. compression : 6998 lb				
	: Bearing Seal Bearing Seal						
Lubrication interval	: 20000 h 20000 h						
Lubricant amount	: 45 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.			
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Customer : \_\_\_\_\_

### Thermal protection

ID	Application	Type	Quantity	Sensing Temperature
1	Winding	Thermistor - 2 wires	1 x Phase	155 °C

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# TORQUE AND CURRENT VS SPEED CURVE



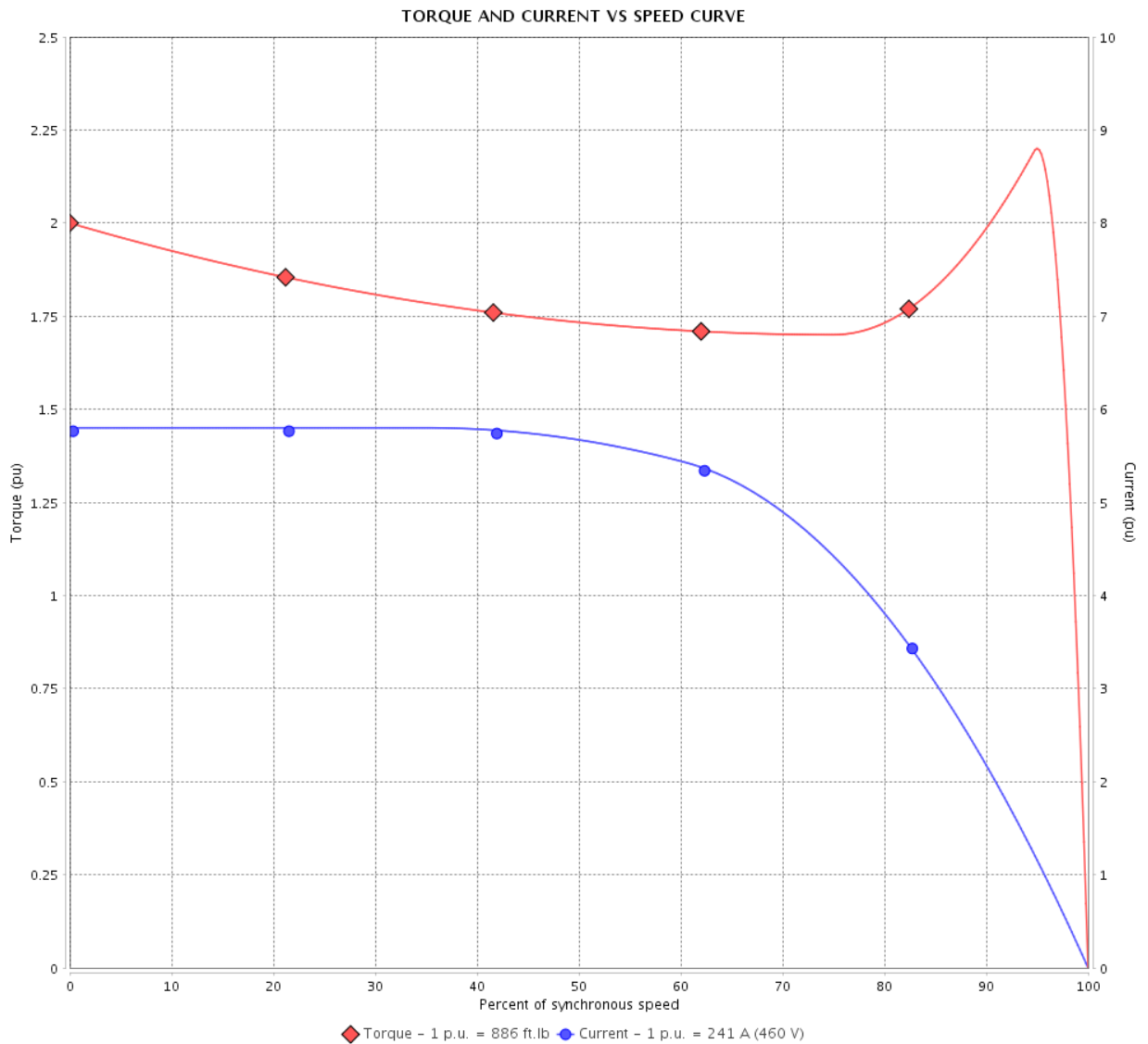
## Three Phase Induction Motor - Squirrel Cage

Customer :

Product line : W40 NEMA Premium Efficiency  
Three-Phase

Product code : 13621121

Catalog # : 20012OT3G447/9T-W40



Performance : 460 V 60 Hz 6P

Rated current	: 241 A	Moment of inertia (J)	: 98.2 sq.ft.lb
LRC	: 5.8	Duty cycle	: Cont.(S1)
Rated torque	: 886 ft.lb	Insulation class	: F
Locked rotor torque	: 200 %	Service factor	: 1.15
Breakdown torque	: 220 %	Temperature rise	: 80 K
Rated speed	: 1185 rpm	Design	: A

Locked rotor time : 32s (cold) 18s (hot)

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# TORQUE AND CURRENT VS SPEED CURVE

Three Phase Induction Motor - Squirrel Cage



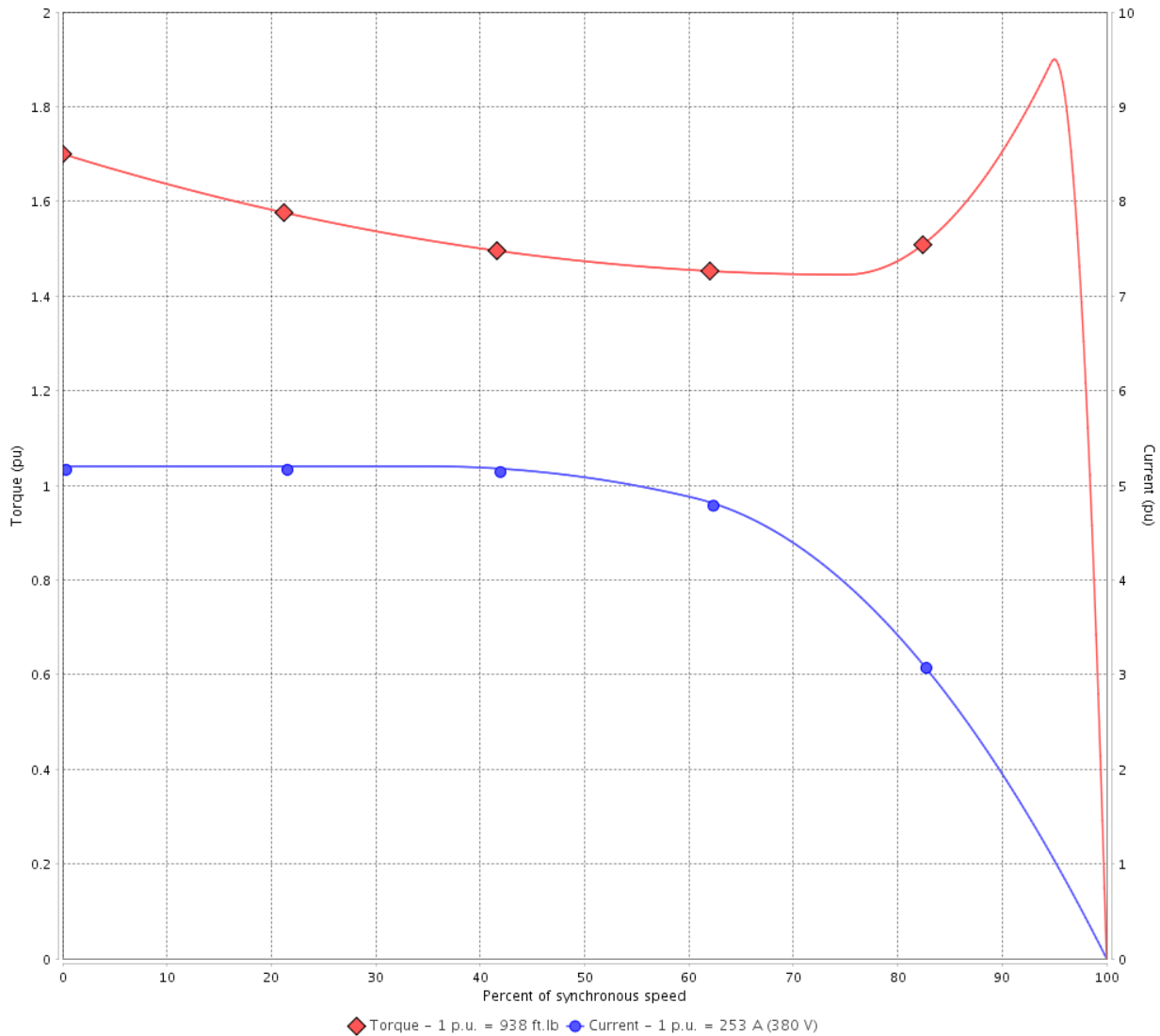
Customer :

Product line : W40 NEMA Premium Efficiency  
Three-Phase

Product code : 13621121

Catalog # : 20012OT3G447/9T-W40

TORQUE AND CURRENT VS SPEED CURVE



Performance : 380 V 50 Hz 6P IE3

Rated current	: 253 A	Moment of inertia (J)	: 98.2 sq.ft.lb
LRC	: 5.2	Duty cycle	: Cont.(S1)
Rated torque	: 938 ft.lb	Insulation class	: F
Locked rotor torque	: 170 %	Service factor	: 1.15
Breakdown torque	: 190 %	Temperature rise	: 80 K
Rated speed	: 980 rpm	Design	: A

Locked rotor time : 18s (cold) 10s (hot)

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# TORQUE AND CURRENT VS SPEED CURVE



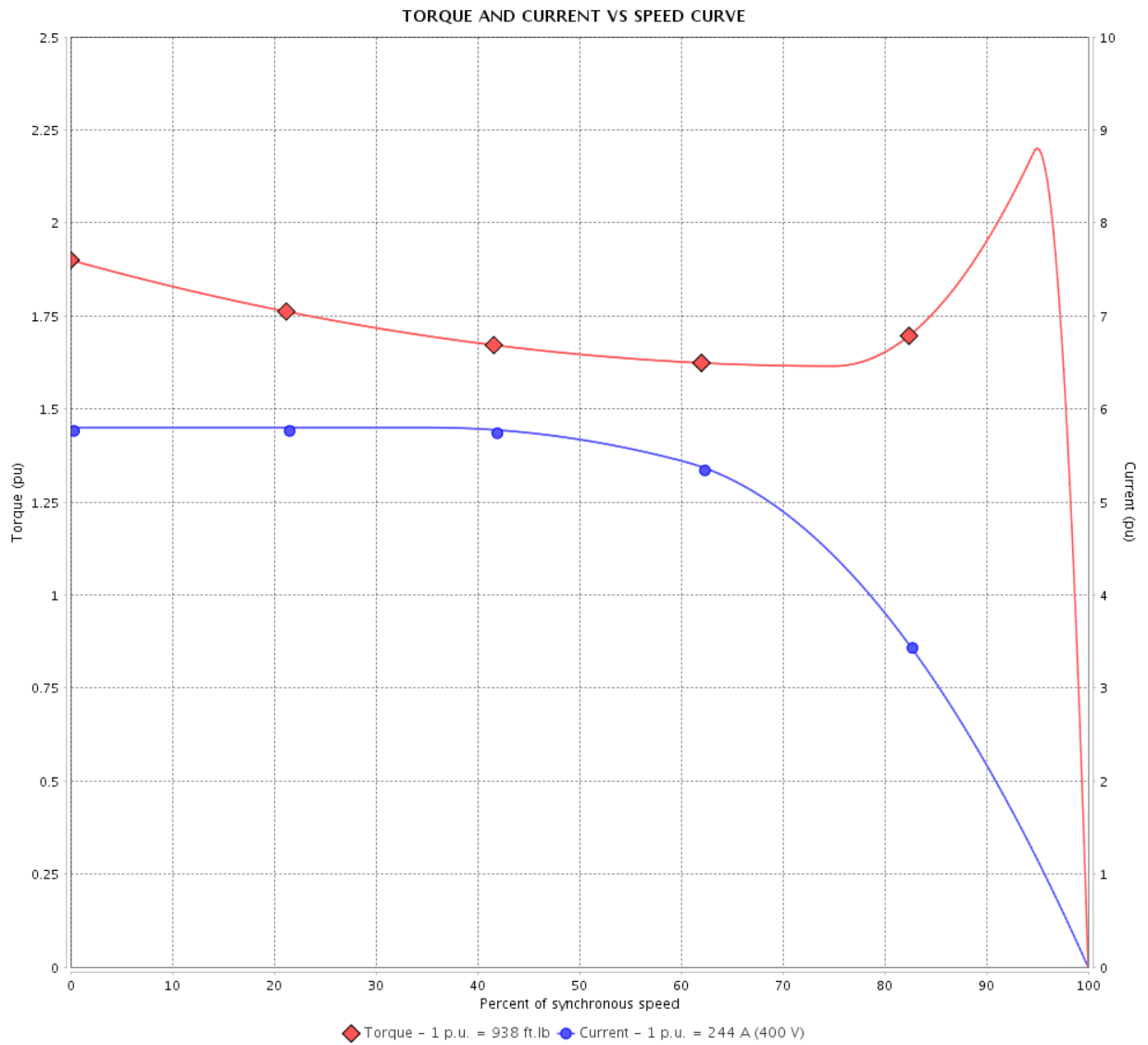
## Three Phase Induction Motor - Squirrel Cage

Customer :

Product line : W40 NEMA Premium Efficiency Three-Phase

Product code : 13621121

Catalog # : 20012OT3G447/9T-W40



Performance : 400 V 50 Hz 6P IE3

Rated current	: 244 A	Moment of inertia (J)	: 98.2 sq.ft.lb
LRC	: 5.8	Duty cycle	: Cont.(S1)
Rated torque	: 938 ft.lb	Insulation class	: F
Locked rotor torque	: 190 %	Service factor	: 1.15
Breakdown torque	: 220 %	Temperature rise	: 80 K
Rated speed	: 980 rpm	Design	: A

Locked rotor time : 18s (cold) 10s (hot)

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# TORQUE AND CURRENT VS SPEED CURVE

Three Phase Induction Motor - Squirrel Cage



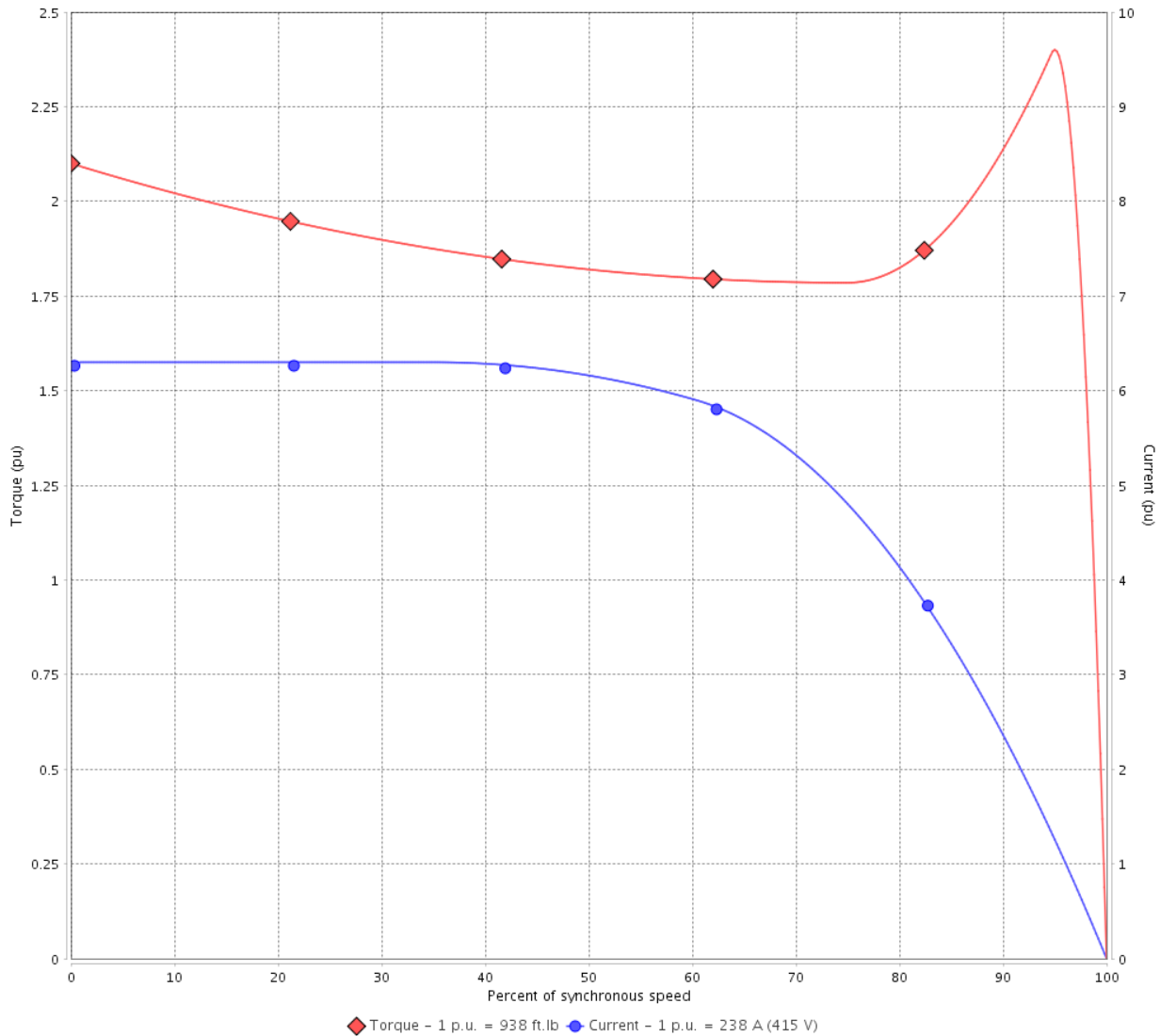
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TORQUE AND CURRENT VS SPEED CURVE



Performance : 415 V 50 Hz 6P IE3

Rated current	: 238 A	Moment of inertia (J)	: 98.2 sq.ft.lb
LRC	: 6.3	Duty cycle	: Cont.(S1)
Rated torque	: 938 ft.lb	Insulation class	: F
Locked rotor torque	: 210 %	Service factor	: 1.15
Breakdown torque	: 240 %	Temperature rise	: 80 K
Rated speed	: 980 rpm	Design	: A

Locked rotor time : 18s (cold) 10s (hot)

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# TORQUE AND CURRENT VS SPEED CURVE



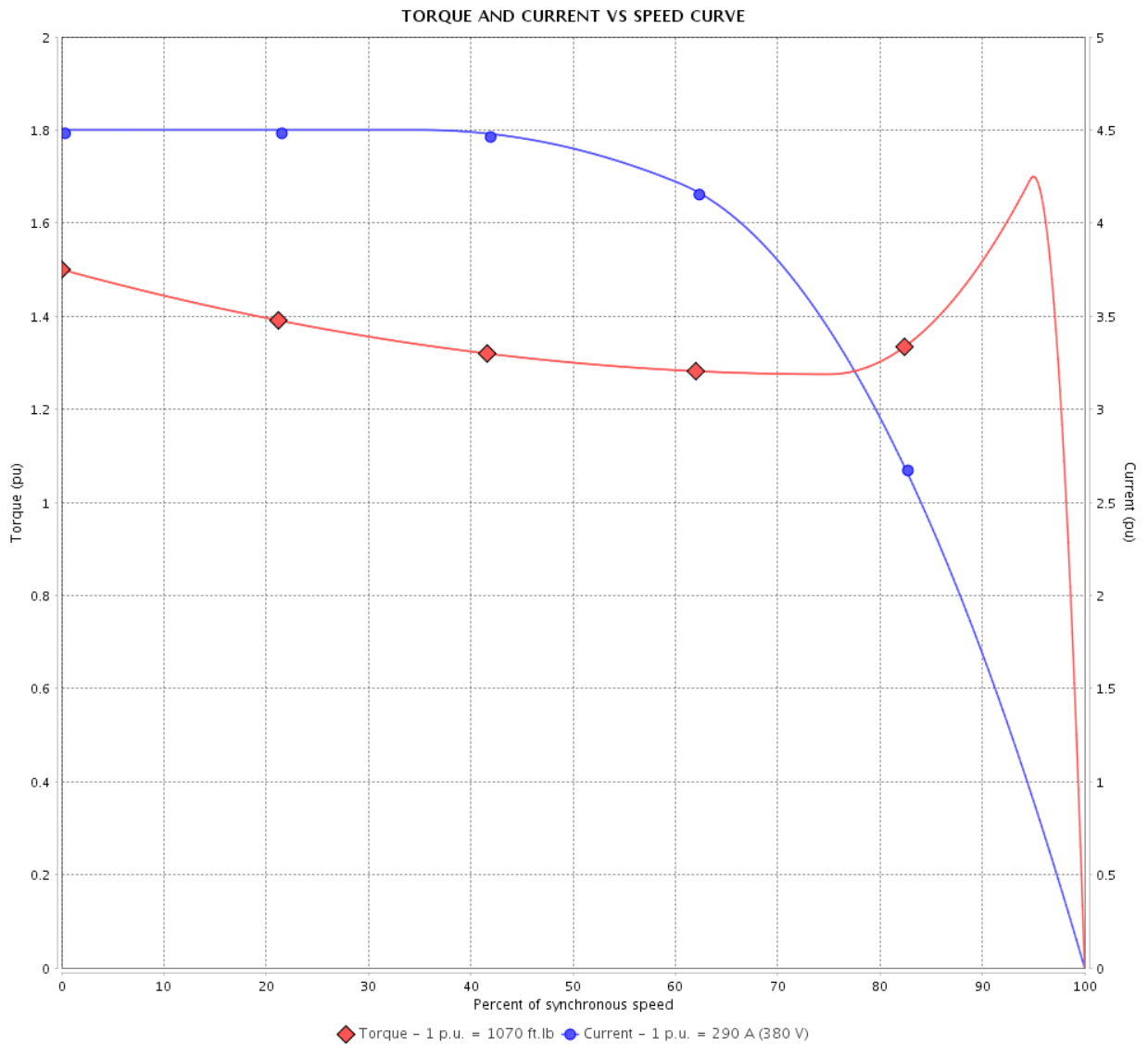
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Customer :

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Three-Phase

Product code : 13621121

Catalog # : 20012OT3G447/9T-W40



Performance : 380 V 50 Hz 6P IE1

Rated current	: 290 A	Moment of inertia (J)	: 98.2 sq.ft.lb
LRC	: 4.5	Duty cycle	: Cont.(S1)
Rated torque	: 1070 ft.lb	Insulation class	: F
Locked rotor torque	: 150 %	Service factor	: 1.00
Breakdown torque	: 170 %	Temperature rise	: 105 K
Rated speed	: 980 rpm	Design	: A

Locked rotor time : 18s (cold) 10s (hot)

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# TORQUE AND CURRENT VS SPEED CURVE

## Three Phase Induction Motor - Squirrel Cage



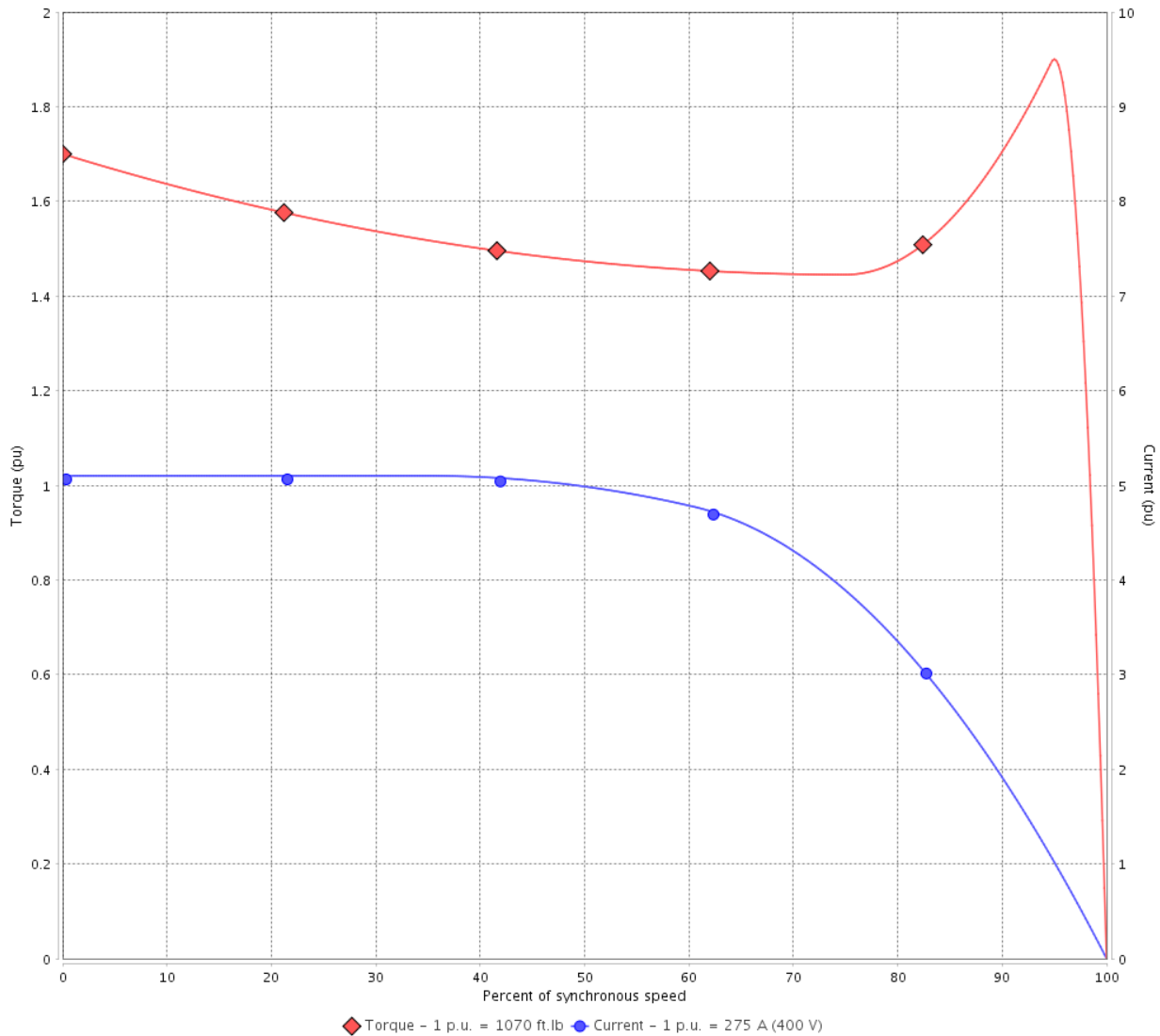
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Three-Phase

Product code : 13621121

Catalog # : 20012OT3G447/9T-W40

TORQUE AND CURRENT VS SPEED CURVE



Performance : 400 V 50 Hz 6P IE1

Rated current	: 275 A	Moment of inertia (J)	: 98.2 sq.ft.lb
LRC	: 5.1	Duty cycle	: Cont.(S1)
Rated torque	: 1070 ft.lb	Insulation class	: F
Locked rotor torque	: 170 %	Service factor	: 1.00
Breakdown torque	: 190 %	Temperature rise	: 105 K
Rated speed	: 980 rpm	Design	: A

Locked rotor time : 18s (cold) 10s (hot)

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# TORQUE AND CURRENT VS SPEED CURVE



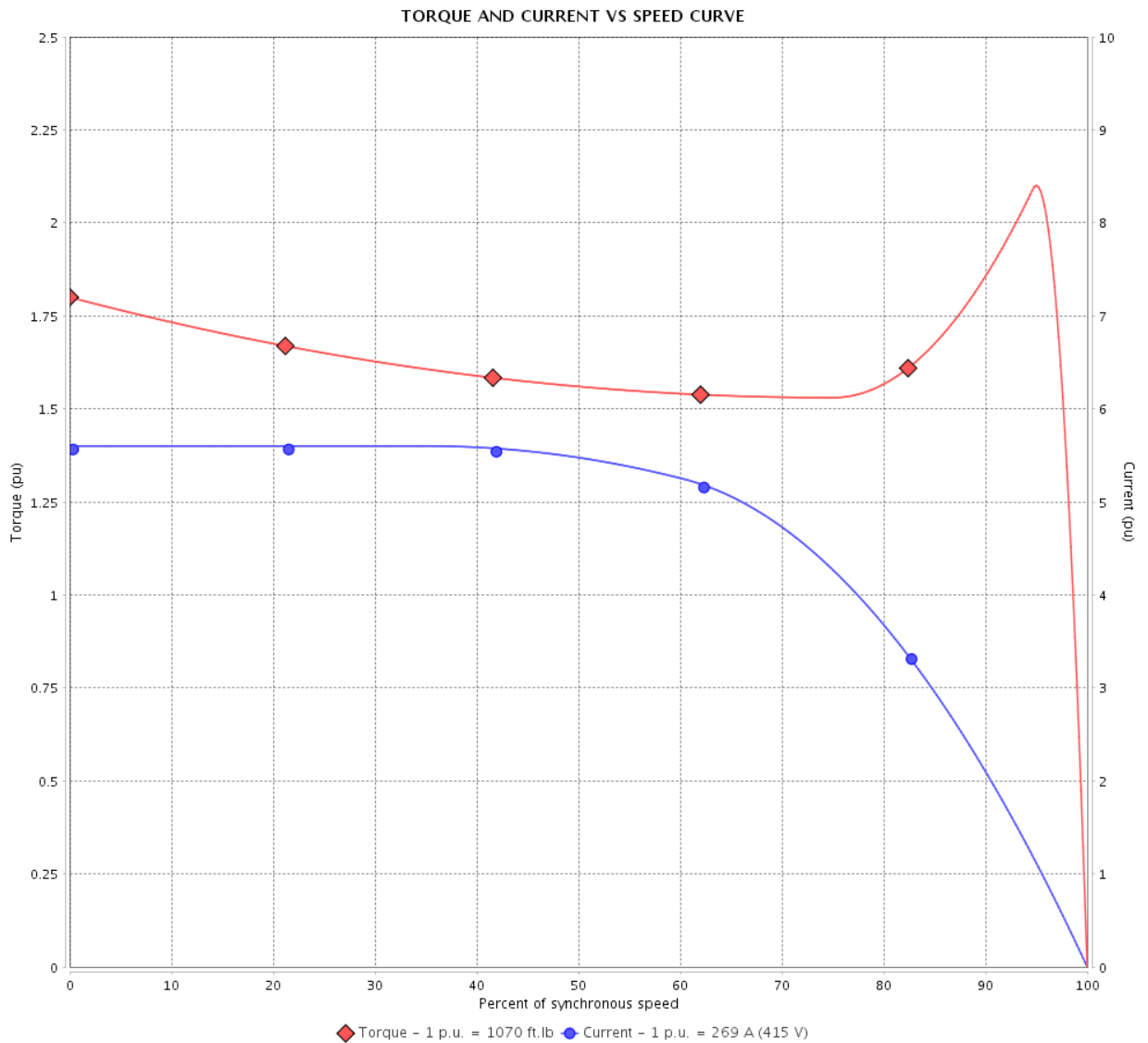
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Product code : 13621121

Catalog # : 20012OT3G447/9T-W40



Performance : 415 V 50 Hz 6P IE1

Rated current	: 269 A	Moment of inertia (J)	: 98.2 sq.ft.lb
LRC	: 5.6	Duty cycle	: Cont.(S1)
Rated torque	: 1070 ft.lb	Insulation class	: F
Locked rotor torque	: 180 %	Service factor	: 1.00
Breakdown torque	: 210 %	Temperature rise	: 105 K
Rated speed	: 980 rpm	Design	: A

Locked rotor time : 18s (cold) 10s (hot)

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# LOAD PERFORMANCE CURVE

Three Phase Induction Motor - Squirrel Cage

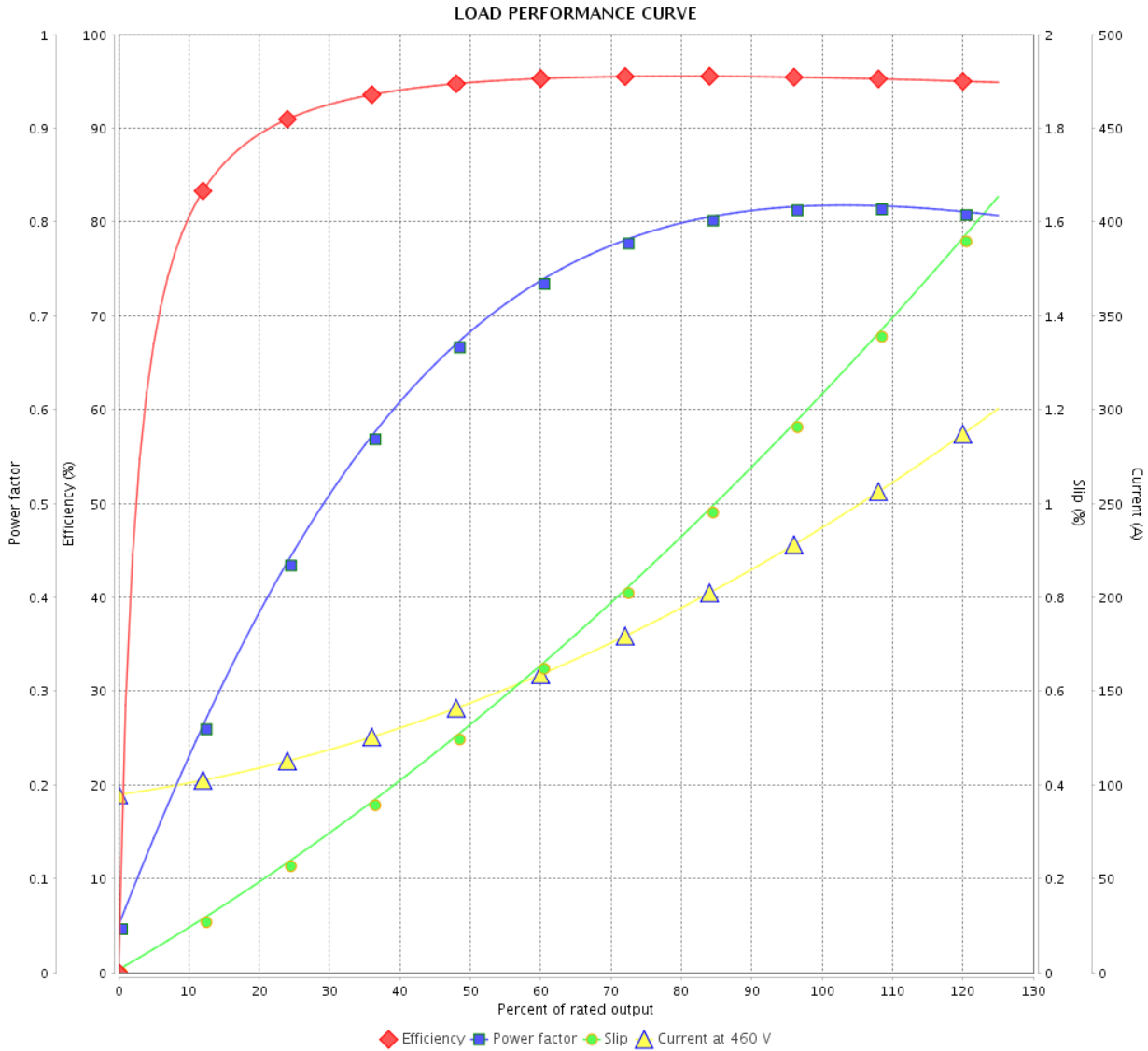


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Catalog # : 20012OT3G447/9T-W40



Performance : 460 V 60 Hz 6P

Rated current : 241 A  
 LRC : 5.8  
 Rated torque : 886 ft.lb  
 Locked rotor torque : 200 %  
 Breakdown torque : 220 %  
 Rated speed : 1185 rpm

Moment of inertia (J) : 98.2 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.15  
 Temperature rise : 80 K  
 Design : A

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## Three Phase Induction Motor - Squirrel Cage

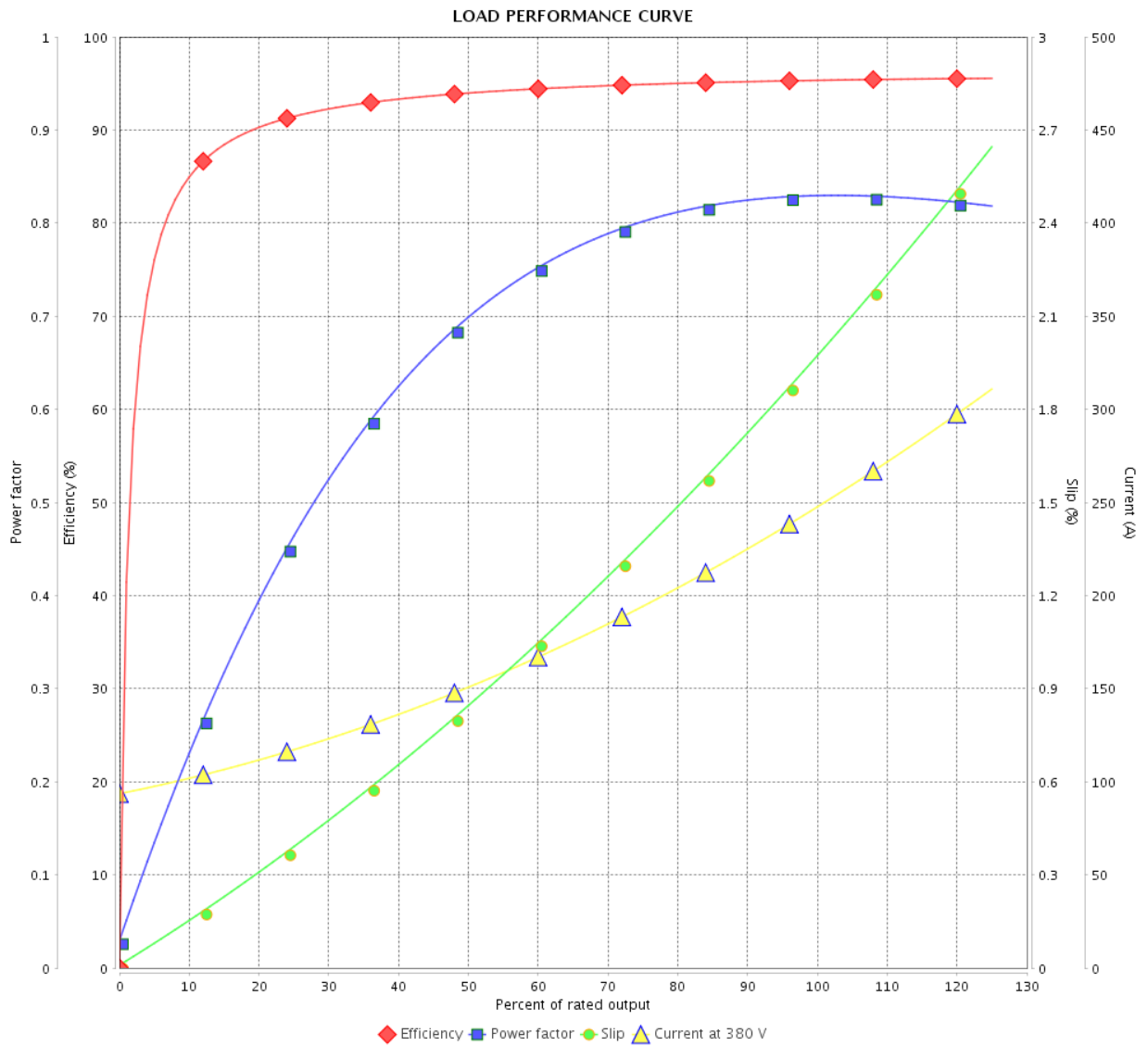


Customer :

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Product code : 13621121

Catalog # : 20012OT3G447/9T-W40



Performance : 380 V 50 Hz 6P IE3

Rated current : 253 A  
 LRC : 5.2  
 Rated torque : 938 ft.lb  
 Locked rotor torque : 170 %  
 Breakdown torque : 190 %  
 Rated speed : 980 rpm

Moment of inertia (J) : 98.2 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.15  
 Temperature rise : 80 K  
 Design : A

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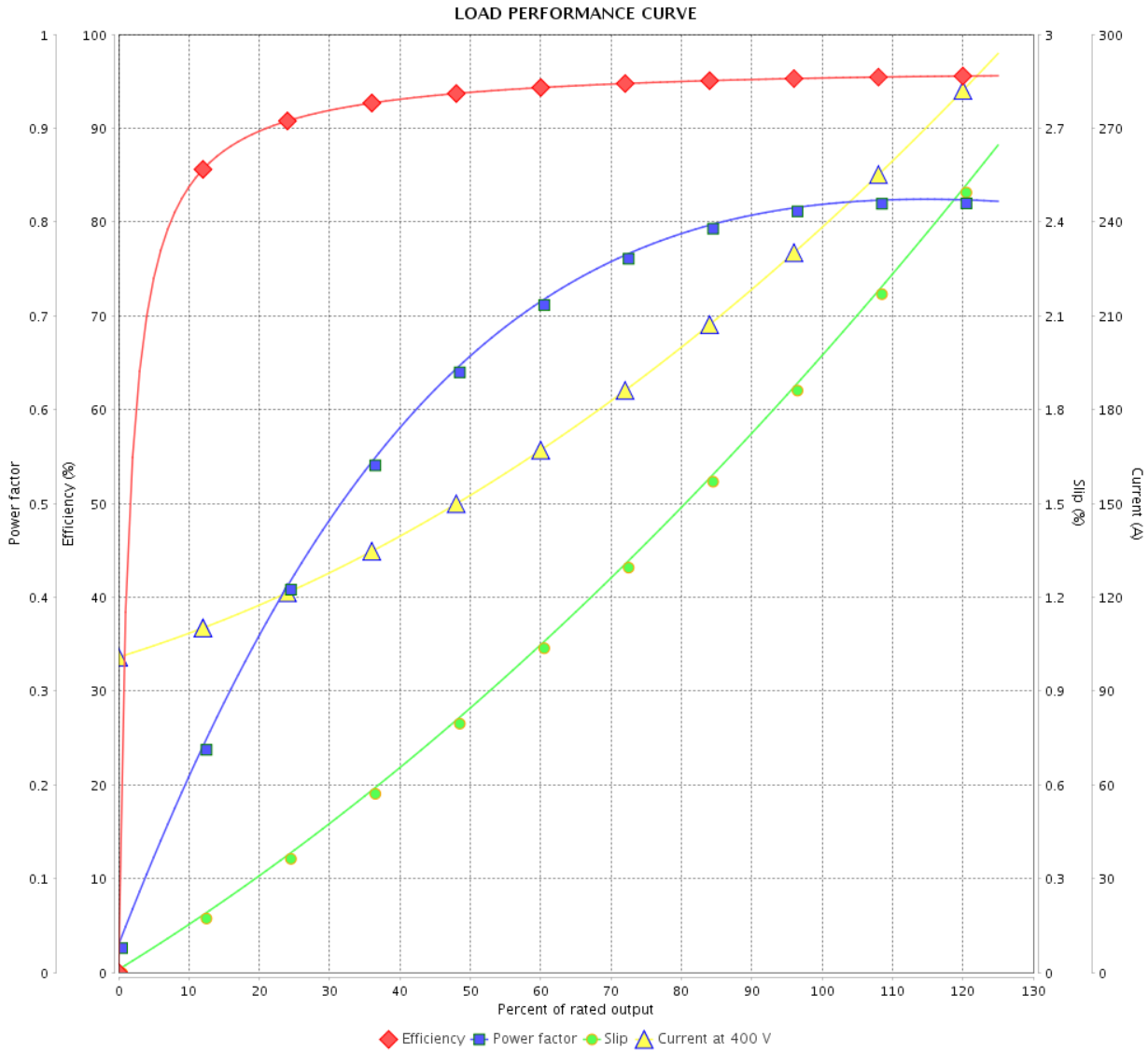


Customer :

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Three-Phase

Product code : 13621121

Catalog # : 20012OT3G447/9T-W40



Performance : 400 V 50 Hz 6P IE3

Rated current	: 244 A	Moment of inertia (J)	: 98.2 sq.ft.lb
LRC	: 5.8	Duty cycle	: Cont.(S1)
Rated torque	: 938 ft.lb	Insulation class	: F
Locked rotor torque	: 190 %	Service factor	: 1.15
Breakdown torque	: 220 %	Temperature rise	: 80 K
Rated speed	: 980 rpm	Design	: A

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## Three Phase Induction Motor - Squirrel Cage

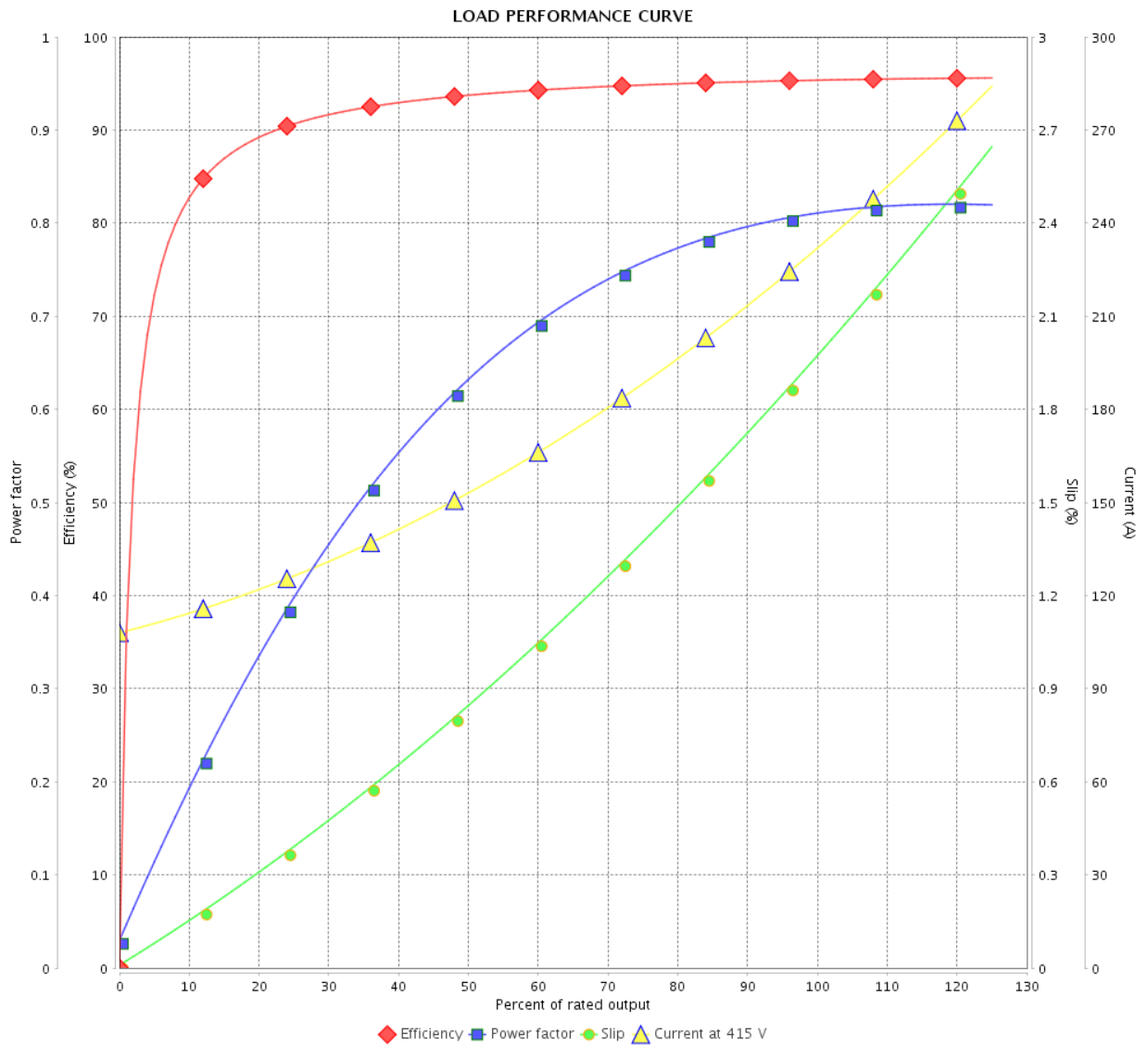


Customer : \_\_\_\_\_

Product line : W40 NEMA Premium Efficiency  
Three-Phase

Product code : 13621121

Catalog # : 20012OT3G447/9T-W40



Performance : 415 V 50 Hz 6P IE3

Rated current : 238 A  
 LRC : 6.3  
 Rated torque : 938 ft.lb  
 Locked rotor torque : 210 %  
 Breakdown torque : 240 %  
 Rated speed : 980 rpm

Moment of inertia (J) : 98.2 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.15  
 Temperature rise : 80 K  
 Design : A

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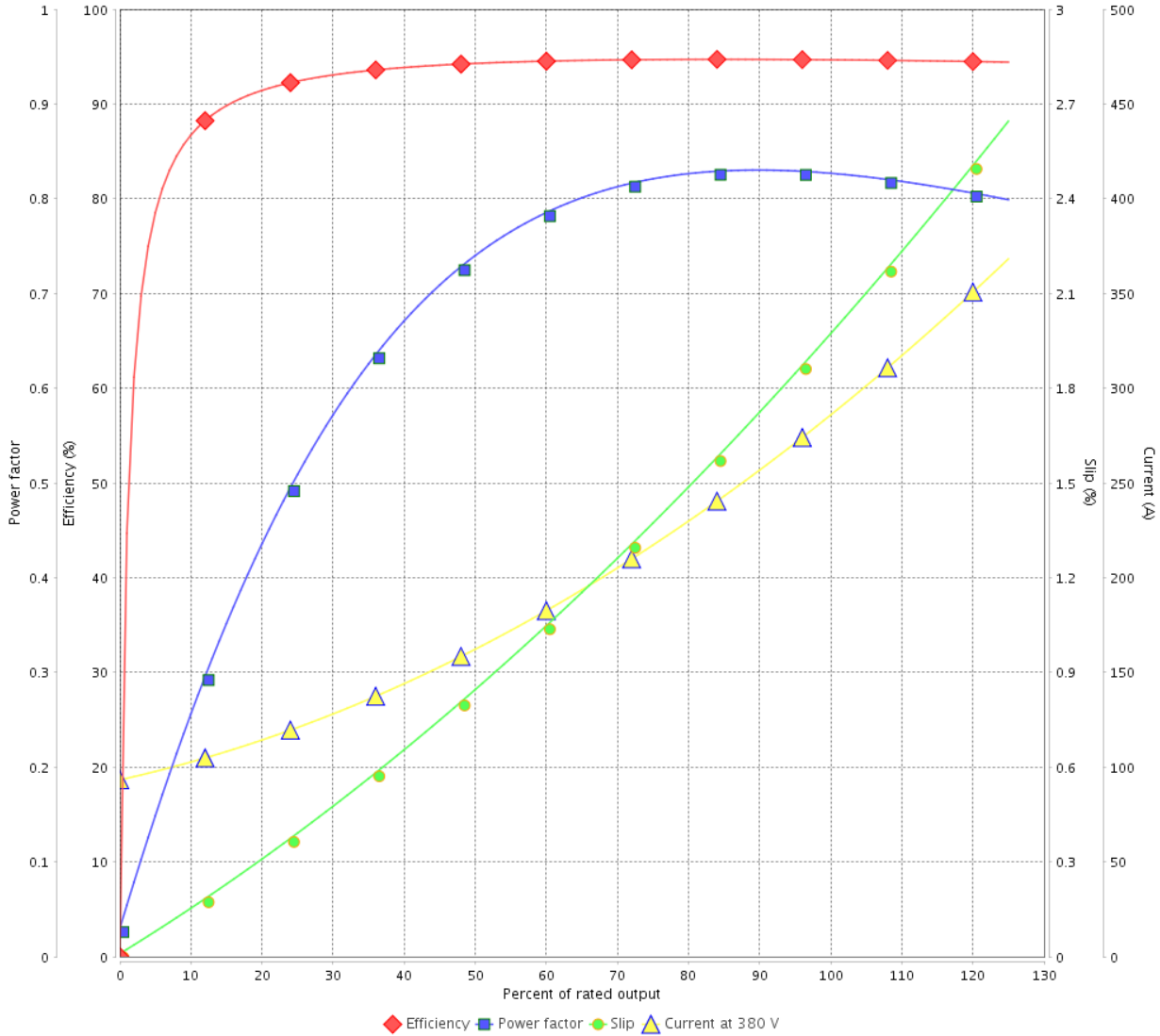
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LOAD PERFORMANCE CURVE



Performance : 380 V 50 Hz 6P IE1

Rated current : 290 A  
 LRC : 4.5  
 Rated torque : 1070 ft.lb  
 Locked rotor torque : 150 %  
 Breakdown torque : 170 %  
 Rated speed : 980 rpm

Moment of inertia (J) : 98.2 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 105 K  
 Design : A

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## Three Phase Induction Motor - Squirrel Cage

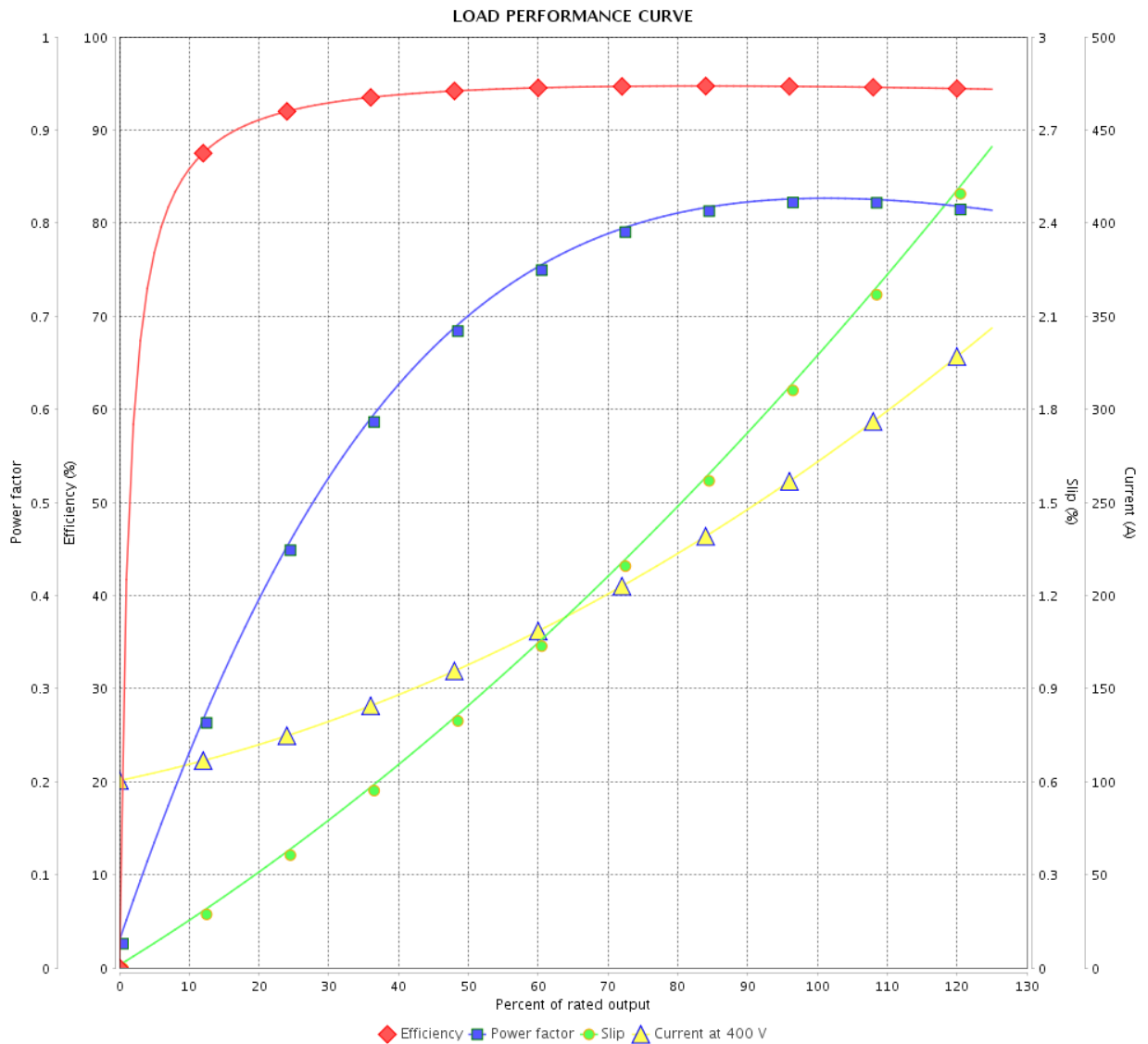


Customer :

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Product code : 13621121

Catalog # : 20012OT3G447/9T-W40



Performance : 400 V 50 Hz 6P IE1

Rated current : 275 A  
 LRC : 5.1  
 Rated torque : 1070 ft.lb  
 Locked rotor torque : 170 %  
 Breakdown torque : 190 %  
 Rated speed : 980 rpm

Moment of inertia (J) : 98.2 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 105 K  
 Design : A

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Three Phase Induction Motor - Squirrel Cage

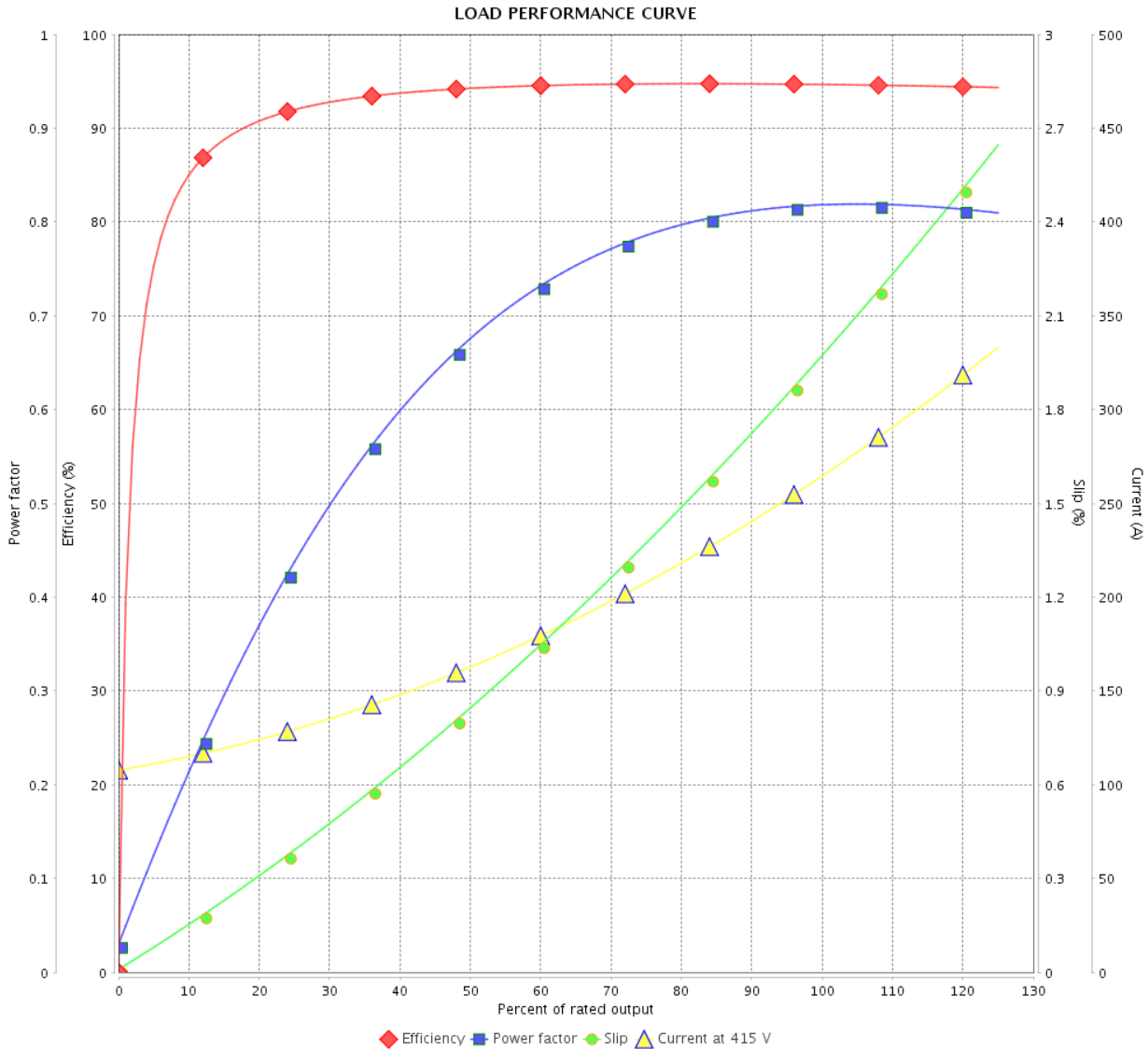


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Rated torque	: 1070 ft.lb	Insulation class	: F
Locked rotor torque	: 180 %	Service factor	: 1.00
Breakdown torque	: 210 %	Temperature rise	: 105 K
Rated speed	: 980 rpm	Design	: A

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# THERMAL LIMIT CURVE



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LRC : 5.8	Duty cycle : Cont.(S1)
Rated torque : 886 ft.lb	Insulation class : F
Locked rotor torque : 200 %	Service factor : 1.15
Breakdown torque : 220 %	Temperature rise : 80 K
Rated speed : 1185 rpm	Design : A

Heating constant

Cooling constant

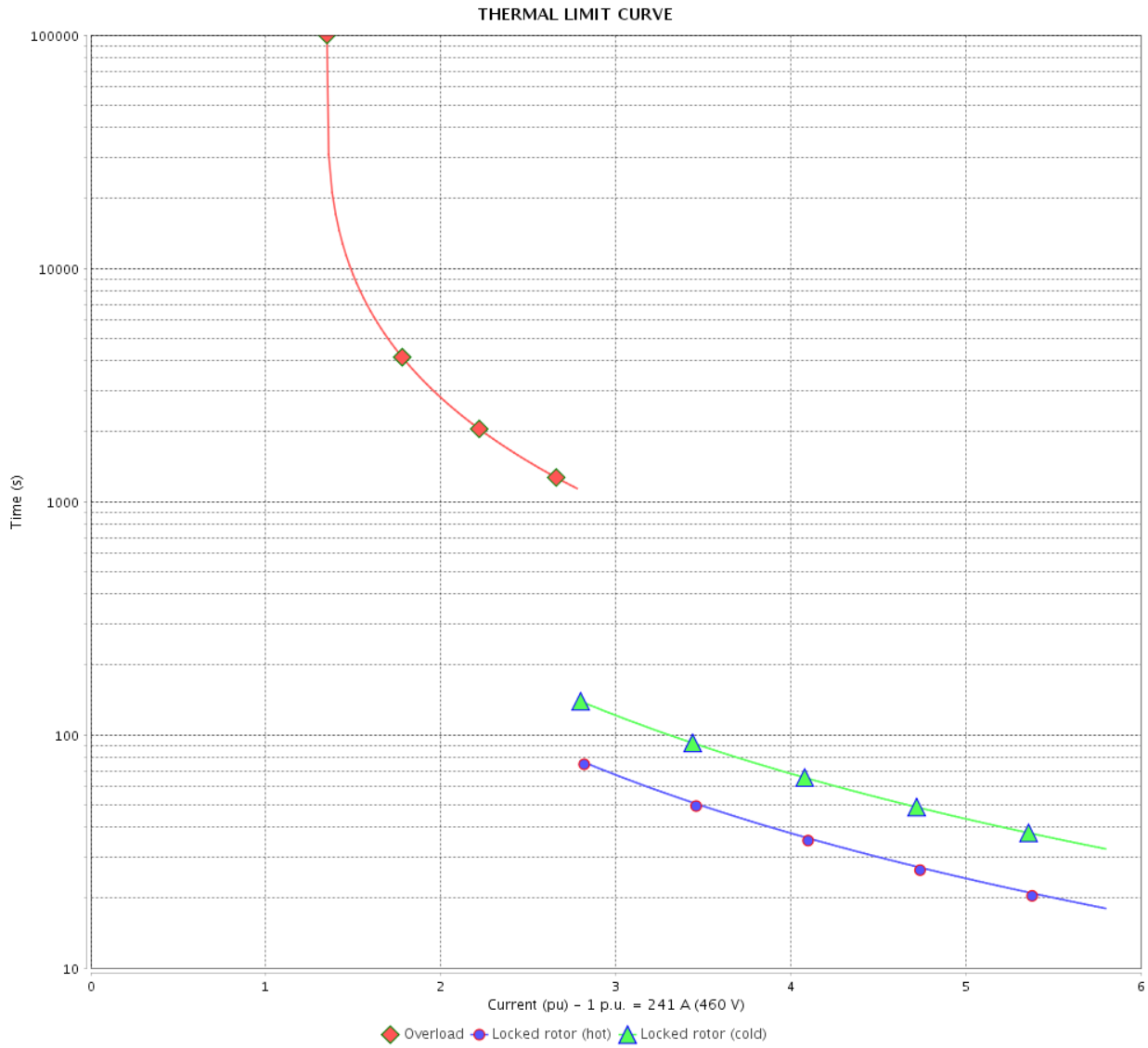
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Three Phase Induction Motor - Squirrel Cage



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# THERMAL LIMIT CURVE



## Three Phase Induction Motor - Squirrel Cage

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Performance : 380 V 50 Hz 6P IE3

Rated current : 253 A	Moment of inertia (J) : 98.2 sq.ft.lb
LRC : 5.2	Duty cycle : Cont.(S1)
Rated torque : 938 ft.lb	Insulation class : F
Locked rotor torque : 170 %	Service factor : 1.15
Breakdown torque : 190 %	Temperature rise : 80 K
Rated speed : 980 rpm	Design : A

Heating constant

Cooling constant

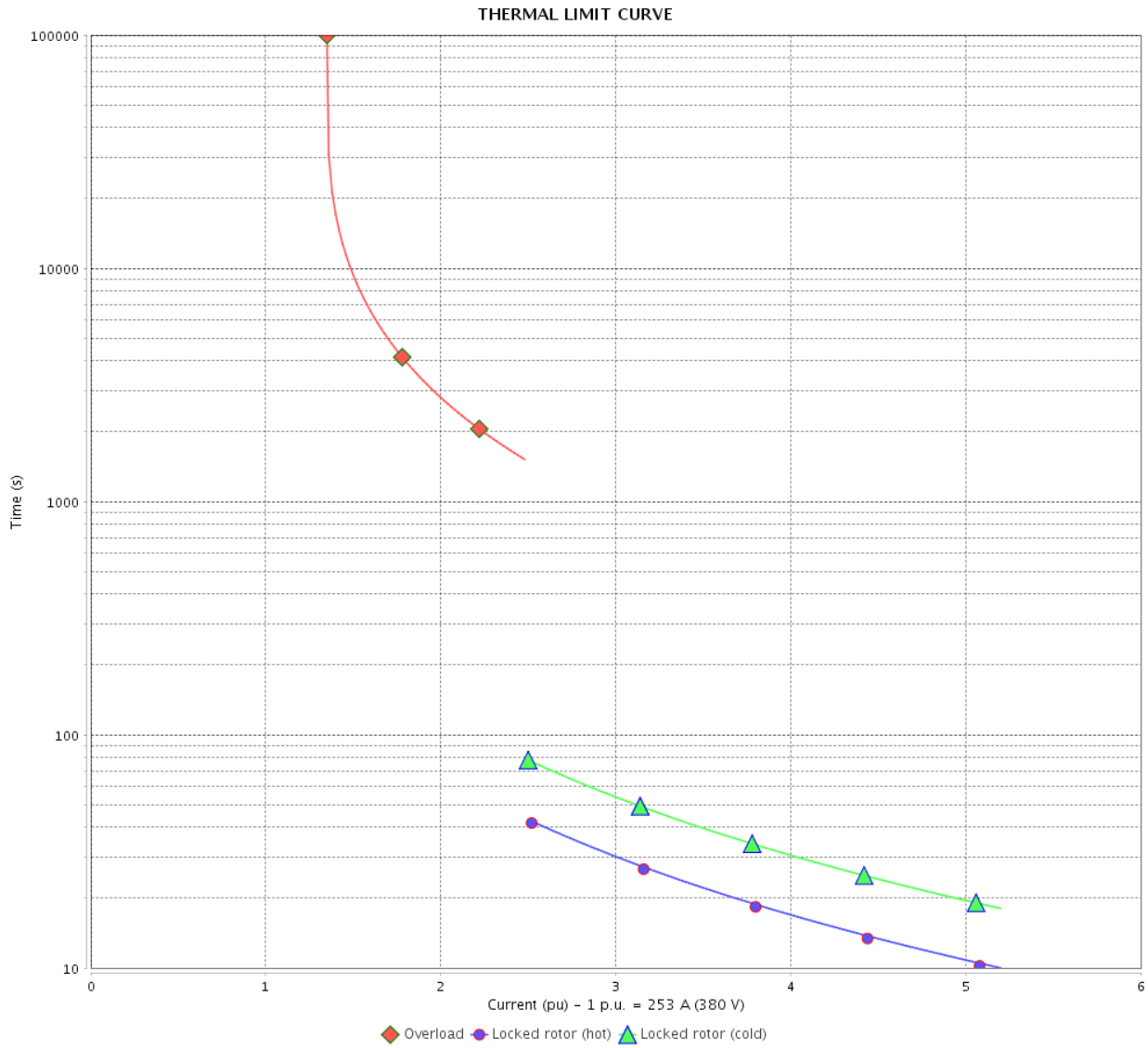
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Cooling constant

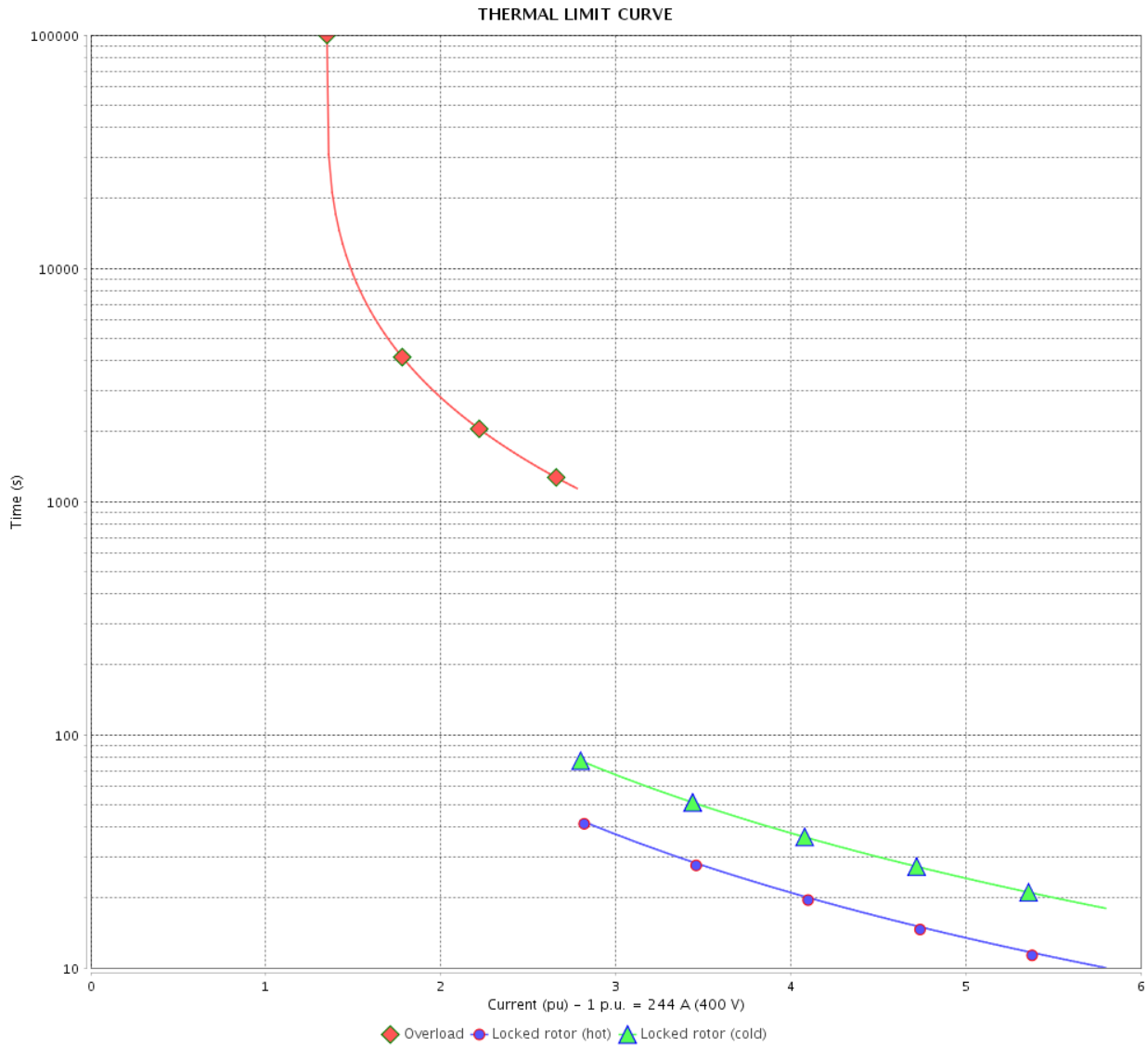
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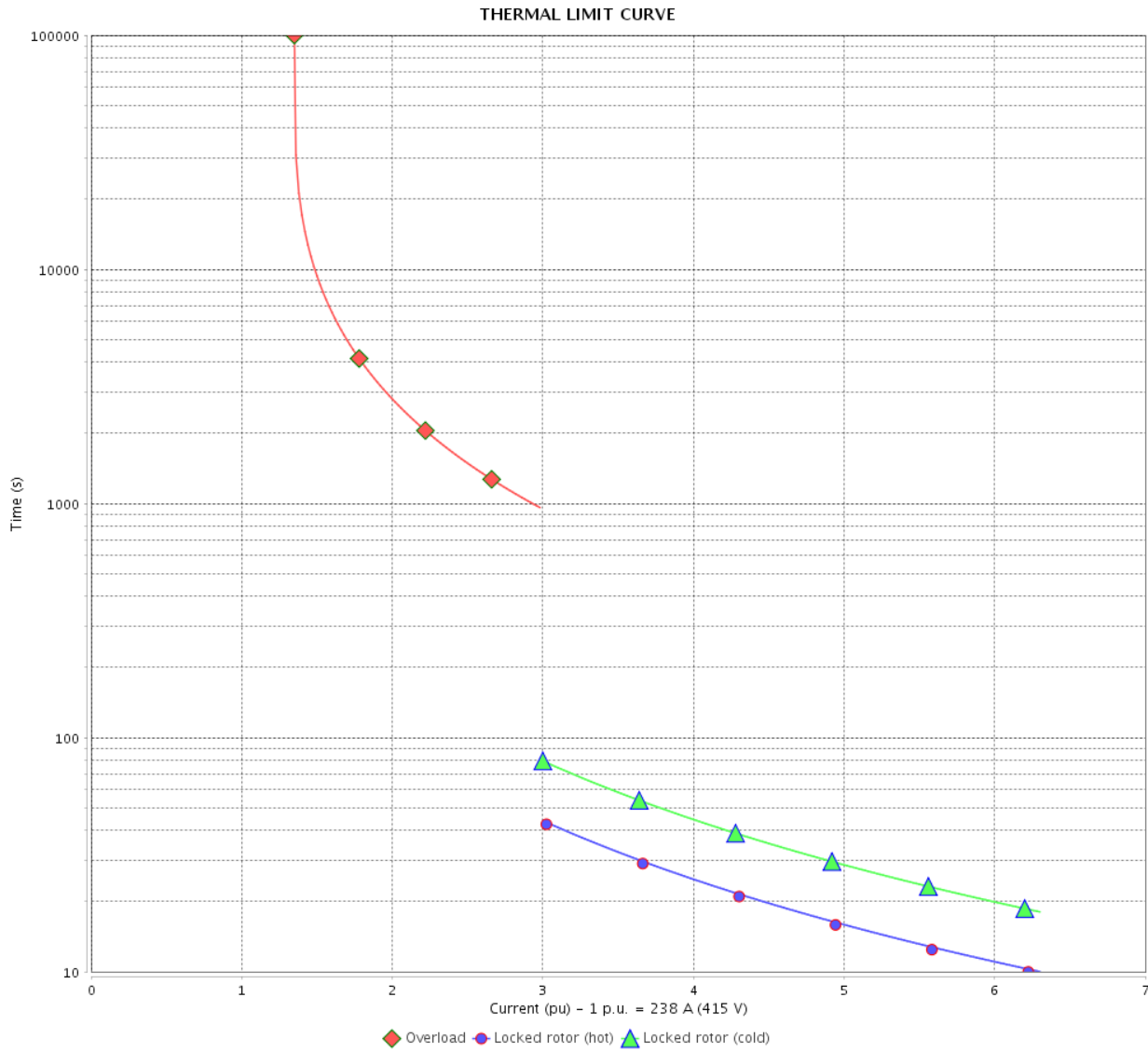
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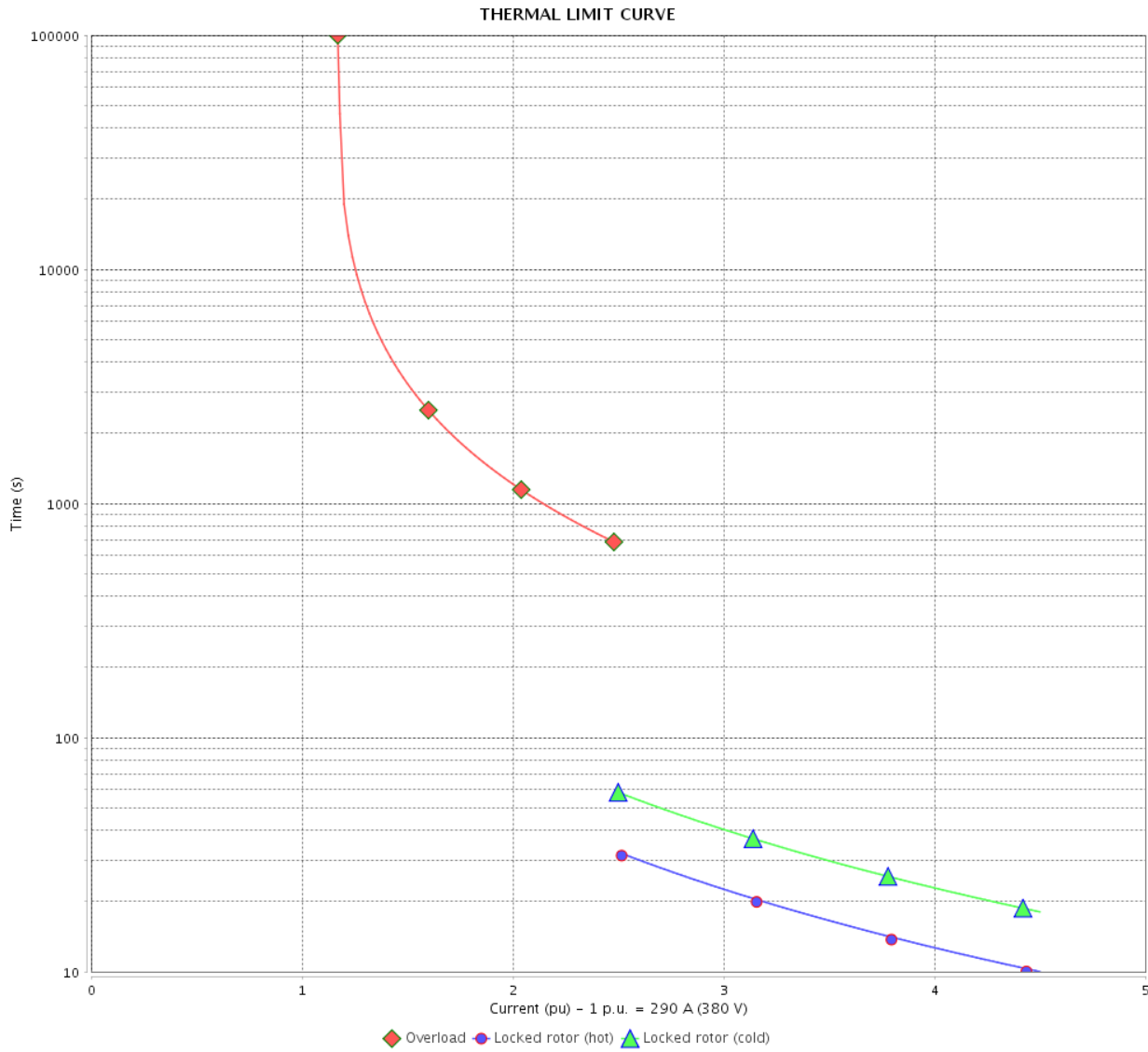
Rev.	Changes Summary	Performed	Checked	Date
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Checked by			Page	Revision
Date	14/04/2022		25 / 37	

# THERMAL LIMIT CURVE

Three Phase Induction Motor - Squirrel Cage



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



Rev.	Changes Summary	Performed	Checked	Date
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Date		14/04/2022		

# THERMAL LIMIT CURVE



## Three Phase Induction Motor - Squirrel Cage

Customer :

Product line : W40 NEMA Premium Efficiency Three-Phase  
 Product code : 13621121  
 Catalog # : 20012OT3G447/9T-W40

Performance : 400 V 50 Hz 6P IE1

Rated current : 275 A	Moment of inertia (J) : 98.2 sq.ft.lb
LRC : 5.1	Duty cycle : Cont.(S1)
Rated torque : 1070 ft.lb	Insulation class : F
Locked rotor torque : 170 %	Service factor : 1.00
Breakdown torque : 190 %	Temperature rise : 105 K
Rated speed : 980 rpm	Design : A

Heating constant

Cooling constant

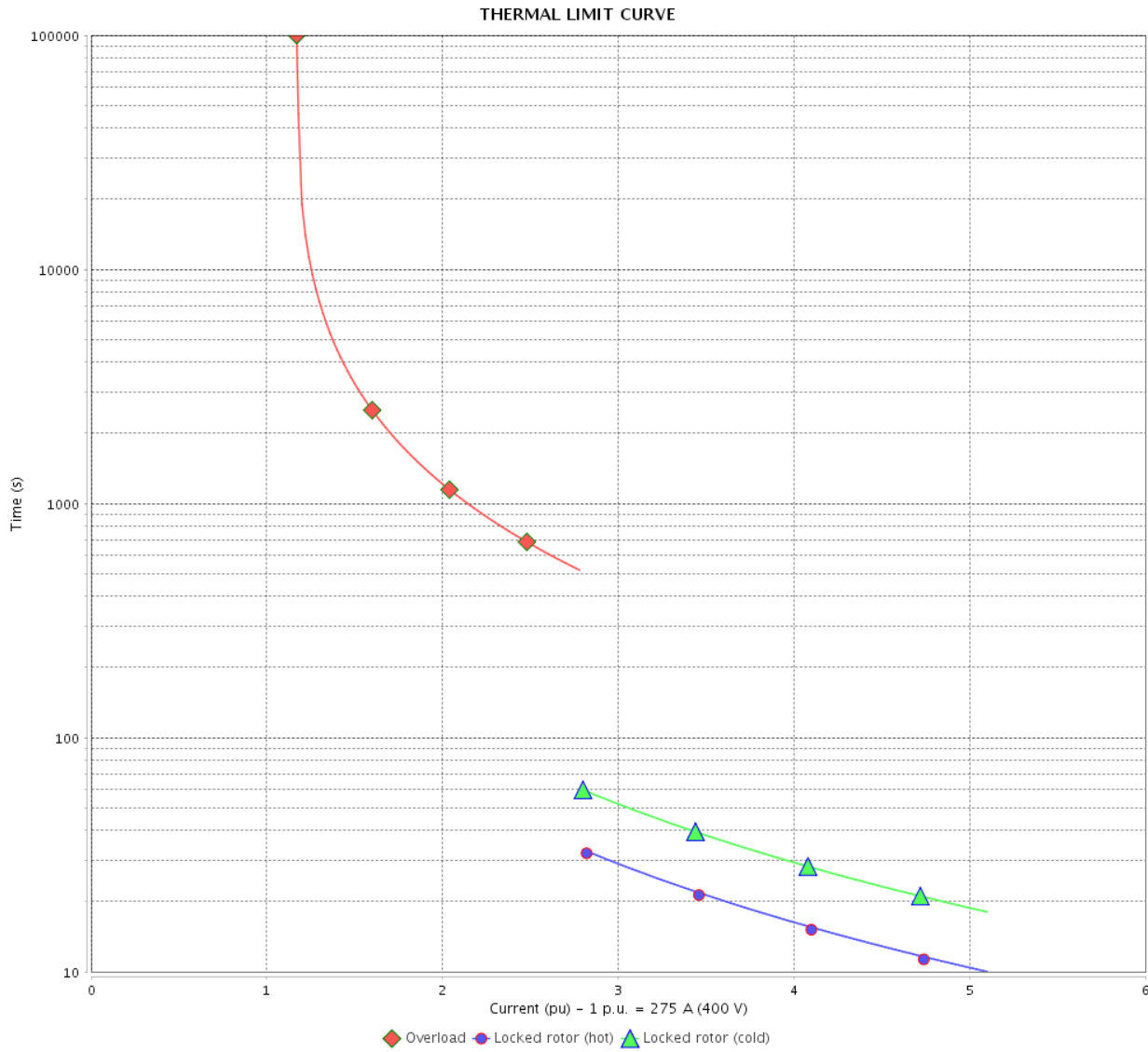
Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page 27 / 37	Revision
Checked by				
Date	14/04/2022			

# THERMAL LIMIT CURVE

Three Phase Induction Motor - Squirrel Cage



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



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Performed by		Page		Revision
Checked by		28 / 37		
Date		14/04/2022		

# THERMAL LIMIT CURVE



## Three Phase Induction Motor - Squirrel Cage

Customer :

Product line : W40 NEMA Premium Efficiency Three-Phase      Product code : 13621121  
 Catalog # : 20012OT3G447/9T-W40

Performance : 415 V 50 Hz 6P IE1

Rated current : 269 A	Moment of inertia (J) : 98.2 sq.ft.lb
LRC : 5.6	Duty cycle : Cont.(S1)
Rated torque : 1070 ft.lb	Insulation class : F
Locked rotor torque : 180 %	Service factor : 1.00
Breakdown torque : 210 %	Temperature rise : 105 K
Rated speed : 980 rpm	Design : A

Heating constant

Cooling constant

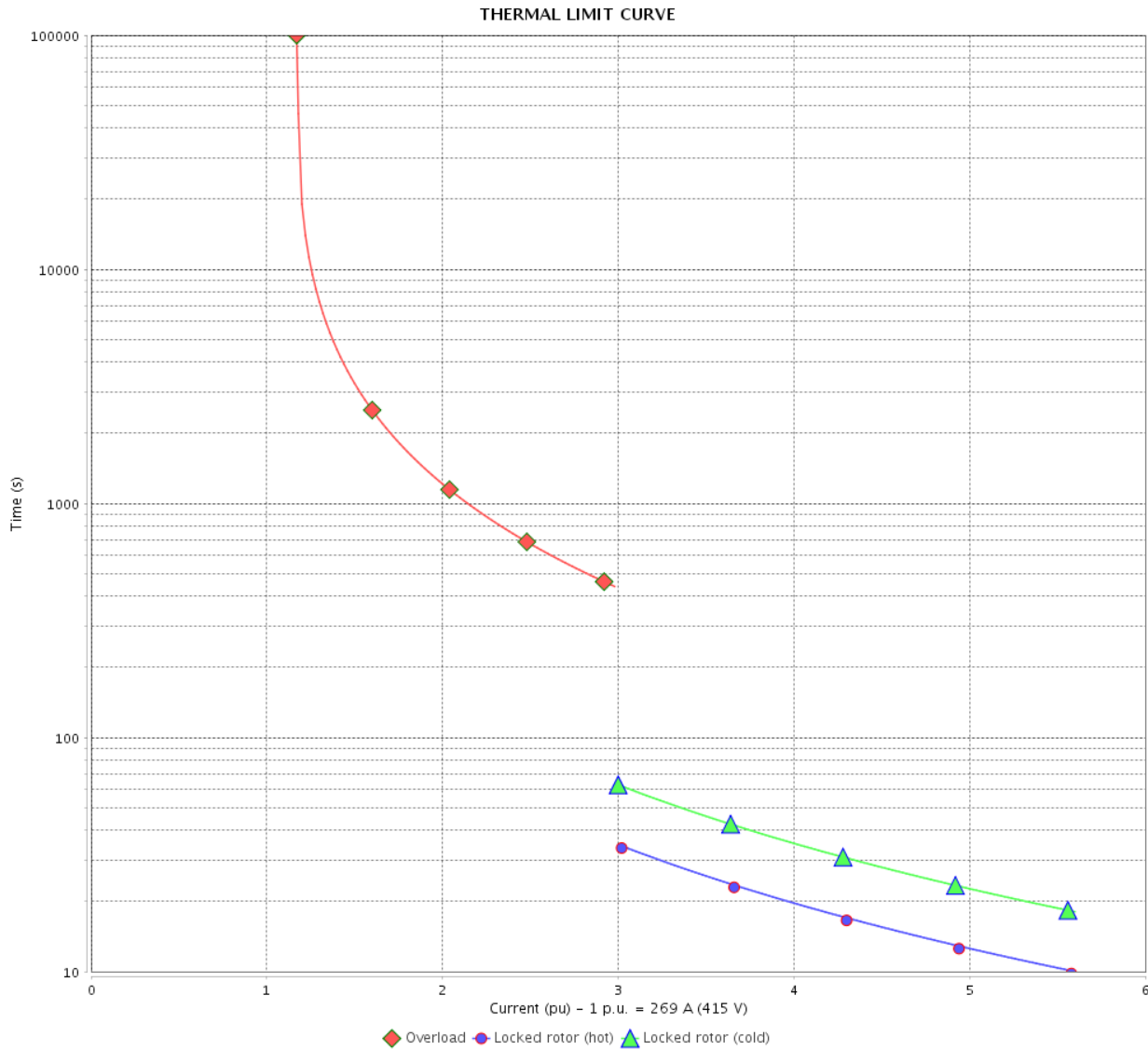
Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page	Revision
Checked by				
Date	14/04/2022			

# THERMAL LIMIT CURVE

Three Phase Induction Motor - Squirrel Cage



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



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Checked by				
Date				

# VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage

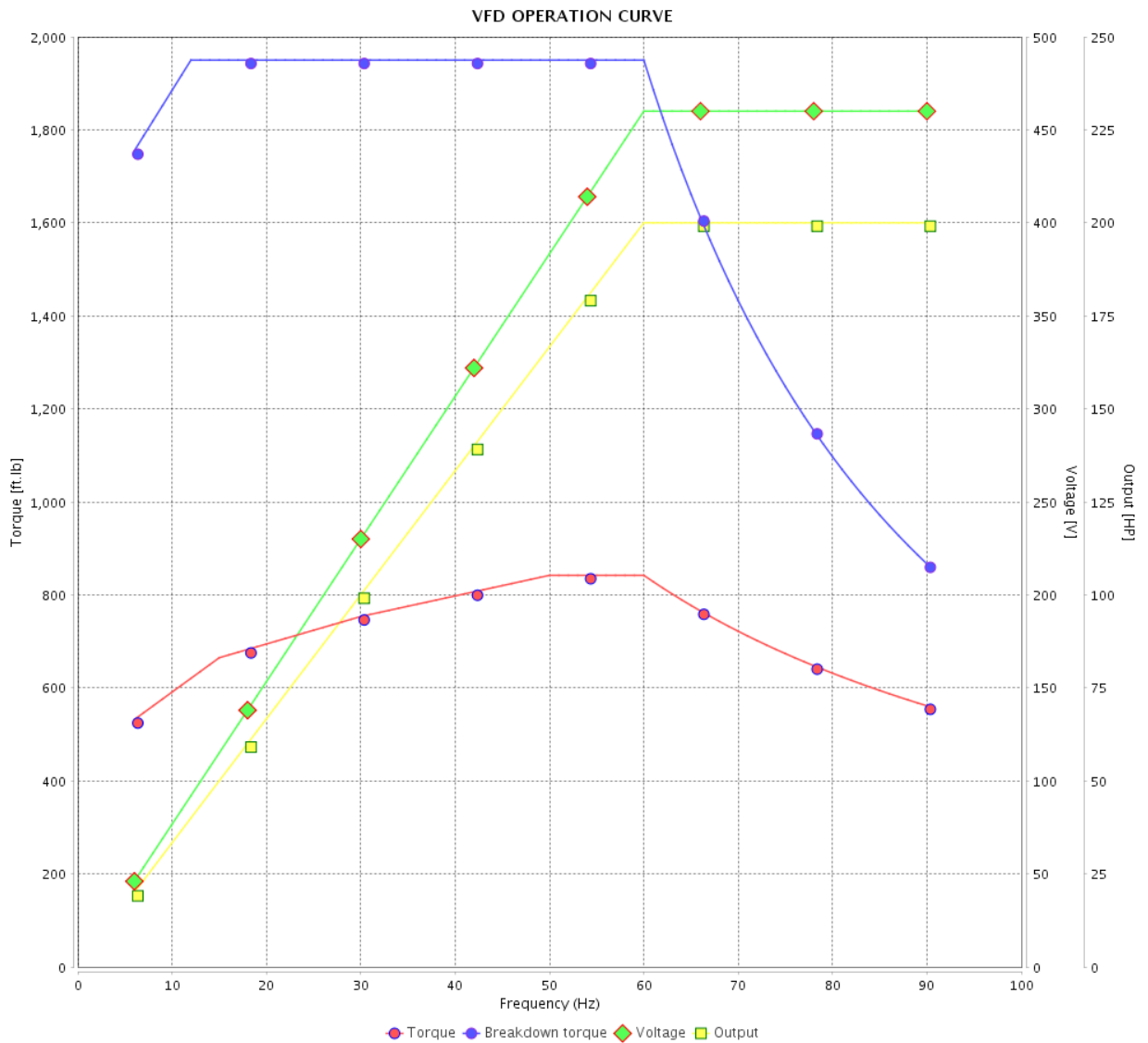


Customer :

Product line : W40 NEMA Premium Efficiency  
Three-Phase

Product code : 13621121

Catalog # : 20012OT3G447/9T-W40



Performance : 460 V 60 Hz 6P

Rated current : 241 A  
 LRC : 5.8  
 Rated torque : 886 ft.lb  
 Locked rotor torque : 200 %  
 Breakdown torque : 220 %  
 Rated speed : 1185 rpm

Moment of inertia (J) : 98.2 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.15  
 Temperature rise : 80 K  
 Design : A

Rev.	Changes Summary	Performed	Checked	Date
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Date		14/04/2022		

# VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage

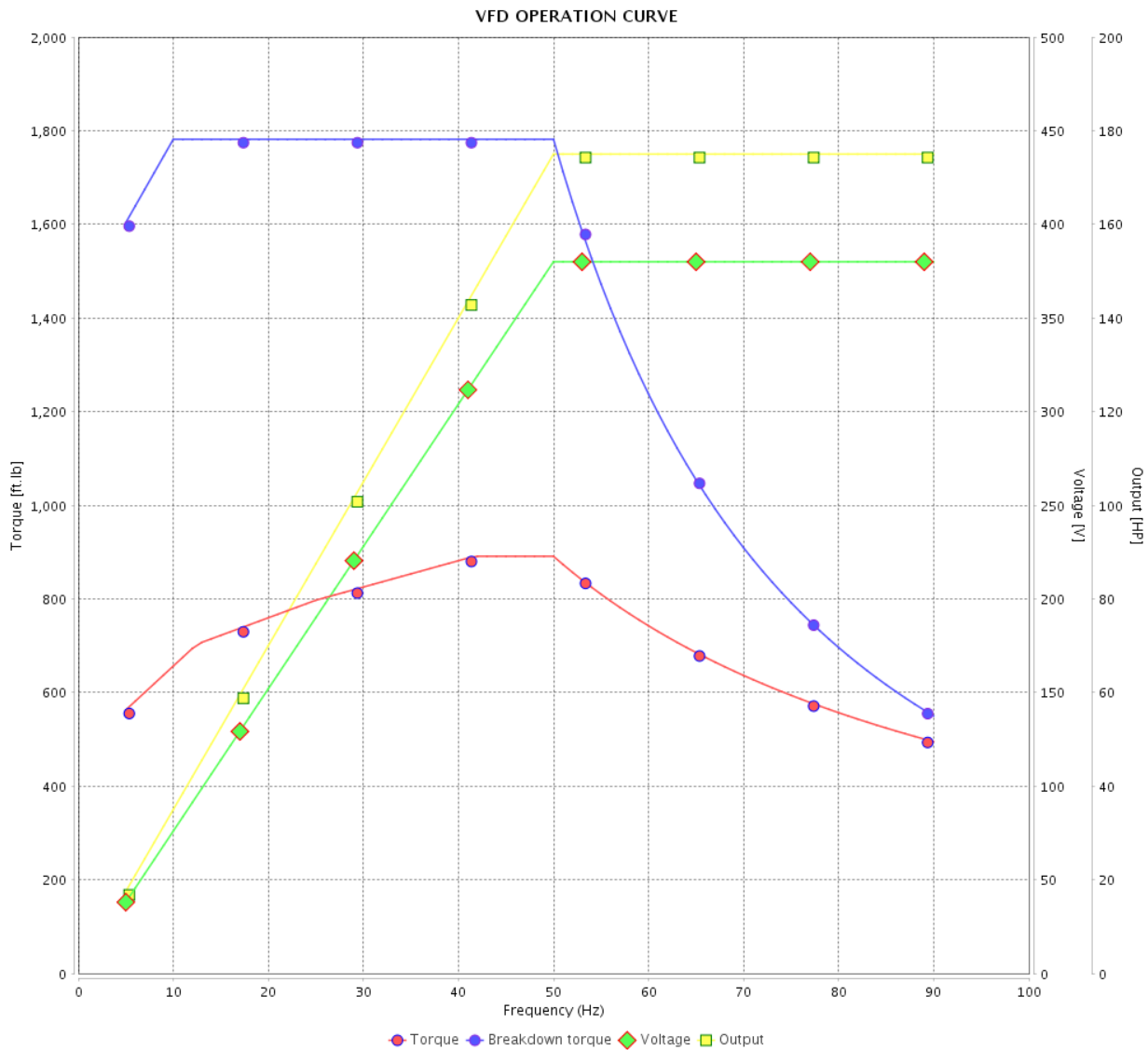


Customer :

Product line : W40 NEMA Premium Efficiency  
Three-Phase

Product code : 13621121

Catalog # : 20012OT3G447/9T-W40



Performance : 380 V 50 Hz 6P IE3

Rated current	: 253 A	Moment of inertia (J)	: 98.2 sq.ft.lb
LRC	: 5.2	Duty cycle	: Cont.(S1)
Rated torque	: 938 ft.lb	Insulation class	: F
Locked rotor torque	: 170 %	Service factor	: 1.15
Breakdown torque	: 190 %	Temperature rise	: 80 K
Rated speed	: 980 rpm	Design	: A

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Checked by				
Date	14/04/2022			



# VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage

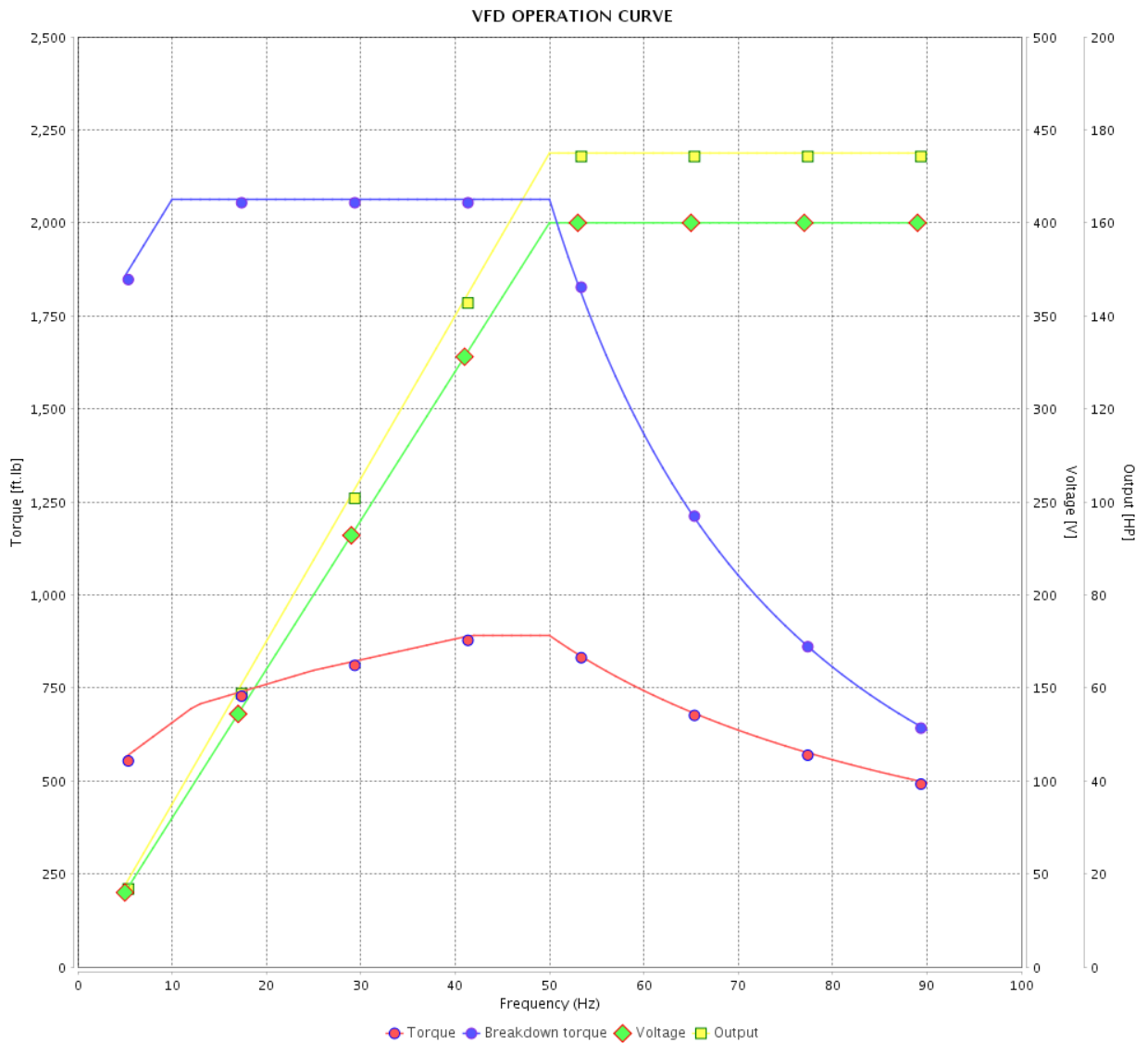


Customer :

Product line : W40 NEMA Premium Efficiency  
Three-Phase

Product code : 13621121

Catalog # : 20012OT3G447/9T-W40



Performance : 400 V 50 Hz 6P IE3

Rated current : 244 A  
LRC : 5.8  
Rated torque : 938 ft.lb  
Locked rotor torque : 190 %  
Breakdown torque : 220 %  
Rated speed : 980 rpm

Moment of inertia (J) : 98.2 sq.ft.lb  
Duty cycle : Cont.(S1)  
Insulation class : F  
Service factor : 1.15  
Temperature rise : 80 K  
Design : A

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Date		14/04/2022		

# VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage

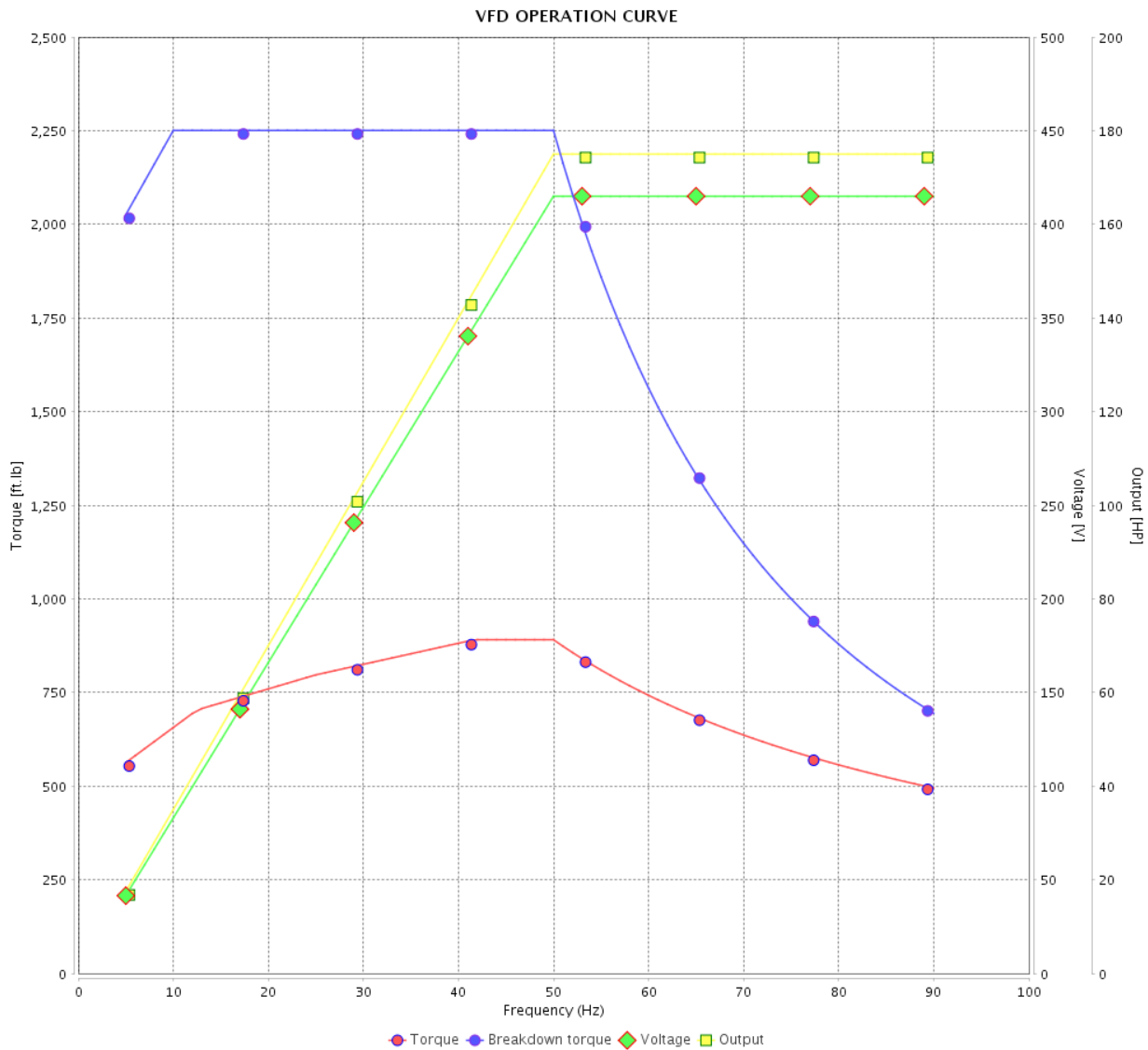


Customer :

Product line : W40 NEMA Premium Efficiency  
Three-Phase

Product code : 13621121

Catalog # : 20012OT3G447/9T-W40



Performance : 415 V 50 Hz 6P IE3

Rated current	: 238 A	Moment of inertia (J)	: 98.2 sq.ft.lb
LRC	: 6.3	Duty cycle	: Cont.(S1)
Rated torque	: 938 ft.lb	Insulation class	: F
Locked rotor torque	: 210 %	Service factor	: 1.15
Breakdown torque	: 240 %	Temperature rise	: 80 K
Rated speed	: 980 rpm	Design	: A

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Date	14/04/2022			

# VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage

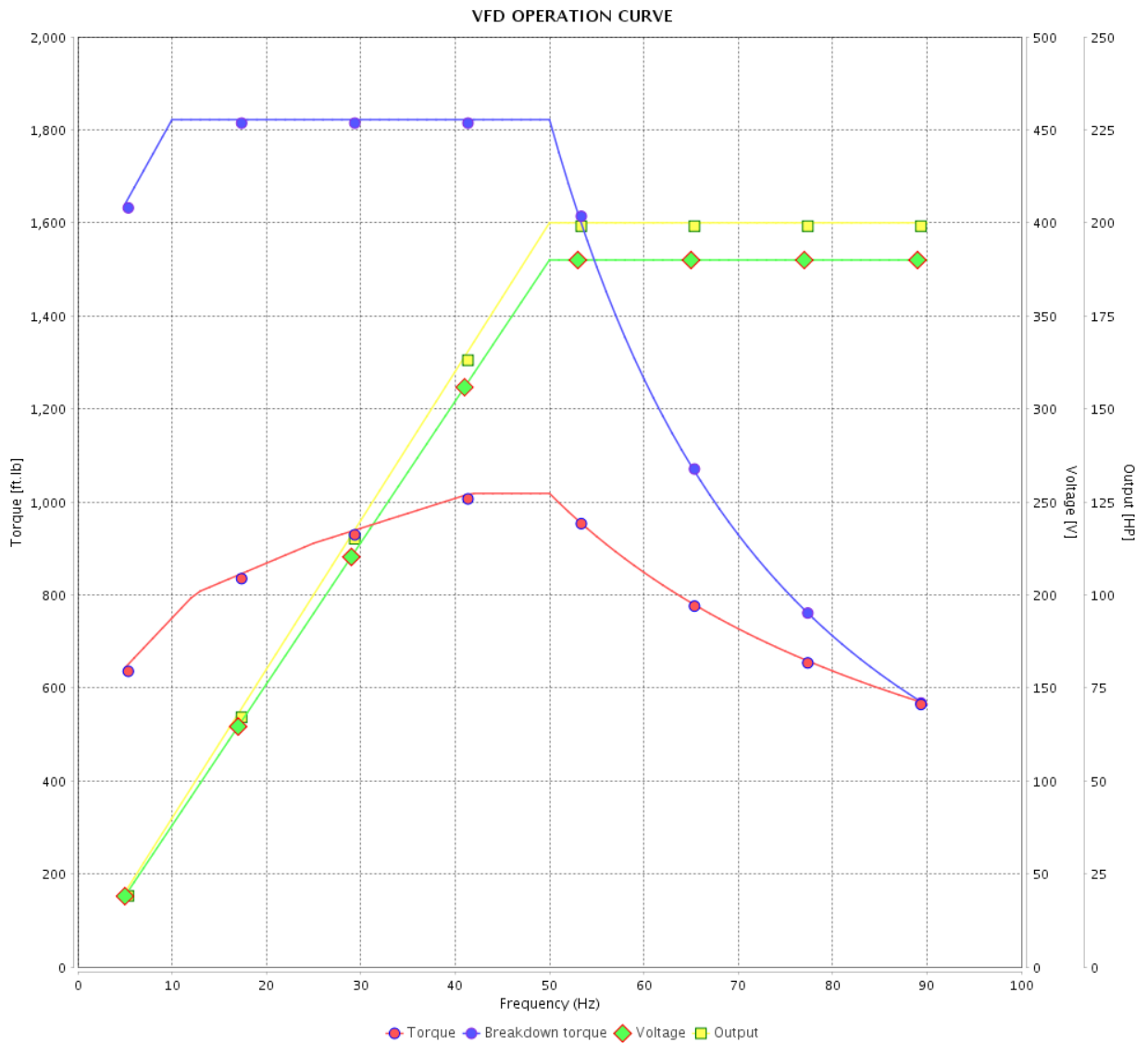


Customer :

Product line : W40 NEMA Premium Efficiency Three-Phase

Product code : 13621121

Catalog # : 20012OT3G447/9T-W40



Performance : 380 V 50 Hz 6P IE1

Rated current : 290 A  
 LRC : 4.5  
 Rated torque : 1070 ft.lb  
 Locked rotor torque : 150 %  
 Breakdown torque : 170 %  
 Rated speed : 980 rpm

Moment of inertia (J) : 98.2 sq.ft.lb  
 Duty cycle : Cont.(S1)  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 105 K  
 Design : A

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# VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage

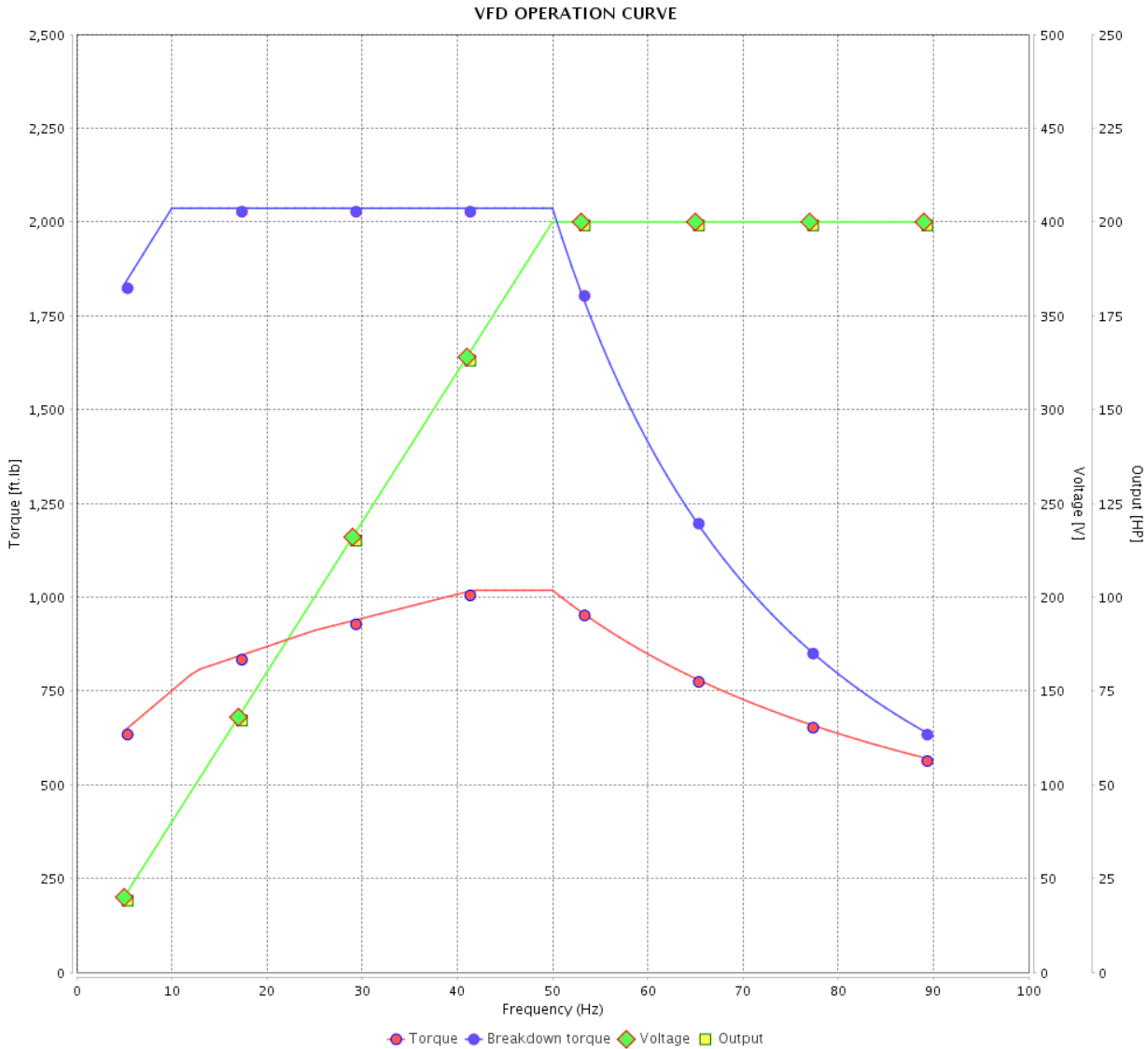


Customer :

Product line : W40 NEMA Premium Efficiency  
Three-Phase

Product code : 13621121

Catalog # : 20012OT3G447/9T-W40



Performance : 400 V 50 Hz 6P IE1

Rated current : 275 A  
LRC : 5.1  
Rated torque : 1070 ft.lb  
Locked rotor torque : 170 %  
Breakdown torque : 190 %  
Rated speed : 980 rpm

Moment of inertia (J) : 98.2 sq.ft.lb  
Duty cycle : Cont.(S1)  
Insulation class : F  
Service factor : 1.00  
Temperature rise : 105 K  
Design : A

Rev.	Changes Summary	Performed	Checked	Date
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Checked by				
Date	14/04/2022			

# VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage

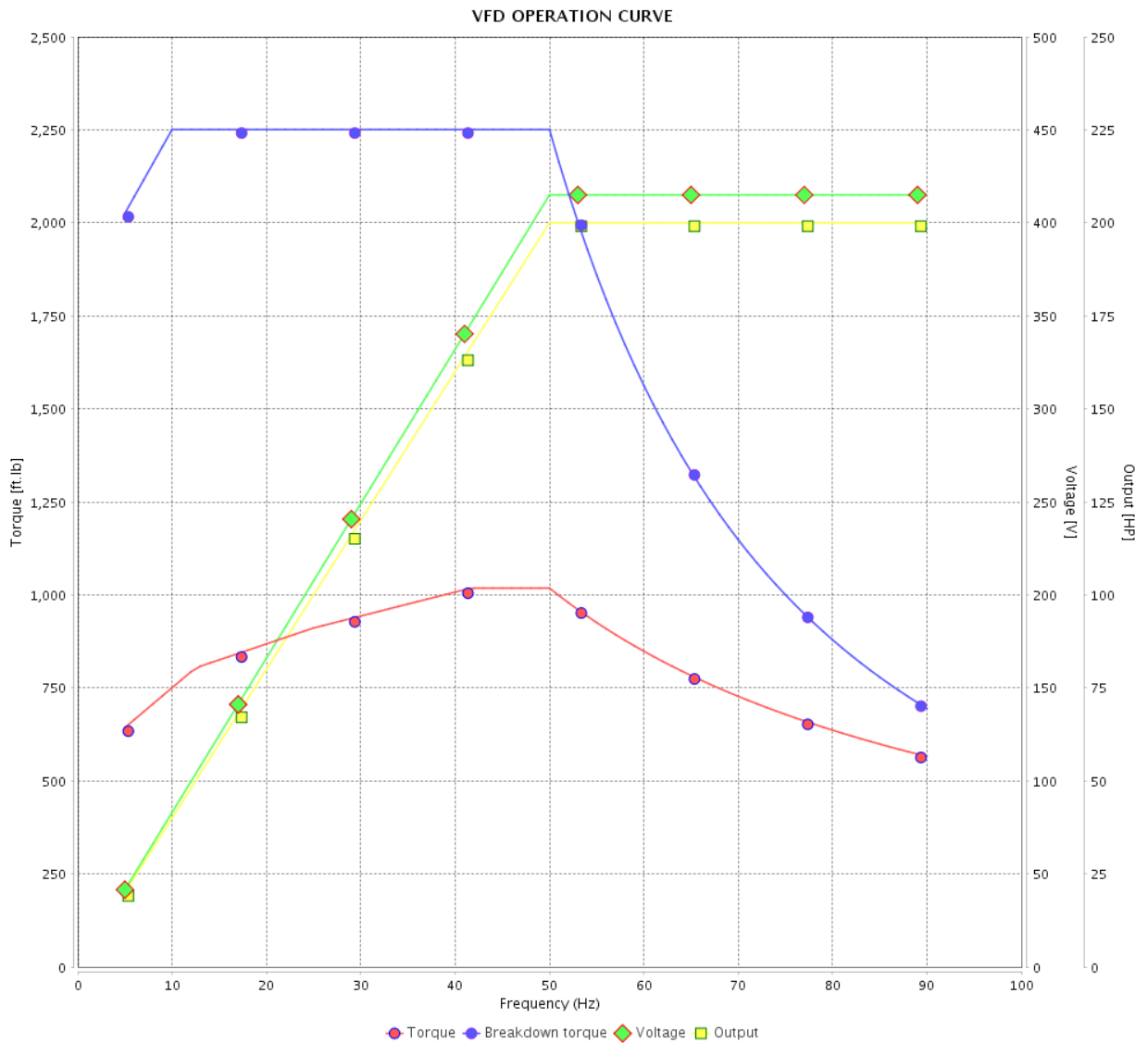


Customer :

Product line : W40 NEMA Premium Efficiency  
Three-Phase

Product code : 13621121

Catalog # : 20012OT3G447/9T-W40

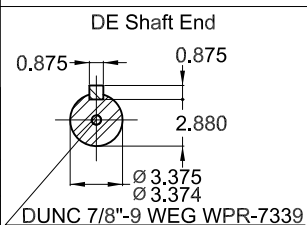
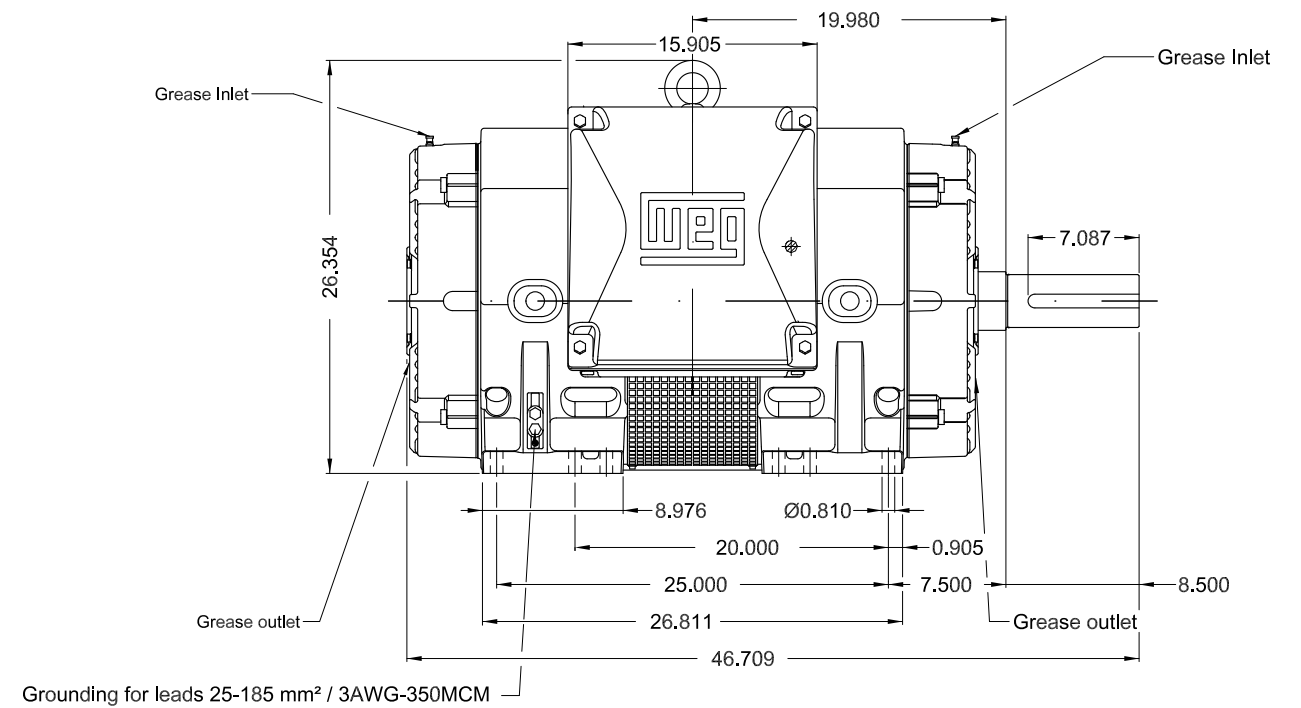
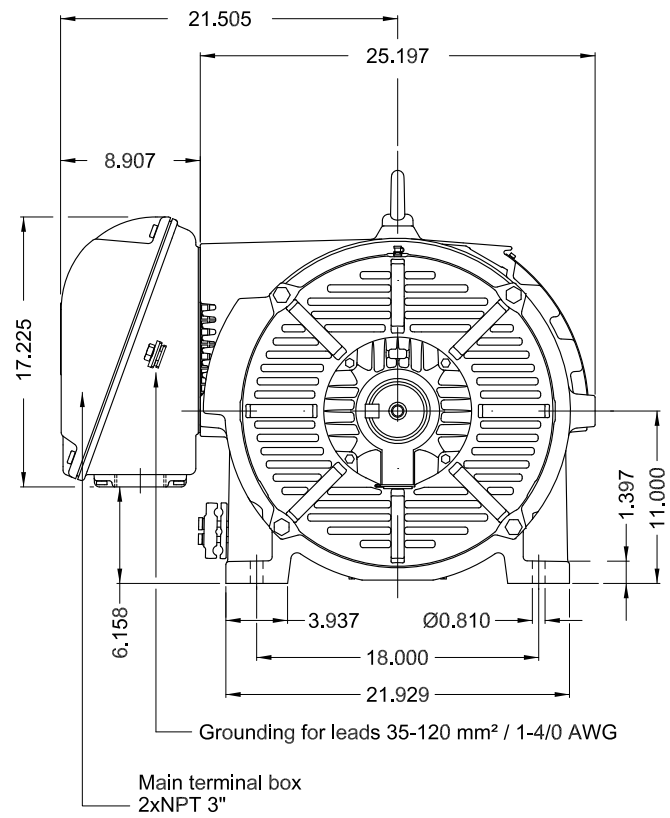


Performance : 415 V 50 Hz 6P IE1

Rated current : 269 A  
LRC : 5.6  
Rated torque : 1070 ft.lb  
Locked rotor torque : 180 %  
Breakdown torque : 210 %  
Rated speed : 980 rpm

Moment of inertia (J) : 98.2 sq.ft.lb  
Duty cycle : Cont.(S1)  
Insulation class : F  
Service factor : 1.00  
Temperature rise : 105 K  
Design : A

Rev.	Changes Summary	Performed	Checked	Date
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Color RAL 5009  
 Painting plan 203A  
 Mounting NEMA F-1  
 Mounting B3R(D)

200 HP 06 Poles 60 Hz

A

1:12

ECM	LOC	SUMMARY OF MODIFICATIONS	EXECUTED	CHECKED	RELEASED	DATE	VER
EXECUTED	PIRWBUSER	THREE PH. MOTOR W40 PREM. EFF.					
CHECKED		FRAME 447/9T IP23 ODP					
RELEASED							
REL DT.	WMO	Jaragua do Sul	Product Engineering				

**PREVIEW**  
**WDD**



SHEET 1 / 1

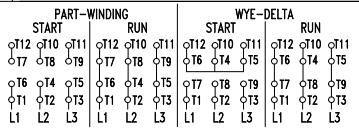
MODEL 200120T3G447/9T-W40  
MADE IN BRAZIL  
13621121



MOD.T01#FOXON



PH 3	FR 447/9T	HP(kW) 200(150)		Hz 60
V 460		A 241		IP23
NEMA NOM EFF		95.4	%	RPM 1185
ENCL ODP	DUTY CONT.		INS. CL. F $\Delta T$ 80 K	
PF 0.82		DES A	CODE F	AMB. 40°C
SF 1.15		SFA 277		ALT 1000 m.a.s.l.



→ 6319-C3(45g)  
→ 6314-C3(27g)

MOBIL POLYREX EM  
20000 h

1997 Lbs