

DATA SHEET

Three Phase Induction Motor - Squirrel Cage



Customer							
Product line	: NEMA Premium Efficiency Three-Phase	Product code	: 11431383				
		Catalog #	: 20036ST3QIE447TS-W22				
Frame	: 445/7TS	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	: 2053 lb				
Protection degree	: IP55	Moment of inertia (J)	: 44.7 sq.ft.lb				
Design	: B						
Output [HP]	200	150	150	150	200	200	200
Poles	2	2	2	2	2	2	2
Frequency [Hz]	60	50	50	50	50	50	50
Rated voltage [V]	460	380	400	415	380	400	415
Rated current [A]	219	193	183	178	268	253	244
L. R. Amperes [A]	1424	1312	1391	1477	1447	1543	1635
LRC [A]	6.5x(Code G)	6.8x(Code G)	7.6x(Code H)	8.3x(Code H)	5.4x(Code E)	6.1x(Code F)	6.7x(Code G)
No load current [A]	45.0	44.0	47.0	49.3	42.0	45.0	47.0
Rated speed [RPM]	3570	2975	2980	2980	2960	2965	2970
Slip [%]	0.83	0.83	0.67	0.67	1.33	1.17	1.00
Rated torque [ft.lb]	294	265	264	264	355	354	354
Locked rotor torque [%]	210	210	220	229	160	180	200
Breakdown torque [%]	229	260	290	320	190	220	229
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	25s (cold) 14s (hot)	50s (cold) 28s (hot)	46s (cold) 26s (hot)	43s (cold) 24s (hot)	18s (cold) 10s (hot)	18s (cold) 10s (hot)	18s (cold) 10s (hot)
Noise level ²	81.0 dB(A)						
Efficiency (%)	25%						
	50%	95.0	95.0	95.0	95.0	95.0	95.0
	75%	95.4	95.2	95.3	95.3	95.0	95.0
	100%	95.4	95.2	95.3	95.3	94.5	95.0
Power Factor	25%						
	50%	0.86	0.85	0.83	0.82	0.88	0.87
	75%	0.89	0.90	0.89	0.88	0.90	0.89
	100%	0.90	0.91	0.91	0.90	0.90	0.90
Bearing type	: Drive end : 6314 C3	Non drive end : 6314 C3	Foundation loads				
Sealing	: Inpro/Seal	Inpro/Seal	Max. traction : 1142 lb				
Lubrication interval	: 4000 h	4000 h	Max. compression : 3194 lb				
Lubricant amount	: 27 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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TORQUE AND CURRENT VS SPEED CURVE

Three Phase Induction Motor - Squirrel Cage



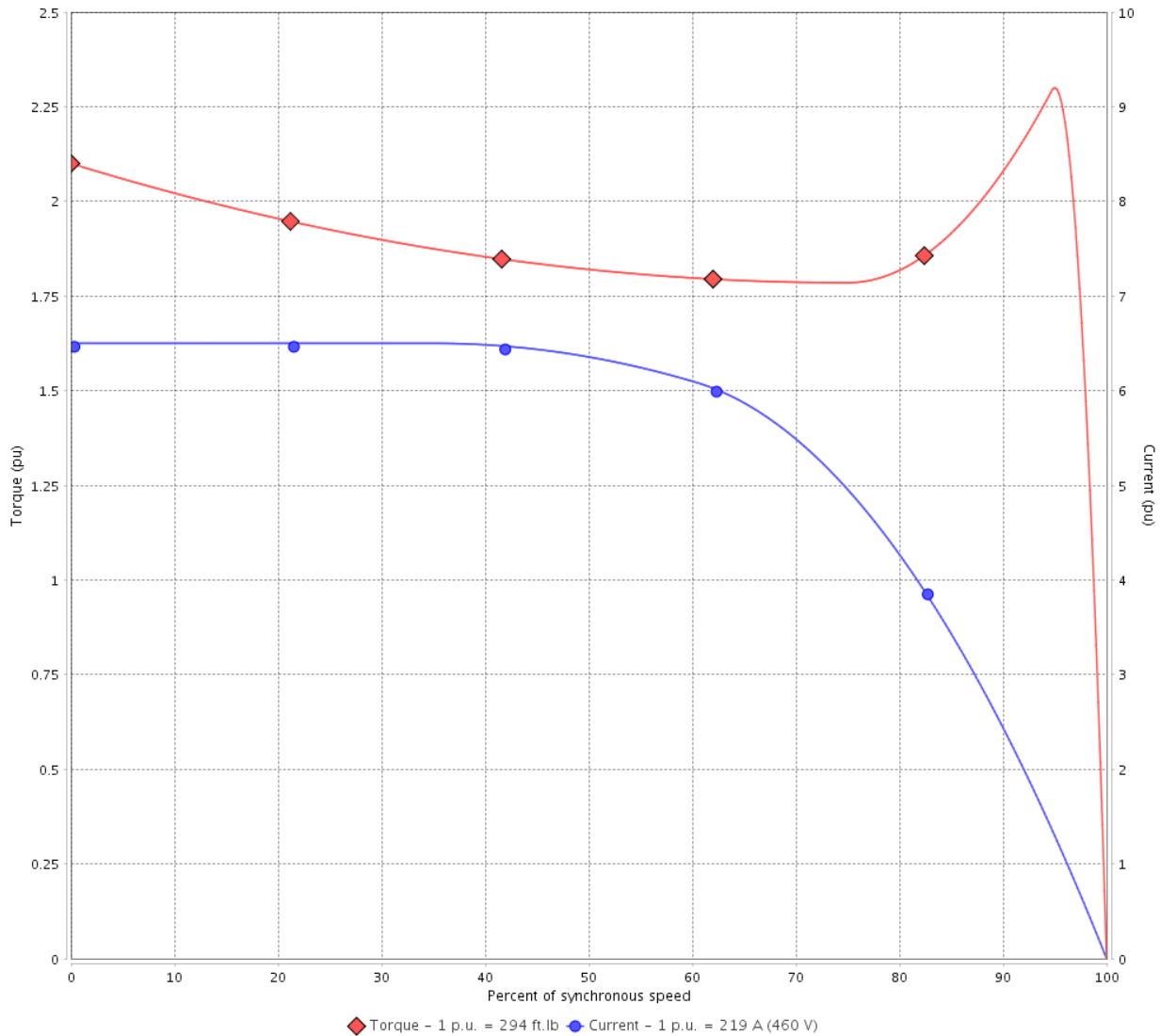
Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 11431383

Catalog # : 20036ST3QIE447TS-W22

TORQUE AND CURRENT VS SPEED CURVE



Performance : 460 V 60 Hz 2P

Rated current	: 219 A	Moment of inertia (J)	: 44.7 sq.ft.lb
LRC	: 6.5	Duty cycle	: Cont.(S1)
Rated torque	: 294 ft.lb	Insulation class	: F
Locked rotor torque	: 210 %	Service factor	: 1.15
Breakdown torque	: 229 %	Temperature rise	: 80 K
Rated speed	: 3570 rpm	Design	: B

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

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TORQUE AND CURRENT VS SPEED CURVE



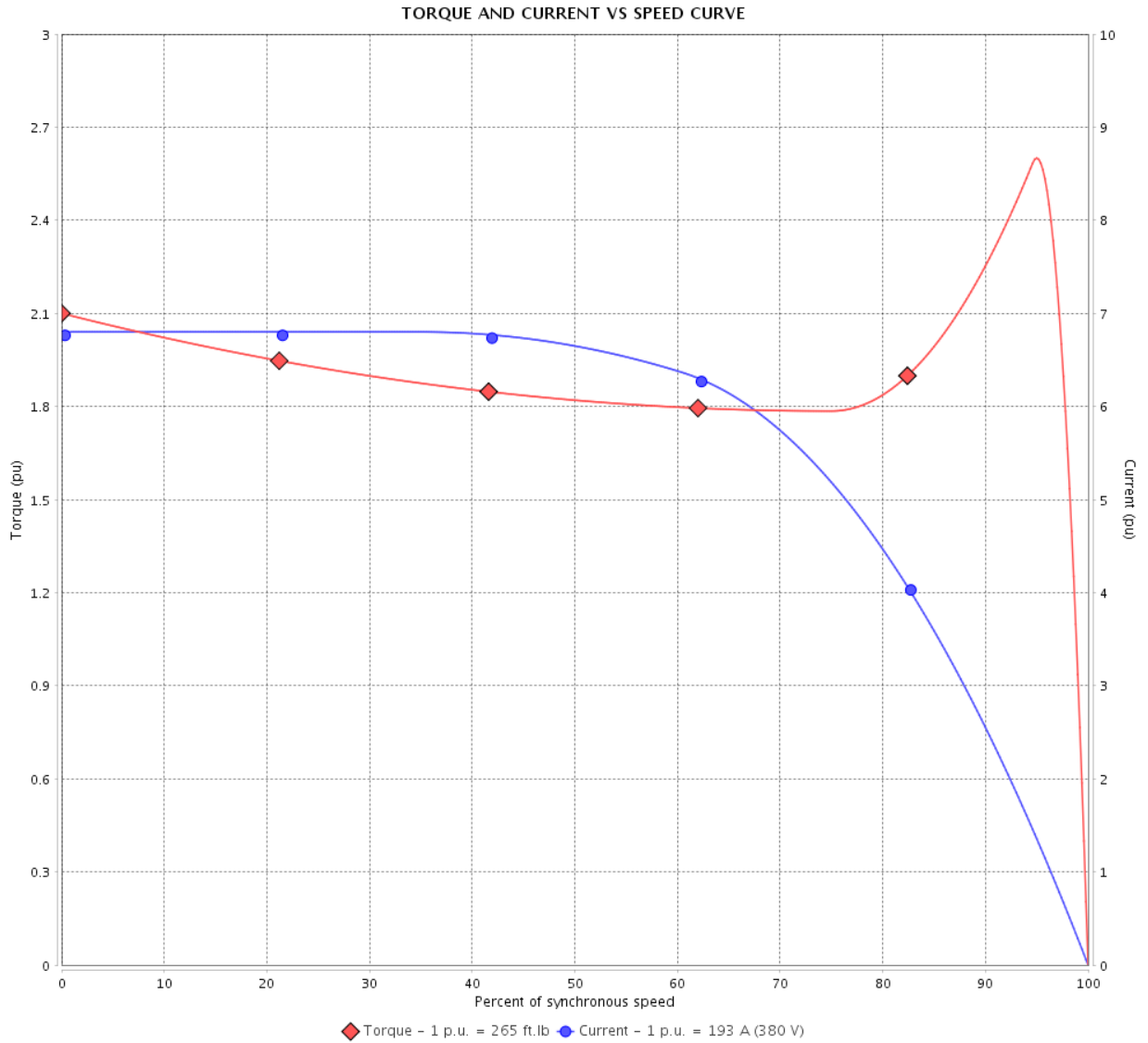
Three Phase Induction Motor - Squirrel Cage

Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 11431383

Catalog # : 20036ST3QIE447TS-W22



Performance : 380 V 50 Hz 2P IE3

Rated current	: 193 A	Moment of inertia (J)	: 44.7 sq.ft.lb
LRC	: 6.8	Duty cycle	: Cont.(S1)
Rated torque	: 265 ft.lb	Insulation class	: F
Locked rotor torque	: 210 %	Service factor	: 1.15
Breakdown torque	: 260 %	Temperature rise	: 80 K
Rated speed	: 2975 rpm	Design	: B

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

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TORQUE AND CURRENT VS SPEED CURVE

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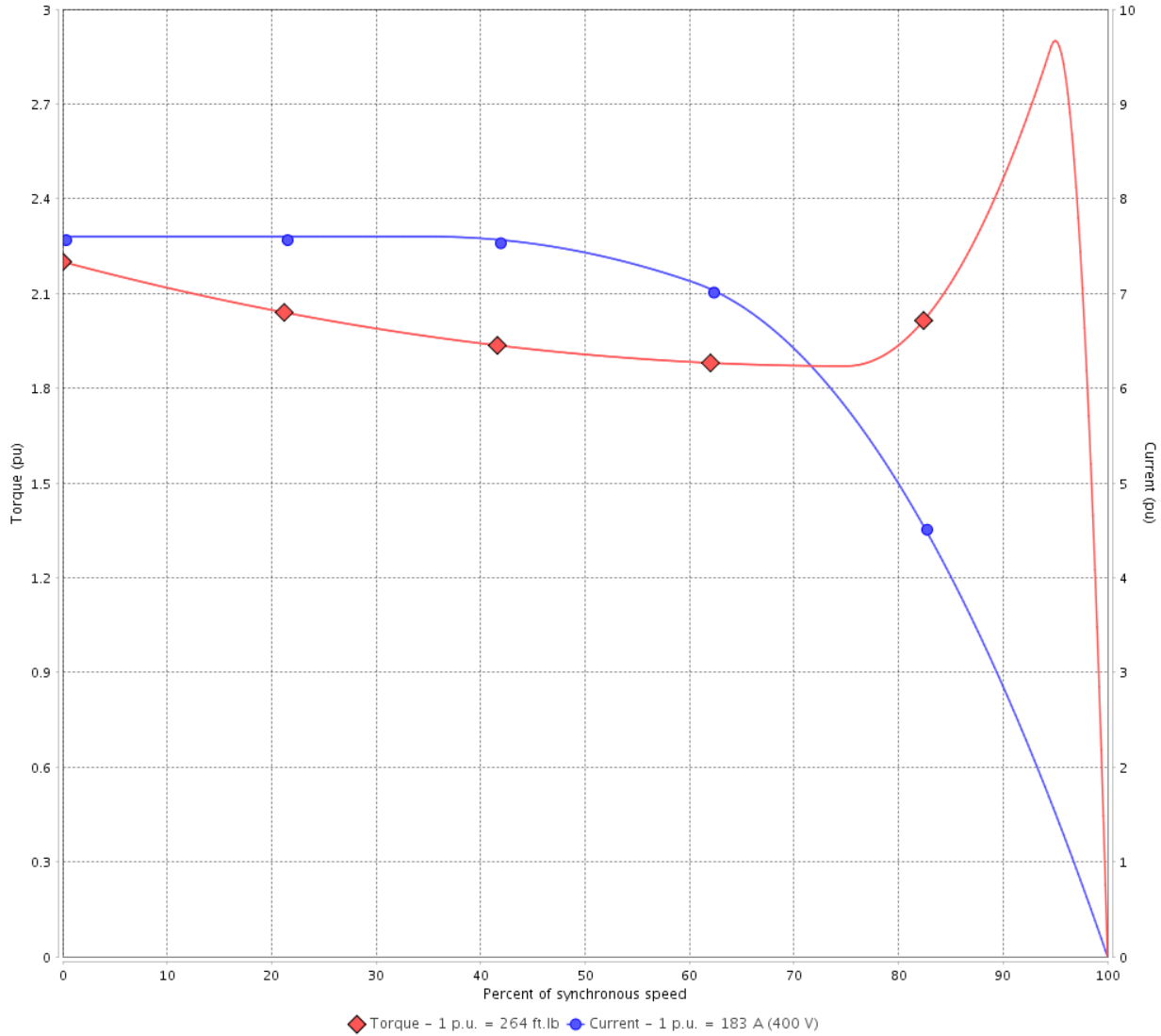
Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 11431383

Catalog # : 20036ST3QIE447TS-W22

TORQUE AND CURRENT VS SPEED CURVE



Performance : 400 V 50 Hz 2P IE3

Rated current	: 183 A	Moment of inertia (J)	: 44.7 sq.ft.lb
LRC	: 7.6	Duty cycle	: Cont.(S1)
Rated torque	: 264 ft.lb	Insulation class	: F
Locked rotor torque	: 220 %	Service factor	: 1.15
Breakdown torque	: 290 %	Temperature rise	: 80 K
Rated speed	: 2980 rpm	Design	: B

Locked rotor time : 46s (cold) 26s (hot)

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TORQUE AND CURRENT VS SPEED CURVE



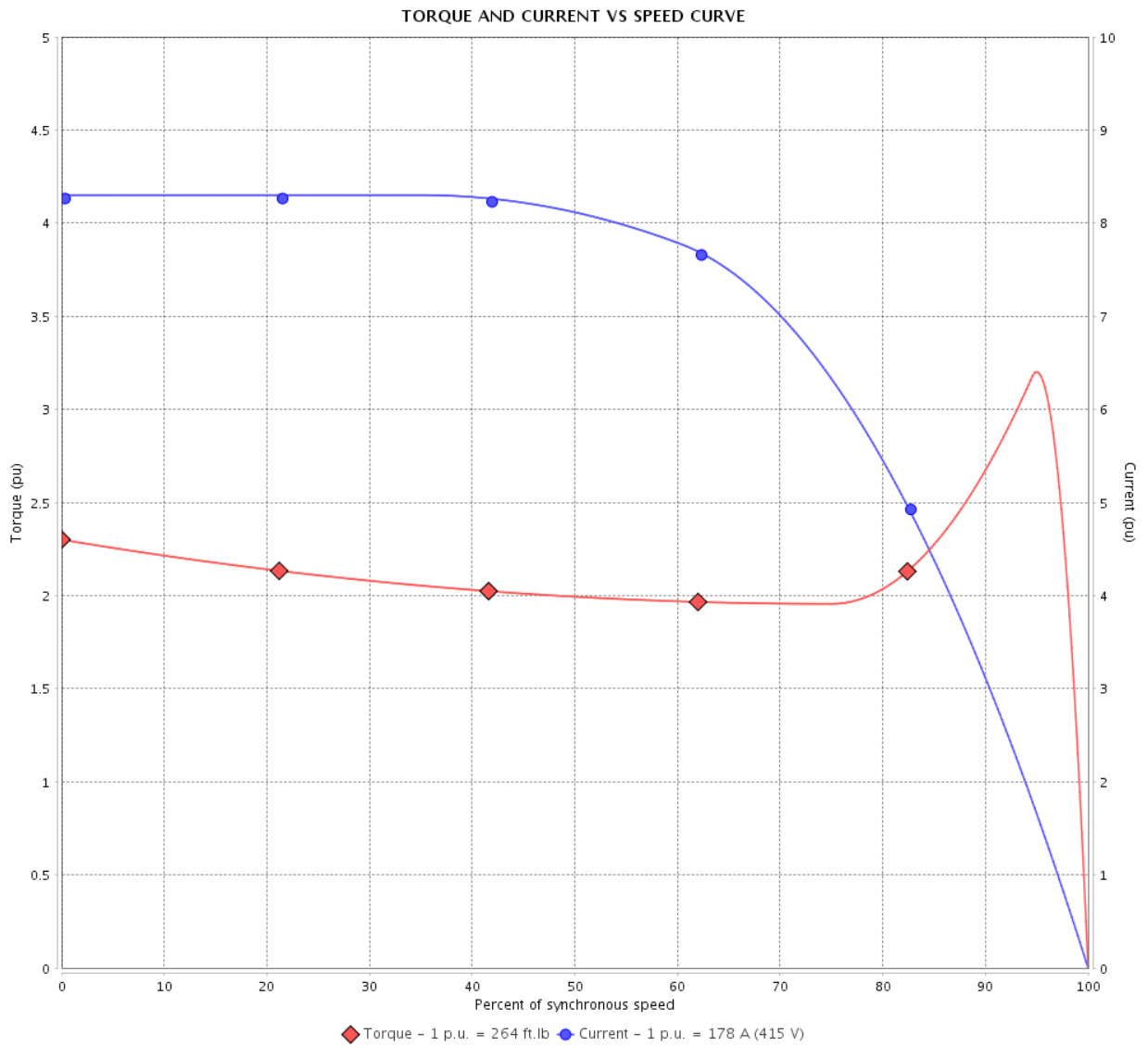
Three Phase Induction Motor - Squirrel Cage

Customer :

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Product code : 11431383

Catalog # : 20036ST3QIE447TS-W22



Performance : 415 V 50 Hz 2P IE3

Rated current	: 178 A	Moment of inertia (J)	: 44.7 sq.ft.lb
LRC	: 8.3	Duty cycle	: Cont.(S1)
Rated torque	: 264 ft.lb	Insulation class	: F
Locked rotor torque	: 229 %	Service factor	: 1.15
Breakdown torque	: 320 %	Temperature rise	: 80 K
Rated speed	: 2980 rpm	Design	: B

Locked rotor time : 43s (cold) 24s (hot)

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TORQUE AND CURRENT VS SPEED CURVE

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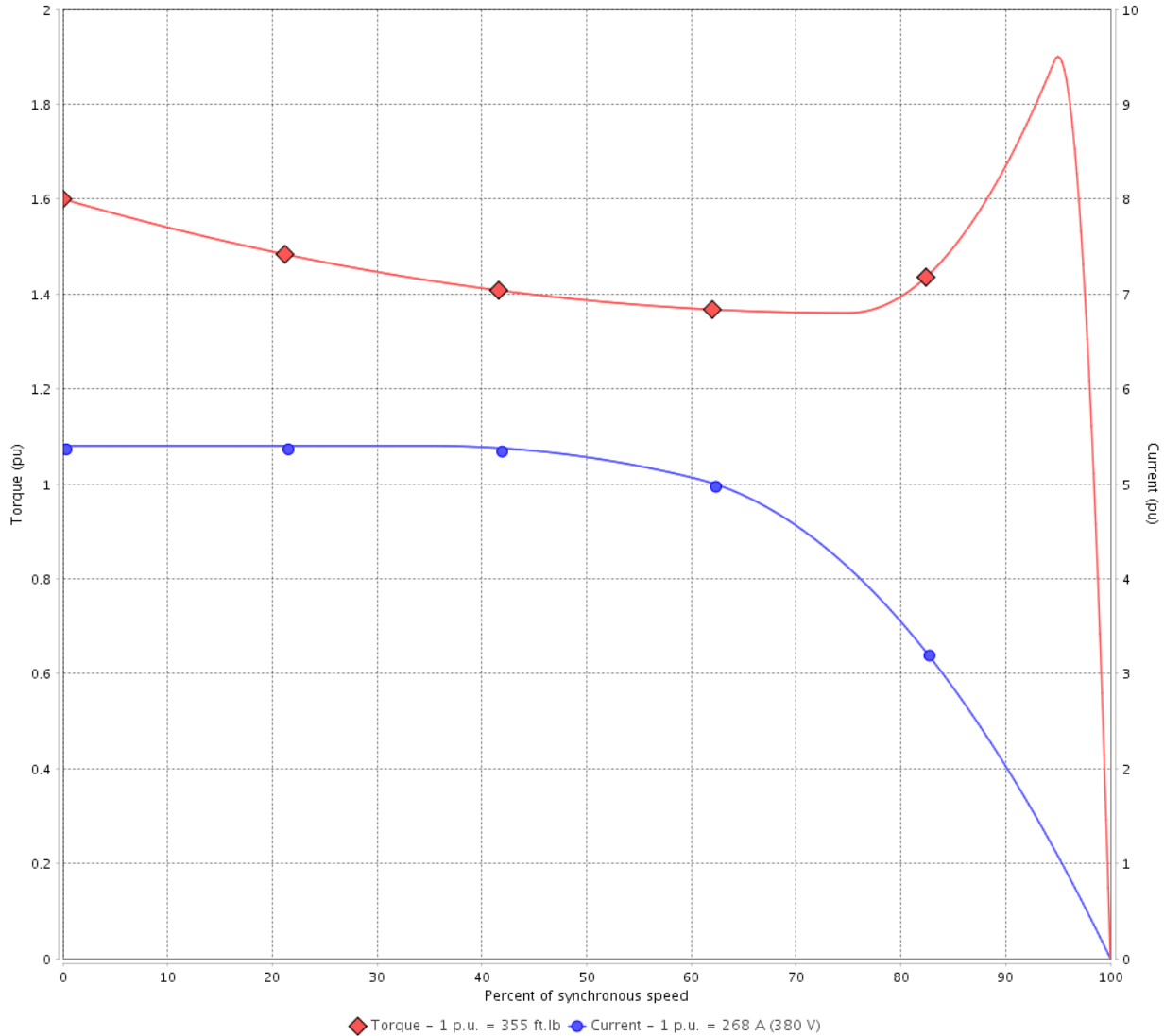
Customer :

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Product code : 11431383

Catalog # : 20036ST3QIE447TS-W22

TORQUE AND CURRENT VS SPEED CURVE



Performance : 380 V 50 Hz 2P IE1

Rated current	: 268 A	Moment of inertia (J)	: 44.7 sq.ft.lb
LRC	: 5.4	Duty cycle	: Cont.(S1)
Rated torque	: 355 ft.lb	Insulation class	: F
Locked rotor torque	: 160 %	Service factor	: 1.00
Breakdown torque	: 190 %	Temperature rise	: 105 K
Rated speed	: 2960 rpm	Design	: B

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

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TORQUE AND CURRENT VS SPEED CURVE



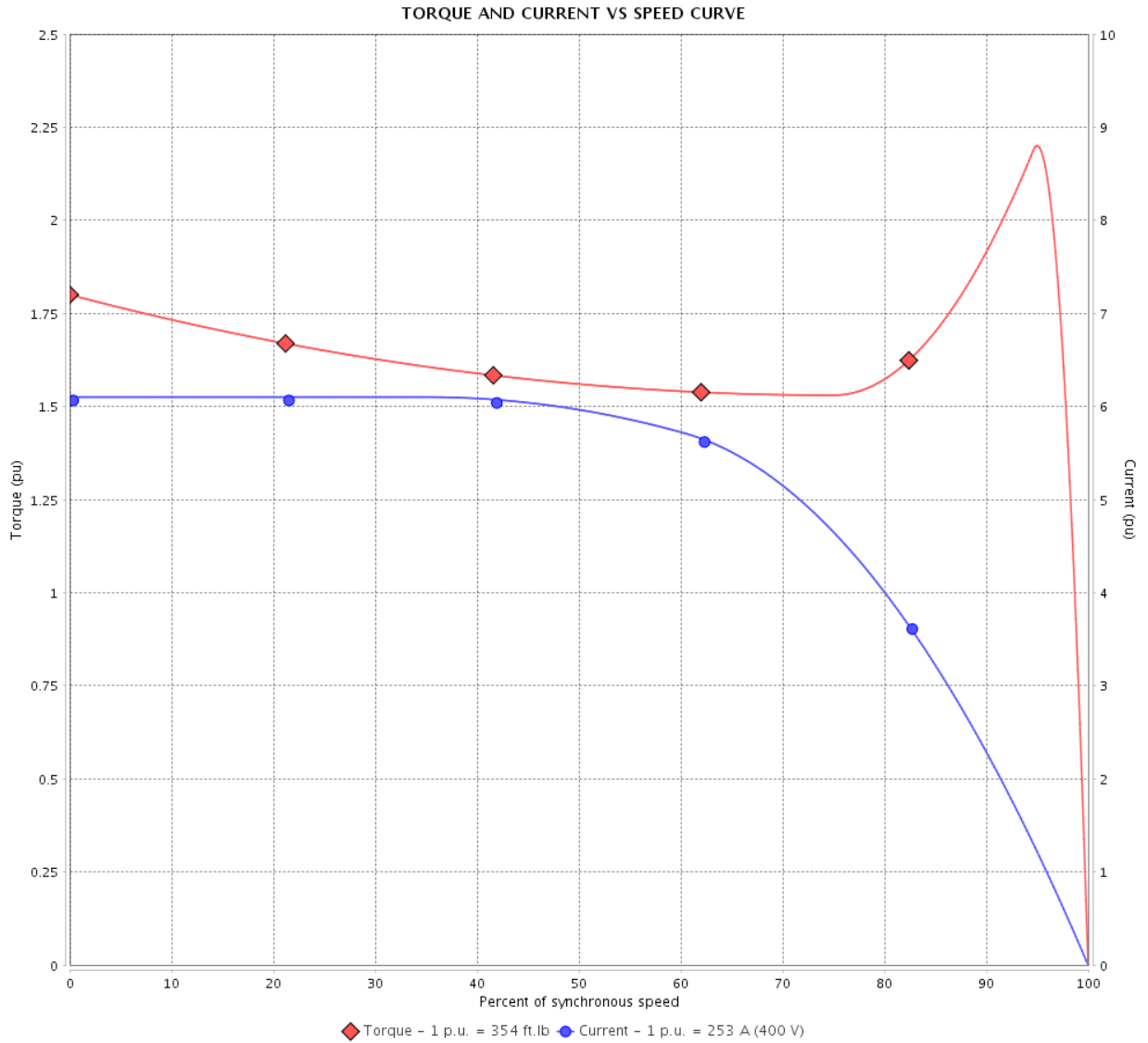
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Customer :

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Product code : 11431383

Catalog # : 20036ST3QIE447TS-W22



Performance : 400 V 50 Hz 2P IE2

Rated current	: 253 A	Moment of inertia (J)	: 44.7 sq.ft.lb
LRC	: 6.1	Duty cycle	: Cont.(S1)
Rated torque	: 354 ft.lb	Insulation class	: F
Locked rotor torque	: 180 %	Service factor	: 1.00
Breakdown torque	: 220 %	Temperature rise	: 105 K
Rated speed	: 2965 rpm	Design	: B

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

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TORQUE AND CURRENT VS SPEED CURVE

Three Phase Induction Motor - Squirrel Cage



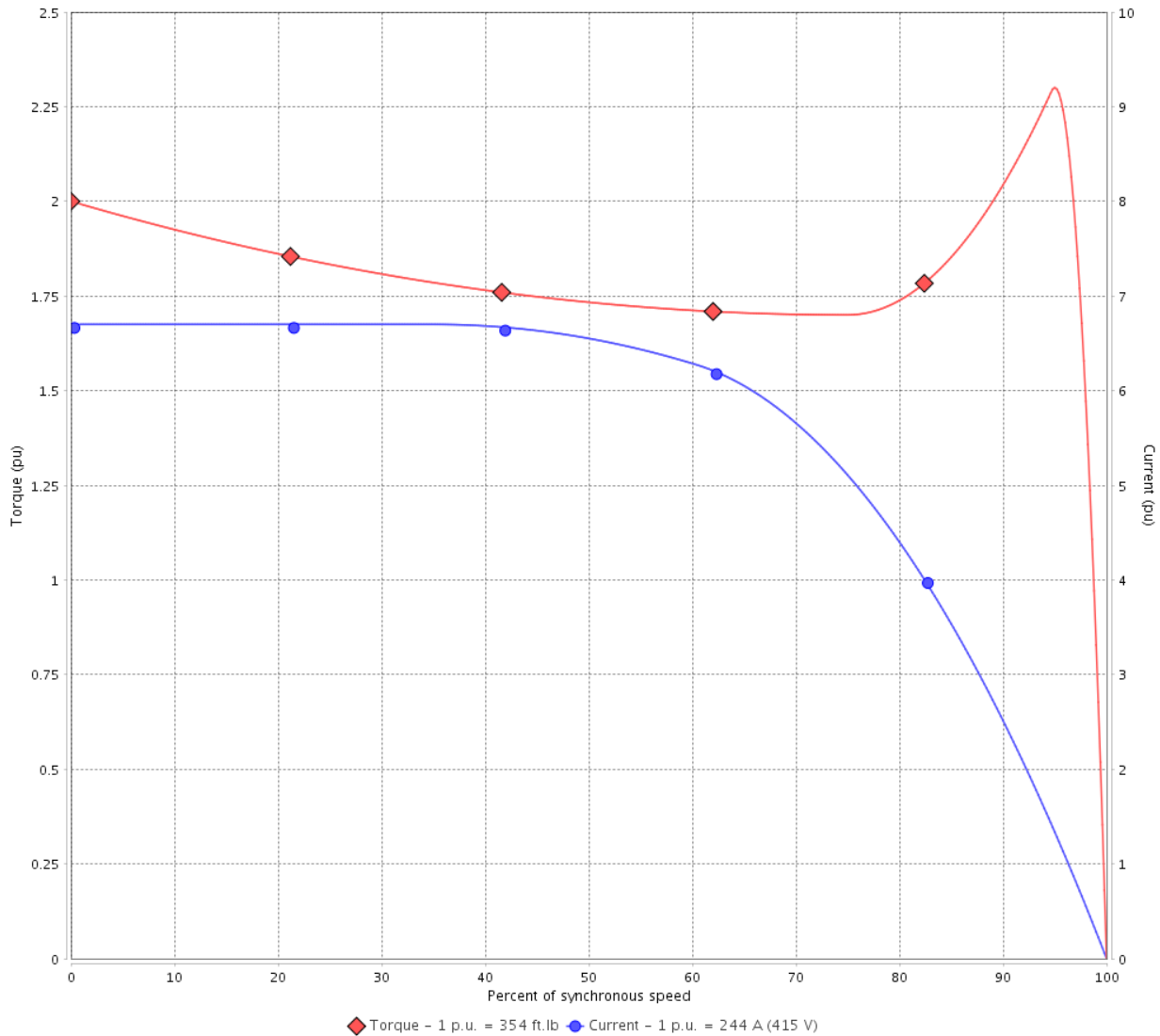
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Product line : NEMA Premium Efficiency Three-Phase

Product code : 11431383

Catalog # : 20036ST3QIE447TS-W22

TORQUE AND CURRENT VS SPEED CURVE



Performance : 415 V 50 Hz 2P IE2

Rated current	: 244 A	Moment of inertia (J)	: 44.7 sq.ft.lb
LRC	: 6.7	Duty cycle	: Cont.(S1)
Rated torque	: 354 ft.lb	Insulation class	: F
Locked rotor torque	: 200 %	Service factor	: 1.00
Breakdown torque	: 229 %	Temperature rise	: 105 K
Rated speed	: 2970 rpm	Design	: B

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

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Three Phase Induction Motor - Squirrel Cage

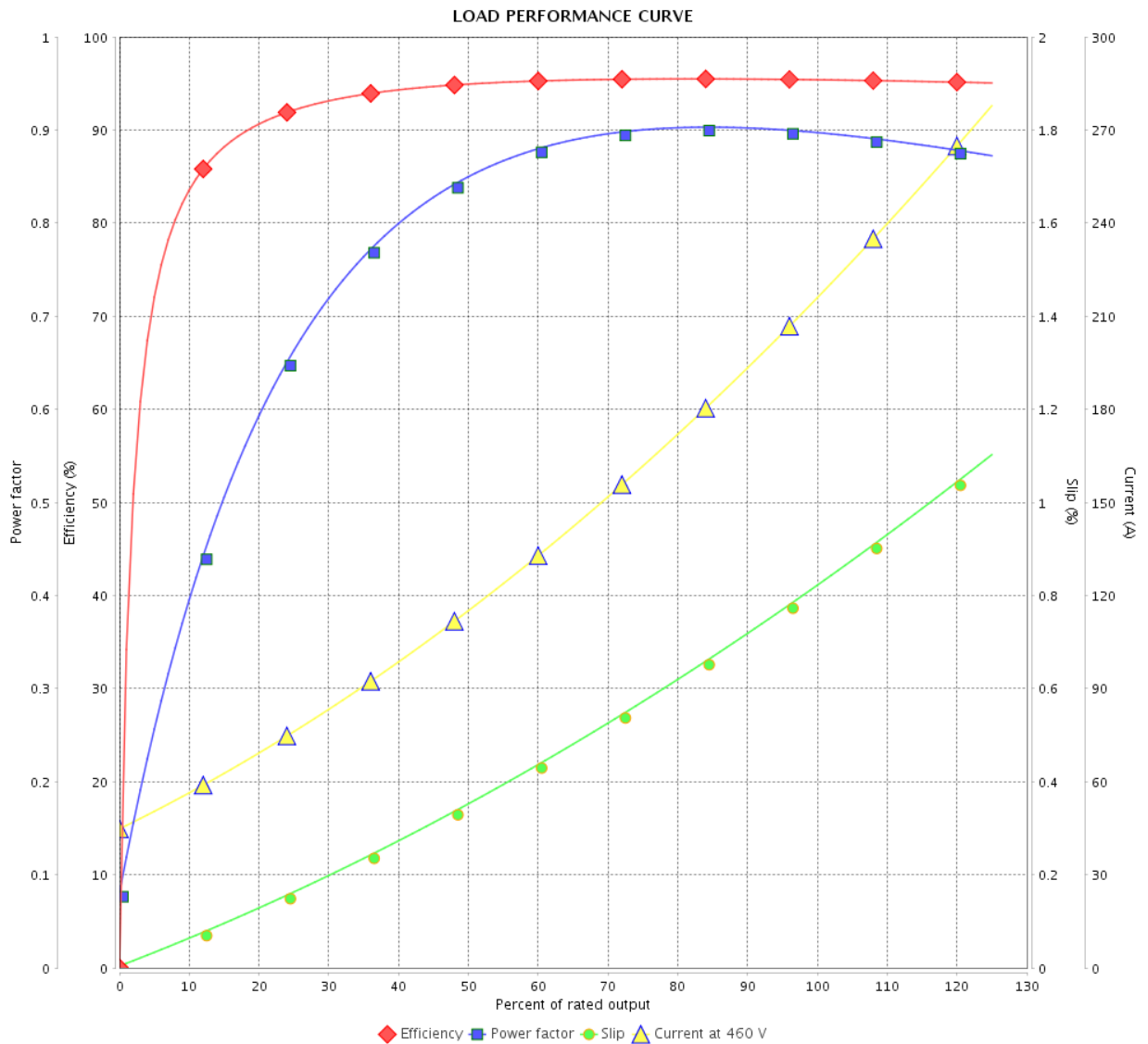


Customer :

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Product code : 11431383

Catalog # : 20036ST3QIE447TS-W22



Performance : 460 V 60 Hz 2P

Rated current : 219 A
 LRC : 6.5
 Rated torque : 294 ft.lb
 Locked rotor torque : 210 %
 Breakdown torque : 229 %
 Rated speed : 3570 rpm

Moment of inertia (J) : 44.7 sq.ft.lb
 Duty cycle : Cont.(S1)
 Insulation class : F
 Service factor : 1.15
 Temperature rise : 80 K
 Design : B

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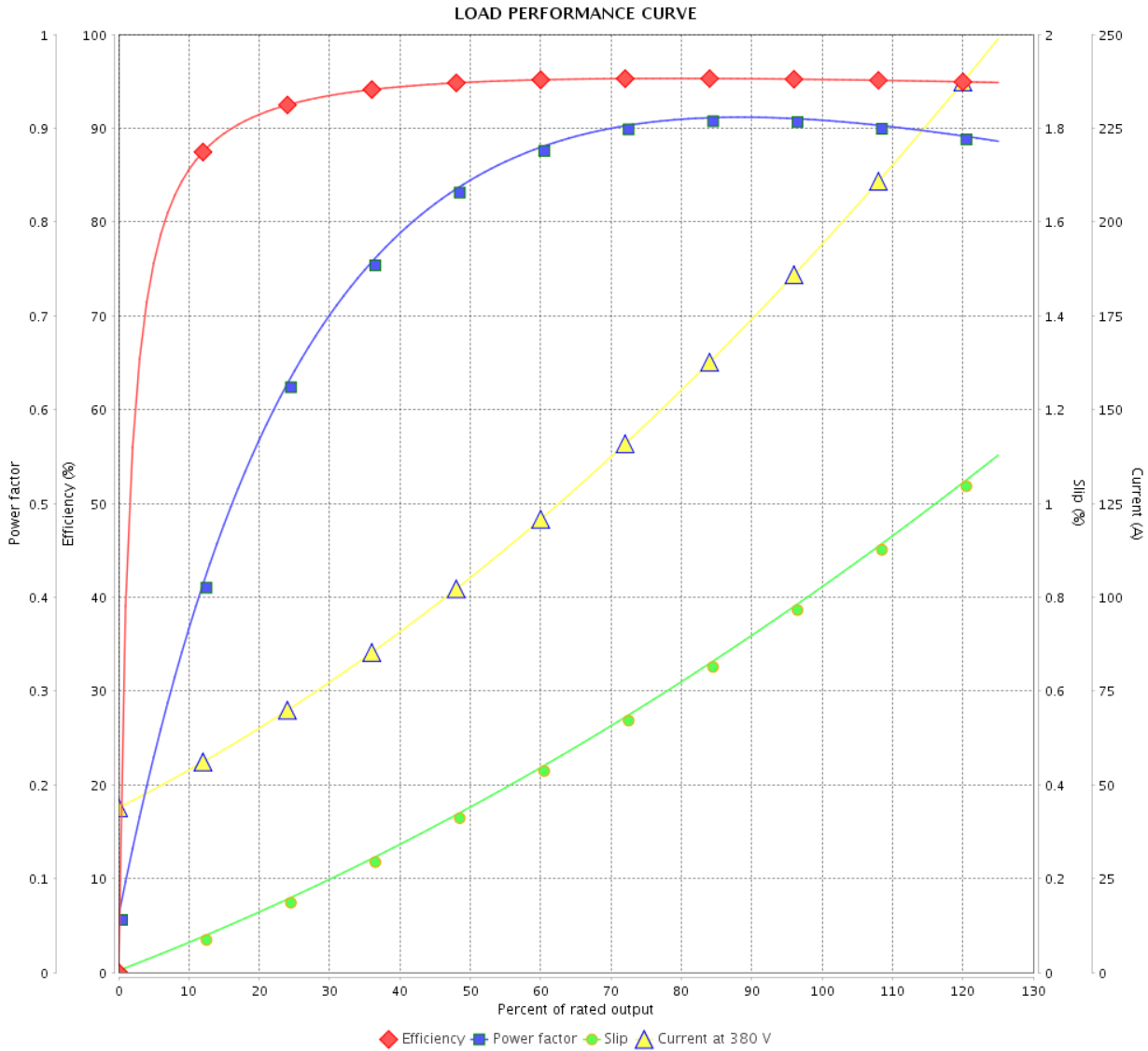


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Product code : 11431383

Catalog # : 20036ST3QIE447TS-W22



Performance : 380 V 50 Hz 2P IE3

Rated current : 193 A
 LRC : 6.8
 Rated torque : 265 ft.lb
 Locked rotor torque : 210 %
 Breakdown torque : 260 %
 Rated speed : 2975 rpm

Moment of inertia (J) : 44.7 sq.ft.lb
 Duty cycle : Cont.(S1)
 Insulation class : F
 Service factor : 1.15
 Temperature rise : 80 K
 Design : B

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Three Phase Induction Motor - Squirrel Cage

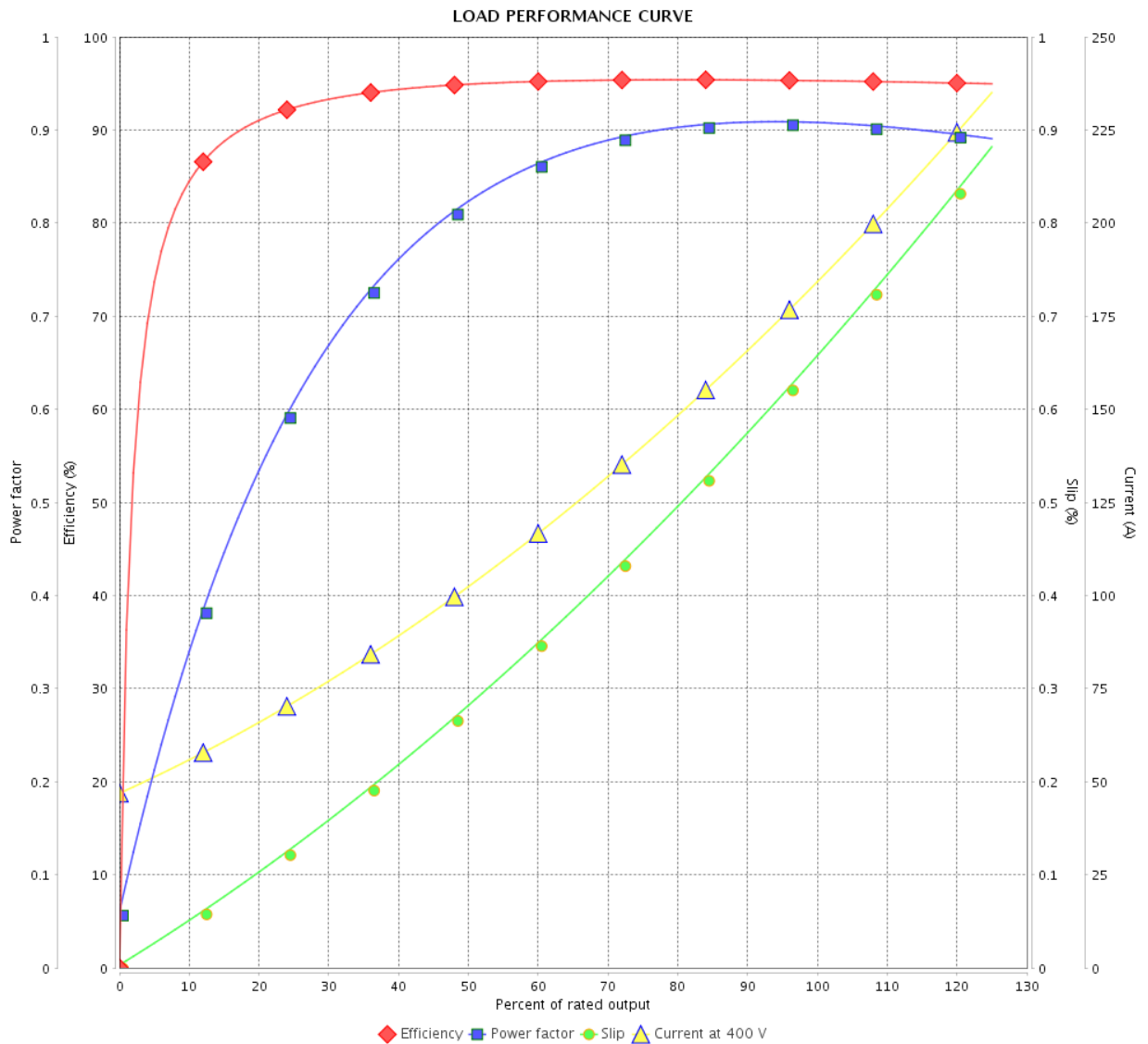


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Performance : 400 V 50 Hz 2P IE3

Rated current : 183 A
 LRC : 7.6
 Rated torque : 264 ft.lb
 Locked rotor torque : 220 %
 Breakdown torque : 290 %
 Rated speed : 2980 rpm

Moment of inertia (J) : 44.7 sq.ft.lb
 Duty cycle : Cont.(S1)
 Insulation class : F
 Service factor : 1.15
 Temperature rise : 80 K
 Design : B

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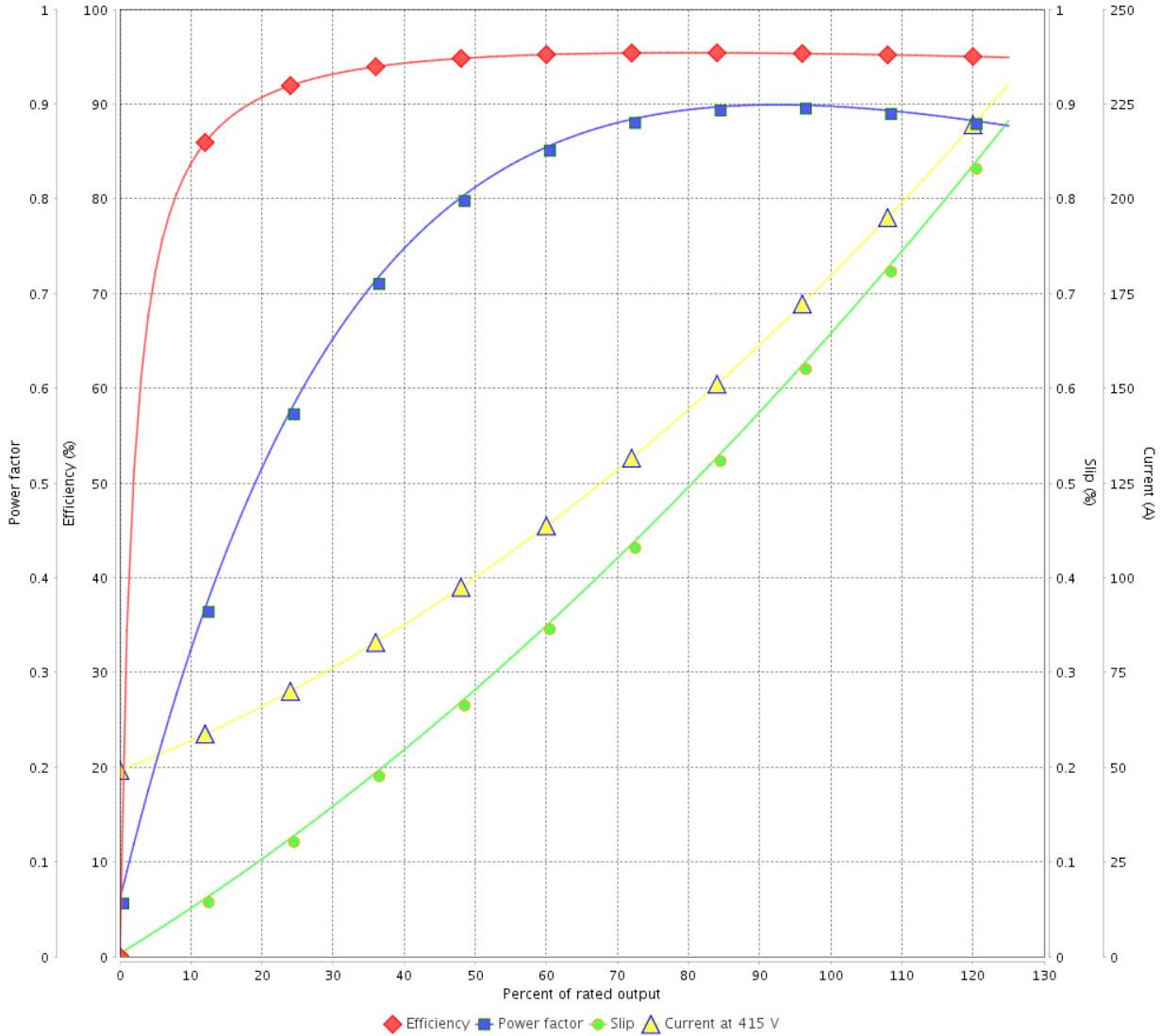
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Performance : 415 V 50 Hz 2P IE3

Rated current : 178 A
 LRC : 8.3
 Rated torque : 264 ft.lb
 Locked rotor torque : 229 %
 Breakdown torque : 320 %
 Rated speed : 2980 rpm

Moment of inertia (J) : 44.7 sq.ft.lb
 Duty cycle : Cont.(S1)
 Insulation class : F
 Service factor : 1.15
 Temperature rise : 80 K
 Design : B

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Three Phase Induction Motor - Squirrel Cage

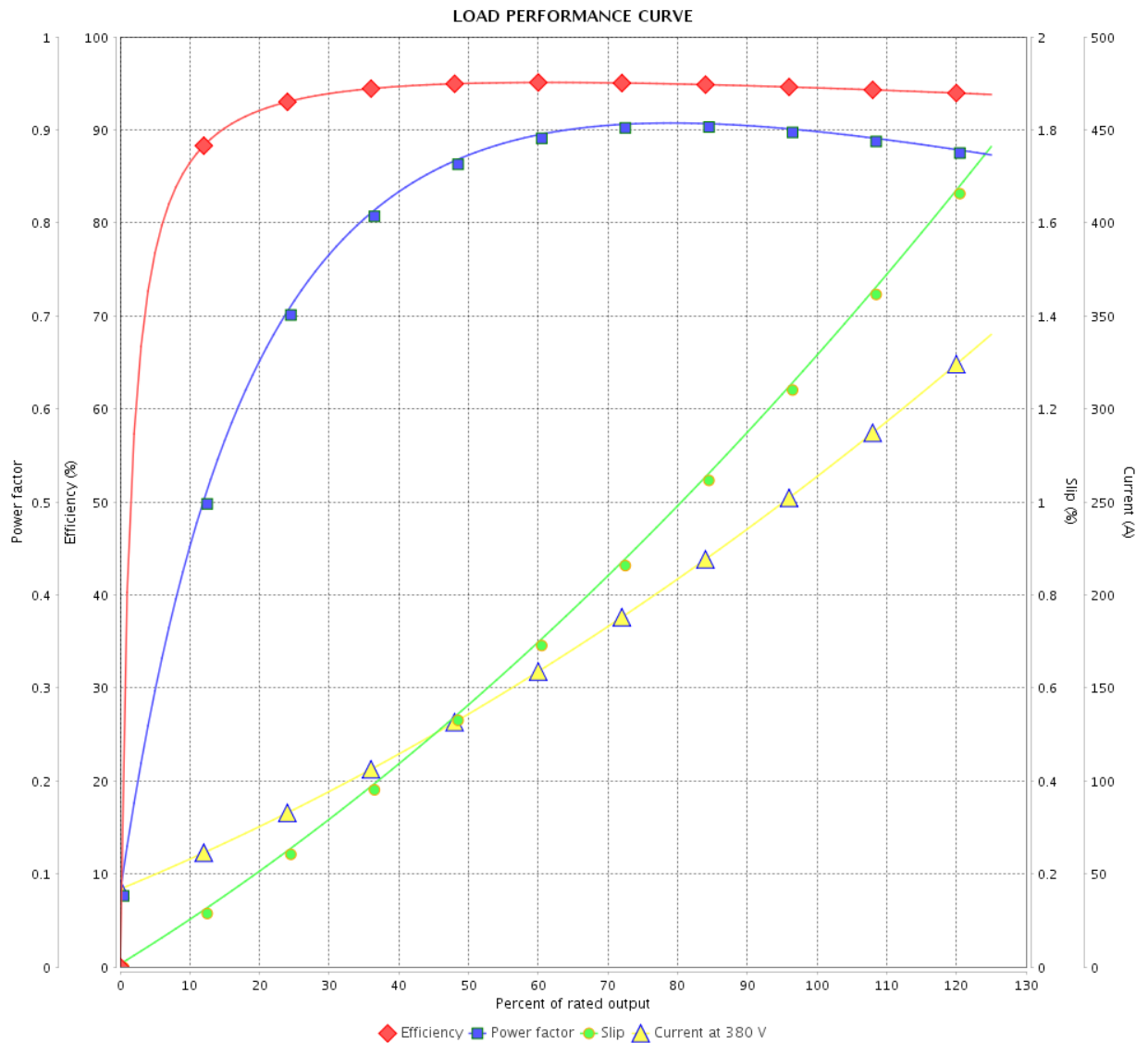


Customer : _____

Product line : NEMA Premium Efficiency Three-Phase

Product code : 11431383

Catalog # : 20036ST3QIE447TS-W22



Performance : 380 V 50 Hz 2P IE1

Rated current : 268 A
 LRC : 5.4
 Rated torque : 355 ft.lb
 Locked rotor torque : 160 %
 Breakdown torque : 190 %
 Rated speed : 2960 rpm

Moment of inertia (J) : 44.7 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

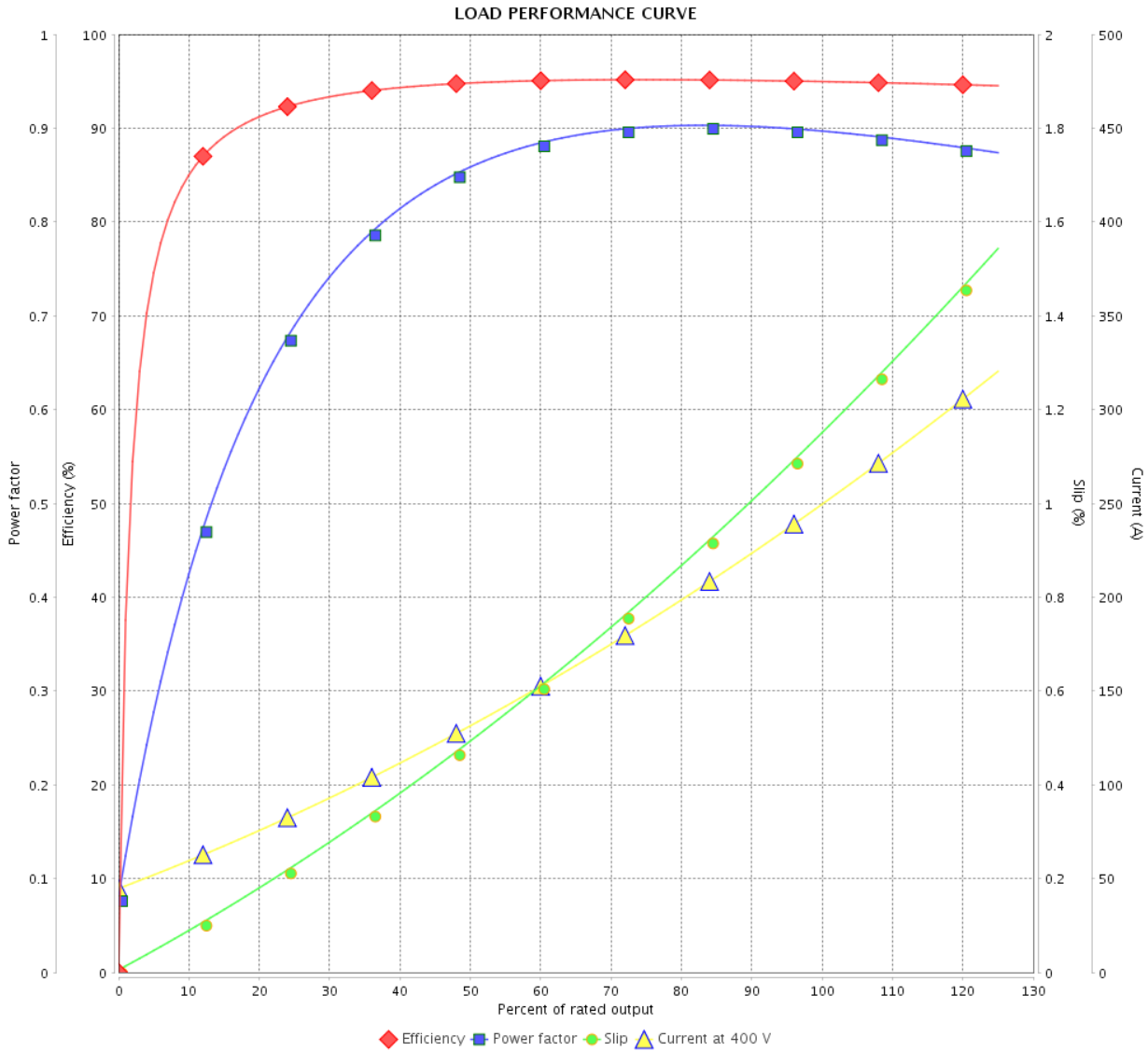


Customer :

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Product code : 11431383

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Performance : 400 V 50 Hz 2P IE2

Rated current : 253 A
 LRC : 6.1
 Rated torque : 354 ft.lb
 Locked rotor torque : 180 %
 Breakdown torque : 220 %
 Rated speed : 2965 rpm

Moment of inertia (J) : 44.7 sq.ft.lb
 Duty cycle : Cont.(S1)
 Insulation class : F
 Service factor : 1.00
 Temperature rise : 105 K
 Design : B

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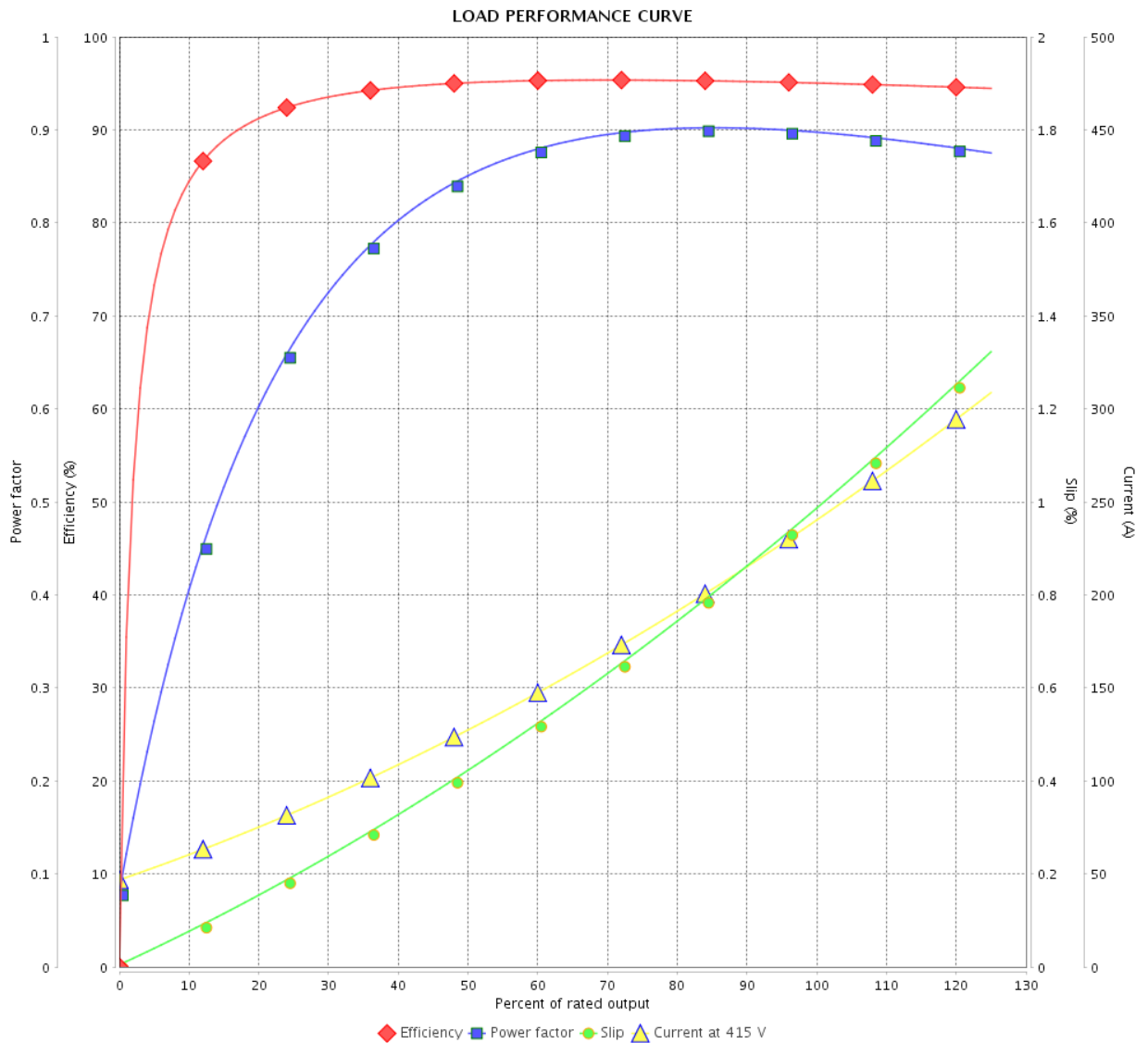


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Performance : 415 V 50 Hz 2P IE2

Rated current : 244 A
 LRC : 6.7
 Rated torque : 354 ft.lb
 Locked rotor torque : 200 %
 Breakdown torque : 229 %
 Rated speed : 2970 rpm

Moment of inertia (J) : 44.7 sq.ft.lb
 Duty cycle : Cont.(S1)
 Insulation class : F
 Service factor : 1.00
 Temperature rise : 105 K
 Design : B

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Customer :

Product line : NEMA Premium Efficiency Three-Phase
Product code : 11431383
Catalog # : 20036ST3QIE447TS-W22

Performance : 460 V 60 Hz 2P

Rated current	: 219 A	Moment of inertia (J)	: 44.7 sq.ft.lb
LRC	: 6.5	Duty cycle	: Cont.(S1)
Rated torque	: 294 ft.lb	Insulation class	: F
Locked rotor torque	: 210 %	Service factor	: 1.15
Breakdown torque	: 229 %	Temperature rise	: 80 K
Rated speed	: 3570 rpm	Design	: B

Heating constant

Cooling constant

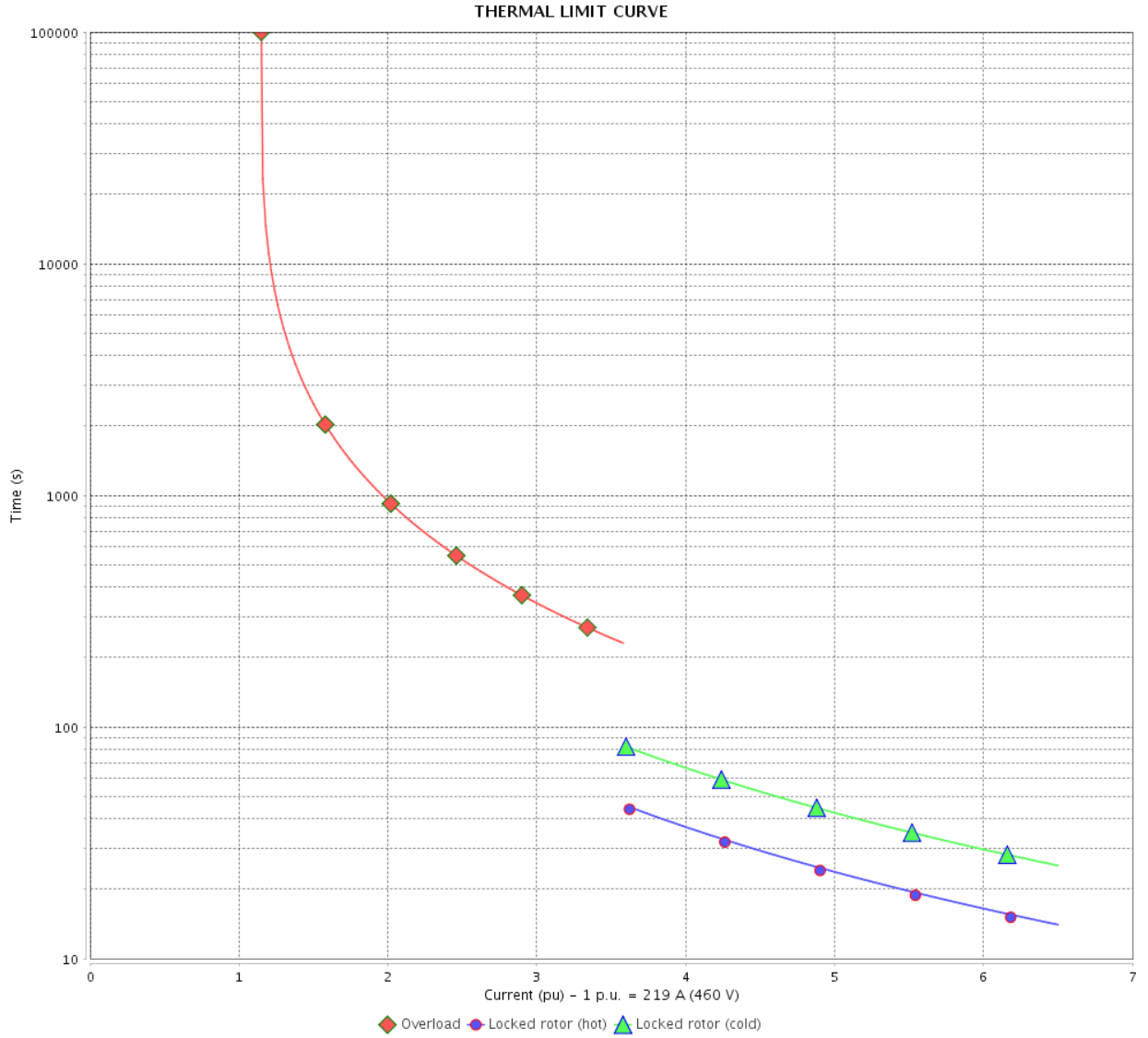
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Customer : _____



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Three Phase Induction Motor - Squirrel Cage



Customer :

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Performance : 380 V 50 Hz 2P IE3

Rated current	: 193 A	Moment of inertia (J)	: 44.7 sq.ft.lb
LRC	: 6.8	Duty cycle	: Cont.(S1)
Rated torque	: 265 ft.lb	Insulation class	: F
Locked rotor torque	: 210 %	Service factor	: 1.15
Breakdown torque	: 260 %	Temperature rise	: 80 K
Rated speed	: 2975 rpm	Design	: B

Heating constant

Cooling constant

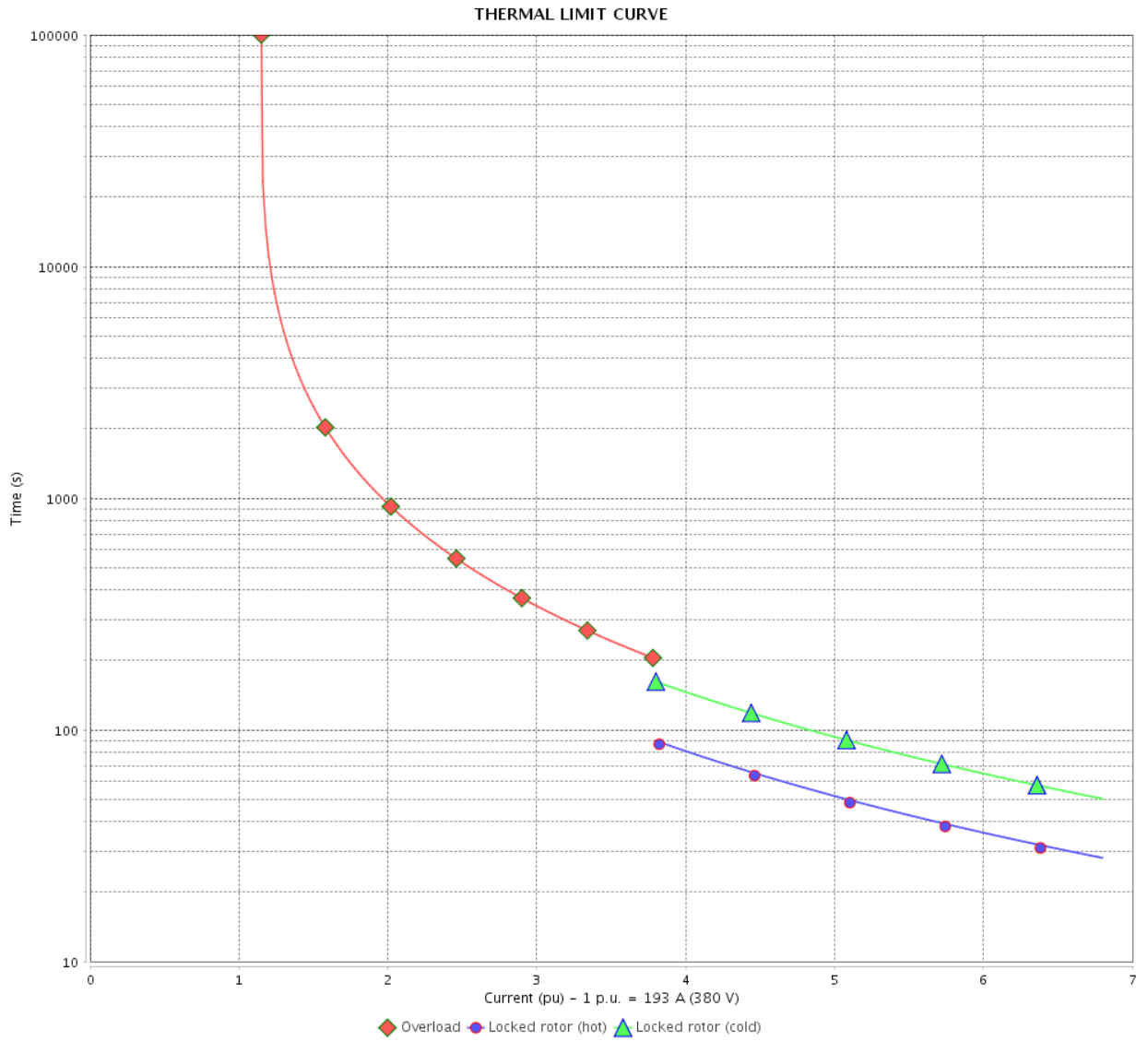
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Customer :

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Performance : 400 V 50 Hz 2P IE3

Rated current	: 183 A	Moment of inertia (J)	: 44.7 sq.ft.lb
LRC	: 7.6	Duty cycle	: Cont.(S1)
Rated torque	: 264 ft.lb	Insulation class	: F
Locked rotor torque	: 220 %	Service factor	: 1.15
Breakdown torque	: 290 %	Temperature rise	: 80 K
Rated speed	: 2980 rpm	Design	: B

Heating constant

Cooling constant

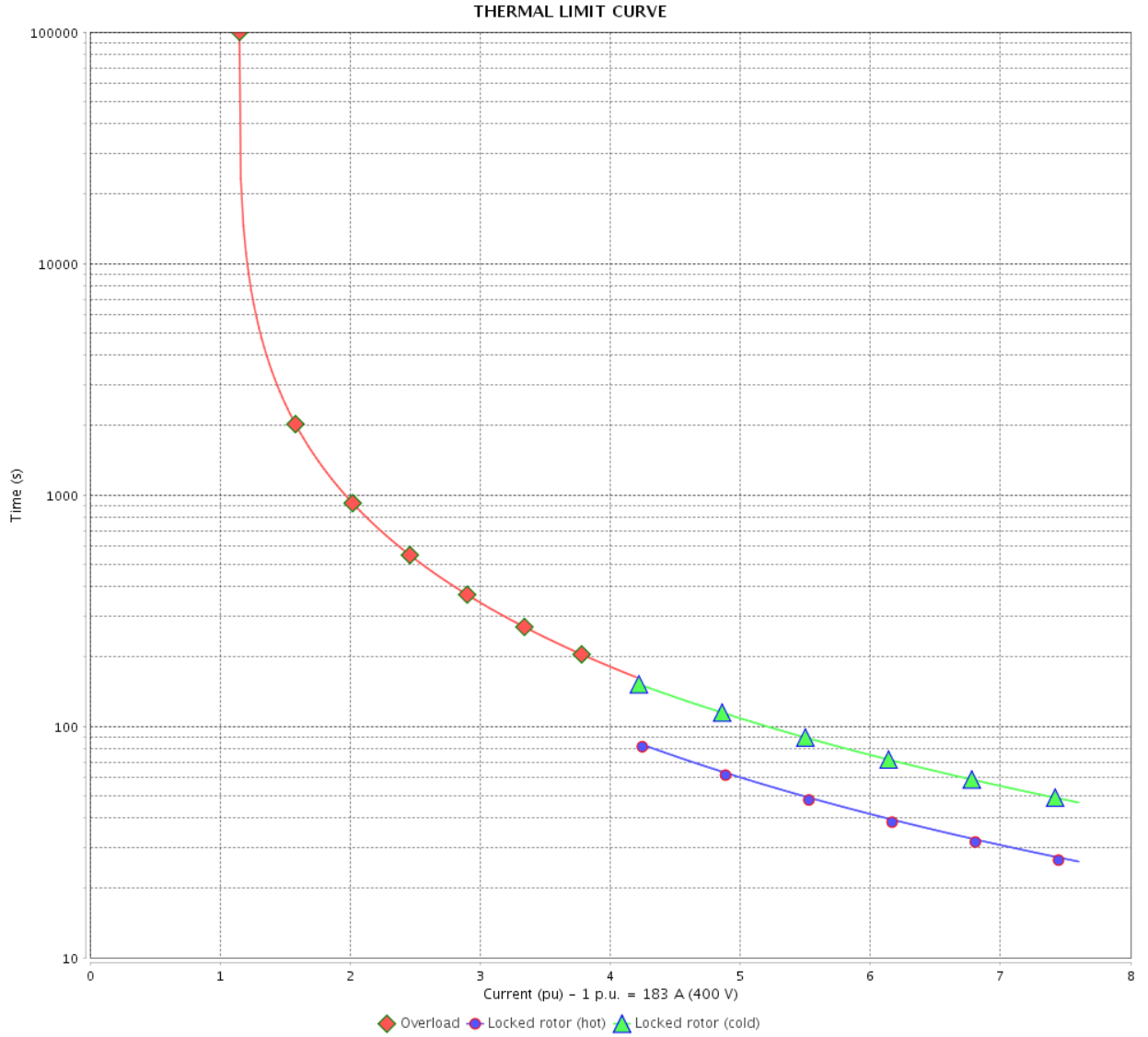
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Locked rotor torque	: 229 %	Service factor	: 1.15
Breakdown torque	: 320 %	Temperature rise	: 80 K
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Heating constant

Cooling constant

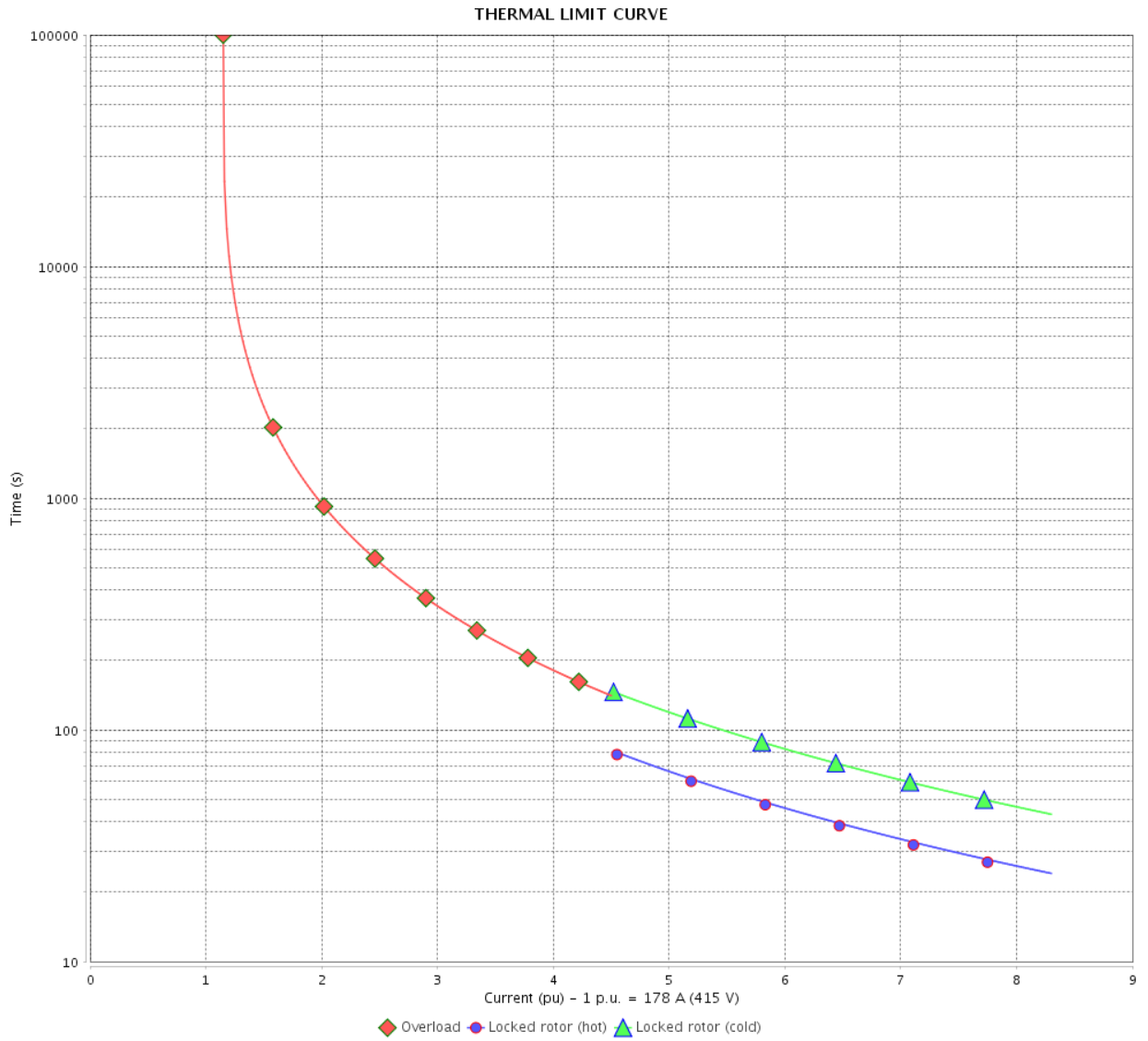
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Performance : 380 V 50 Hz 2P IE1

Rated current	: 268 A	Moment of inertia (J)	: 44.7 sq.ft.lb
LRC	: 5.4	Duty cycle	: Cont.(S1)
Rated torque	: 355 ft.lb	Insulation class	: F
Locked rotor torque	: 160 %	Service factor	: 1.00
Breakdown torque	: 190 %	Temperature rise	: 105 K
Rated speed	: 2960 rpm	Design	: B

Heating constant

Cooling constant

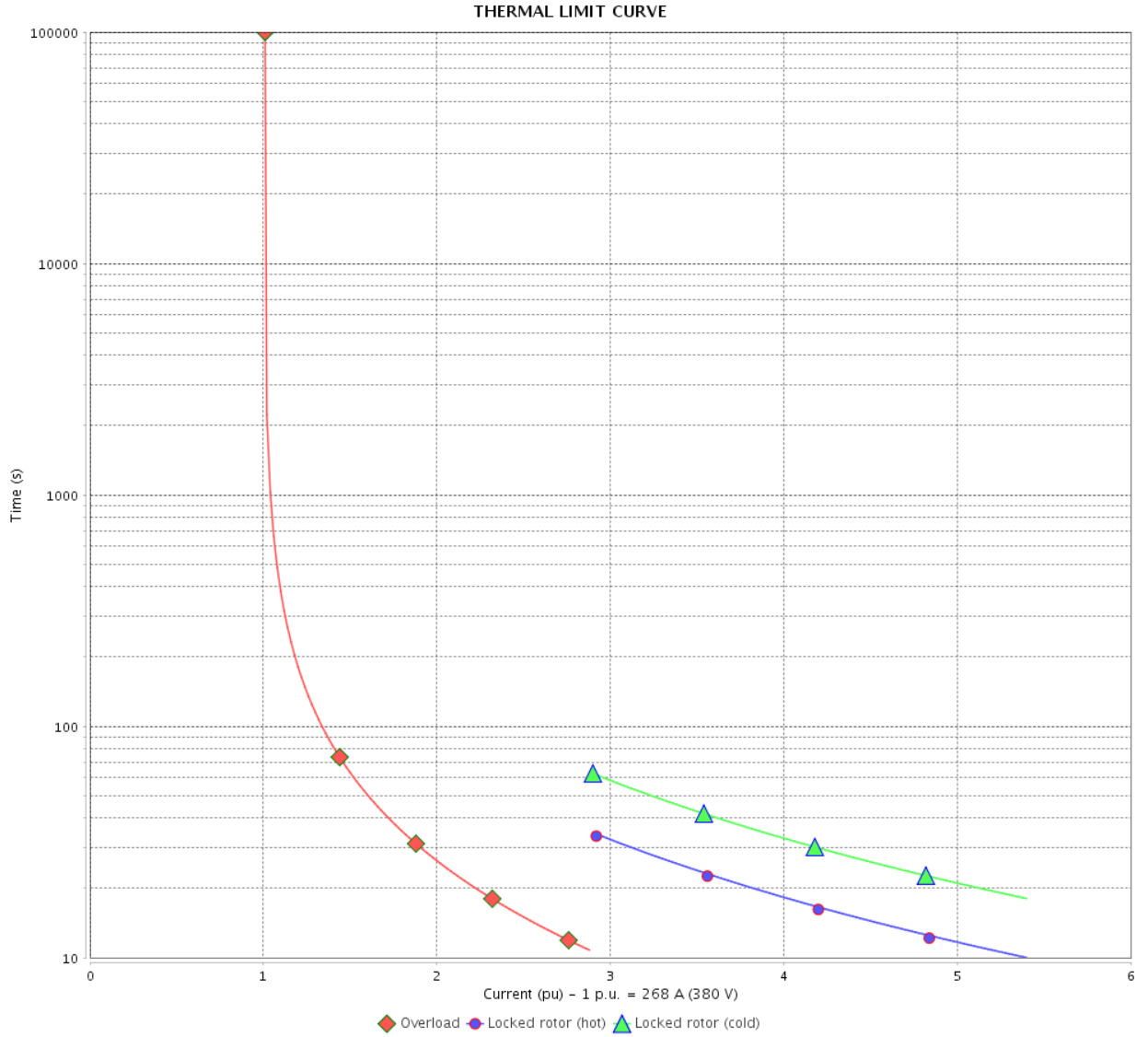
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Product code : 11431383
Catalog # : 20036ST3QIE447TS-W22

Performance : 400 V 50 Hz 2P IE2

Rated current	: 253 A	Moment of inertia (J)	: 44.7 sq.ft.lb
LRC	: 6.1	Duty cycle	: Cont.(S1)
Rated torque	: 354 ft.lb	Insulation class	: F
Locked rotor torque	: 180 %	Service factor	: 1.00
Breakdown torque	: 220 %	Temperature rise	: 105 K
Rated speed	: 2965 rpm	Design	: B

Heating constant

Cooling constant

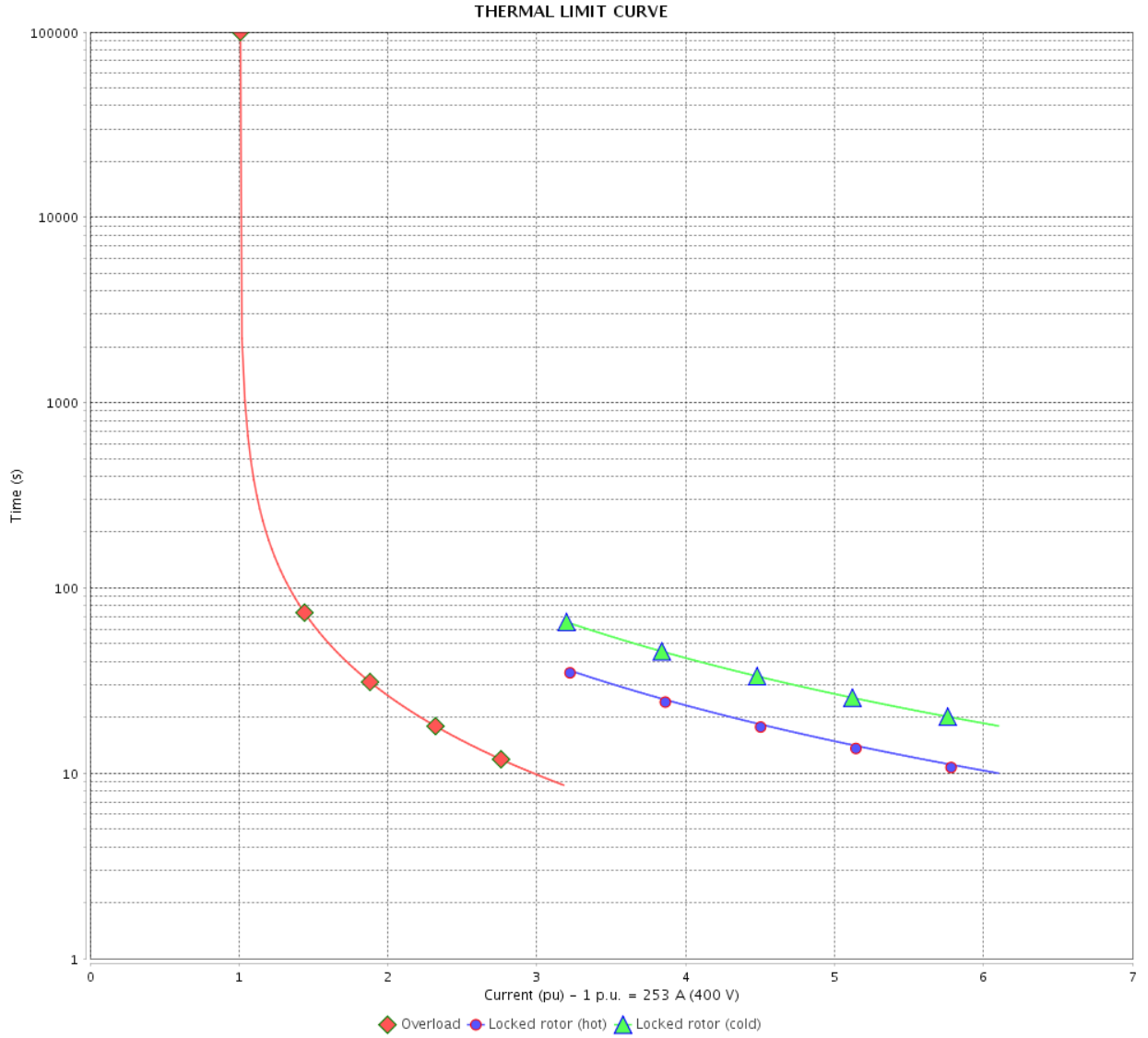
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Checked by		27 / 36		
Date		14/04/2022		

THERMAL LIMIT CURVE



Three Phase Induction Motor - Squirrel Cage

Customer :

Product line : NEMA Premium Efficiency Three-Phase
Product code : 11431383
Catalog # : 20036ST3QIE447TS-W22

Performance : 415 V 50 Hz 2P IE2

Rated current	: 244 A	Moment of inertia (J)	: 44.7 sq.ft.lb
LRC	: 6.7	Duty cycle	: Cont.(S1)
Rated torque	: 354 ft.lb	Insulation class	: F
Locked rotor torque	: 200 %	Service factor	: 1.00
Breakdown torque	: 229 %	Temperature rise	: 105 K
Rated speed	: 2970 rpm	Design	: B

Heating constant

Cooling constant

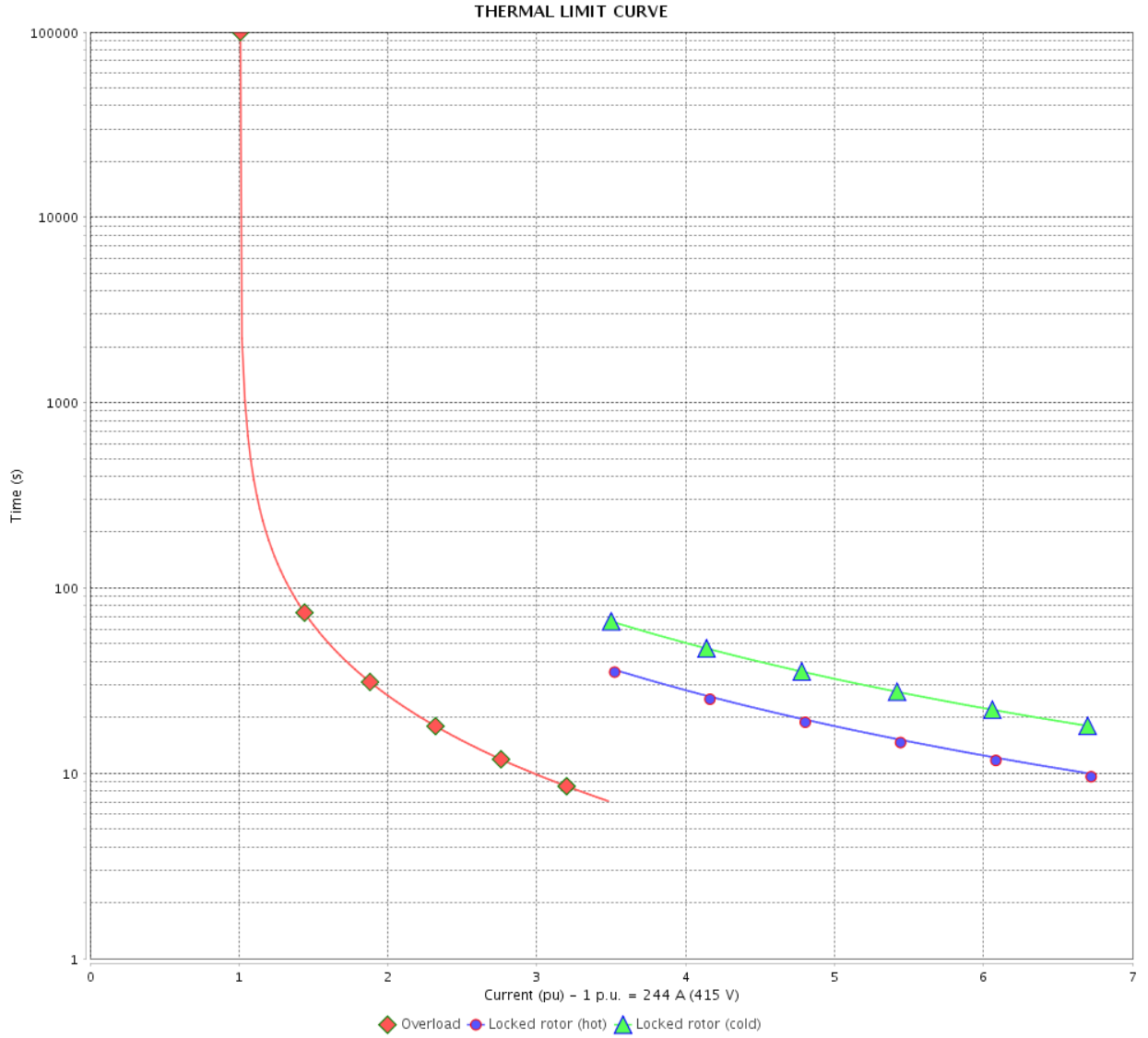
Rev.	Changes Summary	Performed	Checked	Date
Performed by				
Checked by			Page	Revision
Date	14/04/2022		28 / 36	

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	14/04/2022			

VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage



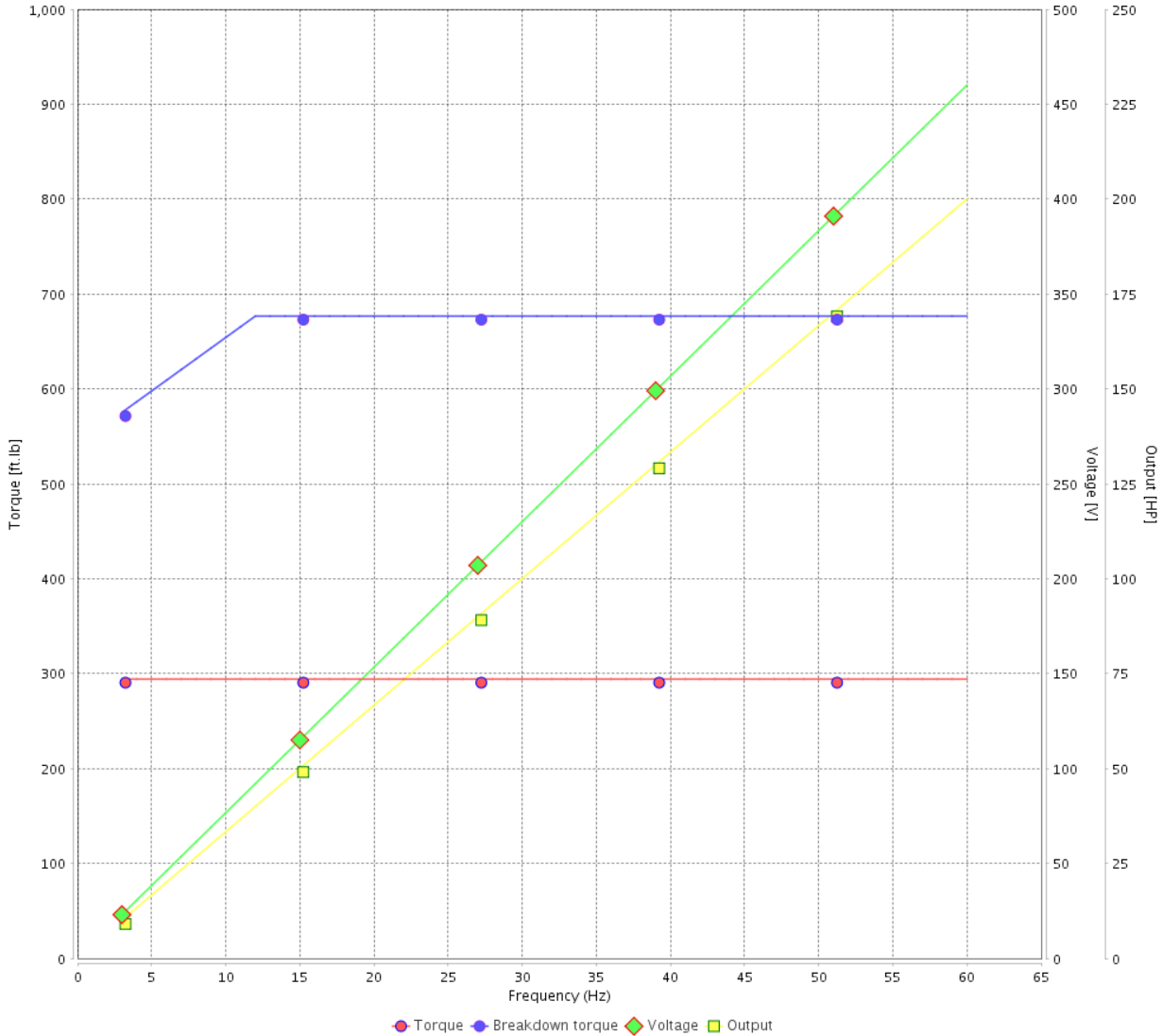
Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 11431383

Catalog # : 20036ST3QIE447TS-W22

VFD OPERATION CURVE



Performance : 460 V 60 Hz 2P

Rated current : 219 A
 LRC : 6.5
 Rated torque : 294 ft.lb
 Locked rotor torque : 210 %
 Breakdown torque : 229 %
 Rated speed : 3570 rpm

Moment of inertia (J) : 44.7 sq.ft.lb
 Duty cycle : Cont.(S1)
 Insulation class : F
 Service factor : 1.15
 Temperature rise : 80 K
 Design : B

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Performed by			Page 30 / 36	Revision
Checked by				
Date	14/04/2022			

VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage

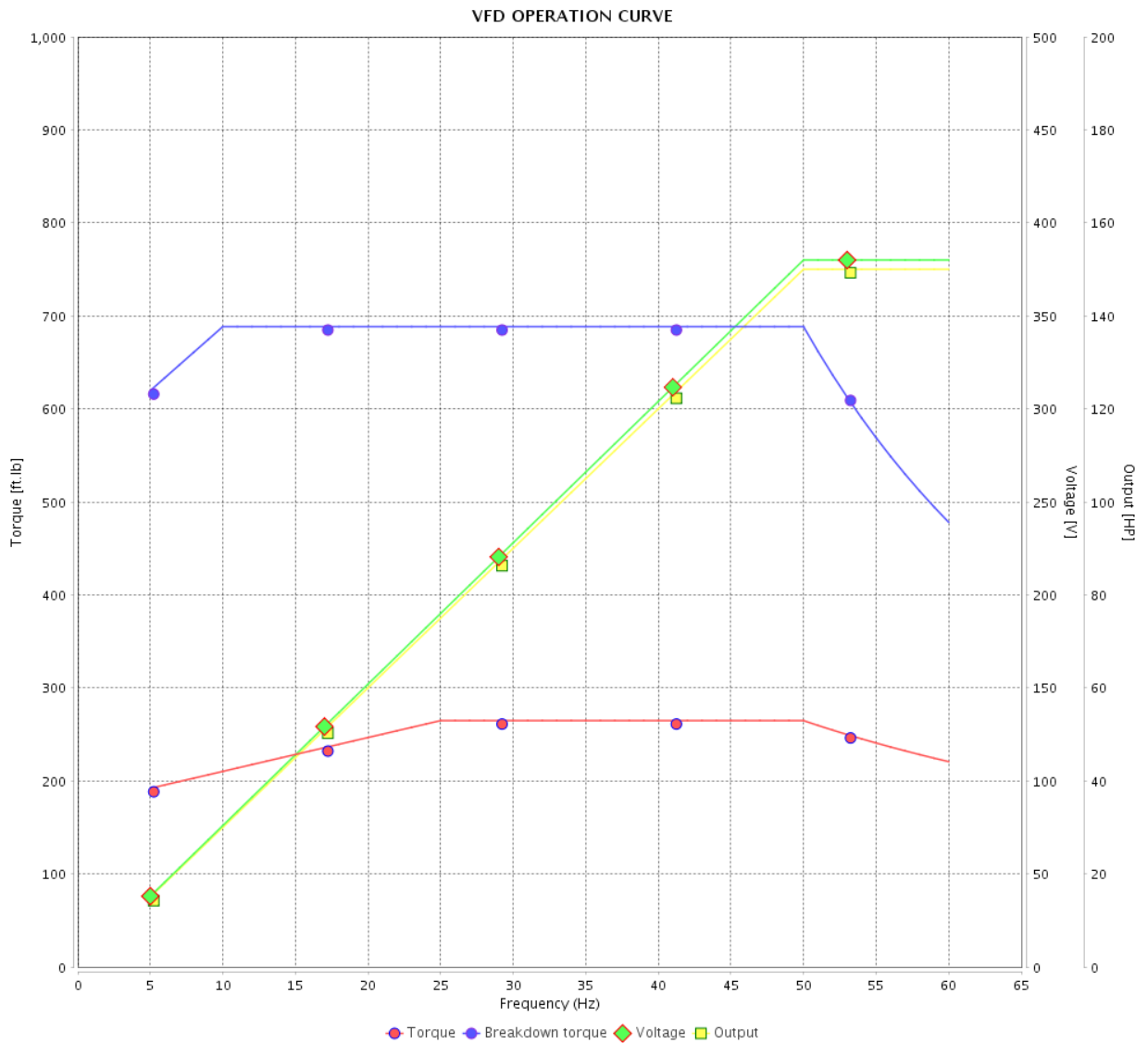


Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 11431383

Catalog # : 20036ST3QIE447TS-W22



Performance : 380 V 50 Hz 2P IE3

Rated current : 193 A
 LRC : 6.8
 Rated torque : 265 ft.lb
 Locked rotor torque : 210 %
 Breakdown torque : 260 %
 Rated speed : 2975 rpm

Moment of inertia (J) : 44.7 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
Performed by			Page 31 / 36	Revision
Checked by				
Date	14/04/2022			

VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage



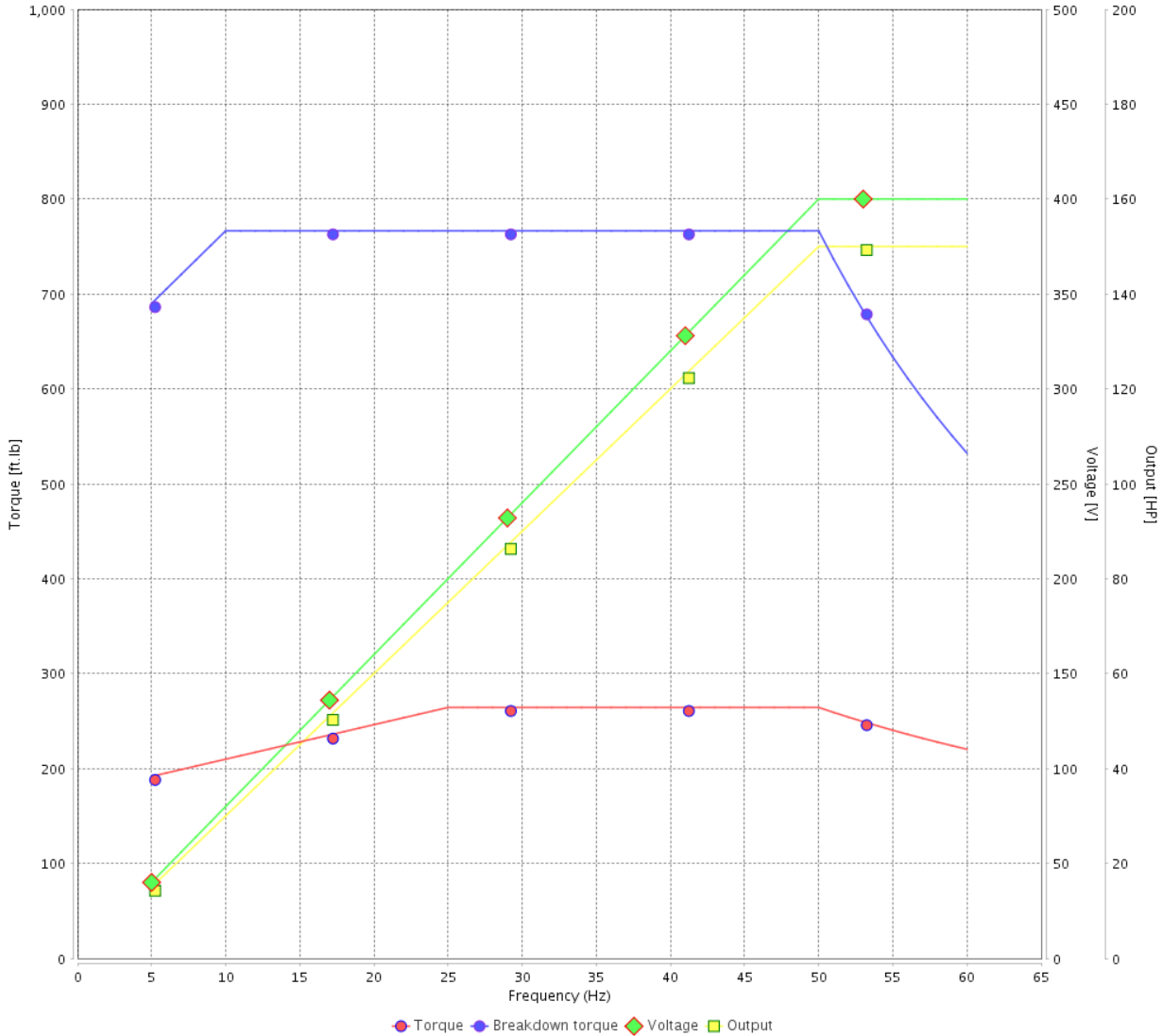
Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 11431383

Catalog # : 20036ST3QIE447TS-W22

VFD OPERATION CURVE



Performance : 400 V 50 Hz 2P IE3

Rated current	: 183 A	Moment of inertia (J)	: 44.7 sq.ft.lb
LRC	: 7.6	Duty cycle	: Cont.(S1)
Rated torque	: 264 ft.lb	Insulation class	: F
Locked rotor torque	: 220 %	Service factor	: 1.15
Breakdown torque	: 290 %	Temperature rise	: 80 K
Rated speed	: 2980 rpm	Design	: B

Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page 32 / 36	Revision
Checked by				
Date	14/04/2022			

VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage

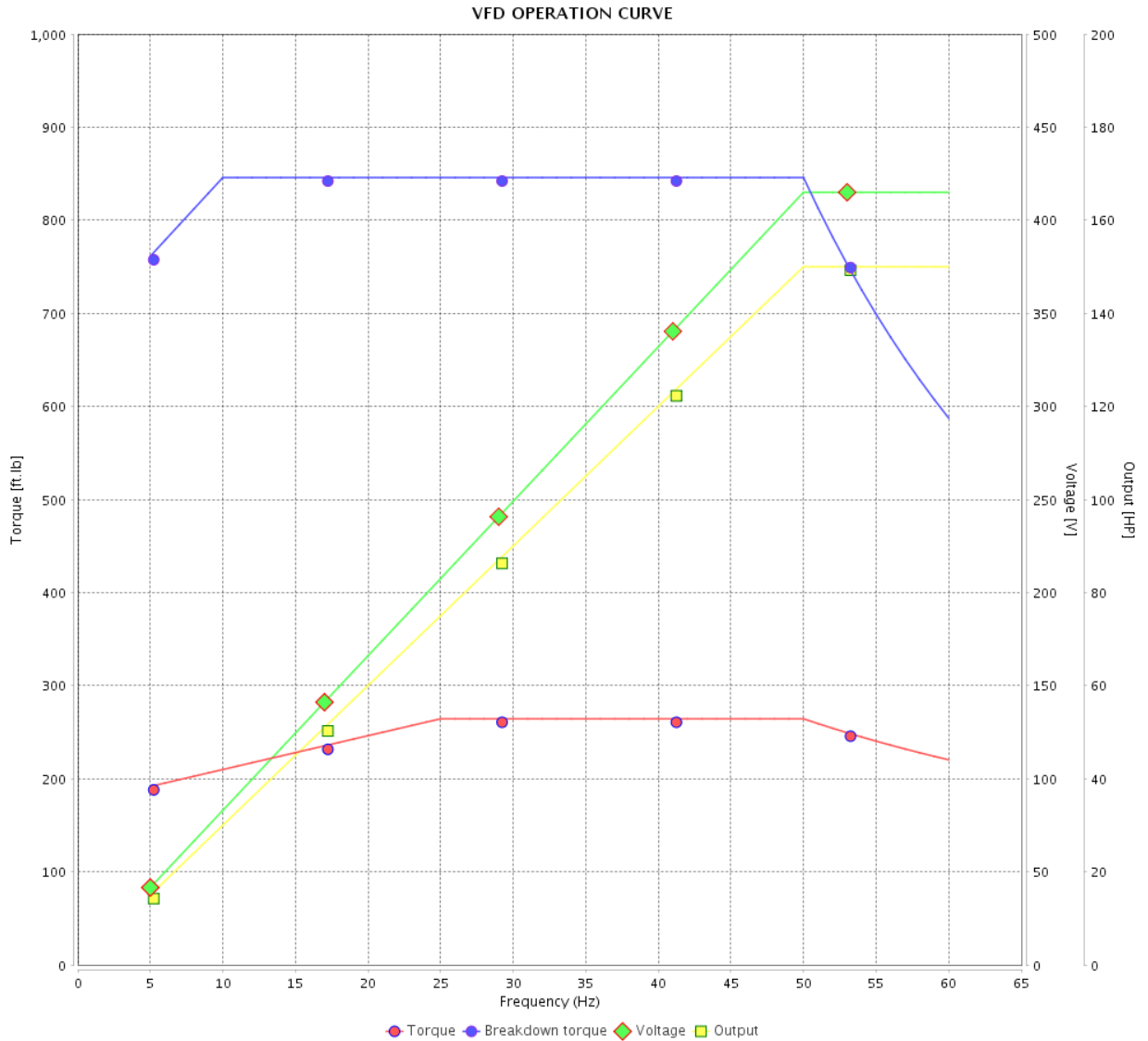


Customer : _____

Product line : NEMA Premium Efficiency Three-Phase

Product code : 11431383

Catalog # : 20036ST3QIE447TS-W22



Performance : 415 V 50 Hz 2P IE3

Rated current : 178 A
 LRC : 8.3
 Rated torque : 264 ft.lb
 Locked rotor torque : 229 %
 Breakdown torque : 320 %
 Rated speed : 2980 rpm

Moment of inertia (J) : 44.7 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
Performed by		Page		Revision
Checked by		33 / 36		
Date		14/04/2022		

VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage



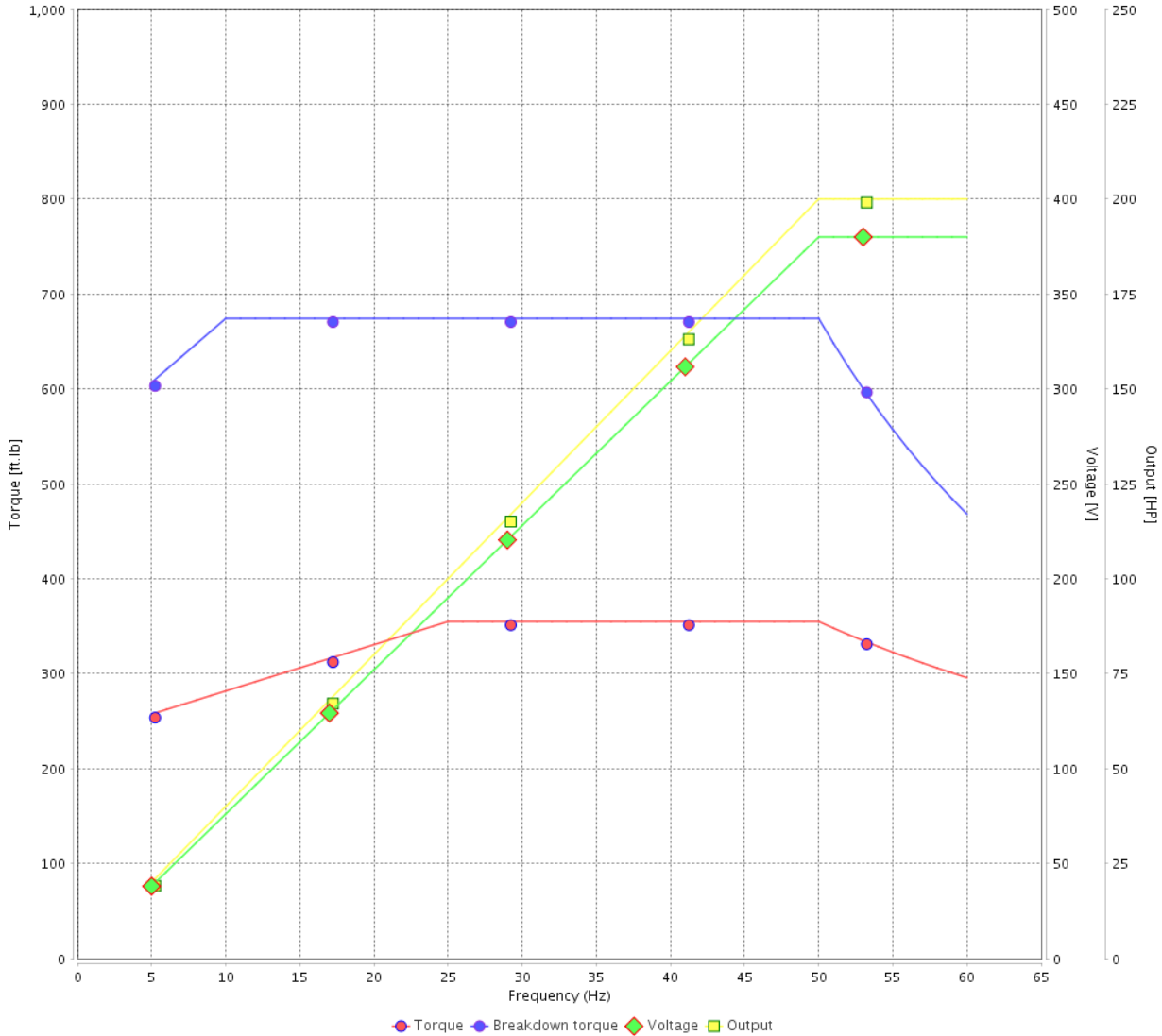
Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 11431383

Catalog # : 20036ST3QIE447TS-W22

VFD OPERATION CURVE



Performance : 380 V 50 Hz 2P IE1

Rated current : 268 A
 LRC : 5.4
 Rated torque : 355 ft.lb
 Locked rotor torque : 160 %
 Breakdown torque : 190 %
 Rated speed : 2960 rpm

Moment of inertia (J) : 44.7 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				

VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage

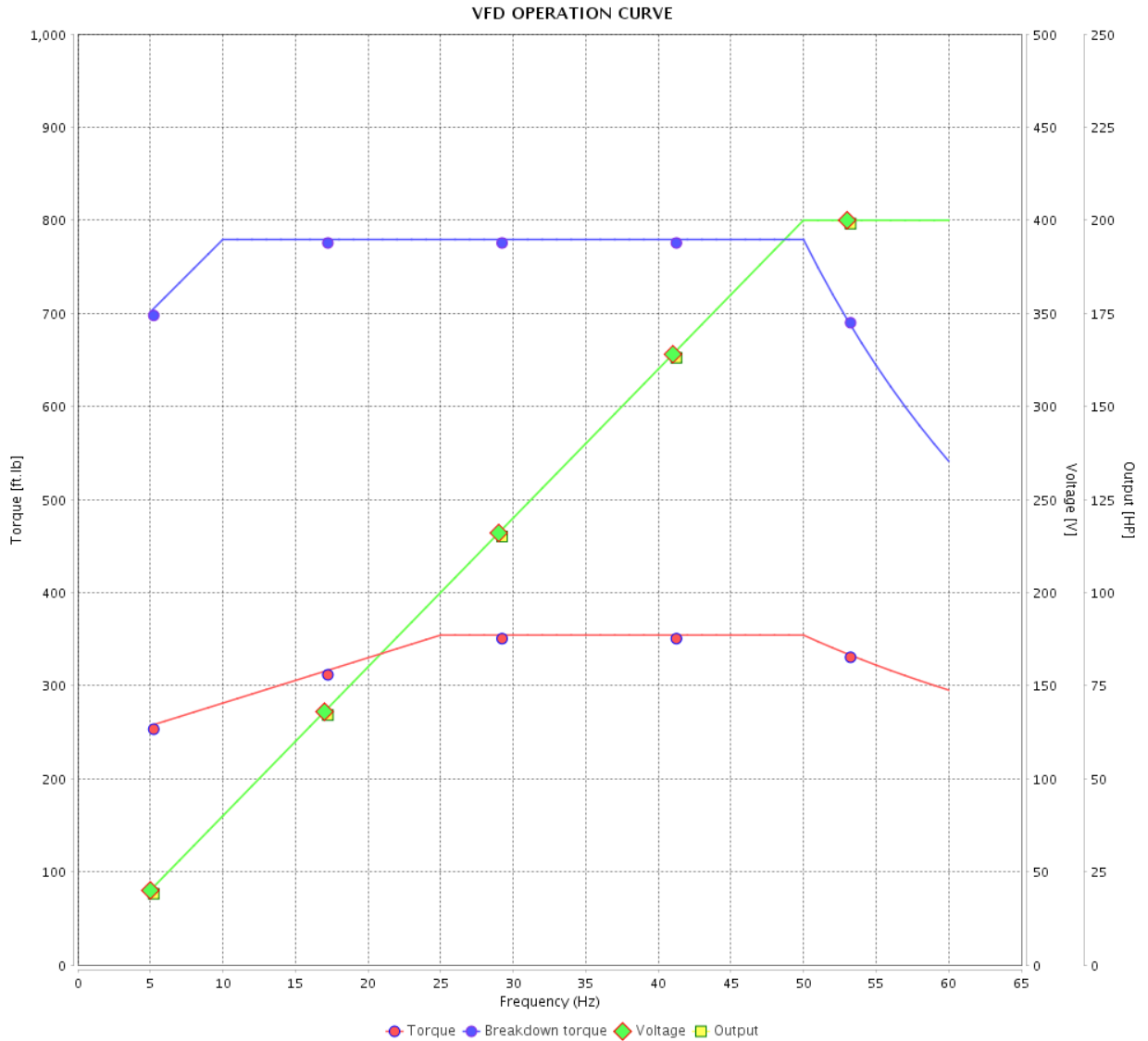


Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 11431383

Catalog # : 20036ST3QIE447TS-W22



Performance : 400 V 50 Hz 2P IE2

Rated current : 253 A
 LRC : 6.1
 Rated torque : 354 ft.lb
 Locked rotor torque : 180 %
 Breakdown torque : 220 %
 Rated speed : 2965 rpm

Moment of inertia (J) : 44.7 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				

VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage



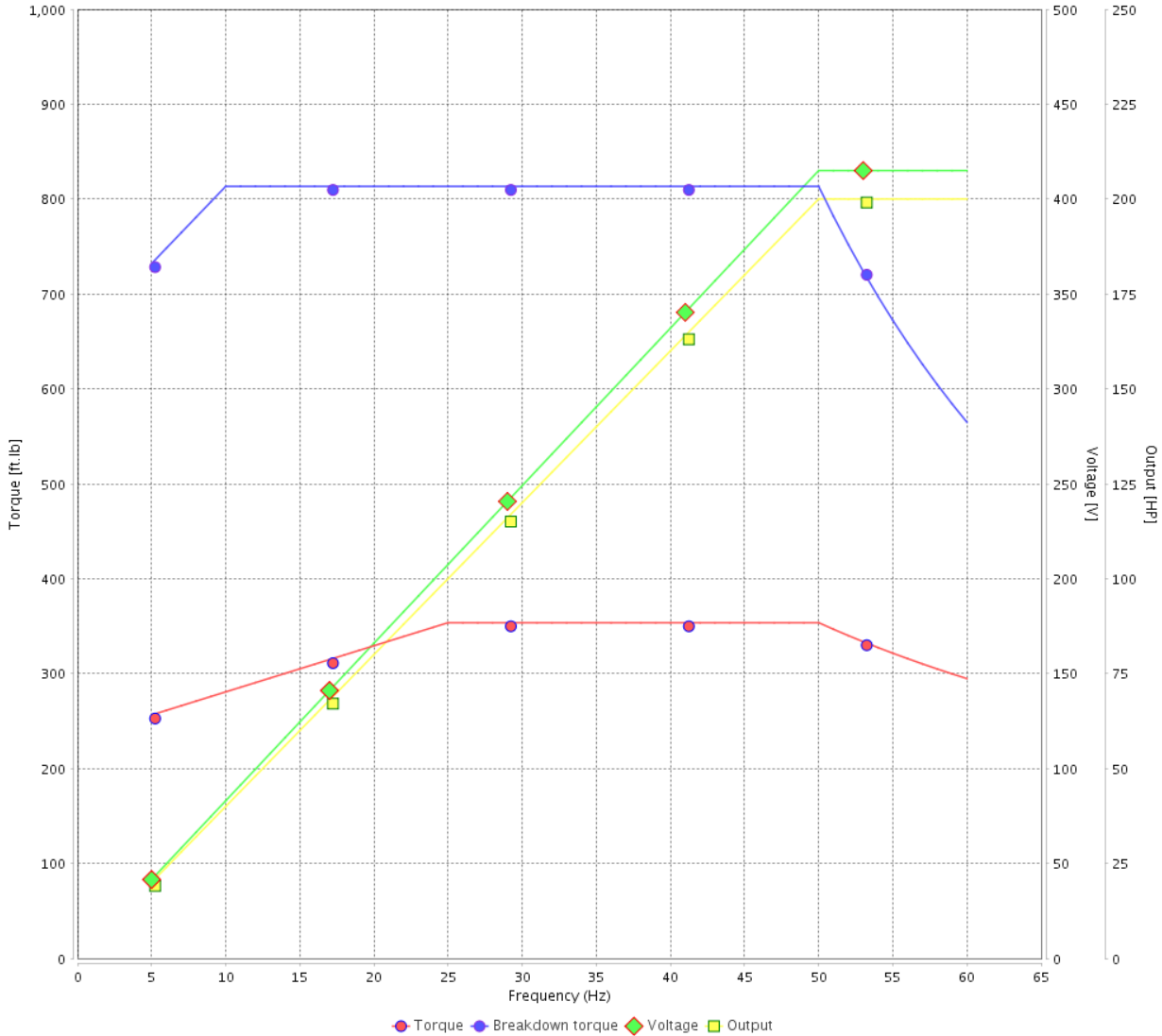
Customer :

Product line : NEMA Premium Efficiency Three-Phase

Product code : 11431383

Catalog # : 20036ST3QIE447TS-W22

VFD OPERATION CURVE

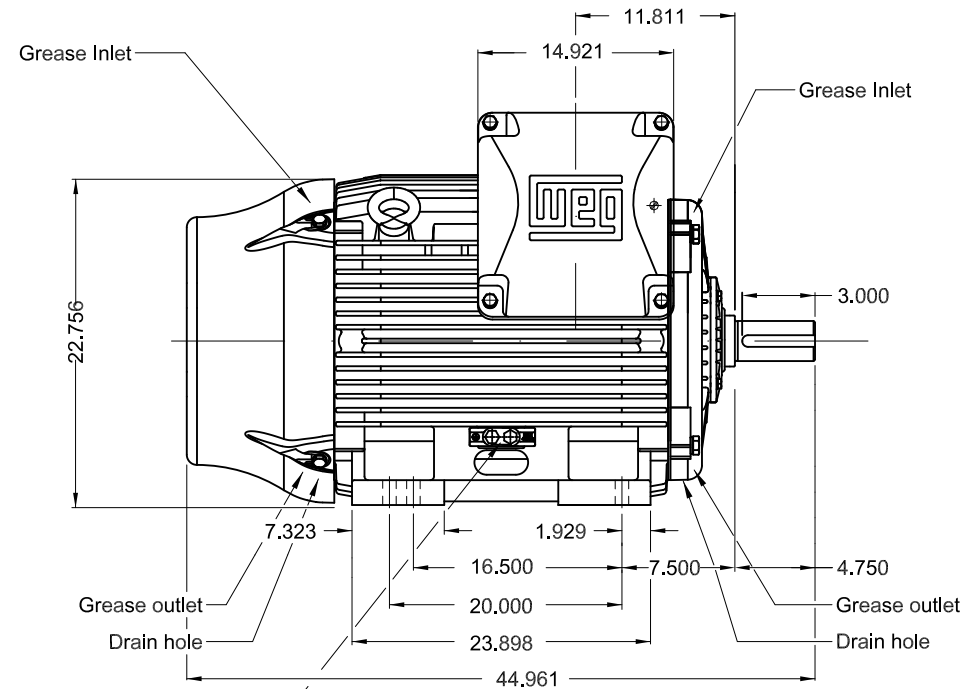
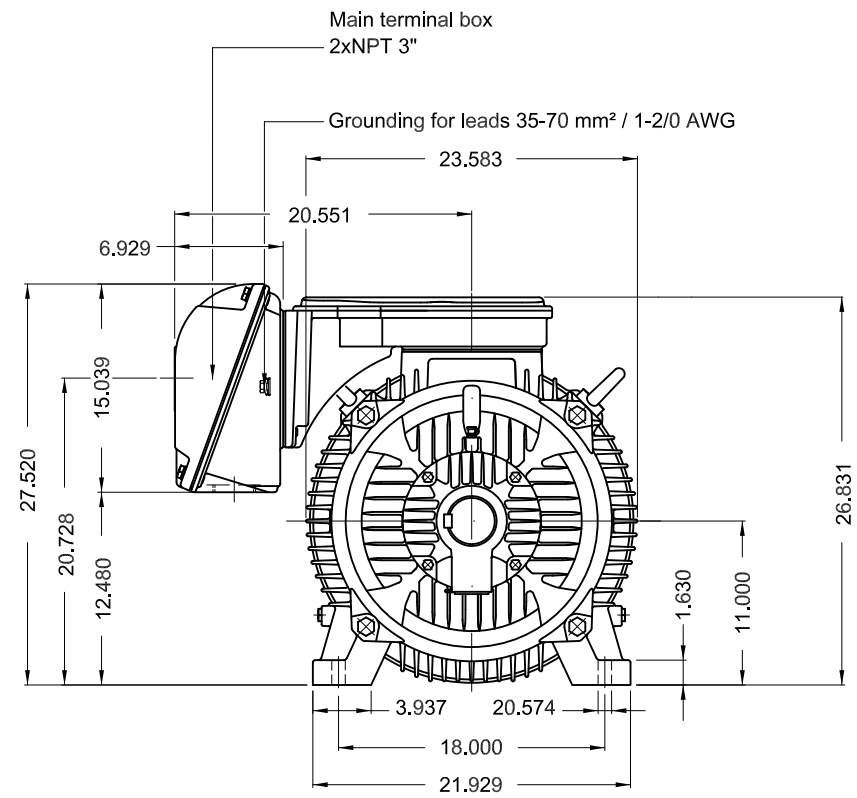


Performance : 415 V 50 Hz 2P IE2

Rated current : 244 A
 LRC : 6.7
 Rated torque : 354 ft.lb
 Locked rotor torque : 200 %
 Breakdown torque : 229 %
 Rated speed : 2970 rpm

Moment of inertia (J) : 44.7 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				

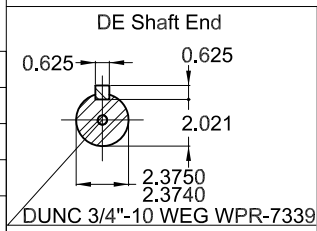


Grounding for leads 25-185 mm² / 3AWG-350MCM

200 HP 02 Poles 60 Hz

A

Without vertical jackscrews
 Color RAL 5009
 Painting plan 202E
 Mounting NEMA F-1
 Mounting B3R(D)



ECM	LOC	SUMMARY OF MODIFICATIONS	EXECUTED	CHECKED	RELEASED	DATE	VER
EXECUTED	PIRWBUSER	THREE PH. MOTOR IEEE 841 W22 PREM. EFF.					
CHECKED		FRAME 445/7TS IP55 TEFC					
RELEASED							
REL DT.	WMO	Jaragua do Sul	Product Engineering	SHEET	1 / 1		

PREVIEW
 WDD





NEMA
Premium
W22



FOR SAFE AREA
Mod.TE1BFOXON
CC029A



Class I, Div 2, Gr A, B, C and D - T3
Class I, Zone 2, IIC - T3
Class II, Div 2, Gr F and G - T3C
For use on PWM: Gr. A, B, C, D and F,
VT 1000:1, CT 20:1, 1.00SF - T3

MODEL 20036ST3QIE447TS-W22

Inverter Duty Motor
Severe Duty



MADE IN BRAZIL
11431383

PH3 60Hz Fr. 445/7TS 1000m.a.s.l. IP55 TEFC 2051lb

V 460

A 219

HP 200

kW 150

SF 1.15

SFA 252

RPM 3570

PF 0.90

AMB 40°C

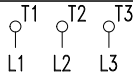
INS cl. F DT80K

NEMA NOM EFF 95.4%

DUTY CONT.

DES B Code G

GUARANT. EFF 94.5%



460V



→ 6314-C3 (27g) 70BC03X30

→ 6314-C3 (27g) 70BC03X30



MOBIL POLYREX EM (4000h)

