

# DATA SHEET

## Three Phase Induction Motor - Squirrel Cage



Customer		: Astraprom d.o.o.			
Product line		: IE3 Three-Phase		Product code : 12862756	
Frame	: 280S/M	Cooling method	: IC411 - TEFC		
Insulation class	: F	Mounting	: B3T		
Duty cycle	: 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>3</sup>	: 606 kg		
Protection degree	: IP55	Moment of inertia (J)	: 2.35 kgm <sup>2</sup>		
Design	: N				
Output [kW]	45	45	45	45	45
Poles	6	6	6	6	6
Frequency [Hz]	50	50	50	50	60
Rated voltage [V]	380/660	400/690	415	460	460
Rated current [A]	90.0/51.8	86.5/50.1	85.4	76.6	76.6
L. R. Amperes [A]	540/311	571/331	589	582	582
LRC [A]	6.0	6.6	6.9	7.6	7.6
No load current [A]	37.9/21.8	41.6/24.1	44.7	38.2	38.2
Rated speed [RPM]	985	988	988	1190	1190
Slip [%]	1.50	1.20	1.20	0.83	0.83
Rated torque [kgfm]	44.5	44.4	44.4	36.8	36.8
Locked rotor torque [%]	190	210	229	250	250
Breakdown torque [%]	220	250	270	280	280
Service factor	1.00	1.00	1.00	1.00	1.00
Temperature rise	80 K	80 K	80 K	80 K	80 K
Locked rotor time	50s (cold) 28s (hot)	46s (cold) 26s (hot)	43s (cold) 24s (hot)	55s (cold) 31s (hot)	55s (cold) 31s (hot)
Noise level <sup>2</sup>	65.0 dB(A)	65.0 dB(A)	65.0 dB(A)	69.0 dB(A)	69.0 dB(A)
Efficiency (%)	25%				
	50%	93.7	93.0	93.0	93.0
	75%	93.8	93.9	94.0	94.1
	100%	93.8	93.9	94.0	94.5
Power Factor	25%				
	50%	0.66	0.62	0.60	0.60
	75%	0.77	0.73	0.71	0.72
	100%	0.81	0.80	0.78	0.78
Losses at normative operating points (speed;torque), in percentage of rated output power					
Losses (%)	P1 (0,9;1,0)	6.3	6.2	6.1	5.5
	P2 (0,5;1,0)	5.1	5.0	4.9	4.5
	P3 (0,25;1,0)	4.8	4.7	4.6	4.2
	P4 (0,9;0,5)	3.3	3.2	3.1	2.9
	P5 (0,5;0,5)	2.1	2.1	2.1	1.9
	P6 (0,5;0,25)	1.5	1.4	1.4	1.3
	P7 (0,25;0,25)	1.0	1.0	1.0	0.9
Bearing type	: Drive end 6316 C3	Non drive end 6316 C3	Foundation loads		
Sealing	: WSeal	WSeal	Max. traction	: 599 kgf	
Lubrication interval	: 18000 h	18000 h	Max. compression	: 1205 kgf	
Lubricant amount	: 34 g	34 g			
Lubricant type	: Mobil Polyrex EM				
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 IEC 60034-1.		
Rev.	Changes Summary		Performed	Checked	Date
Performed by					
Checked by				Page	Revision
Date	16/12/2022			1 / 19	

# DATA SHEET

## Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Notes

Rev.	Changes Summary	Performed	Checked	Date
Performed by				
Checked by			Page	Revision
Date	16/12/2022		2 / 19	

# DATA SHEET



## Three Phase Induction Motor - Squirrel Cage

Customer : Astraprom d.o.o.

### Thermal protection

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

Rev.	Changes Summary	Performed	Checked	Date
Performed by				Page 3 / 19
Checked by				
Date	16/12/2022			
			Revision	

# TORQUE AND CURRENT VS SPEED CURVE

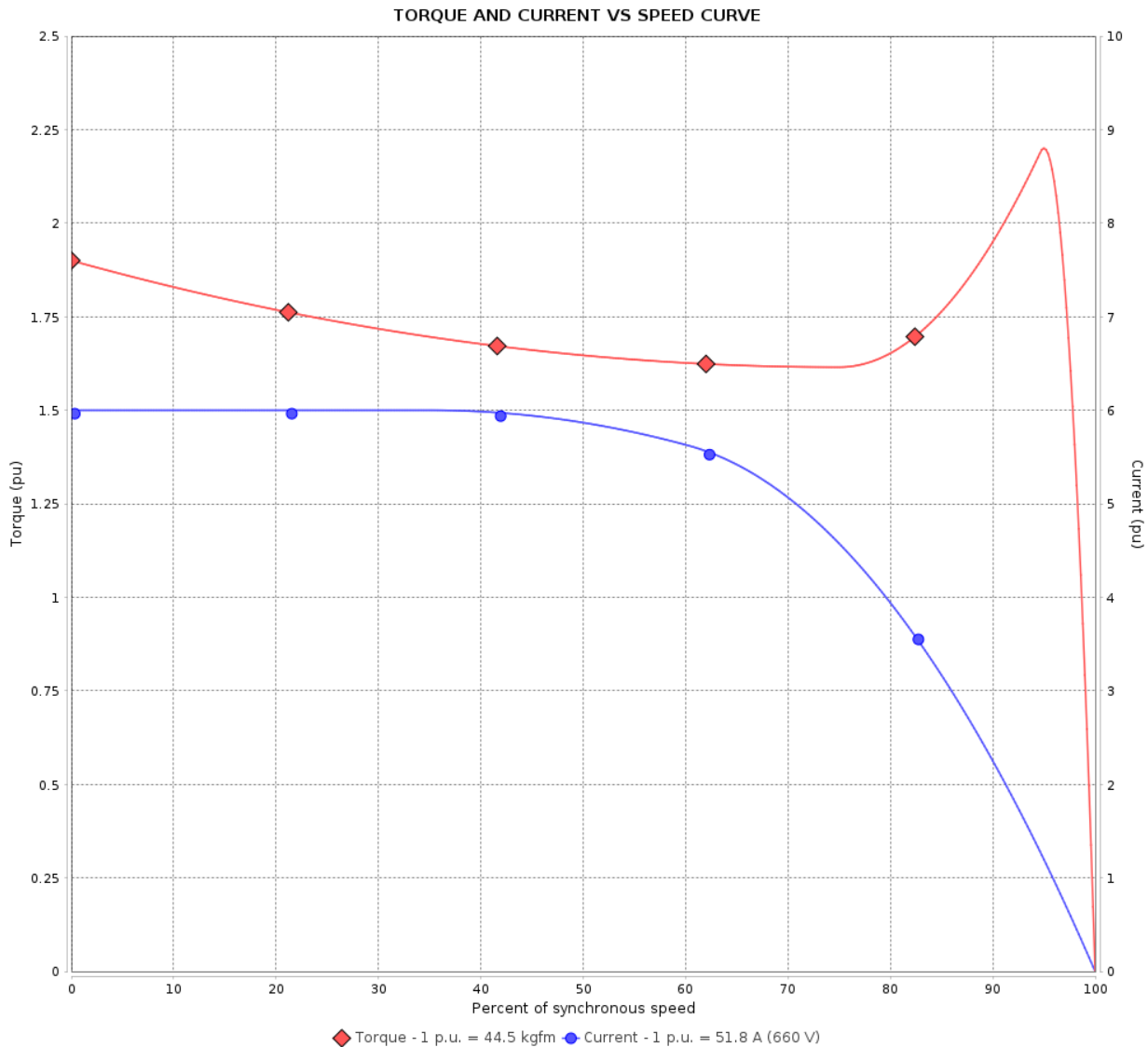
Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 12862756



Performance : 380/660 V 50 Hz 6P

Rated current	: 90.0/51.8 A	Moment of inertia (J)	: 2.35 kgm <sup>2</sup>
LRC	: 6.0	Duty cycle	: S1
Rated torque	: 44.5 kgfm	Insulation class	: F
Locked rotor torque	: 190 %	Service factor	: 1.00
Breakdown torque	: 220 %	Temperature rise	: 80 K
Rated speed	: 985 rpm	Design	: N

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

Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page 4 / 19	Revision
Checked by				
Date	16/12/2022			

# TORQUE AND CURRENT VS SPEED CURVE

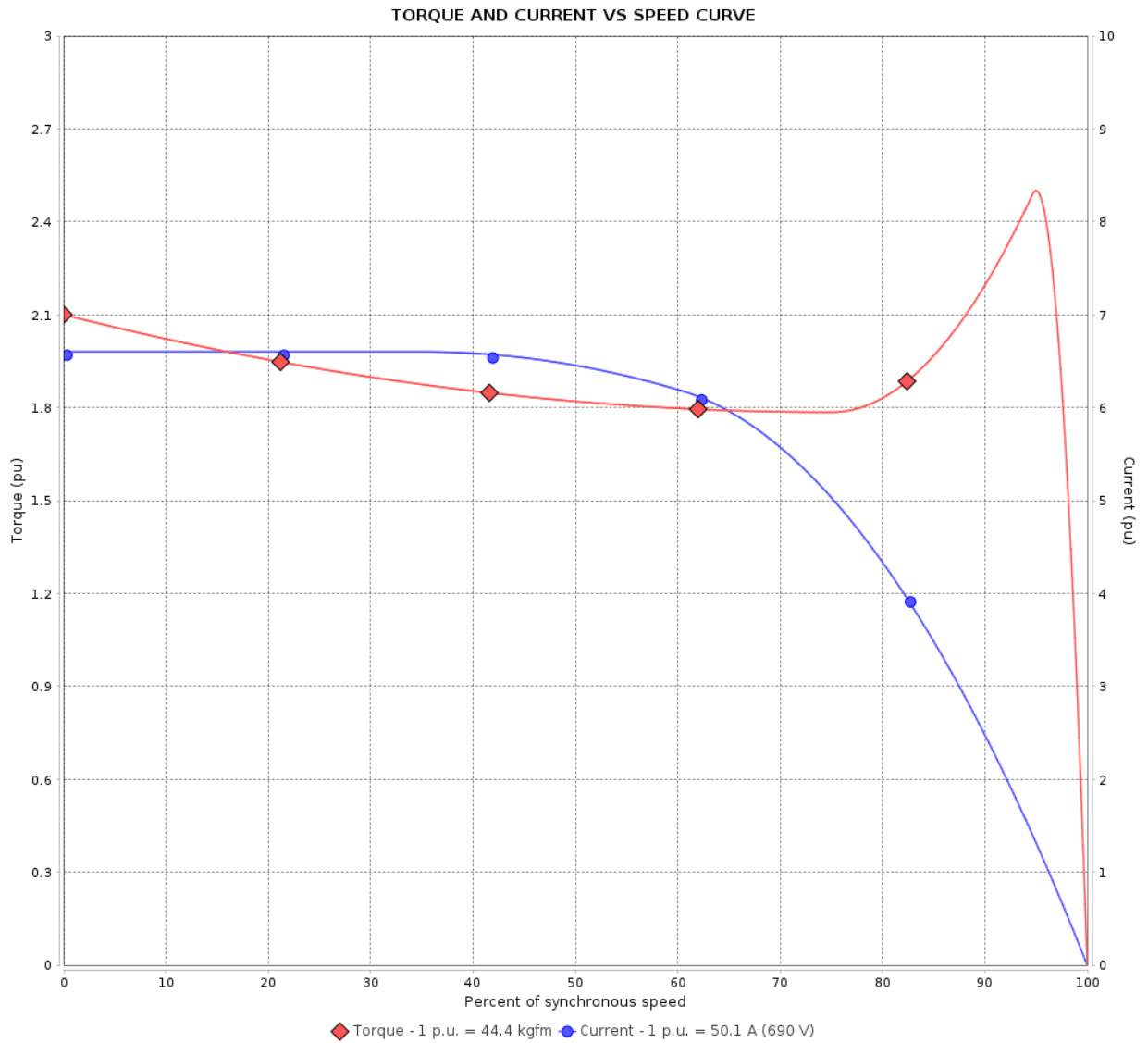


## Three Phase Induction Motor - Squirrel Cage

Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 12862756



Performance : 400/690 V 50 Hz 6P

Rated current	: 86.5/50.1 A	Moment of inertia (J)	: 2.35 kgm <sup>2</sup>
LRC	: 6.6	Duty cycle	: S1
Rated torque	: 44.4 kgfm	Insulation class	: F
Locked rotor torque	: 210 %	Service factor	: 1.00
Breakdown torque	: 250 %	Temperature rise	: 80 K
Rated speed	: 988 rpm	Design	: N

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

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

# TORQUE AND CURRENT VS SPEED CURVE

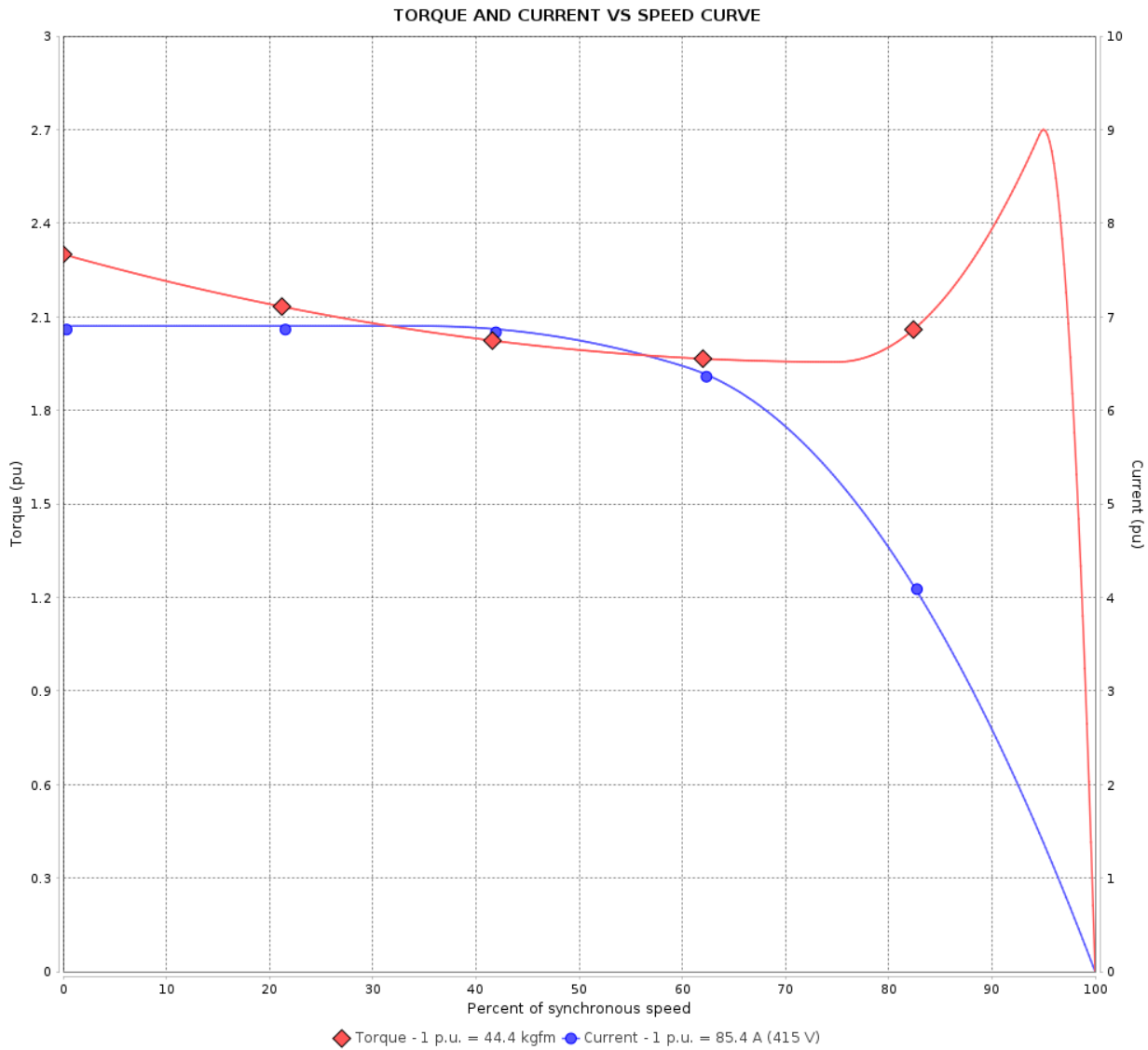
Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 12862756



Performance : 415 V 50 Hz 6P

Rated current	: 85.4 A	Moment of inertia (J)	: 2.35 kgm <sup>2</sup>
LRC	: 6.9	Duty cycle	: S1
Rated torque	: 44.4 kgfm	Insulation class	: F
Locked rotor torque	: 229 %	Service factor	: 1.00
Breakdown torque	: 270 %	Temperature rise	: 80 K
Rated speed	: 988 rpm	Design	: N

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

Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page 6 / 19	Revision
Checked by				
Date	16/12/2022			

# TORQUE AND CURRENT VS SPEED CURVE

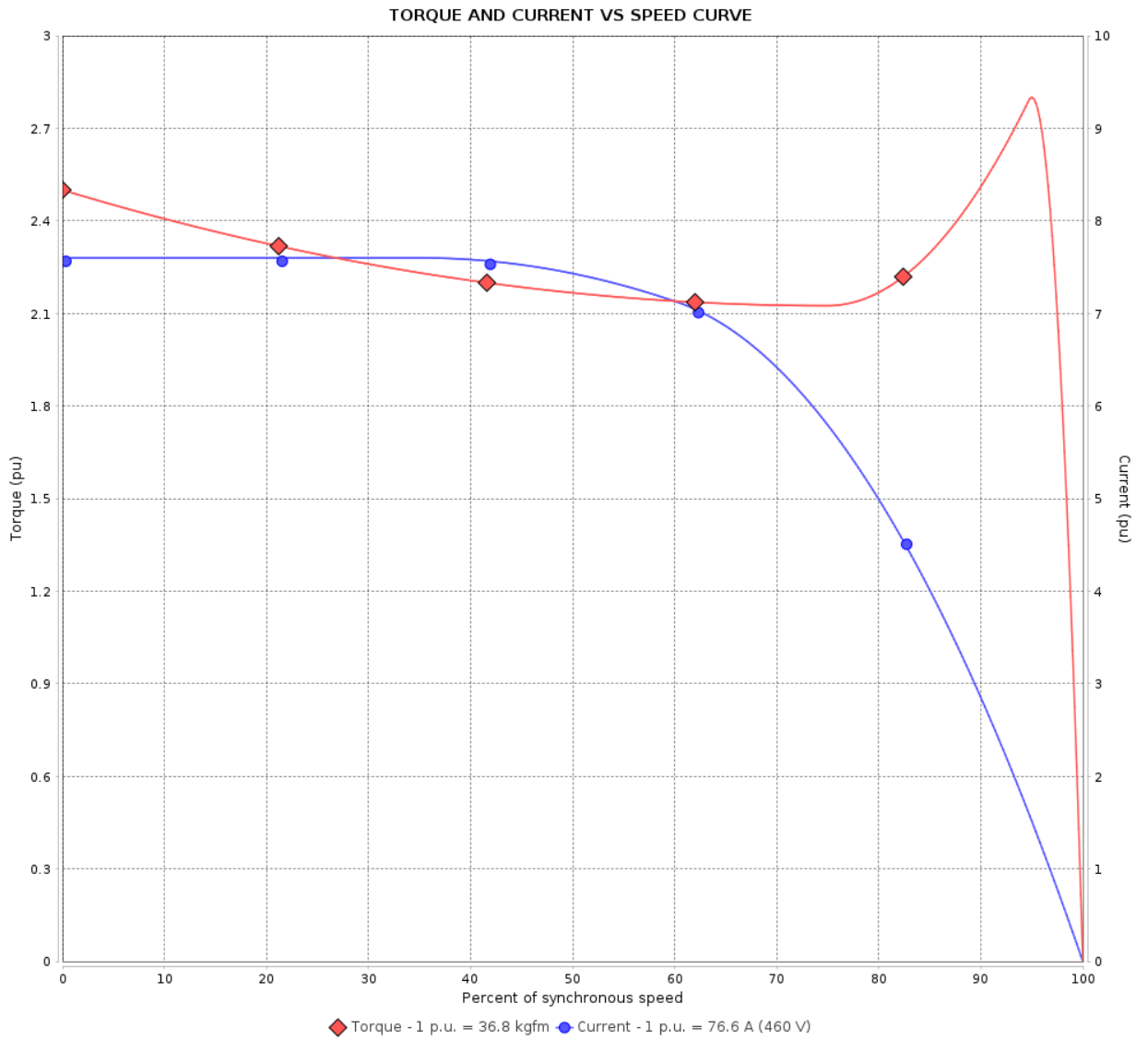


## Three Phase Induction Motor - Squirrel Cage

Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 12862756



Performance : 460 V 60 Hz 6P

Rated current	: 76.6 A	Moment of inertia (J)	: 2.35 kgm <sup>2</sup>
LRC	: 7.6	Duty cycle	: S1
Rated torque	: 36.8 kgfm	Insulation class	: F
Locked rotor torque	: 250 %	Service factor	: 1.00
Breakdown torque	: 280 %	Temperature rise	: 80 K
Rated speed	: 1190 rpm	Design	: N

Locked rotor time : 55s (cold) 31s (hot)

Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page 7 / 19	Revision
Checked by				
Date	16/12/2022			

# LOAD PERFORMANCE CURVE

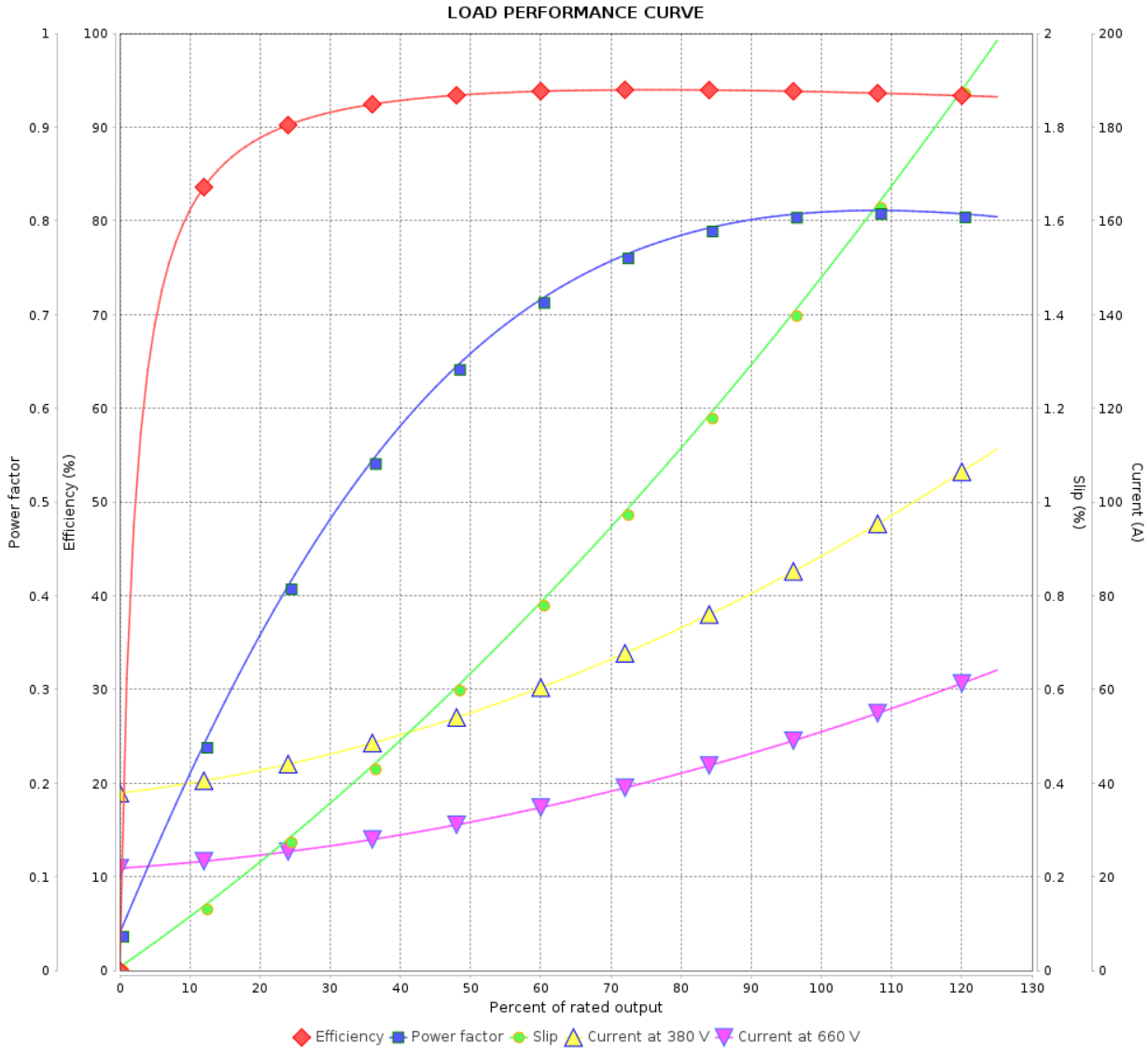
Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 12862756



Performance : 380/660 V 50 Hz 6P

Rated current : 90.0/51.8 A  
 LRC : 6.0  
 Rated torque : 44.5 kgfm  
 Locked rotor torque : 190 %  
 Breakdown torque : 220 %  
 Rated speed : 985 rpm

Moment of inertia (J) : 2.35 kgm<sup>2</sup>  
 Duty cycle : S1  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
 Design : N

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

# LOAD PERFORMANCE CURVE

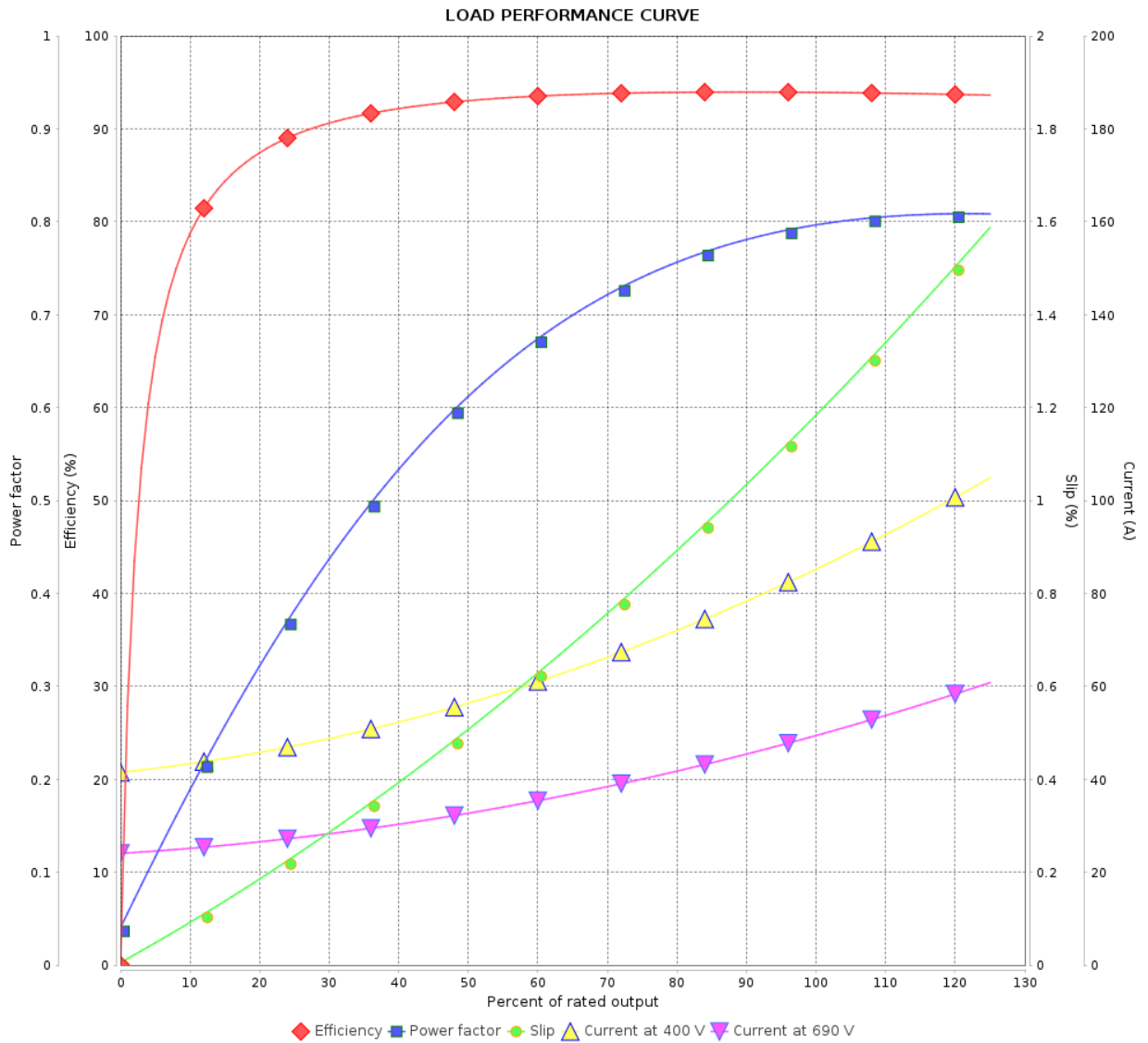
## Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 12862756



Performance : 400/690 V 50 Hz 6P

Rated current : 86.5/50.1 A  
 LRC : 6.6  
 Rated torque : 44.4 kgfm  
 Locked rotor torque : 210 %  
 Breakdown torque : 250 %  
 Rated speed : 988 rpm

Moment of inertia (J) : 2.35 kgm<sup>2</sup>  
 Duty cycle : S1  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
 Design : N

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

# LOAD PERFORMANCE CURVE

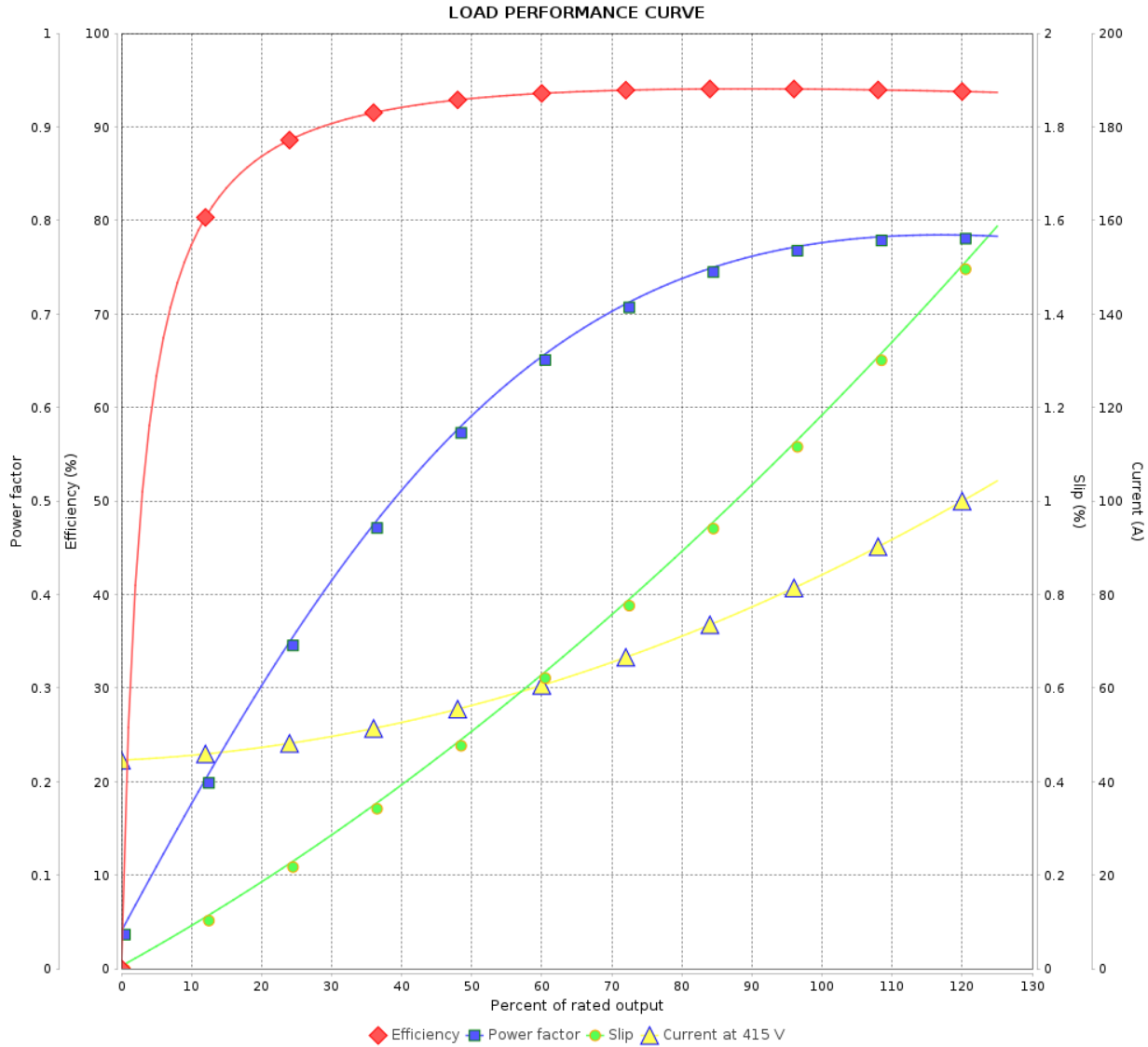
Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 12862756



Performance : 415 V 50 Hz 6P

Rated current	: 85.4 A	Moment of inertia (J)	: 2.35 kgm <sup>2</sup>
LRC	: 6.9	Duty cycle	: S1
Rated torque	: 44.4 kgfm	Insulation class	: F
Locked rotor torque	: 229 %	Service factor	: 1.00
Breakdown torque	: 270 %	Temperature rise	: 80 K
Rated speed	: 988 rpm	Design	: N

Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page 10 / 19	Revision
Checked by				
Date	16/12/2022			

# LOAD PERFORMANCE CURVE

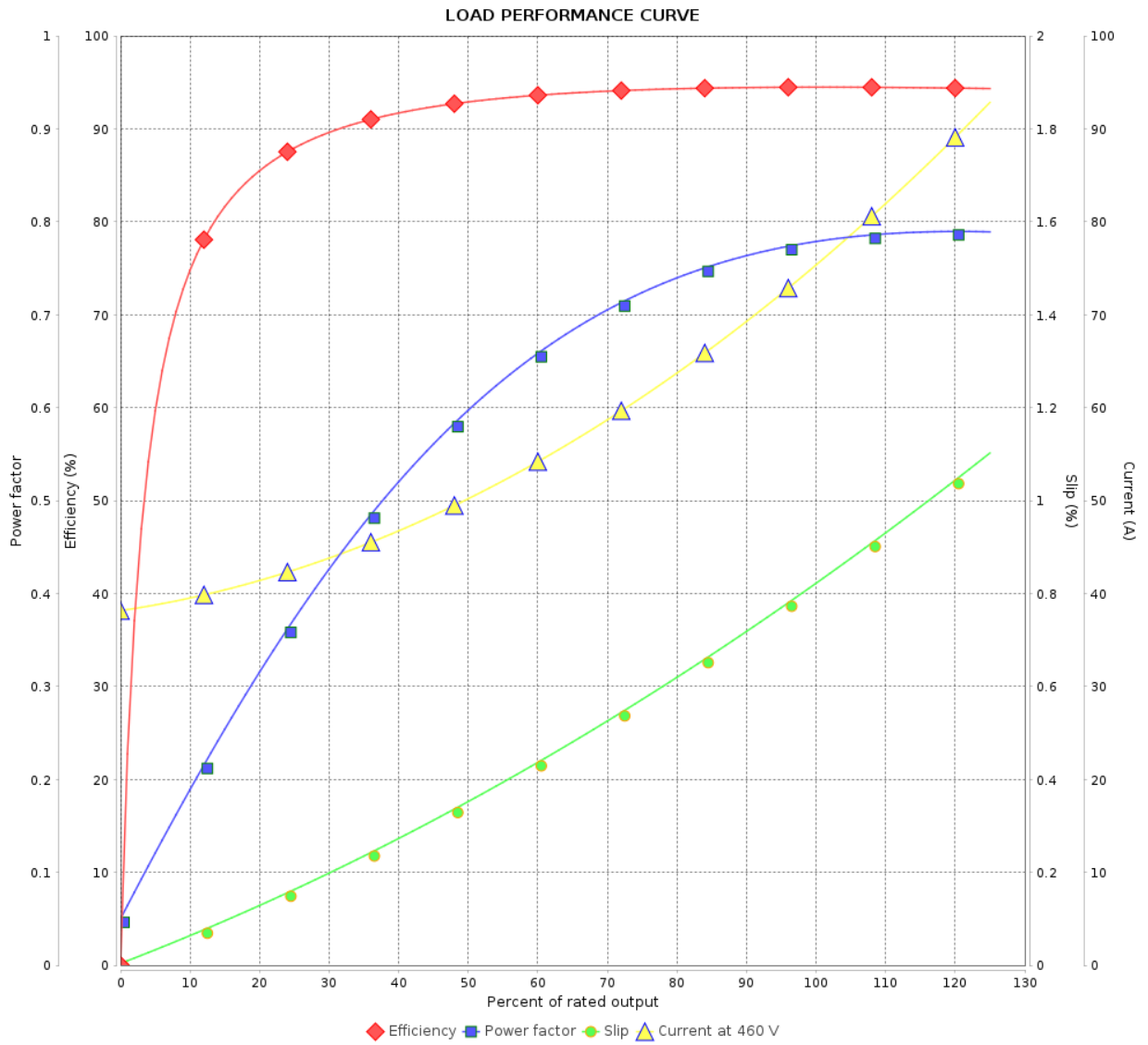
## Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 12862756



Performance : 460 V 60 Hz 6P

Rated current : 76.6 A  
 LRC : 7.6  
 Rated torque : 36.8 kgfm  
 Locked rotor torque : 250 %  
 Breakdown torque : 280 %  
 Rated speed : 1190 rpm

Moment of inertia (J) : 2.35 kgm<sup>2</sup>  
 Duty cycle : S1  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
 Design : N

Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page	Revision
Checked by				
Date				
			11 / 19	

# THERMAL LIMIT CURVE

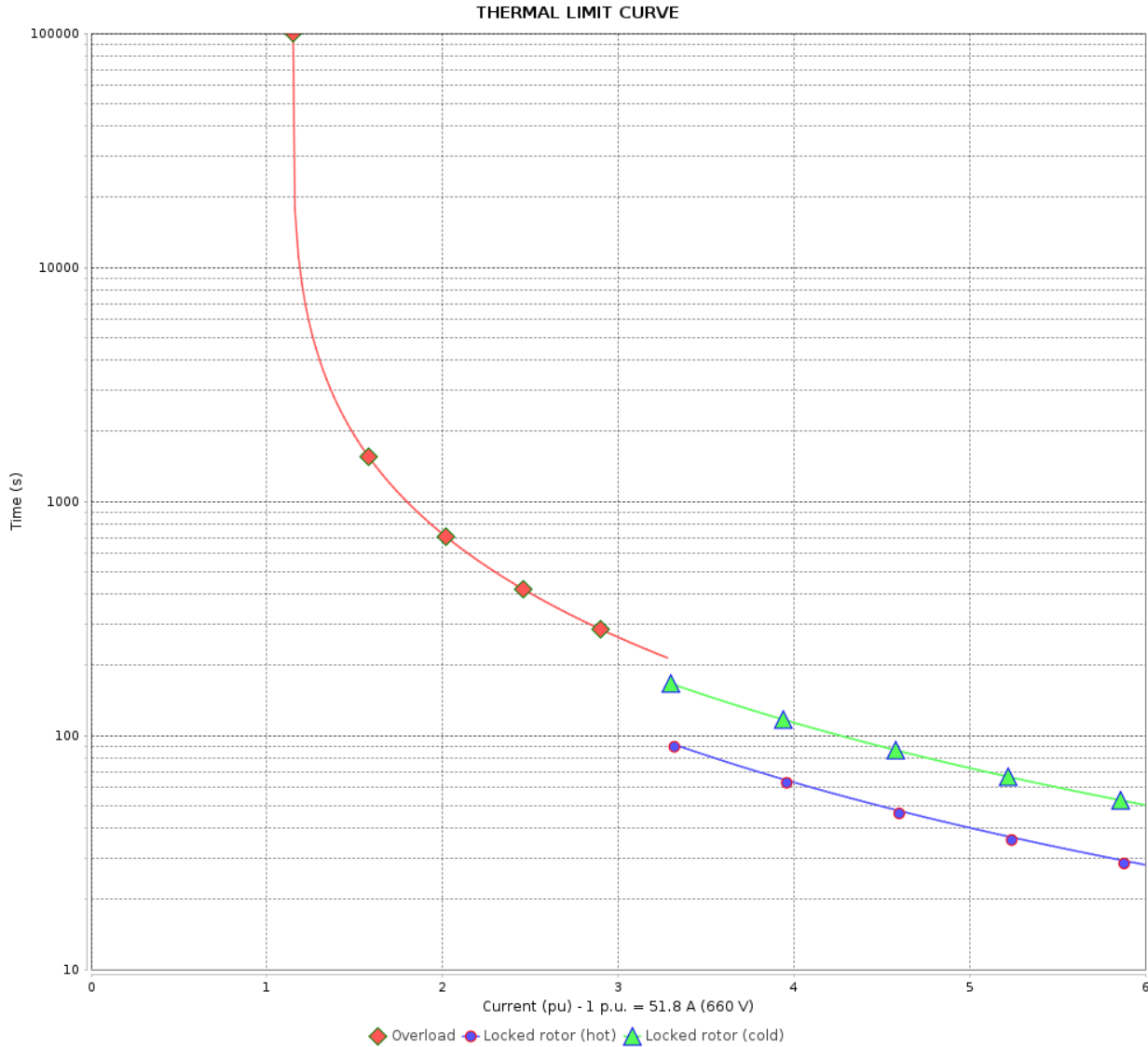
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Product code : 12862756



Performance : 380/660 V 50 Hz 6P

Rated current	: 90.0/51.8 A	Moment of inertia (J)	: 2.35 kgm <sup>2</sup>
LRC	: 6.0	Duty cycle	: S1
Rated torque	: 44.5 kgfm	Insulation class	: F
Locked rotor torque	: 190 %	Service factor	: 1.00
Breakdown torque	: 220 %	Temperature rise	: 80 K
Rated speed	: 985 rpm	Design	: N

Heating constant

Cooling constant

Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page 12 / 19	Revision
Checked by				
Date	16/12/2022			

# THERMAL LIMIT CURVE

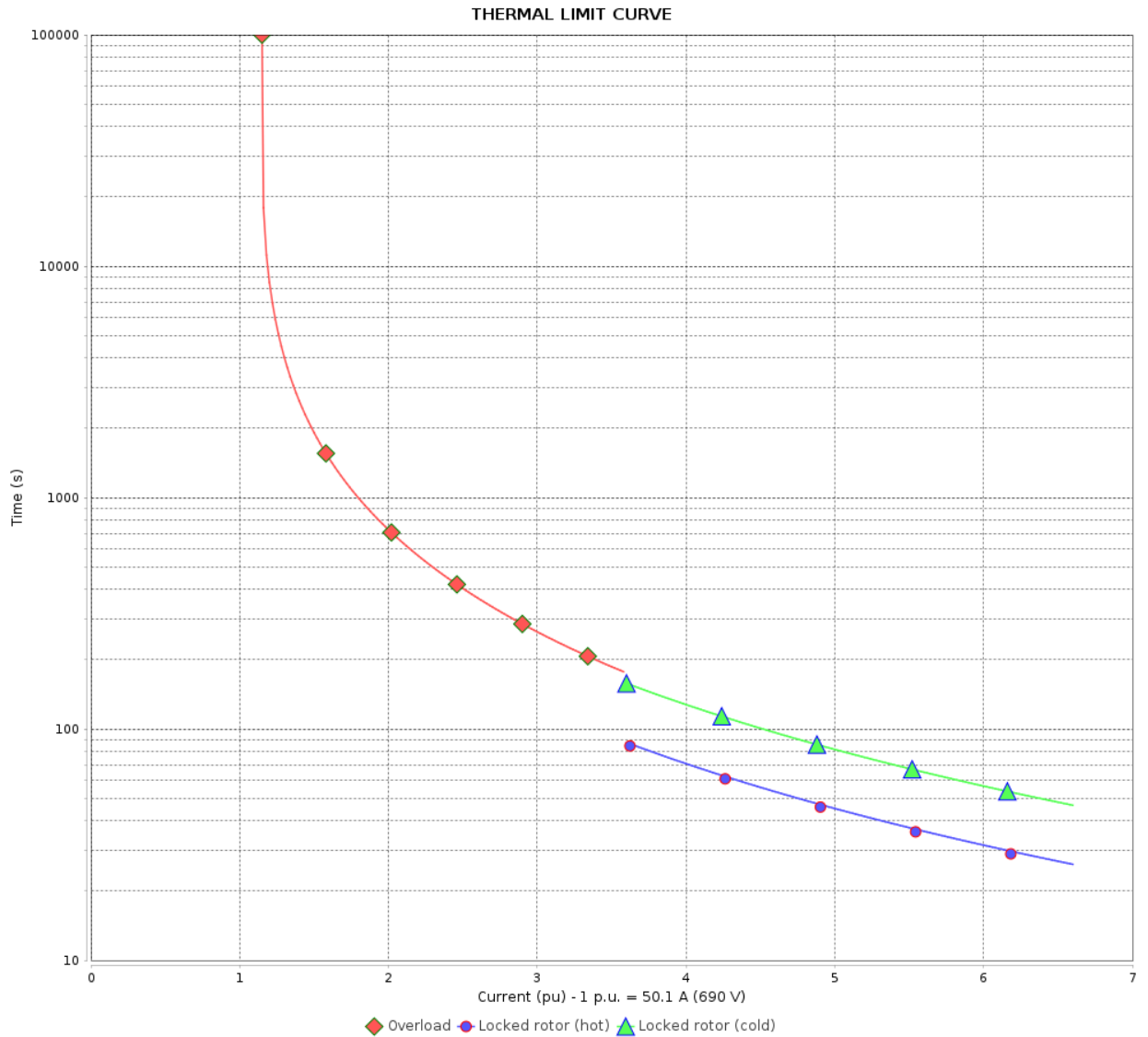
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Performance : 400/690 V 50 Hz 6P

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 LRC : 6.6  
 Rated torque : 44.4 kgfm  
 Locked rotor torque : 210 %  
 Breakdown torque : 250 %  
 Rated speed : 988 rpm

Moment of inertia (J) : 2.35 kgm<sup>2</sup>  
 Duty cycle : S1  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
 Design : N

Heating constant  
 Cooling constant

Rev.	Changes Summary	Performed	Checked	Date
Performed by				
Checked by				
Date				
		Page	Revision	
		13 / 19		

# THERMAL LIMIT CURVE

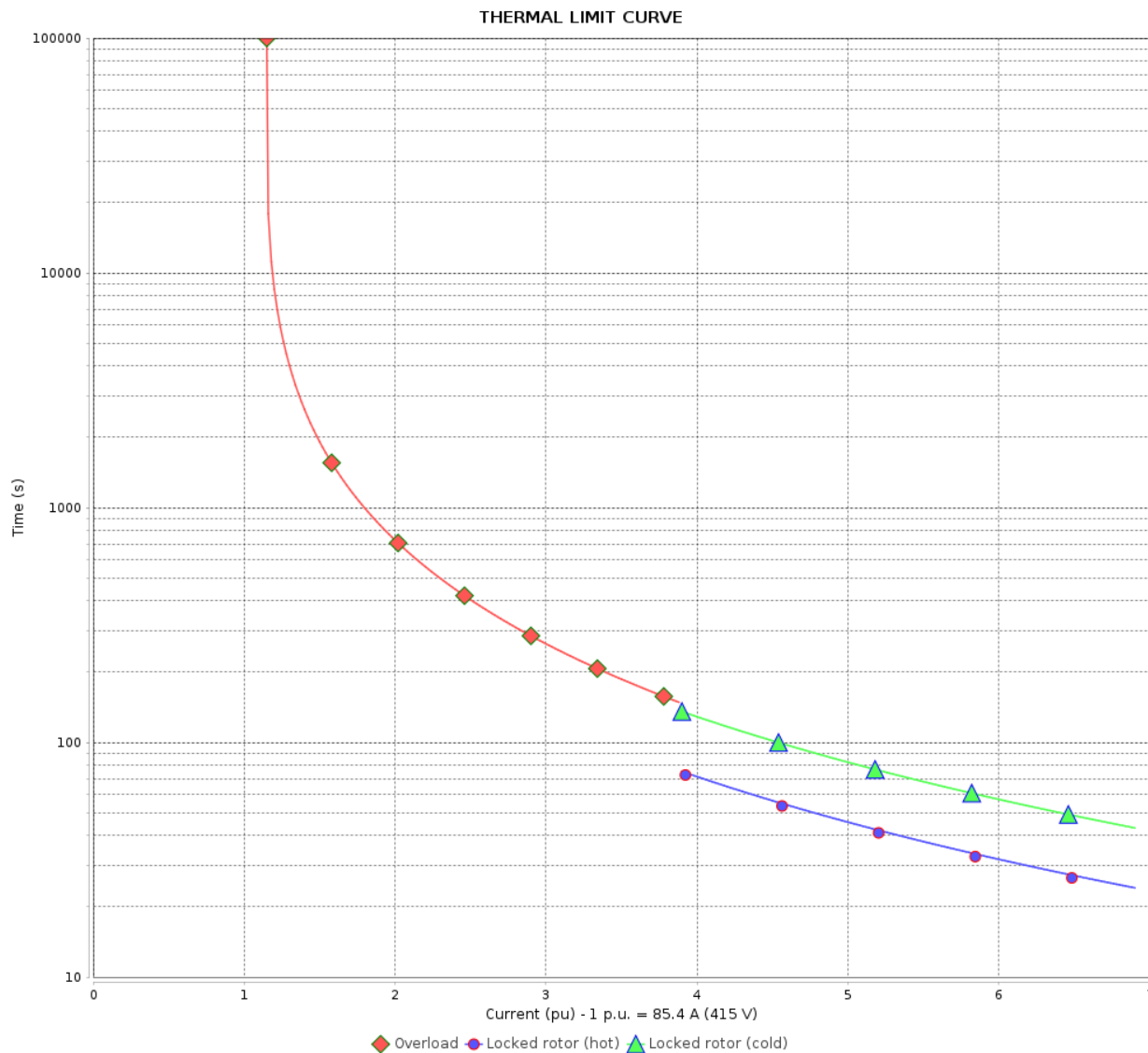
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Product code : 12862756



Performance : 415 V 50 Hz 6P

Rated current	: 85.4 A	Moment of inertia (J)	: 2.35 kgm <sup>2</sup>
LRC	: 6.9	Duty cycle	: S1
Rated torque	: 44.4 kgfm	Insulation class	: F
Locked rotor torque	: 229 %	Service factor	: 1.00
Breakdown torque	: 270 %	Temperature rise	: 80 K
Rated speed	: 988 rpm	Design	: N

Heating constant  
Cooling constant

Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page 14 / 19	Revision
Checked by				
Date	16/12/2022			

# THERMAL LIMIT CURVE

## Three Phase Induction Motor - Squirrel Cage

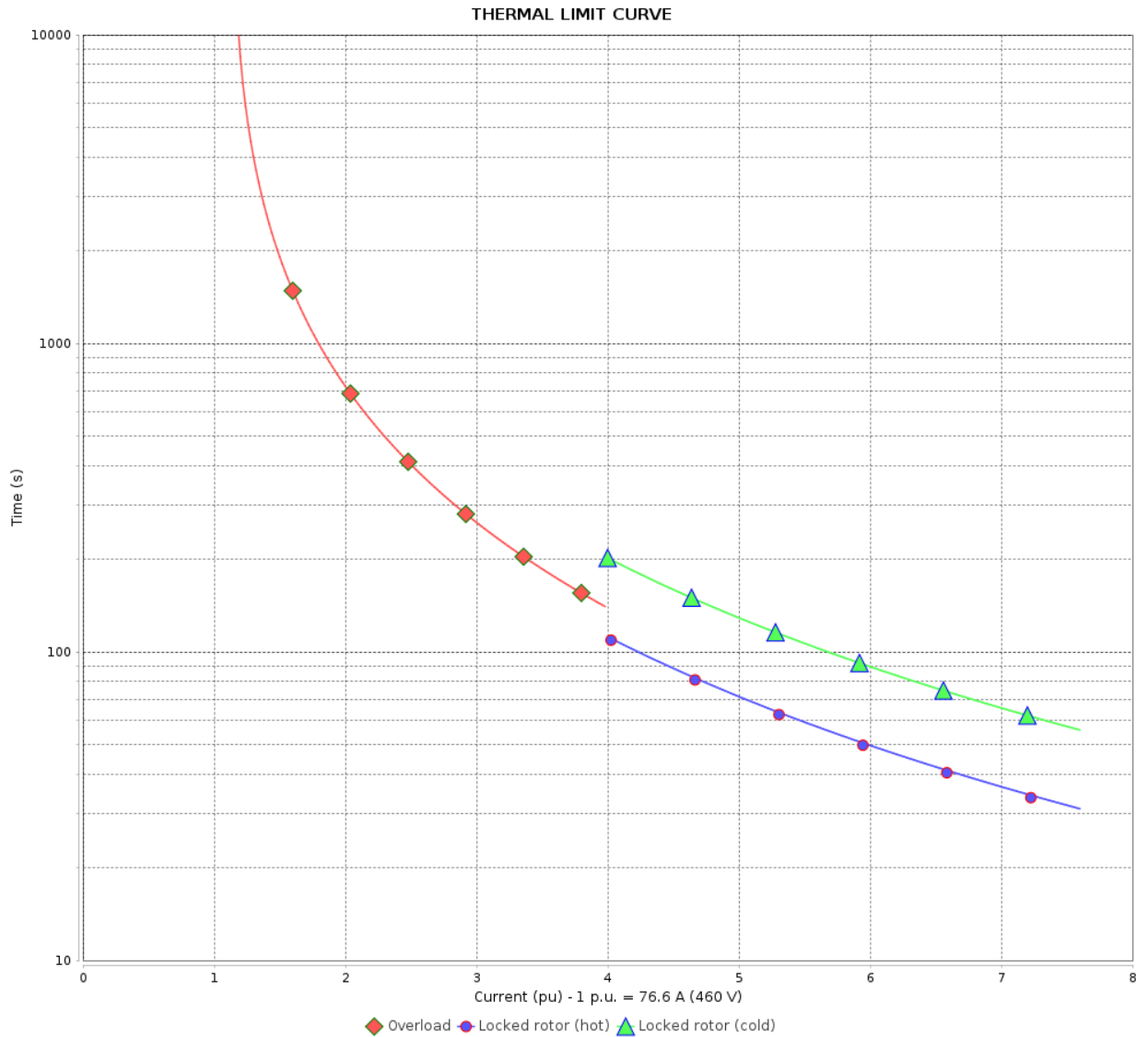


Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code :

12862756



Performance : 460 V 60 Hz 6P

Rated current : 76.6 A  
 LRC : 7.6  
 Rated torque : 36.8 kgfm  
 Locked rotor torque : 250 %  
 Breakdown torque : 280 %  
 Rated speed : 1190 rpm

Moment of inertia (J) : 2.35 kgm<sup>2</sup>  
 Duty cycle : S1  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
 Design : N

Heating constant

Cooling constant

Rev.	Changes Summary	Performed	Checked	Date
Performed by				
Checked by				
Date				
		Page	Revision	
		15 / 19		

# VFD OPERATION CURVE

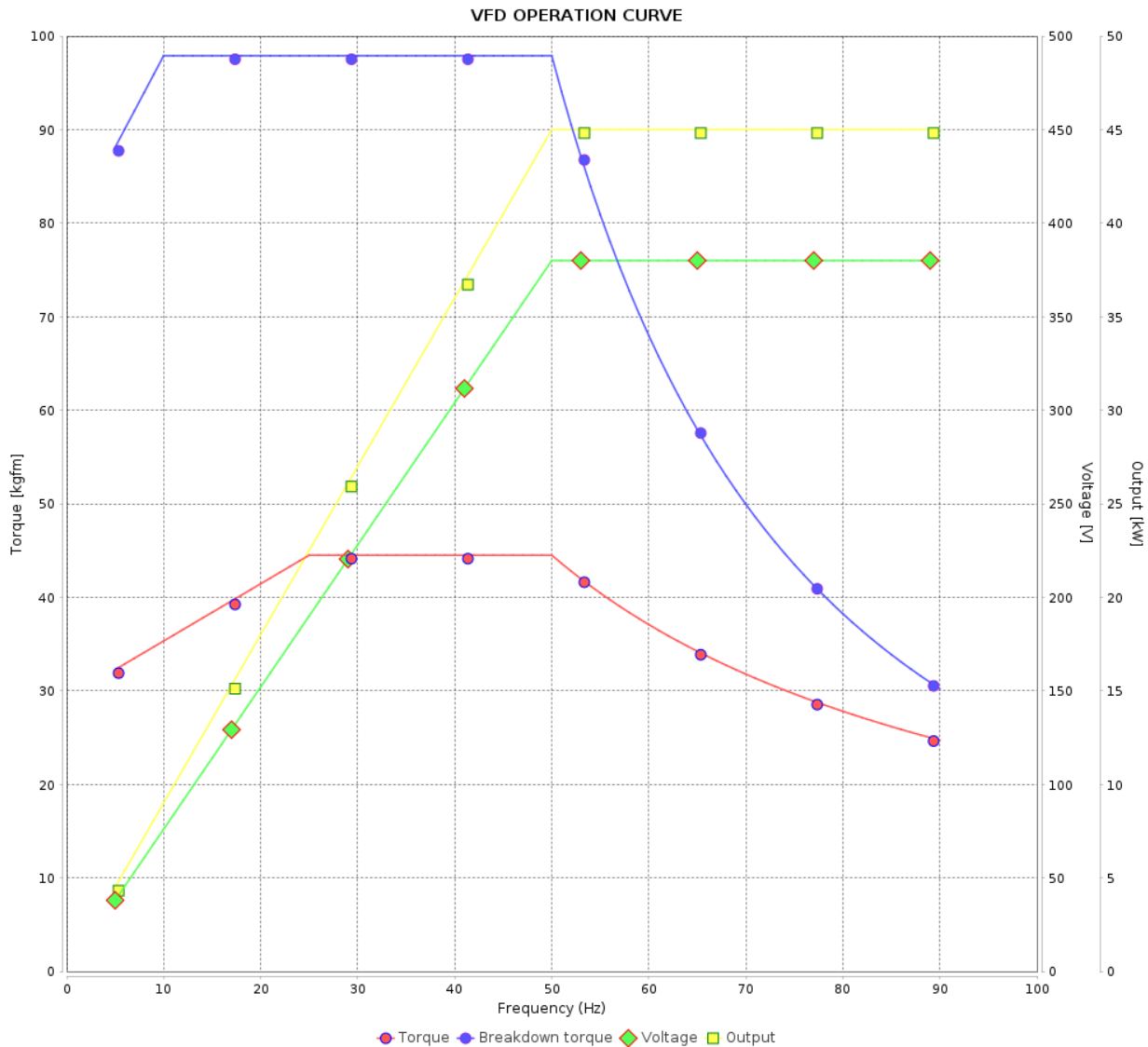
Three Phase Induction Motor - Squirrel Cage



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 Locked rotor torque : 190 %  
 Breakdown torque : 220 %  
 Rated speed : 985 rpm

Moment of inertia (J) : 2.35 kgm<sup>2</sup>  
 Duty cycle : S1  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
 Design : N

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

# VFD OPERATION CURVE

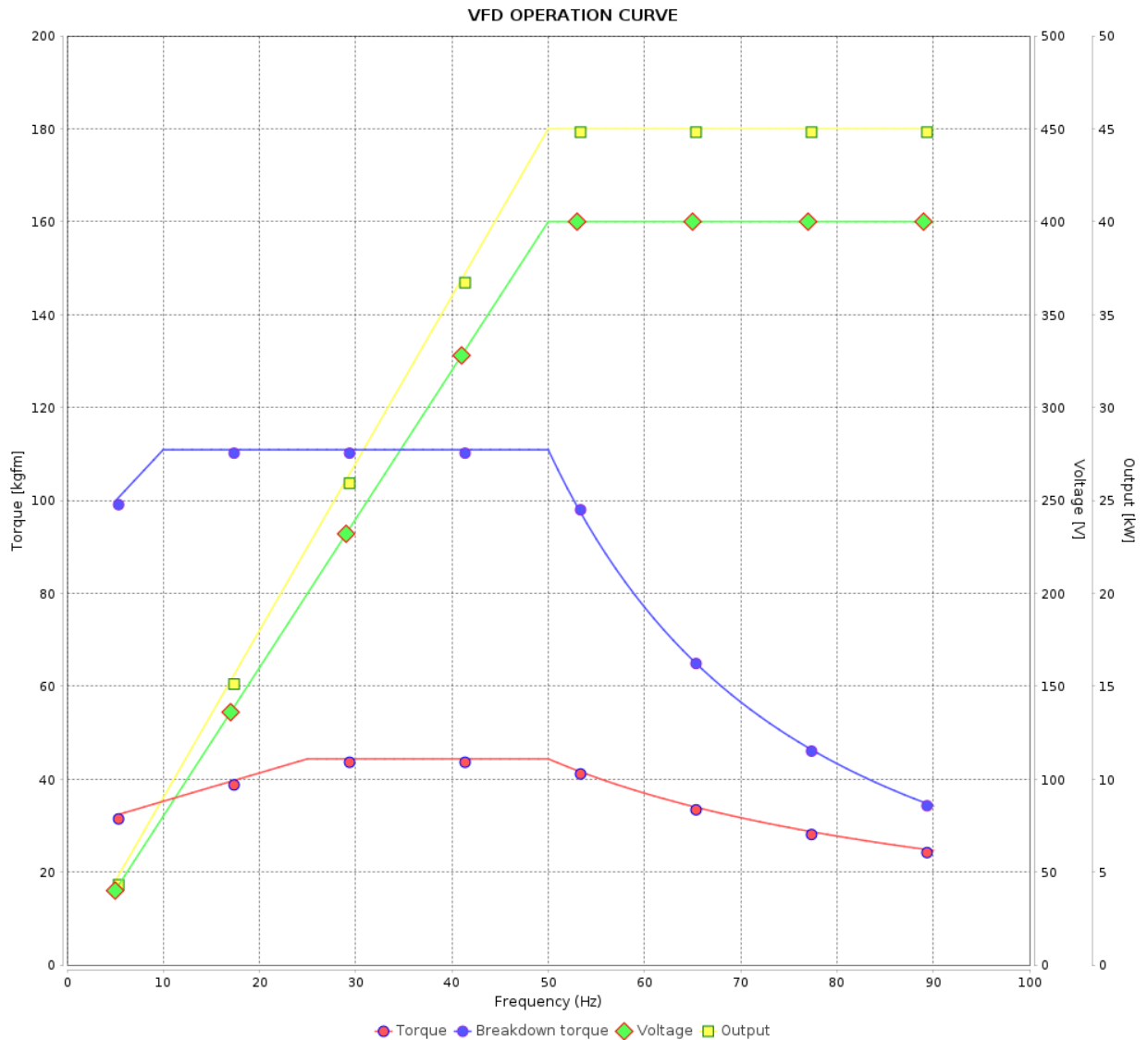
Three Phase Induction Motor - Squirrel Cage



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 Breakdown torque : 250 %  
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Moment of inertia (J) : 2.35 kgm<sup>2</sup>  
 Duty cycle : S1  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
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Rev.	Changes Summary	Performed	Checked	Date
Performed by		Page		Revision
Checked by		17 / 19		
Date		16/12/2022		

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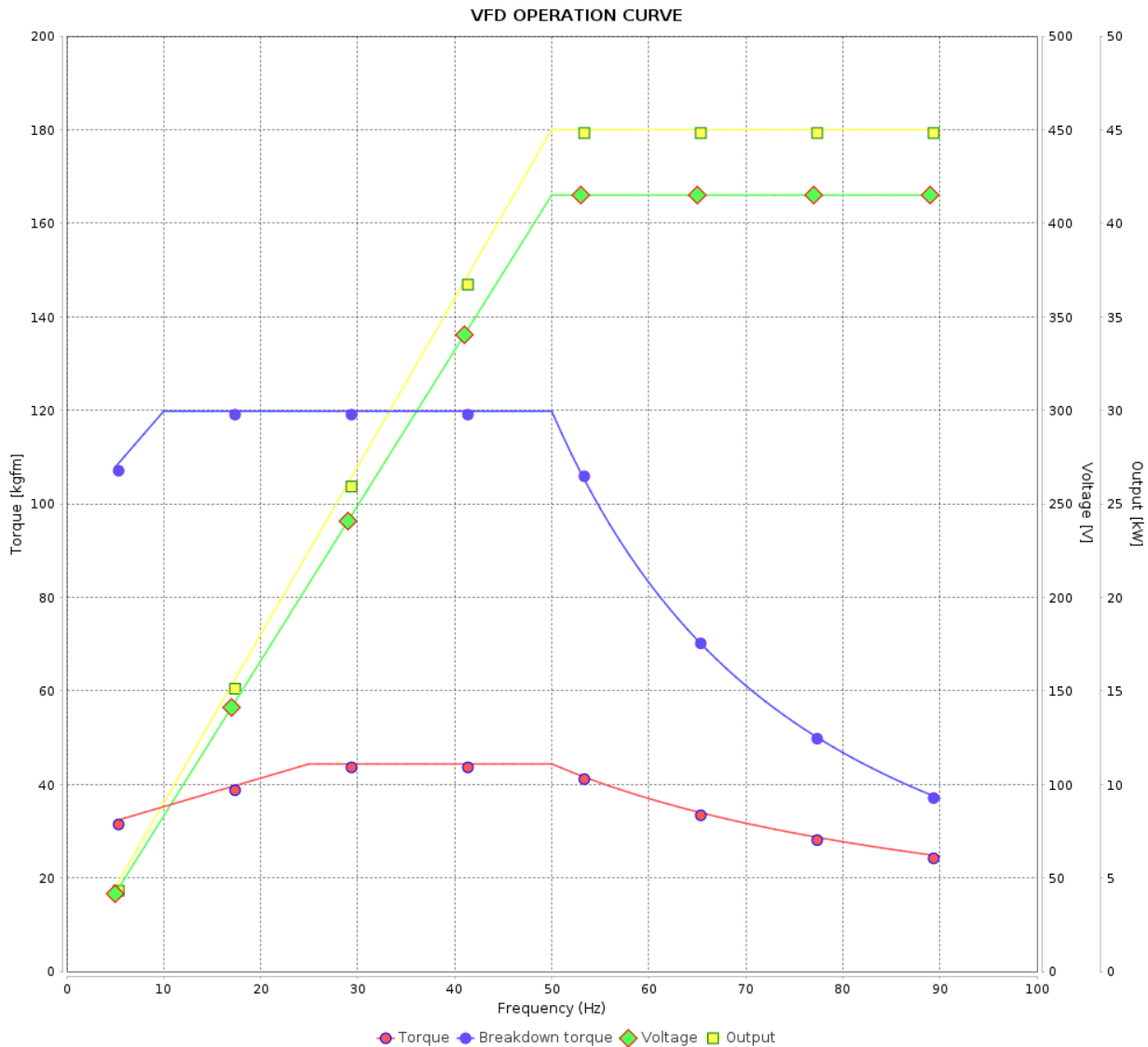
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LRC	: 6.9	Duty cycle	: S1
Rated torque	: 44.4 kgfm	Insulation class	: F
Locked rotor torque	: 229 %	Service factor	: 1.00
Breakdown torque	: 270 %	Temperature rise	: 80 K
Rated speed	: 988 rpm	Design	: N

Rev.	Changes Summary	Performed	Checked	Date
Performed by			Page 18 / 19	Revision
Checked by				
Date	16/12/2022			

# VFD OPERATION CURVE

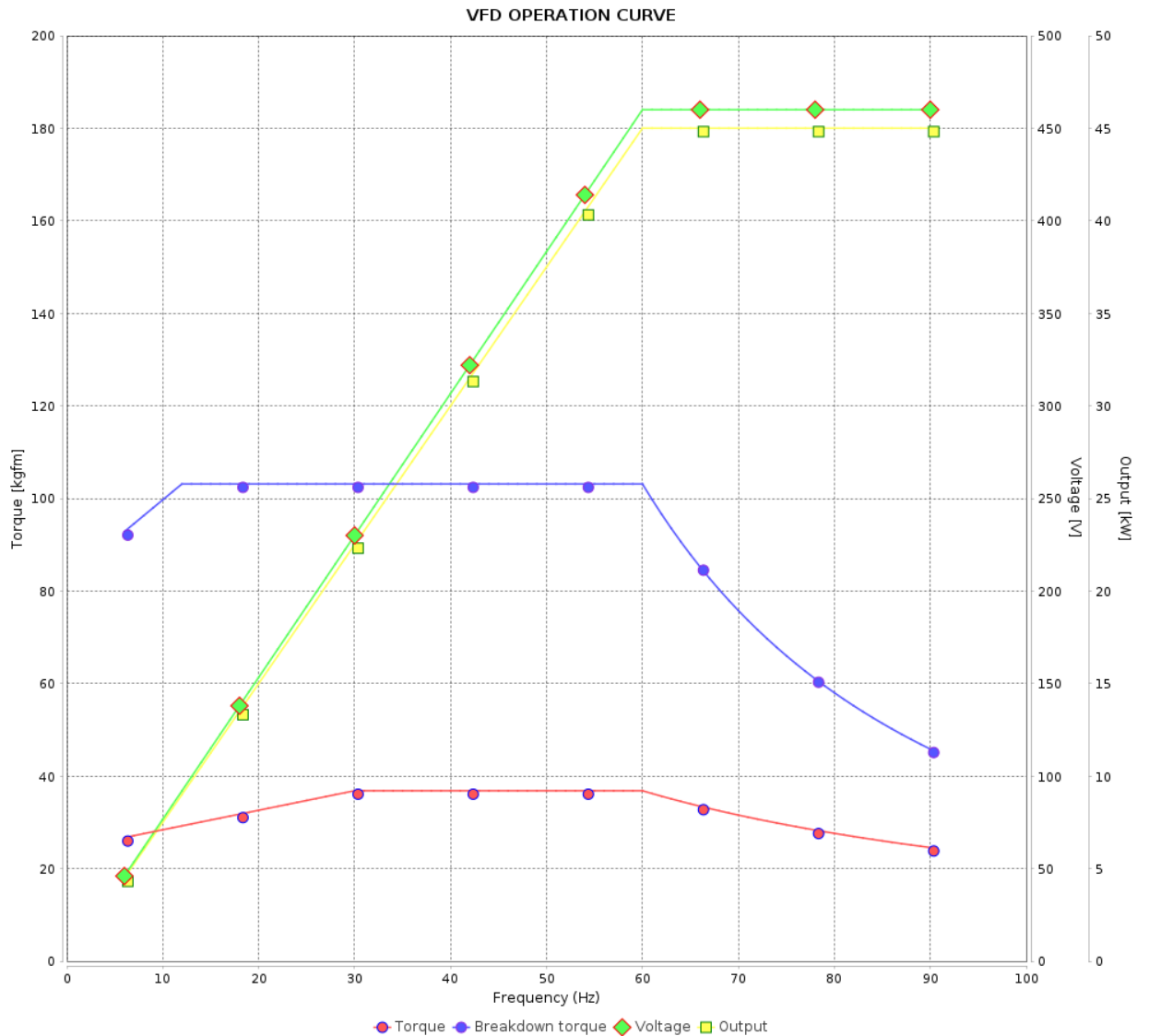
## Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 12862756



Performance : 460 V 60 Hz 6P

Rated current : 76.6 A  
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 Locked rotor torque : 250 %  
 Breakdown torque : 280 %  
 Rated speed : 1190 rpm

Moment of inertia (J) : 2.35 kgm<sup>2</sup>  
 Duty cycle : S1  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
 Design : N

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