

# DATA SHEET

## Three Phase Induction Motor - Squirrel Cage



Customer		: Astraprom d.o.o.			
Product line		: IE3 Three-Phase		Product code : 12882077	
Frame	: 112M	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>	: 45.2 kg		
Protection degree	: IP55	Moment of inertia (J)	: 0.0180 kgm <sup>2</sup>		
Design	: N				
Output [kW]	4	4	4	4	4
Poles	4	4	4	4	4
Frequency [Hz]	50	50	50	50	60
Rated voltage [V]	220/380	230/400	240/415	460	
Rated current [A]	14.6/8.47	14.5/8.34	14.4/8.35	7.48	
L. R. Amperes [A]	95.1/55.1	102/58.4	108/62.6	59.8	
LRC [A]	6.5	7.0	7.5	8.0	
No load current [A]	7.43/4.30	8.17/4.70	8.82/5.10	4.40	
Rated speed [RPM]	1445	1450	1455	1755	
Slip [%]	3.67	3.33	3.00	2.50	
Rated torque [kgfm]	2.70	2.69	2.68	2.22	
Locked rotor torque [%]	220	260	280	290	
Breakdown torque [%]	270	310	340	370	
Service factor	1.00	1.00	1.00	1.00	
Temperature rise	80 K	80 K	80 K	80 K	
Locked rotor time	27s (cold) 15s (hot)	27s (cold) 15s (hot)	27s (cold) 15s (hot)	27s (cold) 15s (hot)	
Noise level <sup>2</sup>	56.0 dB(A)	56.0 dB(A)	56.0 dB(A)	56.0 dB(A)	
Efficiency (%)	25%				
	50%	88.9	88.7	88.0	87.5
	75%	89.0	89.1	88.9	89.5
	100%	88.6	88.8	88.9	89.5
Power Factor	25%				
	50%	0.64	0.59	0.56	0.53
	75%	0.75	0.71	0.69	0.66
	100%	0.81	0.78	0.75	0.75
Losses at normative operating points (speed;torque), in percentage of rated output power					
Losses (%)	P1 (0,9;1,0)	12.6	12.3	12.2	11.5
	P2 (0,5;1,0)	11.8	11.6	11.5	10.8
	P3 (0,25;1,0)	12.1	11.8	11.7	11.0
	P4 (0,9;0,5)	5.6	5.5	5.5	5.1
	P5 (0,5;0,5)	4.5	4.4	4.4	4.1
	P6 (0,5;0,25)	3.0	2.9	2.9	2.7
	P7 (0,25;0,25)	2.4	2.3	2.3	2.2
Bearing type	: Drive end 6207 ZZ	Non drive end 6206 ZZ	Foundation loads		
Sealing	: V'Ring	V'Ring	Max. traction	: 150 kgf	
Lubrication interval	: -	-	Max. compression	: 195 kgf	
Lubricant amount	: -	-			
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.		
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## Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Notes

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## 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

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# TORQUE AND CURRENT VS SPEED CURVE

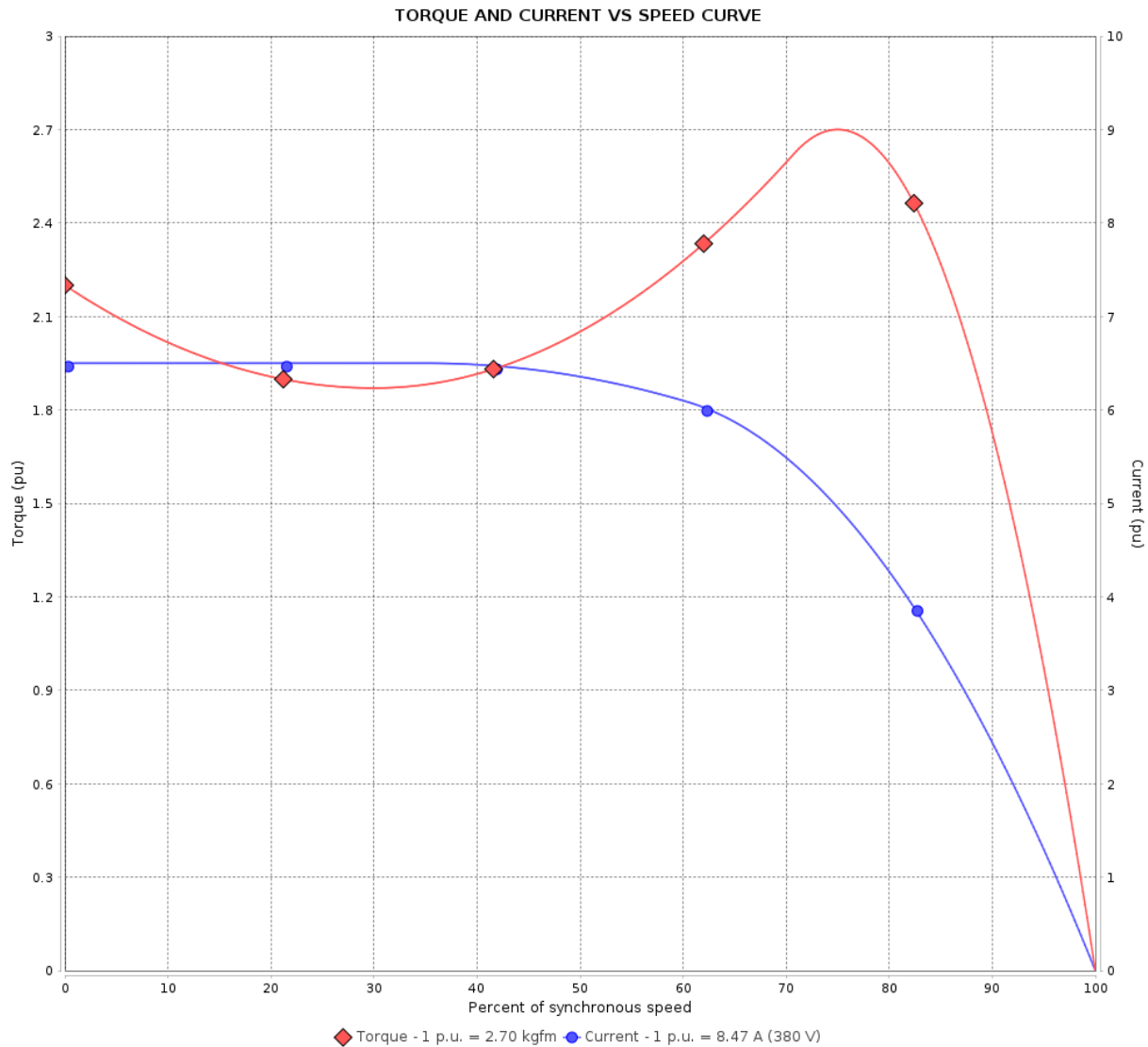
Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 12882077



Performance : 220/380 V 50 Hz 4P

Rated current	: 14.6/8.47 A	Moment of inertia (J)	: 0.0180 kgm <sup>2</sup>
LRC	: 6.5	Duty cycle	: S1
Rated torque	: 2.70 kgfm	Insulation class	: F
Locked rotor torque	: 220 %	Service factor	: 1.00
Breakdown torque	: 270 %	Temperature rise	: 80 K
Rated speed	: 1445 rpm	Design	: N

Locked rotor time : 27s (cold) 15s (hot)

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# TORQUE AND CURRENT VS SPEED CURVE

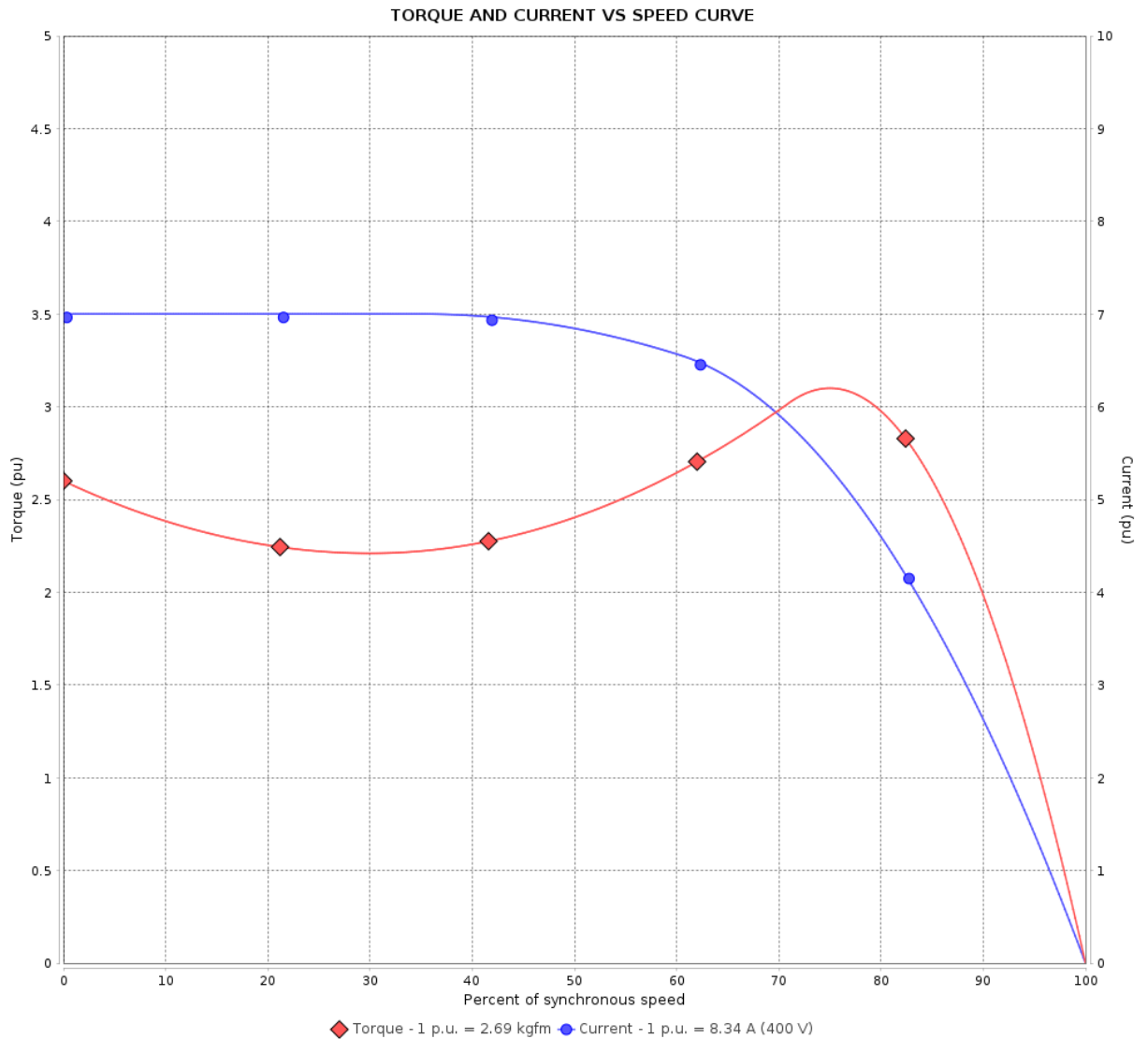


## Three Phase Induction Motor - Squirrel Cage

Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 12882077



Performance : 230/400 V 50 Hz 4P

Rated current	: 14.5/8.34 A	Moment of inertia (J)	: 0.0180 kgm <sup>2</sup>
LRC	: 7.0	Duty cycle	: S1
Rated torque	: 2.69 kgfm	Insulation class	: F
Locked rotor torque	: 260 %	Service factor	: 1.00
Breakdown torque	: 310 %	Temperature rise	: 80 K
Rated speed	: 1450 rpm	Design	: N

Locked rotor time : 27s (cold) 15s (hot)

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# TORQUE AND CURRENT VS SPEED CURVE

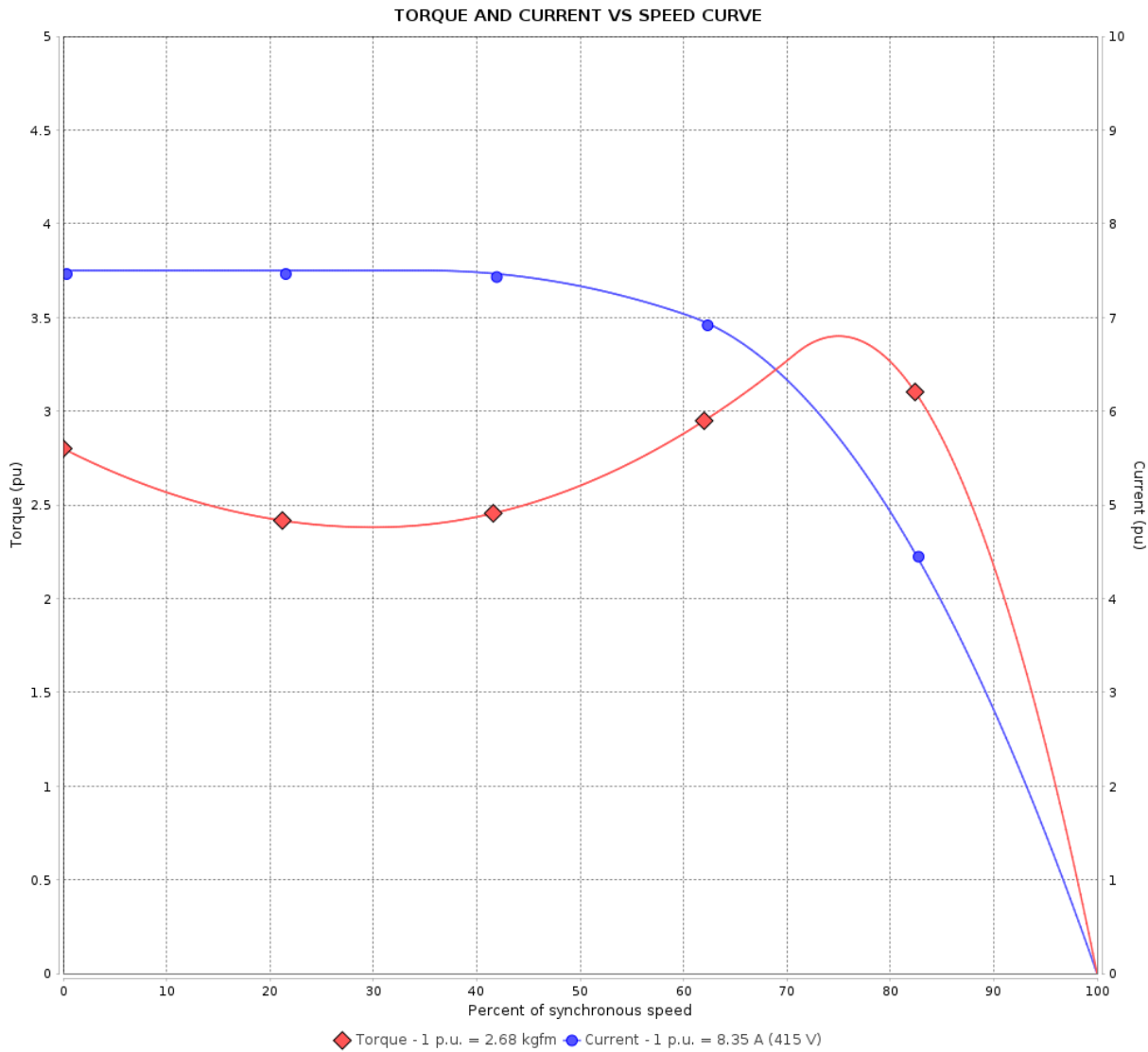
## Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 12882077



Performance : 240/415 V 50 Hz 4P

Rated current	: 14.4/8.35 A	Moment of inertia (J)	: 0.0180 kgm <sup>2</sup>
LRC	: 7.5	Duty cycle	: S1
Rated torque	: 2.68 kgfm	Insulation class	: F
Locked rotor torque	: 280 %	Service factor	: 1.00
Breakdown torque	: 340 %	Temperature rise	: 80 K
Rated speed	: 1455 rpm	Design	: N

Locked rotor time : 27s (cold) 15s (hot)

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# TORQUE AND CURRENT VS SPEED CURVE

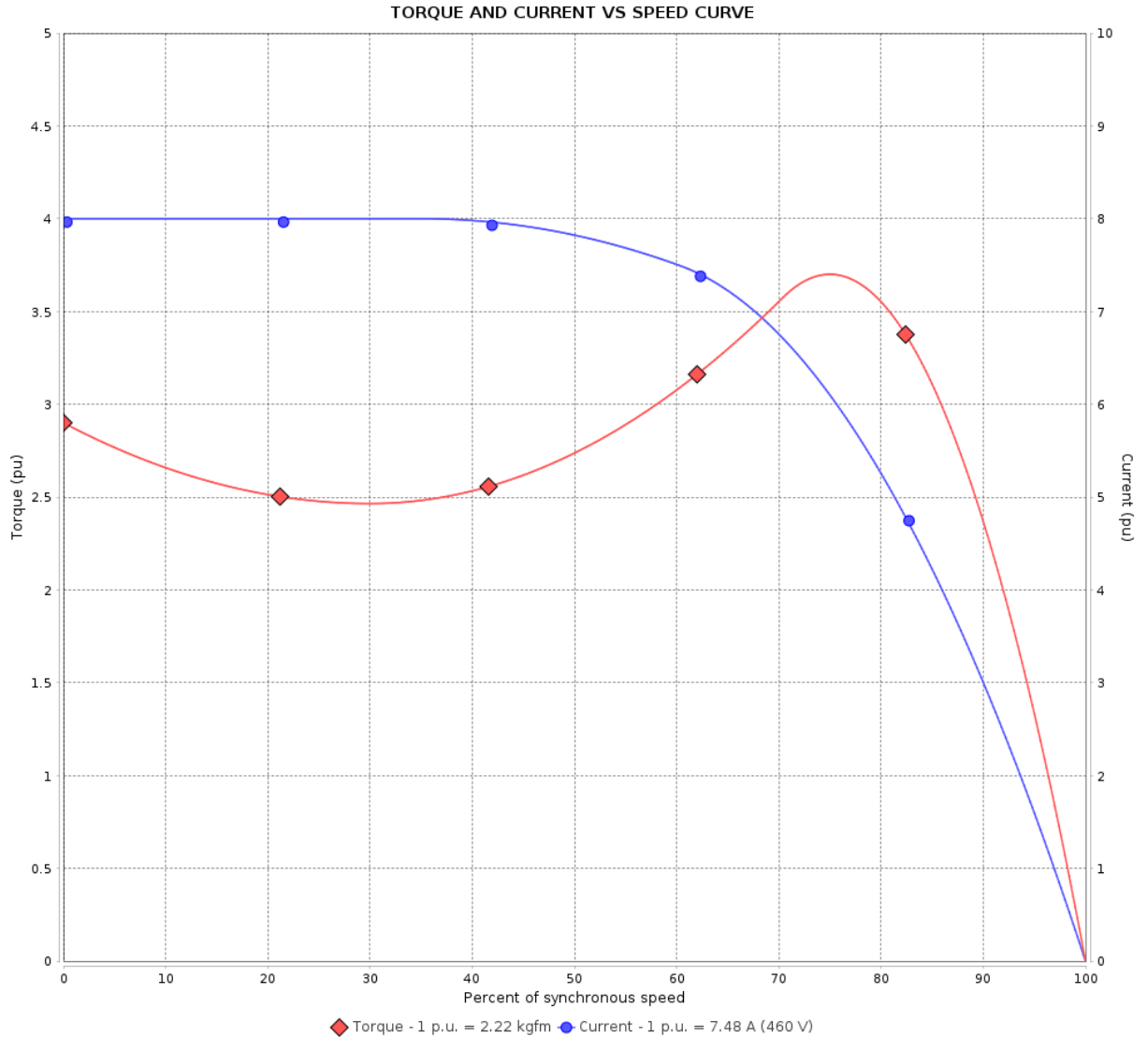


## Three Phase Induction Motor - Squirrel Cage

Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 12882077



Performance : 460 V 60 Hz 4P

Rated current	: 7.48 A	Moment of inertia (J)	: 0.0180 kgm <sup>2</sup>
LRC	: 8.0	Duty cycle	: S1
Rated torque	: 2.22 kgfm	Insulation class	: F
Locked rotor torque	: 290 %	Service factor	: 1.00
Breakdown torque	: 370 %	Temperature rise	: 80 K
Rated speed	: 1755 rpm	Design	: N

Locked rotor time : 27s (cold) 15s (hot)

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# LOAD PERFORMANCE CURVE

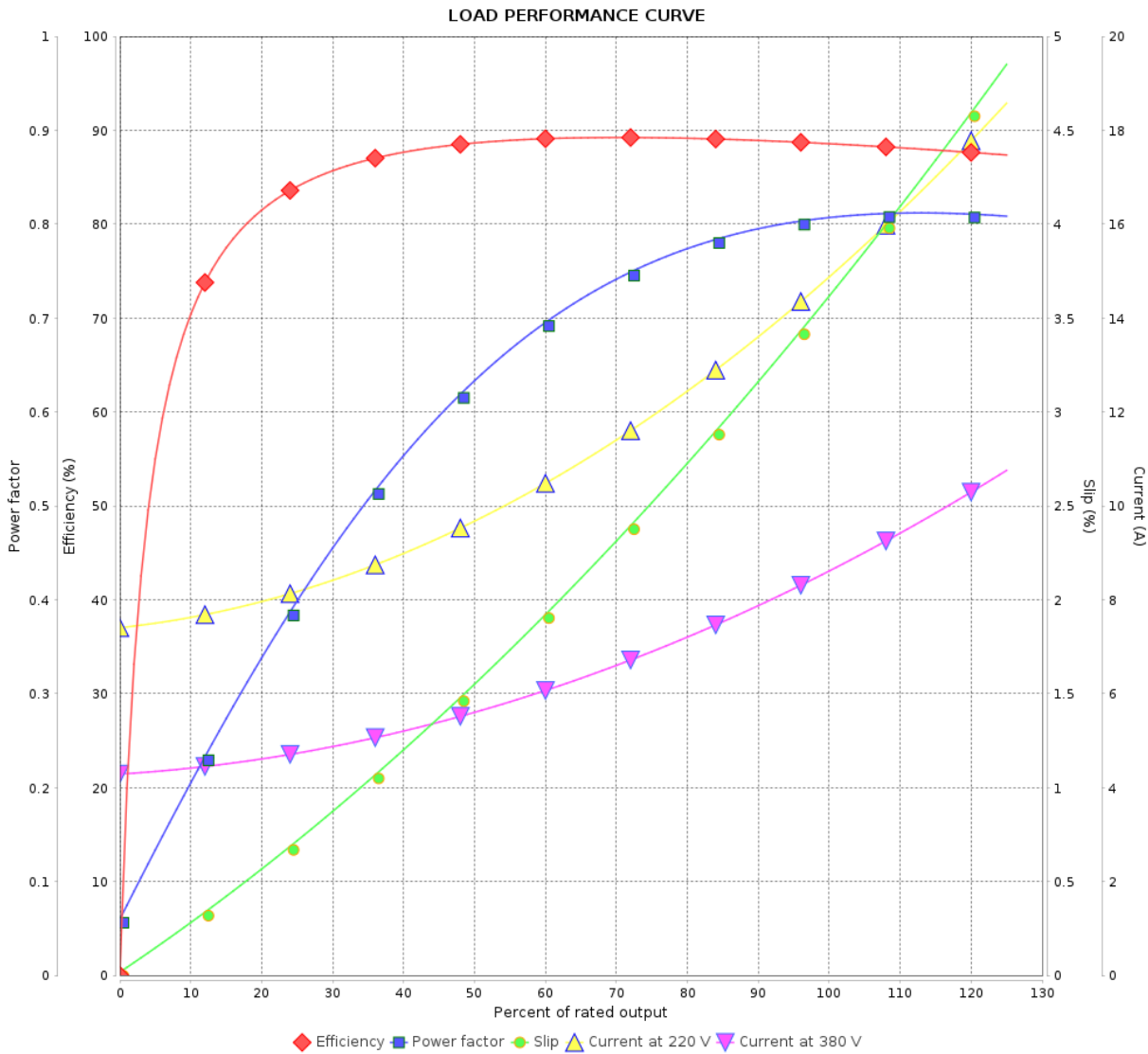
## Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 12882077



Performance : 220/380 V 50 Hz 4P

Rated current : 14.6/8.47 A  
 LRC : 6.5  
 Rated torque : 2.70 kgfm  
 Locked rotor torque : 220 %  
 Breakdown torque : 270 %  
 Rated speed : 1445 rpm

Moment of inertia (J) : 0.0180 kgm<sup>2</sup>  
 Duty cycle : S1  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
 Design : N

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# LOAD PERFORMANCE CURVE

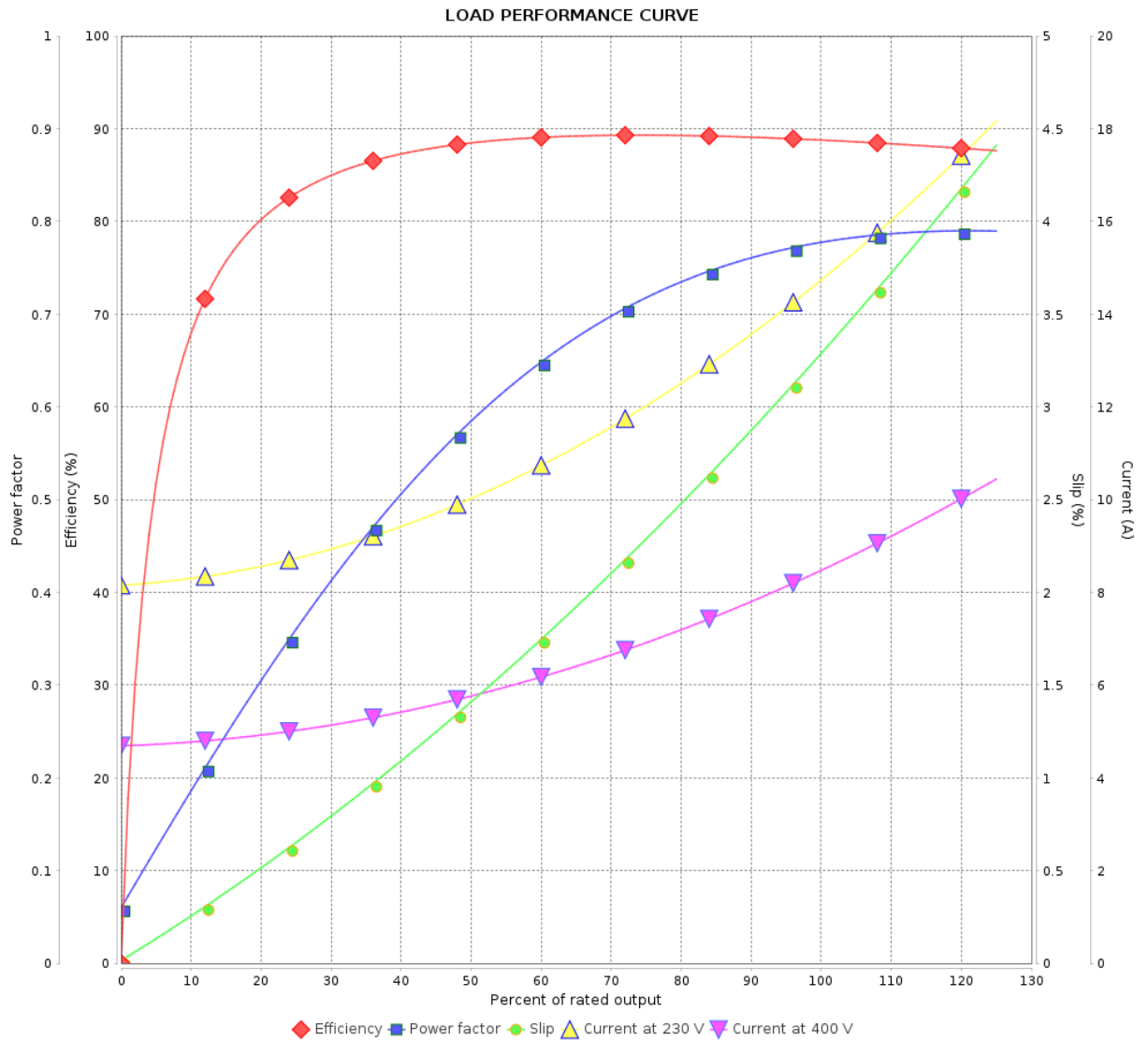
## Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 12882077



Performance : 230/400 V 50 Hz 4P

Rated current : 14.5/8.34 A  
 LRC : 7.0  
 Rated torque : 2.69 kgfm  
 Locked rotor torque : 260 %  
 Breakdown torque : 310 %  
 Rated speed : 1450 rpm

Moment of inertia (J) : 0.0180 kgm<sup>2</sup>  
 Duty cycle : S1  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
 Design : N

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# LOAD PERFORMANCE CURVE

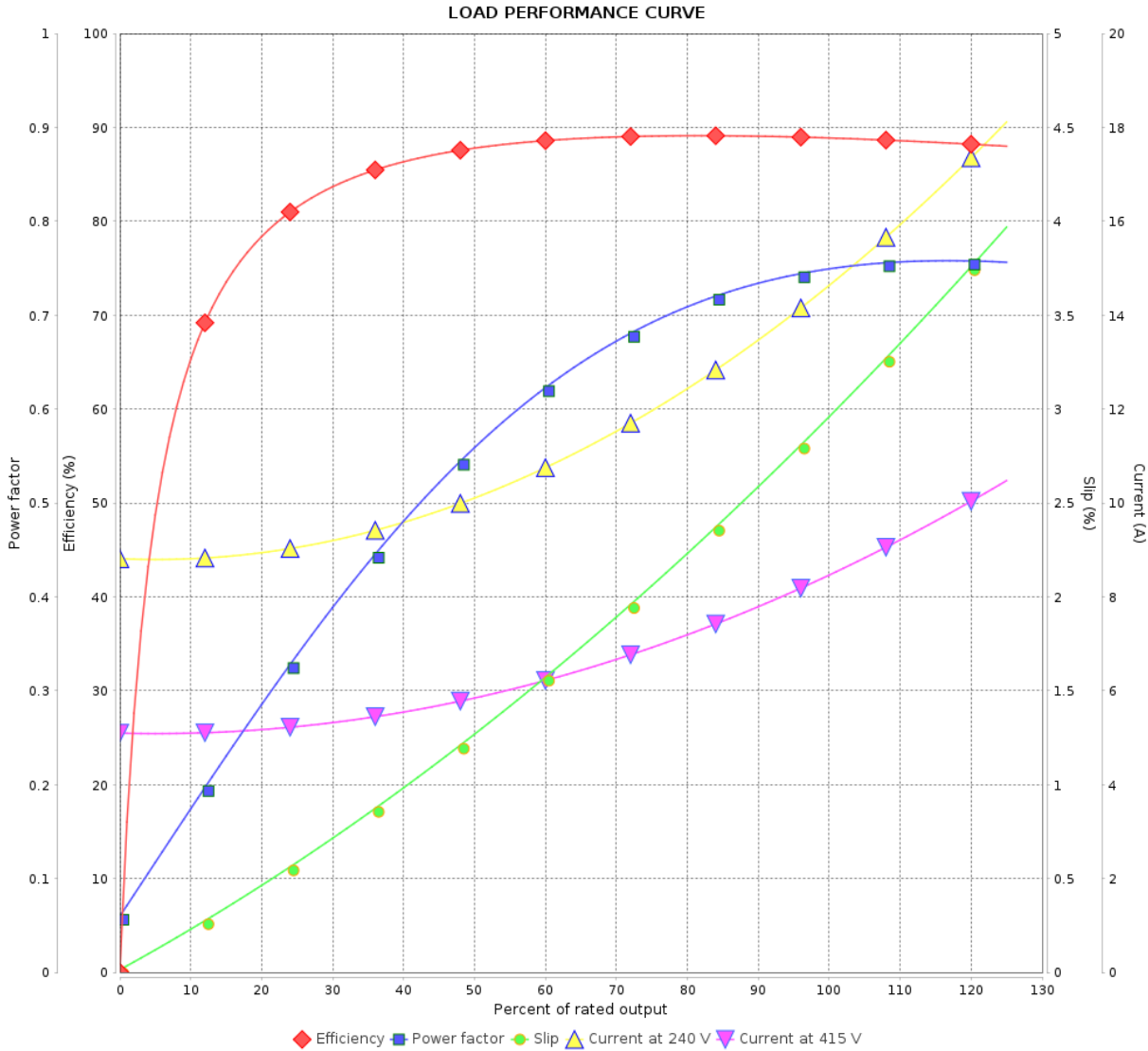
## Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 12882077



Performance : 240/415 V 50 Hz 4P

Rated current : 14.4/8.35 A  
 LRC : 7.5  
 Rated torque : 2.68 kgfm  
 Locked rotor torque : 280 %  
 Breakdown torque : 340 %  
 Rated speed : 1455 rpm

Moment of inertia (J) : 0.0180 kgm<sup>2</sup>  
 Duty cycle : S1  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
 Design : N

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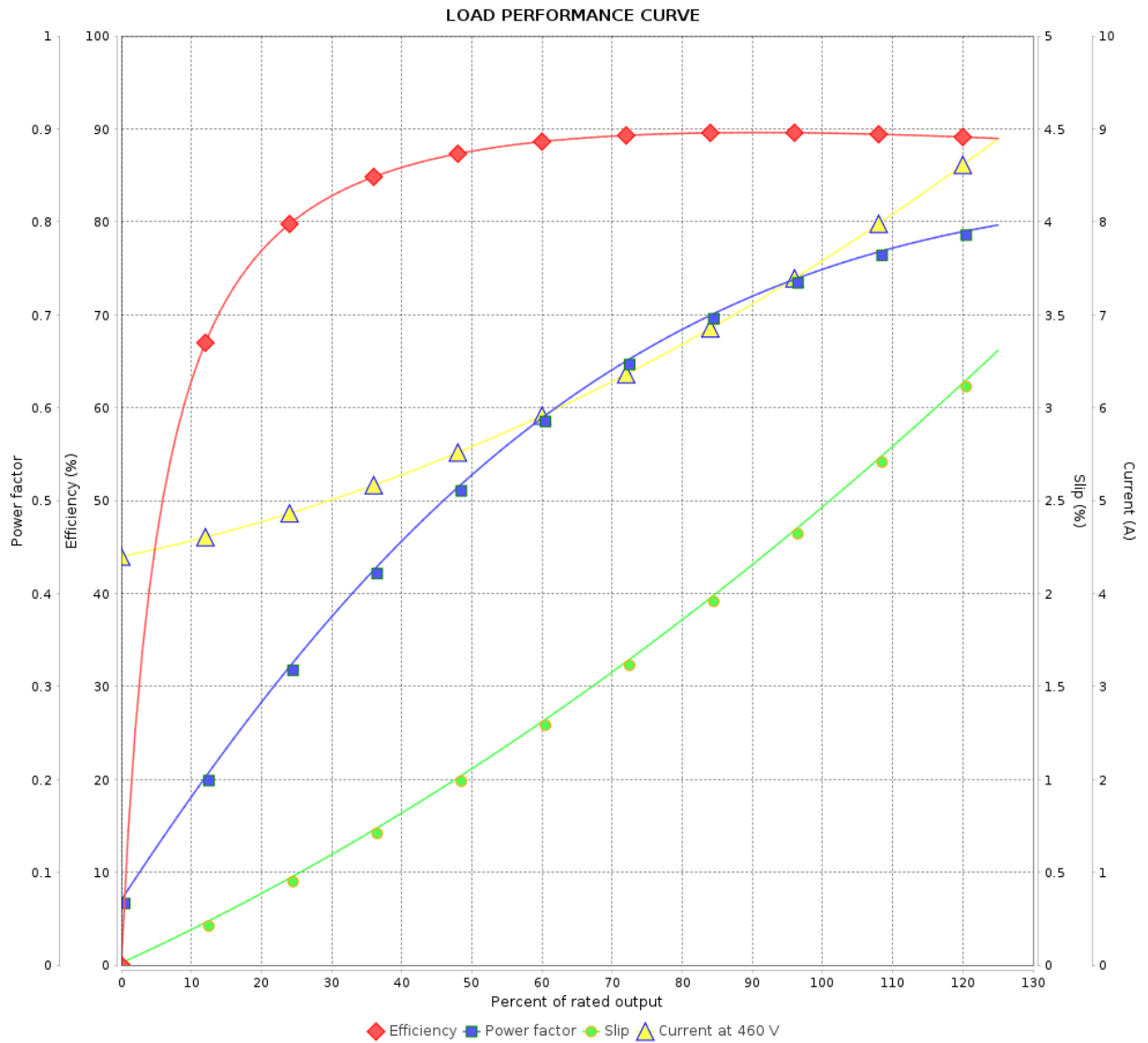
## Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 12882077



Performance : 460 V 60 Hz 4P

Rated current : 7.48 A  
 LRC : 8.0  
 Rated torque : 2.22 kgfm  
 Locked rotor torque : 290 %  
 Breakdown torque : 370 %  
 Rated speed : 1755 rpm

Moment of inertia (J) : 0.0180 kgm<sup>2</sup>  
 Duty cycle : S1  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
 Design : N

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# THERMAL LIMIT CURVE

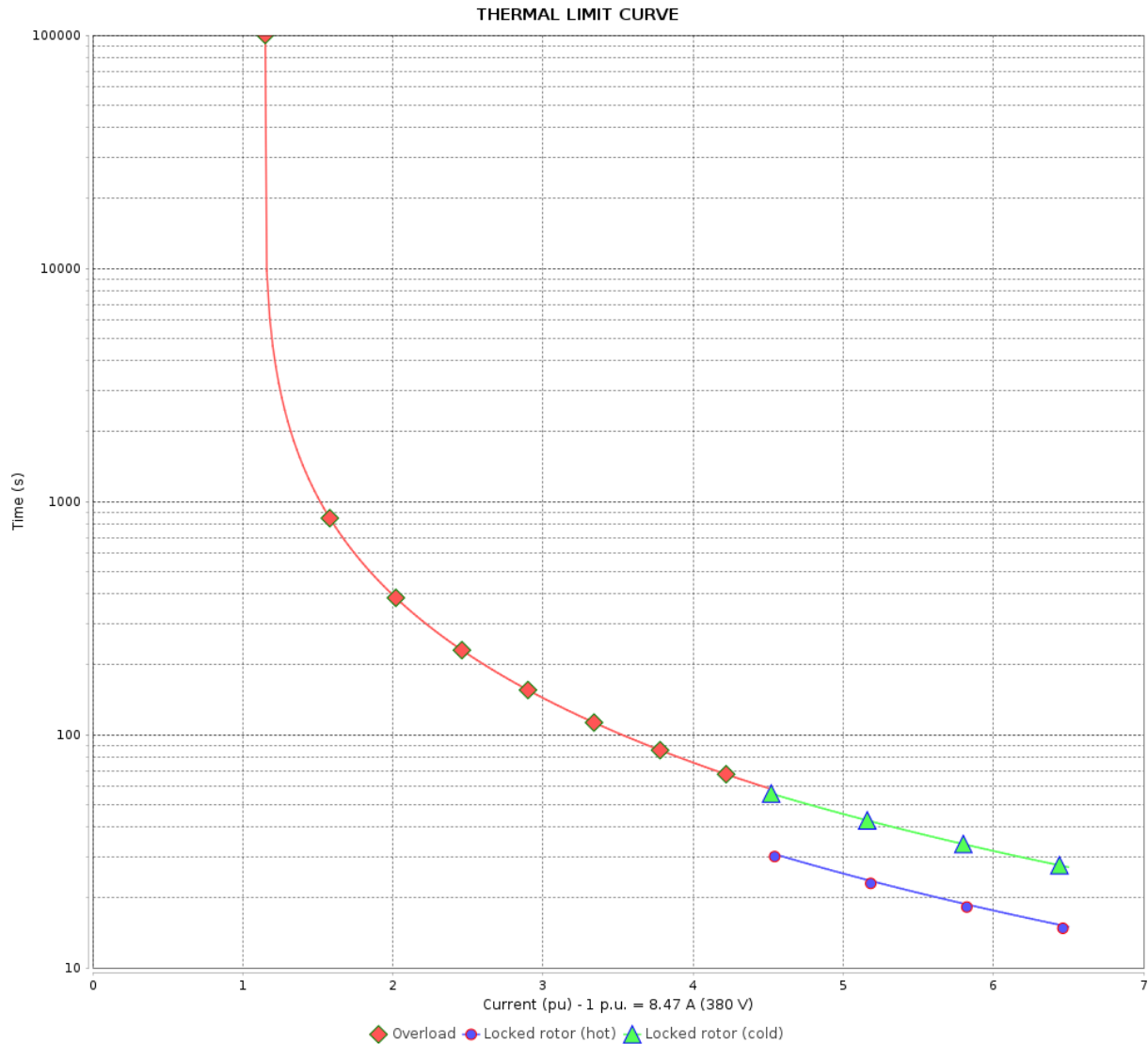
## Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 12882077



Performance : 220/380 V 50 Hz 4P

Rated current : 14.6/8.47 A  
 LRC : 6.5  
 Rated torque : 2.70 kgfm  
 Locked rotor torque : 220 %  
 Breakdown torque : 270 %  
 Rated speed : 1445 rpm

Moment of inertia (J) : 0.0180 kgm<sup>2</sup>  
 Duty cycle : S1  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
 Design : N

Heating constant

Cooling constant

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# THERMAL LIMIT CURVE

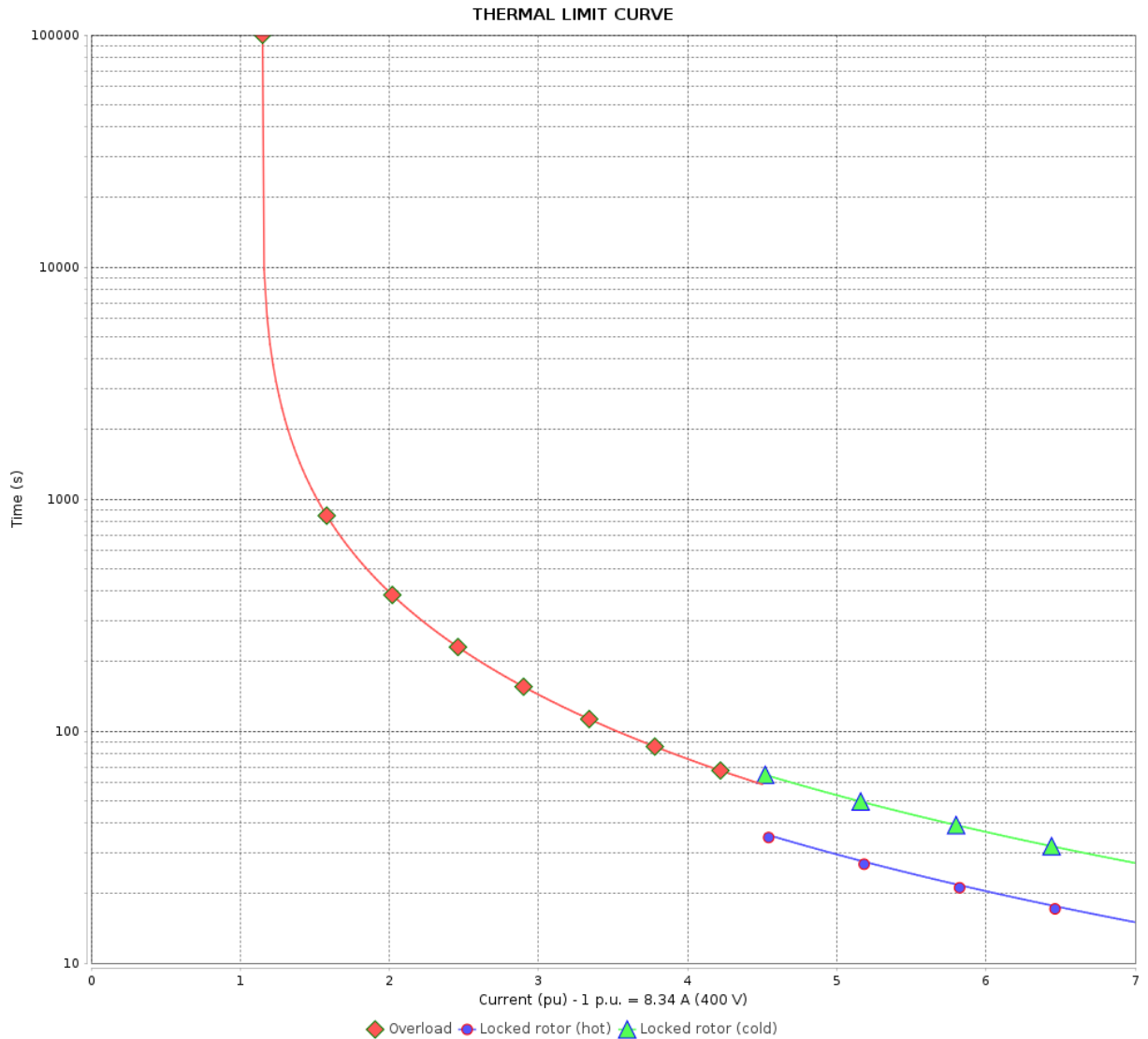
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Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 12882077



Performance : 230/400 V 50 Hz 4P

Rated current : 14.5/8.34 A  
 LRC : 7.0  
 Rated torque : 2.69 kgfm  
 Locked rotor torque : 260 %  
 Breakdown torque : 310 %  
 Rated speed : 1450 rpm

Moment of inertia (J) : 0.0180 kgm<sup>2</sup>  
 Duty cycle : S1  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
 Design : N

Heating constant  
 Cooling constant

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# THERMAL LIMIT CURVE

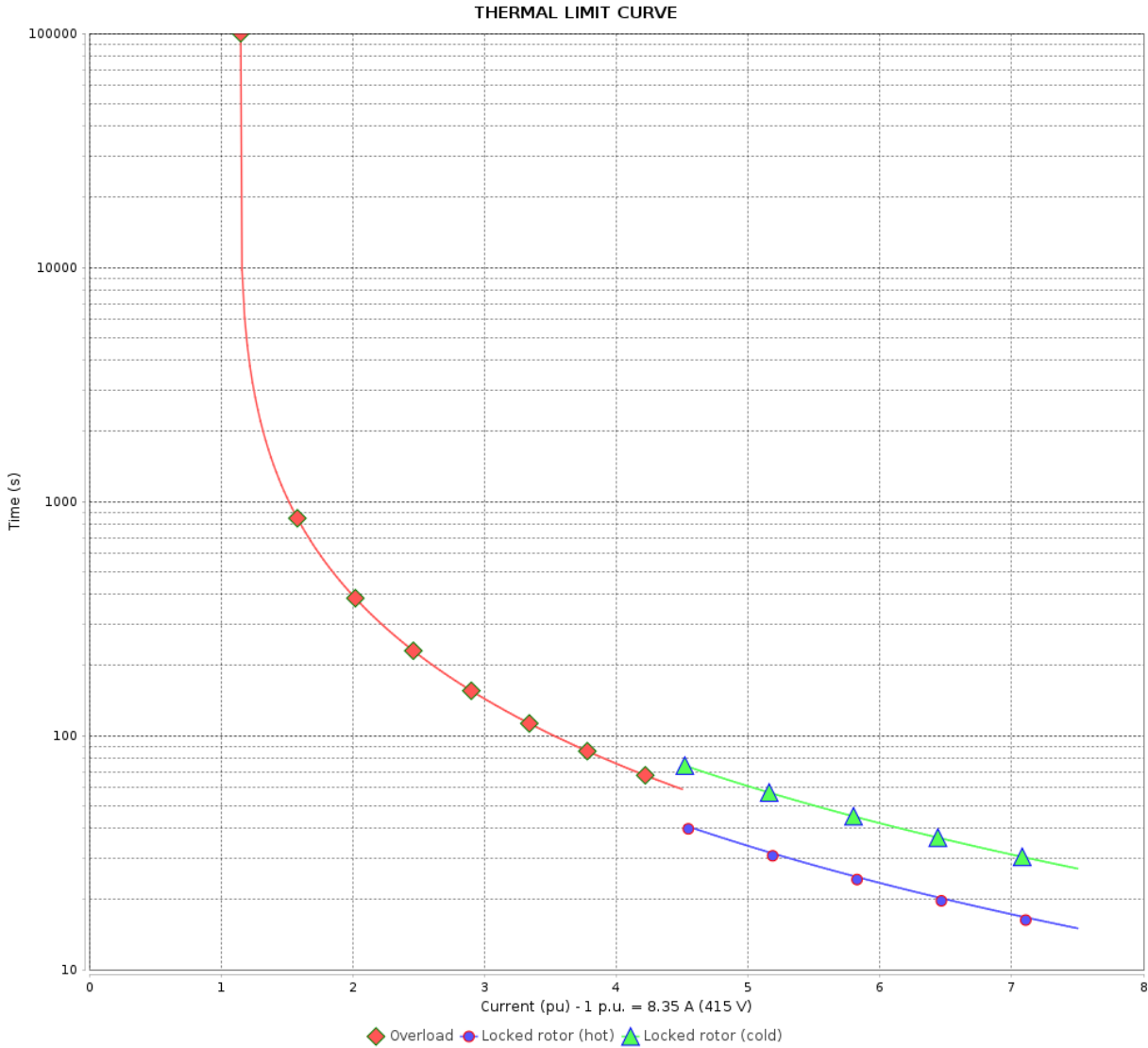
## Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 12882077



Performance : 240/415 V 50 Hz 4P

Rated current : 14.4/8.35 A  
 LRC : 7.5  
 Rated torque : 2.68 kgfm  
 Locked rotor torque : 280 %  
 Breakdown torque : 340 %  
 Rated speed : 1455 rpm

Moment of inertia (J) : 0.0180 kgm<sup>2</sup>  
 Duty cycle : S1  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
 Design : N

Heating constant

Cooling constant

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# THERMAL LIMIT CURVE

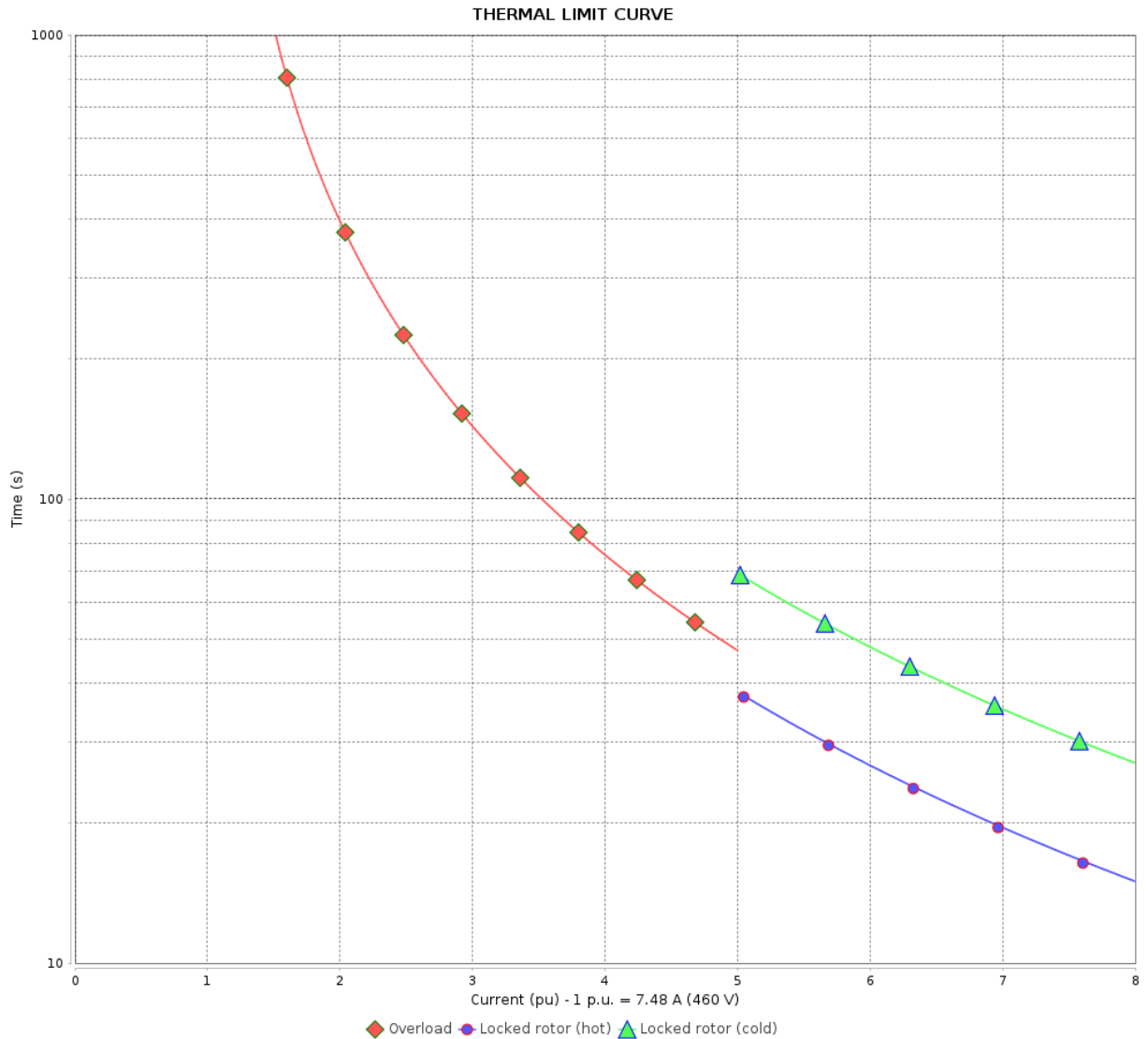
## Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 12882077



Performance : 460 V 60 Hz 4P

Rated current : 7.48 A  
 LRC : 8.0  
 Rated torque : 2.22 kgfm  
 Locked rotor torque : 290 %  
 Breakdown torque : 370 %  
 Rated speed : 1755 rpm

Moment of inertia (J) : 0.0180 kgm<sup>2</sup>  
 Duty cycle : S1  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
 Design : N

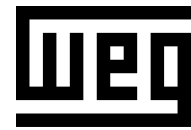
Heating constant

Cooling constant

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# VFD OPERATION CURVE

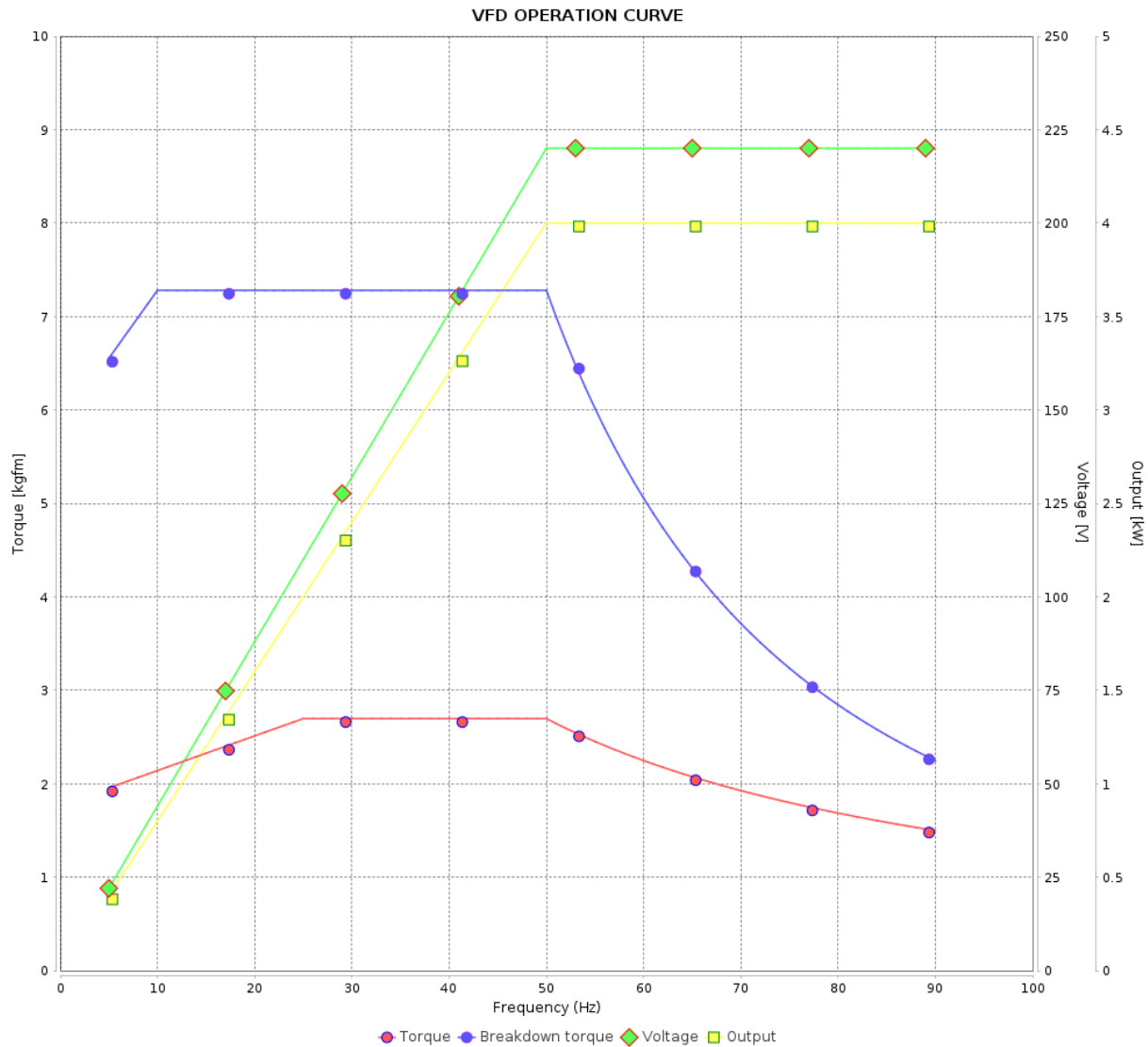
Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

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Performance : 220/380 V 50 Hz 4P

Rated current : 14.6/8.47 A  
 LRC : 6.5  
 Rated torque : 2.70 kgfm  
 Locked rotor torque : 220 %  
 Breakdown torque : 270 %  
 Rated speed : 1445 rpm

Moment of inertia (J) : 0.0180 kgm<sup>2</sup>  
 Duty cycle : S1  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
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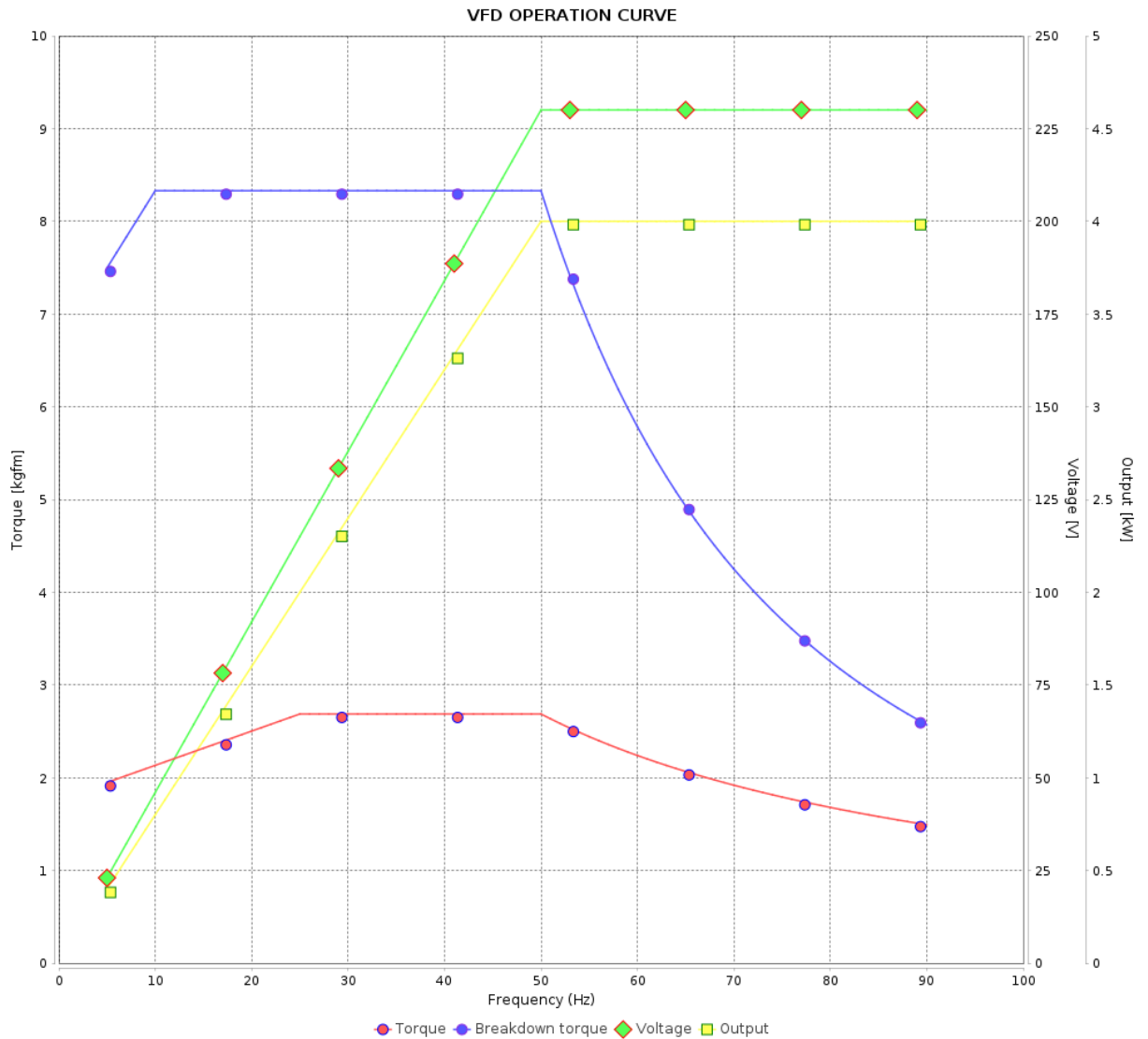
Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 12882077



Performance : 230/400 V 50 Hz 4P

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 LRC : 7.0  
 Rated torque : 2.69 kgfm  
 Locked rotor torque : 260 %  
 Breakdown torque : 310 %  
 Rated speed : 1450 rpm

Moment of inertia (J) : 0.0180 kgm<sup>2</sup>  
 Duty cycle : S1  
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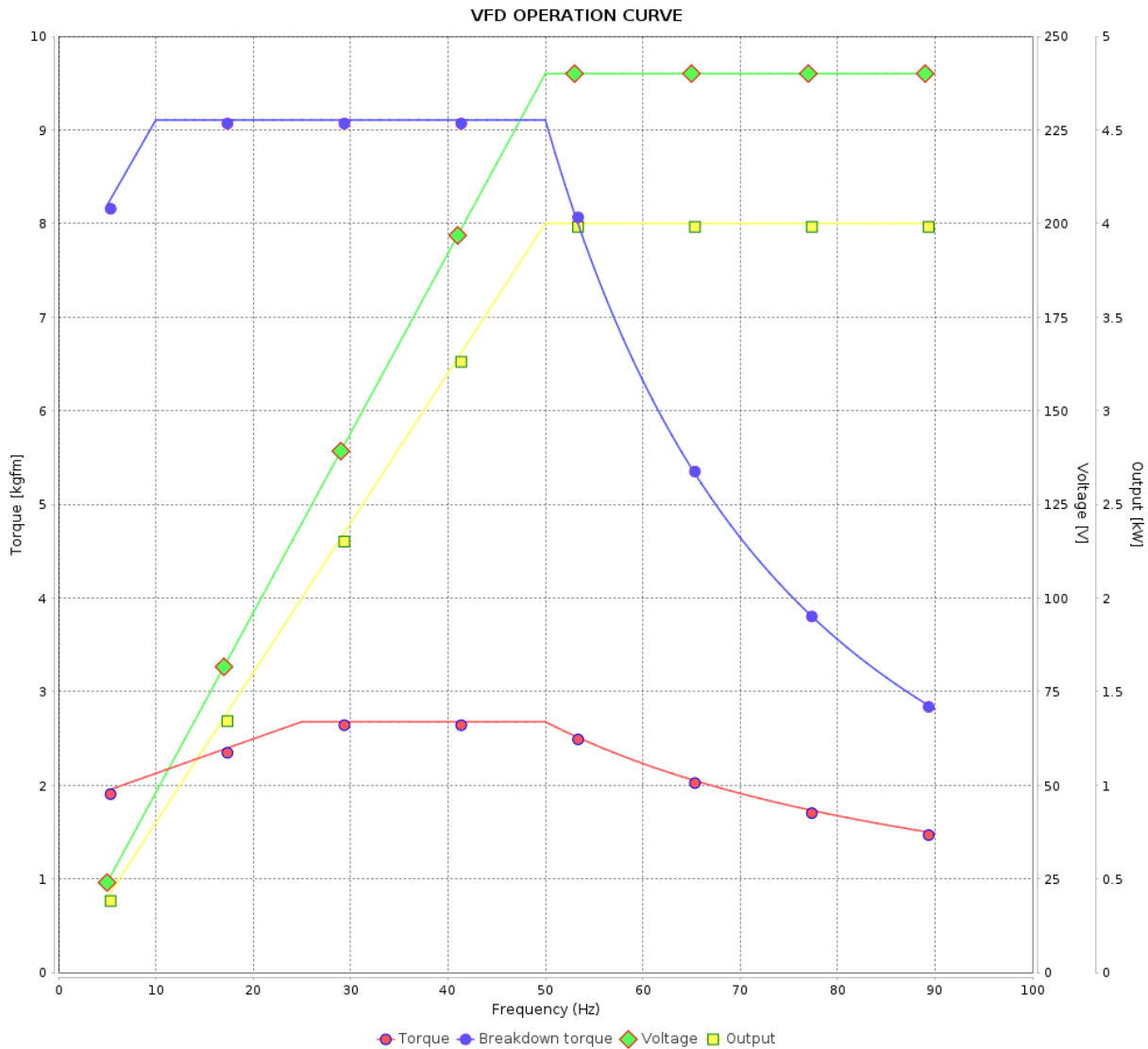
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Customer : Astraprom d.o.o.

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Performance : 240/415 V 50 Hz 4P

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 LRC : 7.5  
 Rated torque : 2.68 kgfm  
 Locked rotor torque : 280 %  
 Breakdown torque : 340 %  
 Rated speed : 1455 rpm

Moment of inertia (J) : 0.0180 kgm<sup>2</sup>  
 Duty cycle : S1  
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 Temperature rise : 80 K  
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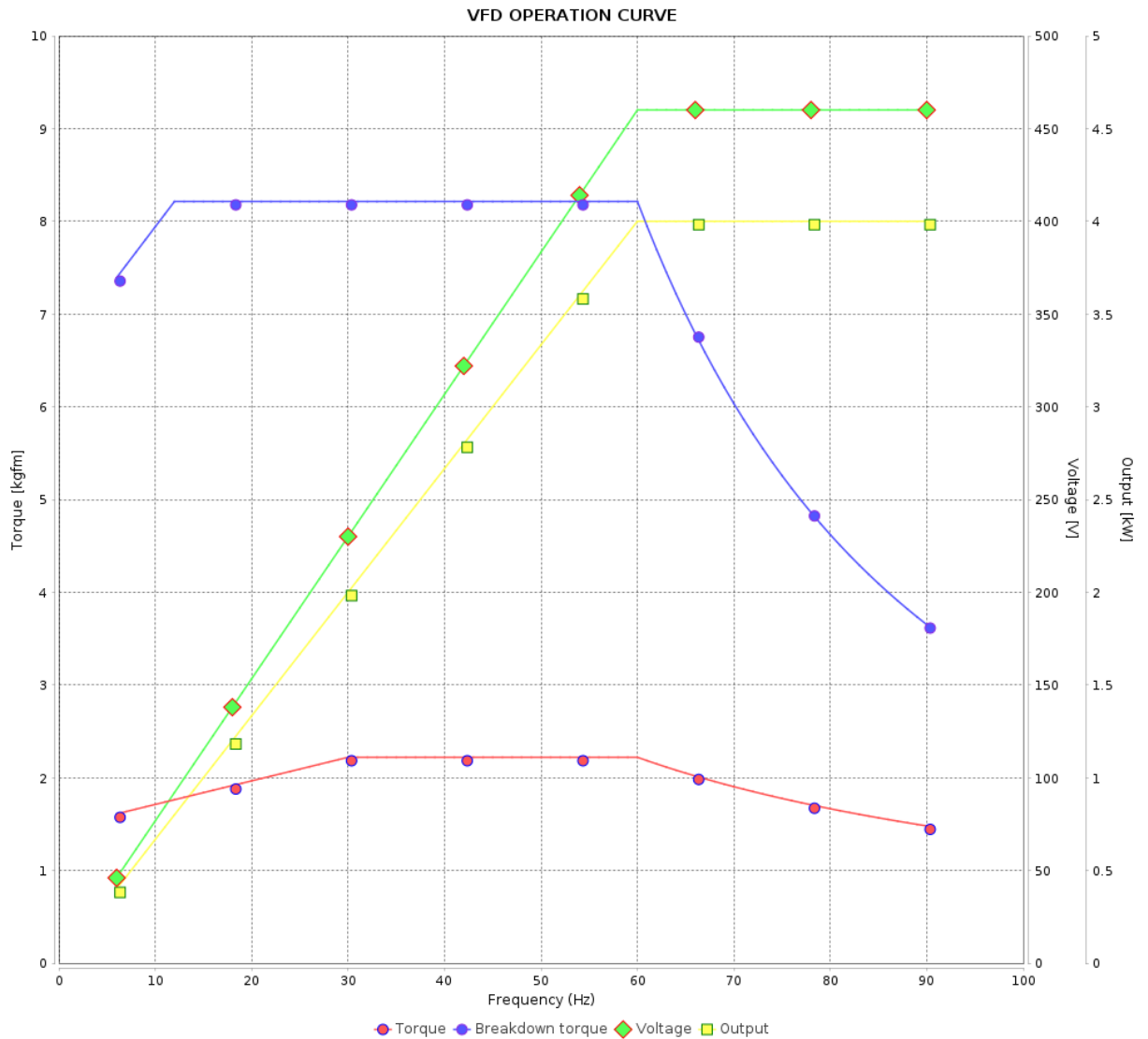
## Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

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 Duty cycle : S1  
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