

# DATA SHEET

## Three Phase Induction Motor - Squirrel Cage



Customer		: Astraprom d.o.o.			
Product line		: IE3 Three-Phase		Product code : 13094847	
Frame	: 90S/L	Cooling method	: IC411 - TEFC		
Insulation class	: F	Mounting	: B5T		
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>	: 19.4 kg		
Protection degree	: IP55	Moment of inertia (J)	: 0.0020 kgm <sup>2</sup>		
Design	: N				
Output [kW]	1.5	1.5	1.5	1.5	1.5
Poles	2	2	2	2	2
Frequency [Hz]	50	50	50	50	60
Rated voltage [V]	220/380	230/400	240/415	460	
Rated current [A]	5.56/3.22	5.46/3.14	5.43/3.14	2.72	
L. R. Amperes [A]	44.5/25.8	43.7/25.1	43.4/25.1	23.9	
LRC [A]	8.0	8.0	8.0	8.8	
No load current [A]	2.50/1.45	2.87/1.65	3.20/1.85	1.53	
Rated speed [RPM]	2885	2900	2910	3510	
Slip [%]	3.83	3.33	3.00	2.50	
Rated torque [Nm]	4.97	4.94	4.93	4.08	
Locked rotor torque [%]	220	260	290	340	
Breakdown torque [%]	310	350	380	459	
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)	28s (cold) 16s (hot)	
Noise level <sup>2</sup>	62.0 dB(A)	62.0 dB(A)	62.0 dB(A)	68.0 dB(A)	
Efficiency (%)	25%				
	50%	83.7	83.0	82.2	80.0
	75%	84.2	84.2	84.2	82.5
	100%	84.2	84.2	84.2	85.5
Power Factor	25%				
	50%	0.69	0.64	0.59	0.64
	75%	0.79	0.75	0.71	0.74
	100%	0.84	0.82	0.79	0.81
Losses at normative operating points (speed;torque), in percentage of rated output power					
Losses (%)	P1 (0,9;1,0)	18.1	18.1	18.1	16.3
	P2 (0,5;1,0)	15.4	15.4	15.4	14.0
	P3 (0,25;1,0)	14.4	14.4	14.4	13.0
	P4 (0,9;0,5)	9.3	9.3	9.3	8.4
	P5 (0,5;0,5)	6.3	6.3	6.3	5.7
	P6 (0,5;0,25)	4.4	4.4	4.4	3.9
	P7 (0,25;0,25)	3.1	3.1	3.1	2.8
Bearing type	: Drive end 6205 ZZ	Non drive end 6204 ZZ	Foundation loads		
Sealing	: Oil Seal	Oil Seal	Max. traction	: 441 N	
Lubrication interval	: -	-	Max. compression	: 631 N	
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.

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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

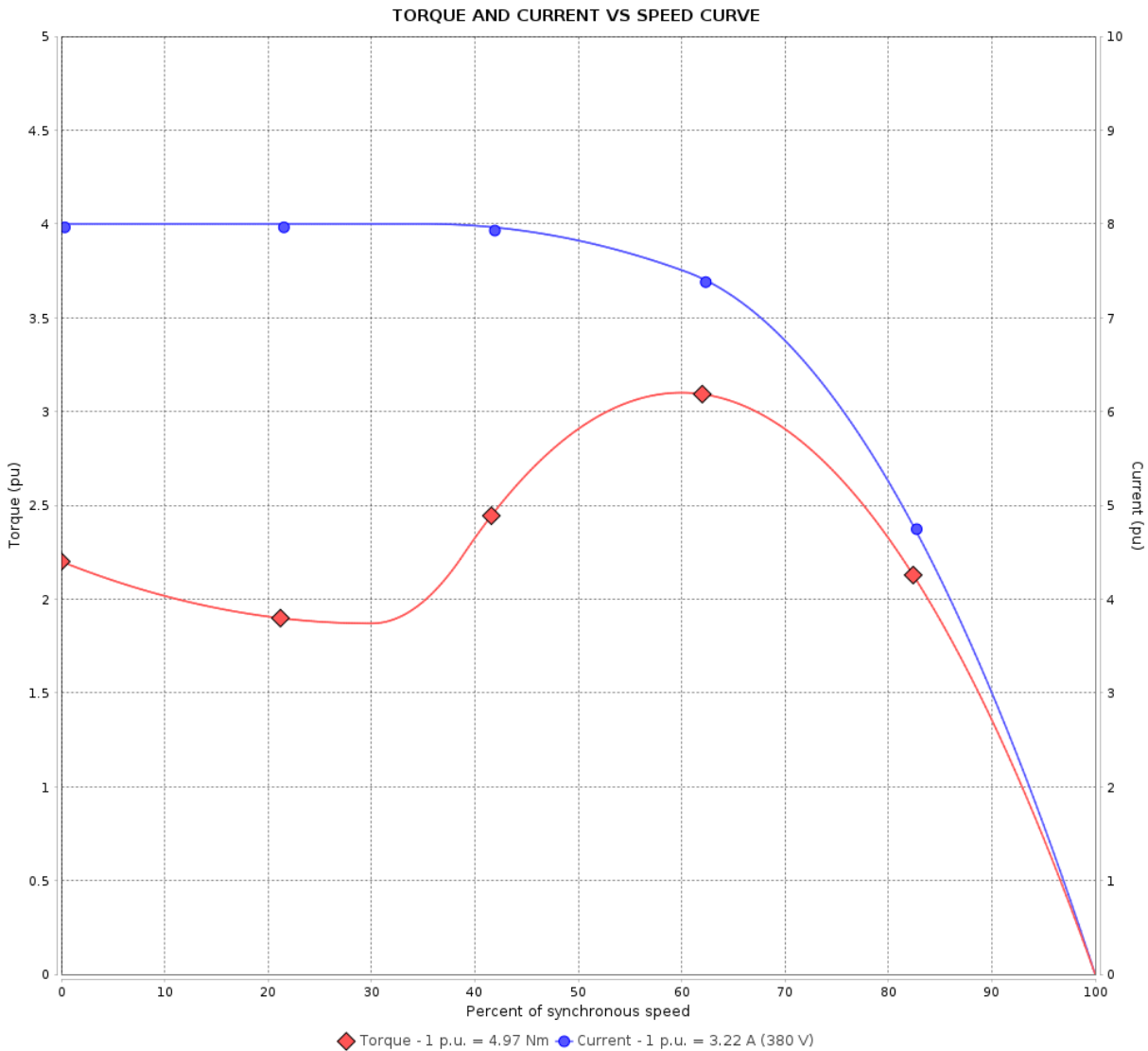
Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 13094847



Performance : 220/380 V 50 Hz 2P

Rated current	: 5.56/3.22 A	Moment of inertia (J)	: 0.0020 kgm <sup>2</sup>
LRC	: 8.0	Duty cycle	: S1
Rated torque	: 4.97 Nm	Insulation class	: F
Locked rotor torque	: 220 %	Service factor	: 1.00
Breakdown torque	: 310 %	Temperature rise	: 80 K
Rated speed	: 2885 rpm	Design	: N

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

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# TORQUE AND CURRENT VS SPEED CURVE

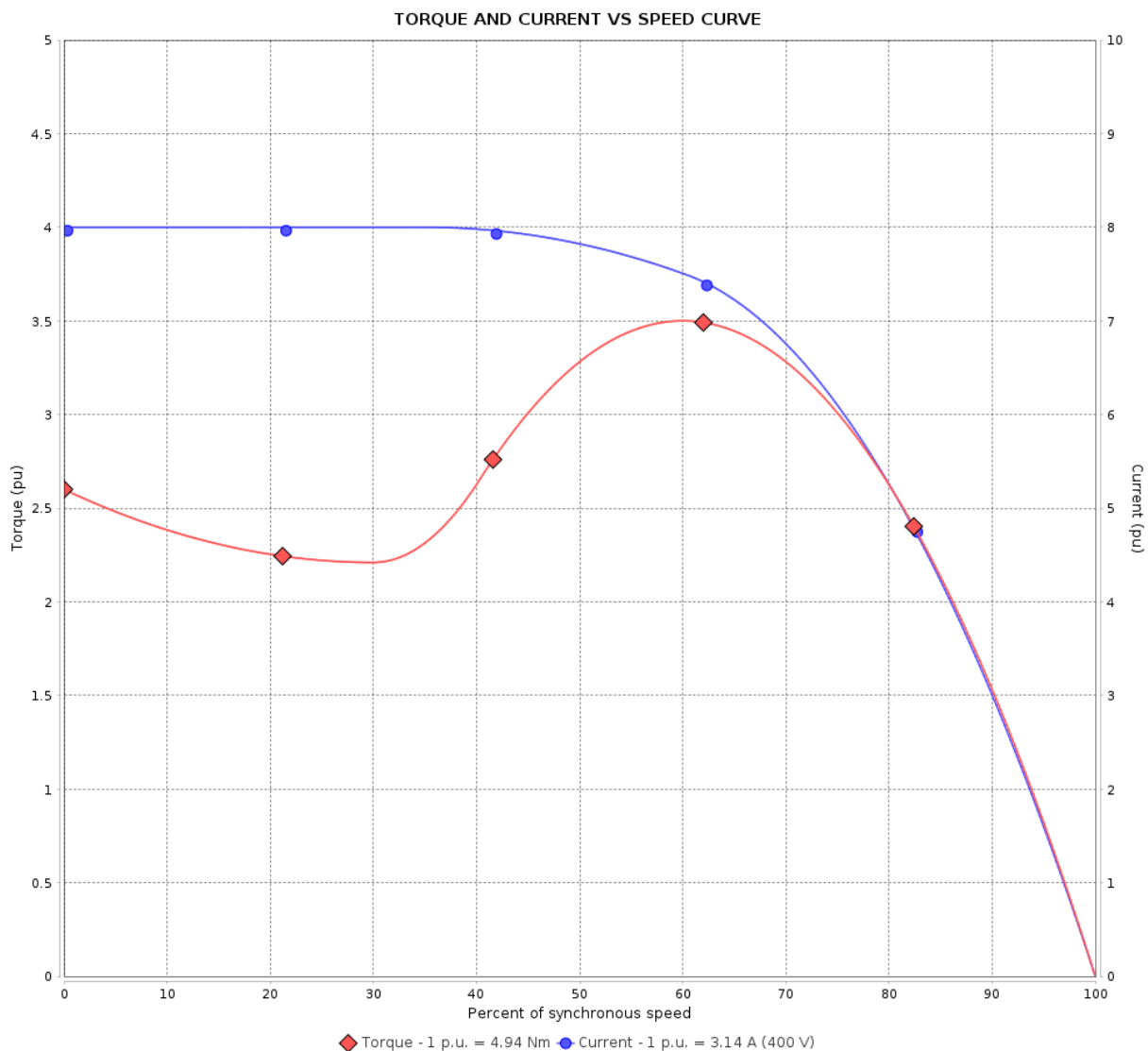


## Three Phase Induction Motor - Squirrel Cage

Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 13094847



Performance : 230/400 V 50 Hz 2P

Rated current	: 5.46/3.14 A	Moment of inertia (J)	: 0.0020 kgm <sup>2</sup>
LRC	: 8.0	Duty cycle	: S1
Rated torque	: 4.94 Nm	Insulation class	: F
Locked rotor torque	: 260 %	Service factor	: 1.00
Breakdown torque	: 350 %	Temperature rise	: 80 K
Rated speed	: 2900 rpm	Design	: N

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

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# TORQUE AND CURRENT VS SPEED CURVE

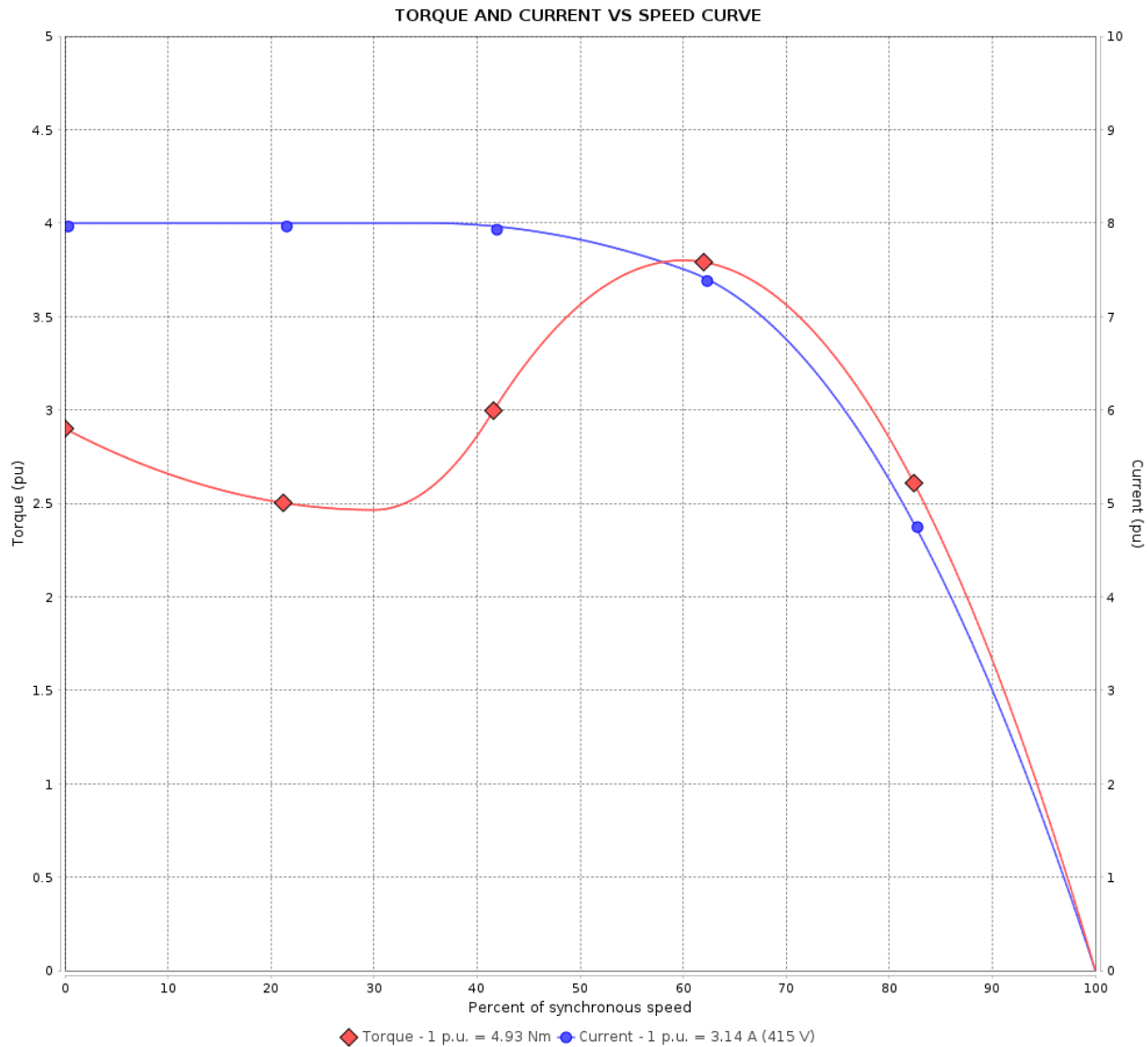
Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 13094847



Performance : 240/415 V 50 Hz 2P

Rated current	: 5.43/3.14 A	Moment of inertia (J)	: 0.0020 kgm <sup>2</sup>
LRC	: 8.0	Duty cycle	: S1
Rated torque	: 4.93 Nm	Insulation class	: F
Locked rotor torque	: 290 %	Service factor	: 1.00
Breakdown torque	: 380 %	Temperature rise	: 80 K
Rated speed	: 2910 rpm	Design	: N

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

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# TORQUE AND CURRENT VS SPEED CURVE

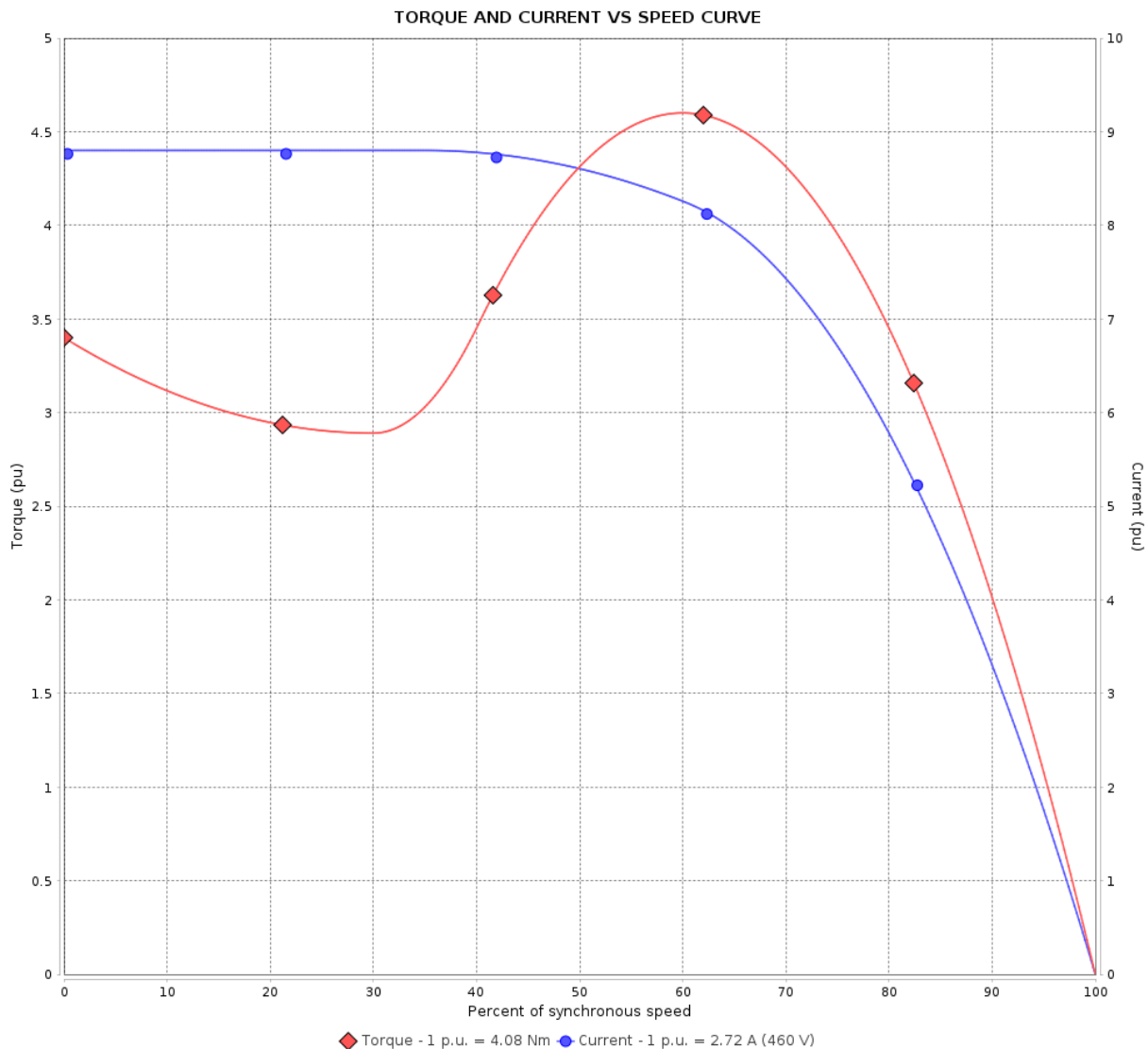


## Three Phase Induction Motor - Squirrel Cage

Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 13094847



Performance : 460 V 60 Hz 2P

Rated current	: 2.72 A	Moment of inertia (J)	: 0.0020 kgm <sup>2</sup>
LRC	: 8.8	Duty cycle	: S1
Rated torque	: 4.08 Nm	Insulation class	: F
Locked rotor torque	: 340 %	Service factor	: 1.00
Breakdown torque	: 459 %	Temperature rise	: 80 K
Rated speed	: 3510 rpm	Design	: N

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

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# LOAD PERFORMANCE CURVE

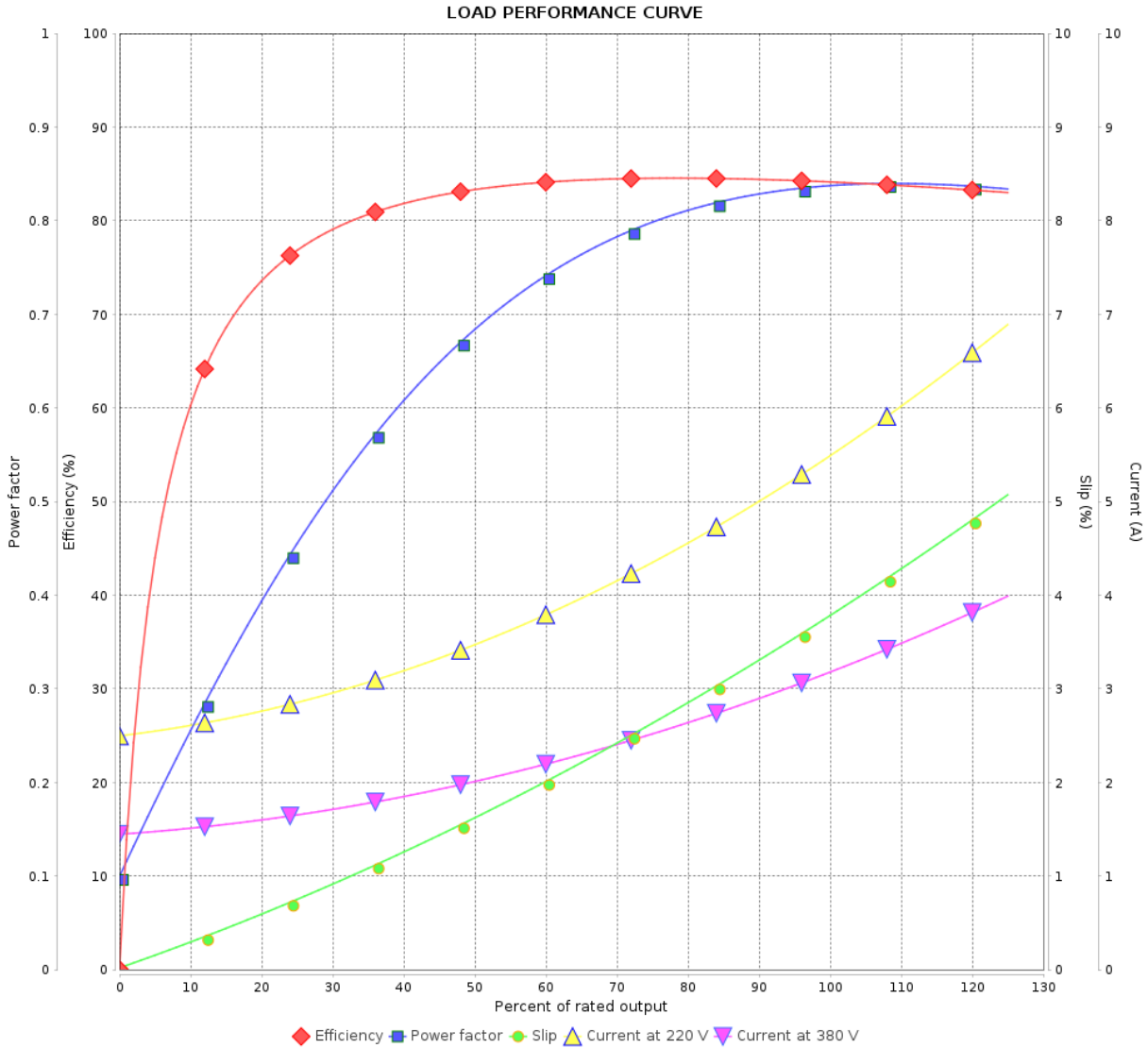
Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 13094847



Performance : 220/380 V 50 Hz 2P

Rated current : 5.56/3.22 A  
 LRC : 8.0  
 Rated torque : 4.97 Nm  
 Locked rotor torque : 220 %  
 Breakdown torque : 310 %  
 Rated speed : 2885 rpm

Moment of inertia (J) : 0.0020 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

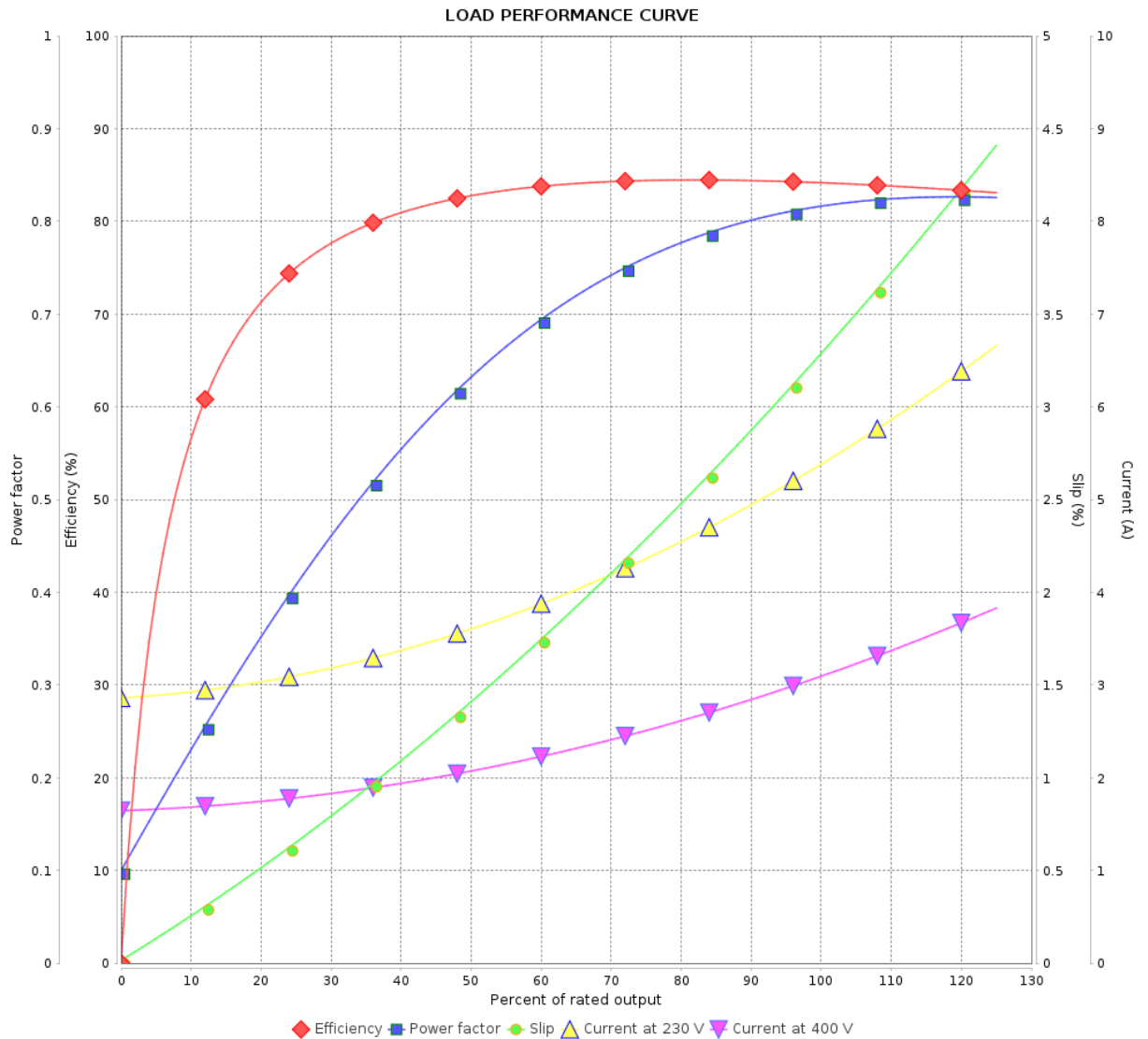
## Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 13094847



Performance : 230/400 V 50 Hz 2P

Rated current : 5.46/3.14 A  
 LRC : 8.0  
 Rated torque : 4.94 Nm  
 Locked rotor torque : 260 %  
 Breakdown torque : 350 %  
 Rated speed : 2900 rpm

Moment of inertia (J) : 0.0020 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

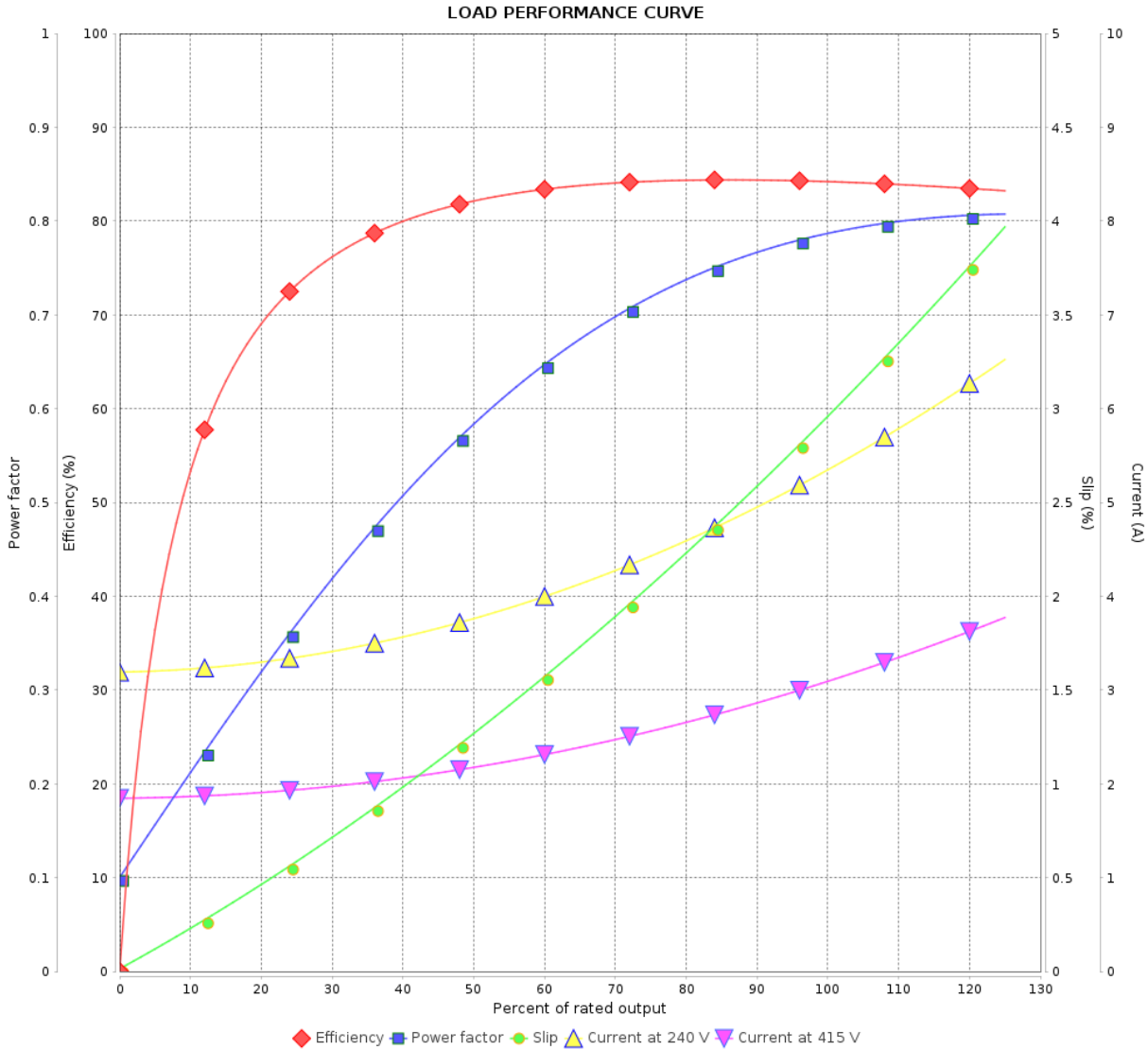
Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 13094847



Performance : 240/415 V 50 Hz 2P

Rated current : 5.43/3.14 A  
 LRC : 8.0  
 Rated torque : 4.93 Nm  
 Locked rotor torque : 290 %  
 Breakdown torque : 380 %  
 Rated speed : 2910 rpm

Moment of inertia (J) : 0.0020 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

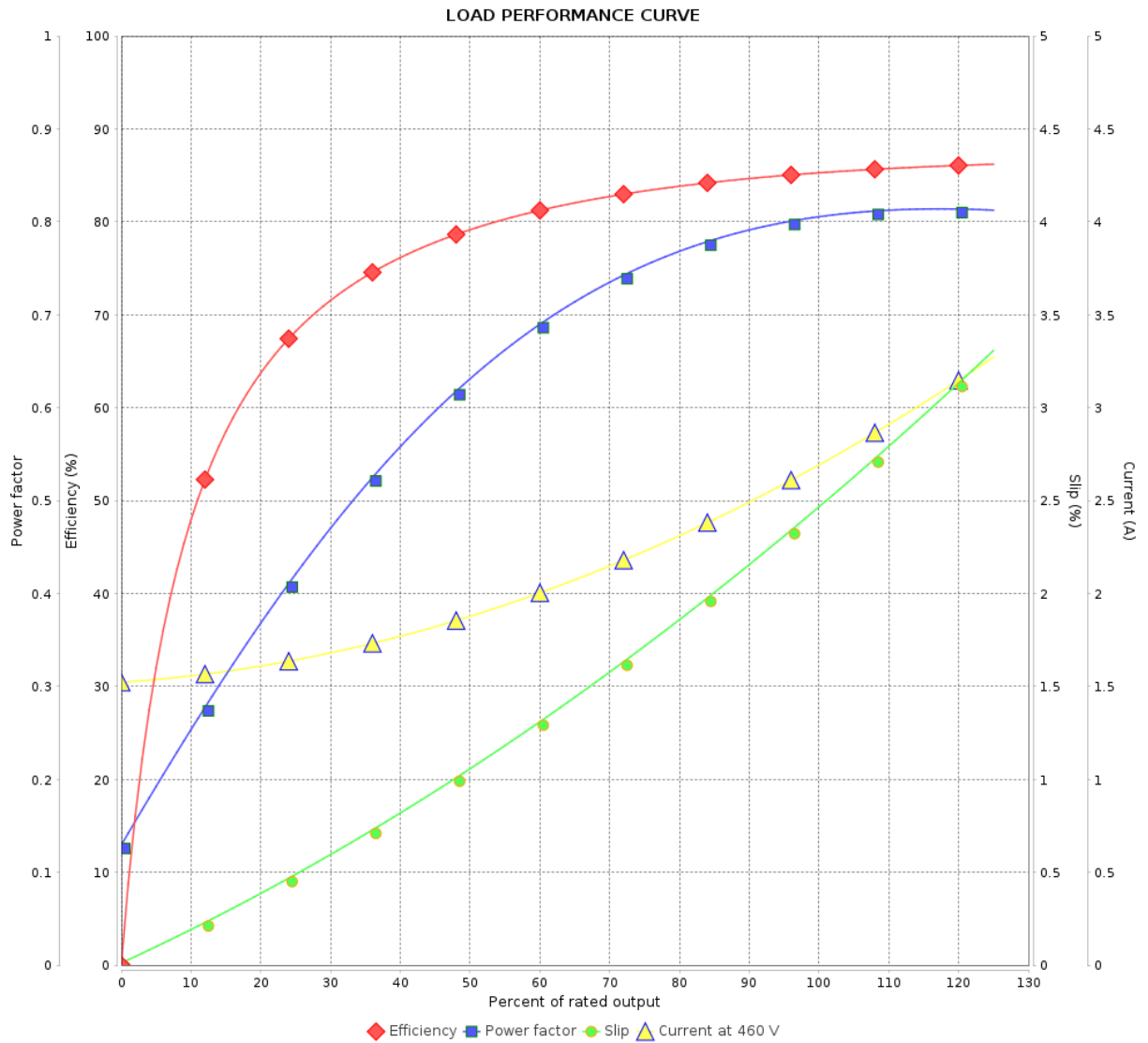
## Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 13094847



Performance : 460 V 60 Hz 2P

Rated current : 2.72 A  
 LRC : 8.8  
 Rated torque : 4.08 Nm  
 Locked rotor torque : 340 %  
 Breakdown torque : 459 %  
 Rated speed : 3510 rpm

Moment of inertia (J) : 0.0020 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

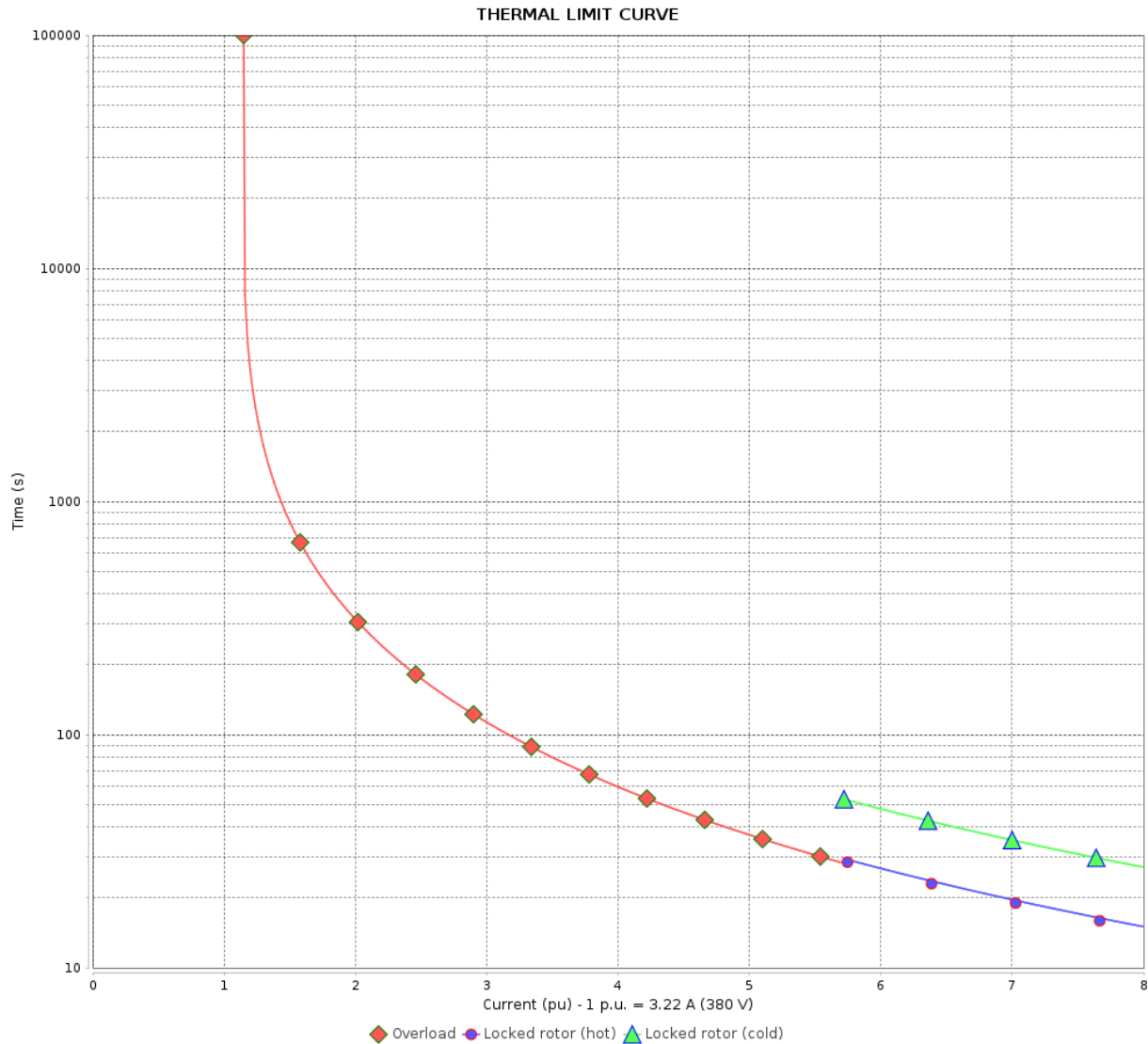
## Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 13094847



Performance : 220/380 V 50 Hz 2P

Rated current : 5.56/3.22 A  
 LRC : 8.0  
 Rated torque : 4.97 Nm  
 Locked rotor torque : 220 %  
 Breakdown torque : 310 %  
 Rated speed : 2885 rpm

Moment of inertia (J) : 0.0020 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

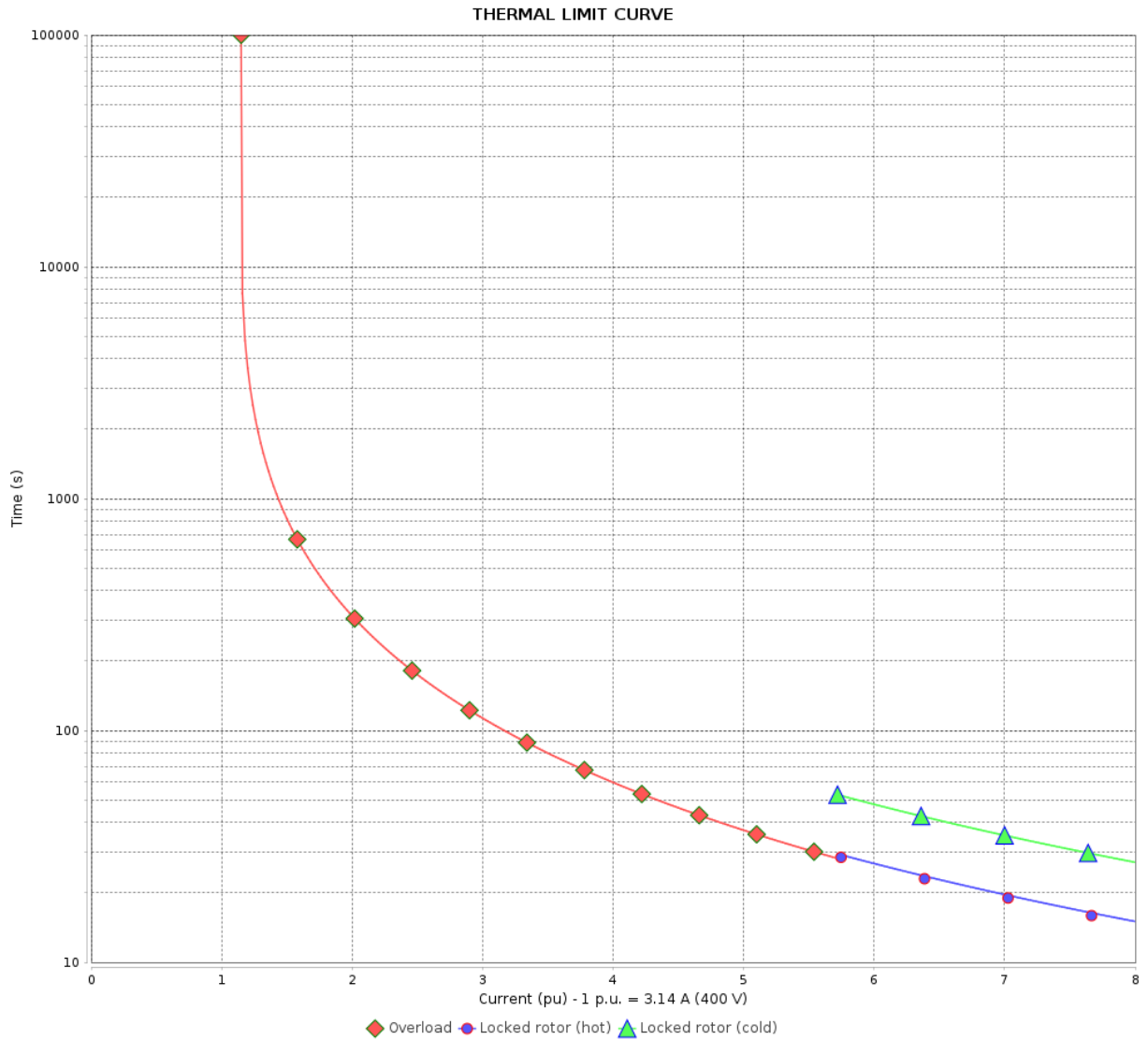
## Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 13094847



Performance : 230/400 V 50 Hz 2P

Rated current : 5.46/3.14 A  
 LRC : 8.0  
 Rated torque : 4.94 Nm  
 Locked rotor torque : 260 %  
 Breakdown torque : 350 %  
 Rated speed : 2900 rpm

Moment of inertia (J) : 0.0020 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

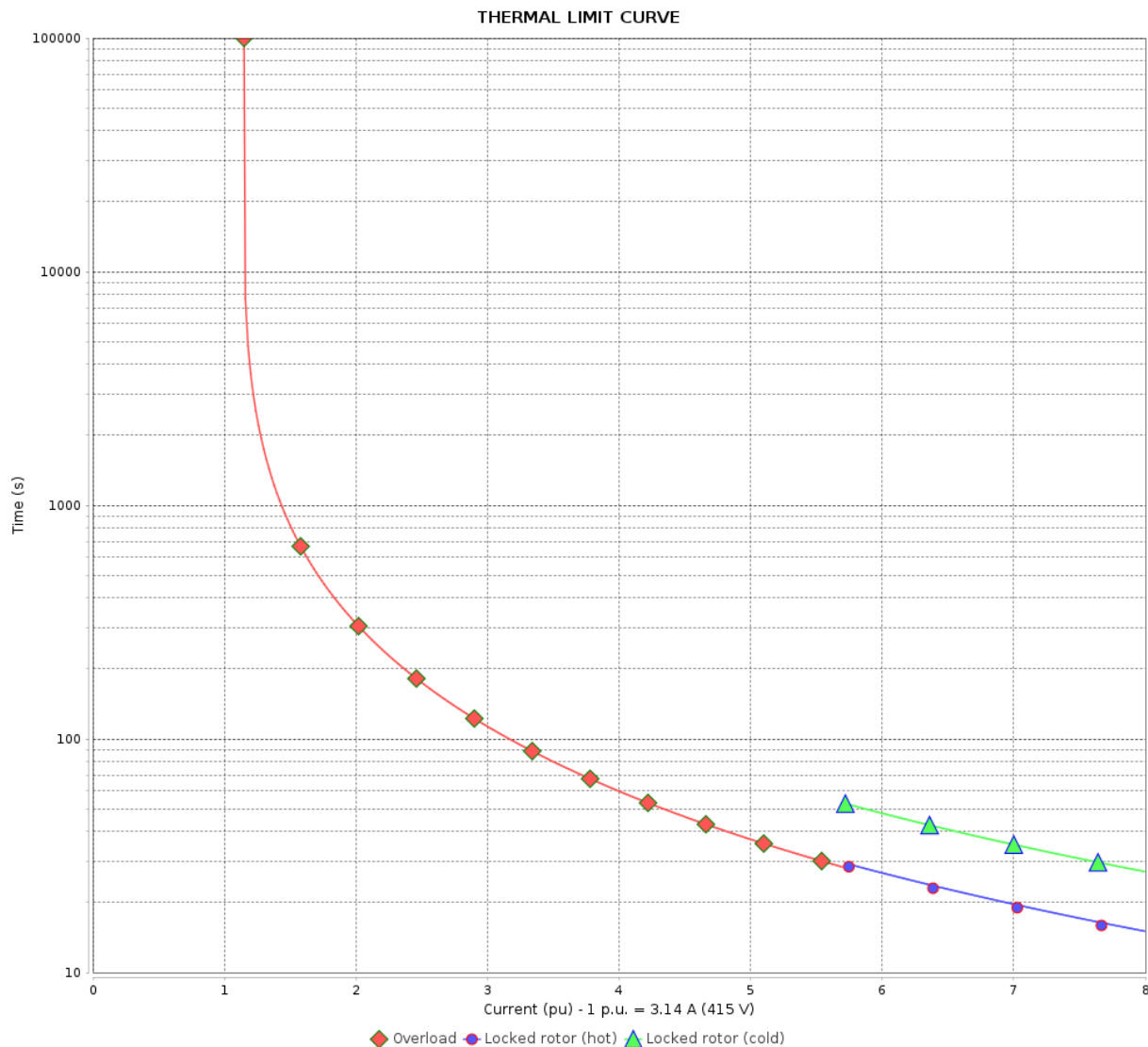
## Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : IE3 Three-Phase

Product code : 13094847



Performance : 240/415 V 50 Hz 2P

Rated current : 5.43/3.14 A  
 LRC : 8.0  
 Rated torque : 4.93 Nm  
 Locked rotor torque : 290 %  
 Breakdown torque : 380 %  
 Rated speed : 2910 rpm

Moment of inertia (J) : 0.0020 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

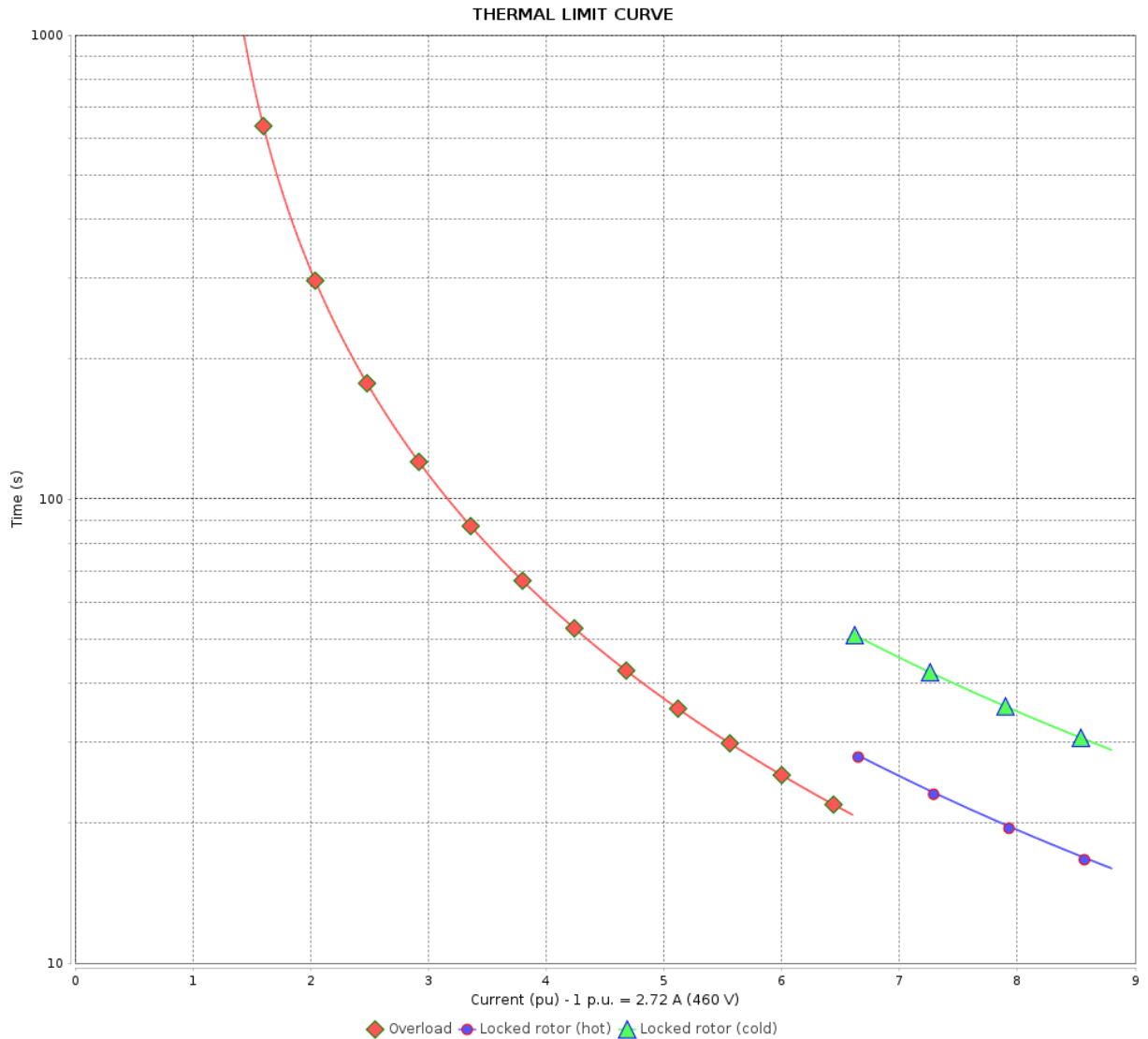
## Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

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Performance : 460 V 60 Hz 2P

Rated current : 2.72 A  
 LRC : 8.8  
 Rated torque : 4.08 Nm  
 Locked rotor torque : 340 %  
 Breakdown torque : 459 %  
 Rated speed : 3510 rpm

Moment of inertia (J) : 0.0020 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

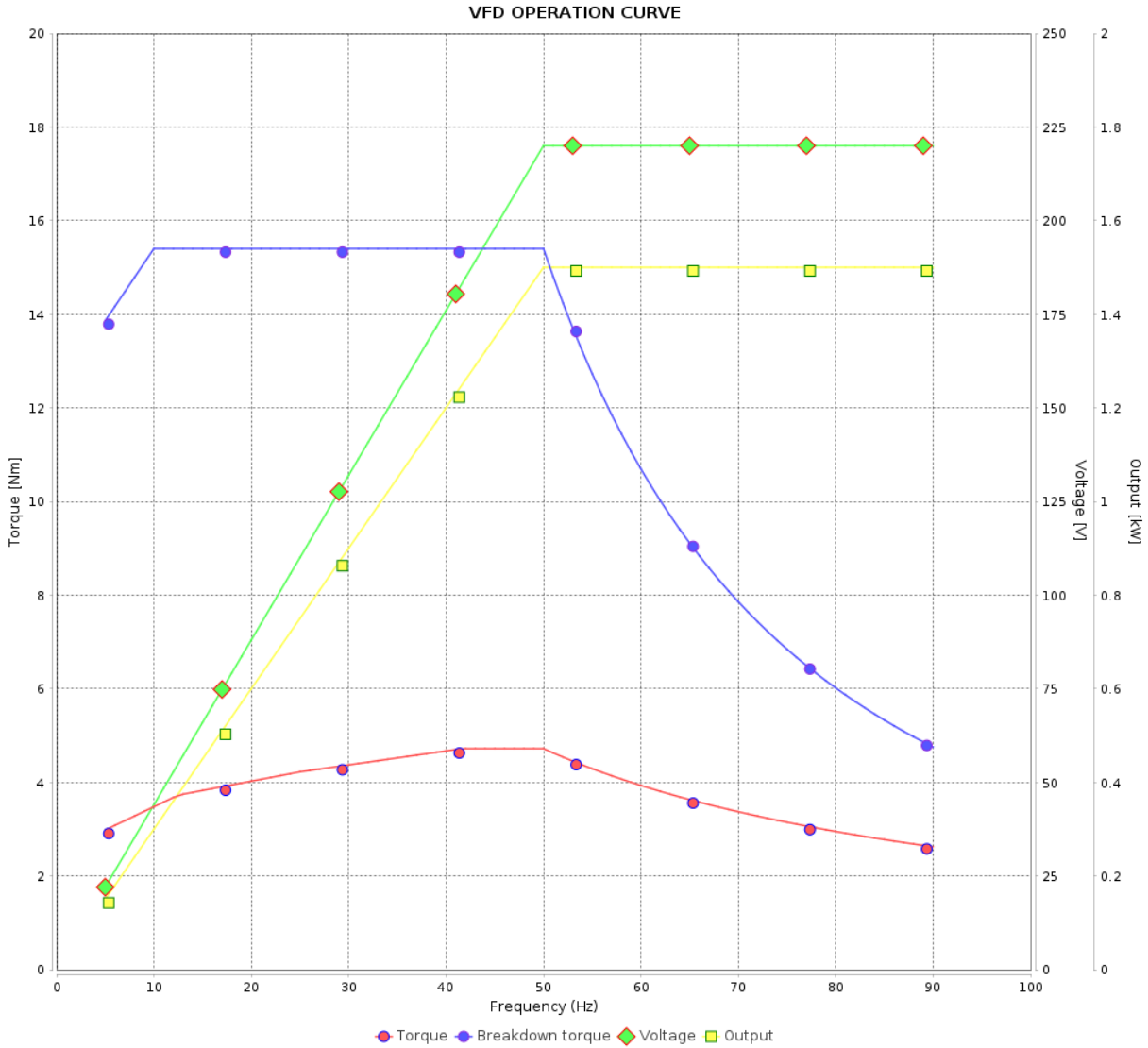
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Performance : 220/380 V 50 Hz 2P

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 Breakdown torque : 310 %  
 Rated speed : 2885 rpm

Moment of inertia (J) : 0.0020 kgm<sup>2</sup>  
 Duty cycle : S1  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
 Design : N

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# VFD OPERATION CURVE

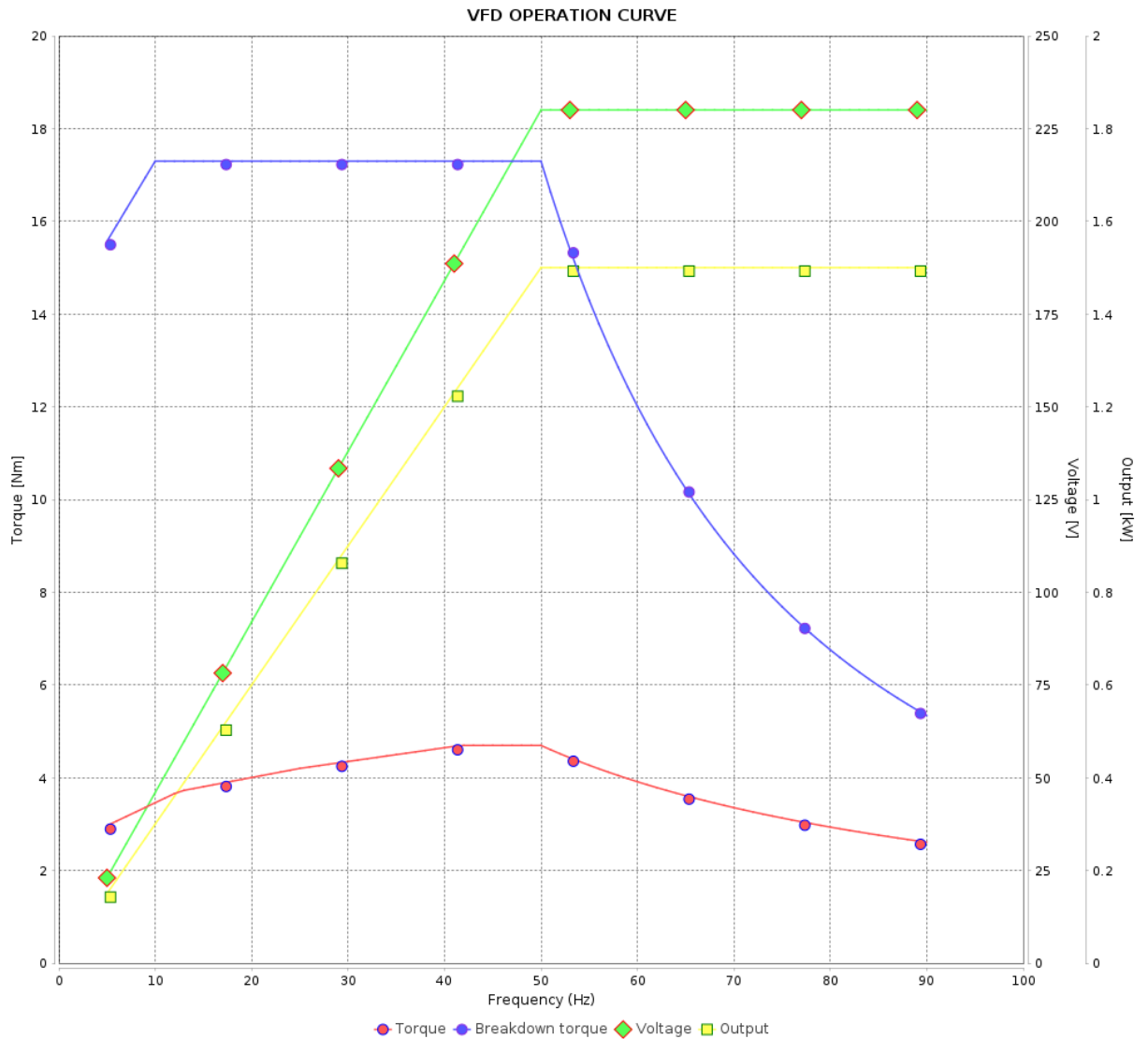
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Performance : 230/400 V 50 Hz 2P

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Moment of inertia (J) : 0.0020 kgm<sup>2</sup>  
 Duty cycle : S1  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
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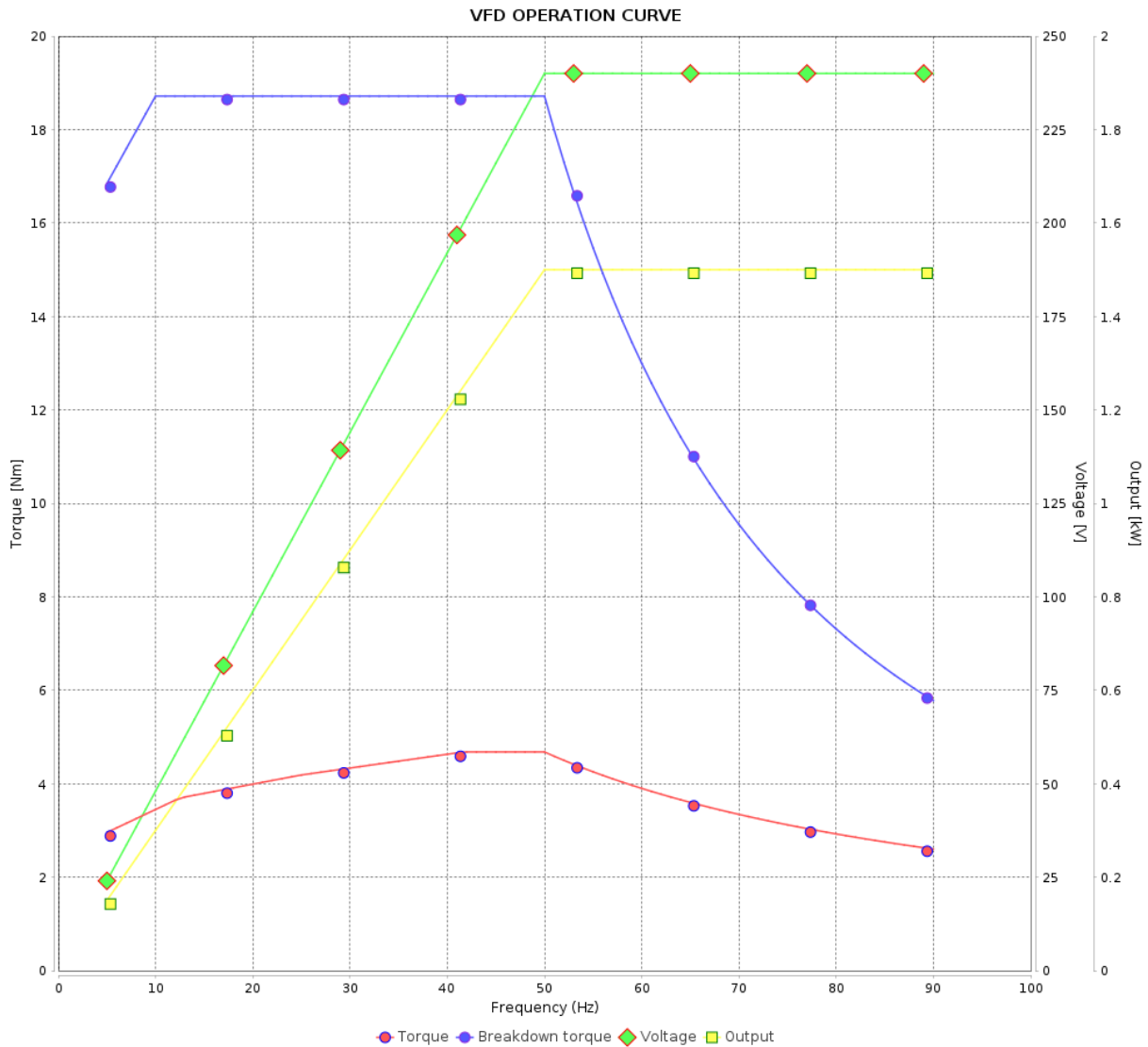
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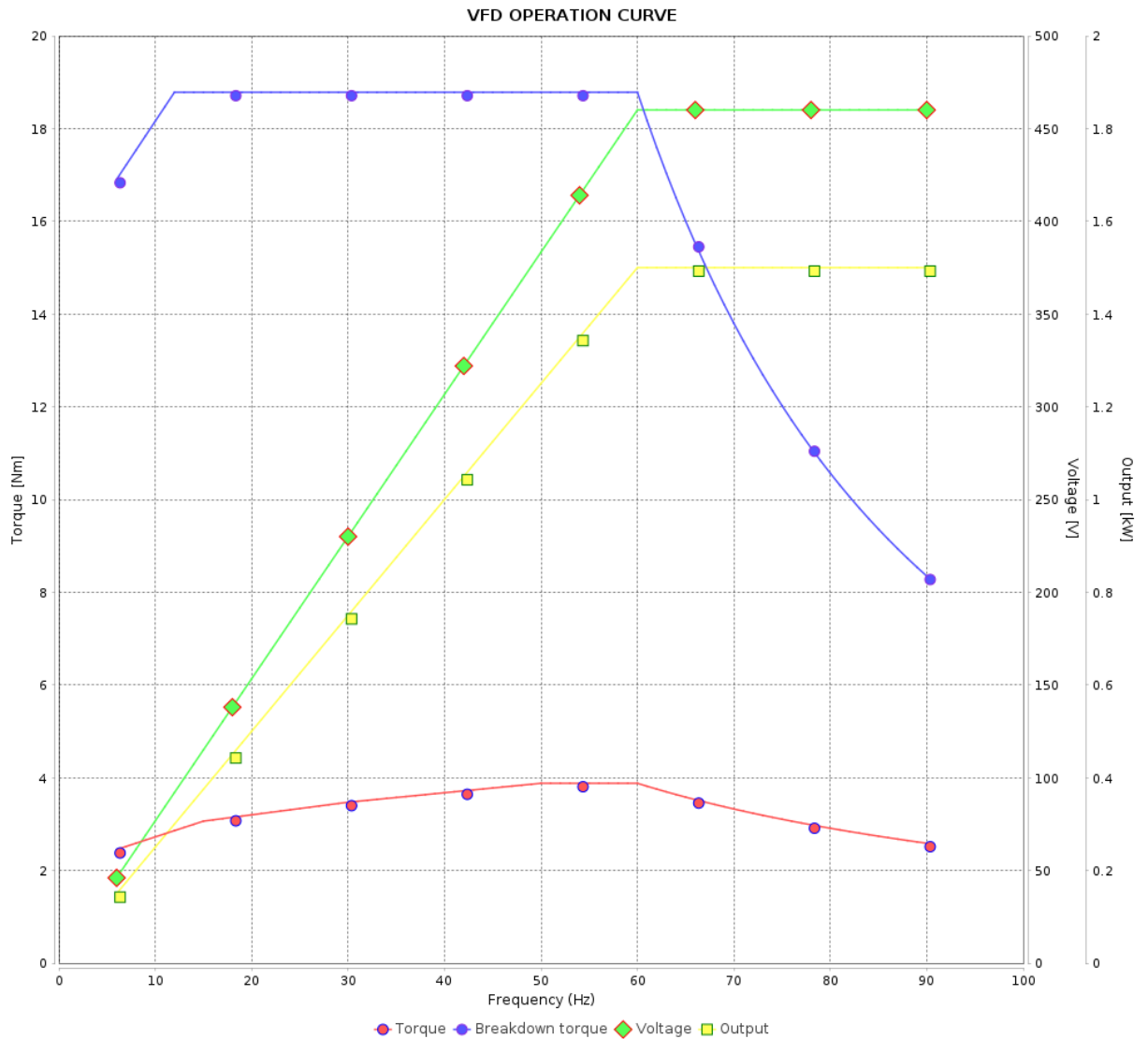
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Moment of inertia (J) : 0.0020 kgm<sup>2</sup>  
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