

# DATA SHEET

## Three Phase Induction Motor - Squirrel Cage



Customer		: Astraprom d.o.o.			
Product line		: W22 IE3 Three-Phase		Product code : 12862392	
Frame	: 160M	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>2</sup>	: 125 kg		
Protection degree	: IP55	Moment of inertia (J)	: 0.0482 kgm <sup>2</sup>		
Design	: N				
Output [kW]	11	11	11	11	
Poles	2	2	2	2	
Frequency [Hz]	50	50	50	60	
Rated voltage [V]	380/660	400/690	415	460	
Rated current [A]	21.6/12.4	21.0/12.2	20.7	19.0	
L. R. Amperes [A]	170/98.1	178/103	189	184	
LRC [A]	7.9	8.5	9.1	9.7	
No load current [A]	9.10/5.24	10.1/5.86	11.0	9.50	
Rated speed [RPM]	2955	2960	2960	3565	
Slip [%]	1.50	1.33	1.33	0.97	
Rated torque [kgfm]	3.63	3.62	3.62	3.01	
Locked rotor torque [%]	270	310	330	380	
Breakdown torque [%]	350	380	420	470	
Service factor	1.00	1.00	1.00	1.00	
Temperature rise	80 K	80 K	80 K	80 K	
Locked rotor time	16s (cold) 0s (hot)	14s (cold) 0s (hot)	14s (cold) 0s (hot)	18s (cold) 0s (hot)	
Noise level <sup>2</sup>	67.0 dB(A)	67.0 dB(A)	67.0 dB(A)	72.0 dB(A)	
Efficiency (%)	25%				
	50%	90.0	89.0	88.0	89.0
	75%	91.2	91.0	90.0	91.0
	100%	91.2	91.2	91.2	91.0
Power Factor	25%				
	50%	0.69	0.65	0.60	0.62
	75%	0.80	0.76	0.73	0.74
	100%	0.85	0.83	0.81	0.80
Losses at normative operating points (speed;torque), in percentage of rated output power					
Losses (%)	P1 (0,9;1,0)	9.3	9.3	9.3	9.5
	P2 (0,5;1,0)	7.7	7.7	7.7	7.9
	P3 (0,25;1,0)	7.1	7.1	7.1	7.3
	P4 (0,9;0,5)	5.1	5.1	5.1	5.2
	P5 (0,5;0,5)	3.4	3.4	3.4	3.5
	P6 (0,5;0,25)	2.4	2.4	2.4	2.5
	P7 (0,25;0,25)	1.7	1.7	1.7	1.7
Bearing type	: Drive end : 6309 ZZ C3 Non drive end : 6209 ZZ C3	Foundation loads			
Sealing	: V'Ring V'Ring	Max. traction : 159 kgf			
Lubrication interval	: - -	Max. compression : 285 kgf			
Lubricant amount	: - -				
Lubricant type	: Mobil Polyrex EM				
This revision replaces and cancel the previous one, which must be eliminated.		These are average values based on tests with sinusoidal power supply, subject to the tolerances stipulated in IEC 60034-1.			
(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.					
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Customer : Astraprom d.o.o.

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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

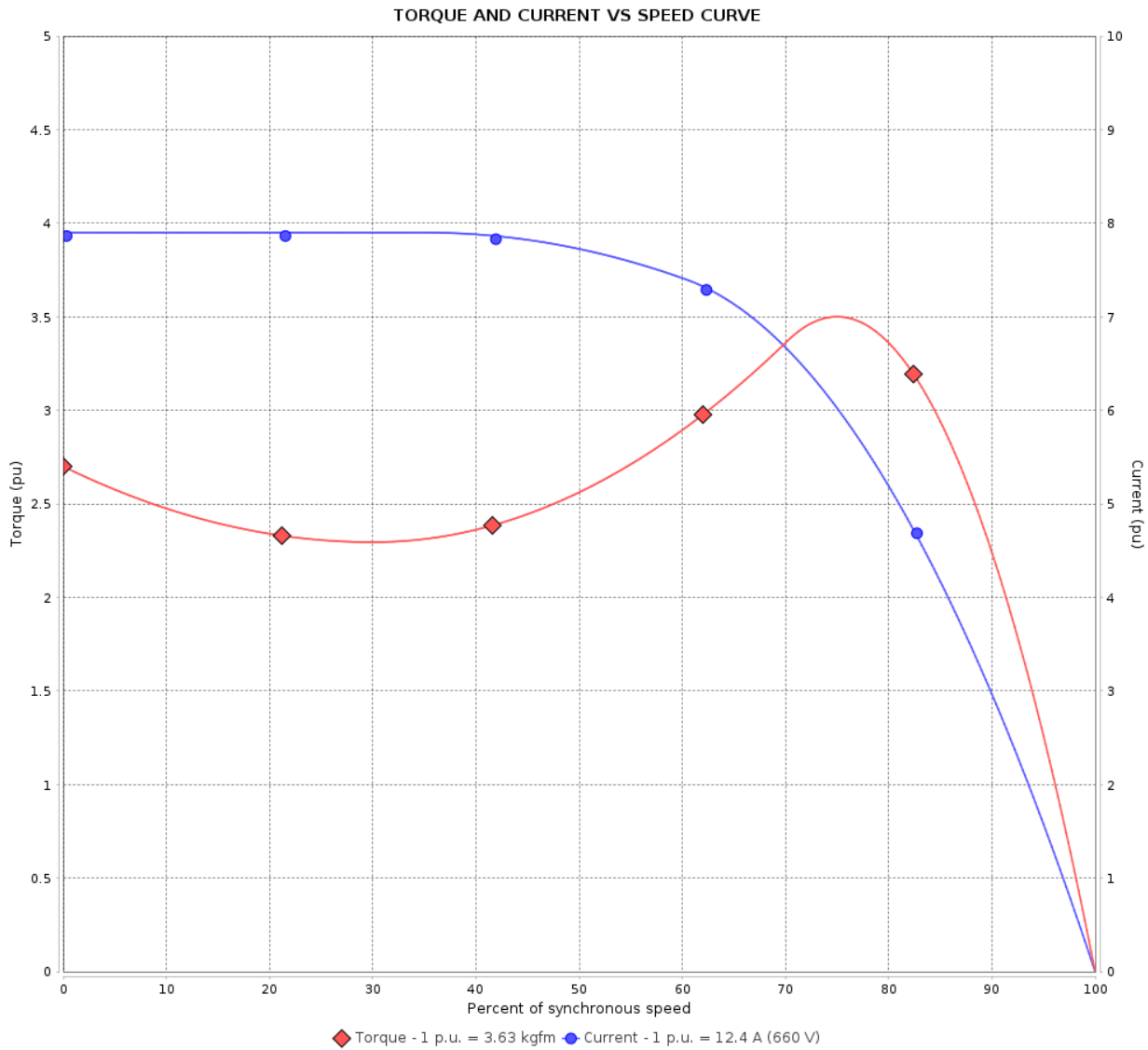
Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : W22 IE3 Three-Phase

Product code : 12862392



Performance : 380/660 V 50 Hz 2P

Rated current	: 21.6/12.4 A	Moment of inertia (J)	: 0.0482 kgm <sup>2</sup>
LRC	: 7.9	Duty cycle	: S1
Rated torque	: 3.63 kgfm	Insulation class	: F
Locked rotor torque	: 270 %	Service factor	: 1.00
Breakdown torque	: 350 %	Temperature rise	: 80 K
Rated speed	: 2955 rpm	Design	: N

Locked rotor time : 16s (cold) 0s (hot)

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# TORQUE AND CURRENT VS SPEED CURVE

Three Phase Induction Motor - Squirrel Cage

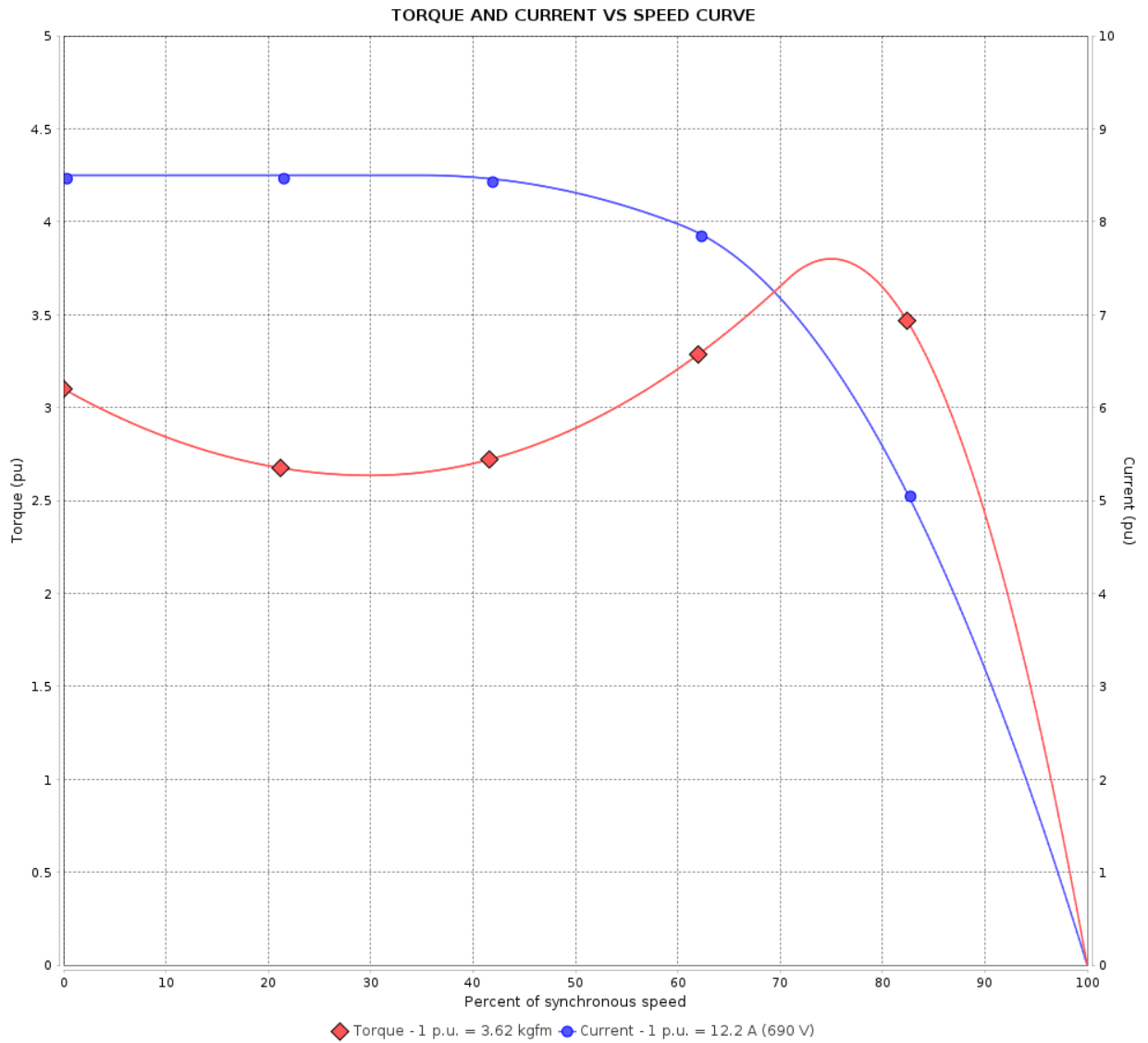


Customer : Astraprom d.o.o.

Product line : W22 IE3 Three-Phase

Product code :

12862392



Performance : 400/690 V 50 Hz 2P

Rated current : 21.0/12.2 A  
 LRC : 8.5  
 Rated torque : 3.62 kgfm  
 Locked rotor torque : 310 %  
 Breakdown torque : 380 %  
 Rated speed : 2960 rpm

Moment of inertia (J) : 0.0482 kgm<sup>2</sup>  
 Duty cycle : S1  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
 Design : N

Locked rotor time : 14s (cold) 0s (hot)

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# TORQUE AND CURRENT VS SPEED CURVE

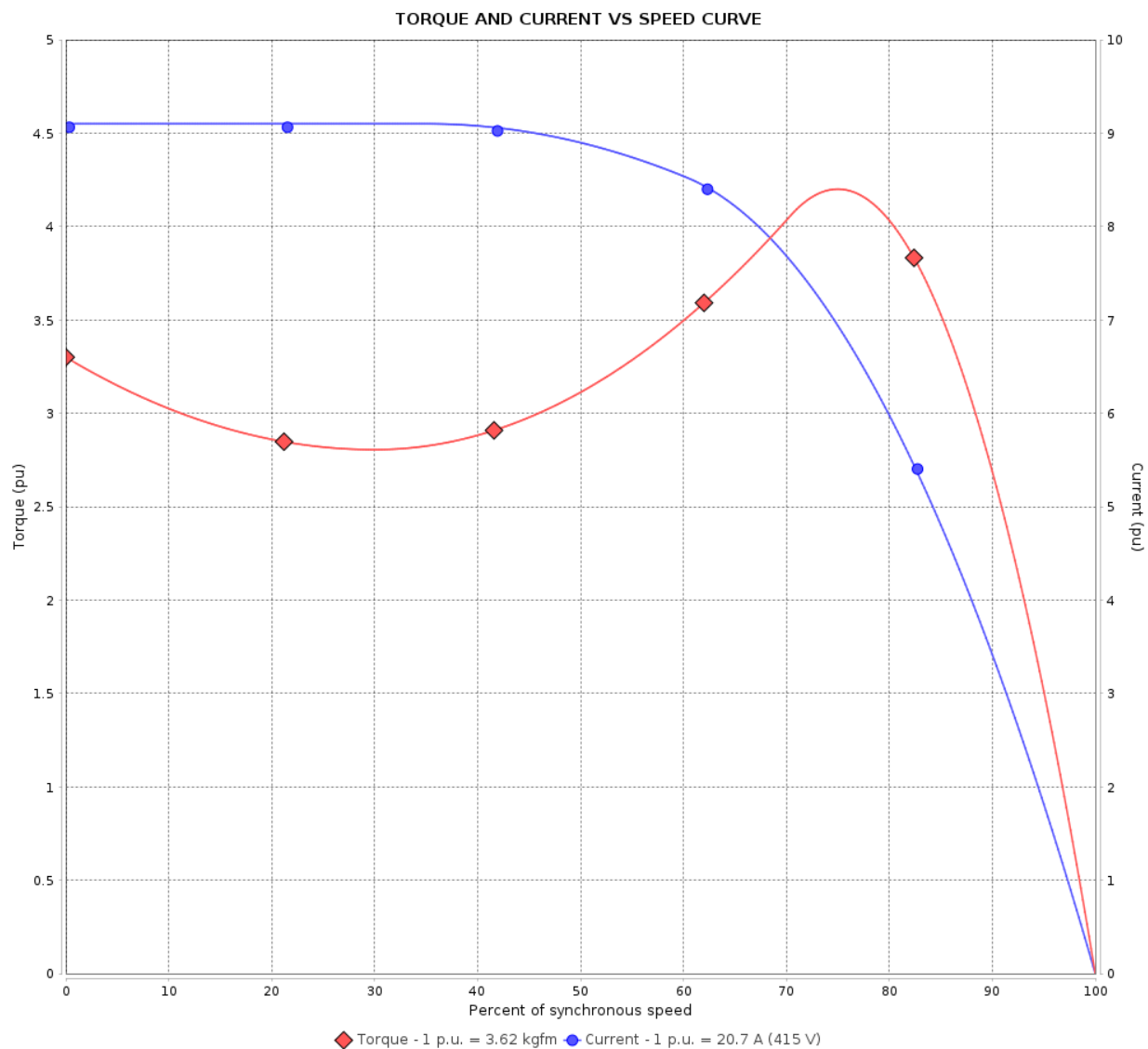
Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : W22 IE3 Three-Phase

Product code : 12862392



Performance : 415 V 50 Hz 2P

Rated current	: 20.7 A	Moment of inertia (J)	: 0.0482 kgm <sup>2</sup>
LRC	: 9.1	Duty cycle	: S1
Rated torque	: 3.62 kgfm	Insulation class	: F
Locked rotor torque	: 330 %	Service factor	: 1.00
Breakdown torque	: 420 %	Temperature rise	: 80 K
Rated speed	: 2960 rpm	Design	: N

Locked rotor time : 14s (cold) 0s (hot)

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# TORQUE AND CURRENT VS SPEED CURVE



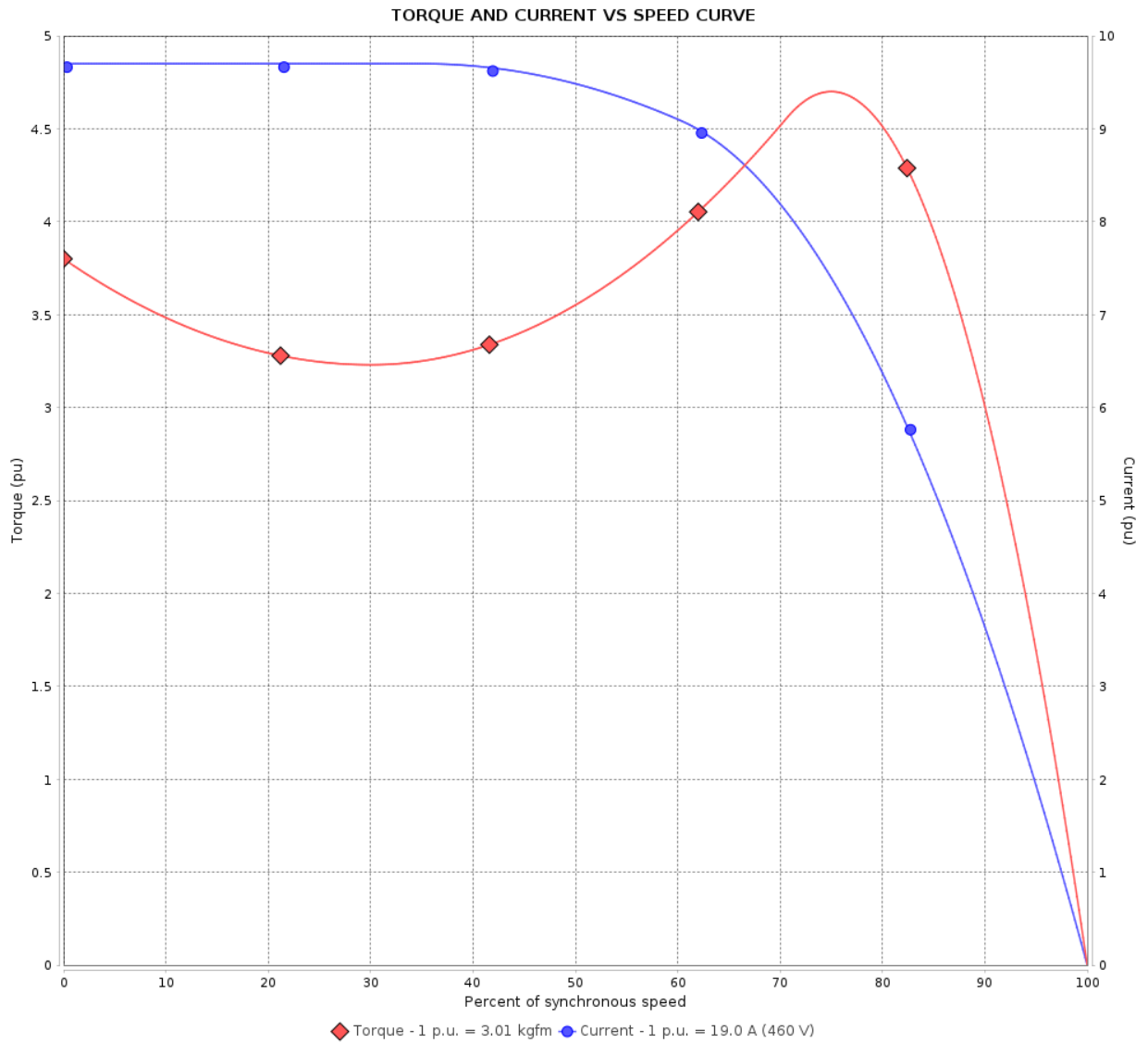
## Three Phase Induction Motor - Squirrel Cage

Customer : Astraprom d.o.o.

Product line : W22 IE3 Three-Phase

Product code :

12862392



Performance : 460 V 60 Hz 2P

Rated current : 19.0 A  
 LRC : 9.7  
 Rated torque : 3.01 kgfm  
 Locked rotor torque : 380 %  
 Breakdown torque : 470 %  
 Rated speed : 3565 rpm

Moment of inertia (J) : 0.0482 kgm<sup>2</sup>  
 Duty cycle : S1  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
 Design : N

Locked rotor time : 18s (cold) 0s (hot)

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# LOAD PERFORMANCE CURVE

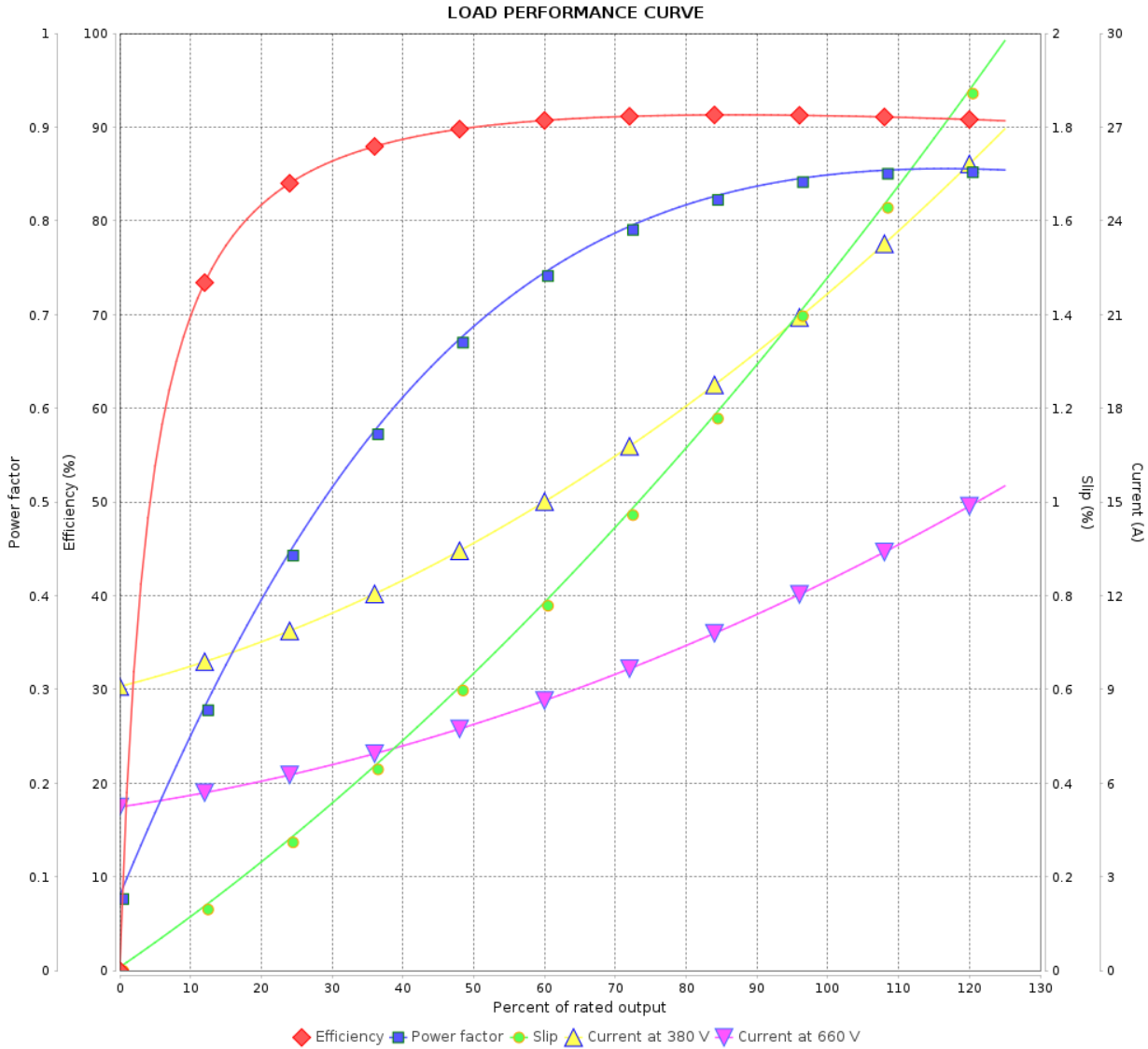
Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : W22 IE3 Three-Phase

Product code : 12862392



Performance : 380/660 V 50 Hz 2P

Rated current : 21.6/12.4 A  
 LRC : 7.9  
 Rated torque : 3.63 kgfm  
 Locked rotor torque : 270 %  
 Breakdown torque : 350 %  
 Rated speed : 2955 rpm

Moment of inertia (J) : 0.0482 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

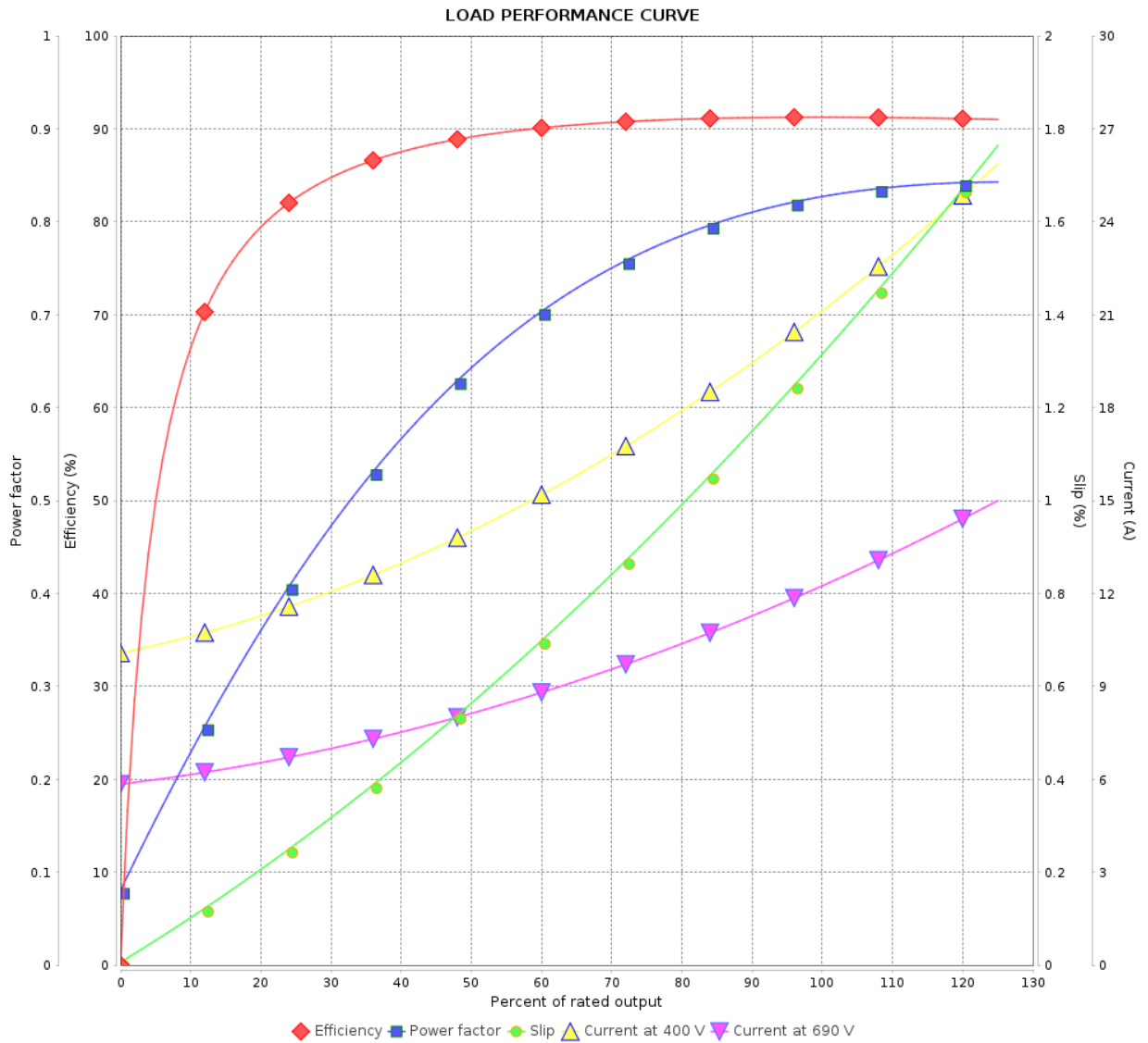
## Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : W22 IE3 Three-Phase

Product code : 12862392



Performance : 400/690 V 50 Hz 2P

Rated current : 21.0/12.2 A  
 LRC : 8.5  
 Rated torque : 3.62 kgfm  
 Locked rotor torque : 310 %  
 Breakdown torque : 380 %  
 Rated speed : 2960 rpm

Moment of inertia (J) : 0.0482 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

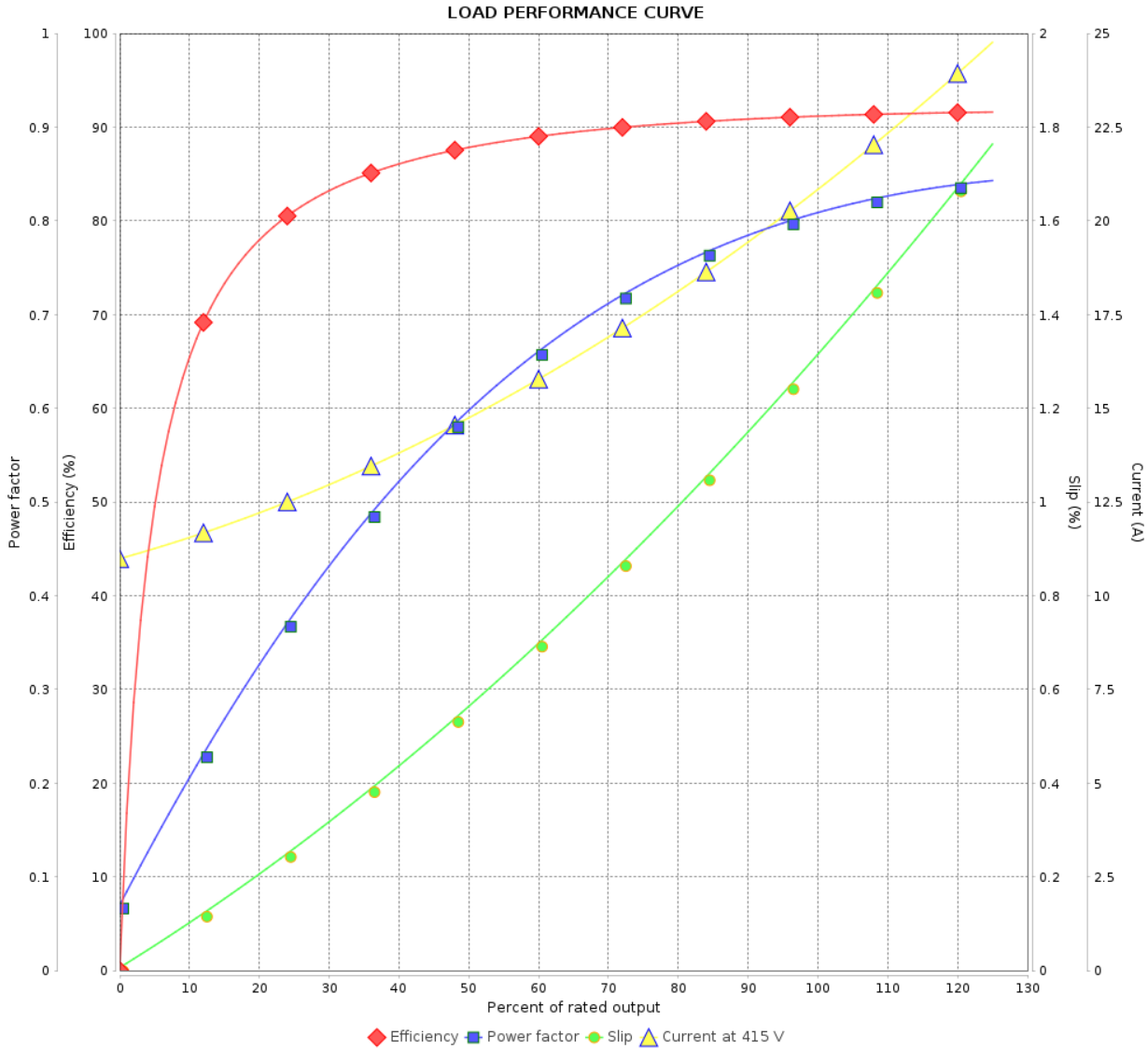
Three Phase Induction Motor - Squirrel Cage



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 Locked rotor torque : 330 %  
 Breakdown torque : 420 %  
 Rated speed : 2960 rpm

Moment of inertia (J) : 0.0482 kgm<sup>2</sup>  
 Duty cycle : S1  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
 Design : N

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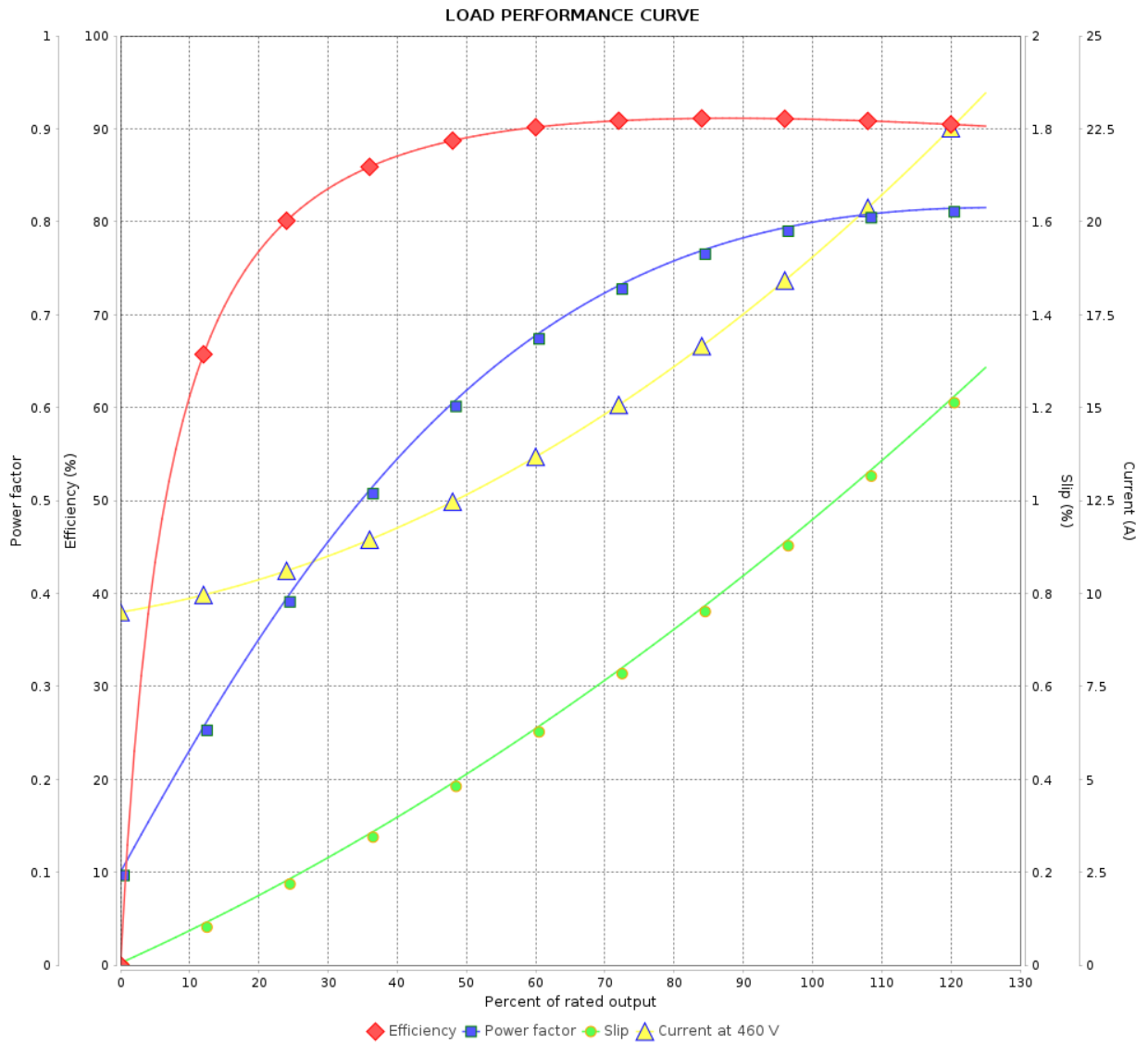


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Product code :

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Performance : 460 V 60 Hz 2P

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 Locked rotor torque : 380 %  
 Breakdown torque : 470 %  
 Rated speed : 3565 rpm

Moment of inertia (J) : 0.0482 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

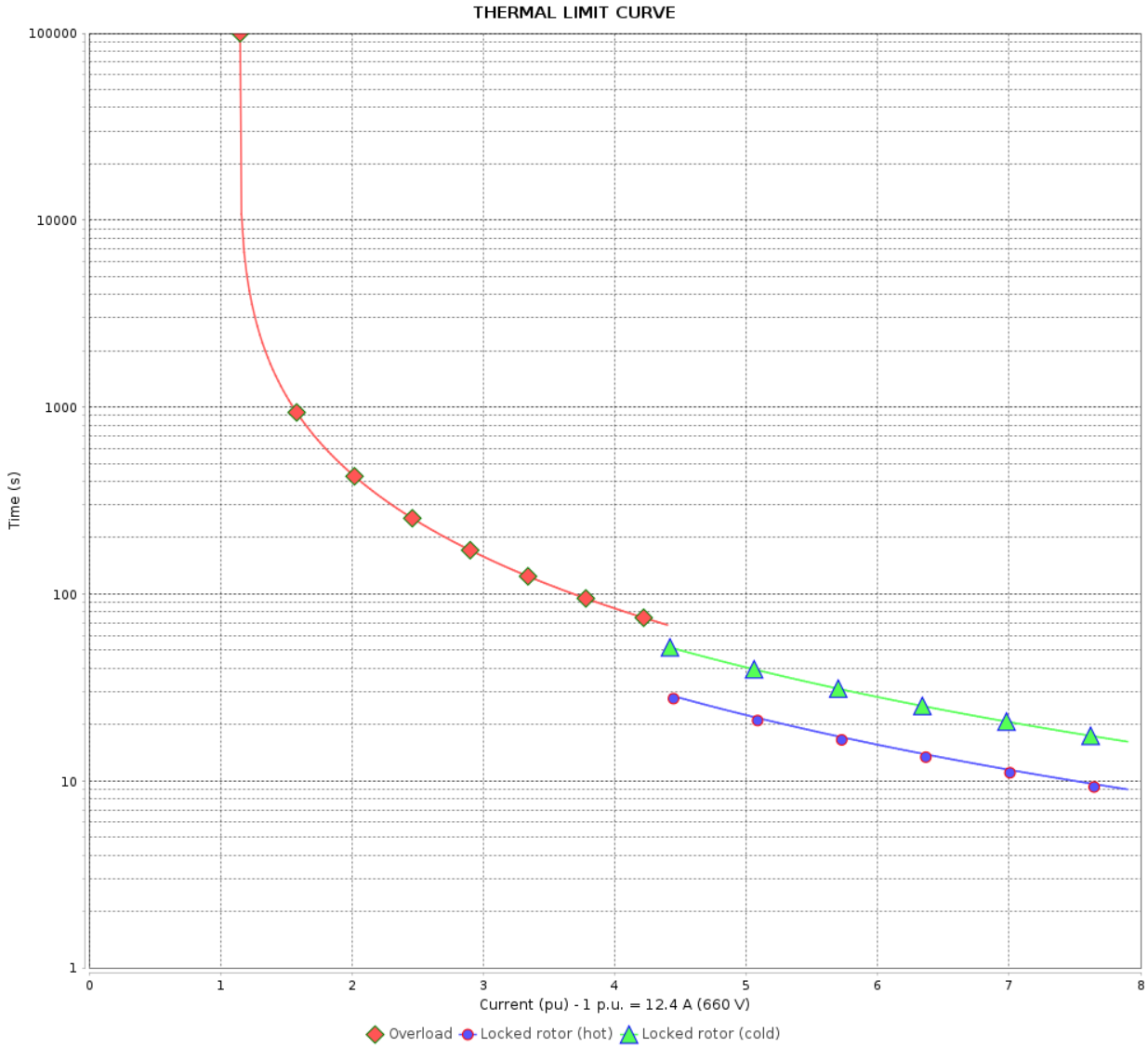
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 Breakdown torque : 350 %  
 Rated speed : 2955 rpm

Moment of inertia (J) : 0.0482 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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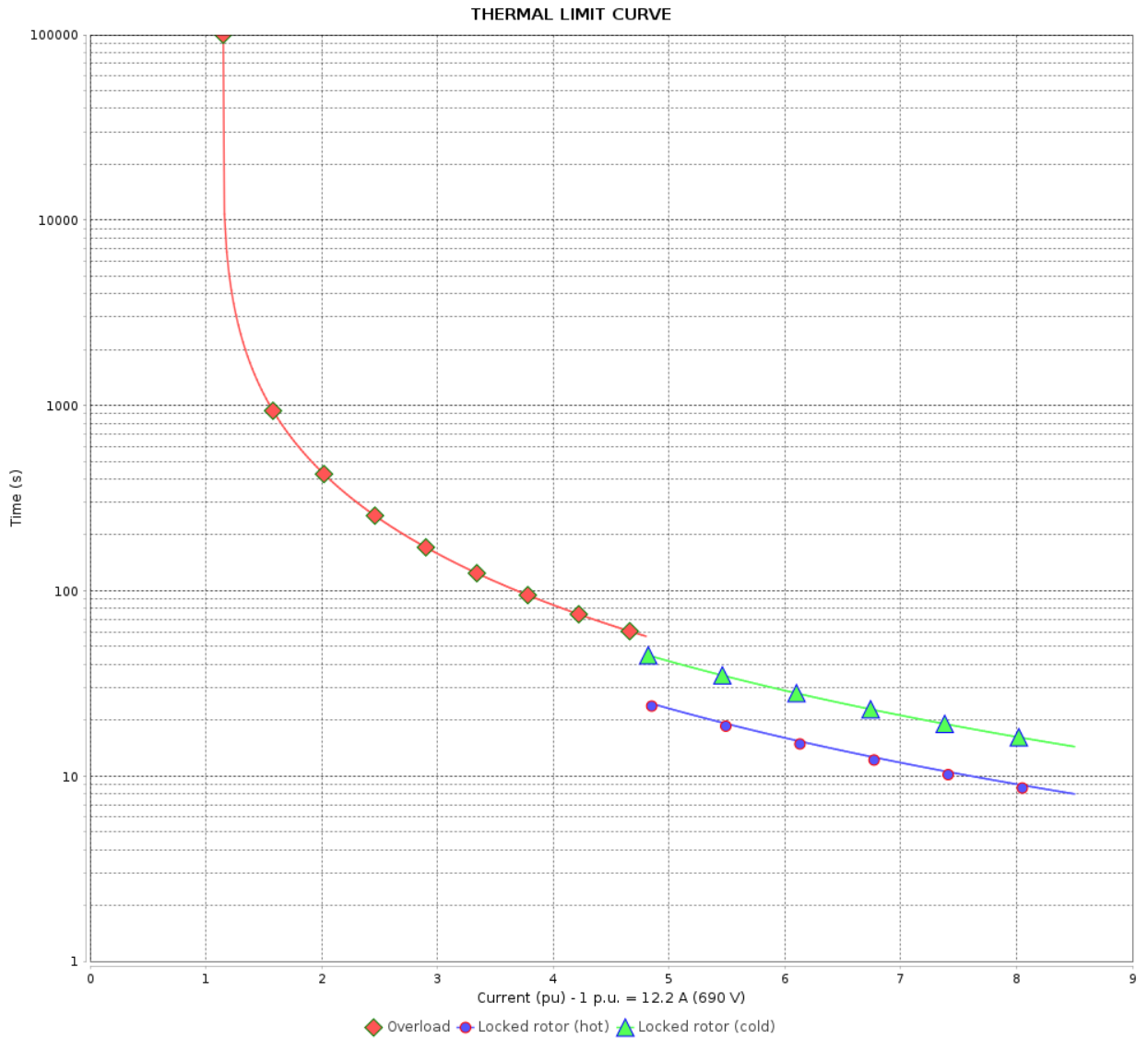


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 Duty cycle : S1  
 Insulation class : F  
 Service factor : 1.00  
 Temperature rise : 80 K  
 Design : N

Heating constant  
 Cooling constant

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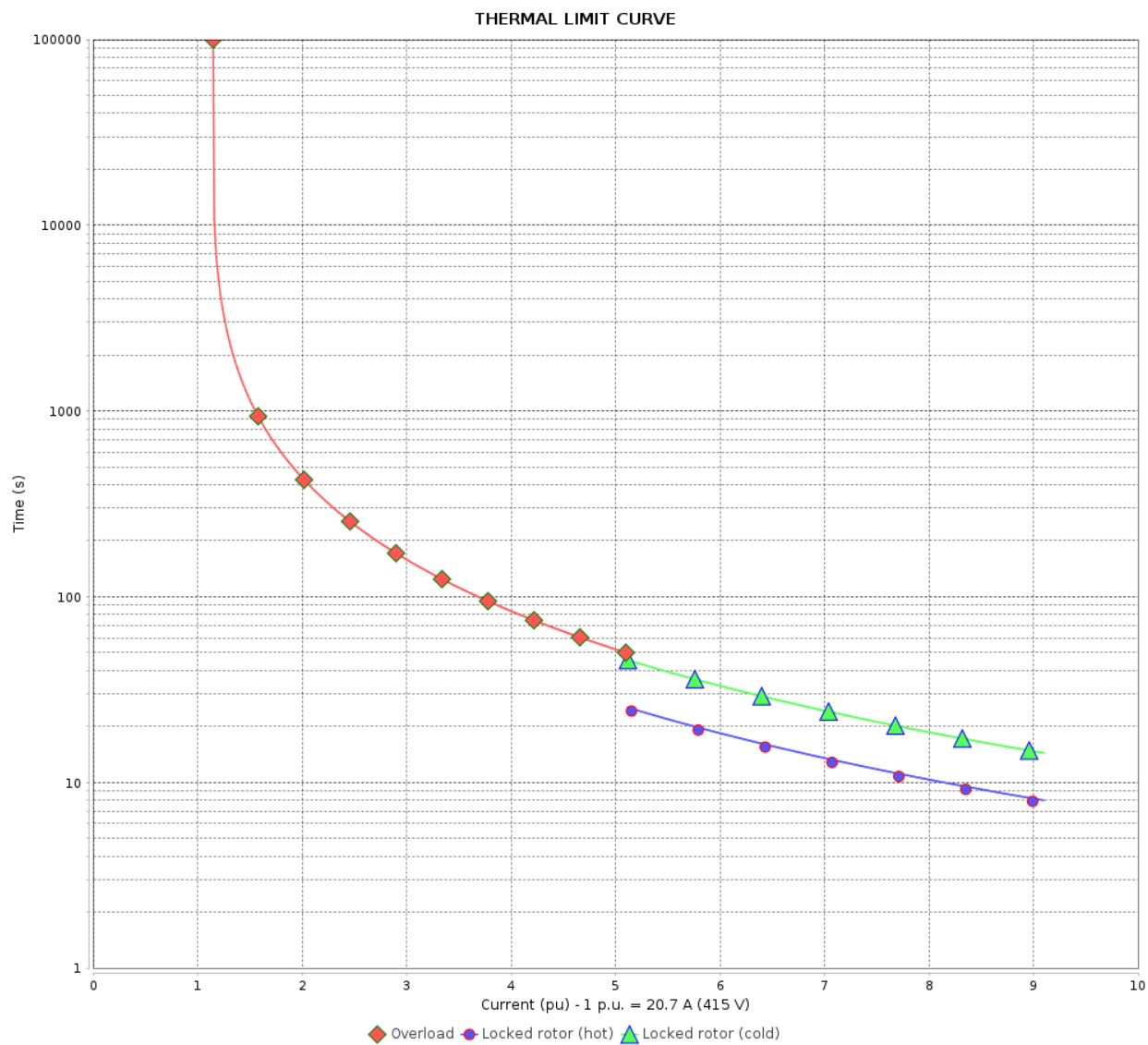
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Performance : 415 V 50 Hz 2P

Rated current	: 20.7 A	Moment of inertia (J)	: 0.0482 kgm <sup>2</sup>
LRC	: 9.1	Duty cycle	: S1
Rated torque	: 3.62 kgfm	Insulation class	: F
Locked rotor torque	: 330 %	Service factor	: 1.00
Breakdown torque	: 420 %	Temperature rise	: 80 K
Rated speed	: 2960 rpm	Design	: N

Heating constant  
Cooling constant

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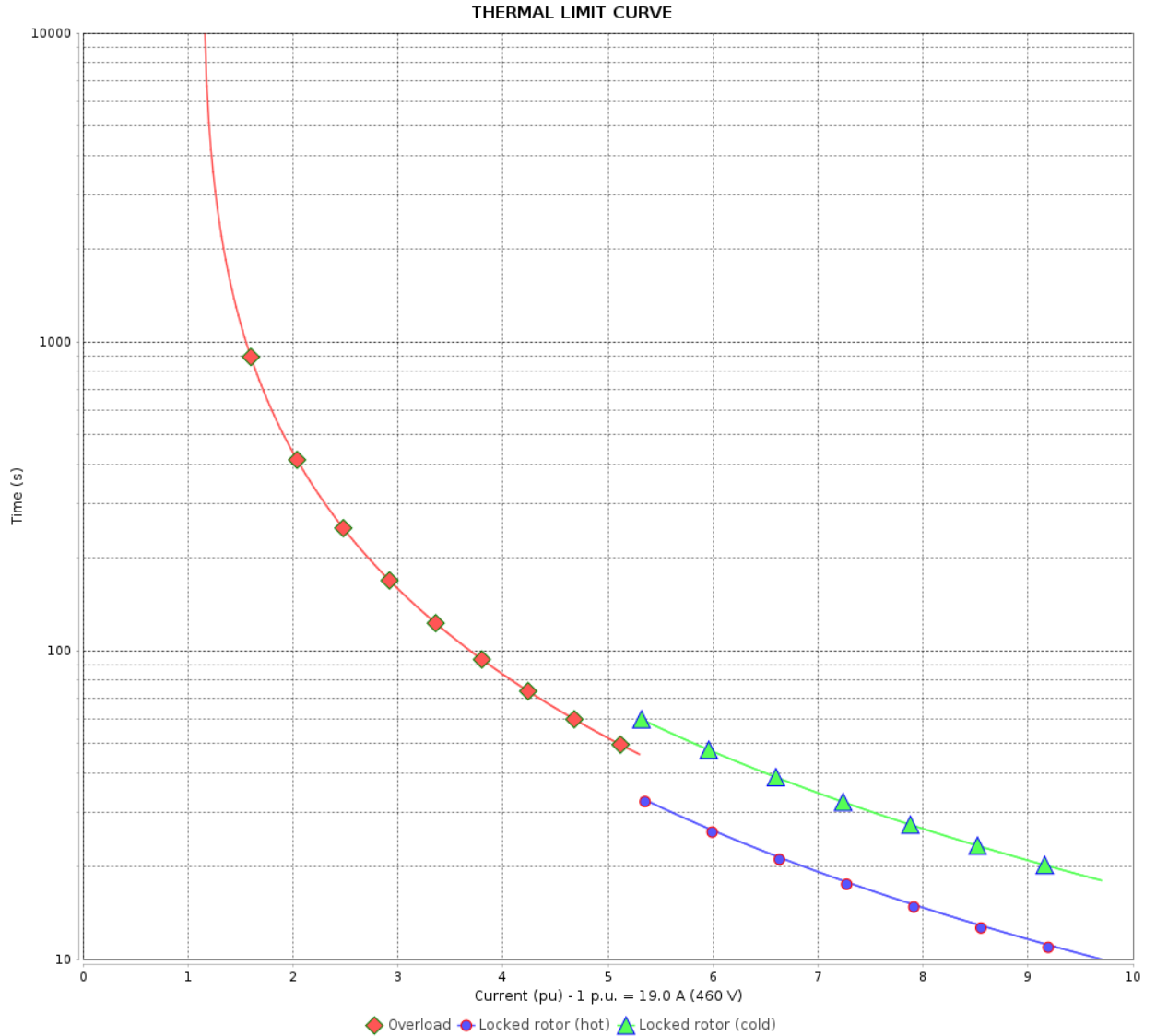
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Customer : Astraprom d.o.o.

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Performance : 460 V 60 Hz 2P

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 Locked rotor torque : 380 %  
 Breakdown torque : 470 %  
 Rated speed : 3565 rpm

Moment of inertia (J) : 0.0482 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

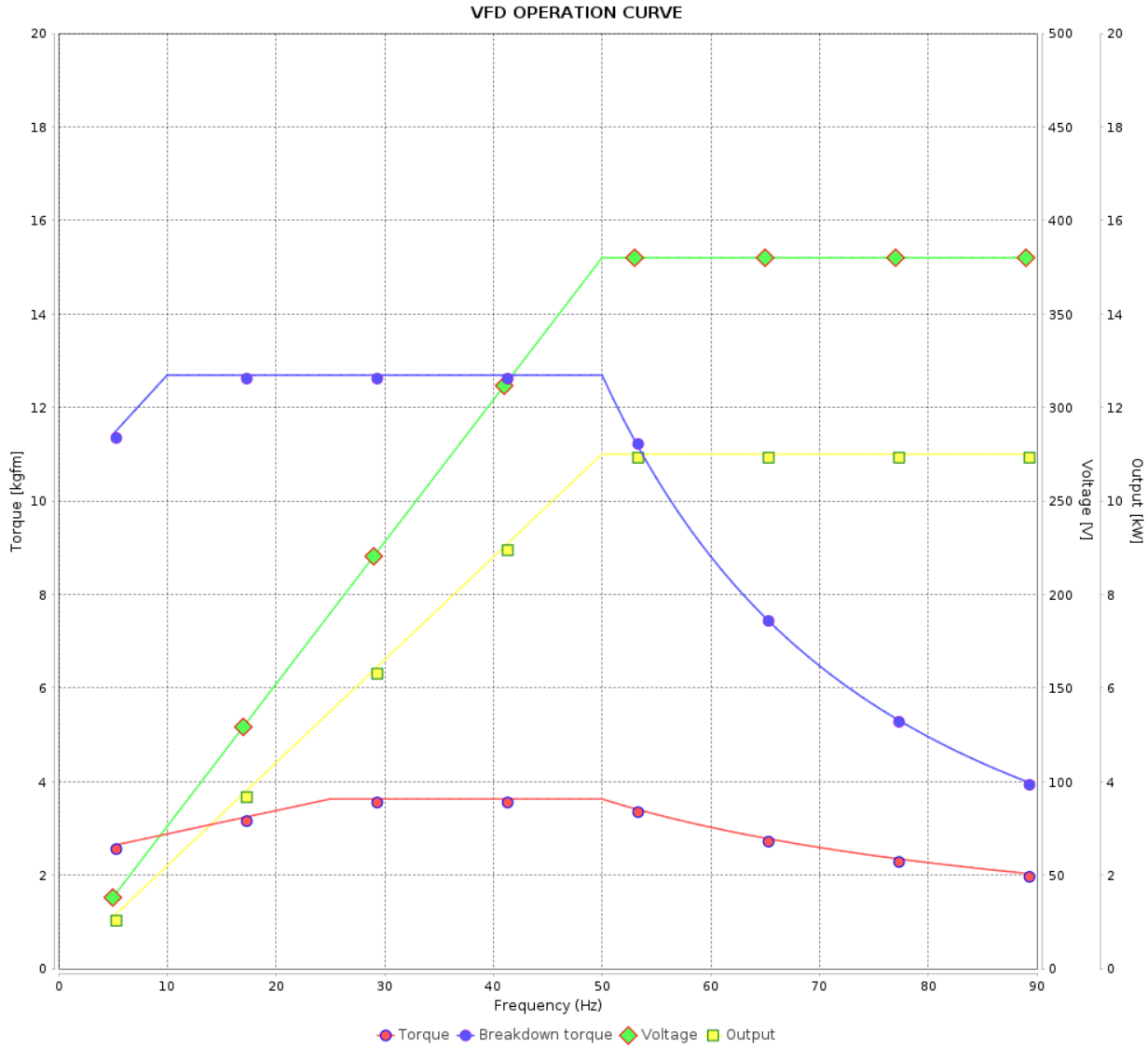
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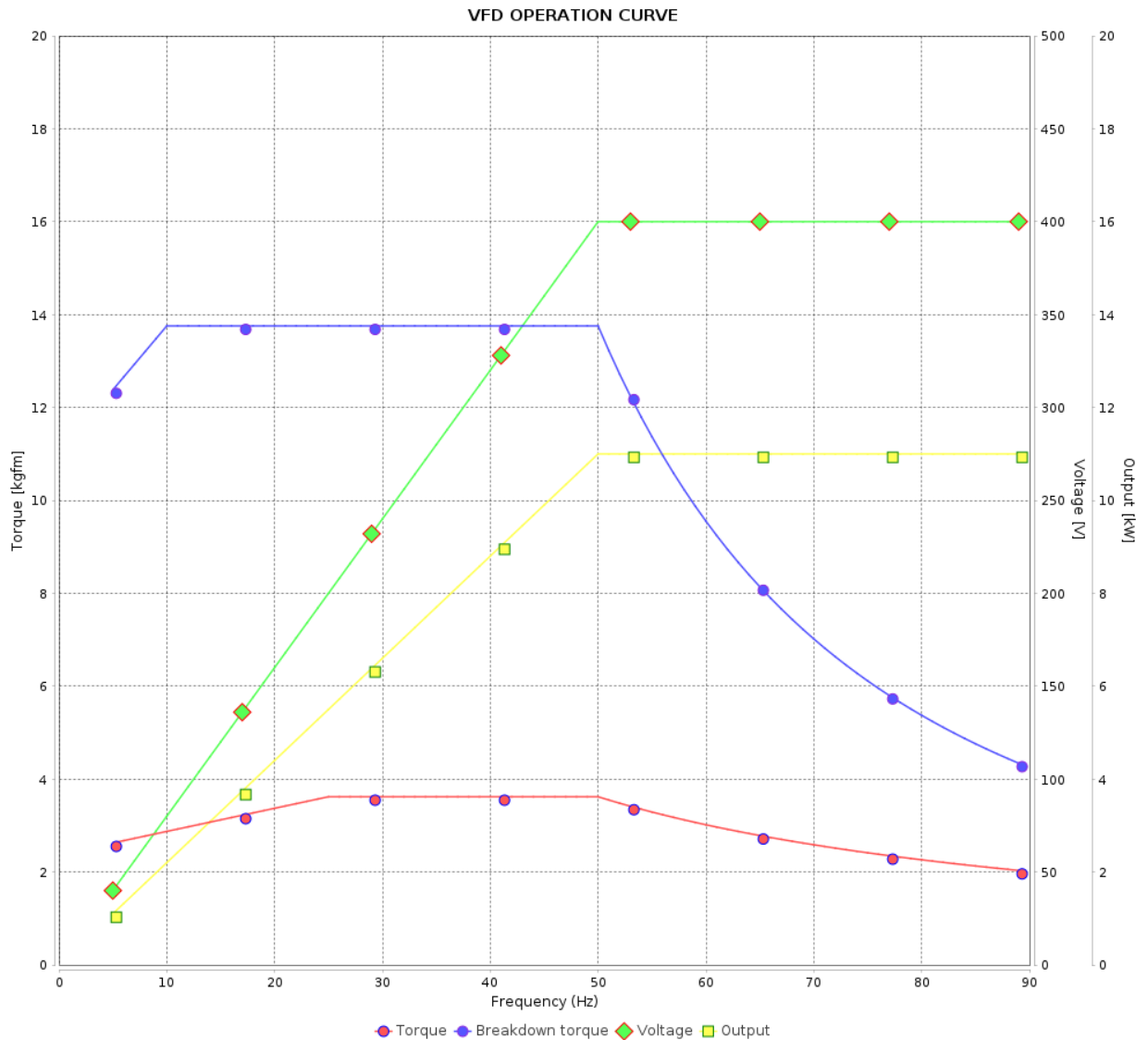
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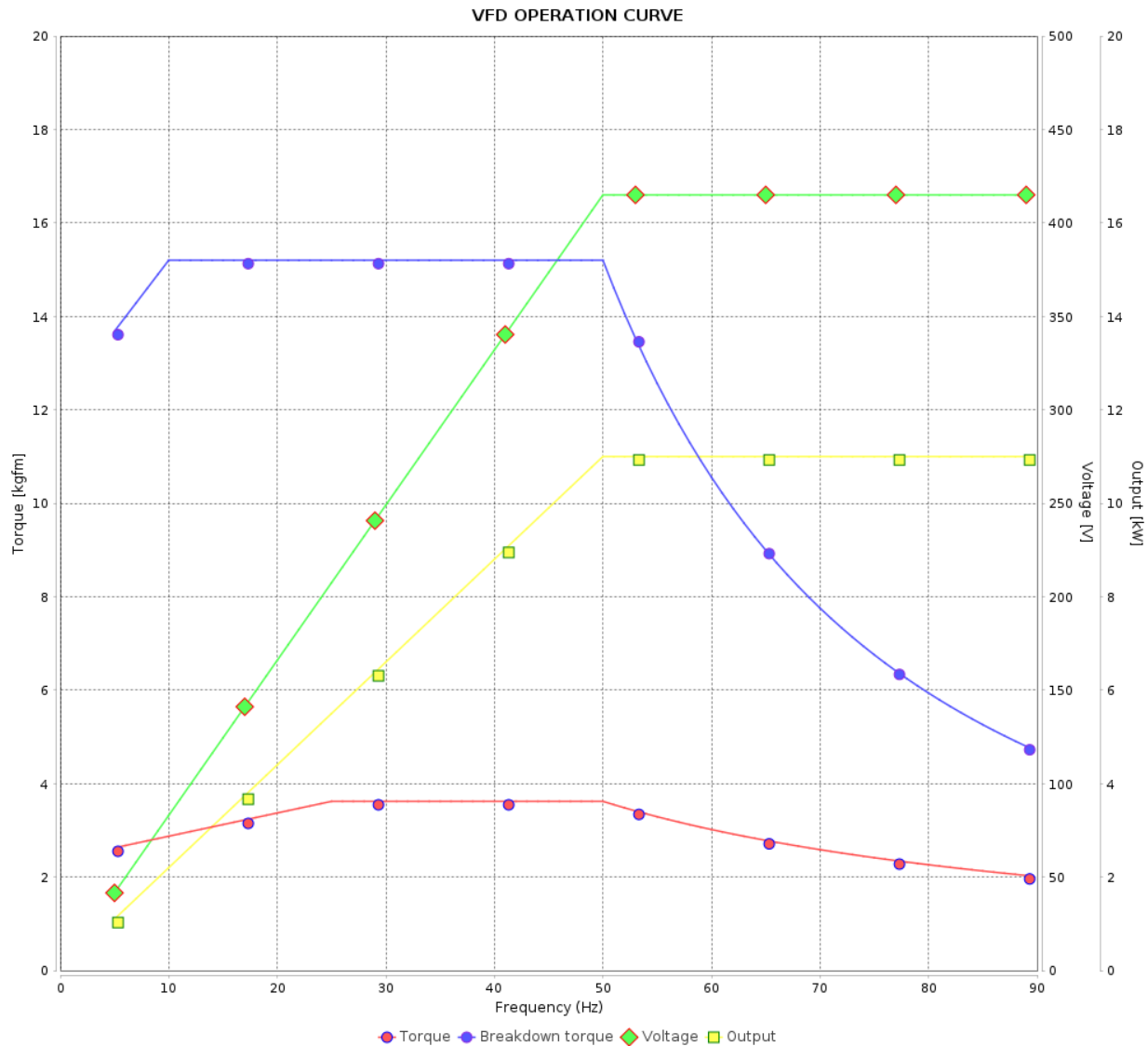
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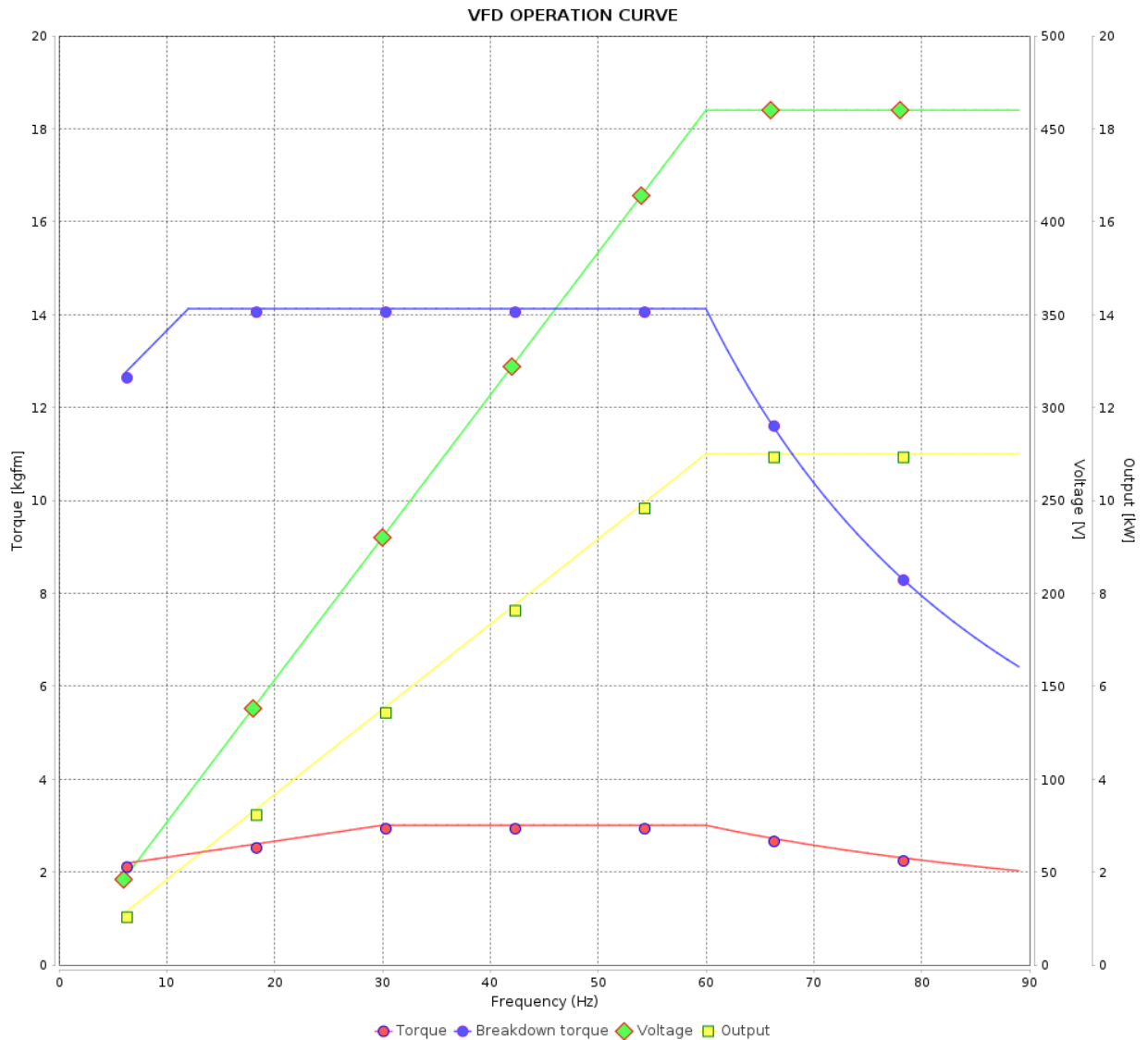
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