

DATA SHEET

Three Phase Induction Motor - Squirrel Cage



Customer		: Astraprom d.o.o.			
Product line		: W22 IE3 Three-Phase		Product code : 12963756	
Frame	: 160M	Cooling method	: IC411 - TEFC		
Insulation class	: F	Mounting	: B35T		
Duty cycle	: 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	: 148 kg		
Protection degree	: IP55	Moment of inertia (J)	: 0.1191 kgm ²		
Design	: N				
Output [kW]	11	11	11	11	
Poles	4	4	4	4	
Frequency [Hz]	50	50	50	60	
Rated voltage [V]	380/660	400/690	415	460	
Rated current [A]	21.5/12.4	20.9/12.1	20.7	18.4	
L. R. Amperes [A]	151/86.7	167/96.9	176	156	
LRC [A]	7.0	8.0	8.5	8.5	
No load current [A]	9.00/5.18	9.50/5.51	10.5	9.20	
Rated speed [RPM]	1475	1479	1480	1780	
Slip [%]	1.67	1.40	1.33	1.11	
Rated torque [kgfm]	7.26	7.24	7.24	6.02	
Locked rotor torque [%]	240	270	300	360	
Breakdown torque [%]	270	300	320	360	
Service factor	1.00	1.00	1.00	1.00	
Temperature rise	80 K	80 K	80 K	80 K	
Locked rotor time	25s (cold) 14s (hot)	23s (cold) 13s (hot)	21s (cold) 12s (hot)	28s (cold) 16s (hot)	
Noise level ²	61.0 dB(A)	61.0 dB(A)	61.0 dB(A)	64.0 dB(A)	
Efficiency (%)	25%				
	50%	91.4	90.7	90.6	90.5
	75%	91.4	91.6	91.4	92.2
	100%	91.4	91.4	91.4	92.4
Power Factor	25%				
	50%	0.69	0.65	0.61	0.62
	75%	0.80	0.77	0.74	0.75
	100%	0.85	0.83	0.81	0.81
Losses at normative operating points (speed;torque), in percentage of rated output power					
Losses (%)	P1 (0,9;1,0)	9.2	9.2	9.2	8.0
	P2 (0,5;1,0)	8.0	8.0	8.0	7.0
	P3 (0,25;1,0)	7.7	7.7	7.7	6.7
	P4 (0,9;0,5)	4.4	4.4	4.4	3.9
	P5 (0,5;0,5)	3.2	3.2	3.2	2.8
	P6 (0,5;0,25)	2.2	2.2	2.2	1.9
	P7 (0,25;0,25)	1.6	1.6	1.6	1.4
Bearing type	: Drive end 6309 ZZ C3 Non drive end 6209 ZZ C3	Foundation loads			
Sealing	: Oil Seal Lip Seal	Max. traction : 267 kgf			
Lubrication interval	: - -	Max. compression : 415 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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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

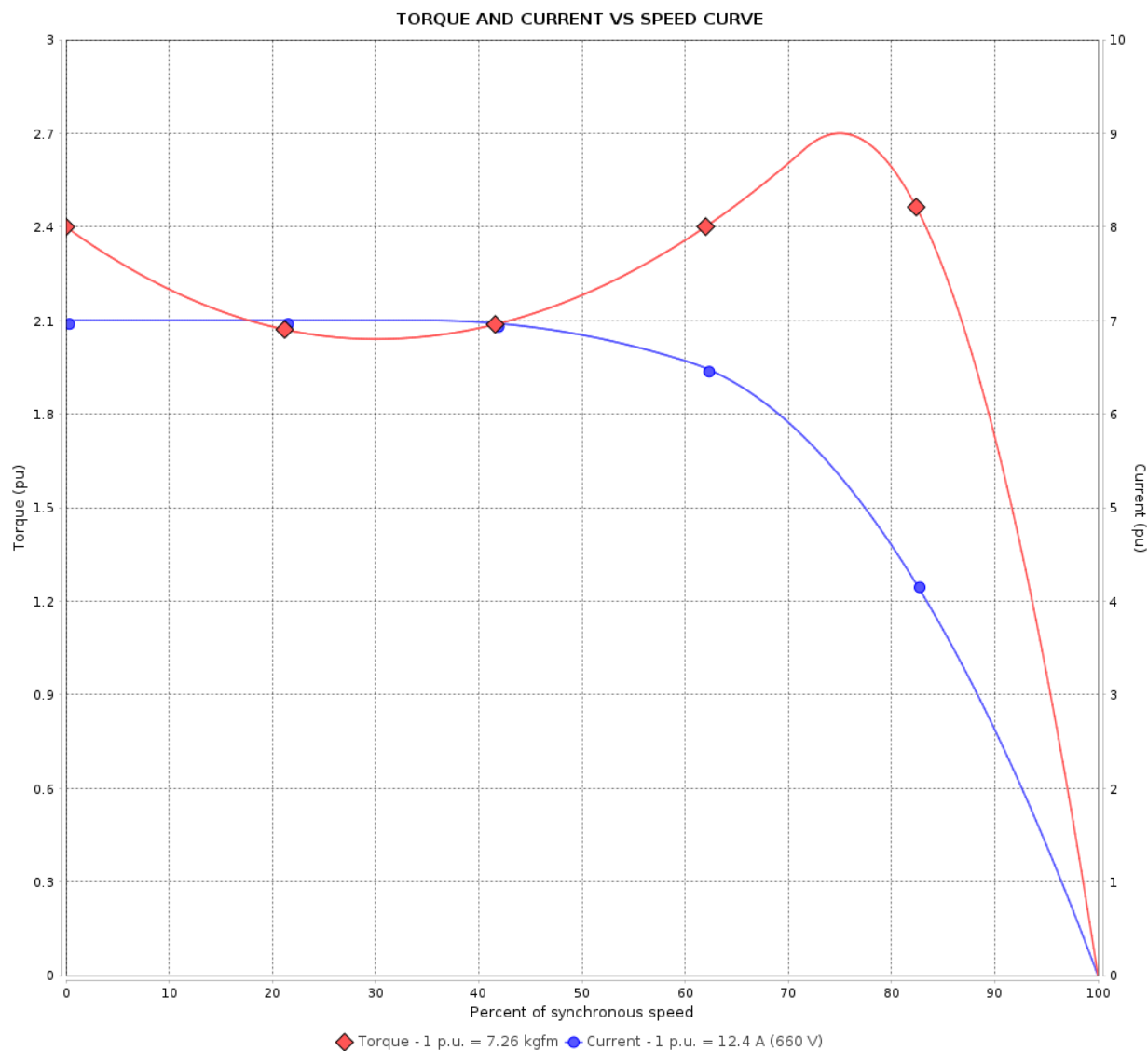
Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

Product line : W22 IE3 Three-Phase

Product code : 12963756



Performance : 380/660 V 50 Hz 4P

Rated current	: 21.5/12.4 A	Moment of inertia (J)	: 0.1191 kgm ²
LRC	: 7.0	Duty cycle	: S1
Rated torque	: 7.26 kgfm	Insulation class	: F
Locked rotor torque	: 240 %	Service factor	: 1.00
Breakdown torque	: 270 %	Temperature rise	: 80 K
Rated speed	: 1475 rpm	Design	: N

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

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TORQUE AND CURRENT VS SPEED CURVE



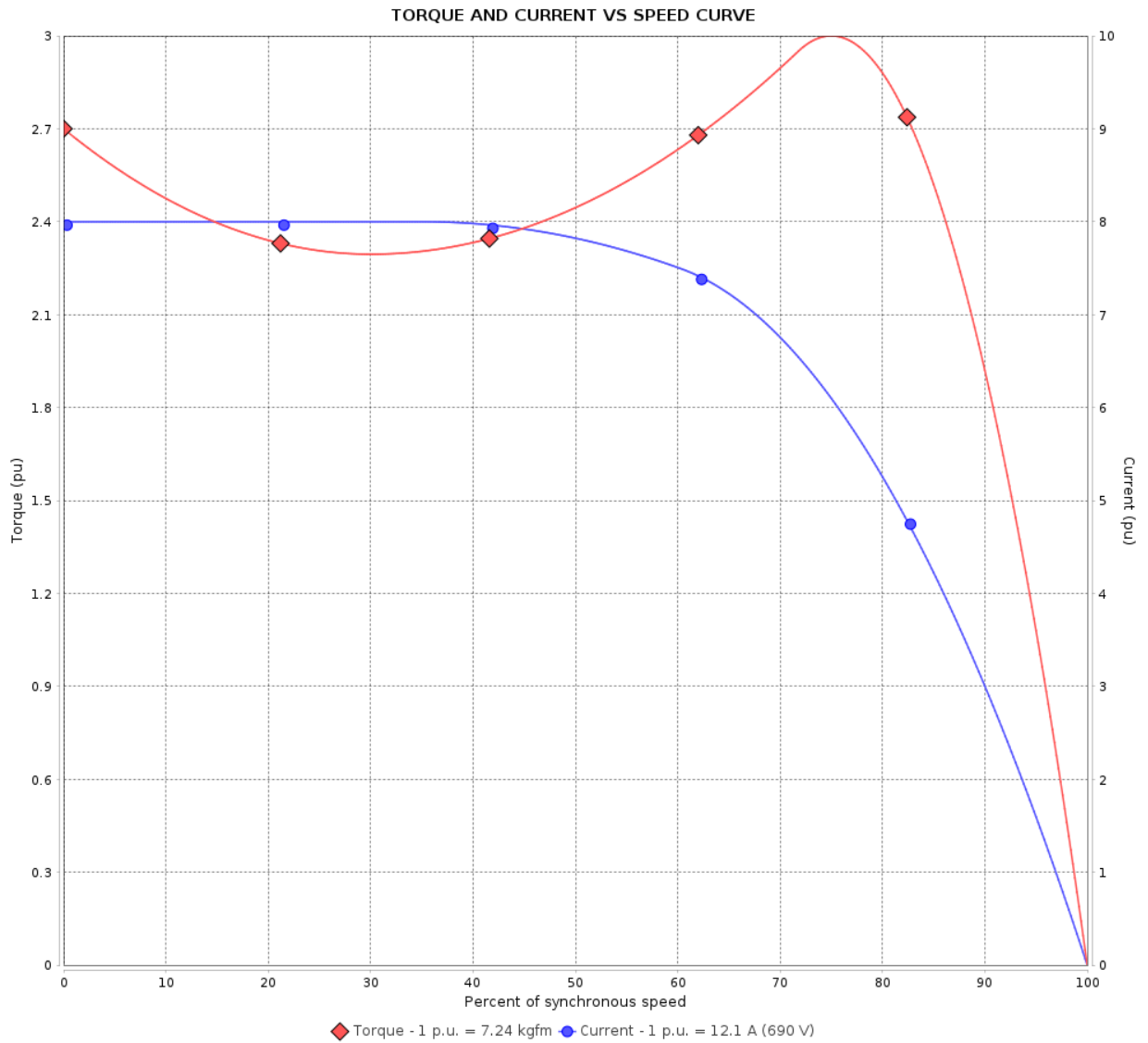
Three Phase Induction Motor - Squirrel Cage

Customer : Astraprom d.o.o.

Product line : W22 IE3 Three-Phase

Product code :

12963756



Performance : 400/690 V 50 Hz 4P

Rated current : 20.9/12.1 A
 LRC : 8.0
 Rated torque : 7.24 kgfm
 Locked rotor torque : 270 %
 Breakdown torque : 300 %
 Rated speed : 1479 rpm

Moment of inertia (J) : 0.1191 kgm²
 Duty cycle : S1
 Insulation class : F
 Service factor : 1.00
 Temperature rise : 80 K
 Design : N

Locked rotor time : 23s (cold) 13s (hot)

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TORQUE AND CURRENT VS SPEED CURVE

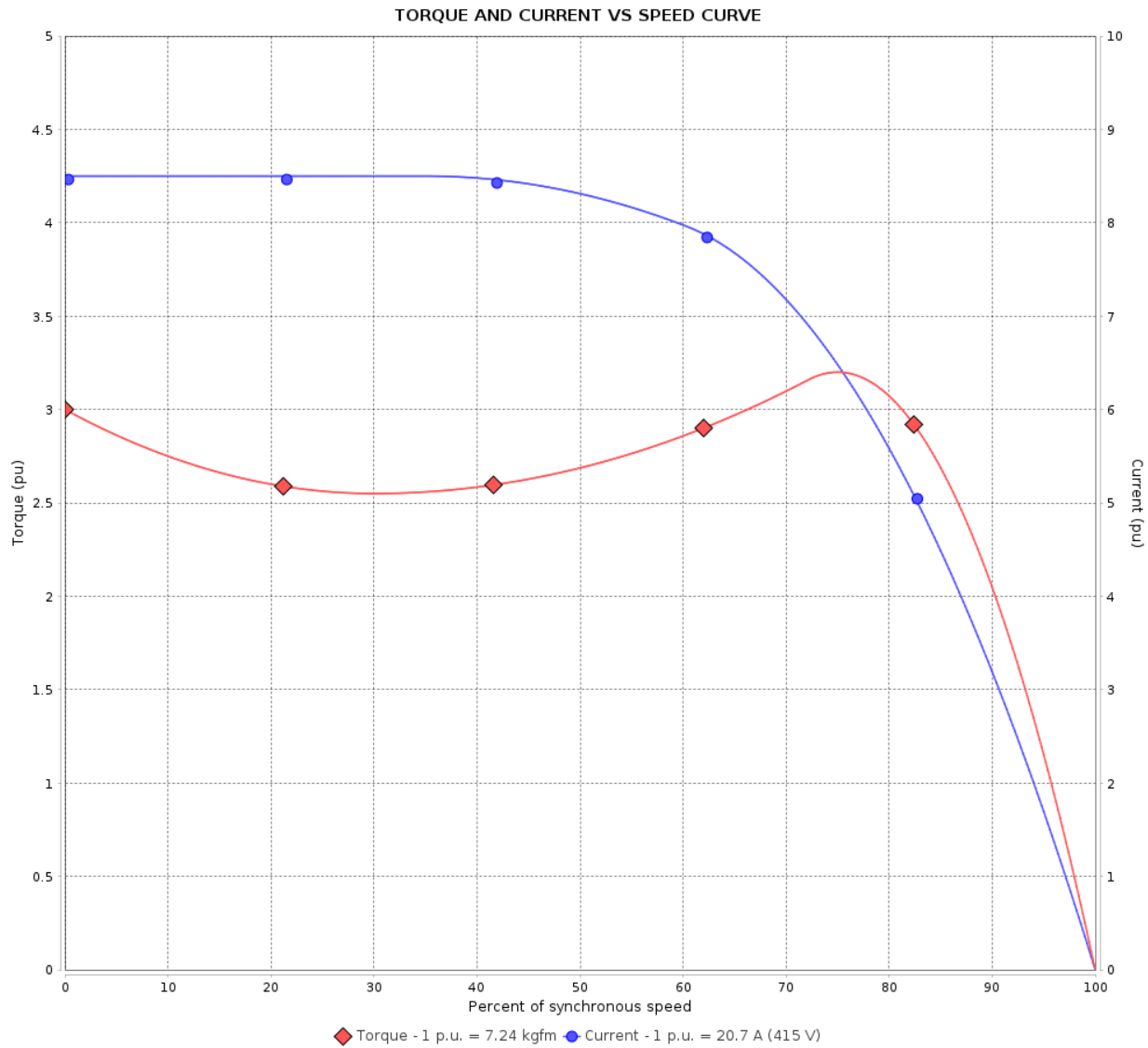
Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

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Product code : 12963756



Performance : 415 V 50 Hz 4P

Rated current	: 20.7 A	Moment of inertia (J)	: 0.1191 kgm ²
LRC	: 8.5	Duty cycle	: S1
Rated torque	: 7.24 kgfm	Insulation class	: F
Locked rotor torque	: 300 %	Service factor	: 1.00
Breakdown torque	: 320 %	Temperature rise	: 80 K
Rated speed	: 1480 rpm	Design	: N

Locked rotor time : 21s (cold) 12s (hot)

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TORQUE AND CURRENT VS SPEED CURVE

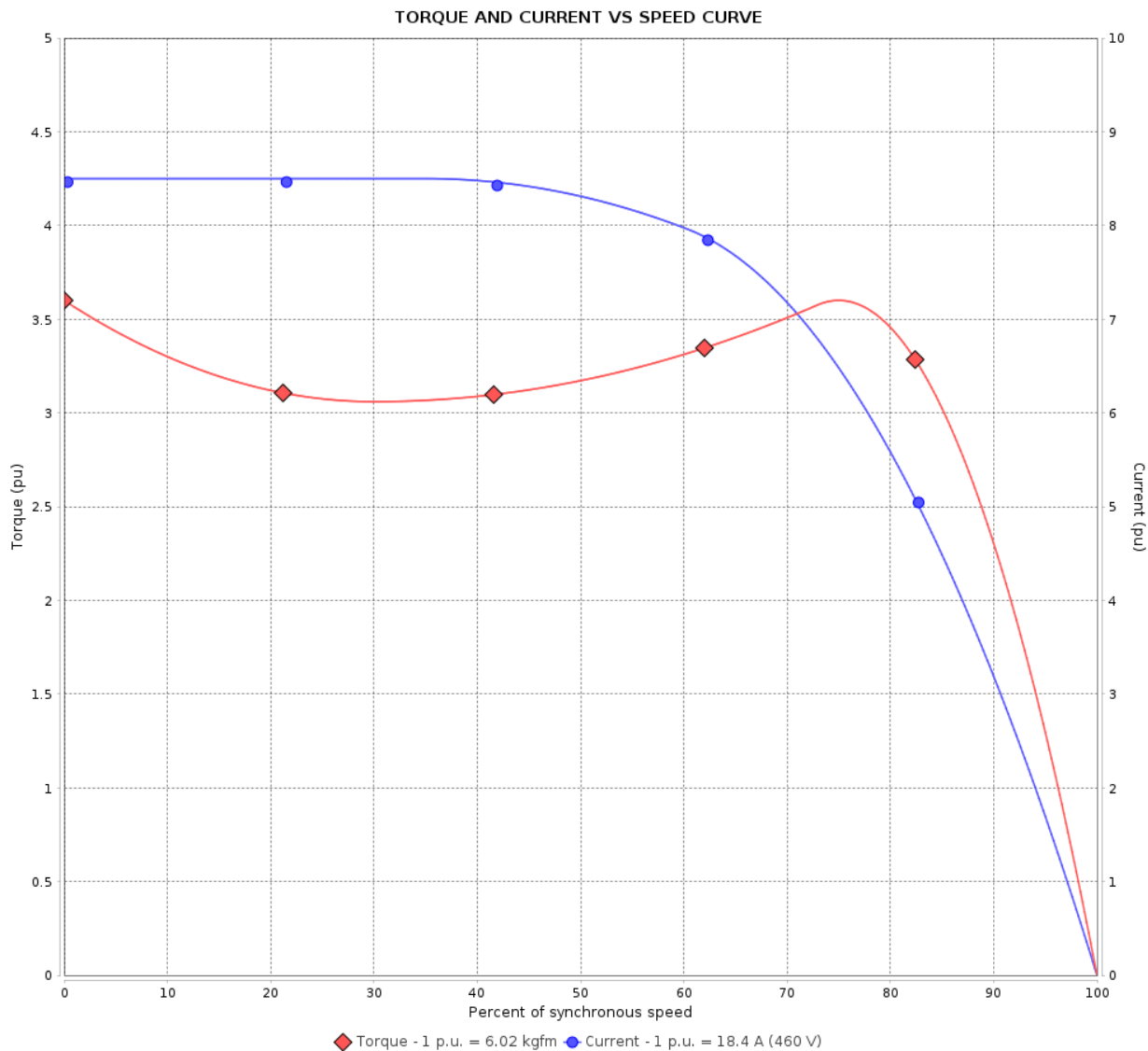


Three Phase Induction Motor - Squirrel Cage

Customer : Astraprom d.o.o.

Product line : W22 IE3 Three-Phase

Product code : 12963756



Performance : 460 V 60 Hz 4P

Rated current	: 18.4 A	Moment of inertia (J)	: 0.1191 kgm ²
LRC	: 8.5	Duty cycle	: S1
Rated torque	: 6.02 kgfm	Insulation class	: F
Locked rotor torque	: 360 %	Service factor	: 1.00
Breakdown torque	: 360 %	Temperature rise	: 80 K
Rated speed	: 1780 rpm	Design	: N

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

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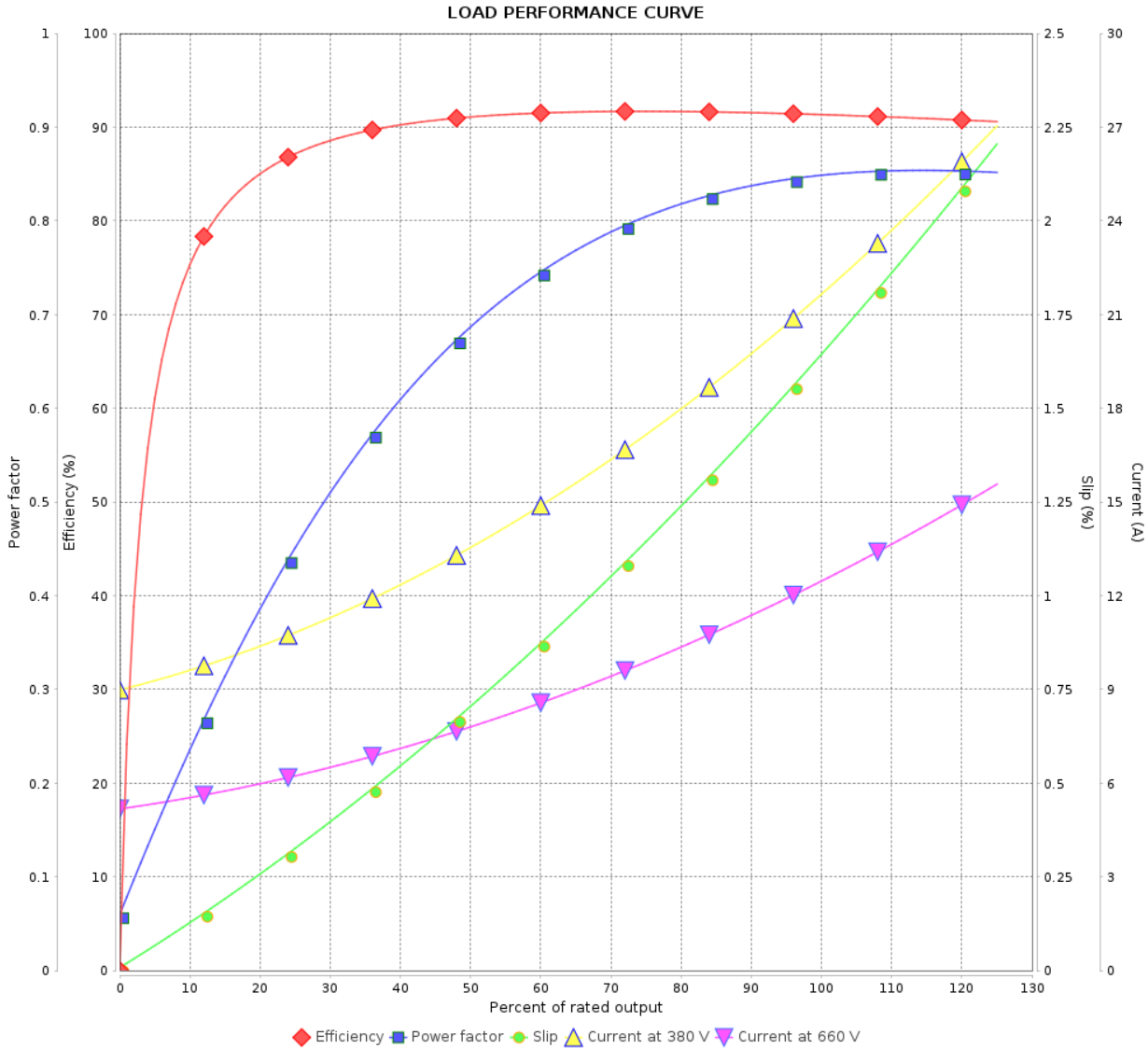
Three Phase Induction Motor - Squirrel Cage



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Performance : 380/660 V 50 Hz 4P

Rated current : 21.5/12.4 A
 LRC : 7.0
 Rated torque : 7.26 kgfm
 Locked rotor torque : 240 %
 Breakdown torque : 270 %
 Rated speed : 1475 rpm

Moment of inertia (J) : 0.1191 kgm²
 Duty cycle : S1
 Insulation class : F
 Service factor : 1.00
 Temperature rise : 80 K
 Design : N

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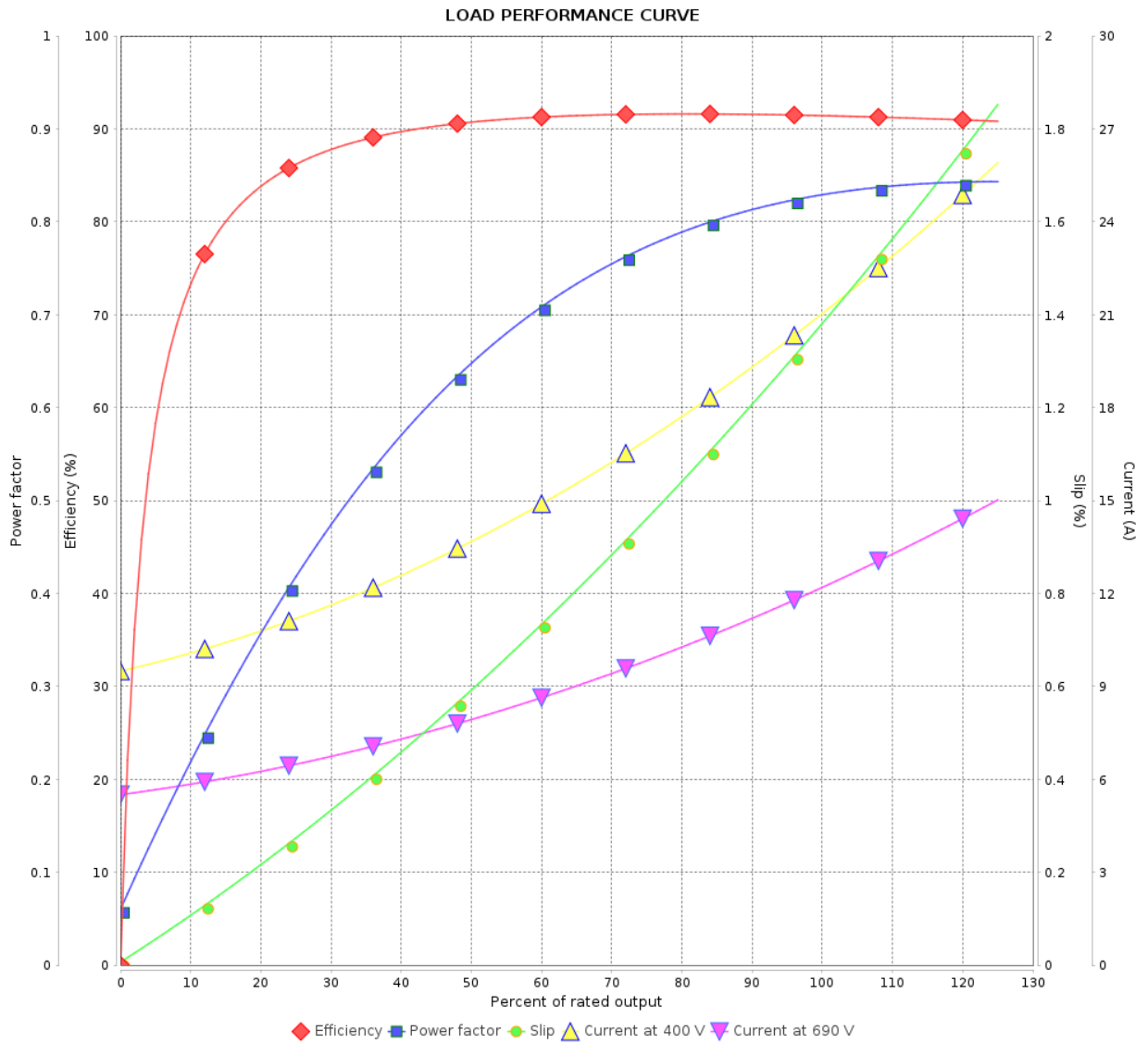
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Performance : 400/690 V 50 Hz 4P

Rated current : 20.9/12.1 A
 LRC : 8.0
 Rated torque : 7.24 kgfm
 Locked rotor torque : 270 %
 Breakdown torque : 300 %
 Rated speed : 1479 rpm

Moment of inertia (J) : 0.1191 kgm²
 Duty cycle : S1
 Insulation class : F
 Service factor : 1.00
 Temperature rise : 80 K
 Design : N

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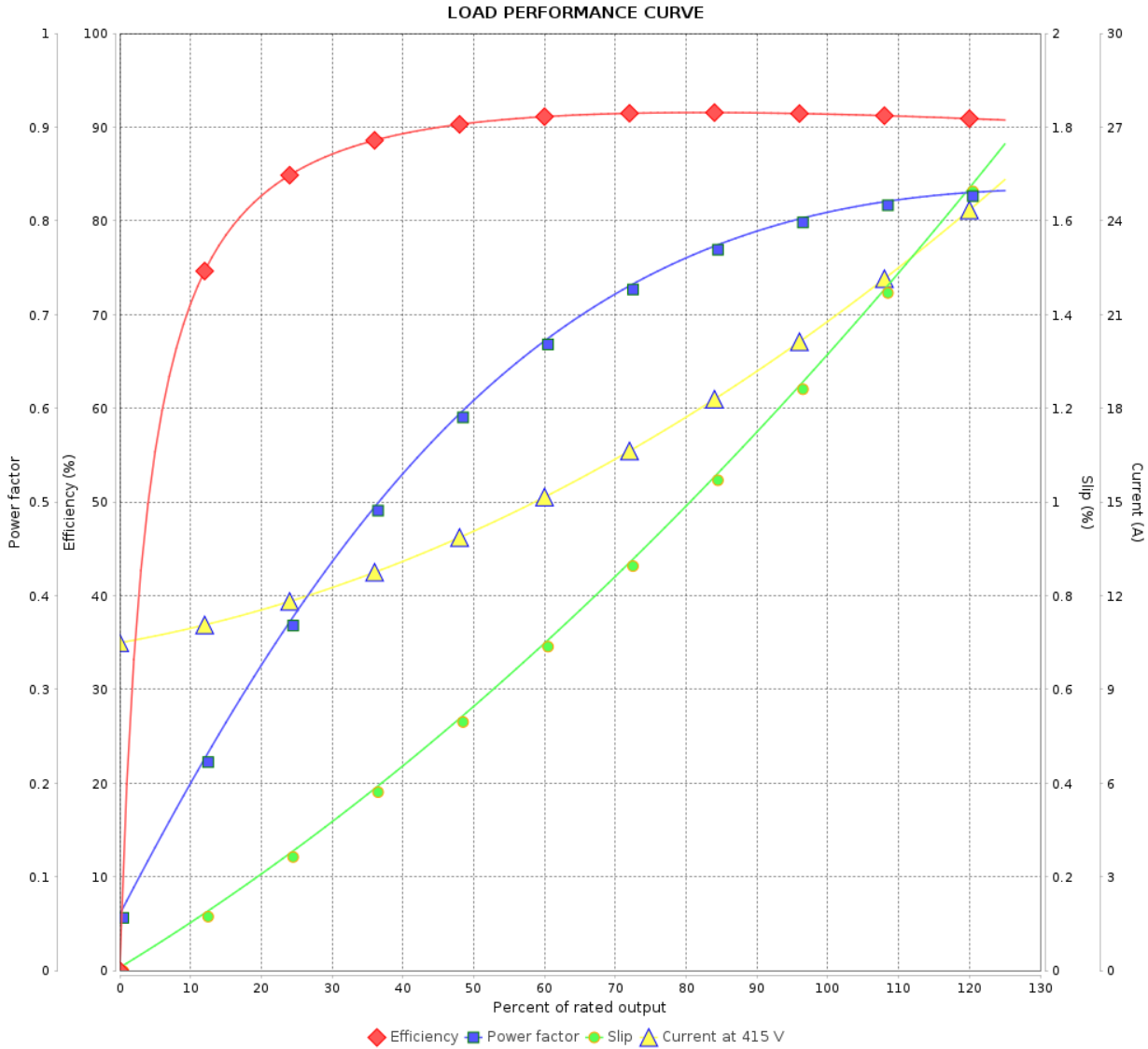
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LRC	: 8.5	Duty cycle	: S1
Rated torque	: 7.24 kgfm	Insulation class	: F
Locked rotor torque	: 300 %	Service factor	: 1.00
Breakdown torque	: 320 %	Temperature rise	: 80 K
Rated speed	: 1480 rpm	Design	: N

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LOAD PERFORMANCE CURVE

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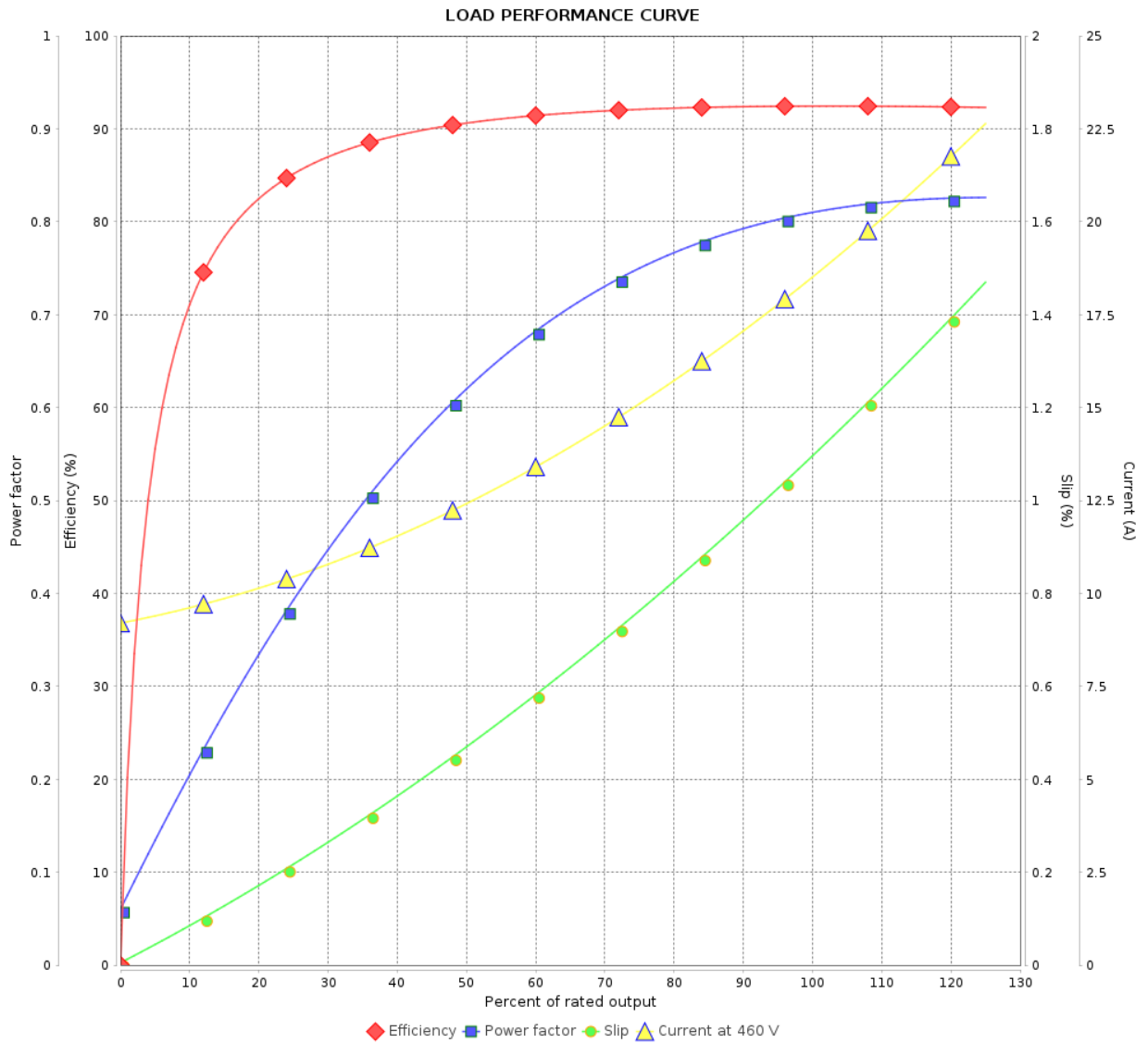


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 Temperature rise : 80 K
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THERMAL LIMIT CURVE

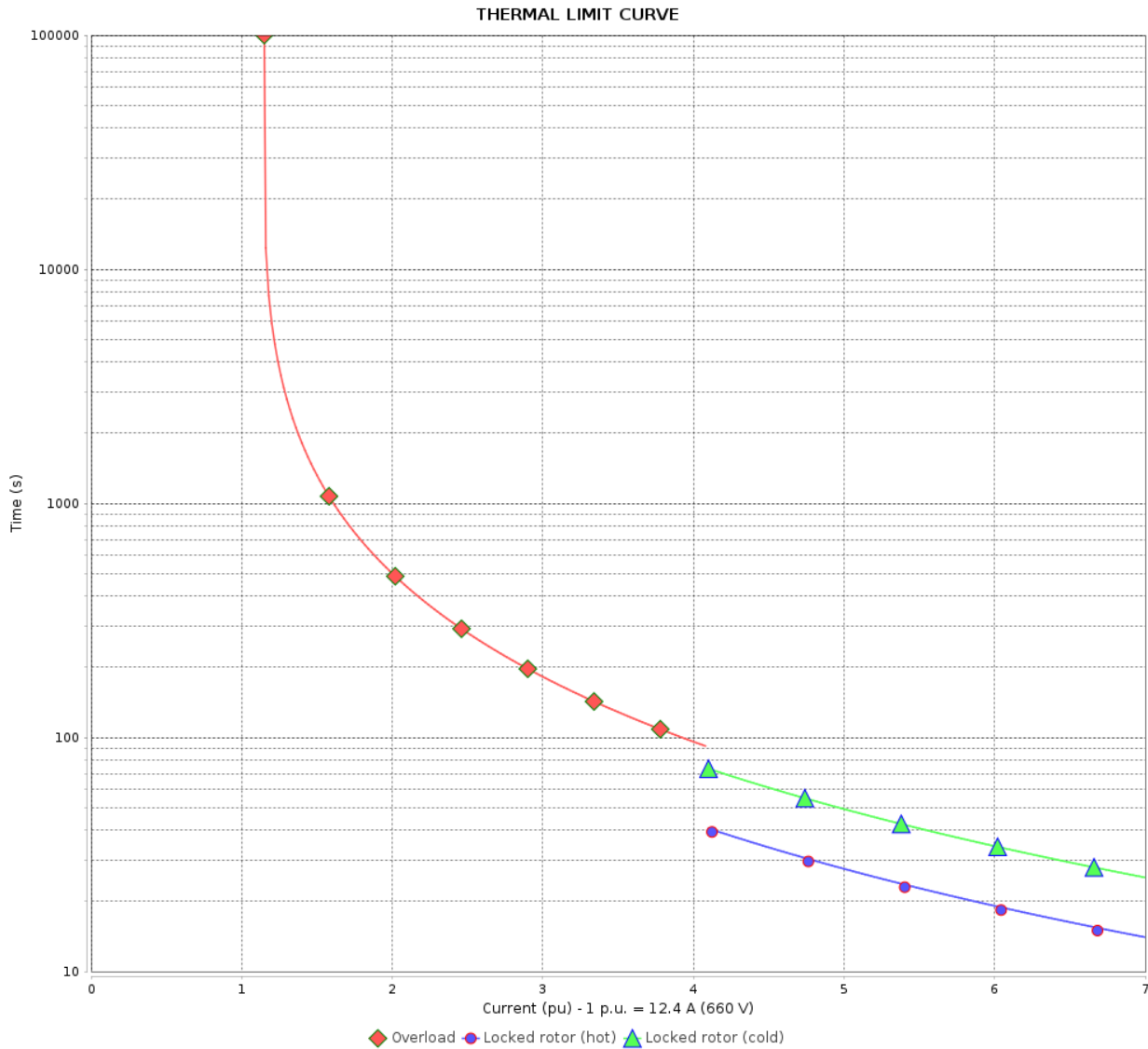
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Moment of inertia (J) : 0.1191 kgm²
 Duty cycle : S1
 Insulation class : F
 Service factor : 1.00
 Temperature rise : 80 K
 Design : N

Heating constant

Cooling constant

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THERMAL LIMIT CURVE

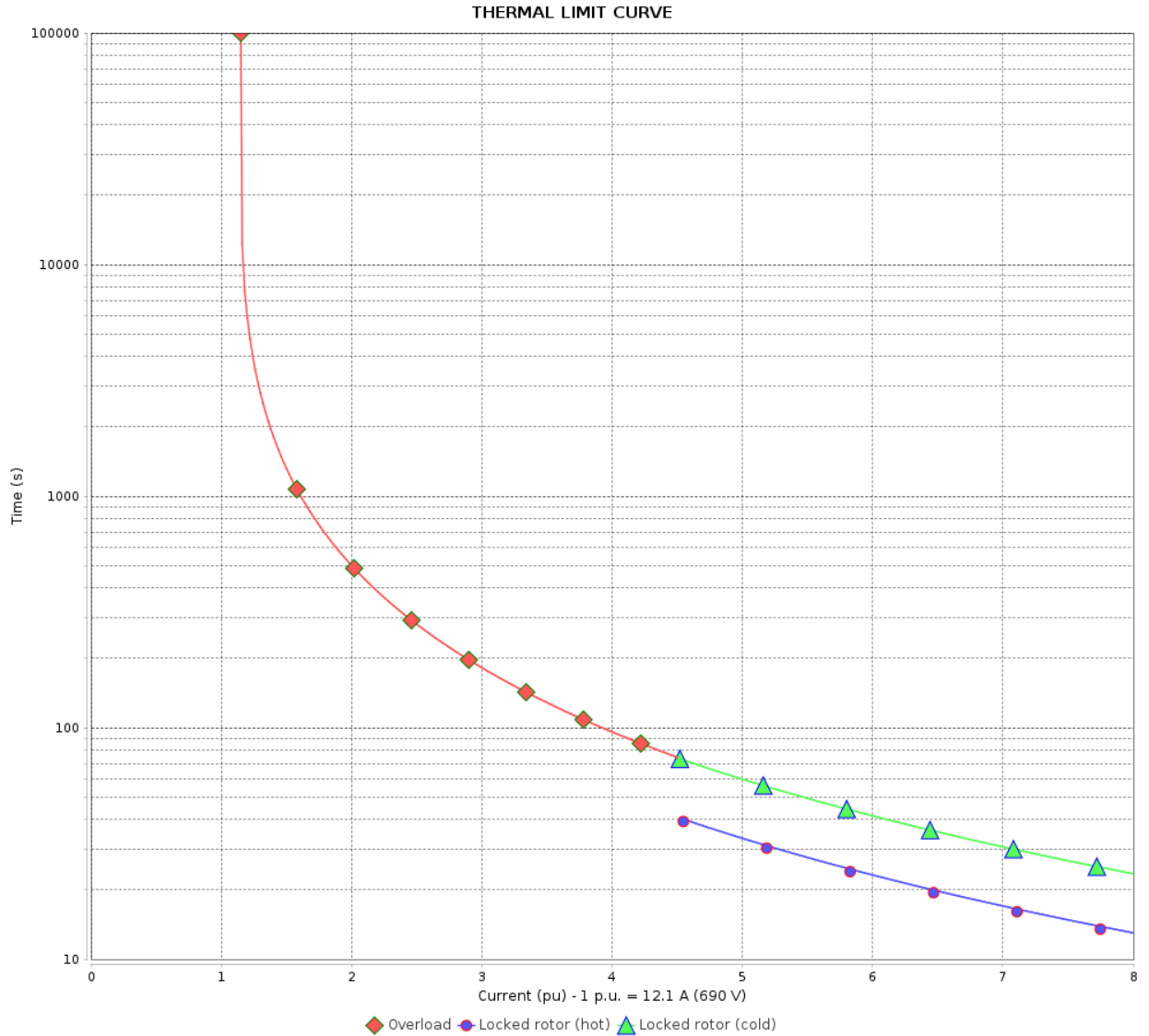
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Cooling constant

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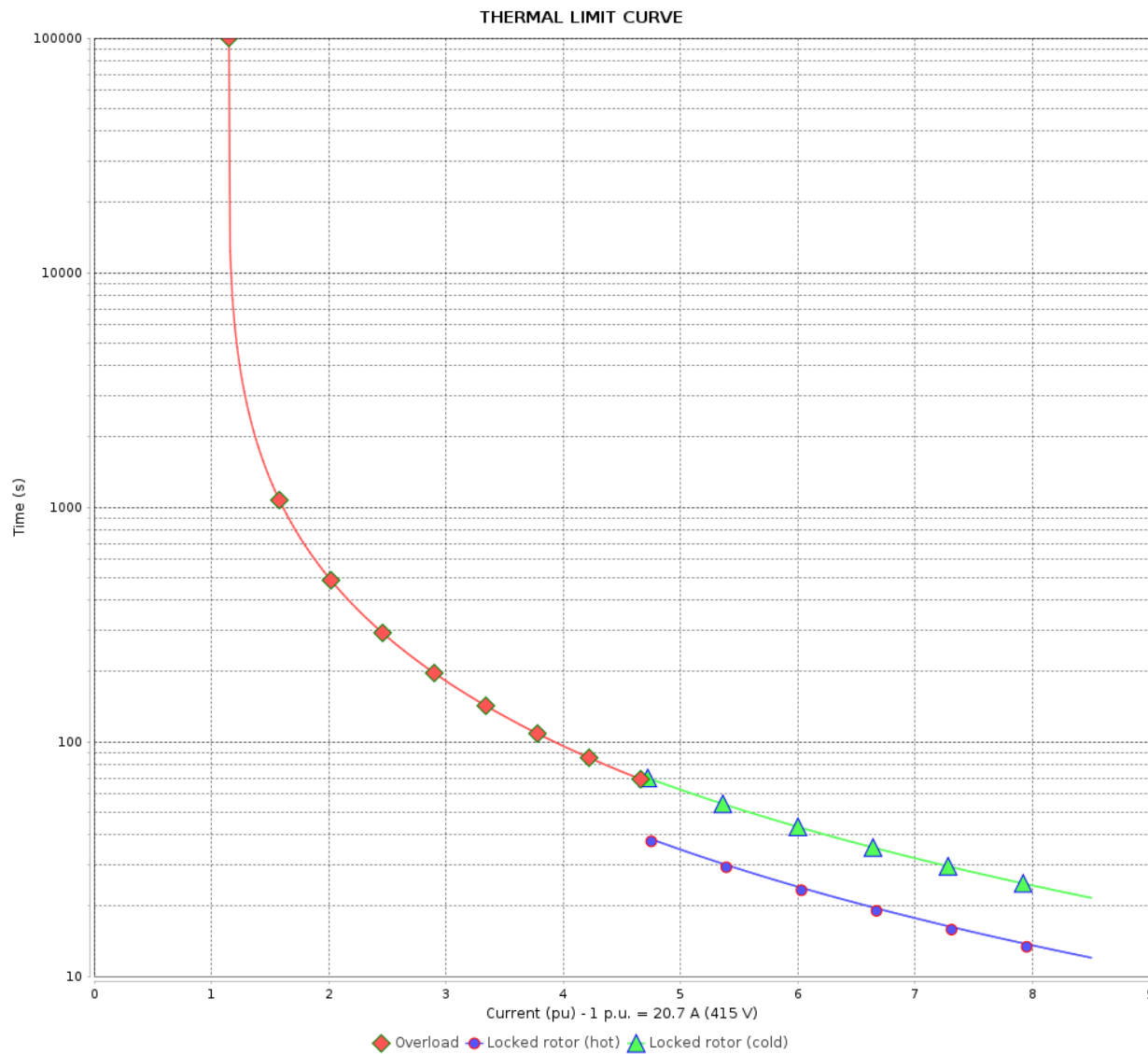
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Rated torque	: 7.24 kgfm	Insulation class	: F
Locked rotor torque	: 300 %	Service factor	: 1.00
Breakdown torque	: 320 %	Temperature rise	: 80 K
Rated speed	: 1480 rpm	Design	: N

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Cooling constant

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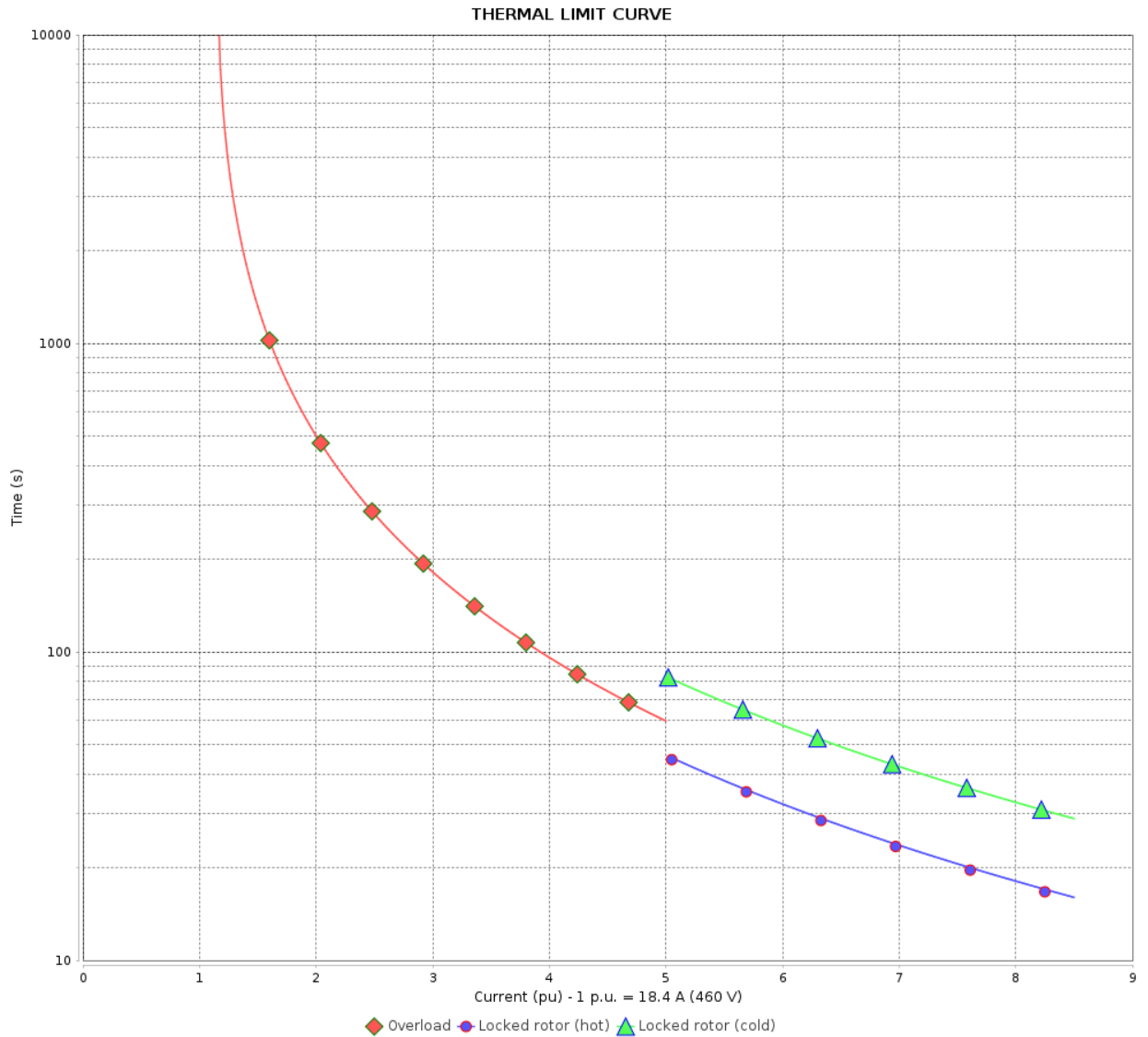


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Product line : W22 IE3 Three-Phase

Product code :

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Performance : 460 V 60 Hz 4P

Rated current : 18.4 A
 LRC : 8.5
 Rated torque : 6.02 kgfm
 Locked rotor torque : 360 %
 Breakdown torque : 360 %
 Rated speed : 1780 rpm

Moment of inertia (J) : 0.1191 kgm²
 Duty cycle : S1
 Insulation class : F
 Service factor : 1.00
 Temperature rise : 80 K
 Design : N

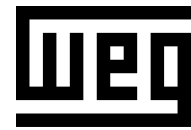
Heating constant

Cooling constant

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VFD OPERATION CURVE

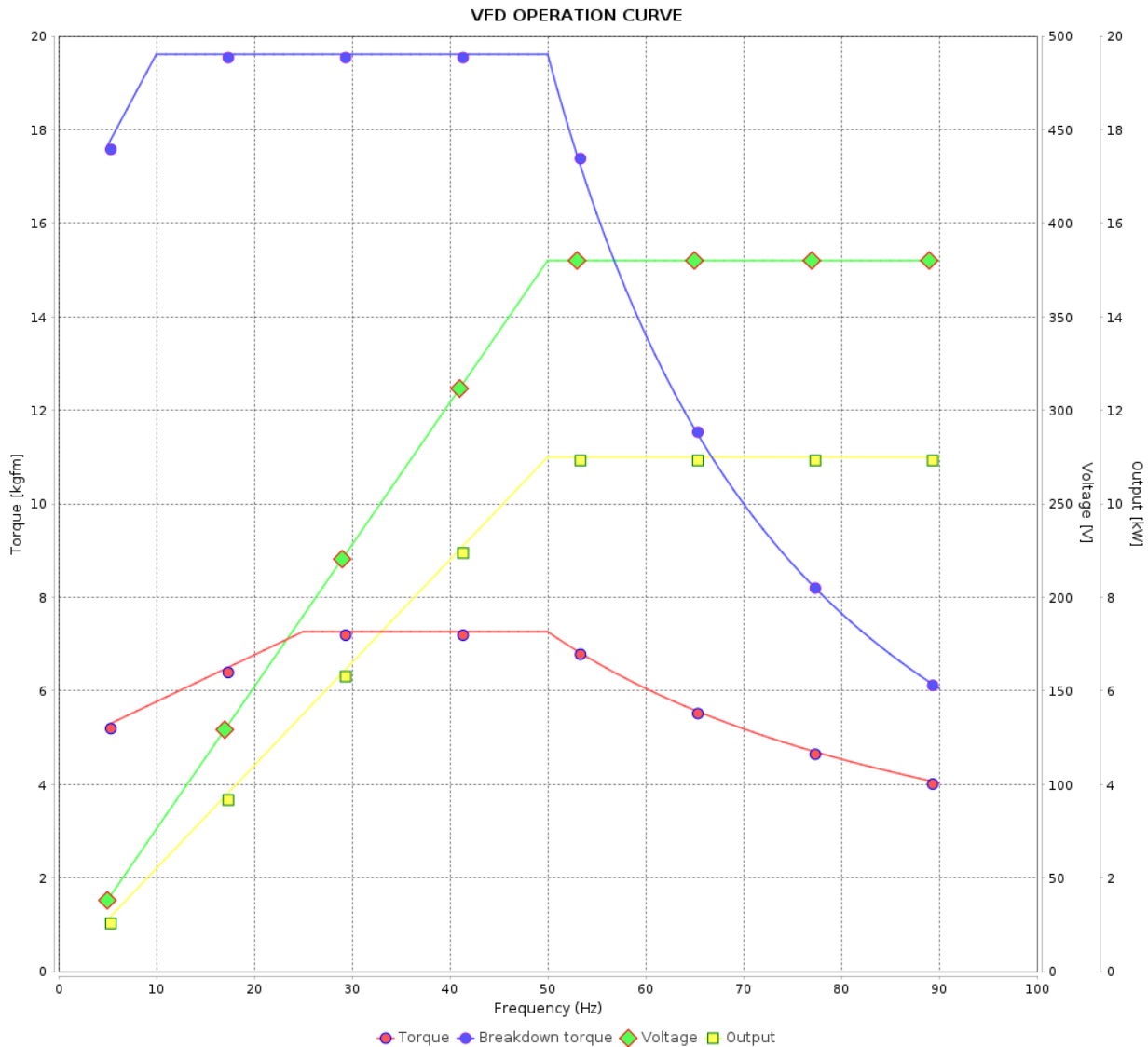
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Rated current : 21.5/12.4 A
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 Locked rotor torque : 240 %
 Breakdown torque : 270 %
 Rated speed : 1475 rpm

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 Duty cycle : S1
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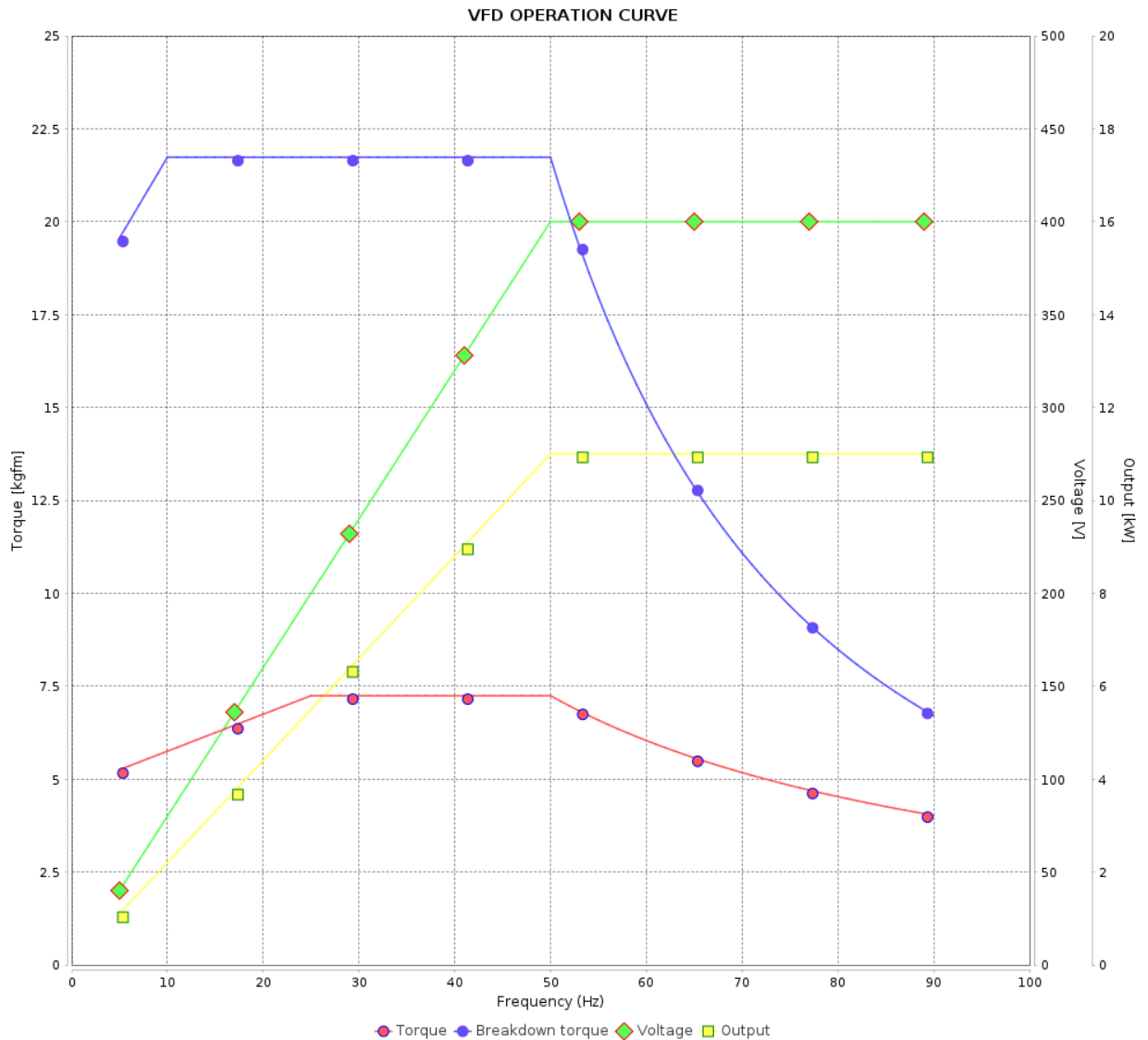
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Performance : 400/690 V 50 Hz 4P

Rated current : 20.9/12.1 A
 LRC : 8.0
 Rated torque : 7.24 kgfm
 Locked rotor torque : 270 %
 Breakdown torque : 300 %
 Rated speed : 1479 rpm

Moment of inertia (J) : 0.1191 kgm²
 Duty cycle : S1
 Insulation class : F
 Service factor : 1.00
 Temperature rise : 80 K
 Design : N

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VFD OPERATION CURVE

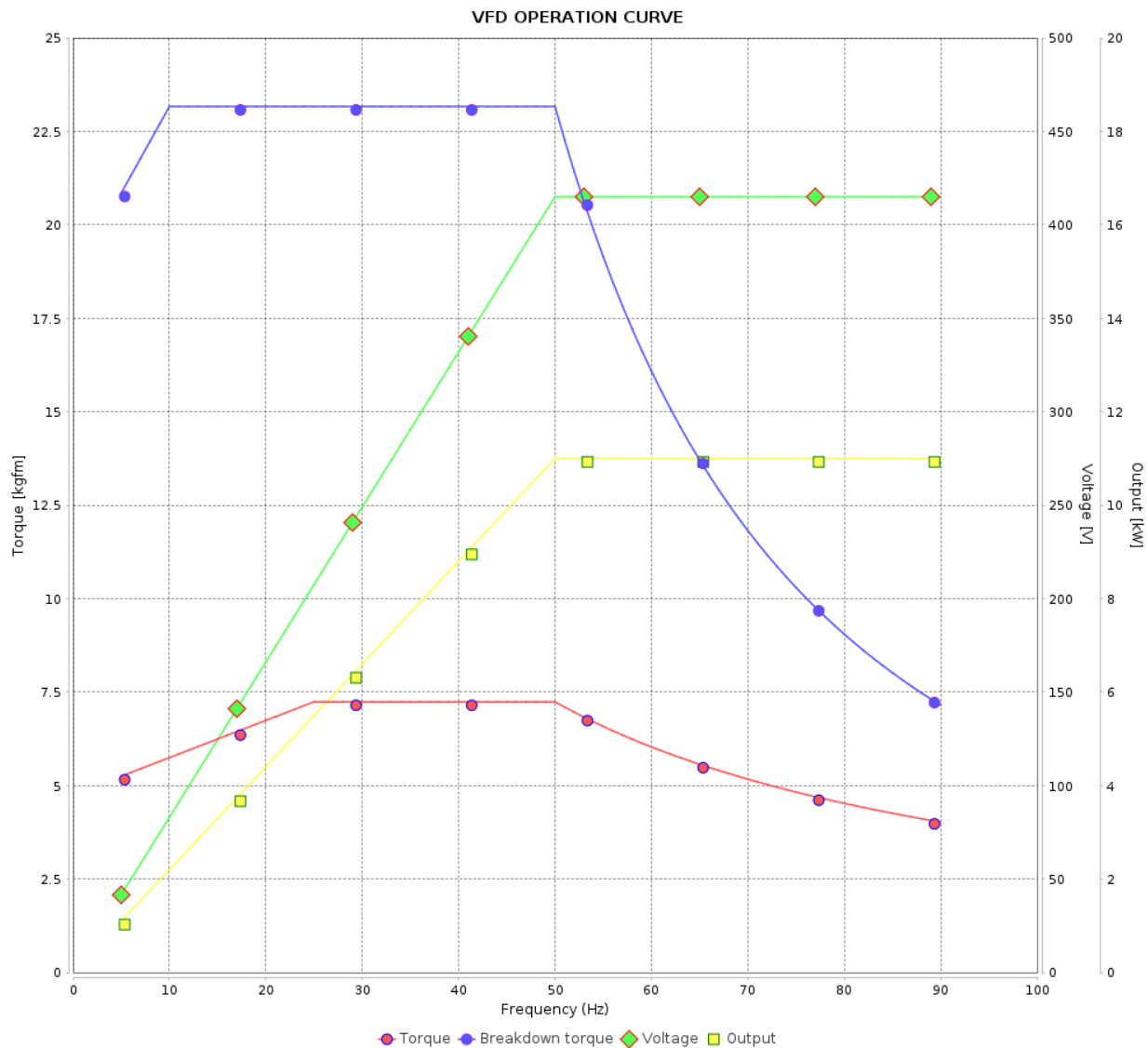
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LRC	: 8.5	Duty cycle	: S1
Rated torque	: 7.24 kgfm	Insulation class	: F
Locked rotor torque	: 300 %	Service factor	: 1.00
Breakdown torque	: 320 %	Temperature rise	: 80 K
Rated speed	: 1480 rpm	Design	: N

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VFD OPERATION CURVE

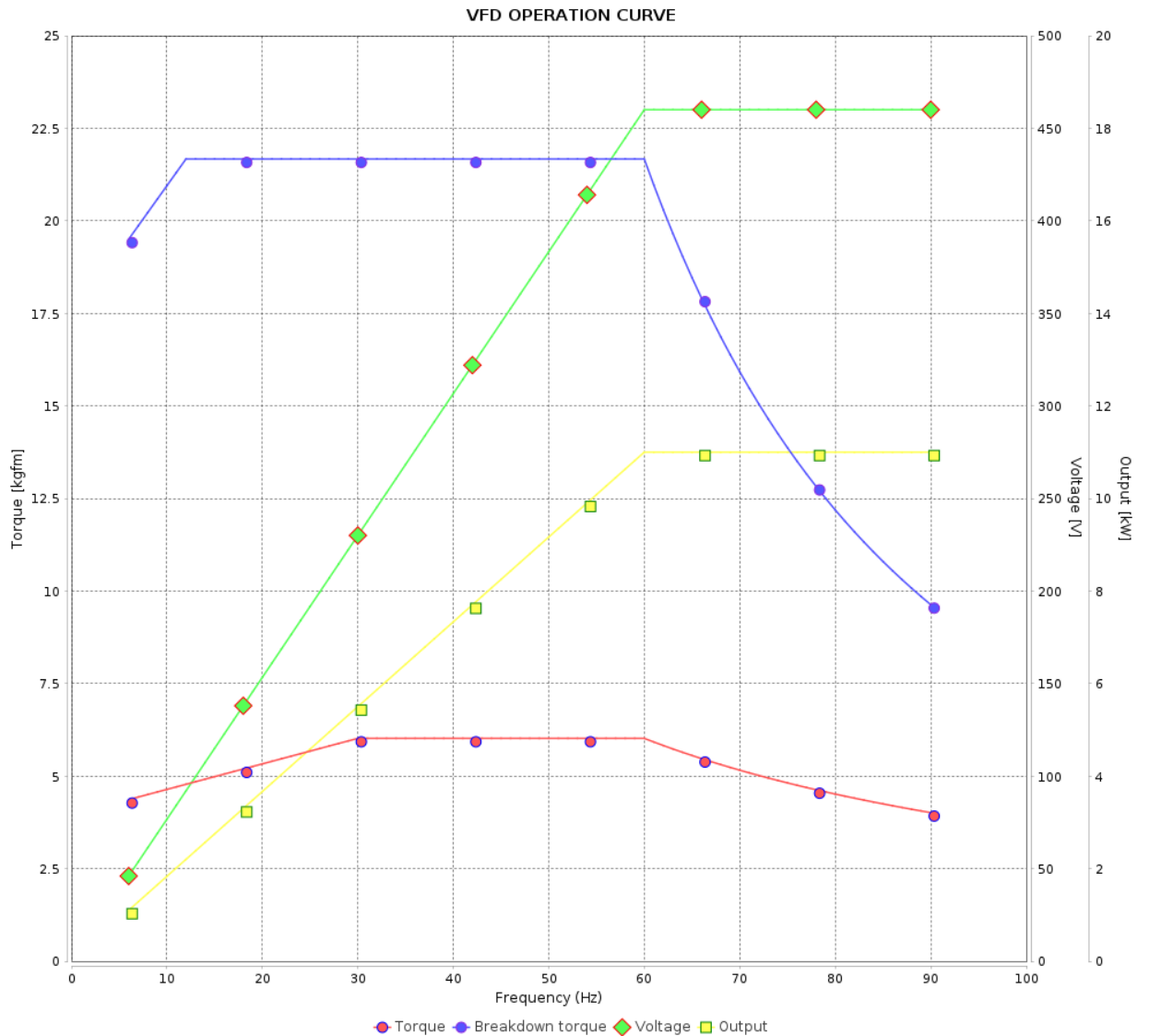
Three Phase Induction Motor - Squirrel Cage



Customer : Astraprom d.o.o.

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Performance : 460 V 60 Hz 4P

Rated current : 18.4 A
 LRC : 8.5
 Rated torque : 6.02 kgfm
 Locked rotor torque : 360 %
 Breakdown torque : 360 %
 Rated speed : 1780 rpm

Moment of inertia (J) : 0.1191 kgm²
 Duty cycle : S1
 Insulation class : F
 Service factor : 1.00
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 Design : N

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