



VALIADIS S.A.

HELLENIC MOTORS

Type Test Report three phase squirrel-cage motors

Type : K355M-4	Output : 250 kW	Motor No. :	
Voltage : 400 V	Conn. : Δ	Duty type : S1	
Current : 423 A	Speed : 1490 rpm	Frequency : 50 Hz	Cos ϕ : 0.89
Remarks: 3Xptc150°C		Eff. : 96.2 %	IE3

Stator winding resistance measurement (cold)

Connection : Δ	$R_{u1-v1} : 0.006922 \Omega$	
Winding temp: 27.2 °C	$R_{v1-w1} : 0.006930 \Omega$	$R_{av} = 0.006928 \Omega$
Room temp: 27.2 °C	$R_{w1-u1} : 0.006931 \Omega$	

No-load test

$$R_{begin} = 0.007736 \Omega \quad R_{end} = 0.007724 \Omega$$

				Losses		
Uo	Io	Po	cos ϕ	Vcu1	Vfe	Vw
V	A	W		W	W	W
473	173.6	5696	0.040	349	3998	1349
438	133.7	4355	0.043	207	2799	1349
400	108.2	3617	0.048	136	2132	1349
358	90.6	3142	0.056	95	1698	1349
310	75.9	2731	0.067	67	1315	1349
253	60.6	2295	0.086	43	903	1349
179	42.5	1822	0.138	21	452	1349
127	31.3	1584	0.230	11	224	1349

Sound pressure level in dB (A) (at 1 m): 84.8

Sound power level in dB(A): 99

Vibration level (mm/s): x = 0.5 y = 0.7 z = 0.4

Temperature rise test

Voltage : 400 V, Frequency : 50 Hz, Current : 428.4 A, Connection : Δ

According to IEC 34-1	Time	Room temp. °C	Rwdg Ω	Wdg. temp. °C	Wdg. temp. rise(K)	Temperature (oC) with ETD*			
						Wdg.	Bearing DE	Bearing NDE	Frame
Begin	08:15	21.5	0.006753	21.5	-----				21.5
	14:05	24.0							65.8
	14:35	24.2							66.4
End	15:05	24.3	0.008383	82.3	58		66.5	65	66.6

* ETD= embedded temperature detector



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Load test

Frequency: 50 Hz Connection: Δ $T_{\text{wdg.Begin}} = 83.2 \text{ }^\circ\text{C}$ $R_{\text{Begin}} = 0.008408 \text{ } \Omega$
 $T_{\text{wdg.end}} = 82.9 \text{ }^\circ\text{C}$ $R_{\text{end}} = 0.008400 \text{ } \Omega$

P₂	U	I	P₁	cosφ	n	S	V_{fe}	V_{cu1}	V_e	V_{cu2}	V_w	V_v	P₂	n	T
Approx. %	V	A	kW		Min⁻¹	%	W	W	W	W	W	W	kW	%	Nm
25	400	148.8	66.489	0.645	1497.3	0.18	2119	280	124	117	1349	3989	62.5	94	398.7
50	400	230.6	129.998	0.814	1495.6	0.29	2107	672	496	374	1349	4998	125	96.16	798.12
75	400	322.2	194.275	0.870	1492.9	0.47	2094	1312	1119	901	1349	6775	187.5	96.51	1199.35
100	400	421.7	259.543	0.888	1489.1	0.73	2081	2248	2000	1865	1349	9543	250	96.32	1603.36
125	400	527.2	326.046	0.893	1483.8	1.08	2069	3514	3147	3467	1349	13546	312.5	95.85	2011.16
150	400	636.8	394.059	0.893	1476.9	1.54	2056	5126	4571	5957	1349	19059	375	95.16	2426.73

SLOPE : 0.000778 Y-INT: 779 CORRELATION FACTOR : 0.99132

Locked rotor test

U	I	P1	cosφ	T
V	A	kW		Nm
400	3092.2	716.508	0.334	3666
350	2492.6	493.256	0.326	2676
300	1973.5	325.874	0.318	1862
250	1537.5	205.016	0.308	1213
200	1187.2	121.813	0.296	718
100	604.2	27.690	0.265	144

Torque/Speed and Current/Speed Test

Voltage : 400 V, Frequency : 50 Hz, Connection : Δ
 $T_s/T_n = 2.29$ $I_s/I_n = 7.40$

n	T	I	n	T	I	n	T	I
Min⁻¹	Nm	A	Min⁻¹	Nm	A	Min⁻¹	Nm	A
1500	0	107.8	1154	3765	2443.1	557	2791	2778.5
1461	4371	1210.3	1094	3523	2477.1	438	2711	2845.5
1422	5533	1907.2	1034	3351	2510.9	319	2679	2913.2
1332	4901	2255.1	915	3147	2577.2	199	2665	2980
1273	4481	2350.9	796	3020	2644.1	101	2952	3035.1
1213	4087	2406.9	676	2903	2712.2	0	3666	3092.2



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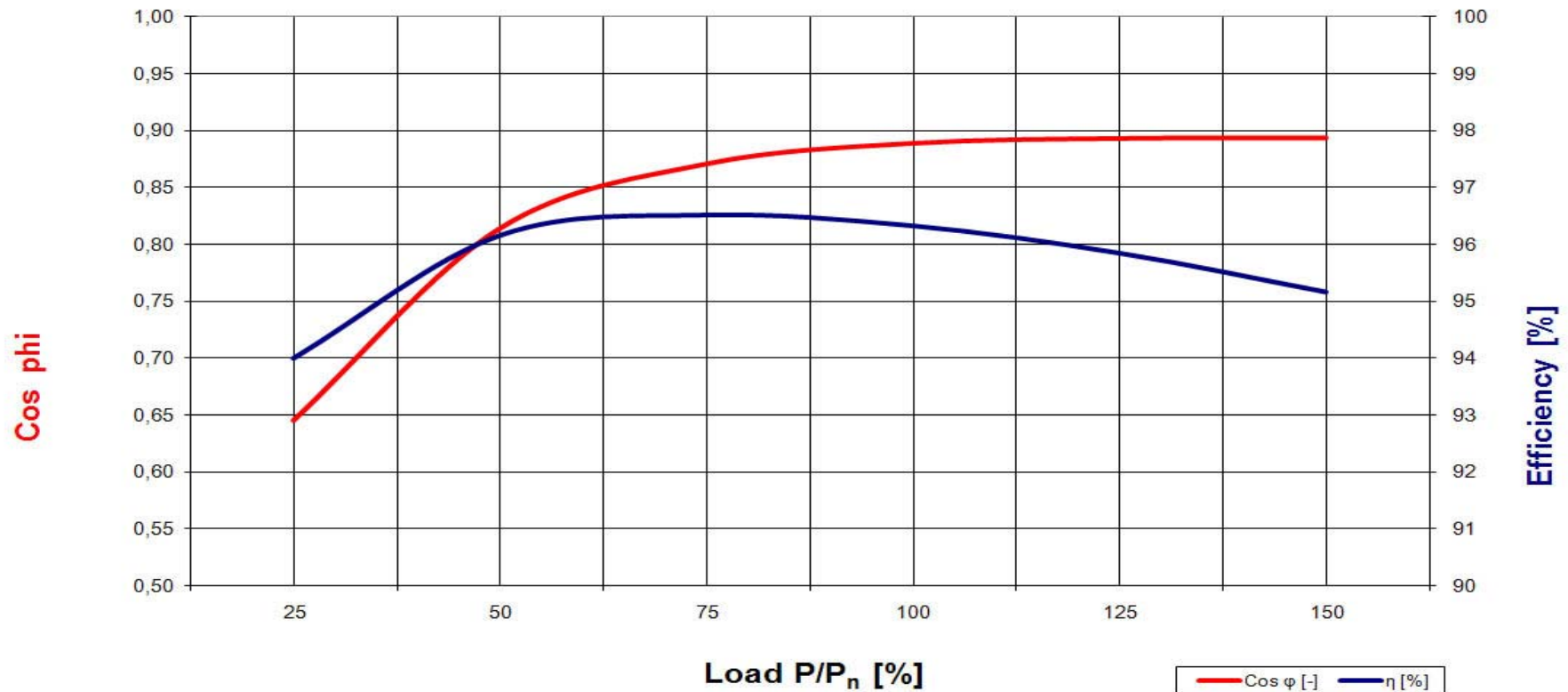
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K355M-4 250 kW 1490 min⁻¹





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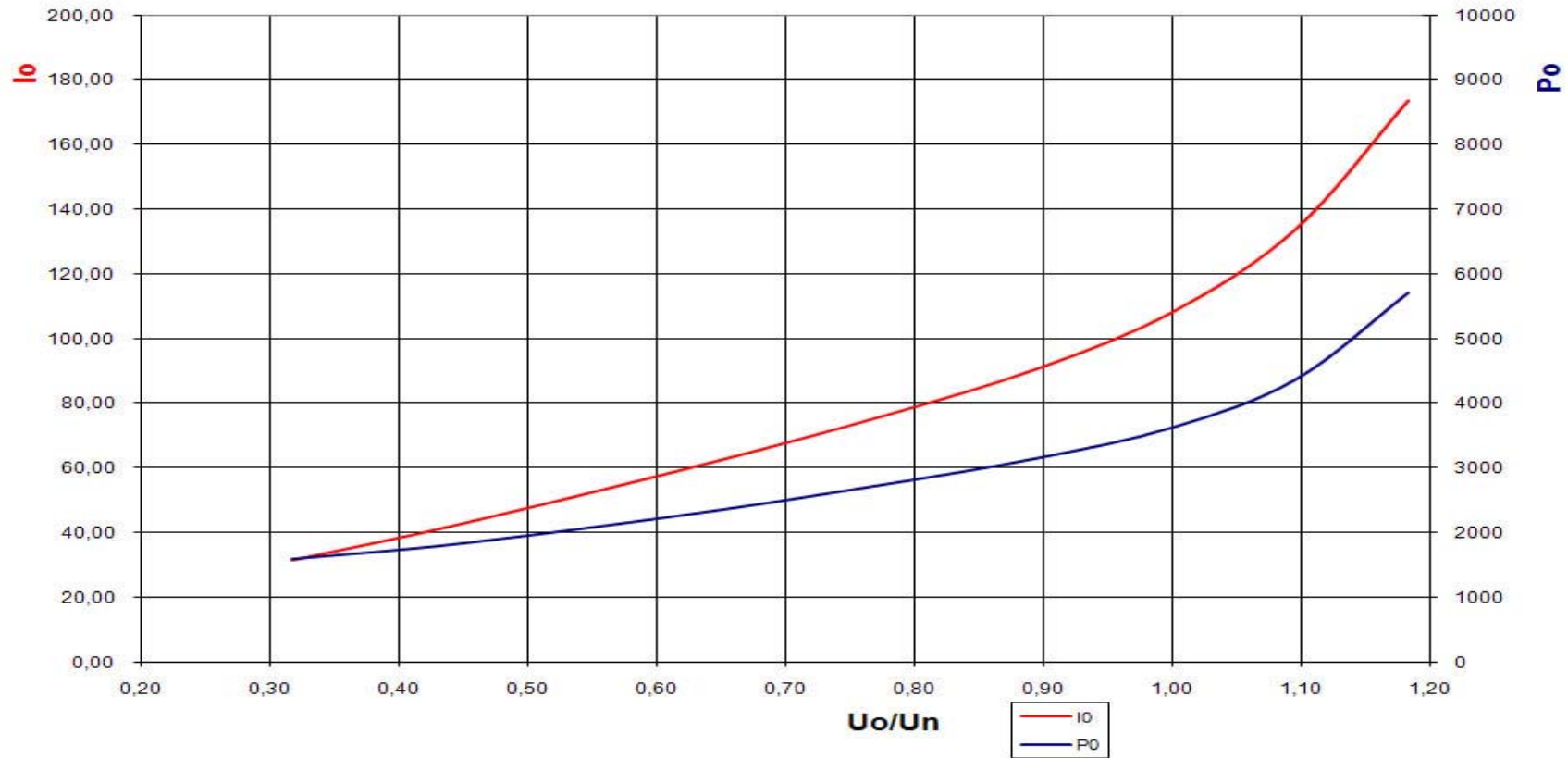
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No-load Test





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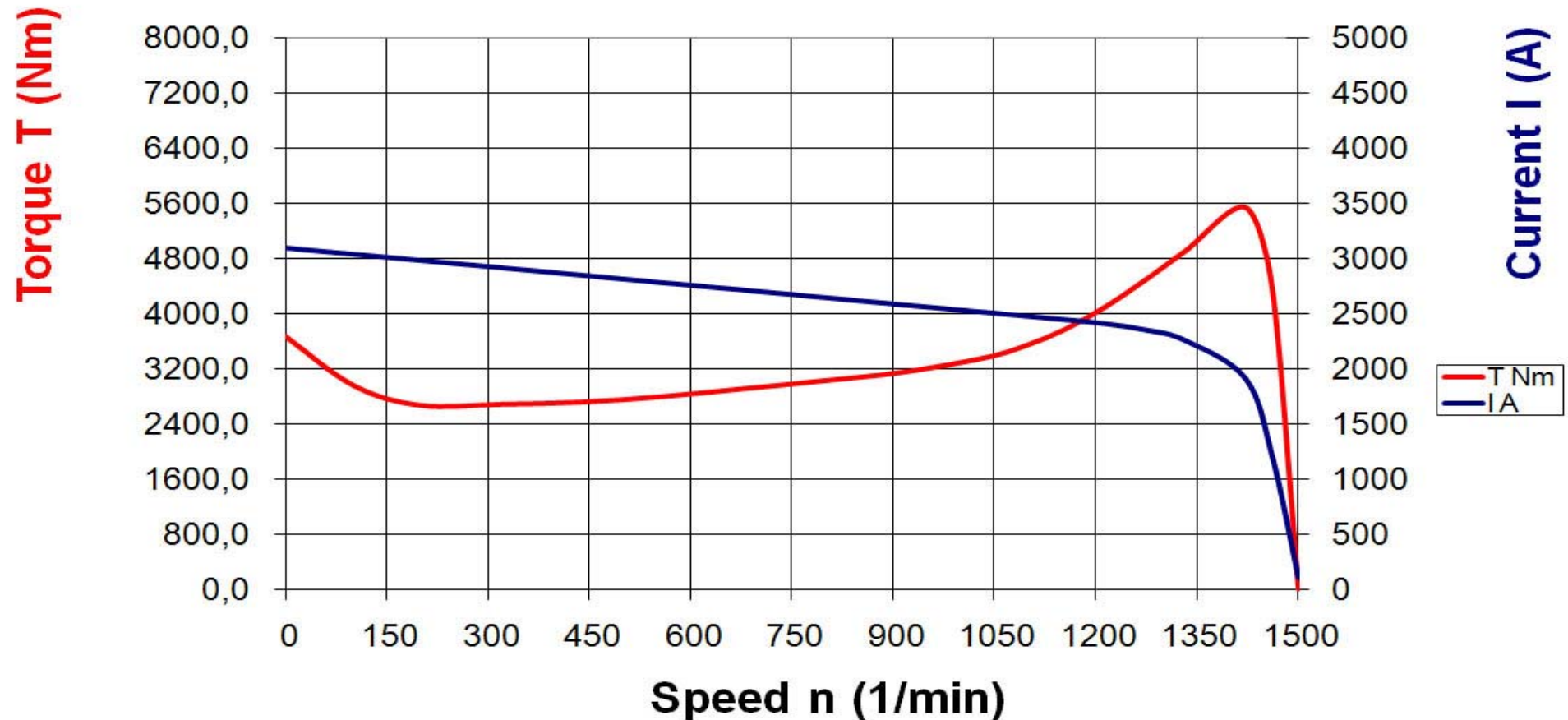
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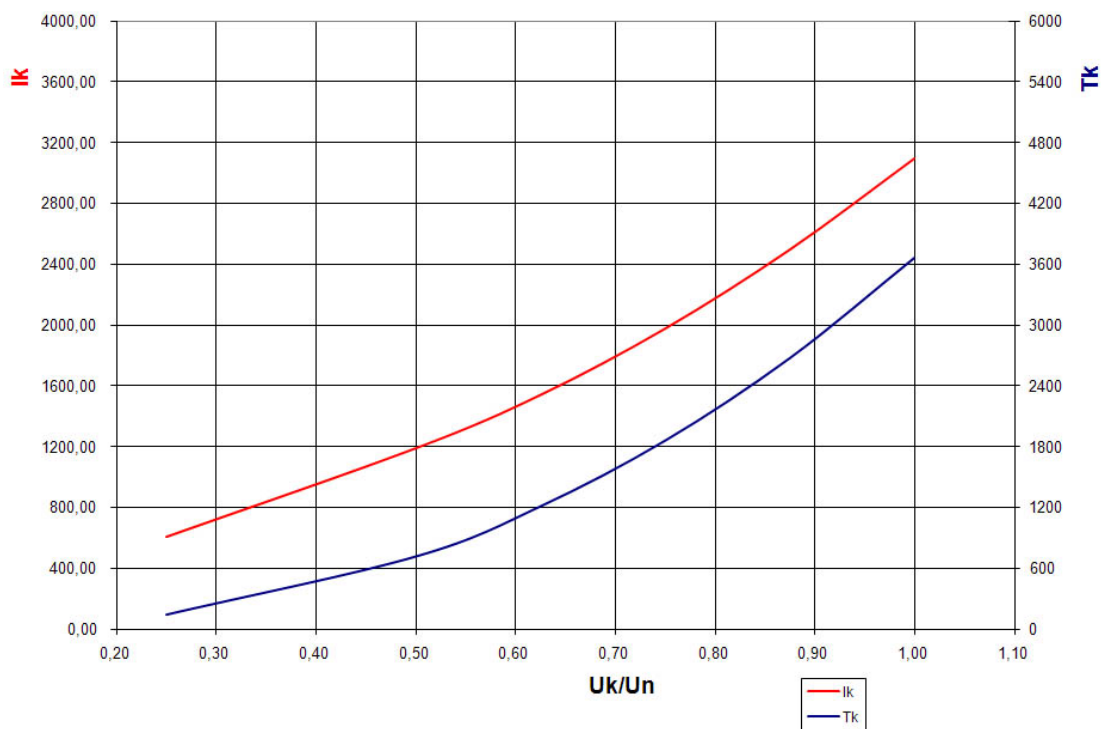
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Locked-rotor Test1



Locked-rotor Test2

