



VALIADIS S.A.

Hellenic Motors

Quality Assurance Certificate EN ISO 9001:2008
Certificate Reg.No. 04100970683

Type Test Report three phase squirrel-cage motors

Name plate data

Type : K400-4	Output : 710 kW	Motor No. :	
Voltage : 400 V	Conn. : Δ	Duty type : S1	Frequency : 50 Hz
Current : 1124.5 A	Speed : 1485 rpm	Eff. : 95.1 %	Cos ϕ : 0.88
		SF : 1.00	

Stator winding resistance measurement (cold)

Connection : Δ	$R_{u1-v1} : 0.0023 \Omega$		
Winding temp: 18,0 °C	$R_{v1-w1} : 0.00231 \Omega$	$R_{av} = 0.0023 \Omega$	Asymmetry : 0.43 %
Room temp: 18,0 °C	$R_{w1-u1} : 0.00231 \Omega$		

No-load test

$R_{end} = 0.3145 \Omega$

				Losses		
Uo	Io	Po	cos ϕ	Vcu1	Vfe	Vw
V	A	W		W	W	W
440	347.3	18705.5	0.071	504.1	12805.4	5396
400	280.9	14284.9	0.073	329.7	8559.2	5396
360	235.7	11207.0	0.076	232.2	5578.8	5396
320	201.6	8915.7	0.080	169.9	3349.8	5396
280	172.6	7159.7	0.086	124.5	1639.2	5396
240	146.1	5723.7	0.094	89.1	238.5	5396
200	120.5	4500.8	0.108	60.6	-955.9	5396
160	93.1	3908.0	0.151	36.2	-1524.3	5396

Sound pressure level in dB (A) (at 1 m): 83

Sound power level in dB(A): 98

Vibration level (mm/s): DE : x=1.1 y=1.2 z=1.4

NDE : x=0.9 y=1.3 z=1.4

Temperature rise test

Voltage : 400 V, Frequency : 50 Hz, Current : 97.1 A, connection : Δ

According to IEC 34-1	Time	Room temp. °C	Rwdg Ω	Wdg. temp. °C	Wdg. temp. rise(K)	U V	I A	P W	*frame °C
Begin		18	0.00231	18	-----				
	9:00	17				400	1079.9	709601.6	56
	9:30	18				400	1132.5	750768.2	58
	10:00	19				400	1131.2	750070.5	59
	11:00	20				400	1127.4	746581.8	61
	11:30	20				400	1128.3	747977.3	62
	12:00	20				400	1147.4	762769.4	63
	12:30	20				400	1156.6	770025.9	64
End			0.00287	60.1166		*bearing:DE=50.3°C, NDE= 49.2°C			



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*measured Temperature (°C) with ETD, ETD= embedded temperature detector

Load test

Frequency: 50 Hz

Connection: Δ

SF :1

Rav= 0.00287 Ω

Qav= 80,1 °C

P2	U	I	P1	cosφ	n	s	P2	n	Tn
Approx. %	V	A	kW		Min ⁻¹	%	kW	%	Nm
25	400	435.8	193.940	0.642	1492.6	0.49	177.523	91.5	1135.8
50	400	670.4	375.680	0.809	1490.5	0.63	354.997	64.5	2274.5
75	400	933.9	559.900	0.865	1488.1	0.79	532.516	65.1	3417.4
100	400	1228.1	747.275	0.878	1485.3	0.98	710.003	95.0	4565.0
125	400	1554.1	938.412	0.872	1482.5	1.16	887.527	94.6	5717.1
150	400	1914.9	1135.192	0.856	1477.8	1.48	1064.641	93.8	6880.1

P2	Pcu1	Pcu2	Pfe	Pfw	Ps
Approx. %	kW	kW	kW	kW	kW
25	0.818	0.909	8.513	5.396	0.780
50	1.937	2.312	8.461	5.396	2.577
75	3.759	4.332	8.418	5.396	5.480
100	6.499	7.163	8.374	5.396	9.840
125	10.409	10.699	8.303	5.396	16.078
150	15.803	16.449	8.241	5.396	24.662

Locked rotor test

U	I	P1	cosφ	Tn
V	A	kW		Nm
400	7203.98	1310.409	0.263	6487.4
360	6453.97	1051.755	0.261	5206.9
320	5707.57	822.553	0.260	4072.2
280	4965.23	622.500	0.259	3081.8
240	4227.49	451.260	0.257	2234.0
160	2769.10	193.615	0.252	958.5

Total/speed and current/speed test

n	T	I	n	T	I	n	T	I	n	T	I
Min ⁻¹	Nm	A	Min ⁻¹	Nm	A	Min ⁻¹	Nm	A	Min ⁻¹	Nm	A
1500.0	0.0	280.9	1492.6	1135.7	435.1	1490.5	2274.6	667.2	1488.1	3417.3	926.3
1486.5	4105.4	1213.0	1485.3	4565.0	1526.1	1415.6	13522.3	4204.4	1308.1	12566.9	5237.3
1189.2	7275.6	5819.2	1114.8	5622.0	6030.2	1040.5	5159.0	6182.9	891.9	4819.3	6328.4
743.2	4976.5	6473.9	564.9	5238.4	6619.4	445.9	5655.1	6728.5	341.9	5820.4	6823.0
148.6	6283.4	7055.8	0.0	6614.1	7274.0						



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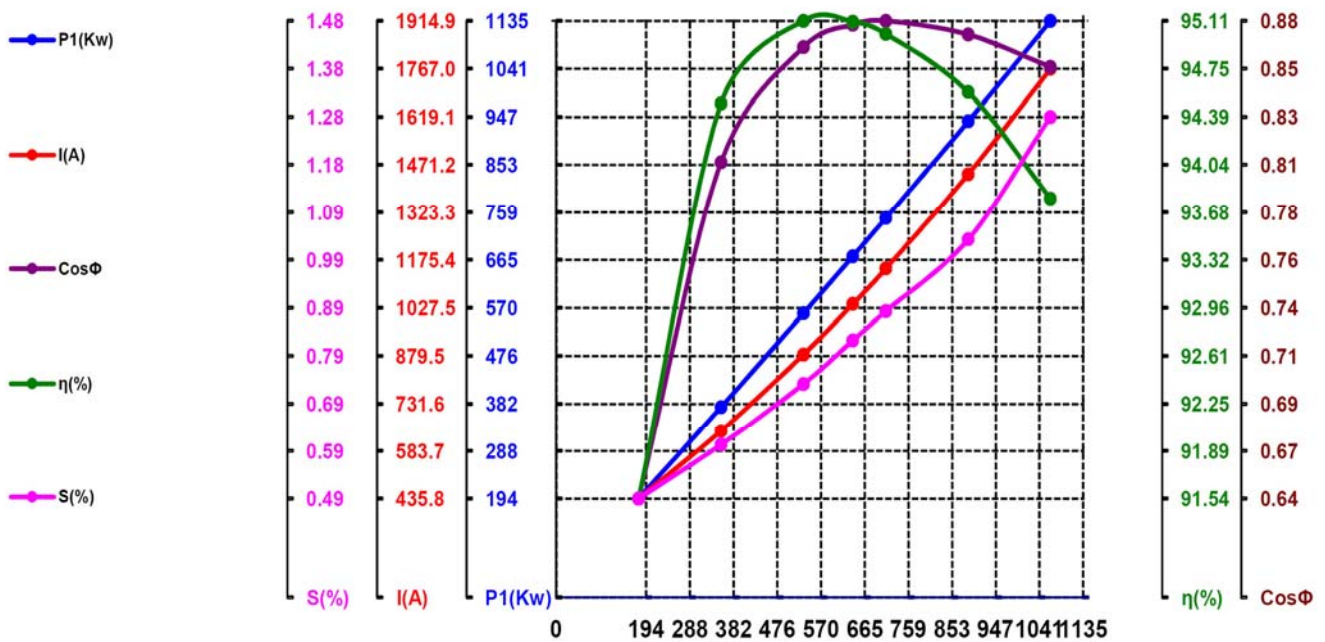
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Load Test





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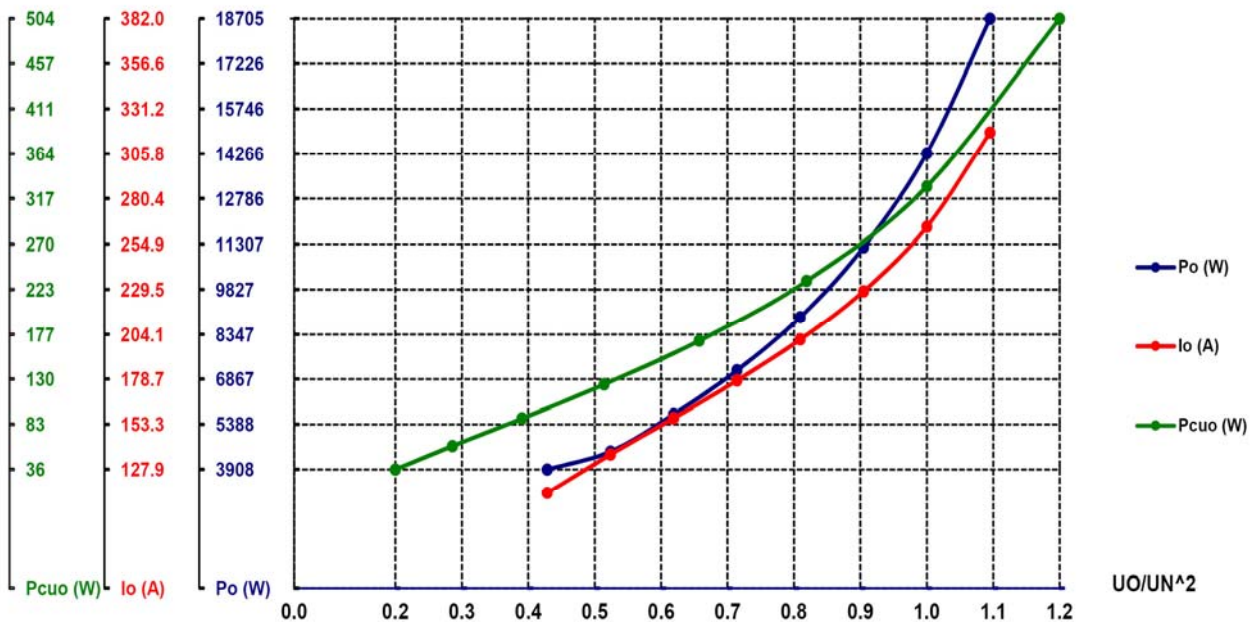
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No Load





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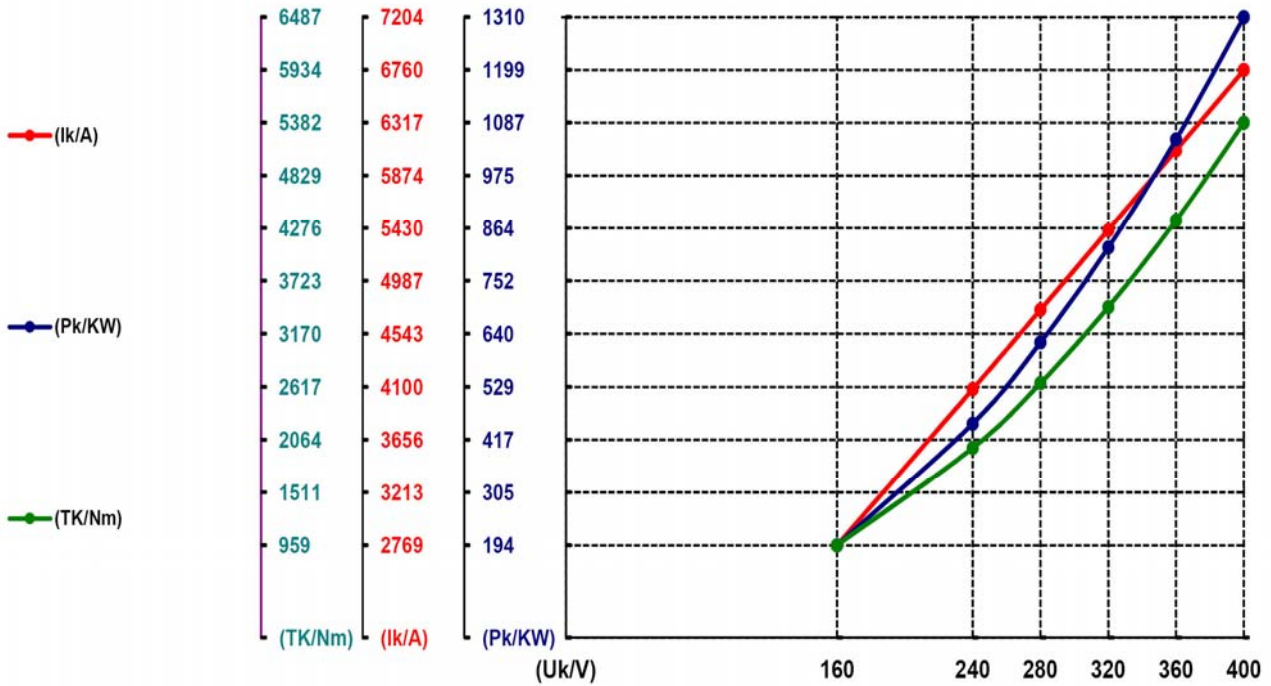
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Locked Rotor Test





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