

VALIADIS S.A.

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

IE:3

Type	K225M-2	Poles	2	Power	45,0	kW
Voltage	400 V	Current	77,1 A	Frequency	50	Hz
Speed	2974 r/min	Duty	S1	Connecti	△	
Ins.class	F	Weight	379 kg		IP55	

MAJOR CONTENTS		TEST VALUE	
95,0	°C PHASE RESISTANCE OF WINDING	Ω	0,1182
	NO LOAD CURRENT	A	22,336
	NO LOAD INPUT	W	1099,33
	CORE LOSS(Pfe)	W	579,85
	WINDAGE FRICTION LOSS(Pfw)	W	463,77
	STATOR WINDING LOSS(Pcu1)	W	670,60
	ROTOR WINDING LOSS(Pcu2)	W	396,41
	STRAY LOAD LOSS(Ps)	W	251,08
	LOCKED ROTOR CURRENT	A	598,627
	LOCKED ROTOR INPUT @ FULL LOAD	W	140238
	LOCKED ROTOR TORQUE	N.m	305,7
	PULL OUT TORQUE	N.m	426,7
	LOCKED ROTOR CURRENT/RATED CURRENT	P.U	7,77
	LOCKED ROTOR TORQUE/RATED TORQUE	P.U	2,11
	PULL OUT TORQUE/RATED TORQUE	P.U	2,95
	FULL LOAD TORQUE	N.m	144,6
	FULL LOAD CURRENT	A	77,1
	FULL LOAD SLIP	%	0,859
	INPUT @ FULL LOAD	kW	47,418
	FULL LOAD SPEED	r/min	2974,2
	EFFICIENCY @ FULL LOAD	%	94,90
	EFFICIENCY @ 75% LOAD	%	94,98
	POWER FACTOR @ FULL LOAD		0,888
	STATOR WINDING TEMPERATURE RISE	K	54
	D.E. BEARINGS TEMPERATURE BY PT100	°C	53,2
	STATOR WINDING TEMPERATURE	°C	95,1
High voltage test		V	1800
Insulation resistance		MΩ	500
NOISE(LW)		dB(A)	78
VIBRATION		mm/s	0,9

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Ins.class	F	Weight	379 kg		IP55	

NO LOAD TEST

VOL	mul.	HZ	I01	I02	I03	mul.	W1	W2	mul.	°C	Ω
476,7	1	50	3,508	3,432	3,545	10	-689,8	852,3	10	77,0	0,07453
432,9	1	50	2,589	2,562	2,628	10	-459,5	582,2	10	76,8	0,07448
400,2	1	50	2,235	2,226	2,245	10	-367,3	477,3	10	76,6	0,07444
346,9	1	50	1,854	1,826	1,824	10	-258,4	352,6	10	76,3	0,07437
303,5	1	50	3,209	3,128	3,160	5	-369,8	542,3	5	76,0	0,07429
259,3	1	50	2,711	2,607	2,672	5	-246,7	397,8	5	75,8	0,07425
199,2	1	50	2,098	2,000	2,055	5	-122,8	252,7	5	75,4	0,07415
162,0	1	50	1,745	1,657	1,688	5	-66,5	183,7	5	75,1	0,07408
143,1	1	50	1,564	1,489	1,493	5	-39,7	155,9	5	74,8	0,07401
95,1	1	50	2,792	2,885	2,927	2	18,1	231,0	2	73,8	0,07377

data calculation of no load

V%	U0/UN	I0	P0	(U0/UN)^2	P0cu1	P0'
119,2%	1,19	34,950	1625,0	1,420	136,56	1488,44
108,2%	1,08	25,930	1227,0	1,172	75,12	1151,88
100,1%	1,00	22,353	1100,0	1,001	55,79	1044,21
86,7%	0,87	18,347	942,0	0,752	37,55	904,45
75,9%	0,76	15,828	862,5	0,576	27,92	834,58
64,8%	0,65	13,317	755,5	0,420	19,75	735,75
49,8%	0,50	10,255	649,5	0,248	11,70	637,80
40,5%	0,41	8,483	586,0	0,164	8,00	578,00
35,8%	0,36	7,577	581,0	0,128	6,37	574,63
23,8%	0,24	5,736	498,2	0,056	3,64	494,56

RESULTS AT: 400 V

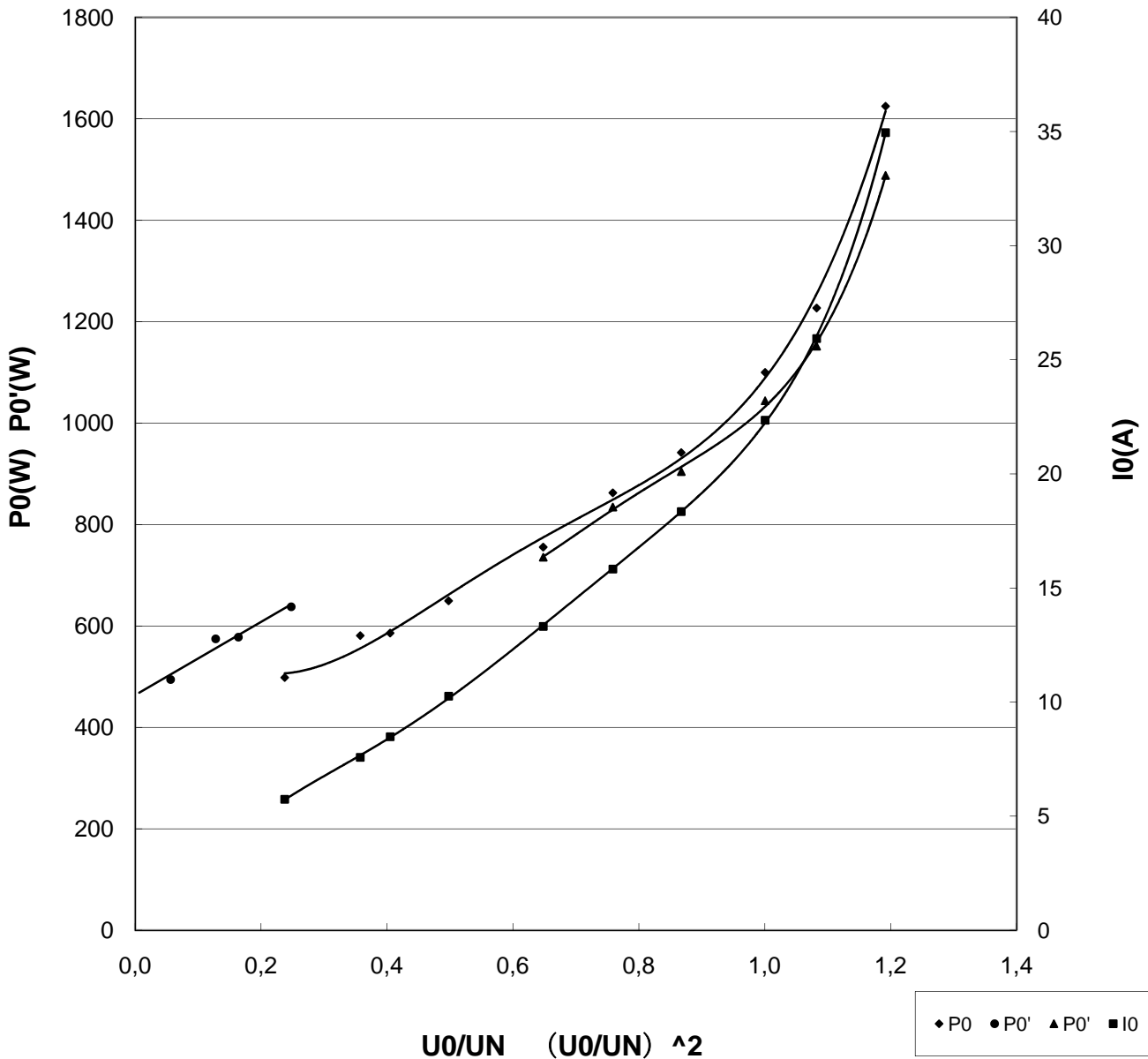
N.L.AMP	22,34	N.L.LOSS(W)	1099,33	Pw(W)	463,8	Pe(W)	579,8		
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Type	K225M-2		Poles	2	Power	45,0	IE:3
Voltage	400	V	Current	77,1	A	Frequency	50,0
Speed	2974	r/min	Duty	S1	Connection	Δ	
Ins.class	F		Weight	379	kg		IP55

No Load Curve



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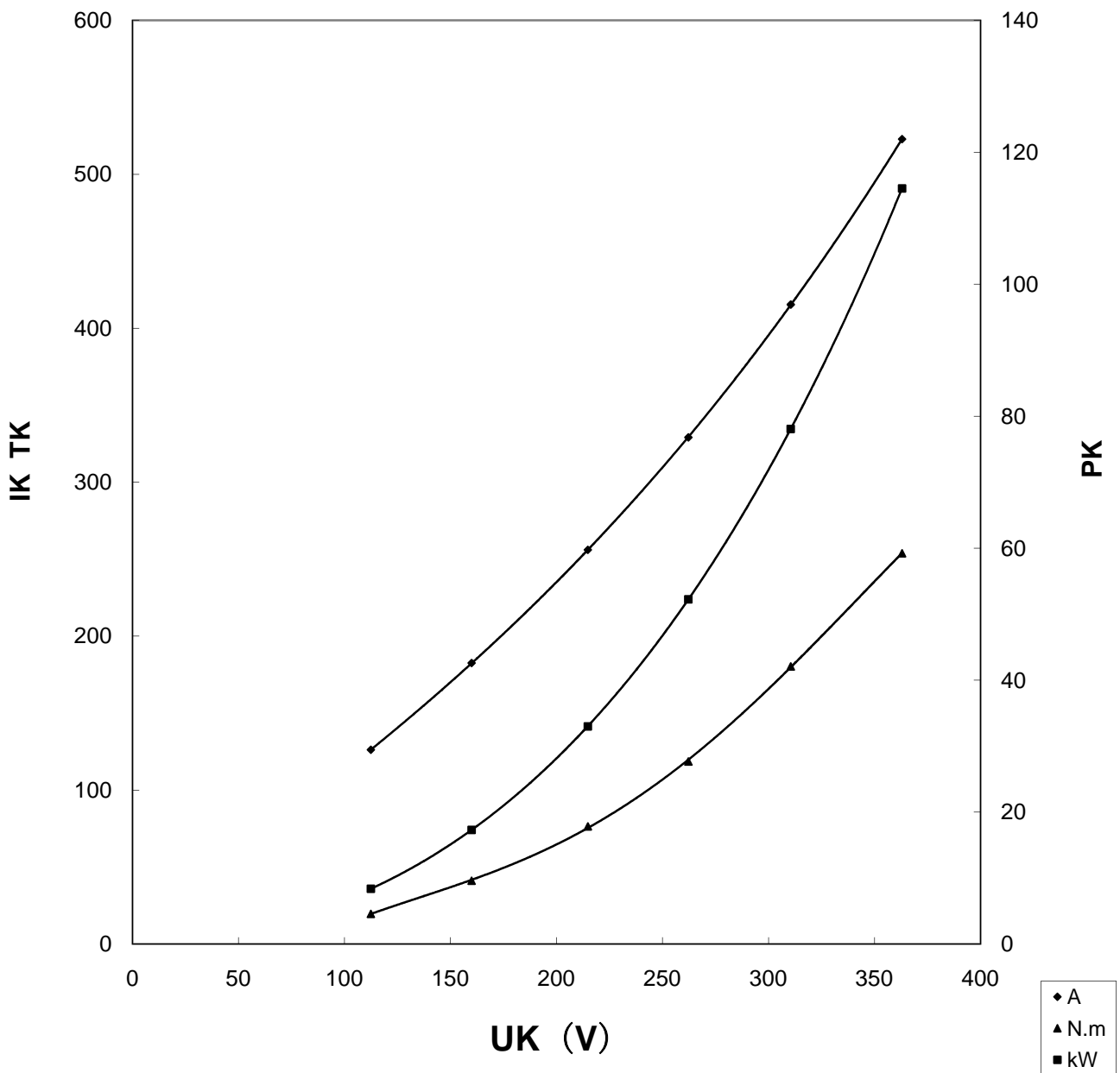
Type	K225M-2		Poles	2		Power	45,0		IE:3	kW
Voltage	400	V	Current	77,1	A	Frequency	50,0		Hz	
Speed	2974	r/min	Duty	S1		Connection	Δ			
Ins.class	F		Weight	379	kg		IP55			
LOCKED ROTOR TEST										
VOL	mul.	Ik1	Ik2	Ik3	mul.	W1	W2	mul.	Torqur (kg.m)	
363,0	1,0	2,616	2,611	2,615	200,0	-140,9	713,5	200,0	25,90	
310,5	1,0	2,080	2,074	2,077	200,0	-94,2	484,5	200,0	18,40	
262,2	1,0	1,645	1,646	1,644	200,0	-63,2	324,4	200,0	12,10	
214,8	1,0	2,564	2,556	2,559	100,0	-82,8	412,7	100,0	7,80	
159,9	1,0	1,831	1,823	1,821	100,0	-45,0	218,0	100,0	4,20	
112,4	1,0	1,264	1,260	1,262	100,0	-21,7	105,4	100,0	2,00	
data calculation of locked rotor										
Uk	IK	PK	TK		LOGUk	LOGIk	LOGPk	LOGTk		
V	A	kW	N.m							
362,97	522,82	114,520	253,82		2,5599	2,7183	2,0589	2,4045		
310,47	415,34	78,060	180,32		2,4920	2,6184	1,8924	2,2560		
262,17	329,08	52,240	118,58		2,4186	2,5173	1,7180	2,0740		
214,75	255,99	32,990	76,44		2,3319	2,4082	1,5184	1,8833		
159,93	182,50	17,300	41,16		2,2039	2,2613	1,2380	1,6145		
112,41	126,16	8,370	19,60		2,0508	2,1009	0,9227	1,2923		
performance collection of locked rotor										
	at rated volts		at rated current		at 2.5 times rated current		at 100V			
VOLTS (V)	400		70,763		167,0		100,0			
AMPS (A)	598,6		76,8		192,0		111,46			
INPUT (kW)	140,24				19,3		6,039			
TORQUE (N.m)	305,66									

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Type	K225M-2		Poles	2		Power	45,0 kW	
Voltage	400	V	Current	77,1	A	Frequency	50,0 Hz	
Speed	2974	r/min	Duty	S1		Connection	Δ	
Ins.class	F		Weight	379 kg			IP55	

Locked Rotor Curve



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Type	K225M-2		Poles	2		Power	45	kW	IE:3
Voltage	400	V	Current	77,1	A	Frequency	50	Hz	
Speed	2974	r/min	Duty	S1		Connection	Δ		
Ins.class	F		Weight	379	kg	IP55			

TEMPERATURE RISE TEST

TIME (h:min)	V	I1	I2	I3	mul.	W1	W2	mul.	T1 °C	T2 °C	T3 °C	T4 °C	T5 °C	T6 °C	T7 °C	T8 °C	T9 °C	T10 °C	T11 °C	T12 °C	T13 °C
10,30	400,3	1,555	1,539	1,542	50	334,1	615,9	50	51,8	—	88,7	93,3	—	—	—	—	—	—	53,3	—	29,8
11,00	400,3	1,537	1,536	1,534	50	328,6	613,9	50	52,2	—	89,0	93,4	—	—	—	—	—	—	52,6	—	30,1
11,28	400,3	1,567	1,557	1,565	50	338,7	623,3	50	52,7	—	89,4	93,9	—	—	—	—	—	—	52,9	—	30,3
12,01	400,4	1,539	1,527	1,537	50	331,4	612,3	50	53,4	—	89,8	94,6	—	—	—	—	—	—	53,1	—	30,0
12,30	400,3	1,540	1,531	1,539	50	332,1	613,7	50	52,8	—	90,2	94,7	—	—	—	—	—	—	53,1	—	30,2
13,00	400,5	1,569	1,554	1,560	50	342,1	623,6	50	53,2	—	90,3	95,1	—	—	—	—	—	—	53,4	—	30,3
The average of the last three		77,200		A		47586,7		W		53,2	90,1	95,1	—	—	—	—	—	—	53,4	—	30,2

T1 T2 : DE BEARING TEMPERATURE

T11 : CORE TEMPERATRE

T12: FRAME TEMPERATRE

T3~T10 : DE WINDING TEMPERATURE

T13 : AMBIENT TEMPERATURE

WINDING RESISTANCE (HOT) AT END OF TEMPERATURE RISE TEST

TIME (S)	67	110	130	149	165	192	208	229		
RESISTANCE	0,07588	0,07552	0,07531	0,07517	0,07505	0,07481	0,07468	0,07452		

WINDING RESISTANCE(COLD)

Δ	U1-V1	U1-W1	V1-W1	AVERAGE	MIN	AMBIENT TEM.
	0,06258	0,06264	0,06276	0,06266	0,06258	27,3 °C
Y	U1-U2	V1-V2	W1-W2	AVERAGE	MIN	AMBIENT TEM.
						°C

resistance value at 0 sec (Ω)

0,076496

calculation value of temp.rising

55,46 K

30 S (Ω)

0,076217

calculation value of temp.rising

54,29 K

full load current

77,05 A

modify value of temp. rising

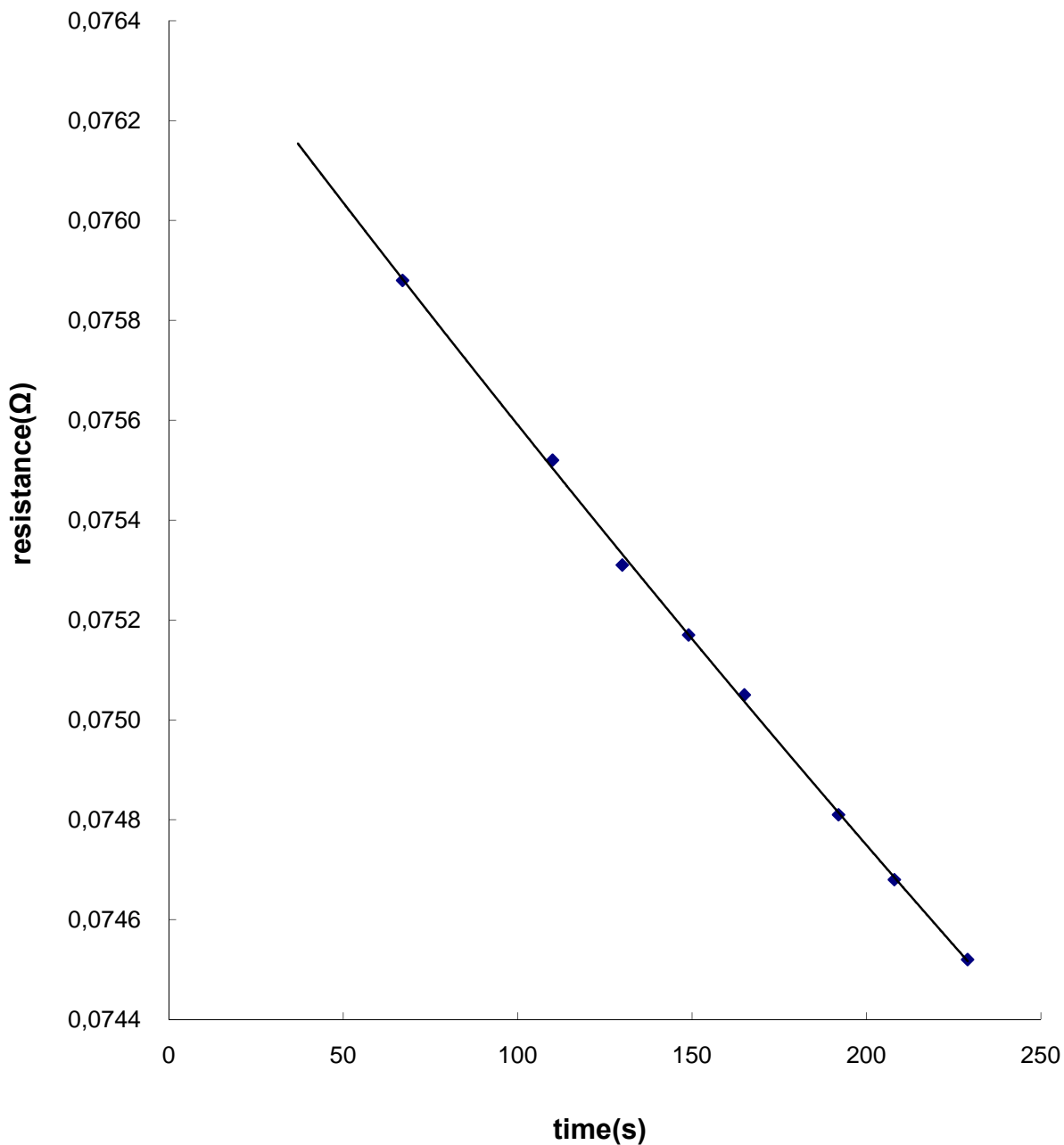
54,08 K

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Type	K225M-2		Poles	2	output Power	45,0	IE:3	
Voltage	400	V	Current	77,1	A	Frequency	50,0	Hz
Speed	2974	r/min	Duty	S1	Connection	Δ		
Ins.class	F		Weight	379	kg	IP55		

RESISTANCE CURVE



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Speed	2974	r/min	Duty	S1		Connection	Δ		Hz			
Ins.class	F		Weight	379	kg	IP55						
LOAD TEST												
V	HZ	I1	I2	I3	mul.	W1	W2	mul.	r/min	Resistance Ω	Temperature °C	Torque N.m
400,0	49,99	2,313	2,304	2,306	50	504,0	925,3	50	2957,5	0,0782	92,2	217,4
400,1	49,99	1,932	1,922	1,923	50	424,6	771,2	50	2965,7	0,0786	94	182,4
399,9	50,01	1,545	1,534	1,535	50	333,9	615,8	50	2973,7	0,0787	94,4	144,9
400,2	49,98	1,192	1,181	1,181	50	240,6	475,2	50	2980,6	0,0785	93,6	109,1
400,2	49,99	0,855	0,845	0,845	50	139,1	338,4	50	2987,6	0,0782	92,4	71,9
399,9	49,99	0,556	0,547	0,549	50	27,8	202,4	50	2994,3	0,0779	91,2	33
399,9	50,0	2,328	2,280	2,325	10,0	-312,5	545,2	10	2999,3	0,0769	87,1	3,91
400,3	50,0	2,300	2,251	2,303	10,0	-374,5	481,7	10	3000,0	0,0752	79,9	0,00
slope A= 0,01199		intercept B= -63,25		relative coefficient r= 0,991								
LOAD %	P2 W	I A	P1 W	Pcu1s W	Ss %	Pcu2s W	Ps W	Pz W	N.m	EFF %	P.F	
150,0	67500	115,57	71586,3	1508,6	1,390	965,9	569,1	4087,2	217,9	94,29	0,894	
125,0	56250	95,60	59358,3	1032,4	1,101	636,0	393,4	3105,4	181,2	94,76	0,896	
100,0	45000	77,05	47417,8	670,6	0,859	396,4	251,1	2361,7	144,7	94,90	0,888	
75,0	33750	58,87	35533,2	391,4	0,595	205,8	140,9	1781,7	108,4	94,98	0,871	
50,0	22500	42,45	23899,9	203,5	0,391	90,3	62,3	1399,8	72,1	94,14	0,813	
25,0	11250	28,63	12428,4	92,6	0,186	21,8	15,5	1173,6	36,0	90,52	0,627	

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Voltage	400	V	Current	77,1	A	Frequency	50,0	Hz	
Speed	2974	r/min	Duty	S1		Connection	Δ		
Ins.class	F		Weight	379	kg		IP55		

LOAD CURVE

