

VALIADIS S.A.

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

							IE:3
Type	K100L-4		Poles	4	Power	2,2 kW	
Voltage	400	V	Current	4,7 A	Frequency	50 Hz	
Speed	1460	r/min	Duty	S1	Connecti	Y	
Ins.class	F		Weight	49 kg	IP55		
MAJOR CONTENTS				TEST VALUE			
95,0 °C PHASE RESISTANCE OF WINDING	Ω			1,9421			
NO LOAD CURRENT	A			2,869			
NO LOAD INPUT	W			166,65			
CORE LOSS(Pfe)	W			92,90			
WINDAGE FRICTION LOSS(Pfw)	W			33,45			
STATOR WINDING LOSS(Pcu1)	W			114,00			
ROTOR WINDING LOSS(Pcu2)	W			62,57			
STRAY LOAD LOSS(Ps)	W			37,05			
LOCKED ROTOR CURRENT	A			33,311			
LOCKED ROTOR INPUT @ FULL LOAD	W			14835			
LOCKED ROTOR TORQUE	N.m			39,1			
PULL OUT TORQUE	N.m			52,0			
LOCKED ROTOR CURRENT/RATED CURRENT	P.U			7,16			
LOCKED ROTOR TORQUE/RATED TORQUE	P.U			2,68			
PULL OUT TORQUE/RATED TORQUE	P.U			3,56			
FULL LOAD TORQUE	N.m			14,4			
FULL LOAD CURRENT	A			4,7			
FULL LOAD SLIP	%			2,681			
INPUT @ FULL LOAD	kW			2,541			
FULL LOAD SPEED	r/min			1459,8			
EFFICIENCY @ FULL LOAD	%			86,60			
EFFICIENCY @ 75% LOAD	%			86,26			
POWER FACTOR @ FULL LOAD				0,788			
STATOR WINDING TEMPERATURE RISE	K			37			
D.E. BEARINGS TEMPERATURE BY PT100	°C			38,7			
STATOR WINDING TEMPERATURE	°C			49,3			
High voltage test	V	1800	Imin				
Insulation resistance	MΩ			500			
NOISE (LW)	dB(A)			61			
VIBRATION	mm/s			0,5			

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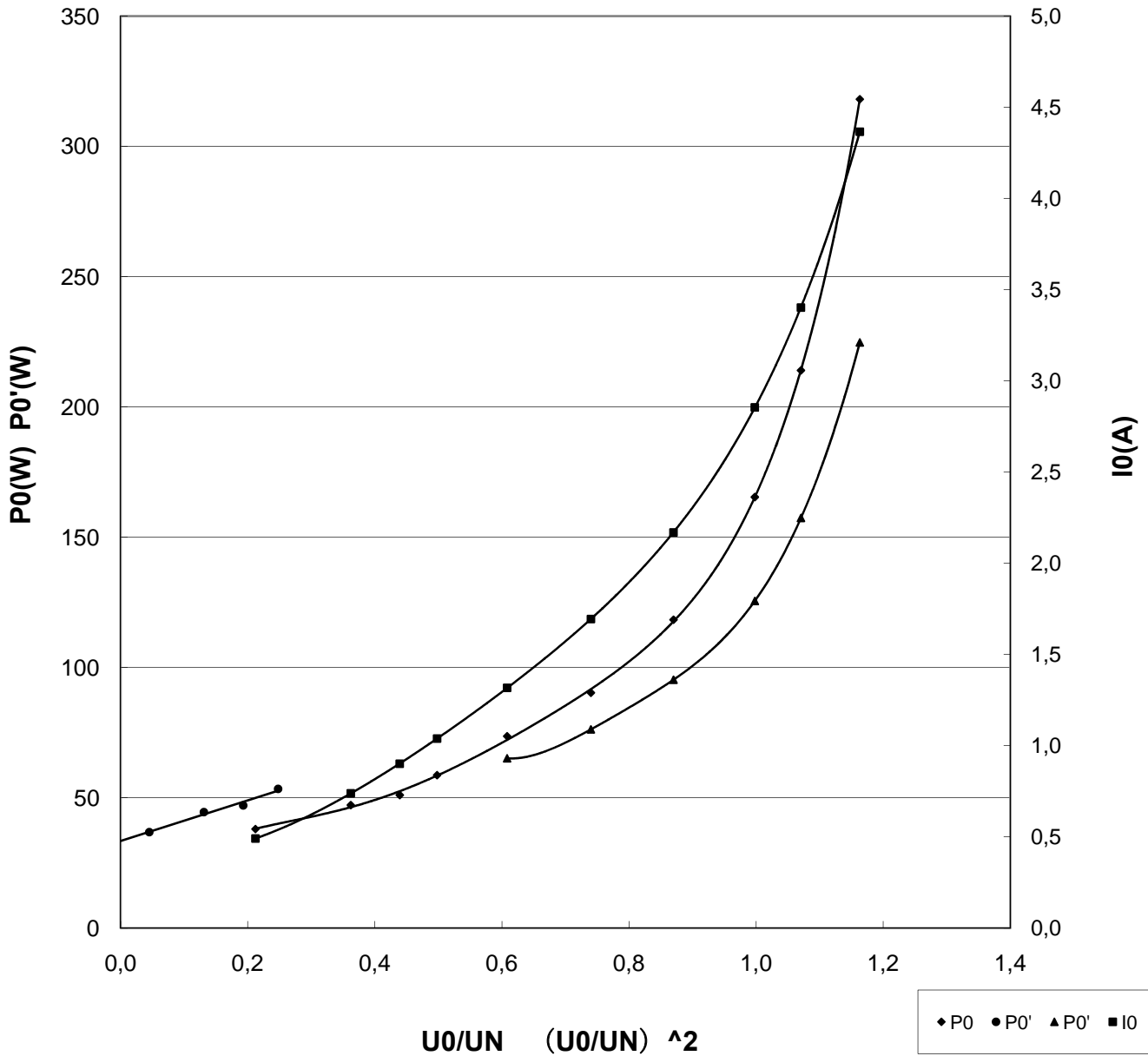
Type	K100L-4		Poles	4		Power	2,2 kW		IE:3		
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Speed	1460	r/min	Duty	S1		Connection	Y				
Ins.class	F		Weight	49	kg			IP55			
NO LOAD TEST											
VOL	mul.	HZ	I01	I02	I03	mul.	W1	W2	mul.	°C	Ω
465,3	1	50	4,393	4,480	4,226	1	-963,6	1281,7	1	42,3	1,6319
428,2	1	50	3,412	3,485	3,310	1	-691,8	905,83	1	42,2	1,6313
399,2	1	50	2,858	2,914	2,792	1	-535,7	701,11	1	42,2	1,6313
348,0	1	50	2,169	2,196	2,143	1	-342,4	460,74	1	42,2	1,6313
296,0	1	50	1,696	1,705	1,684	1	-218,1	308,41	1	42,2	1,6313
243,3	1	50	1,319	1,322	1,311	1	-129,9	203,5	1	42,1	1,6308
199,2	1	50	1,041	1,042	1,034	1	-77,6	136,3	1	42,1	1,6308
175,7	1	50	0,903	0,902	0,898	1	-55,7	106,7	1	42,0	1,6302
144,8	1	50	0,741	0,740	0,736	1	-30,1	77,3	1	42,0	1,6302
84,8	1	50	0,494	0,491	0,489	1	0	38,0	1	41,8	1,6290
data calculation of no load											
V%	U0/UN	I0	P0	(U0/UN)^2	P0cu1	P0'					
116,3%	1,16	4,366	318,1	1,353	93,33	224,76					
107,1%	1,07	3,402	214,0	1,146	56,65	157,38					
99,8%	1,00	2,855	165,4	0,996	39,89	125,52					
87,0%	0,87	2,169	118,3	0,757	23,03	95,31					
74,0%	0,74	1,695	90,3	0,548	14,06	76,25					
60,8%	0,61	1,317	73,6	0,370	8,49	65,15					
49,8%	0,50	1,039	58,7	0,248	5,28	53,40					
43,9%	0,44	0,901	51,0	0,193	3,97	47,07					
36,2%	0,36	0,739	47,2	0,131	2,67	44,53					
21,2%	0,21	0,491	38,0	0,045	1,18	36,83					
RESULTS AT: 400 V											
N.L.AMP	2,87	N.L.LOSS(W)	166,65	Pw(W)	33,4	Pe(W)	92,9				

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Speed	1460	r/min	Duty	S1		Connection	Y		
Ins.class	F		Weight	49	kg				IP55

No Load Curve



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LOCKED ROTOR TEST

VOL	mul.	Ik1	Ik2	Ik3	mul.	W1	W2	mul.	Torqur (kg.m)
399,4	1,0	3,334	3,324	3,314	10,0	64,5	1413,7	10,0	3,98
354,2	1,0	2,836	2,826	2,815	10,0	38,0	1060,8	10,0	2,97
307,2	1,0	2,342	2,330	2,316	10,0	16,2	753,5	10,0	2,09
273,9	1,0	2,015	2,005	1,987	10,0	0,0	574,6	10,0	1,57
230,4	1,0	1,607	1,597	1,578	10,0	-9,3	381,3	10,0	1,02
193,4	1,0	2,557	2,549	2,515	5,0	-26,7	502,9	5,0	0,68
146,9	1,0	1,811	1,809	1,783	5,0	-23,2	266,1	5,0	0,35

data calculation of locked rotor

Uk	IK	PK	TK	LOGUk	LOGIk	LOGPk	LOGTk
V	A	kW	N.m				
399,37	33,24	14,782	38,97	2,6014	1,5217	1,1697	1,5908
354,21	28,26	10,988	29,14	2,5493	1,4511	1,0409	1,4645
307,16	23,29	7,697	20,48	2,4874	1,3672	0,8863	1,3113
273,89	20,03	5,746	15,43	2,4376	1,3016	0,7594	1,1883
230,42	15,94	3,720	10,01	2,3625	1,2025	0,5705	1,0006
193,37	12,70	2,381	6,68	2,2864	1,1039	0,3768	0,8245
146,95	9,01	1,215	3,43	2,1672	0,9545	0,0844	0,5351

performance collection of locked rotor

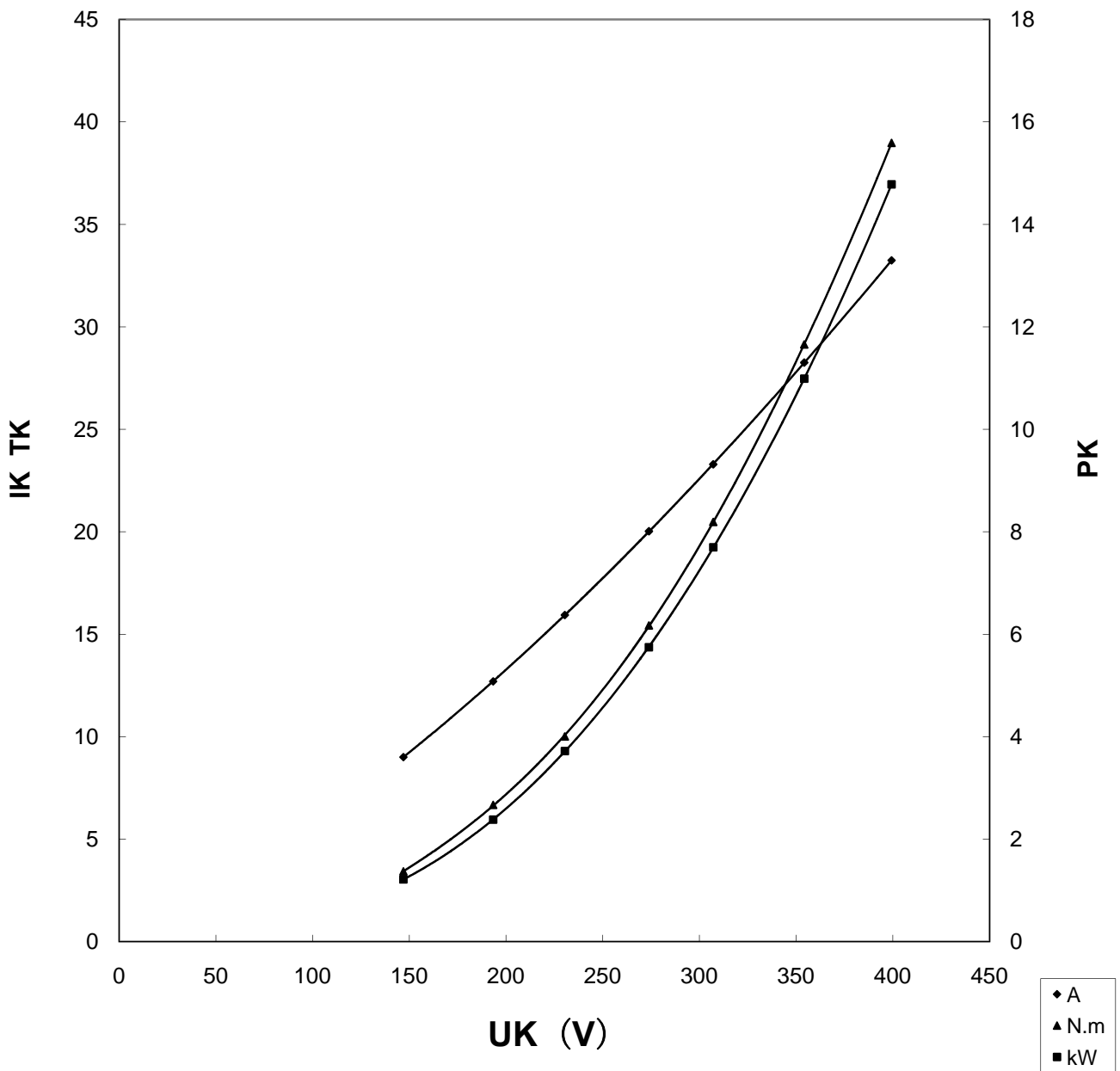
	at rated volts	at rated current	at 2.5 times rated current	at 100V
VOLTS (V)	400	85,170	174,6	100,0
AMPS (A)	33,3	4,5	11,3	5,50
INPUT (kW)	14,84		2,0	0,243
TORQUE (N.m)	39,11			

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Voltage	400 V	Current	4,7 A	Frequency	50,0	Hz
Speed	1460 r/min	Duty	S1	Connection	Y	
Ins.class	F	Weight	49 kg			IP55

Locked Rotor Curve



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Voltage	400	V		Current	4,7	A		Frequency	50 Hz			
Speed	1460	r/min		Duty	S1		Connection	Y				
Ins.class	F			Weight	49	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	
18,35	400,4	2,298	2,353	2,312	2	289,1	977,2	2	36,2	—	44,9	42,1	—	—	—	—	—	—	—	—	—	11,2
19,00	400,3	2,302	2,357	2,316	2	292,1	979,5	2	38,1	—	47,6	44,4	—	—	—	—	—	—	—	—	—	11,1
19,31	400,3	2,297	2,352	2,312	2	291,0	977,1	2	38,5	—	48,9	45,8	—	—	—	—	—	—	—	—	—	10,8
19,59	400,4	2,299	2,354	2,312	2	291,0	978,0	2	38,7	—	49,1	45,9	—	—	—	—	—	—	—	—	—	10,8
20,30	400,4	2,311	2,365	2,325	2	295,8	983,6	2	38,7	—	49,3	46,2	—	—	—	—	—	—	—	—	—	10,7
The average of the last three		4,650		A		2544,33		W		38,7	—	49,1	46,2	—	—	—	—	—	—	—	—	10,8

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)	39	55	67	85	102	125	143	165		
RESISTANC	1,6611	1,6574	1,6547	1,6516	1,6484	1,6453	1,6421	1,6389		

WINDING RESISTANCE(COLD)

△	U1-V1	U1-W1	V1-W1	AVERAGE	MIN	AMBIENT TEM.
	°C					
Y	U1-U2	V1-V2	W1-W2	AVERAGE	MIN	AMBIENT TEM.
	1,4315	1,4305	1,4300	1,4307	1,4300	8,1 °C

resistance value at 0 sec (Ω)

1,669795

calculation value of temp.rising

38,10 K

30 S (Ω)

1,663064

calculation value of temp.rising

36,95 K

full load curent

4,66 A

modify value of temp. rising

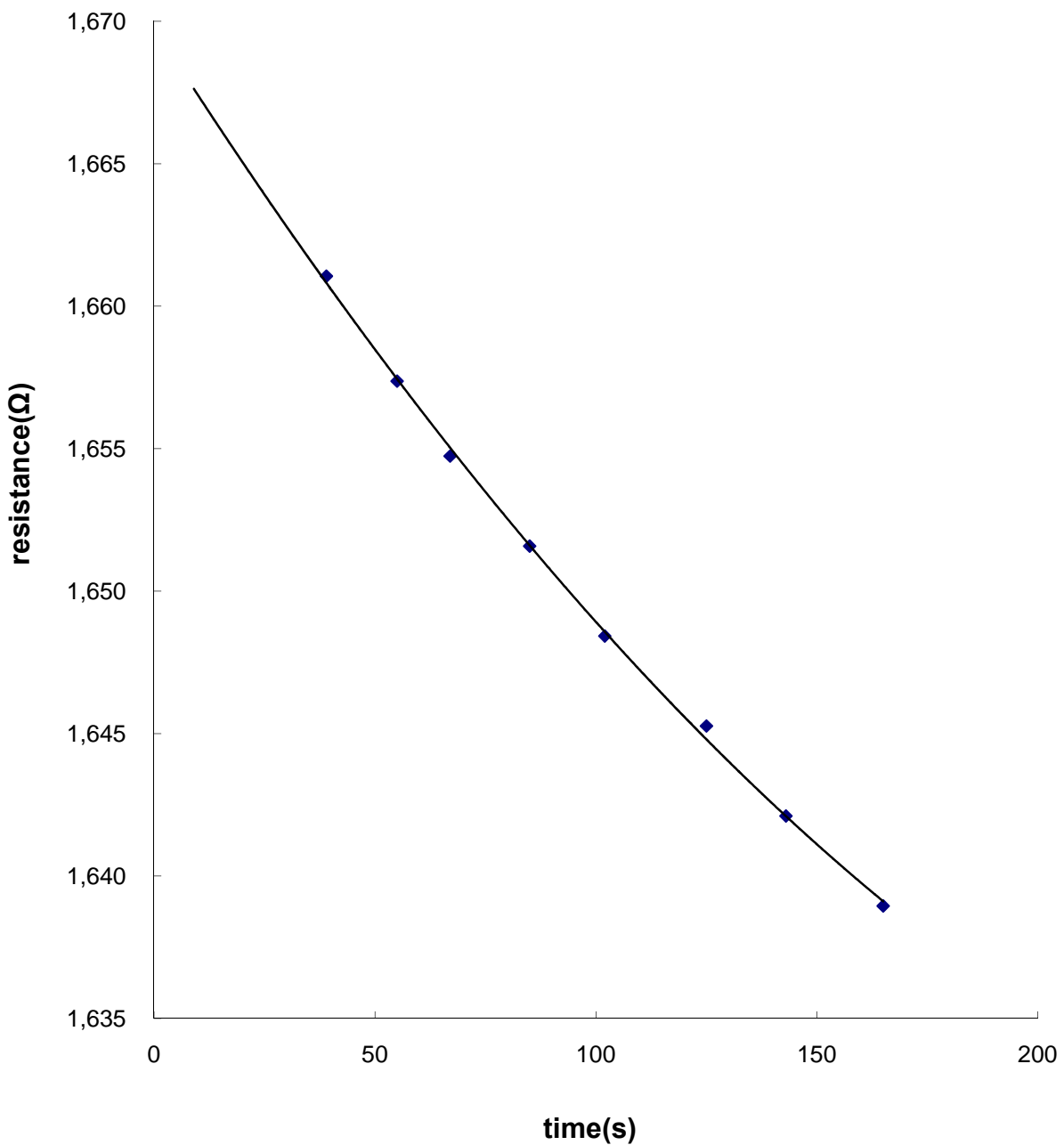
37,03 K

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Voltage	400 V	Current	4,7 A	Frequency	50,0	kW
Speed	1460 r/min	Duty	S1	Connection	Y	Hz
Ins.class	F	Weight	49 kg		IP55	

RESISTANCE CURVE



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Speed	1460	r/min	Duty	S1		Connection	Y		Hz			
Ins.class	F		Weight	49	kg	IP55						
LOAD TEST												
V	HZ	I1	I2	I3	mul.	W1	W2	mul.	r/min	Resistance Ω	Temperature °C	Torqure N.m
400,1	50,02	2,902	2,958	2,923	2	486,2	1246,3	2	1446,4	1,6637	47,7	19,38
400,3	50,02	2,747	2,802	2,767	2	439,3	1178,4	2	1450,2	1,6649	47,9	18,10
400,2	50,02	2,328	2,383	2,342	2	301,2	989,3	2	1461,8	1,6678	48,4	14,35
400,0	50,02	1,975	2,028	1,981	2	165,8	818,4	2	1472,0	1,6672	48,3	10,75
400,0	50,02	1,680	1,729	1,675	2	21,8	652,6	2	1481,7	1,6655	48,0	7,04
400,2	50,02	1,603	1,649	1,592	2	-29,6	598,7	2	1485,3	1,6637	47,7	5,76
400,0	50,02	1,507	1,549	1,489	2	-102,3	521,0	2	1489,9	1,6614	47,3	3,91
400,1	50,0	1,431	1,434	1,441	2,0	-212,2	401,2	2	1496,4	1,6590	46,9	1,09
399,9	50,0	1,429	1,433	1,442	2,0	-269,6	353,2	2	1500,0	1,6384	43,4	0,00
slope A= 0,17953		intercept B= 8,54			relative coefficient r= 0,999							
LOAD %	P2 W	I A	P1 W	Pcu1s W	Ss %	Pcu2s W	Ps W	Pz W	N.m	EFF %	P.F	
150,0	3300	6,41	3875,7	216,3	4,306	153,6	86,3	582,4	21,9	85,15	0,872	
125,0	2750	5,50	3198,2	158,9	3,504	103,2	59,1	447,6	18,1	85,99	0,840	
100,0	2200	4,66	2540,5	114,0	2,681	62,6	37,0	340,0	14,4	86,60	0,788	
75,0	1650	3,94	1912,9	81,5	1,951	33,9	20,4	262,2	10,7	86,26	0,702	
50,0	1100	3,36	1309,7	59,4	1,284	14,9	8,9	209,5	7,1	83,99	0,563	
25,0	550	2,96	727,4	46,0	0,637	3,8	2,2	178,3	3,5	75,61	0,355	

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Speed	1460	r/min	Duty	S1	Connection	Y		
Ins.class	F		Weight	49	kg	IP55		

LOAD CURVE

