

VALIADIS S.A.

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

Type	K112M-2		Poles	2		Power	4,0	kW	IE:3
Voltage	400	V	Current	7,3	A	Frequency	50	Hz	
Speed	2907	r/min	Duty	S1		Connecti	△		
Ins.class	F		Weight	58	kg	IP55			
MAJOR CONTENTS					TEST VALUE				
95,0 °C PHASE RESISTANCE OF WII					Ω	3,4331			
NO LOAD CURRENT					A	2,362			
NO LOAD INPUT					W	148,42			
CORE LOSS(Pfe)					W	84,71			
WINDAGE FRICTION LOSS(Pfw)					W	47,70			
STATOR WINDING LOSS(Pcu1)					W	168,41			
ROTOR WINDING LOSS(Pcu2)					W	131,82			
STRAY LOAD LOSS(Ps)					W	61,07			
LOCKED ROTOR CURRENT					A	61,051			
LOCKED ROTOR INPUT @ FULL LOAD					W	24422			
LOCKED ROTOR TORQUE					N.m	34,7			
PULL OUT TORQUE					N.m	49,0			
LOCKED ROTOR CURRENT/RATED CURF					P.U	8,41			
LOCKED ROTOR TORQUE/RATED TORQL					P.U	2,63			
PULL OUT TORQUE/RATED TORQUE					P.U	3,72			
FULL LOAD TORQUE					N.m	13,1			
FULL LOAD CURRENT					A	7,26			
FULL LOAD SLIP					%	3,108			
INPUT @ FULL LOAD					kW	4,494			
FULL LOAD SPEED					r/min	2906,8			
EFFICIENCY @ FULL LOAD					%	89,00			
EFFICIENCY @ 75% LOAD					%	89,93			
POWER FACTOR @ FULL LOAD						0,894			
STATOR WINDING TEMPERATURE RISE					K	45			
D.E. BEARINGS TEMPERATURE BY PT10					°C	23,0			
STATOR WINDING TEMPERATURE					°C	52,1			
High voltage test					V	1800	Imin		
Insulation resistance					MΩ	500			
NOISE (LW)					dB(A)	71			
VIBRATION					mm/s	0,6			

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Ins.class	F		Weight	58	kg			IP55			
NO LOAD TEST											
VOL	mul.	HZ	I01	I02	I03	mul.	W1	W2	mul.	°C	Ω
443,3	1	50	1,482	1,456	1,353	2	-285,2	373,4	2	41,3	1,9163
400,3	1	50	1,222	1,190	1,135	2	-202,3	276,6	2	40,9	1,9135
348,9	1	50	1,000	1,001	0,925	2	-145,0	206,3	2	40,7	1,9121
296,8	1	50	0,815	0,829	0,752	2	-98,1	149,5	2	40,5	1,9107
244,7	1	50	0,650	0,680	0,602	2	-61,2	105,3	2	40,1	1,9080
199,6	1	50	0,518	0,554	0,482	2	-36,0	74,1	2	40,0	1,9073
152,7	1	50	0,394	0,439	0,376	2	-16,2	48,7	2	39,6	1,9045
106,3	1	50	0,291	0,346	0,298	2	-2,0	30,6	2	38,2	1,8948
77,4	1	50	0,259	0,315	0,278	2	3,5	22,2	2	36,9	1,8858
data calculation of no load											
V%	U0/UN	I0	P0	(U0/UN)^2	P0cu1	P0'					
110,8%	1,11	2,861	176,4	1,228	23,52	152,88					
100,1%	1,00	2,365	148,6	1,002	16,05	132,55					
87,2%	0,87	1,951	122,6	0,761	10,91	111,69					
74,2%	0,74	1,597	102,8	0,551	7,31	95,49					
61,2%	0,61	1,288	88,2	0,374	4,75	83,45					
49,9%	0,50	1,036	76,2	0,249	3,07	73,13					
38,2%	0,38	0,806	65,0	0,146	1,86	63,14					
26,6%	0,27	0,623	57,2	0,071	1,10	56,10					
19,3%	0,19	0,568	51,4	0,037	0,91	50,49					
RESULTS AT: 400 V											
N.L.AMP	2,36	N.L.LOSS(W)	148,42	Pw(W)	47,7	Pe(W)	84,7				

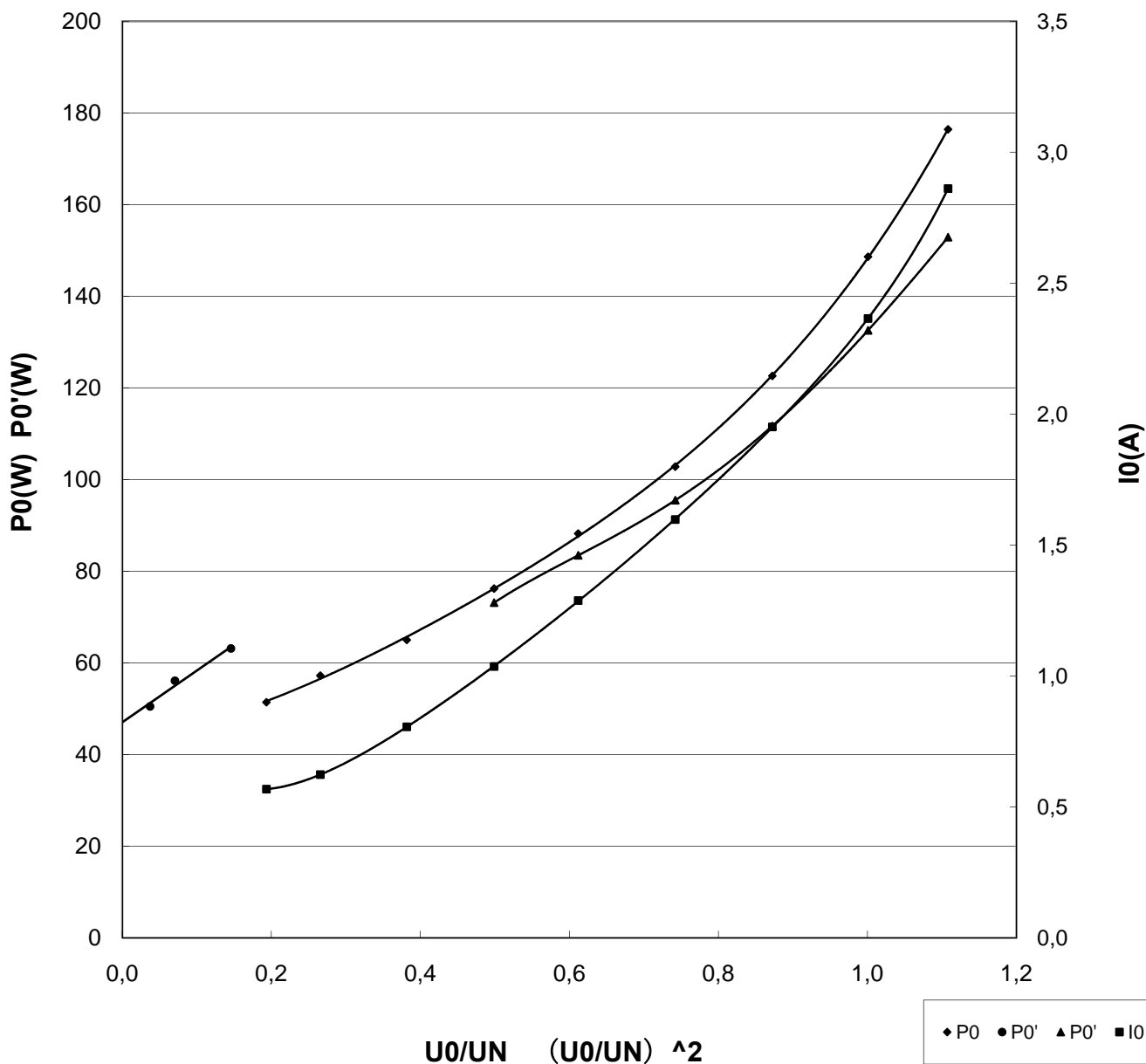
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ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

Type	K112M-2		Poles	2		Power	4,0 kW	
Voltage	400	V	Current	7,3	A	Frequency	50,0 Hz	
Speed	2907	r/min	Duty	S1		Connection	Δ	
Ins.class	F		Weight	58	kg		IP55	

IE:3

No Load Curve



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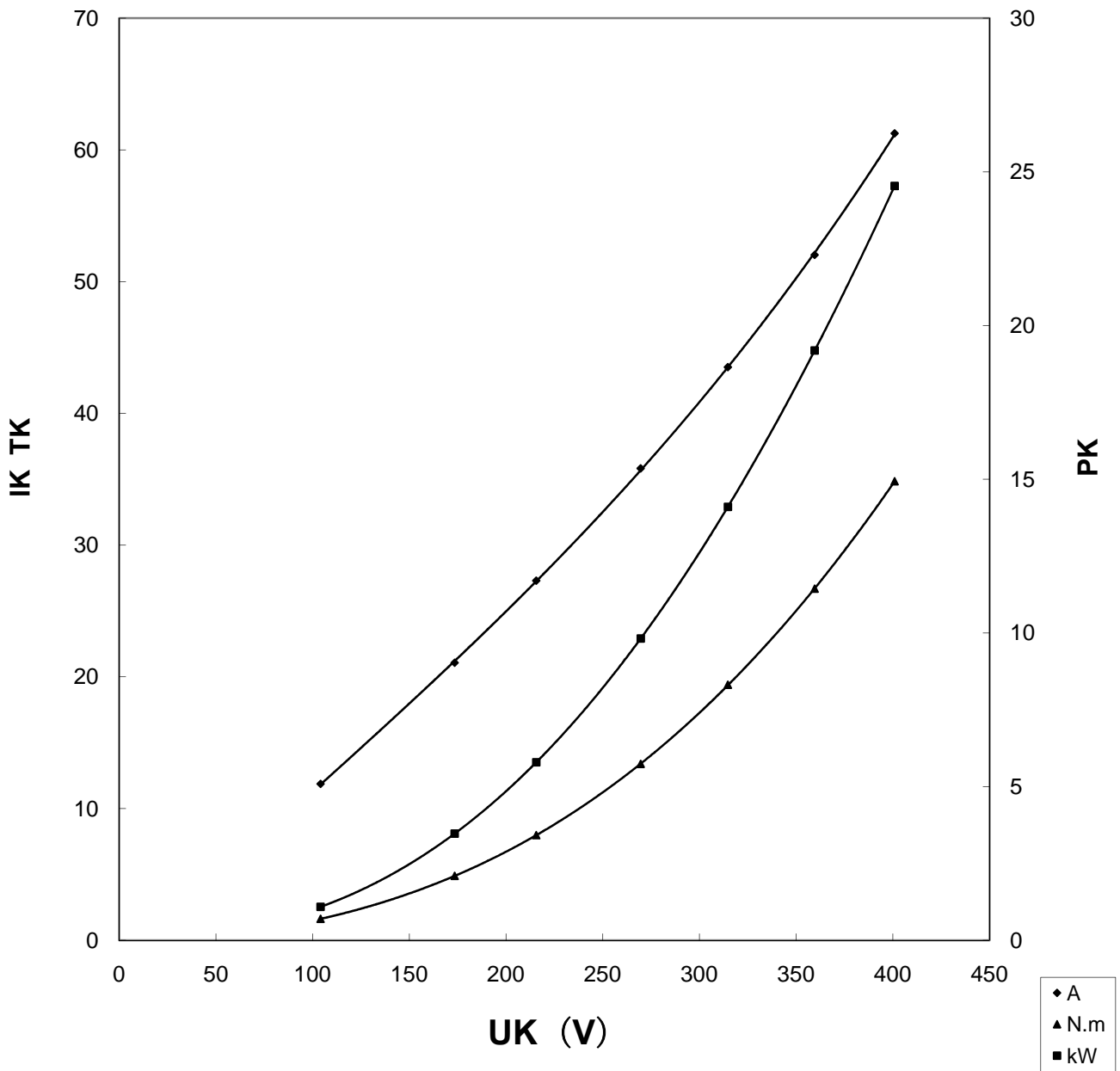
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Voltage	400	V	Current	7,3	A	Frequency	50,0		Hz
Speed	2907	r/min	Duty	S1		Connection	Δ		
Ins.class	F		Weight	58	kg	IP55			
LOCKED ROTOR TEST									
VOL	mul.	Ik1	Ik2	Ik3	mul.	W1	W2	mul.	Torqu (kg.m)
400,9	1,0	3,071	3,053	3,065	20,0	149,0	1078,1	20,0	3,56
359,6	1,0	2,605	2,593	2,607	20,0	130,4	829,1	20,0	2,72
314,7	1,0	2,181	2,168	2,177	20,0	97,7	607,3	20,0	1,98
269,6	1,0	1,797	1,784	1,793	20,0	64,5	426,4	20,0	1,37
215,6	1,0	1,372	1,357	1,366	20,0	32,9	256,7	20,0	0,81
173,5	1,0	1,059	1,048	1,054	20,0	16,1	157,6	20,0	0,50
104,1	1,0	0,592	0,593	0,597	20,0	2,3	52,1	20,0	0,17
data calculation of locked rotor									
Uk	IK	PK	TK		LOGUk	LOGIk	LOGPk	LOGTk	
V	A	kW	N.m						
400,93	61,26	24,543	34,85		2,6031	1,7872	1,3899	1,5422	
359,59	52,03	19,190	26,69		2,5558	1,7162	1,2831	1,4264	
314,72	43,51	14,101	19,40		2,4979	1,6386	1,1493	1,2877	
269,64	35,82	9,820	13,39		2,4308	1,5542	0,9921	1,1268	
215,65	27,30	5,792	7,98		2,3337	1,4361	0,7628	0,9021	
173,47	21,07	3,474	4,89		2,2392	1,3237	0,5408	0,6895	
104,15	11,87	1,088	1,63		2,0176	1,0746	0,0367	0,2124	
performance collection of locked rotor									
	at rated volts		at rated current		at 2.5 times rated current		at 100V		
VOLTS (V)	400		66,599		153,0		100,0		
AMPS (A)	61,1		7,4		18,5		11,69		
INPUT (kW)	24,42				3,0		1,362		
TORQUE (N.m)	34,66								

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Voltage	400 V	Current	7,3 A	Frequency	50,0	Hz	
Speed	2907 r/min	Duty	S1	Connection	Δ		
Ins.class	F	Weight	58 kg			IP55	

Locked Rotor Curve



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ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

Type	K112M-2		Poles	2		Power	4 kW		IE:3		
Voltage	400	V	Current	7,3	A	Frequency	50 Hz				
Speed	2907	r/min	Duty	S1		Connection	Δ				
Ins.class	F		Weight	58	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	
14,00	400,1	3,661	3,693	3,638	2	820,3	1441	2	26,3	—	57,6	56,0	—	—	—	—	—	—	—	—	—	9,7
14,30	400,6	3,645	3,671	3,629	2	815,1	1436	2	24,7	—	54,5	52,9	—	—	—	—	—	—	—	—	—	9,7
14,00	400,3	3,619	3,650	3,626	2	811,4	1427	2	23,8	—	53,1	51,5	—	—	—	—	—	—	—	—	—	9,6
15,30	400,0	3,648	3,682	3,643	2	816,0	1438	2	23,6	—	52,3	50,7	—	—	—	—	—	—	—	—	—	9,7
16,00	400,0	3,630	3,670	3,631	2	810,7	1434	2	23,0	—	52,1	50,5	—	—	—	—	—	—	—	—	—	9,7
The average of the last three		7,289		A		4491,07		W		23,0	—	52,5	50,5	—	—	—	—	—	—	—	—	9,7

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)	30	40	50	60	70	80				
RESISTANCE	2,007	2,002	1,998	1,994	1,989	1,986				

WINDING RESISTANCE(COLD)

Δ	U1-V1	U1-W1	V1-W1	AVERAGE	MIN	AMBIENT TEM.
	1,685	1,687	1,684	1,68533	1,68400	8 °C
Y	U1-U2	V1-V2	W1-W2	AVERAGE	MIN	AMBIENT TEM.
						°C

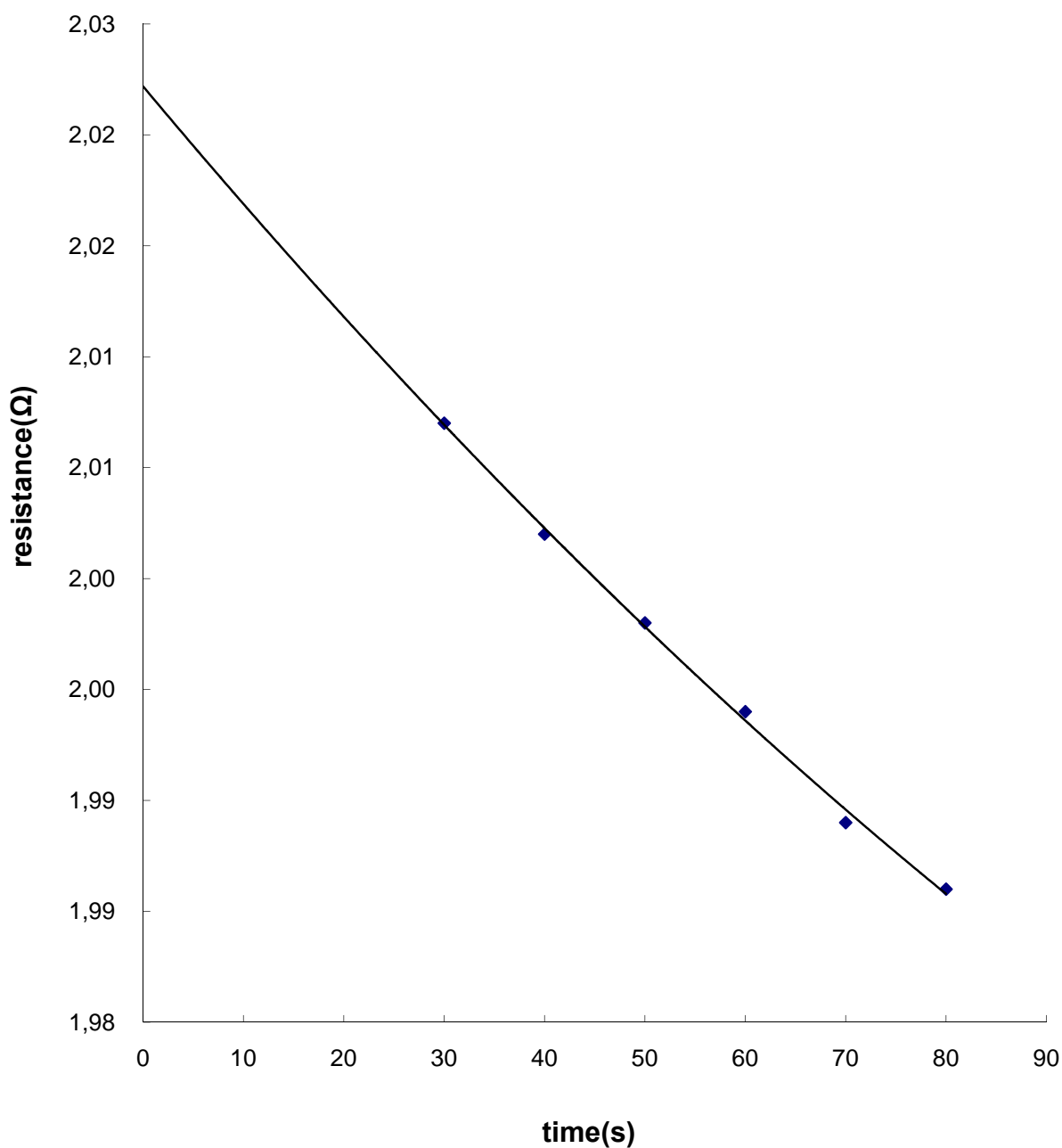
resistance value at 0 sec (Ω)	2,022186	calculation value of temp.rising	47,13	K
30 S (Ω)	2,006833	calculation value of temp.rising	44,92	K
full load curent	7,26 A	modify value of temp. rising	44,56	K

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Type	K112M-2		Poles	2	output Power	4,0	kW	IE:3
Voltage	400	V	Current	7,3	A	Frequency	50,0	Hz
Speed	2907	r/min	Duty	S1	Connection	Δ		
Ins.class		F	Weight	58	kg		IP55	

RESISTANCE CURVE



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Speed	2907	r/min	Duty	S1		Connection	Δ		Hz			
Ins.class	F		Weight	58	kg	IP55						
LOAD TEST												
V	HZ	I1	I2	I3	mul.	W1	W2	mul.	r/min	Resistance Ω	Temperature °C	Torque N.m
399,9	50,00	2,135	2,149	2,119	5	489,5	842,0	5	2869,8	1,9475	45,8	19,24
399,9	50,00	1,716	1,734	1,711	5	399,5	679,0	5	2893,6	1,9572	47,2	15,75
399,6	50,00	3,585	3,622	3,573	2	801,5	1421,2	2	2914	1,9634	48,1	13,03
400,5	50,00	2,777	2,802	2,746	2	556,2	1105,6	2	2937,7	1,9634	48,1	9,76
400,4	50,00	2,037	2,076	2,017	2	306,4	814,4	2	2959,3	1,9593	47,5	6,48
400,3	50,00	1,448	1,487	1,379	2	47,8	546,0	2	2979,5	1,9517	46,4	3,24
400,0	50,0	2,470	2,470	2,470	1	-271,1	798,9	1	2991,8	1,9510	46,3	1,20
400,1	50,0	2,379	2,379	2,382	1	-402,3	541,9	1	3000,0	1,8726	35,0	0,00
slope A= 0,35047			intercept B= -3,89			relative coefficient r=			0,996			
LOAD %	P2 W	I A	P1 W	Pcu1s W	Ss %	Pcu2s W	Ps W	Pz W	N.m	EFF %	P.F	
150,0	6000	11,21	6987,3	401,6	4,915	319,5	142,7	996,2	20,2	85,87	0,900	
125,0	5000	9,14	5718,4	266,7	4,036	216,6	97,5	713,2	16,7	87,44	0,904	
100,0	4000	7,26	4494,5	168,4	3,108	131,8	61,1	493,7	13,2	89,00	0,894	
75,0	3000	5,57	3336,0	99,1	2,233	70,4	33,8	335,7	9,8	89,93	0,865	
50,0	2000	4,07	2230,6	53,0	1,448	30,3	14,7	230,4	6,5	89,66	0,790	
25,0	1000	2,86	1169,5	26,1	0,724	7,7	3,6	169,7	3,2	85,51	0,591	

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Speed	2907	r/min	Duty	S1		Connection	Δ	
Ins.class	F		Weight	58	kg		IP55	

IE:3

LOAD CURVE

