

VALIADIS S.A.

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

Type	K180L-6	Poles	6	Power	15,0	kW	IE:3	
Voltage	400	V	Current	29,2	A	Frequency	50	Hz
Speed	982	r/min	Duty	S1	Connection	△		
Ins.class	F	Weight	227	kg		IP55		
MAJOR CONTENTS				TEST VALUE				
95,0	°C	PHASE RESISTANCE OF WINDING	Ω	0,6895				
NO LOAD CURRENT			A	12,068				
NO LOAD INPUT			W	451,55				
CORE LOSS(Pfe)			W	288,07				
WINDAGE FRICTION LOSS(Pfw)			W	74,97				
STATOR WINDING LOSS(Pcu1)			W	543,72				
ROTOR WINDING LOSS(Pcu2)			W	281,70				
STRAY LOAD LOSS(Ps)			W	211,55				
LOCKED ROTOR CURRENT			A	217,945				
LOCKED ROTOR INPUT @ FULL LOAD			W	64629				
LOCKED ROTOR TORQUE			N.m	285,7				
PULL OUT TORQUE			N.m	416,4				
LOCKED ROTOR CURRENT/RATED CURRENT			P.U	7,47				
LOCKED ROTOR TORQUE/RATED TORQUE			P.U	1,94				
PULL OUT TORQUE/RATED TORQUE			P.U	2,83				
FULL LOAD TORQUE			N.m	146,0				
FULL LOAD CURRENT			A	29,2				
FULL LOAD SLIP			%	1,809				
INPUT @ FULL LOAD			kW	16,402				
FULL LOAD SPEED			r/min	981,9				
EFFICIENCY @ FULL LOAD			%	91,45				
EFFICIENCY @ 75% LOAD			%	92,06				
POWER FACTOR @ FULL LOAD				0,812				
STATOR WINDING TEMPERATURE RISE			K	44				
D.E. BEARINGS TEMPERATURE BY PT100			°C	39,7				
STATOR WINDING TEMPERATURE			°C	64,4				
High voltage test			V	1800	Imin			
Insulation resistance			MΩ	500				
NOISE (LW)			dB(A)	69				
VIBRATION			mm/s	0,3				

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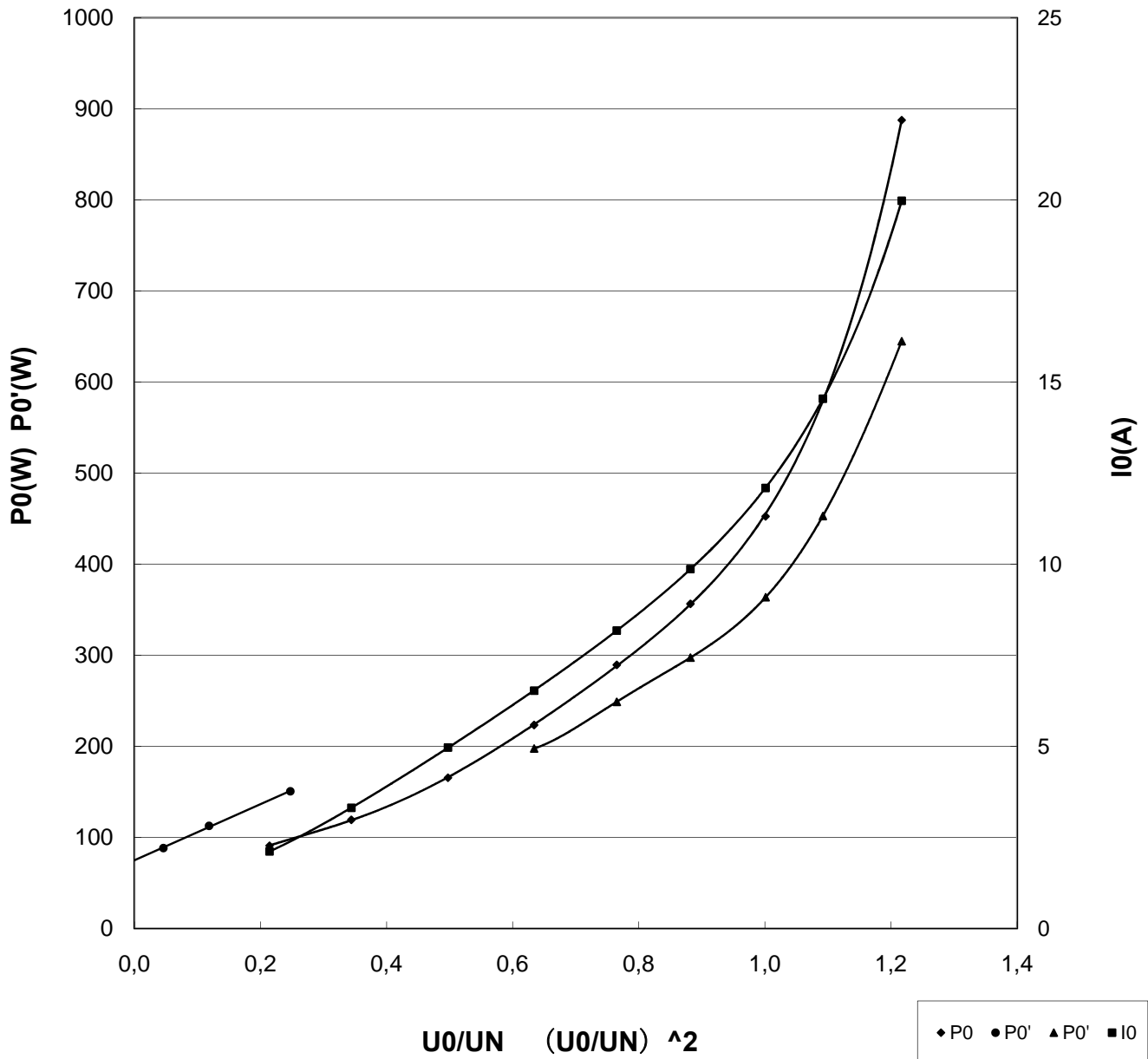
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NO LOAD TEST											
VOL	mul.	HZ	I01	I02	I03	mul.	W1	W2	mul.	°C	Ω
486,7	1	50	3,977	4,043	3,964	5	-852,2	1029,7	5	56,2	0,40565
436,7	1	50	2,896	2,922	2,906	5	-548,1	664,4	5	56,0	0,40537
400,4	1	50	2,410	2,420	2,424	5	-413,8	504,3	5	55,8	0,40509
352,7	1	50	1,968	1,972	1,980	5	-293,3	364,6	5	55,5	0,40467
306,0	1	50	1,631	1,634	1,643	5	-207,2	265,1	5	55,4	0,40453
253,6	1	50	1,301	1,304	1,312	5	-133,4	178,1	5	55,3	0,40439
198,9	1	50	2,474	2,482	2,495	2	-191,2	274,0	2	54,8	0,40370
137,7	1	50	1,642	1,664	1,666	2	-76,6	136,3	2	54,7	0,40356
85,8	1	50	1,045	1,064	1,064	2	-17,8	63,3	2	54,4	0,40314
data calculation of no load											
V%	U0/UN	I0	P0	(U0/UN)^2	P0cu1	P0'					
121,7%	1,22	19,973	887,5	1,481	242,74	644,76					
109,2%	1,09	14,540	581,5	1,192	128,55	452,95					
100,1%	1,00	12,090	452,5	1,002	88,82	363,68					
88,2%	0,88	9,867	356,5	0,778	59,09	297,41					
76,5%	0,77	8,180	289,5	0,585	40,60	248,90					
63,4%	0,63	6,528	223,5	0,402	25,85	197,65					
49,7%	0,50	4,967	165,6	0,247	14,94	150,66					
34,4%	0,34	3,315	119,4	0,118	6,65	112,75					
21,4%	0,21	2,115	91,0	0,046	2,71	88,29					
RESULTS AT: 400 V											
N.L.AMP	12,07	N.L.LOSS(W)	451,55	Pw(W)	75,0	Pe(W)	288,1				

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Ins.class	F	Weight	227 kg			IP55

No Load Curve



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LOCKED ROTOR TEST

VOL	mul.	Ik1	Ik2	Ik3	mul.	W1	W2	mul.	Torqur (kg.m)
400,8	1,0	2,178	2,188	2,192	100,0	-74,3	723,8	100,0	29,3
358,8	1,0	1,855	1,863	1,867	100,0	-60,0	549,3	100,0	22,0
316,4	1,0	3,113	3,126	3,130	50,0	-102,2	806,4	50,0	16,0
268,5	1,0	2,477	2,488	2,491	50,0	-80,0	537,1	50,0	10,5
211,4	1,0	1,778	1,784	1,784	50,0	-56,9	296,8	50,0	5,7
158,8	1,0	3,017	3,051	3,029	20,0	-90,7	370,7	20,0	2,8
104,8	1,0	1,815	1,843	1,824	20,0	-40,9	143,8	20,0	1,0

data calculation of locked rotor

Uk V	Ik A	PK kW	TK N.m	LOGUk	LOGIk	LOGPk	LOGTk
400,84	218,60	64,950	287,14	2,6030	2,3396	1,8126	2,4581
358,84	186,17	48,930	215,60	2,5549	2,2699	1,6896	2,3336
316,42	156,16	35,210	156,80	2,5003	2,1936	1,5467	2,1953
268,53	124,26	22,855	102,90	2,4290	2,0943	1,3590	2,0124
211,37	89,11	11,995	55,86	2,3250	1,9499	1,0790	1,7471
158,84	60,65	5,600	27,44	2,2010	1,7828	0,7482	1,4384
104,84	36,54	2,058	9,80	2,0205	1,5628	0,3134	0,9912

performance collection of locked rotor

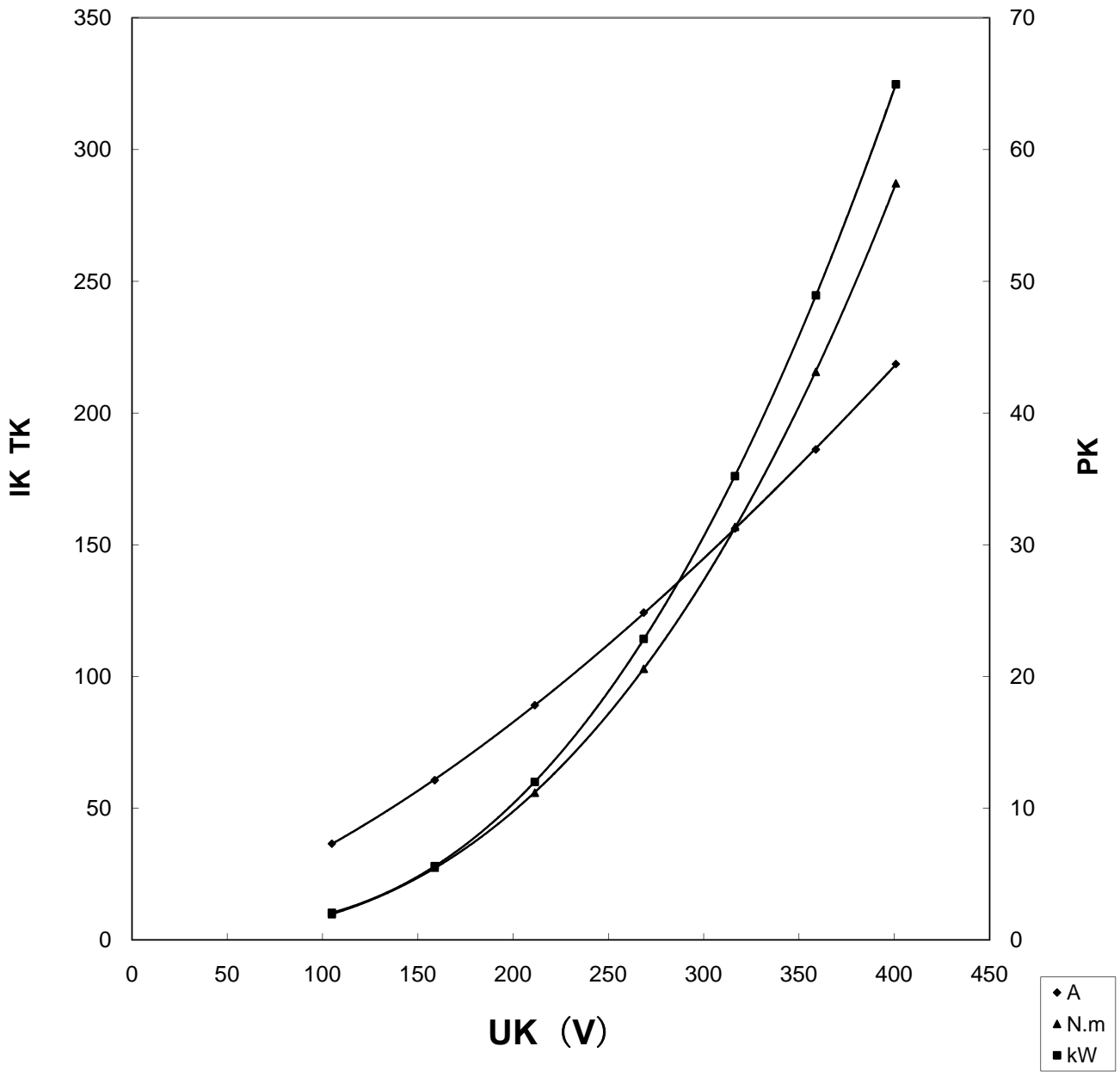
	at rated volts	at rated current	at 2.5 times rated current	at 100V
VOLTS (V)	400	88,615	180,9	100,0
AMPS (A)	217,9	29,3	73,3	34,38
INPUT (kW)	64,63		8,7	1,740
TORQUE (N.m)	285,71			

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Locked Rotor Curve



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Speed	982	r/min	Duty	S1		Connection	Δ			
Ins.class	F		Weight	227	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	
16,01	400,2	1,464	1,481	1,471	20	250,4	578,6	20	31,3	—	55,4	52,2	—	—	—	—	—	—	—	—	—	10,1
16,30	400,3	1,446	1,463	1,454	20	246,9	572,0	20	34,6	—	58,2	56,3	—	—	—	—	—	—	—	—	—	11,7
17,00	400,2	1,458	1,476	1,466	20	250,5	576,7	20	37,4	—	61,1	58,1	—	—	—	—	—	—	—	—	—	11,2
17,30	400,1	1,453	1,470	1,458	20	250,1	575,2	20	39,1	—	63,6	60,5	—	—	—	—	—	—	—	—	—	12,1
17,58	400,2	1,462	1,480	1,468	20	252,2	578,5	20	39,8	—	64,4	61,3	—	—	—	—	—	—	—	—	—	12,0
18,30	400,3	1,443	1,459	1,447	20	247,5	570,8	20	39,7	—	64,4	61,3	—	—	—	—	—	—	—	—	—	11,9
The average of the last three		29,200		A		16495,3		W		39,7	—	64,1	61,3	—	—	—	—	—	—	—	—	12,0

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	84	99	110	120	134	153	168		
RESISTANC	0,40380	0,40270	0,40200	0,40150	0,40100	0,40040	0,39970	0,39910		

WINDING RESISTANCE(COLD)

Δ	U1-V1	U1-W1	V1-W1	AVERAGE	MIN	AMBIENT TEM.
	0,3376	0,3379	0,3375	0,33767	0,33750	7,4 °C
Y	U1-U2	V1-V2	W1-W2	AVERAGE	MIN	AMBIENT TEM.
						°C

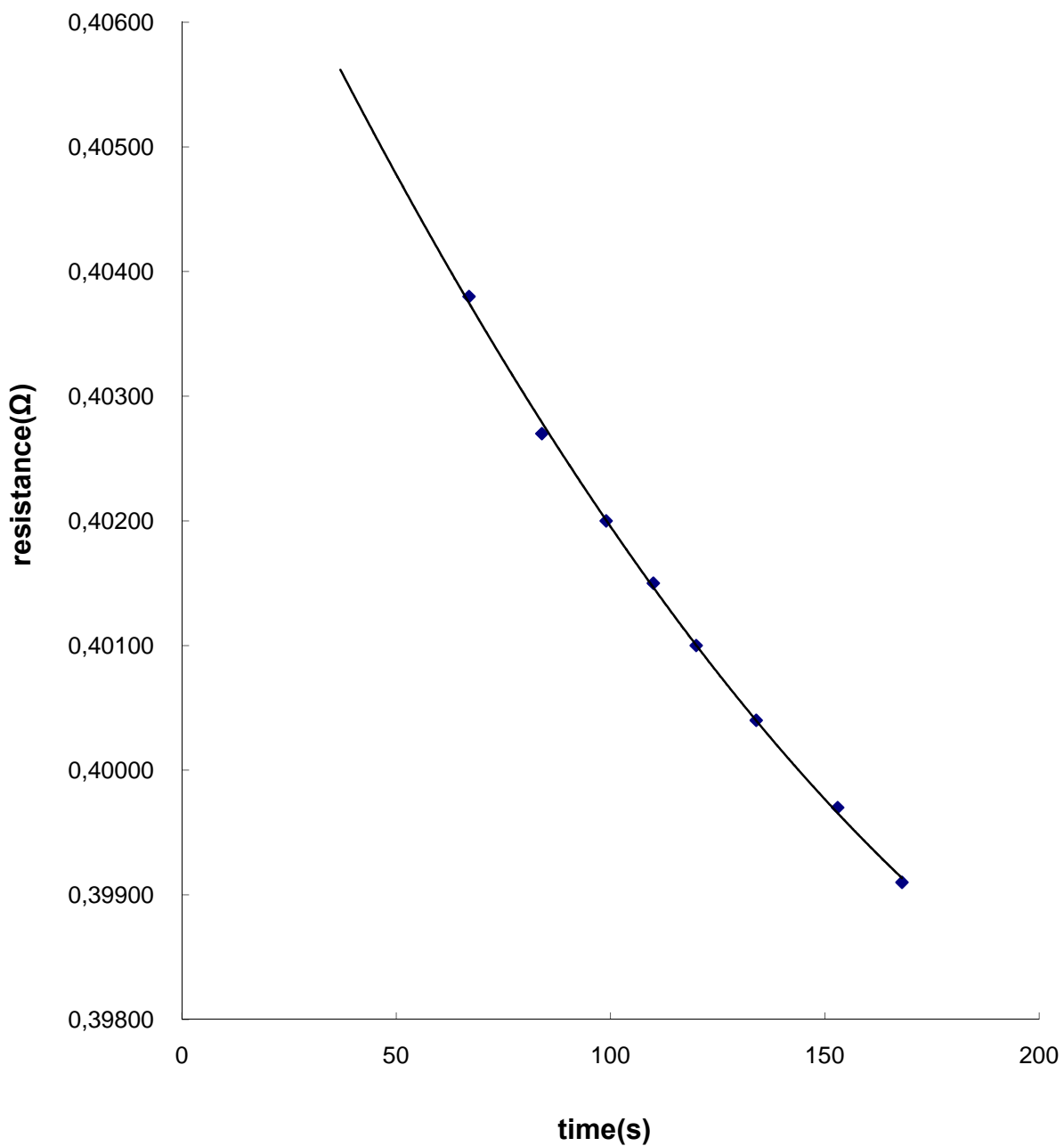
resistance value at 0 sec (Ω)	0,408241	calculation value of temp.rising	46,21	K
30 S (Ω)	0,405843	calculation value of temp.rising	44,49	K
full load curent	29,17 A	modify value of temp. rising	44,40	K

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RESISTANCE CURVE



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Speed	982	r/min	Duty	S1		Connection	Δ		
Ins.class	F		Weight	227	kg		IP55		

LOAD CURVE

