

VALIADIS S.A.

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

IE:3									
Type	K315L-2			Poles	2		Power	160,0	kW
Voltage	400	V		Current	266,4	A	Frequency	50	Hz
Speed	2979	r/min		Duty	S1		Connection	Δ	
Ins.class	F			Weight	1293	kg	IP55		
MAJOR CONTENTS					TEST VALUE				
95,0 °C PHASE RESISTANCE OF WINDING			Ω	0,0203					
NO LOAD CURRENT			A	53,189					
NO LOAD INPUT			W	2654,72					
CORE LOSS(Pfe)			W	1210,72					
WINDAGE FRICTION LOSS(Pfw)			W	1389,98					
STATOR WINDING LOSS(Pcu1)			W	1431,79					
ROTOR WINDING LOSS(Pcu2)			W	1134,31					
STRAY LOAD LOSS(Ps)			W	2665,63					
LOCKED ROTOR CURRENT			A	1485,305					
LOCKED ROTOR INPUT @ FULL LOAD			W	322218					
LOCKED ROTOR TORQUE			N.m	909,8					
PULL OUT TORQUE			N.m	1322,6					
LOCKED ROTOR CURRENT/RATED CURRENT			P.U	5,57					
LOCKED ROTOR TORQUE/RATED TORQUE			P.U	1,77					
PULL OUT TORQUE/RATED TORQUE			P.U	2,58					
FULL LOAD TORQUE			N.m	513,1					
FULL LOAD CURRENT			A	266,4					
FULL LOAD SLIP			%	0,687					
INPUT @ FULL LOAD			kW	167,840					
FULL LOAD SPEED			r/min	2979,4					
EFFICIENCY @ FULL LOAD			%	95,33					
EFFICIENCY @ 75% LOAD			%	95,61					
POWER FACTOR @ FULL LOAD				0,909					
STATOR WINDING TEMPERATURE RISE			K	66					
D.E. BEARINGS TEMPERATURE BY PT100			°C	65,2					
STATOR WINDING TEMPERATURE			°C	86,2					
High voltage test			V	1800	Imin				
Insulation resistance			MΩ	500					
NOISE (LW)			dB(A)	93					
VIBRATION			mm/s	0,9					

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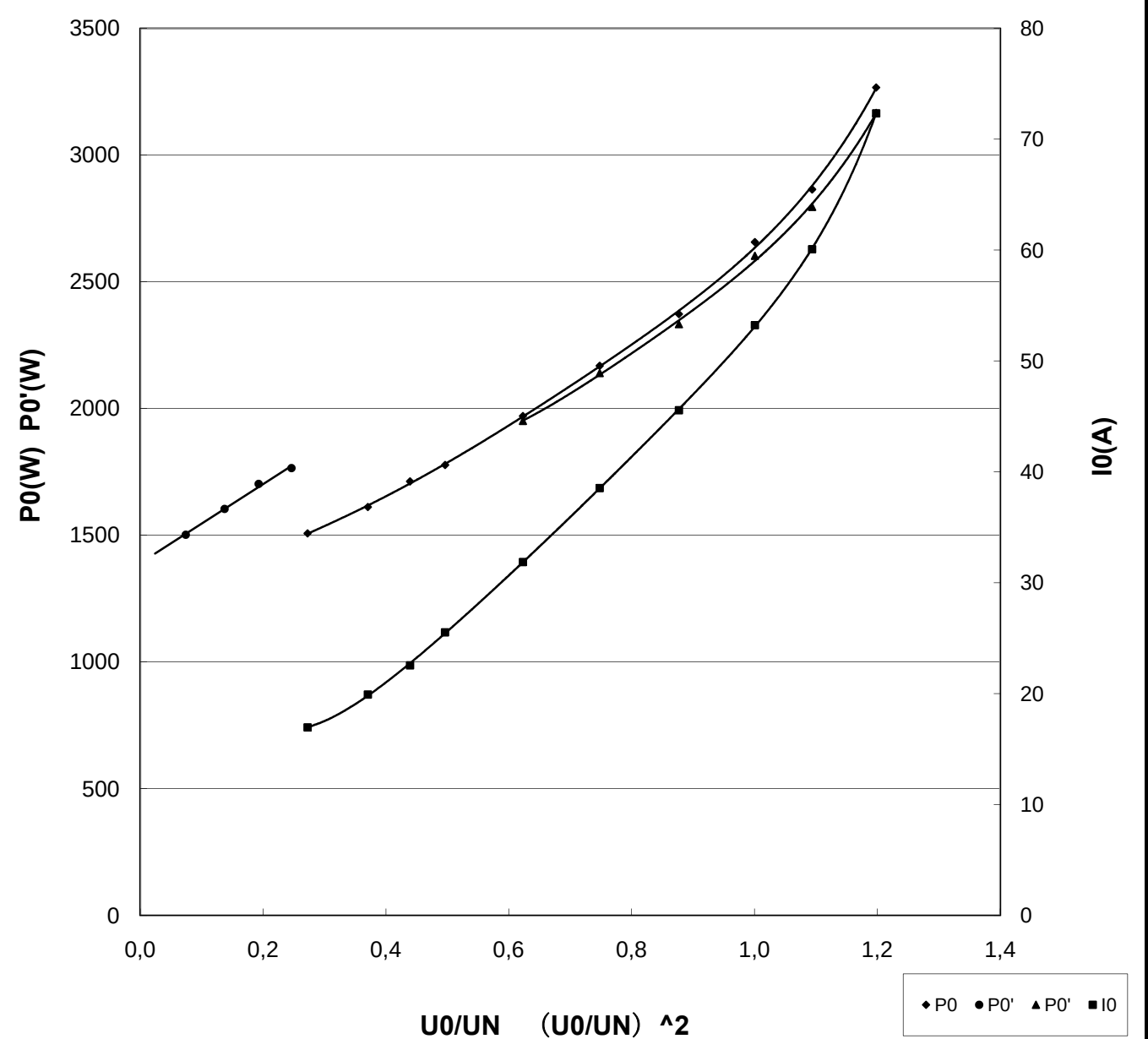
											IE:3
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Speed	2979	r/min	Duty		S1		Connection		△		
Ins.class	F		Weight		1293	kg	IP55				
NO LOAD TEST											
VOL	mul.	HZ	I01	I02	I03	mul.	W1	W2	mul.	°C	Ω
479,2	1	50	3,578	3,722	3,550	20	-627	790,3	20	76,4	0,01277
437,5	1	50	2,952	3,115	2,945	20	-466,8	610,0	20	76,0	0,01275
400,2	1	50	2,606	2,768	2,609	20	-370,6	503,4	20	75,5	0,01273
350,7	1	50	2,225	2,378	2,230	20	-268,9	387,5	20	75,0	0,01271
299,2	1	50	1,874	2,023	1,883	20	-183,6	292,0	20	74,6	0,01269
249,2	1	50	1,534	1,702	1,543	20	-117,3	215,8	20	74,2	0,01268
198,5	1	50	2,533	2,537	2,588	10	-98,9	276,6	10	73,6	0,01265
175,7	1	50	2,232	2,242	2,289	10	-58,1	229,3	10	73,3	0,01264
148,2	1	50	1,974	1,981	2,022	10	-22,9	184,0	10	73,0	0,01263
108,9	1	50	1,681	1,681	1,724	10	19,5	131,2	10	72,6	0,01261
data calculation of no load											
V%	U0/UN	I0	P0	(U0/UN)^2	P0cu1	P0'		COSφ			
119,8%	1,20	72,334	3266,0	1,435	100,19	3165,81		0,054			
109,4%	1,09	60,081	2864,0	1,196	69,03	2794,97		0,063			
100,1%	1,00	53,224	2656,0	1,001	54,09	2601,91		0,072			
87,7%	0,88	45,552	2372,0	0,769	39,56	2332,44		0,086			
74,8%	0,75	38,534	2168,0	0,559	28,27	2139,73		0,109			
62,3%	0,62	31,863	1970,0	0,388	19,30	1950,70		0,143			
49,6%	0,50	25,527	1777,0	0,246	12,37	1764,63		0,202			
43,9%	0,44	22,546	1712,0	0,193	9,64	1702,36		0,250			
37,1%	0,37	19,921	1611,0	0,137	7,52	1603,48		0,315			
27,2%	0,27	16,952	1507,0	0,074	5,44	1501,56		0,471			
RESULTS AT: 400 V											
N.L.AMP	53,19	N.L.LOSS(W)	2654,72	Pw(W)	1390,0	Pe(W)	1210,7				

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Voltage	400	V	Current	266,4	A	Frequency	50,0	kW
Speed	2979	r/min	Duty	S1		Connection	Δ	Hz
Ins.class	F		Weight	1293	kg		IP55	

No Load Curve



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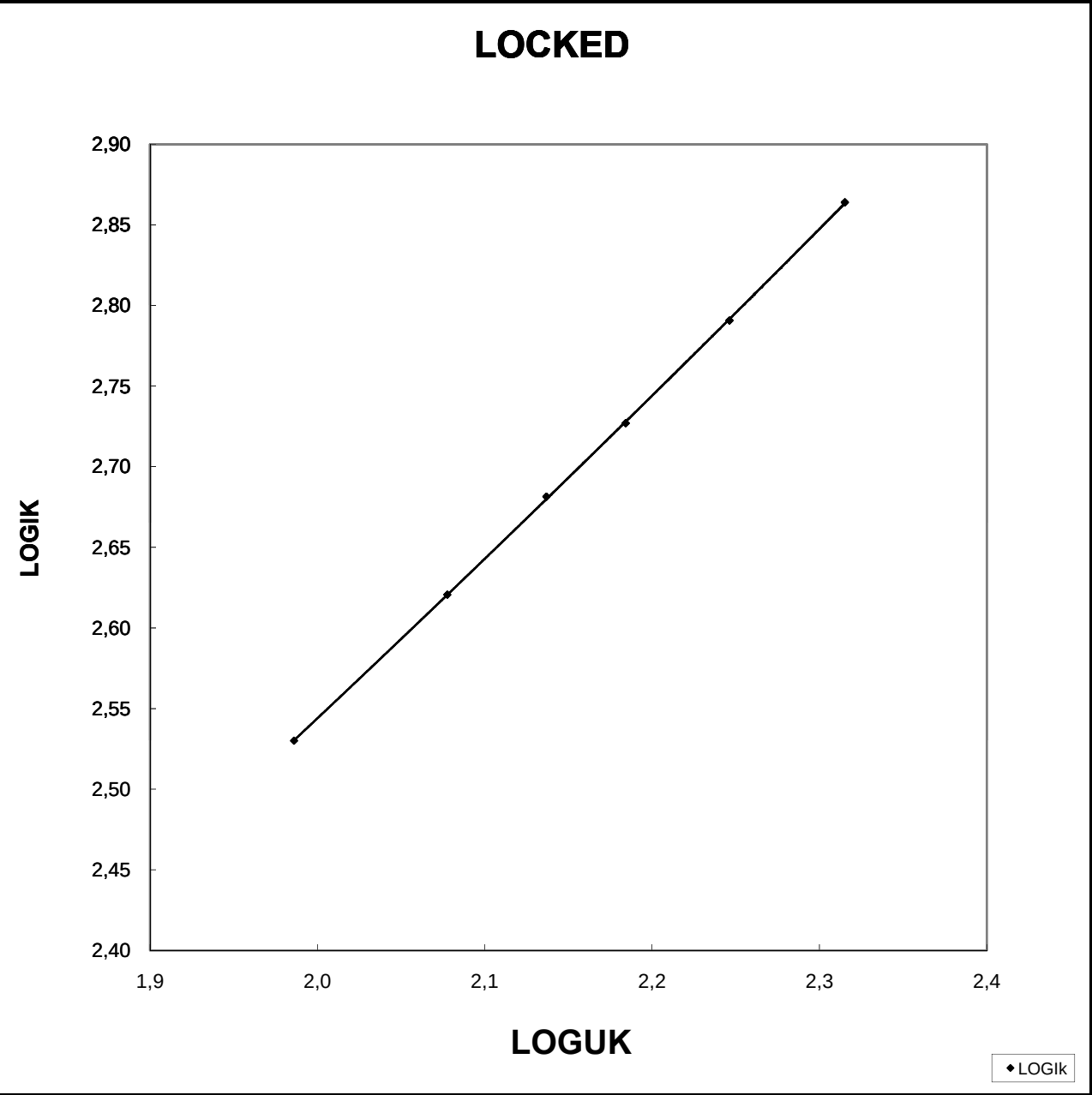
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Ins.class	F		Weight	1293	kg			IP55	
LOCKED ROTOR TEST									
VOL	mul.	Ik1	Ik2	Ik3	mul.	W1	W2	mul.	Torqur (kg.m)
206,6	1,0	3,638	3,644	3,687	200,0	-122,2	529,2	200,0	22,5
176,3	1,0	3,076	3,077	3,111	200,0	-90,0	380,1	200,0	16,4
152,8	1,0	2,656	2,659	2,685	200,0	-67,4	284,4	200,0	12,2
137,1	1,0	2,391	2,395	2,416	200,0	-54,3	229,3	200,0	9,7
119,6	1,0	2,081	2,082	2,099	200,0	-41,4	173,9	200,0	7,4
96,8	1,0	1,689	1,689	1,704	200,0	-26,9	114,0	200,0	4,8
data calculation of locked rotor									
Uk	IK		PK	TK	LOGUk		LOGIk	LOGPk	LOGTk
V	A		kW	N.m					
206,63	731,21		81,400	220,50	2,3152		2,8640	1,9106	2,3434
176,32	617,60		58,020	160,72	2,2463		2,7907	1,7636	2,2061
152,84	533,39		43,400	119,56	2,1842		2,7270	1,6375	2,0776
137,05	480,19		35,000	95,06	2,1369		2,6814	1,5441	1,9780
119,58	417,48		26,500	72,52	2,0777		2,6206	1,4232	1,8605
96,84	338,86		17,420	47,04	1,9861		2,5300	1,2410	1,6725
performance collection of locked rotor									
at rated volts		at rated current		at 2.5 times rated current		at 100V			
VOLTS (V)		400		76,332		188,7		100,0	
AMPS (A)		1485,3		265,4		663,5		348,88	
INPUT (kW)		322,22				67,0		18,478	
TORQUE (N.m)		909,83							

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Voltage	400	V	Current	266,4	A	Frequency	50,0	kW
Speed	2979	r/min	Duty	S1		Connection	Δ	Hz
Ins.class		F	Weight	1293	kg		IP55	



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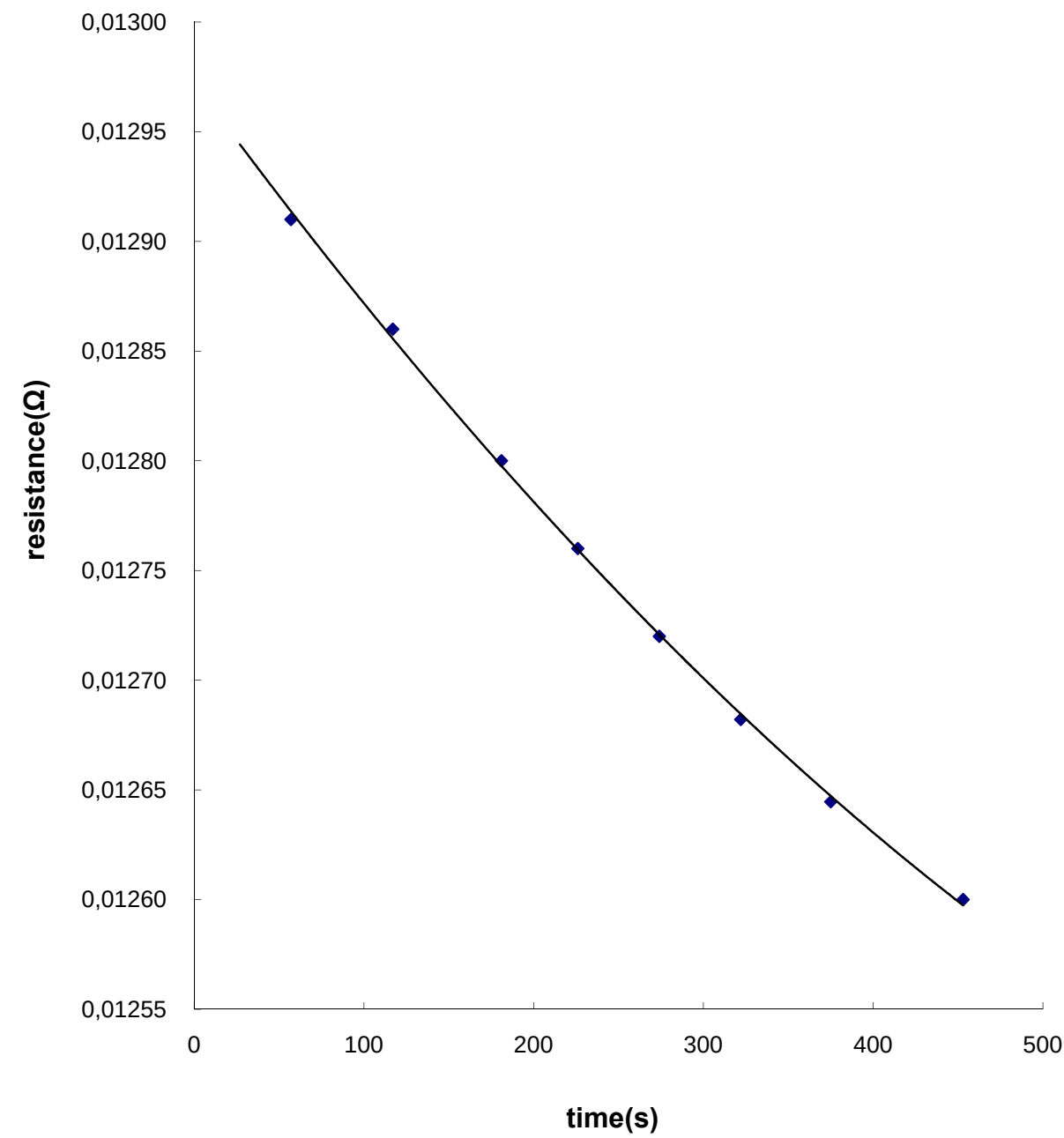
Type	K315L-2					Poles			2		Power			160		kW		IE:3				
Voltage	400		V			Current			266,4		A			Frequency			50		Hz			
Speed	2979		r/min			Duty			S1		Connection			Δ								
Ins.class	F					Weight			1293		kg			IP55								
TEMPERATURE RISE TEST																						
TIME (h:min)	V	I1	I2	I3	mul.	W1	W2	mul.	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	
12,28	400,1	2,628	2,649	2,675	100	611,3	1064	100	60,4	—	76,5	76,2	—	—	—	—	—	—	—	—	12,9	
13,02	400,1	2,656	2,676	2,702	100	616,9	1075	100	63,0	—	80,9	80,5	—	—	—	—	—	—	—	—	13,2	
13,30	400,0	2,625	2,647	2,672	100	611,3	1063	100	63,7	—	82,5	82,2	—	—	—	—	—	—	—	—	13,0	
13,59	399,9	2,642	2,661	2,686	100	614,5	1069	100	64,4	—	83,3	83,0	—	—	—	—	—	—	—	—	13,0	
14,28	400,2	2,672	2,692	2,717	100	620,2	1081	100	65,0	—	84,5	84,4	—	—	—	—	—	—	—	—	13,6	
14,58	400,1	2,642	2,661	2,687	100	613,8	1068	100	65,2	—	85,6	85,5	—	—	—	—	—	—	—	—	13,4	
15,31	400,2	2,654	2,674	2,699	100	616,2	1073	100	65,3	—	85,9	85,8	—	—	—	—	—	—	—	—	13,1	
16,00	400,2	2,646	2,666	2,693	100	614,8	1070	100	65,2	—	86,2	86,1	—	—	—	—	—	—	—	—	13,2	
The average of the last three		266,911				A		168493		W		65,2	—	85,9	86,1	—	—	—	—	—	—	13,2
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)	57	117	181	226	274	322	375	453														
RESISTANC	0,01291	0,01286	0,01280	0,01276	0,01272	0,01268	0,01264	0,01260														
WINDING RESISTANCE(COLD)																						
Δ	U1-V1		U1-W1		V1-W1		AVERAGE		MIN		AMBIENT TEM.											
	0,009946		0,009948		0,009942		0,00995		0,00994		7,6 °C											
Y	U1-U2		V1-V2		W1-W2		AVERAGE		MIN		AMBIENT TEM.											
											°C											
resistance value at 0 sec (Ω)				0,012972				calculation value of temp.rising				68,30		K								
90 S (Ω)				0,012882				calculation value of temp.rising				66,10		K								
full load curent				266,43 A				modify value of temp. rising				65,86		K								

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Voltage	400	V	Current	266,4	A	Frequency	50,0	Hz	
Speed	2979	r/min	Duty	S1		Connection	Δ		
Ins.class		F	Weight	1293	kg		IP55		

RESISTANCE CURVE



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Speed	2979	r/min	Duty	S1		Connection	Δ
Ins.class	F		Weight	1293	kg	IP55	

LOAD TEST

V	HZ	I1	I2	I3	mul.	W1	W2	mul.	r/min	Resista nce Ω	Temper ature °C	Torqur N.m
400,3	50,03	4,012	4,039	4,083	100	808,3	1623,4	100	2969,3	0,0131	83,6	736,37
400,1	50,02	3,442	3,467	3,503	100	744,3	1391,9	100	2974,6	0,0131	84,4	648,97
400,1	50,02	3,013	3,036	3,066	100	680,1	1217,3	100	2978,5	0,0131	84,9	578,11
400,0	50,01	2,657	2,679	2,704	100	616,4	1071,7	100	2980,7	0,0131	85,1	515,55
400,0	50,01	1,965	1,982	1,999	100	467,7	792,2	100	2985,9	0,0131	84,9	384,12
400,1	50,02	1,349	1,362	1,372	100	306,6	546,1	100	2991,7	0,0131	84,5	258,34
400,2	50,02	0,785	0,795	0,796	100	128,0	316,9	100	2996,1	0,0131	83,5	131,8
400,1	50,0	2,822	2,642	2,631	20,0	-291,9	606,3	20	2999,7	0,0130	82,0	10,91
400,1	50,0	2,591	2,797	2,594	20,0	-383,8	517,3	20	3000,0	0,0128	77,1	0,00

slope A= 0,01012 intercept B= 87,14 relative coefficient r= 0,998

LOAD %	P2 W	I A	P1 W	Pcu1s W	Ss %	Pcu2s W	Ps W	Pz W	N.m	EFF %	P.F
150,0	240000	427,96	255272,5	3694,2	1,218	3050,1	6044,5	15389,5	772,8	94,02	0,861
125,0	200000	342,37	211036,0	2364,4	0,910	1888,6	4170,7	11024,4	641,9	94,77	0,890
100,0	160000	266,43	167840,1	1431,8	0,687	1134,3	2665,6	7832,4	513,2	95,33	0,909
75,0	120000	197,47	125505,3	786,5	0,508	627,9	1486,5	5501,6	383,2	95,61	0,917
50,0	80000	134,18	83897,5	363,2	0,325	267,7	656,5	3888,1	254,7	95,35	0,903
25,0	40000	77,08	42945,6	119,8	0,172	71,6	164,8	2957,0	127,6	93,14	0,804

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Speed	2979	r/min	Duty	S1		Connection	Δ
Ins.class	F		Weight	1293	kg	IP55	

LOAD CURVE

