

VALIADIS S.A.

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

IE:3

Type	K315L-2	Poles	2	Power	200,0	kW
Voltage	400 V	Current	332 A	Frequency	50	Hz
Speed	2978 r/min	Duty	S1	Connection	△	
Ins.class	F	Weight	1358 kg		IP55	
MAJOR CONTENTS			TEST VALUE			
95,0 °C PHASE RESISTANCE OF WINDING	Ω					0,0159
NO LOAD CURRENT	A					55,902
NO LOAD INPUT	W					3488,74
CORE LOSS(Pfe)	W					1416,65
WINDAGE FRICTION LOSS(Pfw)	W					2025,70
STATOR WINDING LOSS(Pcu1)	W					1782,12
ROTOR WINDING LOSS(Pcu2)	W					1485,58
STRAY LOAD LOSS(Ps)	W					2606,37
LOCKED ROTOR CURRENT	A					1819,040
LOCKED ROTOR INPUT @ FULL LOAD	W					405352
LOCKED ROTOR TORQUE	N.m					1232,6
PULL OUT TORQUE	N.m					1610,6
LOCKED ROTOR CURRENT/RATED CURRENT	P.U					5,48
LOCKED ROTOR TORQUE/RATED TORQUE	P.U					1,92
PULL OUT TORQUE/RATED TORQUE	P.U					2,51
FULL LOAD TORQUE	N.m					641,6
FULL LOAD CURRENT	A					332,1
FULL LOAD SLIP	%					0,721
INPUT @ FULL LOAD	kW					209,329
FULL LOAD SPEED	r/min					2978,4
EFFICIENCY @ FULL LOAD	%					95,54
EFFICIENCY @ 75% LOAD	%					95,78
POWER FACTOR @ FULL LOAD						0,910
STATOR WINDING TEMPERATURE RISE	K					73
D.E. BEARINGS TEMPERATURE BY PT100	°C					59,1
STATOR WINDING TEMPERATURE	°C					92,1
High voltage test	V	1800				Imin
Insulation resistance	MΩ					500
NOISE (LW)	dB(A)					91
VIBRATION	mm/s					1,6

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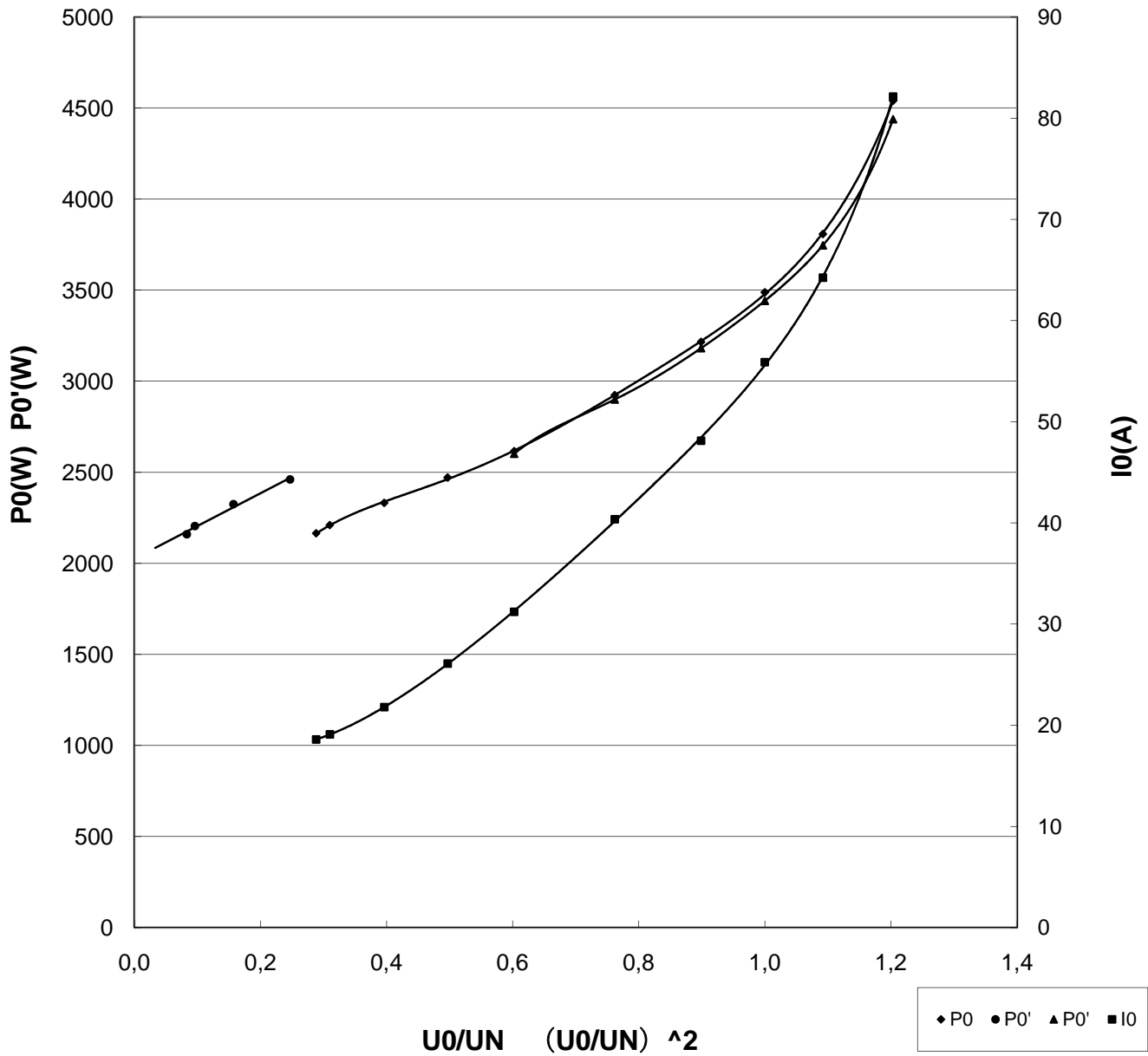
Type	K315L2-2		Poles	2		Power	200,0 kW		IE:3		
Voltage	400	V	Current	332	A	Frequency	50 Hz				
Speed	2978	r/min	Duty	S1		Connection	△				
Ins.class	F		Weight	1358	kg			IP55			
NO LOAD TEST											
VOL	mul.	HZ	I01	I02	I03	mul.	W1	W2	mul.	°C	Ω
481,3	1	50	1,661	1,632	1,635	50	-334,1	424,9	50	75,5	0,00996
436,7	1	50	3,182	3,286	3,168	20	-592,8	783,2	20	74,6	0,00993
399,9	1	50	2,756	2,872	2,754	20	-461,4	635,8	20	73,4	0,00990
359,5	1	50	2,355	2,498	2,366	20	-346,9	507,7	20	72,5	0,00987
304,7	1	50	1,968	2,113	1,974	20	-233,6	379,8	20	71,6	0,00984
240,9	1	50	1,513	1,646	1,522	20	-121,9	252,7	20	70,6	0,00981
198,7	1	50	2,602	2,576	2,650	10	-105,3	352,4	10	69,5	0,00977
158,5	1	50	2,171	2,153	2,213	10	-28,4	261,6	10	69,0	0,00975
124,0	1	50	1,903	1,885	1,943	10	21,2	199,8	10	68,1	0,00973
115,4	1	50	1,849	1,838	1,889	10	30,3	186,2	10	67,3	0,00970
data calculation of no load											
V%	U0/UN	I0	P0	(U0/UN)^2	P0cu1	P0'					
120,3%	1,20	82,133	4540,0	1,448	100,81	4439,19					
109,2%	1,09	64,240	3808,0	1,192	61,49	3746,51					
100,0%	1,00	55,880	3488,0	0,999	46,35	3441,65					
89,9%	0,90	48,127	3216,0	0,808	34,28	3181,72					
76,2%	0,76	40,367	2924,0	0,580	24,05	2899,95					
60,2%	0,60	31,207	2616,0	0,363	14,32	2601,68					
49,7%	0,50	26,093	2471,0	0,247	9,98	2461,02					
39,6%	0,40	21,790	2332,0	0,157	6,95	2325,05					
31,0%	0,31	19,103	2210,0	0,096	5,32	2204,68					
28,8%	0,29	18,587	2165,0	0,083	5,03	2159,97					
RESULTS AT: 400 V											
N.L.AMP	55,90	N.L.LOSS(W)	3488,74	Pw(W)	2025,7	Pe(W)	1416,7				

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Voltage	400	V	Current	332	A	Frequency	50,0
Speed	2978	r/min	Duty	S1	Connection	Δ	Hz
Ins.class	F		Weight	1358	kg		IP55

No Load Curve



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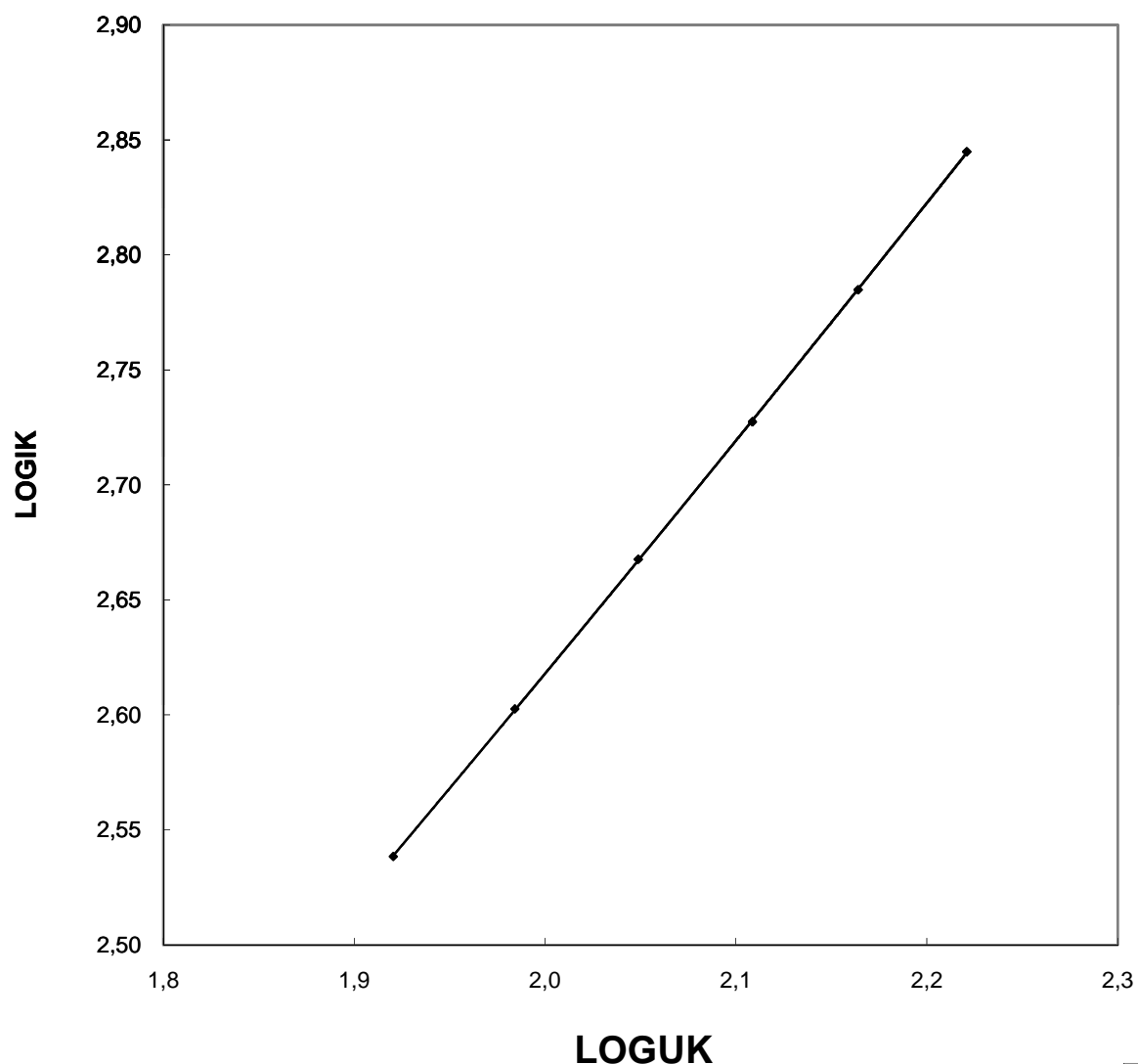
Type	K315L-2		Poles	2		Power	200,0		IE:3	kW
Voltage	400	V	Current	332	A	Frequency	50,0		Hz	
Speed	2978	r/min	Duty	S1		Connection	Δ			
Ins.class	F		Weight	1358	kg		IP55			
LOCKED ROTOR TEST										
VOL	mul.	Ik1	Ik2	Ik3	mul.	W1	W2	mul.	Torqur (kg.m)	
166,3	1,0	3,477	3,486	3,530	200,0	-96,7	427,0	200,0	18,60	
145,9	1,0	3,031	3,035	3,073	200,0	-75,0	326,4	200,0	14,10	
128,4	1,0	2,656	2,660	2,692	200,0	-57,7	251,2	200,0	10,90	
111,9	1,0	2,315	2,318	2,345	200,0	-43,7	190,8	200,0	8,30	
96,4	1,0	1,993	1,996	2,018	200,0	-32,5	141,4	200,0	6,10	
83,3	1,0	1,719	1,722	1,741	200,0	-23,9	105,1	200,0	4,50	
data calculation of locked rotor										
Uk	IK	PK	TK	LOGUk	LOGIk	LOGPk	LOGTk			
V	A	kW	N.m							
166,32	699,53	66,060	182,28	2,2209	2,8448	1,8199	2,2607			
145,89	609,27	50,280	138,18	2,1640	2,7848	1,7014	2,1404			
128,42	533,87	38,700	106,82	2,1086	2,7274	1,5877	2,0287			
111,89	465,20	29,420	81,34	2,0488	2,6676	1,4686	1,9103			
96,42	400,47	21,780	59,78	1,9842	2,6026	1,3381	1,7766			
83,26	345,47	16,240	44,10	1,9205	2,5384	1,2106	1,6444			
performance collection of locked rotor										
at rated volts		at rated current		at 2.5 times rated current		at 100V				
VOLTS (V)		400		80,028		197,0		100,0		
AMPS (A)		1819,0		331,2		827,9		415,42		
INPUT (kW)		405,35				92,5		23,454		
TORQUE (N.m)		1232,56								

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Speed	2978 r/min	Duty	S1	Connection	Δ	Hz
Ins.class	F	Weight	1358 kg			IP55

LOCKED



◆ LOGIK

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Voltage	400	V		Current	332	A		Frequency	50	Hz		
Speed	2978	r/min		Duty	S1		Connection	Δ				
Ins.class	F			Weight	1358	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	
11,59	400,4	1,652	1,662	1,679	200	382,1	674,6	200	52,2	—	80,3	79,2	—	—	—	—	—	—	—	—	—	10,1
12,29	400,3	1,641	1,652	1,668	200	380,0	669,9	200	56,0	—	84,9	83,7	—	—	—	—	—	—	—	—	—	10,3
12,59	400,3	1,640	1,650	1,667	200	380,2	669,6	200	57,6	—	87,2	86,0	—	—	—	—	—	—	—	—	—	10,3
13,29	400,4	1,661	1,672	1,689	200	384,4	678,4	200	58,0	—	89,7	88,4	—	—	—	—	—	—	—	—	—	8,8
14,00	400,4	1,651	1,661	1,677	200	382,5	674,6	200	59,4	—	90,9	89,6	—	—	—	—	—	—	—	—	—	9,5
14,30	400,4	1,662	1,673	1,689	200	384,6	678,9	200	59,6	—	92,4	91,1	—	—	—	—	—	—	—	—	—	9,3
15,00	400,5	1,646	1,657	1,673	200	381,8	672,3	200	59,7	—	92,4	91,1	—	—	—	—	—	—	—	—	—	8,5
15,29	400,5	1,641	1,650	1,666	200	381,0	670,0	200	59,1	—	92,1	91,0	—	—	—	—	—	—	—	—	—	8,8
The average of the last three		332,361			A	211240		W	59,1	—	92,3	91,0	—	—	—	—	—	—	—	—	—	8,9

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)	60	111	148	182	222	265	321	381,5		
RESISTANC	0,01020	0,01016	0,01012	0,01008	0,01004	0,01000	0,00995	0,00990		

WINDING RESISTANCE(COLD)

Δ	U1-V1	U1-W1	V1-W1	AVERAGE	MIN	AMBIENT TEM.
	0,007858	0,00786	0,007846	0,00785	0,00785	9,8 °C
Y	U1-U2	V1-V2	W1-W2	AVERAGE	MIN	AMBIENT TEM.
						°C

resistance value at 0 sec (Ω)

0,010264

calculation value of temp.rising

76,4 K

90 S (Ω)

0,010175

calculation value of temp.rising

73,6 K

full load curent

332,13 A

modify value of temp. rising

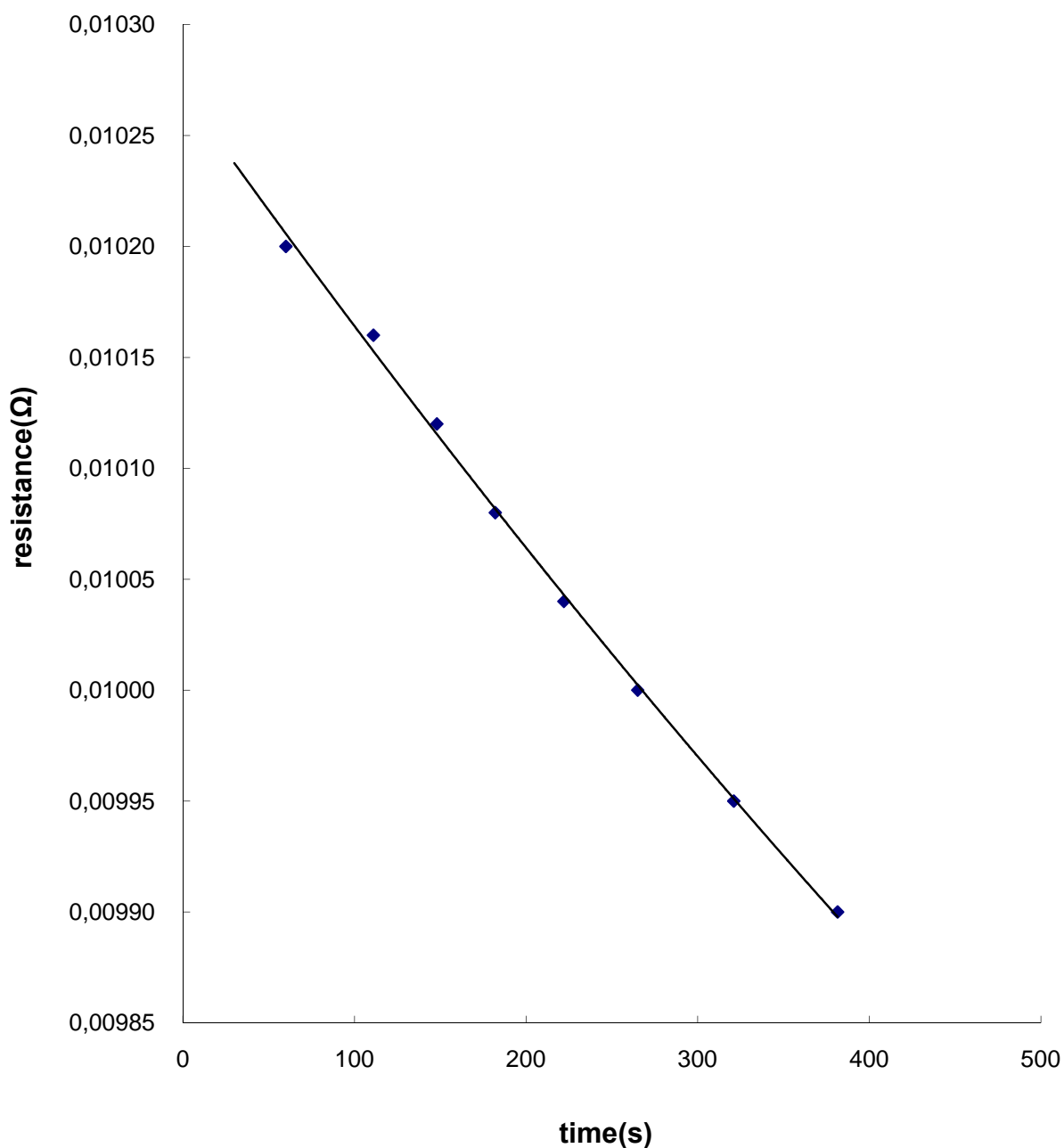
73,5 K

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RESISTANCE CURVE



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Speed	2978	r/min	Duty	S1		Connection	Δ					
Ins.class	F		Weight	1358	kg	IP55						
LOAD TEST												
V	HZ	I1	I2	I3	mul.	W1	W2	mul.	r/min	Resistance Ω	Temperature °C	Torque N.m
400,0	49,98	2,786	2,804	2,840	200	518,6	1131,5	200	2951,6	0,0105	92,6	1005,6
400,1	49,97	2,125	2,139	2,164	200	456,9	863,7	200	2967,4	0,0106	94,8	811,9
400,0	49,97	1,661	1,671	1,689	200	381,8	672,8	200	2977,2	0,0106	95,5	651,6
400,2	49,97	2,440	2,454	2,478	100	576,1	988,1	100	2984,7	0,0106	94,4	484,5
400,1	49,96	1,683	1,695	1,708	100	379,1	682,4	100	2991,5	0,0105	92,4	326,8
400,3	49,96	1,373	1,382	1,390	100	288,2	557,6	100	2994	0,0105	91,4	258,6
400,1	49,96	1,949	1,959	1,966	50	312,8	784,5	50	2996,4	0,0104	89,6	165,1
400,2	50,0	1,129	1,122	1,127	50,0	-141,3	279,5	50	2999,5	0,0103	86,8	13,26
400,4	50,0	2,726	2,824	2,716	20,0	-455,2	628,0	20	3000,0	0,0100	76,5	0,00
slope A= 0,00628			intercept B= -375,03				relative coefficient r= 0,985					
LOAD %	P2 W	I A	P1 W	Pcu1s W	Ss %	Pcu2s W	Ps W	Pz W	N.m	EFF %	P.F	
150,0	300000	539,81	319056,2	4707,5	1,555	4865,4	5917,6	18932,9	971,1	94,03	0,853	
125,0	250000	426,94	263237,8	2944,8	1,065	2756,4	4086,4	13229,9	807,0	94,97	0,890	
100,0	200000	332,13	209328,9	1782,1	0,721	1485,6	2606,4	9316,4	644,5	95,54	0,910	
75,0	150000	246,03	156610,5	977,9	0,471	725,9	1462,8	6608,9	482,8	95,78	0,919	
50,0	100000	167,51	104756,5	453,3	0,208	214,0	643,0	4752,7	320,1	95,46	0,903	
25,0	50000	96,42	53768,5	150,2	0,039	20,5	159,4	3772,5	159,4	92,99	0,805	

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Speed	2978	r/min	Duty	S1		Connection	Δ		
Ins.class	F		Weight	1358	kg		IP55		

LOAD CURVE

