

VALIADIS S.A.

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

Type	K355L-2	Poles	2	Power	355,0	kW	IE:3
Voltage	400	V		Current	585,8	A	
Speed	2979	r/min		Duty	S1		
Ins.class	F	Weight	2130	kg			
				Connection	△		
							IP55
MAJOR CONTENTS				TEST VALUE			
95,0	°C	PHASE RESISTANCE OF WINDING	Ω	0,0086			
NO LOAD CURRENT			A	87,150			
NO LOAD INPUT			W	7811,69			
CORE LOSS(Pfe)			W	2947,40			
WINDAGE FRICTION LOSS(Pfw)			W	4802,82			
STATOR WINDING LOSS(Pcu1)			W	2956,63			
ROTOR WINDING LOSS(Pcu2)			W	2562,28			
STRAY LOAD LOSS(Ps)			W	1985,59			
LOCKED ROTOR CURRENT			A	3095,983			
LOCKED ROTOR INPUT @ FULL LOAD			W	752009			
LOCKED ROTOR TORQUE			N.m	1931,0			
PULL OUT TORQUE			N.m	2891,9			
LOCKED ROTOR CURRENT/RATED CURRENT			P.U	5,28			
LOCKED ROTOR TORQUE/RATED TORQUE			P.U	1,69			
PULL OUT TORQUE/RATED TORQUE			P.U	2,54			
FULL LOAD TORQUE			N.m	1138,7			
FULL LOAD CURRENT			A	585,8			
FULL LOAD SLIP			%	0,703			
INPUT @ FULL LOAD			kW	370,330			
FULL LOAD SPEED			r/min	2978,9			
EFFICIENCY @ FULL LOAD			%	95,86			
EFFICIENCY @ 75% LOAD			%	95,72			
POWER FACTOR @ FULL LOAD				0,912			
STATOR WINDING TEMPERATURE RISE			K	67			
D.E. BEARINGS TEMPERATURE BY PT100			°C	50,3			
STATOR WINDING TEMPERATURE			°C	80,8			
High voltage test			V	1800	Imin		
Insulation resistance			MΩ	500			
NOISE (LW)			dB(A)	100			
VIBRATION			mm/s	1,9			

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Voltage	400 V	Current	585,8 A	Frequency	50 Hz	
Speed	2979 r/min	Duty	S1	Connection	Δ	
Ins.class	F	Weight	2130 kg			IP55

NO LOAD TEST

VOL	mul.	HZ	I01	I02	I03	mul.	W1	W2	mul.	°C	Ω
465,0	1	50	2,414	2,443	2,498	50	-450,316	623,08	50	74,5	0,00539
428,6	1	50	1,906	1,907	1,976	50	-304,6	468,84	50	74,4	0,00539
400,8	1	50	1,723	1,730	1,796	50	-243,8	400,28	50	74,3	0,00539
352,1	1	50	1,357	1,378	1,426	50	-150	292,35	50	74,0	0,00538
304,1	1	50	2,816	2,843	3,009	20	-209,7	545,09	20	73,9	0,00538
257,6	1	50	2,474	2,427	2,553	20	-123,5	429,4	20	73,6	0,00538
199,9	1	50	2,022	2,031	2,075	20	-78,9	353,1	20	73,5	0,00538
167,7	1	50	1,761	1,769	1,865	20	-35,6	302,8	20	73,3	0,00537
130,9	1	50	1,663	1,669	1,696	20	22,9	231,3	20	73,0	0,00537

data calculation of no load

V%	U0/UN	I0	P0	(U0/UN)^2	P0cu1	P0'	COSφ
116,3%	1,16	122,583	8638,3	1,351	121,57	8516,69	0,087
107,2%	1,07	96,483	8212,0	1,148	75,29	8136,67	0,115
100,2%	1,00	87,483	7823,8	1,004	61,88	7761,96	0,129
88,0%	0,88	69,350	7117,4	0,775	38,85	7078,50	0,168
76,0%	0,76	57,787	6707,9	0,578	26,96	6680,92	0,220
64,4%	0,64	49,693	6117,3	0,415	19,92	6097,34	0,276
50,0%	0,50	40,853	5483,3	0,250	13,46	5469,81	0,388
41,9%	0,42	35,967	5344,8	0,176	10,43	5334,39	0,512
32,7%	0,33	33,520	5083,4	0,107	9,05	5074,33	0,669

RESULTS AT: 400 V

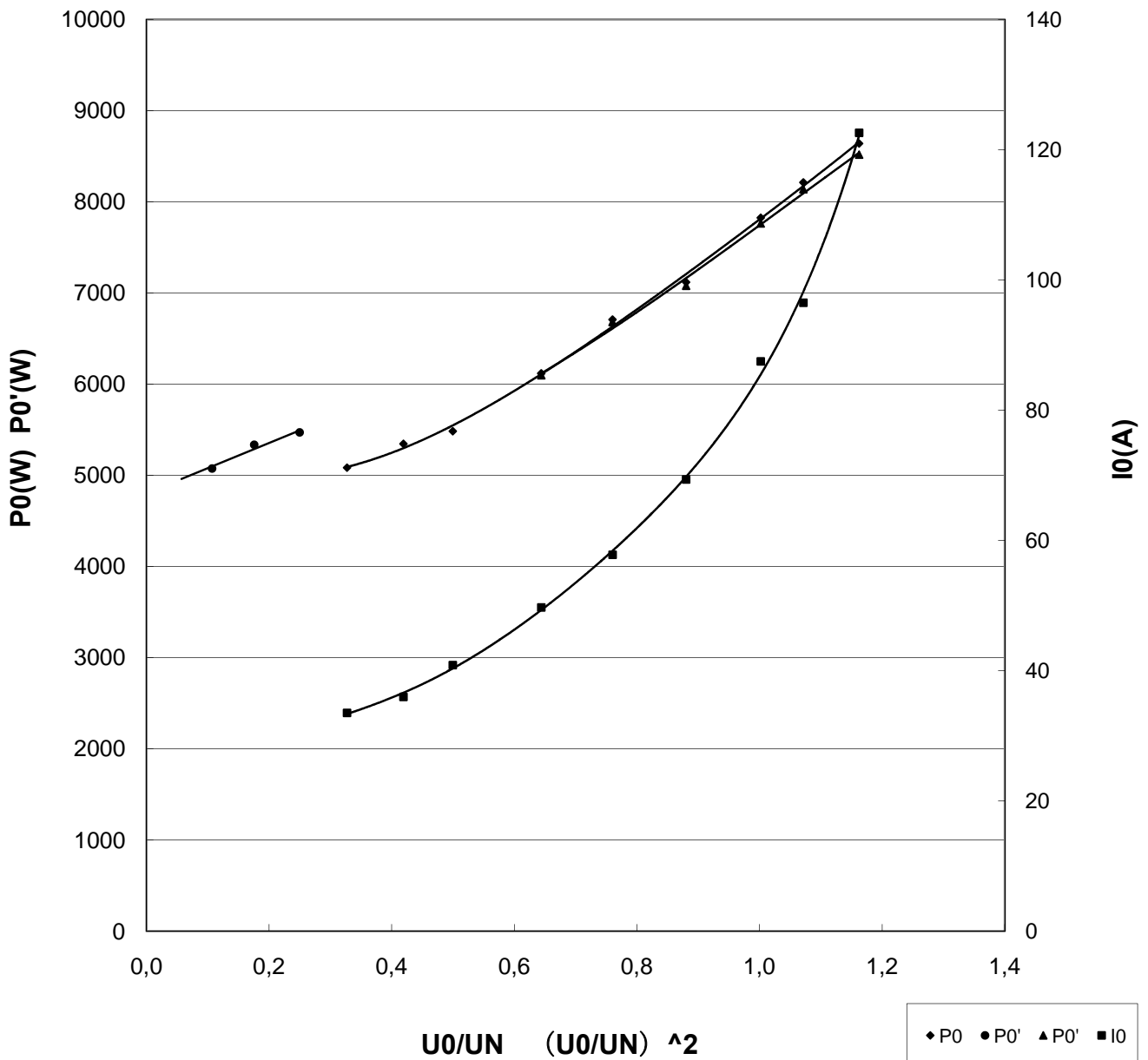
N.L.AMP	87,15	N.L.LOSS(W)	7811,69	Pw(W)	4802,8	Pe(W)	2947,4		
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Type	K355L-2		Poles	2		Power	355,0 kW	
Voltage	400	V	Current	585,8	A	Frequency	50,0 Hz	
Speed	2979	r/min	Duty	S1		Connection	Δ	
Ins.class	F		Weight	2130	kg	IP55		

No Load Curve



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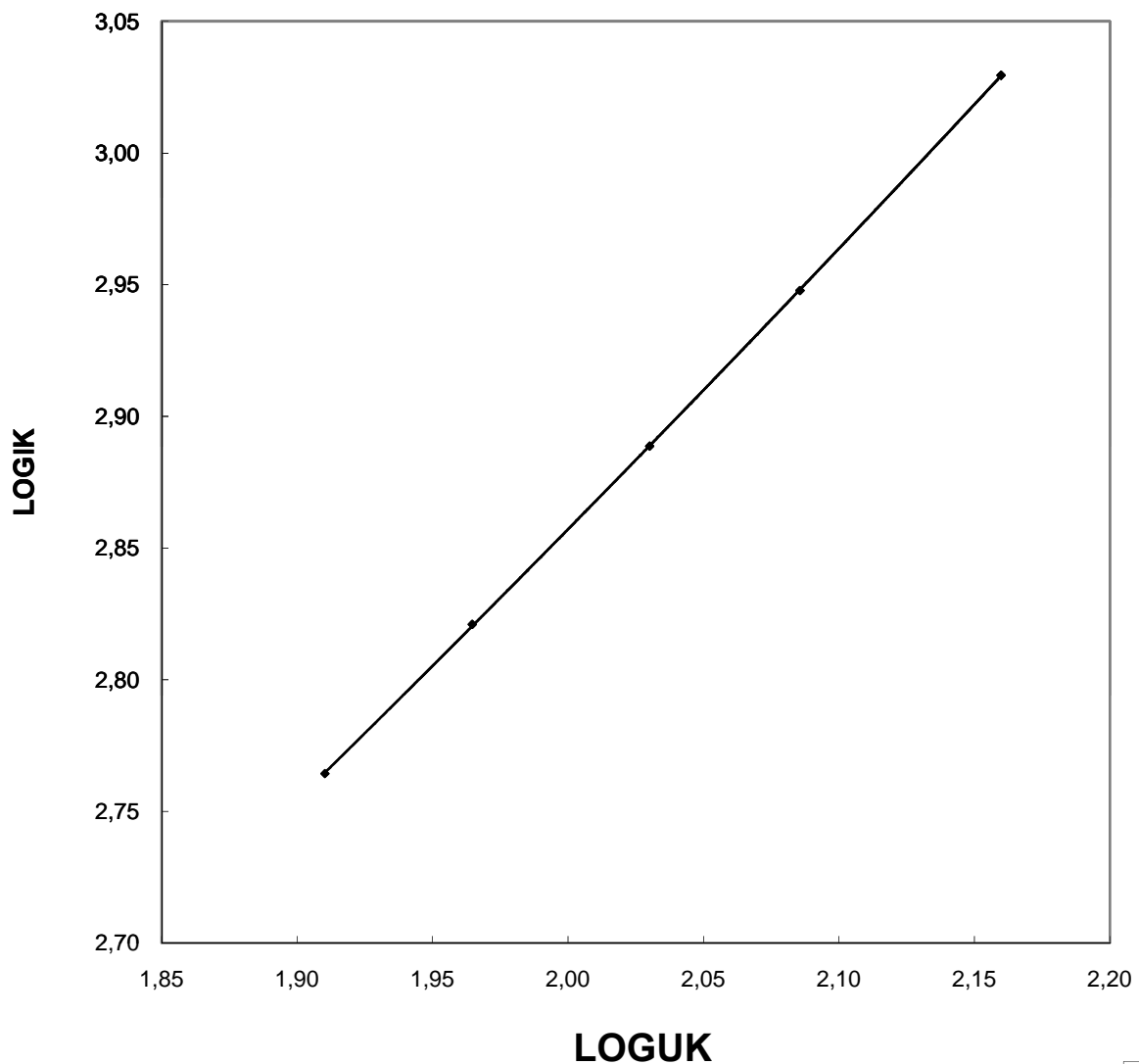
Type	K355L-2		Poles	2		Power	355,0		IE3	kW
Voltage	400	V	Current	585,8	A	Frequency	50,0		Hz	
Speed	2979	r/min	Duty	S1		Connection	Δ			
Ins.class	F		Weight	2130	kg		IP55			
LOCKED ROTOR TEST										
VOL	mul.	Ik1	Ik2	Ik3	mul.	W1	W2	mul.	Torque (kg.m)	
144,5	1,0	5,320	5,309	5,426	200,0	589,1	-152,6	200,0	23,6	
121,8	1,0	4,406	4,400	4,495	200,0	410,6	-108,0	200,0	16,5	
107,2	1,0	3,848	3,840	3,921	200,0	315,5	-83,4	200,0	12,7	
92,2	1,0	3,291	3,287	3,356	200,0	232,0	-61,5	200,0	9,3	
81,3	1,0	2,895	2,882	2,942	200,0	179,1	-47,2	200,0	7,1	
data calculation of locked rotor										
Uk	IK	PK	TK	LOGUk	LOGIk	LOGPk	LOGTk			
V	A	kW	N.m							
144,50	1070,33	87,300	230,79	2,1599	3,0295	1,9410	2,3632			
121,80	886,73	60,520	161,70	2,0856	2,9478	1,7819	2,2087			
107,19	773,93	46,420	123,97	2,0302	2,8887	1,6667	2,0933			
92,19	662,27	34,100	91,14	1,9647	2,8210	1,5328	1,9597			
81,34	581,27	26,380	69,58	1,9103	2,7644	1,4213	1,8425			
performance collection of locked rotor										
	at rated volts		at rated current		at 2.5 times rated current		at 100V			
VOLTS (V)	400		81,950		196,2		100,0			
AMPS (A)	3096,0		586,6		1466,5		722,89			
INPUT (kW)	752,01				162,6		40,472			
TORQUE (N.m)	1930,97									

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Type	K355L-2		Poles	2		Power	355,0	IE:3
Voltage	400	V	Current	585,8	A	Frequency	50,0	kW
Speed	2979	r/min	Duty	S1		Connection	Δ	Hz
Ins.class		F	Weight	2130	kg		IP55	

LOCKED



◆ LOGIK

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Type	K355L-2		Poles	2		Power	355	kW	IE:3	
Voltage	400	V	Current	585,8	A	Frequency	50	Hz		
Speed	2979	r/min	Duty	S1		Connection	Δ			
Ins.class	F		Weight	2130	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	
9,30	400,1	2,901	2,924	2,988	200	550,2	1325	200	42,0	55,8	76,2	73,6	—	—	—	—	—	—	—	—	—	5,0
10,00	400,1	2,897	2,921	2,974	200	547,5	1323	200	44,7	59,3	77,6	75,0	—	—	—	—	—	—	—	—	—	5,6
10,29	400,0	2,901	2,927	2,990	200	547,8	1325	200	46,2	61,4	78,5	76,0	—	—	—	—	—	—	—	—	—	5,7
10,59	400,1	2,903	2,924	2,976	200	548,2	1324	200	47,9	63,6	79,5	76,9	—	—	—	—	—	—	—	—	—	6,0
11,29	400,0	2,906	2,940	2,995	200	543,7	1331	200	49,1	66,3	80,2	77,6	—	—	—	—	—	—	—	—	—	6,4
12,00	399,8	2,888	2,919	2,969	200	545,1	1322	200	50,0	67,4	80,5	77,8	—	—	—	—	—	—	—	—	—	6,6
12,29	400,1	2,891	2,922	2,974	200	545,1	1324	200	50,3	68,0	80,8	78,1	—	—	—	—	—	—	—	—	—	6,9
The average of the last three		586,750			A	374020		W	50,3	68,0	80,5	78,1	—	—	—	—	—	—	—	—	—	6,6

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)	81	120	150	180	217	240	272			
RESISTANCE (Ω)	0,00539	0,00537	0,00536	0,00534	0,00533	0,00532	0,00530			

WINDING RESISTANCE(COLD)

Δ	U1-V1	U1-W1	V1-W1	AVERAGE	MIN	AMBIENT TEM.
	0,004161	0,004178	0,004182	0,00417	0,00416	4,5 °C
Y	U1-U2	V1-V2	W1-W2	AVERAGE	MIN	AMBIENT TEM.
						°C

resistance value at 0 sec (Ω)

0,005428

calculation value of temp.rising

70,79 K

120 S (Ω)

0,005370

calculation value of temp.rising

67,44 K

full load current

585,81 A

modify value of temp. rising

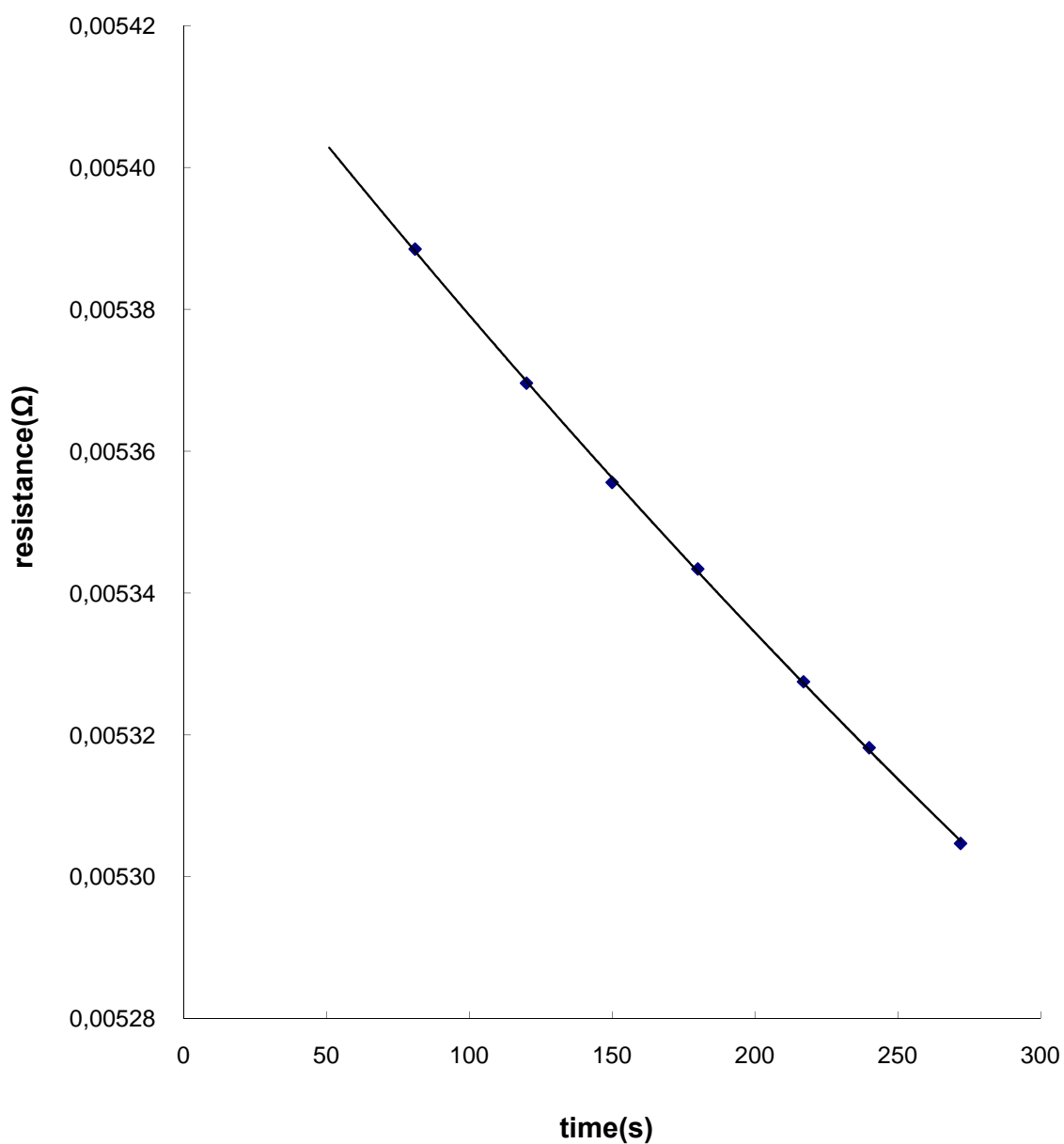
67,23 K

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Type	K355L-2	Poles	2	output Power	355,0	IE:3
Voltage	400 V	Current	585,8 A	Frequency	50,0	kW
Speed	2979 r/min	Duty	S1	Connection	Δ	Hz
Ins.class	F	Weight	2130 kg		IP55	

RESISTANCE CURVE



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Speed	2979	r/min	Duty	S1		Connection	Δ		Hz
Ins.class	F		Weight	2130		kg		IP55	

LOAD TEST

V	HZ	I1	I2	I3	mul.	W1	W2	mul.	r/min	Resistance Ω	Temperature °C	Torque N.m
400,0	49,99	4,455	4,468	4,523	200	1014,6	1752,4	200	2966,3	0,0055	81,1	1697,1
399,9	49,99	3,635	3,673	3,746	200	850,3	1468,7	200	2972,5	0,0055	81,3	1422,6
399,9	49,99	3,006	3,038	3,099	200	713,4	1213,2	200	2978,5	0,0055	81,4	1178,6
400,2	49,99	2,220	2,244	2,289	200	526,9	896,0	200	2985	0,0055	81,3	867,8
400,0	49,99	1,888	1,903	1,947	200	448,4	761,1	200	2988	0,0055	81,0	734,12
399,9	49,99	3,030	3,058	3,126	100	695,9	1219,2	100	2991	0,0055	80,6	575,8
400,2	49,98	1,605	1,623	1,644	100	255,8	644,1	100	2997	0,0055	80,2	256,3
400,1	50,0	1,733	1,736	1,791	50,0	-266,8	501,1	50	3000,1	0,0055	79,9	9,35
400,2	50,0	1,730	1,731	1,786	50,0	-244,9	402,3	50	3000,0	0,0054	74,7	0,00

slope A= 0,00154

intercept B= 644,42

relative coefficient r= 0,987

LOAD %	P2 W	I A	P1 W	Pcu1s W	Ss %	Pcu2s W	Ps W	Pz W	N.m	EFF %	P.F
150,0	532500	905,11	558283,0	7058,0	1,181	6473,4	4531,6	25813,2	1715,0	95,38	0,890
125,0	443750	736,63	463628,8	4675,1	0,949	4326,2	3128,4	19879,9	1424,9	95,71	0,908
100,0	355000	585,81	370329,9	2956,6	0,703	2562,3	1985,6	15254,7	1135,2	95,86	0,912
75,0	266250	439,97	278143,1	1667,7	0,492	1346,3	1114,6	11878,8	850,5	95,72	0,913
50,0	177500	300,81	187071,1	779,6	0,287	526,0	491,4	9547,1	564,7	94,88	0,898
25,0	88750	172,41	96989,8	256,1	0,080	74,9	121,8	8203,1	281,2	91,50	0,812

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Voltage	400	V	Current	585,8	A	Frequency	50,0 Hz		
Speed	2979	r/min	Duty	S1		Connection	Δ		
Ins.class	F		Weight	2130	kg		IP55		

LOAD CURVE

