

VALIADIS S.A.

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

Type	K355L-4	Poles	4	Power	355,0 kW	IE:3
Voltage	400	V	Current	583,9 A	Frequency	50 Hz
Speed	1489	r/min	Duty	S1	Connection	Δ
Ins.class		F	Weight	2291 kg		IP55
MAJOR CONTENTS				TEST VALUE		
95,0 °C PHASE RESISTANCE OF WINDING		Ω	0,0088			
NO LOAD CURRENT		A	135,863			
NO LOAD INPUT		W	5939,10			
CORE LOSS(Pfe)		W	3011,31			
WINDAGE FRICTION LOSS(Pfw)		W	2774,50			
STATOR WINDING LOSS(Pcu1)		W	2961,74			
ROTOR WINDING LOSS(Pcu2)		W	2685,64			
STRAY LOAD LOSS(Ps)		W	2515,15			
LOCKED ROTOR CURRENT		A	3488,244			
LOCKED ROTOR INPUT @ FULL LOAD		W	783605			
LOCKED ROTOR TORQUE		N.m	4114,1			
PULL OUT TORQUE		N.m	5804,4			
LOCKED ROTOR CURRENT/RATED CURRENT		P.U	5,97			
LOCKED ROTOR TORQUE/RATED TORQUE		P.U	1,81			
PULL OUT TORQUE/RATED TORQUE		P.U	2,55			
FULL LOAD TORQUE		N.m	2278,2			
FULL LOAD CURRENT		A	583,9			
FULL LOAD SLIP		%	0,740			
INPUT @ FULL LOAD		kW	368,965			
FULL LOAD SPEED		r/min	1488,9			
EFFICIENCY @ FULL LOAD		%	96,22			
EFFICIENCY @ 75% LOAD		%	96,23			
POWER FACTOR @ FULL LOAD			0,912			
STATOR WINDING TEMPERATURE RISE		K	66			
D.E. BEARINGS TEMPERATURE BY PT100		°C	54,3			
STATOR WINDING TEMPERATURE		°C	80,4			
High voltage test		V	1800	Imin		
Insulation resistance		MΩ	500			
NOISE (LW)		dB(A)	97			
VIBRATION		mm/s	1,7			

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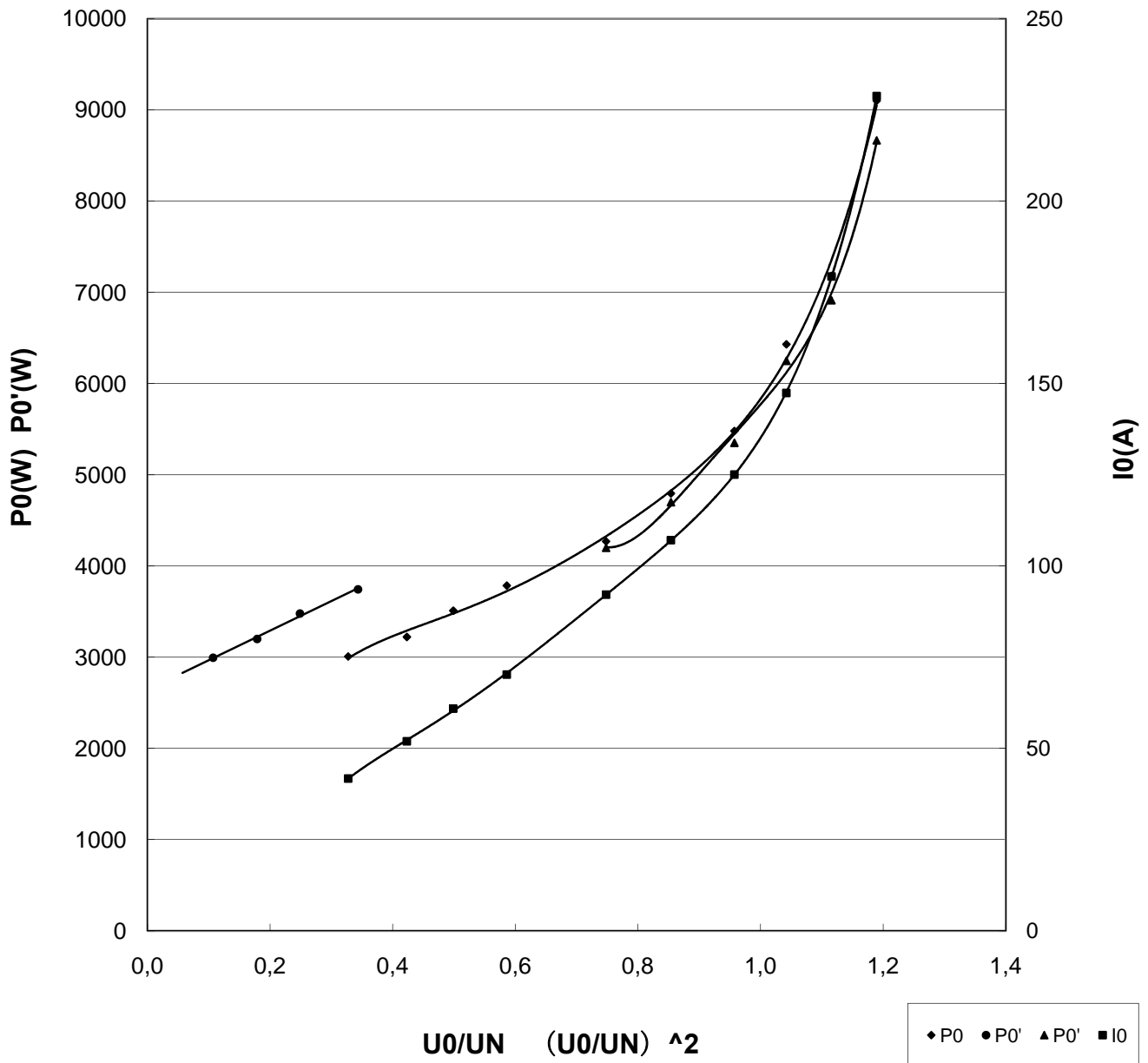
Type	K355L-4		Poles	4		Power	355,0 kW		IE:3		
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Speed	1489	r/min	Duty	S1		Connection	△				
Ins.class	F		Weight	2291	kg			IP55			
NO LOAD TEST											
VOL	mul.	HZ	I01	I02	I03	mul.	W1	W2	mul.	°C	Ω
475,8	1	50	2,269	2,223	2,372	100	552,9	-461,9	100	77	0,00552
446,3	1	50	1,767	1,741	1,873	100	403,6	-331,8	100	76,9	0,00552
416,9	1	50	1,445	1,437	1,541	100	313,1	-248,8	100	76,8	0,00552
382,9	1	50	1,219	1,223	1,310	100	245,5	-190,7	100	76,6	0,00551
341,5	1	50	2,076	2,114	2,234	50	384,4	-288,5	50	76,5	0,00551
299,2	1	50	1,785	1,824	1,919	50	297,3	-211,9	50	76,3	0,00551
234,4	1	50	1,355	1,402	1,458	50	191,0	-115,3	50	76,0	0,00550
199,5	1	50	1,177	1,219	1,258	50	155,8	-85,6	50	75,9	0,00550
169,2	1	50	2,496	2,617	2,680	20	286,0	-124,9	20	75,7	0,00550
130,9	1	50	2,012	2,099	2,149	20	200,1	-49,7	20	75,5	0,00549
data calculation of no load											
V%	U0/UN	I0	P0	(U0/UN)^2	P0cu1	P0'					
118,9%	1,19	228,800	9100,0	1,415	433,53	8666,47					
111,6%	1,12	179,367	7180,0	1,245	266,35	6913,65					
104,2%	1,04	147,433	6430,0	1,086	179,90	6250,10					
95,7%	0,96	125,067	5480,0	0,916	129,37	5350,63					
85,4%	0,85	107,067	4795,0	0,729	94,78	4700,22					
74,8%	0,75	92,133	4270,0	0,559	70,14	4199,86					
58,6%	0,59	70,250	3785,0	0,343	40,74	3744,26					
49,9%	0,50	60,910	3510,0	0,249	30,62	3479,38					
42,3%	0,42	51,953	3222,0	0,179	22,26	3199,74					
32,7%	0,33	41,733	3008,0	0,107	14,35	2993,65					
RESULTS AT: 400 V											
N.L.AMP	135,86	N.L.LOSS(W)	5939,10	Pw(W)	2774,5	Pe(W)	3011,3				

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Voltage	400	V	Current	583,9	A	Frequency	50,0 Hz		
Speed	1489	r/min	Duty	S1		Connection	Δ		
Ins.class	F		Weight	2291 kg			IP55		

No Load Curve



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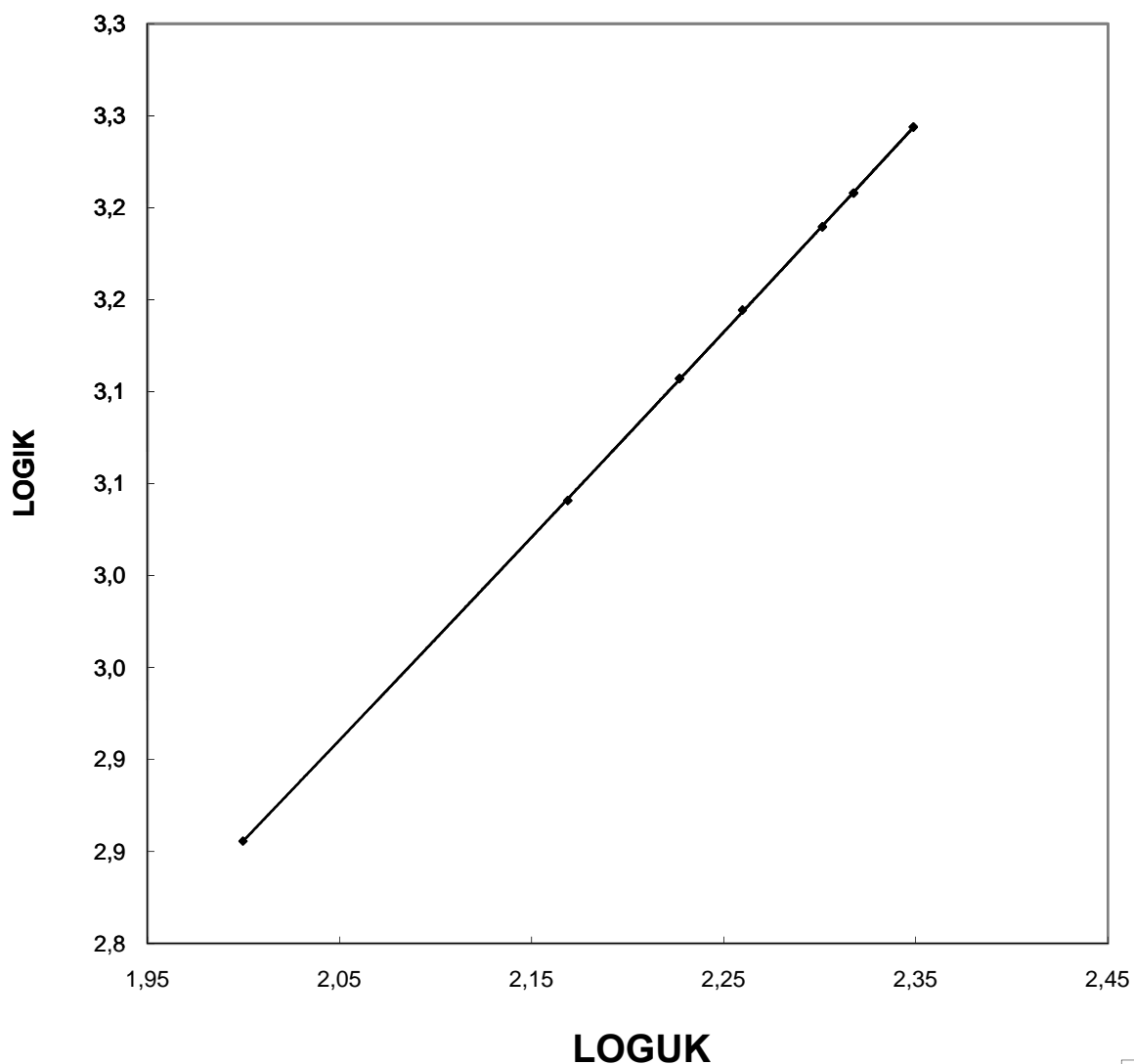
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Speed	1489	r/min	Duty	S1		Connection	Δ		Hz
Ins.class	F		Weight	2291	kg	IP55			
LOCKED ROTOR TEST									
VOL	mul.	Ik1	Ik2	Ik3	mul.	W1	W2	mul.	Torqur (kg.m)
223,3	1,0	4,356	4,359	4,433	400,0	713,2	-217,8	400,0	106,0
207,8	1,0	4,017	4,010	4,078	400,0	608,4	-190,9	400,0	89,3
200,2	1,0	3,851	3,845	3,908	400,0	561,1	-177,9	400,0	82,0
181,9	1,0	3,470	3,467	3,520	400,0	456,6	-143,8	400,0	67,0
168,7	1,0	3,185	3,182	3,231	400,0	389,6	-126,8	400,0	56,3
147,5	1,0	2,734	2,734	2,771	400,0	291,4	-97,1	400,0	41,7
99,9	1,0	3,574	3,571	3,615	200,0	255,5	-89,5	200,0	17,8
data calculation of locked rotor									
Uk	IK	PK	TK		LOGUk	LOGIk	LOGPk	LOGTk	
V	A	kW	N.m						
223,26	1753,07	198,160	1039,11		2,3488	3,2438	2,2970	3,0167	
207,80	1614,00	167,000	875,36		2,3176	3,2079	2,2227	2,9422	
200,19	1547,20	153,280	803,64		2,3014	3,1895	2,1855	2,9051	
181,89	1394,27	125,120	656,75		2,2598	3,1443	2,0973	2,8174	
168,67	1279,73	105,120	551,74		2,2270	3,1071	2,0217	2,7417	
147,51	1098,53	77,720	408,24		2,1688	3,0408	1,8905	2,6109	
99,93	717,33	33,200	174,49		1,9997	2,8557	1,5211	2,2418	
performance collection of locked rotor									
	at rated volts		at rated current		at 2.5 times rated current		at 100V		
VOLTS (V)	400		83,241		189,9		100,0		
AMPS (A)	3488,2		584,2		1460,5		716,30		
INPUT (kW)	783,60				137,1		33,088		
TORQUE (N.m)	4114,13								

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Speed	1489 r/min	Duty	S1	Connection	Δ	
Ins.class	F	Weight	2291 kg		IP55	

LOCKED



◆ LOGIk

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Type	K355L-4			Poles	4			Power	355	kW	IE:3		
Voltage	400	V		Current	583,9	A		Frequency	50	Hz			
Speed	1489	r/min		Duty	S1			Connection	Δ				
Ins.class	F			Weight	2291	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	
11,30	400,0	1,460	1,443	1,475	400	595,0	329	400	54,1	39,4	79,5	76,4	77,7	—	—	—	—	—	—	—	—	14,5
12,00	400,1	1,458	1,442	1,477	400	594,7	329	400	54,1	40,2	80,0	76,9	77,7	—	—	—	—	—	—	—	—	14,6
12,30	400,0	1,460	1,444	1,477	400	595,0	328	400	54,1	40,8	80,0	77,0	77,6	—	—	—	—	—	—	—	—	14,7
13,00	399,8	1,456	1,442	1,475	400	594,7	328	400	54,2	41,2	80,2	77,2	77,7	—	—	—	—	—	—	—	—	14,9
13,30	400,1	1,460	1,445	1,481	400	593,0	328	400	54,3	41,4	80,4	77,5	78,0	—	—	—	—	—	—	—	—	15,2
The average of the last three		584,04			A	368896		W	54,3	41,4	80,2	77,5	78,0	—	—	—	—	—	—	—	—	14,9

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)	69	95	116	138	157	179	206			
RESISTANC	0,00558	0,00557	0,00556	0,00555	0,00555	0,00554	0,00553			

WINDING RESISTANCE(COLD)

Δ	U1-V1	U1-W1	V1-W1	AVERAGE	MIN	AMBIENT TEM.
	0,004395	0,004396	0,004401	0,004397	0,00440	13,5 °C
Y	U1-U2	V1-V2	W1-W2	AVERAGE	MIN	AMBIENT TEM.
						°C

resistance value at 0 sec (Ω)

0,005613

calculation value of temp.rising

67,43 K

120 S (Ω)

0,005559

calculation value of temp.rising

64,37 K

full load curent

583,86 A

modify value of temp. rising

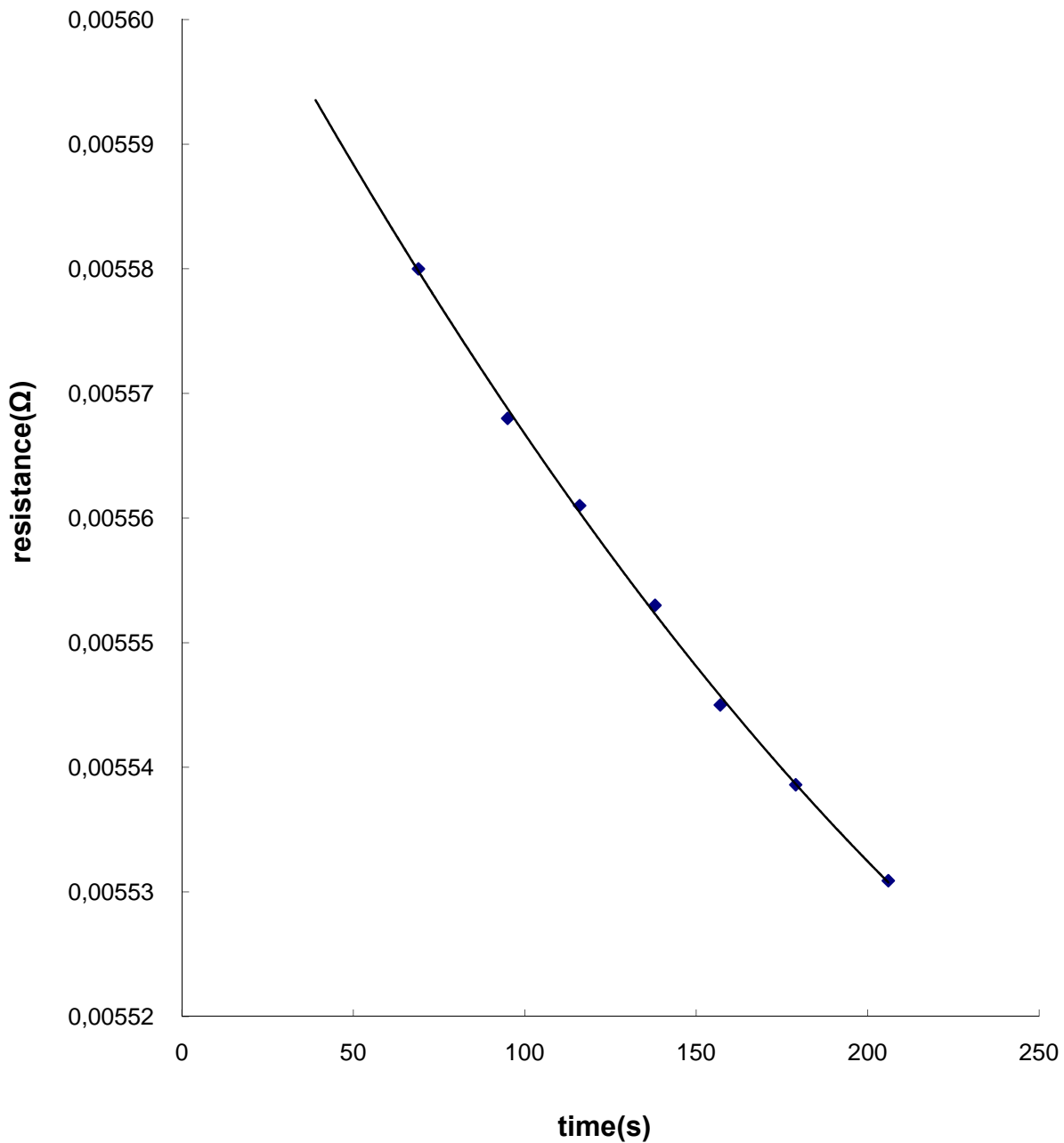
66,17 K

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Speed	1489	r/min	Duty	S1		Connection	Δ	Hz
Ins.class		F	Weight	2291	kg		IP55	

RESISTANCE CURVE



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Speed	1489	r/min	Duty	S1		Connection	Δ		Hz		
Ins.class	F		Weight	2291	kg	IP55					

LOAD TEST

V	HZ	I1	I2	I3	mul.	W1	W2	mul.	r/min	Resistance Ω	Temperature °C	Torque N.m
400,2	50,00	1,824	1,813	1,851	400	746,3	404,0	400	1486,5	0,0056	80,8	2835,7
400,1	50,00	1,691	1,678	1,713	400	691,9	378,5	400	1487,3	0,0056	81,6	2639,9
400,2	50,01	1,489	1,474	1,508	400	607,5	334,6	400	1489,2	0,0056	82,3	2323,6
400,1	50,00	1,329	1,314	1,346	400	542,0	297,2	400	1490,4	0,0056	82,4	2068,8
400,0	50,01	2,287	2,258	2,316	200	930,4	500,4	200	1492	0,0056	82,3	1761
399,8	50,00	1,803	1,773	1,827	200	730,9	363,7	200	1494	0,0056	81,8	1341
400,2	50,01	1,353	1,373	1,365	200	516,7	202,3	200	1495,9	0,0056	81,2	868,9
399,8	49,99	2,364	2,309	2,446	100	846,2	98,2	100	1497	0,0056	80,7	559,0
400,1	50,0	1,362	1,355	1,376	100,0	-256,9	354,1	100	1499,8	0,0056	80,0	23,56
400,2	50,0	1,361	1,354	1,371	100,0	-243,2	303,1	100	1500,0	0,0055	75,4	0,00

slope A= 0,00049

intercept B= 374,27

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	532500	894,36	556203,7	6949,6	1,101	6012,5	5698,9	24446,9	3424,5	95,74	0,898
125,0	443750	735,66	462420,5	4702,0	0,933	4240,5	3947,0	18675,3	2850,0	95,96	0,907
100,0	355000	583,86	368965,2	2961,7	0,740	2685,6	2515,1	13948,3	2275,0	96,22	0,912
75,0	266250	443,70	276671,0	1710,5	0,546	1484,4	1407,5	10388,1	1701,9	96,23	0,900
50,0	177500	321,32	185526,8	897,0	0,363	658,9	621,9	7963,6	1131,2	95,67	0,833
25,0	88750	237,94	95357,5	491,9	0,188	172,6	155,1	6605,4	564,9	93,07	0,578

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Speed	1489	r/min	Duty	S1		Connection	Δ		
Ins.class	F		Weight	2291	kg		IP55		

LOAD CURVE

