

# VALIADIS S.A.

## ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

Type	K355L-2	Poles	2	Power	315,0 kW	IE:3
Voltage	400 V	Current	522,9 A	Frequency	50 Hz	
Speed	2976 r/min	Duty	S1	Connecti	△	
Ins.class	F	Weight	2017 kg		IP55	
MAJOR CONTENTS			TEST VALUE			
95,0 °C PHASE RESISTANCE OF WINDING	Ω					0,0078
NO LOAD CURRENT	A					90,553
NO LOAD INPUT	W					6730,91
CORE LOSS(Pfe)	W					3311,26
WINDAGE FRICTION LOSS(Pfw)	W					3359,37
STATOR WINDING LOSS(Pcu1)	W					1939,71
ROTOR WINDING LOSS(Pcu2)	W					2606,76
STRAY LOAD LOSS(Ps)	W					2836,06
LOCKED ROTOR CURRENT	A					3581,954
LOCKED ROTOR INPUT @ FULL LOAD	W					646008
LOCKED ROTOR TORQUE	N.m					1900,9
PULL OUT TORQUE	N.m					3150,8
LOCKED ROTOR CURRENT/RATED CURRENT	P.U					6,85
LOCKED ROTOR TORQUE/RATED TORQUE	P.U					1,88
PULL OUT TORQUE/RATED TORQUE	P.U					3,12
FULL LOAD TORQUE	N.m					1011,4
FULL LOAD CURRENT	A					522,9
FULL LOAD SLIP	%					0,805
INPUT @ FULL LOAD	kW					329,074
FULL LOAD SPEED	r/min					2975,9
EFFICIENCY @ FULL LOAD	%					95,72
EFFICIENCY @ 75% LOAD	%					95,65
POWER FACTOR @ FULL LOAD						0,908
STATOR WINDING TEMPERATURE RISE	K					69
D.E. BEARINGS TEMPERATURE BY PT100	°C					56,1
STATOR WINDING TEMPERATURE	°C					82,8
High voltage test	V	1800				Imin
Insulation resistance	MΩ					500
NOISE ( LW)	dB(A)					99
VIBRATION	mm/s					1,7

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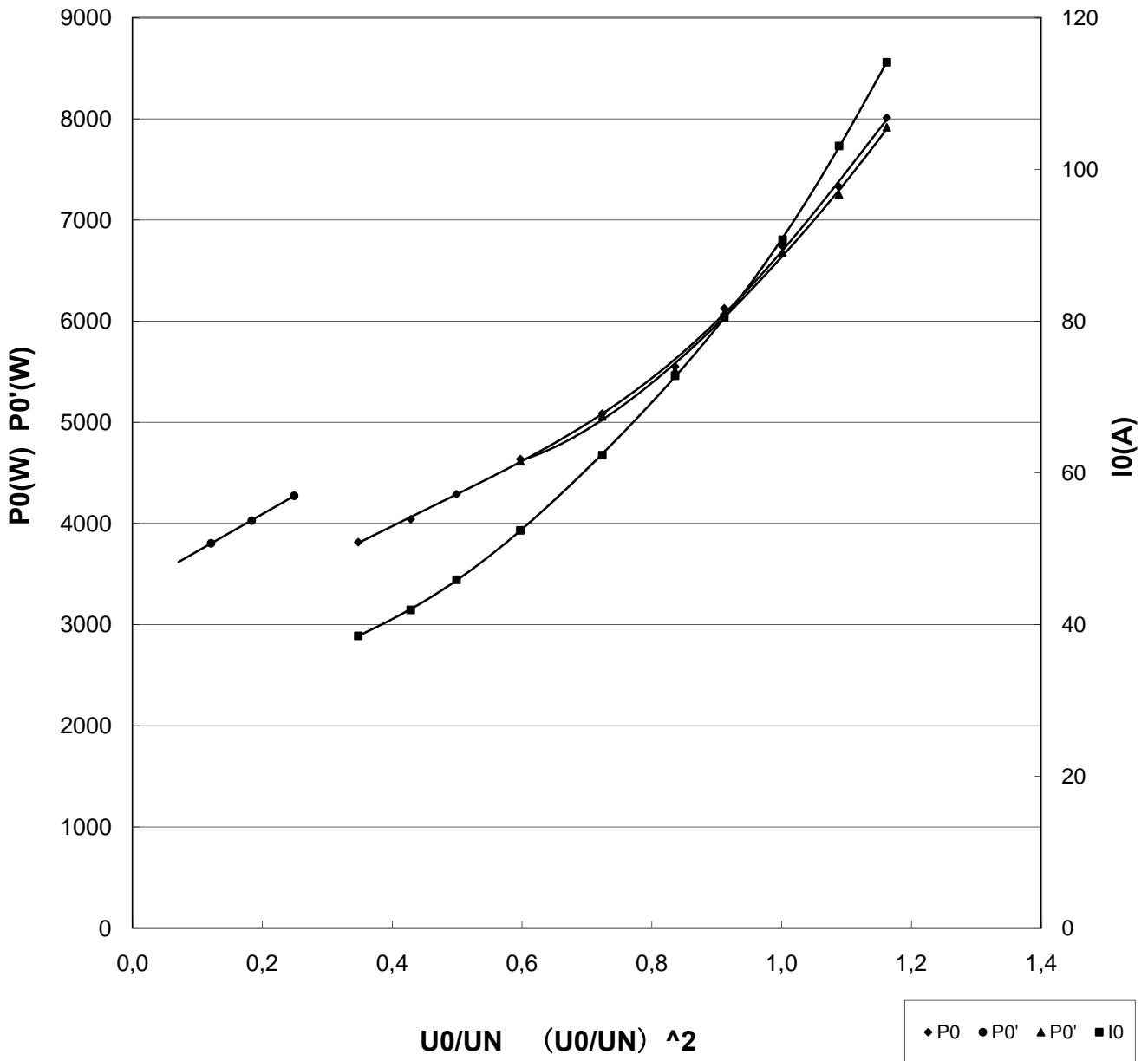
Type	K355L-2		Poles	2		Power	315,0 kW		IE:3		
Voltage	400	V	Current	522,9	A	Frequency	50 Hz				
Speed	2976	r/min	Duty	S1		Connection	△				
Ins.class	F		Weight	2017	kg			IP55			
NO LOAD TEST											
VOL	mul.	HZ	I01	I02	I03	mul.	W1	W2	mul.	°C	Ω
464,8	1	50	2,276	2,296	2,275	50	-317,2	477,4	50	77,0	0,00490
435,4	1	50	2,006	2,113	2,067	50	-256,0	402,6	50	76,9	0,00490
400,6	1	50	1,807	1,819	1,818	50	-213,2	348,0	50	76,8	0,00490
364,6	1	50	3,943	4,082	4,051	20	-383,0	689,3	20	76,6	0,00490
334,3	1	50	3,697	3,620	3,605	20	-307,0	584,5	20	76,5	0,00490
289,5	1	50	3,104	3,096	3,150	20	-197,5	451,8	20	76,3	0,00489
238,9	1	50	2,603	2,627	2,634	20	-96,0	327,8	20	76,0	0,00489
199,6	1	50	2,308	2,302	2,278	20	-42,5	256,9	20	75,9	0,00489
171,4	1	50	4,229	4,233	4,124	10	-3,3	407,4	10	75,7	0,00488
139,1	1	50	3,985	3,989	3,586	10	15,6	365,9	10	75,6	0,00488
data calculation of no load											
V%	U0/UN	I0	P0	(U0/UN)^2	P0cu1	P0'					
116,2%	1,16	114,117	8011,5	1,350	95,78	7915,68					
108,8%	1,09	103,100	7328,0	1,185	78,16	7249,85					
100,2%	1,00	90,733	6741,7	1,003	60,51	6681,17					
91,2%	0,91	80,512	6125,6	0,831	47,62	6077,98					
83,6%	0,84	72,810	5550,5	0,699	38,93	5511,55					
72,4%	0,72	62,333	5086,4	0,524	28,51	5057,89					
59,7%	0,60	52,427	4635,3	0,357	20,15	4615,19					
49,9%	0,50	45,920	4288,9	0,249	15,45	4273,49					
42,8%	0,43	41,953	4041,3	0,184	12,89	4028,38					
34,8%	0,35	38,533	3814,9	0,121	10,87	3803,99					
RESULTS AT: 400 V											
N.L.AMP	90,55	N.L.LOSS(W)	6730,91	Pw(W)	3359,4	Pe(W)	3311,3				

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Type	K355L-2		Poles	2		Power	315,0 kW		IE:3
Voltage	400	V	Current	522,9	A	Frequency	50,0 Hz		
Speed	2976	r/min	Duty	S1		Connection	Δ		
Ins.class	F		Weight	2017	kg	IP55			

### No Load Curve



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## ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

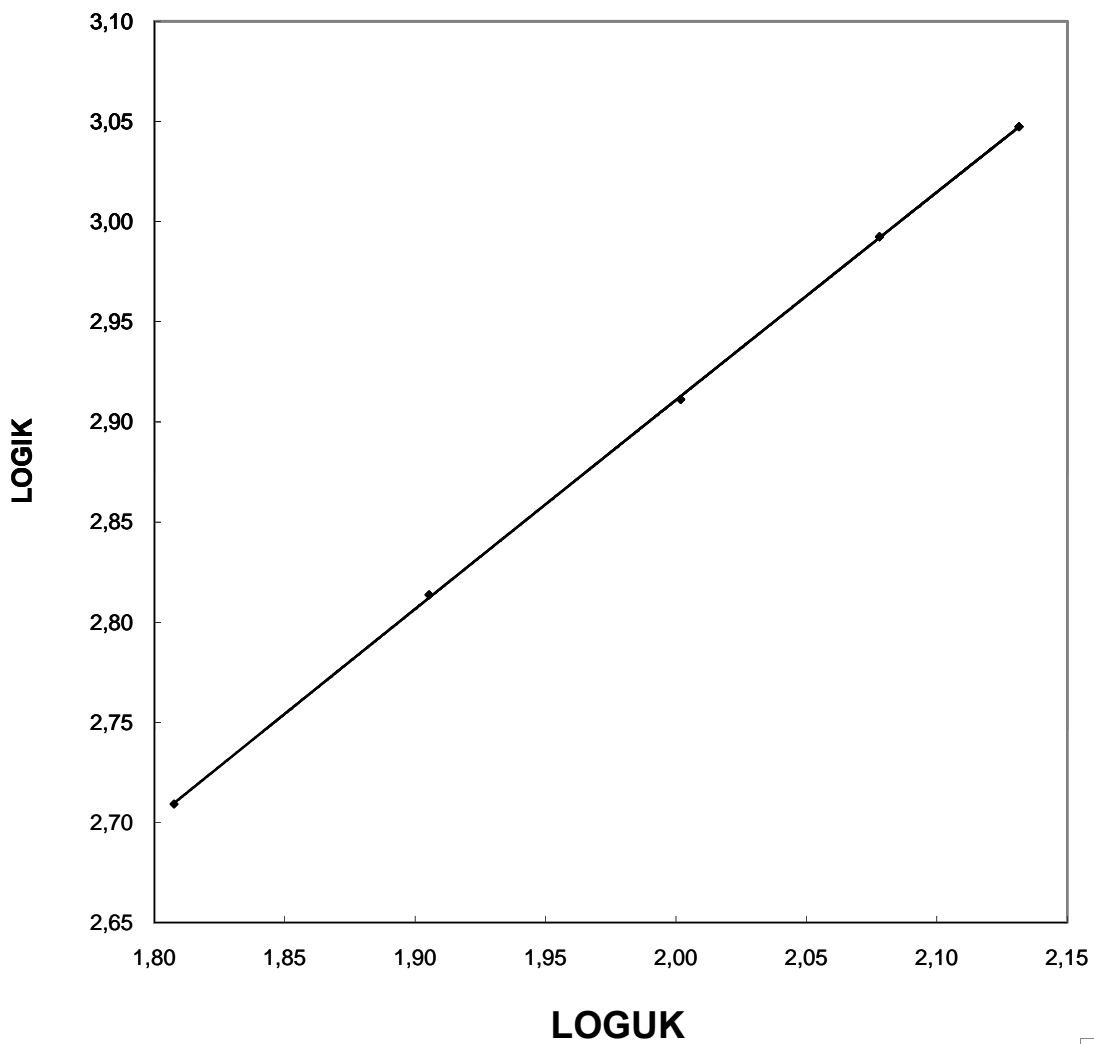
Type	K355L-2		Poles	2		Power	315,0		IE:3
Voltage	400	V	Current	522,9	A	Frequency	50,0		kW
Speed	2976	r/min	Duty	S1		Connection	Δ		Hz
Ins.class	F		Weight	2017	kg	IP55			
LOCKED ROTOR TEST									
VOL	mul.	Ik1	Ik2	Ik3	mul.	W1	W2	mul.	Torqur ( kg.m)
135,4	1,0	2,807	2,813	2,743	400,0	228,5	-62,5	400,0	18,8
119,7	1,0	2,471	2,483	2,415	400,0	177,5	-48,8	400,0	14,5
100,4	1,0	4,099	4,129	3,999	200,0	245,0	-67,5	200,0	10,1
80,4	1,0	3,291	3,185	3,291	200,0	157,5	-45,0	200,0	6,4
64,2	1,0	2,595	2,595	2,489	200,0	97,0	-29,0	200,0	4,0
data calculation of locked rotor									
Uk	IK	PK	TK		LOGUk	LOGIk	LOGPk	LOGTk	
V	A	kW	N.m						
135,37	1115,13	66,400	184,24		2,1315	3,0473	1,8222	2,2654	
119,68	982,62	51,500	142,10		2,0780	2,9924	1,7118	2,1526	
100,42	815,12	35,500	98,49		2,0018	2,9112	1,5502	1,9934	
80,42	651,15	22,500	62,72		1,9054	2,8137	1,3522	1,7974	
64,21	511,96	13,600	39,20		1,8076	2,7092	1,1335	1,5933	
performance collection of locked rotor									
	at rated volts		at rated current		at 2.5 times rated current		at 100V		
VOLTS ( V )	400		65,698		158,3		100,0		
AMPS ( A )	3582,0		525,3		1313,3		813,83		
INPUT ( kW )	646,01				93,0		35,159		
TORQUE ( N.m)	1900,95								

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Type	K355L-2	Poles	2	Power	315,0	IE:3
Voltage	400 V	Current	522,9 A	Frequency	50,0	kW
Speed	2976 r/min	Duty	S1	Connection	Δ	Hz
Ins.class	F	Weight	2017 kg			IP55

### LOCKED



◆ LOGIK

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Type	K355L-2		Poles	2		Power	315 kW		IE:3		
Voltage	400	V	Current	522,9	A	Frequency	50	Hz			
Speed	2976	r/min	Duty	S1		Connection	Δ				
Ins.class	F		Weight	2017	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	2,543	2,645	2,592	200	626,4	998	200	39,2	—	62,3	65,9	—	—	—	—	—	—	—	—	—	3,8
12,00	400,1	2,592	2,670	2,626	200	627,1	1020	200	38,4	—	61,5	65,1	—	—	—	—	—	—	—	—	—	4,0
12,30	400,2	2,606	2,674	2,627	200	628,0	1021	200	55,3	—	78,4	82,0	—	—	—	—	—	—	—	—	—	3,8
13,00	400,0	2,604	2,640	2,646	200	629,7	1028	200	55,8	—	78,9	82,5	—	—	—	—	—	—	—	—	—	2,9
13,30	400,3	2,605	2,681	2,629	200	626,3	1018	200	55,9	—	79,0	82,6	—	—	—	—	—	—	—	—	—	3,6
14,00	400,1	2,567	2,610	2,552	200	622,5	1018	200	56,1	—	79,2	82,8	—	—	—	—	—	—	—	—	—	3,7
The average of the last three		523,010			A	329491		W	56,1	—	79,0	82,8	—	—	—	—	—	—	—	—	—	3,4

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)	76	111	153	193	231	254	284			
RESISTANCE	0,00439	0,00438	0,00436	0,00434	0,00432	0,00431	0,00430			

### WINDING RESISTANCE(COLD)

Δ	U1-V1	U1-W1	V1-W1	AVERAGE	MIN	AMBIENT TEM.
	0,003951	0,0033896	0,003895	0,00375	0,00339	3,3 °C
Y	U1-U2	V1-V2	W1-W2	AVERAGE	MIN	AMBIENT TEM.
						°C

resistance value at 0 sec ( Ω )

0,004428

calculation value of temp.rising

72,90 K

120 S ( Ω )

0,004372

calculation value of temp.rising

68,98 K

full load current

522,93 A

modify value of temp. rising

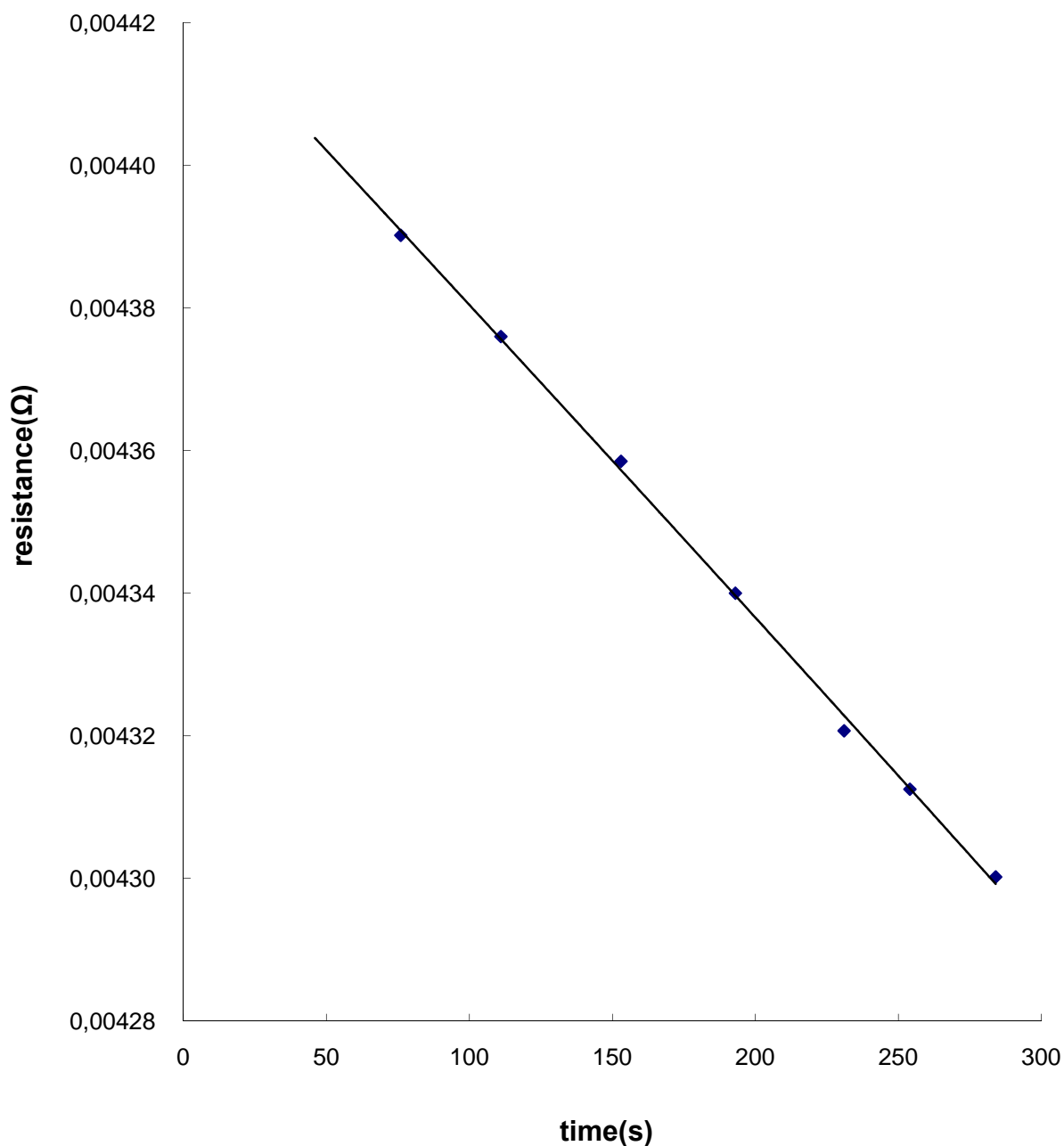
68,95 K

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Type	K355L-2		Poles	2		output Power	315,0	IE:3 kW
Voltage	400	V	Current	522,9	A	Frequency	50,0	Hz
Speed	2976	r/min	Duty	S1		Connection	Δ	
Ins.class		F	Weight	2017	kg		IP55	

### RESISTANCE CURVE



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Voltage	400	V	Current	522,9	A	Frequency	50,0		kW			
Speed	2976	r/min	Duty	S1		Connection	Δ		Hz			
Ins.class	F		Weight	2017	kg	IP55						
<b>LOAD TEST</b>												
V	HZ	I1	I2	I3	mul.	W1	W2	mul.	r/min	Resistance Ω	Temperature °C	Torque N.m
400,1	50,00	4,136	4,148	4,040	200	1585,5	880,9	200	2961,1	0,0050	82,4	1510,4
399,8	50,01	3,580	3,590	3,495	200	1404,5	780,4	200	2967,1	0,0050	82,6	1338,8
400,0	50,01	2,655	2,663	2,624	200	1052,0	612,7	200	2977,7	0,0050	83,4	1020,3
400,2	50,02	1,999	2,037	1,952	200	792,4	490,1	200	2983,9	0,0050	84,2	782,6
400,1	50,01	1,620	1,710	1,587	200	659,8	405,8	200	2986,9	0,0050	84,1	650,0
399,9	50,02	2,383	2,378	2,264	100	939,5	539,7	100	2992,9	0,0050	83,6	443,0
399,9	50,01	1,538	1,580	1,518	100	604,5	303,5	100	2996,5	0,0050	83,0	265,5
400,1	50,0	1,822	1,825	1,819	50,0	-196,7	403,6	50	2999,6	0,0050	81,8	11,55
400,2	50,0	1,812	1,821	1,824	50,0	-213,2	366,1	50	3000,0	0,0049	77,2	0,00
slope A= 0,00281                      intercept B= 1540,2                      relative coefficient r= 0,992												
LOAD %	P2 W	I A	P1 W	Pcu1s W	Ss %	Pcu2s W	Ps W	Pz W	N.m	EFF %	P.F	
150,0	472500	829,63	497380,0	4882,3	1,404	6866,1	6482,4	24901,4	1519,9	95,00	0,865	
125,0	393750	668,70	412717,0	3171,9	1,107	4496,5	4466,1	18805,2	1261,6	95,40	0,891	
100,0	315000	522,93	329073,8	1939,7	0,805	2606,8	2836,1	14053,2	1005,3	95,72	0,908	
75,0	236250	383,56	246991,2	1043,6	0,586	1422,2	1580,8	10717,2	750,6	95,65	0,929	
50,0	157500	260,11	165970,7	479,9	0,348	564,7	694,1	8409,3	497,4	94,90	0,921	
25,0	78750	147,63	85835,7	154,6	0,133	109,7	171,4	7106,3	247,1	91,75	0,839	



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Voltage	400 V	Current	522,9 A	Frequency	50,0	kW
Speed	2976 r/min	Duty	S1	Connection	Δ	Hz
Ins.class	F	Weight	2017 kg			IP55

### LOAD CURVE

