

VALIADIS S.A.

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

Type	K355L-4	Poles	4	Power	315,0 kW	IE:3
Voltage	400	V	Current	527,9 A	Frequency	50 Hz
Speed	1489	r/min	Duty	S1	Connection	Δ
Ins.class		F	Weight	1984 kg		IP55
MAJOR CONTENTS				TEST VALUE		
95,0	°C	PHASE RESISTANCE OF WINDING		Ω	0,0081	
NO LOAD CURRENT				A	132,974	
NO LOAD INPUT				W	5489,55	
CORE LOSS(Pfe)				W	2328,65	
WINDAGE FRICTION LOSS(Pfw)				W	3030,68	
STATOR WINDING LOSS(Pcu1)				W	2211,77	
ROTOR WINDING LOSS(Pcu2)				W	2465,22	
STRAY LOAD LOSS(Ps)				W	2736,29	
LOCKED ROTOR CURRENT				A	3720,449	
LOCKED ROTOR INPUT @ FULL LOAD				W	764735	
LOCKED ROTOR TORQUE				N.m	4688,1	
PULL OUT TORQUE				N.m	5895,7	
LOCKED ROTOR CURRENT/RATED CURRENT				P.U	7,05	
LOCKED ROTOR TORQUE/RATED TORQUE				P.U	2,32	
PULL OUT TORQUE/RATED TORQUE				P.U	2,92	
FULL LOAD TORQUE				N.m	2022,0	
FULL LOAD CURRENT				A	527,9	
FULL LOAD SLIP				%	0,763	
INPUT @ FULL LOAD				kW	327,799	
FULL LOAD SPEED				r/min	1488,6	
EFFICIENCY @ FULL LOAD				%	96,10	
EFFICIENCY @ 75% LOAD				%	96,11	
POWER FACTOR @ FULL LOAD					0,896	
STATOR WINDING TEMPERATURE RISE				K	62	
D.E. BEARINGS TEMPERATURE BY PT100				°C	33,4	
STATOR WINDING TEMPERATURE				°C	74,9	
High voltage test		V	1800		Imin	
Insulation resistance				MΩ	500	
NOISE (LW)				dB(A)	97	
VIBRATION				mm/s	1,7	

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Ins.class	F	Weight	1984 kg		IP55	

NO LOAD TEST

VOL	mul.	HZ	I01	I02	I03	mul.	W1	W2	mul.	°C	Ω
463,4	1	50	2,209	2,235	2,292	100	-424,5	500,08	100	66,4	0,00491
432,6	1	50	1,668	1,693	1,731	100	-295,6	357,13	100	66,3	0,00491
400,8	1	50	1,323	1,322	1,361	100	-209,9	264,89	100	66,2	0,00490
346,3	1	50	2,007	2,044	2,053	50	-270	368,2	50	66,0	0,00490
295,8	1	50	1,635	1,674	1,682	50	-174,2	262,56	50	65,9	0,00490
235,6	1	50	1,272	1,301	1,319	50	-90,0	170,7	50	65,7	0,00490
199,8	1	50	1,089	1,106	1,134	50	-50,6	125,9	50	65,4	0,00489
168,5	1	50	2,317	2,427	2,426	20	-64,2	246,0	20	65,3	0,00489
137,3	1	50	2,058	2,119	2,060	20	-14,1	181,9	20	65,1	0,00489
100,6	1	50	1,802	1,907	1,901	20	28,6	131,3	20	64,9	0,00488

data calculation of no load

V%	U0/UN	I0	P0	(U0/UN)^2	P0cu1	P0'	COSφ
115,8%	1,16	224,533	7557,8	1,342	371,07	7186,68	0,042
108,2%	1,08	169,733	6153,1	1,170	211,98	5941,09	0,048
100,2%	1,00	133,533	5499,2	1,004	131,16	5368,01	0,059
86,6%	0,87	101,733	4910,0	0,750	76,08	4833,89	0,080
73,9%	0,74	83,183	4418,1	0,547	50,84	4367,30	0,104
58,9%	0,59	64,867	4033,8	0,347	30,90	4002,88	0,152
49,9%	0,50	55,483	3767,2	0,249	22,58	3744,66	0,196
42,1%	0,42	47,800	3635,4	0,178	16,76	3618,66	0,261
34,3%	0,34	41,580	3356,6	0,118	12,67	3343,95	0,340
25,2%	0,25	37,400	3197,6	0,063	10,24	3187,39	

RESULTS AT: 400 V

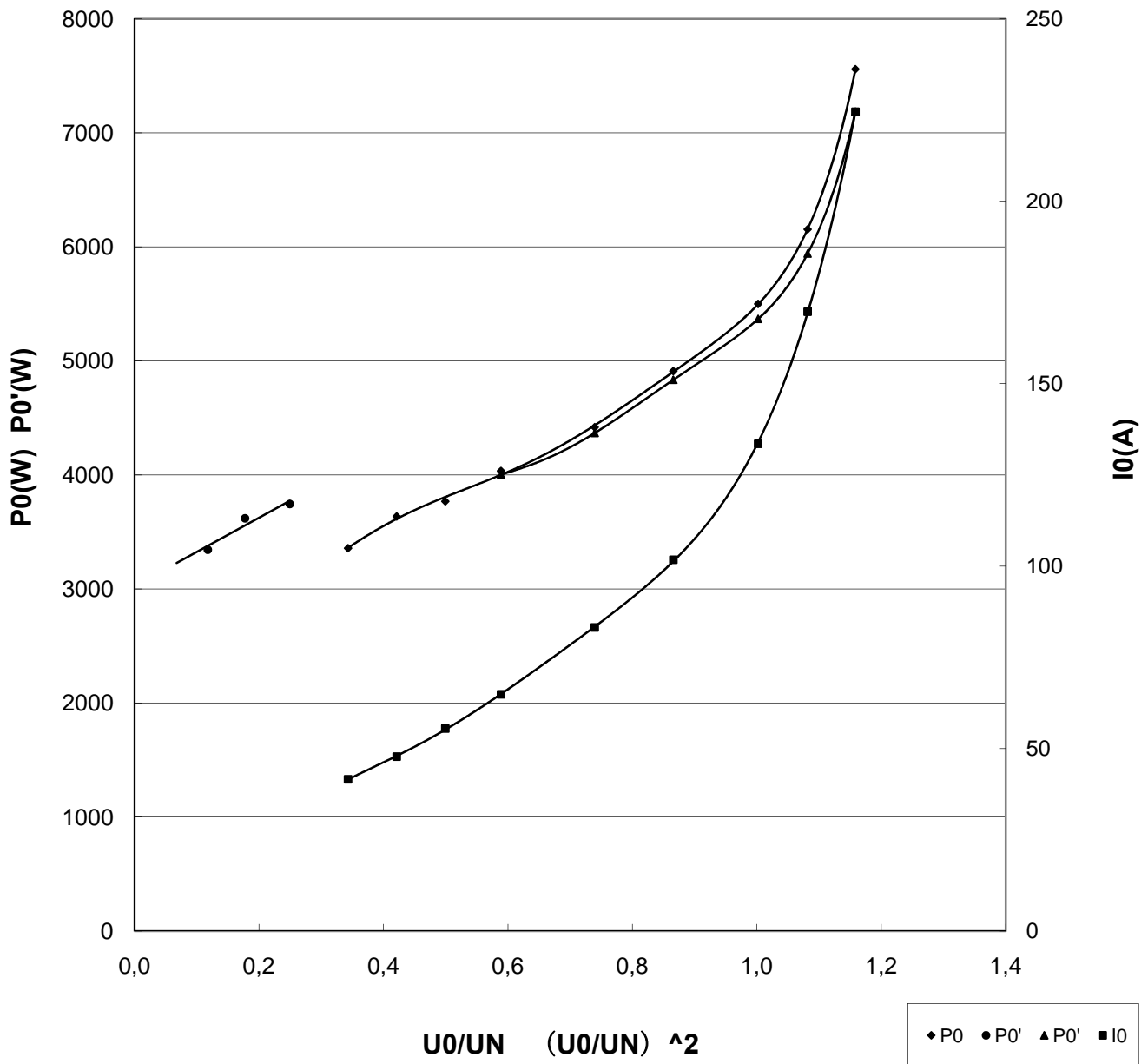
N.L.AMP	132,97	N.L.LOSS(W)	5489,55	Pw(W)	3030,7	Pe(W)	2328,6		
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Voltage	400	V	Current	527,9	A	Frequency	50,0
Speed	1489	r/min	Duty	S1	Connection	Δ	
Ins.class	F		Weight	1984	kg	IP55	

No Load Curve



VALIADIS S.A.**ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR**

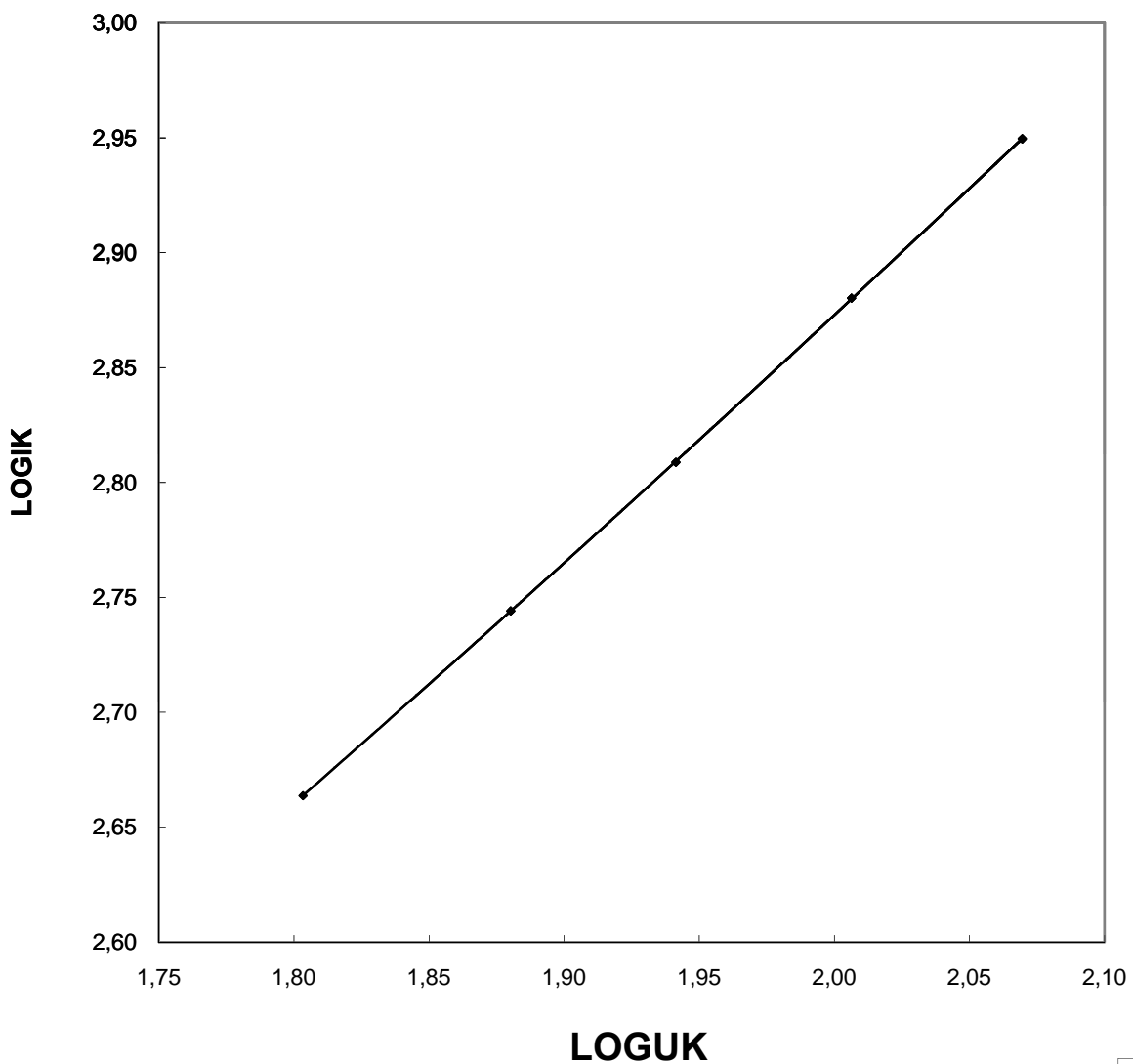
Type	K355L-4		Poles	4		Power	315,0	IE:3 kW	
Voltage	400	V	Current	527,9	A	Frequency	50,0	Hz	
Speed	1489	r/min	Duty	S1		Connection	Δ		
Ins.class		F	Weight	1984	kg		IP55		
LOCKED ROTOR TEST									
VOL	mul.	Ik1	Ik2	Ik3	mul.	W1	W2	mul.	Torqu (kg.m)
117,4	1,0	4,399	4,434	4,523	200,0	-120,5	383,1	200,0	27,4
101,5	1,0	3,755	3,773	3,856	200,0	-90,1	281,1	200,0	20,0
87,4	1,0	3,180	3,206	3,273	200,0	-66,8	204,6	200,0	14,5
75,9	1,0	2,746	2,759	2,818	200,0	-50,5	153,1	200,0	10,8
63,6	1,0	2,278	2,294	2,343	200,0	-35,2	106,4	200,0	7,4
data calculation of locked rotor									
Uk		IK	PK	TK		LOGUk	LOGIk	LOGPk	LOGTk
V		A	kW	N.m					
117,37		890,40	52,520	268,52		2,0696	2,9496	1,7203	2,4290
101,47		758,99	38,200	196,00		2,0064	2,8802	1,5821	2,2923
87,37		643,91	27,560	142,10		1,9414	2,8088	1,4403	2,1526
75,89		554,80	20,520	105,84		1,8802	2,7441	1,3122	2,0246
63,58		461,00	14,240	72,52		1,8033	2,6637	1,1535	1,8605
performance collection of locked rotor									
	at rated volts		at rated current		at 2.5 times rated current		at 100V		
VOLTS (V)	400		72,297		169,6		100,0		
AMPS (A)	3720,4		527,5		1318,8		747,47		
INPUT (kW)	764,74				114,3		37,080		
TORQUE (N.m)	4688,07								

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Type	K355L-4	Poles	4	Power	315,0	IE:3
Voltage	400 V	Current	527,9 A	Frequency	50,0	kW
Speed	1489 r/min	Duty	S1	Connection	Δ	Hz
Ins.class	F	Weight	1984 kg		IP55	

LOCKED



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Type	K355L-4			Poles	4			Power	315 kW			IE:3		
Voltage	400	V		Current	527,9	A		Frequency	50	Hz				
Speed	1489	r/min		Duty	S1			Connection	Δ					
Ins.class	F			Weight	1984	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	2,578	2,599	2,655	200	510,8	1129	200	28,8	29,9	73,7	74,9	—	—	—	—	—	—	—	—	—	4,0
12,00	400,1	2,600	2,612	2,681	200	516,2	1135	200	29,6	29,7	73,7	74,9	—	—	—	—	—	—	—	—	—	4,2
12,31	400,1	2,603	2,627	2,684	200	513,0	1141	200	31,2	29,5	73,9	75,1	—	—	—	—	—	—	—	—	—	4,5
13,02	400,0	2,597	2,613	2,667	200	511,1	1134	200	32,0	29,7	74,0	75,2	—	—	—	—	—	—	—	—	—	5,1
13,30	400,1	2,587	2,596	2,659	200	512,8	1127	200	32,6	30,2	73,7	74,9	—	—	—	—	—	—	—	—	—	5,4
14,02	400,0	2,610	2,619	2,684	200	513,6	1137	200	33,2	30,5	73,7	74,9	—	—	—	—	—	—	—	—	—	5,8
14,32	399,8	2,622	2,646	2,704	200	510,6	1148	200	33,4	30,7	73,9	75,1	—	—	—	—	—	—	—	—	—	6,0
14,59	400,1	2,598	2,608	2,669	200	511,9	1133	200	33,4	30,6	73,7	74,9	—	—	—	—	—	—	—	—	—	6,1
The average of the last three		528,010			A	330193		W	33,4	30,6	73,8	74,9	—	—	—	—	—	—	—	—	—	6,0

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)	75	98	122	140	157	174	195			
RESISTANC	0,00495	0,00494	0,00493	0,00492	0,00492	0,00491	0,00490			

WINDING RESISTANCE(COLD)

Δ	U1-V1	U1-W1	V1-W1	AVERAGE	MIN	AMBIENT TEM.
	0,003843	0,003828	0,003831	0,00383	0,00383	0,5 °C
Y	U1-U2	V1-V2	W1-W2	AVERAGE	MIN	AMBIENT TEM.
						°C

resistance value at 0 sec (Ω)

0,004985

calculation value of temp.rising

65,71 K

120 S (Ω)

0,004931

calculation value of temp.rising

62,39 K

full load curent

527,90 A

modify value of temp. rising

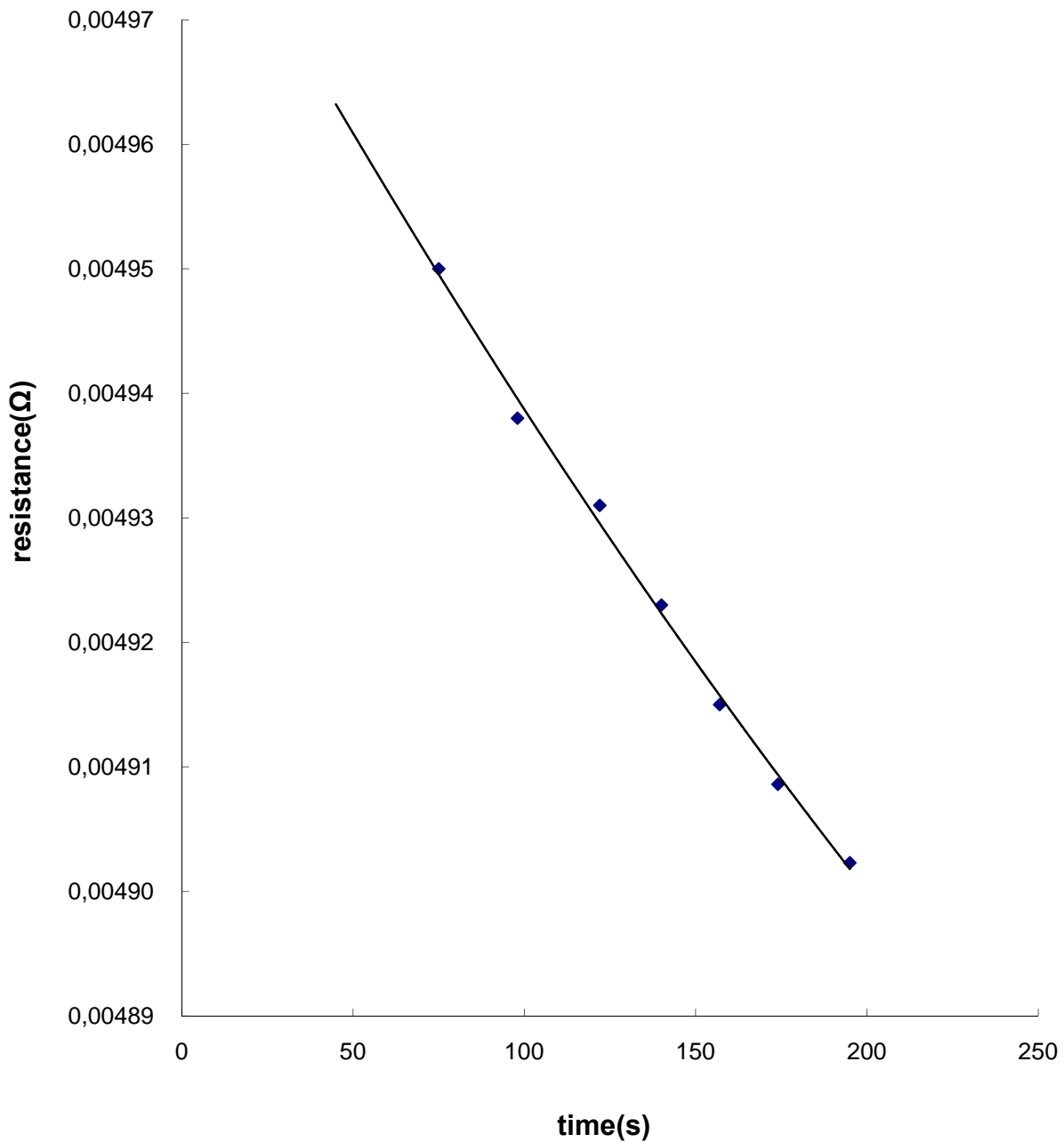
62,36 K

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Voltage	400	V	Current	527,9	A	Frequency	50,0	Hz
Speed	1489	r/min	Duty	S1		Connection	Δ	
Ins.class		F	Weight	1984	kg		IP55	

RESISTANCE CURVE



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Speed	1489	r/min	Duty	S1	Connection	Δ	Hz
Ins.class	F		Weight	1984	kg	IP55	

LOAD TEST

V	HZ	I1	I2	I3	mul.	W1	W2	mul.	r/min	Resistance Ω	Temperature °C	Torqure N.m
399,8	50,01	3,680	3,706	3,799	200	821,5	1491,7	200	1485,7	0,0050	73,7	2840
399,8	50,01	2,969	2,990	3,066	200	662,9	1203,7	200	1488,1	0,0050	74,5	2302,5
400,3	50,01	2,541	2,555	2,619	200	567,3	1029,6	200	1489,8	0,0051	75,2	1967,2
400,1	50,02	2,244	2,266	2,312	200	496,8	912,5	200	1491,3	0,0051	75,3	1735,2
400,1	50,01	1,874	1,887	1,925	200	401,7	760,3	200	1492,8	0,0051	75,2	1425,9
399,7	50,02	1,364	1,374	1,400	200	273,0	552,8	200	1494,9	0,0050	74,7	1003
399,9	50,01	1,269	1,283	1,303	200	221,3	514,1	200	1495,2	0,0050	74,1	890,3
400,2	50,00	2,032	2,041	2,099	100	271,3	803,1	100	1496,2	0,0050	73,6	639,99
400,1	50,0	1,336	1,333	1,389	100,0	-226,8	317,6	100	1499,5	0,0050	72,9	23,56
400,2	50,0	1,325	1,320	1,363	100,0	-210,5	266,3	100	1500,0	0,0049	68,3	0,00

slope A= 0,00067

intercept B= 818,61

relative coefficient r= 0,963

LOAD %	P2 W	I A	P1 W	Pcu1s W	Ss %	Pcu2s W	Ps W	Pz W	N.m	EFF %	P.F
150,0	472500	796,50	494168,3	5035,1	1,100	5355,6	6161,2	21911,2	3028,4	95,62	0,896
125,0	393750	662,13	410803,6	3479,6	0,939	3801,3	4289,4	16929,6	2526,8	95,85	0,896
100,0	315000	527,90	327799,0	2211,8	0,763	2465,2	2736,3	12772,6	2018,2	96,10	0,896
75,0	236250	399,63	245809,4	1267,5	0,566	1369,9	1528,8	9525,5	1508,5	96,11	0,888
50,0	157500	275,33	164783,3	601,7	0,404	653,1	670,9	7284,9	999,3	95,58	0,864
25,0	78750	176,26	84608,8	246,6	0,218	178,6	164,3	5948,7	494,5	93,08	0,693

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Ins.class	F		Weight	1984	kg		IP55		

LOAD CURVE

