

VALIADIS S.A.

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

Type	K225M-4	Poles	4	Power	45,0	kW	IE:3
Voltage	400	V		Current	79,9	A	
Speed	1480	r/min		Duty	S1		
Ins.class	F	Weight	419	kg			IP55
MAJOR CONTENTS				TEST VALUE			
95,0	°C	PHASE RESISTANCE OF WINDING	Ω	0,1367			
NO LOAD CURRENT			A	25,590			
NO LOAD INPUT			W	915,67			
CORE LOSS(Pfe)			W	566,70			
WINDAGE FRICTION LOSS(Pfw)			W	266,19			
STATOR WINDING LOSS(Pcu1)			W	870,89			
ROTOR WINDING LOSS(Pcu2)			W	609,96			
STRAY LOAD LOSS(Ps)			W	549,68			
LOCKED ROTOR CURRENT			A	564,945			
LOCKED ROTOR INPUT @ FULL LOAD			W	157457			
LOCKED ROTOR TORQUE			N.m	634,7			
PULL OUT TORQUE			N.m	820,0			
LOCKED ROTOR CURRENT/RATED CURRENT			P.U	7,07			
LOCKED ROTOR TORQUE/RATED TORQUE			P.U	2,18			
PULL OUT TORQUE/RATED TORQUE			P.U	2,82			
FULL LOAD TORQUE			N.m	290,5			
FULL LOAD CURRENT			A	79,9			
FULL LOAD SLIP			%	1,314			
INPUT @ FULL LOAD			kW	47,869			
FULL LOAD SPEED			r/min	1480,3			
EFFICIENCY @ FULL LOAD			%	94,01			
EFFICIENCY @ 75% LOAD			%	94,44			
POWER FACTOR @ FULL LOAD				0,865			
STATOR WINDING TEMPERATURE RISE			K	68			
D.E. BEARINGS TEMPERATURE BY PT100			°C	60,3			
STATOR WINDING TEMPERATURE			°C	82,1			
High voltage test			V	1800	Imin		
Insulation resistance			MΩ	500			
NOISE (LW)			dB(A)	76			
VIBRATION			mm/s	0,9			

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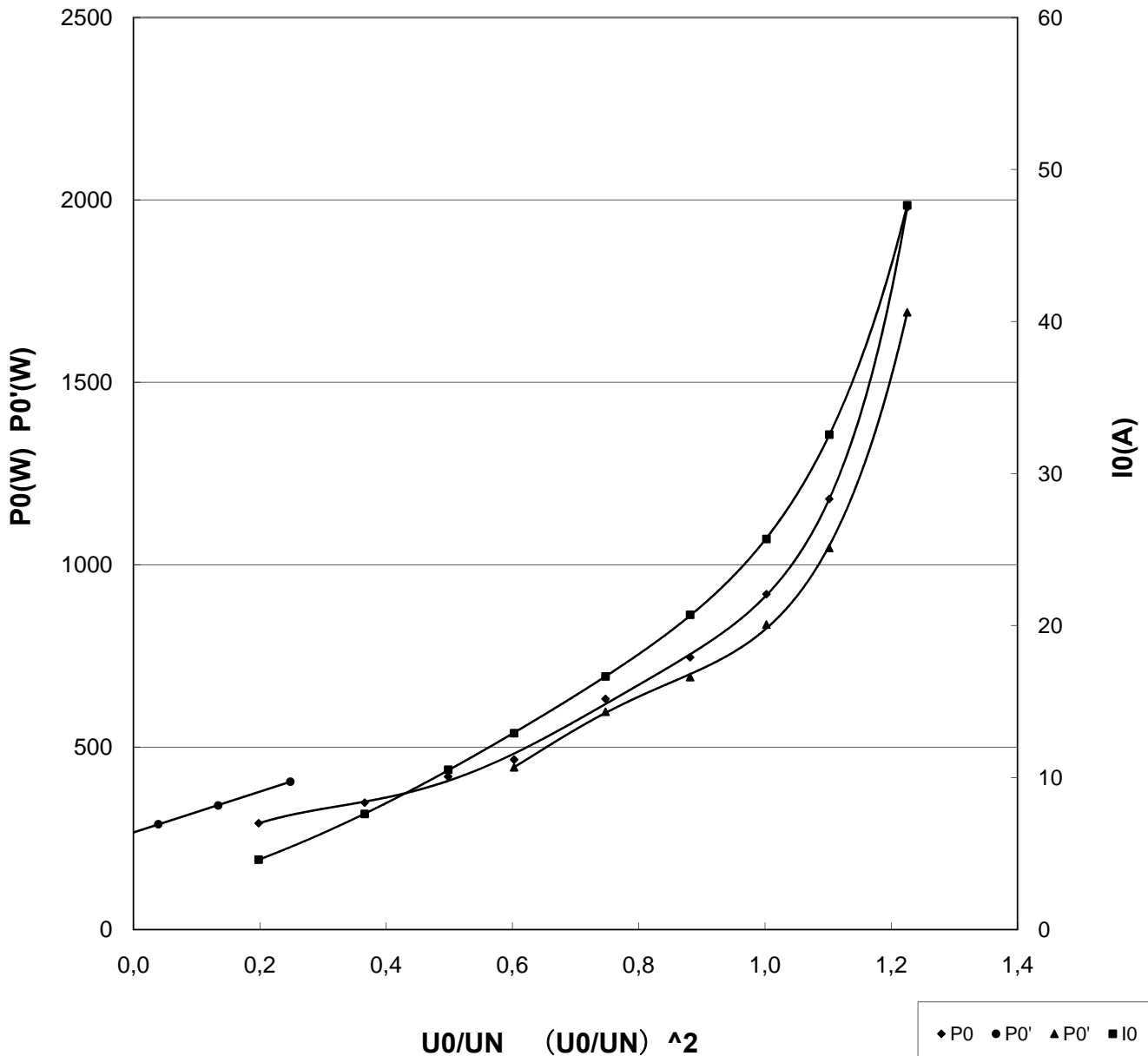
Type	K225M-4		Poles	4		Power	45,0 kW		IE:3		
Voltage	400	V	Current	79,9	A	Frequency	50 Hz				
Speed	1480	r/min	Duty	S1		Connection	Δ				
Ins.class	F		Weight	419	kg			IP55			
NO LOAD TEST											
VOL	mul.	HZ	I01	I02	I03	mul.	W1	W2	mul.	°C	Ω
490,0	1	50	4,745	4,719	4,830	10	-983,1	1181	10	70,3	0,08428
440,6	1	50	3,244	3,220	3,303	10	-604,4	722,4	10	70,2	0,08426
400,8	1	50	2,563	2,539	2,604	10	-430,4	522,3	10	70,1	0,08423
352,5	1	50	2,070	2,046	2,095	10	-301,6	376,2	10	69,9	0,08417
298,9	1	50	1,667	1,644	1,682	10	-199,6	262,8	10	69,7	0,08412
241,1	1	50	2,571	2,554	2,625	5	-239,9	333,0	5	69,5	0,08406
199,3	1	50	2,092	2,076	2,137	5	-149,6	233,4	5	69,2	0,08398
146,4	1	50	1,512	1,502	1,550	5	-65,3	134,8	5	69	0,08393
79,3	1	50	2,296	2,284	2,314	2	0	145,6	2	68,7	0,08384
data calculation of no load											
V%	U0/UN	I0	P0	(U0/UN)^2	P0cu1	P0'					
122,5%	1,23	47,647	1979,0	1,501	287,01	1691,99					
110,2%	1,10	32,557	1180,0	1,213	133,96	1046,04					
100,2%	1,00	25,687	919,0	1,004	83,36	835,64					
88,1%	0,88	20,703	746,0	0,777	54,12	691,88					
74,7%	0,75	16,643	632,0	0,559	34,95	597,05					
60,3%	0,60	12,917	465,5	0,363	21,04	444,46					
49,8%	0,50	10,508	419,0	0,248	13,91	405,09					
36,6%	0,37	7,607	347,5	0,134	7,28	340,22					
19,8%	0,20	4,596	291,2	0,039	2,66	288,54					
RESULTS AT: 400 V											
N.L.AMP	25,59	N.L.LOSS(W)	915,67	Pw(W)	266,2	Pe(W)	566,7				

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Voltage	400	V	Current	79,9	A	Frequency	50,0
Speed	1480	r/min	Duty	S1	Connection	Δ	
Ins.class	F		Weight	419	kg	IP55	

No Load Curve



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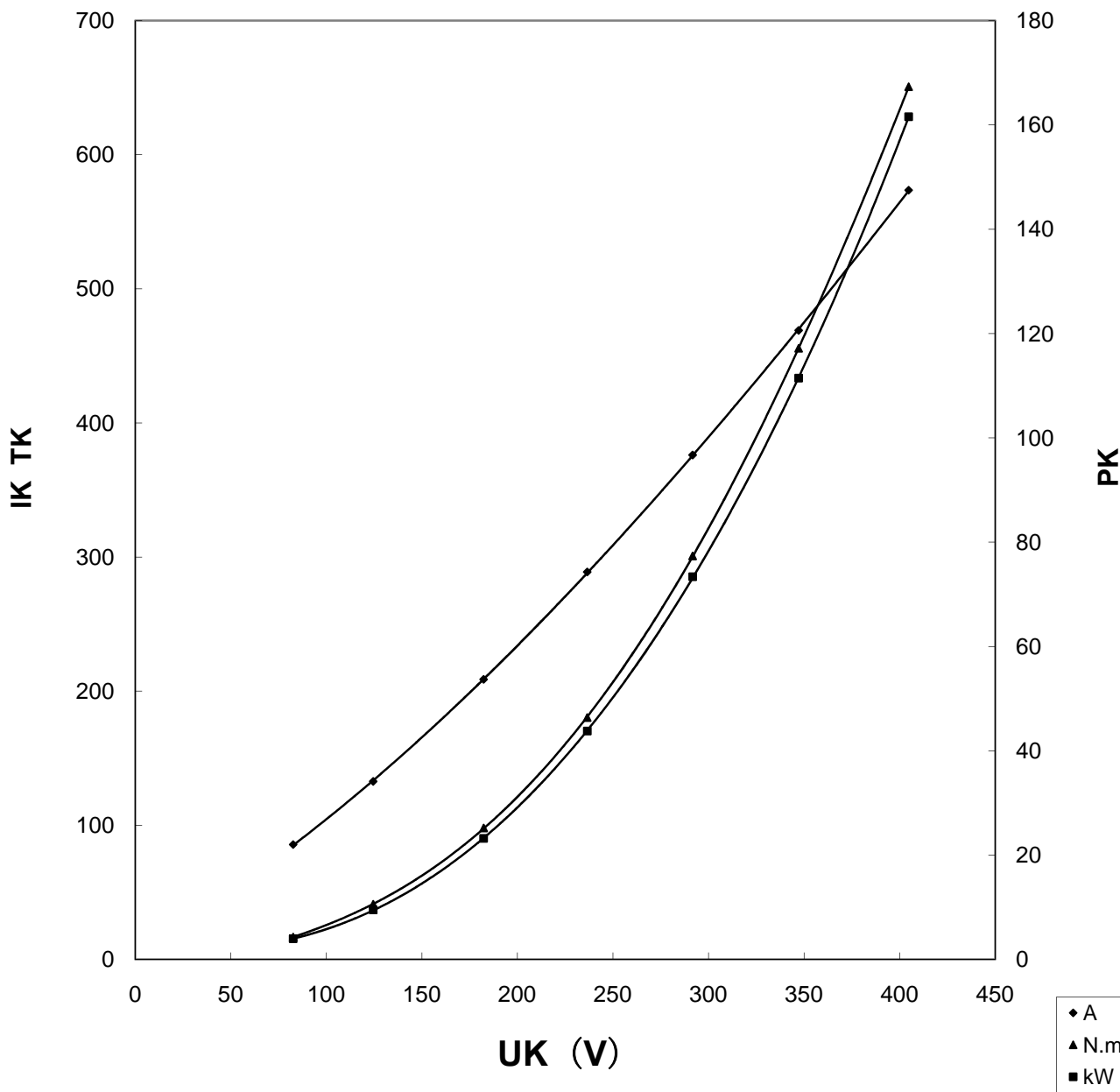
Type	K225M-4		Poles	4		Power	45,0		IE:3	kW
Voltage	400	V	Current	79,9	A	Frequency	50,0		Hz	
Speed	1480	r/min	Duty	S1		Connection	Δ			
Ins.class	F		Weight	419	kg			IP55		
LOCKED ROTOR TEST										
VOL	mul.	Ik1	Ik2	Ik3	mul.	W1	W2	mul.	Torqu (kg.m)	
404,7	1,0	2,859	2,862	2,882	200,0	-131,5	939,4	200,0	66,4	
347,2	1,0	2,337	2,343	2,355	200,0	-97,5	654,8	200,0	46,5	
291,7	1,0	1,875	1,878	1,888	200,0	-71,4	438,2	200,0	30,7	
236,5	1,0	2,881	2,885	2,899	100,0	-101,3	539,0	100,0	18,4	
182,3	1,0	2,084	2,085	2,094	100,0	-63,5	295,6	100,0	10,0	
124,5	1,0	1,325	1,325	1,330	100,0	-30,8	125,7	100,0	4,2	
82,6	1,0	1,710	1,710	1,716	50,0	-27,6	106,6	50,0	1,7	
data calculation of locked rotor										
Uk	IK	PK	TK	LOGUk		LOGIk	LOGPk	LOGTk		
V	A	kW	N.m							
404,74	573,55	161,580	650,72	2,6072		2,7586	2,2084	2,8134		
347,16	468,98	111,460	455,70	2,5405		2,6712	2,0471	2,6587		
291,68	376,07	73,360	300,86	2,4649		2,5753	1,8655	2,4784		
236,53	288,86	43,770	180,32	2,3739		2,4607	1,6412	2,2560		
182,32	208,78	23,210	98,00	2,2608		2,3197	1,3657	1,9912		
124,53	132,68	9,490	41,16	2,0953		2,1228	0,9773	1,6145		
82,63	85,60	3,950	16,66	1,9171		1,9324	0,5966	1,2217		
performance collection of locked rotor										
at rated volts		at rated current		at 2.5 times rated current		at 100V				
VOLTS (V)		400		77,832		176,6		100,0		
AMPS (A)		564,9		80,2		200,5		105,35		
INPUT (kW)		157,46				21,4		6,374		
TORQUE (N.m)		634,68								

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Voltage	400 V	Current	79,9 A	Frequency	50,0	kW
Speed	1480 r/min	Duty	S1	Connection	Δ	Hz
Ins.class	F	Weight	419 kg		IP55	

Locked Rotor Curve



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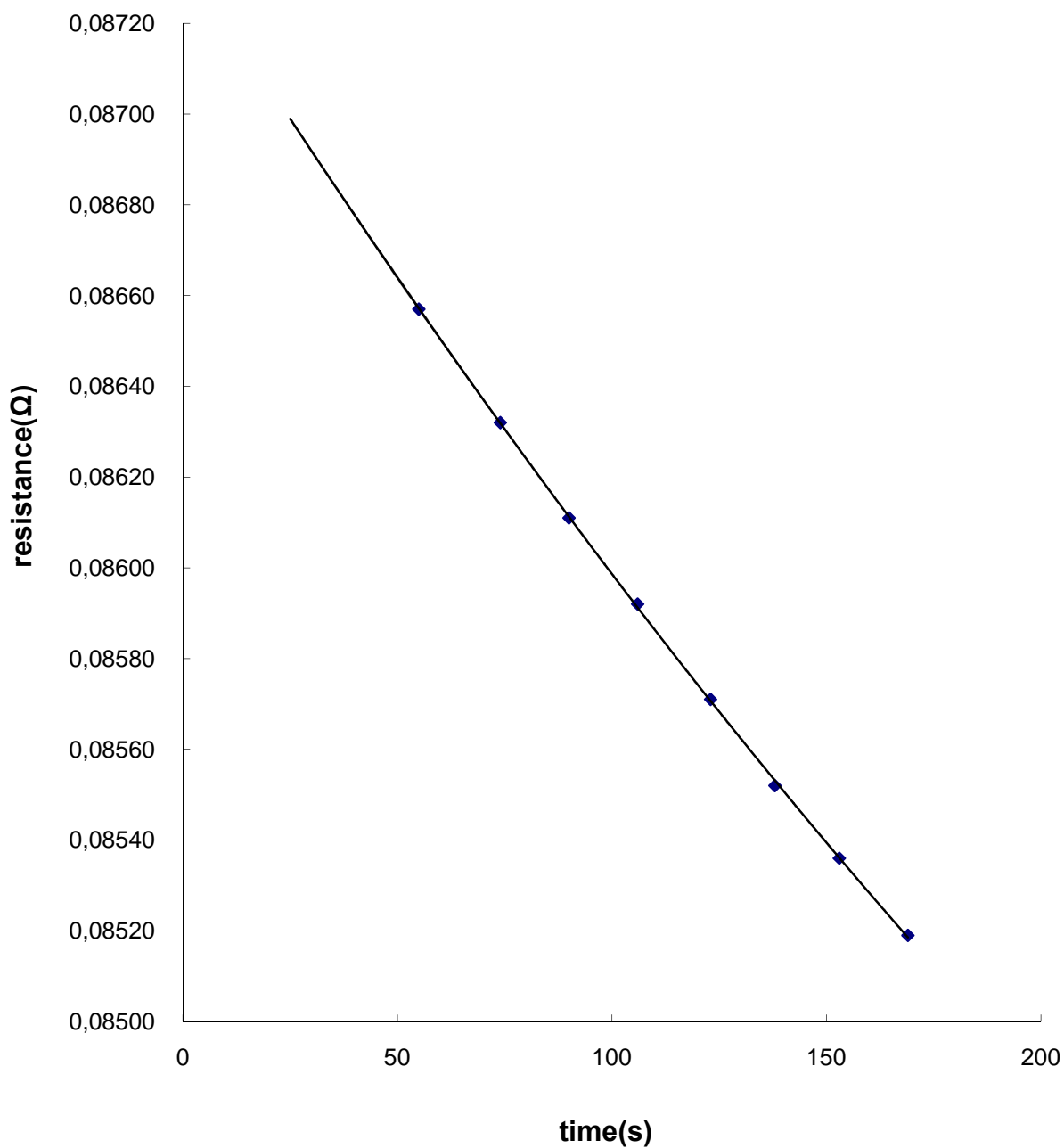
Type	K225M-4		Poles	4		Power	45 kW		IE:3													
Voltage	400	V	Current	79,9	A	Frequency	50 Hz															
Speed	1480	r/min	Duty	S1		Connection	Δ															
Ins.class	F		Weight	419	kg	IP55																
TEMPERATURE RISE TEST																						
TIME (h:min)	V	I1	I2	I3	mul.	W1	W2	mul.	T1 °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	
19,59	400,4	1,608	1,600	1,612	50	326,6	638,7	50	59,0	—	79,1	75,3	—	—	—	—	—	—	—	—	—	12,5
20,29	400,4	1,611	1,604	1,615	50	327,6	640,3	50	59,5	—	80,9	77,1	—	—	—	—	—	—	—	—	—	12,1
20,59	400,5	1,594	1,587	1,597	50	324,0	634,0	50	59,8	—	81,9	78,1	—	—	—	—	—	—	—	—	—	11,6
21,30	400,5	1,607	1,600	1,611	50	328,2	639,7	50	60,4	—	82,0	78,2	—	—	—	—	—	—	—	—	—	11,9
22,01	400,5	1,599	1,593	1,603	50	325,4	636,3	50	60,3	—	82,1	78,3	—	—	—	—	—	—	—	—	—	11,9
The average of the last three		79,950			A	48126,7		W	60,3	—	82,0	78,3	—	—	—	—	—	—	—	—	—	11,8
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)	55	74	90	106	123	138	153	169														
RESISTANC	0,08657	0,08632	0,08611	0,08592	0,08571	0,08552	0,08536	0,08519														
WINDING RESISTANCE(COLD)																						
Δ	U1-V1		U1-W1		V1-W1		AVERAGE		MIN		AMBIENT TEM.											
	0,06817		0,06805		0,0681		0,06811		0,06805		11,7 °C											
Y	U1-U2		V1-V2		W1-W2		AVERAGE		MIN		AMBIENT TEM.											
											°C											
resistance value at 0 sec (Ω)				0,087354				calculation value of temp.rising				69,88 K										
30 S (Ω)				0,086898				calculation value of temp.rising				68,23 K										
full load curent				79,88 A				modify value of temp. rising				68,11 K										

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Voltage	400	V	Current	79,9	A	Frequency	50,0	Hz
Speed	1480	r/min	Duty	S1		Connection	Δ	
Ins.class		F	Weight	419	kg		IP55	

RESISTANCE CURVE



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Speed	1480	r/min	Duty	S1		Connection	Δ				
Ins.class	F		Weight	419	kg	IP55					

LOAD TEST

V	HZ	I1	I2	I3	mul.	W1	W2	mul.	r/min	Resistance Ω	Temperature °C	Torque N.m
400,1	50,02	2,459	2,456	2,473	50	491,1	975,0	50	1468,6	0,0877	82,8	439,3
400,4	50,00	2,028	2,023	2,036	50	413,7	801,2	50	1475,1	0,0881	84,1	365,7
400,1	50,00	1,849	1,845	1,856	50	378,6	731,3	50	1477,9	0,0883	84,8	334,9
400,4	50,01	1,613	1,607	1,618	50	328,0	639,3	50	1481	0,0883	85,0	291,6
400,2	50,00	3,015	3,048	3,033	20	551,7	1208,0	20	1486,7	0,0881	84,2	212,4
399,9	50,01	2,234	2,267	2,245	20	321,9	890,3	20	1491,3	0,0876	82,2	145,7
399,9	50,01	1,547	1,589	1,564	20	60,0	575,6	20	1495,7	0,0870	80,1	73,5
400,2	50,0	2,581	2,560	2,618	10,0	-404,8	553,7	10	1499,7	0,0863	77,6	3,49
400,3	50,0	2,573	2,548	2,614	10,0	-433,0	523,7	10	1500,0	0,0844	70,6	0,00

slope A= 0,00659

intercept B= 147,85

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	67500	123,02	73234,4	2065,5	2,216	1564,7	1270,4	5733,5	439,1	92,17	0,859
125,0	56250	100,76	60336,7	1385,6	1,705	995,4	870,8	4084,7	363,5	93,23	0,864
100,0	45000	79,88	47868,8	870,9	1,314	610,0	549,7	2863,4	288,8	94,01	0,865
75,0	33750	61,46	35735,5	515,6	0,935	324,1	307,0	1979,7	215,9	94,44	0,839
50,0	22500	44,55	23884,5	270,9	0,616	142,0	136,0	1381,7	143,7	94,20	0,774
25,0	11250	30,82	12278,0	129,6	0,310	36,0	33,2	1031,7	71,0	91,63	0,575

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Speed	1480	r/min	Duty	S1		Connection	Δ		
Ins.class	F		Weight	419	kg		IP55		

LOAD CURVE

