

VALIADIS S.A.

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

Type	K250M-4	Poles	4	Power	55,0	kW	IE:3
Voltage	400 V	Current	97,6 A	Frequency	50	Hz	
Speed	1484 r/min	Duty	S1	Connecti	△		
Ins.class	F	Weight	517 kg		IP55		
MAJOR CONTENTS				TEST VALUE			
95,0 °C PHASE RESISTANCE OF WINDING		Ω	0,0791				
NO LOAD CURRENT		A	41,540				
NO LOAD INPUT		W	1190,63				
CORE LOSS(Pfe)		W	814,60				
WINDAGE FRICTION LOSS(Pfw)		W	246,89				
STATOR WINDING LOSS(Pcu1)		W	708,78				
ROTOR WINDING LOSS(Pcu2)		W	615,20				
STRAY LOAD LOSS(Ps)		W	413,09				
LOCKED ROTOR CURRENT		A	750,240				
LOCKED ROTOR INPUT @ FULL LOAD		W	202570				
LOCKED ROTOR TORQUE		N.m	935,6				
PULL OUT TORQUE		N.m	1206,4				
LOCKED ROTOR CURRENT/RATED CURRENT		P.U	7,68				
LOCKED ROTOR TORQUE/RATED TORQUE		P.U	2,64				
PULL OUT TORQUE/RATED TORQUE		P.U	3,41				
FULL LOAD TORQUE		N.m	354,2				
FULL LOAD CURRENT		A	97,6				
FULL LOAD SLIP		%	1,093				
INPUT @ FULL LOAD		kW	57,801				
FULL LOAD SPEED		r/min	1483,6				
EFFICIENCY @ FULL LOAD		%	95,15				
EFFICIENCY @ 75% LOAD		%	95,12				
POWER FACTOR @ FULL LOAD			0,854				
STATOR WINDING TEMPERATURE RISE		K	48				
D.E. BEARINGS TEMPERATURE BY PT100		°C	59,0				
STATOR WINDING TEMPERATURE		°C	85,6				
High voltage test		V	1800	Imin			
Insulation resistance		MΩ	500				
NOISE (LW)		dB(A)	81				
VIBRATION		mm/s	1,8				

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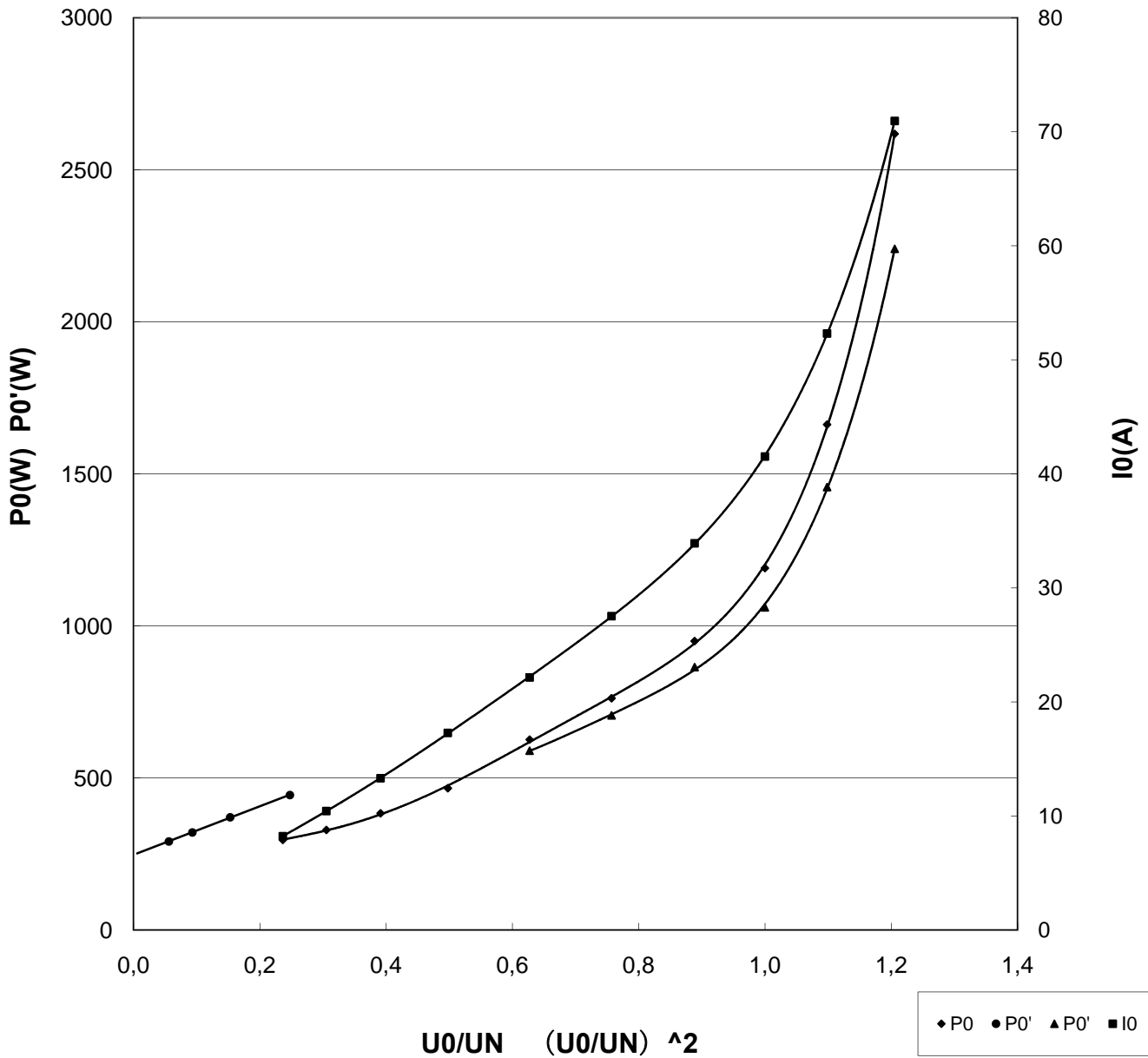
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Speed	1484	r/min	Duty	S1		Connection	△				
Ins.class	F		Weight	517	kg			IP55			
NO LOAD TEST											
VOL	mul.	HZ	I01	I02	I03	mul.	W1	W2	mul.	°C	Ω
482,1	1	50	3,492	3,599	3,551	20	-749,3	880,2	20	78,0	0,05004
439,3	1	50	2,572	2,663	2,612	20	-508,4	591,5	20	77,9	0,05003
399,9	1	50	2,037	2,124	2,067	20	-370,0	429,5	20	77,1	0,04990
355,4	1	50	1,650	1,760	1,676	20	-270,6	318,1	20	75,9	0,04971
302,7	1	50	1,337	1,432	1,359	20	-184,7	222,8	20	75,4	0,04963
250,8	1	50	1,074	1,159	1,090	20	-121,0	152,3	20	75,1	0,04958
199,1	1	50	3,432	3,460	3,478	5	-277,0	370,2	5	74,2	0,04943
156,4	1	50	2,640	2,666	2,676	5	-156,7	233,4	5	73,9	0,04939
122,1	1	50	2,074	2,086	2,100	5	-85,3	151,1	5	73,7	0,04935
94,5	1	50	1,634	1,648	1,656	5	-41,5	100,7	5	73,4	0,04931
data calculation of no load											
V%	U0/UN	I0	P0	(U0/UN)^2	P0cu1	P0'					
120,5%	1,21	70,947	2618,0	1,453	377,82	2240,18					
109,8%	1,10	52,313	1662,0	1,206	205,36	1456,64					
100,0%	1,00	41,520	1190,0	0,999	129,03	1060,97					
88,8%	0,89	33,907	950,0	0,789	85,72	864,28					
75,7%	0,76	27,520	762,0	0,573	56,38	705,62					
62,7%	0,63	22,153	626,0	0,393	36,50	589,50					
49,8%	0,50	17,283	466,0	0,248	22,15	443,85					
39,1%	0,39	13,303	383,5	0,153	13,11	370,39					
30,5%	0,31	10,433	329,0	0,093	8,06	320,94					
23,6%	0,24	8,230	296,0	0,056	5,01	290,99					
RESULTS AT: 400 V											
N.L.AMP	41,54	N.L.LOSS(W)	1190,63	Pw(W)	246,9	Pe(W)	814,6				

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Voltage	400 V	Current	97,6 A	Frequency	50,0	kW
Speed	1484 r/min	Duty	S1	Connection	Δ	Hz
Ins.class	F	Weight	517 kg			IP55

No Load Curve



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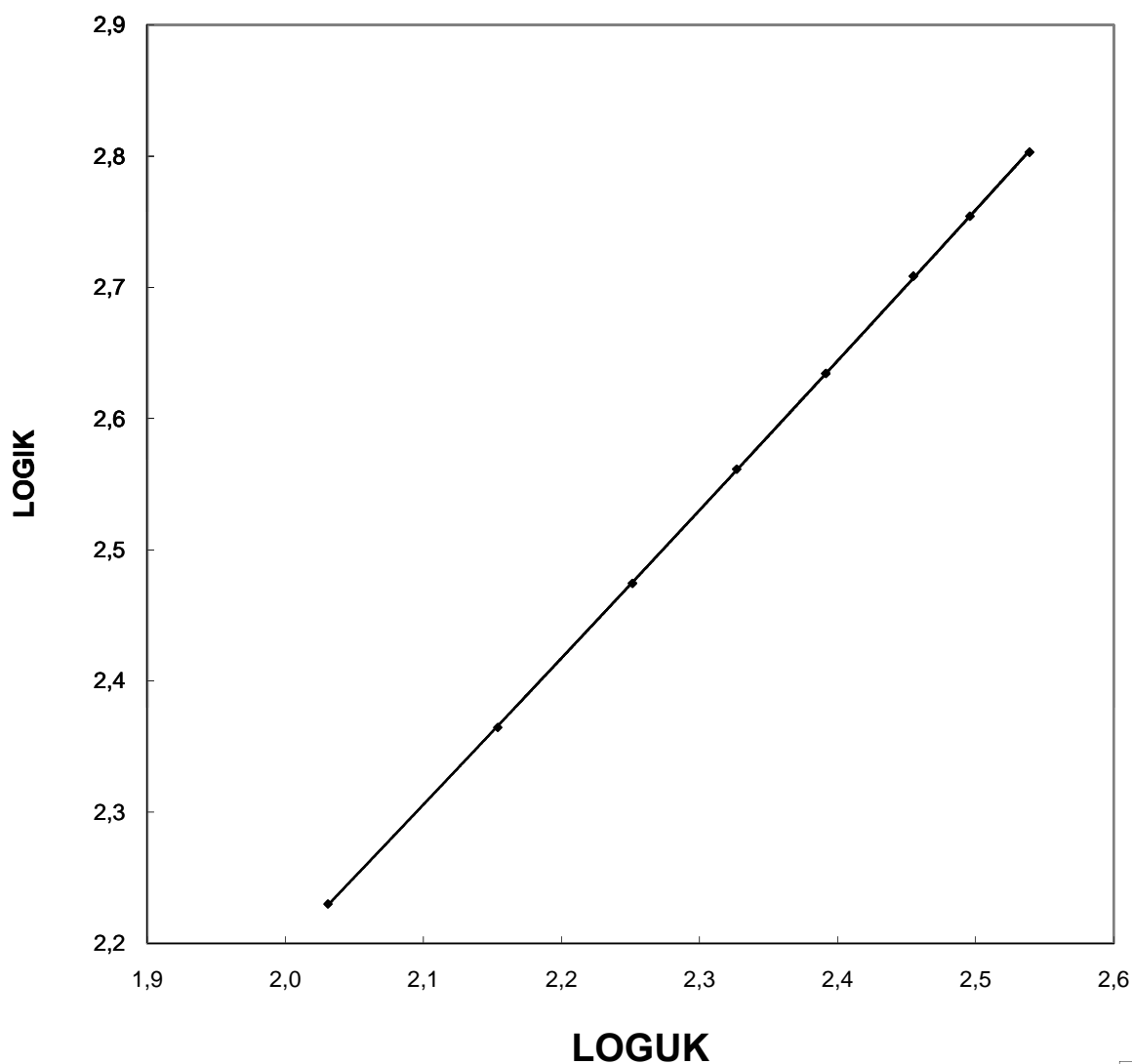
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Speed	1484	r/min	Duty	S1		Connection	Δ		
Ins.class	F		Weight	517	kg	IP55			
LOCKED ROTOR TEST									
VOL	mul.	Ik1	Ik2	Ik3	mul.	W1	W2	mul.	Torqur (kg.m)
346,0	1,0	3,197	3,169	3,166	200,0	-156,4	885,6	200,0	68,5
313,3	1,0	2,854	2,835	2,829	200,0	-131,6	713,4	200,0	55,6
285,1	1,0	2,565	2,562	2,541	200,0	-113,5	583,5	200,0	45,5
246,3	1,0	2,161	2,162	2,140	200,0	-89,0	422,7	200,0	32,5
212,3	1,0	1,826	1,829	1,810	200,0	-67,6	305,7	200,0	23,9
178,4	1,0	2,985	2,994	2,964	100,0	-98,3	415,9	100,0	15,8
142,5	1,0	2,314	2,326	2,305	100,0	-64,2	255,9	100,0	9,6
107,4	1,0	3,383	3,416	3,389	50,0	-72,8	279,5	50,0	5,3
data calculation of locked rotor									
Uk	IK	PK	TK	LOGUk	LOGIk	LOGPk	LOGTk		
V	A	kW	N.m						
346,00	635,49	145,840	671,30	2,5391	2,8031	2,1639	2,8269		
313,26	567,85	116,360	544,88	2,4959	2,7542	2,0658	2,7363		
285,05	511,23	94,000	445,90	2,4549	2,7086	1,9731	2,6492		
246,32	430,92	66,740	318,50	2,3915	2,6344	1,8244	2,5031		
212,32	364,29	47,620	234,22	2,3270	2,5615	1,6778	2,3696		
178,42	298,11	31,760	154,84	2,2514	2,4744	1,5019	2,1899		
142,53	231,48	19,170	94,08	2,1539	2,3645	1,2826	1,9735		
107,37	169,80	10,335	51,94	2,0309	2,2299	1,0143	1,7155		
performance collection of locked rotor									
at rated volts		at rated current		at 2.5 times rated current		at 100V			
VOLTS (V)	400		66,244		148,8		100,0		
AMPS (A)	750,2		97,6		244,0		155,60		
INPUT (kW)	202,57				21,3		8,646		
TORQUE (N.m)	935,63								

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LOCKED



♦ LOGIK

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Type	K250M-4				Poles	4			Power	55 kW		IE:3		
Voltage	400	V			Current	97,6	A		Frequency	50	Hz			
Speed	1484	r/min			Duty	S1			Connection	Δ				
Ins.class	F				Weight	517	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
10,59	400,2	1,954	1,957	1,966	50	369,1	802,6	50	57,0	—	78,1	79,1	—	—	—	—	—	—	49,5	—	27,4
11,28	400,2	1,937	1,941	1,949	50	365,7	796,1	50	58,6	—	79,4	80,5	—	—	—	—	—	—	50,5	—	27,7
12,00	400,3	1,937	1,941	1,949	50	366,0	796,5	50	59,8	—	80,6	81,8	—	—	—	—	—	—	51,6	—	28,1
12,30	400,3	1,949	1,953	1,961	50	369,6	800,6	50	59,9	—	82,5	83,6	—	—	—	—	—	—	52,1	—	28,0
12,59	400,3	1,964	1,966	1,976	50	373,8	806,6	50	60,5	—	83,8	84,9	—	—	—	—	—	—	52,8	—	28,1
13,30	400,3	1,960	1,965	1,973	50	372,8	805,9	50	60,4	—	84,3	85,4	—	—	—	—	—	—	53,3	—	28,7
13,58	400,2	1,952	1,955	1,964	50	370,6	802,0	50	59,6	—	84,5	85,5	—	—	—	—	—	—	53,4	—	29,0
14,27	400,3	1,953	1,956	1,965	50	370,9	802,6	50	59,0	—	84,5	85,6	—	—	—	—	—	—	53,5	—	28,8
The average of the last three		98,010			A	58746,7		W	59,0		84,4	85,6	—	—	—	—	—	—	53,5	—	28,8

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)	47	79	95	122	139	158	174	199		
RESISTANCE (Ω)	0,04994	0,04985	0,04975	0,04962	0,04955	0,04948	0,04938	0,04930		

WINDING RESISTANCE(COLD)

Δ	U1-V1	U1-W1	V1-W1	AVERAGE	MIN	AMBIENT TEM.
	0,04163	0,04165	0,04176	0,04168	0,04163	25,7 °C
Y	U1-U2	V1-V2	W1-W2	AVERAGE	MIN	AMBIENT TEM.
						°C

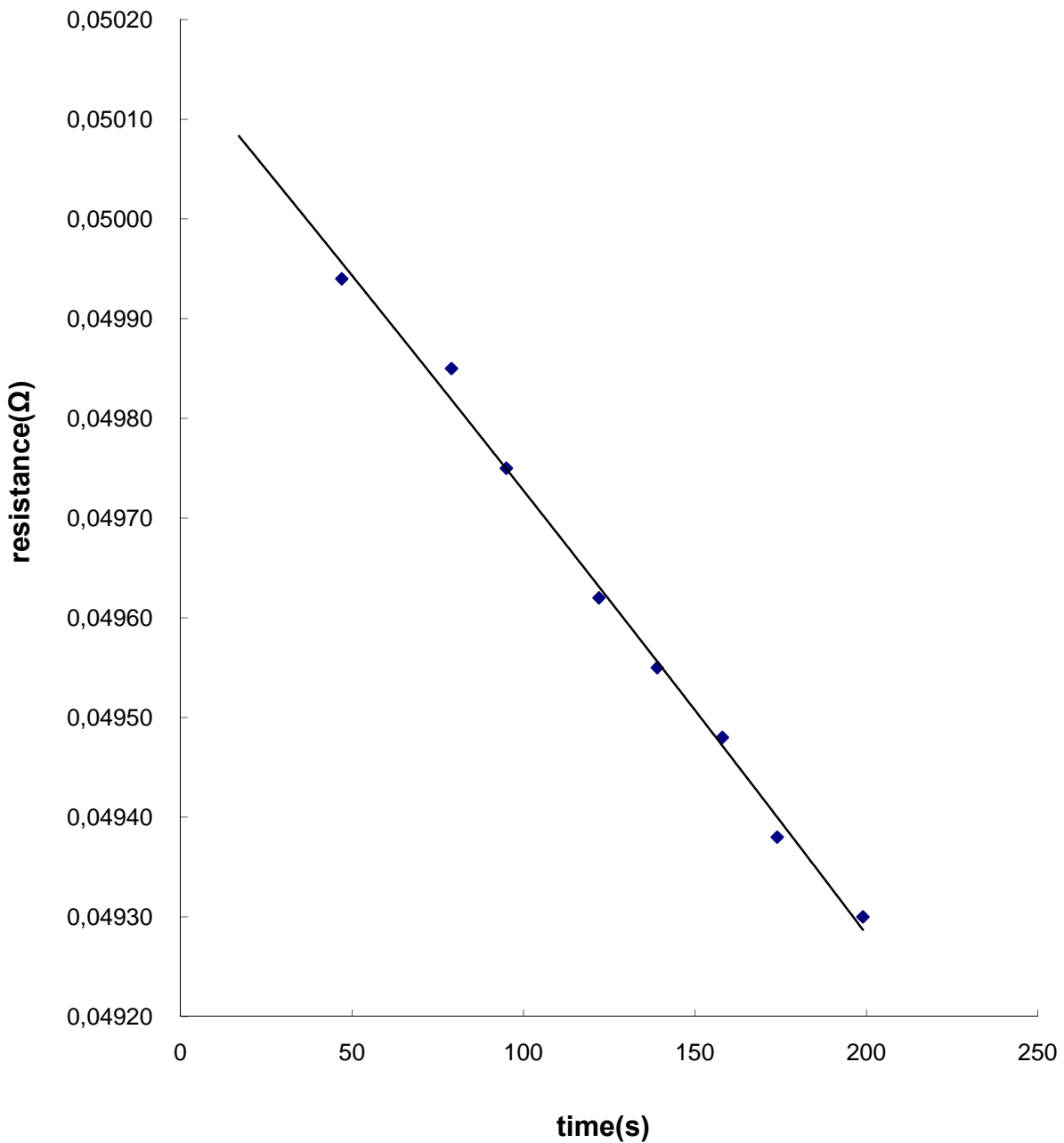
resistance value at 0 sec (Ω)	0,050154	calculation value of temp.rising	50,25	K
90 S (Ω)	0,049785	calculation value of temp.rising	47,93	K
full load curent	97,65 A	modify value of temp. rising	47,58	K

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Speed	1484 r/min	Duty	S1	Connection	Δ	Hz
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RESISTANCE CURVE



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Speed	1484	r/min	Duty	S1		Connection	Δ		Hz			
Ins.class	F		Weight	517	kg	IP55						
LOAD TEST												
V	HZ	I1	I2	I3	mul.	W1	W2	mul.	r/min	Resistance Ω	Temperature °C	Torque N.m
399,9	50,00	2,658	2,665	2,674	50	537,3	1084,9	50	1475,1	0,0512	85,2	493,53
400,2	49,99	2,395	2,400	2,409	50	478,0	977,9	50	1477,8	0,0513	86,0	443,17
400,2	49,98	1,955	1,958	1,966	50	365,9	794,9	50	1482,7	0,0514	86,3	353,21
400,2	50,00	1,415	1,417	1,423	50	207,4	569,6	50	1488,7	0,0512	85,3	234,76
400,0	49,99	1,181	1,182	1,187	50	125,7	464,4	50	1491,7	0,0511	84,7	176,32
400,3	49,99	0,972	0,972	0,978	50	35,2	358,5	50	1494,6	0,0510	84,3	114,96
400,2	49,99	0,882	0,881	0,886	50	-15,9	301,4	50	1496,2	0,0509	83,3	81,121
400,3	50,0	2,043	2,138	2,068	20,0	-366,2	441,8	20	1499,5	0,0507	82,3	1,61
400,3	50,0	2,042	2,146	2,075	20,0	-373,1	433,2	20	1500,0	0,0501	78,4	0,00
slope A= 0,00333		intercept B= 283,59			relative coefficient r= 0,997							
LOAD %	P2 W	I A	P1 W	Pcu1s W	Ss %	Pcu2s W	Ps W	Pz W	N.m	EFF %	P.F	
150,0	82500	143,46	87516,1	1529,9	1,797	1530,2	945,5	5067,1	532,7	94,27	0,881	
125,0	68750	119,69	72542,9	1064,9	1,435	1013,7	651,0	3791,0	442,0	94,77	0,875	
100,0	55000	97,65	57800,6	708,8	1,093	615,2	413,1	2798,6	352,1	95,15	0,854	
75,0	41250	77,29	43364,6	444,0	0,828	348,5	230,5	2084,5	263,0	95,12	0,810	
50,0	27500	58,70	29065,6	256,1	0,520	145,5	100,8	1564,0	173,9	94,61	0,715	
25,0	13750	44,78	15021,2	149,0	0,247	34,7	24,7	1269,9	86,1	91,54	0,484	

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LOAD CURVE

