

VALIADIS S.A.

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

						IE:3
Type	K280M-4		Poles	4	Power	90,0 kW
Voltage	400	V	Current	156,0 A	Frequency	50 Hz
Speed	1488	r/min	Duty	S1	Connecti	△
Ins.class	F		Weight	801 kg	IP55	
MAJOR CONTENTS				TEST VALUE		
95,0 °C PHASE RESISTANCE OF WINDING Ω				0,0506		
NO LOAD CURRENT A				59,627		
NO LOAD INPUT W				1586,00		
CORE LOSS(Pfe) W				1131,28		
WINDAGE FRICTION LOSS(Pfw) W				279,32		
STATOR WINDING LOSS(Pcu1) W				1198,12		
ROTOR WINDING LOSS(Pcu2) W				752,72		
STRAY LOAD LOSS(Ps) W				562,45		
LOCKED ROTOR CURRENT A				1167,073		
LOCKED ROTOR INPUT @ FULL LOAD W				331335		
LOCKED ROTOR TORQUE N.m				1426,0		
PULL OUT TORQUE N.m				1866,9		
LOCKED ROTOR CURRENT/RATED CURRENT P.U				7,48		
LOCKED ROTOR TORQUE/RATED TORQUE P.U				2,46		
PULL OUT TORQUE/RATED TORQUE P.U				3,23		
FULL LOAD TORQUE N.m				578,1		
FULL LOAD CURRENT A				156,0		
FULL LOAD SLIP %				0,822		
INPUT @ FULL LOAD kW				93,925		
FULL LOAD SPEED r/min				1487,7		
EFFICIENCY @ FULL LOAD %				95,82		
EFFICIENCY @ 75% LOAD %				95,88		
POWER FACTOR @ FULL LOAD				0,869		
STATOR WINDING TEMPERATURE RISE K				59		
D.E. BEARINGS TEMPERATURE BY PT100 °C				63,7		
STATOR WINDING TEMPERATURE °C				99,9		
High voltage test V				1800	Imin	
Insulation resistance MΩ				500		
NOISE(LW) dB(A)				80		
VIBRATION mm/s				0,6		

VALIADIS S.A.

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

Type	K280M-4	Poles	4	Power	90,0 kW	IE:3
Voltage	400 V	Current	156,0 A	Frequency	50 Hz	
Speed	1488 r/min	Duty	S1	Connection	△	
Ins.class	F	Weight	801 kg		IP55	

NO LOAD TEST

VOL	mul.	HZ	I01	I02	I03	mul.	W1	W2	mul.	°C	Ω
458,1	1	50	4,289	4,424	4,393	20	-877,2	1014,7	20	88,0	0,03300
431,4	1	50	3,551	3,642	3,592	20	-690,8	792,5	20	87,5	0,03295
400,0	1	50	2,939	3,029	2,976	20	-531,9	611,2	20	86,9	0,03289
344,9	1	50	2,300	2,402	2,309	20	-364,5	423,7	20	86,5	0,03285
305,6	1	50	1,957	2,084	1,974	20	-275,0	325,9	20	86,3	0,03283
261,2	1	50	1,621	1,744	1,643	20	-192,7	234,5	20	85,9	0,03279
199,7	1	50	2,443	2,460	2,533	10	-195,9	255,3	10	85,5	0,03275
169,9	1	50	2,101	2,101	2,075	10	-145,6	196,7	10	85,2	0,03271
131,1	1	50	1,607	1,568	1,645	10	-69,7	110,9	10	84,9	0,03268
100,3	1	50	1,223	1,231	1,238	10	-15,6	51,6	10	84,6	0,03265

data calculation of no load

V%	U0/UN	I0	P0	(U0/UN)^2	P0cu1	P0'
114,5%	1,15	87,373	2750,0	1,312	377,90	2372,10
107,8%	1,08	71,900	2034,0	1,163	255,51	1778,49
100,0%	1,00	59,627	1586,0	1,000	175,39	1410,61
86,2%	0,86	46,740	1184,0	0,744	107,64	1076,36
76,4%	0,76	40,100	1018,0	0,584	79,18	938,82
65,3%	0,65	33,387	836,0	0,426	54,82	781,18
49,9%	0,50	24,787	594,0	0,249	30,18	563,82
42,5%	0,42	20,923	511,0	0,180	21,48	489,52
32,8%	0,33	16,067	412,0	0,107	12,66	399,34
25,1%	0,25	12,307	360,0	0,063	7,42	352,58

RESULTS AT: 400 V

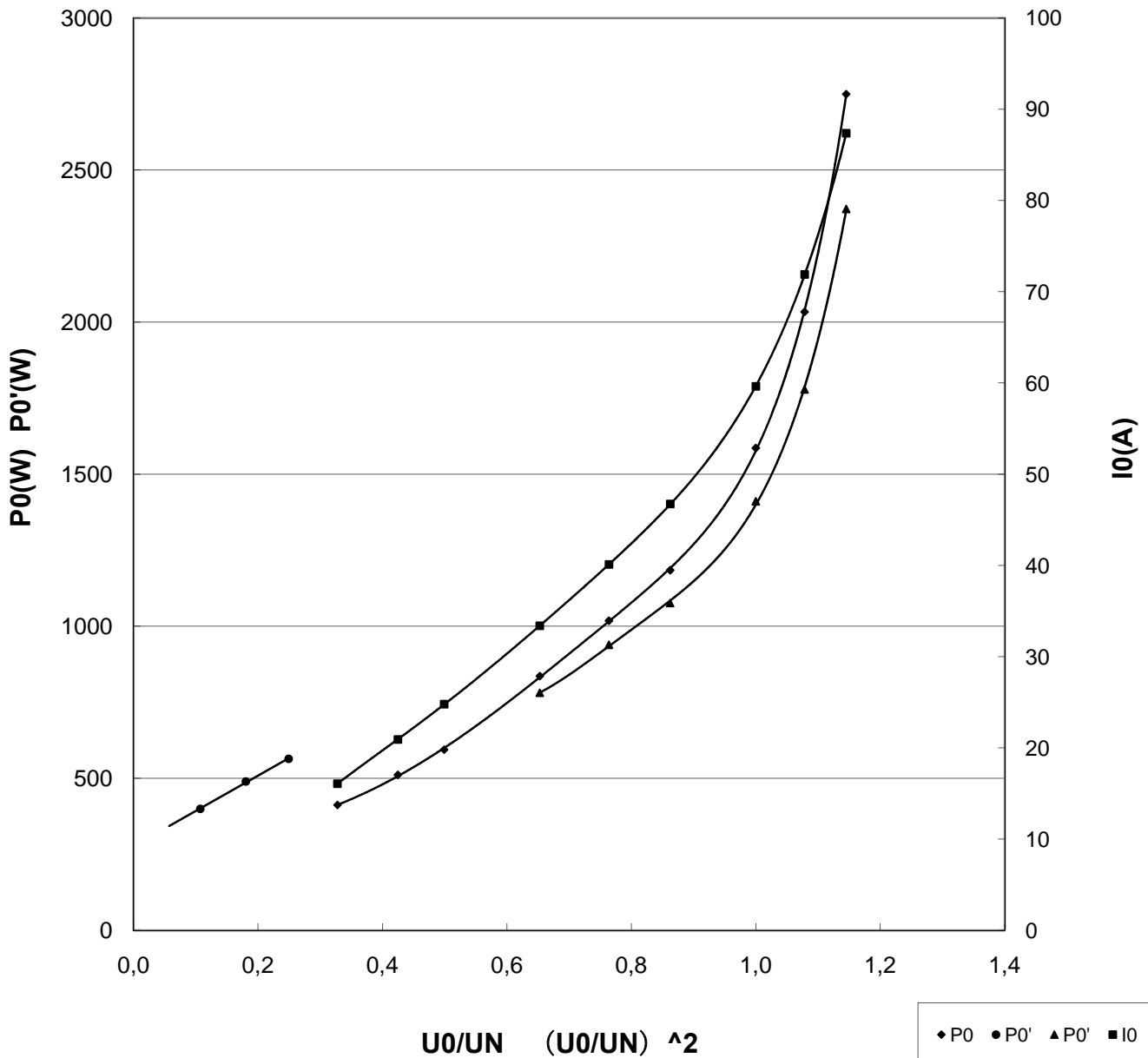
N.L.AMP	59,63	N.L.LOSS(W)	1586,00	Pw(W)	279,3	Pe(W)	1131,3		
---------	-------	-------------	---------	-------	-------	-------	--------	--	--

VALIADIS S.A.

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

Type	K280M-4		Poles	4		Power	90,0 kW		IE:3
Voltage	400	V	Current	156,0	A	Frequency	50,0 Hz		
Speed	1488	r/min	Duty	S1		Connection	Δ		
Ins.class	F		Weight	801	kg		IP55		

No Load Curve



VALIADIS S.A.

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

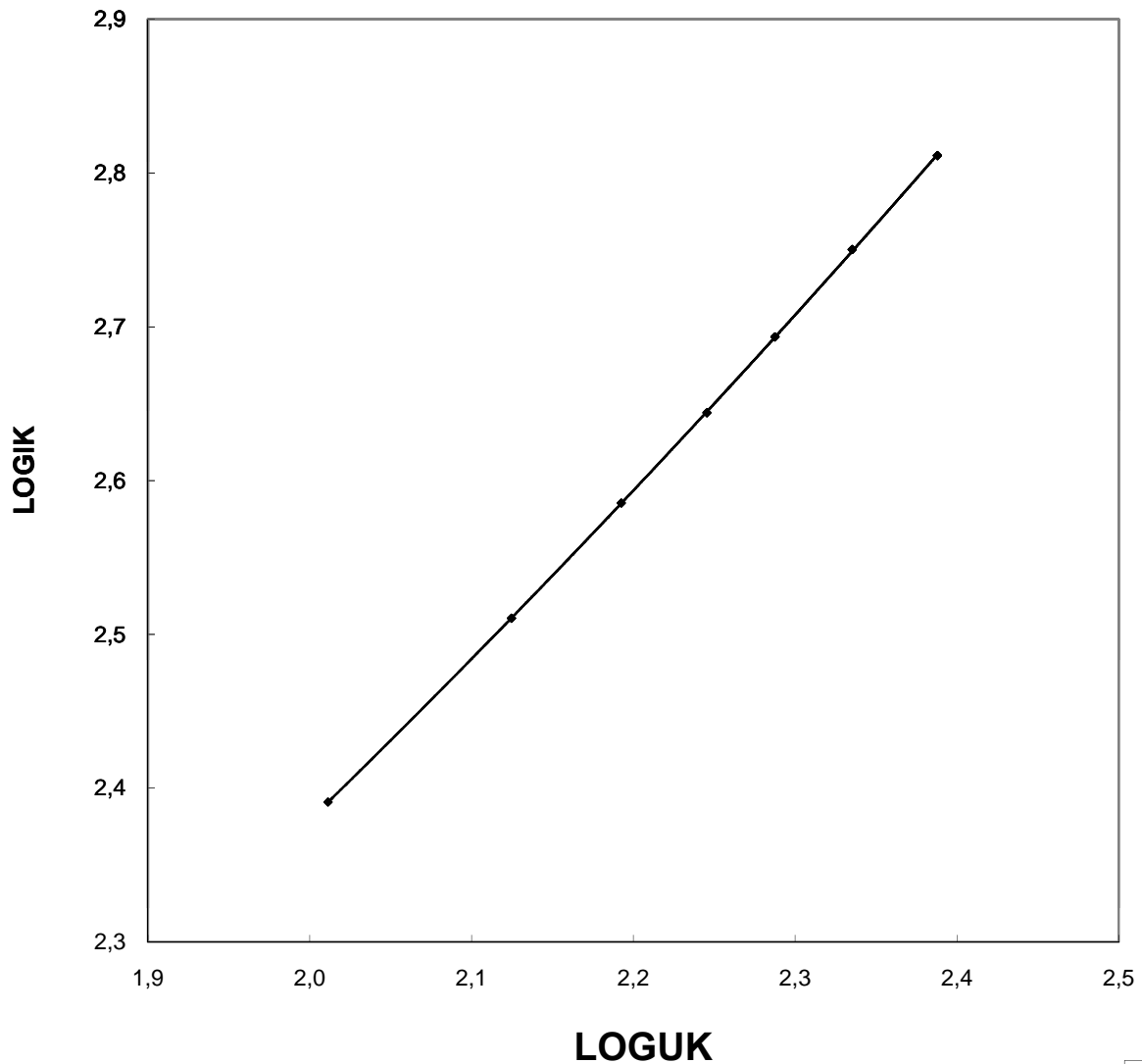
Type	K280M-4		Poles	4		Power	90,0		IE:3	kW
Voltage	400	V	Current	156,0	A	Frequency	50,0		Hz	
Speed	1488	r/min	Duty	S1		Connection	Δ			
Ins.class		F	Weight	801	kg		IP55			
LOCKED ROTOR TEST										
VOL	mul.	Ik1	Ik2	Ik3	mul.	W1	W2	mul.	Torque (kg.m)	
244,3	1,0	3,213	3,234	3,270	200,0	-124,1	654,0	200,0	44,8	
216,4	1,0	2,800	2,808	2,834	200,0	-100,4	501,7	200,0	35,8	
193,9	1,0	2,454	2,463	2,488	200,0	-81,5	392,1	200,0	27,8	
176,0	1,0	2,191	2,198	2,221	200,0	-68,3	316,0	200,0	22,3	
155,8	1,0	1,912	1,922	1,939	200,0	-54,8	244,1	200,0	17,2	
133,3	1,0	3,220	3,238	3,260	100,0	-81,4	349,9	100,0	12,2	
102,6	1,0	2,446	2,455	2,479	100,0	-48,6	203,2	100,0	7,0	
data calculation of locked rotor										
Uk	IK	PK	TK	LOGUk		LOGIk	LOGPk	LOGTk		
V	A	kW	N.m							
244,32	647,75	105,980	439,29	2,3880		2,8114	2,0252	2,6428		
216,42	562,74	80,260	351,26	2,3353		2,7503	1,9045	2,5456		
193,89	493,67	62,120	272,11	2,2876		2,6934	1,7932	2,4347		
176,00	440,66	49,540	218,76	2,2455		2,6441	1,6950	2,3400		
155,79	384,95	37,860	168,07	2,1925		2,5854	1,5782	2,2255		
133,26	323,94	26,850	119,16	2,1247		2,5105	1,4289	2,0761		
102,63	245,99	15,460	68,47	2,0113		2,3909	1,1892	1,8355		
performance collection of locked rotor										
at rated volts		at rated current		at 2.5 times rated current		at 100V				
VOLTS (V)		400		68,647		155,7		100,0		
AMPS (A)		1167,1		155,0		387,5		236,24		
INPUT (kW)		331,34				38,3		14,312		
TORQUE (N.m)		1426,04								

VALIADIS S.A.

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

Type	K280M-4	Poles	4	Power	90,0	IE:3
Voltage	400 V	Current	156,0 A	Frequency	50,0	kW
Speed	1488 r/min	Duty	S1	Connection	Δ	Hz
Ins.class	F	Weight	801 kg			

LOCKED



◆ LOGIK

VALIADIS S.A.

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

Type	K280M-4		Poles	4		Power	90	kW	IE:3	
Voltage	400	V	Current	156,0	A	Frequency	50	Hz		
Speed	1488	r/min	Duty	S1		Connection	Δ			
Ins.class	F		Weight	801	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	400,1	1,568	1,566	1,581	100	310,5	636,0	100	63,0	—	94,2	91,2	—	—	—	—	—	—	61,3	—	28,5
12,00	400,2	1,551	1,557	1,567	100	306,8	632,6	100	61,9	—	95,0	92,1	—	—	—	—	—	—	62,1	—	28,5
12,30	400,3	1,571	1,567	1,587	100	313,0	636,5	100	62,1	—	97,2	94,2	—	—	—	—	—	—	63,2	—	28,6
13,00	400,3	1,561	1,561	1,585	100	312,0	634,8	100	62,8	—	98,3	95,3	—	—	—	—	—	—	64,0	—	28,6
13,30	400,2	1,543	1,543	1,567	100	306,8	627,0	100	63,2	—	99,7	96,6	—	—	—	—	—	—	64,5	—	28,7
14,00	400,3	1,562	1,568	1,577	100	309,9	637,0	100	63,7	—	99,5	96,5	—	—	—	—	—	—	64,5	—	28,7
14,29	400,3	1,544	1,541	1,558	100	305,8	625,6	100	63,7	—	99,9	96,7	—	—	—	—	—	—	64,5	—	28,9
The average of the last three		155,600			A	93736,7		W	63,7	—	99,7	96,7	—	—	—	—	—	—	64,5	—	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)	53	86	114	140	173	209	240	268		
RESISTANCE (Ω)	0,03298	0,03290	0,03279	0,03269	0,03259	0,03248	0,03243	0,03235		

WINDING RESISTANCE(COLD)

Δ	U1-V1	U1-W1	V1-W1	AVERAGE	MIN	AMBIENT TEM.
	0,02708	0,02715	0,02724	0,02716	0,02708	30,8 °C
Y	U1-U2	V1-V2	W1-W2	AVERAGE	MIN	AMBIENT TEM.
						°C

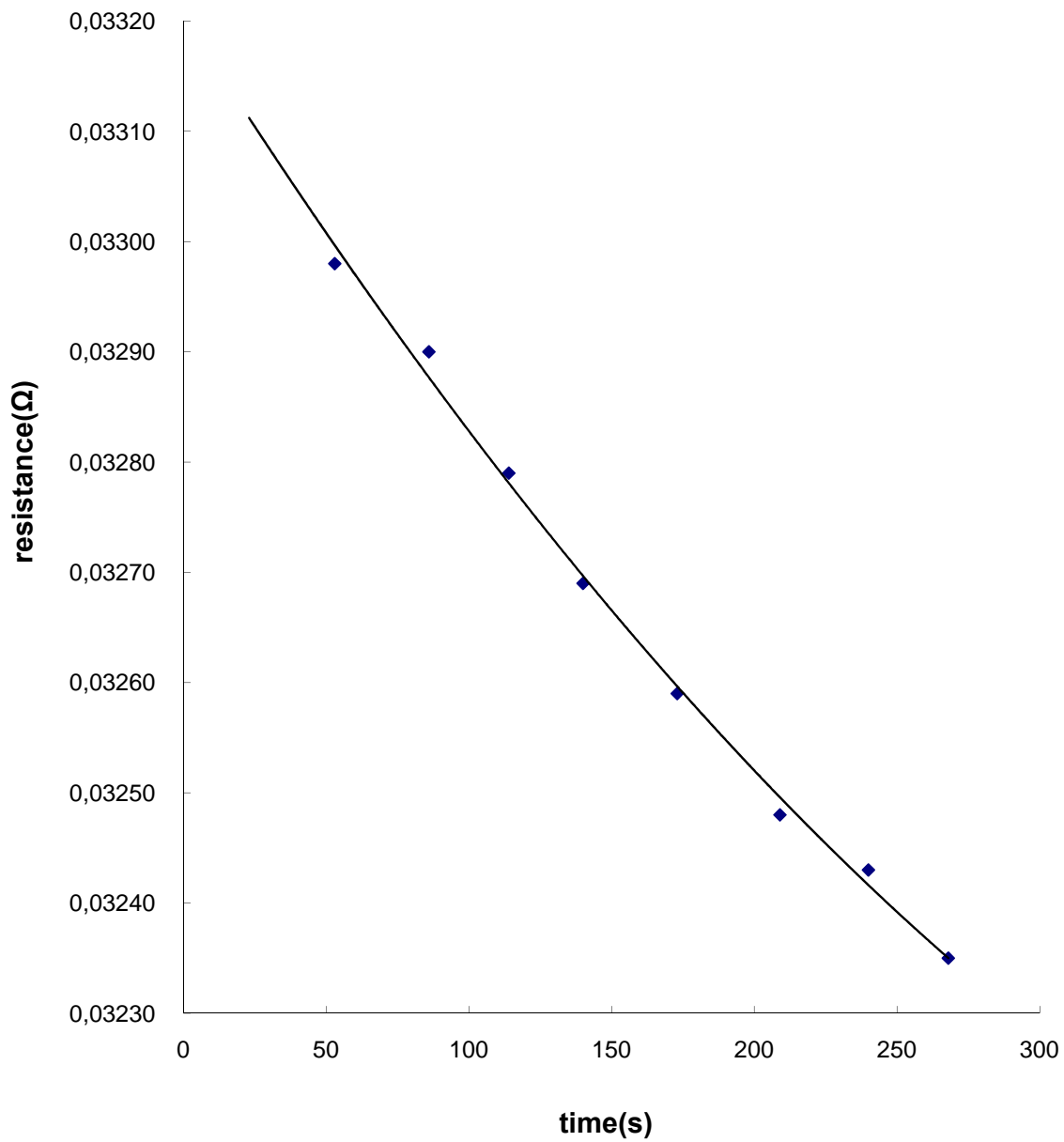
resistance value at 0 sec (Ω)	0,033205	calculation value of temp.rising	62,15	K
90 S (Ω)	0,032872	calculation value of temp.rising	58,89	K
full load current	155,92 A	modify value of temp. rising	59,13	K

VALIADIS S.A.

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

Type	K280M-4	Poles	4	output Power	90,0	IE:3
Voltage	400 V	Current	156,0 A	Frequency	50,0	kW
Speed	1488 r/min	Duty	S1	Connection	Δ	Hz
Ins.class	F	Weight	801 kg		IP55	

RESISTANCE CURVE



VALIADIS S.A.

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

													IE:3
Type	K280M-4		Poles	4			Power	90,0		kW			
Voltage	400	V	Current	156,0	A			Frequency	50,0		Hz		
Speed	1488	r/min	Duty	S1			Connection	Δ					
Ins.class	F		Weight	801	kg			IP55					
LOAD TEST													
V	HZ	I1	I2	I3	mul.	W1	W2	mul.	r/min	Resistance Ω	Temperature °C	Torque N.m	
399,9	50,02	2,323	2,323	2,351	100	478,2	946,2	100	1479,9	0,0341	98,4	870,8	
400,1	50,02	1,921	1,921	1,939	100	394,5	780,4	100	1484,2	0,0342	99,7	719,4	
399,9	50,01	1,555	1,555	1,574	100	307,6	632,8	100	1487,8	0,0342	100,0	575,6	
400,1	50,02	2,417	2,417	2,436	50	414,3	976,0	50	1491,2	0,0341	99,0	425,2	
399,9	50,00	1,836	1,836	1,846	50	226,7	725,6	50	1494,3	0,0340	97,9	289,9	
400,1	50,01	1,349	1,349	1,358	50	20,2	481,8	50	1497,2	0,0339	96,6	148,1	
400,2	50,0	2,950	3,100	2,990	20,0	-520,4	651,7	20	1499,9	0,0336	94,2	5,96	
400,4	50,0	2,950	3,090	2,980	20,0	-546,7	626,3	20	1500,0	0,0324	81,7	0,00	
slope A= 0,00170 intercept B= 100,13 relative coefficient r= 0,976													
LOAD %	P2 W	I A	P1 W	Pcu1s W	Ss %	Pcu2s W	Ps W	Pz W	N.m	EFF %	P.F		
150,0	135000	232,99	142264,4	2673,3	1,367	1892,6	1286,6	7263,1	870,3	94,89	0,881		
125,0	112500	193,33	117887,3	1840,6	1,085	1246,6	886,5	5384,3	722,4	95,43	0,880		
100,0	90000	155,98	93924,6	1198,1	0,822	752,7	562,5	3923,9	575,4	95,82	0,869		
75,0	67500	122,43	70399,9	738,1	0,628	430,2	315,8	2894,8	431,2	95,88	0,830		
50,0	45000	91,45	47135,4	411,8	0,374	170,5	140,3	2133,3	287,4	95,47	0,744		
25,0	22500	66,64	24205,5	218,7	0,199	45,6	34,8	1709,7	143,1	92,95	0,524		

VALIADIS S.A.

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

Type	K280M-4	Poles	4	output Power	90,0	IE:3
Voltage	400 V	Current	156,0 A	Frequency	50,0	kW
Speed	1488 r/min	Duty	S1	Connection	Δ	Hz
Ins.class	F	Weight	801 kg			IP55

LOAD CURVE

