VALIADIS S.A.

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

NAMEPLATE DATA	IEC **TYPE**	75 **KW**	737 **RPM**
K315M-8 **FRAME**	3 **PHASE**	400 **VOLTS**	50 **HZ / CYCLES**
93.0 **EFFICIENCY**	150.9 **AMPS**	55 **IP**	IC411 **IC**
8 **POLE**	S1 **DUTY**	0.771 **PF**	N/A **EFF2**
Valiadis **MANUFACTURER**	**SERIAL NO.**	F **INS.CLASS**	DELTA **CONNECTION**

MAJOR CONTENTS			**UNIT**	**TEST VALUE**
STATOR RESISTANCE OF PHASE TO PHASE	95	DEG.C	OHM	**0.04140**
NO LOAD CURRENT			AMP	76.25
NO LOAD INPUT			kW	2.759
CORE LOSS(Pfe)			kW	1.874
WINDAGE FRICTION LOSS(Pfw)			kW	0.573
STATOR WINDING LOSS(Pcu1)			kW	1.414
ROTOR WINDING LOSS(Pcu2)			kW	1.325
STRAY LOAD LOSS(Ps)			kW	0.403
FULL LOAD CURRENT			AMP	150.88
LOCKED ROTOR CURRENT			AMP	1037.06
LOCKED ROTOR CURRENT/FULL LOAD CURRENT			P.U.	6.9
LOCKED ROTOR INPUT @ FULL LOAD			kW	189.63
FULL LOAD TORQUE			N.m	972.07
LOCKED ROTOR TORQUE			N.m	2086.59
LOCKED ROTOR TORQUE/FULL LOAD TORQUE			P.U.	2.1
PULL OUT TORQUE			N.m	2800.0
PULL OUT TORQUE/FULL LOAD TORQUE			P.U.	2.9
EFFICIENCY @ FULL LOAD			%	93.0
POWER FACTOR @ FULL LOAD				0.77
FULL LOAD SLIP			%	1.713
FULL LOAD SPEED			r/min	737
STATOR WINDING TEMPERATURE RISE	90	SECS	K	45.1
D.E. BEARINGS TEMPERATURE BY PT100			Deg. C	59.7
TEMPERATURE ON LEADS BY PT100			Deg. C	53.0
TEMPERATURE IN TERMINAL BOX BY PT100			Deg. C	50.9
AMBIENT TEMPERATURE OF TESTING			Deg. C	31.0
SOUND PRESSURE LEVEL			dB(A)	71
VIBRATION			mm/s	0.9

The data above is calculated as per IEC 34-2,all data at nominal Volts.

VALIADIS S.A.	**SCALE**	N/A		
	DATE		**REV**	
K315M-8	**DRAWN**		**DOCUMENT NO.**	
75 kW	**APPRVD**			
400 VOLTS 50 Hz	**CHECKED**			

MOTOR TO BE TESTED

DATE	-	
MANUFACTURER	VALIADIS S.A.	
FRAME	K315M-8	
TYPE	IEC	
MOUNTING	B3	
SERIAL NO./DOCUMENT NO.	-	
PHASES	3	
POLES	8	
RPM	741	
OUTPUT KW/HP	75	100.0
EFFICIENCY/POWER FACTOR	92.5	0.83
VOLTS	400	
HZ	50	
AMPS/EFF2	139.6	N/A
INSULATION CLASS	F	
SERVICE FACTOR/DUTY	1.00	S1
CONNECTION	DELTA	
AMBIENT TEMPERATURE	29Deg.C.	before testing
IP RATING/IC	55	IC411
TERMINALS OR LEADS	6	
PT100s	YES	
D.E.BEARING	YES	
N.D.E.BEARING	N/A	
STATOR END WINDING D.E.	YES	
STATOR END WINDING N.D.E.	N/A	
STATOR WINDING IN SLOT	NO	
INSIDE TERMINAL BOX	YES	
THRUST BEARING	NO	
THRUST BEARING LOAD KG	NO	
WEIGHT OF MOTOR KG	1140	

BEARINGS	
D.E.	N319C3
N.D.E.	6319C3
THRUST	NO
TESTS REQUIRED	
FULL TYPE TEST	YES
ROUTINE TEST	
NO LOAD TEST	YES
NOISE LEVEL	
VIBRATION	YES
THRUST BEARING	NO
BJM TEST	
VA TEST	
THERMOGRAPHY	

COLD RESISTANCE TEST

FRAME	POLES	KW OUT	VOLTS	Hz	CONNECTION	SERIAL No.
K315M-8	8	75	400	50	DELTA	-

U1 TO U2	**OHMS**	OR	**U1 TO V1**	**0.03314**	**OHMS**
V1 TO V2	**OHMS**	OR	**V1 TO W1**	**0.03306**	**OHMS**
W1 TO W2	**OHMS**	OR	**W1 TO U1**	**0.03316**	**OHMS**

AVERAGE RESISTANCE **OHMS** **PER PHASE**

AVERAGE RESISTANCE **0.03312** **OHMS** **PHASE TO PHASE**

MINIMUM RESISTANCE **0.03306** **OHMS** **PHASE TO PHASE**

AMBIENT TEMPERATURE **29** **DEG.C.**

NO LOAD TEST

FRAME	POLES	KW OUT	VOLTS	Hz	CONNECTION	SERIAL No.
K315M-8	8	75	400	50	DELTA	-

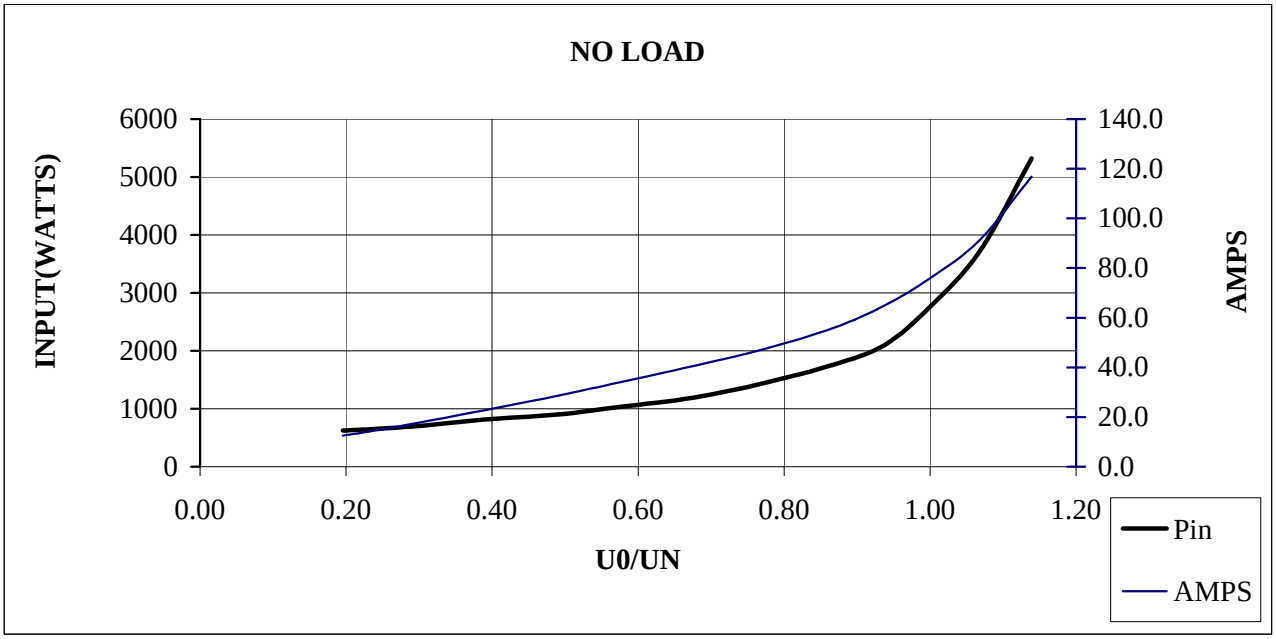
VOLTS(Vo)	V%	A1	A2	A3	I av	Pin	PF	HZ
455.6	113.9%	116.5	117.5	116.25	116.750	5320	0.0577	50
427.2	106.8%	90	92.5	91.5	91.333	3720	0.0550	50
400	100.0%	74.75	77.5	75.5	75.917	2760	0.0525	50
375.2	93.8%	64.75	65.25	64.875	64.958	2100	0.0497	50
347.2	86.8%	55.625	56	56.25	55.958	1760	0.0523	50
308.8	77.2%	46.875	47.75	47.25	47.292	1440	0.0569	50
270.8	67.7%	40.4	40.5	40.8	40.567	1192	0.0626	50
230.2	57.6%	33.85	34	34.1	33.983	1032	0.0762	50
197.8	49.5%	28.6	28.9	29	28.833	908	0.0919	50
160	40.0%	23.1	23.3	23.5	23.300	824	0.1276	50
119.4	29.9%	17.35	18	17.6	17.650	700	0.1918	50
93	23.3%	14.1	14.25	14.3	14.217	647	0.2825	50
78.3	19.6%	12.55	12.65	12.375	12.525	627	0.3691	50

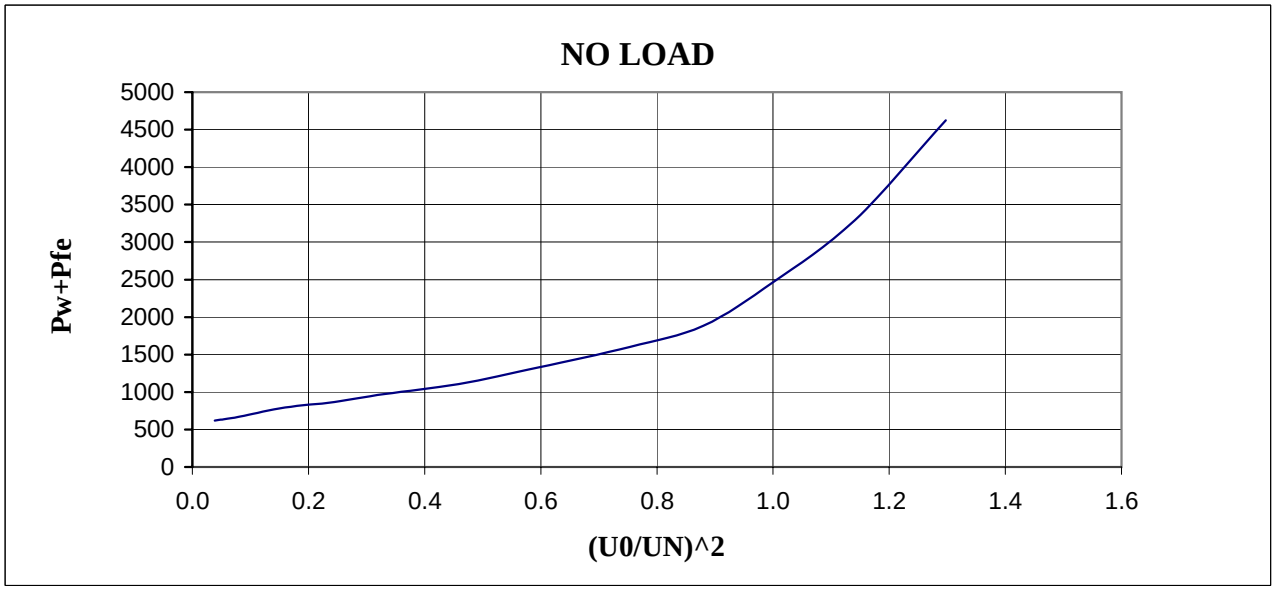
RESISTANCE (ohm)	0.034043	AT	26	Deg C. AMBIENT

Resistance after No Load Test - Not Cold

U0/UN	AMPS	Pin	(U0/UN)^2	P0cu1	Pfe+Pfw
1.139	116.750	5320	1.297	696.04	4623.96
1.068	91.333	3720	1.141	425.97	3294.03
1.000	75.917	2760	1.000	294.30	2465.70
0.938	64.958	2100	0.880	215.47	1884.53
0.868	55.958	1760	0.753	159.90	1600.10
0.772	47.292	1440	0.596	114.21	1325.79
0.677	40.567	1192	0.458	84.03	1107.97
0.576	33.983	1032	0.331	58.97	973.03
0.495	28.833	908	0.245	42.45	865.55
0.400	23.300	824	0.160	27.72	796.28
0.299	17.650	700	0.089	15.91	684.09
0.233	14.217	647	0.054	10.32	636.68
0.196	12.525	627	0.038	8.01	618.99

RESULTS AT:		400	Volts				
N.L.AMP	76.253	N.L.LOSS	2758.91	Pfe(w)	1873.91	Pfw(w)	573.00
N.L.PF	0.052						





When (U0/UN)^2 = 0, Y axis is Pfw

TEMPERATURE RISE TEST

FRAME	POLES	KW	VOLT	Hz	CONNECTION	SERIAL No.
K315M-8	8	75	400	50	DELTA	-

TIME HRS	VOLTS	A1	A2	A3	AVERAGE AMPS	INPUT KW	t1	t2	t3	t4
……										
15.30	400.0	140.75	140.5	138.75	140.00	73.935	52	53.9	73.5	60.3
16.00	400.0	139.75	139.5	137.75	139.00	72.835	51.3	53	73	60
16.30	400.0	140	139.75	138.25	139.33	73.035	51.1	53.1	72.9	59.8
17.00	400.0	140.0	140.0	138.3	139.42	72.935	50.9	53	72.9	59.7

t1:Temperature in terminal box

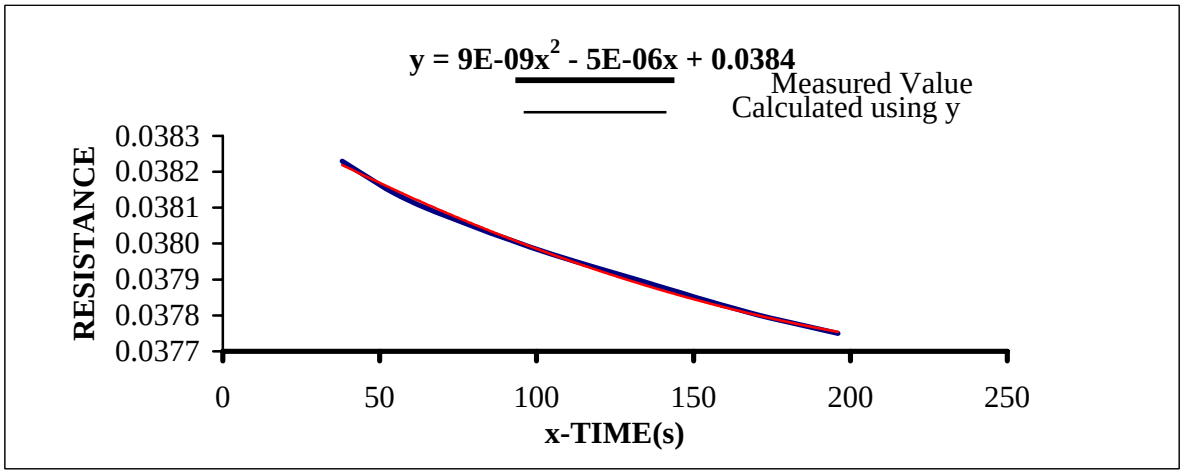
t2:Temperature of stator leads

t3:Temperature of endwinding on D.E.

t4:Temperature of bearing on D.E.

WINDING RESISTANCE (HOT) AT END OF TEMPERATURE RISE TEST

TIME(s)	38	57	79	105	134	167	196	221	Secs
Hot Resistance	0.03823	0.03813	0.03805	0.03797	0.037894	0.03781	0.03775	0.0377	ohms



R1	R2	T1	T2	T3	T4	T5	It
0.03306	0.0384	29	31	40.64	48.64	45.09	139.4

R1: Min value of resistance cold in ohms

R2: Value of resistance hot in ohms @ 0 secs

T1: Ambient temperature at start of test - cold

T2: Ambient temperature at end of test - hot

T3: Temperature rise of Winding calculated with current used during test @ 0 secs At 139.42 Amps

T4: Temperature rise of Winding corrected for real full load current @ 0 secs At 150.82 Amps - At rated lo

T5: Stator Winding Temperature Rise adjusted to 90 Secs after switch off

IT: Average amps during temperature rise test.

Winding Temperature and Winding Temperature Rise is calculated using the Resistance Method as specified in IEC 34-2.
The Winding Temperature Rise (T5) is calculated with reference to the table below.

KW RATING	Time delay after switch off in Seconds	
50 and less	30	Ref AS1359.101
50 to 200	90	Clause 7.6.2.3.1 Table 4
Above 200	120	

LOAD TEST

Nameplate Data	FRAME	POLES	POWER	VOLT	Hz	CONNECT	SERIAL No.	RPM
	K315M-8	8	75	400	50	DELTA	-	750

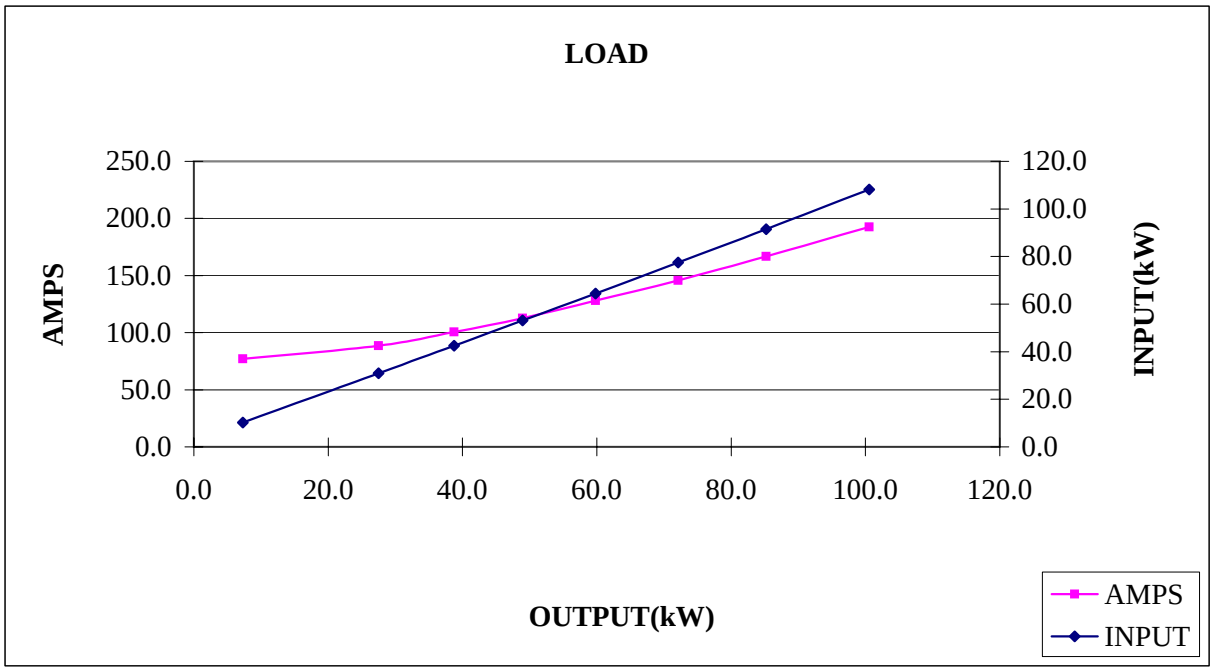
Measured Results	V%	V	Iav	Win	RPM
	100.0%	400	192.5833	108100	735
	100.0%	400	166.75	91500	736.8
	100.0%	400	145.8333	77500	738.6
	100.0%	400	128.0833	64500	739.8
	100.0%	400	112.75	53100	740.7
	100.0%	400	100.5	42500	741.6
	100.0%	400	88.66667	30900	742.8
	100.0%	400	77.08333	10200	744.6
	0.0%				
	0.0%				
	0.0%				

RESISTANCE ADJUSTED TO	95	DEG.C	0.0414	ohm	(phase to phase)

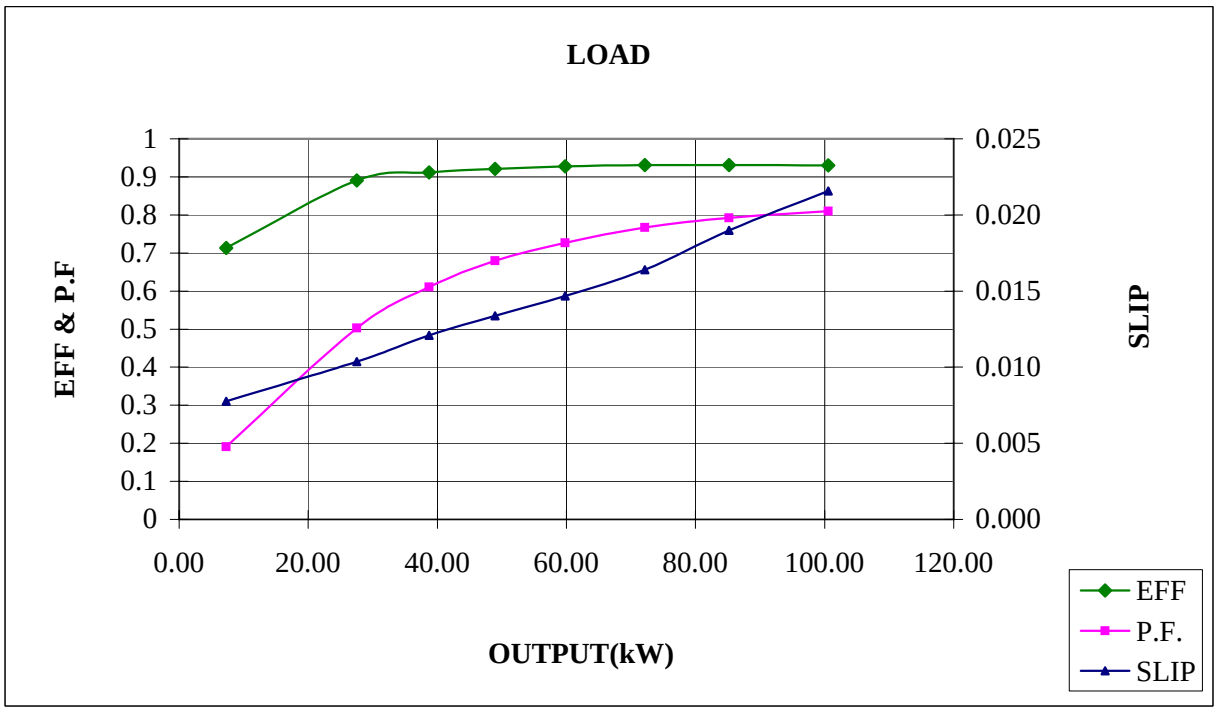
Pfe	1873.91	Pw	573.00

Calculated Results	OUTPUT	INPUT	Pcu1	SLIP	Pcu2	Ps	AMPS	EFF	P.F.
134.09%	100567.3	108100	2303	2.16%	2242	540.50	192.58	93.03	0.8102
113.60%	85200.0	91500	1727	1.90%	1669	457.50	166.75	93.11	0.7920
96.17%	72126.5	77500	1321	1.64%	1218	387.50	145.83	93.07	0.7671
79.74%	59808.0	64500	1019	1.47%	904	322.50	128.08	92.73	0.7269
65.23%	48923.5	53100	789	1.34%	675	265.50	112.75	92.13	0.6798
51.64%	38730.1	42500	627	1.21%	483	212.50	100.50	91.13	0.6104
36.69%	27514.8	30900	488	1.04%	296	154.50	88.67	89.04	0.5030
9.70%	7271.3	10200	369	0.78%	62	51.00	77.08	71.29	0.1910

% LOAD	OUTPUT	INPUT	Pcu1	SLIP	Pcu2	Ps	AMPS	EFF	P.F.
125%	93750	100744	2038.8	2.04%	1975.4	503.72	181.19	93.06	0.803
110%	82500	88638.6	1643.7	1.84%	1562.5	443.19	162.69	93.07	0.786
100%	75000	80621	1413.8	1.71%	1324.8	403.11	150.88	93.03	0.771
75%	56250	60789	941.5	1.43%	828.3	303.94	123.1	92.53	0.713
50%	37500	41244	616.5	1.18%	457.8	206.22	99.64	90.92	0.597
25%	18750	21938	434.5	0.92%	181.3	109.69	83.65	85.47	0.379


LOAD
AMPS
INPUT(kW)
OUTPUT(kW)
250.0
200.0
150.0
100.0
50.0
0.0
120.0
100.0
80.0
60.0
40.0
20.0
0.0
0.0
20.0
40.0
60.0
80.0
100.0
120.0
AMPS
INPUT

INPUT


LOAD
EFF & P.F
SLIP
OUTPUT(kW)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0.025
0.020
0.015
0.010
0.005
0.000
0.00
20.00
40.00
60.00
80.00
100.00
120.00
EFF
P.F.
SLIP

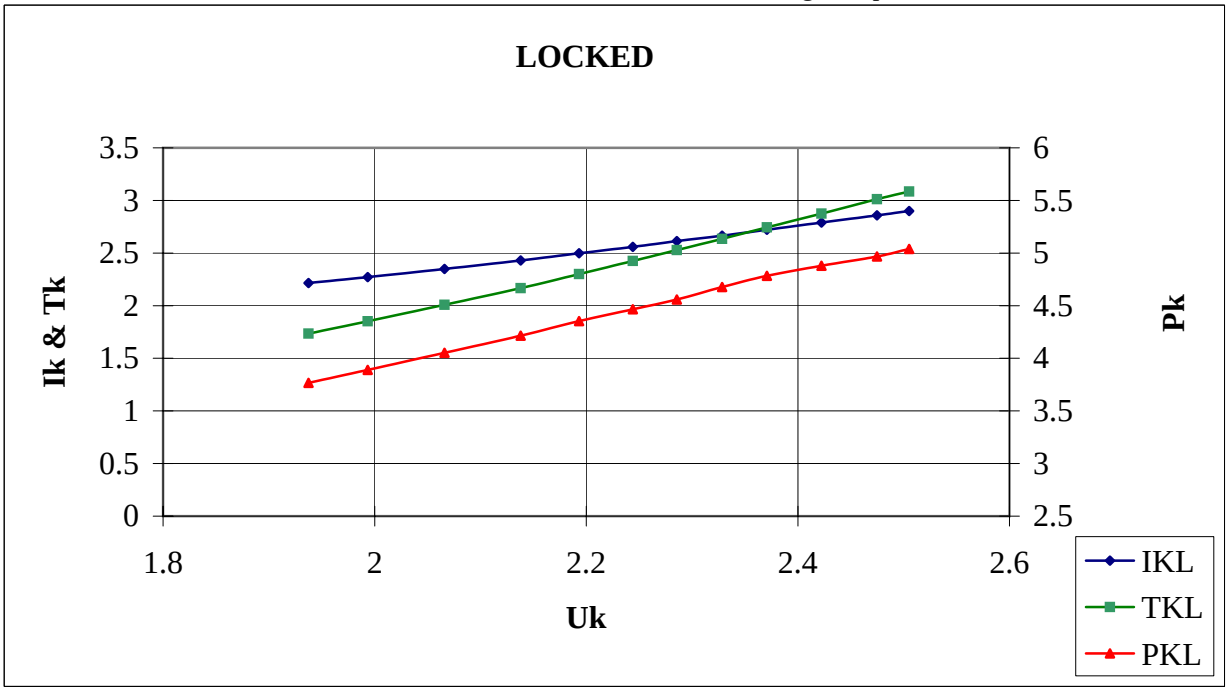
LOCKED ROTOR TEST

V	I	Nm	P
320	792.33333	1214.22	109600
298.4	723.00	1029	92800
264.4	615.66667	751.17	75800
234.8	526.00	555.17	60800
213	463.00	431.69	47600
193	411.00	337.12	36200
175.4	362.33	266.07	29200
156	314.66667	199.43	22600
137.4	269.33	147	16400
116.4	223.00	101.92	11300
98.5	186.67	71.05	7750
86.6	164.17	54.39	5850

UKL	IKL	TKL	PKL
2.50514998	2.89891	3.08429738	5.039811
2.47479882	2.85914	3.01241537	4.967548
2.42226145	2.78935	2.87573823	4.879669
2.37069809	2.72099	2.74442599	4.783904
2.3283796	2.66558	2.63517199	4.677607
2.28555731	2.61384	2.52778452	4.558709
2.24402959	2.55911	2.42499591	4.465383
2.1931246	2.49785	2.29979049	4.354108
2.13798673	2.43029	2.16731733	4.214844
2.06595298	2.3483	2.00825941	4.053078
1.99343623	2.27107	1.85156408	3.889302
1.93751789	2.21528	1.73551906	3.767156

V = Locked rotor volts measured;
Nm = Locked rotor Torque measured

Uk_L:Log of Locked rotor Volt;
Ik_L:Log of Locked rotor current;
Tk_L:Log of torque ;
Pk_L:Log of Input Watts;



Un	400	Volts
LOCKED ROTOR AMPS	1037.06	Amps
LOCKED ROTOR TORQUE	2086.59	N.m
LOCKED ROTOR TORQUE/FULL LOAD TORQUE	2.15	P.U.
LOCKED ROTOR INPUT POWER @ FULL LOAD	189.63	kW