TYPE TEST REPORT

Report No.：IE3-112M-2 4KW D 1409O1

Product Type Name	IE3-112M-2 Three Phase Asynchronous Motor			Ser.No.	
Rated Output	4 kW	Rated Voltage	400 V	Rated Current	7.4 A
Rated Speed	2910 r/min	Rated Frequency	50Hz	Insulation Class	F
Duty	S1	Protection Class	IP55	Connection	△
Product Standard	IEC60034-1	Testing Standard	IEC60034-2-1	Production Date	

Test Item		Test Value	Test Result
1. Stator resistance at 20℃	Ω	2.0222	
2. No load current	A	2.59	
3. No load current deviation	%	3.5	
4. No load input power	W	208.9	
5. Locked rotor current	A	59.92	
6. Locked current/Rated current		8.15	
7. Locked torque	N.m	31.79	
8. Locked torque/Rated torque		2.43	
9. Full load current	A	7.35	
10. Rated torque	N.m	13.11	
11. Max. torque	N.m	43.02	
12. Max. torque/Rated torque		3.28	
13. Full load speed ratio	r/min	2913.8	
14. Iron loss(at Rated voltage)	W	90.9	
15. Mechanical loss(at Rated speed)	W	95.5	
16. Stator winding loss	W	196.0	
17. Rotor winding loss	W	128.6	
18. Other loss	W	25.5	
19. Total loss	W	536.5	
20. Output power	W	4000	

TYPE TEST REPORT

Report No.：IE3-112M-2 4KW D 1409O1

Test Item		Test Value	Test Result
21. Input power	W	4536.55	
22. Full load efficiency	%	88.17	
23. Full Load power factor		0.890	
24. Stator winding temp.rise	K	43.0	
25. Bearing temperature	℃	59	
26. Coolant temperature	℃	27.8	
27. Insulation resistance warmly to frame	MΩ	500	
28. High voltage test	V min	Pass	Passed
29. Vibration	mm/s	1.3	
30. Noise	dB(A)	68	
31. Rotation Direction		Right	Passed
32. H.V. inpulse test between winding	V	Pass	Passed
33. Over speed test 2min 1.2n		No abnormal	Passed
34. Over Torque test 15s 2.2Tn		No abnormal	Passed
35. Over current test 2min 1.5In		No abnormal	Passed

Testing Conclusion	
Remark	

Tested by		Checked by		Formed		

three-phase induction motor type test report

Amb Temp: ℃ report NO.: IE3-112M-2 4KW D 140901 test time:

Modle: IE3-112M-2 Rated U: 400V Rated η: 88.10% InsClass: F
NO.: Rated I: 7.4A Cos Φ: 0.88 Connect: △
Rated f: 50Hz Rated P: 4kW Rated speed: 2910r/min Poles: 2

Resistance test

Rac(Ω): 2.0880 Rbc(Ω): 2.0890 Rab(Ω): 2.0870

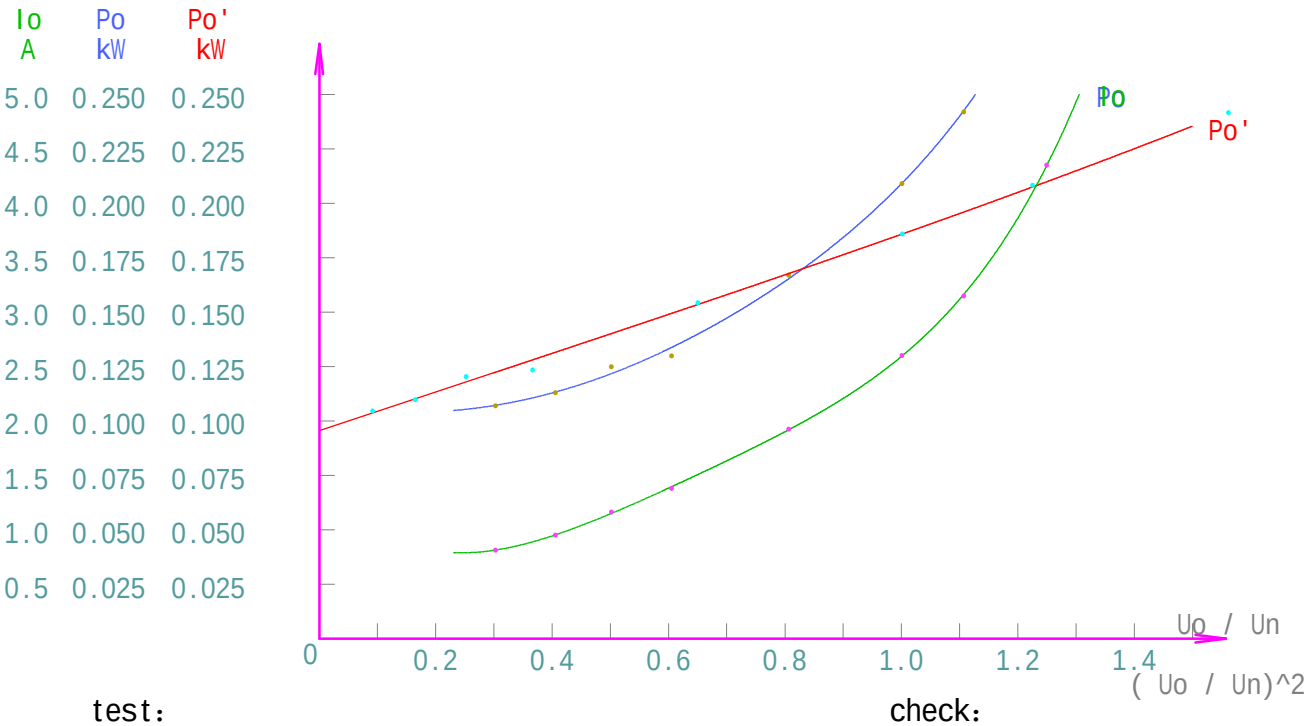
Ravg(Ω): 2.0880 Shell Temp(℃): 28.3
115℃ R (Ω): 2.7811 Amb Temp(℃): 27.77
25℃ R (Ω): 2.0660

Noload test

U*	U (V)	I (A)	Po(kW)	Po'(kW)	Pcu(kW)	WindingT(℃)
1.25	499.9	4.35	0.3060	0.2417	0.0643	49.94
1.11	442.8	3.15	0.2420	0.2083	0.0337	49.94
1.00	400.3	2.60	0.2090	0.1860	0.0230	50.11
0.81	322.6	1.93	0.1670	0.1544	0.0126	50.11
0.61	242.1	1.38	0.1300	0.1235	0.0065	50.11
0.50	200.8	1.16	0.1250	0.1204	0.0046	50.11
0.41	162.3	0.95	0.1130	0.1099	0.0031	49.85
0.30	121.0	0.82	0.1070	0.1047	0.0023	49.85

Thermal R(Ω): 2.2920 Shell Temp(℃): 41.9
Io(A): 2.59 Io(kW): 0.2089
Pm(kW): 0.0955 Pfe(kW): 0.0909

No Load Characteristic Curve



test: check:

three-phase induction motor type test report

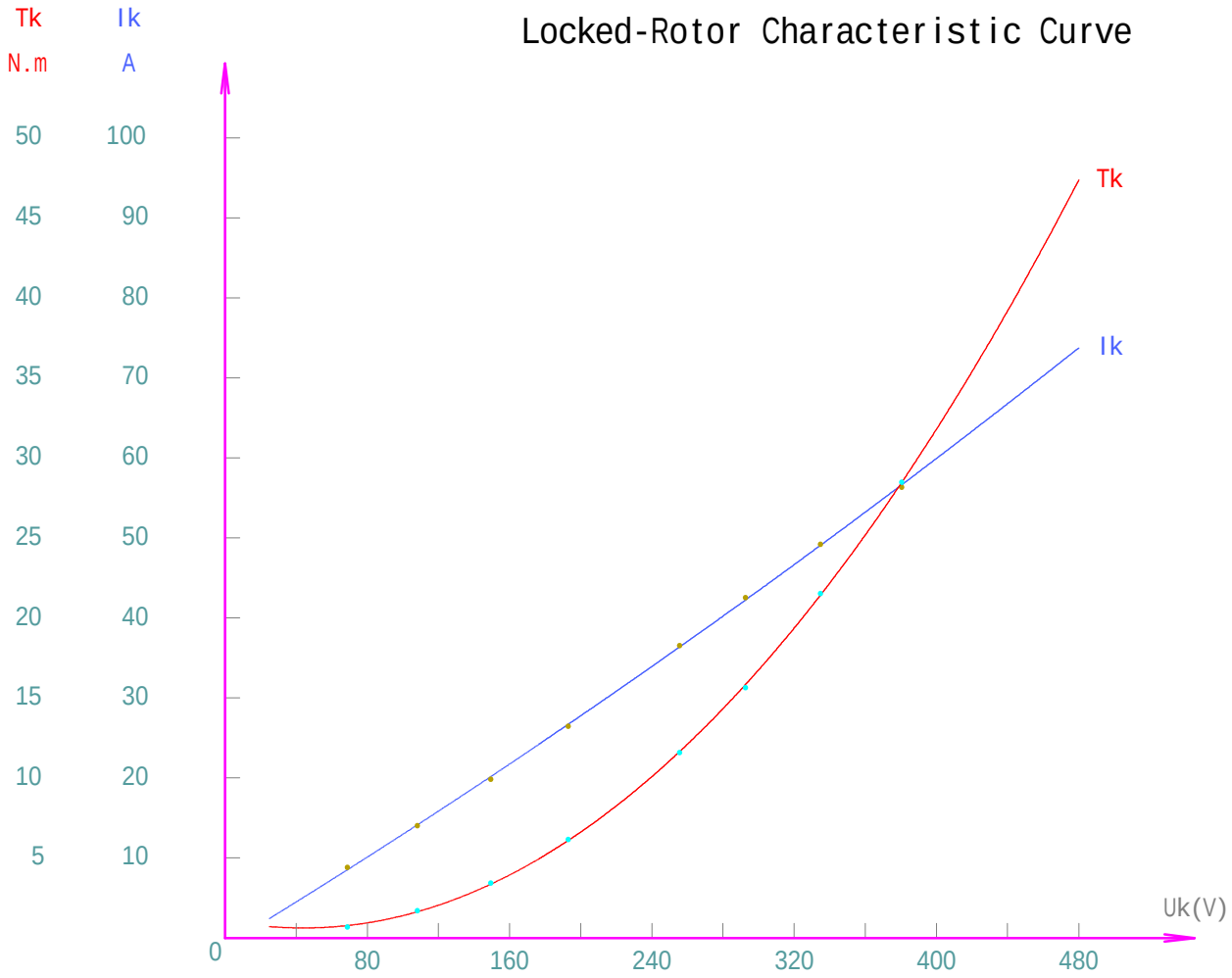
Amb Temp: 27.8℃ report NO.: IE3-112M-2 4KW D 140901 test time:

Modle: IE3-112M-2	Rated U: 400V	Rated η: 88.10%	InsClass: F
NO.:	Rated I: 7.4A	Cos Φ: 0.88	Connect: △
Rated f: 50Hz	Rated P: 4kW	Rated speed: 2910r/min	Poles: 2

Locked-rotor Test

U(V)	I(A)	P1(KW)	Tor(N.m)
380.4	56.34	21.4400	28.49
334.8	49.23	15.9000	21.52
292.6	42.55	11.5500	15.64
255.6	36.54	8.3900	11.60
192.9	26.49	4.3620	6.16
149.3	19.85	2.4400	3.44
108.2	14.04	1.2220	1.72
68.8	8.83	0.4830	0.69

Ik (A): 59.92 Ik/In: 8.15
Tk(N.m): 31.79 Tk/Tn: 2.43
Pk(kW): 23.11



test: check:

three-phase induction motor type test report

Amb Temp: 27.8℃ report NO.: IE3-112M-2 4KW D 140901 test time:

Modle: IE3-112M-2 Rated U: 400V Rated η: 88.10% InsClass: F
NO.: Rated I: 7.4A Cos Φ: 0.88 Connect: △
Rated f: 50Hz Rated P: 4kW Rated speed: 2910r/min Poles: 2

Load Test

P1(kW)	U(V)	I(A)	s(r/min)	Tor (N.m)	windingT(℃)
7.1200	403.6	11.30	2859.0	20.030	52.44
6.0420	402.5	9.67	2882.0	16.930	52.52
4.6700	400.6	7.55	2911.0	13.070	53.17
3.5720	402.1	5.95	2934.0	9.880	53.31
2.4280	401.7	4.43	2957.0	6.450	53.45
1.4140	403.5	3.35	2977.0	3.340	53.48
0.6590	401.1	2.78	2990.0	1.090	52.67
0.3010	401.3	2.61	0.0	0.000	50.17

P2(kW)	Pcu(kW)	Pal(kW)	Ps(kW)	Ss(%)	η(%)	Cos Φ
6.0826	0.4612	0.3260	0.0638	4.96	85.43	0.902
5.2390	0.3379	0.2331	0.0456	4.15	86.71	0.896
4.1140	0.2057	0.1367	0.0272	3.12	88.09	0.892
3.1645	0.1279	0.0777	0.0156	2.32	88.59	0.862
2.1299	0.0709	0.0342	0.0067	1.51	87.72	0.788
1.1749	0.0406	0.0103	0.0018	0.81	83.09	0.604
0.0000	0.0000	0.0000	0.0000	0.00	0.00	0.000
0.0000	0.0000	0.0000	0.0000	0.00	0.00	0.000

r; 0.909 A: 0.158 B: 129.104 θs(℃): 68.0

150% rated power:
I(A): 11.14 P1(kW): 7.0126 Ss (%): 4.62
Pcu(kW): 0.5176 Pal(kW): 0.2961 Ps(kW): 0.0618
η(%): 85.56 Cos Φ: 0.909 P2(kW): 6.00

125% rated power:
I(A): 9.20 P1(kW): 5.7433 Ss (%): 3.72
Pcu(kW): 0.3533 Pal(kW): 0.1972 Ps(kW): 0.0413
η(%): 87.06 Cos Φ: 0.901 P2(kW): 5.00

100% rated power:
I(A): 7.35 P1(kW): 4.5365 Ss (%): 2.87
Pcu(kW): 0.2256 Pal(kW): 0.1212 Ps(kW): 0.0255
η(%): 88.17 Cos Φ: 0.890 P2(kW): 4.00

75% rated power:
I(A): 5.68 P1(kW): 3.3865 Ss (%): 2.08
Pcu(kW): 0.1346 Pal(kW): 0.0657 Ps(kW): 0.0139
η(%): 88.59 Cos Φ: 0.861 P2(kW): 3.00

50% rated power:
I(A): 4.26 P1(kW): 2.2873 Ss (%): 1.34
Pcu(kW): 0.0759 Pal(kW): 0.0283 Ps(kW): 0.0059
η(%): 87.44 Cos Φ: 0.774 P2(kW): 2.00

25% rated power:
I(A): 3.19 P1(kW): 1.2328 Ss (%): 0.65
Pcu(kW): 0.0425 Pal(kW): 0.0072 Ps(kW): 0.0011
η(%): 81.12 Cos Φ: 0.558 P2(kW): 1.00

Load Characteristic Curve

Report No. : IE3-112M-2 4KW D 140901
Model : IE3-112M-2
Rated Output: 4 kW
Ser.No. :

When P2 = 4 kW ,
I1 = 7.35 A
P1 = 4.5365 kW
Sref = 2.87 %
η = 88.17 %
Cos Φ = 0.890

cos Φ	η %	Sref %	P1 kW	I1 A
1.0	100	5.0	5.0	10
0.9	90	4.5	4.5	9
0.8	80	4.0	4.0	8
0.7	70	3.5	3.5	7
0.6	60	3.0	3.0	6
0.5	50	2.5	2.5	5
0.4	40	2.0	2.0	4
0.3	30	1.5	1.5	3
0.2	20	1.0	1.0	2
0.1	10	0.5	0.5	1