

TYPE TEST REPORT

Report No. : IE3-112M-4 4KW D 140902

Product Type Name	IE3-112M-4 Three Phase Asynchronous Motor			Ser.No.	
Rated Output	4 kW	Rated Voltage	400 V	Rated Current	7.9 A
Rated Speed	1460 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	Eligibility Value		Test Value	Test Result	
	Standard	Tolerance			
1. Stator resistance at 20°C	Ω		1.6962		
2. No load current	A		3.87		
3. No load current deviation	%		2.8		
4. No load input power	W		160.2		
5. Locked rotor current	A		57.00		
6. Locked current/Rated current			7.06		
7. Locked torque	N.m		66.41		
8. Locked torque/Rated torque			2.53		
9. Full load current	A		8.07		
10. Rated torque	N.m		26.25		
11. Max. torque	N.m		83.80		
12. Max. torque/Rated torque			3.19		
13. Full load speed ratio	r/min		1455.4		
14. Iron loss(at Rated voltage)	W		96.5		
15. Mechanical loss(at Rated speed)	W		22.9		
16. Stator winding loss	W		196.0		
17. Rotor winding loss	W		132.9		
18. Other loss	W		63.8		
19. Total loss	W		512.1		
20. Output power	W		4000		

TYPE TEST REPORT

Report No. : IE3-112M-4 4KW D 140902

Test Item	Eligibility Value		Test Value	Test Result
	Standard	Tolerance		
21. Input power	W		4512.12	
22. Full load efficiency	%		88.65	
23. Full Load power factor			0.807	
24. Stator winding temp.rise	K		40.8	
25. Bearing temperature	°C			
26. Coolant temperature	°C		28.5	
27. Insulation resistance warmly to frame	MΩ			
28. High voltage test	V min	1760	Pass	Passed
29. Vibration	mm/s			
30. Noise	dB(A)			
31. Rotation Direction		Clockwise	Right	Passed
32. H.V. impulse test between winding	V	2600	Pass	Passed
33. Over speed test 2min 1.2n		No abnormal	No abnormal	Passed
34. Over Torque test 15s 2.2Tn		No abnormal	No abnormal	Passed
35. Over current test 2min 1.5In		No abnormal	No abnormal	Passed
Testing Conclusion				
Remark				
Tested by		Checked by		Formed

three-phase induction motor type test report

Amb Temp: 28.96°C

report NO.: IE3-112M-4 4KW D 140902

test time:

Modle: IE3-112M-4
NO.:
Rated f: 50Hz

Rated U: 400V
Rated I: 7.9A
Rated P: 4kW

Rated η : 88.60%
Cos ϕ : 0.82
Rated speed: 1460r/min

InsClass: F
Connect: Δ
Poles: 4

Resistance test

Rac(Ω): 1.7569

Rbc(Ω): 1.7553

Rab(Ω): 1.7579

Ravg(Ω): 1.7567
115°C R (Ω): 2.3335
25°C R (Ω): 1.7334

Shell Temp(°C): 29.1
Amb Temp(°C): 28.49

No load test

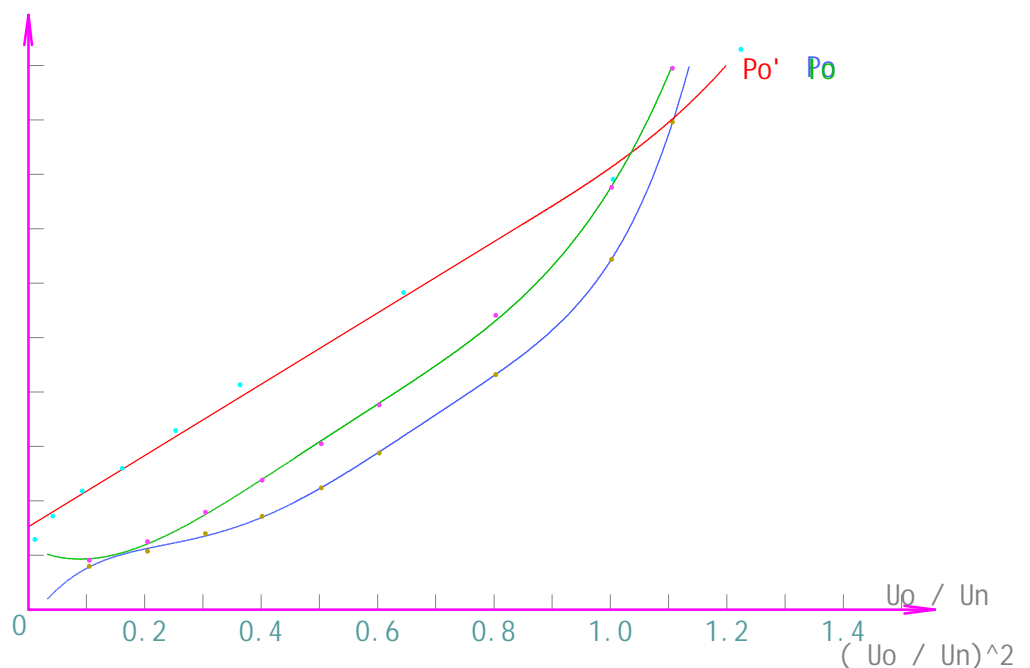
U*	U (V)	I (A)	Po(kW)	Po' (kW)	Pcu(kW)	WindingT(°C)
1.25	500.5	7.48	0.4150	0.2578	0.1572	45.85
1.11	442.6	4.98	0.2240	0.1545	0.0695	45.85
1.00	400.8	3.88	0.1610	0.1186	0.0424	46.02
0.80	321.2	2.71	0.1080	0.0874	0.0206	46.02
0.60	241.2	1.88	0.0720	0.0620	0.0100	46.17
0.50	201.4	1.53	0.0560	0.0495	0.0065	46.17
0.40	160.8	1.19	0.0430	0.0390	0.0040	46.17
0.30	121.8	0.90	0.0350	0.0327	0.0023	46.17
0.21	82.0	0.63	0.0270	0.0259	0.0011	45.97
0.11	42.0	0.46	0.0200	0.0194	0.0006	45.97

Thermal R(Ω): 1.8840
Io(A): 3.87
Pm(kW): 0.0229

Shell Temp(°C): 41.1
Io(kW): 0.1602
Pfe(kW): 0.0965

No Load Characteristic Curve

Io	Po	Po'
A	kW	kW
5.0	0.250	0.150
4.5	0.225	0.135
4.0	0.200	0.120
3.5	0.175	0.105
3.0	0.150	0.090
2.5	0.125	0.075
2.0	0.100	0.060
1.5	0.075	0.045
1.0	0.050	0.030
0.5	0.025	0.015



three-phase induction motor type test report

Amb Temp: 28.5°C

report NO.: IE3-112M-4 4KW D 140902

test time:

Modle: IE3-112M-4
NO.:
Rated f: 50Hz

Rated U: 400V
Rated I: 7.9A
Rated P: 4kW

Rated η : 88.60%
Cos ϕ : 0.82
Rated speed: 1460r/min

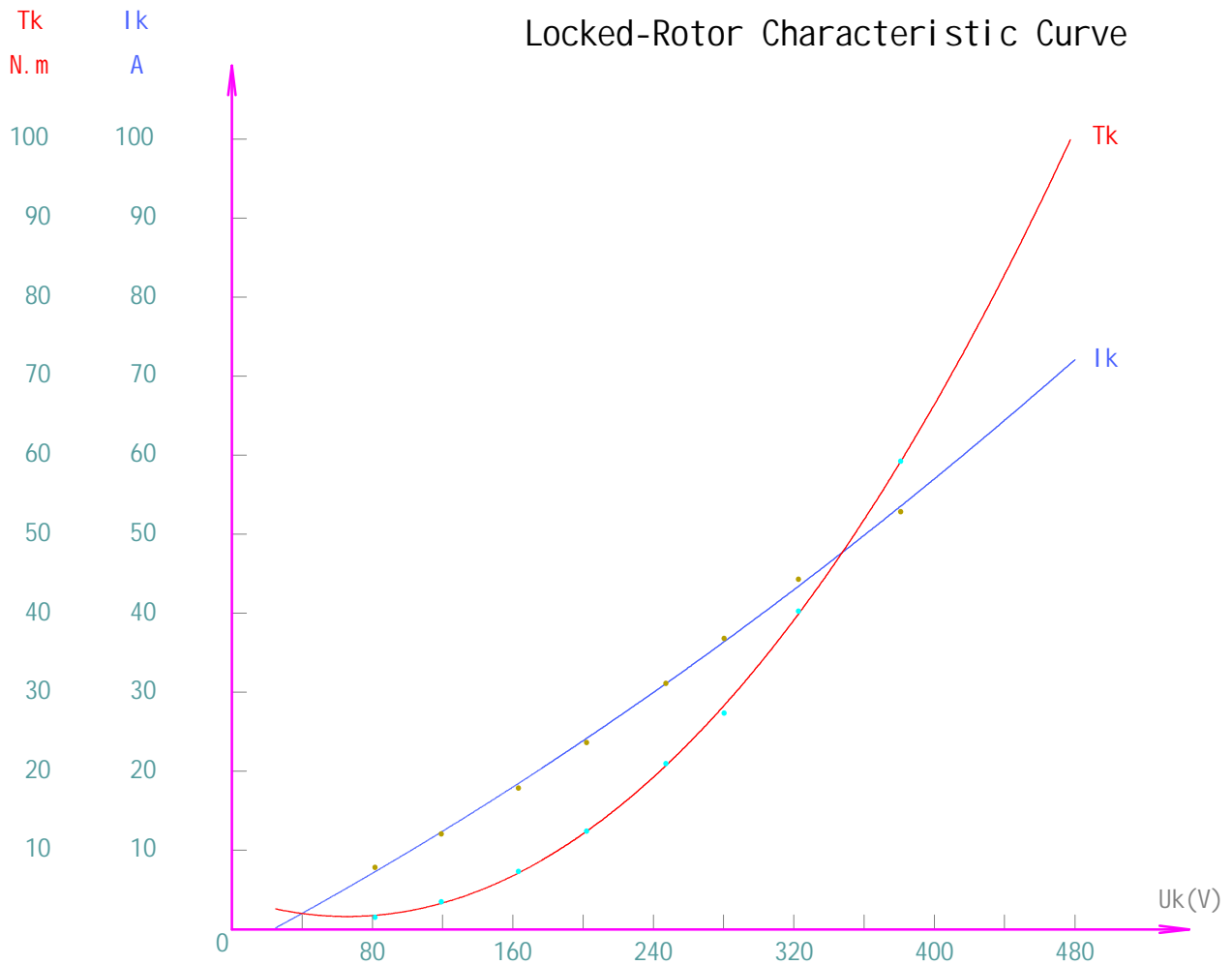
InsClass: F
Connect: Δ
Poles: 4

Locked-rotor Test

U(V)	I (A)	P1(KW)	Tor(N.m)
380.9	52.88	9.8800	59.25
322.5	44.30	12.6000	40.29
280.3	36.82	8.7520	27.40
247.1	31.16	6.3450	21.00
201.9	23.67	3.7370	12.45
163.2	17.91	2.1720	7.36
119.2	12.11	1.0080	3.50
81.5	7.86	0.4310	1.55

I_k (A): 57.00
T_k(N.m): 66.41
P_k(kW): 14.22

I_k/I_n: 7.06
T_k/T_n: 2.53



test:

check:

three-phase induction motor type test report

Amb Temp: 28.5°C

report NO.: IE3-112M-4 4KW D 140902

test time:

Modle: IE3-112M-4
NO.:
Rated f: 50Hz

Rated U: 400V
Rated I: 7.9A
Rated P: 4kW

Rated η : 88.60%
Cos ϕ : 0.82
Rated speed: 1460r/min

InsClass: F
Connect: Δ
Poles: 4

Load Test

P1(kW)	U(V)	I (A)	s(r/min)	Tor (N.m)	windingT(°C)
7.1000	405.4	12.08	1425.0	40.760	47.23
5.7580	404.4	9.96	1442.0	33.200	47.70
4.5900	400.6	8.15	1454.0	26.370	48.73
3.3920	401.2	6.59	1467.0	19.600	48.85
2.2760	400.6	5.23	1479.0	13.060	48.91
1.1940	400.9	4.28	1489.0	6.490	48.82
0.2750	401.8	3.92	1498.0	0.760	47.52
0.1650	402.0	3.92	0.0	0.000	45.20

P2(kW)	Pcu(kW)	Pal (kW)	Ps(kW)	Ss(%)	η (%)	Cos ϕ
6.0345	0.4382	0.3507	0.1572	5.34	84.99	0.837
5.0150	0.2982	0.2211	0.1042	4.12	87.10	0.825
4.0653	0.1997	0.1399	0.0657	3.26	88.57	0.811
3.0318	0.1307	0.0739	0.0362	2.34	89.38	0.740
2.0273	0.0821	0.0312	0.0160	1.49	89.07	0.628
1.0076	0.0550	0.0081	0.0039	0.78	84.39	0.402
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: 0.910

A: 0.095

B: 32.989

θ_s (°C): 65.8

150% rated power:

I (A): 12.01
Pcu(kW): 0.5051
 η (%): 85.08

P1(kW): 7.0525
Pal (kW): 0.3192
Cos ϕ : 0.847

Ss (%): 4.95
Ps(kW): 0.1552
P2(kW): 6.00

125% rated power:

I (A): 9.90
Pcu(kW): 0.3430
 η (%): 87.10

P1(kW): 5.7403
Pal (kW): 0.2065
Cos ϕ : 0.837

Ss (%): 3.90
Ps(kW): 0.1033
P2(kW): 5.00

100% rated power:

I (A): 8.07
Pcu(kW): 0.2277
 η (%): 88.65

P1(kW): 4.5121
Pal (kW): 0.1246
Cos ϕ : 0.807

Ss (%): 2.98
Ps(kW): 0.0638
P2(kW): 4.00

75% rated power:

I (A): 6.51
Pcu(kW): 0.1485
 η (%): 89.46

P1(kW): 3.3533
Pal (kW): 0.0671
Cos ϕ : 0.743

Ss (%): 2.16
Ps(kW): 0.0352
P2(kW): 3.00

50% rated power:

I (A): 5.24
Pcu(kW): 0.0962
 η (%): 88.92

P1(kW): 2.2492
Pal (kW): 0.0291
Cos ϕ : 0.619

Ss (%): 1.41
Ps(kW): 0.0157
P2(kW): 2.00

25% rated power:

I (A): 4.25
Pcu(kW): 0.0632
 η (%): 84.37

P1(kW): 1.1852
Pal (kW): 0.0073
Cos ϕ : 0.403

Ss (%): 0.72
Ps(kW): 0.0038
P2(kW): 1.00

Load Characteristic Curve

Report No. : IE3-112M-4 4KW D 140902
 Model : IE3-112M-4
 Rated Output: 4 kW
 Ser.No. :

When P2 = 4 kW ,
 I1 = 8.07 A
 P1 = 4.5121 kW
 Sref = 2.98 %
 η = 88.65 %
 Cos ϕ = 0.807

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

