

TYPE TEST REPORT

Report No. : IE3-90S-2 1.5KW 14101801

Product Type Name	IE3-90S-2 Three Phase Asynchronous Motor			Ser.No.	
Rated Output	1.5 kW	Rated Voltage	400 V	Rated Current	3.1 A
Rated Speed	2890 r/min	Rated Frequency	50Hz	Insulation Class	F
Duty	S1	Protection Class	IP55	Connection	Y
Product Standard	IEC60034-1	Testing Standard	IEC60034-2-1	Production Date	
Test Item		Test Value		Test Result	
1. Stator resistance at 20°C	Ω	5.9523			
2. No load current	A	1.18			
3. No load current deviation	%	1.8			
4. No load input power	W	97.2			
5. Locked rotor current	A	26.09			
6. Locked current/Rated current		9.03			
7. Locked torque	N.m	17.73			
8. Locked torque/Rated torque		3.59			
9. Full load current	A	2.89			
10. Rated torque	N.m	4.95			
11. Max. torque	N.m	16.97			
12. Max. torque/Rated torque		3.43			
13. Full load speed ratio	r/min	2896.2			
14. Iron loss(at Rated voltage)	W	56.5			
15. Mechanical loss(at Rated speed)	W	27.3			
16. Stator winding loss	W	85.1			
17. Rotor winding loss	W	58.6			
18. Other loss	W	46.9			
19. Total loss	W	275.7			
20. Output power	W	1500			

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Test Item	Test Value	Test Result				
21. Input power	W	1775.73				
22. Full load efficiency	%	84.47				
23. Full Load power factor		0.888				
24. Stator winding temp.rise	K	31.1				
25. Bearing temperature	°C	42				
26. Coolant temperature	°C	22.6				
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)	63				
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: °C report NO.: IE3-90S-2 1.5KW 14101801 test time:

Modle: IE3-90S-2	Rated U: 400V	Rated η : 84.20%	InsClass: F
NO.:	Rated I: 3.1A	Cos ϕ : 0.84	Connect: Y
Rated f: 50Hz	Rated P: 1.5kW	Rated speed: 2890r/min	Pol es: 2

Resistance test

Rac(Ω): 6.0100 Rbc(Ω): 6.0160 Rab(Ω): 6.0200

Ravg(Ω): 6.0153 Shell Temp($^{\circ}$ C): 22.7
 115 $^{\circ}$ C R (Ω): 8.1730 Amb Temp($^{\circ}$ C): 22.60
 25 $^{\circ}$ C R (Ω): 6.0714

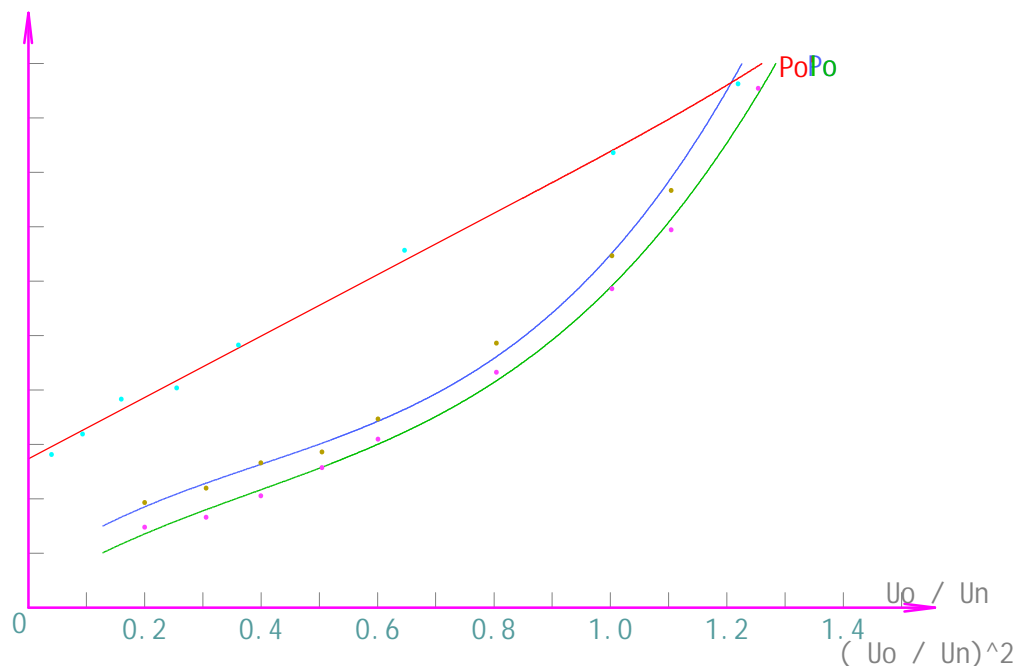
No load test

U*	U (V)	I (A)	Po(kW)	Po' (kW)	Pcu(kW)	WindingT($^{\circ}$ C)
1.25	501.5	1.91	0.1600	0.1245	0.0355	42.65
1.10	441.7	1.39	0.1150	0.0963	0.0187	42.33
1.00	401.0	1.17	0.0970	0.0836	0.0134	42.33
0.80	321.6	0.87	0.0730	0.0657	0.0073	42.19
0.60	240.3	0.62	0.0520	0.0483	0.0037	42.19
0.50	201.9	0.52	0.0430	0.0404	0.0026	41.80
0.40	159.8	0.41	0.0400	0.0384	0.0016	41.80
0.31	122.1	0.33	0.0330	0.0319	0.0011	41.44
0.20	80.0	0.30	0.0290	0.0281	0.0009	41.33

Thermal R(Ω): 6.4330 Shell Temp($^{\circ}$ C): 32.9
 Io(A): 1.18 Io(kW): 0.0972
 Pm(kW): 0.0273 Pfe(kW): 0.0565

No Load Characteristic Curve

Io	Po	Po'
A	kW	kW
2.0	0.150	0.10
1.8	0.135	0.09
1.6	0.120	0.08
1.4	0.105	0.07
1.2	0.090	0.06
1.0	0.075	0.05
0.8	0.060	0.04
0.6	0.045	0.03
0.4	0.030	0.02
0.2	0.015	0.01



test:

check:

three-phase induction motor type test report

Amb Temp: 22.6°C

report NO.: IE3-90S-2 1.5KW 14101801

test time:

Modle: IE3-90S-2
NO.:
Rated f: 50Hz

Rated U: 400V
Rated I: 3.1 A
Rated P: 1.5kW

Rated η : 84.20%
Cos ϕ : 0.84
Rated speed: 2890r/min

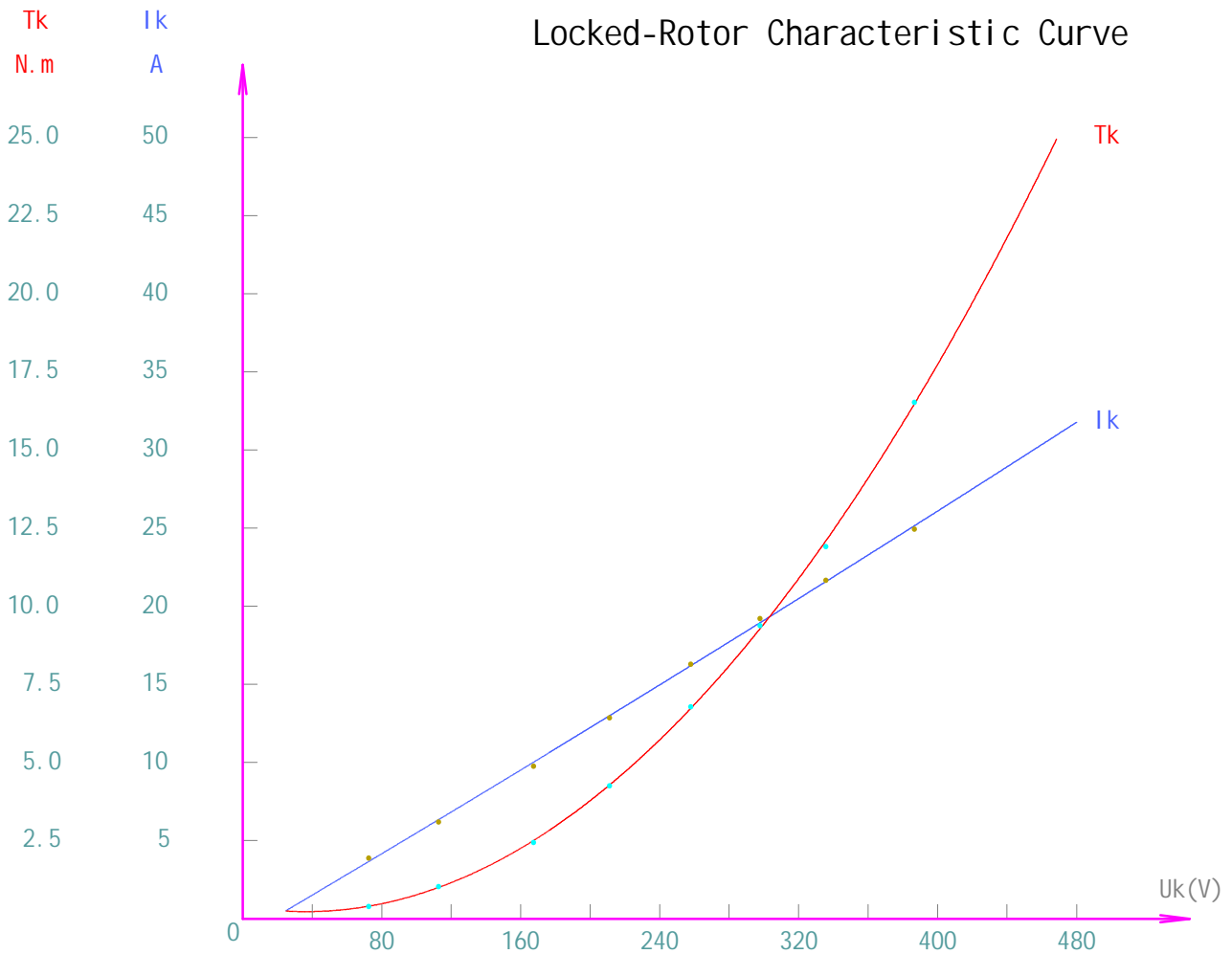
InsClass: F
Connect: Y
Poles: 2

Locked-rotor Test

U(V)	I(A)	P1(KW)	Tor(N.m)
386.6	24.94	12.5600	16.53
335.6	21.67	9.1350	11.91
297.7	19.22	6.9250	9.38
257.8	16.30	4.9050	6.79
211.1	12.88	3.0150	4.26
167.3	9.77	1.7240	2.45
112.7	6.21	0.6990	1.04
72.5	3.89	0.2750	0.40

I_k (A): 26.09
T_k(N.m): 17.73
P_k(kW): 13.19

I_k/I_n: 9.03
T_k/T_n: 3.59



test:

check:

three-phase induction motor type test report

Amb Temp: 22.6°C

report NO.: IE3-90S-2 1.5KW 14101801

test time:

Modle: IE3-90S-2	Rated U: 400V	Rated η : 84.20%	InsClass: F
NO.:	Rated I: 3.1A	Cos ϕ : 0.84	Connect: Y
Rated f: 50Hz	Rated P: 1.5kW	Rated speed: 2890r/min	Pol es: 2

Load Test

P1(kW)	U(V)	I (A)	s(r/min)	Tor (N.m)	wi ndi ngT(°C)
2.7790	399.7	4.37	2828.0	7.520	45.06
2.2930	400.7	3.64	2862.0	6.300	45.23
1.8750	401.7	3.03	2890.0	5.080	45.57
1.5670	400.5	2.61	2909.0	4.210	45.61
0.9340	402.0	1.81	2948.0	2.500	45.52
0.5110	399.9	1.45	2974.0	1.220	45.15
0.4630	402.2	1.34	2976.0	1.020	45.14
0.0920	401.8	1.17	0.0	0.000	44.46

P2(kW)	Pcu(kW)	Pal (kW)	Ps(kW)	Ss(%)	η (%)	Cos ϕ
2.2381	0.1949	0.1508	0.1114	5.97	80.54	0.918
1.8949	0.1350	0.1006	0.0787	4.79	82.64	0.908
1.5801	0.0937	0.0657	0.0518	3.81	84.27	0.889
1.3323	0.0695	0.0454	0.0360	3.15	85.02	0.865
0.7884	0.0333	0.0152	0.0133	1.80	84.41	0.742
0.3982	0.0215	0.0039	0.0035	0.90	77.93	0.508
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: 0.924

A: 1.895

B: -14.673

θ s(°C): 56.1

150% rated power:

I (A): 4.39
Pcu(kW): 0.2366
 η (%): 80.54

P1(kW): 2.7936
Pal (kW): 0.1444
Cos ϕ : 0.918

Ss (%): 5.78
Ps(kW): 0.1131
P2(kW): 2.25

125% rated power:

I (A): 3.61
Pcu(kW): 0.1594
 η (%): 82.65

P1(kW): 2.2686
Pal (kW): 0.0930
Cos ϕ : 0.908

Ss (%): 4.53
Ps(kW): 0.0758
P2(kW): 1.88

100% rated power:

I (A): 2.89
Pcu(kW): 0.1022
 η (%): 84.47

P1(kW): 1.7757
Pal (kW): 0.0560
Cos ϕ : 0.888

Ss (%): 3.46
Ps(kW): 0.0469
P2(kW): 1.50

75% rated power:

I (A): 2.27
Pcu(kW): 0.0630
 η (%): 85.55

P1(kW): 1.3151
Pal (kW): 0.0301
Cos ϕ : 0.837

Ss (%): 2.52
Ps(kW): 0.0257
P2(kW): 1.13

50% rated power:

I (A): 1.77
Pcu(kW): 0.0386
 η (%): 84.59

P1(kW): 0.8866
Pal (kW): 0.0130
Cos ϕ : 0.722

Ss (%): 1.65
Ps(kW): 0.0114
P2(kW): 0.75

25% rated power:

I (A): 1.43
Pcu(kW): 0.0252
 η (%): 76.48

P1(kW): 0.4903
Pal (kW): 0.0033
Cos ϕ : 0.493

Ss (%): 0.81
Ps(kW): 0.0035
P2(kW): 0.38

Load Characteristic Curve

Report No. : IE3-90S-2 1.5KW 14101801 When P2 = 1.5 kW ,
 Model : IE3-90S-2 I1 = 2.89 A
 Rated Output: 1.5 kW P1 = 1.7757 kW
 Ser.No. : Sref = 3.46 %
 η = 84.47 %
 Cos ϕ = 0.888

cos ϕ	η %	Sref %	P1 kW	I1 A
1.0	100	5.0	2.50	5.0
0.9	90	4.5	2.25	4.5
0.8	80	4.0	2.00	4.0
0.7	70	3.5	1.75	3.5
0.6	60	3.0	1.50	3.0
0.5	50	2.5	1.25	2.5
0.4	40	2.0	1.00	2.0
0.3	30	1.5	0.75	1.5
0.2	20	1.0	0.50	1.0
0.1	10	0.5	0.25	0.5

