

# TYPE TEST REPORT

Report No. : IE3-90S-4 1.1KW 14102202

Product Type Name	IE3-90S-4 Three Phase Asynchronous Motor			Ser.No.	
Rated Output	1.1 kW	Rated Voltage	400 V	Rated Current	2.5 A
Rated Speed	1440 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	Eligibility Value		Test Value	Test Result	
	Standard	Tolerance			
1. Stator resistance at 20°C	Ω		7.5420		
2. No load current	A		1.54		
3. No load current deviation	%		1.1		
4. No load input power	W		86.6		
5. Locked rotor current	A		17.79		
6. Locked current/Rated current			7.14		
7. Locked torque	N.m		24.51		
8. Locked torque/Rated torque			3.37		
9. Full load current	A		2.49		
10. Rated torque	N.m		7.28		
11. Max. torque	N.m		24.38		
12. Max. torque/Rated torque			3.35		
13. Full load speed ratio	r/min		1443.3		
14. Iron loss(at Rated voltage)	W		44.4		
15. Mechanical loss(at Rated speed)	W		14.1		
16. Stator winding loss	W		78.4		
17. Rotor winding loss	W		46.2		
18. Other loss	W		15.0		
19. Total loss	W		199.4		
20. Output power	W		1100		

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	Standard	Tolerance			
21. Input power	W		1299.43		
22. Full load efficiency	%		84.65		
23. Full Load power factor			0.753		
24. Stator winding temp.rise	K		22.6		
25. Bearing temperature	°C		43		
26. Coolant temperature	°C		24.7		
27. Insulation resistance warmly to frame	MΩ		500		
28. High voltage test	V min	1760	Pass	Passed	
29. Vibration	mm/s		0.8		
30. Noise	dB(A)		52		
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: 25.06°C

report NO.: IE3-90S-4 1.1KW 14102202

test time:

Modle: IE3-90S-4  
NO.:  
Rated f: 50Hz

Rated U: 400V  
Rated I: 2.5A  
Rated P: 1.1kW

Rated  $\eta$ : 84.10%  
Cos  $\phi$ : 0.76  
Rated speed: 1440r/min

InsClass: F  
Connect: Y  
Poles: 4

## Resistance test

Rac( $\Omega$ ): 7.7040

Rbc( $\Omega$ ): 7.7060

Rab( $\Omega$ ): 7.7040

Ravg( $\Omega$ ): 7.7047  
115°C R ( $\Omega$ ): 10.3837  
25°C R ( $\Omega$ ): 7.7136

Shell Temp(°C): 25.5  
Amb Temp(°C): 24.70

## No load test

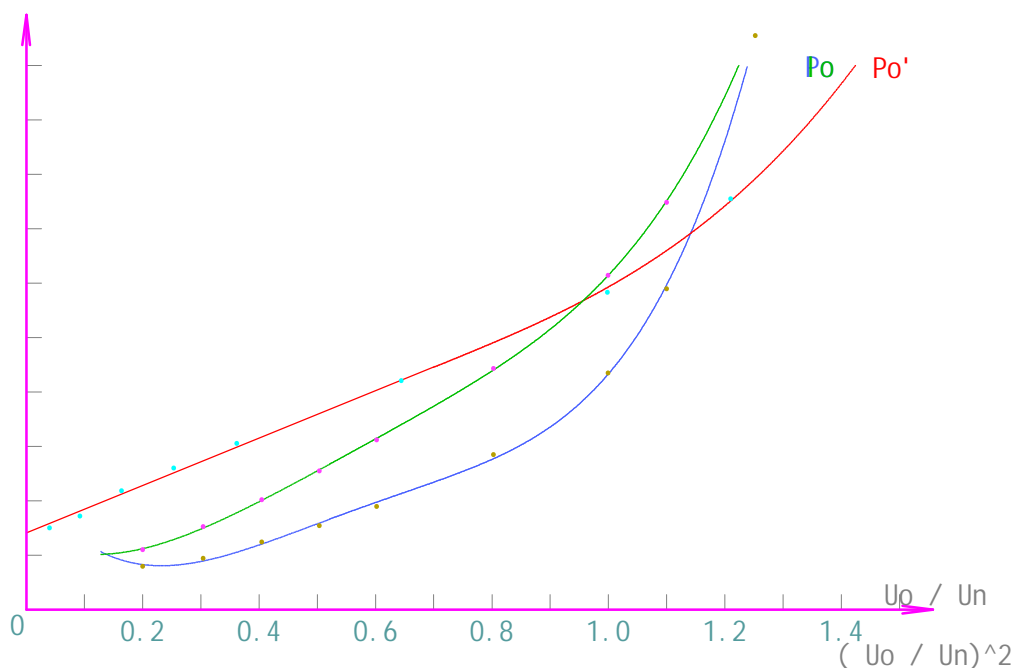
U*	U (V)	I (A)	Po(kW)	Po' (kW)	Pcu(kW)	WindingT(°C)
1.25	500.9	2.68	0.2110	0.1236	0.0874	37.61
1.10	440.0	1.87	0.1180	0.0755	0.0425	37.61
1.00	399.6	1.54	0.0870	0.0583	0.0287	37.76
0.80	321.0	1.11	0.0570	0.0421	0.0149	37.76
0.60	240.6	0.78	0.0380	0.0306	0.0074	37.85
0.50	201.4	0.64	0.0310	0.0261	0.0049	37.85
0.40	161.7	0.51	0.0250	0.0219	0.0031	37.92
0.30	121.4	0.38	0.0190	0.0172	0.0018	37.92
0.20	79.9	0.28	0.0160	0.0151	0.0009	37.61

Thermal R( $\Omega$ ): 8.0730  
Io(A): 1.54  
Pm(kW): 0.0141

Shell Temp(°C): 34.6  
Io(kW): 0.0866  
Pfe(kW): 0.0444

## No Load Characteristic Curve

Io A	Po kW	Po' kW
2.50	0.20	0.10
2.25	0.18	0.09
2.00	0.16	0.08
1.75	0.14	0.07
1.50	0.12	0.06
1.25	0.10	0.05
1.00	0.08	0.04
0.75	0.06	0.03
0.50	0.04	0.02
0.25	0.02	0.01



test:

check:

# three-phase induction motor type test report

Amb Temp: 24.7°C

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Rated speed: 1440r/min

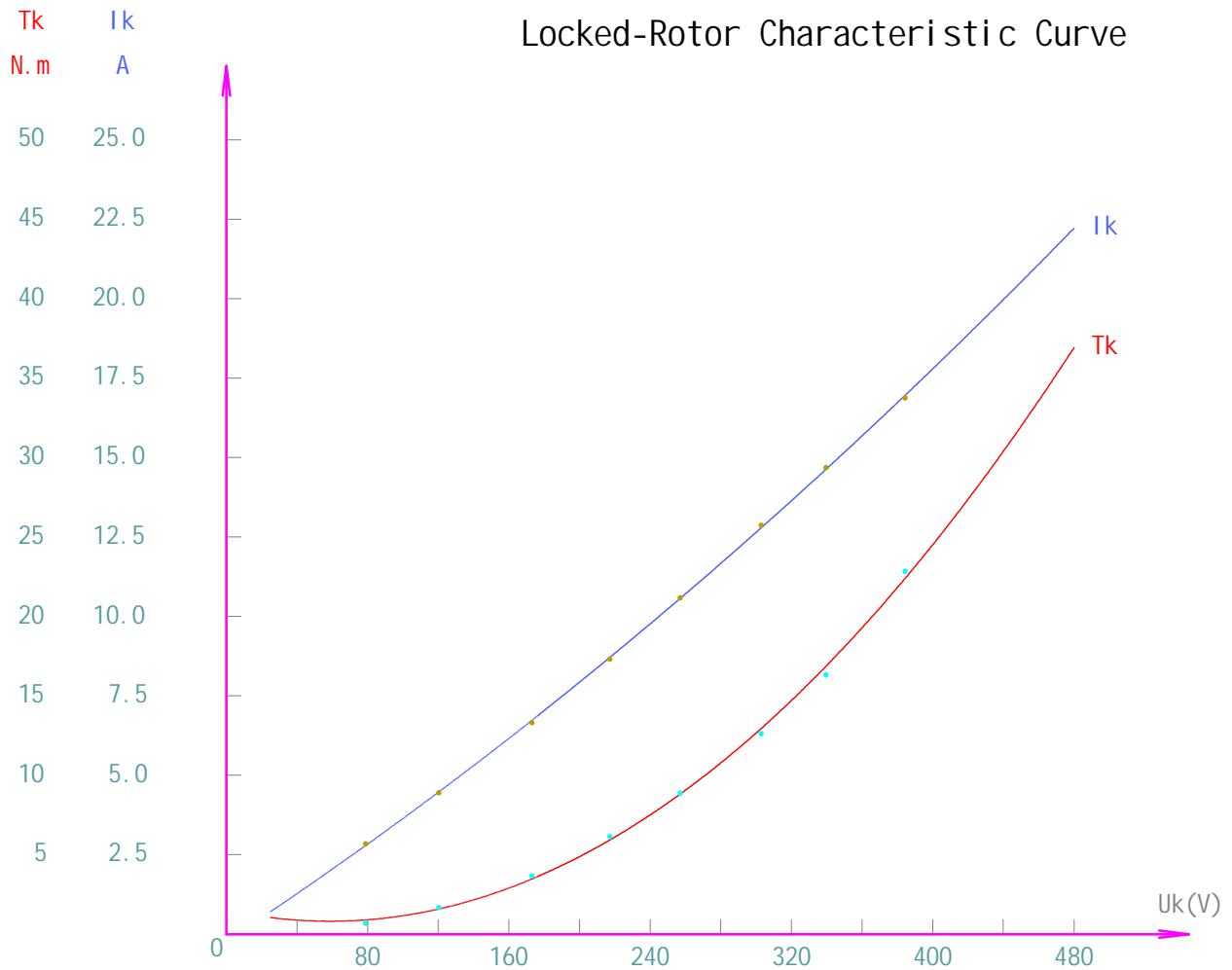
InsClass: F  
Connect: Y  
Poles: 4

## Locked-rotor Test

U(V)	I(A)	P1(KW)	Tor(N.m)
384.3	16.88	7.4250	22.84
339.5	14.68	5.5350	16.33
302.9	12.87	4.2150	12.63
257.0	10.59	2.8480	8.89
217.0	8.66	1.9060	6.15
173.0	6.66	1.1280	3.68
120.3	4.45	0.5060	1.68
78.8	2.85	0.2070	0.70

Ik (A): 17.79  
Tk(N.m): 24.51  
Pk(kW): 7.83

Ik/In: 7.14  
Tk/Tn: 3.37



test:

check:

# three-phase induction motor type test report

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NO.:  
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Rated U: 400V  
Rated I: 2.5A  
Rated P: 1.1kW

Rated  $\eta$ : 84.10%  
Cos  $\phi$ : 0.76  
Rated speed: 1440r/min

InsClass: F  
Connect: Y  
Poles: 4

## Load Test

P1(kW)	U(V)	I (A)	s(r/min)	Tor (N.m)	windingT(°C)
2.0410	401.4	3.51	1405.0	11.340	36.00
1.6530	401.7	2.96	1426.0	9.220	36.06
1.3400	402.9	2.55	1441.0	7.500	36.21
0.9860	401.5	2.13	1458.0	5.420	36.57
0.6830	402.6	1.84	1472.0	3.600	36.73
0.3760	401.8	1.65	1486.0	1.730	36.78
0.2370	402.3	1.61	1492.0	0.850	36.57
0.0890	401.0	1.55	0.0	0.000	37.96

P2(kW)	Pcu(kW)	Pal (kW)	Ps(kW)	Ss(%)	$\eta$ (%)	Cos $\phi$
1.6689	0.1552	0.1218	0.0366	6.61	81.77	0.836
1.3827	0.1103	0.0772	0.0243	5.15	83.65	0.802
1.1336	0.0820	0.0498	0.0161	4.10	84.59	0.752
0.8361	0.0571	0.0258	0.0085	2.92	84.80	0.665
0.5665	0.0426	0.0116	0.0038	1.94	82.95	0.532
0.2796	0.0341	0.0029	0.0009	0.97	74.35	0.328
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: 0.985

A: 0.281

B: -0.176

$\theta_s$ (°C): 47.6

150% rated power:

I (A): 3.48  
Pcu(kW): 0.1885  
 $\eta$  (%): 81.97

P1(kW): 2.0129  
Pal (kW): 0.1109  
Cos  $\phi$ : 0.835

Ss (%): 6.23  
Ps(kW): 0.0357  
P2(kW): 1.65

125% rated power:

I (A): 2.94  
Pcu(kW): 0.1349  
 $\eta$  (%): 83.51

P1(kW): 1.6466  
Pal (kW): 0.0722  
Cos  $\phi$ : 0.808

Ss (%): 4.92  
Ps(kW): 0.0241  
P2(kW): 1.38

100% rated power:

I (A): 2.49  
Pcu(kW): 0.0967  
 $\eta$  (%): 84.65

P1(kW): 1.2994  
Pal (kW): 0.0438  
Cos  $\phi$ : 0.753

Ss (%): 3.78  
Ps(kW): 0.0150  
P2(kW): 1.10

75% rated power:

I (A): 2.12  
Pcu(kW): 0.0702  
 $\eta$  (%): 84.92

P1(kW): 0.9715  
Pal (kW): 0.0237  
Cos  $\phi$ : 0.660

Ss (%): 2.76  
Ps(kW): 0.0083  
P2(kW): 0.83

50% rated power:

I (A): 1.84  
Pcu(kW): 0.0526  
 $\eta$  (%): 82.99

P1(kW): 0.6627  
Pal (kW): 0.0103  
Cos  $\phi$ : 0.520

Ss (%): 1.82  
Ps(kW): 0.0036  
P2(kW): 0.55

25% rated power:

I (A): 1.64  
Pcu(kW): 0.0417  
 $\eta$  (%): 73.70

P1(kW): 0.3731  
Pal (kW): 0.0026  
Cos  $\phi$ : 0.329

Ss (%): 0.91  
Ps(kW): 0.0009  
P2(kW): 0.28

