

TYPE TEST REPORT

Report No. : IE3-160L-4 15KW 15032301

Product Type Name	IE3-160L-4 Three Phase Asynchronous Motor			Ser.No.	
Rated Output	15 kW	Rated Voltage	400 V	Rated Current	27.3 A
Rated Speed	1470 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		0.2993		
2. No load current	A		10.50		
3. No load current deviation	%		1.7		
4. No load input power	W		568.1		
5. Locked rotor current	A		205.45		
6. Locked current/Rated current			7.50		
7. Locked torque	N.m		179.05		
8. Locked torque/Rated torque			1.84		
9. Full load current	A		27.40		
10. Rated torque	N.m		97.20		
11. Max. torque	N.m		313.79		
12. Max. torque/Rated torque			3.23		
13. Full load speed ratio	r/min		1473.7		
14. Iron loss(at Rated voltage)	W		387.3		
15. Mechanical loss(at Rated speed)	W		125.5		
16. Stator winding loss	W		409.2		
17. Rotor winding loss	W		278.6		
18. Other loss	W		69.7		
19. Total loss	W		1277.8		
20. Output power	W		15000		

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Test Item	Eligibility Value		Test Value	Test Result	
	Standard	Tolerance			
21. Input power	W		16277.78		
22. Full load efficiency	%		92.15		
23. Full Load power factor			0.858		
24. Stator winding temp.rise	K		48.7		
25. Bearing temperature	°C				
26. Coolant temperature	°C		15.5		
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: °C

report NO.: IE3-160L-4 15KW 15032301 test time:

Modle: IE3-160L-4	Rated U: 400V	Rated η : 92.10%	InsClass: F
NO.:	Rated I: 27.3A	Cos ϕ : 0.86	Connect: Δ
Rated f: 50Hz	Rated P: 15kW	Rated speed: 1470r/min	Poles: 4

Resistance test

Rac (Ω): 0.2950

Rbc (Ω): 0.2947

Rab (Ω): 0.2949

Ravg (Ω): 0.2949
 115°C R (Ω): 0.4120
 25°C R (Ω): 0.3060

Shell Temp (°C): 16.2
 Amb Temp (°C): 15.52

No-load test

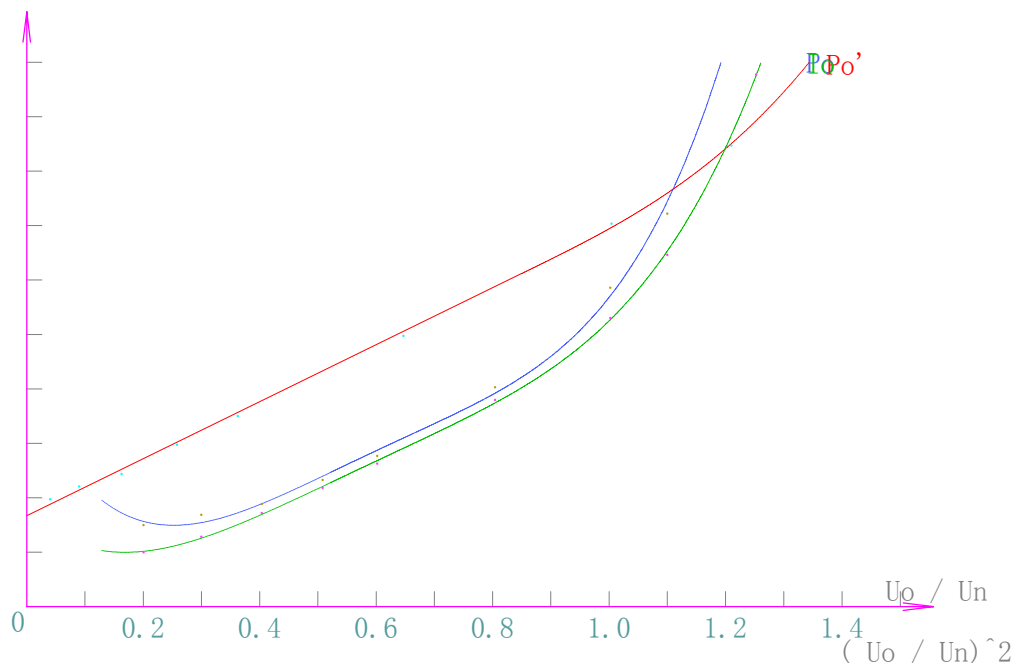
U*	U (V)	I (A)	Po (kW)	Po' (kW)	Pcu (kW)	WindingT (°C)
1.25	501.0	19.55	1.2390	1.0413	0.1977	57.97
1.10	440.0	12.93	0.7220	0.6355	0.0865	58.05
1.00	400.8	10.61	0.5860	0.5277	0.0583	58.05
0.80	321.7	7.60	0.4030	0.3732	0.0298	57.97
0.60	240.7	5.26	0.2770	0.2627	0.0143	57.88
0.51	203.2	4.37	0.2330	0.2231	0.0099	57.88
0.40	161.4	3.44	0.1890	0.1829	0.0061	57.60
0.30	119.9	2.58	0.1690	0.1656	0.0034	57.60
0.20	80.2	2.00	0.1500	0.1479	0.0021	57.22

Thermal R (Ω): 0.3427
 Io (A): 10.50
 Pm (kW): 0.1255

Shell Temp (°C): 46.0
 Io (kW): 0.5681
 Pfe (kW): 0.3873

No Load Characteristic Curve

Io	Po	Po'
A	kW	kW
20	1.0	0.750
18	0.9	0.675
16	0.8	0.600
14	0.7	0.525
12	0.6	0.450
10	0.5	0.375
8	0.4	0.300
6	0.3	0.225
4	0.2	0.150
2	0.1	0.075



test:

check:

three-phase induction motor type test report

Amb Temp: 15.5°C

report NO.: IE3-160L-4 15KW 15032301

test time:

Modle: IE3-160L-4	Rated U: 400V	Rated η : 92.10%	InsClass: F
NO.:	Rated I: 27.3A	Cos ϕ : 0.86	Connect: Δ
Rated f: 50Hz	Rated P: 15kW	Rated speed: 1470r/min	Poles: 4

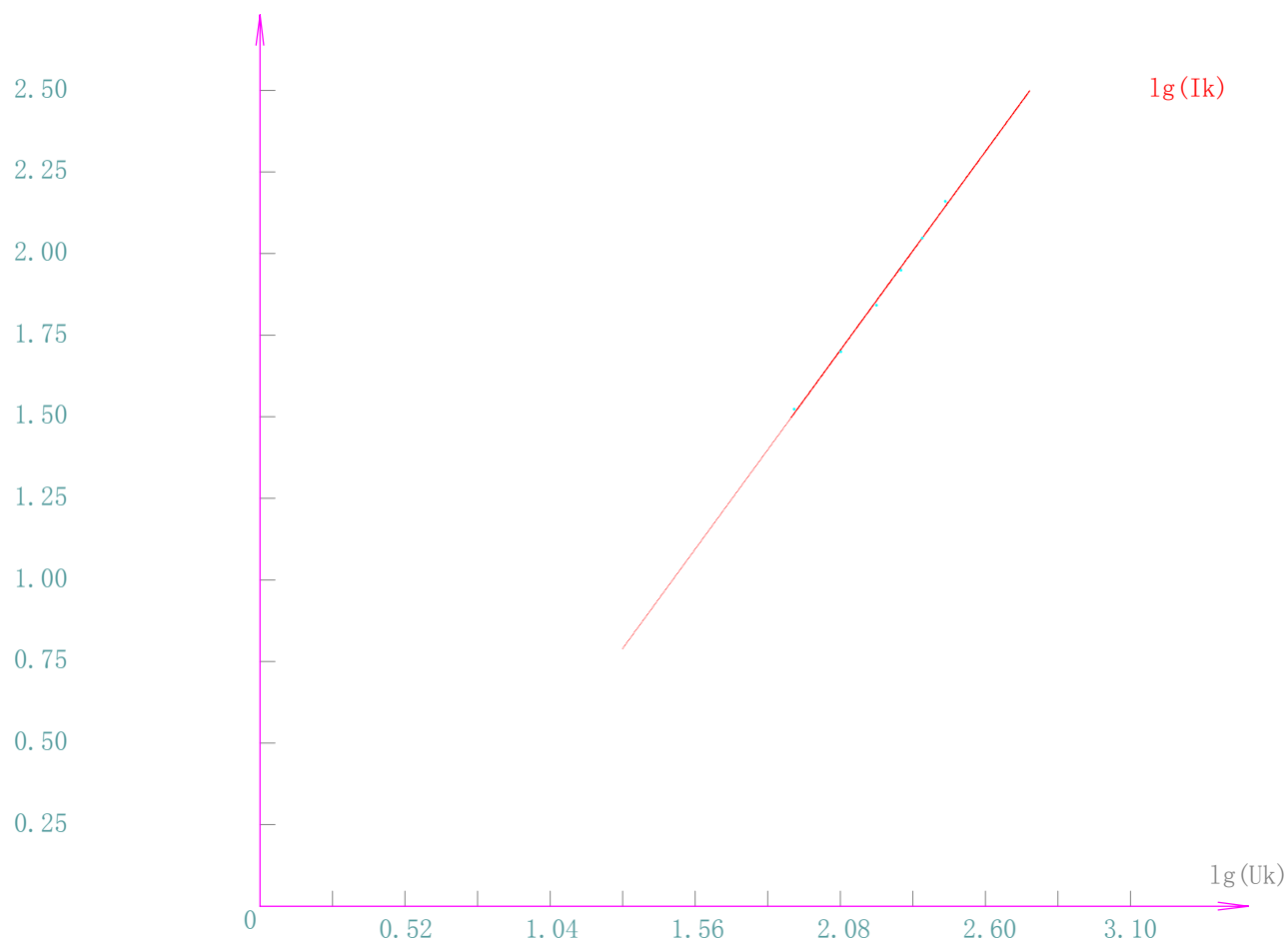
Locked-rotor Test

U (V)	I (A)	P1 (KW)	Tor (N. m)
287.2	144.60	25.6400	88.70
237.3	111.68	15.5000	56.40
199.1	88.91	9.8880	36.30
162.7	69.44	6.0760	22.70
121.3	50.02	3.1700	11.80
82.4	33.41	1.4170	5.30

Ik (A): 205.45	Ik/In: 7.50
Tk (N. m): 179.05	Tk/Tn: 1.84
Pk (kW): 49.40	

lg(Ik)

Locked-Rotor Characteristic Curve



test:

check:

three-phase induction motor type test report

Amb Temp: 15.5°C

report NO.: IE3-160L-4 15KW 15032301

test time:

Modle: IE3-160L-4	Rated U: 400V	Rated η : 92.10%	InsClass: F
NO.:	Rated I: 27.3A	Cos ϕ : 0.86	Connect: Δ
Rated f: 50Hz	Rated P: 15kW	Rated speed: 1470r/min	Poles: 4

Load Test

P1 (kW)	U (V)	I (A)	s (r/min)	Tor (N.m)	windingT(°C)
24.9500	400.5	41.87	1457.0	148.000	63.69
20.5900	401.3	34.35	1466.0	122.400	64.82
16.4400	404.1	27.79	1473.0	97.500	64.97
12.2500	401.2	21.32	1481.0	72.600	64.52
8.3600	403.3	16.18	1487.0	48.300	63.69
4.4900	400.7	12.22	1493.0	24.100	62.58
0.5930	400.2	10.52	1499.0	0.300	59.80
0.5780	400.4	10.58	0.0	0.000	58.00

P2 (kW)	Pcu (kW)	Pal (kW)	Ps (kW)	Ss (%)	η (%)	Cos ϕ
22.6181	0.9550	0.7002	0.1639	2.97	90.65	0.859
18.8657	0.6425	0.4569	0.1120	2.34	91.63	0.862
15.1457	0.4206	0.2898	0.0710	1.85	92.13	0.845
11.2985	0.2476	0.1518	0.0393	1.31	92.23	0.827
7.6171	0.1425	0.0702	0.0174	0.90	91.11	0.740
3.8720	0.0814	0.0195	0.0043	0.48	86.24	0.529
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; 0.922

A: 0.008

B: 127.873

θ_s (°C): 73.7

150% rated power:

I (A): 41.60	P1 (kW): 24.7999	Ss (%): 2.84
Pcu (kW): 1.0693	Pal (kW): 0.6636	Ps (kW): 0.1620
η (%): 90.73	Cos ϕ : 0.861	P2 (kW): 22.50

125% rated power:

I (A): 34.26	P1 (kW): 20.4801	Ss (%): 2.27
Pcu (kW): 0.7251	Pal (kW): 0.4397	Ps (kW): 0.1106
η (%): 91.55	Cos ϕ : 0.863	P2 (kW): 18.75

100% rated power:

I (A): 27.40	P1 (kW): 16.2778	Ss (%): 1.75
Pcu (kW): 0.4639	Pal (kW): 0.2702	Ps (kW): 0.0697
η (%): 92.15	Cos ϕ : 0.858	P2 (kW): 15.00

75% rated power:

I (A): 21.26	P1 (kW): 12.1929	Ss (%): 1.28
Pcu (kW): 0.2794	Pal (kW): 0.1475	Ps (kW): 0.0387
η (%): 92.27	Cos ϕ : 0.828	P2 (kW): 11.25

50% rated power:

I (A): 16.08	P1 (kW): 8.2255	Ss (%): 0.85
Pcu (kW): 0.1598	Pal (kW): 0.0652	Ps (kW): 0.0170
η (%): 91.18	Cos ϕ : 0.738	P2 (kW): 7.50

25% rated power:

I (A): 12.09	P1 (kW): 4.3756	Ss (%): 0.45
Pcu (kW): 0.0904	Pal (kW): 0.0177	Ps (kW): 0.0039
η (%): 85.70	Cos ϕ : 0.522	P2 (kW): 3.75

Load Characteristic Curve

Report No. : IE3-160L-4 15KW 15032301
 Model : IE3-160L-4
 Rated Output: 15 kW
 Ser. No. :

When P2 = 15 kW ,
 I1 = 27.40 A
 P1 = 16.2778 kW
 Sref = 1.75 %
 η = 92.15 %
 Cos φ = 0.858

cos φ	η	Sref	P1	I1
	%	%	kW	A
1.0	100	2.50	25.0	50
0.9	90	2.25	22.5	45
0.8	80	2.00	20.0	40
0.7	70	1.75	17.5	35
0.6	60	1.50	15.0	30
0.5	50	1.25	12.5	25
0.4	40	1.00	10.0	20
0.3	30	0.75	7.5	15
0.2	20	0.50	5.0	10
0.1	10	0.25	2.5	5

