

TYPE TEST REPORT

Report No. : IE3-160L-6 11KW 14052701

Product Type Name	IE3-160L-6 Three Phase Asynchronous Motor			Ser.No.	
Rated Output	11 kW	Rated Voltage	400 V	Rated Current	22.0 A
Rated Speed	980 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°C	Ω	0.4194			
2. No load current	A	12.07			
3. No load current deviation	%	1.2			
4. No load input power	W	390.0			
5. Locked rotor current	A	157.51			
6. Locked current/Rated current		6.74			
7. Locked torque	N.m	298.38			
8. Locked torque/Rated torque		2.76			
9. Full load current	A	23.37			
10. Rated torque	N.m	108.00			
11. Max. torque	N.m	349.64			
12. Max. torque/Rated torque		3.24			
13. Full load speed ratio	r/min	972.6			
14. Iron loss(at Rated voltage)	W	206.8			
15. Mechanical loss(at Rated speed)	W	83.0			
16. Stator winding loss	W	414.1			
17. Rotor winding loss	W	325.0			
18. Other loss	W	139.4			
19. Total loss	W	1168.3			
20. Output power	W	11000			

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Test Item		Test Value	Test Result
21. Input power	W	12168.29	
22. Full load efficiency	%	90.40	
23. Full Load power factor		0.752	
24. Stator winding temp.rise	K	45.7	
25. Bearing temperature	°C	55	
26. Coolant temperature	°C	22.8	
27. Insulation resistance warmly to frame	MΩ	500	
28. High voltage test	V min	Pass	Passed
29. Vibration	mm/s	1.0	
30. Noise	dB(A)	56	
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: 21.7°C

report NO.: IE3-160L-6 11KW 14052701

test time:

Modle: IE3-160L-6
NO.:
Rated f: 50Hz

Rated U: 400V
Rated I: 22.0A
Rated P: 11kW

Rated η : 90.30%
Cos ϕ : 0.80
Rated speed: 980r/min

InsClass: F
Connect: Δ
Poles: 6

Resistance test

Rac(Ω): 0.4255

Rbc(Ω): 0.4259

Rab(Ω): 0.4257

Ravg(Ω): 0.4257
115°C R (Ω): 0.5779
25°C R (Ω): 0.4293

Shell Temp(°C): 23.8
Amb Temp(°C): 22.80

No load test

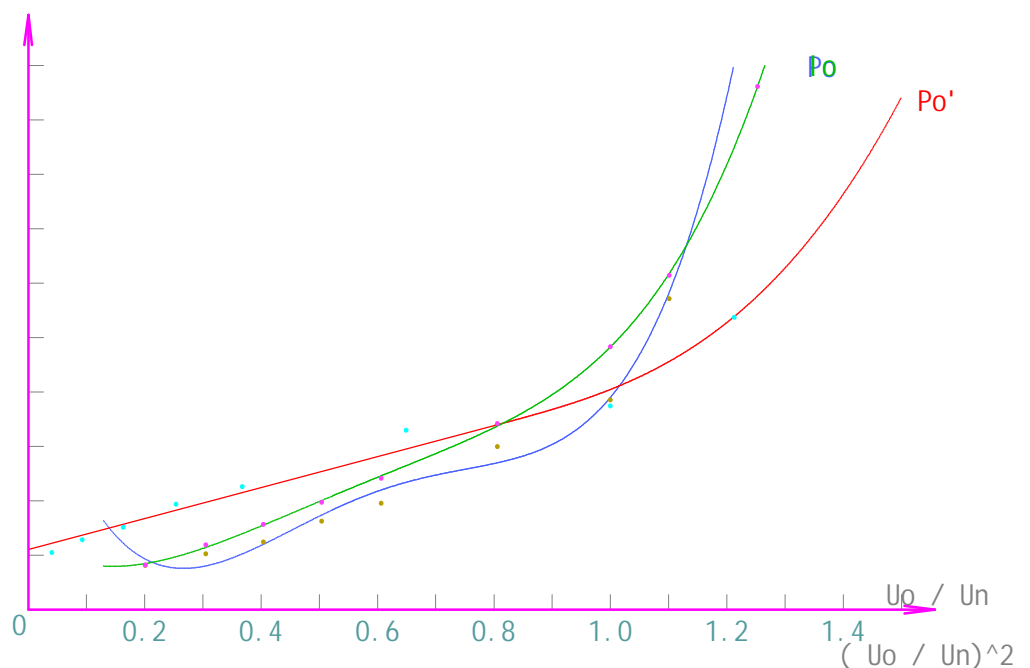
U*	U (V)	I (A)	Po(kW)	Po' (kW)	Pcu(kW)	WindingT(°C)
1.25	501.0	24.04	1.2340	0.8205	0.4135	53.88
1.10	440.4	15.36	0.5720	0.4033	0.1687	53.88
1.00	400.0	12.09	0.3860	0.2812	0.1048	54.65
0.81	322.2	8.56	0.3000	0.2474	0.0526	54.65
0.61	242.5	6.05	0.1960	0.1697	0.0263	55.05
0.50	201.5	4.94	0.1630	0.1455	0.0175	55.05
0.40	161.6	3.93	0.1250	0.1139	0.0111	55.08
0.30	122.0	2.98	0.1030	0.0966	0.0064	55.08
0.20	80.4	2.07	0.0820	0.0789	0.0031	54.91

Thermal R(Ω): 0.4787
Io(A): 12.07
Pm(kW): 0.0830

Shell Temp(°C): 46.1
Io(kW): 0.3900
Pfe(kW): 0.2068

No Load Characteristic Curve

Io A	Po kW	Po' kW
25.0	1.0	0.750
22.5	0.9	0.675
20.0	0.8	0.600
17.5	0.7	0.525
15.0	0.6	0.450
12.5	0.5	0.375
10.0	0.4	0.300
7.5	0.3	0.225
5.0	0.2	0.150
2.5	0.1	0.075



test:

check:

three-phase induction motor type test report

Amb Temp: 22.8°C

report NO.: IE3-160L-6 11KW 14052701

test time:

Modle: IE3-160L-6	Rated U: 400V	Rated η : 90.30%	InsClass: F
NO.:	Rated I: 22.0A	Cos ϕ : 0.80	Connect: Δ
Rated f: 50Hz	Rated P: 11kW	Rated speed: 980r/min	Poles: 6

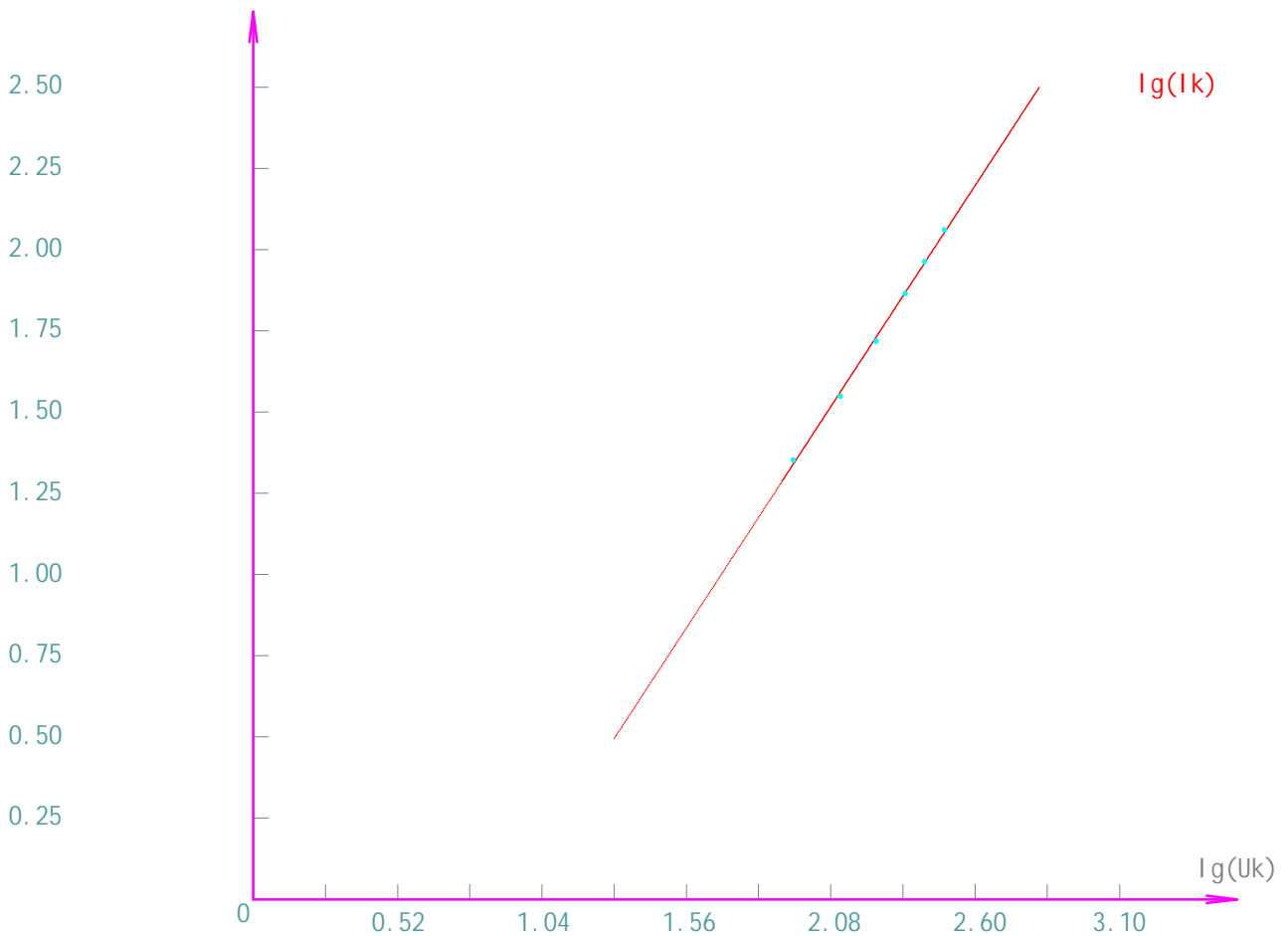
Locked-rotor Test

U(V)	I (A)	P1(KW)	Tor(N.m)
309.8	115.05	27.3400	159.20
263.1	91.91	17.6460	105.60
223.9	73.29	11.3420	68.90
175.7	52.23	5.8180	35.90
130.4	35.35	2.6640	16.50
88.2	22.53	1.0770	6.70

I _k (A): 157.51	I _k /I _n : 6.74
T _k (N.m): 298.38	T _k /T _n : 2.76
P _k (kW): 45.39	

I_g(I_k)

Locked-Rotor Characteristic Curve



test:

check:

three-phase induction motor type test report

Amb Temp: 22.8°C

report NO.: IE3-160L-6 11KW 14052701

test time:

Modle: IE3-160L-6
NO.:
Rated f: 50Hz

Rated U: 400V
Rated I: 22.0A
Rated P: 11kW

Rated η : 90.30%
Cos ϕ : 0.80
Rated speed: 980r/min

InsClass: F
Connect: Δ
Poles: 6

Load Test

P1(kW)	U(V)	I (A)	s(r/min)	Tor (N.m)	windingT(°C)
18.0800	399.4	32.97	956.0	157.700	60.31
15.6400	401.0	28.98	963.0	137.100	61.71
12.4300	400.8	23.68	972.0	108.400	62.38
9.2400	401.4	19.24	980.0	80.700	63.08
6.2500	402.6	15.74	987.0	53.600	63.22
3.2950	402.2	13.06	994.0	25.900	63.00
0.4720	401.1	12.06	1000.0	0.400	62.00
0.4680	402.5	12.17	0.0	0.000	58.62

P2(kW)	Pcu(kW)	Pal (kW)	Ps(kW)	Ss(%)	η (%)	Cos ϕ
15.8826	0.8236	0.7775	0.3065	4.56	87.85	0.793
13.9179	0.6362	0.5647	0.2315	3.82	88.99	0.777
11.2311	0.4246	0.3399	0.1445	2.88	90.35	0.756
8.4101	0.2805	0.1797	0.0799	2.05	91.02	0.691
5.6594	0.1876	0.0781	0.0351	1.33	90.55	0.570
2.8496	0.1293	0.0182	0.0081	0.62	86.48	0.362
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: 0.960

A: 0.012

B: 187.894

θ s(°C): 70.7

150% rated power:

I (A): 34.39
Pcu(kW): 1.0254
 η (%): 87.43

P1(kW): 18.8728
Pal (kW): 0.8203
Cos ϕ : 0.792

Ss (%): 4.65
Ps(kW): 0.3336
P2(kW): 16.50

125% rated power:

I (A): 28.53
Pcu(kW): 0.7055
 η (%): 89.12

P1(kW): 15.4292
Pal (kW): 0.5264
Cos ϕ : 0.781

Ss (%): 3.63
Ps(kW): 0.2245
P2(kW): 13.75

100% rated power:

I (A): 23.37
Pcu(kW): 0.4735
 η (%): 90.40

P1(kW): 12.1683
Pal (kW): 0.3149
Cos ϕ : 0.752

Ss (%): 2.74
Ps(kW): 0.1394
P2(kW): 11.00

75% rated power:

I (A): 19.01
Pcu(kW): 0.3132
 η (%): 91.05

P1(kW): 9.0611
Pal (kW): 0.1675
Cos ϕ : 0.688

Ss (%): 1.96
Ps(kW): 0.0763
P2(kW): 8.25

50% rated power:

I (A): 15.52
Pcu(kW): 0.2089
 η (%): 90.48

P1(kW): 6.0788
Pal (kW): 0.0709
Cos ϕ : 0.565

Ss (%): 1.25
Ps(kW): 0.0331
P2(kW): 5.50

25% rated power:

I (A): 13.00
Pcu(kW): 0.1466
 η (%): 86.14

P1(kW): 3.1925
Pal (kW): 0.0164
Cos ϕ : 0.354

Ss (%): 0.58
Ps(kW): 0.0075
P2(kW): 2.75

Load Characteristic Curve

Report No. : IE3-160L-6 11KW 14052701
 Model : IE3-160L-6
 Rated Output: 11 kW
 Ser.No. :

When P2 = 11 kW ,
 I1 = 23.37 A
 P1 = 12.1683 kW
 Sref = 2.74 %
 η = 90.40 %
 Cos ϕ = 0.752

cos ϕ	η %	Sref %	P1 kW	I1 A
1.0	100	5.0	20	50
0.9	90	4.5	18	45
0.8	80	4.0	16	40
0.7	70	3.5	14	35
0.6	60	3.0	12	30
0.5	50	2.5	10	25
0.4	40	2.0	8	20
0.3	30	1.5	6	15
0.2	20	1.0	4	10
0.1	10	0.5	2	5

