

TYPE TEST REPORT

Report No. : IE3-160L-2 18.5KW 14052101

Product Type Name	IE3-160L-2 Three Phase Asynchronous Motor			Ser.No.	
Rated Output	18.5 kW	Rated Voltage	400 V	Rated Current	32.5 A
Rated Speed	2950 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	0.1959			
2. No load current	A	9.78			
3. No load current deviation	%	6.2			
4. No load input power	W	582.0			
5. Locked rotor current	A	287.40			
6. Locked current/Rated current		8.92			
7. Locked torque	N.m	182.90			
8. Locked torque/Rated torque		3.07			
9. Full load current	A	32.23			
10. Rated torque	N.m	59.54			
11. Max. torque	N.m	221.14			
12. Max. torque/Rated torque		3.71			
13. Full load speed ratio	r/min	2967.1			
14. Iron loss(at Rated voltage)	W	249.3			
15. Mechanical loss(at Rated speed)	W	305.7			
16. Stator winding loss	W	359.8			
17. Rotor winding loss	W	243.7			
18. Other loss	W	337.3			
19. Total loss	W	1495.6			
20. Output power	W	18500			

TYPE TEST REPORT

Report No. : IE3-160L-2 18.5KW 14052101

Test Item	Test Value	Test Result				
21. Input power	W	19995.65				
22. Full load efficiency	%	92.52				
23. Full Load power factor		0.895				
24. Stator winding temp.rise	K	40.9				
25. Bearing temperature	°C	71				
26. Coolant temperature	°C	22.2				
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)	76				
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: 23.8°C

report NO.: IE3-160L-2 18.5KW 14052101

test time:

Modle: IE3-160L-2
NO.:
Rated f: 50Hz

Rated U: 400V
Rated I: 32.5A
Rated P: 18.5kW

Rated η : 92.40%
Cos ϕ : 0.89
Rated speed: 2950r/min

InsClass: F
Connect: Δ
Poles: 2

Resistance test

Rac(Ω): 0.1976

Rbc(Ω): 0.1974

Rab(Ω): 0.1976

Ravg(Ω): 0.1975
115°C R (Ω): 0.2688
25°C R (Ω): 0.1997

Shell Temp(°C): 22.1
Amb Temp(°C): 22.20

No load test

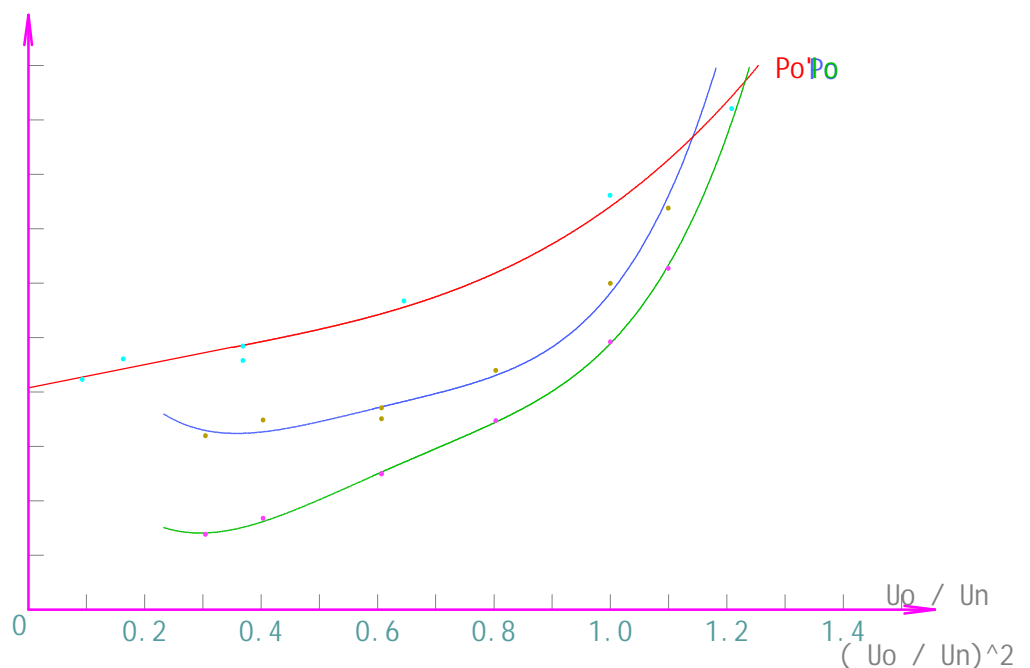
U*	U (V)	I (A)	Po(kW)	Po' (kW)	Pcu(kW)	WindingT(°C)
1.26	502.2	21.17	1.3040	1.1697	0.1343	25.11
1.10	439.7	12.55	0.7380	0.6908	0.0472	25.11
1.00	399.9	9.85	0.6000	0.5709	0.0291	25.44
0.80	321.3	6.96	0.4400	0.4255	0.0145	25.44
0.61	242.8	4.99	0.3710	0.3635	0.0075	25.61
0.61	242.8	4.99	0.3510	0.3435	0.0075	25.61
0.40	161.4	3.36	0.3490	0.3456	0.0034	25.76
0.30	121.8	2.78	0.3200	0.3177	0.0023	25.76

Thermal R(Ω): 0.1990
Io(A): 9.78
Pm(kW): 0.3057

Shell Temp(°C): 23.7
Io(kW): 0.5820
Pfe(kW): 0.2493

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: 22.2°C

report NO.: IE3-160L-2 18.5KW 14052101

test time:

Modle: IE3-160L-2	Rated U: 400V	Rated η : 92.40%	InsClass: F
NO.:	Rated I: 32.5A	Cos ϕ : 0.89	Connect: Δ
Rated f: 50Hz	Rated P: 18.5kW	Rated speed: 2950r/min	Poles: 2

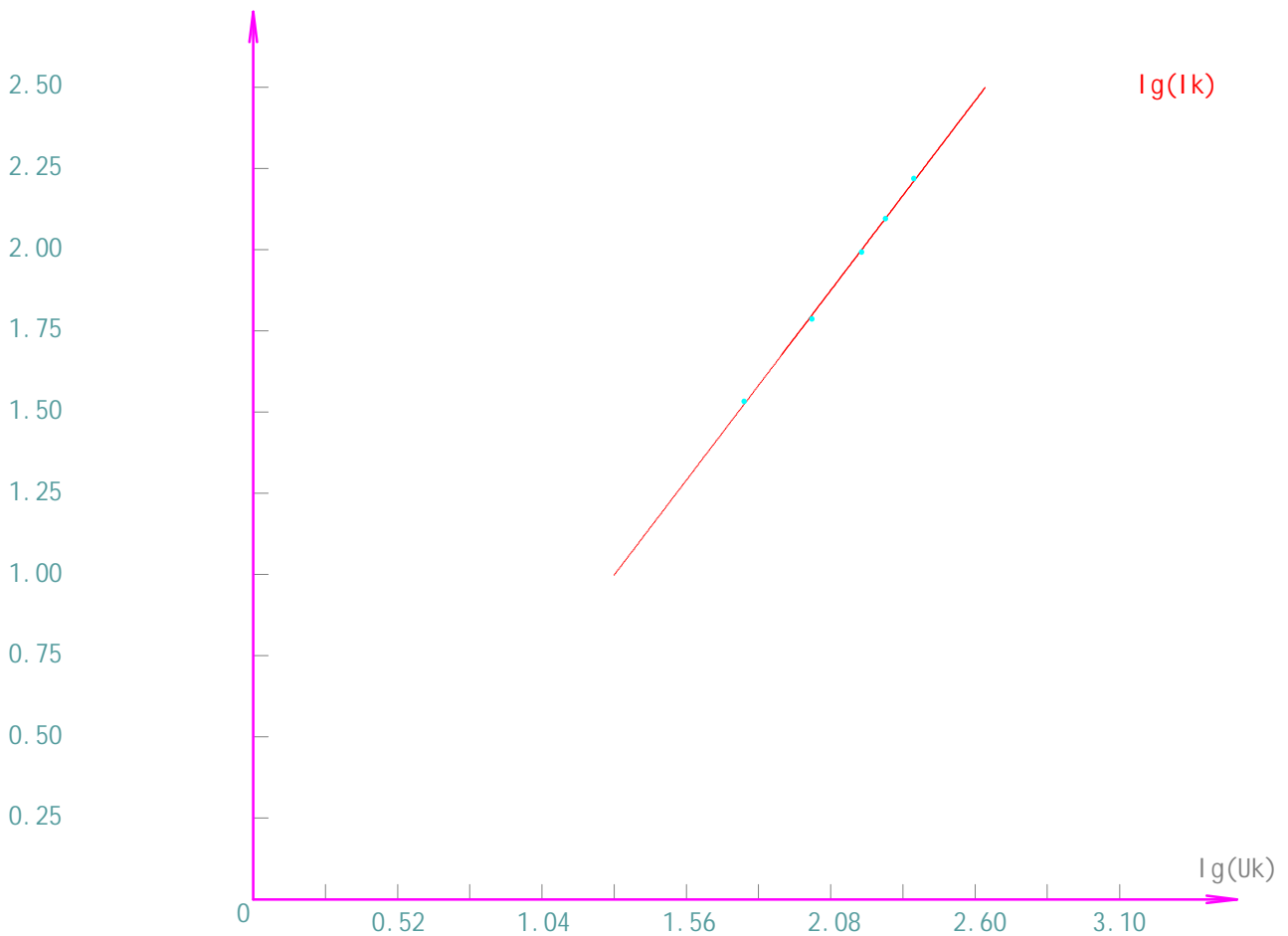
Locked-rotor Test

U(V)	I(A)	P1(KW)	Tor(N.m)
240.3	165.57	30.2800	60.70
189.9	124.58	17.1850	35.10
155.8	98.33	10.7280	22.00
103.2	61.28	4.1970	8.70
58.8	34.14	1.3060	2.70

I _k (A): 287.40	I _k /I _n : 8.92
T _k (N.m): 182.90	T _k /T _n : 3.07
P _k (kW): 84.33	

I_g(I_k)

Locked-Rotor Characteristic Curve



test:

check:

three-phase induction motor type test report

Amb Temp: 22.2°C

report NO.: IE3-160L-2 18.5KW 14052101

test time:

Modle: IE3-160L-2
NO.:
Rated f: 50Hz

Rated U: 400V
Rated I: 32.5A
Rated P: 18.5kW

Rated η : 92.40%
Cos ϕ : 0.89
Rated speed: 2950r/min

InsClass: F
Connect: Δ
Poles: 2

Load Test

P1(kW)	U(V)	I (A)	s(r/min)	Tor (N.m)	windingT(°C)
30.3900	400.2	49.19	2947.0	90.600	26.88
24.9000	401.1	40.00	2958.0	74.700	27.29
20.0500	401.2	32.29	2967.0	59.700	28.47
15.0300	401.9	24.97	2976.0	44.900	29.38
10.0400	402.0	18.17	2984.0	30.100	29.61
5.1100	403.9	12.65	2993.0	15.000	29.64
0.7000	403.0	10.10	2999.0	1.400	28.64
0.6870	402.5	9.98	0.0	0.000	31.55

P2(kW)	Pcu(kW)	Pal (kW)	Ps(kW)	Ss(%)	η (%)	Cos ϕ
27.6132	0.8382	0.5979	0.7857	2.04	90.86	0.891
22.8712	0.5542	0.3890	0.5307	1.61	91.85	0.896
18.5526	0.3612	0.2454	0.3358	1.26	92.53	0.894
13.9387	0.2160	0.1332	0.1870	0.91	92.74	0.865
9.2302	0.1144	0.0590	0.0815	0.61	91.93	0.793
4.4684	0.0554	0.0128	0.0184	0.27	87.45	0.578
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: 0.933

A: 0.099

B: 319.954

θ s(°C): 65.9

150% rated power:

I (A): 49.46
Pcu(kW): 0.9863
 η (%): 90.83

P1(kW): 30.5526
Pal (kW): 0.5217
Cos ϕ : 0.892

Ss (%): 1.78
Ps(kW): 0.7950
P2(kW): 27.75

125% rated power:

I (A): 40.49
Pcu(kW): 0.6611
 η (%): 91.82

P1(kW): 25.1856
Pal (kW): 0.3435
Cos ϕ : 0.898

Ss (%): 1.42
Ps(kW): 0.5397
P2(kW): 23.13

100% rated power:

I (A): 32.23
Pcu(kW): 0.4189
 η (%): 92.52

P1(kW): 19.9957
Pal (kW): 0.2117
Cos ϕ : 0.895

Ss (%): 1.10
Ps(kW): 0.3373
P2(kW): 18.50

75% rated power:

I (A): 24.79
Pcu(kW): 0.2478
 η (%): 92.74

P1(kW): 14.9610
Pal (kW): 0.1164
Cos ϕ : 0.871

Ss (%): 0.80
Ps(kW): 0.1851
P2(kW): 13.88

50% rated power:

I (A): 18.27
Pcu(kW): 0.1346
 η (%): 91.95

P1(kW): 10.0600
Pal (kW): 0.0510
Cos ϕ : 0.795

Ss (%): 0.53
Ps(kW): 0.0803
P2(kW): 9.25

25% rated power:

I (A): 12.79
Pcu(kW): 0.0660
 η (%): 87.75

P1(kW): 5.2707
Pal (kW): 0.0122
Cos ϕ : 0.595

Ss (%): 0.25
Ps(kW): 0.0202
P2(kW): 4.63

Load Characteristic Curve

Report No. : IE3-160L-2 18.5KW 14052101 When P2 = 18.5 kW ,
 Model : IE3-160L-2 I1 = 32.23 A
 Rated Output: 18.5 kW P1 = 19.9957 kW
 Ser.No. : Sref = 1.10 %
 η = 92.52 %
 Cos φ = 0.895

cos φ	η	Sref	P1	I1
	%	%	kW	A
1.0	100	2.0	25.0	50
0.9	90	1.8	22.5	45
0.8	80	1.6	20.0	40
0.7	70	1.4	17.5	35
0.6	60	1.2	15.0	30
0.5	50	1.0	12.5	25
0.4	40	0.8	10.0	20
0.3	30	0.6	7.5	15
0.2	20	0.4	5.0	10
0.1	10	0.2	2.5	5

