

TYPE TEST REPORT

Report No. : IE3-100L1-4 2.2KW 15051501

| | | | | | |
|-------------------------------------|--|------------------|--------------|------------------|-------|
| Product Type Name | IE3-100L1-4 Three Phase Asynchronous Motor | | | Ser.No. | 铝 |
| Rated Output | 2.2 kW | Rated Voltage | 400 V | Rated Current | 4.5 A |
| Rated Speed | 1455 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 | 3.3154 | | | |
| 2. No load current | A | 2.58 | | | |
| 3. No load current deviation | % | 2.7 | | | |
| 4. No load input power | W | 142.7 | | | |
| 5. Locked rotor current | A | 39.88 | | | |
| 6. Locked current/Rated current | | 8.75 | | | |
| 7. Locked torque | N.m | 41.71 | | | |
| 8. Locked torque/Rated torque | | 2.90 | | | |
| 9. Full load current | A | 4.56 | | | |
| 10. Rated torque | N.m | 14.36 | | | |
| 11. Max. torque | N.m | 53.94 | | | |
| 12. Max. torque/Rated torque | | 3.76 | | | |
| 13. Full load speed ratio | r/min | 1462.5 | | | |
| 14. Iron loss(at Rated voltage) | W | 84.6 | | | |
| 15. Mechanical loss(at Rated speed) | W | 25.2 | | | |
| 16. Stator winding loss | W | 118.5 | | | |
| 17. Rotor winding loss | W | 60.0 | | | |
| 18. Other loss | W | 42.4 | | | |
| 19. Total loss | W | 333.5 | | | |
| 20. Output power | W | 2200 | | | |

TYPE TEST REPORT

Report No. : IE3-100L1-4 2.2KW 15051501

| Test Item | | Test Value | Test Result |
|---|-------|-------------|-------------|
| 21. Input power | W | 2533.53 | |
| 22. Full load efficiency | % | 86.84 | |
| 23. Full Load power factor | | 0.803 | |
| 24. Stator winding temp.rise | K | 33.0 | |
| 25. Bearing temperature | ℃ | | |
| 26. Coolant temperature | ℃ | 21.2 | |
| 27. Insulation resistance warmly to frame | MΩ | | |
| 28. High voltage test | V min | Pass | Passed |
| 29. Vibration | mm/s | | |
| 30. Noise | dB(A) | | |
| 31. Rotation Direction | | Right | Passed |
| 32. H.V. impulse 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: 22.41°C

report NO.: IE3-100L1-4 2.2KW 15051501

test time:

| | | | |
|--------------------|----------------|------------------------|-------------|
| Modle: IE3-100L1-4 | Rated U: 400V | Rated η : 86.70% | InsClass: F |
| NO.: 铝 | Rated I: 4.5A | Cos ϕ : 0.81 | Connect: Y |
| Rated f: 50Hz | Rated P: 2.2kW | Rated speed: 1455r/min | Poles: 4 |

Resistance test

Rac(Ω): 3.3340

Rbc(Ω): 3.3330

Rab(Ω): 3.3300

Ravg(Ω): 3.3323
 115°C R (Ω): 4.5533
 25°C R (Ω): 3.3824

Shell Temp(°C): 21.3
 Amb Temp(°C): 21.15

Noload test

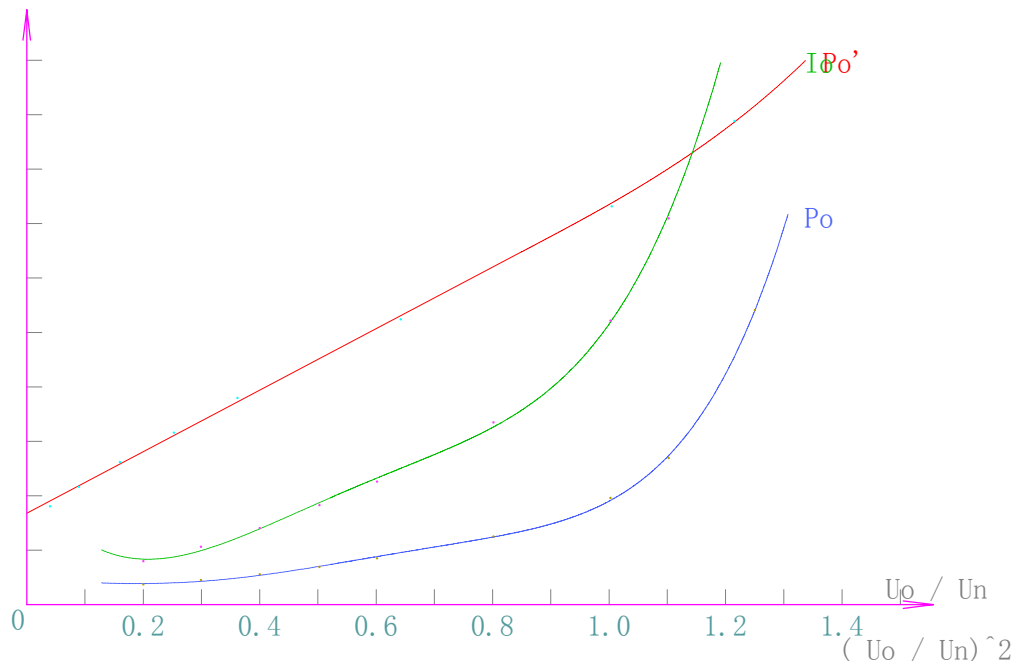
| U* | U (V) | I (A) | Po(kW) | Po' (kW) | Pcu(kW) | WindingT(°C) |
|------|-------|-------|--------|----------|---------|--------------|
| 1.25 | 500.1 | 6.25 | 0.4060 | 0.1933 | 0.2127 | 44.40 |
| 1.10 | 441.0 | 3.55 | 0.2020 | 0.1333 | 0.0687 | 44.40 |
| 1.00 | 400.9 | 2.61 | 0.1470 | 0.1098 | 0.0372 | 45.00 |
| 0.80 | 320.5 | 1.68 | 0.0940 | 0.0787 | 0.0153 | 45.00 |
| 0.60 | 240.6 | 1.13 | 0.0640 | 0.0570 | 0.0070 | 44.80 |
| 0.50 | 201.1 | 0.91 | 0.0520 | 0.0474 | 0.0046 | 44.80 |
| 0.40 | 160.0 | 0.71 | 0.0420 | 0.0393 | 0.0027 | 44.40 |
| 0.30 | 119.7 | 0.53 | 0.0340 | 0.0325 | 0.0015 | 44.40 |
| 0.20 | 80.0 | 0.40 | 0.0280 | 0.0271 | 0.0009 | 43.54 |

Thermal R(Ω): 3.6200
 Io(A): 2.58
 Pm(kW): 0.0252

Shell Temp(°C): 35.8
 Io(kW): 0.1427
 Pfe(kW): 0.0846

No Load Characteristic Curve

| Io | Po | Po' |
|-----|-------|-------|
| A | kW | kW |
| 5.0 | 0.750 | 0.150 |
| 4.5 | 0.675 | 0.135 |
| 4.0 | 0.600 | 0.120 |
| 3.5 | 0.525 | 0.105 |
| 3.0 | 0.450 | 0.090 |
| 2.5 | 0.375 | 0.075 |
| 2.0 | 0.300 | 0.060 |
| 1.5 | 0.225 | 0.045 |
| 1.0 | 0.150 | 0.030 |
| 0.5 | 0.075 | 0.015 |



test:

check:

three-phase induction motor type test report

Amb Temp: 21.2°C

report NO.: IE3-100L1-4 2.2KW 15051501

test time:

| | | | |
|--------------------|----------------|------------------------|-------------|
| Modle: IE3-100L1-4 | Rated U: 400V | Rated η : 86.70% | InsClass: F |
| NO.: 铝 | Rated I: 4.5A | $\cos\phi$: 0.81 | Connect: Y |
| Rated f: 50Hz | Rated P: 2.2kW | Rated speed: 1455r/min | Poles: 4 |

Locked-rotor Test

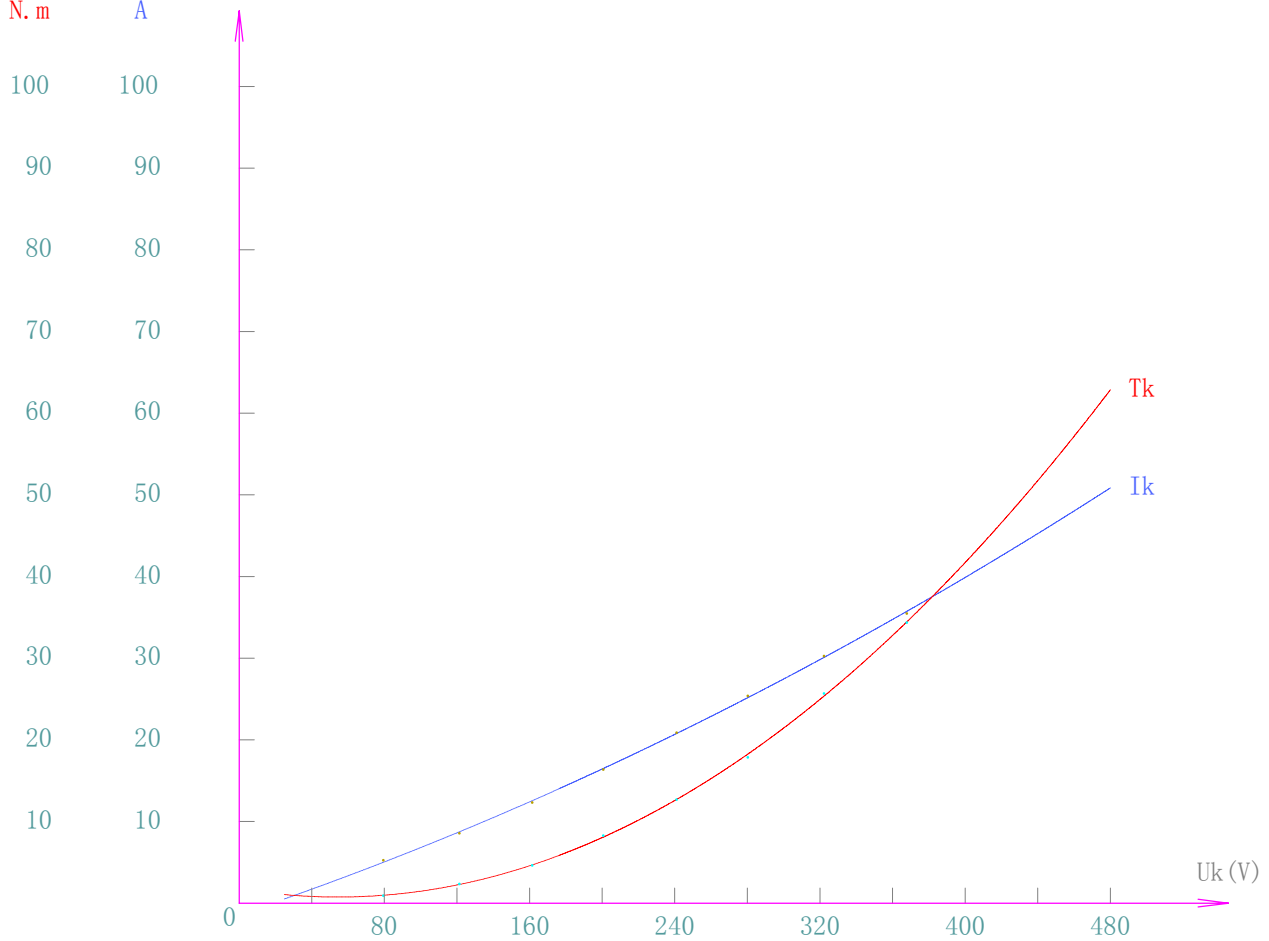
| U (V) | I (A) | P1 (KW) | Tor (N. m) |
|-------|-------|---------|------------|
| 367.8 | 35.49 | 13.0300 | 34.36 |
| 322.2 | 30.28 | 9.3100 | 25.69 |
| 280.3 | 25.40 | 6.4800 | 17.86 |
| 241.0 | 20.88 | 4.3800 | 12.68 |
| 200.6 | 16.37 | 2.6990 | 8.28 |
| 161.5 | 12.32 | 1.5410 | 4.63 |
| 121.4 | 8.57 | 0.7530 | 2.37 |
| 79.4 | 5.25 | 0.2870 | 0.92 |

| | |
|------------------|-------------|
| Ik (A): 39.88 | Ik/In: 8.75 |
| Tk (N. m): 41.71 | Tk/Tn: 2.90 |
| Pk (kW): 14.95 | |

Tk
N. m

Ik
A

Locked-Rotor Characteristic Curve



test:

check:

three-phase induction motor type test report

Amb Temp: 21.2°C

report NO.: IE3-100L1-4 2.2KW 15051501

test time:

| | | | |
|--------------------|----------------|------------------------|-------------|
| Modle: IE3-100L1-4 | Rated U: 400V | Rated η : 86.70% | InsClass: F |
| NO.: 铝 | Rated I: 4.5A | Cos ϕ : 0.81 | Connect: Y |
| Rated f: 50Hz | Rated P: 2.2kW | Rated speed: 1455r/min | Poles: 4 |

Load Test

| P1 (kW) | U (V) | I (A) | s (r/min) | Tor (N.m) | windingT(°C) |
|---------|-------|-------|-----------|-----------|--------------|
| 3.9300 | 400.8 | 6.55 | 1438.0 | 22.330 | 47.02 |
| 3.2100 | 402.1 | 5.46 | 1451.0 | 18.350 | 48.14 |
| 2.5660 | 401.3 | 4.61 | 1462.0 | 14.720 | 48.35 |
| 1.8700 | 401.9 | 3.79 | 1473.0 | 10.740 | 48.14 |
| 1.2740 | 400.1 | 3.15 | 1482.0 | 7.170 | 47.82 |
| 0.7080 | 400.3 | 2.73 | 1490.0 | 3.670 | 47.26 |
| 0.2660 | 401.0 | 2.63 | 1497.0 | 0.920 | 45.94 |
| 0.1370 | 400.3 | 2.60 | 0.0 | 0.000 | 43.60 |

| P2 (kW) | Pcu (kW) | Pal (kW) | Ps (kW) | Ss (%) | η (%) | Cos ϕ |
|---------|----------|----------|---------|--------|------------|------------|
| 3.3193 | 0.2453 | 0.1548 | 0.1008 | 4.30 | 84.46 | 0.864 |
| 2.7620 | 0.1703 | 0.1000 | 0.0679 | 3.38 | 86.04 | 0.845 |
| 2.2290 | 0.1217 | 0.0619 | 0.0436 | 2.62 | 86.87 | 0.800 |
| 1.6233 | 0.0820 | 0.0318 | 0.0231 | 1.86 | 86.81 | 0.709 |
| 1.0832 | 0.0567 | 0.0141 | 0.0102 | 1.24 | 85.02 | 0.584 |
| 0.5490 | 0.0426 | 0.0040 | 0.0026 | 0.69 | 77.55 | 0.374 |
| 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; 0.990

A: 0.204

B: -7.627

θ_s (°C): 58.0

150% rated power:

| | | |
|-------------------|--------------------|-----------------|
| I (A): 6.50 | P1 (kW): 3.9007 | Ss (%): 4.10 |
| Pcu (kW): 0.2887 | Pal (kW): 0.1447 | Ps (kW): 0.0995 |
| η (%): 84.60 | Cos ϕ : 0.866 | P2 (kW): 3.30 |

125% rated power:

| | | |
|-------------------|--------------------|-----------------|
| I (A): 5.46 | P1 (kW): 3.2018 | Ss (%): 3.25 |
| Pcu (kW): 0.2033 | Pal (kW): 0.0947 | Ps (kW): 0.0674 |
| η (%): 85.89 | Cos ϕ : 0.847 | P2 (kW): 2.75 |

100% rated power:

| | | |
|-------------------|--------------------|-----------------|
| I (A): 4.56 | P1 (kW): 2.5335 | Ss (%): 2.50 |
| Pcu (kW): 0.1418 | Pal (kW): 0.0576 | Ps (kW): 0.0424 |
| η (%): 86.84 | Cos ϕ : 0.803 | P2 (kW): 2.20 |

75% rated power:

| | | |
|-------------------|--------------------|-----------------|
| I (A): 3.80 | P1 (kW): 1.8958 | Ss (%): 1.83 |
| Pcu (kW): 0.0988 | Pal (kW): 0.0313 | Ps (kW): 0.0237 |
| η (%): 87.03 | Cos ϕ : 0.720 | P2 (kW): 1.65 |

50% rated power:

| | | |
|-------------------|--------------------|-----------------|
| I (A): 3.19 | P1 (kW): 1.2887 | Ss (%): 1.22 |
| Pcu (kW): 0.0695 | Pal (kW): 0.0139 | Ps (kW): 0.0107 |
| η (%): 85.35 | Cos ϕ : 0.583 | P2 (kW): 1.10 |

25% rated power:

| | | |
|-------------------|--------------------|-----------------|
| I (A): 2.72 | P1 (kW): 0.7122 | Ss (%): 0.67 |
| Pcu (kW): 0.0505 | Pal (kW): 0.0038 | Ps (kW): 0.0026 |
| η (%): 77.22 | Cos ϕ : 0.378 | P2 (kW): 0.55 |

