

TYPE TEST REPORT

Report No. : IE3-112M-2 4KW D 140901

Product Type Name	IE3-112M-2 Three Phase Asynchronous Motor			Ser.No.	
Rated Output	4 kW	Rated Voltage	415 V	Rated Current	7.4 A
Rated Speed	2910 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	2.0222			
2. No load current	A	2.59			
3. No load current deviation	%	3.5			
4. No load input power	W	208.9			
5. Locked rotor current	A	59.92			
6. Locked current/Rated current		8.15			
7. Locked torque	N.m	31.79			
8. Locked torque/Rated torque		2.43			
9. Full load current	A	7.35			
10. Rated torque	N.m	13.11			
11. Max. torque	N.m	43.02			
12. Max. torque/Rated torque		3.28			
13. Full load speed ratio	r/min	2913.8			
14. Iron loss(at Rated voltage)	W	90.9			
15. Mechanical loss(at Rated speed)	W	95.5			
16. Stator winding loss	W	196.0			
17. Rotor winding loss	W	128.6			
18. Other loss	W	25.5			
19. Total loss	W	536.5			
20. Output power	W	4000			

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Test Item		Test Value	Test Result
21. Input power	W	4536.55	
22. Full load efficiency	%	88.17	
23. Full Load power factor		0.890	
24. Stator winding temp.rise	K	43.0	
25. Bearing temperature	°C	59	
26. Coolant temperature	°C	27.8	
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)	68	
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: 27.8°C

report NO.: IE3-112M-2 4KW D 140901

test time:

Modle: IE3-112M-2
NO.:
Rated f: 50Hz

Rated U: 415V
Rated I: 7.4A
Rated P: 4kW

Rated η : 88.10%
Cos ϕ : 0.88
Rated speed: 2910r/min

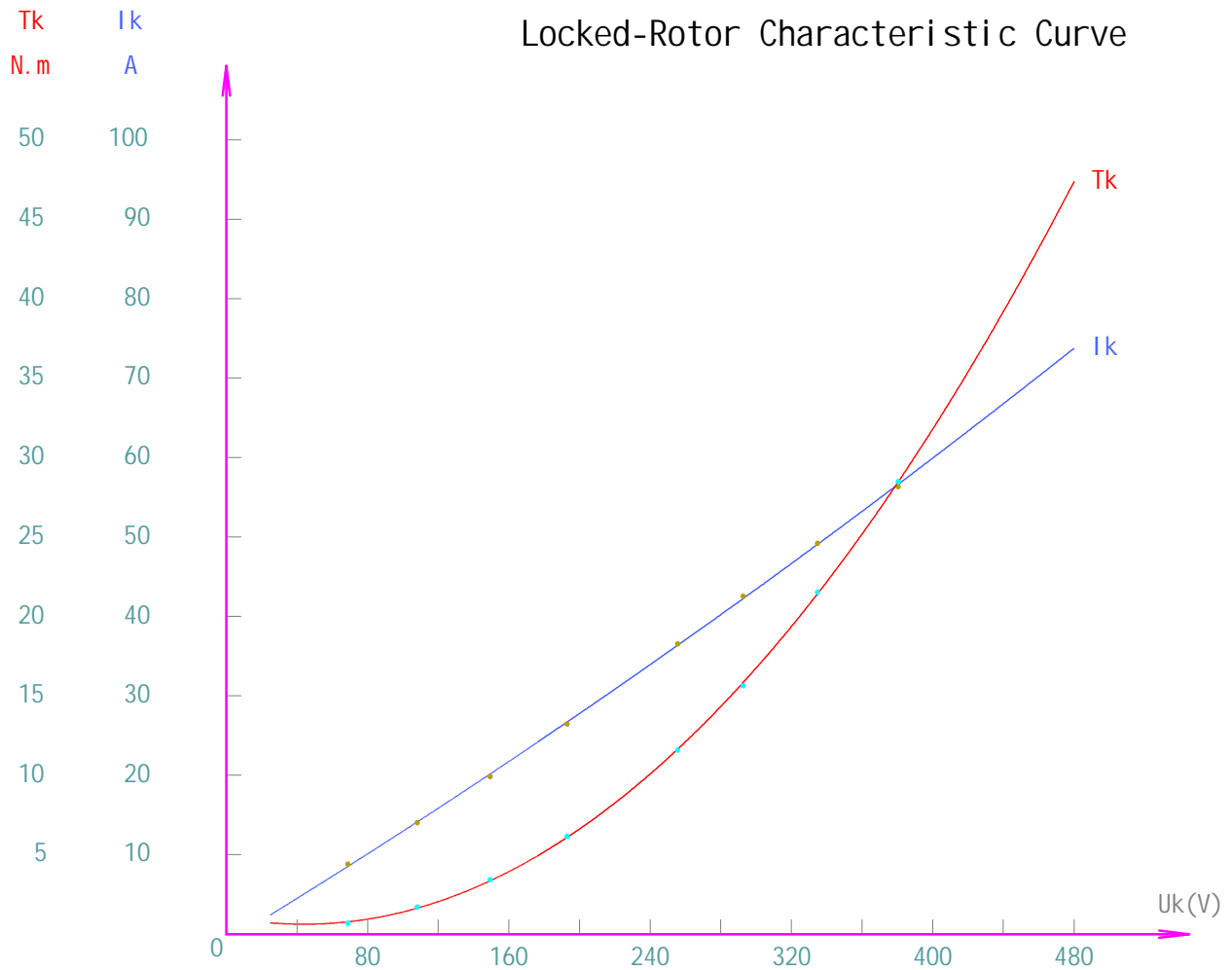
InsClass: F
Connect: Δ
Poles: 2

Locked-rotor Test

U(V)	I (A)	P1(KW)	Tor(N.m)
380.4	56.34	21.4400	28.49
334.8	49.23	15.9000	21.52
292.6	42.55	11.5500	15.64
255.6	36.54	8.3900	11.60
192.9	26.49	4.3620	6.16
149.3	19.85	2.4400	3.44
108.2	14.04	1.2220	1.72
68.8	8.83	0.4830	0.69

I_k (A): 59.92
T_k(N.m): 31.79
P_k(kW): 23.11

I_k/I_n: 8.15
T_k/T_n: 2.43



test:

check:

three-phase induction motor type test report

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Poles: 2

Load Test

P1(kW)	U(V)	I (A)	s(r/min)	Tor (N.m)	windingT(°C)
7.1200	403.6	11.30	2859.0	20.030	52.44
6.0420	402.5	9.67	2882.0	16.930	52.52
4.6700	400.6	7.55	2911.0	13.070	53.17
3.5720	402.1	5.95	2934.0	9.880	53.31
2.4280	401.7	4.43	2957.0	6.450	53.45
1.4140	403.5	3.35	2977.0	3.340	53.48
0.6590	401.1	2.78	2990.0	1.090	52.67
0.3010	401.3	2.61	0.0	0.000	50.17

P2(kW)	Pcu(kW)	Pal (kW)	Ps(kW)	Ss(%)	η (%)	Cos ϕ
6.0826	0.4612	0.3260	0.0638	4.96	85.43	0.902
5.2390	0.3379	0.2331	0.0456	4.15	86.71	0.896
4.1140	0.2057	0.1367	0.0272	3.12	88.09	0.892
3.1645	0.1279	0.0777	0.0156	2.32	88.59	0.862
2.1299	0.0709	0.0342	0.0067	1.51	87.72	0.788
1.1749	0.0406	0.0103	0.0018	0.81	83.09	0.604
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: 0.909

A: 0.158

B: 129.104

θ s(°C): 68.0

150% rated power:

I (A): 11.14
Pcu(kW): 0.5176
 η (%): 85.56

P1(kW): 7.0126
Pal (kW): 0.2961
Cos ϕ : 0.909

Ss (%): 4.62
Ps(kW): 0.0618
P2(kW): 6.00

125% rated power:

I (A): 9.20
Pcu(kW): 0.3533
 η (%): 87.06

P1(kW): 5.7433
Pal (kW): 0.1972
Cos ϕ : 0.901

Ss (%): 3.72
Ps(kW): 0.0413
P2(kW): 5.00

100% rated power:

I (A): 7.35
Pcu(kW): 0.2256
 η (%): 88.17

P1(kW): 4.5365
Pal (kW): 0.1212
Cos ϕ : 0.890

Ss (%): 2.87
Ps(kW): 0.0255
P2(kW): 4.00

75% rated power:

I (A): 5.68
Pcu(kW): 0.1346
 η (%): 88.59

P1(kW): 3.3865
Pal (kW): 0.0657
Cos ϕ : 0.861

Ss (%): 2.08
Ps(kW): 0.0139
P2(kW): 3.00

50% rated power:

I (A): 4.26
Pcu(kW): 0.0759
 η (%): 87.44

P1(kW): 2.2873
Pal (kW): 0.0283
Cos ϕ : 0.774

Ss (%): 1.34
Ps(kW): 0.0059
P2(kW): 2.00

25% rated power:

I (A): 3.19
Pcu(kW): 0.0425
 η (%): 81.12

P1(kW): 1.2328
Pal (kW): 0.0072
Cos ϕ : 0.558

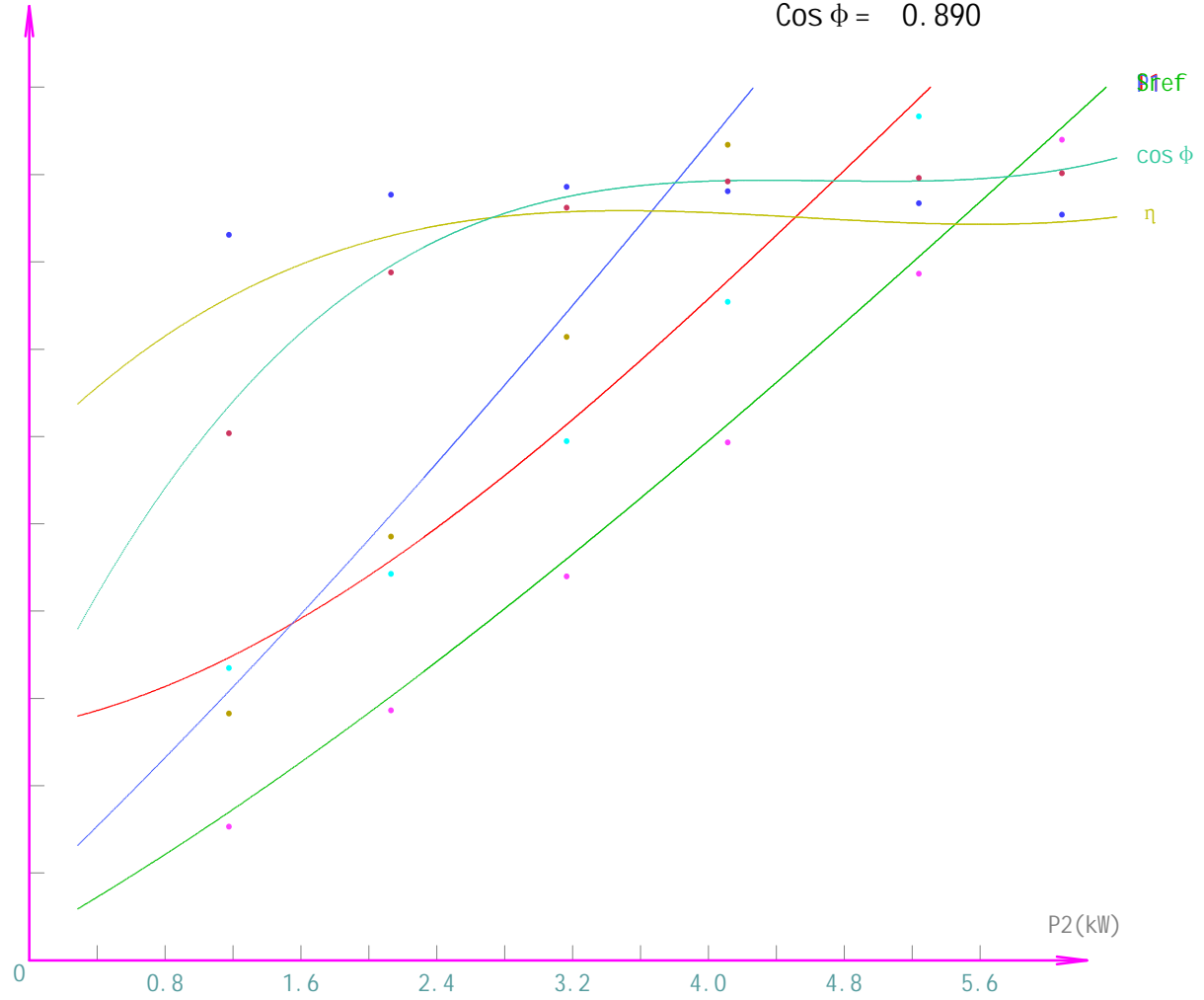
Ss (%): 0.65
Ps(kW): 0.0011
P2(kW): 1.00

Load Characteristic Curve

Report No. : IE3-112M-2 4KW D 140901
 Model : IE3-112M-2
 Rated Output: 4 kW
 Ser.No. :

When P2 = 4 kW ,
 I1 = 7.35 A
 P1 = 4.5365 kW
 Sref = 2.87 %
 η = 88.17 %
 Cos ϕ = 0.890

cos ϕ	η	Sref	P1	I1
	%	%	kW	A
1.0	100	5.0	5.0	10
0.9	90	4.5	4.5	9
0.8	80	4.0	4.0	8
0.7	70	3.5	3.5	7
0.6	60	3.0	3.0	6
0.5	50	2.5	2.5	5
0.4	40	2.0	2.0	4
0.3	30	1.5	1.5	3
0.2	20	1.0	1.0	2
0.1	10	0.5	0.5	1



three-phase induction motor type test report

Amb Temp: °C

report NO.: IE3-112M-2 4KW D 140901

test time:

Modle: IE3-112M-2
NO.:
Rated f: 50Hz

Rated U: 415V
Rated I: 7.4A
Rated P: 4kW

Rated η : 88.10%
Cos ϕ : 0.88
Rated speed: 2910r/min

InsClass: F
Connect: Δ
Poles: 2

Resistance test

Rac(Ω): 2.0880

Rbc(Ω): 2.0890

Rab(Ω): 2.0870

Ravg(Ω): 2.0880
115°C R (Ω): 2.7811
25°C R (Ω): 2.0660

Shell Temp(°C): 28.3
Amb Temp(°C): 27.77

No load test

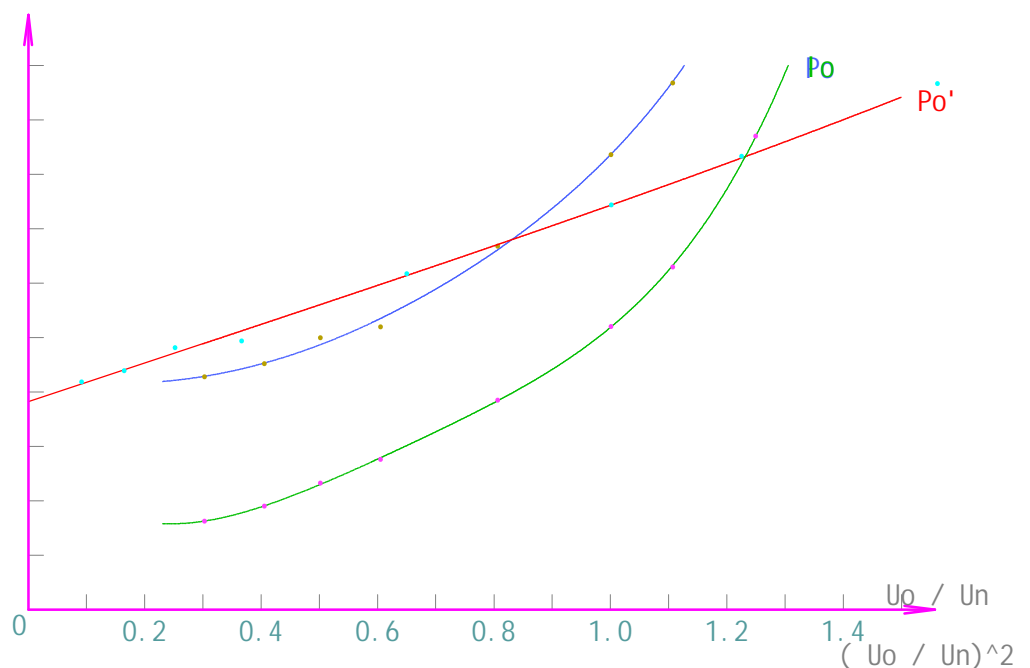
U*	U (V)	I (A)	Po(kW)	Po' (kW)	Pcu(kW)	WindingT(°C)
1.25	499.9	4.35	0.3060	0.2417	0.0643	49.94
1.11	442.8	3.15	0.2420	0.2083	0.0337	49.94
1.00	400.3	2.60	0.2090	0.1860	0.0230	50.11
0.81	322.6	1.93	0.1670	0.1544	0.0126	50.11
0.61	242.1	1.38	0.1300	0.1235	0.0065	50.11
0.50	200.8	1.16	0.1250	0.1204	0.0046	50.11
0.41	162.3	0.95	0.1130	0.1099	0.0031	49.85
0.30	121.0	0.82	0.1070	0.1047	0.0023	49.85

Thermal R(Ω): 2.2920
Io(A): 2.59
Pm(kW): 0.0955

Shell Temp(°C): 41.9
Io(kW): 0.2089
Pfe(kW): 0.0909

No Load Characteristic Curve

Io	Po	Po'
A	kW	kW
5.0	0.250	0.250
4.5	0.225	0.225
4.0	0.200	0.200
3.5	0.175	0.175
3.0	0.150	0.150
2.5	0.125	0.125
2.0	0.100	0.100
1.5	0.075	0.075
1.0	0.050	0.050
0.5	0.025	0.025



test:

check:

CERTIFICATE of conformity with the following European Directive:

Registrier-Nr./Registered No.:
861631100024001

Electromagnetic Compatibility Directive 2014/30/EU

Reference of applicant	Date of application	File reference	Test report No.	Date of issue
-	08.10.2016	HZP1610001-01	TRHZP1610001-01/01	21.10.2016

It is to certify that the following product(s) comply/complies with the essential requirements (Annex I) of the above mentioned European Directive and the following standard(s):

Applicant: Guanglu Electrical Co., Ltd.
Shanshi Industrial Area, Daxi Town, Wenling City, Zhejiang, China

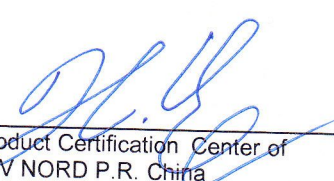
Manufacturer: Guanglu Electrical Co., Ltd.
Shanshi Industrial Area, Daxi Town, Wenling City, Zhejiang, China

Product: Three Phase Induction Motor

Model(s): IE3 series (Details refer to test report No.: TRHZP1610001-01/01)

Standard(s): EN 60034-1:2010

This Certificate of Conformity is based on the evaluation of samples of the product. It does not imply an assessment of the production and it does not permit the use of a mark of conformity or of a safety mark of the TÜV NORD CERT GmbH. The holder of this certificate may use this Certificate together with his EC-Declaration of Conformity.


Product Certification Center of
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Technical report No. TRHZP1610001-01/01
File-No.: HZP1610001-01



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Technical report
No. TRHZP1610001/01
about the test of a technical equipment

Applicant: Guanglu Electrical Co., Ltd.
Shanshi Industrial Area, Daxi Town, Wenling City, Zhejiang,
China

Order No.: QTHZP10001/16-01

This report contains 3 text pages

Evaluated: 21.10.2016 by: Yuan Chao

Technic certified: 21.10.2016 by: Carol Zheng



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Applicant:	Guanglu Electrical Co., Ltd. Shanshi Industrial Area, Daxi Town, Wenling City, Zhejiang, China
Manufacturer:	Guanglu Electrical Co., Ltd. Shanshi Industrial Area, Daxi Town, Wenling City, Zhejiang, China
Equipment under test:	Three Phase Induction Motor Model No.: IE3 series(Detailed refer to next page)
Ratings:	Rated Voltage: 400 V Rated Frequency: 50 Hz Rated Output Power: Refer to next page
Type of examination:	Conformity testing to EMC Directive
Test regulations:	EN 60034-1:2010
Test location:	TÜV NORD (Hangzhou) Co., Ltd. No.50, Jiu Huan Road, 5th floor, Jiang Gan District, Hangzhou, China
Test result:	The referenced units are in compliance with above requirements.
Remark:	<p>After a careful examination of the circuit diagram, mode of operation and physical characteristics of the approving three phase induction motors showing that these motors do not have any EMC active electronic components. These motors are squirrel cage induction motors (motor without brushes), where the emission are always so low that emission testing is not needed according to the requirement of clause 13.5.1 of EN 60034-1:2010.</p> <p>Therefore it is concluded that the emission levels of the above mentioned three phase induction motors are far below the limits of the relevant EMC standards and relevant emission tests can be omitted.</p>

Remark to be continued:

The approving three phase induction motors do not have any electronic control circuitry or EMC sensitive components. Motors not incorporating electronic circuits are not sensitive to electromagnetic emissions under normal service conditions and therefore no immunity tests are required according to the requirement of clause 13.2.1 of EN 60034-1:2010.

Model No. and parameters:

Model No.	Rated output power (kW)	Model No.	Rated output power (kW)	Model No.	Rated output power (kW)
IE3-80M1-2	0.75	IE3-80M2-4	0.75	IE3-90S-6	0.75
IE3-80M2-2	1.1	IE3-90S-4	1.1	IE3-90L-6	1.1
IE3-90S-2	1.5	IE3-90L-4	1.5	IE3-100L1-6	1.5
IE3-90L-2	2.2	IE3-100L1-4	2.2	IE3-112M-6	2.2
IE3-100L1-2	3	IE3-100L2-4	3	IE3-132S-6	3
IE3-112M-2	4	IE3-112M-4	4	IE3-132M1-6	4
IE3-132S1-2	5.5	IE3-132S-4	5.5	IE3-132M2-6	5.5
IE3-132S2-2	7.5	IE3-132M-4	7.5	IE3-160M-6	7.5
IE3-160M1-2	11	IE3-160M-4	11	IE3-160L-6	11
IE3-160M2-2	15	IE3-160L-4	15	IE3-180L-6	15
IE3-160L-2	18.5	IE3-180M-4	18.5	IE3-200L1-6	18.5
IE3-180M-2	22	IE3-180L-4	22	IE3-200L2-6	22
IE3-200L1-2	30	IE3-200L-4	30	IE3-225M-6	30
IE3-200L2-2	37	IE3-225S-4	37	IE3-250M-6	37
IE3-225M-2	45	IE3-225M-4	45	IE3-280S-6	45
IE3-250M-2	55	IE3-250M-4	55	IE3-280M-6	55
IE3-280S-2	75	IE3-280S-4	75	IE3-315S-6	75
IE3-280M-2	90	IE3-280M-4	90	IE3-315M-6	90
IE3-315S-2	110	IE3-315S-4	110	IE3-315L1-6	110
IE3-315M-2	132	IE3-315M-4	132	IE3-315L2-6	132
IE3-315L1-2	160	IE3-315L1-4	160	IE3-355M1-6	160
IE3-315L2-2	200	IE3-315L2-4	200	IE3-355M2-6	200
IE3-355M-2	250	IE3-355M-4	250	IE3-355L-6	250
IE3-355L-2	315	IE3-355L1-4	280	/	/
/	/	IE3-355L2-4	315	/	/
/	/	IE3-355L3-4	355	/	/