TYPE TEST REPORT

Report No.：IE3-160M-4 11KW 14051501

Product Type Name	IE3-160M-4 Three Phase Asynchronous Motor			Ser.No.	
Rated Output	11 kW	Rated Voltage	415 V	Rated Current	20.4 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		Test Value	Test Result
1. Stator resistance at 20℃	Ω	0.4306	
2. No load current	A	7.67	
3. No load current deviation	%	3.4	
4. No load input power	W	390.1	
5. Locked rotor current	A	144.46	
6. Locked current/Rated current		7.15	
7. Locked torque	N.m	120.55	
8. Locked torque/Rated torque		1.69	
9. Full load current	A	20.19	
10. Rated torque	N.m	71.19	
11. Max. torque	N.m	218.27	
12. Max. torque/Rated torque		3.07	
13. Full load speed ratio	r/min	1475.6	
14. Iron loss(at Rated voltage)	W	256.5	
15. Mechanical loss(at Rated speed)	W	91.5	
16. Stator winding loss	W	314.2	
17. Rotor winding loss	W	192.5	
18. Other loss	W	169.7	
19. Total loss	W	1029.6	
20. Output power	W	11000	

TYPE TEST REPORT

Report No.：IE3-160M-4 11KW 14051501

Test Item		Test Value	Test Result
21. Input power	W	12029.59	
22. Full load efficiency	%	91.44	
23. Full Load power factor		0.860	
24. Stator winding temp.rise	K	43.7	
25. Bearing temperature	℃	54	
26. Coolant temperature	℃	21.8	
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)	62	
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

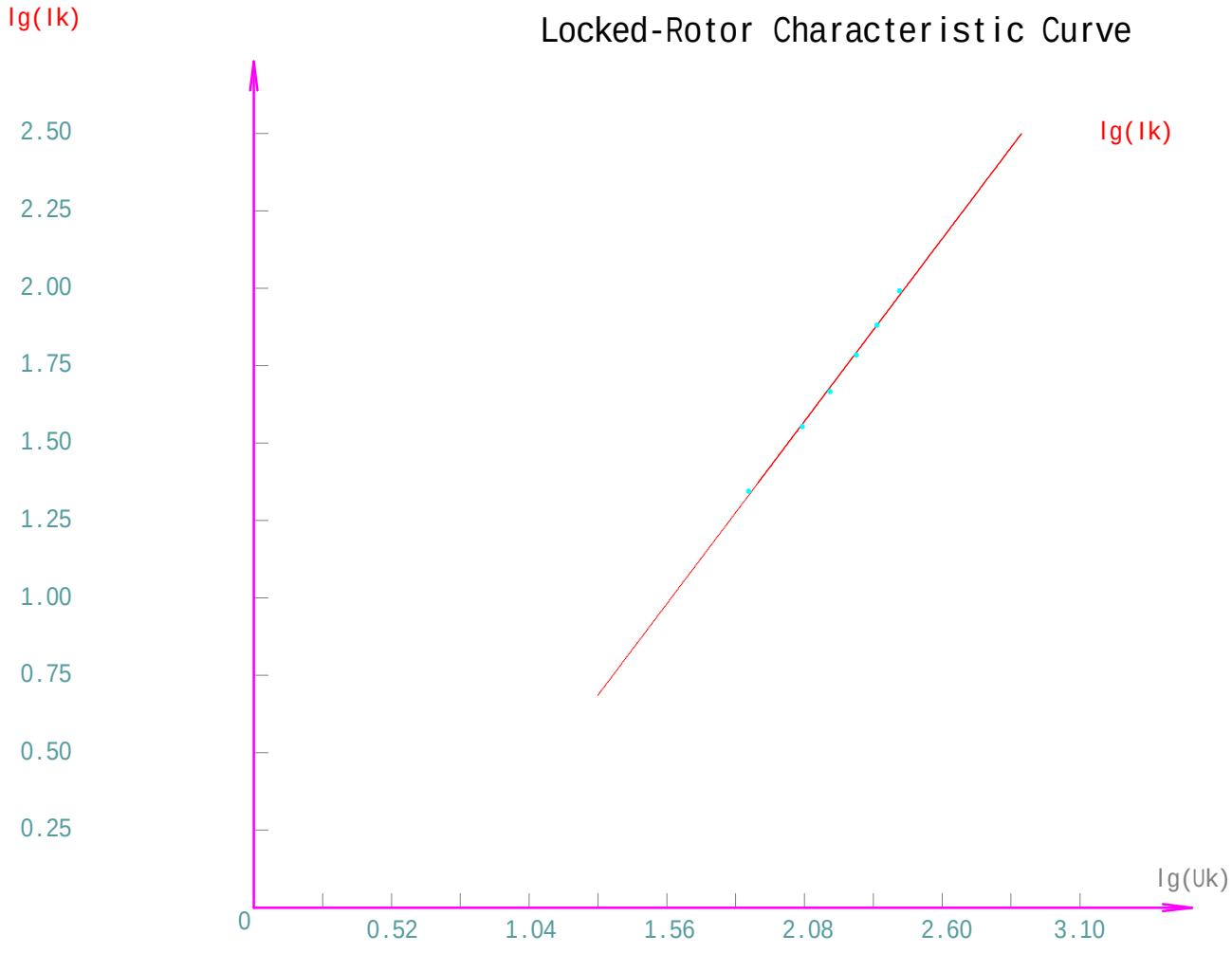
Amb Temp: 21.8℃ report NO.: IE3-160M-4 11KW 14051501 test time:

Modle: IE3-160M-4	Rated U: 415V	Rated η: 91.4%	InsClass: F
NO.:	Rated I: 20.4A	Cos Φ: 0.86	Connect: △
Rated f: 50Hz	Rated P: 11kW	Rated speed: 1470r/min	Poles: 4

Locked-rotor Test

U(V)	I(A)	P1(KW)	Tor(N.m)
275.3	98.11	16.5100	55.60
227.0	76.05	9.9760	35.00
189.7	60.93	6.4160	22.90
150.5	46.35	3.7350	13.50
118.4	35.83	2.2330	8.10
74.2	22.12	0.8550	3.10

Ik (A): 144.46 Ik/In: 7.15
Tk(N.m): 120.55 Tk/Tn: 1.69
Pk(kW): 34.62



test: check:

three-phase induction motor type test report

Amb Temp: 21.8℃ report NO.: IE3-160M-4 11KW 14051501 test time:

Modle: IE3-160M-4 Rated U: 415V Rated η: 91.4% InsClass: F
NO.: Rated I: 20.4A Cos Φ: 0.86 Connect: △
Rated f: 50Hz Rated P: 11kW Rated speed: 1470r/min Poles: 4

Load Test

P1(kW)	U(V)	I(A)	s(r/min)	Tor (N.m)	windingT(℃)
18.8100	400.8	31.16	1458.0	109.900	55.85
15.2900	402.9	25.17	1468.0	89.800	57.08
12.1700	400.9	20.63	1475.0	71.400	57.85
9.0900	400.8	15.94	1482.0	53.200	57.97
6.1600	401.4	12.13	1488.0	35.400	57.54
3.2100	400.3	9.06	1494.0	17.600	57.08
0.4580	400.4	7.73	1500.0	0.300	56.45
0.4000	400.0	7.71	0.0	0.000	53.80

P2(kW)	Pcu(kW)	Pal(kW)	Ps(kW)	Ss(%)	η(%)	Cos Φ
16.7829	0.7469	0.5214	0.4108	2.93	89.22	0.870
13.8572	0.4874	0.3231	0.2743	2.22	90.63	0.870
11.1206	0.3274	0.2005	0.1735	1.73	91.38	0.850
8.3427	0.1954	0.1076	0.0964	1.25	91.78	0.822
5.6079	0.1132	0.0482	0.0427	0.83	91.04	0.730
2.7762	0.0631	0.0120	0.0106	0.42	86.49	0.511
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; 0.979 A: 0.034 B: 67.761 θs(℃): 68.7

150% rated power:
I(A): 30.56 P1(kW): 18.4592 Ss (%): 2.73
Pcu(kW): 0.8278 Pal(kW): 0.4739 Ps(kW): 0.3962
η(%): 89.39 Cos Φ: 0.872 P2(kW): 16.50

125% rated power:
I(A): 25.09 P1(kW): 15.1673 Ss (%): 2.13
Pcu(kW): 0.5579 Pal(kW): 0.3055 Ps(kW): 0.2700
η(%): 90.66 Cos Φ: 0.873 P2(kW): 13.75

100% rated power:
I(A): 20.19 P1(kW): 12.0296 Ss (%): 1.63
Pcu(kW): 0.3614 Pal(kW): 0.1856 Ps(kW): 0.1697
η(%): 91.44 Cos Φ: 0.860 P2(kW): 11.00

75% rated power:
I(A): 15.87 P1(kW): 8.9949 Ss (%): 1.19
Pcu(kW): 0.2233 Pal(kW): 0.1014 Ps(kW): 0.0939
η(%): 91.72 Cos Φ: 0.818 P2(kW): 8.25

50% rated power:
I(A): 12.13 P1(kW): 6.0428 Ss (%): 0.79
Pcu(kW): 0.1304 Pal(kW): 0.0447 Ps(kW): 0.0413
η(%): 91.02 Cos Φ: 0.719 P2(kW): 5.50

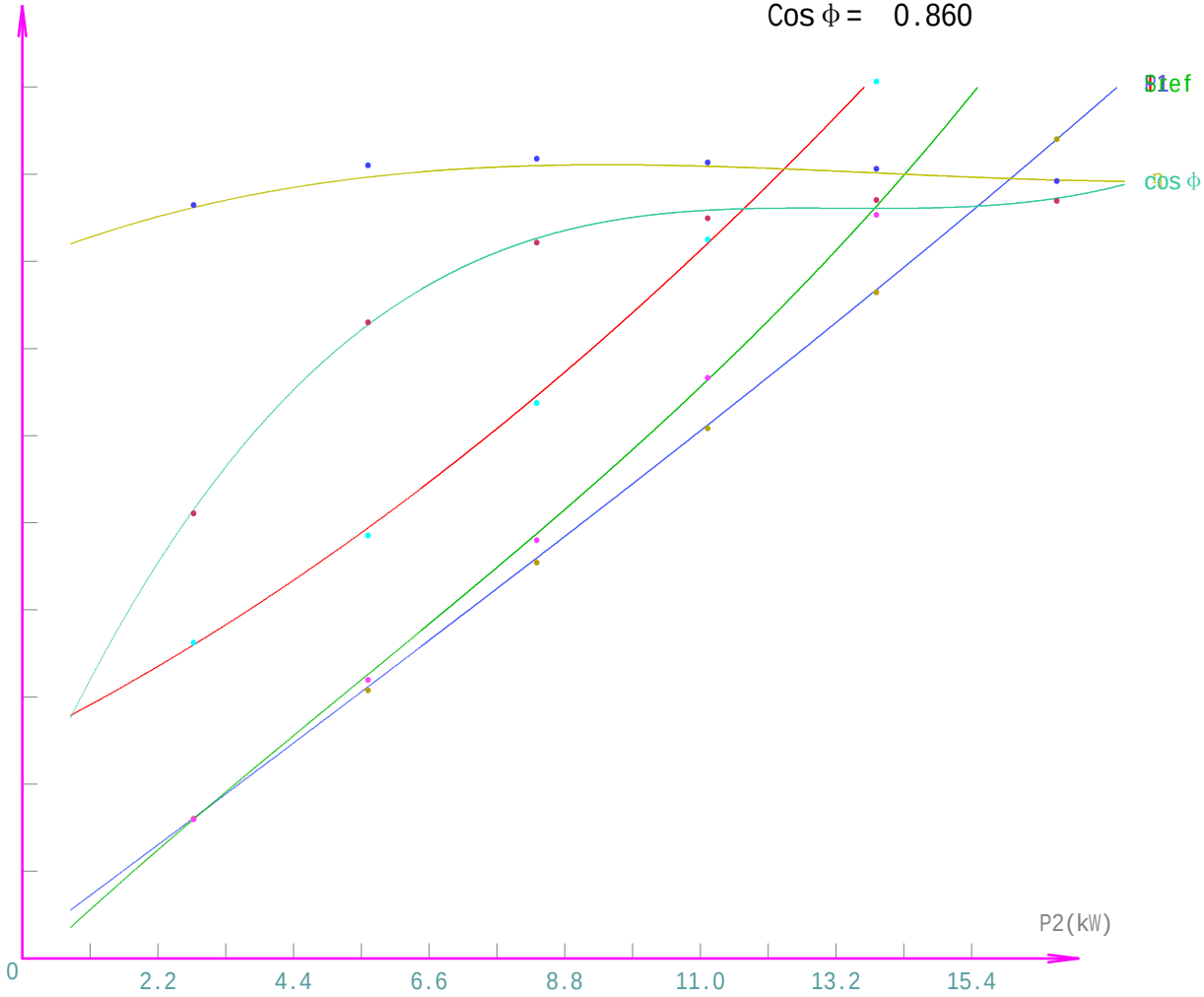
25% rated power:
I(A): 8.96 P1(kW): 3.1839 Ss (%): 0.39
Pcu(kW): 0.0711 Pal(kW): 0.0112 Ps(kW): 0.0103
η(%): 86.37 Cos Φ: 0.513 P2(kW): 2.75

Load Characteristic Curve

Report No. : IE3-160M-4 11KW 14051501
Model : IE3-160M-4
Rated Output: 11 kW
Ser.No. :

When P2 = 11 kW ,
I1 = 20.19 A
P1 = 12.0296 kW
Sref = 1.63 %
η = 91.44 %
Cos Φ = 0.860

cos Φ	η %	Sref %	P1 kW	I1 A
1.0	100	2.50	20	25.0
0.9	90	2.25	18	22.5
0.8	80	2.00	16	20.0
0.7	70	1.75	14	17.5
0.6	60	1.50	12	15.0
0.5	50	1.25	10	12.5
0.4	40	1.00	8	10.0
0.3	30	0.75	6	7.5
0.2	20	0.50	4	5.0
0.1	10	0.25	2	2.5



three-phase induction motor type test report

Amb Temp: ℃ report NO.: IE3-160M-4 11KW 14051501 test time:

Modle: IE3-160M-4 Rated U: 415V Rated η: 91.4% InsClass: F
NO.: Rated I: 20.4A Cos Φ: 0.86 Connect: △
Rated f: 50Hz Rated P: 11kW Rated speed: 1470r/min Poles: 4

Resistance test

Rac(Ω): 0.4338 Rbc(Ω): 0.4336 Rab(Ω): 0.4334

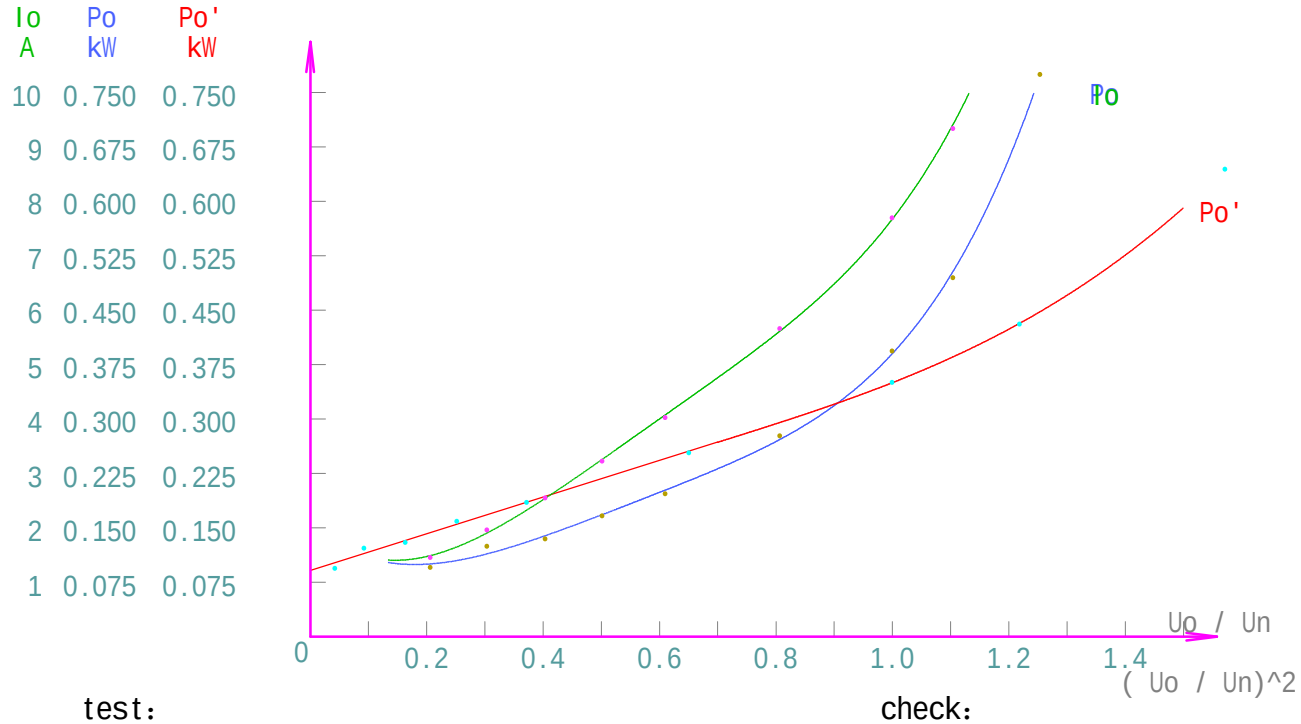
Ravg(Ω): 0.4336 Shell Temp(℃): 21.8
115℃ R (Ω): 0.5910 Amb Temp(℃): 21.80
25℃ R (Ω): 0.4390

Noload test

U*	U (V)	I (A)	Po(kW)	Po'(kW)	Pcu(kW)	WindingT(℃)
1.25	501.4	13.37	0.7750	0.6444	0.1306	53.74
1.10	441.4	9.34	0.4950	0.4312	0.0638	53.74
1.00	399.8	7.70	0.3940	0.3507	0.0433	53.71
0.81	322.6	5.66	0.2770	0.2535	0.0235	53.71
0.61	243.8	4.03	0.1970	0.1852	0.0118	53.68
0.50	200.5	3.23	0.1670	0.1594	0.0076	53.68
0.40	161.4	2.55	0.1350	0.1302	0.0048	53.54
0.30	121.3	1.96	0.1250	0.1222	0.0028	53.54
0.21	82.3	1.46	0.0960	0.0944	0.0016	53.17

Thermal R(Ω): 0.4902 Shell Temp(℃): 44.1
Io(A): 7.67 Io(kW): 0.3901
Pm(kW): 0.0915 Pfe(kW): 0.2565

No Load Characteristic Curve



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
TÜV NORD P.R. China

TÜV NORD (Hangzhou) Co., Ltd.
Member of TUV NORD Group
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Fax : +86-571-85386996
www.tuv-nord.com/cn
China

CE **The CE marking may be affixed on the product if all relevant and effective Directives are complied with.** CE

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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

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:	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. 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.

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	/	/