



M2QA Marine Three-Phase Induction Motors

info@sogears.com

Power and productivity
for a better world™ **ABB**
whatsapp: +86-18563806647

Company Introduction

Founded in December 1995, ABB Shanghai Motors Co., Ltd., belongs to ABB Group, one of the world's Top 500 Corporations, and specializes in manufacturing and marketing low voltage AC 3-phase asynchronous motors of frame size from 71 to 355.

The company offers a wide range of IEC Standard motors to meet the demands of various industries, including Standard Motors, Frequency Conversion Motors, Marine Motors, Flameproof Motors, Smoke Venting Motors, Multi-speed Motors, Brake Motors, Outdoor Environment Motors, Non-sparking Motors, Aluminum Motors, and Motors for Glass Machinery, together with specially customized motors as per customers' demands and meeting customers' stringent requirements. In addition, the company can supply a broad range of motors with various insulation classes, which can meet various voltage and frequency requirements. The company major OEM customers are leaders in HVAC, crane, pump, gearbox, machine tool, textile, glass, marine, power plant auxiliary equipment, circuit board, etc. And its projects cover: power plant, pulp and paper, PEC, metal, marine, port, building, cement, airport, etc. Forty-five percent of its motors are currently exported abroad, mainly to the European market.

As the first small-medium motor manufacturer with ISO9001 Certification and ISO14001 Certification in China, ABB Shanghai Motors Co., Ltd. Provides its customers with world-class ABB products and service with qualified management and advanced technology.

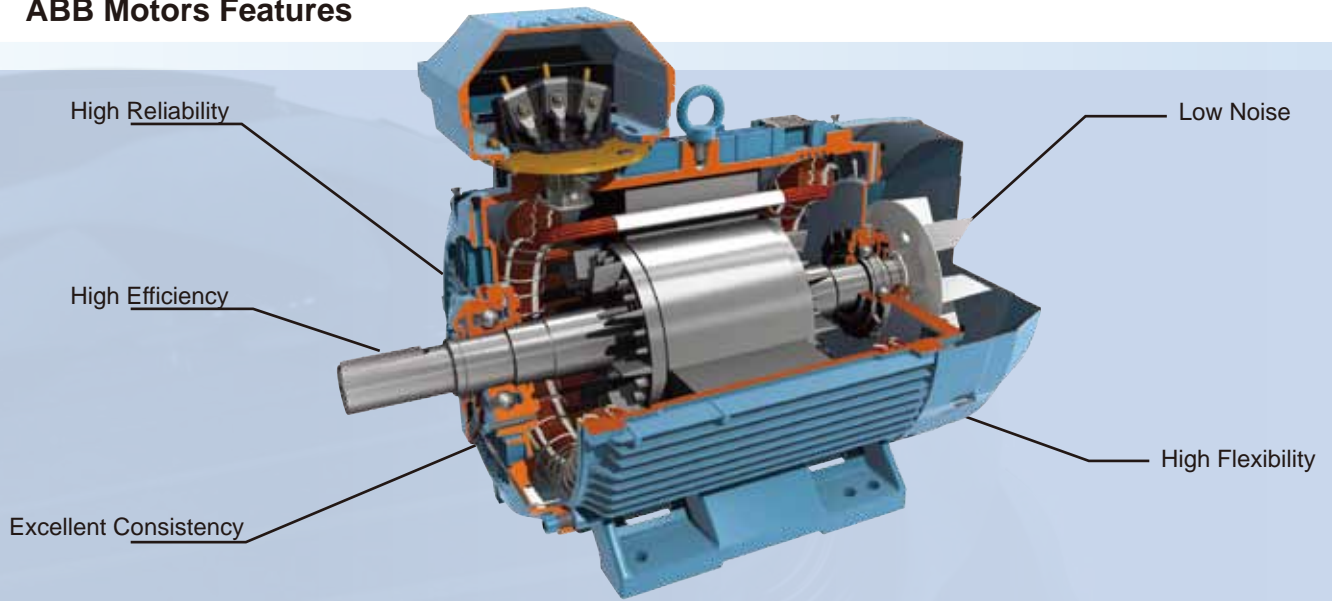


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ABB Motors reserves the right to change the design, technical specification and dimension without prior notice.

ABB Motors Features



Outstanding Features of M2QA Marine Motors

- ❖ Specially designed for marine equipment and environment, the M2QA Marine motors with high performance and high reliability are widely used by leading marine equipment manufactures.
- ❖ Special high strength cast iron is used in parts such as frame and shaft.
- ❖ Special surface treatment can withstand various marine environments as for instance extremely high humidity and salty air.
- ❖ Power supply and frequency can meet the requirements of marine equipment of any shipbuilder. 380V/50Hz and 440V/60Hz are the most frequent combinations of voltage/frequency.



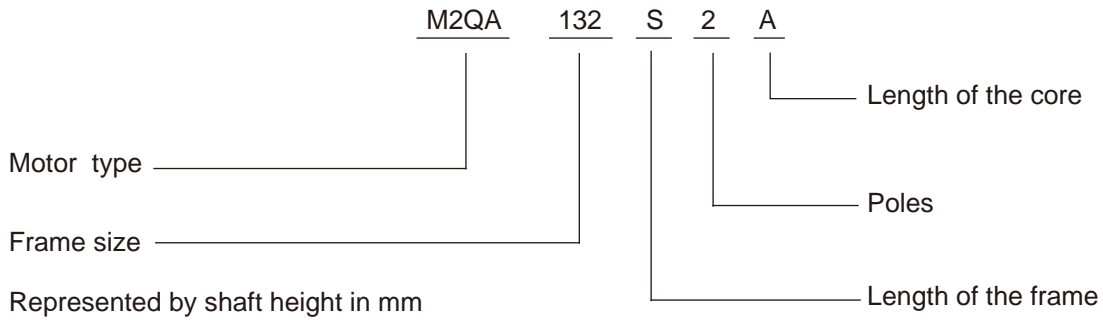


Summary **M2QA Series Marine Three-phase Induction Motors** **(H71-H355)**

ABB's Marine motors are widely used in the shipbuilding industries. M2QA series marine three-phase induction motors belong to the well known ABB M2000 family. The manufacturing technology is complying with the national standards, e.g. GB755 "Rotating Machine Rating and Performance" and ZC steel marine vessels classification criterion.

The motors are in conformity and certified by several international classification societies, such as ABS, BV, CCS, DNV, GL, KR, LR, NK, IEC. The M2QA motors are suitable for the use on marine pumps, ventilators, hydraulic machines, and other marine equipment.

Type Designations



Construction in Brief

- ❖ Totally enclosed fan cooled IP 55, IP56 or IP65.
- ❖ Special designed high sealed cable gland used at the cable entrance; there are two terminations for earthing, one at the terminal box internal and another one at the outside of the frame, to ensure the electric security throughly. High rigidity cast iron material to strengthen the resistance of mechanical impacting.
- ❖ As standard, terminal boxes are mounted at the top. Left side, right side are on request. Generally, Terminal box can turn 4 x 90°, very conveniently for use.
- ❖ Reliable windings

To ensure long lifetime, the winding is made from the latest available material in class F protection and temperature rise 95K according to the classification societies' rules.

If lower temperature rise, i.e. class B (70K) is needed, it is necessary to reduce the output range. As an indication the following formula can be used.

$$P2 = P1 \times \sqrt{70/\Delta t}$$

P1 = output range according to catalogue value

P2 = new output range according to class B rise (70K)

Δt = actual temperature rise, normally 95K



Using Condition

Ambient air temperature	-25~+50°C
Related humidity	no more than 95%
Dewiness	yes
Salt mist	yes
Oil mist	yes
Mildew	yes
Impact	yes
Vibration	yes
Inclination	22.5°C
Swing	22.5°C

Connection

3kW and below	Y
3kW upside	△

Insulation & Temperature Rise

Insulation class	F
Temperature rise of winding (resistance method)	95K
Allowable bearing temperature (thermometer method)	90°C

Voltage, Frequency And Duty

Voltage, frequency:	380V, 50 Hz or
Duty:	440V, 60Hz continuous (S1)

Starting Method

On standard, use the way of starting directly. When the capacity is large or the load is light, you are allowed to start the motor by reducing voltage or by the way of star-delta starting, or by some other ways.

Transmit Method

The motor can be transmitted by belt, spur gear or elastic coupling.

Impregnation and Surface Treatment

The winding and the surface of the metal parts are tropicalized, by means of special impregnation and treatment, and have good features of good moist-resistant, mildew-resistant and salt moist-resistant.



Vibration

The measure of vibration speed at no load are in the table below:

Frame size	71~132	160~280	315~355
Vibration grade	Vibration speed (mm/s)		
A	1.6	2.2	2.8

Rating Plate

ABB Marine Motors		CE	
3-Motor	M2QA280S2A		
IEC	280S65		
NO	Date		
	75	kW	
	380	△ V	
	133	A	
	2965	r / min	
50	Hz	S	1
cosφ	0.92		
Ins.cl.	F	IP	55
IM	B3		
Heater	W	V	AMB. 50 °C
Cat.no	2QAH281101—ABA		
6316 / C4	6316 / C4	kg	
IEC	60034-1		

ABB Marine Motors		CE	
3- Mot.	M2QA100L4A	IEC60034-1	
2QAH102501-AAA		S 1	
6206DDU / C3	6206DDU / C3	IP 55	50 Hz
2.2	kW	380	Y V
5.00	A	1410	r / min
cosφ	0.825	IMB3	cl. F
Heater	W	V	AMB 50 °C
No	Date	Kg	

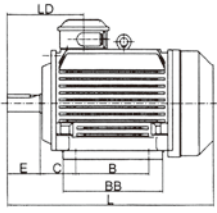


Bearings

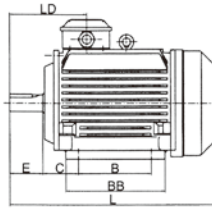
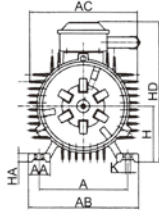
The motors are normally fitted with single-row deep groove ball bearings as listed in the table below. Close-type bearing is provided as standard for 71-255, regreasable bearing for 250-355.

Type	Poles	Bearing type		Cable entry (mm)	Type	Poles	Bearing type		Cable entry (mm)
		D-end	N-end				D-end	N-end	
71M	2, 4, 6	6202 C3	6202 C3	TJ16	250M	2	6314 C3	6314 C3	2/TJ42+1/TJ13
80M	2, 4, 6, 8	6204 C3	6204 C3	TJ16	250M	4, 6, 8	6314 C3	6314 C3	2/TJ42+1/TJ13
90S	2, 4, 6, 8	6205 C3	6205 C3	TJ16	280S	2	6316 C4	6316 C4	2/TJ42+1/TJ13
90L	2, 4, 6, 8	6205 C3	6205 C3	TJ16	280S	4, 6, 8	6316 C3	6316 C3	2/TJ42+1/TJ13
100L	2, 4, 6, 8	6206 C3	6206 C3	TJ16	280M	2	6316 C4	6316 C4	2/TJ42+1/TJ13
112M	2, 4, 6, 8	6207 C3	6207 C3	TJ16	280M	4, 6, 8	6316 C3	6316 C3	2/TJ42+1/TJ13
132S	2, 4, 6, 8	6208 C3	6208 C3	TJ28	315S	2	6316 C4	6316 C4	2/TJ58+1/TJ13
132M	2, 4, 6, 8	6208 C3	6208 C3	TJ28	315S	4, 6, 8	6319 C3	6319 C3	2/TJ58+1/TJ13
160M	2, 4, 6, 8	6309 C3	6209 C3	TJ28	315M	2	6316 C4	6316 C4	2/TJ58+1/TJ13
160L	2, 4, 6, 8	6309 C3	6209 C3	TJ28	315M	4, 6, 8	6319 C3	6319 C3	2/TJ58+1/TJ13
180M	2, 4, 6, 8	6310 C3	6310 C3	TJ28	315L	2	6316 C4	6316 C4	2/TJ58+1/TJ13
180L	2, 4, 6, 8	6310 C3	6310 C3	TJ28	315L	4, 6, 8	6319 C3	6319 C3	2/TJ58+1/TJ13
200L	2, 4, 6, 8	6312 C3	6312 C3	TJ34	355M	2	6319M C4	6319 C4	2/TJ58+1/TJ13
225S	4, 6, 8	6313 C3	6313 C3	TJ34	355M	4, 6, 8	6322 C3	6319 C3	2/TJ58+1/TJ13
225M	2	6313 C3	6313 C3	TJ34	355L	2	6319M C4	6319M C4	2/TJ58+1/TJ13
225M	4, 6, 8	6313 C3	6313 C3	TJ34	355L	4, 6, 8	6322 C3	6319 C3	2/TJ58+1/TJ13

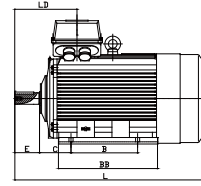
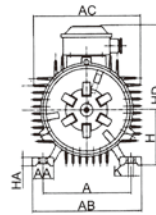
Dimension Drawing



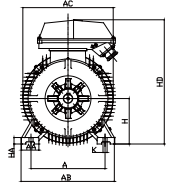
H71 - 112



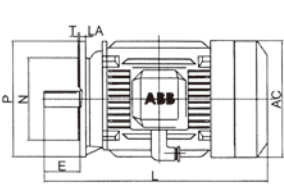
H132 - 280



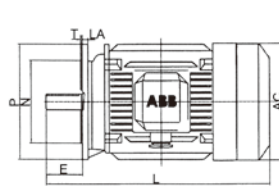
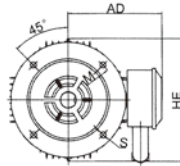
H315 - 355



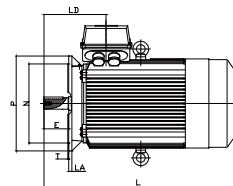
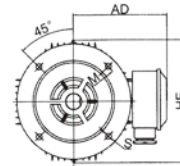
B3 Foot-mounted, terminal box top-mounted



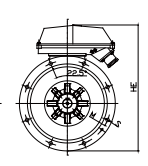
H71 - 112



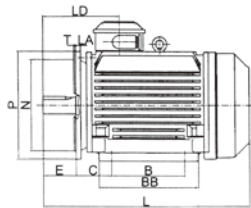
H132 - 280



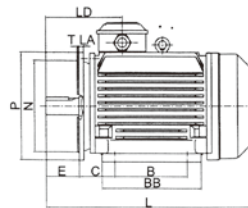
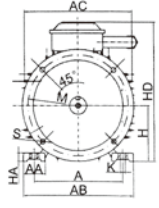
H315 - 355



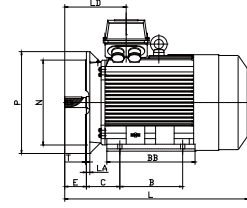
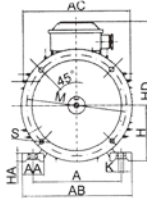
B5 Flanged-mounted, large flange



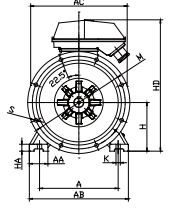
H71 - 112



H132 - 280



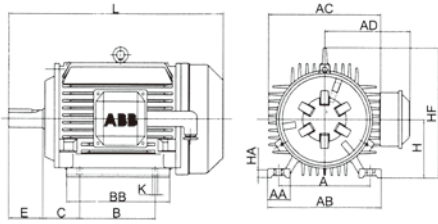
H315 - 355



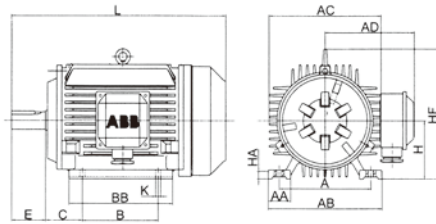
B35 Foot-and flanged-mounted, terminal box top-mounted

Type	Poles	A	AA	AB	AC	B	BB	C	D	E	F	GA	GD	DB	H
71M	2--6	112	30	145	140	90	115	45	ø14	30	5	-	5	M5	71
80M	2--6	125	35	160	165	100	135	50	ø19	40	6	21.5	6	M6	80
90S	2--8	140	35	175	180	100	140	56	ø24	50	8	27	7	M8	90
90L	2--8	140	35	175	180	125	165	56	ø24	50	8	27	7	M8	90
100L	2--8	160	40	200	205	140	180	63	ø28	60	8	31	7	M10	100
112M	2--8	190	50	240	225	140	190	70	ø28	60	8	31	7	M10	112
132S	2--8	216	55	270	265	140	205	89	ø38	80	10	41	8	M12	132
132M	2--8	216	55	270	265	178	240	89	ø38	80	10	41	8	M12	132
160M	2--8	254	60	325	330	210	265	108	ø42	110	12	45	8	M16	160
160L	2--8	254	60	325	330	254	310	108	ø42	110	12	45	8	M16	160
180M	2--4	279	70	350	355	241	315	121	ø48	110	14	51.5	9	M16	180
180L	4--8	279	70	350	355	279	350	121	ø48	110	14	51.5	9	M16	180
200L	2--8	318	70	390	395	305	380	133	ø55	110	16	59	10	M20	200
225S	4--8	356	75	435	440	286	380	149	ø60	140	18	64	11	M20	225
225M	2	356	75	435	440	311	405	149	ø55	110	16	59	10	M20	225
225M	4--8	356	75	435	440	311	405	149	ø60	140	18	64	11	M20	225
250M	2	406	80	490	515	349	455	168	ø60	140	18	64	11	M20	250
250M	4--8	406	80	490	515	349	455	168	ø65	140	18	69	11	M20	250
280S	2	457	85	555	545	368	490	190	ø65	140	18	69	11	M20	280
280S	4--8	457	85	555	545	368	490	190	ø75	140	20	79.5	12	M20	280
280M	2	457	85	555	545	419	540	190	ø65	140	18	69	11	M20	280
280M	4--8	457	85	640	545	419	540	190	ø75	140	20	79.5	12	M20	280
315S	2	508	120	640	630	406	570	216	ø65	140	18	69	11	M20	315
315S	4--8	508	120	640	630	406	570	216	ø80	170	22	85	14	M20	315
315M	2	508	120	640	630	457	685	216	ø65	140	18	69	11	M20	315
315M	4--8	508	120	640	630	457	685	216	ø80	170	22	85	14	M20	315
315L	2	508	120	640	630	508	685	216	ø65	140	18	69	11	M20	315
315L	4--8	508	120	640	630	508	685	216	ø80	170	22	85	14	M20	315
355M	2	610	120	730	710	560	750	254	ø70	140	20	74.5	12	M20	355
355M	4--8	610	120	730	710	560	750	254	ø100	210	28	106	16	M24	355
355L	2	610	120	730	710	630	750	254	ø70	140	20	74.5	12	M20	355
355L	4--8	610	120	730	710	630	750	254	ø100	210	28	106	16	M24	355

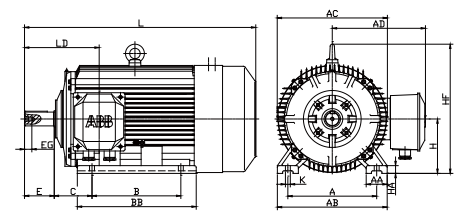
Dimension Drawing



H71 - 112

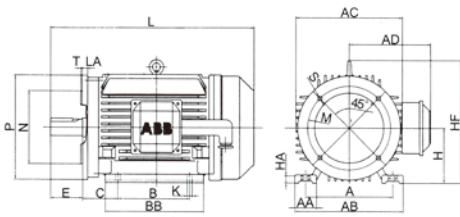


H132 - 280

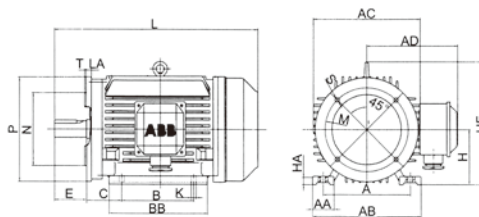


H315 - 355

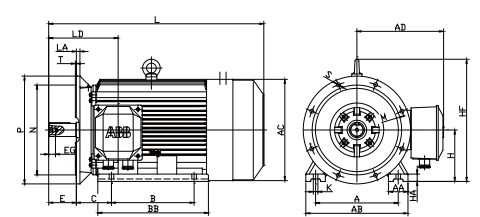
B3 Foot-mounted, terminal box on right hand side



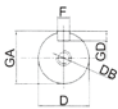
H71 - 112



H132 - 280



H315 - 355



B35 Foot-and flanged-mounted, terminal box on right hand side

Type	Poles	HA	HD	HF	K	L	LD	AD	LA	M	N	P	S	T	HE
71M	2--6	9	205	-	ø7	252	98	133	10	ø130	ø110	ø160	4-ø10	3.5	140
80M	2--6	12	245	185	ø10	285	116	165	9	ø165	ø130	ø200	4-ø12	3.5	200
90S	2--8	12	265	195	ø10	310	128	175	10	ø165	ø130	ø200	4-ø12	3.5	200
90L	2--8	12	265	195	ø10	335	128	175	10	ø165	ø130	ø200	4-ø12	3.5	200
100L	2--8	14	280	245	ø12	380	138	185	11	ø215	ø180	ø250	4-ø15	4	270
112M	2--8	15	295	265	ø12	395	144	185	11	ø215	ø180	ø250	4-ø15	4	278
132S	2--8	18	335	300	ø12	465	169	205	12	ø265	ø230	ø300	4-ø15	4	320
132M	2--8	18	335	300	ø12	505	169	205	12	ø265	ø230	ø300	4-ø15	4	320
160M	2--8	22	420	380	ø15	600	250	260	15	ø300	ø250	ø350	4-ø19	5	400
160L	2--8	22	420	380	ø15	645	250	260	15	ø300	ø250	ø350	4-ø19	5	400
180M	2--4	22	455	420	ø15	670	270	275	18	ø300	ø250	ø350	4-ø19	5	420
180L	4--8	22	455	420	ø15	710	270	275	18	ø300	ø250	ø350	4-ø19	5	420
200L	2--8	25	510	470	ø19	770	285	310	20	ø350	ø300	ø400	4-ø19	5	470
225S	4--8	28	560	520	ø19	820	340	335	20	ø400	ø350	ø450	8-ø19	5	520
225M	2	28	560	520	ø19	815	310	335	20	ø400	ø350	ø450	8-ø19	5	520
225M	4--8	28	560	520	ø19	840	340	335	20	ø400	ø350	ø450	8-ø19	5	520
250M	2	30	645	580	ø24	930	360	395	22	ø500	ø450	ø550	8-ø19	5	655
250M	4--8	30	645	580	ø24	930	360	395	22	ø500	ø450	ø550	8-ø19	5	655
280S	2	35	715	645	ø24	975	355	435	22	ø500	ø450	ø550	8-ø19	5	725
280S	4--8	35	715	645	ø24	975	355	435	22	ø500	ø450	ø550	8-ø19	5	725
280M	2	35	715	645	ø24	1040	355	435	22	ø500	ø450	ø550	8-ø19	5	725
280M	4--8	35	715	645	ø24	1040	355	435	22	ø500	ø450	ø550	8-ø19	5	725
315S	2	45	870	765	ø28	1190	400	555	24	ø600	ø550	ø660	8-ø24	6	905
315S	4--8	45	870	765	ø28	1220	435	555	24	ø600	ø550	ø660	8-ø24	6	905
315M	2	45	870	765	ø28	1300	400	555	24	ø600	ø550	ø660	8-ø24	6	905
315M	4--8	45	870	765	ø28	1330	435	555	24	ø600	ø550	ø660	8-ø24	6	905
315L	2	45	870	765	ø28	1300	400	555	24	ø600	ø550	ø660	8-ø24	6	905
315L	4--8	45	870	765	ø28	1330	435	555	24	ø600	ø550	ø660	8-ø24	6	905
355M	2	52	1010	850	ø35	1495	430	650	25	ø740	ø680	ø800	8-ø24	6	1020
355M	4--8	52	1010	850	ø35	1565	500	650	25	ø740	ø680	ø800	8-ø24	6	1020
355L	2	52	1010	850	ø35	1495	430	650	25	ø740	ø680	ø800	8-ø24	6	1020
355L	4--8	52	1010	850	ø35	1565	500	650	25	ø740	ø680	ø800	8-ø24	6	1020

Ordering Information

Sample order

When placing an order, the motor type, size and product code must be specified. The product code of the motor is composed in various ways, in accordance with the following examples.

A	B	C					-	D, E, F, G			
M2QA	100L2A	2QAH	10	1	5	01	-	A	A	A	X
		1-4	5-6	7	8-10	11		12	13	14	15

- A Motor type
- B Motor size
- C Product code
- D Mounting arrangement code
- E Voltage and frequency code
- F Generation code

Explanation of the Product Code

Positions 1 and 4

M2QA= Totally enclosed fan cooled squirrel cage motor with cast iron frame

M2QA-H: motor type on the receipt

Positions 5 and 6

IEC frame

07 = 71	13 = 132	25 = 250
08 = 80	16 = 160	28 = 280
09 = 90	18 = 180	31 = 315
10 = 100	20 = 200	35 = 355
11 = 112	22 = 225	

Positions 7

Speed(pole pairs)

1=2poles	6=12poles
2=4poles	
3=6poles	
4=8poles	
5=10poles	

Positions 8 to 10

Running number series

Positions 11

-(dash)

Positions 12

Mounting arrangement

A=Foot-mounted, top-mounted terminal box

R=Foot-mounted, terminal box on RHS, seen from D-end(80-355)

L=Foot-mounted, terminal box on LHS, seen from D-end(80-355)

B=Flange-mounted, large flange

C=Flange-mounted, small flange size(71-160)

H=Foot and flange-mounted

Positions 13

Voltage and frequency code

See tables on appropriate page

Positions 14

Generation code

A

Positions 15

VC Identifying code

X Below H250

H250 and above with LR marine certificate

PX H250 and above without LR marine certificate

Technical Data Table

IP55 IC411

Insulation class F
Temperature rise class F

380V 50Hz													
Output kW	Type designation	Product code	Speed n r/min	Efficiency $\eta\%$	Power factor $\cos\varphi$	Current		TN Nm	Torque		Moment of inertia $J=GD^2/(4g)$ kgm ²	Weight kg	Sound pressure level Lp dB(A)
						IN A	IS/IN		Ts/TN	TMAX/TN			
3000r/min=2 poles Basic design													
0.37	M2QA 71M2A 2QAH	071301-**A	2765	70.0	0.85	0.94	5.0	1.28	2	2.2	0.00030	10	60
0.55	71M2B	071302-**A	2780	73.0	0.86	1.33	5.0	1.89	2	2.2	0.00037	11	60
0.75	80M2A	081301-**A	2815	74.0	0.87	1.77	5.5	2.54	2.2	2.4	0.00091	16	61
1.1	80M2B	081302-**A	2830	75.8	0.87	2.53	5.0	3.71	2.2	2.3	0.00107	17	61
1.5	90S2A	091101-**A	2830	78.5	0.885	3.28	6.0	5.06	2.1	2.3	0.00135	21	66
2.2	90L2A	091501-**A	2830	81.0	0.88	4.69	6.5	7.42	2.6	2.8	0.00163	24	66
3	100L2A	101501-**A	2840	81.8	0.88	6.33	6.0	10.1	2.3	2.4	0.00402	33	70
4	112M2A	111301-**A	2855	83.2	0.915	7.98	6.5	13.4	2.1	2.6	0.00671	42	72
5.5	132S2A	131101-**A	2885	86.2	0.895	10.8	6.7	18.2	2.0	2.6	0.01241	58	73
7.5	132S2B	131102-**A	2895	87.0	0.90	14.6	6.7	24.7	2.0	2.6	0.01491	63	73
11	160M2A	161301-**A	2910	88.8	0.885	21.3	6.5	36.1	2.2	2.8	0.0436	112	77
15	160M2B	161302-**A	2910	90.0	0.895	28.3	6.5	49.2	2.2	2.8	0.0551	122	77
18.5	160L2A	161501-**A	2910	90.0	0.905	34.5	6.8	60.7	2.4	2.8	0.06549	142	77
22	180M2A	181301-**A	2935	90.4	0.91	40.6	6.2	71.6	2.0	2.5	0.08805	170	80
30	200L2A	201501-**A	2950	91.2	0.91	54.9	6.5	97.1	2.2	2.7	0.14821	235	82
37	200L2B	201502-**A	2950	91.4	0.915	67.2	6.5	120	2.2	2.7	0.16822	254	82
45	225M2A	221301-**A	2965	91.9	0.90	82.7	6.8	145	2.1	2.5	0.29345	328	84
55	250M2A	251301-**A	2960	92.1	0.905	100	6.9	178	2.2	2.6	0.3784	390	84
75	280S2A	281101-**A	2965	92.4	0.92	134	7.0	242	2.5	2.8	0.587	504	86
90	280M2A	281301-**A	2965	92.7	0.925	159	7.0	290	2.5	2.8	0.615	560	86
110	315S2A	311101-**A	2975	93.5	0.90	199	6.8	353	2.2	2.8	1.4083	910	90
132	315M2A	311301-**A	2975	94.2	0.905	235	6.7	424	2.2	2.8	1.5584	1010	90
160	315L2A	311501-**A	2975	94.3	0.91	283	6.8	514	2.2	2.8	1.7256	1070	90
200	315L2B	311502-**A	2970	94.8	0.915	350	6.8	643	2.2	2.8	1.9405	1120	90
250	355M2A	351301-**A	2980	95.0	0.905	442	5.8	801	1.8	2.7	3.05	1488	92
315	355L2A	351501-**A	2980	95.9	0.905	551	5.8	1009	1.8	2.7	3.6	1786	92

380V 50Hz													
Output kW	Type designation	Product code	Speed n r/min	Efficiency $\eta\%$	Power factor $\cos\varphi$	Current		TN Nm	Torque		Moment of inertia $J=GD^2/(4g)$ kgm ²	Weight kg	Sound pressure level Lp dB(A)
						IN A	IS/IN		Ts/TN	TMAX/TN			
1500r/min=4 poles Basic design													
0.25	M2QA 71M4A 2QAH	072301-**A	1385	67.0	0.735	0.77	4.0	1.72	2	2.1	0.00053	11	49
0.37	71M4B	072302-**A	1385	67.0	0.755	1.11	4.0	2.55	2	2.1	0.00066	11	49
0.55	80M4A	082301-**A	1390	71.5	0.76	1.54	4.5	3.78	2.2	2.4	0.00145	16	52
0.75	80M4B	082302-**A	1395	72.0	0.795	1.99	4.5	5.13	2.1	2.4	0.00174	17	52
1.1	90S4A	092101-**A	1375	76.0	0.785	2.80	5.0	7.64	2.2	2.3	0.00254	21	57
1.5	90L4A	092501-**A	1380	78.0	0.805	3.63	5.0	10.4	2.2	2.3	0.00317	25	57
2.2	100L4A	102501-**A	1410	81	0.825	5.00	6.0	14.9	2.4	2.5	0.00679	32	58
3	100L4B	102502-**A	1405	81.5	0.84	6.66	6.0	20.4	2.3	2.5	0.00862	36	58
4	112M4A	112301-**A	1425	84.5	0.81	8.88	6.5	26.8	2.3	2.7	0.01306	45	60
5.5	132S4A	132101-**A	1420	85.5	0.84	11.6	6.5	37.0	2.4	2.5	0.02673	60	63
7.5	132M4A	132301-**A	1425	86.8	0.84	15.6	6.5	50.3	2.4	2.5	0.03432	73	63
11	160M4A	162301-**A	1450	88.5	0.865	21.8	6.5	72.4	2.2	2.7	0.06543	116	69
15	160L4A	162501-**A	1450	89.3	0.885	28.8	6.5	98.8	2.2	2.5	0.09349	137	69
18.5	180M4A	182301-**A	1465	90.8	0.88	35.2	7.0	121	2.2	2.7	0.16049	170	70
22	180L4A	182501-**A	1465	91.0	0.89	41.3	7.0	143	2.2	2.7	0.18046	186	70
30	200L4A	202501-**A	1470	91.2	0.885	56.5	6.5	195	2.1	2.7	0.2819	254	75
37	225S4A	222101-**A	1475	91.3	0.875	70.4	6.5	240	2.0	2.6	0.37	308	76
45	225M4A	222301-**A	1475	91.8	0.87	85.6	6.5	291	2.0	2.6	0.42	335	76
55	250M4A	252301-**A	1475	92.3	0.89	102	6.5	357	2.2	2.8	0.78	450	77
75	280S4A	282101-**A	1480	93.0	0.89	138	6.0	486	2.0	2.2	1.10	534	80
90	280M4A	282301-**A	1480	93.3	0.90	163	6.2	581	2.0	2.6	1.35	592	80
110	315S4A	312101-**A	1480	93.4	0.875	205	6.2	710	1.9	2.1	2.8596	930	86
132	315M4A	312301-**A	1480	94.1	0.88	242	6.2	852	1.9	2.1	3.1848	1030	86
160	315L4A	312501-**A	1480	94.5	0.88	292	6.0	1032	2.0	2.2	3.6765	1050	86
200	315L4B	312502-**A	1480	94.8	0.885	362	6.0	1291	2.0	2.2	4.2516	1100	86
250	355M4A	352301-**A	1485	95.3	0.895	445	5.8	1608	1.9	2.2	6.77	1546	87
315	355L4A	352501-**A	1485	95.5	0.90	557	5.8	2026	2.1	2.8	8.2	1821	87

Code letters for supplementing the product code

Code letter for voltage and frequency

A B

380VY50Hz

380V Δ 50HzOther rated voltage connection or frequency(max,690V) can be used with VC002
or VC209.(The meaning of Variant Code can be referred to Variant Code List)

Technical Data Table

IP55 IC411

Insulation class F
Temperature rise class F

380V 50Hz													
Output kW	Type designation	Product code	Speed n r/min	Efficiency η%	Power factor cosφ	Current			Torque		Moment of inertia J=GD ² /(4g) kgm ²	Weight kg	Sound pressure level Lp dB(A)
						IN A	Is/IN	TN Nm	Ts/TN	TMAX/TN			
1000r/min=6 poles Basic design													
0.18	M2QA 71M6A 2QAH 073301-**A	880	51.0	0.70	0.77	3.0	1.90	2.0	2.2	0.00056	10	45	
0.25	71M6B 073302-**A	880	55.0	0.70	0.99	3.0	2.70	2.0	2.2	0.00074	11	45	
0.37	80M6A 083301-**A	915	63.0	0.70	1.27	4.0	3.86	1.9	1.9	0.00159	17	48	
0.55	80M6B 083302-**A	910	64.5	0.72	1.80	4.0	5.77	1.7	1.8	0.00196	18	48	
0.75	90S6A 093101-**A	910	70	0.755	2.16	4.0	7.87	1.8	2.1	0.00292	21	51	
1.1	90L6A 093501-**A	910	72	0.775	3.00	4.0	11.54	1.9	2.1	0.00379	25	51	
1.5	100L6A 103501-**A	920	76	0.77	3.89	5.0	15.6	2.0	2.1	0.00999	32	57	
2.2	112M6A 113301-**A	930	78.5	0.755	5.64	4.6	22.6	1.9	2.1	0.01559	40	60	
3	132S6A 133101-**A	935	80.8	0.78	7.23	6.1	30.6	2.2	2.4	0.03116	55	60	
4	132M6A 133301-**A	940	81.4	0.78	9.57	6.1	40.6	2.5	2.6	0.04074	65	60	
5.5	132M6B 133302-**A	940	83.8	0.80	12.5	6.1	56.2	2.2	2.4	0.05332	75	60	
7.5	160M6A 163301-**A	960	87	0.79	16.6	5.7	74.6	2.1	2.5	0.09231	119	67	
11	160L6A 163501-**A	960	87.5	0.80	23.9	5.7	109	2.1	2.5	0.12970	140	67	
15	180L6A 183501-**A	970	89.3	0.84	30.4	6.2	148	2.2	2.4	0.2418	180	67	
18.5	200L6A 203501-**A	975	90	0.845	37.0	5.7	181	2.0	2.4	0.34174	231	69	
22	200L6B 203502-**A	975	90.1	0.85	43.6	5.7	216	2.0	2.4	0.46837	254	69	
30	225M6A 223301-**A	980	90.4	0.835	60.4	7.0	292	2.2	2.5	0.62691	308	70	
37	250M6A 253301-**A	975	91.1	0.89	69.3	6.5	362	2.0	2.4	0.97	382	73	
45	280S6A 283101-**A	980	91.1	0.885	84.8	5.7	439	2.1	2.2	1.25	482	74	
55	280M6A 283301-**A	980	91.6	0.885	103	5.7	536	2.1	2.2	1.485	532	75	
75	315S6A 313101-**A	985	92.7	0.87	141	5.3	727	1.8	2.2	3.1942	920	75	
90	315M6A 313301-**A	985	93.0	0.87	169	5.3	873	1.8	2.2	3.723	1010	75	
110	315L6A 313501-**A	985	93.1	0.88	204	5.3	1066	1.8	2.2	4.2564	1060	75	
132	315L6B 313502-**A	985	93.6	0.88	243	5.3	1280	1.8	2.2	5.1577	1120	75	
160	355M6A 353301-**A	990	94.2	0.89	290	6.6	1543	2.0	2.8	7.8	1530	79	
200	355M6B 353302-**A	990	94.6	0.895	359	6.6	1929	1.8	2.6	9.1	1800	79	
250	355L6A 353501-**A	990	94.7	0.895	448	6.8	2412	2.1	2.8	11.44	2167	79	

380V 50Hz													
Output kW	Type designation	Product code	Speed n r/min	Efficiency η%	Power factor cosφ	Current			Torque		Moment of inertia J=GD ² /(4g) kgm ²	Weight kg	Sound pressure level Lp dB(A)
						IN A	Is/IN	TN Nm	Ts/TN	TMAX/TN			
750r/min=8 poles Basic design													
0.37	M2QA 90S8A 2QAH 094101-**A	690	60	0.620	1.51	3.5	5.12	1.8	2.0	0.00541	21	49	
0.55	90L8A 094501-**A	690	62.5	0.635	2.11	3.5	7.61	1.8	2.0	0.00756	24	49	
0.75	100L8A 104501-**A	690	66	0.68	2.54	3.7	10.4	1.8	2.0	0.00971	31	56	
1.1	100L8B 104502-**A	665	67.8	0.68	3.63	3.7	15.8	1.8	2.0	0.01186	34	56	
1.5	112M8A 114301-**A	685	71.7	0.68	4.67	4.0	20.9	1.8	2.1	0.01559	42	58	
2.2	132S8A 134101-**A	705	77.4	0.74	5.84	5.0	29.8	2.0	2.3	0.03625	56	58	
3	132M8A 134301-**A	700	78.5	0.77	7.54	5.0	40.9	2.0	2.3	0.04141	64	59	
4	160M8A 164301-**A	710	82	0.77	9.63	5.2	53.8	2.1	2.5	0.0676	105	62	
5.5	160M8B 164302-**A	710	83.5	0.77	13.0	5.2	74.0	2.1	2.5	0.09524	125	62	
7.5	160L8A 164501-**A	715	84.2	0.77	17.6	5.2	100	2.1	2.5	0.12122	142	62	
11	180L8A 184501-**A	725	87.1	0.795	24.1	5.2	145	1.8	2.5	0.23645	176	65	
15	200L8A 204501-**A	725	88.8	0.805	31.9	5.6	198	1.9	2.3	0.37103	235	68	
18.5	225S8A 224101-**A	730	89.3	0.755	41.7	5.6	242	2.0	2.3	0.53287	290	69	
22	225M8A 224301-**A	730	89.5	0.77	48.5	5.6	288	2.0	2.3	0.65825	302	69	
30	250M8A 254301-**A	730	90.5	0.805	62.8	5.7	393	2.0	2.2	0.975	392	72	
37	280S8A 284101-**A	735	90.5	0.81	76.7	5.2	481	2.0	2.3	1.25	488	73	
45	280M8A 284301-**A	735	91.4	0.81	92.4	5.7	585	2.0	2.3	1.485	548	73	
55	315S8A 314101-**A	735	92.2	0.83	109	5.5	715	1.8	2.3	3.6842	930	73	
75	315M8A 314301-**A	735	92.8	0.83	148	5.5	974	1.8	2.3	4.9591	1010	73	
90	315L8A 314501-**A	740	93.2	0.83	177	5.5	1169	1.8	2.3	5.8205	1070	73	
110	315L8B 314502-**A	735	93.8	0.84	212	5.5	1429	1.8	2.3	6.753	1140	73	
132	355M8A 354301-**A	740	94.0	0.83	257	5.7	1704	1.8	2.2	8.6	1535	76	
160	355M8B 354302-**A	740	94.3	0.835	309	5.7	2065	1.8	2.2	10.01	1808	76	
200	355L8A 354501-**A	740	94.5	0.835	385	5.7	2581	1.9	2.4	12.5	2168	76	

Code letters for supplementing the product code

Code letter for voltage and frequency

A

B

380VY50Hz

380VΔ50Hz

Other rated voltage connection or frequency(max,690V) can be used with VC002 or VC209.(The meaning of Variant Code can be referred to Variant Code List)

Technical Data Table

IP55 IC411

Insulation class F
Temperature rise class F

440V 60Hz													
Output kW	Type designation	Product code	Speed n r/min	Efficiency $\eta\%$	Power factor $\cos\phi$	Current		TN Nm	Torque		Moment of inertia $J=GD^2/(4g)$ kgm ²	Weight kg	Sound pressure level Lp dB(A)
						IN A	Is/IN		Ts/TN	TMAX/TN			
3600r/min=2 poles Basic design													
0.43	M2QA 71M2A 2QAH	071301-**A	3340	73.0	0.85	0.91	5.0	1.23	2.0	2.2	0.0003	10	65
0.63	71M2B	071302-**A	3340	77.0	0.86	1.25	5.0	1.80	2	2.2	0.00037	11	65
0.86	80M2A	081301-**A	3400	74.0	0.87	1.75	6.0	2.42	2.2	2.4	0.00091	16	66
1.27	80M2B	081302-**A	3410	77.3	0.88	2.45	5.5	3.56	2.2	2.4	0.00107	17	66
1.73	90S2A	091101-**A	3405	80.0	0.885	3.21	6.6	4.85	2.1	2.3	0.00135	21	71
2.53	90L2A	091501-**A	3405	82.2	0.88	4.59	7.4	7.10	2.6	2.8	0.00163	24	71
3.45	100L2A	101501-**A	3435	82.9	0.88	6.21	6.4	9.59	2.2	2.4	0.00402	33	72
4.60	112M2A	111301-**A	3450	84.5	0.915	7.81	6.5	12.7	2.0	2.7	0.00671	42	77
6.33	132S2A	131101-**A	3485	86.4	0.895	10.7	7.0	17.3	2.0	2.6	0.01241	58	78
8.6	132S2B	131102-**A	3495	88.5	0.90	14.2	7.0	23.5	2.0	2.6	0.01491	63	78
12.7	160M2A	161301-**A	3505	89.5	0.89	20.9	6.5	34.6	2.2	2.8	0.0436	112	82
17.3	160M2B	161302-**A	3505	91	0.905	27.6	6.5	47.1	2.2	2.8	0.0551	122	82
21.3	160L2A	161501-**A	3510	91.2	0.91	33.7	6.8	58.2	2.4	2.8	0.06549	142	82
25.3	180M2A	181301-**A	3530	91.0	0.91	40.1	6.2	68.4	2.0	2.5	0.08805	170	85
34.5	200L2A	201501-**A	3545	91.5	0.91	54.4	6.5	92.9	2.2	2.7	0.14821	235	87
42.6	200L2B	201502-**A	3545	91.9	0.915	66.5	6.5	115	2.2	2.7	0.16822	254	87
51.8	225M2A	221301-**A	3565	92.2	0.905	81.5	6.8	139	2.1	2.5	0.29345	328	89
63	250M2A	251301-**A	3560	92.3	0.91	98.4	6.9	169	2.2	2.6	0.3784	390	89
86	280S2A	281101-**A	3565	92.6	0.925	132	7.0	230	2.5	2.8	0.587	504	91
104	280M2A	281301-**A	3565	92.9	0.93	158	7.0	279	2.5	2.8	0.615	560	91
127	315S2A	311101-**A	3575	93.6	0.905	197	6.8	339	2.2	2.8	1.4083	910	95
152	315M2A	311301-**A	3575	94.7	0.91	231	6.7	406	2.2	2.8	1.5584	1010	95
184	315L2A	311501-**A	3575	94.5	0.915	279	6.8	492	2.2	2.8	1.7256	1070	95
230	315L2B	311502-**A	3570	95	0.915	347	6.8	615	2.2	2.8	1.9405	1120	95
287.5	355M2A	351301-**A	3580	95.2	0.91	435	5.8	768	1.8	2.7	3.05	1488	97
362.5	355L2A	351501-**A	3580	96.0	0.91	544	5.8	968	1.8	2.7	3.6	1788	97

440V 60Hz													
Output kW	Type designation	Product code	Speed n r/min	Efficiency $\eta\%$	Power factor $\cos\phi$	Current		TN Nm	Torque		Moment of inertia $J=GD^2/(4g)$ kgm ²	Weight kg	Sound pressure level Lp dB(A)
						IN A	Is/IN		Ts/TN	TMAX/TN			
1800r/min=4 poles Basic design													
0.29	M2QA 71M4A 2QAH	072301-**A	1665	71.0	0.745	0.72	4.0	1.66	2.0	2.1	0.00053	11	50
0.43	71M4B	072302-**A	1670	71.0	0.76	1.05	4.0	2.46	2.0	2.1	0.00066	11	52
0.63	80M4A	082301-**A	1675	73.0	0.76	1.49	5.0	3.59	2.2	2.4	0.00145	16	53
0.86	80M4B	082302-**A	1670	74.0	0.775	1.97	5.0	4.92	2.2	2.4	0.00174	17	55
1.27	90S4A	092101-**A	1675	78.3	0.785	2.71	5.5	7.24	2.1	2.2	0.00254	21	60
1.73	90L4A	092501-**A	1680	80	0.805	3.52	5.5	9.83	2.1	2.2	0.00317	25	60
2.53	100L4A	102501-**A	1710	82.9	0.825	4.85	6.4	14.1	2.2	2.4	0.00679	32	61
3.45	100L4B	102502-**A	1705	83.5	0.84	6.45	6.4	19.3	2.2	2.4	0.00882	36	61
4.6	112M4A	112301-**A	1725	86	0.81	8.66	7.5	25.5	2.3	2.7	0.01306	45	63
6.33	132S4A	132101-**A	1720	86.8	0.84	11.4	7.0	35.1	2.3	2.5	0.02673	60	66
8.6	132M4A	132301-**A	1725	88.3	0.85	15.0	7.0	47.6	2.3	2.5	0.03432	73	66
12.7	160M4A	162301-**A	1745	89.5	0.87	21.4	7.0	69.50	2.2	2.7	0.06543	116	72
17.3	160L4A	162501-**A	1745	90.5	0.89	28.2	6.5	94.7	2.2	2.5	0.09349	137	72
21.3	180M4A	182301-**A	1765	91.5	0.88	34.7	7.0	115.2	2.2	2.7	0.16049	170	73
25.3	180L4A	182501-**A	1760	91.5	0.895	40.5	7.0	137.3	2.2	2.7	0.18046	186	73
34.5	200L4A	202501-**A	1770	91.8	0.89	55.4	6.5	186	2.1	2.7	0.2819	254	78
42.6	225S4A	222101-**A	1775	91.6	0.88	69.3	6.5	229	2.0	2.6	0.37	308	78
51.8	225M4A	222301-**A	1775	92.1	0.875	84.3	6.5	279	2.0	2.6	0.42	335	78
63	250M4A	252301-**A	1775	92.5	0.89	100	6.5	339	2.2	2.8	0.78	450	80
86	280S4A	282101-**A	1780	93.2	0.895	135	6.0	463	2.0	2.2	1.1	534	83
104	280M4A	282301-**A	1780	93.6	0.90	162	6.2	558	2.1	2.4	1.35	592	83
127	315S4A	312101-**A	1780	94.0	0.88	201	6.2	681	1.9	2.2	2.8596	930	88
152	315M4A	312301-**A	1780	94.4	0.885	239	6.2	816	1.9	2.1	3.1848	1030	88
184	315L4A	312501-**A	1780	94.9	0.885	287	6.0	987	2.0	2.2	3.6765	1050	89
230	315L4B	312502-**A	1780	95.2	0.89	356	6.0	1234	2.0	2.2	4.2516	1100	89
287.5	355M4A	352301-**A	1785	95.6	0.895	441	5.8	1538	1.9	2.2	6.77	1676	90
362.5	355L4A	352501-**A	1785	95.8	0.90	552	5.8	1939	2.1	2.8	8.20	2021	90

Code letters for supplementing the product code
Code letter for voltage and frequency

A

B

380VY50Hz

380V Δ 50HzOther rated voltage connection or frequency(max,690V) can be used with VC002
or VC209.(The meaning of Variant Code can be referred to Variant Code List)

Technical Data Table

IP55 IC411

Insulation class F
Temperature rise class F

440V 60Hz													
Output kW	Type designation	Product code	Speed n r/min	Efficiency η%	Power factor cosφ	Current		TN Nm	Torque		Moment of inertia J=GD ² /(4g) kgm ²	Weight kg	Sound pressure level Lp dB(A)
						IN A	Is/IN		Ts/TN	TMAX/TN			
1200r/min=6 poles Basic design													
0.21	M2QA 71M6A	2QAH 073301-**A	1055	57.0	0.71	0.68	3.0	1.90	2.0	2.2	0.00056	10	48
0.29	71M6B	073302-**A	1055	61.0	0.70	0.89	3.0	2.63	2.0	2.2	0.00074	11	48
0.43	80M6A	083301-**A	1090	66.0	0.70	1.22	4.5	3.77	1.8	2	0.00159	17	51
0.63	80M6B	083302-**A	1100	67.0	0.705	1.75	4.5	5.47	1.7	1.9	0.00196	18	51
0.86	90S6A	093101-**A	1105	72.5	0.75	2.08	4.5	7.43	2	2.2	0.00292	21	54
1.27	90L6A	093501-**A	1100	75.0	0.745	2.98	4.5	11.0	2	2.2	0.00379	25	54
1.73	100L6A	103501-**A	1120	78.7	0.765	3.77	4.5	14.8	2.0	2.1	0.00999	32	60
2.53	112M6A	113301-**A	1130	80.5	0.755	5.46	5.0	21.4	1.9	2.2	0.01559	40	63
3.45	132S6A	133101-**A	1135	82.8	0.78	7.01	6.2	29.0	2.2	2.4	0.03116	55	63
4.6	132M6A	133301-**A	1140	82.9	0.78	9.33	6.2	38.5	2.4	2.6	0.04074	65	63
6.33	132M6B	133302-**A	1135	84.8	0.80	12.2	6.2	53.3	2.2	2.4	0.05332	75	63
8.6	160M6A	163301-**A	1160	88	0.795	16.1	5.7	70.80	2.1	2.5	0.09231	119	70
12.7	160L6A	163501-**A	1160	88.5	0.805	23.4	5.7	105	2.1	2.5	0.12970	140	70
17.3	180L6A	183501-**A	1170	90.4	0.845	29.7	6.2	141	2.2	2.4	0.2418	180	70
21.3	200L6A	203501-**A	1175	90.5	0.85	36.3	5.7	173	2.0	2.4	0.34174	231	72
25.3	200L6B	203502-**A	1175	90.7	0.855	42.8	5.7	206	2	2.4	0.46837	254	72
34.5	225M6A	223301-**A	1180	90.9	0.84	59.3	7.0	279	2.2	2.5	0.62691	308	73
42.6	250M6A	253301-**A	1175	91.4	0.89	68.7	6.5	346	2.0	2.4	0.97	382	76
51.8	280S6A	283101-**A	1180	91.4	0.885	84.0	5.7	419	2.1	2.2	1.25	482	77
63	280M6A	283301-**A	1180	92.0	0.885	102	5.7	510	2.1	2.2	1.485	532	78
86	315S6A	313101-**A	1185	93.1	0.87	139	5.3	693	1.8	2.2	3.1942	920	78
104	315M6A	313301-**A	1185	93.3	0.87	168	5.3	838	1.8	2.2	3.723	1010	78
127	315L6A	313501-**A	1185	93.7	0.88	202	5.3	1024	1.8	2.2	4.2564	1060	78
152	315L6B	313502-**A	1185	93.7	0.88	242	5.8	1225	2.0	2.3	5.1577	1120	78
184	355M6A	353301-**A	1190	94.6	0.88	290	6.6	1477	2.0	2.8	7.8	1530	82
230	355M6B	353302-**A	1190	94.8	0.895	356	6.6	1846	1.8	2.6	9.1	1800	82
287.5	355L6A	353501-**A	1185	95.1	0.895	443	6.8	2307	2.1	2.8	11.4	2167	82

440V 60Hz													
Output kW	Type designation	Product code	Speed n r/min	Efficiency η%	Power factor cosφ	Current		TN Nm	Torque		Moment of inertia J=GD ² /(4g) kgm ²	Weight kg	Sound pressure level Lp dB(A)
						IN A	Is/IN		Ts/TN	TMAX/TN			
600r/min=8 poles Basic design													
0.43	M2QA 90S8A	2QAH 094101-**A	835	63	0.615	1.46	3.5	4.92	1.8	2.0	0.00541	21	52
0.63	90L8A	094501-**A	835	64	0.630	2.05	3.5	7.21	1.8	2.0	0.00756	24	52
0.86	100L8A	104501-**A	845	67.7	0.685	2.43	3.7	9.7	1.8	2.0	0.00971	31	59
1.27	100L8B	104502-**A	820	70.3	0.66	3.59	3.7	14.8	1.8	2.0	0.01186	34	59
1.73	112M8A	114301-**A	840	75.2	0.685	4.41	4.0	19.7	2.1	2.4	0.1559	42	61
2.53	132S8A	134101-**A	855	79.9	0.745	5.58	5.0	28.3	2.0	2.3	0.03625	56	61
3.45	132M8A	134301-**A	850	80.8	0.775	7.23	5.0	38.8	2.0	2.3	0.04141	64	62
4.60	160M8A	164301-**A	860	83	0.77	9.44	5.2	51.1	2.1	2.5	0.0676	105	65
6.33	160M8B	164302-**A	860	84.3	0.77	12.8	5.2	70.3	2.1	2.5	0.09524	125	65
8.6	160L8A	164501-**A	865	85	0.775	17.1	5.2	94.9	2.1	2.5	0.12122	142	65
12.7	180L8A	184501-**A	875	88.3	0.80	23.5	5.2	139	1.8	2.5	0.23645	176	68
17.3	200L8A	204501-**A	875	89.5	0.81	31.3	5.6	189	1.9	2.3	0.37103	235	71
21.3	225S8A	224101-**A	885	90	0.76	40.9	5.6	230	2	2.3	0.53287	290	72
25.3	225M8A	224301-**A	885	90.2	0.78	47.2	5.6	273	2	2.3	0.65825	302	72
34.5	250M8A	254301-**A	880	90.7	0.815	61.2	5.7	374	2	2.2	0.975	392	75
42.6	280S8A	284101-**A	885	91.1	0.815	75.3	5.2	460	2.0	2.3	1.25	488	76
51.8	280M8A	284301-**A	885	92.0	0.815	90.7	5.7	559	2.0	2.3	1.485	548	76
63	315S8A	314101-**A	885	92.6	0.83	108	5.5	680	1.8	2.3	3.6842	930	76
86	315M8A	314301-**A	885	93.2	0.83	146	5.5	928	1.8	2.3	4.9591	1010	76
104	315L8A	314501-**A	890	93.5	0.83	176	5.5	1122	1.8	2.3	5.8205	1070	76
127	315L8B	314502-**A	885	94.1	0.84	211	5.5	1370	1.8	2.3	6.7537	1140	76
152	355M8A	354301-**A	890	94.4	0.835	253	5.7	1631	1.8	2.2	8.6	1535	79
184	355M8B	354302-**A	890	94.6	0.84	304	5.7	1974	1.8	2.2	10.01	1808	79
230	355L8A	354501-**A	890	94.8	0.84	379	5.7	2468	1.9	2.4	12.5	2168	79

Code letters for supplementing the product code
Code letter for voltage and frequency

A
380VY50Hz

B
380V△50Hz

Other rated voltage connection or frequency(max,690V) can be used with VC002 or VC209.(The meaning of Variant Code can be referred to Variant Code List)

M2QA Marine Motor's Variant Code

Code	Variant	Frame Size													
		71	80	90	100	112	132	160	180	200	225	250	280	315	355
Administration															
531	Sea freight packing	NA	NA	NA	NA	NA	NA	P	P	P	P	P	P	P	P
Balancing															
423	Balanced without key.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
424	Full key balancing.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Bearings and Lubrication															
036	Transport lock for bearings.	NA	NA	NA	NA	NA	NA	P	P	P	P	P	P	P	P
037	Roller bearing at D-end.	NA	NA	NA	NA	NA	NA	P	P	P	P	P	P	P	P
039	Cold resistant grease.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
040	Heat resistant grease.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
041	Bearings regreasable via grease nipples.	NA	NA	NA	NA	R	P	P	P	P	P	S	S	S	S
058	Angular contact bearing at D-end,shaft force away from bearing.	NA	NA	NA	NA	NA	NA	R	R	R	R	R	R	R	R
059	Angular contact bearing at N-end,shaft force towards bearing.	NA	NA	NA	NA	NA	NA	R	R	R	R	R	R	R	R
060	Angular contact bearing at D-end,shaft force towards bearing.	NA	NA	NA	NA	NA	NA	R	R	R	R	R	R	R	R
061	Angular contact bearing at N-end,shaft force away from bearing.	NA	NA	NA	NA	NA	NA	R	R	R	R	R	R	R	R
043	SPM compatible nipples for vibration measurement.	NA	NA	NA	NA	R	P	P	P	P	P	P	P	P	P
506	Nipples for vibration measurement : SKF Marlin Quick Connect stud CMSS-2600-3	NA	NA	NA	NA	NA	NA	R	R	R	R	R	R	R	R
195	Bearings greased for life.	S	S	S	S	S	S	S	S	S	S	NA	NA	NA	NA
130	Pt100 3-wire in bearing.	NA	NA	NA	NA	NA	NA	R	R	R	R	R	R	R	R
798	Stainless steel grease nipples.	NA	NA	NA	NA	R	P	P	P	P	P	P	P	P	P
800	Grease nipples JIS B 1575 PT 1/8" pin type	NA	NA	NA	NA	NA	NA	P	P	P	P	P	P	P	P
796	Grease nipples JIS B 1575 PT 1/8 Type A	NA	NA	NA	NA	NA	NA	P	P	P	P	P	P	P	P
Branch standard designs															
209	Non-standard voltage or frequency.(special winding)	R	R	R	R	R	R	R	R	R	R	R	R	R	R
168	Primer paint only.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
178	Stainless steel/acid proof bolts.	R	R	R	R	R	R	R	R	R	R	R	R	R	R
999	Motor designed for ambient temperature -25°C~-40°C, with space heaters(code 450/451 must be added).	P	P	P	P	P	P	P	P	P	P	P	P	P	P
425	Corrosion protected stator and rotor core.	P	P	P	P	P	P	P	P	P	P	R	R	R	R

S=Included as standard
R=On request
NA=Not applicable
P=Applicable

M2QA Marine Motor's Variant Code

Code	Variant	Frame Size													
		71	80	90	100	112	132	160	180	200	225	250	280	315	355
Cooling system															
068	Light alloy metal fan.	P	P	P	P	P	P	P	P	P	P	S	S	S	S
075	Cooling method IC418 (without fan).	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Documentation															
141	Binding dimension drawing.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Drain holes															
065	Plugged existing drain holes.	S	S	S	S	S	S	S	S	S	S	P	P	P	P
Earthing Bolt															
067	External earthing bolt.	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Heating elements															
450	Heating elements,100-120V	P	P	P	P	P	P	P	P	P	P	P	P	P	P
451	Heating elements,200-240V	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Insulation system															
014	Winding insulation class H.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Mounting arrangements															
008	IM2101 foot/flange mounted, IEC flange,from IM1001 (B34 from B3)	P	P	P	P	P	P	P	NA	NA	NA	NA	NA	NA	NA
009	IM2001 foot/flange mounted, IEC flange,from IM1001 (B35 from B3)	P	P	P	P	P	P	P	P	P	P	P	P	P	P
047	IM3601 flange mounted, IEC flange,from IM3001 (B14 from B5)	P	P	P	P	P	P	P	NA	NA	NA	NA	NA	NA	NA
066*	Modified for specified mounting position differing from IM B3(1001),IM B5 (3001.),B14(3601),IM B35 (2001)&IM B34)	P	P	P	P	P	P	P	P	P	P	R	R	R	R
999	Modified for specified mounting position differing from IM B3(1001),IM B5(3001), B14(3601), IM B35(2001) &IM B34(2101),strengthen the casting)	NA	NA	NA	NA	NA	NA	NA	P	P	P	P	P	P	P
Painting															
114	Special paint colour,standard grade.	R	R	R	R	R	R	R	R	R	R	R	R	R	R
106	Paint thickness =80µm.	S	S	S	S	S	S	S	S	S	S	S	S	S	S
109	Paint thickness =120µm.	R	R	R	R	R	R	R	R	R	R	R	R	R	R
110	Paint thickness =160µm.	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Protection															
005	Metal protective roof,vertical motor,shaft down.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
072	Radial seal at D-end.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
158	Degree of protection IP65	P	P	P	P	P	P	P	P	P	P	P	P	P	P

*Mounting arrangements: B6、 B7、 B8、 V15、 V3、 V35、 V5、 V6

S=Included as standard
R=On request
NA=Not applicable
P=Applicable

M2QA Marine Motor's Variant Code

Code	Variant	Frame Size													
		71	80	90	100	112	132	160	180	200	225	250	280	315	355
403	Degree of protection IP56	P	P	P	P	P	P	P	P	P	P	P	P	P	P
784	Gamma-seal at D-end.	S	S	S	S	S	S	S	S	S	S	NA	NA	NA	NA
Rating & instnction plates															
002	Restamping voltage,frequency and output,continuous duty.	R	R	R	R	R	R	R	R	R	R	R	R	R	R
095	Restamping output(maintained voltage,frequency),intermittent duty.	R	R	R	R	R	R	R	R	R	R	R	R	R	R
135	Mounting of additional identification plate,stainless.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Shaft & rotor															
070	Special shaft extension at D-end,shandard shaft material.	R	R	R	R	R	R	R	R	R	R	R	R	R	R
069	Two shaft extension as per basic catalogue.	R	R	R	R	R	R	R	R	R	R	R	R	R	NA
164	Shaft extension with closed key-way.	R	R	R	R	R	R	R	R	R	R	R	R	R	R
165	Shaft extension with open key-way.	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Standards and Regulations															
115	Painting system C4M acc. To ISO 12944-5:2007.	R	R	R	R	R	R	R	R	R	R	R	R	R	R
754	Painting system C5M acc. To ISO 12944-5:2007.	R	R	R	R	R	R	R	R	R	R	R	R	R	R
024	Fulfilling Bureau Veritas(BV) requirements,with certificate.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
496	Fulfilling Bureau Veritas(BV) requirements,without certificate (non-essential duty only)	P	P	P	P	P	P	P	P	P	P	P	P	P	P
025	Fulfilling Det Norske Veritas (DNV) requirements,with certificate.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
186	Fulfilling Det Norske Veritas (DNV) requirements,without certificate(non-essential duty only).	P	P	P	P	P	P	P	P	P	P	P	P	P	P
026	Fulfilling Lloyds Register of Shipping(LR) requirements, with certificate.	P	P	P	P	P	P	P	P	P	P	P	R	R	R
096	Fulfilling Lloyds Register of Shipping(LR) requirement, without certificates(non-essential duty only).	P	P	P	P	P	P	P	P	P	P	P	R	R	R
027	Fulfilling American Bureau of Shipping(ABS) requirements, with certificate.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
675	Fulfilling American Bureau of Shipping(ABS) requirements, without certificate(non-essential duty only).	P	P	P	P	P	P	P	P	P	P	P	P	P	P
049	Fulfilling Germanischer Lloyd (GL) requirements, with certificate.	P	P	P	P	P	P	P	P	P	P	P	P	P	P

S=Included as standard
R=On request
NA=Not applicable
P=Applicable

M2QA Marine Motor's Variant Code

Code	Variant	Frame Size													
		71	80	90	100	112	132	160	180	200	225	250	280	315	355
Standards and Regulations															
676	Fulfilling Germanischer Lloyd (GL) requirements, without certificate(non-essential duty only).	P	P	P	P	P	P	P	P	P	P	P	P	P	P
050	Fulfilling Registro Italiano Navale(RINA) requirements, with certificate.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
492	Fulfilling Registro Italiano Navale(RINA) requirements, without certificate.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
481	Fulfilling Nippon Kaiji Kyokai (NK) requirements,with certificate.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
491	Fulfilling Nippon Kaiji Kyokai (NK) requirements, without certificate.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
484	Fulfilling Korea Register of Shipping(KR) requirements, with certificate.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
484	Fulfilling Korea Register of Shipping(KR) requirements, without certificate.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
483	Fulfilling China Classification Societies(CCS) requirements (Beijing),with certificate.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
493	Fulfilling China Classification Societies(CCS) requirements (Beijing),without certificate.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Stator winding temperature sensors															
120	KTY 84=130 (1 per phase) in stator winding.	R	R	R	R	R	R	R	R	R	R	R	R	R	R
121	Bimetal detectors,break type (NCC),(3 in series),130°C,in stator winding.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
122	Bimetal detectors,break type (NCC),(3 in series),150°C,in stator winding.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
123	Bimetal detectors,break type (NCC),(3 in series),170°C,in stator winding.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
124	Bimetal detectors,break type (NCC),(3 in series),140°C,in stator winding.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
125	Bimetal detectors,break type (NCC),(2x3 in series),150°C, in stator winding.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
127	Bimetal detectors,break type (NCC),(3 in series 130°C&3 in series 150°C),in stator winding.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
435	PTC-thermistors(3 in series), 130°C in stator winding.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
436	PTC-thermistors(3 in series), 150°C in stator winding.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
437	PTC-thermistors(3 in series), 170°C in stator winding.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
439	PTC-thermistors(2x3 in series), 150°C,in stator winding.	P	P	P	P	P	P	P	P	P	P	P	P	P	P

S=Included as standard
R=On request
NA=Not applicable
P=Applicable

M2QA Marine Motor's Variant Code

Code	Variant	Frame Size													
		71	80	90	100	112	132	160	180	200	225	250	280	315	355
Stator winding temperature sensors															
440	PTC-thermistors(3 in series 110°C & 3 in series 130°C),in stator winding.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
441	PTC-thermistors(3 in series 130°C & 3 in series 150°C),in stator winding.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
442	PTC-thermistors(3 in series 150°C & 3 in series 170°C),in stator winding.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
445	PT100 2-wire in stator winding,1 per phase.	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	P	P	P	P
446	PT100 2-wire in stator winding, 2 per phase.	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	P	P	P	P
502	PT100 3-wire in stator winding, 1 per phase.	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	P	P	P	P
503	PT100 3-wire in stator winding, 2 per phase.	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	P	P	P	P
Terminal box															
021	Terminal box LHS(see from D-end).	NA	P	P	P	P	P	P	P	P	P	P	P	P	P
022	Cable entry LHS(see from D-end).	P	P	P	P	P	P	P	P	P	P	P	P	P	P
157	Terminal box degree of protection IP65	P	P	P	P	P	P	P	P	P	P	P	P	P	P
180	Terminal box RHS(see from D-end).	NA	P	P	P	P	P	P	P	P	P	P	P	P	P
400	4x90 degr turnable terminal box.	S	S	S	S	S	S	S	S	S	S	R	R	R	R
418	Separate terminal box for auxiliaries ,standard material.	NA	NA	NA	NA	NA	NA	R	R	R	R	R	R	R	R
468	Cable entry from D-end.	NA	NA	R	P	P	P	P	P	P	P	R	R	R	R
469	Cable entry from N-end.	P	P	P	P	P	P	P	P	P	P	R	R	R	R
704	EMC cable gland.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
731	Two standard metal cable glands.	R	R	R	R	R	R	R	R	R	R	S	S	S	S
738	Prepared for metric cable glands.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
740	Prepared for PG cable glands.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
230	Standard mental cable glands.	S	S	S	S	S	S	S	S	S	S	NA	NA	NA	NA
137	Extended cable connected, low terminal box, "Flying leads", factory standard.	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Testing															
145	Type test report from a catalogue motor,400V 50HZ.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
146	Type test with report for one motor from special delivery batch.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
147	Type test with report for motor from special delivery bach, customer witnessed.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
148	Routine test report.	P	P	P	P	P	P	P	P	P	P	P	P	P	P

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Code	Variant	Frame Size													
		71	80	90	100	112	132	160	180	200	225	250	280	315	355
Testing															
221	Tyoe test and multi-point load test with report for one motor from specific delivery batch.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
222	Tyoe test and multi-point load test with report for one motor from specific delivery batch.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
760	Vibration level test.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
762	Noise level test for one motor from specific delivery batch.	P	P	P	P	P	P	P	P	P	P	P	P	P	P
412	Built-on brake.	R	R	R	R	R	R	R	R	R	R	R	R	R	R

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