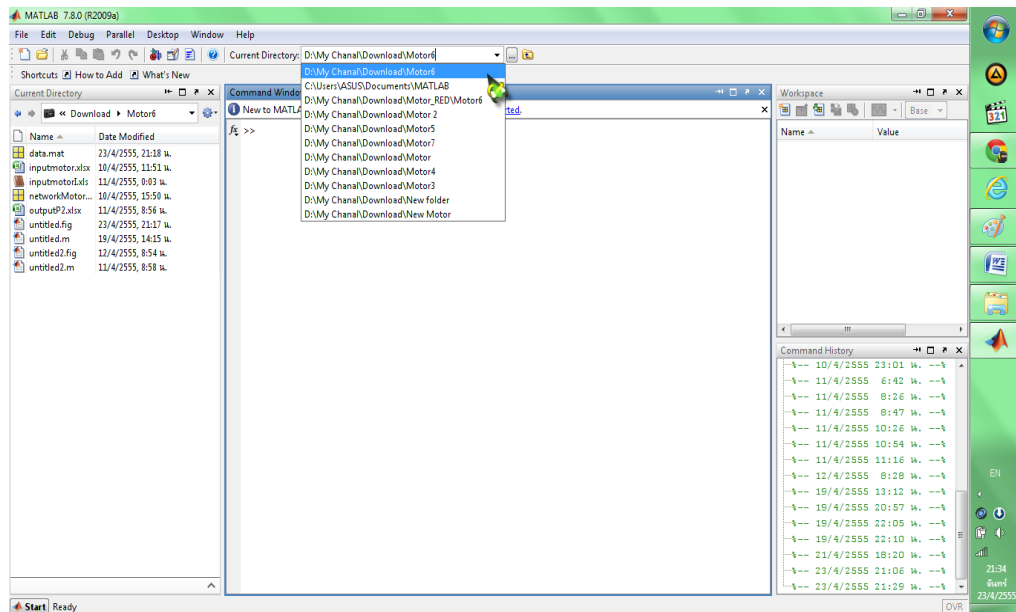


ภาคผนวก

ขั้นตอนการใช้งานโปรแกรมและข้อมูลมอเตอร์

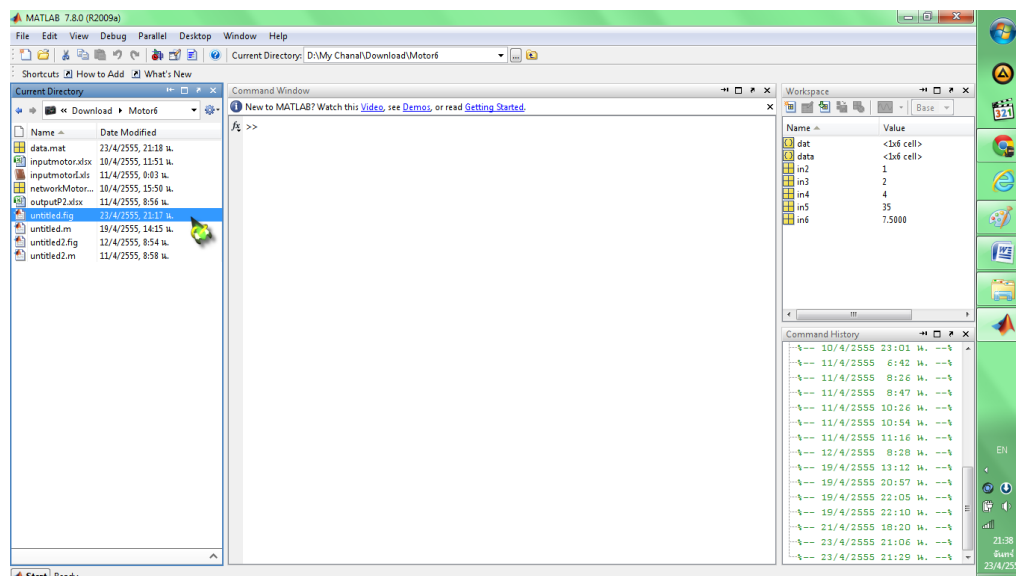
การใช้งานโปรแกรมการออกแบบระบบไฟฟ้าสำหรับวงจรมอเตอร์

1. เปิดโปรแกรม MATLAB R2009a
2. เลือก Current Directory ที่เก็บข้อมูล ดังภาพที่ 1



ภาพที่ 1

3. เลือกตัวโปรแกรมที่ ตั้งชื่อว่า untitled.fig ดังภาพที่ 2



ภาพที่ 2

4. ทำการป้อนข้อมูลอินพุตที่ต้องการลงในโปรแกรม จากนั้นกดบันทึกค่าอินพุต ดังภาพที่ 3

ป้อนค่าอินพุตมอเตอร์

ระบบไฟฟ้า: 1 Phase 3 Phase

วิธีการเดินเครื่องมอเตอร์: Direct On Line Star-Delta

วิธีการเดินสาย: แบบ 3 เส้นสายในอากาศ แบบ 3 เส้นสายร้อยท่อโลหะในอากาศ แบบ 4 เส้นสายร้อยท่อโลหะฝังดิน

จำนวนโพล: 8 Pole

อุณหภูมิ: 46-50

ขนาดกำลังงาน: 37 kW

อินพุตมอเตอร์ที่ป้อน

	ระบบไฟฟ้า	เครื่องควบคุม	วิธีการเดินสาย	จำนวนโพล	อุณหภูมิ(C)	ขนาดกำลังงาน(kW)
1						
2						
3						
4						

บันทึกค่าอินพุต แสดงค่าอินพุต

ประมวลผล เคลียร์ข้อมูล

ออกจากโปรแกรม

ภาพที่ 3

5. กดแสดงค่าอินพุต ค่าอินพุตที่ป้อนจะแสดงลงในตาราง ดังภาพที่ 4

ป้อนค่าอินพุตมอเตอร์

ระบบไฟฟ้า: 1 Phase 3 Phase

วิธีการเดินเครื่องมอเตอร์: Direct On Line Star-Delta

วิธีการเดินสาย: แบบ 3 เส้นสายในอากาศ แบบ 3 เส้นสายร้อยท่อโลหะในอากาศ แบบ 4 เส้นสายร้อยท่อโลหะฝังดิน

จำนวนโพล: 8 Pole

อุณหภูมิ: 46-50

ขนาดกำลังงาน: 37 kW

อินพุตมอเตอร์ที่ป้อน

	ระบบไฟฟ้า	เครื่องควบคุม	วิธีการเดินสาย	จำนวนโพล	อุณหภูมิ(C)	ขนาดกำลังงาน(kW)
1	3	1	2	2	40	45
2	3	1	2	4	45	75
3	3	1	2	6	50	55
4	3	1	2	8	50	37

บันทึกค่าอินพุต แสดงค่าอินพุต

ประมวลผล เคลียร์ข้อมูล

ออกจากโปรแกรม

ภาพที่ 4

6. กดประมวลผล โปรแกรมจะแสดงค่าเอาต์พุต ดังภาพที่ 5

เอ้าท์พุทมอเตอร์

	ขนาดสายวงจรมอเตอร์(sq.mm)	ขนาดสายดิน(sq.mm)	ขนาดท่อ(mm)	พิวส(A)	ขนาด
1	25	10	50	125	200
2	70	16	65	200	300
3	50	16	65	175	250
4	35	10	50	125	200

เอ้าท์พุทสายป้อน

สายป้อน วงจรมอเตอร์ mm2

ขนาดเครื่องป้องกัน AT

คำนวณสายป้อน

จัด

ภาพที่ 5

7. ถ้าต้องการจะหาขนาดของสายป้อนให้ กดคำนวณสายป้อน ได้ค่าแสดง ดังภาพที่ 6

เอ้าท์พุทมอเตอร์

	ขนาดสายวงจรมอเตอร์(sq.mm)	ขนาดสายดิน(sq.mm)	ขนาดท่อ(mm)	พิวส(A)	ขนาด
1	25	10	50	125	200
2	70	16	65	200	300
3	50	16	65	175	250
4	35	10	50	125	200

เอ้าท์พุทสายป้อน

สายป้อน วงจรมอเตอร์ mm2

ขนาดเครื่องป้องกัน AT

คำนวณสายป้อน

จัด

ภาพที่ 6

WAT **EURO GEAR** 



THE LEADER IN MOTORS



- **CAST IRON MOTORS**
- **LOW VOLTAGE MOTOR**
- **HIGH EFFICIENCY EFF2**



Technical features

The new M2QA series of three phase induction motors are a member of the WAT M2000 family with EU efficiency class. The motors are designed and manufactured according to the international standards of IEC34, IEC72, DIN432673, BS4999, AS1359, GB10069, and Q/JBQS27. The electrical and mechanical performance of WAT M2QA motors are excellent and keeping long.

High efficiency

The output power 1.1kW-90kW2P and 4P, in S1 duty, M2QA motors are among the class 2 of CEMEP-EU standard, saving energy and operating costs.

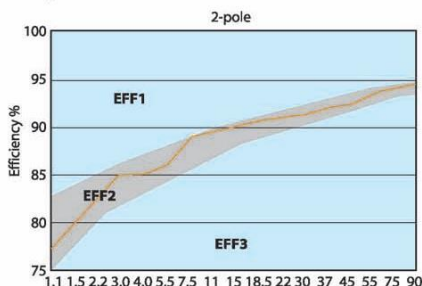
Reliable windings

To ensure long lifetime the windings are made of the latest available materials in class F protection and temperature rise limited to class B (80k) in standard motors.

Motors for EU motor efficiency levels

A new Europe-wide agreement will ensure that the efficiency levels of electric motors manufactured in Europe are clearly displayed. In contrast to the American legislation on motor efficiency the European agreement does not establish mandatory efficiency levels. It basically establishes three classes giving motor manufactures an incentive to quality for a higher class.

Standard three phase induction motors, 400V 50Hz-WAT motor efficiency levels



Bearings with high load capacity

All motors are provided with deep-groove ball bearings as standard and they are designed for long lifetime. For cast iron motors in sizes 71-225 are greased for life and motors in size 250-355 have a regreasing device as a standard.

Strong corrosion protection

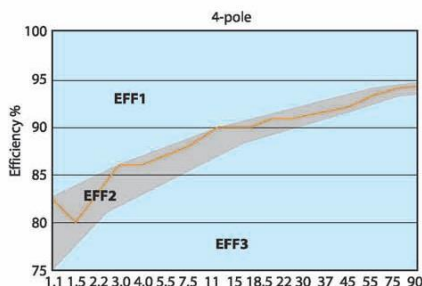
The motors are made to withstand aggressive environment as standard and they are designed for long lifetime. For motors with regreasing possibility refills, they have strong and effective protection against corrosion.

Low noise level

An important objective in our design work is to minimize the noise level. And we have been successful.

Additional windings protection

Fix thermistors (PTC), them-switches Anti condensation heaters on request.



M 2QA Cast iron motors - totally enclosed squirrel cage three phase motors

Lubrication

Motor sizes 71-225 are fitted with bearings that are regreased for life. For size 250-355 are equipped with bearing that are regreassable via grease nipples.

Insulation

Phase insulation and generous electrical dimensioning give the motor a high overload capacity. (Suitable for frequency converter drive)

Endshields, flanges

The endshield and different variants of flanges are of cast iron.

Bearings

The motors size 71-132 are fitted with enclosed 2RS1 bearings as standard. The frame sizes 160-225 are fitted with enclosed 2Z bearing as standard. Sizes 250-355 have regreassable bearings as standard. Modern design secure high load capacity and silent and silent run.

Terminal box

The spacious Terminal box of cast iron (for quick and easy to connect) The terminal box of motor sizes 71-132 can be turned 4 x 90 degrees and for sizes 160-355 it is possible to turn the terminal box 2 x 180 degrees. As standard the terminal box is on top of the motor but it is also possible in some size to get it on either right or left hand side at customers request.

Rotor windings

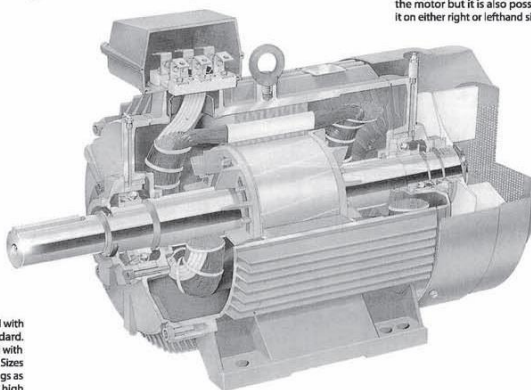
The rotor winding is made of pressure diecast aluminium, a design that provides high starting capacity and low noise level.

Low noise level

The high efficiency of the motor means that a smaller, quieter fan can be used.

Corrosion protection

Effective corrosion protection means that the motors can be used in all environments.



Stator

The stator is made of cast iron, including feet, which make the motor mechanically very strong and robust. Integrally cast iron feet allow a very rigid mounting and minimal vibration.



Mechanical design

Totally enclosed fan cooled IP55

Heavy duty design, manufactured from extra corrosion resistant cast iron materials to be used in all kind of environment. The motor is mechanically very strong and robust and as standard designed for additional energy saving through frequency converter drives.

Flexible cable entry direction

Terminal boxes are mounted on the top of the motors, right or left. Terminal boxes of motor size 71 - 132 can rotate 4 x 90°, and those of 160 - 355 can rotate 2 x 180°. All are easy to refit.

Powerful refit available

The motors satisfy the requirements of a wide range of environments and applications, such as improving protection, insulation level, regreasing facilities, dust-proof, sealing rings, rainproof are available on requested.

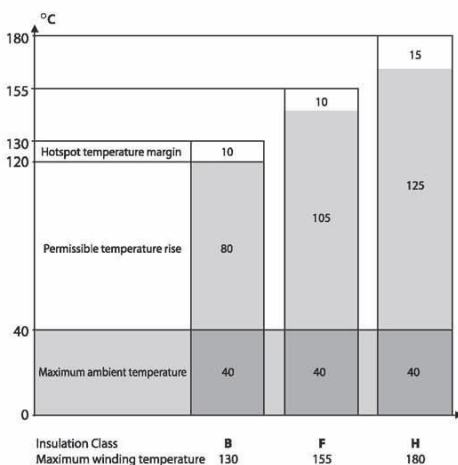
Insulation and insulation classes

The winding insulation of a motor is determined on the basis of the temperature rise in the motor and the ambient temperature. The insulation is normally dimensioned for the hottest point in the motor at its normal rated output and at ambient temperature of 40 °C. Motors subjected to ambient temperatures above 40 °C will generally have to be derated. In most cases, the standard rated outputs of motors from WAT Motors are based on the temperature rise for insulation classes B. Where the temperature rise is according to class F, this is specified in the data tables.

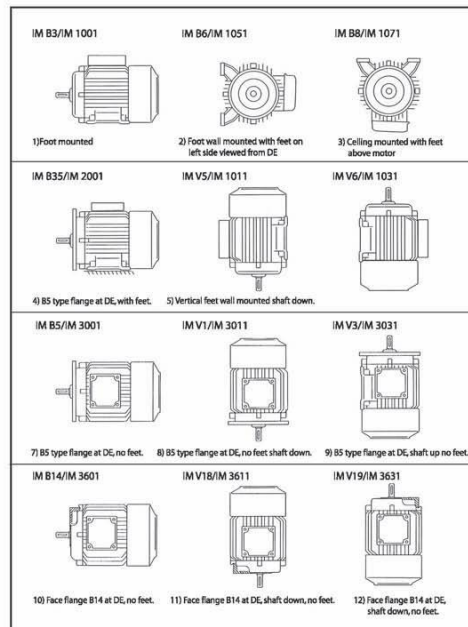
However, all the motors are designed with class F insulation, which permits a higher temperature rise than class B. The motors, therefore, have a generous over-load margin. If temperature, rise to class F is allowed, the outputs given in the tables can generally be increased by about 12%

Temperature limits are according to standards. The extra thermal margin when using class F insulation with class B temperature rise makes the motors more reliable.

Frame Size	Poles	Bearings type	
		Driving End	Non-Driving End
80M	2,4,6	6204C3 ZZ	6204C3 ZZ
90S	2,4,6	6205C3 ZZ	6205C3 ZZ
90L	2,4,6	6205C3 ZZ	6205C3 ZZ
100L	2,4,6	6206C3 ZZ	6206C3 ZZ
112M	2,4,6	6206C3 ZZ	6206C3 ZZ
132S	2,4,6	6208C3 ZZ	6208C3 ZZ
132M	2,4,6,8	6208C3 ZZ	6208C3 ZZ
160M	2,4,6,8	6309C3	6309C3
160L	2,4,6,8	6309C3	6309C3
180M	2,4,6,8	6311C3	6311C3
180L	2,4,6,8	6311C3	6311C3
200L	2,4,6,8	6312C3	6312C3
225S	4,6,8	6313C3	6313C3
225M	2	6312C3	6312C3
255M	4,6,8	6313C3	6313C3
250M	2,4,6,8	6314C3	6314C3
280S	2,4,6,8	6316C3	6316C3
280M	2,4,6,8	6316C3	6316C3
315S	2	6316C3	6316C3
315S	4,6,8	NU6319C3	6319C3
315M	2	6316C3	6316C3
315M	4,6,8	NU6319C3	6319C3
315L	2	6316C3	6316C3
315L	4,6,8	NU6319C3	6319C3
355M	2	6319C3	6319C3
355M	4,6,8	NU6322C3	6322C3
355L	2	6319C3	6319C3
355L	4,6,8	NU6322C3	6322C3



Safety margins per insulation class





Totally enclosed squirrel cage
three phase motors, cast iron frame
IP55 IC411

EFF 2

Insulation class F
Temperature rise class B

Output Kw	Type designation M2QA	Speed r/min	Efficiency		Power factor cosφ	Current		Torque			Moment of inertia J=GD ² /4 Kgm ²	Weight Kg	Sound pressure level Lp dB(A)
			Full load 100%	3/4 load 75%		I _n A	I _s In	T _N N.m	T _s T _N	T _{MAX} T _N			
3000 r/min = 2 pole													
380V 50Hz Basic design													
0.37	71M2A	2765	70.0	68.02	0.83	0.97	6.1	1.27	2.2	2.2	0.00030	10	56
0.55	71M2B	2780	73.0	72.38	0.84	1.37	6.1	1.89	2.2	2.2	0.00037	11	56
0.75	80M2A	2825	75.5	75.48	0.86	1.75	6.1	2.52	2.2	2.2	0.00091	16	57
1.1	80M2B	2840	77.5	77.86	0.86	2.52	7.0	3.68	2.2	2.2	0.00107	17	58
1.5	90S2A	2835	79.0	78.96	0.90	3.23	7.0	5.03	2.2	2.2	0.00135	21	61
2.2	90L2A	2835	81.5	81.82	0.89	4.61	7.0	7.37	2.2	2.2	0.00163	24	61
3	100L2A	2845	83.0	83.16	0.90	6.14	7.0	10.02	2.2	2.2	0.00402	33	65
4	112M2A	2885	85.0	84.56	0.924	7.82	7.0	13.17	2.2	2.2	0.00671	42	67
5.5	132S2A	2905	87.5	87.87	0.90	10.7	7.0	17.99	2.2	2.2	0.01241	58	70
7.5	132S2B	2905	87.5	90.12	0.90	14.5	7.0	24.53	2.2	2.2	0.01491	63	70
11	160M2A	2918	90.0	90.52	0.91	20.41	6.5	35.85	2.5	3.0	0.0436	112	72
15	160M2B	2917	90.0	90.10	0.91	27.82	6.5	49.06	2.5	3.2	0.0551	122	72
18.5	160L2A	2920	90.5	90.86	0.91	34.13	6.5	60.30	2.5	3.2	0.06549	142	72
22	180M2A	2940	90.8	91.02	0.91	40.45	6.5	71.46	2.3	2.8	0.08805	170	75
30	200L2A	2950	91.2	91.10	0.91	54.90	6.5	96.95	2.2	2.7	0.14821	235	81
37	200L2B	2950	91.7	91.83	0.91	67.36	6.5	119.6	2.3	2.7	0.16822	254	81
45	225M2A	2965	92.2	92.16	0.90	82.39	7.0	144.7	2.5	2.8	0.29345	328	81
55	250M2A	2956	93.2	91.70	0.90	100.0	7.5	177.4	2.4	3.0	0.3784	390	84
75	280S2A	2967	94.0	92.30	0.91	131.9	7.5	241.0	2.5	3.3	0.587	504	85
90	280M2A	2967	94.3	92.40	0.91	159.0	7.5	289.2	2.3	3.2	0.615	560	85
110	315S2A	2978	94.0	92.16	0.92	193.0	7.1	352.5	1.8	2.2	1.4083	910	88
132	315M2A	2978	94.5	92.96	0.92	231.0	7.1	423.0	1.8	2.2	1.5584	1010	88
160	315L2A	2976	94.6	93.52	0.93	276.0	7.2	512.9	1.8	2.2	1.7256	1070	88
200	315L2B	2976	94.8	93.95	0.93	345.0	7.2	641.4	1.8	2.2	1.9405	1120	88
250	355M2A	2978	95.4	94.50	0.92	435.1	7.1	802.0	1.6	2.2	3.05	1438	89
315	355L2A	2978	96.0	95.25	0.92	544.8	6.9	1011.0	2.0	2.8	3.6	1726	89
1500 r/min = 4 pole													
380V 50Hz Basic design													
0.25	71M4A	1385	66.0	63.28	0.74	0.78	5.2	1.71	2.1	2.0	0.00053	11	43
0.37	71M4B	1385	69.0	69.38	0.78	1.05	5.2	2.53	2.1	2.0	0.00066	11	45
0.55	80M4A	1400	73.5	71.39	0.75	1.52	5.2	3.73	2.4	2.0	0.00145	16	46
0.75	80M4B	1405	74.5	75.15	0.78	1.97	6.0	5.06	2.4	2.2	0.00174	17	46
1.1	90S4A	1390	77.0	77.82	0.80	2.72	6.0	7.50	2.3	2.2	0.00254	21	52
1.5	90L4A	1380	78.5	79.16	0.80	3.64	6.0	10.31	2.3	2.2	0.00317	25	52
2.2	100L4A	1420	81.5	82.32	0.83	4.98	6.0	14.69	2.3	2.2	0.00679	32	53
3	100L4B	1410	82.5	82.51	0.85	6.5	6.5	20.18	2.3	2.2	0.00862	36	53
4	112M4A	1420	84.5	84.63	0.84	8.57	6.5	26.71	2.3	2.2	0.01306	45	56
5.5	132S4A	1430	85.5	87.07	0.87	11.43	6.5	36.73	2.3	2.2	0.02673	60	59
7.5	132M4A	1430	88.0	88.26	0.85	15.2	6.5	49.74	2.3	2.2	0.03423	73	59
11	160M4A	1455	89.5	90.01	0.87	21.46	6.5	71.95	2.4	2.8	0.06543	116	66
15	160L4A	1452	90.0	90.38	0.88	28.78	6.5	98.12	2.3	2.4	0.09349	137	66
18.5	180M4A	1465	91.0	90.88	0.88	35.10	6.5	120.2	2.3	3.0	0.16049	170	66
22	180L4A	1465	91.5	89.98	0.90	40.59	6.5	142.9	2.4	3.0	0.18046	186	66
30	200L4A	1465	92.3	91.83	0.89	55.47	6.5	194.9	2.2	2.8	0.2819	254	71
37	225S4A	1475	92.3	91.16	0.85	71.42	7.0	238.8	2.2	2.8	0.37	308	73
45	225M4A	1475	92.6	91.66	0.88	84.68	7.0	290.4	2.2	2.8	0.42	335	73
55	250M4A	1477	93.2	91.30	0.88	102.8	7.0	357.9	2.4	3.0	0.78	450	76
75	280S4A	1475	93.8	93.90	0.88	138.0	6.5	484	2.4	2.6	1.10	534	78
90	280M4A	1475	94.1	94.60	0.88	165.1	7.2	580.7	2.3	2.8	1.35	592	78
110	315S4A	1483	94.5	93.51	0.89	199.0	6.9	706.9	2.1	2.2	2.8596	930	80
132	315M4A	1483	94.8	94.01	0.89	238.0	6.9	848.3	2.1	2.2	3.1848	1030	80
160	315L4A	1483	94.9	94.51	0.90	285.0	6.9	1029	2.1	2.2	3.6765	1050	86
200	315L4B	1482	95.0	94.18	0.90	355.0	7.1	1286	2.2	2.2	4.2516	1100	86
250	355M4A	1488	95.3	94.50	0.91	440.4	6.9	1594	2.1	2.2	6.77	1546	87
315	355L4A	1488	95.6	94.83	0.91	553.2	7.0	2008	2.1	2.3	8.2	1821	87



Totally enclosed squirrel cage
three phase motors, cast iron frame
IP55 (IC41)

Insulation class F
Temperature rise class B

Output Kw	Type designation M2QA	Speed r/min	Efficiency		Power factor cosφ	Current		Torque			Moment of inertia J=GD ² /8 Kgm ²	Weight Kg	Sound pressure level Lp dB(A)
			Full load 100%	3/4 load 75%		I _N A	I _s I _N	T _N N _m	T _s T _N	T _{MAX} T _N			
1000 r/min = 6 pole													
380V 50Hz Basic design													
0.18	71M6A	905	55.5	50.06	0.69	0.72	4.0	1.89	1.81	1.8	0.00056	10	42
0.25	71M6B	885	60.0	58.32	0.65	0.98	4.0	2.68	1.8	1.8	0.00074	11	42
0.37	80M6A	925	63.5	63.22	0.70	1.29	5.0	3.80	1.9	1.8	0.00159	17	45
0.55	80M6B	920	65.0	65.08	0.71	1.82	5.0	5.68	1.9	1.8	0.00196	18	45
0.75	90S6A	915	71.0	70.22	0.75	2.13	5.5	7.79	2.0	2.2	0.00292	21	48
1.1	90L6A	915	73.0	73.06	0.77	2.98	5.5	11.42	2.0	2.2	0.00379	25	48
1.5	100L6A	935	76.0	75.28	0.79	3.8	5.5	15.24	2.0	2.2	0.00999	32	51
2.2	112M6A	935	79.0	81.16	0.77	5.5	5.5	22.35	2.0	2.2	0.01559	40	54
3	132S6A	955	82.0	83.55	0.81	6.87	6.5	29.84	2.0	2.2	0.03116	55	56
4	132M6A	955	84.0	84.18	0.77	9.31	6.5	39.79	2.0	2.2	0.04074	65	56
5.5	132M6B	945	85.5	85.63	0.80	123	6.5	54.71	2.0	2.2	0.05332	75	56
7.5	160M6A	968	88.0	85.28	0.79	16.4	6.0	73.84	2.0	2.3	0.09231	119	61
11	160L6A	966	88.5	88.56	0.80	23.6	6.0	108.3	2.2	2.3	0.12970	140	62
15	180L6A	980	89.0	89.12	0.84	30.5	6.0	146.2	2.3	2.8	0.2418	180	63
18.5	200L6A	975	90.6	90.22	0.84	36.9	6.0	180.3	2.2	2.8	0.34174	231	64
22	200L6B	975	90.9	90.32	0.84	43.8	6.0	214.4	2.1	2.8	0.41837	254	64
30	225M6A	980	90.5	89.20	0.78	64.0	6.6	292.3	2.2	2.8	0.62691	308	66
37	250M6A	978	92.2	92.40	0.90	68.0	6.8	360.6	2.3	2.8	0.97	382	68
45	280S6A	977	92.7	91.30	0.87	85.1	6.5	437.6	2.3	2.4	1.25	482	69
55	280M6A	977	92.8	91.20	0.88	102.3	7.0	534.9	2.3	2.5	1.485	532	70
75	315S6A	988	93.5	93.21	0.87	140.0	7.4	723.5	2.0	2.0	3.1942	920	70
90	315M6A	988	93.8	91.86	0.87	168.0	7.0	868.2	2.0	2.0	3.723	1010	70
110	315L6A	988	94.3	93.52	0.88	201.0	6.8	1061.1	2.0	2.0	4.2564	1060	70
132	315L6B	988	94.5	93.82	0.88	241.0	6.7	1273.3	2.0	2.0	5.1577	1120	70
160	355M6A	988	94.7	93.85	0.90	285.2	6.8	1530	2.1	2.4	7.8	1360	75
200	355M6B	988	94.9	93.95	0.90	355.8	6.7	1913	2.0	2.0	9.1	1551	75
250	355L6A	988	95.1	94.15	0.91	441.3	6.7	2391	2.0	2.0	11.4	2057	75
750 r/min = 8 pole													
380V 50Hz Basic design													
0.25	80M8B	695	54.0	53.28	0.61	1.16	3.6	3.41	1.8	1.9	0.00326	17	42
0.37	90S8A	695	62.0	62.07	0.61	1.49	4.4	5.05	1.8	1.9	0.00541	21	46
0.55	90L8B	695	63.0	63.34	0.61	2.18	4.7	7.50	1.8	2.0	0.00756	24	46
0.75	100L8A	695	70.0	70.08	0.67	2.43	5.0	10.23	1.8	2.0	0.00971	31	53
1.1	100L8B	695	71.5	70.28	0.68	3.45	5.0	15.01	1.8	2.0	0.01186	34	53
1.5	112M8A	695	75.0	75.39	0.68	4.47	5.0	20.46	1.8	2.0	0.01559	42	55
2.2	132S8A	705	80.5	81.78	0.75	5.60	5.5	29.59	1.8	2.0	0.03625	56	55
3	132M8A	705	81.0	81.38	0.78	7.5	5.5	40.35	1.8	2.0	0.04141	64	56
4	160M8A	715	84.0	83.98	0.76	9.52	5.5	53.06	2.1	2.5	0.0676	105	58
5.5	160M8B	715	85.5	85.62	0.76	12.86	5.5	72.95	2.1	2.5	0.09524	125	58
7.5	160L8A	715	86.5	85.82	0.77	17.11	5.5	99.5	2.1	2.5	0.12122	142	58
11	180L8A	725	87.7	86.96	0.79	24.11	5.4	143.9	2.0	2.8	0.23645	176	61
15	200L8A	725	88.9	89.38	0.78	32.86	5.5	196.2	2.3	2.8	0.37103	235	63
18.5	225S8A	740	89.9	89.12	0.75	41.69	5.5	238.8	2.1	2.8	0.53287	290	65
22	225M8A	740	90.4	89.16	0.76	48.0	6.0	283.9	2.0	2.8	0.65825	302	65
30	250M8A	738	91.1	90.10	0.80	63.0	6.5	387.2	2.3	2.6	0.975	392	67
37	280S8A	735	91.6	91.70	0.80	76.7	6.0	477.5	2.1	2.6	1.25	488	68
45	280M8A	735	92.2	91.10	0.80	92.7	6.0	580.7	2.1	2.7	1.485	548	68
55	315S8A	736	92.8	91.52	0.83	108.0	6.6	709.8	1.8	2.0	3.6842	930	65
75	315M8A	736	93.0	91.93	0.83	148.0	7.0	967.9	1.8	2.0	4.9591	1010	68
90	315L8A	736	93.8	93.22	0.83	176.0	6.6	1161.5	1.8	2.0	5.8205	1070	68
110	315L8B	736	94.0	92.38	0.84	212.0	6.4	1419.6	1.8	2.0	6.7537	1140	68
132	355M8A	740	93.7	-	0.82	248.0	6.4	1703.0	1.8	2.0	-	1424	73
160	355M8B	740	94.2	-	0.82	299.0	6.4	2064	1.8	2.0	-	1578	73

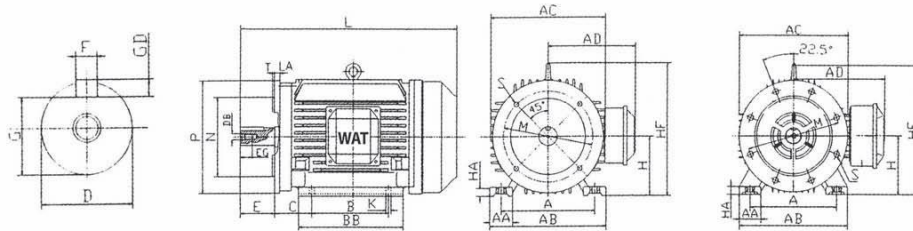


DIMENSION DRAWING

Foot-mounted motor designation IM B3, IM B6, IM B7, IM B8, IM V5, IM V6
 Flange-mounted, mounting designation IM B5, IM V1, IM V3
 Foot-and flange-mounted, mounting designation IMB35, IM V15, IM V36

Cast iron motor
 Type M2QA71-355

three phase motor, foot - and flange - mounted, terminal box mounted on right hand side (on request)



Type M2QA	Poles	H	HA	HD	HF	K	L	LD	AD	LA	M	N	P	S	T	HE
71M	2-6	71	10	200	---	7	255	100	120	9	130	110	160	4-10	3.5	165
80M	2-8	80	12	255	170	10	285	116	145	9	165	130	200	4-12	3.5	200
90S	2-8	90	12	240	185	10	310	128	150	10	165	130	200	4-12	3.5	200
90L	2-8	90	12	240	185	10	335	128	150	10	165	130	200	4-12	3.5	200
100L	2-8	100	14	240	245	12	380	138	175	11	215	180	250	4-15	4	270
112M	2-8	112	15	290	265	12	395	144	185	11	215	180	250	4-15	4	278
132S	2-8	132	18	335	300	12	465	169	205	12	265	230	300	4-15	4	320
132M	2-8	132	18	335	300	12	505	169	205	12	265	230	300	4-15	4	320
160M	2-8	160	22	415	380	15	600	250	255	15	300	250	350	4-19	5	400
160L	2-8	160	22	415	380	15	645	250	255	15	300	250	350	4-19	5	400
180M	2-4	180	22	450	420	15	670	270	270	18	300	250	350	4-19	5	420
180L	4-8	180	22	450	420	15	710	270	270	18	300	250	350	4-19	5	420
200L	2-8	200	25	510	470	19	770	285	305	20	350	300	400	4-19	5	470
225S	4-8	225	28	560	520	19	820	340	335	20	400	350	450	8-19	5	520
225M	2	225	28	560	520	19	815	310	335	20	400	350	450	8-19	5	520
225M	4-8	225	28	560	520	19	840	340	335	20	400	350	450	8-19	5	520
250M	2	250	30	645	580	24	930	360	395	22	500	450	550	8-19	5	655
250M	4-8	250	30	645	580	24	930	360	395	22	500	450	550	8-19	5	655
280S	2	280	35	715	645	24	975	355	435	22	500	450	550	8-19	5	725
280S	4-8	280	35	715	645	24	975	355	435	22	500	450	550	8-19	5	725
280M	2	280	35	715	645	24	1040	355	435	22	500	450	550	8-19	5	725
280M	4-8	280	35	715	645	24	1040	355	435	22	500	450	550	8-19	5	725
315S	2	315	45	870	---	28	1190	400	555	24	600	550	660	8-24	6	905
315S	4-8	315	45	870	---	28	1220	430	555	24	600	550	660	8-24	6	905
315M	2	315	45	870	---	28	1300	400	555	24	600	550	660	8-24	6	905
315M	4-8	315	45	870	---	28	1330	430	555	24	600	550	660	8-24	6	905
315L	2	315	45	870	---	28	1300	400	555	24	600	550	660	8-24	6	905
315L	4-8	315	45	870	---	28	1330	430	555	24	600	550	660	8-24	6	905
355M	2	355	52	1010	---	35	1490	424	655	25	740	680	800	8-24	6	1010
355M	4-6	355	52	1010	---	35	1565	494	655	25	740	680	800	8-24	6	1010
355L	2	355	52	1010	---	35	1495	424	655	25	740	680	800	8-24	6	1010
355L	4-6	355	52	1010	---	35	1565	494	655	25	740	680	800	8-24	6	1010

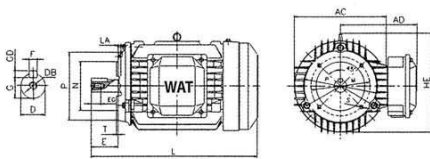


DIMENSION DRAWING

Flange-mounted; IM B14, V18, IM V19
Foot-and flange-mounted; IM B34

Cast iron motor
Type M2QA71-355

flange-mounted motor, small flange IM B14 (on request)



TYPE M2QA	POLE	SIZE	P	M	N	S
71M	2-6	C105	105	85	70	M6
71M	2-6	C140	140	115	95	M6
80M	2-8	C120	120	100	80	M6
80M	2-8	C160	160	130	110	M8
90S	2-8	C140	140	115	95	M8
90S	2-8	C160	160	130	110	M8
90L	2-8	C140	140	115	95	M8
90L	2-8	C160	160	130	110	M8
100L	2-8	C160	160	130	110	M8
100L	2-8	C200	200	165	130	M10
112M	2-8	C160	160	130	110	M8
112M	2-8	C200	200	165	130	M10
132S	2-8	C200	200	165	130	M10
132M	2-8	C200	200	165	130	M10
160M	2-8	C250	250	215	180	M12
160L	2-8	C250	250	215	180	M12

TYPE M2QA	Pole	A	AA	AB	AC	B	BB	C	D	E	F	G	GD	DB	EG	H	HA	HD	K	L	LD	AD	LA	T	HE	HF
71M	2-6	112	30	145	145	90	120	45	14	30	5	11	5	M5	12.5	71	10	200	7	255	100	120	9	3.5	145	-
80M	2-8	125	35	165	165	100	135	50	19	40	6	15.5	6	M6	16	80	12	225	10	285	116	145	9	3.5	200	185
90S	2-8	140	35	175	180	100	140	56	24	50	8	20	7	M8	19	90	12	240	10	310	128	150	10	3.5	200	195
90L	2-8	140	35	175	180	125	165	56	24	50	8	20	7	M8	19	90	12	240	10	335	128	150	10	3.5	200	195
100L	2-8	160	40	200	205	140	180	63	28	60	8	24	7	M10	22	100	14	275	12	380	138	175	11	3.5	270	245
112M	2-8	190	50	235	225	140	190	70	28	60	8	24	7	M10	22	112	15	290	12	395	144	185	11	3.5	278	265
132S	2-8	216	55	270	265	140	205	89	38	80	10	33	8	M12	28	132	18	335	12	465	169	205	15	3.5	320	300
132M	2-8	216	55	270	265	178	240	89	38	80	10	33	8	M12	28	132	18	335	12	505	169	205	15	3.5	320	300
160M	2-8	254	60	325	330	210	265	108	42	110	12	37	8	M16	36	160	22	415	15	600	250	255	20	4	400	380
160L	2-8	254	60	325	330	254	310	108	42	110	12	37	8	M16	36	160	22	415	15	645	250	255	20	4	400	380

