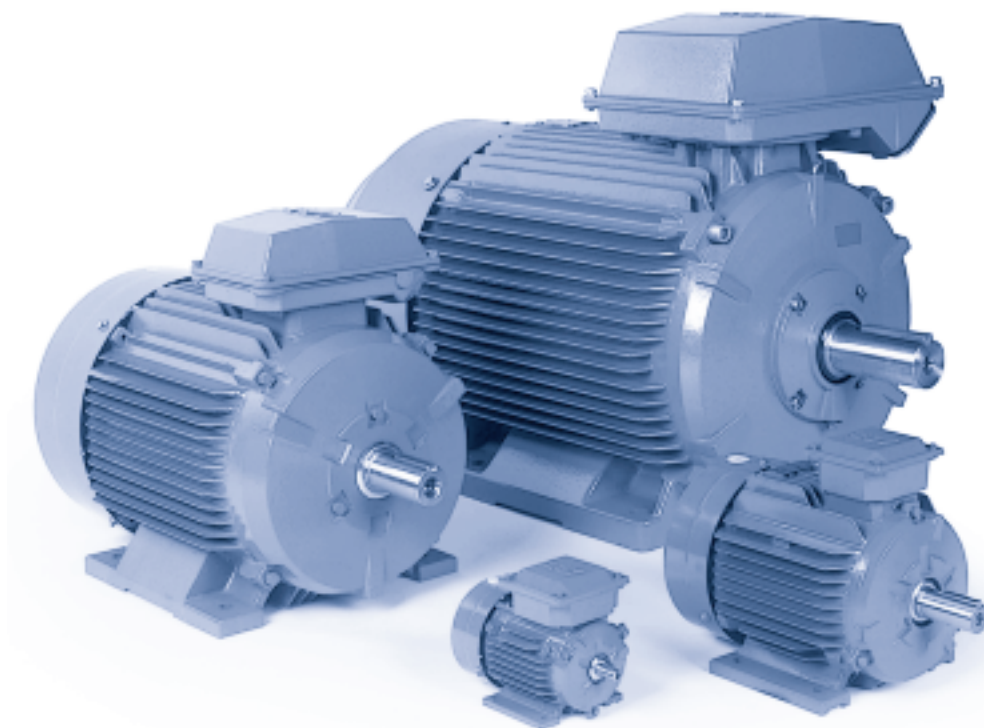


General Purpose Cast Iron Motors

Totally enclosed squirrel cage three phase low voltage motors,
Sizes 71 - 355, 0.25 to 250 kW



4

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Mechanical design

Stator

The motor frame including feet, bearing housing and terminal box is made of cast iron. Integrally cast feet allow a very rigid mounting and minimal vibration.

Motors can be supplied for foot mounting, flange mounting and combinations of these.

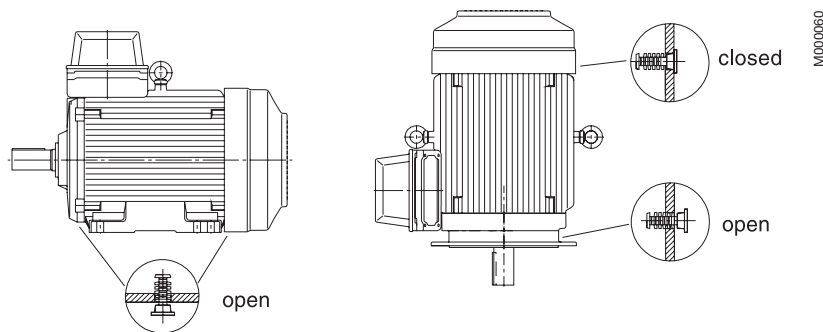
Drain holes

Motors, frame sizes 280 to 355, are fitted with drain holes and closable plugs. The plugs are open on delivery. When mounting the motors, ensure that the drain holes face downwards.

In the case of vertical mounting, the upper plug must be hammered home completely. In very dusty environments, both plugs should be hammered home.

Drain holes for motors IEC frame sizes 71 to 250 are available as modification.

Drain holes for motors IEC-frame sizes 280 to 355



Terminal boxes are mounted on top of the motor as standard. The terminal box can also be mounted on the left or right side, see ordering information.

Terminations are suitable for Cu- and Al-cables. Cables are connected to the terminals by cable lugs which are not included with the motor.

The terminal box of motor sizes 71 to 250 can be turned 4x90° and in motors sizes 280 to 355 rotated 2x180° to allow cable entry from either side of the motor. Degree of protection of standard terminal box is IP 55.

To enable the supply of suitable terminations for the motor, please state cable type, quantity and size when ordering. Non-standard design of terminal boxes; e.g. size, degree of protection, are available as options.

The terminal boxes in sizes 280 to 355 are equipped with cable glands or cable boxes as standard.

Please see variant codes for options.

Terminal box examples



Motor sizes 71 to 132



Motor sizes 160 to 250



Motor sizes 280 to 355, provided either with a cable gland or a cable box.

Terminal boxes and cable entries

If no ordering information of the cable is given, it is assumed to be p.v.c.-insulated and termination parts are supplied according to the table below.

In motor sizes 280 to 355 the terminal box is equipped with cable glands or cable boxes as standard.

To enable the supply of suitable terminations for the motor, please state cable type, quantity and size when ordering.

The table below shows the different alternatives available for cable boxes and cable entries. Other types on request.

Cast iron motor sizes 71 to 250 with top-mounted terminal box

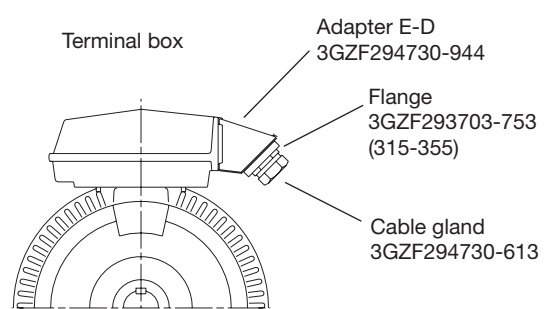
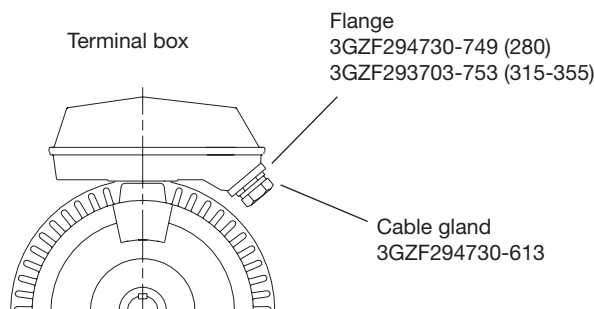
Motor size	Poles	Cable entry mm
71M	2,4,6	2xM16x1.5
80M	2,4,6	2xM25x1.5
90S	2,4,6	2xM25x1.5
90L	2,4,6	2xM25x1.5
100L	2,4,6,8	2xM32x1.5
112M	2,4,6,8	2xM32x1.5
132S	2,4,6,8	2xM32x1.5
132M	2,4,6,8	2xM32x1.5

Motor size	Poles	Cable entry mm
160M	2,4,6,8	2xM40x1.5
160L	2,4,6,8	2xM40x1.5
180M	2,4,6,8	2xM40x1.5
180L	2,4,6,8	2xM40x1.5
200L	2,4,6,8	2xM50x1.5
225S	4,6,8	2xM50x1.5
225M	2,4,6,8	2xM50x1.5
250M	2,4,6,8	2xM63x1.5

Cable entries for thermistors: 1xM16x1.5 (type 160 to 250)

Cast iron motor sizes 280 to 355 with top-mounted terminal box

Motor size	Terminal box	Flange opening	Flange	Cable gland	Cable entry	Cable diameter	Auxiliary entries	Terminal bolt
3000 r/min (2 poles)								
280 SM_	122/2	C	3GZF 294 730-749	3GZF 294 730-613	2 x M63	2 x Ø32-49	2 x M20	M8
315 SM_, ML_	142/1	D	3GZF 294 730-753	3GZF 294 730-613	2 x M63	3 x Ø32-49	2 x M20	M10
355 S	162/1	E-D	3GZF 294 730-753	3GZF 294 730-613	2 x M63	3 x Ø32-49	2 x M20	M12
1500 r/min (4 poles)								
280 SM_	122/2	C	3GZF 294 730-749	3GZF 294 730-613	2 x M63	2 x Ø32-49	2 x M20	M8
315 SM_, ML_	142/1	D	3GZF 294 730-753	3GZF 294 730-613	2 x M63	3 x Ø32-49	2 x M20	M10
355 S	162/1	E-D	3GZF 294 730-753	3GZF 294 730-613	2 x M63	3 x Ø32-49	2 x M20	M12
1000 r/min (6 poles)								
280 SM_	122/2	C	3GZF 294 730-749	3GZF 294 730-613	2 x M63	2 x Ø32-49	2 x M20	M8
315 SM_, ML_	142/1	D	3GZF 294 730-753	3GZF 294 730-613	2 x M63	3 x Ø32-49	2 x M20	M10
355 S	142/2	D	3GZF 294 730-753	3GZF 294 730-613	2 x M63	3 x Ø32-49	2 x M20	M10
750 r/min (8 poles)								
280 SM_	122/2	C	3GZF 294 730-749	3GZF 294 730-613	2 x M63	2 x Ø32-49	2 x M20	M8
315 SM_, ML_	142/1	D	3GZF 294 730-753	3GZF 294 730-613	2 x M63	3 x Ø32-49	2 x M20	M10
355 S	142/2	D	3GZF 294 730-753	3GZF 294 730-613	2 x M63	3 x Ø32-49	2 x M20	M10



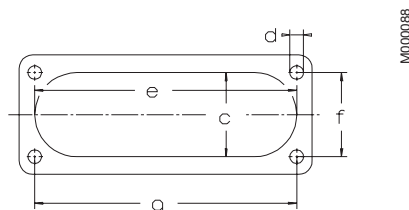
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Alternatives for cable entries and cable boxes for motor sizes 280 to 355

Motor size	Terminal box on top	Terminal box on side	Opening type (D/Y-conn.)	Max. rated current A mm ²	Max connection cable area	Cable gland diameter	Auxiliary cable entries	Cable box diameter	Blank plate
280	122/2	NA	C	363/210	2 x 150	2 x M40-63	2 x M20	max 2xØ60	MKLN 20
315	142/1	NA	D	640/370	2 x 240	1 x M40-63	2 x M20	max 2xØ60	MKLN 30
355	142/2		D	640/370	2 x 240	2 x M40-63	2 x M20	max 2xØ80	
	162/1		E-D	950/550	4 x 240			max 4xØ60	

Flange

Opening	Adapter 3GZF	c	e	f	g	d
C		62	193	62	193	M8
D		100	300	80	292	M10
E		100	300	80	292	M10
E-D	294730-944	100	300	80	292	M10



Bearings

The motors are normally fitted with single-row deep groove ball bearings as listed in the table below.

When there are high axial forces, angular-contact ball bearings should be used. This option is available on request.

When a motor with angular-contact ball bearings is ordered, the method of mounting and direction and magnitude of the axial force must be specified. For special bearings, please see the variant codes.

Basic version with deep groove ball bearings

Motor size	Number of poles	Deep groove ball bearings	
		D-end	N-end
71M	2-6	6202 VV C3	6202 VV C3
80M	2-6	6204 DDU C3	6204 DDU C3
90S	2-6	6205 DDU C3	6205 DDU C3
90L	2-6	6205 DDU C3	6205 DDU C3
100L	2-8	6206 DDU C3	6206 DDU C3
112M	2-8	6207 DDU C3	6206 DDU C3
132S	2-8	6208 DDU C3	6207 DDU C3
132M	2-8	6208 DDU C3	6207 DDU C3
160M	2-8	6309 ZZ C3	6209 DDU C3
160L	2-8	6309 ZZ C3	6209 DDU C3

Motor size	Number of poles	Deep groove ball bearings	
		D-end	N-end
180M	2-8	6310 ZZ C3	6210 DDU C3
180L	2-8	6310 ZZ C3	6210 DDU C3
200L	2-8	6312 ZZ C3	6212 DDU C3
225S	4-8	6313 ZZ C3	6213 ZZ C3
225M	2-8	6313 ZZ C3	6213 ZZ C3
250M	2-8	6314/C3	6214/C3
280	2	6316/C4	6316/C4
	4-12	6316/C3	6316/C3
315	2	6316/C4	6316/C4
	4-12	6319/C3	6316/C3
355	2	6316M/C3	6316M/C3
	4-12	6322/C3	6319/C3

Axially-locked bearings

The D-end bearing is locked, in sizes 71 to 180 with the spring ring and in sizes 200 to 355 with the inner bearing cover. The inner ring is locked by tight tolerance to the shaft.

Transport locking

Motors that have roller bearings or an angular contact ball bearing are fitted with a transport lock before despatch to prevent damage to the bearings during transport. In case of transport locked bearing, motor sizes 280 to 355 are provided with a warning sign.

Locking may also be fitted in other cases where transport conditions are suspected of being potentially damaging.

Bearing seals

The motors are as standard provided with seals according to table below.

Motor size	Description D-end	Standard design		Alternative design Radial seal (DIN 3760) Variant code 072	Number of poles	d ₁	d ₂	B ₁	b
		Axial seal	N-end						
71 to 132	Sealed bearings (2RS) and axial seal, gamma ring, at D-end								
160 to 225	Axial seal, gamma ring, at D-end								
250	Radial seal at D-end								
280	Axial seals at both ends	VS 80	VS 80	80x100x10 ¹⁾	2	80	100	13.5	10
		VS 80	VS 80	80x100x10	4-12	80	100	13.5	10
315	Axial seals at both ends	VS 80	VS 80	80x100x10 ¹⁾	2	80	100	13.5	10
		VS 95	VS 80	95x120x12	4-12	95	120	13.5	12
355	Axial seals at both ends	VS 95	VS 95	95x120x12 ¹⁾	2	95	120	13.5	12
		VS 110	VS 95	110x140x12 ¹⁾	4-12	110	140	15.5	12

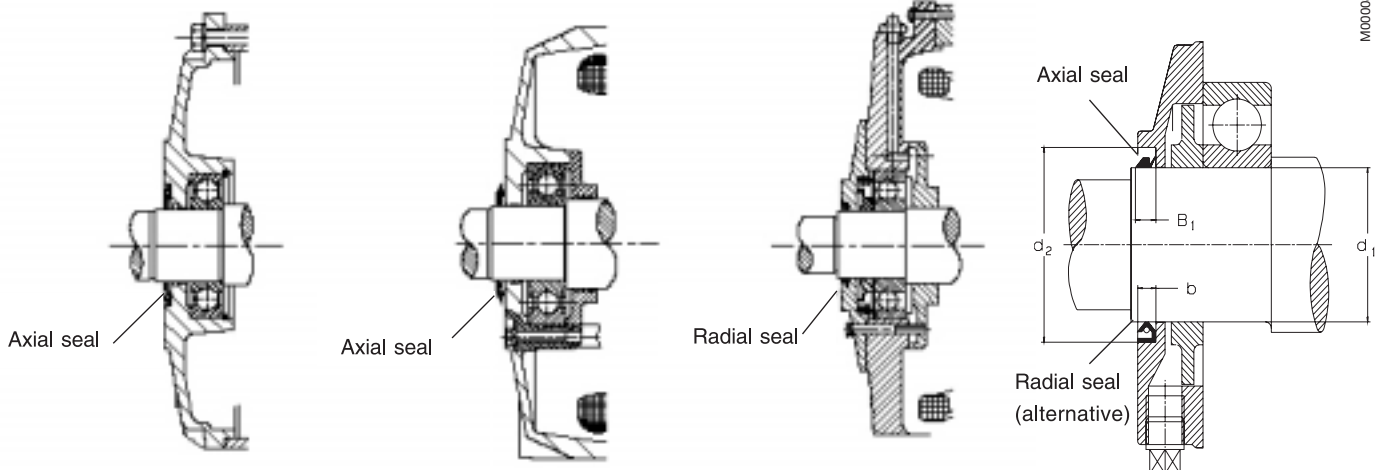
¹⁾ Viton-seal

Motor sizes 71-132

Motor sizes 160-225

Motor size 250

Motor sizes 280-355



Bearing life

The nominal life L_{10} of a bearing is defined according to ISO as the number of operating hours achieved or exceeded by 90% of identical bearings in a large test series under certain specified conditions. 50% of the bearings achieve at least five times this figure.

The calculated bearing life L_{10} for power transmission by means of a coupling (horizontal machine):

Motor sizes 280 to 355 200,000 hours.

Lubrication

On delivery, the motors are lubricated with a type of grease intended for use in dry or humid environments, at normal ambient temperature.

Standard versions of motors 71 to 225 are lubricated for life, with lithium based grease.

Motors 160 to 225 are available with either permanent greased or, as against variant codes, with regreasable bearings.

Motors 250 to 355 have grease value lubrication for lubrication in service. The lubrication intervals and quantity are stated in the maintenance manual which comes with the motor.

Pulley diameter

When the desired bearing life has been determined, the minimum permissible pulley diameter can be calculated with FR (or FRX), according to the formula:

$$D = \frac{1.9 \cdot 10^7 \cdot K \cdot P}{N \cdot F_R}$$

Where:

D = diameter of pulley, mm

P = power requirement, kW

N = motor speed, r /min

K = belt tension factor, dependent on belt type and type of duty. A common value for V belts is K= 2.5

F_R = permissible radial force

Permissible loadings on shaft

The tables below give the permissible radial force in Newtons, assuming zero axial force. The values are based on normal conditions at 50 Hz and calculated bearing lives of 20,000 and 40,000 hours.

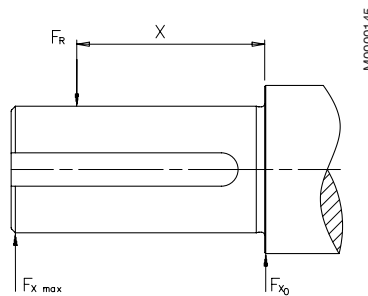
Motors are foot-mounted IM B3 version with force directed sideways. In some cases the strength of the shaft affects the permissible forces.

At 60 Hz the values must be reduced by 10 %.

If the radial force is applied between points X₀ and X_{max}, the permissible force F_R can be calculated from the following formula:

$$F_R = F_{X_0} - \frac{X}{E} (F_{X_0} - F_{X_{max}})$$

E = length of shaft extension in basic version



Permissible radial forces

Motor size	Poles	Length of shaft extension E (mm)	Radial forces Ball bearings 20,000 hours		40,000	
			F _{X₀} (N)	F _{X_{max}} (N)	F _{X₀} (N)	F _{X_{max}} (N)
71 M	2	30	381	322	303	256
	4	30	480	405	381	322
	6	30	555	469	441	372
80 M	2	40	624	509	495	404
	4	40	788	643	626	511
	6	40	907	740	720	587
	8	40	997	813	791	646
90 S	2	40	686	542	545	430
	4	40	870	687	690	545
	6	40	1000	790	794	627
	8	40	1095	866	870	687

Permissible radial forces

Motors size	Poles	Length of shaft extension E (mm)	Radial forces Ball bearings 20,000 hours			
			FX_0 (N)	FX_{max} (N)	40,000 hours	
			FX_0 (N)	FX_{max} (N)	FX_0 (N)	FX_{max} (N)
90 L	2	50	696	564	553	448
	4	50	885	717	702	569
	6	50	1015	823	806	653
	8	50	1112	901	883	715
100 L	2	60	979	785	777	622
	4	60	1234	989	979	785
	6	60	1419	1137	1126	903
	8	60	1566	1255	1243	996
112 M	2	60	1258	1014	998	805
	4	60	1592	1284	1264	1019
	6	60	1831	1477	1453	1172
	8	60	2020	1629	1603	1293
132 S	2	80	1435	1122	1139	890
	4	80	1821	1423	1445	1130
	6	80	2079	1625	1650	1290
	8	80	2299	1797	1825	1427
132 M	4	80	1840	1476	1461	1172
	6	80	2107	1690	1672	1341
	8	80	2329	1869	1849	1483
	160 M	2	110	1544	1200	1226
4		110	1948	1513	1546	1201
6		110	2232	1734	1772	1377
8		110	2465	1916	1957	1520
160L	2	110	1563	1243	1240	987
	4	110	1971	1568	1565	1244
	6	110	2259	1797	1793	1426
	8	110	2495	1984	1980	1575
180M	2	110	2984	2371	2368	1882
	4	110	3759	2988	2984	2371
180L	4	110	3802	3073	3017	2439
	6	110	4352	3518	3454	2792
	8	110	4800	3881	3810	3080
200L	2	110	4090	3377	3246	2680
	4	110	5162	4262	4097	3383
	6	110	5909	4879	4690	3872
	8	110	6518	5382	5173	4272
225S	4	140	5763	4526	4574	4593
	8	140	7261	5703	5763	4526
225M	2	110	4591	3811	3644	3025
	4	110	5791	4594	4596	3646
	6	110	6644	5271	5273	4184
	8	110	7296	5788	5791	4594
250M	2	140	5112	4170	4057	3310
	4	140	6440	5254	5111	4170
	6	140	7388	6027	5864	4784
	8	140	8113	6619	6439	5253
280SM_	2	140	7300	6200	5800	4900
	4	140	9200	7800	7300	6200
	6	140	10600	8900	8400	7100
	8	140	11600	9800	9200	7800
315SM_	2	140	7300	6000	5800	4950
	4	170	11300	9400	9000	7500
	6	170	13000	10600	10300	8500
	8	170	14300	10400	11300	9400
315ML	2	140	7300	6000	5800	4950
	4	140	11300	9400	9000	7500
	6	140	13000	10600	10300	8500
	8	140	14300	10400	11300	9400
355 S_	2	140	9000	7900	6200	5300
	4	210	15200	12500	12000	9850
	6	210	17300	14200	13700	11300
	8	210	19000	15600	15200	12400

Permissible axial forces

The following tables give the permissible axial forces in Newton, assuming zero radial force. The values are based on normal conditions at 50 Hz with standard

bearings and calculated bearing lives of 20,000 and 40,000 hours.

Motors are foot-mounted IM B3 version.

At 60 Hz the values are to be reduced by 10%.



Motor size	20,000 hours								40,000 hours							
	2-pole		4-pole		6-pole		8-pole		2-pole		4-pole		6-pole		8-pole	
	F _{AD} N	F _{AZ} N	F _{AD} N	F _{AZ} N	F _{AD} N	F _{AZ} N	F _{AD} N	F _{AZ} N	F _{AD} N	F _{AZ} N	F _{AD} N	F _{AZ} N	F _{AD} N	F _{AZ} N	F _{AD} N	F _{AZ} N
71	270	270	360	360	440	440	-	-	200	200	270	270	320	320	-	-
80	430	430	590	590	710	710	800	800	320	320	440	440	530	530	600	600
90	470	470	650	650	780	780	870	870	350	350	470	470	580	580	650	650
100	650	650	880	880	1060	1060	1200	1200	480	480	650	650	780	780	890	890
112	840	840	1160	1160	1380	1380	1570	1570	620	620	850	850	1020	1020	1170	1170
132 S ₋	950	950	1300	1300	1540	1540	1760	1760	690	690	960	960	1140	1140	1310	1310
132 M ₋	-	-	1300	1300	1540	1540	1760	1760	-	-	950	950	1140	1140	1310	1310
160	1020	1020	1380	1380	1650	1650	1880	1880	740	740	1020	1020	1210	1210	1390	1390
180M	1970	1970	2660	2660	-	-	-	-	1440	1440	1970	1970	-	-	-	-
180L	-	-	2660	2660	3200	3200	3620	3620	-	-	1970	1970	2350	2350	2670	2670
200	2570	2570	3490	3490	4200	4200	4750	4750	1890	1890	2580	2580	3080	3080	3500	3500
225S	-	-	3900	3900	-	-	5310	5310	-	-	2880	2880	-	-	3900	3900
225M	2870	2870	3900	3900	4720	4720	5310	5310	2120	2120	2880	2880	3460	3460	3900	3900
250	3220	3220	4380	4380	5290	5290	5960	5960	2380	2380	3220	3220	3880	3880	4380	4380
280	7300	5300	8000	6000	9000	7000	10000	8000	5750	3750	6200	4200	6900	4900	7700	5700
315	7000	5000	9000	7000	10600	8600	11600	9600	5600	3600	6900	4900	7900	5900	8900	6900
355	10500	3500	13500	6500	15300	8300	16800	9800	8750	1750	10800	3800	12000	5000	13300	6300



Motor size	20,000 hours								40,000 hours							
	2-pole		4-pole		6-pole		8-pole		2-pole		4-pole		6-pole		8-pole	
	F _{AD} N	F _{AZ} N	F _{AD} N	F _{AZ} N	F _{AD} N	F _{AZ} N	F _{AD} N	F _{AZ} N	F _{AD} N	F _{AZ} N	F _{AD} N	F _{AZ} N	F _{AD} N	F _{AZ} N	F _{AD} N	F _{AZ} N
71	280	260	380	350	450	420	-	-	210	190	280	250	340	310	-	-
80	450	410	620	560	740	560	830	770	340	300	460	410	550	500	620	560
90	500	440	590	600	820	730	920	830	380	320	510	440	620	530	690	600
100	710	590	950	800	1140	980	1280	1110	530	420	720	560	860	700	970	800
112	920	770	1260	1050	1490	1270	1680	1470	690	540	950	740	1130	910	1270	1060
132 S ₋	1050	830	1450	1160	1690	1400	1930	1600	800	570	1100	810	1280	990	1470	1140
132 M ₋	-	-	1480	1120	1730	1320	1950	1580	-	-	1130	770	1320	910	1490	1120
160 M ₋	1240	750	1670	1100	1960	1340	2140	1560	970	480	1300	730	1530	900	1650	1070
160 L ₋	1320	710	1730	1030	2050	1250	2260	1500	1050	440	1370	670	1610	820	1770	1010
180 M ₋	2320	1630	3100	2230	-	-	-	-	1780	1100	2400	1540	-	-	-	-
180 L ₋	-	-	3170	2150	3750	2650	4160	3100	-	-	2480	1460	2900	1800	3200	2140
200	3050	2050	4100	2880	4830	3510	5450	4060	2370	1370	3180	1970	3700	2390	4200	2800
225 S ₋	-	-	4680	3130	-	-	6120	4500	-	-	3650	2100	-	-	4720	3090
225 M ₋	3570	2180	4770	3040	5650	3790	6250	4370	2810	1420	3740	2020	4390	2530	4850	2960
250	4090	2360	5570	3180	6520	4070	7210	4700	3240	1520	4420	2030	5100	2650	5630	3120
280	8500	4300	9500	4600	11000	5500	12200	6600	6950	2700	7700	2800	8900	3350	9750	4200
315 SM ₋	9000	3700	11600	5400	13500	6200	14500	7500	7450	2100	9450	3200	10900	3650	11900	4650
315 ML ₋	9600	3400	12400	5000	14800	5600	16200	7000	8100	1850	10100	2850	12200	3150	13200	4150
355 S ₋	10000	¹⁾	18500	3800	21200	5000	23000	6800	12200	¹⁾	15700	1000	18000	1750	19400	3100

¹⁾ On request

Ordering information

When placing an order, please state the following minimum data in the order, as in the example.

The product code of the motor is composed in accordance with the following example.

Motor type	M2QA 90S4A
Pole number	4
Mounting arrangement (IM-code)	IM B3 (IM 1001)
Rated output	1.1 kW
Product code	3GQA092101-ADA
Variant codes if needed	

A	B	C	D, E, F	G	A Motor type
M2QA	90S4A	3GQA 092 101 - AD A 003 etc.			B Motor size
		1-4	5-6 7	8-10 11 12 13 14	C Product code
					D Mounting arrangement code
					E Voltage and frequency code
					F Generation code
					G Variant codes

Explanation of the product code (C, D, E, F):

Positions 1 to 4

3GQA = Totally enclosed fan cooled squirrel cage motor with cast iron frame

Positions 5 and 6

IEC frame

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

Position 7

Speed (Pole pairs)

1 = 2 poles	6 = 12 poles
2 = 4 poles	7 = >12 poles
3 = 6 poles	8 = Two-speed motors
4 = 8 poles	9 = Multi-speed motors
5 = 10 poles	

Positions 8 to 10

Serial number

Position 11

- (dash)

Position 12

Mounting arrangement

A = Foot-mounted, top-mounted terminal box

R = Foot-mounted, terminal box on RHS, seen from D-end

L = Foot-mounted, terminal box on LHS, seen from D-end

B = Flange-mounted, large flange

C = Flange-mounted, small flange sizes (71-112)

H = Foot- and flange-mounted

Position 13

Voltage and frequency code

See tables on appropriate page

Position 14

Generation code

A, B, C...

The product code must be, if needed, followed by variant codes.

Code letters for supplementing the product code

Code letter for voltage and frequency											
Direct start or, with Δ-connection, also Y/Δ-start											
Motor size	S	D	H	E	F	T	U	X			
	50Hz	60 Hz	50 Hz	60 Hz	50 Hz	50 Hz	60 Hz	50 Hz	50 Hz	50 Hz	
71-250	220-240 VΔ 380-420 VY	440-480 VY	380-420 VΔ 660-690 VY	440-480V ¹⁾ Δ	415 VΔ	500 VΔ	575 VΔ	500 VY	660 VΔ	690 VΔ	Other rated voltage, connection or frequency, 690 V maximum
280-400	220, 230 VΔ 380,400,415VY	- 440VY	380, 400, 415 VΔ 660, 690 VY	440VΔ	415 VΔ	500 VΔ	-	500 VY	660 VΔ	690 VΔ	

¹⁾ 480 V not stamped on sizes 160 to 250



General purpose cast iron motors

Technical data for totally enclosed squirrel cage three phase motors



IP 55 – IC 411 – Insulation class F, temperature rise class B

Output kW	Motor type	Product code	Speed r/min	Efficiency		Power factor cos φ	Current		Torque			
				Full load 100%	3/4 load 75%		I _N	I _s	T _N	T _s	T _{max}	
3000 r/min = 2-poles				400 V 50 Hz				Basic design				
0.37	M2QA 71 M2A	3GQA 071 301-••A	2780	70.0	68.0	0.81	0.94	6.1	1.27	2.2	3.0	
0.55	M2QA 71 M2B	3GQA 071 302-••A	2785	73.0	72.4	0.82	1.33	6.1	1.89	2.2	2.7	
0.75	M2QA 80 M2A	3GQA 081 301-••A	2840	75.0	75.5	0.85	1.7	6.1	2.52	2.2	3.0	
1.1	M2QA 80 M2B	3GQA 081 302-••A	2855	78.0	77.9	0.85	2.4	7.0	3.68	2.2	2.2	
1.5	M2QA 90 S2A	3GQA 091 101-••A	2850	79.0	79.0	0.87	3.15	7.0	5.03	2.2	2.5	
1.5	M2QA 90 S2A	3GQA 091 101-••A	2850	79.0	79.0	0.87	3.15	7.0	5.03	2.2	2.5	
2.2	M2QA 90 L2A	3GQA 091 501-••A	2850	81.5	81.8	0.86	4.53	7.0	7.37	2.2	3.5	
3	M2QA 100 L2A	3GQA 101 501-••A	2860	83.0	83.2	0.88	5.93	7.0	10.02	2.2	3.0	
4	M2QA 112 M2A	3GQA 111 301-••A	2900	85.0	84.6	0.90	7.55	7.0	13.17	2.2	3.2	
5.5	M2QA 132 S2A	3GQA 131 101-••A	2920	87.5	87.9	0.89	10.2	7.0	17.99	2.2	3.0	
7.5	M2QA 132 S2B	3GQA 131 102-••A	2920	88.5	90.1	0.90	13.6	7.0	24.53	2.2	3.5	
11	M2QA 160 M2A	3GQA 161 301-••A	2930	90.0	90.5	0.89	19.82	6.5	35.85	2.5	3.1	
15	M2QA 160 M2B	3GQA 161 302-••A	2920	90.0	90.1	0.89	27.03	6.5	49.06	2.5	2.6	
18.5	M2QA 160 L2A	3GQA 161 501-••A	2930	90.5	90.9	0.90	32.78	6.5	60	2.5	2.7	
22	M2QA 180 M2A	3GQA 181 301-••A	2940	90.8	91.0	0.90	38.86	6.5	71	2.3	2.5	
30	M2QA 200 L2A	3GQA 201 501-••A	2955	91.4	91.1	0.90	52	6.5	96	2.2	2.6	
37	M2QA 200 L2B	3GQA 201 502-••A	2955	92.2	91.8	0.90	64	6.5	119	2.3	2.6	
45	M2QA 225 M2A	3GQA 221 301-••A	2970	92.6	92.2	0.89	78	7.0	144	2.5	2.7	
55	M2QA 250 M2A	3GQA 251 301-••A	2960	93.4	91.7	0.89	96	7.5	177	2.4	2.7	
75	M2BAT 280 SMA	3GBA 281 210-••D	2974	94.1	93.6	0.87	134	6.7	241	1.7	2.6	
90	²⁾ M2BAT 280 SMB	3GBA 281 220-••D	2970	94.5	94.2	0.89	156	6.4	289	1.7	2.5	
110	M2BAT 315 SMA	3GBA 311 210-••D	2979	94.1	93.4	0.85	198	6.3	353	1.5	2.5	
132	²⁾ M2BAT 315 SMB	3GBA 311 220-••D	2977	94.7	94.1	0.87	232	6.3	423	1.7	2.5	
160	²⁾ M2BAT 315 SMC	3GBA 311 230-••D	2976	95.1	94.8	0.88	273	6.2	513	1.7	2.4	
200	²⁾ M2BAT 315 MLA	3GBA 311 410-••D	2980	95.7	95.3	0.88	345	7.9	641	2.6	3.1	
250	M2BAT 355 S	3GBA 351 100-••D	2983	95.7	95.3	0.89	424	6.8	800	1.5	2.8	
3000 r/min = 2-poles				400 V 50 Hz				High-output design				
5.5	¹⁾ M2QA 112 L2 A	3GQA 111 501-••A	2900	82.0	³⁾	0.90	10.76	7.0	18.1	2.0	2.1	
9.2	¹⁾ M2QA 132 M2A	3GQA 131 301-••B	2910	85.5	³⁾	0.88	17.65	7.5	30.2	2.0	2.2	
11	¹⁾ M2QA 132 M2B	3GQA 131 302-••B	2900	88.0	³⁾	0.90	20.05	8.0	36.2	2.2	2.2	
22	¹⁾ M2QA 160 L2B	3GQA 161 502-••A	2930	88.0	³⁾	0.90	40.09	6.5	71	2.3	2.8	
30	¹⁾ M2QA 180 L2A	3GQA 181 501-••A	2950	90.8	³⁾	0.90	53	6.5	97	2.3	2.8	
45	¹⁾ M2QA 200 L2C	3GQA 201 503-••A	2955	92.0	³⁾	0.90	78	7.0	145	2.2	2.6	
55	¹⁾ M2QA 225 M2B	3GQA 221 302-••A	2975	92.6	³⁾	0.89	96	7.0	177	2.5	2.8	
75	¹⁾ M2QA 250 M2B	3GQA 251 302-••A	2970	91.0	³⁾	0.89	134	7.0	241	2.4	2.8	
110	²⁾ M2BAT 280 SMC	3GBA 281 230-••D	2973	95.0	94.8	0.90	187	6.7	353	1.9	2.6	

¹⁾ Temperature rise class F by voltage 400 V 50 Hz.

²⁾ Temperature rise class F by voltage 380 V 50 Hz.

³⁾ Missing data on request.

The two bullets in the product code indicate choice of mounting arrangement, voltage and frequency (see ordering information page).

General purpose cast iron motors

Technical data for totally enclosed squirrel cage three phase motors

IP 55 – IC 411 – Insulation class F, temperature rise class B

Output kW	Motor type	Speed r/min	Efficiency %	Power factor cos φ	Current I _N A	Speed r/min	Efficiency %	Power factor cos φ	Current I _N A	Moment of inertia J=1/4 GD ² kgm ²	Weight kg	Sound pressure level L _p dB(A)
3000 r/min = 2-poles		380 V 50 Hz				415 V 50 Hz				Basic design		
0.37	M2QA 71 M2A	2765	70.0	0.83	0.97	2795	70.0	0.79	0.93	0.0003	10	56
0.55	M2QA 71 M2B	2780	73.0	0.84	1.37	2800	73.0	0.79	1.33	0.00037	11	56
0.75	M2QA 80 M2A	2825	75.5	0.86	1.75	2855	75.0	0.85	1.64	0.00091	16	57
1.1	M2QA 80 M2B	2840	77.5	0.86	2.52	2870	78.0	0.83	2.37	0.00107	17	58
1.5	M2QA 90 S2A	2835	79.0	0.90	3.23	2865	79.0	0.86	3.08	0.00135	21	61
1.5	M2QA 90 S2A	2835	79.0	0.90	3.23	2865	79.0	0.86	3.08	0.00135	21	61
2.2	M2QA 90 L2A	2835	81.5	0.89	4.61	2865	81.0	0.83	4.56	0.00163	24	61
3	M2QA 100 L2A	2845	83.0	0.90	6.14	2875	83.5	0.86	5.85	0.00402	33	65
4	M2QA 112 M2A	2885	85.0	0.92	7.82	2915	85.0	0.87	7.53	0.00671	42	67
5.5	M2QA 132 S2A	2905	87.5	0.90	10.7	2935	88.0	0.88	9.94	0.01241	58	70
7.5	M2QA 132 S2B	2905	87.5	0.90	14.5	2935	89.0	0.90	13.1	0.01491	63	70
11	M2QA 160 M2A	2918	90.0	0.91	20.41	2930	90.0	0.87	19.54	0.0436	112	72
15	M2QA 160 M2B	2917	90.0	0.91	27.82	2932	90.0	0.88	26.35	0.0551	122	72
18.5	M2QA 160 L2A	2920	90.5	0.91	34.13	2935	90.5	0.89	31.95	0.06549	142	72
22	M2QA 180 M2A	2940	90.8	0.91	40.45	2955	90.8	0.88	38.3	0.08805	170	72
30	M2QA 200 L2A	2950	91.2	0.91	54	2960	91.3	0.89	51	0.14821	235	81
37	M2QA 200 L2B	2950	91.7	0.91	67	2960	92.3	0.89	62	0.16822	254	81
45	M2QA 225 M2A	2965	92.2	0.90	82	2975	92.6	0.87	77	0.29345	328	81
55	M2QA 250 M2A	2956	93.2	0.90	100	2962	93.5	0.88	93	0.3784	390	84
75	M2BAT 280 SMA	2970	94.0	0.88	137	2976	94.2	0.86	130	0.7	570	78
90	²⁾ M2BAT 280 SMB	2966	94.2	0.89	163	2974	94.6	0.88	151	0.82	610	78
110	M2BAT 315 SMA	2976	94.1	0.86	208	2980	94.1	0.83	197	1.05	820	83
132	²⁾ M2BAT 315 SMB	2974	94.5	0.87	243	2979	94.7	0.85	230	1.25	870	83
160	²⁾ M2BAT 315 SMC	2972	95.0	0.88	290	2978	95.2	0.88	265	1.5	960	83
200	²⁾ M2BAT 315 MLA	2978	95.6	0.89	358	2982	95.7	0.87	335	1.95	1130	83
250	M2BAT 355 S	2981	95.7	0.90	440	2984	95.7	0.88	412	2.7	1500	83
3000 r/min = 2-poles		380 V 50 Hz				415 V 50 Hz				High-output design		
5.5	¹⁾ M2QA 112 L2 A	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	0.00826	49	70
9.2	¹⁾ M2QA 132 M2A	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	0.01500	68	71
11	¹⁾ M2QA 132 M2B	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	0.01768	73	73
22	¹⁾ M2QA 160 L2B	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	0.06549	130	75
30	¹⁾ M2QA 180 L2A	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	0.10339	185	75
45	¹⁾ M2QA 200 L2C	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	0.18473	276	81
55	¹⁾ M2QA 225 M2B	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	0.33431	340	81
75	¹⁾ M2QA 250 M2B	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	0.45829	411	85
110	²⁾ M2BAT 280 SMC	2968	94.8	0.90	198	2975	95.1	0.89	180	1.05	660	78

General purpose cast iron motors

Technical data for totally enclosed squirrel cage three phase motors



IP 55 – IC 411 – Insulation class F, temperature rise class B

Output kW	Motor type	Product code	Speed r/min	Efficiency		Power factor cos φ 100%	Current I _N A	Torque				
				Full load 100%	3/4 load 75%			T _N Nm	T _s Nm	T _{max} Nm		
1500 r/min = 4-poles				400 V 50 Hz				Basic design				
0.25	M2QA	71 M4A	3GQA 072 301-••A	1395	65.5	63.3	0.72	0.77	5.2	1.71	2.1	2.7
0.37	M2QA	71 M4B	3GQA 072 302-••A	1395	68.5	69.4	0.75	1.04	5.2	2.53	2.1	2.7
0.55	M2QA	80 M4A	3GQA 082 301-••A	1410	73.5	71.4	0.72	1.5	5.2	3.73	2.4	2.7
0.75	M2QA	80 M4B	3GQA 082 302-••A	1415	74.5	75.2	0.75	1.93	6.0	5.06	2.4	2.6
1.1	M2QA	90 S4A	3GQA 092 101-••A	1400	77.5	77.8	0.78	2.65	6.0	7.5	2.3	2.4
1.5	M2QA	90 L4A	3GQA 092 501-••A	1390	78.5	79.2	0.79	3.5	6.0	10.31	2.3	2.6
2.2	M2QA	100 L4A	3GQA 102 501-••A	1430	81.5	82.3	0.81	4.85	6.0	14.69	2.3	2.7
3	M2QA	100 L4B	3GQA 102 502-••A	1420	82.8	82.5	0.83	6.3	6.5	20.18	2.3	2.8
4	M2QA	112 M4A	3GQA 112 301-••A	1430	85.0	84.6	0.82	8.29	6.5	26.71	2.3	2.8
5.5	M2QA	132 S4A	3GQA 132 101-••A	1430	86.0	87.1	0.85	10.9	6.5	36.73	2.3	2.9
7.5	M2QA	132 M4A	3GQA 132 301-••A	1440	88.5	88.3	0.85	14.4	6.5	49.74	2.3	2.7
11	M2QA	160 M4A	3GQA 162 301-••A	1460	89.5	90.0	0.85	20.87	6.5	71	2.4	2.8
15	M2QA	160 L4A	3GQA 162 501-••A	1460	90.0	90.4	0.86	27.97	6.5	98	2.3	2.4
18.5	M2QA	180 M4A	3GQA 182 301-••A	1470	91.0	90.9	0.86	34.12	6.5	120	2.3	3.0
22	M2QA	180 L4A	3GQA 182 501-••A	1470	91.5	90.0	0.88	39.44	6.5	142	2.4	3.0
30	M2QA	200 L4A	3GQA 202 501-••A	1470	92.2	91.8	0.88	53	6.5	194	2.2	2.9
37	M2QA	225 S4A	3GQA 222 101-••A	1480	92.6	91.2	0.85	67	7.0	238	2.2	2.7
45	M2QA	225 M4A	3GQA 222 301-••A	1480	92.8	91.7	0.87	80	7.0	290	2.2	2.7
55	M2QA	250 M4A	3GQA 252 301-••A	1480	93.4	91.3	0.87	98	7.0	354	2.4	2.7
75	²⁾ M2BAT	280 SMA	3GBA 282 210-••D	1483	94.2	94.2	0.83	138	6.3	483	2.1	2.6
90	²⁾ M2BAT	280 SMB	3GBA 282 220-••D	1481	94.6	94.7	0.86	162	6.4	580	2.1	2.4
110	²⁾ M2BAT	315 SMA	3GBA 312 210-••D	1486	94.6	94.2	0.84	203	6.4	707	1.7	2.3
132	²⁾ M2BAT	315 SMB	3GBA 312 220-••D	1485	94.9	94.7	0.85	239	6.1	849	1.9	2.4
160	²⁾ M2BAT	315 SMC	3GBA 312 230-••D	1486	95.4	95.2	0.85	286	6.7	1028	2.1	2.6
200	²⁾ M2BAT	315 MLA	3GBA 312 410-••D	1485	95.7	95.6	0.86	354	6.4	1286	2.1	2.5
250	M2BAT	355 S	3GBA 352 100-••D	1488	95.6	95.3	0.85	448	6.7	1604	2.0	2.6
1500 r/min = 4-poles				400 V 50 Hz				High-output design				
5.5	¹⁾ M2QA	112 L4A	3GQA 112 501-••A	1430	84.0	0.0	0.83	11.39	7.0	36.7	2.2	2.2
9.2	¹⁾ M2QA	132 M4B	3GQA 132 302-••A	1430	84.0	0.0	0.85	18.6	6.5	61	2.2	2.2
11	¹⁾ M2QA	132 M4C	3GQA 132 303-••A	1430	84.5	0.0	0.85	22.11	6.5	73	2.2	2.2
18.5	¹⁾ M2QA	160 L4B	3GQA 162 502-••A	1460	87.0	0.0	0.86	35.69	6.5	121	2.2	2.4
30	¹⁾ M2QA	180 L4B	3GQA 182 502-••A	1470	89.0	0.0	0.88	55	6.5	195	2.2	2.6
37	¹⁾ M2QA	200 L4B	3GQA 202 502-••A	1470	89.2	0.0	0.88	68	6.5	240	2.2	2.6
55	¹⁾ M2QA	225 M4B	3GQA 222 302-••A	1480	91.0	0.0	0.87	100	7.0	355	2.3	2.4
75	¹⁾ M2QA	250 M4B	3GQA 252 302-••A	1480	90.4	0.0	0.87	137	7.0	484	2.3	2.4
110	²⁾ M2BAT	280 SMC	3GBA 282 230-••D	1484	95.1	95.1	0.85	196	7.1	708	2.7	2.8

¹⁾ Temperature rise class F by voltage 400 V 50 Hz.

²⁾ Temperature rise class F by voltage 380 V 50 Hz.

³⁾ Missing data on request.

The two bullets in the product code indicate choice of mounting arrangement, voltage and frequency (see ordering information page).

General purpose cast iron motors

Technical data for totally enclosed squirrel cage three phase motors

IP 55 – IC 411 – Insulation class F, temperature rise class B

Output kW	Motor type	Speed r/min	Efficiency %	Power factor cos φ	Current I _N A	Speed r/min	Efficiency %	Power factor cos φ	Current I _N A	Moment of inertia J=1/4 GD ² kgm ²	Weight kg	Sound pressure level L _p dB(A)
1500 r/min = 4-poles		380 V 50 Hz			415 V 50 Hz			Basic design				
0.25	M2QA 71 M4A	1385	66.0	0.74	0.78	1405	64.0	0.69	0.79	0.00053	11	43
0.37	M2QA 71 M4B	1385	69.0	0.78	1.05	1405	68.0	0.71	1.07	0.00066	11	45
0.55	M2QA 80 M4A	1400	73.5	0.75	1.52	1420	72.5	0.68	1.55	0.00145	16	46
0.75	M2QA 80 M4B	1405	74.5	0.78	1.97	1425	74.0	0.72	1.96	0.00174	17	46
1.1	M2QA 90 S4A	1390	77.0	0.80	2.72	1410	77.5	0.75	2.65	0.00254	21	52
1.5	M2QA 90 L4A	1380	78.5	0.80	3.64	1400	78.5	0.77	3.48	0.00317	25	52
2.2	M2QA 100 L4A	1420	81.5	0.82	4.98	1440	81.4	0.78	4.85	0.00679	32	53
3	M2QA 100 L4B	1410	82.5	0.85	6.5	1430	82.7	0.82	6.17	0.00862	36	53
4	M2QA 112 M4A	1420	84.5	0.84	8.57	1440	85.0	0.80	8.24	0.01306	45	56
5.5	M2QA 132 S4A	1420	85.5	0.87	11.3	1440	86.5	0.83	10.7	0.02673	60	59
7.5	M2QA 132 M4A	1430	88.0	0.85	15.2	1450	88.0	0.84	14.1	0.03432	73	59
11	M2QA 160 M4A	1455	89.5	0.87	21.46	1463	89.5	0.83	20.6	0.06543	116	66
15	M2QA 160 L4A	1452	90.0	0.88	28.78	1461	90.0	0.85	27.28	0.09349	137	66
18.5	M2QA 180 M4A	1465	91.0	0.88	35.1	1470	91.0	0.82	34.49	0.16049	170	66
22	M2QA 180 L4A	1465	91.5	0.90	40.59	1475	91.5	0.86	38.9	0.18046	186	66
30	M2QA 200 L4A	1465	92.3	0.89	55	1470	92.2	0.88	55	0.2819	254	71
37	M2QA 225 S4A	1475	92.3	0.85	71	1480	92.0	0.82	68	0.37	308	73
45	M2QA 225 M4A	1475	92.6	0.88	83	1480	92.8	0.85	79	0.42	335	73
55	M2QA 250 M4A	1477	93.2	0.88	102	1482	93.6	0.86	95	0.78	450	76
75	²⁾ M2BAT 280 SMA	1480	94.0	0.85	143	1484	94.2	0.82	137	1.05	560	71
90	²⁾ M2BAT 280 SMB	1478	94.2	0.86	169	1483	94.7	0.85	157	1.32	600	71
110	²⁾ M2BAT 315 SMA	1484	94.5	0.85	209	1487	94.6	0.82	198	1.9	800	78
132	²⁾ M2BAT 315 SMB	1483	94.8	0.86	248	1486	95.0	0.84	232	2.2	855	78
160	²⁾ M2BAT 315 SMC	1483	95.0	0.86	300	1487	95.4	0.84	279	2.6	930	78
200	²⁾ M2BAT 315 MLA	1482	95.2	0.86	375	1486	95.7	0.85	343	3.2	1030	78
250	M2BAT 355 S	1487	95.6	0.86	465	1489	95.6	0.84	438	5.4	1500	82
1500 r/min = 4-poles		380 V 50 Hz			415 V 50 Hz			High-output design				
5.5	¹⁾ M2QA 112 L4A	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	0.01484	49	64
9.2	¹⁾ M2QA 132 M4B	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	0.0347	75	71
11	¹⁾ M2QA 132 M4C	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	0.04227	80	73
18.5	¹⁾ M2QA 160 L4B	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	0.10686	147	66
30	¹⁾ M2QA 180 L4B	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	0.20783	200	70
37	¹⁾ M2QA 200 L4B	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	0.29715	277	72
55	¹⁾ M2QA 225 M4B	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	0.6244	351	75
75	¹⁾ M2QA 250 M4B	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	0.9125	485	77
110	²⁾ M2BAT 280 SMC	1481	94.8	0.86	204	1485	95.2	0.84	191	1.7	660	71

General purpose cast iron motors

Technical data for totally enclosed squirrel cage three phase motors

IP 55 – IC 411 – Insulation class F, temperature rise class B

Output kW	Motor type	Product code	Speed r/min	Efficiency		Power factor cos φ 100%	Current I_N A	Torque				
				Full load 100%	3/4 load 75%			T_N Nm	T_s Nm	T_{max} Nm		
1000 r/min = 6-poles				400 V 50 Hz			Basic design					
0.18	M2QA	71 M6A	3GQA 073 301-••A	910	55.0	50.1	0.65	0.73	4.0	1.89	1.8	2.4
0.25	M2QA	71 M6B	3GQA 073 302-••A	890	60.0	58.3	0.65	0.93	4.0	2.68	1.8	2.5
0.37	M2QA	80 M6A	3GQA 083 301-••A	930	63.0	63.2	0.66	1.29	5.0	3.8	1.9	2.0
0.55	M2QA	80 M6B	3GQA 083 302-••A	925	65.0	65.1	0.68	1.8	5.0	5.68	1.9	1.8
0.75	M2QA	90 S6A	3GQA 093 101-••A	920	71.0	70.2	0.72	2.12	5.0	7.79	2.0	2.3
1.1	M2QA	90 L6A	3GQA 093 501-••A	920	73.0	73.1	0.74	2.94	5.0	11.42	2.0	2.6
1.5	M2QA	100 L6A	3GQA 103 501-••A	940	76.0	75.3	0.77	3.78	5.5	15.24	2.0	2.4
2.2	M2QA	112 M6A	3GQA 113 301-••A	940	80.0	81.2	0.76	5.23	5.5	22.35	2.0	2.3
3	M2QA	132 S6A	3GQA 133 101-••A	960	82.5	83.5	0.78	6.73	6.5	29.84	2.0	2.4
4	M2QA	132 M6A	3GQA 133 301-••A	960	84.0	84.2	0.77	8.93	6.5	39.79	2.0	2.9
5.5	M2QA	132 M6B	3GQA 133 302-••A	960	86.0	85.6	0.79	11.7	6.5	54	2.0	3.0
7.5	M2QA	160 M6A	3GQA 163 301-••A	970	88.0	88.3	0.78	15.77	6.0	73	2.0	2.3
11	M2QA	160 L6A	3GQA 163 501-••A	970	88.5	88.6	0.78	23	6.0	108	2.2	2.4
15	M2QA	180 L6A	3GQA 183 501-••A	980	89.0	89.1	0.82	29.67	6.0	146	2.3	2.9
18.5	M2QA	200 L6A	3GQA 203 501-••A	980	90.3	90.2	0.82	36.06	6.0	180	2.2	2.5
22	M2QA	200 L6B	3GQA 203 502-••A	980	90.4	90.3	0.83	42.32	6.0	214	2.1	3.2
30	M2QA	225 M6A	3GQA 223 301-••A	980	90.8	89.2	0.78	61	6.6	292	2.2	2.9
37	M2QA	250 M6A	3GQA 253 301-••A	980	92.2	92.4	0.88	66	6.8	360	2.3	2.6
45	M2BAT	280 SMA	3GBA 283 210-••D	990	93.5	93.3	0.82	85	6.7	434	2.4	2.4
55	M2BAT	280 SMB	3GBA 283 220-••D	989	93.8	93.7	0.83	103	6.4	531	2.4	2.4
75	²⁾ M2BAT	315 SMA	3GBA 313 210-••D	992	94.2	94.0	0.80	145	6.3	722	1.9	2.3
90	²⁾ M2BAT	315 SMB	3GBA 313 220-••D	991	94.8	94.7	0.83	166	6.5	867	1.9	2.3
110	²⁾ M2BAT	315 SMC	3GBA 313 230-••D	991	95.1	95.0	0.82	206	6.7	1060	2.1	2.6
132	²⁾ M2BAT	315 MLA	3GBA 313 410-••D	991	95.3	95.2	0.83	242	6.5	1272	2.2	2.5
160	M2BAT	355 S	3GBA 353 100-••D	992	95.3	95.2	0.83	293	6.2	1540	1.8	2.3
1000 r/min = 6-poles				400 V 50 Hz			High-output design					
3	¹⁾ M2QA	112 M6B	3GQA 113 302-••A	950	77.0	³⁾ 77.0	0.76	740	6.5	30.2	1.9	2.1
6.5	¹⁾ M2QA	132 M6C	3GQA 133 303-••A	970	83.0	³⁾ 83.0	0.78	14.49	6.5	64	1.9	2.1
14	¹⁾ M2QA	160 L6B	3GQA 163 502-••A	970	85.5	³⁾ 85.5	0.78	30.3	6.0	138	2.1	2.2
18.5	¹⁾ M2QA	180 L6B	3GQA 183 502-••A	980	86.0	³⁾ 86.0	0.82	37.87	6.0	180	2.2	2.7
30	¹⁾ M2QA	200 L6C	3GQA 203 503-••A	980	87.4	³⁾ 87.4	0.78	63	6.0	292	2.0	2.6
37	¹⁾ M2QA	225 M6B	3GQA 223 302-••A	980	87.8	³⁾ 87.8	0.78	78	6.6	361	2.1	2.6
45	¹⁾ M2QA	250 M6B	3GQA 253 302-••A	980	89.2	³⁾ 89.2	0.88	82	6.8	439	2.2	2.6
75	M2BAT	280 SMC	3GBA 283 230-••D	989	94.5	94.5	0.83	139	6.9	724	2.6	2.5

¹⁾ Temperature rise class F by voltage 400 V 50 Hz.

²⁾ Temperature rise class F by voltage 380 V 50 Hz.

³⁾ Missing data on request.

The two bullets in the product code indicate choice of mounting arrangement, voltage and frequency (see ordering information page).

General purpose cast iron motors

Technical data for totally enclosed squirrel cage three phase motors

IP 55 – IC 411 – Insulation class F, temperature rise class B

Output kW	Motor type	Speed r/min	Efficiency %	Power factor cos φ	Current I _N A	Speed r/min	Efficiency %	Power factor cos φ	Current I _N A	Moment of inertia J=1/4 GD ² kgm ²	Weight kg	Sound pressure level L _p dB(A)
1000 r/min = 6-poles			380 V 50 Hz			415 V 50 Hz			Basic design			
0.18	M2QA 71 M6A	905	55.5	0.69	0.72	915	52.5	0.62	0.77	0.00056	10	42
0.25	M2QA 71 M6B	885	60.0	0.65	0.98	895	59.0	0.62	0.95	0.00074	11	42
0.37	M2QA 80 M6A	925	63.5	0.70	1.29	935	62.0	0.62	1.33	0.00159	17	45
0.55	M2QA 80 M6B	920	65.0	0.71	1.82	930	65.5	0.66	1.79	0.00196	18	45
0.75	M2QA 90 S6A	915	71.0	0.75	2.13	925	70.5	0.69	2.15	0.00292	21	48
1.1	M2QA 90 L6A	915	73.0	0.77	2.98	925	73.0	0.70	2.98	0.00379	25	48
1.5	M2QA 100 L6A	935	76.0	0.79	3.8	945	75.5	0.75	3.73	0.00999	32	51
2.2	M2QA 112 M6A	935	79.0	0.77	5.5	945	80.0	0.75	5.14	0.03116	40	54
3	M2QA 132 S6A	955	82.0	0.81	6.87	965	82.5	0.76	6.66	0.03116	55	56
4	M2QA 132 M6A	955	84.0	0.77	9.39	965	84.0	0.75	8.84	0.04074	65	56
5.5	M2QA 132 M6B	945	85.5	0.80	12.3	955	86.0	0.78	11.4	0.05332	75	56
7.5	M2QA 160 M6A	968	88.0	0.79	16.39	975	88.0	0.75	15.81	0.09231	119	61
11	M2QA 160 L6A	966	88.5	0.80	23.61	975	88.5	0.75	23.06	0.1297	140	62
15	M2QA 180 L6A	980	89.0	0.84	30.48	985	89.0	0.79	29.68	0.2418	180	63
18.5	M2QA 200 L6A	975	90.6	0.84	36.94	980	90.1	0.79	36.16	0.34174	231	64
22	M2QA 200 L6B	975	90.9	0.84	43.79	980	90.1	0.81	41.93	0.46837	254	64
30	M2QA 225 M6A	980	90.5	0.78	64	980	90.9	0.76	60	0.62691	308	66
37	M2QA 250 M6A	978	92.0	0.90	68	982	92.3	0.86	64	0.97	382	68
45	M2BAT 280 SMA	988	93.9	0.83	89	990	93.5	0.80	84	1.6	540	71
55	M2BAT 280 SMB	987	93.5	0.84	108	990	93.8	0.82	101	1.9	580	71
75	²⁾ M2BAT 315 SMA	990	94.1	0.82	148	992	94.2	0.77	143	2.8	780	75
90	²⁾ M2BAT 315 SMB	990	95.7	0.84	174	992	94.8	0.81	163	3.6	870	75
110	²⁾ M2BAT 315 SMC	990	94.9	0.83	215	991	95.0	0.80	203	4.4	930	75
132	²⁾ M2BAT 315 MLA	989	95.1	0.83	255	991	95.3	0.82	237	5.3	1040	75
160	M2BAT 355 S	991	95.2	0.83	307	993	95.3	0.82	287	7.3	1500	77
1000 r/min = 6-poles			380 V 50 Hz			415 V 50 Hz			High-output design			
3	¹⁾ M2QA 112 M6B ³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	0.0199	45	56
6.5	¹⁾ M2QA 132 M6C ³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	0.0611	75	59
14	¹⁾ M2QA 160 L6B ³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	0.139	155	64
18.5	¹⁾ M2QA 180 L6B ³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	0.28398	196	65
30	¹⁾ M2QA 200 L6C ³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	0.495	291	66
37	¹⁾ M2QA 225 M6B ³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	0.80327	351	68
45	¹⁾ M2QA 250 M6B ³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	³⁾	1.32	455	71
75	M2BAT 280 SMC	987	94.3	0.84	144	990	94.6	0.82	135	2.6	660	71

General purpose cast iron motors

Technical data for totally enclosed squirrel cage three phase motors

IP 55 – IC 411 – Insulation class F, temperature rise class B

Output kW	Motor type	Product code	Speed r/min	Efficiency		Power factor cos φ 100%	Current I _N A	Torque					
				Full load 100%	3/4 load 75%			T _N Nm	T _s T _N	T _{max} T _N			
750 r/min = 8-poles				400 V 50 Hz				Basic design					
0.18	M2QA	80 M8A	3GQA	084 301-••A	700	51.0	50.1	0.60	0.85	3.3	2.46	1.8	1.9
0.25	M2QA	80 M8B	3GQA	084 302-••A	700	54.5	53.3	0.60	1.11	3.6	3.41	1.8	1.9
0.37	M2QA	90 S8A	3GQA	094 101-••A	700	62.5	62.1	0.60	1.42	4.4	5.05	1.8	1.9
0.55	M2QA	90 L8A	3GQA	094 501-••A	700	63.5	63.3	0.60	2.07	4.7	7.5	1.8	2.0
0.75	M2QA	100 L8A	3GQA	104 501-••A	700	70.0	70.1	0.64	2.42	5.0	10.23	1.8	2.2
1.1	M2QA	100 L8B	3GQA	104 502-••A	700	71.5	70.3	0.65	3.45	5.0	15.01	1.8	2.4
1.5	M2QA	112 M8A	3GQA	114 301-••A	700	75.0	75.4	0.68	4.27	5.0	20.46	1.8	2.4
2.2	M2QA	132 S8A	3GQA	134 101-••A	710	81.0	81.8	0.70	5.6	5.5	29.59	1.8	2.5
3	M2QA	132 M8A	3GQA	134 301-••A	710	81.0	81.4	0.75	7.13	5.5	40.35	1.8	2.2
4	M2QA	160 M8A	3GQA	164 301-••A	720	84.0	84.0	0.73	9.42	5.5	53	2.1	2.6
5.5	M2QA	160 M8B	3GQA	164 302-••A	720	85.5	85.6	0.74	12.55	5.5	72	2.1	2.8
7.5	M2QA	160 L8A	3GQA	164 501-••A	720	86.5	85.8	0.74	16.91	5.5	99	2.1	2.5
11	M2QA	180 L8A	3GQA	184 501-••A	730	87.7	87.0	0.77	23.51	5.4	143	2.0	2.8
15	M2QA	200 L8A	3GQA	204 501-••A	730	89.0	89.4	0.76	32.009	5.5	196	2.3	2.8
18.5	M2QA	225 S8A	3GQA	224 101-••A	740	90.0	89.1	0.75	39.56	5.5	238	2.1	2.7
22	M2QA	225 M8A	3GQA	224 301-••A	740	90.5	88.2	0.75	46.78	6.0	283	2.2	2.7
30	M2QA	250 M8A	3GQA	254 301-••A	740	91.3	90.1	0.79	60	6.5	387	2.3	2.4
37	M2BAT	280 SMA	3GBA	284 210-••D	741	93.5	93.3	0.78	74	7.3	477	1.8	3.0
45	M2BAT	280 SMB	3GBA	284 220-••D	741	94.0	93.8	0.78	90	7.6	580	1.9	3.2
55	M2BAT	315 SMA	3GBA	314 210-••D	742	94.1	94.0	0.81	104	7.1	708	1.6	2.7
75	M2BAT	315 SMB	3GBA	314 220-••D	741	94.5	94.4	0.82	141	7.1	968	1.7	2.7
90	M2BAT	315 SMC	3GBA	314 230-••D	741	94.8	94.7	0.82	167	7.4	1161	1.8	2.7
110	M2BAT	315 MLA	3GBA	314 410-••D	740	95.0	95.0	0.83	203	7.3	1420	1.8	2.7
132	M2BAT	355 S	3GBA	354 100-••D	743	95.0	94.9	0.81	247	6.5	1697	1.3	2.3
750 r/min = 8-poles				400 V 50 Hz				High-output design					
2	¹⁾ M2QA	112 M8B	3GQA	114 302-••A	700	72.0	²⁾	0.68	5.94	5.2	27.3	1.7	1.9
3.8	¹⁾ M2QA	132 M8B	3GQA	134 302-••A	710	78.0	²⁾	0.75	9.38	5.5	51	1.7	1.9
8.5	¹⁾ M2QA	160 L8B	3GQA	164 502-••A	720	83.5	²⁾	0.74	19.86	5.5	113	2.0	2.4
15	¹⁾ M2QA	180 L8B	3GQA	184 502-••A	730	84.7	²⁾	0.77	33.2	5.4	196	1.9	2.6
18.5	¹⁾ M2QA	200 L8B	3GQA	204 502-••A	730	86.0	²⁾	0.76	40.85	5.4	242	1.9	2.6
30	¹⁾ M2QA	225 M8B	3GQA	224 302-••A	740	87.5	²⁾	0.75	66	6.3	387	2.1	2.6
37	¹⁾ M2QA	250 M8B	3GQA	254 302-••A	740	88.3	²⁾	0.79	76	6.5	478	2.2	2.5
55	M2BAT	280 SMC	3GBA	284 230-••D	741	94.4	94.3	0.79	108	7.8	709	1.9	3.2

¹⁾ Temperature rise class F by voltage 400 V 50 Hz.

²⁾ Missing data on request.

The two bullets in the product code indicate choice of mounting arrangement, voltage and frequency (see ordering information page).