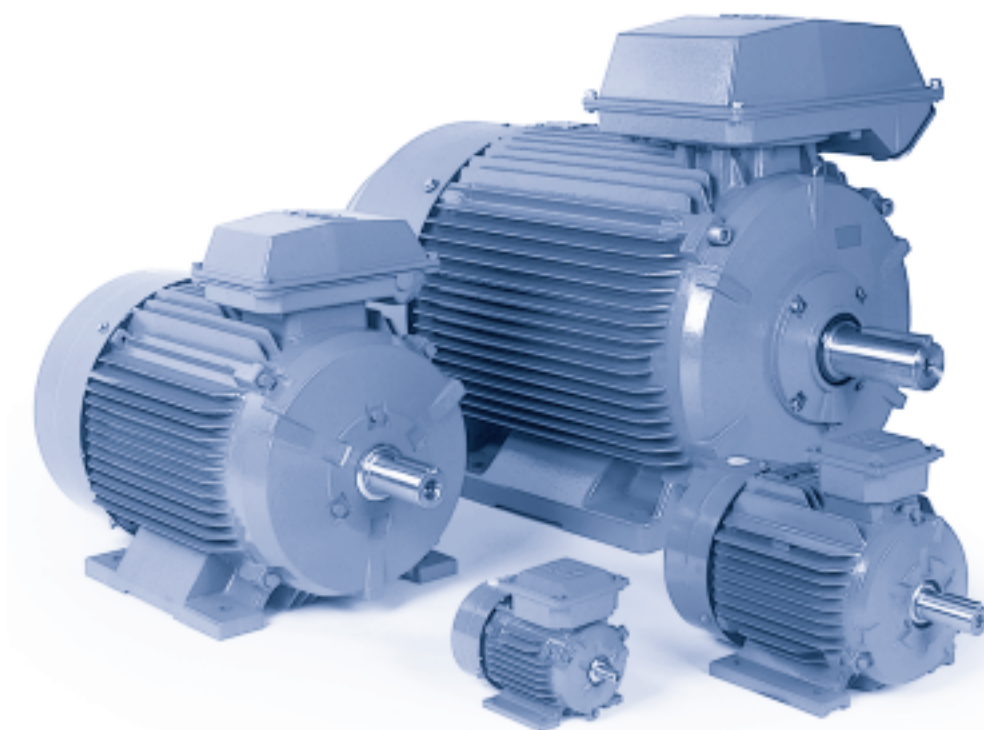


General Purpose Cast Iron Motors

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.

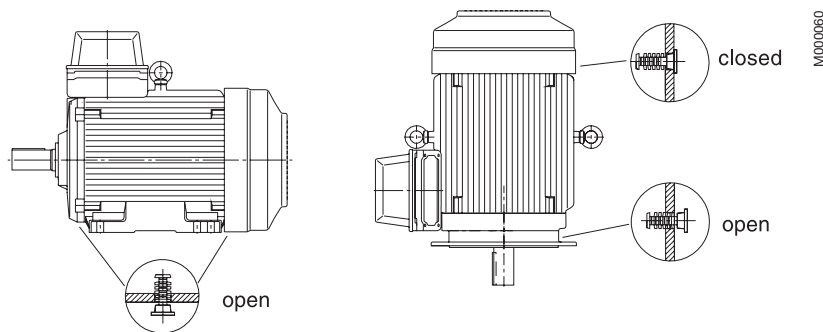
Drain holes

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.

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.

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

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

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.

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

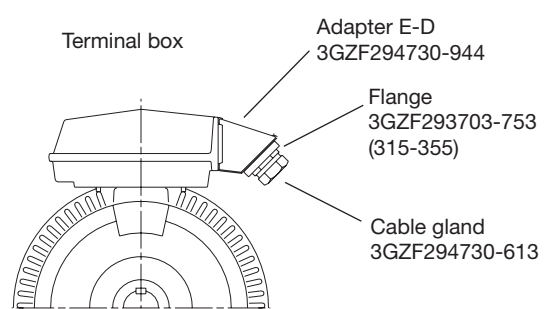
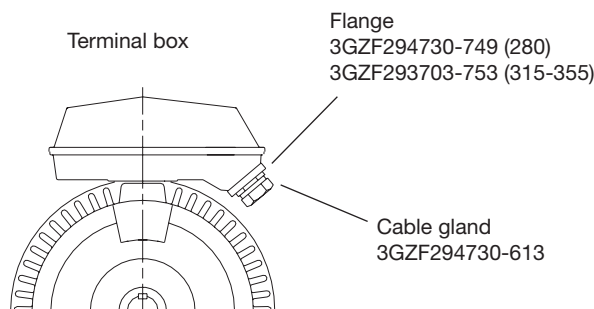
| Motor size | Poles | Cable entry mm |
|------------|---------|----------------|
| 71M | 2,4,6 | 2xM16x1.5 |
| 80M | 2,4,6 | 2xM25x1.5 |
| 90S | 2,4,6 | 2xM25x1.5 |
| 90L | 2,4,6 | 2xM25x1.5 |
| 100L | 2,4,6,8 | 2xM32x1.5 |
| 112M | 2,4,6,8 | 2xM32x1.5 |
| 132S | 2,4,6,8 | 2xM32x1.5 |
| 132M | 2,4,6,8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



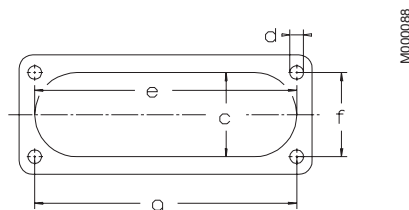
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Alternatives for cable entries and cable boxes for motor sizes 280 to 355

| Motor size | Terminal box on top | Terminal box on side | Opening type (D/Y-conn.) | Max. rated current A | 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 |

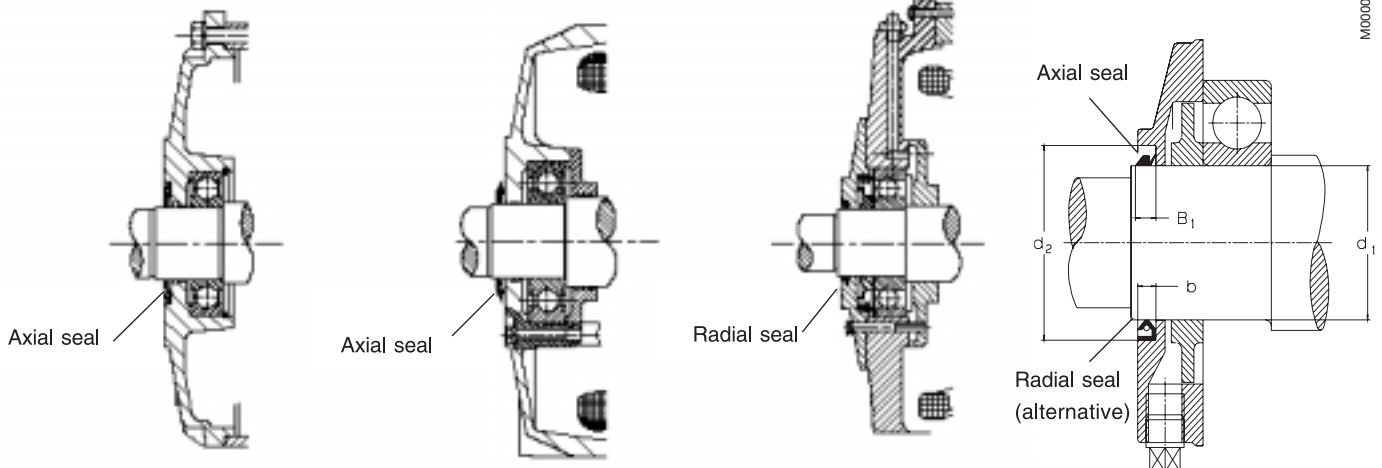
¹⁾ Viton-seal

Motor sizes 71-132

Motor sizes 160-225

Motor size 250

Motor sizes 280-355



M000089

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.

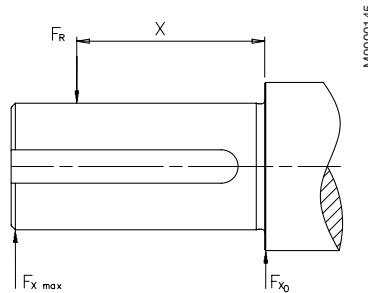
Motors are foot-mounted IM B3 version with force directed sideways. In some cases the strength of the shaft affects the permissible forces.

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.

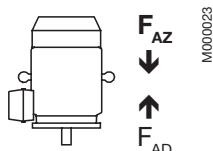
At 60 Hz the values are to be reduced by 10%.

Mounting arrangement IM B3



| 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 |

Mounting arrangement IM V1



| 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 V Δ 380-420 VY | 440-480 VY | 380-420 V Δ 660-690 VY | 440-480V ¹⁾ Δ | 415 V Δ | 500 V Δ | 575 V Δ | 500 VY | 660 V Δ | 690 V Δ | Other rated voltage, connection or frequency, 690 V maximum |
| 280-400 | 220, 230 V Δ 380,400,415VY | - 440VY | 380, 400, 415 V Δ 660, 690 VY | 440V Δ | 415 V Δ | 500 V Δ | - | 500 VY | 660 V Δ | 690 V Δ | |

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 | | Torque | | | |
|-----------------------------|---------------------|--------------|------------------|--------------------|--------------|-------------------------|------------------|-------------------------------|-------------------|-------------------------------|---------------------------------|-----|
| | | | | Full load 100% | 3/4 load 75% | | I _N A | I _s I _N | T _N Nm | T _s T _N | T _{max} T _N | |
| 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⁾ 50.1 | 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⁾ 81.2 | 0.78 | 14.49 | 6.5 | 64 | 1.9 | 2.1 |
| 14 | ¹⁾ M2QA | 160 L6B | 3GQA 163 502-••A | 970 | 85.5 | ³⁾ 83.5 | 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⁾ 83.5 | 0.82 | 37.87 | 6.0 | 180 | 2.2 | 2.7 |
| 30 | ¹⁾ M2QA | 200 L6C | 3GQA 203 503-••A | 980 | 87.4 | ³⁾ 83.5 | 0.78 | 63 | 6.0 | 292 | 2.0 | 2.6 |
| 37 | ¹⁾ M2QA | 225 M6B | 3GQA 223 302-••A | 980 | 87.8 | ³⁾ 83.5 | 0.78 | 78 | 6.6 | 361 | 2.1 | 2.6 |
| 45 | ¹⁾ M2QA | 250 M6B | 3GQA 253 302-••A | 980 | 89.2 | ³⁾ 83.5 | 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 | Current | Torque | | | | | |
|----------------------------|--------------------|--------------|-------------|--------------------|--------------|--------------------|---------------|---------------------------|--------|-------|-------|-----------|-----|
| | | | | Full load 100% | 3/4 load 75% | | | I_N | I_s | T_N | T_s | T_{max} | |
| 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).