## SINGLE-PHASE MOTORS

## Terminal boxes

The location of the terminal box (viewed from drive end) in standard design is on top; on the right or on the left are possible.

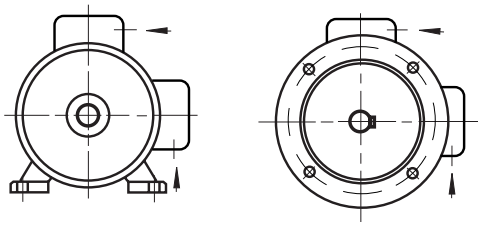
For motors with mountings IM B6, IM B7, IM B8, IM V5, IM V6 the location of the terminal box is related to an IM B3 mounting.

The position of the entry openings can be adjusted to suit the existing connection facilities by turning through 90°. Should special accessories be used (temperature detectors, anti-condensation heating, etc.) please enquire.

For motors in standard design, the cable gland does not belong to our scope of delivery.

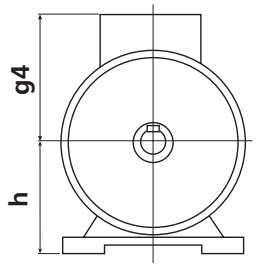
The dimension tables always show the maximum distance to the outermost edge of the available terminal boxes. This maximum value may, however, be smaller, depending on the design of the terminal box. If the space for mounting is very limited, please enquire.

Direction of cable entries

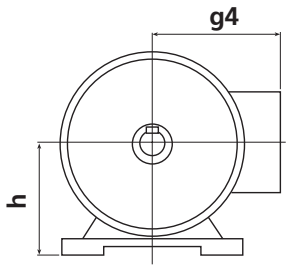


| Frame size | Degree of protection | Thread for cable entry | | Max. external cable diam. |
|---|---|---|---|---|
| | | Metric [1] | Pg [2] | mm |
| 56 - 71 | IP 55 | 1 x M16 | 1 x Pg 11 | 12 |
| 80 -100 | IP 55 | 1 x M20 | 1 x Pg 13.5 | 16 |

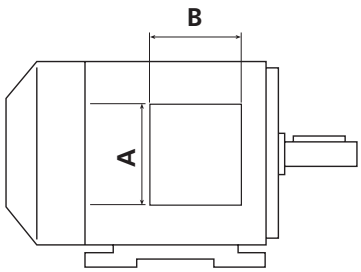
[1] Pitch 1.5
[2] Pg thread to DIN 40 430 (on request)



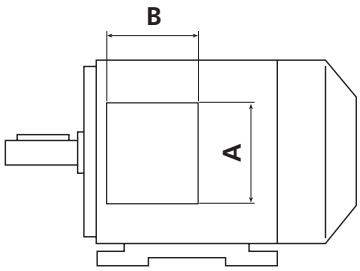

Terminal box on top




Terminal box at the side




left [1)]




right

[1)] Frame size 80-100 the position of the terminal box is close to drive end

**Standard design**

| Frame size h | g4 | A | B | Material |
|---|---|---|---|---|
| 56 | 115 | 120 | 148 | Plastic UL 94 V0 |
| 63 | 120 | 120 | 148 | Plastic UL 94 V0 |
| 71 | 129 | 120 | 148 | Plastic UL 94 V0 |
| 80 | 150 | 135 | 173 | Plastic UL 94 V0 |
| 90 | 160 | 135 | 173 | Plastic UL 94 V0 |
| 100 | 166 | 135 | 173 | Plastic UL 94 V0 |

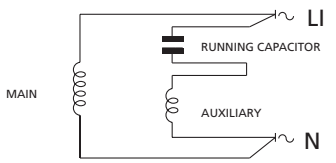
## Connection diagrams

Single-phase motors type AMM and AMME are designed for single-rated voltage; motors type AMD and AMDE for dual voltage. The windings (main and auxiliary winding) are connected to the capacitor supplied with the motor.

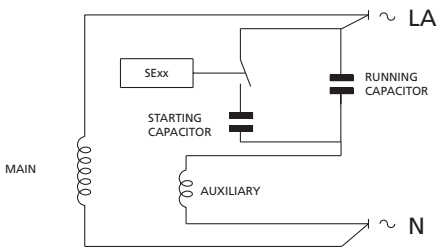
The direction of rotation can be reversed by inverting the winding ends as follows:

- main winding for motors with one supply voltage
- auxiliary winding for dual voltage motors

### SERIES AMM

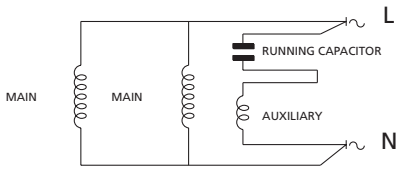



### SERIES AMME

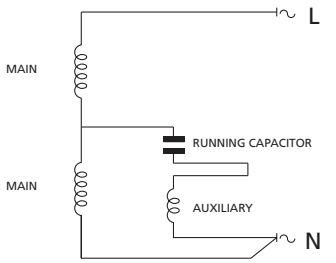



SExx - electronic device
for connection of starting capacitor

### SERIES AMD

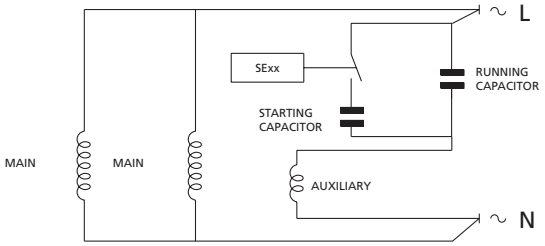



Connection at low voltage rate

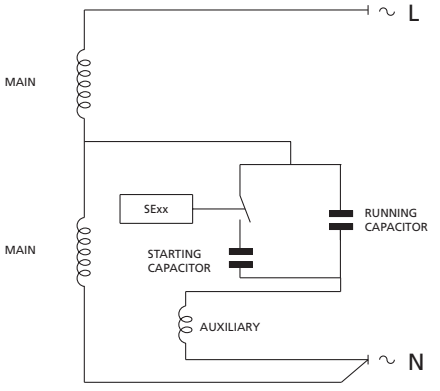



Connection at high voltage rate

### SERIES AMDE




Connection at low voltage rate



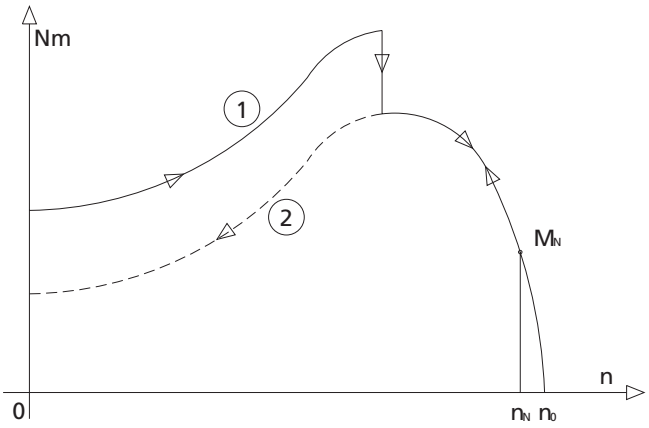

Connection at high voltage rate

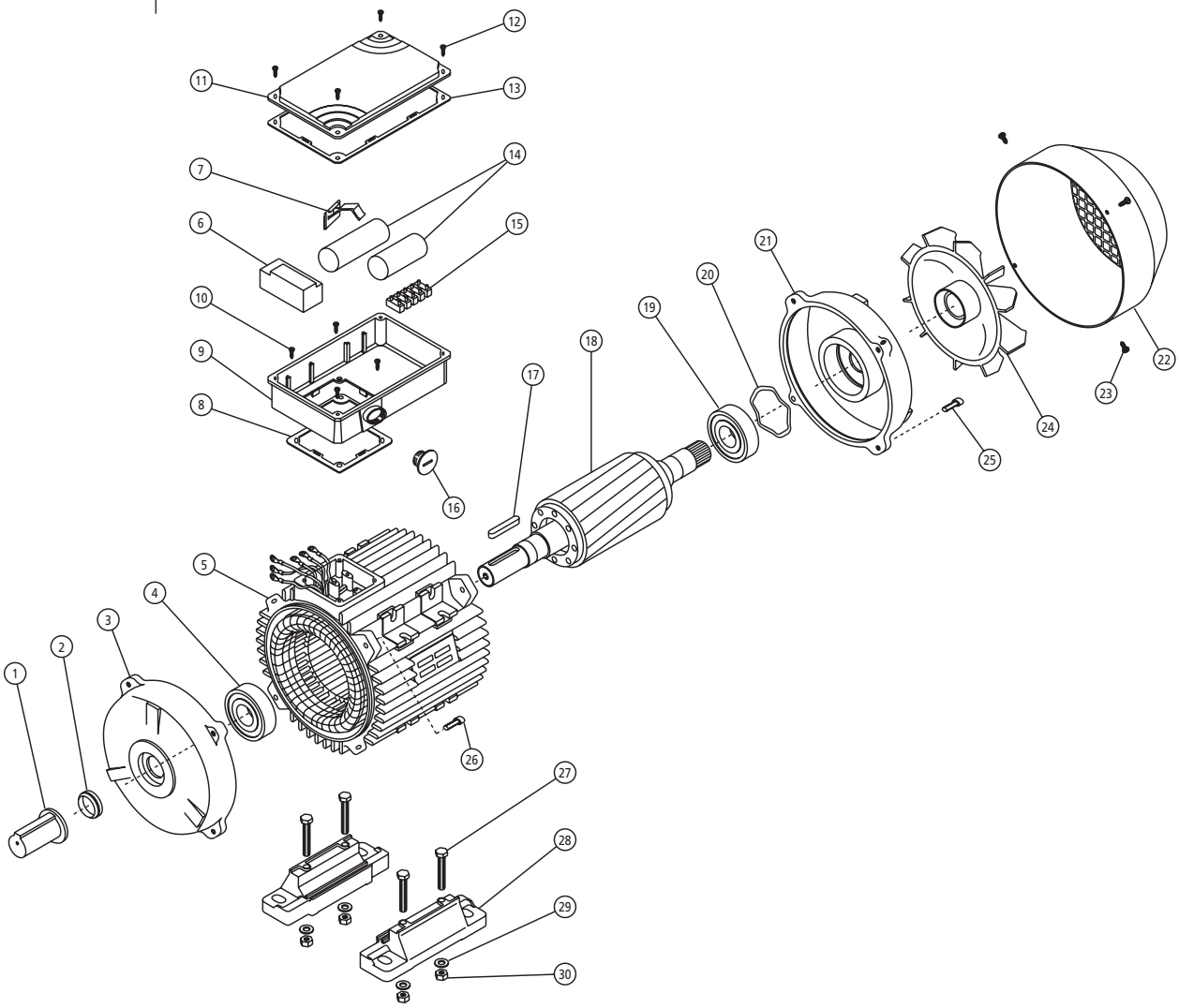
### Electronic starting device (SE XX)

Single-phase motors with one single capacitor generally have lower starting torques than the full load torque. When higher starting torques are required, the motor is equipped with an additional starting capacitor. It is connected by the electronic starting device (SE XX) in the moment of starting and disconnected automatically proximate to the pull-out torque (see figure). At this point the torque characteristic for the running capacitor (characteristic 2) applies again.

Characteristic 1 is not reversible. The starting capacitor is reconnected only when restarting the motor. In case of overload, characteristic 2 has to be applied.

**Time between stop and restart of the motor must be higher than 15 s.**





## Part description

1 Shaft protection
2 Dust seal drive end
3 Endshield drive end
4 Bearing drive end
5 Stator frame
6 Starter
7 Fixing device capacitor
8 Gasket terminal box
9 Terminal box
10 Fixing screw terminal box
11 Terminal box lid
12 Fixing screw terminal box lid
13 Gasket terminal box lid
14 Capacitor
15 Connecting block
16 Blank gland plug
17 Key
18 Rotor complete
19 Bearing non-drive end
20 Pre-load washer
21 Endshield non-drive end
22 Fan cover
23 Fixing screw fan cover
24 Fan
25 Fixing bolt endshield non-drive end
26 Fixing bolt endshield drive end
27 Fixing bolt motor feet
28 Motor feet
29 Fixing washer motor feet
30 Fixing nut motor feet

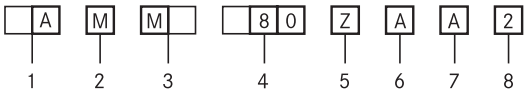
In enquires and orders for spare parts please state always:
Designation of spare part, motor type, mounting arrangement, motor serial number (Product No. (E-No.) when available)
Enquires and orders cannot be handled without these data.

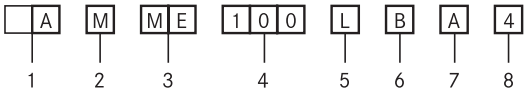
Apart from other information, it is necessary to specify the exact type designation in all enquiries, when ordering spare parts or replacement motors or when asking for documentary information.

The type designation of our motors comprises 8 points of reference, each of which may consist of several letters and/or numerals. The meaning of each symbol can be seen from the following table. For motors not included in our standard range, special symbols may be used which are not listed here.

| Ref. point | Meaning | Description of symbols used for our motors | |
|---|---|---|---|
| 1 | Type of motor | A | Asynchronous motor |
| 2 | Cooling | M | Surface cooled with external fan, cooling fins |
| 3 | Type of motor | M<br>ME<br>D<br>DE | Single-phase motor<br>Single-phase motor with starting capacitor<br>Single-phase motor with double voltage<br>Single-phase motor with double voltage and starting capacitor |
| 4 | Shaft centre height | 56, 63, 71, 80, 90, 100 | |
| 5 | Frame length | Z<br>S<br>M<br>L | <br>Mechanical dimension (short)<br>Mechanical dimension (medium)<br>Mechanical dimension (long) |
| 6 | Mechanical design and output value | A<br>B<br>C<br>D | |
| 7 | Frame material | A | Aluminium frame |
| 8 | Number of poles | 2<br>4<br>6 | |

Examples



**Single-phase motors designed for range of rated voltage 220-240 V ± 5% - 50 Hz**

**For mains voltage to IEC 60038 230 V ± 10% - 50 Hz**

| Type | | kW | HP | min$^{-1}$ | $M_N$ Nm | $\eta$ 100% | cos $\varphi$ | $I_N$ 230V | $I_N$ 220-240V | $I_A/I_N$ | $M_A/M_N$ | $M_K/M_N$ | $J$ $10^{-3}$ kgm$^2$ | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **3000 min$^{-1}$ (2 poles)** | | | | | | | | | | | | | | |
| **AMM 56Z AA** | **2** | 0.12 | 0.16 | 2600 | 0.4 | 47 | 0.90 | 1.25 | 1.3 | 1.3 | 1.3 | 1.8 | 0.09 | 3 |
| **AMM 63Z AA** | **2** | 0.18 | 0.25 | 2710 | 0.6 | 58.5 | 0.98 | 1.2 | 1.3 | 3 | 1.2 | 1.8 | 0.14 | 5 |
| **AMM 63Z BA** | **2** | 0.25 | 0.33 | 2760 | 0.9 | 68.6 | 0.95 | 1.7 | 1.9 | 3.2 | 1 | 1.6 | 0.18 | 5.5 |
| **AMM 71Z AA** | **2** | 0.37 | 0.50 | 2780 | 1.3 | 57.6 | 0.89 | 3.1 | 3.3 | 3.1 | 0.8 | 1.9 | 0.41 | 7.1 |
| **AMM 71Z BA** | **2** | 0.55 | 0.75 | 2740 | 1.9 | 69 | 0.89 | 3.9 | 4.1 | 3.5 | 0.7 | 1.7 | 0.55 | 8.5 |
| **AMM 80Z AA** | **2** | 0.75 | 1 | 2800 | 2.6 | 65 | 0.95 | 5.3 | 5.5 | 4.1 | 0.6 | 2 | 1.05 | 11.4 |
| **AMM 80Z BA** | **2** | 1.1 | 1.5 | 2730 | 3.8 | 74 | 0.97 | 6.5 | 6.6 | 3.6 | 0.5 | 1.6 | 1.08 | 11.8 |
| **AMM 90S AA** | **2** | 1.1 | 1.5 | 2830 | 3.7 | 68 | 0.94 | 7.5 | 8 | 4 | 0.4 | 2 | 1.62 | 15.3 |
| **AMM 90L BA** | **2** | 1.5 | 2 | 2835 | 5.1 | 73 | 0.90 | 9.3 | 9.6 | 3.9 | 0.5 | 2.1 | 1.87 | 17.3 |
| **AMM 90L CA** | **2** | 1.8 | 2.5 | 2790 | 6.2 | 73 | 0.99 | 10.8 | 11.2 | 4 | 0.6 | 2 | 2.09 | 18.7 |
| **AMM 90L DA** | **2** | 2.2 [1] | 3 [1] | 2770 | 7.6 | 73 | 0.90 | 14.6 | 15.4 | 4.3 | 0.2 | 1.8 | 2.11 | 19.3 |
| **AMM 100L AA** | **2** | 2.2 | 3 | 2795 | 7.5 | 75 | 0.98 | 12.8 | 13.1 | 4.3 | 0.4 | 1.5 | 4.05 | 24.5 |
| **1500 min$^{-1}$ (4 poles)** | | | | | | | | | | | | | | |
| **AMM 56Z AA** | **4** | 0.09 | 0.12 | 1340 | 0.6 | 45 | 0.89 | 1 | 1.1 | 1.9 | 0.5 | 1.2 | 0.14 | 3.5 |
| **AMM 63Z AA** | **4** | 0.12 | 0.16 | 1385 | 0.8 | 50 | 0.97 | 1 | 1.1 | 2.8 | 0.7 | 1.5 | 0.27 | 4.5 |
| **AMM 63Z BA** | **4** | 0.18 | 0.25 | 1280 | 1.3 | 50 | 0.97 | 1.6 | 1.7 | 2 | 0.8 | 1.2 | 0.34 | 4.9 |
| **AMM 71Z AA** | **4** | 0.25 | 0.33 | 1270 | 1.9 | 52.1 | 0.89 | 2.5 | 2.7 | 2.4 | 0.7 | 1.5 | 0.82 | 7.2 |
| **AMM 71Z BA** | **4** | 0.37 | 0.50 | 1370 | 2.6 | 62 | 0.88 | 2.8 | 3.1 | 2.9 | 0.8 | 1.2 | 1.08 | 8.5 |
| **AMM 80Z AA** | **4** | 0.37 | 0.50 | 1390 | 2.5 | 60 | 0.96 | 2.8 | 2.9 | 3.2 | 0.5 | 1.9 | 2 | 9.8 |
| **AMM 80Z BA** | **4** | 0.55 | 0.75 | 1390 | 3.8 | 67 | 0.88 | 4 | 4.2 | 3.2 | 0.5 | 1.8 | 2.41 | 11.3 |
| **AMM 80Z CA** | **4** | 0.75 | 1 | 1445 | 5.0 | 73 | 0.90 | 4.9 | 5.1 | 4.4 | 0.3 | 1.9 | 2.7 | 12.8 |
| **AMM 90L AA** | **4** | 1.1 | 1.5 | 1415 | 7.4 | 70 | 0.93 | 7.4 | 7.8 | 3.6 | 0.5 | 1.5 | 3.13 | 15.4 |
| **AMM 90L BA** | **4** | 1.5 [1] | 2 [1] | 1430 | 10.0 | 79 | 0.94 | 9 | 9.3 | 4.3 | 0.5 | 1.7 | 3.73 | 17.6 |
| **AMM 100L AA** | **4** | 1.8 | 2.5 | 1380 | 12.5 | 70 | 0.96 | 12 | 12.4 | 3.6 | 0.3 | 1.5 | 5.83 | 22.8 |
| **AMM 100L BA** | **4** | 2.2 [1] | 3 [1] | 1450 | 14.5 | 81 | 0.97 | 12.5 | 12.7 | 4.6 | 0.4 | 1.7 | 6 | 23.8 |
| **1000 min$^{-1}$ (6 poles)** | | | | | | | | | | | | | | |
| **AMM 71Z AA** | **6** | 0.18 | 0.25 | 840 | 2.0 | 48.0 | 0.87 | 1.9 | 2 | 2.7 | 0.8 | 1.6 | 0.90 | 6.3 |
| **AMM 80Z AA** | **6** | 0.25 | 0.33 | 900 | 2.7 | 56 | 0.95 | 2.2 | 2.4 | 2.3 | 0.3 | 1.8 | 2 | 8.8 |
| **AMM 80Z BA** | **6** | 0.37 | 0.50 | 925 | 3.8 | 60 | 0.96 | 2.8 | 3 | 2.6 | 0.4 | 1.3 | 2.47 | 10 |
| **AMM 90L AA** | **6** | 0.55 | 0.75 | 950 | 5.5 | 72 | 0.95 | 3.4 | 3.5 | 3.4 | 0.4 | 1.2 | 5.2 | 16.5 |
| **AMM 90L BA** | **6** | 0.75 | 1 | 890 | 8.0 | 71 | 0.96 | 4.8 | 4.9 | 3.2 | 0.5 | 1.5 | 5.85 | 18 |
| **AMM 100L AA** | **6** | 1.1 | 1.5 | 950 | 11.1 | 69 | 0.96 | 7.1 | 7.7 | 2.9 | 0.2 | 1.3 | 6.73 | 19 |
| **AMM 100L BA** | **6** | 1.5 [1] | 2 [1] | 870 | 16.5 | 66 | 0.98 | 10 | 10.2 | 2.5 | 0.4 | 1.4 | 9.43 | 22.5 |

1) Temperature rise to class F

## Single-phase motors with starting capacitor designed for range of rated voltage 220-240 V ± 5% - 50 Hz

## For mains voltage to IEC 60038 230 V ± 10% - 50 Hz

| Type | | kW | HP | min$^{-1}$ | $M_N$ Nm | $\eta$ 100% | cos $\varphi$ | $I_N$ 230V | $I_N$ 220-240V | $I_A/I_N$ | $M_A/M_N$ | $M_K/M_N$ | $J$ $10^{-3}$ kgm$^2$ | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **3000 min$^{-1}$ (2 poles)** | | | | | | | | | | | | | | |
| **AMME 63Z AA** | **2** | 0.12 | 0.16 | 2810 | 0.4 | 67.1 | 0.90 | 0.90 | 1 | 2.5 | 1.9 | 1.5 | 0.11 | 4.5 |
| **AMME 63Z BA** | **2** | 0.18 | 0.25 | 2800 | 0.6 | 58.5 | 0.98 | 1.2 | 1.3 | 3 | 1.6 | 1.8 | 0.14 | 5 |
| **AMME 63Z CA** | **2** | 0.25 | 0.33 | 2760 | 0.9 | 68.6 | 0.95 | 1.7 | 1.9 | 3.2 | 1.7 | 1.6 | 0.18 | 5.5 |
| **AMME 71Z AA** | **2** | 0.37 | 0.50 | 2780 | 1.3 | 57.6 | 0.89 | 3.1 | 3.3 | 3.1 | 2.5 | 1.9 | 0.41 | 7.1 |
| **AMME 71Z BA** | **2** | 0.55 | 0.75 | 2740 | 1.9 | 69 | 0.89 | 3.9 | 4.1 | 3.5 | 1.9 | 1.7 | 0.55 | 8.5 |
| **AMME 80Z AA** | **2** | 0.75 | 1 | 2800 | 2.6 | 65 | 0.95 | 5.3 | 5.5 | 5.3 | 2.9 | 2 | 1.05 | 11.4 |
| **AMME 80Z BA** | **2** | 1.1 | 1.5 | 2730 | 3.8 | 74 | 0.97 | 6.5 | 6.6 | 4 | 2.9 | 1.6 | 1.08 | 11.8 |
| **AMME 90S AA** | **2** | 1.1 | 1.5 | 2830 | 3.7 | 68 | 0.94 | 7.5 | 8 | 5.2 | 2.4 | 2 | 1.62 | 15.3 |
| **AMME 90L BA** | **2** | 1.5 | 2 | 2835 | 5.1 | 73 | 0.90 | 9.3 | 9.6 | 5.1 | 2.5 | 2.1 | 1.87 | 17.3 |
| **AMME 90L CA** | **2** | 1.8 | 2.5 | 2790 | 6.2 | 73 | 0.99 | 10.8 | 11.2 | 3.7 | 1.6 | 2.0 | 2.09 | 18.7 |
| **AMME 90L DA** | **2** | 2.2 [1] | 3 [1] | 2770 | 7.6 | 73 | 0.90 | 14.6 | 15.4 | 4 | 1.8 | 1.8 | 2.11 | 19.3 |
| **AMME 100L AA** | **2** | 2.2 | 3 | 2795 | 7.5 | 75 | 0.98 | 12.8 | 13.1 | 4.3 | 1.8 | 1.8 | 4.05 | 24.5 |
| **1500 min$^{-1}$ (4 poles)** | | | | | | | | | | | | | | |
| **AMME 63Z AA** | **4** | 0.12 | 0.16 | 1385 | 0.8 | 50 | 0.97 | 1 | 1.1 | 2.8 | 1.2 | 1.5 | 0.27 | 4.5 |
| **AMME 63Z BA** | **4** | 0.18 | 0.25 | 1280 | 1.3 | 50 | 0.97 | 1.6 | 1.7 | 2 | 1.9 | 1.2 | 0.34 | 4.9 |
| **AMME 71Z AA** | **4** | 0.25 | 0.33 | 1270 | 1.9 | 52.1 | 0.89 | 2.5 | 2.7 | 2.4 | 3 | 1.5 | 0.82 | 7.2 |
| **AMME 71Z BA** | **4** | 0.29 | 0.39 | 1275 | 2.2 | 56.1 | 0.95 | 2.4 | 2.5 | 4 | 3 | 1.6 | 0.95 | 7.8 |
| **AMME 71Z CA** | **4** | 0.37 | 0.50 | 1370 | 2.6 | 62 | 0.88 | 2.8 | 3.1 | 2.9 | 2.5 | 1.2 | 1.08 | 8.5 |
| **AMME 80Z AA** | **4** | 0.37 | 0.50 | 1390 | 2.5 | 60 | 0.96 | 2.8 | 2.9 | 2.5 | 1.8 | 1.9 | 2 | 9.8 |
| **AMME 80Z BA** | **4** | 0.55 | 0.75 | 1390 | 3.8 | 67 | 0.88 | 4 | 4.2 | 3.3 | 2.3 | 1.8 | 2.41 | 11.3 |
| **AMME 80Z CA** | **4** | 0.75 | 1 | 1445 | 5.0 | 73 | 0.90 | 4.9 | 5.1 | 5.4 | 2.4 | 2 | 2.7 | 12.8 |
| **AMME 90L AA** | **4** | 1.1 | 1.5 | 1415 | 7.4 | 70 | 0.93 | 7.4 | 7.8 | 4.8 | 2 | 1.5 | 3.13 | 15.4 |
| **AMME 90L BA** | **4** | 1.5 [1] | 2 [1] | 1430 | 10.0 | 79 | 0.94 | 9 | 9.3 | 4.7 | 1.8 | 1.7 | 3.73 | 17.6 |
| **AMME 100L AA** | **4** | 1.8 | 2.5 | 1380 | 12.5 | 70 | 0.96 | 12 | 12.4 | 3.2 | 1.5 | 1.5 | 5.83 | 22.8 |
| **AMME 100L BA** | **4** | 2.2 [1] | 3 [1] | 1450 | 14.5 | 81 | 0.97 | 12.5 | 12.7 | 4.6 | 1 | 1.7 | 6 | 23.8 |
| **1000 min$^{-1}$ (6 poles)** | | | | | | | | | | | | | | |
| **AMME 71Z AA** | **6** | 0.15 | 0.20 | 865 | 1.7 | 43 | 0.83 | 1.8 | 1.9 | 1.8 | 1.9 | 1.2 | 1.24 | 8 |
| **AMME 80Z AA** | **6** | 0.25 | 0.33 | 900 | 2.7 | 56 | 0.95 | 2.2 | 2.4 | 2.3 | 1.3 | 1.8 | 2 | 8.8 |
| **AMME 80Z BA** | **6** | 0.37 | 0.50 | 925 | 3.8 | 60 | 0.96 | 2.8 | 3 | 2.7 | 2 | 1.3 | 2.47 | 10 |
| **AMME 90L AA** | **6** | 0.55 | 0.75 | 950 | 5.5 | 72 | 0.95 | 3.4 | 3.5 | 3.8 | 2.5 | 1.2 | 5.2 | 16.5 |
| **AMME 90L BA** | **6** | 0.75 | 1 | 890 | 8.0 | 71 | 0.96 | 4.8 | 4.9 | 3 | 3.4 | 1.5 | 5.85 | 18 |
| **AMME 100L AA** | **6** | 1.1 | 1.5 | 950 | 11.1 | 69 | 0.96 | 7.1 | 7.7 | 2.4 | 1.4 | 1.3 | 6.73 | 19 |
| **AMME 100L BA** | **6** | 1.5 [1] | 2 [1] | 870 | 16.5 | 66 | 0.98 | 10 | 10.2 | 2.5 | 2 | 1.4 | 9.43 | 22.5 |

1) Temperature rise to class F

# Single-phase dual-voltage motors
## 115-230 V - 50 Hz

| Type | | kW | HP | min$^{-1}$ | $M_N$ Nm | $\eta$ 100% | cos $\varphi$ | $I_N$ 115-230V | $I_A/I_N$ | $M_A/M_N$ | $M_K/M_N$ | $J$ $10^{-3}$ kgm$^2$ | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **3000 min$^{-1}$ (2 poles)** | | | | | | | | | | | | | |
| **AMD 63Z AA** | **2** | 0.11 | 0.15 | 2760 | 0.4 | 52 | 0.93 | 2-1 | 2.8 | 0.6 | 1.5 | 0.11 | 4.5 |
| **AMD 63Z BA** | **2** | 0.18 | 0.25 | 2800 | 0.6 | 55 | 0.98 | 2.9-1.45 | 3 | 0.5 | 1.6 | 0.14 | 5 |
| **AMD 63Z CA** | **2** | 0.24 | 0.32 | 2815 | 0.8 | 56 | 0.98 | 3.8-1.9 | 3.1 | 0.6 | 1.8 | 0.18 | 5.5 |
| **AMD 71Z AA** | **2** | 0.37 | 0.50 | 2730 | 1.3 | 55 | 0.90 | 6.6-3.3 | 3.3 | 0.9 | 2 | 0.41 | 7.1 |
| **AMD 71Z BA** | **2** | 0.55 | 0.75 | 2840 | 1.8 | 64 | 0.94 | 8-4 | 4.2 | 0.5 | 1.9 | 0.55 | 8.5 |
| **AMD 80Z AA** | **2** | 0.75 | 1 | 2800 | 2.6 | 60 | 0.78 | 13.8-7 | 3.5 | 0.4 | 2.1 | 1.05 | 11.4 |
| **AMD 80Z BA** | **2** | 1.1 | 1.5 | 2770 | 3.8 | 72 | 0.93 | 14.2-7.2 | 3.5 | 0.5 | 1.6 | 1.08 | 11.8 |
| **AMD 90S AA** | **2** | 1.1 | 1.5 | 2815 | 3.7 | 70 | 0.78 | 17.5-8.8 | 3.8 | 0.4 | 1.9 | 1.62 | 15.3 |
| **AMD 90L BA** | **2** | 1.5 | 2 | 2800 | 5.1 | 69 | 0.87 | 22-11 | 3.6 | 0.4 | 1.8 | 1.87 | 17.3 |
| **AMD 90L CA** | **2** | 1.8 | 2.5 | 2810 | 6.1 | 70 | 0.89 | 25-12.5 | 3.7 | 0.3 | 1.9 | 2.09 | 18.7 |
| **AMD 90L DA** | **2** | 2.2 [1] | 3 [1] | 2880 | 7.3 | 76 | 0.93 | 27.2-13.6 | 5 | 0.3 | 1.9 | 2.10 | 19.3 |
| **AMD 100L AA** | **2** | 2.2 | 3 | 2810 | 7.5 | 75 | 0.92 | 28-14 | 4.6 | 0.2 | 1.8 | 4.05 | 24.5 |
| **1500 min$^{-1}$ (4 poles)** | | | | | | | | | | | | | |
| **AMD 63Z AA** | **4** | 0.11 | 0.15 | 1370 | 0.8 | 53 | 0.89 | 2.2-1.1 | 2 | 0.8 | 1.6 | 0.27 | 4.5 |
| **AMD 63Z BA** | **4** | 0.18 | 0.25 | 1340 | 1.3 | 51 | 0.9 | 3.3-1.7 | 1.9 | 0.6 | 1.3 | 0.34 | 4.9 |
| **AMD 71Z AA** | **4** | 0.24 | 0.32 | 1300 | 1.8 | 51 | 0.81 | 5.1-2.55 | 2.5 | 0.7 | 1.4 | 0.82 | 7.2 |
| **AMD 71Z BA** | **4** | 0.29 | 0.39 | 1340 | 2.1 | 61 | 0.84 | 4.9-2.45 | 2.6 | 0.6 | 1.6 | 0.95 | 7.8 |
| **AMD 71Z CA** | **4** | 0.37 | 0.5 | 1370 | 2.6 | 58 | 0.85 | 6.5-3.25 | 3.4 | 0.5 | 1.5 | 1.08 | 8.5 |
| **AMD 80Z AA** | **4** | 0.37 | 0.5 | 1375 | 2.6 | 54 | 0.94 | 6.3-3.15 | 2.5 | 0.7 | 1.5 | 2 | 9.8 |
| **AMD 80Z BA** | **4** | 0.55 | 0.75 | 1360 | 3.9 | 66 | 0.84 | 8.6-4.3 | 3.4 | 0.6 | 1.7 | 2.41 | 11.3 |
| **AMD 80Z CA** | **4** | 0.75 | 1 | 1435 | 5.0 | 62 | 0.91 | 11.5-5.75 | 4.1 | 0.4 | 1.9 | 2.7 | 12.8 |
| **AMD 90L AA** | **4** | 1.1 | 1.5 | 1425 | 7.4 | 69 | 0.81 | 17-8.5 | 3.9 | 0.3 | 1.9 | 3.13 | 15.4 |
| **AMD 90L BA** | **4** | 1.5 [1] | 2 [1] | 1415 | 10.1 | 72 | 0.88 | 20.5-10.25 | 3.4 | 0.3 | 1.4 | 3.73 | 17.6 |
| **AMD 100L AA** | **4** | 1.8 | 2.5 | 1430 | 12.0 | 70 | 0.86 | 26-13 | 3.2 | 0.3 | 1.6 | 5.83 | 22.8 |
| **AMD 100L BA** | **4** | 2.2 [1] | 3 [1] | 1440 | 14.6 | 72 | 0.86 | 31-15.5 | 3.2 | 0.2 | 1.3 | 6 | 23.8 |
| **1000 min$^{-1}$ (6 poles)** | | | | | | | | | | | | | |
| **AMD 71Z AA** | **6** | 0.15 | 0.20 | 910 | 1.6 | 58 | 0.80 | 2.8-1.4 | 2.2 | 0.5 | 1.4 | 1.24 | 8 |
| **AMD 80Z AA** | **6** | 0.25 | 0.33 | 930 | 2.6 | 61 | 0.85 | 4.2-2.1 | 2.3 | 0.4 | 1.2 | 2 | 8.8 |
| **AMD 80Z BA** | **6** | 0.37 | 0.50 | 940 | 3.8 | 61 | 0.82 | 6.4-3.2 | 2.9 | 0.4 | 1.6 | 2.47 | 10 |
| **AMD 90L AA** | **6** | 0.55 | 0.75 | 950 | 5.5 | 68 | 0.83 | 8.5-4.25 | 2.7 | 0.6 | 1.3 | 5.2 | 16.5 |
| **AMD 90L BA** | **6** | 0.75 | 1 | 950 | 7.5 | 58 | 0.79 | 14.2-7.1 | 3 | 0.4 | 1.6 | 5.85 | 18 |
| **AMD 100L AA** | **6** | 1.1 | 1.5 | 935 | 11.2 | 72 | 0.88 | 15-7.5 | 3.1 | 0.3 | 1.4 | 6.73 | 19 |
| **AMD 100L BA** | **6** | 1.5 [1] | 2 [1] | 890 | 16.1 | 74 | 0.98 | 18-9 | 2.9 | 0.5 | 1.4 | 9.43 | 22.5 |

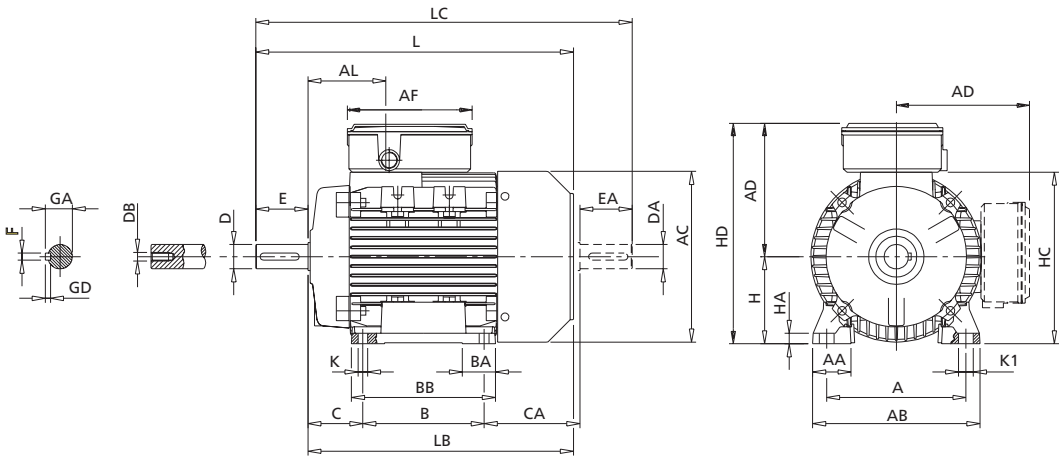
1) Temperature rise to class F

# Single-phase dual-voltage motors with starting capacitor
## 115-230 V - 50 Hz

| Type | | kW | HP | min$^{-1}$ | $M_N$ Nm | $\eta$ 100% | cos $\varphi$ | $I_N$ 115-230V | $I_A/I_N$ | $M_A/M_N$ | $M_K/M_N$ | $J$ $10^{-3}$ kgm$^2$ | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **3000 min$^{-1}$ (2 poles)** | | | | | | | | | | | | | |
| **AMDE 63Z AA** | **2** | 0.11 | 0.15 | 2760 | 0.4 | 52 | 0.93 | 2-1 | 2.8 | 1.9 | 1.5 | 0.11 | 4.5 |
| **AMDE 63Z BA** | **2** | 0.18 | 0.25 | 2800 | 0.6 | 55 | 0.98 | 2.9-1.45 | 3 | 1.6 | 1.6 | 0.14 | 5 |
| **AMDE 63Z CA** | **2** | 0.24 | 0.32 | 2815 | 0.8 | 56 | 0.98 | 3.8-1.9 | 3.1 | 1.8 | 1.8 | 0.18 | 5.5 |
| **AMDE 71Z AA** | **2** | 0.37 | 0.50 | 2730 | 1.3 | 55 | 0.90 | 6.6-3.3 | 3.3 | 2.5 | 2 | 0.41 | 7.1 |
| **AMDE 71Z BA** | **2** | 0.55 | 0.75 | 2840 | 1.8 | 64 | 0.94 | 8-4 | 4.2 | 1.3 | 2 | 0.55 | 8.5 |
| **AMDE 80Z AA** | **2** | 0.75 | 1 | 2800 | 2.6 | 60 | 0.78 | 13.8-7 | 3.5 | 1.3 | 2.2 | 1.05 | 11.4 |
| **AMDE 80Z BA** | **2** | 1.1 | 1.5 | 2770 | 3.8 | 72 | 0.93 | 14.2-7.2 | 3.5 | 1.4 | 1.6 | 1.08 | 11.8 |
| **AMDE 90S AA** | **2** | 1.1 | 1.5 | 2815 | 3.7 | 70 | 0.78 | 17.5-8.75 | 3.8 | 2.6 | 1.9 | 1.62 | 15.3 |
| **AMDE 90L BA** | **2** | 1.5 | 2 | 2800 | 5.1 | 69 | 0.87 | 22-11 | 3.6 | 2.6 | 1.8 | 1.87 | 17.3 |
| **AMDE 90L CA** | **2** | 1.8 | 2.5 | 2810 | 6.1 | 70 | 0.89 | 25-12.5 | 3.7 | 1.6 | 1.9 | 2.09 | 18.7 |
| **AMDE 90L DA** | **2** | 2.2 | 3 | 2880 | 7.3 | 76 | 0.93 | 27.2-13.6 | 5 | 2.5 | 1.9 | 2.10 | 19.3 |
| **AMDE 100L AA** | **2** | 2.2 [1] | 3 [1] | 2810 | 7.5 | 75 | 0.92 | 28-14 | 4.6 | 1.8 | 1.8 | 4.05 | 24.5 |
| **1500 min$^{-1}$ (4 poles)** | | | | | | | | | | | | | |
| **AMDE 63Z AA** | **4** | 0.11 | 0.15 | 1370 | 0.8 | 53 | 0.89 | 2.2-1.1 | 2 | 1.9 | 1.6 | 0.27 | 4.5 |
| **AMDE 63Z BA** | **4** | 0.18 | 0.25 | 1340 | 1.3 | 51 | 0.9 | 3.3-1.7 | 1.9 | 1 | 1.3 | 0.34 | 4.9 |
| **AMDE 71Z AA** | **4** | 0.24 | 0.32 | 1300 | 1.8 | 51 | 0.81 | 5.1-2.55 | 2.5 | 2.3 | 1.4 | 0.82 | 7.2 |
| **AMDE 71Z BA** | **4** | 0.29 | 0.39 | 1340 | 2.1 | 61 | 0.84 | 4.9-2.45 | 2.6 | 1.7 | 1.6 | 0.95 | 7.8 |
| **AMDE 71Z CA** | **4** | 0.37 | 0.5 | 1370 | 2.6 | 58 | 0.85 | 6.5-3.25 | 3.4 | 1.4 | 1.5 | 1.08 | 8.5 |
| **AMDE 80Z AA** | **4** | 0.37 | 0.5 | 1375 | 2.6 | 54 | 0.94 | 6.3-3.15 | 2.5 | 1.8 | 1.5 | 2 | 9.8 |
| **AMDE 80Z BA** | **4** | 0.55 | 0.75 | 1360 | 3.9 | 66 | 0.84 | 8.6-4.3 | 3.4 | 2.1 | 1.7 | 2.41 | 11.3 |
| **AMDE 80Z CA** | **4** | 0.75 | 1 | 1435 | 5.0 | 62 | 0.91 | 11.5-5.75 | 4.1 | 2 | 1.9 | 2.7 | 12.8 |
| **AMDE 90L AA** | **4** | 1.1 | 1.5 | 1425 | 7.4 | 69 | 0.81 | 17-8.5 | 3.9 | 2 | 1.9 | 3.13 | 15.4 |
| **AMDE 90L BA** | **4** | 1.5 [1] | 2 [1] | 1415 | 10.1 | 72 | 0.88 | 20.5-10.25 | 3.4 | 2 | 1.4 | 3.73 | 17.6 |
| **AMDE 100L AA** | **4** | 1.8 | 2.5 | 1430 | 12.0 | 70 | 0.86 | 26-13 | 3.2 | 2.1 | 1.6 | 5.83 | 22.8 |
| **AMDE 100L BA** | **4** | 2.2 [1] | 3 [1] | 1440 | 14.6 | 72 | 0.86 | 31-15.5 | 3.2 | 1.5 | 1.3 | 6 | 23.8 |
| **1000 min$^{-1}$ (6 poles)** | | | | | | | | | | | | | |
| **AMDE 71Z AA** | **6** | 0.15 | 0.20 | 910 | 1.6 | 58 | 0.80 | 2.8-1.4 | 2.2 | 1.9 | 1.4 | 1.24 | 8 |
| **AMDE 80Z AA** | **6** | 0.25 | 0.33 | 930 | 2.6 | 61 | 0.85 | 4.2-2.1 | 2.3 | 1.3 | 1.2 | 2 | 8.8 |
| **AMDE 80Z BA** | **6** | 0.37 | 0.50 | 940 | 3.8 | 61 | 0.82 | 6.4-3.2 | 2.9 | 1.9 | 1.6 | 2.47 | 10 |
| **AMDE 90L AA** | **6** | 0.55 | 0.75 | 950 | 5.5 | 68 | 0.83 | 8.5-4.25 | 2.7 | 3 | 1.3 | 5.2 | 16.5 |
| **AMDE 90L BA** | **6** | 0.75 | 1 | 950 | 7.5 | 58 | 0.79 | 14.2-7.1 | 3 | 3.4 | 1.6 | 5.85 | 18 |
| **AMDE 100L AA** | **6** | 1.1 | 1.5 | 935 | 11.2 | 72 | 0.88 | 15-7.5 | 3.1 | 1.9 | 1.4 | 6.73 | 19 |
| **AMDE 100L BA** | **6** | 1.5 [1] | 2 [1] | 890 | 16.1 | 74 | 0.98 | 18-9 | 2.9 | 2 | 1.4 | 9.43 | 22.5 |

1) Temperature rise to class F

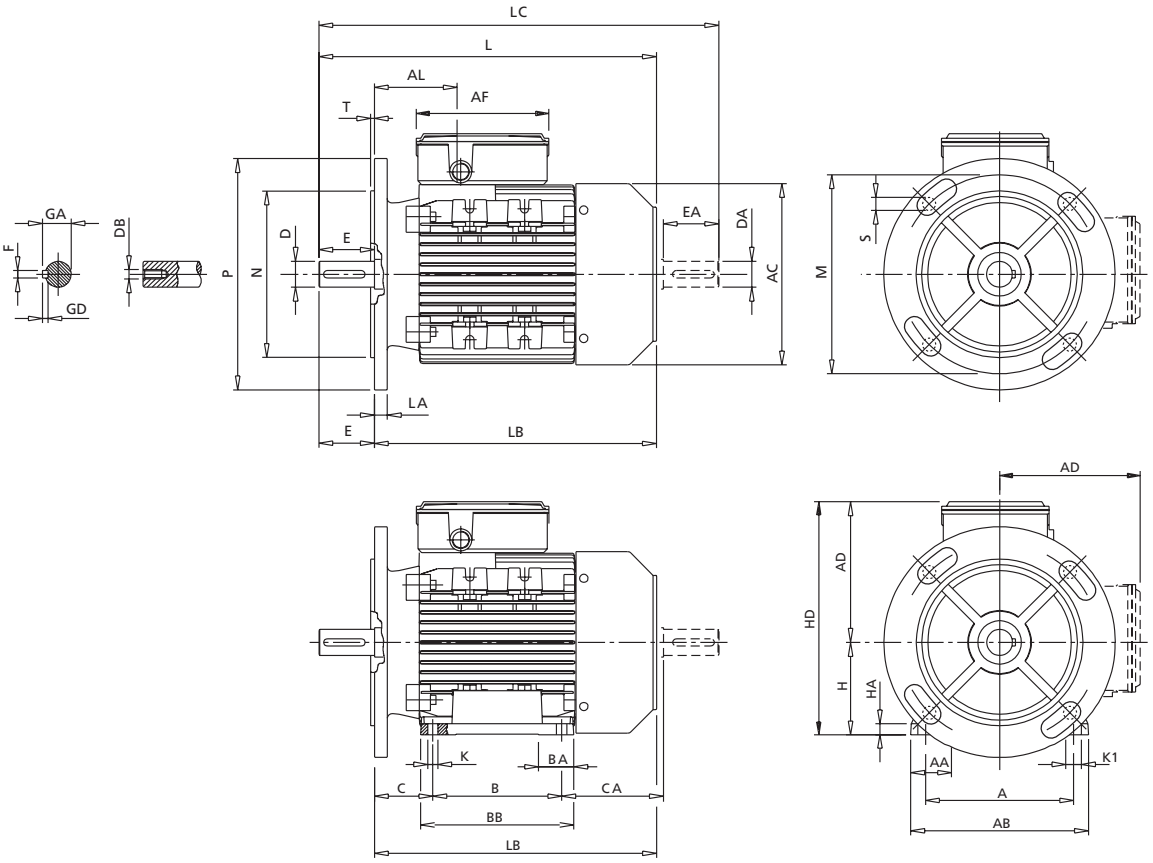
# SINGLE-PHASE FRAME SIZE 56 - 100 IM B3




| IEC DIN | H h | A b | B a | C $w_1$ | K [1] s | AB f | BB e | CA | AD [2] g4 | HD [2] p | AC g | HC | HA c | K1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **56** | 56 | 90 | 71 | 36 | 6 | 109 | 90 | 65 | 115 | 171 | 104 | 110 | 8 | 9 |
| **63** | 63 | 100 | 80 | 40 | 7 | 126 | 104 | 72 | 120 | 183 | 122 | 121 | 8 | 11 |
| **71** | 71 | 112 | 90 | 45 | 7 | 144 | 109 | 86 | 129 | 200 | 142 | 142 | 9 | 11 |
| **80** | 80 | 125 | 100 | 50 | 10 | 153 | 125 | 89 | 150 | 230 | 160 | 162 | 9.5 | 14 |
| **90S** | 90 | 140 | 100 | 56 | 10 | 170 | 150 | 113 | 160 | 250 | 180 | 181 | 11 | 15 |
| **90L** | 90 | 140 | 125 | 56 | 10 | 170 | 150 | 88 | 160 | 250 | 180 | 181 | 11 | 15 |
| **100L** | 100 | 160 | 140 | 63 | 11 | 192 | 166 | 110 | 166 | 266 | 196 | 198 | 12 | 17 |

| IEC DIN | L k | LB | LC $k_1$ | AL | AF | BA m | AA n | D/DA $d/d_1$ | E/EA $l/l_1$ | F/FA $u/u_1$ | GD | GA/GC $t/t_1$ | DB [3] $d_6/d_7$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **56** | 190 | 170 | 210 | 68 | 148 | 22 | 22 | 9 j6 | 20 | 3 | 3 | 10.2 | M3 |
| **63** | 213 | 190 | 239 | 66 | 148 | 26 | 26 | 11 j6 | 23 | 4 | 4 | 12.5 | M4 |
| **71** | 245 | 215 | 275 | 73 | 148 | 22 | 30 | 14 j6 | 30 | 5 | 5 | 16 | M5 |
| **80** | 272 | 232 | 319 | 79 | 173 | 28.5 | 34.5 | 19 j6 | 40 | 6 | 6 | 21.5 | M6 |
| **90S** | 317 | 267 | 372 | 85 | 173 | 28/53 | 37 | 24 j6 | 50 | 8 | 7 | 27 | M8 |
| **90L** | 317 | 267 | 372 | 85 | 173 | 28/53 | 37 | 24 j6 | 50 | 8 | 7 | 27 | M8 |
| **100L** | 366 | 306 | 433 | 89.5 | 173 | 38 | 44 | 28 j6 | 60 | 8 | 7 | 31 | M10 |

1) Clearance hole for screw
2) Maximum dimension
3) Centering holes in shaft extensions to DIN 332 part 2

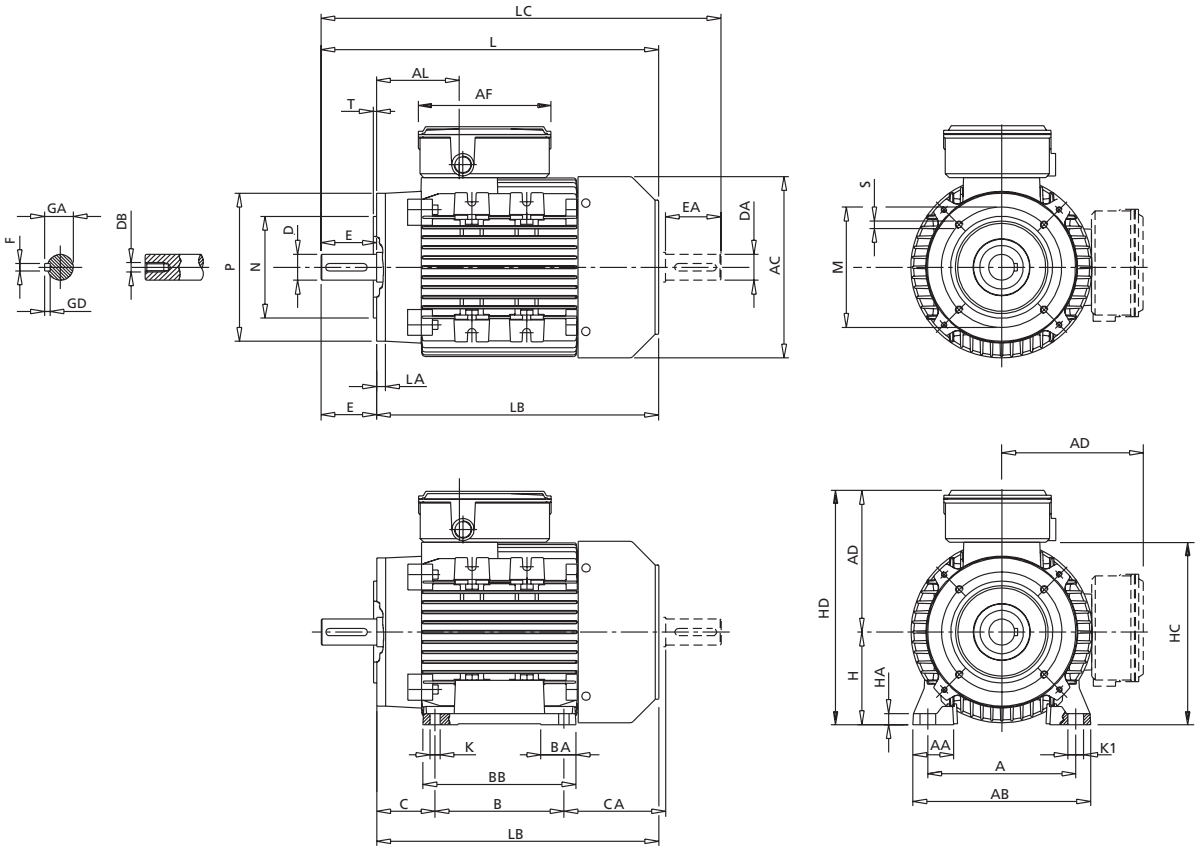



| IEC DIN | M $e_1$ | N $b_1$ | P $a_1$ | T $f_1$ | LA $c_1$ | S s1 | H h | A b | B a | C $w_1$ | K [1] s | CA | BB | AA | AB | BA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **56** | 100 | 80 | 120 | 2.5 | 5.5 | 7 | 56 | 90 | 71 | 36 | 6 | 65 | 90 | 22 | 109 | 22 |
| **63** | 115 | 95 | 140 | 3 | 10 | 9.5 | 63 | 100 | 80 | 40 | 7 | 72 | 105 | 26 | 126 | 26 |
| **71** | 130 | 110 | 160 | 3.5 | 10 | 9.5 | 71 | 112 | 90 | 45 | 7 | 86 | 109 | 30 | 144 | 22 |
| **80** | 165 | 130 | 200 | 3.5 | 10 | 11.5 | 80 | 125 | 100 | 50 | 8 | 89 | 125 | 34.5 | 153 | 28.5 |
| **90S** | 165 | 130 | 200 | 3.5 | 12 | 11.5 | 90 | 140 | 100 | 56 | 10 | 113 | 150 | 37 | 170 | 28/53 |
| **90L** | 165 | 130 | 200 | 3.5 | 12 | 11.5 | 90 | 140 | 125 | 56 | 10 | 88 | 150 | 37 | 170 | 28/53 |
| **100L** | 215 | 180 | 250 | 4 | 14 | 14 | 100 | 160 | 140 | 63 | 11 | 110 | 166 | 44 | 192 | 44 |

| IEC DIN | AD [2] g4 | HD [2] p | AC g | HA c | K1 | L k | LB | LC $k_1$ | AL | AF | D/DA $d/d_1$ | E/EA $l/l_1$ | F/FA $u/u_1$ | GD | GA/GC $t/t_1$ | DB [3] $d_6/d_7$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **56** | 115 | 171 | 104 | 8 | 9 | 190 | 170 | 210 | 68 | 148 | 9 j6 | 20 | 3 | 3 | 10.2 | M3 |
| **63** | 120 | 183 | 122 | 8 | 11 | 213 | 190 | 239 | 66 | 148 | 11 j6 | 23 | 4 | 4 | 12.5 | M4 |
| **71** | 129 | 200 | 142 | 9 | 11 | 245 | 215 | 275 | 73 | 148 | 14 j6 | 30 | 5 | 5 | 16 | M5 |
| **80** | 150 | 230 | 160 | 9.5 | 14 | 272 | 232 | 319 | 79 | 170 | 19 j6 | 40 | 6 | 6 | 21.5 | M6 |
| **90S** | 160 | 250 | 180 | 11 | 15 | 317 | 267 | 372 | 85 | 170 | 24 j6 | 50 | 8 | 7 | 27 | M8 |
| **90L** | 160 | 250 | 180 | 11 | 15 | 317 | 267 | 372 | 85 | 170 | 24 j6 | 50 | 8 | 7 | 27 | M8 |
| **100L** | 166 | 266 | 196 | 12 | 17 | 366 | 306 | 433 | 89.5 | 170 | 28 j6 | 60 | 8 | 7 | 31 | M10 |

1) Clearance hole for screw
2) Maximum dimension
3) Centering holes in shaft extensions to DIN 332 part 2

# SINGLE-PHASE FRAME SIZE 56 - 100 IM B14, IM B34




| IEC DIN | Small flange P $a_1$ | N $b_1$ | LA $c_1$ | M $e_1$ | T $f_1$ | S $s_1$ | Large flange P $a_1$ | N $b_1$ | LA $c_1$ | M $e_1$ | T $f_1$ | S $s_1$ | L k | LB | LC $k_1$ | AL | AF | D/DA d/d1 | E/EA l/l1 | F/FA u/u1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **56Z AA, BA** | 80 | 50 | | 65 | 2.5 | M5 | 105 | 70 | 8 | 85 | 2.5 | M6 | 190 | 170 | 211 | 62 | 148 | 9j6 | 20 | 3 |
| **63Z AA, BA, CA** | 90 | 60 | | 75 | 2.5 | M5 | 120 | 80 | 8 | 100 | 2.5 | M6 | 213 | 190 | 239 | 63 | 148 | 11j6 | 23 | 4 |
| **71Z AA, BA, CA** | 105 | 70 | | 85 | 2.5 | M6 | 140 | 95 | 8 | 115 | 2.5 | M8 | 245 | 215 | 281 | 69 | 148 | 14j6 | 30 | 5 |
| **80Z AA, BA** | 120 | 80 | 8 | 100 | 3 | M6 | 160 | 110 | 8.5 | 130 | 3.5 | M8 | 272 | 232 | 319 | 79 | 173 | 19j6 | 40 | 6 |
| **90S AA, BA** | 140 | 95 | 10 | 115 | 3 | M8 | 160 | 110 | 9 | 130 | 3.5 | M8 | 317 | 267 | 372 | 85 | 173 | 24j6 | 50 | 8 |
| **90L BA, CA, DA** | 140 | 95 | 10 | 115 | 3 | M8 | 160 | 110 | 9 | 130 | 3.5 | M8 | 317 | 267 | 372 | 85 | 173 | 24j6 | 50 | 8 |
| **100L AA, BA, CA** | 160 | 110 | 10 | 130 | 3.5 | M8 | 200 | 130 | 12 | 165 | 3.5 | M10 | 366 | 306 | 433 | 89.5 | 173 | 28j6 | 60 | 8 |

| IEC DIN | GD | GA/GC t/$t_1$ | DB [3] $d_6/d_7$ | H | A h | B b | C a | K [1] $w_1$ | AB s | BB f | AA e | BA | CA | AD [2] | HD [2] $g_4$ | AC $m_1$ | HC g | HA | K1 c |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **56Z AA, BA** | 3 | 10.2 | M3 | 56 | 90 | 71 | 36 | 6 | 109 | 90 | 22 | 22 | 65 | 115 | 171 | 110 | 114 | 8 | 12 |
| **63Z AA, BA, CA** | 4 | 12.5 | M4 | 63 | 100 | 80 | 40 | 7 | 126 | 105 | 26 | 26 | 72 | 120 | 183 | 124 | 127 | 10 | 12 |
| **71Z AA, BA, CA** | 5 | 16 | M5 | 71 | 112 | 90 | 45 | 7 | 144 | 109 | 30 | 22 | 86 | 129 | 200 | 137 | 143 | 12 | 17 |
| **80Z AA, BA** | 6 | 21.5 | M6 | 80 | 125 | 100 | 50 | 8 | 153 | 125 | 34.5 | 28.5 | 89 | 150 | 230 | 160 | 162 | 9.5 | 14 |
| **90S AA, BA** | 7 | 27 | M8 | 90 | 140 | 100 | 56 | 8 | 170 | 150 | 37 | 37/53 | 113 | 160 | 250 | 180 | 181 | 11 | 15 |
| **90L BA, CA, DA** | 7 | 27 | M8 | 90 | 140 | 125 | 56 | 8 | 170 | 150 | 37 | 37/53 | 88 | 160 | 250 | 180 | 181 | 11 | 15 |
| **100L AA, BA, CA** | 7 | 31 | M10 | 100 | 160 | 140 | 63 | 10 | 192 | 166 | 44 | 38 | 110 | 166 | 266 | 196 | 198 | 12 | 17 |

1) Clearance hole for screw
2) Maximum dimension
3) Centering holes in shaft extensions to DIN 332 part 2