

# 80-132 (0,75 kW-7,5 kW)

Motors



## Construction features

|                                                                                                                |                                                                           |
|----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| <b>Frame</b>                                                                                                   | aluminum alloy                                                            |
| <b>Multiple voltage/<br/>Multi-frequency</b>                                                                   | 50/60 Hz                                                                  |
| <b>Duty service</b>                                                                                            | S1 continuous                                                             |
| <b>Winding</b>                                                                                                 | tropicalized suitable for<br>inverter power supply                        |
|  <b>ATEX (dust and gas)</b> | version available:<br>II 3G Ex nA IIB T4 Gc<br>II 3D Ex tc IIIB T125°C Dc |

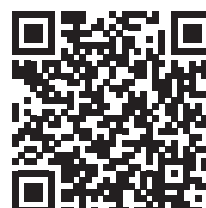
## Motor

|                          |                                       |
|--------------------------|---------------------------------------|
| <b>Motor</b>             | closed and externally<br>ventilated   |
| <b>Insulation class</b>  | F (on request H)                      |
| <b>Protection degree</b> | IPX5 (on request IP56,<br>IP66, IP67) |
| <b>Efficiency class</b>  | IE3-IE4, IEC60034-30-1                |

## VOLTAGES AND FREQUENCIES TOLERANCE

Data at 400V - 50Hz

| SIZE   | Hz        | V                                                                                   |                                                                                     |
|--------|-----------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|        |           |  |  |
| 80-112 | 50<br>±5% | 230                                                                                 | 400                                                                                 |
|        |           | 220                                                                                 | 380                                                                                 |
|        |           | 240                                                                                 | 415                                                                                 |



# 160-355 (11 kW-315 kW)

Motors



## Construction features

|                                              |                                                                                                                                                                                                            |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Frame</b>                                 | cast iron                                                                                                                                                                                                  |
| <b>Multiple voltage/<br/>Multi-frequency</b> | 50/60 Hz                                                                                                                                                                                                   |
| <b>Duty service</b>                          | S1 continuous                                                                                                                                                                                              |
| <b>Winding</b>                               | tropicalized and reinforced insulation for inverter power supply ( $P \geq 110\text{kW}$ we recommend to order the motor with insulated bearings option). Windings with PTC (n° 3) thermistor as standard. |
| <b>ATEX (dust and gas)</b>                   | version available:<br>II 3G Ex nA IIB T4 Gc<br>II 3D Ex tc IIIB T125°C Dc                                                                                                                                  |

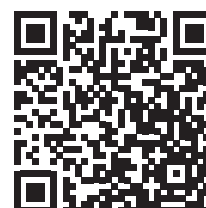
## Motor

|                          |                                    |
|--------------------------|------------------------------------|
| <b>Motor</b>             | closed and externally ventilated   |
| <b>Insulation class</b>  | F (on request H)                   |
| <b>Protection degree</b> | IPX5 (on request IP56, IP66, IP67) |
| <b>Efficiency class</b>  | IE3-IE4, IEC60034-30-1             |

## VOLTAGES AND FREQUENCIES TOLERANCE

Data at 400V - 50Hz

| SIZE    | Hz        | V   |     |
|---------|-----------|-----|-----|
|         |           |     |     |
| 132-355 | 50<br>±5% | 400 | 690 |
|         |           | 380 | 660 |
|         |           | 415 | 720 |



| TYPE    | kW   | HP  | rpm  | ln<br>(A) | Is<br>(A) | Is<br>ln | Cn<br>(Nm) | Cs<br>(Nm) | Cs<br>Cn | Cmax<br>(Nm) | Cmax<br>Cn |
|---------|------|-----|------|-----------|-----------|----------|------------|------------|----------|--------------|------------|
| 80A-2   | 0,75 | 1   | 2892 | 1,74      | 11,84     | 6,8      | 2,48       | 8,60       | 3,5      | 9,18         | 3,7        |
| 80B-2   | 1,1  | 1,5 | 2885 | 2,26      | 16,74     | 7,4      | 3,64       | 10,90      | 3,0      | 12,74        | 3,5        |
| 90S-2   | 1,5  | 2   | 2902 | 3,26      | 25,07     | 7,7      | 4,93       | 19,12      | 3,9      | 18,74        | 3,8        |
| 90L-2   | 2,2  | 3   | 2918 | 5,02      | 38,59     | 7,7      | 7,35       | 30,97      | 4,2      | 30,44        | 4,1        |
| 100L-2  | 3    | 4   | 2903 | 6,09      | 48,24     | 7,9      | 9,87       | 35,19      | 3,6      | 40,74        | 4,1        |
| 112M-2  | 4    | 5,5 | 2943 | 7,56      | 74,38     | 9,8      | 12,97      | 45,92      | 3,5      | 61,86        | 4,8        |
| 132SA-2 | 5,5  | 7,5 | 2940 | 10,14     | 70,59     | 7,0      | 17,87      | 37,70      | 2,1      | 35,79        | 2,0        |
| 132SB-2 | 7,5  | 10  | 2925 | 13,35     | 95,00     | 7,1      | 24,49      | 53,50      | 2,2      | 78,50        | 3,2        |
| 160MA-2 | 11   | 15  | 2937 | 19,72     | 123,05    | 6,2      | 35,77      | 73,32      | 2,1      | 100,15       | 2,8        |
| 160MB-2 | 15   | 20  | 2938 | 26,29     | 150,23    | 5,7      | 48,76      | 95,08      | 2,0      | 121,89       | 2,5        |
| 160L-2  | 18,5 | 25  | 2942 | 32,15     | 192,92    | 6,0      | 60,05      | 124,31     | 2,1      | 179,00       | 2,1        |
| 180M-2  | 22   | 30  | 2950 | 37,53     | 304,03    | 8,1      | 71,22      | 163,81     | 2,3      | 220,80       | 3,1        |
| 200LA-2 | 30   | 40  | 2940 | 51,51     | 386,34    | 7,5      | 97,45      | 224,13     | 2,3      | 223,37       | 2,3        |
| 200LB-2 | 37   | 50  | 2960 | 63,26     | 474,46    | 7,5      | 119,38     | 274,56     | 2,3      | 275,49       | 2,3        |
| 225M-2  | 45   | 60  | 2960 | 76,69     | 582,87    | 7,6      | 145,19     | 333,93     | 2,3      | 332,80       | 2,3        |
| 250M-2  | 55   | 75  | 2970 | 94,39     | 707,92    | 7,5      | 176,85     | 406,76     | 2,3      | 406,76       | 2,3        |
| 280S-2  | 75   | 100 | 2970 | 125,82    | 868,14    | 6,9      | 241,16     | 530,56     | 2,2      | 554,67       | 2,3        |
| 280M-2  | 90   | 125 | 2970 | 150,67    | 1069,73   | 7,1      | 289,39     | 636,67     | 2,2      | 665,61       | 2,3        |
| 315S-2  | 110  | 150 | 2970 | 183,76    | 1304,72   | 7,1      | 353,70     | 707,41     | 2,0      | 778,15       | 2,2        |
| 315MA-2 | 132  | 180 | 2970 | 220,06    | 1562,41   | 7,1      | 424,44     | 848,89     | 2,0      | 933,78       | 2,2        |
| 315LA-2 | 160  | 215 | 2970 | 263,53    | 1871,07   | 7,1      | 514,48     | 1028,96    | 2,0      | 1131,85      | 2,2        |
| 315LB-2 | 200  | 270 | 2970 | 328,73    | 2333,99   | 7,1      | 643,10     | 1286,20    | 2,0      | 1414,81      | 2,2        |
| 355M-2  | 250  | 335 | 2980 | 410,91    | 2917,49   | 7,1      | 801,17     | 1602,35    | 2,0      | 1762,58      | 2,2        |
| 355L-2  | 315  | 423 | 2980 | 517,75    | 3676,03   | 7,1      | 1009,48    | 2018,96    | 2,0      | 2220,86      | 2,2        |

| TYPE    | $\eta\%$ |     |      |      | Fatt. pot. $\cos \varphi$ |       |       | $\Delta T$<br>(°C) | LwA<br>(dB) | J<br>Kgm2 | Kg     |
|---------|----------|-----|------|------|---------------------------|-------|-------|--------------------|-------------|-----------|--------|
|         | 100%     | IE  | 75%  | 50%  | 100%                      | 75%   | 50%   |                    |             |           |        |
| 80A-2   | 80,9     | IE3 | 79,6 | 76,4 | 0,770                     | 0,700 | 0,566 | 35                 | 65          | 0,00158   | 17     |
| 80B-2   | 84,5     | IE3 | 84,7 | 82,8 | 0,830                     | 0,770 | 0,652 | 41                 | 65          | 0,00185   | 18     |
| 90S-2   | 85,3     | IE3 | 83,4 | 81,3 | 0,786                     | 0,726 | 0,582 | 43                 | 71          | 0,00383   | 23     |
| 90L-2   | 86,2     | IE3 | 87,0 | 84,9 | 0,730                     | 0,675 | 0,498 | 48                 | 71          | 0,00726   | 26     |
| 100L-2  | 87,1     | IE3 | 87,3 | 84,9 | 0,812                     | 0,766 | 0,618 | 49                 | 75          | 0,01439   | 35     |
| 112M-2  | 89,6     | IE3 | 89,8 | 88,9 | 0,856                     | 0,805 | 0,665 | 44                 | 77          | 0,01663   | 43     |
| 132SA-2 | 91,0     | IE3 | 89,7 | 87,4 | 0,860                     | 0,840 | 0,761 | 48                 | 78          | 0,03300   | 44,8   |
| 132SB-2 | 91,6     | IE3 | 92,4 | 92,9 | 0,885                     | 0,850 | 0,760 | 60                 | 78          | 0,03960   | 73     |
| 160MA-2 | 91,4     | IE3 | 91,2 | 89,7 | 0,881                     | 0,864 | 0,812 | 49                 | 81          | 0,04976   | 120    |
| 160MB-2 | 92,0     | IE3 | 92,6 | 91,8 | 0,895                     | 0,877 | 0,841 | 61                 | 81          | 0,06587   | 132    |
| 160L-2  | 93,0     | IE3 | 93,7 | 93,0 | 0,893                     | 0,875 | 0,827 | 58                 | 81          | 0,07260   | 150    |
| 180M-2  | 94,0     | IE3 | 93,9 | 93,0 | 0,900                     | 0,880 | 0,870 | 41                 | 83          | 0,09900   | 205    |
| 200LA-2 | 93,4     | IE3 | 94,4 | 90,7 | 0,900                     | 0,881 | 0,820 | 65                 | 84          | 0,16368   | 250    |
| 200LB-2 | 93,8     | IE3 | 93,6 | 90,2 | 0,900                     | 0,887 | 0,840 | 65                 | 84          | 0,18348   | 270    |
| 225M-2  | 94,1     | IE3 | 93,9 | 90,7 | 0,900                     | 0,878 | 0,816 | 65                 | 86          | 0,30756   | 315    |
| 250M-2  | 94,5     | IE3 | 92,6 | 88,5 | 0,890                     | 0,872 | 0,825 | 65                 | 89          | 0,41184   | 420    |
| 280S-2  | 95,6     | IE4 | 93,7 | 89,5 | 0,900                     | 0,896 | 0,875 | 55                 | 91          | 0,76428   | 550,8  |
| 280M-2  | 95,8     | IE4 | 95,7 | 93,7 | 0,900                     | 0,894 | 0,857 | 65                 | 91          | 0,89100   | 625    |
| 315S-2  | 96,0     | IE4 | 95,9 | 93,9 | 0,900                     | 0,894 | 0,857 | 65                 | 92          | 1,55760   | 968    |
| 315MA-2 | 96,2     | IE4 | 96,2 | 94,2 | 0,900                     | 0,894 | 0,857 | 65                 | 92          | 2,40240   | 1100   |
| 315LA-2 | 96,3     | IE4 | 96,2 | 94,2 | 0,910                     | 0,904 | 0,867 | 65                 | 92          | 2,74560   | 1160,5 |
| 315LB-2 | 96,5     | IE4 | 96,5 | 94,5 | 0,910                     | 0,904 | 0,867 | 65                 | 92          | 3,14160   | 1221   |
| 355M-2  | 96,5     | IE4 | 96,5 | 94,5 | 0,910                     | 0,904 | 0,867 | 65                 | 100         | 3,96000   | 2090   |
| 355L-2  | 96,5     | IE4 | 96,5 | 94,5 | 0,910                     | 0,904 | 0,867 | 65                 | 100         | 4,62000   | 2530   |



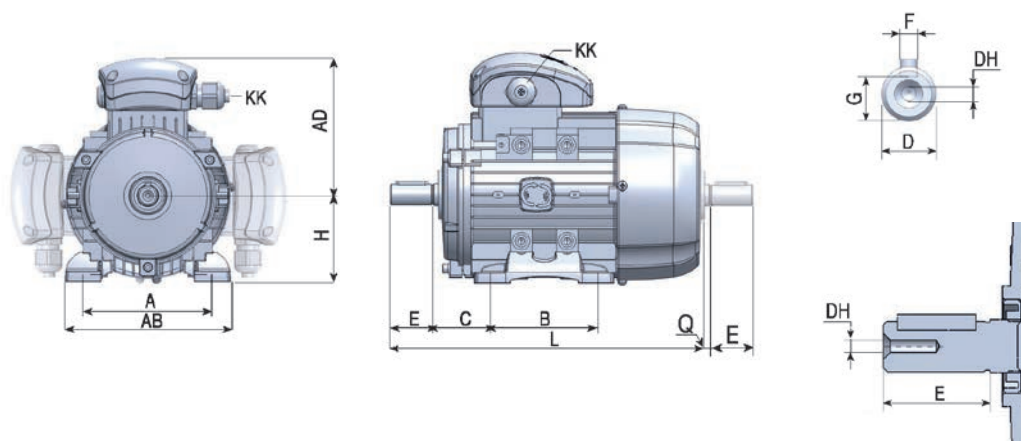
## 4 POLES IE3-IE4

Data at 400V - 50Hz

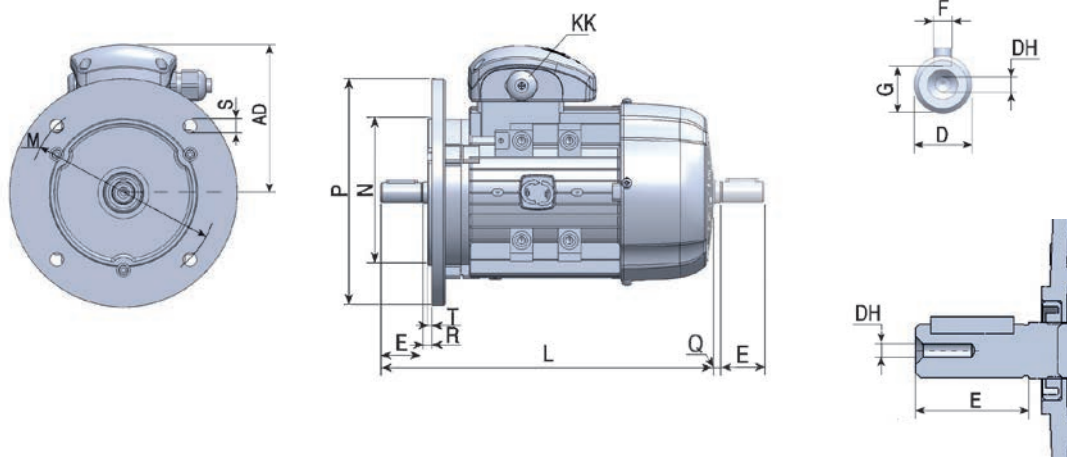
| TYPE    | kW   | HP  | rpm  | In<br>(A) | Is<br>(A) | Is<br>In | Cn<br>(Nm) | Cs<br>(Nm) | Cs<br>Cn | Cmax<br>(Nm) | Cmax<br>Cn |
|---------|------|-----|------|-----------|-----------|----------|------------|------------|----------|--------------|------------|
| 80B-4   | 0,75 | 1   | 1426 | 1,87      | 11,24     | 6,0      | 5,01       | 15,52      | 3,1      | 15,41        | 3,1        |
| 90S-4   | 1,1  | 1,5 | 1436 | 2,61      | 16,60     | 6,4      | 7,36       | 24,26      | 3,3      | 24,70        | 3,4        |
| 90L-4   | 1,5  | 2   | 1427 | 3,59      | 24,34     | 6,8      | 10,03      | 41,06      | 4,1      | 38,49        | 3,8        |
| 100LA-4 | 2,2  | 3   | 1438 | 4,77      | 33,83     | 7,1      | 14,74      | 52,18      | 3,5      | 54,71        | 3,7        |
| 100LB-4 | 3    | 4   | 1447 | 6,48      | 49,52     | 7,6      | 19,76      | 69,03      | 3,5      | 77,85        | 3,9        |
| 112M-4  | 4    | 5,5 | 1460 | 8,79      | 62,51     | 7,1      | 26,17      | 83,57      | 3,2      | 108,56       | 4,1        |
| 132S-4  | 5,5  | 7,5 | 1454 | 10,64     | 68,01     | 6,4      | 36,12      | 75,86      | 2,1      | 101,15       | 2,8        |
| 132M-4  | 7,5  | 10  | 1460 | 14,39     | 94,37     | 6,6      | 49,06      | 91,80      | 1,9      | 132,46       | 2,7        |
| 160M-4  | 11   | 15  | 1468 | 20,76     | 121,31    | 5,8      | 71,56      | 121,50     | 1,7      | 193,21       | 2,7        |
| 160L-4  | 15   | 20  | 1460 | 28,19     | 140,97    | 5,0      | 98,12      | 166,60     | 1,7      | 255,10       | 2,6        |
| 180M-4  | 18,5 | 25  | 1477 | 33,53     | 206,45    | 6,2      | 120,94     | 202,50     | 1,7      | 384,23       | 3,2        |
| 180L-4  | 22   | 30  | 1470 | 39,62     | 261,96    | 6,6      | 142,93     | 235,19     | 1,6      | 401,22       | 2,8        |
| 200L-4  | 30   | 40  | 1480 | 53,48     | 385,07    | 7,2      | 193,58     | 425,88     | 2,2      | 445,24       | 2,3        |
| 225S-4  | 37   | 50  | 1480 | 65,37     | 490,30    | 7,5      | 238,75     | 525,25     | 2,2      | 549,13       | 2,3        |
| 225M-4  | 45   | 60  | 1480 | 77,39     | 588,17    | 7,6      | 290,37     | 638,82     | 2,2      | 667,85       | 2,3        |
| 250M-4  | 55   | 75  | 1480 | 93,89     | 713,58    | 7,6      | 354,90     | 780,78     | 2,2      | 816,27       | 2,3        |
| 280S-4  | 75   | 100 | 1480 | 126,70    | 874,24    | 6,9      | 483,95     | 1064,70    | 2,2      | 1113,09      | 2,3        |
| 280M-4  | 90   | 120 | 1485 | 153,61    | 1075,26   | 7,0      | 578,79     | 1273,33    | 2,2      | 1331,21      | 2,3        |
| 315S-4  | 110  | 150 | 1480 | 187,35    | 1292,74   | 6,9      | 709,80     | 1561,55    | 2,2      | 1632,53      | 2,3        |
| 315M-4  | 132  | 180 | 1480 | 224,59    | 1549,68   | 6,9      | 851,76     | 1873,86    | 2,2      | 1959,04      | 2,3        |
| 315LA-4 | 160  | 220 | 1480 | 271,67    | 1874,51   | 6,9      | 1032,43    | 2271,35    | 2,2      | 2374,59      | 2,3        |
| 315LB-4 | 200  | 270 | 1480 | 339,23    | 2340,72   | 6,9      | 1290,54    | 2839,19    | 2,2      | 2968,24      | 2,3        |
| 355M-4  | 250  | 335 | 1490 | 414,62    | 2860,88   | 6,9      | 1602,35    | 3525,17    | 2,2      | 3685,40      | 2,3        |
| 355L-4  | 315  | 423 | 1490 | 522,42    | 3604,71   | 6,9      | 2018,96    | 4441,71    | 2,2      | 4643,61      | 2,3        |

| TYPE    | $\eta$ % |     |      |      | Fatt. pot. cos $\varphi$ |       |       | $\Delta T$<br>(°C) | LwA<br>(dB) | J<br>Kgm2 | Kg     |
|---------|----------|-----|------|------|--------------------------|-------|-------|--------------------|-------------|-----------|--------|
|         | 100%     | IE  | 75%  | 50%  | 100%                     | 75%   | 50%   |                    |             |           |        |
| 80B-4   | 83,1     | IE3 | 82,6 | 81,6 | 0,690                    | 0,619 | 0,531 | 46                 | 56          | 0,00277   | 12     |
| 90S-4   | 84,8     | IE3 | 84,9 | 79,3 | 0,723                    | 0,609 | 0,510 | 36                 | 61          | 0,00304   | 25     |
| 90L-4   | 85,3     | IE3 | 85,1 | 83,0 | 0,708                    | 0,592 | 0,483 | 41                 | 61          | 0,00356   | 30     |
| 100LA-4 | 86,7     | IE3 | 87,8 | 85,8 | 0,771                    | 0,663 | 0,543 | 41                 | 64          | 0,00713   | 36     |
| 100LB-4 | 89,0     | IE3 | 89,4 | 86,8 | 0,745                    | 0,648 | 0,519 | 46                 | 64          | 0,00893   | 40     |
| 112M-4  | 89,1     | IE3 | 89,2 | 87,2 | 0,736                    | 0,674 | 0,505 | 46                 | 77          | 0,01663   | 43     |
| 132S-4  | 89,9     | IE3 | 92,1 | 92,4 | 0,830                    | 0,770 | 0,675 | 61                 | 71          | 0,02853   | 70     |
| 132M-4  | 90,5     | IE3 | 90,8 | 89,9 | 0,831                    | 0,790 | 0,699 | 46                 | 71          | 0,03946   | 56,5   |
| 160M-4  | 91,8     | IE3 | 91,7 | 90,4 | 0,833                    | 0,790 | 0,675 | 52                 | 73          | 0,08133   | 125    |
| 160L-4  | 92,3     | IE3 | 93,1 | 92,3 | 0,832                    | 0,780 | 0,680 | 61                 | 75          | 0,12239   | 150    |
| 180M-4  | 92,6     | IE3 | 92,1 | 90,2 | 0,870                    | 0,817 | 0,724 | 40                 | 76          | 0,18531   | 170,6  |
| 180L-4  | 93,2     | IE3 | 91,7 | 91,0 | 0,860                    | 0,832 | 0,761 | 59                 | 76          | 0,21065   | 189,3  |
| 200L-4  | 93,6     | IE3 | 93,8 | 92,8 | 0,865                    | 0,818 | 0,767 | 80                 | 79          | 0,34930   | 254,8  |
| 225S-4  | 93,9     | IE3 | 92,7 | 92,0 | 0,870                    | 0,839 | 0,776 | 75                 | 81          | 0,54128   | 268,3  |
| 225M-4  | 94,3     | IE3 | 93,3 | 92,8 | 0,890                    | 0,872 | 0,807 | 80                 | 81          | 0,62527   | 353    |
| 250M-4  | 95,0     | IE3 | 94,2 | 93,5 | 0,890                    | 0,862 | 0,800 | 75                 | 83          | 0,87991   | 450    |
| 280S-4  | 96,0     | IE4 | 94,5 | 92,0 | 0,890                    | 0,863 | 0,843 | 70                 | 86          | 1,71600   | 605    |
| 280M-4  | 96,1     | IE4 | 94,4 | 92,9 | 0,880                    | 0,872 | 0,838 | 65                 | 86          | 1,96680   | 700    |
| 315S-4  | 96,3     | IE4 | 94,7 | 93,2 | 0,880                    | 0,872 | 0,838 | 65                 | 87          | 4,13160   | 925    |
| 315M-4  | 96,4     | IE4 | 94,8 | 93,3 | 0,880                    | 0,872 | 0,838 | 55                 | 87          | 4,81800   | 1180   |
| 315LA-4 | 96,6     | IE4 | 95,0 | 93,5 | 0,880                    | 0,872 | 0,838 | 75                 | 87          | 5,42784   | 1160,5 |
| 315LB-4 | 96,7     | IE4 | 95,0 | 93,4 | 0,880                    | 0,872 | 0,838 | 70                 | 87          | 6,34920   | 1240,8 |
| 355M-4  | 96,7     | IE4 | 95,1 | 93,5 | 0,900                    | 0,892 | 0,857 | 75                 | 94          | 8,61960   | 1870   |
| 355L-4  | 96,7     | IE4 | 95,0 | 93,4 | 0,900                    | 0,892 | 0,857 | 70                 | 94          | 10,87680  | 2090   |



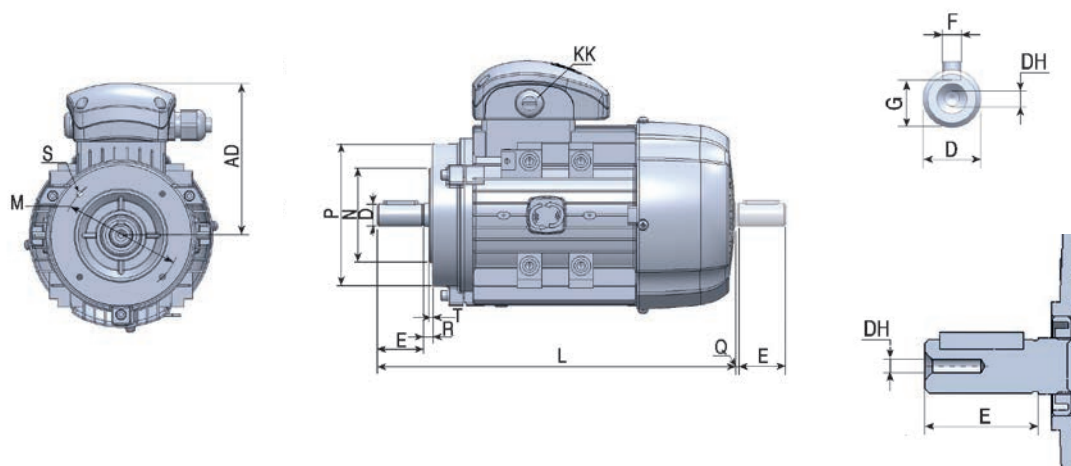


| DIMENSIONS (mm) |       |     |     |       |      |    |        |     |    |    |      |     |     |         |     |    |
|-----------------|-------|-----|-----|-------|------|----|--------|-----|----|----|------|-----|-----|---------|-----|----|
| TYPE            | POLES | AD  | H   | KK    | L    | D  | DH     | E   | Q  | F  | G    | B3  |     |         |     |    |
|                 |       |     |     |       |      |    |        |     |    |    |      | A   | AB  | B       | C   | K  |
| 80              | 2-8   | 130 | 80  | M20   | 283  | 19 | M6×16  | 40  | 3  | 6  | 15,5 | 125 | 157 | 100     | 50  | 10 |
| 90S             | 2-8   | 145 | 90  | M20   | 330  | 24 | M8×19  | 50  | 5  | 8  | 20   | 140 | 173 | 100     | 56  | 10 |
| 90L             | 2-8   | 145 | 90  | M20   | 358  | 24 | M8×19  | 50  | 5  | 8  | 20   | 140 | 173 | 125     | 56  | 10 |
| 100             | 2-8   | 157 | 100 | M20   | 393  | 28 | M10×22 | 60  | 5  | 8  | 24   | 160 | 196 | 140     | 63  | 12 |
| 112M            | 2-8   | 177 | 112 | M25   | 410  | 28 | M10×22 | 60  | 5  | 8  | 24   | 190 | 227 | 140     | 70  | 12 |
| 132S            | 2-8   | 197 | 132 | M32   | 480  | 38 | M12×28 | 80  | 5  | 10 | 33   | 216 | 262 | 140     | 89  | 12 |
| 132M            | 2-8   | 197 | 132 | M32   | 516  | 38 | M12×28 | 80  | 5  | 10 | 33   | 216 | 262 | 178     | 89  | 12 |
| 160M            | 2-8   | 255 | 160 | 2×M40 | 613  | 42 | M16×36 | 110 | 5  | 12 | 37   | 254 | 320 | 210     | 108 | 15 |
| 160L            | 2-8   | 252 | 160 | 2×M40 | 708  | 42 | M16×36 | 110 | 5  | 12 | 37   | 254 | 320 | 254     | 108 | 15 |
| 180M            | 2-8   | 270 | 180 | 2×M40 | 730  | 48 | M16×36 | 110 | 8  | 14 | 42,5 | 279 | 355 | 241     | 121 | 15 |
| 180L            | 2-8   | 270 | 180 | 2×M40 | 780  | 48 | M16×36 | 110 | 8  | 14 | 42,5 | 279 | 355 | 279     | 121 | 15 |
| 200L            | 2-8   | 303 | 200 | 2×M50 | 771  | 55 | M20×42 | 110 | 12 | 16 | 49   | 318 | 395 | 305     | 133 | 19 |
| 225S            | 2-8   | 312 | 225 | 2×M50 | 815  | 60 | M20×42 | 140 | 12 | 18 | 53   | 356 | 435 | 286     | 149 | 19 |
| 225M            | 2     | 312 | 225 | 2×M50 | 820  | 55 | M20×42 | 110 | 12 | 16 | 49   | 356 | 435 | 286/311 | 149 | 19 |
| 225M            | 4-8   | 312 | 225 | 2×M50 | 850  | 60 | M20×42 | 140 | 12 | 18 | 53   | 356 | 435 | 286/311 | 149 | 19 |
| 250M            | 2     | 355 | 250 | 2×M63 | 910  | 60 | M20×42 | 140 | 12 | 18 | 53   | 406 | 490 | 349     | 168 | 24 |
| 250M            | 4-8   | 355 | 250 | 2×M63 | 910  | 65 | M20×42 | 140 | 12 | 18 | 58   | 406 | 490 | 349     | 168 | 24 |
| 280S            | 2     | 398 | 280 | 2×M63 | 985  | 65 | M20×42 | 140 | 12 | 18 | 58   | 457 | 550 | 368     | 190 | 24 |
| 280S            | 4-8   | 398 | 280 | 2×M63 | 985  | 75 | M20×42 | 140 | 12 | 20 | 67,5 | 457 | 550 | 368     | 190 | 24 |
| 280M            | 2     | 398 | 280 | 2×M63 | 1035 | 65 | M20×42 | 140 | 12 | 18 | 58   | 457 | 550 | 368/419 | 190 | 24 |
| 280M            | 4-8   | 398 | 280 | 2×M63 | 1035 | 75 | M20×42 | 140 | 12 | 20 | 67,5 | 457 | 550 | 368/419 | 190 | 24 |
| 315S            | 2     | 540 | 315 | 2×M63 | 1160 | 65 | M20×42 | 140 | 15 | 18 | 58   | 508 | 630 | 406     | 216 | 28 |
| 315S            | 4-8   | 540 | 315 | 2×M63 | 1270 | 80 | M20×42 | 170 | 15 | 22 | 71   | 508 | 630 | 406     | 216 | 28 |
| 315M            | 2     | 540 | 315 | 2×M63 | 1290 | 65 | M20×42 | 140 | 15 | 18 | 58   | 508 | 630 | 457     | 216 | 28 |
| 315M            | 4-8   | 540 | 315 | 2×M63 | 1325 | 80 | M20×42 | 170 | 15 | 22 | 71   | 508 | 630 | 457     | 216 | 28 |
| 315L            | 2     | 540 | 315 | 2×M63 | 1320 | 65 | M20×42 | 140 | 15 | 18 | 58   | 508 | 630 | 508     | 216 | 28 |
| 315L            | 4-8   | 540 | 315 | 2×M63 | 1350 | 80 | M20×42 | 170 | 15 | 22 | 71   | 508 | 630 | 508     | 216 | 28 |
| 355M            | 2     | 655 | 355 | 2×M63 | 1500 | 75 | M20×42 | 140 | 15 | 20 | 67,5 | 610 | 730 | 560/630 | 254 | 28 |
| 355M            | 4-8   | 655 | 355 | 2×M63 | 1530 | 95 | M20×42 | 170 | 15 | 25 | 86   | 610 | 730 | 560/630 | 254 | 28 |
| 355L            | 2     | 655 | 355 | 2×M63 | 1500 | 75 | M20×42 | 140 | 15 | 20 | 67,5 | 610 | 730 | 560/630 | 254 | 28 |
| 355L            | 4-8   | 655 | 355 | 2×M63 | 1530 | 95 | M20×42 | 170 | 15 | 25 | 86   | 610 | 730 | 560/630 | 254 | 28 |



| DIMENSIONS (mm) |       |     |     |       |      |    |        |     |    |    |      |     |     |     |      |     |
|-----------------|-------|-----|-----|-------|------|----|--------|-----|----|----|------|-----|-----|-----|------|-----|
| TYPE            | POLES | AD  | H   | KK    | L    | D  | DH     | E   | Q  | F  | G    | B5  |     |     |      |     |
|                 |       |     |     |       |      |    |        |     |    |    |      | M   | N   | P   | S    | T   |
| 80              | 2-8   | 130 | 80  | M20   | 283  | 19 | M6×16  | 40  | 3  | 6  | 15,5 | 165 | 130 | 200 | 12×4 | 3,5 |
| 90S             | 2-8   | 145 | 90  | M20   | 330  | 24 | M8×19  | 50  | 5  | 8  | 20   | 165 | 130 | 200 | 12×4 | 3,5 |
| 90L             | 2-8   | 145 | 90  | M20   | 358  | 24 | M8×19  | 50  | 5  | 8  | 20   | 165 | 130 | 200 | 12×4 | 3,5 |
| 100             | 2-8   | 157 | 100 | M20   | 393  | 28 | M10×22 | 60  | 5  | 8  | 24   | 215 | 180 | 250 | 15×4 | 4   |
| 112M            | 2-8   | 177 | 112 | M25   | 410  | 28 | M10×22 | 60  | 5  | 8  | 24   | 215 | 180 | 250 | 15×4 | 4   |
| 132S            | 2-8   | 197 | 132 | M32   | 480  | 38 | M12×28 | 80  | 5  | 10 | 33   | 265 | 230 | 300 | 15×4 | 4   |
| 132M            | 2-8   | 197 | 132 | M32   | 516  | 38 | M12×28 | 80  | 5  | 10 | 33   | 265 | 230 | 300 | 15×4 | 4   |
| 160M            | 2-8   | 255 | 160 | 2×M40 | 613  | 42 | M16×36 | 110 | 5  | 12 | 37   | 300 | 250 | 350 | 19×4 | 5   |
| 160L            | 2-8   | 252 | 160 | 2×M40 | 708  | 42 | M16×36 | 110 | 5  | 12 | 37   | 300 | 250 | 350 | 19×4 | 5   |
| 180M            | 2-8   | 270 | 180 | 2×M40 | 730  | 48 | M16×36 | 110 | 8  | 14 | 42,5 | 300 | 250 | 350 | 19×4 | 5   |
| 180L            | 2-8   | 270 | 180 | 2×M40 | 780  | 48 | M16×36 | 110 | 8  | 14 | 42,5 | 300 | 250 | 350 | 19×4 | 5   |
| 200L            | 2-8   | 303 | 200 | 2×M50 | 771  | 55 | M20×42 | 110 | 12 | 16 | 49   | 350 | 300 | 400 | 19×4 | 5   |
| 225S            | 2-8   | 312 | 225 | 2×M50 | 815  | 60 | M20×42 | 140 | 12 | 18 | 53   | 400 | 350 | 450 | 19×8 | 5   |
| 225M            | 2     | 312 | 225 | 2×M50 | 820  | 55 | M20×42 | 110 | 12 | 16 | 49   | 400 | 350 | 450 | 19×8 | 5   |
| 225M            | 4-8   | 312 | 225 | 2×M50 | 850  | 60 | M20×42 | 140 | 12 | 18 | 53   | 400 | 350 | 450 | 19×8 | 5   |
| 250M            | 2     | 355 | 250 | 2×M63 | 910  | 60 | M20×42 | 140 | 12 | 18 | 53   | 500 | 450 | 550 | 19×8 | 5   |
| 250M            | 4-8   | 355 | 250 | 2×M63 | 910  | 65 | M20×42 | 140 | 12 | 18 | 58   | 500 | 450 | 550 | 19×8 | 5   |
| 280S            | 2     | 398 | 280 | 2×M63 | 985  | 65 | M20×42 | 140 | 12 | 18 | 58   | 500 | 450 | 550 | 19×8 | 5   |
| 280S            | 4-8   | 398 | 280 | 2×M63 | 985  | 75 | M20×42 | 140 | 12 | 20 | 67,5 | 500 | 450 | 550 | 19×8 | 5   |
| 280M            | 2     | 398 | 280 | 2×M63 | 1035 | 65 | M20×42 | 140 | 12 | 18 | 58   | 500 | 450 | 550 | 19×8 | 5   |
| 280M            | 4-8   | 398 | 280 | 2×M63 | 1035 | 75 | M20×42 | 140 | 12 | 20 | 67,5 | 500 | 450 | 550 | 19×8 | 5   |
| 315S            | 2     | 540 | 315 | 2×M63 | 1160 | 65 | M20×42 | 140 | 15 | 18 | 58   | 600 | 550 | 660 | 24×8 | 6   |
| 315S            | 4-8   | 540 | 315 | 2×M63 | 1270 | 80 | M20×42 | 170 | 15 | 22 | 71   | 600 | 550 | 660 | 24×8 | 6   |
| 315M            | 2     | 540 | 315 | 2×M63 | 1290 | 65 | M20×42 | 140 | 15 | 18 | 58   | 600 | 550 | 660 | 24×8 | 6   |
| 315M            | 4-8   | 540 | 315 | 2×M63 | 1325 | 80 | M20×42 | 170 | 15 | 22 | 71   | 600 | 550 | 660 | 24×8 | 6   |
| 315L            | 2     | 540 | 315 | 2×M63 | 1320 | 65 | M20×42 | 140 | 15 | 18 | 58   | 600 | 550 | 660 | 24×8 | 6   |
| 315L            | 4-8   | 540 | 315 | 2×M63 | 1350 | 80 | M20×42 | 170 | 15 | 22 | 71   | 600 | 550 | 660 | 24×8 | 6   |
| 355M            | 2     | 655 | 355 | 2×M63 | 1500 | 75 | M20×42 | 140 | 15 | 20 | 67,5 | 740 | 680 | 800 | 24×8 | 6   |
| 355M            | 4-8   | 655 | 355 | 2×M63 | 1530 | 95 | M20×42 | 170 | 15 | 25 | 86   | 740 | 680 | 800 | 24×8 | 6   |
| 355L            | 2     | 655 | 355 | 2×M63 | 1500 | 75 | M20×42 | 140 | 15 | 20 | 67,5 | 740 | 680 | 800 | 24×8 | 6   |
| 355L            | 4-8   | 655 | 355 | 2×M63 | 1530 | 95 | M20×42 | 170 | 15 | 25 | 86   | 740 | 680 | 800 | 24×8 | 6   |

## B5R/B14



## B14

| DIMENSIONS (mm) |       |     |     |       |     |    |        |     |   |    |      |     |     |     |     |     |
|-----------------|-------|-----|-----|-------|-----|----|--------|-----|---|----|------|-----|-----|-----|-----|-----|
| TYPE            | POLES | AD  | H   | KK    | L   | D  | DH     | E   | Q | F  | G    | B14 |     |     |     |     |
|                 |       |     |     |       |     |    |        |     |   |    |      | M   | N   | P   | S   | T   |
| 80              | 2-8   | 130 | 80  | M20   | 283 | 19 | M6×16  | 40  | 3 | 6  | 15,5 | 100 | 80  | 120 | M6  | 3   |
| 90S             | 2-8   | 145 | 90  | M20   | 330 | 24 | M8×19  | 50  | 5 | 8  | 20   | 115 | 95  | 140 | M8  | 3   |
| 90L             | 2-8   | 145 | 90  | M20   | 358 | 24 | M8×19  | 50  | 5 | 8  | 20   | 115 | 95  | 140 | M8  | 3   |
| 100             | 2-8   | 157 | 100 | M20   | 393 | 28 | M10×22 | 60  | 5 | 8  | 24   | 130 | 110 | 160 | M8  | 3,5 |
| 112M            | 2-8   | 177 | 112 | M25   | 410 | 28 | M10×22 | 60  | 5 | 8  | 24   | 130 | 110 | 160 | M8  | 3,5 |
| 132S            | 2-8   | 197 | 132 | M32   | 480 | 38 | M12×28 | 80  | 5 | 10 | 33   | 165 | 130 | 200 | M10 | 3,5 |
| 132M            | 2-8   | 197 | 132 | M32   | 516 | 38 | M12×28 | 80  | 5 | 10 | 33   | 165 | 130 | 200 | M10 | 3,5 |
| 160M            | 2-8   | 255 | 160 | 2×M40 | 613 | 42 | M16×36 | 110 | 5 | 12 | 37   | 215 | 180 | 250 | M12 | 4   |
| 160L            | 2-8   | 252 | 160 | 2×M40 | 708 | 42 | M16×36 | 110 | 5 | 12 | 37   | 215 | 180 | 250 | M12 | 4   |

## B5R/B14

| DIMENSIONS (mm) |       |     |     |       |     |    |        |     |   |    |      |            |     |     |      |     |
|-----------------|-------|-----|-----|-------|-----|----|--------|-----|---|----|------|------------|-----|-----|------|-----|
| TYPE            | POLES | AD  | H   | KK    | L   | D  | DH     | E   | Q | F  | G    | B5R / B14B |     |     |      |     |
|                 |       |     |     |       |     |    |        |     |   |    |      | M          | N   | P   | S    | T   |
| 80              | 2-8   | 130 | 80  | M20   | 283 | 19 | M6×16  | 40  | 3 | 6  | 15,5 | 130        | 110 | 160 | M8   | 3,5 |
| 90S             | 2-8   | 145 | 90  | M20   | 330 | 24 | M8×19  | 50  | 5 | 8  | 20   | 130        | 110 | 160 | M8   | 3,5 |
| 90L             | 2-8   | 145 | 90  | M20   | 358 | 24 | M8×19  | 50  | 5 | 8  | 20   | 130        | 110 | 160 | M8   | 3,5 |
| 100             | 2-8   | 157 | 100 | M20   | 393 | 28 | M10×22 | 60  | 5 | 8  | 24   | 165        | 130 | 200 | M10  | 3,5 |
| 112M            | 2-8   | 177 | 112 | M25   | 410 | 28 | M10×22 | 60  | 5 | 8  | 24   | 165        | 130 | 200 | M10  | 3,5 |
| 132S            | 2-8   | 197 | 132 | M32   | 480 | 38 | M12×28 | 80  | 5 | 10 | 33   | 215        | 180 | 250 | M10  | 4   |
| 132M            | 2-8   | 197 | 132 | M32   | 516 | 38 | M12×28 | 80  | 5 | 10 | 33   | 215        | 180 | 250 | M10  | 4   |
| 160M            | 2-8   | 255 | 160 | 2×M40 | 613 | 42 | M16×36 | 110 | 5 | 12 | 37   | 265        | 230 | 300 | 14×4 | 5   |
| 160L            | 2-8   | 252 | 160 | 2×M40 | 708 | 42 | M16×36 | 110 | 5 | 12 | 37   | 265        | 230 | 300 | 14×4 | 5   |