

# Three Phase Squirrel Cage Induction Motors

MAA SERIES  
63 - 160 SIZES



The motors illustrated are asynchronous three phase, low-voltage and suitable for industrial applications.

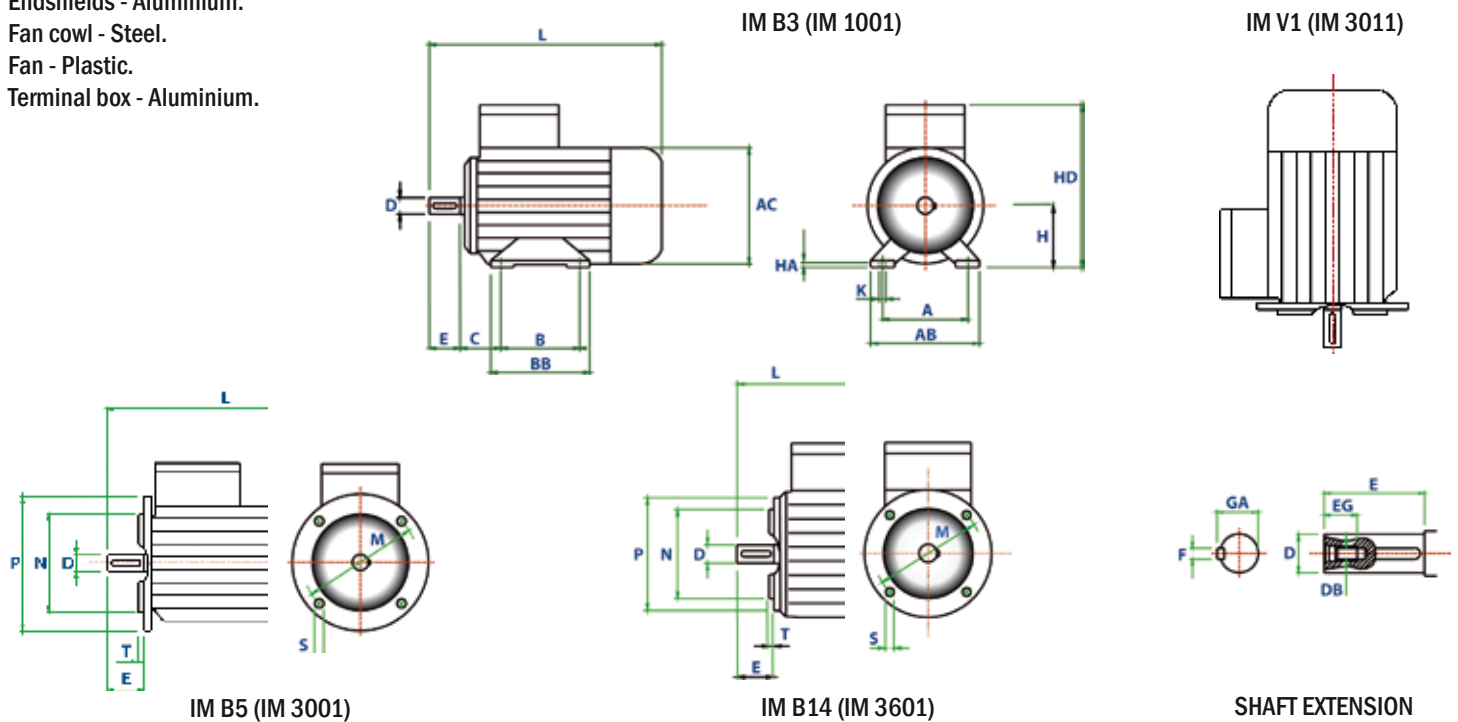
### TECHNICAL CHARACTERISTICS

- International standards IEC 60034.
- Rated outputs and frame sizes in accordance with EN 50347 standards, where applicable.
- Continuous duty (S1) with sufficient thermal margins, to withstand short overloads.
- Motors designed according to the rules given by IEC 60034 group and the EC's harmonised ones.
- Protection degree IP 55.
- Insulation class F.
- Temperature rise compatible with class B.
- Maximum ambient temperature: +40°C.
- Installation ≤1000 m a.s.l.
- Normal noise level less than 80db(A) for 4 or more poles.



### CONSTRUCTION MATERIALS

- Frame - Aluminium.
- Endshields - Aluminium.
- Fan cowl - Steel.
- Fan - Plastic.
- Terminal box - Aluminium.



| DIMENSIONS |       |                |     |     |     |     |     |     |    |     |      |     |     |     |     |     |     |                 |     |     |    |     |     |    |       |     |      |      |      |    |
|------------|-------|----------------|-----|-----|-----|-----|-----|-----|----|-----|------|-----|-----|-----|-----|-----|-----|-----------------|-----|-----|----|-----|-----|----|-------|-----|------|------|------|----|
| FRAME SIZE |       | FLANGE B5 - V1 |     |     |     |     |     |     |    |     |      | B14 |     |     |     |     |     | SHAFT EXTENSION |     |     |    |     |     |    |       |     |      |      |      |    |
| IEC        | POLES | A              | AB  | AC  | B   | BB  | C   | H   | HA | HD  | K    | L   | M   | N   | P   | S   | T   | M               | N   | P   | LA | S   | T   | D  | TOLL. | E   | Fh9  | GA   | DB   | EG |
| 63         | 2-8   | 100            | 120 | 122 | 80  | 100 | 40  | 63  | 7  | 173 | 7    | 215 | 115 | 95  | 140 | 3   | 75  | 60              | 90  | 10  | M5 | 2,5 | 11  | j6 | 23    | 4   | 12,5 | M4   | 10   |    |
| 71         | 2-8   | 112            | 132 | 137 | 90  | 110 | 45  | 71  | 7  | 188 | 7    | 254 | 130 | 110 | 160 | 3,5 | 85  | 70              | 105 | 10  | M6 | 2,5 | 14  | j6 | 30    | 5   | 16   | M5   | 12,5 |    |
| 80         | 2-8   | 125            | 160 | 158 | 100 | 125 | 50  | 80  | 8  | 217 | 8    | 290 |     |     |     |     |     | 100             | 80  | 120 | 10 | M6  | 3   | 19 | j6    | 40  | 6    | 21,5 | M6   | 19 |
| 90         | S 2-8 | 140            | 175 | 177 | 100 | 155 | 56  | 90  | 10 | 235 | 9    | 310 | 165 | 130 | 200 | 11  | 3,5 | 115             | 95  | 140 | 10 | M8  | 3   | 24 | j6    | 50  | 8    | 27   | M8   | 19 |
|            | L 2-8 |                |     |     | 125 |     |     |     |    |     |      | 365 |     |     |     |     |     |                 |     |     |    | M8  | 3   | 24 |       |     |      |      |      |    |
| 100        | 2-8   | 160            | 196 | 197 | 140 | 180 | 63  | 100 | 12 | 252 | 11   | 386 | 215 | 180 | 250 | 14  | 4   | 130             | 110 | 160 | 11 | M8  | 3,5 | 28 | j6    | 60  | 8    | 31   | M10  | 22 |
| 112        | 2-8   | 190            | 220 |     | 140 | 70  | 112 | 292 |    | 395 |      |     |     |     |     |     |     |                 |     |     |    |     |     |    |       |     |      |      |      |    |
| 132        | S 2-8 | 216            | 252 | 253 | 140 | 226 | 89  | 132 | 15 | 325 | 11   | 436 | 265 | 230 | 300 | 14  | 4   | 165             | 130 | 200 | 17 | M10 | 3,5 | 38 | k6    | 80  | 10   | 41   | M12  | 28 |
|            | M 2-8 |                |     |     | 178 |     |     |     |    |     |      | 500 |     |     |     |     |     |                 |     |     |    |     |     |    |       |     |      |      |      |    |
| 160        | M 2-8 | 254            | 290 | 314 | 210 | 296 | 108 | 160 | 20 | 390 | 14,5 | 640 | 300 | 250 | 350 | 18  | 5   |                 |     |     |    |     |     | 42 |       | 110 | 12   | 45   | M16  | 36 |
|            | L 2-8 |                |     |     | 254 |     |     |     |    |     |      |     |     |     |     |     |     |                 |     |     |    |     |     |    |       |     |      |      |      |    |

MARELLI MOTORI reserves the right to change the design, technical specification and dimensions in order to update or improve its products, without prior notice.

| RATED OUTPUT | MOTOR TYPE | SPEED | PERFORMANCE AT RATED OUTPUT |         |            |        | POWER FACTOR | EFFICIENCY (LOAD) 3/4 | FOR D.O.L STARTING |       | BREAKDOWN TORQUE | SOUND PRESSURE LEVEL | MOMENT OF INERTIA | WEIGHT |
|--------------|------------|-------|-----------------------------|---------|------------|--------|--------------|-----------------------|--------------------|-------|------------------|----------------------|-------------------|--------|
|              |            |       | TORQUE                      | CURRENT | EFFICIENCY |        |              |                       | Is/In              | Ts/Tn |                  |                      |                   |        |
|              |            |       | Tn<br>Nm                    | In<br>A | η<br>CLASS | η<br>% |              |                       | cos ϕ              | η     |                  |                      |                   |        |

3000 min<sup>-1</sup> = 2 poles - 50 Hz

|      |           |      |       |       |      |      |      |      |     |     |     |    |         |      |
|------|-----------|------|-------|-------|------|------|------|------|-----|-----|-----|----|---------|------|
| 0,18 | MAA63 MA2 | 2710 | 0,63  | 0,55  | n.a. | 63,0 | 0,75 | 62,1 | 6   | 2,2 | 2,4 | 61 | 0,00020 | 4    |
| 0,25 | 63 MB2    | 2710 | 0,88  | 0,71  | n.a. | 65,0 | 0,78 | 65,0 | 6   | 2,2 | 2,4 | 61 | 0,00023 | 4,4  |
| 0,37 | 63 MC2*   | 2710 | 1,30  | 1,05  | n.a. | 65,0 | 0,78 | 64,5 | 6   | 2,2 | 2,4 | 62 | 0,00030 | 4,9  |
| 0,37 | 71 MA2    | 2730 | 1,29  | 0,97  | n.a. | 70,0 | 0,79 | 69,5 | 6   | 2,2 | 2,4 | 64 | 0,00040 | 5,6  |
| 0,55 | 71 MB2    | 2760 | 1,90  | 1,42  | n.a. | 71,0 | 0,79 | 71,0 | 6   | 2,2 | 2,4 | 64 | 0,00045 | 6,1  |
| 0,75 | 71 MC2*   | 2730 | 2,62  | 1,83  | n.a. | 72,0 | 0,82 | 72,0 | 6   | 2,2 | 2,4 | 65 | 0,00057 | 7    |
| 0,75 | 80 MA2    | 2770 | 2,59  | 1,77  | n.a. | 73,0 | 0,84 | 73,0 | 6   | 2,2 | 2,4 | 67 | 0,00083 | 9,1  |
| 1,1  | 80 MB2    | 2770 | 3,79  | 2,51  | 2    | 76,4 | 0,83 | 76,4 | 6   | 2,2 | 2,4 | 67 | 0,00097 | 10,2 |
| 1,5  | 80 MC2*   | 2800 | 5,12  | 3,32  | 2    | 78,5 | 0,83 | 79,0 | 6   | 2,2 | 2,4 | 70 | 0,00120 | 11,7 |
| 1,5  | 90 S2     | 2840 | 5,05  | 3,28  | 2    | 78,5 | 0,84 | 78,5 | 6   | 2,2 | 2,4 | 72 | 0,0016  | 12   |
| 2,2  | 90 L2     | 2840 | 7,40  | 4,61  | 2    | 81,0 | 0,85 | 80,6 | 6   | 2,2 | 2,4 | 72 | 0,0022  | 15   |
| 3    | 90 LB2*   | 2840 | 10,09 | 6,10  | 2    | 82,6 | 0,86 | 81,2 | 6   | 2,2 | 2,4 | 74 | 0,0028  | 18,5 |
| 3    | 100 LA2   | 2840 | 10,09 | 6,03  | 2    | 82,6 | 0,87 | 81,9 | 7   | 2,2 | 2,3 | 76 | 0,0050  | 22,3 |
| 4    | 100 LB2*  | 2850 | 13,41 | 7,88  | 2    | 84,2 | 0,87 | 83,5 | 7,5 | 2,2 | 2,3 | 77 | 0,0063  | 25,2 |
| 4    | 112 M2    | 2880 | 13,27 | 7,88  | 2    | 84,2 | 0,87 | 84,0 | 7,5 | 2,2 | 2,3 | 77 | 0,0063  | 26,7 |
| 5,5  | 112 MB2*  | 2880 | 18,25 | 10,53 | 2    | 85,7 | 0,88 | 85,5 | 7,5 | 2,2 | 2,3 | 78 | 0,0078  | 30,2 |
| 5,5  | 132 SA2   | 2900 | 18,12 | 10,53 | 2    | 85,7 | 0,88 | 85,1 | 7,5 | 2,0 | 2,2 | 80 | 0,016   | 38,5 |
| 7,5  | 132 SB2   | 2920 | 24,54 | 14,14 | 2    | 87,0 | 0,88 | 86,8 | 7,5 | 2,0 | 2,2 | 80 | 0,019   | 42,2 |
| 9,2  | 132 MB2*  | 2930 | 30,00 | 17,25 | n.a. | 88,0 | 0,89 | 87,4 | 7,5 | 2,0 | 2,2 | 81 | 0,023   | 51,4 |
| 11   | 132 MC2*  | 2930 | 35,87 | 19,96 | 2    | 88,4 | 0,90 | 88,1 | 7,5 | 2,0 | 2,2 | 83 | 0,028   | 58,8 |
| 15   | 132 MD2*  | 2905 | 49,33 | 29,00 | —    | 88,0 | 0,85 | 88,0 | 6,9 | 2,8 | 3,2 | 70 | 0,028   | 62,0 |
| 11   | 160 MA2   | 2940 | 35,75 | 19,19 | 2    | 88,4 | 0,90 | 88,1 | 7,5 | 2,0 | 2,2 | 86 | 0,030   | 75   |
| 15   | 160 MB2   | 2940 | 48,75 | 26,61 | 2    | 89,4 | 0,91 | 89,2 | 7,5 | 2,0 | 2,2 | 86 | 0,035   | 88   |
| 18,5 | 160 L2    | 2940 | 60,12 | 32,60 | 2    | 90,0 | 0,91 | 89,5 | 7,5 | 2,0 | 2,2 | 86 | 0,040   | 99   |

1500 min<sup>-1</sup> = 4 poles - 50 Hz

|      |           |      |        |       |      |      |      |      |     |     |     |    |         |       |
|------|-----------|------|--------|-------|------|------|------|------|-----|-----|-----|----|---------|-------|
| 0,12 | MAA63 MA4 | 1350 | 0,85   | 0,47  | n.a. | 57,0 | 0,84 | 52,6 | 6,0 | 2,2 | 2,4 | 52 | 0,00025 | 3,9   |
| 0,18 | 63 MB4    | 1350 | 1,27   | 0,68  | n.a. | 59,0 | 0,85 | 57,7 | 6,0 | 2,2 | 2,4 | 52 | 0,00030 | 4,3   |
| 0,25 | 63 MC4*   | 1350 | 1,77   | 0,91  | n.a. | 60,0 | 0,86 | 58,7 | 6,0 | 2,2 | 2,4 | 54 | 0,00040 | 4,8   |
| 0,25 | 71 MA4    | 1350 | 1,77   | 0,84  | n.a. | 60,0 | 0,72 | 59,2 | 6,0 | 2,2 | 2,4 | 55 | 0,00050 | 5,4   |
| 0,37 | 71 MB4    | 1370 | 2,58   | 1,11  | n.a. | 65,0 | 0,74 | 64,5 | 6,0 | 2,2 | 2,4 | 55 | 0,00060 | 6,2   |
| 0,55 | 71 MC4*   | 1380 | 3,81   | 1,60  | n.a. | 66,0 | 0,75 | 65,5 | 6,0 | 2,2 | 2,4 | 57 | 0,00076 | 7,3   |
| 0,55 | 80 MA4    | 1370 | 3,84   | 1,58  | n.a. | 67,0 | 0,75 | 67,0 | 6,0 | 2,2 | 2,4 | 58 | 0,00130 | 9,0   |
| 0,75 | 80 MB4    | 1380 | 5,19   | 1,93  | n.a. | 72,0 | 0,78 | 72,0 | 6,0 | 2,2 | 2,4 | 58 | 0,00160 | 10    |
| 1,1  | 80 MC4*   | 1390 | 7,56   | 2,67  | 2    | 76,2 | 0,78 | 76,2 | 6,0 | 2,2 | 2,4 | 60 | 0,00190 | 12,3  |
| 1,1  | 90 S4     | 1400 | 7,51   | 2,64  | 2    | 76,2 | 0,79 | 77,3 | 6,0 | 2,2 | 2,4 | 61 | 0,0033  | 12,1  |
| 1,5  | 90 L4     | 1400 | 10,24  | 3,45  | 2    | 78,5 | 0,80 | 79,1 | 6,0 | 2,2 | 2,4 | 61 | 0,0040  | 14,6  |
| 2,2  | 90 LB4 *  | 1400 | 15,01  | 4,90  | 2    | 81,0 | 0,80 | 81,4 | 7,0 | 2,2 | 2,4 | 63 | 0,0048  | 18,3  |
| 2,2  | 100 LA4   | 1420 | 14,80  | 4,84  | 2    | 81,0 | 0,81 | 81,5 | 7,0 | 2,2 | 2,3 | 64 | 0,0073  | 21,0  |
| 3    | 100 LB4   | 1420 | 20,18  | 6,47  | 2    | 82,6 | 0,81 | 83,6 | 7,0 | 2,2 | 2,3 | 64 | 0,0090  | 24,7  |
| 4    | 100 LC4   | 1430 | 26,72  | 8,36  | 2    | 84,2 | 0,82 | 85,2 | 7,0 | 2,2 | 2,3 | 65 | 0,0110  | 29,0  |
| 4    | 112 M4    | 1430 | 26,72  | 8,26  | 2    | 84,2 | 0,83 | 84,8 | 7,0 | 2,2 | 2,2 | 65 | 0,0115  | 30,5  |
| 5,5  | 112 MS4   | 1440 | 36,49  | 11,16 | 2    | 85,7 | 0,83 | 84,9 | 7,0 | 2,2 | 2,2 | 68 | 0,0132  | 34,8  |
| 5,5  | 132 SA4   | 1450 | 36,24  | 11,03 | 2    | 85,7 | 0,84 | 86,1 | 7,0 | 2,2 | 2,2 | 71 | 0,0238  | 40,4  |
| 7,5  | 132 MA4   | 1450 | 49,42  | 14,64 | 2    | 87,0 | 0,85 | 87,3 | 7,0 | 2,2 | 2,2 | 71 | 0,0300  | 49,6  |
| 9,2  | 132 MB4*  | 1460 | 60,20  | 17,85 | n.a. | 87,5 | 0,85 | 87,5 | 7,5 | 2,2 | 2,2 | 74 | 0,0338  | 56,6  |
| 10   | 132 MC4*  | 1460 | 65,44  | 19,30 | n.a. | 88,0 | 0,85 | 88,0 | 7,5 | 2,2 | 2,2 | 74 | 0,0360  | 58,6  |
| 11   | 132 MD4*  | 1460 | 71,98  | 20,88 | 2    | 88,4 | 0,86 | 88,4 | 7,5 | 2,2 | 2,2 | 74 | 0,0396  | 64,0  |
| 11   | 160 M4    | 1460 | 71,98  | 20,64 | 2    | 88,4 | 0,87 | 88,5 | 7   | 2,2 | 2,2 | 75 | 0,063   | 78,0  |
| 15   | 160 L4    | 1460 | 98,16  | 28,15 | —    | 88,4 | 0,87 | 88,5 | 7,5 | 2,2 | 2,2 | 75 | 0,075   | 98,0  |
| 18,5 | 160 LB4   | 1460 | 121,06 | 34,50 | —    | 88,4 | 0,85 | 88,5 | 7,5 | 2,2 | 2,2 | 75 | 0,092   | 113,0 |

n.a. - Rated output not part of CEMEP agreement - \* Not included in IEC 60072-1 standards - Tmax = Breakdown torque, Ts = Starting torque, Is = Starting current.

## ENERGY SAVING

Marelli Motori have undersigned the voluntary agreement with the CEMEP which, in co-operation with the European Commission, designated energy efficiency classes for three phase squirrel cage induction motors, TEFC, 1.1 to 90kW, 2 and 4 pole, rated for 400V, 50Hz, S1 duty in standard design. These classes are identified as eff1, eff2 and eff3 in descending order. The replacement of standard motors with these new designs will lead to the following benefits:

- Increased lifetime of the motor and its bearings, due to reduced operating temperatures.
- Better capability of the motor to run under voltage variations, poor voltage and current wave shapes.
- Increased resistance to handle overload conditions.



| RATED OUTPUT | MOTOR TYPE | SPEED<br>rpm<br>min <sup>-1</sup> | PERFORMANCE AT RATED OUTPUT |         |            |     | POWER FACTOR<br>cosφ<br>- | EFFICIENCY (LOAD)<br>3/4<br>η<br>% | FOR D.O.L STARTING |       | BREAKDOWN TORQUE<br>Tmax/Tn<br>p.u. | SOUND PRESSURE LEVEL<br>LPA<br>dB(A) | MOMENT OF INERTIA<br>J<br>kgm <sup>2</sup> | WEIGHT IM1001<br>(IMB3)<br>Approx<br>kg |
|--------------|------------|-----------------------------------|-----------------------------|---------|------------|-----|---------------------------|------------------------------------|--------------------|-------|-------------------------------------|--------------------------------------|--|---|
|              |            |                                   | TORQUE                      | CURRENT | EFFICIENCY |     |                           |                                    | Is/In              | Ts/Tn |                                     |                                      |  |   |
|              |            |                                   | Tn<br>Nm                    | In<br>A | η<br>CLASS | eff |                           |                                    | %                  | p.u.  |                                     |                                      |  |   |

1000 min<sup>-1</sup> = 6 poles - 50 Hz

|      |            |     |        |       |      |     |      |      |     |     |     |    |         |      |
|------|------------|-----|--------|-------|------|-----|------|------|-----|-----|-----|----|---------|------|
| 0,09 | MAA63 MA6* | 840 | 1,02   | 0,51  | n.a. | 420 | 0,61 | 38,1 | 3,5 | 2,0 | 2,0 | 50 | 0,00025 | 4,2  |
| 0,12 | 63 MB6*    | 850 | 1,35   | 0,62  | n.a. | 450 | 0,62 | 41,1 | 3,5 | 2,0 | 2,0 | 50 | 0,00030 | 4,8  |
| 0,18 | 71 MA6     | 880 | 1,95   | 0,70  | n.a. | 560 | 0,66 | 52,5 | 4,0 | 1,6 | 1,7 | 52 | 0,0005  | 6    |
| 0,25 | 71 MB6     | 900 | 2,65   | 0,87  | n.a. | 590 | 0,70 | 55,3 | 4,0 | 2,1 | 2,2 | 52 | 0,0006  | 6,5  |
| 0,37 | 71 MC6     | 890 | 3,97   | 1,27  | n.a. | 610 | 0,69 | 57,2 | 4,0 | 2,0 | 2,1 | 54 | 0,0009  | 7,2  |
| 0,37 | 80 MA6     | 900 | 3,93   | 1,23  | n.a. | 620 | 0,70 | 59,4 | 4,0 | 1,9 | 1,9 | 56 | 0,0024  | 8,2  |
| 0,55 | 80 MB6     | 900 | 5,84   | 1,65  | n.a. | 670 | 0,72 | 64,6 | 4,0 | 2,0 | 2,3 | 56 | 0,0027  | 9,9  |
| 0,75 | 80 MC6     | 900 | 7,96   | 2,21  | n.a. | 680 | 0,72 | 66,0 | 4,0 | 2,0 | 2,3 | 58 | 0,0036  | 11,3 |
| 0,75 | 90 S6      | 920 | 7,79   | 2,18  | n.a. | 690 | 0,72 | 67,9 | 5,5 | 2,2 | 2,2 | 59 | 0,0037  | 11,7 |
| 1,1  | 90 L6      | 925 | 11,36  | 3,02  | n.a. | 720 | 0,73 | 70,4 | 5,5 | 2,2 | 2,2 | 59 | 0,0050  | 15,1 |
| 1,5  | 100 LA6    | 945 | 15,17  | 3,85  | n.a. | 740 | 0,76 | 72,3 | 6   | 2,2 | 2,2 | 61 | 0,010   | 19,1 |
| 2,2  | 112 M6     | 955 | 22,01  | 5,36  | n.a. | 780 | 0,76 | 76,7 | 6   | 2,2 | 2,2 | 64 | 0,015   | 25,4 |
| 3    | 132 SA6    | 960 | 29,86  | 7,21  | n.a. | 790 | 0,76 | 77,6 | 6,5 | 2,0 | 2,0 | 64 | 0,03    | 36,1 |
| 4    | 132 MA6    | 960 | 39,81  | 9,44  | n.a. | 805 | 0,76 | 80,1 | 6,5 | 2,0 | 2,0 | 68 | 0,038   | 45,0 |
| 5,5  | 132 MB6    | 960 | 54,74  | 12,42 | n.a. | 830 | 0,77 | 82,5 | 6,5 | 2,0 | 2,0 | 68 | 0,046   | 55,5 |
| 7,5  | 132 MC6    | 960 | 74,64  | 16,54 | n.a. | 850 | 0,77 | 84,4 | 6,5 | 2,0 | 2,0 | 68 | 0,062   | 60,0 |
| 7,5  | 160 M6     | 960 | 74,64  | 15,73 | n.a. | 860 | 0,80 | 86,7 | 6,5 | 2,0 | 2,2 | 68 | 0,087   | 72   |
| 11   | 160 L6     | 960 | 109,47 | 22,97 | n.a. | 875 | 0,79 | 87,7 | 6,5 | 2,0 | 2,2 | 73 | 0,110   | 92   |

750 min<sup>-1</sup> = 8 poles - 50 Hz

|      |           |     |      |       |      |     |      |      |     |     |     |    |        |      |
|------|-----------|-----|------|-------|------|-----|------|------|-----|-----|-----|----|--------|------|
| 0,09 | MAA71 MA8 | 680 | 1,3  | 0,48  | n.a. | 480 | 0,56 | 45,4 | 3   | 1,5 | 1,7 | 50 | 0,0005 | 6,0  |
| 0,12 | 71 MB8*   | 690 | 1,7  | 0,58  | n.a. | 510 | 0,59 | 48,2 | 2,7 | 1,6 | 1,7 | 50 | 0,0006 | 6,8  |
| 0,18 | 80 MA8    | 680 | 2,5  | 0,84  | n.a. | 510 | 0,61 | 48,3 | 2,8 | 1,5 | 1,7 | 52 | 0,0024 | 9,9  |
| 0,25 | 80 MB8    | 680 | 3,5  | 1,06  | n.a. | 560 | 0,61 | 53,3 | 2,7 | 1,6 | 2,0 | 52 | 0,0027 | 10,9 |
| 0,37 | 80 MC8    | 680 | 5,2  | 1,35  | n.a. | 630 | 0,63 | 59,9 | 2,8 | 1,6 | 1,8 | 56 | 0,0035 | 14,8 |
| 0,37 | 90 S8     | 680 | 5,2  | 1,37  | n.a. | 593 | 0,66 | 56,5 | 3,0 | 1,9 | 2,0 | 56 | 0,0037 | 13,4 |
| 0,55 | 90 L8     | 680 | 7,7  | 1,85  | n.a. | 660 | 0,65 | 62,6 | 3   | 1,6 | 1,8 | 56 | 0,0050 | 17,2 |
| 0,75 | 100 LA8   | 710 | 10,1 | 2,45  | n.a. | 660 | 0,67 | 65,1 | 3,5 | 1,7 | 2,1 | 59 | 0,0090 | 17,5 |
| 1,1  | 100 LB8   | 710 | 14,8 | 3,20  | n.a. | 720 | 0,69 | 70,8 | 3,5 | 1,7 | 2,1 | 59 | 0,0120 | 19,7 |
| 1,5  | 112 MA8   | 710 | 20,2 | 4,30  | n.a. | 740 | 0,68 | 74,0 | 4,2 | 1,8 | 2,1 | 61 | 0,0170 | 25,6 |
| 2,2  | 132 SA8   | 720 | 29,2 | 5,96  | n.a. | 750 | 0,71 | 75,5 | 5,5 | 2,0 | 2,0 | 64 | 0,0380 | 35,5 |
| 3    | 132 MA8   | 720 | 39,8 | 7,70  | n.a. | 770 | 0,73 | 77,9 | 5,5 | 2,0 | 2,0 | 64 | 0,0460 | 45,0 |
| 4    | 160 MA8   | 730 | 52,4 | 9,89  | n.a. | 800 | 0,73 | 79,1 | 6   | 1,9 | 2,1 | 68 | 0,080  | 60,0 |
| 5,5  | 160 MB8   | 720 | 73,0 | 12,85 | n.a. | 835 | 0,74 | 82,6 | 6   | 2,0 | 2,1 | 68 | 0,092  | 72,0 |
| 7,5  | 160 L8    | 720 | 99,5 | 17,00 | n.a. | 850 | 0,75 | 84,6 | 6   | 1,9 | 2,2 | 68 | 0,110  | 92,0 |

n.a. - Rated output not part of CEMEP agreement - \* Not included in IEC 60072-1 standards - Tmax = Breakdown torque, Ts = Starting torque, Is = Starting current.

### TERMINAL BOX AND CABLE ENTRY

The terminal boxes of MAA series motors are placed on top of the electrical machine (considering IM 1001 - B3 as reference) and are normally equipped with 6 terminals.

The motors from 100 up to 160 frame size included allow the user to mount the terminal box either on the right side or the left one, as seen from the D-end side. The terminal box can be rotated in steps of 90° on motors up to 160 frame size included.

| FRAME SIZE | CLEARANCE HOLES FOR METRIC CABLEGLANDS | TYPE OF TERMINAL   | TERMINAL SCREW THREAD |
|------------|--|--------------------|-----------------------|
| 63         | 1xM16                                  | THREADED TERMINALS | M4                    |
| 71 - 90    | 1xM20                                  | THREADED TERMINALS | M4                    |
| 100        | 2xM20                                  | THREADED TERMINALS | M5                    |
| 112 - 132  | 2xM25                                  | THREADED TERMINALS | M5                    |
| 160        | 2xM32                                  | THREADED TERMINALS | M6                    |

### PERFORMANCES AT 50 Hz & 60 Hz

The motors wound for V=230/400V and V=400V - 50Hz, when operating at the voltage and frequency values shown below, have performances which can be obtained by considering the following table.

| MOTOR TYPE<br>2 - 4 POLES | VOLTAGE AND FREQUENCY<br>OF THE WINDINGS | SUPPLY VOLTAGE<br>CONNECTION AND<br>FREQUENCY |         | RATED<br>OUTPUT | RATED<br>SPEED | RATED<br>TORQUE<br>AT THE<br>FREQUENCY<br>OF THE<br>NETWORK<br>T <sub>n</sub> | STARTING<br>TORQUE<br>T <sub>s</sub> /T <sub>n</sub> | BREAKDOWN<br>TORQUE<br>T <sub>max</sub> /T <sub>n</sub> |     |     |     |
|---------------------------|--|---|---------|-----------------|----------------|---|--|---|-----|-----|-----|
| MAA 63-160                | 230 / 400 Volt<br>Δ / Y 50 Hz            | 220 V   | Δ 50 Hz | 1               | 1              | 1   | 0,9  | 0,9   |     |     |     |
|                           |  | 240 V   |         |                 |                |   | 1,1  | 1,1   |     |     |     |
|                           |  | 380 V   | Y 50 Hz |                 |                |   | 0,9  | 0,9   |     |     |     |
|                           |  | 415 V   |         |                 |                |   | 1,1  | 1,1   |     |     |     |
|                           |  | 440 V   | Y 60 Hz |                 |                |   | 1,1  | 1,2   | 0,9 | 0,8 | 0,9 |
|                           |  | 460 V   |         |                 |                |   | 0,9  |   | 1   |     |     |
| 480 V                     | 1,2                                      | 1   |         | 1               |                |   |  |   |     |     |     |





**MarelliMotori®**

PART OF THE  FKI GROUP OF COMPANIES

**www.marellimotori.com**

## HEADQUARTERS

Marelli Motori S.p.A.  
Via Sabbionara, 1  
36071 Arzignano (VI) - Italy  
Ph. +39 0444 479.711 - Fax +39 0444 479.888  
Web: [www.marellimotori.com](http://www.marellimotori.com) - E-mail: [sales@marellimotori.com](mailto:sales@marellimotori.com)

## ITALIAN OFFICES

### MILAN

Tel. +39 02 660.131.66 - Fax +39 02 660.134.83 - E-mail: [milan@marellimotori.com](mailto:milan@marellimotori.com)

### FLORENCE

Tel. +39 055 431.838 - Fax +39 055 433.351 - E-mail: [florence@marellimotori.com](mailto:florence@marellimotori.com)

## OVERSEAS OFFICES

### ASIA PACIFIC

FKI Energy Technology AP Sdn Bhd  
Lot 7, Jalan Majistret U1/26  
Hicom - Glenmarie Industrial Park  
40150 Shah Alam  
Selangor D.E. - Malaysia  
Tel. +60 3 780.537.36 - Fax +60 3 780.396.25 - E-mail: [asiapacific@marellimotori.com](mailto:asiapacific@marellimotori.com)

### CENTRAL EUROPE

FKI Marelli - Central Europe  
Heilswannenweg 50  
31008 Elze - Germany  
Tel. +49 5068 462.400 - Fax +49 5068 462.409 - E-mail: [germany@marellimotori.com](mailto:germany@marellimotori.com)

### UNITED KINGDOM

AMCO MARELLI Ltd  
Meadow Lane  
Loughborough  
Leicester  
LE 11 1NB - UK  
Tel. +44 1509 615.518 - Fax +44 1509 615.514 - E-mail: [uk@marellimotori.com](mailto:uk@marellimotori.com)

### SOUTH AFRICA

FKI Rotating Machines (Pty) Ltd  
Unit 4  
55 Activia Rd-Activia Park  
Elandsfontein, 1406  
Gauteng - Republic of South Africa  
Tel. +27 11 822.5566 - Fax +27 11 828.8089 - E-mail: [southafrica@marellimotori.com](mailto:southafrica@marellimotori.com)

### USA

FKI Logistex Automation Inc.  
DBA Marelli US Division  
1524 Lebanon Road  
Danville, KY 40422 - USA  
Tel. +1 859 236.6600 - Fax +1 859 236.8877 - E-mail: [usa@marellimotori.com](mailto:usa@marellimotori.com)