



# BESEL S.A.

FABRYKA SILNIKÓW ELEKTRYCZNYCH

## SILNIKI INDUKCYJNE JEDNOFAZOWE O WZNIOSIE OSI WAŁU 56 serii h

### Charakterystyka silników katalogowych:

- silniki ogólnego przeznaczenia do pracy w warunkach klimatu umiarkowanego,
- praca ciągła S1,
- napięcia znamionowe 230V,
- częstotliwość zasilania 50 Hz,
- temperatura otoczenia od -15°C do +40°C,
- kolor malowania RAL 5010.



## SINGLE-PHASE INDUCTION MOTORS FRAME SIZE 56 series h

### Description of the catalogue motors:

- general purpose motors; temperate climate,
- duty S1,
- rated voltage 230V,
- frequency 50 Hz,
- ambient temperature from -15°C to +40°C,
- standard paint colour RAL 5010.

stopień ochrony: IP54 (IP55; IP56; IP 65; IP 66)  
klasa izolacji F (klasa H na życzenie)

degree of protection: IP54 (IP55; IP56; IP 65; IP 66)  
insulation class F (class H on request)

| Typ        | Moc                  |      | Prędkość<br>obrotowa<br>[min <sup>-1</sup> ] | Prąd [A] przy<br>230 V        | Sprawność<br>$\eta$<br>[%]  | Współ-<br>czynnik<br>mocy<br>$\cos \varphi_N$ | Moment<br>znamio-<br>nowy<br>M <sub>N</sub><br>[Nm] | Krotność<br>prądu<br>rozruch-<br>owego<br>I <sub>r</sub> /I <sub>N</sub>   | Krotność<br>momentu<br>rozruch-<br>owego<br>M <sub>r</sub> /M <sub>N</sub> | M <sub>max</sub><br>MN           | Moment<br>bezwładności<br>J<br>[kgm <sup>2</sup> ] | Kondensator<br>pracy<br>[μF]<br>450V | Masa<br>[kg]            |
|------------|----------------------|------|----------------------------------------------|-------------------------------|-----------------------------|-----------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------|----------------------------------|----------------------------------------------------|--------------------------------------|-------------------------|
|            | [kW]                 | [KM] |                                              |                               |                             |                                               |                                                     |                                                                            |                                                                            |                                  |                                                    |                                      |                         |
| Frame size | Rated output<br>[kW] | [HP] | Rated speed<br>[min <sup>-1</sup> ]          | Rated current [A] at<br>230 V | Efficiency<br>$\eta$<br>[%] | Power<br>factor<br>$\cos \varphi_N$           | Torque<br>T <sub>N</sub><br>[Nm]                    | Starting<br>current/<br>rated<br>current<br>I <sub>L</sub> /I <sub>N</sub> | Starting<br>torque/<br>rated<br>torque<br>T <sub>L</sub> /T <sub>N</sub>   | T <sub>b</sub><br>T <sub>N</sub> | Moment<br>of inertia<br>J<br>[kgm <sup>2</sup> ]   | Run<br>capacitor<br>[μF]<br>450V     | Motor<br>weight<br>[kg] |

### Silniki o normalnym momencie rozruchowym

### Motors with standard starting torque

|           |      |      |      |      |    |      |      |     |      |     |         |   |     |
|-----------|------|------|------|------|----|------|------|-----|------|-----|---------|---|-----|
| SEh 56-2A | 0,09 | 0,12 | 2840 | 0,95 | 52 | 0,80 | 0,30 | 2,6 | 0,55 | 1,9 | 0,00007 | 3 | 2,9 |
| SEh 56-2B | 0,12 | 0,17 | 2860 | 1,00 | 60 | 0,85 | 0,40 | 2,9 | 0,55 | 2,0 | 0,00009 | 5 | 3,3 |
| SEh 56-2C | 0,18 | 0,25 | 2830 | 1,50 | 60 | 0,87 | 0,61 | 2,8 | 0,55 | 1,7 | 0,00010 | 6 | 3,4 |
| SEh 56-4A | 0,06 | 0,08 | 1410 | 0,65 | 45 | 0,90 | 0,41 | 2,0 | 0,70 | 1,7 | 0,00020 | 3 | 2,8 |
| SEh 56-4B | 0,09 | 0,12 | 1420 | 0,95 | 50 | 0,82 | 0,61 | 1,9 | 0,70 | 1,7 | 0,00025 | 4 | 3,3 |
| SEh 56-4C | 0,12 | 0,17 | 1400 | 1,20 | 50 | 0,86 | 0,81 | 2,0 | 0,50 | 1,5 | 0,00030 | 5 | 3,4 |

### Silniki o podwyższonym momencie rozruchowym

### Motors with increased starting torque

|           |      |      |      |      |    |      |      |     |      |     |         |   |     |
|-----------|------|------|------|------|----|------|------|-----|------|-----|---------|---|-----|
| SEh 56-2A | 0,06 | 0,08 | 2800 | 0,85 | 45 | 0,75 | 0,21 | 1,8 | 1,40 | 2,5 | 0,00007 | 3 | 2,9 |
| SEh 56-2B | 0,09 | 0,12 | 2790 | 1,00 | 50 | 0,80 | 0,31 | 2,2 | 1,10 | 2,3 | 0,00009 | 5 | 3,3 |
| SEh 56-2C | 0,12 | 0,17 | 2800 | 1,30 | 52 | 0,77 | 0,41 | 2,7 | 0,80 | 2,0 | 0,00010 | 5 | 3,4 |
| SEh 56-4A | 0,04 | 0,06 | 1370 | 0,60 | 35 | 0,83 | 0,28 | 1,7 | 1,60 | 2,4 | 0,00020 | 3 | 2,8 |
| SEh 56-4B | 0,06 | 0,08 | 1390 | 0,90 | 35 | 0,80 | 0,41 | 1,5 | 1,50 | 2,5 | 0,00025 | 4 | 3,3 |
| SEh 56-4C | 0,09 | 0,12 | 1340 | 1,10 | 45 | 0,83 | 0,64 | 1,8 | 1,10 | 1,9 | 0,00030 | 5 | 3,4 |

Silniki mogą być wykonane i certyfikowane  
na zgodność z wymogami normy UL 1004  
lub CSA C22.2 No 100-04.

Silniki odpowiadają wymaganiom Polskiej Normy  
PN-EN 60034-1 oraz normom międzynarodowym  
IEC 60034-1.

Wszystkie silniki posiadają znak CE.

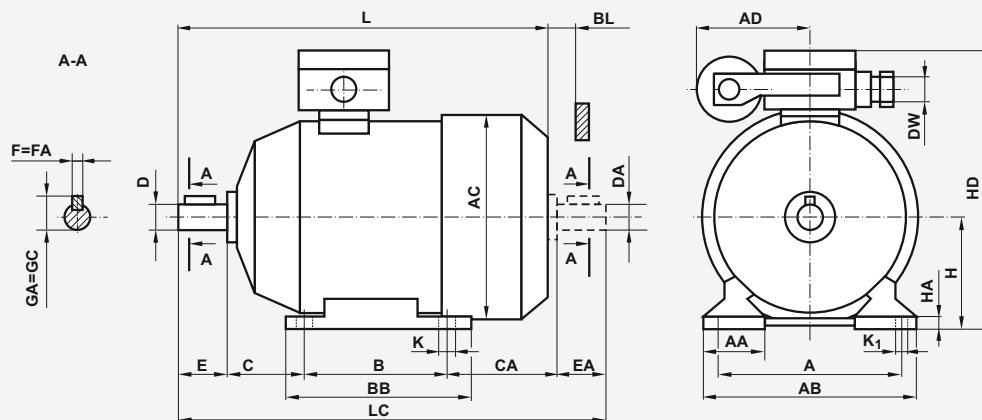
Motors may be certified for safety that they are  
manufactured according to the requirements  
of the UL 1004 or CSA C22.2 No 100-04.

Motors meet requirements of Polish Standard  
PN-EN 60034-1 and the international rules  
IEC 60034-1.

All motors are provided with CE mark.

**Silniki na łapach**  
**Forma wykonania**  
**IMB3**

**Foot - mounted motors**  
**Type of construction**  
**IMB3**



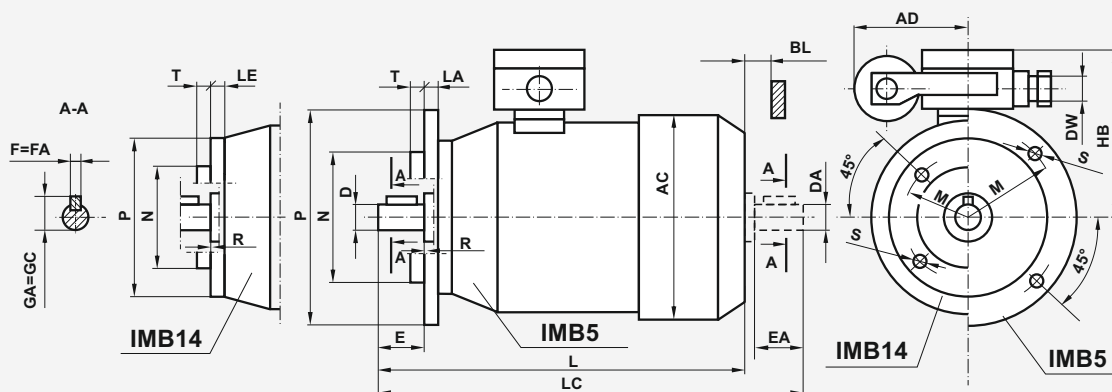
**Forma wykonania IMB3**

**Type of construction IMB3**

| Typ<br><br>Frame size | Wymiary (mm) |    |    |      |      |      |      |       |                   |     |                | Dimensions (mm) |    |     |     |                   |    |                   |    |     |     |       | Łożyska  |
|-----------------------|--------------|----|----|------|------|------|------|-------|-------------------|-----|----------------|-----------------|----|-----|-----|-------------------|----|-------------------|----|-----|-----|-------|----------|
|                       | A            | B  | C  | CA   | D=DA | E=EA | F=FA | GA=GC | H                 | K   | K <sub>1</sub> | DW              | AA | AB  | AC  | AD <sub>max</sub> | BB | BL <sub>min</sub> | HA | HD  | L   | LC    | Bearings |
| SE(M)h 56-A           | 90           | 71 | 36 | 66,5 | 9j6  | 20   | 3h9  | 10,2  | 56 <sub>0,5</sub> | 5,8 | 8              | M20             | 30 | 110 | 117 | 74                | 92 | 11                | 7  | 154 | 183 | 208,5 | 6201 2Z  |
| SE(M)h 56-B           |              |    |    | 74,5 |      |      |      |       |                   |     |                |                 |    |     |     |                   |    |                   |    |     | 193 | 216,5 |          |
| SE(M)h 56-C           |              |    |    | 82,5 |      |      |      |       |                   |     |                |                 |    |     |     |                   |    |                   |    |     | 200 | 225,5 |          |

**Silniki kołnierzowe**  
**Formy wykonania**  
**IMB5, IMB14**

**Flange - mounted motors**  
**Types of construction**  
**IMB5, IMB14**



**Forma wykonania IMB5**

**Type of construction IMB5**

| Typ<br>Frame size | Wymiary (mm)       |     |     |      |   |      |      |      |       |    | Dimensions (mm) |   |     |     |        |        |    |     | Łożyska<br>Bearings |         |
|-------------------|--------------------|-----|-----|------|---|------|------|------|-------|----|-----------------|---|-----|-----|--------|--------|----|-----|---------------------|---------|
|                   | Kołnierz<br>Flange | P   | M   | N    | S | D=DA | E=EA | F=FA | GA=GC | LA | T               | R | DW  | AC  | AD max | BL min | HB | L   |                     | LC      |
| SE(M)Kh 56-A      | B5                 | 120 | 100 | 80j6 | 7 | 9j6  | 20   | 3h9  | 10,2  | 8  | 3               | 0 | M20 | 117 | 74     | 11     | 98 | 183 | 208,5               | 6201 2Z |
| SE(M)Kh 56-B      |                    |     |     |      |   |      |      |      |       |    |                 |   |     |     |        |        |    | 193 | 216,5               |         |
| SE(M)Kh 56-C      |                    |     |     |      |   |      |      |      |       |    |                 |   |     |     |        |        |    | 200 | 225,5               |         |

**Forma wykonania IMB14**

**Type of construction IMB14**

| Typ<br>Frame size | Wymiary (mm)       |     |    |      |    |      |      |      |       |      | Dimensions (mm) |   |     |     |        |        |    |     |       |         | Łożyska<br>Bearings |
|-------------------|--------------------|-----|----|------|----|------|------|------|-------|------|-----------------|---|-----|-----|--------|--------|----|-----|-------|---------|---------------------|
|                   | Kołnierz<br>Flange | P   | M  | N    | S  | D=DA | E=EA | F=FA | GA=GC | LE   | T               | R | DW  | AC  | AD max | BL min | HB | L   | LC    |         |                     |
| SE(M)Kh 56-A1     | B14/1              | 105 | 85 | 70j6 | M6 | 9j6  | 20   | 3h9  | 10,2  | 15   | 2,5             | 0 | M20 | 117 | 74     | 11     | 98 | 183 | 208,5 | 6201 2Z |                     |
| SE(M)Kh 56-A2     | B14/2              | 80  | 65 | 50j6 | M5 |      |      |      |       | 12,5 |                 |   |     |     |        |        |    | 193 | 208,5 |         |                     |
| SE(M)Kh 56-B1     | B14/1              | 105 | 85 | 70j6 | M6 |      |      |      |       | 15   |                 |   |     |     |        |        |    | 193 | 216,5 |         |                     |
| SE(M)Kh 56-B2     | B14/2              | 80  | 65 | 50j6 | M5 |      |      |      |       | 12,5 |                 |   |     |     |        |        |    | 193 | 216,5 |         |                     |
| SE(M)Kh 56-C1     | B14/1              | 105 | 85 | 70j6 | M6 |      |      |      |       | 15   |                 |   |     |     |        |        |    | 200 | 225,5 |         |                     |
| SE(M)Kh 56-C2     | B14/2              | 80  | 65 | 50j6 | M5 |      |      |      |       | 12,5 |                 |   |     |     |        |        |    | 200 | 225,5 |         |                     |



# BESEL S.A.

FABRYKA SILNIKÓW ELEKTRYCZNYCH

## SILNIKI INDUKCYJNE JEDNOFAZOWE O WZNIOSIE OSI WAŁU 63 serii h

### Charakterystyka silników katalogowych:

- silniki ogólnego przeznaczenia do pracy w warunkach klimatu umiarkowanego,
- praca ciągła S1,
- napięcia znamionowe 230V,
- częstotliwość zasilania 50 Hz,
- temperatura otoczenia od -15°C do +40°C,
- kolor malowania RAL 5010.



## SINGLE-PHASE INDUCTION MOTORS FRAME SIZE 63 series h

### Description of the catalogue motors:

- general purpose motors; temperate climate,
- duty S1,
- rated voltage 230V,
- frequency 50 Hz,
- ambient temperature from -15°C to +40°C,
- standard paint colour RAL 5010.

stopień ochrony: IP54 (IP55; IP56; IP 65; IP 66)  
klasa izolacji F (klasa H na życzenie)

degree of protection: IP54 (IP55; IP56; IP 65; IP 66)  
insulation class F (class H on request)

| Typ        | Moc          |      | Prędkość obrotowa    | Prąd [A] przy        | Sprawność        | Współczynnik mocy               | Moment znamionowy          | Krotność prądu rozruchowego                                    | Krotność momentu rozruchowego                                | $\frac{M_{max}}{M_N}$ | Moment bezwładności                     | Kondensator pracy       | Kondensator rozruchowy    | Masa              |
|------------|--------------|------|----------------------|----------------------|------------------|---------------------------------|----------------------------|----------------------------------------------------------------|--------------------------------------------------------------|-----------------------|-----------------------------------------|-------------------------|---------------------------|-------------------|
|            | [kW]         | [KM] | [min <sup>-1</sup> ] | 230 V                | η [%]            | cos φ <sub>N</sub>              | M <sub>N</sub> [Nm]        | I <sub>r</sub> /I <sub>N</sub>                                 | M <sub>r</sub> /M <sub>N</sub>                               |                       | J [kgm <sup>2</sup> ]                   | 450V                    | 450V                      | [kg]              |
| Frame size | Rated output |      | Rated speed          | Rated current [A] at | Efficiency η [%] | Power factor cos φ <sub>N</sub> | Torque T <sub>N</sub> [Nm] | Starting current/ rated current I <sub>r</sub> /I <sub>N</sub> | Starting torque/ rated torque T <sub>r</sub> /T <sub>N</sub> | $\frac{T_b}{T_N}$     | Moment of inertia J [kgm <sup>2</sup> ] | Run capacitor [μF] 450V | Start capacitor [μF] 450V | Motor weight [kg] |

### Silniki o normalnym momencie rozruchowym

### Motors with standard starting torque

|           |      |      |      |      |    |      |      |     |      |     |          |    |   |     |
|-----------|------|------|------|------|----|------|------|-----|------|-----|----------|----|---|-----|
| SEh 63-2A | 0,18 | 0,25 | 2840 | 1,40 | 57 | 0,94 | 0,61 | 2,6 | 0,75 | 1,9 | 0,000175 | 8  | - | 3,7 |
| SEh 63-2B | 0,25 | 0,33 | 2840 | 1,70 | 65 | 0,98 | 0,84 | 2,6 | 0,65 | 1,9 | 0,000235 | 10 | - | 4,2 |
| SEh 63-2C | 0,37 | 0,50 | 2840 | 2,40 | 71 | 0,97 | 1,24 | 2,8 | 0,50 | 1,7 | 0,000310 | 12 | - | 5,0 |
| SEh 63-4A | 0,12 | 0,17 | 1400 | 1,20 | 50 | 0,86 | 0,82 | 1,8 | 0,55 | 1,5 | 0,000240 | 5  | - | 4,1 |
| SEh 63-4B | 0,18 | 0,25 | 1400 | 1,50 | 57 | 0,93 | 1,23 | 1,9 | 0,70 | 1,4 | 0,000307 | 8  | - | 4,3 |
| SEh 63-4C | 0,25 | 0,33 | 1360 | 1,90 | 62 | 0,95 | 1,76 | 2,0 | 0,50 | 1,4 | 0,000380 | 10 | - | 4,9 |

### Silniki o podwyższonym momencie rozruchowym

### Motors with increased starting torque

|           |      |      |      |      |    |      |      |     |      |     |          |    |   |     |
|-----------|------|------|------|------|----|------|------|-----|------|-----|----------|----|---|-----|
| SEh 63-2A | 0,12 | 0,17 | 2800 | 1,30 | 48 | 0,84 | 0,41 | 2,4 | 1,20 | 2,2 | 0,000175 | 6  | - | 3,7 |
| SEh 63-2B | 0,18 | 0,25 | 2780 | 1,60 | 57 | 0,87 | 0,62 | 2,4 | 1,00 | 2,0 | 0,000235 | 8  | - | 4,2 |
| SEh 63-2C | 0,25 | 0,33 | 2760 | 1,90 | 64 | 0,92 | 0,87 | 2,2 | 0,90 | 2,0 | 0,000310 | 10 | - | 4,8 |
| SEh 63-4A | 0,09 | 0,12 | 1330 | 1,20 | 44 | 0,83 | 0,63 | 1,7 | 1,10 | 1,8 | 0,000240 | 5  | - | 4,1 |
| SEh 63-4B | 0,12 | 0,17 | 1360 | 1,25 | 53 | 0,88 | 0,84 | 1,8 | 1,20 | 1,9 | 0,000307 | 6  | - | 4,3 |
| SEh 63-4C | 0,18 | 0,25 | 1320 | 1,80 | 52 | 0,90 | 1,30 | 1,6 | 1,10 | 1,7 | 0,000380 | 8  | - | 4,9 |

### Silniki o dużym momencie rozruchowym

### Motors with high starting torque

|               |      |      |      |      |    |      |      |     |     |     |          |    |    |     |
|---------------|------|------|------|------|----|------|------|-----|-----|-----|----------|----|----|-----|
| SEh 63-2AR(F) | 0,18 | 0,25 | 2840 | 1,40 | 57 | 0,94 | 0,61 | 4,5 | 1,9 | 1,9 | 0,000175 | 8  | 25 | 3,9 |
| SEh 63-2BR(F) | 0,25 | 0,33 | 2840 | 1,70 | 65 | 0,98 | 0,84 | 4,2 | 2,1 | 1,9 | 0,000235 | 10 | 30 | 4,4 |
| SEh 63-2CR(F) | 0,37 | 0,50 | 2840 | 2,40 | 71 | 0,97 | 1,24 | 4,7 | 1,8 | 1,7 | 0,000310 | 12 | 40 | 5,3 |
| SEh 63-4AR(F) | 0,12 | 0,17 | 1400 | 1,20 | 50 | 0,86 | 0,82 | 3,6 | 1,8 | 1,5 | 0,000240 | 5  | 14 | 4,3 |
| SEh 63-4BR(F) | 0,18 | 0,25 | 1400 | 1,50 | 57 | 0,93 | 1,23 | 3,5 | 1,6 | 1,4 | 0,000307 | 8  | 16 | 4,5 |
| SEh 63-4CR(F) | 0,25 | 0,33 | 1360 | 1,90 | 62 | 0,95 | 1,76 | 3,3 | 1,6 | 1,4 | 0,000380 | 10 | 20 | 5,2 |

Silniki SEh 63-...R(F) są wyposażone w dwa kondensatory - pracy i rozruchowy oraz wyłącznik elektroniczny(R) lub wyłącznik odśrodkowy (F) (wymiary dla silników z wyłącznikiem elektronicznym jak dla silników bez wyłącznika).

The SEh 63-...R(F) motors are equipped with two capacitors - capacitor run and capacitor start as well as the electronic switch (R) or centrifugal switch (F) (dimensions for motors with electronic switch are analogous to the standard motors without the switch).

Silniki mogą być wykonane i certyfikowane na zgodność z wymogami normy UL 1004 lub CSA C22.2 No 100-04.

Motors may be certified for safety that they are manufactured according to the requirements of the UL 1004 or CSA C22.2 No 100-04.

Silniki odpowiadają wymaganiom Polskiej Normy PN-EN 60034-1 oraz normom międzynarodowym IEC 60034-1.

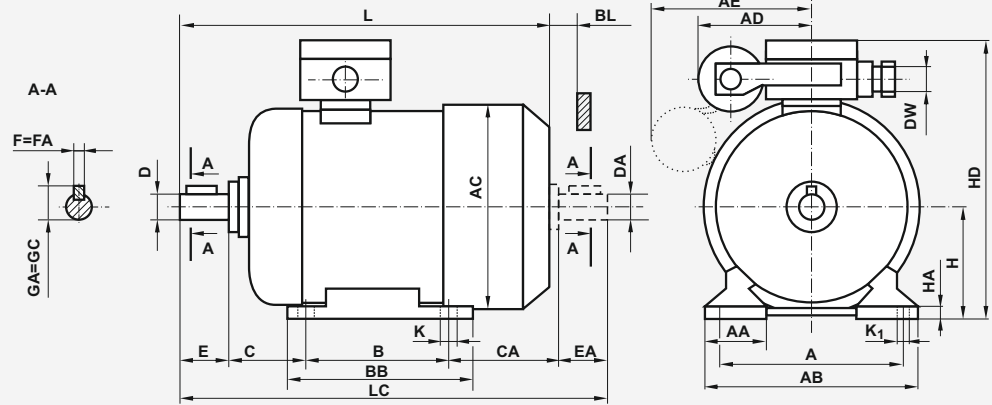
Motors meet requirements of Polish Standard PN-EN 60034-1 and the international rules IEC 60034-1.

Wszystkie silniki posiadają znak CE.

All motors are provided with CE mark.

**Silniki na łapach**  
**Forma wykonania**  
**IMB3**

**Foot - mounted motors**  
**Type of construction**  
**IMB3**



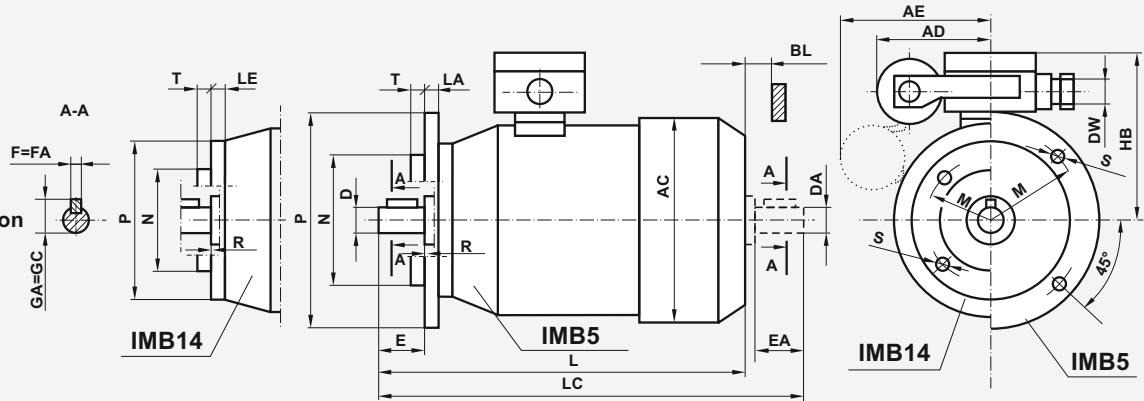
**Forma wykonania IMB3**

**Type of construction IMB3**

| Typ          | Wymiary (mm) |    |    |     |      |      |      |       |                   |   |                |     |    |     |     |    | Dimensions (mm) |     |           |     |     |     |     |         | Łożyska<br>Bearings |
|--------------|--------------|----|----|-----|------|------|------|-------|-------------------|---|----------------|-----|----|-----|-----|----|-----------------|-----|-----------|-----|-----|-----|-----|---------|---------------------|
|              | A            | B  | C  | CA  | D=DA | E=EA | F=FA | GA=GC | H                 | K | K <sub>1</sub> | DW  | AA | AB  | AC  | AD | AE              | BB  | BL<br>min | HA  | HD  | L   | LC  |         |                     |
| SE(M)h 63-.A | 100          | 80 | 40 | 67  | 11j6 | 23   | 4h9  | 12,5  | 63 <sub>0,5</sub> | 7 | 10             | M20 | 36 | 124 | 126 | 74 | -               | 106 | 11        | 8,5 | 165 | 200 | 232 | 6202 2Z |                     |
| SEh 63-.AF   |              |    |    | 100 |      |      |      |       |                   |   |                |     |    |     |     |    | 244             |     |           |     |     | -   |     |         |                     |
| SE(M)h 63-.B |              |    |    | -   |      |      |      |       |                   |   |                |     |    |     |     |    | 210             |     |           |     |     | 242 |     |         |                     |
| SEh 63-.BF   |              |    |    | 100 |      |      |      |       |                   |   |                |     |    |     |     |    | 254             |     |           |     |     | -   |     |         |                     |
| SE(M)h 63-.C |              |    |    | -   |      |      |      |       |                   |   |                |     |    |     |     |    | 225             |     |           |     |     | 257 |     |         |                     |
| SEh 63-.CF   |              |    |    | 100 |      |      |      |       |                   |   |                |     |    |     |     |    | 268             |     |           |     |     | -   |     |         |                     |

**Silniki kołnierzowe**  
**Formy wykonania**  
**IMB5, IMB14**

**Flange - mounted motors**  
**Types of construction**  
**IMB5, IMB14**



**Forma wykonania IMB5**

**Type of construction IMB5**

| Type          | Wymiary (mm)       |     |     |      |    |      |      |      |       |    |   |   |     |     |    |     | Dimensions (mm) |     |     |     |          |  | Łożyska |
|---------------|--------------------|-----|-----|------|----|------|------|------|-------|----|---|---|-----|-----|----|-----|-----------------|-----|-----|-----|----------|--|---------|
|               | Kołnierz<br>Flange | P   | M   | N    | S  | D=DA | E=EA | F=FA | GA=GC | LA | T | R | DW  | AC  | AD | AE  | BL<br>min       | HB  | L   | LC  | Bearings |  |         |
| SE(M)Kh 63-.A | B5                 | 140 | 115 | 95j6 | 10 | 11j6 | 23   | 4h9  | 12,5  | 9  | 3 | 0 | M20 | 126 | 74 | -   | 11              | 102 | 200 | 232 | 6202 2Z  |  |         |
| SEKh 63-.AF   |                    |     |     |      |    |      |      |      |       |    |   |   |     |     |    | 100 |                 |     | 244 | -   |          |  |         |
| SE(M)Kh 63-.B |                    |     |     |      |    |      |      |      |       |    |   |   |     |     |    | -   |                 |     | 210 | 242 |          |  |         |
| SEKh 63-.BF   |                    |     |     |      |    |      |      |      |       |    |   |   |     |     |    | 100 |                 |     | 254 | -   |          |  |         |
| SE(M)Kh 63-.C |                    |     |     |      |    |      |      |      |       |    |   |   |     |     |    | -   |                 |     | 225 | 257 |          |  |         |
| SEKh 63-.CF   |                    |     |     |      |    |      |      |      |       |    |   |   |     |     |    | 100 |                 |     | 268 | -   |          |  |         |

**Forma wykonania IMB14**

**Type of construction IMB14**

| Typ<br>Frame size | Wymiary (mm)       |     |     |      |    |      |      |      |       |     | Dimensions (mm) |   |     |     |    |     |           |     |     |     | Łożyska<br>Bearings |
|-------------------|--------------------|-----|-----|------|----|------|------|------|-------|-----|-----------------|---|-----|-----|----|-----|-----------|-----|-----|-----|---------------------|
|                   | Kołnierz<br>Flange | P   | M   | N    | S  | D=DA | E=EA | F=FA | GA=GC | LE  | T               | R | DW  | AC  | AD | AE  | BL<br>min | HB  | L   | LC  |                     |
| SE(M)Kh 63-.A1    | B14/1              | 120 | 100 | 80j6 | M6 | 11j6 | 23   | 4h9  | 12,5  | 14  | 3,0             | 0 | M20 | 126 | 74 | -   | 11        | 102 | 200 | 232 | 6202 2Z             |
| SEKh 63-.AF1      |                    |     |     |      |    |      |      |      |       |     |                 |   |     |     |    | 100 |           |     | 244 | -   |                     |
| SE(M)Kh 63-.A2    | B14/2              | 90  | 75  | 60j6 | M5 |      |      |      |       | 9,5 | 2,5             |   |     |     |    | -   |           |     | 200 | 232 |                     |
| SEKh 63-.AF2      |                    |     |     |      |    |      |      |      |       |     |                 |   |     |     |    | 100 |           |     | 244 | -   |                     |
| SE(M)Kh 63-.B1    | B14/1              | 120 | 100 | 80j6 | M6 |      |      |      |       | 14  | 3,0             |   |     |     |    | -   |           |     | 210 | 242 |                     |
| SEKh 63-.BF1      |                    |     |     |      |    |      |      |      |       |     |                 |   |     |     |    | 100 |           |     | 254 | -   |                     |
| SE(M)Kh 63-.B2    | B14/2              | 90  | 75  | 60j6 | M5 |      |      |      |       | 9,5 | 2,5             |   |     |     |    | -   |           |     | 210 | 242 |                     |
| SEKh 63-.BF2      |                    |     |     |      |    |      |      |      |       |     |                 |   |     |     |    | 100 |           |     | 254 | -   |                     |
| SE(M)Kh 63-.C1    | B14/1              | 120 | 100 | 80j6 | M6 |      |      |      |       | 14  | 3,0             |   |     |     |    | -   |           |     | 225 | 257 |                     |
| SEKh 63-.CF1      |                    |     |     |      |    |      |      |      |       |     |                 |   |     |     |    | 100 |           |     | 268 | -   |                     |
| SE(M)Kh 63-.C2    | B14/2              | 90  | 75  | 60j6 | M5 |      |      |      |       | 9,5 | 2,5             |   |     |     |    | -   |           |     | 225 | 257 |                     |
| SEKh 63-.CF2      |                    |     |     |      |    |      |      |      |       |     |                 |   |     |     |    | 100 |           |     | 268 | -   |                     |

Producent zastrzega sobie możliwość zmian danych zawartych w karcie katalogowej wynikających z ciągłego doskonalenia wyrobu.

As part of our development program, we reserve the right to alter or amend any of the specifications without giving prior notice.



# BESEL S.A.

FABRYKA SILNIKÓW ELEKTRYCZNYCH

## SILNIKI INDUKCYJNE JEDNOFAZOWE O WZNIOSIE OSI WAŁU 71

### Charakterystyka silników katalogowych:

- silniki ogólnego przeznaczenia do pracy w warunkach klimatu umiarkowanego,
- praca ciągła S1,
- napięcia znamionowe 230V,
- częstotliwość zasilania 50 Hz,
- temperatura otoczenia od -15°C do +40°C,
- kolor malowania RAL 5010.

## SINGLE-PHASE INDUCTION MOTORS FRAME SIZE 71

### Description of the catalogue motors:

- general purpose motors; temperate climate,
- duty S1,
- rated voltage 230V,
- frequency 50 Hz,
- ambient temperature from -15°C to +40°C,
- standard paint colour RAL 5010.



stopień ochrony: IP54 (IP55; IP56; IP 65; IP 66)  
klasa izolacji F (klasa H na życzenie)

degree of protection: IP54 (IP55; IP56; IP 65; IP 66)  
insulation class F (class H on request)

| Typ        | Moc          |  | Prędkość obrotowa [min <sup>-1</sup> ] | Prąd [A] przy 230 V        | Sprawność $\eta$ [%]  | Współczynnik mocy $\cos \varphi_N$ | Moment znamionowy $M_N$ [Nm] | Krotność prądu rozruchowego $I_r/I_N$     | Krotność momentu rozruchowego $M_r/M_N$ | $\frac{M_{max}}{M_N}$ | Moment bezwładności J [kgm <sup>2</sup> ] | Kondensator pracy $\mu F$ 450V | Kondensator rozruchowy $\mu F$ 450V | Masa [kg]         |
|------------|--------------|--|----------------------------------------|----------------------------|-----------------------|------------------------------------|------------------------------|-------------------------------------------|-----------------------------------------|-----------------------|-------------------------------------------|--------------------------------|-------------------------------------|-------------------|
| Frame size | Rated output |  | Rated speed [min <sup>-1</sup> ]       | Rated current [A] at 230 V | Efficiency $\eta$ [%] | Power factor $\cos \varphi_N$      | Torque $T_N$ [Nm]            | Starting current/ rated current $I_r/I_N$ | Starting torque/ rated torque $T_r/T_N$ | $\frac{T_b}{T_N}$     | Moment of inertia J [kgm <sup>2</sup> ]   | Run capacitor $\mu F$ 450V     | Start capacitor $\mu F$ 450V        | Motor weight [kg] |

### Silniki o normalnym momencie rozruchowym

### Motors with standard starting torque

|           |      |      |      |     |    |      |      |     |      |     |         |    |   |     |
|-----------|------|------|------|-----|----|------|------|-----|------|-----|---------|----|---|-----|
| SEh 71-2B | 0,55 | 0,75 | 2820 | 3,6 | 70 | 0,96 | 1,86 | 3,0 | 0,36 | 1,6 | 0,00053 | 14 | - | 6,3 |
| SEh 71-2C | 0,75 | 1,00 | 2820 | 4,9 | 71 | 0,98 | 2,54 | 3,0 | 0,40 | 1,5 | 0,00069 | 25 | - | 7,7 |
| SEh 71-4A | 0,25 | 0,33 | 1350 | 2,4 | 50 | 0,92 | 1,77 | 2,0 | 0,35 | 1,4 | 0,00061 | 8  | - | 5,3 |
| SEh 71-4B | 0,37 | 0,50 | 1370 | 2,9 | 64 | 0,88 | 2,60 | 2,1 | 0,50 | 1,4 | 0,00085 | 10 | - | 6,3 |
| SEh 71-4C | 0,55 | 0,75 | 1350 | 4,2 | 65 | 0,92 | 3,89 | 2,2 | 0,40 | 1,4 | 0,00101 | 18 | - | 7,3 |

### Silniki o podwyższonym momencie rozruchowym

### Motors with increased starting torque

|           |      |      |      |     |    |      |      |     |      |      |         |    |   |     |
|-----------|------|------|------|-----|----|------|------|-----|------|------|---------|----|---|-----|
| SEh 71-2A | 0,25 | 0,33 | 2720 | 2,0 | 57 | 0,97 | 0,88 | 2,3 | 0,80 | 1,70 | 0,00039 | 10 | - | 5,2 |
| SEh 71-2B | 0,37 | 0,50 | 2760 | 3,0 | 64 | 0,84 | 1,28 | 2,7 | 0,70 | 1,80 | 0,00054 | 12 | - | 6,4 |
| SEh 71-2C | 0,55 | 0,75 | 2780 | 3,6 | 70 | 0,93 | 1,89 | 3,2 | 0,65 | 1,60 | 0,00069 | 20 | - | 7,4 |
| SEh 71-4B | 0,25 | 0,33 | 1340 | 2,5 | 56 | 0,80 | 1,78 | 2,0 | 1,00 | 1,70 | 0,00085 | 10 | - | 6,3 |
| SEh 71-4C | 0,37 | 0,50 | 1320 | 3,2 | 59 | 0,88 | 2,68 | 2,1 | 0,80 | 1,60 | 0,00101 | 16 | - | 7,4 |

### Silniki o dużym momencie rozruchowym

### Motors with high starting torque

|               |      |      |      |     |    |      |      |     |     |     |         |    |    |     |
|---------------|------|------|------|-----|----|------|------|-----|-----|-----|---------|----|----|-----|
| SEh 71-2BR(F) | 0,55 | 0,75 | 2820 | 3,6 | 70 | 0,96 | 1,86 | 3,6 | 1,7 | 1,6 | 0,00053 | 14 | 25 | 6,5 |
| SEh 71-2CR(F) | 0,75 | 1,00 | 2820 | 4,9 | 71 | 0,98 | 2,54 | 4,0 | 1,7 | 1,5 | 0,00069 | 25 | 70 | 7,8 |
| SEh 71-4BR(F) | 0,37 | 0,50 | 1370 | 2,9 | 64 | 0,88 | 2,60 | 3,5 | 1,8 | 1,4 | 0,00085 | 10 | 25 | 6,5 |
| SEh 71-4CR(F) | 0,55 | 0,75 | 1350 | 4,1 | 65 | 0,90 | 3,86 | 3,6 | 1,9 | 1,4 | 0,00101 | 18 | 60 | 8,0 |

Silniki SEh 71-...R(F) są wyposażone w dwa kondensatory - pracy i rozruchowy oraz wyłącznik elektroniczny (R) lub wyłącznik odśrodkowy (F) (wymiar dla silników z wyłącznikiem elektronicznym jak dla silników standardowych bez wyłącznika).

Silniki mogą być wykonane i certyfikowane na zgodność z wymogami normy UL 1004 lub CSA C22.2 No 100-04.

Silniki odpowiadają wymaganiom Polskiej Normy PN-EN 60034-1 oraz normom międzynarodowym IEC 60034-1.

Wszystkie silniki posiadają znak CE.

The SEh 71-...R(F) motors are equipped with two capacitors - capacitor run and capacitor start as well as the electronic switch (R) or centrifugal switch (F) (dimensions for motors with electronic switch are analogous to the standard motors without the switch).

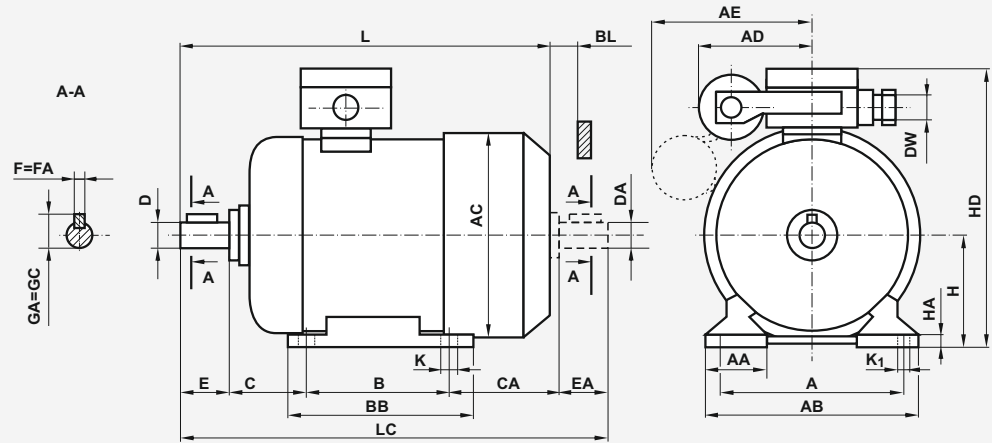
Motors may be certified for safety that they are manufactured according to the requirements of the UL 1004 or CSA C22.2 No 100-04.

Motors meet requirements of Polish Standard PN-EN 60034-1 and the international rules IEC 60034-1.

All motors are provided with CE mark.

**Silniki na łapach**  
**Forma wykonania**  
**IMB3**

**Foot - mounted motors**  
**Type of construction**  
**IMB3**



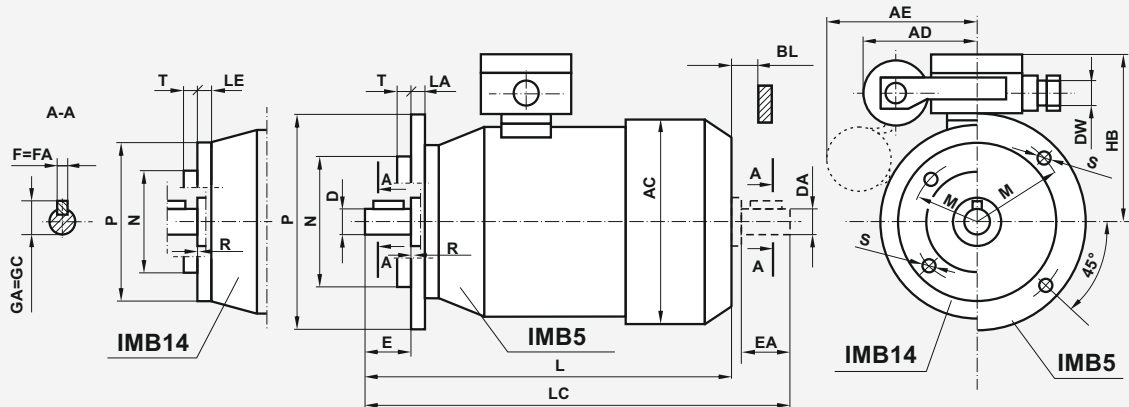
**Forma wykonania IMB3**

**Type of construction IMB3**

| Typ         | Wymiary (mm) |    |    |     |      |      |      |       |                   |   |                |     |    |     |     |    | Dimensions (mm) |     |                   |    |     |     |     |          | Łożyska |
|-------------|--------------|----|----|-----|------|------|------|-------|-------------------|---|----------------|-----|----|-----|-----|----|-----------------|-----|-------------------|----|-----|-----|-----|----------|---------|
|             | A            | B  | C  | CA  | D=DA | E=EA | F=FA | GA=GC | H                 | K | K <sub>1</sub> | DW  | AA | AB  | AC  | AD | AE              | BB  | BL <sub>min</sub> | HA | HD  | L   | LC  | Bearings |         |
| SE(M)h 71-A | 112          | 90 | 45 | 65  | 14j6 | 30   | 5h9  | 16    | 71 <sub>0,5</sub> | 7 | 10             | M20 | 45 | 142 | 134 | 90 | -               | 116 | 12                | 8  | 182 | 223 | 261 | 6203 2Z  |         |
| SE(M)h 71-B |              |    |    | -   |      |      |      |       |                   |   |                |     |    |     |     |    | 245             |     |                   |    |     | 283 |     |          |         |
| SEh 71-BF   |              |    |    | 88  |      |      |      |       |                   |   |                |     |    |     |     |    | 100             |     |                   |    |     | 285 | -   |          |         |
| SE(M)h 71-C |              |    |    | 106 |      |      |      |       |                   |   |                |     |    |     |     |    | -               |     |                   |    |     | 263 | 301 |          |         |
| SEh 71-CF   |              |    |    | 100 |      |      |      |       |                   |   |                |     |    |     |     |    | 303             |     |                   |    |     | -   |     |          |         |

**Silniki kołnierzowe**  
**Formy wykonania**  
**IMB5, IMB14**

**Flange - mounted motors**  
**Types of construction**  
**IMB5, IMB14**



**Forma wykonania IMB5**

**Type of construction IMB5**

| Typ<br><br>Frame size | Wymiary (mm)       |     |     |       |    |      |      |      |       |    | Dimensions (mm) |   |     |     |    |     |           |     |     |     | Łożyska<br>Bearings |
|-----------------------|--------------------|-----|-----|-------|----|------|------|------|-------|----|-----------------|---|-----|-----|----|-----|-----------|-----|-----|-----|---------------------|
|                       | Kolnierz<br>Flange | P   | M   | N     | S  | D=DA | E=EA | F=FA | GA=GC | LA | T               | R | DW  | AC  | AD | AE  | BL<br>min | HB  | L   | LC  |                     |
| SE(M)Kh 71-A          | B5                 | 160 | 130 | 110j6 | 10 | 14j6 | 30   | 5h9  | 16    | 10 | 3,5             | 0 | M20 | 134 | 90 | -   | 12        | 111 | 223 | 261 | 6203 2Z             |
| SE(M)Kh 71-B          |                    |     |     |       |    |      |      |      |       |    |                 |   |     |     |    | -   |           |     | 245 | 283 |                     |
| SEKh 71-BF            |                    |     |     |       |    |      |      |      |       |    |                 |   |     |     |    | 100 |           |     | 285 | -   |                     |
| SE(M)Kh 71-C          |                    |     |     |       |    |      |      |      |       |    |                 |   |     |     |    | -   |           |     | 263 | 301 |                     |
| SEKh 71-CF            |                    |     |     |       |    |      |      |      |       |    |                 |   |     |     |    | 100 |           |     | 303 | -   |                     |

**Forma wykonania IMB14**

**Type of construction IMB14**

| Typ<br><br>Frame size | Wymiary (mm)       |     |     |      |    |      |      |      |       |     | Dimensions (mm) |   |     |     |    |    |           |     |     |     | Łożyska<br>Bearings |
|-----------------------|--------------------|-----|-----|------|----|------|------|------|-------|-----|-----------------|---|-----|-----|----|----|-----------|-----|-----|-----|---------------------|
|                       | Kolnierz<br>Flange | P   | M   | N    | S  | D=DA | E=EA | F=FA | GA=GC | LE  | T               | R | DW  | AC  | AD | AE | BL<br>min | HB  | L   | LC  |                     |
| SE(M)Kh 71-.A1        | B14/1              | 140 | 115 | 95j6 | M8 | 14j6 | 30   | 5h9  | 16    | 14  | 3,0             | 0 | M20 | 134 | 90 | -  | 12        | 111 | 223 | 261 | 6203 2Z             |
| SE(M)Kh 71-.A2        | B14/2              | 105 | 85  | 70j6 | M6 |      |      |      |       | 12  | 2,5             |   |     |     |    | -  |           |     | 245 | 283 |                     |
| SE(M)Kh 71-.B1        | B14/1              | 140 | 115 | 95j6 | M8 |      |      |      |       | 14  | 3,0             |   |     |     |    | -  |           |     | 245 | 283 |                     |
| SEKh 71-.BF1          |                    |     |     |      |    |      |      |      |       | 100 | 285             |   |     |     |    | -  |           |     |     |     |                     |
| SE(M)Kh 71-.B2        | B14/2              | 105 | 85  | 70j6 | M6 |      |      |      |       | 12  | 2,5             |   |     |     |    | -  |           |     | 245 | 283 |                     |
| SEKh 71-.BF2          |                    |     |     |      |    |      |      |      |       | 100 | 285             |   |     |     |    | -  |           |     |     |     |                     |
| SE(M)Kh 71-.C1        | B14/1              | 140 | 115 | 95j6 | M8 |      |      |      |       | 14  | 3,0             |   |     |     |    | -  |           |     | 263 | 301 |                     |
| SEKh 71-.CF1          |                    |     |     |      |    |      |      |      |       | 100 | 303             |   |     |     |    | -  |           |     |     |     |                     |
| SE(M)Kh 71-.C2        | B14/2              | 105 | 85  | 70j6 | M6 |      |      |      |       | 12  | 2,5             |   |     |     |    | -  |           |     | 263 | 301 |                     |
| SEKh 71-.CF2          |                    |     |     |      |    |      |      |      |       | 100 | 303             |   |     |     |    | -  |           |     |     |     |                     |



# BESEL S.A.

FABRYKA SILNIKÓW ELEKTRYCZNYCH

## SILNIKI INDUKCYJNE JEDNOFAZOWE O WZNIOSIE OSI WAŁU 80

### Charakterystyka silników katalogowych:

- silniki ogólnego przeznaczenia do pracy w warunkach klimatu umiarkowanego,
- praca ciągła S1,
- napięcia znamionowe 230V,
- częstotliwość zasilania 50 Hz,
- temperatura otoczenia od -15°C do +40°C,
- kolor malowania RAL 5010.

## SINGLE-PHASE INDUCTION MOTORS FRAME SIZE 80

### Description of the catalogue motors:

- general purpose motors; temperate climate,
- duty S1,
- rated voltage 230V,
- frequency 50 Hz,
- ambient temperature from -15°C to +40°C,
- standard paint colour RAL 5010.



stopień ochrony: IP54 (IP55; IP56; IP 65; IP 66)  
klasa izolacji F (klasa H na życzenie)

degree of protection: IP54 (IP55; IP56; IP 65; IP 66)  
insulation class F (class H on request)

| Typ        | Moc          |  | Prędkość obrotowa [min <sup>-1</sup> ] | Prąd [A] przy 230 V        | Sprawność $\eta$ [%]  | Współczynnik mocy $\cos \varphi_N$ | Moment znamionowy MN [Nm] | Krotność prądu rozruchowego $I_r/I_N$     | Krotność momentu rozruchowego $M_r/M_N$ | $M_{max}$ MN | Moment bezwładności J [kgm <sup>2</sup> ] | Kondensator pracy $\mu F$ 450V | Kondensator rozruchowy $\mu F$ 450V | Masa [kg]         |
|------------|--------------|--|----------------------------------------|----------------------------|-----------------------|------------------------------------|---------------------------|-------------------------------------------|-----------------------------------------|--------------|-------------------------------------------|--------------------------------|-------------------------------------|-------------------|
| Frame size | Rated output |  | Rated speed [min <sup>-1</sup> ]       | Rated current [A] at 230 V | Efficiency $\eta$ [%] | Power factor $\cos \varphi_N$      | Torque TN [Nm]            | Starting current/ rated current $I_L/I_N$ | Starting torque/ rated torque $T_L/T_N$ | $T_b$ TN     | Moment of inertia J [kgm <sup>2</sup> ]   | Run capacitor $\mu F$ 450V     | Start capacitor $\mu F$ 450V        | Motor weight [kg] |

### Silniki o normalnym momencie rozruchowym

### Motors with standard starting torque

|           |      |      |      |     |    |      |      |     |      |     |         |    |   |      |
|-----------|------|------|------|-----|----|------|------|-----|------|-----|---------|----|---|------|
| SEh 80-2B | 1,10 | 1,50 | 2780 | 7,0 | 72 | 0,97 | 3,78 | 2,7 | 0,40 | 1,4 | 0,00111 | 25 | - | 9,8  |
| SEh 80-2C | 1,50 | 2,00 | 2740 | 9,1 | 73 | 0,99 | 5,23 | 2,7 | 0,50 | 1,5 | 0,00142 | 40 | - | 11,8 |
| SEh 80-2D | 2,00 | 2,80 | 2780 | 13  | 74 | 0,99 | 6,87 | 2,5 | 0,40 | 1,4 | 0,00210 | 50 | - | 15,2 |
| SEh 80-4A | 0,55 | 0,75 | 1380 | 3,9 | 68 | 0,90 | 3,81 | 2,6 | 0,45 | 1,4 | 0,00157 | 16 | - | 9,6  |
| SEh 80-4B | 0,75 | 1,00 | 1410 | 4,8 | 72 | 0,95 | 5,08 | 2,7 | 0,45 | 1,4 | 0,00208 | 25 | - | 9,9  |
| SEh 80-4C | 1,10 | 1,50 | 1370 | 7,2 | 72 | 0,93 | 7,67 | 2,6 | 0,40 | 1,4 | 0,00265 | 30 | - | 11,4 |

### Silniki o podwyższonym momencie rozruchowym

### Motors with increased starting torque

|            |      |      |      |      |    |      |      |     |      |     |         |    |   |      |
|------------|------|------|------|------|----|------|------|-----|------|-----|---------|----|---|------|
| SEmh 80-2A | 0,55 | 0,75 | 2780 | 4,1  | 67 | 0,84 | 1,89 | 3,0 | 0,70 | 1,8 | 0,00080 | 20 | - | 8,0  |
| SEmh 80-2B | 0,75 | 1,00 | 2800 | 5,0  | 70 | 0,94 | 2,56 | 3,4 | 0,65 | 1,9 | 0,00111 | 25 | - | 9,7  |
| SEmh 80-2C | 1,10 | 1,50 | 2800 | 6,4  | 76 | 0,98 | 3,75 | 3,5 | 0,55 | 1,8 | 0,00142 | 30 | - | 11,7 |
| SEmh 80-2D | 1,50 | 2,00 | 2700 | 10,0 | 70 | 0,99 | 5,31 | 2,8 | 0,70 | 1,6 | 0,00210 | 40 | - | 13,7 |
| SEmh 80-4A | 0,37 | 0,50 | 1350 | 3,0  | 64 | 0,85 | 2,62 | 2,3 | 0,90 | 1,8 | 0,00156 | 14 | - | 8,3  |
| SEmh 80-4B | 0,55 | 0,75 | 1360 | 3,9  | 68 | 0,91 | 3,86 | 2,6 | 0,60 | 1,6 | 0,00208 | 20 | - | 9,5  |
| SEmh 80-4C | 0,75 | 1,00 | 1340 | 5,6  | 65 | 0,90 | 5,35 | 2,5 | 0,65 | 1,5 | 0,00265 | 25 | - | 11,5 |

### Silniki o dużym momencie rozruchowym

### Motors with high starting torque

|               |      |      |      |     |    |      |      |     |     |     |         |    |    |      |
|---------------|------|------|------|-----|----|------|------|-----|-----|-----|---------|----|----|------|
| SEh 80-2BR(F) | 1,10 | 1,50 | 2780 | 7,0 | 72 | 0,97 | 3,78 | 3,5 | 1,7 | 1,4 | 0,00111 | 25 | 70 | 10,6 |
| SEh 80-2CR(F) | 1,50 | 2,00 | 2800 | 9,5 | 75 | 0,96 | 5,12 | 3,7 | 1,9 | 1,7 | 0,00142 | 40 | 60 | 12,2 |
| SEh 80-4BR(F) | 0,75 | 1,00 | 1410 | 4,8 | 72 | 0,95 | 5,10 | 3,0 | 1,8 | 1,4 | 0,00208 | 25 | 60 | 10,4 |
| SEh 80-4CR(F) | 1,10 | 1,50 | 1370 | 7,2 | 72 | 0,93 | 7,67 | 3,6 | 1,9 | 1,5 | 0,00265 | 30 | 75 | 12,2 |

Silniki SEh 80-...R(F) są wyposażone w dwa kondensatory - pracy i rozruchowy oraz wyłącznik elektroniczny(R) lub wyłącznik odśrodkowy (F) (wymiar dla silników z wyłącznikiem elektronicznym jak dla silników bez wyłącznika).

The SEh 80-...R(F) motors are equipped with two capacitors - capacitor run and capacitor start as well as the electronic switch (R) or centrifugal switch (F) (dimensions for motors with electronic switch are analogous to the standard motors without the switch).

Silniki mogą być wykonane i certyfikowane na zgodność z wymogami normy UL 1004 lub CSA C22.2 No 100-04.

Motors may be certified for safety that they are manufactured according to the requirements of the UL 1004 or CSA C22.2 No 100-04.

Silniki odpowiadają wymaganiom Polskiej Normy PN-EN 60034-1 oraz normom międzynarodowym IEC 60034-1.

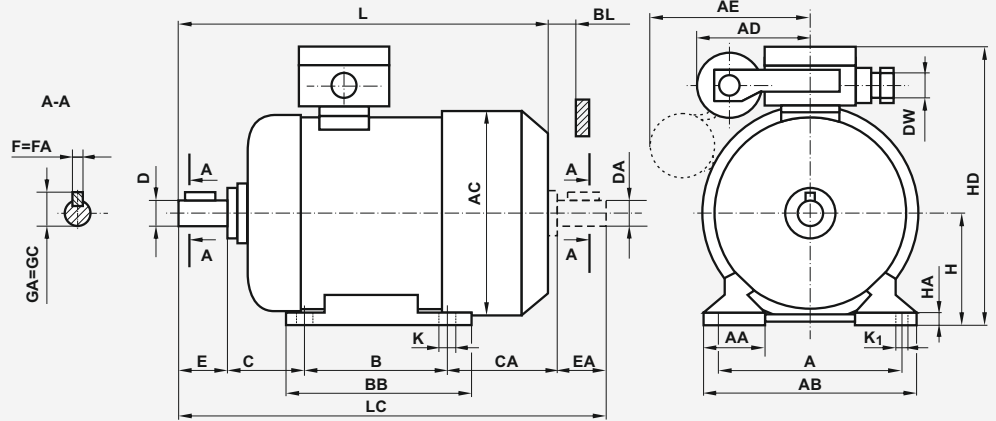
Motors meet requirements of Polish Standard PN-EN 60034-1 and the international rules IEC 60034-1.

Wszystkie silniki posiadają znak CE.

All motors are provided with CE mark.

**Silniki na łapach**  
**Forma wykonania**  
**IMB3**

**Foot - mounted motors**  
**Type of construction**  
**IMB3**



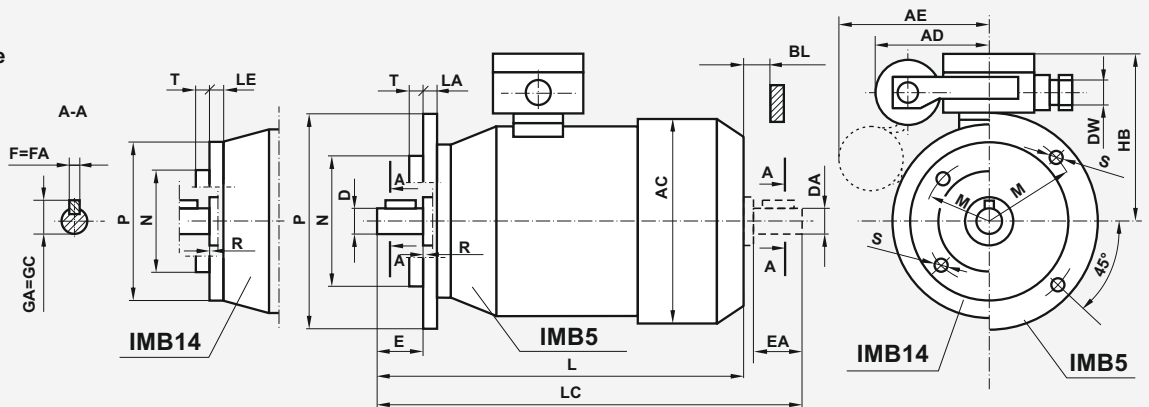
**Forma wykonania IMB3**

**Type of construction IMB3**

| Type<br><br>Frame size | Wymiary (mm) |     |    |     |      |      |      |       |                   |    |                |     |    |     | Dimensions (mm) |    |     |     |           |    |     |     |     |          | Łożyska |
|------------------------|--------------|-----|----|-----|------|------|------|-------|-------------------|----|----------------|-----|----|-----|-----------------|----|-----|-----|-----------|----|-----|-----|-----|----------|---------|
|                        | A            | B   | C  | CA  | D=DA | E=EA | F=FA | GA=GC | H                 | K  | K <sub>1</sub> | DW  | AA | AB  | AC              | AD | AE  | BB  | BL<br>min | HA | HD  | L   | LC  | Bearings |         |
| SE(M)h 80-.A           | 125          | 100 | 50 | 98  | 19j6 | 40   | 6h9  | 21,5  | 80 <sub>0,5</sub> | 10 | 13             | M20 | 55 | 160 | 157             | 95 | -   | 130 | 15        | 9  | 200 | 266 | 317 | 6204 2Z  |         |
| SE(M)h 80-.B           |              |     |    |     |      |      |      |       |                   |    |                |     |    |     |                 |    | -   |     |           |    |     | 278 | 329 |          |         |
| SEh 80-BF              |              |     |    |     |      |      |      |       |                   |    |                |     |    |     |                 |    | 120 |     |           |    |     | 315 | -   |          |         |
| SE(M)h 80-.C           |              |     |    | 120 |      |      |      |       |                   |    |                |     |    |     |                 |    | -   |     |           |    |     | 306 | 357 |          |         |
| SEh 80-.CF             |              |     |    |     |      |      |      |       |                   |    |                |     |    |     |                 |    | 120 |     |           |    |     | 343 | -   |          |         |
| SE(M)h 80-.D           |              |     |    |     |      |      |      |       |                   |    |                |     |    |     |                 |    | -   |     |           |    |     | 324 | 375 |          |         |

**Silniki kołnierzowe**  
**Formy wykonania**  
**IMB5, IMB14**

**Flange**  
**- mounted motors**  
**Types of construction**  
**IMB5, IMB14**



**Forma wykonania IMB5**

**Type of construction IMB5**

| Typ<br><br>Frame size | Wymiary (mm)       |     |     |       |    |          |          |          |           |    |     |   |     |     | Dimensions (mm) |     |           |     |     |     |          |  | Łożyska |
|-----------------------|--------------------|-----|-----|-------|----|----------|----------|----------|-----------|----|-----|---|-----|-----|-----------------|-----|-----------|-----|-----|-----|----------|--|---------|
|                       | Kołnierz<br>Flange | P   | M   | N     | S  | D=<br>DA | E=<br>EA | F=<br>FA | GA=<br>GC | LA | T   | R | DW  | AC  | AD              | AE  | BL<br>min | HB  | L   | LC  | Bearings |  |         |
| SE(M)Kh 80-.A         | B5                 | 200 | 165 | 130j6 | 12 | 19j6     | 40       | 6h9      | 21,5      | 10 | 3,5 | 0 | M20 | 157 | 95              | -   | 15        | 120 | 266 | 317 | 6204 2Z  |  |         |
| SE(M)Kh 80-.B         |                    |     |     |       |    |          |          |          |           |    |     |   |     |     |                 | -   |           |     | 278 | 329 |          |  |         |
| SEKh 80-.BF           |                    |     |     |       |    |          |          |          |           |    |     |   |     |     |                 | 120 |           |     | 315 | -   |          |  |         |
| SE(M)Kh 80-.C         |                    |     |     |       |    |          |          |          |           |    |     |   |     |     |                 | -   |           |     | 306 | 357 |          |  |         |
| SEKh 80-.CF           |                    |     |     |       |    |          |          |          |           |    |     |   |     |     |                 | 120 |           |     | 343 | -   |          |  |         |
| SE(M)Kh 80-.D         |                    |     |     |       |    |          |          |          |           |    |     |   |     |     |                 | -   |           |     | 324 | 375 |          |  |         |

**Forma wykonania IMB14**

**Type of construction IMB14**

| Typ<br>Frame size | Wymiary (mm)       |     |     |       |    |      |      |      |       |    |     |   |     |     | Dimensions (mm) |     |           |     |     |     |          |  | Łożyska |
|-------------------|--------------------|-----|-----|-------|----|------|------|------|-------|----|-----|---|-----|-----|-----------------|-----|-----------|-----|-----|-----|----------|--|---------|
|                   | Kołnierz<br>Flange | P   | M   | N     | S  | D=DA | E=EA | F=FA | GA=GC | LE | T   | R | DW  | AC  | AD              | AE  | BL<br>min | HB  | L   | LC  | Bearings |  |         |
| SE(M)Kh 80-.A1    | B14/1              | 160 | 130 | 110j6 | M8 | 19j6 | 40   | 6h9  | 21,5  | 14 | 3,5 | 0 | M20 | 157 | 95              | -   | 15        | 120 | 266 | 317 | 6204 2Z  |  |         |
| SE(M)Kh 80-.A2    | B14/2              | 120 | 100 | 80j6  | M6 |      |      |      |       | 12 | 3,0 |   |     |     |                 | -   |           |     | 266 | 317 |          |  |         |
| SE(M)Kh 80-.B1    | B14/1              | 160 | 130 | 110j6 | M8 |      |      |      |       | 14 | 3,5 |   |     |     |                 | -   |           |     | 278 | 329 |          |  |         |
| SEKh 80-.BF1      | B14/1              | 160 | 130 | 110j6 | M8 |      |      |      |       | 14 | 3,5 |   |     |     |                 | 120 |           |     | 315 | -   |          |  |         |
| SE(M)Kh 80-.B2    | B14/2              | 120 | 100 | 80j6  | M6 |      |      |      |       | 12 | 3,0 |   |     |     |                 | -   |           |     | 278 | 329 |          |  |         |
| SEKh 80-.BF2      | B14/2              | 120 | 100 | 80j6  | M6 |      |      |      |       | 12 | 3,0 |   |     |     |                 | 120 |           |     | 315 | -   |          |  |         |
| SE(M)Kh 80-.C1    | B14/1              | 160 | 130 | 110j6 | M8 |      |      |      |       | 14 | 3,5 |   |     |     |                 | -   |           |     | 306 | 357 |          |  |         |
| SEKh 80-.CF1      | B14/1              | 160 | 130 | 110j6 | M8 |      |      |      |       | 14 | 3,5 |   |     |     |                 | 120 |           |     | 343 | -   |          |  |         |
| SE(M)Kh 80-.C2    | B14/2              | 120 | 100 | 80j6  | M6 |      |      |      |       | 12 | 3,0 |   |     |     |                 | -   |           |     | 306 | 357 |          |  |         |
| SEKh 80-.CF2      | B14/2              | 120 | 100 | 80j6  | M6 |      |      |      |       | 12 | 3,0 |   |     |     |                 | 120 |           |     | 343 | -   |          |  |         |
| SE(M)Kh 80-.D1    | B14/1              | 160 | 130 | 110j6 | M8 |      |      |      |       | 14 | 3,5 |   |     |     |                 | -   |           |     | 324 | 375 |          |  |         |
| SE(M)Kh 80-.D2    | B14/2              | 120 | 100 | 80i6  | M6 |      |      |      |       | 12 | 3,0 |   |     |     |                 | -   |           |     | 324 | 375 |          |  |         |



# BESEL S.A.

FABRYKA SILNIKÓW ELEKTRYCZNYCH

## SILNIKI INDUKCYJNE JEDNOFAZOWE O WZNIOSIE OSI WAŁU 90

### Charakterystyka silników katalogowych:

- silniki ogólnego przeznaczenia do pracy w warunkach klimatu umiarkowanego,
- praca ciągła S1,
- napięcia znamionowe 230V,
- częstotliwość zasilania 50 Hz,
- temperatura otoczenia od -15°C do +40°C,
- kolor malowania RAL 5010.

## SINGLE-PHASE INDUCTION MOTORS FRAME SIZE 90

### Description of the catalogue motors:

- general purpose motors; temperate climate,
- duty S1,
- rated voltage 230V,
- frequency 50 Hz,
- ambient temperature from -15°C to +40°C,
- standard paint colour RAL 5010.



stopień ochrony: IP54 (IP55; IP56; IP 65; IP 66)  
klasa izolacji F (klasa H na życzenie)

degree of protection: IP54 (IP55; IP56; IP 65; IP 66)  
insulation class F (class H on request)

| Typ        | Moc          |      | Prędkość obrotowa    | Prąd [A] przy     | Sprawność  | Współczynnik       | Moment znamionowy   | Krotność prądu rozruchowego     | Krotność momentu rozruchowego  | M <sub>max</sub> | Moment bezwładności   | Kondensator pracy | Kondensator rozruchowy | Masa         |
|------------|--------------|------|----------------------|-------------------|------------|--------------------|---------------------|---------------------------------|--------------------------------|------------------|-----------------------|-------------------|------------------------|--------------|
|            | [kW]         | [KM] | [min <sup>-1</sup> ] | 230 V             | η [%]      | cos φ <sub>N</sub> | M <sub>N</sub> [Nm] | I <sub>r</sub> /I <sub>N</sub>  | M <sub>r</sub> /M <sub>N</sub> | M <sub>N</sub>   | J [kgm <sup>2</sup> ] | [μF] 450V         | [μF] 450V              | [kg]         |
| Frame size | Rated output |      | Rated speed          | Rated current [A] | Efficiency | Power factor       | Torque              | Starting current/ rated current | Starting torque/ rated torque  | T <sub>b</sub>   | Moment of inertia     | Run capacitor     | Start capacitor        | Motor weight |
|            | [kW]         | [HP] | [min <sup>-1</sup> ] | 230 V             | η [%]      | cos φ <sub>N</sub> | T <sub>N</sub> [Nm] | I <sub>L</sub> /I <sub>N</sub>  | T <sub>L</sub> /T <sub>N</sub> | T <sub>N</sub>   | J [kgm <sup>2</sup> ] | [μF] 450V         | [μF] 450V              | [kg]         |

### Silniki o normalnym momencie rozruchowym

### Motors with standard starting torque

|           |      |      |      |      |    |      |      |     |      |     |        |    |   |      |
|-----------|------|------|------|------|----|------|------|-----|------|-----|--------|----|---|------|
| SEh 90-2S | 1,50 | 2,00 | 2740 | 9,1  | 73 | 0,99 | 5,23 | 2,7 | 0,50 | 1,5 | 0,0012 | 40 | - | 11,8 |
| SEh 90-2L | 2,00 | 2,80 | 2780 | 13,0 | 74 | 0,99 | 6,87 | 2,5 | 0,40 | 1,4 | 0,0016 | 50 | - | 15,2 |
| SEh 90-4S | 1,10 | 1,50 | 1370 | 7,2  | 72 | 0,93 | 7,70 | 2,6 | 0,40 | 1,4 | 0,0024 | 30 | - | 11,4 |
| SEh 90-4L | 1,30 | 1,80 | 1370 | 9,0  | 72 | 0,90 | 9,10 | 2,8 | 0,38 | 1,4 | 0,0032 | 40 | - | 14,0 |

### Silniki o podwyższonym momencie rozruchowym

### Motors with increased starting torque

|           |      |      |      |      |    |      |      |     |      |     |        |    |   |      |
|-----------|------|------|------|------|----|------|------|-----|------|-----|--------|----|---|------|
| SEh 90-2S | 1,10 | 1,50 | 2800 | 6,4  | 76 | 0,98 | 3,81 | 3,5 | 0,55 | 1,8 | 0,0012 | 30 | - | 11,7 |
| SEh 90-2L | 1,50 | 2,00 | 2700 | 10,2 | 71 | 0,90 | 5,31 | 2,8 | 0,70 | 1,6 | 0,0016 | 40 | - | 15,7 |
| SEh 90-4S | 0,75 | 1,00 | 1340 | 5,6  | 65 | 0,90 | 5,19 | 2,5 | 0,65 | 1,5 | 0,0024 | 25 | - | 12,5 |
| SEh 90-4L | 1,10 | 1,50 | 1300 | 7,8  | 67 | 0,92 | 8,08 | 2,2 | 0,50 | 1,4 | 0,0032 | 40 | - | 14,5 |

### Silniki o dużym momencie rozruchowym

### Motors with high starting torque

|               |      |      |      |      |    |      |      |     |     |     |        |    |    |      |
|---------------|------|------|------|------|----|------|------|-----|-----|-----|--------|----|----|------|
| SEh 90-2SR(F) | 1,50 | 2,00 | 2740 | 9,1  | 73 | 0,99 | 5,12 | 3,6 | 1,7 | 1,6 | 0,0012 | 40 | 60 | 13,5 |
| SEh 90-2LR(F) | 2,00 | 2,80 | 2780 | 13,0 | 74 | 0,99 | 6,87 | 3,5 | 1,6 | 1,4 | 0,0016 | 50 | 75 | 16,3 |
| SEh 90-4SR(F) | 1,10 | 1,50 | 1370 | 7,2  | 73 | 0,93 | 7,67 | 4,0 | 1,6 | 1,5 | 0,0024 | 30 | 75 | 13,7 |
| SEh 90-4LR(F) | 1,30 | 1,80 | 1360 | 9,0  | 72 | 0,90 | 9,13 | 3,2 | 1,8 | 1,4 | 0,0032 | 40 | 90 | 14,8 |

Silniki SEh 90-...R(F) są wyposażone w dwa kondensatory - pracy i rozruchowy oraz wyłącznik elektroniczny(R) lub wyłącznik odśrodkowy (F) (wymiar dla silników z wyłącznikiem elektronicznym jak dla silników bez wyłącznika).

The SEh 90-...R(F) motors are equipped with two capacitors - capacitor run and capacitor start as well as the electronic switch (R) or centrifugal switch (F) (dimensions for motors with electronic switch are analogous to the standard motors without the switch).

Silniki mogą być wykonane i certyfikowane na zgodność z wymogami normy UL 1004 lub CSA C22.2 No 100-04.

Motors may be certified for safety that they are manufactured according to the requirements of the UL 1004 or CSA C22.2 No 100-04.

Silniki odpowiadają wymaganiom Polskiej Normy PN-EN 60034-1 oraz normom międzynarodowym IEC 60034-1.

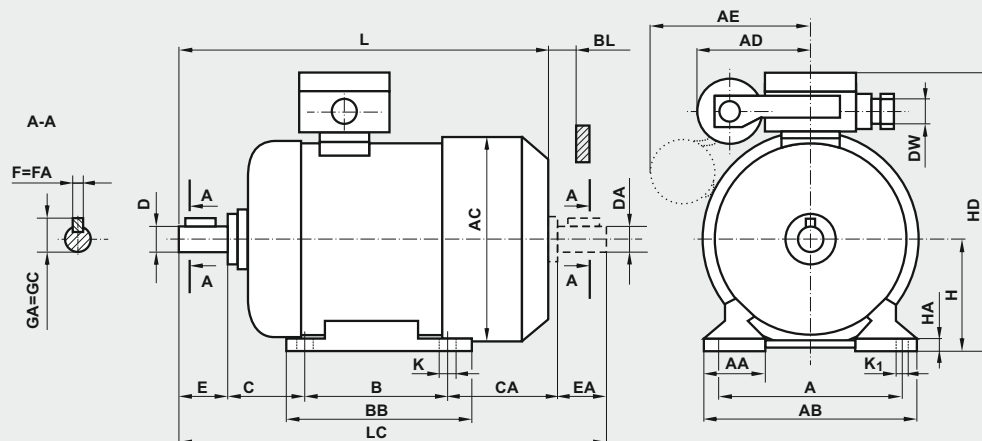
Motors meet requirements of Polish Standard PN-EN 60034-1 and the international rules IEC 60034-1.

Wszystkie silniki posiadają znak CE.

All motors are provided with CE mark.

**Silniki na łapach**  
**Forma wykonania**  
**IMB3**

**Foot - mounted motors**  
**Type of construction**  
**IMB3**



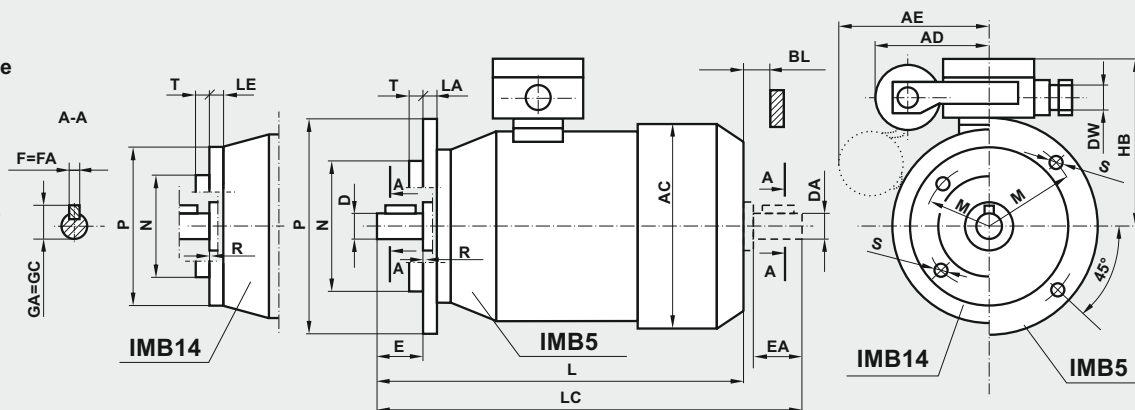
**Forma wykonania IMB3**

**Type of construction IMB3**

| Typ         | Wymiary (mm) |     |    |     |      |      |      |      |                    |    |    |                |    |     |     |    |    |     |     | Dimensions (mm) |    |     |     |     |          |         |  | Łożyska |  |
|-------------|--------------|-----|----|-----|------|------|------|------|--------------------|----|----|----------------|----|-----|-----|----|----|-----|-----|-----------------|----|-----|-----|-----|----------|---------|--|---------|--|
|             | Frame size   | A   | B  | C   | CA   | D=DA | E=EA | F=FA | GA=GC              | H  | K  | K <sub>1</sub> | DW | AA  | AB  | AC | AD | AE  | BB  | BL min          | HA | HD  | L   | LC  | Bearings |         |  |         |  |
|             |              |     |    |     |      |      |      |      |                    |    |    |                |    |     |     |    |    |     |     |                 |    |     |     |     | P        | N       |  |         |  |
| SE(M)h 90-S | 140          | 100 | 56 | 114 | 24j6 | 50   | 8h9  | 27   | 90 <sub>-0,5</sub> | 10 | 13 | M20            | 60 | 170 | 157 | 95 |    | -   | 153 | 15              | 12 | 208 | 316 | 376 | 6204 2Z  | 6205 2Z |  |         |  |
| SEh 90-SF   |              |     |    |     |      |      |      |      |                    |    |    |                |    |     |     |    |    | 120 |     |                 |    |     | 350 | -   |          |         |  |         |  |
| SE(M)h 90-L |              | 125 |    | 107 |      |      |      |      |                    |    |    |                |    |     |     |    |    | -   |     |                 |    |     | 328 | 388 |          |         |  |         |  |
| SEh 90-LF   |              |     |    |     |      |      |      |      |                    |    |    |                |    |     |     |    |    | 120 |     |                 |    |     | 364 | -   |          |         |  |         |  |

**Silniki kołnierkowe**  
**Formy wykonania**  
**IMB5, IMB14**

**Flange**  
**- mounted motors**  
**Types**  
**of construction**  
**IMB5, IMB14**



**Forma wykonania IMB5**

**Type of construction IMB5**

| Typ<br><br>Frame size | Wymiary (mm)           |     |     |       |    |      |      |      |       |    |     |   |     |     |    |     | Dimensions (mm) |     |     |     |          |         | Łożyska |  |
|-----------------------|------------------------|-----|-----|-------|----|------|------|------|-------|----|-----|---|-----|-----|----|-----|-----------------|-----|-----|-----|----------|---------|---------|--|
|                       | Kołnierz<br><br>Flange | P   | M   | N     | S  | D=DA | E=EA | F=FA | GA=GC | LA | T   | R | DW  | AC  | AD | AE  | BL min          | HB  | L   | LC  | Bearings |         |         |  |
|                       |                        |     |     |       |    |      |      |      |       |    |     |   |     |     |    |     |                 |     |     |     | P        | N       |         |  |
| SE(M)Kh 90-S          | B5                     | 200 | 165 | 130j6 | 12 | 24j6 | 50   | 8h9  | 27    | 10 | 3,5 | 0 | M20 | 157 | 95 | -   | 15              | 118 | 316 | 376 | 6204 2Z  | 6205 2Z |         |  |
| SEKh 90-SF            |                        |     |     |       |    |      |      |      |       |    |     |   |     |     |    | 120 |                 |     | 350 | -   |          |         |         |  |
| SE(M)Kh 90-L          |                        |     |     |       |    |      |      |      |       |    |     |   |     |     |    | -   |                 |     | 328 | 388 |          |         |         |  |
| SEKh 90-LF            |                        |     |     |       |    |      |      |      |       |    |     |   |     |     |    | 120 |                 |     | 364 | -   |          |         |         |  |

**Forma wykonania IMB14**

**Type of construction IMB14**

| Typ<br><br>Frame size | Wymiary (mm)       |     |     |       |    |      |      |      |       |    |     |   |     |     |    |     | Dimensions (mm) |     |     |     |          |         | Łożyska |  |
|-----------------------|--------------------|-----|-----|-------|----|------|------|------|-------|----|-----|---|-----|-----|----|-----|-----------------|-----|-----|-----|----------|---------|---------|--|
|                       | Kolnierz<br>Flange | P   | M   | N     | S  | D=DA | E=EA | F=FA | GA=GC | LE | T   | R | DW  | AC  | AD | AE  | BL min          | HB  | L   | LC  | Bearings |         |         |  |
|                       |                    |     |     |       |    |      |      |      |       |    |     |   |     |     |    |     |                 |     |     |     | P        | N       |         |  |
| SE(M)Kh 90-.S1        | B14/1              | 160 | 130 | 110j6 | M8 | 24j6 | 50   | 8h9  | 27    | 10 | 3,5 | 0 | M20 | 157 | 95 | -   | 15              | 118 | 316 | 376 | 6204 2Z  | 6205 2Z |         |  |
| SEKh 90-.SF1          |                    |     |     |       |    |      |      |      |       |    | 120 |   |     |     |    | 350 |                 |     | -   |     |          |         |         |  |
| SE(M)Kh 90-.S2        | B14/2              | 140 | 115 | 95j6  | M8 |      |      |      |       |    | 3,0 |   |     |     |    | -   |                 |     | 316 | 376 |          |         |         |  |
| SEKh 90-.SF2          |                    |     |     |       |    |      |      |      |       |    | 120 |   |     |     |    | 350 |                 |     | -   |     |          |         |         |  |
| SE(M)Kh 90-.L1        | B14/1              | 160 | 130 | 110j6 | M8 |      |      |      |       |    | 3,5 |   |     |     |    | -   |                 |     | 328 | 388 |          |         |         |  |
| SEKh 90-.LF1          |                    |     |     |       |    |      |      |      |       |    | 120 |   |     |     |    | 364 |                 |     | -   |     |          |         |         |  |
| SE(M)Kg 90-.L2        | B14/2              | 140 | 115 | 95j6  | M8 |      |      |      |       |    | 3,0 |   |     |     |    | -   |                 |     | 328 | 388 |          |         |         |  |
| SEKh 90-.LF2          |                    |     |     |       |    |      |      |      |       |    | 120 |   |     |     |    | 364 |                 |     | -   |     |          |         |         |  |

Producent zastrzega sobie możliwość zmian danych zawartych w karcie katalogowej wynikających z ciągłego doskonalenia wyrobu.

As part of our development program, we reserve the right to alter or amend any of the specifications without giving prior notice.