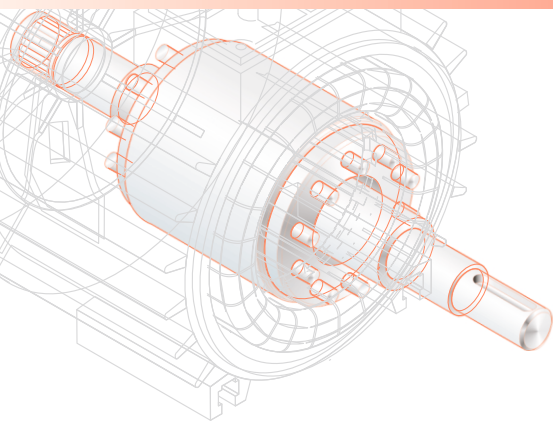




BESEL S.A.

FABRYKA SILNIKÓW ELEKTRYCZNYCH



SILNIKI INDUKCYJNE JEDNOFAZOWE serii hR O WZNIOSIE OSI WAŁU 90 (kadłub z rury ciągnionej profilowej)

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 series hR FRAME SIZE 90 (frame made of drawn tube)

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 ⁻¹] | Prąd [A] przy 230 V | Sprawność η [%] | Współczynnik mocy cos φ _N | Moment znamionowy MN [Nm] | Krotność prądu rozruchowego I _r /I _N | Krotność momentu rozruchowego M _r /M _N | M _{max} /M _N | Moment bezwładności J [kgm ²] | Kondensator pracy [μF] /450V | Kondensator rozruchowy [μF] /450V | Masa [kg] |
|------------|-------------------|------|--|----------------------------|------------------|--------------------------------------|----------------------------|--|--|----------------------------------|---|------------------------------|-----------------------------------|-------------------|
| | [kW] | [KM] | | | | | | | | | | | | |
| Frame size | Rated output [kW] | [HP] | Rated speed [min ⁻¹] | Rated current [A] at 230 V | Efficiency η [%] | Power factor cos φ _N | Torque T _N [Nm] | Starting current/ rated current I _r /I _N | Starting torque/ rated torque T _L /T _N | T _b /T _N | Moment of inertia J [kgm ²] | Run capacitor [μF] /450V | Start capacitor [μF] /450V | Motor weight [kg] |

Silniki o normalnym momencie rozruchowym

Motors with standard starting torque

| | | | | | | | | | | | | | | |
|------------|------|------|------|------|----|------|------|-----|------|-----|--------|----|---|------|
| SEhR 90-2S | 1,50 | 2,00 | 2800 | 9,0 | 75 | 0,97 | 5,12 | 3,0 | 0,45 | 1,6 | 0,0012 | 40 | - | 12,4 |
| SEhR 90-2L | 2,20 | 3,00 | 2810 | 12,8 | 76 | 0,99 | 7,48 | 3,4 | 0,38 | 1,5 | 0,0016 | 50 | - | 15,2 |
| SEhR 90-4S | 1,10 | 1,50 | 1380 | 7,5 | 70 | 0,96 | 7,60 | 2,5 | 0,40 | 1,4 | 0,0024 | 30 | - | 12,0 |
| SEhR 90-4L | 1,50 | 2,00 | 1400 | 9,3 | 76 | 0,97 | 10,2 | 3,0 | 0,40 | 1,5 | 0,0032 | 35 | - | 15,0 |

Silniki o podwyższonym momencie rozruchowym

Motors with increased starting torque

| | | | | | | | | | | | | | | |
|------------|------|------|------|------|----|------|-------|-----|------|-----|--------|----|---|------|
| SEhR 90-2S | 1,10 | 1,50 | 2760 | 7,0 | 73 | 0,99 | 3,80 | 3,2 | 0,60 | 1,6 | 0,0012 | 30 | - | 12,4 |
| SEhR 90-2L | 1,50 | 2,00 | 2750 | 9,4 | 72 | 0,97 | 5,20 | 3,5 | 0,70 | 1,6 | 0,0016 | 40 | - | 15,2 |
| SEhR 90-4S | 0,75 | 1,00 | 1380 | 5,5 | 66 | 0,95 | 5,20 | 3,1 | 0,60 | 1,6 | 0,0024 | 25 | - | 12,0 |
| SEhR 90-4L | 1,10 | 1,50 | 1360 | 8,1 | 65 | 0,95 | 7,70 | 2,6 | 0,60 | 1,5 | 0,0032 | 30 | - | 15,0 |
| SEhR 90-4M | 1,50 | 2,00 | 1340 | 11,0 | 63 | 0,98 | 10,70 | 2,5 | 0,70 | 1,5 | 0,0046 | 40 | - | 17,5 |

Silniki o dużym momencie rozruchowym

Motors with high starting torque

| | | | | | | | | | | | | | | |
|----------------|------|------|------|------|----|------|------|-----|-----|-----|--------|----|---------|------|
| SEhR 90-2SR(F) | 1,50 | 2,00 | 2800 | 9,0 | 75 | 0,97 | 5,12 | 4,1 | 1,9 | 1,6 | 0,0012 | 40 | 125÷160 | 12,8 |
| SEhR 90-2LR(F) | 2,20 | 3,00 | 2810 | 12,8 | 76 | 0,99 | 7,48 | 3,8 | 1,7 | 1,7 | 0,0016 | 50 | 160÷200 | 15,5 |
| SEhR 90-4SR(F) | 1,10 | 1,50 | 1380 | 7,5 | 70 | 0,96 | 7,60 | 3,8 | 1,6 | 1,4 | 0,0024 | 25 | 125÷160 | 12,4 |
| SEhR 90-4LR(F) | 1,50 | 2,00 | 1400 | 9,3 | 76 | 0,97 | 10,2 | 4,0 | 1,7 | 1,5 | 0,0032 | 35 | 125÷160 | 15,4 |

Użebrowanie kadłuba ma układ krzyżowy.

Cooling fins are made in cruciform system.

Silniki SEhR 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 SEhR 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 w wykonaniu IMB3 mają korpus z zamocowaną na stałe łapą.

In IMB3 frame and foot are one cast.

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.

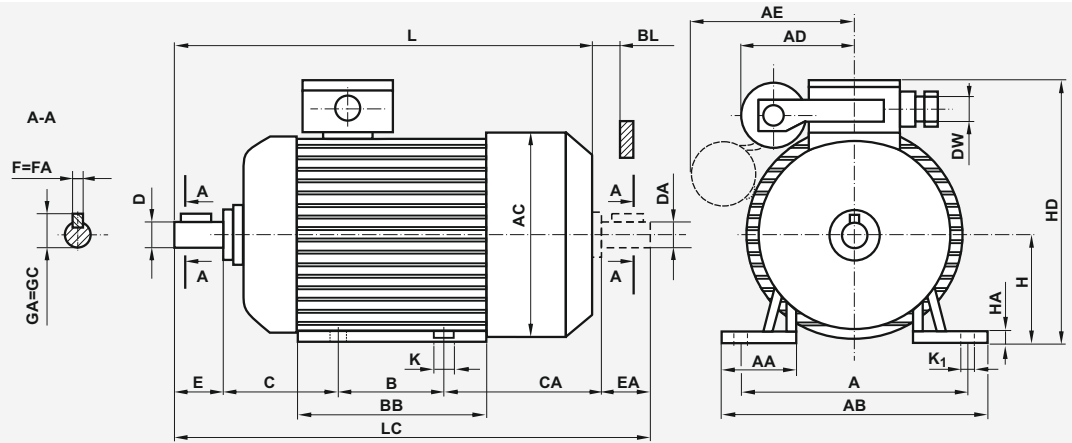
Motors meet requirements of Polish Standard PN-EN 60034-1 and the international rules IEC 60034-1.

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



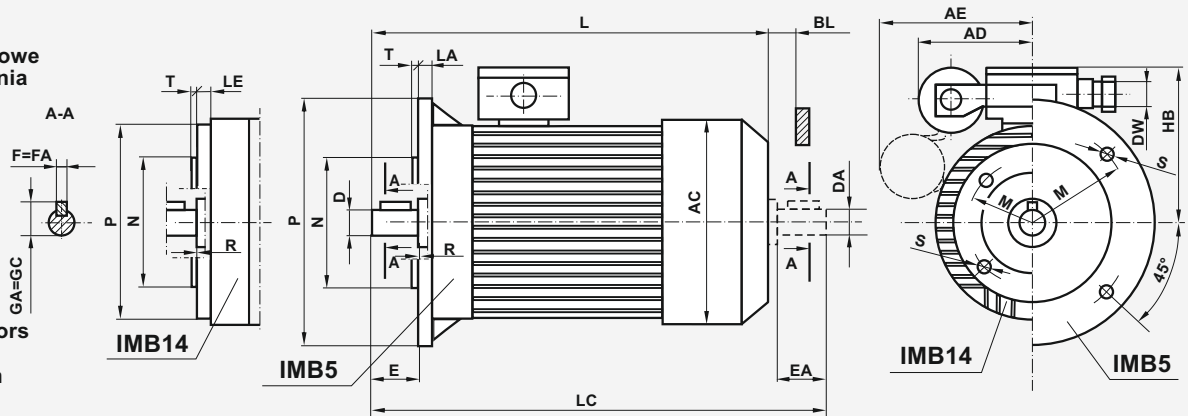
Forma wykonania IMB3

Type of construction IMB3

| Typ | Wymiary (mm) | | | | | | | | | | | | | | | Dimensions (mm) | | | | | Łożyska Bearings | | | |
|---------------|--------------|-----|----|-----|------|------|------|------|-------------------|----|----|----------------|----|-----|-----|-----------------|-----|-----|----|--------|---------------------|-----|-----|---------|
| | Frame size | A | B | C | CA | D=DA | E=EA | F=FA | GA=GC | H | K | K ₁ | DW | AA | AB | AC | AD | AE | BB | BL min | | HA | HD | L |
| SE(M)hR 90-.S | 140 | 100 | 56 | 117 | 24j6 | 50 | 8h9 | 27 | 90 _{0,5} | 10 | 13 | M20 | 63 | 170 | 166 | 95 | - | 153 | 15 | 12 | 210 | 312 | 373 | 6205 2Z |
| SEhR 90-.SF | | | | 120 | | | | | | | | | | | | | 352 | | | | | - | | |
| SE(M)hR 90-.L | | 125 | | 157 | | | | | | | | | | | | | 337 | 398 | | | | | | |
| SEhR 90-.LF | | 120 | | 377 | | | | | | | | | | | | | - | | | | | | | |
| SEMhR 90-.M | | 125 | | 137 | | | | | | | | | | | | | 357 | 418 | | | | | | |

Silniki kołnierze
Formy wykonania
IMB5, IMB14

Flange
- mounted motors
Types
of construction
IMB5, IMB14



Forma wykonania IMB5

Type of construction IMB5

| Typ | Wymiary (mm) | | | | | | | | | | Dimensions (mm) | | | | | | | | | | Łożyska Bearings | |
|----------------|--------------|--------------------|-----|-------|----|------|------|------|------|-------|-----------------|---|-----|-----|----|-----|-----|--------|-----|-----|---------------------|-----|
| | Frame size | Kołnierz 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 |
| SE(M)KhR 90-.S | B5 | 200 | 165 | 130j6 | 12 | 24j6 | 50 | 8h9 | 27 | 10 | 3,5 | 0 | M20 | 166 | 95 | - | 15 | 120 | 337 | 398 | 6205 2Z | |
| SEKhR 90-.SF | | | | | | | | | | | | | | | | 120 | | | | | | 352 |
| SE(M)KhR 90-.L | | | | | | | | | | | | | | | | 120 | 377 | | | | | - |
| SEKhR 90-.LF | | | | | | | | | | | | | | | | 120 | 357 | | | | | 418 |
| SEMKhR 90-.M | | | | | | | | | | | | | | | | - | 357 | | | | | 418 |

Forma wykonania IMB14

Type of construction IMB14

| Typ | Wymiary (mm) | | | | | | | | | | Dimensions (mm) | | | | | | | | | | Łożyska Bearings | | | | | | | |
|-----------------|--------------|--------------------|-----|-------|----|------|------|------|------|-------|-----------------|---|-----|-----|----|-----|-----|--------|-----|-----|---------------------|-----|-----|-----|----|-----|-----|-----|
| | Frame size | Kołnierz 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 | | | | | | |
| SE(M)KhR 90-.S1 | B14/1 | 160 | 130 | 110j6 | M8 | 24j6 | 50 | 8h9 | 27 | 8 | 3,5 | 0 | M20 | 166 | 95 | - | 15 | 120 | 337 | 398 | 6205 2Z | | | | | | | |
| SEKhR 90-.SF1 | | | | | | | | | | | | | | | | 120 | | | | | | 352 | - | | | | | |
| SE(M)KhR 90-.S2 | B14/2 | 140 | 115 | 95j6 | M8 | | | | | | 3,0 | | | | | 337 | 373 | | | | | | | | | | | |
| SEKhR 90-.SF2 | | | | | | | | | | | | | | | | | | | | | | 120 | 352 | - | | | | |
| SE(M)KhR 90-.L1 | B14/1 | 160 | 130 | 110j6 | M8 | | | | | | 3,5 | | | | | 0 | M20 | | | | | 166 | 95 | - | 15 | 120 | 337 | 398 |
| SEKhR 90-.LF1 | | | | | | | | | | | | | | | | | | | | | | | | 120 | | | | |
| SE(M)KhR 90-.L2 | B14/2 | 140 | 115 | 95j6 | M8 | | | | | | 3,0 | | | | | 337 | 398 | | | | | | | | | | | |
| SEKhR 90-.LF2 | | | | | | | | | | | | | | | | | | | | | | 120 | 377 | - | | | | |
| SEMKhR 90-.M1 | B14/1 | 160 | 130 | 110j6 | M8 | | | | | | 3,5 | | | | | 357 | 418 | | | | | | | | | | | |
| SEMKhR 90-.M2 | B14/2 | 140 | 115 | 95j6 | M8 | | | | | | 3,0 | | | | | 357 | 418 | | | | | | | | | | | |

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