

[illegible]

A blue industrial electric motor with a cooling fan and a mounting bracket. The motor is shown from a side-on perspective, highlighting its robust design and the cooling fan on the front. A mounting bracket is attached to the top, and a label is visible on the side. The background is a solid blue color.



Product range

LOW VOLTAGE GENERAL PURPOSE 3-PHASE INDUCTION MOTORS	Three-phase motors with squirrel-cage rotor series (2)Sg(m), Sh. High efficiency motors series 2SIE, 3SIE and 4SIE (efficiency classes IE2, IE3, IE4)	from 0,04kW up to 2200kW	for general purpose applications like pumps, fans, compressors; complying with the newest efficiency requirements
GENERAL PURPOSE 1-PHASE INDUCTION MOTORS	Single-phase motors with squirrel-cage rotor series SEh(R), SEMh(R). – motors with standard starting torque – motors with increased starting torque – motors with high starting torque.	from 0,04kW up to 2,2kW	for general purpose applications like pumps, fans, compressors, woodworking machines, devices for food processing, concrete mixers etc.
HIGH VOLTAGE INDUCTION MOTORS UP TO 11kV	Three-phase squirrel-cage high voltage and high efficiency motors series Sh with cast-iron housing. High voltage motors with module construction (steel/welded housing) series Sf (-E), Sfw, Sfr.	from 160kW up to 6000kW	for general industrial use, drives used for own needs of power plants (pumps, fans, coal mills, conveyors)
BRAKE MOTORS	Three-phase and single-phase brake motors with AC and DC brakes	from 0,04kW up to 200kW	for applications with high safety requirements or where immediate stopping of the drive is required e.g.: theatres, concert, halls, lifts, platforms, etc.
MOTORS WITH FORCED VENTILATION	Three-phase induction motors with forced ventilation.	from 0,06kW up to 2500kW	for variable frequency drives with very wide speed regulation
EXPLOSION-PROOF MOTORS	Increased safety motors Flame-proof motors	from 0,06kW up to 22kW from 0,55kW up to 3200kW	adapted for operation in areas endangered by explosion (without methane) for applications in chemical and mining industry where explosive atmosphere of gases, vapours or dust can occur
NEMA MOTORS	Low voltage NEMA motors SIE series (in compliance with the NEMA PREMIUM requirements).	from 1HP up to 250HP	for general industrial applications like pumps (including JM and JP), fans, compressors also for Hazardous Locations (Class I Div 2, Class II Div 2) with CSA certificate
TRACTION MOTORS	Traction motors and traction generators.	from 50kW up to 1500kW	various traction vehicles: trams (including low-deck trams), trolleybusses, subway and locomotives

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Efficiency of motors

New efficiency classes for the low-voltage three-phase and single-phase motors (IE = International Efficiency).

Along with the international discussion on energy efficiency a worldwide harmonized energy efficiency standard classification system has been established for low-voltage three-phase and single-phase asynchronous motors.

The standard IEC 60034-30-1 defines and harmonizes worldwide the efficiency classes IE1, IE2, IE3 and IE4 for low-voltage three-phase motors in the power range from 0,12 kW to 1000 kW (2p=2, 4, 6, 8) and single-phase motors.

IE1 = Standard Efficiency

IE2 = High Efficiency

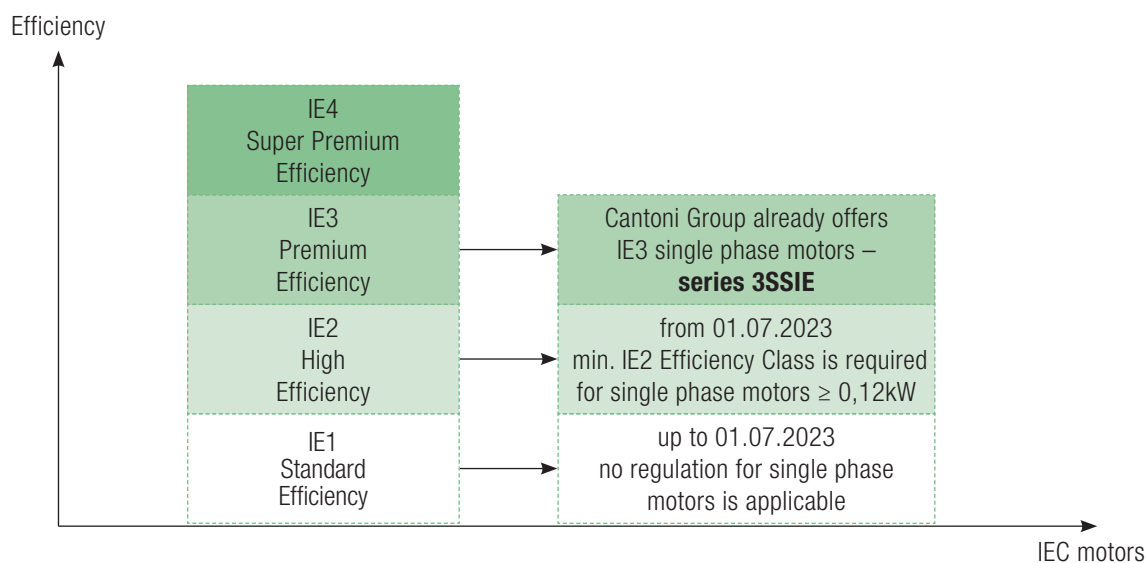
IE3 = Premium Efficiency

IE4 = Super Premium Efficiency

Complying with IEC 60034-30-1 standard the efficiency has to be determined in accordance with the new requirements given in the IEC 60034-2-1 standard.

According to the new EU Commission Regulation (EC) regarding minimum efficiency of electric motors pursuant to Directive 2009/125/EC which will repeal Regulation 640/2009 (including amendment 4/2014) on 01.07.2021, the required efficiency class of general-purpose single-phase motors has to be as follows:

From 1st July 2023:
single-phase motors $\geq 0,12\text{kW}$ shall have minimum efficiency class of IE2.



In addition to motors in Standard Efficiency, Cantoni Group already offers single-phase electric motors in Premium Efficiency Class IE3 – **series 3SSIE**.

This means, that Cantoni motors meet **IE3 Premium Efficiency** level before even IE2 High Efficiency is formally required.

**New EU Commission Regulation regarding minimum efficiency of electric motors
pursuant Directive 2009/125/EC will repeal Regulation 640/2009
(including amendment 4/2014) on 2021-07-01.**

Motors covered by new Regulation

Type	general purpose, geared, with brake, Ex
Voltage	>50V ÷ 1000V
Frequency	50 Hz, 60 Hz or 50/60 Hz
Number of poles	2, 4, 6, 8
Rated power	0,12kW ÷ 1000kW
Duty	continuous (S1, S3≥80 % or S6≥80%)

Motors excluded from new Regulation

Type	- multi-speed, slip-ring and with mechanical commutators - motors completely integrated into a product whose efficiency cannot be tested independently from the product - motors with an integrated variable speed drive (compact drives) whose efficiency cannot be tested independently from the variable speed drive - motors with an integrated brake which forms an integral part of the inner motor construction and can neither be removed nor powered by a separate power source during the testing of the motor efficiency - motors specifically designed and specified to operate wholly immersed in a liquid - motors specifically qualified for the safety of nuclear installations, as defined in Article 3 of Council Directive 2009/71/EURATOM - explosion-protected motors specifically designed and certified for mining, as defined in Annex I, point 1 of Directive 2014/34/EU - motors in cordless or battery-operated equipment and motors in hand-held equipment whose weight is supported by hand during operation - motors in hand-guided mobile equipment moved while in operation - Totally Enclosed Non-Ventilated (TENV) motors - motors placed on the market before 1 July 2029 as substitutes for identical motors integrated in products placed on the market before 1 July 2022, and specifically marketed as such - motors designed specifically for the traction of electric vehicles
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Designed for altitudes > 4000 m a.s.l.

Designed for ambient temperatures < -30°C and > 60°C

With maximum operating temperatures > 400°C

Timetable of new Regulation

TYPE OF MOTORS	EFF CLASS	General purpose motors	Ex motors except motors for mining	
			Increased safety (Ex eb)	Others
1 PHASE MOTORS	IE2	≥0,12kW	≥0,12kW	≥0,12kW
		from 2023-07-01	from 2023-07-01	from 2023-07-01
	IE2	2p=2, 4, 6, 8 0,12kW ÷ <0,75kW	2p=2, 4, 6, 8 0,12kW ÷ 1000kW	N/A
		from 2021-07-01	from 2023-07-01	
3 PHASE MOTORS	IE3	2p=2, 4, 6, 8 0,75kW ÷ 1000kW	N/A	2p=2, 4, 6, 8 0,75kW ÷ 1000kW
		from 2021-07-01		from 2021-07-01
	IE4	2p=2, 4, 6 75kW ÷ 200kW except brake motors	N/A	N/A
		from 2023-07-01		

Ratings – Tolerances

Tolerances of motor parameters

Permissible deviations between catalogue values and real values are according to the IEC 60034-1:

Power factor $\cos \varphi$	$\Delta \cos \varphi = -1/6 (1 - \cos \varphi_N)$
Efficiency η	$\Delta \eta = -15\%(100 - \eta_N)$ for $P_N \leq 150 \text{ kW}$ $\Delta \eta = -10\%(100 - \eta_N)$ for $P_N > 150 \text{ kW}$
Speed n	$\Delta n = \pm 20\%(n_s - n_N)$ for $P_N > 1 \text{ kW}$ $\Delta n = \pm 30\%(n_s - n_N)$ for $P_N \leq 1 \text{ kW}$
Locked rotor current ratio I_L/I_N	$\Delta(I_L/I_N) = +20\%(I_L/I_N)$
Locked rotor torque ratio T_L/T_N	$\min(T_L/T_N) = -15\%(T_L/T_N)$ $\max(T_L/T_N) = +25\%(T_L/T_N)$
Breakdown torque ratio T_B/T_N	$\Delta(T_B/T_N) = -10\%(T_B/T_N)$
Moment of inertia J [kgm ²]	$\Delta J = \pm 10\% J$
Sound pressure level L_{pA} [dB]	$\Delta L_{pA} = +3 \text{ dB / A/}$

Tolerances of supply voltage value and frequency

Motors comply in standard with voltage value and voltage frequency variations within zone A according to the IEC 60034-1:

Voltage value U	$\Delta U = \pm 5\%$
Voltage frequency f	$\Delta f = \pm 2\%$

Other extended tolerances of supply voltage and their frequency are available on request.

Standards

The electric motors are manufactured according to the international standards:

Rating and performance	IEC 60034-1
Methods for determining losses and efficiency	IEC 60034-2-1
Classification of degrees of protection	IEC 60034-5
Methods of cooling	IEC 60034-6
Symbols of construction and mounting arrangements	IEC 60034-7
Terminal markings and direction of rotation	IEC 60034-8
Noise limits	IEC 60034-9
Dimensions and output of electric machines	IEC 60072-1
Vibration limits	IEC 60034-14

Definitions

Relation between rated output power and rated torque on motor shaft:

$$T = \frac{9,55 \times P}{n}$$

where:

- T [Nm] is rated output torque on motor shaft
- P [W] is rated output power on motor shaft
- n [rpm] is rated speed of motor shaft

Relation between rated output power on shaft and rated consumed power from mains:

$$P_1 = \frac{P}{\eta} \times 100$$

where:

- P_1 [kW] is rated consumed power from mains by motor
- P [kW] is rated output power on motor shaft
- η [%] is rated efficiency of motor

Relation between rated consumed power from mains and rated voltage, current, power factor:

$$P_1 = U \times I \times \cos\varphi$$

where:

- P_1 [W] is rated consumed power from mains by motor
- U [V] is rated supply voltage of motor
- I [A] is rated current consumed from mains by motor
- $\cos\varphi$ is rated power factor of motor

Units of measurement

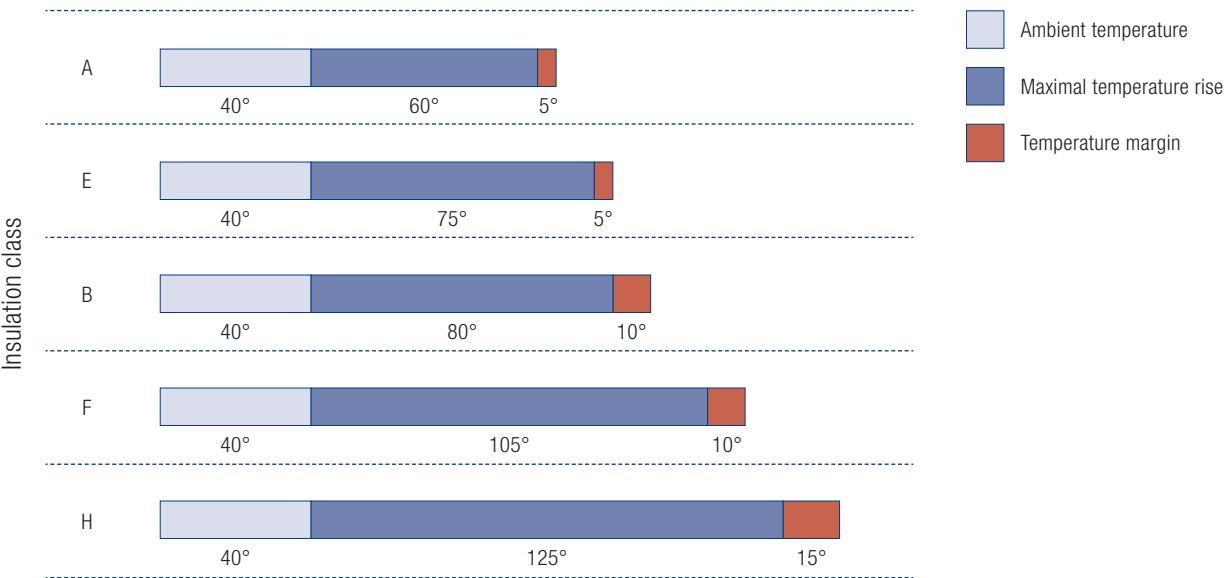
Parameter name	Symbol	Unit name	Symbol
Frequency	f	Hertz	Hz
Active power	P	Watt	W
Voltage	U	Volt	V
Electric Current	I	Amper	A
Power factor	cosφ	N/A	N/A
Resistance	R	Ohm	Ω
Sound power level	L _w	decibel	dB
Sound pressure level	L _p	decibel	dB

Insulation classification

The insulation system of an electric motor is determined by a given insulation class on the basis of its thermal resistance. This thermal resistance should be guaranteed by the entire set of electric insulating materials used in the motor insulating system.

Thermal resistance classification is related to the temperature of the hotspot in the insulation occurring during rated operating conditions of the electric motor, allowing for the highest permissible rise in average temperature.

This rise should be selected so that at the highest permissible ambient temperature, the temperature of the hotspot in insulation will not exceed the value assigned to a given thermal resistance class.



Insulation class F in an electric motor means that at ambient temperature of 40°C the temperature rise of the winding may be max. 105°C with the additional temperature margin of 10°C (under specified measuring conditions in accordance with the IEC 60034-1 standard).

Symbols of thermal resistance classes (permissible insulation temperatures at 40°C ambient temperature)

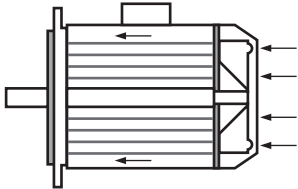
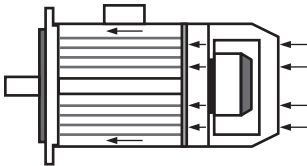
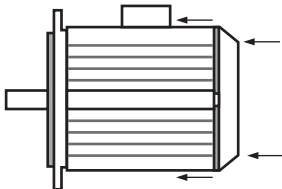
Symbol	Temperature [°C]
A	105
E	120
B	130
F	155
H	180

1-phase motors Class F

For special request we can deliver motors equipped with insulation class H.
Strengthened insulation system gives possibility to safe operation with frequency converters.

Cooling

General purpose motors from Cantoni Group are equipped with standard IC411 cooling according to IEC 60034-6. Other cooling methods (for example motors with external/separate cooling) are available on request.

IC code according to IEC 60034-6	Description	Drawing
IC411	– Enclosed machine – Smooth or finned casing – External shaft-mounted fan – Often called TEFC motor	
IC416A	– Enclosed machine – Smooth or finned casing – External motorized axial fan integrated with the motor	
IC418	– Enclosed machine – Smooth and finned casing – Ventilated by air flowing from the driven system	

Standard terminal box equipment

Motor frame size	Number of terminals	Number of cable glands	Size of cable glands	Permissible cable diameter for cable gland	Optional rotation of terminal box	Temperature sensors in the winding
56	4	1	M20	7÷13	180°	on request
63	4	1	M20	7÷13	180°	on request
71	4	1	M20	7÷13	180°	on request
80	4	1	M20	7÷13	180°	on request
90	4	1	M20	7÷13	180°	on request

Vibration level

The rotor balancing method guarantees that a standard vibration level measured in accordance with the IEC 60034-14 does not exceed 2,8mm/s.

The value mentioned above refers to the uncoupled (disconnected from the driven machine) and operating at no load motors. On customer's demand the motors can be produced with reduced vibration.

Noise level

Motors in standard comply with a permissible sound power level according to IEC 60034-9.

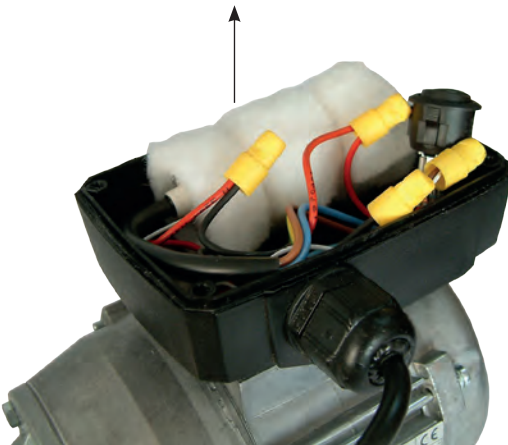
On customer's demand the motors can be delivered with reduced noise level.

Terminal box

The standard terminal boxes of 1-phase motors are equipped with suitable cable glands. The box contains a terminal board with marked terminals making possible connection of supply cables and separate PE terminal.

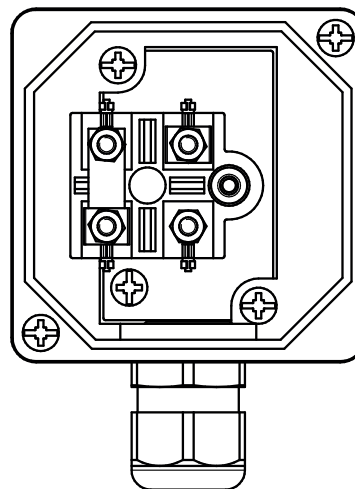
In addition, terminal boxes may be provided with additional terminals connected to the ends of thermal protection or anticondensation heater circuits and extra glands to connect these circuits.

Different shapes and sizes of terminal boxes and different terminal boards are available on request.



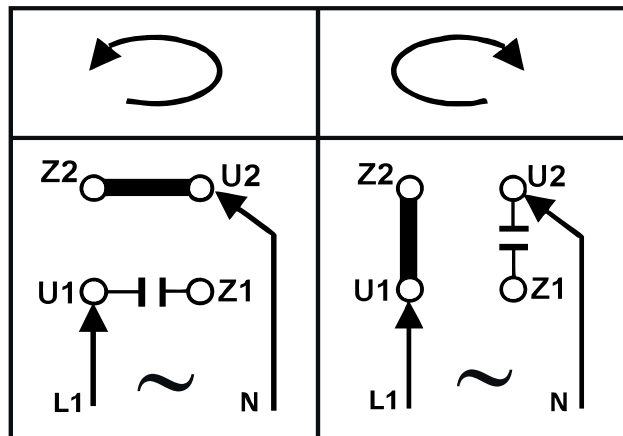
Standard terminal box view:

Frame size
SE(M)h56÷90 1-phase

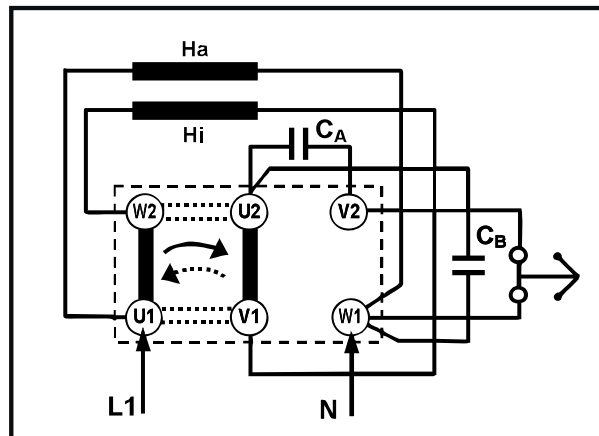


Connection diagrams

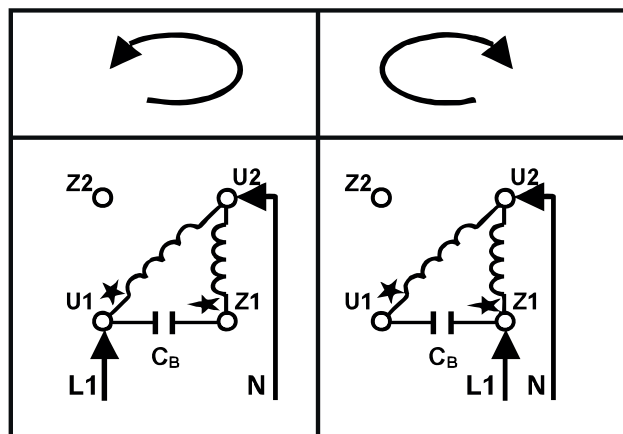
Standard single-phase induction motors
with run capacitor:



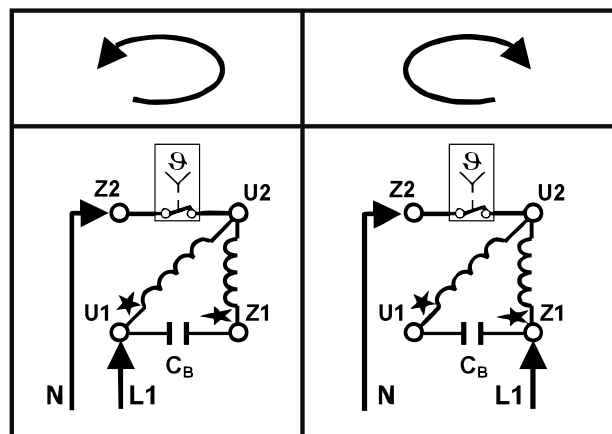
Single-phase induction motors with start capacitor,
run capacitor, centrifugal switch or electronic switch:



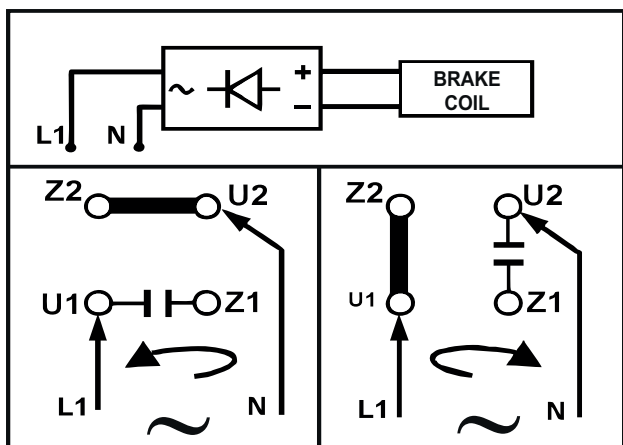
Single-phase induction reversible motors:
a) without temperature switch:



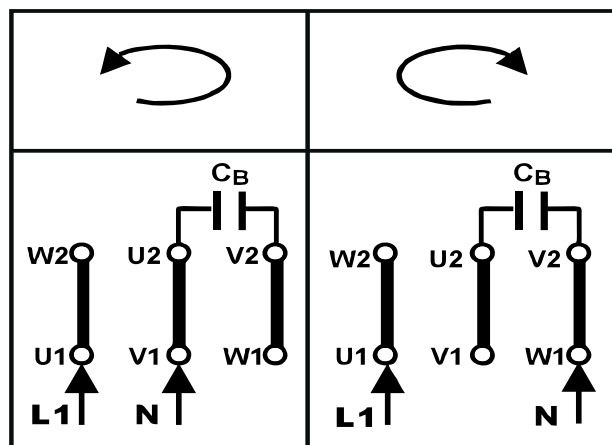
b) with temperature switch connected in series with the winding:



Single-phase induction motors with electromagnetic plate
brakes of direct current:



Single-phase induction motors adapted to voltage
speed control:

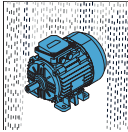
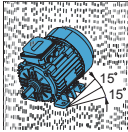
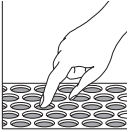
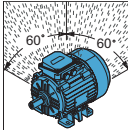
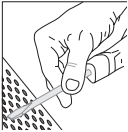
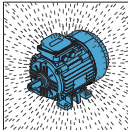
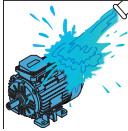
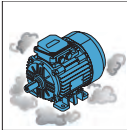
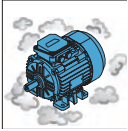
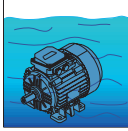
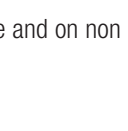


C_A – start capacitor; C_B – run capacitor

Degree of protection IP

IP 55

Degree of protection IP55 is the standard of our production according to the standard IEC 60034-5

Protection against penetration of solid matter			Protection against penetration of fluids		
1st digit	Description		2nd digit	Description	
0		Not protected	0		Not protected
1		Protected against solid bodies larger than 50 mm	1		Protected against vertically falling drops of water
2		Protected against solid bodies larger than 12 mm	2		Protected against vertically falling drops of water up to 15°
3		Protected against solid bodies larger than 2,5 mm	3		Protected against rain up to 60°
4		Protected against solid bodies larger than 1 mm	4		Protected against rain falling from any direction
5		Protected against deposition of dust	5		Protected against sprayed water from any direction
6		Totally protected against deposition of dust	6		Protected against temporary immersion
			7		Protected against immersion between 0,15 and 1 m
			8		Protected against immersion at preset pressure and time

Each size 56 to 90 motor is equipped with seal rings (Simmerring or V-ring) on drive side and on non drive side.
The terminal box is sealed with a gasket.

Higher degree of protection is available on request.

Painting and corrosivity classes

Standard painting system with RAL5010 color used in all our motors comply with C3 corrosion class according to ISO 12944.

For special request motors can be painted with other colors and with alternative painting systems (e.g. C5M corrosion class).

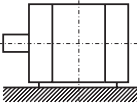
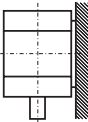
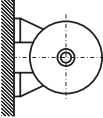
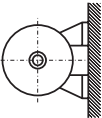
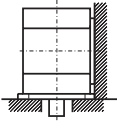
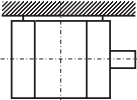
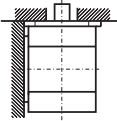
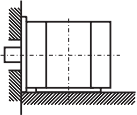
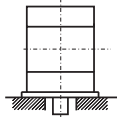
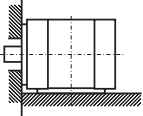
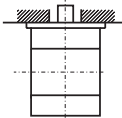
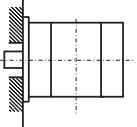
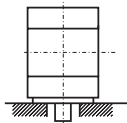
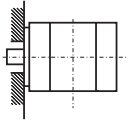
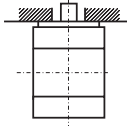
RAL 7011/C3



Corrosion class	Environment	
	Interior	Exterior
C1 (very low)	Heated buildings with a clean atmosphere such as hotels, offices, shops, schools.	N/A
C2 (low)	Unheated buildings, where condensation may occur e.g. storehouses, sports halls.	Atmosphere contaminated to a small extent, mostly rural regions.
C3 (medium)	Production space of high humidity and certain air contamination e.g. foodstuff plants, laundries, breweries, dairies.	Industrial and urban atmosphere with an average Sulphur oxide (IV) contamination level. Inshore areas of low salinity.
C4 (high)	Chemical plants, swimming pools, ship repair yards.	Industrial areas and inshore areas of medium salinity.
C5I (very high – industrial)	Buildings and areas of almost constant condensation and high contamination.	Industrial areas of high humidity and aggressive atmosphere.
C5M (very high – marine)	Buildings and areas of almost constant condensation and high contamination.	Coast and offshore areas with high salt content.

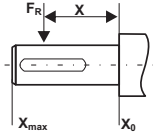
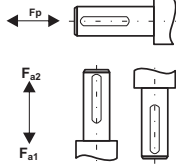
Mounting arrangements

According to the IEC 60034-7 standard

Horizontal shaft				Vertical shaft			
Designation				Designation			
	Code II	Code I	Frame size		Code II	Code I	Frame size
	IM 1001	IM B3	56 ÷ 90		IM 1011	IM V5	56 ÷ 90
	IM 1051	IM B6	56 ÷ 90		IM 1031	IM V6	56 ÷ 90
	IM 1061	IM B7	56 ÷ 90		IM 2011 or IM 2111	IM V15	56 ÷ 90
	IM 1071	IM B8	56 ÷ 90		IM 2031 or IM 2131	IM V36	56 ÷ 90
	IM 2001	IM B35	56 ÷ 90		IM 3011	IM V1	56 ÷ 90
	IM 2101	IM B34	56 ÷ 90		IM 3031	IM V3	56 ÷ 90
	IM 3001	IM B5	56 ÷ 90		IM 3611	IM V18	56 ÷ 90
	IM 3601	IM B14	56 ÷ 90		IM 3631	IM V19	56 ÷ 90

*Other mounting arrangements available on special request

Permissible shaft end loads

Frame size	Number of poles	Horizontal operation		Vertical operation		
						
		$F_R(x=0)$ [kN]	$F_R(x=\max)$ [kN]	F_P [kN]	F_{a1} [kN]	F_{a2} [kN]
56	2	0,20	0,16	0,04	0,03	0,05
	4	0,25	0,20	0,05	0,04	0,06
	6	0,25	0,20	0,06	0,05	0,07
63	2	0,20	0,16	0,04	0,04	0,06
	4	0,25	0,20	0,06	0,05	0,07
	6	0,27	0,22	0,06	0,05	0,07
	8	0,27	0,22	0,07	0,06	0,08
71	2	0,29	0,24	0,07	0,05	0,09
	4	0,36	0,30	0,09	0,07	0,11
	6	0,40	0,35	0,10	0,08	0,12
	8	0,40	0,35	0,11	0,09	0,13
80	2	0,33	0,27	0,09	0,06	0,12
	4	0,44	0,37	0,12	0,09	0,15
	6	0,51	0,42	0,14	0,11	0,17
	8	0,51	0,42	0,17	0,15	0,20
90	2	0,79	0,66	0,64	0,44	0,84
	4	1,00	0,83	0,80	0,65	1,05
	6	1,15	0,95	0,90	0,77	1,17

Value of radial force F_R acting on the shaft end for a given belt pulley diameter is calculated according to the following formula:

$$F_R = \frac{19\,600 \times P \times k}{D_k \times n} \text{ [N]}$$

where: P – motor output [kW]
 D_k – belt pulley diameter [m]
 n – speed [rpm]
 k – belt tension factor:
for V-belts $k=2,2$
for flat belts $k=3$

Value of force F_R acting on any point of the shaft end (between points $X=\max$ and $X=0$) may be calculated according to the following formula:

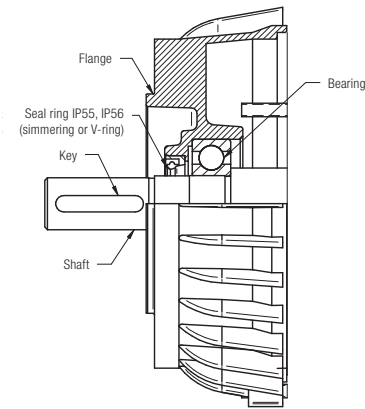
$$F_R = F_{x0} - \frac{X}{E} \times (F_{x0} - F_{x\max}) \text{ [N]}$$

where: F_{x0} – value of F_R force acting on the beginning of the shaft end

$F_{x\max}$ – value of F_R force acting on the end of the shaft end
 E – length of the shaft end

Bearing types and bearing nodes

Frame size
3SIE, S(E)h56 ÷ 90



Frame size	DE Bearing	NDE Bearing
56	6201 2Z C3	6201 2Z C3
63	6202 2Z C3	6202 2Z C3
71	6203 2Z C3	6203 2Z C3
80	6204 2Z C3	6204 2Z C3
90	6205 2Z C3	6204 2Z C3
(series R) 90	6205 2Z C3	6205 2Z C3

Material of housing, end shields and feet

Frame size [mm]	Motor housing	End shields	Feet
56	Aluminium	Aluminium	Aluminium – screwed
63	Aluminium	Aluminium	Aluminium – screwed
71	Aluminium	Aluminium	Aluminium – screwed
80	Aluminium	Aluminium	Aluminium – screwed
90	Aluminium	Aluminium	Aluminium – screwed

On request, in motors frame size 80 and 90 end shields may be made of cast iron.
The frame, bearing shield, feet and terminal box are AK11 aluminium alloy cast.
The fan is made of thermoplastic material, the fan cover is made of steel.

Features

14

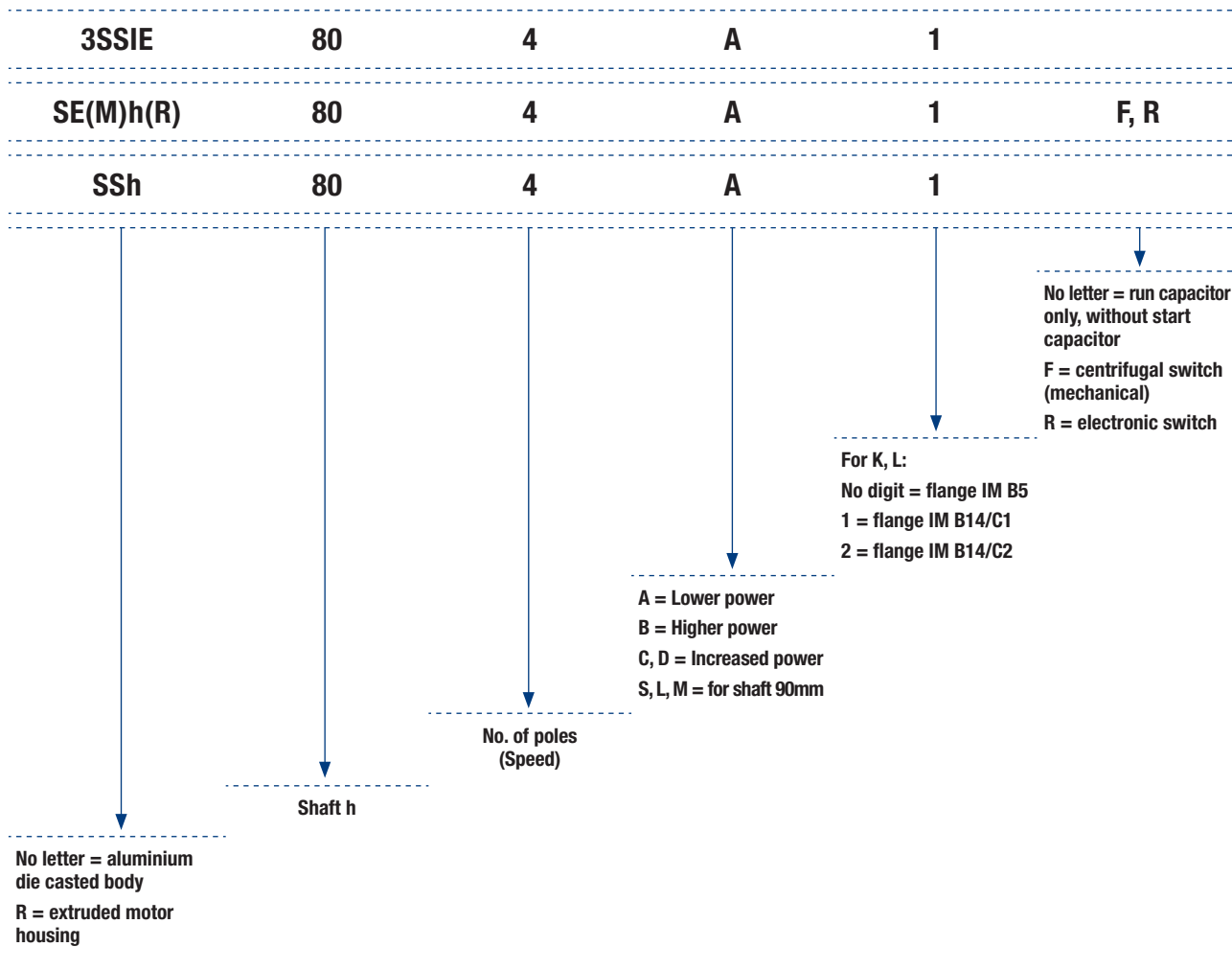
Single phase motors are manufactured within the range of frame size 56-90 as motors with:

- **standard starting torque** (with run capacitor),
- **increased starting torque** (with run capacitor and specially adjusted parameters),
- **high starting torque** (with run capacitor, start capacitor and centrifugal switch).

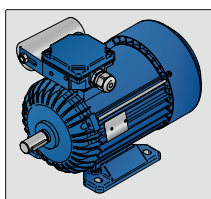
Squirrel cages of standard starting torque motors are A1 aluminium cast, the rotors for increased starting torque are special aluminium alloy cast AK 121 (siluminum).

Motors in frame sizes 100 and 112 available on request.
Other supply voltages and frequency 60 Hz available on request.

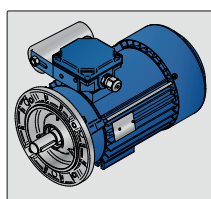
Nomenclature



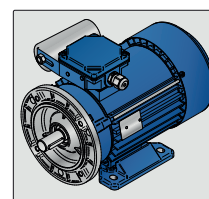
3SSIE
SE(M)h(R)
SSh



3SSIEK
SE(M)Kh(R)
SSKh



3SSIEL
SE(M)Lh(R)
SLh



Type of motor:

- 3SSIE** – single phase motor in efficiency class IE3
- SS** – single phase motor adapted to voltage speed control
- SE** – single phase motor
- SEM** – single phase motor with increased starting torque

Mounting arrangements:

- no letter** = foot (B3)
- K** = flange (B5, B14/C1, B14/C2)
- L** = foot/flange (B35, B34/C1, B34/C2)

Totally Enclosed Motors IP 55 f=50Hz U=230V

Item	Type	Rated output		Rated speed	Rated torque	Efficiency	Power factor	Full load current at 230V	Locked rotor torque ratio	Locked rotor current ratio	Breakdown torque ratio	Moment of Inertia	Run capacitor	Weight (MMB3)
		P _N		n _N	T _N	η _N	cos φ _N	I _N	T _L /T _N	I _L /I _N	T _B /T _N	J	C _B	
		[kW]	[HP]	[min ⁻¹]	[Nm]	[%]	[-]	[A]	[-]	[-]	[-]	[kgm²]	[μF]	[kg]
Motors with standard starting torque (with run capacitor)														

Totally Enclosed Motors IP 55 f=50Hz U=230V

Item	Type	Rated output		Rated speed	Rated torque	Efficiency	Power factor	Full load current at 230V	Locked rotor torque ratio	Locked rotor current ratio	Breakdown torque ratio	Moment of Inertia	Run capacitor	Weight (IMB3)
		P_N		n_N	T_N	η_N	$\cos \varphi_N$	I_N	T_L/T_N	I_L/I_N	T_B/T_N	J	C_B	
		[kW]	[HP]	[min ⁻¹]	[Nm]	[%]	[-]	[A]	[-]	[-]	[-]	[kgm ²]	[μF]	[kg]
Motors with increased starting torque (with run capacitor and specially adjusted parameters)														
2p=2 $n_s=3000$ rpm														
1	SEMh 56-2A	0,06	0,08	2780	0,21	39,0	0,70	1,0	1,4	2,5	2,5	0,00007	3	2,8
2	SEMh 56-2B	0,09	0,12	2760	0,31	49,0	0,80	1,0	1,2	2,2	2,2	0,00009	5	3,1
3	SEMh 56-2C	0,12	0,17	2780	0,41	54,0	0,80	1,2	1,0	2,3	2,1	0,00010	5	3,5
4	SEMh 63-2A	0,12	0,17	2750	0,42	48,0	0,83	1,3	1,2	2,4	2,2	0,000175	6	3,7
5	SEMh 63-2B	0,18	0,25	2780	0,62	56,0	0,87	1,6	1,0	2,4	2,0	0,000235	8	4,4
6	SEMh 63-2C	0,25	0,33	2780	0,86	64,0	0,90	1,9	0,9	2,5	2,0	0,000310	10	4,9
7	SEMh 71-2A	0,25	0,33	2720	0,88	58,0	0,95	2,0	0,8	2,2	1,7	0,00039	10	5,1
8	SEMh 71-2B	0,37	0,5	2800	1,26	64,0	0,88	2,9	0,7	2,7	1,9	0,00054	12	6,3
9	SEMh 71-2C	0,55	0,75	2780	1,89	70,0	0,95	3,6	0,65	3,0	1,9	0,00069	20	7,4
10	SEMh 80-2A	0,55	0,75	2760	1,90	65,0	0,86	4,3	0,65	2,9	1,8	0,00080	20	8,2
11	SEMh 80-2B	0,75	1,0	2800	2,56	70,0	0,94	5,0	0,7	3,5	2,0	0,00111	25	9,8
12	SEMh 80-2C	1,1	1,5	2780	3,78	76,0	0,96	6,6	0,55	3,7	1,8	0,00142	30	11,7
13	SEMh 90-2S	1,1	1,5	2780	3,78	76,0	0,96	6,6	0,55	3,7	1,8	0,00120	30	12,4
14	SEMrR 90-2S	1,1	1,5	2760	3,81	73,0	0,99	7,0	0,6	3,2	1,6	0,00120	30	12,4
15	SEMrR 90-2L	1,5	2,0	2750	5,21	72,0	0,97	9,4	0,7	3,5	1,6	0,00160	40	15,2
2p=4 $n_s=1500$ rpm														
1	SEMh 56-4A	0,04	0,06	1370	0,28	35,0	0,83	0,6	1,6	1,7	2,4	0,00020	3	2,8
2	SEMh 56-4B	0,06	0,08	1370	0,42	34,0	0,77	1,0	1,5	2,4	2,4	0,00025	4	3,1
3	SEMh 56-4C	0,09	0,12	1320	0,65	45,0	0,88	1,0	1,0	1,5	1,7	0,00030	5	3,3
4	SEMh 63-4A	0,09	0,12	1300	0,66	42,0	0,84	1,1	1,1	1,4	1,7	0,000240	5	3,6
5	SEMh 63-4B	0,12	0,17	1320	0,87	50,0	0,85	1,3	1,1	1,8	1,8	0,000307	6	4,2
6	SEMh 63-4C	0,18	0,25	1320	1,30	52,0	0,89	1,7	1,1	1,7	1,7	0,000380	10	5,0
7	SEMh 71-4B	0,25	0,33	1340	1,78	55,0	0,83	2,4	1,2	1,9	1,8	0,00085	10	6,3
8	SEMh 71-4C	0,37	0,5	1320	2,68	62,0	0,89	2,9	0,9	2,0	1,6	0,00101	16	7,4
9	SEMh 80-4A	0,37	0,5	1320	2,68	60,0	0,87	3,1	0,9	2,3	1,6	0,00156	14	8,3
10	SEMh 80-4B	0,55	0,75	1360	3,86	68,0	0,91	3,9	0,75	2,6	1,7	0,00208	20	9,7
11	SEMh 80-4C	0,75	1,0	1340	5,35	71,0	0,94	4,9	0,65	2,2	1,5	0,00208	25	11,7
12	SEMh 90-4S	0,75	1,0	1340	5,35	71,0	0,94	4,9	0,65	2,2	1,5	0,00240	25	12,3
13	SEMrR 90-4S	0,75	1,0	1320	5,43	60,0	0,97	5,6	0,95	2,1	1,4	0,00240	25	12,0
14	SEMrR 90-4L	1,1	1,5	1320	7,96	66,0	0,93	7,8	0,7	2,3	1,5	0,00320	30	15,0
15	SEMrR 90-4M	1,5	2,0	1340	10,69	63,0	0,97	11,0	0,7	2,5	1,5	0,00460	40	17,5

Totally Enclosed Motors IP 55 f=50Hz U=230V

Item	Type	Rated output		Rated speed	Rated torque	Efficiency	Power factor	Full load current at 230V	Locked rotor torque ratio	Locked rotor current ratio	Breakdown torque ratio	Moment of Inertia	Run capacitor	Start capacitor	Weight (IMB3)
		P _N													
		[kW]	[HP]												
		[min ⁻¹]	[Nm]												
Motors with high starting torque (with run capacitor, start capacitor and centrifugal switch)															
2p=2 n _s =3000 rpm															
1	SEh 63-2AR(F)	0,18	0,25	2840	0,61	55,0	0,95	1,5	1,9	4,5	1,9	0,000175	8	25	3,9
2	SEh 63-2BR(F)	0,25	0,33	2870	0,83	64,0	0,95	1,8	2,1	4,2	1,8	0,000235	10	30	4,5
3	SEh 63-2CR(F)	0,37	0,5	2850	1,24	71,0	0,99	2,3	1,8	4,7	1,6	0,000310	12	40	5,3
4	SEh 71-2BR(F)	0,55	0,75	2820	1,86	70,0	0,96	3,6	1,7	3,6	1,5	0,00053	14	25	6,5
5	SEh 71-2CR(F)	0,75	1,0	2820	2,54	73,0	0,98	4,6	1,7	4,0	1,5	0,00069	25	70	8,2
6	SEh 80-2BR(F)	1,1	1,5	2780	3,78	73,0	0,97	6,8	1,7	3,6	1,4	0,00111	25	70	11,9
7	SEh 80-2CR(F)	1,5	2,0	2710	5,29	73,0	0,99	9,1	1,9	3,5	1,4	0,00142	40	60	12,9
8	SEh 90-2SR(F)	1,5	2,0	2710	5,29	73,0	0,99	9,1	1,9	3,5	1,4	0,00120	40	60	13,5
9	SEhR 90-2SR(F)	1,5	2,0	2840	5,04	77,0	0,98	8,7	1,9	4,1	1,6	0,00120	40	125÷160	12,4
10	SEhR 90-2LR(F)	2,2	3,0	2840	7,40	79,0	0,99	12,2	1,9	4,1	1,5	0,00160	50	160÷200	15,2
2p=4 n _s =1500 rpm															
1	SEh 63-4AR(F)	0,12	0,17	1380	0,83	51,0	0,86	1,2	1,8	3,6	1,4	0,000240	5	14	4,3
2	SEh 63-4BR(F)	0,18	0,25	1380	1,25	53,0	0,93	1,6	1,6	3,5	1,4	0,000307	8	16	4,5
3	SEh 63-4CR(F)	0,25	0,33	1380	1,73	62,0	0,93	1,9	1,6	3,3	1,3	0,000380	10	20	5,2
4	SEh 71-4BR(F)	0,37	0,5	1370	2,58	64,0	0,88	2,9	1,8	3,5	1,4	0,00085	10	30	7,0
5	SEh 71-4CR(F)	0,55	0,75	1320	3,98	62,0	0,94	4,1	1,9	3,6	1,2	0,00101	18	60	8,2
6	SEh 80-4BR(F)	0,75	1,0	1410	5,08	72,0	0,95	4,8	1,8	3,0	1,5	0,00208	25	60	10,6
7	SEh 80-4CR(F)	1,1	1,5	1370	7,67	73,0	0,95	6,9	1,9	3,4	1,3	0,00265	30	75	12,6
8	SEh 90-4SR(F)	1,1	1,5	1370	7,67	73,0	0,95	6,9	1,9	3,4	1,3	0,00240	30	75	13,7
9	SEhR 90-4SR(F)	1,1	1,5	1390	7,56	67,0	0,98	7,3	1,6	3,8	1,3	0,00240	25	125÷160	12,0
10	SEhR 90-4LR(F)	1,5	2,0	1380	10,38	68,0	0,97	9,9	1,3	4,0	1,3	0,00320	35	125÷160	15,0

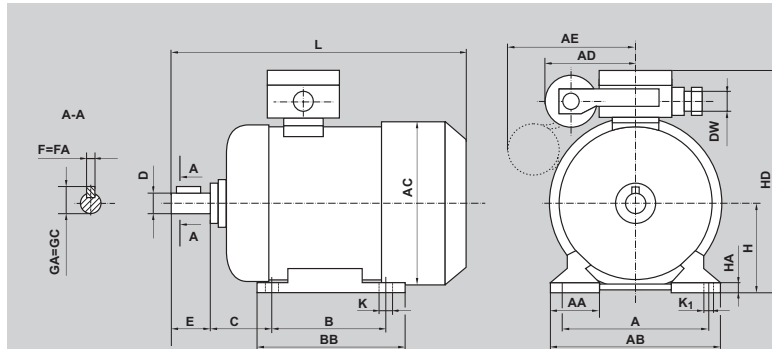
IE3 IE3 IE3 IE3 IE3 IE3

Totally Enclosed Motors IP 55 f=50Hz U=230V IE3

Item	Type	Rated output		Rated speed	Rated torque	Efficiency	Power factor	Full load current at 230V	Locked rotor torque ratio	Locked rotor current ratio	Breakdown torque ratio	Moment of inertia	Run capacitor	Start capacitor	Weight (IMB3)		
		P_N		n_N	T_N	η_N	$\cos \varphi_N$	I_N	T_L/T_N	I_L/I_N	T_B/T_N	J	C_B	C_A			
		[kW]	[HP]	[min ⁻¹]	[Nm]	[%]	[-]	[A]	[-]	[-]	[-]	[kgm²]	[µF]	[µF]	[kg]		
Motors with standard starting torque (with run capacitor)																	
		2p=2		$n_s=3000$ rpm													
1	3SSIE 56-2B	0,12	0,17	2750	0,42	60,8	0,99	0,85	0,36	2,1	1,4	0,0001	10	-	3,3		
2	3SSIE 63-2A	0,18	0,25	2870	0,60	70,0	0,97	1,1	0,4	3,8	1,6	0,00017	16	-	3,7		
3	3SSIE 63-2B	0,25	0,33	2890	0,83	73,0	0,94	1,6	0,35	4,5	2,0	0,00024	20	-	4,3		
4	3SSIE 71-2A	0,37	0,5	2880	1,23	73,8	0,99	2,2	0,3	3,8	1,6	0,00048	25	-	6,2		
5	3SSIE 71-2B	0,55	0,75	2870	1,83	77,8	0,99	3,1	0,3	3,5	1,6	0,00069	35	-	8,0		
6	3SSIE 80-2A	0,75	1,0	2880	2,49	80,7	0,96	4,2	0,3	4,2	1,6	0,00100	50	-	10,8		
7	3SSIE 80-2B	1,1	1,5	2900	3,62	82,7	0,99	5,8	0,3	5,4	2,0	0,00142	70	-	12,1		
		2p=4		$n_s=1500$ rpm													
1	3SSIE 63-4A	0,12	0,17	1420	0,81	64,8	0,99	0,8	0,4	2,7	1,5	0,00038	12	-	4,8		
2	3SSIE 63-4B	0,18	0,25	1400	1,23	69,9	0,98	1,1	0,35	2,7	1,4	0,00077	16	-	6,1		
3	3SSIE 63-4C	0,25	0,33	1420	1,68	73,5	0,94	1,5	0,35	3,2	1,5	0,00088	20	-	6,7		
4	3SSIE 71-4A	0,25	0,33	1420	1,68	73,5	0,94	1,5	0,35	3,2	1,5	0,00101	20	-	7,7		
5	3SSIE 71-4B	0,37	0,5	1440	2,45	77,3	0,94	2,2	0,3	2,8	1,7	0,00156	30	-	8,0		
6	3SSIE 80-4A	0,55	0,75	1430	3,69	80,8	0,98	3,0	0,3	3,7	1,3	0,00208	40	-	9,8		
7	3SSIE 80-4B	0,75	1,0	1430	5,01	82,5	0,96	4,1	0,3	4,0	1,6	0,00265	50	-	11,2		
Motors with high starting torque (with run capacitor, start capacitor, electronic switch R or centrifugal switch F)																	
		2p=2		$n_s=3000$ rpm												R	F
1	3SSIE 56-2BR(F)	0,12	0,17	2750	0,42	60,8	0,99	0,85	1,5	2,8	1,4	0,0001	10	25	3,3	3,5	
2	3SSIE 63-2AR(F)	0,18	0,25	2870	0,60	70,0	0,97	1,1	1,5	4,1	1,6	0,00017	16	40	3,7	3,9	
3	3SSIE 63-2BR(F)	0,25	0,33	2890	0,83	73,0	0,94	1,6	1,7	4,7	2,0	0,00024	20	50	4,3	4,5	
4	3SSIE 71-2AR(F)	0,37	0,5	2880	1,23	73,8	0,99	2,2	1,5	4,1	1,6	0,00048	25	90	6,2	6,4	
5	3SSIE 71-2BR(F)	0,55	0,75	2870	1,83	77,8	0,99	3,1	1,5	3,8	1,6	0,00069	35	110	8,0	8,2	
6	3SSIE 80-2AR(F)	0,75	1,0	2880	2,49	80,7	0,96	4,2	1,5	5,1	1,6	0,00100	50	120	10,8	11,6	
7	3SSIE 80-2BR(F)	1,1	1,5	2900	3,62	82,7	0,99	5,8	1,6	6,3	2,0	0,00142	70	200-250	12,1	12,9	
		2p=4		$n_s=1500$ rpm												R	F
1	3SSIE 63-4AR(F)	0,12	0,17	1420	0,81	64,8	0,99	0,8	1,6	3	1,5	0,00038	12	16	4,8	5,0	
2	3SSIE 63-4BR(F)	0,18	0,25	1400	1,23	69,9	0,98	1,1	1,5	3,3	1,4	0,00077	16	35	6,1	6,3	
3	3SSIE 63-4CR(F)	0,25	0,33	1420	1,68	73,5	0,94	1,5	1,5	3,6	1,5	0,00088	20	40	6,7	6,9	
4	3SSIE 71-4AR(F)	0,25	0,33	1420	1,68	73,5	0,94	1,5	1,7	3,7	1,5	0,00101	20	50	7,7	7,9	
5	3SSIE 71-4BR(F)	0,37	0,5	1440	2,45	77,3	0,94	2,2	1,5	3,1	1,7	0,00156	30	50	8,3	8,5	
6	3SSIE 80-4AR(F)	0,55	0,75	1430	3,69	80,8	0,98	3,0	1,7	4,0	1,3	0,00208	40	90	9,8	10,6	
7	3SSIE 80-4BR(F)	0,75	1,0	1430	5,01	82,5	0,96	4,1	1,5	4,1	1,6	0,00265	50	120	11,2	12,0	

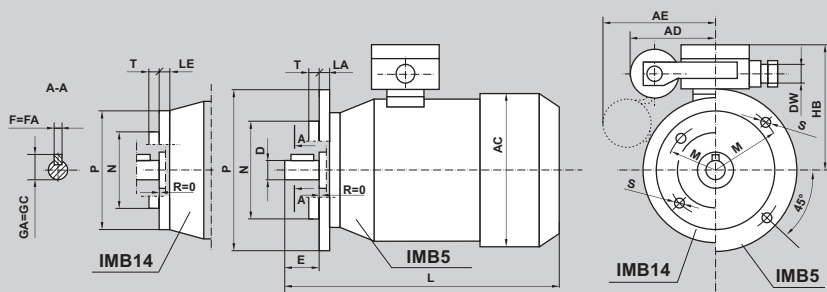
For $T_L/T_N \geq 1,5$ during the start-up of the motor the second capacitor as well as the electronic switch R (or centrifugal switch F) must be applied.

Dimensions of Foot Mounted Motors – IM B3



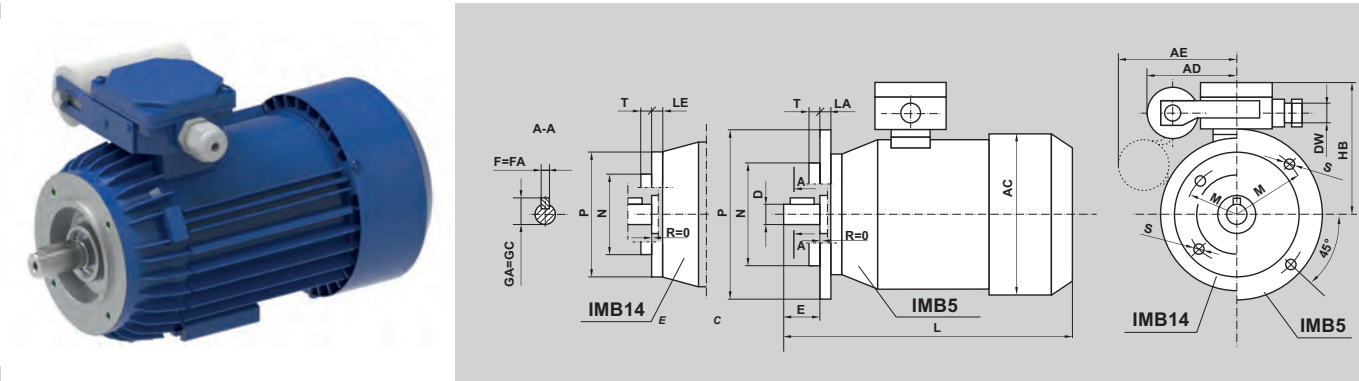
Motor Type	A	B	C	D	E	F	GA	H	K	K1	HA	AC	DW	AA	AB	BB	AE	AD	HD	L
SE(M)h 56-A	90	71	36	9j6	20	3h9	10,2	56	5,8	8	7	117	M20	30	110	92	–	74	154	183
SE(M)h 56-B	90	71	36	9j6	20	3h9	10,2	56	5,8	8	7	117	M20	30	110	92	–	74	154	193
SE(M)h 56-C	90	71	36	9j6	20	3h9	10,2	56	5,8	8	7	117	M20	30	110	92	–	74	154	200
SE(M)h 63-A	100	80	40	11j6	23	4h9	12,5	63	7	10	8,5	126	M20	36	124	106	–	74	165	200
SEh 63-AR	100	80	40	11j6	23	4h9	12,5	63	7	10	8,5	126	M20	36	124	106	–	74	165	200
SEh 63-AF	100	80	40	11j6	23	4h9	12,5	63	7	10	8,5	126	M20	36	124	106	100	74	165	244
SE(M)h 63-B	100	80	40	11j6	23	4h9	12,5	63	7	10	8,5	126	M20	36	124	106	–	74	165	210
SEh 63-BR	100	80	40	11j6	23	4h9	12,5	63	7	10	8,5	126	M20	36	124	106	–	74	165	210
SEh 63-BF	100	80	40	11j6	23	4h9	12,5	63	7	10	8,5	126	M20	36	124	106	100	74	165	254
SE(M)h 63-C	100	80	40	11j6	23	4h9	12,5	63	7	10	8,5	126	M20	36	124	106	–	74	165	225
SEh 63-CR	100	80	40	11j6	23	4h9	12,5	63	7	10	8,5	126	M20	36	124	106	–	74	165	225
SEh 63-CF	100	80	40	11j6	23	4h9	12,5	63	7	10	8,5	126	M20	36	124	106	100	74	165	268
SE(M)h 71-A	112	90	45	14j6	30	5h9	16	71	7	10	8	134	M20	45	142	116	–	90	182	223
SE(M)h 71-B	112	90	45	14j6	30	5h9	16	71	7	10	8	134	M20	45	142	116	–	90	182	245
SEh 71-BR	112	90	45	14j6	30	5h9	16	71	7	10	8	134	M20	45	142	116	–	90	182	245
SEh 71-BF	112	90	45	14j6	30	5h9	16	71	7	10	8	134	M20	45	142	116	100	90	182	285
SE(M)h 71-C	112	90	45	14j6	30	5h9	16	71	7	10	8	134	M20	45	142	116	–	90	182	263
SEh 71-CR	112	90	45	14j6	30	5h9	16	71	7	10	8	134	M20	45	142	116	–	90	182	263
SEh 71-CF	112	90	45	14j6	30	5h9	16	71	7	10	8	134	M20	45	142	116	100	90	182	303
SE(M)h 80-A	125	100	50	19j6	40	6h9	21,5	80	10	13	9	157	M20	55	160	130	–	95	200	266
SE(M)h 80-B	125	100	50	19j6	40	6h9	21,5	80	10	13	9	157	M20	55	160	130	–	95	200	278
SEh 80-BR	125	100	50	19j6	40	6h9	21,5	80	10	13	9	157	M20	55	160	130	–	95	200	278
SEh 80-BF	125	100	50	19j6	40	6h9	21,5	80	10	13	9	157	M20	55	160	130	120	95	200	315
SE(M)h 80-C	125	100	50	19j6	40	6h9	21,5	80	10	13	9	157	M20	55	160	130	–	95	200	306
SEh 80-CR	125	100	50	19j6	40	6h9	21,5	80	10	13	9	157	M20	55	160	130	–	95	200	306
SEh 80-CF	125	100	50	19j6	40	6h9	21,5	80	10	13	9	157	M20	55	160	130	120	95	200	343
SE(M)h 90-S	140	100	56	24j6	50	8h9	27	90	10	13	12	157	M20	60	170	153	–	95	208	316
SEh 90-SR	140	100	56	24j6	50	8h9	27	90	10	13	12	157	M20	60	170	153	–	95	208	316
SEh 90-SF	140	100	56	24j6	50	8h9	27	90	10	13	12	157	M20	60	170	153	–	95	208	316
SE(M)h 90-L	140	100	56	24j6	50	8h9	27	90	10	13	12	157	M20	60	170	153	120	95	208	350
SEh 90-LR	140	125	56	24j6	50	8h9	27	90	10	13	12	157	M20	60	170	153	–	95	208	328
SEh 90-LF	140	125	56	24j6	50	8h9	27	90	10	13	12	157	M20	60	170	153	120	95	208	364
SE(M)hR 90-S	140	100	56	24j6	50	8h9	27	90	10	13	12	166	M20	63	170	153	–	95	210	312
SEhR 90-SR	140	100	56	24j6	50	8h9	27	90	10	13	12	166	M20	63	170	153	–	95	210	312
SEhR 90-SF	140	100	56	24j6	50	8h9	27	90	10	13	12	166	M20	63	170	153	120	95	210	352
SE(M)hR 90-L	140	125	56	24j6	50	8h9	27	90	10	13	12	166	M20	63	170	178	–	95	210	337
SEhR 90-LR	140	125	56	24j6	50	8h9	27	90	10	13	12	166	M20	63	170	178	–	95	210	337
SEhR 90-LF	140	125	56	24j6	50	8h9	27	90	10	13	12	166	M20	63	170	178	120	95	210	377
SEMhR 90-M	140	125	56	24j6	50	8h9	27	90	10	13	12	166	M20	63	170	198	–	95	210	357

Dimensions of Flange Mounted Motors – IM B5



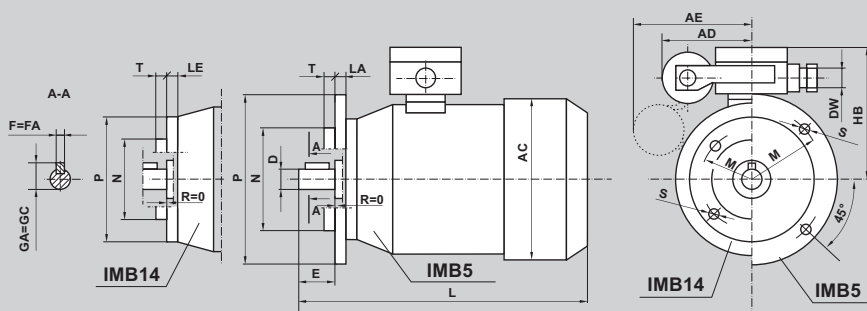
Motor Type	Flange	P	M	N	S	D	E	F	GA	AC	DW	LA	T	AE	AD	HB	L
SE(M)Kh 56-A	B5	120	100	80j6	7	9j6	20	3h9	10,2	117	M20	8	3	—	74	98	183
SE(M)Kh 56-B	B5	120	100	80j6	7	9j6	20	3h9	10,2	117	M20	8	3	—	74	98	193
SE(M)Kh 56-C	B5	120	100	80j6	7	9j6	20	3h9	10,2	117	M20	8	3	—	74	98	200
SE(M)Kh 63-A	B5	140	115	95j6	10	11j6	23	4h9	12,5	126	M20	9	3	—	74	102	200
SEKh 63-AR	B5	140	115	95j6	10	11j6	23	4h9	12,5	126	M20	9	3	—	74	102	200
SEKh 63-AF	B5	140	115	95j6	10	11j6	23	4h9	12,5	126	M20	9	3	100	74	102	244
SE(M)Kh 63-B	B5	140	115	95j6	10	11j6	23	4h9	12,5	126	M20	9	3	—	74	102	210
SEKh 63-BR	B5	140	115	95j6	10	11j6	23	4h9	12,5	126	M20	9	3	—	74	102	210
SEKh 63-BF	B5	140	115	95j6	10	11j6	23	4h9	12,5	126	M20	9	3	100	74	102	254
SE(M)Kh 63-C	B5	140	115	95j6	10	11j6	23	4h9	12,5	126	M20	9	3	—	74	102	225
SEKh 63-CR	B5	140	115	95j6	10	11j6	23	4h9	12,5	126	M20	9	3	—	74	102	225
SEKh 63-CF	B5	140	115	95j6	10	11j6	23	4h9	12,5	126	M20	9	3	100	74	102	268
SE(M)Kh 71-A	B5	160	130	110j6	10	14j6	30	5h9	16	134	M20	10	3,5	—	90	111	223
SE(M)Kh 71-B	B5	160	130	110j6	10	14j6	30	5h9	16	134	M20	10	3,5	—	90	111	245
SEKh 71-BR	B5	160	130	110j6	10	14j6	30	5h9	16	134	M20	10	3,5	—	90	111	245
SEKh 71-BF	B5	160	130	110j6	10	14j6	30	5h9	16	134	M20	10	3,5	100	90	111	285
SE(M)Kh 71-C	B5	160	130	110j6	10	14j6	30	5h9	16	134	M20	10	3,5	—	90	111	263
SEKh 71-CR	B5	160	130	110j6	10	14j6	30	5h9	16	134	M20	10	3,5	—	90	111	263
SEKh 71-CF	B5	160	130	110j6	10	14j6	30	5h9	16	134	M20	10	3,5	100	90	111	303
SE(M)Kh 80-A	B5	200	165	130j6	12	19j6	40	6h9	21,5	157	M20	10	3,5	—	95	120	266
SE(M)Kh 80-B	B5	200	165	130j6	12	19j6	40	6h9	21,5	157	M20	10	3,5	—	95	120	278
SEKh 80-BR	B5	200	165	130j6	12	19j6	40	6h9	21,5	157	M20	10	3,5	—	95	120	278
SEKh 80-BF	B5	200	165	130j6	12	19j6	40	6h9	21,5	157	M20	10	3,5	120	95	120	315
SE(M)Kh 80-C	B5	200	165	130j6	12	19j6	40	6h9	21,5	157	M20	10	3,5	—	95	120	306
SEKh 80-CR	B5	200	165	130j6	12	19j6	40	6h9	21,5	157	M20	10	3,5	—	95	120	306
SEKh 80-CF	B5	200	165	130j6	12	19j6	40	6h9	21,5	157	M20	10	3,5	120	95	120	343
SE(M)Kh 90-S	B5	200	165	130j6	12	24j6	50	8h9	27	157	M20	10	3,5	—	95	118	316
SEKh 90-SR	B5	200	165	130j6	12	24j6	50	8h9	27	157	M20	10	3,5	—	95	118	316
SEKh 90-SF	B5	200	165	130j6	12	24j6	50	8h9	27	157	M20	10	3,5	120	95	118	350
SE(M)Kh 90-L	B5	200	165	130j6	12	24j6	50	8h9	27	157	M20	10	3,5	—	95	118	328
SEKh 90-LR	B5	200	165	130j6	12	24j6	50	8h9	27	157	M20	10	3,5	—	95	118	328
SEKh 90-LF	B5	200	165	130j6	12	24j6	50	8h9	27	157	M20	10	3,5	120	95	118	364
SE(M)KhR 90-S	B5	200	165	130j6	12	24j6	50	8h9	27	157	M20	10	3,5	—	95	120	312
SEKhR 90-SR	B5	200	165	130j6	12	24j6	50	8h9	27	166	M20	10	3,5	—	95	120	312
SEKhR 90-SF	B5	200	165	130j6	12	24j6	50	8h9	27	166	M20	10	3,5	120	95	120	352
SE(M)KhR 90-L	B5	200	165	130j6	12	24j6	50	8h9	27	166	M20	10	3,5	—	95	120	337
SEKhR 90-LR	B5	200	165	130j6	12	24j6	50	8h9	27	166	M20	10	3,5	—	95	120	337
SEKhR 90-LF	B5	200	165	130j6	12	24j6	50	8h9	27	166	M20	10	3,5	120	95	120	377
SEMKhR 90-M	B5	200	165	130j6	12	24j6	50	8h9	27	166	M20	10	3,5	—	95	120	357

Dimensions of Flange Mounted Motors – IM B14



Motor Type	Flange	P	M	N	S	D	E	F	GA	AC	DW	LE	T	AE	AD	HB	L
SE(M)Kh 56-A1	B14/C1	105	85	70j6	M6	9j6	20	3h9	10,2	117	M20	15	2,5	—	74	98	183
SE(M)Kh 56-A2	B14/C2	80	65	50j6	M5	9j6	20	3h9	10,2	117	M20	12,5	2,5	—	74	98	183
SE(M)Kh 56-B1	B14/C1	105	85	70j6	M6	9j6	20	3h9	10,2	117	M20	15	2,5	—	74	98	193
SE(M)Kh 56-B2	B14/C2	80	65	50j6	M5	9j6	20	3h9	10,2	117	M20	12,5	2,5	—	74	98	193
SE(M)Kh 56-C1	B14/C1	105	85	70j6	M6	9j6	20	3h9	10,2	117	M20	15	2,5	—	74	98	200
SE(M)Kh 56-C2	B14/C2	80	65	50j6	M5	9j6	20	3h9	10,2	117	M20	12,5	2,5	—	74	98	200
SE(M)Kh 63-A1	B14/C1	120	100	80j6	M6	11j6	23	4h9	12,5	126	M20	14	3	—	74	102	200
SEKh 63-A1R	B14/C1	120	100	80j6	M6	11j6	23	4h9	12,5	126	M20	14	3	—	74	102	200
SEKh 63-A1F	B14/C1	120	100	80j6	M6	11j6	23	4h9	12,5	126	M20	14	3	100	74	102	244
SE(M)Kh 63-A2	B14/C2	90	75	60j6	M5	11j6	23	4h9	12,5	126	M20	9,5	2,5	—	74	102	200
SEKh 63-A2R	B14/C2	90	75	60j6	M5	11j6	23	4h9	12,5	126	M20	9,5	2,5	—	74	102	200
SEKh 63-A2F	B14/C2	90	75	60j6	M5	11j6	23	4h9	12,5	126	M20	9,5	2,5	100	74	102	244
SE(M)Kh 63-B1	B14/C1	120	100	80j6	M6	11j6	23	4h9	12,5	126	M20	14	3	—	74	102	210
SEKh 63-B1R	B14/C1	120	100	80j6	M6	11j6	23	4h9	12,5	126	M20	14	3	—	74	102	210
SEKh 63-B1F	B14/C1	120	100	80j6	M6	11j6	23	4h9	12,5	126	M20	14	3	100	74	102	254
SE(M)Kh 63-B2	B14/C2	90	75	60j6	M5	11j6	23	4h9	12,5	126	M20	9,5	2,5	—	74	102	210
SEKh 63-B2R	B14/C2	90	75	60j6	M5	11j6	23	4h9	12,5	126	M20	9,5	2,5	—	74	102	210
SEKh 63-B2F	B14/C2	90	75	60j6	M5	11j6	23	4h9	12,5	126	M20	9,5	2,5	100	74	102	254
SE(M)Kh 63-C1	B14/C1	120	100	80j6	M6	11j6	23	4h9	12,5	126	M20	14	3	—	74	102	225
SEKh 63-C1R	B14/C1	120	100	80j6	M6	11j6	23	4h9	12,5	126	M20	14	3	—	74	102	225
SEKh 63-C1F	B14/C1	120	100	80j6	M6	11j6	23	4h9	12,5	126	M20	14	3	100	74	102	268
SE(M)Kh 63-C2	B14/C2	90	75	60j6	M5	11j6	23	4h9	12,5	126	M20	9,5	2,5	—	74	102	225
SEKh 63-C2R	B14/C2	90	75	60j6	M5	11j6	23	4h9	12,5	126	M20	9,5	2,5	—	74	102	225
SEKh 63-C2F	B14/C2	90	75	60j6	M5	11j6	23	4h9	12,5	126	M20	9,5	2,5	100	74	102	268
SE(M)Kh 71-A1	B14/C1	140	115	95j6	M8	14j6	30	5h9	16	134	M20	14	3	—	90	111	223
SE(M)Kh 71-A2	B14/C2	105	85	70j6	M6	14j6	30	5h9	16	134	M20	12	2,5	—	90	111	223
SE(M)Kh 71-B1	B14/C1	140	115	95j6	M8	14j6	30	5h9	16	134	M20	14	3	—	90	111	245
SEKh 71-B1R	B14/C1	140	115	95j6	M8	14j6	30	5h9	16	134	M20	14	3	—	90	111	245
SEKh 71-B1F	B14/C1	140	115	95j6	M8	14j6	30	5h9	16	134	M20	14	3	100	90	111	285
SE(M)Kh 71-B2	B14/C2	105	85	70j6	M6	14j6	30	5h9	16	134	M20	12	2,5	—	90	111	245
SEKh 71-B2R	B14/C2	105	85	70j6	M6	14j6	30	5h9	16	134	M20	12	2,5	—	90	111	245
SEKh 71-B2F	B14/C2	105	85	70j6	M6	14j6	30	5h9	16	134	M20	12	2,5	100	90	111	285
SE(M)Kh 71-C1	B14/C1	140	115	95j6	M8	14j6	30	5h9	16	134	M20	14	3	—	90	111	263
SEKh 71-C1R	B14/C1	140	115	95j6	M8	14j6	30	5h9	16	134	M20	14	3	—	90	111	263
SEKh 71-C1F	B14/C1	140	115	95j6	M8	14j6	30	5h9	16	134	M20	14	3	100	90	111	303
SE(M)Kh 71-C2	B14/C2	105	85	70j6	M6	14j6	30	5h9	16	134	M20	12	2,5	—	90	111	263
SEKh 71-C2R	B14/C2	105	85	70j6	M6	14j6	30	5h9	16	134	M20	12	2,5	—	90	111	263
SEKh 71-C2F	B14/C2	105	85	70j6	M6	14j6	30	5h9	16	134	M20	12	2,5	100	90	111	303
SE(M)Kh 80-A1	B14/C1	160	130	110j6	M8	19j6	40	6h9	21,5	157	M20	14	3,5	—	95	120	266

Dimensions of Flange Mounted Motors – IM B14

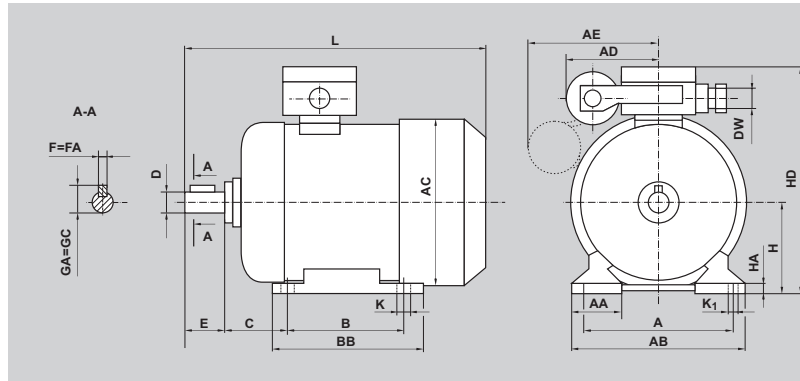


Motor Type	Flange	P	M	N	S	D	E	F	GA	AC	DW	LE	T	AE	AD	HB	L
SE(M)Kh 80-A2	B14/C2	120	100	80j6	M6	19j6	40	6h9	21,5	157	M20	12	3	—	95	120	266
SE(M)Kh 80-B1	B14/C1	160	130	110j6	M8	19j6	40	6h9	21,5	157	M20	14	3,5	—	95	120	278
SEKh 80-B1R	B14/C1	160	130	110j6	M8	19j6	40	6h9	21,5	157	M20	14	3,5	—	95	120	278
SEKh 80-B1F	B14/C1	160	130	110j6	M8	19j6	40	6h9	21,5	157	M20	14	3,5	120	95	120	315
SE(M)Kh 80-B2	B14/C2	120	100	80j6	M6	19j6	40	6h9	21,5	157	M20	12	3	—	95	120	278
SEKh 80-B2R	B14/C2	120	100	80j6	M6	19j6	40	6h9	21,5	157	M20	12	3	—	95	120	278
SEKh 80-B2F	B14/C2	120	100	80j6	M6	19j6	40	6h9	21,5	157	M20	12	3	120	95	120	315
E(M)Kh 80-C1	B14/C1	160	130	110j6	M8	19j6	40	6h9	21,5	157	M20	14	3,5	—	95	120	306
SEKh 80-C1R	B14/C1	160	130	110j6	M8	19j6	40	6h9	21,5	157	M20	14	3,5	—	95	120	306
SEKh 80-C1F	B14/C1	160	130	110j6	M8	19j6	40	6h9	21,5	157	M20	14	3,5	120	95	120	343
SE(M)Kh 80-C2	B14/C2	120	100	80j6	M6	19j6	40	6h9	21,5	157	M20	12	3	—	95	120	306
SEKh 80-C2R	B14/C2	120	100	80j6	M6	19j6	40	6h9	21,5	157	M20	12	3	—	95	120	306
SEKh 80-C2F	B14/C2	120	100	80j6	M6	19j6	40	6h9	21,5	157	M20	12	3	120	95	120	343
SE(M)Kh 90-S1	B14/C1	160	130	110j6	M8	24j6	50	8h9	27	157	M20	10	3,5	—	95	118	316
SEKh 90-S1R	B14/C1	160	130	110j6	M8	24j6	50	8h9	27	157	M20	10	3,5	—	95	118	316
SEKh 90-S1F	B14/C1	160	130	110j6	M8	24j6	50	8h9	27	157	M20	10	3,5	120	95	118	350
SE(M)Kh 90-S2	B14/C2	140	115	95j6	M8	24j6	50	8h9	27	157	M20	10	3	—	95	118	316
SEKh 90-S2R	B14/C2	140	115	95j6	M8	24j6	50	8h9	27	157	M20	10	3	—	95	118	316
SEKh 90-S2F	B14/C2	140	115	95j6	M8	24j6	50	8h9	27	157	M20	10	3	120	95	118	350
SE(M)Kh 90-L1	B14/C1	160	130	110j6	M8	24j6	50	8h9	27	157	M20	10	3,5	—	95	118	328
SEKh 90-L1R	B14/C1	160	130	110j6	M8	24j6	50	8h9	27	157	M20	10	3,5	—	95	118	328
SEKh 90-L1F	B14/C1	160	130	110j6	M8	24j6	50	8h9	27	157	M20	10	3,5	120	95	118	364
SE(M)Kh 90-L2	B14/C2	140	115	95j6	M8	24j6	50	8h9	27	157	M20	10	3	—	95	118	328
SEKh 90-L2R	B14/C2	140	115	95j6	M8	24j6	50	8h9	27	157	M20	10	3	—	95	118	328
SEKh 90-L2F	B14/C2	140	115	95j6	M8	24j6	50	8h9	27	157	M20	10	3	120	95	118	364
SE(M)KhR 90-S1	B14/C1	160	130	110j6	M8	24j6	50	8h9	27	166	M20	10	3,5	—	95	120	312
SEKhR 90-S1R	B14/C1	160	130	110j6	M8	24j6	50	8h9	27	166	M20	10	3,5	—	95	120	312
SEKhR 90-S1F	B14/C1	160	130	110j6	M8	24j6	50	8h9	27	166	M20	10	3,5	120	95	120	352
SE(M)KhR 90-S2	B14/C2	140	115	95j6	M8	24j6	50	8h9	27	166	M20	8	3	—	95	120	312
SEKhR 90-S2R	B14/C2	140	115	95j6	M8	24j6	50	8h9	27	166	M20	8	3	—	95	120	312
SEKhR 90-S2F	B14/C2	140	115	95j6	M8	24j6	50	8h9	27	166	M20	8	3	120	95	120	352
SE(M)KhR 90-L1	B14/C1	160	130	110j6	M8	24j6	50	8h9	27	166	M20	8	3,5	—	95	120	337
SEKhR 90-L1R	B14/C1	160	130	110j6	M8	24j6	50	8h9	27	166	M20	8	3,5	—	95	120	337
SEKhR 90-L1F	B14/C1	160	130	110j6	M8	24j6	50	8h9	27	166	M20	8	3,5	120	95	120	377
SE(M)KhR 90-L2	B14/C2	140	115	95j6	M8	24j6	50	8h9	27	166	M20	8	3	—	95	120	337
SEKhR 90-L2R	B14/C2	140	115	95j6	M8	24j6	50	8h9	27	166	M20	8	3	—	95	120	337
SEKhR 90-L2F	B14/C2	140	115	95j6	M8	24j6	50	8h9	27	166	M20	8	3	120	95	120	377
SEMKhR90-M1	B14/C1	160	130	110j6	M8	24j6	50	8h9	27	166	M20	8	3,5	—	95	120	357
SEMKhR90-M2	B14/C2	140	115	95j6	M8	24j6	50	8h9	27	166	M20	8	3	—	95	120	357

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Dimensions of Foot Mounted Motors – IM B3

IE3



Motor Type	A	B	C	D	E	F	GA	H	K	K1	HA	AC	DW	AA	AB	BB	AE	AD	HD	L
3SSIE 56-2B	90	71	36	9j6	20	3h9	10,2	56	5,8	8	7	117	M20	30	110	92	-	74	154	200
3SSIE 56-2BR	90	71	36	9j6	20	3h9	10,2	56	5,8	8	7	117	M20	30	110	92	-	74	154	200
3SSIE 56-2BF	90	71	36	9j6	20	3h9	10,2	56	5,8	8	7	117	M20	30	110	92	100	74	154	244
3SSIE 63-2A	100	80	40	11j6	23	4h9	12,5	63	7	10	8,5	126	M20	36	124	106	-	74	165	210
3SSIE 63-2AR	100	80	40	11j6	23	4h9	12,5	63	7	10	8,5	126	M20	36	124	106	-	74	165	210
3SSIE 63-2AF	100	80	40	11j6	23	4h9	12,5	63	7	10	8,5	126	M20	36	124	106	100	74	165	254
3SSIE 63-2B	100	80	40	11j6	23	4h9	12,5	63	7	10	8,5	126	M20	36	124	106	-	74	165	225
3SSIE 63-2BR	100	80	40	11j6	23	4h9	12,5	63	7	10	8,5	126	M20	36	124	106	-	74	165	225
3SSIE 63-2BF	100	80	40	11j6	23	4h9	12,5	63	7	10	8,5	126	M20	36	124	106	100	74	165	268
3SSIE 63-4A	100	80	40	11j6	23	4h9	12,5	63	7	10	8,5	126	M20	36	124	106	-	74	165	225
3SSIE 63-4AR	100	80	40	11j6	23	4h9	12,5	63	7	10	8,5	126	M20	36	124	106	-	74	165	225
3SSIE 63-4AF	100	80	40	11j6	23	4h9	12,5	63	7	10	8,5	126	M20	36	124	106	100	74	165	268
3SSIE 63-4B	100	80	40	11j6	23	4h9	12,5	63	7	10	8,5	126	M20	36	124	106	-	74	165	245
3SSIE 63-4BR	100	80	40	11j6	23	4h9	12,5	63	7	10	8,5	126	M20	36	124	106	-	74	165	245
3SSIE 63-4BF	100	80	40	11j6	23	4h9	12,5	63	7	10	8,5	126	M20	36	124	106	100	74	165	289
3SSIE 71-2A	112	90	45	14j6	30	5h9	16	71	7	10	8	134	M20	45	142	116	-	90	182	245
3SSIE 71-2AR	112	90	45	14j6	30	5h9	16	71	7	10	8	134	M20	45	142	116	-	90	182	245
3SSIE 71-2AF	112	90	45	14j6	30	5h9	16	71	7	10	8	134	M20	45	142	116	100	90	182	285
3SSIE 71-2B	112	90	45	14j6	30	5h9	16	71	7	10	8	134	M20	45	142	116	-	90	182	263
3SSIE 71-2BR	112	90	45	14j6	30	5h9	16	71	7	10	8	134	M20	45	142	116	-	90	182	263
3SSIE 71-2BF	112	90	45	14j6	30	5h9	16	71	7	10	8	134	M20	45	142	116	100	90	182	303
3SSIE 71-4A	112	90	45	14j6	30	5h9	16	71	7	10	8	134	M20	45	142	116	-	90	182	263
3SSIE 71-4AR	112	90	45	14j6	30	5h9	16	71	7	10	8	134	M20	45	142	116	-	90	182	263
3SSIE 71-4AF	112	90	45	14j6	30	5h9	16	71	7	10	8	134	M20	45	142	116	100	90	182	303
3SSIE 71-4B	112	95	45	14j6	30	5h9	16	71	7	10	8	134	M20	45	142	116	-	90	182	246
3SSIE 71-4BR	112	95	45	14j6	30	5h9	16	71	7	10	8	134	M20	45	142	116	-	90	182	246
3SSIE 71-4BF	112	90	45	14j6	30	5h9	16	71	7	10	8	134	M20	45	142	116	100	90	182	286
3SSIE 80-2A	125	100	50	19j6	40	6h9	21,5	80	10	13	9	150	M20	55	160	130	-	95	199	278
3SSIE 80-2AR	125	100	50	19j6	40	6h9	21,5	80	10	13	9	150	M20	55	160	130	-	95	199	278
3SSIE 80-2AF	125	100	50	19j6	40	6h9	21,5	80	10	13	9	150	M20	55	160	130	120	95	199	315
3SSIE 80-2B	125	100	50	19j6	40	6h9	21,5	80	10	13	9	150	M20	55	160	130	-	95	199	306
3SSIE 80-2BR	125	100	50	19j6	40	6h9	21,5	80	10	13	9	150	M20	55	160	130	-	95	199	306
3SSIE 80-2BF	125	100	50	19j6	40	6h9	21,5	80	10	13	9	150	M20	55	160	130	120	95	199	343
3SSIE 80-4A	125	100	50	19j6	40	6h9	21,5	80	10	13	9	150	M20	55	160	130	-	95	199	278
3SSIE 80-4AR	125	100	50	19j6	40	6h9	21,5	80	10	13	9	150	M20	55	160	130	-	95	199	278
3SSIE 80-4AF	125	100	50	19j6	40	6h9	21,5	80	10	13	9	150	M20	55	160	130	120	95	199	315
3SSIE 80-4B	125	100	50	19j6	40	6h9	21,5	80	10	13	9	150	M20	55	160	130	-	95	199	306
3SSIE 80-4BR	125	100	50	19j6	40	6h9	21,5	80	10	13	9	150	M20	55	160	130	-	95	199	306
3SSIE 80-4BF	125	100	50	19j6	40	6h9	21,5	80	10	13	9	150	M20	55	160	130	120	95	199	343

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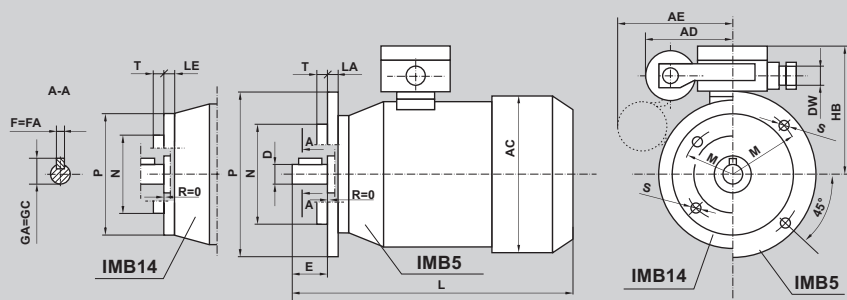
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Dimensions of Flange Mounted Motors – IM B5

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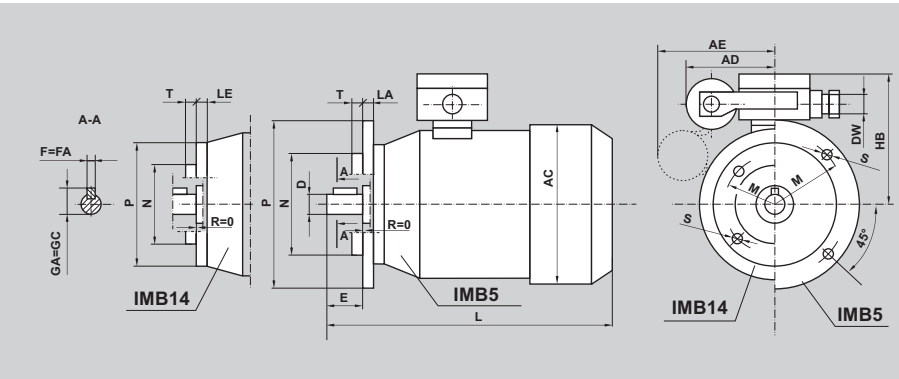


Motor Type	Flange	P	M	N	S	D	E	F	GA	AC	DW	LA	T	AE	AD	HB	L
3SSIEK 56-2B	B5	120	100	80j6	7	9j6	20	3h9	10,2	117	M20	8	3	-	74	98	200
3SSIEK 56-2BR	B5	120	100	80j6	7	9j6	20	3h9	10,2	117	M20	8	3	-	74	98	200
3SSIEK 56-2BF	B5	120	100	80j6	7	9j6	20	3h9	10,2	117	M20	8	3	100	74	98	244
3SSIEK 63-2A	B5	140	115	95j6	10	11j6	23	4h9	12,5	126	M20	9	3	-	74	102	210
3SSIEK 63-2AR	B5	140	115	95j6	10	11j6	23	4h9	12,5	126	M20	9	3	-	74	102	210
3SSIEK 63-2AF	B5	140	115	95j6	10	11j6	23	4h9	12,5	126	M20	9	3	100	74	102	254
3SSIEK 63-2B	B5	140	115	95j6	10	11j6	23	4h9	12,5	126	M20	9	3	-	74	102	225
3SSIEK 63-2BR	B5	140	115	95j6	10	11j6	23	4h9	12,5	126	M20	9	3	-	74	102	225
3SSIEK 63-2BF	B5	140	115	95j6	10	11j6	23	4h9	12,5	126	M20	9	3	100	74	102	268
3SSIEK 63-4A	B5	140	115	95j6	10	11j6	23	4h9	12,5	126	M20	9	3	-	74	102	225
3SSIEK 63-4AR	B5	140	115	95j6	10	11j6	23	4h9	12,5	126	M20	9	3	-	74	102	225
3SSIEK 63-4AF	B5	140	115	95j6	10	11j6	23	4h9	12,5	126	M20	9	3	100	74	102	268
3SSIEK 63-4B	B5	140	115	95j6	10	11j6	23	4h9	12,5	126	M20	9	3	-	74	102	245
3SSIEK 63-4BR	B5	140	115	95j6	10	11j6	23	4h9	12,5	126	M20	9	3	-	74	102	245
3SSIEK 63-4BF	B5	140	115	95j6	10	11j6	23	4h9	12,5	126	M20	9	3	100	74	102	289
3SSIEK 71-2A	B5	160	130	110j6	10	14j6	30	5h9	16	134	M20	10	3,5	-	90	111	245
3SSIEK 71-2AR	B5	160	130	110j6	10	14j6	30	5h9	16	134	M20	10	3,5	-	90	111	245
3SSIEK 71-2AF	B5	160	130	110j6	10	14j6	30	5h9	16	134	M20	10	3,5	100	90	111	285
3SSIEK 71-2B	B5	160	130	110j6	10	14j6	30	5h9	16	134	M20	10	3,5	-	90	111	263
3SSIEK 71-2BR	B5	160	130	110j6	10	14j6	30	5h9	16	134	M20	10	3,5	-	90	111	263
3SSIEK 71-2BF	B5	160	130	110j6	10	14j6	30	5h9	16	134	M20	10	3,5	100	90	111	303
3SSIEK 71-4A	B5	160	130	110j6	10	14j6	30	5h9	16	134	M20	10	3,5	-	90	111	263
3SSIEK 71-4AR	B5	160	130	110j6	10	14j6	30	5h9	16	134	M20	10	3,5	-	90	111	263
3SSIEK 71-4AF	B5	160	130	110j6	10	14j6	30	5h9	16	134	M20	10	3,5	100	90	111	303
3SSIEK 71-4B	B5	160	130	110j6	10	14j6	30	5h9	16	134	M20	10	3,5	-	90	111	246
3SSIEK 71-4BR	B5	160	130	110j6	10	14j6	30	5h9	16	134	M20	10	3,5	-	90	111	246
3SSIEK 71-4BF	B5	160	130	110j6	10	14j6	30	5h9	16	134	M20	10	3,5	100	90	111	286
3SSIEK 80-2A	B5	200	165	130j6	12	19j6	40	6h9	21,5	150	M20	10	3,5	-	95	119	278
3SSIEK 80-2AR	B5	200	165	130j6	12	19j6	40	6h9	21,5	150	M20	10	3,5	-	95	119	278
3SSIEK 80-2AF	B5	200	165	130j6	12	19j6	40	6h9	21,5	150	M20	10	3,5	120	95	119	315
3SSIEK 80-2B	B5	200	165	130j6	12	19j6	40	6h9	21,5	150	M20	10	3,5	-	95	119	306
3SSIEK 80-2BR	B5	200	165	130j6	12	19j6	40	6h9	21,5	150	M20	10	3,5	-	95	119	306
3SSIEK 80-2BF	B5	200	165	130j6	12	19j6	40	6h9	21,5	150	M20	10	3,5	120	95	119	343
3SSIEK 80-4A	B5	200	165	130j6	12	19j6	40	6h9	21,5	150	M20	10	3,5	-	95	119	278
3SSIEK 80-4AR	B5	200	165	130j6	12	19j6	40	6h9	21,5	150	M20	10	3,5	-	95	119	278
3SSIEK 80-4AF	B5	200	165	130j6	12	19j6	40	6h9	21,5	150	M20	10	3,5	120	95	119	315
3SSIEK 80-4B	B5	200	165	130j6	12	19j6	40	6h9	21,5	150	M20	10	3,5	-	95	119	306
3SSIEK 80-4BR	B5	200	165	130j6	12	19j6	40	6h9	21,5	150	M20	10	3,5	-	95	119	306
3SSIEK 80-4BF	B5	200	165	130j6	12	19j6	40	6h9	21,5	150	M20	10	3,5	120	95	119	343

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Dimensions of Flange Mounted Motors – IM B14

IE3



Motor Type	Flange	P	M	N	S	D	E	F	GA	AC	DW	LE	T	AE	AD	HB	L
3SSIEK 56-2B1	B14/C1	105	85	70j6	M6	9j6	20	3h9	10,2	117	M20	15	2,5	-	74	98	200
3SSIEK 56-2B2	B14/C2	80	65	50j6	M5	9j6	20	3h9	10,2	117	M20	12,5	2,5	-	74	98	200
3SSIEK 56-2B1R	B14/C1	105	85	70j6	M6	9j6	20	3h9	10,2	117	M20	15	2,5	-	74	98	200
3SSIEK 56-2B2R	B14/C2	80	65	50j6	M5	9j6	20	3h9	10,2	117	M20	12,5	2,5	-	74	98	200
3SSIEK 56-2B1F	B14/C1	105	85	70j6	M6	9j6	20	3h9	10,2	117	M20	15	2,5	100	74	98	244
3SSIEK 56-2B2F	B14/C2	80	65	50j6	M5	9j6	20	3h9	10,2	117	M20	12,5	2,5	100	74	98	244
3SSIEK 63-2A1	B14/C1	120	100	80j6	M6	11j6	23	4h9	12,5	126	M20	14	3	-	74	102	210
3SSIEK 63-2A2	B14/C2	90	75	60j6	M5	11j6	23	4h9	12,5	126	M20	9,5	2,5	-	74	102	210
3SSIEK 63-2A1R	B14/C1	120	100	80j6	M6	11j6	23	4h9	12,5	126	M20	14	3	-	74	102	210
3SSIEK 63-2A2R	B14/C2	90	75	60j6	M5	11j6	23	4h9	12,5	126	M20	9,5	2,5	-	74	102	210
3SSIEK 63-2A1F	B14/C1	120	100	80j6	M6	11j6	23	4h9	12,5	126	M20	14	3	100	74	102	254
3SSIEK 63-2A2F	B14/C2	90	75	60j6	M5	11j6	23	4h9	12,5	126	M20	9,5	2,5	100	74	102	254
3SSIEK 63-2B1	B14/C1	120	100	80j6	M6	11j6	23	4h9	12,5	126	M20	14	3	-	74	102	225
3SSIEK 63-2B2	B14/C2	90	75	60j6	M5	11j6	23	4h9	12,5	126	M20	9,5	2,5	-	74	102	225
3SSIEK 63-2B1R	B14/C1	120	100	80j6	M6	11j6	23	4h9	12,5	126	M20	14	3	-	74	102	225
3SSIEK 63-2B2R	B14/C2	90	75	60j6	M5	11j6	23	4h9	12,5	126	M20	9,5	2,5	-	74	102	225
3SSIEK 63-2B1F	B14/C1	120	100	80j6	M6	11j6	23	4h9	12,5	126	M20	14	3	100	74	102	268
3SSIEK 63-2B2F	B14/C2	90	75	60j6	M6	11j6	23	4h9	12,5	126	M20	9,5	2,5	100	74	102	268
3SSIEK 63-4A	B14/C1	120	100	80j6	M6	11j6	23	4h9	12,5	126	M20	14	3	-	74	102	225
3SSIEK 63-4AR	B14/C1	120	100	80j6	M6	11j6	23	4h9	12,5	126	M20	14	3	-	74	102	225
3SSIEK 63-4AF	B14/C1	120	100	80j6	M6	11j6	23	4h9	12,5	126	M20	14	3	100	74	102	268
3SSIEK 63-4A	B14/C2	90	75	60j6	M5	11j6	23	4h9	12,5	126	M20	9,5	2,5	-	74	102	225
3SSIEK 63-4AR	B14/C2	90	75	60j6	M5	11j6	23	4h9	12,5	126	M20	9,5	2,5	-	74	102	225
3SSIEK 63-4AF	B14/C2	90	75	60j6	M5	11j6	23	4h9	12,5	126	M20	9,5	2,5	100	74	102	268
3SSIEK 63-4B1	B14/C1	120	100	80j6	M6	11j6	23	4h9	12,5	126	M20	14	3	-	74	102	245
3SSIEK 63-4B2	B14/C2	90	75	60j6	M5	11j6	23	4h9	12,5	126	M20	9,5	2,5	-	74	102	245
3SSIEK 63-4B1R	B14/C1	120	100	80j6	M6	11j6	23	4h9	12,5	126	M20	14	3	-	74	102	245
3SSIEK 63-4B2R	B14/C2	90	75	60j6	M6	11j6	23	4h9	12,5	126	M20	9,5	2,5	-	74	102	245
3SSIEK 63-4B1F	B14/C1	120	100	80j6	M6	11j6	23	4h9	12,5	126	M20	14	3	100	74	102	289
3SSIEK 63-4B2F	B14/C2	90	75	60j6	M5	11j6	23	4h9	12,5	126	M20	9,5	2,5	100	74	102	289
3SSIEK 63-4C2	B14/C2	90	75	60j6	M5	11j6	23	4h9	12,5	126	M20	9,5	2,5	-	74	102	245
3SSIEK 63-4C2R	B14/C2	90	75	60j6	M5	11j6	23	4h9	12,5	126	M20	9,5	2,5	-	74	102	245
3SSIEK 63-4C2F	B14/C2	90	75	60j6	M5	11j6	23	4h9	12,5	126	M20	9,5	2,5	100	74	102	289
3SSIEK 71-2A1	B14/C1	140	115	95j6	M8	14j6	30	5h9	16	134	M20	14	3	-	90	111	245
3SSIEK 71-2A2	B14/C2	105	85	70j6	M6	14j6	30	5h9	16	134	M20	12	2,5	-	90	111	245
3SSIEK 71-2A1R	B14/C1	140	115	95j6	M8	14j6	30	5h9	16	134	M20	14	3	-	90	111	245
3SSIEK 71-2A2R	B14/C2	105	85	70j6	M6	14j6	30	5h9	16	134	M20	12	2,5	-	90	111	245
3SSIEK 71-2A1F	B14/C1	140	115	95j6	M8	14j6	30	5h9	16	134	M20	14	3	100	90	111	285
3SSIEK 71-2A2F	B14/C2	105	85	70j6	M6	14j6	30	5h9	16	134	M20	12	2,5	100	90	111	285
3SSIEK 71-2B1	B14/C1	140	115	95j6	M8	14j6	30	5h9	16	134	M20	14	3	-	90	111	263
3SSIEK 71-2B2	B14/C2	105	85	70j6	M6	14j6	30	6h9	16	134	M20	12	2,5	-	90	111	263

IE3

IE3

IE3

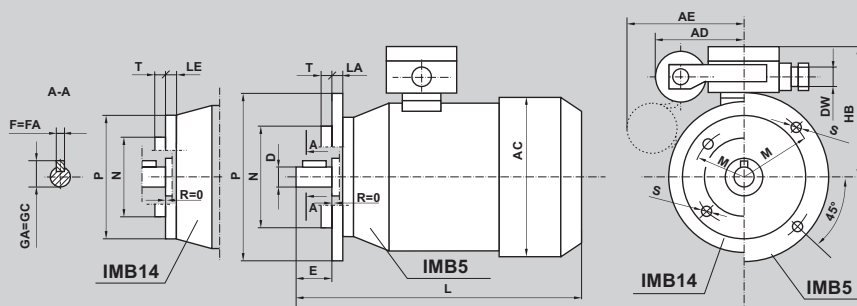
IE3

IE3

IE3

Dimensions of Flange Mounted Motors – IM B14

IE3



Motor Type	Flange	P	M	N	S	D	E	F	GA	AC	DW	LE	T	AE	AD	HB	L
3SSIEK 71-2B1R	B14/C1	140	115	95j6	M8	14j6	30	5h9	16	134	M20	14	3	—	90	111	263
3SSIEK 71-2B2R	B14/C2	105	85	70j6	M6	14j6	30	5h9	16	134	M20	12	2,5	—	90	111	263
3SSIEK 71-2B1F	B14/C1	140	115	95j6	M8	14j6	30	5h9	16	134	M20	14	3	100	90	111	303
3SSIEK 71-2B2F	B14/C2	105	85	70j6	M6	14j6	30	5h9	16	134	M20	12	2,5	100	90	111	303
3SSIEK 71-4A1	B14/C1	140	115	95j6	M8	14j6	30	5h9	16	134	M20	14	3	—	90	111	263
3SSIEK 71-4A2	B14/C2	105	85	70j6	M6	14j6	30	5h9	16	134	M20	12	2,5	—	90	111	263
3SSIEK 71-4A1R	B14/C1	140	115	95j6	M8	14j6	30	5h9	16	134	M20	14	3	—	90	111	263
3SSIEK 71-4A2R	B14/C2	105	85	70j6	M6	14j6	30	5h9	16	134	M20	12	2,5	—	90	111	263
3SSIEK 71-4A1F	B14/C1	140	115	95j6	M8	14j6	30	5h9	16	134	M20	14	3	100	90	111	303
3SSIEK 71-4A2F	B14/C2	105	85	70j6	M6	14j6	30	5h9	16	134	M20	12	2,5	100	90	111	303
3SSIEK 71-4B1	B14/C1	140	115	95j6	M8	14j6	30	5h9	16	134	M20	14	3	—	90	120	246
3SSIEK 71-4B2	B14/C2	105	85	70j6	M6	14j6	30	5h9	16	134	M20	12	2,5	—	90	120	246
3SSIEK 71-4B1R	B14/C1	140	115	95j6	M8	14j6	30	5h9	16	134	M20	14	3	—	90	120	246
3SSIEK 71-4B2R	B14/C2	105	85	70j6	M6	14j6	30	5h9	16	134	M20	12	2,5	—	90	120	246
3SSIEK 71-4B1F	B14/C1	140	115	95j6	M8	14j6	30	5h9	16	134	M20	14	3	100	90	120	286
3SSIEK 71-4B2F	B14/C2	105	85	70j6	M6	14j6	30	5h9	16	134	M20	12	2,5	100	90	120	286
3SSIEK 80-2A1	B14/C1	160	130	110j6	M8	19j6	40	6h9	21,5	150	M20	14	3,5	—	95	119	278
3SSIEK 80-2A2	B14/C2	120	100	80j6	M6	19j6	40	6h9	21,5	150	M20	12	3	—	95	119	278
3SSIEK 80-2A1R	B14/C1	160	130	110j6	M8	19j6	40	6h9	21,5	150	M20	14	3,5	—	95	119	278
3SSIEK 80-2A2R	B14/C2	120	100	80j6	M6	19j6	40	6h9	21,5	150	M20	12	3	—	95	119	278
3SSIEK 80-2A1F	B14/C1	160	130	110j6	M8	19j6	40	6h9	21,5	150	M20	14	3,5	120	95	119	315
3SSIEK 80-2A2F	B14/C2	120	100	80j6	M6	19j6	40	6h9	21,5	150	M20	12	3	120	95	119	315
3SSIEK 80-2B1	B14/C1	160	130	110j6	M8	19j6	40	6h9	21,5	150	M20	14	3,5	—	95	119	306
3SSIEK 80-2B2	B14/C2	120	100	80j6	M6	19j6	40	6h9	21,5	150	M20	12	3	—	95	119	306
3SSIEK 80-2B1R	B14/C1	160	130	110j6	M8	19j6	40	6h9	21,5	150	M20	14	3,5	—	95	119	306
3SSIEK 80-2B2R	B14/C2	120	100	80j6	M6	19j6	40	6h9	21,5	150	M20	12	3	—	95	119	306
3SSIEK 80-2B1F	B14/C1	160	130	110j6	M8	19j6	40	6h9	21,5	150	M20	14	3,5	120	95	119	343
3SSIEK 80-2B2F	B14/C2	120	100	80j6	M6	19j6	40	6h9	21,5	150	M20	12	3	120	95	119	343
3SSIEK 80-4A1	B14/C1	160	130	110j6	M8	19j6	40	6h9	21,5	150	M20	14	3,5	—	95	119	278
3SSIEK 80-4A2	B14/C2	120	100	80j6	M6	19j6	40	6h9	21,5	150	M20	12	3	—	95	119	278
3SSIEK 80-4A1R	B14/C1	160	130	110j6	M8	19j6	40	6h9	21,5	150	M20	14	3,5	—	95	119	278
3SSIEK 80-4A2R	B14/C2	120	100	80j6	M6	19j6	40	6h9	21,5	150	M20	12	3	—	95	119	278
3SSIEK 80-4A1F	B14/C1	160	130	110j6	M8	19j6	40	6h9	21,5	150	M20	14	3,5	120	95	119	315
3SSIEK 80-4A2F	B14/C2	120	100	80j6	M6	19j6	40	6h9	21,5	150	M20	12	3	120	95	119	315
3SSIEK 80-4B1	B14/C1	160	130	110j6	M8	19j6	40	6h9	21,5	150	M20	14	3,5	—	95	119	306
3SSIEK 80-4B2	B14/C2	120	100	80j6	M6	19j6	40	6h9	21,5	150	M20	12	3	—	95	119	306
3SSIEK 80-4B1R	B14/C1	160	130	110j6	M8	19j6	40	6h9	21,5	150	M20	14	3,5	—	95	119	306
3SSIEK 80-4B2R	B14/C2	120	100	80j6	M6	19j6	40	6h9	21,5	150	M20	12	3	—	95	119	306
3SSIEK 80-4B1F	B14/C1	160	130	110j6	M8	19j6	40	6h9	21,5	150	M20	14	3,5	120	95	119	343
3SSIEK 80-4B2F	B14/C2	120	100	80j6	M6	19j6	40	6h9	21,5	150	M20	12	3	120	95	119	343

SINGLE-PHASE INDUCTION MOTORS ADAPTED TO VOLTAGE SPEED CONTROL

Type: SSh(R) series

Output: from 0,04kW to 1,5kW

Number of poles: 2, 4, 6, 8

Frame size: from 56 to 90

Rated voltage: 230V

Frequency: 50Hz

Colour: RAL 5010

Insulation class: F

Degree of protection: IP 54 (as option IP 55, IP 56, IP 66)

Duty: continuous duty S1

Application:

Single-speed induction motors adapted to voltage speed control are used in fan systems.

Single-phase induction motors of the **SSh series** are designed to drive machines with a fan load characteristic $T_{load} = f(n^2)$, where the increase in the motor load is dependent on the square of the motor speed increase.

Such machines include, e.g. radial fans, axial fans.

The prerequisite for the correct adjustment of the rotational speed of the motors within the range from the minimum speed (n_{min}) to the rated speed (n_n) of the fan is the correct selection of the motor power to the fan.

A fan that is too small does not load the motor properly, and as a result the correct speed control can be impossible.

The advantage of these motors is the linear (proportional) dependence of the input power of the motor on the motor rotational speed $P_1 = f(n)$.

This means that the motor is characterized by a low power consumption at a low fan speed.



SINGLE-PHASE INDUCTION MOTORS FOR AXIAL FANS

Type: SEM0h series and SS0h series

Output: from 0,15kW to 1,1kW

Number of poles: 2, 4, 6

Frame size: 80

Rated voltage: 230V

Frequency: 50Hz

Colour: RAL 5010

Insulation class: F

Degree of protection: IP 54 (IP 55, IP 56, IP 66 as option)

Duty: continuous duty S1

Application:

Single phase induction motors are used for driving of axial fans.

SS0h and **SEM0h** motors are used to drive **axial fans**.

In such fans, forced air circulation is engaged also over the housing of the driving motor.

These motors can work only with axial fans with air flowing over its housing.

! Caution: Working alone can damage the motor.

Motors series SS0h and SEM0h can be delivered with **voltage speed controllers**.

Fan motors are produced in two main variants:

- **SS0h motors** are delivered with a power cable and a separate run capacitor
- **SEM0h motors** have a run capacitor mounting under the cover and a terminal box



series SS0h



series SEM0h

MOTORS WITH SHAFT HEIGHT 65 MM FOR WOODWORKING MACHINES

Type: SEh(R) series for 1-phase motors,
Sh(R) for 3-phase motors

Output: from 0,75kW to 2,0kW

Number of poles: 2, 4, 6, 8

Frame size: 65

Rated voltage: rated voltage 230V (1-phase), 400V (3-phase)

Frequency: 50Hz

Colour: RAL 5010

Degree of protection: IP 54

Insulation class: F

Duty: – continuous duty S1 or intermittent duty S6
(40% 60c/h) for 1-phase
– intermittent duty S6 (40% 60c/h) for 3-phase

Application:

Motors with shaft height 65mm are mainly applied in woodworking machines.

Other: – aluminium housing,

– motors can be manufactured with variety of the shaft ends, with a fixed bearing at the drive end (no axial clearance).

Electric motors with a **lowered shaft (low shaft height motors)**, so-called dachshund motors, are used wherever small dimensions of the motor and the possibility of mounting relatively small circular saws, respectively cutters or drills are needed.

Such motors are very popular in stone factories, all kinds of carpentry shops and furniture factories.

The low shaft height motors work well for cutting and machining of aluminum and similar materials.

Motors for circular saw are designed for continuous duty S1 or for intermittent duty S6.

The discs on the motor shaft allow **mounting the circular saw**.

The low rise of the shaft and flange mounting allow for **maximum cutting thickness**.

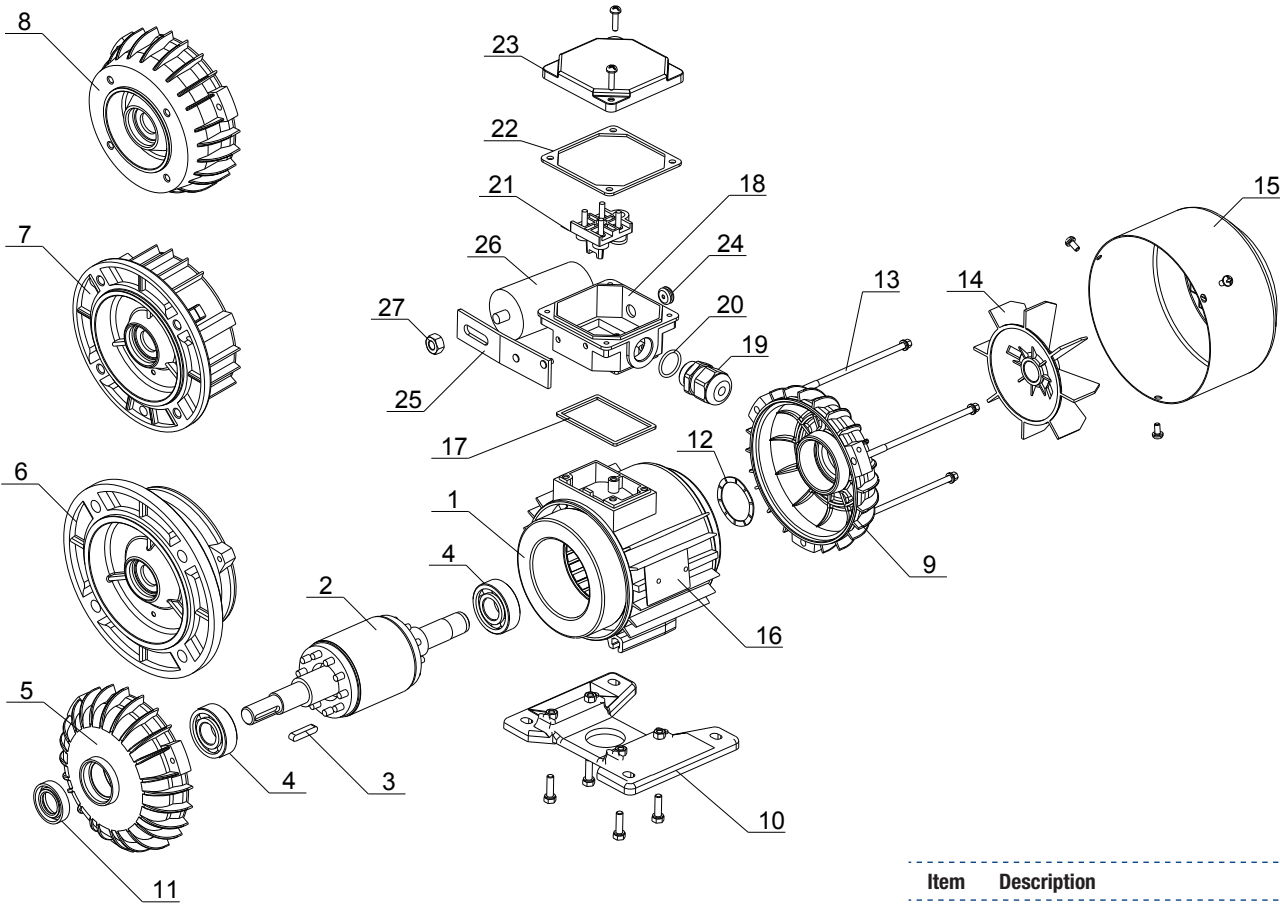
The saw motors can be equipped with an **electromagnetic brake** which increases the safety of use.



! A switch with built-in safety-protection devices is often used to guarantee that the saw will not turn on by itself after a power failure in the network and will turn off after exceeding the permissible temperature.

List of Motor parts

Frame Size: 56÷90



Item	Description
1	stator
2	rotor
3	key
4	bearing
5	DE shield
6	flange B5
7	flange B14/C1
8	flange B14/C2
9	NDE shield
10	foot
11	shaft seal (IP55)
12	spring washer
13	tie rod
14	fan
15	fan cover
16	name plate
17	terminal box gasket
18	terminal box
19	cable gland
20	O-ring (IP55)
21	terminal board
22	terminal box cap gasket
23	terminal box cap
24	seal
25	mounting plate of capacitor
26	capacitor
27	nut M8

DE – drive end
NDE – non drive end

Ordering information

In order to select the proper motor and provide you the most accurate offer as the requirements of customer's applications are various, we ask you to specify below motor details:

Orders for motors should specify

- » motor type designation,
- » rated output,
- » rated speed,
- » operating duty,
- » supply voltage and connection,
- » frequency,
- » mounting arrangements, end shield material,
- » degree of protection,
- » type of driven machine,
- » other details regarding special requests,

and information concerning additional accessories e.g.

- » thermal protection,
- » anticondensation heaters,
- » vibration sensors,
- » etc.

When ordering special purpose motors one should also indicate:

- » required direction of rotation,
- » required degree of interior protection,
- » method of start-up,
- » method of coupling with the driven unit (gears, dimensions of belt pulleys, etc.),
- » type of driven machine (type of load), including the moment of inertia J or flywheel effect GD2 calculated to motor shaft,
- » other customer's specifications.

When ordering spare parts one should specify:

- » full designation of the motor type including its serial number (provided on the nameplate) or catalogue number,
- » degree of protection,
- » mounting arrangement,
- » name of part,
- » number of pieces.

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



Dear Customer,
Please complete the above Order Form and send it to ffd@frank-dvorak.at. In case you need assistance, do not hesitate to contact us at phone number: 0043 263 180 05. It will be our pleasure to help you.

Cantoni Group – Certifications

Cantoni Group's factory, Celma Indukta was one of the first companies obtaining ISO 9001 certificate in Poland

All Cantoni Group manufacturing plants comply with the most important standards.

ISO 9001 is based on a number of quality management principles including a strong customer focus, the motivation and involvement of top management, the process approach and continuous improvement. Using ISO 9001 helps to ensure that customers get consistent, good quality products and services.

Our aim is to produce high quality products certified according to the most important standards. We always focus our work to provide a product that meets the customer requirements, define the approach to continuous improvement and monitor

customer satisfaction. All employees in our Group are fully engaged and motivated to provide the top quality products. We achieve this thanks to skilled technicians, trained workers and customer oriented attitude.

As a demonstration of our aim to meet all high level international standard requirements, we are also certified ISO 14001 and OHSAS 18001 to prove our internal processes and behaviour.

ISO 14001 certification confirms that the organization manages their environmental responsibilities in an effective and internationally accepted way.

In Cantoni Group we know that taking care of the environment means taking care of our present and future.



With **OHSAS 18001** certificate, Cantoni Group confirms the necessity of controlling and improving health and safety aspects within the organization.

Employees are Cantoni Group's main asset, thus, their well-being and safety are our priority.

Our laboratory Celma Indukta is also **ISO 17025** certified by Canadian Standard Association (CSA) for two aspects: safety and energy efficiency verification requirements as independent unit.

The safety part – Supervised Manufacturers Testing Certification (SMTC) confirms that our laboratory is allowed for supervised manufactured safety certification program.

The energy efficiency part confirms that energy verification program for motors operating as SMTC can be performed according to CSA 390 standard at our facilities.

All our prototype motors are tested and approved before series production and samples of our final products are tested periodically to check compliance with all parameters defined. Our production range has also different types of products certifications based on specific technical requirements, like UL-CSA, GOST, EAC, ATEX, IEC Ex, CCC, Bureau Veritas, DNV-GL, etc.

Our technicians are constantly updated, informed and trained about every new regulation in order to provide all possible solutions to meet final customer requirements and also study and engineer ad-hoc products with customers developers.

Top quality electric motors

Cantoni Group's electric motors are manufactured in such a way as to provide a durable product that our customers can rely on:

- motors manufactured using high quality raw materials and components
- long-life bearings
- robust and tough construction
- raw materials only from European qualified suppliers
- production process from the beginning to the end at our facilities
- proven electrical performance

Our motors for many applications

Our motors are produced with the aim to be flexible and adaptable to many different applications. The long tradition and experience of our technical departments, supported by a flexible and strong organization, can assure an engineering of the motor series that meet the most common requirements and the more and more specific requests from the manufacturers of cutting-edge machines.

Our long collaboration with some of the most important players in the global industrial market has built a strong and stable organization that is able to support the customer in the development of the best solutions for its application.

Cantoni Group continuous investments

The strategy of Cantoni Group is to realize a strong and continuous plan of investments with the aim to constantly increase the range of products, quality level and high productivity. Cantoni Group international market leadership has been created thanks to such open and future oriented attitude. Investments into the new professional machinery, equipment and infrastructure increase the quality control, capacity and save the environment.

The use of world class CNC, automatic and semi-automatic machinery guarantees precision, repeatability and accuracy. Such considerable development plan of Cantoni Group enhances the already wide range of production, maximizes the quality of offered products and has led to a growing number of innovations (new series for specific applications, new design and solutions) and international approvals.



Cantoni Group



Giampiero Cantoni, Founder of Cantoni Group

Since almost a century, the Cantoni Group has been known worldwide as a leader in manufacturing and supplying electric motors, components and tools.

Thanks to the entrepreneurial commitment and great talent, the founder of the Group, **Prof. Giampiero Cantoni**, created diversified Group Enterprise that has gained outstanding success on the Domestic and International markets, placing us among the most important European manufacturers.



Company History – Frank & Dvorak (FFD)



For over 75 years, Frank & Dvorak (FFD) has stood for top quality and technical expertise in the manufacturing of electric motors. Since its founding, the company has established itself as a reliable partner for industrial companies and repair workshops.

In 2000, FFD became part of the Cantoni Group, a globally leading manufacturer of electric motors. Through this integration, our customers benefit from an expanded product portfolio, state-of-the-art manufacturing technology, and a global service network.

Today, FFD offers a wide range of standard and customized motors for various industrial applications. With high stock

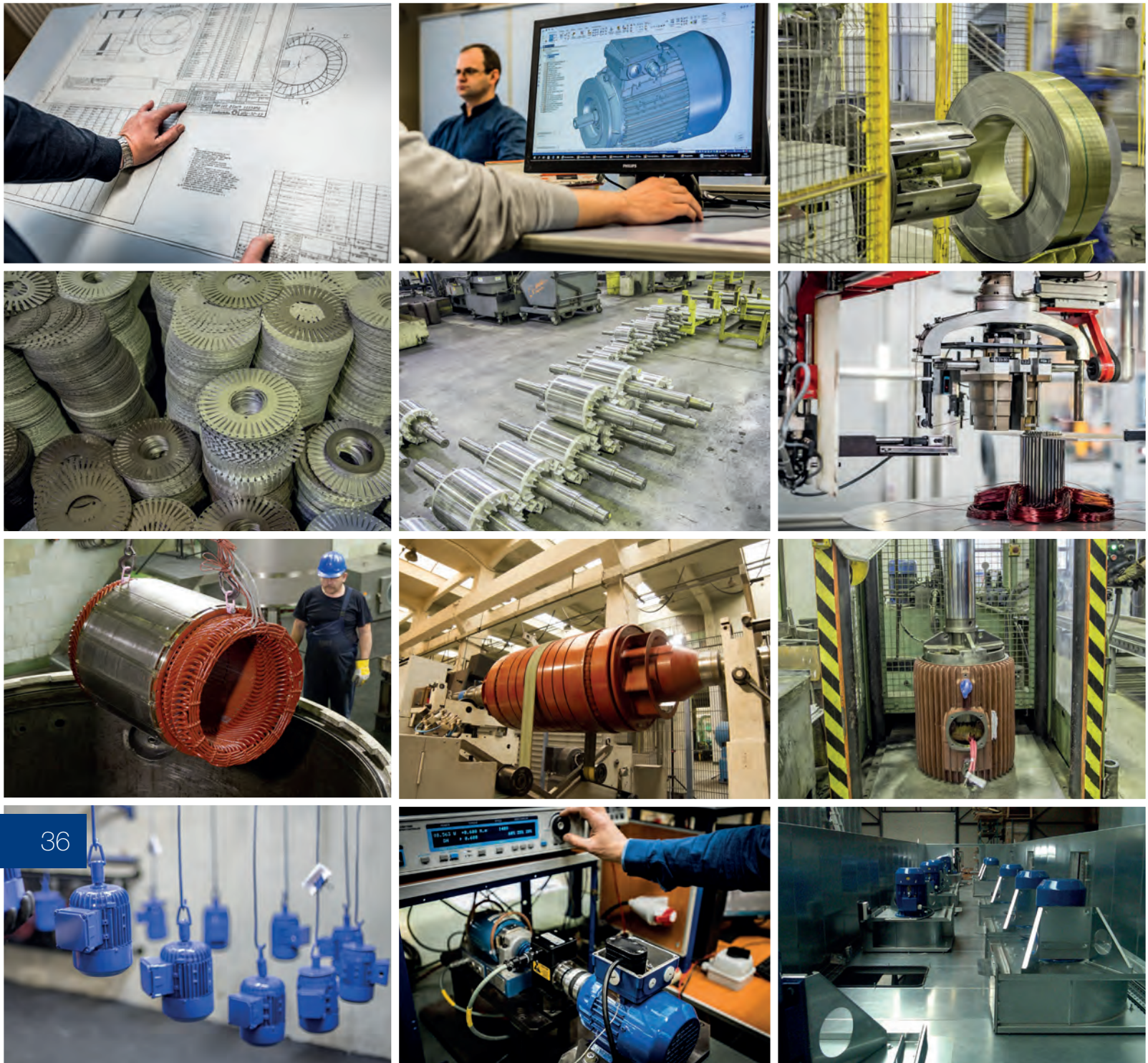
availability, flexible production, and customer-specific solutions, we meet the highest standards of quality and performance.

As part of the Cantoni Group, we combine decades of experience with international strength, ensuring the highest precision, fast availability, and sustainable production in accordance with ISO 9001 and ISO 14001.

Frank & Dvorak – Your specialist for electric motors, powered by the global expertise of the Cantoni Group.



From the project to the application

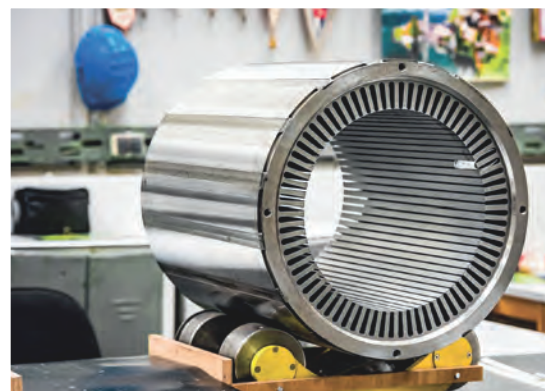
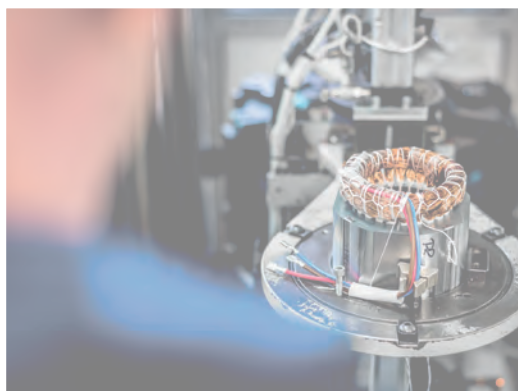


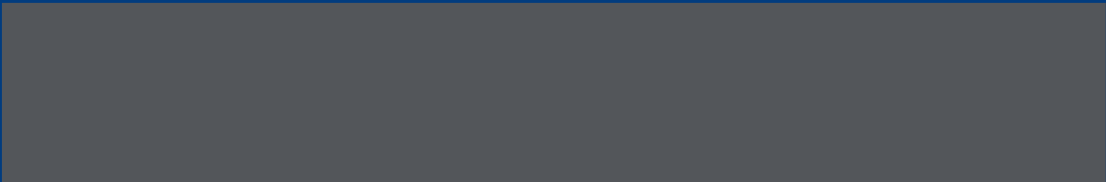
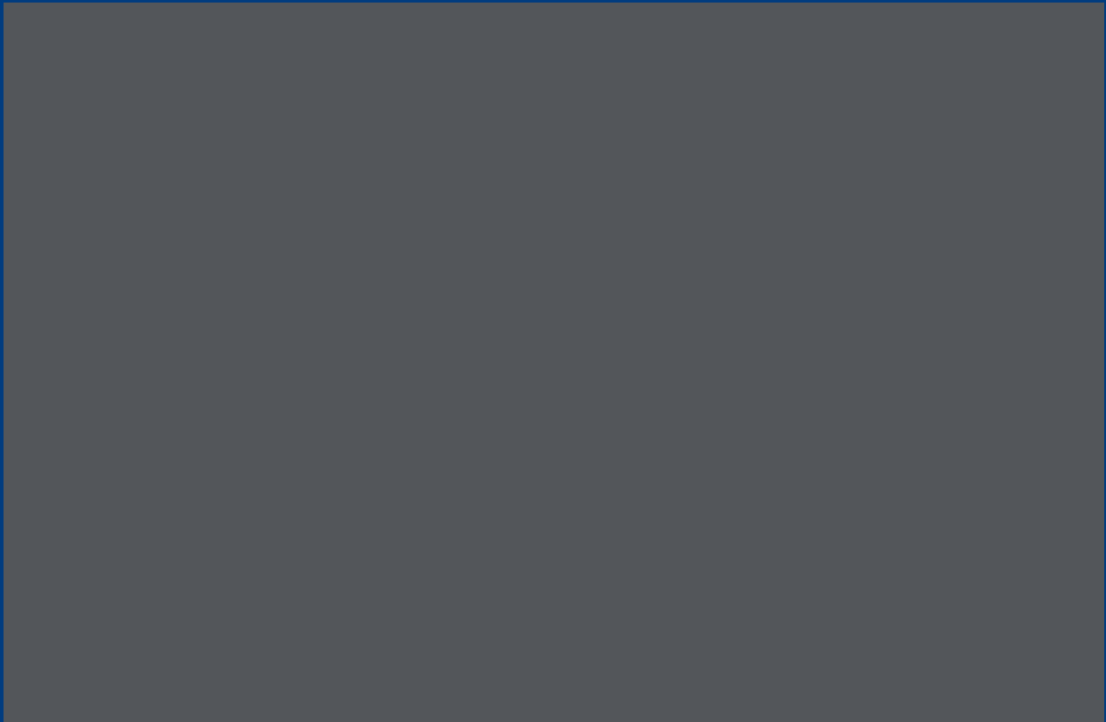
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THE WORLD OF ELECTRIC MOTORS



FRANK & DVORAK
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