
CATALOG | NOVEMBER 2019

Low voltage

IEC Food Safe stainless steel motors



Sanitary design and reliability are the key features for the food and beverage industry. Stainless steel motors are gaining ground in food and beverage applications - designed for uncompromised food safety and reliable performance in extreme conditions.

Low voltage

IEC Food Safe stainless steel motors

Sizes 71 to 132; 0,18 to 7,5 kW

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IEC Food Safe stainless steel motors

Uncompromised hygiene, reliability and productivity

Reliable performance in extreme conditions

Stainless steel is the preferred material for food and beverage processes/operations, it is easy to clean and resistant to rust and corrosion. The IP69 rating provides ultimate protection against high pressure (100 bar) hot water (80°C) sprays at close range. The windings of this motor are fully encapsulated, providing long lifetime in extreme humid conditions.

Meeting the efficiency requirements around the world

The motor is available in IE3 premium efficiency class. The wide coverage of MEPS (Minimum Energy Performance Standards) around the world enable simple sourcing of motors from ABB. The motor is rated for different voltage and frequency variations including 50 Hz and 60 Hz.

Ideal for various food processing applications

Our stainless steel motor is a perfect solution for harsh industries like meat, poultry, fish, dairy, beverage and basically wherever high food safety is essential. We understand how costly production down time is to your bottom line, the features packed into this motor will prevent motor failures in the harshest conditions, thus improving your productivity by avoiding unwanted interruptions in the process. Downtime for maintenance, cleaning and equipment replacement is minimized. Productivity is maximized.

Drain holes –

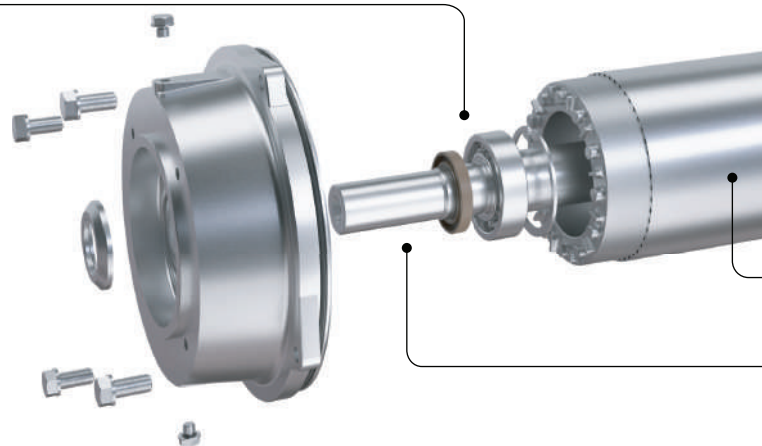
Easily removable for thorough drainage in any mounting position.

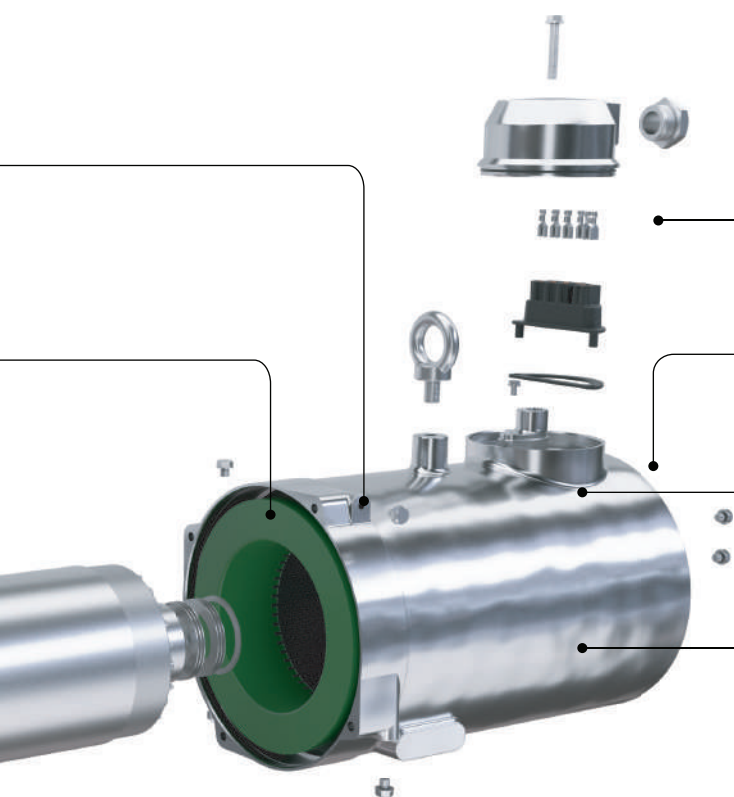
Windings engineered for durability –

Epoxy encapsulated system prevents any water and moisture from reaching the windings and seals the lead extrance to the terminal box. High tec seal systems for IP69 protection.

Food grade lubricant –

Lubricants suitable for food environments (H1) to avoid potential contamination and maximize food safety.





Tight and sealed terminal box –
Prevents water from entering.
Rotatable cover allows to adjust
cable entry in all directions.

Cooling –
Sizes 71 to 90 without cooling fan,
sizes 100 to 132 with cooling fan.

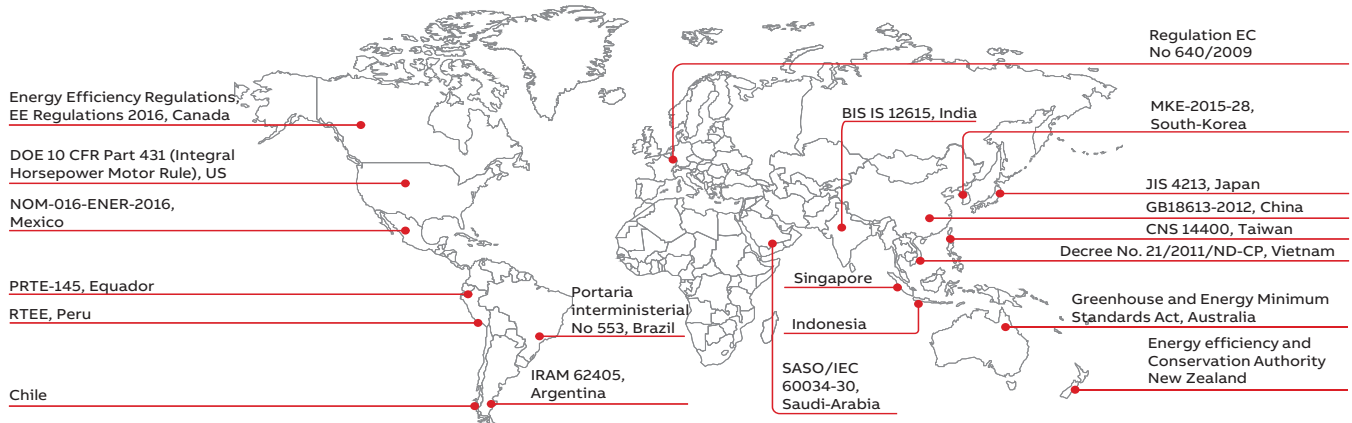
Stainless steel housing –
Smooth, round AISI304 stainless
steel housing for easy cleaning.

Rating plate data –
Laser etched onto the frame
eliminates contamination trapped
beneath traditional rating plates.

Precision die-cast aluminum rotor –
Precision balanced and coated with
an epoxy primer to resist corrosion.

Stainless steel shaft –
Prevents rust and corrosion.

Standards and certification



—
01 Main Minimum
efficiency performance
standards (MEPS)
regulations.

The validation of IEC 60034-30-1:2014, a worldwide energy efficiency classification system exists for low voltage three-phase asynchronous motors. These international standards have been created to enable and increase the level of harmonization in efficiency regulations around the world and to also cover motors for explosive atmospheres.

ABB Food Safe motors, MEPS and certifications

In addition to the mandatory European requirements with the CE marking and IE3 efficiency level, food safe motors cover following registrations and certifications as standard:

USA & Canada

All the motors have UL recognized safety mark based on UL and CSA standards. Motors are registered to Department of Energy (DoE) in the USA according to Integrated horse power rule (IHP). Energy efficiency registration to Canada (NRCan) is not required as IP69 protection motors are outside the rule scope.

Australia

IEC Food Safe motors are registered to AU HE MEPS (IE3).

Other countries:

Please refer to MEPS guide in ABB web page for requirements in other countries.

MEPS - Link to the external web page.

<https://new.abb.com/motors-generators/energy-efficiency>

Mechanical design

Mounting arrangement and cooling

Food Safe motors are available as standard configuration according to below table. Mounting types (like IMB3) are shown on the motor rating plate. In addition motors can be mounted in different positions shaft up or down or in inclined position.

In order to follow hygienic design principles, food safe motors in frame sizes 71-90 are without a cooling fan (IC410). Standard configuration of motors in frame sizes 100-132 is IC411.

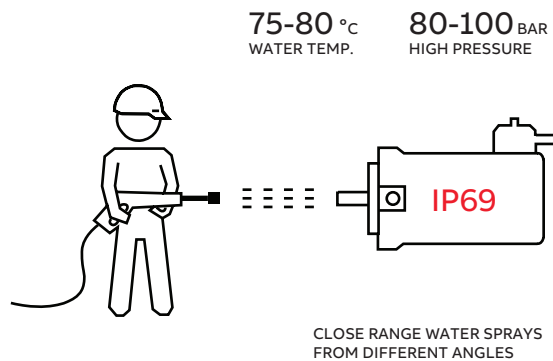
Mounting (IEC 60034-7)		Cooling (IEC 60034-6)	
Code I/Code II	Product code pos. 12	IC410 (TENV) - Frame sizes 71-90	IC411 (TEFC) - Frame sizes 100-132
IM B3 IM 1001	A: Foot-mounted, terminal box top		
IM B5 IM 3001	B: Flange-mounted, large flange		
IM B14 IM 3601	C: Flange-mounted, small flange		
IM B35 IM 2001	H: Foot-flange-mounted, terminal box top, large flange		
IM B34 IM 2101	J: Foot-flange-mounted, terminal box top, small flange		

Mechanical design

IP69 ingress protection

This classification means that the enclosure will withstand cleaning with high pressure water jets, reducing the risk of damaging the bearings or windings during the cleaning cycle. IP69 is the benchmark for motors used in hygiene areas. Testing for IP69 is performed in accordance with IEC 60529. The motor under test is sprayed from every practical direction with a spray nozzle at 15-20 cm for a duration of three minutes. The water

temperature is 80°C and sprayed at a pressure of 8-10 MPa (80–100 bar) and a flow rate of 14-16 liters / minute. No ingress of water is allowed.



Drain holes

Motors have multiple and easily removable drain plugs for thorough drainage in any mounting position.

In humid conditions with rapid temperature changes, there is a risk of condensate water inside the motor. Drain holes help to increase the lifetime of the motor.

During washing with powerful water jets, drain plugs need to be closed to confirm IP69 protection.

Insulation, materials

Insulation system together with encapsulation is class F. Windings are completely encapsulated with epoxy resin.

Encapsulation protects the winding and extends the motor lifetime in many ways.

- In humid conditions with rapid temperature changes, there is a risk of condensate water inside the motor
- Encapsulation supports better heat distribution and reduces the hot spots of the windings
- Encapsulation supports better heat dissipation and lowers the overall temperature of the windings
- Encapsulation enhances dielectric strength, especially with VSD supply

Mechanical design

Bearings and food grease

Bearing types are specified on the rating plate of all motors.

Bearings are permanently greased with H1 food grade grease and do not need re-greasing. H1 lubricants are Food-grade lubricants used in food processing environments where there is some possibility of incidental food contact.

Heat stabilized bearings, withstand wide temperature range -20°C to +120°C.

Duty hours for permanently greased bearings at ambient temperatures of 25 °C and 40 °C, valid up to 60 Hz.

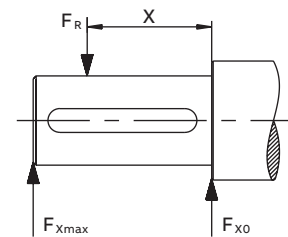
Permissible radial and axial forces

The following table shows permissible radial and axial forces in Newtons assuming a 25°C ambient temperature, and normal conditions.

Permissible loads of simultaneous radial and axial forces can be supplied on request.

IF the radial force is applied between points X= and X_{max}, the permissible force F_R can be calculated with the following formula:

$$F_R = F_{X0} - \frac{X}{E} (F_{X0} - F_{Xmax})$$



			Permissible radial forces *				Permissible axial forces *							
Motor size	Poles	Length of shaft extension E (mm)	Mounting arrangement IMB3/B5/B14				Mounting arrangement IM B3				Mounting arrangement IM V1			
			20,000 h		40,000 h		20,000 h		40,000 h		20,000 h		40,000 h	
			F _{X0} (N)	F _{Xmax} (N)	F _{X0} (N)	F _{Xmax} (N)	F _{AD} (N)	F _{AZ} (N)	F _{AD} (N)	F _{AZ} (N)	F _{AD} (N)	F _{AZ} (N)	F _{AD} (N)	F _{AZ} (N)
71	2	30	700	630	550	500	160	740	305	885	920	280	770	140
	4	30	880	790	690	620	300	880	515	1100	1150	480	930	270
	6	30	1020	920	800	720	430	1010	655	1240	1270	620	1050	400
80	2	40	770	680	600	530	345	625	505	785	850	460	690	310
	4	40	950	840	750	660	505	790	740	1020	1100	680	870	450
	6	40	1090	960	850	750	645	925	895	1180	1260	850	1000	590
90	2	50	1080	960	850	750	355	975	575	1190	1300	500	1080	280
	4	50	1340	1190	1050	930	565	1190	885	1510	1650	790	1330	470
	6	50	1530	1350	1200	1060	730	1350	1100	1720	1860	1000	1500	630
100	2	60	1050	910	820	710	350	970	570	1190	1320	480	1100	260
	4	60	1310	1130	1020	880	565	1190	885	1500	1650	780	1340	460
	6	60	1540	1320	1200	1030	730	1350	1100	1720	1870	1000	1500	620
112	2	60	1050	900	820	700	350	970	570	1190	1320	480	1100	260
	4	60	1280	1100	990	850	565	1180	880	1500	1680	760	1360	440
	6	60	1530	1310	1190	1030	730	1350	1100	1720	1870	1000	1500	620
132	2	80	1630	1380	1280	1080	580	1380	905	1700	1900	780	1560	450
	4	80	2000	1690	1560	1320	885	1690	1320	2120	2450	1170	1990	690
	6	80	2340	1990	1840	1560	1130	1930	1680	2480	2740	1520	2180	970

* Deep groove ball bearings

F_{AD} = Pushing towards the motor,

F_{AZ} = pulling from the the motor

Mechanical design

Terminal box

01 Terminal box

02 Terminal board



01



02

The terminal box is 360° rotatable and is tightened through a central screw. O-rings secure IP69 protection class for terminal box cover.

- The terminal box cover is rotatable through a central screw.
- The central screw can be unscrewed and in this way it is possible to rotate the box in any desired angular position.
- O-ring to secure the central screw useful for terminal box cover rotating.
- By default the terminal box has M25 x 1,5 threaded hole.
- Recommended cable glands (IP69) are explained in the instruction manual.
- Terminal boards: Universal and quick internal connection system.
- Internal earthing bolt M4 on the top of the motor inside the terminal box cover.
- Power cable needs 6 conductors, 3 ph, 1 earth, 2 thermal sensors.



Variable speed drives with IEC Food Safe motors

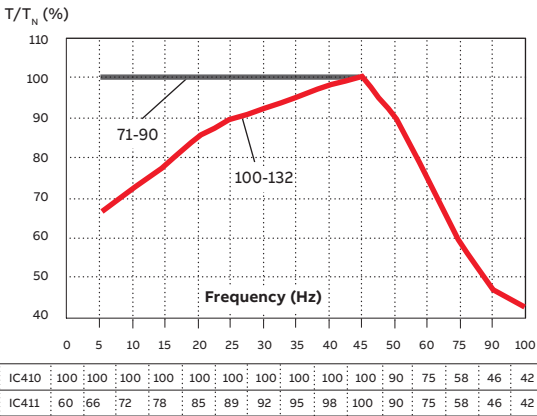
01 Loadability curves for ABB frequency converter with DTC control at 50 Hz, temperature rise F

02 Loadability curves for ABB frequency converter with DTC control at 60 Hz, temperature rise F

IEC Food Safe motors are designed for both DOL and variable-speed operation. Standard motors are suitable for variable speed operation up to 500 V, du/dt filter is recommended above 500 V.

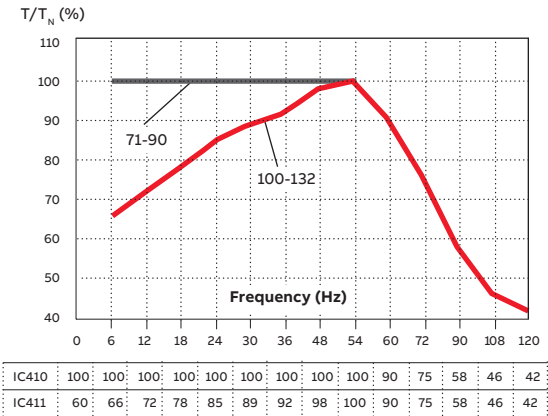
Operating speed
For speeds higher than the nominal speed stated on the motor's rating plate or in the respective product catalog, ensure that either the highest permissible rotational speed of the motor or the critical speed of the whole application is not exceeded. The maximum speed is 4000 r/min for foot-mounted IMB3 motors; for other mounting arrangements 6000 r/min.

Rating plates
The use of ABB's motors in variable speed applications does not require additional rating plates. The parameters required for commissioning the converter can be found from the main rating plate.



IC410 Non ventilated natural air flow, IEC frame sizes 71-90
IC410 Self ventilated, IEC frame size 100-132

01



02

Ordering information

Explanation of the product code

Motor type	Motor size	Product code	Mounting arrangement code, Voltage and frequency code, Generation code	Variant codes
M3MA	90MA 2	3GMA 091	310	- BDB
		1 2 3 4 5 6 7 8 9 10 11 12 13 14		

Positions 1 to 4

3GMA: Totally enclosed squirrel cage motor with stainless steel frame

Positions 5 and 6

IEC size

07: 71

08: 80

09: 90

10: 100

11: 112

13: 132

Position 7

Speed (Pole pairs)

1: 2 poles

2: 4 poles

3: 6 poles

Positions 8 to 10

Running number

Position 11

-(dash)

Position 12 (marked with black dot in data tables)

Mounting arrangement

A: Foot-mounted, top-mounted terminal box

B: Flange-mounted, large flange

C: Flange-mounted, small flange

Position 13 (marked with black dot in data tables)

Voltage and frequency

Single-speed motors

D: 400 VΔ, 415 VΔ, 690 VY, 380 VΔ, 50 Hz
460 VΔ, 60 Hz

E: 500 VΔ, 575 VΔ, 50 Hz

F: 500 VY, 575 VY, 50 Hz

S: 230 VΔ, 380 VY, 400 VY, 415 VY, 50 Hz
460 VY, 60 Hz

Rating plates

01 Example rating plate -
230 V, 400 V, 415 V,
380 V 50 Hz

02 Example rating plate -
460 V 60 Hz

03 Example warning
plate

The motor's main rating plate shows the motor's performance values with various connections at nominal speed. The rating plate also shows the efficiency level IE3, year of manufacture, and the lowest nominal efficiency at 100, 75, and 50 % nominal load.

Motors have two main laser engraved rating plates - 50 Hz and 60 Hz - and one warning plate as standard.

ABB

CE

IE3

IEC60034-1

ABB Oy, Motors and Generators

Strömbergin puistotie 5 A

65320 Vaasa, Finland

3~ Motor

M3MA 100LA 2 B5 IMB5/IM3001

2019

4506157624-10

No. 3G1F1903571120

Ins. cl.

F

IP 69

V	Hz	kW	r/min	A	cos φ	Duty
230 D	50	3	2905	9.3	0.91	S1
400 Y	50	3	2905	5.3	0.91	S1
415 Y	50	3	2912	5.2	0.91	S1
380 Y	50	3	2889	5.6	0.92	S1

IE3-87.1%(100%)-87.5%(75%)-85.8%(50%)

Product code 3GMA101510-BSB

6206-2Z/C3/VT378

6205-2Z/C3/VT378

60 kg

01

ABB

CE

IE3

IEC60034-1

ABB Oy, Motors and Generators

Strömbergin puistotie 5 A

65320 Vaasa, Finland



3~ Motor

M3MA 100LA 2 B5 IMB5/IM3001

2019

4506157624-10

No. 3G1F1903571120

Ins. cl.

F

IP 69

V	Hz	kW	r/min	A	cos φ	Duty
460 Y	60	3	3518	4.7	0.90	S1

CC031A NEMA NOM.EFF. 88.5%

Product code 3GMA101510-BSB

6206-2Z/C3/VT378

6205-2Z/C3/VT378

60 kg

02

WARNING

SHOCK

HOT SURFACE

ROTATION

IMPORTANT

CONDENSATION DRAINS HAVE BEEN PROVIDED IN VARIOUS POINTS OF THE MOTOR. THE PLUG IN THE DRAIN PORT AT THE LOWEST LEVEL MUST BE REMOVED TO ENSURE PROPER DRAINAGE. AFTER CONDENSATION DRAINING ALL PORTS MUST BE PLUGGED TO MEET IP69 PROTECTION.

03

Technical data, 400 V 50 Hz

IEC Food Safe stainless steel motors

Out-put kW	Motor type	Product code	Cooling method	Speed r/min	Efficiency IEC60034-30-1; 2014			Power factor cos j	Current		Torque		Moment of inertia J = 1/4 GD ² kgm ²	Weight kg	Sound pressure level L _{PA} dB	
					Full load 100%	3/4 load 75%	1/2 load 50%		I _N A	I _S /I _N	T _N Nm	T _i /T _N				T _b /T _N
3000 r/min = 2 poles					400 V 50 Hz					CENELEC design						
0,37	M3MA 71MA 2	3GMA071310---B	IC410	2903	73,9	63,1	55,3	0,74	0,88	9,3	1,21	4,1	5,4	0,00184	16	47
0,55	M3MA 71MB 2	3GMA071320---B	IC410	2908	77,8	75,9	70,4	0,71	1,36	10,6	1,8	5,2	6,6	0,00203	17	47
0,75	M3MA 80MB 2	3GMA081320---B	IC410	2894	80,7	82,5	80,6	0,88	1,45	7,7	2,5	2,3	3,7	0,00339	23	47
1,1	M3MA 80MC 2	3GMA081330---B	IC410	2877	82,7	83,6	82,4	0,89	2,1	7,9	3,6	2,4	3,8	0,00328	23	47
1,5	M3MA 90MA 2	3GMA091310---B	IC410	2903	84,2	85,6	84,9	0,91	2,7	8,7	4,9	2,6	4,3	0,0354	52	44
2,2	M3MA 90MB 2	3GMA091320---B	IC410	2919	85,9	86,3	84,9	0,89	4,0	10,8	7,2	3,4	5,3	0,0354	52	44
3	M3MA 100LA 2	3GMA101510---B	IC411	2905	87,1	88,1	86,7	0,91	5,3	9,1	9,8	2,7	4,3	0,0131	61	68
4	M3MA 112MA 2	3GMA111310---B	IC411	2891	88,1	87,6	85,8	0,92	7,0	9,1	13,2	2,7	4,3	0,0131	61	68
5,5	M3MA 132LA 2	3GMA131510---B	IC411	2954	89,2	88,2	85,3	0,80	10,9	13,2	17,8	5,3	7,3	0,016	69	70
7,5	M3MA 132LB 2	3GMA131520---B	IC411	2953	90,1	86,3	83,1	0,81	14,5	13,2	24,2	5,2	7,1	0,0182	75	70
1500 r/min = 4 poles					400 V 50 Hz					CENELEC design						
0,25	M3MA 71MB 4	3GMA072320---B	IC410	1459	73,5	70,6	64,7	0,72	0,62	7,5	1,63	3,5	4,7	0,00344	20	47
0,37	M3MA 71MC 4	3GMA072330---B	IC410	1449	77,3	74,1	69,7	0,76	0,89	7,3	2,4	3,3	4,4	0,0035	20	47
0,55	M3MA 80MB 4	3GMA082320---B	IC410	1445	80,8	79,4	75,2	0,77	1,23	6,8	3,6	2,6	3,8	0,0059	23	47
0,75	M3MA 80MC 4	3GMA082330---B	IC410	1436	82,5	80,9	77,1	0,77	1,69	7,5	5,0	3,4	4,5	0,0067	23	47
1,1	M3MA 90MA 4	3GMA092310---B	IC410	1438	84,1	84,4	82,9	0,85	2,2	7,0	7,3	2,3	3,6	0,0375	48	44
1,5	M3MA 90MB 4	3GMA092320---B	IC410	1437	85,3	86,5	85,7	0,87	2,8	6,5	9,9	2,0	3,2	0,0138	52	44
2,2	M3MA 100LA 4	3GMA102510---B	IC411	1459	86,7	85,4	82,5	0,68	5,3	8,7	14,4	2,7	5,2	0,0178	57	62
3	M3MA 100LB 4	3GMA102520---B	IC411	1465	87,7	86,2	83,4	0,69	7,1	9	19,5	2,8	4,9	0,0178	57	62
4	M3MA 112MA 4	3GMA112310---B	IC411	1452	88,6	88,4	87,1	0,78	8,3	8,0	26,3	2,4	4,1	0,0212	61	62
5,5	M3MA 132LA 4	3GMA132510---B	IC411	1472	89,6	89,5	87,8	0,72	12	10,1	35,6	3,6	5,2	0,0367	73	64
7,5	M3MA 132LB 4	3GMA132520---B	IC411	1468	90,4	90,5	89,1	0,73	16,2	10,1	48,8	3,5	5,0	0,0461	82	64
1000 r/min = 6 poles					400 V 50 Hz					CENELEC design						
0,18	M3MA 71MA 6	3GMA073310---B	IC410	933	63,9	60,1	53,5	0,64	0,6	4,9	1,84	3,6	4,2	0,00263	15	47
0,25	M3MA 71MB 6	3GMA073320---B	IC410	908	68,6	68,9	65,9	0,67	0,75	5,0	2,6	3,3	3,8	0,0034	16	47
0,37	M3MA 80MA 6	3GMA083310---B	IC410	960	73,5	71,0	64,0	0,58	1,18	5,4	3,7	2,7	3,9	0,0129	23	47
0,55	M3MA 90MA 6	3GMA093310---B	IC410	963	77,2	75,2	71,3	0,70	1,37	5,4	5,4	2,1	3,3	0,0117	48	44
0,75	M3MA 90MB 6	3GMA093320---B	IC410	965	78,9	78,2	74,5	0,68	1,9	5,4	7,4	2,1	3,5	0,014	52	44
1,1	M3MA 90MC 6	3GMA093330---B	IC410	959	81,0	81,0	78,2	0,67	2,8	5,4	10,9	2,1	3,4	0,014	52	44
1,5	M3MA 100LA 6	3GMA103510---B	IC411	975	82,5	81,9	78,2	0,64	3,8	6,7	14,7	1,8	4,0	0,0181	58	62
2,2	M3MA 112MA 6	3GMA113310---B	IC411	961	84,3	84,8	82,8	0,65	5,6	5,8	21,8	1,8	3,8	0,0181	59	62
3	M3MA 132LA 6	3GMA133510---B	IC411	974	85,6	86,0	84,7	0,65	7,5	6,4	29,4	2,0	3,4	0,0316	67	57
4	M3MA 132LB 6	3GMA133520---B	IC411	973	86,8	87,2	86,5	0,69	9,4	6,0	39,2	1,8	3,0	0,037	74	57

Technical data, 460 V 60 Hz

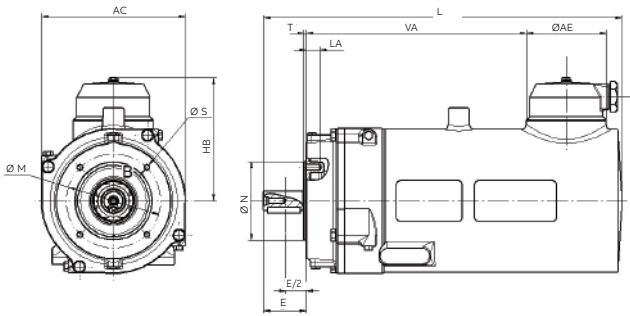
IEC Food Safe stainless steel motors

Out-put kW	Motor type	Product code	Cooling method	Speed r/min	Efficiency IEC60034-30-1; 2014			Power factor cos φ	Current		Torque			Moment of inertia J = 1/4 GD ² kgm²	Weight kg	Sound pressure level L _{PA} dB
					Full load 100%	3/4 load 75%	1/2 load 50%		I _N A	I _s /I _N	T _N Nm	T _i /T _N	T _b /T _N			
3600 r/min = 2 poles				460 V 60 Hz					CENELEC design							
0,37	M3MA 71MA 2	3GMA071310---B	IC410	3521	73,4	66,1	56,5	0,70	0,81	10,9	1,0	4,8	6,6	0,00184	16	50
0,55	M3MA 71MB 2	3GMA071320---B	IC410	3520	76,8	70,9	64,0	0,69	1,2	12,5	1,49	6,0	8,0	0,00203	17	50
0,75	M3MA 80MB 2	3GMA081320---B	IC410	3504	77,0	75,9	70,5	0,87	1,28	8,9	2,0	2,4	4,4	0,00339	23	50
1,1	M3MA 80MC 2	3GMA081330---B	IC410	3493	84,0	83,3	82,6	0,89	1,84	9,3	3,0	2,5	4,5	0,00328	23	50
1,5	M3MA 90MA 2	3GMA091310---B	IC410	3515	85,5	85	82,1	0,90	2,7	9,8	4,0	2,7	4,9	0,0354	52	47
2,2	M3MA 90MB 2	3GMA091320---B	IC410	3531	86,5	86,1	83,8	0,87	3,6	12,4	5,9	3,6	6,1	0,0354	52	47
3	M3MA 100LA 2	3GMA101510---B	IC411	3518	88,5	87,3	84,3	0,90	4,7	10,7	8,1	3,0	5,1	0,0131	61	71
4	M3MA 112MA 2	3GMA111310---B	IC411	3510	88,5	86,9	84,1	0,91	6,1	10,9	10,8	3,0	5,2	0,0131	61	71
5,5	M3MA 132LA 2	3GMA131510---B	IC411	3559	89,5	87,8	84,4	0,78	9,8	14,8	14,7	5,5	8,5	0,016	69	73
7,5	M3MA 132LB 2	3GMA131520---B	IC411	3555	90,2	92,2	91,3	0,81	12,7	14,8	20,1	5,4	8,2	0,0182	75	73
1800 r/min = 4 poles				460 V 60 Hz					CENELEC design							
0,25	M3MA 71MB 4	3GMA072320---B	IC410	1762	73,4	71,1	63,7	0,69	0,56	8,6	1,35	4,0	5,8	0,00344	20	50
0,37	M3MA 71MC 4	3GMA072330---B	IC410	1756	78,2	76,1	70,6	0,72	0,8	8,5	2,0	3,8	5,4	0,0035	20	50
0,55	M3MA 80MB 4	3GMA082320---B	IC410	1740	81,1	79,2	73,8	0,76	1,08	7,9	3,0	2,8	4,5	0,0059	23	50
0,75	M3MA 80MC 4	3GMA082330---B	IC410	1746	85,5	83,9	79,8	0,73	1,51	8,6	4,1	3,7	5,3	0,0067	23	50
1,1	M3MA 90MA 4	3GMA092310---B	IC410	1749	86,5	85,3	82,7	0,83	1,92	8,1	6,0	2,5	4,2	0,0375	48	47
1,5	M3MA 90MB 4	3GMA092320---B	IC410	1745	86,5	85,7	83,6	0,85	2,5	7,6	8,2	2,1	3,7	0,0138	52	47
2,2	M3MA 100LA 4	3GMA102510---B	IC411	1769	89,5	87,7	84,1	0,67	4,6	10,3	11,8	3,4	6,3	0,0178	57	62
3	M3MA 100LB 4	3GMA102520---B	IC411	1769	89,5	88,5	85,7	0,66	6,4	10,3	16,2	3,1	5,9	0,0178	57	62
4	M3MA 112MA 4	3GMA112310---B	IC411	1770	89,5	88,3	86,1	0,76	7,3	9,3	21,6	2,6	4,9	0,0212	61	62
5,5	M3MA 132LA 4	3GMA132510---B	IC411	1777	91,7	91,2	89,6	0,70	10,8	11,2	29,5	3,9	5,9	0,0367	73	69
7,5	M3MA 132LB 4	3GMA132520---B	IC411	1773	91,7	91,5	90,3	0,71	14,4	11,3	40,4	3,8	5,7	0,0461	82	69
1200 r/min = 6 poles				460 V 60 Hz					CENELEC design							
0,18	M3MA 71MA 6	3GMA073310---B	IC410	1146	67,5	62,4	55,1	0,58	0,55	5,6	1,5	4,3	5,3	0,00263	15	50
0,25	M3MA 71MB 6	3GMA073320---B	IC410	1130	71,4	69,9	65,5	0,62	0,67	5,8	2,1	3,9	4,7	0,0034	16	50
0,37	M3MA 80MA 6	3GMA083310---B	IC410	1171	75,3	72,3	64,3	0,52	1,16	5,9	3,0	2,8	4,5	0,0129	23	50
0,55	M3MA 90MA 6	3GMA093310---B	IC410	1168	81,7	79,5	76,5	0,67	1,23	5,9	4,5	2,1	3,8	0,0117	48	47
0,75	M3MA 90MB 6	3GMA093320---B	IC410	1170	82,5	81,5	76,1	0,65	1,75	5,9	6,1	2,2	4,0	0,014	52	47
1,5	M3MA 100LA 6	3GMA103510---B	IC411	1178	88,5	87,9	84,6	0,62	3,4	7,5	12,1	1,9	4,7	0,0181	58	62
2,2	M3MA 112MA 6	3GMA113310---B	IC411	1167	89,5	88,7	86,7	0,63	4,9	6,5	18	1,9	4,4	0,0181	59	62
3	M3MA 132LA 6	3GMA133510---B	IC411	1178	89,5	89,9	87,6	0,63	6,6	7,0	24,3	2,2	3,9	0,0316	67	60
4	M3MA 132LB 6	3GMA133520---B	IC411	1176	89,5	90,4	90,1	0,68	8,2	6,6	32,4	1,9	3,4	0,037	74	60

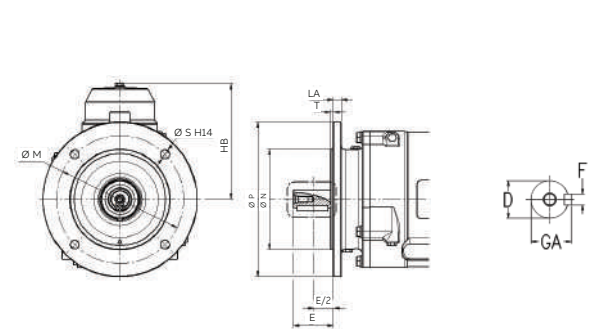
Dimension drawings

IEC Food Safe stainless steel motors, sizes 71-90

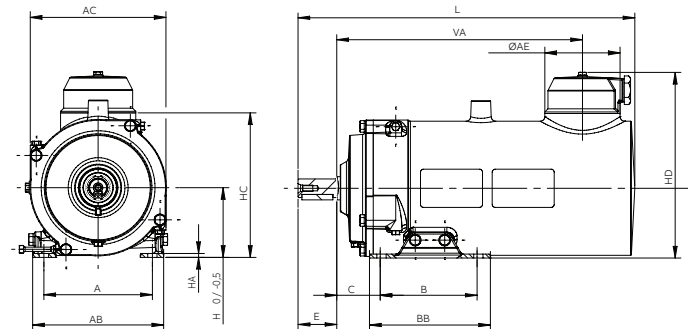
Flange-mounted B14



Flange-mounted B5



Foot-mounted B3



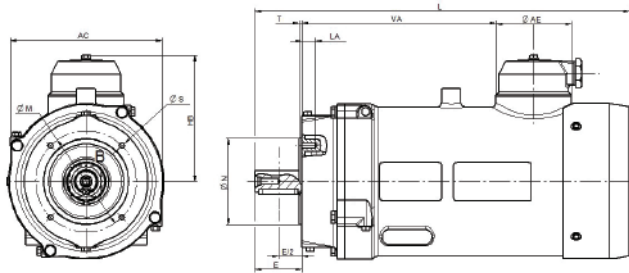
Motor size	A	AB	AC	Ø AE	B	BB	C	Ø D	DB	E	EG	F	G	GA	H	HB	HC	HD	L	VA
71	112	145	131	97	90	121	45	14	M5	30	12,5	5	11	16	71	131	149	202	310	213
80	125	155	156	97	100	131	50	19	M6	40	16	6	15,5	21,5	80	140	167	220	354	247
90	140	169	176	97	125	156	56	24	M8	50	19	8	20	27	90	149,5	187	240	434,5	317

Motor size	Flange-mounted B5					Flange-mounted B14				
	M	N	P	S	T	M	N	P	S	T
71	130	110	160	10	3,5	85	70	99	M6	2,5
80	165	130	200	12	3,5	100	80	120	M6	3
90	165	130	200	12	3,5	115	95	140	M8	3

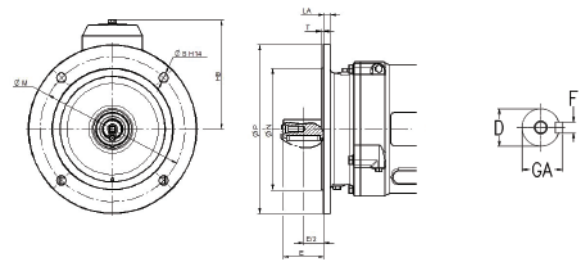
Dimension drawings

IEC Food Safe stainless steel motors, sizes 100-132

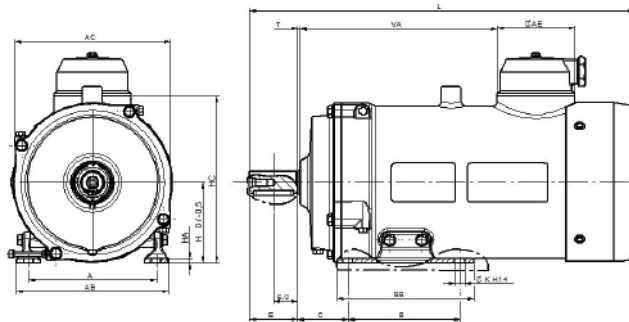
Flange-mounted B14



Flange-mounted B5



Foot-mounted B3



Motor size	A	AB	AC	Ø AE	B	BB	C	Ø D	DB	E	EG	F	G	GA	H	HB	HC	HD	L	VA
100	194,5	190	194,5	97	140	171	63	28	M10	60	22	8	24	31	100	161	208	261	480,5	298
112	194,5	220	194,5	97	140	190	70	28	M10	60	22	8	24	31	112	161	220	273	480,5	298
132	216	241	234	97	203	233	89	38	M12	80	28	10	33	41	132	181	260	313	579,5	370

Motor size	Flange-mounted B5					Flange-mounted B14				
	M	N	P	S	T	M	N	P	S	T
100	130	180	250	14,5	4	130	110	159	M8	3,5
112	165	180	250	14,5	4	130	110	159	M8	3,5
132	165	230	300	14,5	4	165	130	193	M10	3,5

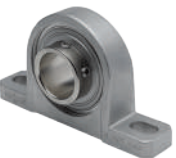
Motors in brief

IEC Food Safe stainless steel motors

Size	M3MA	71	80	90	100	112	132
Stator frame, shaft	Material	Stainless steel AISI 304					
Bearings	D-end	6204-2Z/C3	6205/2Z/C3	6206-2Z/C3	6206-2Z/C3	6206-2Z/C3	6208-2Z/C3
	N-end	6203-2Z/C3	6204/2Z/C3	6205-2Z/C3	6205-2Z/C3	6205-2Z/C3	6208-2Z/C3
		Heat stabilized bearings, withstand wide temperature range -20°C to +150°C					
Axially locked bearings	Retaining ring	Locked at D-end					
Bearing seals	D- and N-end	Seal on D-end, Gamma-ring externally and radial seal internally					
Lubrication		Permanently lubricated shielded bearing with H1 grease					
Measuring nipples for conditioning monitoring		Not included					
Fan		No fan				Nylon	
Cooling		TENV / IC410				TEFC / IC411	
Rating plate		Laser etched onto the frame					
Terminal box	Material	Stainless steel AISI 304					
Connections		Suitable for M25 x 1.5 IP69 cable gland					
Stator winding		Encapsulated winding with epoxy resin					
Rotor	Material	Die-cast aluminum					
Balancing method		Half-key balancing					
Keyway		Closed keyway					
Lifting lugs		No				Removable lifting lug kit included	
Drain holes		Drain holes closed upon high pressure water cleaning, plugged with stainless steel screws					
Enclosure		IP 69					

Food and beverage offering

Motors, gearing and bearings

Product		Food zone 1	Splash zone 2	Dry zone 3
		Ideal for meat and poultry processing, dairy and other equipment that are in direct contact with food products	Ideal for food processing equipment that has light-duty washdown, with no direct food contact	Ideal for equipment outside washdown area. Also used in outdoor environments such as grain and sugar processing
Motors	IEC	IEC Food safe motors	Paintfree and flexible modifications	Process performance motors General performance motors Motors for hazardous environments
				
	NEMA	NEMA Food safe motors	Paintfree motors White washdown motors	Severe duty motors General purpose motors
				
Gearing		Ultra Kleen Stainless Quantis Ultra Kleen Stainless Tigear®-2	E-Z Kleen Quantis E-Z Kleen Tigear-2	Standard Quantis Standard Tigear-2
				
Mounted bearings		Ultra Kleen® all stainless bearing in stainless or polymer housing	E-Z Kleen® corrosion resistant bearing in a stainless or polymer housing	Standard or extreme duty
				

Contact us



For more information and contact details:

www.abb.com/motors&generators