

# IEC stainless steel encapsulated motor

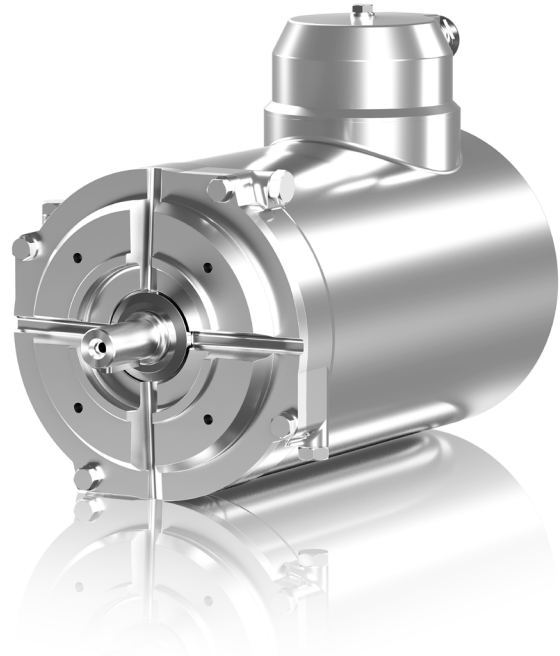
## Uncompromised hygiene, reliability and productivity

### Designed for uncompromised food safety

Sanitary design is the key feature of our stainless steel motor, engineered for the food and beverage industry fulfilling the hygienic design principals. This enables the food and beverage machinery to be effectively cleaned-in-place (CIP). The smoothly finished surface with laser engraved markings and self-draining design minimizes the risk of micro-organisms to grow. The bearings are lubricated with H1 food grade grease ensuring safe operations in food processing environments.

### Reliable performance in extreme conditions

Stainless steel is the preferred material for food and beverage processes/operations, it's easy to clean and resistant to rust and corrosion. The IP69K 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.



## IEC stainless steel encapsulated motor

Food safety and reliability	
IP69K protection	Withstands extreme washdown conditions
Encapsulated windings	Long lifetime in extreme humid conditions
H1 food grade grease	Safe operation in food processing environment
TENV cooling	Very easy to clean
IE3 efficiency	Lower operation costs and lower surface temperature

### 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 most harsh conditions. This will improve your productivity by avoiding unwanted interruptions in the process. Downtime for maintenance, cleaning and equipment replacement is minimized. Productivity is maximized.

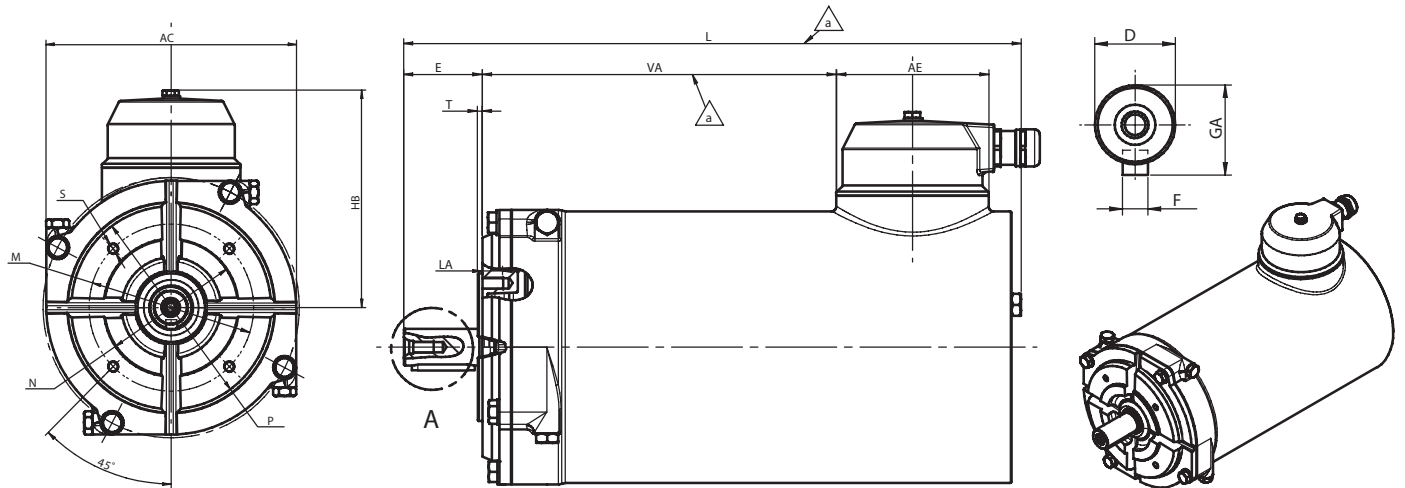
Contact us to let us know how can we help in your application or machinery.

## Technical data for IEC stainless steel encapsulated motors, 400-460 V, 50-60 Hz design

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC60034-30-1; 2014			Current		Torque			Moment of inertia $J = 1/4 GD^2$ kgm <sup>2</sup>	Weight kg
				Full load 100%	3/4 load 75%	Power factor cos $\varphi$	$I_N$ A	$I_2/I_N$	$T_N$ Nm	$T_f/T_N$	$T_b/T_N$		
<b>3000 r/min = 2 poles</b>			<b>400 V 50 Hz</b>				<b>CENELEC design</b>						
0.55	M3MA 80 MA 2	3GMA081310-CSA	2890	84.4	85.0	0.93	1.0	7.5	1.8	1.9	3.1	0.007	23
0.75	M3MA 80 MB 2	3GMA081320-CSA	2887	84.1	84.6	0.93	1.4	7.6	2.5	2.0	3.1	0.007	23
1.1	M3MA 80 MC 2	3GMA081330-CSA	2889	85.2	86.0	0.93	2.0	7.9	3.6	2.0	3.2	0.016	23
1.5	M3MA 90 MA 2	3GMA091310-CSA	2878	85.7	86.7	0.93	2.7	7.8	5.0	2.1	3.7	0.073	52
<b>1500 r/min = 4 poles</b>			<b>400 V 50 Hz</b>				<b>CENELEC design</b>						
0.375	M3MA 80 MA 4	3GMA082310-CSA	1455	84.9	83.8	0.69	0.9	8.7	2.5	4.2	5.3	0.014	23
0.55	M3MA 80 MB 4	3GMA082320-CSA	1434	84.0	83.8	0.78	1.2	7.7	3.7	3.4	4.2	0.036	23
0.75	M3MA 80 MC 4	3GMA082330-CSA	1439	83.4	83.1	0.79	1.7	8.0	5.0	3.6	4.4	0.036	23
1.1	M3MA 90 MA 4	3GMA092310-CSA	1444	85.5	85.6	0.84	2.2	7.3	7.3	2.4	3.4	0.045	48
1.5	M3MA 90 MB 4	3GMA092320-CSA	1435	87.2	88.7	0.85	2.9	6.9	10.0	2.3	3.2	0.109	52
<b>3000 r/min = 2 poles</b>			<b>460 V 60 Hz</b>				<b>CENELEC design</b>						
0.55	M3MA 80 MA 2	3GMA081310-CSA	3502	83.9	83.2	0.93	0.9	8.6	1.5	2.0	3.6	0.007	23
0.75	M3MA 80 MB 2	3GMA081320-CSA	3499	83.5	82.8	0.93	1.2	8.8	2.0	2.1	3.7	0.007	23
1.1	M3MA 80 MC 2	3GMA081330-CSA	3500	84.5	84.2	0.93	1.8	9.0	3.0	2.1	3.7	0.016	23
1.5	M3MA 90 MA 2	3GMA091310-CSA	3491	85.1	85.0	0.93	2.4	8.8	4.1	2.1	4.3	0.073	52
<b>1500 r/min = 4 poles</b>			<b>460 V 60 Hz</b>				<b>CENELEC design</b>						
0.375	M3MA 80 MA 4	3GMA082310-CSA	1759	84.5	82.4	0.65	0.9	9.7	2.0	4.6	6.2	0.014	23
0.55	M3MA 80 MB 4	3GMA082320-CSA	1741	83.7	82.3	0.75	1.1	8.7	3.0	3.7	4.9	0.036	23
0.75	M3MA 80 MC 4	3GMA082330-CSA	1745	82.4	81.0	0.76	1.5	9.0	4.1	3.9	5.2	0.036	23
1.1	M3MA 90 MA 4	3GMA092310-CSA	1749	85.1	83.9	0.83	2.0	8.2	6.0	2.6	4.0	0.045	48
1.5	M3MA 90 MB 4	3GMA092320-CSA	1743	89.0	89.5	0.83	2.5	8.0	8.2	2.4	3.7	0.109	52

## Dimension drawings for IEC stainless steel encapsulated motors

Mechanical dimensions are shown in the table below



Motor size	AC	Ø AE	Ø D	DB	E	EG	F	G	GA	HB	L	Ø M	Ø N	Ø P	S	T	VA
80	156	97	19	M6	40	19	6	15.5	21.5	140	327.5	100	80	120	M6	3	218.5
90	175	97	24	M8	50	19	8	20	27	149.5	407.5	115	95	140	M8	3	288.5

# Motors in brief

Size	M3AA	80	90
Stator frame, shaft	Material	Stainless steel AISI 304	
Bearings	D-end	6205-2Z	6206-2Z
	N-end	6204-2Z	6205-2C
		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	Radial seal	
Lubrication		Permanently lubricated shielded bearing with H1 grease	
Measuring nipples for conditioning monitoring		Not included	
Cooling		TENV	
Rating plate		Laser engraved on the frame	
Terminal box	Material	Stainless steel AISI 304	
Connections		Suitable for M25 x 1.5 IP69K cable gland	
Stator winding		Encapsulated winding with epoxy resin Elatron MC622-W360	
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 69K	

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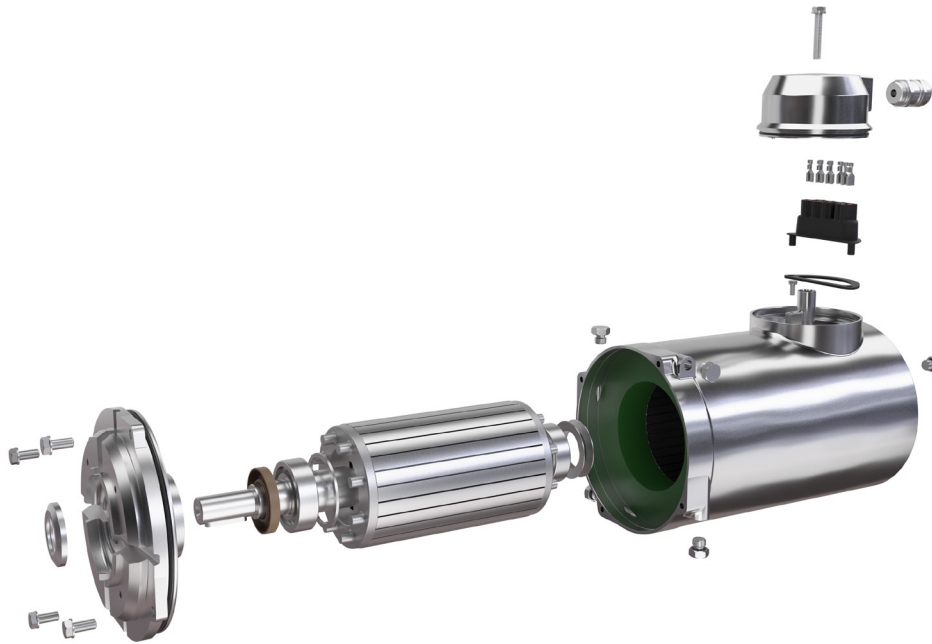
## Designed for ultimate reliability in extreme conditions

Heat stabilized bearings with H1 food grade grease

Windings encapsulated with epoxy resin - environmental protection against water and humidity

Rotatable terminal box cover allows to adjust cable exit in all directions

Suitable for cable gland and various types of IP69K connectors



Drain water large channels guarantee effective and easy cleaning

Squirrel cage rotor technology for IE3 efficiency

Stainless steel AISI 304 frame and hygienic design

Water drain holes suitable for horizontal and vertical mounting

For more information please visit:  
[www.abb.com/motors&generators](http://www.abb.com/motors&generators)  
[new.abb.com/food-beverage](http://new.abb.com/food-beverage)

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