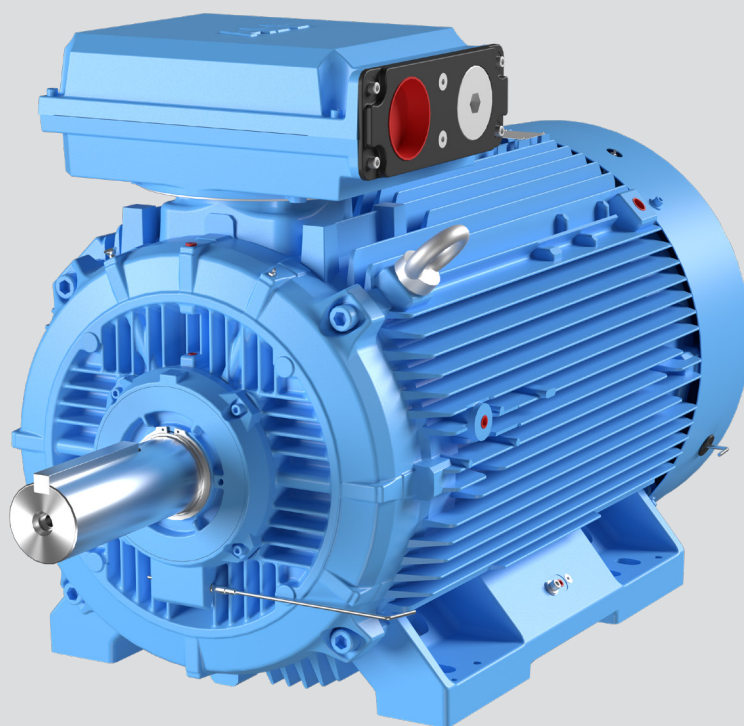

CATALOG | NOVEMBER 2024

Low voltage

Process performance imperial
dimensioned motors



With expertise, and a comprehensive portfolio of products and life-cycle services, we help value-minded industrial customers improve their energy efficiency and productivity.

Low voltage Process performance imperial dimensioned motors

Sizes 5008-5012 and 587-588, 186 to 746 kW

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Variable speed drives/ variable frequency drives with Process performance motors

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01 Isotherm loadability curves for motors with 50Hz nominal frequency

Variable speed drives (VSD) provide significant benefits when used together with ABB Process performance motors. The advantages include better process control and energy savings through a regulation of motor speed, and smooth starting with a reduced inrush current, reducing the stress on the equipment and supply network.

By choosing an ABB motor–drive package, users can be confident that the motor and drive combination is optimized for their application; it is a working package with a proven performance.

Process performance motors are designed for both direct on line (DOL) and variable speed operation, and will, either as standard or by adding a few extras, be suitable for variable speed operations.

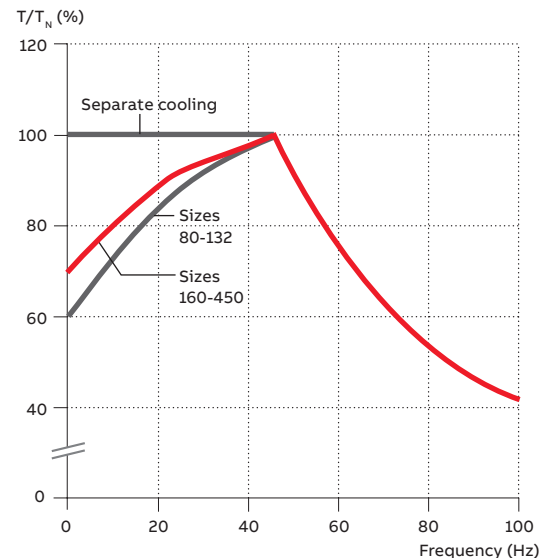
When selecting process performance motors for VSDs, the following points must be taken into consideration. The DriveSize selection tool helps in selecting the optimal combination of motor, drive and supply transformer.

Motor loadability with variable speed drives

The difference in the temperature rise of a motor run direct on line compared to the same motor run with a drive is influenced by factors such as the cooling effect of a shaft-mounted fan, depending on the speed of the motor, increased losses due to harmonics generated by the drive and reduced flux above the field weakening point. The effects of all these factors are combined in the loadability table.

The motor's maximum continuous loadability depends on the motor's actual temperature rise and the desired or allowed maximum temperature rise, typically class B or class F. Use the DriveSize dimensioning tool to choose the right motor and drive for your application. In DriveSize, you can specify the desired temperature rise and the tool scales the loadability curve according to the actual motor temperature rise.

Many applications also demand short time overloadability. In the DriveSize tool, you can also specify short time overload needs and the tool will choose the right products for your task.



—
01

Operating speed

Process performance motors are designed to work over a wide speed range and also at speeds significantly higher than nominal. The maximum speeds can be found on motor rating plates or in DriveSize. In addition to the motor speed, make sure that the maximum or critical speed of the entire application is not exceeded.

Ventilation

When the motor is operating at low speeds, the cooling capacity of the fan decreases, which again reduces the motor's load capacity. A separate, constant-speed fan (variant codes 183, 422, 514) can be used to increase the cooling capacity at low speed, if required for loads with constant torque characteristics.

Lubrication

The lubrication interval of regreasable bearings depends on the running speed of the motor and the bearing temperature. Motors are delivered as standard with a lubrication plate in tabular format that states the relubrication intervals at different speeds and temperatures. Please refer to the installation, operation and safety manual for further information on lubrication.

—
02 Maximum allowed phase-to-phase voltage peaks at motor terminals, as a function pulse rise time

Winding insulation

To ensure that motors operate reliably, the effects of non-sinusoidal output voltages from the converter must be taken into consideration when selecting the correct insulation system for the motor and output filters for the drive. The insulation and filters must be selected according to the table below.

Guideline maximum voltage values for Process performance motors.

Winding insulation and filters required	
$U_N \leq 500$ V	Standard insulation
$U_N \leq 600$ V	Standard insulation + dU/dt filters OR Special insulation (variant code 405)
$U_N \leq 690$ V	Special insulation (variant code 405) AND dU/dt-filters at converter output
$600 \text{ V} < U_N \leq 690$ V cable length > 150 m	Special insulation (variant code 405)

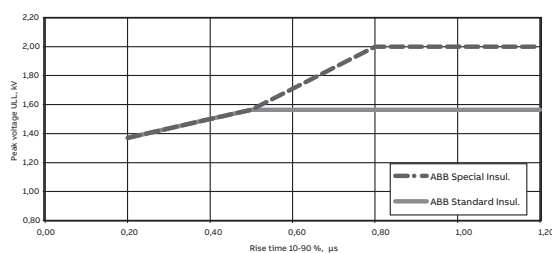
For more information on dU/dt filters, see the relevant ABB drives documents.

For other drives and cases where the guidelines shown in table above cannot be applied, the selection must be based on the voltages present at the motor terminals.

Allowed phase-to-ground voltage peaks at motor terminals:

- 1,300 V peak: standard insulation
- 1,800 V peak: special insulation, variant code 405

The maximum allowed phase-to-phase voltage peaks at the motor terminals as a function of the pulse rise time are shown in Figure 02. The higher curve (special insulation) applies to motors with special winding insulation for a variable speed drive supply (variant code 405). Standard insulation applies to motors with a standard design.



—
02

Bearing currents

Bearing voltages and currents must be avoided in all motors to ensure reliable operation of the entire application. Table 2 below gives the selection rules, depending on motor output power and frame size, when used together with ABB drive products; the same rules can also be applied as guidance when using ABB Process performance motors with other manufacturers' drives.

Precautionary measures to avoid bearing currents in variable speed drives.

Nominal power (P_N and / or Frame size (IEC))	Precautionary measures
$P_N \geq 100$ kW OR IEC 315 ≤ Frame size ≤ IEC 355	Insulated non-drive end bearing
$P_N \geq 350$ kW OR IEC 400 ≤ Frame size ≤ IEC 450	Insulated non-drive end bearing AND Common mode filter at the converter

Common mode filters

Common mode filters are installed at the output of the drive. These filters reduce common mode currents and, thus, decrease the risk of bearing currents. Common mode filters do not significantly affect the phase of main voltages on motor terminals. For more information, see the ABB drives documents.

Insulated bearings

ABB uses bearings with an insulated outer race or hybrid bearings with ceramic rolling elements.

Earthing and cabling

Cables with a symmetrical concentric protective earth should be used across the system.

Solutions for persistent bearing currents

In exceedingly rare cases, bearing currents might still exist even if the measures specified above have been taken. For such installations, there is an advanced method that would provide a remedy: insulated bearings at both ends.

Mount insulated bearings at both ends can either be bearings with an insulated outer cage, or hybrid bearings with ceramic rolling elements. Insulated bearings at both ends can be ordered by using variant code 702. Note that this variant cannot be combined with special drive-end bearing solutions, such as roller bearings or angular contact ball bearings.

Electromagnetic compatibility (EMC)

The high-frequency components in a variable frequency drive might cause electromagnetic interference with other equipment in the installation. To avoid this, certain measures should be taken. To meet EMC requirements, special EMC cables glands with a 360° connection to the concentric protective earth conductor should be used. Such cable glands can be used with variant code 704.

Ordering information

Explanation of the product code

Motor type	Motor size	Product code	Mounting arrangement code, Voltage and frequency code, Generation code	Variant codes
M3BN	5008SA	3GBN 951 110 - L D K		002,etc.
		1 2 3 4 5 6 7 8 9 10 11 12 13 14		

Positions 1 to 4

3GBN	TEFC three phase motor, cast iron frame
------	---

Positions 5 and 6

NEMA frame series	
95:	50_
96:	58_

Position 7

Speed (Pole pairs)	
1:	2 poles
2:	4 poles
3:	6 poles
4:	8 poles

Positions 8 to 10

Serial number

Position 11

-(dash)

Position 12 (marked with black dot in data tables)

Mounting arrangement	
A:	Foot-mounted, top-mounted terminal box
R:	Foot-mounted, terminal box RHS seen from D-end
L:	Foot-mounted, terminal box LHS seen from D-end
B:	Flange-mounted, large flange
H:	Foot- and flange-mounted, terminal box top-mounted

Position 13 (marked with black dot in data tables)

Voltage and frequency	
Single-speed motors	
D:	460 VΔ, 60 Hz
E:	575 VΔ 60 Hz

Position 14

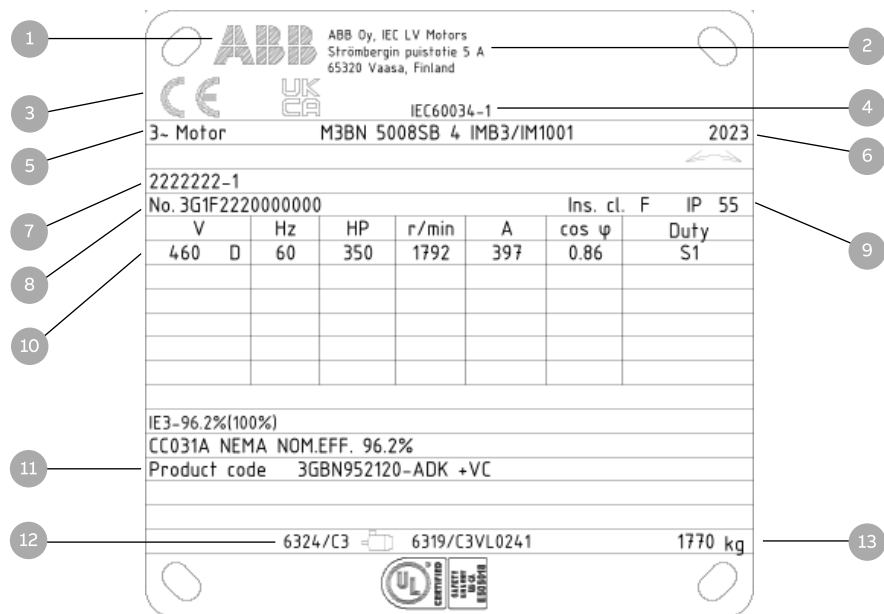
Generation code
K

Efficiency values are given according to IEC 60034-2-1; 2014.

Modification codes

The product code will be followed by modification codes when needed.

Rating plates



- 1 ABB logo
- 2 Manufacturing place
- 3 CE mark on Ecodesign approved motors UKCA mark on UK approved motors
- 4 Manufacturing standard
- 5 Product description
- 6 Manufacturing year
- 7 Factory order reference number
- 8 Serial number
- 9 Insulation class, IP protection class
- 10 Voltage, Frequency, output, speed, current, power factory, duty
- 11 Product code
- 12 Bearing type
- 13 Weight

Technical data

IE4 cast iron motors 460 V 60 Hz

IP 55 - IC 411 - Insulation class F
IE4 efficiency class according to IEC 60034-30-1; 2014

Output kW	Output HP	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1: 2014				Current		Torque			Moment of inertia J = 1/4 GD ₂ kgm ₂	Weight kg ¹⁾	Sound pressure Level L _{pa} dB	Tempera- ture rise class
					Full load 100%	3/4 load 75%	1/2 load 50%	Power factor Cos	I _n A	I _s /I _n	T _N Nm	T _r /T _N	T _b /T _N				
3600 r/min = 2 poles					460 V 60Hz												
224	300	M3BN 5008SA 2	3GBN951110---K	3584	97,3	97,1	96,5	0,89	327	8,2	597	1,8	3,0	3,0	1720	86	B
261	350	M3BN 5008SB 2	3GBN951120---K	3584	97,5	97,3	96,8	0,89	380	8,0	685	2,2	3,2	3,4	1820	86	B
298	400	M3BN 5010MA 2	3GBN951310---K	3587	97,3	97,0	96,0	0,87	439	8,4	792	2,7	3,8	3,7	2010	88	B
336	450	M3BN 5010MB 2	3GBN951320---K	3585	97,3	97,1	96,3	0,88	490	7,5	894	2,4	3,5	3,7	2010	88	B
373	500	M3BN 5010MC 2	3GBN951330---K	3582	97,2	97,1	96,5	0,88	542	6,7	992	2,2	2,8	3,7	2010	88	B
447	600	M3BN 5010MD 2	3GBN951340---K	3582	96,7	96,5	95,6	0,87	660	7,1	1191	2,8	3,6	4,1	2110	89	B
485	650	M3BN 5010ME 2	3GBN951350---K	3585	97,0	96,7	95,8	0,90	696	8,9	1290	2,6	4,0	4,3	2170	88	B
522	700	M3BN 5010MF 2	3GBN951360---K	3582	96,6	96,4	95,7	0,90	749	8,0	1390	2,3	3,9	4,3	2170	88	B
597	800	M3BN 5012LA 2	3GBN951510---K	3584	97,3	97,3	96,7	0,90	850	9,2	1583	2,6	3,7	6,7	2770	87	B
672	900	M3BN 5012LB 2	3GBN951520---K	3583	97,4	97,4	96,9	0,89	967	8,9	1788	3,4	4,9	6,1	2780	87	B
746	1000	M3BN 5012LC 2	3GBN951530---K	3581	97,3	97,4	97,1	0,89	1072	8,6	1991	2,9	3,7	6,1	2780	87	F
1800 r/min = 4 poles					460 V 60Hz												
224	300	M3BN 5008SA 4	3GBN952110---K	1791	97,3	96,8	96,3	0,86	336	7,6	1178	2,0	2,7	5,6	1770	77	B
261	350	M3BN 5008SB 4	3GBN952120---K	1792	96,8	96,5	95,5	0,86	397	7,6	1390	2,3	3,1	5,7	1770	81	B
298	400	M3BN 5008SC 4	3GBN952130---K	1792	97,8	97,7	97,3	0,83	462	8,5	1589	3,1	4,2	7,1	1950	72	B
336	450	M3BN 5010MA 4	3GBN952310---K	1791	97,8	97,7	97,4	0,84	511	7,7	1791	2,7	3,7	7,1	2070	72	B
373	500	M3BN 5010MB 4	3GBN952320---K	1790	97,7	97,8	97,4	0,85	561	7,0	1992	2,5	3,4	7,1	2070	72	B
447	600	M3BN 5012LA 4	3GBN952510---K	1792	96,8	96,7	95,9	0,85	679	9,3	2383	3,4	3,3	8,3	2360	85	B
485	650	M3BN 5012LB 4	3GBN952520---K	1790	96,8	96,8	96,2	0,86	731	7,8	2587	2,7	3,2	8,3	2360	85	B
522	700	M3BN 5012LC 4	3GBN952530---K	1789	96,9	96,9	96,4	0,88	765	7,1	2786	2,3	2,8	10,0	2580	85	B
597	800	M3BN 5012LE 4	3GBN952550---K	1793	96,8	96,5	95,9	0,86	892	10,0	3180	3,9	3,4	11,4	2870	89	B
671	900	M3BN 5012LF 4	3GBN952560---K	1791	97,0	97,0	96,4	0,85	1020	8,6	3576	3,0	4,3	11,4	2870	89	B
746	1000	M3BN 5012LG 4	3GBN952570---K	1789	97,0	97,1	96,7	0,86	1121	7,8	3988	2,7	3,8	11,4	2870	89	F
1200 r/min = 6 poles					460 V 60Hz												
224	300	M3BN 5010MA 6	3GBN953310---K	1192	96,5	96,7	96,2	0,82	356	6,7	1793	2,4	2,4	9,8	1940	77	B
261	350	M3BN 5010MB 6	3GBN953320---K	1194	96,7	96,8	96,5	0,81	416	7,7	2091	2,7	3,2	11,4	2090	77	B
298	400	M3BN 5012LA 6	3GBN953510---K	1192	96,7	96,7	96,3	0,81	476	7,4	2391	2,7	2,8	11,4	2270	77	B
336	450	M3BN 5012LB 6	3GBN953520---K	1193	96,7	96,7	96,3	0,82	534	7,5	2689	2,7	3,3	13,6	2470	89	B
373	500	M3BN 5012LC 6	3GBN953530---K	1193	96,5	96,4	95,8	0,82	603	8,0	2984	2,7	3,2	15,7	2610	89	B
447	600	M3BN 5012LD 6	3GBN953540---K	1194	96,9	97,0	96,6	0,81	720	7,9	3583	2,4	3,0	16,0	2670	89	B
485	650	M3BN 5012LE 6	3GBN953550---K	1194	96,8	97,0	96,7	0,82	769	7,4	3872	2,2	2,8	16,0	2670	89	B
522	700	M3BN 5012LF 6	3GBN953560---K	1193	96,6	96,9	96,7	0,82	824	6,9	4189	2,1	2,6	16,0	2670	89	F
900 r/min = 8 poles					460 V 60Hz												
224	300	M3BN 5010MA 8	3GBN954310---K	893	95,4	95,3	94,6	0,80	369	6,5	2391	1,6	3,0	11,3	2070	72	B
261	350	M3BN 5012LA 8	3GBN954510---K	893	95,8	95,8	95,2	0,80	437	8,0	2788	1,7	3,3	13,5	2400	72	B
299	400	M3BN 5012LB 8	3GBN954520---K	893	95,9	96,0	95,5	0,81	480	7,6	3193	1,5	2,9	15,5	2570	69	B
336	450	M3BN 5012LC 8	3GBN954530---K	894	96,4	96,5	96,2	0,79	556	8,6	3594	1,6	3,4	16,5	2670	72	B
373	500	M3BN 5012LD 8	3GBN954540---K	892	96,3	96,6	96,5	0,80	605	7,9	4003	1,5	3,1	15,5	2670	72	B

¹⁾One kilogram is equivalent to approximately 2.20462 pounds.

Technical data

IE3 cast iron motors 460 V 60 Hz

IP 55 - IC 411 - Insulation class F

IE3 efficiency class according to IEC 60034-30-1; 2014

Output kW	Output HP	Motor type	Product code	Speed r/min	Efficiency IEC				Current		Torque			Moment of inertia J = 1/4 GD ₂ kgm ₂	Weight kg ¹⁾	Sound pressure Level L _{PA} dB	Tempera- ture rise class
					60034-30-1: 2014				I _N A	I _s /I _N	T _N Nm	T _i /T _N	T _b /T _N				
					Full load 100%	3/4 load 75%	1/2 load 50%	Power factor Cos									
3600 r/min = 2 poles					460 V 60Hz												
224	300	M3BN 587MLA 2	3GBN961410--K	3584	95,8	95,5	94,3	0,89	327	8,2	597	1,8	3,0	3,0	1750	86	B
261	350	M3BN 587MLB 2	3GBN961420--K	3584	95,8	95,3	94,3	0,89	380	8,0	685	2,2	3,2	3,4	1850	86	B
298	400	M3BN 587MLC 2	3GBN961430--K	3587	95,8	95,3	93,7	0,87	439	8,4	792	2,7	3,8	3,7	2082	88	B
336	450	M3BN 587MLD 2	3GBN961440--K	3585	95,8	95,4	94,3	0,88	490	7,5	894	2,4	3,5	3,7	2082	88	B
373	500	M3BN 587MLE 2	3GBN961450--K	3582	95,8	95,6	94,7	0,88	542	6,7	992	2,2	2,8	3,7	2082	88	B
447	600	M3BN 587MLF 2	3GBN961460--K	3582	95,8	95,4	94,2	0,87	660	7,1	1191	2,8	3,6	4,1	2140	89	B
522	700	M3BN 588LKA 2	3GBN961810--K	3583	95,8	95,6	94,6	0,90	747	7,7	1391	2,0	3,7	5,2	2250	88	B
597	800	M3BN 588LKB 2	3GBN961820--K	3579	95,8	95,6	95,1	0,90	868	6,8	1593	1,7	3,2	5,2	2250	88	B
671	900	M3BN 588LKC 2	3GBN961830--K	3581	95,8	95,9	95,7	0,90	963	8,0	1789	2,3	3,7	5,2	2500	88	F
1800 r/min = 4 poles					460 V 60Hz												
224	300	M3BN 587MLA 4	3GBN962410--K	1791	96,2	96,1	95,4	0,86	336	7,6	1194	2,0	2,7	5,6	2140	77	B
261	350	M3BN 587MLB 4	3GBN962420--K	1792	96,2	95,9	95,0	0,86	397	7,6	1390	2,3	3,1	5,7	2140	81	B
298	400	M3BN 587MLC 4	3GBN962430--K	1792	96,2	95,8	94,8	0,83	462	8,5	1589	3,1	4,2	7,1	2140	72	B
336	450	M3BN 587MLD 4	3GBN962440--K	1791	96,2	96,0	95,5	0,84	511	7,7	1791	2,7	3,7	7,1	2150	72	B
373	500	M3BN 587MLE 4	3GBN962450--K	1790	96,2	96,2	95,6	0,85	561	7,0	1992	2,5	3,4	7,1	2150	72	B
447	600	M3BN 587MLF 4	3GBN962460--K	1790	96,2	96,0	95,3	0,86	676	7,0	2386	2,6	2,6	8,5	2180	84	B
522	700	M3BN 588LKA 4	3GBN962810--K	1789	96,2	96,0	95,3	0,88	765	7,1	2786	2,3	2,8	10,0	2600	85	B
559	750	M3BN 5012LD 4	3GBN952540--K	1790	96,2	96,0	95,1	0,86	831	7,1	2986	2,5	3,2	10,1	2580	85	B
597	800	M3BN 588LKB 4	3GBN962820--K	1789	96,2	96,1	95,5	0,84	925	7,1	3188	2,6	2,6	10,7	2750	89	B
1200 r/min = 6 poles					460 V 60Hz												
187	250	M3BN 5008SA 6	3GBN953110--K	1192	95,8	95,9	95,4	0,82	296	6,8	1493	2,4	2,4	8,0	1670	77	B
187	250	M3BN 587MLA 6	3GBN963410--K	1192	95,8	95,9	94,8	0,82	296	6,8	1493	2,4	2,4	8,0	1700	77	B
224	300	M3BN 587MLB 6	3GBN963420--K	1192	95,8	95,8	95,3	0,82	356	6,7	1793	2,4	2,4	9,8	1970	77	B
261	350	M3BN 587MLC 6	3GBN963430--K	1194	95,8	95,7	95,0	0,81	416	7,7	2088	2,7	3,2	11,4	2120	77	B
298	400	M3BN 587MLD 6	3GBN963440--K	1192	95,8	95,6	95,0	0,81	476	7,4	2391	2,7	2,8	11,4	2300	77	B
336	450	M3BN 588LKA 6	3GBN963810--K	1193	95,8	95,7	94,9	0,82	534	7,5	2689	2,7	3,3	13,6	2500	89	B
373	500	M3BN 588LKB 6	3GBN963820--K	1194	95,8	95,4	94,6	0,82	603	8,0	2984	2,7	3,2	15,7	2650	89	B
447	600	M3BN 588LKC 6	3GBN963830--K	1194	95,8	95,9	95,3	0,81	720	7,9	3583	2,4	3,0	16,0	2700	89	B
900 r/min = 8 poles					460 V 60Hz												
186	250	M3BN 587MLA 8	3GBN964410--K	894	95,0	95,4	94,8	0,79	312	7,8	1997	1,6	2,8	10,2	2200	72	B
224	300	M3BN 587MLB 8	3GBN964420--K	893	95,0	94,9	94,1	0,80	369	6,5	2391	1,6	3,0	11,3	2100	72	B
261	350	M3BN 587MLC 8	3GBN964430--K	893	95,0	94,8	94,1	0,80	437	8,0	2790	1,7	3,3	13,5	2430	72	B
299	400	M3BN 588LKA 8	3GBN964810--K	893	95,0	94,8	93,9	0,81	480	7,6	3195	1,5	2,9	15,5	2600	69	B
336	450	M3BN 588LKB 8	3GBN964820--K	894	95,0	95,0	94,3	0,79	556	8,6	3589	1,6	3,4	16,5	2700	72	B
373	500	M3BN 588LKC 8	3GBN964830--K	893	95,0	95,1	94,6	0,80	605	7,9	3991	1,5	3,1	15,5	2700	72	B

¹⁾One kilogram is equivalent to approximately 2.20462 pounds.

Variant codes

Variant codes specify additional options and features to the standard motor. The desired features are listed as three-digit variant codes in the motor order. Note also that there are variants that cannot be used together. Most variant codes apply to all motors. For confirmation of availability of the variants, please refer to the VnP application or consult with your ABB sales office before placing an order.

Code/Variants		Frame size	
		M3BN 5000	M3BN 5800
Administration			
530	Two-year extension on standard warranty	•	•
531	Sea freight packing	•	•
533	Wooden sea freight packing	•	•
683	Prepared for ABB Ability Smart Sensor	•	•
684	ABB Ability Smart sensor mounted	•	•
999	Case specific design requiring a quotation	•	•
Balancing			
417	Vibration acc. to Grade B (IEC 60034-14).	•	•
423	Balanced without key.	•	•
424	Full-key balancing	•	•
Bearings and Lubrication			
036	Transport lock for bearings.	•	•
037	Roller bearing at D-end.	•	•
039	Cold-resistant grease	•	•
040	Heat-resistant grease	•	•
107	Pt100 2-wire in bearings.	•	•
130	Pt100 3-wire in bearings.	•	•
420	Bearing mounted PTC thermistors.	•	•
795	Lubrication information plate	○	○
796	Grease nipples JIS B 1575 PT 1/8 Type A	•	•
797	Stainless steel SPM nipples	○	○
798	Stainless steel grease nipples	○	○
Branch standard designs			
178	Stainless steel / acid proof bolts.	○	○
204	Jacking bolts for foot mounted motors.	○	○
209	Non-standard voltage or frequency, (special winding).	•	•
396	Motor designed for minimum ambient temperature -20 °C to -40 °C, with space heaters (code 450/451 must be added)	•	•
425	Corrosion protected stator and rotor core.	○	○
Cooling system			
044	Unidirectional fan for reduced noise level. Rotation clockwise seen from D-end. Available only for 2-pole motors.	•	•
045	Unidirectional fan for reduced noise level. Rotation counter clockwise seen from D-end. Available only for 2-pole motors.	•	•
068	Light alloy metal fan	•	•
183	Separate motor cooling (fan axial, N-end).	•	•
422	Separate motor cooling (on top) with integrated fan motor	•	•
Documentation			
141	Binding 2D main dimension drawing.	•	•
370	Motor model drawing in 3D	•	•
374	Binding 2D motor detailed drawing	•	•
536	Photos of manufactured motors	•	•
537	Advanced data sheet	•	•
722	Rotor dimension drawing (incl. torsional stiffness).	•	•
777	Premium documentation package	•	•
Drain holes			
065	Plugged existing drain holes.	•	•
448	Draining holes with metal plugs.	•	•
Earthing Bolt			
067	External earthing bolt.	•	•
525	External earthing bolts on motor feet	○	○

○ = Included as standard | • = Available as option | - = Not applicable

Code/Variants		Frame size	
		M3BN 5000	M3BN 5800
Hazardous Environments			
807	UL certified Class 1, Div.2 Group A, B, C and D, T3.	•	•
810	UL certified Class II, Div. 2 Group F and G, T4.	•	•
816	Pt-100-based surface temperature protection T4 for frequency convertor duty. 3-wire system.	•	-
Heating elements			
450	Heating element, 100-120 V	•	•
451	Heating element, 200 - 240 V	•	•
Insulation system			
014	Winding insulation class H.	•	•
405	Special winding insulation for frequency converter supply.	•	•
406	Winding insulation for supply > 690 <= 1000 volts	•	•
Mounting arrangements			
064	NEMA D-flange	•	•
066	Modified for specified mounting position differing from IM B3 (1001), IM B5 (3001), B14 (3601), IM B35 (2001), IM B34 (2101)	•	•
305	Additional lifting lugs.	○	○
Painting			
114	Special paint color, standard grade	•	•
115	Painting system C4,durability Medium	•	•
168	Primer paint only.	•	•
179	Special paint specification.	•	•
711	Painting system C5, durability High	•	•
717	Painting system C4, durability High	•	•
754	Painting system C5, durability Medium	•	•
Protection			
005	Protective roof	•	•
158	Degree of protection IP65.	•	•
250	Degree of protection IP66	•	•
403	Degree of protection IP56.	•	•
783	Labyrinth sealing at D-end.	○	○
Rating & instruction plates			
002	Restamping voltage, frequency and output, continuous duty.	•	•
004	Additional text on std rating plate (max 12 digits on free text line).	•	•
095	Restamping output (maintained voltage, frequency), intermittent duty.	•	•
135	Mounting of additional identification plate, stainless.	•	•
139	Additional identification plate delivered loose.	•	•
161	Additional rating plate delivered loose.	•	•
163	Frequency converter rating plate. Rating data according to quotation.	•	•
Shaft & rotor			
069	Two shaft extensions according to catalog drawings.	•	-
070	Special shaft extension at D-End, standard shaft material	•	•
410	Shaft material stainless steel	•	•
600	Special shaft extension at N-end, standard shaft material.	•	•
Standards and Regulations			
208	Fulfilling Underwriters Laboratories (UL), listed requirements	○	○
331	Motor not for sale for use in EU or UK.	•	•
509	Fulfilling US Integral Horsepower Motor Rule (IHP).	•	•
Stator winding temperature sensors			
435	PTC - thermistors (3 in series), 130 °C, in stator winding	•	•
436	PTC - thermistors (3 in series), 150 °C, in stator winding	○	○
437	PTC - thermistors (3 in series), 170 °C, in stator winding	•	•
439	PTC - thermistors (2x3 in series), 150 °C, in stator winding	•	•
441	PTC - thermistors (3 in series, 130 °C & 3 in series, 150 °C), in stator winding	•	•
442	PTC - thermistors (3 in series, 150 °C & 3 in series, 170 °C), in stator winding	•	•
445	Pt100 2-wire in stator winding, 1 per phase	•	•
446	Pt100 2-wire in stator winding, 2 per phase	•	•
502	Pt100 3-wire in stator winding, 1 per phase	•	•
503	Pt100 3-wire in stator winding, 2 per phase	•	•
515	Pt100 3-wire in stator winding, 3 per phase	•	•
Terminal box			
022	Cable entry LHS (seen from D-end).	•	•
380	Separate terminal box for temperature detectors, std. material	•	•
413	Extended cable connection, no terminal box.	•	•
418	Separate terminal box for auxiliaries, standard material.	•	•
468	Cable entry from D-end.	•	•
469	Cable entry from N-end.	•	•

○ = Included as standard | • = Available as option | - = Not applicable

Code/Variants		Frame size	
		M3BN 5000	M3BN 5800
565	Adapter for terminal box on the side (RHS)	•	•
566	Adapter for terminal box on the side (LHS)	•	•
567	Separate terminal box material: cast Iron	•	•
568	Separate terminal box for heating elements, std. material	•	•
730	Prepared for NPT cable glands.	○	○
743	Non-drilled cast iron flange for cable glands	•	•
744	Stainless steel non-drilled flange for cable glands.	•	•
753	Cast iron terminal box	○	○
Testing			
146	Type test with report for one motor from specific delivery batch.	•	•
148	Routine test report.	•	•
150	Customer witnessed testing. Specify test procedure with other codes.	•	•
221	Type test and multi-point load test with report for one motor from specific delivery batch.	•	•
222	Torque/speed test, type test and multi-point load test with report for one motor from specific delivery batch.	•	•
560	Shaft voltage test, for one motor from specific delivery batch.	•	•
760	Vibration level test	•	•
761	Vibration spectrum test for one motor from specific delivery batch.	•	•
762	Noise level test for one motor from specific delivery batch.	•	•
763	Noise spectrum test for one motor from specific delivery batch.	•	•
764	Test for one motor from specific delivery batch with ABB frequency converter available at ABB test field. ABB standard test procedure.	•	•
Variable speed drives			
429	Separate motor cooling (fan top, N-end) and 1024 pulse tacho (Leine & Linde 861) mounted.	•	•
470	Prepared for hollow shaft pulse tacho (L&L equivalent).	•	•
472	1024 pulse tacho (L&L 861007455-1024).	•	•
473	2048 pulse tacho (L&L 861007455-2048).	•	•
474	Separate motor cooling (axial fan, N-end) and prepared for hollow shaft tacho (L&L equivalent)	•	•
476	Separate motor cooling (axial fan, N-end) and 1024 pulse tacho (L&L 861007455-1024)	•	•
477	Separate motor cooling (axial fan, N-end) and 2048 pulse tacho (L&L 861007455-2048)	•	•
478	Separate motor cooling (fan on top, N-end) and prepared for hollow shaft tacho (L&L equivalent)	•	•
479	Mounting of other type of pulse tacho with shaft extension, tacho not included.	•	•
510	Separate motor cooling (fan top, N-end) and 2048 pulse tacho (Leine & Linde 861) mounted.	•	•
588	Shaft grounding device	•	•
658	Special tacho mounted, price category 1	•	•
659	Special tacho mounted, price category 2	•	•
660	Special tacho mounted, price category 3	•	•
701	Insulated bearing at N-end.	○	○
702	Insulated bearings at both ends	•	•
704	EMC cable entry.	•	•

○ = Included as standard | • = Available as option | - = Not applicable

Mechanical design

Motor frame and drain holes

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01 As standard, motors are delivered with drain holes and closable plugs.

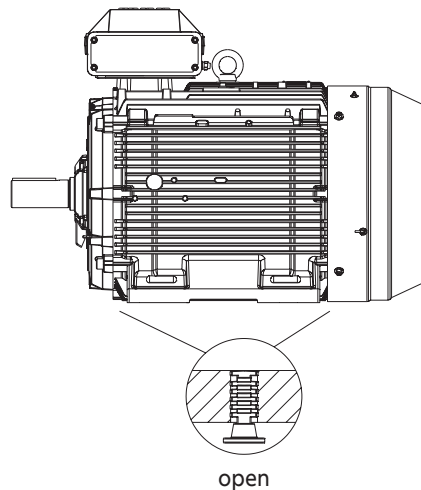
Motor frame

The motor frame, end shields and main terminal box are made of cast iron. Feet are integrated with the frame.

Drain holes

Motors are provided with drain holes fitted with closable plugs as standard. The plugs are made of plastic material and are delivered in open position.

When mounting arrangement differs from foot mounted IM B3, mention variant code 066 when ordering to ensure the drain plug is mounted in the lowest position.



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01

Lifting lugs

The motors are provided as standard with lifting lugs according to the table below. For improved lifting possibilities variant code 305 can be added, please refer to the variant code section for information about availability.

Shaft height	Type of lugs	Foot mounted motors	Flange mounted motors
5000-5012 & 587-588	Detachable eye bolt	Locations for eye bolts: 1 pcs at N-end and 1 pcs at D-end, one location on top close to terminal box. 3 pcs eye bolts size M30 delivered with each motor	Locations for eye bolts: 1 pcs at N-end and 1 pcs at D-end, one location on top close to terminal box. 3 pcs eye bolts size M30 delivered with each motor

Mechanical design

Heating elements / Space heaters

Heating elements are installed into windings to keep them free of corrosion in humid conditions. The required power of heating elements is shown in the table. You can order heating elements with variant code 450 or 451.

Shaft height	5008, 5010, 5012, 587, 588
Power (W)	2x60

Mechanical design

Bearings

Process performance motors are normally fitted with oversized single-row deep-groove ball bearings, as shown in the table below.

If the bearing at the D-end is replaced with a roller bearing (NU- or NJ-), higher radial forces can be handled. Roller bearings are suitable for belt-drive applications and can be ordered with variant code 037.

When high axial forces are involved, angular-contact ball bearings should be used. When ordering a motor with an angular-contact ball bearing, also specify the method of mounting and the direction and magnitude of axial force to ensure that the optimal bearing system design is selected.

The variant codes for ordering angular-contact ball bearings at D-end are 058 and 060.

Standard and alternative designs

Shaft height	Product design code	Pole number	Standard design		Alternative designs	
			Deep groove ball bearings		Roller bearings (037)	Angular contact ball bearings (058, 060)
			Drive end	Non-drive end	Drive end	Drive end
58_-50__	K	2	6317M/C3	6317M/C3VL0241	Upon request	Upon request
58_-50__	K	4-8	6324/C3	6319/C3VL0241	NU 324 EC/C3	Upon request

Axially-locked bearings

All motors with deep groove ball bearings are equipped with an axially locked bearing at the D-end, as a standard feature.

Transport locking

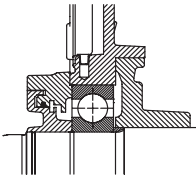
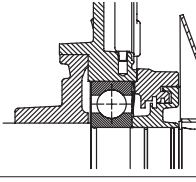
Motors with roller bearings or an angular-contact ball bearing are fitted with a transport lock before dispatch to prevent damage to the bearings during transport. A warning sign is attached to motors when transport locking is used.

Locking may also be fitted in other cases if severe transport conditions are expected.

Bearing seals

Shaft height	Product design code	Pole	Standard design	
			D-end	N-end
58_-50__	K	2-8	Labyrinth seal	Labyrinth seal

Standard bearing seal design

D-end		
N-end		
Shaft height	580, 5008, 5010, 5012	
Seal type D-end/ N-end	labyrinth /labyrinth seal	

Bearing life

The nominal life L_{10h} of a bearing is defined according to ISO 281 as the number of operating hours achieved or exceeded by 90 % of identical bearings in a large test series under specified conditions. 50 % of bearings achieve at least five times this lifetime.

Lubrication

On delivery, motors are prelubricated with high-quality grease. Before the first start-up, read the instructions for relubrication and recommended grease in the Manual for low voltage motors delivered together with the motor, or see the lubrication plate on the motor.

Motors with relubrication nipples

In M3BN 580 and 5000 motor series, the bearing system is provided with valve discs to ease lubrication. Motors are lubricated while running.

The grease outlet opening has closing valves at both ends. These should be opened before greasing and closed 1–2 hours after regreasing. This ensures that the construction is tight and bearings remain dust- and dirt-free.

A grease-collection method can be used optionally.

The following tables show lubrication intervals according to the L1 principle for various nominal speeds at an ambient temperature of 25°C. These values apply to horizontally mounted motors (B3) and are determined based on the tested bearing temperature rise values.

Lubrication intervals in duty hours for ball bearings @ amb 25 °C

Shaft height	Amount of grease g/ bearing	Amount of grease g/N-end	Output kW	Speed 3600 r/min	Speed 3000 r/min	Output kW	Speed 1800 r/min	Speed 1500 r/min	Output kW	Speed 1000 r/min	Output kW	Speed 500-900 r/min
Ball bearings												
Lubrication intervals in duty hours												
5008	40	40	all	3000	5300		-	-		-		-
5008	85	55		-	-	all	6400	9500	all	17200	all	19400
5010	40	40	all	1300	2400		-	-		-		-
5010	85	55		-	-	all	4900	7200	all	13200	all	14800
5012	40	40	all	1500	2800		-	-		-		-
5012	85	55		-	-	all	2700	3900	all	7100	all	8000
587	40	40	all	1500	2700		-	-		-		-
587	85	55			-	all	3200	4700	all	8600	all	9700
588	40	40	all	1500	2700		-	-		-		-
588	85	55			-	all	3200	4700	all	8600	all	9700

Lubrication intervals in duty hours for roller bearings @ amb 25 °C

Shaft height	Amount of grease g/ bearing	Amount of grease g/N-end	Output kW	Speed 3600 r/min	Speed 3000 r/min	Output kW	Speed 1800 r/min	Speed 1500 r/min	Output kW	Speed 1000 r/min	Output kW	Speed 500-900 r/min
Roller bearings												
Lubrication intervals in duty hours												
5008	40	40	all	-	2700		-	-		-		-
5008	85	55		-	-	all	3200	4700	all	8600	all	9700
5010	40	40	all	-	1200		-	-		-		-
5010	85	55		-	-	all	2500	3600	all	6600	all	7400
5012	40	40	all	-	1400		-	-		-		-
5012	85	55		-	-	all	1300	1900	all	3500	all	4000
587	40	40	all	-	1400		-	-		-		-
587	85	55		-	-	all	1600	2400	all	4300	all	4800
588	40	40	all	-	1400		-	-		-		-
588	85	55		-	-	all	1600	2400	all	4300	all	4800

Mechanical design

Radial forces

The following table shows permissible radial forces on the shaft in Newtons, assuming zero axial force, a 25 °C ambient temperature, and normal conditions. The values are given for a calculated bearing life of 20 000 and 40 000 hours at 60 Hz.

These calculated values further assume mounting position IM B3 (foot-mounted), with force directed sideways. In some cases, the strength of the shaft affects permissible forces.

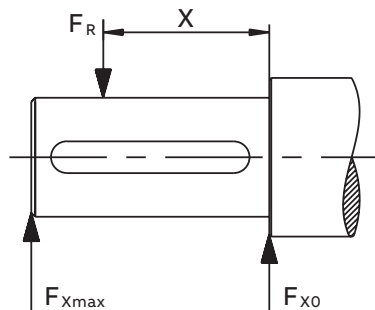
Permissible loads of simultaneous radial and axial forces can be supplied on request.

If the radial force is applied between points X0 and Xmax, the permissible force FR can be calculated with the following formula:

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

Where

E length of the shaft extension in the standard version



Permissible radial forces - Mounting arrangement IM B3

Shaft height	Poles	Length of shaft extension mm values (inches in parentheses)	Basic design with deep groove ball bearings				Roller bearings			
			Mounting arrangement IM B3				Mounting arrangement IM B3			
			20 000 h		40 000 h		20 000 h		40 000 h	
			FX0(N)	FXmax(N)	FX0(N)	FXmax(N)	FX0(N)	FXmax(N)	FX0(N)	FXmax(N)
5008	2	158.75 (6.25)	7740	5390	6040	5280	On request	On request	On request	On request
	4	158.75 (6.25)	14290	12480	11240	9820	46300	21440	37140	21440
	6	260.35 (10.25)	16490	13330	13030	10530	55080	16010	44720	16010
5010	2	158.75 (6.25)	7350	5250	5290	4710	On request	On request	On request	On request
	4	158.75 (6.25)	14200	12350	11360	10100	46800	21300	37500	21330
	6	260.35 (10.25)	16620	13800	13080	10860	55830	15880	45320	15880
	8	260.35 (10.25)	18830	15220	14450	12000	55850	15830	49420	15830
5012	2	158.75 (6.25)	7210	6510	5050	4560	On request	On request	On request	On request
	4	158.75 (6.25)	14510	13100	11330	10230	49980	20420	40550	20420
	6	260.35 (10.25)	16600	14110	12970	11020	54860	15570	45790	15570
	8	260.35 (10.25)	18360	15460	14380	12220	54490	15460	49950	15460
587	2	120.65 (4.75)	7400	6700	5400	4800	On request	On request	On request	On request
	4	295.28 (11.63)	14500	11200	11400	9000	49500	11200	40200	11200
	6	295.28 (11.63)	16600	11200	13100	11200	55900	11200	45400	11200
	8	295.28 (11.63)	18300	11000	14400	11000	60900	11000	49400	11000
588	2	171.45 (6.75)	7400	6500	5200	4600	On request	On request	On request	On request
	4	295.28 (11.63)	14500	10800	11400	9400	50200	10800	40800	10800
	6	295.28 (11.63)	16600	10600	13000	10600	56700	10600	46000	10600
	8	295.28 (11.63)	18500	10300	14400	10300	61800	10300	50200	10300

One kilogram meter squared (kg·m²) is equivalent to approximately 23.73036 pound foot squared (lb·ft²).

One newton (N) is equivalent to approximately 0.22481 pounds-force (lbf).

**Permissible radial forces - Mounting
arrangement IM B35**

Shaft height	Poles	Length of shaft extension	Basic design with deep groove ball bearings				Roller bearings			
			Mounting arrangement IM B35				Mounting arrangement IM B35			
			20 000 h		40 000 h		20 000 h		40 000 h	
			FX0(N)	FXmax(N)	FX0(N)	FXmax(N)	FX0(N)	FXmax(N)	FX0(N)	FXmax(N)
5008	2	177.8 (7.0)	7600	5070	5930	5070	On request	On request	On request	On request
	4	177.8 (7.0)	14040	12110	11040	9520	45480	19610	36840	19615
	6	260.35 (10.25)	16490	13330	13030	10530	55080	16010	44720	16010
5010	2	177.8 (7.0)	7110	4260	5040	4260	On request	On request	On request	On request
	4	177.8 (7.0)	14240	12520	11190	9830	46080	19500	39620	19500
	6	260.35 (10.25)	16620	13800	13080	10860	55830	15880	45320	15880
5012	2	260.35 (10.25)	18830	15220	14450	12000	55850	15830	49420	15830
	4	158.75 (6.25)	7210	6510	5050	4560	On request	On request	On request	On request
	6	177.8 (7.0)	14320	12790	11180	9990	46200	18830	40030	18830
587	2	260.35 (10.25)	16600	14110	12970	11020	54860	15570	45790	15570
	4	260.35 (10.25)	18360	15460	14380	12220	54490	15460	49950	15460
	6	120.65 (4.75)	7200	5000	5200	5000	On request	On request	On request	On request
588	2	295.28 (11.63)	14000	9500	11100	8800	47800	9500	38800	9500
	4	295.28 (11.63)	16100	9500	12700	9500	54000	9500	43900	9500
	6	295.28 (11.63)	17700	9400	13900	9400	58900	9400	47800	9400
588	2	171.45 (6.75)	7200	5500	5100	4500	On request	On request	On request	On request
	4	295.28 (11.63)	14000	9200	11100	9200	48800	9200	39600	9200
	6	295.28 (11.63)	16100	9000	12600	9000	55100	9100	44700	9100
588	2	295.28 (11.63)	18000	8800	14000	8800	60000	8800	48800	8800

One kilogram meter squared (kg·m²) is equivalent
to approximately 23.73036 pound foot squared
(lb·ft²).

One newton (N) is equivalent to approximately
0.22481 pounds-force (lbf).

Mechanical design

Axial forces

The following tables give the permissible axial forces in Newton, assuming zero radial force.

The values are based on normal conditions at 60 Hz with standard bearings and calculated bearing lives of 20 000 and 40 000 hours.

The permissible loads of simultaneous radial and axial forces will be supplied on request.

At 50 Hz the value are to be increased by 10%.

For axial force F_{AD} , it is assumed that the D-bearing is locked with a locking ring.



Mounting arrangement IM B3

Shaft height	Poles	Length of shaft extension: mm values (inches in parentheses)	Deep groove ball bearings			
			Mounting arrangement IM B3			
			20 000 h		40 000 h	
			F AD (N) in	F AZ (N) out	F AD (N) in	F AZ (N) out
5008	2	158.75 (6.25)	2510	6710	1250	5450
	4	158.75 (6.25)	7000	12200	4450	9650
	6	260.35 (10.25)	9100	14300	6040	11240
5010	2	158.75 (6.25)	2350	6550	1100	5300
	4	158.75 (6.25)	6940	12140	4390	9600
	6	260.35 (10.25)	8600	13800	5580	10780
	8	260.35 (10.25)	10350	15550	6910	12110
5012	2	158.75 (6.25)	2250	6450	1010	5210
	4	158.75 (6.25)	6680	11880	4160	9360
	6	260.35 (10.25)	8070	13270	5080	10280
	8	260.35 (10.25)	9890	15090	6480	11680
587	2	120.65 (4.75)	2600	6800	1300	5500
	4	295.28 (11.63)	7000	12200	4500	9700
	6	295.28 (11.63)	8800	14000	5800	11000
	8	295.28 (11.63)	10200	15400	6800	12000
588	2	171.45 (6.75)	2400	6600	1100	5300
	4	295.28 (11.63)	6800	12000	4300	9500
	6	295.28 (11.63)	8300	13500	5300	10500
	8	295.28 (11.63)	9900	15100	6500	11700

One kilogram meter squared ($\text{kg}\cdot\text{m}^2$) is equivalent to approximately 23.73036 pound foot squared ($\text{lb}\cdot\text{ft}^2$).

One newton (N) is equivalent to approximately 0.22481 pounds-force (lbf).

Mounting arrangement IM B35 and V15

Shaft height	Poles	Length of shaft extension: mm values (inches in parentheses)	Deep groove ball bearings							
			Mounting arrangement IM B35				Mounting V15			
			20 000 h		40 000 h		20 000 h		40 000 h	
			F AD (N) in	F AZ (N) out	F AD (N) in	F AZ (N) out	F AD (N) in	F AZ (N) out	F AD (N) in	F AZ (N) out
5008	2	177.8 (7.0)	2510	6710	1250	5450	7190	3490	5870	2170
	4	177.8 (7.0)	6990	12190	4440	9640	13530	7720	10910	5090
	6	260.35 (10.25)	9100	14300	6040	11240	14320	10780	11210	7670
5010	2	177.8 (7.0)	2350	6550	1100	5300	8070	2610	6750	1230
	4	177.8 (7.0)	6920	12120	4380	9580	13890	7360	11270	4740
	6	260.35 (10.25)	8600	13800	5580	10780	16980	8130	13870	5020
5012	2	158.75 (6.25)	2250	6450	1010	5210	8620	2050	7310	740
	4	177.8 (7.0)	6680	11880	4160	9360	15260	5990	12640	3370
	6	260.35 (10.25)	8070	13270	5080	10280	18300	6810	15190	3690
587	2	120.65 (4.75)	2600	6800	1300	5500	6800	3800	5500	2500
	4	295.28 (11.63)	7000	12200	4500	9700	13400	7900	10800	5200
	6	295.28 (11.63)	8800	14000	5800	11000	15800	9300	12700	6200
588	2	171.45 (6.75)	2400	6600	1100	5300	8000	2700	6700	1400
	4	295.28 (11.63)	6800	12000	4300	9500	14700	6500	12100	3900
	6	295.28 (11.63)	8300	13500	5300	10500	18800	6300	15700	3200
	8	295.28 (11.63)	9900	15100	6500	11700	19900	8400	16400	4900

One kilogram meter squared (kg·m²) is equivalent to approximately 23.73036 pound foot squared (lb·ft²).

One newton (N) is equivalent to approximately 0.22481 pounds-force (lbf).

Terminal box

Standard terminal box

Degree of protection and mounting options

The degree of protection for the standard terminal box is IP 55. By default, terminal boxes are mounted on top of the motor at the D-end. On request, the terminal box can also be mounted on the left or right side regardless of the motor size (see Mounting options).

Turnability

The standard terminal boxes for motor sizes 5008-5012 & 587,588 can be turned 4*90°. It is also possible to mount a terminal box with an opening towards the D or N-end, using the relevant variant codes when ordering, this is needed to get the terminal block turned in the right position.

Cable entries

The terminal box is provided with tapped holes for cable glands. No cable glands are included as standard, the entry holes are closed with blanking plugs made of plastic. Please refer to the table on the next page for further information about the amount and size of threaded holes, plugs and cable sealing units provided as standard.

Different types of cable glands are available as an option. Please refer to the terminal box alternatives section for more details.

If no cable type is specified in the order, it will be a PVC-insulated non-armored cable, and its termination parts are determined as shown in the following table.

Terminations are suitable for copper and aluminum cables. Cables are connected to terminals by cable lugs, which are not included in the delivery.

Ordering

To ensure the delivery of desired terminations for the motor, state the cable type, quantity, size, and outer diameter when ordering. Non-standard designs of terminal boxes, such as non-standard size or higher degree of protection, are available as options.

See section Variant codes for all available options.

Standard delivery

Standard delivery if no other information is provided.

Shaft height	Product design code	Voltage code	Pole number	Terminal box type	Size of gland plate opening in the terminal box	45° angle adapter	Amount and size of threaded plugged holes	Max connectable core cross section mm ² /phase	Number and size of terminal bolts	Earthing in main terminal box
587, 588, 5008, 5010, 5012	K	D, E	2-8	750	E	-	2x4" NPT	4x240	6xM12	2xM10

Auxiliary cable entries	Pole number	Amount and size of threaded plugged holes	Max. connectable core cross section mm ² /phase
587, 588, 5008, 5010, 5012	all	2x M20x1,5	1x 2,5

Terminal box

Terminal box dimensions

—
01 Terminal box for motor sizes 5008-5012 and 587, 588

02 Terminal board for motor sizes 5008-5012 and 587, 588

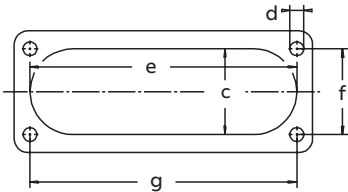
The terminal box is integrated in motor frame and the dimensions for terminal boxes can be found in the motor dimension drawings in ABB Library.

To match the correct terminal box with motor sizes 5008-5012 and 587-588, find the motor type and correspondent terminal box type on the previous page. The box types and heir dimensions are presented on this page.

Terminal box types	A1	B1	H1	Gland plate opening
750 without E-D	523	413	219	E

Dimensions for terminal box inlets

Corresponds to motor sizes 5008-5012 and 587-588.

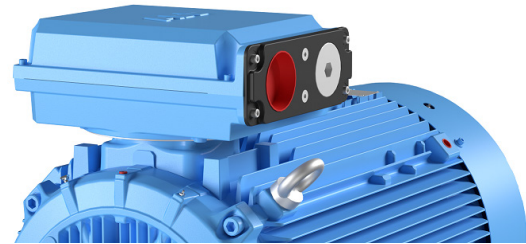


Flange opening	c mm	e mm	f mm	g mm	d thread type
E	115	370	100	360	M12

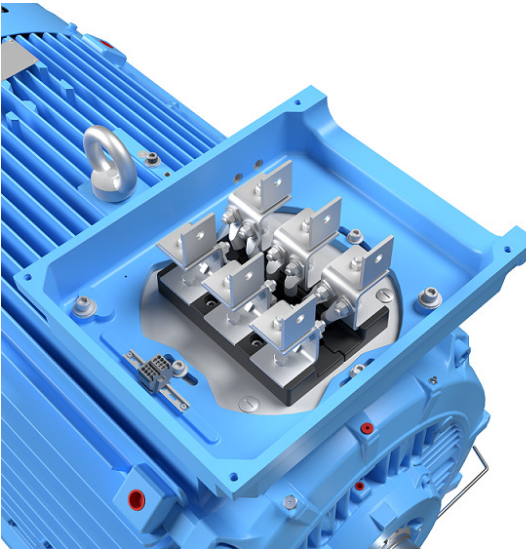
Note! The C flange is different depending on frame size

Terminal boxes and boards

The pictures below show the standard terminal box and the corresponding terminal board for motor sizes 5008-5012 and 587, 588.



01



02

Terminal box

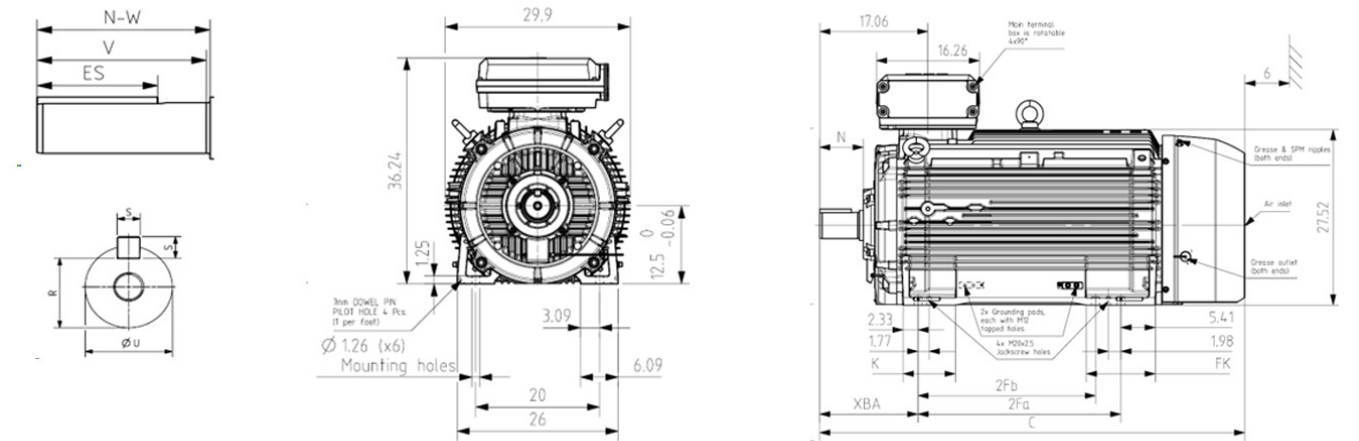
Cable glands

The motors are delivered as standard with plugged cable entries as described in the previous section. There is available a broad selection of different type of cable glands, which are suitable for different types of cable and outer diameter ranges.

Size of threaded opening for cable gland	Cable gland(s) nickel plated brass, variant code 230 or 731	EMC Cable gland(s) nickelplated brass, variant code 704
	Cable outer diameter, mm	Cable outer diameter, mm
2 x 4" NPT	-	88-100

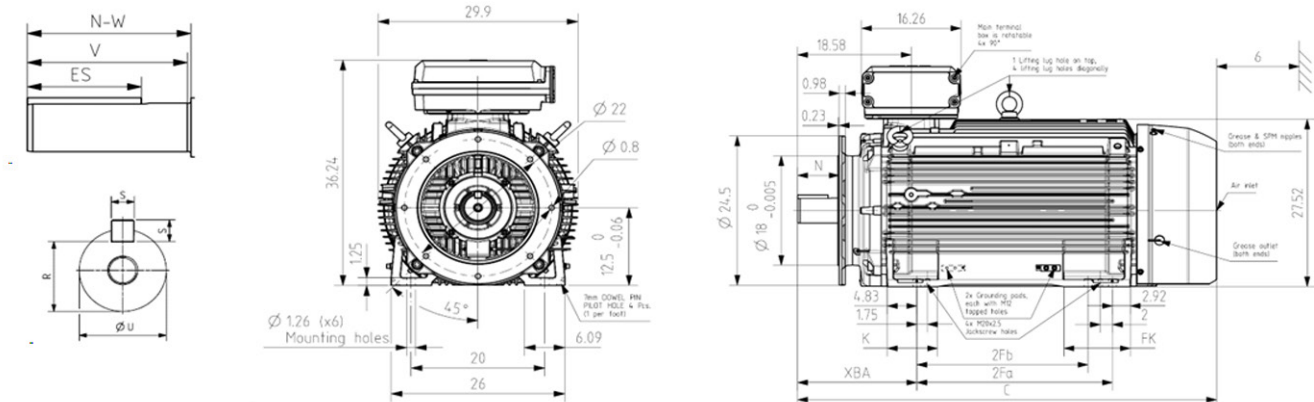
Dimension drawings

Process performance imperial dimensioned motors, sizes 5008-5012 with terminal box on top



All measurements are in inches.

IM1001, IMB3														
Motor size	Poles	C	XBA	2Fa	2Fb	FK	K	N	U	S	ES	R	V	N-W
5008	2	60,15	15,5	25	22	9,95	8,22	6,86	2,375	0,625	4	2,021	6	6,25
5008	4	60,15	15,5	25	22	9,95	8,22	6,9	4,125	1	5	3,563	6	6,25
5008	6-8	64,15	19,5	25	22	9,95	8,22	10,9	4,5	1	8	3,944	10	10,25
5010	2	67,04	15,5	32	28	10,86	8,22	6,86	2,375	0,625	4	2,021	6	6,25
5010	4	67,04	15,5	32	28	10,86	8,22	6,9	4,125	1	5	3,563	6	6,25
5010	6-8	71,04	19,5	32	28	10,86	8,22	10,9	4,5	1	8	3,944	10	10,25
5012	2	75,03	15,5	40	36	10,86	8,22	6,54	2,625	0,625	4	2,275	6	6,25
5012	4	75,03	15,5	40	36	10,86	8,22	6,9	4,125	1	5	3,563	6	6,25
5012	6-8	79,03	19,5	40	36	10,86	8,22	10,9	4,5	1	8	3,944	10	10,25

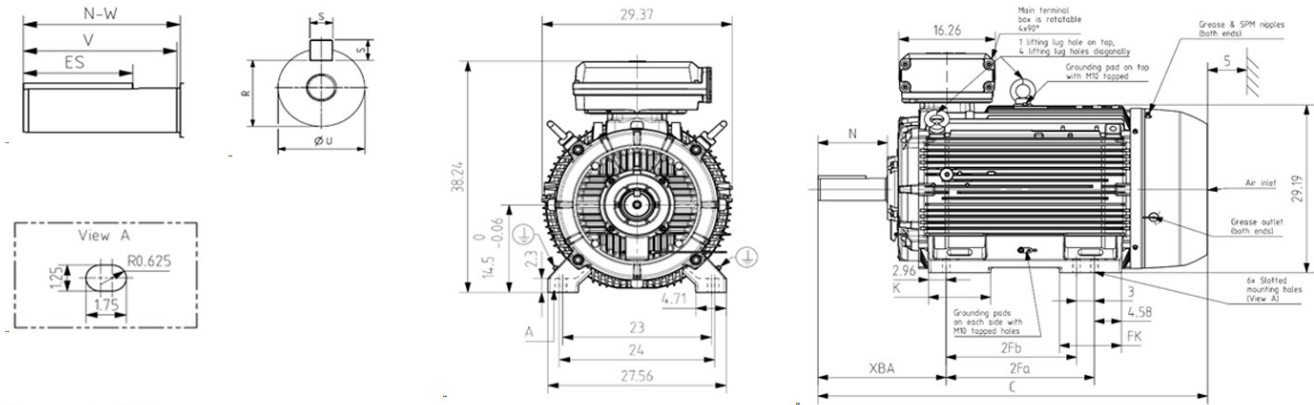


All measurements are in inches.

IM2001, IM B35														
Motor size	Poles	C	XBA	2Fa	2Fb	FK	K	N	U	S	ES	R	V	N-W
5008	2	60,15	15,5	25	22	9,95	8,22	6,86	2,375	0,625	4	2,021	6	6,25
5008	4	60,15	15,5	25	22	9,95	8,22	6,9	4,125	1	5	3,563	6	6,25
5008	6-8	64,15	19,5	25	22	9,95	8,22	10,9	4,5	1	8	3,944	10	10,25
5010	2	67,04	15,5	32	28	10,86	8,22	6,86	2,375	0,625	4	2,021	6	6,25
5010	4	67,04	15,5	32	28	10,86	8,22	6,9	4,125	1	5	3,563	6	6,25
5010	6-8	71,04	19,5	32	28	10,86	8,22	10,9	4,5	1	8	3,944	10	10,25
5012	2	75,03	15,5	40	36	10,86	8,22	6,54	2,625	0,625	4	2,275	6	6,25
5012	4	75,03	15,5	40	36	10,86	8,22	6,9	4,125	1	5	3,563	6	6,25
5012	6-8	79,03	19,5	40	36	10,86	8,22	10,9	4,5	1	8	3,944	10	10,25

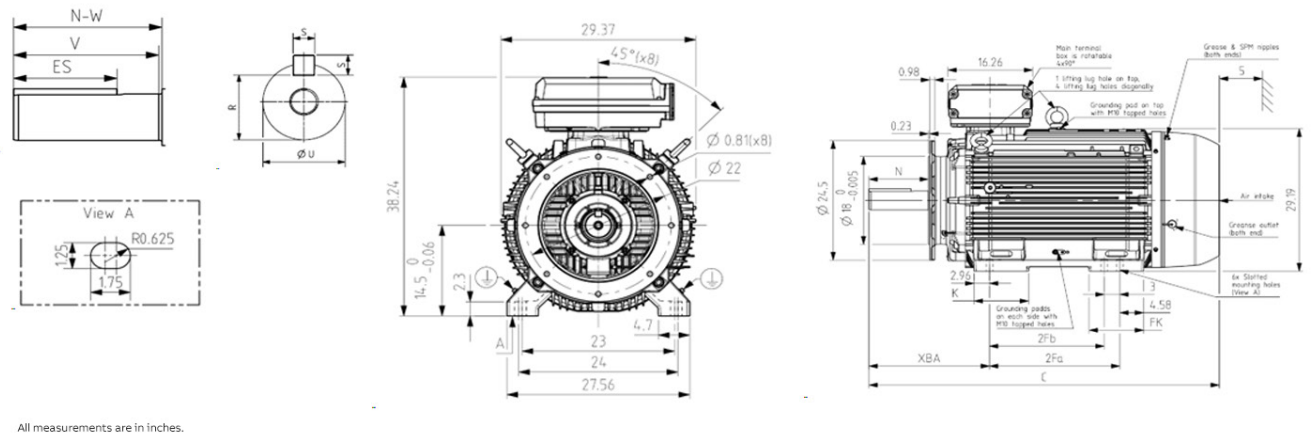
Dimension drawings

Process performance imperial dimensioned motors, size 587 with terminal box on top



IM1001, IMB3

Motor size	Poles	C	XBA	2Fa	2Fb	FK	K	N	U	S	ES	R	V	N-W
587	2	58,83	14,75	25	22	10,46	10,46	4,81	2,375	0,625	2,68	2,021	4,5	4,75
587	4-8	65,71	21,26	25	22	10,46	10,46	11,72	3,875	1	8,11	3,309	11,38	11,62



IM2001, IM B35

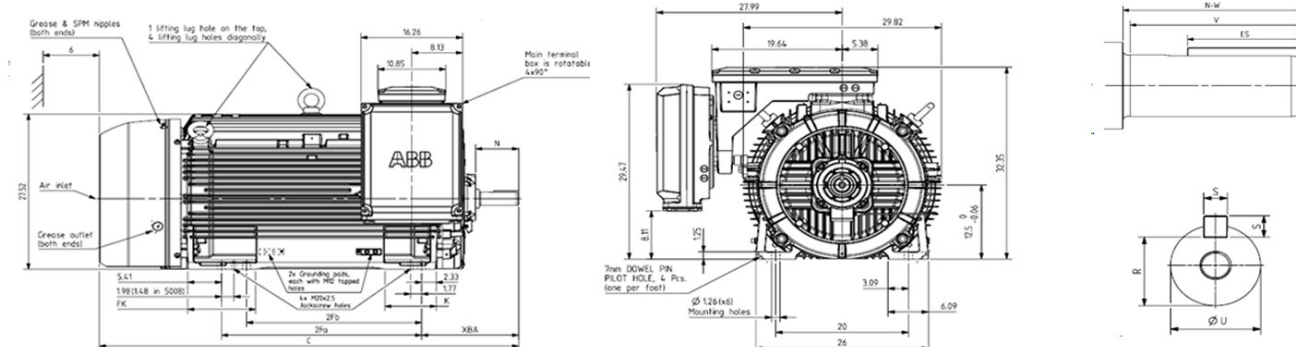
Motor size	Poles	C	XBA	2Fa	2Fb	FK	K	N	U	S	ES	R	V	N-W
587	2	60,33	16,25	25	22	10,46	10,46	4,52	2,375	0,625	2,68	2,021	4,5	4,75
587	4-8	67,21	23,12	25	22	10,46	10,46	11,4	3,875	1	8,11	3,308	11,38	11,62

Process performance imperial dimensioned motors,
size 588 with terminal box on top

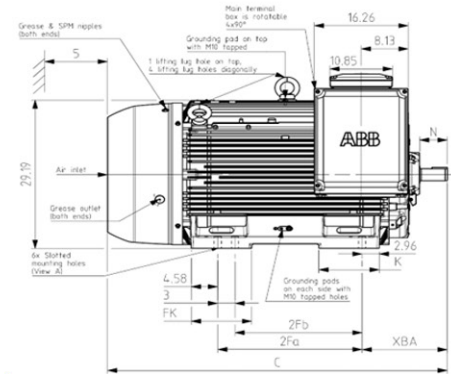
M1001. IMB3IM2001, IM B35

Dimension drawings

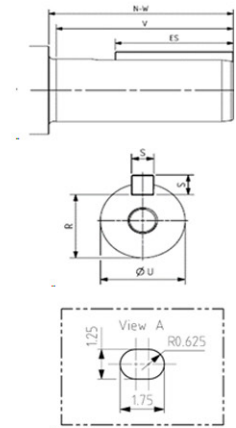
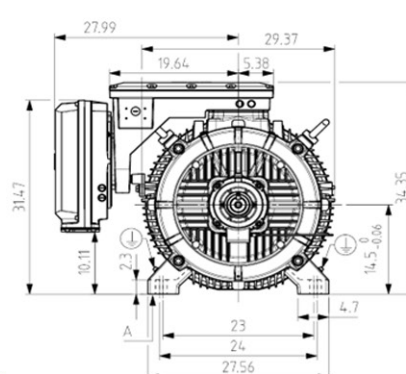
Process performance imperial dimensioned motors, sizes 5008-5012 with terminal box on the right-hand side



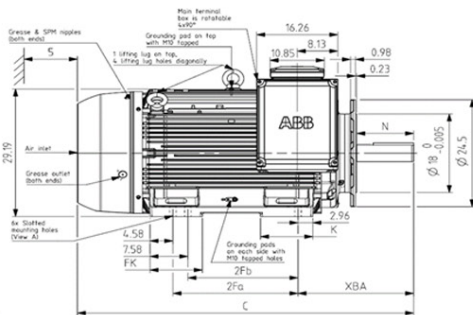
Process performance imperial dimensioned motors,
size 587 with terminal box on the right-hand side



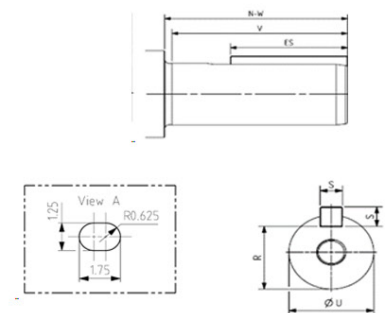
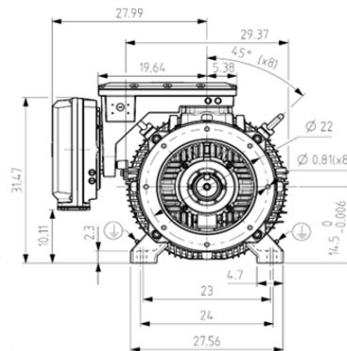
All measurements are in inches.



IM1001, IMB3 LHS														
Motor size	Poles	C	XBA	2Fa	2Fb	FK	K	N	U	S	ES	R	V	N-W
587	2	58,83	14,75	25	22	10,46	10,46	4,81	2 375	0,625	2,68	2 021	4,5	4,75
587	4-8	65,71	21,26	25	22	10,46	10,46	11,72	3 875	1	8,11	3 309	11,38	11,62



All measurements are in inches.



IM2001, IM B35 LHS														
Motor size	Poles	C	XBA	2Fa	2Fb	FK	K	N	U	S	ES	R	V	N-W
587	2	60,33	16,25	25	22	10,46	10,46	4,52	2 375	0,625	2,68	2 021	4,5	4,75
587	4-8	67,21	23,12	25	22	10,46	10,46	11,4	3 875	1	8,11	3 308	11,38	11,62

Process performance imperial dimensioned motors,
size 588 with terminal box on the right-hand side



All measurements are in inches.

33

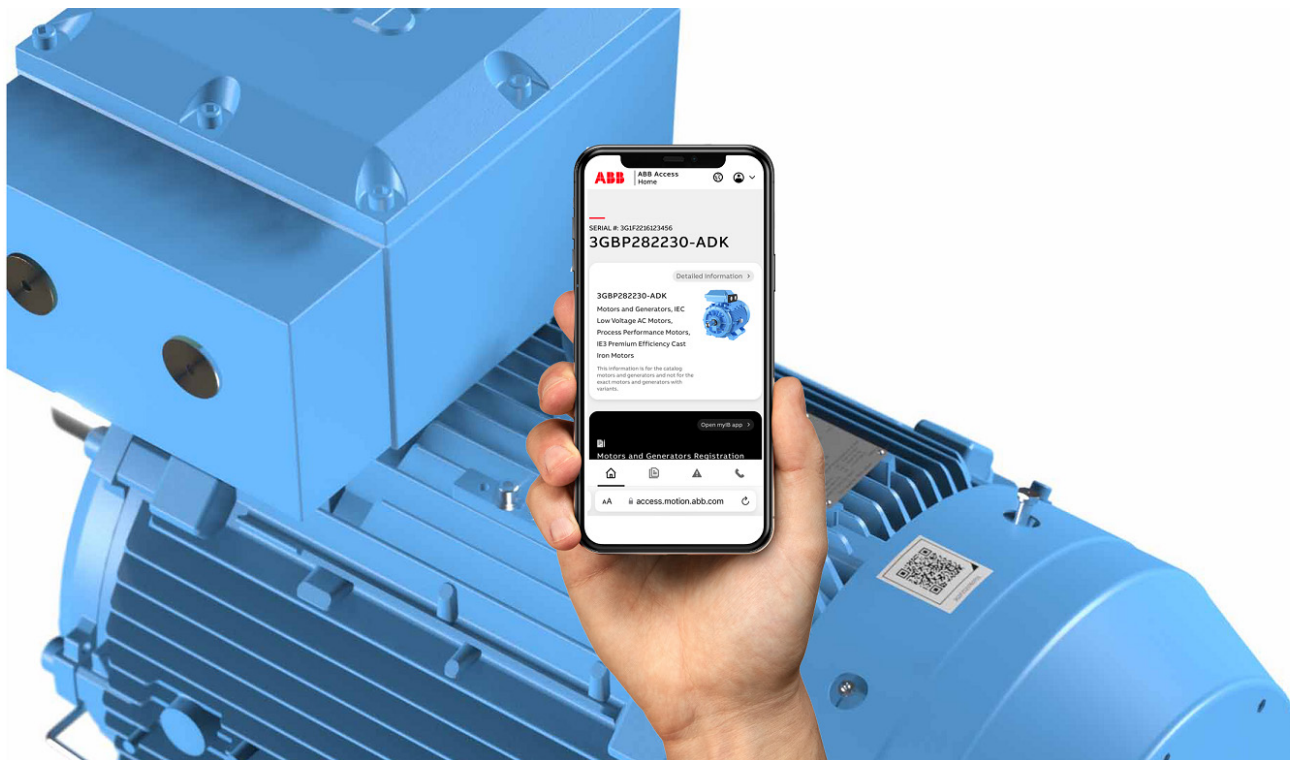
Motors in brief

M3BN 5008-5012 & 587-588

Motor size		5008-5012 & 587-588
Stator and end shields	Material	Cast iron
	Paint color shade	Munsell blue 8B 4.5/3.25
	Corrosion class	C3
Feet		Integrated cast iron feet
Bearings	D-end 2-pole	6317M/C3
	N-end 2-pole	6317M/C3VL0241
	D-end 4-8 pole	6324/C3
	N-end 4-8 pole	6319/C3VL0241
Axially locked bearings		Locked at D-end
Bearing seals	D-end	Labyrinth seal
	N-end	Labyrinth seal
Lubrication		Regreasable bearings, regreasing nipples M10x1
Measuring nipples for condition monitoring of the bearings		Included
Rating plate	Material	Stainless steel
Terminal box	Frame and cover	Cast iron
	Corrosion class	C3
	Cover screws	Stainless steel
Connections	Threaded openings	2xNPT4"
	Terminals	See section Standard terminal box for detailed information.
	Cable glands	6 terminals for connection with cable lugs (not included)
Fan	Material	Cable flange included, glands as option
Fan cover	Material	Glass-fiber reinforced polypropylene, aluminium.
	Paint color shade	Steel
	Corrosion class	Munsell blue 8B 4.5/3.25
Stator winding	Material	C3
	Insulation	Copper
	Winding protection	Insulation class F. Temperature rise class B unless otherwise stated.
Rotor	Material	3 PTC thermistors, 155 °C, corrosion protected
Balancing method		Pressure die-cast aluminum, corrosion protected rotor
Keyway		Half-key balancing
Drain holes		Open keyway
Enclosure		Drain holes with closable plastic plugs, open on delivery
Cooling method		IP 55
		IC 411

6206- 6205-2Z/C3 in I

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