

Product note

ABB's new fully certified aluminum motor for explosive atmospheres

ABB has upgraded its range of aluminum frame motors for explosive atmospheres by securing ATEX and IECEx certificates for non-sparking (Ex nA) and dust ignition protection (Ex t).
The new range comes in frame sizes 90-132.

Reliable and safe

The new product is based on the well-proven and reliable M3AA Process performance aluminum frame motor. It offers excellent reliability and flexibility combined with a compact and lightweight construction. The motors are designed to withstand mechanical impacts and they have passed the 7 Joule impact test. This means that they fulfill the requirements for high risk of impact as defined in IEC and EN standards.

The motors are available with 2, 4, 6 or 8 poles. They meet IEC efficiency level IE2 requirements and they are also registered for the Australian MEPS efficiency program.

Certification

In addition to ATEX certificates for both Ex nA and Ex t protection, global IECEx certificates are also available for both protection types. The motors are certified according to the latest IEC and EN standards with equipment protection level (EPL) markings. Voluntary type examination reports from a Notified Body are also available for ATEX category 3G and 3D types.

IEC 60079-0 (2011)	EN 60079-0 (2012)
IEC 60079-15 (2010)	EN 60079-15 (2010)
IEC 60079-31 (2008)	EN 60079-31 (2009)

Variant codes

The following variant codes should be used when ordering:

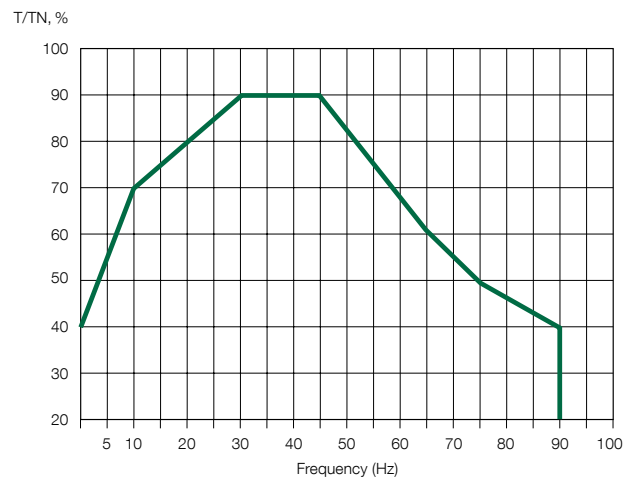
- 456 - Ex nA IIC T3 Gc acc. IEC/EN 60079-15 with certificates
- 334 - Ex t, Dust group III B T125C Db, IP6X (non-conductive dust) acc. IEC/EN60079-31
- 335 - Ex t, Dust group III B T125C Dc, IP5X (non-conductive dust) acc. IEC/EN60079-31
- 336 - Ex t, Dust group III C T125 Db, IP6X(conductive dust) acc. IEC/EN60079-31
- 337 - Ex t, Dust group III C T125 Dc, IP6X (conductive dust) acc. IEC/EN60079-31

All motors are provided with both IECEx and ATEX markings on the rating plate.

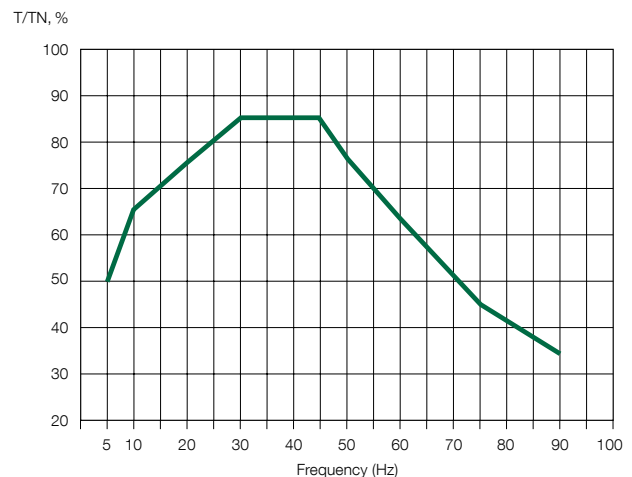


Variable speed applications

The motors have been tested and certified for use with ABB ACS550 and ACS800 series frequency converters using the loadability curves shown below.



ACS800 DTC / 50 Hz



ACS550 / 50 Hz

Technical data for non-sparking and dust ignition protection motors, IE2

Technical data for 400 V 50 Hz can be found in the tables below, data for other voltages on request.

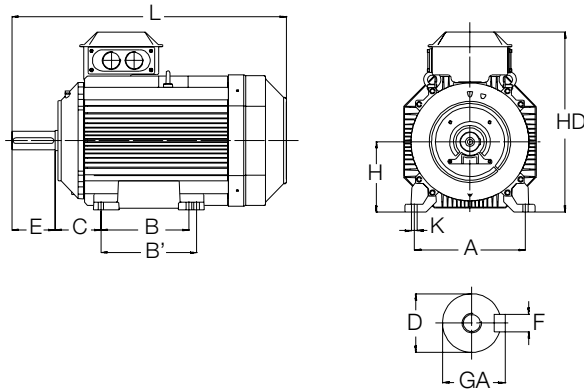
Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034--2-1; 2007			Power factor cos φ	Current		Torque			Moment of Inertia J = 1/4 GD ² kgm ²	Weight kg	Sound pressure Level, L _{PA} dB
				Full load 100%	3/4 load 75%	1/2 load 50%		I _N A	I ₂ /I _N	T _N Nm	T _L /T _N	T _B /T _N			
3000 r/min = 2 poles		400 V 50 Hz		CENELEC-Design											
1.5	M3AA 90 L	3GAA 091 312-••E	2900	84.1	85.0	83.5	0.86	2.9	7.6	4.9	2.5	3.3	0.0024	16	60
2.2	M3AA 90 LB	3GAA 091 313-••E	2875	84.6	85.7	85.5	0.85	4.4	6.9	7.3	2.8	3.2	0.0027	18	63
3	M3AA 100 LB	3GAA 101 312-••E	2920	86.4	86.0	83.9	0.86	5.8	9.3	9.8	3.3	3.9	0.0050	25	62
4	M3AA 112 MB	3GAA 111 312-••E	2885	86.1	87.0	88.0	0.88	7.6	7.6	13.2	2.5	2.8	0.0062	30	68
5.5	M3AA 132 SB	3GAA 131 312-••E	2915	88.0	88.5	87.6	0.82	11	7.9	18	2.6	3.6	0.016	52	73
7.5	M3AA 132 SC	3GAA 131 313-••E	2915	88.5	88.7	88.1	0.87	14	7.6	24.5	2.2	3.2	0.022	52	73
1500 r/min = 4 poles		400 V 50 Hz		CENELEC-Design											
1.1	M3AA 90 LB	3GAA 092 314-••E	1435	83.7	84.1	83.0	0.78	2.4	6.6	7.3	2.9	3.2	0.0043	16	50
1.5	M3AA 90 LD	3GAA 092 315-••E	1435	84.2	84.1	81.9	0.76	3.3	7.0	9.9	3.1	3.5	0.0048	17	50
2.2	M3AA 100 LC	3GAA 102 313-••E	1450	86.4	86.2	84.1	0.79	4.6	7.3	14.4	2.8	3.4	0.0090	25	54
3	M3AA 100 LD	3GAA 102 314-••E	1445	85.7	86.1	85.1	0.79	6.3	7.0	19.8	2.4	3.0	0.0110	28	63
4	M3AA 112 MB	3GAA 112 312-••E	1445	86.7	86.5	85.2	0.75	8.8	7.3	26.4	3.1	3.4	0.0126	34	64
5.5	M3AA 132 SB	3GAA 132 312-••E	1465	89.0	89.8	89.1	0.79	11.2	6.3	35.8	1.9	2.6	0.038	48	66
7.5	M3AA 132 MA	3GAA 132 314-••E	1460	89.1	89.9	89.5	0.79	15.3	6.4	49	1.8	2.6	0.048	59	63
1000 r/min = 6 poles		400 V 50 Hz		CENELEC-Design											
0.75	M3AA 90 LB	3GAA 093 313-••E	930	77.6	76.2	75.6	0.71	1.96	4.0	7.7	2.0	2.3	0.0048	18	44
1.1	M3AA 90 LD	3GAA 093 314-••E	935	78.2	79.1	76.5	0.66	3	4.2	11.2	2.2	2.6	0.0056	20	44
1.5	M3AA 100 LC	3GAA 103 312-••E	945	80.3	81.4	80.7	0.73	3.6	3.9	15.1	1.7	2.0	0.0090	26	49
2.2	M3AA 112 MB	3GAA 113 312-••E	955	81.9	82.3	79.8	0.72	5.3	5.2	21.9	1.8	2.2	0.0100	34	56
3	M3AA 132 S	3GAA 133 311-••E	960	83.3	83.6	81.7	0.65	7.9	4.3	29.8	1.6	2.3	0.031	46	57
4	M3AA 132 MB	3GAA 133 313-••E	975	86.4	86.3	84.0	0.70	9.5	7.3	39.1	2.1	4.4	0.045	54	57
5.5	M3AA 132MC	3GAA 133 314-••E	965	86.1	86.1	84.3	0.67	13.7	6.2	54.4	2.5	2.8	0.049	59	61
750 r/min = 8 poles		400 V 50 Hz		CENELEC-Design											
0.37	M3AA 90 S	3GAA 094 001-••E	695	59.4	56.3	49.1	0.54	1.66	2.7	5	1.6	2.1	0.0032	13	52
0.55	M3AA 90 L	3GAA 094 002-••E	660	59.1	59.5	55.2	0.58	2.3	2.5	7.9	1.5	1.6	0.0043	16	52
0.75	M3AA 100 LA	3GAA 104 001-••E	720	70.7	67.1	59.9	0.47	3.2	3.9	9.9	2.8	3.6	0.0069	20	46
1.1	M3AA 100 LB	3GAA 104 002-••E	695	76.0	76.5	74.6	0.66	3.1	3.4	15.1	1.7	2.2	0.0082	23	53
1.5	M3AA 112 M	3GAA 114 101-••E	690	74.4	75.9	74.1	0.70	4.1	3.2	20.7	1.4	1.9	0.0100	28	55
2.2	M3AA 132 S	3GAA 134 001-••E	715	77.7	79.2	77.6	0.65	6.2	3.4	29.3	1.3	1.9	0.031	46	56
3	M3AA 132 M	3GAA 134 002-••E	715	79.3	80.8	79.8	0.64	8.5	3.2	40	1.2	1.8	0.037	53	58

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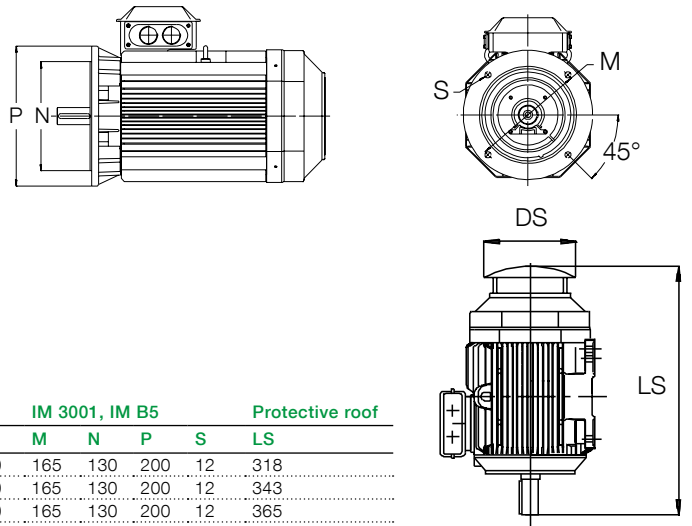
Dimension drawings for non-sparking and dust ignition protection motors

Mechanical dimensions are shown in the table below.

Foot-mounted motor IM 1001, IM B3



Flange-mounted motor IM 3001, IM B5



Motor size	IM1001, IM B3 AND IM 3001, IM B5					IM 1001, IM B3				IM 3001, IM B5				Protective roof		
	D	GA	F	E	L _{max}	A	B	C	HD	K	H	M	N	P	S	LS
90S	24	27	8	50	288	140	100	56	217	10	90	165	130	200	12	318
90L	24	27	8	50	313	140	125	56	217	10	90	165	130	200	12	343
90LD	24	27	8	50	335	140	125	56	217	10	90	165	130	200	12	365
100L	28	31	8	60	355	160	140	63	237	12	100	215	180	250	15	385
100LD	28	31	8	60	377	160	140	63	237	12	100	215	180	250	15	407
112	28	31	8	60	397	190	140	70	249	12	112	215	180	250	15	427
132 Short ¹⁾	38	41	10	80	458.5	216	140	89	295.5	12	132	265	230	300	14.5	484
132 Large ²⁾	38	41	10	80	498.5	216	140	89	295.5	12	132	265	230	300	14.5	524

For more information please contact:
www.abb.com/motors&generators

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