

Product note

New process performance motor

M3BP 280 ML High Output

Harmonized product range

In line with the outlined strategy ABB takes one step towards a harmonized product range by introducing higher power density designs in the M3BP range.

This new range of motors will fill up the gap of the steel M2CA High Output types, which will be phased out 2012. Key design and structural elements of the new motors – such as the frame, bearing assembly, terminal box and electrical design – are based on proven solutions from ABB’s Process Performance range.

The new motor types are M3BP280MLA and M3BP280MLB. The motors are available in 2, 4, 6 and 8 poles. They are rated from 75kW up to 160kW, 50/60Hz, with voltage up to 1000V. Available mounting configurations are foot and flange.

Design

Electrically the M3BP types are the same as the equivalent steel M2CA types. Mechanically the M3BP types are slightly bigger than the steel M2CA types.



Radial & Axial forces

Permissible radial forces

Motor size	Poles	Length of shaft extension E (mm)	Ball bearings				Roller bearings			
			20,000 hours		40,000 hours		20,000 hours		40,000 hours	
			F_{x0} (N)	F_{xmax} (N)	F_{x0} (N)	F_{xmax} (N)	F_{x0} (N)	F_{xmax} (N)	F_{x0} (N)	F_{xmax} (N)
280 ML_	2	140	7400	6200	5800	5000	20600	6200	16700	6200
	4	140	9200	7900	7300	6200	25000	9500	20300	9500
	6	140	10500	9000	8300	7100	28300	9400	22900	9400
	8	140	11600	9500	9200	7900	30800	9500	25000	9500

Permissible axial forces

Mounting arrangement IM B3

Motor size	20,000 hours							
	2-pole		4-pole		6-pole		8-pole	
	F_{AD}	F_{AZ}	F_{AD}	F_{AZ}	F_{AD}	F_{AZ}	F_{AD}	F_{AZ}
280 ML_	N	N	N	N	N	N	N	N
	6100	4100	7800	5800	8950	6950	10000	8000
Motor size	40,000 hours							
	2-pole		4-pole		6-pole		8-pole	
280 ML_	F_{AD}	F_{AZ}	F_{AD}	F_{AZ}	F_{AD}	F_{AZ}	F_{AD}	F_{AZ}
	N	N	N	N	N	N	N	N
	4800	2800	6000	4000	6900	4900	7700	5700

Mounting arrangement IM V1

Motor size	20,000 hours							
	2-pole		4-pole		6-pole		8-pole	
	F_{AD}	F_{AZ}	F_{AD}	F_{AZ}	F_{AD}	F_{AZ}	F_{AD}	F_{AZ}
280 ML_	N	N	N	N	N	N	N	N
	8150	2750	10450	4050	12350	4750	13450	5800
Motor size	40,000 hours							
	2-pole		4-pole		6-pole		8-pole	
280 ML_	F_{AD}	F_{AZ}	F_{AD}	F_{AZ}	F_{AD}	F_{AZ}	F_{AD}	F_{AZ}
	N	N	N	N	N	N	N	N
	6800	1400	8650	2250	10250	2600	11050	3450

Options / Variant codes

The following options will not be available in the first phase:

- 180 - Terminal box RHS (seen from D-end)
- 021 - Terminal box LHS (seen from D-end)
- 452 - DIP/Ex tD acc. to ATEX directive 94/9/EC, T=125 °C, cat. 3D, IP55
- 453 - DIP/Ex tD acc. to ATEX directive 94/9/EC, T=125 °C, cat. 2D, IP65
- 480 - Ex nA II acc. to ATEX directive 94/9/EC, temp. class T3

- 500 - Fulfilling Korean MEPS efficiency regulations
- 541 - Inmetro certification
- 542 - NBR design
- 778 - GOST Export/Import Certificate (Russia).
- 802 - GOST Kazakhstan certified
- 010 - Fulfilling CSA Safety Certificate
- 782 - Fulfilling CQST Certification requirements (China)
- 814 - Ex tD (DIP) motors, temperature class T 150C
- 456 - Ex nA design, fulfilling IEC 60079-15, with certificate

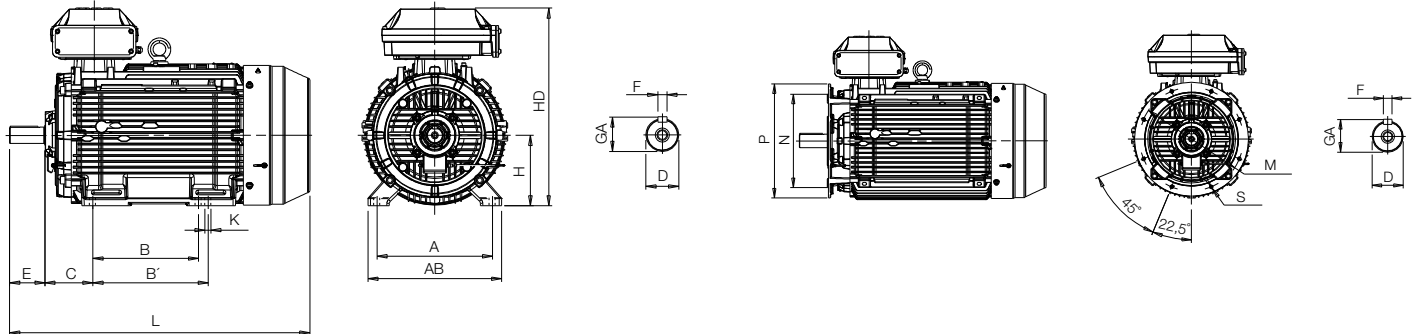
Technical data

Technical data can be found in the table below.

Output kW	Motor type	Product code	Efficiency IEC60034--2-1:2007						Current					Torque			Sound press level L _p dB(A)
			Speed r/min	Full load 100%	3/4 load 75%	1/2 load 50%	Power factor cos φ	I _N A	I _s A	T _N Nm	T _s Nm	T _{max} Nm	Moment of inertia J=1/4 GD ² kgm ²	Weight kg			
															Moment of inertia J=1/4 GD ² kgm ²		
3000 r/min = 2-poles 400V 50Hz																	
132	M3BP 280 MLA	3GBP 281 410-G	2977	95.3	95.3	95	0.91	219	7.5	423	2.5	3	1.4	840	81		
160	M3BP 280 MLB	3GBP 281 420-G	2976	95.5	95.5	95.2	0.91	265	7.6	513	2.8	3	1.55	890	81		
1500 r/min = 4-poles 400V 50Hz																	
132	M3BP 280 MLA	3GBP 282 410-G	1483	95.3	95.5	95.2	0.86	232	7	849	2.7	2.8	2.3	840	75		
160	M3BP 280 MLB	3GBP 282 420-G	1484	95.6	95.8	95.4	0.86	280	7.4	1029	2.9	2.9	2.5	890	75		
1000 r/min = 6-poles 400V 50Hz																	
90	M3BP 280 MLA	3GBP 283 410-G	990	94.1	94.2	93.6	0.82	168	7.1	868	2.4	2.5	3.1	840	70		
110	M3BP 280 MLB	3GBP 283 420-G	990	94.5	94.6	94	0.82	204	7.5	1061	2.7	2.6	4.1	890	70		
750 r/min = 8 poles 400V 50Hz																	
75	M3BP 280 MLB	3GBP 284 420-G	739	93.7	93.9	93.3	0.8	144	6.7	969	1.7	2.6	4.1	890	72		

Dimensions

Mechanical dimensions for M3BP 280ML_ can be found in the table below.



Foot mounted; IM B3, IM B6, IM B7, IM B8, IM V5, IM V6

Motor type	Motor size	Poles	A	AB	B	B'	C	D	E	F	GA	H	HD		K	L _{max}	
													TB 210	TB 370			
M3BP	280 ML_	2	457	530	419	457	190	65	140	18	69	280	-	785	24	1189	1189
		4	457	530	419	457	190	75	140	20	79.5	280	-	785	24	1189	1089
		6	457	530	419	457	190	75	140	20	79.5	280	762	-	24	1189	1089
M3BP	280 MLB	8	457	530	419	457	190	75	140	20	79.5	280	762	-	24	1189	1089

Flange-mounted; IM B5, V1, V3 and IM B14, IM V18, V19

Motor type	Motor size	Poles	M	N	P	S
M3BP	280 ML_	2	500	450	550	18
		4	500	450	550	18
		6	500	450	550	18
M3BP	280 MLB	8	500	450	550	18

For more information please contact:

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