

## Product note

# High output synchronous reluctance (HO SynRM) aluminum motor range, 90-132

## Optimized cost of ownership for pump and fan applications

### Motor highlights

- Powerful, yet highly compact motor that's up to two frame sizes smaller than a conventional motor
- Power range 1.1 - 37 kW
- Mechanical construction and variant codes based on proven M3AA process performance motors
- Refer to High output synchronous reluctance motor and drive catalog, 9AKK105671, for detailed information on HO SynRM technology

### ACS850 drive highlights

- Supply voltage: 3-phase 380 V to 500 V
- Supply frequency 50 Hz or 60 Hz
- Motor control: ABB's direct torque control
- Variant code for the SynRM control software: +N7502

### Technical data

High output synchronous reluctance motors, frame sizes 90-132.



### IP55 - IC 411 - Insulation class F, temperature rise class F

Out-put kW	Motor type	Product code	Performance at nominal speed					Performance at maximum speed					Suggested frequency converter for no overload use		
			Speed $n_N$ r/min	Freq. $f_{el}$ Hz	Motor efficiency Full load 100%*	Current $I_N$ A	Torque $T_N$ Nm	Torque $T_{ol}/T_N$	Output P kW	Speed $n_{max}$ r/min	Torque $T_2$ Nm	Torque $T_{ol}/T_2$		Inertia J kgm <sup>2</sup>	Weight m kg
<b>3000 r/min</b>			<b>400 V network</b>												
1.5	M3AL 90 L 4	3GAL 092 001 - SB	3000	100	84.2	3.9	4.8	1.5	1.5	3600	4.0	1.2	0.00202	13	ACS850-04-04A8-5
2.2	M3AL 90 LA 4	3GAL 092 002 - SB	3000	100	85.9	5.7	7.0	1.5	2.2	3600	5.8	1.2	0.00202	13	ACS850-04-06A0-5
3	M3AL 90 LB 4	3GAL 092 003 - SB	3000	100	87.1	7.7	9.6	1.5	3	3600	8.0	1.2	0.00276	16	ACS850-04-08A0-5
4	M3AL 90 LC 4	3GAL 092 004 - SB	3000	100	88.1	10.0	12.7	1.5	4	3600	10.6	1.2	0.00276	16	ACS850-04-010A-5
5.5	M3AL 90 LDA 4	3GAL 092 005 - SB	3000	100	89.2	13.4	17.5	1.5	5.5	3600	14.6	1.2	0.00351	17	ACS850-04-014A-5
7.5	M3AL 100 LB 4	3GAL 102 001 - SB	3000	100	90.1	17.6	23.9	1.5	7.5	3600	19.9	1.2	0.00565	23	ACS850-04-018A-5
11	M3AL 112 MB 4	3GAL 112 001 - SB	3000	100	90.5	25.6	35.0	1.5	11	3600	29.2	1.2	0.00813	33	ACS850-04-030A-5
15	M3AL 132 SMB 4	3GAL 132 001 - SB	3000	100	91.9	34.9	47.8	1.5	15	3600	39.8	1.2	0.0184	47	ACS850-04-035A-5
18.5	M3AL 132 SMC 4	3GAL 132 002 - SB	3000	100	92.1	42.4	58.9	1.5	18.5	3600	49.1	1.2	0.0226	57	ACS850-04-044A-5
22	M3AL 132 SMD 4	3GAL 132 003 - SB	3000	100	91.6	50.0	70.0	1.5	22	3600	58.4	1.2	0.0226	57	ACS850-04-050A-5
30	M3AL 132 SME 4	3GAL 132 004 - SB	3000	100	93.3	67.8	95.5	1.5	30	3600	79.6	1.2	0.0277	80	ACS850-04-078A-5
37	M3AL 132 SMF 4	3GAL 132 005 - SB	3000	100	93.5	83.4	118	1.5	37	3600	98.1	1.2	0.0332	89	ACS850-04-094A-5
<b>1500 r/min</b>			<b>400 V network</b>												
1.1	M3AL 90 LA 4	3GAL 092 006 - SB	1500	50	81.4	3.0	7.0	1.5	1.1	1800	5.8	1.2	0.00202	13	ACS850-04-03A0-5
1.5	M3AL 90 LB 4	3GAL 092 007 - SB	1500	50	82.8	3.9	9.6	1.5	1.5	1800	8.0	1.2	0.00276	16	ACS850-04-04A8-5
2.2	M3AL 90 LDA 4	3GAL 092 008 - SB	1500	50	84.3	5.7	14.0	1.5	2.2	1800	11.7	1.2	0.00351	17	ACS850-04-06A0-5
3	M3AL 100 LB 4	3GAL 102 002 - SB	1500	50	85.5	7.6	19.1	1.5	3	1800	15.9	1.2	0.00565	23	ACS850-04-08A0-5
4	M3AL 100 LDA 4	3GAL 102 003 - SB	1500	50	86.6	10.0	25.5	1.5	4	1800	21.2	1.2	0.00690	27	ACS850-04-010A-5
5.5	M3AL 112 MB 4	3GAL 112 002 - SB	1500	50	87.7	13.4	35.0	1.5	5.5	1800	29.2	1.2	0.00813	33	ACS850-04-014A-5
7.5	M3AL 132 SMB 4	3GAL 132 006 - SB	1500	50	88.7	18.0	47.7	1.5	7.5	1800	39.8	1.2	0.0184	47	ACS850-04-018A-5
11	M3AL 132 SMC 4	3GAL 132 007 - SB	1500	50	89.8	26.2	70.0	1.5	11	1800	58.4	1.2	0.0226	57	ACS850-04-030A-5
15	M3AL 132 SME 4	3GAL 132 008 - SB	1500	50	90.6	35.2	95.5	1.5	15	1800	79.6	1.2	0.0277	80	ACS850-04-035A-5
18.5	M3AL 132 SMF 4	3GAL 132 009 - SB	1500	50	91.2	43.4	118	1.5	18.5	1800	98.1	1.2	0.0332	89	ACS850-04-044A-5

For further information, see catalog "ABB machinery drives, ACS850", code 3AU40000041481 EN.

\* Preliminary data

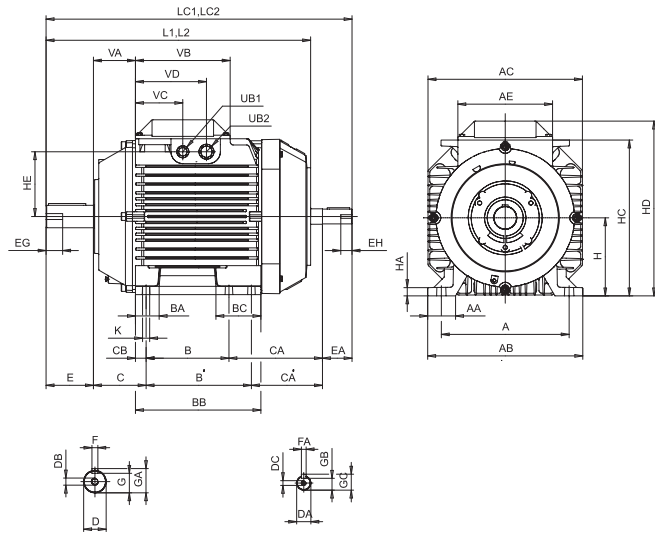
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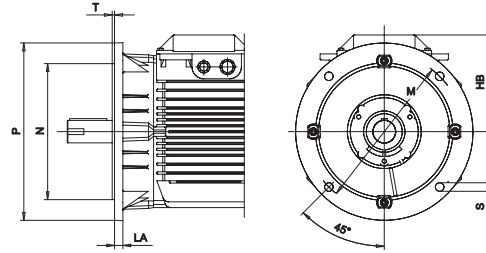
## Dimensions

High output synchronous reluctance motors, frame sizes 90-132.

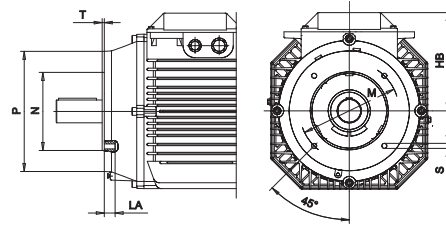
### Foot-mounted motor; IM B 3 (IM 1001), IM 1002



### Flange-mounted motor, large flange; IM B 5 (IM 3001), IM 3002



### Flange-mounted motor, small flange; IM B 14 (IM 3601), IM 3602



### IM B3 (IM 1001), IM 1002

Motor size	A	AA	AB	AC	AE	B	B'	BA	BB	BC	C	CA	CA'	CB	D	DA	DB	DC	E	EA	EG	EH
90 L, LA-LC	140	27	170	177	110	125	-	32	150	32	56	83.5	-	12.5	24	14	M8	M5	50	30	19	12.5
90 LDA	140	27	170	177	110	125	-	32	150	32	56	105.5	-	12.5	24	14	M8	M5	50	30	19	12.5
100 LB	160	32	200	197	110	140	-	36	172	36	63	93	-	16	28	19	M10	M6	60	40	22	16
100 LDA	160	32	200	197	110	140	-	36	172	36	63	115	-	16	28	19	M10	M6	60	40	22	16
112	190	32	230	197	110	140	-	36	172	36	70	136	-	16	28	19	M10	M6	60	40	22	16
132 SMB-D	216	47	262	261	160	140	178	40	212	76	89	198	160	18	38	24	M12	M8	80	50	28	19
132 SME	216	47	262	261	160	140	178	40	212	76	89	261	223	18	38	24	M12	M8	80	50	28	19
132 SMF	216	47	262	261	160	140	178	40	212	76	89	301	263	18	38	24	M12	M8	80	50	28	19

Motor size	F	FA	G	GA	GB	GC	H	HA	HC	HD	HE	K	KA	L	LC	UB	UC	UD	VA	VB	VC	VD	VE
90 L, LA-LC	8	5	20	27	11	16	90	10	189	217	82.5	10	14	309.5	344.5	M25	M20	-	43.5	110	33	67	-
90 LDA	8	5	20	27	11	16	90	10	189	217	82.5	10	14	331.5	366.5	M25	M20	-	43.5	110	33	67	-
100 LB	8	6	24	31	15.5	21.5	100	12	209	237	92.5	12	15	351	396	M25	M20	-	46.5	110	33	67	-
100 LDA	8	6	24	31	15.5	21.5	100	12	209	237	92.5	12	15	373	418	M25	M20	-	46.5	110	33	67	-
112	8	6	24	31	15.5	21.5	112	12	221	249	92.5	12	15	393	436	M25	M20	-	46.5	110	33	67	-
132 SMB-D	10	8	33	41	20	27	132	14	263.5	295.5	109.5	12	15	487	557	M20	M25	-	71	160	80	120	-
132 SME	10	8	33	41	20	27	132	14	287	321	123.5	12	15	550	620	M40	M32	M12	71	160	42	102	136
132 SMF	10	8	33	41	20	27	132	14	287	321	123.5	12	15	590	660	M40	M32	M12	71	160	42	102	136

### IM B5 (IM3001), IM 3002

Motor size	HB	LA	M	N	P	S	T
90	127	10	165	130	200	12	3.5
100	137	11	215	180	250	15	4
112	137	11	215	180	250	15	4
132 SMB-D	163.5	14	265	230	300	14.5	4
132 SME-F	189	14	265	230	300	14.5	4

### IM B14 (IM 3601), IM 3602

Motor size	HB	LA	M	N	P	S	T
90	127	13	115	95	140	M8	3
100	137	14	130	110	160	M8	3.5
112	137	14	130	110	160	M8	3.5
132 SMB-D	163.5	14.5	165	130	200	M10	3.5
132 SME-F	189	14.5	165	130	200	M10	3.5

For more information see:

[www.abb.com/motors&generators](http://www.abb.com/motors&generators)

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