

SIMOTICS XP 1MA Explosion-Proof Motors

Motors for Zone 1 in type of protection Ex e

IE1

Self-ventilated motors with Standard Efficiency IE1 Aluminum series 1MA7

Selection and ordering data

P _{rated} , 50 Hz	Tempera- ture class	Frame size	Operating values at rated output											Aluminum series		m _{IM} B3 J	Torque class			
			n _{rated} , 50 Hz	T _{rated} , 50 Hz	IE class	η _{rated} , 50 Hz, 4/4	η _{rated} , 50 Hz, 3/4	η _{rated} , 50 Hz, 2/4	COS- φ _{rated} , 50 Hz, 4/4	I _{rated} , 50 Hz, 400 V	T _{LR} / T _{rated}	I _{LR} / I _{rated}	T _B / T _{rated}	t _E , 50 Hz, T1/T2	t _E , 50 Hz, T3			Order No.	kg	kgm ²
kW	FS	rpm	Nm	%	%	%	A					s	s							
<ul style="list-style-type: none"> Cooling: Self-ventilated (IC 411) Efficiency: Standard Efficiency IE1 in accordance with IEC 60034-30 Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B) ¹⁾ 																				
2-pole: 3000 rpm at 50 Hz, temperature classes T1 to T3																				
0.18	T1,T2,T3	63 M	2810	0.61	-	63.6	62.6	58.6	0.74	0.55	2.3	4.4	2.3	30	27	1MA7060-2BA	3.5	0.00018	16	
0.25	T1,T2,T3	63 M	2800	0.85	-	65.7	64.7	60.7	0.85	0.7	2.2	4.4	2.3	19	16	1MA7063-2BA	4.0	0.00023	16	
0.37	T1,T2,T3	71 M	2825	1.3	-	70.8	70.8	66.8	0.80	0.93	2.3	5.6	3.0	28	25	1MA7070-2BA	6.0	0.00035	16	
0.55	T1,T2,T3	71 M	2785	1.9	-	69.9	69.9	65.9	0.84	1.4	3.0	5.2	2.6	18	13	1MA7073-2BA	7.0	0.00045	16	
0.75	T1,T2,T3	80 M	2845	2.5	IE1	72.1	72.1	68.1	0.85	1.81	2.5	6.2	2.7	13	11	1MA7080-2BA	9.0	0.00085	16	
1.1	T1,T2,T3	80 M	2855	3.7	IE1	75.0	75.0	72.0	0.85	2.5	2.8	6.4	3.0	12	10	1MA7083-2BA	11	0.0011	16	
1.3	T1,T2,T3	90 S	2850	4.4	IE1	76.2	76.2	73.2	0.88	2.9	2.6	6.2	2.8	12	11	1MA7090-2BA	13	0.0015	16	
1.85	T1,T2,T3	90 L	2860	6.2	IE1	78.6	79.1	76.6	0.88	3.95	2.8	7.2	2.8	9	8	1MA7096-2BA	16	0.0020	16	
2.5	T1,T2,T3	100 L	2865	8.3	IE1	80.5	80.5	79.5	0.87	5.3	2.6	7.4	2.8	9	8	1MA7106-2BA	21	0.0038	16	
3.3	T1,T2,T3	112 M	2875	11	IE1	82.1	82.1	81.1	0.89	6.7	2.1	6.6	2.3	10	9	1MA7113-2BB	27	0.0055	13	
4.6	T1,T2,T3	132 S	2920	15	IE1	83.8	83.8	82.8	0.90	9.2	1.9	6.8	2.5	15	13	1MA7130-2BB	38	0.016	13	
5.5	T3	132 S	2925	18	IE1	84.7	84.7	83.7	0.92	10.6	2.2	7.7	2.7	15	13	1MA7131-2BB	44	0.021	13	
7.5	T3	160 M	2945	24	IE1	86.0	86.0	85.0	0.90	14.3	2.2	7.6	3.1	29	18	1MA7163-2BB	67	0.034	13	
10	T3	160 M	2940	32	IE1	87.2	87.2	86.2	0.92	18.6	2.1	7.6	2.9	23	12	1MA7164-2BB	72	0.040	13	
12.5	T3	160 L	2940	41	IE1	88.0	88.0	87.0	0.93	23	2.3	7.6	3.0	21	9	1MA7166-2BB	82	0.052	13	
2-pole: 3000 rpm at 50 Hz, temperature classes T1 and T2 with double rating plate (T1/T2 and T3)																				
6.5	T1,T2	132 S	2900	21	IE1	85.4	85.4	84.4	0.93	12.5	1.9	6.5	2.3	12	7	1MA7131-2BB	44	0.021	13	
9.5	T1,T2	160 M	2920	31	IE1	87.0	87.0	86.0	0.91	18.1	1.7	6.0	2.4	24	-	1MA7163-2BB	67	0.034	13	
13	T1,T2	160 M	2910	43	IE1	88.2	88.2	87.2	0.92	24.5	1.6	5.8	2.2	16	-	1MA7164-2BB	72	0.040	13	
16	T1,T2	160 L	2910	53	IE1	88.9	88.9	87.9	0.93	30	1.8	5.8	2.3	15	-	1MA7166-2BB	82	0.052	13	
Voltages					No. of poles	Motor type		Version								Order code(s)				
50 Hz	230 VΔ/400 VY	400 VΔ/690 VY	500 VY	500 VΔ	2	1MA7060 ... 166	Standard										1	-		
					2	1MA7070 ... 166	Standard										6	-		
					2	1MA7060 ... 166	Without additional charge												3	-
					2	1MA7106 ... 166	Without additional charge												5	-
Further voltages			For add. charges, voltage codes, order codes and descr., see suppl. and special versions.																	
Note: For delta connection, overload protection with phase-failure protection must be provided.																				
Types of construction					No. of poles	Motor type		Version								Order code(s)				
Without flange			IM B3/6/7/8, IM V6 ³⁾		2	1MA7060 ... 166	Standard										0			
With flange			IM B5, IM V3 ³⁾		2	1MA7060 ... 166	With additional charge										1			
			IM V1 with protective cover ^{3) 4)}		2	1MA7060 ... 166	With additional charge										4			
			IM B35		2	1MA7060 ... 166	With additional charge										6			
With standard flange			IM B14, IM V19 ³⁾		2	1MA7060 ... 166	With additional charge										2			
			IM B34		2	1MA7060 ... 166	With additional charge										7			
With special flange			IM B14, IM V19 ³⁾		2	1MA7060 ... 166	With additional charge										3			
Further types of construction			For additional charges, type of construction codes and descriptions, see supplements and special versions.																	
Special versions																		Order code(s)		
Options			For additional charges, order codes and descriptions, see supplements and special versions.											1MA7 ... - ...		-Z ...+...+...+...				
Motor type 1MA7, 2-pole																				
060-2 063-2 070-2 073-2 080-2 083-2 090-2 096-2 106-2 113-2 130-2 131-2 163-2 164-2 166-2																				
Noise at rated output and 50 Hz – measuring-surface sound pressure level L_{pFA, 50 Hz} and sound power level L_{WA, 50 Hz}																				
L _{pFA, 50 Hz}	dB(A)		49	49	52	52	56	56	60	60	62	63	68	68	70	70	70			
L _{WA, 50 Hz}	dB(A)		60	60	63	63	67	67	72	72	74	75	80	80	82	82	82			

¹⁾ For motors 1MA7164 and 1MA7166 with double rating plate, utilization in accordance with thermal class 155 (temperature class F).

²⁾ In the following versions, the T3 output is stamped on the rating plate as standard:
 – Order code A11/A12
 – Voltage code "9"
 Alternatively: order code C30 "T1/T2 output on the rating plate"

³⁾ The following applies for explosion-proof motors: In the case of the types of construction with shaft extension down, the version "with protective cover" is required. For types of construction with shaft extension pointing upwards, a suitable cover must be implemented to prevent small parts from falling into the fan cover (see the standard IEC/EN 60079-0). The cover must not block the cooling air flow.

⁴⁾ The "Second shaft extension" option, order code K16 is not possible.

SIMOTICS XP 1MA Explosion-Proof Motors

Motors for Zone 1 in type of protection Ex e

Self-ventilated motors with Standard Efficiency IE1
Aluminum series 1MA7



Selection and ordering data (continued)

P _{rated} 50 Hz	Temperature class	Frame size	Operating values at rated output													Aluminum series 1MA7 – IE1 version for Zone 1 in type of protection Ex e	m _{IM B3 J}		Torque class
			η _{rated} 50 Hz	T _{rated} 50 Hz	IE class	η _{rated} 50 Hz, 4/4	η _{rated} 50 Hz, 3/4	η _{rated} 50 Hz, 2/4	COS- φ _{rated} 50 Hz, 4/4	I _{rated} 50 Hz, 400 V	T _{L/R} I _{rated}	I _{L/R} I _{rated}	T _B I _{rated}	t _E 50 Hz, T1/T2	t _E 50 Hz, T3		Order No.	kg	
kW		FS	rpm	Nm	%	%	%	%	A				s	s					
4-pole: 1500 rpm at 50 Hz, temperature classes T1 to T3																			
0.12	T1,T2,T3	63 M	1375	0.83	–	52.5	51.0	46.5	0.66	0.52	1.9	2.6	1.9	35	30	1MA7060-4BB	4.0	0.00030	13
0.18	T1,T2,T3	63 M	1330	1.3	–	54.6	53.1	48.6	0.75	0.62	1.9	2.7	1.9	30	25	1MA7063-4BB	4.0	0.00040	13
0.25	T1,T2,T3	71 M	1310	1.8	–	57.7	56.2	51.7	0.77	0.8	1.9	3.1	1.9	50	40	1MA7070-4BB	6.0	0.00060	13
0.37	T3	71 M	1355	2.6	–	64.8	63.8	59.8	0.74	1.1	1.9	3.7	2.1	35	29	1MA7073-4BB	7.0	0.00083	13
0.55	T1,T2,T3	80 M	1390	3.8	–	70.9	70.9	66.9	0.73	1.59	2.4	4.6	2.5	24	21	1MA7080-4BA	9.0	0.0015	16
0.75	T1,T2,T3	80 M	1395	5.1	IE1	72.1	72.1	68.1	0.75	2.05	2.6	4.8	2.6	19	16	1MA7083-4BA	11	0.0018	16
1	T1,T2,T3	90 S	1420	6.7	IE1	74.3	74.3	71.3	0.78	2.5	2.2	5.4	2.5	16	14	1MA7090-4BA	13	0.0028	16
1.35	T1,T2,T3	90 L	1415	9.1	IE1	76.5	77.0	73.5	0.82	3.1	2.3	5.9	2.5	15	13	1MA7096-4BA	16	0.0035	16
2	T1,T2,T3	100 L	1420	14	IE1	79.1	79.6	77.1	0.82	4.5	2.5	6.4	2.7	13	11	1MA7106-4BA	20	0.0048	16
2.5	T1,T2,T3	100 L	1415	17	IE1	80.5	80.5	79.5	0.83	5.5	2.6	6.4	2.7	12	10	1MA7107-4BA	23	0.0058	16
3.6	T1,T2,T3	112 M	1435	24	IE1	82.5	82.5	81.5	0.83	7.5	2.6	7.2	2.9	10	9	1MA7113-4BA	29	0.011	16
5	T1,T2,T3	132 S	1455	33	IE1	84.2	84.2	83.2	0.82	10.4	2.7	6.6	3.2	10	9	1MA7130-4BA	42	0.021	16
6.8	T1,T2,T3	132 M	1460	44	IE1	85.6	85.6	84.6	0.82	14	3.0	7.7	3.6	11	9	1MA7133-4BA	61	0.027	16
10	T1,T2,T3	160 M	1460	65	IE1	87.2	87.2	86.2	0.87	19.7	2.3	6.5	2.7	17	10	1MA7163-4BB	67	0.052	13
13.5	T1,T2,T3	160 L	1460	88	IE1	88.3	88.3	87.3	0.84	27	2.4	6.9	3.0	18	9	1MA7166-4BB	107	0.057	13

Voltages		No. of poles	Motor type	Version	Order code(s)
50 Hz	230 VΔ/400 VY	4	1MA7060 ... 166	Standard	1 –
	400 VΔ/690 VY	4	1MA7070 ... 166	Standard	6 –
	500 VY	4	1MA7070 ... 166	Without additional charge	3 –
	500 VΔ	4	1MA7106 ... 166	Without additional charge	5 –
Further voltages		For add. charges, voltage codes, order codes and descr., see suppl. and special versions.			9 ...

Note: For delta connection, overload protection with phase-failure protection must be provided.

Types of construction		No. of poles	Motor type	Version	Order code(s)
Without flange	IM B3/6/7/8, IM V6 ²⁾	4	1MA7060 ... 166	Standard	0 –
With flange	IM B5, IM V3 ²⁾	4	1MA7060 ... 166	With additional charge	1 –
	IM V1 with protective cover ^{2) 3)}	4	1MA7060 ... 166	With additional charge	4 –
	IM B35	4	1MA7060 ... 166	With additional charge	6 –
With standard flange	IM B14, IM V19 ²⁾	4	1MA7060 ... 166	With additional charge	2 –
	IM B34	4	1MA7060 ... 166	With additional charge	7 –
With special flange	IM B14, IM V19 ²⁾	4	1MA7060 ... 166	With additional charge	3 –
Further types of construction		For additional charges, type of construction codes and descriptions, see supplements and special versions.			9 ...

Special versions		Order code(s)
Options	For additional charges, order codes and descriptions, see supplements and special versions.	1MA7 ... -...-Z ...+...+...+...

Motor type 1MA7, 4-pole															
	060-4	063-4	070-4	073-4	080-4	083-4	090-4	096-4	106-4	107-4	113-4	130-4	133-4	163-4	166-4

Noise at rated output and 50 Hz – measuring-surface sound pressure level L _{pfA, 50 Hz} and sound power level L _{WA, 50 Hz}															
L _{pfA, 50 Hz}	dB(A)														
L _{pfA, 50 Hz}	42	42	44	44	47	47	48	48	53	53	53	62	62	66	66
L _{WA, 50 Hz}	53	53	55	55	58	58	60	60	65	65	65	74	74	78	78

1) For motors 1MA7164 and 1MA7166 with double rating plate, utilization in accordance with thermal class 155 (temperature class F).

2) The following applies for explosion-proof motors: In the case of the types of construction with shaft extension down, the version "with protective cover" is required. For types of construction with shaft extension pointing upwards, a suitable cover must be implemented to prevent small parts from falling into the fan cover (see the standard IEC/EN 60079-0). The cover must not block the cooling air flow.

3) The "Second shaft extension" option, order code K16 is not possible.

SIMOTICS XP 1MA Explosion-Proof Motors

Motors for Zone 1 in type of protection Ex e

IE1

Self-ventilated motors with Standard Efficiency IE1 Aluminum series 1MA7

Selection and ordering data (continued)

P _{rated} , 50 Hz	Tempera- ture class	Frame size	Operating values at rated output											Aluminum series		m _{IM B3 J}	Torque class		
			n _{rated} , 50 Hz	T _{rated} , 50 Hz	IE class	η _{rated} , 50 Hz, 4/4	η _{rated} , 50 Hz, 3/4	η _{rated} , 50 Hz, 2/4	COS- φ _{rated} , 50 Hz, 4/4	I _{rated} , 50 Hz, 400 V	T _{L/R} / I _{rated}	I _{L/R} / I _{rated}	T _B / I _{rated}	t _E , 50 Hz, T1/T2	t _E , 50 Hz, T3			1MA7 – IE1 version for Zone 1 in type of protection Ex e	Order No.
<ul style="list-style-type: none"> Cooling: Self-ventilated (IC 411) Efficiency: Standard Efficiency IE1 in accordance with IEC 60034-30 Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B) 																			
6-pole: 1000 rpm at 50 Hz, temperature classes T1 to T3																			
0.25	T1,T2,T3	71 M	850	2.8	–	60.7	59.2	54.7	0.72	0.81	2.2	3.0	2.1	130	70	1MA7073-6BA	7.0	0.00090	16
0.37	T1,T2,T3	80 M	920	3.6	–	65.8	64.8	60.8	0.70	1.14	2.3	3.6	2.4	60	55	1MA7080-6BA	9.0	0.0015	16
0.55	T1,T2,T3	80 M	930	5.6	–	67.5	67.0	63.5	0.67	1.75	2.4	4.0	2.4	30	27	1MA7083-6BA	13	0.0025	16
0.65	T1,T2,T3	90 S	915	6.8	–	68.9	68.9	64.9	0.75	1.8	2.3	3.9	2.4	35	30	1MA7090-6BA	14	0.0028	16
0.95	T1,T2,T3	90 L	910	9.9	IE1	71.9	71.9	67.9	0.75	2.6	2.3	4.1	2.4	22	19	1MA7096-6BA	16	0.0038	16
1.3	T1,T2,T3	100 L	935	13	IE1	74.2	74.2	71.2	0.73	3.35	2.4	4.8	2.5	26	26	1MA7106-6BA	20	0.0063	16
1.9	T1,T2,T3	112 M	940	19	IE1	76.8	77.3	73.8	0.76	4.7	2.3	5.0	2.5	19	16	1MA7113-6BB	24	0.011	13
2.6	T1,T2,T3	132 S	945	26	IE1	78.8	79.3	76.8	0.75	6.5	1.8	4.4	2.4	21	18	1MA7130-6BB	36	0.015	13
3.5	T1,T2,T3	132 M	955	35	IE1	80.6	80.6	79.6	0.72	9.0	2.3	5.1	2.8	16	13	1MA7133-6BB	41	0.019	13
4.8	T1,T2,T3	132 M	950	48	IE1	82.4	82.4	81.4	0.76	11.4	2.4	5.6	2.8	13	11	1MA7134-6BB	50	0.025	13
6.6	T1,T2,T3	160 M	960	65	IE1	84.0	84.0	83.0	0.75	14.9	2.7	6.4	3.1	18	9	1MA7163-6BB	70	0.041	13
9.7	T1,T2,T3	160 L	965	96	IE1	85.9	85.9	84.9	0.76	21	2.8	7.7	2.2	15	8	1MA7166-6BB	105	0.055	13

Voltages		No. of poles	Motor type	Version	Order code(s)
50 Hz	230 VΔ/400 VY	6	1MA7073 ... 166	Standard	1 –
	400 VΔ/690 VY	6	1MA7073 ... 166	Standard	3 –
	500 VY	6	1MA7073 ... 166	Without additional charge	6 –
	500 VΔ	6	1MA7106 ... 166	Without additional charge	5 –
Further voltages ¹⁾		For add. charges, voltage codes, order codes and descriptions, see suppl. and special versions.			9 ...

Note: For delta connection, overload protection with phase-failure protection must be provided.

Types of construction		No. of poles	Motor type	Version	Order code(s)
Without flange	IM B3/6/7/8, IM V6 ¹⁾	6	1MA7060 ... 166	Standard	0 –
With flange	IM B5, IM V3 ¹⁾	6	1MA7060 ... 166	With additional charge	1 –
	IM V1 with protective cover ^{1) 2)}	6	1MA7060 ... 166	With additional charge	4 –
	IM B35	6	1MA7060 ... 166	With additional charge	6 –
With standard flange	IM B14, IM V19 ¹⁾	6	1MA7060 ... 166	With additional charge	2 –
	IM B34	6	1MA7060 ... 166	With additional charge	7 –
With special flange	IM B14, IM V19 ¹⁾	6	1MA7060 ... 166	With additional charge	3 –
Further types of construction	For additional charges, type of construction codes and descriptions, see supplements and special versions				9 ...

Special versions		Order code(s)
Options	For additional charges, order codes and descriptions, see supplements and special versions.	1MA7 ... - ... -Z ...+...+...+...

Motor type 1MA7, 6-pole											
073-6	080-6	083-6	090-6	096-6	106-6	113-6	130-6	133-6	134-6	163-6	166-6

Noise at rated output and 50 Hz – measuring-surface sound pressure level L _{pfA, 50 Hz} and sound power level L _{WA, 50 Hz}												
L _{pfA, 50 Hz}	dB(A)	39	40	40	43	43	47	52	63	63	66	66
L _{WA, 50 Hz}	dB(A)	50	51	51	55	55	59	64	75	75	78	78

¹⁾ The following applies for explosion-proof motors: In the case of the types of construction with shaft extension down, the version "with protective cover" is required. For types of construction with shaft extension pointing upwards, a suitable cover must be implemented to prevent small parts from falling into the fan cover (see the standard IEC/EN 60079-0). The cover must not block the cooling air flow.

²⁾ The "Second shaft extension" option, order code K16 is not possible.