

Main spindle motors

SIMOTICS M asynchronous and synchronous motors for SINAMICS S120

SIMOTICS M-1PH8 synchronous motors SH 132 – Forced ventilation/Water cooling

Selection and ordering data

Rated speed	Speed, max. ¹⁾	Operating speed, max. ²⁾	Rated power ³⁾	Rated torque ³⁾	Static torque	Synchronous motors SIMOTICS M-1PH8
n_{rated} rpm	n_{max} rpm	$n_{max, Inv}$ rpm	P_{rated} kW (HP)	M_{rated} Nm (lb _f -ft)	M_0 Nm (lb _f -ft)	Order No.
Shaft height 132 – Forced ventilation – Line voltage 400 V 3 AC, operation on Active Line Module						
1500	4500	2550	15.7 (21.1)	100 (73.8)	105 (77.4)	1PH8131-2 F ■■■-■■■1
2500	4500	4050	25 (33.5)	96 (70.8)	105 (77.4)	1PH8131-2 L ■■■-■■■1
1500	4500	3050	19.9 (26.7)	127 (93.7)	131 (96.6)	1PH8133-2 F ■■■-■■■1
2500	4500	3950	31.7 (42.5)	121 (89.2)	131 (96.6)	1PH8133-2 L ■■■-■■■1
1500	4500	2450	23.7 (31.8)	151 (111)	158 (117)	1PH8135-2 F ■■■-■■■1
2000	4500	3500	31.4 (42.1)	150 (111)	158 (117)	1PH8135-2 G ■■■-■■■1
1500	4500	2700	30.6 (41.0)	195 (144)	203 (150)	1PH8137-2 F ■■■-■■■1
2500	4500	3900	48.4 (64.9)	185 (136)	203 (150)	1PH8137-2 L ■■■-■■■1
3000	4500	4500	57.5 (77.1)	183 (135)	203 (150)	1PH8137-2 M ■■■-■■■1
Shaft height 132 – Water cooling – Line voltage 400 V 3 AC, operation on Active Line Module						
1500	4500	3150	17.6 (23.6)	112 (82.6)	115 (84.8)	1PH8131-2 F 2 ■■■-■■■1
2500	4500	4500	28.5 (38.2)	109 (80.4)	115 (84.8)	1PH8131-2 L 2 ■■■-■■■1
1500	4500	2450	23.1 (31.0)	147 (108)	155 (114)	1PH8133-2 F 2 ■■■-■■■1
2000	4500	3450	30.6 (41.0)	146 (108)	155 (114)	1PH8133-2 G 2 ■■■-■■■1
1500	4500	2650	29.7 (39.8)	189 (139)	196 (145)	1PH8135-2 F 2 ■■■-■■■1
2000	4500	3800	39 (52.3)	186 (137)	196 (145)	1PH8135-2 G 2 ■■■-■■■1
1500	4500	2350	34.1 (45.7)	217 (160)	226 (167)	1PH8137-2 F 2 ■■■-■■■1
2000	4500	3500	44.4 (59.5)	212 (156)	226 (167)	1PH8137-2 G 2 ■■■-■■■1
1500	4500	3500	44.9 (60.2)	286 (211)	290 (214)	1PH8138-2 F 2 ■■■-■■■1
2000	4500	3900	59.7 (79.5)	285 (209)	290 (214)	1PH8138-2 G 2 ■■■-■■■1

For versions, see Order No.
supplement and options.

SIMOTICS M asynchronous and synchronous motors for SINAMICS S120

SIMOTICS M-1PH8 synchronous motors
SH 132 – Forced ventilation/Water cooling

Motor type (repeated)	Efficiency	Moment of inertia	Weight, approx.	Rated current ³⁾	Stall current	Terminal box	SINAMICS S120 Motor Module	
	η %	J kgm ² (lb _r -in-s ²)	m kg (lb)	I_{rated} A	I_0 A	Type	Rated output current ³⁾⁴⁾ I_{rated} A	For additional versions and components, see chapter SINAMICS S120 drive system Order No.
1PH8131-2.F...	94.4	0.0446 (0.39)	85 (187)	29	30	gk833	30	6SL312-1TE23-0AA3
1PH8131-2.L...	94.8	0.0446 (0.39)	85 (187)	44	48	gk833	45	6SL312-1TE24-5AA3
1PH8133-2.F...	94.8	0.0600 (0.53)	103 (227)	44	45	gk833	45	6SL312-1TE24-5AA3
1PH8133-2.L...	95.1	0.0600 (0.53)	103 (227)	55	59	gk833	60	6SL312-1TE26-0AA3
1PH8135-2.F...	95.2	0.0750 (0.66)	120 (265)	43	44	gk833	45	6SL312-1TE24-5AA3
1PH8135-2.G...	95.3	0.0750 (0.66)	120 (265)	59	63	gk833	60	6SL312-1TE26-0AA3
1PH8137-2.F...	95.2	0.0885 (0.78)	136 (300)	60	62	gk833	60	6SL312-1TE26-0AA3
1PH8137-2.L...	95.4	0.0885 (0.78)	136 (300)	83	89 ⁵⁾	gk833	85	6SL312-1TE28-5AA3
1PH8137-2.M...	95.3	0.0885 (0.78)	136 (300)	104	115 ⁵⁾	gk833	132	6SL312-1TE31-3AA3
1PH8131-2.F2...	94.6	0.0446 (0.39)	102 (225)	40	41	gk843	45	6SL312-1TE24-5AA3
1PH8131-2.L2...	94.8	0.0446 (0.39)	102 (225)	57	60	gk843	60	6SL312-1TE26-0AA3
1PH8133-2.F2...	94.7	0.0600 (0.53)	120 (265)	42	43	gk843	45	6SL312-1TE24-5AA3
1PH8133-2.G2...	95.0	0.0600 (0.53)	120 (265)	57	61	gk843	60	6SL312-1TE26-0AA3
1PH8135-2.F2...	95.0	0.0750 (0.66)	138 (304)	57	59	gk843	60	6SL312-1TE26-0AA3
1PH8135-2.G2...	95.2	0.0750 (0.66)	138 (304)	81	85 ⁵⁾	gk843	85	6SL312-1TE28-5AA3
1PH8137-2.F2...	95.1	0.0885 (0.78)	153 (337)	58	60	gk843	60	6SL312-1TE26-0AA3
1PH8137-2.G2...	95.4	0.0885 (0.78)	153 (337)	85	90 ⁵⁾	gk843	85	6SL312-1TE28-5AA3
1PH8138-2.F2...	95.8	0.0885 (0.78)	156 (344)	118	120 ⁵⁾	gk843	132	6SL312-1TE31-3AA3
1PH8138-2.G2...	96.0	0.0885 (0.78)	156 (344)	131	133 ⁵⁾	gk843	132	6SL312-1TE31-3AA3

Format:

Booksize

1

Cooling:

Internal air cooling
External air cooling

0

1

Motor Module:

Single Motor Module

1

1) Maximum speed that must not be exceeded.

2) Maximum permissible operating speed based on the induced voltage in the motor and the voltage stability of the Motor Module (without protective circuit).

3) For duty type S1.

4) The rated pulse frequencies must be taken into account. The rated motor data is valid for 4 kHz.

5) Above approx. 85 A, connection type "Power connector top" is not possible (15th data position E to H).

Main spindle motors

SIMOTICS M asynchronous and synchronous motors for SINAMICS S120

SIMOTICS M-1PH8 synchronous motors SH 160 – Forced ventilation/Water cooling

Selection and ordering data

Rated speed	Speed, max. ¹⁾	Operating speed, max. ²⁾	Rated power ³⁾	Rated torque ³⁾	Static torque	Synchronous motors SIMOTICS M-1PH8
n_{rated} rpm	n_{max} rpm	$n_{max, Inv}$ rpm	P_{rated} kW (HP)	M_{rated} Nm (lb _f -ft)	M_0 Nm (lb _f -ft)	Order No.
Shaft height 160 – Forced ventilation – Line voltage 400 V 3 AC, operation on Active Line Module						
1500	4000	2600	61 (81.8)	390 (288)	440 (325)	1PH8165-2 ■ F ■ ■ - ■ ■ ■ 1
2500	4000	3900	84 (112.6)	320 (236)	440 (325)	1PH8165-2 ■ L ■ ■ - ■ ■ ■ 1
1500	4000	2600	69 (92.5)	435 (321)	500 (369)	1PH8167-2 ■ F ■ ■ - ■ ■ ■ 1
2500	4000	4000	95 (127.4)	360 (266)	500 (369)	1PH8167-2 ■ L ■ ■ - ■ ■ ■ 1
Shaft height 160 – Water cooling – Line voltage 400 V 3 AC, operation on Active Line Module						
1500	4000	2400	59 (79.1)	375 (277)	440 (325)	1PH8164-2 ■ F 2 ■ - ■ ■ ■ 1
2500	4000	4000	88 (118)	335 (247)	440 (325)	1PH8164-2 ■ L 2 ■ - ■ ■ ■ 1
1500	4000	2600	74 (99.2)	475 (350)	550 (406)	1PH8166-2 ■ F 2 ■ - ■ ■ ■ 1
2500	4000	3900	102 (136.8)	390 (288)	550 (406)	1PH8166-2 ■ L 2 ■ - ■ ■ ■ 1
1500	4000	2600	84 (112.6)	530 (391)	620 (457)	1PH8168-2 ■ F 2 ■ - ■ ■ ■ 1
2500	4000	4000	119 (159.6)	455 (336)	520 (384)	1PH8168-2 ■ L 2 ■ - ■ ■ ■ 1

For versions, see Order No.
supplement and options.

Main spindle motors

SIMOTICS M asynchronous and synchronous motors for SINAMICS S120

SIMOTICS M-1PH8 synchronous motors
SH 160 – Forced ventilation/Water cooling

Motor type (repeated)	Efficiency	Moment of inertia	Weight, approx.	Rated current	Stall current ³⁾	Terminal box	SINAMICS S120 Motor Module	
	η	J	m	I_{rated}	I_0		Rated output current ³⁾⁴⁾	For additional versions and components, see chapter SINAMICS S120 drive system
	%	kgm ² (lb _F -in-s ²)	kg (lb)	A	A	Type	I_{rated} A	Order No.
1PH8165-2.F...	94	0.216 (1.91)	218 (481)	119	126	gk874	132	6SL312 -1TE31-3AA3
1PH8165-2.L...	95.5	0.216 (1.91)	218 (481)	148	188	gk874	200	6SL312 -1TE32-0AA4
1PH8167-2.F...	94	0.244 (2.16)	240 (529)	133	143	gk874	132 ⁵⁾	6SL312 -1TE31-3AA3
1PH8167-2.L...	95.5	0.244 (2.16)	240 (529)	177	230	gk874	200 ⁵⁾	6SL312 -1TE32-0AA4
1PH8164-2.F2...	94	0.175 (1.55)	224 (494)	111	118	gk874	132	6SL312 -1TE31-3AA3
1PH8164-2.L2...	95.5	0.175 (1.55)	224 (494)	165	205	gk874	200 ⁵⁾	6SL312 -1TE32-0AA4
1PH8166-2.F2...	94	0.216 (1.91)	257 (567)	148	159	gk874	200	6SL312 -1TE32-0AA4
1PH8166-2.L2...	95.5	0.216 (1.91)	257 (567)	188	240	gk874	200 ⁵⁾	6SL312 -1TE32-0AA4
1PH8168-2.F2...	94	0.244 (2.16)	279 (615)	169	179	gk874	200	6SL312 -1TE32-0AA4
1PH8168-2.L2...	95.5	0.244 (2.16)	279 (615)	225	240	gk874	260 ⁵⁾	6SL332 0-1TE32-6AA3
Format:								
Booksize							1	
Chassis							3	
Cooling:								
Internal air cooling								0
External air cooling								1
Motor Module:								
Single Motor Module								1

¹⁾ Maximum speed that must not be exceeded.

²⁾ Maximum permissible operating speed based on the induced voltage in the motor and the voltage stability of the Motor Module (without protective circuit).

³⁾ For duty type S1.

⁴⁾ The rated pulse frequencies must be taken into account. The rated motor data is valid for 4 kHz.

⁵⁾ At 4 kHz, the rated output current of the Motor Module is lower than the rated motor current or the motor stall current.

Main spindle motors

SIMOTICS M asynchronous and synchronous motors for SINAMICS S120

SIMOTICS M-1PH8 synchronous motors SH 180/SH 225 – Forced ventilation

Selection and ordering data

Rated speed	Speed, max. ¹⁾	Operating speed, max. ²⁾	Rated power ³⁾	Rated torque ³⁾	Static torque	Synchronous motors SIMOTICS M-1PH8
n_{rated} rpm	n_{max} rpm	$n_{max, Inv}$ rpm	P_{rated} kW (HP)	M_{rated} Nm (lb _f -ft)	M_0 Nm (lb _f -ft)	Order No.
Shaft height 180 – Forced ventilation – Line voltage 400 V 3 AC, operation on Active Line Module						
700	3800	1450	33 (44.3)	450 (332)	480 (354)	1PH8184-2 ■■■■-■■■1
1000	3800	1950	46 (61.7)	439 (324)	480 (354)	1PH8184-2 ■■■■-■■■1
1500	3800	2700	70 (93.9)	446 (329)	480 (354)	1PH8184-2 ■■■■-■■■1
700	3800	1450	44 (59)	600 (443)	640 (472)	1PH8186-2 ■■■■-■■■1
1000	3800	2050	62 (83.1)	592 (437)	640 (472)	1PH8186-2 ■■■■-■■■1
1500	3800	2950	93 (125)	592 (437)	640 (472)	1PH8186-2 ■■■■-■■■1
Shaft height 225 – Forced ventilation – Line voltage 400 V 3 AC, operation on Active Line Module						
700	3500	1450	48 (64.4)	655 (483)	708 (522)	1PH8224-2 ■■■■-■■■1
1000	3500	2050	68 (91.2)	649 (479)	708 (522)	1PH8224-2 ■■■■-■■■1
1500	3500	2900	101 (135)	643 (474)	708 (522)	1PH8224-2 ■■■■-■■■1
700	3500	1550	64 (85.8)	873 (644)	944 (696)	1PH8226-2 ■■■■-■■■1
1000	3500	1950	91 (122)	869 (641)	944 (696)	1PH8226-2 ■■■■-■■■1
1500	3500	2700	134 (180)	853 (629)	944 (696)	1PH8226-2 ■■■■-■■■1
700	3500	1450	80 (107)	1091 (805)	1180 (870)	1PH8228-2 ■■■■-■■■1
1000	3500	1950	113 (152)	1079 (796)	1180 (870)	1PH8228-2 ■■■■-■■■1
1500	3500	2900	168 (225)	1070 (789)	1180 (870)	1PH8228-2 ■■■■-■■■1

For versions, see Order No.
supplement and options.

SIMOTICS M asynchronous and synchronous motors for SINAMICS S120

SIMOTICS M-1PH8 synchronous motors
SH 180/SH 225 – Forced ventilation

Motor type (repeated)	Efficiency	Moment of inertia	Weight, approx.	Rated current	Stall current ³⁾	Terminal box	SINAMICS S120 Motor Module	
	η	J	m	I_{rated}	I_0		Rated output current ³⁾⁴⁾	For additional versions and components, see chapter SINAMICS S120 drive system
	%	kgm ² (lb _F -in-s ²)	kg (lb)	A	A	Type	I_{rated} A	Order No.
1PH8184-2.C...	93.2	0.46 (4.07)	330 (728)	80	84	1XB7322-P05	85	6SL312-1TE28-5AA3
1PH8184-2.D...	93.7	0.46 (4.07)	330 (728)	106	115	1XB7322-P05	132	6SL312-1TE31-3AA3
1PH8184-2.F...	95.1	0.46 (4.07)	330 (728)	148	157	1XB7322-P05	200	6SL312-1TE32-0AA4
1PH8186-2.C...	92.4	0.60 (5.31)	400 (882)	108	115	1XB7322-P05	132	6SL312-1TE31-3AA3
1PH8186-2.D...	94.3	0.60 (5.31)	400 (882)	148	157	1XB7322-P05	200	6SL312-1TE32-0AA4
1PH8186-2.F...	95.2	0.60 (5.31)	405 (893)	215	229	1XB7422-P06	260	6SL3320-1TE32-6AA3
1PH8224-2.C...	96.1	1.28 (11.3)	580 (1279)	120	128	1XB7322-P05	132	6SL312-1TE31-3AA3
1PH8224-2.D...	96.4	1.28 (11.3)	580 (1279)	170	183	1XB7322-P05	200	6SL312-1TE32-0AA4
1PH8224-2.F...	96.5	1.28 (11.3)	580 (1279)	235	256	1XB7422-P06	260	6SL3320-1TE32-6AA3
1PH8226-2.C...	96.3	1.66 (14.7)	700 (1544)	170	183	1XB7322-P05	200	6SL312-1TE32-0AA4
1PH8226-2.D...	96.7	1.66 (14.7)	700 (1544)	215	233	1XB7422-P06	260	6SL3320-1TE32-6AA3
1PH8226-2.F...	96.7	1.66 (14.7)	700 (1544)	295	320	1XB7700-P02	310 ⁵⁾	6SL3320-1TE33-1AA3
1PH8228-2.C...	96.5	2.02 (17.9)	810 (1786)	200	213	1XB7322-P05	200 ⁵⁾	6SL312-1TE32-0AA4
1PH8228-2.D...	96.8	2.02 (17.9)	810 (1786)	265	284	1XB7422-P06	310	6SL3320-1TE33-1AA3
1PH8228-2.F...	96.7	2.02 (17.9)	810 (1786)	395	427	1XB7700-P02	490	6SL3320-1TE35-0AA3

Format:	
Booksize	1
Chassis	3
Cooling:	
Internal air cooling	0
External air cooling	1
Motor Module:	
Single Motor Module	1

¹⁾ Maximum speed that must not be exceeded.

²⁾ Maximum permissible operating speed based on the induced voltage in the motor and the voltage stability of the Motor Module (without protective circuit).

³⁾ For duty type S1.

⁴⁾ The rated pulse frequencies must be taken into account. The rated motor data is valid for 4 kHz (booksize format) or 2 kHz (chassis format).

⁵⁾ At 2 kHz, the rated output current of the Motor Module is lower than the rated motor current or the motor stall current.

Main spindle motors

SIMOTICS M asynchronous and synchronous motors for SINAMICS S120

SIMOTICS M-1PH8 synchronous motors SH 180/SH 225 – Water cooling

Selection and ordering data

Rated speed	Speed, max. ¹⁾	Operating speed, max. ²⁾	Rated power ³⁾	Rated torque ³⁾	Static torque	Synchronous motors SIMOTICS M-1PH8
n_{rated} rpm	n_{max} rpm	$n_{max, Inv}$ rpm	P_{rated} kW (HP)	M_{rated} Nm (lb _f -ft)	M_0 Nm (lb _f -ft)	Order No.
Shaft height 180 – Water cooling – Line voltage 400 V 3 AC, operation on Active Line Module						
700	3800	1450	42 (56.3)	573 (423)	590 (435)	1PH8184-2 C2 - - - - 1
1000	3800	1950	61 (81.8)	583 (430)	600 (443)	1PH8184-2 D2 - - - - 1
1500	3800	2700	90 (121)	573 (423)	600 (443)	1PH8184-2 F2 - - - - 1
2500	3800	3800	127 (170)	485 (358)	530 (391)	1PH8184-2 L2 - - - - 1
700	3800	1450	58 (77.8)	791 (583)	800 (590)	1PH8186-2 C2 - - - - 1
1000	3800	2050	80 (107)	764 (564)	800 (590)	1PH8186-2 D2 - - - - 1
1500	3800	2950	119 (160)	758 (559)	800 (590)	1PH8186-2 F2 - - - - 1
2500	3800	3800	168 (225)	642 (474)	720 (531)	1PH8186-2 L2 - - - - 1
Shaft height 225 – Water cooling – Line voltage 400 V 3 AC, operation on Active Line Module						
700	3500	1450	72 (96.6)	982 (724)	1007 (743)	1PH8224-2 C2 - - - - 1
1000	3500	2050	101 (135)	964 (711)	1007 (743)	1PH8224-2 D2 - - - - 1
1500	3500	2900	151 (203)	961 (709)	1007 (743)	1PH8224-2 F2 - - - - 1
2500	3500	3500	182 (244)	695 (513)	885 (631)	1PH8224-2 L2 - - - - 1
700	3500	1550	95 (127)	1296 (956)	1330 (981)	1PH8226-2 C2 - - - - 1
1000	3500	1950	135 (181)	1289 (951)	1330 (981)	1PH8226-2 D2 - - - - 1
1500	3500	2700	201 (270)	1280 (944)	1330 (981)	1PH8226-2 F2 - - - - 1
2500	3500	3500	228 (306)	871 (642)	1170 (863)	1PH8226-2 L2 - - - - 1
700	3500	1450	121 (162)	1651 (1218)	1680 (1239)	1PH8228-2 C2 - - - - 1
1000	3500	1950	169 (227)	1614 (1190)	1680 (1239)	1PH8228-2 D2 - - - - 1

For versions, see Order No.
supplement and options.

SIMOTICS M asynchronous and synchronous motors for SINAMICS S120

SIMOTICS M-1PH8 synchronous motors
SH 180/SH 225 – Water cooling

Motor type (repeated)	Efficiency	Moment of inertia	Weight, approx.	Rated current ³⁾	Stall current ³⁾	Terminal box	SINAMICS S120 Motor Module	
	η %	J kgm ² (lb _r -in-s ²)	m kg (lb)	I_{rated} A	I_0 A	Type	Rated output current ³⁾⁴⁾ I_{rated} A	For additional versions and components, see chapter SINAMICS S120 drive system Order No.
1PH8184-2.C2...	91.9	0.457 (4.04)	330 (728)	100	103	1XB7322-P05	132	6SL312-1TE31-3AA3
1PH8184-2.D2...	93.7	0.457 (4.04)	330 (728)	140	143	1XB7322-P05	200	6SL312-1TE32-0AA4
1PH8184-2.F2...	95.1	0.457 (4.04)	330 (728)	190	196	1XB7322-P05	200	6SL312-1TE32-0AA4
1PH8184-2.L2...	95.7	0.457 (4.04)	330 (728)	260	278	1XB7700-P02	260 ⁵⁾	6SL3320-1TE32-6AA0
1PH8186-2.C2...	92.4	0.599 (5.30)	400 (882)	142	143	1XB7322-P05	200	6SL312-1TE32-0AA4
1PH8186-2.D2...	94.3	0.599 (5.30)	400 (882)	190	196	1XB7322-P05	200	6SL312-1TE32-0AA4
1PH8186-2.F2...	95.2	0.599 (5.30)	400 (882)	275	285	1XB7700-P02	310	6SL3320-1TE33-1AA0
1PH8186-2.L2...	95.7	0.599 (5.30)	400 (882)	370	405	1XB7700-P02	380 ⁵⁾	6SL3320-1TE33-8AA0
1PH8224-2.C2...	94.7	1.28 (11.3)	580 (1279)	180	183	1XB7322-P05	200	6SL312-1TE32-0AA4
1PH8224-2.D2...	95.6	1.28 (11.3)	580 (1279)	255	262	1XB7700-P02	260 ⁵⁾	6SL3320-1TE32-6AA0
1PH8224-2.F2...	96.2	1.28 (11.3)	580 (1279)	355	367	1XB7700-P02	380	6SL3320-1TE33-8AA0
1PH8224-2.L2...	96.1	1.28 (11.3)	580 (1279)	365	460	1XB7700-P02	380 ⁵⁾	6SL3320-1TE33-8AA0
1PH8226-2.C2...	95.2	1.66 (14.7)	700 (1544)	255	260	1XB7700-P02	260	6SL3320-1TE32-6AA0
1PH8226-2.D2...	96.0	1.66 (14.7)	700 (1544)	325	330	1XB7700-P02	380	6SL3320-1TE33-8AA0
1PH8226-2.F2...	96.5	1.66 (14.7)	700 (1544)	445	454	1XB7700-P02	490	6SL3320-1TE35-0AA0
1PH8226-2.L2...	96.2	1.66 (14.7)	700 (1544)	400	532	1XB7700-P02	490	6SL3320-1TE35-0AA0
1PH8228-2.C2...	95.5	2.02 (17.9)	810 (1786)	305	306	1XB7700-P02	310	6SL3320-1TE33-1AA0
1PH8228-2.D2...	96.2	2.02 (17.9)	810 (1786)	395	408	1XB7700-P02	490	6SL3320-1TE35-0AA0

Format:		
Booksize	1	
Chassis	3	
Cooling:		
Internal air cooling	0	
External air cooling	1	
Motor Module:		
Single Motor Module	1	

1) Maximum speed that must not be exceeded.

2) Maximum permissible operating speed based on the induced voltage in the motor and the voltage stability of the Motor Module (without protective circuit).

3) For duty type S1.

4) The rated pulse frequencies must be taken into account. The rated motor data is valid for 4 kHz (booksize format) or 2 kHz (chassis format).

5) At 2 kHz, the rated output current of the Motor Module is lower than the rated motor current or the motor stall current.

Main spindle motors

SIMOTICS M asynchronous and synchronous motors for SINAMICS S120

SIMOTICS M-1PH8 synchronous motors – Order No. supplement SH 132/SH 160 – Forced ventilation/Water cooling

Selection and ordering data

Data position of the Order No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16									
Shaft height 132	1	P	H	8	1	3	.	–	2	■	.	■	■	–	■	■	■	1	–	Z					
Shaft height 160	1	P	H	8	1	6	.	–	2	■	.	■	■	–	■	■	■	1	–	Z					
Overall length																									
Synchronous version without brake									2																
Encoder systems for motors without DRIVE-CLiQ interface										M E															
Incremental encoder sin/cos 1 V _{pp} 2048 S/R with C and D tracks (encoder IC2048S/R)																									
Absolute encoder 2048 S/R, 4096 revolutions multi-turn, with EnDat interface (AM2048S/R encoder)																									
Encoder systems for motors with DRIVE-CLiQ interface										D F															
Incremental encoder 22 bit (resolution 4194304, internal 2048 S/R) + commutation position 11 bit (encoder IC22DQ)																									
Absolute encoder 22 bit + 12 bit multi-turn (encoder AM22DQ)																									
Rated speed (winding version)																									
Cooling								Degree of protection																	
Forced ventilation DE → NDE								IP55						0											
Forced ventilation NDE → DE								IP55						1											
Water cooling								IP65						2											
Type of construction																									
IM B3 (IM V5, IM V6)																0									
IM B5 (IM V1, IM V3)																2									
IM B35 (IM V15, IM V35)																3									
Shaft extension DE										Balancing															
Plain shaft										–							0								
Feather key										Full-key							1								
Feather key										Half-key							2								
Bearing version										Vibration severity acc. to Siemens ¹⁾ /EN 60034-14			Shaft and flange accuracy												
Standard										R/A			R					B							
Standard										S/A			R					C							
Advanced Lifetime ²⁾										S/A			R					Q							
Power connection (DE view)										Cable entry			Signal connection												
Terminal box top										Right			DE						A						
Terminal box top										Left			DE						B						
Terminal box top										NDE			Left						C						
Power connector top ³⁾										Right			DE						E						
Power connector top ³⁾										Left			DE						F						
Power connector top ³⁾										NDE			Left						G						
Power connector top ³⁾										DE			Left						H						
Version status																							1		
Special version (order codes are required for options)																									Z

¹⁾ For definition of the vibration severity according to Siemens, see 1PH8 Motors Configuration Manual.

²⁾ For 1PH813 limited to $n_{\max} = 4500$ rpm.
For 1PH816 limited to $n_{\max} = 4000$ rpm.

³⁾ For the 1PH813, power connector only possible up to a maximum stall current of $I_0 = 85$ A.
Power connector not possible for 1PH816.

SIMOTICS M asynchronous and synchronous motors for SINAMICS S120

SIMOTICS M-1PH8 synchronous motors – Order No. supplement
SH 180/SH 225 – Forced ventilation/Water cooling

Selection and ordering data

Data position of the Order No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16											
Shaft height 180	1	P	H	8	1	8	.	–	2	■	.	■	■	–	■	■	■	1	–	Z							
Shaft height 225	1	P	H	8	2	2	.	–	2	■	.	■	■	–	■	■	■	1	–	Z							
Overall length																											
Synchronous version without brake									2																		
Encoder systems for motors without DRIVE-CLiQ interface										M E																	
Incremental encoder sin/cos 1 V _{pp} 2048 S/R with C and D tracks (encoder IC2048S/R)																											
Absolute encoder 2048 S/R, 4096 revolutions multi-turn, with EnDat interface (AM2048S/R encoder)																											
Encoder systems for motors with DRIVE-CLiQ interface										D F																	
Incremental encoder 22 bit (resolution 4194304, internal 2048 S/R) + commutation position 11 bit (encoder IC22DQ)																											
Absolute encoder 22 bit + 12 bit multi-turn (encoder AM22DQ)																											
Rated speed (winding version)																											
Cooling		Degree of protection																									
Forced ventilation DE → NDE		IP55											0														
Forced ventilation NDE → DE		IP55											1														
Water cooling		IP55											2														
Type of construction																											
IM B3 (IM B6, IM B7, IM B8, IM V6)													0														
IM V5													1														
IM B5 (IM V3) ¹⁾²⁾													2														
IM B35 (IM V35) ²⁾													3														
IM V15 (Not possible for belt coupling) ²⁾													5														
Shaft extension DE		Balancing																									
Plain shaft		–											0														
Feather key		Full-key											1														
Feather key		Half-key											2														
Bearing version		Vibration severity acc. to Siemens ³⁾ /EN 60034-14						Shaft and flange accuracy																			
Standard		R/A						R							B												
Standard		S/A						R							C												
Increased radial forces		R/A						R							F												
Power connection (DE view)		Cable entry				Signal connection																					
Terminal box top		Right				DE									A												
Terminal box top		Left				DE									B												
Terminal box top		NDE				Right									C												
Terminal box top		DE				Right									D												
Version status																									1		
Special version (order codes are required for options)																											Z

¹⁾ For 1PH818 continuous speed $n_{\max} = 3000$ rpm.
For 1PH822 continuous speed $n_{\max} = 2500$ rpm.

²⁾ For 1PH818 with flange A450.
For 1PH822 with flange A550.

³⁾ For definition of the vibration severity according to Siemens, see 1PH8 Motors Configuration Manual.

Main spindle motors

SIMOTICS M asynchronous and synchronous motors for SINAMICS S120

SIMOTICS M-1PH8 synchronous motors

Options

Options

Order code	Description of option When ordering a motor with options, -Z should be added to the order number. The order code should also be specified for each additional required option. Order codes must not be repeated in plain text in the order.	For use with SIMOTICS M motors	
		1PH813 1PH816	1PH818 1PH822
A12	Additional PTC thermistor chain for alarm and tripping (Only possible for versions with terminal box)	✓	✓
A25	Additional KTY84 temperature sensor as reserve connected to signal terminal strip (Only possible for versions with terminal box).	✓	Standard
G14	Fan unit with air filter (Only possible if 10th data position 1)	✓	✓
K08	Encoder connector mounted opposite	–	✓
K09	Terminal box or power connector NDE <u>right</u> (For terminal box type, see selection guides or CAD CREATOR)	✓ 1)	–
	Terminal box NDE <u>right</u> , cable infeed DE/signal connection <u>top</u> (Only possible if 15th data position A)	–	✓
K10	Terminal box or power connector NDE <u>left</u> (For terminal box type, see selection guides or CAD CREATOR)	✓ 1)	–
	Terminal box NDE <u>left</u> , cable infeed DE/signal connection <u>top</u> (Only possible if 15th data position A)	–	✓
K18	Radial shaft seal ring DE ²⁾ (Not possible if 14th data position F)	✓	✓
K40	Regreasing system, DE and NDE	–	✓
K83	Rotation of the terminal box by + 90° (Only possible in combination with options K09 or K10)	–	✓
K84	Rotation of the terminal box by – 90° (Only possible in combination with options K09 or K10)	–	✓
K85	Rotation of the terminal box by + 180° (Only possible in combination with options K09 or K10)	–	✓
K90	Version with flange size A400 (Possible <u>only</u> if 12th data position is 2, 3 or 5)	–	✓ With 1PH818 only
L00	Replace terminal box (standard) with the next largest terminal box (note dimension implications, see CAD CREATOR.)	–	✓
P00	Undrilled cable entry plate	–	✓
P01	Cable entry plate 3 × M63 × 1.5 (Only with terminal box type 1XB7700-P02)	–	✓
L27	NDE bearing in insulated version	–	✓ With 1PH818 only
			Standard for 1PH822
L74	Fan version with IP65 degree of protection ³⁾	✓	–
V91	1FT6-compatible shaft extension ($d \times l$: 48 mm (1.89 in) × 82 mm (3.23 in)) (Only possible for 1PH813)	✓	–
Y84	Customer specifications on rating plate (max. 30 characters)	✓	✓
–	Paint finish (anthracite RAL 7016)	Standard	Standard
X01	Normal paint finish: Jet black RAL 9005	✓	✓
X02	Normal paint finish: Cream white RAL 9001	✓	✓
X03	Normal paint finish: Reseda green RAL 6011	✓	✓
X04	Normal paint finish: Pebble gray RAL 7032	✓	✓
X05	Normal paint finish: Sky blue RAL 5015	✓	✓
X06	Normal paint finish: Light ivory RAL 1015	✓	✓
X08	Normal paint finish: White aluminum RAL 9006	✓	✓
K24	Primer	✓	✓
		Pale green	Red brown
K23	Special paint finish "Worldwide" Primer and paint finish in anthracite RAL 7016	✓	✓
K23+X..	Special paint finish "Worldwide" Primer and paint finish can be selected from X01 to X08	✓	✓

¹⁾ With options K09 or K10, a different terminal box type is used for side mounting. gk843 is used instead of gk833.
Only possible for IM B3 or IM B35 types of construction.

²⁾ Only appropriate if oil spray or oil vapor is occasionally deposited on the sealing ring.

³⁾ Regardless of the degree of protection, at high levels of atmospheric pollution, the fan must be cleaned.

SIMOTICS M asynchronous and synchronous motors for SINAMICS S120

SIMOTICS M-1PH8 synchronous motors – Terminal box assignment, max. connectable cross-sections

More information

Terminal box type (See selection and ordering data for assignment)	Cable entry Power	External signals	Max. outer cable diameter ³⁾ mm (in)	Number of main terminals	Max. cross-section per terminal mm ²	Max. rated current ⁴⁾ A
gk833	1 × M40 × 1.5	1 × M16 × 1.5 ¹⁾	32 (1.26)	Phases: 3 × M6 Grounding: 2 × M6	1 × 35	110
gk843	1 × M50 × 1.5	1 × M16 × 1.5 ¹⁾	38 (1.50)	Phases: 3 × M6 Grounding: 2 × M6	1 × 50	133
gk874	1 × M63 × 1.5	1 × M16 × 1.5 ¹⁾	42.6 (1.68)	Phases: 3 × M10 Grounding: 2 × M6	2 × 70	240
1XB7322-P05	2 × M50 × 1.5	1 × M16 × 1.5 ²⁾	38 (1.50)	Phases: 3 × M12 Grounding: 2 × Fixing eyelet	2 × 50	210
1XB7422-P06	2 × M63 × 1.5	1 × M16 × 1.5 ²⁾	53 (2.09)	Phases: 3 × M12 Grounding: 2 × Fixing eyelet	2 × 70	270
1XB7700-P02	3 × M75 × 1.5	1 × M16 × 1.5 ²⁾	68 (2.68)	Phases: 3 × 2 × M12 Grounding: 2 × Fixing eyelet	3 × 150	700

For terminal box type **1XB7700-P02** other cable entries (power) can be ordered via P options, depending on the standard:

P00 Undrilled cable entry plate
P01 Cable entry plate 3 × M63 × 1.5

For terminal box types **1XB7322-P05** and **1XB7422-P06**, another cable entry (power) can be ordered via the P option, depending on the standard:

P00 Undrilled cable entry plate

For options **K09** or **K10**, instead of terminal box **gk833**, terminal box **gk843** is used mounted on the side.

¹⁾ Thread M16 × 1.5 arranged with 90° to signal connection. Thread only for option A12, A25 and 9th data position A (without encoder).

²⁾ Thread M16 × 1.5 arranged opposite to the signal connection (lateral to the cable entry plate); thread only for option A12 and 9th data position A (without encoder).

³⁾ Dependent on the design of the metric cable gland.

⁴⁾ Current-carrying capacity based on EN 60204-1/IEC 60364-5-52 with installation type E.