

SIMOTICS main motors

Asynchronous and synchronous motors SIMOTICS M for SINAMICS S120

SIMOTICS M-1PH8 synchronous motors Forced ventilation, IP55 degree of protection

Selection and ordering data

Rated speed	Shaft height	Rated power	Rated torque	Rated current	Rated voltage	Rated frequency	Max. operating speed ¹⁾	Speed, max. ²⁾	1PH8 synchronous motor Forced ventilation
n_{rated} rpm	SH	P_{rated} kW (HP)	M_{rated} Nm (lb _f -ft)	I_{rated} A	V_{rated} V	f_{rated} Hz	$n_{\text{max, Inv}}$ rpm	n_{max} rpm	Order No.
Line voltage 400 V 3 AC, Smart/Basic Line Module									
700	180	33 (44.2)	450 (332)	80	278	47.0	1450	3800	1PH8184-...C...-...1
		44 (59.0)	600 (443)	108	269	47.0	1450	3800	1PH8186-...C...-...1
	225	48 (64.4)	655 (483)	120	256	47.0	1450	3500	1PH8224-...C...-...1
		64 (85.8)	873 (644)	170	238	47.0	1550	3500	1PH8226-...C...-...1
		80 (107)	1091 (805)	200	254	47.0	1450	3500	1PH8228-...C...-...1
1000	180	46 (61.7)	439 (324)	106	285	67.0	1950	3800	1PH8184-...D...-...1
		62 (83.1)	592 (437)	148	275	67.0	2050	3800	1PH8186-...D...-...1
	225	68 (91.2)	649 (479)	170	254	67.0	2050	3500	1PH8224-...D...-...1
		91 (122)	869 (641)	215	265	67.0	1950	3500	1PH8226-...D...-...1
		113 (151)	1079 (796)	265	271	67.0	1950	3500	1PH8228-...D...-...1
1500	132	15.7 (21.0)	100 (73.8)	29	388	50.0	2550	4500	1PH8131-...F...-...1
		19.9 (26.7)	127 (93.7)	44	316	50.0	3050	4500	1PH8133-...F...-...1
		23.7 (31.8)	151 (111)	43	383	50.0	2450	4500	1PH8135-...F...-...1
		30.6 (41.0)	195 (144)	60	356	50.0	2700	4500	1PH8137-...F...-...1
	160	61 (81.8)	390 (288)	119	340	100.0	2600	4000	1PH8165-...F...-...1
		69 (92.5)	435 (321)	133	345	100.0	2600	4000	1PH8167-...F...-...1
	180	70 (93.9)	446 (329)	148	308	100.0	2700	3800	1PH8184-...F...-...1
		93 (125)	592 (437)	215	282	100.0	2950	3800	1PH8186-...F...-...1
		101 (135)	643 (474)	235	271	100.0	2900	3500	1PH8224-...F...-...1
	225	134 (180)	853 (629)	295	288	100.0	2700	3500	1PH8226-...F...-...1
		168 (225)	1070 (789)	395	270	100.0	2900	3500	1PH8228-...F...-...1
		31.4 (42.1)	150 (111)	59	356	66.7	3500	4500	1PH8135-...G...-...1
	2000	132	25 (33.5)	96 (70.8)	44	371	83.3	4050	4500
31.7 (42.5)			121 (89.2)	55	371	83.3	3950	4500	1PH8133-...L...-...1
48.4 (64.9)			185 (136)	83	371	83.3	3900	4500	1PH8137-...L...-...1
160		84 (113)	320 (236)	148	370	167.0	3900	4000	1PH8165-...L...-...1
		95 (127)	360 (265)	177	350	167.0	4000	4000	1PH8167-...L...-...1
3000	132	57.5 (77.1)	183 (135)	104	370	100.0	4500	4500	1PH8137-...M...-...1

Synchronous variant
Synchronous variant with holding brake

2
4

Forced ventilation DE → NDE
Forced ventilation NDE → DE

0
1

For versions, see
Order No. supplements
and options.

SIMOTICS main motors

Asynchronous and synchronous motors SIMOTICS M for SINAMICS S120

SIMOTICS M-1PH8 synchronous motors
Forced ventilation, IP55 degree of protection

Motor type (repeated)	Static torque	Static current	Effi- ciency	Moment of inertia	Weight, approx.	Terminal box	SINAMICS S120 Motor Module	
							Rated output current ³⁾	For additional versions and components see SINAMICS S120 drive system Order No.
	M_0 Nm (lb _f -ft)	I_0 A	η	J kgm ² (lb _f -in-s ²)	kg (lb)	Type	I_{rated} A	
Line voltage 400 V 3 AC, Smart/Basic Line Module								
1PH8184-...C...	480 (354)	84	93.2	0.46 (4.07)	330 (728)	1XB7322-P05	85	6SL3120-1TE28-5AA3
1PH8186-...C...	640 (472)	115	92.4	0.60 (5.31)	400 (882)	1XB7322-P05	132	6SL3120-1TE31-3AA3
1PH8224-...C...	708 (522)	128	96.1	1.28 (11.3)	580 (1279)	1XB7322-P05	132	6SL3120-1TE31-3AA3
1PH8226-...C...	944 (696)	183	96.3	1.66 (14.7)	700 (1544)	1XB7322-P05	200	6SL3120-1TE32-0AA3
1PH8228-...C...	1180 (870)	213	96.5	2.02 (17.9)	810 (1786)	1XB7322-P05	200 ⁴⁾	6SL3120-1TE32-0AA3
1PH8184-...D...	480 (354)	115	93.7	0.46 (4.07)	330 (728)	1XB7322-P05	132	6SL3120-1TE31-3AA3
1PH8186-...D...	640 (472)	157	94.3	0.60 (5.31)	400 (882)	1XB7322-P05	200	6SL3120-1TE32-0AA3
1PH8224-...D...	708 (522)	183	96.4	1.28 (11.3)	580 (1279)	1XB7322-P05	200	6SL3120-1TE32-0AA3
1PH8226-...D...	944 (696)	233	96.7	1.66 (14.7)	700 (1544)	1XB7422-P06	260	6SL3320-1TE32-1AA3
1PH8228-...D...	1180 (870)	284	96.8	2.02 (17.9)	810 (1786)	1XB7422-P06	310	6SL3320-1TE33-1AA3
1PH8131-...F...	105 (77.4)	30	0.944	0.0446 (0.395)	85 (187)	gk833	30	6SL312-1TE23-0AA3
1PH8133-...F...	131 (96.6)	45	0.948	0.0600 (0.531)	103 (227)	gk833	45	6SL312-1TE24-5AA3
1PH8135-...F...	158 (116)	44	0.952	0.0750 (0.664)	120 (265)	gk833	45	6SL312-1TE24-5AA3
1PH8137-...F...	203 (150)	62	0.952	0.0885 (0.783)	136 (300)	gk833	60	6SL312-1TE26-0AA3
1PH8165-...F...	440 (324)	126	0.940	0.2160 (1.912)	218 (481)	gk874	132	6SL312-1TE31-3AA3
1PH8167-...F...	500 (369)	143	0.940	0.2440 (2.160)	240 (529)	gk874	132 ⁴⁾	6SL312-1TE31-3AA3
1PH8184-...F...	480 (354)	157	95.1	0.46 (4.07)	330 (728)	1XB7322-P05	200	6SL3120-1TE32-0AA3
1PH8186-...F...	640 (472)	229	95.2	0.60 (5.31)	405 (893)	1XB7422-P06	260	6SL3320-1TE32-1AA3
1PH8224-...F...	708 (522)	256	96.5	1.28 (11.3)	580 (1279)	1XB7422-P06	260	6SL3320-1TE32-1AA3
1PH8226-...F...	944 (696)	320	96.7	1.66 (14.7)	700 (1544)	1XB7700-P02	310 ⁴⁾	6SL3320-1TE33-1AA3
1PH8228-...F...	1180 (870)	427	96.7	2.02 (17.9)	810 (1786)	1XB7700-P02	490	6SL3320-1TE35-0AA3
1PH8135-...G...	158 (116)	63	0.953	0.0750 (0.664)	120 (265)	gk833	60	6SL312-1TE26-0AA3
1PH8131-...L...	105 (77.4)	48	0.948	0.0446 (0.395)	85 (187)	gk833	45	6SL312-1TE24-5AA3
1PH8133-...L...	131 (96.6)	59	0.951	0.0600 (0.531)	103 (227)	gk833	60	6SL312-1TE26-0AA3
1PH8137-...L...	203 (150)	89	0.954	0.0885 (0.783)	136 (300)	gk833	85	6SL312-1TE28-5AA3
1PH8165-...L...	440 (324)	188	0.955	0.2160 (1.912)	218 (481)	gk874	200	6SL312-1TE32-0AA3
1PH8167-...L...	500 (369)	230	0.955	0.2440 (2.160)	240 (529)	gk874	200	6SL312-1TE32-0AA3
1PH8137-...M...	203 (150)	115	0.953	0.0885 (0.783)	136 (300)	gk833	132	6SL312-1TE31-3AA3

Cooling:	
Internal air cooling	0
External air cooling	1

¹⁾ $n_{max,Inv}$: Maximum permissible operating speed based on the induced,Inv-voltage in the motor and the voltage strength of the Motor Module (without protective circuit).

²⁾ n_{max} : Maximum speed that must not be exceeded.

³⁾ I_{rated} : Output current of the Motor Module at rated pulse frequency (see SINAMICS S120 drive system).
The rated motor data is valid for 4 kHz (SH 80 to 160) or 2 kHz (SH 180 to 280).

⁴⁾ The output current of the Motor Module is lower than the rated motor current for the pulse frequency on which it is based.

SIMOTICS main motors

Asynchronous and synchronous motors SIMOTICS M for SINAMICS S120

SIMOTICS M-1PH8 synchronous motors Forced ventilation, IP55 degree of protection

Selection and ordering data

Rated speed	Shaft height	Rated power	Rated torque	Rated current	Rated voltage	Rated frequency	Max. operating speed ¹⁾	Speed, max. ²⁾	1PH8 synchronous motor Forced ventilation	
n_{rated} rpm	SH	P_{rated} kW (HP)	M_{rated} Nm (lb _r -ft)	I_{rated} A	V_{rated} V	f_{rated} Hz	$n_{\text{max, Inv}}$ rpm	n_{max} rpm	Order No.	
Line voltage 400 V 3 AC, Active Line Module										
800	180	38 (51.0)	454 (335)	80	316	53.0	1450	3800	1PH8184-...C...-...1	
		50 (67.0)	597 (440)	108	306	53.0	1450	3800	1PH8186-...C...-...1	
	225	55 (73.8)	657 (485)	120	292	53.0	1450	3500	1PH8224-...C...-...1	
		73 (97.9)	871 (642)	170	271	53.0	1550	3500	1PH8226-...C...-...1	
		91 (122)	1086 (801)	198	290	53.0	1450	3500	1PH8228-...C...-...1	
1150	180	53 (71.1)	440 (325)	106	327	77.0	1950	3800	1PH8184-...D...-...1	
		71 (95.2)	590 (435)	148	315	77.0	2050	3800	1PH8186-...D...-...1	
	225	78 (105)	648 (478)	170	292	77.0	2050	3500	1PH8224-...D...-...1	
		104 (139)	864 (637)	215	304	77.0	1950	3500	1PH8226-...D...-...1	
		129 (173)	1071 (790)	260	311	77.0	1950	3500	1PH8228-...D...-...1	
1750	132	18 (24.1)	98 (72.3)	29	415	58.3	2550	4500	1PH8131-...F...-...1	
		23.1 (31.0)	126 (92.9)	43	366	58.3	3050	4500	1PH8133-...F...-...1	
		27.2 (36.5)	149 (110)	42	415	58.3	2450	4500	1PH8135-...F...-...1	
		35.6 (47.7)	194 (143)	59	412	58.3	2700	4500	1PH8137-...F...-...1	
	160	69 (92.5)	375 (277)	115	395	117.0	2600	4000	1PH8165-...F...-...1	
		77 (103)	420 (310)	128	400	117.0	2600	4000	1PH8167-...F...-...1	
	180	82 (110)	447 (330)	150	359	117.0	2700	3800	1PH8184-...F...-...1	
		109 (146)	595 (439)	215	328	117.0	2950	3800	1PH8186-...F...-...1	
	225	117 (157)	638 (471)	235	315	117.0	2900	3500	1PH8224-...F...-...1	
		156 (209)	851 (628)	295	335	117.0	2700	3500	1PH8226-...F...-...1	
		195 (261)	1064 (785)	390	314	117.0	2900	3500	1PH8228-...F...-...1	
	2300	132	35.6 (47.7)	148 (109)	59	407	76.7	3500	4500	1PH8135-...G...-...1
	2800	132	27.7 (37.1)	95 (70.1)	44	415	93.3	4050	4500	1PH8131-...L...-...1
35.2 (47.2)			120 (88.5)	54	415	93.3	3950	4500	1PH8133-...L...-...1	
53.4 (71.6)			182 (134)	82	415	93.3	3900	4500	1PH8137-...L...-...1	
160		87 (117)	300 (221)	138	410	187.0	3900	4000	1PH8165-...L...-...1	
		98 (131)	335 (247)	164	385	187.0	4000	4000	1PH8167-...L...-...1	
3300	132	62.2 (83.4)	180 (133)	102	405	110.0	4500	4500	1PH8137-...M...-...1	
Synchronous variant									2	
Synchronous variant with holding brake									4	
Forced ventilation DE → NDE									0	
Forced ventilation NDE → DE									1	

For versions, see
Order No. supplements
and options.

SIMOTICS main motors

Asynchronous and synchronous motors SIMOTICS M for SINAMICS S120

SIMOTICS M-1PH8 synchronous motors
Forced ventilation, IP55 degree of protection

Motor type (repeated)	Static torque	Static current	Effi- ciency	Moment of inertia	Weight, approx.	Terminal box	SINAMICS S120 Motor Module		
							Rated output current ³⁾	For additional versions and components see SINAMICS S120 drive system	
							I_{rated} A	Order No.	
Line voltage 400 V 3 AC, Active Line Module									
1PH8184-..C...	480 (354)	84	92.6	0.46 (4.07)	330 (728)	1XB7322-P05	85	6SL3120-1TE28-5AA3	
1PH8186-..C...	640 (472)	115	93.1	0.60 (5.31)	400 (882)	1XB7322-P05	132	6SL3120-1TE31-3AA3	
1PH8224-..C...	708 (522)	128	96.2	1.28 (11.3)	580 (1279)	1XB7322-P05	132	6SL3120-1TE31-3AA3	
1PH8226-..C...	944 (696)	183	96.5	1.66 (14.7)	700 (1543)	1XB7322-P05	200	6SL3120-1TE32-0AA3	
1PH8228-..C...	1180 (870)	213	96.7	2.02 (17.9)	810 (1786)	1XB7322-P05	200 ⁴⁾	6SL3120-1TE32-0AA3	
1PH8184-..D...	480 (354)	115	94.2	0.46 (4.07)	330 (728)	1XB7322-P05	132	6SL3120-1TE31-3AA3	
1PH8186-..D...	640 (472)	157	94.8	0.60 (5.31)	400 (882)	1XB7322-P05	200	6SL3120-1TE32-0AA3	
1PH8224-..D...	708 (522)	183	96.5	1.28 (11.3)	580 (1279)	1XB7322-P05	200	6SL3120-1TE32-0AA3	
1PH8226-..D...	944 (696)	233	96.7	1.66 (14.7)	700 (1543)	1XB7422-P06	260	6SL3320-1TE32-1AA3	
1PH8228-..D...	1180 (870)	284	96.9	2.02 (17.9)	810 (1786)	1XB7422-P06	310	6SL3320-1TE33-1AA3	
1PH8131-..F...	105 (77.4)	30	0.947	0.0446 (0.395)	85 (187)	gk833	30	6SL3120-1TE23-0AA3	
1PH8133-..F...	131 (96.6)	45	0.950	0.0600 (0.531)	103 (227)	gk833	45	6SL3120-1TE24-5AA3	
1PH8135-..F...	158 (117)	44	0.952	0.0750 (0.664)	120 (265)	gk833	45	6SL3120-1TE24-5AA3	
1PH8137-..F...	203 (150)	62	0.953	0.0885 (0.783)	136 (300)	gk833	60	6SL3120-1TE26-0AA3	
1PH8165-..F...	440 (324)	126	0.943	0.2160 (1.912)	218 (481)	gk874	132	6SL3120-1TE31-3AA3	
1PH8167-..F...	500 (369)	143	0.943	0.2440 (2.160)	240 (529)	gk874	132	6SL3120-1TE31-3AA3	
1PH8184-..F...	480 (354)	157	95.4	0.46 (4.07)	330 (728)	1XB7322-P05	200	6SL3120-1TE32-0AA3	
1PH8186-..F...	640 (472)	229	95.5	0.60 (5.31)	405 (893)	1XB7422-P06	260	6SL3320-1TE32-1AA3	
1PH8224-..F...	708 (522)	256	96.5	1.28 (11.3)	580 (1279)	1XB7422-P06	260	6SL3320-1TE32-1AA3	
1PH8226-..F...	944 (696)	320	96.6	1.66 (14.7)	700 (1543)	1XB7700-P02	310 ⁴⁾	6SL3320-1TE33-1AA3	
1PH8228-..F...	1180 (870)	427	96.6	2.02 (17.9)	810 (1786)	1XB7700-P02	490	6SL3320-1TE35-0AA3	
1PH8135-..G...	158 (117)	63	0.953	0.0750 (0.664)	120 (265)	gk833	60	6SL3120-1TE26-0AA3	
1PH8131-..L...	105 (77.4)	48	0.949	0.0446 (0.395)	85 (187)	gk833	45	6SL3120-1TE24-5AA3	
1PH8133-..L...	131 (96.6)	59	0.952	0.0600 (0.531)	103 (227)	gk833	60	6SL3120-1TE26-0AA3	
1PH8137-..L...	203 (150)	89	0.953	0.0885 (0.783)	136 (300)	gk833	85	6SL3120-1TE28-5AA3	
1PH8165-..L...	440 (324)	188	0.959	0.2160 (1.912)	218 (481)	gk874	200	6SL3120-1TE32-0AA3	
1PH8167-..L...	500 (369)	230	0.959	0.2440 (2.160)	240 (529)	gk874	200	6SL3120-1TE32-0AA3	
1PH8137-..M...	203 (150)	115	0.952	0.0885 (0.783)	136 (300)	gk833	132	6SL3120-1TE31-3AA3	

Cooling:

Internal air cooling
External air cooling

0
1

¹⁾ $n_{max,Inv}$: Maximum permissible operating speed based on the induced voltage in the motor and the voltage strength of the Motor Module (without protective circuit).

²⁾ n_{max} : Maximum speed that must not be exceeded.

³⁾ I_{rated} : Output current of the Motor Module at rated pulse frequency (see SINAMICS S120 drive system).
The rated motor data is valid for 4 kHz (SH 80 to 160) or 2 kHz (SH 180 to 280).

⁴⁾ The output current of the Motor Module is lower than the rated motor current for the pulse frequency on which it is based.

SIMOTICS main motors

Asynchronous and synchronous motors SIMOTICS M for SINAMICS S120

SIMOTICS M-1PH8 synchronous motors Forced ventilation, IP55 degree of protection

Selection and ordering data

Rated speed	Shaft height	Rated power	Rated torque	Rated current	Rated voltage	Rated frequency	Max. operating speed ¹⁾	Speed, max. ²⁾	1PH8 synchronous motor Forced ventilation	
n_{rated} rpm	SH	P_{rated} kW (HP)	M_{rated} Nm (lb _f -ft)	I_{rated} A	V_{rated} V	f_{rated} Hz	$n_{\text{max, Inv}}$ rpm	n_{max} rpm	Order No.	
Line voltage 480 V 3 AC, Smart/Basic/Active Line Module										
1000	180	46 (61.7)	439 (324)	78	390	67.0	1450	3800	1PH8184-...C...-...1	
		62 (83.1)	592 (437)	108	379	67.0	1450	3800	1PH8186-...C...-...1	
	225	68 (91.2)	649 (479)	118	363	67.0	1450	3500	1PH8224-...C...-...1	
		91 (122)	869 (641)	170	338	67.0	1550	3500	1PH8226-...C...-...1	
		113 (151)	1079 (796)	198	361	67.0	1450	3500	1PH8228-...C...-...1	
1350	180	62 (83.1)	439 (324)	106	382	90.0	1950	3800	1PH8184-...D...-...1	
		83 (111)	587 (433)	146	368	90.0	2050	3800	1PH8186-...D...-...1	
	225	91 (122)	644 (475)	168	342	90.0	2050	3500	1PH8224-...D...-...1	
		121 (162)	856 (631)	215	356	90.0	1950	3500	1PH8226-...D...-...1	
		151 (202)	1068 (788)	260	364	90.0	1950	3500	1PH8228-...D...-...1	
2000	132	19.9 (26.7)	95 (70.1)	29	449	66.7	2550	4500	1PH8131-...F...-...1	
		26.2 (35.1)	125 (92.2)	43	415	66.7	3050	4500	1PH8133-...F...-...1	
		30.2 (40.5)	144 (106)	42	449	66.7	2450	4500	1PH8135-...F...-...1	
		40 (53.6)	191 (141)	59	449	66.7	2700	4500	1PH8137-...F...-...1	
	160	74 (99.2)	355 (262)	110	445	133.0	2600	4000	1PH8165-...F...-...1	
		82 (110)	395 (291)	123	450	133.0	2600	4000	1PH8167-...F...-...1	
	180	86 (115)	411 (303)	138	404	133.0	2700	3800	1PH8184-...F...-...1	
		115 (154)	549 (405)	200	370	133.0	2950	3800	1PH8186-...F...-...1	
	225	118 (158)	563 (415)	210	355	133.0	2900	3500	1PH8224-...F...-...1	
		157 (210)	750 (553)	260	378	133.0	2700	3500	1PH8226-...F...-...1	
		196 (263)	936 (690)	345	355	133.0	2900	3500	1PH8228-...F...-...1	
	2650	132	40.2 (53.9)	145 (107)	58	449	88.3	3500	4500	1PH8135-...G...-...1
	3000	132	29.5 (39.6)	94 (69.3)	43	449	100.0	4050	4500	1PH8131-...L...-...1
37.4 (50.1)			119 (87.8)	54	449	100.0	3950	4500	1PH8133-...L...-...1	
56.9 (76.3)			181 (134)	81	449	100.0	3900	4500	1PH8137-...L...-...1	
160		89 (119)	285 (210)	131	440	200.0	3900	4000	1PH8165-...L...-...1	
		99 (133)	315 (232)	155	410	200.0	4000	4000	1PH8167-...L...-...1	
3600	132	66.7 (89.4)	177 (131)	100	440	120.0	4500	4500	1PH8137-...M...-...1	
Synchronous variant									2	
Synchronous variant with holding brake									4	
Forced ventilation DE → NDE									0	
Forced ventilation NDE → DE									1	

For versions, see
Order No. supplements
and options.

SIMOTICS main motors

Asynchronous and synchronous motors SIMOTICS M for SINAMICS S120

SIMOTICS M-1PH8 synchronous motors
Forced ventilation, IP55 degree of protection

Motor type (repeated)	Static torque	Static current	Efficiency	Moment of inertia	Weight, approx.	Terminal box	SINAMICS S120 Motor Module	
							Rated output current ³⁾	For additional versions and components see SINAMICS S120 drive system
	M_0	I_0	η	J			I_{rated}	Order No.
	Nm (lb _f -ft)	A		kgm ² (lb _f -in-s ²)	kg (lb)	Type	A	
Line voltage 480 V 3 AC, Smart/Basic/Active Line Module								
1PH8184-..C...	480 (354)	84	93.7	0.46 (4.07)	330 (728)	1XB7322-P05	85	6SL3120-1TE28-5AA3
1PH8186-..C...	640 (472)	115	94.1	0.60 (5.31)	400 (882)	1XB7322-P05	132	6SL3120-1TE31-3AA3
1PH8224-..C...	708 (522)	128	96.5	1.28 (11.3)	580 (1279)	1XB7322-P05	132	6SL3120-1TE31-3AA3
1PH8226-..C...	944 (696)	183	96.7	1.66 (14.7)	700 (1544)	1XB7322-P05	200	6SL3120-1TE32-0AA3
1PH8228-..C...	1180 (870)	213	96.8	2.02 (17.9)	810 (1786)	1XB7322-P05	200 ⁴⁾	6SL3120-1TE32-0AA3
1PH8184-..D...	480 (354)	115	94.6	0.46 (4.07)	330 (728)	1XB7322-P05	132	6SL3120-1TE31-3AA3
1PH8186-..D...	640 (472)	157	95.2	0.60 (5.31)	400 (882)	1XB7322-P05	200	6SL3120-1TE32-0AA3
1PH8224-..D...	708 (522)	183	96.5	1.28 (11.3)	580 (1279)	1XB7322-P05	200	6SL3120-1TE32-0AA3
1PH8226-..D...	944 (696)	233	96.8	1.66 (14.7)	700 (1544)	1XB7422-P06	260	6SL3320-1TE32-1AA3
1PH8228-..D...	1180 (870)	284	96.8	2.02 (17.9)	810 (1786)	1XB7422-P06	310	6SL3320-1TE33-1AA3
1PH8131-..F...	105 (77.4)	30	0.948	0.0446 (0.395)	85 (187)	gk833	30	6SL312-1TE23-0AA3
1PH8133-..F...	131 (96.6)	45	0.951	0.0600 (0.531)	103 (227)	gk833	45	6SL312-1TE24-5AA3
1PH8135-..F...	158 (116)	44	0.953	0.0750 (0.664)	120 (265)	gk833	45	6SL312-1TE24-5AA3
1PH8137-..F...	203 (150)	62	0.954	0.0885 (0.783)	136 (300)	gk833	60	6SL312-1TE26-0AA3
1PH8165-..F...	440 (324)	126	0.946	0.2160 (1.912)	218 (481)	gk874	132	6SL312-1TE31-3AA3
1PH8167-..F...	500 (369)	143	0.946	0.2440 (2.160)	240 (529)	gk874	132	6SL312-1TE31-3AA3
1PH8184-..F...	480 (354)	157	95.7	0.46 (4.07)	330 (728)	1XB7322-P05	200	6SL3120-1TE32-0AA3
1PH8186-..F...	640 (472)	229	95.6	0.60 (5.31)	405 (893)	1XB7422-P06	260	6SL3320-1TE32-1AA3
1PH8224-..F...	708 (522)	256	96.3	1.28 (11.3)	580 (1279)	1XB7422-P06	260	6SL3320-1TE32-1AA3
1PH8226-..F...	944 (696)	320	96.4	1.66 (14.7)	700 (1544)	1XB7700-P02	310 ⁴⁾	6SL3320-1TE33-1AA3
1PH8228-..F...	1180 (870)	427	96.4	2.02 (17.9)	810 (1786)	1XB7700-P02	490	6SL3320-1TE35-0AA3
1PH8135-..G...	158 (116)	63	0.952	0.0750 (0.664)	120 (265)	gk833	60	6SL312-1TE26-0AA3
1PH8131-..L...	105 (77.4)	48	0.951	0.0446 (0.395)	85 (187)	gk833	45	6SL312-1TE24-5AA3
1PH8133-..L...	131 (96.6)	59	0.952	0.0600 (0.531)	103 (227)	gk833	60	6SL312-1TE26-0AA3
1PH8137-..L...	203 (150)	89	0.953	0.0885 (0.783)	136 (300)	gk833	85	6SL312-1TE28-5AA3
1PH8165-..L...	440 (324)	188	0.960	0.2160 (1.912)	218 (481)	gk874	200	6SL312-1TE32-0AA3
1PH8167-..L...	500 (369)	230	0.960	0.2440 (2.160)	240 (529)	gk874	200	6SL312-1TE32-0AA3
1PH8137-..M...	203 (150)	115	0.950	0.0885 (0.783)	136 (300)	gk833	132	6SL312-1TE31-3AA3

Cooling:	
Internal air cooling	0
External air cooling	1

¹⁾ $n_{max,Inv}$: Maximum permissible operating speed based on the induced voltage in the motor and the voltage strength of the Motor Module (without protective circuit).

²⁾ n_{max} : Maximum speed that must not be exceeded.

³⁾ I_{rated} : Output current of the Motor Module at rated pulse frequency (see SINAMICS S120 drive system).
The rated motor data is valid for 4 kHz (SH 80 to 160) or 2 kHz (SH 180 to 280).

⁴⁾ The output current of the Motor Module is lower than the rated motor current for the pulse frequency on which it is based.

SIMOTICS main motors

Asynchronous and synchronous motors SIMOTICS M for SINAMICS S120

SIMOTICS M-1PH8 synchronous motors Water cooling, IP65 degree of protection

Selection and ordering data

Rated speed	Shaft height	Rated power	Rated torque	Rated current	Rated voltage	Rated frequency	Max. operating speed ¹⁾	Speed, max. ²⁾	1PH8 synchronous motor Water cooling
n_{rated} rpm	SH	P_{rated} kW (HP)	M_{rated} Nm (lb _F -ft)	I_{rated} A	V_{rated} V	f_{rated} Hz	$n_{max, Inv}$ rpm	n_{max} rpm	Order No.
Line voltage 400 V 3 AC, Smart/Basic Line Module									
1500	132	17.6 (23.6)	112 (82.6)	40	326	50.0	3150	4500	1PH8131-■■■F2■-...1
		23.1 (31.0)	147 (108)	42	371	50.0	2450	4500	1PH8133-■■■F2■-...1
		29.7 (39.8)	189 (139)	57	384	50.0	2650	4500	1PH8135-■■■F2■-...1
		32.7 (43.9)	208 (153)	58	371	50.0	2350	4500	1PH8137-■■■F2■-...1
		44.9 (60.2)	286 (211)	118	316	50.0	3500	4500	1PH8138-■■■F2■-...1
	160	59.0 (79.1)	375 (277)	111	380	100.0	2400	4000	1PH8164-■■■F2■-...1
		74.0 (99.2)	475 (350)	148	355	100.0	2600	4000	1PH8166-■■■F2■-...1
		84.0 (113)	530 (391)	169	355	100.0	2600	4000	1PH8168-■■■F2■-...1
2000	132	30.6 (41.0)	146 (108)	57	383	66.7	3450	4500	1PH8133-■■■G2■-...1
		39.0 (52.3)	186 (137)	81	346	66.7	3800	4500	1PH8135-■■■G2■-...1
		44.4 (59.5)	212 (156)	85	371	66.7	3500	4500	1PH8137-■■■G2■-...1
		59.3 (79.5)	283 (209)	131	374	66.7	3900	4500	1PH8138-■■■G2■-...1
2500	132	28.5 (38.2)	109 (80.4)	57	359	83.3	4500	4500	1PH8131-■■■L2■-...1
		88.0 (118)	335 (247)	165	355	167.0	4000	4000	1PH8164-■■■L2■-...1
	160	102 (137)	390 (288)	188	380	167.0	3900	4000	1PH8166-■■■L2■-...1
		119 (160)	455 (336)	225	355	167.0	4000	4000	1PH8168-■■■L2■-...1
Line voltage 400 V 3 AC, Active Line Module									
1750	132	20.4 (27.4)	112 (82.6)	40	377	58.3	3150	4500	1PH8131-■■■F2■-...1
		26.4 (35.4)	144 (106)	42	415	58.3	2450	4500	1PH8133-■■■F2■-...1
		34.1 (45.7)	186 (137)	56	415	58.3	2650	4500	1PH8135-■■■F2■-...1
		37.0 (49.6)	202 (149)	58	415	58.3	2350	4500	1PH8137-■■■F2■-...1
		52.4 (70.3)	286 (211)	118	366	58.3	3500	4500	1PH8138-■■■F2■-...1
	160	67.0 (89.9)	365 (269)	108	440	117.0	2400	4000	1PH8164-■■■F2■-...1
		85.0 (114)	460 (339)	143	410	117.0	2600	4000	1PH8166-■■■F2■-...1
		94.0 (126)	510 (376)	164	410	117.0	2600	4000	1PH8168-■■■F2■-...1
2300	132	34.9 (46.8)	145 (107)	57	415	76.7	3450	4500	1PH8133-■■■G2■-...1
		44.3 (59.4)	184 (136)	80	395	76.7	3800	4500	1PH8135-■■■G2■-...1
		50.5 (67.7)	210 (155)	84	424	76.7	3500	4500	1PH8137-■■■G2■-...1
		67.7 (90.8)	281 (207)	130	415	76.7	3900	4500	1PH8138-■■■G2■-...1
2800	132	31.7 (42.5)	108 (79.7)	56	400	93.3	4500	4500	1PH8131-■■■L2■-...1
		93.0 (125)	315 (232)	156	395	187.0	4000	4000	1PH8164-■■■L2■-...1
	160	109 (146)	375 (277)	177	420	187.0	3900	4000	1PH8166-■■■L2■-...1
		123 (165)	420 (310)	210	395	187.0	4000	4000	1PH8168-■■■L2■-...1

Synchronous variant
Synchronous variant with holding brake (IP55 degree of protection)

2
4

For versions, see
Order No. supplements and options.

SIMOTICS main motors

Asynchronous and synchronous motors SIMOTICS M for SINAMICS S120

SIMOTICS M-1PH8 synchronous motors
Water cooling, IP65 degree of protection

Motor type (repeated)	Static torque	Static current	Efficiency	Moment of inertia	Weight, approx.	Terminal box	SINAMICS S120 Motor Module	
							Rated output current ³⁾	For additional versions and components see SINAMICS S120 drive system Order No.
	M_0 Nm (lb _f -ft)	I_0 A	η	J kgm ² (lb _f -in-s ²)	kg (lb)	Type	I_{rated} A	
Line voltage 400 V 3 AC, Smart/Basic Line Module								
1PH8131-..F2...	115 (84.8)	41	0.946	0.0446 (0.395)	102 (225)	gk843	45	6SL312-1TE24-5AA3
1PH8133-..F2...	155 (114)	43	0.947	0.0600 (0.531)	120 (265)	gk843	45	6SL312-1TE24-5AA3
1PH8135-..F2...	196 (145)	59	0.950	0.0750 (0.663)	138 (304)	gk843	60	6SL312-1TE26-0AA3
1PH8137-..F2...	226 (167)	60	0.951	0.0885 (0.783)	153 (337)	gk843	60	6SL312-1TE26-0AA3
1PH8138-..F2...	290 (214)	120	0.958	0.0885 (0.783)	156 (344)	gk843	132	6SL312-1TE31-3AA3
1PH8164-..F2...	440 (325)	118	0.940	0.1750 (1.549)	224 (494)	gk874	132	6SL312-1TE31-3AA3
1PH8166-..F2...	550 (406)	159	0.940	0.2160 (1.912)	257 (567)	gk874	200	6SL312-1TE32-0AA3
1PH8168-..F2...	620 (457)	179	0.940	0.2440 (2.160)	279 (615)	gk874	200	6SL312-1TE32-0AA3
1PH8133-..G2...	155 (114)	61	0.950	0.0600 (0.531)	120 (265)	gk843	60	6SL312-1TE26-0AA3
1PH8135-..G2...	196 (145)	85	0.952	0.0750 (0.663)	138 (304)	gk843	85	6SL312-1TE28-5AA3
1PH8137-..G2...	226 (167)	90	0.954	0.0885 (0.783)	153 (337)	gk843	85	6SL312-1TE28-5AA3
1PH8138-..G2...	290 (214)	133	0.960	0.0885 (0.783)	156 (344)	gk843	132	6SL312-1TE31-3AA3
1PH8131-..L2...	115 (84.8)	60	0.948	0.0446 (0.395)	102 (225)	gk843	60	6SL312-1TE26-0AA3
1PH8164-..L2...	440 (325)	205	0.955	0.1750 (1.549)	224 (494)	gk874	200	6SL312-1TE32-0AA3
1PH8166-..L2...	550 (406)	240	0.955	0.2160 (1.912)	257 (567)	gk874	200	6SL312-1TE32-0AA3
1PH8168-..L2...	520 (384)	240	0.955	0.2440 (2.160)	279 (615)	gk874	260	6SL3320-1TE32-1AA3
Line voltage 400 V 3 AC, Active Line Module								
1PH8131-..F2...	115 (84.8)	41	0.947	0.0446 (0.395)	102 (225)	gk843	45	6SL312-1TE24-5AA3
1PH8133-..F2...	155 (114)	43	0.948	0.0600 (0.531)	120 (265)	gk843	45	6SL312-1TE24-5AA3
1PH8135-..F2...	196 (145)	59	0.951	0.0750 (0.663)	138 (304)	gk843	60	6SL312-1TE26-0AA3
1PH8137-..F2...	226 (167)	60	0.952	0.0885 (0.783)	153 (337)	gk843	60	6SL312-1TE26-0AA3
1PH8138-..F2...	290 (214)	120	0.959	0.0885 (0.783)	156 (344)	gk843	132	6SL312-1TE31-3AA3
1PH8164-..F2...	440 (325)	118	0.943	0.1750 (1.549)	224 (494)	gk874	132	6SL312-1TE31-3AA3
1PH8166-..F2...	550 (406)	159	0.943	0.2160 (1.912)	257 (567)	gk874	200	6SL312-1TE32-0AA3
1PH8168-..F2...	620 (457)	179	0.943	0.2440 (2.160)	279 (615)	gk874	200	6SL312-1TE32-0AA3
1PH8133-..G2...	155 (114)	61	0.951	0.0600 (0.531)	120 (265)	gk843	60	6SL312-1TE26-0AA3
1PH8135-..G2...	196 (145)	85	0.953	0.0750 (0.663)	138 (304)	gk843	85	6SL312-1TE28-5AA3
1PH8137-..G2...	226 (167)	90	0.956	0.0885 (0.783)	153 (337)	gk843	85	6SL312-1TE28-5AA3
1PH8138-..G2...	290 (214)	133	0.961	0.0885 (0.783)	156 (344)	gk843	132	6SL312-1TE31-3AA3
1PH8131-..L2...	115 (84.8)	60	0.949	0.0446 (0.395)	102 (225)	gk843	60	6SL312-1TE26-0AA3
1PH8164-..L2...	440 (325)	205	0.959	0.1750 (1.549)	224 (494)	gk874	200	6SL312-1TE32-0AA3
1PH8166-..L2...	550 (406)	240	0.959	0.2160 (1.912)	257 (567)	gk874	200	6SL312-1TE32-0AA3
1PH8167-..L2...	520 (384)	240	0.959	0.2440 (2.160)	279 (615)	gk874	260	6SL3320-1TE32-1AA3

Cooling:
Internal air cooling 0
External air cooling 1

¹⁾ $n_{max,Inv}$: Maximum permissible operating speed based on the induced voltage in the motor and the voltage strength of the Motor Module (without protective circuit).

²⁾ n_{max} : Maximum speed that must not be exceeded.

³⁾ I_{rated} : Output current of the Motor Module at rated pulse frequency (see SINAMICS S120 drive system).
The rated motor data is valid for 4 kHz (SH 80 to 160).

SIMOTICS main motors

Asynchronous and synchronous motors SIMOTICS M for SINAMICS S120

SIMOTICS M-1PH8 synchronous motors Water cooling, IP65 degree of protection

Selection and ordering data

Rated speed	Shaft height	Rated power	Rated torque	Rated current	Rated voltage	Rated frequency	Max. operating speed ¹⁾	Speed, max. ²⁾	1PH8 synchronous motor Water cooling
n_{rated} rpm	SH	P_{rated} kW (HP)	M_{rated} Nm (lb _f -ft)	I_{rated} A	V_{rated} V	f_{rated} Hz	$n_{\text{max, Inv}}$ rpm	n_{max} rpm	Order No.
Line voltage 480 V 3 AC, Smart/Basic/Active Line Module									
2000	132	23.2 (31.1)	111 (81.9)	39	427	66.7	3150	4500	1PH8131-■ F2■ -...1
		29 (38.9)	139 (103)	41	449	66.7	2450	4500	1PH8133-■ F2■ -...1
		37.9 (50.8)	181 (134)	56	449	66.7	2650	4500	1PH8135-■ F2■ -...1
		40.6 (54.4)	194 (143)	57	449	66.7	2350	4500	1PH8137-■ F2■ -...1
		59.7 (80.1)	285 (210)	118	416	66.7	3500	4500	1PH8138-■ F2■ -...1
160	70 (93.9)	330 (243)	105	500	133.0	2400	4000	1PH8164-■ F2■ -...1	
	89 (119)	425 (314)	138	465	133.0	2600	4000	1PH8166-■ F2■ -...1	
	100 (134)	480 (354)	157	465	133.0	2600	4000	1PH8168-■ F2■ -...1	
2650	132	39.1 (52.4)	141 (104)	57	449	88.3	3450	4500	1PH8133-■ G2■ -...1
		50.5 (67.7)	182 (134)	79	452	88.3	3800	4500	1PH8135-■ G2■ -...1
		56.8 (76.2)	205 (151)	83	449	88.3	3500	4500	1PH8137-■ G2■ -...1
		76.3 (102)	275 (203)	130	449	88.3	3900	4500	1PH8138-■ G2■ -...1
3000	132	33.6 (45.1)	107 (78.9)	56	427	100.0	4500	4500	1PH8131-■ L2■ -...1
		96 (129)	305 (225)	150	420	200.0	4000	4000	1PH8164-■ L2■ -...1
	160	110 (148)	350 (258)	169	450	200.0	3900	4000	1PH8166-■ L2■ -...1
		125 (168)	395 (291)	197	420	200.0	4000	4000	1PH8168-■ L2■ -...1

Synchronous variant

Synchronous variant with holding brake (IP55 degree of protection)

2
4

For versions, see
Order No. supplements
and options.

SIMOTICS main motors

Asynchronous and synchronous motors SIMOTICS M for SINAMICS S120

SIMOTICS M-1PH8 synchronous motors
Water cooling, IP65 degree of protection

Motor type (repeated)	Static torque	Static current	Effi- ciency	Moment of inertia	Weight, approx.	Terminal box	SINAMICS S120 Motor Module	
							Rated output current ³⁾	For additional versions and components see SINAMICS S120 drive system Order No.
	M_0 Nm (lb _r -ft)	I_0 A	η	J kgm ² (lb _r -in-s ²)	kg (lb)	Type	I_{rated} A	
Line voltage 480 V 3 AC, Smart/Basic/Active Line Module								
1PH8131-..F2...	115 (84.8)	41	0.948	0.0446 (0.395)	102 (225)	gk843	45	6SL312-1TE24-5AA3
1PH8133-..F2...	155 (114)	43	0.949	0.0600 (0.531)	120 (265)	gk843	45	6SL312-1TE24-5AA3
1PH8135-..F2...	196 (145)	59	0.952	0.0750 (0.664)	138 (304)	gk843	60	6SL312-1TE26-0AA3
1PH8137-..F2...	226 (167)	60	0.953	0.0885 (0.783)	153 (337)	gk843	60	6SL312-1TE26-0AA3
1PH8138-..F2...	290 (214)	120	0.960	0.0885 (0.783)	156 (344)	gk843	132	6SL312-1TE31-3AA3
1PH8164-..F2...	440 (325)	118	0.946	0.1750 (1.549)	224 (494)	gk874	132	6SL312-1TE31-3AA3
1PH8166-..F2...	550 (406)	159	0.946	0.2160 (1.912)	257 (567)	gk874	200	6SL312-1TE32-0AA3
1PH8168-..F2...	620 (457)	179	0.946	0.2440 (2.160)	279 (615)	gk874	200	6SL312-1TE32-0AA3
1PH8133-..G2...	155 (114)	61	0.952	0.0600 (0.531)	120 (265)	gk843	60	6SL312-1TE26-0AA3
1PH8135-..G2...	196 (145)	85	0.954	0.0750 (0.663)	138 (304)	gk843	85	6SL312-1TE28-5AA3
1PH8137-..G2...	226 (167)	90	0.958	0.0885 (0.783)	153 (337)	gk843	85	6SL312-1TE28-5AA3
1PH8138-..G2...	290 (214)	133	0.962	0.0885 (0.783)	156 (344)	gk843	132	6SL312-1TE31-3AA3
1PH8131-..L2...	115 (84.8)	60	0.950	0.0446 (0.395)	102 (225)	gk843	60	6SL312-1TE26-0AA3
1PH8164-..L2...	440 (325)	205	0.960	0.1750 (1.549)	224 (494)	gk874	200	6SL312-1TE32-0AA3
1PH8166-..L2...	550 (406)	240	0.960	0.2160 (1.912)	257 (567)	gk874	200	6SL312-1TE32-0AA3
1PH8168-..L2...	520 (384)	240	0.960	0.2440 (2.160)	279 (615)	gk874	260	6SL3320-1TE32-1AA3

Cooling:	
Internal air cooling	0
External air cooling	1

¹⁾ $n_{max,Inv}$: Maximum permissible operating speed based on the induced voltage in the motor and the voltage strength of the Motor Module (without protective circuit).

²⁾ n_{max} : Maximum speed that must not be exceeded.

³⁾ I_{rated} : Output current of the Motor Module at rated pulse frequency (see SINAMICS S120 drive system).
The rated motor data is valid for 4 kHz (SH 80 to 160).

SIMOTICS main motors

Asynchronous and synchronous motors SIMOTICS M for SINAMICS S120

SIMOTICS M-1PH8 synchronous motors Water cooling, IP55 degree of protection

Selection and ordering data

Rated speed	Shaft height	Rated power	Rated torque	Rated current	Rated voltage	Rated frequency	Max. operating speed ¹⁾	Speed, max. ²⁾	1PH8 synchronous motor Water cooling
n_{rated} rpm	SH	P_{rated} kW (HP)	M_{rated} Nm (lb _r -ft)	I_{rated} A	V_{rated} V	f_{rated} Hz	$n_{\text{max, Inv}}$ rpm	n_{max} rpm	Order No.
Line voltage 400 V 3 AC, Smart/Basic Line Module									
700	180	42 (56.3)	573 (423)	100	303	47	1450	3800	1PH8184-■C2■-...1
		58 (77.8)	791 (583)	142	295	47	1450	3800	1PH8186-■C2■-...1
	225	72 (96.6)	982 (724)	180	275	47	1450	3500	1PH8224-■C2■-...1
		95 (127)	1296 (956)	255	255	47	1550	3500	1PH8226-■C2■-...1
		121 (162)	1651 (1218)	305	270	47	1450	3500	1PH8228-■C2■-...1
1000	180	61 (81.8)	583 (430)	140	313	67	1950	3800	1PH8184-■D2■-...1
		80 (107)	764 (564)	190	300	67	2050	3800	1PH8186-■D2■-...1
	225	101 (135)	964 (711)	255	275	67	2050	3500	1PH8224-■D2■-...1
		135 (181)	1289 (951)	325	285	67	1950	3500	1PH8226-■D2■-...1
		169 (227)	1614 (1190)	395	290	67	1950	3500	1PH8228-■D2■-...1
1500	180	90 (121)	573 (423)	190	334	100	2700	3800	1PH8184-■F2■-...1
		119 (160)	758 (559)	275	305	100	2950	3800	1PH8186-■F2■-...1
	225	151 (202)	961 (709)	355	290	100	2900	3500	1PH8224-■F2■-...1
		201 (270)	1280 (944)	445	305	100	2700	3500	1PH8226-■F2■-...1
		251 (337)	1598 (1179)	590	285	100	2900	3500	1PH8228-■F2■-...1
2500	180	127 (170)	485 (358)	260	328	167	3800	3800	1PH8184-■L2■-...1
		168 (225)	642 (474)	370	305	167	3800	3800	1PH8186-■L2■-...1
	225	182 (244)	695 (513)	365	320	167	3500	3500	1PH8224-■L2■-...1
		228 (306)	871 (642)	400	360	167	3500	3500	1PH8226-■L2■-...1
		270 (362)	1031 (760)	570	300	167	3500	3500	1PH8228-■L2■-...1
Line voltage 400 V 3 AC, Active Line Module									
800	180	48 (64.4)	573 (423)	102	342	53	1450	3800	1PH8184-■C2■-...1
		66 (88.5)	788 (581)	142	335	53	1450	3800	1PH8186-■C2■-...1
	225	81 (109)	967 (713)	178	310	53	1450	3500	1PH8224-■C2■-...1
		108 (145)	1289 (951)	255	287	53	1550	3500	1PH8226-■C2■-...1
		138 (185)	1647 (1215)	305	315	53	1450	3500	1PH8228-■C2■-...1
1150	180	70 (93.9)	581 (429)	140	386	77	1950	3800	1PH8184-■D2■-...1
		92 (123)	764 (564)	190	345	77	2050	3800	1PH8186-■D2■-...1
	225	115 (154)	955 (704)	250	310	77	2050	3500	1PH8224-■D2■-...1
		155 (208)	1287 (949)	325	325	77	1950	3500	1PH8226-■D2■-...1
		194 (260)	1611 (1188)	395	330	77	1950	3500	1PH8228-■D2■-...1
1750	180	103 (138)	562 (415)	186	386	117	2700	3800	1PH8184-■F2■-...1
		138 (185)	753 (555)	275	355	117	2950	3800	1PH8186-■F2■-...1
	225	175 (235)	955 (704)	355	335	117	2900	3500	1PH8224-■F2■-...1
		233 (312)	1271 (937)	440	355	117	2700	3500	1PH8226-■F2■-...1
		289 (388)	1577 (1163)	580	335	117	2900	3500	1PH8228-■F2■-...1
2900	180	140 (188)	461 (340)	250	375	193	3800	3800	1PH8184-■L2■-...1
		178 (239)	586 (432)	340	345	193	3800	3800	1PH8186-■L2■-...1
	225	191 (256)	629 (464)	335	370	193	3500	3500	1PH8224-■L2■-...1
		238 (319)	784 (578)	365	413	193	3500	3500	1PH8226-■L2■-...1
		283 (380)	932 (687)	520	345	193	3500	3500	1PH8228-■L2■-...1

Synchronous variant
Synchronous variant with holding brake (IP55 degree of protection)

2
4

For versions, see
Order No. supplements
and options.

SIMOTICS main motors

Asynchronous and synchronous motors SIMOTICS M for SINAMICS S120

SIMOTICS M-1PH8 synchronous motors
Water cooling, IP55 degree of protection

Motor type (repeated)	Static torque	Static current	Efficiency	Moment of inertia	Weight, approx.	Terminal box	SINAMICS S120 Motor Module	
							Rated output current ³⁾	For additional versions and components see SINAMICS S120 drive system Order No.
	M_0	I_0	η	J			I_{rated}	
	Nm (lb _f -ft)	A		kgm ² (lb _f -in-s ²)	kg (lb)	Type	A	
Line voltage 400 V 3 AC, Smart/Basic Line Module								
1PH8184-..C2...	590 (435)	103	0.919	0.457 (4.045)	330 (728)	1XB7322-P05	132	6SL3120-1TE31-3AA3
1PH8186-..C2...	800 (590)	143	0.924	0.599 (5.302)	400 (882)	1XB7322-P05	200	6SL3120-1TE32-0AA3
1PH8224-..C2...	1007 (743)	183	0.947	1.28 (11.3)	580 (1279)	1XB7322-P05	200	6SL3120-1TE32-0AA3
1PH8226-..C2...	1330 (981)	260	0.952	1.66 (14.7)	700 (1544)	1XB7700-P02	260	6SL3320-1TE32-6AA3
1PH8228-..C2...	1680 (1239)	306	0.955	2.02 (17.9)	810 (1786)	1XB7700-P02	310	6SL3320-1TE33-1AA3
1PH8184-..D2...	600 (443)	143	0.937	0.457 (4.04)	330 (728)	1XB7322-P05	200	6SL3120-1TE32-0AA3
1PH8186-..D2...	800 (590)	196	0.943	0.599 (5.30)	400 (882)	1XB7322-P05	200	6SL3120-1TE32-0AA3
1PH8224-..D2...	1007 (743)	262	0.956	1.28 (11.3)	580 (1279)	1XB7700-P02	260	6SL3320-1TE32-6AA3
1PH8226-..D2...	1330 (981)	330	0.960	1.66 (14.7)	700 (1544)	1XB7700-P02	380	6SL3320-1TE33-8AA3
1PH8228-..D2...	1680 (1239)	408	0.962	2.02 (17.9)	810 (1786)	1XB7700-P02	490	6SL3320-1TE35-0AA3
1PH8184-..F2...	600 (443)	196	0.951	0.457 (4.045)	330 (728)	1XB7322-P05	200	6SL3120-1TE32-0AA3
1PH8186-..F2...	800 (590)	285	0.952	0.599 (5.302)	400 (882)	1XB7700-P02	310	6SL3320-1TE33-1AA3
1PH8224-..F2...	1007 (743)	367	0.962	1.28 (11.3)	580 (1279)	1XB7700-P02	380	6SL3320-1TE33-8AA3
1PH8226-..F2...	1330 (981)	454	0.965	1.66 (14.7)	700 (1544)	1XB7700-P02	490	6SL3320-1TE35-0AA3
1PH8228-..F2...	1680 (1239)	612	0.964	2.02 (17.9)	810 (1786)	1XB7712-P03	745	6SL3320-1TE37-5AA3
1PH8184-..L2...	530 (391)	278	0.957	0.457 (4.045)	330 (728)	1XB7700-P02	260	6SL3320-1TE32-6AA3
1PH8186-..L2...	720 (531)	405	0.957	0.599 (5.302)	400 (882)	1XB7700-P02	380	6SL3320-1TE33-8AA3
1PH8224-..L2...	885 (653)	460	0.961	1.28 (11.3)	580 (1279)	1XB7700-P02	380	6SL3320-1TE33-8AA3
1PH8226-..L2...	1170 (863)	532	0.962	1.66 (14.7)	700 (1544)	1XB7700-P02	490	6SL3320-1TE35-0AA3
1PH8228-..L2...	1400 (1033)	762	0.963	2.02 (17.9)	810 (1786)	1XB7712-P03	745	6SL3320-1TE37-5AA3
Line voltage 400 V 3 AC, Active Line Module								
1PH8184-..C2...	590 (435)	103	0.926	0.457 (4.045)	330 (728)	1XB7322-P05	132	6SL3120-1TE31-3AA3
1PH8186-..C2...	800 (590)	143	0.931	0.599 (5.302)	400 (882)	1XB7322-P05	200	6SL3120-1TE32-0AA3
1PH8224-..C2...	1007 (743)	183	0.952	1.28 (11.3)	580 (1279)	1XB7322-P05	200	6SL3120-1TE32-0AA3
1PH8226-..C2...	1330 (981)	260	0.956	1.66 (14.7)	700 (1544)	1XB7700-P02	260	6SL3320-1TE32-6AA3
1PH8228-..C2...	1680 (1239)	306	0.958	2.02 (17.9)	810 (1786)	1XB7700-P02	310	6SL3320-1TE33-1AA3
1PH8184-..D2...	600 (443)	143	0.942	0.457 (4.045)	330 (728)	1XB7322-P05	200	6SL3120-1TE32-0AA3
1PH8186-..D2...	800 (590)	196	0.948	0.599 (5.302)	400 (882)	1XB7322-P05	200	6SL3120-1TE32-0AA3
1PH8224-..D2...	1007 (743)	262	0.959	1.28 (11.3)	580 (1279)	1XB7700-P02	260	6SL3320-1TE32-6AA3
1PH8226-..D2...	1330 (981)	330	0.962	1.66 (14.7)	700 (1544)	1XB7700-P02	380	6SL3320-1TE33-8AA3
1PH8228-..D2...	1680 (1239)	408	0.964	2.02 (17.9)	810 (1786)	1XB7700-P02	490	6SL3320-1TE35-0AA3
1PH8184-..F2...	600 (443)	196	0.954	0.457 (4.045)	330 (728)	1XB7322-P05	200	6SL3120-1TE32-0AA3
1PH8186-..F2...	800 (590)	285	0.955	0.599 (5.302)	400 (882)	1XB7700-P02	310	6SL3320-1TE33-1AA3
1PH8224-..F2...	1007 (743)	367	0.963	1.28 (11.3)	580 (1279)	1XB7700-P02	380	6SL3320-1TE33-8AA3
1PH8226-..F2...	1330 (981)	454	0.965	1.66 (14.7)	700 (1544)	1XB7700-P02	490	6SL3320-1TE35-0AA3
1PH8228-..F2...	1680 (1239)	612	0.965	2.02 (17.9)	810 (1786)	1XB7712-P03	745	6SL3320-1TE37-5AA3
1PH8184-..L2...	530 (391)	278	0.956	0.457 (4.045)	330 (728)	1XB7700-P02	260	6SL3320-1TE32-6AA3
1PH8186-..L2...	720 (531)	405	0.955	0.599 (5.302)	400 (882)	1XB7700-P02	380	6SL3320-1TE33-8AA3
1PH8224-..L2...	885 (653)	460	0.958	1.28 (11.3)	580 (1279)	1XB7700-P02	380	6SL3320-1TE33-8AA3
1PH8226-..L2...	1170 (863)	532	0.958	1.66 (14.7)	700 (1544)	1XB7700-P02	490	6SL3320-1TE35-0AA3
1PH8228-..L2...	1400 (1033)	762	0.958	2.02 (17.9)	810 (1786)	1XB7712-P03	745	6SL3320-1TE37-5AA3

¹⁾ $n_{max,Inv}$: Maximum permissible operating speed based on the induced voltage in the motor and the voltage strength of the Motor Module (without protective circuit).

²⁾ n_{max} : Maximum speed that must not be exceeded.

³⁾ I_{rated} : Output current of the Motor Module at rated pulse frequency (see SINAMICS S120 drive system).
The rated motor data is valid for 2 kHz (SH 180 to 280).

SIMOTICS main motors

Asynchronous and synchronous motors SIMOTICS M for SINAMICS S120

SIMOTICS M-1PH8 synchronous motors Water cooling, IP55 degree of protection

Selection and ordering data

Rated speed	Shaft height	Rated power	Rated torque	Rated current	Rated voltage	Rated frequency	Max. operating speed ¹⁾	Speed, max. ²⁾	1PH8 synchronous motor Water cooling
n_{rated} rpm	SH	P_{rated} kW (HP)	M_{rated} Nm (lb _F -ft)	I_{rated} A	V_{rated} V	f_{rated} Hz	$n_{max, Inv}$ rpm	n_{max} rpm	Order No.
Line voltage 480 V 3 AC, Smart/Basic/Active Line Module									
1000	180	60 (80.5)	573 (423)	102	423	67	1450	3800	1PH8184-■C2■-...1
		82 (110)	783 (578)	140	415	67	1450	3800	1PH8186-■C2■-...1
	225	101 (135)	964 (711)	178	385	67	1450	3500	1PH8224-■C2■-...1
		134 (180)	1280 (944)	255	357	67	1550	3500	1PH8226-■C2■-...1
		172 (231)	1642 (1211)	300	390	67	1450	3500	1PH8228-■C2■-...1
1350	180	82 (110)	580 (428)	140	417	90	1950	3800	1PH8184-■D2■-...1
		107 (143)	757 (558)	190	400	90	2050	3800	1PH8186-■D2■-...1
	225	135 (181)	955 (704)	250	365	90	2050	3500	1PH8224-■D2■-...1
		180 (241)	1273 (939)	320	380	90	1950	3500	1PH8226-■D2■-...1
		226 (303)	1599 (1179)	395	395	90	1950	3500	1PH8228-■D2■-...1
2000	180	110 (148)	525 (387)	176	434	133	2700	3800	1PH8184-■F2■-...1
		154 (207)	735 (542)	265	400	133	2950	3800	1PH8186-■F2■-...1
	225	186 (249)	888 (655)	330	380	133	2900	3500	1PH8224-■F2■-...1
		248 (333)	1184 (873)	410	390	133	2700	3500	1PH8226-■F2■-...1
		310 (416)	1480 (1092)	550	380	133	2900	3500	1PH8228-■F2■-...1
3200	180	142 (190)	424 (313)	230	405	213	3800	3800	1PH8184-■L2■-...1
		183 (245)	546 (403)	315	375	213	3800	3800	1PH8186-■L2■-...1
	225	196 (263)	585 (431)	310	400	213	3500	3500	1PH8224-■L2■-...1
		245 (329)	731 (539)	340	460	213	3500	3500	1PH8226-■L2■-...1
		291 (390)	868 (640)	485	380	213	3500	3500	1PH8228-■L2■-...1

Synchronous variant
Synchronous variant with holding brake (IP55 degree of protection)

2
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For versions, see
Order No. supplements
and options.

SIMOTICS main motors

Asynchronous and synchronous motors SIMOTICS M for SINAMICS S120

SIMOTICS M-1PH8 synchronous motors
Water cooling, IP55 degree of protection

Motor type (repeated)	Static torque	Static current	Effi- ciency	Moment of inertia	Weight, approx.	Terminal box	SINAMICS S120 Motor Module	
							Rated output current ³⁾	For additional versions and components see SINAMICS S120 drive system Order No.
							I_{rated} A	
M_0 Nm (lb _r -ft)	I_0 A	η	J kgm ² (lb _r -in-s ²)	kg (lb)	Type			
Line voltage 480 V 3 AC, Smart/Basic/Active Line Module								
1PH8184-..C2...	590 (435)	103	0.937	0.457 (4.045)	330 (728)	1XB7322-P05	132	6SL3120-1TE31-3AA3
1PH8186-..C2...	800 (590)	143	0.941	0.599 (5.302)	400 (882)	1XB7322-P05	200	6SL3120-1TE32-0AA3
1PH8224-..C2...	1007 (743)	183	0.957	1.28 (11.3)	580 (1279)	1XB7322-P05	200	6SL3120-1TE32-0AA3
1PH8226-..C2...	1330 (981)	260	0.960	1.66 (14.7)	700 (1544)	1XB7700-P02	260	6SL3320-1TE32-6AA3
1PH8228-..C2...	1680 (1239)	306	0.961	2.02 (17.9)	810 (1786)	1XB7700-P02	310	6SL3320-1TE33-1AA3
1PH8184-..D2...	600 (443)	143	0.946	0.457 (4.045)	330 (728)	1XB7322-P05	200	6SL3120-1TE32-0AA3
1PH8186-..D2...	800 (590)	196	0.952	0.599 (5.302)	400 (882)	1XB7322-P05	200	6SL3120-1TE32-0AA3
1PH8224-..D2...	1007 (743)	262	0.961	1.28 (11.3)	580 (1279)	1XB7700-P02	260	6SL3320-1TE32-6AA3
1PH8226-..D2...	1330 (981)	330	0.964	1.66 (14.7)	700 (1544)	1XB7700-P02	380	6SL3320-1TE33-8AA3
1PH8228-..D2...	1680 (1239)	408	0.965	2.02 (17.9)	810 (1786)	1XB7700-P02	490	6SL3320-1TE35-0AA3
1PH8184-..F2...	600 (443)	196	0.957	0.457 (4.045)	330 (728)	1XB7322-P05	200	6SL3120-1TE32-0AA3
1PH8186-..F2...	800 (590)	285	0.956	0.599 (5.302)	400 (882)	1XB7700-P02	310	6SL3320-1TE33-1AA3
1PH8224-..F2...	1007 (743)	367	0.964	1.28 (11.3)	580 (1279)	1XB7700-P02	380	6SL3320-1TE33-8AA3
1PH8226-..F2...	1330 (981)	454	0.965	1.66 (14.7)	700 (1544)	1XB7700-P02	490	6SL3320-1TE35-0AA3
1PH8228-..F2...	1680 (1239)	612	0.964	2.02 (17.9)	810 (1786)	1XB7712-P03	745	6SL3320-1TE37-5AA3
1PH8184-..L2...	530 (391)	278	0.954	0.457 (4.045)	330 (728)	1XB7700-P02	260	6SL3320-1TE32-6AA3
1PH8186-..L2...	720 (531)	405	0.953	0.599 (5.302)	400 (882)	1XB7700-P02	380	6SL3320-1TE33-8AA3
1PH8224-..L2...	885 (653)	460	0.954	1.28 (11.3)	580 (1279)	1XB7700-P02	380	6SL3320-1TE33-8AA3
1PH8226-..L2...	1170 (863)	532	0.954	1.66 (14.7)	700 (1544)	1XB7700-P02	490	6SL3320-1TE35-0AA3
1PH8228-..L2...	1400 (1033)	762	0.954	2.02 (17.9)	810 (1786)	1XB7712-P03	745	6SL3320-1TE37-5AA3

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¹⁾ $n_{max,Inv}$: Maximum permissible operating speed based on the induced voltage in the motor and the voltage strength of the Motor Module (without protective circuit).

²⁾ n_{max} : Maximum speed that must not be exceeded.

³⁾ I_{rated} : Output current of the Motor Module at rated pulse frequency (see SINAMICS S120 drive system).
The rated motor data is valid for 2 kHz (SH 180 to 280).

SIMOTICS main motors

Asynchronous and synchronous motors SIMOTICS M for SINAMICS S120

SIMOTICS M-1PH8 asynchronous and synchronous motors without holding brake at DE
Order No. supplements for 1PH808/1PH810/1PH813/1PH816 motors

Selection and ordering data

Position of Order No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16					
Shaft height 80	1	P	H	8	0	8	.	-	1	■	.	■	■	-	■	■	■	1	-	Z	
Shaft height 100	1	P	H	8	1	0	.	-	1	■	.	■	■	-	■	■	■	1	-	Z	
Shaft height 132	1	P	H	8	1	3	.	-	.	■	.	■	■	-	■	■	■	1	-	Z	
Shaft height 160	1	P	H	8	1	6	.	-	.	■	.	■	■	-	■	■	■	1	-	Z	
Overall length¹⁾									.												
Asynchronous variant									1												
Synchronous variant (1PH813/1PH816)									2												
Encoder systems for motors <u>without</u> DRIVE-CLiQ interface																					
Without encoder ²⁾										A											
Absolute encoder 2048 S/R, 4096 revolutions, multi-turn (encoder AM2048S/R) ³⁾										E											
Incremental encoder HTL 1024 S/R (encoder HTL1024 S/R) ²⁾⁴⁾										H											
Incremental encoder HTL 2048 S/R (encoder HTL2048 S/R) ²⁾⁵⁾										J											
Incremental encoder sin/cos 1 V _{pp} 2048 S/R with C and D tracks (encoder IC2048S/R) ³⁾										M											
Encoder systems for motors <u>with</u> DRIVE-CLiQ interface																					
Absolute encoder 22 bit (resolution 4194304, internal 2048 S/R) + 12 bit multi-turn (traversing range 4096 revolutions) (encoder AM22DQ) ³⁾										F											
Incremental encoder 22 bit (resolution 4194304, internal 2048 S/R) + commutation position 11 bit (encoder IC22DQ) ³⁾										D											
Rated speeds at 380 V to 480 V 3 AC (winding design)																					
400 rpm/500 rpm/600 rpm										B											
1000 rpm/1150 rpm/1350 rpm										D											
1500 rpm/1750 rpm/2000 rpm										F											
2000 rpm/2300 rpm/2650 rpm										G											
2500 rpm/2800 rpm/3000 rpm										L											
3000 rpm/3300 rpm/3600 rpm										M											
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) ⁶⁾																				3	

For 13th to 16th position of the Order No. see following page

- 1) Not selectable. Determined by the choice of rated power.
- 2) Only possible with asynchronous variant.
- 3) Limited to $n_{max} = 12000$ rpm.
- 4) Limited to $n_{max} = 9000$ rpm.
- 5) Limited to $n_{max} = 4600$ rpm.
- 6) Only possible with 1PH810 to 1PH816.

SIMOTICS main motors

Asynchronous and synchronous motors SIMOTICS M for SINAMICS S120

SIMOTICS M-1PH8 asynchronous and synchronous motors without holding brake at DE
Order No. supplements for 1PH808/1PH810/1PH813/1PH816 motors
Selection and ordering data (continued)

Position of Order No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16											
	1	P	H	8	.	.	.	-	.	■	■	■	-	■	■	■	1	-	Z								
Shaft extension DE	Balancing																										
Plain shaft	-													0													
Feather key	Full-key													1													
Feather key	Half-key													2													
Bearing	Vibration severity acc. to Siemens/EN 60034-14²⁾												Shaft and flange accuracy²⁾														
Standard	Grade R/A												Tolerance R				B										
Standard	Grade S/A												Tolerance R				C										
Standard ¹⁾	Grade SR/A												Tolerance R				D										
Performance ³⁾	Grade SPECIAL/B												Tolerance SPECIAL				L										
Advanced Lifetime ⁴⁾	Grade S/A												Tolerance R				Q										
Cable connection (view of DE)																											
<u>Terminal box</u>	<u>Cable entry</u>					<u>Signal connection</u>																					
Top	Right					DE											A										
Top	Left					DE											B										
Top	NDE					Left											C										
<u>Power connector⁵⁾</u>																											
Top	Right					DE											E										
Top	Left					DE											F										
Top	NDE					Left											G										
Top	DE					Left											H										
Version status																1											
Special versions	order codes are required for options, see page 5/83																										
																											- Z

Ordering example

Selection criteria	Design	Structure of the Order No.
1PH8 motor	Synchronous variant, water cooling Shaft height 132 Version status 1	1PH8131-2...2...1
Encoder system	Incremental encoder sin/cos 1 V _{pp} 2048 S/R with C and D tracks (encoder IC2048S/R)	1PH8131-2M.2...1
Rated operating point	1500 rpm, 17.6 kW, 112 Nm	1PH8131-2MF2...1
Type of construction	IM B3 (IM V5, IM V6)	1PH8131-2MF20...1
Shaft extension DE	Plain shaft	1PH8131-2MF20-0...1
Bearing version	Standard Vibration severity grade R/A Shaft and flange accuracy tolerance R	1PH8131-2MF20-0B.1
Connection	Cable connection terminal box top Cable entry on the right Signal connection DE	1PH8131-2MF20-0BA1
Options		1PH8131-2MF20-0BA1-Z
	Additional PTC thermistor chain for alarm and tripping	1PH8131-2MF20-0BA1-Z A12
	Special paint finish worldwide, primer and paint finish: sky blue RAL 5015	1PH8131-2MF20-0BA1-Z A12+K23+X05

¹⁾ Only possible with asynchronous variant.

²⁾ For definition, see 1PH8 Configuration Manual.

³⁾ Only possible with asynchronous variant,
 1PH808: Limited to $n_{max} = 15000$ rpm
 1PH810: Limited to $n_{max} = 12000$ rpm
 1PH813: Limited to $n_{max} = 10000$ rpm
 1PH816: Limited to $n_{max} = 9000$ rpm. Not possible with 12th position of Order No. 2 (IM B5)

⁴⁾ Limited to $n_{max} = 5000$ rpm.
 1PH813: Limited to $n_{max} = 4500$ rpm
 1PH816: Limited to $n_{max} = 4000$ rpm.

⁵⁾ With 1PH810, power connector is only possible up to a maximum static current of $I_0 = 36$ A.
 With 1PH813, power connector is only possible up to a maximum static current of $I_0 = 85$ A.
 Not possible for 1PH816.

SIMOTICS main motors

Asynchronous and synchronous motors SIMOTICS M for SINAMICS S120

SIMOTICS M-1PH8 asynchronous and synchronous motors without holding brake at DE Order No. supplements for 1PH818/1PH822/1PH828 motors

Selection and ordering data

Position of 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	.	-	.	■	.	■	■	-	■	■	■	1	-	Z
Shaft height 225	1	P	H	8	2	2	.	-	.	■	.	■	■	-	■	■	■	1	-	Z
Shaft height 280 (asynchronous variant and water cooling) ¹⁾	1	P	H	8	2	8	.	-	1	■	.	2	■	-	■	■	■	1	-	Z
Overall length²⁾	.																			
Asynchronous variant									1											
Synchronous variant (1PH818/1PH822)									2											
Encoder systems for motors without DRIVE-CLiQ interface																				
Without encoder ³⁾																				
Absolute encoder 2048 S/R, 4096 revolutions, multi-turn (encoder AM2048S/R)																				
Incremental encoder HTL 1024 S/R (encoder HTL1024S/R) ³⁾																				
Incremental encoder HTL 2048 S/R (encoder HTL2048 S/R) ³⁾⁴⁾																				
Incremental encoder sin/cos 1 V _{pp} 2048 S/R with C and D tracks (encoder IC2048S/R)																				
Encoder systems for motors with DRIVE-CLiQ interface																				
Absolute encoder 22 bit (resolution 4194304, internal 2048 S/R) + 12 bit multi-turn (traversing range 4096 revolutions) (encoder AM22DQ)																				
Incremental encoder 22 bit (resolution 4194304, internal 2048 S/R) + commutation position 11 bit (encoder IC22DQ)																				
Rated speeds at 380 V to 480 V 3 AC (winding design)																				
400 rpm/500 rpm/600 rpm																				
700 rpm/800 rpm/1000 rpm																				
1000 rpm/1150 rpm/1350 rpm																				
1500 rpm/1750 rpm/2000 rpm																				
2500 rpm/2900 rpm/3200 (3400) rpm																				
Rated speeds at 690 V 3 AC (1PH828) (winding design)																				
400 rpm/500 rpm																				
700 rpm/800 rpm																				
1000 rpm/1150 rpm																				
1500 rpm/1750 rpm																				
Cooling																				
Degree of protection																				
Forced ventilation, DE → NDE																				
IP55																				
0																				
Forced ventilation, NDE → DE																				
IP55																				
1																				
Water cooling																				
IP55																				
2																				
Forced ventilation (open-circuit cooling), DE → NDE ³⁾																				
IP23																				
3																				
Forced ventilation (open-circuit cooling), NDE → DE ³⁾																				
IP23																				
4																				
Type of construction																				
1PH818																				
1PH822																				
1PH828																				
IM B3 (IM B6, IM B7, IM B8, IM V6)																				
IM B3 (IM B6, IM B7, IM B8, IM V6)																				
IM B3 (IM V6)																				
IM V5																				
IM V5																				
IM V5 ⁸⁾																				
IM B5 with A450 flange (IM V3) ⁵⁾																				
IM B5 with A550 flange (IM V3) ⁶⁾																				
IM B5 with A660 flange (IM V3) ⁷⁾⁸⁾																				
IM B35 with A450 flange (IM V35)																				
IM B35 with A550 flange (IM V35)																				
IM B35 with A660 flange (IM V35)																				
IM V15 with A450 flange																				
IM V15 with A550 flange																				
IM V15 with A660 flange ⁸⁾																				
0																				
1																				
2																				
3																				
5																				

For 13th to 16th position of the Order No. see following page

¹⁾ Shaft height 280 with forced ventilation and open-circuit cooling, see page 5/78.

²⁾ Not selectable. Determined by the choice of rated power.

³⁾ Only possible with asynchronous variant.

⁴⁾ Limited to $n_{max} = 4600$ rpm.

⁵⁾ Limited to $n_{max} = 3000$ rpm, not possible with 14th position of Order No. L (performance).

⁶⁾ Limited to $n_{max} = 2500$ rpm, not possible with 14th position of Order No. L (performance).

⁷⁾ Limited to $n_{max} = 2000$ rpm.

⁸⁾ Only possible with 14th position of Order No. A or B (standard bearing).

SIMOTICS main motors

Asynchronous and synchronous motors SIMOTICS M for SINAMICS S120

SIMOTICS M-1PH8 asynchronous and synchronous motors without holding brake at DE
Order No. supplements for 1PH818/1PH822/1PH828 motors

Selection and ordering data (continued)

Position of Order No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16										
	1	P	H	8	.	.	.	-	.	■	■	■	-	■	■	■	1	-	Z							
Shaft extension DE	Balancing																									
Plain shaft	-													0												
Feather key	Full-key													1												
Feather key	Half-key													2												
Bearing	Vibration severity acc. to Siemens/EN 60034-14¹⁾												Shaft and flange accuracy¹⁾													
Standard	Grade A												Tolerance N				A									
Standard	Grade R/A												Tolerance R				B									
Increased radial forces	Grade A												Tolerance N				E									
Increased radial forces	Grade R/A												Tolerance R				F									
<u>Also possible with 1PH818 and 1PH822:</u>																										
Standard	Grade S/A												Tolerance R				C									
Standard ²⁾	Grade SR/A												Tolerance R				D									
Performance ²⁾³⁾	Grade SR/A												Tolerance R				L									
Cable connection (view of DE)																										
<u>Terminal box</u>	<u>Cable entry</u>					<u>Signal connection</u>																				
Top	Right					DE						A														
Top	Left					DE						B														
Top	NDE					Right						C														
Top	DE					Right						D														
Version status																1										
Special versions order codes are required for options, see page 5/83																										Z

Ordering example

Selection criteria	Design	Structure of the Order No.
1PH8 motor	Asynchronous variant, water cooling Shaft height 180 Version status 1	1PH8184-1...2.-...1
Encoder system	Incremental encoder sin/cos 1 V _{pp} 2048 S/R with C and D tracks (encoder IC2048S/R)	1PH8184-1M.2.-...1
Rated operating point	1750 rpm, 82 kW, 447 Nm	1PH8184-1MF2.-...1
Type of construction	IM B3 (IM B6, IM B7, IM B8, IM V6)	1PH8184-1MF20-...1
Shaft extension DE	Plain shaft	1PH8184-1MF20-0..1
Bearing version	Standard Vibration severity grade R/A Shaft and flange accuracy tolerance R	1PH8184-1MF20-0B.1
Connection	Cable connection terminal box top Cable entry on the right Signal connection DE	1PH8184-1MF20-0BA1
Options		1PH8184-1MF20-0BA1-Z
	Additional PTC thermistor chain for alarm and tripping	1PH8184-1MF20-0BA1-Z A12
	Special paint finish worldwide, primer and paint finish: sky blue RAL 5015	1PH8184-1MF20-0BA1-Z A12+K23+X05

¹⁾ For definition, see 1PH8 Configuration Manual.

²⁾ Only possible with asynchronous variant.

³⁾ Only possible with 1PH818: Limited to $n_{max} = 7500$ rpm, not possible with 12th position of Order No. 2 (IM B5) and 11th position of Order No. 3 and 4.
 Only possible with 1PH822: Limited to $n_{max} = 6000$ rpm, not possible with 12th position of Order No. 2 (IM B5) and 11th position of Order No. 3 and 4.

SIMOTICS main motors

Asynchronous and synchronous motors SIMOTICS M for SINAMICS S120

SIMOTICS M-1PH8 asynchronous and synchronous motors with holding brake at DE
Order No. supplements for 1PH808/1PH810/1PH813/1PH816 motors

Selection and ordering data

Position of Order No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16							
Shaft height 80	1	P	H	8	0	8	.	-	3	■	.	■	■	-	■	■	■	1	-	Z			
Shaft height 100	1	P	H	8	1	0	.	-	3	■	.	■	■	-	■	■	■	1	-	Z			
Shaft height 132	1	P	H	8	1	3	.	-	.	■	.	■	■	-	■	■	■	1	-	Z			
Shaft height 160	1	P	H	8	1	6	.	-	.	■	.	■	■	-	■	■	■	1	-	Z			
Overall length¹⁾									.														
Asynchronous variant with holding brake²⁾									3											-	Z		
Synchronous variant with holding brake (1PH813/1PH816)²⁾									4												-	Z	
Encoder systems for motors <u>without</u> DRIVE-CLiQ interface																							
Without encoder ³⁾																							
Absolute encoder EnDat 2048 S/R (encoder AM2048S/R)											A												
Incremental encoder HTL 1024 S/R (encoder HTL1024S/R) ³⁾											E												
Incremental encoder HTL 2048 S/R (encoder HTL2048S/R) ³⁾											H												
Incremental encoder sin/cos 1 V _{pp} 2048 S/R with C and D tracks (encoder IC2048S/R)											J												
Encoder systems for motors <u>with</u> DRIVE-CLiQ interface																							
Absolute encoder 22 bit (resolution 4194304, internal 2048 S/R) + 12 bit multi-turn (traversing range 4096 revolutions) (encoder AM22DQ)											F												
Incremental encoder 22 bit (resolution 4194304, internal 2048 S/R) + commutation position 11 bit (encoder IC22DQ)											D												
Rated speed (winding version)																							
Cooling		Degree of protection																					
Forced ventilation DE → NDE		IP55																				0	
Forced ventilation NDE → DE		IP55																				1	
Water cooling		IP55 ⁴⁾																				2	
Type of construction																							
IM B5 (IM V1, IM V3) ⁵⁾																							2
IM B35 (IM V15, IM V3) ⁵⁾																							3

For 13th to 16th position of the Order No. see following page

- 1) Not selectable. Determined by the choice of rated power.
 2) For variant with holding brake, an order code from U60 to U68 is additionally required.
 1PH808: Limited to $n_{max} = 5000$ rpm
 1PH810: Limited to $n_{max} = 5000$ rpm
 1PH813: Limited to $n_{max} = 4500$ rpm
 1PH816: Limited to $n_{max} = 4000$ rpm.
 3) Only possible with asynchronous variant.
 4) With holding brake, degree of protection is limited to IP55.
 5) Not possible with 1PH816.

SIMOTICS main motors

Asynchronous and synchronous motors SIMOTICS M for SINAMICS S120

SIMOTICS M-1PH8 asynchronous and synchronous motors with holding brake at DE
Order No. supplements for 1PH808/1PH810/1PH813/1PH816 motors
Selection and ordering data (continued)

Position of Order No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			
	1	P	H	8	.	.	.	-	.	.	.	-	.	.	.	1	-	Z	
Shaft extension DE	Balancing																		
Plain shaft	-													0					
Feather key	Half-key													2					
Bearing	Vibration severity acc. to Siemens/EN 60034-14												Shaft and flange accuracy						
Standard	Grade A												Tolerance N		A				
Advanced lifetime	Grade A												Tolerance N		P				
Cable connection (view of DE) ¹⁾																			
<u>Terminal box</u>			<u>Cable entry</u>			<u>Signal connection</u>													
Top	Right		DE														A		
Top	Left		DE														B		
Top	NDE		Left														C		
Version status															1				
Holding brake type																			
Supply voltage 230 V 1 AC, 50/60 Hz																			
Holding brake DE													Order code required: U60		-	Z			
Holding brake DE with microswitch													Order code required: U61		-	Z			
Holding brake DE with manual brake release lever													Order code required: U62		-	Z			
Holding brake DE with microswitch and manual brake release lever													Order code required: U63		-	Z			
Supply voltage 24 V DC																			
Holding brake DE													Order code required: U65		-	Z			
Holding brake DE with microswitch													Order code required: U66		-	Z			
Holding brake DE with manual brake release lever													Order code required: U67		-	Z			
Holding brake DE with microswitch and manual brake release lever													Order code required: U68		-	Z			
Options K18 and V91 are not possible for variant with holding brake.																			
Special versions order codes are required for options, see page 5/83															-	Z			

¹⁾ Connection for holding brake is only possible via terminal box (top).

SIMOTICS main motors

Asynchronous and synchronous motors SIMOTICS M for SINAMICS S120

SIMOTICS M-1PH8 asynchronous and synchronous motors with holding brake at DE
Order No. supplements for 1PH818/1PH822 motors

Selection and ordering data

Position of 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	.	-	.	■	.	■	■	-	■	■	■	1	-	Z		
Shaft height 225	1	P	H	8	2	2	.	-	.	■	.	■	■	-	■	■	■	1	-	Z		
Overall length¹⁾								.														
Asynchronous variant with holding brake²⁾								3											-	Z		
Synchronous variant with holding brake²⁾								4											-	Z		
Encoder systems for motors without DRIVE-CLiQ interface																						
Without encoder ³⁾									A													
Absolute encoder EnDat 2048 S/R (encoder AM2048S/R)									E													
Incremental encoder HTL 1024 S/R (encoder HTL1024S/R) ³⁾									H													
Incremental encoder HTL 2048 S/R (encoder HTL 2048S/R) ³⁾									J													
Incremental encoder sin/cos 1 V _{pp} 2048 S/R with C and D tracks (encoder IC2048S/R)									M													
Encoder systems for motors with DRIVE-CLiQ interface																						
Absolute encoder 22 bit (resolution 4194304, internal 2048 S/R) + 12 bit multi-turn (traversing range 4096 revolutions) (encoder AM22DQ)									F													
Incremental encoder 22 bit (resolution 4194304, internal 2048 S/R) + commutation position 11 bit (encoder IC22DQ)									D													
Rated speed (winding version)																						
Cooling										Degree of protection												
Forced ventilation, DE → NDE										IP55											0	
Forced ventilation, NDE → DE										IP55											1	
Water cooling										IP55											2	
Open-circuit cooling, NDE → DE (asynchronous motors only)										IP23											4	
Type of construction																						
IM B3 (IM B6, IM B7, IM B8, IM V6)										0												
Shaft extension DE										Balancing												
Feather key										Half-key											2	
Bearing										Vibration severity acc. to Siemens/EN 60034-14					Shaft and flange accuracy							
Standard										Grade A					Tolerance N						A	
Cable connection (view of DE) ⁴⁾																						
<u>Terminal box</u>					<u>Cable entry</u>					<u>Signal connection</u>												
Top					Right					DE											A	
Top					Left					DE											B	
Top					NDE					Right											C	
Top					DE					Right											D	
Version status																1						
Holding brake type																						
Supply voltage 230 V 1 AC, 50/60 Hz																						
Holding brake DE with microswitch and manual brake release lever										Order code required: U63											-	Z
Options K18 and V91 are not possible for variant with holding brake.																						
Special versions order codes are required for options, see page 5/83																-					Z	

¹⁾ Not selectable. Determined by the choice of rated power.

²⁾ Order code U63 is additionally required for variant with holding brake.

1PH818: Limited to $n_{max} = 3500$ rpm

1PH822: Limited to $n_{max} = 3100$ rpm.

³⁾ Only possible with asynchronous variant.

⁴⁾ Connection for holding brake is only possible via terminal box (top).

SIMOTICS main motors

Asynchronous and synchronous motors SIMOTICS M for SINAMICS S120

SIMOTICS M-1PH8 asynchronous and synchronous motors Options

Options

Order code	Description	For use with motors		
		1PH808 1PH810 1PH813 1PH816	1PH818 1PH822 1PH828 (water cooling)	1PH828 1PH835 for forced ventilation only (11th position of Order No. 1 or 4)
A12	Additional PTC thermistor chain for alarm and tripping (only possible for version with terminal box)	✓	✓	✓
A25	Additional KTY84 temperature sensor as reserve connected to signal terminal strip (only possible for version with terminal box)	✓	Standard	Standard
B02	Test certificate (for the ordered motor)	✓	Standard	Standard
G00	External fan NDE left (possible if 15th position of Order No. is U, W or X)	-	-	✓
G02	External fan NDE right (possible if 15th position of Order No. is V, W or X)	-	-	✓
G14	With air filter (only possible if 11th position of Order No. is 1 or 4)	✓ For 1PH813/ 1PH816 only	✓	✓
G80	Mounting of a POG 10 incremental encoder supplied by customer (possible if 9th position of Order No. is K)	-	-	✓
H56	Mounting of POG 10 D 1024 incremental encoder (possible if 9th position of Order No. is K)	-	-	✓
H75	Mounting of a HOG 28 incremental encoder supplied by customer (possible if 9th position of Order No. is G)	-	-	✓ For 1PH835 only
K08	Encoder connector mounted opposite (not possible if 15th position of Order No. is X)	-	✓	✓ For 1PH828 only
K09	Terminal box or power connector NDE right	✓ For 1PH810 only ¹⁾ / 1PH813/1PH816	-	-
	Terminal box NDE right, cable entry DE, signal connection top (possible if 15th position of Order No. is A)	-	✓	-
K10	Terminal box or power connector NDE left	✓ For 1PH810 only ¹⁾ / 1PH813/1PH816	-	-
	Terminal box NDE left, cable entry DE, signal connection top (possible if 15th position of Order No. is A)	-	✓	-
K16	Second shaft extension (1PH828 d × l: 95 mm × 170 mm (3.74 in × 6.69 in); 1PH835 d × l: 120 mm × 210 mm (4.72 in × 8.27 in)) (possible if 9th position of Order No. is A or G and 12th position of Order No. is 0 or 3)	-	-	✓
K18	Radial shaft sealing ring DE ²⁾	✓	✓	-
K40	Regreasing system, DE and NDE	-	✓ For 1PH818/ 1PH822 only	Standard
K45	Anti-condensation heating 230 V AC	-	-	✓
K69	Pipe connection prepared NDE right (only possible with forced ventilation, not for G00 or G02)	-	-	✓ For 1PH828 only
K70	Pipe connection prepared NDE left (only possible with forced ventilation, not for G00 or G02)	-	-	✓ For 1PH828 only
K71	Pipe connection prepared NDE top (only possible with forced ventilation, not for G00 or G02)	-	-	✓ For 1PH828 only
K80	Axial pipe connection NDE (only possible with forced ventilation)	✓	✓ For 1PH818/ 1PH822 only	-

✓ Option available

- Option not available

¹⁾ Not possible with 12th position of Order No. 2 (IM B5 type of construction).

²⁾ Only appropriate if oil spray or oil vapor is occasionally deposited on the sealing ring. Radial shaft sealing ring is not possible with: 14th position of Order No. E, F and L, 8th position of Order No. 3 and 4. Not possible in combination with options U60 to U68.

SIMOTICS main motors

Asynchronous and synchronous motors SIMOTICS M for SINAMICS S120

SIMOTICS M-1PH8 asynchronous and synchronous motors Options

Options (continued)

Order code	Description	For use with motors		
		1PH808 1PH810 1PH813 1PH816	1PH818 1PH822 1PH828 (water cooling)	1PH828 1PH835 for forced ventilation only (11th position of Order No. 1 or 4)
K83	Terminal box rotated by +90 degrees (possible in combination with options K09 or K10 or 15th position of Order No. U, W or X)	–	✓ ¹⁾	✓
K84	Terminal box rotated by -90 degrees (possible in combination with options K09 or K10 or 15th position of Order No. U, W or X)	–	✓ ¹⁾	✓
K85	Terminal box rotated by +180 degrees (possible in combination with options K09 or K10 or 15th position of Order No. U, W or X)	–	✓	✓
K90	Variant with flange size A400 (possible with 12th position of Order No. 2, 3 and 5; not possible in combination with holding brake (8th position of Order No. 3 or 4))	–	For 1PH818 only	–
L00	Replace terminal box (standard) with the next largest terminal box (note dimension implications in CAD Creator)	–	✓	✓
L12	Condensate drain hole	–	Standard for water cooling	With 11th position of Order No. "1" only
L27	NDE bearing in insulated version	–	For 1PH818 only	Standard
L72	Shaft of special steel	–	–	✓
L74	Fan version in IP65 degree of protection ²⁾	✓	–	–
M83	Additional back-off thread on motor feet (Only possible with 12th position of Order No. 0 or 3)	–	–	✓
P00	Undrilled cable entry plate	–	✓	✓ Not for 1XB7820-P00
P01	Cable entry plate 3 × M63 × 1.5	–	✓ Only for 1XB7700-P02 1XB7712-P03	✓ Only for 1XB7712-P03
P02	Cable entry plate 3 × M75 × 1.5	–	✓ Only for 1XB7712-P03	✓ Only for 1XB7712-P01 1XB7712-P03
P03	Cable entry plate 4 × M75 × 1.5	–	–	✓ Only for 1XB7712-P01
P04	Cable entry plate 4 × M63 × 1.5	–	✓ Only for 1XB7712-P03	✓ Only for 1XB7712-P01 1XB7712-P03
U60	Holding brake 230 V 1 AC	✓	–	–
U61	Holding brake 230 V 1 AC with microswitch	✓	–	–
U62	Holding brake 230 V 1 AC with manual brake release lever	✓	–	–
U63	Holding brake 230 V 1 AC with microswitch and manual brake release lever	✓	For 1PH818 and 1PH822 only	–
U65	Holding brake 24 V DC	✓	–	–
U66	Holding brake 24 V DC with microswitch	✓	–	–
U67	Holding brake 24 V DC with manual brake release lever	✓	–	–
U68	Holding brake 24 V DC with microswitch and manual brake release lever	✓	–	–

¹⁾ Not possible for 1PH822 and terminal box 1XB7712-P03.

²⁾ Regardless of the degree of protection, at high levels of atmospheric pollution, the fan must be cleaned.

³⁾ Not possible in combination with options K18 and V91.

SIMOTICS main motors

Asynchronous and synchronous motors SIMOTICS M for SINAMICS S120

SIMOTICS M-1PH8 asynchronous and synchronous motors Options

Options (continued)

Order code	Description	For use with motors		
		1PH808 1PH810 1PH813 1PH816	1PH818 1PH822 1PH828 (water cooling)	1PH828 1PH835 for forced ventilation only (11th position of Order No. 1 or 4)
V90	1PH7-compatible shaft extension ($d \times l$: 42 mm \times 110 mm (1.65 in \times 4.33 in)) (note reduced radial forces)	✓ For 1PH813 only	-	-
V91	1FT6-compatible shaft extension ($d \times l$: 48 mm \times 82 mm (1.90 in \times 3.23 in)) (not possible in combination with holding brake (8th position of Order No. 3 or 4) ¹⁾)	✓ For 1PH813 only	-	-
V92	1PH7184/1PL6184-compatible shaft extension ($d \times l$: 60 mm \times 140 mm (2.36 in \times 5.51 in)) (not possible in combination with holding brake (8th position of Order No. 3 or 4))	-	✓ For 1PH818 only	-
Y84	Customer specifications on rating plate (max. 30 characters)	✓	✓	✓
Paint finish				
-	Paint finish: Anthracite RAL 7016	Standard	Standard	Standard
K24	Primer	✓ Pale green	✓ Red brown	✓ Red brown
K23	Special paint finish, worldwide, primer and paint finish: anthracite RAL 7016	✓	✓	✓
K23+X..	Special paint finish, worldwide, primer and other paint finish can be selected from X01 to X08	✓	✓	✓
X01	Paint finish: jet black, matt RAL 9005	✓	✓	✓
X02	Paint finish: cream white RAL 9001	✓	✓	✓
X03	Paint finish: reseda green RAL 6011	✓	✓	✓
X04	Paint finish: pebble gray RAL 7032	✓	✓	✓
X05	Paint finish: sky blue RAL 5015	✓	✓	✓
X06	Paint finish: light ivory RAL 1015	✓	✓	✓
X08	Paint finish: white aluminum RAL 9006	✓	✓	✓

✓ Option available

- Option not available

When ordering a motor with order codes, **-Z** should be added to the order number.

¹⁾ Not possible in combination with options U60 to U68.