

Asynchronous motors

Main spindle motors for SINAMICS S120

1PH8 motors, standard type SH 80 to SH 132 – Forced ventilation

Selection and ordering data

Rated speed	Continuous speed, max. ¹⁾				Rated power for S1 duty	Rated torque	Static torque	1PH8 asynchronous motor Standard type
	n_{rated} rpm	$n_{max1}^{2)}$ rpm	$n_{max2}^{3)}$ rpm	$n_{max3}^{4)}$ rpm				
Shaft height SH 80 – Forced ventilation – Line voltage 400 V 3 AC, operation on Active Line Module								
1500	10000	12000	–	6200	2.8 (3.75)	18 (13.3)	21 (15.5)	1PH8083-1 F ■■■-■■■1
2000	10000	15000	17000	11350	3.7 (4.96)	18 (13.3)	21 (15.5)	1PH8083-1 G ■■■-■■■1
3000	10000	15000	20000	17300	4.1 (5.50)	13 (9.59)	21 (15.5)	1PH8083-1 M ■■■-■■■1
4500	10000	15000	20000	20000	4.8 (6.44)	10 (7.38)	19 (14.0)	1PH8083-1 N ■■■-■■■1
1500	10000	14000	–	6750	3.7 (4.96)	24 (17.7)	27 (19.9)	1PH8087-1 F ■■■-■■■1
2000	10000	15000	18000	10450	4.9 (6.57)	23 (17.0)	27 (19.9)	1PH8087-1 G ■■■-■■■1
3000	10000	15000	20000	20000	4.8 (6.44)	15 (11.1)	27 (19.9)	1PH8087-1 M ■■■-■■■1
4500	10000	15000	20000	20000	5.8 (7.78)	12 (8.85)	25 (18.4)	1PH8087-1 N ■■■-■■■1
Shaft height SH 100 – Forced ventilation – Line voltage 400 V 3 AC, operation on Active Line Module								
1500	9000	12000	–	8350	3.7 (4.96)	24 (17.7)	29 (21.4)	1PH8101-1 F ■■■-■■■1
1000	9000	12000	–	3800	3.7 (4.96)	35 (25.8)	38 (28.0)	1PH8103-1 D ■■■-■■■1
1500	9000	12000	–	5200	5.5 (7.38)	35 (25.8)	38 (28.0)	1PH8103-1 F ■■■-■■■1
2000	9000	12000	–	7200	7 (9.39)	33 (24.3)	38 (28.0)	1PH8103-1 G ■■■-■■■1
3000	9000	12000	18000	17100	8.4 (11.3)	27 (19.9)	38 (28.0)	1PH8103-1 M ■■■-■■■1
1500	9000	12000	–	6700	7 (9.39)	45 (33.2)	52 (38.4)	1PH8105-1 F ■■■-■■■1
1000	9000	12000	–	5450	6.3 (8.45)	60 (44.3)	63 (46.5)	1PH8107-1 D ■■■-■■■1
1500	9000	12000	–	6250	9 (12.1)	57 (42.0)	63 (46.5)	1PH8107-1 F ■■■-■■■1
2000	9000	12000	–	7500	10.5 (14.1)	50 (36.9)	63 (46.5)	1PH8107-1 G ■■■-■■■1
3000	9000	12000	18000	18000	12 (16.1)	38 (28.0)	59 (43.5)	1PH8107-1 M ■■■-■■■1
Shaft height SH 132 – Forced ventilation – Line voltage 400 V 3 AC, operation on Active Line Module								
1500	8000	10000	11000	6050	11 (14.8)	70 (51.6)	96 (70.8)	1PH8131-1 F ■■■-■■■1
1000	8000	10000	–	4600	12 (16.1)	115 (84.8)	128 (94.4)	1PH8133-1 D ■■■-■■■1
1500	8000	10000	13000	6900	15 (20.1)	96 (70.8)	126 (92.9)	1PH8133-1 F ■■■-■■■1
2000	8000	10000	15000	6500	20 (26.8)	96 (70.8)	126 (92.9)	1PH8133-1 G ■■■-■■■1
1500	8000	10000	14000	7500	18.5 (24.8)	118 (87.0)	157 (116)	1PH8135-1 F ■■■-■■■1
1000	8000	10000	12000	5400	17 (22.8)	162 (119)	183 (135)	1PH8137-1 D ■■■-■■■1
1500	8000	10000	15000	7000	22 (29.5)	140 (103)	172 (127)	1PH8137-1 F ■■■-■■■1
2000	8000	10000	15000	5500	28 (37.5)	134 (98.8)	176 (130)	1PH8137-1 G ■■■-■■■1

For versions, see Order number supplement and options.

The values in the selection and ordering data are applicable when using an Active Line Module with 400 V 3 AC line connection. When using a Smart Line Module, proceed according to 1PH8 Motors Configuration Manual.

Asynchronous motors

Main spindle motors for SINAMICS S120

1PH8 motors, standard type
SH 80 to SH 132 – Forced ventilation

Motor type (repeated)	Efficiency	Moment of inertia	Weight, approx. ⁶⁾	Rated current for S1 duty	Static current	SINAMICS S120 Motor Module	
	η %	J kgm ² (lb _r -in-s ²)	m kg (lb)	I_{rated} A	I_0 A	Rated output current for S1 duty I_{rated} A	Booksized format For additional versions and components, see SINAMICS S120 drive system Order No.
1PH8083-1.F...	80.9	0.0064 (0.06)	32 (70.6)	7.5	8	9	6SL312-1-TE21-0AA3
1PH8083-1.G...	83.2			11.6	12	18	6SL312-1-TE21-8AA3
1PH8083-1.M...	86.9			13.6	17	18	6SL312-1-TE21-8AA3
1PH8083-1.N...	86.4			17	23	18	6SL312-1-TE21-8AA3
1PH8087-1.F...	81.7	0.0089 (0.08)	39 (86.0)	10	11	18	6SL312-1-TE21-8AA3
1PH8087-1.G...	85.3			14.1	15	18	6SL312-1-TE21-8AA3
1PH8087-1.M...	87.1			17.3	23	18	6SL312-1-TE21-8AA3
1PH8087-1.N...	86.8			19.5	28	30	6SL312-1-TE23-0AA3
1PH8101-1.F...	83.5	0.0138 (0.12)	42 (92.6)	12.5	14	18	6SL312-1-TE21-8AA3
1PH8103-1.D...	81.4	0.0172 (0.15)	51 (112)	10	11	18	6SL312-1-TE21-8AA3
1PH8103-1.F...	85.2			13.5	14	18	6SL312-1-TE21-8AA3
1PH8103-1.G...	87.7			17.5	19	18	6SL312-1-TE21-8AA3
1PH8103-1.M...	88.0			25.7	31	30	6SL312-1-TE23-0AA3
1PH8105-1.F...	86.7	0.0252 (0.22)	65 (143)	17.5	20	18	6SL312-1-TE21-8AA3
1PH8107-1.D...	83.4	0.0289 (0.26)	73 (161)	17.5	25	18	6SL312-1-TE21-8AA3
1PH8107-1.F...	86.9			23.5	25	30	6SL312-1-TE23-0AA3
1PH8107-1.G...	89.7			26	29	30	6SL312-1-TE23-0AA3
1PH8107-1.M...	88.0			38	48	45	6SL312-1-TE24-5AA3
1PH8131-1.F...	89.9	0.059 (0.52)	89 (196)	24	30	30	6SL312-1-TE23-0AA3
1PH8133-1.D...	87.1	0.076 (0.67)	106 (234)	30	32	30	6SL312-1-TE23-0AA3
1PH8133-1.F...	89.9			34	42	45	6SL312-1-TE24-5AA3
1PH8133-1.G...	91.9			45	54	45	6SL312-1-TE24-5AA3
1PH8135-1.F...	89.8	0.094 (0.83)	125 (276)	43	53	45	6SL312-1-TE24-5AA3
1PH8137-1.D...	88.1	0.109 (0.96)	141 (311)	43	47	45	6SL312-1-TE24-5AA3
1PH8137-1.F...	90.4			56	68	60	6SL312-1-TE26-0AA3
1PH8137-1.G...	92.4			60	73	60	6SL312-1-TE26-0AA3

Cooling:

Internal air cooling

0

External air cooling

1

Motor Module:

Single Motor Module

1

Double Motor Module

2

1) Observe maximum speed of encoders.

2) Bearing version for standard.

3) Bearing version for performance.

4) Bearing version for high performance.

5) Maximum permissible thermal speed at constant power or speed which is at the voltage limit when $P = P_{rated}$.

6) Additional weight for version with hollow shaft: 2.5 kg (5.51 lb).

Asynchronous motors

Main spindle motors for SINAMICS S120

1PH8 motors, standard type SH 100/SH 132 – Forced ventilation

Selection and ordering data

Rated Speed	Continuous speed, max. ¹⁾				Rated power for S1 duty	Rated torque	Static torque	1PH8 asynchronous motor Standard type Order No.
Y/Δ	Y/Δ				Y/Δ	Y/Δ	Y/Δ	
n_{rated}	$n_{max1}^{2)}$	$n_{max2}^{3)}$	$n_{max3}^{4)}$	$n_2^{5)}$	P_{rated}	M_{rated}	M_0	
rpm	rpm	rpm	rpm	rpm	kW (HP)	Nm (lb _f -ft)	Nm (lb _f -ft)	
Shaft height SH 100 – Forced ventilation – Star/delta connection – Line voltage 400 V 3 AC, operation on Active Line Module								
2000/5000	9000	12000	18000	8950/10000	4.9/4.9 (6.57/6.57)	23/9 (17.0/6.64)	29/19 (21.4/14.0)	1PH8101-1 ■■■-■■■1
	9000	12000	18000	7650/10000	10/9.3 (13.4/12.5)	48/18 (35.4/13.3)	55/36 (40.6/26.6)	1PH8105-1 ■■■-■■■1
	9000	12000	18000	8550/10000	11/11 (14.8/14.8)	53/21 (39.1/15.5)	63/42 (46.5/31.0)	1PH8107-1 ■■■-■■■1
Shaft height SH 132 – Forced ventilation – Star/delta connection – Line voltage 400 V 3 AC, operation on Active Line Module								
2000/5000	8000	10000	15000	8000/10000	14.6/14.6 (19.6/19.6)	70/28 (51.6/20.7)	94/55 (69.3/40.6)	1PH8131-1 ■■■-■■■1
	8000	10000	15000	6500/10000	24.5/24.5 (32.9/32.9)	117/47 (86.3/34.7)	157/94 (116/69.3)	1PH8135-1 ■■■-■■■1
	8000	10000	15000	3000/6000	29/27.5 (38.9/36.9)	138/53 (102/39.1)	185/105 (136/77.4)	1PH8137-1 ■■■-■■■1

For versions, see Order number supplement and options.

The values in the selection and ordering data are applicable when using an Active Line Module with 400 V 3 AC line connection. When using a Smart Line Module, proceed according to 1PH8 Motors Configuration Manual.

Asynchronous motors

Main spindle motors for SINAMICS S120

1PH8 motors, standard type
SH 100/SH 132 – Forced ventilation

Motor type (repeated)	Efficiency	Moment of inertia	Weight, approx. ⁶⁾	Rated current for S1 duty	Static current	SINAMICS S120 Motor Module	
						Rated output current for S1 duty	Booksized format
							For additional versions and components, see SINAMICS S120 drive system Order No.
Y/Δ	Y/Δ	Y/Δ	Y/Δ	Y/Δ	Y/Δ	I_{rated}	
η	J	m	I_{rated}	I_0	I_{rated}	A	
%	kgm ² (lb _f -in-s ²)	kg (lb)	A	A	A		
1PH8101-1.S...	87.2/90.2	0.0138 (0.12)	42 (92.6)	13.2/13.5	15/20	18	6SL312-1-TE21-8AA3
1PH8105-1.S...	89.1/91.4	0.0252 (0.22)	65 (143)	23/24	25/34	30	6SL312-1-TE23-0AA3
1PH8107-1.S...	89.4/90.9	0.0289 (0.26)	73 (161)	26.7/28	30/40	30	6SL312-1-TE23-0AA3
1PH8131-1.S...	90.8/89.7	0.059 (0.52)	89 (196)	39/40	47/56	45	6SL312-1-TE24-5AA3
1PH8135-1.S...	91.7/93.9	0.094 (0.83)	125 (276)	51/52	62/78	60	6SL312-1-TE26-0AA3
1PH8137-1.S...	93.1/91.9	0.109 (0.96)	141 (311)	56/56	68/87	60	6SL312-1-TE26-0AA3

Cooling:	
Internal air cooling	0
External air cooling	1
Motor Module:	
Single Motor Module	1
Double Motor Module	2

- 1) Observe maximum speed of encoders.
- 2) Bearing version for standard.
- 3) Bearing version for performance.
- 4) Bearing version for high performance.
- 5) Maximum permissible thermal speed at constant power or speed which is at the voltage limit when $P = P_{rated}$.
- 6) Additional weight for version with hollow shaft: 2.5 kg (5.51 lb).

Asynchronous motors

Main spindle motors for SINAMICS S120

1PH8 motors, standard type SH 80 to SH 132 – Water cooling

Selection and ordering data

Rated speed	Continuous speed, max. ¹⁾				Rated power for S1 duty	Rated torque	Static torque	1PH8 asynchronous motor Standard type
n_{rated} rpm	$n_{max1}^{2)}$ rpm	$n_{max2}^{3)}$ rpm	$n_{max3}^{4)}$ rpm	$n_2^{5)}$ rpm	P_{rated} kW (HP)	M_{rated} Nm (lb _r -ft)	M_0 Nm (lb _r -ft)	
Shaft height SH 80 – Water cooling – Line voltage 400 V 3 AC, operation on Active Line Module								
1500	10000	12000	–	4850	3.5 (4.69)	22 (16.2)	23 (17.0)	1PH8083-1 F2 ■■■■1
2000	10000	15000	16000	9150	4.3 (5.77)	21 (15.5)	23 (17.0)	1PH8083-1 G2 ■■■■1
4500	10000	15000	20000	18950	6.7 (8.98)	14 (10.3)	23 (17.0)	1PH8083-1 N2 ■■■■1
1500	10000	15000	–	7700	4.6 (6.17)	29 (21.4)	34 (25.1)	1PH8087-1 F2 ■■■■1
2000	10000	15000	19000	10000	6.1 (8.18)	29 (21.4)	34 (25.1)	1PH8087-1 G2 ■■■■1
4500	10000	15000	20000	20000	8.5 (11.4)	18 (13.3)	27 (19.9)	1PH8087-1 N2 ■■■■1
Shaft height SH 100 – Water cooling – Line voltage 400 V 3 AC, operation on Active Line Module								
2000	9000	12000	–	6800	6.4 (8.58)	31 (22.9)	34 (25.1)	1PH8101-1 G2 ■■■■1
2000	9000	12000	–	5300	9.5 (12.7)	45 (33.2)	48 (35.4)	1PH8103-1 G2 ■■■■1
3000	9000	12000	18000	14600	10.6 (14.2)	34 (25.1)	46 (33.9)	1PH8103-1 M2 ■■■■1
1500	9000	–	–	5000	11 (14.8)	70 (51.6)	74 (54.6)	1PH8105-1 F2 ■■■■1
2000	9000	12000	–	6750	13 (17.4)	62 (45.7)	74 (54.6)	1PH8105-1 G2 ■■■■1
3000	9000	12000	18000	11700	16.8 (22.5)	53 (39.1)	71 (52.4)	1PH8105-1 M2 ■■■■1
1500	9000	12000	–	6400	14 (18.8)	89 (65.6)	94 (69.3)	1PH8107-1 F2 ■■■■1
3000	9000	12000	18000	18000	18 (24.1)	57 (42.0)	175 (129)	1PH8107-1 M2 ■■■■1
Shaft height SH 132 – Water cooling – Line voltage 400 V 3 AC, operation on Active Line Module								
1500	8000	10000	11000	3200	15 (20.1)	96 (70.8)	96 (70.8)	1PH8131-1 F2 ■■■■1
2000	8000	10000	14000	5500	18 (24.1)	86 (63.4)	101 (74.5)	1PH8131-1 G2 ■■■■1
1500	8000	10000	13000	4500	17 (22.8)	108 (79.7)	136 (100)	1PH8133-1 F2 ■■■■1
2000	8000	10000	15000	7000	22 (29.5)	105 (77.4)	134 (98.8)	1PH8133-1 G2 ■■■■1
1500	8000	10000	14000	5250	22 (29.5)	140 (103)	172 (127)	1PH8135-1 F2 ■■■■1
2000	8000	10000	15000	5250	29 (38.9)	138 (102)	170 (125)	1PH8135-1 G2 ■■■■1
1500	8000	10000	15000	6500	27 (36.2)	172 (127)	202 (149)	1PH8137-1 F2 ■■■■1
1500	8000	10000	15000	7000	30 (40.2)	191 (141)	223 (164)	1PH8138-1 F2 ■■■■1

For versions, see Order number supplement and options.

The values in the selection and ordering data are applicable when using an Active Line Module with 400 V 3 AC line connection. When using a Smart Line Module, proceed according to 1PH8 Motors Configuration Manual.

Asynchronous motors

Main spindle motors for SINAMICS S120

1PH8 motors, standard type
SH 80 to SH 132 – Water cooling

Motor type (repeated)	Efficiency	Moment of inertia	Weight, approx. ⁶⁾	Rated current for S1 duty	Static current	SINAMICS S120 Motor Module	
	η %	J kgm ² (lb _r -in-s ²)	m kg (lb)	I_{rated} A	I_0 A	Rated output current for S1 duty I_{rated} A	Booksized format For additional versions and components, see SINAMICS S120 drive system Order No.
1PH8083-1.F2...	78.4	0.0064 (0.06)	36 (79.4)	8.9	9	9	6SL312-1-TE21-0AA3
1PH8083-1.G2...	83.3			12.0	13	18	6SL312-1-TE21-8AA3
1PH8083-1.N2...	87.7			18.0	23	18	6SL312-1-TE21-8AA3
1PH8087-1.F2...	81.4	0.0089 (0.08)	44 (97.0)	13.7	15	18	6SL312-1-TE21-8AA3
1PH8087-1.G2...	84.3			17.5	19	18	6SL312-1-TE21-8AA3
1PH8087-1.N2...	89.1			24.0	31	30	6SL312-1-TE23-0AA3
1PH8101-1.G2...	85.7	0.0138 (0.12)	51 (113)	16.8	18	18	6SL312-1-TE21-8AA3
1PH8103-1.G2...	85.7	0.0172 (0.15)	60 (132)	23	24	30	6SL312-1-TE23-0AA3
1PH8103-1.M2...	90.0			30	35	30	6SL312-1-TE23-0AA3
1PH8105-1.F2...	84.3	0.0252 (0.22)	74 (163)	28.5	29	30	6SL312-1-TE23-0AA3
1PH8105-1.G2...	87.9			34.5	38	45	6SL312-1-TE24-5AA3
1PH8105-1.M2...	90.0			45	52	45	6SL312-1-TE24-5AA3
1PH8107-1.F2...	82.9	0.0289 (0.26)	83 (183)	43.7	44	45	6SL312-1-TE24-5AA3
1PH8107-1.M2...	90.0			60	73	60	6SL312-1-TE26-0AA3
1PH8131-1.F2...	88.3	0.059 (0.52)	105 (232)	30	30	30	6SL312-1-TE23-0AA3
1PH8131-1.G2...	90.8			40	44	45	6SL312-1-TE24-5AA3
1PH8133-1.F2...	89.7	0.076 (0.67)	123 (271)	38	45	45	6SL312-1-TE24-5AA3
1PH8133-1.G2...	90.9			52	61	60	6SL312-1-TE26-0AA3
1PH8135-1.F2...	90.1	0.094 (0.83)	141 (311)	51	58	60	6SL312-1-TE26-0AA3
1PH8135-1.G2...	92.4			64	73	85	6SL312-1-TE28-5AA3
1PH8137-1.F2...	90.0	0.1090 (0.96)	157 (346)	67	73	85	6SL312-1-TE28-5AA3
1PH8138-1.F2...	88.2	0.1090 (0.96)	160 (353)	80	88	85	6SL312-1-TE28-5AA3

Cooling:	
Internal air cooling	0
External air cooling	1
Motor Module:	
Single Motor Module	1
Double Motor Module	2

- 1) Observe maximum speed of encoders.
- 2) Bearing version for standard.
- 3) Bearing version for performance.
- 4) Bearing version for high performance.
- 5) Maximum permissible thermal speed at constant power or speed which is at the voltage limit when $P = P_{rated}$.
- 6) Additional weight for version with hollow shaft: 2.5 kg (5.51 lb).

Asynchronous motors

Main spindle motors for SINAMICS S120

1PH8 motors, standard type SH 180 to SH 280 – Water cooling

Selection and ordering data

Rated speed	Continuous speed, max.			Rated power for duty type S1	Rated torque	Static torque	1PH8 asynchronous motor Standard type
	n_{rated} rpm	$n_{max1}^{1)}$ rpm	$n_{max2}^{2)}$ rpm				
	P_{rated} kW (HP)	M_{rated} Nm (lb _r -ft)	M_0 Nm (lb _r -ft)	Order No.			
Shaft height SH 180 – Water cooling – Line voltage 380 V 3 AC, operation on Smart Line Module							
400	5000	7500	1500	17 (22.8)	406 (299)	406 (299)	1PH8184-1 B2 -■■■■1
700	5000	7500	2500	33 (44.3)	450 (332)	450 (332)	1PH8184-1 C2 -■■■■1
1000	5000	7500	5000	47 (63)	449 (331)	449 (331)	1PH8184-1 D2 -■■■■1
1500	5000	7500	5000	70 (93.9)	446 (329)	446 (329)	1PH8184-1 F 2 -■■■■1
2500	5000	7500	5000	95 (127)	363 (268)	363 (268)	1PH8184-1 L 2 -■■■■1
400	5000	7500	1800	23 (30.8)	549 (405)	549 (405)	1PH8186-1 B2 -■■■■1
700	5000	7500	3000	43 (57.7)	587 (433)	587 (433)	1PH8186-1 C2 -■■■■1
1000	5000	7500	5000	64 (85.8)	611 (451)	611 (451)	1PH8186-1 D2 -■■■■1
1500	5000	7500	5000	93 (125)	592 (437)	592 (437)	1PH8186-1 F 2 -■■■■1
2500	5000	7500	5000	120 (161)	458 (338)	458 (338)	1PH8186-1 L 2 -■■■■1
Shaft height SH 225 – Water cooling – Line voltage 380 V 3 AC, operation on Smart Line Module							
400	4500	5500	1400	36 (48.3)	860 (634)	860 (634)	1PH8224-1 B2 -■■■■1
700	4500	5500	2100	61 (81.8)	832 (614)	832 (614)	1PH8224-1 C2 -■■■■1
1000	4500	5500	2800	89 (119)	850 (627)	850 (627)	1PH8224-1 D2 -■■■■1
1500	4500	5500	3500	119 (160)	758 (559)	758 (559)	1PH8224-1 F 2 -■■■■1
2500	4500	5500	3200	153 (205)	584 (431)	584 (431)	1PH8224-1 L 2 -■■■■1
400	4500	–	1600	47 (63)	1122 (828)	1122 (828)	1PH8226-1 B2 -■■■■1
700	4500	–	2300	81 (109)	1105 (815)	1105 (815)	1PH8226-1 C2 -■■■■1
1000	4500	–	2400	115 (154)	1098 (810)	1098 (810)	1PH8226-1 D2 -■■■■1
1500	4500	–	3700	145 (194)	923 (681)	923 (681)	1PH8226-1 F 2 -■■■■1
2500	4500	–	3200	185 (248)	707 (521)	707 (521)	1PH8226-1 L 2 -■■■■1
400	4500	–	1700	58 (77.8)	1385 (1022)	1385 (1022)	1PH8228-1 B2 -■■■■1
700	4500	–	2500	96 (129)	1310 (966)	1310 (966)	1PH8228-1 C2 -■■■■1
1000	4500	–	2300	141 (189)	1347 (994)	1347 (994)	1PH8228-1 D2 -■■■■1
1500	4500	–	3700	192 (257)	1222 (901)	1222 (901)	1PH8228-1 F 2 -■■■■1
2500	4500	–	3200	226 (303)	863 (637)	863 (637)	1PH8228-1 L 2 -■■■■1
Shaft height SH 280 – Water cooling – Line voltage 380 V 3 AC, operation on Smart Line Module							
400	3300	–	2200	71 (95.2)	1695 (1250)	1695 (1250)	1PH8284-1 B2 -■■■■1
700	3300	–	2200	123 (165)	1678 (1238)	1678 (1238)	1PH8284-1 C2 -■■■■1
1000	3300	–	2200	172 (231)	1643 (1212)	1643 (1212)	1PH8284-1 D2 -■■■■1
1500	3300	–	2200	227 (304)	1445 (1066)	1445 (1066)	1PH8284-1 F 2 -■■■■1
400	3300	–	2200	89 (119)	2125 (1567)	2125 (1567)	1PH8286-1 B2 -■■■■1
700	3300	–	2200	153 (205)	2087 (1539)	2087 (1539)	1PH8286-1 C2 -■■■■1
1000	3300	–	2200	214 (287)	2044 (1508)	2044 (1508)	1PH8286-1 D2 -■■■■1
400	3300	–	2200	109 (146)	2602 (1919)	2602 (1919)	1PH8288-1 B2 -■■■■1
700	3300	–	2200	188 (252)	2565 (1892)	2565 (1892)	1PH8288-1 C2 -■■■■1

For versions, see Order number supplement and options.

The values in the selection and ordering data are applicable when using a Smart Line Module with 380 V 3 AC line connection. When using an Active Line Module, proceed according to 1PH8 Motors Configuration Manual.

Asynchronous motors

Main spindle motors for SINAMICS S120

1PH8 motors, standard type
SH 180 to SH 280 – Water cooling

Motor type (repeated)	Efficiency	Moment of inertia	Weight, approx.	Rated current for S1 duty	Static current	SINAMICS S120 Motor Module	
	η %	J kgm ² (lb _r -in-s ²)	m kg (lb)	I_{rated} A	I_0 A	Rated output current for S1 duty I_{rated} A	For additional versions and components, see SINAMICS S120 drive system Order No.
1PH8184-1.B2...	83.1	0.50 (4.43)	340 (750)	50	50	60	6SL312-1 TE26-0AA3
1PH8184-1.C2...	87.2			77	77	85	6SL312-1 TE28-5AA3
1PH8184-1.D2...	90.4			114	114	132	6SL312-1 TE31-3AA3
1PH8184-1.F2...	92.9			150	150	200	6SL312-1 TE32-0AA3
1PH8184-1.L2...	94.5			196	196	200	6SL312-1 TE32-0AA3
1PH8186-1.B2...	84.5	0.65 (5.75)	410 (904)	68	68	85	6SL312-1 TE28-5AA3
1PH8186-1.C2...	89.8			97	97	132	6SL312-1 TE31-3AA3
1PH8186-1.D2...	92.0			148	148	200	6SL312-1 TE32-0AA3
1PH8186-1.F2...	93.5			198	198	200	6SL312-1 TE32-0AA3
1PH8186-1.L2...	94.8			250	250	260	6SL3320-1 TE32-6AA3
1PH8224-1.B2...	85.8	1.45 (12.83)	610 (1345)	100	100	132	6SL312-1 TE31-3AA3
1PH8224-1.C2...	91.4			128	128	132	6SL312-1 TE31-3AA3
1PH8224-1.D2...	93.7			188	188	200	6SL312-1 TE32-0AA3
1PH8224-1.F2...	95.1			240	240	260	6SL3320-1 TE32-6AA3
1PH8224-1.L2...	96.1			310	310	310	6SL3320-1 TE33-1AA3
1PH8226-1.B2...	87.5	1.90 (16.82)	740 (1632)	130	130	132	6SL312-1 TE31-3AA3
1PH8226-1.C2...	92.8			184	184	200	6SL312-1 TE32-0AA3
1PH8226-1.D2...	93.8			235	235	260	6SL3320-1 TE32-6AA3
1PH8226-1.F2...	95.7			295	295	310	6SL3320-1 TE33-1AA3
1PH8226-1.L2...	96.3			380	380	380	6SL3320-1 TE33-8AA3
1PH8228-1.B2...	88.6	2.35 (20.8)	870 (1918)	154	154	200	6SL312-1 TE32-0AA3
1PH8228-1.C2...	93.0			210	210	210	6SL3320-1 TE32-1AA3
1PH8228-1.D2...	94.3			280	280	310	6SL3320-1 TE33-1AA3
1PH8228-1.F2...	95.9			390	390	380 ⁴⁾	6SL3320-1 TE33-8AA3
1PH8228-1.L2...	96.4			455	455	490	6SL3320-1 TE35-0AA3
1PH8284-1.B2...	91.4	4.42 (39.1)	1280 (2822)	170	170	200	6SL312-1 TE32-0AA3
1PH8284-1.C2...	94.5			260	260	260	6SL3320-1 TE32-6AA3
1PH8284-1.D2...	95.7			350	350	380	6SL3320-1 TE33-8AA3
1PH8284-1.F2...	96.4			445	445	490	6SL3320-1 TE35-0AA3
1PH8286-1.B2...	91.6	5.42 (48.0)	1490 (3285)	210	210	210	6SL3320-1 TE32-1AA3
1PH8286-1.C2...	94.8			320	320	380	6SL3320-1 TE33-8AA3
1PH8286-1.D2...	96.0			460	460	490	6SL3320-1 TE35-0AA3
1PH8288-1.B2...	92.5	6.61 (58.5)	1750 (3859)	260	260	260	6SL3320-1 TE32-6AA3
1PH8288-1.C2...	95.2			400	400	490	6SL3320-1 TE35-0AA3

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

1) Bearing version for standard.

2) Bearing version for performance.

3) Maximum permissible thermal speed at constant power or speed which is at the voltage limit when $P = P_{rated}$.

4) With the specified Motor Module, the motor cannot be fully utilized with M_0 .

Asynchronous motors

Main spindle motors for SINAMICS S120

1PH8 motors, standard type
Forced ventilation/water cooling

Order number supplement for shaft heights 80/100/132

Data position of the 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	■	■	■	-	■	■	■	1	-	Z
Overall length																			
Asynchronous version without brake									1										
Encoder systems for motors <u>without</u> DRIVE-CLiQ interface																			
Without encoder										A M T L E									
Incremental encoder sin/cos 1 V _{pp} 2048 S/R with C and D tracks (encoder IC2048S/R) ¹⁾																			
Incremental encoder sin/cos 1 V _{pp} 512 S/R without C and D tracks (encoder IN512S/R) ²⁾																			
Incremental encoder sin/cos 1 V _{pp} 256 S/R without C and D tracks (encoder IN256S/R) ³⁾																			
Absolute encoder 2048 S/R single-turn, 4096 revolutions multi-turn, with EnDat interface (encoder AM2048S/R) ¹⁾																			
Encoder systems for motors <u>with</u> DRIVE-CLiQ interface⁴⁾																			
22 bit incremental encoder (resolution 4194304, internal 2048 S/R) + commutation position 11 bit (encoder IC22DQ) ¹⁾										D									
20 bit incremental encoder (resolution 1048576, internal 512 S/R) ²⁾ without commutation position (encoder IN20DQ)										U									
19 bit incremental encoder (resolution 524288, internal 256 S/R) without commutation position (encoder IN19DQ) ³⁾										V									
22 bit absolute encoder single-turn (resolution 4194304, internal 2048 S/R) with 12 bit multi-turn (traversing range 4096 revolutions) (encoder AM22DQ) ¹⁾										F									
Rated speed (winding version)																			
Cooling																			
Forced ventilation DE → NDE										0									
Forced ventilation NDE → DE										1									
Water cooling										2									
Type of construction																			
IM B3 (IM V5, IM V6)										0									
IM B5 (IM V1, IM V3)										2									
IM B35 (IM V15, IM V35) (<u>Only</u> possible for 1PH810/1PH813)										3									
Shaft extension DE																			
Plain shaft										0									
Fitted key (<u>Not</u> possible if 14th data position: M)										1									
Fitted key (<u>Not</u> possible if 14th data position: M)										2									
Plain hollow shaft ³⁾										3									
Balancing																			
Bearing version																			
Standard										R									
Standard										S/A									
Standard										SR/A									
Performance										SPECIAL/B									
High performance ⁶⁾										SPECIAL/B									
Advanced lifetime ⁴⁾										S/A									
										R									
Shaft and flange accuracy																			
										B									
										C									
										D									
										L									
										M									
										Q									
Power connection (view of DE)																			
Terminal box top										Right									
Terminal box top										Left									
Terminal box top										NDE									
Power connector top ⁴⁾⁷⁾										Right									
Power connector top ⁴⁾⁷⁾										Left									
Power connector top ⁴⁾⁷⁾										NDE									
Power connector top ⁴⁾⁷⁾										DE									
Signal connection																			
										DE									
										DE									
										Left									
										DE									
										DE									
										Left									
										Right									
Version status																			
															1				
Special version (order codes are required for options)																			
Z																			

¹⁾ Maximum speed $n_{max} = 12000$ rpm.

²⁾ Maximum speed $n_{max} = 15000$ rpm.

³⁾ Only possible if 14th data position: L, M.

⁴⁾ Not possible for motors with star/delta connection.

⁵⁾ For a definition of vibration magnitude according to Siemens, please see 1PH8 Motors Configuration Manual.

⁶⁾ With 1PH808/1PH810, only possible if 9th data position: L or V
With 1PH813, only possible if 9th data position: L, T, U or V

⁷⁾ 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.

Asynchronous motors

Main spindle motors for SINAMICS S120

1PH8 motors, standard type
Forced ventilation/water cooling

Order number supplement for shaft heights 180/225/280

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	.	-	1	■	.	2	■	-	■	■	■	1	-	Z	
Shaft height 225	1	P	H	8	2	2	.	-	1	■	.	2	■	-	■	■	■	1	-	Z	
Shaft height 280	1	P	H	8	2	8	.	-	1	■	.	2	■	-	■	■	■	1	-	Z	
Overall length																					
Asynchronous version without brake								1													
Encoder systems for motors <u>without</u> DRIVE-CLiQ interface																					
Without encoder																					
Incremental encoder sin/cos 1 V _{pp} 2048 S/R with C and D tracks (encoder IC2048S/R) ¹⁾																					
Absolute encoder 2048 S/R single-turn, 4096 revolutions multi-turn, with EnDat interface (encoder AM2048S/R) ¹⁾																					
Encoder systems for motors <u>with</u> DRIVE-CLiQ interface																					
22 bit incremental encoder (resolution 4194304, internal 2048 S/R) + commutation position 11 bit (encoder IC22DQ) ¹⁾																					
22 bit absolute encoder single-turn (resolution 4194304, internal 2048 S/R) with 12 bit multi-turn (traversing range 4096 revolutions) (encoder AM22DQ) ¹⁾																					
Rated speed (winding version)																					
Cooling																					
Water cooling																					
Type of construction																					
IM B3 (IM B6, IM B7, IM B8, IM V6) (IM B6/IM B7/IM B8 not possible for 1PH828)																					
IM V5																					
IM B5 (IM V3) ²⁾ (Not possible if 14th data position: L)																					
IM B35 (IM V35)																					
IM V15																					
Shaft extension DE																					
Plain shaft																					
Fitted key																					
Fitted-key																					
Balancing																					
-																					
Full-key																					
Half-key																					
Bearing version																					
Vibration magnitude acc. to Siemens³⁾/EN 60034-14																					
Shaft and flange accuracy																					
Standard																					
Standard (Only for 1PH818/1PH822)																					
Standard (Only for 1PH818/1PH822)																					
Increased radial forces																					
Performance ⁴⁾ (Not possible if 12th data position: 2)																					
Power connection (view of DE)																					
Cable entry																					
Signal connection																					
Terminal box top																					
Terminal box top																					
Terminal box top																					
Terminal box top																					
Version status																					
Special version (order codes are required for options)																					

¹⁾ Maximum speed $n_{\max} = 12000$ rpm.

²⁾ With 1PH818, continuous speed $n_{\max} = 3000$ min.
With 1PH822, continuous speed $n_{\max} = 2500$ rpm.
With 1PH828, continuous speed $n_{\max} = 2000$ rpm.

³⁾ For a definition of vibration magnitude according to Siemens, please see 1PH8 Motors Configuration Manual.

⁴⁾ Only possible with 1PH818/1PH8224.
With 1PH818, continuous speed $n_{\max} = 7500$ rpm.
With 1PH8224, continuous speed $n_{\max} = 5500$ rpm.

Asynchronous motors

Main spindle motors for SINAMICS S120

1PH8 motors, standard type Forced ventilation/water cooling

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.	Used with motors	
		1PH808 1PH810 1PH813	1PH818 1PH822 1PH828
A12	Additional PTC thermistor chain for alarm and tripping (Only possible for versions with terminal box.)	✓	✓
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) Only with 1PH810/1PH813	–
	Terminal box NDE <u>right</u> , cable entry 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) Only with 1PH810/1PH813	–
	Terminal box NDE <u>left</u> , cable entry DE/signal connection <u>top</u> (Only possible if 15th data position: A)	–	✓
K18	Radial shaft sealing ring DE ²⁾ (Not possible if 14th data position: F, L or M)	✓	✓
K40	Regreasing system DE and NDE (standard with 1PH828)	–	✓
K83	Terminal box ³⁾ rotated through + 90°	–	✓
K84	Terminal box ³⁾ rotated through - 90°	–	✓
K85	Terminal box ³⁾ rotated through + 180°	–	✓
K90	Version with flange size A400 (Only possible if 12th data position: 2, 3 or 5)	–	✓ With 1PH818 only
V90	1PH7-compatible shaft extension ($d \times l$: 42 mm × 110 mm (1.65 in × 4.33 in)) (Note reduced radial forces)	✓ With 1PH813 only	–
L00	Replace terminal box (standard) with the next largest terminal box (Note dimension implications in CAD CREATOR.)	–	✓
P00	Undrilled cable entry plate	–	✓
P01	Cable entry plate 3 × M63 × 1.5 (Only with terminal box type 1XB7700-P02/1XB7712-P03)	–	✓
P02	Cable entry plate 3 × M75 × 1.5 (Only with terminal box type 1XB7712-P03)	–	✓
P04	Cable entry plate 4 × M63 × 1.5 (Only with terminal box type 1XB7712-P03)	–	✓
L74	Fan in IP66 degree of protection	✓	–
	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, another terminal box type is used for side mounting.
gk823 is used instead of gk813. gk843 is used instead of gk833. Only possible for types of construction IM B3 or IM B35.

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

3) Only possible in conjunction with option K09 or K10.