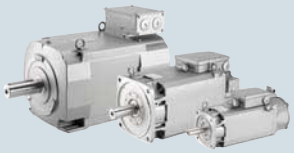
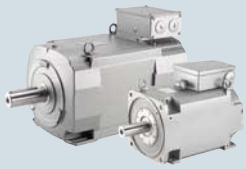
Motor type	Features	Degree of protection	Cooling method
SIMOTICS M-1PH8 asynchronous motor 	Three-phase squirrel-cage motor without housing Compact unit with high power density	IP55 IP23 IP55/IP65	Forced ventilation Forced ventilation Water cooling
SIMOTICS M-1PH8 synchronous motor 	Permanent-magnet synchronous motor Outstanding performance capabilities Compact unit with extremely high power density	IP55 IP55/IP65	Forced ventilation Water cooling
SIMOTICS M-1FE1/1FE2 synchronous built-in motors 	Synchronous built-in motors Permanent-magnet	IP00	Water cooling

9

SIMOTICS M main motors

The potential applications for SIMOTICS M-1PH8/M-1FE1/M-1FE2 motors are extremely versatile.

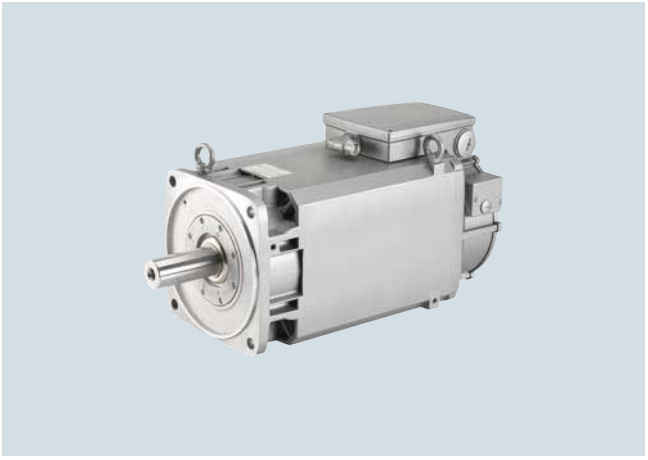
In machine tools, they are usually designated and used as main spindle motors.

In production machines, such as printing, packaging, and reforming machines, they are used as high-output main motors.

The selection and ordering data for the SINAMICS S120 Motor Modules are based on the booksize format by way of example. Blocksize and chassis formats are also possible. The SIZER for Siemens Drives engineering tool is available for detailed configuration

Shaft height	Rated power P_{rated} for duty type S1 kW (hp)	Rated torque M_{rated}	Page
SH 80/SH 100/SH 132/SH 160/ SH 180/SH 225/SH 280	2.8 (3.75) – 385 (516)	13 ... 2475 Nm (9.59 ... 1825 lb_f-ft)	**9/8**
SH 180/SH 225/SH 280	24.5 (32.9) – 630 (845)	317 ... 3710 Nm (234 ... 2736 lb_f-ft)	**9/26**
SH 80/SH 100/SH 132/SH 160/ SH 180/SH 225/SH 280	3.5 (4.69) – 460 (617)	20 ... 2610 Nm (14.8 ... 1925 lb_f-ft)	**9/36**
SH 132/SH 160/SH 180/SH 225	15.7 (21.1) – 196 (263)	94 ... 1091 Nm (69.3 ... 805 lb_f-ft)	**9/52**
SH 132/SH 160/SH 180/SH 225	15 (20.1) – 310 (416)	107 ... 1650 Nm (78.9 ... 1217 lb_f-ft)	**9/58**
Outer diameter (cooling jacket)			
High Torque series 95/115/130/190/ 205/250/310	4 (5.36) – 104 (139)	4.5 ... 820 Nm (3.32 ... 605 lb_f-ft)	**9/90**
High Speed series 120/155/180/205/ 230/270	6.5 (8.72) – 94 (126)	5 ... 300 Nm (3.69 ... 221 lb_f-ft)	**9/94**
High Torque series 180	34 (45.6) – 159 (213)	640 ... 1530 Nm (472 ... 1128 lb_f-ft)	**9/98**

Overview

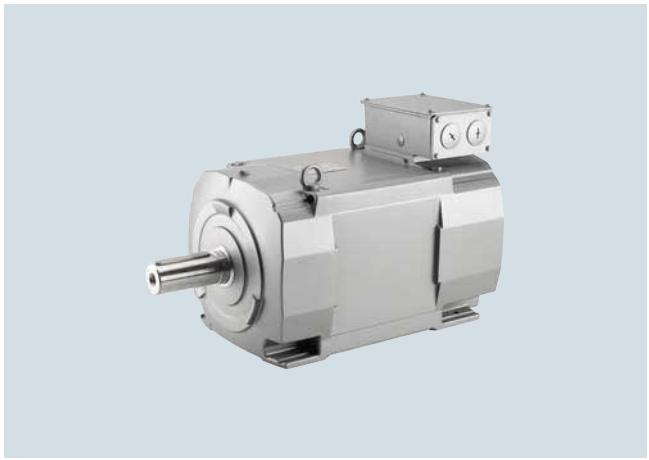


SIMOTICS M-1PH8 motors, forced ventilation, shaft heights 80 to 160

SIMOTICS M-1PH8 motors, water cooling, shaft heights 80 to 160

The SIMOTICS M-1PH8 series is the latest motor generation for universal use with Motion Control applications. The wide power range is aimed at use as a central machine drive (as what is known as a “main motor”) for various applications. The motors are available as an asynchronous variant as well as a compact synchronous variant with either forced ventilation or water cooling, based on a flexible building block principle. The flexible configuration – such as storage or electrical connection technology – allows you to adapt the motors to the requirements of almost any industrial application.

**Main drive with 1PH8 = high power +
high dynamic response +
high accuracy**



SIMOTICS M-1PH8 motors, water cooling, shaft heights 180 to 280

When developing the SIMOTICS M-1PH8 motor series, we placed special emphasis on making them perfectly compatible with the SINAMICS S120 drive system. For example, the specially harmonized power components, electronic rating plates, and the ability to integrate the motors via the DRIVE-CLiQ system interface ensure quick and easy commissioning as well as problem-free operation. What’s more, thanks to the harmonization of the system, they are capable of handling extreme duty cycles, short rise times, and are exceptionally precise in terms of speed, torque, and positioning.

Benefits

- Low space requirements thanks to high power density
- Performance capability thanks to wide rotational speed setting ranges
- High degree of structural flexibility due to the choice of
  - Asynchronous or synchronous design
  - Forced ventilation or water cooling
  - Mechanical designs
- Minimized maintenance costs thanks to high bearing service lives
- Precise motion control thanks to high rotational accuracy, even at the lowest speeds
- Maximum thermal utilization over the complete speed range
- Quiet operation as a result of low sound pressure level
- Optimized for the SINAMICS S120 drive system

Application

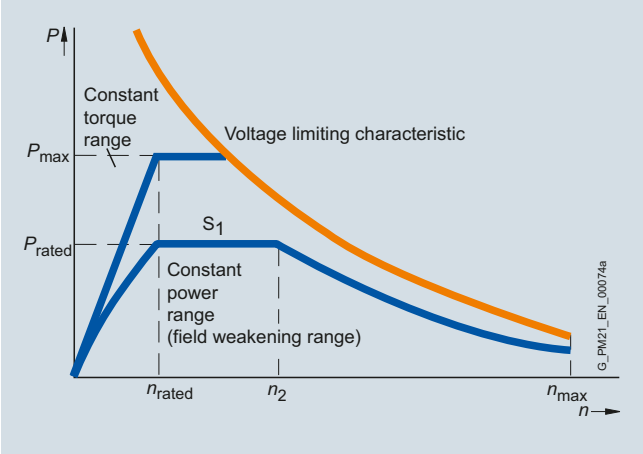
The application spectrum reaches across all industries and comprises, for example:

- Main drives in presses and extruders
- Converting applications
- Main spindle drives in machine tools (See Catalog NC 62)
- Rotary axes in the paper and printing industry
- Use in crane systems

The SIMOTICS M-1PH8 motors are suitable for installation in dry indoor areas without corrosive atmospheres.

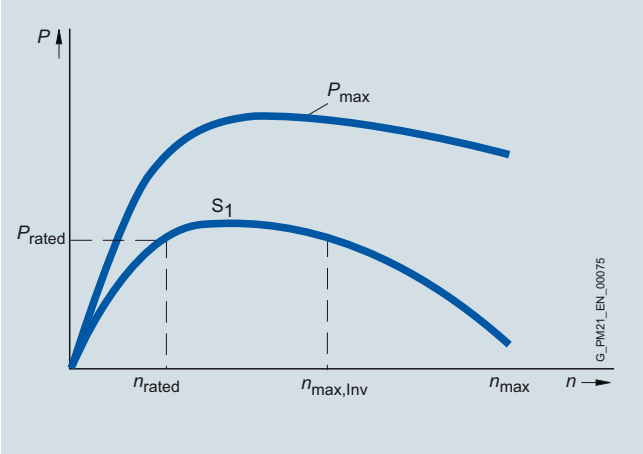
Characteristic curves

SIMOTICS M-1PH8 asynchronous motor



Typical speed/power characteristic curve for SIMOTICS M-1PH8 asynchronous motors

SIMOTICS M-1PH8 synchronous motor



Typical speed/power characteristic curve for SIMOTICS M-1PH8 synchronous motors

The characteristic curves show the typical relationship between motor speed and drive power for SIMOTICS M-1PH8 motors for duty type S1 (continuous duty) in accordance with IEC 60034-1.

The detailed characteristic curves for the corresponding voltage and winding can be found in the SIMOTICS M-1PH8 Configuration Manual.

Technical specifications

SIMOTICS M-1PH8 motor, forced ventilation	
Stator winding insulation in accordance with EN 60034-1 (IEC 60034-1)	For an ambient temperature of up to 40 °C (104 °F) Temperature class 180 (H)
Cooling according to EN 60034-6 (IEC 60034-6)	Forced ventilation
• 1PH808 ... 1PH822	Fan mounted axially at NDE
• 1PH828	Fan mounted radially at NDE
Temperature monitoring	Pt1000 temperature sensor in the stator winding 1PH818 ... 1PH828 additional Pt1000 as reserve
Fan supply voltage	
• 1PH808	230 V 1 AC 50/60 Hz, 265 V 1 AC 60 Hz
• 1PH810 ... 1PH816	400 V 3 AC 50/60 Hz, 480 V 3 AC 60 Hz
• 1PH818/1PH822	200 ... 277 V 1 AC 50/60 Hz (EC fan) 400 V 3 AC 50/60 Hz, 480 V 3 AC 60 Hz (optional)
• 1PH828	400 V 3 AC 50/60 Hz, 480 V 3 AC 60 Hz
Type of construction in accordance with EN 60034-7 (IEC 60034-7)	
• 1PH808	IM B3, IM B5
• 1PH810 ... 1PH828	IM B3, IM B5, IM B35
Degree of protection in accordance with EN 60034-5 (IEC 60034-5)	
• 1PH808 ... 1PH828	IP55 (forced ventilation)
• 1PH818 ... 1PH828	IP23 (open-circuit cooling)
Shaft extension on the drive end in accordance with DIN 748-3 (IEC 60034-5)	Plain shaft or feather key full-key or half-key balancing for feather key
Shaft and flange accuracy in accordance with DIN 42955 (IEC 60072-1) [1]	Without holding brake: Tolerance R (reduced) With holding brake: Tolerance N (normal)
Vibration severity	In accordance with Siemens/EN 60034-14 (IEC 60034-14) [1]
Sound pressure level L_{pA} (1 m) in accordance with DIN EN ISO 1680, max. Tolerance +3 dB	
Forced ventilation (IP55)	
• 1PH808 ... 1PH813	70 dB at a rated pulse frequency of 4 kHz and a speed range up to 5000 rpm
• 1PH816	73 dB at a rated pulse frequency of 4 kHz and a speed range up to 5000 rpm
• 1PH818	73 dB at a rated pulse frequency of 2 kHz and a speed range up to 5000 rpm
• 1PH822	73 dB at a rated pulse frequency of 2 kHz and a speed range up to 3500 rpm
• 1PH828	74 dB at a rated pulse frequency of 2 kHz and a speed range up to 3300 rpm
Forced ventilation (IP23)	
• 1PH818	73 dB at a rated pulse frequency of 2 kHz and a speed range up to 3000 rpm
• 1PH822	73 dB at a rated pulse frequency of 2 kHz and a speed range up to 2000 rpm
• 1PH828	74 dB at a rated pulse frequency of 2 kHz and a speed range up to 2800 rpm
Built-in encoder systems	Absolute and incremental encoder with or without DRIVE-CLiQ interface
Connection	Connector for signals or DRIVE-CLiQ interface (mating connector not included in the scope of supply)
Power	
• 1PH808 ... 1PH813	Power connector or terminal box
• 1PH816 ... 1PH828	Terminal box
Fan	
• 1PH808	Power connector
• 1PH810 ... 1PH813	Power connector or terminal box
• 1PH816 ... 1PH828	Terminal box
Encoder system	Connector for signals or DRIVE-CLiQ interface (mating connector not included in the scope of supply)
Rating plate	1 attached to motor 1 supplied separately with terminal box
Paint finish	Standard paint finish in anthracite RAL 7016
Certificate of suitability, according to	cURus, CE, EAC

[1] Shaft extension run-out, concentricity of centering ring and shaft, and perpendicularity of flange to shaft.

Technical specifications (continued)

SIMOTICS M-1PH8 motor, water cooling	
Stator winding insulation in accordance with EN 60034-1 (IEC 60034-1)	For a coolant inlet temperature up to 30 °C (86 °F) Temperature class 180 (H) [2]
Cooling according to EN 60034-6 (IEC 60034-6)	Water cooling Max. cooling water pressure at inlet: 6 bar Connecting thread at NDE
Temperature monitoring	
• 1PH808 ... 1PH816	Pt1000 temperature sensor in the stator winding
• 1PH818 ... 1PH828	1 additional Pt1000 as reserve
Type of construction in accordance with EN 60034-7 (IEC 60034-7)	
• 1PH808	IM B3, IM B5
• 1PH810 ... 1PH828	IM B3, IM B5, IM B35
Degree of protection in accordance with EN 60034-5 (IEC 60034-5)	
• 1PH808 ... 1PH816	IP65
• 1PH818 ... 1PH828	IP55
Shaft extension on the drive end in accordance with DIN 748-3 (IEC 60072-1)	Plain shaft or feather key, full-key or half-key balancing for feather key
Shaft and flange accuracy in accordance with DIN 42955 (IEC 60072-1) [1]	Without holding brake: Tolerance R (reduced) With holding brake: Tolerance N (normal)
Vibration severity	in accordance with Siemens/EN 60034-14 (IEC 60034-14) [1]
Sound pressure level L_{pA} (1 m) in accordance with DIN EN ISO 1680, max. Tolerance +3 dB	
• 1PH808 ... 1PH813	68 dB at a rated pulse frequency of 4 kHz and a speed range up to 5000 rpm
• 1PH816	69 dB at a rated pulse frequency of 4 kHz and a speed range up to 5000 rpm
• 1PH818	70 dB at a rated pulse frequency of 2 or 4 kHz and a speed range up to 5000 rpm
• 1PH822	70 dB at a rated pulse frequency of 2 or 4 kHz and a speed range up to 4500 rpm
• 1PH828	72 dB at a rated pulse frequency of 2 kHz and a speed range up to 3300 rpm
Built-in encoder systems	Absolute and incremental encoder with or without DRIVE-CLiQ interface
Connection	Connector for signals or DRIVE-CLiQ interface (mating connector not included in the scope of supply)
Power	
• 1PH808 ... 1PH813	Power connector or terminal box
• 1PH816 ... 1PH828	Terminal box
Fan	
• 1PH808	Power connector
• 1PH810 ... 1PH813	Power connector or terminal box
• 1PH816 ... 1PH828	Terminal box
Encoder system	Connector for signals or DRIVE-CLiQ interface (mating connector not included in the scope of supply)
Rating plate	1 attached to motor 1 supplied separately with terminal box
Paint finish	Standard paint finish in anthracite RAL 7016
Certificate of suitability	cURus, CE, EAC

[1] Shaft extension run-out, concentricity of centering ring and shaft, and perpendicularity of flange to shaft.

[2] The following motors are designed to conform to temperature class 155 (F):
1PH8107-1.F2/1PH8107-1.M2
1PH8138-2.F2/1PH8138-2.G2
1PH8164/1PH8166/1PH8168

Selection and ordering data

Rated speed	Shaft height	Rated power	Rated torque	Rated current	Rated voltage	Rated frequency	Operating speed during field weakening, max. [1]	Speed, max. [2]	**SIMOTICS M-1PH8 asynchronous motors Water cooling**
n_{rated}	SH	P_{rated}	M_{rated}	I_{rated}	U_{rated}	f_{rated}	n_2	n_{max}	
rpm		kW (hp)	Nm (lb_f-ft)	A	V	Hz	rpm	rpm	Article No.
Line voltage 400 V 3 AC, Smart/Basic Line Module									
1500	80	3.5 (4.69)	22 (16.2)	8.9	357	54.5	3550	10000	**1PH8083-■■F 2■-....**
		4.6 (6.17)	29 (21.4)	13.7	316	53.3	6000	10000	**1PH8087-■■F 2■-....**
	100	5 (6.71)	32 (23.6)	12.8	357	53.1	2500	9000	**1PH8101-■■F 2■-....**
		7.1 (9.52)	45 (33.2)	19.7	317	53.0	4000	9000	**1PH8103-■■F 2■-....**
		11 (14.8)	70 (51.6)	28.5	340	52.8	3500	9000	**1PH8105-■■F 2■-....**
		14 (18.8)	89 (65.6)	43.7	277	53.3	5600	9000	**1PH8107-■■F 2■-....**
	132	15 (20.1)	96 (70.8)	30	380	52.3	2500	8000	**1PH8131-■■F 2■-....**
		17 (22.8)	108 (79.7)	38	345	51.5	3500	8000	**1PH8133-■■F 2■-....**
		22 (16.2)	140 (103)	51	342	51.5	4000	8000	**1PH8135-■■F 2■-....**
		27 (36.2)	172 (127)	67	315	51.6	4000	8000	**1PH8137-■■F 2■-....**
		30 (40.2)	191 (141)	80	289	51.9	5000	8000	**1PH8138-■■F 2■-....**
	160	37 (27.3)	236 (174)	84	328	51.1	3000	6500	**1PH8163-■■F 2■-....**
		46 (61.7)	293 (216)	104	330	50.9	3050	6500	**1PH8165-■■F 2■-....**
		52 (69.7)	331 (244)	116	332	51.2	3050	6500	**1PH8166-■■F 2■-....**
2000	80	4.3 (5.77)	21 (15.5)	12	322	70.4	7200	10000	**1PH8083-■■G 2■-....**
		6.1 (8.18)	29 (21.4)	17.5	312	70.3	7950	10000	**1PH8087-■■G 2■-....**
	100	6.4 (8.58)	31 (22.9)	16.8	335	69.8	4000	9000	**1PH8101-■■G 2■-....**
		9.5 (12.7)	45 (33.2)	23.8	343	69.8	3000	9000	**1PH8103-■■G 2■-....**
		13.0 (17.4)	62 (45.7)	34.5	326	69.3	4000	9000	**1PH8105-■■G 2■-....**
	132	18 (24.1)	86 (63.4)	40	352	69.1	4000	8000	**1PH8131-■■G 2■-....**
		22 (29.5)	105 (77.4)	52	336	68.2	5000	8000	**1PH8133-■■G 2■-....**
		29 (38.9)	138 (102)	64	348	68.3	4500	8000	**1PH8135-■■G 2■-....**
	160	42 (56.3)	201 (148)	93	335	67.6	5000	6500	**1PH8163-■■G 2■-....**
		53 (71.1)	253 (187)	110	352	67.6	3500	6500	**1PH8165-■■G 2■-....**
		64 (85.8)	306 (226)	125	376	67.8	3000	6500	**1PH8166-■■G 2■-....**
3000	100	10.6 (14.2)	34 (25.1)	30	309	102.4	11900	9000	**1PH8103-■■M 2■-....**
		16.8 (22.5)	53 (39.1)	45	324	102.3	8050	9000	**1PH8105-■■M 2■-....**
		18 (24.1)	57 (42.0)	60	264	102.2	17000	9000	**1PH8107-■■M 2■-....**

For versions, see Article No. supplements and options.

For footnotes, see next page.

Selection and ordering data

Rated speed	Shaft height	Rated power	Rated torque	Rated current	Rated voltage	Rated frequency	Operating speed during field weakening, max. [1]	Speed, max. [2]	SIMOTICS M-1PH8 asynchronous motors Water cooling
n_{rated}	SH	P_{rated}	M_{rated}	I_{rated}	U_{rated}	f_{rated}	n_2	n_{max}	
rpm		kW (hp)	Nm (lb_f-ft)	A	V	Hz	rpm	rpm	Article No.
Line voltage 400 V 3 AC, Active Line Module									
1750	80	4 (5.36)	22 (16.2)	8.7	416	62.4	4100	10000	**1PH8083-■■F 2 ■-....**
		5.4 (7.24)	29 (21.4)	13.7	358	61.8	6600	10000	**1PH8087-■■F 2 ■-....**
	100	5.8 (7.78)	32 (23.6)	12.8	400	61.7	2500	9000	**1PH8101-■■F 2 ■-....**
		8.2 (11.0)	45 (33.2)	19.7	364	61.4	5000	9000	**1PH8103-■■F 2 ■-....**
		12.5 (16.8)	68 (50.2)	28.5	380	61.2	3400	9000	**1PH8105-■■F 2 ■-....**
		15.5 (20.8)	85 (62.7)	42	314	61.4	4500	9000	**1PH8107-■■F 2 ■-....**
	132	17 (22.8)	93 (68.6)	30	425	60.7	2500	8000	**1PH8131-■■F 2 ■-....**
		19.5 (26.1)	106 (78.2)	38	403	59.8	3500	8000	**1PH8133-■■F 2 ■-....**
		25.5 (34.2)	139 (103)	51	395	59.8	4000	8000	**1PH8135-■■F 2 ■-....**
		31.5 (42.2)	172 (127)	67	365	59.9	4500	8000	**1PH8137-■■F 2 ■-....**
		33 (44.3)	180 (133)	77	332	60.0	5000	8000	**1PH8138-■■F 2 ■-....**
	160	43 (57.7)	235 (173)	84	380	59.4	3500	6500	**1PH8163-■■F 2 ■-....**
		53 (71.1)	289 (213)	104	374	59.3	3050	6500	**1PH8165-■■F 2 ■-....**
		61 (81.8)	333 (246)	116	381	59.5	3050	6500	**1PH8166-■■F 2 ■-....**
2300	80	4.9 (6.57)	20 (14.8)	12	362	80.5	8150	10000	**1PH8083-■■G 2 ■-....**
		7 (9.39)	29 (21.4)	17.7	355	80.3	8850	10000	**1PH8087-■■G 2 ■-....**
	100	7.3 (9.79)	30 (22.1)	16.8	382	79.7	5000	9000	**1PH8101-■■G 2 ■-....**
		10.9 (14.6)	45 (33.2)	23.8	390	79.8	3000	9000	**1PH8103-■■G 2 ■-....**
		15.0 (20.1)	62 (45.7)	34	370	79.3	3500	9000	**1PH8105-■■G 2 ■-....**
	132	20 (26.8)	83 (61.2)	39	400	78.5	4000	8000	**1PH8131-■■G 2 ■-....**
		25 (33.5)	104 (76.7)	52	373	78.3	6000	8000	**1PH8133-■■G 2 ■-....**
		31 (41.6)	129 (95.1)	61	397	78.1	4500	8000	**1PH8135-■■G 2 ■-....**
	160	48 (64.4)	199 (147)	93	382	77.6	4000	6500	**1PH8163-■■G 2 ■-....**
		60 (80.5)	249 (184)	107	410	77.6	3000	6500	**1PH8165-■■G 2 ■-....**
		72 (96.6)	299 (221)	124	420	77.8	3000	6500	**1PH8166-■■G 2 ■-....**
3300	100	11.7 (15.7)	34 (25.1)	30	340	112.4	13550	9000	**1PH8103-■■M 2 ■-....**
		18.5 (24.8)	54 (39.8)	45	355	112.4	9050	9000	**1PH8105-■■M 2 ■-....**
		20 (26.8)	58 (42.8)	60	290	112.6	18050	9000	**1PH8107-■■M 2 ■-....**

For versions, see Article No. supplements and options.

For footnotes, see next page.

Selection and ordering data

Rated speed	Shaft height	Rated power	Rated torque	Rated current	Rated voltage	Rated frequency	Operating speed during field weakening, max. [1]	Speed, max. [2]	**SIMOTICS M-1PH8 asynchronous motors Water cooling**
n_{rated}	SH	P_{rated}	M_{rated}	I_{rated}	U_{rated}	f_{rated}	n_2	n_{max}	
rpm		kW (hp)	Nm (lb_f-ft)	A	V	Hz	rpm	rpm	Article No.
Line voltage 480 V 3 AC, Smart/Basic Line Module									
2000	80	4.6 (6.17)	22 (16.2)	8.7	457	71.0	4250	10000	**1PH8083-■■F 2■-....**
		6.1 (8.18)	29 (21.4)	13.7	402	70.0	6950	10000	**1PH8087-■■F 2■-....**
	100	6.6 (8.85)	32 (23.6)	12.5	450	69.9	2500	9000	**1PH8101-■■F 2■-....**
		9.4 (12.6)	45 (33.2)	19.7	411	69.7	5000	9000	**1PH8103-■■F 2■-....**
		14 (18.8)	67 (39.8)	27.5	426	69.5	3000	9000	**1PH8105-■■F 2■-....**
		18 (24.1)	86 (63.4)	42.6	363	69.7	3000	9000	**1PH8107-■■F 2■-....**
	132	18.5 (24.8)	88 (64.9)	30	460	68.7	2500	8000	**1PH8131-■■F 2■-....**
		22.5 (30.2)	107 (78.9)	38	452	68.2	4000	8000	**1PH8133-■■F 2■-....**
		29 (38.9)	138 (102)	52	448	68.2	4500	8000	**1PH8135-■■F 2■-....**
		36 (48.3)	172 (127)	67	415	68.3	4000	8000	**1PH8137-■■F 2■-....**
		37 (49.6)	177 (131)	76	380	68.4	6000	8000	**1PH8138-■■F 2■-....**
	160	49 (65.7)	234 (173)	84	430	67.7	3500	6500	**1PH8163-■■F 2■-....**
		60 (80.5)	287 (212)	103	426	67.6	3050	6500	**1PH8165-■■F 2■-....**
		68 (91.2)	325 (240)	116	426	67.9	3050	6500	**1PH8166-■■F 2■-....**
2650	80	5.6 (7.51)	20 (14.8)	12	425	91.8	8500	10000	**1PH8083-■■G 2■-....**
		8.1 (10.9)	29 (21.4)	17.8	415	91.8	9150	10000	**1PH8087-■■G 2■-....**
	100	8.4 (11.3)	30 (22.1)	16.8	435	91.4	4000	9000	**1PH8101-■■G 2■-....**
		12.5 (16.8)	45 (33.2)	23.5	454	91.2	4000	9000	**1PH8103-■■G 2■-....**
		17.0 (22.8)	61 (45.0)	33.5	424	90.9	4500	9000	**1PH8105-■■G 2■-....**
	132	23 (30.8)	83 (61.2)	39	458	90.1	4500	8000	**1PH8131-■■G 2■-....**
		28 (37.5)	101 (74.5)	50	427	89.9	6000	8000	**1PH8133-■■G 2■-....**
		32 (42.9)	115 (84.8)	58	448	89.6	5500	8000	**1PH8135-■■G 2■-....**
	160	55 (73.8)	198 (146)	90	450	89.2	5000	6500	**1PH8163-■■G 2■-....**
		65 (87.2)	234 (173)	100	460	89.2	4000	6500	**1PH8165-■■G 2■-....**
		83 (111)	299 (221)	125	460	89.6	3000	6500	**1PH8166-■■G 2■-....**
3600	100	12.7 (17.0)	34 (25.1)	29.7	368	122.5	17650	9000	**1PH8103-■■M 2■-....**
		20 (26.8)	53 (39.1)	45	375	122.5	10000	9000	**1PH8105-■■M 2■-....**
		21 (28.2)	56 (41.3)	59	315	122.1	17650	9000	**1PH8107-■■M 2■-....**

For versions, see Article No. supplements and options.

For footnotes, see next page.

Selection and ordering data

Rated speed	Shaft height	Rated power	Rated torque	Rated current	Rated voltage	Rated frequency	Operating speed during field weakening, max. [1]	Speed, max. [2]	**SIMOTICS M-1PH8 asynchronous motors Water cooling**
n_{rated}	SH	P_{rated}	M_{rated}	I_{rated}	U_{rated}	f_{rated}	n_2	n_{max}	
rpm		kW (hp)	Nm (lb_f-ft)	A	V	Hz	rpm	rpm	Article No.
Line voltage 480 V 3 AC, Active Line Module									
2200	80	5 (6.71)	22 (16.2)	8.7	500	77.4	5050	10000	**1PH8083-■■F 2■-....**
		6.7 (8.98)	29 (21.4)	13.7	435	76.4	7100	10000	**1PH8087-■■F 2■-....**
	100	7.2 (9.66)	31 (22.9)	12.5	480	76.6	3000	9000	**1PH8101-■■F 2■-....**
		10.3 (13.8)	45 (33.2)	19.7	430	76.8	5000	9000	**1PH8103-■■F 2■-....**
		15.4 (20.7)	67 (49.4)	27.5	458	76.3	3500	9000	**1PH8105-■■F 2■-....**
		19.8 (26.6)	86 (63.4)	42.6	381	76.3	3500	9000	**1PH8107-■■F 2■-....**
	132	20.0 (26.8)	87 (64.2)	29	500	75.9	3000	8000	**1PH8131-■■F 2■-....**
		24.0 (32.2)	104 (76.7)	37	495	74.8	4500	8000	**1PH8133-■■F 2■-....**
		31 (41.6)	135 (99.6)	50	480	74.9	4500	8000	**1PH8135-■■F 2■-....**
		39 (52.3)	169 (125)	66	456	74.9	4500	8000	**1PH8137-■■F 2■-....**
		39 (52.3)	169 (125)	72	410	75.0	5000	8000	**1PH8138-■■F 2■-....**
	160	53 (71.1)	230 (170)	83	460	74.4	4500	6500	**1PH8163-■■F 2■-....**
		66 (88.5)	287 (212)	103	457	74.4	3500	6500	**1PH8165-■■F 2■-....**
		75 (101)	326 (240)	116	470	74.5	3500	6500	**1PH8166-■■F 2■-....**
2800	80	6 (8.05)	20 (14.8)	12	450	96.4	8900	10000	**1PH8083-■■G 2■-....**
		8.5 (11.4)	29 (21.4)	17.8	420	97	9700	10000	**1PH8087-■■G 2■-....**
	100	8.3 (11.1)	28 (20.7)	16.5	448	96.1	5000	9000	**1PH8101-■■G 2■-....**
		12.8 (17.2)	44 (32.5)	22.5	470	96.2	4500	9000	**1PH8103-■■G 2■-....**
		18 (24.1)	61 (45.0)	33.5	450	96	4500	9000	**1PH8105-■■G 2■-....**
	132	24.0 (32.2)	82 (60.5)	39	472	95.2	6000	8000	**1PH8131-■■G 2■-....**
		29.0 (38.9)	99 (73.0)	50	450	94.9	6000	8000	**1PH8133-■■G 2■-....**
		33 (44.3)	113 (83.3)	57	462	94.7	6000	8000	**1PH8135-■■G 2■-....**
	160	56 (75.1)	191 (141)	89	462	94.3	5500	6500	**1PH8163-■■G 2■-....**
		68 (91.2)	232 (171)	100	494	94.2	3500	6500	**1PH8165-■■G 2■-....**
		87 (117)	297 (219)	124	500	94.5	3500	6500	**1PH8166-■■G 2■-....**
3900	100	13 (17.4)	32 (23.6)	29	397	132.4	13000	9000	**1PH8103-■■M 2■-....**
		21 (28.2)	51 (37.6)	43.5	405	132.5	10000	9000	**1PH8105-■■M 2■-....**
		21.6 (29.0)	53 (39.1)	58	329	131.9	18000	9000	**1PH8107-■■M 2■-....**

For versions, see Article No. supplements and options.

For footnotes, see next page.

Article No. supplements for SIMOTICS M-1PH8 without holding brake > SH 80 to SH 160

Selection and ordering data

Data position of the Article 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**	**.**	**–**	■	■	■	■	■	**–**	■	■	■	**.**	**–**	**Z**
Shaft height 100	**1**	**P**	**H**	**8**	**1**	**0**	**.**	**–**	■	■	■	■	■	**–**	■	■	■	**.**	**–**	**Z**
Shaft height 132	**1**	**P**	**H**	**8**	**1**	**3**	**.**	**–**	■	■	■	■	■	**–**	■	■	■	**.**	**–**	**Z**
Shaft height 160	**1**	**P**	**H**	**8**	**1**	**6**	**.**	**–**	■	■	■	■	■	**–**	■	■	■	**.**	**–**	**Z**
Overall length (cannot be selected, determined by the choice of rated power)							**.**													
Asynchronous version									**1**											
Synchronous version (only shaft height 132 and 160)									**2**											
Encoder systems for motors without DRIVE-CLiQ interface																				
Without encoder [1]										**A**								**2**		
Absolute encoder EnDat 2048 S/R (encoder AM2048S/R) [2]										**E**								**2**		
Incremental encoder HTL 1024 S/R (encoder HTL1024S/R) [1] [3]										**H**								**2**		
Incremental encoder HTL 2048 S/R (encoder HTL2048S/R) [1] [4]										**J**								**2**		
Incremental encoder HTL 1024 S/R (encoder HTL1024S/R) with connection via additional terminal box [1] [3] [10]										**W**								**2**		
Incremental encoder HTL 2048 S/R (encoder HTL2048S/R) with connection via additional terminal box [1] [4] [10]										**Y**								**2**		
Incremental encoder sin/cos 1 V_{pp} 2048 S/R with C and D tracks (encoder IC2048S/R) [2]										**M**								**2**		
Incremental encoder sin/cos 1 V_{pp} 512 S/R without C and D tracks (encoder IN512S/R) [1] [5]										**T**								**2**		
Encoder systems for motors with DRIVE-CLiQ interface																				
Absolute encoder 22-bit singleturn + 12-bit multiturn (encoder AM22DQ) [2]										**F**								**1**		
Incremental encoder 22-bit with commutation position (encoder IC22DQ) [2]										**D**								**1**		
Incremental encoder 20-bit without commutation position (encoder IN20DQ) [1] [5]										**U**								**1**		
Rated speeds (380 V to 480 V 3 AC) (winding design)																				
400 rpm, 500 rpm, 600 rpm, 700 rpm											**B**									
1000 rpm, 1150 rpm, 1350 rpm, 1500 rpm											**D**									
1500 rpm, 1750 rpm, 2000 rpm, 2200 rpm											**F**									
2000 rpm, 2300 rpm, 2650 rpm, 2800 rpm											**G**									
2500 rpm, 2800 rpm, 3000 rpm											**L**									
3000 rpm, 3300 rpm, 3600 rpm, 3900 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, IM B6, IM B7, IM B8)													**0**							
IM B5 (IM V1, IM V3) [12]													**2**							
IM B35 (IM V15, IM V35) [6]													**3**							
Version status [11]																				
Special version (order codes required for options)																				**Z**

For the 13th to 16th digit of the Article No., see next page.

For footnotes, see next page.

Selection and ordering data (continued)

Data position of the Article No.		1	2	3	4	5	6	7		8	9	10	11	12		13	14	15	16		
		1	**P**	**H**	**8**	**.**	**.**	**.**	**–**	■	■	■	■	■	**–**	■	■	■	**.**	**–**	**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 60034-14**	**Shaft and flange accuracy**																			
Standard with location bearing [13]	R/A	R															**B**				
Standard with location bearing [13]	S/A	R															**C**				
Standard with location bearing [1] [13]	SR/A	R															**D**				
Standard [13]	R/A	R															**G**				
Standard [13]	S/A	R															**H**				
Increased radial forces [13] [15]	R/A	R															**F**				
Performance [7]	SPECIAL/B	SPECIAL															**L**				
Advanced Lifetime [8] [13]	S/A	R															**Q**				
Power connection (looking at DE)																					
Terminal box	Cable entry	Signal connection																			
Top	Right	DE																**A**			
Top	Left	DE																**B**			
Top	NDE	Left																**C**			
Top [14]	DE	Left																**D**			
power connector																					
Top [9]	Right	DE																**E**			
Top [9]	Left	DE																**F**			
Top [9]	NDE	Left																**G**			
Top [9]	DE	Left																**H**			
Version status [11]																					
Special version (order codes required for options)																					**Z**

1) Only possible when 8th data position is "1" (Asynchronous version).
2) Limited to n_{max} = 12000 rpm.
3) Limited to n_{max} = 9000 rpm.
4) Limited to n_{max} = 4600 rpm.
5) Limited to n_{max} = 15000 rpm.
6) Only possible for shaft height 100, 132, and 160.
7) Only possible when 8th data position is "1" (Asynchronous version).
Shaft height 80: limited to n_{max} = 15000 rpm
Shaft height 100: limited to n_{max} = 12000 rpm
Shaft height 132: limited to n_{max} = 10000 rpm
Shaft height 160: Limited to n_{max} = 9000 rpm; not possible when 12th data position is "2" (IM B5).
8) Limited to n_{max} = 5000 rpm, shaft height 132: n_{max} = 4500 rpm, shaft height 160: n_{max} = 4000 rpm.
9) Power connector for shaft height 100 only possible up to a maximum stall current of I_0 = 36 A.
Power connector for shaft height 132 only possible up to a maximum stall current of I_0 = 85 A.
Power connector not possible for shaft height 160.
10) Only possible when 14th data position is: B, C, D, G, H, Q, F; and 15th data position is: A and B.
11) Directly coupled to 9th data position.
12) Not possible with shaft height 160 and 14th data position: L.
13) Not possible when 9th data position is: T, U.
14) Not possible with shaft height 160 and 8th data position is "2" or "4" (Synchronous version).
15) Limited to shaft height 100: n_{max} = 7000 rpm, shaft height 132: n_{max} = 6500 rpm, shaft height 160: n_{max} = 5300 rpm.