

Asynchronous motors

Main spindle motors for SIMODRIVE 611

1PH7 core type motors SH 100 to SH 160

Selection and ordering data

Shaft height	Rated speed	Continuous speed, max.		Speed, max. ¹⁾		Rated power for duty type in accordance with IEC 60034-1				1PH7 asynchronous motor with solid shaft Forced ventilation Core type			
SH	n_{rated}	$n_{S1 \text{ cont.}}^{2)}$	$n_{S1 \text{ cont.}}^{3)}$	n_{max}	$n_{max}^{4)}$	P_{rated}							
	rpm	rpm	rpm	rpm	rpm	S1 kW (HP)	S6-60 % kW (HP)	S6-40 % kW (HP)	S2-30 min kW (HP)				
100	2 000	5 500	–	9 000	–	7 (9)	8.5 (11.4)	10 (13)	9.25 (12.4)	1PH7103 - ■ NG02 - 0C■ ■			
	1 500	5 500	–	9 000	–	9 (12)	11 (14.8)	13 (17)	12 (16)	1PH7107 - ■ NF02 - 0C■ ■			
132	1 000	4 500	–	8 000	–	12 (16)	15 (20)	18.5 (24.8)	16 (21)	1PH7133 - ■ ND02 - 0C■ ■			
	2 000					20 (27)	25 (34)	30 (40)	27.5 (36.9)	1PH7133 - ■ NG02 - 0C■ ■			
	1 000	4 500	–	8 000	–	17 (23)	20.5 (27.5)	25 (34)	22.5 (30.2)	1PH7137 - ■ ND02 - 0C■ ■			
	2 000					28 (38)	35 (47)	43 (58)	39 (52)	1PH7137 - ■ NG02 - 0C■ ■			
160	1 000	3 700	–	6 500	–	22 (30)	27 (36)	33 (44)	30 (40)	1PH7163 - ■ ND03 - 0C■ ■			
	1 500					30 (40)	37 (50)	45 (60)	41 (55)	1PH7163 - ■ NF03 - 0C■ ■			
	1 500	3 700	–	6 500	–	37 (50)	46 (62)	56 (75)	51 (68)	1PH7167 - ■ NF03 - 0C■ ■			
Fans:		External fan unit, heavy-gauge threaded cable entry in terminal box								2			
		External fan unit, metric cable entry in terminal box								7			
Encoder system:		Incremental encoder sin/cos 1 V _{pp} without C and D tracks								N			
Type of construction: ⁵⁾		IM B5 (IM V1, IM V3)								2			
		IM B35 (IM V15, IM V35) ⁶⁾								3			
Shaft extension DE: ⁵⁾		Balancing:		Direction of air flow (fan):		Blow-out direction:							
Fitted key		Half-key		DE → NDE		Axial							
Plain shaft		–		DE → NDE		Axial				A J			
Degree of protection:		Paint finish:											
IP55, fan IP54		Unpainted											
IP55, fan IP54		Anthracite								0 3			

To select the type of construction, see Selection guides.

Asynchronous motors

Main spindle motors for SIMODRIVE 611

1PH7 core type motors
SH 100 to SH 160

Selection and ordering data

Motor type (continued)	Rated torque	Moment of inertia	Weight, approx.	Rated current for duty type in accordance with IEC 60034-1				SIMODRIVE 611 power module	
								Rated output current ⁷⁾	Order No.
	M_{rated}	J	m	I_{rated}				I_{rated}	
	Nm (lb _f -ft)	kgm ² (lb _f -in-s ²)	kg (lb)	S1 A	S6-60 % A	S6-40 % A	S2-30 min A	S1 A	
1PH7103-.NG02-....	33.4 (24.6)	0.017 (0.148)	43 (95)	17.5	20.5	23.5	21.5	24	For ordering data, see Converter system
1PH7107-.NF02-....	57.3 (42.2)	0.029 (0.252)	64 (141)	23.5	27.5	31	29	24	
1PH7133-.ND02-....	114.6 (84.5)	0.076 (0.66)	102 (225)	30	36	43	37.5	30	
1PH7133-.NG02-....	95.5 (70.4)	0.076 (0.66)	102 (225)	45	54	63	59	45	
1PH7137-.ND02-....	162.3 (119.6)	0.109 (0.946)	129 (284)	43	50	60	54	45	
1PH7137-.NG02-....	133.7 (98.5)	0.109 (0.946)	129 (284)	60	73	87	80	60	
1PH7163-.ND03-....	210.1 (154.8)	0.19 (1.649)	198 (437)	55	65	77	71	60	
1PH7163-.NF03-....	191.0 (140.8)	0.19 (1.649)	198 (437)	72	86	102	94	85	
1PH7167-.NF03-....	235.5 (173.6)	0.23 (1.996)	231 (509)	82	97	115	104	85	



1PH7 motor (SH 100 to SH 160)

- ¹⁾ For continuous duty (with 30 % n_{max} , 60 % $\frac{2}{3} n_{max}$, 10 % standstill) for a duty cycle time of 10 min. For maintenance intervals for motors and components, see 1PH Motors Configuration Manual.
- ²⁾ Bearing version for coupling/belt output.
- ³⁾ Bearing version for increased maximum speed.
- ⁴⁾ Version for increased maximum speed only possible with vibration magnitude grade SR. The following option is not possible: Shaft seal.
- ⁵⁾ The following motor versions are required for ZF gearbox mounting prepared (see Gearboxes for gear selection):
Shaft with fitted key and full-key balancing.
- ⁶⁾ Motors of shaft height 160 and higher require foot support.
- ⁷⁾ With default setting of the pulse frequency.

Asynchronous motors

Main spindle motors for SIMODRIVE 611

1PH7 standard type motors SH 100

Selection and ordering data

Shaft height	Rated speed	Continuous speed, max.		Speed, max. ¹⁾		Rated power for duty type in accordance with IEC 60034-1				1PH7 asynchronous motor with solid shaft Forced ventilation Standard type					
SH	n_{rated}	$n_{S1\text{ cont.}}^{2)}$	$n_{S1\text{ cont.}}^{3)}$	n_{max}	$n_{max}^{4)}$	P_{rated}									
	rpm	rpm	rpm	rpm	rpm	S1 kW (HP)	S6-60 % kW (HP)	S6-40 % kW (HP)	S2-30 min kW (HP)						
100	1 500	5 500	10 000	9 000	12 000	3.7 (5)	4.5 (6)	5.25 (7.04)	4.9 (6.6)	1PH7101 - ■ NF ■ ■ - 0 ■ ■ ■					
	1 000	5 500	10 000	9 000	12 000	3.7 (5)	4.5 (6)	5.25 (7.04)	4.7 (6.3)	1PH7103 - ■ ND ■ ■ - 0 ■ ■ ■					
	1 500					5.5 (7.4)	6.7 (9)	7.7 (10.3)	7 (9.4)	1PH7103 - ■ NF ■ ■ - 0 ■ ■ ■					
	2 000					7 (9)	8.5 (11.4)	10 (13)	9.25 (12.4)	1PH7103 - ■ NG ■ ■ - 0 ■ ■ ■					
	1 500	5 500	10 000	9 000	12 000	7 (9)	8.5 (11.4)	10 (13)	9.25 (12.4)	1PH7105 - ■ NF ■ ■ - 0 ■ ■ ■					
	1 000	5 500	10 000	9 000	12 000	6.25 (8.38)	7.5 (10)	8.8 (11.8)	7.75 (10.39)	1PH7107 - ■ ND ■ ■ - 0 ■ ■ ■					
	1 500					9 (12)	11 (15)	13 (17)	12 (16)	1PH7107 - ■ NF ■ ■ - 0 ■ ■ ■					
	2 000					10.5 (14)	12.5 (17)	14.5 (19.4)	13.5 (18.1)	1PH7107 - ■ NG ■ ■ - 0 ■ ■ ■					
Fans:		External fan unit, heavy-gauge threaded cable entry in terminal box								2					
		External fan unit, metric cable entry in terminal box								7					
Encoder system:		Incremental encoder sin/cos 1 V _{pp} without C and D tracks								N					
Terminal box/ Cable entry:		Top/right Top/NDE Top/left								0 2 3					
Type of construction: ⁵⁾		IM B3 (IM V5, IM V6) IM B5 (IM V1, IM V3) IM B35 (IM V15, IM V35)								0 2 3					
Bearing version for:				Vibration magnitude:		Shaft and flange accuracy:									
Coupling/belt output				Grade R		Tolerance R									
Coupling/belt output				Grade S		Tolerance R									
Coupling/belt output				Grade SR		Tolerance R									
Increased speed (coupling/belt output)				Grade SR		Tolerance R									
Shaft extension DE: ⁵⁾				Balancing:		Direction of air flow (fan):		Blow-out direction:							
Fitted key				Half-key		DE → NDE		Axial							
Fitted key				Half-key		NDE → DE		Axial							
Fitted key				Full-key		DE → NDE		Axial							
Fitted key				Full-key		NDE → DE		Axial							
Plain shaft				–		DE → NDE		Axial							
Plain shaft				–		NDE → DE		Axial							
Degree of protection:				Seal:		Paint finish:									
IP55, fan IP54				–		Unpainted									
IP55, fan IP54				DE flange with shaft sealing ring ⁶⁾		Unpainted									
IP55, fan IP54				–		Anthracite									
IP55, fan IP54				DE flange with shaft sealing ring ⁶⁾		Anthracite									
IP55, fan IP54				–		Anthracite, two coats									
IP55, fan IP54				DE flange with shaft sealing ring ⁶⁾		Anthracite, two coats									

To select the type of construction and the degree of protection, see Selection guides.

Asynchronous motors

Main spindle motors for SIMODRIVE 611

1PH7 standard type motors
SH 100

Selection and ordering data

Motor type (continued)	Rated torque	Moment of inertia	Weight, approx.	Rated current for duty type in accordance with IEC 60034-1				SIMODRIVE 611 power module	
								Rated output current ⁷⁾	Order No.
								I_{rated}	
	M_{rated}	J	m	I_{rated}					
	Nm (lb _f -ft)	kgm ² (lb _f -in-s ²)	kg (lb)	S1 A	S6-60 % A	S6-40 % A	S2-30 min A	S1 A	
1PH7101-.NF...	23.6 (17.4)	0.017 (0.150)	43 (95)	10	11.5	12.5	12	24	For ordering data, see Converter system
1PH7103-.ND...	35.3 (26)	0.017 (0.150)	43 (95)	10	11.5	13	12	24	
1PH7103-.NF...	35.0 (25.8)	0.017 (0.150)	43 (95)	13	16	18	16.5	24	
1PH7103-.NG...	33.4 (24.6)	0.017 (0.150)	43 (95)	17.5	20.5	23.5	21.5	24	
1PH7105-.NF...	44.6 (32.9)	0.029 (0.257)	64 (141)	17.5	21	23.5	22	24	
1PH7107-.ND...	59.7 (44)	0.029 (0.257)	64 (141)	17.5	20.5	23	21	24	
1PH7107-.NF...	57.3 (42.2)	0.029 (0.257)	64 (141)	23.5	27.5	31	29	24	
1PH7107-.NG...	50.1 (36.9)	0.029 (0.257)	64 (141)	26	28.5	33	31	30	



1PH7 motor (SH 100 to SH 160)

- ¹⁾ For continuous duty (with 30 % n_{max} , 60 % $^{2/3} n_{max}$, 10 % standstill) for a duty cycle time of 10 min. For maintenance intervals for motors and components, see the 1PH Motors Configuration Manual.
- ²⁾ Bearing version for coupling/belt output.
- ³⁾ Bearing version for increased maximum speed.
- ⁴⁾ Version for increased maximum speed only possible with vibration magnitude grade SR. The following option is not possible: Shaft sealing ring.
- ⁵⁾ The following motor versions are required for ZF gearbox mounting prepared (see Gearboxes for gear selection):
 - Types of construction IM B5 or IM B35
 - Shaft with fitted key and full-key balancing.
- ⁶⁾ Only appropriate if the sealing ring is occasionally lubricated with oil spray/mist. A sealing ring is not possible with increased maximum speed.
- ⁷⁾ With default setting of the pulse frequency.

Asynchronous motors

Main spindle motors for SIMODRIVE 611

1PH7 standard type motors SH 132

Selection and ordering data

Shaft height	Rated speed	Continuous speed, max.		Speed, max. ¹⁾		Rated power for duty type in accordance with IEC 60034-1				1PH7 asynchronous motor with solid shaft Forced ventilation Standard type					
SH	n_{rated}	$n_{S1\text{ cont.}}^{2)}$	$n_{S1\text{ cont.}}^{3)}$	n_{max}	$n_{max}^{4)}$	P_{rated}									
	rpm	rpm	rpm	rpm	rpm	S1 kW (HP)	S6-60 % kW (HP)	S6-40 % kW (HP)	S2-30 min kW (HP)						
132	1 500	4 500	8 500	8 000	10 000	11 (15)	13.5 (18.1)	16.5 (22.1)	15 (20)	1PH7131 - ■ NF ■ ■ - 0 ■ ■ ■					
	1 000	4 500	8 500	8 000	10 000	12 (16)	15 (20)	18.5 (24.8)	16 (22)	1PH7133 - ■ ND ■ ■ - 0 ■ ■ ■					
	1 500					15 (20)	18.5 (24.8)	23 (31)	20.5 (27.5)	1PH7133 - ■ NF ■ ■ - 0 ■ ■ ■					
	2 000					20 (27)	25 (34)	30 (40)	27.5 (36.9)	1PH7133 - ■ NG ■ ■ - 0 ■ ■ ■					
	1 500	4 500	8 500	8 000	10 000	18.5 (24.8)	23 (31)	28 (38)	25.5 (34.2)	1PH7135 - ■ NF ■ ■ - 0 ■ ■ ■					
	1 000	4 500	8 500	8 000	10 000	17 (23)	20.5 (27.5)	25 (34)	22.5 (30.2)	1PH7137 - ■ ND ■ ■ - 0 ■ ■ ■					
	1 500					22 (30)	27.5 (36.9)	33 (44)	30 (40)	1PH7137 - ■ NF ■ ■ - 0 ■ ■ ■					
	2 000					28 (38)	35 (47)	43 (58)	39 (52)	1PH7137 - ■ NG ■ ■ - 0 ■ ■ ■					
Fans:		External fan unit, heavy-gauge threaded cable entry in terminal box								2					
		External fan unit, metric cable entry in terminal box								7					
Encoder system:		Incremental encoder sin/cos 1 V _{pp} without C and D tracks								N					
Terminal box/ Cable entry:		Top/right Top/NDE Top/left								0 2 3					
Type of construction: ⁵⁾		IM B3 (IM V5, IM V6) IM B5 (IM V1, IM V3) IM B35 (IM V15, IM V35)								0 2 3					
Bearing version for:				Vibration magnitude:		Shaft and flange accuracy:									
Coupling/belt output				Grade R		Tolerance R									
Coupling/belt output				Grade S		Tolerance R									
Coupling/belt output				Grade SR		Tolerance R									
Increased speed (coupling/belt output)				Grade SR		Tolerance R									
Shaft extension DE: ⁵⁾				Balancing:		Direction of air flow (fan):		Blow-out direction:							
Fitted key				Half-key		DE → NDE		Axial							
Fitted key				Half-key		NDE → DE		Axial							
Fitted key				Full-key		DE → NDE		Axial							
Fitted key				Full-key		NDE → DE		Axial							
Plain shaft				–		DE → NDE		Axial							
Plain shaft				–		NDE → DE		Axial							
Degree of protection:				Seal:		Paint finish:									
IP55, fan IP54				–		Unpainted									
IP55, fan IP54				DE flange with shaft sealing ring ⁶⁾		Unpainted									
IP55, fan IP54				–		Anthracite									
IP55, fan IP54				DE flange with shaft sealing ring ⁶⁾		Anthracite									
IP55, fan IP54				–		Anthracite, two coats									
IP55, fan IP54				DE flange with shaft sealing ring ⁶⁾		Anthracite, two coats									

To select the type of construction and the degree of protection, see Selection guides.

Asynchronous motors

Main spindle motors for SIMODRIVE 611

1PH7 standard type motors
SH 132

Selection and ordering data

Motor type (continued)	Rated torque	Moment of inertia	Weight, approx.	Rated current for duty type in accordance with IEC 60034-1				SIMODRIVE 611 power module	
	M_{rated}	J	m	I_{rated}				Rated output current ⁷⁾	Order No.
	Nm (lb _f -ft)	kgm ² (lb _f -in-s ²)	kg (lb)	S1 A	S6-60 % A	S6-40 % A	S2-30 min A	S1 A	
1PH7131-.NF...	70.0 (51.6)	0.076 (0.673)	102 (225)	24	29	34	31.5	24	For ordering data, see Converter system
1PH7133-.ND...	114.6 (84.5)	0.076 (0.673)	102 (225)	30	36	43	37.5	30	
1PH7133-.NF...	95.5 (70.4)	0.076 (0.673)	102 (225)	34	41	49	43.5	45	
1PH7133-.NG...	95.5 (70.4)	0.076 (0.673)	102 (225)	45	54	63	59	45	
1PH7135-.NF...	117.8 (86.8)	0.109 (0.965)	129 (284)	42	50	58	54	45	
1PH7137-.ND...	162.3 (119.6)	0.109 (0.965)	129 (284)	43	50	60	54	45	
1PH7137-.NF...	140.1 (103.3)	0.109 (0.965)	129 (284)	57	68	79	73	60	
1PH7137-.NG...	133.7 (98.5)	0.109 (0.965)	129 (284)	60	73	87	80	60	



1PH7 motor (SH 100 to SH 160)

- ¹⁾ For continuous duty (with 30 % n_{max} , 60 % $^{2/3} n_{max}$, 10 % standstill) for a duty cycle time of 10 min. For maintenance intervals for motors and components, see the 1PH Motors Configuration Manual.
- ²⁾ Bearing version for coupling/belt output.
- ³⁾ Bearing version for increased maximum speed.
- ⁴⁾ Version for increased maximum speed only possible with vibration magnitude grade SR. The following option is not possible: Shaft sealing ring.
- ⁵⁾ The following motor versions are required for ZF gearbox mounting prepared (see Gearboxes for gear selection):
 - Types of construction IM B5 or IM B35
 - Shaft with fitted key and full-key balancing.
- ⁶⁾ Only appropriate if the sealing ring is occasionally lubricated with oil spray/mist. A sealing ring is not possible with increased maximum speed.
- ⁷⁾ With default setting of the pulse frequency.

Asynchronous motors

Main spindle motors for SIMODRIVE 611

1PH7 standard type motors SH 160

Selection and ordering data

Shaft height	Rated speed	Continuous speed, max.		Speed, max. ¹⁾		Rated power for duty type in accordance with IEC 60034-1				1PH7 asynchronous motor with solid shaft Forced ventilation Standard type					
SH	n_{rated}	$n_{S1 \text{ cont.}}^{2)}$	$n_{S1 \text{ cont.}}^{3)}$	n_{max}	$n_{max}^{4)}$	P_{rated}									
	rpm	rpm	rpm	rpm	rpm	S1 kW (HP)	S6-60 % kW (HP)	S6-40 % kW (HP)	S2-30 min kW (HP)		Order No.				
160	500	3 700	7 000	6 500	8 000	12 (16)	15 (20)	18 (24)	16.5 (22.1)	1PH7163 - ■ NB ■ ■ - 0 ■ ■ ■					
	1 000					22 (30)	27 (36)	33 (44)	30 (40)	1PH7163 - ■ ND ■ ■ - 0 ■ ■ ■					
	1 500					30 (40)	37 (50)	45 (60)	41 (55)	1PH7163 - ■ NF ■ ■ - 0 ■ ■ ■					
	2 000					36 (48)	44 (59)	52 (70)	48 (64)	1PH7163 - ■ NG ■ ■ - 0 ■ ■ ■					
	500	3 700	7 000	6 500	8 000	16 (21)	19.5 (26.2)	24 (32)	21.5 (28.8)	1PH7167 - ■ NB ■ ■ - 0 ■ ■ ■					
	1 000					28 (38)	34.5 (46.3)	42 (56)	38 (51)	1PH7167 - ■ ND ■ ■ - 0 ■ ■ ■					
	1 500					37 (50)	46 (62)	56 (75)	51 (68)	1PH7167 - ■ NF ■ ■ - 0 ■ ■ ■					
	2 000					41 (55)	51 (69)	61 (81)	56 (75)	1PH7167 - ■ NG ■ ■ - 0 ■ ■ ■					
Fans:		External fan unit, heavy-gauge threaded cable entry in terminal box								2					
		External fan unit, metric cable entry in terminal box								7					
Encoder system:		Incremental encoder sin/cos 1 V _{pp} without C and D tracks								N					
Terminal box/ Cable entry:		Top/right Top/NDE Top/left								0 2 3					
Type of construction: ⁵⁾		IM B3 (IM V5, IM V6) IM B35 (IM V15, IM V35) ⁷⁾								0 3					
Bearing version for:		Vibration magnitude:		Shaft and flange accuracy:								B C D L			
Coupling/belt output		Grade R		Tolerance R											
Coupling/belt output		Grade S		Tolerance R											
Coupling/belt output		Grade SR		Tolerance R											
Increased speed (coupling/belt output)		Grade SR		Tolerance R											
Shaft extension DE: ⁵⁾		Balancing:		Direction of air flow (fan):		Blow-out direction:						A B C D J K			
Fitted key		Half-key		DE → NDE		Axial									
Fitted key		Half-key		NDE → DE		Axial									
Fitted key		Full-key		DE → NDE		Axial									
Fitted key		Full-key		NDE → DE		Axial									
Plain shaft		–		DE → NDE		Axial									
Plain shaft		–		NDE → DE		Axial									
Degree of protection:		Seal:		Paint finish:								0 2 3 5 6 8			
IP55, fan IP54		–		Unpainted											
IP55, fan IP54		DE flange with shaft sealing ring ⁶⁾		Unpainted											
IP55, fan IP54		–		Anthracite											
IP55, fan IP54		DE flange with shaft sealing ring ⁶⁾		Anthracite											
IP55, fan IP54		–		Anthracite, two coats											
IP55, fan IP54		DE flange with shaft sealing ring ⁶⁾		Anthracite, two coats											

To select the type of construction and the degree of protection, see Selection guides.

Asynchronous motors

Main spindle motors for SIMODRIVE 611

1PH7 standard type motors
SH 160

Selection and ordering data

Motor type (continued)	Rated torque	Moment of inertia	Weight, approx.	Rated current for duty type in accordance with IEC 60034-1				SIMODRIVE 611 power module	
								Rated output current ⁸⁾	Order No.
	M_{rated}	J	m	I_{rated}				I_{rated}	
	Nm (lb _f -ft)	kgm ² (lb _f -in-s ²)	kg (lb)	S1 A	S6-60 % A	S6-40 % A	S2-30 min A	S1 A	
1PH7163-.NB...	229.2 (168.9)	0.19 (1.682)	198 (437)	30	36	42	39	30	For ordering data, see Converter system
1PH7163-.ND...	210.1 (154.8)	0.19 (1.682)	198 (437)	55	65	77	71	60	
1PH7163-.NF...	191.0 (140.8)	0.19 (1.682)	198 (437)	72	86	102	94	85	
1PH7163-.NG...	171.9 (126.7)	0.19 (1.682)	198 (437)	85	100	114	107	85	
1PH7167-.NB...	305.5 (225.2)	0.23 (2.036)	231 (509)	37	44	53	48	45	
1PH7167-.ND...	267.4 (197.1)	0.23 (2.036)	231 (509)	71	85	100	92	85	
1PH7167-.NF...	235.5 (173.6)	0.23 (2.036)	231 (509)	82	97	115	104	85	
1PH7167-.NG...	195.8 (144.3)	0.23 (2.036)	231 (509)	89	106	124	115	120	



1PH7 motor (SH 100 to SH 160)

- ¹⁾ For continuous duty (with 30 % n_{max} , 60 % $\frac{2}{3} n_{max}$, 10 % standstill) for a duty cycle time of 10 min. For maintenance intervals for motors and components, see the 1PH Motors Configuration Manual.
- ²⁾ Bearing version for coupling/belt output.
- ³⁾ Bearing version for increased maximum speed.
- ⁴⁾ Version for increased maximum speed only possible with vibration magnitude grade SR. The following option is not possible: Shaft sealing ring.
- ⁵⁾ The following motor versions are required for ZF gearbox mounting prepared (see Gearboxes for gear selection):
 - Types of construction IM B5 or IM B35
 - Shaft with fitted key and full-key balancing.
- ⁶⁾ Only appropriate if the sealing ring is occasionally lubricated with oil spray/mist. A sealing ring is not possible with increased maximum speed.
- ⁷⁾ Motors of shaft height 160 and higher require foot support.
- ⁸⁾ With default setting of the pulse frequency.

Asynchronous motors

Main spindle motors for SIMODRIVE 611

1PH7 standard type motors SH 180

Selection and ordering data

Shaft height	Rated speed	Continuous speed, max.			Speed, max. ¹⁾		Rated power for duty type in accordance with IEC 60034-1				1PH7 asynchronous motor with solid shaft Forced ventilation Standard type							
SH	n_{rated}	$n_{S1\text{ cont.}}^{2)}$	$n_{S1\text{ cont.}}^{3)}$	$n_{S1\text{ cont.}}^{4)}$	n_{max}	$n_{max}^{5)}$	P_{rated}											
	rpm	rpm	rpm	rpm	rpm	rpm	S1 kW (HP)	S6-60 % kW (HP)	S6-40 % kW (HP)	S2-30 min kW (HP)								
180	500	3 500	3 000	4 500	5 000	7 000	21.5 (28.8)	26.5 (35.5)	30.5 (40.9)	30 (40)	1PH7184 - ■ NT ■ - 0 ■ ■ ■							
	1 000						39 (52)	48 (64)	58 (78)	58 (78)	1PH7184 - ■ ND ■ - 0 ■ ■ ■							
	1 250						40 (54)	50 (57)	56 (75)	66 (89)	1PH7184 - ■ NE ■ - 0 ■ ■ ■							
	1 500						51 (68)	68 (91)	81 (109)	81 (68)	1PH7184 - ■ NF ■ - 0 ■ ■ ■							
	2 500						78 (105)	97 (130)	115 (154)	115 (154)	1PH7184 - ■ NL ■ - 0 ■ ■ ■							
	500	3 500	3 000	4 500	5 000	7 000	29.6 (39.7)	36.5 (49)	43 (58)	38 (51)	1PH7186 - ■ NT ■ - 0 ■ ■ ■							
	1 000						51 (68)	65 (87)	77 (103)	77 (103)	1PH7186 - ■ ND ■ - 0 ■ ■ ■							
	1 250						60 (80)	71 (95)	80 (107)	84 (113)	1PH7186 - ■ NE ■ - 0 ■ ■ ■							
	Fans:						External fan unit, heavy-gauge threaded cable entry in terminal box External fan unit, metric cable entry in terminal box					2 7						
	Encoder system:						Incremental encoder sin/cos 1 V _{pp} , 2 048 S/R without C or D tracks					N						
Terminal box/ Cable entry:						Top/right Top/DE Top/NDE Top/left						0 1 2 3						
Type of construction:						IM B3 IM B3 (IM V5, IM V6) (hoisting system for vertical types of construction) IM B35 ⁹⁾ IM B35 (flange <i>D</i> = 450 mm (17.72), only for 1PH7184) ⁹⁾ IM B35 (IM V15, IM V35) (hoisting system for vertical types of construction) ⁹⁾ IM B35 (IM V15, IM V35) (flange <i>D</i> = 450 mm (17.72), only for 1PH7184) ⁹⁾						0 1 3 4 5 6						
Bearing version for:						Vibration magnitude:		Shaft and flange accuracy:										
Coupling output						Grade R		Tolerance N									A	
Coupling output						Grade R		Tolerance R									B	
Coupling output						Grade S		Tolerance R									C	
Coupling output						Grade SR		Tolerance R									D	
Belt output						Grade R		Tolerance N									E	
Belt output						Grade R		Tolerance R									F	
Increased cantilever force (belt output)						Grade R		Tolerance N									G	
Increased cantilever force (belt output)						Grade R		Tolerance R									H	
Increased speed (coupling output)						Grade S		Tolerance R									J	
Shaft extension DE: ⁷⁾						Balancing:		Direction of air flow (fan):		Blow-out direction:								
Fitted key						Half-key		DE → NDE		Right							A	
Fitted key						Half-key		NDE → DE		Axial							B	
Fitted key						Full-key		DE → NDE		Right							C	
Fitted key						Full-key		NDE → DE		Axial							D	
Plain shaft						–		DE → NDE		Right							J	
Plain shaft						–		NDE → DE		Axial							K	
Degree of protection:						Seal:				Paint finish:								
IP55, fan IP54						–				Primed							0	
IP55, fan IP54						DE flange with shaft sealing ring ⁶⁾				Primed							2	
IP55, fan IP54						–				Anthracite							3	
IP55, fan IP54						DE flange with shaft sealing ring ⁶⁾				Anthracite							5	
IP55, fan IP54						–				Anthracite, two coats							6	
IP55, fan IP54						DE flange with shaft sealing ring ⁶⁾				Anthracite, two coats							8	

To select the type of construction and the degree of protection, see Selection guides.

Asynchronous motors

Main spindle motors for SIMODRIVE 611

1PH7 standard type motors
SH 180

Selection and ordering data

Motor type (continued)	Rated torque	Moment of inertia	Weight, approx. ⁸⁾	Rated current for duty type in accordance with IEC 60034-1				SIMODRIVE 611 power module	
								Rated output current ¹⁰⁾	Order No.
	M_{rated}	J	m	I_{rated}				I_{rated}	
	Nm (lb _f -ft)	kgm ² (lb _f -in-s ²)	kg (lb)	S1 A	S6-60 % A	S6-40 % A	S2 30 min A	S1 A	
1PH7184-.NT...	410 (302)	0.5 (4.425)	390 (860)	76	90	103	102	85	For ordering data, see Converter system
1PH7184-.ND...	372 (274)	0.5 (4.425)		90	106	126	126	120	
1PH7184-.NE...	305 (225)	0.5 (4.425)		85	100	110	128	85	
1PH7184-.NF...	325 (240)	0.5 (4.425)		120	149	174	174	120	
1PH7184-.NL...	298 (220)	0.5 (4.425)		172	204	237	237	200	
1PH7186-.NT...	565 (416)	0.67 (5.930)	460 (1 014)	105	126	147	130	120	
1PH7186-.ND...	487 (359)	0.67 (5.930)		118	141	164	164	120	
1PH7186-.NE...	458 (338)	0.67 (5.930)		120	135	150	156	120	



1PH7 motor (SH 180 and SH 225)

- 1) For continuous duty (with 30 % n_{max} , 60 % $\frac{2}{3} n_{max}$, 10 % standstill) for a duty cycle time of 10 min. For maintenance intervals for motors and components, see the 1PH Motors Configuration Manual.
- 2) Bearing version for coupling/belt output.
- 3) Bearing version for increased cantilever force.
- 4) Bearing version for increased maximum speed.
- 5) Version for increased maximum speed, only possible in combination with vibration magnitude grade S. The following option is not possible: Shaft sealing ring.
- 6) Only appropriate if the sealing ring is occasionally lubricated with oil spray/mist. A sealing ring is not possible for type of construction IM B3 (IM V5, IM V6), version with increased cantilever force or increased maximum speed.
- 7) The following motor versions are required for ZF gearbox mounting prepared (see Gearboxes for gear selection):
 - Type of construction IM B35, IM V15 (not IM V35)
 - Shaft with fitted key and full-key balancing
 - Bearing version for coupling output
 - Shaft and flange accuracy R
 - DE flange with shaft sealing ring
- 8) Applies to type of construction IM B35, as type of construction IM B3, the motor is 20 kg (44 lb) lighter.
- 9) Motors of shaft height 160 and higher require foot support.
- 10) With default setting of the pulse frequency.

Asynchronous motors

Main spindle motors for SIMODRIVE 611

1PH7 standard type motors SH 225

Selection and ordering data

Shaft height	Rated speed	Continuous speed, max.			Speed, max. ¹⁾		Rated power for duty type in accordance with IEC 60034-1				1PH7 asynchronous motor with solid shaft Forced ventilation Standard type						
SH	<i>n</i> _{rated}	<i>n</i> _{S1 cont.²⁾}	<i>n</i> _{S1 cont.³⁾}	<i>n</i> _{S1 cont.⁴⁾}	<i>n</i> _{max}	<i>n</i> _{max⁵⁾}	<i>P</i> _{rated}										
	rpm	rpm	rpm	rpm	rpm	rpm	S1 kW (HP)	S6-60 % kW (HP)	S6-40 % kW (HP)	S2-30 min kW (HP)					Order No.		
225	700	3 100	2 700	3 600	4 500 5 500		55 (74)	66 (89)	75 (101)	78 (105)	1PH7224 - ■ NC ■ ■ - 0 ■ ■ ■						
	1 000						71 (95)	88 (118)	105 (141)	114 (153)	1PH7224 - ■ ND ■ ■ - 0 ■ ■ ■						
	1 500						100 (134)	126 (169)	136 (182)	140 (188)	1PH7224 - ■ NF ■ ■ - 0 ■ ■ ■						
Fans:				External fan unit, heavy-gauge threaded cable entry in terminal box							2						
				External fan unit, metric cable entry in terminal box							7						
Encoder system:				Incremental encoder sin/cos 1 V _{pp} without C and D tracks							N						
Terminal box/ Cable entry:				Top/right Top/DE Top/NDE Top/left							0 1 2 3						
Type of construction:				IM B3 IM B3 (IM V5, IM V6) (hoisting system for vertical types of construction) IM B35 ⁹⁾ IM B35 (IM V15, IM V35) (hoisting system for vertical types of construction) ⁹⁾							0 1 3 5						
Bearing version for:		Vibration magnitude:		Shaft and flange accuracy:		A B C D E F G H J											
Coupling output		Grade R		Tolerance N													
Coupling output		Grade R		Tolerance R													
Coupling output		Grade S		Tolerance R													
Coupling output		Grade SR		Tolerance R													
Belt output		Grade R		Tolerance N													
Belt output		Grade R		Tolerance R													
Increased cantilever force (belt output)		Grade R		Tolerance N													
Increased cantilever force (belt output)		Grade R		Tolerance R													
Increased speed (coupling output)		Grade S		Tolerance R													
Shaft extension DE: ⁷⁾		Balancing:		Direction of air flow (fan):		Blow-out direction:		A B C D J K									
Fitted key		Half-key		DE → NDE		Right											
Fitted key		Half-key		NDE → DE		Axial											
Fitted key		Full-key		DE → NDE		Right											
Fitted key		Full-key		NDE → DE		Axial											
Plain shaft		–		DE → NDE		Right											
Plain shaft		–		NDE → DE		Axial											
Degree of protection:		Seal:		Paint finish:		0 2 3 5 6 8											
IP55, fan IP54		–		Primed													
IP55, fan IP54		DE flange with shaft sealing ring ⁶⁾		Primed													
IP55, fan IP54		–		Anthracite													
IP55, fan IP54		DE flange with shaft sealing ring ⁶⁾		Anthracite													
IP55, fan IP54		–		Anthracite, two coats													
IP55, fan IP54		DE flange with shaft sealing ring ⁶⁾		Anthracite, two coats													

To select the type of construction and the degree of protection, see Selection guides.

Asynchronous motors

Main spindle motors for SIMODRIVE 611

1PH7 standard type motors
SH 225

Selection and ordering data

Motor type (continued)	Rated torque	Moment of inertia	Weight, approx. ⁸⁾	Rated current for duty type in accordance with IEC 60034-1				SIMODRIVE 611 power module	
	M_{rated}	J	m	I_{rated}				Rated output current ¹⁰⁾	Order No.
	Nm (lb _f -ft)	kgm ² (lb _f -in-s ²)	kg (lb)	S1 A	S6-60 % A	S6-40 % A	S2-30 min A	S1 A	
1PH7224-.NC...	750 (553)	1.48 (13.099)	650 (1 433)	117	135	149	155	120	For ordering data, see Converter system
1PH7224-.ND...	678 (450)	1.48 (13.099)	650 (1 433)	164	190	222	240	200	
1PH7224-.NF...	636 (469)	1.48 (13.099)	650 (1 433)	188	230	248	256	200	



1PH7 motor (SH 180 and SH 225)

- ¹⁾ For continuous duty (with 30 % n_{max} , 60 % $\frac{2}{3} n_{max}$, 10 % standstill) for a duty cycle time of 10 min. For maintenance intervals for motors and components, see the 1PH Motors Configuration Manual.
- ²⁾ Bearing version for coupling/belt output.
- ³⁾ Bearing version for increased cantilever force.
- ⁴⁾ Bearing version for increased maximum speed.
- ⁵⁾ Version for increased maximum speed, only possible in combination with vibration magnitude grade S. The following option is not possible: Shaft sealing ring.
- ⁶⁾ Only appropriate if the sealing ring is occasionally lubricated with oil spray/mist. A sealing ring is not possible for type of construction IM B3 (IM V5, IM V6), version with increased cantilever force or increased maximum speed.
- ⁷⁾ The following motor versions are required for ZF gearbox mounting prepared (see Gearboxes for gear selection):
- Type of construction IM B35, IM V15 (not IM V35)
 - Shaft with fitted key and full-key balancing
 - Bearing version for coupling output
 - Shaft and flange accuracy R
 - DE flange with shaft sealing ring.
- ⁸⁾ Applies to type of construction IM B35, as type of construction IM B3, the motor is 20 kg (44 lb) lighter.
- ⁹⁾ Motors of shaft height 160 and higher require foot support.
- ¹⁰⁾ With default setting of the pulse frequency.