

# Asynchronous motors

## Main spindle motors for SINAMICS S120

1PM4/1PM6 standard type motors  
SH 100/SH 132

### Selection and Ordering Data

Shaft height	Rated speed		Con- tinu- ous speed, max.	Speed, max. <sup>1)</sup>		Rated power for <b>star</b> $n_{ratedY} = 1\,500\text{ rpm}$		Rated power for <b>delta</b> $n_{rated\Delta} = 4\,000\text{ rpm}$		1PM4 asynchronous motor with hollow shaft Standard type	1PM6 asynchronous motor with hollow shaft Standard type
	star	delta		$n_{S1cont}$	$n_{max}$	$P_{rated}$ S1	S6-40 %	$P_{rated}$ S1	S6-40 %		
	rpm	rpm	rpm	rpm	kW (HP)	kW (HP)	kW (HP)	kW (HP)	Order No.	Order No.	
SH	1 500	4 000	12 000	12 000	3.7 (4.96)	5.25 (7.04)	3.7 (4.96)	6 (8.05)	1PM4101 - 2 F86 - 1 S1 1PM4101 - 2L F86 - 1 S1 <sup>3)</sup> 1PM4105 - 2 F86 - 1 S1 1PM4105 - 2L F86 - 1 S1 <sup>3)</sup>	1PM6101 - 2 F8 - 1 S1 1PM6101 - 2L F8 - 1 S1 <sup>3)</sup> 1PM6105 - 2 F8 - 1 S1 1PM6105 - 2L F8 - 1 S1 <sup>3)</sup>	
					18 000	18 000	3.7 (4.96)	5.25 (7.04)			3.7 (4.96)
	12 000	12 000	7.5 (10.1)	11 (14.8)	7.5 (10.1)	13 (17.4)					
	18 000	18 000	7.5 (10.1)	11 (14.8)	7.5 (10.1)	13 (17.4)					
SH	1 500	4 000	10 000	10 500	11 (14.8)	16.5 (22.1)	11 (14.8)	19.5 (26.1)	Oil cooling <sup>2)</sup> Forced ventilation 1PM4133 - 2 F86 - 1 S1 1PM4133 - 2L F86 - 1 S1 <sup>3)</sup> 1PM4137 - 2 F86 - 1 S1 1PM4137 - 2L F86 - 1 S1 <sup>3)</sup> - - Water cooling <sup>4)</sup> 1PM4101 - 2 W26 - 1 S1 1PM4101 - 2 W26 - 1 S1 <sup>3)</sup> 1PM4105 - 2 W26 - 1 S1 1PM4105 - 2 W26 - 1 S1 <sup>3)</sup> 1PM4133 - 2 W26 - 1 S1 1PM4133 - 2 W26 - 1 S1 <sup>3)</sup> 1PM4137 - 2 W26 - 1 S1 1PM4137 - 2 W26 - 1 S1 <sup>3)</sup>	1PM6133 - 2 F8 - 1 S1 1PM6133 - 2L F8 - 1 S1 <sup>3)</sup> 1PM6137 - 2 F8 - 1 S1 1PM6137 - 2L F8 - 1 S1 <sup>3)</sup> 1PM6138 - 2 F8 - 1 S1 1PM6138 - 2L F8 - 1 S1 <sup>3)</sup>	
					15 000	15 000	11 (14.8)	16.5 (22.1)			11 (14.8)
	10 000	10 500	18.5 (24.8)	28 (37.5)	18.5 (24.8)	32 (42.9)					
	12 000	12 000	18.5 (24.8)	28 (37.5)	18.5 (24.8)	32 (42.9)					
	10 000	10 500	22 (29.5)	33 (44.3)	22 (29.5)	39 (52.3)					
	11 000	11 000	22 (29.5)	33 (44.3)	22 (29.5)	39 (52.3)					
	12 000	12 000	5 (6.71)	6.5 (8.72)	-	-					
	18 000	18 000	5 (6.71)	6.5 (8.72)	-	-					
SH	1 500	12 000	12 000	10 000	10 500	11 (14.8)	14.75 (19.8)	-	-	L	L
						18 000	18 000	11 (14.8)	14.75 (19.8)		
	10 000	10 500	15 (20.1)	21 (28.2)	-	-					
	15 000	15 000	15 (20.1)	21 (28.2)	-	-					
SH	1 500	12 000	12 000	10 000	10 500	27 (36.2)	38 (51.0)	-	-	V	V
						18 000	18 000	27 (36.2)	38 (51.0)		
	10 000	10 500	27 (36.2)	38 (51.0)	-	-					
	12 000	12 000	27 (36.2)	38 (51.0)	-	-					
<b>Encoder system for motors without DRIVE-CLiQ interface:</b>						Incremental encoder sin/cos 1 V <sub>pp</sub> , 256 S/R		L		L	
<b>Encoder system for motors with DRIVE-CLiQ interface:</b>						Incremental encoder 19 bit		V		V	
<b>Type:</b>						IM B35, IM V15, IM V35				IM B5 IM V1 IM V3	1 4 5
<b>Fans:</b>						Without fan combined with terminal box/metric cable entry		Top/right Top/DE Top/NDE Top/left	A B C D		
Axial fan/Blow-out direction below/Direction of air flow DE → NDE combined with terminal box/metric cable entry										Top/from right Top/from DE Top/from NDE Top/from left	A R B R C R D R
Radial fan/Blow-out direction NDE/Direction of air flow DE → NDE combined with terminal box/metric cable entry										Right side/below Right side/DE Right side/NDE <sup>5)</sup>	E D F D G D

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

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 1PM Motors Configuration Manual.  
2) Star/delta changeover.  
3) With option L37: Version for increased maximum speed.  
4) Only star connection possible.

5) For 1PM6101 and 1PM6105 only.  
6) Version for increased maximum speeds includes vibration magnitude grade SR. The following options are not possible:  
• Shaft seal.

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SH 100/SH 132

## Selection and Ordering Data

Motor type (continued)	Rated torque for <b>star</b>		Rated torque for <b>delta</b>		Moment of inertia  <i>J</i>	Weight, approx.		Rated current for <b>star</b>		SINAMICS S120 Motor Module	
	<i>M<sub>rated</sub></i>		<i>M<sub>rated</sub></i>			1PM4	1PM6	<i>I<sub>rated</sub></i>		Required rated output current  <i>I<sub>rated</sub></i>	Booksize format  Order No.
	S1	S6-40 %	S1	S6-40 %				S1	S6-40 %		
	Nm (lb <sub>f</sub> -ft)	Nm (lb <sub>f</sub> -ft)	Nm (lb <sub>f</sub> -ft)	Nm (lb <sub>f</sub> -ft)	kgm <sup>2</sup> (lb <sub>f</sub> -in-s <sup>2</sup> )	kg (lb)	kg (lb)	A	A	A	
1PM .101- ...	24 (17.7)	33 (24.3)	9 (6.64)	14 (10.3)	0.011 (0.10)	42 (92.6)	45 (99.2)	13	17.5	18	<b>6SL312</b> - <b>1TE21-8AA3</b>
1PM .101-2L... <sup>3)</sup>	24 (17.7)	33 (24.3)	9 (6.64)	14 (10.3)	0.011 (0.10)	42 (92.6)	45 (99.2)	13	17.5	18	<b>6SL312</b> - <b>1TE21-8AA3</b>
1PM .105- ...	48 (35.4)	70 (51.6)	18 (13.3)	31 (22.9)	0.024 (0.21)	67 (148)	70 (154)	23	31	30	<b>6SL312</b> - <b>1TE23-0AA3</b>
1PM .105-2L... <sup>3)</sup>	48 (35.4)	70 (51.6)	18 (13.3)	31 (22.9)	0.024 (0.21)	67 (148)	70 (154)	23	31	30	<b>6SL312</b> - <b>1TE23-0AA3</b>
1PM .133- ...	70 (51.6)	105 (77.4)	26 (19.2)	47 (34.7)	0.046 (0.41)	90 (198)	94 (207)	41	58	45	<b>6SL312</b> - <b>1TE24-5AA3</b>
1PM .133-2L... <sup>3)</sup>	70 (51.6)	105 (77.4)	26 (19.2)	47 (34.7)	0.046 (0.41)	90 (198)	94 (207)	41	58	45	<b>6SL312</b> - <b>1TE24-5AA3</b>
1PM .137- ...	118 (87.0)	178 (131)	44 (32.5)	76 (56.1)	0.085 (0.75)	130 (287)	135 (298)	56	79	60	<b>6SL312</b> - <b>1TE26-0AA3</b>
1PM .137-2L... <sup>3)</sup>	118 (87.0)	178 (131)	44 (32.5)	76 (56.1)	0.085 (0.75)	130 (287)	135 (298)	56	79	60	<b>6SL312</b> - <b>1TE26-0AA3</b>
1PM6138- ...	140 (103)	210 (155)	53 (39.1)	93 (68.6)	0.104 (0.92)	-	156 (344)	58	80	60	<b>6SL312</b> - <b>1TE26-0AA3</b>
1PM6138-2L... <sup>3)</sup>	140 (103)	210 (155)	53 (39.1)	93 (68.6)	0.104 (0.92)	-	156 (344)	58	80	60	<b>6SL312</b> - <b>1TE26-0AA3</b>
1PM4101- ...	32 (23.6)	41 (30.2)	-	-	0.011 (0.10)	42 (92.6)	-	18	22.5	18	<b>6SL312</b> - <b>1TE21-8AA3</b>
1PM4101- ... <sup>3)</sup>	32 (23.6)	41 (30.2)	-	-	0.011 (0.10)	42 (92.6)	-	18	22.5	18	<b>6SL312</b> - <b>1TE21-8AA3</b>
1PM4105- ...	70 (51.6)	94 (69.3)	-	-	0.024 (0.21)	67 (148)	-	38	47	45	<b>6SL312</b> - <b>1TE24-5AA3</b>
1PM4105- ... <sup>3)</sup>	70 (51.6)	94 (69.3)	-	-	0.024 (0.21)	67 (148)	-	38	47	45	<b>6SL312</b> - <b>1TE24-5AA3</b>
1PM4133- ...	95 (70.1)	134 (98.8)	-	-	0.046 (0.41)	90 (198)	-	55	74	60	<b>6SL312</b> - <b>1TE26-0AA3</b>
1PM4133- ... <sup>3)</sup>	95 (70.1)	134 (98.8)	-	-	0.046 (0.41)	90 (198)	-	55	74	60	<b>6SL312</b> - <b>1TE26-0AA3</b>
1PM4137- ...	172 (127)	242 (178)	-	-	0.085 (0.75)	130 (287)	-	85	114	85	<b>6SL312</b> - <b>1TE28-5AA3</b>
1PM4137- ... <sup>3)</sup>	172 (127)	242 (178)	-	-	0.085 (0.75)	130 (287)	-	85	114	85	<b>6SL312</b> - <b>1TE28-5AA3</b>

### Cooling:

Internal air cooling  
External air cooling

0  
1

### Motor Module:

Single Motor Module  
Double Motor Module

1  
2

## Options

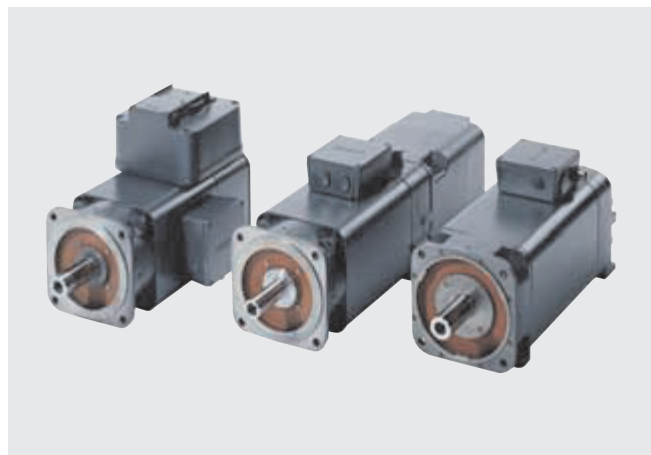
Designation	Order code
Speed <sup>6)</sup> • With increased maximum speed	<b>L37</b>

When ordering a motor with options, **-Z** should be added to the order number and the order code should also be specified for each additional required version.

**Order codes must not be repeated in plain text in the order.**

Order No. **1PM4101-2LF86-1AS1-Z**

Order code **L37**



1PM6 motor (radial fan), 1PM6 motor (axial fan) and 1PM4 motor (liquid-cooled)