

Servomotors

Synchronous motors for SINAMICS S120

1FT7 Compact core type motors Natural cooling

Selection and ordering data

Rated speed	Shaft height	Rated power	Static torque	Rated torque	Rated current	1FT7 Compact synchronous motors Core type	Number of pole pairs	Moment of inertia of rotor (without brake)	Weight (without brake)
n_{rated}	SH	P_{rated} at $\Delta T=100\text{ K}$	M_0 at $\Delta T=100\text{ K}$	M_{rated} at $\Delta T=100\text{ K}$	I_{rated} at $\Delta T=100\text{ K}$	Order No.	p	J	m
rpm		kW (HP)	Nm (lb _f -ft)	Nm (lb _f -ft)	A			10^{-4} kgm^2 ($10^{-3}\text{ lb}_f\text{-in-s}^2$)	kg (lb)
Natural cooling									
2000	100	5.03 (6.75)	30 (22.1)	24 (17.7)	10	1FT7102-1AC7-1 ■ ■ ■ 1	5	91.4 (80.9)	26.1 (57.6)
		7.96 (10.7)	50 (36.9)	38 (28)	15	1FT7105-1AC7-1 ■ ■ ■ 1	5	178 (158)	44.2 (97.5)
3000	48	1.35 (1.81)	5 (3.7)	4.3 (3.2)	2.6	1FT7044-1AF7-1 ■ ■ ■ 1	3	5.43 (4.81)	7.2 (15.9)
		1.7 (2.28)	6 (4.4)	5.4 (4.0)	3.9	1FT7062-1AF7-1 ■ ■ ■ 1	5	7.36 (6.51)	7.1 (15.7)
	63	2.39 (3.20)	9 (6.6)	7.6 (5.6)	5.2	1FT7064-1AF7-1 ■ ■ ■ 1	5	11.9 (10.5)	9.7 (21.4)
		3.24 (4.34)	13 (9.6)	10.3 (7.6)	6.6	1FT7082-1AF7-1 ■ ■ ■ 1	5	26.5 (23.5)	14.0 (30.9)
		4.56 (6.11)	20 (14.8)	14.5 (10.7)	8.5	1FT7084-1AF7-1 ■ ■ ■ 1	5	45.1 (39.9)	20.8 (45.9)
		5.65 (7.58)	28 (20.7)	18 (13.3)	11	1FT7086-1AF7-1 ■ ■ ■ 1	5	63.6 (56.3)	27.5 (60.6)
4500	80	4.82 (6.46) ¹⁾	20 (14.8)	11.5 (8.5) ¹⁾	10.1 ¹⁾	1FT7084-1AH7-1 ■ ■ ■ 1	5	45.1 (39.9)	20.8 (45.9)
		4.71 (6.32)	28 (20.7)	10 (7.4)	10	1FT7086-1AH7-1 ■ ■ ■ 1	5	63.6 (56.3)	27.5 (60.6)
6000	36	0.88 (1.18)	2 (1.5)	1.4 (1.0)	2.1	1FT7034-1AK7-1 ■ ■ ■ 1	3	0.85 (0.75)	3.8 (8.38)
		2.13 (2.86) ²⁾	6 (4.4)	3.7 (2.7) ²⁾	5.9 ²⁾	1FT7062-1AK7-1 ■ ■ ■ 1	5	7.36 (6.51)	7.1 (15.7)
	63	2.59 (3.47) ³⁾	9 (6.6)	5.5 (4.1) ³⁾	6.1 ³⁾	1FT7064-1AK7-1 ■ ■ ■ 1	5	11.9 (10.5)	9.7 (21.4)
Type of construction:			IM B5	Flange 0	0				
				Flange 1 (compatible with 1FT6)	1				
Encoder systems for motors without DRIVE-CLiQ interface:			IC2048S/R encoder					N	
			AM2048S/R encoder					M	
Encoder systems for motors with DRIVE-CLiQ interface:			IC22DQ encoder					D	
			AM22DQ encoder					F	
Shaft extension:			Shaft and flange accuracy:			Holding brake:			
Plain shaft			Tolerance N			Without			G
Plain shaft			Tolerance N			With			H
Vibration magnitude:			Degree of protection:						
Grade A			IP65			1			

To select the type of construction and degree of protection, see Technical definitions.

Some 1FT7 Compact motors are available as core types. These core types can be express delivered as replacement motors in the event of plant outages and offer the advantage of a quicker spare parts supply. For this reason, core types should be used for configuration wherever possible.

Servomotors

Synchronous motors for SINAMICS S120

1FT7 Compact core type motors
Natural cooling

Motor type (repeated)	Efficiency ⁴⁾ η %	Static current I_0 at M_0 $\Delta T=100$ K A	Calculated power P_{calc} ⁷⁾ for M_0 $\Delta T=100$ K kW (HP)	SINAMICS S120 Motor Module		Power cable with complete shield		
				Rated output current ⁵⁾ I_{rated} A	Booksized format For additional versions and components, see chapter SINAMICS S120 drive system Order No.	Motor connection (and brake connection) via power connector		
						Power connector Size	Cable cross-section ⁶⁾ mm ²	Pre-assembled cable Order No.
1FT7102-1AC7...	93	12.5	6.28 (8.42)	18	6SL312-TE21-8AA3	1.5	4 × 1.5	6FX002-5N21-....
1FT7105-1AC7...	93	18	10.47 (14.0)	18	6SL312-TE21-8AA3	1.5	4 × 2.5	6FX002-5N31-....
1FT7044-1AF7...	92	2.8	1.57 (2.11)	3	6SL312-TE13-0AA3	1	4 × 1.5	6FX002-5N01-....
1FT7062-1AF7...	91	3.9	1.88 (2.52)	5	6SL312-TE15-0AA3	1	4 × 1.5	6FX002-5N01-....
1FT7064-1AF7...	93	5.7	2.83 (3.80)	9	6SL312-TE21-0AA3	1	4 × 1.5	6FX002-5N01-....
1FT7082-1AF7...	93	7.6	4.08 (5.47)	9	6SL312-TE21-0AA3	1	4 × 1.5	6FX002-5N01-....
1FT7084-1AF7...	93	11	6.28 (8.42)	18	6SL312-TE21-8AA3	1	4 × 1.5	6FX002-5N01-....
1FT7086-1AF7...	93	15.5	8.80 (11.8)	18	6SL312-TE21-8AA3	1.5	4 × 2.5	6FX002-5N31-....
1FT7084-1AH7...	93	15.6	9.42 (12.6)	18	6SL312-TE21-8AA3	1.5	4 × 2.5	6FX002-5N31-....
1FT7086-1AH7...	91	22.4	13.19 (17.7)	30	6SL312-1TE23-0AA3	1.5	4 × 4	6FX002-5N41-....
1FT7034-1AK7...	90	2.7	1.26 (1.69)	3	6SL312-TE13-0AA3	1	4 × 1.5	6FX002-5N01-....
1FT7062-1AK7...	90	8.4	3.77 (5.06)	9	6SL312-TE21-0AA3	1	4 × 1.5	6FX002-5N01-....
1FT7064-1AK7...	91	9	5.65 (7.58)	9	6SL312-TE21-0AA3	1	4 × 1.5	6FX002-5N01-....

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

Power cable:	
MOTION-CONNECT 800	8
MOTION-CONNECT 500	5
Without brake cores	C
With brake cores	D
Length code

Information about the cables can be found in chapter Connection system MOTION-CONNECT.

¹⁾ These values refer to $n = 4000$ rpm.

²⁾ These values refer to $n = 5500$ rpm.

³⁾ These values refer to $n = 4500$ rpm.

⁴⁾ Optimum efficiency in continuous duty.

⁵⁾ With default setting of the pulse frequency.

⁶⁾ The current carrying capacity of the power cables complies with EN 60204-1 for installation type C, for continuous duty at an ambient air temperature of 40 °C (104 °F).

⁷⁾

$$P_{calc} [kW] = \frac{M_0 [Nm] \times n_{rated}}{9550} \quad P_{calc} [HP] = \frac{M_0 [lb-ft] \times n_{rated}}{5250}$$

Servomotors

Synchronous motors for SINAMICS S120

1FT7 Compact motors Natural cooling

Selection and ordering data

Rated speed	Shaft height	Rated power	Static torque	Rated torque	Rated current	1FT7 Compact synchronous motors	Number of pole pairs	Moment of inertia of rotor (without brake)	Weight (without brake)
n_{rated}	SH	P_{rated} at $\Delta T=100\text{ K}$	M_0 at $\Delta T=100\text{ K}$	M_{rated} at $\Delta T=100\text{ K}$	I_{rated} at $\Delta T=100\text{ K}$	Order No.	p	J	m
rpm		kW (HP)	Nm (lb _f -ft)	Nm (lb _f -ft)	A			10^{-4} kgm^2 ($10^{-3}\text{ lb}_f\text{-in-s}^2$)	kg (lb)
Natural cooling									
1500	100	4.08 (5.47)	30 (22.1)	26 (19.2)	8	1FT7102-5AB7 ■-1 ■ ■ ■	5	91.4 (80.9)	26.1 (57.5)
		6.60 (8.85)	50 (36.9)	42 (31.0)	13	1FT7105-5AB7 ■-1 ■ ■ ■	5	178 (157)	44.2 (97.5)
		9.58 (12.8)	70 (51.6)	61 (45.0)	16	1FT7108-5AB7 ■-1 ■ ■ ■	5	248 (219)	59 (130)
2000	80	2.39 (3.20)	13 (9.6)	11.4 (8.4)	4.9	1FT7082-5AC7 ■-1 ■ ■ ■	5	26.5 (23.5)	14 (30.9)
		3.54 (4.75)	20 (14.8)	16.9 (12.5)	8.4	1FT7084-5AC7 ■-1 ■ ■ ■	5	45.1 (39.9)	20.8 (45.9)
		4.71 (6.32)	28 (20.7)	22.5 (16.6)	9.2	1FT7086-5AC7 ■-1 ■ ■ ■	5	63.6 (56.3)	27.5 (60.6)
	100	5.03 (6.75)	30 (22.1)	24 (17.7)	10	1FT7102-5AC7 ■-1 ■ ■ ■	5	91.4 (80.9)	26.1 (57.5)
		7.96 (10.7)	50 (36.9)	38 (28.0)	15	1FT7105-5AC7 ■-1 ■ ■ ■	5	178 (157)	44.2 (97.5)
		10.5 (14.1)	70 (51.6)	50 (36.9)	18	1FT7108-5AC7 ■-1 ■ ■ ■	5	248 (219)	59 (130)
3000	48	0.85 (1.14)	3 (2.2)	2.7 (2.0)	2.1	1FT7042-5AF7 ■-1 ■ ■ ■	3	2.81 (2.49)	4.6 (10.1)
		1.35 (1.81)	5 (3.7)	4.3 (3.2)	2.6	1FT7044-5AF7 ■-1 ■ ■ ■	3	5.43 (4.81)	7.2 (15.9)
		1.76 (2.36)	7 (5.2)	5.6 (4.1)	3.5	1FT7046-5AF7 ■-1 ■ ■ ■	3	7.52 (6.66)	9.3 (20.5)
	63	1.70 (2.28)	6 (4.4)	5.4 (4.0)	3.9	1FT7062-5AF7 ■-1 ■ ■ ■	5	7.36 (6.51)	7.1 (15.7)
		2.39 (3.20)	9 (6.6)	7.6 (5.6)	5.2	1FT7064-5AF7 ■-1 ■ ■ ■	5	11.9 (10.5)	9.7 (21.4)
		2.92 (3.92)	12 (8.9)	9.3 (6.9)	7.2	1FT7066-5AF7 ■-1 ■ ■ ■	5	16.4 (14.5)	12.3 (27.1)
		3.42 (4.59)	15 (11.1)	10.9 (8.0)	6.7	1FT7068-5AF7 ■-1 ■ ■ ■	5	23.2 (20.5)	16.3 (35.9)
	80	3.24 (4.34)	13 (9.6)	10.3 (7.6)	6.6	1FT7082-5AF7 ■-1 ■ ■ ■	5	26.5 (23.5)	14 (30.9)
		4.55 (6.10)	20 (14.8)	14.5 (10.7)	8.5	1FT7084-5AF7 ■-1 ■ ■ ■	5	45.1 (39.9)	20.8 (45.9)
		5.65 (7.58)	28 (20.7)	18 (13.3)	11	1FT7086-5AF7 ■-1 ■ ■ ■	5	63.6 (56.3)	27.5 (60.6)
	100	6.28 (8.42)	30 (22.1)	20 (14.8)	12	1FT7102-5AF7 ■-1 ■ ■ ■	5	91.4 (80.9)	26.1 (57.5)
		8.80 (11.8)	50 (36.9)	28 (20.7)	15	1FT7105-5AF7 ■-1 ■ ■ ■	5	178 (157)	44.2 (97.5)
6.28 (8.42)		70 (51.6)	20 (14.8)	12	1FT7108-5AF7 ■-1 ■ ■ ■	5	248 (220)	59 (130)	
Type of construction:			IM B5	Flange 0	0				
				Flange 1 (compatible with 1FT6)	1				
Encoder systems for motors without DRIVE-CLiQ interface:			IC2048S/R encoder					N	
			AM2048S/R encoder					M	
Encoder systems for motors with DRIVE-CLiQ interface:			IC22DQ encoder					D	
			AM22DQ encoder					F	
Shaft extension:			Shaft and flange accuracy:			Holding brake:			
Fitted key and keyway			Tolerance N			Without			A
Fitted key and keyway			Tolerance N			With			B
Fitted key and keyway			Tolerance R			Without			D
Fitted key and keyway			Tolerance R			With			E
Plain shaft			Tolerance N			Without			G
Plain shaft			Tolerance N			With			H
Plain shaft			Tolerance R			Without			K
Plain shaft			Tolerance R			With			L
Vibration magnitude:			Degree of protection:						
Grade A			IP64						0
Grade A			IP65						1
Grade A			IP67						2
Grade R			IP64						3
Grade R			IP65						4
Grade R			IP67						5

To select the type of construction and degree of protection, see Technical definitions.

Motor type (repeated)	Efficiency ¹⁾ η %	Static current I_0 at M_0 $\Delta T=100$ K A	Calculated power P_{calc} ⁴⁾ P_{calc} for M_0 $\Delta T=100$ K kW (HP)	SINAMICS S120 Motor Module		Power cable with complete shield		
				Rated output current ²⁾ I_{rated} A	Booksized format For additional versions and components, see chapter SINAMICS S120 drive system Order No.	Motor connection (and brake connection) via power connector		
						Power connector Size	Cable cross- section ³⁾ mm ²	Pre-assembled cable Order No.
1FT7102-5AB7...	93	9	4.71 (6.32)	9	6SL312-TE21-0AA3	1.5	4 × 1.5	6FX002-5N21-....
1FT7105-5AB7...	93	15	7.85 (10.5)	18	6SL312-TE21-8AA3	1.5	4 × 1.5	6FX002-5N21-....
1FT7108-5AB7...	93	18	10.99 (14.7)	18	6SL312-TE21-8AA3	1.5	4 × 2.5	6FX002-5N31-....
1FT7082-5AC7...	93	5	2.72 (3.65)	5	6SL312-TE15-0AA3	1	4 × 1.5	6FX002-5N01-....
1FT7084-5AC7...	93	9	4.19 (5.62)	9	6SL312-TE21-0AA3	1	4 × 1.5	6FX002-5N01-....
1FT7086-5AC7...	93	10.6	5.86 (7.86)	18	6SL312-TE21-8AA3	1	4 × 1.5	6FX002-5N01-....
1FT7102-5AC7...	93	12.5	6.28 (8.42)	18	6SL312-TE21-8AA3	1.5	4 × 1.5	6FX002-5N21-....
1FT7105-5AC7...	93	18	10.47 (14.0)	18	6SL312-TE21-8AA3	1.5	4 × 2.5	6FX002-5N31-....
1FT7108-5AC7...	93	25	14.66 (19.7)	30	6SL312-1TE23-0AA3	1.5	4 × 4	6FX002-5N41-....
1FT7042-5AF7...	92	2.1	0.94 (1.26)	3	6SL312-TE13-0AA3	1	4 × 1.5	6FX002-5N01-....
1FT7044-5AF7...	92	2.8	1.57 (2.11)	3	6SL312-TE13-0AA3	1	4 × 1.5	6FX002-5N01-....
1FT7046-5AF7...	92	4	2.20 (2.95)	5	6SL312-TE15-0AA3	1	4 × 1.5	6FX002-5N01-....
1FT7062-5AF7...	91	3.9	1.88 (2.52)	5	6SL312-TE15-0AA3	1	4 × 1.5	6FX002-5N01-....
1FT7064-5AF7...	93	5.7	2.83 (3.80)	9	6SL312-TE21-0AA3	1	4 × 1.5	6FX002-5N01-....
1FT7066-5AF7...	92	8.4	3.77 (5.06)	9	6SL312-TE21-0AA3	1	4 × 1.5	6FX002-5N01-....
1FT7068-5AF7...	92	8.3	4.71 (6.32)	9	6SL312-TE21-0AA3	1	4 × 1.5	6FX002-5N01-....
1FT7082-5AF7...	93	7.6	4.08 (5.47)	9	6SL312-TE21-0AA3	1	4 × 1.5	6FX002-5N01-....
1FT7084-5AF7...	93	11	6.28 (8.42)	18	6SL312-TE21-8AA3	1	4 × 1.5	6FX002-5N01-....
1FT7086-5AF7...	93	15.5	8.80 (11.8)	18	6SL312-TE21-8AA3	1.5	4 × 2.5	6FX002-5N31-....
1FT7102-5AF7...	93	18	9.42 (12.6)	18	6SL312-TE21-8AA3	1.5	4 × 2.5	6FX002-5N31-....
1FT7105-5AF7...	94	26	15.71 (21.1)	30	6SL312-1TE23-0AA3	1.5	4 × 4	6FX002-5N41-....
1FT7108-5AF7...	93	36	21.99 (29.5)	45	6SL312-1TE24-5AA3	1.5	4 × 6	6FX002-5N54-....

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

Power cable:	
MOTION-CONNECT 800	8
MOTION-CONNECT 500	5
Without brake cores	C
With brake cores	D
Length code

Information about the cables
can be found in chapter
Connection system MOTION-CONNECT.

1) Optimum efficiency in continuous duty.

2) With default setting of the pulse frequency.

3) The current carrying capacity of the power cables complies with EN 60204-1 for installation type C, for continuous duty at an ambient air temperature of 40 °C (104 °F).

4) $P_{calc} [kW] = \frac{M_0 [Nm] \times n_{rated}}{9550}$ $P_{calc} [HP] = \frac{M_0 [lb-ft] \times n_{rated}}{5250}$

Servomotors

Synchronous motors for SINAMICS S120

1FT7 Compact motors Natural cooling

Selection and ordering data

Rated speed	Shaft height	Rated power	Static torque	Rated torque	Rated current	1FT7 Compact synchronous motors	Number of pole pairs	Moment of inertia of rotor (without brake)	Weight (without brake)	
n_{rated}	SH	P_{rated} at $\Delta T=100\text{ K}$	M_0 at $\Delta T=100\text{ K}$	M_{rated} at $\Delta T=100\text{ K}$	I_{rated} at $\Delta T=100\text{ K}$	Order No.	p	J	m	
rpm		kW (HP)	Nm (lb _f -ft)	Nm (lb _f -ft)	A			10^{-4} kgm^2 ($10^{-3}\text{ lb}_f\text{-in-s}^2$)	kg (lb)	
Natural cooling										
4500	48	1.32 (1.77) ¹⁾	7 (5.2)	3.6 (2.7) ¹⁾	4.7 ¹⁾	1FT7046-5AH7-1 ■ ■ ■ ■	3	7.52 (6.66)	9.3 (20.5)	
	63	2.55 (3.42) ²⁾	12 (8.9)	6.1 (4.5) ²⁾	7.5 ²⁾	1FT7066-5AH7-1 ■ ■ ■ ■	5	16.4 (14.5)	12.3 (27.1)	
	80	3.77 (5.06)	13 (9.6)	8 (5.9)	7.8	1FT7082-5AH7-1 ■ ■ ■ ■	5	26.5 (23.5)	14 (30.9)	
		4.82 (6.46) ²⁾	20 (14.8)	11.5 (8.5) ²⁾	10.1 ²⁾	1FT7084-5AH7-1 ■ ■ ■ ■	5	45.1 (39.9)	20.8 (45.9)	
		4.71 (6.32)	28 (20.7)	10 (7.4)	10	1FT7086-5AH7-1 ■ ■ ■ ■	5	63.6 (56.3)	27.5 (60.6)	
6000	36	0.88 (1.18)	2 (1.5)	1.4 (1.0)	2.1	1FT7034-5AK7-1 ■ ■ ■ ■	3	0.85 (0.75)	3.8 (8.38)	
		1.07 (1.43)	3 (2.2)	1.7 (1.3)	2.4	1FT7036-5AK7-1 ■ ■ ■ ■	3	1.33 (1.18)	5.0 (11.0)	
	48	1.26 (1.69)	3 (2.2)	2 (1.5)	3	1FT7042-5AK7-1 ■ ■ ■ ■	3	2.81 (2.49)	4.6 (10.1)	
		1.41 (1.89) ³⁾	5 (3.7)	3 (2.2) ³⁾	3.6 ³⁾	1FT7044-5AK7-1 ■ ■ ■ ■	3	5.43 (4.81)	7.2 (15.9)	
	63	2.13 (2.86) ⁴⁾	6 (4.4)	3.7 (2.7) ⁴⁾	5.9 ⁴⁾	1FT7062-5AK7-1 ■ ■ ■ ■	5	7.36 (6.51)	7.1 (15.7)	
		2.59 (3.47) ³⁾	9 (6.6)	5.5 (4.1) ³⁾	6.1 ³⁾	1FT7064-5AK7-1 ■ ■ ■ ■	5	11.9 (10.5)	9.7 (21.4)	
	Type of construction:			IM B5	Flange 0	0				
					Flange 1 (compatible with 1FT6)	1				
Encoder systems for motors without DRIVE-CLiQ interface:			IC2048S/R encoder				N			
			AM2048S/R encoder				M			
Encoder systems for motors with DRIVE-CLiQ interface:			IC22DQ encoder				D			
			AM22DQ encoder				F			
Shaft extension:			Shaft and flange accuracy:			Holding brake:				
Fitted key and keyway			Tolerance N			Without			A	
Fitted key and keyway			Tolerance N			With			B	
Fitted key and keyway			Tolerance R			Without			D	
Fitted key and keyway			Tolerance R			With			E	
Plain shaft			Tolerance N			Without			G	
Plain shaft			Tolerance N			With			H	
Plain shaft			Tolerance R			Without			K	
Plain shaft			Tolerance R			With			L	
Vibration magnitude:			Degree of protection:						0	
Grade A			IP64						1	
Grade A			IP65						2	
Grade A			IP67						2	
Grade R			IP64						3	
Grade R			IP65						4	
Grade R			IP67						5	

To select the type of construction and degree of protection, see Technical definitions.

Servomotors

Synchronous motors for SINAMICS S120

1FT7 Compact motors
Natural cooling

Motor type (repeated)	Efficiency ⁵⁾ η %	Static current I_0 at M_0 $\Delta T=100$ K A	Calculated power P_{calc} ⁸⁾ P_{calc} for M_0 $\Delta T=100$ K kW (HP)	SINAMICS S120 Motor Module		Power cable with complete shield		
				Rated output current ⁶⁾ I_{rated} A	Booksized format For additional versions and components, see chapter SINAMICS S120 drive system Order No.	Motor connection (and brake connection) via power connector		
						Power connector Size	Cable cross- section ⁷⁾ mm ²	Pre-assembled cable Order No.
1FT7046-5AH7...	90	8.1	3.3 (4.43)	9	6SL312-TE21-0AA3	1	4 × 1.5	6FX002-5N01-....
1FT7066-5AH7...	90	13.6	5.65 (7.58)	18	6SL312-TE21-8AA3	1	4 × 1.5	6FX002-5N01-....
1FT7082-5AH7...	93	12.3	6.13 (8.22)	18	6SL312-TE21-8AA3	1	4 × 1.5	6FX002-5N01-....
1FT7084-5AH7...	93	15.6	9.42 (12.6)	18	6SL312-TE21-8AA3	1.5	4 × 2.5	6FX002-5N31-....
1FT7086-5AH7...	91	22.4	13.19 (17.7)	30	6SL312-1TE23-0AA3	1.5	4 × 4	6FX002-5N41-....
1FT7034-5AK7...	90	2.7	1.26 (1.69)	3	6SL312-TE13-0AA3	1	4 × 1.5	6FX002-5N01-....
1FT7036-5AK7...	90	4.0	1.88 (2.52)	5	6SL312-TE15-0AA3	1	4 × 1.5	6FX002-5N01-....
1FT7042-5AK7...	91	3.9	1.88 (2.52)	5	6SL312-TE15-0AA3	1	4 × 1.5	6FX002-5N01-....
1FT7044-5AK7...	91	5.7	3.14 (4.21)	9	6SL312-TE21-0AA3	1	4 × 1.5	6FX002-5N01-....
1FT7062-5AK7...	90	8.4	3.77 (5.06)	9	6SL312-TE21-0AA3	1	4 × 1.5	6FX002-5N01-....
1FT7064-5AK7...	91	9	5.65 (7.58)	9	6SL312-TE21-0AA3	1	4 × 1.5	6FX002-5N01-....

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

Power cable:	
MOTION-CONNECT 800	8
MOTION-CONNECT 500	5
Without brake cores	C
With brake cores	D
Length code

Information about the cables
can be found in chapter
Connection system MOTION-CONNECT.

1) These values refer to $n = 3500$ rpm.

2) These values refer to $n = 4000$ rpm.

3) These values refer to $n = 4500$ rpm.

4) These values refer to $n = 5500$ rpm.

5) Optimum efficiency in continuous duty.

6) With default setting of the pulse frequency.

7) The current carrying capacity of the power cables complies with EN 60204-1 for installation type C, for continuous duty at an ambient air temperature of 40 °C (104 °F).

8) $P_{calc} [kW] = \frac{M_0 [Nm] \times n_{rated}}{9550}$ $P_{calc} [HP] = \frac{M_0 [lb-ft] \times n_{rated}}{5250}$

Servomotors

Synchronous motors for SINAMICS S120

1FT7 Compact motors Forced ventilation

Selection and ordering data

Rated speed	Shaft height	Rated power	Static torque	Rated torque	Rated current	1FT7 Compact synchronous motors	Number of pole pairs	Moment of inertia of rotor (without brake)	Weight (without brake)
n_{rated}	SH	P_{rated} at $\Delta T=100\text{ K}$	M_0 at $\Delta T=100\text{ K}$	M_{rated} at $\Delta T=100\text{ K}$	I_{rated} at $\Delta T=100\text{ K}$		p	J	m
rpm		kW (HP)	Nm (lb _f -ft)	Nm (lb _f -ft)	A		Order No.	10^{-4} kgm^2 ($10^{-3}\text{ lb}_f\text{-in-s}^2$)	kg (lb)
Forced ventilation									
2000	80	5.0 (6.7)	27 (19.9)	24 (17.7)	13.5	1FT7084-5SC7-1 ■■■■	5	45 (39.8)	25 (55.1)
		6.7 (8.98)	36 (26.5)	32 (23.6)	17	1FT7086-5SC7-1 ■■■■	5	64 (56.7)	36 (79.4)
	100	11.7 (15.7)	65 (47.9)	56 (41.3)	29	1FT7105-5SC7-1 ■■■■	5	178 (157.6)	50 (110.3)
		15.3 (20.5)	91 (67.1)	73 (53.8)	33	1FT7108-5SC7-1 ■■■■	5	248 (219.5)	64 (141.1)
3000	80	7.2 (9.66)	27 (19.9)	23 (17)	18.5	1FT7084-5SF7-1 ■■■■	5	45 (39.8)	25 (55.1)
		9.1 (12.2)	36 (26.5)	29 (21.4)	24	1FT7086-5SF7-1 ■■■■	5	64 (56.7)	36 (79.4)
	100	15.1 (20.3)	65 (47.9)	48 (35.4)	35	1FT7105-5SF7-1 ■■■■	5	178 (157.6)	50 (110.3)
		18.8 (25.1)	91 (67.1)	60 (44.3)	38	1FT7108-5SF7-1 ■■■■	5	248 (219.5)	64 (141.1)
4500	80	9.9 (13.3)	27 (19.9)	21 (15.5)	24.5	1FT7084-5SH7-1 ■■■■	5	45 (39.8)	25 (55.1)
		11.8 (15.8)	36 (26.5)	25 (18.4)	25	1FT7086-5SH7-1 ■■■■	5	64 (56.7)	36 (79.4)
Type of construction:			IM B5	Flange 0	0				
				Flange 1 (compatible with 1FT6)	1				
Connector outlet direction:			Connector size 1 and 1.5	Rotatable connector	1				
			Connector size 3 ¹⁾	Transverse right	1				
				Transverse left	2				
				Axial NDE	3				
				Axial DE	4				
Terminal box/ cable entry:¹⁾			Top/transverse from right		5				
			Top/transverse from left		6				
			Top/axial from NDE		7				
			Top/axial from DE		8				
Encoder systems for motors without DRIVE-CLiQ interface:			IC2048S/R encoder		N				
			AM2048S/R encoder		M				
Shaft extension:		Shaft and flange accuracy:		Holding brake:					
Fitted key		Tolerance N		Without					A
Fitted key		Tolerance N		With					B
Fitted key		Tolerance R		Without					D
Fitted key		Tolerance R		With					E
Plain shaft		Tolerance N		Without					G
Plain shaft		Tolerance N		With					H
Plain shaft		Tolerance R		Without					K
Plain shaft		Tolerance R		With					L
Vibration magnitude:			Degree of protection:²⁾						
Grade A			IP64						0
Grade A			IP65						1
Grade R			IP64						3
Grade R			IP65						4

To select the type of construction and degree of protection, see Technical definitions.

Motor type (repeated)	Efficiency ³⁾ η %	Static current I_0 at M_0 $\Delta T=100$ K A	Calculated power P_{calc} ⁶⁾ P_{calc} for M_0 $\Delta T=100$ K kW (HP)	SINAMICS S120 Motor Module		Power cable with complete shield		
				Rated output current ⁴⁾ I_{rated} A	Booksized format For additional versions and components, see chapter SINAMICS S120 drive system Order No.	Motor connection (and brake connection) via power connector		
						Power connector Size	Cable cross- section ⁵⁾ mm ²	Pre-assembled cable Order No.
1FT7084-5SC7...	93	15	5.7 (7.64)	18	6SL312-1TE21-8AA3	1.5	4 × 1.5	6FX002-5N21-....
1FT7086-5SC7...	93	19.5	7.5 (10.1)	30	6SL312-1TE23-0AA3	1.5	4 × 2.5	6FX002-5N31-....
1FT7105-5SC7...	93	31	13.6 (18.2)	45	6SL312-1TE24-5AA3	1.5	4 × 6	6FX002-5N54-....
1FT7108-5SC7...	93	39	19.1 (25.6)	45	6SL312-1TE24-5AA3	1.5	4 × 10	6FX002-5N64-....
1FT7084-5SF7...	94	21	8.5 (11.4)	30	6SL312-1TE23-0AA3	1.5	4 × 2.5	6FX002-5N31-....
1FT7086-5SF7...	93	29	11.3 (15.2)	30	6SL312-1TE23-0AA3	1.5	4 × 6	6FX002-5N51-....
1FT7105-5SF7...	94	45	20.4 (27.4)	45	6SL312-1TE24-5AA3	3	4 × 10	6FX002-5N14-....
1FT7108-5SF7...	94	57	28.6 (38.4)	60	6SL312-1TE26-0AA3	3	4 × 16	6FX002-5N23-....
1FT7084-5SH7...	94	30.5	12.7 (17.0)	30	6SL312-1TE23-0AA3	1.5	4 × 6	6FX002-5N51-....
1FT7086-5SH7...	93	34	17.0 (22.8)	45	6SL312-1TE24-5AA3	1.5	4 × 6	6FX002-5N54-....

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

Power cable:	
MOTION-CONNECT 800	8
MOTION-CONNECT 500	5
Without brake cores	C
With brake cores	D
Length code

Information about the cables
can be found in chapter
Connection system MOTION-CONNECT.

1) Connector size 3 not rotatable. An alternative terminal box can be selected with connector size 3 only.

2) The degree of protection refers to the motor. The built-in fan meets the requirements of degree of protection IP54.

3) Optimum efficiency in continuous duty.

4) With default setting of the pulse frequency.

5) The current carrying capacity of the power cable complies with EN 60204-1 for installation type C, for continuous duty at an ambient air temperature of 40 °C (104 °F).

6) $P_{calc} [kW] = \frac{M_0 [Nm] \times n_{rated}}{9550}$ $P_{calc} [HP] = \frac{M_0 [lb_f-ft] \times n_{rated}}{5250}$

Servomotors

Synchronous motors for SINAMICS S120

1FT7 Compact motors Water cooling

Selection and ordering data

Rated speed	Shaft height	Rated power	Static torque	Rated torque	Rated current	1FT7 Compact synchronous motors	Number of pole pairs	Moment of inertia of rotor (without brake)	Weight (without brake)
n_{rated}	SH	$P_{\text{rated at } \Delta T=100 \text{ K}}$	$M_0 \text{ at } \Delta T=100 \text{ K}$	$M_{\text{rated at } \Delta T=100 \text{ K}}$	$I_{\text{rated at } \Delta T=100 \text{ K}}$	Order No.	p	J	m
rpm		kW (HP)	Nm (lb _f -ft)	Nm (lb _f -ft)	A			10 ⁻⁴ kgm ² (10 ⁻³ lb _f -in-s ²)	kg (lb)
Water cooling									
1500	100	7.9 (10.6)	50 (36.9)	50 (36.9)	20.3	1FT7102-5WB7-1 ■■■	5	98.9 (87.5)	36.6 (80.7)
		14.1 (18.9)	90 (66.3)	90 (66.3)	29.5	1FT7105-5WB7-1 ■■■	5	191 (169)	54.8 (121)
		19.6 (26.3)	125 (92.1)	125 (92.1)	40.3	1FT7108-5WB7-1 ■■■	5	265 (235)	68.6 (151)
2000	80	4.4 (5.90)	21 (15.5)	21 (15.5)	11	1FT7082-5WC7-1 ■■■	5	28.9 (25.6)	20.7 (45.6)
		7.33 (9.83)	35 (25.8)	35 (25.8)	17	1FT7084-5WC7-1 ■■■	5	48.3 (42.8)	27.5 (60.6)
		10.5 (14.1)	50 (36.9)	50 (36.9)	24	1FT7086-5WC7-1 ■■■	5	67.8 (60.0)	34.1 (75.2)
	100	10.4 (14.0)	50 (36.9)	49.5 (36.5)	29.3	1FT7102-5WC7-1 ■■■	5	98.9 (87.5)	36.6 (80.7)
		18.8 (25.2)	90 (66.3)	90 (66.3)	40.8	1FT7105-5WC7-1 ■■■	5	191 (169)	54.8 (121)
		26.2 (35.1)	125 (92.1)	125 (92.1)	47.5	1FT7108-5WC7-1 ■■■	5	265 (235)	69.6 (153)
Type of construction:		IM B5	Flange 0	Flange 1 (compatible with 1FT6)	0				
					1				
Connector outlet direction:		Connector size 1 and 1.5	Rotatable connector		1				
		Connector size 3 ¹⁾	Transverse right		1				
			Transverse left		2				
			Axial NDE		3				
			Axial DE		4				
Terminal box/cable entry:¹⁾		Top/transverse from right			5				
		Top/transverse from left			6				
		Top/axial from NDE			7				
		Top/axial from DE			8				
Encoder systems for motors without DRIVE-CLiQ interface:		IC2048S/R encoder				N			
		AM2048S/R encoder				M			
Encoder systems for motors with DRIVE-CLiQ interface:		IC22DQ encoder				D			
		AM22DQ encoder				F			
Shaft extension:		Fitted key and keyway	Shaft and flange accuracy:		Holding brake:				
		Fitted key and keyway	Tolerance N		Without				A
		Fitted key and keyway	Tolerance N		With				B
		Fitted key and keyway	Tolerance R		Without				D
		Fitted key and keyway	Tolerance R		With				E
		Plain shaft	Tolerance N		Without				G
		Plain shaft	Tolerance N		With				H
		Plain shaft	Tolerance R		Without				K
		Plain shaft	Tolerance R		With				L
Vibration magnitude:		Grade A	Degree of protection:						0
		Grade A	IP64						1
		Grade A	IP65						2
		Grade A	IP67						3
		Grade R	IP64						4
		Grade R	IP65						5
		Grade R	IP67						5

To select the type of construction and degree of protection, see Technical definitions.

Motor type (repeated)	Efficiency ²⁾ η %	Static current I_0 at M_0 $\Delta T=100$ K A	Calculated power P_{calc} ³⁾ for M_0 $\Delta T=100$ K kW (HP)	SINAMICS S120 Motor Module		Power cable with complete shield		
				Rated output current ³⁾ I_{rated} A	Booksized format For additional versions and components, see chapter SINAMICS S120 drive system Order No.	Motor connection (and brake connection) via power connector		
						Power connector Size	Cable cross- section ⁴⁾ mm ²	Pre-assembled cable Order No.
1FT7102-5WB7...	93	17.8	7.9 (10.6)	18	6SL312-TE21-8AA3	1.5	4 × 2.5	6FX002-5N31-....
1FT7105-5WB7...	94	28	14.1 (18.9)	30	6SL312-1TE23-0AA3	1.5	4 × 4	6FX002-5N41-....
1FT7108-5WB7...	94	39	19.6 (26.3)	45	6SL312-1TE24-5AA3	1.5	4 × 10	6FX002-5N64-....
1FT7082-5WC7...	93	10.7	4.4 (5.90)	18	6SL312-TE21-8AA3	1.5	4 × 1.5	6FX002-5N21-....
1FT7084-5WC7...	94	16.5	7.3 (9.79)	18	6SL312-TE21-8AA3	1.5	4 × 2.5	6FX002-5N31-....
1FT7086-5WC7...	94	23	10.5 (14.1)	30	6SL312-1TE23-0AA3	1.5	4 × 4	6FX002-5N41-....
1FT7102-5WC7...	94	25.5	10.5 (14.1)	30	6SL312-1TE23-0AA3	1.5	4 × 4	6FX002-5N41-....
1FT7105-5WC7...	94	39	18.8 (25.2)	45	6SL312-1TE24-5AA3	1.5	4 × 10	6FX002-5N64-....
1FT7108-5WC7...	95	45.3	26.2 (35.1)	45	6SL312-1TE24-5AA3	3	4 × 10	6FX002-5S14-....

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

Power cable:	
MOTION-CONNECT 800	8
MOTION-CONNECT 500	5
Without brake cores	C
With brake cores	D
Length code

Information about the cables
can be found in chapter
Connection system MOTION-CONNECT.

1) Connector size 3 not rotatable. An alternative terminal box can be selected with connector size 3 only.

2) Optimum efficiency in continuous duty.

3) With default setting of the pulse frequency.

4) The current carrying capacity of the power cables complies with EN 60204-1 for installation type C, for continuous duty at an ambient air temperature of 40 °C (104 °F).

5) $P_{calc} [kW] = \frac{M_0 [Nm] \times n_{rated}}{9550}$ $P_{calc} [HP] = \frac{M_0 [lb-ft] \times n_{rated}}{5250}$

Servomotors

Synchronous motors for SINAMICS S120

1FT7 Compact motors Water cooling

Selection and ordering data

Rated speed	Shaft height	Rated power	Static torque	Rated torque	Rated current	1FT7 Compact synchronous motors	Number of pole pairs	Moment of inertia of rotor (without brake)	Weight (without brake)	
n_{rated}	SH	P_{rated} at $\Delta T=100\text{ K}$	M_0 at $\Delta T=100\text{ K}$	M_{rated} at $\Delta T=100\text{ K}$	I_{rated} at $\Delta T=100\text{ K}$	Order No.	p	J	m	
rpm		kW (HP)	Nm (lb _f -ft)	Nm (lb _f -ft)	A			10^{-4} kgm^2 ($10^{-3}\text{ lb}_f\text{-in-s}^2$)	kg (lb)	
Water cooling										
3000	63	3.1 (4.2)	10 (7.4)	10 (7.4)	7.8	1FT7062-5WF7-1 ■■■	5	8.1 (7.17)	11 (24.3)	
		5 (6.7)	16 (11.8)	16 (11.8)	12.5	1FT7064-5WF7-1 ■■■	5	12.9 (11.4)	13.7 (30.2)	
		6.2 (8.3)	20 (14.8)	19.6 (14.5)	14.4	1FT7066-5WF7-1 ■■■	5	17.7 (15.7)	16.3 (35.9)	
		9.3 (12.5)	30 (22.1)	29.5 (21.8)	19.6	1FT7068-5WF7-1 ■■■	5	24.8 (22.0)	20.1 (44.3)	
	80	6.28 (8.42)	21 (15.5)	20.5 (15.1)	16	1FT7082-5WF7-1 ■■■	5	28.9 (25.6)	20.7 (45.6)	
		11 (14.8)	35 (25.8)	35 (25.8)	24.2	1FT7084-5WF7-1 ■■■	5	48.3 (42.8)	27.5 (60.6)	
		15.4 (20.7)	50 (36.9)	49 (36.1)	36	1FT7086-5WF7-1 ■■■	5	67.8 (60.0)	34.1 (75.2)	
	100	14.3 (19.2)	50 (36.9)	45.5 (33.6)	38.8	1FT7102-5WF7-1 ■■■	5	98.9 (87.5)	36.6 (80.7)	
		24.8 (33.3)	90 (66.4)	79 (58.3)	49.5	1FT7105-5WF7-1 ■■■	5	164 (145.1)	55.9 (123.3)	
		34.2 (45.9)	125 (92.2)	109 (80.4)	60	1FT7108-5WF7-1 ■■■	5	265 (235)	69.6 (153.5)	
	4500	63	9.1 (12.2)	20 (14.8)	19.4 (14.3)	20.8	1FT7066-5WH7-1 ■■■	5	17.7 (15.7)	16.3 (35.9)
			8.95 (12.0)	21 (15.5)	19 (14.0)	23.9	1FT7082-5WH7-1 ■■■	5	28.9 (25.6)	20.7 (45.6)
80		14.6 (20.0)	35 (25.8)	32 (23.6)	34.5	1FT7084-5WH7-1 ■■■	5	48.3 (42.8)	27.5 (60.6)	
		20.3 (406)	50 (36.9)	43 (31.7)	38	1FT7086-5WH7-1 ■■■	5	67.8 (60.0)	34.1 (75.2)	
6000	63	5.8 (7.78)	10 (7.4)	9.2 (6.80)	12.7	1FT7062-5WK7-1 ■■■	5	8.1 (7.17)	11 (24.3)	
		8.9 (11.9)	16 (11.8)	14.2 (10.5)	20	1FT7064-5WK7-1 ■■■	5	12.9 (11.4)	13.7 (30.2)	
Type of construction:		IM B5	Flange 0	0						
			Flange 1 (compatible with 1FT6)	1						
Connector outlet direction:		Connector size 1 and 1.5	Rotatable connector	1						
		Connector size 3 ¹⁾	Transverse right	1						
			Transverse left	2						
			Axial NDE	3						
			Axial DE	4						
Terminal box/ cable entry:¹⁾		Top/transverse from right		5						
		Top/transverse from left		6						
		Top/axial from NDE		7						
		Top/axial from DE		8						
Encoder systems for motors without DRIVE-CLiQ interface:		IC2048S/R encoder		N						
		AM2048S/R encoder		M						
Encoder systems for motors with DRIVE-CLiQ interface:		IC22DQ encoder		D						
		AM22DQ encoder		F						
Shaft extension:		Shaft and flange accuracy:		Holding brake:						
Fitted key and keyway		Tolerance N		Without					A	
Fitted key and keyway		Tolerance N		With					B	
Fitted key and keyway		Tolerance R		Without					D	
Fitted key and keyway		Tolerance R		With					E	
Plain shaft		Tolerance N		Without					G	
Plain shaft		Tolerance N		With					H	
Plain shaft		Tolerance R		Without					K	
Plain shaft		Tolerance R		With					L	
Vibration magnitude:		Degree of protection:								
Grade A		IP64							0	
Grade A		IP65							1	
Grade A		IP67							2	
Grade R		IP64							3	
Grade R		IP65							4	
Grade R		IP67							5	

To select the type of construction and degree of protection, see Technical definitions.

Servomotors

Synchronous motors for SINAMICS S120

1FT7 Compact motors
Water cooling

Motor type (repeated)	Efficiency ²⁾ η %	Static current I_0 at M_0 $\Delta T=100$ K A	Calculated power P_{calc} ⁶⁾ P_{calc} for M_0 $\Delta T=100$ K kW (HP)	SINAMICS S120 Motor Module		Power cable with complete shield		
				Rated output current ³⁾ I_{rated} A	Booksized format For additional versions and components, see chapter SINAMICS S120 drive system Order No.	Motor connection (and brake connection) via power connector		
						Power connector Size	Cable cross-section ⁴⁾ mm ²	Pre-assembled cable Order No.
1FT7062-5WF7...	91	7.4	3.1 (4.16)	9	6SL312-1-TE21-0AA3	1	4 × 1.5	6FX002-5-N01-....
1FT7064-5WF7...	91	11.9	5.0 (6.7)	18	6SL312-1-TE21-8AA3	1	4 × 1.5	6FX002-5-N01-....
1FT7066-5WF7...	91	14	6.3 (8.5)	18	6SL312-1-TE21-8AA3	1	4 × 1.5	6FX002-5-N01-....
1FT7068-5WF7...	93	19	9.4 (12.6)	18 ⁵⁾	6SL312-1-TE21-8AA3	1	4 × 2.5	6FX002-5-N11-....
1FT7082-5WF7...	94	16	6.6 (8.85)	18	6SL312-1-TE21-8AA3	1.5	4 × 2.5	6FX002-5-N31-....
1FT7084-5WF7...	94	23	11.0 (14.8)	30	6SL312-1-TE23-0AA3	1.5	4 × 4	6FX002-5-N41-....
1FT7086-5WF7...	94	34	15.7 (21.1)	45	6SL312-1-TE24-5AA3	1.5	4 × 6	6FX002-5-N54-....
1FT7102-5WF7...	95	40	15.7 (21.1)	45	6SL312-1-TE24-5AA3	1.5	4 × 10	6FX002-5-N64-....
1FT7105-5WF7...	94	53.2	28.3 (38.0)	60	6SL312-1-TE26-0AA3	3	4 × 16	6FX002-5-S23-....
1FT7108-5WF7...	95	65	39.3 (52.7)	85	6SL312-1-TE28-5AA3	3	4 × 16	6FX002-5-G23-....
1FT7066-5WH7...	91	19.7	9.4 (12.6)	30	6SL312-1-TE23-0AA3	1	4 × 2.5	6FX002-5-N11-....
1FT7082-5WH7...	94	24	9.9 (13.3)	30	6SL312-1-TE23-0AA3	1.5	4 × 4	6FX002-5-N41-....
1FT7084-5WH7...	94	34.3	16.5 (22.1)	45	6SL312-1-TE24-5AA3	1.5	4 × 6	6FX002-5-N54-....
1FT7086-5WH7...	94	40.5	23.6 (31.7)	45	6SL312-1-TE24-5AA3	1.5	4 × 10	6FX002-5-N64-....
1FT7062-5WK7...	92	12.5	6.3 (8.45)	18	6SL312-1-TE21-8AA3	1	4 × 1.5	6FX002-5-N01-....
1FT7064-5WK7...	92	20.2	10.1 (13.5)	30	6SL312-1-TE23-0AA3	1	4 × 2.5	6FX002-5-N11-....

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

Power cable:	
MOTION-CONNECT 800	8
MOTION-CONNECT 500	5
Without brake cores	C
With brake cores	D
Length code

Information about the cables
can be found in chapter
Connection system MOTION-CONNECT.

1) Connector size 3 is not rotatable. An alternative terminal box can be selected with connector size 3 only.

2) Optimum efficiency in continuous duty.

3) With default setting of the pulse frequency.

4) The current carrying capacity of the power cables complies with EN 60204-1 for installation type C, for continuous duty at an ambient air temperature of 40 °C (104 °F).

5) With the specified Motor Module, the motor cannot be fully utilized with M_0 at $\Delta T = 100$ K winding temperature rise. If a Motor Module with a higher rating is used, you must check whether the specified power cable can be connected to it.

6) $P_{calc} [kW] = \frac{M_0 [Nm] \times n_{rated}}{9550}$ $P_{calc} [HP] = \frac{M_0 [lb\text{-}ft] \times n_{rated}}{5250}$

Servomotors

Synchronous motors for SINAMICS S120

1FT7 High Dynamic motors Forced ventilation/Water cooling

Selection and ordering data

Rated speed	Shaft height	Rated power	Static torque	Rated torque	Rated current	1FT7 High Dynamic synchronous motors	Number of pole pairs	Moment of inertia of rotor (without brake)	Weight (without brake)
n_{rated}	SH	P_{rated} at $\Delta T=100\text{ K}$	M_0 at $\Delta T=100\text{ K}$	M_{rated} at $\Delta T=100\text{ K}$	I_{rated} at $\Delta T=100\text{ K}$	Order No.	p	J	m
rpm		kW (HP)	Nm (lb _f -ft)	Nm (lb _f -ft)	A			10^{-4} kgm^2 ($10^{-3}\text{ lb}_f\text{-in-s}^2$)	kg (lb)
Forced ventilation									
3000	63	3.8 (5.10)	14 (10.3)	12 (8.90)	10.5	1FT7065-7S F7 ■ ■ ■ ■	5	6.4 (5.66)	19 (41.9)
		4.4 (5.90)	17 (12.5)	14 (10.3)	13	1FT7067-7S F7 ■ ■ ■ ■	5	8.3 (7.35)	23 (50.7)
	80	7.2 (9.66)	34 (25.1)	23 (17.0)	20	1FT7085-7S F7 ■ ■ ■ ■	5	20.7 (18.3)	34 (75.0)
		10.4 (14.0)	48 (35.4)	33 (24.3)	29	1FT7087-7S F7 ■ ■ ■ ■	5	27.4 (24.3)	42 (92.6)
4500	63	5.2 (6.97)	14 (10.3)	11 (8.10)	13.5	1FT7065-7SH7 ■ ■ ■ ■	5	6.4 (5.66)	19 (41.9)
		6.1 (8.18)	17 (12.5)	13 (9.60)	15	1FT7067-7SH7 ■ ■ ■ ■	5	8.3 (7.35)	23 (50.7)
	80	8.2 (11.0)	34 (25.1)	17.5 (12.9)	22.5	1FT7085-7SH7 ■ ■ ■ ■	5	20.7 (18.3)	34 (75.0)
		10.8 (14.5)	48 (35.4)	23 (17.0)	24	1FT7087-7SH7 ■ ■ ■ ■	5	27.4 (24.3)	43 (94.8)
Water cooling									
3000	63	5.7 (7.64)	19 (14.0)	18 (13.3)	15	1FT7065-7WF7 ■ ■ ■ ■	5	6.4 (5.66)	16 (35.3)
		7.4 (9.92)	25 (18.4)	23.5 (17.3)	21	1FT7067-7WF7 ■ ■ ■ ■	5	8.3 (7.35)	22 (48.5)
	80	11.9 (16.0)	43 (31.7)	38 (28.0)	32	1FT7085-7WF7 ■ ■ ■ ■	5	20.7 (18.3)	32 (70.6)
		16.0 (21.5)	61 (45.0)	51 (37.6)	43	1FT7087-7WF7 ■ ■ ■ ■	5	27.4 (24.3)	41 (90.4)
4500	63	7.8 (10.5)	19 (14.0)	16.5 (12.2)	20	1FT7065-7WH7 ■ ■ ■ ■	5	6.4 (5.66)	16 (35.3)
		10.4 (14.0)	25 (18.4)	22 (16.2)	25	1FT7067-7WH7 ■ ■ ■ ■	5	8.3 (7.35)	22 (48.5)
	80	15.6 (20.9)	43 (31.7)	33 (24.3)	48	1FT7085-7WH7 ■ ■ ■ ■	5	20.7 (18.3)	32 (70.6)
		21.7 (29.1)	61 (45.0)	46 (33.9)	53	1FT7087-7WH7 ■ ■ ■ ■	5	27.4 (24.3)	41 (90.4)
Type of construction:									
			IM B5	Flange 0	0				
				Flange 1 (compatible with 1FT6)	1				
Connector outlet direction:									
			Connector size 1 and 1.5	Rotatable connector	1				
			Connector size 3 ¹⁾	Transverse right	1				
				Transverse left	2				
				Axial NDE	3				
				Axial DE	4				
Terminal box/cable entry:¹⁾									
			Top/transverse from right		5				
			Top/transverse from left		6				
			Top/axial from NDE		7				
			Top/axial from DE		8				
Encoder systems for motors without DRIVE-CLiQ interface:									
			IC2048S/R encoder		N				
			AM2048S/R encoder		M				
Encoder systems for motors with DRIVE-CLiQ interface:									
			IC22DQ encoder		D				
			AM22DQ encoder		F				
Shaft extension:									
			Fitted key and keyway	Tolerance N					
			Fitted key and keyway	Tolerance N					
			Fitted key and keyway	Tolerance R					
			Fitted key and keyway	Tolerance R					
			Plain shaft	Tolerance N					
			Plain shaft	Tolerance N					
			Plain shaft	Tolerance R					
			Plain shaft	Tolerance R					
Shaft and flange accuracy:									
			Tolerance N						
			Tolerance N						
			Tolerance R						
			Tolerance R						
			Tolerance N						
			Tolerance N						
			Tolerance R						
			Tolerance R						
Holding brake:									
			Without						
			With						
			Without						
			With						
			Without						
			With						
Vibration magnitude:									
			Grade A						
			Grade A						
			Grade A						
			Grade R						
			Grade R						
			Grade R						
Degree of protection:									
			IP64						
			IP65						
			IP67 (only for water cooling)						
			IP64						
			IP65						
			IP67 (only for water cooling)						

To select the type of construction and degree of protection, see Technical definitions.

Servomotors

Synchronous motors for SINAMICS S120

1FT7 High Dynamic motors
Forced ventilation/Water cooling

Motor type (repeated)	Efficiency ²⁾ η %	Static current I_0 at M_0 $\Delta T=100$ K A	Calculated power P_{calc} ³⁾ for M_0 $\Delta T=100$ K kW (HP)	SINAMICS S120 Motor Module		Power cable with complete shield		
				Rated output current ³⁾ I_{rated} A	Booksized format For additional versions and components, see chapter SINAMICS S120 drive system Order No.	Motor connection (and brake connection) via power connector	Power connector Size	Conductor cross-section ⁴⁾ mm ²
1FT7065-7SF7...	92	12	4.4 (5.90)	18	6SL312-1-TE21-8AA3	1.5	4 x 1.5	6FX002-5-N21-....
1FT7067-7SF7...	94	15	5.3 (7.11)	18	6SL312-1-TE21-8AA3	1.5	4 x 1.5	6FX002-5-N21-....
1FT7085-7SF7...	92	28	10.7 (14.4)	30	6SL312-1-TE23-0AA3	1.5	4 x 4	6FX002-5-N41-....
1FT7087-7SF7...	93	40	15.1 (20.3)	45	6SL312-1-TE24-5AA3	1.5	4 x 10	6FX002-5-N64-....
1FT7065-7SH7...	92	16	6.6 (8.85)	18	6SL312-1-TE21-8AA3	1.5	4 x 2.5	6FX002-5-N31-....
1FT7067-7SH7...	94	19	8.0 (10.7)	30	6SL312-1-TE23-0AA3	1.5	4 x 2.5	6FX002-5-N31-....
1FT7085-7SH7...	92	40	16.0 (21.5)	45	6SL312-1-TE24-5AA3	1.5	4 x 10	6FX002-5-N64-....
1FT7087-7SH7...	93	45	22.6 (30.3)	45	6SL312-1-TE24-5AA3	3	4 x 10	6FX002-5-N14-....
1FT7065-7WF7...	92	16	6.0 (8.05)	18	6SL312-1-TE21-8AA3	1.5	4 x 2.5	6FX002-5-N31-....
1FT7067-7WF7...	94	22	7.9 (10.6)	30	6SL312-1-TE23-0AA3	1.5	4 x 4	6FX002-5-N41-....
1FT7085-7WF7...	93	36	13.5 (18.1)	45	6SL312-1-TE24-5AA3	1.5	4 x 6	6FX002-5-N54-....
1FT7087-7WF7...	94	51	19.2 (25.8)	60	6SL312-1-TE26-0AA3	3	4 x 16	6FX002-5-N23-....
1FT7065-7WH7...	92	22	9.0 (12.1)	30	6SL312-1-TE23-0AA3	1.5	4 x 4	6FX002-5-N41-....
1FT7067-7WH7...	94	28	11.8 (15.8)	30	6SL312-1-TE23-0AA3	1.5	4 x 4	6FX002-5-N41-....
1FT7085-7WH7...	94	58	20.3 (27.2)	60	6SL312-1-TE26-0AA3	3	4 x 16	6FX002-5-N23-....
1FT7087-7WH7...	94	67	28.7 (38.5)	85	6SL312-1-TE28-5AA3	3	4 x 25	6FX002-5-DG33-....

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

Power cable:	
MOTION-CONNECT 800	8
MOTION-CONNECT 500	5
Without brake cores	C
With brake cores	D
Length code

Information about the cables can be found in chapter Connection system MOTION-CONNECT.

1) Connector size 3 is not rotatable. An alternative terminal box can be selected with connector size 3 only.

2) Optimum efficiency in continuous duty.

3) With default setting of the pulse frequency.

4) The current carrying capacity of the power cable complies with EN 60204-1 for installation type C, for continuous duty at an ambient air temperature of 40 °C (104 °F).

5)
$$P_{calc} [kW] = \frac{M_0 [Nm] \times n_{rated}}{9550}$$

$$P_{calc} [HP] = \frac{M_0 [lb-ft] \times n_{rated}}{5250}$$