

Servomotors

Geared servomotors for SINAMICS S120

1FK7 worm geared motors

Selection and ordering data

Power at duty type S3-60 %	Output speed at the gear shaft	Rated output torque gearbox at duty type S3-60 %	Acceleration torque, max. gearbox	Nominal ratio	Exact ratio	Cantilever force, perm., gear shaft extension	Overload factor
P_2	n_2	M_2	M_{2max}	i_{nom}	i_{exact}	F_{rperm}	f_B
kW (HP)	rpm	Nm (lb _f -ft)	Nm (lb _f -ft)			N (lb _f)	
Natural cooling – SH 36/SH 48/SH 63							
0.28 (0.38)	312	8.5 (6.27)	43 (31.7)	9.6	1107/115	1689 (380)	4.1
	172	15.3 (11.3)	73 (53.8)	17.5	297/17	1938 (436)	3.9
0.27 (0.36)	128	20.2 (14.9)	82 (60.5)	23	117/5	2271 (511)	3.3
	86	30.0 (22.1)	125 (92.2)	35	873/25	2441 (549)	3.4
0.24 (0.32)	51	45.6 (33.6)	88 (64.9)	59	117/2	3082 (693)	1.6
	52	45.8 (33.8)	172 (126.9)	58	405/7	2889 (649)	3.1
	40	57.7 (42.6)	96 (70.8)	75	747/10	3343 (752)	1.4
0.38 (0.51)	43	54.8 (40.4)	184 (136)	70	279/4	3075 (691)	2.7
	172	21.2 (15.6)	110 (81.1)	17.5	297/17	1938 (436)	4.4
0.35 (0.47)	86	41.6 (30.7)	150 (111)	35	873/25	2441 (549)	3.0
	52	63.4 (46.8)	172 (127)	58	405/7	2889 (649)	2.3
0.73 (0.98)	43	75.9 (56.0)	184 (136)	70	279/4	3075 (691)	2.0
	172	40.8 (30.1)	110 (81.1)	17.5	297/17	1938 (436)	2.3
0.72 (0.97)	130	53.6 (39.5)	132 (97.4)	23	162/7	2128 (478)	2.1
	86	80.1 (59.1)	150 (111)	35	873/25	2441 (549)	1.6
0.66 (0.89)	86	79.9 (58.9)	252 (186)	35	243/7	3411 (767)	2.7
	52	122 (90.0)	172 (127)	58	405/7	2889 (649)	1.2
0.69 (0.93)	52	126 (92.9)	302 (223)	58	1863/32	4053 (911)	2.1
0.66 (0.89)	43	146 (108)	184 (136)	70	279/4	3075 (691)	1.1
0.68 (0.91)	43	151 (111)	324 (239)	70	351/5	4314 (970)	1.9
1.35 (1.81)	326	39.5 (29.1)	74 (54.6)	9.2	46/5	1565 (352)	1.5
1.33 (1.78)	172	73.7 (54.4)	110 (81.1)	17.5	297/17	1938 (436)	1.2
	171	74.4 (54.9)	217 (160)	17.5	351/20	2717 (611)	2.3
1.31 (1.76)	129	97.9 (72.2)	259 (191)	23	1863/80	2986 (671)	2.1
	86	144 (106)	310 (229)	35	243/7	3411 (767)	1.7
	86	146 (108)	498 (367)	35	2268/65	4881 (1097)	2.7
1.24 (1.66)	52	227 (167)	302 (233)	58	1863/32	4053 (911)	1.0
	51	232 (171)	561 (414)	59	117/2	5799 (1304)	1.9
	43	275 (203)	609 (449)	70	2241/32	6157 (1384)	1.7
	43	277 (204)	791 (583)	70	279/4	7994 (1797)	2.2

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Gearbox size	Motor shaft height	1FK7 worm geared motors				Gearbox weight, approx. kg (lb)
		Order No.	Order codes	Gearbox type	Type/gear shaft extension Type of construction/ mounting position/ connector mounting position	
S002	36	1FK7032-5AK71-1 ■■■ 5-Z	E03	G . .	H . .	6.6 (14.6)
S102	36	1FK7032-5AK71-1 ■■■ 5-Z	E14	G . .	H . .	12.9 (28.4)
S002	36	1FK7032-5AK71-1 ■■■ 5-Z	E05	G . .	H . .	6.6 (14.6)
S102	36	1FK7032-5AK71-1 ■■■ 5-Z	E16	G . .	H . .	12.9 (28.4)
S002	36	1FK7032-5AK71-1 ■■■ 5-Z	E07	G . .	H . .	6.6 (14.6)
S102	36	1FK7032-5AK71-1 ■■■ 5-Z	E17	G . .	H . .	12.9 (28.4)
S002	36	1FK7032-5AK71-1 ■■■ 5-Z	E08	G . .	H . .	6.6 (14.6)
S102	36	1FK7032-5AK71-1 ■■■ 5-Z	E18	G . .	H . .	12.9 (28.4)
S102	48	1FK7040-5AK71-1 ■■■ 5-Z	E14	G . .	H . .	13.7 (30.2)
S102	48	1FK7040-5AK71-1 ■■■ 5-Z	E16	G . .	H . .	13.7 (30.2)
S102	48	1FK7040-5AK71-1 ■■■ 5-Z	E17	G . .	H . .	13.7 (30.2)
S102	48	1FK7040-5AK71-1 ■■■ 5-Z	E18	G . .	H . .	13.7 (30.2)
S102	48	1FK7042-5AF71-1 ■■■ 5-Z	E14	G . .	H . .	15.0 (33.1)
S102	48	1FK7042-5AF71-1 ■■■ 5-Z	E15	G . .	H . .	15.0 (33.1)
S102	48	1FK7042-5AF71-1 ■■■ 5-Z	E16	G . .	H . .	15.0 (33.1)
S202	48	1FK7042-5AF71-1 ■■■ 5-Z	E26	G . .	H . .	22.5 (49.6)
S102	48	1FK7042-5AF71-1 ■■■ 5-Z	E17	G . .	H . .	15.0 (33.1)
S202	48	1FK7042-5AF71-1 ■■■ 5-Z	E27	G . .	H . .	22.5 (49.6)
S102	48	1FK7042-5AF71-1 ■■■ 5-Z	E18	G . .	H . .	15.0 (33.1)
S202	48	1FK7042-5AF71-1 ■■■ 5-Z	E28	G . .	H . .	22.5 (49.6)
S102	63	1FK7060-5AF71-1 ■■■ 5-Z	E13	G . .	H . .	17.7 (39.0)
S102	63	1FK7060-5AF71-1 ■■■ 5-Z	E14	G . .	H . .	17.7 (39.0)
S202	63	1FK7060-5AF71-1 ■■■ 5-Z	E24	G . .	H . .	25.2 (55.6)
S202	63	1FK7060-5AF71-1 ■■■ 5-Z	E25	G . .	H . .	25.2 (55.6)
S202	63	1FK7060-5AF71-1 ■■■ 5-Z	E26	G . .	H . .	25.2 (55.6)
S302	63	1FK7060-5AF71-1 ■■■ 5-Z	E36	G . .	H . .	34.4 (75.9)
S202	63	1FK7060-5AF71-1 ■■■ 5-Z	E27	G . .	H . .	25.2 (55.6)
S302	63	1FK7060-5AF71-1 ■■■ 5-Z	E37	G . .	H . .	34.4 (75.9)
S302	63	1FK7060-5AF71-1 ■■■ 5-Z	E38	G . .	H . .	34.4 (75.9)
S402	63	1FK7060-5AF71-1 ■■■ 5-Z	E48	G . .	H . .	43.6 (96.1)

Encoder systems for motors without DRIVE-CLiQ interface:	IC2048S/R encoder	A
	AM2048S/R encoder (from shaft height 48)	E
	AM512S/R encoder (shaft height 36 only)	H
	AM32S/R encoder (from shaft height 48)	G
	AM16S/R encoder (shaft height 36 only)	J
	Multi-pole resolver	S
2-pole resolver	T	
Encoder systems for motors with DRIVE-CLiQ interface:	IC22DQ encoder	D
	AM22DQ encoder (from shaft height 48)	F
	AM20DQ encoder (shaft height 36 only)	L
	AM16DQ encoder (from shaft height 48)	K
	AM15DQ encoder (shaft height 36 only)	V
	R15DQ resolver	U
	R14DQ resolver	P
Holding brake:	Motor <u>without</u> holding brake	U
	Motor <u>with</u> holding brake	V

Order codes for type/
gear shaft extension and type of
construction/mounting position/
connector mounting position,
see page 4/86.

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Selection and ordering data

Power at duty type S3-60 %	Output speed at the gear shaft	Rated output torque gearbox at duty type S3-60 %	Acceleration torque, max. gearbox	Nominal ratio	Exact ratio	Cantilever force, perm., gear shaft extension	Overload factor
P_2 kW (HP)	n_2 rpm	M_2 Nm (lb _f -ft)	M_{2max} Nm (lb _f -ft)	i_{nom}	i_{exact}	F_{Tperm} N (lb _f)	f_B
Natural cooling – SH 63/SH 80/SH 100							
2.11 (2.83)	325	61.9 (45.7)	126 (92.9)	9.2	1431/155	2194 (493)	1.4
2.08 (2.79)	171	116 (85.6)	217 (160)	17.5	351/20	2717 (611)	1.2
2.05 (2.75)	129	152 (112)	259 (191)	23	1863/80	2986 (671)	1.1
	86	227 (167)	498 (367)	35	2268/65	4881 (1097)	1.5
1.92 (2.57)	51	360 (266)	561 (414)	59	117/2	5799 (1304)	1.0
1.94 (2.60)	43	430 (317)	791 (583)	70	279/4	7994 (1797)	1.2
1.93 (2.59)	171	108 (79.7)	217 (160)	17.5	351/20	2717 (611)	1.7
	173	107 (78.9)	373 (275)	17.5	1998/115	3869 (870)	3.0
	129	142 (105)	259 (191)	23	1863/80	2986 (671)	1.6
	128	144 (106)	458 (338)	23	117/5	4273 (961)	2.7
1.79 (2.40)	86	213 (157)	720 (531)	35	873/25	6347 (1427)	2.9
	51	335 (247)	561 (414)	59	117/2	5799 (1304)	1.4
1.79 (2.40)	43	399 (294)	609 (449)	70	2241/32	6157 (1384)	1.3
	322	90.5 (66.8)	216 (159)	9.3	270/29	3143 (707)	1.6
3.01 (4.04)	173	166 (122)	373 (275)	17.5	1998/115	3869 (870)	1.5
3.03 (4.06)	172	168 (124)	557 (411)	17.5	612/35	5040 (1133)	2.2
2.98 (4.00)	128	222 (164)	458 (338)	23	117/5	4273 (961)	1.4
	128	222 (164)	685 (505)	23	117/5	5554 (1249)	2.0
2.95 (3.96)	86	328 (242)	720 (531)	35	873/25	6347 (1427)	1.4
3.47 (4.65)	259	128 (94.4)	371 (274)	11.5	81/7	4392 (987)	1.9
3.44 (4.61)	172	191 (141)	557 (411)	17.5	612/35	5040 (1133)	1.9
4.50 (6.03)	259	166 (122)	371 (274)	11.5	81/7	4392 (987)	1.3
4.45 (5.97)	172	247 (182)	557 (411)	17.5	612/35	5040 (1133)	1.3

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		Order No.	Order codes	Gearbox type	Type/gear shaft extension Type of construction/ mounting position/ connector mounting position	
S202	63	1FK7063-5AF71-1 ■■■ 5-Z	E23	G . .	H . .	28.9 (63.7)
S202	63	1FK7063-5AF71-1 ■■■ 5-Z	E24	G . .	H . .	28.9 (63.7)
S202	63	1FK7063-5AF71-1 ■■■ 5-Z	E25	G . .	H . .	28.9 (63.7)
S302	63	1FK7063-5AF71-1 ■■■ 5-Z	E36	G . .	H . .	38.1 (84.0)
S302	63	1FK7063-5AF71-1 ■■■ 5-Z	E37	G . .	H . .	38.1 (84.0)
S402	63	1FK7063-5AF71-1 ■■■ 5-Z	E48	G . .	H . .	47.3 (104)
S202	80	1FK7080-5AF71-1 ■■■ 5-Z	E24	G . .	H . .	28.6 (63.1)
S302	80	1FK7080-5AF71-1 ■■■ 5-Z	E34	G . .	H . .	37.8 (83.4)
S202	80	1FK7080-5AF71-1 ■■■ 5-Z	E25	G . .	H . .	28.6 (63.1)
S302	80	1FK7080-5AF71-1 ■■■ 5-Z	E35	G . .	H . .	37.8 (83.4)
S402	80	1FK7080-5AF71-1 ■■■ 5-Z	E46	G . .	H . .	47 (104)
S302	80	1FK7080-5AF71-1 ■■■ 5-Z	E37	G . .	H . .	37.8 (83.4)
S302	80	1FK7080-5AF71-1 ■■■ 5-Z	E38	G . .	H . .	37.8 (83.4)
S302	80	1FK7083-5AF71-1 ■■■ 5-Z	E33	G . .	H . .	43 (94.8)
S302	80	1FK7083-5AF71-1 ■■■ 5-Z	E34	G . .	H . .	43 (94.8)
S402	80	1FK7083-5AF71-1 ■■■ 5-Z	E44	G . .	H . .	52.2 (115)
S302	80	1FK7083-5AF71-1 ■■■ 5-Z	E35	G . .	H . .	43 (94.8)
S402	80	1FK7083-5AF71-1 ■■■ 5-Z	E45	G . .	H . .	52.2 (115)
S402	80	1FK7083-5AF71-1 ■■■ 5-Z	E46	G . .	H . .	52.2 (115)
S402	100	1FK7100-5AF71-1 ■■■ 5-Z	E43	G . .	H . .	54.4 (120)
S402	100	1FK7100-5AF71-1 ■■■ 5-Z	E44	G . .	H . .	54.4 (120)
S402	100	1FK7101-5AF71-1 ■■■ 5-Z	E43	G . .	H . .	60 (132)
S402	100	1FK7101-5AF71-1 ■■■ 5-Z	E44	G . .	H . .	60 (132)
Encoder systems for motors without DRIVE-CLiQ interface:	IC2048S/R encoder AM2048S/R encoder AM32S/R encoder Multi-pole resolver 2-pole resolver	A E G S T				
Encoder systems for motors with DRIVE-CLiQ interface:	IC22DQ encoder AM22DQ encoder AM16DQ encoder R15DQ resolver R14DQ resolver	D F K U P				
Holding brake:	Motor without holding brake Motor with holding brake	U V				

Order codes for type/
gear shaft extension and type of
construction/mounting position/
connector mounting position,
see page 4/86.