

SIMOTICS servomotors

SIMOTICS S synchronous motors for SINAMICS S120

SIMOTICS S-1FK7 geared servomotors 1FK7 parallel shaft 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 kW (HP)	n_2 rpm	M_2 Nm (lb _f -ft)	M_{2max} Nm (lb _f -ft)	i_{nom}	i_{exact}	F_{rperm} N (lb _f)	f_B
Natural cooling – SH 36/SH 48/SH 63							
0.30 (0.40)	696	4.07 (3.00)	24 (17.7)	4.3	56/13	1021 (230)	4.7
	464	6.11 (4.51)	33 (24.3)	6.5	84/13	1169 (263)	4.5
	275	10.3 (7.60)	52 (38.4)	11	273/25	1392 (313)	4.1
	221	12.9 (9.52)	62 (45.7)	13.5	231/17	1497 (337)	3.9
0.41 (0.55)	130	21.8 (16.1)	114 (84.1)	23	3185/138	1786 (402)	4.2
	86	33.1 (24.4)	120 (88.5)	35	3575/102	2053 (462)	2.9
	696	5.64 (4.16)	45 (33.2)	4.3	56/13	1021 (230)	6.7
	464	8.46 (6.24)	64 (47.2)	6.5	84/13	1169 (263)	6.3
0.79 (1.06)	275	14.3 (10.5)	99 (73.0)	11	273/25	1392 (313)	5.8
	221	17.8 (13.1)	105 (77.4)	13.5	231/17	1497 (337)	5.0
	130	30.2 (22.3)	120 (88.5)	23	3185/138	1786 (402)	3.4
	86	45.9 (33.9)	120 (88.5)	35	3575/102	2053 (462)	2.2
0.79 (1.06)	696	10.9 (8.04)	45 (33.2)	4.3	56/13	1021 (230)	3.6
	464	16.3 (12.0)	64 (47.2)	6.5	84/13	1169 (263)	3.4
	275	27.5 (20.3)	99 (73.0)	11	273/25	1392 (313)	3.1
	221	34.3 (25.3)	105 (77.4)	13.5	231/17	1497 (337)	2.7
	130	58.2 (42.9)	120 (88.5)	23	3185/138	1786 (402)	1.8
	128	59.1 (43.6)	233 (172)	23	2320/99	2308 (519)	3.4
	86	88.4 (65.2)	120 (88.5)	35	3575/102	2053 (462)	1.2
	85	89.4 (65.9)	270 (199)	35	390/11	2650 (596)	2.6
1.43 (1.92)	696	19.6 (14.5)	80 (59.0)	4.3	56/13	1021 (230)	3.2
	464	29.5 (21.8)	91 (67.1)	6.5	84/13	1169 (263)	2.4
	275	49.8 (36.7)	105 (77.4)	11	273/25	1392 (313)	1.7
	278	49.3 (36.4)	196 (145)	11	7303/676	1783 (402)	3.1
	221	61.9 (45.7)	105 (77.4)	13.5	231/17	1497 (337)	1.3
	220	62.1 (45.8)	210 (155)	13.5	109/8	1927 (433)	2.6
	128	107 (78.9)	270 (199)	23	2320/99	2308 (519)	2.0
	85	162 (120)	270 (199)	35	390/11	2650 (596)	1.3
1.43 (1.92)	86	160 (118)	450 (332)	35	7252/207	3666 (824)	2.2
2.22 (2.98)	696	30.5 (22.5)	80 (59.0)	4.3	56/13	1021 (230)	1.7
	464	45.8 (33.8)	91 (67.1)	6.5	84/13	1169 (263)	1.3
	540	39.3 (29.0)	112 (82.6)	5.6	5341/962	1428 (321)	1.9
	278	76.5 (56.4)	196 (145)	11	7303/676	1783 (401)	1.7
	220	96.5 (71.2)	210 (155)	13.5	109/8	1927 (433)	1.4
	128	166 (122)	270 (199)	23	2320/99	2308 (519)	1.1
	86	248 (183)	450 (332)	35	7252/207	3666 (824)	1.2

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Gearbox size	Motor shaft height	1FK7 parallel shaft 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	
	SH					
F102	36	1FK7032-5AK71-1 ■■■ 5-Z	C11	G . .	H . .	13.8 (30.4)
F102	36	1FK7032-5AK71-1 ■■■ 5-Z	C12	G . .	H . .	13.8 (30.4)
F102	36	1FK7032-5AK71-1 ■■■ 5-Z	C13	G . .	H . .	13.8 (30.4)
F102	36	1FK7032-5AK71-1 ■■■ 5-Z	C14	G . .	H . .	13.8 (30.4)
F102	36	1FK7032-5AK71-1 ■■■ 5-Z	C15	G . .	H . .	13.8 (30.4)
F102	36	1FK7032-5AK71-1 ■■■ 5-Z	C16	G . .	H . .	13.8 (30.4)
F102	48	1FK7040-5AK71-1 ■■■ 5-Z	C11	G . .	H . .	14.6 (32.2)
F102	48	1FK7040-5AK71-1 ■■■ 5-Z	C12	G . .	H . .	14.6 (32.2)
F102	48	1FK7040-5AK71-1 ■■■ 5-Z	C13	G . .	H . .	14.6 (32.2)
F102	48	1FK7040-5AK71-1 ■■■ 5-Z	C14	G . .	H . .	14.6 (32.2)
F102	48	1FK7040-5AK71-1 ■■■ 5-Z	C15	G . .	H . .	14.6 (32.2)
F102	48	1FK7040-5AK71-1 ■■■ 5-Z	C16	G . .	H . .	14.6 (32.2)
F102	48	1FK7042-5AF71-1 ■■■ 5-Z	C11	G . .	H . .	15.9 (35.1)
F102	48	1FK7042-5AF71-1 ■■■ 5-Z	C12	G . .	H . .	15.9 (35.1)
F102	48	1FK7042-5AF71-1 ■■■ 5-Z	C13	G . .	H . .	15.9 (35.1)
F102	48	1FK7042-5AF71-1 ■■■ 5-Z	C14	G . .	H . .	15.9 (35.1)
F102	48	1FK7042-5AF71-1 ■■■ 5-Z	C15	G . .	H . .	15.9 (35.1)
F202	48	1FK7042-5AF71-1 ■■■ 5-Z	C25	G . .	H . .	24.1 (53.1)
F102	48	1FK7042-5AF71-1 ■■■ 5-Z	C16	G . .	H . .	15.9 (35.1)
F202	48	1FK7042-5AF71-1 ■■■ 5-Z	C26	G . .	H . .	24.1 (53.1)
F102	63	1FK7060-5AF71-1 ■■■ 5-Z	C11	G . .	H . .	18.6 (41.0)
F102	63	1FK7060-5AF71-1 ■■■ 5-Z	C12	G . .	H . .	18.6 (41.0)
F102	63	1FK7060-5AF71-1 ■■■ 5-Z	C13	G . .	H . .	18.6 (41.0)
F202	63	1FK7060-5AF71-1 ■■■ 5-Z	C23	G . .	H . .	26.8 (59.1)
F102	63	1FK7060-5AF71-1 ■■■ 5-Z	C14	G . .	H . .	18.6 (41.0)
F202	63	1FK7060-5AF71-1 ■■■ 5-Z	C24	G . .	H . .	26.8 (59.1)
F202	63	1FK7060-5AF71-1 ■■■ 5-Z	C25	G . .	H . .	26.8 (59.1)
F202	63	1FK7060-5AF71-1 ■■■ 5-Z	C26	G . .	H . .	26.8 (59.1)
F302	63	1FK7060-5AF71-1 ■■■ 5-Z	C36	G . .	H . .	34.4 (75.9)
F102	63	1FK7063-5AF71-1 ■■■ 5-Z	C11	G . .	H . .	22.3 (49.2)
F102	63	1FK7063-5AF71-1 ■■■ 5-Z	C12	G . .	H . .	22.3 (49.2)
F202	63	1FK7063-5AF71-1 ■■■ 5-Z	C22	G . .	H . .	30.5 (67.3)
F202	63	1FK7063-5AF71-1 ■■■ 5-Z	C23	G . .	H . .	30.5 (67.3)
F202	63	1FK7063-5AF71-1 ■■■ 5-Z	C24	G . .	H . .	30.5 (67.3)
F202	63	1FK7063-5AF71-1 ■■■ 5-Z	C25	G . .	H . .	30.5 (67.3)
F302	63	1FK7063-5AF71-1 ■■■ 5-Z	C36	G . .	H . .	38.1 (84.0)

Encoder systems for motors without DRIVE-CLiQ interface:

IC2048S/R encoder
AM2048S/R encoder (from shaft height 48)
AM512S/R encoder (shaft height 36 only)
AM32S/R encoder (from shaft height 48)
AM16S/R encoder (shaft height 36 only)
Multi-pole resolver
2-pole resolver

Encoder systems for motors with DRIVE-CLiQ interface:

IC22DQ encoder
AM22DQ encoder (from shaft height 48)
AM20DQ encoder (shaft height 36 only)
AM16DQ encoder (from shaft height 48)
AM15DQ encoder (shaft height 36 only)
R15DQ resolver
R14DQ resolver

Holding brake:

Motor without holding brake
Motor with holding brake

A
E
H
G
J
S
TD
F
L
K
V
U
PU
V

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Order codes for type/gear shaft extension and type of construction/
mounting position/connector mounting position, see page 4/92.

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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_{rperm} N (lb _f)	f_B
Natural cooling – SH 80/SH 100							
2.08 (2.79)	540	36.6 (27.0)	173 (128)	5.6	5341/962	1428 (321)	4.0
	278	71.3 (52.6)	210 (155)	11	7303/676	1783 (401)	2.5
	220	89.9 (66.3)	210 (155)	13.5	109/8	1927 (433)	2.0
	128	155 (114)	270 (199)	23	2320/99	2308 (519)	1.5
	128	231 (170)	450 (332)	24	588/25	3210 (722)	2.5
3.20 (4.29)	86	231 (170)	700 (516)	35	7252/207	3666 (824)	1.7
	86	231 (170)	700 (516)	35	2210/63	4523 (1017)	2.6
	540	56.5 (41.7)	173 (128)	5.6	5341/962	1428 (321)	2.0
	278	110 (81.1)	210 (155)	11	7303/676	1783 (401)	1.3
	278	110 (81.1)	350 (258)	11	1456/135	2475 (556)	2.1
3.66 (4.91)	224	136 (100)	350 (258)	13.5	7696/575	2660 (598)	1.7
	221	138 (102)	550 (406)	13.5	5984/441	3296 (741)	2.6
	128	240 (177)	450 (332)	24	588/25	3210 (722)	1.2
	129	236 (174)	700 (516)	23	325/14	3942 (886)	1.9
	86	357 (263)	700 (516)	35	2210/63	4523 (1017)	1.3
4.72 (6.33)	85	359 (265)	1100 (811)	35	845/24	6120 (1376)	2.0
	516	67.7 (49.9)	482 (356)	5.8	3784/651	2484 (558)	4.8
	277	126 (92.9)	550 (406)	11	682/63	3057 (687)	2.9
	221	158 (117)	550 (406)	13.5	5984/441	3296 (741)	2.3
	129	270 (199)	700 (516)	23	325/14	3942 (886)	1.7
5.20 (6.97)	129	271 (200)	1100 (811)	23	1885/81	5331 (1198)	2.7
	86	408 (301)	700 (516)	35	2210/63	4523 (1017)	1.1
	516	87.4 (64.5)	482 (356)	5.8	3784/651	2484 (558)	3.2
	277	163 (120)	550 (406)	11	682/63	3057 (687)	1.9
	221	204 (151)	550 (406)	13.5	5984/441	3296 (741)	1.5
7.93 (10.6)	220	205 (151)	1000 (738)	13.5	871/64	4458 (1002)	2.8
	129	349 (257)	700 (516)	23	325/14	3942 (886)	1.2
	85	529 (390)	1100 (811)	35	845/24	6120 (1376)	1.2
	430	115 (84.8)	482 (356)	5.8	3784/651	2484 (558)	2.4
	231	215 (159)	550 (406)	11	682/63	3057 (687)	1.5
7.93 (10.6)	231	215 (159)	991 (731)	11	2077/192	4130 (928)	2.6
	184	269 (198)	550 (406)	13.5	5984/441	3296 (741)	1.2
	183	270 (199)	1000 (738)	13.5	871/64	4458 (1002)	2.1
	108	460 (339)	1100 (811)	23	1885/81	5331 (1198)	1.4
	529	143 (106)	766 (565)	5.7	1407/248	3330 (749)	2.9
7.93 (10.6)	516	147 (108)	482 (356)	6	3784/651	2484 (558)	1.8
	277	273 (201)	991 (731)	11	2077/192	4130 (928)	2.0
	277	273 (201)	550 (406)	11	682/63	3057 (687)	1.1
	220	343 (253)	1000 (738)	13.6	871/64	4458 (1002)	1.6
	129	587 (433)	1100 (811)	24	1885/81	5331 (1198)	1.0

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Gearbox size	Motor shaft height	1FK7 parallel shaft 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	
	SH					
F202	80	1FK7080-5AF71-1 ■■■ 5-Z	C22	G . .	H . .	30.2 (66.6)
F202	80	1FK7080-5AF71-1 ■■■ 5-Z	C23	G . .	H . .	30.2 (66.6)
F202	80	1FK7080-5AF71-1 ■■■ 5-Z	C24	G . .	H . .	30.2 (66.6)
F202	80	1FK7080-5AF71-1 ■■■ 5-Z	C25	G . .	H . .	30.2 (66.6)
F302	80	1FK7080-5AF71-1 ■■■ 5-Z	C35	G . .	H . .	37.8 (83.4)
F302	80	1FK7080-5AF71-1 ■■■ 5-Z	C36	G . .	H . .	37.8 (83.4)
F402	80	1FK7080-5AF71-1 ■■■ 5-Z	C46	G . .	H . .	46.1 (102)
F202	80	1FK7083-5AF71-1 ■■■ 5-Z	C22	G . .	H . .	35.4 (78.1)
F202	80	1FK7083-5AF71-1 ■■■ 5-Z	C23	G . .	H . .	35.4 (78.1)
F302	80	1FK7083-5AF71-1 ■■■ 5-Z	C33	G . .	H . .	43.0 (94.8)
F302	80	1FK7083-5AF71-1 ■■■ 5-Z	C34	G . .	H . .	43.0 (94.8)
F402	80	1FK7083-5AF71-1 ■■■ 5-Z	C44	G . .	H . .	51.3 (113)
F302	80	1FK7083-5AF71-1 ■■■ 5-Z	C35	G . .	H . .	43.0 (94.8)
F402	80	1FK7083-5AF71-1 ■■■ 5-Z	C45	G . .	H . .	51.3 (113)
F402	80	1FK7083-5AF71-1 ■■■ 5-Z	C46	G . .	H . .	51.3 (113)
F602	80	1FK7083-5AF71-1 ■■■ 5-Z	C66	G . .	H . .	78.3 (173)
F402	100	1FK7100-5AF71-1 ■■■ 5-Z	C42	G . .	H . .	53.5 (118)
F402	100	1FK7100-5AF71-1 ■■■ 5-Z	C43	G . .	H . .	53.3 (118)
F402	100	1FK7100-5AF71-1 ■■■ 5-Z	C44	G . .	H . .	53.5 (118)
F402	100	1FK7100-5AF71-1 ■■■ 5-Z	C45	G . .	H . .	53.3 (118)
F602	100	1FK7100-5AF71-1 ■■■ 5-Z	C65	G . .	H . .	80.5 (178)
F402	100	1FK7100-5AF71-1 ■■■ 5-Z	C46	G . .	H . .	53.3 (118)
F402	100	1FK7101-5AF71-1 ■■■ 5-Z	C42	G . .	H . .	59.1 (130)
F402	100	1FK7101-5AF71-1 ■■■ 5-Z	C43	G . .	H . .	59.1 (130)
F402	100	1FK7101-5AF71-1 ■■■ 5-Z	C44	G . .	H . .	59.1 (130)
F602	100	1FK7101-5AF71-1 ■■■ 5-Z	C64	G . .	H . .	86.1 (190)
F402	100	1FK7101-5AF71-1 ■■■ 5-Z	C45	G . .	H . .	59.1 (130)
F602	100	1FK7101-5AF71-1 ■■■ 5-Z	C66	G . .	H . .	86.1 (190)
F402	100	1FK7103-5AF71-1 ■■■ 5-Z	C42	G . .	H . .	65.7 (145)
F402	100	1FK7103-5AF71-1 ■■■ 5-Z	C43	G . .	H . .	65.7 (145)
F602	100	1FK7103-5AF71-1 ■■■ 5-Z	C63	G . .	H . .	92.7 (204)
F402	100	1FK7103-5AF71-1 ■■■ 5-Z	C44	G . .	H . .	65.7 (145)
F602	100	1FK7103-5AF71-1 ■■■ 5-Z	C64	G . .	H . .	92.7 (145)
F602	100	1FK7103-5AF71-1 ■■■ 5-Z	C65	G . .	H . .	92.7 (145)
F602	100	1FK7105-5AF71-1 ■■■ 5-Z	C62	G . .	H . .	103 (227)
F402	100	1FK7105-5AF71-1 ■■■ 5-Z	C42	G . .	H . .	75.7 (167)
F602	100	1FK7105-5AF71-1 ■■■ 5-Z	C63	G . .	H . .	103 (227)
F402	100	1FK7105-5AF71-1 ■■■ 5-Z	C43	G . .	H . .	75.7 (167)
F602	100	1FK7105-5AF71-1 ■■■ 5-Z	C64	G . .	H . .	103 (227)
F602	100	1FK7105-5AF71-1 ■■■ 5-Z	C65	G . .	H . .	103 (227)

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 4/92.