

Technical data and characteristics

7.2 1FK7 motors on SINAMICS S120 with 3 AC 400/480 V power supply

Table 7-3 1FK7022 CT

Technical data	Code	Unit	-5AK71	
Configuration data				
Rated speed	n_N	RPM	6000	
No. of poles	2p		6	
Rated torque (100 K)	M_N (100 K)	Nm	0.6	
Rated current (100 K)	I_N	A	1.4	
Static torque (60 K)	M_0 (60 K)	Nm	0.7	0.85
Static torque (100 K)	M_0 (100 K)	Nm	1.5	
Stall current (60 K)	I_0 (60 K)	A	1.8	0.35
Stall current (100 K)	I_0 (100 K)	A	0.28	
Moment of inertia (with brake)	J_{MotBr}	10^{-4} kgm ²		
Moment of inertia (without brake)	J_{Mot}	10^{-4} kgm ²	6000	
	n_{opt}		0.38	
Optimum operating point				
	P_{opt}	kW	10000	
Optimum speed	$n_{max\ mech}$		10000	
Optimum power	$n_{max\ inv}$	RPM	3.4	
Limiting data				
	M_{max}	RPM	8	
Max. permissible speed (mech.)	I_{max}	Nm		
Max. permissible speed (converter)		A	0.46	
Max. torque	k_T		29	
Max. current	k_E	Nm/A	4.2	
		V/1000 RPM	9.1	
Physical constants				
	R_{Str}	Ohm	2.2	
Torque constant	L_D	mH	1.7	
Voltage constant	T_{el}	ms	18	3000
Winding resistance at 20°C	T_{mech}	ms	2.0	
Cyclic inductance	T_{th}	min	1.8	
Electrical time constant	C_t	Nm/rad		
Mechanical time constant	m_{MotBr}	kg	3	
Thermal time constant	m_{Mot}	kg	6	
Shaft torsional stiffness		A	2.75	
Weight with brake		A		
Weight without brake		Nm		
Recommended motor module 6SL312_-TE13-0AA_				
Rated current converter	$I_{N\ inv}$			
Max. current converter	$I_{max\ inv}$			
Max. torque at $I_{max\ inv}$	$M_{max\ inv}$			

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For motor

Dimensions in mm (in)

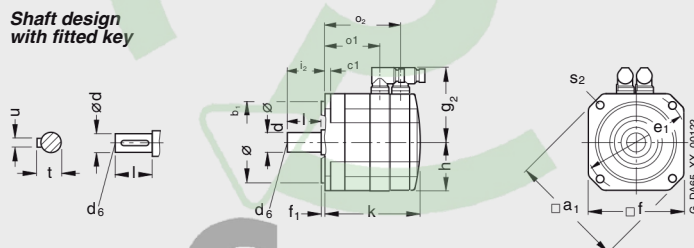
Resolver

Shaft height	Type	DIN IEC	a_1 P	b_1 N	c_1 LA	e_1 M	f AB	f_1 T	g_2 —	h H	i_2 —	s_2 S	Resolver				
													without brake		with brake ko_1		
													k LB	o_1 —	o_2 —	$LB-$	o_2 —
1FK7 Compact, type IM B5, natural cooling, with connector, with/without brake																	
20	1FK7011-5	—	30	7	46	40	2.5	65.5	20	18	4.5	140	89	118	140	89	118
	1FK7015-5	—	30	7	46	40	2.5	65.5	20	18	4.5	165	114	143	165	114	143
28	1FK7022-5	—	40	10	63	55	2.5	75	27.5	20	5.4	153	95	128	175	95	150
36	1FK7032-5	92 (3.62)	60	8	75	72	3	81	36	30	6.5	150	90	125	175	90	149
	1FK7034-5	92 (3.62)	60	8	75	72	3	81	36	30	6.5	175	115	150	200	115	174
48	1FK7040-5	120 (4.72)	80	10	100	96	3	90	48	40	7	134	73	106	163	73	135
	1FK7042-5	120 (4.72)	80	10	100	96	3	90	48	40	7	162	101	134	191	101	163
63	1FK7060-5	155 (6.10)	110	10	130	126	3.5	105	63	50	9	157	94	126	200	94	169
	1FK7063-5	155 (6.10)	110	10	130	126	3.5	105	63	50	9	202	139	171	245	139	214

Basic absolute encoder (EnDat)
(shaft height 48 and larger),
Incremental encoder sin/cos1 V_{pp}

Absolute encoder (EnDat)

Shaft height	Type	without brake			with brake			without brake			with brake ko_1			d D	d_6 —	l E	t GA	u F
		k LB	o_1 —	o_2 —	k LB	o_1 —	o_2 —	k LB	o_1 —	o_2 —	$LB-$	o_2 —						
20	1FK7011-5	155 (6.10)	89 (3.50)	118 (4.64)	155 (6.10)	89 (3.50)	118 (4.64)	155 (6.10)	98 (3.50)	118 (4.64)	155 (6.10)	89 (3.50)	118 (4.64)	8 (0.31)	M3	18 (0.71)	8.8 (0.35)	2 (0.08)
	1FK7015-5	180 (7.08)	114 (4.48)	143 (5.63)	180 (7.08)	114 (4.48)	143 (5.63)	180 (7.08)	114 (4.48)	143 (5.63)	180 (7.08)	114 (4.48)	143 (5.63)	8 (0.31)	M3	18 (0.71)	8.8 (0.35)	2 (0.08)
28	1FK7022-5	178 (7.01)	95 (3.74)	128 (5.04)	200 (7.87)	95 (3.74)	150 (5.91)	178 (7.01)	95 (3.74)	128 (5.04)	200 (7.87)	95 (3.74)	150 (5.91)	9 (0.35)	M3	20 (0.79)	10.2 (0.40)	3 (0.12)
36	1FK7032-5	175 (6.89)	90 (3.54)	125 (4.92)	200 (7.87)	90 (3.54)	149 (5.87)	175 (6.89)	90 (3.54)	125 (4.92)	200 (7.87)	90 (3.54)	149 (5.87)	14 (0.55)	M5	30 (1.18)	16 (0.63)	5 (0.20)
	1FK7034-5	200 (7.87)	115 (4.53)	150 (5.91)	225 (8.86)	115 (4.53)	174 (6.85)	200 (7.87)	115 (4.53)	150 (5.91)	225 (8.86)	115 (4.53)	174 (6.85)	14 (0.55)	M5	30 (1.18)	16 (0.63)	5 (0.20)
48	1FK7040-5	155 (6.10)	73 (2.87)	106 (4.17)	184 (7.24)	73 (2.87)	135 (5.31)	163 (6.42)	73 (2.87)	106 (4.17)	192 (7.56)	73 (2.87)	135 (5.31)	19 (0.75)	M6	40 (1.57)	21.5 (0.85)	6 (0.24)
	1FK7042-5	182 (7.17)	101 (3.98)	134 (5.28)	211 (8.31)	101 (3.98)	163 (6.42)	191 (7.52)	101 (3.98)	134 (5.28)	220 (8.66)	101 (3.98)	163 (6.42)	19 (0.75)	M6	40 (1.57)	21.5 (0.85)	6 (0.24)
63	1FK7060-5	180 (7.09)	94 (3.70)	126 (4.96)	223 (8.78)	94 (3.70)	169 (6.65)	188 (7.40)	94 (3.70)	126 (4.96)	231 (9.09)	94 (3.70)	169 (6.65)	24 (0.94)	M8	50 (1.97)	27 (1.06)	8 (0.31)
	1FK7063-5	225 (8.86)	139 (5.47)	171 (6.73)	268 (10.55)	139 (5.47)	214 (8.43)	233 (9.17)	139 (5.47)	171 (6.73)	276 (10.87)	139 (5.47)	214 (8.43)	24 (0.94)	M8	50 (1.97)	27 (1.06)	8 (0.31)

1FK701 .-5
1FK702 .-5
1FK703 .-5
1FK704 .-5
1FK706 .-5Shaft design
with fitted key

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