

Technical data and characteristics

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

Table 7-23 1FK7043 HD

Technical data	Code	Unit	-7AH71	
Configuration data				
Rated speed	n_N	RPM	4500	
No. of poles	2p		6	
Rated torque (100 K)	M_N (100 K)	Nm	2,6	
Rated current (100 K)	I_N	A	4,0	
Static torque (60 K)	M_0 (60 K)	Nm	2,5	
Static torque (100 K)	M_0 (100 K)	Nm	3,1	
Stall current (60 K)	I_0 (60 K)	A	3,6	
Stall current (100 K)	I_0 (100 K)	A	4,5	
Moment of inertia (with brake)	J_{MotBr}	10^{-4} kgm ²	1,14	
Moment of inertia (without brake)	J_{Mot}	10^{-4} kgm ²	1,01	
	n_{opt}	RPM	4500	
Optimum operating point	P_{opt}	kW	1,23	
Optimum speed	$n_{max\ mech}$	RPM	8000	
Optimum power	$n_{max\ Inv}$	RPM	8000 9,4	
Limiting data	M_{max}	Nm	14,8	
Max. permissible speed (mech.)	I_{max}	A		
Max. permissible speed (converter)	k_T	Nm/A	0,67	
Max. torque	k_E	V/1000 RPM	44	
Max. current	R_{Str}	Ohm	15	
Physical constants	L_D	mH	12,5	
Torque constant	T_{el}	ms	0,81	
Voltage constant	T_{mech}	ms	40	
Winding resistance at 20°C	T_{th}	min	11000	
Cyclic inductance	C_t	Nm/rad	7,0	
Electrical time constant	m_{MotBr}	kg	6,3	
Mechanical time constant	m_{Mot}	kg		
Thermal time constant		A	5	
Shaft torsional stiffness		A	10	
Weight with brake		Nm	6,8	
Weight without brake				
Recommended motor module 6SL312_-TE15-0AA_				
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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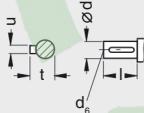
Dimension drawings

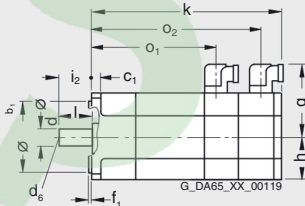
8.1 1FK7 Compact and High Dynamic motors

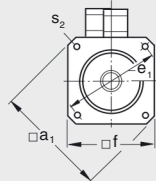
8.1.2 1FK7 High Dynamic motors

For motor		Dimensions in mm (in)											Resolver			
Shaft height	Type	DIN IEC												without/with brake		
			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	k LB	o_1 —	o_2 —	
1FK7 High Dynamic, type IM B5, natural cooling, with connector, with/without brake																
36	1FK7033-7		92 (3.62)	60 (2.36)	8 (0.31)	75 (2.95)	72 (2.83)	3 (0.12)	78 (3.07)	36 (1.42)	30 (1.18)	6.5 (0.26)	170/195 (6.69/7.68)	108/108 (4.25/4.25)	145/170 (5.71/6.69)	
48	1FK7043-7		120 (4.72)	80 (3.15)	10 (0.39)	100 (3.94)	96 (3.78)	3 (0.12)	90 (3.54)	48 (1.89)	40 (1.57)	7 (0.28)	191/220 (7.52/8.66)	130/130 (5.12/5.12)	163/192 (6.42/7.56)	
	1FK7044-7											7 (0.28)	216/245 (8.51/9.65)	155/155 (6.10/6.10)	188/217 (7.40/8.54)	
63	1FK7061-7		155 (6.10)	110 (4.33)	10 (0.39)	130 (5.12)	126 (4.96)	3.5 (0.14)	105 (4.13)	63 (2.48)	50 (1.97)	9 (0.35)	185/228 (7.28/8.98)	121/121 (4.76/4.76)	153/196 (6.02/7.72)	
	1FK7064-7												249/292 (9.80/11.5)	185/185 (7.28/7.28)	217/260 (8.54/10.24)	
80	1FK7085-7		186 (7.32)	130 (5.12)	13 (0.51)	165 (6.50)	155 (6.10)	3.5 (0.14)	141.5 (5.57)	77.5 (3.05)	60 (2.36)	11 (0.43)	261/304 (10.28/11.97)	190/191 (7.48/7.52)	229/272 (9.02/10.71)	
	1FK7086-7								140.5 (5.53)				261/303 (10.28/11.93)	192/192 (7.56/7.56)	229/272 (9.02/10.71)	
			Basic absolute encoder (EnDat) (shaft height 48 and larger), Incremental encoder sin/cos1 V_{pp} without/with brake				Absolute encoder (EnDat) without/with brake				DE shaft extension					
Shaft height	Type	DIN IEC	k LB	o_1 —	o_2 —				k LB	o_1 —	o_2 —	d D	d_6 —	l E	t GA	u F
36	1FK7033-7		194/219 (7.64/8.62)	109/109 (4.29/4.29)	144/168 (5.67/6.61)				194/219 (7.64/8.62)	109/109 (4.29/4.29)	144/168 (5.67/6.61)	14 (0.55)	M5	30 (1.18)	16 (0.63)	5 (0.20)
48	1FK7043-7		212/241 (8.35/9.49)	130/130 (5.12/5.12)	163/192 (6.42/7.56)				220/249 (8.66/9.80)	130/130 (5.12/5.12)	163/192 (6.42/7.56)	19 (0.75)	M6	40 (1.57)	21.5 (0.85)	6 (0.24)
	1FK7044-7		237/266 (9.33/10.47)	155/155 (6.10/6.10)	188/217 (7.40/8.54)				245/274 (9.65/10.79)	155/155 (6.10/6.10)	188/217 (7.40/8.54)					
63	1FK7061-7		208/251 (8.19/9.88)	121/121 (4.76/4.76)	154/197 (6.06/7.76)				217/260 (8.54/10.24)	121/121 (4.76/4.76)	154/197 (6.06/7.76)	24 (0.94)	M6	50 (1.97)	27 (1.06)	8 (0.31)
	1FK7064-7		272/315 (10.71/12.40)	185/185 (7.28/7.28)	218/261 (8.58/10.28)				281/324 (11.06/12.76)	185/185 (7.28/7.28)	218/261 (8.58/10.28)					
80	1FK7085-7		283/326 (11.14/12.83)	192/192 (7.56/7.56)	229/272 (9.02/10.71)				292/334 (11.50/13.15)	192/192 (7.56/7.56)	229/272 (9.02/10.71)	32 (1.26)	M12	58 (2.28)	35 (1.38)	10 (0.39)
	1FK7086-7															

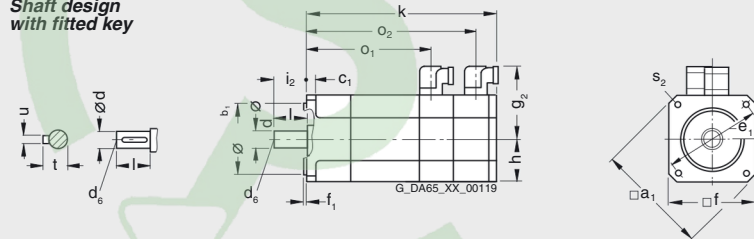
Shaft design
with fitted key







Shaft design
with fitted key



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