

Table 7-21 1FK7105 CT

Technical data	Code	Unit	-5AF71
Configuration data			
Rated speed	n_N	RPM	3000
No. of poles	2p		8
Rated torque (100 K)	M_N (100 K)	Nm	26
Rated current (100 K)	I_N	A	18
Static torque (60 K)	M_0 (60 K)	Nm	40
Static torque (100 K)	M_0 (100 K)	Nm	48
Stall current (60 K)	I_0 (60 K)	A	25
Stall current (100 K)	I_0 (100 K)	A	31
Moment of inertia (with brake)	J_{MotBr}	10^{-4} kgm ²	169
Moment of inertia (without brake)	J_{Mot}	10^{-4} kgm ²	156
Optimum operating point			
Optimum speed	n_{opt}	RPM	3000
Optimum power	P_{opt}	kW	8.17
Limiting data			
Max. permissible speed (mech.)	$n_{max\ mech}$	RPM	5000
Max. permissible speed (converter)	$n_{max\ Inv}$	RPM	5000
Max. torque	M_{max}	Nm	150
Max. current	I_{max}	A	109
Physical constants			
Torque constant	k_T	Nm/A	1.57
Voltage constant	k_E	V/1000 RPM	100
Winding resistance at 20°C	R_{Str}	Ohm	0.074
Cyclic inductance	L_D	mH	1.9
Electrical time constant	T_{el}	ms	26
Mechanical time constant	T_{mech}	ms	1.4
Thermal time constant	T_{th}	min	70
Shaft torsional stiffness	C_t	Nm/rad	125000
Weight with brake	m_{MotBr}	kg	41.5
Weight without brake	m_{Mot}	kg	39.1
Recommended motor module 6SL312 - TE23-0AA			
Rated current converter	$I_N\ Inv$	A	30
Max. current converter	$I_{max\ Inv}$	A	56
Max. torque at $I_{max\ Inv}$	$M_{max\ Inv}$	Nm	87

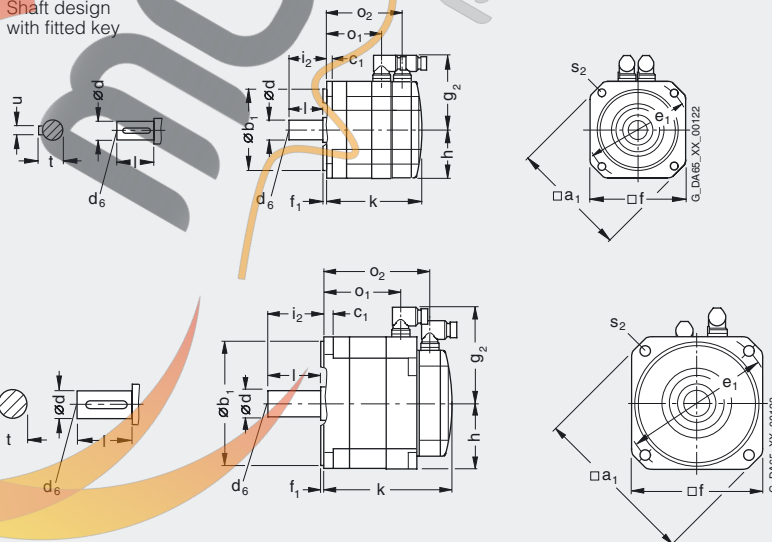
8.1 1FK7 Compact and High Dynamic motors

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	without brake			with brake		
		k LB	o ₁ -	o ₂ -	k LB	o ₁ -	o ₂ -	k LB	o ₁ -	o ₂ -								
1FK7 Compact, type IM B5, natural cooling, with connector, with/without brake																		
80	1FK7080-5	186 (7.32)	130 (5.12)	13 (0.51)	165 (6.50)	155 (6.10)	3.5 (0.14)	119.5 (4.70)	77.5 (3.05)	58 (2.28)	11 (0.43)	156 (6.14)	91 (3.58)	124 (4.88)	184 (7.24)	91 (3.58)	151 (5.94)	
	1FK7083-5	186 (7.32)	130 (5.12)	13 (0.51)	165 (6.50)	155 (6.10)	3.5 (0.14)	119.5 (4.70)	77.5 (3.05)	58 (2.28)	11 (0.43)	194 (7.64)	129 (5.08)	162 (6.38)	245 (9.65)	129 (5.08)	207 (8.15)	
100	1FK7100-5	240 (9.45)	180 (7.09)	13 (0.51)	215 (8.46)	192 (7.56)	4 (0.16)	138 (5.43)	96 (3.78)	80 (3.15)	14 (0.55)	185 (7.28)	113 (4.45)	153 (6.02)	204 (8.03)	113 (4.45)	172 (6.77)	
	1FK7101-5	240 (9.45)	180 (7.09)	13 (0.51)	215 (8.46)	192 (7.56)	4 (0.16)	160 (6.30)	96 (3.78)	80 (3.15)	14 (0.55)	211 (8.31)	139 (5.47)	179 (7.05)	240 (9.45)	139 (5.47)	208 (8.19)	
	1FK7103-5	240 (9.45)	180 (7.09)	13 (0.51)	215 (8.46)	192 (7.56)	4 (0.16)	160 (6.30)	96 (3.78)	80 (3.15)	14 (0.55)	237 (9.33)	165 (6.50)	205 (8.07)	266 (10.47)	165 (6.50)	234 (9.21)	
	1FK7105-5	240 (9.45)	180 (7.09)	13 (0.51)	215 (8.46)	192 (7.56)	4 (0.16)	160 (6.30)	96 (3.78)	80 (3.15)	14 (0.55)	289 (11.38)	217 (8.54)	257 (10.12)	318 (12.52)	217 (8.54)	286 (11.26)	

Shaft height	Type	Basic absolute encoder (EnDat) (shaft height 48 and larger), Incremental encoder sin/cos 1 V _{pp}						Absolute encoder (EnDat)						d D	d ₆ -	l E	t GA	u F
		without brake			with brake			without brake			with brake							
k LB	o ₁ -	o ₂ -	k LB	o ₁ -	o ₂ -	k LB	o ₁ -	o ₂ -	k LB	o ₁ -	o ₂ -	k LB	o ₁ -	o ₂ -				
80	1FK7080-5	179 (7.05)	91 (3.58)	124 (4.88)	206 (8.11)	91 (3.58)	151 (5.94)	187 (7.36)	91 (3.58)	124 (4.88)	215 (8.46)	91 (3.58)	151 (5.94)	32 (1.26)	M12	58 (2.28)	35 (1.38)	10 (0.39)
	1FK7083-5	217 (8.54)	129 (5.08)	162 (6.38)	268 (10.55)	153 (6.02)	213 (8.39)	225 (8.86)	129 (5.08)	162 (6.38)	276 (10.87)	129 (5.08)	207 (8.15)	32 (1.26)	M12	58 (2.28)	35 (1.38)	10 (0.39)
100	1FK7100-5	208 (8.19)	113 (4.45)	153 (6.02)	227 (8.94)	113 (4.45)	172 (6.77)	216 (8.50)	113 (4.45)	153 (6.02)	235 (9.25)	113 (4.45)	172 (6.77)	38 (1.50)	M12	80 (3.15)	41 (1.61)	10 (0.39)
	1FK7101-5	234 (9.21)	139 (5.47)	179 (7.05)	263 (10.35)	139 (5.47)	208 (8.19)	242 (9.53)	139 (5.47)	179 (7.05)	271 (10.67)	139 (5.47)	208 (8.19)	38 (1.50)	M12	80 (3.15)	41 (1.61)	10 (0.39)
	1FK7103-5	260 (10.24)	165 (6.50)	205 (8.07)	289 (11.38)	165 (6.5)	234 (9.21)	268 (10.55)	165 (6.50)	205 (8.07)	297 (11.69)	165 (6.50)	234 (9.21)	38 (1.50)	M12	80 (3.15)	41 (1.61)	10 (0.39)
	1FK7105-5	312 (12.28)	217 (8.54)	257 (10.12)	341 (13.43)	217 (8.54)	286 (11.26)	320 (12.60)	217 (8.54)	257 (10.12)	349 (13.74)	217 (8.54)	286 (11.26)	38 (1.50)	M12	80 (3.15)	41 (1.61)	10 (0.39)

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Shaft design with fitted key



1FK7100-5
1FK7101-5
1FK7103-5
1FK7105-5