

Table 7-15 1FK7083 CT

Technical data	Code	Unit	-5AF71
<b>Engineering data</b>			
Rated speed	$n_N$	RPM	3000
No. of poles	2p		8
Rated torque (100 K)	$M_N$ (100 K)	Nm	10.5
Rated current (100 K)	$I_N$	A	7.4
Static torque (60 K)	$M_0$ (60 K)	Nm	13.3
Static torque (100 K)	$M_0$ (100 K)	Nm	16
Stall current (60 K)	$I_0$ (60 K)	A	8.6
Stall current (100 K)	$I_0$ (100 K)	A	10.4
Moment of inertia (with brake)	$J_{MotBr}$	$10^{-4}$ kgm <sup>2</sup>	35.9
Moment of inertia (without brake)	$J_{Mot}$	$10^{-4}$ kgm <sup>2</sup>	27.3
<b>Optimum operating point</b>			
Optimum speed	$n_{opt}$	RPM	3000
Optimum power	$P_{opt}$	kW	3.3
<b>Limiting data</b>			
Max. permissible speed (mech.)	$n_{max\ mech}$	RPM	6000
Max. permissible speed (converter)	$n_{max\ Inv}$	RPM	5900
Max. torque	$M_{max}$	Nm	50
Max. current	$I_{max}$	A	37
<b>Physical constants</b>			
Torque constant	$k_T$	Nm/A	1.52
Voltage constant	$k_E$	V/1000 RPM	97
Winding resistance at 20°C	$R_{Str}$	Ohm	0.4
Cyclic inductance	$L_D$	mH	6.0
Electrical time constant	$T_{el}$	ms	15
Mechanical time constant	$T_{mech}$	ms	1.41
Thermal time constant	$T_{th}$	min	50
Shaft torsional stiffness	$C_t$	Nm/rad	105000
Weight with brake	$m_{MotBr}$	kg	16.5
Weight without brake	$m_{Mot}$	kg	14
<b>Recommended motor module 6SL312 - TE21-0AA</b>			
Rated current converter	$I_N\ Inv$	A	9
Max. current converter	$I_{max\ Inv}$	A	18
Max. torque at $I_{max\ Inv}$	$M_{max\ Inv}$	Nm	27.8

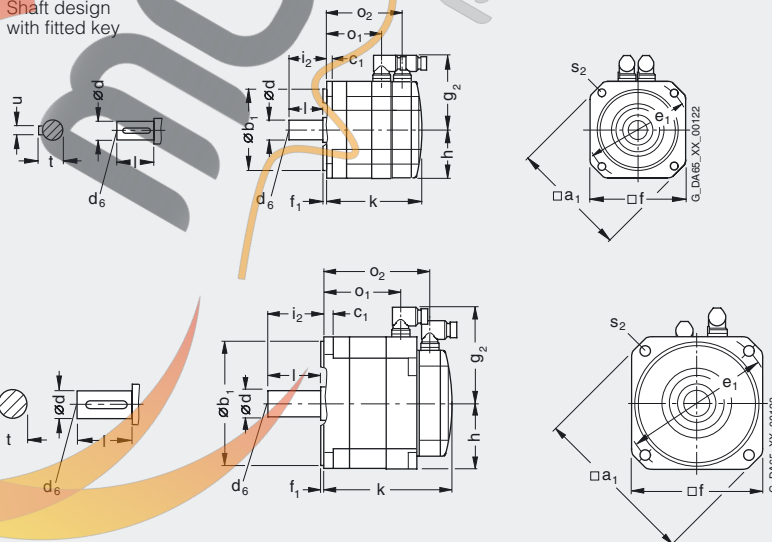
8.1 1FK7 Compact and High Dynamic motors

For motor		Dimensions in mm (in)											Resolver					
Shaft height	Type	DIN IEC	a <sub>1</sub> P	b <sub>1</sub> N	c <sub>1</sub> LA	e <sub>1</sub> M	f AB	f <sub>1</sub> T	g <sub>2</sub> -	h H	i <sub>2</sub> -	s <sub>2</sub> S	without brake			with brake		
		k LB	o <sub>1</sub> -	o <sub>2</sub> -	k LB	o <sub>1</sub> -	o <sub>2</sub> -	k LB	o <sub>1</sub> -	o <sub>2</sub> -								
<b>1FK7 Compact, type IM B5, natural cooling, with connector, with/without brake</b>																		
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 <sub>pp</sub>						Absolute encoder (EnDat)						d D	d <sub>6</sub> -	l E	t GA	u F
		without brake			with brake			without brake			with brake							
k LB	o <sub>1</sub> -	o <sub>2</sub> -	k LB	o <sub>1</sub> -	o <sub>2</sub> -	k LB	o <sub>1</sub> -	o <sub>2</sub> -	k LB	o <sub>1</sub> -	o <sub>2</sub> -	k LB	o <sub>1</sub> -	o <sub>2</sub> -				
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)

1FK708...-5

Shaft design with fitted key



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