

Dimensional drawings

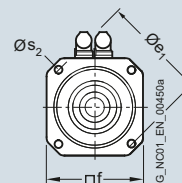
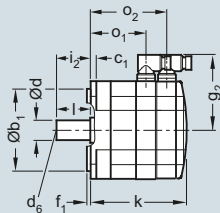
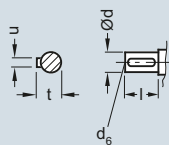
SIMOTICS S synchronous motors for SINAMICS S120

1FK7 – Natural cooling

Dimensional drawings

For motor		Dimensions in mm (inches)										Shaft extension DE				
Shaft height	Type	DIN IEC	b ₁ N	c ₁ LA	e ₁ M	f AB	f ₁ T	g ₂ –	i ₂ –	s ₂ S	d D	d ₆ –	l E	t GA	u F	
1FK7 natural cooling, without/with brake																
20	1FK701		30 (1.18)	7 (0.28)	46 (1.81)	40 (1.57)	2.5 (0.10)	66 (2.60)	18 (0.71)	4.5 (0.18)	8 (0.31)	– (0.59)	18 (0.71)	8.8 (0.35)	2 (0.08)	
28	1FK702		40 (1.57)	10 (0.39)	63 (2.48)	55 (2.17)	2.5 (0.10)	75 (2.95)	20 (0.79)	5.4 (0.21)	9 (0.35)	M3	20 (0.79)	10.2 (0.40)	3 (0.12)	

For motor		Encoder system: Resolver Absolute encoders AM16S/R / AM15DQ						Encoder system: Incremental encoders IC2048S/R / IC22DQ Absolute encoders AM2048S/R / AM22DQ AM512S/R / AM20DQ AM32S/R / AM16DQ					
		Dimensions in mm (inches)											
		without brake			with brake			without brake			with brake		
Shaft height	Type	k LB	o ₁ –	o ₂ –	k LB	o ₁ –	o ₂ –	k LB	o ₁ –	o ₂ –	k LB	o ₁ –	o ₂ –
20	1FK7011	140 (5.51)	89 (3.50)	118 (4.65)	140 (5.51)	89 (3.50)	118 (4.65)	155 (6.10)	89 (3.50)	118 (4.65)	155 (6.10)	89 (3.50)	118 (4.65)
	1FK7015	165 (6.50)	114 (4.59)	143 (5.63)	165 (6.50)	114 (4.49)	143 (5.63)	180 (7.09)	114 (4.49)	143 (5.63)	180 (7.09)	114 (4.49)	143 (5.63)
28	1FK7022	153 (6.02)	95 (3.74)	128 (5.04)	175 (6.89)	95 (3.74)	150 (5.91)	178 (7.01)	95 (3.74)	128 (5.04)	200 (7.87)	95 (3.74)	150 (5.91)

1FK701
1FK702Shaft design
with feather key

Dimensional drawings

SIMOTICS S synchronous motors for SINAMICS S120

1FK7 – Natural cooling

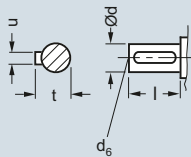
Dimensional drawings

For motor DQI encoder with DRIVE-CLiQ interface (without resolver)/
Encoder system without DRIVE-CLiQ interface (without resolver)
Dimensions in mm (inches)

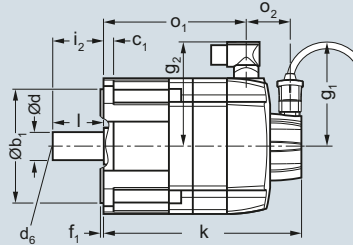
Shaft height	Type	DIN IEC	a ₁ P	b ₁ N	c ₁ LA	e ₁ M	f AB	f ₁ T	i ₂ –	s ₂ S	Shaft extension DE				
											d D	d ₆ –	l E	t GA	u F
1FK7 Compact/High Dynamic, without/with brake – Dimensions dependent on shaft height															
36	1FK703		90 (3.54)	60 (2.36)	8 (0.31)	75 (2.95)	72 (2.83)	3 (0.12)	30 (1.18)	6.5 (0.26)	14 (0.55)	M5	30 (1.18)	16 (0.63)	5 (0.20)
1FK7 Compact/High Dynamic/High Inertia, without/with brake – Dimensions dependent on shaft height															
48	1FK704		120 (4.72)	80 (3.15)	10 (0.39)	100 (3.94)	96 (3.78)	3 (0.12)	40 (1.57)	6.5 (0.26)	19 (0.75)	M6	40 (1.57)	21.5 (0.85)	6 (0.24)
63	1FK706		155 (6.10)	110 (4.33)	10 (0.39)	130 (5.12)	126 (4.96)	3.5 (0.14)	50 (1.97)	9 (0.35)	24 (0.94)	M8	50 (1.97)	27 (1.06)	8 (0.31)
80	1FK708		194 (7.64)	130 (5.12)	11.5 (0.45)	165 (6.50)	155 (6.10)	3.5 (0.14)	58 (2.28)	11 (0.43)	32 (1.26)	M12	58 (2.28)	35 (1.38)	10 (0.39)
1FK7 Compact/High Inertia, without/with brake – Dimensions dependent on shaft height															
100	1FK710		245 (9.65)	180 (7.09)	13 (0.51)	215 (8.46)	192 (7.56)	4 (0.16)	80 (3.15)	14 (0.55)	38 (1.50)	M12	80 (3.15)	41 (1.61)	10 (0.39)

1FK703
1FK704
1FK706
1FK708
1FK710

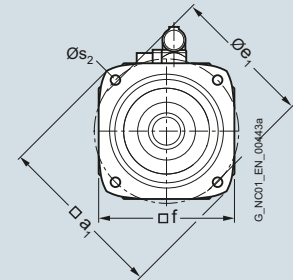
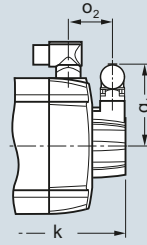
Shaft design with feather key



Version with DRIVE-CLiQ interface



Version without DRIVE-CLiQ interface



Shaft height	Type	DQI encoder with DRIVE-CLiQ interface (without resolver)								Encoder system without DRIVE-CLiQ interface (without resolver)							
		without brake				with brake				without brake				with brake			
g ₁	g ₂	o ₂	k LB	o ₁	k LB	o ₁	g ₁	g ₂	o ₂	k LB	o ₁	k LB	o ₁				
1FK7 High Inertia – Dimensions dependent on overall length																	
48	1FK7042-3B	104.5 (4.11)	90 (3.54)	50 (1.97)	187 (7.36)	125 (4.92)	219 (8.62)	157 (6.18)	93 (3.66)	90 (3.54)	52 (2.05)	192 (7.56)	125 (4.92)	224 (8.82)	157 (6.18)		
63	1FK7060-3B	104.5 (4.11)	104 (4.09)	50 (1.97)	182 (7.17)	120 (4.72)	217 (8.54)	155 (6.10)	93 (3.66)	104 (4.09)	52 (2.05)	187 (7.36)	120 (4.72)	222 (8.74)	155 (6.10)		
	1FK7062-3B				216 (8.50)	153 (6.02)	251 (9.88)	189 (7.44)				221 (8.70)	153 (6.02)	256 (10.08)	189 (7.44)		
80	1FK7081-3B	104.5 (4.11)	119 (4.69)	48 (1.89)	211 (8.31)	151 (5.94)	264 (10.39)	203 (7.99)	93 (3.66)	119 (4.69)	50 (1.97)	216 (8.50)	151 (5.94)	269 (10.59)	203 (7.99)		
	1FK7084-3B				270 (10.63)	209 (8.23)	322 (12.68)	262 (10.31)				275 (10.83)	209 (8.23)	327 (12.87)	262 (10.31)		
100	1FK7100-3B	104.5 (4.11)	137 (5.39)	53 (2.09)	183 (7.20)	118 (4.65)	220 (8.66)	170 (6.69)	93 (3.66)	137 (5.39)	55 (2.17)	188 (7.40)	118 (4.65)	225 (8.86)	170 (6.69)		
	1FK7101-3B		158 (6.22)		209 (8.23)	144 (5.67)	261 (10.28)	196 (7.72)		158 (6.22)		214 (8.43)	144 (5.67)	266 (10.47)	196 (7.72)		
	1FK7103-3B				235 (9.25)	170 (6.69)	287 (11.30)	222 (8.74)				240 (9.45)	170 (6.69)	292 (11.50)	222 (8.74)		
	1FK7105-3B				287 (11.30)	222 (8.74)	339 (13.35)	274 (10.79)				292 (11.50)	222 (8.74)	344 (13.54)	274 (10.79)		

Dimensional drawings

SIMOTICS S synchronous motors for SINAMICS S120

1FK7 – Natural cooling

Dimensional drawings

For motor		DQI encoder with DRIVE-CLiQ interface (without resolver)								Encoder system without DRIVE-CLiQ interface (without resolver)							
		Dimensions in mm (inches)															
Shaft height	Type	without brake				with brake				without brake				with brake			
		g ₁	g ₂	o ₂	k	o ₁	k	o ₁	g ₁	g ₂	o ₂	k	o ₁	k	o ₁		
		–	–	–	LB	–	LB	–	–	–	LB	–	LB	–			
1FK7 Compact – Dimensions dependent on overall length																	
36	1FK7032-2A	104.5 (4.11)	78 (3.07)	50 (1.97)	173 (6.81)	111 (4.37)	200 (7.87)	138 (5.43)	77 (3.03)	78 (3.07)	47 (1.85)	173 (6.81)	111 (4.37)	200 (7.87)	138 (5.43)		
	1FK7034-2A				198 (7.80)	136 (5.35)	225 (8.86)	263 (6.42)				198 (7.80)	136 (5.35)	225 (8.86)	263 (6.42)		
48	1FK7040-2A	104.5 (4.11)	90 (4.09)	50 (1.97)	147 (6.61)	85 (4.17)	179 (7.99)	117 (5.55)	93 (3.66)	90 (4.09)	52 (2.05)	152 (6.81)	85 (4.17)	184 (8.19)	117 (5.55)		
	1FK7042-2A				174 (6.85)	112 (4.41)	206 (8.11)	144 (5.67)				179 (7.05)	112 (4.41)	211 (8.31)	144 (5.57)		
63	1FK7060-2A	104.5 (4.11)	104 (4.09)	50 (1.97)	168 (6.61)	106 (4.17)	203 (7.99)	141 (5.55)	93 (3.66)	104 (4.09)	52 (2.05)	173 (6.81)	106 (4.17)	208 (8.19)	141 (5.55)		
	1FK7062-2A				190 (7.48)	128 (5.04)	226 (8.90)	163 (6.42)				195 (7.68)	128 (5.04)	231 (9.09)	163 (6.42)		
	1FK7063-2A				213 (8.39)	151 (5.94)	248 (9.76)	186 (7.32)				218 (8.58)	151 (5.94)	253 (9.96)	186 (7.32)		
80	1FK7080-2A	104.5 (4.11)	119 (4.69)	48 (1.89)	171 (6.73)	111 (4.37)	223 (8.78)	163 (6.42)	93 (3.66)	119 (4.69)	50 (1.97)	176 (6.93)	111 (4.37)	228 (8.98)	163 (6.42)		
	1FK7081-2A				190 (7.48)	130 (5.12)	242 (9.53)	182 (7.17)				196 (7.68)	130 (5.12)	247 (9.72)	182 (7.17)		
	1FK7083-2A				209 (8.23)	149 (5.87)	261 (10.28)	201 (7.91)				214 (8.43)	149 (5.87)	266 (10.47)	201 (7.91)		
	1FK7084-2A				229 (9.02)	168 (6.61)	281 (11.06)	221 (8.70)				234 (9.21)	168 (6.61)	286 (11.26)	221 (8.70)		
100	1FK7100-2A	104.5 (4.11)	137 (5.39)	53 (2.09)	183 (7.20)	118 (4.65)	220 (8.66)	170 (6.69)	93 (3.66)	137 (5.39)	55 (2.17)	188 (7.40)	118 (4.65)	225 (8.86)	170 (6.69)		
	1FK7101-2A		158 (6.22)		209 (8.23)	144 (5.67)	261 (10.28)	196 (7.72)		158 (6.22)		214 (8.43)	144 (5.67)	266 (10.47)	196 (7.72)		
	1FK7103-2A				235 (9.25)	170 (6.69)	287 (11.30)	222 (8.74)				240 (9.45)	170 (6.69)	292 (11.50)	222 (8.74)		
	1FK7105-2A				287 (11.30)	222 (8.74)	339 (13.35)	274 (10.79)				292 (11.50)	222 (8.74)	344 (13.54)	274 (10.79)		
1FK7 High Dynamic – Dimensions dependent on overall length																	
36	1FK7033-4C	104.5 (4.11)	78 (3.07)	50 (1.97)	183 (7.20)	121 (4.76)	210 (8.27)	148 (5.83)	77 (3.03)	78 (3.07)	47 (1.85)	183 (7.20)	121 (4.76)	210 (8.27)	148 (5.83)		
48	1FK7043-4C	104.5 (4.11)	90 (3.54)	56 (2.20)	200 (7.87)	132 (5.20)	232 (9.13)	164 (6.46)	93 (3.66)	90 (3.54)	58 (2.28)	205 (8.07)	132 (5.20)	237 (9.33)	164 (6.46)		
	1FK7044-4C				225 (8.86)	157 (6.18)	257 (10.12)	189 (7.44)				230 (9.06)	157 (6.18)	262 (10.31)	189 (7.44)		
63	1FK7061-4C	104.5 (4.11)	104 (4.09)	50 (1.97)	203 (7.99)	141 (5.55)	238 (9.37)	176 (6.93)	93 (3.66)	104 (4.09)	52 (2.05)	208 (8.19)	141 (5.55)	243 (9.57)	176 (6.93)		
	1FK7064-4C				267 (10.51)	205 (8.07)	302 (11.89)	240 (9.45)				272 (10.71)	205 (8.07)	307 (12.09)	240 (9.45)		
80	1FK708.-4CC	104.5 (4.11)	119 (4.69)	48 (1.89)	257 (10.12)	197 (7.76)	309 (12.17)	249 (9.80)	93 (3.66)	119 (4.69)	50 (1.97)	262 (10.31)	197 (7.76)	314 (12.36)	249 (9.80)		
	1FK708.-4CF		139 (5.47)							139 (5.47)							

Dimensional drawings

SIMOTICS S synchronous motors for SINAMICS S120

1FK7 – Natural cooling

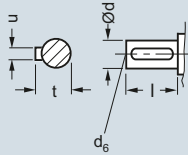
Dimensional drawings

For motor Resolver with/without DRIVE-CLiQ interface
Dimensions in mm (inches)

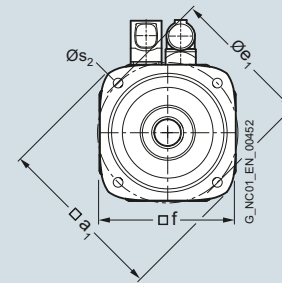
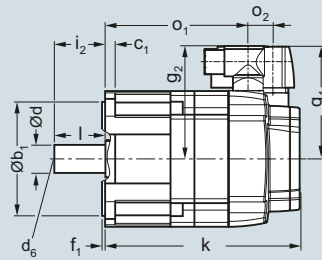
Shaft height	Type	DIN IEC	a ₁ P	b ₁ N	c ₁ LA	e ₁ M	f AB	f ₁ T	i ₂ –	s ₂ S	Shaft extension DE				
											d D	d ₆ –	l E	t GA	u F
1FK7 Compact/High Dynamic, with/without brake – Dimensions dependent on shaft height															
36	1FK703	90 (3.54)	60 (2.36)	8 (0.31)	75 (2.95)	72 (2.83)	3 (0.12)	30 (1.18)	6.5 (0.26)	14 (0.55)	M5	30 (1.18)	16 (0.63)	5 (0.20)	
48	1FK704	120 (4.72)	80 (3.15)	10 (0.39)	100 (3.94)	96 (3.78)	3 (0.12)	40 (1.57)	6.5 (0.26)	19 (0.75)	M6	40 (1.57)	21.5 (0.85)	6 (0.24)	
63	1FK706	155 (6.10)	110 (4.33)	10 (0.39)	130 (5.12)	126 (4.96)	3.5 (0.14)	50 (1.97)	9 (0.35)	24 (0.94)	M8	50 (1.97)	27 (1.06)	8 (0.31)	
80	1FK708	194 (7.64)	130 (5.12)	11.5 (0.45)	165 (6.50)	155 (6.10)	3.5 (0.14)	58 (2.28)	11 (0.43)	32 (1.26)	M12	58 (2.28)	35 (1.38)	10 (0.39)	
1FK7 Compact, without/with brake – Dimensions dependent on shaft height															
100	1FK710	245 (9.65)	180 (7.09)	13 (0.51)	215 (8.46)	192 (7.56)	4 (0.16)	80 (3.15)	14 (0.55)	38 (1.50)	M12	80 (3.15)	41 (1.61)	10 (0.39)	

1FK703
1FK704
1FK706
1FK708
1FK710

Shaft design
with feather key



Version
with resolver



Dimensional drawings

For motor		Resolver with/without DRIVE-CLiQ interface						
		Dimensions in mm (inches)						
Shaft height	Type	g ₁	g ₂	o ₂	without brake		with brake	
					k LB	o ₁	k LB	o ₁
1FK7 Compact – Dimensions dependent on overall length								
36	1FK7032-2A	80 (3.15)	80 (3.15)	15 (0.59)	153 (6.02)	117 (4.61)	180 (7.09)	144 (5.67)
	1FK7034-2A				178 (7.01)	142 (5.59)	205 (8.07)	169 (6.65)
48	1FK7040-2A	90 (3.54)	90 (3.54)	23 (0.91)	132 (5.20)	85 (3.35)	164 (6.46)	117 (4.61)
	1FK7042-2A				160 (6.30)	112 (4.41)	192 (7.56)	144 (5.67)
63	1FK7060-2A	103 (4.06)	104 (4.09)	23 (0.91)	153 (6.02)	106 (4.17)	189 (7.44)	141 (5.55)
	1FK7062-2A				176 (6.93)	128 (5.04)	211 (8.31)	163 (6.42)
	1FK7063-2A				198 (7.80)	151 (5.94)	234 (9.21)	186 (7.32)
80	1FK7080-2A	118 (4.65)	119 (4.69)	21 (0.83)	157 (6.18)	111 (4.37)	209 (8.23)	163 (6.42)
	1FK7081-2A				176 (6.93)	130 (5.12)	228 (8.98)	182 (7.17)
	1FK7083-2A				195 (7.68)	149 (5.87)	247 (9.72)	201 (7.91)
	1FK7084-2A				214 (8.43)	168 (6.61)	266 (10.47)	221 (8.70)
100	1FK7100-2A	136 (5.35)	137 (5.39)	26 (1.02)	169 (6.65)	118 (4.65)	206 (8.11)	155 (6.10)
	1FK7101-2A		158 (6.22)		195 (7.68)	144 (5.67)	247 (9.72)	196 (7.72)
	1FK7103-2A				221 (8.70)	170 (6.69)	273 (10.75)	222 (8.74)
	1FK7105-2A				273 (10.75)	222 (8.74)	325 (12.80)	274 (10.79)
1FK7 High Dynamic – Dimensions dependent on overall length								
36	1FK7033-4C	81 (3.19)	80 (3.15)	15 (0.59)	163 (6.42)	127 (5.00)	190 (7.48)	154 (6.06)
48	1FK7043-4C	90 (3.54)	90 (3.54)	23 (0.9)	186 (7.32)	138 (5.43)	218 (8.58)	170 (6.69)
	1FK7044-4C				211 (8.31)	163 (6.42)	243 (9.57)	195 (7.68)
63	1FK7061-4C	103 (4.06)	104 (4.09)	23 (0.9)	188 (7.40)	141 (5.55)	224 (8.82)	176 (6.93)
	1FK7064-4C				252 (9.92)	205 (8.07)	288 (11.34)	240 (9.45)
80	1FK708.-4CC	118 (4.65)	119 (4.69)	21 (0.83)	243 (9.57)	197 (7.76)	295 (11.61)	250 (9.84)
	1FK708.-4CF		139 (5.47)					