





# FC SERIES

The FC series are our smallest three-phase brushless slotless servo motors. They are offered in 3 frame sizes with different feedback options. Great for constrained space applications requiring low voltage supply and torque at high speeds.



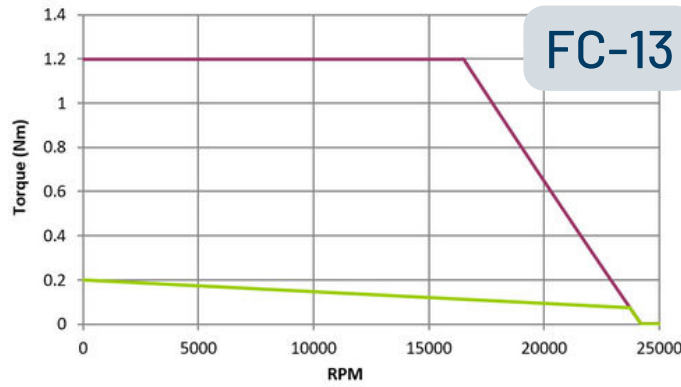
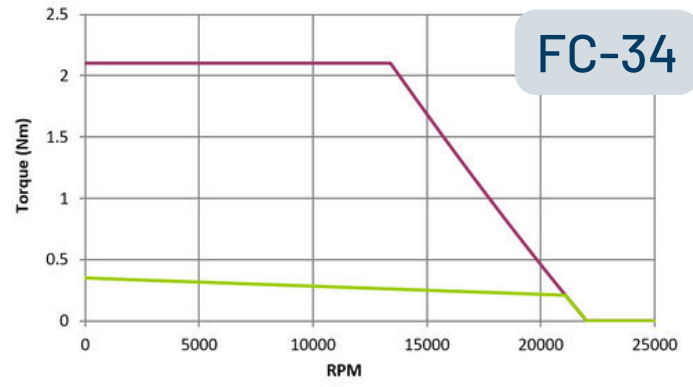
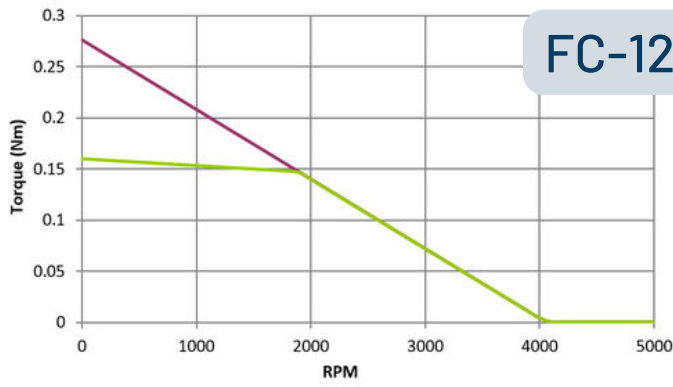
-  Optimized Windings Available
-  Less Losses - High Efficiency
-  Compact Form Factor
-  Smooth Zero Cogging Motion

## Technical Winding Data:

CHARACTERISTICS (1)					
DESCRIPTION	SYMBOL	UNIT	FC-12	FC-13	FC-34
BUS VOLTAGE	V	VDC	48	48	48
MAX SPEED AT 48 VDC (2) +/-10%	Nn	RPM	4000	20000	20000
STALL TORQUE (3) +/-10%	Ms	Nm	0.16	0.20	0.35
STALL CURRENT	Is	Arms	1.2	9.09	14.0
PEAK TORQUE	Mj	Nm	0.96	1.2	2.1
TORQUE - WEIGHT RATIO	Tw	Nm/Kg	0.58	0.77	0.63
EMF CONSTANT +/-10%	Ke	Vs/rad	0.08	0.013	0.014
TORQUE CONSTANT +/-10%	Kt	Nm/Arms	0.13	0.022	0.025
WINDING RESISTANCE +/-10%	R	Ohm	14.2	0.17	0.126
WINDING INDUCTANCE +/-10%	L	mH	1.9	0.03	0.037
ROTOR INERTIA	J	Kgm <sup>2</sup> X 10 <sup>-3</sup>	0.001	0.003	0.01
MECHANICAL TIME CONSTANT	Tm	ms	1.48	1.78	3.6
ELECTRICAL TIME CONSTANT	Te	ms	0.13	0.18	0.29
THERMAL RESISTANCE	Rth	C/W	2.81	4.08	2.32
MASS	M	Kg	0.275	0.26	0.56
RADIAL LOAD (4)	Fr	N	144	60	110
AXIAL LOAD	Fa	N	54	10	34
POLE PAIRS	p	-	2	2	2
INSUALTION	-	-	CLASS-F	CLASS-F	CLASS-F
PROTECTION	-	-	IP-54	IP-54	IP-54
HEATSINK	-	mm	150X151X10	300X300X10	300X300X10

(1) All characteristics measured at 25C ambient temperature | (2) With load | (3) With aluminum heatsink plate specified | (4) at mid-length of output shaft

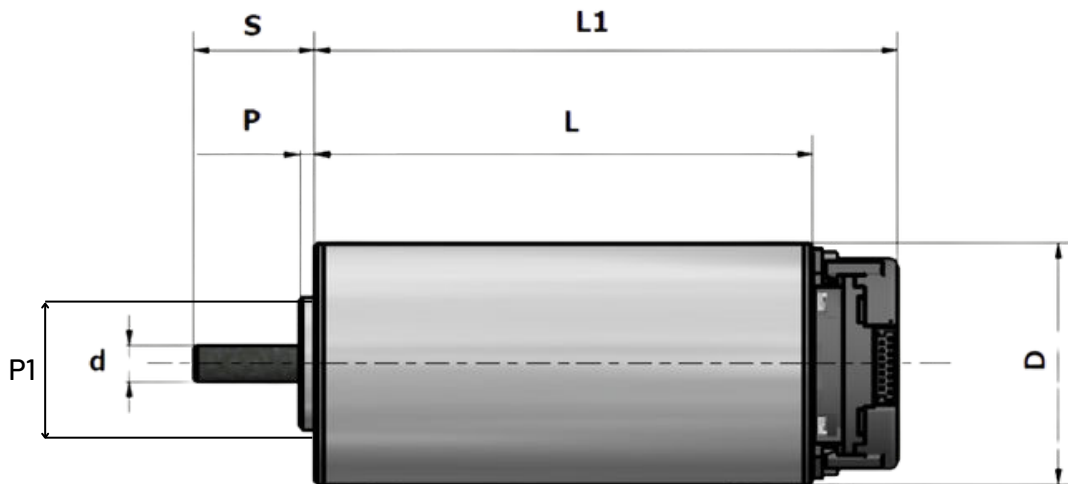
# Speed Vs. Torque Curves:



— Continuous Torque Line  
— Peak Torque Line

\*Curves are theoretical and created at 25 C ambient temperature

# Mechanical Data:



DIMENSIONS					
DESCRIPTION	SYMBOL	UNIT	FC-12	FC-13	FC-34
FRAME SIZE	D	mm	25	32	40
SHAFT DIAMETER	d	mm h6	5	6	6
SHAFT LENGTH	S	mm	16	15	20
PILOT DIAMETER	P1	mm	10 h7	10 h6	22 h8
PILOT LENGTH	P	mm	1.5	1.5	2.5
PCD MOUNTING	-	mm	17	17	32
MOUNTING HOLES	-	mm	M3	M3	M3
MOTOR LENGTH WITH HALLS	L	mm	100	70	82.5
MOTOR LENGTH WITH ENCODER	L1	mm	115	87	97