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Kinco® Automation

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K1C57-2310

Kinco

Motion control servo system

Kinco frameless torque motor - FMC Series

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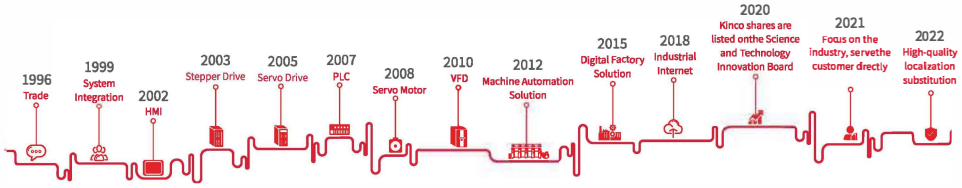


Shanghai Kinco Automation Co., Ltd. focuses on R&D, production, sales and technical services of automation standard products and intelligent hardware products, and is a leading supplier of machine automation and intelligent solutions for factories in China.

Since 1996, Kinco has been providing total automation solutions for global industrial automation equipment manufacturers by relying on standard automation products such as HMI, servo and stepping systems, PLC, low-voltage inverters, etc. to penetrate the industry, making China's automation solutions prevail all over the world. The company's HMI products have led the wave of HMI popularization in China, and its market share has maintained a leading position among local brand manufacturers for many years.

With the mission of "Making China's manufacturing become the top manufacturing in the world", Kinco company continues to invest a large amount of resources in the research and development of automated technology platforms and sets up R&D facilities in Shanghai, Shenzhen, and Changzhou. Kinco company has an automated technology platform that covers all aspects of control, drive, human-machine interaction, communication, and electromechanical integration design. In the field of machine automation, Kinco focuses on the industry and has developed special solutions for logistics automation, service robots, medical instruments, professional drones, 3C machine tools, ozone, and other industries.

In the field of smart factory, Kinco provides customers with the most easy-to-implement smart factory solutions for manufacturing companies at the field implementation level, PLC control, and communication level, Scada and system integration level, and MES management level through its comprehensive automation technology platform and software system developed for smart factory.

With the vision of "creating a better life intelligently" and adhering to the values of "maintain conscience in growth and hold ingenuity in innovation", Kinco is a platform to help employees maximize their creative potential and a partner to help customers succeed in innovative management. We develop products and operate businesses with innovative thinking and practical spirit, adhere to ideals, and expect human creativity to make the world more wonderful.

FMC Frameless Torque Motor

Frameless torque motors, unlike traditional servo motors, consist only of stator and rotor components. Compared to framed motors, frameless motors offer flexible configuration and easy installation. Considering the increasing trend of highly integrated drive systems, frameless motors better meet the expectations of engineers. Engineers no longer need to consider motor interfaces in system design, allowing for maximum reduction of space occupied by the power output unit in the drive system, leading to higher system integration.

Collaborative Robots

Advantages and Features of FMC Frameless Torque Motors

Independent research and development, with better performance compared to second-generation products:

- Slimmer body thanks to new lightweight design, providing faster and smoother motion as well as smaller size and lower temperature rise under the same torque performance.
- Higher torque density achieved through optimization of electromagnetic solutions, with smaller cogging torque thanks to increased pole pairs.
- Easy replacement of mainstream foreign products thanks to compatable product dimensions, as well as a wide compatibility to common harmonic reducers in the market.
- Various frame sizes, larger hollow inner diameter to meet diverse threading requirements, covering loads of 3-25Kg.
- Customizable options: optional hall sensors, temperature sensors, etc., with noticeable cost advantages.
- Digital factory for continuous and stable production, with multiple global / local distribution and offices providing support and services.

Model Description

FMC Frameless Torque Motor Numbering System

FMC 085 15 - 0200 - 30 28 H - 5 D S XX

Series name	
FM	Frameless Motor
C	C generation product
E	E generation product
H	H generation product
S	S generation product

Stator outer diameter
085=85mm
.....

Stator lamination stack height
15=15mm
.....

Rated power	
0005	5x10(w)
0010	10x10(w)
0020	20x10(w)
0030	30x10(w)
.....	

Rated speed	
10	10x100(rpm)
15	15x100(rpm)
20	20x100(rpm)
30	30x100(rpm)
.....	

Wire length, terminals, temperature sensor	
00	Wire length 300mm, no terminals, no sensor
.....	

Design version (including magnetic steel grade, certification)	
S	S version
K	K version

Supply voltage	
D	DC48V
L	AC220V
H	AC380V

No. of pole pairs	
5	5 pairs
8	8 pairs

Sensor options (with or without Hall)	
H=Hall	with Hall
N=	without Hall

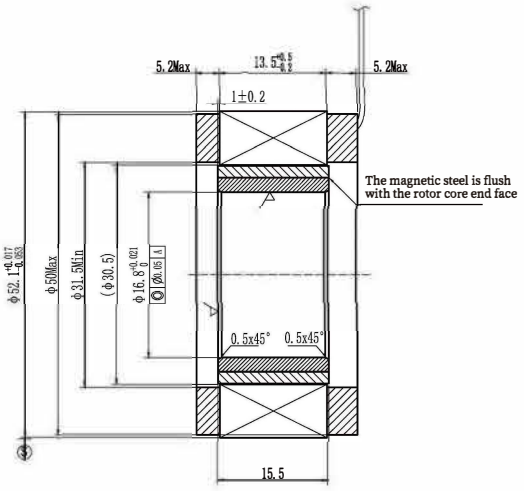
Rotor inner diameter
28=28mm
.....

Note: Design version S stands for the 3rd generation electromagnetic design with high power density.
The design version K is the 2nd generation electromagnetic design.

FMC05213 - Technical Specifications

Servo Motor Model		FMC05213-0015-3716N-5DK00
Rated Power Pn(W)		159
Rated Torque Tn(N.m)		0.4
Rated Speed Nn(rpm)		3790
Rated Current In(A)		4.4
Maximum Torque Tm(N.m)		1.2
Maximum Current Im(A)		13.6
Standstill Torque T_s(N.m)		0.44
Standstillcurrent I_s(A)		4.84
Drive DC LinkVoltage UDC(V)		48
Resistance line-line R_L (Ω)		0.904
Inductance line-line L_L(mH)		0.94
Electrical time constant τe(ms)		1.04
Mechanical time constant τm(ms)		1.127
Voltage constant Ke(V/krpm)		6.13
Torque constant Kt(Nm/A)		0.1014
Rotor moment of inertia Jm(Kg.cm²)		0.074
No. of poles		10
Insulation class		F
Weight(Kg)		0.22
Position Feedback Device		None
Temperature Sensor		None
Cooling method		Full coating, self-cooling
Evironmental conditions	Temperature	-20~40℃(non-freezing)
	Humidity	Below90%RH (No condensation)
	Environment	Freefrom corrosive or flammable gases, oil mist, dust
	Installation altitude	<1000m amsl: No derating; 1000m to4000m asml: 1.5% derating per 100m

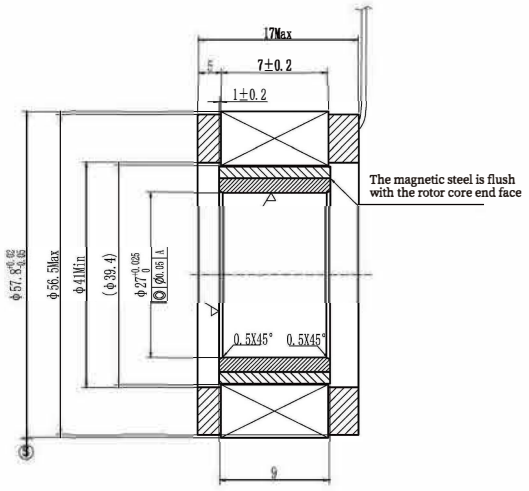
FMC05213 - Outline Drawing (unit: mm)



FMC05707 - Technical Specifications

Servo Motor Model		FMC05707-0010-3027N-8DS00
Rated Power Pn(W)		100
Rated Torque Tn(N.m)		0.32
Rated Speed Nn(rpm)		3000
Rated Current In(A)		2.55
Maximum Torque Tm(N.m)		0.96
Maximum Current Im(A)		11
Standstill Torque T_s(N.m)		0.36
Standstill current I_s(A)		3.3
Drive DC LinkVoltage UDC(V)		48
Resistance line-line R_L (Ω)		1.93
Inductance line-line L_L(mH)		1.79
Electrical time constant τe(ms)		0.93
Mechanical time constant τm(ms)		1.83
Voltage constant Ke(V/krpm)		8
Torque constant Kt(Nm/A)		0.132
Rotor moment of inertia Jm(Kg.cm²)		0.096
No. of poles		16
Insulation class		F
Weight(Kg)		0.11
Position Feedback Device		None
Temperature Sensor		None
Cooling method		Full coating, self-cooling
Evironmental conditions	Temperature	-20~40℃(non-freezing)
	Humidity	Below90%RH (No condensation)
	Environment	Freefrom corrosive or flammable gases, oil mist, dust
	Installation altitude	<1000m amsl: No derating; 1000m to 4000m asml: 1.5% derating per 100m

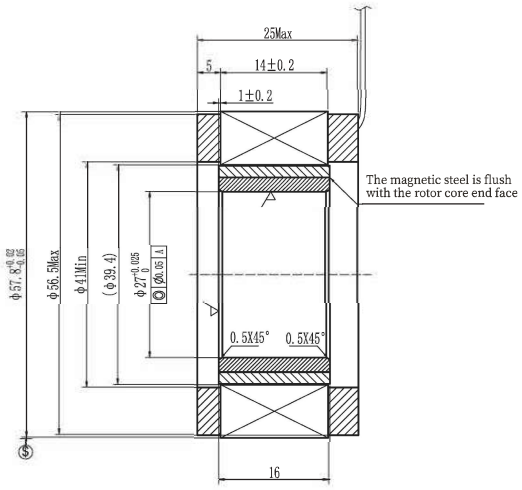
FMC05707 - Outline Drawing (unit: mm)



FMC05714 - Technical Specifications

Servo Motor Model		FMC05714-0020-3027N-8DS00
Rated Power Pn(W)		200
Rated Torque Tn(N.m)		0.64
Rated Speed Nn(rpm)		3000
Rated Current In(A)		5.1
Maximum Torque Tm(N.m)		1.92
Maximum Current Im(A)		15.6
Standstill Torque T_s(N.m)		0.72
Standstill current I_s(A)		5.74
Drive DC Link Voltage UDC(V)		48
Resistance line-line R_L (Ω)		0.72
Inductance line-line L_L(mH)		0.85
Electrical time constant τe(ms)		1.18
Mechanical time constant τm(ms)		1.47
Voltage constant Ke(V/krpm)		8
Torque constant Kt(Nm/A)		0.132
Rotor moment of inertia Jm(Kg.cm²)		0.206
No. of poles		16
Insulation class		F
Weight (Kg)		0.21
Position Feedback Device		None
Temperature Sensor		None
Cooling method		Full coating, self-cooling
Evironmental conditions	Temperature	-20~40℃(non-freezing)
	Humidity	Below 90%RH (No condensation)
	Environment	Free from corrosive or flammable gases, oil mist, dust
	Installation altitude	<1000m amsl: No derating; 1000m to 4000m asml: 1.5% derating per 100m

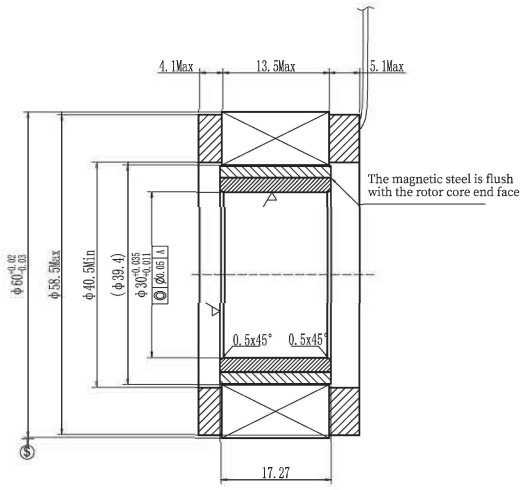
FMC05714 - Outline Drawing (unit: mm)



FMC06013 - Technical Specifications

Servo Motor Model		FMC06013-0014-3130N-8DK00
Rated Power Pn(W)		146
Rated Torque Tn(N.m)		0.45
Rated Speed Nn(rpm)		3100
Rated Current In(A)		4.2
Maximum Torque Tm(N.m)		1.35
Maximum Current Im(A)		13.4
Standstill Torque T_s(N.m)		0.55
Standstill current I_s(A)		4.62
Drive DC Link Voltage UDC(V)		48
Resistance line-line R_L (Ω)		0.51
Inductance line-line L_L(mH)		0.497
Electrical time constant τe(ms)		0.957
Mechanical time constant τm(ms)		0.9
Voltage constant Ke(V/krpm)		7.1
Torque constant Kt(Nm/A)		0.117
Rotor moment of inertia Jm(Kg.cm²)		0.141
No. of poles		16
Insulation class		F
Weight (Kg)		0.24
Position Feedback Device		None
Temperature Sensor		None
Cooling method		Full coating, self-cooling
Evironmental conditions	Temperature	-20~40℃(non-freezing)
	Humidity	Below 90%RH (No condensation)
	Environment	Free from corrosive or flammable gases, oil mist, dust
	Installation altitude	<1000m amsl: No derating; 1000m to 4000m asml: 1.5% derating per 100m

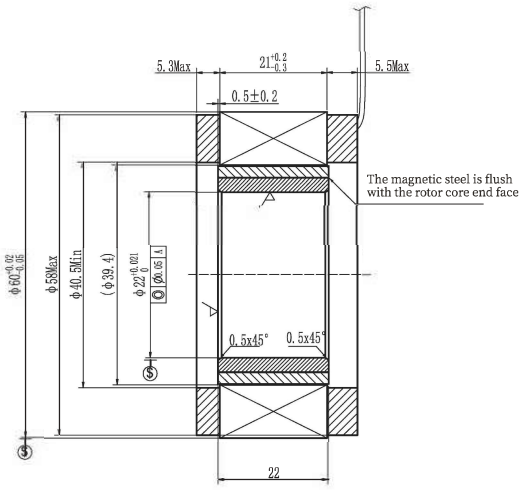
FMC06013 - Outline Drawing (unit: mm)



FMC06021 - Technical Specifications

Servo Motor Model		FMC06021-0025-3722N-8DK00
Rated Power Pn(W)		258
Rated Torque Tn(N.m)		0.65
Rated Speed Nn(rpm)		3790
Rated Current In(A)		7.2
Maximum Torque Tm(N.m)		1.57
Maximum Current Im(A)		17.4
Standstill Torque T_s(N.m)		0.81
Standstill current I_s(A)		9
Drive DC Link Voltage UDC(V)		48
Resistance line-line R_L (Ω)		0.241
Inductance line-line L_L(mH)		0.275
Electrical time constant τe(ms)		1.14
Mechanical time constant τm(ms)		1.36
Voltage constant Ke(V/krpm)		6.05
Torque constant Kt(Nm/A)		1
Rotor moment of inertia Jm(Kg.cm²)		0.328
No. of poles		16
Insulation class		F
Weight (Kg)		0.35
Position Feedback Device		None
Temperature Sensor		None
Cooling method		Full coating, self-cooling
Evironmental conditions	Temperature	-20~40℃(non-freezing)
	Humidity	Below 90%RH (No condensation)
	Environment	Free from corrosive or flammable gases, oil mist, dust
	Installation altitude	<1000m amsl: No derating; 1000m to 4000m asml: 1.5% derating per 100m

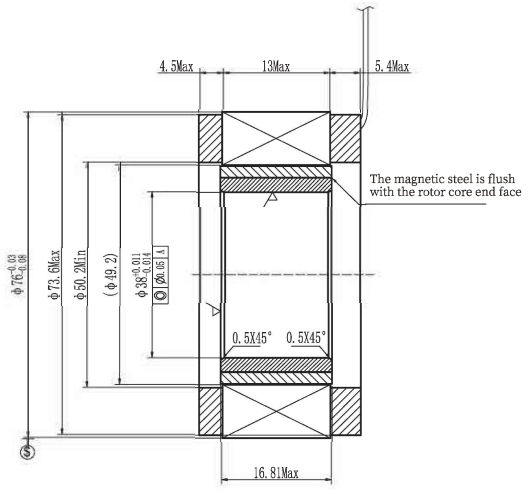
FMC06021 - Outline Drawing (unit: mm)



FMC07612 - Technical Specifications

Servo Motor Model		FMC07612-0029-3338N-8DK00
Rated Power Pn(W)		293
Rated Torque Tn(N.m)		0.85
Rated Speed Nn(rpm)		3300
Rated Current In(A)		6.7
Maximum Torque Tm(N.m)		2.55
Maximum Current Im(A)		21.44
Standstill Torque T_s(N.m)		1.1
Standstill current I_s(A)		7.37
Drive DC Link Voltage UDC(V)		48
Resistance line-line R_L (Ω)		0.31
Inductance line-line L_L(mH)		0.86
Electrical time constant τe(ms)		2.81
Mechanical time constant τm(ms)		2.4
Voltage constant Ke(V/krpm)		8.3
Torque constant Kt(Nm/A)		0.14
Rotor moment of inertia Jm(Kg.cm²)		0.847
No. of poles		16
Insulation class		F
Weight (Kg)		0.35
Position Feedback Device		None
Temperature Sensor		None
Cooling method		Full coating, self-cooling
Evironmental conditions	Temperature	-20~40℃(non-freezing)
	Humidity	Below 90%RH (No condensation)
	Environment	Free from corrosive or flammable gases, oil mist, dust
	Installation altitude	<1000m amsl: No derating; 1000m to 4000m asml: 1.5% derating per 100m

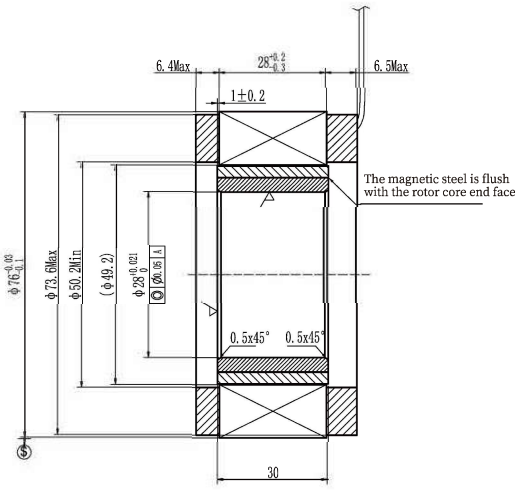
FMC07612 - Outline Drawing (unit: mm)



FMC07628 - Technical Specifications

Servo Motor Model		FMC07628-0063-3728N-8DK00
Rated Power Pn(W)		635
Rated Torque Tn(N.m)		1.6
Rated Speed Nn(rpm)		3790
Rated Current In(A)		15.2
Maximum Torque Tm(N.m)		5.27
Maximum Current Im(A)		52
Standstill Torque T_s(N.m)		1.76
Standstill current I_s(A)		16.7
Drive DC Link Voltage UDC(V)		48
Resistance line-line R_L (Ω)		0.083
Inductance line-line L_L(mH)		0.237
Electrical time constant τe(ms)		2.85
Mechanical time constant τm(ms)		1.3
Voltage constant Ke(V/krpm)		6.9
Torque constant Kt(Nm/A)		0.114
Rotor moment of inertia Jm(Kg.cm²)		1.2
No. of poles		16
Insulation class		F
Weight (Kg)		0.98
Position Feedback Device		None
Temperature Sensor		None
Cooling method		Full coating, self-cooling
Evironmental conditions	Temperature	-20~40℃(non-freezing)
	Humidity	Below 90%RH (No condensation)
	Environment	Free from corrosive or flammable gases, oil mist, dust
	Installation altitude	<1000m amsl: No derating; 1000m to 4000m asml: 1.5% derating per 100m

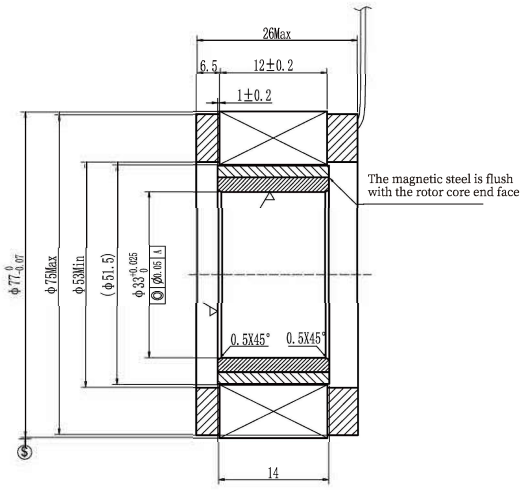
FMC07628 - Outline Drawing (unit: mm)



FMC07712 - Technical Specifications

Servo Motor Model		FMC07712-0031-3033N-8DS00
Rated Power Pn(W)		314
Rated Torque Tn(N.m)		1
Rated Speed Nn(rpm)		3000
Rated Current In(A)		7.65
Maximum Torque Tm(N.m)		3
Maximum Current Im(A)		24
Standstill Torque T_s(N.m)		1.1
Standstill current I_s(A)		8.42
Drive DC Link Voltage UDC(V)		48
Resistance line-line R_L (Ω)		0.31
Inductance line-line L_L(mH)		0.8
Electrical time constant τe(ms)		2.5
Mechanical time constant τm(ms)		1.45
Voltage constant Ke(V/krpm)		8.4
Torque constant Kt(Nm/A)		0.132
Rotor moment of inertia Jm(Kg.cm²)		0.522
No. of poles		16
Insulation class		F
Weight (Kg)		0.32
Position Feedback Device		None
Temperature Sensor		None
Cooling method		Full coating, self-cooling
Evironmental conditions	Temperature	-20~40℃(non-freezing)
	Humidity	Below 90%RH (No condensation)
	Environment	Free from corrosive or flammable gases, oil mist, dust
	Installation altitude	<1000m amsl: No derating; 1000m to 4000m asml: 1.5% derating per 100m

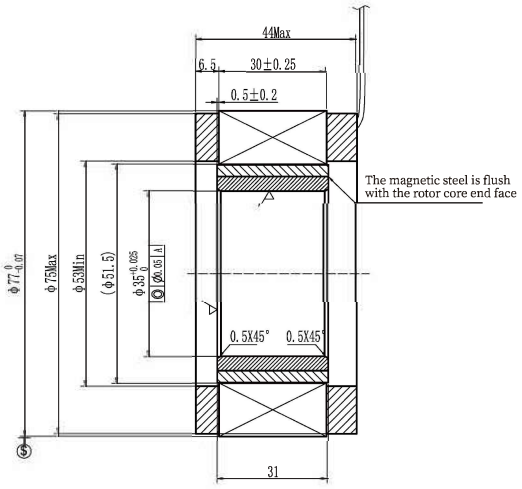
FMC07712 - Outline Drawing (unit: mm)



FMC07730 - Technical Specifications

Servo Motor Model		FMC07730-0075-3035N-8DS00
Rated Power Pn(W)		750
Rated Torque Tn(N.m)		2.39
Rated Speed Nn(rpm)		3000
Rated Current In(A)		18.6
Maximum Torque Tm(N.m)		7.17
Maximum Current Im(A)		61
Standstill Torque T_s(N.m)		2.63
Standstill current I_s(A)		20.5
Drive DC Link Voltage UDC(V)		48
Resistance line-line R_L (Ω)		0.097
Inductance line-line L_L(mH)		0.27
Electrical time constant τe(ms)		2.78
Mechanical time constant τm(ms)		1.25
Voltage constant Ke(V/krpm)		7.85
Torque constant Kt(Nm/A)		0.129
Rotor moment of inertia Jm(Kg.cm²)		1.25
No. of poles		16
Insulation class		F
Weight (Kg)		0.8
Position Feedback Device		None
Temperature Sensor		None
Cooling method		Full coating, self-cooling
Evironmental conditions	Temperature	-20~40℃(non-freezing)
	Humidity	Below 90%RH (No condensation)
	Environment	Free from corrosive or flammable gases, oil mist, dust
	Installation altitude	<1000m amsl: No derating; 1000m to 4000m asml: 1.5% derating per 100m

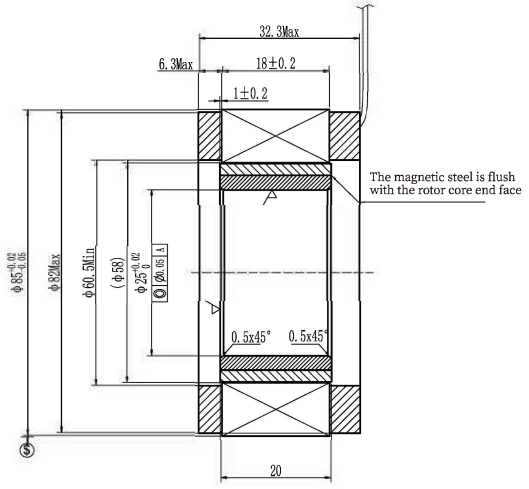
FMC07730 - Outline Drawing (unit: mm)



FMC08518 - Technical Specifications

Servo Motor Model		FMC08518-0056-3025N-8DS00
Rated Power Pn(W)		565
Rated Torque Tn(N.m)		1.8
Rated Speed Nn(rpm)		3000
Rated Current In(A)		19
Maximum Torque Tm(N.m)		5.4
Maximum Current Im(A)		57
Standstill Torque T_s(N.m)		2
Standstill current I_s(A)		21
Drive DC Link Voltage UDC(V)		48
Resistance line-line R_L (Ω)		0.058
Inductance line-line L_L(mH)		0.09
Electrical time constant τe(ms)		1.55
Mechanical time constant τm(ms)		1.38
Voltage constant Ke(V/krpm)		5.9
Torque constant Kt(Nm/A)		0.099
Rotor moment of inertia Jm(Kg.cm²)		1.33
No. of poles		16
Insulation class		F
Weight (Kg)		0.7
Position Feedback Device		None
Temperature Sensor		None
Cooling method		Full coating, self-cooling
Evironmental conditions	Temperature	-20~40℃(non-freezing)
	Humidity	Below 90%RH (No condensation)
	Environment	Free from corrosive or flammable gases, oil mist, dust
	Installation altitude	<1000m amsl: No derating; 1000m to 4000m asml: 1.5% derating per 100m

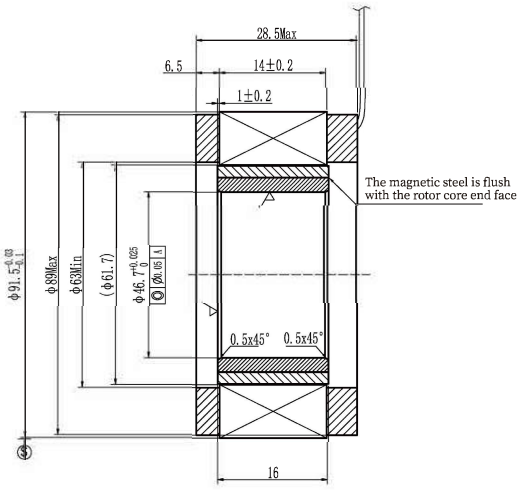
FMC08518 - Outline Drawing (unit: mm)



FMC09114 - Technical Specifications

Servo Motor Model		FMC09114-0063-3046N-8DS00
Rated Power Pn(W)		630
Rated Torque Tn(N.m)		2
Rated Speed Nn(rpm)		3000
Rated Current In(A)		16.2
Maximum Torque Tm(N.m)		5
Maximum Current Im(A)		43.5
Standstill Torque T_s(N.m)		2.2
Standstill current I_s(A)		17.8
Drive DC Link Voltage UDC(V)		48
Resistance line-line R_L (Ω)		0.12
Inductance line-line L_L(mH)		0.22
Electrical time constant τe(ms)		1.83
Mechanical time constant τm(ms)		1.39
Voltage constant Ke(V/krpm)		7.9
Torque constant Kt(Nm/A)		0.13
Rotor moment of inertia Jm(Kg.cm²)		1.14
No. of poles		16
Insulation class		F
Weight (Kg)		0.78
Position Feedback Device		None
Temperature Sensor		None
Cooling method		Full coating, self-cooling
Evironmental conditions	Temperature	-20~40°C(non-freezing)
	Humidity	Below 90%RH (No condensation)
	Environment	Free from corrosive or flammable gases, oil mist, dust
	Installation altitude	<1000m amsl: No derating; 1000m to 4000m asml: 1.5% derating per 100m

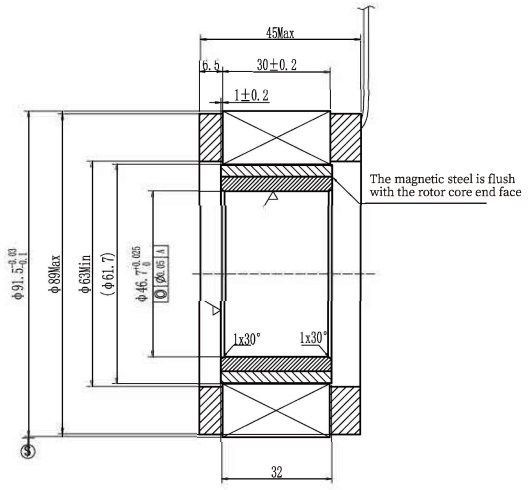
FMC09114 - Outline Drawing (unit: mm)



FMC09130 - Technical Specifications

Servo Motor Model		FMC09130-0125-3046N-8DS00
Rated Power Pn(W)		1257
Rated Torque Tn(N.m)		4
Rated Speed Nn(rpm)		3000
Rated Current In(A)		27
Maximum Torque Tm(N.m)		10
Maximum Current Im(A)		72
Standstill Torque T_s(N.m)		4.4
Standstill current I_s(A)		29.8
Drive DC Link Voltage UDC(V)		48
Resistance line-line R_L (Ω)		0.058
Inductance line-line L_L(mH)		0.164
Electrical time constant τe(ms)		2.83
Mechanical time constant τm(ms)		0.93
Voltage constant Ke(V/krpm)		9.3
Torque constant Kt(Nm/A)		0.154
Rotor moment of inertia Jm(Kg.cm²)		2.19
No. of poles		16
Insulation class		F
Weight (Kg)		1.03
Position Feedback Device		None
Temperature Sensor		None
Cooling method		Full coating, self-cooling
Evironmental conditions	Temperature	-20~40°C(non-freezing)
	Humidity	Below 90%RH (No condensation)
	Environment	Free from corrosive or flammable gases, oil mist, dust
	Installation altitude	<1000m amsl: No derating; 1000m to 4000m asml: 1.5% derating per 100m

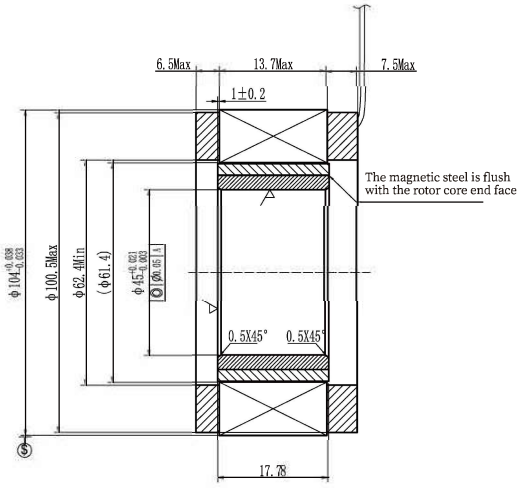
FMC09130 - Outline Drawing (unit: mm)



FMC10414 - Technical Specifications

Servo Motor Model		FMC10414-0038-2445N-8DK00
Rated Power Pn(W)		380
Rated Torque Tn(N.m)		1.5
Rated Speed Nn(rpm)		2420
Rated Current In(A)		10.3
Maximum Torque Tm(N.m)		4.3
Maximum Current Im(A)		30.9
Standstill Torque T_s(N.m)		2.2
Standstill current I_s(A)		15.1
Drive DC Link Voltage UDC(V)		48
Resistance line-line R_L (Ω)		0.117
Inductance line-line L_L(mH)		0.53
Electrical time constant τe(ms)		4.53
Mechanical time constant τm(ms)		1.6
Voltage constant Ke(V/krpm)		9.68
Torque constant Kt(Nm/A)		0.16
Rotor moment of inertia Jm(Kg.cm²)		2.018
No. of poles		16
Insulation class		F
Weight (Kg)		0.77
Position Feedback Device		None
Temperature Sensor		None
Cooling method		Full coating, self-cooling
Evironmental conditions	Temperature	-20~40℃(non-freezing)
	Humidity	Below 90%RH (No condensation)
	Environment	Free from corrosive or flammable gases, oil mist, dust
	Installation altitude	<1000m amsl: No derating; 1000m to 4000m asml: 1.5% derating per 100m

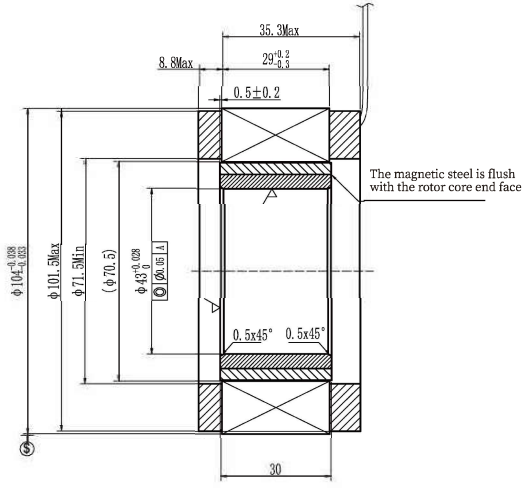
FMC10414 - Outline Drawing (unit: mm)



FMC10429 - Technical Specifications

Servo Motor Model		FMC10429-0100-2543N-8DS00
Rated Power Pn(W)		1050
Rated Torque Tn(N.m)		4
Rated Speed Nn(rpm)		2500
Rated Current In(A)		22.5
Maximum Torque Tm(N.m)		12
Maximum Current Im(A)		74.1
Standstill Torque T_s(N.m)		4.4
Standstill current I_s(A)		24.6
Drive DC Link Voltage UDC(V)		48
Resistance line-line R_L (Ω)		0.058
Inductance line-line L_L(mH)		0.19
Electrical time constant τe(ms)		3.28
Mechanical time constant τm(ms)		1.09
Voltage constant Ke(V/krpm)		11.87
Torque constant Kt(Nm/A)		0.196
Rotor moment of inertia Jm(Kg.cm²)		4.2
No. of poles		16
Insulation class		F
Weight (Kg)		1.51
Position Feedback Device		None
Temperature Sensor		None
Cooling method		Full coating, self-cooling
Evironmental conditions	Temperature	-20~40℃(non-freezing)
	Humidity	Below 90%RH (No condensation)
	Environment	Free from corrosive or flammable gases, oil mist, dust
	Installation altitude	<1000m amsl: No derating; 1000m to 4000m asml: 1.5% derating per 100m

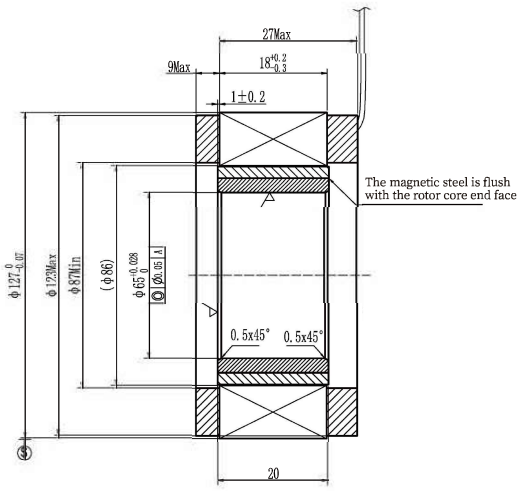
FMC10429 - Outline Drawing (unit: mm)



FMC12718 - Technical Specifications

Servo Motor Model		FMC12718-0090-2465N-8DS00
Rated Power Pn(W)		904
Rated Torque Tn(N.m)		3.6
Rated Speed Nn(rpm)		2400
Rated Current In(A)		24
Maximum Torque Tm(N.m)		10.8
Maximum Current Im(A)		72
Standstill Torque T_s(N.m)		4
Standstill current I_s(A)		26.4
Drive DC Link Voltage UDC(V)		48
Resistance line-line R_L (Ω)		0.049
Inductance line-line L_L(mH)		0.182
Electrical time constant τe(ms)		3.71
Mechanical time constant τm(ms)		1.46
Voltage constant Ke(V/krpm)		9.72
Torque constant Kt(Nm/A)		0.161
Rotor moment of inertia Jm(Kg.cm²)		4.46
No. of poles		16
Insulation class		F
Weight (Kg)		1.31
Position Feedback Device		None
Temperature Sensor		None
Cooling method		Full coating, self-cooling
Evironmental conditions	Temperature	-20~40°C(non-freezing)
	Humidity	Below 90%RH (No condensation)
	Environment	Free from corrosive or flammable gases, oil mist, dust
	Installation altitude	<1000m amsl: No derating; 1000m to 4000m asml: 1.5% derating per 100m

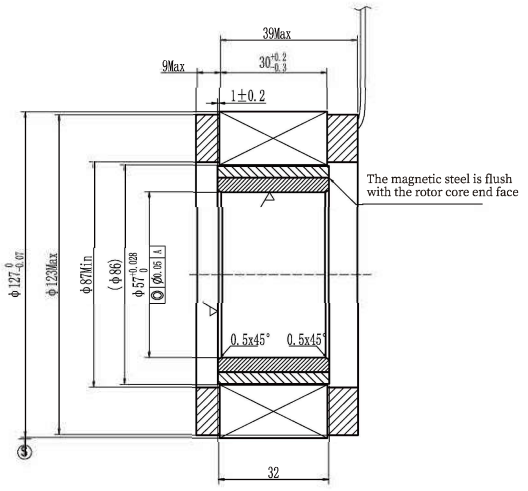
FMC12718 - Outline Drawing (unit: mm)



FMC12730 - Technical Specifications

Servo Motor Model		FMC12730-0160-2457N-8DS00
Rated Power Pn(W)		1600
Rated Torque Tn(N.m)		6.37
Rated Speed Nn(rpm)		2400
Rated Current In(A)		35.5
Maximum Torque Tm(N.m)		19.11
Maximum Current Im(A)		110
Standstill Torque T_s(N.m)		7
Standstill current I_s(A)		39
Drive DC Link Voltage UDC(V)		48
Resistance line-line R_L (Ω)		0.035
Inductance line-line L_L(mH)		0.145
Electrical time constant τe(ms)		4.14
Mechanical time constant τm(ms)		1.14
Voltage constant Ke(V/krpm)		11.4
Torque constant Kt(Nm/A)		0.2
Rotor moment of inertia Jm(Kg.cm²)		6.7
No. of poles		16
Insulation class		F
Weight (Kg)		2.18
Position Feedback Device		None
Temperature Sensor		None
Cooling method		Full coating, self-cooling
Evironmental conditions	Temperature	-20~40°C(non-freezing)
	Humidity	Below 90%RH (No condensation)
	Environment	Free from corrosive or flammable gases, oil mist, dust
	Installation altitude	<1000m amsl: No derating; 1000m to 4000m asml: 1.5% derating per 100m

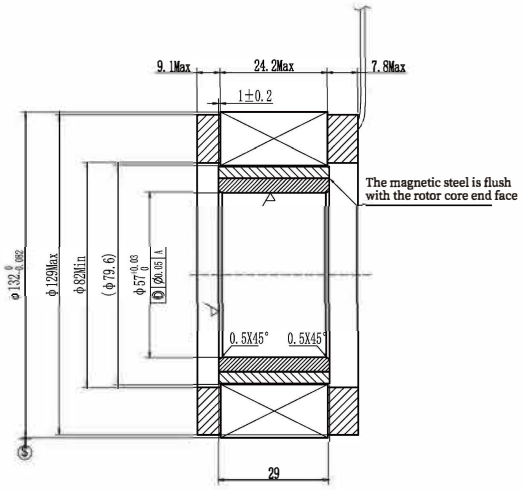
FMC12730 - Outline Drawing (unit: mm)



FMC13224 - Technical Specifications

Servo Motor Model		FMC13224-0118-3243N-8DK00
Rated Power Pn(W)		1180
Rated Torque Tn(N.m)		3.5
Rated Speed Nn(rpm)		3220
Rated Current In(A)		29.2
Maximum Torque Tm(N.m)		8.4
Maximum CurrentIm(A)		70
Standstill Torque T_s(N.m)		3.85
Standstillcurrent I_s(A)		32.1
Drive DC LinkVoltage UDC(V)		48
Resistance line-line R_L (Ω)		0.02
Inductance line-line L_L(mH)		0.102
Electrical time constant τe(ms)		5.1
Mechanical time constant τm(ms)		0.801
Voltage constant Ke(V/krpm)		8
Torque constant Kt(Nm/A)		0.132
Rotor moment of inertia Jm(Kg.cm²)		4.05
No. ofpoles		16
Insulation class		F
Weight(Kg)		2.01
Position FeedbackDevice		None
Temperature Sensor		None
Cooling method		Full coating, self-cooling
Evironmental conditions	Temperature	-20~40℃(non-freezing)
	Humidity	Below 90%RH (No condensation)
	Environment	Free from corrosive or flammable gases, oil mist, dust
	Installation altitude	<1000m amsl: No derating; 1000m to 4000m asml: 1.5% derating per 100m

FMC13224 - Outline Drawing (unit: mm)



Stator mounting and installation guide

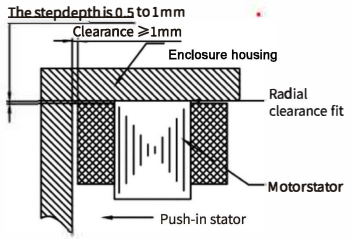
Kinco suggests the following options for the installation of the frameless motors to ensure high performance, small space consumption, high efficiency and serviceability desired by the user.

Stator Mounting Procedures

Stator bonding

In most cases, motors may have the stator bonded in place usingad hesive, such as Loctite 638/648 or other similar products. Adhesivebonding is a preferred and convenient installation technique for all stators, the user should consult the adhesive manufacturer for proper curing instructions (depends on the adhesive applied).
Following options for stator housing design and installation of the motor stator should be respected:

1. The stator enclosure housing should be designed as a cylindrical cup.
2. A small shoulder with radial depth of 0.5mm-1mm for axial positioning at one end of the stator housing should be designed.
3. The shoulder serves as an axial stop point for the stator to bank against when inserted from the open end of the stator housing and should not touch the stator winding lead-out end.
4. The clearance fit is adopted between stator outer diameter and the housing inner diameter. The user should consult the adhesive manufacturer's guidelines for proper housing inner diameter clearance design recommendations.
5. It is recommended to place additional adhesive groves in the inner diameter of the housing to provide torsional strength for more reliable bonding.
6. Stator and housing surfaces should be cleaned thoroughly prior to bonding to ensure good adhesion.
7. Adhesive temperatures should not exceed 155℃ to avoid damaging the motor stator.



Stator shrink fit

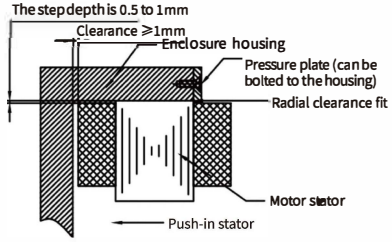
In case adhesive is not preferred, a thermal shrink fit technique for motor stator installation is recommended. Cold pressing should be avoided during installation. Extreme pressures will result in damage to the structure of the stator lamination stack.
If desired, the following options for stator housing design and installation of the motor stator should be respected:

1. The stator enclosure housing should be designed as a cylindrical cup.
2. The clearance fit is adopted between the stator outer diameter and the housing inner diameter. The user should consider required pulling-out force with respect to applications for proper housing inner diameter clearance design. Dissimilar thermal expansion coefficients (e.g. steel lamination vs. aluminum housing) should also be considered to ensure reliable holdingstrength across a board temperature range.

Stator clamping

For applications where the torque range is small or the stator may need to be repeatedly installed and removed from the system, axial clamping may also be an acceptable option. Kinco does notrecommendthistechniquein mass production where shock or vibration from motor operation is high and the clamping methods may fail.
If desired, following options for stator housing design and installaiton of the motor stator should be respected:

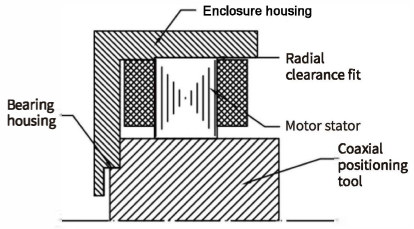
1. The stator enclosure housing should be designed as a cylindrical cup.
2. A small shoulder with radial depth of 0.5mm-1mm for axial positioning at one end of the stator housing should be designed.
3. The shoulder serves as an axial stop point for the stator to bank against when inserted from the open end of the stator housing and should not touch the stator winding lead-out end.
4. A clamping ring is needed at the opposite end of the stator and bolted to the housing. The clamping ring should contact the statorwith pressures designed according to the clamping forces needed in the applications.
5. Between stator outer diameter and the housing inner diameter sliding fit.



Rotor mounting and installation guide

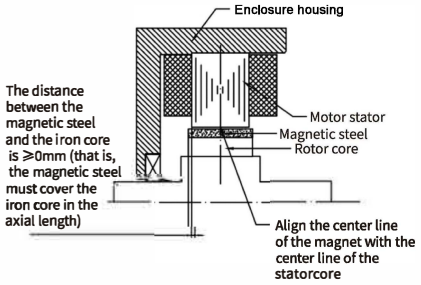
Important

All these three installation options are clearance fits between stator outer diameter and housing inner diameter during stator insertion and the radial running out tolerance in between will be presented as a result. Therefore, it will create the running out tolerance between motor stator and rotor.
The axial alignment between the stator inner diameter and rotor outer diameter must be maintained to ensure proper motor performance. It is recommended to have a common and stable axial basis when mounting the stator and rotor:
1. Set the stator housing case stop point or bearing chamber as the basis for positioning.
2. Insert the rotor into the stator by using a custom installation fixture.



Rotor Mounting Procedures

The rotor of a frameless motor generally consists of a ring shaped metal yoke with magnets equally placed around its outer surface with the adhesive bonding technique. The user can install the rotor to a shaft by the inner bore of the metal ring for most applications. Generally, the rotors can be installed by means of adhesive bonding or cold pressing techniques. Consider proper fit tolerance with respect to the different installation options or application requirements.
To ensure proper motor performance, the following specified mounting dimension principles must be respected:
1. Axial alignment must be maintained between rotor magnets and stator.
2. or, the dimension tolerance design should at least guarantee that the axial length of the rotor magnets can envelop the axial length of the stator lamination stack.



Important

Kinco FMC frameless motors utilize high-performance rare earth magnets, and the attractive forces between magnetized rotors and nearby stator steel lamination can be extremely powerful. Improper handling can result in unexpected impacts and can potentially damage the rotor fiber band layer. The following assembly process can be followed:
1. Insert the rotor into the position inside the stator by using a custom installation fixture to avoid the rotor from sticking to the inner bore of the stator.
2. In case no custom fixture is available, the user can install a thin layer of shim material (such as insulation film) in the inner bore of the stator, prior to inserting the rotor into the stator. Remove the shim material from the air gap between the rotor and stator afterthe installation.