

Product Portfolio

Higher Performance, More Options Adaptable



FM2 Ultra-High-Density Series
50/60/70/85/94/127 mm

- 20% lower motor loss
- 10% higher torque density vs. previous generation
- Extended endurance







Collaborative Robots Humanoid Robots Quadruped Robots Industrial Robots Medical Rehabilitation Robots

Tailored Solutions For Specialized Scenarios



FM3 Flagship Series

Stay Tuned

- Ultra-high power density
- Advanced algorithms optimize electromagnetic design for higher torque in the same volume







Collaborative Robots Humanoid Robots Quadruped Robots Industrial Robots Medical Rehabilitation Robots

Part Numbers

FM 2 - 050 14 K T N 34 6 - □□

Motor Classification	
FM	Frameless Motor

Motor Classification	
1	1st Gen Frameless Motor
2	2nd Gen Frameless Motor
3	3rd Gen Frameless Motor
*	* Gen Frameless Motor

Stator Outer Diameter	
050	050 mm
060	060 mm
070	070 mm
085	085 mm
115	115 mm
127	127 mm
***	*** mm

Stator Core Length	
08	8 mm
10	10 mm
14	14 mm
26	26 mm
**	** mm

Voltage Class	
D	380 V
E	220 V
F	110 V
G	72 V
H	60 V
K	48 V
M	36 V
N	24 V

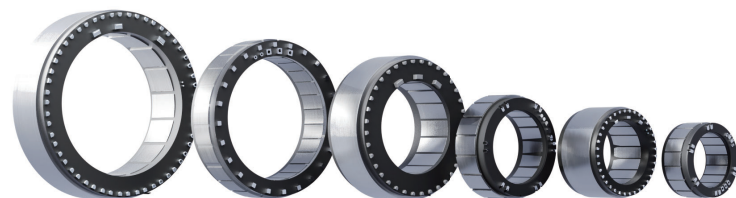
Derivatives	

Lead Wires	
5	No wires
6	Standard 200 mm wires
7	Customized wires

Rated Speed	
Example	40=40*100=4000 RPM 34=34*100=3400 RPM 3650 RPM=37 <i>Rounding to the nearest hundred</i>

Fixed Reserved	
N	Not Defined

Temperature Sensors	
T	NTC sensors
P	PTC sensors
N	No temperature sensors
S	Special



FM2 Series

Ultra-High-Density Frameless Torque Motors

New electromagnetic design with lower temperature rise, higher torque, faster response. Provides robust and stable power in compact spaces, suitable for humanoid robots, collaborative robots, etc. Available in seven standard sizes: 28/43/50/60/70/85 mm, with support for customization to meet diverse needs.



Collaborative Robots



Humanoid Robots



Industrial Robots



Quadruped Robots



Medical Rehabilitation Robots

Highlights

Ultra-High Density

10% higher torque density under the same input current, leading the industry.

Extended Endurance

Optimized magnetic circuits and materials reduce motor loss.

Ultra-Compact Structure

40–50% smaller than industry standards, ideal for high-density layouts.

Easy Integration

Flexible installation and seamless compatibility with mechanical systems.

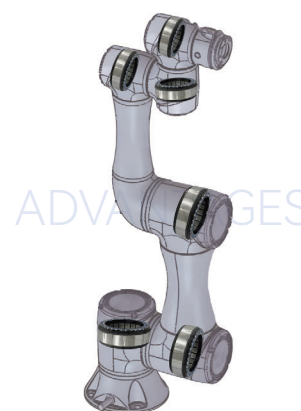
Ultra-Low Temperature Rise

20% reduction in motor loss through optimized magnetic design.

Ultra-Low Inertia

Lightweight design and composite materials enable rapid dynamic response for frequent start-stop scenarios.

Advantages



Superior Power

- Leading torque, power density, and cogging torque performance.

Flexible Integration

- Adjustable interfaces with optional Hall, temperature, and winding sensors.

Global Service

- Digital manufacturing, global distribution, and rapid local support.

Reliability

- Fully automated production ensures consistent quality.

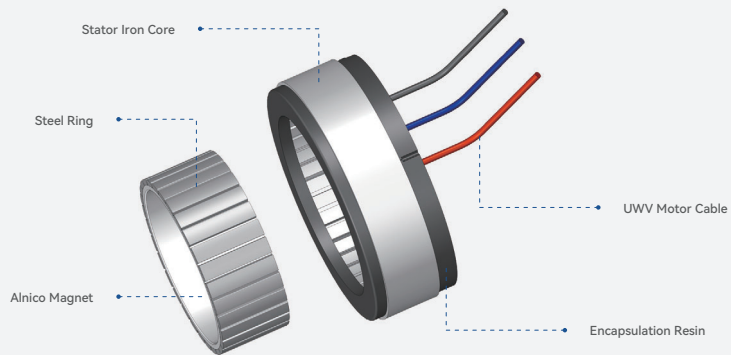
Excellent Thermal Control

- Digital manufacturing, global distribution, and rapid local support.

Selection Guide

Motor Series	Model	Rated Torque (Nm)	No-load speed (rpm)	Rated current (A)	Rated voltage range (VDC)	Rated Power (W)
Super High Density FM2	FM2-2807...	0.07	5000	0.95	24-70	40
	FM2-4308...	0.2	5500	2.20	24-70	77
	FM2-05008...	0.36	6500	4.9	24-70	207
	FM2-05014...	0.6	3970	4.6	24-70	211
	FM2-06008...	0.48	6500	7.1	24-70	440
	FM2-06011...	0.65	5000	6.5	24-70	259
	FM2-07010...	0.7	3110	4.35	24-70	183
	FM2-07013...	1	4600	9.5	24-70	272
	FM2-07018...	1.4	4000	11.3	24-70	440
	FM2-08513...	1.8	3000	11.0	24-70	471
	FM2-08523...	2.56	3550	18.7	24-70	670

Structure



Ultra-High Torque Density

FM2 Series

FM2-02807	Φ28 mm * 16 mm	0.07 Nm
FM2-04308	Φ43 mm * 15.6 mm	0.2 Nm
FM2-05008	Φ50 mm * 17.5 mm	0.36 Nm
FM2-05014	Φ50 mm * 23.3 mm	0.60 Nm
FM2-06008	Φ60 mm * 18.2 mm	0.48 Nm
FM2-06011	Φ60 mm * 21.2 mm	0.65 Nm
FM2-07010	Φ69 mm * 21.5 mm	0.70 Nm
FM2-07013	Φ69 mm * 24.6 mm	1 Nm
FM2-07018	Φ69 mm * 29.5 mm	1.40 Nm
FM2-08513	Φ85 mm * 24.8 mm	1.80 Nm
FM2-08523	Φ85 mm * 34 mm	2.56 Nm

Five Diameters

Φ28-Φ85 mm

Rated Speed

1800-5500 rpm

Torque Range

0.07-2.86 Nm

Power Range

40-670 W

Rated Voltage

24-70 V

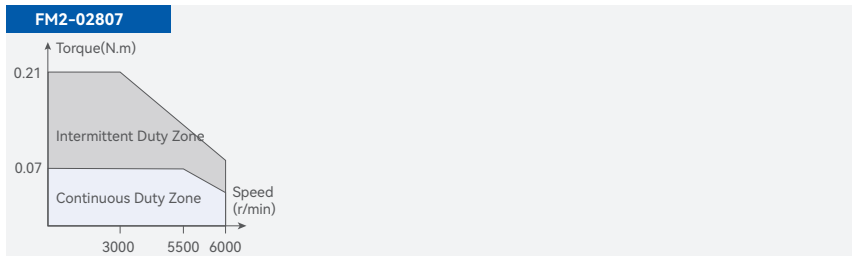


FM2-028XX

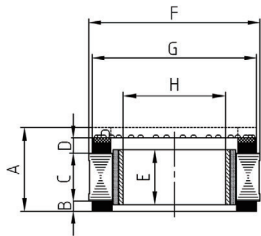


Product Specification	Rated Power (w)	Rated Voltage (VDC)	Rated Current (A)	Rated Torque (Nm)	Maximum Torque (Nm)	Rated Speed (rpm)	Voltage Constant (V/krpm)	Torque Constant (Nm/A)	Inertia ($\text{kgm}^2 \cdot 10^{-4}$)	Weight (kg)
07	40	48	0.95	0.07	0.21	5500	4.6	0.076	0.004	0.035

Rotational Speed-Torque Characteristics



Dimensions



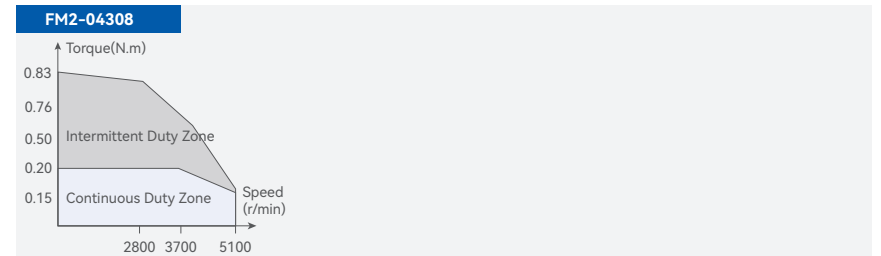
Size (mm)	07
A	16
B	2.8
C	7
D	3.8
E	9
F	28
G	27.5
H	11.6

FM2-043XX

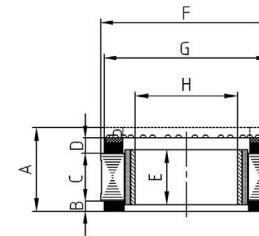


Product Specification	Rated Power (w)	Rated Voltage (VDC)	Rated Current (A)	Rated Torque (Nm)	Maximum Torque (Nm)	Rated Speed (rpm)	Voltage Constant (V/krpm)	Torque Constant (Nm/A)	Inertia ($\text{kgm}^2 \cdot 10^{-4}$)	Weight (kg)
08	77	48	2.2	0.2	0.82	3700	6	0.099	0.035	0.054

Rotational Speed-Torque Characteristics



Dimensions



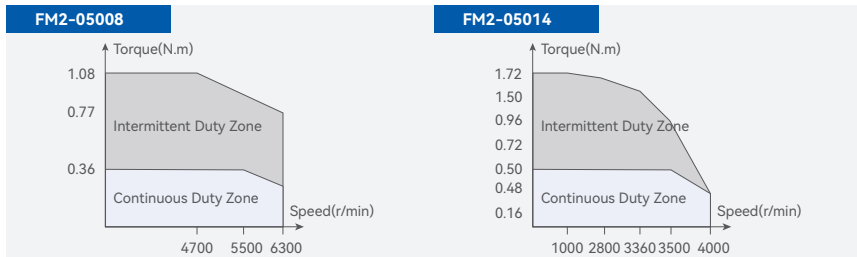
Size (mm)	08
A	15.60
B	2.8
C	8
D	4.2
E	8.5
F	43
G	41
H	27.5

FM2-050XX

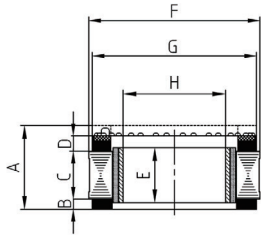


Product Specification	Rated Power (w)	Rated Voltage (VDC)	Rated Current (A)	Rated Torque (Nm)	Maximum Torque (Nm)	Rated Speed (rpm)	Voltage Constant (V/krpm)	Torque Constant (Nm/A)	Inertia ($\text{kgm}^2 \cdot 10^{-4}$)	Weight (kg)
08	207	48	4.9	0.36	1.26	5500	5	0.083	0.057	0.092
14	211	48	4.60	0.60	2.5	3360	8.5	0.141	0.083	0.136

Rotational Speed-Torque Characteristics



Dimensions



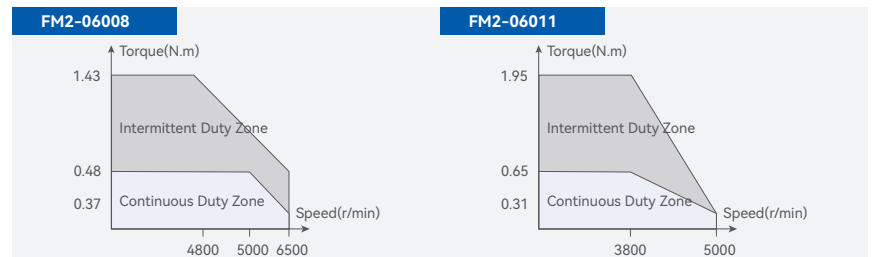
Size (mm)	08	14
A	17.5	23.3
B	3.3	3.3
C	8.20	14
D	4.6	5.1
E	9.9	14.6
F	50	50
G	48	48
H	30	14.6

FM2-060XX

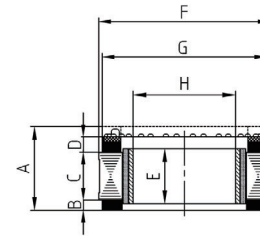


Product Specification	Rated Power (w)	Rated Voltage (VDC)	Rated Current (A)	Rated Torque (Nm)	Maximum Torque (Nm)	Rated Speed (rpm)	Voltage Constant (V/krpm)	Torque Constant (Nm/A)	Inertia ($\text{kgm}^2 \cdot 10^{-4}$)	Weight (kg)
08	251	48	7.1	0.48	1.43	5000	4.8	0.079	0.12	0.135
11	259	48	6.5	0.65	1.95	3800	6.5	0.108	0.17	0.175

Rotational Speed-Torque Characteristics



Dimensions



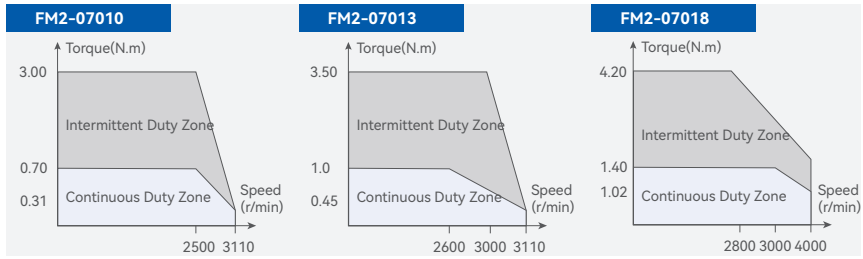
Size (mm)	08	11
A	18.2	21.2
B	3.5	3.5
C	8.2	11.2
D	5.3	5.3
E	10.2	14.7
F	60	60
G	58	58
H	36	36

FM2-070XX

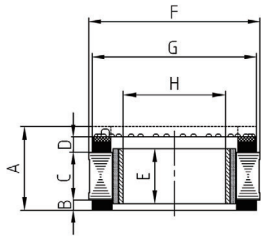


Product Specification	Rated Power (w)	Rated Voltage (VDC)	Rated Current (A)	Rated Torque (Nm)	Maximum Torque (Nm)	Rated Speed (rpm)	Voltage Constant (V/krpm)	Torque Constant (Nm/A)	Inertia ($\text{kgm}^2 \cdot 10^{-4}$)	Weight (kg)
10	183	48	4.35	0.70	3.00	2500	10.5	0.174	0.221	0.211
13	272	48	9.5	1	3.5	2600	7.30	0.121	0.28	0.211
18	440	48	11.3	1.4	4.90	3000	8.10	0.135	0.49	0.33

Rotational Speed-Torque Characteristics



Dimensions



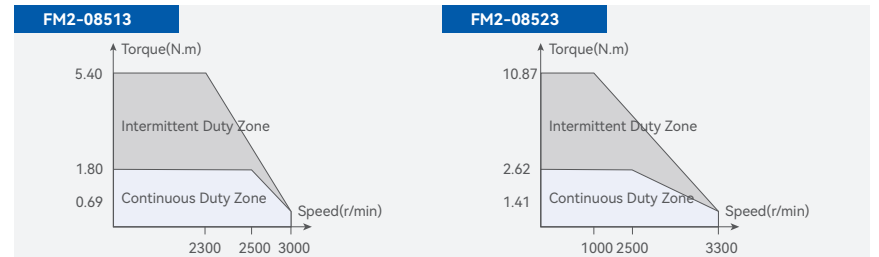
Size (mm)	10	13	18
A	21.50	24.6	29.6
B	4.0	4.1	4.1
C	10	13	18
D	6.3	6.3	6.3
E	10.5	13.5	20.7
F	69	69	69
G	66.2	66.2	66.2
H	42	42	42

FM2-085XX

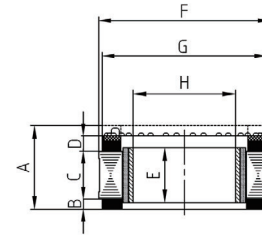


Product Specification	Rated Power (w)	Rated Voltage (VDC)	Rated Current (A)	Rated Torque (Nm)	Maximum Torque (Nm)	Rated Speed (rpm)	Voltage Constant (V/krpm)	Torque Constant (Nm/A)	Inertia ($\text{kgm}^2 \cdot 10^{-4}$)	Weight (kg)
13	481	48	11.0	1.8	7	2500	10.8	0.179	0.606	0.33
23	670	48	18.7	2.56	10.8	2500	9.0	0.149	1.19	0.499

Rotational Speed-Torque Characteristics



Dimensions



Size (mm)	13	23
A	24.8	34
B	4.0	4.2
C	13	22
D	6	6
E	13.5	13.5
F	85	85
G	82.6	82.6
H	58.5	58.5