

NEW PRODUCTS

5-PHASE STEPPING SYSTEMS

SANMOTION

F5

24 VDC

5-Phase Stepping Motor

Lineup

28/42/60 mm sq.

Customization

Spur gear/Low-backlash gear/Harmonic gear/EM brake/Encoder



Custom options

Spur gear models

Increase torque with a simple structure consisting of two meshing gears.

Flange size	Gear ratio	Allowable torque	Allowable speed	Backlash	Rotation direction	Allowable thrust load	Allowable radial load
	—	N·m	min ⁻¹	°	(relative to motor rotation)	N	N
28 mm sq.	1:3.6	0.1	800	2	Same	10	15
	1:7.2	0.15	400	2	Same	10	15
	1:10	0.2	300	2	Opposite	10	15
	1:20	0.35	150	1.5	Same	10	15
	1:30	0.5	100	1.5	Same	10	15

Low-backlash gear models

Equipped with gears designed to minimize backlash.

Flange size	Gear ratio	Allowable torque	Allowable speed	Backlash	Rotation direction	Allowable thrust load	Allowable radial load
	—	N·m	min ⁻¹	°	(relative to motor rotation)	N	N
42 mm sq.	1:3.6	0.34	500	0.6	Same	15	20
	1:7.2	0.68	250	0.4	Same	15	20
	1:10	1	180	0.35	Same	15	20
	1:20	1.5	90	0.25	Opposite	15	20
	1:30	1.5	60	0.25	Opposite	15	20
	1:36	1.5	50	0.25	Opposite	15	20
60 mm sq.	1:3.6	1.25	500	0.55	Same	30	100
	1:7.2	2.5	250	0.25	Same	30	100
	1:10	3	180	0.25	Opposite	30	100
	1:20	3.5	90	0.17	Opposite	30	100
	1:30	4	60	0.17	Opposite	30	100
	1:36	4	50	0.17	Opposite	30	100

Harmonic gear models

Offer extremely low backlash and excellent positioning precision. The lineup has high gear ratios of up to 1:100 available.

Flange size	Gear ratio	Allowable torque	Allowable speed	Maximum speed	Peak torque	Hysteresis loss	Lost motion	Allowable thrust load	Allowable radial load
	—	N·m	min ⁻¹	min ⁻¹	N·m	—	—	N	N
28 mm sq.	1:50	1.5	70	120	2.6	—	0.4 to 3 min (at ± 0.06 N·m)	100	160
	1:100	2	35	60	3.6	—	0.4 to 3 min (at ± 0.08 N·m)	100	160
42 mm sq.	1:30	2.2	116	283	4.5	3.6 min or less	—	1150	209
	1:50	3.5	70	170	8.3	2.4 min or less	—	1150	209
	1:100	5	35	85	11	2.4 min or less	—	1150	209
60 mm sq.	1:50	5.5	70	100	14	—	0.4 to 3 min (at ± 0.28 N·m)	400	360
	1:100	8	35	50	20	—	0.4 to 1.5 min (at ± 0.4 N·m)	400	360

EM brake models

Hold the workpiece when power is off, preventing drop.

Flange size	Brake activation type	Input voltage	Power consumption	Static friction torque	Polarity
	—	—	W	N·m or more	—
28 mm sq.	Non-excitation type	24 VDC ± 5%	3.6 (at 20°C)	0.049	Red: +, black: -
42 mm sq.	Non-excitation type	24 VDC ± 5%	2.4 (at 75°C)	0.3	Red: +, black: -
60 mm sq.	Non-excitation type	24 VDC ± 5%	6 (at 75°C)	0.8	Red: +, black: -

Encoder models

Detect vibration and step-out by monitoring position and speed.

Flange size	Microsteps	Number of channels	Output circuit	Maximum response frequency	Input voltage	Current consumption
	P/R	Channels	—	kHz	—	mA or less
28 mm sq.	500	3	Line driver (CMOS)	60	5 VDC ± 5%	100
	2000	3	Line driver (CMOS)	240	5 VDC ± 5%	100
42 mm sq.	1000	3	Line driver (CMOS)	60	5 VDC ± 5%	100
	4000	3	Line driver (CMOS)	240	5 VDC ± 5%	100
60 mm sq.	1000	3	Line driver (CMOS)	60	5 VDC ± 5%	100
	4000	3	Line driver (CMOS)	240	5 VDC ± 5%	100



ECO PRODUCTS

Eco Products are eco-friendly products designed to reduce the environmental impact of the product and its packaging materials compared to conventional products on the market. Our products are assessed over the product's life cycle against our own eco-design requirements including product size, weight, power consumption, and CO₂ emissions, and those meeting our standards and higher standards qualify as Eco Products and Eco Products Plus, respectively.

Notes Before Purchase

- Read the accompanying User's Manual prior to using the product.
- Do not use this product in an environment where vibration is present, such as in moving vehicles or shipping vessels.
- Do not modify or alter the product in any way.

Please contact us beforehand if you intend to use this product in the following applications.

- Medical equipment that may have an effect on human life
- Systems or equipment that may have a major impact on society or on the public
- Special applications related to aviation and space, nuclear power, electric power, submarine repeaters, etc.

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