

# ***Oriental motor***

Stepper Motors  
Servo Motors

Linear and Rotary Actuators

Network

AC Motors

Brushless Motors  
AC Speed Control Motors

Cooling Fans



Effective:

**July  
2014**

# Orientalmotor

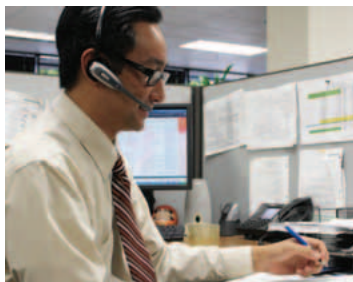


Since our founding in Japan in 1885, Oriental Motor globally has been providing the optimal motion systems as part of our total service, to meet the widest market demands. Our focus is to communicate with our customers from the stage where they start studying their equipment through the delivery and after sales service. This is characterized by “Before Sales and After Sales” support. Over 20,000 of our catalog products are available to ship same day or up to 7 business days (for orders placed before 12pm PST).

To support our commitment to total service, our 800 Technical Support is available from 8:30 EST to 5:00 PST. We offer many additional online services including our Motor Sizing & Selection Tool, our On-Demand Video Library, Application Training and On Site Support.

## Total Service, Before and After Your Purchase

Technical Support



Training



Customer Service

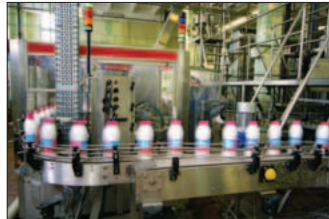


## Delivering Complete Motion Solutions Across Industries and Markets

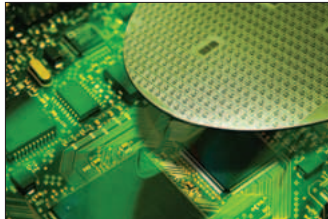
Medical



Packaging



Semiconductor



Factory Automation (FA)



Material Handling



Food Processing



Security



Environmental



# Products of Oriental Motor

Oriental Motor offers approximately 20,000 items as standard products.

Your optimal motion system can be found among our extensive product line-up, which includes constant speed motors, motors with more advanced movement such as speed and position control, motors with mechanism control such as linear drive and motors with accurate temperature control.

## Stepper and Servo Motors

- Stepper Motor and Driver Packages
- Stepper Motors (Motor Only)
- Servo Motor Packages
- Controllers



## Standard AC Motors

- Constant Speed Motors
- Torque Motors
- Watertight, Dust-Resistant Motors



## Cooling Fans

- Axial Flow Fans
- Centrifugal Blowers
- Cross Flow Fans
- Cooling Module
- Thermostats



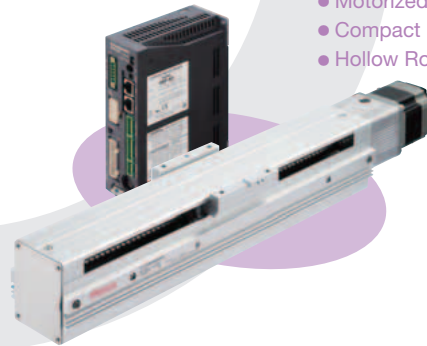
## Brushless Motors AC Speed Control Motors

- Brushless Motors
- AC Speed Control Motors



## Linear and Rotary Actuators

- Motorized Linear Slides
- Motorized Cylinders
- Compact Linear Actuators
- Hollow Rotary Actuators



## Fast Delivery

**Delivering What is Needed, When it is Needed.** Oriental Motor's lead time is characterized by best in class, with any of our catalog products available to ship same day or up to 7 business days (for orders placed before 12pm PST). Your order is shipped using only reputable carriers or any carrier of your choice to ensure the on-time and damage free delivery.

Our manufacturing processes production system allows the manufacturing of an order with little notice, in any quantity requested. Additionally, our one-by-one process allows us to manufacture one product as easily as one hundred.



# How to Use the Website

## MyPage

Register on MyPage to build your custom catalog, view order history and access special content and promotions.

## Products

Learn about the latest products and technology. Compare features and benefits and view full products specifications.



<http://www.orientalmotor.com/>

## Search

Search by Part Number, Keyword, or Specification.

## Live Chat

Ask questions and get live support.

## Homepage

Discover the latest news and featured products from Oriental Motor.

## Complete Product Specifications

The Online Product Catalog contains pricing, shipping date, full products specifications, features, dimensions, speed-torque curves, connection diagrams and more.

Download CAD, Operator Manuals and Product Literature.

View all available Accessories, Drivers and Controllers to build a complete system.



## Order Online

Convenient online ordering is available on the website.

Pay by credit card or through PayPal.

Register for MyPage and save your shopping cart, view order history or re-order.

## Online Support

The website features technical and product information and support:

- Online Motor Sizing Tools
- Live and On-Demand Training
- Product & Engineering Forum
- Technical Articles and Product Literature



# Oriental Motor Sales and Customer Service

Oriental Motor U.S.A has 9 Sales Offices, 4 Customer Service Centers and a large network of local distributors to support our motion system solutions. Our Customer Service Centers also services Mexico and South America along with supporting Spanish and Portuguese (Brazil) speaking customers.

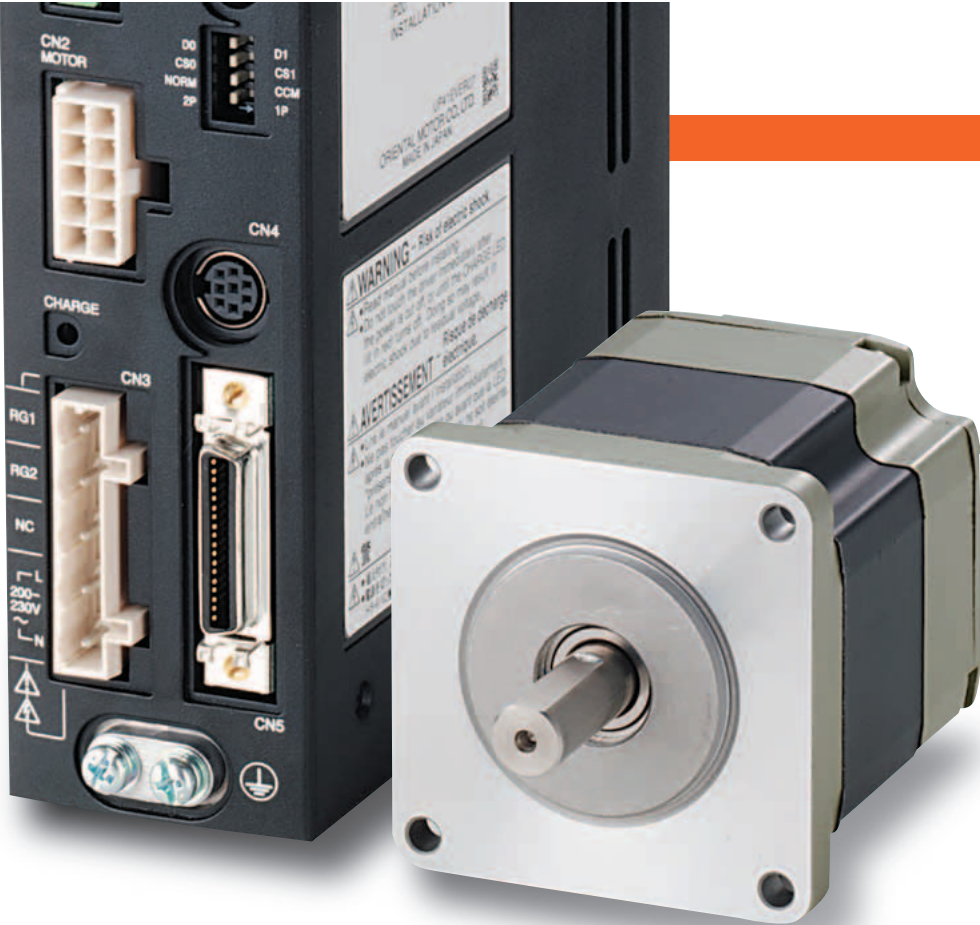
**Western Sales and Customer Service Center**  
Tel: (310) 715-3301  
Fax: (310) 225-2594  
Los Angeles Tel: (310) 715-3301  
San Jose Tel: (408) 392-9735

**Midwest Sales and Customer Service Center**  
Tel: (847) 871-5900  
Fax: (847) 472-2623  
Chicago Tel: (847) 871-5900  
Dallas Tel: (214) 432-3386  
Toronto Tel: (905) 502-5333

**Eastern Sales and Customer Service Center**  
Tel: (781) 848-2426  
Fax: (781) 848-2617  
Boston Tel: (781) 848-2426  
Charlotte Tel: (704) 766-1335  
New York Tel: (973) 359-1100

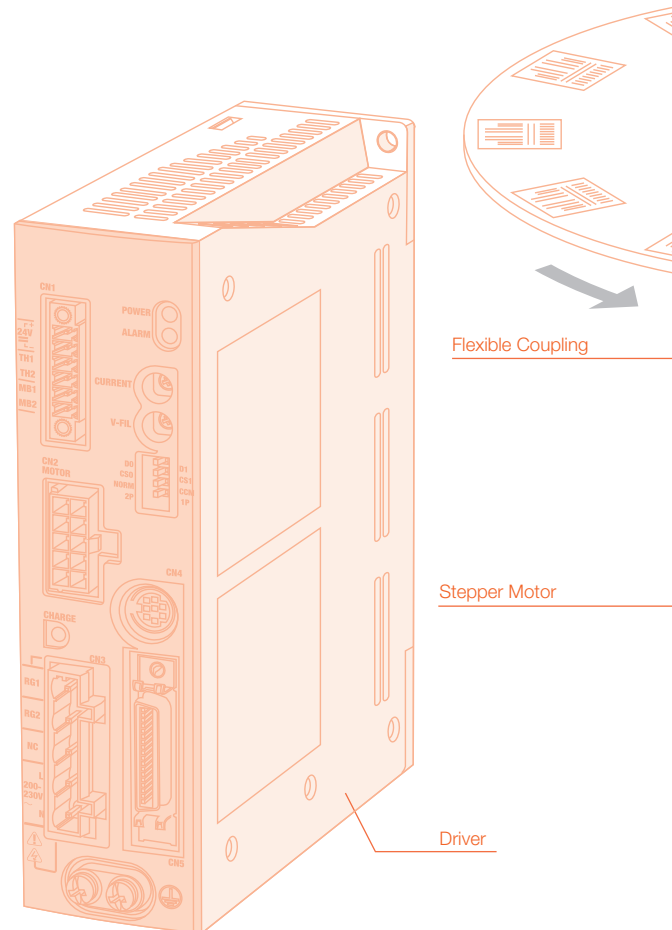
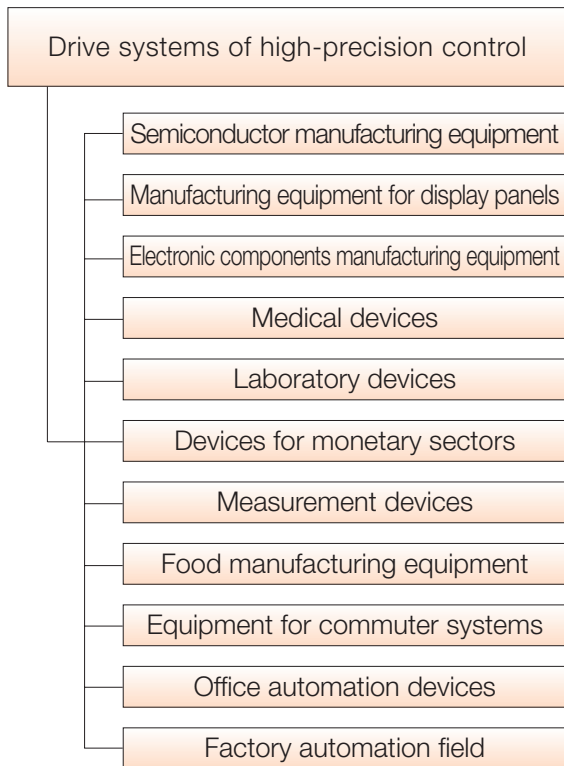
▲ North American Offices  
■ South American Office





Positioning Drive with High Speed and Precision in the Most Advanced Fields.

### Main Applications



## Stepper Motors/Servo Motors

Stepper Motors  
Servo Motors

Linear and Rotary  
Actuators

Network

AC Motors

Brushless Motors  
AC Speed Control Motors

Cooling Fans

Tuning-Free  
AC Servo Motor Packages  
**NX Series**



Short Range Servo Motor  
and Driver Packages  
**AR Series**



0.72° Stepper Motor and  
Driver Packages  
**RKII Series**



0.36°/0.72° Stepper Motor  
and Driver Packages  
**CRK Series**



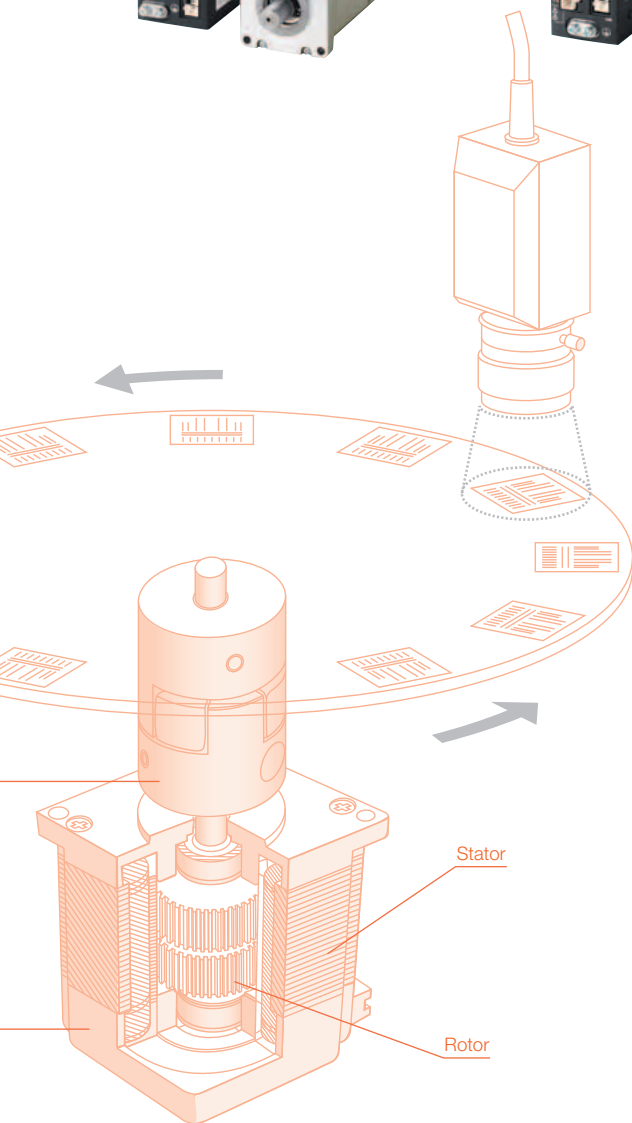
Data Setting Software  
**MEXE02**

### Stepper / Servo Motor + Driver = Package

A Stepper or Servo motor is used to achieve precise positioning via digital control. The motor operates by accurately synchronizing with the pulse signal output from the controller to the driver. Stepper motors, with a step angle of 1.8°, 0.9°, 0.72° or 0.36° produce high torque at a low speed while minimizing vibration and are ideal cost effective solutions for applications requiring quick positioning over a short distance. A Servo motor uses error-sensing to correct the performance of a mechanism and is defined by its function and is commonly used for position control or speed control. For guaranteed performance, reliability and ease of use, Oriental Motor combines the motor and driver in one part number as a packaged solution.

Offering a wide range of package products:

- AC Input Stepper Motor & Driver Systems
- AC Input Servo Motor & Driver Systems
- DC Input Stepper Motor & Driver Systems
- Stepper Motor Only








Motion Diversity

# Position Control


# Motor and Driver Packages

## AC Input Motor and Driver Packages

Category	AC Input, Motor and Driver Package		
Series	<b>NX Series</b> 	<b>AR Series</b> 	<b>0.72° RKII Series</b> 
List Price (Starting from)	\$1097.00	\$727.00	\$461.00
Features	<ul style="list-style-type: none"> <li>• Tune free</li> <li>• Easy operation</li> <li>• 4 control modes</li> <li>• IP65</li> <li>• 50 W~750 W</li> </ul>	<ul style="list-style-type: none"> <li>• High-efficiency, lower heat generation</li> <li>• Continuous operation, extended functions</li> <li>• Closed loop, no hunting, no gain tuning</li> </ul>	<ul style="list-style-type: none"> <li>• Lowest vibration, lowest noise</li> <li>• Low heat generation</li> <li>• Accepts 1.8° pulse input</li> </ul>
Type	Servo motor	Short Range Servo motor	Stepper motor
Control Method	Closed loop	Closed loop	Open loop
Basic Step Angle	Factory setting 1000	0.36° (Resolution setting: 1000 P/R)	0.72°
Excitation Method	—	Microstep	Microstep
Resolution	100~100000 P/R	3.6°~0.036°	0.72°~0.00288° (16 steps)
Driver Type	Pulse Input ● Built-in Controller / Network —	Pulse Input ● Built-in Controller / Network ●	Pulse Input ● Built-in Controller / Network ●
Holding Torque*	min/max N-m (oz-in) 0.159 (22) / 2.39 (330)	0.3 (42) / 4 (560)	0.14 (19.8) / 6.3 (890)
Motor Frame Size	<input type="checkbox"/> 20 ( <input type="checkbox"/> 0.79)	—	—
	<input type="checkbox"/> 28 ( <input type="checkbox"/> 1.10), <input type="checkbox"/> 30 ( <input type="checkbox"/> 1.18), <input type="checkbox"/> 35 ( <input type="checkbox"/> 1.38)	—	—
	<input type="checkbox"/> 42 ( <input type="checkbox"/> 1.65)	●	●
	<input type="checkbox"/> 50 ( <input type="checkbox"/> 1.97)	—	—
	<input type="checkbox"/> 56.4 ( <input type="checkbox"/> 2.22), <input type="checkbox"/> 60 ( <input type="checkbox"/> 2.36)	●	●
Function	<input type="checkbox"/> 85 ( <input type="checkbox"/> 3.35), <input type="checkbox"/> 90 ( <input type="checkbox"/> 3.54)	●	●
	Electromagnetic Brake	●	●
	Encoder	—	●
Geared Type	Terminal Box	—	—
	<b>SH</b> Spur Gear (Parallel Shaft)	—	—
	<b>TS/TH</b> Tapered Gear (Parallel Shaft)	—	●
	<b>PS/PL</b> Gear (Planetary Gear)	●	●
	Harmonic Gear	—	●
Power Supply Input	Single-Phase 100-115 VAC Single-Phase 200-230 VAC Three-Phase 200-230 VAC	Single-Phase 100-115 VAC Single-Phase 200-230 VAC Three-Phase 200-230 VAC	Single-Phase 100-115 VAC Single-Phase 200-230 VAC
Safety Standard			



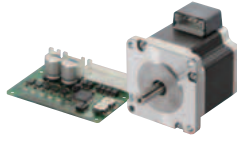
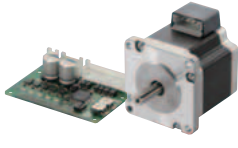
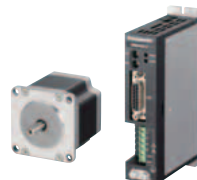
\* Round shaft (no gearhead) holding torque only. For gearhead holding torque values (except **NX** Series), see page 11. For **NX** Series, see our website or contact your local sales office.

## Stepper Motors (Motor Only)

Category	Stepper Motors (Motor Only) 1.8°, 0.9°, 0.72°, 0.36°
Series	<b>PKP Series, PK Series, PV Series</b> 
List Price (Starting from)	Motor: \$45.00    Geared Motor: \$157.00
Features	<ul style="list-style-type: none"> <li>• 4 basic step angles available (1.8°, 0.9°, 0.72°, 0.36°)</li> <li>• Many motor frame sizes available</li> <li>• Wide variety of motors</li> <li>• Encoder motors available</li> </ul>



**FLEX** is a generic name for products that are used for Factory Automation (FA) network control via I/O control, Modbus (RTU) control, or a network converter.





















DC Input, Motor and Driver Package				
AR Series	0.36°/0.72° CRK Series	0.36°/0.72° CVK Series	1.8° CVK Series	1.8° RBK Series
				
\$485.00	\$425.00	\$194.00	\$178.00	\$387.00
<ul style="list-style-type: none"> <li>High-efficiency, lower heat generation</li> <li>Continuous operation, extended functions</li> <li>Closed loop, no hunting, no gain tuning</li> <li>Wide variety of motors</li> </ul>	<ul style="list-style-type: none"> <li>Stored Data or Stored Program Type</li> <li>Lowest vibration, lowest noise</li> <li>GUI software available (Stored Program)</li> <li>Wide variety of motors</li> </ul>	<ul style="list-style-type: none"> <li>Lowest vibration, lowest noise</li> <li>Wide speed range</li> <li>Compact driver</li> <li>Wide variety of motors</li> </ul>	<ul style="list-style-type: none"> <li>Low vibration, low noise</li> <li>High starting torque</li> <li>Compact driver</li> <li>Wide variety of motors</li> </ul>	<ul style="list-style-type: none"> <li>Low vibration, low noise</li> <li>Highest torque for entire speed range</li> <li>Wide variety of motors</li> </ul>
Stepper motor	Stepper motor	Stepper motor	Stepper motor	Stepper motor
Closed loop	Open loop	Open loop	Open loop	Open loop
0.36° (Resolution setting: 1000 P/R)	0.36°/0.72°	0.36°/0.72°	1.8°	1.8°
Microstep	Microstep	Microstep	Microstep	Microstep
3.6°~0.036°	0.36°: 0.9°~0.00144° (16 steps) 0.72°: 1.8°~0.00288° (16 steps)	0.36°: 0.9°~0.00144° (16 steps) 0.72°: 1.8°~0.00288° (16 steps)	1.8°: 1.8°~0.1125° (5 steps)	1.8°~0.0140625° (16 steps)
●	●	●	●	●
0.055 (7.8) / 2 (280)	● / RS-485 0.0231 (3.2) / 1.66 (230)	—	—	—
—	●	—	●	—
●	●	●	●	●
●	●	●	●	●
—	—	—	—	●
●	●	—	—	●
●	—	—	—	—
—	●	—	—	●
—	—	—	—	—
●	●	—	—	—
●	●	—	—	●
●	●	—	—	—
24/48 VDC	24 VDC	24 VDC	24 VDC	Standard Type: 20~75 VDC High-Torque Type, PS/PL Geared Type: 20~40 VDC
CE	CE	CE	CE	UL * CE *


\* Terminal box type only

### All-in-One (Motor, Driver and Controller)

DC Input, Stepper Motor and Driver Package	
Category	
Series	0.36° <i>αSTEP-One</i> ASX Series 
List Price (Starting from)	\$850.00
Features	<ul style="list-style-type: none"> <li>Motor, driver, controller and feedback system in one package</li> <li>Closed loop, no hunting, no gain tuning</li> <li>RS-232 communications</li> <li>GUI software available</li> <li>12~48 VDC</li> </ul>
	0.72° All-in-One Stepper Motor PKA Series 
List Price (Starting from)	\$415.00
Features	<ul style="list-style-type: none"> <li>Motor, driver and controller in one package</li> <li>Stored data software</li> <li>Lowest vibration, lowest noise</li> <li>24 VDC</li> </ul>

# Wide Range of Stepper Motor Variations

Motor Frame Size [mm (in.)]	Round Shaft					Units = N-m (oz-in)
20 (0.79)	1.8°	0.72°				
						
	Holding Torque	0.036 (5.1)	0.0231 (3.2)			
List Price	\$65.00	\$100.00				
28 (1.10)	1.8°	0.72°	0.36°			
	 Encoder					
	Holding Torque	0.11 (15.6)	0.078 (11)	0.09 (12.7)		
List Price	\$46.00	\$86.00	\$96.00			
35 (1.38)	1.8°					
	 Encoder					
	Holding Torque	0.37 (52)				
List Price	\$45.00					
42 (1.65)	1.8°	1.8°	0.9°	0.72°	0.36°	
	High-Efficiency	 Encoder	 Encoder	 Encoder	 Encoder	
	Holding Torque	0.55 (78)	0.93 (132)	0.42 (59)	0.42 (59)	0.42 (59)
List Price	\$77.00	\$46.00	\$46.00	\$78.00	\$87.00	
50 (1.97)	1.8°					
	 Encoder					
	Holding Torque	1.56 (220)				
List Price	\$78.00					
56.4 (2.22)  60 (2.36)	1.8°	1.8°	0.9°	0.72°	0.36°	
	 Encoder	High Inertia 	 Encoder	 Encoder	 Encoder	
	Holding Torque	2.3 (320)	3.1 (440)	2.23 (325)	1.66 (230)	2.3 (320)
List Price	\$56.00	\$90.00	\$56.00	\$77.00	\$96.00	
85 (3.35)	1.8°	0.72°				
	 Encoder	 Encoder				
	Holding Torque	9.3 (1320)	6.3 (890)			
List Price	\$137.00	\$192.00				


















 Motor with an encoder is available

 Motor with Terminal Box are available

● 1.8°, 0.9° products available : Bipolar (4 leadwire) and Unipolar (6 leadwire)

● 0.36°, 0.72° products available: Bipolar New Pentagon (5 leadwire)

Pricing reflects List Price (starting from)

Motor Frame Size [mm (in.)]	Geared				Units = N·m (lb-in)
20 (0.79)	Harmonic Geared				
					
Holding Torque	0.6 (5.3)				
List Price	\$868.00				
28 (1.10)	Spur <b>SH</b> Geared	Tapped <b>TH</b> Geared	Planetary <b>PS</b> Geared	Harmonic Geared	
	 Encoder				
Holding Torque	0.4 (3.5)	0.5 (4.44)	0.5 (4.44)	2.4 (21)	
List Price	\$168.00	\$265.00	\$430.00	\$738.00	
35 (1.38)					
42 (1.65)	Spur <b>SH</b> Geared	Tapped <b>TH</b> Geared	Planetary <b>PS, PL</b> Geared	Harmonic Geared	
	 Encoder	 Encoder	 Encoder	 Encoder	
Holding Torque	0.8 (7.0)	1.5 (13.2)	3 (26)	5 (44)	
List Price	\$157.00	\$206.00	\$388.00	\$742.00	
50 (1.97)					
60 (2.36)	Spur <b>SH</b> Geared	Tapped <b>TH</b> Geared	Planetary <b>PS, PL</b> Geared	Harmonic Geared	
	 Encoder	 Encoder	 Encoder	 Encoder	
Holding Torque	4 (35)	4 (35)	8 (70)	8 (70)	
List Price	\$160.00	\$239.00	\$401.00	\$1079.00	
90 (3.54)	Spur <b>SH</b> Geared	Tapped <b>TH</b> Geared	Planetary <b>PS</b> Geared	Harmonic Geared	
	 Encoder	 Encoder	 Encoder	 Encoder	
Holding Torque	12 (106)	12 (106)	37 (320)	37 (320)	
List Price	\$257.00	\$358.00	\$760.00	\$1741.00	



Motor Cable

A complete Motion Control System Including the Motor, Actuator and Controller, Engineered to Precision.

### Main Applications

Drive systems for linear and rotary motion

Semiconductor manufacturing equipment

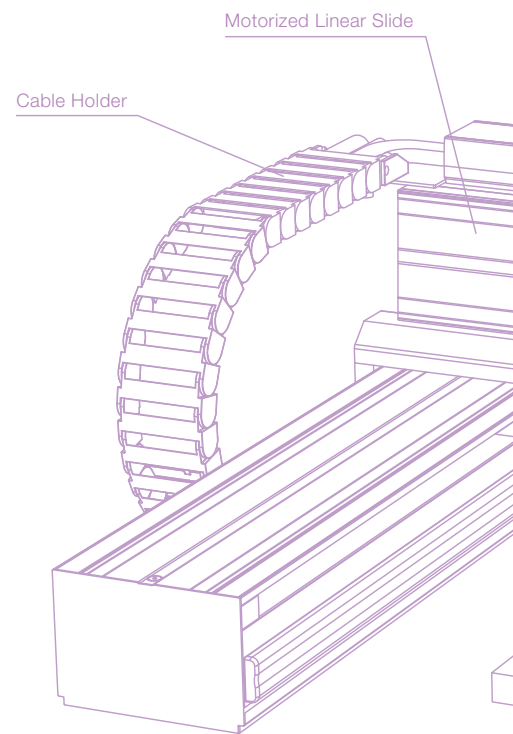
Manufacturing equipment for display panels

Electronic components manufacturing equipment

Medical devices

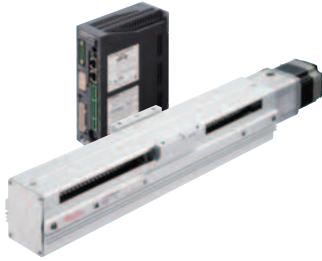
Laboratory devices

Factory automation field

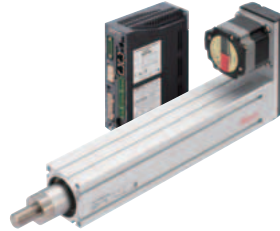


## Linear & Rotary Actuators

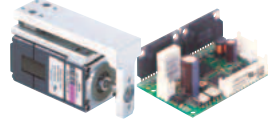
Motorized Linear Slides  
**EAS Series**



Motorized Cylinders  
**EAC Series**



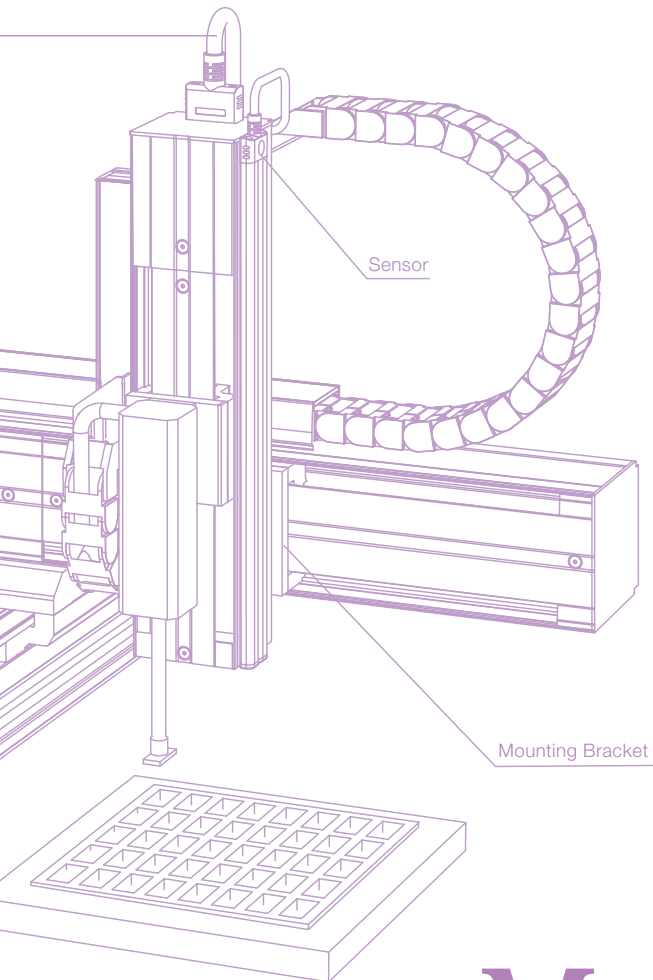
Compact Linear Actuators  
**DRL Series**



Hollow Rotary Actuators  
**DGII Series**



Data Setting Software  
**MEXE02**



Motion Diversity

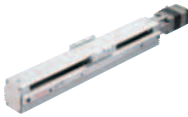





# Mechanical Motion

### Motor + Actuator + Driver = Package

Linear and rotary actuators resemble human movements such as push, pull, raise, lower and rotate. By combining our motors with ball screws, belt drives and rotary tables we shorten the time and cost for machine design and assembly.

Oriental Motor understands the complexity of linear and rotary requirements and has taken the guess work out of selecting and implementing these packages. To meet these diverse needs of automated equipment, various factors must be taken into consideration including the production line layout, installation environment, ease of maintenance, configuration of electrical wiring and control system, and so on. This means many man-hours are needed to select the motor and other mechanical components and create a parts list, drawings, operating manuals and the like. By using complete packages, reliability, performance and maintenance are all easy to understand and guaranteed to meet the intended application requirements helping to simplify the design and development process of machine design.

# Linear Slides and Cylinders

Slide Series Name Type	Product Width×Height Mass	Power Supply Input [V]	Lead [mm]	Stroke [mm]					Max. Speed [mm/s]								
				100	200	300	400	500	100	200	300	400	500	600	700	800	
	<b>EAS4</b> 58.4×60 mm 1.8~4.0 kg	Single-Phase 100-120 <sup>*1</sup> Single-Phase 200-240 <sup>*2</sup> Three-Phase 200-230 <sup>*3</sup>	12	50~500					800								
			6	50~500					400								
		24/48 VDC	12	50~500					600								
			6	50~500					300								
			24/48 VDC	12	50~500					800							
				6	50~500					400							
	<b>EAS4R</b> <b>EAS4L</b> 58.4×60 mm 1.8~4.0 kg	Single-Phase 100-120 <sup>*1</sup> Single-Phase 200-240 <sup>*2</sup> Three-Phase 200-230 <sup>*3</sup>	12	50~500					800								
			6	50~500					400								
		24/48 VDC	12	50~500					600								
			6	50~500					300								
			24/48 VDC	12	50~500					800							
				6	50~500					400							
	<b>EAC4</b> 42×42 mm 1.1~2.1 kg	Single-Phase 100-120 <sup>*1</sup> Single-Phase 200-240 <sup>*2</sup> Three-Phase 200-230 <sup>*3</sup>	12	50~300					600								
			6	50~300					300								
		24/48 VDC	12	50~300					600								
			6	50~300					300								
			24/48 VDC	12	50~300					600							
				6	50~300					300							
	<b>EAC4W</b> 42×114 mm 1.8~3.5 kg	Single-Phase 100-120 <sup>*1</sup> Single-Phase 200-240 <sup>*2</sup> Three-Phase 200-230 <sup>*3</sup>	12	50~300					600								
			6	50~300					300								
		24/48 VDC	12	50~300					600								
			6	50~300					300								
			24/48 VDC	12	50~300					600							
				6	50~300					300							
	<b>EAC4R</b> 42×42 mm 1.1~2.1 kg	Single-Phase 100-120 <sup>*1</sup> Single-Phase 200-240 <sup>*2</sup> Three-Phase 200-230 <sup>*3</sup>	12	50~300					600								
			6	50~300					300								
		24/48 VDC	12	50~300					600								
			6	50~300					300								
			24/48 VDC	12	50~300					600							
				6	50~300					300							
	<b>EAC4RW</b> 42×114 mm 1.8~3.5 kg	Single-Phase 100-120 <sup>*1</sup> Single-Phase 200-240 <sup>*2</sup> Three-Phase 200-230 <sup>*3</sup>	12	50~300					600								
			6	50~300					300								
		24/48 VDC	12	50~300					600								
			6	50~300					300								
			24/48 VDC	12	50~300					600							
				6	50~300					300							

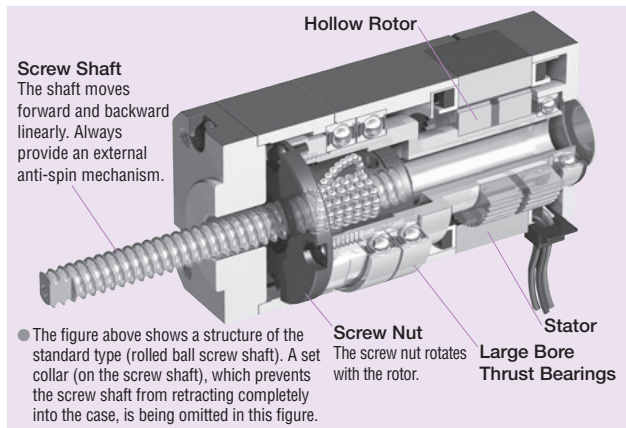
\*1 Pulse Input Type is Single Phase 100-115 V

\*2 Pulse Input Type is Single Phase 200-230 V

\*3 Pulse Input Type only

Upper Level: Dynamic Permissible Moment [N-m] Lower Level: Static Permissible Moment [N-m]			Maximum Transportable Mass in Horizontal Direction [kg]							Maximum Transportable Mass in Vertical Direction [kg]						Repetitive Positioning Accuracy [mm]	List Price		
M <sub>P</sub>	M <sub>V</sub>	M <sub>R</sub>	10	20	30	40	50	60	70	80	90	10	20	30	40			50	60
16.3 58.3	4.8 16.0	15.0 53.3	~15									~7						±0.02	\$1313.00~
			~30										~14						
31.8 86.0	10.3 34.0	40.6 110.0	~30									~15						±0.02	\$1596.00~
			~60									~30							\$1322.00~
16.3 58.3	4.8 16.0	15.0 53.3	~15									~7						±0.02	\$1313.00~
			~30									~12.5							\$1039.00~
31.8 86.0	10.3 34.0	40.6 110.0	~15									~7						±0.02	\$1596.00~
			~30									~15							\$1322.00~
~70	100	~140	~15									~7						±0.02	\$1141.00~
			~30									~14							\$864.00~
~200	400	~400	~30									~15						±0.02	\$1246.00~
			~60									~30							\$969.00~
~70	100	~140	~15									~6						±0.02	\$1474.00~
			~30									~13							\$1197.00~
~200	400	~400	~15									~6						±0.02	\$1631.00~
			~30									~13							\$1354.00~
~70	100	~125	~15									~7						±0.02	\$1141.00~
			~30									~12.5							\$864.00~
~200	400	~360	~15									~7						±0.02	\$1246.00~
			~30									~15							\$969.00~
~70	100	~125	~15									~6						±0.02	\$1474.00~
			~30									~11.5							\$1197.00~
~200	400	~360	~15									~6						±0.02	\$1631.00~
			~30									~13							\$1354.00~

# Compact Linear Actuator



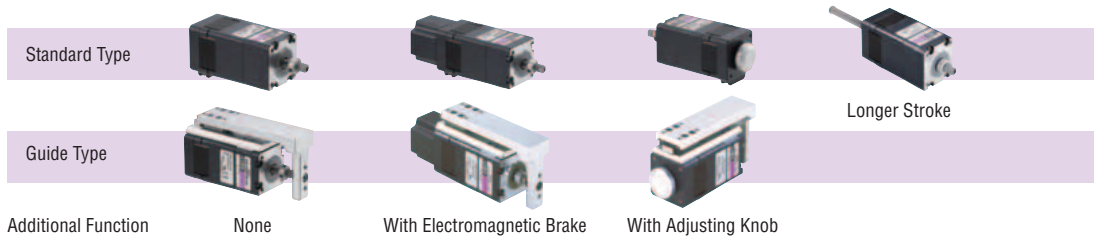
Rolled Ball Screw Type Repetitive Positioning Accuracy: ±0.02 mm (±0.00079 in.)	Ground Ball Screw Type Repetitive Positioning Accuracy: ±0.005 mm (±0.0002 in.)
CRD51□□P (Microstep driver)	CRD51□□P (Microstep driver)

Standard Motor			Standard Motor			High-Resolution Motor		
----------------	--	--	----------------	--	--	-----------------------	--	--

Frame Size	Thrust Force	Actuator Type	Stroke Length	Standard Motor			High-Resolution Motor			List Price (Starting from)		
				None	With Electromagnetic Brake	With Adjusting Knob	None	With Electromagnetic Brake	With Adjusting Knob			
□20 mm (□0.79 in.)	15 N (3.3 lb.)	Standard Type	25 mm (0.98 in.)	-	-	-	●	-	●	-	-	\$1391.00
		Guide Type	25 mm (0.98 in.)	-	-	-	●	-	●	-	-	\$1643.00
□28 mm (□1.10 in.)	30 N (6.7 lb.)	Standard Type	60 mm (2.36 in.)	●	-	-	●	-	-	-	-	\$1055.00
			30 mm (1.18 in.)	●	-	●	●	-	●	●	-	●
		Guide Type	30 mm (1.18 in.)	●	-	●	●	-	●	●	-	●
□42 mm (□1.65 in.)	100 N (22 lb.)	Standard Type	100 mm (3.94 in.)	●	-	-	●	-	-	-	-	\$911.00
			40 mm (1.57 in.)	●	●	●	●	●	●	●	●	●
		Guide Type	40 mm (1.57 in.)	●	●	●	●	●	●	●	●	●
□60 mm (□2.36 in.)	300 N (67 lb.)	Standard Type	100 mm (3.94 in.)	●	-	-	●	-	-	-	-	\$1019.00
			50 mm (1.97 in.)	●	●	●	●	●	●	●	●	●
		Guide Type	50 mm (1.97 in.)	●	●	●	●	●	●	●	●	●

## Selection of the DRL Series

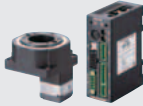

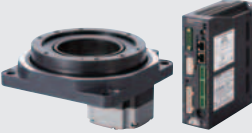

Choose the product that best suits your specific needs from a wide range of functions.





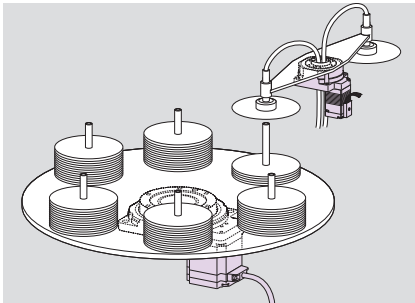
# Hollow Rotary Actuators

## DGII Series C-FLEX

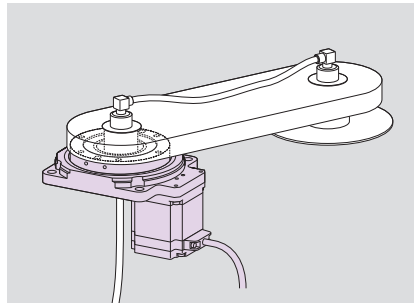
Actuator Frame Size	Product	Electro-magnetic Brake	Driver	Power Supply Voltage	Diameter of Hollow Section mm (in.)	Permissible Torque N-m (lb-in)	Permissible Moment Load				Permissible Thrust Load			List Price (Starting from)
							N-m (lb-in)				N (lb.)			
							20 (177)	40 (354)	60 (531)	80 (708)	1000 (225)	2000 (450)	3000 (675)	
60 mm (2.36 in.)		-	Built-in Controller (Stored Data)	24 VDC	φ28 (φ1.1)	0.9 (7.9)	2 (17.7)				100 (22)		\$1265.00	
			Pulse Input	24 VDC										
85 mm (3.35 in.)		-	Built-in Controller (Stored Data)	Single-Phase 100-120 VAC Single-Phase 200-240 VAC	φ33 (φ1.3)	2.8 (24)	10 (88)				500 (112)		\$2183.00	
			Pulse Input	Single-Phase 100-115 VAC Single-Phase 200-230 VAC Three-Phase 200-230 VAC										
130 mm (5.12 in.)		●	Built-in Controller (Stored Data)	Single-Phase 100-120 VAC Single-Phase 200-240 VAC	φ62 (φ2.44)	12 (106)	50 (440)				2000 (450)		\$2410.00	
			Pulse Input	Single-Phase 100-115 VAC Single-Phase 200-230 VAC Three-Phase 200-230 VAC										
200 mm (7.87 in.)		●	Built-in Controller (Stored Data)	Single-Phase 100-120 VAC Single-Phase 200-240 VAC	φ100 (φ3.94)	50 (440)	100 (880)				4000 (900)		\$2841.00	
			Pulse Input	Single-Phase 100-115 VAC Single-Phase 200-230 VAC Three-Phase 200-230 VAC										

## Application

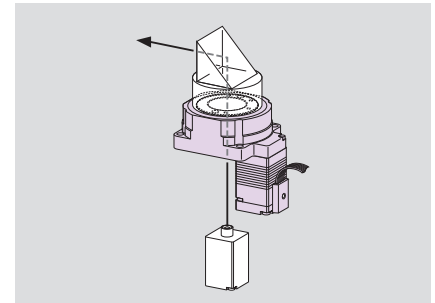
- Applications Subject to Changing Load Inertia



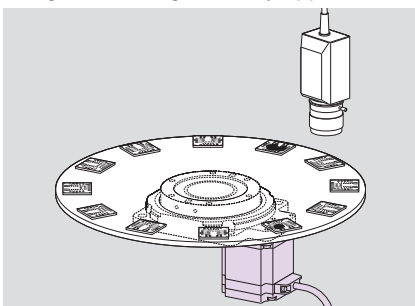
- Applications Where a Moment Load is Applied



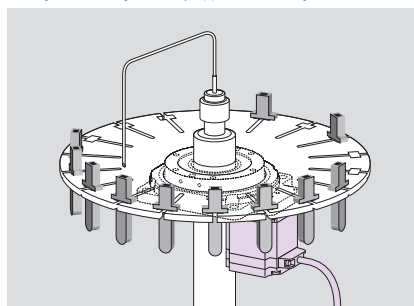
- Optical Applications Using the Hollow Hole



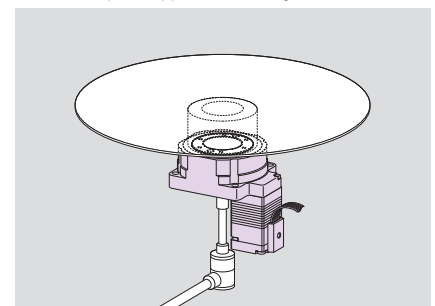
- High Positioning Accuracy Applications



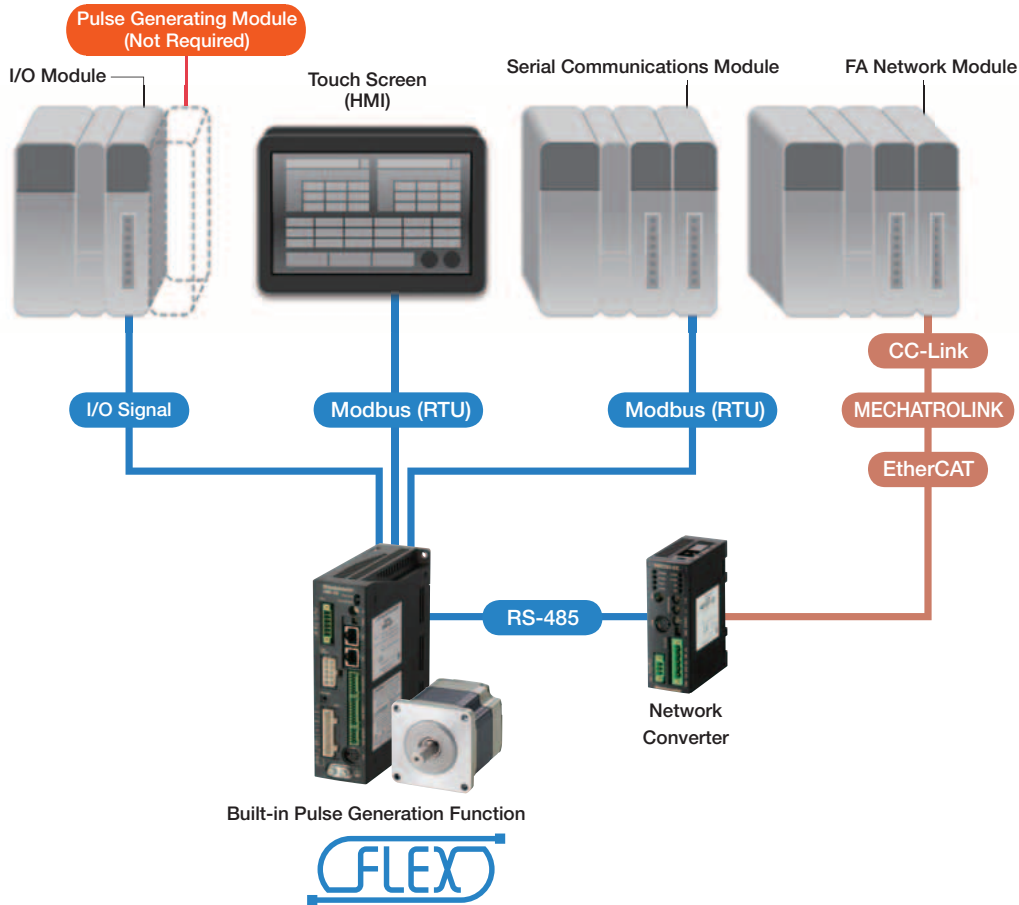
- High Positioning Accuracy Applications Using the Hollow Hole



- Air Adsorption Applications Using the Hollow Hole



For Network requirements a Built-in Controller (stored data) type driver is available [FLEX](#). FLEX is a generic name for products supporting I/O control, Modbus (RTU)/RS-485 control and Factory Automation (FA) network via a network converter.



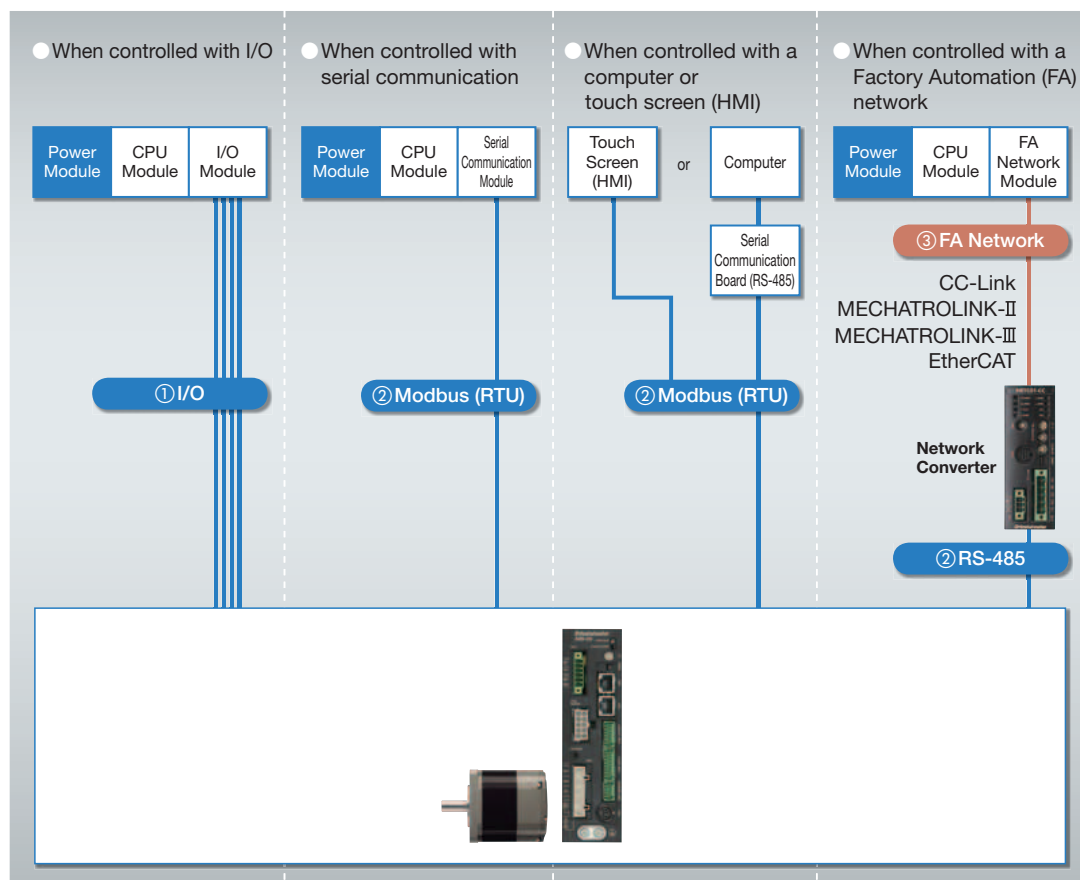
## Network Package Products [FLEX](#)

Positioning			Linear & Rotary Actuators		Speed Control	
<b>RKII Series</b>	<b>CRK Series</b>	<b>PKA Series</b>	<b>PKA Series</b>	<b>DGII Series</b>	<b>BLE Series</b>	
Starting from \$439.00	\$395.00	\$415.00	\$1,139.00	\$2,183.00	\$427.00	

## Handles a Variety of System Configurations

### Built-in Controller (Stored Data) Type **FLEX**

Operating data is set in the driver and the operating data is selected and executed from the master controller. Connection and control with the master controller is done through either ① I/O, ② Modbus (RTU)/RS-485, or ③ FA network.



#### ① I/O

The functions of a positioning module (pulse generator) are built into the driver, allowing it to be connected directly to a controller or PLC to configure an operating system with I/O. Since no positioning module is required on the PLC side, space is saved and the system is simplified.

#### ② Modbus (RTU)/RS-485

Operating data and parameters can be set and operation commands can be input using RS-485 communication. Up to 31 drivers can be connected to each serial communication module. Also, there is a function that enables the simultaneous start of multiple axes. The protocol supports Modbus (RTU), enabling connection with devices such as a touch screen (HMI) or PCs.

#### ③ Factory Automation (FA) Network

Use of a network converter (sold separately) enables support with CC-Link, MECHATROLINK or EtherCAT communication. Operating data and parameters can be set and operation commands can be input using various communication methods.



Drive Sources for Automation in all Industries.  
This is the Standard for Compact Motors.

### Main Applications

Compact AC Motors of constant speed for conveyor systems and various mechatronic equipment

Manufacturing equipment for display panels

Medical devices

Laboratory devices

Devices for monetary sectors

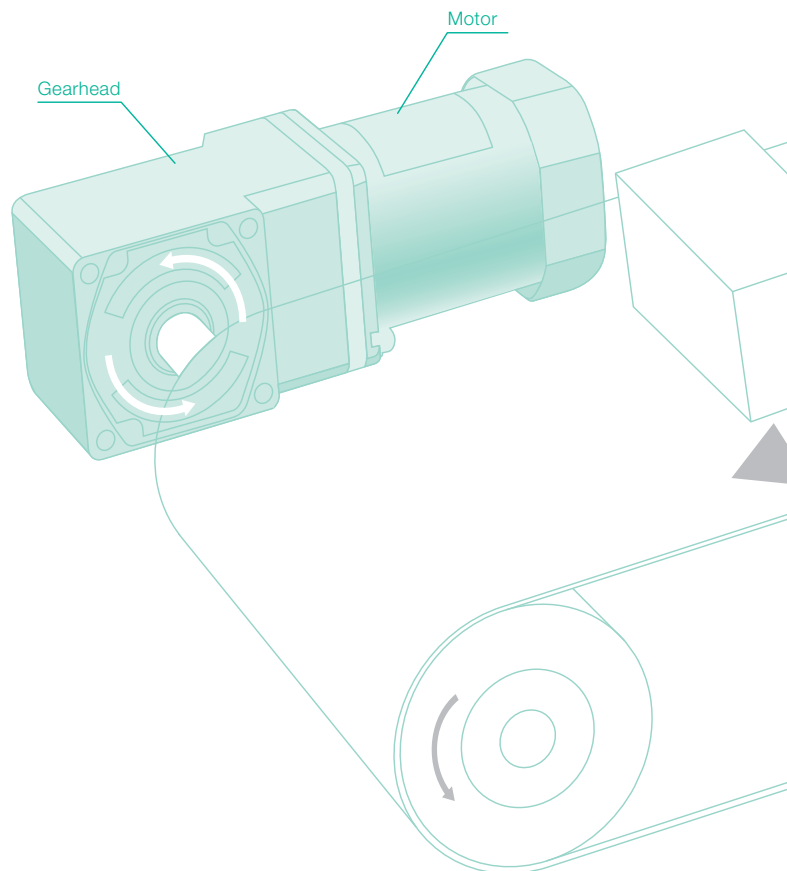
Measurement devices

Packaging equipment

Food manufacturing equipment

Equipment for commuter systems

Factory automation field



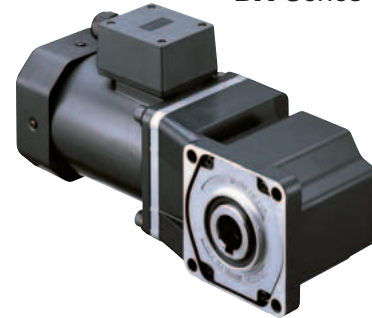
Induction Motors



Electromagnetic Brake Motors



Induction Motors  
**BH Series**



Watertight, Dust-Resistant Motors



Motor and Gearhead Mounting Brackets

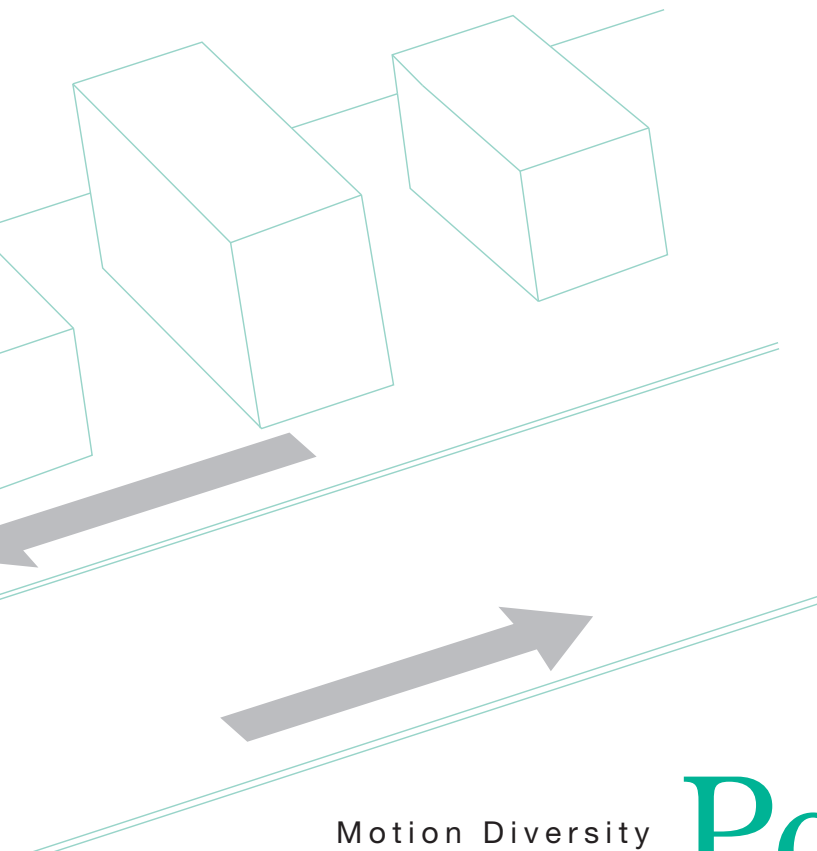


Flexible Couplings

### Motor + Gearhead = Combination Type

To move all types of objects at a constant speed, simply plug into the power output for horizontal or vertical applications, conveyors, pumps, stirring and mixing, torque control or simple positioning / stopping applications. Increase the motor torque by attaching a gearhead to suit the motion and moving requirements.

Our Standard AC Motors fulfill the World's industrial needs. Being one of the most compact AC Motors producing high output torque, we offer global input voltages with agency approvals from induction motors, reversible, electromagnetic brake, torque and watertight, dust-resistant motors.

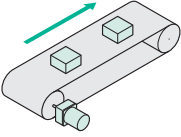



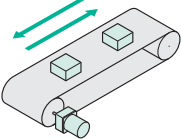

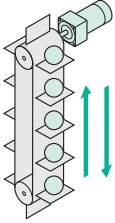




Motion Diversity


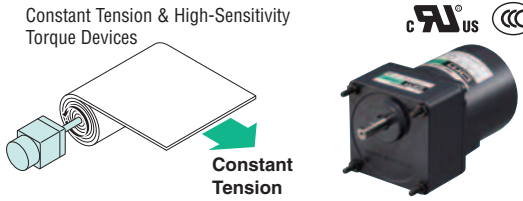
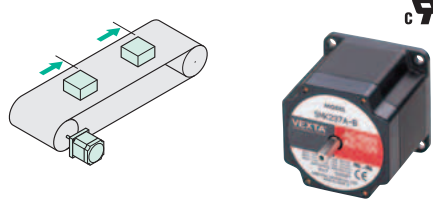
# Power Drive

# AC Motors

Units = N·m (lb·in)

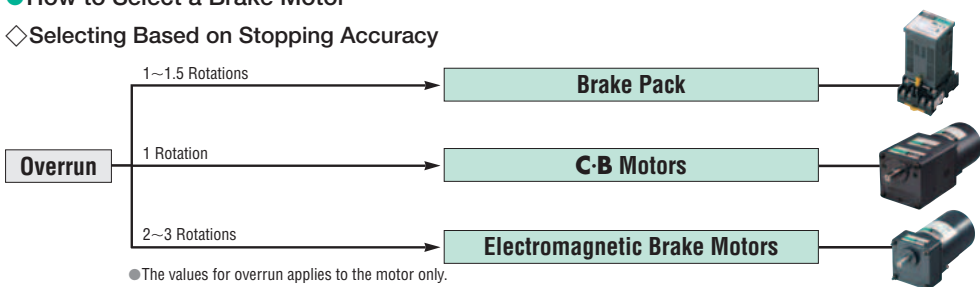
Types	Features	Series	Frame Size mm (in.)/Output Power							List Price (Starting from)
			□60 (□2.36)	□70 (□2.76)	□80 (□3.15)	□90 (□3.54)		□104 (□4.09)		
			6 W (1/125 HP)	15 W (1/50 HP)	25 W (1/30 HP)	40 W (1/19 HP)	60 W (1/12 HP)	90 W (1/8 HP)	200 W (1/4 HP)	
Induction Motors	<p>Suitable for applications where the motor is operated continuously in one direction.</p> 	<p><b>KII Series</b> Adopted High-Strength, Long Life, Low Noise gearheads. They also conform to major safety standards and support global power supply voltages.</p>  <p>cULus CCC CE</p>	6 (53)	10 (88)	16 (141)	30 (260)	30 (260)	40 (350)		\$121.00
		<p><b>BH Series</b> The <b>BH</b> Series provides high-output power of 200 W (1/4 HP) in a compact 104 mm (4.09 in.) square mounting configuration. They also conform to major safety standards and support global power supply voltages.</p>  <p>* RA/RH Type</p> <p>cULus CCC CE</p>							60* (530)	\$184.00
		<p><b>FPW Series</b> These motors conform to IEC standard IP67 (Recognized by UL). Ideal for applications in which they are splashed or washed periodically.</p>  <p>cULus CCC CE</p>				8 (70)	10 (88)	15 (132)	30 (260)	
Reversible Motors	<p>Suitable for applications where the motor reverses its direction repeatedly.</p> 	<p><b>World K Series</b> These motors conform to major safety standards and support global power supply voltages for use in major countries.</p>  <p>cULus CCC CE</p>	3 (26)	5 (44)	8 (70)	10 (88)	20 (177)	20 (177)		\$147.00
Electromagnetic Brake Motors	<p>Suitable for applications where the load must always be held in place.</p> 	<p><b>World K Series</b> These motors conform to major safety standards and support global power supply voltages for use in major countries.</p>  <p>cULus CCC CE</p>	3 (26)	5 (44)	8 (70)	10 (88)	20 (177)	20 (177)		\$251.00
		<p><b>BH Series</b> The <b>BH</b> Series provides high-output power of 200 W (1/4 HP) in a compact 104 mm (4.09 in.) square mounting configuration. They also conform to major safety standards and support global power supply voltages.</p>  <p>* RA/RH Type</p> <p>cULus CCC CE</p>							60* (530)	\$474.00

Units = N·m (lb·in)

Types	Features	Frame Size mm (in.)/Output Power							List Price (Starting from)
		□42 (□1.65) 1 W, 3 W (1/750 HP, 1/250 HP)	□60 (□2.36) 6 W (1/125 HP)	□70 (□2.76) 15 W (1/50 HP)	□80 (□3.15) 25 W (1/30 HP)	□90 (□3.54) 40 W (1/19 HP) 60 W (1/12 HP) 90 W (1/8 HP)			
Clutch and Brake Motors	<p>This motor combines a power on activated type clutch and brake with an induction motor. It is ideal for high-frequency starting and stopping.</p>  <p><b>UL</b> <b>cUL</b> <b>CE</b></p> <p>* Output torque determined by Load Torque and Load Inertia.</p>					●*	●*	●*	\$469.00
Torque Motors	<p>Designed to provide high starting torque and sloping characteristics (torque is highest at zero speed and decreases steadily with increasing speed). Can operate over a wide speed range.</p> <p>Constant Tension &amp; High-Sensitivity Torque Devices</p>  <p><b>cUL</b> <b>us</b> <b>CCC</b> <b>CE</b></p> <p>* Output torque determined by speed.</p>	3* (26) 3 W (1/250 HP)	5* (44)	8* (70) 10 W (1/75 HP)	10* (88) 20 W (1/38 HP)				\$119.00
Low-Speed Synchronous Motors	<p>Suitable for applications where the motor is operated starting, stopping and reversing repeatedly and the motor is operated at synchronous speed regardless of load torque.</p>  <p><b>cUL</b> <b>us</b> <b>CE</b></p> <p>* (oz-in) / See website for gear ratio and torque values.</p>	0.009* (1.27)	□56.4 (□2.22) 0.025* (3.5)				□85 (□3.35) 0.089* (12.6)		\$87.00

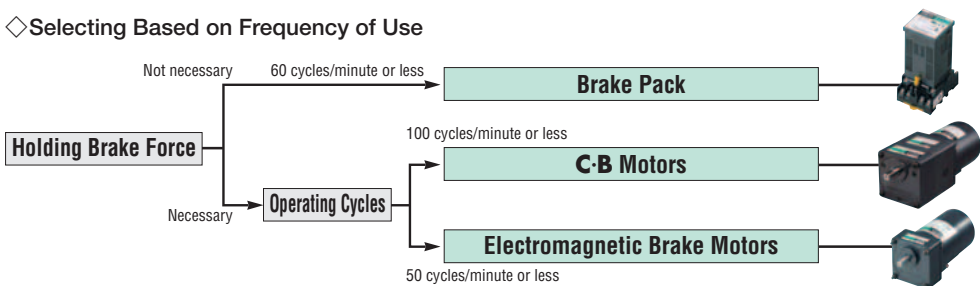
● How to Select a Brake Motor

◇ Selecting Based on Stopping Accuracy



● For low-speed synchronous motors, the motor can be stopped instantly within  $\pm 10^\circ$  of stopping accuracy by turning off the power supply.

◇ Selecting Based on Frequency of Use



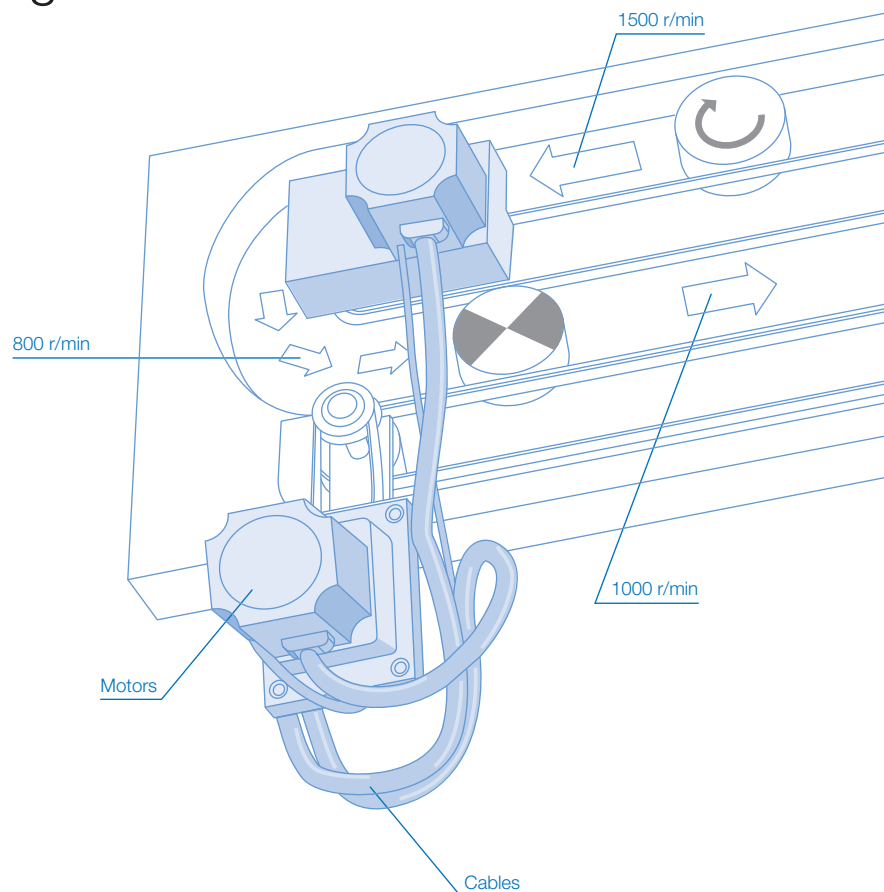
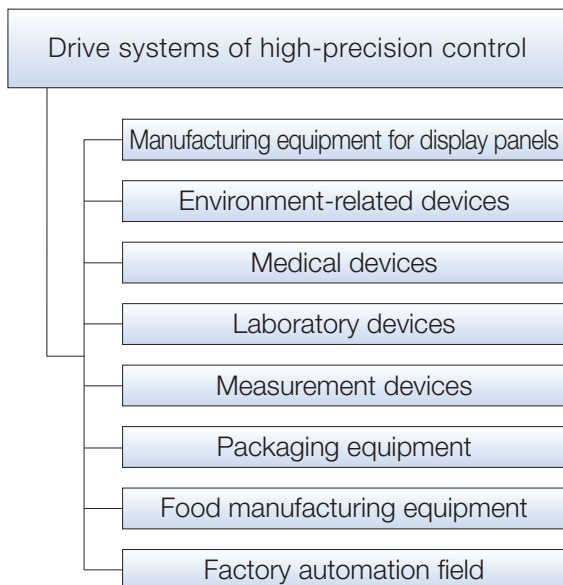
Notes

- The operating cycles are based merely on brake response. The value specified above is the maximum, so it may not be possible to repeat braking operation at this frequency. In an actual application, be certain the surface temperature of the motor case remains at 90°C (194°F) or less.
- For low-speed synchronous motors, if operated within the permissible load inertia, the motor can start and reverse within 1.5 cycles of power supply frequency.



## Brushless Motors and AC Speed Control Motors with a Compact Design and Simple Control.

### Main Applications





# Brushless Motors, AC Speed Control Motors

Brushless Motor and Driver Packages  
**BLF Series**



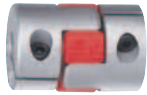
Brushless Motor and Driver Packages  
**BMU Series**



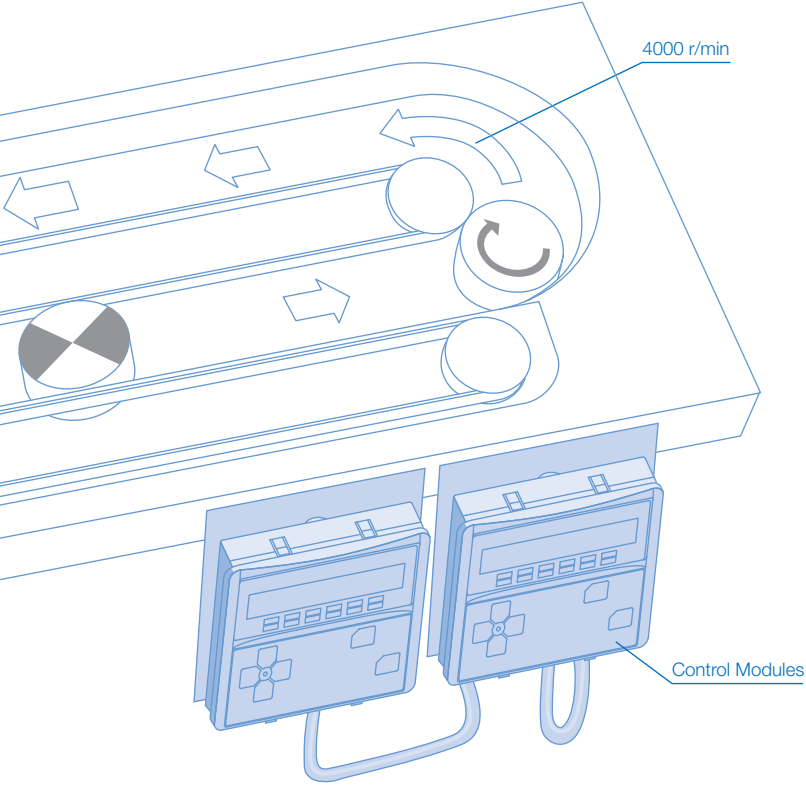
Speed Controller Motors/**MSC-1**



Motor and Gearhead Mounting Brackets



Flexible Couplings



## Compact, High Efficiency and High Output

Various applications require different types of motors. For motion control requiring variable speeds, select a Brushless motor or AC Speed Control motor. Both provide cost effective, closed loop feedback. Brushless motors or AC Speed Control motors can be used in conveyors, analytical instruments, security doors, wrapping equipment and many other applications.

In the recent years, due to their high speed, compact size, Brushless motors have been gaining in popularity, being cost effective solutions to expensive Servo motors along with replacing brush motors, as Brushless motors are maintenance free. Our AC Speed Control motors feature a feedback tachogenerator offering unique advantages in AC motor performance.

Motion Diversity

# Speed Control

Stepper Motors  
Servo Motors

Linear and Rotary  
Actuators




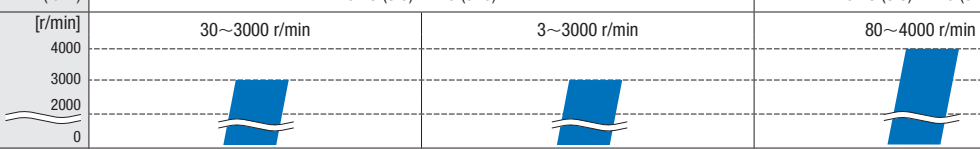










Network


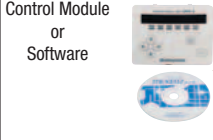



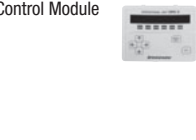


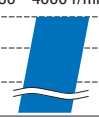
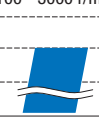
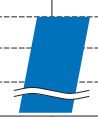
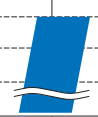
AC Motors

Brushless Motors  
AC Speed Control Motors

Cooling Fans

# Brushless Motors

Category		AC Power Supply Input		
Series		Higher functionality and performance		
		High power, speed and position control <b>BX Series</b> Standard Product 	Standard Product + Control Module or Software 	High power and digital potentiometer basic mounting <b>BLF Series</b> 
List Price (Starting from)		\$693.00		\$572.00
Features		<ul style="list-style-type: none"> <li>High speed stability, high performance, high functionality</li> <li>Vertical Operation (gravitational operation)</li> </ul>	<ul style="list-style-type: none"> <li>Increased functionality from the basic product; capable of multistep speed-change operation, position control and torque limiting</li> </ul>	<ul style="list-style-type: none"> <li>The mounted digital operator enables digital setting and display</li> <li>High-power motor lineup with a max. of 4000 r/min</li> </ul>
Power Supply Input		Single-Phase 100-115 VAC Single-Phase 200-230 VAC Three-Phase 200-230 VAC		Single-Phase 100-120 VAC Single-Phase 200-240 VAC Three-Phase 200-240 VAC
Output Power	Frame Size 42 mm (1.65 in.)	-		-
	Frame Size 60 mm (2.36 in.)	30 W (1/25 HP)		30 W (1/25 HP)
	Frame Size 80 mm (3.15 in.)	60 W (1/12 HP)		60 W (1/12 HP)
	Frame Size 90 mm (3.54 in.)	120 W (1/6 HP)		120 W (1/6 HP)
	Frame Size 104 mm (4.09 in.)	200 W (1/4 HP)/400 W (1/2 HP)		200 W (1/4 HP)/400 W (1/2 HP)
Rated Torque	N-m (oz-in) Max	1.3 (184)		1.3 (184)
Starting Torque	N-m (oz-in) Max	2.6 (360)		1.8 (250)
Gearheads Torque	N-m (lb-in)	0.45 (3.9)~110 (970)		0.45 (3.9)~110 (970)
Speed Control Range	[r/min]	30~3000 r/min	3~3000 r/min	80~4000 r/min
				
Speed Ratio		100 : 1	1000 : 1	50 : 1
Speed Regulation (Load)		±0.05%	±0.05%	±0.2%
Speed Setting Method	Potentiometer	Internal/External Speed Potentiometer	Internal/External Speed Potentiometer	Internal/External Speed Potentiometer
	Digital Setting	-	●	●
	External DC Voltage	●	●	●
Functions	Digital Speed Indicator	-	●	●
	Instantaneous Stop	●	●	●
	Acceleration/Deceleration Operation	●	●	●
	Multi-Speed Operation	2 Speeds	8 Speeds	8 Speeds
	Load Holding/Gravitational Operation	● Electromagnetic Brake Type	● Electromagnetic Brake Type	-
	Multi-Motor Control	●	●	●
	Protective Function	●	●	●
	Sink/Source Select Input	-	-	●
	Maximum Extension Distance	20.4 m (66.9 ft.)	20.4 m (66.9 ft.)	20.4 m (66.9 ft.)
	Others	-	Position Control Torque Limiting	-
Gearheads	Parallel Shaft Gearhead	●	●	●
	Hollow Shaft Flat Gearhead	●	●	●
Safety Standards				Motor:  Driver: 
RoHS Directive				

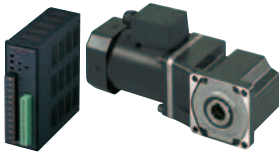





AC Power Supply Input			DC Power Supply Input		
High functionality and performance		Easier and simpler Speed setting with dial	24 VDC Input	24 VDC/48 VDC Input	
BLE Series		BMU Series	BLH Series	BLV Series	
Standard Product	Standard Product + Control Module or Software			Standard Product	Standard Product + Control Module
					
\$421.00		\$277.00	\$264.00	\$715.00	
<ul style="list-style-type: none"> <li>The standard package has a max. of 4000 r/min</li> <li>Wide Variation</li> <li>CC-Link Compatible Lineup</li> </ul>	<ul style="list-style-type: none"> <li>Increased functionality from the basic product; capable of multistep speed-change operation and torque limiting</li> </ul>	<ul style="list-style-type: none"> <li>Easy Speed Control</li> <li>Digital Speed Indicator</li> <li>Panel Mounted Driver</li> <li>Easy Setting, Easy Operation</li> </ul>	<ul style="list-style-type: none"> <li>Small Board Driver</li> <li>24 VDC Input</li> </ul>	<ul style="list-style-type: none"> <li>High Power</li> <li>Network Compatible (RS-485 Communication)</li> </ul>	
Single-Phase 100-120 VAC Single-Phase 200-240 VAC Three-Phase 200-240 VAC		Single-Phase 100-120 VAC Single-Phase 200-240 VAC Three-Phase 200-240 VAC	24 VDC	24 VDC/48 VDC	
-		-	15 W (1/50 HP)	-	
30 W (1/25 HP)		30 W (1/25 HP)	30 W (1/25 HP)	-	
60 W (1/12 HP)		60 W (1/12 HP)	50 W (1/15 HP)	-	
120 W (1/6 HP)		120 W (1/6 HP)	100 W (1/8 HP)	-	
-		-	-	200 W (1/4 HP)/400 W (1/2 HP)	
0.4 (56)		0.382 (54)	0.4 (56)	1.3 (184)	
0.8 (113)		0.573 (81)	0.5 (71)	1.8 (250)	
0.45 (3.9)~51 (450)		0.45 (3.9)~27 (230)	0.54 (4.7)~34 (300)	2.9 (25)~80.8 (710)	
100~4000 r/min	80~4000 r/min	80~4000 r/min	100~3000 r/min	100~4000 r/min	80~4000 r/min
					
40 : 1	50 : 1	50 : 1	30 : 1	40 : 1	50 : 1
±0.5%	±0.2%	±0.2%	±0.5%	±0.5%	±0.2%
Internal/External Speed Potentiometer	Internal/External Speed Potentiometer	●	Internal/External Speed Potentiometer	Internal/External Speed Potentiometer	
-	●	●	-	-	●
●	●	-	●	●	●
SDM496	●	●	SDM496	SDM496	●
●	●	●	●	●	●
●	●	●	●	●	●
2 Speeds	8 Speeds	4 Speeds	2 Speeds (Internal/External switching)	2 Speeds	8 Speeds
●	●	-	-	●	●
Electromagnetic Brake Type	Electromagnetic Brake Type	-	-	Electromagnetic Brake Type	Electromagnetic Brake Type
●	●	-	●	●	●
●	●	●	●	●	●
●	●	●	-	●	●
20.4 m (66.9 ft.)	20.4 m (66.9 ft.)	10.5 m (34.4 ft.)	2 m (6.6 ft.)	3.5 m (11.5 ft.)	3.5 m (11.5 ft.)
-	Torque Limiting	Torque Limiting	-	Torque Limiting	Torque Limiting
●	●	●	●	●	●
●	●	-	●	●	●
			[Except for 15 W (1/50 HP)]		
UL US CE (RoHS)	UL US CE (RoHS)	UL US CE (RoHS)	UL US CE (RoHS)	CE (RoHS)	

FLEX is a generic name for products that are used for Factory Automation (FA) network control via I/O control, Modbus (RTU) control, or a network converter.

SDM496 :Possible when a speed indicator (SDM496, accessory) is used.









# AC Speed Control Motors

Units = N·m (lb·in)

Series		High-power and roll-down operation possible	Speed Controller
		<b>BHF Series</b>	<b>MSC-1</b>
			
List Price (Starting from)		\$489.00	\$88.00 (motor \$153.00)
Features		<ul style="list-style-type: none"> <li>• Smallest Frame Size among 200 W Output Power</li> <li>• Speed Regulation <math>\pm 3\%</math></li> <li>• Vertical Operation (Gravitational Operation) Possible</li> </ul>	<ul style="list-style-type: none"> <li>• Compact and Space Saving Design</li> <li>• Connects Directly to PLC</li> <li>• Feedback Control</li> <li>• Wide Voltage Range</li> </ul>
Power Supply Input		Single-Phase 100-115 VAC Single-Phase 200-230 VAC Three-Phase 200-230 VAC	Power Supply 100-230 VAC (Control Power 24 VDC $\pm 10\%$ )
Motor Types		Induction Motors Electromagnetic Brake Motors	<b>V Series</b> Induction Motors Reversible Motors
Output Power	Frame Size 60 mm (2.36 in.)	—	6 W (1/125 HP)
	Frame Size 70 mm (2.76 in.)	—	15 W (1/50 HP)
	Frame Size 80 mm (3.15 in.)	—	25 W (1/30 HP)
	Frame Size 90 mm (3.54 in.)	—	40 W (1/19 HP)
	Frame Size 104 mm (4.09 in.)	—	60 W (1/12 HP)
			200 W (1/4 HP)
Rated Torque (with Gearhead)		4.6 (40)~56.0 (490)	0.15 (32)~40 (350)
Speed Control Range		100~2400 r/min	90~1600 r/min (60 HZ)
Speed Ratio		24 : 1	17 : 1
Speed Setting Methods	Potentiometer Control	Internal/External Speed Potentiometer	●
	Digital Setting	—	Internal/External Speed Potentiometer
	External DC Voltage	●	●
Functions	Digital Speed Indicator	<b>SDM496</b>	<b>SDM496</b>
	Instantaneous Stop*4	●	●
	Acceleration/Deceleration Operation	●	●
	Multi-Speed Operation	2 Speeds (Internal/External switching)	2 Speeds (Internal/External switching)
	Load Holding/Gravitational Operation	● Electromagnetic Brake Type	—
	Multi-Motor Control	●	—
	Protective Function	●	●
	Sink/Source Select Input	—	—
	Maximum Extension Distance	50 m (164 ft.)	10 m (32.8 ft.)
	Gearheads	Parallel Shaft Gearhead	●
Right-Angle Gearhead		●	—
Safety Standards			
RoHS Directive			

**SDM496** : Possible when a speed indicator (**SDM496**, accessory) is used.

Units = N·m (lb·in)

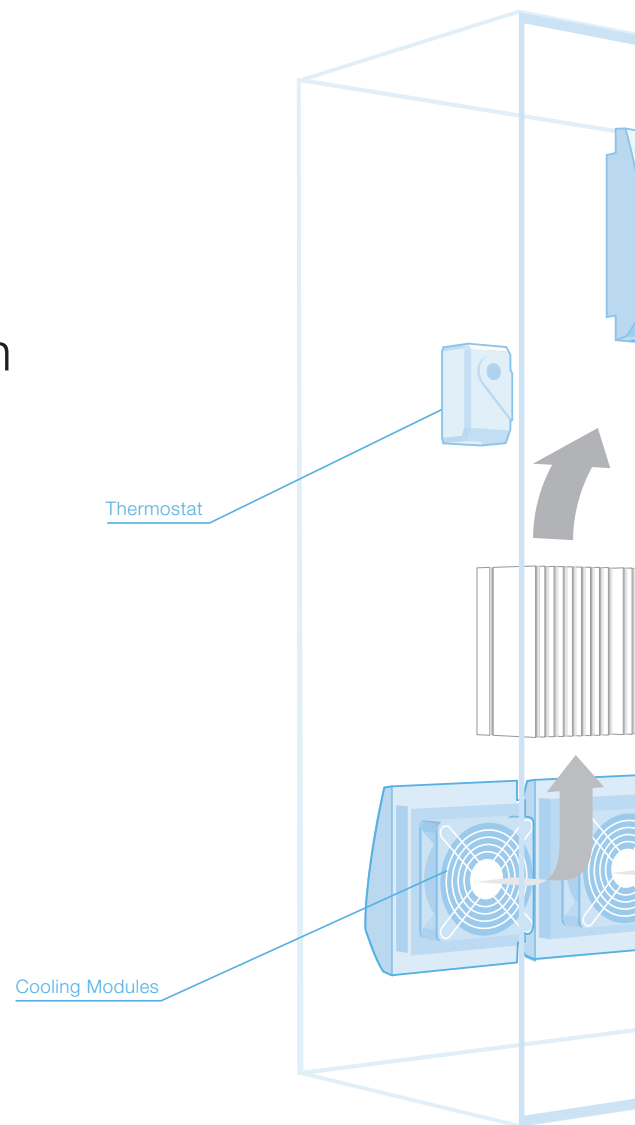
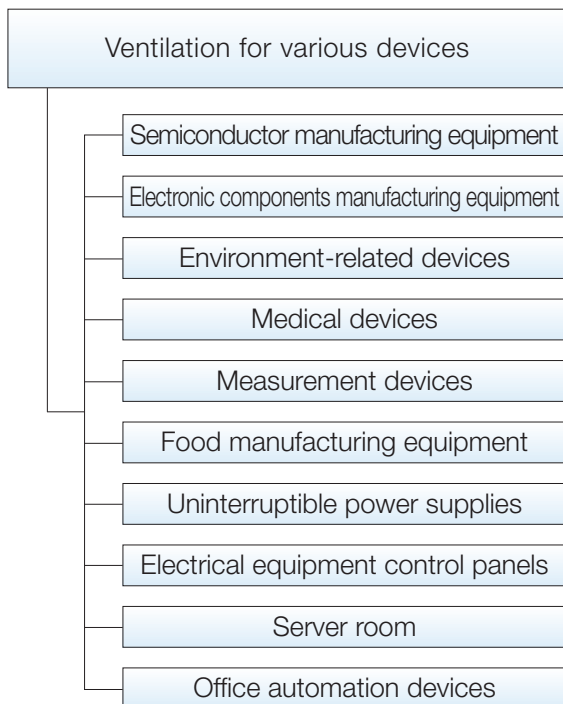
		Contact controller <b>ES01/ES02</b>	Simple potentiometer settings <b>US Series</b>
Series			
		\$75.00	\$199.00
Features		<ul style="list-style-type: none"> <li>● Conforms to safety standards</li> <li>● Simple Wiring</li> <li>● Applicable Motors: World <b>K</b> Series, <b>V</b> Series</li> </ul>	<ul style="list-style-type: none"> <li>● Panel-installation type</li> <li>● Simple Function</li> <li>● Easy Wiring, Easy Operation</li> <li>● Conforms to Safety Standards</li> </ul>
Power Supply Input		Single-Phase 110/115 VAC Single-Phase 220/230 VAC	Single-Phase 110/115 VAC Single-Phase 220/230 VAC
Motor Types		Induction Motors Reversible Motors	Induction Motors
Output Power	Frame Size 60 mm (2.36 in.)	6 W (1/125 HP)	6 W (1/125 HP)
	Frame Size 70 mm (2.76 in.)	15 W (1/50 HP)	15 W (1/50 HP)
	Frame Size 80 mm (3.15 in.)	25 W (1/30 HP)	25 W (1/30 HP)
	Frame Size 90 mm (3.54 in.)	40 W (1/19 HP)	40 W (1/19 HP)
		60 W (1/12 HP)	60 W (1/12 HP)
		—	90 W (1/8 HP)
Rated Torque (with Gearhead)		0.15 (1.32)~40 (350)	0.090 (0.79)~20 (177)
Variable Speed Range	50 Hz	90~1400 r/min	90~1400 r/min
	60 Hz	90~1600 r/min	90~1600 r/min
	[r/min]		
	3000		
	2000		
1000			
0			
Speed Setting Methods	Potentiometer Control	Internal/External Speed Potentiometer	●
	Digital Setting	—	—
	External DC Voltage	—	—
Functions	Digital Speed Indicator	<b>SDM496</b>	<b>SDM496</b>
	Instantaneous Stop	●	—
	Acceleration/ Deceleration Operation	●	—
	Multi-Speed Operation	2 Speeds (Internal/External switching)	—
	Load Holding/ Gravitational Operation	—	—
	Multi-Motor Control	—	—
	Protective Function	—	—
	Maximum Extension Distance	10 m (32.8 ft.)	4.75 m (15.6 ft.)
Gearheads	Parallel Shaft Gearhead	●	●
	Right-Angle Gearhead	●	●
	Linear Heads	●	—
Safety Standards			
RoHS Directive			

**SDM496** : Possible when a speed indicator (**SDM496**, accessory) is used.



Motion that Supports Stable Operation  
24 Hours a Day, 365 Days a Year.

### Main Applications



Axial Flow Fans AC Input Long Life  
**MRS Series**



Axial Flow Fans AC Input  
**MU Series**



Centrifugal Blowers  
**MB/MBD Series**



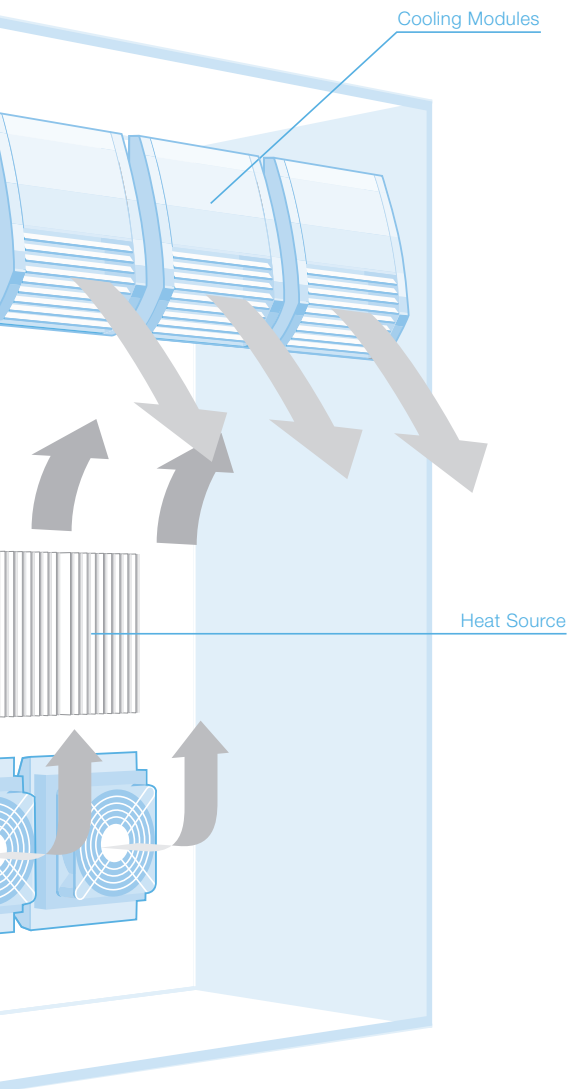
Cross Flow Fans  
**MF/MFD Series**



Cooling Modules  
**FM Series**



Thermostat



### Motors That Create Airflow

Our society and way of life is surrounded by advanced control systems. With many kinds of heat sources, there is a need for cooling fans to support stable operation, 24 hours a day, 365 days a year. We provide a broad range of cooling fans and modules to cover temperature control that meets the needs for environmental management and maintenance requirements.

Axial flow fans generate large wind volumes, centrifugal flow fans provide localized cooling, cross flow fans create broad and uniform wind, and Cooling Modules are suitable for ventilation and cooling in environments with high dust content or other harsh conditions. Other than fans equipped with alarm functions and variable speed functions, our lineup of Thermal Management products includes fans with expected lifespan of 100,000 hours, ready to run continuously for around 11 years.

Motion Diversity

# Thermal Management

Stepper Motors  
Servo Motors

Linear and Rotary  
Actuators

Network

AC Motors

Brushless Motors  
AC Speed Control Motors

Cooling Fans

# Cooling Fans

## Maximum Air Flow

### AC Axial Flow Fans

Max. Air Flow [m <sup>3</sup> /min (CFM)] For 50/60 Hz	Frame Size [mm (in.)]	Thickness [mm (in.)]	Type	List Price (Starting from)
21/24 (742/848)	□250 (□9.84)	120 (4.72)	<b>MRS25</b>	\$310.00
13.2/15.5 (466/547)	□200 (□7.87)	90 (3.54)	<b>MRS20</b>	\$266.00
11.0/12.8 (388/452)	□180 (□7.09)	90 (3.54)	<b>MRS18</b>	\$169.00
6.2/7.3 (219/258)	□160 (□6.30)	62 (2.44)	<b>MRS16</b>	\$104.00
4.5/4.6 (159/162)	□140 (□5.51)	47 (1.85)	<b>MRS14</b>	\$89.00
2.7/3.0 (95.3/106)	□119 (□4.69)	38 (1.50)	<b>MU1238</b>	\$28.00
1.6/1.9 (56.5/67.1)	□119 (□4.69)	25 (0.98)	<b>MU1225</b>	\$28.00
0.95/1.10 (33.5/38.8)	□92 (□3.62)	25 (0.98)	<b>MU925</b>	\$28.00
0.45/0.55 (15.9/19.4)	□80 (□3.15)	25 (0.98)	<b>MU825</b>	\$28.00

### DC Axial Flow Fans

Max. Air Flow [m <sup>3</sup> /min (CFM)]	Frame Size [mm (in.)]	Thickness [mm (in.)]	Type	List Price (Starting from)
6 (212)	φ172 (φ6.77)	51 (2.01)	<b>MDS1751</b>	\$89.00
5.8 (205)	□140 (□5.51)	51 (2.01)	<b>MDS1451</b>	\$72.00
2.7 (95.3)	□119 (□4.69)	25.4 (1.00)	<b>MDS1225</b>	\$42.00
2.5 (88.3)		25.4 (1.00)	<b>MD1225</b>	\$34.00
1.3 (45.9)	□92 (□3.62)	25.4 (1.00)	<b>MD925</b>	\$27.00
1 (35.3)	□80 (□3.15)	25.4 (1.00)	<b>MD825</b>	\$25.00
0.5 (17.7)	□62 (□2.44)	25.4 (1.00)	<b>MD625</b>	\$25.00
0.27 (9.53)	□52 (□2.05)	10 (0.39)	<b>MDS510</b>	\$24.00
0.18 (6.35)	□42 (□1.65)	10 (0.39)	<b>MDS410</b>	\$23.00

### Centrifugal Blowers

Max. Air Flow [m <sup>3</sup> /min (CFM)] For 50/60 Hz	Impeller Diameter [mm (in.)]	Power Supply	Type	List Price (Starting from)
8.0/9.0 (282/318)	φ160 (φ6.30)	AC Input	<b>MB1665</b>	\$344.00
4.4/5.1 (155/180)	φ120 (φ4.72)		<b>MB1255</b>	\$160.00
2.3/2.6 (81.2/91.8)	φ100 (φ3.94)		<b>MB1040</b>	\$88.00
1.6/1.8 (56.5/63.5)	φ80 (φ3.15)		<b>MB840</b>	\$73.00
0.44/0.36 (15.5/12.7)	φ60 (φ2.36)		<b>MB630</b>	\$47.00
0.21/0.24 (7.41/8.47)	φ50 (φ1.97)		<b>MB520</b>	\$45.00
3 (106)	φ120 (φ4.72)	DC Input	<b>MBD12</b>	\$140.00
1.95 (68.8)	φ100 (φ3.94)		<b>MBD10</b>	\$102.00
1.45 (51.2)	φ80 (φ3.15)		<b>MBD8</b>	\$91.00










### Cross Flow Fans

Max. Air Flow [m <sup>3</sup> /min (CFM)] For 50/60 Hz	Impeller Diameter [mm (in.)]	Power Supply	Type	List Price (Starting from)
6.0/6.2 (212/219)	300 (11.81)	AC Input	<b>MF930</b>	\$123.00
3.4/3.7 (120/131)	150 (5.91)		<b>MF915</b>	\$110.00
5.2 (184)	300 (11.81)	DC Input	<b>MFD930</b>	\$137.00
3 (106)	150 (5.91)		<b>MFD915</b>	\$123.00










## Maximum Static Pressure










### AC Axial Flow Fans

Max. Static Pressure [Pa (inH <sub>2</sub> O)] For 50/60 Hz	Frame Size [mm (in.)]	Thickness [mm (in.)]	Type
 290/320 (1.16/1.28)	□250 (□9.84)	120 (4.72)	<b>MRS25</b>
 221/186 (0.886/0.746)	□200 (□7.87)	90 (3.54)	<b>MRS20</b>
 196/245 (0.786/0.982)	□180 (□7.09)	90 (3.54)	<b>MRS18</b>
 127/157 (0.509/0.63)	□160 (□6.30)	62 (2.44)	<b>MRS16</b>
 92/81 (0.369/0.325)	□140 (□5.51)	47 (1.85)	<b>MRS14</b>
 81/81 (0.325/0.325)	□119 (□4.69)	38 (1.50)	<b>MU1238</b>
 49/44 (0.196/0.176)	□119 (□4.69)	25 (0.98)	<b>MU1225</b>
 44/59 (0.176/0.237)	□92 (□3.62)	25 (0.98)	<b>MU925</b>
 34/49 (0.137/0.196)	□80 (□3.15)	25 (0.98)	<b>MU825</b>





### DC Axial Flow Fans

Max. Static Pressure [Pa (inH <sub>2</sub> O)]	Frame Size [mm (in.)]	Thickness [mm (in.)]	Type
 137 (0.549)	φ172 (φ6.77)	51 (2.01)	<b>MDS1751</b>
 130 (0.521)	□140 (□5.51)	51 (2.01)	<b>MDS1451</b>
 86 (0.345)	□42 (□1.65)	10 (0.39)	<b>MDS410</b>
 70 (0.281)	□119 (□4.69)	25.4 (1.00)	<b>MDS1225</b>
 54 (0.217)	□52 (□2.05)	10 (0.39)	<b>MDS510</b>
 49 (0.196)	□92 (□3.62)	25.4 (1.00)	<b>MD925</b>
	□80 (□3.15)	25.4 (1.00)	<b>MD825</b>
	□62 (□2.44)	25.4 (1.00)	<b>MD625</b>
 43 (0.172)	□119 (□4.69)	25.4 (1.00)	<b>MD1225</b>

### Centrifugal Blowers

Max. Static Pressure [Pa (inH <sub>2</sub> O)] For 50/60 Hz	Impeller Diameter [mm (in.)]	Power Supply	Type	
 490/686 (1.96/2.75)	φ160 (φ6.30)	AC Input	<b>MB1665</b>	
 309/441 (1.24/1.77)	φ120 (φ4.72)		<b>MB1255</b>	
 206/284 (0.826/1.14)	φ100 (φ3.94)		<b>MB1040</b>	
 152/221 (0.610/0.886)	φ80 (φ3.15)		<b>MB840</b>	
 53/76 (0.213/0.305)	φ60 (φ2.36)		<b>MB630</b>	
 37/53 (0.149/0.213)	φ50 (φ1.97)		<b>MB520</b>	
 372 (1.49)	φ120 (φ4.72)	DC Input	<b>MBD12</b>	
	 294 (1.18)		φ100 (φ3.94)	<b>MBD10</b>
	 196 (0.786)		φ80 (φ3.15)	<b>MBD8</b>








### Cross Flow Fans

Max. Static Pressure [Pa (inH <sub>2</sub> O)] For 50/60 Hz	Impeller Diameter [mm (in.)]	Power Supply	Type
 74/103 (0.297/0.414)	300 (11.81)	AC Input	<b>MF930</b>
 88/127 (0.353/0.509)	150 (5.91)		<b>MF915</b>
 83 (0.333)	300 (11.81)	DC Input	<b>MFD930</b>
 98 (0.393)	150 (5.91)		<b>MFD915</b>

# HISTORY

Since our success in standardizing compact motors, we have been developing products to match all kinds of motion. Copiers in the 60s, personal computers in the 70s, ATMs in the 80s, semiconductor manufacturing equipment in the 90s, and digitalization and environmentalism in recent years.

We will keep on creating motion to meet society's needs in the future.

1885-1950 From Foundation to Establishment	1951-1957 Promotion of Standardization of Products and Establishment of Corporation	1958-1978 Changes and Development	1979-1988 Transition into a Motion Control Manufacturer
<p><b>1885</b> Founder Yasutaro Kuraishi started manufacturing and selling electrical equipment in Nihonbashi, Tokyo.</p>	<p><b>1950</b> Established "Toyo Dendoki" in Kojimacho, Taito-ku.</p> <p><b>1953</b> Changed the company name to "ORIENTAL MOTOR CO., LTD."</p>	<p><b>1960</b> Headquarters building completed.</p>  <p>Headquarters building (1960)</p> <p><b>1962</b> Toyoshiki factory (Kashiwa City, Chiba Prefecture) began operation.</p> <p><b>1967</b> Headquarters relocated to Kashiwa City, Chiba Prefecture.</p> <p><b>1969</b> Takamatsu factory began operation.</p> <p><b>1974</b> Tsuruoka and Tsuchiura factories began operation.</p>   <p>Tsuruoka factory (1974) Tsuruoka factory (1974)</p> <p><b>1978</b> Local corporation established in the USA.</p>	<p><b>1981</b> Local corporation established in Taiwan.</p> <p><b>1982</b> Local corporation established in Germany. Local production company established in Singapore.</p> <p><b>1986</b> ORIENTAL MOTOR CO., LTD. and ORIENTAL MOTOR MARKETING merged to establish an integrated organization for manufacturing and sales.</p> <p><b>1988</b> Headquarters relocated to Ueno, Tokyo. Kashiwa factory began operation.</p>
<p><b>1909</b> Successful prototype of a 1/8 horsepower single-phase commutator motor.</p> <p><b>1922</b> Developed the A2 1/6 horsepower commutator motor.</p> <p><b>1940</b> Developed the 1/30 horsepower single-phase synchronous motor.</p>  <p>1/30 horsepower single-phase synchronous motor</p>	<p><b>1951</b> Developed a synchronous motor with 5W output.</p> <p><b>1953</b> Developed a cooling fan for the first time.</p> <p><b>1957</b> Started a sales push for "standard products". (22 types)</p>	<p><b>1966</b> Developed the "K Series", a long-seller in standard AC Motors.</p>  <p>K Series</p> <p><b>1971</b> Developed the brake pack as our first motor control circuit.</p> <p><b>1974</b> Developed speed control systems and speed control circuits</p> <p><b>1976</b> Developed stepper motors.</p>  <p>Stepper Motors</p>	<p><b>1981</b> Developed 5-phase stepper motors and control circuits.</p> <p><b>1983</b> Developed brushless DC fans.</p> <p><b>1984</b> Developed AC servo motors and control circuits.</p> <p><b>1985</b> Developed the UPD Series, which integrates a 5-phase stepper motor and control circuit into a single package.</p>  <p>UPD Series</p>

## At the Leading Edge of Engineering



Lab analysis instruments and electron microscopes that are essential for biotech industries, the equipment that manufactures semiconductors and LCD panels used in electronic products, the nanotechnology field, and more.

## In Hospital








Diagnostic instruments such as MRI and CT that require greater precision, blood analyzers that quickly check health status, and other advancing fields of high-tech medicine.

## In Factories



The factory automation field requires all kinds of motion from transport, grasp, push, pull, cool,...etc.

1989-1995 Evolution and Expansion	1996-2000 Expand and Breaking Ground	2001-2009 Dealing with Various Motions	2010-2014 Change and Transition
<p>1995 Tsuruoka-Nishi factory began operation.</p>	<p>1996 Soma factory began operation.</p>  <p>Soma factory (1996)</p> <p>2000 Local corporation established in Malaysia.</p>	<p>2003 Hong Kong branch established.</p> <p>2004 Local corporation established in Shanghai.</p> <p>Showrooms opened in the Tokyo, Osaka, and Nagoya branch offices.</p> <p>2005 Local corporation established in Thailand.</p> <p>2006 Brand logo changed.</p> <p>2009 Tsukuba factory began operation.</p>	<p>2010 Ueno office relocated.</p> <p>2011 Local corporations established in Suzhou (China), the Philippines, and India.</p> <p>2012 Takamatsu Kokubunji factory began operation.</p> <p>2014 Shigeyuki Nomura appointed President</p> <p>Establish Oriental Motor Brazil</p>
1990	2000		2010
<p>1990 Watertight, dust-resistant motor developed.</p> <p>1991 Developed motorized cylinders, motorized linear slide, and dedicated controllers.</p> <p>1992 Launched the <b>UPK</b> Series, which integrates a high-torque 5-phase stepper motor and control circuit into a package.</p>	<p>1998 Developed new-generation <b>QSTEP</b> stepper motor package.</p> <p>Launched the World <b>K</b> Series Standard AC Motors, which are compliant with safety standards and compatible with global voltages.</p>  <p>1999 Launched cooling modules.</p>  <p>Cooling Modules</p>	<p>2001 Launched the new EZ limo motorized linear slide and cylinder products.</p>  <p>EZ limo</p> <p>2005 Launched the <b>CRK</b> Series of DC-input 0.36°/0.72° stepper motor packages.</p> <p>2006 Lineup of products compliant with the RoHS Directive.</p> <p>2007 Launched the <b>AR</b> Series</p> <p>2009 Launched the <b>BLE</b> Series of brushless motor packages.</p>	<p>2011 Launched the <b>QSTEP AR</b> Series with built-in positioning functions.</p>  <p><b>AR</b> Series type with built-in positioning function</p> <p>Started development of <b>BLEO</b> for high-end systems.</p> <p>Launched the <b>MSC-1</b> Speed Controller.</p> <p>2014 Launch of the <b>KII</b> Series AC motors</p> <p>Launch of the <b>BMU</b> Series Brushless motors</p>

## In Environmental Protection Fields



Solar power generation, wind power generation, eco-cars and other technologies that contribute to energy saving and CO<sub>2</sub> reduction, and other applications related to the development and manufacture of environment-friendly devices.

## Even Closer to Us



Our products are needed for countless kinds of motion that are closely linked to our daily lives, such as in supermarket wrapping machines, car park toll gates, amusement facilities, and the like.

# ***Oriental motor***

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This catalog was published in July, 2014.

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