

(RoHS) RoHS-Compliant**Unit Type Speed Control Motor and Control Unit Package****US Series**

● Additional Information ●
 Technical reference → Page F-1
 Safety standards → Page G-2

The **US** Series is a panel mounted control unit and speed control motor package, which conforms to the RoHS Directive. Wiring is performed by connecting with easy-to-use connectors. This series is optimal for easy speed control applications.

● Instantaneous stop function is not equipped.



● List of safety standard approved products (Model, Standards, File No., Certification Body)
 → Page G-10



(Gearhead sold separately)

Features**● Easy Connection**

The operation is possible just by connecting the control unit into the power supply after connecting the motor and control unit through easy-to-use connectors.

● Easy Operation

The speed can be set easily with the potentiometer on the front panel of the control unit.

● (RoHS) RoHS-Compliant

The **US** Series conforms to the RoHS Directive that prohibits the use of six chemical substances including lead and cadmium.

● Details of RoHS Directive → Page G-23

● Approved by Major Safety Standards

The **US** Series is recognized by UL and CSA, and certified under the China Compulsory Certification System (CCC System). CE Marking is used in accordance with the Low Voltage Directive and EMC Directive.

● Protective Earth Terminal on Motor (6 W~40 W)**● Variable Speed Range**

50 Hz: 90 to 1400 r/min

60 Hz: 90 to 1600 r/min

Types and Features of Gearhead**● Long Life, Low Noise GN-S Gearhead is Available. (Applicable motors: 6 W~40 W)**

The new "long life, low noise **GN-S** gearhead" achieves a long rated life of 10000 hours, twice the level of a conventional gearhead, by adopting innovative technologies and structure. Also, the gearhead is low noise designed.

● Details of long life, low noise **GN-S** gearhead → Page A-159

**● Types of Gearheads**

Gearhead		Applicable Motor		Rated Life (hours)	Low Noise	
Type of Gearhead	Type of Pinion	Output Power	Type of Pinion			
Parallel Shaft	(RoHS) Long Life, Low Noise GN-S Gearhead	GN Type Pinion Shaft	6 W~40 W	GN Type Pinion Shaft	10000	●
	(RoHS) GU Gearhead	GU Type Pinion Shaft	60 W, 90 W	GU Type Pinion Shaft	5000	
Right-Angle Shaft	(RoHS) Hollow Shaft Gearhead	GN Type Pinion Shaft	25 W, 40 W	GN Type Pinion Shaft	5000	
		GU Type Pinion Shaft	60 W, 90 W	GU Type Pinion Shaft	5000	
	(RoHS) Solid Shaft Gearhead	GN Type Pinion Shaft	25 W, 40 W	GN Type Pinion Shaft	5000	
		GU Type Pinion Shaft	60 W, 90 W	GU Type Pinion Shaft	5000	

Product Number Code

US Series

US 5 40 - 4 0 2E 2

① ② ③ ④ ⑤ ⑥ ⑦

①	Series	US: US Series
②	Motor Frame Size	2: 60 mm 3: 70 mm 4: 80 mm 5: 90 mm
③	Output Power (W)	(Example) 40: 40 W
④	Motor Shaft Type, Type of Pinion	0: Round Shaft 4: GN Type Pinion Shaft 5: GU Type Pinion Shaft
⑤	Motor Type	0: Induction Motor
⑥	Power Supply Voltage	1U: Single-Phase 110/115 VAC 2E: Single-Phase 220/230 VAC
⑦		2: RoHS-Compliant

Gearhead

5 GN 50 S

① ② ③ ④

①	Gearhead Frame Size	2: 60 mm 3: 70 mm 4: 80 mm 5: 90 mm
②	Type of Pinion	GN: GN Type Pinion GU: GU Type Pinion
③	Gear Ratio	(Example) 50: Gear Ratio of 1:50 10X denotes the decimal gearhead of gear ratio 1:10
④	GN Type Pinion	S: Long Life, Low Noise GN-S Gearhead, RoHS-Compliant RH: Right-Angle, Hollow Shaft Gearhead, RoHS-Compliant RA: Right-Angle, Solid Shaft Gearhead, RoHS-Compliant
	GU Type Pinion	KB: GU Gearhead (Box type), RoHS-Compliant RH: Right-Angle, Hollow Shaft Gearhead, RoHS-Compliant RA: Right-Angle, Solid Shaft Gearhead, RoHS-Compliant

Product Line

US Series (RoHS)

Output Power	Power Supply Voltage	Model		Page
		Pinion Shaft Type	Round Shaft Type	
6 W	Single-Phase 110/115 VAC	US206-401U2	US206-001U2	*
	Single-Phase 220/230 VAC	US206-402E2	US206-002E2	A-167
15 W	Single-Phase 110/115 VAC	US315-401U2	US315-001U2	*
	Single-Phase 220/230 VAC	US315-402E2	US315-002E2	A-167
25 W	Single-Phase 110/115 VAC	US425-401U2	US425-001U2	*
	Single-Phase 220/230 VAC	US425-402E2	US425-002E2	A-167
40 W	Single-Phase 110/115 VAC	US540-401U2	US540-001U2	*
	Single-Phase 220/230 VAC	US540-402E2	US540-002E2	A-167
60 W	Single-Phase 110/115 VAC	US560-501U2	US560-001U2	*
	Single-Phase 220/230 VAC	US560-502E2	US560-002E2	A-167
90 W	Single-Phase 110/115 VAC	US590-501U2	US590-001U2	*
	Single-Phase 220/230 VAC	US590-502E2	US590-002E2	A-167

* For the single-phase 110/115 VAC models, please contact the nearest Oriental Motor sales office.

The following items are included in each product.

Motor, Speed Control Unit, Capacitor*, Capacitor Cap*,
Mounting Screws for Speed Control Unit, Operating Manual
* Only for 60 W and 90 W types

Parallel Shaft Gearhead (Sold separately)

◇ Long Life, Low Noise **GN-S** Gearhead (RoHS)

Applicable Motor Output Power (Pinion Shaft)	Gearhead Model	Gear Ratio
6 W	2GN□S	3~180
	2GN10XS (Decimal Gearhead)	
15 W	3GN□S	3~180
	3GN10XS (Decimal Gearhead)	
25 W	4GN□S	3~180
	4GN10XS (Decimal Gearhead)	
40 W	5GN□S	3~180
	5GN10XS (Decimal Gearhead)	

● Enter the gear ratio in the box (□) within the model name.

◇ **GU** Gearhead (RoHS)

Applicable Motor Output Power (Pinion Shaft)	Gearhead Model	Gear Ratio
60 W	5GU□KB	3~180
90 W	5GU10XKB (Decimal Gearhead)	

● Enter the gear ratio in the box (□) within the model name.

The following items are included in each product.

Gearhead, Mounting Screws, Parallel Key*, Operating Manual
* Only for the products with a key slot on the output shaft

● Right-Angle Gearhead (Sold separately)

◇ Hollow Shaft Type (RoHS)

Applicable Motor Output Power (Pinion Shaft)	Gearhead Model	Gear Ratio
25 W	4GN□RH	3~180
40 W	5GN□RH	3~180
60 W 90 W	5GU□RH	3~180

● Enter the gear ratio in the box (□) within the model name.

The following items are included in each product.
Gearhead, Mounting Screws, Parallel Key, Safety Cover (with screws), Gasket, Operating Manual

◇ Solid Shaft Type (RoHS)

Applicable Motor Output Power (Pinion Shaft)	Gearhead Model	Gear Ratio
25 W	4GN□RA	3~180
40 W	5GN□RA	3~180
60 W 90 W	5GU□RA	3~180

● Enter the gear ratio in the box (□) within the model name.

The following items are included in each product.
Gearhead, Mounting Screws, Parallel Key, Gasket, Operating Manual

■ Specifications (RoHS)



Model		Max. Output Power W	Voltage VAC	Frequency Hz	Variable Speed Range* r/min	Permissible Torque		Starting Torque mN-m	Current A	Power Consumption W	
Pinion Shaft Type	Round Shaft Type					1200 r/min mN-m	90 r/min mN-m				
Ⓟ US206-402E2	US206-002E2	6	Single-Phase 220	50	90~1400	44	40	38	0.13	28	
				60	90~1600	50	39	40			
				Single-Phase 230	50	90~1400	47	38			40
					60	90~1600	50	37			
Ⓟ US315-402E2	US315-002E2	15	Single-Phase 220	50	90~1400	125	35	54	0.21	40	
				60	90~1600	85		52	0.18	39	
				Single-Phase 230	50	90~1400		125	54	0.21	41
					60	90~1600		105	55	0.22	44
Ⓟ US425-402E2	US425-002E2	25	Single-Phase 220	50	90~1400	205	40	100	0.36	68	
				60	90~1600	160		0.37			
				Single-Phase 230	50	90~1400	205	40	110		0.35
					60	90~1600	140	35	0.36		
Ⓟ US540-402E2	US540-002E2	40	Single-Phase 220	50	90~1400	300	63	140	0.53	90	
				60	90~1600	230		125	0.55	98	
				Single-Phase 230	50	90~1400		300	140	0.53	90
					60	90~1600		230	140	0.55	100
Ⓟ US560-502E2	US560-002E2	60	Single-Phase 220	50	90~1400	490	140	240	0.85	154	
				60	90~1600	450	160	210	0.86	159	
				Single-Phase 230	50	90~1400	490	140	240	0.89	154
					60	90~1600	450	160	240	0.88	165
Ⓟ US590-502E2	US590-002E2	90	Single-Phase 220	50	90~1400	730	230	360	1.1	200	
				60	90~1600		260	360	221		
				Single-Phase 230	50		90~1400	230	400	1.2	201
					60		90~1600	260	400	227	

* The variable speed ranges shown are under no load conditions.

● In addition to the products shown above, the products for single-phase 110/115 VAC are also available. Please contact the nearest Oriental Motor sales office.

Ⓟ: Impedance protected

Ⓟ: Contains a built-in thermal protector (automatic return type). If a motor overheats for any reason, the thermal protector is activated and the motor is stopped. When the motor temperature drops, the thermal protector closes and the motor restarts. Be sure to turn the motor off before inspecting.

General Specifications

Item	Motor	Control Unit
Insulation Resistance	100 MΩ or more when 500 VDC megger is applied between the windings and the case after rated operation under normal ambient temperature and humidity.	100 MΩ or more when 500 VDC megger is applied between all the pins and the case after rated operation under normal ambient temperature and humidity.
Dielectric Strength	Sufficient to withstand 1.5 kV at 50 Hz or 60 Hz applied between the windings and the case for 1 minute after rated operation under normal ambient temperature and humidity.	Sufficient to withstand 3.0 kV at 60 Hz applied between all the pins and the case for 1 minute after rated operation under normal ambient temperature and humidity.
Temperature Rise	Temperature rise of windings are 80°C or less measured by the resistance change method after rated operation with no load under normal ambient temperature and humidity with connecting a gearhead or equivalent heat radiation plate* to a motor.	—
Overheat Protection	US206 type has impedance protection. All others have built-in thermal protector (automatic return type). Operating temperature; open: 130±5°C, close: 82±15°C	—
Operating Environment	Ambient Temperature	0~+40°C (non-freezing)
	Ambient Humidity	85% or less (non-condensing)
	Altitude	Up to 1000 m above sea level
Insulation Class	Class B (130°C)	—
Degree of Protection	US206, US315, US425 and US540 types: IP20 US560 and US590 types: IP40	IP10

* Heat radiation plate (Material: Aluminum)

Motor Type (Output)	Size (mm)	Thickness (mm)
US206 type (6 W)	115×115	5
US315 type (15 W)	125×125	
US425 type (25 W)	135×135	
US540 type (40 W)	165×165	
US560 type (60 W)	200×200	
US590 type (90 W)	200×200	

Variable Speed Range When Gearhead is Attached

Unit = r/min

Gear Ratio	3	3.6	5	6	7.5	9	12.5	15	18	25	30	36	50	60	75	90	100	120	150	180	
High Speed	50 Hz	466	388	280	233	186	155	112	93	77	56	46	38	28	23	18	15	14	11	9	7
	60 Hz	533	444	320	266	213	177	128	106	88	64	53	44	32	26	21	17	16	13	10	8.8
Low Speed	30	25	18	15	12	10	7.2	6	5	3.6	3	2.5	1.8	1.5	1.2	1	0.9	0.75	0.6	0.5	

Gearmotor – Torque Table

- Gearheads and decimal gearheads are sold separately.
- Enter the gear ratio in the box (□) within the model name.
- A colored background (□) indicates gear shaft rotation in the same direction as the motor shaft, while the others rotate in the opposite direction.
- To reduce the speed beyond the gear ratio in the table, attach a decimal gearhead of gear ratio 1/10 between the gearhead and the motor. In that case, the permissible torques are as follows.

2GN□S: 3 N·m, **3GN□S:** 5 N·m

4GN□S: 8 N·m (6 N·m when a gearhead of 1/25~1/36 is attached)

5GN□S: 10 N·m, **5GU□KB:** 20 N·m

Unit = N·m

Model Motor/ Gearhead	Gear Ratio																							
	Motor Speed r/min		3	3.6	5	6	7.5	9	12.5	15	18	25	30	36	50	60	75	90	100	120	150	180		
US206-402E2 /2GN□S	1200	220/230 VAC 60 Hz	0.12	0.15	0.20	0.24	0.30	0.36	0.51	0.61	0.73	0.91	1.1	1.3	1.7	2.0	2.5	3	3	3	3	3		
		220 VAC 50 Hz	0.11	0.13	0.18	0.21	0.27	0.32	0.45	0.53	0.64	0.80	0.96	1.2	1.5	1.7	2.2	2.6	2.9	3	3	3	3	
		230 VAC 50 Hz	0.11	0.14	0.19	0.23	0.29	0.34	0.48	0.57	0.69	0.86	1.0	1.2	1.6	1.9	2.3	2.8	3	3	3	3	3	
	90	220 VAC 60 Hz	0.095	0.11	0.16	0.19	0.24	0.28	0.39	0.47	0.57	0.71	0.85	1.0	1.3	1.5	1.9	2.3	2.6	3	3	3	3	
		230 VAC 60 Hz	0.09	0.11	0.15	0.18	0.22	0.27	0.37	0.45	0.54	0.68	0.81	0.97	1.2	1.5	1.8	2.2	2.4	2.9	3	3	3	
		220 VAC 50 Hz	0.097	0.12	0.16	0.19	0.24	0.29	0.41	0.49	0.58	0.73	0.88	1.1	1.3	1.6	2.0	2.4	2.6	3	3	3	3	
	90	230 VAC 50 Hz	0.092	0.11	0.15	0.18	0.23	0.28	0.38	0.46	0.55	0.69	0.83	1.0	1.3	1.5	1.9	2.3	2.5	3	3	3	3	
		220 VAC 60 Hz	0.21	0.25	0.34	0.41	0.52	0.62	0.86	1.0	1.2	1.6	1.9	2.2	2.8	3.4	4.2	5	5	5	5	5	5	
		220/230 VAC 50 Hz	0.30	0.36	0.51	0.61	0.76	0.91	1.3	1.5	1.8	2.3	2.7	3.3	4.1	5	5	5	5	5	5	5	5	
US315-402E2 /3GN□S	1200	230 VAC 60 Hz	0.26	0.31	0.43	0.51	0.64	0.77	1.1	1.3	1.5	1.9	2.3	2.8	3.5	4.2	5	5	5	5	5	5	5	
		90	0.085	0.10	0.14	0.17	0.21	0.26	0.35	0.43	0.51	0.64	0.77	0.92	1.2	1.4	1.7	2.1	2.3	2.8	3.5	4.2	4.2	
		220 VAC 60 Hz	0.39	0.47	0.65	0.78	0.97	1.2	1.6	1.9	2.3	2.9	3.5	4.2	5.3	6.3	7.9	8	8	8	8	8	8	8
US425-402E2 /4GN□S	1200	230 VAC 60 Hz	0.34	0.41	0.57	0.68	0.85	1.0	1.4	1.7	2.0	2.6	3.1	3.7	4.6	5.5	6.9	8	8	8	8	8	8	
		220/230 VAC 50 Hz	0.50	0.60	0.83	1.0	1.2	1.5	2.1	2.5	3.0	3.7	4.5	5.4	6.8	8	8	8	8	8	8	8	8	
		90	0.097	0.12	0.16	0.19	0.24	0.29	0.41	0.49	0.58	0.73	0.88	1.1	1.3	1.6	2.0	2.4	2.6	3.2	4.0	4.8	4.8	
		90	220 VAC 50/60 Hz 230 VAC 50 Hz	0.085	0.10	0.14	0.17	0.21	0.26	0.35	0.43	0.51	0.64	0.77	0.92	1.2	1.4	1.7	2.1	2.3	2.8	3.5	4.2	4.2
			220/230 VAC 60 Hz	0.56	0.67	0.93	1.1	1.4	1.7	2.3	2.8	3.4	4.2	5.0	6.0	7.6	9.1	10	10	10	10	10	10	10
			220/230 VAC 50 Hz	0.73	0.87	1.2	1.5	1.8	2.2	3.0	3.6	4.4	5.5	6.6	7.9	9.9	10	10	10	10	10	10	10	10
US540-402E2 /5GN□S	1200	90	0.15	0.18	0.26	0.31	0.38	0.46	0.64	0.77	0.92	1.1	1.4	1.7	2.1	2.5	3.1	3.7	4.2	5.0	6.2	7.5	7.5	
		220/230 VAC 60 Hz	1.1	1.3	1.8	2.2	2.7	3.3	4.1	4.9	5.9	7.4	8.9	10.7	14.9	17.8	19.9	20	20	20	20	20	20	
		220/230 VAC 50 Hz	1.2	1.4	2.0	2.4	3.0	3.6	4.5	5.4	6.4	8.1	9.7	11.6	16.2	19.4	20	20	20	20	20	20	20	
	90	220/230 VAC 60 Hz	0.39	0.47	0.65	0.78	0.97	1.2	1.5	1.8	2.1	2.6	3.2	3.8	5.3	6.3	7.1	8.5	9.4	11.3	14.2	17.0	17.0	
220/230 VAC 50 Hz		0.34	0.41	0.57	0.68	0.85	1.0	1.3	1.5	1.8	2.3	2.8	3.3	4.6	5.5	6.2	7.4	8.3	9.9	12.4	14.9	14.9		
US560-502E2 /5GU□KB	1200	220/230 VAC 60 Hz	1.8	2.1	3.0	3.5	4.4	5.3	6.7	8.0	9.6	12.0	14.5	17.3	20	20	20	20	20	20	20	20	20	
		220/230 VAC 50 Hz	0.63	0.76	1.1	1.3	1.6	1.9	2.4	2.8	3.4	4.3	5.1	6.2	8.6	10.3	11.5	13.8	15.3	18.4	20	20	20	
	90	220/230 VAC 50 Hz	0.56	0.67	0.93	1.1	1.4	1.7	2.1	2.5	3.0	3.8	4.6	5.5	7.6	9.1	10.2	12.2	13.6	16.3	20	20	20	

Introduction

Induction
Motors

Reversible
Motors

Electro-
magnetic Brake
Motors

Right-Angle
Gearheads

Brake Pack
SB50W

US
AC Speed Control Motors

E502

FE100/FE200
Inverter

Watertight
Dust-Resistant
Motors

Torque Motors

Accessories

Installation

■ Gearmotor – Torque Table When Right-Angle Gearhead is Attached

A right-angle gearhead can be attached to 25 W, 40 W and 60 W types. → Page A-139

■ Permissible Overhung Load and Permissible Thrust Load

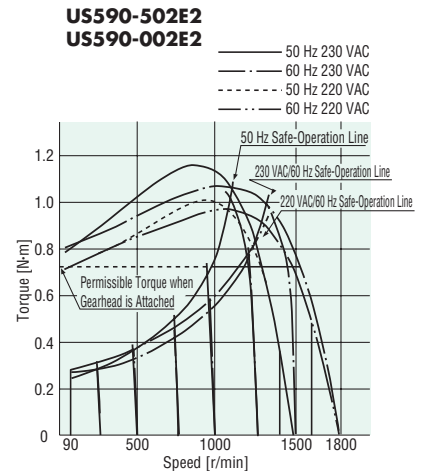
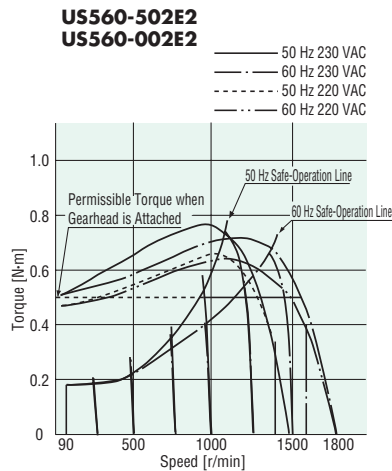
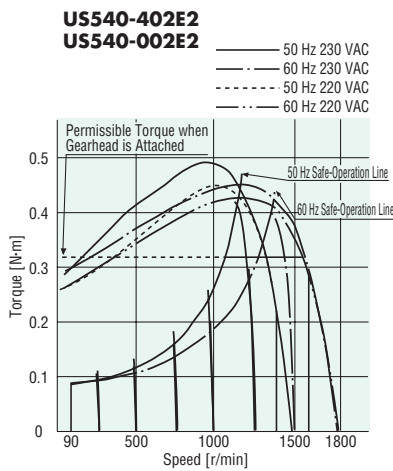
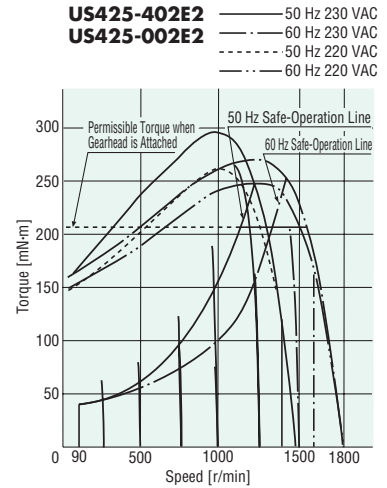
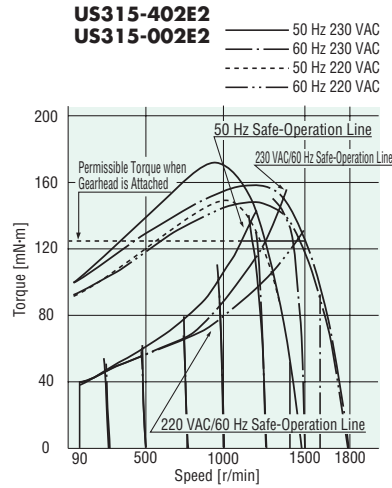
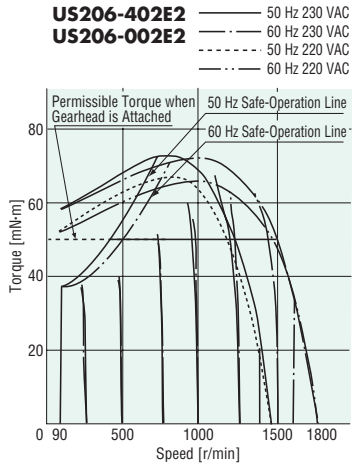
Motor (Round Shaft Type) → Page A-15

Gearhead → Page A-15

■ Permissible Load Inertia of Gearhead: J

→ Page A-16

■ Speed – Torque Characteristics



Dimensions (Unit = mm)

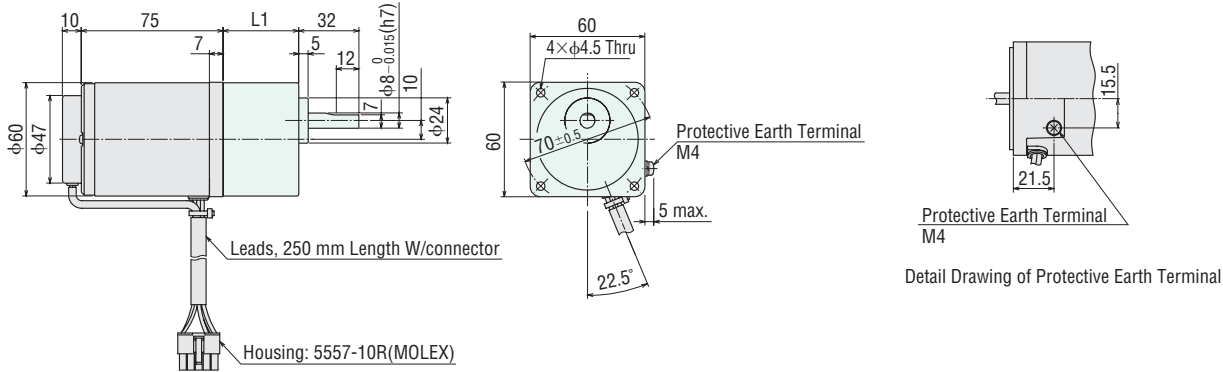
● Mounting screws are included with gearheads. Dimensions for mounting screws → Page A-246

● 6 W

◇ Motor/Gearhead

Model	Motor Model	Gearhead Model	Gear Ratio	L1
US206-402E2	USM206-402W2	2GN□S	3~18	30
			25~180	40

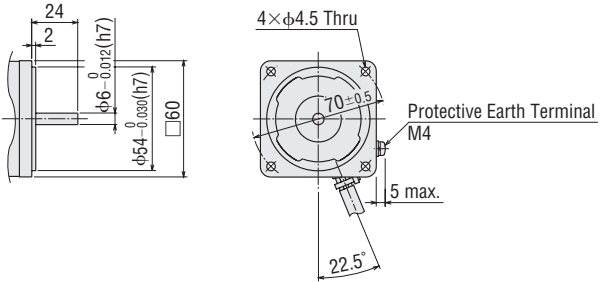
Mass: Motor 0.8 kg
Gearhead 0.4 kg



◇ Shaft Section of Round Shaft Type

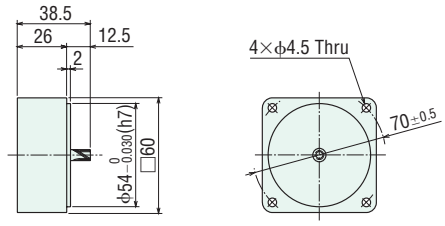
The motor's dimensions (excluding the shaft section) are the same as those of the pinion shaft types.

US206-002E2
Motor: USM206-002W2
Mass: 0.8 kg



◇ Decimal Gearhead

Can be connected to **US206** pinion shaft type.
2GN10XS
Mass: 0.2 kg



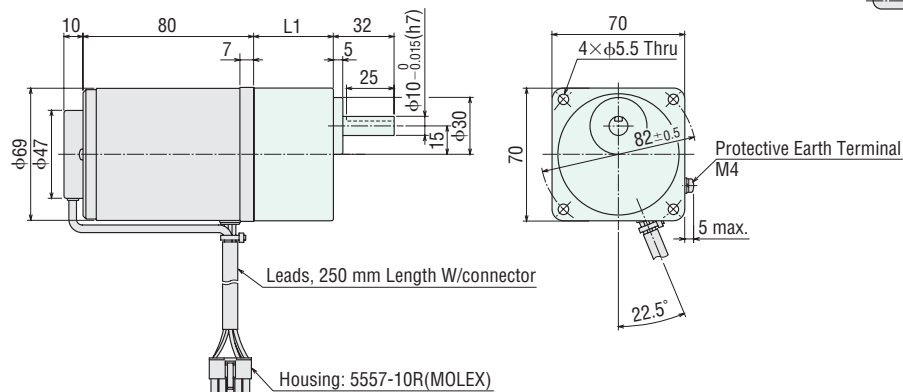
● Enter the gear ratio in the box (□) within the model name.

● 15 W

◇ Motor/Gearhead

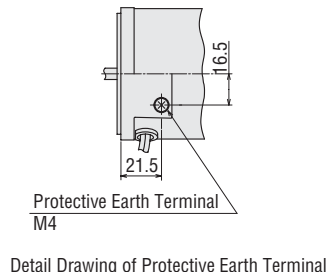
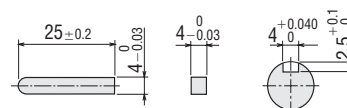
Model	Motor Model	Gearhead Model	Gear Ratio	L1
US315-402E2	USM315-402W2	3GN□S	3~18	32
			25~180	42

Mass: Motor 1.2 kg
Gearhead 0.55 kg



◇ Key and Key Slot

(The key is included with the gearhead)



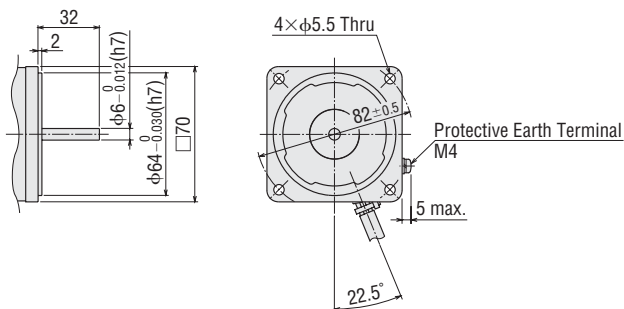
◇ Shaft Section of Round Shaft Type

The motor's dimensions (excluding the shaft section) are the same as those of the pinion shaft types.

US315-002E2

Motor: USM315-002W2

Mass: 1.2 kg

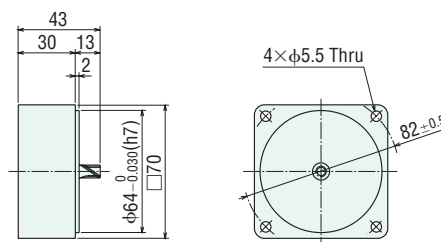


◇ Decimal Gearhead

Can be connected to **US315** pinion shaft type.

3GN10XS

Mass: 0.3 kg

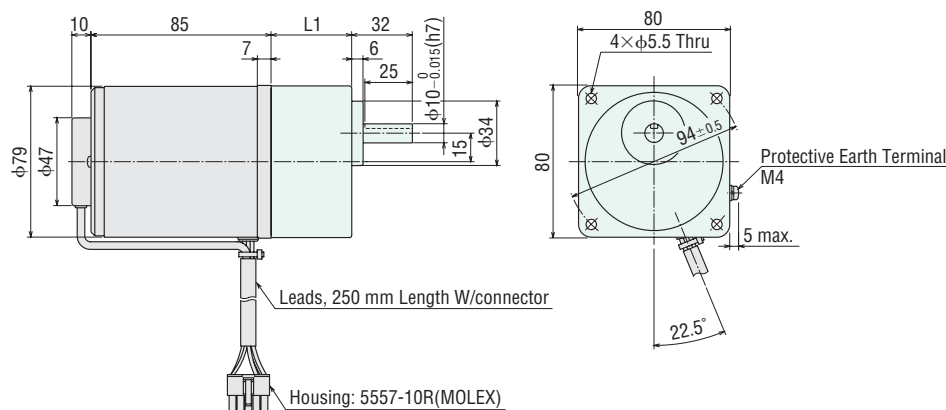


● 25 W

◇ Motor/Gearhead

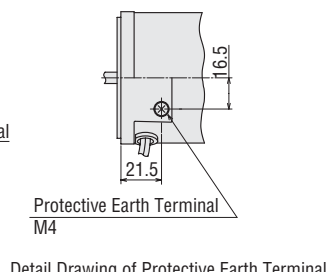
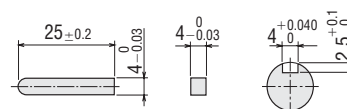
Model	Motor Model	Gearhead Model	Gear Ratio	L1
US425-402E2	USM425-402W2	4GN□S	3~18	32
			25~180	42.5

Mass: Motor 1.6 kg
Gearhead 0.65 kg



◇ Key and Key Slot

(The key is included with the gearhead)



● Enter the gear ratio in the box (□) within the model name.

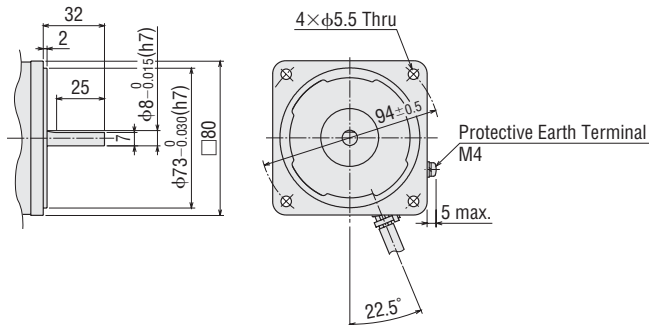
◆ Shaft Section of Round Shaft Type

The motor's dimensions (excluding the shaft section) are the same as those of the pinion shaft types.

US425-002E2

Motor: USM425-002W2

Mass: 1.6 kg

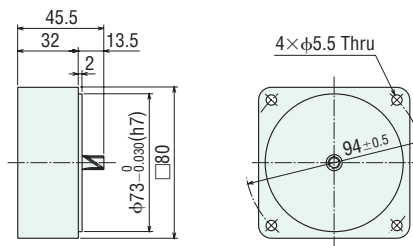


◆ Decimal Gearhead

Can be connected to **US425** pinion shaft type.

4GN10XS

Mass: 0.4 kg



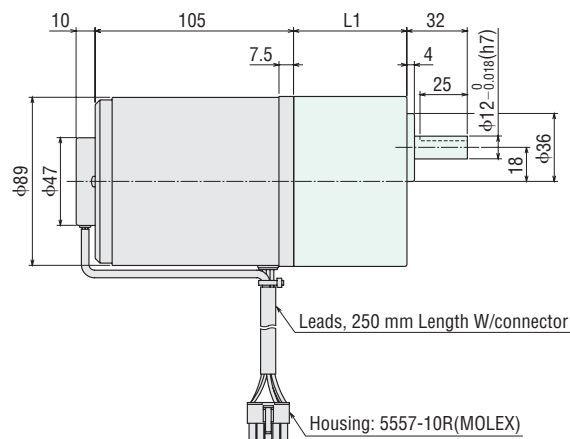
● 40 W

◆ Motor/Gearhead

Model	Motor Model	Gearhead Model	Gear Ratio	L1
US540-402E2	USM540-402W2	5GN□S	3~18	42
			25~180	60

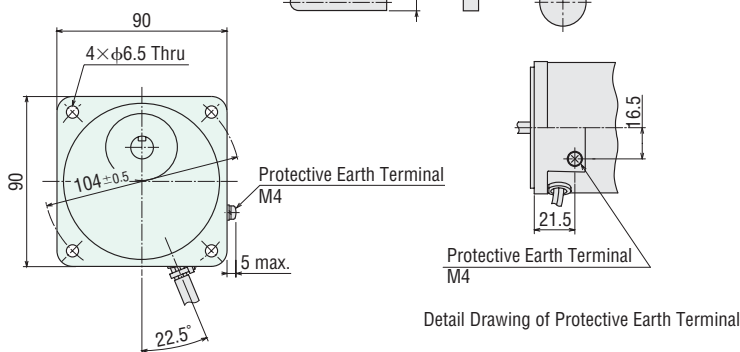
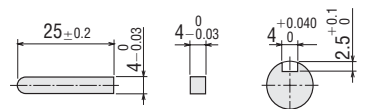
Mass: Motor 2.6 kg

Gearhead 1.5 kg



◆ Key and Key Slot

(The key is included with the gearhead)



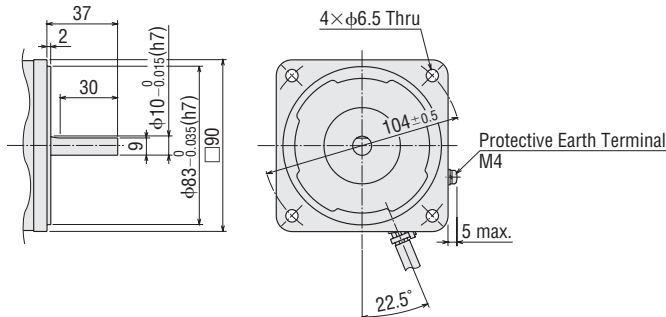
◆ Shaft Section of Round Shaft Type

The motor's dimensions (excluding the shaft section) are the same as those of the pinion shaft types.

US540-002E2

Motor: USM540-002W2

Mass: 2.6 kg

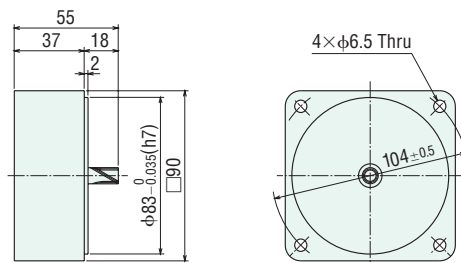


◆ Decimal Gearhead

Can be connected to **US540** pinion shaft type.

5GN10XS

Mass: 0.6 kg



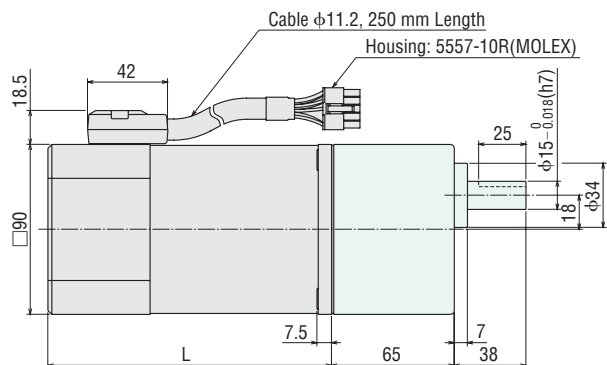
● Enter the gear ratio in the box (□) within the model name.

● 60 W

◇ Motor/Gearhead

Model	Motor Model	Gearhead Model	L
US560-502E2	USM560-502W-1	5GU□KB	150

Mass: Motor 2.8 kg
Gearhead 1.5 kg

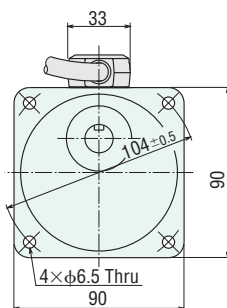


● 90 W

◇ Motor/Gearhead

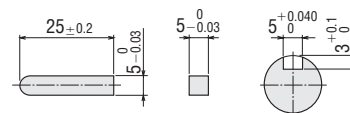
Model	Motor Model	Gearhead Model	L
US590-502E2	USM590-502W-1	5GU□KB	165

Mass: Motor 3.6 kg
Gearhead 1.5 kg



◇ Key and Key Slot

(The key is included with the gearhead)



◇ Shaft Section of Round Shaft Type

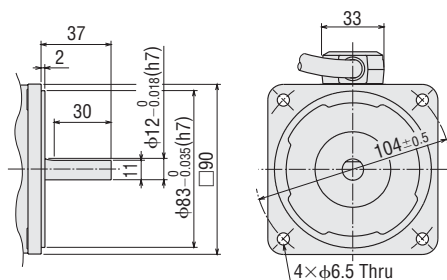
The motor's dimensions (excluding the shaft section) are the same as those of the pinion shaft types.

US560-002E2

Motor: USM560-002W-1
Mass: 2.8 kg

US590-002E2

Motor: USM590-002W-1
Mass: 3.6 kg

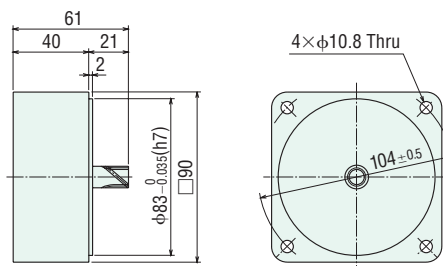


◇ Decimal Gearhead

Can be connected to **US560** or **US590** pinion shaft types.

5GU10XKB

Mass: 0.6 kg



● Enter the gear ratio in the box (□) within the model name.

◇ Control Unit

Common to **US206**, **US315**, **US425** and **US540** Types

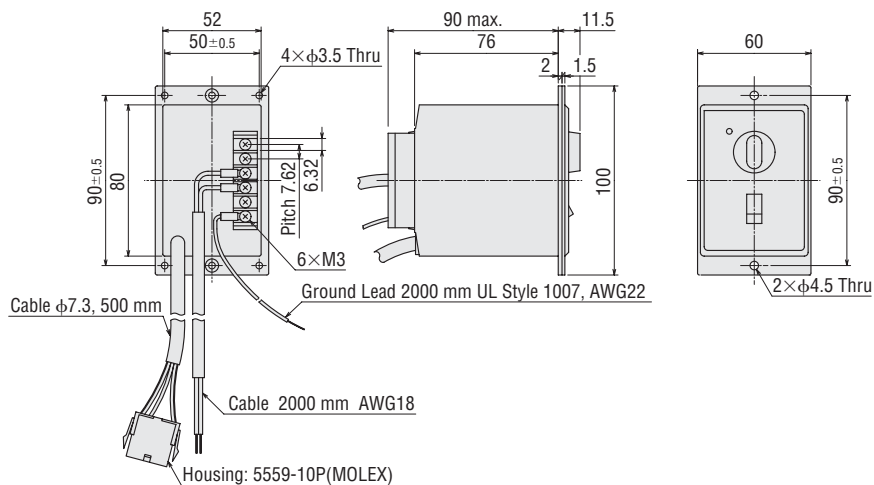
USP206-2E2

USP315-2E2

USP425-2E2

USP540-2E2

Mass: 0.45 kg

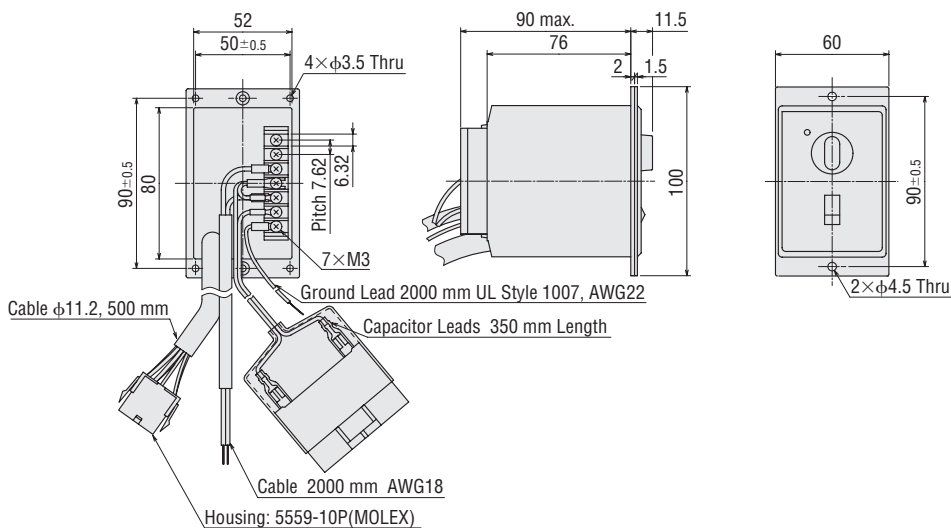


Common to **US560** and **US590** Types

USP560-2E2

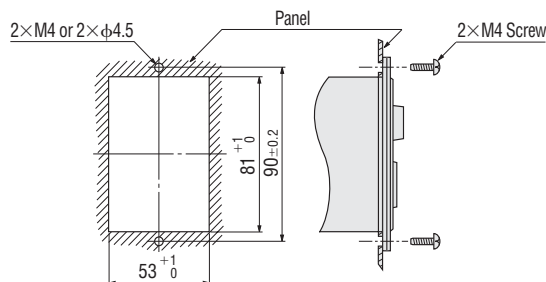
USP590-2E2

Mass: 0.5 kg



◇ Panel Cut-Out for Control Unit

Installation Method by Cutting a Square Hole



Introduction

Induction Motors

Reversible Motors

Electro-magnetic Brake Motors

Right-Angle Gearheads

Brake Pack SB50W

US AC Speed Control Motors

ES02 FE100/FE200 Inverter

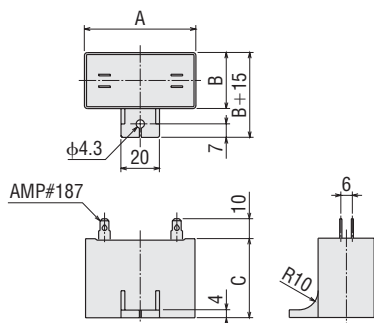
Watertight, Dust-Resistant Motors

Torque Motors

Accessories

Installation

◇ Capacitor (Included)



◇ Capacitor Dimensions (mm)

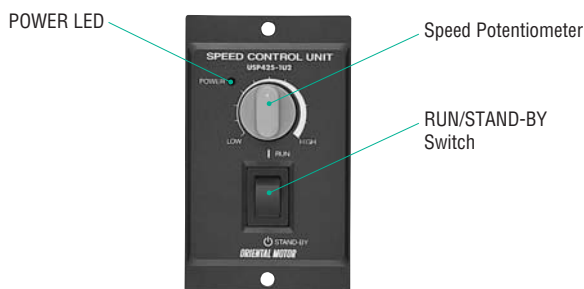
Model		Capacitor Model	A	B	C	Mass (g)
Pinion Shaft Type	Round Shaft Type					
US560-502E2	US560-002E2	CH40BFAUL	58	23.5	37	70
US590-502E2	US590-002E2	CH60BFAUL	58	29	41	85

● A capacitor cap is included with a capacitor.

■ Connection and Operation

● Names and Functions of Control Unit Parts

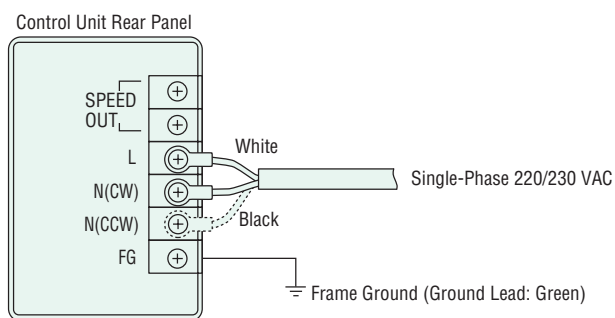
Control Unit Front Panel



● Connection Diagrams

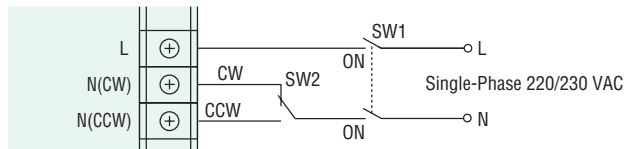
◇ US206, US315, US425 and US540 types

Continuous Rotation:



● In the diagrams above, the motor shaft rotates in the clockwise direction.
When changed to the dotted line [N (CCW)] position, the motor shaft rotates in the counterclockwise direction.

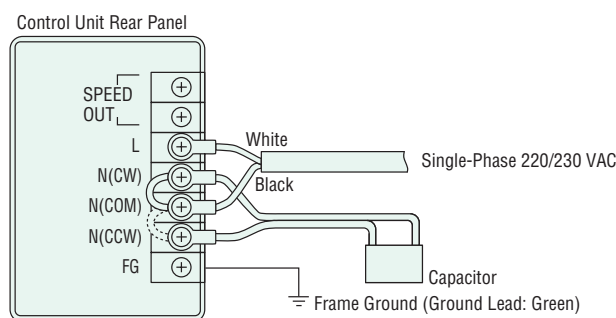
Bi-Directional Rotation:



Contact Capacity of Switch
250 VAC 5 A min. (Inductive load)

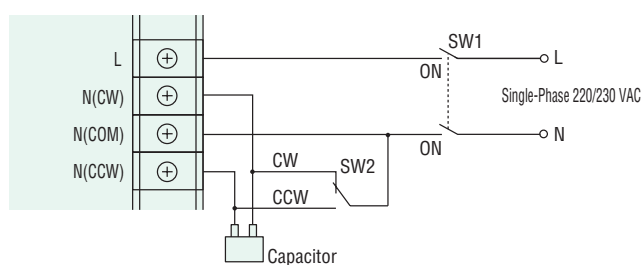
◇ US560 and US590 types

Continuous Rotation:



● In the diagrams above, the motor shaft rotates in the clockwise direction.
When changed to the dotted line [N (CCW)] position, the motor shaft rotates in the counterclockwise direction.

Bi-Directional Rotation:



Contact Capacity of Switch
250 VAC 5 A min. (Inductive load)

● How to connect a capacitor → Page A-247

● Operation Method

There is a difference in operation method between the **US206, US315, US425, US540** types and the **US560, US590** types.

◇ Rotation

Connect the motor lead wire connectors to the control unit. Then connect the power cable (2 m, AWG18) to the AC power supply. When the RUN/STAND-BY switch on the control unit is set to RUN, the motor rotates in the clockwise (CW) direction as viewed from the motor output shaft. Control units are set for clockwise rotation at shipment. The rotation direction on the gearhead output shaft may be the opposite direction of the motor shaft depending on the gear ratio.

◇ Changing Speed

When dial on the speed potentiometer located on the control unit is turned in a clockwise direction, motor speed increases; when turned in the counterclockwise direction, motor speed decreases. Motor speed can be set and adjusted over a range of 90 to 1400 r/min at 50 Hz, 90 to 1600 r/min at 60 Hz.

◇ Stopping

When the RUN/STAND-BY switch on the control unit is set to STAND-BY, the motor stops. This switch is not a power ON/OFF switch. If the motor is to be stopped for a long time, a separate power ON/OFF switch should be installed.

◇ Switching the Rotation Direction

• **US206, US315, US425 and US540** types
(Capacitor is included in the control unit.)

Uni-Directional Rotation:

When the rotation direction of motor needs to be reversed, change the terminal used for attaching the power cable, located at the rear panel of control unit, from terminal N (CW) to terminal N (CCW). The power cable connections are located at terminals L and N (CW) when shipped. This should always be done with the power OFF.

Bi-Directional Rotation:

Install an additional power switch (SW1) and CW/CCW switch (SW2) as shown on page A-176, and use these switches to change the rotation direction. Motor cannot be reversed instantaneously. Turn SW1 off and wait until the motor has come to a complete stop before switching SW2.

• **US560 and US590** types

(Connection of the included capacitor is necessary.)

Uni-Directional Rotation:

When the rotation direction of motor needs to be reversed, change the terminal used for attaching the power cable, located at the rear panel of control unit, from terminals N (CW)-N (COM) to terminals N (COM)-N (CCW). The power cable connections are located at terminals N (CW)-N (COM) when shipped. This should always be done with the power OFF.

Bi-Directional Rotation:

Install an additional power switch (SW1) and CW/CCW switch (SW2) as shown on page A-176, and use these switches to change the rotation direction. Motor cannot be reversed instantaneously. Turn SW1 off and wait until the motor has come to a complete stop before switching SW2.

List of Motor and Control Unit Combinations

Model name for motor and control unit combinations are shown below.

Output Power	Model	Motor Model	Control Unit Model
6 W	US206-402E2	USM206-402W2	USP206-2E2
	US206-002E2	USM206-002W2	
15 W	US315-402E2	USM315-402W2	USP315-2E2
	US315-002E2	USM315-002W2	
25 W	US425-402E2	USM425-402W2	USP425-2E2
	US425-002E2	USM425-002W2	
40 W	US540-402E2	USM540-402W2	USP540-2E2
	US540-002E2	USM540-002W2	
60 W	US560-502E2	USM560-502W-1	USP560-2E2
	US560-002E2	USM560-002W-1	
90 W	US590-502E2	USM590-502W-1	USP590-2E2
	US590-002E2	USM590-002W-1	