

Speed Control Motor and Controller Packages US Series

● Connection Information ●
 Technical reference → Page G-1
 Safety standards → Page H-2

The **US** Series is panel mounted speed control unit and speed control motor package. Wiring is performed through an easy connection method utilizing connectors. This series is optimal for easy speed control applications.

● The instantaneous stop function is not available.



● For detailed product safety standard information including standards, file number and certification body, please visit www.orientalmotor.eu.



Gearhead shown in the photograph is sold separately

Features

● Easy Wiring

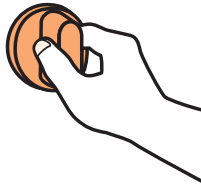
Operation is possible just by connecting the speed control unit into the power supply after easy connection to the motor and speed control unit using connectors.



Easy Connection

● Easy Operation

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



● Conforms to Safety Standards

This series conforms to the UL and CSA Standards. Also, it conforms to CCC (China Compulsory Certification System) Certification and CE Marking affixed (Low Voltage Directive and EMC Directive).

● Protective Earth Terminal on Motor

● 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.

*For the rated life time definition, refer to "Service Life of Gearheads" on page G-35.

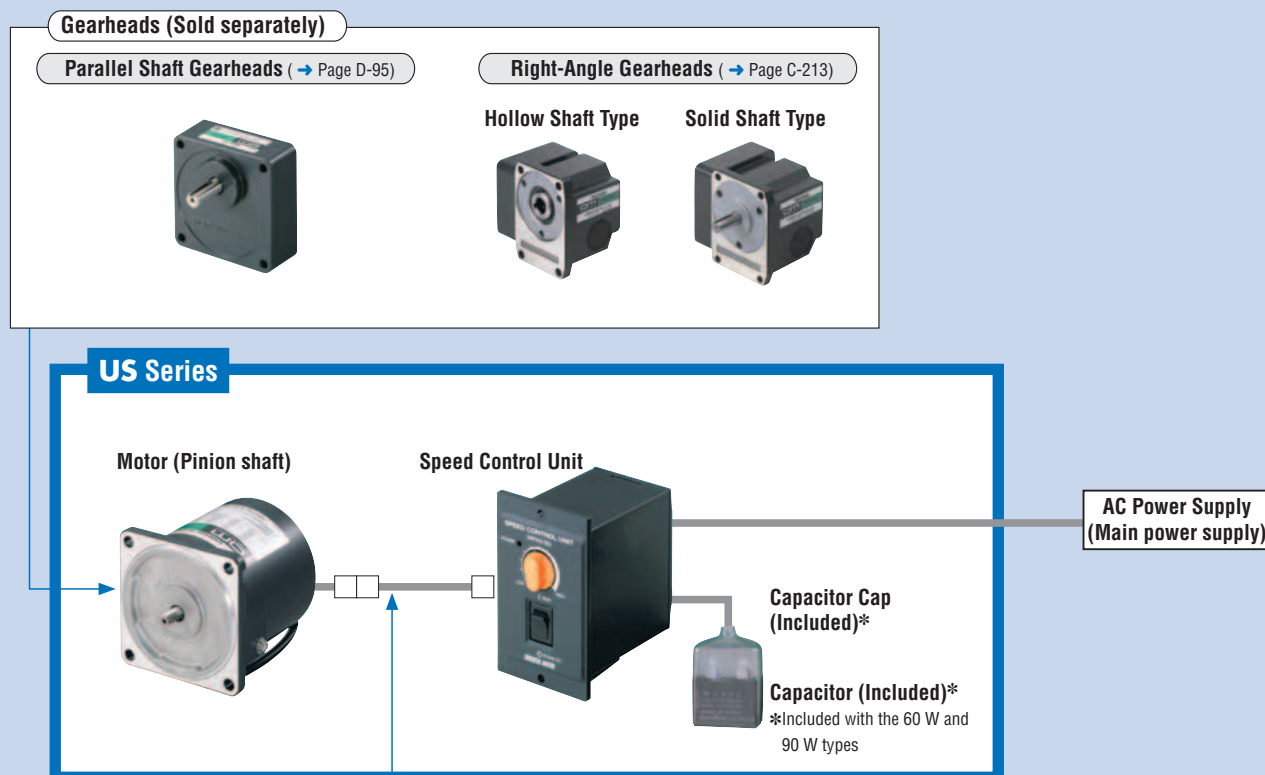
● Details of long life, low noise **GN-S** gearhead → Page D-95



● Types of Gearheads

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

System Configuration



Number	Name	Overview
①	Connection Cables	Cable for extending the wiring distance between the motor and the speed control unit (1~4 m).
②	Mounting Brackets	Dedicated mounting bracket for the motor and gearhead.
③	Flexible Couplings	Clamp type coupling for connecting the motor/gearhead shaft with the driven shaft.

System Configuration Example

US Series (Pinion shaft)	Sold Separately			
	Parallel Shaft Gearhead	Connection Cable (1 m)	Mounting Bracket	Flexible Coupling
US425-402E2	4GN25S	CC01SU05	SOL4M5	MCL301012

● Gearheads cannot be combined with round shaft type motors.

● The system configuration shown above is an example. Other combinations are available.

Product Number Code

US Series

US 5 40 - 4 0 2E 2

① ② ③ ④ ⑤ ⑥ ⑦

①	Series Name	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, Pinion Shaft Type	0: Round Shaft Type 4: GN Type Pinion 5: GU Type Pinion
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 Directive-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 RH: Right-Angle, Hollow Shaft Gearhead RA: Right-Angle, Solid Shaft Gearhead
	GU Type Pinion	KB: GU Gearhead (Box form type) RH: Right-Angle Shaft, Hollow Shaft Gearhead RA: Right-Angle Shaft, Solid Shaft Gearhead

Product Line

US Series (RoHS)

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

Output Power	Power Supply Voltage	Product Name	
		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
15 W	Single-Phase 110/115 VAC	US315-401U2	US315-001U2
	Single-Phase 220/230 VAC	US315-402E2	US315-002E2
25 W	Single-Phase 110/115 VAC	US425-401U2	US425-001U2
	Single-Phase 220/230 VAC	US425-402E2	US425-002E2
40 W	Single-Phase 110/115 VAC	US540-401U2	US540-001U2
	Single-Phase 220/230 VAC	US540-402E2	US540-002E2
60 W	Single-Phase 110/115 VAC	US560-501U2	US560-001U2
	Single-Phase 220/230 VAC	US560-502E2	US560-002E2
90 W	Single-Phase 110/115 VAC	US590-501U2	US590-001U2
	Single-Phase 220/230 VAC	US590-502E2	US590-002E2

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 Gearheads (Sold separately)

Long Life, Low Noise GN-S Gearheads (RoHS)

Applicable Motor Output Power (Pinion Shaft)	Gearhead Product Name	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)	

GU Gearheads (RoHS)

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

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 Gearheads (Sold separately)

Hollow Shaft Types (RoHS)

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

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

Solid Shaft Types (RoHS)

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

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

●A number indicating the gear ratio is entered where the box □ is located within the gearhead product name.

Specifications – Continuous Rating (RoHS)



Product Name and Type		Maximum Output Power	Voltage	Frequency	Variable Speed Range*	Permissible Torque		Starting Torque	Current	Power Consumption	
						1200 r/min	90 r/min				
Pinion Shaft Type	Round Shaft Type	W	VAC	Hz	r/min	mN·m	mN·m	mN·m	A	W	
Ⓜ 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	40			
Ⓜ 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	35	110	0.35		
				60	90~1600	140		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		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	1.2	221
			Single-Phase 230	50	90~1400			230	400	1.2	201
				60	90~1600			260	400	1.2	227

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

Ⓜ: These products are impedance protected.

Ⓜ: This indicates that there is 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 automatically. Be sure to turn the power supply off before inspecting.

General Specifications

Item	Motor	Speed Control Unit
Insulation Resistance	The measured value is 100 MΩ min. when a 500 VDC megger is applied between the windings and the case after rated operation under normal ambient temperature and humidity.	The measured value is 100 MΩ min. when a 500 VDC megger is applied between all the pins and the case after rated operation under normal ambient temperature and humidity.
Dielectric Strength	No abnormality is judged even with application of 1.5 kVAC at 50 Hz or 60 Hz between the windings and the case for 1 minute after rated operation under normal ambient temperature and humidity.	No abnormality is judged even with application of 3.0 kVAC at 60 Hz between all the pins and the case for 1 minute after rated operation under normal ambient temperature and humidity.
Temperature Rise	A gearhead or equivalent heat radiation plate* is connected to the motor and the winding temperature rise is measured at 80°C max. using the resistance change method after rated operation with no load under normal ambient temperature and humidity.	—
Overheat Protection	The US206 type is impedance protected. All other motors have a built-in thermal protector (automatic return type). Open: 130±5°C Close: 82±15°C	—
Operating Environment	Ambient Temperature	-10~+40°C (non-freezing)
	Ambient Humidity	85% max. (non-condensing)
	Altitude	Up to 1000 m above sea level
Thermal Class	130 (B)	—
Degree of Protection	US206, US315, US425, US540 Type: IP20 US560, US590 Type: IP40	IP10

* Heat Radiation Plate Size (Material: Aluminum)

Motor Type (Output Power)	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	467	389	280	233	187	156	112	93	78	56	47	39	28	23	19	16	14	12	9	8
Speed	60 Hz	533	444	320	267	213	178	128	107	89	64	53	44	32	27	21	18	16	13	11	8.9
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

Permissible Torque When Gearhead is Attached

- A number indicating the gear ratio is entered where the box □ is located within the gearhead product name.
- A colored background □ indicates gear shaft rotation in the same direction as the motor shaft. 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 torque is 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 to 1/36 is used)

5GN□S: 10 N·m, **5GU□KB**: 20 N·m

Unit = N·m

Product Name 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		
		Unit = N·m																					
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
		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
US315-402E2 /3GN□S	1200	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
		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	
US425-402E2 /4GN□S	1200	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
		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	220 VAC 50/60 Hz 230 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	3.2	4.0	4.8	
		230 VAC 60 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	
US540-402E2 /5GN□S	1200	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
	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	
US560-502E2 /5GU□KB	1200	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	
		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	
US590-502E2 /5GU□KB	1200		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	
	90	220/230 VAC 60 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	
		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	

Gearmotor – Torque Table When Right-Angle Gearhead is Attached

A right-angle gearhead can be attached to 25 W, 40 W, 60 W and 90 W types. → Page C-225

Permissible Overhung Load and Permissible Thrust Load

Motors (Round shaft type) → Page C-16

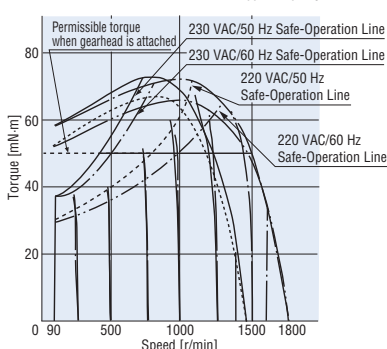
Gearheads → Page C-16

Permissible Load Inertia: J of Gearhead

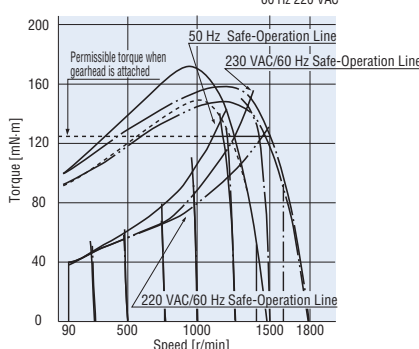
→ Page C-17

Speed – Torque Characteristics

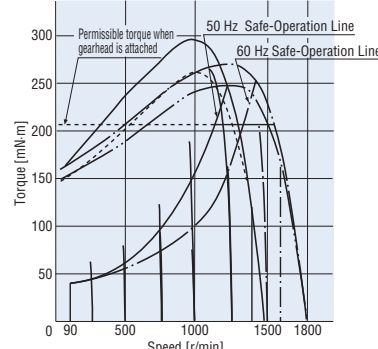
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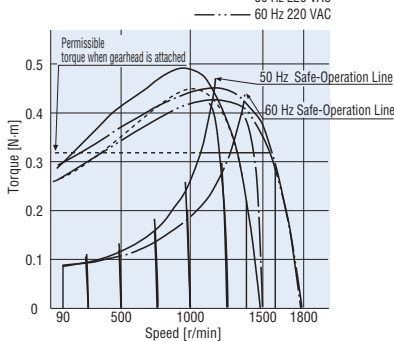
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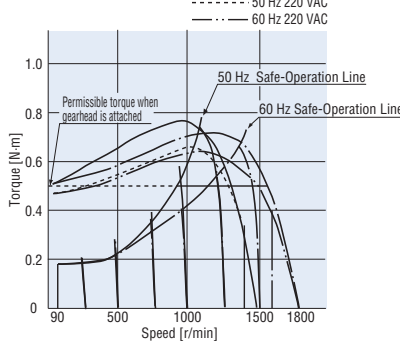
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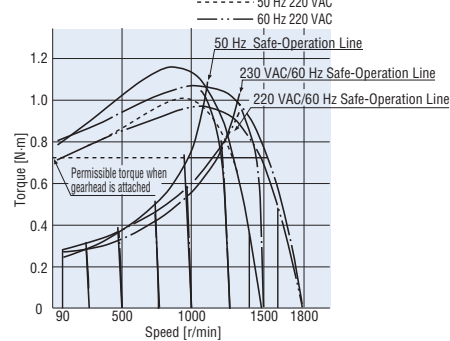
US540-402E2
US540-002E2



US560-502E2
US560-002E2



US590-502E2
US590-002E2



Dimensions (Unit = mm)

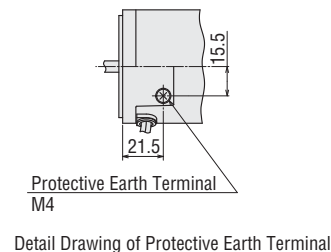
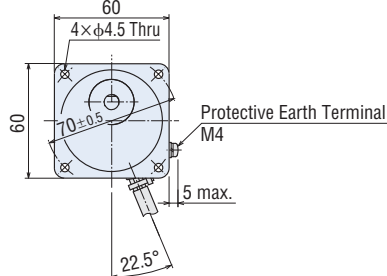
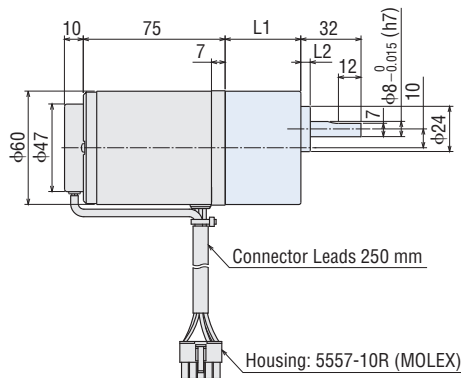
- Mounting screws are included with gearheads. Dimensions for mounting screws → Page D-174
- A number indicating the gear ratio is entered where the box □ is located within the gearhead product name.

● 6 W

◇ Motor/Gearhead

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L1	L2
US206-402E2	USM206-402W2	2GN□S	3~18	30	5
			25~180	40	

Mass: Motor 0.8 kg
Gearhead 0.4 kg



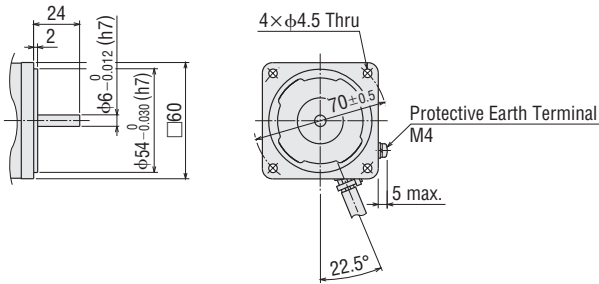
◇ Shaft Section of Round Shaft Type

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

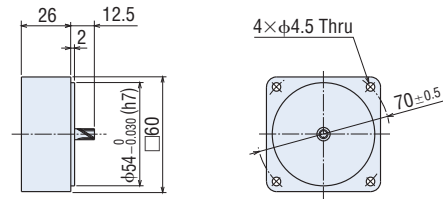


◇ Decimal Gearhead

This product can be attached to the **US206** pinion shaft type.

2GN10XS

Mass: 0.2 kg



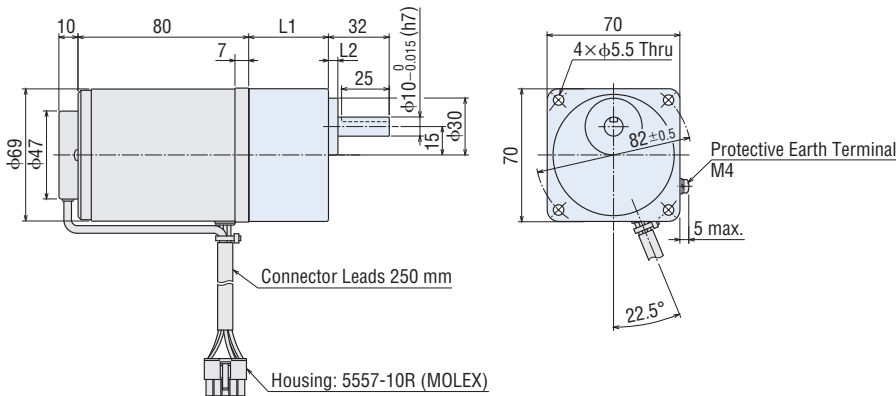
● 15 W

◇ Motor/Gearhead

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L1	L2
US315-402E2	USM315-402W2	3GN□S	3~18	32	5
			25~180	42	

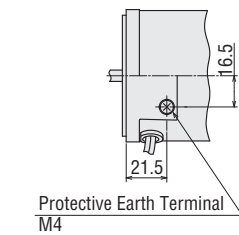
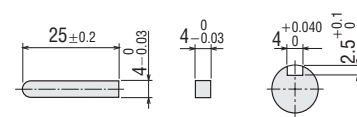
Mass: Motor 1.2 kg

Gearhead 0.55 kg



◇ Key and Key Slot

(The key is included with the gearhead)



Detail Drawing of Protective Earth Terminal

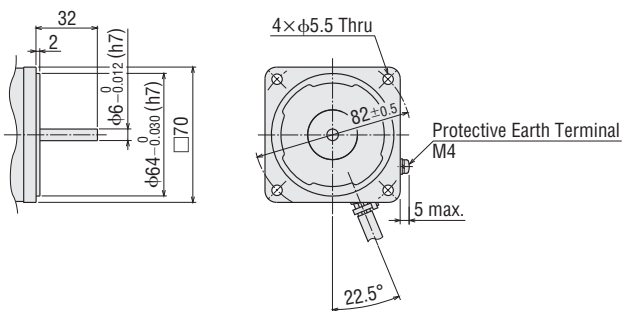
◇ Shaft Section of Round Shaft Type

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

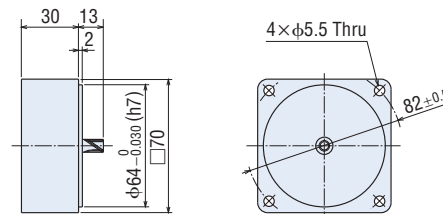


◇ Decimal Gearhead

This product can be attached to the **US315** pinion shaft type.

3GN10XS

Mass: 0.3 kg

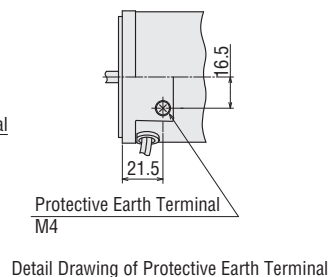
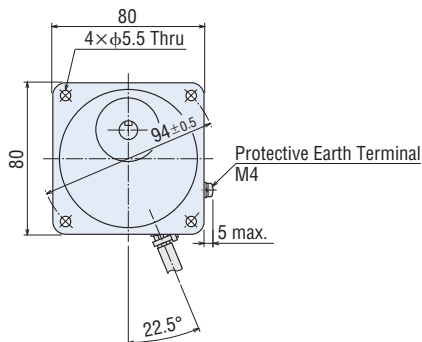
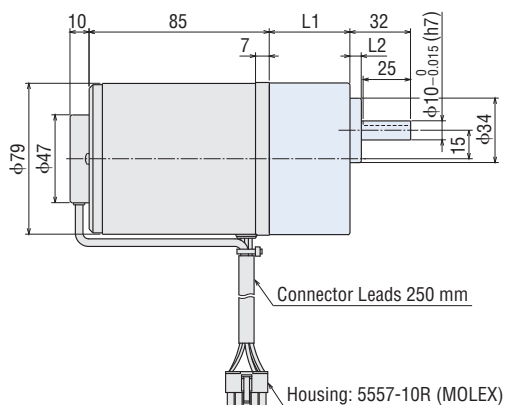


25 W

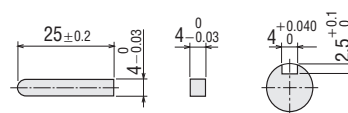
Motor/Gearhead

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L1	L2
US425-402E2	USM425-402W2	4GN□S	3~18	32	6
			25~180	42.5	

Mass: Motor 1.6 kg
Gearhead 0.65 kg



Key and Key Slot (The key is included with the gearhead)

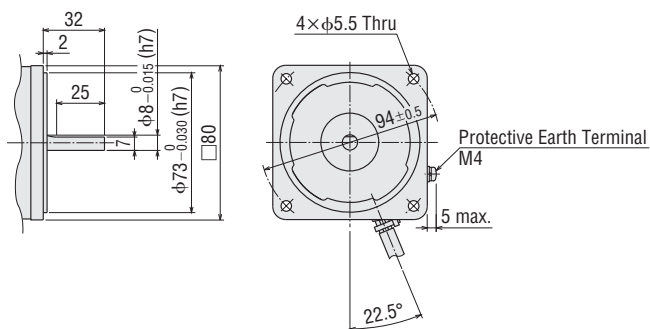


Shaft Section of Round Shaft Type

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

US425-002E2

Motor: USM425-002W2
Mass: 1.6 kg

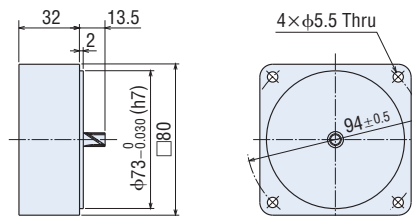


Decimal Gearhead

This product can be attached to the **US425** pinion shaft type.

4GN10XS

Mass: 0.4 kg

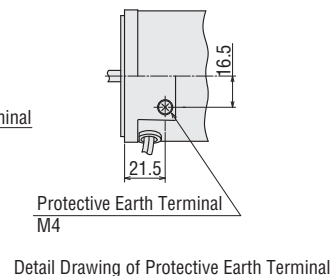
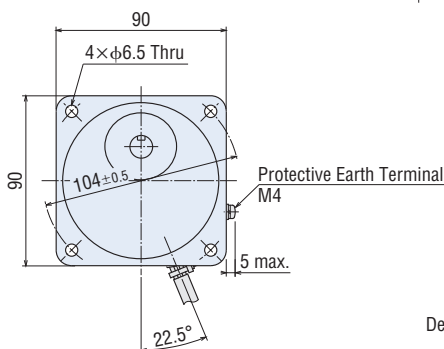
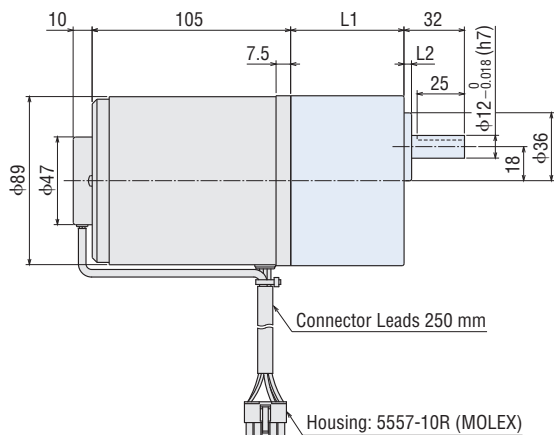


40 W

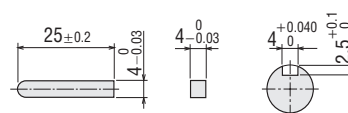
Motor/Gearhead

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L1	L2
US540-402E2	USM540-402W2	5GN□S	3~18	42	4
			25~180	60	

Mass: Motor 2.6 kg
Gearhead 1.5 kg



Key and Key Slot (The key is included with the gearhead)



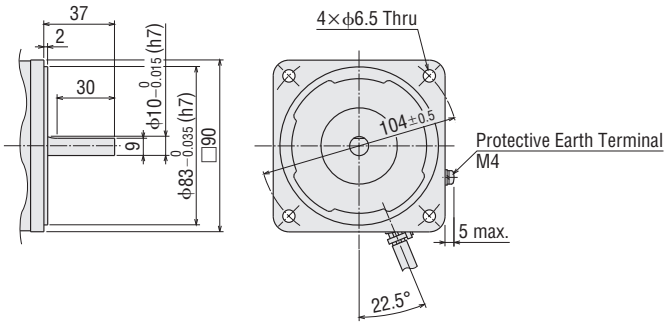
◇ Shaft Section of Round Shaft Type

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

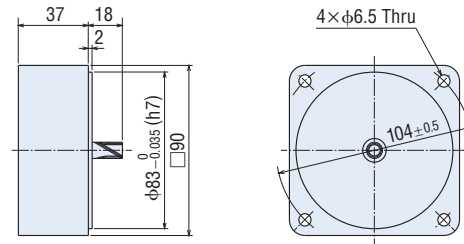


◇ Decimal Gearhead

This product can be attached to the **US540** pinion shaft type.

5GN10X5

Mass: 0.6 kg



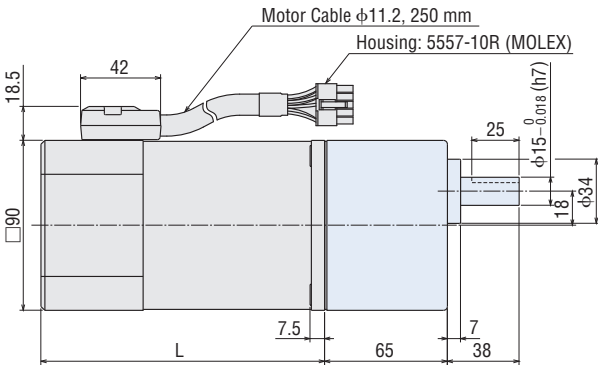
● 60 W

◇ Motor/Gearhead

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

Mass: Motor 2.8 kg

Gearhead 1.5 kg



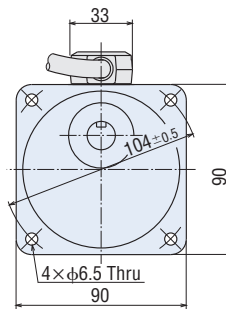
● 90 W

◇ Motor/Gearhead

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

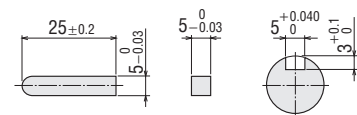
Mass: Motor 3.6 kg

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

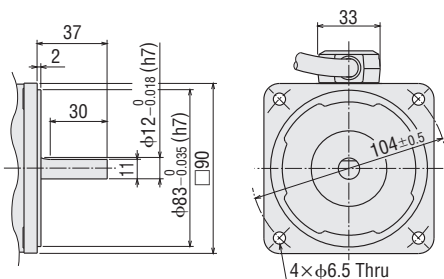
Motor: USM560-002W-1

Mass: 2.8 kg

US590-002E2

Motor: USM590-002W-1

Mass: 3.6 kg

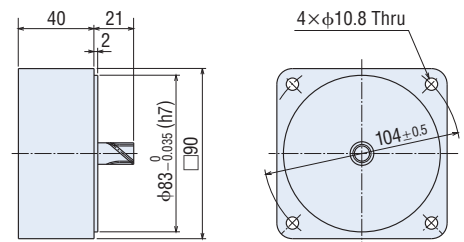


◇ Decimal Gearhead

These products can be attached to the **US560, US590** pinion shaft type.

5GU10XKB

Mass: 0.6 kg



◇ Speed Control Unit

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

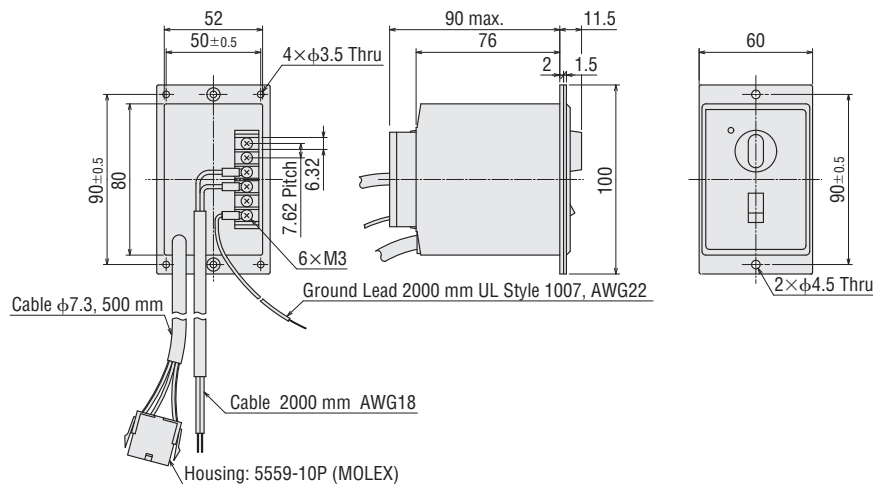
USP206-2E2

USP315-2E2

USP425-2E2

USP540-2E2

Mass: 0.45 kg

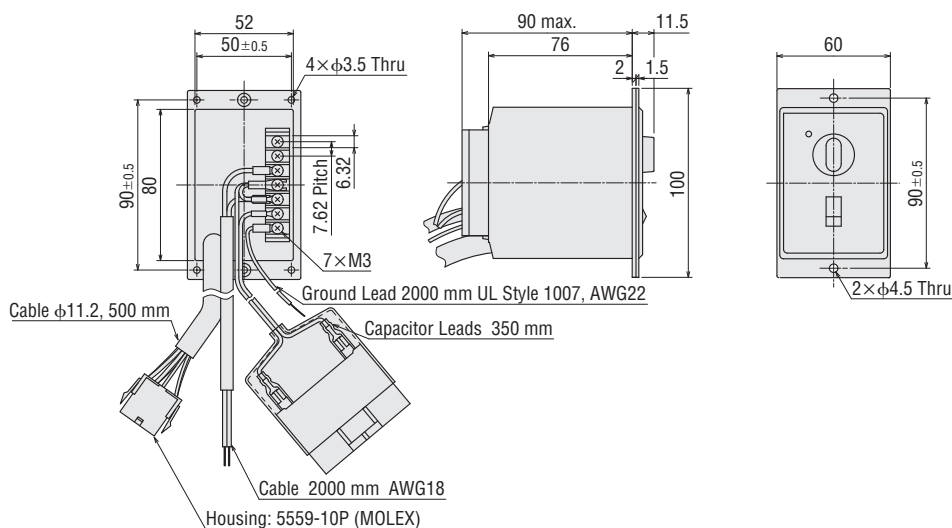


Common to Types **US560, US590**

USP560-2E2

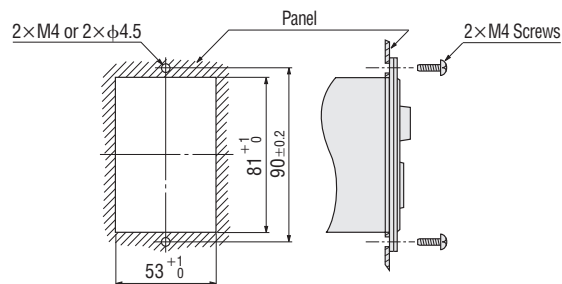
USP590-2E2

Mass: 0.5 kg



◇ Panel Cut-Out for Speed Control Unit

Installation Method by Cutting a Square Hole



Introduction

AC Input
BLF

AC Input
BLF
Brushless Motors

AC Input
BLU
DC Input
BLH

AC Speed Control Motors
US
ES02

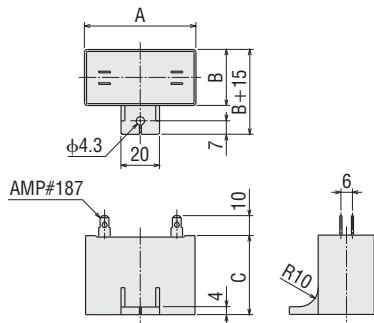
FE100/
FE200
Inverters

200W
BHF

Accessories

Installation

◇ Capacitor (Included)



◇ Capacitor Dimensions (mm)

Product Name		Capacitor Product Name	A	B	C	Mass (g)
Pinion Shaft Type	Round Shaft Type					
US560-502E2	US560-002E2	CH40BFAUL	58	23.5	37	73
US590-502E2	US590-002E2	CH60BFAUL	58	29	41	92

● A capacitor cap is included with the capacitor.

■ Connection and Operation

● Names and Functions of Speed Control Unit Parts

Speed Control Unit Front Panel

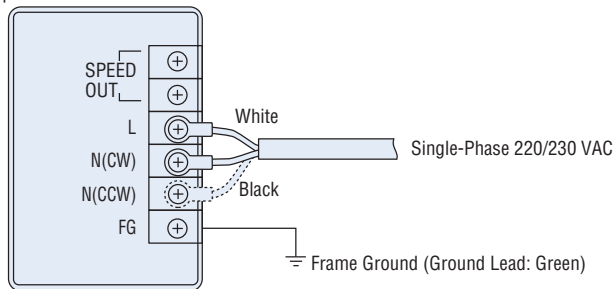


● Connection Diagrams

◇ US206, US315, US425, US540 Types

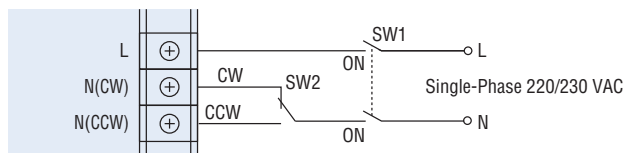
Continuous Operation

Speed Control Unit Rear Panel



● 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

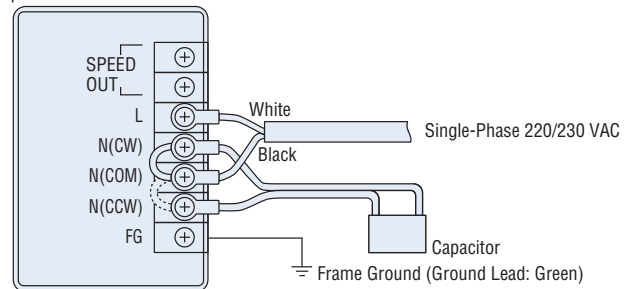


Contact Capacity of Switch
250 VAC 5 A min. (Inductive load)

◇ US560, US590 Types

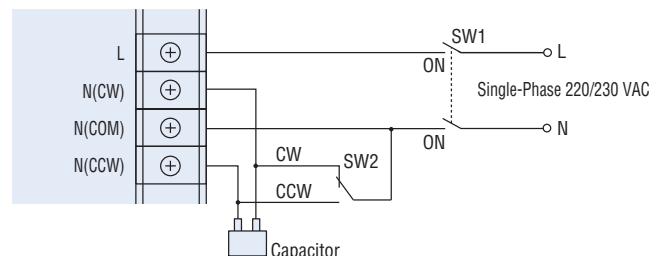
Continuous Operation

Speed Control Unit Rear Panel



● 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 C-255

● Operating Method

◇ Operation

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

◇ Changing Speed

When the knob on the "speed potentiometer" located on the speed control unit is turned in the 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 speed 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

● For types **US206, US315, US425, US540**

<Built-In Capacitor>

Uni-Directional Operation:

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

Bi-Directional Rotation:

Install an additional power switch and CW/CCW switch as shown in the figure on page D-108, and use these switches to change the rotation direction. Instantaneous bi-directional switching is disable. Turn SW1 off and wait until the motor has come to a complete stop before switching "SW2".

● For Type **US560, US590**

<External Capacitor>

Uni-Directional Operation:

When the rotation direction of the motor needs to be reversed, change the lead wires, located at the rear panel of the speed control unit, from terminals N (CW)–N (COM) to terminals N (COM)–N (CCW). Always do this after the power is OFF. The power cable connections are set to N (CW)–N (COM) when shipped.

Bi-Directional Rotation:

Install an additional power switch and CW/CCW switch as shown in the figure on page D-108, and use these switches to change the rotation direction. Instantaneous bi-directional switching is disable. Turn "SW1" off and wait until the motor has come to a complete stop before switching "SW2".

■ List of Motor and Speed Control Unit Combinations

Product names for motor and speed control unit combinations are shown below.

Output Power	Product Name	Motor Product Name	Speed Control Unit Product Name
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	