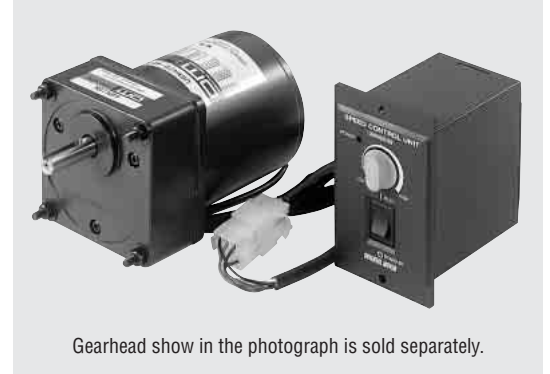


AC Motor Systems

US Series

The **US** Series combines a control unit and an AC speed control motor. Connection between the motor and control unit is simplified by an easy-to-use connector. The **US** Series is designed for applications where remote control of the motor speed and easy installation are required.



Gearhead shown in the photograph is sold separately.

■ Features

● Easy Connection

Control units combine the control pack, potentiometer and capacitor into one device (except 60 W and 90 W models). Operation is possible just by connecting the control unit into the power supply after connecting the motor and control unit together using the connector.

● Easy Operation

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

● Approved by Safety Standards

The **US** Series is recognized by UL/CSA standards and conforms to EN standards. CE marking is used in accordance with the Low Voltage Directives.

■ Safety Standards and CE Marking

	Standards	Certification Body	Standards File No.	CE Marking
Motor	UL1004 UL2111	UL	E64199 (6 W type) E64197 (15 W~90 W type)	Low Voltage Directives
	CSA C22.2 No.100 CSA C22.2 No.77			
	EN60950	VDE	114919ÜG (6 W type) 6751ÜG (15 W~90 W type)	
	EN60034-1 EN60034-5	Conform to EN/IEC Standards		
	IEC60034-11 (15 W~90 W type)			
Control Unit	UL508	UL	E91291	
	CSA C22.2 No.14			
	EN60950 EN50178	Conform to EN/IEC Standards		

- When the system is approved under various safety standards, the model names on the motor and control unit are the approved model names.

List of Motor and Control Unit Combinations → Page B-130

- **Details of Safety Standards** → Page G-2

- Single-Phase 220/230 VAC models conform to EMC directives.

The EMC value changes according to the wiring and layout. Therefore, the final EMC level must be checked with the motor/control unit incorporated in the user's equipment.

■ Product Line

● Single-Phase 110/115 VAC

Output Power		Pinion Shaft	Model	
HP	W		Round Shaft	
1/125	6	US206-401U	US206-001U	
1/50	15	US315-401U	US315-001U	
1/30	25	US425-401U	US425-001U	
1/19	40	US540-401U	US540-001U	
1/12	60	US560-501U	US560-001U	
1/8	90	US590-501U	US590-001U	

● Single-Phase 220/230 VAC

Output Power		Pinion Shaft	Model	
HP	W		Round Shaft	
1/125	6	US206-402E	US206-002E	
1/50	15	US315-402E	US315-002E	
1/30	25	US425-402E	US425-002E	
1/19	40	US540-402E	US540-002E	
1/12	60	US560-502E	US560-002E	
1/8	90	US590-502E	US590-002E	

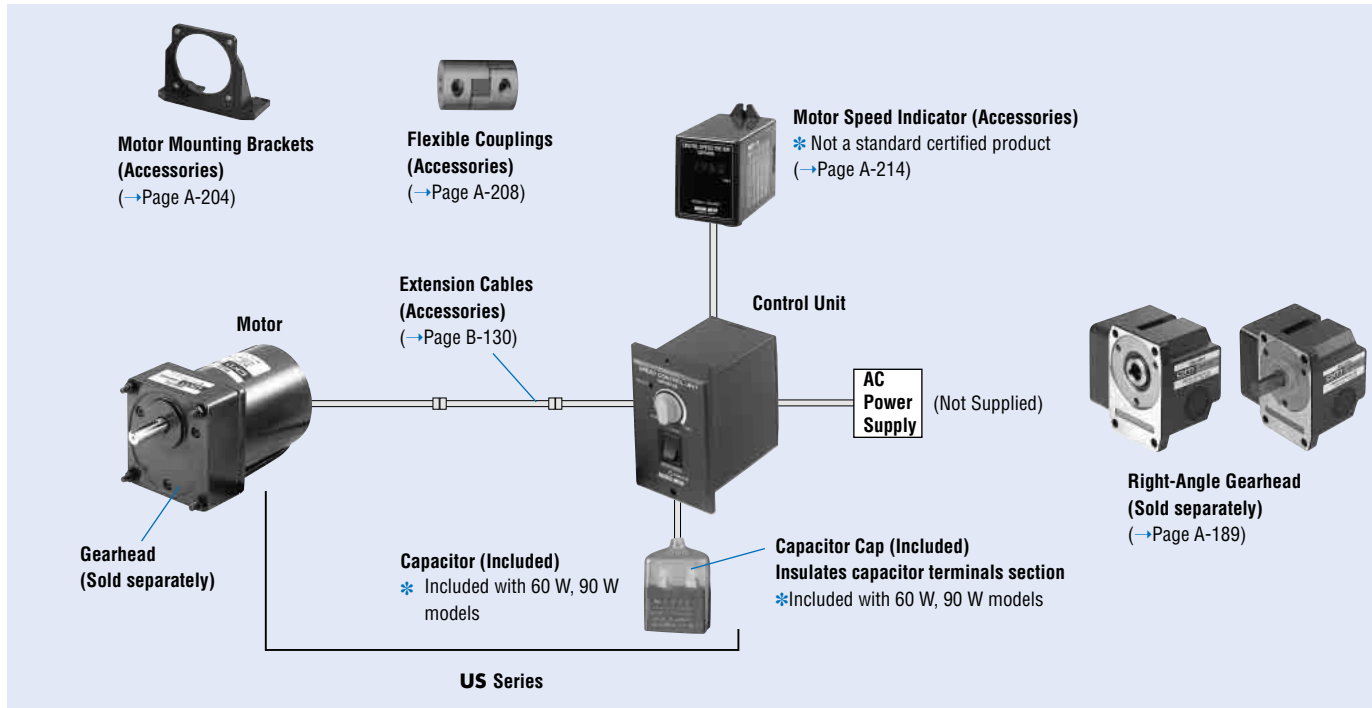
● Gearheads (Sold Separately)

Motor Model	Gearhead Model
US206 Type	2GN3KA~2GN180KA 2GN10XK (Decimal Gearhead)
US315 Type	3GN3KA~3GN180KA 3GN10XK (Decimal Gearhead)
US425 Type	4GN3KA~4GN180KA 4GN10XK (Decimal Gearhead)
US540 Type	5GN3KA~5GN180KA 5GN10XK (Decimal Gearhead)
US560, US590 Type	5GU3KA~5GU180KA 5GU10XKB (Decimal Gearhead)
US590 Type	5GU50KHA~5GU180KHA 5GU10XK (Decimal Gearhead)

● Right-Angle Gearheads (Sold Separately)

Type of Shaft	Gearhead Model
Hollow Shaft	4GN3.6RH~4GN180RH
	5GN3.6RH~5GN180RH
Solid Shaft	5GU3.6RH~5GU180RH
	4GN3.6RAA~4GN180RAA
	5GN3RAA~5GN180RAA

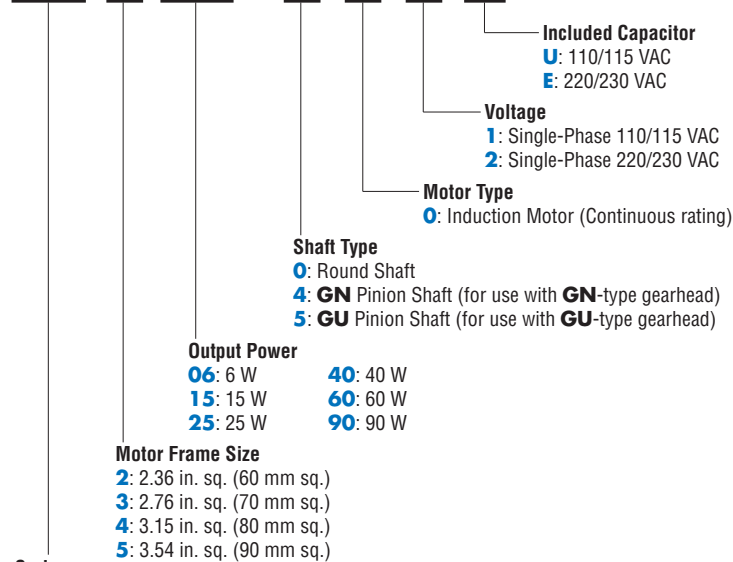
■ System Configuration



The system configuration shown is an example. Other configurations are available.

■ Product Number Code

US 5 60 - 5 0 1 U



Product Number Code of the Gearheads → Page A-16

Specifications

Model		Maximum Output Power HP W	Voltage VAC	Frequency Hz	Speed Range r/min	Permissible Torque				Starting Torque		Current A	Power Consumption W
Pinion Shaft	Round Shaft					oz-in	mN-m	oz-in	mN-m	1200r/min	90r/min		
ⓈP US206-401U	US206-001U	1/125 6	Single-Phase 110	60	90~1600	7.1	50	4.2	30	4.9	35	0.24	24
			Single-Phase 115	60	90~1600	7.1	50	4.2	30	4.9	35	0.25	28
ⓈP US206-402E	US206-002E	1/125 6	Single-Phase 220	50	90~1400	7.1	50	4.1	29	4.1	29	0.13	25
			Single-Phase 220	60	90~1600	7.1	50	4.1	29	3.8	27	0.13	27
			Single-Phase 230	50	90~1400	7.1	50	4.1	29	4.1	29	0.13	28
			Single-Phase 230	60	90~1600	7.1	50	4.1	29	4.1	29	0.13	28
ⓈP US315-401U	US315-001U	1/50 15	Single-Phase 110	60	90~1600	17.7	125	6.3	45	7.8	55	0.47	44
			Single-Phase 115	60	90~1600	17.7	125	6.3	45	7.8	55	0.50	44
ⓈP US315-402E	US315-002E	1/50 15	Single-Phase 220	50	90~1400	17.7	125	4.9	35	7.6	54	0.21	40
			Single-Phase 220	60	90~1600	12	85	4.9	35	7.3	52	0.18	39
			Single-Phase 230	50	90~1400	17.7	125	4.9	35	7.6	54	0.21	41
			Single-Phase 230	60	90~1600	14.9	105	4.9	35	7.8	55	0.22	44
ⓈP US425-401U	US425-001U	1/30 25	Single-Phase 110	60	90~1600	28	200	7.1	50	14.9	105	0.74	70
			Single-Phase 115	60	90~1600	28	200	7.1	50	14.9	105	0.74	73
ⓈP US425-402E	US425-002E	1/30 25	Single-Phase 220	50	90~1400	26	190	6.1	43	12.3	87	0.33	60
			Single-Phase 220	60	90~1600	18.4	130	6.1	43	11.3	80	0.31	59
			Single-Phase 230	50	90~1400	26	190	6.6	47	12.3	87	0.35	62
			Single-Phase 230	60	90~1600	18.4	130	6.1	43	12.3	87	0.31	60
ⓈP US540-401U	US540-001U	1/19 40	Single-Phase 110	60	90~1600	36	260	9.9	70	25.0	180	1.1	102
			Single-Phase 115	60	90~1600	36	260	9.9	70	25.0	180	1.1	105
ⓈP US540-402E	US540-002E	1/19 40	Single-Phase 220	50	90~1400	42	300	8.9	63	19.8	140	0.53	90
			Single-Phase 220	60	90~1600	32	230	8.9	63	17.7	125	0.55	98
			Single-Phase 230	50	90~1400	42	300	8.9	63	19.8	140	0.53	90
			Single-Phase 230	60	90~1600	32	230	8.9	63	19.8	140	0.55	100
ⓈP US560-501U	US560-001U	1/12 60	Single-Phase 110	60	90~1600	69	490	28	200	40	285	2.0	178
			Single-Phase 115	60	90~1600	69	490	28	200	40	285	2.1	186
ⓈP US560-502E	US560-002E	1/12 60	Single-Phase 220	50	90~1400	69	490	19.8	140	34	240	0.85	154
			Single-Phase 220	60	90~1600	63	450	22	160	29	210	0.86	159
			Single-Phase 230	50	90~1400	69	490	19.8	140	34	240	0.89	154
			Single-Phase 230	60	90~1600	63	450	22	160	34	240	0.88	165
ⓈP US590-501U	US590-001U	1/8 90	Single-Phase 110	60	90~1600	103	730	28	200	57	405	2.6	230
			Single-Phase 115	60	90~1600	103	730	28	200	57	405	2.6	246
ⓈP US590-502E	US590-002E	1/8 90	Single-Phase 220	50	90~1400	103	730	32	230	51	360	1.1	200
			Single-Phase 220	60	90~1600	103	730	36	260	51	360	1.2	221
			Single-Phase 230	50	90~1400	103	730	32	230	56	400	1.2	201
			Single-Phase 230	60	90~1600	103	730	36	260	56	400	1.2	227

ⓈP: Impedance Protected.

ⓈT: Contains a built-in thermal protector. If a motor overheats for any reason, the thermal protector is opened and the motor stops. When the motor temperature drops, the thermal protector closes and the motor automatically restarts. Be sure to turn off the power before inspecting.

• The speed ranges shown are under no load conditions.

• The "U" and "E" at the end of the model number indicate that the unit includes a capacitor. These letters are not listed on the motor nameplate.

General Specifications of the Motor

Item	Specifications
Insulation Resistance	100 MΩ or more when 500 VDC is applied between the windings and the frame after rated motor operation under normal ambient temperature and humidity.
Dielectric Strength	Sufficient to withstand 1.5 kV at 50 Hz and 60 Hz applied between the windings and the frame after rated motor operation under normal ambient temperature and humidity for 1 minute.
Temperature Rise	144°F (80°C) or less measured by the resistance change method after rated operation of motor with connected gearhead or equivalent heat radiation plate*.
Overheating Protection Device	US206 models are impedance protected. All others have built-in thermal protector (Automatic return type) Operating temperature, open: 266°F±9°F (130°C±5°C) Close: 179.6°F±27°F (82°C±15°C)
Insulation Class	Class B (266°F [130°C])
Ambient Temperature Range	14°F~104°F (-10°C~+40°C) (nonfreezing)
Ambient Humidity	85% maximum (non condensing)
Degree of Protection	US206, US315, US425, US540: IP20 US560, US590: IP40

* Heat radiation plate (material: Aluminum)

Model (output)	Size inch (mm)	Thickness inch (mm)
US206 Type (6 W)	4.53×4.53 (115×115)	0.20 (5)
US315 Type (15 W)	4.92×4.92 (125×125)	
US425 Type (25 W)	5.31×5.31 (135×135)	
US540 Type (40 W)	6.50×6.50 (165×165)	
US560 Type (60 W)	7.87×7.87 (200×200)	
US590 Type (90 W)	7.87×7.87 (200×200)	

General Specifications of the Control Unit

Item	Specifications
Insulation Resistance	100 MΩ or more when 500 VDC is applied between all the pins and the frame.
Dielectric Strength	Sufficient to withstand 2.3 kV (Single phase 220, 230 VAC: 3.0 kV) at 50 Hz and 60 Hz applied between all the pins and the frame for 1 minute.
Ambient Temperature Range	32°F~104°F (0°C~+40°C) (nonfreezing)
Ambient Humidity	85% maximum (noncondensing)
Degree of Protection	IP10

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	60 Hz	533	444	320	266	213	177	128	106	88	64	53	44	32	26	21	17	16	13	10	8.8
	50 Hz	466	388	280	233	186	155	112	93	77	56	46	38	28	23	18	15	14	11	9	7
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

* The speed range is under no load conditions.

Permissible Torque when a Gearhead is Attached

When connecting a decimal gearhead with a gear ratio of 10:1 between the motor and the gearhead, the rotation rate is reduced. The permissible torque with decimal gearheads are as follows.

2GN□KA/2GN10XK 26 lb-in/3 N·m

3GN□KA/3GN10XK 44 lb-in/5 N·m

4GN□KA/4GN10XK 70 lb-in/8 N·m (Gear Ratio 25~36 53 lb-in/6 N·m)

5GN□KA/5GN10XK 88 lb-in/10 N·m

5GU□KA/5GU10XKB 177 lb-in/20 N·m

5GU□KHA/5GU10XK 260 lb-in/30 N·m

Single-Phase 110/115 VAC

Unit = Upper values: lb-in/Lower values: N·m

Model	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
US206-401U /2GN□KA	1200 r/min	1.06 0.12	1.32 0.15	1.77 0.2	2.1 0.24	2.6 0.3	3.1 0.36	4.5 0.51	5.3 0.61	6.4 0.73	8 0.91	9.7 1.1	11.5 1.3	15 1.7	17.7 2.0	22 2.5	26 3	26 3	26 3	26 3	26 3
	90 r/min	0.64 0.073	0.77 0.088	1.06 0.12	1.32 0.15	1.59 0.18	1.94 0.22	2.6 0.3	3.1 0.36	3.8 0.44	4.8 0.55	5.8 0.66	6.9 0.79	8.7 0.99	10.6 1.2	13.2 1.5	15.9 1.8	17.7 2.1	26 2.0	26 2.4	26 3
US315-401U /3GN□KA	1200 r/min	2.6 0.3	3.1 0.36	4.5 0.51	5.3 0.61	6.7 0.76	8 0.91	11.5 1.3	13.2 1.5	15.9 1.8	20 2.3	23 2.7	29 3.3	36 4.1	44 5	44 5	44 5	44 5	44 5	44 5	44 5
	90 r/min	0.97 0.11	1.15 0.13	1.59 0.18	1.94 0.22	2.3 0.27	2.9 0.33	4 0.46	4.8 0.55	5.8 0.66	7.2 0.82	8.7 0.99	10.6 1.2	13.2 1.5	15.9 1.8	19.4 2.2	23 2.7	26 3.0	31 3.6	39 4.5	44 5
US425-401U /4GN□KA	1200 r/min	4.3 0.49	5.1 0.58	7.1 0.81	8.5 0.97	10.6 1.2	13.2 1.5	17.7 2.0	21 2.4	25 2.9	32 3.7	38 4.4	46 5.3	58 6.6	69 7.9	70 8	70 8	70 8	70 8	70 8	70 8
	90 r/min	1.06 0.12	1.32 0.15	1.77 0.2	2.1 0.24	2.6 0.3	3.1 0.36	4.5 0.51	5.3 0.61	6.4 0.73	8 0.91	9.7 1.1	11.5 1.3	15 1.7	17.7 2.0	22 2.5	26 3.0	29 3.3	35 4.0	44 5.0	52 5.9
US540-401U /5GN□KA	1200 r/min	5.5 0.63	6.7 0.76	9.7 1.1	11.5 1.3	14.1 1.6	16.8 1.9	23 2.6	28 3.2	33 3.8	41 4.7	50 5.7	60 6.8	76 8.6	88 10	88 10	88 10	88 10	88 10	88 10	88 10
	90 r/min	1.5 0.17	1.77 0.2	2.4 0.28	3 0.34	3.8 0.43	4.5 0.51	6.2 0.71	7.5 0.85	8.8 1.0	11.5 1.3	13.2 1.5	15.9 1.8	20 2.3	24 2.8	30 3.5	37 4.2	40 4.6	48 5.5	61 6.9	73 8.3
US560-501U /5GU□KA	1200 r/min	10.6 1.2	12.3 1.4	17.7 2.0	21 2.4	26 3.0	31 3.6	39 4.5	47 5.4	56 6.4	71 8.1	85 9.7	102 11.6	143 16.2	171 19.4	177 20	177 20	177 20	177 20	177 20	177 20
	90 r/min	4.3 0.49	5.1 0.58	7.1 0.81	8.5 0.97	10.6 1.2	13.2 1.5	15.9 1.8	19.4 2.2	23 2.6	29 3.3	35 4.0	42 4.8	58 6.6	69 7.9	78 8.9	93 10.6	104 11.8	125 14.2	156 17.7	177 20
US590-501U /5GU□KA	1200 r/min	15.9 1.8	18.5 2.1	26 3.0	30 3.5	38 4.4	46 5.3	59 6.7	70 8.0	84 9.6	106 12.0	128 14.5	153 17.3	177 20	177 20	177 20	177 20	177 20	177 20	177 20	177 20
	90 r/min	4.3 0.49	5.1 0.58	7.1 0.81	8.5 0.97	10.6 1.2	13.2 1.5	15.9 1.8	19.4 2.2	23 2.6	29 3.3	35 4.0	42 4.8	58 6.6	69 7.9	78 8.9	93 10.6	104 11.8	125 14.2	156 17.7	177 20
US590-501U /5GU□KHA	1200 r/min	—	—	—	—	—	—	—	—	—	—	—	—	210 24.1	250 28.9	260 30	260 30	260 30	260 30	260 30	260 30
	90 r/min	—	—	—	—	—	—	—	—	—	—	—	—	58 6.6	69 7.9	78 8.9	93 10.6	104 11.8	125 14.2	156 17.7	187 21.2

- 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; a white background indicates rotation in the opposite direction.

● Single-Phase 220/230 VAC

Unit = Upper values: lb-in/Lower values: N-m

Model	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	
US206-402E /2GN□KA	1200 r/min	1.06 0.12	1.32 0.15	1.77 0.2	2.1 0.24	2.6 0.3	3.1 0.36	4.5 0.51	5.3 0.61	6.4 0.73	8 0.91	9.7 1.1	11.5 1.3	15 1.7	17.7 2.0	22 2.5	26 3	26 3	26 3	26 3	26 3	
	90 r/min	0.61 0.07	0.75 0.085	1.06 0.12	1.23 0.14	1.59 0.18	1.85 0.21	2.5 0.29	3 0.35	3.7 0.42	4.6 0.53	5.6 0.64	6.7 0.76	8.4 0.96	9.7 1.1	12.3 1.4	15 1.7	16.8 1.9	20 2.3	25 2.9	26 3	
US315-402E /3GN□KA	1200 r/min	220 VAC 60 Hz	1.85 0.21	2.2 0.25	3 0.34	3.6 0.41	4.6 0.52	5.4 0.62	7.6 0.86	8.8 1.0	10.6 1.2	14.1 1.6	16.8 1.9	19.4 2.2	24 2.8	30 3.4	37 4.2	44 5	44 5	44 5	44 5	44 5
		230 VAC 50 Hz	2.6 0.3	3.1 0.36	4.5 0.51	5.3 0.61	6.7 0.76	8 0.91	11.5 1.3	13.2 1.5	15.9 1.8	20 2.3	23 2.7	29 3.3	36 4.1	44 5	44 5	44 5	44 5	44 5	44 5	
	90 r/min	230 VAC 60 Hz	2.3 0.26	2.7 0.31	3.8 0.43	4.5 0.51	5.6 0.64	6.8 0.77	8.7 1.1	11.5 1.3	13.2 1.5	16.8 1.9	20 2.3	24 2.8	30 3.5	37 4.2	44 5	44 5	44 5	44 5	44 5	
		220/230 VAC 60 Hz	0.75 0.085	0.88 0.1	1.23 0.14	1.5 0.17	1.85 0.21	2.3 0.26	3 0.35	3.8 0.43	4.5 0.51	5.6 0.64	6.8 0.77	8.1 0.92	10.6 1.2	12.3 1.4	15 1.7	18.5 2.1	20 2.3	24 2.8	30 3.5	37 4.2
US425-402E /4GN□KA	1200 r/min	220/230 VAC 60 Hz	2.8 0.32	3.3 0.38	4.6 0.53	5.5 0.63	6.9 0.79	8.4 0.95	11.5 1.3	14.1 1.6	16.8 1.9	21 2.4	24 2.8	30 3.4	38 4.3	45 5.1	56 6.4	68 7.7	70 8	70 8	70 8	70 8
		230 VAC 50 Hz	4 0.46	4.8 0.55	6.8 0.77	8.1 0.92	10.6 1.2	12.3 1.4	16.8 1.9	20 2.3	24 2.8	30 3.5	37 4.2	44 5.0	55 6.3	66 7.5	70 8	70 8	70 8	70 8	70 8	
	90 r/min	220/230 VAC 60 Hz	0.88 0.1	1.15 0.13	1.5 0.17	18.5 0.21	2.3 0.26	2.7 0.31	3.8 0.44	4.6 0.52	5.5 0.63	6.9 0.78	8.3 0.94	9.7 1.1	12.3 1.4	15 1.7	18.5 2.1	23 2.6	24 2.8	30 3.4	38 4.3	45 5.1
		230 VAC 50 Hz	0.97 0.11	1.23 0.14	1.68 0.19	2 0.23	2.5 0.29	3 0.34	4.2 0.48	5 0.57	6.1 0.69	7.6 0.86	8.8 1.0	10.6 1.2	14.1 1.6	16.8 1.9	20 2.3	24 2.8	27 3.1	32 3.7	41 4.7	49 5.6
US540-402E /5GN□KA	1200 r/min	220/230 VAC 60 Hz	4.9 0.56	5.9 0.67	8.2 0.93	9.7 1.1	12.3 1.4	15 1.7	20 2.3	24 2.8	30 3.4	37 4.2	44 5.0	53 6.0	67 7.6	80 9.1	88 10	88 10	88 10	88 10	88 10	
		230 VAC 50 Hz	6.4 0.73	7.6 0.87	10.6 1.2	13.2 1.5	15.9 1.8	19.4 2.2	26 3.0	31 3.6	38 4.4	48 5.5	58 6.6	69 7.9	87 9.9	88 10	88 10	88 10	88 10	88 10	88 10	
	90 r/min	1.32 0.15	1.59 0.18	2.3 0.26	2.7 0.31	3.3 0.38	4 0.46	5.6 0.64	6.8 0.77	8.1 0.92	9.7 1.1	12.3 1.4	15 1.7	18.5 2.1	22 2.5	27 3.1	32 3.7	44 5.0	47 5.6	54 6.2	66 7.5	
US560-502E /5GU□KA	1200 r/min	220/230 VAC 60 Hz	9.7 1.1	11.5 1.3	15.9 1.8	19.4 2.2	23 2.7	29 3.3	36 4.1	43 4.9	52 5.9	65 7.4	78 8.9	94 10.7	131 14.9	157 17.8	176 19.9	177 20	177 20	177 20	177 20	
		230 VAC 50 Hz	10.6 1.2	12.3 1.4	17.7 2.0	21 2.4	26 3.0	31 3.6	39 4.5	47 5.4	56 6.4	71 8.1	85 9.7	102 11.6	143 16.2	171 19.4	177 20	177 20	177 20	177 20		
	90 r/min	220/230 VAC 60 Hz	3.4 0.39	4.1 0.47	5.7 0.65	6.9 0.78	8.5 0.97	10.6 1.2	13.2 1.5	15.9 1.8	18.5 2.1	23 2.6	28 3.2	33 3.8	46 5.3	55 6.3	62 7.1	75 8.5	83 9.4	100 11.3	125 14.2	150 17
		230 VAC 50 Hz	3 0.34	3.6 0.41	5 0.57	6 0.68	7.5 0.85	8.8 1.0	11.5 1.3	13.2 1.5	15.9 1.8	20 2.3	24 2.8	29 3.3	40 4.6	48 5.5	54 6.2	65 7.4	73 8.3	87 9.9	109 12.4	131 14.9
US590-502E /5GU□KA	1200 r/min	15.9 1.8	18.5 2.1	26 3.0	30 3.5	38 4.4	46 5.3	59 6.7	70 8.0	84 9.6	106 12.0	128 14.5	153 17.3	177 20	177 20	177 20	177 20	177 20	177 20	177 20		
	90 r/min	220/230 VAC 60 Hz	5.5 0.63	6.7 0.76	9.7 1.1	11.5 1.3	14.1 1.6	16.8 1.9	21 2.4	24 2.8	30 3.4	38 4.5	45 5.1	54 6.2	76 8.6	91 10.3	101 11.5	122 13.8	135 15.3	162 18.4	177 20	
		230 VAC 50 Hz	4.9 0.56	5.9 0.67	8.2 0.93	9.7 1.1	12.3 1.4	15 1.7	18.5 2.1	22 2.5	26 3.0	33 3.8	40 4.6	48 5.5	67 7.6	80 9.1	107 10.2	120 12.2	144 13.6	177 16.3		
US590-502E /5GU□KHA	1200 r/min	—	—	—	—	—	—	—	—	—	—	—	—	210 24.1	250 28.9	260 30	260 30	260 30	260 30	260 30		
	90 r/min	220/230 VAC 60 Hz	—	—	—	—	—	—	—	—	—	—	—	—	76 8.6	91 10.3	101 11.5	122 13.8	135 15.3	162 18.4	200 23	
		230 VAC 50 Hz	—	—	—	—	—	—	—	—	—	—	—	—	67 7.6	80 9.1	90 10.2	107 12.2	120 13.6	144 16.3	180 20.4	

- 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; a white background indicates rotation in the opposite direction.

■ Gearmotor — Torque Table when a Right-Angle Gearhead is Attached

→Page A-196

■ Permissible Overhung Load and Permissible Thrust Load

Motor (Round shaft type)→Page A-11

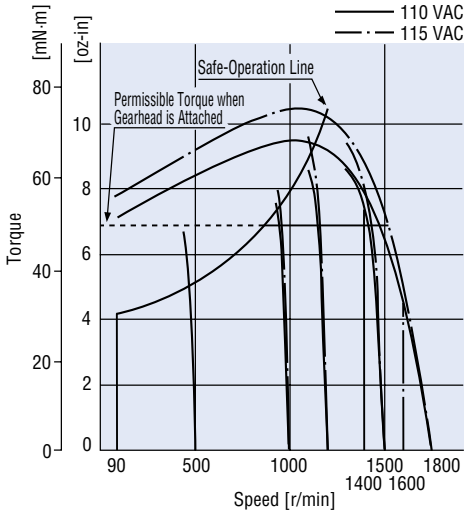
Gearhead→Page A-11

■ Permissible Load Inertia J for Gearhead

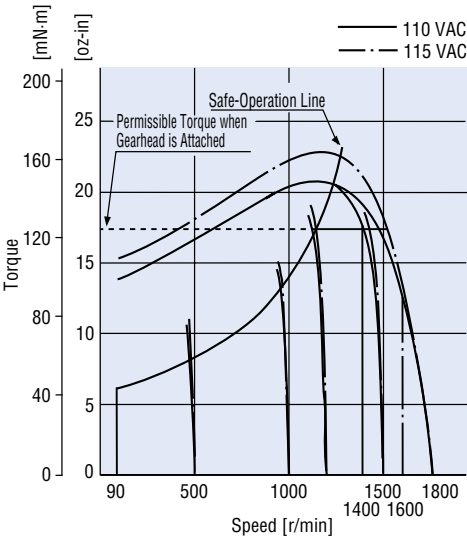
→Page A-12

Speed — Torque Characteristics

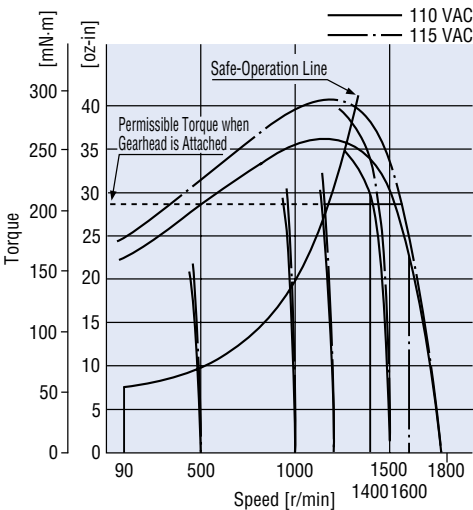
US206-401U
US206-001U



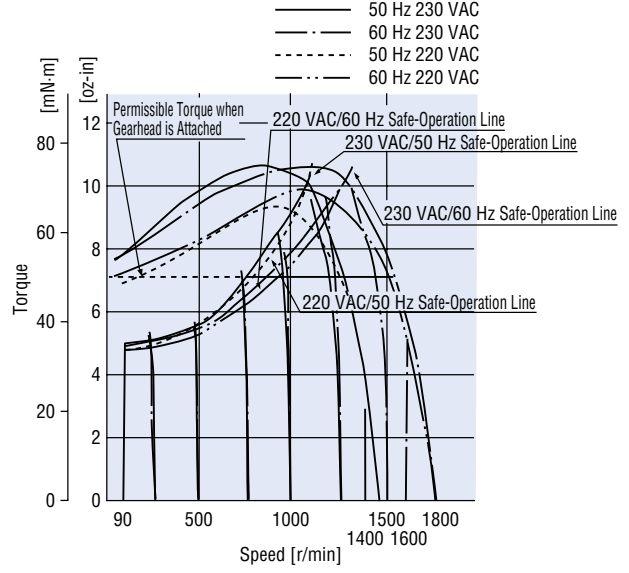
US315-401U
US315-001U



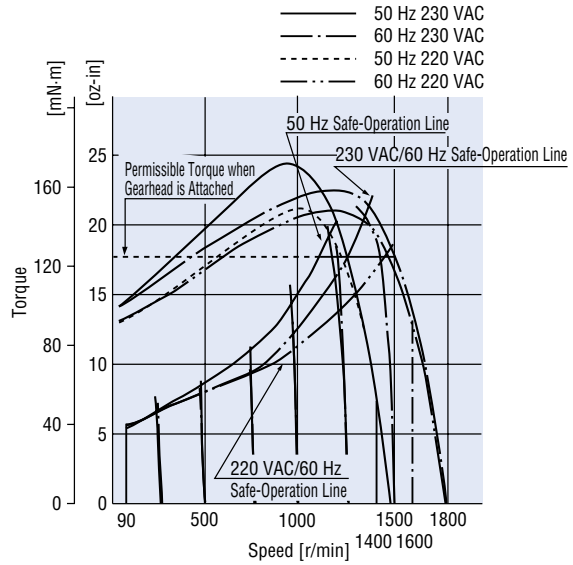
US425-401U
US425-001U



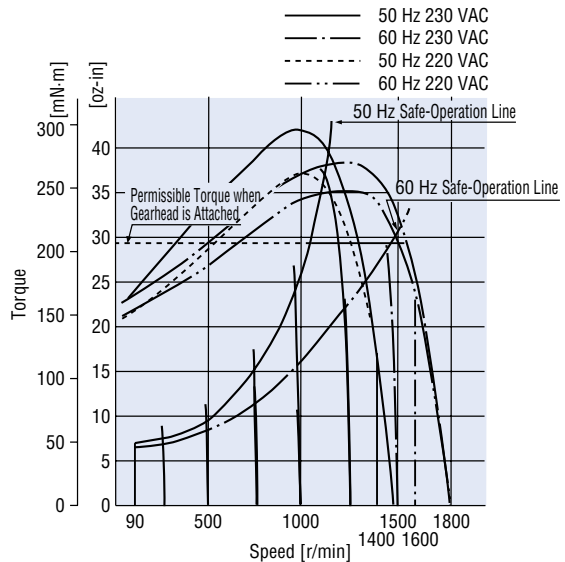
US206-402E
US206-002E



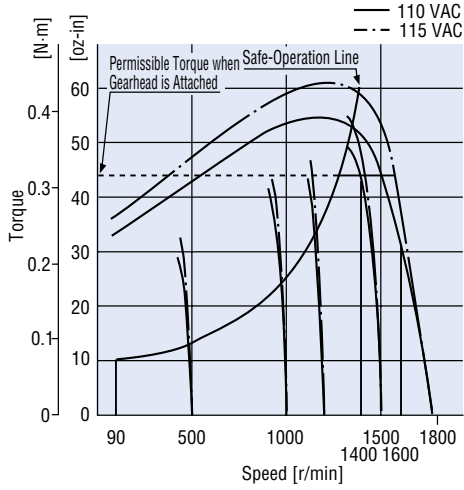
US315-402E
US315-002E



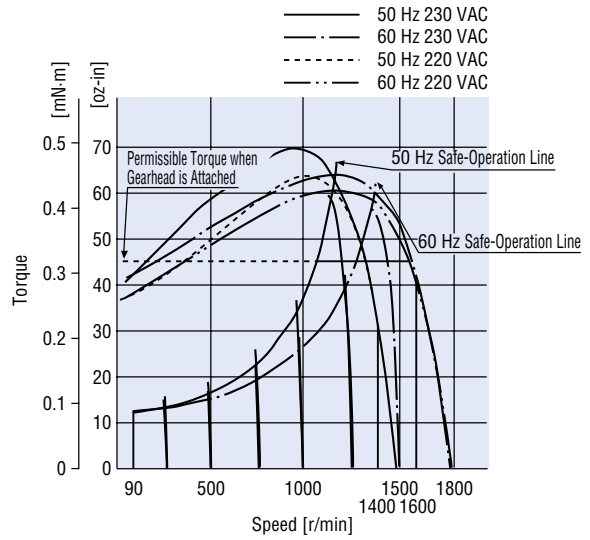
US425-402E
US425-001E



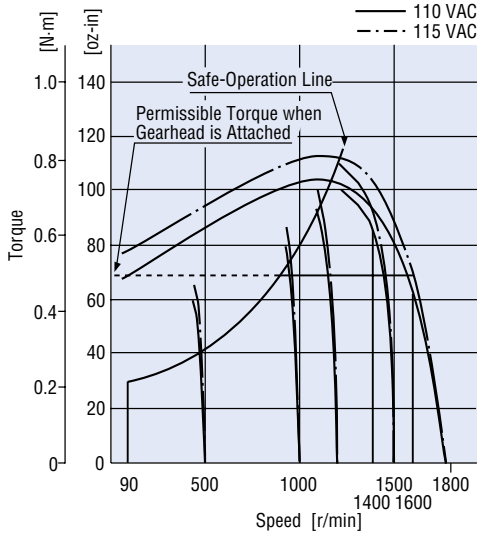
US540-401U
US540-001U



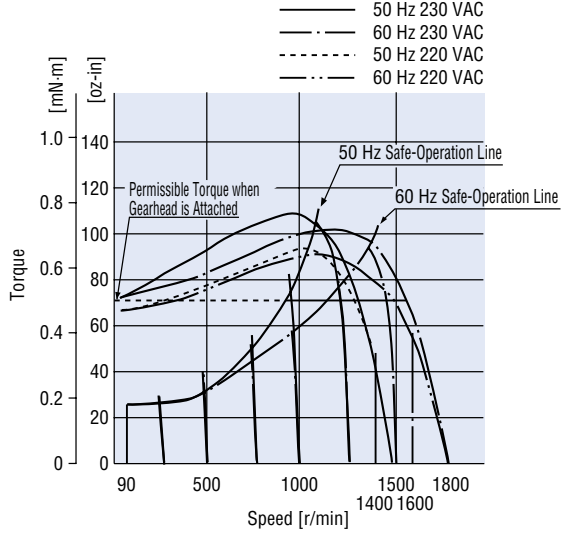
US540-402E
US540-002E



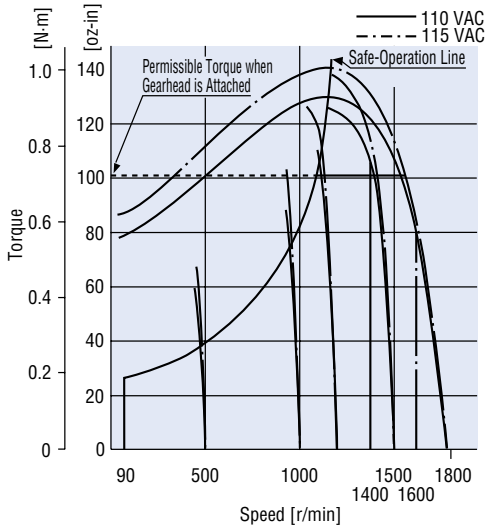
US560-501U
US560-001U



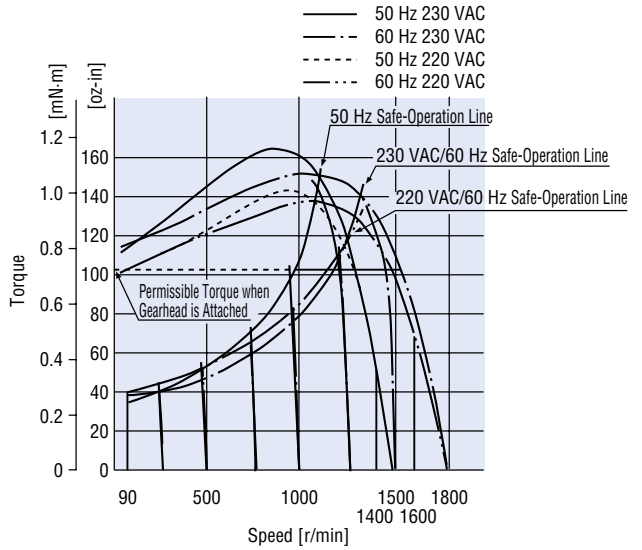
US560-502E
US560-002E



US590-501U
US590-001U



US590-502E
US590-002E



Dimensions Scale 1/4, Unit = inch (mm)

Mounting screws are included with gearheads. Dimensions for screws → Page A-223

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

● Motor/Gearhead

US206-401U, US206-402E (Pinion Shaft Type)

Motor: USM206-401W, USM206-402W

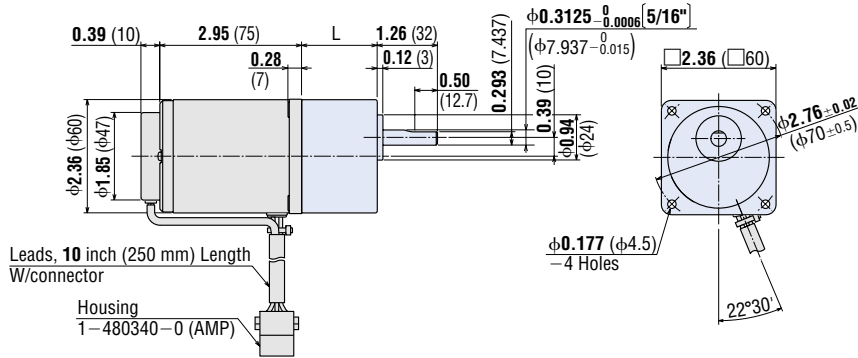
Weight: 1.76 lb. (0.8 kg)

Gearhead: **2GN□KA**

Weight: 0.88 lb. (0.4 kg)

DXF A078AU (**2GN3KA~18KA**)

A078BU (**2GN25KA~180KA**)



2GN3KA~18KA: L = 1.18 (30)

2GN25KA~180KA: L = 1.57 (40)

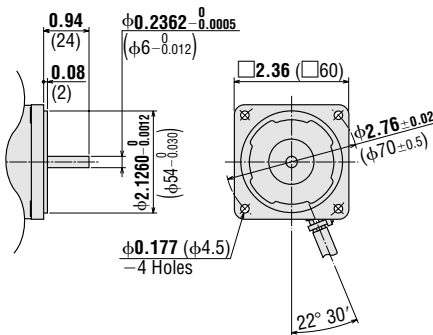
● Round Shaft Type

US206-001U, US206-002E

Motor: USM206-001W, USM206-002W

Weight: 1.76 lb. (0.8 kg)

DXF A354



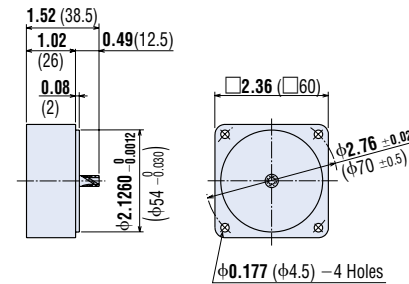
● Decimal Gearhead

Can be connected to **US206GN** pinion shaft type

2GN10XK

Weight: 0.44 lb. (0.2 kg)

DXF A003



● Motor/Gearhead

US315-401U, US315-402E (Pinion Shaft Type)

Motor: USM315-401W, USM315-402W

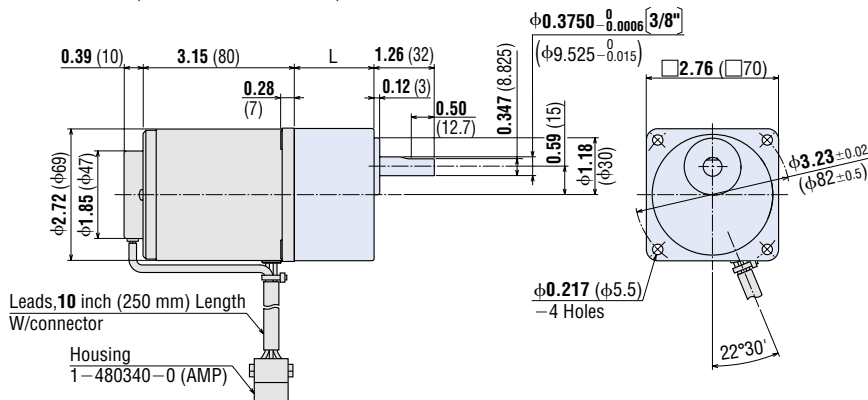
Weight: 2.6 lb. (1.2 kg)

Gearhead: **3GN□KA**

Weight: 1.21 lb. (0.55 kg)

DXF A079AU (**3GN3KA~18KA**)

A079BU (**3GN25KA~180KA**)



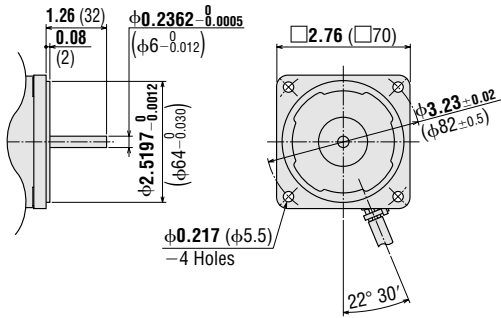
3GN3KA~18KA: L = 1.26 (32)

3GN25KA~180KA: L = 1.65 (42)

● Round Shaft Type
US315-001U, US315-002E

Motor: USM315-001W, USM315-002W
 Weight: 2.6 lb. (1.2 kg)

DXF A355



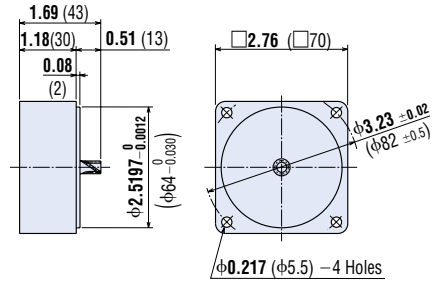
● Decimal Gearhead

Can be connected to **US315GN** pinion shaft type

3GN10XK

Weight: 0.66 lb. (0.3 kg)

DXF A009



● Motor/Gearhead

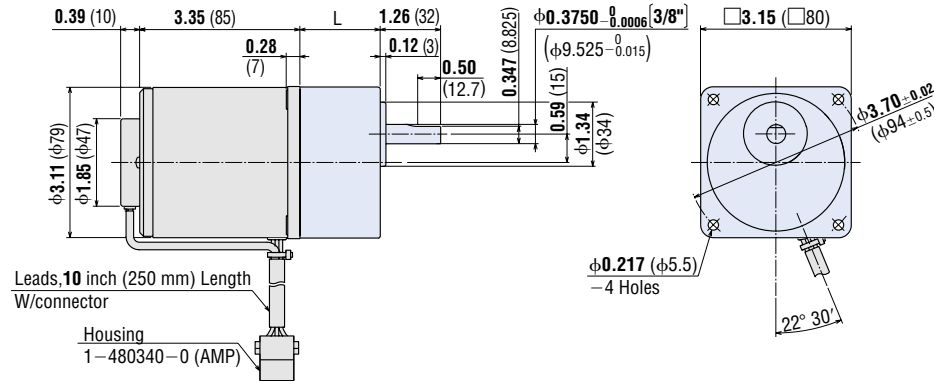
US425-401U, US425-402E (Pinion Shaft Type)

Motor: USM425-401W, USM425-402W
 Weight: 3.5 lb. (1.6 kg)

Gearhead: **4GN□KA**
 Weight: 1.43 lb. (0.65 kg)

DXF A080AU (**4GN3KA~18KA**)

A080BU (**4GN25KA~180KA**)



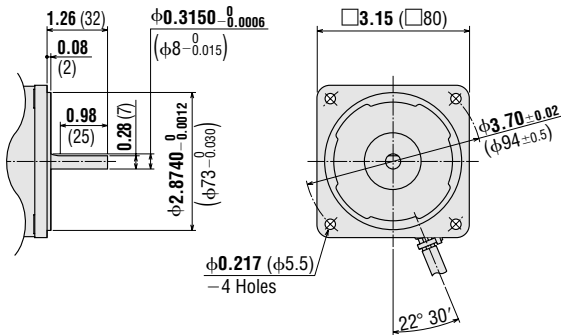
4GN3KA~18KA: L = 1.26 (32)
4GN25KA~180KA: L = 1.67 (42.5)

● Round Shaft Type

US425-001U, US425-002E

Motor: USM425-001W, USM425-002W
 Weight: 3.5 lb. (1.6 kg)

DXF A356



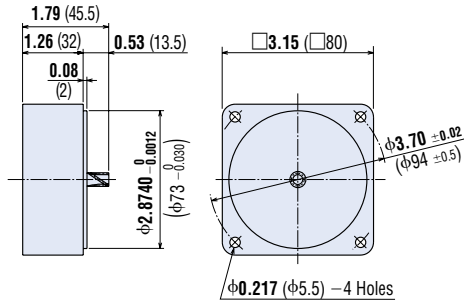
● Decimal Gearhead

Can be connected to **US425GN** pinion shaft type

4GN10XK

Weight: 0.88 lb. (0.4 kg)

DXF A013



● Motor/Gearhead

US540-401U, US540-402E (Pinion Shaft Type)

Motor: USM540-401W, USM540-402W

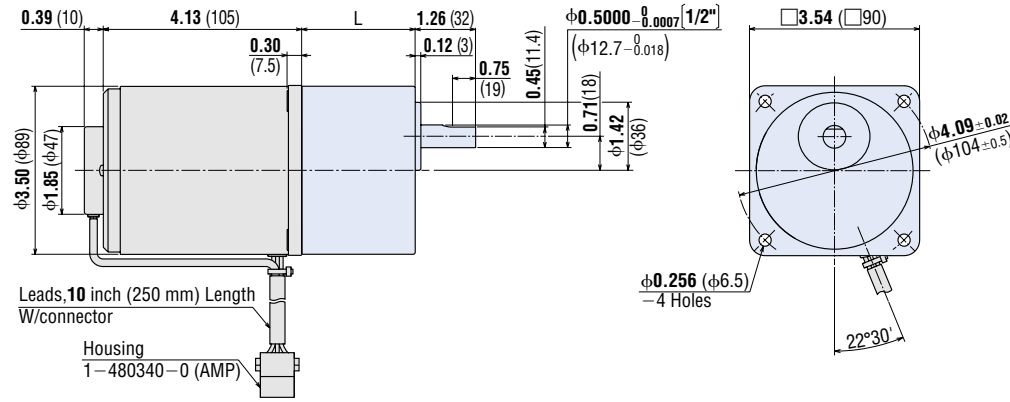
Weight: 5.7 lb. (2.6 kg)

Gearhead: **5GN□KA**

Weight: 3.3 lb. (1.5 kg)

DXF A081AU (**5GN3KA~18KA**)

A081BU (**5GN25KA~180KA**)



5GN3KA~18KA: L = 1.65 (42)
5GN25KA~180KA: L = 2.36 (60)

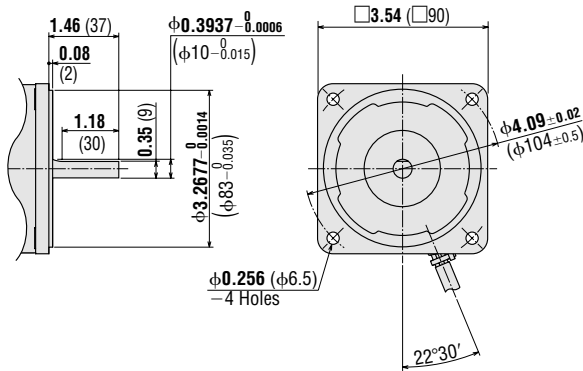
● Round Shaft Type

US540-001U, US540-002E

Motor: USM540-001W, USM540-002W

Weight: 5.7 lb. (2.6 kg)

DXF A357



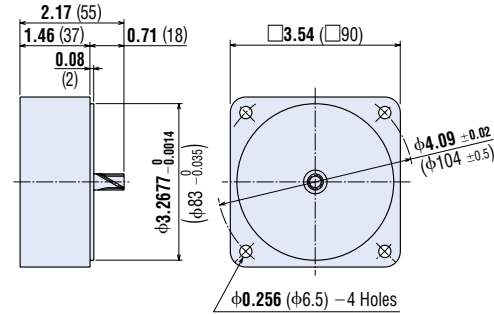
● Decimal Gearhead

Can be connected to **US540GN** pinion shaft type

5GN10XK

Weight: 1.32 lb. (0.6 kg)

DXF A022



● Motor/Gearhead

US560-501U, US560-502E (Pinion Shaft Type)

Motor: USM560-501W, USM560-502W

Weight: 6.2 lb. (2.8 kg)

Gearhead: **5GU□KA**

Weight: 3.3 lb. (1.5 kg)

DXF A082U

US590-501U, US590-502E (Pinion Shaft Type)

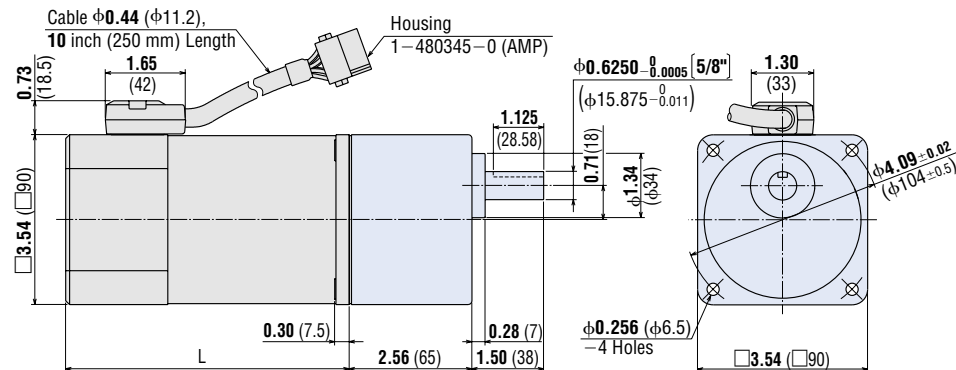
Motor: USM590-501W, USM590-502W

Weight: 7.9 lb. (3.6 kg)

Gearhead: **5GU□KA**

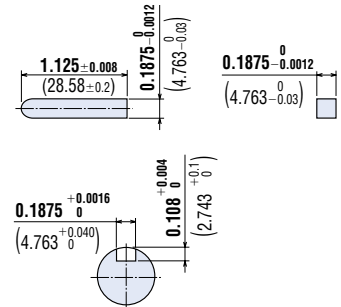
Weight: 3.3 lb. (1.5 kg)

DXF A083U



● Key and Key Slot (Scale 1/2)

(The key is provided with the gearhead)



Model	L inch (mm)	DXF
US560 Type	5.91 (150)	A082U
US590 Type	6.50 (165)	A083U

● **Round Shaft Type**
US560-001U, US560-002E

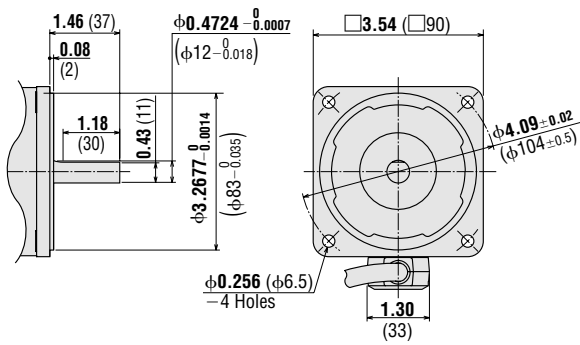
Motor: USM560-001W, USM560-002W
 Weight: 6.2 lb. (2.8 kg)

DXF A358

● **US590-001U, US590-002E**

Motor: USM590-001W, USM590-002W
 Weight: 7.9 lb. (3.6 kg)

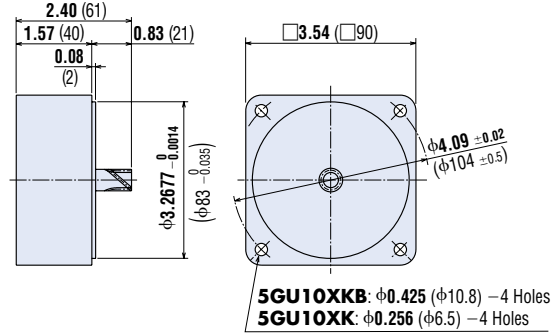
DXF A359



● **Decimal Gearhead**

Can be connected to **US560GU** and **US590GU** pinion shaft type
5GU10XKB (For **5GU□KA**), **5GU10XK** (For **5GU□KHA**)
 Weight: 1.32 lb. (0.6 kg)

DXF A029

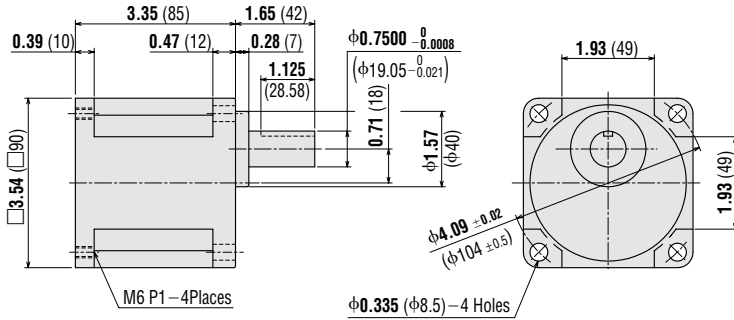


● **High-Power Gearheads**

5GU□KHA

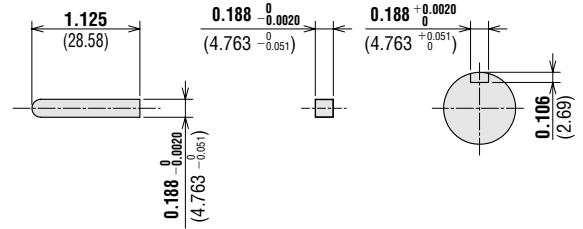
Weight: 4.2 lb. (1.9 kg)

DXF A038U



● **Key and Key Slot (Scale 1/2)**

(The key is provided with the gearhead)



◆ **Control Unit**

For use with **US206, US315, US425** and **US540** types

USP206-1U/USP206-2E

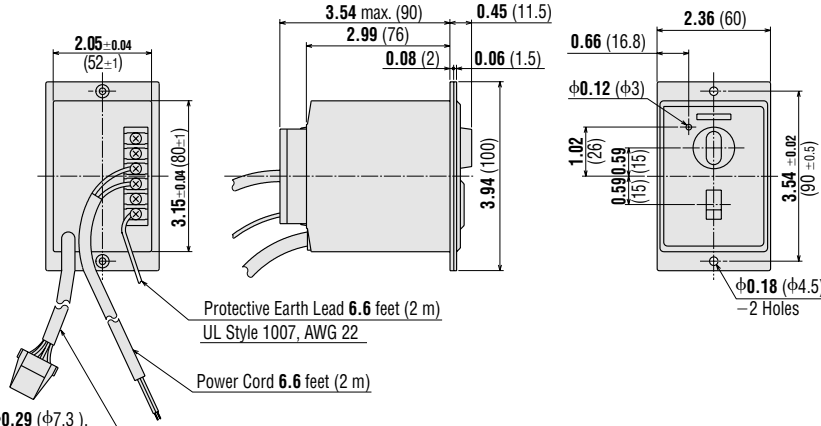
USP315-1U/USP315-2E

USP425-1U/USP425-2E

USP540-1U/USP540-2E

Weight: 0.99 lb. (0.45 kg)

DXF A817



Cable $\phi 0.29$ ($\phi 7.3$),
20 inch (500 mm) Length
W/Connector
Housing: 1-480270-0 (AMP)

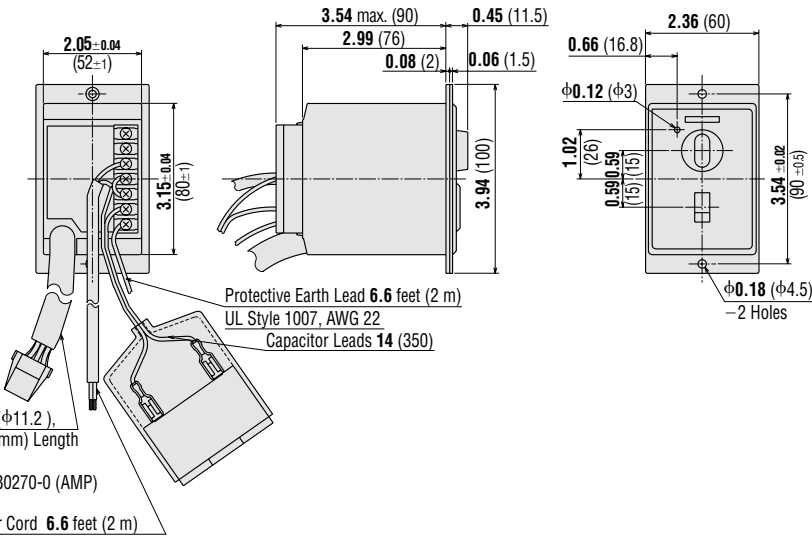
For use with **US560** and **US590** types

USP560-1U/USP560-2E

USP590-1U/USP590-2E

Weight: 1.1 lb. (0.5 kg)

DXF A818



Cable $\phi 0.44$ ($\phi 11.2$),
20 inch (500 mm) Length
W/Connector
Housing: 1-480270-0 (AMP)

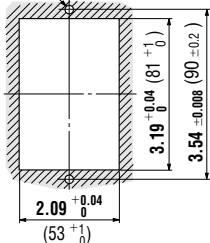
Power Cord 6.6 feet (2 m)

◆ **Panel Cut-Out for Control Unit**

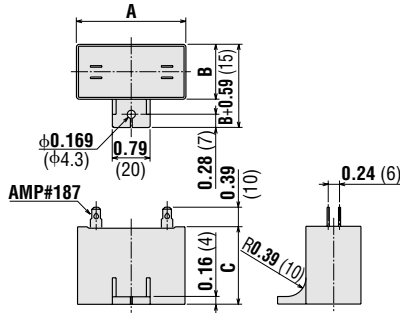
Installation Method by Cutting a Hole

$\phi 0.18$ ($\phi 4.5$) Holes

-2 Places



● **Capacitor** (included with the motors)

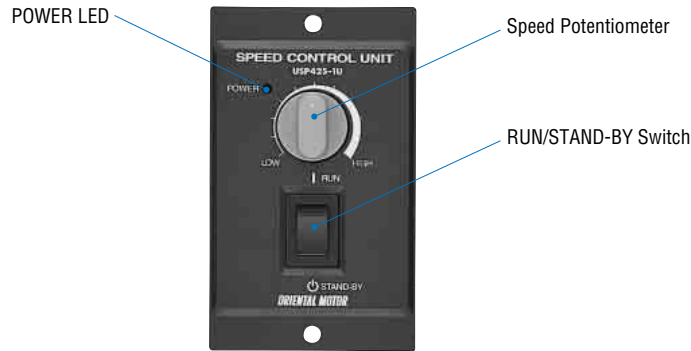


Capacitor Dimensions Unit = inch (mm)

Package Model	Capacitor Model	A	B	C	Weight oz (g)
US560-□01U	CH180CFAUL	2.28 (58)	0.93 (23.5)	1.46 (37)	2.5 (70)
US560-□02E	CH40BFAUL	2.28 (58)	0.93 (23.5)	1.46 (37)	2.5 (70)
US590-□01U	CH200CFAUL	2.28 (58)	1.14 (29)	1.61 (41)	3.4 (95)
US590-□02E	CH60BFAUL	2.28 (58)	1.14 (29)	1.61 (41)	3.0 (85)

- If you need to order a capacitor without a motor, add "-C" to the capacitor model name shown. A capacitor cap is included with a capacitor.

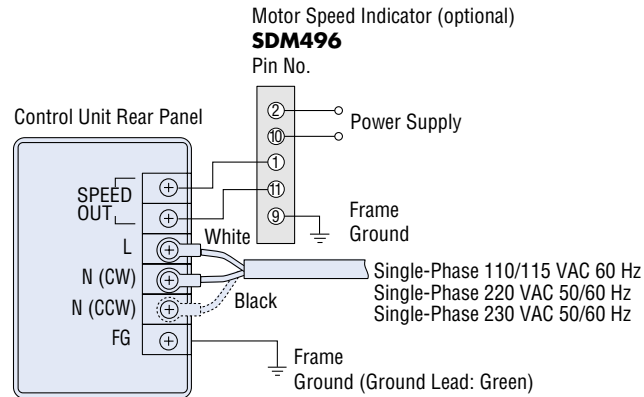
■ **Connection and Operation**



● **Connection Diagrams**

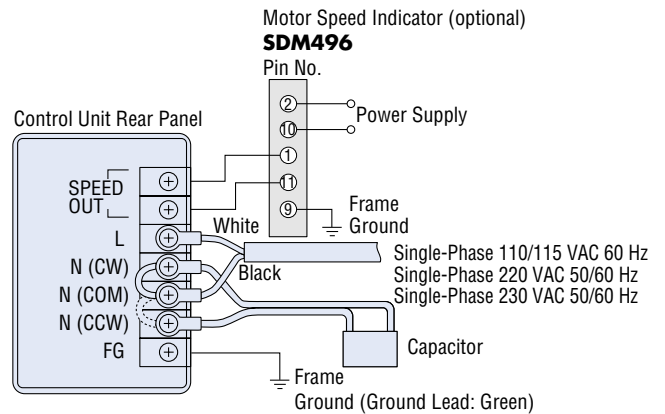
US206, US315, US425, US540 types

Uni-directional Rotation:



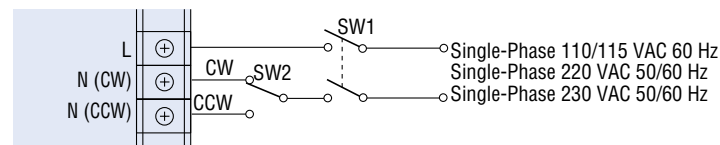
US560, US590 types

Uni-directional Rotation:



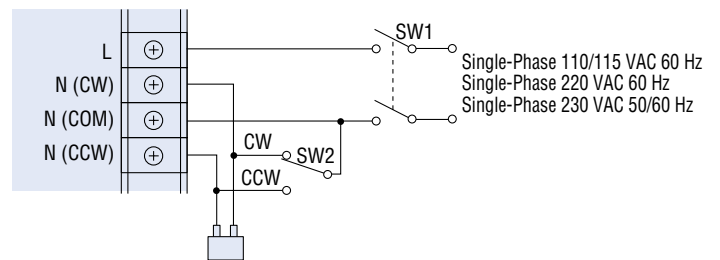
In the diagrams above, the motor shaft rotates in the clockwise direction. When changed to the dotted line [N (CCW)] position, the motor shaft rotates in the counterclockwise direction.

Bi-directional Rotation:



Switch Specifications: 250 VAC, Inductive Load, 5 A min.

Bi-directional Rotation:

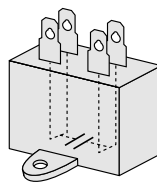


Switch Specifications: 250 VAC, Inductive Load, 5 A min.

- If an extension between the motor and control unit is required, an extension cable can be used (sold separately). Using the longest cord, the distance can be extended up to 15.7 feet (4.75 m). →Page B-130

● Inner Connection Diagram for 4-Terminal Capacitor

Terminals of the capacitor are connected as shown in the figure. For lead wire connection, use one lead wire per terminal.



● Operation Method

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

US206, US315, US425 and US540 types

Connect the motor lead wire connectors to the control unit. Then connect the power cord to the power supply. When the RUN/STAND-BY switch of the control unit is switched to RUN, the motor rotates in the clockwise (CW) direction as seen from the motor shaft.

(Control units are set for clockwise rotation at shipment. The direction of rotation for the gearhead output shaft may be the reverse of the direction of the motor shaft depending on the gear ratio.)

US560 and US590 types

Connect the control unit and the motor, and attach the capacitor wire leading from the control unit to the capacitor. Next, plug in the power supply cord into an AC power supply. When the RUN/STAND-BY switch located on the control unit is switched to RUN, the motor will rotate in the direction set by the connection of the capacitor.

(Control units are set for clockwise rotation at shipment. The direction of rotation for the gearhead output shaft may be the reverse of the direction of the motor shaft depending on the gear ratio.)

● Changing Speed

When the potentiometer located on the front of the control unit is turned in a clockwise direction, motor speed increases; when turned in the counter clockwise direction, motor speed decreases. Motor speed can be set and adjusted over a range of 90 r/min-1600 r/min.

● 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.

● Changing the Direction of Rotation **US206, US315, US425 and US540 types**

(Capacitor is included in the control unit.)

Uni-directional Rotation

When the direction of motor rotation needs to be reversed for reasons relating to transmission mechanisms such as gearheads, change the terminal used for attaching the power cord, located at the back of control unit, from terminal N (CW) to terminal N (CCW). The power cord connections are located at terminals L and N (CW) when shipped. See the diagram on the previous page.

(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 previous page, and use these switches to change the direction of rotation. (Motor cannot be reversed instantaneously. Turn SW1 off and wait until the motor has come to a complete stop before switching SW2.)

See the diagram on the previous page.

US560 and US590 types

(Connection of the included capacitor is necessary.)

Uni-directional Rotation

When the direction of motor rotation needs to be reversed, change the terminal used for attaching the power cord, located at the back of control unit, from terminals N (CW)-N (COM) to terminals N (COM)-N (CCW). The power cord connections are located at terminals N (CW)-N (COM) when shipped. See the diagram on the previous page.

(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 the previous page, and use these switches to change the direction of rotation. (Motor cannot be reversed instantaneously. Turn SW1 off and wait until the motor has come to a complete stop before switching SW2.)

See the diagram on the previous page.

List of Motor and Control Unit Combinations

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

Single-Phase 110/115 VAC

Output Power HP	Power W	Package Model	Motor Model	Control Unit Model
1/125	6	US206-401U	USM206-401W	USP206-1U
		US206-001U	USM206-001W	USP206-1U
1/50	15	US315-401U	USM315-401W	USP315-1U
		US315-001U	USM315-001W	USP315-1U
1/30	25	US425-401U	USM425-401W	USP425-1U
		US425-001U	USM425-001W	USP425-1U
1/19	40	US540-401U	USM540-401W	USP540-1U
		US540-001U	USM540-001W	USP540-1U
1/12	60	US560-501U	USM560-501W	USP560-1U
		US560-001U	USM560-001W	USP560-1U
1/8	90	US590-501U	USM590-501W	USP590-1U
		US590-001U	USM590-001W	USP590-1U

Single-Phase 220/230 VAC

Output Power HP	Power W	Package Model	Motor Model	Control Unit Model
1/125	6	US206-402E	USM206-402W	USP206-2E
		US206-002E	USM206-002W	USP206-2E
1/50	15	US315-402E	USM315-402W	USP315-2E
		US315-002E	USM315-002W	USP315-2E
1/30	25	US425-402E	USM425-402W	USP425-2E
		US425-002E	USM425-002W	USP425-2E
1/19	40	US540-402E	USM540-402W	USP540-2E
		US540-002E	USM540-002W	USP540-2E
1/12	60	US560-502E	USM560-502W	USP560-2E
		US560-002E	USM560-002W	USP560-2E
1/8	90	US590-502E	USM590-502W	USP590-2E
		US590-002E	USM590-002W	USP590-2E

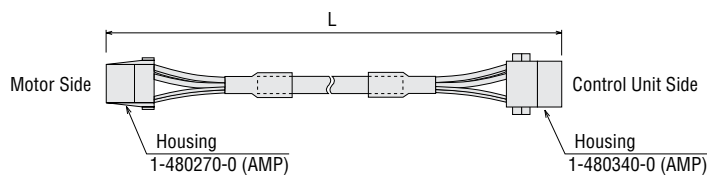
Extension Cable (Sold separately)

When installing the motor and control unit in different locations, an extension cable can be used (sold separately). This enables remote operation at a distance of up to 15.7 feet. (4.75 m).

Applicable Products:

US206, US315, US425, US540

Model	Length: L ft. (m)
CC01SS052	3.3 (1)
CC02SS052	6.6 (2)
CC03SS052	9.8 (3)
CC04SS052	13.1 (4)



Applicable Products:

US560, US590

Model	Length: L ft. (m)
CC01SS2	3.3 (1)
CC02SS2	6.6 (2)
CC03SS2	9.8 (3)
CC04SS2	13.1 (4)

