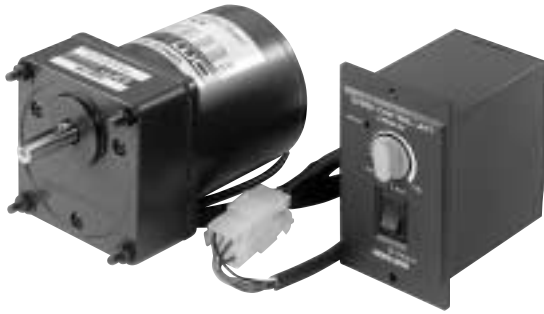


Speed Control Motors

US Series

The US series combines a speed control motor and a control unit. The capacitor and the potentiometer have been integrated into one compact control unit. The series is designed for applications where remote control of the motor speed and easy hook-up are required.



Gearhead shown in the photograph is sold separately.



■ Features

- Control units combine the control pack, potentiometer and the capacitor in one device. Capacitors for **US560** and **US590** types are externally fitted with leads and capacitor caps. Connection between motor and control unit is simplified by a special connector.
- Use of the optional extension cable allows for remote control of the motor from a distance of up to 15.6 feet.(4.75m).
- Variable speed range is 90r/min ~ 1400r/min (50Hz), 90r/min~ 1600r/min (60Hz).

■ Safety Standards and CE Marking

Motor			
Standards	Certification Body	Standards File No.	CE Marking
UL1004 UL519 (US206 type) UL547 (US315, US425, US540, US560, US590 type)	UL	E64199 (US206 type) E64197 (US315, US425, US540, US560, US590 type)	Low Voltage Directive
CAN/CSA-C22.2 No.100 CAN/CSA-C22.2 No.77			
EN60950	VDE	114919UG (US206 type) 6751UG (US315, US425, US540, US560, US590 type)	
EN60034-1 EN60034-5 IEC60034-11	Conform to EN/IEC Standards (EN/IEC certifications are scheduled.)		
Control Unit			
Standards	Certification Body	Standards File No.	CE Marking
UL508 CAN/CSA-C22.2 No.14	UL	E91291	Low Voltage Directive
EN60950		Conform to EN/VDE Standards (EN/IEC certifications are scheduled.)	

• For installations for EN/IEC standards, see page D-2.

■ Product Number Code

US 5 60 -5 0 1 U

- Provided Capacitor**
U: 110V/115V
E: 220V/230V
- Voltage**
1: Single-Phase 110V/115V, 4 Poles
2: Single-Phase 220V/230V, 4 Poles
- Motor type**
O: Induction motor (Continuous rating)
- Shaft type**
O: Round shaft
4: **GN** pinion shaft (for use with **GN** type gearhead)
5: **GU** pinion shaft (for use with **GU** type gearhead)
- Output Power**
06: 6W **40:** 40W
15: 15W **60:** 60W
25: 25W **90:** 90W
- Motor Frame Size**
2: 2.36 inch sq.(60mm sq.)
3: 2.76 inch sq.(70mm sq.)
4: 3.15 inch sq.(80mm sq.)
5: 3.54 inch sq.(90mm sq.)

US series

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

■ Product Line

● Single-Phase 110V/115V

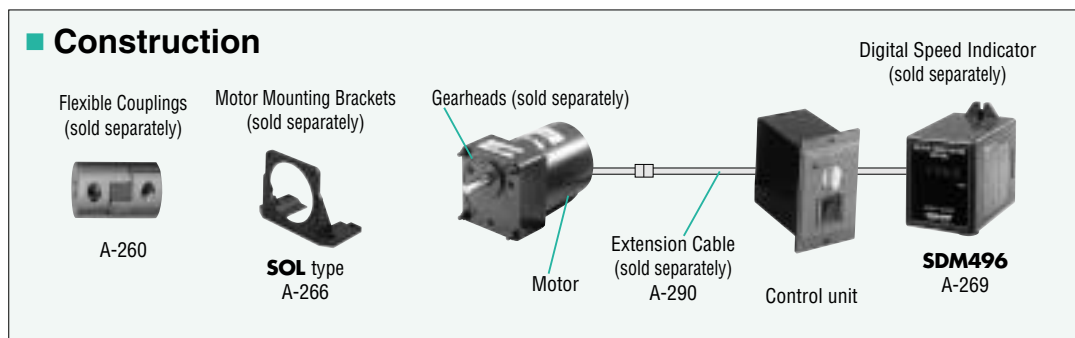
Output Power		Model	
HP	W	Pinion shaft	Round shaft
1/124	6	US206-401U	US206-001U
1/50	15	US315-401U	US315-001U
1/30	25	US425-401U	US425-001U
1/18.5	40	US540-401U	US540-001U
1/12.5	60	US560-501U	US560-001U
1/8	90	US590-501U	US590-001U

● Single-Phase 220V/230V

Output Power		Model	
HP	W	Pinion shaft	Round shaft
1/124	6	US206-402E	US206-002E
1/50	15	US315-402E	US315-002E
1/30	25	US425-402E	US425-002E
1/18.5	40	US540-402E	US540-002E
1/12.5	60	US560-502E	US560-002E
1/8	90	US590-502E	US590-002E

● Gearheads

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



■ List of Motor/Control Unit Packages

Model numbers for motor/control unit packages are shown below.

● Single-Phase 110V/115V

Output Power		Packages Model	Motor Model	Control Unit Model
HP	W			
1/124	6	US206-401U	USM206-401W	USP206-1U
		US206-001U	USM206-001W	
1/50	15	US315-401U	USM315-401W	USP315-1U
		US315-001U	USM315-001W	
1/30	25	US425-401U	USM425-401W	USP425-1U
		US425-001U	USM425-001W	
1/18.5	40	US540-401U	USM540-401W	USP540-1U
		US540-001U	USM540-001W	
1/12.5	60	US560-501U	USM560-501W	USP560-1U
		US560-001U	USM560-001W	
1/8	90	US590-501U	USM590-501W	USP590-1U
		US590-001U	USM590-001W	

● Single-Phase 220V/230V

Output Power		Packages Model	Motor Model	Control Unit Model
HP	W			
1/124	6	US206-402E	USM206-402W	USP206-2E
		US206-002E	USM206-002W	
1/50	15	US315-402E	USM315-402W	USP315-2E
		US315-002E	USM315-002W	
1/30	25	US425-402E	USM425-402W	USP425-2E
		US425-002E	USM425-002W	
1/18.5	40	US540-402E	USM540-402W	USP540-2E
		US540-002E	USM540-002W	
1/12.5	60	US560-502E	USM560-502W	USP560-2E
		US560-002E	USM560-002W	
1/8	90	US590-502E	USM590-502W	USP590-2E
		US590-002E	USM590-002W	

Product Specifications

■ Specifications (Motor) — Continuous Rating

Model		Maximum Output Power HP W	Voltage V	Frequency Hz	Speed Range r/min	Permissible Torque				Starting Torque		Current A	Power Consumption W
Pinion shaft	Round shaft					oz-in	mN·m	1200r/min	90r/min	oz-in	mN·m		
Ⓟ US206-401U	US206-001U	1/124 6	110	60	90~1600	6.9	50	4.2	30	4.9	35	0.24	24
			115	60	90~1600	6.9	50	4.2	30	4.9	35	0.25	28
Ⓟ US206-402E	US206-002E	1/124 6	220	60	90~1600	6.9	50	4.0	29	3.7	27	0.13	27
			230	50	90~1400	6.9	50	4.0	29	4.0	29	0.13	28
Ⓟ US206-402E	US206-002E	1/124 6	230	60	90~1600	6.9	50	4.0	29	4.0	29	0.13	28
			230	60	90~1600	6.9	50	4.0	29	4.0	29	0.13	28
Ⓟ US315-401U	US315-001U	1/50 15	110	60	90~1600	17.4	125	6.2	45	7.6	55	0.47	44
			115	60	90~1600	17.4	125	6.2	45	7.6	55	0.50	44
Ⓟ US315-402E	US315-002E	1/50 15	220	60	90~1600	11.8	85	4.9	35	7.2	52	0.18	39
			230	50	90~1400	17.4	125	4.9	35	7.5	54	0.21	43
Ⓟ US315-402E	US315-002E	1/50 15	230	60	90~1600	14.6	105	4.9	35	7.6	55	0.22	47
			230	60	90~1600	14.6	105	4.9	35	7.6	55	0.22	47
Ⓟ US425-401U	US425-001U	1/30 25	110	60	90~1600	27.8	200	6.9	50	14.6	105	0.74	70
			115	60	90~1600	27.8	200	6.9	50	14.6	105	0.74	73
Ⓟ US425-402E	US425-002E	1/30 25	220	60	90~1600	18.1	130	6.0	43	11.1	80	0.31	59
			230	50	90~1400	26.4	190	6.5	47	12.1	87	0.35	62
Ⓟ US425-402E	US425-002E	1/30 25	230	60	90~1600	18.1	130	6.0	43	12.1	87	0.31	60
			230	60	90~1600	18.1	130	6.0	43	12.1	87	0.31	60
Ⓟ US540-401U	US540-001U	1/18.5 40	110	60	90~1600	36.1	260	9.7	70	25.0	180	1.1	102
			115	60	90~1600	36.1	260	9.7	70	25.0	180	1.1	105
Ⓟ US540-402E	US540-002E	1/18.5 40	220	60	90~1600	31.9	230	8.7	63	17.4	125	0.55	98
			230	50	90~1400	41.7	300	8.7	63	19.4	140	0.53	90
Ⓟ US540-402E	US540-002E	1/18.5 40	230	60	90~1600	31.9	230	8.7	63	19.4	140	0.55	100
			230	60	90~1600	31.9	230	8.7	63	19.4	140	0.55	100
Ⓟ US560-501U	US560-001U	1/12.5 60	110	60	90~1600	68.0	490	27.8	200	39.6	285	2.0	178
			115	60	90~1600	68.0	490	27.8	200	39.6	285	2.1	186
Ⓟ US560-502E	US560-002E	1/12.5 60	220	60	90~1600	62.5	450	22.2	160	29.2	210	0.86	159
			230	50	90~1400	68.0	490	19.4	140	33.3	240	0.89	154
Ⓟ US560-502E	US560-002E	1/12.5 60	230	60	90~1600	62.5	450	22.2	160	33.3	240	0.88	165
			230	60	90~1600	62.5	450	22.2	160	33.3	240	0.88	165
Ⓟ US590-501U	US590-001U	1/8 90	110	60	90~1600	101.4	730	27.8	200	56.2	405	2.6	230
			115	60	90~1600	101.4	730	27.8	200	56.2	405	2.6	246
Ⓟ US590-502E	US590-002E	1/8 90	220	60	90~1600	101.4	730	36.1	260	50.0	360	1.2	221
			230	50	90~1400	101.4	730	31.9	230	55.5	400	1.2	201
Ⓟ US590-502E	US590-002E	1/8 90	230	60	90~1600	101.4	730	36.1	260	55.5	400	1.2	227
			230	60	90~1600	101.4	730	36.1	260	55.5	400	1.2	227

- The **US206** type is impedance protected. The other types contain a built-in thermal protector. When 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 restarts. Be sure to turn off the power before inspecting.
- The speed ranges shown are under no load condition.
- The "U" and "E" at the end of the model number indicate that the unit includes a capacitor. These two letters are not listed on the motor nameplate.

■ General Specifications

Item	Specifications
Insulation Resistance	100MΩ or more when 500V DC is applied between the windings and the frame after rated motor operation under normal ambient temperature and humidity.
Dielectric Strength	Sufficient to withstand 1.5kV at 50Hz and 60Hz applied between the windings and the frame after rated motor operation under normal ambient temperature and humidity.
Temperature Rise	144°F (80°C) or less measured by the resistance change method after rated operation of motor with connecting a gearhead or equivalent heat radiation plate.
Overheating Protection Device	US206 type is 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)
Ambient Humidity	85% maximum (non condensing)
Degree of protection	US206, US315, US425, US540 type: IP20 US560, US590 type: IP40

See page A-36 for equivalent heat radiation plate sizes.

■ Control Unit General Specifications

Item	Specifications
Insulation Resistance	100MΩ or more when 500V DC is applied between the windings and the frame.
Dielectric Strength	Sufficient to withstand 2.3kV (Single phase 220, 230V: 3.0kV) at 60Hz applied between all the pins and the frame for 1 minute.
Ambient Temperature Range	32°F~104°F (0°C~40°C)
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	50Hz	466	388	280	233	186	155	112	93	77	56	46	38	28	23	18	15	14	11	9	7
	60Hz	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

■ Permissible Torque when Gearhead is Attached

The permissible torque with decimal gearheads are as follows.

2GN□KA/2GN10XK 26 lb-in / 3N-m **3GN□KA/3GN10XK** 43 lb-in / 5N-m

4GN□KA/4GN10XK 69 lb-in / 8N-m (Gear Ratio 25~36 52 lb-in / 6N-m)

5GN□KA/5GN10XK 87 lb-in / 10N-m **5GU□KA/5GU10XKB** 174 lb-in / 20N-m

Right-Angle gearheads may be connected to **US425**, **US540**, **US560** and **US590** types. See page [A-216] for more information.

● Single-Phase 115V

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	1200r/min	1	1.3	1.7	2.1	2.6	3.1	4.4	5.2	6.3	7.9	9.4	11	14	17	21	26	26	26	26	26
	90r/min	0.12	0.15	0.2	0.24	0.3	0.36	0.51	0.61	0.73	0.91	1.1	1.3	1.7	2	2.5	3	3	3	3	3
US315-401U / 3GN□KA	1200r/min	0.64	0.77	1.1	1.3	1.6	1.9	2.7	3.2	3.8	4.8	5.7	6.9	8.7	10	13	16	17	21	26	26
	90r/min	0.073	0.087	0.12	0.15	0.18	0.22	0.3	0.36	0.44	0.55	0.66	0.79	0.99	1.2	1.5	1.8	2	2.4	3	3
US425-401U / 4GN□KA	1200r/min	2.6	3.2	4.4	5.3	6.6	7.9	11	13	16	20	24	29	36	43	43	43	43	43	43	43
	90r/min	0.3	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
US540-401U / 5GN□KA	1200r/min	0.94	1.1	1.6	1.9	2.4	2.8	3.9	4.7	5.6	7.1	8.5	10	13	15	19	23	26	31	38	43
	90r/min	0.11	0.13	0.18	0.22	0.27	0.33	0.46	0.55	0.66	0.82	0.99	1.2	1.5	1.8	2.2	2.7	3	3.6	4.5	5
US560-501U / 5GU□KA	1200r/min	4.2	5.1	7	8.4	11	13	18	21	25	32	38	46	57	69	69	69	69	69	69	69
	90r/min	0.49	0.58	0.81	0.97	1.2	1.5	2	2.4	2.9	3.7	4.4	5.3	6.6	7.9	8	8	8	8	8	8
US590-501U / 5GU□KA	1200r/min	1	1.3	1.7	2.1	2.6	3.1	4.4	5.2	6.3	7.9	9.4	11	14	17	21	26	28	34	43	51
	90r/min	0.12	0.15	0.2	0.24	0.3	0.36	0.51	0.61	0.73	0.91	1.1	1.3	1.7	2	2.5	3	3.3	4	5	5.9
US540-401U / 5GN□KA	1200r/min	5.5	6.6	9.1	11	14	16	23	27	33	41	49	59	74	87	87	87	87	87	87	87
	90r/min	0.63	0.76	1.1	1.3	1.6	1.9	2.6	3.2	3.8	4.7	5.7	6.8	8.6	10	10	10	10	10	10	10
US560-501U / 5GU□KA	1200r/min	1.5	1.8	2.5	2.9	3.7	4.4	6.1	7.4	8.8	11	13	16	20	24	30	36	40	48	60	72
	90r/min	0.17	0.2	0.28	0.34	0.43	0.51	0.71	0.85	1	1.3	1.5	1.8	2.3	2.8	3.5	4.2	4.6	5.5	6.9	8.3
US560-501U / 5GU□KA	1200r/min	10	12	17	21	26	31	39	47	56	70	84	101	140	168	174	174	174	174	174	174
	90r/min	1.2	1.4	2	2.4	3	3.6	4.5	5.4	6.4	8.1	9.7	12	16	19	20	20	20	20	20	20
US590-501U / 5GU□KA	1200r/min	4.2	5.1	7	8.4	11	13	16	19	23	29	34	41	57	69	77	92	103	123	154	174
	90r/min	0.49	0.58	0.81	0.97	1.2	1.5	1.8	2.2	2.6	3.3	4	4.8	6.6	7.9	8.9	11	12	14	18	20
US590-501U / 5GU□KA	1200r/min	15	18	26	31	39	46	58	69	83	105	125	151	174	174	174	174	174	174	174	174
	90r/min	1.8	2.1	3	3.5	4.4	5.3	6.7	8	9.6	12	14	17	20	20	20	20	20	20	20	20
US590-501U / 5GU□KA	1200r/min	4.2	5.1	7	8.4	11	13	16	19	23	29	34	41	57	69	77	92	103	123	154	174
	90r/min	0.49	0.58	0.81	0.97	1.2	1.5	1.8	2.2	2.6	3.3	4	4.8	6.6	7.9	8.9	11	12	14	18	20

● Gearheads and decimal gearheads are sold separately.

● Enter the gear ratio in the box □ within the model number. A colored background indicates gear shaft rotation in the same direction as the motor shaft; a white background indicates rotation in the opposite direction.

● Values for permissible torque are calculated by taking permissible torque at high speed (1200r/min) and low speed (90r/min) and multiplying by gear ratio and gearhead efficiency.

● Single-Phase 220V/230V

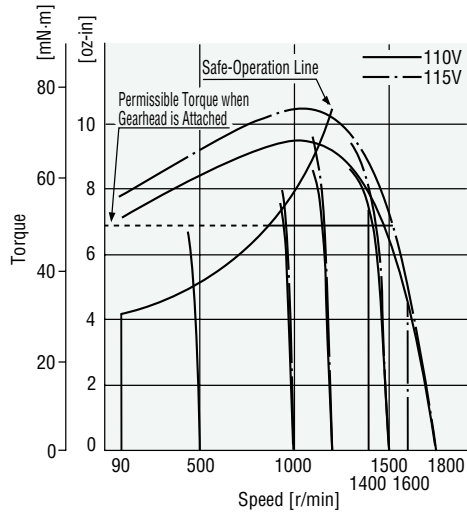
Unit = Upper values: lb-in/Lower values: N-m

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	1200r/min	1 0.12	1.3 0.15	1.7 0.2	2.1 0.24	2.6 0.3	3.1 0.36	4.4 0.51	5.2 0.61	6.3 0.73	7.9 0.91	9.4 1.1	11 1.3	14 1.7	17 2	21 2.5	26 3	26 3	26 3	26 3	26 3	
	90r/min	0.61 0.07	0.73 0.085	1 0.12	1.2 0.14	1.5 0.18	1.8 0.21	2.5 0.29	3 0.35	3.6 0.42	4.6 0.53	5.5 0.64	6.6 0.76	8.3 0.96	9.9 1.1	12 1.4	15 1.7	17 1.9	20 2.3	25 2.9	26 3	
US315-402E / 3GN□KA	1200r/min	230V	2.6	3.2	4.4	5.3	6.6	7.9	11	13	16	20	24	29	36	43	43	43	43	43	43	43
		50Hz	0.3	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
		230V	2.2	2.7	3.7	4.4	5.5	6.7	9.2	11	13	17	20	24	30	36	43	43	43	43	43	43
		60Hz	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
	90r/min	230V	0.74	0.89	1.2	1.5	1.9	2.2	3.1	3.7	4.5	5.6	6.7	8	10	12	15	18	20	24	30	36
		60Hz	0.085	0.1	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
US425-402E / 4GN□KA	1200r/min	230V	2.7	3.3	4.6	5.5	6.9	8.2	11	14	16	21	25	30	37	45	56	67	69	69	69	69
		60Hz	0.32	0.38	0.53	0.63	0.79	0.95	1.3	1.6	1.9	2.4	2.8	3.4	4.3	5.1	6.4	7.7	8	8	8	8
		230V	4	4.8	6.7	8	10	12	17	20	24	30	36	43	54	65	69	69	69	69	69	69
		50Hz	0.46	0.55	0.77	0.92	1.2	1.4	1.9	2.3	2.8	3.5	4.2	5	6.3	7.5	8	8	8	8	8	8
	90r/min	230V	0.91	1.1	1.5	1.8	2.3	2.7	3.8	4.6	5.5	6.8	8.2	9.9	12	15	19	22	25	30	37	45
		60Hz	0.1	0.13	0.17	0.21	0.26	0.31	0.44	0.52	0.63	0.78	0.94	1.1	1.4	1.7	2.1	2.6	2.8	3.4	4.3	5.1
US540-402E / 5GN□KA	1200r/min	230V	4.8	5.8	8.1	9.7	12	15	20	24	29	36	44	52	66	79	87	87	87	87	87	87
		60Hz	0.56	0.67	0.93	1.1	1.4	1.7	2.3	2.8	3.4	4.2	5	6	7.6	9.1	10	10	10	10	10	10
		230V	6.3	7.6	11	13	16	19	26	32	38	48	57	68	86	87	87	87	87	87	87	87
		50Hz	0.73	0.87	1.2	1.5	1.8	2.2	3	3.6	4.4	5.5	6.6	7.9	9.9	10	10	10	10	10	10	10
	90r/min	230V	1.3	1.6	2.2	2.6	3.3	4	5.5	6.6	7.9	9.9	12	14	18	22	27	32	36	43	54	65
		60Hz	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	6.2	7.5
US560-502E / 5GU□KA	1200r/min	230V	9.5	11	16	19	24	28	36	43	51	64	77	93	129	155	173	174	174	174	174	174
		60Hz	1.1	1.3	1.8	2.2	2.7	3.3	4.1	4.9	5.9	7.4	8.9	11	15	18	20	20	20	20	20	20
		230V	10	12	17	21	26	31	39	47	56	70	84	101	140	168	174	174	174	174	174	174
		50Hz	1.2	1.4	2	2.4	3	3.6	4.5	5.4	6.4	8.1	9.7	12	16	19	20	20	20	20	20	20
	90r/min	230V	3.4	4	5.6	6.7	8.4	10	13	15	18	23	27	33	46	55	61	74	82	98	123	147
		60Hz	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	14	17
US590-502E / 5GU□KA	1200r/min	230V	15	18	26	31	39	46	58	69	83	105	125	151	174	174	174	174	174	174	174	
		60Hz	1.8	2.1	3	3.5	4.4	5.3	6.7	8	9.6	12	14	17	20	20	20	20	20	20	20	
		230V	5.5	6.6	9.1	11	14	16	21	25	30	37	45	54	74	89	100	120	133	160	174	174
		60Hz	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	12	14	15	18	20	20
	90r/min	230V	4.8	5.8	8.1	9.7	12	15	18	22	26	33	39	47	66	79	88	106	118	141	174	174
		60Hz	0.56	0.67	0.93	1.1	1.4	1.7	2.1	2.5	3	3.8	4.6	5.5	7.6	9.1	10	12	14	16	20	20

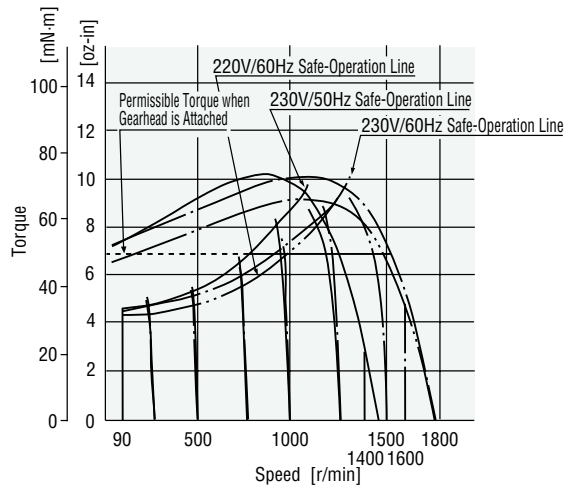
- Gearheads and decimal gearheads are sold separately.
- Enter the gear ratio in the box □ within the model number. A colored background indicates gear shaft rotation in the same direction as the motor shaft; a white background indicates rotation in the opposite direction.
- Values for permissible torque are calculated by taking permissible torque at high speed (1200r/min) and low speed (90r/min) and multiplying by gear ratio and gearhead efficiency.

Torque-Speed Characteristics

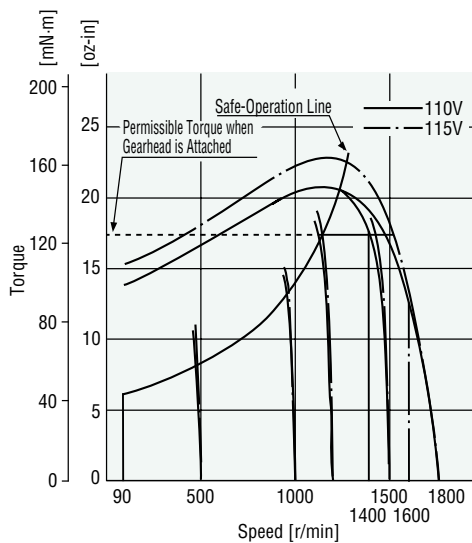
US206-401U
US206-001U



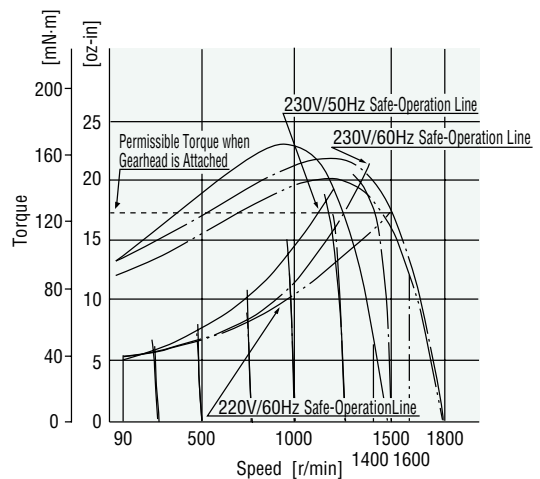
US206-402E
US206-002E



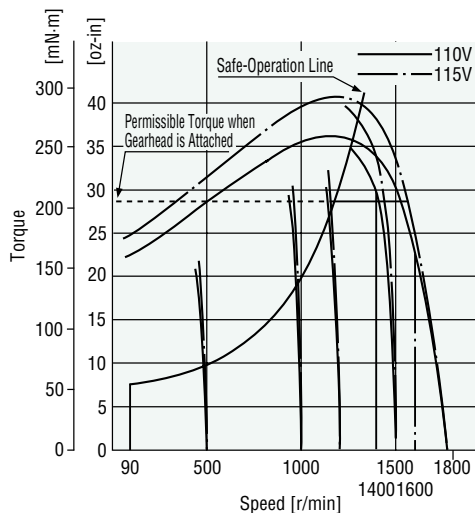
US315-401U
US315-001U



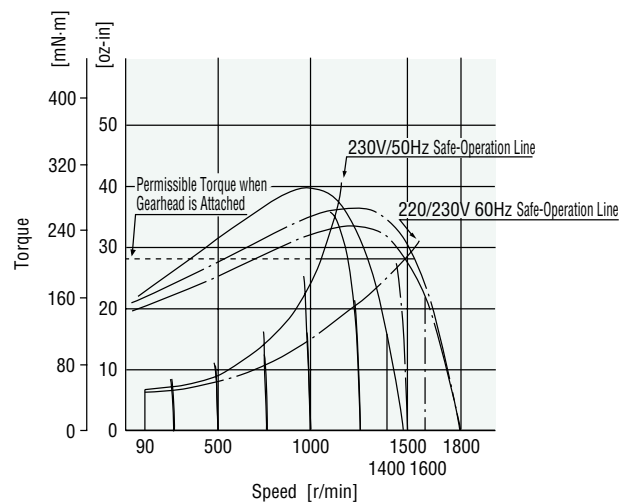
US315-402E
US315-002E



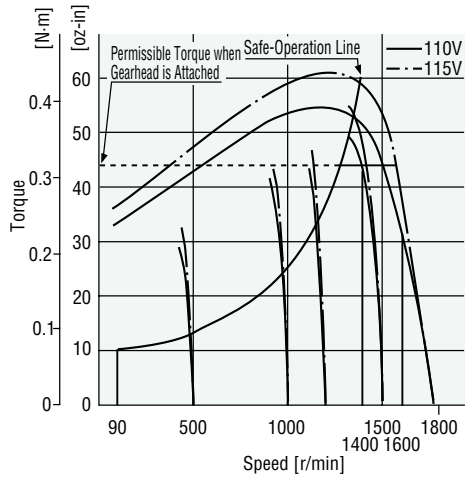
US425-401U
US425-001U



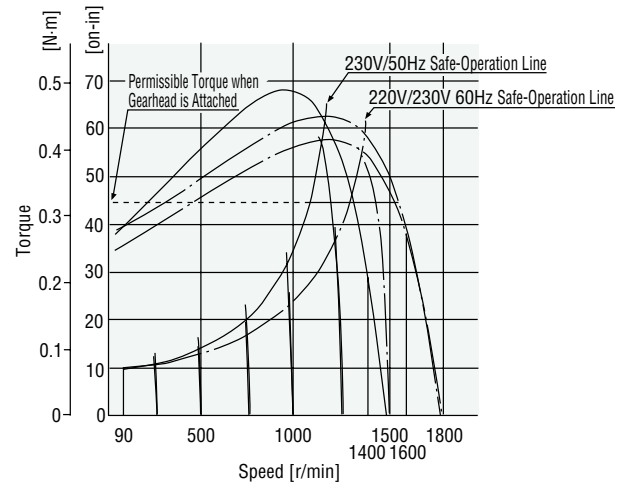
US425-402E
US425-002E



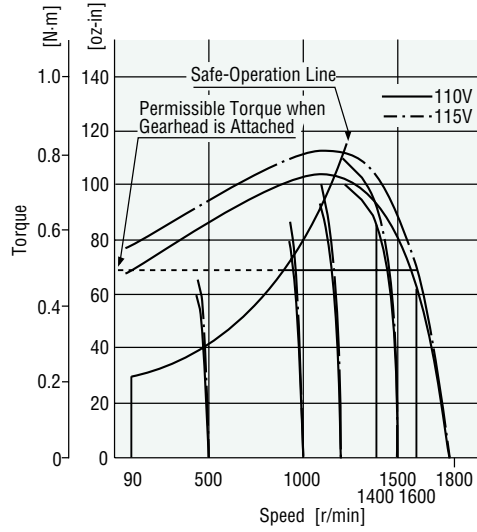
US540-401U
US540-001U



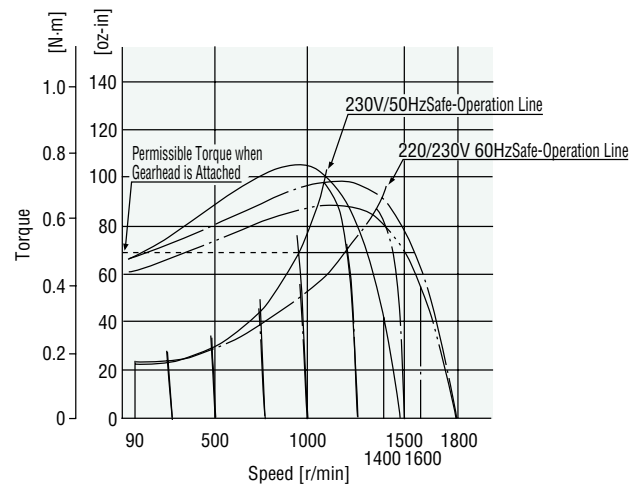
US540-402E
US540-002E



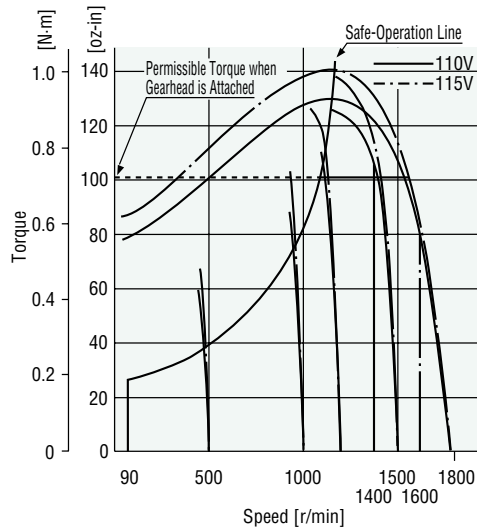
US560-501U
US560-001U



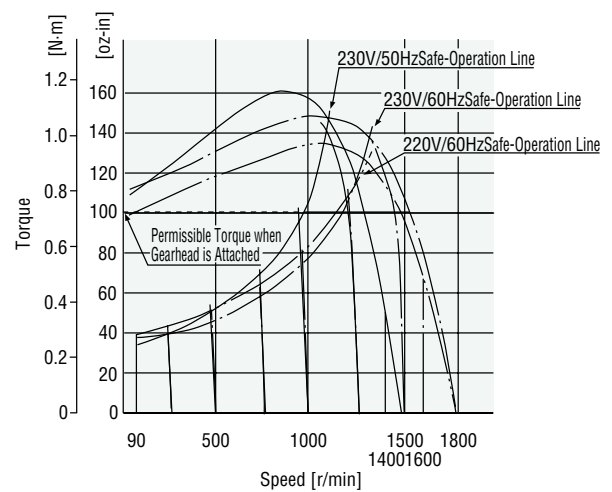
US560-502E
US560-002E



US590-501U
US590-001U



US590-502E
US590-002E



Operation of Speed Control Motor US series

■ Operation

● Rotation

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 flipped 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 flipped 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 surface of the control unit is turned in the clockwise direction, motor speed increases; when turned in the opposite direction, motor speed decreases.

Motor speed can be set and adjusted over a range of 90r/min-1600r/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. When 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 attached to 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 shipping. See the diagram to the right.

(This should always be done with the power OFF.)

Bi-directional Rotation

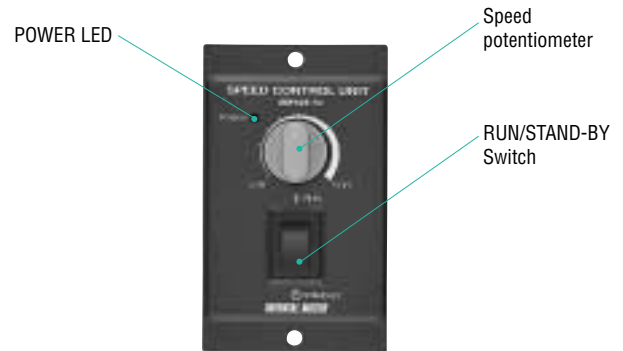
Install an additional power switch (SW1) and CW/CCW switch (SW2) as shown in the diagram to the right, and use these switches to change the direction of rotation. (Motor cannot be reversed instantaneously. Turn SW1 off and wait until the motor has come to a complete stop before switching SW2.)

See the diagram to the right.

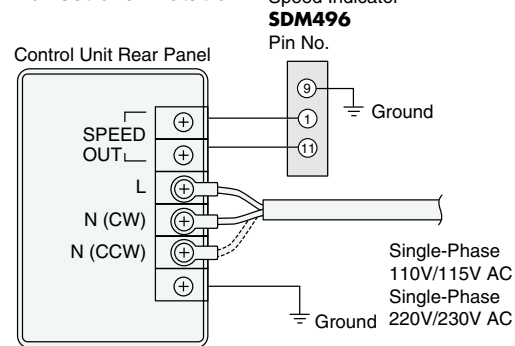
Connecting the Speed Indicator

Connect terminals ① and ⑪ of the **SDM496**, (a digital speed indicator), to the SPEED OUT terminals of control unit.

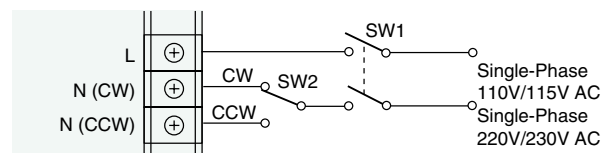
Control Unit Front Panel



Uni-directional Rotation



Bi-directional Rotation



Switch Specification
 Single-Phase 110V/115V: AC250V 5A Min.
 Single-Phase 220V/230V: AC400V 5A Min.

US560 and US590 types

(Connection of 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 ④ - ⑤ (CW - COM) to terminals ⑤ - ⑥ (COM - CCW). The power cord connections are located at terminals ④ - ⑤ when shipping. See the diagram to the right.

(This should always be done with the power OFF.)

Bi-directional Rotation

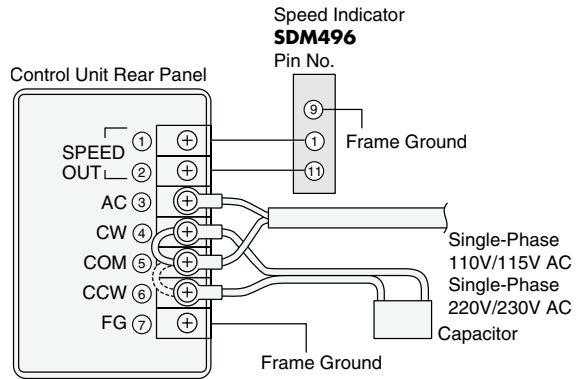
Install an additional power switch (SW1) and CW/CCW switch (SW2) as shown in the diagram to the right, and use these switches to change the direction of rotation. (Motor cannot be reversed instantaneously. Turn SW1 off and wait until the motor has come to a complete stop before switching SW2.)

See the diagram to the right.

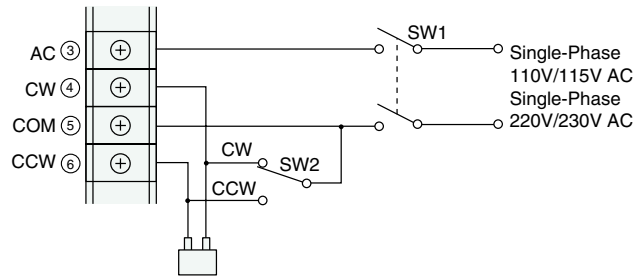
Connecting The Speed Indicator

Connect terminals ① and ⑪ of the SDM496, (a digital speed indicator), to the SPEED OUT terminals ① and ② of control unit.

Uni-directional Rotation



Bi-directional Rotation

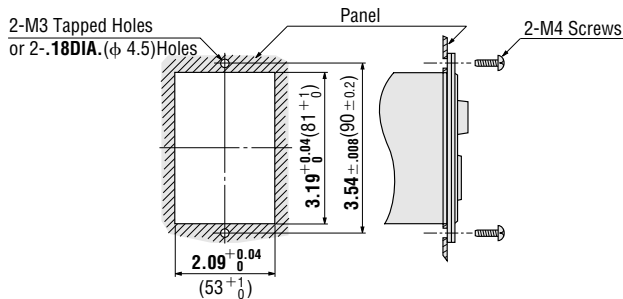


Switch Specification : AC250V 5A Min.
Single-Phase 110V/115V : AC250V 5A Min.
Single-Phase 220V/230V : AC400V 5A Min.

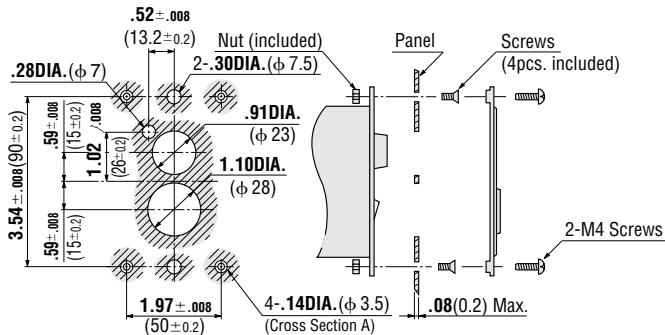
■ Installation Hole for Control Unit

The control unit can be installed from either the front or back of the panel. In either case, the installation hole shown below is required.

1. Installation from front of panel



2. Installation from back of panel



■ 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.(4.75m). See page [A-270] for details.

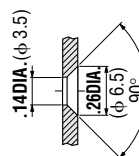
● US206, US315, US425, US540 types

Model	Length		Weight	
	ft.	(m)	lb.	(kg)
CC01SS052	3.3	(1)	0.22	(0.10)
CC02SS052	6.6	(2)	0.44	(0.20)
CC03SS052	9.8	(3)	0.57	(0.26)
CC04SS052	13.1	(4)	0.77	(0.35)

● US560, US590 types

Model	Length		Weight	
	ft.	(m)	lb.	(kg)
CC01SS2	3.3	(1)	0.37	(0.17)
CC02SS2	6.6	(2)	0.68	(0.31)
CC03SS2	9.8	(3)	1.01	(0.46)
CC04SS2	13.1	(4)	1.28	(0.58)

Cross Section A



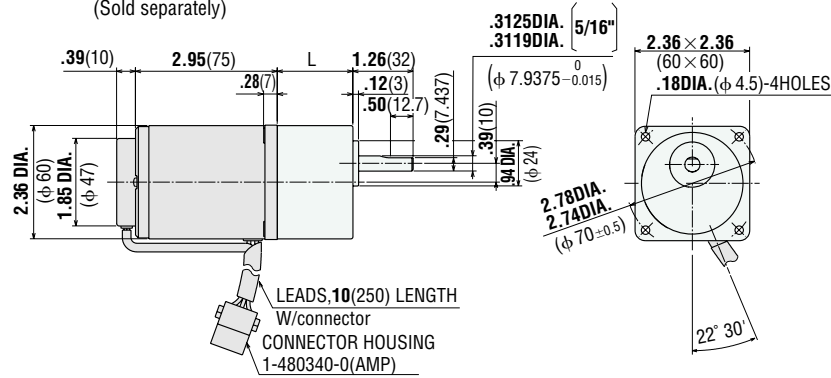
■ Dimensions Scale 1/4, Unit =inch (mm)

US206-401U
US206-402E

Motor USM206-401W Weight (Mass): 1.8 lb. (0.8 kg)

USM206-402W

Gearhead **2GN□KA** Weight (Mass): 0.88 lb. (0.4 kg)
(Sold separately)



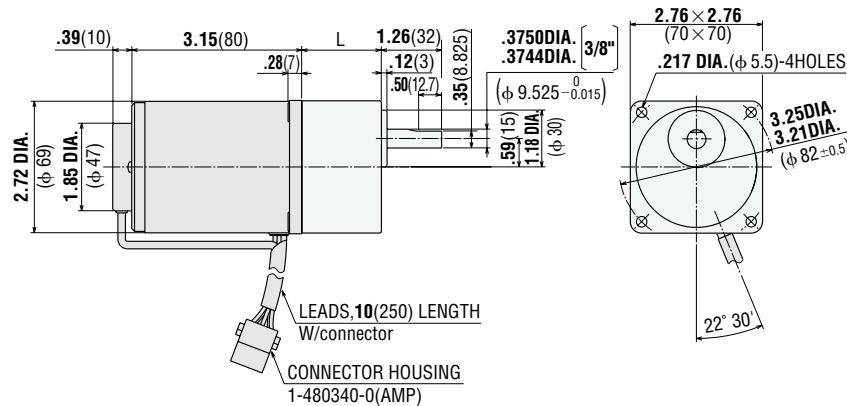
L = 1.18(30) **2GN3KA~18KA**
L = 1.57(40) **2GN25KA~180KA**

US315-401U
US315-402E

Motor USM315-401W Weight (Mass): 2.6 lb. (1.2 kg)

USM315-402W

Gearhead **3GN□KA** Weight (Mass): 1.21 lb. (0.55 kg)
(Sold separately)



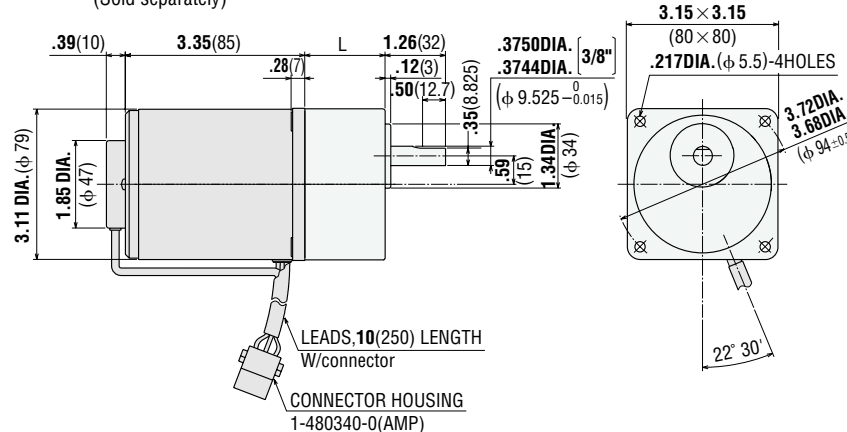
L = 1.26(32) **3GN3KA~18KA**
L = 1.65(42) **3GN25KA~180KA**

US425-401U
US425-402E

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

USM425-402W

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

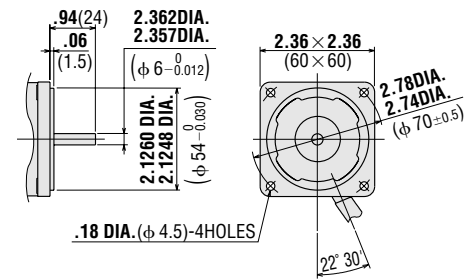


L = 1.26(32) **4GN3KA~18KA**
L = 1.67(42.5) **4GN25KA~180KA**

US206-001U Round shaft

US206-002E

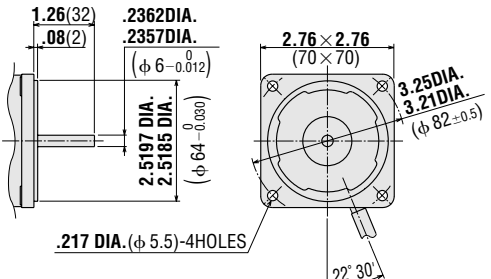
Motor USM206-001W Weight (Mass): 1.8 lb. (0.8 kg)
USM206-002W



US315-001U Round shaft

US315-002E

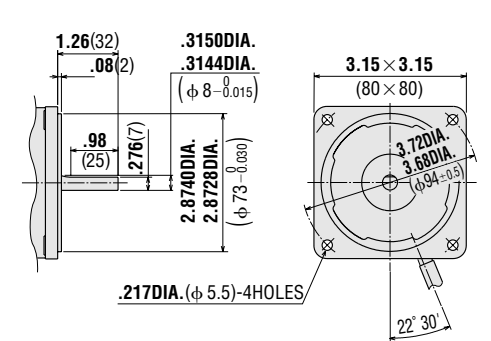
Motor USM315-001W Weight (Mass): 2.6 lb. (1.2 kg)
USM315-002W



US425-001U (Round shaft)

US425-002E

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



US540-401U

US540-402E

Motor USM540-401W Weight (Mass): 5.7 lb. (2.6 kg)

USM540-402W

Gearhead **5GN□KA** Weight (Mass): 3.3 lb. (1.5 kg)

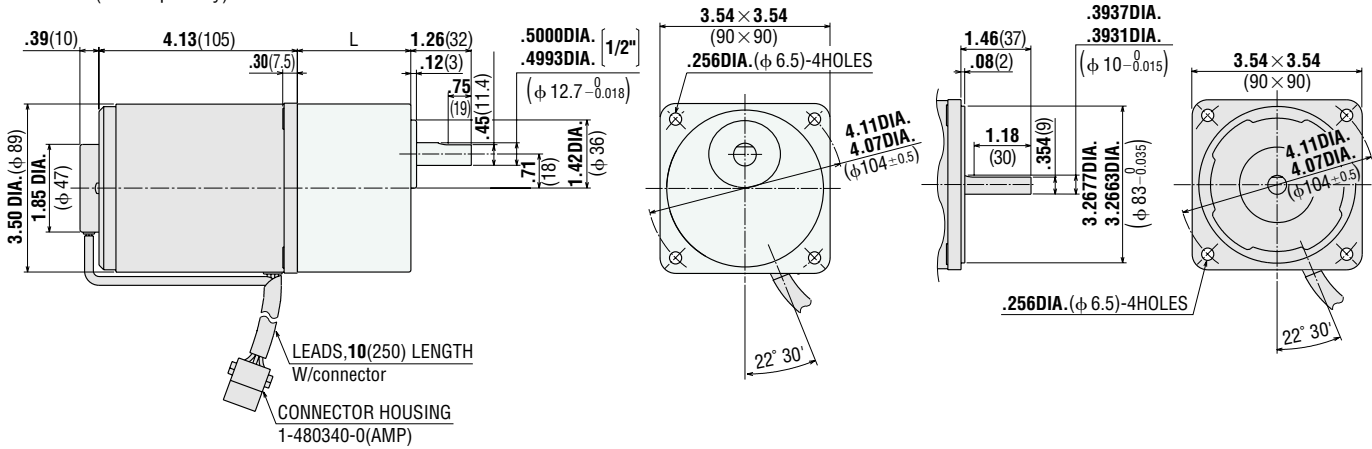
(Sold separately)

US540-001U (Round shaft)

US540-002E

Motor USM540-001W Weight (Mass): 5.7 lb. (2.6kg)

USM540-002W



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

US560-501U

US560-502E

Motor USM560-501W Weight (Mass): 6.2 lb. (2.8 kg)

USM560-502W

Gearhead **5GU□KA** Weight (Mass): 3.3 lb. (1.5 kg)

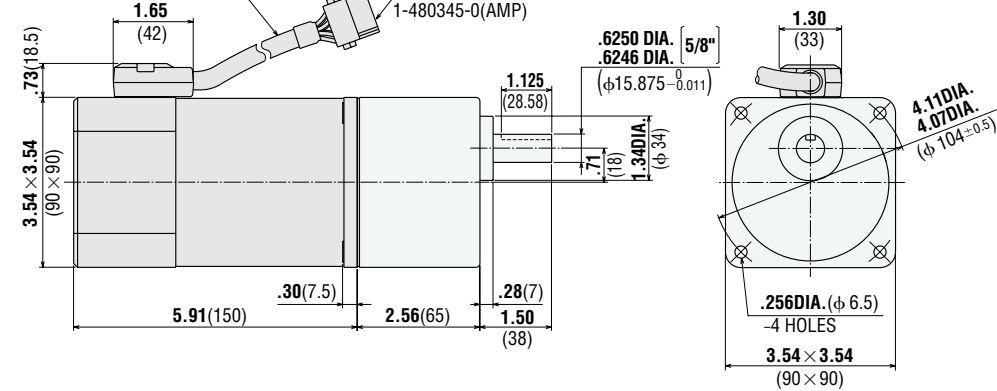
(Sold separately)

CABTYRE CABLE, 4.41DIA. (φ 11.2)

10(250)LENGTH

CONNECTOR HOUSING:

1-480345-0(AMP)

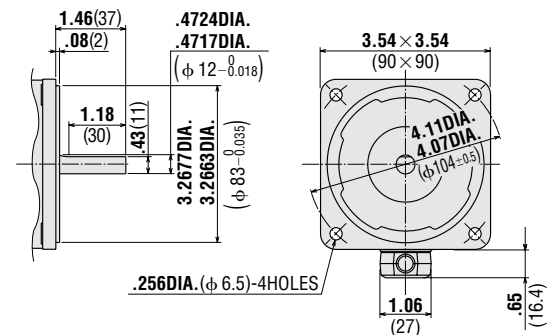


US560-001U (Round Shaft)

US560-002E

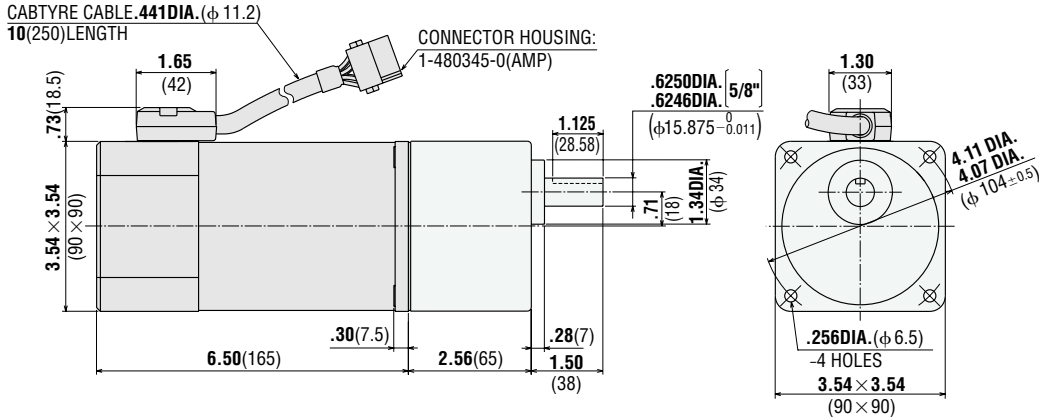
Motor USM560-001W Weight (Mass): 6.2 lb. (2.8kg)

USM560-002W



US590-501U
US590-502E

Motor USM590-501W Weight (Mass): 7.9 lb. (3.6 kg)
USM590-502W
Gearhead **5GU□KA** Weight (Mass): 3.3 lb. (1.5 kg)
(Sold separately)

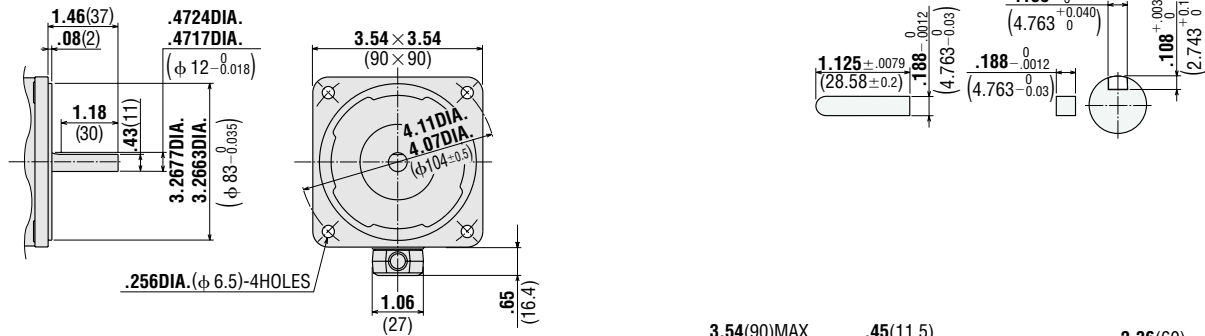


US590-001U (Round shaft)

US590-002E

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

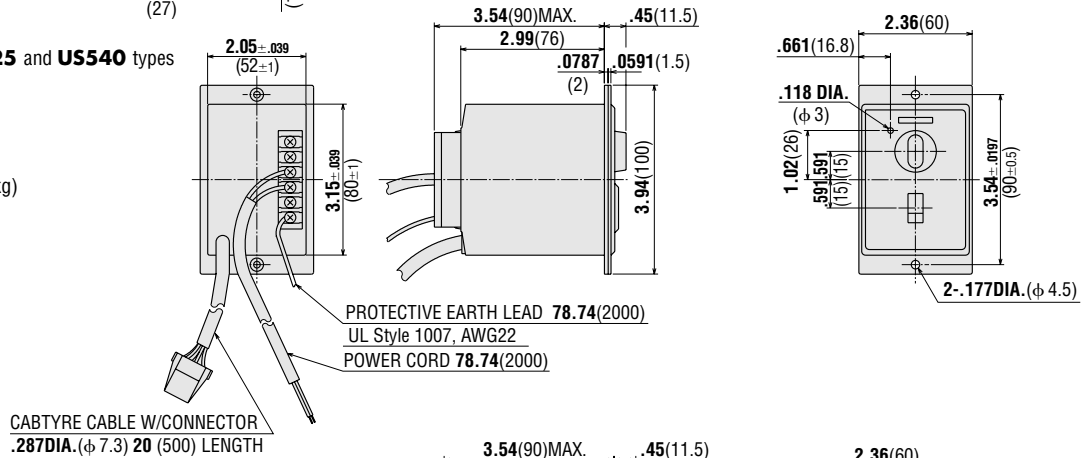
● Key and Key Slot (Scale 1/2)
(included)
5GU□KA



● Control Unit

for **US206, US315, US425** and **US540** types

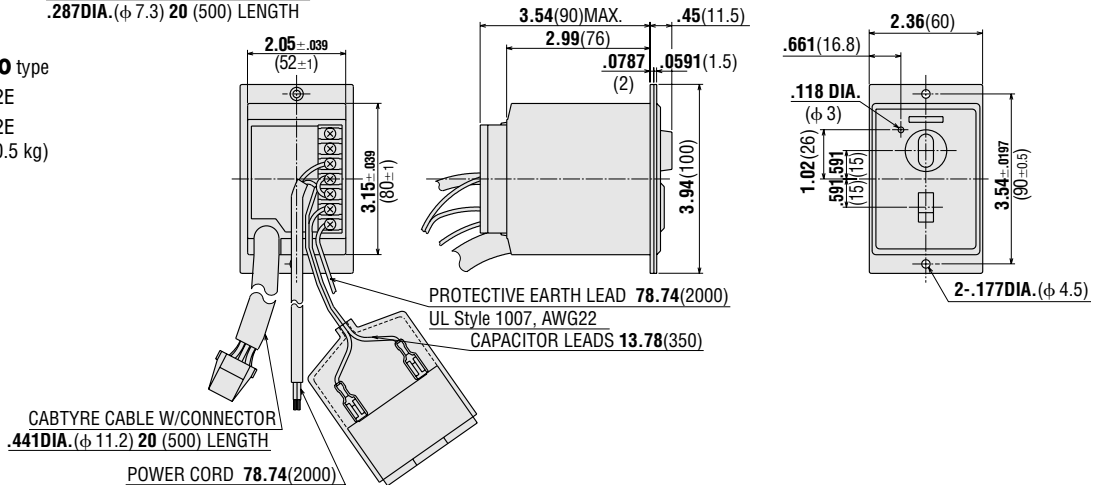
USP206-1U, USP206-2E
USP315-1U, USP315-2E
USP425-1U, USP425-2E
USP540-1U, USP540-2E
Weight (Mass): 1.0 lb. (0.45kg)



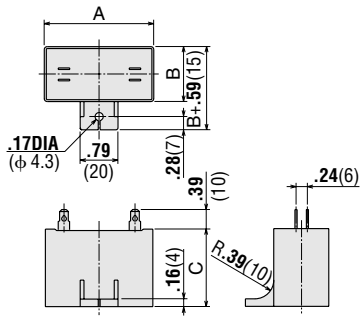
● Control Unit

for **US560** and **US590** type

USP560-1U, USP560-2E
USP590-1U, USP590-2E
Weight (Mass): 1.1 lb. (0.5 kg)



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



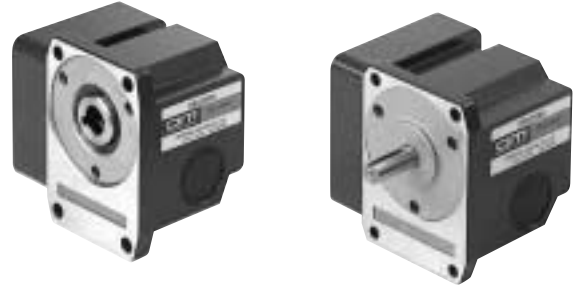
Capacitor Dimensions Unit = inch (mm)

Unit Model	Capacitor Model	A	B	C	Weight(Mass) oz (g)
US560-□01U	CH180CFAUL	2.28 (58)	0.93 (23.5)	1.46 (37)	2.47 (70)
US560-□02E	CH40BFAUL	2.28 (58)	0.93 (23.5)	1.46 (37)	2.47 (70)
US590-□01U	CH200CFAUL	2.28 (58)	1.14 (29)	1.61 (41)	3.35 (95)
US590-□02E	CH60BFAUL	2.28 (58)	1.14 (29)	1.61 (41)	3.00 (85)

Capacitor cap is provided with the capacitor.

■ **Right-Angle Gearheads (Sold separately)**

The right-angle gearhead provides an output shaft at a right angle to the motor's output shaft. See page[A-216] for specifications and more information.



■ **Accessories (Sold separately)**

● **Motor Mounting Brackets**

Optional die-cast aluminum mounting brackets are available. They can be used to install motors without gearheads. See page[A-266] for the dimensions.

Motor	Model
for 6W type	SOL2U08
for 15W type	SOL3U10
for 25W type	SOL4U10
for 40W, 60W, 90W type	SOL5UA



● **Speed Indicator**

To check the speed of speed control motors, connect the speed indicator. See page [A-267] for more information.

Model: **SDM496**



● **Flexible Couplings**

Optional flexible couplings are available. See page [A-260] for more information.



● **Extension Cable**

Extension cable for connecting motor and control unit. See page[A-270] for the dimensions.

