

Power Off Activated Type Electromagnetic Brake Motors 40 W (1/19 HP) Frame Size: □ 3.54 in. (□ 90 mm)



World **K** Series
(Gearhead Sold Separately)



V Series / Combination Type
(Pre-assembled Gearmotor)

Specifications

Motor Specifications

World K Series (General Purpose)

Model Pinion Shaft Type Round Shaft Type	Rating	Output Power		Voltage VAC	Frequency Hz	Current A	Starting Torque		Rated Torque		Rated Speed r/min	Capacitor μF
		HP	W				oz-in	mN·m	oz-in	mN·m		
(TP) 5RK40GN-AWMU 5RK40A-AWMU	30 minutes			Single-Phase 110	60	0.81	36	260	38	270	1450	12
				Single-Phase 115								
(TP) 5RK40GN-CWME 5RK40A-CWME	30 minutes			Single-Phase 220	50	0.46	36	260	44	315	1250	3.5
		1/19 40		Single-Phase 230								
				Single-Phase 230								
(TP) 5IK40GN-SWM 5IK40A-SWM	Continuous			Three-Phase 200	60	0.32	56	400	42	300	1300	—
				Three-Phase 200								
				Three-Phase 220								
				Three-Phase 230								

(TP) 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 restarts. Be sure to turn the motor off before inspecting.

- This type of motor does not contain a built-in simple brake mechanism.
- The "U" and "E" at the end of the model name indicate that the unit includes a capacitor. These two letters are not listed on the motor nameplate. When the motor is approved under various safety standards, the model name on the nameplate is the approved model name. →Page G-11
- Details of Safety Standards →Page G-2

V Series (Quiet Operation, High Strength, Long Life)

Model Combination Type	Rating	Output Power		Voltage VAC	Frequency Hz	Current A	Starting Torque		Rated Torque		Rated Speed r/min	Capacitor μF
		HP	W				oz-in	mN·m	oz-in	mN·m		
(TP) VHR540AM-□U	30 minutes			Single-Phase 110	60	0.81	36	260	38	270	1450	12
				Single-Phase 115								
(TP) VHR540CM-□E	30 minutes			Single-Phase 220	50	0.46	36	260	44	315	1250	3.5
		1/19 40		Single-Phase 230								
				Single-Phase 230								
(TP) VHI540SM-□	Continuous			Three-Phase 200	60	0.32	56	400	42	300	1300	—
				Three-Phase 200								
				Three-Phase 220								
				Three-Phase 230								

(TP) 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 restarts. Be sure to turn the motor off before inspecting.

- This type of motor does not contain a built-in simple brake mechanism.
- The "U" and "E" at the end of the model name indicate that the unit includes a capacitor. These two letters are not listed on the motor nameplate. When the motor is approved under various safety standards, the model name on the nameplate is the approved model name. →Page G-12
- Details of Safety Standards →Page G-2
- Models above are provided as combination type with motor and gearhead pre-assembled.
- Enter the gear ratio in the box (□) within the model name.
- The values in the table are for the motor only.

Electromagnetic Brake (Power Off Activated Type) Specifications

World K Series

Model	Voltage VAC	Frequency Hz	Current A	Input W	Holding oz-in	Brake Torque mN·m
5RK40GN-AWMU 5RK40A-AWMU	Single-Phase 110	60				
	Single-Phase 115	60	0.09	6	28	200
5RK40GN-CWME 5RK40A-CWME	Single-Phase 220	60				
	Single-Phase 230	50	0.05	7	28	200
	Single-Phase 230	60				
5IK40GN-SWM 5IK40A-SWM	Single-Phase 200	50				
	Single-Phase 200	60	0.05	7	28	200
	Single-Phase 220	60				
	Single-Phase 230	60				

V Series

Model	Voltage VAC	Frequency Hz	Current A	Input W	Holding oz-in	Brake Torque mN·m
VHR540AM-□U	Single-Phase 110					
	Single-Phase 115	60	0.09	7	28	200
VHR540CM-□E	Single-Phase 220	60				
	Single-Phase 230	50	0.04	6	28	200
	Single-Phase 230	60				
VHI540SM-□	Single-Phase 200	50				
	Single-Phase 200	60	0.04	6	28	200
	Single-Phase 220	60				
	Single-Phase 230	60				

- The values in the table are for the motor only.

■ Gearheads for World K Series (Sold Separately)

● Parallel Shaft

Gearhead Model	Gear Ratio
5GN□KA	3~180
5GN10XK (Decimal Gearhead)	

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

● Right-Angle

Type	Gearhead Model	Gear Ratio
Hollow Shaft	5GN□RH	3.6~180
Solid Shaft	5GN□RAA	3~180

- Enter the gear ratio in the box (□) within the model name.
- Right-Angle Gearheads** → Page A-189

■ Gearmotor — Torque Table

● World K Series (General Purpose)

The maximum permissible torque with a decimal gearhead with a gear ratio of 10:1 is 88 lb-in (10 N·m).

◆ Single-Phase 115/230 VAC 60 Hz, Three-Phase 230 VAC 60 Hz

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

Model	Speed r/min	Gear Ratio																			
		600	500	360	300	240	200	144	120	100	72	60	50	36	30	24	20	18	15	12	10
5SRK40GN-AWMU / 5GN□KA	5.8 0.66	6.9 0.79	9.7 1.1	11.5 1.3	14.1 1.6	17.7 2.0	23 2.7	29 3.3	34 3.9	43 4.9	52 5.9	62 7.1	78 8.9	88 10	88 10	88 10	88 10	88 10	88 10	88 10	88 10
5SRK40GN-CWME 5IK40GN-SWM / 5GN□KA	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	88 10

◆ Single-Phase 230 VAC 50 Hz

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

Model	Speed r/min	Gear Ratio																			
		500	416	300	250	200	166	120	100	83	60	50	41	30	25	20	16	15	12.5	10	8.3
5SRK40GN-CWME / 5GN□KA	6.8 0.77	8.1 0.92	11.5 1.3	13.2 1.5	16.8 1.9	20 2.3	28 3.2	33 3.8	40 4.6	50 5.7	61 6.9	73 8.3	88 10	88 10	88 10	88 10	88 10	88 10	88 10	88 10	88 10

● V Series (Quiet Operation, High Strength, Long Life)

◆ Single-Phase 115/230 VAC 60 Hz, Three-Phase 230 VAC 60 Hz

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

Model	Speed r/min	Gear Ratio										
		360	300	200	120	100	60	50	30	20	15	10
VHR540AM-□U	10.6 1.2	13.2 1.5	19.4 2.2	31 3.6	38 4.4	61 7	74 8.4	123 13.9	184 20.9	230 26.2	260 30	260 30
VHR540CM-□E	10.6 1.2	12.3 1.4	18.5 2.1	30 3.5	37 4.2	59 6.7	70 8.0	118 13.4	177 20.1	220 25.3	260 30	260 30
VHI540SM-□	10.6 1.2	12.3 1.4	18.5 2.1	30 3.5	37 4.2	59 6.7	70 8.0	118 13.4	177 20.1	220 25.3	260 30	260 30

◆ Single-Phase 230 VAC 50 Hz

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

Model	Speed r/min	Gear Ratio										
		300	250	166	100	83	50	41	25	16	12.5	8.3
VHR540CM-□E	12.3 1.4	15 1.7	23 2.6	38 4.3	45 5.1	71 8.1	86 9.8	144 16.3	210 24.4	260 30	260 30	260 30

- Gearheads and decimal gearheads are sold separately. Decimal gearheads are not available for **V** Series.
- 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.
- The speed is calculated by dividing the motor's synchronous speed (50 Hz: 1500 r/min, 60 Hz: 1800 r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

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

Right-Angle Gearheads are available for the World **K** Series only.

→Page A-196

■ Permissible Overhung Load and Permissible Thrust Load

Motor (Round shaft motor) →Page A-11

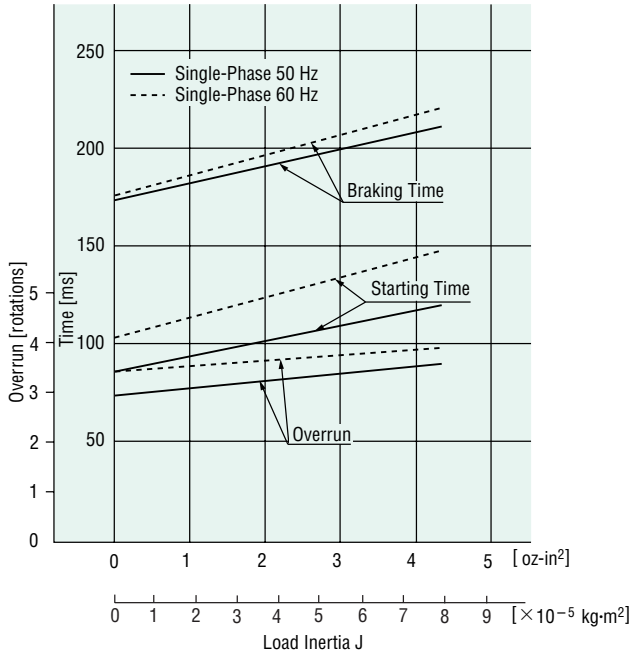
Gearhead →Page A-11

■ Permissible Load Inertia J for Gearhead

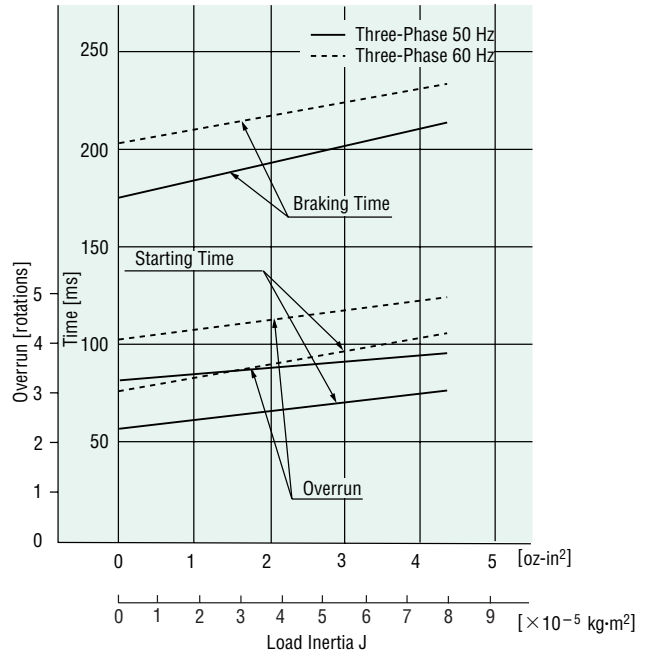
→Page A-12

Starting and Braking Characteristics Common to 40W Type (Reference Values)

● Single-Phase Motor



● Three-Phase Motor



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

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

● World K Series

Motor

5RK40GN-AWMU
5RK40GN-CWME
5IK40GN-SWM

Weight: 6.2 lb. (2.8 kg)

Gearhead

5GN□KA

Weight: 3.3 lb. (1.5 kg)

DXF A089AU (**5GN3KA~18KA**)
 A089BU (**5GN25KA~180KA**)

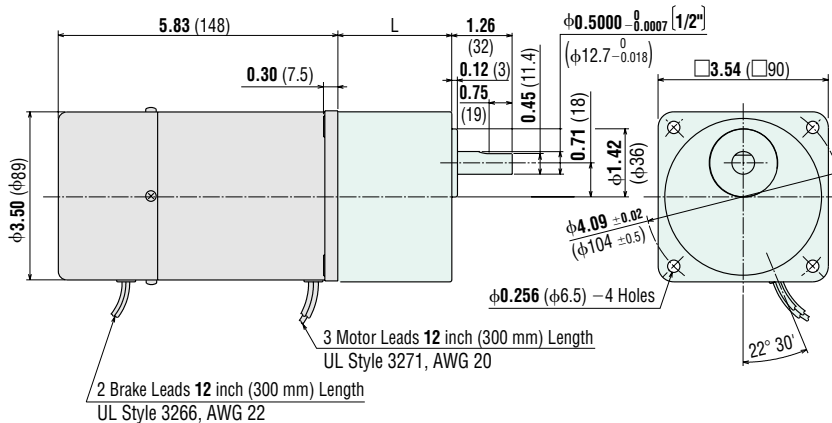
Round Shaft Type

5RK40A-AWMU
5RK40A-CWME
5IK40A-SWM

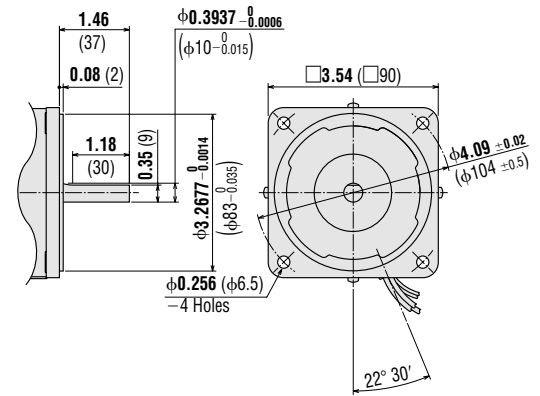
Weight: 6.4 lb. (2.9 kg)

DXF A349

3/8 inch shaft motors are also available. Contact your Oriental Motor Representative for more information.



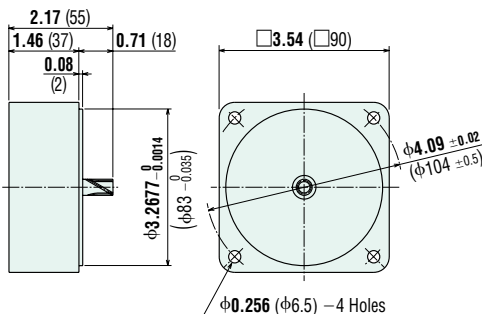
5GN3KA~18KA: L = **1.65** (42)
5GN25KA~180KA: L = **2.36** (60)



● Decimal Gearhead (for World K Series)

5GN10XK Weight: 1.3 lb. (0.6 kg)

DXF A022



● **V Series**

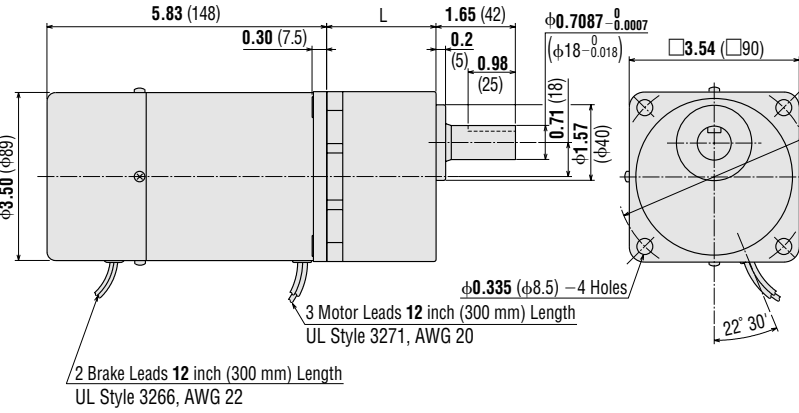
VHR540AM-□U, VHR540CM-□E, VHI540SM-□ (Combination Type)

Weight: 9.7 lb. (4.4 kg) including gearhead

Motor Model: VHR540AM-GVH, VHR540CM-GVH, VHI540SM-GVH

Gearhead Model: GVH5G□

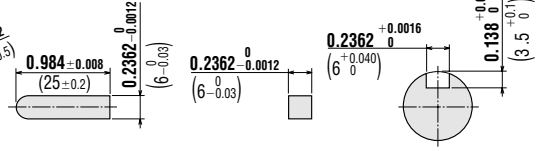
- DXF** A215A (GVH5G5~18)
 A215B (GVH5G30~90)
 A215C (GVH5G120~300)



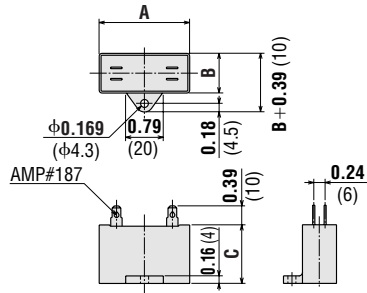
- GVH5G5~GVH5G18: L = 1.77 (45)
 GVH5G30~GVH5G90: L = 2.28 (58)
 GVH5G120~GVH5G300: L = 2.52 (64)

● **Key and Key Slot (Scale 1/2)**

(The key is provided with the gearhead)



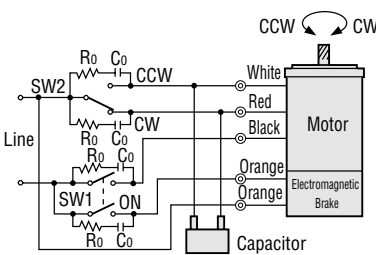
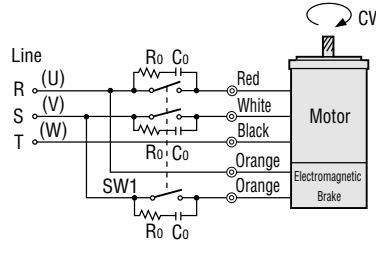
● **Capacitor** (included with single-phase motors)



Motor Model	Capacitor Model	Dimension inch (mm)			Weight oz. (g)
		A	B	C	
5RK40GN-AWMU					
5RK40A-AWMU	CH120CFAUL	2.28 (58)	0.83 (21)	1.22 (31)	1.8 (50)
VHR540AM-□U					
5RK40GN-CWME					
5RK40A-CWME	CH35BFAUL	2.28 (58)	0.87 (22)	1.38 (35)	1.9 (55)
VHR540CM-□E					

- 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.

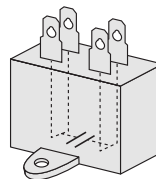
Connection Diagrams

Single-Phase Motor	<p>5RK40GN-AWMU 5RK40GN-CWME VHR540AM-□U VHR540CM-□E</p>		<p>SW1 operates both motor and electromagnetic brake action. The motor will rotate when SW1 is switched simultaneously to ON (short circuit). When SW1 is switched simultaneously to OFF (open), the motor stops immediately with the electromagnetic brake and holds the load. (To release the brake while the motor is stopped, apply voltage between the two brake lead wires (orange).)</p> <p>Direction of Rotation To rotate the motor in a clockwise (CW) direction, flip SW2 to CW. To rotate the motor in a counterclockwise (CCW) direction, flip SW2 to CCW.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Switch No.</th> <th colspan="2">Specifications</th> <th rowspan="2">Note</th> </tr> <tr> <th>Single-Phase 110 VAC Input Single-Phase 115 VAC Input</th> <th>Single-Phase 220 VAC Input Single-Phase 230 VAC Input</th> </tr> </thead> <tbody> <tr> <td>SW1</td> <td>125 VAC 5 A minimum</td> <td>250 VAC 5 A minimum</td> <td>Switched Simultaneously</td> </tr> <tr> <td>SW2</td> <td>(Inductive Load)</td> <td>(Inductive Load)</td> <td>—</td> </tr> </tbody> </table>	Switch No.	Specifications		Note	Single-Phase 110 VAC Input Single-Phase 115 VAC Input	Single-Phase 220 VAC Input Single-Phase 230 VAC Input	SW1	125 VAC 5 A minimum	250 VAC 5 A minimum	Switched Simultaneously	SW2	(Inductive Load)	(Inductive Load)	—
Switch No.	Specifications		Note														
	Single-Phase 110 VAC Input Single-Phase 115 VAC Input	Single-Phase 220 VAC Input Single-Phase 230 VAC Input															
SW1	125 VAC 5 A minimum	250 VAC 5 A minimum	Switched Simultaneously														
SW2	(Inductive Load)	(Inductive Load)	—														
Three-Phase Motor	<p>5IK40GN-SWM VHI540SM-□</p>		<p>SW1 operates both motor and electromagnetic brake action. The motor will rotate when SW1 is switched simultaneously to ON (short circuit). When SW1 is switched simultaneously to OFF (open), the motor stops immediately with the electromagnetic brake and holds the load. (To release the brake while the motor is stopped, apply voltage between the two brake lead wires (orange).)</p> <p>Direction of Rotation To rotate the motor in a counterclockwise direction, change any two connections between U, V and W.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Switch No.</th> <th>Specifications</th> <th>Note</th> </tr> </thead> <tbody> <tr> <td>SW1</td> <td>250 VAC 5 A minimum (Inductive Load)</td> <td>Switched Simultaneously</td> </tr> </tbody> </table>	Switch No.	Specifications	Note	SW1	250 VAC 5 A minimum (Inductive Load)	Switched Simultaneously								
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SW1	250 VAC 5 A minimum (Inductive Load)	Switched Simultaneously															

- The direction of motor rotation is as viewed from the shaft end of the motor.
- CW represents the clockwise direction, while CCW represents the counterclockwise direction.
- Connection diagrams are also valid for the equivalent round shaft motors.
- Ro and Co indicates surge absorber circuit. [Ro = 5~200Ω, Co = 0.1~0.2μF, 200WV (400WV)]
EPCR 1201-2 is available as an optional surge absorber. →Page A-218
- **How to connect a capacitor** →Page A-225

● 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.



List of Motor and Gearhead Combinations for V Series

Model numbers for motor and gearhead combinations are shown below.

Model	Motor Model	Gearhead Model
VHR540AM-□U	VHR540AM-GVH	GVH5G□
VHR540CM-□E	VHR540CM-GVH	
VHI540SM-□	VHI540SM-GVH	

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