

## Reversible Motors

## 60 W (1/12 HP)

Frame Size: □ 3.54 in. (□ 90 mm)

World K Series  
(Gearhead Sold Separately)V Series/Combination Type  
(Pre-assembled Gearmotor)

## Specifications — 30 Minute Rating

## World K Series (General Purpose)



Model		Output Power		Voltage	Frequency	Current	Starting Torque		Rated Torque		Rated Speed	Capacitor
Upper Model Name: Pinion Shaft Type Lower Model Name( ): Round Shaft Type		HP	W	VAC	Hz	A	oz-in	mN·m	oz-in	mN·m	r/min	μF
Lead Wire Type Dimension ①	Terminal Box Type Dimension ②											
TP	<b>5RK60GU-AWU</b> <b>5RK60GU-AWTU</b> <b>(5RK60A-AWU)</b> <b>(5RK60A-AWTU)</b>	1/12	60	Single-Phase 110	60	1.24	53	380	57	405	1450	20
	Single-Phase 115			60								
	Single-Phase 220			50	0.67	53	380	57	405	1450		
TP	<b>5RK60GU-CWE</b> <b>5RK60GU-CWTE</b> <b>(5RK60A-CWE)</b> <b>(5RK60A-CWTE)</b>			Single-Phase 220							60	
	Single-Phase 230	50	0.61	66							470	69
	Single-Phase 230	60	0.67	53	380	57	405	1450				

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.

- Values shown for rated torque and starting torque are measured for operation without the friction brake installed.
- 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-10
- Details of Safety Standards →Page G-2

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



Model		Output Power		Voltage	Frequency	Current	Starting Torque		Rated Torque		Rated Speed	Capacitor
Combination Type		HP	W	VAC	Hz	A	oz-in	mN·m	oz-in	mN·m	r/min	μF
Lead Wire Type Dimension ③	Terminal Box Type Dimension ④											
TP	<b>VHR560A-□U</b> <b>VHR560AT-□U</b>	1/12	60	Single-Phase 110	60	1.24	53	380	57	405	1450	20
	Single-Phase 115			60								
	Single-Phase 220			50	0.67	53	380	57	405	1450		
TP	<b>VHR560C-□E</b> <b>VHR560CT-□E</b>			Single-Phase 220							60	
	Single-Phase 230	50	0.61	66							470	69
	Single-Phase 230	60	0.67	53	380	57	405	1450				

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.

- Values shown for rated torque and starting torque are measured for operation without the brake applied.
- 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 types with motor and gearhead pre-assembled.
- Enter gear ratio in the box (□) within the model name.
- The values in the table are for the motor only.

## Gearheads for World K Series (Sold Separately)

## Parallel Shaft

Gearhead Model	Gear Ratio
<b>5GU□KA</b>	<b>3~180</b>
<b>5GU10XKB</b> (Decimal Gearhead)	

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

## Right-Angle

Type	Gearhead Model	Gear Ratio
Hollow Shaft	<b>5GU□RH</b>	<b>3.6~180</b>
Solid Shaft	<b>5GU□RAA</b>	<b>3~180</b>

- 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 177 lb-in (20 N-m).

#### ◆ Single-Phase 115/230 VAC 60 Hz

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

Model	Speed r/min	600	500	360	300	240	200	144	120	100	72	60	50	36	30	24	20	18	15	12	10
	Gear Ratio	<b>3</b>	<b>3.6</b>	<b>5</b>	<b>6</b>	<b>7.5</b>	<b>9</b>	<b>12.5</b>	<b>15</b>	<b>18</b>	<b>25</b>	<b>30</b>	<b>36</b>	<b>50</b>	<b>60</b>	<b>75</b>	<b>90</b>	<b>100</b>	<b>120</b>	<b>150</b>	<b>180</b>
<b>5RK60GU-AWU</b> <b>5RK60GU-AWTU</b> <b>5RK60GU-CWE</b> <b>5RK60GU-CWTE</b>	<b>5GU</b> □ <b>KA</b>	8.6 0.98	10.6 1.2	14.1 1.6	17.7 2.0	22 2.5	26 3.0	32 3.7	38 4.4	46 5.3	59 6.7	70 8.0	84 9.6	118 13.4	141 16.0	158 17.9	177 20	177 20	177 20	177 20	177 20

#### ◆ Single-Phase 230 VAC 50 Hz

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

Model	Speed r/min	500	416	300	250	200	166	120	100	83	60	50	41	30	25	20	16	15	12.5	10	8.3
	Gear Ratio	<b>3</b>	<b>3.6</b>	<b>5</b>	<b>6</b>	<b>7.5</b>	<b>9</b>	<b>12.5</b>	<b>15</b>	<b>18</b>	<b>25</b>	<b>30</b>	<b>36</b>	<b>50</b>	<b>60</b>	<b>75</b>	<b>90</b>	<b>100</b>	<b>120</b>	<b>150</b>	<b>180</b>
<b>5RK60GU-CWE</b> <b>5RK60GU-CWTE</b>	<b>5GU</b> □ <b>KA</b>	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

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

#### ◆ Single-Phase 115/230 VAC 60 Hz

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

Model	Speed r/min	360	300	200	120	100	60	50	30	20	15	10	6
	Gear Ratio	<b>5</b>	<b>6</b>	<b>9</b>	<b>15</b>	<b>18</b>	<b>30</b>	<b>36</b>	<b>60</b>	<b>90</b>	<b>120</b>	<b>180</b>	<b>300</b>
<b>VHR560A-□U</b> <b>VHR560AT-□U</b> <b>VHR560C-□E</b> <b>VHR560CT-□E</b>		15.9 1.8	19.4 2.2	29 3.3	48 5.5	58 6.6	92 10.4	110 12.5	184 20.9	260 30	260 30	260 30	260 30

#### ◆ Single-Phase 230 VAC 50 Hz

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

Model	Speed r/min	300	250	166	100	83	50	41	25	16	12.5	8.3	5
	Gear Ratio	<b>5</b>	<b>6</b>	<b>9</b>	<b>15</b>	<b>18</b>	<b>30</b>	<b>36</b>	<b>60</b>	<b>90</b>	<b>120</b>	<b>180</b>	<b>300</b>
<b>VHR560C-□E</b> <b>VHR560CT-□E</b>		19.4 2.2	23 2.6	35 4	58 6.6	69 7.9	111 12.6	134 15.2	220 25.3	260 30	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 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

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

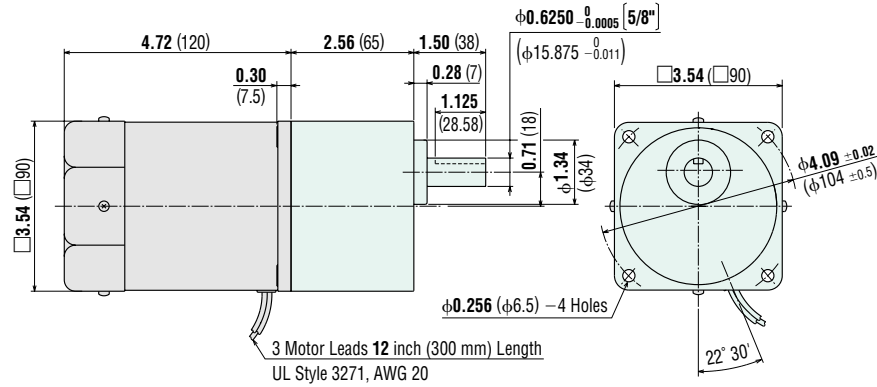
Mounting screws are included with gearheads. Dimensions for screws → A-223

### World K Series

#### Lead Wire Type ①

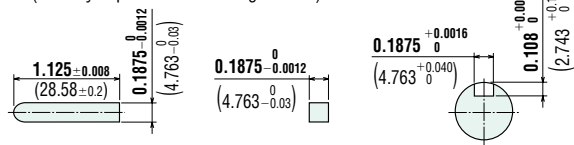
<b>Motor</b> 5RK60GU-AWU 5RK60GU-CWE Weight: 5.9 lb. (2.7 kg)	<b>Gearhead</b> 5GU□KA Weight: 3.3 lb. (1.5 kg)
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**DXF** A026U (5GU3KA~180KA)



#### Key and Key Slot (Scale 1/2)

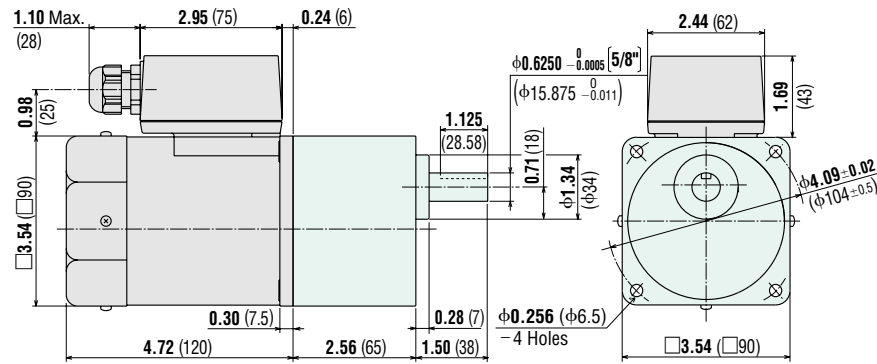
(The key is provided with the gearhead)



#### Terminal Box Type ②

<b>Motor</b> 5RK60GU-AWTU 5RK60GU-CWTE Weight: 6.2 lb. (2.8 kg)	<b>Gearhead</b> 5GU□KA Weight: 3.3 lb. (1.5 kg)
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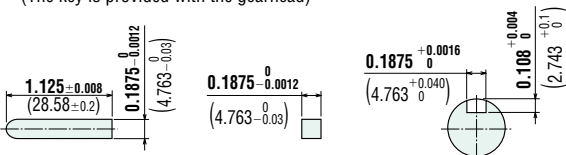
**DXF** A027U (5GU3KA~180KA)



- Use cable (VCTF) with a diameter of  $\phi 0.24$  inch ( $\phi 6$  mm)~ $\phi 0.47$  inch ( $\phi 12$  mm).
- Details of Terminal Box → Page A-224

#### Key and Key Slot (Scale 1/2)

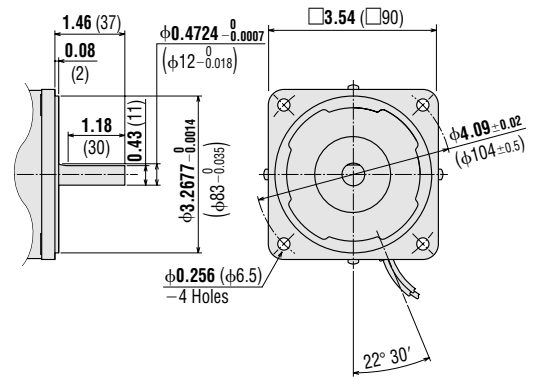
(The key is provided with the gearhead)



#### Round Shaft Type

5RK60A-AWU 5RK60A-CWE Weight: 5.9 lb. (2.7 kg)
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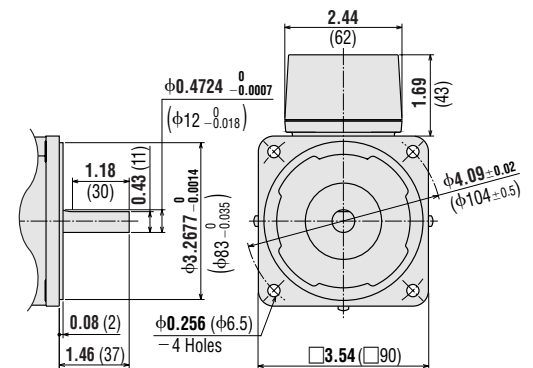
**DXF** A331



#### Round Shaft Type

5RK60A-AWTU 5RK60A-CWTE Weight: 6.2 lb. (2.8 kg)
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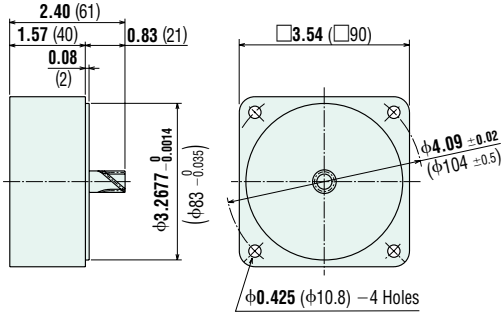
**DXF** A332



● **Decimal Gearhead (for World K Series)**

**5GU10XKB** Weight: 1.3 lb. (0.6 kg)

**DXF** A029



● **V Series**

◆ **Lead Wire Type ③**

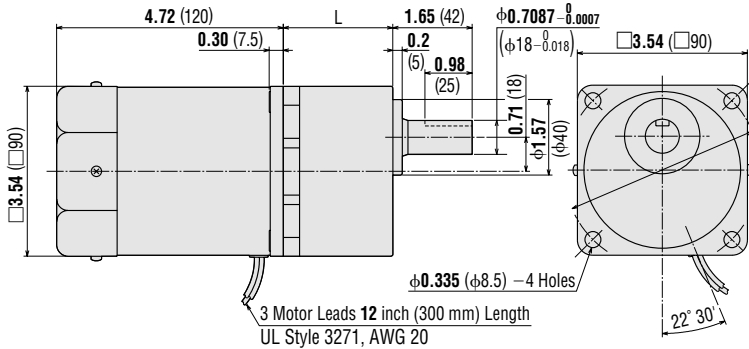
**VHR560A-□U, VHR560C-□E** (Combination Type)

Weight: 9.2 lb. (4.2 kg) including gearhead

Motor Model: VHR560A-GVH, VHR560C-GVH

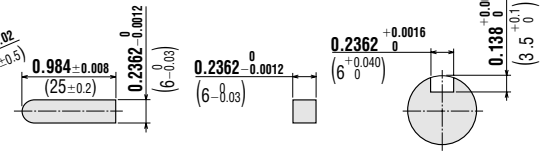
Gearhead Model: GVH5G□

**DXF** A244A (GVH5G5~18)  
A244B (GVH5G30~90)  
A244C (GVH5G120~300)



● **Key and Key Slot (Scale 1/2)**

(The key is provided with the gearhead)



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

◆ **Terminal Box Type ④**

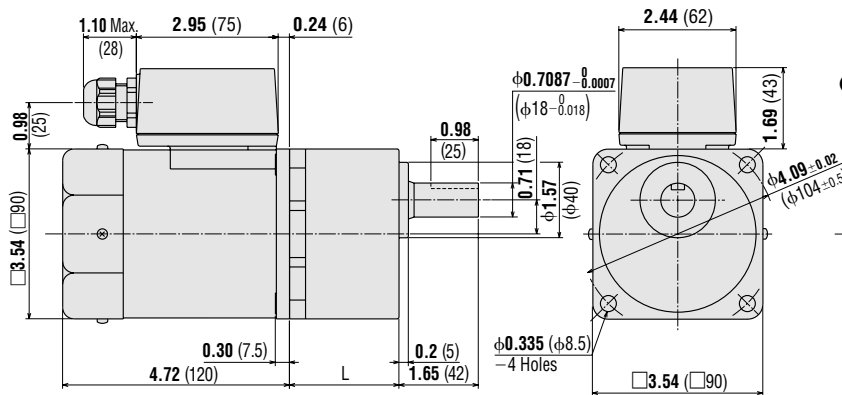
**VHR560AT-□U, VHR560CT-□E** (Combination Type)

Weight: 9.5 lb. (4.3 kg) including gearhead

Motor Model: VHR560AT-GVH, VHR560CT-GVH

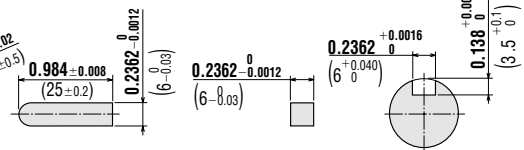
Gearhead Model: GVH5G□

**DXF** A245A (GVH5G5~18)  
A245B (GVH5G30~90)  
A245C (GVH5G120~300)



● **Key and Key Slot (Scale 1/2)**

(The key is provided with the gearhead)

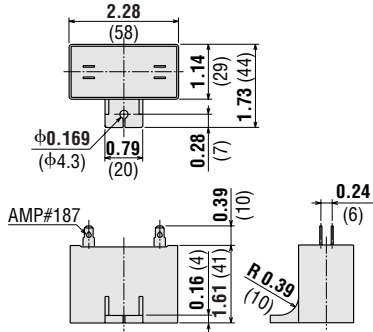


GVH5G5-GVH5G18: L = 1.77 (45)  
GVH5G30-GVH5G90: L = 2.28 (58)  
GVH5G120-GVH5G300: L = 2.52 (64)

● Use cable (VCTF) with a diameter of  $\phi 0.24$  inch ( $\phi 6$  mm)~ $\phi 0.47$  inch ( $\phi 12$  mm).

● Details of Terminal Box → Page A-224

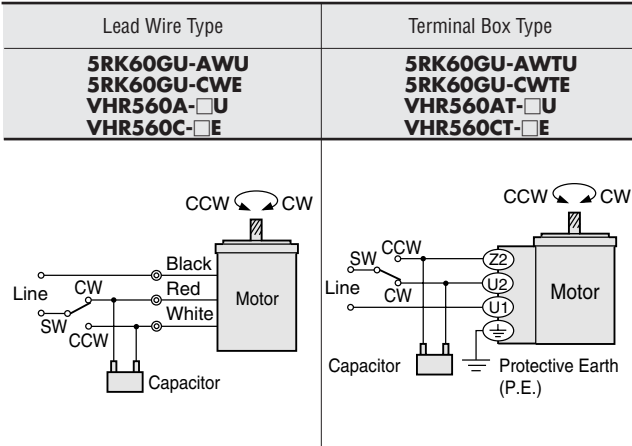
● **Capacitor** (included with the motors)



Motor Model	Capacitor Model	Weight oz. (g)
<b>5RK60GU-AW(T)U</b> <b>5RK60A-AW(T)U</b> <b>VHR560A(T)-□U</b>	CH200CFAUL	3.4 (95)
<b>5RK60GU-CW(T)E</b> <b>5RK60A-CW(T)E</b> <b>VHR560C(T)-□E</b>	CH50BFAUL	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 Diagrams**



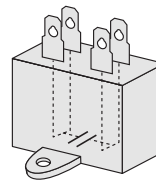
- The direction of motor rotation is as viewed from the shaft end of the motor.
- CW represents the clockwise direction, while CCW represents the counterclockwise direction.
- Connection diagrams are also valid for the equivalent round shaft type.
- **How to connect a capacitor** → Page A-225

**Note:**

- Connect a CR circuit to the forward/reverse select switch (SW) to protect the contact. Connecting CR circuit, contact capacity → Page A-226

● **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
<b>VHR560A-□U</b>	VHR560A-GVH	GVH5G□
<b>VHR560C-□E</b>	VHR560C-GVH	
<b>VHR560AT-□U</b>	VHR560AT-GVH	
<b>VHR560CT-□E</b>	VHR560CT-GVH	

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