

Induction 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 — Continuous Rating

● World **K** Series (General Purpose)

Model Upper Model Name: Pinion Shaft Type Lower Model Name(): Round Shaft Type			Output Power		Voltage	Frequency	Current	Starting Torque		Rated Torque		Rated Speed	Capacitor					
Lead Wire Type Dimension ①	Terminal Box Type Dimension ②	Conduit Box Type Dimension ③	HP	W	VAC	Hz	A	oz-in	mN·m	oz-in	mN·m	r/min	μF					
Ⓘ 5IK60GU-AWU (5IK60A-AWU)	5IK60GU-AWTU (5IK60A-AWTU)	5IK60GU-FCH (5IK60A-FCH)	1/12	60	Single-Phase 110	60	1.09	45	320	57	405	1450	18					
					Single-Phase 115	60	1.10											
					Single-Phase 220*	50	0.55	45	320	57	490	1200						
Ⓘ 5IK60GU-CWE (5IK60A-CWE)	5IK60GU-CWTE (5IK60A-CWTE)	5IK60GU-ECH* (5IK60A-ECH)*			Single-Phase 220	60	0.54						57	405	1450	4		
					Single-Phase 230	50	0.57						69	490	1200			
					Single-Phase 230	60	0.54						57	405	1450			
Ⓘ 5IK60GU-SW (5IK60A-SW)	5IK60GU-SWT (5IK60A-SWT)	5IK60GU-SH (5IK60A-SH)			Three-Phase 200	50	0.50	85	600	63	450	1300	—					
					Three-Phase 200	60	0.43	71	500	53	380	1550						
					Three-Phase 220	60	0.45	71	500	53	380	1600						
					Three-Phase 230	60	0.46	71	500	53	380	1600						

(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.

● 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 Standard →Page G-2

* The conduit box type motors are not VDE approved. The conduit box type does not have a specification for Single-Phase 220 VAC 50 Hz.

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

Model Combination Type			Output Power		Voltage	Frequency	Current	Starting Torque		Rated Torque		Rated Speed	Capacitor	
Lead Wire Type Dimension ④	Terminal Box Type Dimension ⑤		HP	W	VAC	Hz	A	oz-in	mN·m	oz-in	mN·m	r/min	μF	
Ⓘ	VHI560A-□U	VHI560AT-□U	1/12	60	Single-Phase 110	60	1.09	45	320	57	405	1450	18	
					Single-Phase 115	60	1.10							
Ⓘ	VHI560C-□E	VHI560CT-□E			Single-Phase 220	50	0.55	45	320	57	405	1200	1450	4
					Single-Phase 220	60	0.54							
					Single-Phase 230	50	0.57							
					Single-Phase 230	60	0.54							
Ⓘ	VHI560S-□	VHI560ST-□			Three-Phase 200	50	0.50	85	600	63	450	1300	—	
					Three-Phase 200	60	0.43	71	500	53	380	1550		
					Three-Phase 220	60	0.45	71	500	53	380	1600		
					Three-Phase 230	60	0.46	71	500	53	380	1600		

(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.

● 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 Standard →Page G-2

● Models above are provided as combination type 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
5GU□KA	3~180
5GU10XKB (Decimal Gearhead)	

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

● Right-Angle

Type	Gearhead Model	Gear Ratio
Hollow Shaft	5GU□RH	3.6~180
Solid Shaft	5GU□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 177 lb-in (20 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	600	500	360	300	240	200	144	120	100	72	60	50	36	30	24	20	18	15	12	10
	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
5IK60GU-AWU 5IK60GU-AWTU 5IK60GU-CWE 5IK60GU-CWTE 5IK60GU-FCH 5IK60GU-ECH	5GU□KA	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
	5GU□KA	8.1 0.92	9.7 1.1	13.2 1.5	15.9 1.8	20 2.3	24 2.8	30 3.5	37 4.2	44 5.0	55 6.3	66 7.5	79 9.0	110 12.5	132 15.0	148 16.8	177 20	177 20	177 20	177 20	177 20
	5GU□KA	8.1 0.92	9.7 1.1	13.2 1.5	15.9 1.8	20 2.3	24 2.8	30 3.5	37 4.2	44 5.0	55 6.3	66 7.5	79 9.0	110 12.5	132 15.0	148 16.8	177 20	177 20	177 20	177 20	177 20
	5GU□KA	8.1 0.92	9.7 1.1	13.2 1.5	15.9 1.8	20 2.3	24 2.8	30 3.5	37 4.2	44 5.0	55 6.3	66 7.5	79 9.0	110 12.5	132 15.0	148 16.8	177 20	177 20	177 20	177 20	177 20
	5GU□KA	8.1 0.92	9.7 1.1	13.2 1.5	15.9 1.8	20 2.3	24 2.8	30 3.5	37 4.2	44 5.0	55 6.3	66 7.5	79 9.0	110 12.5	132 15.0	148 16.8	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	3	3.6	5	6	7.5	9	12.5	15	18	25	30	36	50	60	75	90	100	120	150	180
5IK60GU-CWE 5IK60GU-CWTE 5IK60GU-ECH	5GU□KA	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 12	143 16	171 19	177 20	177 20	177 20	177 20	177 20	177 20
	5GU□KA	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 12	143 16	171 19	177 20	177 20	177 20	177 20	177 20	177 20
	5GU□KA	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 12	143 16	171 19	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, Three-Phase 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	5	6	9	15	18	30	36	60	90	120	180	300
VHI560A-□U VHI560AT-□U VHI560C-□E VHI560CT-□E	5	15.9	19.4	29	48	58	92	110	184	260	260	260	260
	6	1.8	2.2	3.3	5.5	6.6	10.4	12.5	20.9	30	30	30	30
VHI560S-□ VHI560ST-□	5	15	18.5	27	45	54	86	104	173	260	260	260	260
	6	1.7	2.1	3.1	5.1	6.2	9.8	11.8	19.6	29.4	30	30	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	5	6	9	15	18	30	36	60	90	120	180	300
VHI560C-□E VHI560CT-□E	5	19.4	23	35	58	69	111	134	230	260	260	260	260
	6	2.2	2.6	4	6.6	7.9	12.6	15.2	26.3	30	30	30	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 type)→Page A-11

Gearhead→Page A-11

■ Permissible Load Inertia J for Gearhead

→Page A-12

◆ Conduit Box Type ③

Motor

5IK60GU-FCH

5IK60GU-ECH

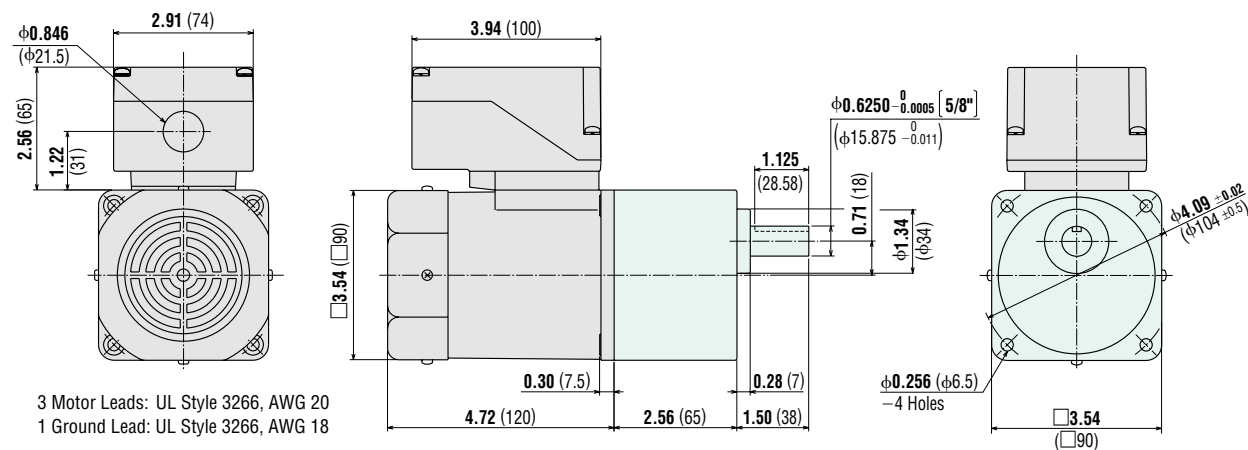
Weight: 7.0 lb. (3.2 kg)

Gearhead

5GU□KA

Weight: 3.3 lb. (1.5 kg)

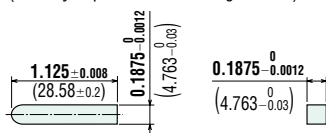
DXF A804 (5GU3KA~180KA)



●Details of Terminal Box → Page A-224

●Key and Key Slot (Scale 1/2)

(The key is provided with the gearhead)



Motor

5IK60GU-SH

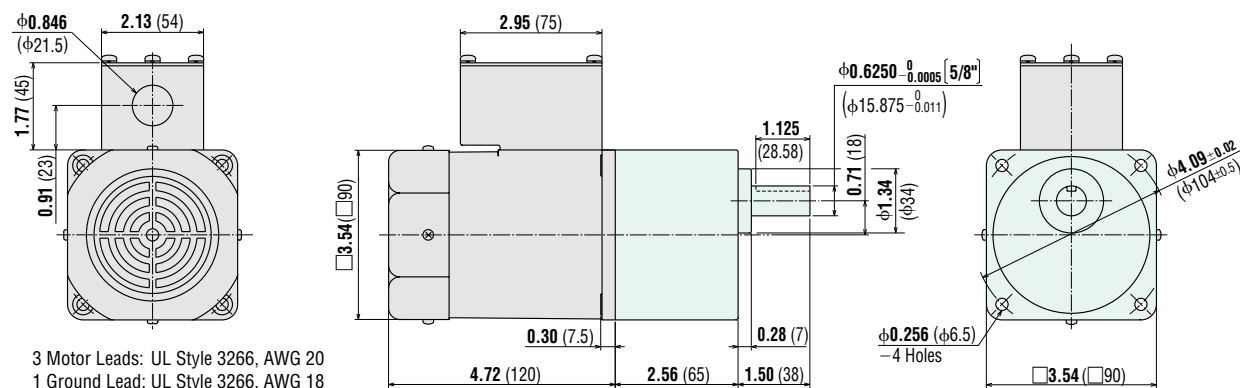
Weight: 6.2 lb. (2.8 kg)

Gearhead

5GU□KA

Weight: 3.3 lb. (1.5 kg)

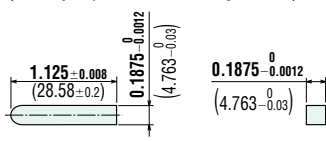
DXF A805 (5GU3KA~180KA)



●Details of Terminal Box → Page A-224

●Key and Key Slot (Scale 1/2)

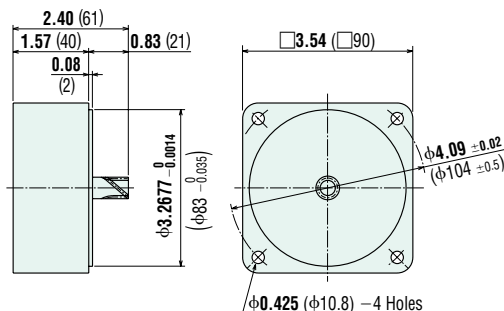
(The key is provided with the gearhead)



Weight: 7.0 lb. (3.2 kg)

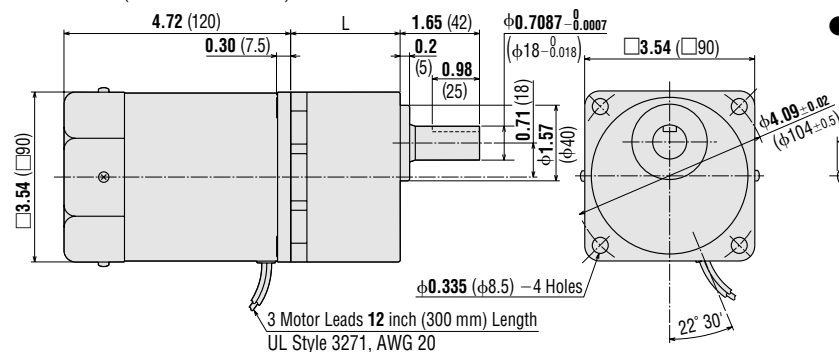


5GU10XKB Weight: 1.3 lb. (0.6 kg)



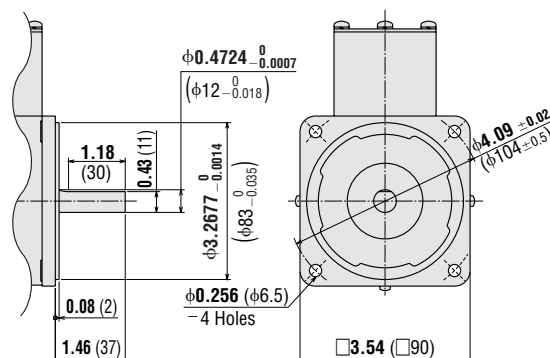
Gearhead Model: GVH5G□

A244C (GVH5G120~300)

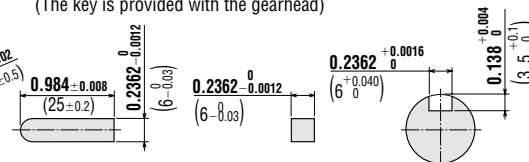
GVH5G120~GVH5G300: L = **2.52** (64)

Weight: 6.2 lb. (2.8 kg)

DXF A814



Key and Key Slot (Grade 1/2)
(The key is provided with the gearhead)



◆ **Terminal Box Type** ⑤

VHI560AT-□U, VHI560CT-□E, VHI560ST-□ (Combination Type)

Weight: 9.5 lb. (4.3 kg) including gearhead

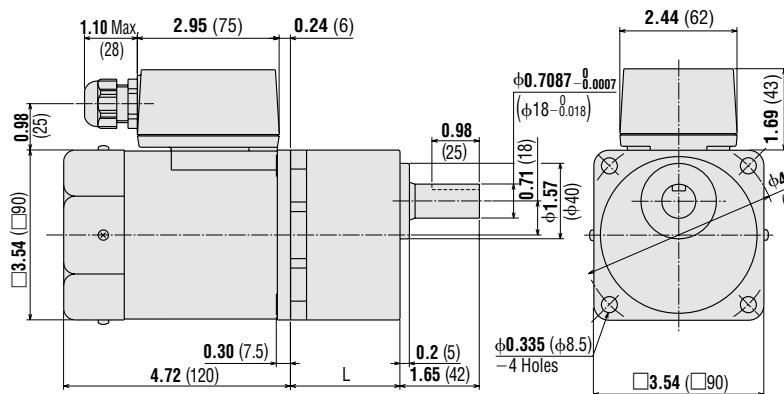
Motor Model: VHI560AT-GVH, VHI560CT-GVH, VHI560ST-GVH

Gearhead Model: GVH5G□

DXF A245A (GVH5G5~18)

A245B (GVH5G30~90)

A245C (GVH5G120~300)



GVH5G5~GVH5G18: L = 1.77 (45)

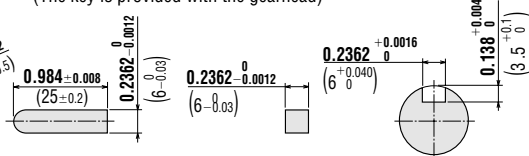
GVH5G30~GVH5G90: L = **2.28** (58)GVH5G120~GVH5G300: L = **2.52** (64)

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

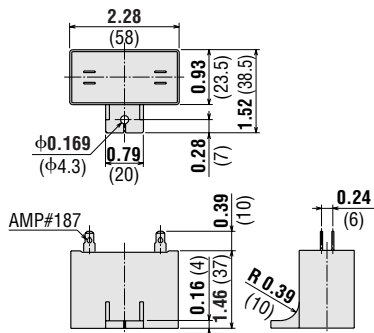
- Details of Terminal Box → Page A-224

●Key and Key Slot (Scale 1/2)

(The key is provided with the gearhead)



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



Motor Model	Capacitor Model	Weight oz. (g)
5IK60GU-AW(T)U		
5IK60A-AW(T)U	CH180CFAUL	
VHI560A-□U		
VHI560AT-□U		
		2.5 (70)
5IK60GU-CW(T)E		
5IK60A-CW(T)E	CH40BFAUL	
VHI560C-□E		
VHI560CT-□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

Lead Wire Type	
5IK60GU-AWU 5IK60GU-CWE VHI560A-□U VHI560C-□E	5IK60GU-SW VHI560S-□
To rotate the motor in a clockwise (CW) direction, flip switch SW to CW. To rotate it in a counterclockwise (CCW) direction, flip switch SW to CCW.	To change the rotation direction, change any two connections between U, V and W.

Conduit Box Type	
5IK60GU-FCH 5IK60GU-ECH	5IK60GU-SH
To rotate the motor in a clockwise (CW) direction, flip switch SW to CW. To rotate it in a counterclockwise (CCW) direction, flip switch SW to CCW.	To change the rotation direction, change any two connections between U, V and W.

- 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:

- Change the direction of single-phase motor rotation only after bringing the motor to a stop. If an attempt is made to change the direction of rotation while the motor is rotating, the motor may ignore the reversing command or change its direction of rotation after some delay.

List of Motor and Gearhead Combinations for V Series

Model numbers for motor and gearhead combinations are shown below.

Model	Motor Model	Gearhead Model
VHI560A-□U	VHI560A-GVH	GVH5G□
VHI560C-□E	VHI560C-GVH	
VHI560S-□	VHI560S-GVH	
VHI560AT-□U	VHI560AT-GVH	
VHI560CT-□E	VHI560CT-GVH	
VHI560ST-□	VHI560ST-GVH	

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

Terminal Box Type	
5IK60GU-AWTU 5IK60GU-CWTE VHI560AT-□U VHI560CT-□E	5IK60GU-SWT VHI560ST-□
To rotate the motor in a clockwise (CW) direction, flip switch SW to CW. To rotate it in a counterclockwise (CCW) direction, flip switch SW to CCW.	To change the rotation direction, change any two connections between U, V and W.

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.

