

Speed Controller

MSC-1

The **MSC-1** is a speed controller for controlling the speed of AC speed control motors and combines high performance and value with a space saving, easy to use design.



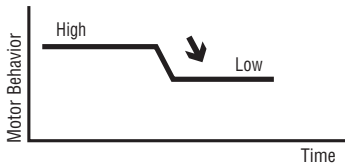
A More Advanced Speed Controller Has Arrived.

The **MSC-1** offers enhanced speed control features along with utilizing feedback from the motor, while providing an alarm output to detect abnormalities. With a compact, space saving design and improved speed stability the **MSC-1** can support single-phase, worldwide voltage, all at an affordable price.



Enhanced Control Features in a Compact and Space Saving Design

Speed Control



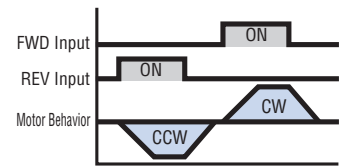
Operates with the setting speed.
 ● Setting Speed 50 Hz: 90~1400 r/min
 60 Hz: 90~1600 r/min

Instantaneous Stop



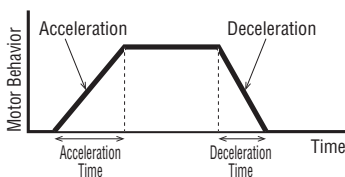
The operating motor is stopped instantaneously.

Bi-Directional Operation



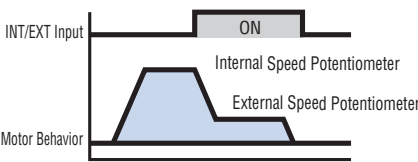
Operates according to the direction of the rotation.

Acceleration, Deceleration



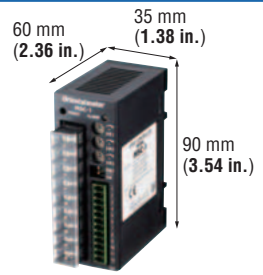
Makes the motor movement smoother when starting and stopping. A separate acceleration and deceleration profile is possible.

2-Speed Operation



2-speed operation is available by switching between the internal speed potentiometer and external speed potentiometer (accessory).

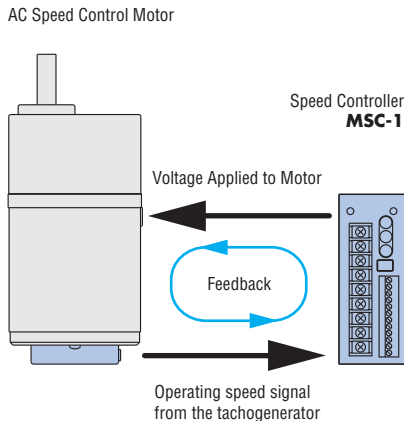
Compact and Space Saving Design



Speed Controller **MSC-1**

Advantages of Feedback Control

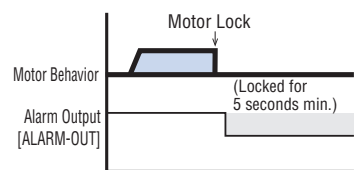
The **MSC-1** speed controller controls the motor's speed by using the tachogenerator signal of the motor.



Equipment with Alarm Output Function

If the motor locks due to an overload, etc., or an abnormal heat generation occurs (detects operation of the motor's internal thermal protector), an alarm signal is output and the power supply to the motor is stopped (coasting stop). The motor can be restarted by turning ON the alarm reset input. The alarm trigger can be identified by the blink count of the LED.

Alarm Output

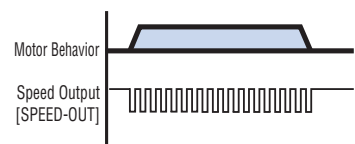


If a motor locks due to an overload, etc., or an abnormal heat generation occurs, an alarm signal is output.

Speed Output Function

A 12-pulse signal is output for each rotation in synchronization with the motor operation. From the frequency of the signals, you can calculate the motor speed.

Speed Output

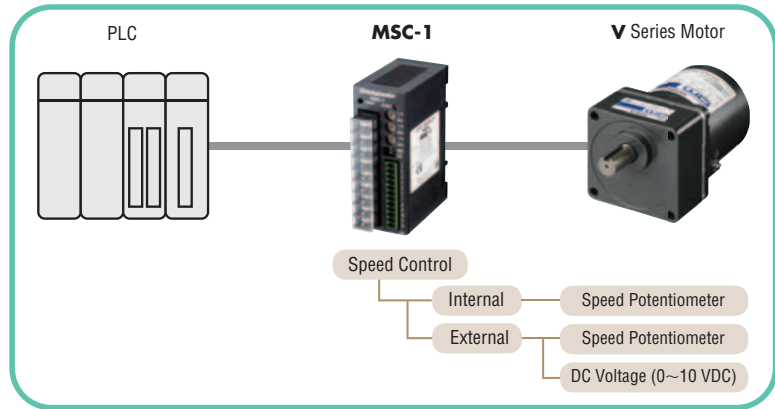


A 12-pulse signal is output for each rotation in synchronization with the motor operation.

● To display and monitor the speed of the motor output shaft and the gearhead output shaft, use the **SDM496** motor speed indicator (accessory, sold separately).

Easy to Use

The **MSC-1** is easy to use and connects directly to your PLC or computer. It features 2 speed control methods, an internal potentiometer or two external speed control methods, DC voltage (0~10 VDC) or with Potentiometer (sold separately).

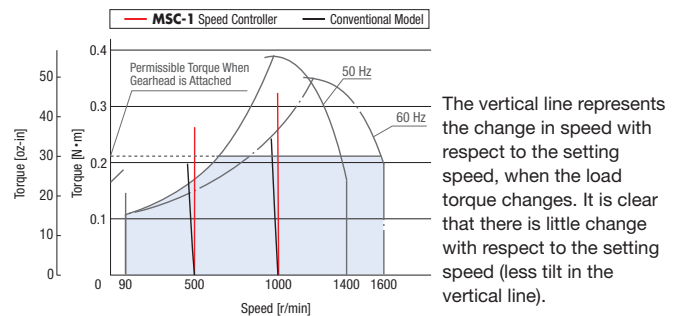


Performance Advantages of the Speed Controller

Speed Regulation (Load) is Improved

By making the control circuit CPU-controlled, the speed regulation (load) has improved. This allows a more stable operation at the set speed than conventional models.

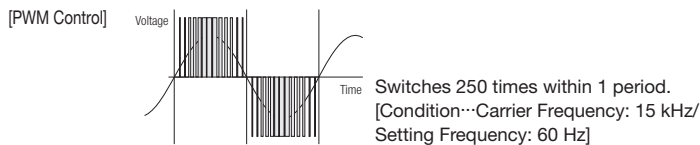
The Difference in Speed Change Between **MSC-1** and Conventional Models



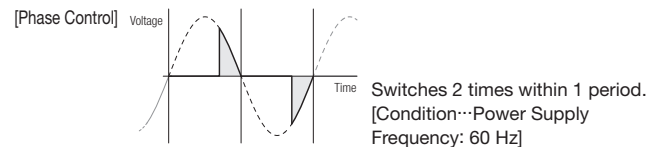
Less Noise is Generated from the Controller

Inverters control the motor speed by using the PWM control method to control the amplitude of the supply voltage to the motor and the frequency. The **MSC-1** speed controller controls the motor speed by using the phase control method to control the amplitude of the supply voltage to the motor. With the phase control method, there is no frequent ON/OFF switching of the supply voltage like the inverter, so there is less noise generated.

Using Inverter and Three-Phase AC Motor



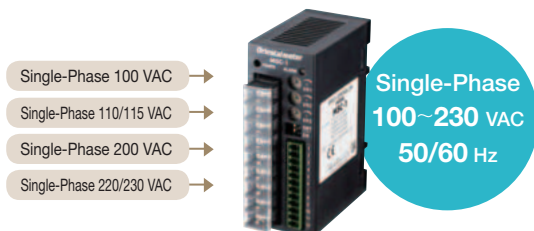
MSC-1 and Speed Control Motor



Supports a Wide Range of Voltage Specifications and Motor Output Powers

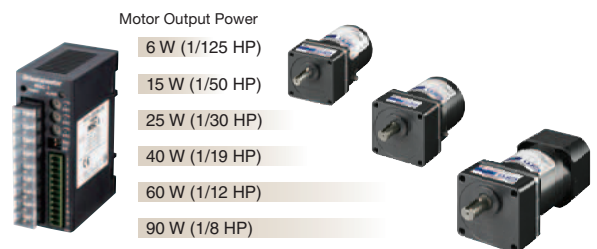
Supports Single-Phase 100~230 VAC Power Specification

The **MSC-1** can be used worldwide, with multiple voltages up to single-phase 100~230 VAC.



Motor Control for Outputs up to 6 W (1/125 HP) ~ 90 W (1/8 HP)

A single unit of **MSC-1** can support speed control motors of outputs up to 6 W (1/125 HP) ~ 90 W (1/8 HP).



● Although the **MSC-1** speed controller has a single-phase 100~230 VAC specification, make sure the motor is used according to its voltage specifications.

Speed Controller Model	MSC-1
Power Supply Voltage	Single-phase 100/110/115 VAC ± 10% Single-phase 200/220/230 VAC ± 10%
Power Supply Frequency	50/60 Hz
Applicable Speed Control Motor Output Power	6 W (1/125 HP), 15 W (1/50 HP), 25 W (1/30 HP), 40 W (1/19 HP), 60 W (1/12 HP), 90 W (1/8 HP)
Variable Speed Range	50 Hz: 90~1400 r/min 60 Hz: 90~1600 r/min
Functions	Speed control, instantaneous stop, bi-direction, speed change, acceleration/deceleration (0.3~15 seconds: 1000 r/min with no load)
Speed Setting Methods	The speed is set by the following methods. <ul style="list-style-type: none"> • Internal Speed Potentiometer • External speed potentiometer: PAVR-20KZ (20 kΩ, 1/4 W) (Accessory, sold separately) • External DC voltage: 0 VDC~5 VDC, or 0 VDC~10 VDC, 1 mA min.
Control Power Supply	24 VDC ± 10% 100 mA min.
Input Signals	Photocoupler input Input resistance 4.7 kΩ FWD, REV, INT/EXT, ALARM-RESET
Output Signals	Open-collector output 30 VDC max. SPEED-OUT: 10 mA max., ALARM-OUT: 40 mA max.
Protective Functions	When the following protective functions are activated, the motor will coast to a stop and the alarm output will turn OFF. The LED on the speed controller will blink for the number of times shown in (). <ul style="list-style-type: none"> • Motor lock (2 times): When the motor output shaft is locked for more than 5 seconds, or when the tachogenerator wire is disconnected or poorly connected • Motor overheat (9 times): When the built-in thermal protector in the motor activates (Opens), or when the motor wire is disconnected or poorly connected
Insulation Resistance	The value is 100 MΩ or more when measured by a 500 VDC megger between the main circuit terminal and the control circuit terminal and between the main circuit terminal and the case after continuous operation under normal ambient temperature and humidity.
Dielectric Strength	Sufficient to withstand 1.9 kVAC at 50 Hz or 60 Hz applied between the main circuit terminal and the control circuit terminal, and between the main circuit terminal and the case for 1 minute after continuous operation under normal ambient temperature and humidity.
Operating Ambient Temperature	0~+50°C (+32~+122°F)
Operating Ambient Humidity	85% or less (non-condensing)
Degree of Protection	IP10

Notes

- The motor speed cannot be controlled in a gravitational operation or other application where the motor shaft is turned by the load.
- **At the time of printing, this product is pending UL approval.**

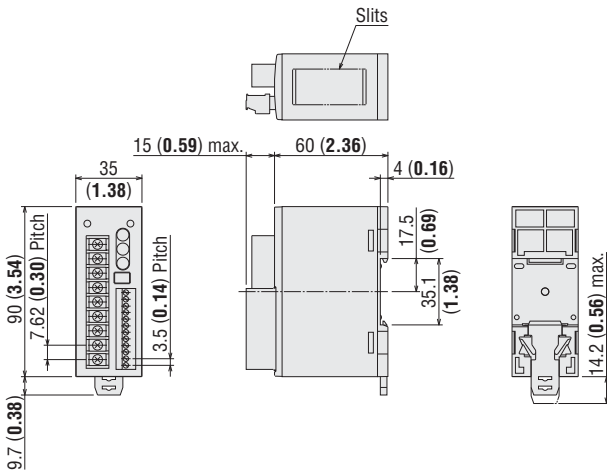
Dimensions Unit = mm (in.)

● **Speed Controller**

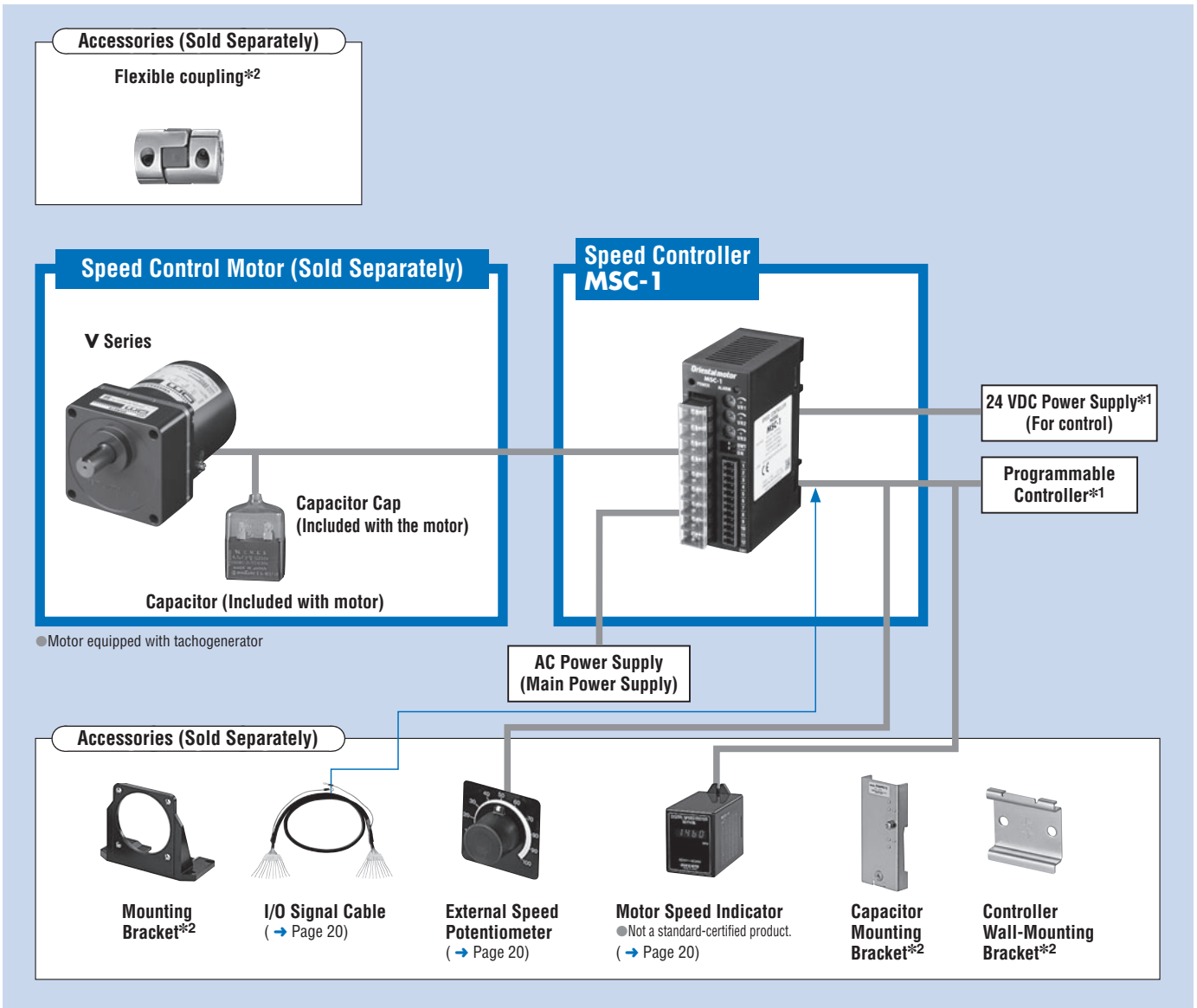
MSC-1

Mass: 0.15 kg (0.33 lb)

DXP A1158



System Configuration



*1 Not supplied.

*2 For details on these products, please check our website or contact the local Oriental Motor Sales office. www.orientalmotor.com

● Example of System Configuration

Speed Controller	Accessories	
	MSC-1	V Series Combination Type

+

Accessories		
Motor Speed Indicator	Mounting Bracket	Flexible Coupling
SDM496	SOL4M6	MCL4015F08

● The system configuration shown above is an example. Other combinations are available.

Applicable Speed Control Motors (Sold Separately)

● V Series

Speed Control Motors 6 W (1/125 HP) ~ 90 W (1/8 HP) (RoHS)

The **V Series** speed control motors offer up to two times more torque, high strength, long-life and low noise than our conventional models. These motors conform to major global safety standards and are available as a combination type with the motor and gear head pre-assembled.

● Details are provided on the website.

● Product Line → Page 6



● World K Series

Speed Control Motors 6 W (1/125 HP) ~ 60 W (1/12 HP) (RoHS)

Conforming to major global safety standards, the World **K Series** with the **GN-S** gear head, is also available and can be used in wide-ranging applications.

● Details are provided on the website.



Product Number Code

● V Series Speed Control Motor

◇ Motor (Combination type, pinion shaft type)

V S I 4 25 A2 - □ U

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

①	Series	V: V Series
②	Speed Control Motor	
③	Motor Type	I: Induction Motor R: Reversible Motor
④	Motor Frame Size	2: 60 mm (2.36 in.) 3: 70 mm (2.76 in.) 4: 80 mm (3.15 in.) 5: 90 mm (3.54 in.)
⑤	Output Power (W)	(Example) 25: 25 W (1/30 HP)
⑥	Power Supply Voltage	A2, A: Single-Phase 110/115 VAC, RoHS-Compliant C2, C: Single-Phase 220/230 VAC, RoHS-Compliant
⑦	Motor Shaft Type, Gear Ratio	Number: Gear Ratio (Combination Type) GV: GV Type Pinion Shaft GVH: GVH Type Pinion Shaft GVR: GVR Type Pinion Shaft
⑧	Included Capacitor	U: For Single-Phase 110/115 VAC E: For Single-Phase 220/230 VAC

◇ Gearhead

GV 4G 50

① ② ③

①	Type of Pinion	GV: GV Type Pinion GVH: GVH Type Pinion GVR: GVR Type Pinion
②	Gearhead Frame Size	2: 60 mm (2.36 in.) 3: 70 mm (2.76 in.) 4: 80 mm (3.15 in.) 5: 90 mm (3.54 in.)
③	Gear Ratio	(Example) 50: Gear Ratio of 50:1

Product Line

● V Series Speed Control Motor

◇ Combination Type [6 W (1/125 HP) to 25 W (1/30 HP)] (RoHS)

Type	Power Supply Voltage	□60 mm (2.36 in.) 6 W (1/125 HP)	□70 mm (2.76 in.) 15 W (1/50 HP)	□80 mm (3.15 in.) 25 W (1/30 HP)	Applicable Controller (Sold separately)
		Model	Model	Model	
Induction Motor	Single-Phase 110/115 VAC	VSI206A2-5~360U	VSI315A2-5~360U	VSI425A2-5~360U	MSC-1
	Single-Phase 220/230 VAC	VSI206C2-5~360E	VSI315C2-5~360E	VSI425C2-5~360E	MSC-1
Reversible Motor	Single-Phase 110/115 VAC	VSR206A2-5~360U	VSR315A2-5~360U	VSR425A2-5~360U	MSC-1
	Single-Phase 220/230 VAC	VSR206C2-5~360E	VSR315C2-5~360E	VSR425C2-5~360E	MSC-1

◇ Combination Type [40 W (1/19 HP) to 90 W (1/8 HP)] (RoHS)

Type	Power Supply Voltage	□90 mm (3.54 in.) 40 W (1/19 HP)	□90 mm (3.54 in.) 60 W (1/12 HP)	□90 mm (3.54 in.) 90 W (1/8 HP)	Applicable Controller (Sold separately)
		Model	Model	Model	
Induction Motor	Single-Phase 110/115 VAC	VSI540A2-5~300U	VSI560A-5~300U	VSI590A-5~180U	MSC-1
	Single-Phase 220/230 VAC	VSI540C2-5~300E	VSI560C-5~300E	VSI590C-5~180E	MSC-1
Reversible Motor	Single-Phase 110/115 VAC	VSR540A2-5~300U	VSR560A-5~300U	VSR590A-5~180U	MSC-1
	Single-Phase 220/230 VAC	VSR540C2-5~300E	VSR560C-5~300E	VSR590C-5~180E	MSC-1

◇ Pinion Shaft Type Motor/Gearhead [6 W (1/125 HP) to 25 W (1/30 HP)] (RoHS)

Type	Power Supply Voltage	□60 mm (2.36 in.) 6 W (1/125 HP)	□70 mm (2.76 in.) 15 W (1/50 HP)	□80 mm (3.15 in.) 25 W (1/30 HP)	Applicable Controller (Sold separately)
		Model	Model	Model	
Induction Motor	Single-Phase 110/115 VAC	VSI206A2-GVU	VSI315A2-GVU	VSI425A2-GVU	MSC-1
	Single-Phase 220/230 VAC	VSI206C2-GVE	VSI315C2-GVE	VSI425C2-GVE	MSC-1
Reversible Motor	Single-Phase 110/115 VAC	VSR206A2-GVU	VSR315A2-GVU	VSR425A2-GVU	MSC-1
	Single-Phase 220/230 VAC	VSR206C2-GVE	VSR315C2-GVE	VSR425C2-GVE	MSC-1
Gearhead (Sold separately)		GV2G5~360	GV3G5~360	GV4G5~360	-

◇ Pinion Shaft Type Motor/Gearhead [40 W (1/19 HP) to 90 W (1/8 HP)] (RoHS)

Type	Power Supply Voltage	□90 mm (3.54 in.) 40 W (1/19 HP)	□90 mm (3.54 in.) 60 W (1/12 HP)	□90 mm (3.54 in.) 90 W (1/8 HP)	Applicable Controller (Sold separately)
		Model	Model	Model	
Induction Motor	Single-Phase 110/115 VAC	VSI540A2-GVHU	VSI560A-GVHU	VSI590A-GVRU	MSC-1
	Single-Phase 220/230 VAC	VSI540C2-GVHE	VSI560C-GVHE	VSI590C-GVRE	MSC-1
Reversible Motor	Single-Phase 110/115 VAC	VSR540A2-GVHU	VSR560A-GVHU	VSR590A-GVRU	MSC-1
	Single-Phase 220/230 VAC	VSR540C2-GVHE	VSR560C-GVHE	VSR590C-GVRE	MSC-1
Gearhead (Sold separately)		GVH5G5~300	GVH5G5~300	GVR5G5~180	-

● Motor specifications, motor dimensions and gearhead dimensions are the same as those of the combination type.

The following items are included in each product.
● Combination Type
Motor, Gearhead, Capacitor, Capacitor Cap, Mounting Screws, Parallel Key, Operating Manual

The following items are included in each product.
● Pinion Shaft Type
Motor, Capacitor, Capacitor Cap, Operating Manual

The following items are included in each product.
● Gearhead
Gearhead, Mounting Screws, Parallel Key, Operating Manual

Specifications

The following specifications assume combination with an applicable speed control motor.

● V Series Induction Motors – Continuous Rating

◇ Single-Phase 110/115 VAC Applicable Speed Controller: **MSC-1 (RoHS)**



Model Combination Type	Max. Output Power W (HP)	Voltage VAC	Frequency Hz	Variable Speed Range* r/min	Permissible Torque		Starting Torque mN·m (oz-in)	Current A	Power Consumption W	Capacitor μF
					1200 r/min mN·m (oz-in)	90 r/min mN·m (oz-in)				
Ⓟ VSI206A2-□U	6 (1/125)	Single-Phase 110	60	90~1600	50 (7.1)	34 (4.8)	40 (5.6)	0.280	29	2.5
		Single-Phase 115								
Ⓟ VSI315A2-□U	15 (1/50)	Single-Phase 110	60	90~1600	125 (17.7)	42 (5.9)	65 (9.2)	0.48	46	4.5
		Single-Phase 115								
Ⓟ VSI425A2-□U	25 (1/30)	Single-Phase 110	60	90~1600	185 (26)	50 (7.1)	120 (17.0)	0.75	58	6.5
		Single-Phase 115							69	
Ⓟ VSI540A2-□U	40 (1/19)	Single-Phase 110	60	90~1600	225 (31)	67 (9.5)	180 (25)	1.1	107	9.0
		Single-Phase 115					200 (28)			
Ⓟ VSI560A-□U	60 (1/12)	Single-Phase 110	60	90~1600	490 (69)	210 (29)	320 (45)	2.0	180	18
		Single-Phase 115								
Ⓟ VSI590A-□U	90 (1/8)	Single-Phase 110	60	90~1600	730 (103)	210 (29)	410 (58)	2.6	240	20
		Single-Phase 115					450 (63)			

◇ Single-Phase 220/230 VAC Applicable Speed Controller: **MSC-1 (RoHS)**



Model Combination Type	Max. Output Power W (HP)	Voltage VAC	Frequency Hz	Variable Speed Range* r/min	Permissible Torque		Starting Torque mN·m (oz-in)	Current A	Power Consumption W	Capacitor μF	
					1200 r/min mN·m (oz-in)	90 r/min mN·m (oz-in)					
Ⓟ VSI206C2-□E	6 (1/125)	Single-Phase 220	50	90~1400	36 (5.1)	33 (4.6)	35 (4.9)	0.135	29	0.6	
			60	90~1600	50 (7.1)						
			Single-Phase 230	50	90~1400						40 (5.6)
				60	90~1600						50 (7.1)
Ⓟ VSI315C2-□E	15 (1/50)	Single-Phase 220	50	90~1400	110 (15.6)	38 (5.3)	65 (9.2)	0.23	43	1.0	
			60	90~1600	125 (17.7)						
			Single-Phase 230	50	90~1400						115 (16.3)
				60	90~1600						125 (17.7)
Ⓟ VSI425C2-□E	25 (1/30)	Single-Phase 220	50	90~1400	205 (29)	40 (5.6)	110 (15.6)	0.37	70	1.5	
			60	90~1600	160 (22)						
			Single-Phase 230	50	90~1400						205 (29)
				60	90~1600						150 (21)
Ⓟ VSI540C2-□E	40 (1/19)	Single-Phase 220	50	90~1400	300 (42)	75 (10.6)	190 (26)	0.55	96	2.3	
			60	90~1600	280 (39)						
			Single-Phase 230	50	90~1400						320 (45)
				60	90~1600						260 (36)
Ⓟ VSI560C-□E	60 (1/12)	Single-Phase 220	50	90~1400	460 (65)	200 (28)	320 (45)	0.84	155	4.0	
			60	90~1600	490 (69)						
			Single-Phase 230	50	90~1400						490 (69)
				60	90~1600						180 (25)
Ⓟ VSI590C-□E	90 (1/8)	Single-Phase 220	50	90~1400	720 (102)	260 (36)	450 (63)	1.2	209	6.0	
			60	90~1600	730 (103)						
			Single-Phase 230	50	90~1400						730 (103)
				60	90~1600						280 (39)

● Enter the gear ratio in the box (□) within the model name of the combination type. Enter the shaft type **GV**, **GVH** or **GVR** in the box (□) within the model name of the pinion shaft type. The values for each specification apply to the motor only.

Ⓟ: Impedance protected.

Ⓟ: Contains a built-in thermal protector (automatic return type). If a motor overheats for any reason, the thermal protector is activated and the motor is stopped.

*The variable speed ranges shown are under no load conditions.

● V Series Reversible Motors – 30 Minutes Rating

◇ Single-Phase 110/115 VAC Applicable Speed Controller: **MSC-1** (RoHS)



Model Combination Type	Max. Output Power W (HP)	Voltage VAC	Frequency Hz	Variable Speed Range* r/min	Permissible Torque		Starting Torque mN-m (oz-in)	Current A	Power Consumption W	Capacitor μF
					1200 r/min mN-m (oz-in)	90 r/min mN-m (oz-in)				
Ⓜ VSR206A2-□U	6 (1/125)	Single-Phase 110 Single-Phase 115	60	90~1600	50 (7.1)	50 (7.1)	45 (6.3)	0.330	33	3.5
Ⓜ VSR315A2-□U	15 (1/50)	Single-Phase 110 Single-Phase 115	60	90~1600	125 (17.7)	85 (12.0)	100 (14.2)	0.60	60	6.0
Ⓜ VSR425A2-□U	25 (1/30)	Single-Phase 110 Single-Phase 115	60	90~1600	205 (29)	110 (15.6)	140 (19.8)	0.93	92	8.0
Ⓜ VSR540A2-□U	40 (1/19)	Single-Phase 110 Single-Phase 115	60	90~1600	320 (45)	155 (22)	240 (34)	1.47	145	12
							260 (36)			
Ⓜ VSR560A-□U	60 (1/12)	Single-Phase 110 Single-Phase 115	60	90~1600	490 (69)	270 (38)	380 (53)	2.2	201	20
Ⓜ VSR590A-□U	90 (1/8)	Single-Phase 110 Single-Phase 115	60	90~1600	730 (103)	320 (45)	590 (83)	3.0	272	30

◇ Single-Phase 220/230 VAC Applicable Speed Controller: **MSC-1** (RoHS)



Model Combination Type	Max. Output Power W (HP)	Voltage VAC	Frequency Hz	Variable Speed Range* r/min	Permissible Torque		Starting Torque mN-m (oz-in)	Current A	Power Consumption W	Capacitor μF
					1200 r/min mN-m (oz-in)	90 r/min mN-m (oz-in)				
Ⓜ VSR206C2-□E	6 (1/125)	Single-Phase 220 Single-Phase 230	50	90~1400	42 (5.9)	50 (7.1)	45 (6.3)	0.155	34	0.8
			60	90~1600	50 (7.1)					
			50	90~1400	46 (6.5)					
			60	90~1600	50 (7.1)					
Ⓜ VSR315C2-□E	15 (1/50)	Single-Phase 220 Single-Phase 230	50	90~1400	125 (17.7)	87 (12.3)	100 (14.2)	0.30	63	1.5
			60	90~1600						
			50	90~1400						
			60	90~1600						
Ⓜ VSR425C2-□E	25 (1/30)	Single-Phase 220 Single-Phase 230	50	90~1400	205 (29)	115 (16.3)	140 (19.8)	0.50	95	2.5
			60	90~1600						
			50	90~1400						
			60	90~1600						
Ⓜ VSR540C2-□E	40 (1/19)	Single-Phase 220 Single-Phase 230	50	90~1400	320 (45)	180 (25)	270 (38)	0.75	140	3.5
			60	90~1600						
			50	90~1400						
			60	90~1600						
Ⓜ VSR560C-□E	60 (1/12)	Single-Phase 220 Single-Phase 230	50	90~1400	490 (69)	280 (39)	420 (59)	1.0	185	5.0
			60	90~1600						
			50	90~1400						
			60	90~1600						
Ⓜ VSR590C-□E	90 (1/8)	Single-Phase 220 Single-Phase 230	50	90~1400	730 (103)	360 (51)	600 (85)	1.3	240	7.0
			60	90~1600						
			50	90~1400						
			60	90~1600						

● Enter the gear ratio in the box (□) within the model name of the combination type. Enter the shaft type **GV**, **GVH** or **GVR** in the box (□) within the model name of the pinion shaft type. The values for each specification apply to the motor only.

● The permissible torque and the starting torque of reversible motors are shown without the friction brake installed. Please keep in mind that you should select a suitable motor with enough torque, when designing the equipment.

Ⓜ: Impedance protected.

Ⓜ: Contains a built-in thermal protector (automatic return type). If a motor overheats for any reason, the thermal protector is activated and the motor is stopped.

*The variable speed ranges shown are under no load conditions.

How to Read the Speed – Torque Characteristics

The characteristics diagram on the right shows the relationship between the speed and torque when a speed control motor is operated.

①② Safe-Operation Lines

The safe-operation line is the line for the permissible torque, which is restricted by the permissible temperature of the motor. Within the safe-operation line, the motor can be used in continuous rating (30 minutes rating for reversible motor).

Since the safe-operation line is determined in the most stringent conditions with no heat conductivity or load, the motor can be used beyond the safe-operation line, depending on the installation conditions of the motor.

Note

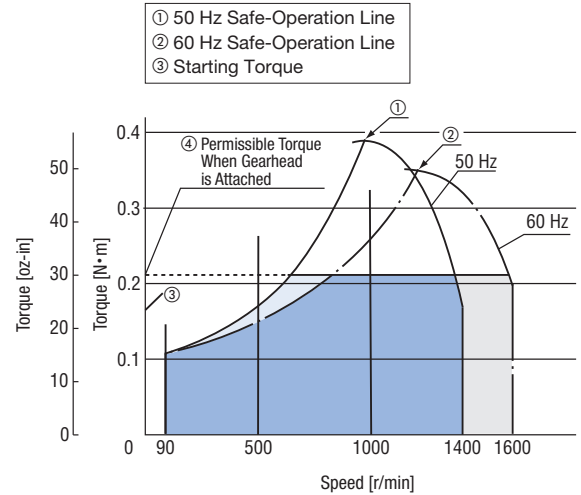
● When using beyond the safe-operation line, make sure the temperature of the motor case is 90°C (194°F) or less. If used when the temperature is over 90°C (194°F), the motor's overheat protection device will activate.

③ Starting Torque

This represents the magnitude of the torque required to start the motor.

④ Permissible Torque When Gearhead is Attached

This is the permissible motor torque when using the motor with the gearhead attached. When the gearhead is attached, the permissible torque varies with the gear ratio. Therefore, use it in a way that does not exceed the values in the list of permissible torque (page 10).



Speed – Torque Characteristics (Reference Values)

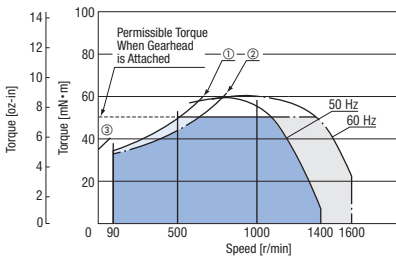
① 50 Hz Safe-Operation Line ② 60 Hz Safe-Operation Line ③ Starting Torque

● The characteristics for each output are typical characteristics. (Motor only)

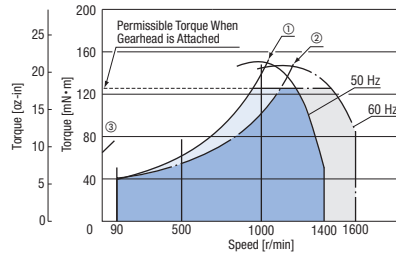
The permissible torque and starting torque for the motor are different for each voltage. Check the combined specifications and permissible torque with the gearhead attached.

● Induction Motors Continuous Rating

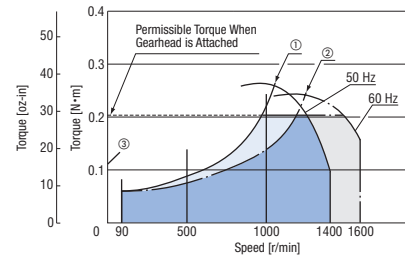
◇ 6 W (1/125 HP)



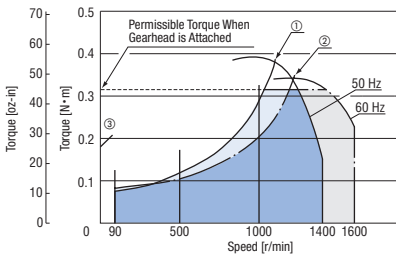
◇ 15 W (1/50 HP)



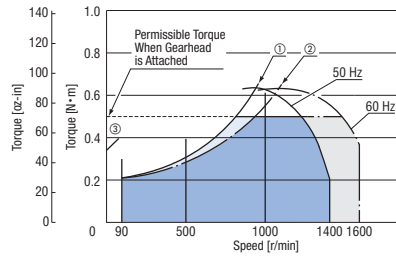
◇ 25 W (1/30 HP)



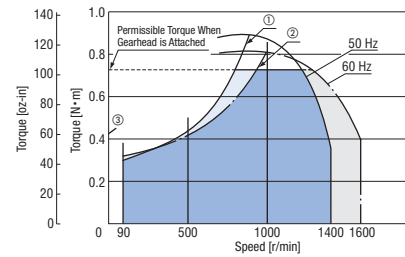
◇ 40 W (1/19 HP)



◇ 60 W (1/12 HP)

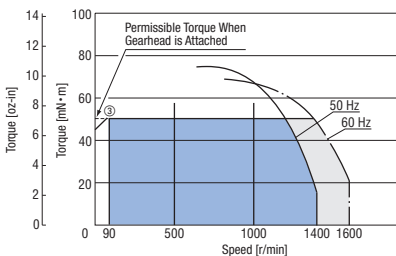


◇ 90 W (1/8 HP)

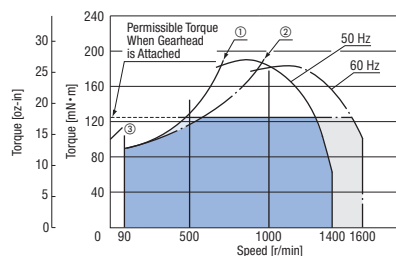


● Reversible Motors 30 Minutes Rating

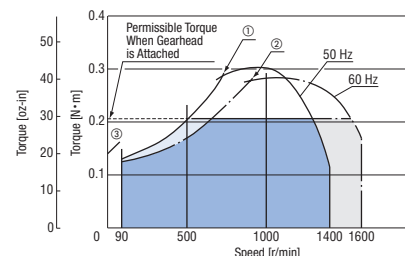
◇ 6 W (1/125 HP)



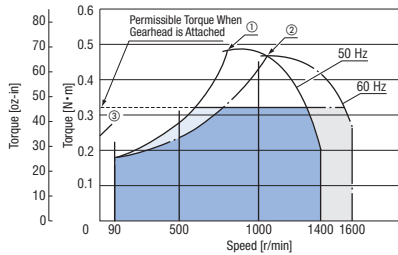
◇ 15 W (1/50 HP)



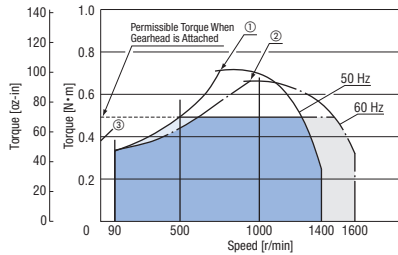
◇ 25 W (1/30 HP)



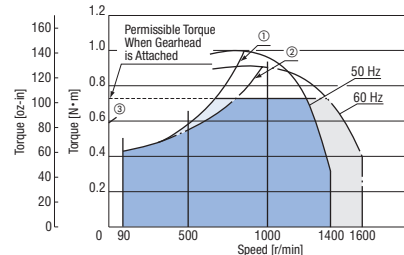
◇ 40 W (1/19 HP)



◇ 60 W (1/12 HP)



◇ 90 W (1/8 HP)



Variable Speed Range When Gearhead is Attached

● V Series

Unit = r/min

Series	V Series																					
Gear Ratio	5	6	7.5	9	12.5	15	18	25	30	36	50	60	75	90	100	120	150	180	250	300	360	
High Speed	50 Hz	280	233	187	156	112	93	78	56	47	39	28	23	19	16	14	12	9	8	6	5	4
	60 Hz	320	267	213	178	128	107	89	64	53	44	32	27	21	18	16	13	11	8.9	6.4	5.3	4.4
Low Speed		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	0.4	0.3	0.3

Gearmotor – Torque Table

● A colored background () indicates gear shaft rotation in the same direction as the motor shaft, while the others rotate in the opposite direction.

● V Series Induction Motors

◇ Single-Phase 110/115 VAC

Unit = N·m (lb-in)

Model	Gear Ratio	5	6	7.5	9	12.5	15	18	25	30	36	50	60	75	90	100	120	150	180	250	300	360
Combination Type	Motor Speed																					
VSI206A2-□U	1200 r/min	0.23 (2.0)	0.27 (2.3)	0.34 (3.0)	0.41 (3.6)	0.56 (4.9)	0.68 (6.0)	0.81 (7.1)	1.1 (9.7)	1.3 (11.5)	1.5 (13.2)	2.2 (19.4)	2.6 (23)	3.2 (28)	3.9 (34)	4.3 (38)	5.2 (46)	6 (53)	6 (53)	6 (53)	6 (53)	6 (53)
	90 r/min	0.15 (1.32)	0.18 (1.59)	0.23 (2.0)	0.28 (2.4)	0.38 (3.3)	0.46 (4.0)	0.55 (4.8)	0.77 (6.8)	0.88 (7.7)	1.1 (9.7)	1.5 (13.2)	1.8 (15.9)	2.2 (19.4)	2.6 (23)	2.9 (25)	3.5 (30)	4.1 (36)	5.0 (44)	6 (53)	6 (53)	6 (53)
VSI315A2-□U	1200 r/min	0.56 (4.9)	0.68 (6.0)	0.84 (7.4)	1.0 (8.8)	1.4 (12.3)	1.7 (15.0)	2.0 (17.7)	2.8 (24)	3.2 (28)	3.9 (34)	5.4 (47)	6.5 (57)	8.1 (71)	9.7 (85)	10 (88)	10 (88)	10 (88)	10 (88)	10 (88)	10 (88)	10 (88)
	90 r/min	0.19 (1.68)	0.23 (2.0)	0.28 (2.4)	0.34 (3.0)	0.47 (4.1)	0.57 (5.0)	0.68 (6.0)	0.95 (8.4)	1.1 (9.7)	1.3 (11.5)	1.8 (15.9)	2.2 (19.4)	2.7 (23)	3.3 (29)	3.6 (31)	4.3 (38)	5.1 (45)	6.1 (53)	8.5 (75)	10 (88)	10 (88)
VSI425A2-□U	1200 r/min	0.83 (7.3)	1.0 (8.8)	1.2 (10.6)	1.5 (13.2)	2.1 (18.5)	2.5 (22)	3.0 (26)	4.2 (37)	4.8 (42)	5.7 (50)	8.0 (70)	9.5 (84)	11.9 (105)	14.3 (126)	15.9 (140)	16 (141)	16 (141)	16 (141)	16 (141)	16 (141)	16 (141)
	90 r/min	0.23 (2.0)	0.27 (2.3)	0.34 (3.0)	0.41 (3.6)	0.56 (4.9)	0.68 (6.0)	0.81 (7.1)	1.1 (9.7)	1.3 (11.5)	1.5 (13.2)	2.2 (19.4)	2.6 (23)	3.2 (28)	3.9 (34)	4.3 (38)	5.2 (46)	6.1 (53)	7.3 (64)	10.1 (89)	12.2 (107)	14.6 (129)
VSI540A2-□U	1200 r/min	1.0 (8.8)	1.2 (10.6)	1.5 (13.2)	1.8 (15.9)	2.5 (22)	3.0 (26)	3.6 (31)	4.8 (42)	5.8 (51)	7.0 (61)	9.7 (85)	11.6 (102)	14.5 (128)	17.4 (153)	19.4 (171)	21.9 (193)	27.3 (240)	30 (260)	30 (260)	30 (260)	30 (260)
	90 r/min	0.30 (2.6)	0.36 (3.1)	0.45 (3.9)	0.54 (4.7)	0.75 (6.6)	0.90 (7.9)	1.1 (9.7)	1.4 (12.3)	1.7 (15.0)	2.1 (18.5)	2.9 (25)	3.5 (30)	4.3 (38)	5.2 (46)	5.8 (51)	6.5 (57)	8.1 (71)	9.8 (86)	13.6 (120)	16.3 (144)	—
VSI560A-□U	1200 r/min	2.2 (19.4)	2.6 (23)	3.3 (29)	4.0 (35)	5.5 (48)	6.6 (58)	7.9 (69)	10.5 (92)	12.6 (111)	15.2 (134)	21.1 (186)	25.3 (220)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)
	90 r/min	0.95 (8.4)	1.1 (9.7)	1.4 (12.3)	1.7 (15.0)	2.4 (21)	2.8 (24)	3.4 (30)	4.5 (39)	5.4 (47)	6.5 (57)	9.0 (79)	10.8 (95)	13.5 (119)	16.3 (144)	18.1 (160)	20.4 (180)	25.5 (220)	30 (260)	30 (260)	30 (260)	30 (260)
VSI590A-□U	1200 r/min	3.3 (29)	3.9 (34)	4.9 (43)	5.9 (52)	8.2 (72)	9.9 (87)	11.3 (100)	15.7 (138)	18.8 (166)	22.6 (200)	31.4 (270)	37.7 (330)	40 (350)	40 (350)	40 (350)	40 (350)	40 (350)	40 (350)	—	—	—
	90 r/min	0.95 (8.4)	1.1 (9.7)	1.4 (12.3)	1.7 (15.0)	2.4 (21)	2.8 (24)	3.3 (29)	4.5 (39)	5.4 (47)	6.5 (57)	9.0 (79)	10.8 (95)	12.8 (113)	15.3 (135)	17.0 (150)	20.4 (180)	25.5 (220)	30.6 (270)	—	—	—

◇ Single-Phase 220/230 VAC

Unit = N·m (lb·in)

Model		Gear Ratio		5	6	7.5	9	12.5	15	18	25	30	36	50	60	75	90	100	120	150	180	250	300	360	
Combination Type		Motor Speed																							
VSI206C2-□E	1200 r/min	220 VAC	0.16	0.19	0.24	0.29	0.41	0.49	0.58	0.81	0.93	1.1	1.5	1.9	2.3	2.8	3.1	3.7	4.4	5.2	6	6	6	6	
		50 Hz	(1.41)	(1.68)	(2.1)	(2.5)	(3.6)	(4.3)	(5.1)	(7.1)	(8.2)	(9.7)	(13.2)	(16.8)	(20)	(24)	(27)	(32)	(38)	(46)	(53)	(53)	(53)	(53)	
		230 VAC	0.18	0.22	0.27	0.32	0.45	0.54	0.65	0.90	1.0	1.2	1.7	2.1	2.6	3.1	3.4	4.1	4.9	5.8	6	6	6	6	
	50 Hz	(1.59)	(1.94)	(2.3)	(2.8)	(3.9)	(4.7)	(5.7)	(7.9)	(8.8)	(10.6)	(15.0)	(18.5)	(23)	(27)	(30)	(36)	(43)	(51)	(53)	(53)	(53)	(53)		
	60 Hz	0.23	0.27	0.34	0.41	0.56	0.68	0.81	1.1	1.3	1.5	2.2	2.6	3.2	3.9	4.3	5.2	6	6	6	6	6	6	6	
	2.0	(2.3)	(3.0)	(3.6)	(4.9)	(6.0)	(7.1)	(9.7)	(11.5)	(13.2)	(19.4)	(23)	(28)	(34)	(38)	(46)	(53)	(53)	(53)	(53)	(53)	(53)	(53)	(53)	
90 r/min	0.15	0.18	0.22	0.27	0.37	0.45	0.53	0.74	0.85	1.0	1.4	1.7	2.1	2.6	2.8	3.4	4.0	4.8	6	6	6	6	6		
	(1.32)	(1.59)	(1.94)	(2.3)	(3.2)	(3.9)	(4.6)	(6.5)	(7.5)	(8.8)	(12.3)	(15.0)	(18.5)	(23)	(23)	(30)	(35)	(42)	(42)	(53)	(53)	(53)	(53)		
VSI315C2-□E	1200 r/min	220 VAC	0.50	0.59	0.74	0.89	1.2	1.5	1.8	2.5	2.8	3.4	4.7	5.7	7.1	8.5	9.5	10	10	10	10	10	10	10	
		50 Hz	(4.4)	(5.2)	(6.5)	(7.8)	(10.6)	(13.2)	(15.9)	(22)	(24)	(30)	(41)	(50)	(62)	(75)	(84)	(88)	(88)	(88)	(88)	(88)	(88)	(88)	
		230 VAC	0.52	0.62	0.78	0.93	1.3	1.6	1.9	2.6	3.0	3.6	4.9	5.9	7.4	8.9	9.9	10	10	10	10	10	10	10	
	50 Hz	(4.6)	(5.4)	(6.9)	(8.2)	(11.5)	(14.1)	(16.8)	(23)	(26)	(31)	(43)	(52)	(65)	(78)	(87)	(88)	(88)	(88)	(88)	(88)	(88)	(88)	(88)	
	60 Hz	0.56	0.68	0.84	1.0	1.4	1.7	2.0	2.8	3.2	3.9	5.4	6.5	8.1	9.7	10	10	10	10	10	10	10	10	10	
	(4.9)	(6.0)	(7.4)	(8.8)	(12.3)	(15.0)	(17.7)	(24)	(28)	(34)	(47)	(57)	(71)	(85)	(88)	(88)	(88)	(88)	(88)	(88)	(88)	(88)	(88)	(88)	
90 r/min	0.17	0.21	0.26	0.31	0.43	0.51	0.62	0.86	0.98	1.2	1.6	2.0	2.5	2.9	3.3	3.9	4.6	5.5	7.7	9.2	10	10	10		
	(1.59)	(1.85)	(2.3)	(2.7)	(3.8)	(4.5)	(5.4)	(8.6)	(9.8)	(12.7)	(15.7)	(20)	(25)	(29)	(34)	(40)	(48)	(58)	(68)	(81)	(92)	(103)	(103)		
VSI425C2-□E	1200 r/min	50 Hz	0.92	1.1	1.4	1.7	2.3	2.8	3.3	4.6	5.3	6.3	8.8	10.6	13.2	15.9	16	16	16	16	16	16	16	16	
		220 VAC	0.72	0.86	1.1	1.3	1.8	2.2	2.6	3.6	4.1	5.0	6.9	8.3	10.3	12.4	13.8	16	16	16	16	16	16	16	
		60 Hz	(6.3)	(7.6)	(9.7)	(11.5)	(15.9)	(19.4)	(23)	(31)	(36)	(44)	(61)	(73)	(91)	(109)	(122)	(141)	(141)	(141)	(141)	(141)	(141)	(141)	(141)
	230 VAC	0.68	0.81	1.0	1.2	1.7	2.0	2.4	3.4	3.9	4.6	6.5	7.7	9.7	11.6	12.9	15.5	16	16	16	16	16	16	16	
	60 Hz	(6.0)	(7.1)	(8.8)	(10.6)	(15.0)	(17.7)	(21)	(30)	(34)	(40)	(57)	(68)	(85)	(102)	(114)	(137)	(141)	(141)	(141)	(141)	(141)	(141)	(141)	
	90 r/min	0.18	0.22	0.27	0.32	0.45	0.54	0.65	0.90	1.0	1.2	1.7	2.1	2.6	3.1	3.4	4.1	4.9	5.8	8.1	9.7	11.7	11.7	11.7	
(1.59)		(1.94)	(2.3)	(2.8)	(3.9)	(4.7)	(5.7)	(8.8)	(10.6)	(15.0)	(18.5)	(23)	(27)	(30)	(36)	(43)	(51)	(58)	(71)	(85)	(85)	(85)	(85)		
VSI540C2-□E	1200 r/min	220 VAC	1.4	1.6	2.0	2.4	3.4	4.1	4.9	6.5	7.7	9.3	12.9	15.5	19.4	23.2	25.8	29.2	30	30	30	30	30	30	
		50 Hz	(12.3)	(14.1)	(17.7)	(21)	(30)	(36)	(43)	(57)	(68)	(82)	(114)	(137)	(171)	(200)	(220)	(250)	(260)	(260)	(260)	(260)	(260)	(260)	—
		220 VAC	1.3	1.5	1.9	2.3	3.2	3.8	4.5	6.0	7.2	8.7	12.0	14.4	18.1	21.7	24.1	27.2	30	30	30	30	30	30	30
	60 Hz	(11.5)	(13.2)	(16.8)	(20)	(28)	(33)	(39)	(53)	(63)	(76)	(106)	(127)	(160)	(192)	(210)	(240)	(260)	(260)	(260)	(260)	(260)	(260)	(260)	—
	230 VAC	1.4	1.7	2.2	2.6	3.6	4.3	5.2	6.9	8.3	9.9	13.8	16.5	20.6	24.8	27.5	30	30	30	30	30	30	30	30	
	50 Hz	(12.3)	(15.0)	(19.4)	(23)	(31)	(38)	(46)	(61)	(73)	(87)	(122)	(146)	(182)	(210)	(240)	(260)	(260)	(260)	(260)	(260)	(260)	(260)	(260)	—
230 VAC	1.2	1.4	1.8	2.1	2.9	3.5	4.2	5.6	6.7	8.0	11.2	13.4	16.8	20.1	22.4	25.3	30	30	30	30	30	30	30		
60 Hz	(10.6)	(12.3)	(15.9)	(18.5)	(25)	(30)	(37)	(49)	(59)	(70)	(99)	(118)	(148)	(177)	(198)	(220)	(260)	(260)	(260)	(260)	(260)	(260)	(260)	—	
90 r/min	220 VAC	0.34	0.41	0.51	0.61	0.84	1.0	1.2	1.6	1.9	2.3	3.2	3.9	4.8	5.8	6.5	7.3	9.1	10.9	15.2	18.2	—	—		
	(3.0)	(3.6)	(4.5)	(5.3)	(7.4)	(8.8)	(10.6)	(14.1)	(16.8)	(20)	(28)	(34)	(42)	(51)	(57)	(64)	(80)	(96)	(134)	(161)	—	—	—		
230 VAC	0.32	0.38	0.47	0.57	0.79	0.95	1.1	1.5	1.8	2.2	3.0	3.6	4.5	5.4	6.0	6.8	8.5	10.2	14.2	17.0	—	—			
(2.8)	(3.3)	(4.1)	(5.0)	(6.9)	(8.4)	(9.7)	(13.2)	(15.9)	(19.4)	(26)	(31)	(39)	(47)	(53)	(60)	(75)	(90)	(125)	(150)	—	—	—	—		
VSI560C-□E	1200 r/min	220 VAC	2.1	2.5	3.1	3.7	5.2	6.2	7.5	9.9	11.9	14.2	19.8	23.7	29.7	30	30	30	30	30	30	30	30	30	
		50 Hz	(18.5)	(22)	(27)	(32)	(46)	(54)	(66)	(87)	(105)	(125)	(175)	(200)	(260)	(260)	(260)	(260)	(260)	(260)	(260)	(260)	(260)	(260)	—
		220 VAC	2.2	2.6	3.3	4.0	5.5	6.6	7.9	10.5	12.6	15.2	21.1	25.3	30	30	30	30	30	30	30	30	30	30	
	60 Hz	(19.4)	(23)	(29)	(35)	(48)	(58)	(69)	(92)	(111)	(134)	(186)	(220)	(260)	(260)	(260)	(260)	(260)	(260)	(260)	(260)	(260)	(260)	(260)	
	230 VAC	0.90	1.1	1.4	1.6	2.3	2.7	3.2	4.3	5.2	6.2	8.6	10.3	12.9	15.5	17.2	19.4	24.3	29.2	30	30	30	30		
	50 Hz	(7.9)	(9.7)	(12.3)	(14.1)	(20)	(23)	(28)	(38)	(46)	(54)	(76)	(91)	(114)	(137)	(152)	(171)	(210)	(250)	(260)	(260)	(260)	(260)	(260)	
90 r/min	220 VAC	0.97	1.2	1.5	1.7	2.4	2.9	3.5	4.6	5.5	6.7	9.2	11.1	13.9	16.6	18.5	20.9	26.1	30	30	30	30	30		
	60 Hz	(8.5)	(10.6)	(13.2)	(15.0)	(21)	(25)	(30)	(40)	(48)	(59)	(81)	(98)	(123)	(146)	(163)	(184)	(230)	(260)	(260)	(260)	(260)	(260)		
	230 VAC	0.77	0.92	1.1	1.4	1.9	2.3	2.8	3.7	4.4	5.3	7.3	8.8	11.0	13.2	14.6	16.5	20.7	24.8	30	30	30	30		
50 Hz	(6.8)	(8.1)	(9.7)	(12.3)	(16.8)	(20)	(24)	(32)	(38)	(46)	(64)	(77)	(97)	(116)	(129)	(146)	(183)	(210)	(260)	(260)	(260)	(260)	(260)		
230 VAC	0.81	0.97	1.2	1.5	2.0	2.4	2.9	3.9	4.6	5.6	7.7	9.3	11.6	13.9	15.5	17.5	21.9	26.2	30	30	30	30			
60 Hz	(7.1)	(8.5)	(10.6)	(13.2)	(17.7)	(21)	(25)	(34)	(40)	(49)	(68)	(82)	(102)	(123)	(137)	(154)	(193)	(230)	(260)	(260)	(260)	(260)	(260)		
VSI590C-□E	1200 r/min	220 VAC	3.2	3.9	4.9	5.8	8.1	9.7	11.1	15.5	18.6	22.3	31.0	37.2	40	40	40	40	40	40	40	40	40		
		50 Hz	(28)	(34)	(43)	(51)	(71)	(85)	(98)	(137)	(164)	(197)	(270)	(320)	(350)	(350)	(350)	(350)	(350)	(350)	(350)	(350)	(350)	(350)	
		220 VAC	3.3	3.9	4.9	5.9	8.2	9.9	11.3	15.7	18.8	22.6	31.4	37.7	40	40	40	40	40	40	40	40	40	40	
	60 Hz	(29)	(34)	(43)	(52)	(72)	(87)	(100)	(138)	(166)	(200)	(270)	(330)	(350)	(350)	(350)	(350)	(350)	(350)	(350)	(350)	(350)	(350)		
	230 VAC	1.2	1.4	1.8	2.1	2.9	3.5	4.0	5.6	6.7	8.0	11.2	13.4	15.8	19.0	21.1	25.3	31.6	37.9	—	—	—	—		
	50 Hz	(10.6)	(12.3)	(15.9)	(18.5)	(25)	(30)	(35)	(49)	(59)	(70)	(99)	(118)	(139)	(168)	(186)	(220)	(270)	(330)	—	—	—	—		
90 r/min	230 VAC	1.1	1.3	1.7	2.0	2.8	3.3	3.8	5.3	6.3	7.6	10.5	12.6	14.9	17.9	19.8	23.8	29.8	35.7	—	—	—	—		
	50 Hz	(9.7)	(11.5)	(15.0)	(17.7)	(24)	(29)	(33)	(46)	(55)	(67)	(92)	(111)	(131)	(158)	(175)	(210)	(260)	(310)	—	—	—	—		
	220 VAC	1.3	1.5	1.9	2.3	3.2	3.8	4.3	6.0	7.2	8.7	12.0	14.4	17.0	20.4	22.7	27.2	34.0	40	—	—	—	—		
60 Hz	(11.5)	(13.2)	(16.8)	(20)	(28)	(33)	(38)	(53)	(63)	(76)	(106)	(127)	(150)	(180)	(200)	(240)	(300)	(350)	—	—	—	—			

● V Series Reversible Motors

◇ Single-Phase 110/115 VAC

Unit = N·m (lb·in)

Model	Gear Ratio	5 6 7.5 9 12.5 15 18 25 30 36 50 60 75 90 100 120 150 180 250 300 360																				
		Combination Type Motor Speed																				
VSR206A2-□U	1200 r/min	0.23 (2.0)	0.27 (2.3)	0.34 (3.0)	0.41 (3.6)	0.56 (4.9)	0.68 (6.0)	0.81 (7.1)	1.1 (9.7)	1.3 (11.5)	1.5 (13.2)	2.2 (19.4)	2.6 (23)	3.2 (28)	3.9 (34)	4.3 (38)	5.2 (46)	6 (53)	6 (53)	6 (53)	6 (53)	6 (53)
	90 r/min	0.23 (2.0)	0.27 (2.3)	0.34 (3.0)	0.41 (3.6)	0.56 (4.9)	0.68 (6.0)	0.81 (7.1)	1.1 (9.7)	1.3 (11.5)	1.5 (13.2)	2.2 (19.4)	2.6 (23)	3.2 (28)	3.9 (34)	4.3 (38)	5.2 (46)	6 (53)	6 (53)	6 (53)	6 (53)	6 (53)
VSR315A2-□U	1200 r/min	0.56 (4.9)	0.68 (6.0)	0.84 (7.4)	1.0 (8.8)	1.4 (12.3)	1.7 (15.0)	2.0 (17.7)	2.8 (24)	3.2 (28)	3.9 (34)	5.4 (47)	6.5 (57)	8.1 (71)	9.7 (85)	10 (88)	10 (88)	10 (88)	10 (88)	10 (88)	10 (88)	10 (88)
	90 r/min	0.38 (3.3)	0.46 (4.0)	0.57 (5.0)	0.69 (6.1)	0.96 (8.4)	1.1 (9.7)	1.4 (12.3)	1.9 (16.8)	2.2 (19.4)	2.6 (23)	3.7 (32)	4.4 (38)	5.5 (48)	6.6 (58)	7.3 (64)	8.8 (77)	10 (118)	10 (118)	10 (118)	10 (118)	10 (118)
VSR425A2-□U	1200 r/min	0.92 (8.1)	1.1 (9.7)	1.4 (12.3)	1.7 (15.0)	2.3 (20)	2.8 (24)	3.3 (29)	4.6 (40)	5.3 (46)	6.3 (55)	8.8 (77)	10.6 (93)	13.2 (116)	15.9 (140)	16 (141)	16 (141)	16 (141)	16 (141)	16 (141)	16 (141)	16 (141)
	90 r/min	0.50 (4.4)	0.59 (5.2)	0.74 (6.5)	0.89 (7.8)	1.2 (10.6)	1.5 (13.2)	1.8 (15.9)	2.5 (22)	2.8 (24)	3.4 (30)	4.7 (41)	5.7 (50)	7.1 (62)	8.5 (75)	9.5 (84)	11.4 (100)	13.4 (118)	16 (141)	16 (141)	16 (141)	16 (141)
VSR540A2-□U	1200 r/min	1.4 (12.3)	1.7 (15.0)	2.2 (19.4)	2.6 (23)	3.6 (31)	4.3 (38)	5.2 (46)	6.9 (61)	8.3 (73)	9.9 (87)	13.8 (122)	16.5 (146)	20.6 (182)	24.8 (210)	27.5 (240)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)
	90 r/min	0.70 (6.1)	0.84 (7.4)	1.0 (8.8)	1.3 (11.5)	1.7 (15.0)	2.1 (18.5)	2.5 (22)	3.3 (29)	4.0 (35)	4.8 (42)	6.7 (59)	8.0 (70)	10.0 (88)	12.0 (106)	13.3 (117)	15.1 (133)	18.8 (166)	22.6 (200)	30 (260)	30 (260)	30 (260)
VSR560A-□U	1200 r/min	2.2 (19.4)	2.6 (23)	3.3 (29)	4.0 (35)	5.5 (48)	6.6 (58)	7.9 (69)	10.5 (92)	12.6 (111)	15.2 (134)	21.1 (186)	25.3 (220)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)
	90 r/min	1.2 (10.6)	1.5 (13.2)	1.8 (15.9)	2.2 (20)	3.0 (26)	3.6 (31)	4.4 (38)	5.8 (51)	7.0 (61)	8.4 (74)	11.6 (102)	13.9 (123)	17.4 (153)	20.9 (184)	23.2 (200)	26.2 (230)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)
VSR590A-□U	1200 r/min	3.3 (29)	3.9 (34)	4.9 (43)	5.9 (52)	8.2 (72)	9.9 (87)	11.3 (100)	15.7 (138)	18.8 (166)	22.6 (200)	31.4 (270)	37.7 (330)	40 (350)	40 (350)	40 (350)	40 (350)	40 (350)	40 (350)	40 (350)	40 (350)	40 (350)
	90 r/min	1.4 (12.3)	1.7 (15.0)	2.2 (19.4)	2.6 (23)	3.6 (31)	4.3 (38)	5.0 (44)	6.9 (61)	8.3 (73)	9.9 (87)	13.8 (122)	16.5 (146)	19.4 (171)	23.3 (200)	25.9 (220)	31.1 (270)	38.9 (340)	40 (350)	40 (350)	40 (350)	40 (350)

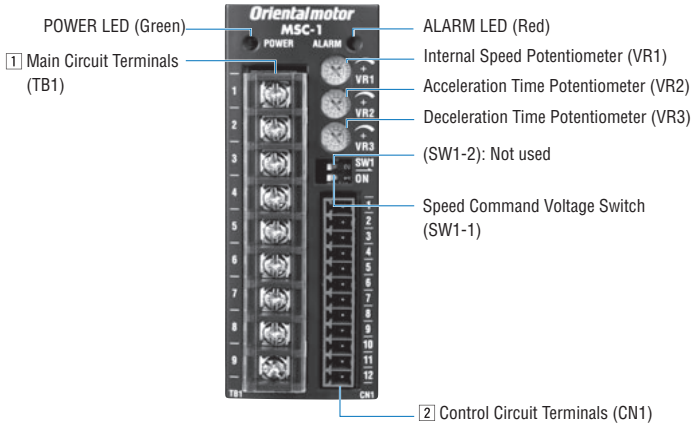
◇ Single-Phase 220/230 VAC

Unit = N·m (lb·in)

Model	Gear Ratio	5 6 7.5 9 12.5 15 18 25 30 36 50 60 75 90 100 120 150 180 250 300 360																					
		Combination Type Motor Speed																					
VSR206C2-□E	1200 r/min	220 VAC	0.19 (1.68)	0.23 (2.0)	0.28 (2.4)	0.34 (3.0)	0.47 (4.1)	0.57 (5.0)	0.68 (6.0)	0.95 (8.4)	1.1 (9.7)	1.3 (11.5)	1.8 (15.9)	2.2 (19.4)	2.7 (23)	3.3 (29)	3.6 (31)	4.3 (38)	5.1 (45)	6 (53)	6 (53)	6 (53)	6 (53)
		50 Hz	0.21 (1.85)	0.25 (2.2)	0.31 (2.7)	0.37 (3.2)	0.52 (4.6)	0.62 (5.4)	0.75 (6.6)	1.0 (8.8)	1.2 (10.6)	1.4 (12.3)	2.0 (17.7)	2.4 (21)	3.0 (26)	3.6 (31)	4.0 (35)	4.7 (41)	5.6 (49)	6 (53)	6 (53)	6 (53)	6 (53)
		230 VAC	0.21 (1.85)	0.25 (2.2)	0.31 (2.7)	0.37 (3.2)	0.52 (4.6)	0.62 (5.4)	0.75 (6.6)	1.0 (8.8)	1.2 (10.6)	1.4 (12.3)	2.0 (17.7)	2.4 (21)	3.0 (26)	3.6 (31)	4.0 (35)	4.7 (41)	5.6 (49)	6 (53)	6 (53)	6 (53)	6 (53)
		50 Hz	0.23 (2.0)	0.27 (2.3)	0.34 (3.0)	0.41 (3.6)	0.56 (4.9)	0.68 (6.0)	0.81 (7.1)	1.1 (9.7)	1.3 (11.5)	1.5 (13.2)	2.2 (19.4)	2.6 (23)	3.2 (28)	3.9 (34)	4.3 (38)	5.2 (46)	6 (53)	6 (53)	6 (53)	6 (53)	6 (53)
VSR315C2-□E	90 r/min	60 Hz	0.23 (2.0)	0.27 (2.3)	0.34 (3.0)	0.41 (3.6)	0.56 (4.9)	0.68 (6.0)	0.81 (7.1)	1.1 (9.7)	1.3 (11.5)	1.5 (13.2)	2.2 (19.4)	2.6 (23)	3.2 (28)	3.9 (34)	4.3 (38)	5.2 (46)	6 (53)	6 (53)	6 (53)	6 (53)	
		220 VAC	0.23 (2.0)	0.27 (2.3)	0.34 (3.0)	0.41 (3.6)	0.56 (4.9)	0.68 (6.0)	0.81 (7.1)	1.1 (9.7)	1.3 (11.5)	1.5 (13.2)	2.2 (19.4)	2.6 (23)	3.2 (28)	3.9 (34)	4.3 (38)	5.2 (46)	6 (53)	6 (53)	6 (53)	6 (53)	
VSR425C2-□E	1200 r/min	230 VAC	0.56 (4.9)	0.68 (6.0)	0.84 (7.4)	1.0 (8.8)	1.4 (12.3)	1.7 (15.0)	2.0 (17.7)	2.8 (24)	3.2 (28)	3.9 (34)	5.4 (47)	6.5 (57)	8.1 (71)	9.7 (85)	10 (88)	10 (88)	10 (88)	10 (88)	10 (88)	10 (88)	10 (88)
		60 Hz	0.56 (4.9)	0.68 (6.0)	0.84 (7.4)	1.0 (8.8)	1.4 (12.3)	1.7 (15.0)	2.0 (17.7)	2.8 (24)	3.2 (28)	3.9 (34)	5.4 (47)	6.5 (57)	8.1 (71)	9.7 (85)	10 (88)	10 (88)	10 (88)	10 (88)	10 (88)	10 (88)	10 (88)
VSR540C2-□E	90 r/min	220 VAC	0.39 (3.4)	0.47 (4.1)	0.59 (5.2)	0.70 (6.1)	0.98 (8.6)	1.2 (10.6)	1.4 (12.3)	2.0 (17.7)	2.2 (19.4)	2.7 (23)	3.7 (32)	4.5 (39)	5.6 (49)	6.7 (59)	7.5 (66)	9.0 (79)	10 (88)	10 (88)	10 (88)	10 (88)	10 (88)
		50 Hz	0.92 (8.1)	1.1 (9.7)	1.4 (12.3)	1.7 (15.0)	2.3 (20)	2.8 (24)	3.3 (29)	4.6 (40)	5.3 (46)	6.3 (55)	8.8 (77)	10.6 (93)	13.2 (116)	15.9 (140)	16 (141)	16 (141)	16 (141)	16 (141)	16 (141)	16 (141)	16 (141)
		60 Hz	0.52 (4.6)	0.62 (5.4)	0.78 (6.9)	0.93 (8.2)	1.3 (11.5)	1.6 (14.1)	1.9 (16.8)	2.3 (20)	2.6 (23)	3.1 (26)	3.6 (31)	4.9 (43)	5.9 (52)	7.4 (65)	8.9 (78)	9.9 (87)	11.9 (105)	14.0 (123)	16 (141)	16 (141)	16 (141)
		230 VAC	0.50 (4.4)	0.59 (5.2)	0.74 (6.5)	0.89 (7.8)	1.2 (10.6)	1.5 (13.2)	1.8 (15.9)	2.5 (22)	2.8 (24)	3.4 (30)	4.7 (41)	5.7 (50)	7.1 (62)	8.5 (75)	9.5 (84)	11.4 (100)	13.4 (118)	16 (141)	16 (141)	16 (141)	16 (141)
VSR560C-□E	1200 r/min	220 VAC	1.4 (12.3)	1.7 (15.0)	2.2 (19.4)	2.6 (23)	3.6 (31)	4.3 (38)	5.2 (46)	6.9 (61)	8.3 (73)	9.9 (87)	13.8 (122)	16.5 (146)	20.6 (182)	24.8 (210)	27.5 (240)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)	
		50 Hz	0.81 (7.1)	0.97 (8.5)	1.2 (10.6)	1.5 (13.2)	2.0 (17.7)	2.4 (21)	2.9 (25)	3.9 (34)	4.6 (40)	5.6 (49)	7.7 (68)	9.3 (82)	11.6 (102)	13.9 (123)	15.5 (137)	17.5 (154)	21.9 (193)	26.2 (230)	30 (260)	30 (260)	30 (260)
VSR590C-□E	90 r/min	60 Hz	0.77 (6.8)	0.92 (8.1)	1.1 (9.7)	1.4 (12.3)	1.9 (16.8)	2.3 (20)	2.8 (24)	3.7 (32)	4.4 (38)	5.3 (46)	7.3 (64)	8.8 (77)	11.0 (97)	13.2 (116)	14.6 (129)	16.5 (146)	20.7 (183)	24.8 (210)	30 (260)	30 (260)	
		230 VAC	0.77 (6.8)	0.92 (8.1)	1.1 (9.7)	1.4 (12.3)	1.9 (16.8)	2.3 (20)	2.8 (24)	3.7 (32)	4.4 (38)	5.3 (46)	7.3 (64)	8.8 (77)	11.0 (97)	13.2 (116)	14.6 (129)	16.5 (146)	20.7 (183)	24.8 (210)	30 (260)	30 (260)	
VSR590C-□E	1200 r/min	220 VAC	2.2 (19.4)	2.6 (23)	3.3 (29)	4.0 (35)	5.5 (48)	6.6 (58)	7.9 (69)	10.5 (92)	12.6 (111)	15.2 (134)	21.1 (186)	25.3 (220)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)	
		50 Hz	1.3 (11.5)	1.5 (13.2)	1.9 (16.8)	2.3 (20)	3.2 (28)	3.8 (33)	4.5 (39)	6.0 (53)	7.2 (63)	8.7 (76)	12.0 (106)	14.4 (127)	18.1 (160)	21.7 (192)	24.1 (210)	27.2 (240)	30 (260)	30 (260)	30 (260)	30 (260)	
		60 Hz	3.0 (26)	3.6 (31)	4.5 (39)	5.4 (47)	7.5 (66)	9.0 (79)	10.4 (92)	14.4 (127)	17.3 (153)	20.7 (183)	28.8 (250)	34.6 (300)	40 (350)	40 (350)	40 (350)	40 (350)	40 (350)	40 (350)	40 (350)	40 (350)	
		230 VAC	3.3 (29)	3.9 (34)	4.9 (43)	5.9 (52)	8.2 (72)	9.9 (87)	11.3 (100)	15.7 (138)	18.8 (166)	22.6 (200)	31.4 (270)	37.7 (330)	40 (350)	40 (350)	40 (350)	40 (350)	40 (350)	40 (350)	40 (350)	40 (350)	40 (350)
VSR590C-□E	90 r/min	220 VAC	1.6 (14.1)	1.9 (16.8)	2.4 (21)	2.9 (25)	4.1 (36)	4.9 (43)	5.6 (49)	7.7 (68)	9.3 (82)	11.1 (98)	15.5 (137)	18.6 (164)	21.9 (193)	26.2 (230)	29.2 (250)	35.0 (300)	40 (350)	40 (350)	40 (350)	40 (350)	
		230 VAC	1.6 (14.1)	1.9 (16.8)	2.4 (21)	2.9 (25)	4.1 (36)	4.9 (43)	5.6 (49)	7.7 (68)	9.3 (82)	11.1 (98)	15.5 (137)	18.6 (164)	21.9 (193)	26.2 (230)	29.2 (250)	35.0 (300)	40 (350)	40 (350)	40 (350)	40 (350)	

Connection and Operation

Names and Functions of Speed Controller Parts



Name	Description
POWER LED (Green)	Lights while the AC power is supplied to the speed controller.
ALARM LED (Red)	Blinks when the alarm is invoked. The alarm output signal turns OFF (H level).
Internal Speed Potentiometer (VR1)	Sets the motor's speed.
Acceleration Time Potentiometer (VR2)	Sets the acceleration time at starting of motor.
Deceleration Time Potentiometer (VR3)	Sets the deceleration time at stopping of motor.
Speed Command Voltage Switch (SW1-1)	To set speeds using external DC voltage, set this switch to either 5 V or 10 V.
Control Circuit Terminals (CN1)	Connects the DC power supply for control (24 VDC) and the I/O signals.
Main Circuit Terminals (TB1)	Connects to the AC power supply, motor, tachogenerator, and capacitor.

1 Main Circuit Terminals (TB1)

Pin Number	Terminal Name
1	Tachogenerator connection terminal
2	
3	
4	Motor connection terminal
5	

Pin Number	Terminal Name
6	Capacitor connection terminal
7	
8	AC power supply connection terminal
9	

2 Control Circuit Terminals (CN1)

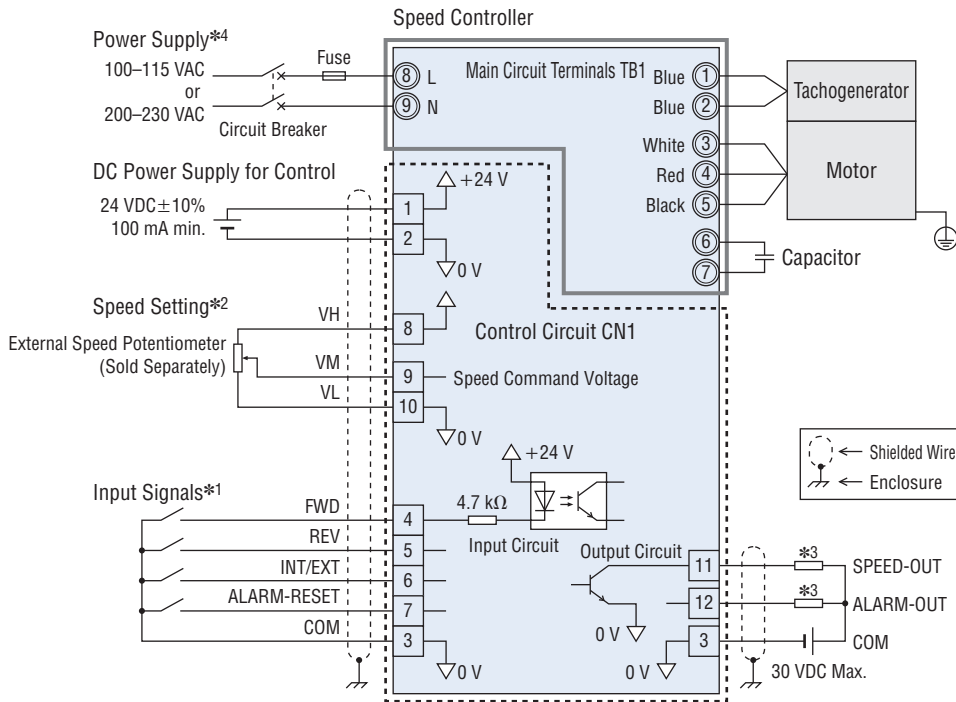
Pin Number	Signal	Signal Name	Description
1	Power supply for control	+24 V	Connects 24 VDC for the control circuit.
2		0 V (GND)	
3	Common	COM (GND)	I/O signal common
4	Input	FWD	The motor rotates in clockwise direction.
5		REV	The motor rotates in counterclockwise direction.
6		INT/EXT	Switches to internal or external speed potentiometer.
7		ALARM-RESET	Resets alarms
8	Input	VH	Connect when setting the speed externally.
9		VM	
10		VL (GND)	
11	Output	SPEED-OUT	12 pulses are output for each rotation of the motor output shaft.
12		ALARM-OUT	This signal is output when an alarm is generated (normally closed).

● Connection Diagram

The figure shows an example in which a **V** Series motor is connected and operated with contact switches such as relays and switches.

When operating the motor, be sure to connect the DC power supply for control.

For motors of 60 W (1/12 HP) or higher output, connect the lead wires for the fan (2 orange leads) to the AC power supply terminals (8 and 9 of TB1).



*1 Note that mechanical contacts, sink transistor or any other device connected to input signals should have a leak current of 1 mA or less.

*2 Refer to page 15 for methods for setting the speed.

*3 Insert a limiting resistor so that SPEED-OUT output is 10 mA or less, and ALARM-OUT output is 40 mA or less.

*4 The power-supply input for the power controller should be the same as the rated voltage of the motor connected.

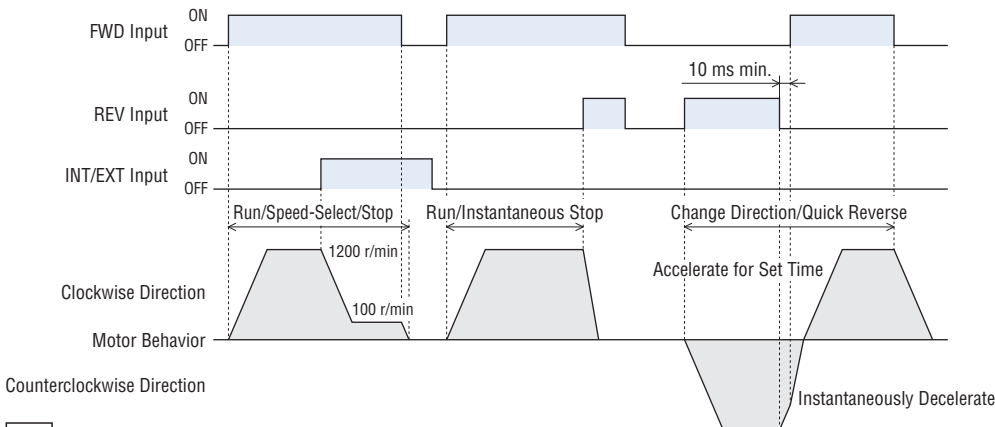
◇ Fuse Ratings

For overcurrent protection, make sure to insert a fuse in the power supply line.

Fuse Ratings	Single-Phase 100/110/115 VAC	216 Series (Littlefuse, Inc.) 10 A or equivalent
	Single-Phase 200/220/230 VAC	216 Series (Littlefuse, Inc.) 6.3 A or equivalent

● Timing Chart during Operation

The timing chart below shows an example of a 2-speed control operation, where the internal speed potentiometer is set to 1200 r/min, and the external speed potentiometer is set to 100 r/min.



- When the FWD input is turned ON, the motor rotates in clockwise direction, as viewed from the shaft end of the motor. When the REV input is turned ON, the motor rotates in counterclockwise direction, as viewed from the shaft end of the motor. If both FWD and REV inputs are turned ON simultaneously, the motor will stop instantaneously.

Note

- The duration of each signal in the ON state must be 10 ms or longer.
- When switching between FWD and REV inputs, hold for 10 ms min. between switching.

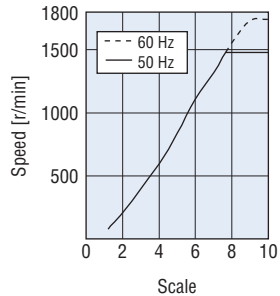
● Speed Setting Methods

The following 3 methods can be used for setting the speed. The setting speed range is 90~1400 r/min at 50 Hz, or 90~1600 r/min at 60 Hz.

◇ Internal Speed Potentiometer

When the dial on the internal speed potentiometer (VR1) is turned in the clockwise direction, the speed will be faster.

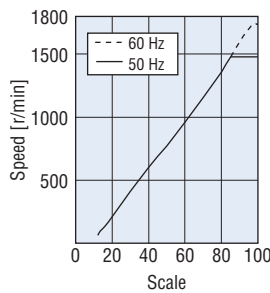
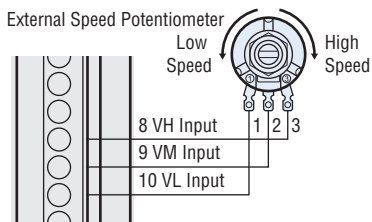
Factory setting: 0 r/min



Internal Speed Potentiometer—Speed Characteristics (Representative values)

◇ External Speed Potentiometer (Sold Separately)

By connecting the separately-sold external speed potentiometer (**PAVR-20KZ**) to CN1 and turning ON the INT/EXT input, the external speed potentiometer becomes effective. When the dial on the external speed potentiometer is turned in the clockwise direction, the speed will be faster.



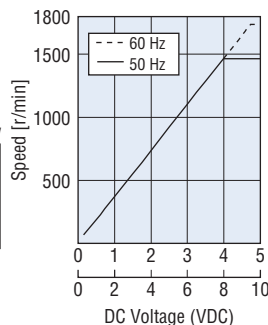
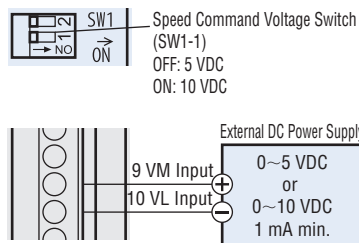
External Speed Potentiometer—Speed Characteristics (Representative values)

◇ External DC Voltage

Set the external DC voltage at 5 VDC or 10 VDC. Use the speed command voltage switch (SW1-1) to match it to the voltage you are using. To set it with the external DC voltage, turn ON the INT/EXT input.

Note

- Make sure that the voltage is set to the selected voltage (5 VDC or 10 VDC), and ensure the correct polarity when connecting.



External DC Voltage—Speed Characteristics (Representative values)

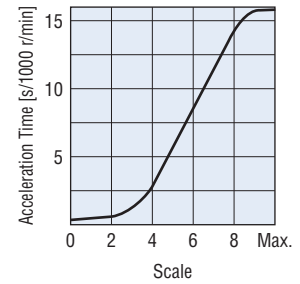
● Acceleration/Deceleration

You can adjust the acceleration/deceleration time when the motor starts, stops, and changes speed, so that no shock is applied to the load. This is set via the acceleration time potentiometer and the deceleration time potentiometer. The setting range is approximately 0.3~15 seconds (at 1000 r/min, with no inertial load). However, if the load inertia is large, the deceleration time cannot be set shorter than the time the motor would take to coast to a stop.

◇ Acceleration (ACCEL)

The acceleration function is activated at starting or when the speed is switched to the higher setting in a two-level speed control. The setting time is increased by turning the switch clockwise.

Factory setting: Min.

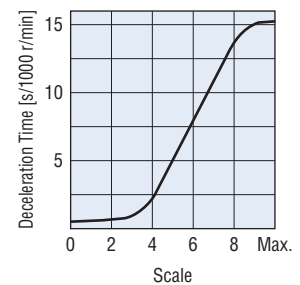
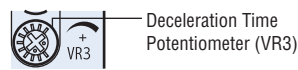


Acceleration Characteristics (Representative Values)

◇ Deceleration (DECEL)

The deceleration function is activated when coasting to a stop, or when the speed is switched to the lower setting in a two-level speed control. The setting time is increased by turning the switch clockwise.

Factory setting: Min.



Deceleration Characteristics (Representative Values)

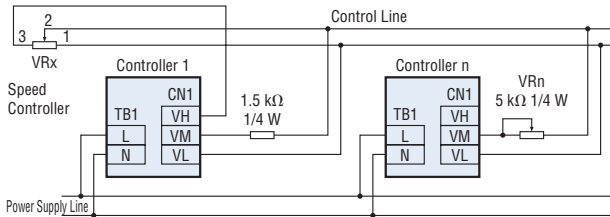
● Parallel-Motor Operation

2 or more motors can be operated at the same speed by using an external speed potentiometer or an external DC power supply.

◇ Using an External Speed Potentiometer

Up to 20 speed controllers can be operated in parallel-motor operation using an external speed potentiometer.

- Connect the I/O signals for each speed controller.
- If the motors are at different speeds, adjust by doing the following.
Speed controller 1:
Connect a 1.5 kΩ, 1/4 W resistor to the VM terminal.
Speed controllers 2 and thereafter:
Connect a 5 kΩ, 1/4 W variable resistor VRn.



How to Calculate the Resistance (VRx) When Connecting n Speed Controllers

Resistance (VRx) = 20/n (kΩ), n/4 (W)

Example: When connecting 2 speed controllers

Resistance (VRx) = 20/2 (kΩ), 2/4 (W), i.e. resistance of 10 kΩ, 1/2 W.

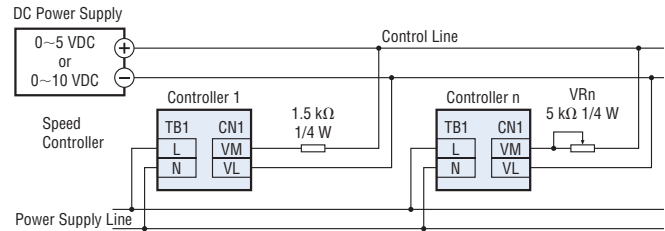
● Repetition Cycle of Running and Instantaneous Stops

When running and instantaneous stopping of the motor is repeated in short cycles, the motor temperature rise will increase and the continuous operating time will be limited. Use the repetition cycle given in the table below for running and instantaneous stopping. The motor's heat generation may become higher depending on the driving conditions. Be sure to keep the temperature of the motor case under 90°C (194°F).

Motor Output Power	Repetition Cycle
6 W (1/125 HP)~40 W (1/19 HP)	2 seconds min. (Running time 1 second, stopping time 1 second)
60 W (1/12 HP), 90 W (1/8 HP)	4 seconds min. (Running time 2 second, stopping time 2 second)

◇ Using an External DC Voltage

- Connect the I/O signals for each speed controller.
- If the motors are at different speeds, adjust by doing the following.
Speed controller 1:
Connect a 1.5 kΩ, 1/4 W resistor to the VM terminal.
Speed controllers 2 and thereafter:
Connect a 5 kΩ, 1/4 W variable resistor VRn.



How to Calculate the Current Capacity (I) of External DC Power When Connecting n Speed Controllers

Current Capacity (I) = 1 × n (mA)

Example: When connecting 2 speed controllers

Current Capacity (I) = 1 × 2 (mA), i.e. current capacity of 2 mA min.

● Braking Current

When the motor is stopped instantaneously, a large braking current (refer to the table below) flows through the motor. When connecting a circuit breaker (or fuse) of the equipment, refer to the table below for the braking current (peak value) and select its current capacity.

Motor Output Power	Braking Current (Peak Value)	
	Single-Phase 100/110/115 VAC	Single-Phase 200/220/230 VAC
6 W (1/125 HP)	2 A	1 A
15 W (1/50 HP)	4 A	3 A
25 W (1/30 HP)	8 A	4 A
40 W (1/19 HP)	12 A	7 A
60 W (1/12 HP)	22 A	9 A
90 W (1/8 HP)	29 A	13 A

■ Dimensions Unit = mm (in.)

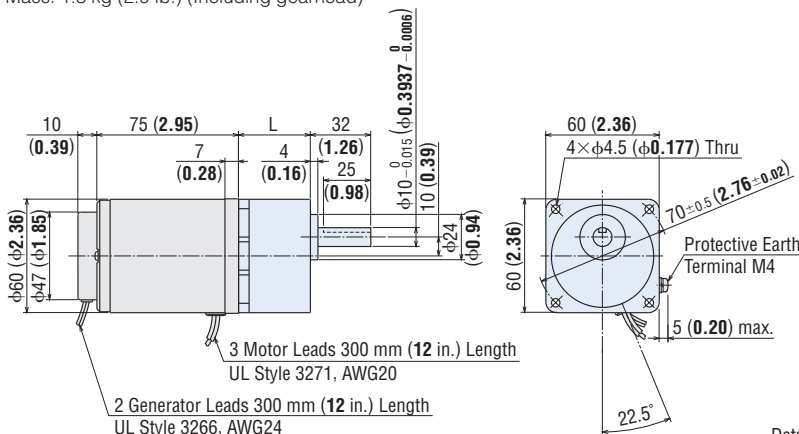
- Mounting screws are included with the combination type.

● 6 W (1/125 HP)

◇ Motor/Gearhead (Combination type)

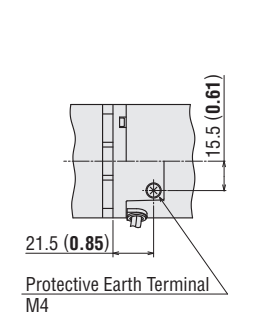
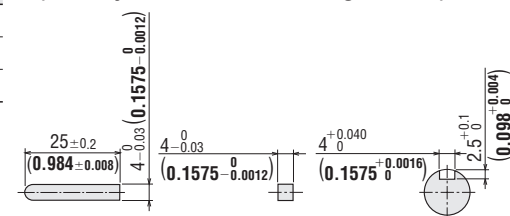
Model	Motor Model	Gearhead Model	Gear Ratio	L	DXF
VSI206A2-□U	VSI206A2-GV	GV2G□	5~25	34 (1.34)	A500A
VSI206C2-□E	VSI206C2-GV		30~120	38 (1.50)	A500B
VSR206A2-□U	VSR206A2-GV		150~360	43 (1.69)	A500C
VSR206C2-□E	VSR206C2-GV				

Mass: 1.3 kg (2.9 lb.) (Including gearhead)



◇ Key and Key Slot

(The key is included with the gearhead)



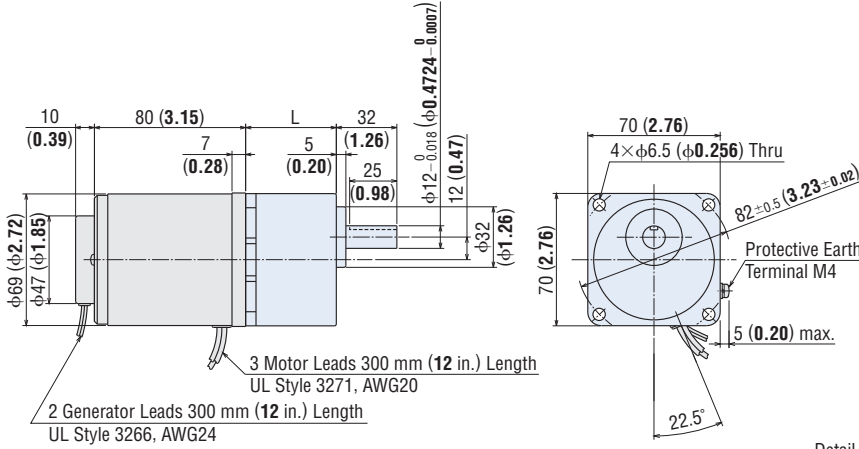
Detail Drawing of Protective Earth Terminal

● 15 W (1/50 HP)

◇ Motor/Gearhead (Combination type)

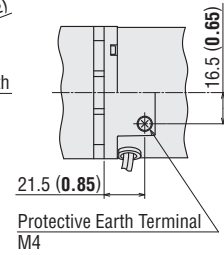
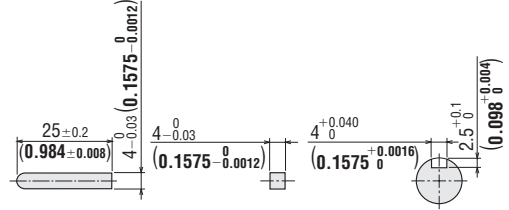
Model	Motor Model	Gearhead Model	Gear Ratio	L	DXF
VSI315A2-□U	VSI315A2-GV	GV3G□	5~25	38 (1.50)	A501A
VSI315C2-□E	VSI315C2-GV		30~120	43 (1.69)	A501B
VSR315A2-□U	VSR315A2-GV		150~360	48 (1.89)	A501C
VSR315C2-□E	VSR315C2-GV				

Mass: 1.8 kg (4.0 lb.) (Including gearhead)



◇ Key and Key Slot

(The key is included with the gearhead)



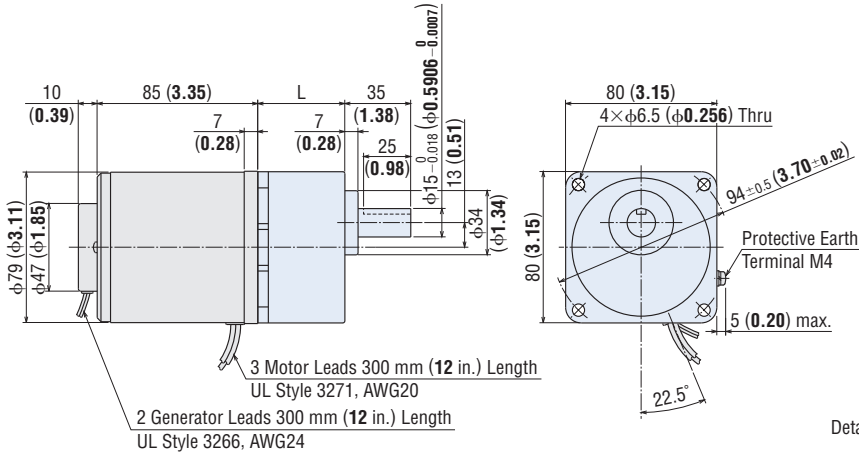
Detail Drawing of Protective Earth Terminal

● 25 W (1/30 HP)

◇ Motor/Gearhead (Combination type)

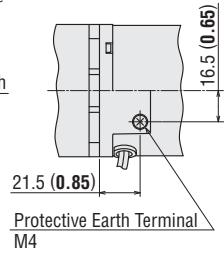
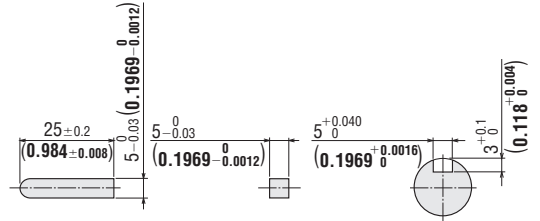
Model	Motor Model	Gearhead Model	Gear Ratio	L	DXF
VSI425A2-□U	VSI425A2-GV	GV4G□	5~25	41 (1.61)	A502A
VSI425C2-□E	VSI425C2-GV		30~120	46 (1.81)	A502B
VSR425A2-□U	VSR425A2-GV		150~360	51 (2.01)	A502C
VSR425C2-□E	VSR425C2-GV				

Mass: 2.55 kg (5.6 lb.) (Including gearhead)



◇ Key and Key Slot

(The key is included with the gearhead)



Detail Drawing of Protective Earth Terminal

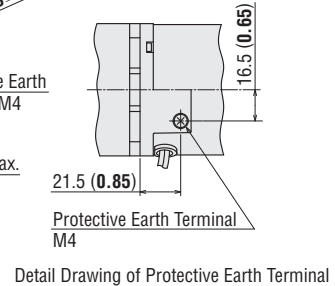
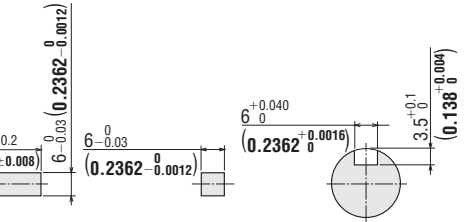
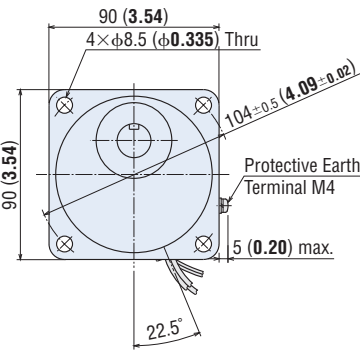
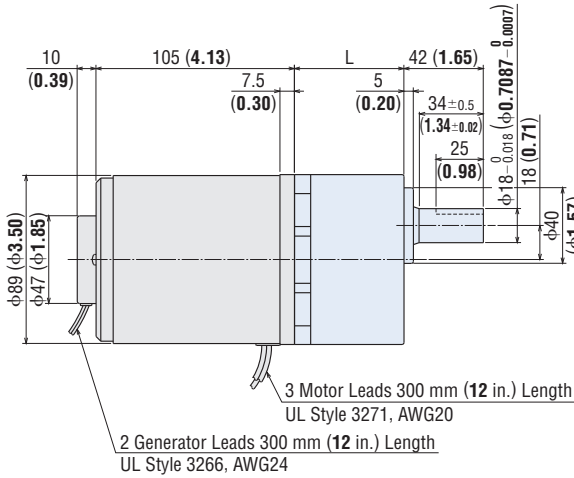
● Enter the gear ratio in the box (□) within the model name.

● 40 W (1/19 HP)

◇ Motor/Gearhead (Combination type)

Model	Motor Model	Gearhead Model	Gear Ratio	L	DXF
VSI540A2-□U	VSI540A2-GVH	GVH5G□	5~18	45 (1.77)	A503A
VSI540C2-□E	VSI540C2-GVH		25~100	58 (2.28)	A503B
VSR540A2-□U	VSR540A2-GVH		120~300	64 (2.52)	A503C

Mass: 4.1 kg (9.0 lb.) (Including gearhead)



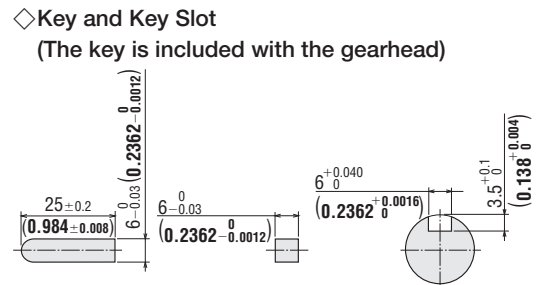
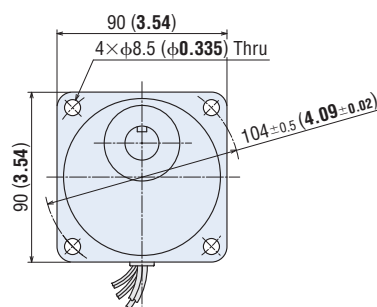
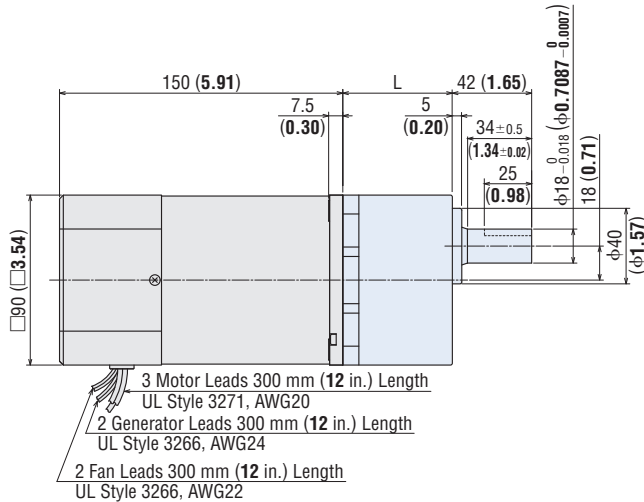
Detail Drawing of Protective Earth Terminal

● 60 W (1/12 HP)

◇ Motor/Gearhead (Combination type)

Model	Motor Model	Gearhead Model	Gear Ratio	L	DXF
VSI560A-□U	VSI560A-GVH	GVH5G□	5~18	45 (1.77)	A395A
VSI560C-□E	VSI560C-GVH		25~100	58 (2.28)	A395B
VSR560A-□U	VSR560A-GVH		120~300	64 (2.52)	A395C

Mass: 4.3 kg (9.5 lb.) (Including gearhead)



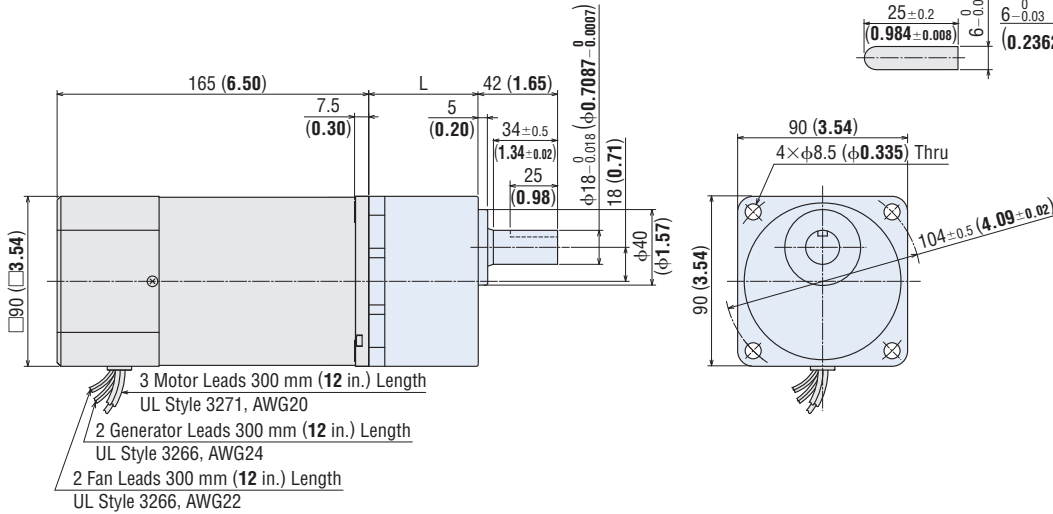
● Enter the gear ratio in the box (□) within the model name.

● 90 W (1/8 HP)

◇ Motor/Gearhead (Combination type)

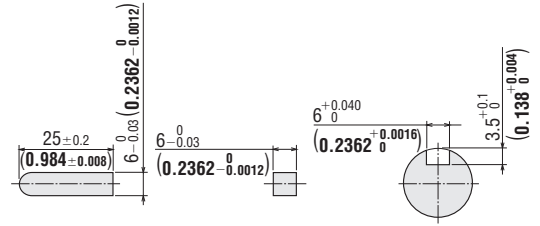
Model	Motor Model	Gearhead Model	Gear Ratio	L	DXF
VSI590A-□U	VSI590A-GVR	GVR5G□	5~15	45 (1.77)	A396A
VSI590C-□E	VSI590C-GVR		18~36	58 (2.28)	A396B
VSR590A-□U	VSR590A-GVR		50~180	70 (2.76)	A396C
VSR590C-□E	VSR590C-GVR				

Mass: 4.8 kg (10.6 lb.) (Including gearhead)

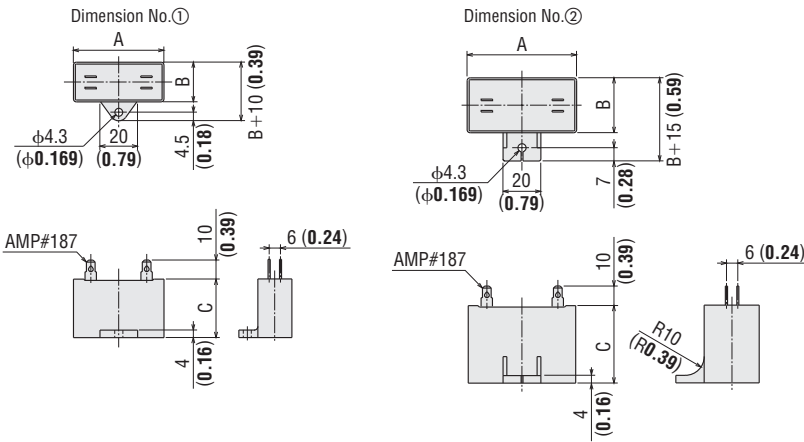


◇ Key and Key Slot

(The key is included with the gearhead)



● Capacitor Dimensions



● Capacitor (Included)

● Induction Motors

Model	Capacitor Model	A	B	C	Mass g (oz.)	Dimension No.
VSI206A2-□U	CH25FAUL2	31 (1.22)	17 (0.67)	27 (1.06)	21 (0.74)	①
VSI206C2-□E	CH06BFAUL	31 (1.22)	14.5 (0.57)	23.5 (0.93)	18 (0.64)	
VSI315A2-□U	CH45FAUL2	37 (1.46)	18 (0.71)	27 (1.06)	26 (0.92)	
VSI315C2-□E	CH10BFAUL	37 (1.46)	18 (0.71)	27 (1.06)	27 (0.95)	
VSI425A2-□U	CH65CFAUL2	48 (1.89)	19 (0.75)	29 (1.14)	35 (1.24)	
VSI425C2-□E	CH15BFAUL	38 (1.50)	21 (0.83)	31 (1.22)	37 (1.31)	
VSI540A2-□U	CH90CFAUL2	48 (1.89)	22.5 (0.89)	31.5 (1.24)	45 (1.59)	
VSI540C2-□E	CH23BFAUL	48 (1.89)	21 (0.83)	31 (1.22)	43 (1.52)	②
VSI560A-□U	CH180CFAUL	58 (2.28)	23.5 (0.93)	37 (1.46)	70 (2.5)	
VSI560C-□E	CH40BFAUL	58 (2.28)	23.5 (0.93)	37 (1.46)	73 (2.6)	
VSI590A-□U	CH200CFAUL	58 (2.28)	29 (1.14)	41 (1.61)	95 (3.4)	
VSI590C-□E	CH60BFAUL	58 (2.28)	29 (1.14)	41 (1.61)	92 (3.2)	

● A capacitor cap is included with a capacitor.

● Reversible Motors

Model	Capacitor Model	A	B	C	Mass g (oz.)	Dimension No.
VSR206A2-□U	CH35FAUL2	31 (1.22)	17 (0.67)	27 (1.06)	22 (0.78)	①
VSR206C2-□E	CH08BFAUL	31 (1.22)	17 (0.67)	27 (1.06)	23 (0.81)	
VSR315A2-□U	CH60CFAUL2	38 (1.50)	21 (0.83)	31 (1.22)	35 (1.24)	
VSR315C2-□E	CH15BFAUL	38 (1.50)	21 (0.83)	31 (1.22)	37 (1.31)	
VSR425A2-□U	CH80CFAUL2	48 (1.89)	21 (0.83)	31 (1.22)	41 (1.45)	
VSR425C2-□E	CH25BFAUL	48 (1.89)	21 (0.83)	31 (1.22)	42 (1.48)	
VSR540A2-□U	CH120CFAUL2	58 (2.28)	22 (0.87)	35 (1.38)	60 (2.1)	
VSR540C2-□E	CH35BFAUL	58 (2.28)	22 (0.87)	35 (1.38)	59 (2.1)	②
VSR560A-□U	CH200CFAUL	58 (2.28)	29 (1.14)	41 (1.61)	95 (3.4)	
VSR560C-□E	CH50BFAUL	58 (2.28)	29 (1.14)	41 (1.61)	93 (3.3)	
VSR590A-□U	CH300CFAUL	58 (2.28)	35 (1.38)	50 (1.97)	140 (4.9)	
VSR590C-□E	CH70BFAUL	58 (2.28)	35 (1.38)	50 (1.97)	138 (4.9)	

● A capacitor cap is included with a capacitor.

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

