

Speed Control Motor and Controller Package

DSC Series

<Additional Information>

- Technical reference → Page H-1
- Regulations & Standards → Page I-2



● For detailed information about regulations and standards, please see the Oriental Motor website.



View Expanded Product Information, Specifications, CAD, Accessories & more online. Visit www.orientalmotor.com/catalog or use the QR code and select "DSC Series".

- A high-reliability closed loop control speed control package.
- High performance, with easy installation and simple data setting. The display and digital setting features are built-in, making it even easier to use.
- An entry level speed control package that is both reasonably priced and compact.
- The electromagnetic brake type can be operated vertically.

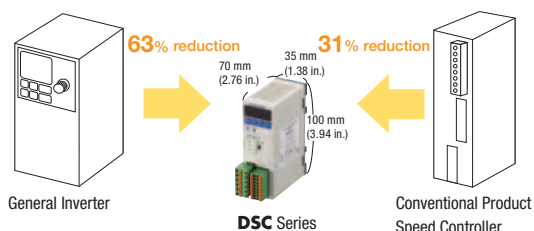
The **DSC** Series features are AC motors and speed controllers that utilize Oriental Motor's exclusive technology. They provide high reliability with closed loop control, and because the phase control circuit has been digitized, the size of the speed controller has been reduced.

Features

Easy Setting, More Control, Less Space

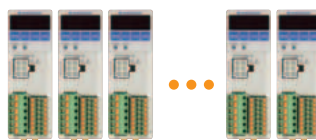
● Compact

The volume is 63% smaller than a general inverter.



● Side-by-Side Installation Saves Space

The body width is 35 mm (1.38 in.), and even when using multiple speed controllers, the installation is compact because they can be installed side by side.



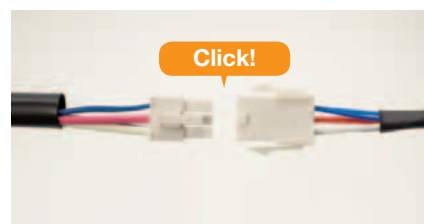
● Slim Body Control Box

Depth is 90 mm (3.54 in.). Can be installed in slim body control cabinets.



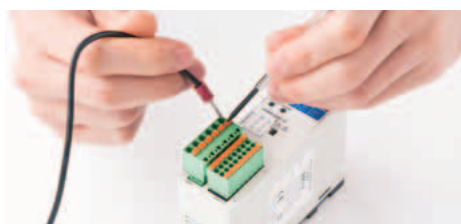
● Connecting the Motor and Driver is Easy Using a Connector

Wiring the speed controller and motor together uses a connector, so installation and removal are easy.



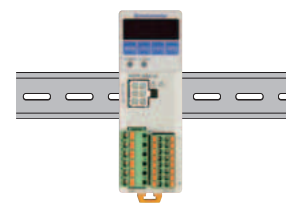
● Screwless I/O Wiring Requires No Crimping or Screwing

No need for soldering or crimping tools, and no torque management for screws necessary. Reduces wiring time and maintenance.



● Easy DIN Rail Installation

The speed controller can be installed directly on the DIN rail.



Simple User Interface

● Speed and Other Settings are Shown and can be Entered Directly



Monitoring Mode

Real-time monitor for speed (Motor, gear shaft, conveyor speed), alarms, warnings, I/O status monitor

Data Mode

Speed setting

Parameter Mode

Set I/O assignments and parameters

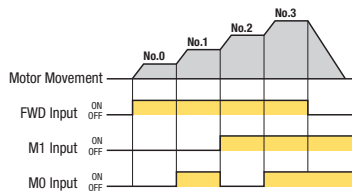
Test Mode

Test operation without data setting is possible.

● An operation lock can prevent accidental operation.

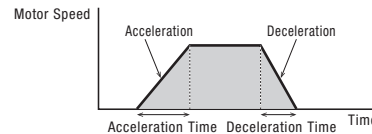
● Speed Control (4 speeds)

4 units of operating data can be set, and can be switched with I/O during operation.



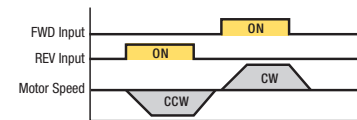
● Acceleration/Deceleration

Makes the motor movement at start/stop smoother. It is possible to set acceleration/deceleration differently for each of the 4-speed data units.



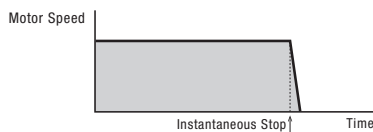
● Bi-Directional Operation

Performs the operation according to the command for rotation direction.



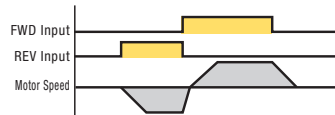
● Instantaneous Stop

Stops the operating motor instantaneously. (Short cycle run/stop conditions can be created)

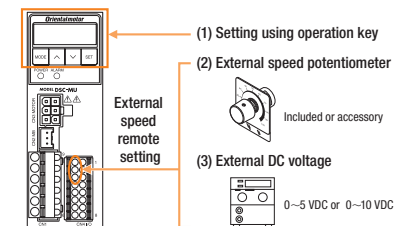


● Instantaneous Bi-Directional Operation

Instantaneously switches the rotation direction of the motor while operating. (Short cycle change conditions can be created)

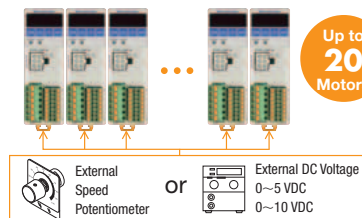


● External Speed Setting Input is Possible



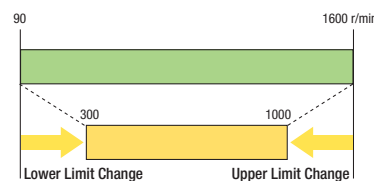
● Parallel-Motor Operation (20 Units Max.)

A single external speed potentiometer can operate a maximum of 20 units in parallel. Fine adjustment of each motor's speed can be performed by changing the controller's parameters.



● Speed Range Control

It is possible to limit the speed setting in advance with the speed range.



Overview,
Product
Series

Brushless
Motors

AC Input
BMU

AC Input
BLE

AC Input
BLF

AC Input
BXII

DC Input
BLH

AC Speed
Control
Motors

DSC

BHF

Accessories

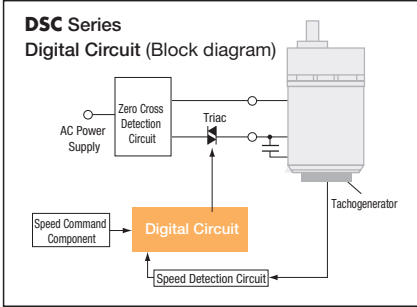
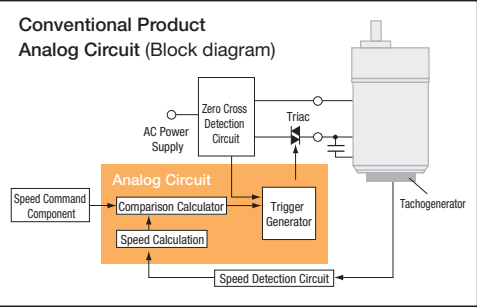
Installation

Speed Control Using Closed Loop Control

Speed is always monitored by the tachogenerator built into the AC motor.
The actual speed is controlled to match the speed setting, even when the load fluctuates.

Standard Type
Parallel Shaft/
Round Shaft

Electromagnetic
Brake Type
Parallel Shaft



● Speed regulation $\pm 1\%$ (Reference value)

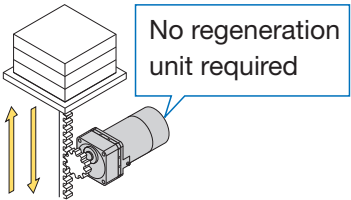
Digitalization of Circuits

Most of the analog circuits that were used in the past have been replaced with software, which is now run by the CPU, and circuit components have been vastly reduced. This has drastically reduced the size as well as the number of circuit components. In addition, due to this switch to digital processing, it is possible to make the deviation for the speed command and speed detection values almost 0, and speed regulation has been improved from -5% to $\pm 1\%^*$.
*0~permissible torque when at 1000 r/min

Vertical Operation is Possible with Electromagnetic Brake Type

Speed control in vertical operation is possible through deceleration control. (For details on deceleration control and driving conditions while using deceleration control, refer to page D-158.)

Speed Control Range
[50 Hz]
300~1400 r/min
[60 Hz]
300~1600 r/min

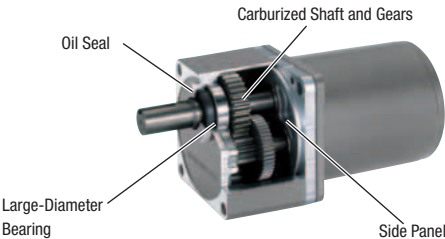


Use of a High Permissible Torque, High Strength Gearhead

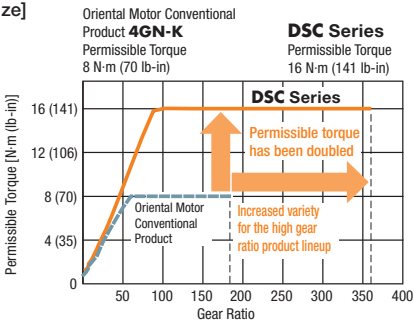
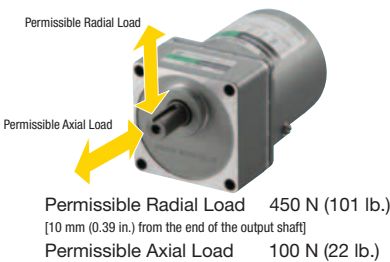
Utilizes a gearhead that excels in both permissible torque and strength.
Special side panels in the gearhead have increased case rigidity, and heat processing (carburization) has increased the strength of the gears.

Parallel Shaft Combination Type

[Internal Gearhead Structure]

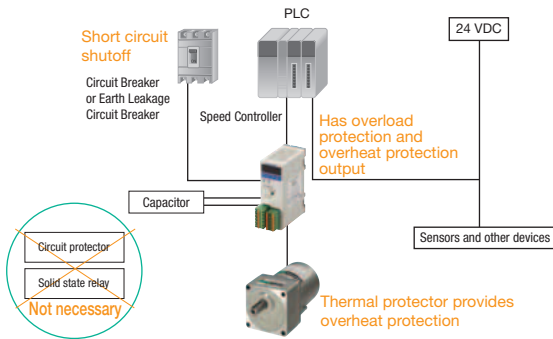


[For Geared Type with 80 mm (3.15 in.) Frame Size]



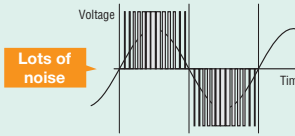
High Reliability

Low Noise Gives Peace of Mind, and System Configuration is Simple



Inverter + Three-Phase Motor

[PWM control]

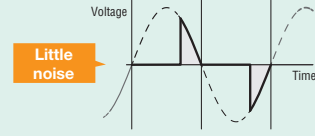


Controls the voltage and frequency
1 cycle performs 300 switchings

[Condition] ● Carrier frequency: 15 kHz
● Setting frequency: 50 Hz

DSC Series

[Phase control]

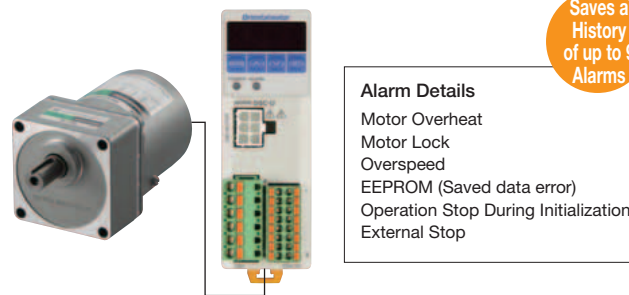


Controls the voltage
1 cycle performs 2 switchings

[Conditions] ● Power supply frequency: 50 Hz

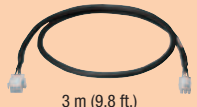
Alarm Output Increases Reliability

Thanks to the closed loop control, feedback on the motor status is provided to the controller in real-time. An alarm signal is output when an abnormality, such as motor lock due to overload, occurs and the supply of power to the motor is stopped.



Product Line

The motor, gearhead, speed controller, connection cables [3 m (9.8 ft.)] and external speed potentiometers are delivered as one package.

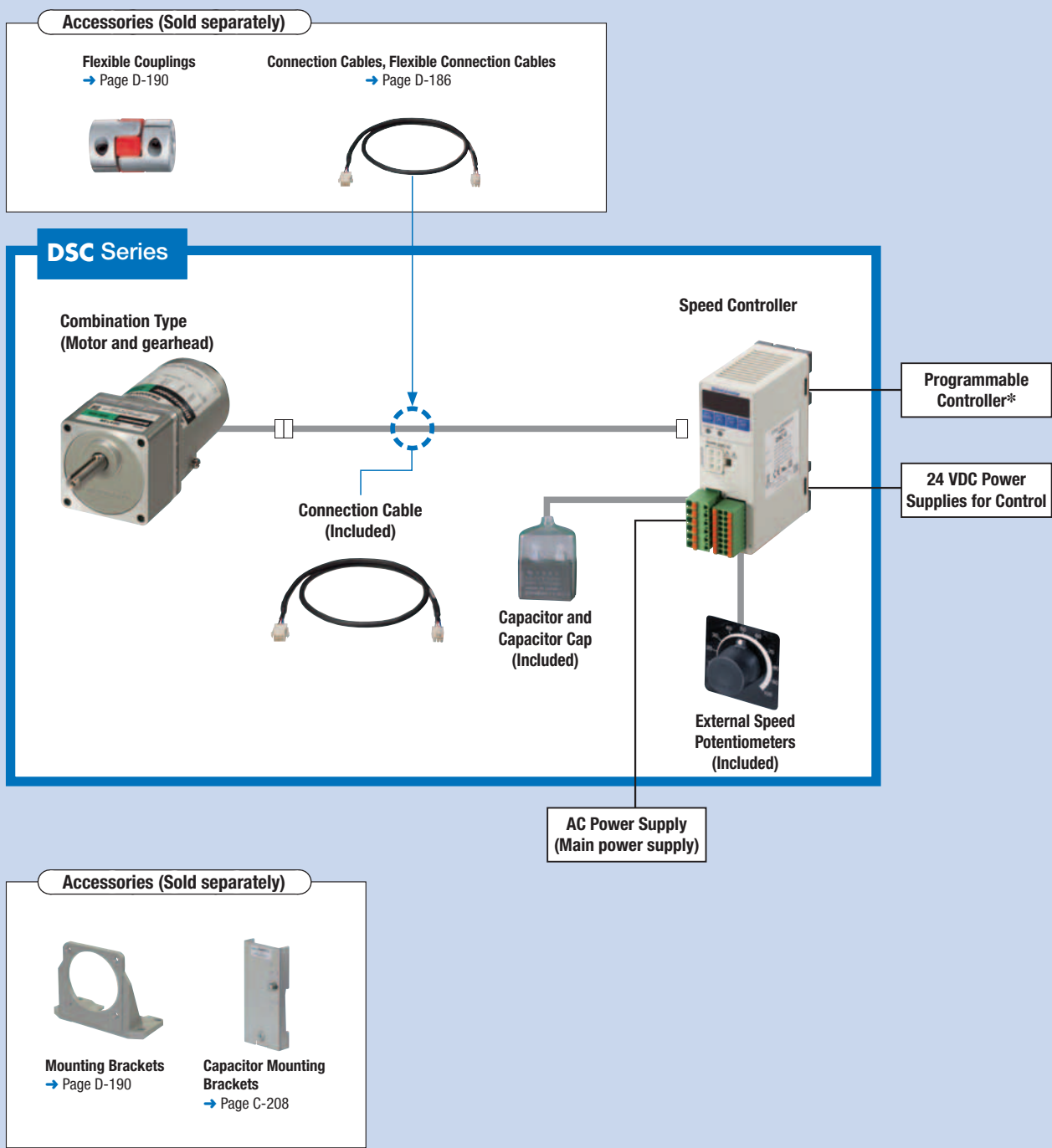
Unit						
Motor	Output Power	Max. Permissible Torque	Speed Controller	Power Supply Voltage	Included	Unit Price Range
Standard Type Parallel Shaft Combination Type → Page D-143	6 W (1/125 HP) 15 W (1/50 HP) 25 W (1/30 HP) 40 W (1/19 HP) 60 W (1/12 HP) 90 W (1/8 HP)	40 N·m (350 lb-in)		Single-Phase 110/115 VAC Single-Phase 220/230 VAC	Connection Cable  3 m (9.8 ft.)	\$294.00 ~ \$460.00
Standard Type Round Shaft Type → Page D-143		0.73 N·m (6.4 lb-in)			 3 m (9.8 ft.)	\$237.00 ~ \$312.00
Electromagnetic Brake Type Parallel Shaft Combination Type → Page D-157		40 N·m (350 lb-in)			 External Speed Potentiometer	\$379.00 ~ \$600.00

System Configuration

Parallel Shaft Combination Type

Standard Type
Parallel Shaft/
Round Shaft

Electromagnetic
Brake Type
Parallel Shaft



*Not supplied.

Example of System Configuration

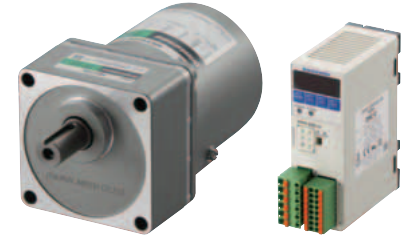
DSC Series	Sold Separately		
	Connection Cable [5 m (16.4 ft.)]	Mounting Bracket	Flexible Coupling
DSCI425UA-25A-3V \$321.00	CC05SC \$68.00	SOL4UAF \$27.00	MCL40F10F10 \$76.00

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

Standard Type

Parallel Shaft Combination Type

Round Shaft Type



Parallel Shaft Combination Type

Overview,
Product
SeriesBrushless
MotorsAC Input
BMUAC Input
BLEAC Input
BLFAC Input
BXIIDC Input
BLHAC Speed
Control
Motors

DSC

BHF

Accessories

Installation

Product Line

Combination Type

Delivered with the motor and gearhead pre-assembled.

The combination of motor and gearhead can be changed, or purchased separately. In addition, the gearhead can be removed and the assembly position can be changed in 90° increments.

Parallel Shaft Combination Type

Output Power	Power Supply Voltage	Product Name	Gear Ratio	List Price	
6 W (1/125 HP)	Single-Phase 110/115 VAC	DSCI26UA-□A-3V	5, 6, 7.5, 9, 12.5, 15, 18	\$294.00	
			25, 30, 36	\$300.00	
			50, 60, 75, 90, 100, 120, 150, 180	\$307.00	
			250, 300, 360	\$353.00	
	Single-Phase 220/230 VAC	DSCI26EC-□A-3V	5, 6, 7.5, 9, 12.5, 15, 18	\$297.00	
			25, 30, 36	\$303.00	
			50, 60, 75, 90, 100, 120, 150, 180	\$310.00	
			250, 300, 360	\$356.00	
15 W (1/50 HP)	Single-Phase 110/115 VAC	DSCI315UA-□A-3V	5, 6, 7.5, 9, 12.5, 15, 18	\$305.00	
			25, 30, 36	\$311.00	
			50, 60, 75, 90, 100, 120, 150, 180	\$318.00	
			250, 300, 360	\$362.00	
	Single-Phase 220/230 VAC	DSCI315EC-□A-3V	5, 6, 7.5, 9, 12.5, 15, 18	\$308.00	
			25, 30, 36	\$314.00	
			50, 60, 75, 90, 100, 120, 150, 180	\$321.00	
			250, 300, 360	\$365.00	
25 W (1/30 HP)	Single-Phase 110/115 VAC	DSCI425UA-□A-3V	5, 6, 7.5, 9, 12.5, 15, 18	\$315.00	
			25, 30, 36	\$321.00	
			50, 60, 75, 90, 100, 120, 150, 180	\$328.00	
			250, 300, 360	\$375.00	
	Single-Phase 220/230 VAC	DSCI425EC-□A-3V	5, 6, 7.5, 9, 12.5, 15, 18	\$319.00	
			25, 30, 36	\$325.00	
			50, 60, 75, 90, 100, 120, 150, 180	\$332.00	
			250, 300, 360	\$379.00	
40 W (1/19 HP)	Single-Phase 110/115 VAC	DSCI540UA-□A-3V	5, 6, 7.5, 9, 12.5, 15, 18	\$345.00	
			25, 30, 36	\$352.00	
			50, 60, 75, 90, 100, 120, 150, 180	\$359.00	
			250, 300	\$437.00	
	Single-Phase 220/230 VAC	DSCI540EC-□A-3V	5, 6, 7.5, 9, 12.5, 15, 18	\$349.00	
			25, 30, 36	\$356.00	
			50, 60, 75, 90, 100, 120, 150, 180	\$363.00	
			250, 300	\$441.00	
60 W (1/12 HP)	Single-Phase 110/115 VAC	DSCI560UA-□A-3V	5, 6, 7.5, 9, 12.5, 15, 18	\$400.00	
			25, 30, 36, 50, 60, 75, 90, 100	\$411.00	
			120, 150, 180	\$421.00	
			250, 300	\$455.00	
	Single-Phase 220/230 VAC	DSCI560EC-□A-3V	5, 6, 7.5, 9, 12.5, 15, 18	\$405.00	
			25, 30, 36, 50, 60, 75, 90, 100	\$416.00	
			120, 150, 180	\$426.00	
			250, 300	\$460.00	
90 W (1/8 HP)	Single-Phase 110/115 VAC	DSCI590UA-□A-3V	5, 6, 7.5, 9, 12.5, 15, 18	\$420.00	
			25, 30, 36, 50, 60	\$440.00	
			75, 90, 100, 120, 150, 180	\$450.00	
			5, 6, 7.5, 9, 12.5, 15, 18	\$425.00	
	Single-Phase 220/230 VAC	DSCI590EC-□A-3V	25, 30, 36, 50, 60	\$445.00	
			75, 90, 100, 120, 150, 180	\$455.00	

The following items are included with each product.

Motor, Gearhead, Speed Controller, Capacitor, Capacitor Cap, Installation Screws, Parallel Key, Connection Cable, External Speed Potentiometer, Operating Manual

● A number indicating the gear ratio is entered where the box □ is located within the product name.

Standard Type
Parallel Shaft/
Round Shaft

Electromagnetic
Brake Type
Parallel Shaft

●Round Shaft Type

Output Power	Power Supply Voltage	Product Name	List Price
6 W (1/125 HP)	Single-Phase 110/115 VAC	DSCI26UA-A-3V	\$237.00
	Single-Phase 220/230 VAC	DSCI26EC-A-3V	\$240.00
15 W (1/50 HP)	Single-Phase 110/115 VAC	DSCI315UA-A-3V	\$243.00
	Single-Phase 220/230 VAC	DSCI315EC-A-3V	\$246.00
25 W (1/30 HP)	Single-Phase 110/115 VAC	DSCI425UA-A-3V	\$252.00
	Single-Phase 220/230 VAC	DSCI425EC-A-3V	\$256.00
40 W (1/19 HP)	Single-Phase 110/115 VAC	DSCI540UA-A-3V	\$270.00
	Single-Phase 220/230 VAC	DSCI540EC-A-3V	\$274.00
60 W (1/12 HP)	Single-Phase 110/115 VAC	DSCI560UA-A-3V	\$288.00
	Single-Phase 220/230 VAC	DSCI560EC-A-3V	\$293.00
90 W (1/8 HP)	Single-Phase 110/115 VAC	DSCI590UA-A-3V	\$307.00
	Single-Phase 220/230 VAC	DSCI590EC-A-3V	\$312.00

The following items are included with each product.

Motor, Speed Controller, Capacitor, Capacitor Cap, Connection Cable, External Speed Potentiometer, Operating Manual

■Product Number

DSC I 4 25 UA - 50A - 3 V

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

①	Series Name	DSC: DSC Series
②	Motor Type	I: Induction Motor
③	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.)
④	Output Power (W)	(Example) 25: 25 W (1/30 HP)
⑤	Power Supply Voltage	UA: Single-Phase 110/115 VAC EC: Single-Phase 220/230 VAC
⑥	Gear Ratio/Shaft Type	Number: Gear Ratio for Combination Types A: Round Shaft Type
⑦	Connection Cable (Included)	3: Length of the included connection cable is 3 m (9.8 ft.)
⑧	External Speed Potentiometer (Included)	V: Includes external speed potentiometer

Specifications – Continuous Rating

Single-Phase 110/115 VAC, Single-Phase 220/230 VAC



Product Name Upper Level: Combination Type Lower Level: Round Shaft Type	Max. Output Power	Voltage	Frequency	Variable Speed Range	Permissible Torque		Starting Torque	Current	Power Consumption	Capacitor	Motor Overheat Protection Device			
					1200 r/min (50 Hz)	90 r/min								
					1450 r/min (60 Hz)									
	W (HP)	VAC	Hz	r/min	mN-m (oz-in)	mN-m (oz-in)	mN-m (oz-in)	A	W	μF				
DSCI26UA-□A-3V DSCI26UA-A-3V	6 (1/125)	Single-Phase 110	60	90~1600	50 (7.1)	38 (5.3)	40 (5.6)	0.135	29	2.5	ZP			
Single-Phase 115														
Single-Phase 220		50	90~1400	42 (5.9)	40 (5.6)	44 (6.2)								
Single-Phase 230		60	90~1600	46 (6.5)										
		50	90~1400	46 (6.5)	37 (5.2)	44 (6.2)								
60		90~1600	50 (7.1)	39 (5.5)	50 (7.1)									
DSCI315UA-□A-3V DSCI315UA-A-3V	15 (1/50)	Single-Phase 110	60	90~1600	120 (17.0)	45 (6.3)	84 (11.9)	0.48	46	4.5	TP			
Single-Phase 115		125 (17.7)			90 (12.7)									
Single-Phase 220		50	90~1400	125 (17.7)	40 (5.6)	67 (9.5)	0.23					43	1.0	TP
Single-Phase 230		60	90~1600	110 (15.6)		72 (10.2)						46		
		50	90~1400	125 (17.7)		81 (11.5)						44		
60		90~1600	120 (17.0)			47								
DSCI425UA-□A-3V DSCI425UA-A-3V	25 (1/30)	Single-Phase 110	60	90~1600	205 (29)	45 (6.3)	125 (17.7)	0.75	58	6.5	TP			
Single-Phase 115		135 (19.1)					69							
Single-Phase 220		50	90~1400	205 (29)	40 (5.6)	110 (15.6)	0.37		70			1.5	TP	
Single-Phase 230		60	90~1600											
		50	90~1400											
60		90~1600												
DSCI540UA-□A-3V DSCI540UA-A-3V	40 (1/19)	Single-Phase 110	60	90~1600	320 (45)	70 (9.9)	180 (25)	1.1	107	9.0	TP			
Single-Phase 115		190 (26)												
Single-Phase 220		50	90~1400	320 (45)	65 (9.2)	190 (26)	0.55					96	2.3	TP
Single-Phase 230		60	90~1600		70 (9.9)							104		
		50	90~1400		65 (9.2)							99		
60		90~1600	70 (9.9)		105									
DSCI560UA-□A-3V DSCI560UA-A-3V	60 (1/12)	Single-Phase 110	60	90~1600	460 (65)	80 (11.3)	260 (36)	1.5	144	12	TP			
Single-Phase 115		490 (69)			280 (39)		145							
Single-Phase 220		50	90~1400	490 (69)	80 (11.3)	280 (39)	0.71		129			3.0	TP	
Single-Phase 230		60	90~1600	460 (65)	75 (10.6)	290 (41)	0.74		143					
		50	90~1400	490 (69)	85 (12.0)	290 (41)	0.72		132					
60		90~1600	80 (11.3)	300 (42)	0.74	144								
DSCI590UA-□A-3V DSCI590UA-A-3V	90 (1/8)	Single-Phase 110	60	90~1600	730 (103)	85 (12.0)	400 (56)	2.4	224	20	TP			
Single-Phase 115		440 (62)					2.5	227						
Single-Phase 220		50	90~1400	730 (103)	95 (13.4)	490 (69)	1.2	201	6.0	TP				
Single-Phase 230		60	90~1600			500 (71)	1.3	226						
		50	90~1400			520 (73)	1.2	204						
60		90~1600	530 (75)			1.3	228							

● The values in the table are characteristics for the motor only. The variable speed ranges shown are under no load conditions.

ZP: This indicates that it is impedance protected.

TP: This indicates that there is a built-in thermal protector (automatic return type).

● A number indicating the gear ratio is entered where the box □ is located within the combination type product name.

Common Specifications

Item		Specifications
Standard Type Parallel Shaft/ Round Shaft	Speed Setting Methods	Setting can be performed using any of the following methods. - Setting via control panel A maximum of 4 patterns of operation data can be set - External speed potentiometer: PAVR-20KZ (20 kΩ, 1/4 W) - External DC voltage: 0~5 VDC, or 0~10 VDC
	Acceleration Time and Deceleration Time Setting Range	0.0~15.0 seconds Acceleration time/deceleration time varies with the load condition of the motor.
Electromagnetic Brake Type Parallel Shaft	Monitoring Mode	Speed, operating data number, alarm code, warning code, I/O monitor
	Data Mode	Speed, acceleration time, deceleration time, reset
Function	Parameter Mode	Gear ratio, speed increasing ratio, fixed last digit display, initial operation inhibition alarm, external speed command input, external speed command voltage selection, external speed command offset, speed upper and lower limit, input function selection, output function selection, motor lock detection time, motor rotation direction, reset
	Test Mode	JOG Operation
	Other	Lock data editing
Control Power Source		24 VDC±10% 0.15 A or more
Input Signals		Photocoupler Input Input resistance 4.7 kΩ Arbitrary signal assignment to IN0~IN5 input (6 points) is possible []: Initial setting [FWD], [REV], [MO], [M1], [ALARM-RESET], [FREE], EXT-ERROR Sink Input/Source Input--Can be switched using the selection switch: Factory setting sink input
Output Signals		Photocoupler and Open-Collector Output External power supply: 4.5~30 VDC 40 mA max. Arbitrary signal assignment to OUT0, OUT1 output (2 points) is possible []: Initial setting [SPEED-OUT], [ALARM-OUT], TH-OUT, WNG Sink Output/Source Output--Supports external wiring
Protective Function		When the following protective functions are activated, the motor will coast to a stop, and the ALARM output will be turned off. At the same, the alarm code will be displayed on the control panel and the ALARM LED will illuminate. Alarm Types: Motor overheat, motor lock, overspeed, EEPROM error, initial operation inhibition, external stop
Max. Extension Distance		Motor and Speed Controller Distance: 10.5 m (34.4 ft.) (when an accessory connection cable is used)

General Specifications

Item		Motor	Speed Controller
Insulation Resistance		100 MΩ or more when a 500 VDC megger is applied between the motor windings and the case after continuous operation under normal ambient temperature and humidity.	100 MΩ or more when a 500 VDC megger is applied between the main circuit terminal and the control circuit terminal, between the main circuit terminal and the case and between the main circuit terminal and FG after continuous operation under normal ambient temperature and humidity.
Dielectric Strength		Sufficient to withstand 1.5 kVAC at 50 Hz or 60 Hz applied between the windings and the case for 1 minute after continuous operation under normal ambient temperature and humidity.	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, and 1.5 kVAC at 50 Hz or 60 Hz applied between the main circuit terminal and FG for 1 minute after continuous operation under normal ambient temperature and humidity.
Temperature Rise		A gearhead or equivalent heat sink* is connected to the motor and the winding temperature rise is measured at 80°C (144°F) or less using the resistance change method after rated operation with no load under normal ambient temperature and humidity.	—
Overheat Protection Device		The 6 W (1/125 HP) type is impedance protected. All other motors have a built-in thermal protector (automatic return type).	—
Operating Environment	Ambient Temperature	−10~+40°C (+14~+104°F) (Non-freezing)	0~+50°C (+32~+122°F) (Non-freezing)
	Ambient Humidity	85% max. (Non-condensing)	
	Altitude	Max. of 1000 m (3300 ft.) above sea level	
Thermal Class		130 (B)	—
Degree of Protection		IP20	IP20

* Heat radiation plate (Material: Aluminum)

Motor Output Power	Size mm (in.)	Thickness mm (in.)
6 W (1/125 HP)	115×115 (4.53×4.53)	5 (0.20)
15 W (1/50 HP)	125×125 (4.92×4.92)	
25 W (1/30 HP)	135×135 (5.31×5.31)	
40 W (1/19 HP)	165×165 (6.50×6.50)	
60 W (1/12 HP)	200×200 (7.87×7.87)	
90 W (1/8 HP)	200×200 (7.87×7.87)	

Note

● Do not measure insulation resistance or perform the dielectric voltage test while the motor and speed controller are connected.

Combination Type Output Shaft Speed

● Motor Shaft Speed

Low speed: 90 r/min, High speed at 50 Hz: 1400 r/min, High speed at 60 Hz: 1600 r/min

Unit: r/min

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	186	155	112	93	77	56	46	38	28	23	18.6	15.5	14	11.6	9.3	7.7	5.6	4.6	3.8
	60 Hz	320	266	213	177	128	106	88	64	53	44	32	26	21	17.7	16	13.3	10.6	8.8	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	0.36	0.3	0.25

Permissible Torque on Combination Types

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

Single-Phase 110/115 VAC

Unit: N·m (lb-in)

Product Name	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
	Motor Shaft Speed r/min																						
DSCI26UA	1450		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)	
	90		0.17 (1.50)	0.21 (1.85)	0.26 (2.3)	0.31 (2.7)	0.43 (3.8)	0.51 (4.5)	0.62 (5.4)	0.86 (7.6)	0.98 (8.6)	1.2 (10.6)	1.6 (14.1)	2.0 (17.7)	2.5 (22)	2.9 (25)	3.3 (29)	3.9 (34)	4.6 (40)	5.5 (48)	6 (53)	6 (53)	
DSCI315UA	1450	110 VAC	0.54 (4.7)	0.65 (5.7)	0.81 (7.1)	0.97 (8.5)	1.4 (12.3)	1.6 (14.1)	1.9 (16.8)	2.7 (23)	3.1 (27)	3.7 (32)	5.2 (46)	6.2 (54)	7.7 (68)	9.3 (82)	10 (88)	10 (88)	10 (88)	10 (88)	10 (88)	10 (88)	
		115 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)	
	90		0.20 (1.77)	0.24 (2.1)	0.30 (2.6)	0.36 (3.1)	0.51 (4.5)	0.61 (5.3)	0.73 (6.4)	1.0 (8.8)	1.2 (10.6)	1.4 (12.3)	1.9 (16.8)	2.3 (20)	2.9 (25)	3.5 (30)	3.9 (34)	4.6 (40)	5.5 (48)	6.6 (58)	9.1 (80)	10 (88)	
DSCI425UA	1450		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)	
	90		0.20 (1.77)	0.24 (2.1)	0.30 (2.6)	0.36 (3.1)	0.51 (4.5)	0.61 (5.3)	0.73 (6.4)	1.0 (8.8)	1.2 (10.6)	1.4 (12.3)	1.9 (16.8)	2.3 (20)	2.9 (25)	3.5 (30)	3.9 (34)	4.6 (40)	5.5 (48)	6.6 (58)	9.1 (80)	10 (88)	
DSCI540UA	1450		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)	—	
	90		0.32 (2.8)	0.38 (3.3)	0.47 (4.1)	0.57 (5.0)	0.79 (6.9)	0.95 (8.4)	1.1 (9.7)	1.5 (13.2)	1.8 (15.9)	2.2 (19.4)	3.0 (26)	3.6 (31)	4.5 (39)	5.4 (47)	6.0 (53)	6.8 (60)	8.5 (75)	10.2 (90)	14.2 (125)	17 (150)	
DSCI560UA	1450	110 VAC	2.1 (18.5)	2.5 (22)	3.1 (27)	3.7 (32)	5.2 (46)	6.2 (54)	7.5 (66)	9.9 (87)	11.9 (105)	14.2 (125)	19.8 (175)	23.7 (207)	29.7 (260)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)	—	
		115 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 (133)	21.1 (186)	25.3 (220)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)	—		
	90		0.36 (3.1)	0.43 (3.8)	0.54 (4.7)	0.65 (5.7)	0.90 (7.9)	1.1 (9.7)	1.3 (11.5)	1.7 (15.0)	2.1 (18.5)	2.5 (22)	3.4 (30)	4.1 (36)	5.2 (46)	6.2 (54)	6.9 (61)	7.8 (69)	9.7 (85)	11.7 (103)	16.2 (143)	19.4 (171)	
DSCI590UA	1450		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)	—	—	—	
	90		0.38 (3.3)	0.46 (4.0)	0.57 (5.0)	0.69 (6.1)	0.96 (8.4)	1.1 (9.7)	1.3 (11.5)	1.8 (15.9)	2.2 (19.4)	2.6 (23)	3.7 (32)	4.4 (38)	5.2 (46)	6.2 (54)	6.9 (61)	8.3 (73)	10.3 (91)	12.4 (109)	—	—	

Single-Phase 220/230 VAC

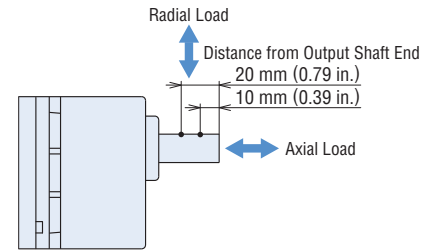
Unit: N·m (lb-in)

Product Name	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
	Motor	Shaft Speed r/min																					
DSCI26EC	1200	220 VAC 50 Hz	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)
		230 VAC 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)
	1450	220 VAC 60 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 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)	6 (53)
	90	220 VAC 50/60 Hz	0.18 (1.59)	0.22 (1.94)	0.27 (2.3)	0.32 (2.8)	0.45 (3.9)	0.54 (4.7)	0.65 (5.7)	0.90 (7.9)	1.0 (8.8)	1.2 (10.6)	1.7 (15.0)	2.1 (18.5)	2.6 (23)	3.1 (27)	3.4 (30)	4.1 (36)	4.9 (43)	5.8 (51)	6 (53)	6 (53)	6 (53)
		230 VAC 50 Hz	0.17 (1.50)	0.20 (1.77)	0.25 (2.2)	0.30 (2.6)	0.42 (3.7)	0.50 (4.4)	0.60 (5.3)	0.83 (7.3)	0.95 (8.4)	1.1 (9.7)	1.6 (14.1)	1.9 (16.8)	2.4 (21)	2.9 (25)	3.2 (28)	3.8 (33)	4.5 (39)	5.4 (47)	6 (53)	6 (53)	6 (53)
	90	230 VAC 60 Hz	0.18 (1.59)	0.21 (1.85)	0.26 (2.3)	0.32 (2.8)	0.44 (3.8)	0.53 (4.6)	0.63 (5.5)	0.88 (7.7)	1.0 (8.8)	1.2 (10.6)	1.7 (15.0)	2.0 (17.7)	2.5 (22)	3.0 (26)	3.4 (30)	4.0 (35)	4.7 (41)	5.7 (50)	6 (53)	6 (53)	6 (53)
		50 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)
	1450	220 VAC 60 Hz	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 (16.8)	2.5 (22)	2.8 (24)	3.4 (30)	4.7 (41)	5.7 (50)	7.1 (62)	8.5 (75)	9.5 (84)	10 (88)	10 (88)	10 (88)	10 (88)	10 (88)	10 (88)
		230 VAC 60 Hz	0.54 (4.7)	0.65 (5.7)	0.81 (7.1)	0.97 (8.5)	1.4 (12.3)	1.6 (14.1)	1.9 (16.8)	2.7 (23)	3.1 (27)	3.7 (32)	5.2 (46)	6.2 (54)	7.7 (68)	9.3 (82)	10 (88)	10 (88)	10 (88)	10 (88)	10 (88)	10 (88)	10 (88)
90	0.18 (1.59)	0.22 (1.94)	0.27 (2.3)	0.32 (2.8)	0.45 (3.9)	0.54 (4.7)	0.65 (5.7)	0.90 (7.9)	1.0 (8.8)	1.2 (10.6)	1.7 (15.0)	2.1 (18.5)	2.6 (23)	3.1 (27)	3.4 (30)	4.1 (36)	4.9 (43)	5.8 (51)	6 (53)	6 (53)	6 (53)	6 (53)	
	1200	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 (141)	16 (141)	16 (141)	16 (141)	16 (141)	16 (141)	16 (141)	16 (141)
1450	60 Hz	0.18 (1.59)	0.22 (1.94)	0.27 (2.3)	0.32 (2.8)	0.45 (3.9)	0.54 (4.7)	0.65 (5.7)	0.90 (7.9)	1.0 (8.8)	1.2 (10.6)	1.7 (15.0)	2.1 (18.5)	2.6 (23)	3.1 (27)	3.4 (30)	4.1 (36)	4.9 (43)	5.8 (51)	6 (53)	6 (53)	6 (53)	6 (53)
	90	0.18 (1.59)	0.22 (1.94)	0.27 (2.3)	0.32 (2.8)	0.45 (3.9)	0.54 (4.7)	0.65 (5.7)	0.90 (7.9)	1.0 (8.8)	1.2 (10.6)	1.7 (15.0)	2.1 (18.5)	2.6 (23)	3.1 (27)	3.4 (30)	4.1 (36)	4.9 (43)	5.8 (51)	6 (53)	6 (53)	6 (53)	6 (53)
DSCI540EC	1200	50 Hz	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)
	1450	60 Hz	0.29 (2.5)	0.35 (3.0)	0.44 (3.8)	0.53 (4.6)	0.73 (6.4)	0.88 (7.7)	1.1 (9.7)	1.4 (12.3)	1.7 (15.0)	2.0 (17.7)	2.8 (24)	3.4 (30)	4.2 (37)	5.0 (44)	5.6 (49)	6.3 (55)	7.9 (69)	9.5 (84)	11.7 (103)	15.2 (134)	18.2 (161)
	90	50 Hz	0.29 (2.5)	0.35 (3.0)	0.44 (3.8)	0.53 (4.6)	0.73 (6.4)	0.88 (7.7)	1.1 (9.7)	1.4 (12.3)	1.7 (15.0)	2.0 (17.7)	2.8 (24)	3.4 (30)	4.2 (37)	5.0 (44)	5.6 (49)	6.3 (55)	7.9 (69)	9.5 (84)	11.7 (103)	15.2 (134)	18.2 (161)
		60 Hz	0.32 (2.8)	0.38 (3.3)	0.47 (4.1)	0.57 (5.0)	0.79 (6.9)	0.95 (8.4)	1.1 (9.7)	1.5 (13.2)	1.8 (15.9)	2.2 (19.4)	3.0 (26)	3.6 (31)	4.5 (39)	5.4 (47)	6.0 (53)	6.8 (60)	8.5 (75)	10.2 (90)	12.4 (109)	14.2 (125)	17.0 (150)
DSCI560EC	1200	50 Hz	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)
		220 VAC 60 Hz	2.1 (18.5)	2.5 (22)	3.1 (27)	3.7 (32)	5.2 (46)	6.2 (54)	7.5 (66)	9.9 (87)	11.9 (105)	14.2 (125)	19.8 (175)	23.7 (207)	29.7 (260)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)	
	1450	230 VAC 60 Hz	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)	
		220 VAC 50 Hz 230 VAC 60 Hz	0.36 (3.1)	0.43 (3.8)	0.54 (4.7)	0.65 (5.7)	0.90 (7.9)	1.1 (9.7)	1.3 (11.5)	1.7 (15.0)	2.1 (18.5)	2.5 (22)	3.4 (30)	4.1 (36)	5.2 (46)	6.2 (54)	6.9 (61)	7.8 (69)	9.7 (85)	11.7 (103)	16.2 (143)	19.4 (171)	
	90	220 VAC 60 Hz	0.34 (3.0)	0.41 (3.6)	0.51 (4.5)	0.61 (5.3)	0.84 (7.4)	1.0 (8.8)	1.2 (10.6)	1.6 (14.1)	1.9 (16.8)	2.3 (20)	3.2 (28)	3.9 (34)	4.8 (42)	5.8 (51)	6.5 (57)	7.3 (64)	9.1 (80)	10.9 (96)	15.2 (134)	18.2 (161)	
		230 VAC 50 Hz	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)	1.8 (15.9)	2.2 (19.4)	2.6 (23)	3.7 (32)	4.4 (38)	5.5 (48)	6.6 (58)	7.3 (64)	8.3 (73)	10.3 (91)	12.4 (109)	17.2 (152)	20.7 (183)	
	DSCI590EC	1200	50 Hz	3.3 (29)	3.9 (34)	5.0 (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)	48 (350)	40 (350)	40 (350)	40 (350)	40 (350)	40 (350)	—	—
1450		60 Hz	0.43 (3.8)	0.51 (4.5)	0.64 (5.6)	0.77 (6.8)	1.1 (9.7)	1.3 (11.5)	1.5 (13.2)	2.0 (17.7)	2.5 (22)	2.9 (25)	4.1 (36)	4.9 (43)	5.8 (51)	6.9 (61)	7.7 (68)	9.2 (81)	11.5 (101)	13.9 (123)	—	—	—
		90	0.43 (3.8)	0.51 (4.5)	0.64 (5.6)	0.77 (6.8)	1.1 (9.7)	1.3 (11.5)	1.5 (13.2)	2.0 (17.7)	2.5 (22)	2.9 (25)	4.1 (36)	4.9 (43)	5.8 (51)	6.9 (61)	7.7 (68)	9.2 (81)	11.5 (101)	13.9 (123)	—	—	—

Permissible Radial Load and Permissible Axial Load

Combination Type

Product Name	Gear Ratio	Permissible Radial Load				Permissible Axial Load	
		Distance from the End of the Gearhead Output Shaft					
		10 mm (0.39 in.)		20 mm (0.79 in.)			
		N	lb.	N	lb.	N	lb.
DSCI26	5~25	150	33	200	45	40	9.0
	30~360	200	45	300	67		
DSCI315	5~25	200	45	300	67	80	18.0
	30~360	300	67	400	90		
DSCI425	5~25	300	67	350	78	100	22
	30~360	450	101	550	123		
DSCI540 DSCI560	5~9	400	90	500	112	150	33
	12.5~18	450	101	600	135		
	25~300	500	112	700	157		
DSCI590	5~9	400	90	500	112	150	33
	12.5~18	450	101	600	135		
	25~180	500	112	700	157		



Round Shaft Type

Product Name	Permissible Radial Load				Permissible Axial Load
	Distance from the End of the Output Shaft				
	10 mm (0.39 in.)		20 mm (0.79 in.)		
	N	lb.	N	lb.	
DSCI26	50	11.2	110	24	Half of motor mass or less*
DSCI315	40	9	60	13.5	
DSCI425	90	20	140	31	
DSCI540	140	31	200	45	
DSCI560 DSCI590	240	54	270	60	

*Avoid applying axial loads as much as possible. If an axial load is unavoidable, keep it at half or less of the motor mass.

Permissible Inertia J

Unit: $\times 10^{-4}$ kg·m² (oz·in²)

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
Product Name		12	18	28	40	78	110	160	260	370	540	920	1300	1700	2000	2500	3600	5000	5000	5000	5000	5000
DSCI26	During Instantaneous Stop or during Bi-Directional Operation*	66	98	153	220	430	600	880	1420	2000	3000	5000	7100	9300	10900	13700	19700	27000	27000	27000	27000	27000
		1.55	2.23	3.49	5.02	9.69	14	20.1	38.8	55.8	80.4	155	155	155	155	155	155	155	155	155	155	155
DSCI315	During Instantaneous Stop or during Bi-Directional Operation*	109	153	250	360	660	980	1420	2400	3400	4900	8200	11500	15300	17500	22000	31000	44000	44000	44000	44000	44000
		3.5	5.04	7.88	11.3	21.9	31.5	45.4	87.5	126	181	350	350	350	350	350	350	350	350	350	350	350
DSCI425	During Instantaneous Stop or during Bi-Directional Operation*	120	175	270	390	820	1200	1700	3000	4400	6000	12000	17500	22000	27000	34000	49000	66000	66000	66000	66000	66000
		7.75	11.2	17.4	25.1	48.4	69.8	100	194	279	402	775	775	775	775	775	775	775	775	775	775	775
DSCI540 DSCI560	During Instantaneous Stop or during Bi-Directional Operation*	250	360	550	820	1640	2300	3400	6000	8800	12600	25000	33000	44000	55000	66000	93000	137000	137000	137000	137000	—
		27.5	39.6	61.9	89.1	172	248	356	688	990	1426	2750	2750	2750	2750	2750	2750	2750	2750	2750	2750	—
DSCI590	During Instantaneous Stop or during Bi-Directional Operation*	250	360	550	820	1640	2300	3400	6000	8800	12600	25000	33000	44000	55000	66000	93000	137000	137000	—	—	—
		27.5	39.6	61.9	89.1	172	248	356	688	990	1426	2750	2750	2750	2750	2750	2750	2750	2750	—	—	—

*The values are when deceleration control is ON

How to Read Speed – Torque Characteristics

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

① 50 Hz Safe-Operation Line ② 60 Hz Safe-Operation Line

The safe-operation line is the permissible line of torque that is limited by the motor's permissible temperature.

Motors can be operated at the continuous rating within the safe-operation line. The safe-operation line is determined under the most severe condition where there is no heat conduction. Therefore, depending on the installation conditions of the motor, it can be operated beyond the safe-operation line.

Note

● When operating beyond the safe-operation line, ensure that the motor case temperature is maintained at 90°C (194°F) or less.

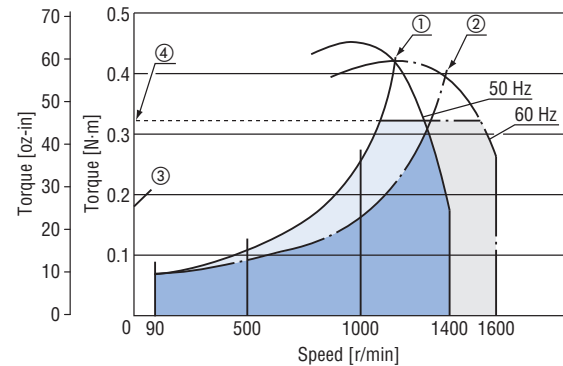
③ Starting Torque

This refers to the degree of torque with which the motor can start.

④ Permissible Torque on Combination Types

This refers to the permissible value of the motor torque when operating with the gearhead installed.

Because the permissible torque of the combination type varies according to the gear ratio, use the motor without exceeding the value on the list of permissible torques.



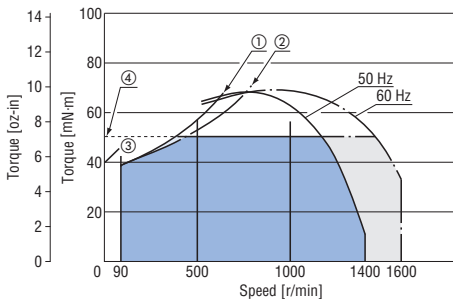
Speed – Torque Characteristics (Reference values)

① 50 Hz Safe-Operation Line ② 60 Hz Safe-Operation Line ③ Starting Torque ④ Permissible Torque on Combination Types

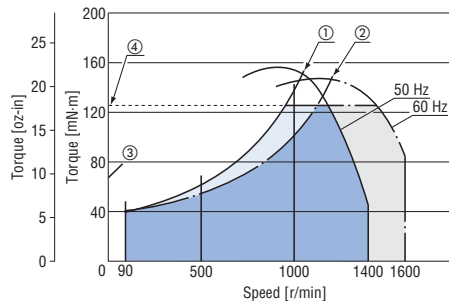
● All output characteristics are representative values. (For motor only)

The permissible torque and starting torque of the motor vary according to the voltage. Use after checking the specifications and permissible torque of the combination type.

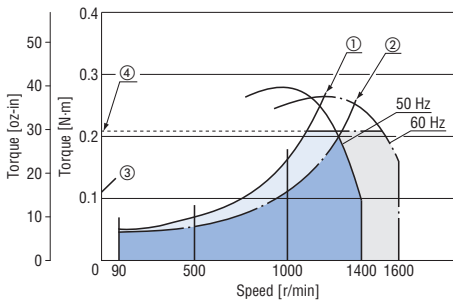
◇ 6 W (1/125 HP)



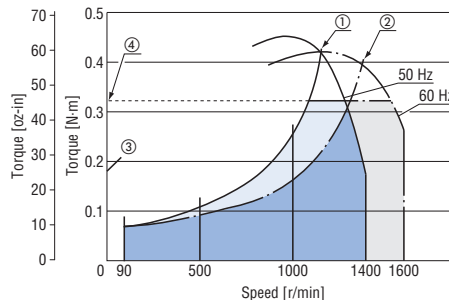
◇ 15 W (1/50 HP)



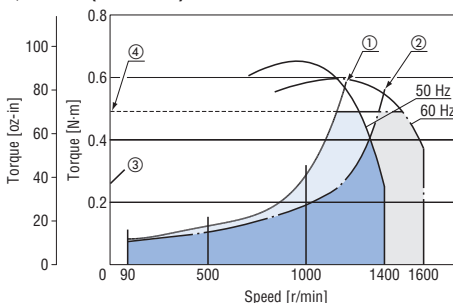
◇ 25 W (1/30 HP)



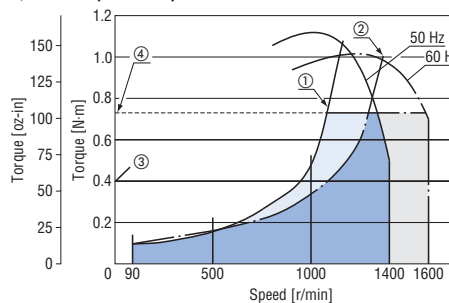
◇ 40 W (1/19 HP)



◇ 60 W (1/12 HP)



◇ 90 W (1/8 HP)



Dimensions Unit = mm (in.)

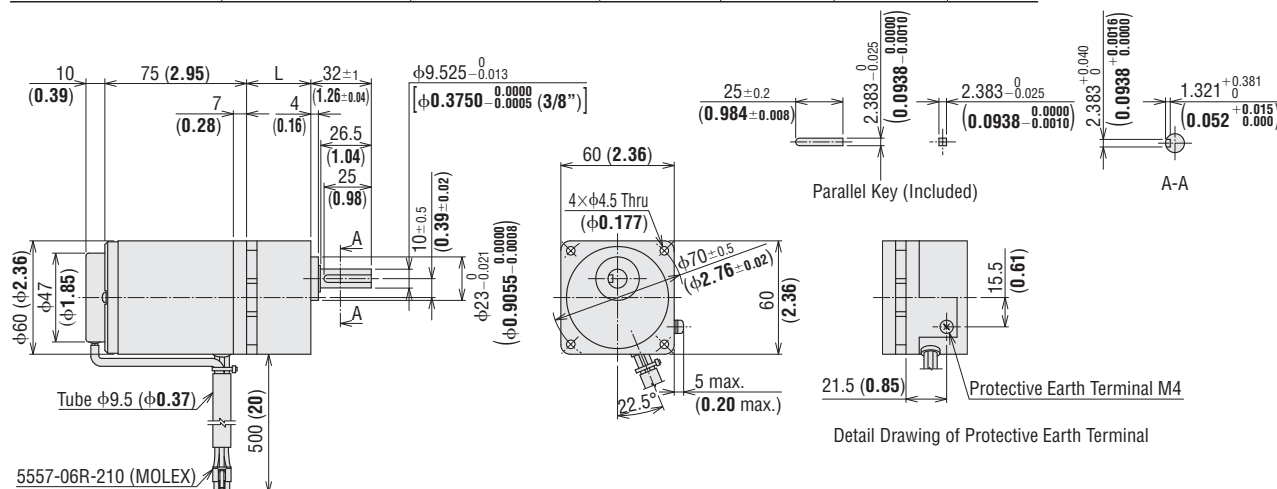
- "Installation screws" are included with the combination type. Dimensions of installation screws → Page C-215
- A number indicating the gear ratio is entered where the box □ is located within the product name.

Combination Type

◇ 6 W (1/125 HP)

2D & 3D CAD

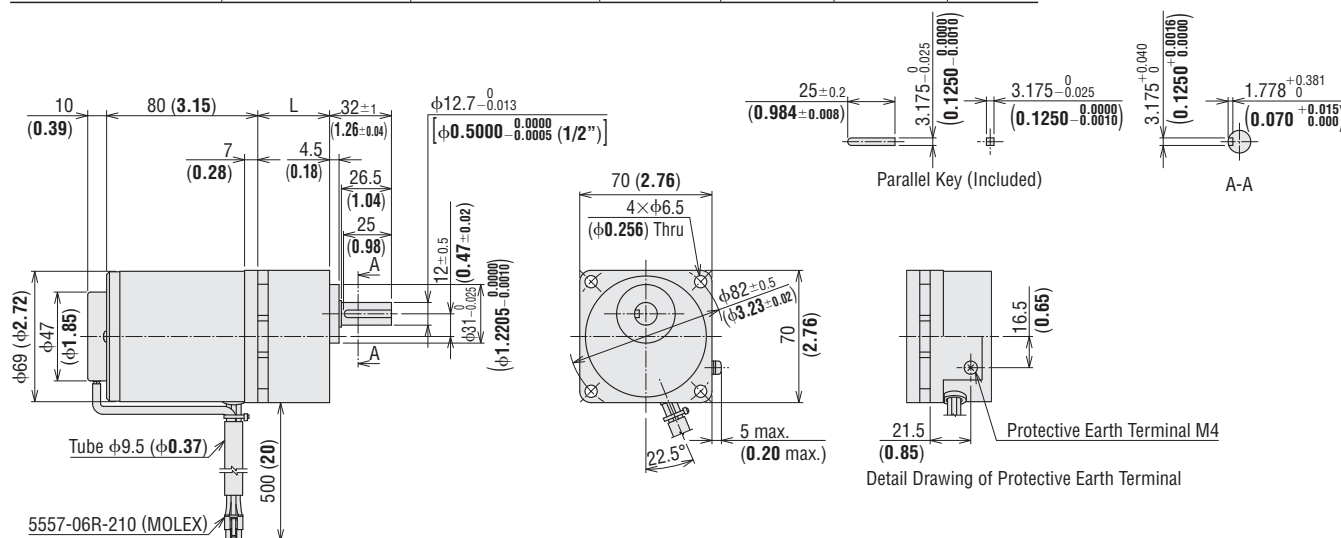
Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
DSCI26UA-□A-3V	2IK6UGV-UA	2GV□A	5~25	34 (1.34)	1.3	A1401A
DSCI26EC-□A-3V	2IK6UGV-EC		30~120	38 (1.50)	(2.9)	A1401B
			150~360	43 (1.69)		A1401C



◇ 15 W (1/50 HP)

2D & 3D CAD

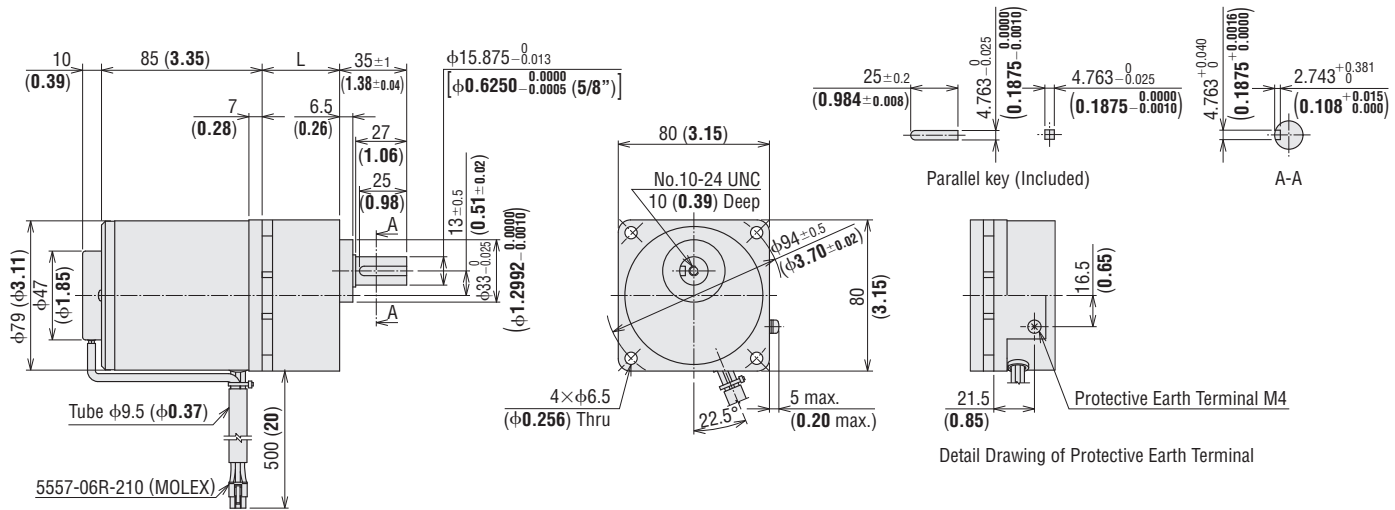
Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
DSCI315UA-□A-3V	3IK15UGV-UA	3GV□A	5~25	38 (1.50)	1.8	A1402A
DSCI315EC-□A-3V	3IK15UGV-EC		30~120	43 (1.69)	(4.0)	A1402B
			150~360	48 (1.89)		A1402C



◇ 25 W (1/30 HP)

2D & 3D CAD

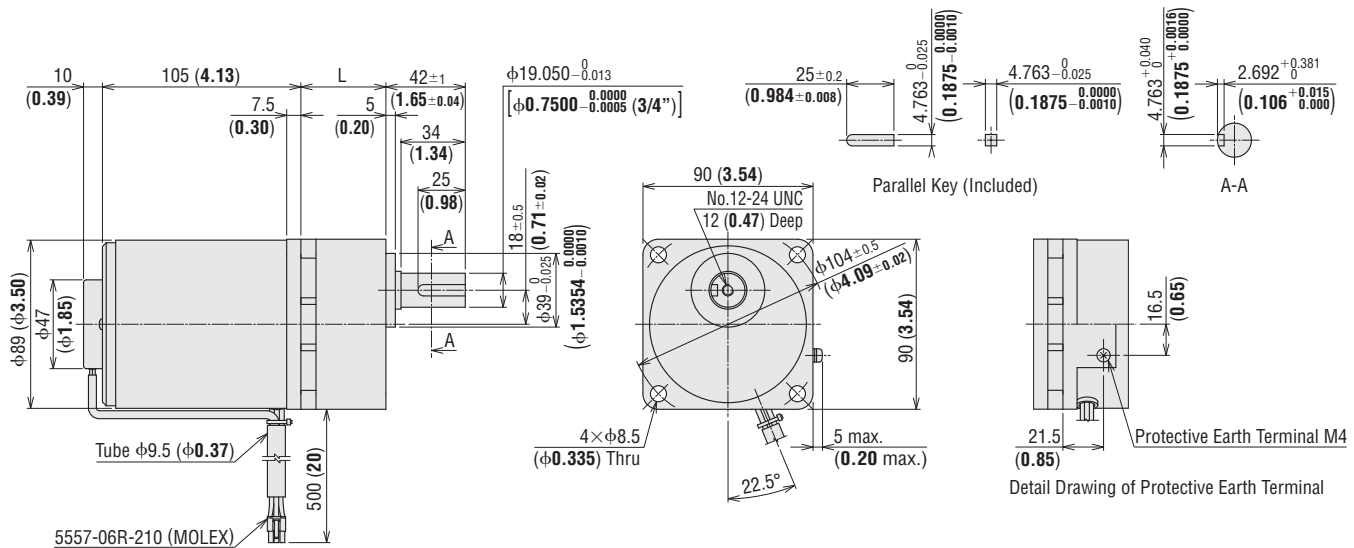
Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
DSCI425UA-□A-3V DSCI425EC-□A-3V	4IK25UGV-UA 4IK25UGV-EC	4GV□A	5~25 30~120 150~360	41 (1.61) 46 (1.81) 51 (2.01)	2.55 (5.6)	A1403A A1403B A1403C



◇ 40 W (1/19 HP)

2D & 3D CAD

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
DSCI540UA-□A-3V DSCI540EC-□A-3V	5IK40UGV-UA 5IK40UGV-EC	5GV□A	5~18 25~100 120~300	45 (1.77) 58 (2.28) 64 (2.52)	4.1 (9.0)	A1404A A1404B A1404C

Overview,
Product
SeriesBrushless
MotorsAC Input
BMUAC Input
BLEAC Input
BLFAC Input
BXIIDC Input
BLHAC Speed
Control
Motors

DSC

BHF

Accessories

Installation

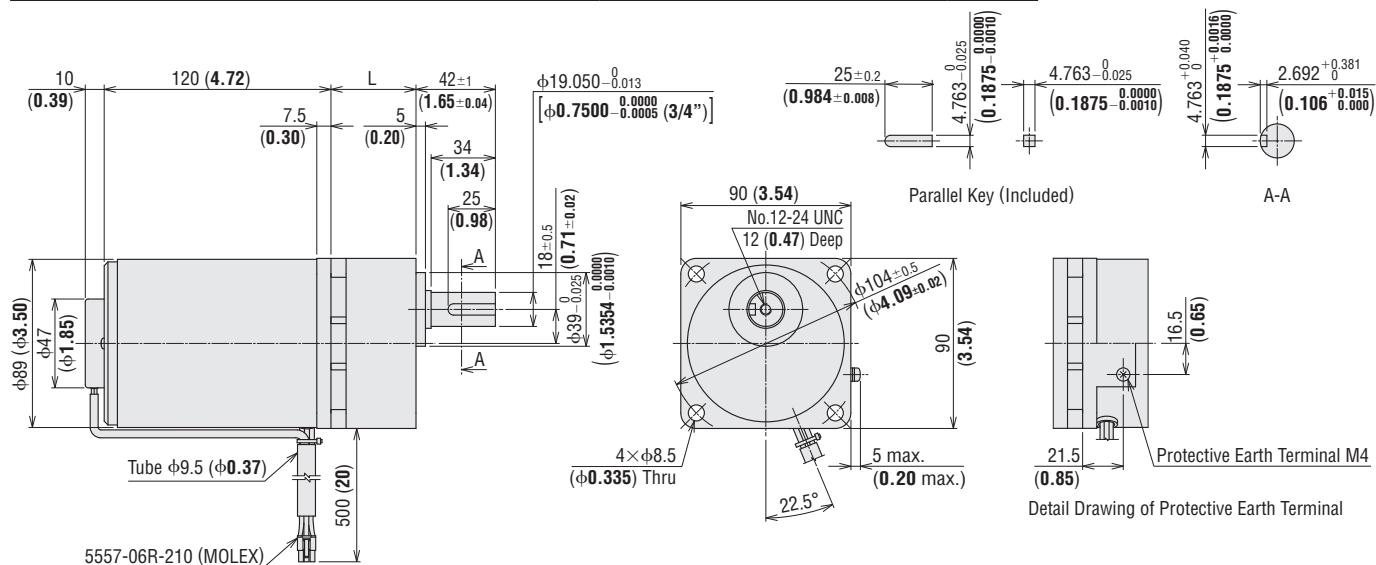
◇ 60 W (1/12 HP)

2D & 3D CAD

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
DSCI560UA-□A-3V	5IK60UGVH-UA	5GVH□A	5~18	45 (1.77)	4.6 (10.1)	A1405A
DSCI560EC-□A-3V	5IK60UGVH-EC		25~100	58 (2.28)		A1405B
			120~300	64 (2.52)		A1405C

Standard Type
Parallel Shaft/
Round Shaft

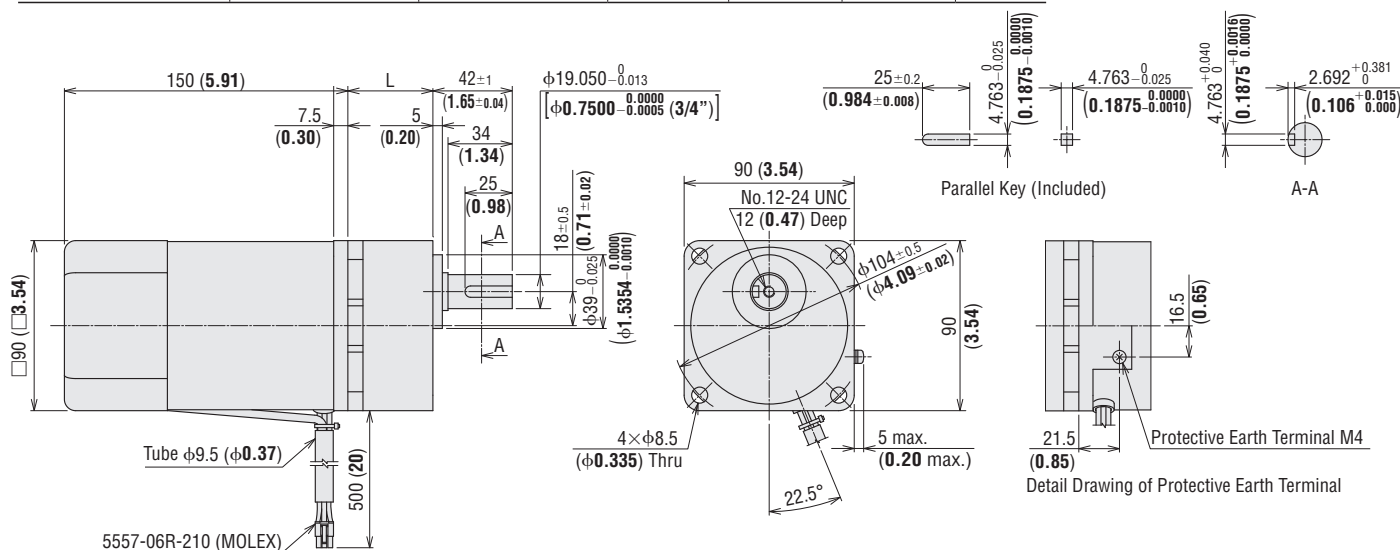
Electromagnetic
Brake Type
Parallel Shaft



◇ 90 W (1/8 HP)

2D & 3D CAD

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
DSCI590UA-□A-3V	5IK90UGVR-UA	5GVR□A	5~15	45 (1.77)	4.8 (10.6)	A1406A
DSCI590EC-□A-3V	5IK90UGVR-EC		18~36	58 (2.28)		A1406B
			50~180	70 (2.76)		A1406C



● Round Shaft Type

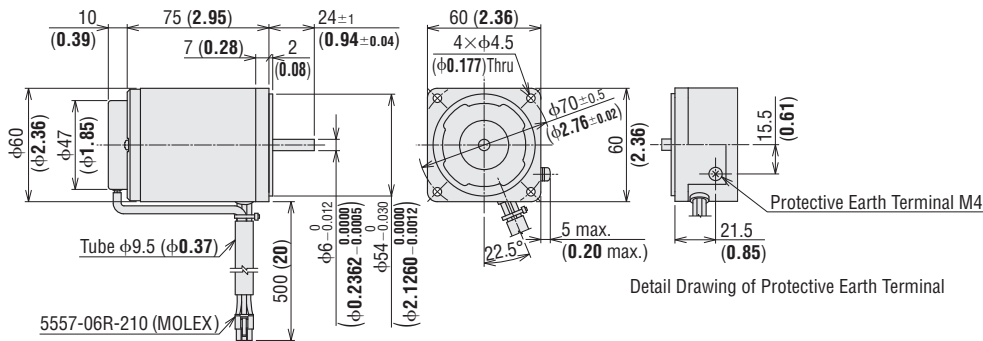
◇ 6 W (1/125 HP)

DSCI26UA-A-3V, DSCI26EC-A-3V

Motor: 2IK6UA-UA, 2IK6UA-EC

Mass: 0.8 kg (1.76 lb.)

2D CAD A1256 3D CAD



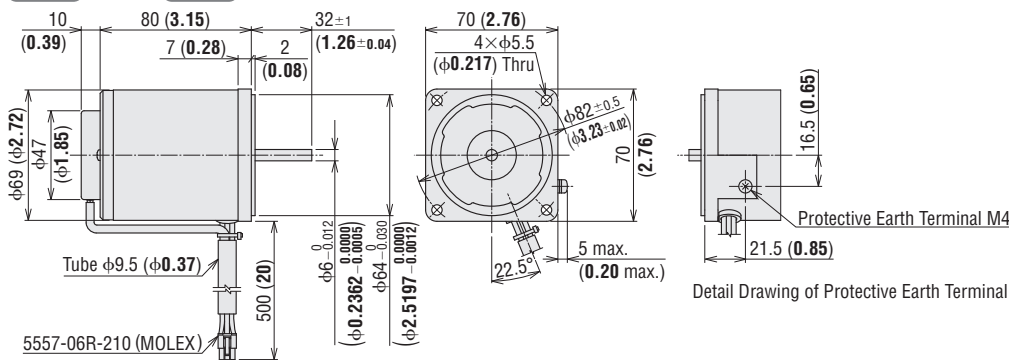
◇ 15 W (1/50 HP)

DSCI315UA-A-3V, DSCI315EC-A-3V

Motor: 3IK15UA-UA, 3IK15UA-EC

Mass: 1.2 kg (2.6 lb.)

2D CAD A1257 3D CAD



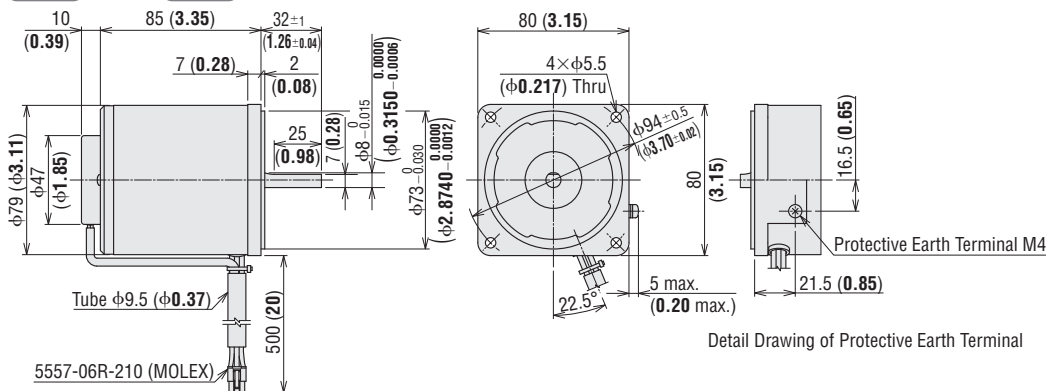
◇ 25 W (1/30 HP)

DSCI425UA-A-3V, DSCI425EC-A-3V

Motor: 4IK25UA-UA, 4IK25UA-EC

Mass: 1.6 kg (3.5 lb.)

2D CAD A1258 3D CAD

Overview,
Product
SeriesBrushless
MotorsAC Input
BMUAC Input
BLEAC Input
BLFAC Input
BXIIDC Input
BLHAC Speed
Control
Motors

DSC

BHF

Accessories

Installation

◇ 40 W (1/19 HP)

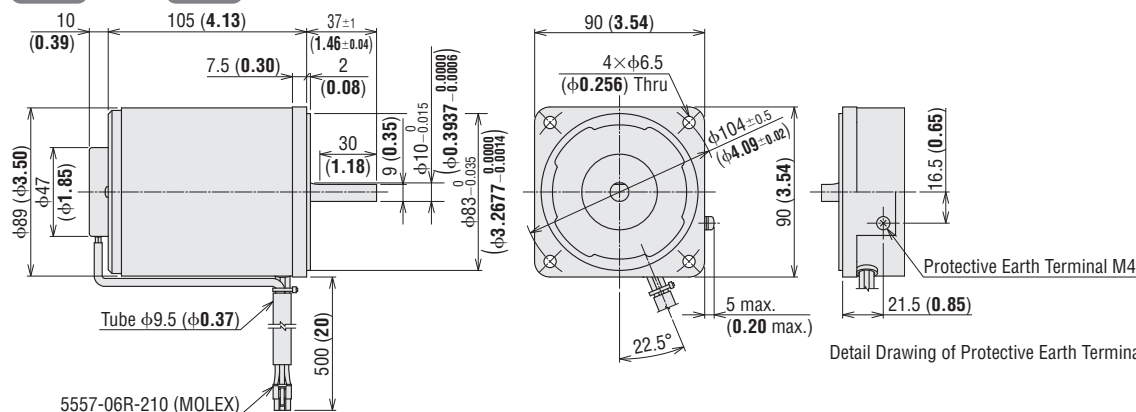
DSCI540UA-A-3V, DSCI540EC-A-3V

Motor: 5IK40UA-UA, 5IK40UA-EC

Mass: 2.6 kg (5.7 lb.)

2D CAD A1259

3D CAD



◇ 60 W (1/12 HP)

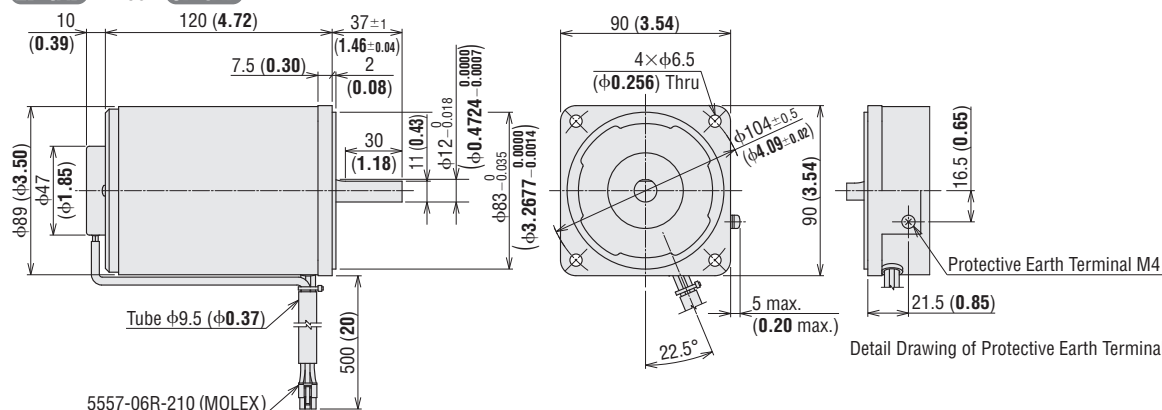
DSCI560UA-A-3V, DSCI560EC-A-3V

Motor: 5IK60UA-UA, 5IK60UA-EC

Mass: 3.1 kg (6.8 lb.)

2D CAD A1260

3D CAD



◇ 90 W (1/8 HP)

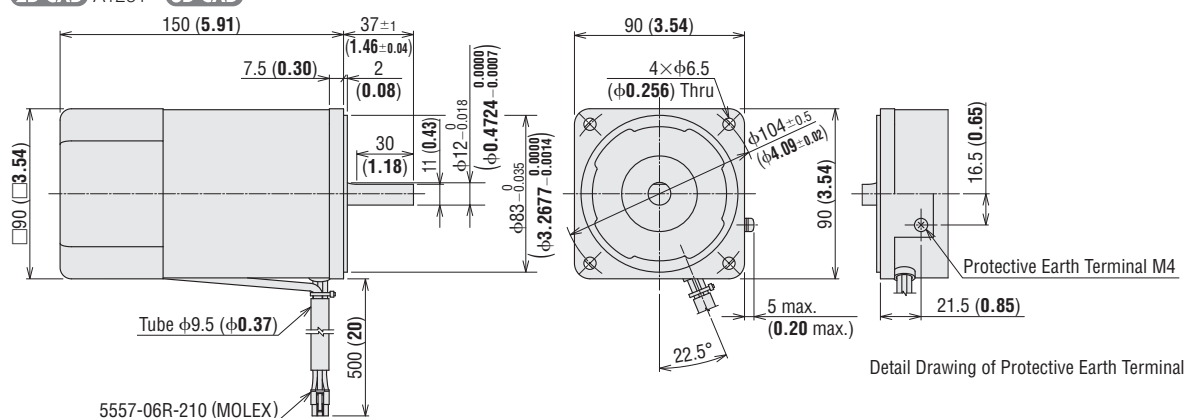
DSCI590UA-A-3V, DSCI590EC-A-3V

Motor: 5IK90UA-UA, 5IK90UA-EC

Mass: 3.3 kg (7.3 lb.)

2D CAD A1261

3D CAD

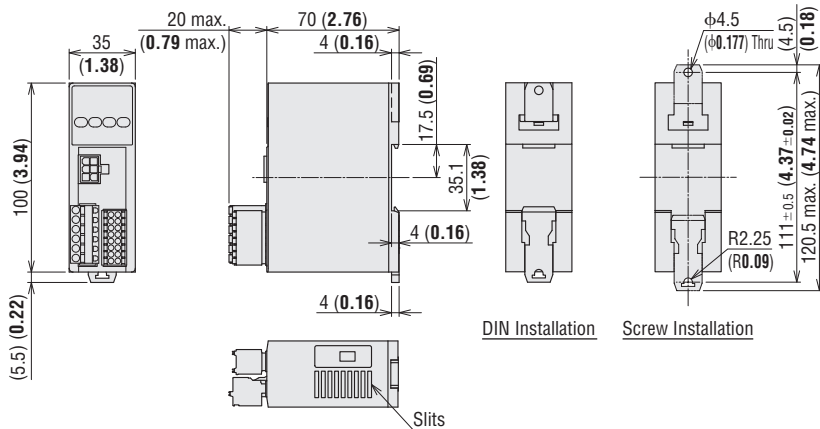


●Speed Controller

DSC-U

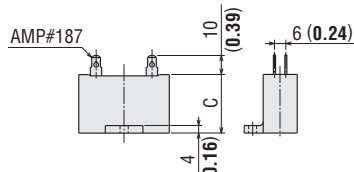
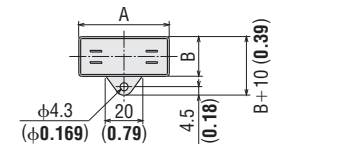
Mass: 0.2 kg (0.44 lb.)

2D CAD A1262 3D CAD

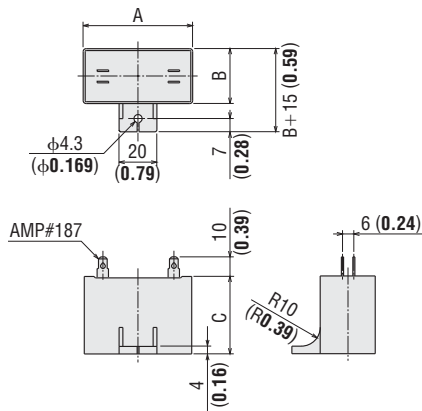


●Capacitor (Included)

Dimensions No. ①



Dimensions No. ②

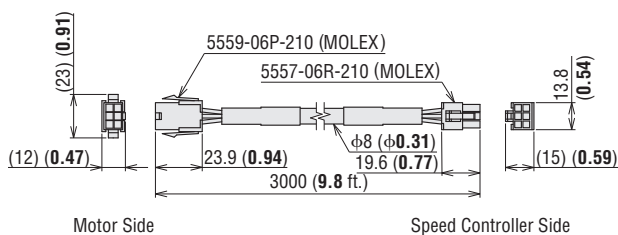


●Capacitor Dimensions Unit: mm (in.)

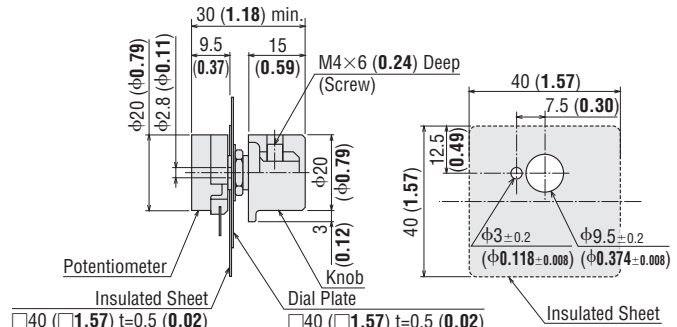
Product Name		Capacitor Product Name	A	B	C	Mass g (oz.)	Dimensions No.
Combination Type	Round Shaft Type						
DSCI26UA-□A-3V	DSCI26UA-A-3V	CH25FAUL2	31 (1.22)	17 (0.67)	27 (1.06)	21 (0.74)	①
DSCI26EC-□A-3V	DSCI26EC-A-3V	CH06BFAUL	31 (1.22)	14.5 (0.57)	23.5 (0.93)	18 (0.64)	
DSCI315UA-□A-3V	DSCI315UA-A-3V	CH45FAUL2	37 (1.46)	18 (0.71)	27 (1.06)	26 (0.92)	
DSCI315EC-□A-3V	DSCI315EC-A-3V	CH10BFAUL	37 (1.46)	18 (0.71)	27 (1.06)	27 (0.95)	
DSCI425UA-□A-3V	DSCI425UA-A-3V	CH65CFAUL2	48 (1.89)	19 (0.75)	29 (1.14)	35 (1.24)	
DSCI425EC-□A-3V	DSCI425EC-A-3V	CH15BFAUL	38 (1.50)	21 (0.83)	31 (1.22)	37 (1.31)	
DSCI540UA-□A-3V	DSCI540UA-A-3V	CH90CFAUL2	48 (1.89)	22.5 (0.89)	31.5 (1.24)	45 (1.59)	
DSCI540EC-□A-3V	DSCI540EC-A-3V	CH23BFAUL	48 (1.89)	21 (0.83)	31 (1.22)	43 (1.52)	
DSCI560UA-□A-3V	DSCI560UA-A-3V	CH120CFAUL2	58 (2.28)	22 (0.87)	35 (1.38)	60 (2.1)	
DSCI560EC-□A-3V	DSCI560EC-A-3V	CH30BFAUL	58 (2.28)	21 (0.83)	31 (1.22)	50 (1.77)	
DSCI590UA-□A-3V	DSCI590UA-A-3V	CH200CFAUL2	58 (2.28)	29 (1.14)	41 (1.61)	91 (3.2)	②
DSCI590EC-□A-3V	DSCI590EC-A-3V	CH60BFAUL	58 (2.28)	29 (1.14)	41 (1.61)	92 (3.2)	

● A capacitor cap is included with the capacitor.

●Connection Cable (Included)



●External Speed Potentiometer (Included)



Recommended thickness of a mounting plate is a maximum of 4.5 mm (0.18 in.).

Overview,
Product
SeriesBrushless
MotorsAC Input
BMUAC Input
BLEAC Input
BLFAC Input
BXIIDC Input
BLHAC Speed
Control
Motors

DSC

BHF

Accessories

Installation

List of Motor and Speed Controller Combinations

● Parallel Shaft Combination Type

Output Power	Product Name	Combination Type Motor Product Name*	Motor Product Name	Gearhead Product Name	Speed Controller Product Name
6 W (1/125 HP)	DSCI26UA-□A-3V	2IK6UUA-□A	2IK6UGV-UA	2GV□A	DSC-U
	DSCI26EC-□A-3V	2IK6UEC-□A	2IK6UGV-EC		
15 W (1/50 HP)	DSCI315UA-□A-3V	3IK15UUA-□A	3IK15UGV-UA	3GV□A	
	DSCI315EC-□A-3V	3IK15UEC-□A	3IK15UGV-EC		
25 W (1/30 HP)	DSCI425UA-□A-3V	4IK25UUA-□A	4IK25UGV-UA	4GV□A	
	DSCI425EC-□A-3V	4IK25UEC-□A	4IK25UGV-EC		
40 W (1/19 HP)	DSCI540UA-□A-3V	5IK40UUA-□A	5IK40UGV-UA	5GV□A	
	DSCI540EC-□A-3V	5IK40UEC-□A	5IK40UGV-EC		
60 W (1/12 HP)	DSCI560UA-□A-3V	5IK60UUA-□A	5IK60UGVH-UA	5GVH□A	
	DSCI560EC-□A-3V	5IK60UEC-□A	5IK60UGVH-EC		
90 W (1/8 HP)	DSCI590UA-□A-3V	5IK90UUA-□A	5IK90UGVR-UA	5GVR□A	
	DSCI590EC-□A-3V	5IK90UEC-□A	5IK90UGVR-EC		

*Combination type motor product names are names of special order products in which motors and gearheads are pre-assembled.

● Round Shaft Type

Output Power	Product Name	Motor Product Name	Speed Controller Product Name
6 W (1/125 HP)	DSCI26UA-A-3V	2IK6UA-UA	DSC-U
	DSCI26EC-A-3V	2IK6UA-EC	
15 W (1/50 HP)	DSCI315UA-A-3V	3IK15UA-UA	
	DSCI315EC-A-3V	3IK15UA-EC	
25 W (1/30 HP)	DSCI425UA-A-3V	4IK25UA-UA	
	DSCI425EC-A-3V	4IK25UA-EC	
40 W (1/19 HP)	DSCI540UA-A-3V	5IK40UA-UA	
	DSCI540EC-A-3V	5IK40UA-EC	
60 W (1/12 HP)	DSCI560UA-A-3V	5IK60UA-UA	
	DSCI560EC-A-3V	5IK60UA-EC	
90 W (1/8 HP)	DSCI590UA-A-3V	5IK90UA-UA	
	DSCI590EC-A-3V	5IK90UA-EC	

● A number indicating the gear ratio is entered where the box □ is located within the product name.

Electromagnetic Brake Type

Parallel Shaft Combination Type



Parallel Shaft Combination Type

Overview,
Product
Series

Brushless
Motors

AC Input
BMU

AC Input
BLE

AC Input
BLF

AC Input
BXII

DC Input
BLH

AC Speed
Control
Motors

DSC

BHF

Accessories

Installation

Product Line

Combination Type

Delivered with the motor and gearhead pre-assembled.

The combination of motor and gearhead can be changed or purchased separately. In addition, the gearhead can be removed and the assembly position can be changed in 90° increments.

Parallel Shaft Combination Type

Output Power	Power Supply Voltage	Product Name	Gear Ratio	List Price
6 W (1/125 HP)	Single-Phase 110/115 VAC	DSCI26UAM-□A-3V	7.5, 9, 12.5, 15, 18	\$379.00
			25, 30, 36	\$385.00
			50, 60, 75, 90, 100, 120, 150, 180	\$392.00
			250, 300, 360	\$438.00
	Single-Phase 220/230 VAC	DSCI26ECM-□A-3V	7.5, 9, 12.5, 15, 18	\$381.00
			25, 30, 36	\$387.00
			50, 60, 75, 90, 100, 120, 150, 180	\$394.00
			250, 300, 360	\$440.00
15 W (1/50 HP)	Single-Phase 110/115 VAC	DSCI315UAM-□A-3V	7.5, 9, 12.5, 15, 18	\$390.00
			25, 30, 36	\$396.00
			50, 60, 75, 90, 100, 120, 150, 180	\$403.00
			250, 300, 360	\$447.00
	Single-Phase 220/230 VAC	DSCI315ECM-□A-3V	7.5, 9, 12.5, 15, 18	\$392.00
			25, 30, 36	\$398.00
			50, 60, 75, 90, 100, 120, 150, 180	\$405.00
			250, 300, 360	\$449.00
25 W (1/30 HP)	Single-Phase 110/115 VAC	DSCI425UAM-□A-3V	7.5, 9, 12.5, 15, 18	\$424.00
			25, 30, 36	\$430.00
			50, 60, 75, 90, 100, 120, 150, 180	\$437.00
			250, 300, 360	\$484.00
	Single-Phase 220/230 VAC	DSCI425ECM-□A-3V	7.5, 9, 12.5, 15, 18	\$427.00
			25, 30, 36	\$433.00
			50, 60, 75, 90, 100, 120, 150, 180	\$440.00
			250, 300, 360	\$487.00
40 W (1/19 HP)	Single-Phase 110/115 VAC	DSCI540UAM-□A-3V	7.5, 9, 12.5, 15, 18	\$466.00
			25, 30, 36	\$473.00
			50, 60, 75, 90, 100, 120, 150, 180	\$480.00
			250, 300	\$558.00
	Single-Phase 220/230 VAC	DSCI540ECM-□A-3V	7.5, 9, 12.5, 15, 18	\$470.00
			25, 30, 36	\$477.00
			50, 60, 75, 90, 100, 120, 150, 180	\$484.00
			250, 300	\$562.00
60 W (1/12 HP)	Single-Phase 110/115 VAC	DSCI560UAM-□A-3V	7.5, 9, 12.5, 15, 18	\$540.00
			25, 30, 36, 50, 60, 75, 90, 100	\$551.00
			120, 150, 180	\$561.00
			250, 300	\$595.00
	Single-Phase 220/230 VAC	DSCI560ECM-□A-3V	7.5, 9, 12.5, 15, 18	\$545.00
			25, 30, 36, 50, 60, 75, 90, 100	\$556.00
			120, 150, 180	\$566.00
			250, 300	\$600.00
90 W (1/8 HP)	Single-Phase 110/115 VAC	DSCI590UAM-□A-3V	7.5, 9, 12.5, 15, 18	\$560.00
			25, 30, 36, 50, 60	\$580.00
			75, 90, 100, 120, 150, 180	\$590.00
	Single-Phase 220/230 VAC	DSCI590ECM-□A-3V	7.5, 9, 12.5, 15, 18	\$564.00
			25, 30, 36, 50, 60	\$584.00
			75, 90, 100, 120, 150, 180	\$594.00

The following items are included with each product.

Motor, Gearhead, Speed Controller, Capacitor, Capacitor Cap, Installation Screws, Parallel Key, Connection Cable, External Speed Potentiometer, Operating Manual

● A number indicating the gear ratio is entered where the box □ is located within the product name.

Product Number

DSC I 4 25 UA M - 50A -3 V

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

Standard Type
Parallel Shaft/
Round Shaft

Electromagnetic
Brake Type
Parallel Shaft

①	Series Name	DSC: DSC Series						
②	Motor Type	I: Induction Motor						
③	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.)						
④	Output Power (W)	(Example) 25: 25 W (1/30 HP)						
⑤	Power Supply Voltage	UA: Single-Phase 110/115 VAC EC: Single-Phase 220/230 VAC						
⑥	M: Power Off Activated Type Electromagnetic Brake							
⑦	Gear Ratio/Shaft Type	Number: Gear ratio for combination types						
⑧	Connection Cable (Included)	3: Length of the included connection cable is 3 m (9.8 ft.)						
⑨	External Speed Potentiometer (Included)	V: External speed potentiometer included						

Deceleration Control Function Integrated with the Electromagnetic Brake Type Package

The electromagnetic brake type features a deceleration control function which allows speed control during vertical operation and gravitational operation.

"What is the Deceleration Control Function?"

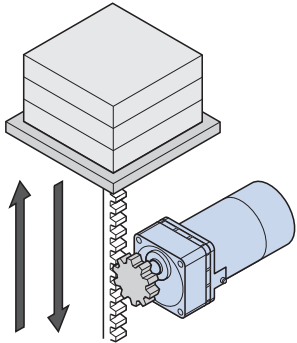
It is a function that applies brake current automatically to regulate the speed when the motor rotates faster than the setting speed. Even when force is applied in the direction of the motor output shaft's rotation due to vertical operation or an inertial load, the motor can be controlled to meet the setting speed.

"Deceleration Control" ON (Factory setting): Applicable for vertical operation, gravitational operation, horizontal operation, position holding.

"Deceleration Control" OFF : Applicable for horizontal operation, position holding. (Variable speed range is expanded.)

● Specification values and permissible torque values will differ based on whether the deceleration control is ON or OFF.

Item	"Deceleration Control" Parameter ON (Factory setting)	"Deceleration Control" Parameter OFF
Deceleration Control Function	Enabled	Disabled
Variable Speed Range	300~1400 r/min (50 Hz) 300~ 1600 r/min (60 Hz)	90 ~ 1400 r/min (50 Hz) 90 ~ 1400 r/min (60 Hz)
Acceleration Time/Deceleration Time Range	0.2~15.0 seconds	0.0~15.0 seconds



Specifications Continuous Rating*1

● Single-Phase 110/115 VAC, Single-Phase 220/230 VAC



Product Name	Max. Output Power	Voltage	Frequency	Variable Speed Control Range*2	Current	Power Consumption	Capacitor	Motor Overheat Protection Device	Electromagnetic Brake (Power off activated type)			
	W (HP)	VAC	Hz	r/min	A	W	μF		Static Friction Torque mN·m (oz·in)			
DSCI26UAM-□A-3V	6 (1/125)	Single-Phase 110	60	300 (90)~1600	0.28	29	2.5	ZP	30 (4.2)			
		Single-Phase 115										
DSCI26ECM-□A-3V		Single-Phase 220	50	300 (90)~1400		29		0.6		ZP		
			60	300 (90)~1600								
		Single-Phase 230	50	300 (90)~1400								
		60	300 (90)~1600									
DSCI315UAM-□A-3V	15 (1/50)	Single-Phase 110	60	300 (90)~1600	0.48	46	4.5	TP	80 (11.3)			
		Single-Phase 115										
DSCI315ECM-□A-3V		Single-Phase 220	50	300 (90)~1400		0.23		43		1.0	TP	
			60	300 (90)~1600				46				
		Single-Phase 230	50	300 (90)~1400				44				
		60	300 (90)~1600		47							
DSCI425UAM-□A-3V	25 (1/30)	Single-Phase 110	60	300 (90)~1600	0.75	58	6.5	TP	100 (14.2)			
		Single-Phase 115				69						
DSCI425ECM-□A-3V		Single-Phase 220	50	300 (90)~1400		0.37		70		1.5	TP	
			60	300 (90)~1600								
		Single-Phase 230	50	300 (90)~1400								
		60	300 (90)~1600									
DSCI540UAM-□A-3V	40 (1/19)	Single-Phase 110	60	300 (90)~1600	1.1	107	9.0	TP	200 (28)			
		Single-Phase 115										
DSCI540ECM-□A-3V		Single-Phase 220	50	300 (90)~1400		0.55		96		2.3	TP	
			60	300 (90)~1600				104				
		Single-Phase 230	50	300 (90)~1400				99				
		60	300 (90)~1600		105							
DSCI560UAM-□A-3V	60 (1/12)	Single-Phase 110	60	300 (90)~1600	1.5	144	12	TP	500 (71)			
		Single-Phase 115				145						
DSCI560ECM-□A-3V		Single-Phase 220	50	300 (90)~1400		0.71		129		3.0	TP	
			60	300 (90)~1600				143				
		Single-Phase 230	50	300 (90)~1400				132				
		60	300 (90)~1600		144							
DSCI590UAM-□A-3V	90 (1/8)	Single-Phase 110	60	300 (90)~1600	2.4	224	20	TP				
		Single-Phase 115				227						
DSCI590ECM-□A-3V		Single-Phase 220	50	300 (90)~1400		1.2		201		6.0	TP	
			60	300 (90)~1600				1.3				226
		Single-Phase 230	50	300 (90)~1400				1.2				204
		60	300 (90)~1600		1.3	228						

*1 When deceleration control is ON, the rated specifications will vary. For details, check "Common Specifications - Permissible continuous operation time while deceleration control is ON" → Page D-160.

*2 The value in () can be set when deceleration control is OFF.

● The specifications in the table are the characteristics of the motor on its own. The variable speed ranges shown are under no load conditions.

ZP: This indicates that these products are impedance protected. TP: This indicates that there is a built-in thermal protector (automatic return type).

● A number indicating the gear ratio is entered where the box □ is located within the product name.

Common Specifications

Item		Specifications
Standard Type Parallel Shaft/ Round Shaft	Speed Setting Methods	Setting can be performed using any of the following methods: - Setting via Control Panel A maximum of 4 patterns of operation data can be set. - External Speed Potentiometer PAVR-20KZ (20 kΩ, 1/4 W) - External DC Voltage: 0~5 VDC, or 0~10 VDC
	Acceleration Time and Deceleration Time Setting Range	0.2~15.0 seconds (0.0~15.0 seconds: It can be set when the deceleration control is OFF.) Acceleration time/deceleration time varies with the load condition of the motor.
Electromagnetic Brake Type Parallel Shaft	Monitor Mode	Speed, operating data number, alarm code, warning code, I/O monitor
	Data Mode	Speed, acceleration time, deceleration time, reset
	Parameter Mode	Gear ratio, speed increasing ratio, fixed last digit display, initial operation inhibition alarm, external speed command input, external speed command voltage selection, external speed control offset, speed upper and lower limit, deceleration control, brake type, input function selection, output function selection, motor lock detection time, motor rotation direction, reset
	Test Mode	JOG operation, releasing of the electromagnetic brake
Function	Others	Data editing lock
	Control Power Source	24 VDC±10% 0.15 A min.
Input Signals	Photocoupler Input	Input Resistance 4.7 kΩ
	Arbitrary signal assignment to IN0~IN5 input (6 points) is possible []: Initial Setting	[FWD], [REV], [MO], [M1], [ALARM-RESET], [FREE], EXT-ERROR Sink input/Source input... Can be switched using the selection switch: Factory setting sink input
Output Signals	Photocoupler and Open-Collector Output	External Power Supply 4.5~30 VDC, 40 mA max.
	Arbitrary signal assignment to OUT0, OUT1 output (2 points) is possible []: Initial setting	[SPEED-OUT], [ALARM-OUT], TH-OUT, WNG Sink Output/Source Output--Supports external wiring
Protective Function	When the following protective functions are activated, output to the motor is shut down, the electromagnetic brake is engaged and the motor stops. The alarm output will be switched to OFF. At the same, the alarm code will be displayed on the control panel and the ALARM LED will light up.	Alarm Types: Motor overheat, motor lock, overspeed, EEPROM error, initial operation inhibition, external stop
	Permissible Continuous Operation Time while Deceleration Control is ON	6 W (1/125 HP) Permissible Continuous Operation Time: Continuous Operating Duty: Continuous 15 W (1/50 HP), 25 W (1/30 HP), 40 W (1/19 HP) Permissible Continuous Operation Time: 1 minute Operating Duty: 50% max. (Example: 1 minute operating, 1 minute stopped) 60 W (1/12 HP), 90 W (1/8 HP) Permissible Continuous Operation Time: 1 minute Operating Duty: 33% max. (Example: 1 minute operating, 2 minutes stopped)
Max. Extension Distance		Motor and Speed Controller Distance: 10.5 m (34.4 ft.) (when an accessory connection cable is used)

General Specifications

Item		Motor	Speed Controller
Insulation Resistance		100 MΩ or more when 500 VDC megger is applied between the windings and the case after continuous operation under normal ambient temperature and humidity.	100 MΩ or more when 500 VDC megger is applied between the main circuit terminal and the control circuit terminal, between the main circuit terminal and the case, and between the main circuit terminal and FG after continuous operation under normal ambient temperature and humidity.
Dielectric Strength		Sufficient to withstand 1.5 kVAC at 50 Hz or 60 Hz applied between the windings and the case for 1 minute after continuous operation under normal ambient temperature and humidity.	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, and 1.5 kVAC at 50 Hz or 60 Hz applied between the main circuit terminal and FG for 1 minute after continuous operation under normal ambient temperature and humidity.
Temperature Rise		Temperature rise of the winding temperature is 80°C (144°F) or less when measured by the resistance change method after no-load continuous operation under normal ambient temperature and humidity.	—
Overheat Protection Device		The 6 W (1/125 HP) type is impedance protected. All other motors have a built-in thermal protector (Automatic return type).	—
Operating Environment	Ambient Temperature	−10~+40°C (+14~+104°F) (Non-freezing)	0~+40°C (+32~+104°F) (Non-freezing)
	Ambient Humidity	85% max. (Non-condensing)	
	Altitude	Max. of 1000 m (3300 ft.) above sea level	
Thermal Class		130 (B)	—
Degree of Protection		IP20	IP20

Note

- Do not measure insulation resistance or perform the dielectric voltage test while the motor and speed controller are connected.

Output Shaft Speed, Permissible Torque and Starting Torque while Deceleration Control is ON (Factory setting)

Description of deceleration control → Page D-158

Output Shaft Rotation Speed

● Motor Shaft Speed

Low Speed: 300 r/min, High Speed at 50 Hz: 1400 r/min, High Speed at 60 Hz: 1600 r/min

Unit: r/min

Gear Ratio		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	186	155	112	93	77	56	46	38	28	23	18.6	15.5	14	11.6	9.3	7.7	5.6	4.6	3.8
	60 Hz	213	177	128	106	88	64	53	44	32	26	21	17.7	16	13.3	10.6	8.8	6.4	5.3	4.4
Low Speed		40	33	24	20	16	12	10	8.3	6	5	4	3.3	3	2.5	2	1.6	1.2	1	0.83

Permissible Torque and Starting Torque

- When within the variable speed range (50 Hz: 300~1400 r/min, 60 Hz: 300~1600 r/min), permissible torque and starting torque are a constant value.
- During horizontal operation, even when deceleration control is ON, the value is the same as when deceleration control is OFF. Permissible torque and starting torque while deceleration control is OFF → Page D-162
- A colored background () indicates gear shaft rotation in the same direction as the motor shaft, while the others rotate in the opposite direction.

Unit: N·m (lb-in)

Gear Ratio		7.5	9	12.5	15	18	25	30	36	50	60	75	90	100	120	150	180	250	300	360
Permissible Torque Starting Torque	DSCI26UAM	0.20	0.24	0.34	0.41	0.49	0.68	0.77	0.93	1.3	1.5	1.9	2.3	2.6	3.1	3.6	4.4	6	6	6
	DSCI26ECM	(1.77)	(2.1)	(3.0)	(3.6)	(4.3)	(6.0)	(6.8)	(8.2)	(11.5)	(13.2)	(16.8)	(20)	(23)	(27)	(31)	(38)	(53)	(53)	(53)
	DSCI315UAM	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	6.1	7.3	10	10	10
	DSCI315ECM	(3.0)	(3.6)	(4.9)	(6.0)	(7.1)	(9.7)	(11.5)	(13.2)	(19.4)	(23)	(28)	(34)	(38)	(46)	(53)	(64)	(88)	(88)	(88)
	DSCI425UAM	0.54	0.65	0.90	1.1	1.3	1.8	2.1	2.5	3.4	4.1	5.2	6.2	6.9	8.3	9.7	11.7	16	16	16
	DSCI425ECM	(4.7)	(5.7)	(7.9)	(9.7)	(11.5)	(15.9)	(18.5)	(22)	(30)	(36)	(46)	(54)	(61)	(73)	(85)	(103)	(141)	(141)	(141)
	DSCI540UAM	0.95	1.1	1.6	1.9	2.3	3.0	3.6	4.3	6.0	7.2	9.0	10.8	12.0	13.6	17.0	20.4	28.4	30	—
	DSCI540ECM	(8.4)	(9.7)	(14.1)	(16.8)	(20)	(26)	(31)	(38)	(53)	(63)	(79)	(95)	(106)	(120)	(150)	(180)	(250)	(260)	—
	DSCI560UAM	1.4	1.7	2.4	2.8	3.4	4.5	5.4	6.5	9.0	10.8	13.5	16.3	18.1	20.4	25.5	30	30	30	—
	DSCI560ECM	(12.3)	(15.0)	(21)	(24)	(30)	(39)	(47)	(57)	(79)	(95)	(119)	(144)	(160)	(180)	(220)	(260)	(260)	(260)	—
DSCI590UAM	2.2	2.6	3.6	4.3	5.0	6.9	8.3	9.9	13.8	16.5	19.4	23.3	25.9	31.1	38.9	40	—	—	—	
DSCI590ECM	(19.4)	(23)	(31)	(38)	(44)	(61)	(73)	(87)	(122)	(146)	(171)	(200)	(220)	(270)	(340)	(350)	—	—	—	

Overview,
Product
Series

Brushless
Motors

AC Input
BMU

AC Input
BLE

AC Input
BLF

AC Input
BXII

DC Input
BLH

AC Speed
Control
Motors

DSC

BHF

Accessories

Installation

Output Shaft Speed, Permissible Torque and Starting Torque while Deceleration Control is OFF

Description of deceleration control → Page D-158

Output Shaft Rotation Speed

● Motor Shaft Speed

Low Speed: 90 r/min, High Speed at 50 Hz: 1400 r/min, High Speed at 60 Hz: 1600 r/min

Unit: r/min

Gear Ratio		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	186	155	112	93	77	56	46	38	28	23	18.6	15.5	14	11.6	9.3	7.7	5.6	4.6	3.8
	60 Hz	213	177	128	106	88	64	53	44	32	26	21	17.7	16	13.3	10.6	8.8	6.4	5.3	4.4
Low Speed		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	0.36	0.3	0.25

Permissible Torque and Starting Torque

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

● Single-Phase 110/115 VAC

Unit: N·m (lb-in)

Product Name	Gear Ratio		7.5	9	12.5	15	18	25	30	36	50	60	75	90	100	120	150	180	250	300	360	
	Motor Shaft Speed r/min																					
DSCI26UAM	Permissible	1450	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)		
		90	0.26 (2.3)	0.31 (2.7)	0.43 (3.8)	0.51 (4.5)	0.62 (5.4)	0.86 (7.6)	0.98 (8.6)	1.2 (10.6)	1.6 (14.1)	2.0 (17.7)	2.5 (22)	2.9 (25)	3.3 (29)	3.9 (34)	4.6 (40)	5.5 (48)	6 (53)	6 (53)	6 (53)	
	Starting		0.27 (2.3)	0.32 (2.8)	0.45 (3.9)	0.54 (4.7)	0.65 (5.7)	0.90 (7.9)	1.0 (8.8)	1.2 (10.6)	1.7 (15.0)	2.1 (18.5)	2.6 (23)	3.1 (27)	3.4 (30)	4.1 (36)	4.9 (43)	5.8 (51)	6 (53)	6 (53)	6 (53)	
DSC315UAM	Permissible	1450	110 VAC	0.81 (7.1)	0.97 (8.5)	1.4 (12.3)	1.6 (14.1)	1.9 (16.8)	2.7 (23)	3.1 (27)	3.7 (32)	5.2 (46)	6.2 (54)	7.7 (68)	9.3 (82)	10 (88)	10 (88)	10 (88)	10 (88)	10 (88)	10 (88)	
			115 VAC	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	110 VAC	0.30 (2.6)	0.36 (3.1)	0.51 (4.5)	0.61 (5.3)	0.73 (6.4)	1.0 (8.8)	1.2 (10.6)	1.4 (12.3)	1.9 (16.8)	2.3 (20)	2.9 (25)	3.5 (30)	3.9 (34)	4.6 (40)	5.5 (48)	6.6 (58)	9.1 (80)	10 (88)	10 (88)
			115 VAC	0.57 (5.0)	0.68 (6.0)	0.95 (8.4)	1.1 (9.7)	1.4 (12.3)	1.9 (16.8)	2.2 (19.4)	2.6 (23)	3.6 (31)	4.3 (38)	5.4 (47)	6.5 (57)	7.2 (63)	8.7 (76)	10 (88)	10 (88)	10 (88)	10 (88)	10 (88)
	Starting	110 VAC	0.61 (5.3)	0.73 (6.4)	1.0 (8.8)	1.2 (10.6)	1.5 (13.2)	2.0 (17.7)	2.3 (20)	2.8 (24)	3.9 (34)	4.6 (40)	5.8 (51)	7.0 (61)	7.7 (68)	9.3 (82)	10 (88)	10 (88)	10 (88)	10 (88)	10 (88)	
		115 VAC	0.61 (5.3)	0.73 (6.4)	1.0 (8.8)	1.2 (10.6)	1.5 (13.2)	2.0 (17.7)	2.3 (20)	2.8 (24)	3.9 (34)	4.6 (40)	5.8 (51)	7.0 (61)	7.7 (68)	9.3 (82)	10 (88)	10 (88)	10 (88)	10 (88)	10 (88)	
DSCI425UAM	Permissible	1450	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)		
			90	0.30 (2.6)	0.36 (3.1)	0.51 (4.5)	0.61 (5.3)	0.73 (6.4)	1.0 (8.8)	1.2 (10.6)	1.4 (12.3)	1.9 (16.8)	2.3 (20)	2.9 (25)	3.5 (30)	3.9 (34)	4.6 (40)	5.5 (48)	6.6 (58)	9.1 (80)	10.9 (96)	13.1 (115)
	Starting	110 VAC	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)	10.8 (95)	12.9 (114)	15.2 (134)	16 (141)	16 (141)	16 (141)	16 (141)	
		115 VAC	0.91 (8.0)	1.1 (9.7)	1.5 (13.2)	1.8 (15.9)	2.2 (19.4)	3.0 (26)	3.5 (30)	4.2 (37)	5.8 (51)	7.0 (61)	8.7 (76)	10.4 (92)	11.6 (102)	13.9 (123)	16 (141)	16 (141)	16 (141)	16 (141)		
DSCI540UAM	Permissible	1450	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)	—	
			90	0.47 (4.1)	0.57 (5.0)	0.79 (6.9)	0.95 (8.4)	1.1 (9.7)	1.5 (13.2)	1.8 (15.9)	2.2 (19.4)	3.0 (26)	3.6 (31)	4.5 (39)	5.4 (47)	6.0 (53)	6.8 (60)	8.5 (75)	10.2 (90)	14.2 (125)	17 (150)	—
	Starting	110 VAC	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)	—	
		115 VAC	1.3 (11.5)	1.5 (13.2)	2.1 (18.5)	2.6 (23)	3.1 (27)	4.1 (36)	4.9 (43)	5.9 (52)	8.2 (72)	9.8 (86)	12.3 (108)	14.7 (130)	16.3 (144)	18.5 (163)	23.1 (200)	27.7 (240)	30 (260)	30 (260)	—	
DSCI560UAM	Permissible	1450	110 VAC	3.1 (27)	3.7 (32)	5.2 (46)	6.2 (54)	7.5 (66)	9.9 (87)	11.9 (105)	14.2 (125)	19.8 (175)	23.7 (200)	29.7 (260)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)	—	
			115 VAC	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)	—	
		90	110 VAC	0.54 (4.7)	0.65 (5.7)	0.90 (7.9)	1.1 (9.7)	1.3 (11.5)	1.7 (15.0)	2.1 (18.5)	2.5 (22)	3.4 (30)	4.1 (36)	5.2 (46)	6.2 (54)	6.9 (61)	7.8 (69)	9.7 (85)	11.7 (103)	16.2 (143)	19.4 (171)	—
			115 VAC	1.8 (15.9)	2.1 (18.5)	2.9 (25)	3.5 (30)	4.2 (37)	5.6 (49)	6.7 (59)	8.0 (70)	11.2 (99)	13.4 (118)	16.8 (148)	20.1 (177)	22.4 (198)	25.3 (220)	30 (260)	30 (260)	30 (260)	30 (260)	—
	Starting	115 VAC	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)	—	
DSCI590UAM	Permissible	1450	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	0.57 (5.0)	0.69 (6.1)	0.96 (8.4)	1.1 (9.7)	1.3 (11.5)	1.8 (15.9)	2.2 (19.4)	2.6 (23)	3.7 (32)	4.4 (38)	5.2 (46)	6.2 (54)	6.9 (61)	8.3 (73)	10.3 (91)	12.4 (109)	—	—	—
	Starting	110 VAC	2.7 (23)	3.2 (28)	4.5 (39)	5.4 (47)	6.2 (54)	8.6 (76)	10.3 (91)	12.4 (109)	17.2 (152)	20.6 (182)	24.3 (210)	29.2 (250)	32.4 (280)	38.9 (340)	40 (350)	40 (350)	—	—	—	
		115 VAC	3.0 (26)	3.6 (31)	5.0 (44)	5.9 (52)	6.8 (60)	9.5 (84)	11.4 (100)	13.6 (120)	18.9 (167)	22.7 (200)	26.7 (230)	32.1 (280)	35.6 (310)	40 (350)	40 (350)	40 (350)	—	—	—	

Output Shaft Speed, Permissible Torque and Starting Torque while Deceleration Control is OFF

Description of deceleration control → Page D-158

● Single-Phase 220/230 VAC

Unit: N·m (lb·in)

Product Name			Gear Ratio		7.5	9	12.5	15	18	25	30	36	50	60	75	90	100	120	150	180	250	300	360
			Motor Shaft Speed r/min																				
DSCI26ECM	Permissible	1200	220 VAC 50 Hz	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)	
			230 VAC 50 Hz	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)	
		1450	220 VAC 60 Hz	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 60 Hz	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	220 VAC 50/60 Hz	0.27 (2.3)	0.32 (2.8)	0.45 (4.7)	0.54 (5.7)	0.65 (7.9)	0.90 (8.8)	1.0 (10.6)	1.2 (15.0)	1.7 (18.5)	2.1 (23)	2.6 (27)	3.1 (30)	3.4 (36)	4.1 (43)	4.9 (51)	5.8 (53)	6 (53)	6 (53)	6 (53)	
			230 VAC 50 Hz	0.25 (2.2)	0.30 (2.6)	0.42 (3.7)	0.50 (4.4)	0.60 (5.3)	0.83 (7.3)	0.95 (8.4)	1.1 (9.7)	1.6 (14.1)	1.9 (16.8)	2.4 (21)	2.9 (25)	3.2 (28)	3.8 (33)	4.5 (39)	5.4 (47)	6 (53)	6 (53)	6 (53)	
			230 VAC 60 Hz	0.26 (2.3)	0.32 (2.8)	0.44 (3.8)	0.53 (4.6)	0.63 (5.5)	0.88 (7.7)	1.0 (8.8)	1.2 (10.6)	1.7 (15.0)	2.0 (17.7)	2.5 (22)	3.0 (26)	3.4 (30)	4.0 (35)	4.7 (41)	5.7 (50)	6 (53)	6 (53)	6 (53)	
		Starting	220 VAC 50/60 Hz	0.30 (2.6)	0.36 (3.1)	0.50 (4.4)	0.59 (5.2)	0.71 (6.2)	0.99 (8.7)	1.1 (9.7)	1.4 (12.3)	1.9 (16.8)	2.3 (20)	2.8 (24)	3.4 (30)	3.8 (33)	4.5 (39)	5.3 (46)	6 (53)	6 (53)	6 (53)	6 (53)	
			230 VAC 50 Hz	0.30 (2.6)	0.36 (3.1)	0.50 (4.4)	0.59 (5.2)	0.71 (6.2)	0.99 (8.7)	1.1 (9.7)	1.4 (12.3)	1.9 (16.8)	2.3 (20)	2.8 (24)	3.4 (30)	3.8 (33)	4.5 (39)	5.3 (46)	6 (53)	6 (53)	6 (53)	6 (53)	
	230 VAC 60 Hz		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)		
DSCI315ECM	Permissible	1200	50 Hz	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)	
			1450	220 VAC 60 Hz	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)	10 (88)	10 (88)	10 (88)	10 (88)	10 (88)	
		230 VAC 60 Hz		0.81 (7.1)	0.97 (8.5)	1.4 (12.3)	1.6 (14.1)	1.9 (16.8)	2.7 (23)	3.1 (27)	3.7 (32)	5.2 (46)	6.2 (54)	7.7 (68)	9.3 (82)	10 (88)	10 (88)	10 (88)	10 (88)	10 (88)	10 (88)		
		90	0.27 (2.3)	0.32 (2.8)	0.45 (3.9)	0.54 (4.7)	0.65 (5.7)	0.90 (7.9)	1.0 (8.8)	1.2 (10.6)	1.7 (15.0)	2.1 (18.5)	2.6 (23)	3.1 (27)	3.4 (30)	4.1 (36)	4.9 (43)	5.8 (51)	8.1 (71)	9.7 (85)	10 (88)		
	Starting	220 VAC 50/60 Hz	0.45 (3.9)	0.54 (4.7)	0.75 (6.6)	0.90 (7.9)	1.1 (9.7)	1.5 (13.2)	1.7 (15.0)	2.1 (18.5)	2.9 (25)	3.5 (30)	4.3 (38)	5.2 (46)	5.8 (51)	6.9 (61)	8.1 (71)	9.8 (86)	10 (88)	10 (88)	10 (88)		
		230 VAC 50 Hz	0.49 (4.3)	0.58 (5.1)	0.81 (7.1)	0.97 (8.5)	1.2 (10.6)	1.6 (14.1)	1.9 (16.8)	2.2 (19.4)	3.1 (27)	3.7 (32)	4.6 (40)	5.6 (49)	6.2 (54)	7.4 (65)	8.7 (76)	10 (88)	10 (88)	10 (88)	10 (88)		
		230 VAC 60 Hz	0.55 (4.8)	0.66 (5.8)	0.91 (8.0)	1.1 (9.7)	1.3 (11.5)	1.8 (15.9)	2.1 (18.5)	2.5 (22)	3.5 (30)	4.2 (37)	5.2 (46)	6.3 (55)	7.0 (61)	8.4 (74)	9.8 (86)	10 (88)	10 (88)	10 (88)	10 (88)		
DSCI425ECM	Permissible	1200	50 Hz	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)		
			1450	60 Hz	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)		
		90		0.27 (2.3)	0.32 (2.8)	0.45 (3.9)	0.54 (4.7)	0.65 (5.7)	0.90 (7.9)	1.0 (8.8)	1.2 (10.6)	1.7 (15.0)	2.1 (18.5)	2.6 (23)	3.1 (27)	3.4 (30)	4.1 (36)	4.9 (43)	5.8 (51)	8.1 (71)	9.7 (85)	11.7 (103)	
	Starting	220 VAC 50/60 Hz	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)			
		230 VAC 50/60 Hz	0.81 (7.1)	0.97 (8.5)	1.4 (12.3)	1.6 (14.1)	1.9 (16.8)	2.7 (23)	3.1 (27)	3.7 (32)	5.2 (46)	6.2 (54)	7.7 (68)	9.3 (82)	10.3 (91)	12.4 (109)	14.6 (129)	16 (141)	16 (141)	16 (141)			
DSCI540ECM	Permissible	1200	50 Hz	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)	—	
			1450	60 Hz	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)	—
		90		50 Hz	0.44 (3.8)	0.53 (4.6)	0.73 (6.4)	0.88 (7.7)	1.1 (9.7)	1.4 (12.3)	1.7 (15.0)	2.0 (17.7)	2.8 (24)	3.4 (30)	4.2 (37)	5.0 (44)	5.6 (49)	6.3 (55)	7.9 (69)	9.5 (84)	13.2 (116)	15.8 (139)	—
			60 Hz	0.47 (4.1)	0.57 (5.0)	0.79 (6.9)	0.95 (8.4)	1.1 (9.7)	1.5 (13.2)	1.8 (15.9)	2.2 (19.4)	3.0 (26)	3.6 (31)	4.5 (39)	5.4 (47)	6.0 (53)	6.8 (60)	8.5 (75)	10.2 (90)	14.2 (125)	17 (150)	—	
	Starting	1.3 (11.5)	1.5 (13.2)	2.1 (18.5)	2.6 (23)	3.1 (27)	4.1 (36)	4.9 (43)	5.9 (52)	8.2 (72)	9.8 (86)	12.3 (108)	14.7 (130)	16.3 (144)	18.5 (163)	23.1 (200)	27.7 (240)	30 (260)	30 (260)	30 (260)	—		

Overview,
Product
SeriesBrushless
MotorsAC Input
BMUAC Input
BLEAC Input
BLFAC Input
BXIIDC Input
BLHAC Speed
Control
Motors

DSC

BHF

Accessories

Installation

Unit: N·m (lb·in)

Product Name			Gear Ratio		7.5	9	12.5	15	18	25	30	36	50	60	75	90	100	120	150	180	250	300	360					
			Motor Shaft Speed r/min																									
DSC1560ECM			Permissible	1200	50 Hz	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)	—					
					1450	220 VAC 60 Hz	3.1 (27)	3.7 (32)	5.2 (46)	6.2 (54)	7.5 (66)	9.9 (87)	11.9 (105)	14.2 (125)	19.8 (175)	23.7 (200)	29.7 (260)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)	30 (260)	—			
				230 VAC 60 Hz		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)	—				
				90	220 VAC 50 Hz	0.54 (4.7)	0.65 (5.7)	0.90 (7.9)	1.1 (9.7)	1.3 (11.5)	1.7 (15.0)	2.1 (18.5)	2.5 (22)	3.4 (30)	4.1 (36)	5.2 (46)	6.2 (54)	6.9 (61)	7.8 (69)	9.7 (85)	11.7 (103)	16.2 (143)	19.4 (171)	—				
					220 VAC 60 Hz	0.51 (4.5)	0.61 (5.3)	0.84 (7.4)	1.0 (8.8)	1.2 (10.6)	1.6 (14.1)	1.9 (16.8)	2.3 (20)	3.2 (28)	3.9 (34)	4.8 (42)	5.8 (51)	6.5 (57)	7.3 (64)	9.1 (80)	10.9 (96)	15.2 (134)	18.2 (161)	—				
					230 VAC 50 Hz	0.57 (5.0)	0.69 (6.1)	0.96 (8.4)	1.1 (9.7)	1.4 (12.3)	1.8 (15.9)	2.2 (19.4)	2.6 (23)	3.7 (32)	4.4 (38)	5.5 (48)	6.6 (58)	7.3 (64)	8.3 (73)	10.3 (91)	12.4 (109)	17.2 (152)	20.7 (183)	—				
					230 VAC 60 Hz	0.54 (4.7)	0.65 (5.7)	0.90 (7.9)	1.1 (9.7)	1.3 (11.5)	1.7 (15.0)	2.1 (18.5)	2.5 (22)	3.4 (30)	4.1 (36)	5.2 (46)	6.2 (54)	6.9 (61)	7.8 (69)	9.7 (85)	11.7 (103)	16.2 (143)	19.4 (171)	—				
				Starting		220 VAC 50 Hz	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)	—			
						220 VAC 60 Hz	2.0 (17.7)	2.3 (20)	3.3 (29)	3.9 (34)	4.7 (41)	6.2 (54)	7.5 (66)	9.0 (79)	12.5 (110)	15.0 (132)	18.7 (165)	22.4 (198)	24.9 (220)	28.2 (240)	30 (260)	30 (260)	30 (260)	30 (260)	—			
						230 VAC 50 Hz	2.0 (17.7)	2.3 (20)	3.3 (29)	3.9 (34)	4.7 (41)	6.2 (54)	7.5 (66)	9.0 (79)	12.5 (110)	15.0 (132)	18.7 (165)	22.4 (198)	24.9 (220)	28.2 (240)	30 (260)	30 (260)	30 (260)	30 (260)	—			
						230 VAC 60 Hz	2.0 (17.7)	2.4 (21)	3.4 (30)	4.1 (36)	4.9 (43)	6.5 (57)	7.7 (68)	9.3 (82)	12.9 (114)	15.5 (137)	19.4 (171)	23.2 (200)	25.8 (220)	29.2 (250)	30 (260)	30 (260)	30 (260)	30 (260)	—			
				DSC1590ECM			Permissible	1200	50 Hz	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)	—	—	—
			1450						60 Hz	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		0.64 (5.6)	0.77 (6.8)	1.1 (9.7)	1.3 (11.5)	1.5 (13.2)	2.0 (17.7)	2.5 (22)	2.9 (25)	4.1 (36)	4.9 (43)	5.8 (51)	6.9 (61)	7.7 (68)	9.2 (81)	11.5 (101)	13.9 (123)	—	—	—
			Starting					220 VAC 50 Hz	3.3 (29)	4.0 (35)	5.5 (48)	6.6 (58)	7.6 (67)	10.5 (92)	12.6 (111)	15.2 (134)	21.1 (186)	25.3 (220)	29.8 (260)	35.7 (310)	39.7 (350)	40 (350)	40 (350)	40 (350)	40 (350)	—	—	—
								220 VAC 60 Hz	3.4 (30)	4.1 (36)	5.6 (49)	6.8 (60)	7.7 (68)	10.8 (95)	12.9 (114)	15.5 (137)	21.5 (190)	25.8 (220)	30.4 (260)	36.5 (320)	40 (350)	40 (350)	40 (350)	40 (350)	—	—	—	
230 VAC 50 Hz	3.5 (30)	4.2 (37)						5.9 (52)	7.0 (61)	8.0 (70)	11.2 (99)	13.4 (118)	16.1 (142)	22.4 (198)	26.8 (230)	31.6 (270)	37.9 (330)	40 (350)	40 (350)	40 (350)	40 (350)	—	—	—				
230 VAC 60 Hz	3.6 (31)	4.3 (38)						6.0 (53)	7.2 (63)	8.2 (72)	11.4 (100)	13.7 (121)	16.4 (145)	22.8 (200)	27.3 (240)	32.2 (280)	38.6 (340)	40 (350)	40 (350)	40 (350)	40 (350)	—	—	—				

Permissible Radial Load and Permissible Axial Load

→ Page D-148

Permissible Inertia J

→ Page D-148

How to Read Speed – Torque Characteristics

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

① 50 Hz Safe-Operation Line ② 60 Hz Safe-Operation Line

The safe-operation line is the permissible line of torque that is limited by the motor's permissible temperature.

Motors can be operated at the continuous rating within the safe-operation line.

The safe-operation line is determined under the most severe condition where there is no heat conduction. Therefore, depending on the installation conditions of the motor, it can be operated beyond the safe-operation line.

Note

● When operating beyond the safe-operation line, make sure the motor case temperature is kept at 90°C (194°F) or less.

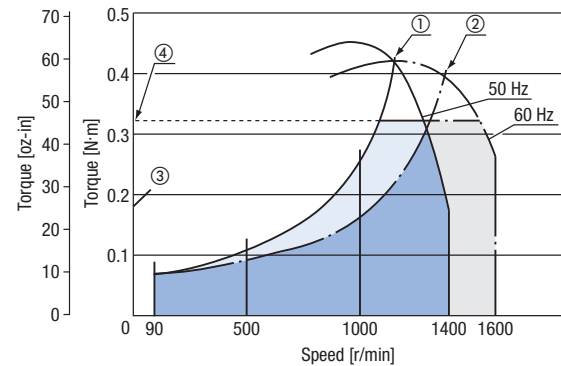
③ Starting Torque

This refers to the degree of torque with which the motor can start.

④ Permissible Torque on Combination Types

This refers to the permissible value of the motor torque when operating with the gearhead installed.

Because the permissible torque of the combination type varies according to the gear ratio, use the motor without exceeding the value on the list of permissible torques.



Speed – Torque Characteristics (Reference values)

① 50 Hz Safe-Operation Line ② 60 Hz Safe-Operation Line ③ Starting Torque ④ Permissible Torque on Combination Types

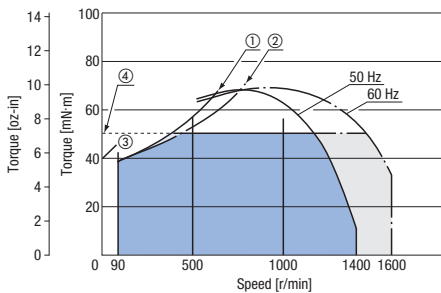
● All output characteristics are representative values. (For motor only)

The permissible torque and starting torque of the motor vary according to the voltage. Use after checking the specifications and permissible torque of the combination type.

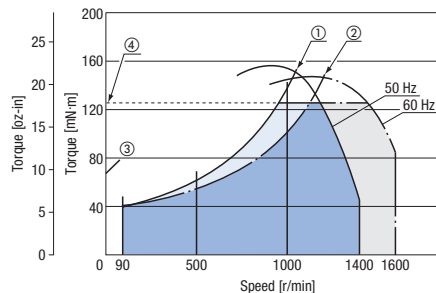
● The characteristics diagram is when used while the deceleration control is OFF.

When using while the deceleration control is ON, check the permissible torque value. Permissible torque → Page D-161

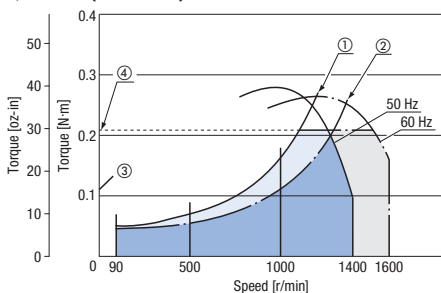
◇ 6 W (1/125 HP)



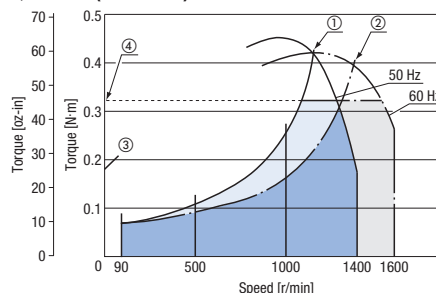
◇ 15 W (1/50 HP)



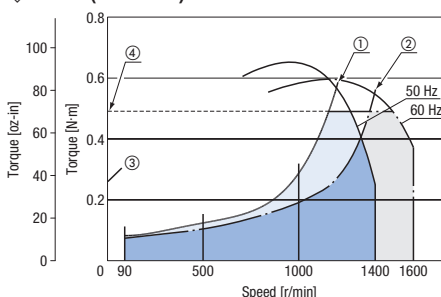
◇ 25 W (1/30 HP)



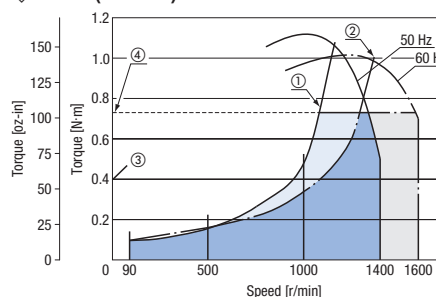
◇ 40 W (1/19 HP)



◇ 60 W (1/12 HP)



◇ 90 W (1/8 HP)



Dimensions Unit = mm (in.)

- "Installation screws" are included with the combination type. Dimensions of installation screws → Page C-215
- A number indicating the gear ratio is entered where the box □ is located within the product name.

Standard Type
Parallel Shaft/
Round Shaft

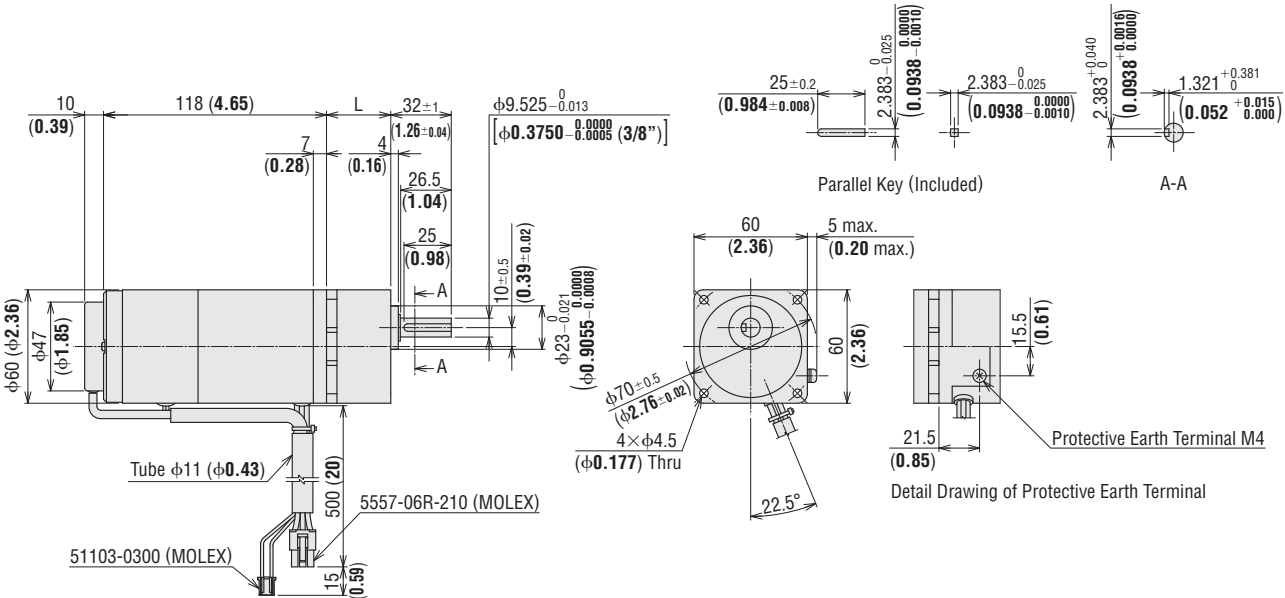
Electromagnetic
Brake Type
Parallel Shaft

Combination Type

◇ 6 W (1/125 HP)

2D & 3D CAD

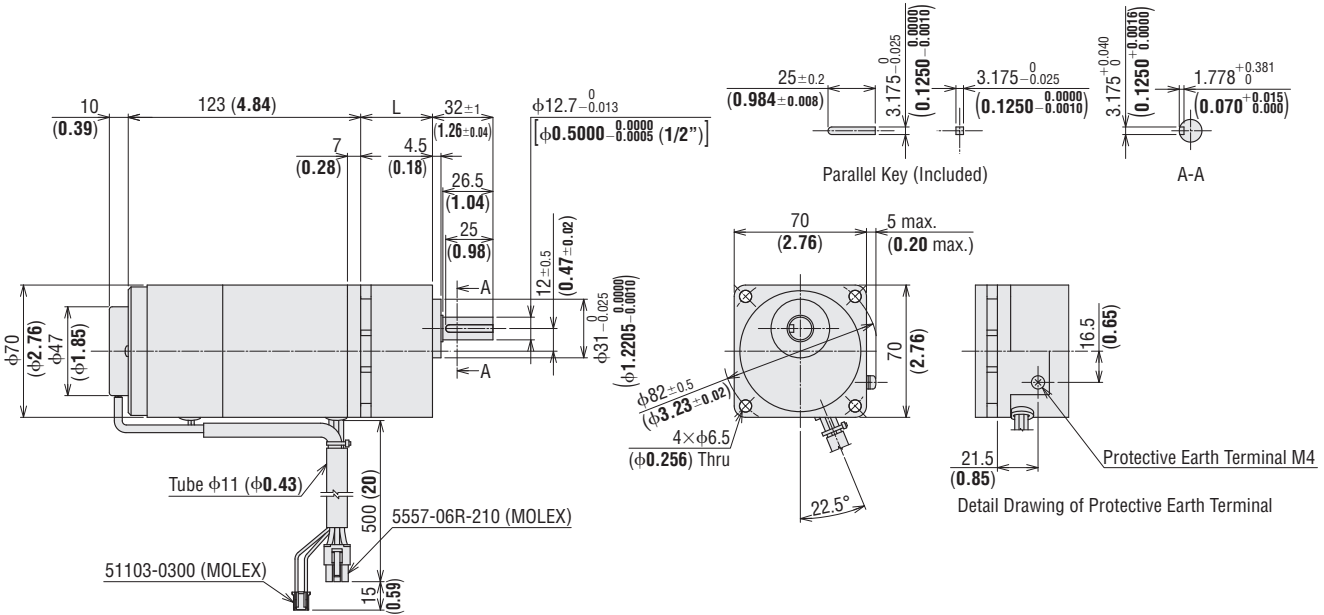
Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
DSCI26UAM-□A-3V	2IK6UGV-UAM	2GV□A	7.5~25	34 (1.34)	1.7 (3.7)	A1407A
DSCI26ECM-□A-3V	2IK6UGV-ECM		30~120	38 (1.50)		A1407B
			150~360	43 (1.69)		A1407C



◇ 15 W (1/50 HP)

2D & 3D CAD

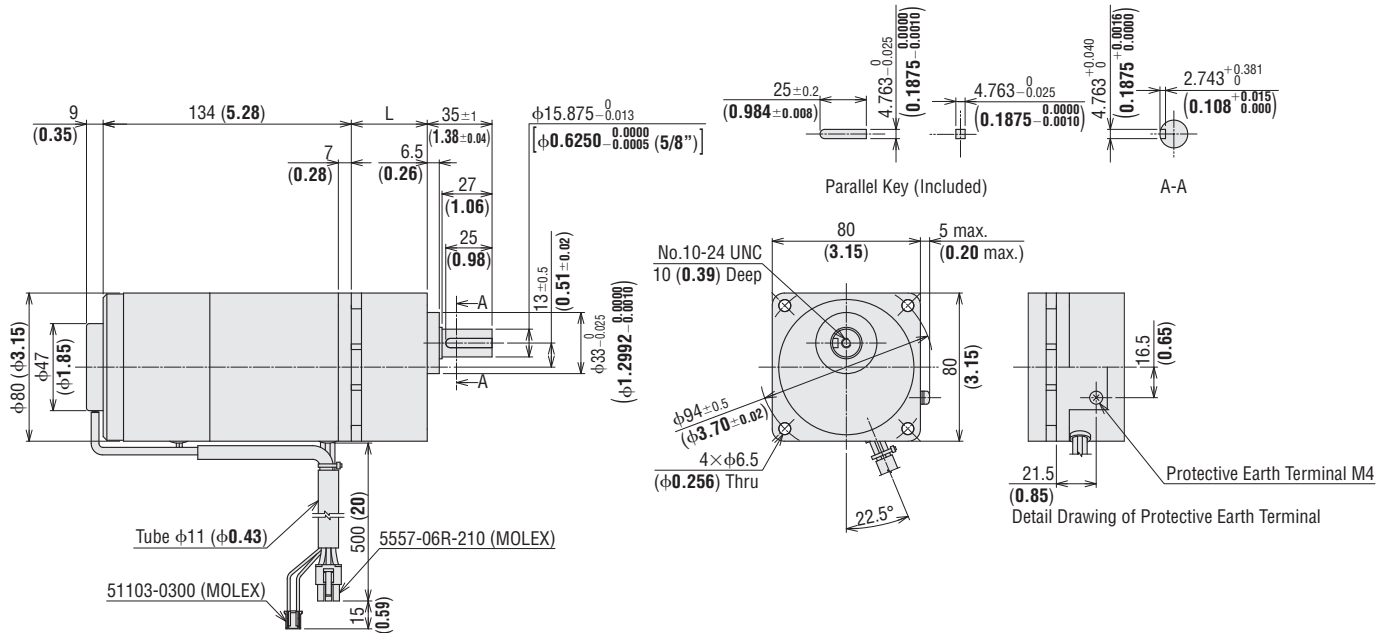
Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
DSCI315UAM-□A-3V	3IK15UGV-UAM	3GV□A	7.5~25	38 (1.50)	2.2 (4.8)	A1408A
DSCI315ECM-□A-3V	3IK15UGV-ECM		30~120	43 (1.69)		A1408B
			150~360	48 (1.89)		A1408C



◇ 25 W (1/30 HP)

2D & 3D CAD

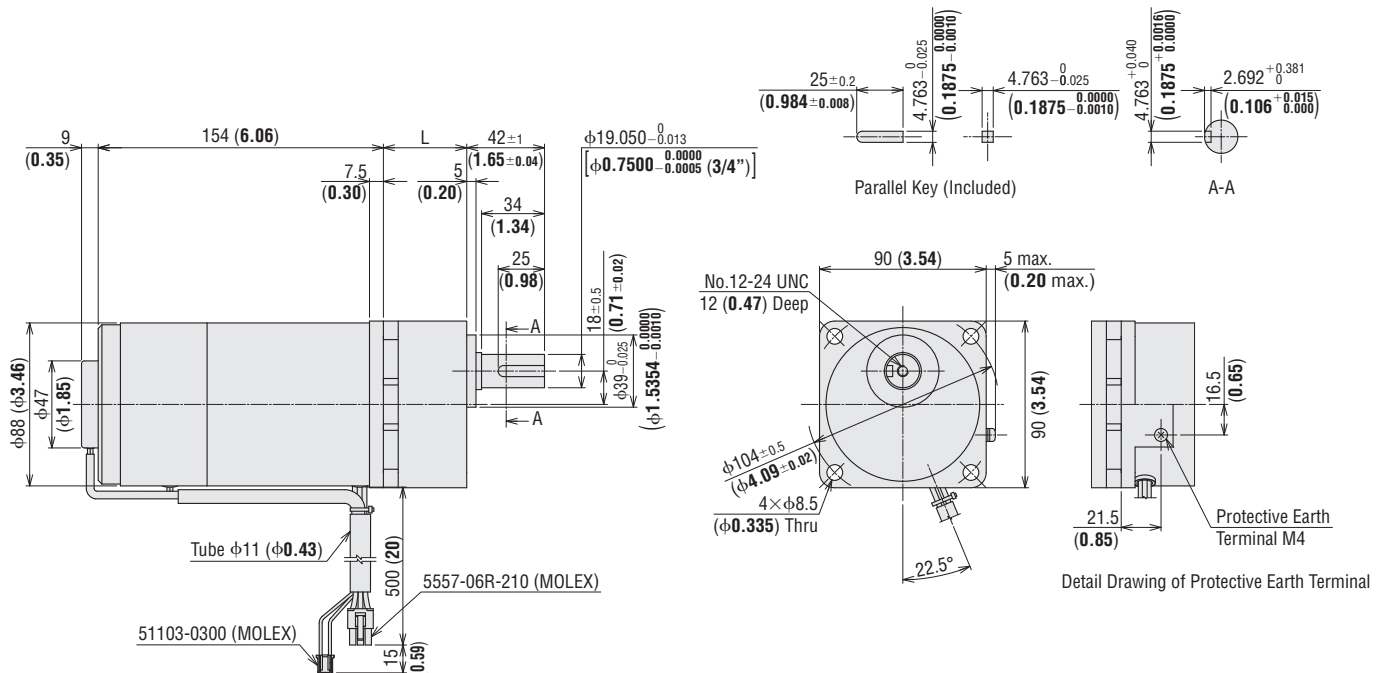
Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
DSCI425UAM-□A-3V	4IK25UGV-UAM	4GV□A	7.5~25	41 (1.61)	3.25	A1409A
DSCI425ECM-□A-3V	4IK25UGV-ECM		30~120	46 (1.81)	(7.2)	A1409B
			150~360	51 (2.01)		A1409C



◇ 40 W (1/19 HP)

2D & 3D CAD

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
DSCI540UAM-□A-3V	5IK40UGV-UAM	5GV□A	7.5~18	45 (1.77)	4.7	A1410A
DSCI540ECM-□A-3V	5IK40UGV-ECM		25~100	58 (2.28)	(10.3)	A1410B
			120~300	64 (2.52)		A1410C

Overview,
Product
SeriesBrushless
MotorsAC Input
BMUAC Input
BLEAC Input
BLFAC Input
BXIIDC Input
BLHAC Speed
Control
Motors

DSC

BHF

Accessories

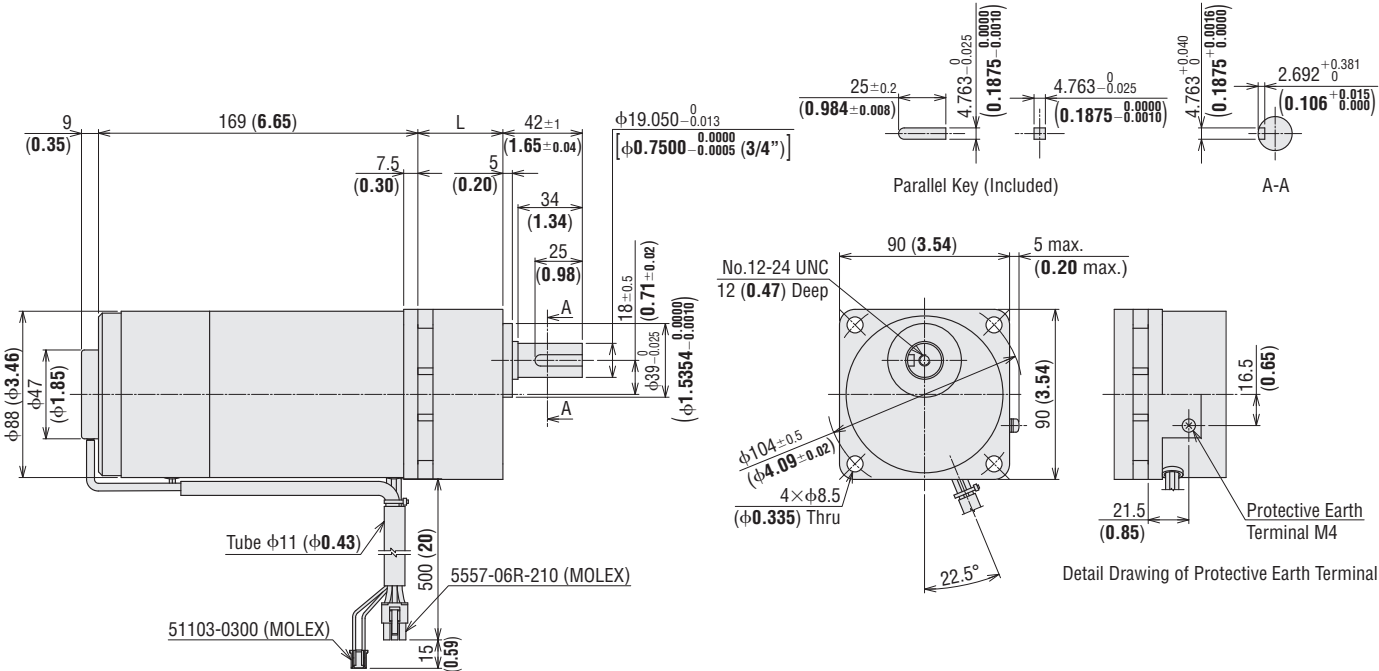
Installation

Standard Type
Parallel Shaft/
Round Shaft

Electromagnetic
Brake Type
Parallel Shaft

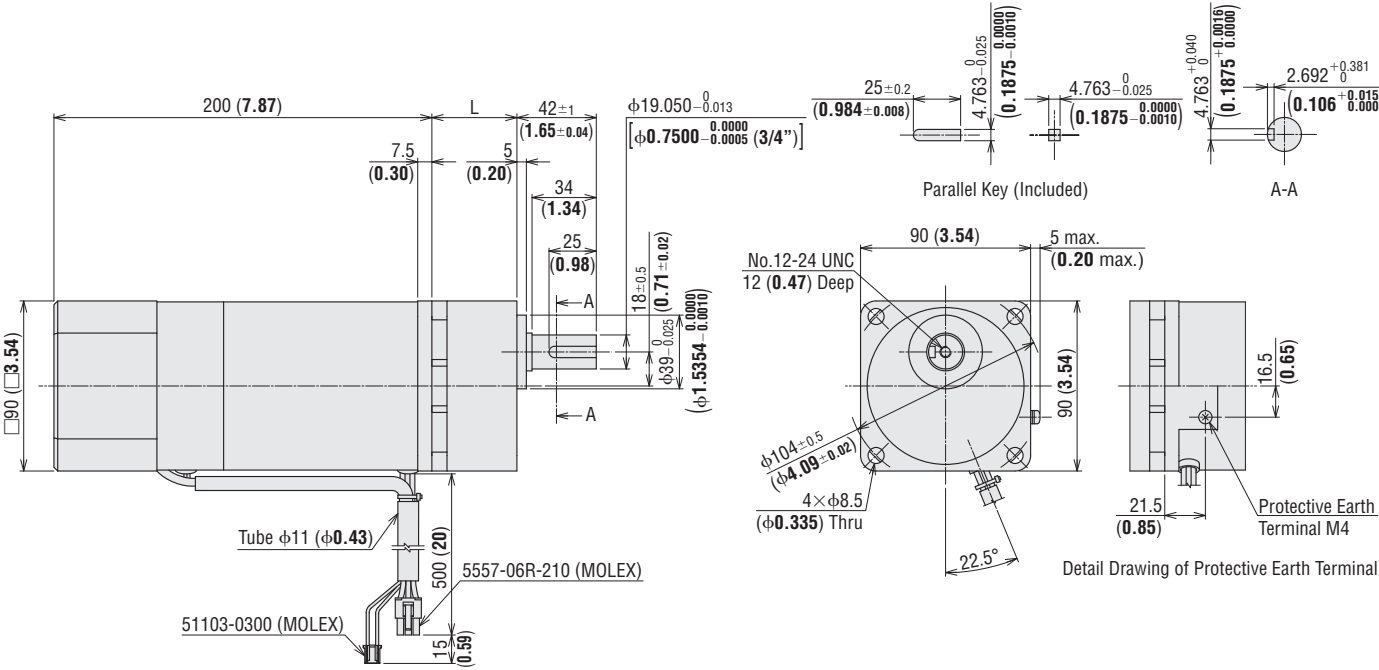
◇ 60 W (1/12 HP)

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
DSCI560UAM-□A-3V	5IK60UGVH-UAM	5GVH□A	7.5~18	45 (1.77)	5.3	A1411A
DSCI560ECM-□A-3V	5IK60UGVH-ECM	5GVH□A	25~100	58 (2.28)	(11.7)	A1411B
			120~300	64 (2.52)		A1411C



◇ 90 W (1/8 HP)

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
DSCI590UAM-□A-3V	5IK90UGVR-UAM	5GVR□A	7.5~15	45 (1.77)	5.5	A1412A
DSCI590ECM-□A-3V	5IK90UGVR-ECM	5GVR□A	18~36	58 (2.28)	(12.1)	A1412B
			50~180	70 (2.76)		A1412C

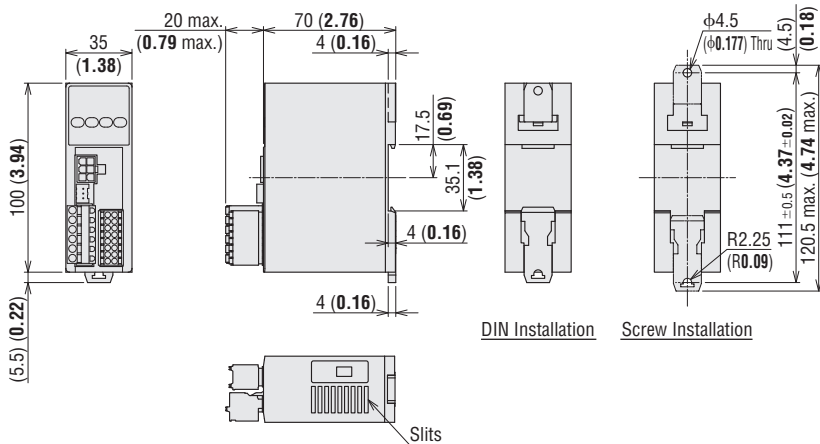


●Speed Controller

DSC-MU

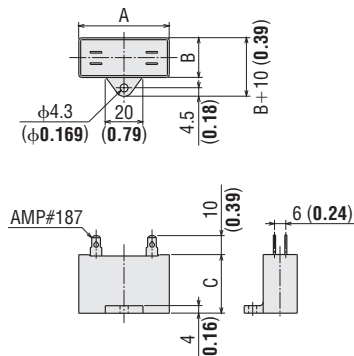
Mass: 0.2 kg (0.44 lb.)

2D CAD A1303 3D CAD

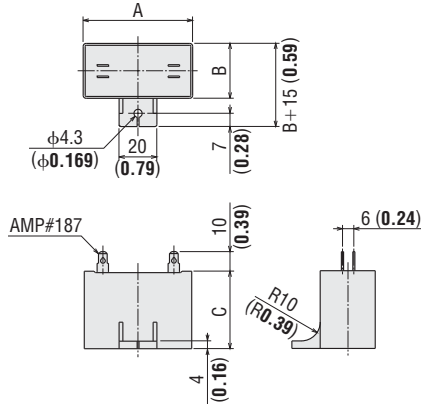


●Capacitor (Included)

Dimensions No. ①



Dimensions No. ②



●Capacitor Dimensions Unit: mm (in.)

Product Name	Capacitor Product Name	A	B	C	Mass g (oz.)	Dimensions No.
DSCI26UAM-□A-3V	CH25FAUL2	31 (1.22)	17 (0.67)	27 (1.06)	21 (0.74)	①
DSCI26ECM-□A-3V	CH06BFAUL	31 (1.22)	14.5 (0.57)	23.5 (0.93)	18 (0.64)	
DSCI315UAM-□A-3V	CH45FAUL2	37 (1.46)	18 (0.71)	27 (1.06)	26 (0.92)	
DSCI315ECM-□A-3V	CH10BFAUL	37 (1.46)	18 (0.71)	27 (1.06)	27 (0.95)	
DSCI425UAM-□A-3V	CH65CFAUL2	48 (1.89)	19 (0.75)	29 (1.14)	35 (1.24)	
DSCI425ECM-□A-3V	CH15BFAUL	38 (1.50)	21 (0.83)	31 (1.22)	37 (1.31)	
DSCI540UAM-□A-3V	CH90CFAUL2	48 (1.89)	22.5 (0.89)	31.5 (1.24)	45 (1.59)	
DSCI540ECM-□A-3V	CH23BFAUL	48 (1.89)	21 (0.83)	31 (1.22)	43 (1.52)	
DSCI560UAM-□A-3V	CH120CFAUL2	58 (2.28)	22 (0.87)	35 (1.38)	60 (2.1)	
DSCI560ECM-□A-3V	CH30BFAUL	58 (2.28)	21 (0.83)	31 (1.22)	50 (1.77)	
DSCI590UAM-□A-3V	CH200CFAUL2	58 (2.28)	29 (1.14)	41 (1.61)	91 (3.2)	②
DSCI590ECM-□A-3V	CH60BFAUL	58 (2.28)	29 (1.14)	41 (1.61)	92 (3.2)	

● A capacitor cap is included with the capacitor.

Overview,
Product
SeriesBrushless
MotorsAC Input
BMUAC Input
BLEAC Input
BLFAC Input
BXIIDC Input
BLHAC Speed
Control
Motors

DSC

BHF

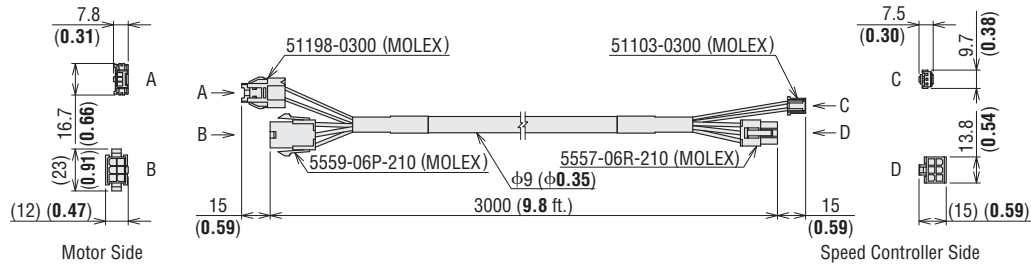
Accessories

Installation

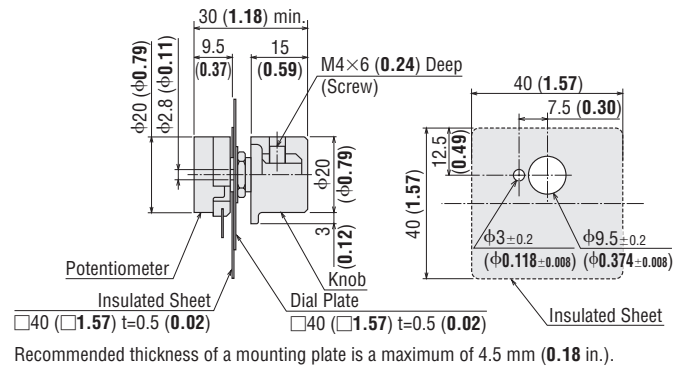
Standard Type
Parallel Shaft/
Round Shaft

Electromagnetic
Brake Type
Parallel Shaft

●Connection Cable (Included)



●External Speed Potentiometer (Included)



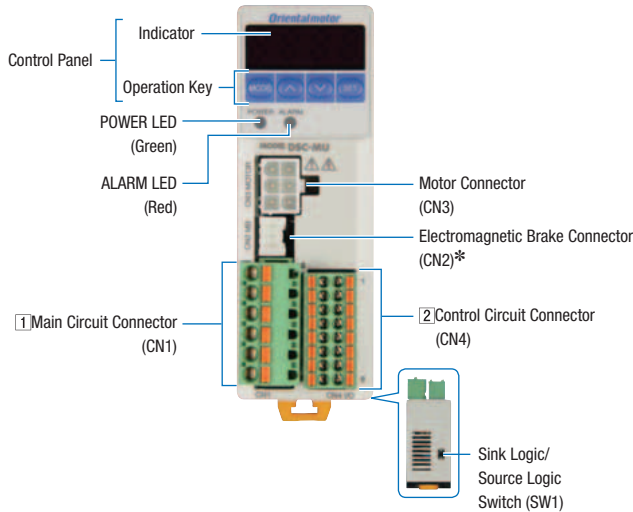
List of Motor and Speed Controller Combinations

Output Power	Product Name	Combination Type Motor Product Name*	Motor Product Name	Gearhead Product Name	Speed Controller Product Name
6 W (1/125 HP)	DSCI26UAM-□A-3V	2IK6UUAM-□A	2IK6UGV-UAM	2GV□A	DSC-MU
	DSCI26ECM-□A-3V	2IK6UECM-□A	2IK6UGV-ECM		
15 W (1/50 HP)	DSCI315UAM-□A-3V	3IK15UUAM-□A	3IK15UGV-UAM	3GV□A	
	DSCI315ECM-□A-3V	3IK15UECM-□A	3IK15UGV-ECM		
25 W (1/30 HP)	DSCI425UAM-□A-3V	4IK25UUAM-□A	4IK25UGV-UAM	4GV□A	
	DSCI425ECM-□A-3V	4IK25UECM-□A	4IK25UGV-ECM		
40 W (1/19 HP)	DSCI540UAM-□A-3V	5IK40UUAM-□A	5IK40UGV-UAM	5GV□A	
	DSCI540ECM-□A-3V	5IK40UECM-□A	5IK40UGV-ECM		
60 W (1/12 HP)	DSCI560UAM-□A-3V	5IK60UUAM-□A	5IK60UGVH-UAM	5GVH□A	
	DSCI560ECM-□A-3V	5IK60UECM-□A	5IK60UGVH-ECM		
90 W (1/8 HP)	DSCI590UAM-□A-3V	5IK90UUAM-□A	5IK90UGVR-UAM	5GVR□A	
	DSCI590ECM-□A-3V	5IK90UECM-□A	5IK90UGVR-ECM		

*Combination type motor product names are names of special order products in which motors and gearheads are pre-assembled.
●A number indicating the gear ratio is entered where the box □ is located within the product name.

Connection and Operation

Names and Functions of Speed Controller Parts



Name		Overview
Control Panel	Indicator (4 digit LED)	Displays speed, parameters, alarms, etc.
	Operation Key	Switches operating mode, sets operating data and changes parameters.
POWER LED (Green)		Lights when the AC power supply is provided to the speed controller.
ALARM LED (Red)		Lights when an alarm is activated.
Motor Connector (CN3)		Connects to the motor connector.
Electromagnetic Brake Connector (CN2)*		Connects to the electromagnetic brake connector.
Main Circuit Connector (CN1)		Connects to the AC power supply, capacitor and FG.
Control Circuit Connector (CN4)		Connects the DC power supply for control and I/O signals.
Sink Logic/Source Logic Switch		Switches between the sink logic and source logic for the input signal.

*Only the electromagnetic brake type is connected.

1 Main Circuit Connector (CN1)

Pin No.	Contents	Description
1	Capacitor	Connects the capacitor.
2		
3	N.C.	No connection.
4	AC Power Supply	Connects to the live side.
5		Connects to the neutral side.
6	FG	Connects to the ground wire.

2 Control Circuit Connector (CN4)

Pin No.	Signal Name	Function*1	Description
1	+24 V	DC Power Supply for Control	Connects the 24 VDC power supply for control circuit.
2	0 V (GND)		
3	IN0	[FWD]	The motor rotates in the forward direction when "ON." *2
4	IN1	[REV]	The motor rotates in the reverse direction when "ON." *2
5	IN2	[M0]	Selects the operating data.
6	IN3	[M1]	
7	IN4	[ALARM-RESET]	Alarms are canceled.
8	IN5	[FREE]	When the FREE input is set to "ON" during motor operation, the motor will perform a coasting stop. When the FREE input is "ON", the motor will not rotate, even if the FWD input or REV input are set to "ON". For electromagnetic brake type, when the FREE input is "ON", the electromagnetic brake is released.
9	VH	External Speed Setting Input	It is connected when speed is set externally using external speed potentiometer or external DC voltage.
10	VM		
11	VL		
12	N.C.	—	No connection.
13	OUT0+	[SPEED-OUT]	12 pulses are output when the motor output shaft makes one rotation.
14	OUT0—		
15	OUT1+	[ALARM-OUT]	Output when an alarm activates. (Normally closed)
16	OUT1—		

*1 Text inside the [] represents the factory default function assignment. The following signals can be assigned as necessary to 6 input signal terminals (IN0~IN5) and 2 output signal terminals (OUT0, OUT1).

6 of the 7 input signals (FWD, REV, M0, M1, ALARM-RESET, FREE, EXT-ERROR)

2 of the 4 output signals (SPEED-OUT, ALARM-OUT, TH-OUT, WNG)

*2 Rotation direction varies according to the gearhead's gear ratio and the parameter settings.

Overview,
Product
Series

Brushless
Motors

AC Input
BMU

AC Input
BLE

AC Input
BLF

AC Input
BXII

DC Input
BLH

AC Speed
Control
Motors

DSC

BHF

Accessories

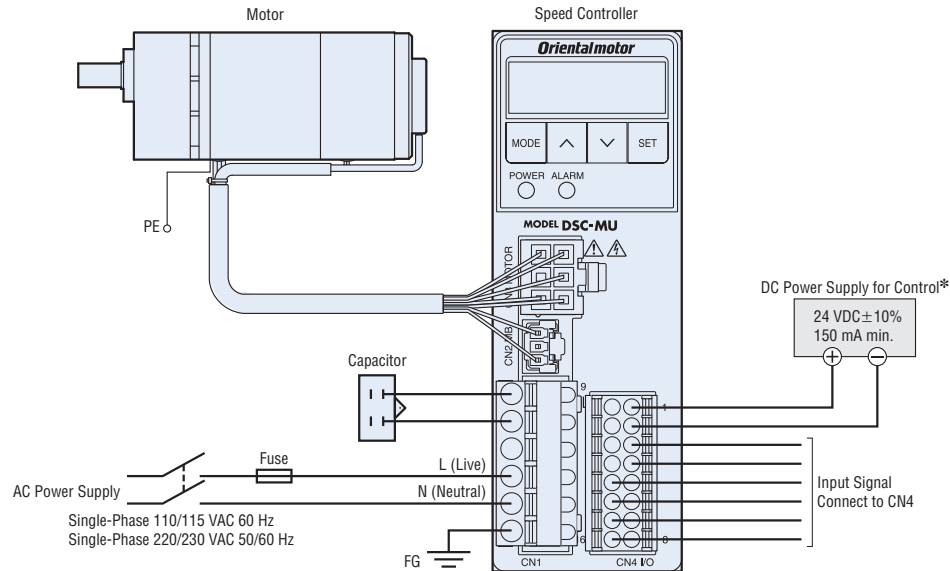
Installation

●Connection Diagram

The figure shows a connection example for the electromagnetic brake type. Always connect the DC power supply for control when operating the motor in addition to the AC power supply.

Standard Type
Parallel Shaft/
Round Shaft

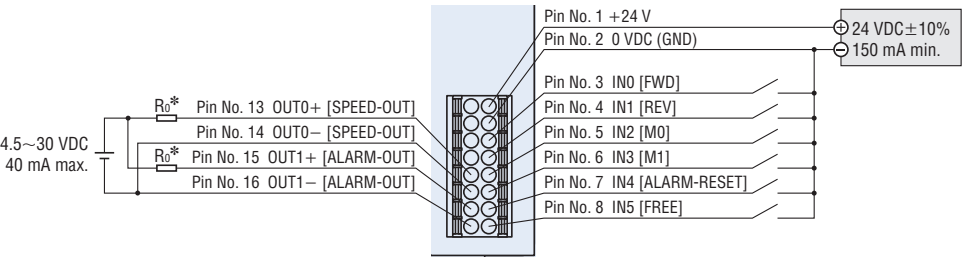
Electromagnetic
Brake Type
Parallel Shaft



*Use a power supply with reinforced insulation on the primary and secondary sides for the DC power supply for control.

◇Example of I/O Signal (CN4) Connection

The figure shows a connection example when operating with a contact switch, such as switches and relays with sink logic setting.



*Recommend Resistance Value
24 VDC: 680 Ω~4.7 kΩ (2 W) 5 VDC: 150 Ω~1 kΩ (0.5 W)

Note

● Connect a limiting resistor R_o that corresponds to the power supply used, so that the current that flows with the output signals does not exceed 40 mA.

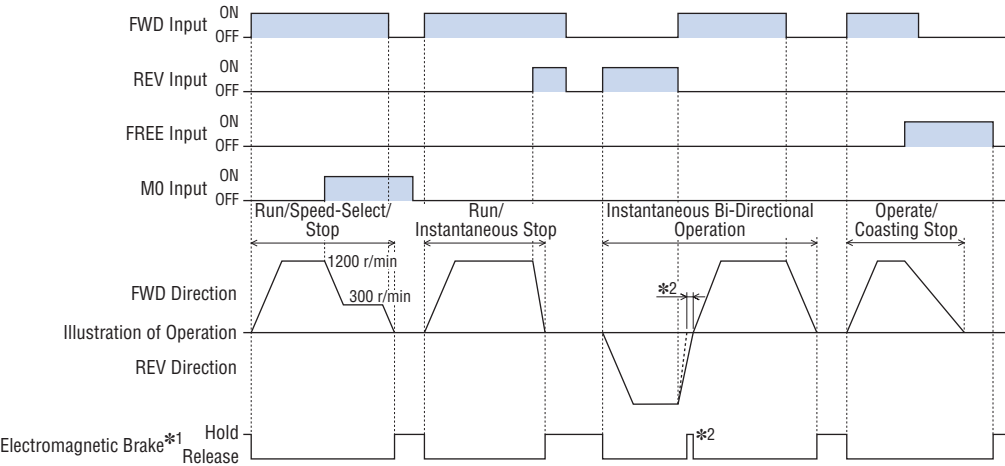
◇Rating of Fuse

For overcurrent protection, be sure to insert a fuse into the power supply line.

Rating of Fuse	Single-Phase 110/115 VAC	216 Series (Littelfuse, Inc.) 10 A or equivalent
	Single-Phase 220/230 VAC	216 Series (Littelfuse, Inc.) 6.3 A or equivalent

●Timing Chart

Operating data No.0 has been set to 1200 r/min and operating data No.1 has been set to 300 r/min.



*1 Only for electromagnetic brake type.

*2 Only for electromagnetic brake type. Holds while "deceleration control" parameter is ON, and time lag occurs during motor standstill (approx. 0.1 seconds). Does not hold when "deceleration control" parameter is OFF. There is no time lag, either.

Note

● The duration of ON for each signal must be 10 ms or more.

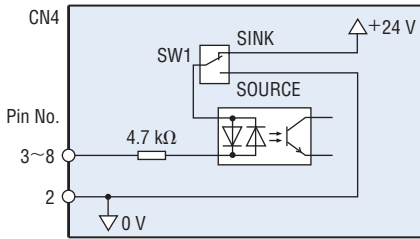
- After setting the speed, when the FWD or REV input is set to ON, the motor is rotated at the set speed.
- During motor operation, when the signal that is ON (either FWD or REV input) is turned OFF, the motor will perform a deceleration stop within the set deceleration time .
- If the FWD input and REV input are turned ON simultaneously, the motor will stop instantaneously.
- For electromagnetic brake types, the motor stops and the brake is simultaneously activated.

I/O Signal Circuits

Sink logic or source logic can be selected according to the external control device the customer is using.

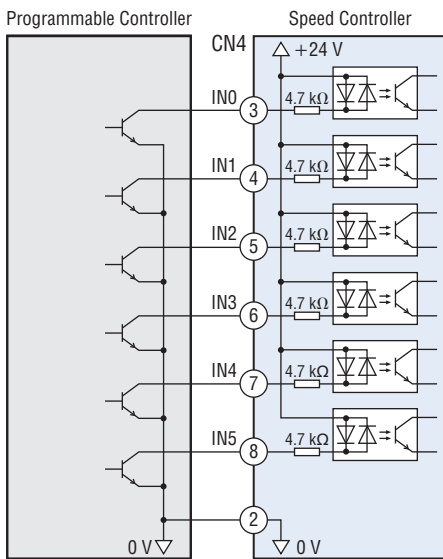
Input Circuit

IN0~IN5

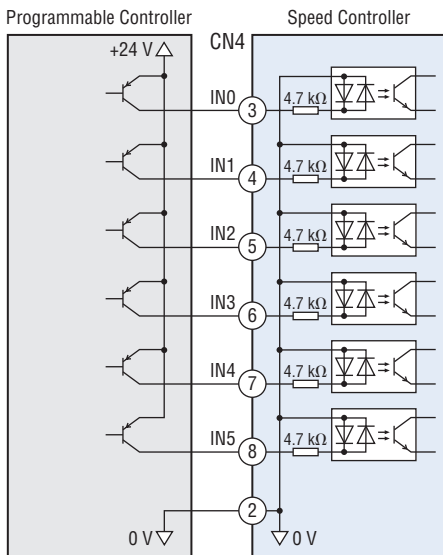


Connection to Programmable Controller

Sink Logic

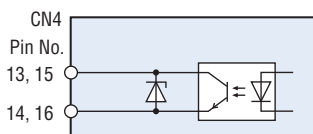


Source Logic



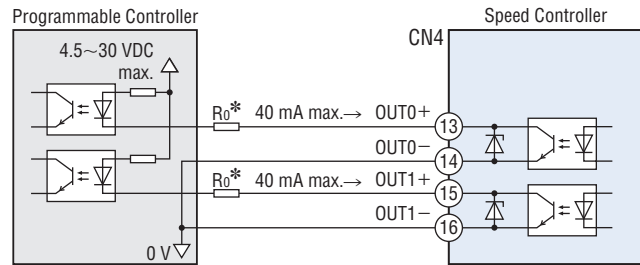
Output Circuit

OUT0, OUT1

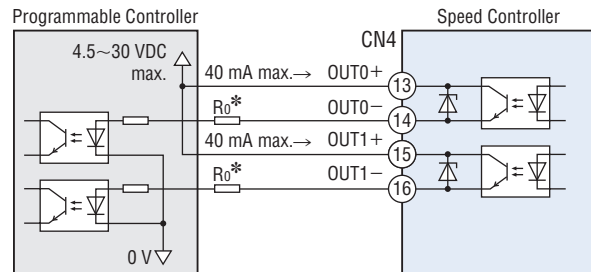


Connection to Programmable Controller

Sink Logic



Source Logic



*Recommended Resistance Value

24 VDC: 680 Ω~4.7 kΩ (2 W) 5 VDC: 150 Ω~1 kΩ (0.5 W)

Note

● Maintain the current value of OUT0 and OUT1 at 40 mA or less. If this current value is exceeded, connect the limiting resistor R_o.

When an External Control Device with a Built-in Clamp Diode is Used

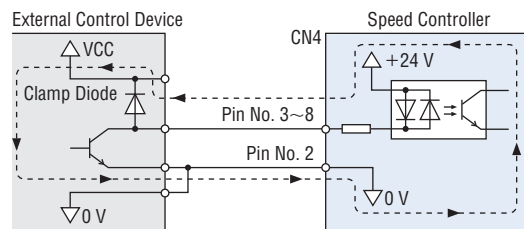
If an external control device with a built-in clamp diode is connected and the external control device is turned off when the speed controller power is on, current may flow in and rotate the motor. Also, depending on the external control device used with the speed controller, the motor may rotate even when the power supply is set to ON and OFF simultaneously. Use the following procedure to turn the power ON or OFF.

When turning the power off:

Speed controller → External control device

When turning the power on:

External control device → Speed controller



Speed Output (SPEED-OUT)

Pulse signals of 12 pulses are output at every rotation of the motor output shaft in synchronization with the motor operation. If the speed output frequency is measured, the motor speed can be calculated.

$$\text{Motor Shaft Speed [r/min]} = \frac{\text{Speed Output Frequency [Hz]}}{12} \times 60$$

$$\text{Speed Output Frequency [Hz]} = \frac{1}{T [\text{s}]}$$



Overview,
Product
Series

Brushless
Motors

AC Input
BMU

AC Input
BLE

AC Input
BLF

AC Input
BXII

DC Input
BLH

AC Speed
Control
Motors

DSC

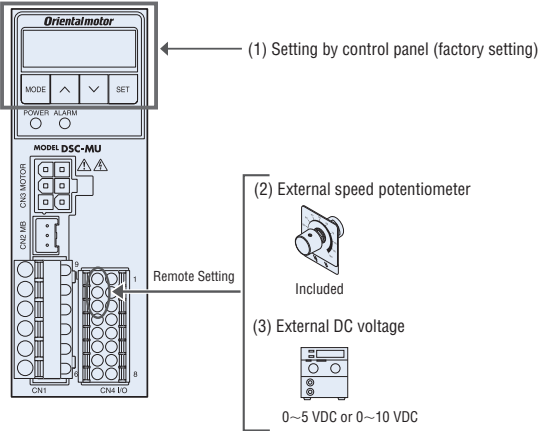
BHF

Accessories

Installation

●Speed Setting Method

The following 3 methods for setting speed can be used.



◇Setting by Control Panel

Up to 4 operating data can be set.

By switching the M0 and M1 inputs between ON and OFF, the pattern can be selected and the motor will operate.

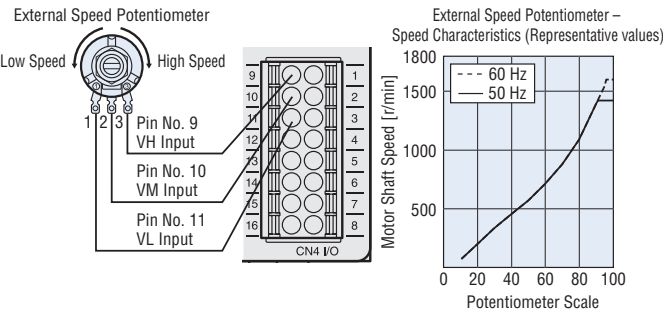
Operating Data No.	M1	M0	Contents
0	OFF	OFF	Setting by control panel/remote setting*
1	OFF	ON	Setting by control panel
2	ON	OFF	
3	ON	ON	

*When the "External speed command input" parameter is set to "ON (enabled)" (Initial value: OFF), the speed can be set using the external speed potentiometer and external DC voltage.

◇Setting by External Speed Potentiometer (Included)

Connect the external speed potentiometer to CN4.

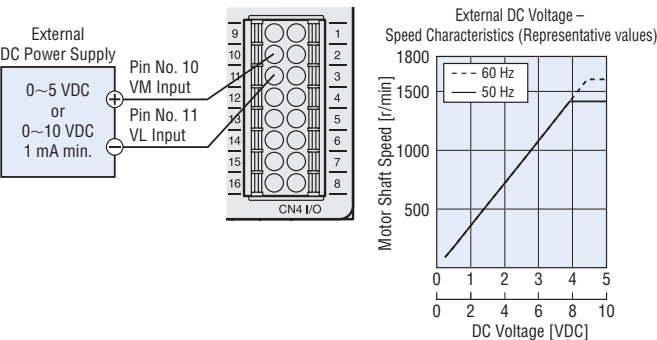
"External speed command voltage selection" parameter setting:
"0-5" (Initial value)



◇Setting by External DC Voltage

Connect the external DC power supply (0~5 VDC or 0~10 VDC) to CN4.

"External speed command voltage selection" parameter setting:
0~5 VDC "0-5" (Initial value)
0~10 VDC "0-10"



Note

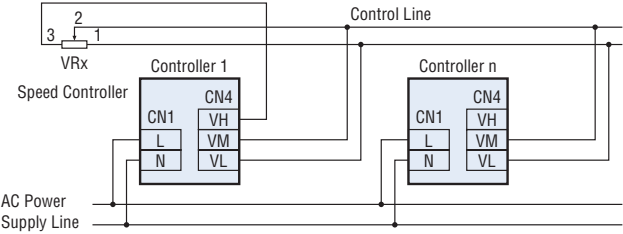
●Ensure that the external DC voltage is 10 VDC or less. When connecting the external DC voltage, ensure that the polarity is correct. Otherwise, it may damage the speed controller.

●Parallel-Motor Control

Multiple motors can be operated at the same speed using 1 external speed potentiometer or external DC voltage.

◇Using an External Speed Potentiometer

Parallel-motor operation using the external speed potentiometer (VRx) should be performed with a maximum of 20 speed controllers.



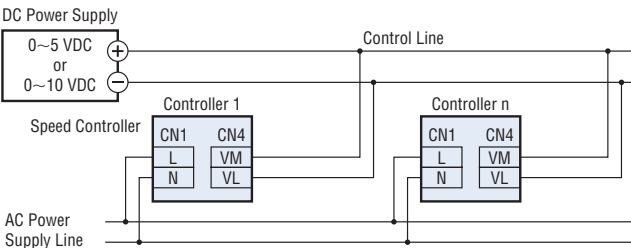
●The Calculation Method of the Resistance Value (VRx) when the Number of Speed Controllers Connected is n

Resistance value (VRx) = 20/n (kΩ), permissible loss=n/4 (W)

Example: When connecting 2 speed controllers
Resistance value = 20/2 = 10 (kΩ), permissible loss = 2/4 = 1/2 (W)

◇Using External DC Voltage

The number of connected units will be limited depending on the current capacity of the external DC power supply.



●The Calculation Method of the Current Capacity of the External DC Power Supply (I) when the Number of Speed Controllers Connected is n

Current capacity (I)=1×n (mA)

Example: When connecting 2 speed controllers

Current capacity (I)=1×2=2 (mA)

● Repetitive Operation Cycle

When the motor is operated repeatedly in short cycles, use the cycles below as a reference, and ensure that the motor's external temperature is at 90°C (194°F) or less.

Instantaneous Stop	6~40 W (1/125~1/19 HP)	When operation and instantaneous stops are repeated 2 seconds min., operating duty 50% max. (Example: 1 second operating, 1 second stopped)
	60 W, 90 W (1/12 HP, 1/8 HP)	When operation and instantaneous stops are repeated 4 seconds min., operating duty 50% max. (Example: 2 seconds operating, 2 seconds stopped)
Instantaneous Bi-Directional Operation	6~40 W (1/125~1/19 HP)	When rotation direction is repeatedly switched during operation Switch once every 2 seconds min.
	60 W, 90 W (1/12 HP, 1/8 HP)	When rotation direction is repeatedly switched during operation Switch once every 4 seconds min.

● On the electromagnetic brake type, continuous operation conditions occur when the "deceleration control" parameter is set to ON. Check the electromagnetic brake type "Common Specifications - Permissible Continuous Operation Time While Deceleration Control is ON" (→ Page D-159)

● Brake Current

When performing an instantaneous stop, bi-directional operation or vertical operation*, the large brake current flows for approximately 0.4 seconds on a half-wave rectified AC power supply line.

When performing these kinds of operations, select the equipment breaker and AC power supply capacitance by referring to the table's braking current (peak value).

Motor Output Power	Braking Current (Peak value)	
	Single-Phase 110/115 VAC	Single-Phase 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)	21 A	10 A
90 W (1/8 HP)	29 A	13 A

*Only for electromagnetic brake type.

Overview,
Product
Series

Brushless
Motors

AC Input
BMU

AC Input
BLE

AC Input
BLF

AC Input
BXII

DC Input
BLH

AC Speed
Control
Motors

DSC

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