

Changes for the Better



**MITSUBISHI CNC
DRIVE SYSTEM**

DATA BOOK

MDS-D Series

MDS-DH Series

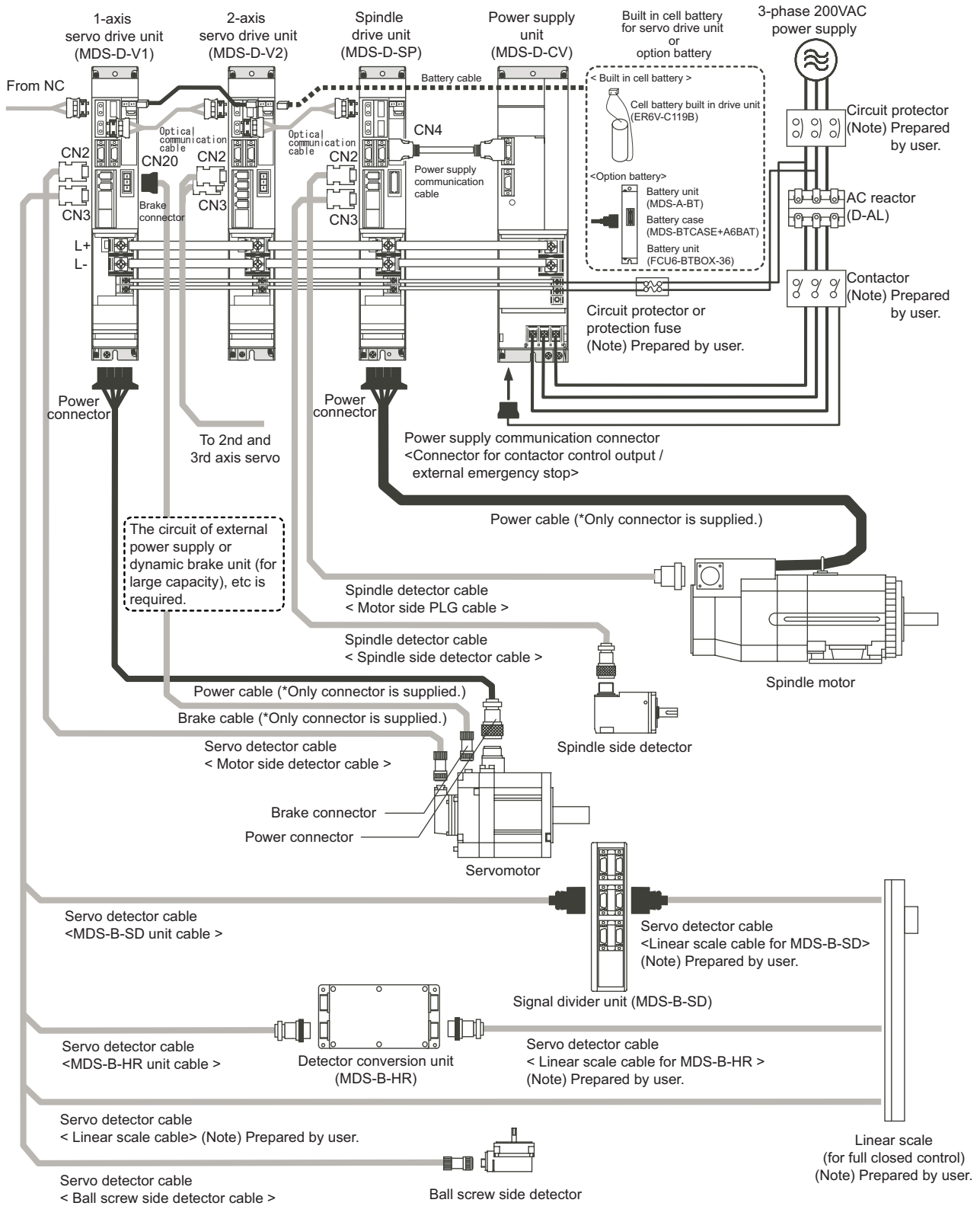
MITSUBISHI CNC
MITSUBISHI ELECTRIC CORPORATION

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200V system Servo/spindle drive system

System configuration



Explanation of type

1. Servomotor type

1-1 HF Series

HF (1) (2) (3) - (4)

(1) Rated output · Maximum rotation speed

Symbol	Rated output	Maximum rotation speed	Flange size
75	0.75 kW	5000 r/min	90 mm
105	1.0 kW	5000 r/min	90 mm
54	0.5 kW	4000 r/min	130 mm
104	1.0 kW	4000 r/min	130 mm
154	1.5 kW	4000 r/min	130 mm
204	2.0 kW	4000 r/min	176 mm
354	3.5 kW	4000 r/min	176 mm
453	4.5 kW	3500 r/min	176 mm
703	7.0 kW	3000 r/min	176 mm
903	9.0 kW	3000 r/min	204 mm

(3) Shaft end structure

Symbol	Shaft end structure
S	Straight
T	Taper

(Note) "Taper" is available for the motor whose flange size is 90mm or 130mm.

(2) Magnetic brake

Symbol	Magnetic brake
None	None
B	With magnetic brakes

(4) Detector

Symbol	Rated output	Maximum rotation speed	Flange size
A48	Absolute position	260,000 p/rev	OSA18
A51		1,000,000 p/rev	OSA105S5
A74		16,000,000 p/rev	OSA166S5

1-2 HP Series

HP (1) (2) (3) - (4)

(1) Rated output · Maximum rotation speed

Symbol	Rated output	Maximum rotation speed	Flange size
54	0.5 kW	4000 r/min	130 mm
104	1.0 kW	4000 r/min	130 mm
154	1.5 kW	4000 r/min	130 mm
224	2.2 kW	4000 r/min	130 mm
204	2.0 kW	4000 r/min	180 mm
354	3.5 kW	4000 r/min	180 mm
454	4.5 kW	4000 r/min	180 mm
704	7.0 kW	4000 r/min	180 mm
903	9.0 kW	3000 r/min	220 mm
1103	11.0 kW	3000 r/min	220 mm

(3) Shaft end structure

Symbol	Shaft end structure
S	Straight
T	Taper

(Note) "Taper" is available for the motor whose flange size is 130mm.

(2) Magnetic brake

Symbol	Magnetic brake
None	None
B	With magnetic brake

(4) Detector

Symbol	Rated output	Maximum rotation speed	Flange size
A48	Absolute position	260,000 p/rev	OSA18
A51		1,000,000 p/rev	OSA105S5
A74		16,000,000 p/rev	OSA166S5

1-3 HF-KP Series

HF-KP (1) (2) JW04-S6

(1) Rated output · Maximum rotation speed

Symbol	Rated output	Maximum rotation speed	Flange size
23	0.2 kW	6000 r/min	60 mm
43	0.4 kW	6000 r/min	60 mm
73	0.7 kW	6000 r/min	80 mm

(2) Magnetic brake

Symbol	Magnetic brake
None	None
B	With magnetic brake

2. Servo drive unit type

(1) 1-axis servo drive unit

MDS-D- (1)

(1) Unit Type MDS-D	Compatible motor type		HF										HP							HF-KP						
			75	105	54	104	154	204	354	453	703	903	54	104	154	224	204	354	454	704	903	1103	23	43	73	
Unit width	Unit nominal maximum current	Stall torque (N·m)	2.0	3.0	2.9	5.9	9.0	13.7	22.5	37.2	49.0	58.8	3.0	5.9	9.0	12.0	13.7	22.5	31.9	49.0	70.0	110.0	0.64	1.3	2.4	
V1-20	60mm	20A																								
V1-40		40A																								
V1-80		80A																								
V1-160		160A																								
V1-160W	90mm	160A																								
V1-320	120mm	320A																								
V1-320W	150mm	320A																								

Indicates the compatible motor for each servo drive unit.

(2) 2-axis servo drive unit

MDS-D- (1)

(1) Unit Type MDS-D	Compatible motor type		HF										HP							HF-KP						
			75	105	54	104	154	204	354	453	703	903	54	104	154	224	204	354	454	704	903	1103	23	43	73	
Unit width	Unit nominal maximum current	Stall torque (N·m)	2.0	3.0	2.9	5.9	9.0	13.7	22.5	37.2	49.0	58.8	3.0	5.9	9.0	12.0	13.7	22.5	31.9	49.0	70.0	110.0	0.64	1.3	2.4	
V2-2020	60mm	20+20A	LM																							
V2-4020		40+20A	L																							
V2-4040		40+40A	LM																							
V2-8040		80+40A	L																							
V2-8080	90mm	80+80A	LM																							
V2-16080		160+80A	L																							
V2-160160		160+160A	LM																							

Indicates the compatible motor for each servo drive unit.

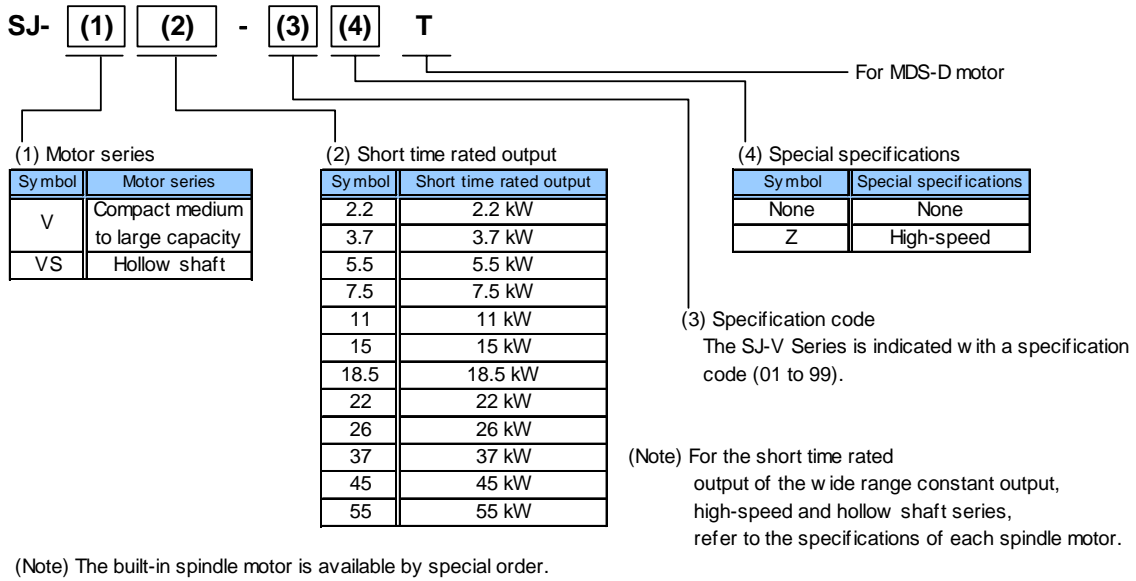


CAUTION

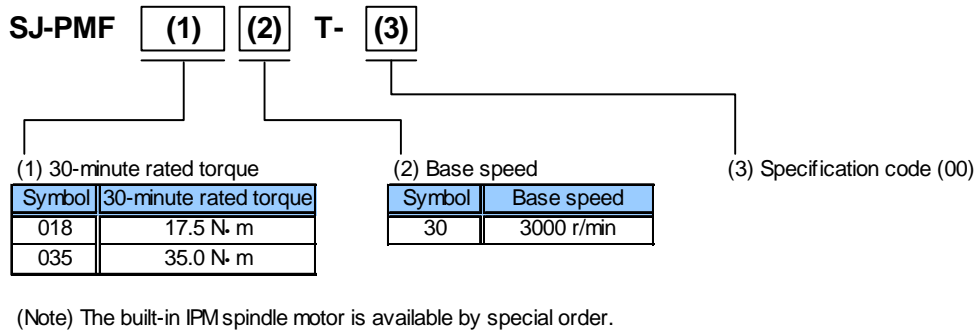
The dynamic brake unit (MDS-D-DBU) is required for the MDS-D-V1-320W.

3. Spindle motor type

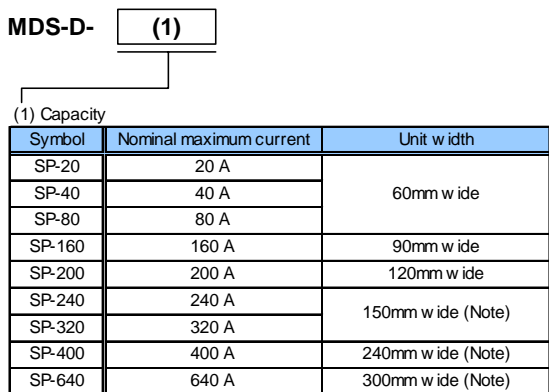
3-1 Standard spindle motor series



3-2 IPM spindle motor series



4. Spindle drive unit type



(Note) DC connection bar is required. Always install a large capacity drive unit in the left side of power supply unit, and connect with DC connection bar.

5. Power supply unit type

MDS-D- (1)

Power supply unit							
(1) Type MDS-D-	Rated output	Unit width	Compatible AC reactor	Compatible contactor (Mitsubishi) (Note 1)	Compatible circuit protector (Mitsubishi) (Note 1)		
CV-37	3.7kW	60mm wide	D-AL-7.5K	S-N12-AC200V	NF63-CW3P-20A		
CV-75	7.5kW			S-N25-AC200V	NF63-CW3P-40A		
CV-110	11.0kW	90mm wide	D-AL-11K	S-N65-AC200V	NF63-CW3P-50A		
CV-185	18.5kW		D-AL-18.5K			NF125-CW3P-100A	
CV-300	30.0kW	150mm wide (Note 2)	D-AL-30K	S-N80-AC200V	NF250-CW3P-125A		
CV-370	37.0kW		D-AL-37K			S-N150-AC200V	NF250-CW3P-175A
CV-450	45.0kW		D-AL-45K				
CV-550	55.0kW	300mm wide (Note 2)	D-AL-75K	S-N180-AC200V	NF250-CW3P-225A		

(Note 1) This is an optional part, and must be prepared by the user.

(Note 2) When connecting with a large capacity drive unit, DC connection bar is required.

Always install a large capacity drive unit in the left side of power supply unit, and connect with DC connection bar.

6. AC reactor type

D-AL- (1)

AC reactor		
(1) Type D-AL-	Capacity	Compatible power supply unit
7.5K	7.5kW	MDS-D-CV-37
		MDS-D-CV-75
11K	11.0kW	MDS-D-CV-110
18.5K	18.5kW	MDS-D-CV-185
30K	30.0kW	MDS-D-CV-300
37K	37.0kW	MDS-D-CV-370
45K	45.0kW	MDS-D-CV-450
55K	55.0kW	MDS-D-CV-550

7. Peripheral devices type

MDS-B-HR- (1) (2)

(1) Signal division function class

Symbol	Scale output voltage class
11	Output number 1
12	Output number 2 (with division)

(2) Protective structure

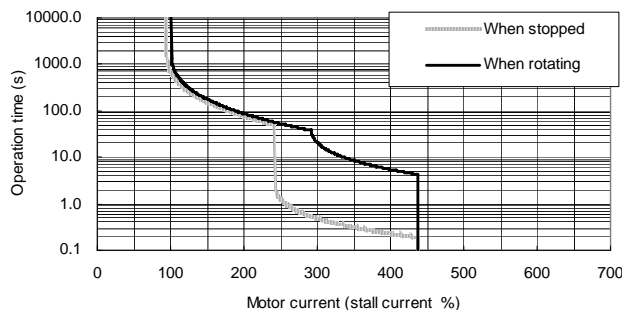
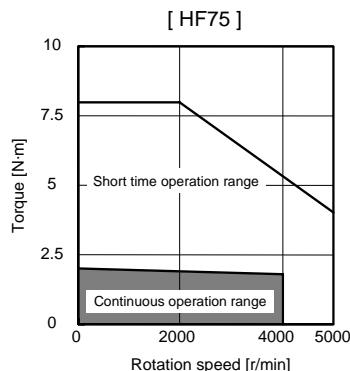
Symbol	Protective structure
None	IP65
P	IP67

Servomotor

Stall torque	Rated rotation speed	Servomotor type		Explanation of type	
2.0N · m	4000r/min	HF75	(1)(2)(3)	(1)Magnetic brake	B with brake
				None without brake	
				(2)Shaft end	S Straight
				T Taper	
(3)Detector	xxx Type				

Torque characteristics

Servo overload protection characteristics



Specifications

Item	Specifications	
Continuous characteristics	Rated output [kW]	0.75
	Rated current [A]	2.8
	Rated torque [N · m]	1.8
	Stall current [A]	3.2
	Stall torque [N · m]	2.0
Maximum momentary output (For power supply selection) [kW]	2.6	
Rated rotation speed [r/min]	4000	
Maximum rotation speed [r/min]	5000	
Maximum current [A]	14.0	
Maximum torque [N · m]	8.0	
Power rate at continuous rated torque [kW/s]	12.3	
Max. deceleration torque of dynamic brake(Tdp) [N · m]	5.43	
Motor inertia [kg · cm ²]	2.6	
(Brake inertia) [kg · cm ²]	2.8	
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	7.8
	General machine tool (interpolation axis) [kg · cm ²]	13.0
	Non-interpolation axis [kg · cm ²]	18.2
Weight	Without [kg]	2.5
	With brake [kg]	3.9
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level [m/s ²] ([G])	X:9.8(1), Y:24.5(2.5)	
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	245 (L=33)
	Thrust load [N]	147
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	245 (L=33)
	Thrust load [N]	147
Oil level (*2) [mm]	15	
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

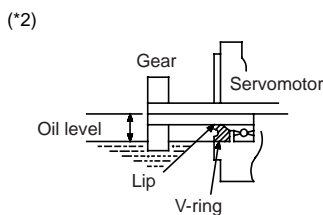
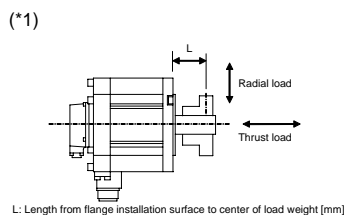
Magnetic brake characteristics

Item	Specifications
Rated voltage	24VDC
Rated current at 20°C [A]	0.38
Static friction torque [N · m]	2.4
Release delay time(*1) [s]	0.03
Braking delay time (DC OFF) (*1) [s]	0.03
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-D-V1-20
2-axis type	MDS-D-V2-2020 (L,M)
	MDS-D-V2-4020 (M)
J-type	MDS-D-SVJ3-07

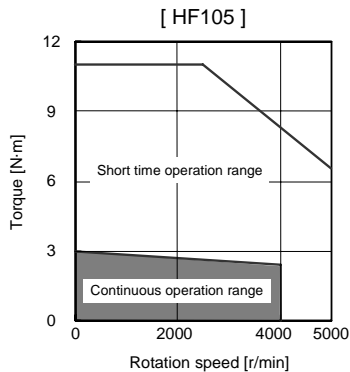


Environmental conditions

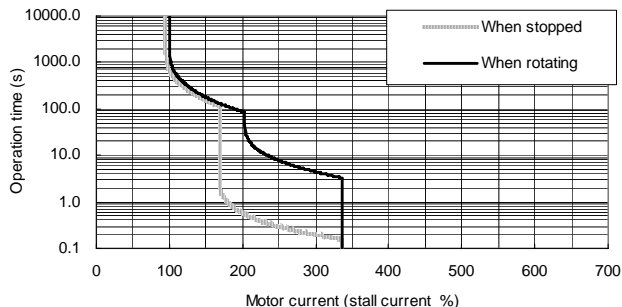
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation: 80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Stall torque	Rated rotation speed	Servomotor type		Explanation of type	
3.0N · m	4000r/min	HF105	(1)(2) (3) -XXX	(1)Magnetic brake	B with brake
					None without brake
				(2)Shaft end	S Straight
					T Taper
				(3)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item	Specifications	
Continuous characteristics	Rated output [kW]	1.0
	Rated current [A]	3.6
	Rated torque [N · m]	2.4
	Stall current [A]	4.6
	Stall torque [N · m]	3.0
Maximum momentary output (For power supply selection) [kW]	3.6	
Rated rotation speed [r/min]	4000	
Maximum rotation speed [r/min]	5000	
Maximum current [A]	15.5	
Maximum torque [N · m]	11.0	
Power rate at continuous rated torque [kW/s]	11.2	
Max. deceleration torque of dynamic brake(Tdp) [N · m]	10.21	
Motor inertia [kg · cm ²]	5.1	
(Brake inertia) [kg · cm ²]	5.3	
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	15.3
	General machine tool (interpolation axis) [kg · cm ²]	25.5
	Non-interpolation axis [kg · cm ²]	35.7
Weight	Without [kg]	4.3
	With brake [kg]	5.7
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level [m/s ²] ([G])	X:9.8(1), Y:24.5(2.5)	
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	245 (L=33)
	Thrust load [N]	147
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	245 (L=33)
	Thrust load [N]	147
Oil level (*2) [mm]	15	
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

Magnetic brake characteristics

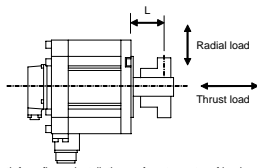
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C [A]	0.38
Static friction torque [N · m]	2.4
Release delay time(*1) [s]	0.03
Braking delay time (DC OFF) (*1) [s]	0.03
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

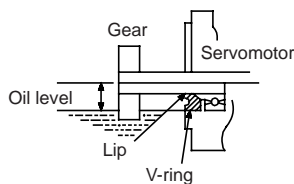
Item	Type
1-axis type	MDS-D-V1-20
2-axis type	MDS-D-V2-2020 (L,M)
	MDS-D-V2-4020 (M)
J-type	MDS-D-SVJ3-07

(*1)



L: Length from flange installation surface to center of load weight [mm]

(*2)

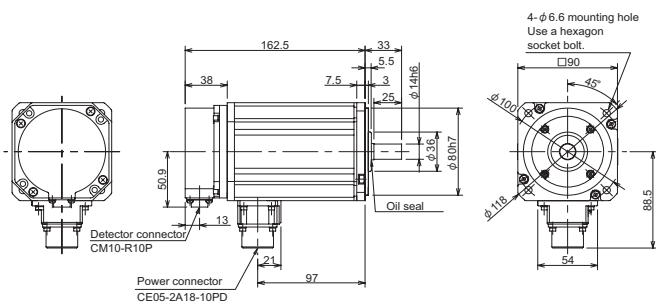


Environmental conditions

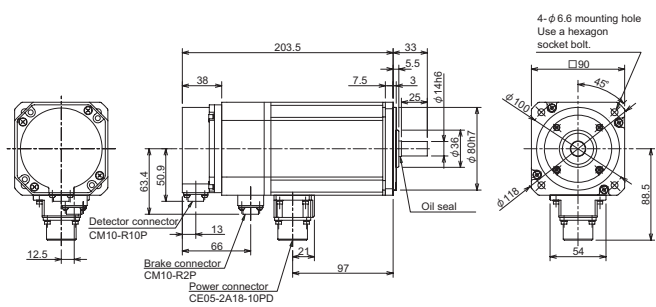
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

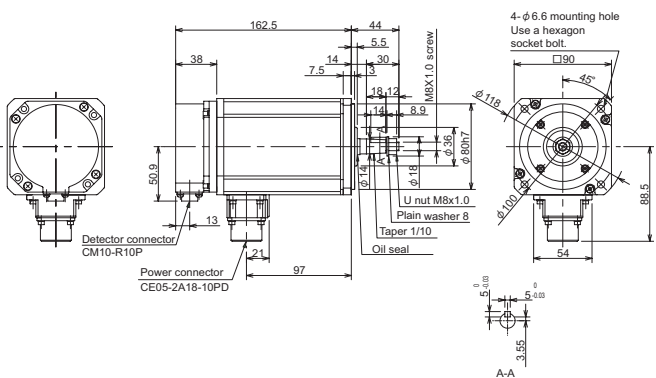
HF105S-A48



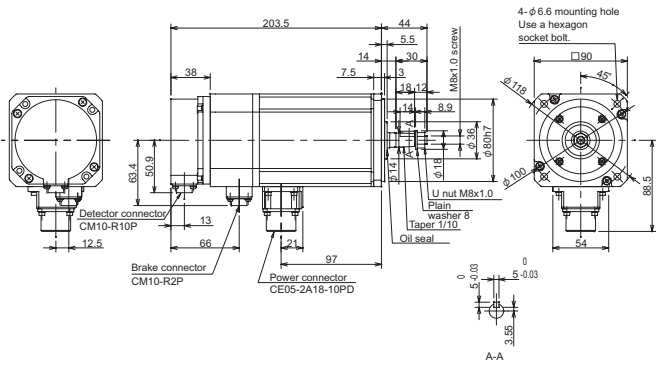
HF105BS-A48



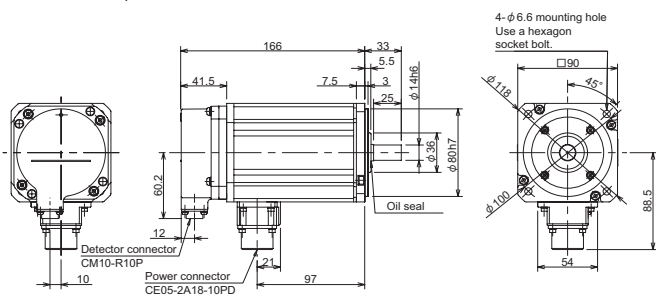
HF105T-A48



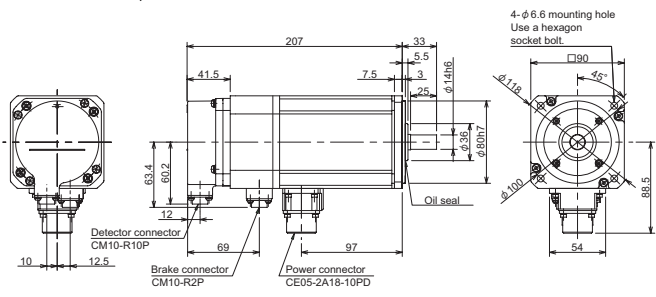
HF105BT-A48



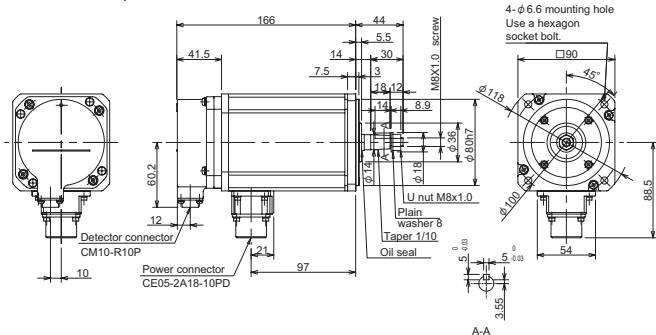
HF105S-A51,-A74



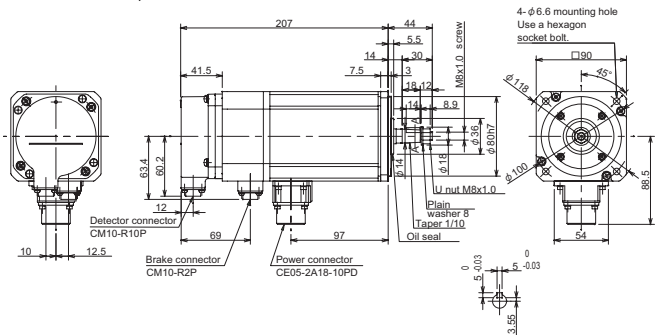
HF105BS-A51,-A74



HF105T-A51,-A74

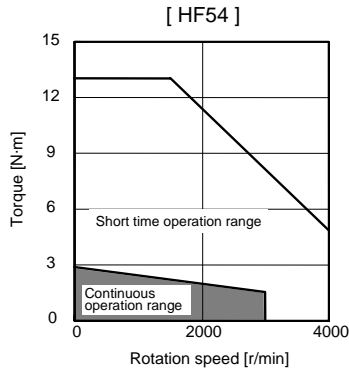


HF105BT-A51,-A74

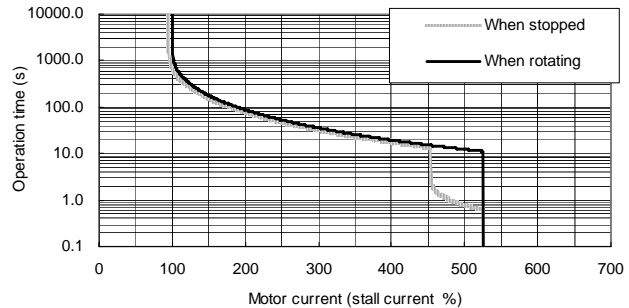


Stall torque	Rated rotation speed	Servomotor type		Explanation of type	
2.9N · m	3000r/min	HF54	(1)(2) (3) -XXX	(1)Magnetic brake	B with brake
					None without brake
				(2)Shaft end	S Straight
					T Taper
				(3)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item	Specifications	
Continuous characteristics	Rated output [kW]	0.5
	Rated current [A]	1.8
	Rated torque [N · m]	1.6
	Stall current [A]	3.2
	Stall torque [N · m]	2.9
Maximum momentary output (For power supply selection) [kW]	2.3	
Rated rotation speed [r/min]	3000	
Maximum rotation speed [r/min]	4000	
Maximum current [A]	16.8	
Maximum torque [N · m]	13.0	
Power rate at continuous rated torque [kW/s]	4.1	
Max. deceleration torque of dynamic brake(Tdp) [N · m]	3.96	
Motor inertia [kg · cm ²]	6.1	
(Brake inertia) [kg · cm ²]	8.3	
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	18.3
	General machine tool (interpolation axis) [kg · cm ²]	30.5
	Non-interpolation axis [kg · cm ²]	42.7
Weight	Without [kg]	4.8
	With brake [kg]	6.8
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level [m/s ²] ([G])	X:9.8(1), Y:24.5(2.5)	
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	392 (L=58)
	Thrust load [N]	490
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	980 (L=55)
	Thrust load [N]	490
Oil level (*2) [mm]	22.5	
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

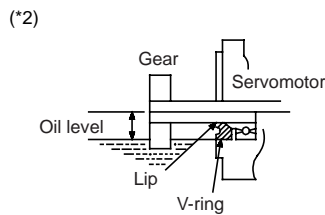
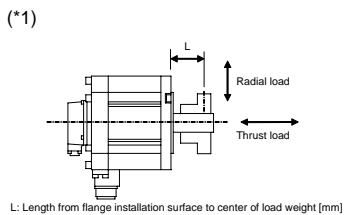
Magnetic brake characteristics

Item	Specifications
Rated voltage	24VDC
Rated current at 20°C [A]	0.8
Static friction torque [N · m]	8.3
Release delay time(*1) [s]	0.04
Braking delay time (DC OFF) (*1) [s]	0.03
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-D-V1-40
2-axis type	MDS-D-V2-4020 (L)
	MDS-D-V2-4040 (L,M)
	MDS-D-V2-8040 (M)
J-type	MDS-D-SVJ3-07

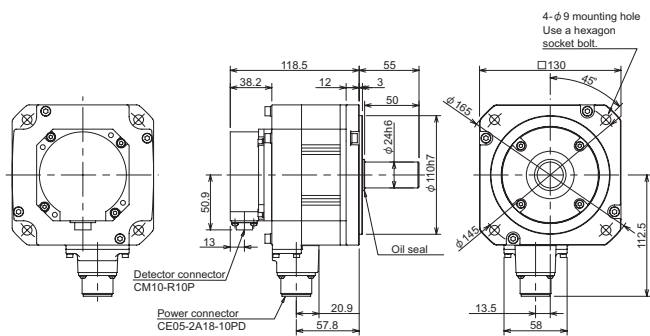


Environmental conditions

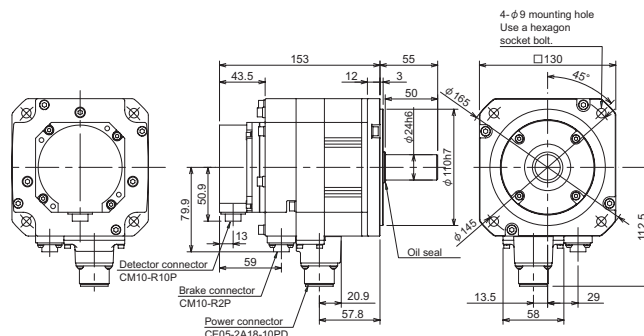
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

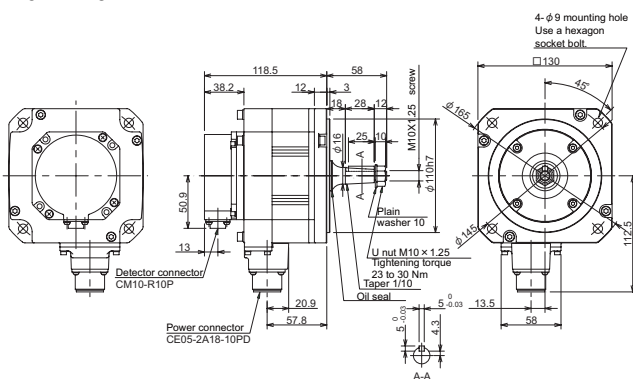
HF54S-A48



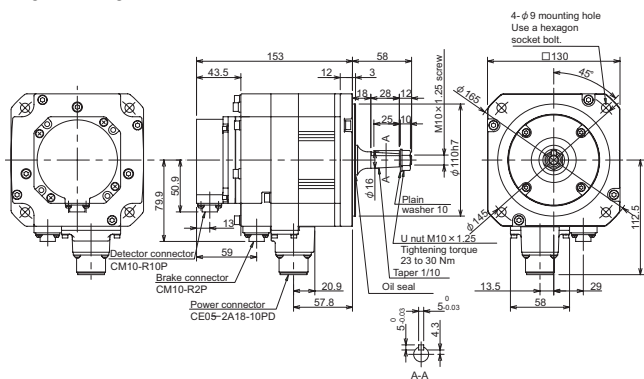
HF54BS-A48



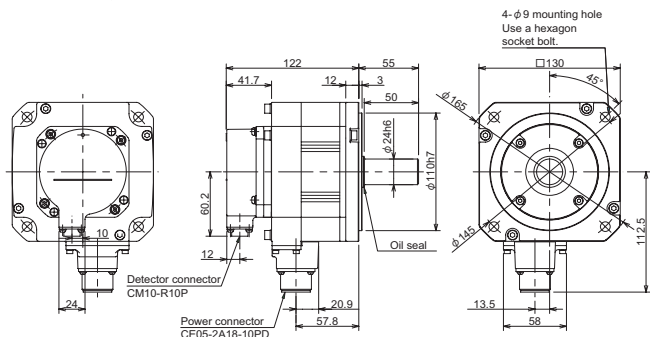
HF54T-A48



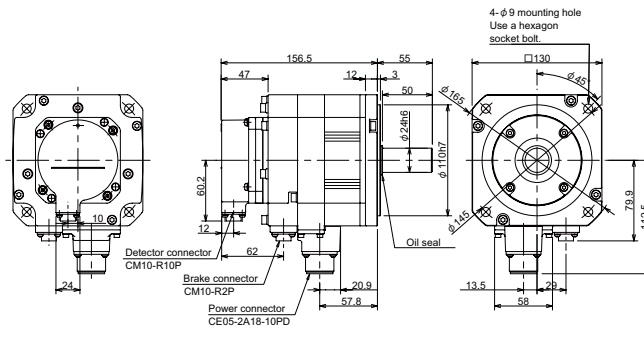
HF54BT-A48



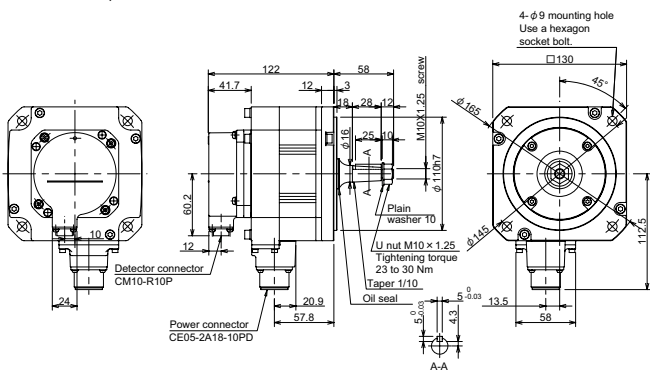
HF54S-A51,-A74



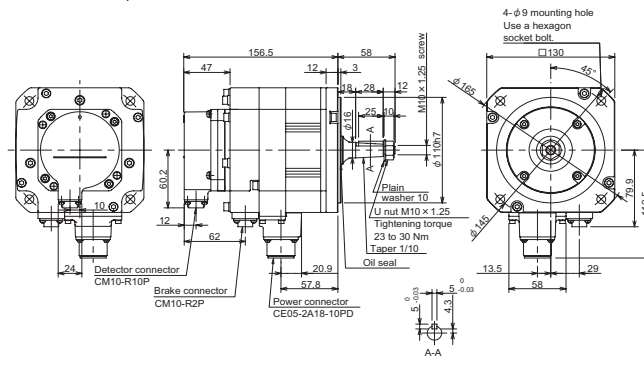
HF54BS-A51,-A74



HF54T-A51,-A74

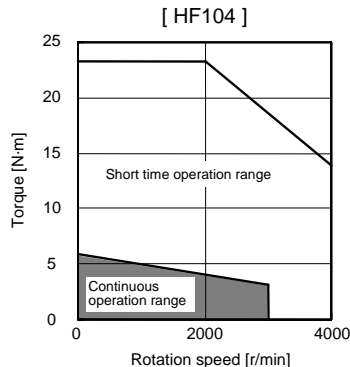


HF54BT-A51,-A74

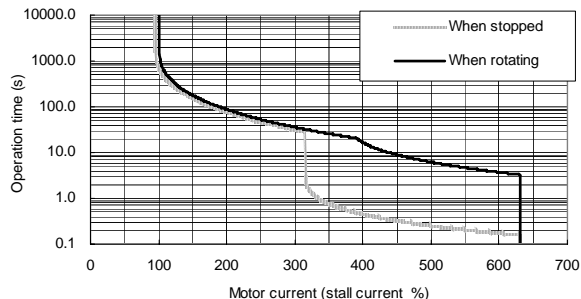


Stall torque	Rated rotation speed	Servomotor type		Explanation of type	
5.9N · m	3000r/min	HF104	(1)(2) (3) -XXX	(1)Magnetic brake	B with brake
					None without brake
				(2)Shaft end	S Straight
					T Taper
				(3)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item	Specifications	
Continuous characteristics	Rated output [kW]	1.0
	Rated current [A]	3.6
	Rated torque [N · m]	3.2
	Stall current [A]	6.6
	Stall torque [N · m]	5.9
Maximum momentary output (For power supply selection) [kW]	5.0	
Rated rotation speed [r/min]	3000	
Maximum rotation speed [r/min]	4000	
Maximum current [A]	29.0	
Maximum torque [N · m]	23.3	
Power rate at continuous rated torque [kW/s]	8.4	
Max. deceleration torque of dynamic brake(Tdp) [N · m]	10.02	
Motor inertia [kg · cm ²]	11.9	
(Brake inertia) [kg · cm ²]	14.1	
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	35.7
	General machine tool (interpolation axis) [kg · cm ²]	59.5
	Non-interpolation axis [kg · cm ²]	83.3
Weight	Without [kg]	6.5
	With brake [kg]	8.5
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level [m/s ²] ([G])	X:9.8(1), Y:24.5(2.5)	
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	392 (L=58)
	Thrust load [N]	490
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	980 (L=55)
	Thrust load [N]	490
Oil level (*2) [mm]	22.5	
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

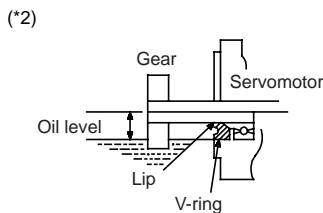
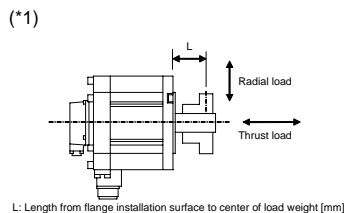
Magnetic brake characteristics

Item	Specifications
Rated voltage	24VDC
Rated current at 20°C [A]	0.8
Static friction torque [N · m]	8.3
Release delay time(*1) [s]	0.04
Braking delay time (DC OFF) (*1) [s]	0.03
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-D-V1-40
2-axis type	MDS-D-V2-4020 (L)
	MDS-D-V2-4040 (L,M)
	MDS-D-V2-8040 (M)
J-type	MDS-D-SVJ3-10

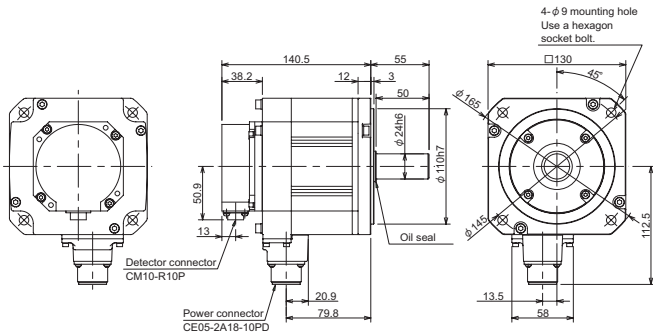


Environmental conditions

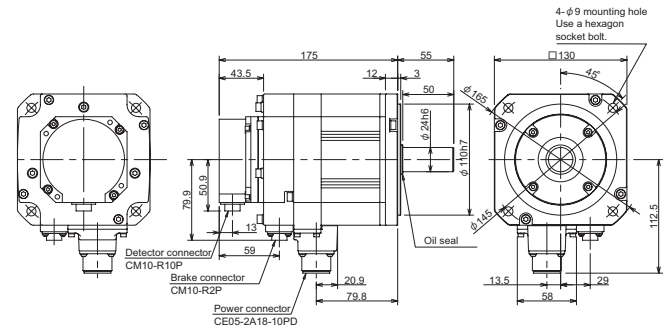
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

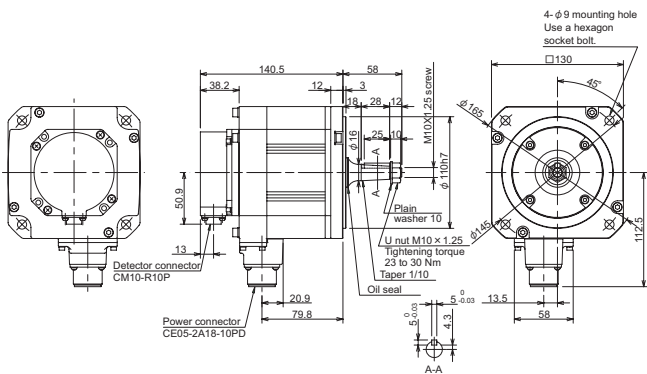
HF104S-A48



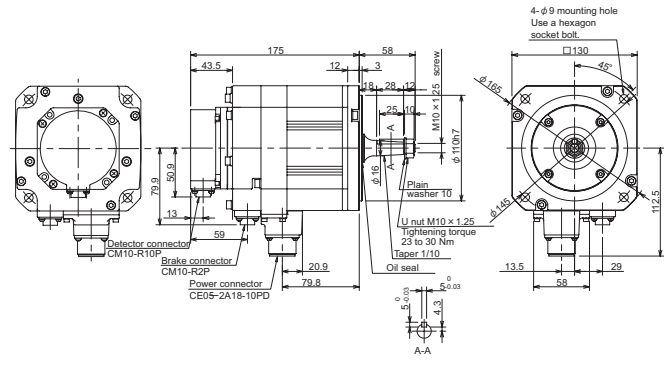
HF104BS-A48



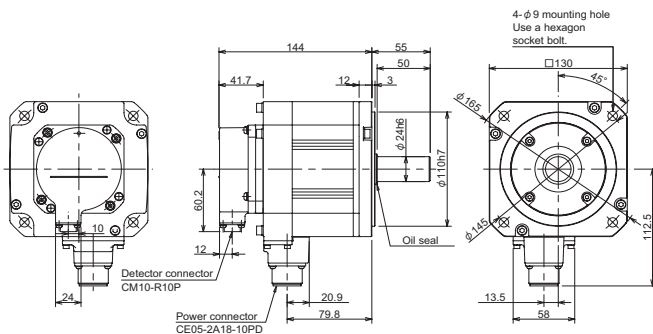
HF104T-A48



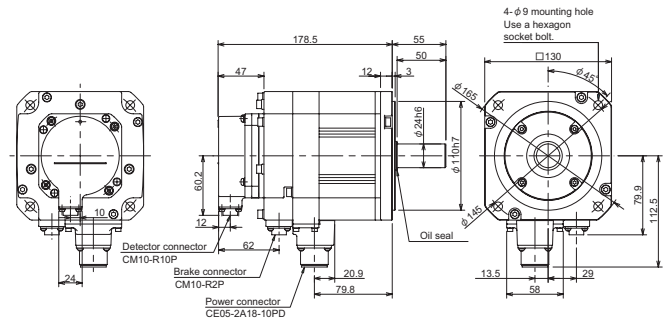
HF104BT-A48



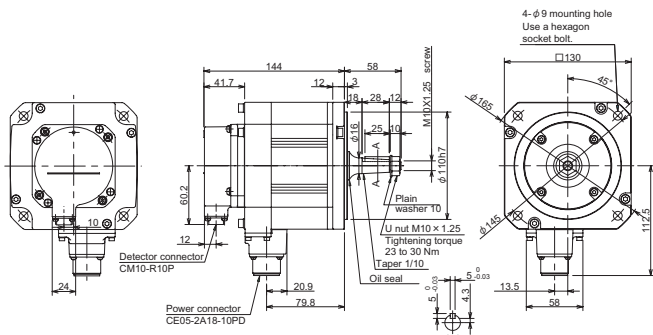
HF104S-A51,-A74



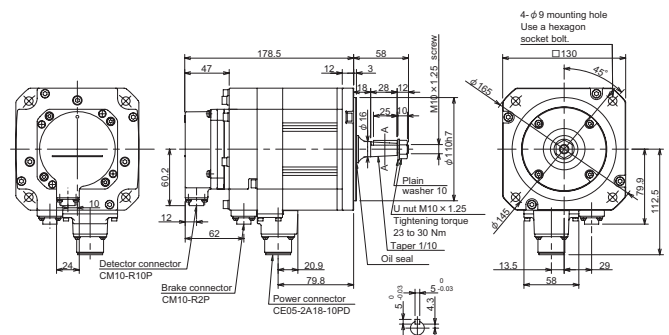
HF104BS-A51,-A74



HF104T-A51,-A74

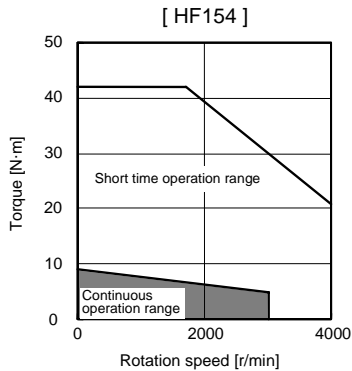


HF104BT-A51,-A74

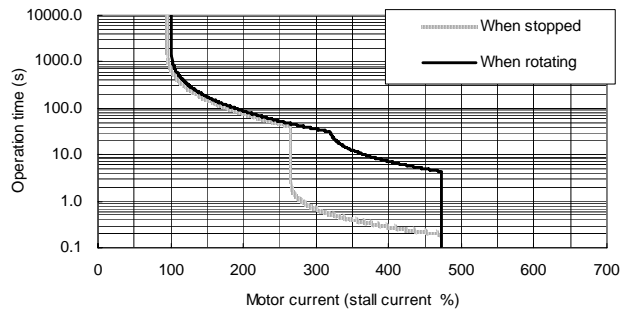


Stall torque	Rated rotation speed	Servomotor type			Explanation of type		
9.0N · m	3000r/min	HF154	(1)(2)	(3)	-XXX	(1)Magnetic brake	B with brake
						None without brake	
						(2)Shaft end	S Straight
						T Taper	
(3)Detector	xxx Type						

Torque characteristics



Servo overload protection characteristics



Specifications

Item	Specifications	
Continuous characteristics	Rated output [kW]	1.5
	Rated current [A]	5.8
	Rated torque [N · m]	4.8
	Stall current [A]	11.0
	Stall torque [N · m]	9.0
Maximum momentary output (For power supply selection) [kW]	9.0	
Rated rotation speed [r/min]	3000	
Maximum rotation speed [r/min]	4000	
Maximum current [A]	52.0	
Maximum torque [N · m]	42.0	
Power rate at continuous rated torque [kW/s]	12.7	
Max. deceleration torque of dynamic brake(Tdp) [N · m]	15.65	
Motor inertia [kg · cm ²]	17.8	
(Brake inertia) [kg · cm ²]	20.0	
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	53.4
	General machine tool (interpolation axis) [kg · cm ²]	89.0
	Non-interpolation axis [kg · cm ²]	124.6
Weight	Without [kg]	8.3
	With brake [kg]	10.3
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level [m/s ²] ([G])	X:9.8(1), Y:24.5(2.5)	
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	392 (L=58)
	Thrust load [N]	490
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	980 (L=55)
	Thrust load [N]	490
Oil level (*2) [mm]	22.5	
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

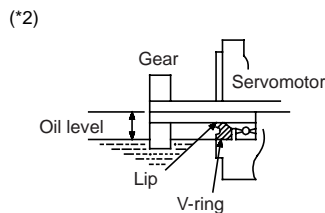
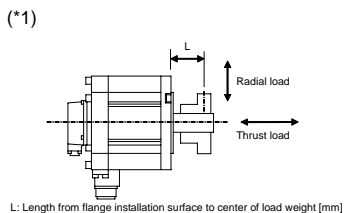
Magnetic brake characteristics

Item	Specifications
Rated voltage	24VDC
Rated current at 20°C [A]	0.8
Static friction torque [N · m]	8.3
Release delay time(*1) [s]	0.04
Braking delay time (DC OFF) (*1) [s]	0.03
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-D-V1-80
2-axis type	MDS-D-V2-8040 (L)
	MDS-D-V2-8080 (L,M)
	MDS-D-V2-16080 (M)
J-type	MDS-D-SVJ3-20

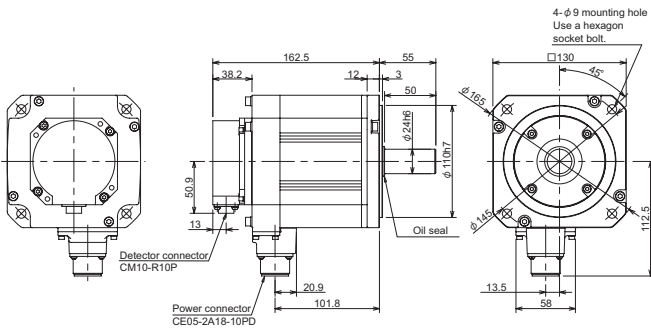


Environmental conditions

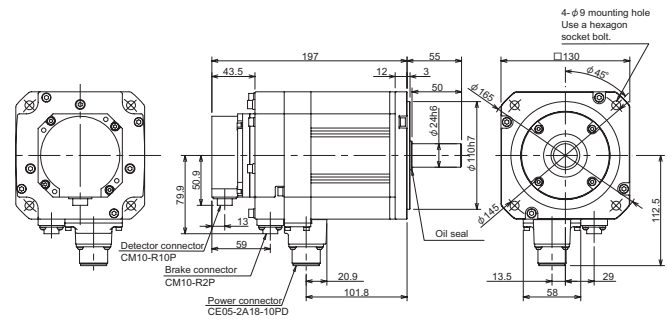
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 - +70 (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

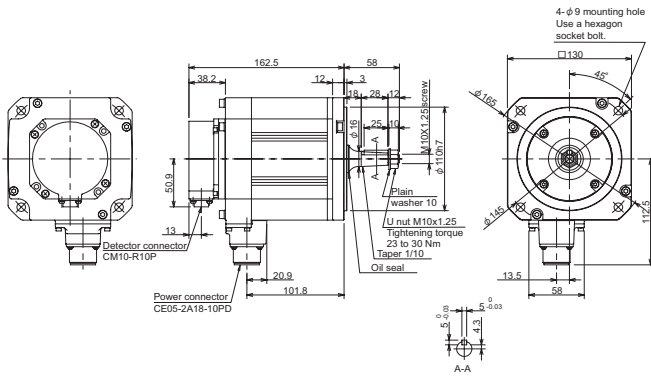
HF154S-A48



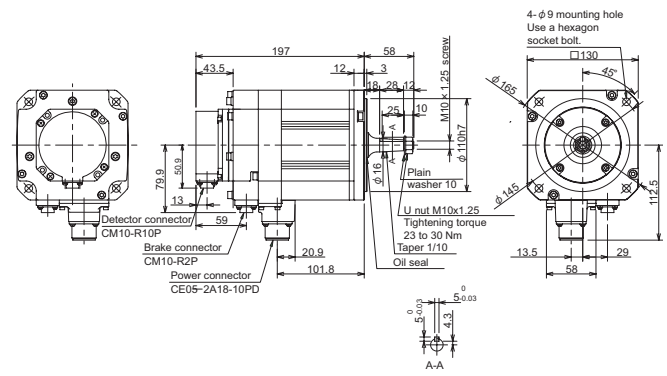
HF154BS-A48



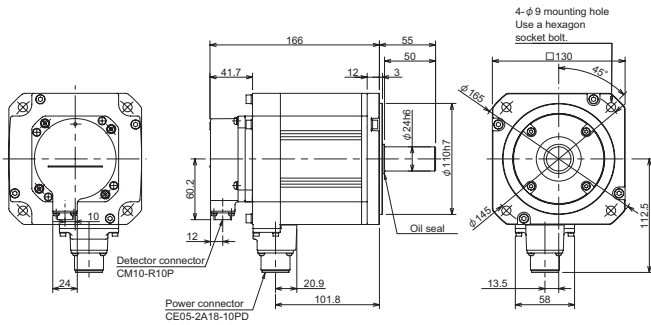
HF154T-A48



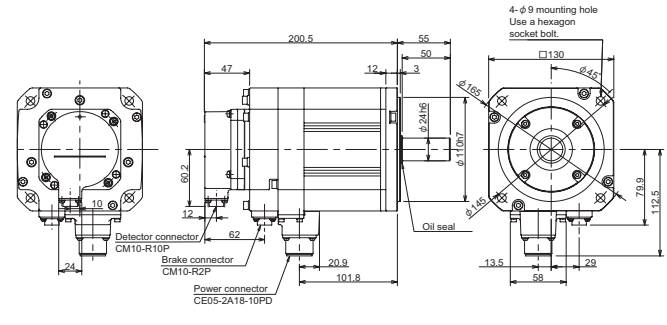
HF154BT-A48



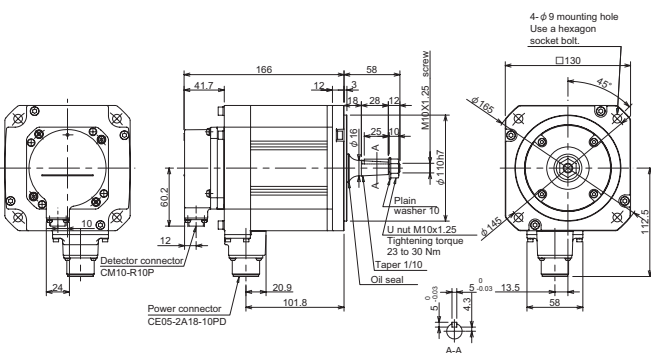
HF154S-A51,-A74



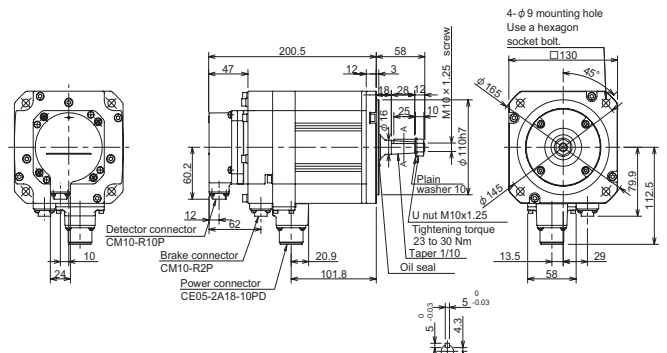
HF154BS-A51,-A74



HF154T-A51,-A74

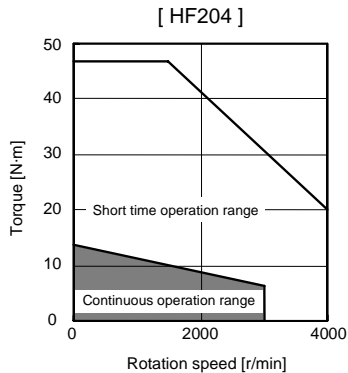


HF154BT-A51,-A74

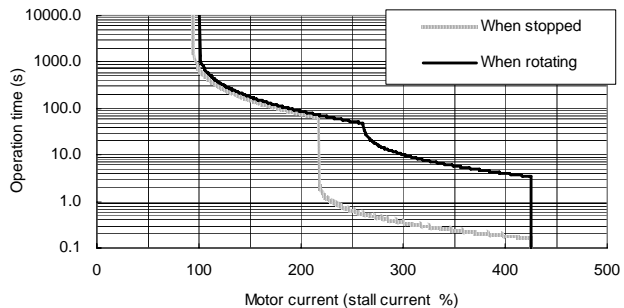


Stall torque	Rated rotation speed	Servomotor type		Explanation of type		
13.7N · m	3000r/min	HF204	(1)	(2)	(1)Magnetic brake	B with brake
						None without brake
					(2)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item	Specifications	
Continuous characteristics	Rated output [kW]	2.0
	Rated current [A]	6.8
	Rated torque [N · m]	6.4
	Stall current [A]	14.6
	Stall torque [N · m]	13.7
Maximum momentary output (For power supply selection) [kW]	8.0	
Rated rotation speed [r/min]	3000	
Maximum rotation speed [r/min]	4000	
Maximum current [A]	57.0	
Maximum torque [N · m]	47.0	
Power rate at continuous rated torque [kW/s]	10.6	
Max. deceleration torque of dynamic brake(Tdp) [N · m]	15.97	
Motor inertia [kg · cm ²]	38.3	
(Brake inertia) [kg · cm ²]	48.0	
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	114.9
	General machine tool (interpolation axis) [kg · cm ²]	191.5
	Non-interpolation axis [kg · cm ²]	268.1
Weight	Without [kg]	12.0
	With brake [kg]	18
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level [m/s ²] ([G])	X:19.6(2), Y:49(5)	
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	-
	Thrust load [N]	-
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	2058 (L=79)
	Thrust load [N]	980
Oil level (*2) [mm]	30	
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

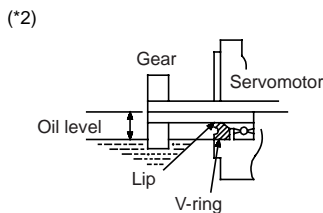
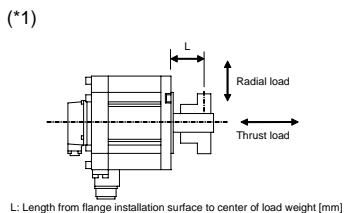
Magnetic brake characteristics

Item	Specifications
Rated voltage	24VDC
Rated current at 20°C [A]	1.4
Static friction torque [N · m]	43.1
Release delay time(*1) [s]	0.1
Braking delay time (DC OFF) (*1) [s]	0.03
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-D-V1-80
2-axis type	MDS-D-V2-8040 (L)
	MDS-D-V2-8080 (L,M)
	MDS-D-V2-16080 (M)
J-type	MDS-D-SVJ3-20

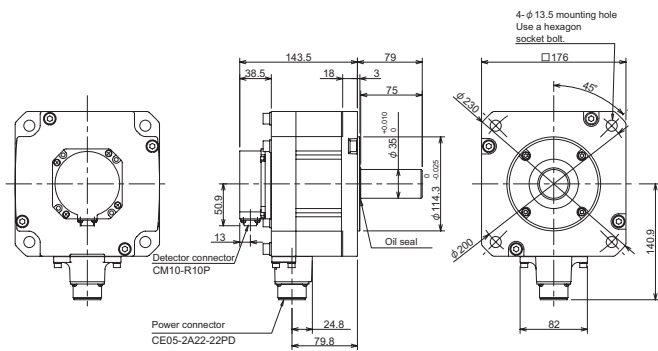


Environmental conditions

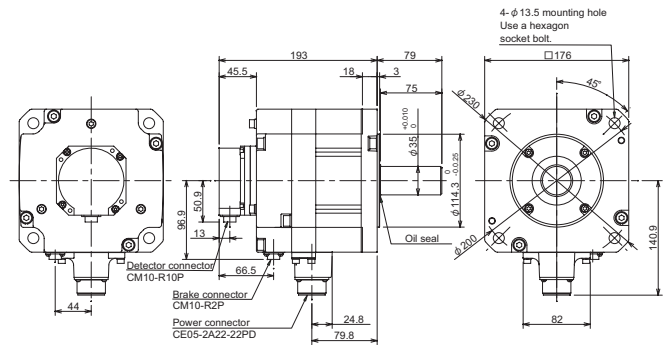
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

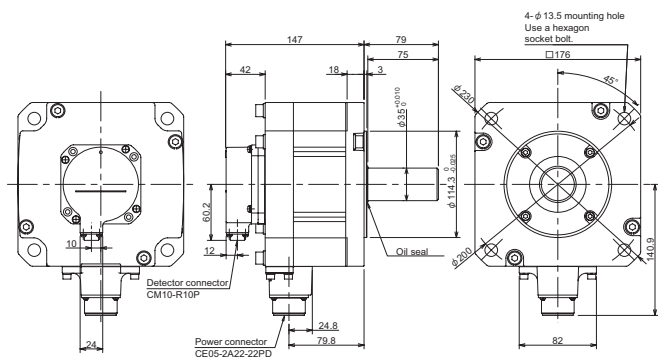
HF204S-A48



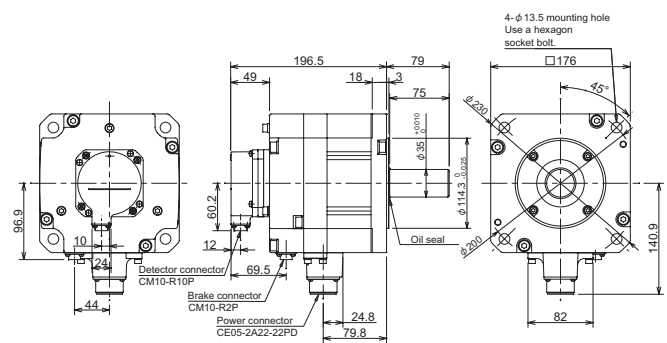
HF204BS-A48



HF204S-A51,-A74

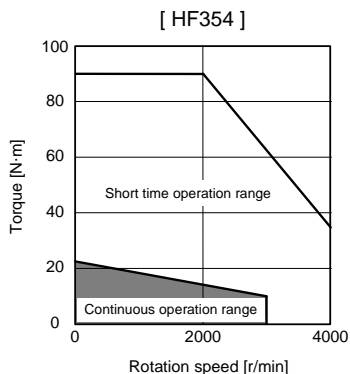


HF204BS-A51,-A74

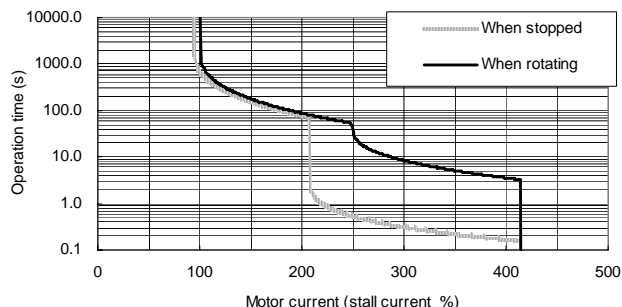


Stall torque	Rated rotation speed	Servomotor type		Explanation of type		
22.5N · m	3000r/min	HF354	(1)	(2)	(1)Magnetic brake	B with brake
						None without brake
					(2)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item		Specifications
Continuous characteristics	Rated output	[kW] 3.5
	Rated current	[A] 13.8
	Rated torque	[N · m] 11.1
	Stall current	[A] 28.0
	Stall torque	[N · m] 22.5
Maximum momentary output (For power supply selection)		[kW] 18.0
Rated rotation speed		[r/min] 3000
Maximum rotation speed		[r/min] 4000
Maximum current		[A] 116.0
Maximum torque		[N · m] 90.0
Power rate at continuous rated torque		[kW/s] 16.5
Max. deceleration torque of dynamic brake(Tdp)		[N · m] 35.28
Motor inertia		[kg · cm ²] 75.0
(Brake inertia)		[kg · cm ²] 84.7
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine	[kg · cm ²] 225.0
	General machine tool (interpolation axis)	[kg · cm ²] 375.0
	Non-interpolation axis	[kg · cm ²] 525.0
Weight	Without	[kg] 19.0
	With brake	[kg] 25
Armature insulation class		Class F
Protection method		IP67 (The shaft-through portion is excluded.)
Quakeproof level		[m/s ²] ([G]) X:19.6(2), Y:49(5)
Axis tolerable load (Taper shaft)	Radial load (*1)	[N] ([mm]) -
	Thrust load	[N] -
Axis tolerable load (Straight shaft)	Radial load (*1)	[N] 2058 (L=79)
	Thrust load	[N] 980
Oil level (*2)		[mm] 30
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

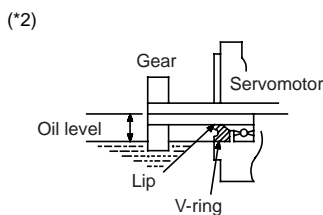
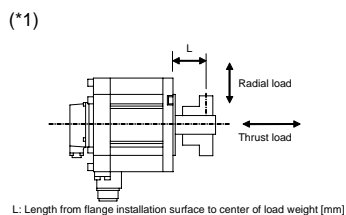
Magnetic brake characteristics

Item	Specifications
Rated voltage	24VDC
Rated current at 20°C	[A] 1.4
Static friction torque	[N · m] 43.1
Release delay time(*1)	[s] 0.1
Braking delay time (DC OFF) (*1)	[s] 0.03
Brake life (*2)	[times] 20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-D-V1-160
2-axis type	MDS-D-V2-16080 (L)
	MDS-D-V2-160160 (L,M)
J-type	MDS-D-SVJ3-35

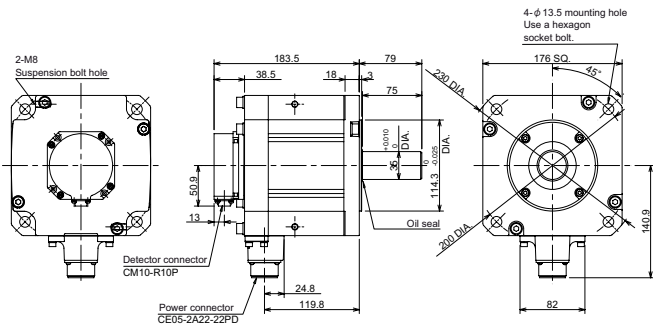


Environmental conditions

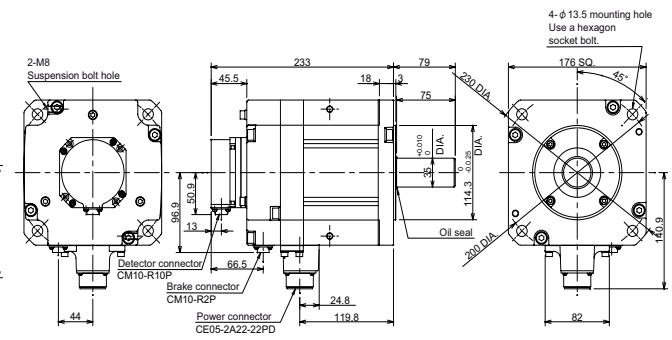
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation: 80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

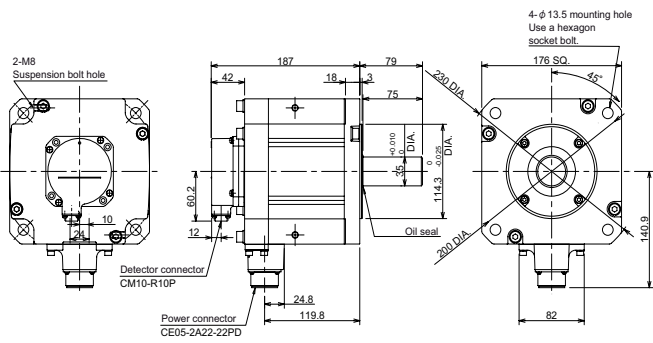
HF354S-A48



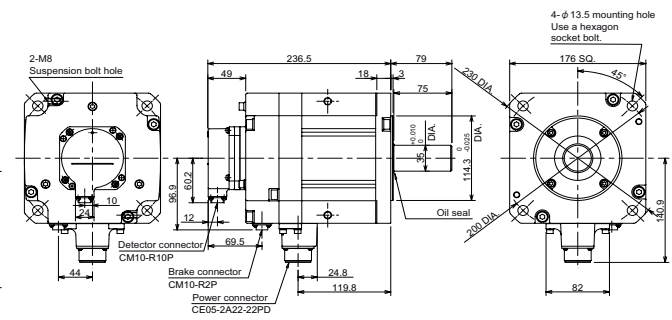
HF354BS-A48



HF354S-A51,-A74

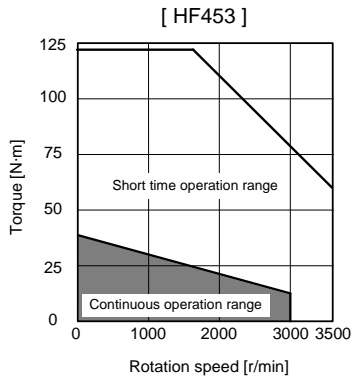


HF354BS-A51,-A74

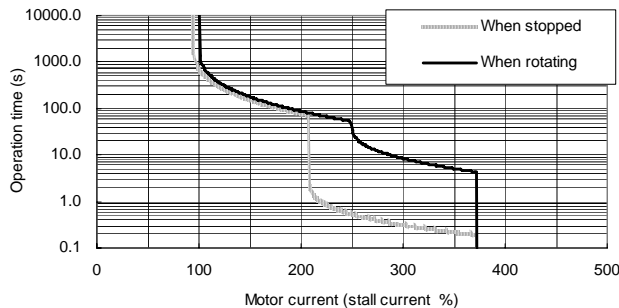


Stall torque	Rated rotation speed	Servomotor type		Explanation of type		
37.2N · m	3000r/min	HF453	(1)	(2)	(1)Magnetic brake	B with brake
						None without brake
					(2)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item		Specifications
Continuous characteristics	Rated output [kW]	4.5
	Rated current [A]	13.4
	Rated torque [N · m]	14.3
	Stall current [A]	34.0
	Stall torque [N · m]	37.2
Maximum momentary output (For power supply selection) [kW]		22.0
Rated rotation speed [r/min]		3000
Maximum rotation speed [r/min]		3500
Maximum current [A]		104.2
Maximum torque [N · m]		122.0
Power rate at continuous rated torque [kW/s]		18.3
Max. deceleration torque of dynamic brake(Tdp) [N · m]		53.01
Motor inertia [kg · cm ²]		112.0
(Brake inertia) [kg · cm ²]		121.7
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	336.0
	General machine tool (interpolation axis) [kg · cm ²]	560.0
	Non-interpolation axis [kg · cm ²]	784.0
Weight	Without [kg]	26.0
	With brake [kg]	32
Armature insulation class		Class F
Protection method		IP67 (The shaft-through portion is excluded.)
Quakeproof level [m/s ²] ([G])		X:11.7(1.2), Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	-
	Thrust load [N]	-
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	2058 (L=79)
	Thrust load [N]	980
Oil level (*2) [mm]		30
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

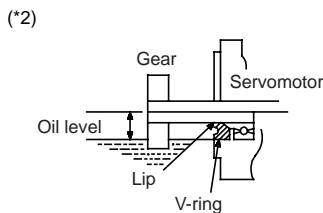
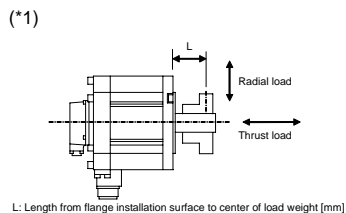
Magnetic brake characteristics

Item	Specifications
Rated voltage	24VDC
Rated current at 20°C [A]	1.4
Static friction torque [N · m]	43.1
Release delay time(*1) [s]	0.1
Braking delay time (DC OFF) (*1) [s]	0.03
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-D-V1-160
2-axis type	MDS-D-V2-16080 (L)
	MDS-D-V2-160160 (L,M)
J-type	-

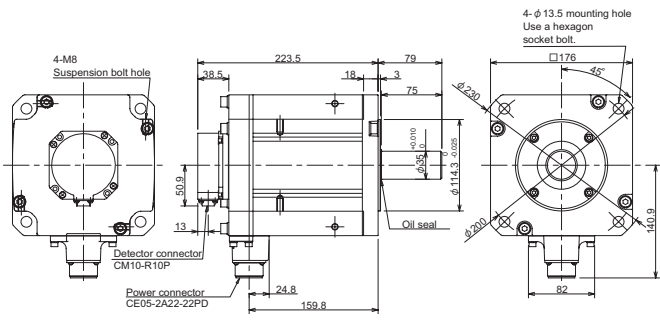


Environmental conditions

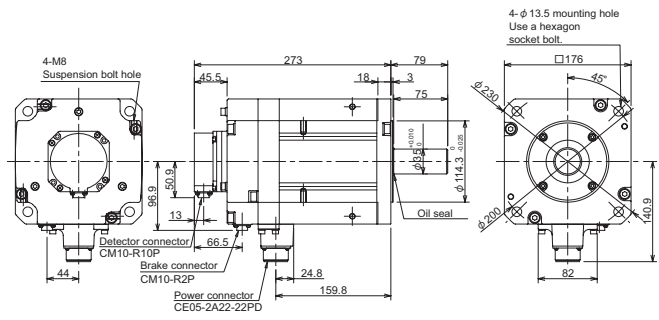
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation: 80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

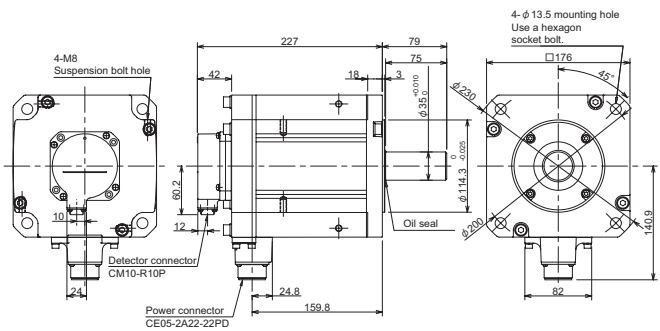
HF453S-A48



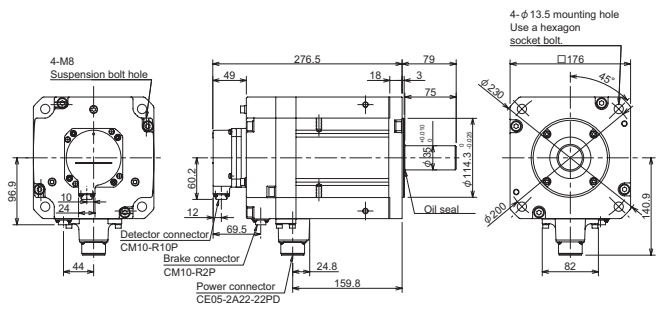
HF453BS-A48



HF453S-A51,-A74

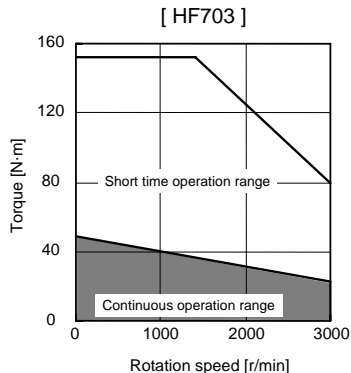


HF453BS-A51,-A74

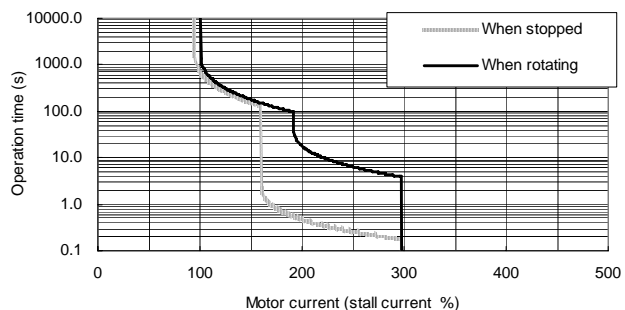


Stall torque	Rated rotation speed	Servomotor type		Explanation of type		
49.0N · m	3000r/min	HF703	(1)	(2)	(1)Magnetic brake	B with brake
						None without brake
					(2)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item		Specifications
Continuous characteristics	Rated output [kW]	7.0
	Rated current [A]	16.6
	Rated torque [N · m]	22.3
	Stall current [A]	36.4
	Stall torque [N · m]	49.0
Maximum momentary output (For power supply selection) [kW]		28.0
Rated rotation speed [r/min]		3000
Maximum rotation speed [r/min]		3000
Maximum current [A]		108.4
Maximum torque [N · m]		152.0
Power rate at continuous rated torque [kW/s]		32.2
Max. deceleration torque of dynamic brake(Tdp) [N · m]		71.93
Motor inertia [kg · cm ²]		154.0
(Brake inertia) [kg · cm ²]		163.7
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	462.0
	General machine tool (interpolation axis) [kg · cm ²]	770.0
	Non-interpolation axis [kg · cm ²]	1078.0
Weight	Without [kg]	32.0
	With brake [kg]	38
Armature insulation class		Class F
Protection method		IP67 (The shaft-through portion is excluded.)
Quakeproof level [m/s ²] ([G])		X:11.7(1.2), Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	-
	Thrust load [N]	-
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	2058 (L=79)
	Thrust load [N]	980
Oil level (*2) [mm]		30
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

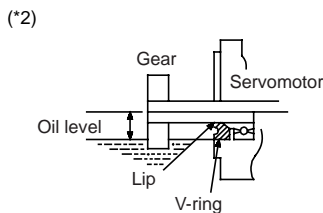
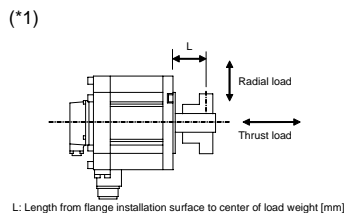
Magnetic brake characteristics

Item	Specifications
Rated voltage	24VDC
Rated current at 20°C [A]	1.4
Static friction torque [N · m]	43.1
Release delay time(*1) [s]	0.1
Braking delay time (DC OFF) (*1) [s]	0.03
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-D-V1-160W
2-axis type	-
	-
J-type	-

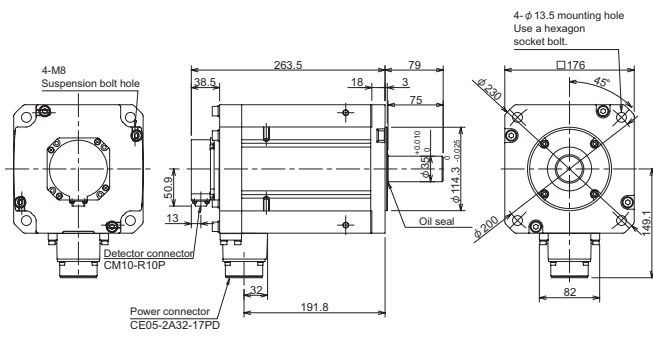


Environmental conditions

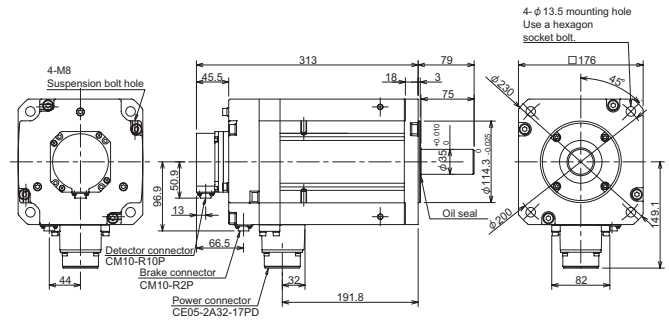
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation: 80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

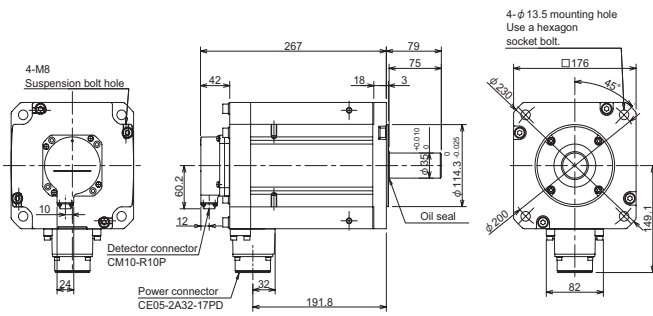
HF703S-A48



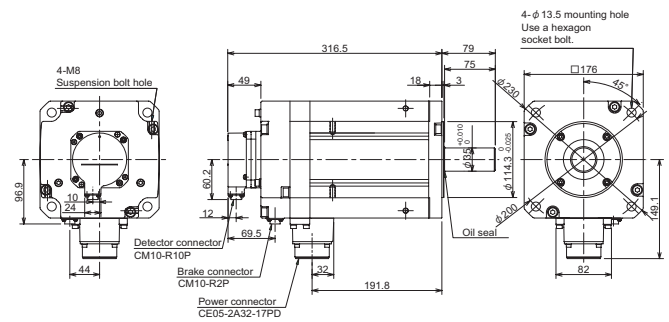
HF703BS-A48



HF703S-A51,-A74

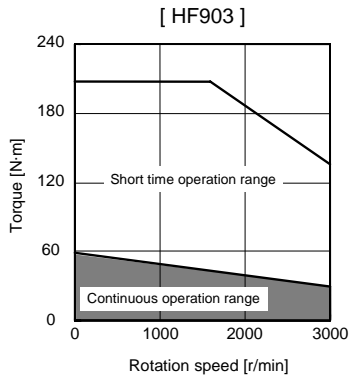


HF703BS-A51,-A74

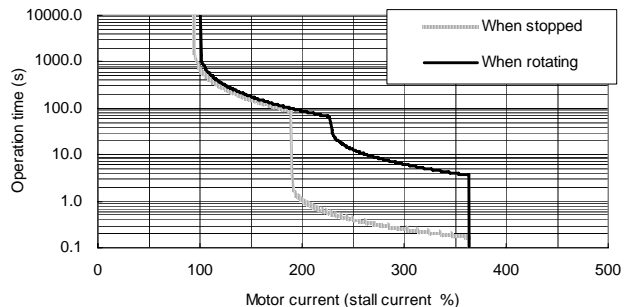


Stall torque	Rated rotation speed	Servomotor type		Explanation of type		
58.8N · m	3000r/min	HF903	(1)	(2)	(1)Magnetic brake	B with brake
						None without brake
					(2)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item		Specifications
Continuous characteristics	Rated output [kW]	9.0
	Rated current [A]	27.2
	Rated torque [N · m]	28.7
	Stall current [A]	56.0
	Stall torque [N · m]	58.8
Maximum momentary output (For power supply selection) [kW]		41.0
Rated rotation speed [r/min]		3000
Maximum rotation speed [r/min]		3000
Maximum current [A]		204.0
Maximum torque [N · m]		208.0
Power rate at continuous rated torque [kW/s]		42.1
Max. deceleration torque of dynamic brake(Tdp) [N · m]		89.23
Motor inertia [kg · cm ²]		196.0
(Brake inertia) [kg · cm ²]		205.7
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	588.0
	General machine tool (interpolation axis) [kg · cm ²]	980.0
	Non-interpolation axis [kg · cm ²]	1372.0
Weight	Without [kg]	45.0
	With brake [kg]	51
Armature insulation class		Class F
Protection method		IP67 (The shaft-through portion is excluded.)
Quakeproof level [m/s ²] ([G])		X:9.8(1), Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	-
	Thrust load [N]	-
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	2450 (L=85)
	Thrust load [N]	980
Oil level (*2) [mm]		34
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

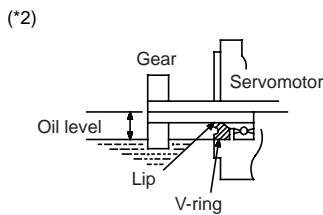
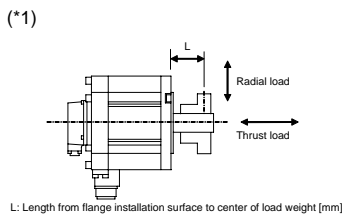
Magnetic brake characteristics

Item	Specifications
Rated voltage	24VDC
Rated current at 20°C [A]	1.4
Static friction torque [N · m]	43.1
Release delay time(*1) [s]	0.1
Braking delay time (DC OFF) (*1) [s]	0.03
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-D-V1-320
2-axis type	-
	-
J-type	-

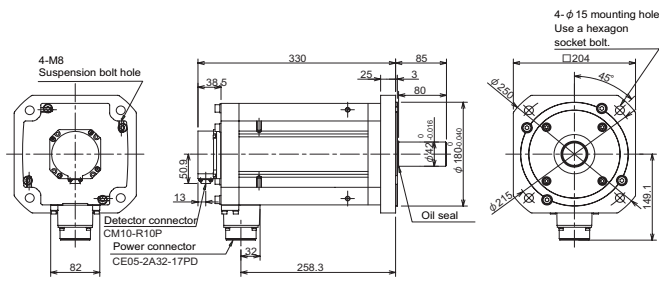


Environmental conditions

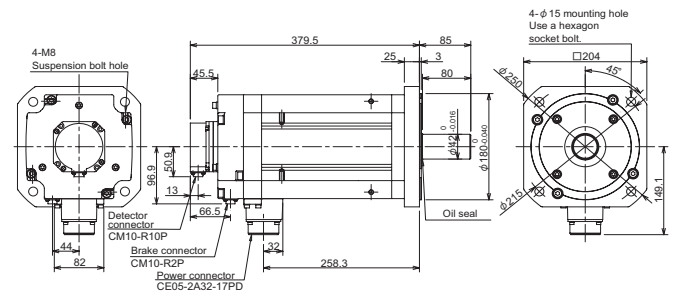
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

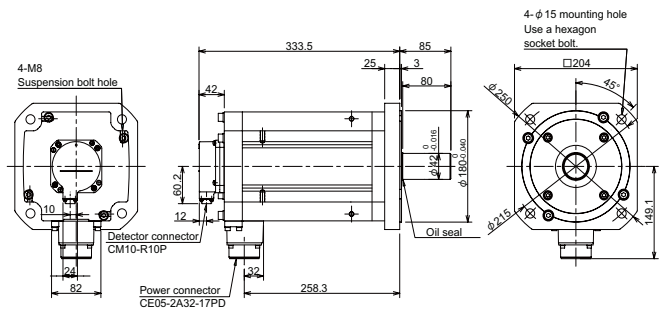
HF903S-A48



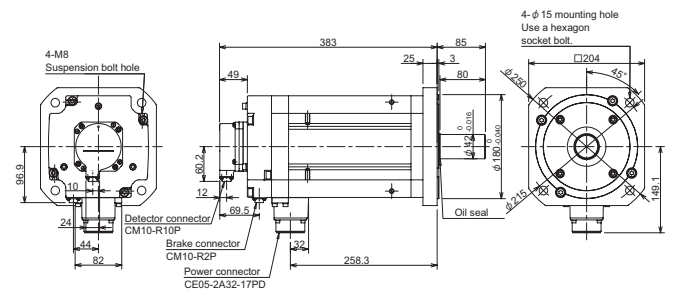
HF903BS-A48



HF903S-A51,-A74

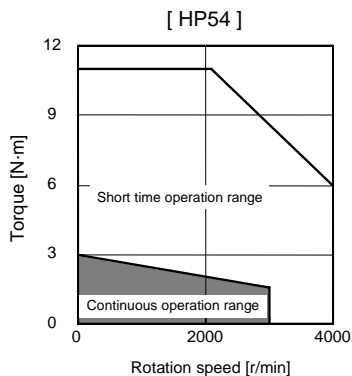


HF903BS-A51,-A74

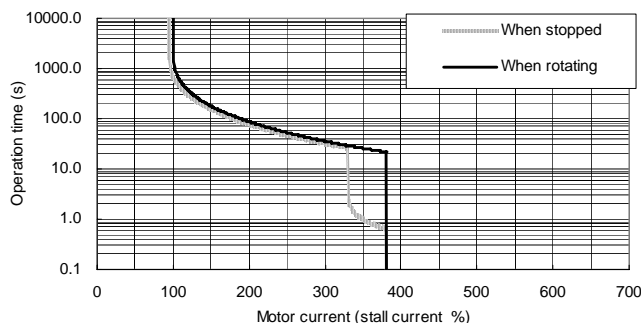


Stall torque	Rated rotation speed	Servomotor type	Explanation of type	
3.0N · m	3000r/min	HP54 (1)(2) (3) -XXX	(1)Magnetic brake	B with brake None without brake
			(2)Shaft end	S Straight T Taper
			(3)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item	Specifications	
Continuous characteristics	Rated output [kW]	0.5
	Rated current [A]	1.8
	Rated torque [N · m]	1.6
	Stall current [A]	3.6
	Stall torque [N · m]	3.0
Maximum momentary output [kW]	2.3	
Rated rotation speed [r/min]	3000	
Maximum rotation speed [r/min]	4000	
Maximum current [A]	16.8	
Maximum torque [N · m]	11.0	
Power rate at continuous rated torque [kW/s]	5.5	
Max. deceleration torque of dynamic brake(Tdp) [N · m]	6.36	
Motor inertia [kg · cm ²]	4.6	
(Brake inertia) [kg · cm ²]	5.1	
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	13.8
	General machine tool (interpolation axis) [kg · cm ²]	23.0
	Non-interpolation axis [kg · cm ²]	46.0
Weight	Without [kg]	6.0
	With brake [kg]	7.3
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level [m/s ²] ([G])	X:9.8(1), Y:24.5(2.5)	
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	392 (L=52.7)
	Thrust load [N]	490
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	980 (L=52.7)
	Thrust load [N]	490
Oil level (*2) [mm]	20	
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

Magnetic brake characteristics

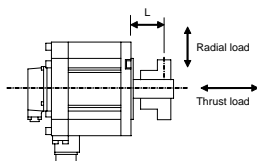
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C [A]	0.91
Static friction torque [N · m]	3.5
Release delay time(*1) [s]	0.1
Braking delay time (DC OFF) (*1) [s]	0.1
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

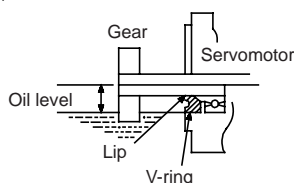
Item	Type
1-axis type	MDS-D-V1-40
2-axis type	MDS-D-V2-4020 (L) MDS-D-V2-4040 (L,M) MDS-D-V2-8040 (M)
J-axis type	-

(*1)



L: Length from flange installation surface to center of load weight [mm]

(*2)

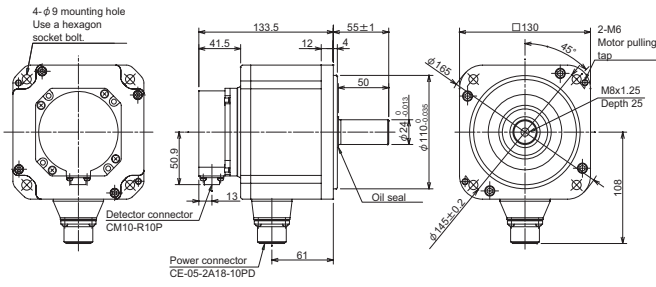


Environmental conditions

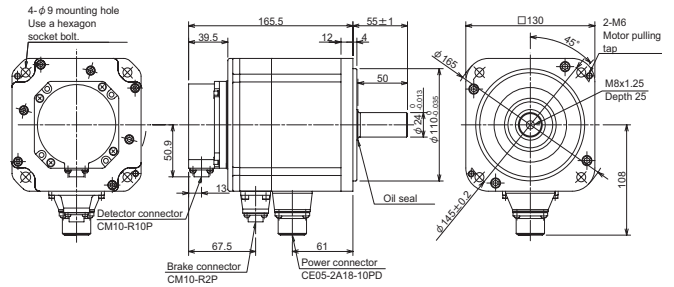
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation: 80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

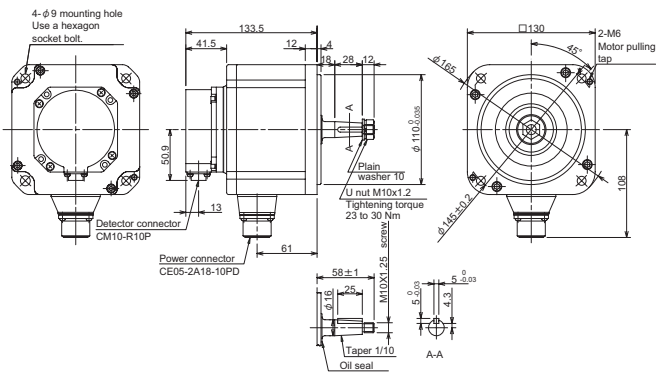
HP54S-A48



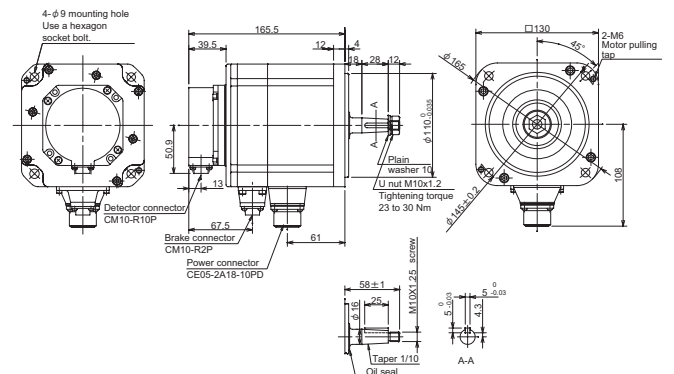
HP54BS-A48



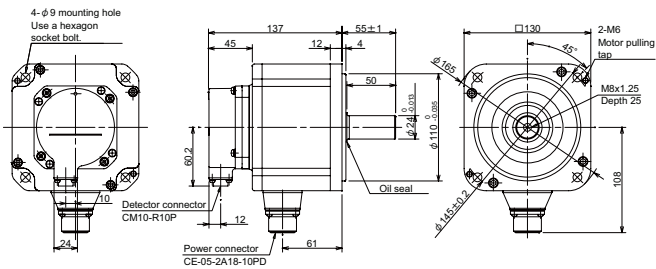
HP54T-A48



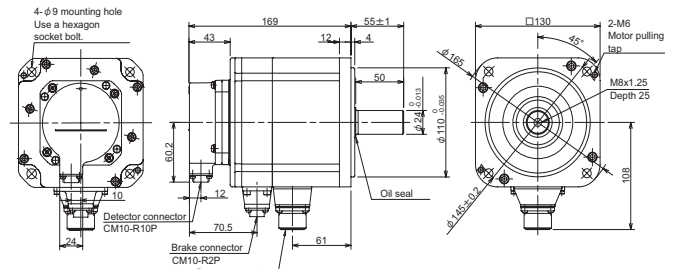
HP54BT-A48



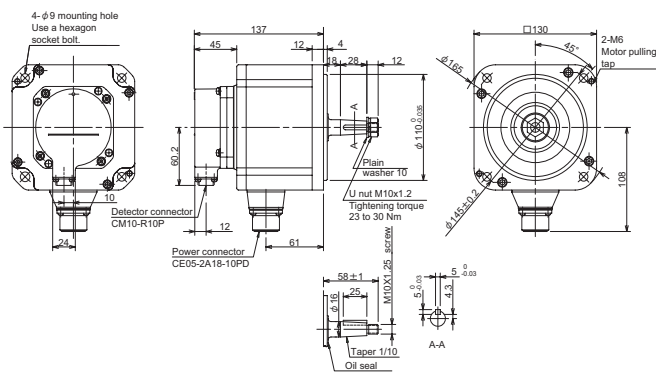
HP54S-A51,-A74



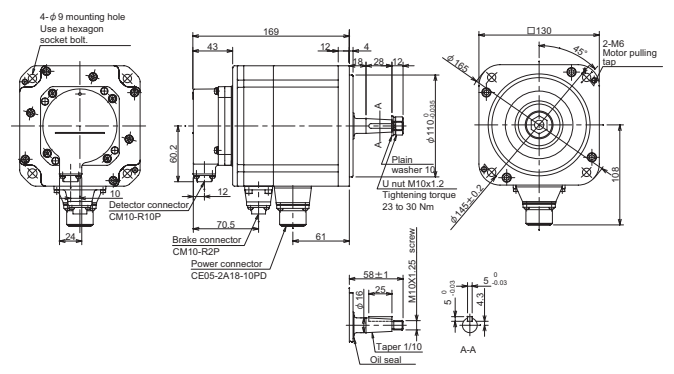
HP54BS-A51,-A74



HP54T-A51,-A74

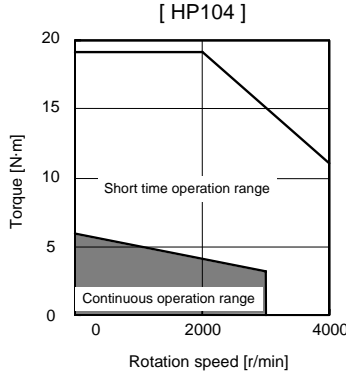


HP54BT-A51,-A74

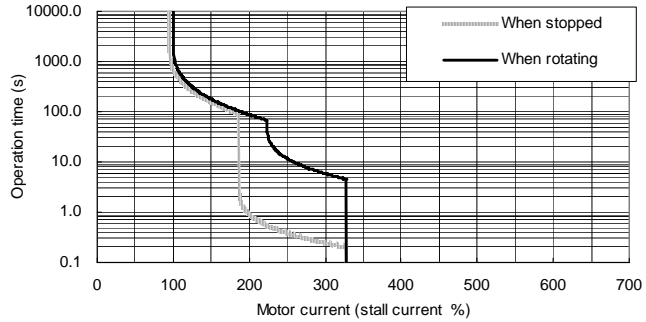


Stall torque	Rated rotation speed	Servomotor type		Explanation of type	
5.9N · m	3000r/min	HP104	(1)(2) (3) -XXX	(1)Magnetic brake	B with brake
					None without brake
				(2)Shaft end	S Straight
					T Taper
				(3)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item	Specifications	
Continuous characteristics	Rated output [kW]	1.0
	Rated current [A]	3.6
	Rated torque [N · m]	3.2
	Stall current [A]	6.8
	Stall torque [N · m]	5.9
Maximum momentary output [kW]	4.3	
Rated rotation speed	[r/min]	3000
Maximum rotation speed	[r/min]	4000
Maximum current	[A]	25.6
Maximum torque	[N · m]	19.2
Power rate at continuous rated torque	[kW/s]	13.0
Max. deceleration torque of dynamic brake(Tdp)	[N · m]	11.10
Motor inertia	[kg · cm ²]	7.7
(Brake inertia)	[kg · cm ²]	8.2
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	23.1
	General machine tool (interpolation axis) [kg · cm ²]	38.5
	Non-interpolation axis [kg · cm ²]	77.0
Weight	Without [kg]	7.0
	With brake [kg]	8.5
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level	[m/s ²] ([G])	X:9.8(1), Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	392 (L=52.7)
	Thrust load [N]	490
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	980 (L=52.7)
	Thrust load [N]	490
Oil level (*2)	[mm]	20
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

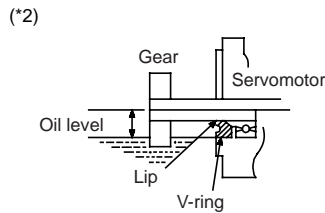
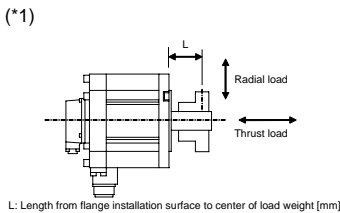
Magnetic brake characteristics

Item	Specifications
Rated voltage	24VDC
Rated current at 20°C [A]	0.86
Static friction torque [N · m]	9
Release delay time(*1) [s]	0.1
Braking delay time (DC OFF) (*1) [s]	0.1
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-D-V1-40
2-axis type	MDS-D-V2-4020 (L)
	MDS-D-V2-4040 (L,M)
J-axis type	MDS-D-V2-8040 (M)

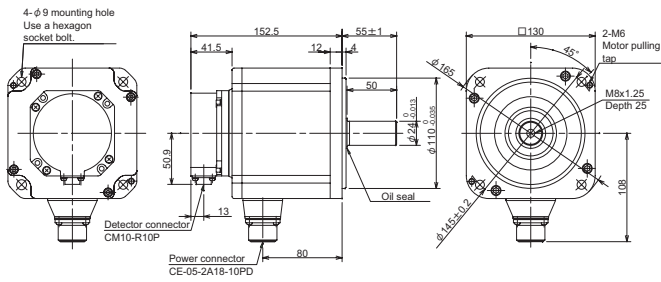


Environmental conditions

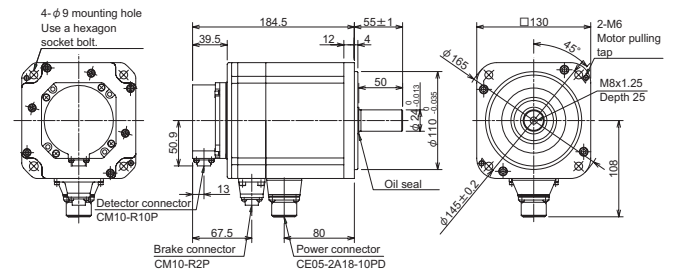
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

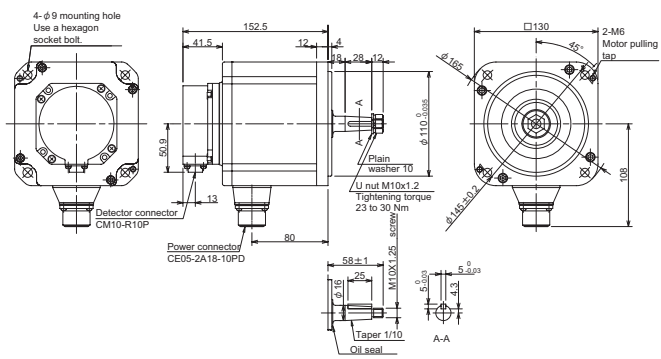
HP104S-A48



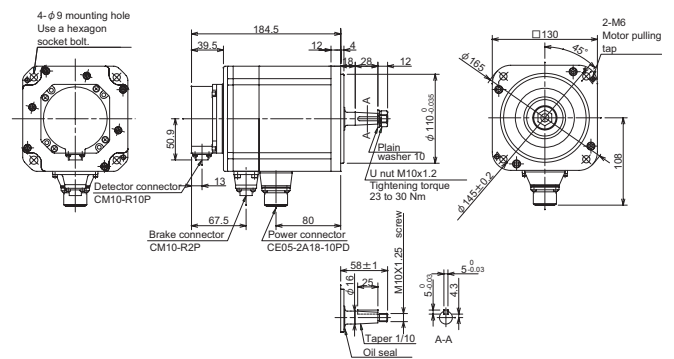
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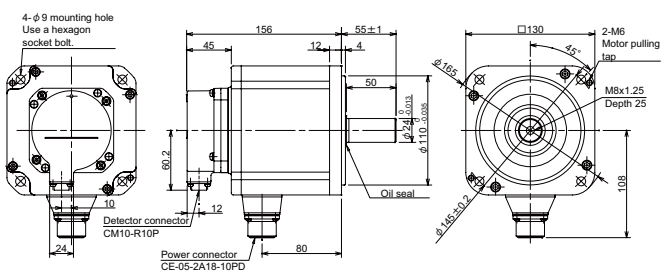
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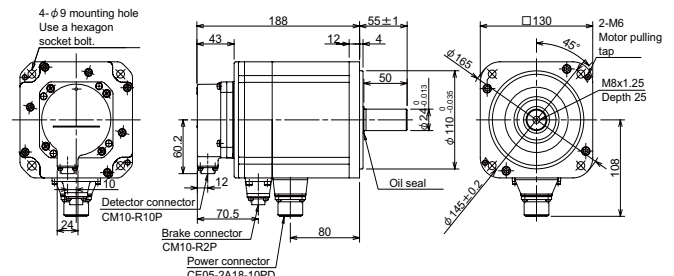
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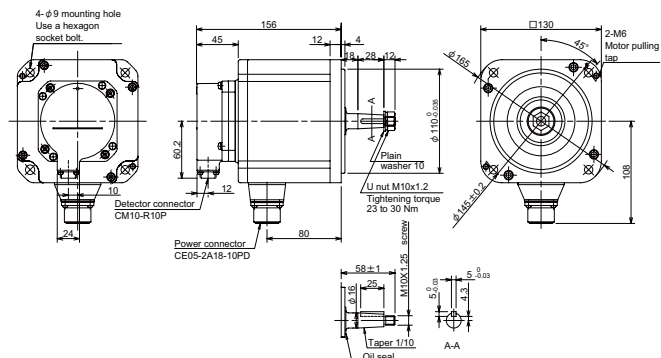
HP104S-A51,-A74



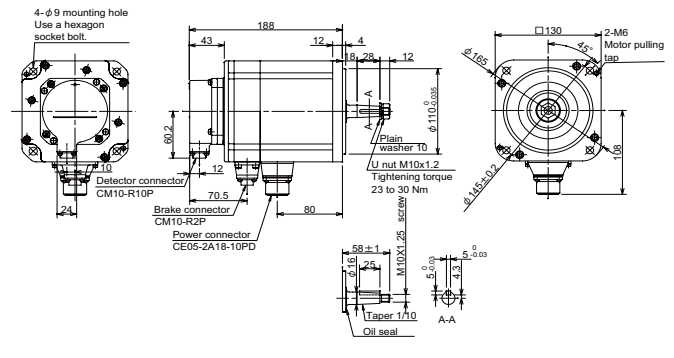
HP104BS-A51,-A74



HP104T-A51,-A74

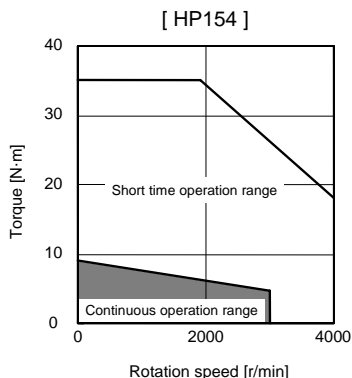


HP104BT-A51,-A74

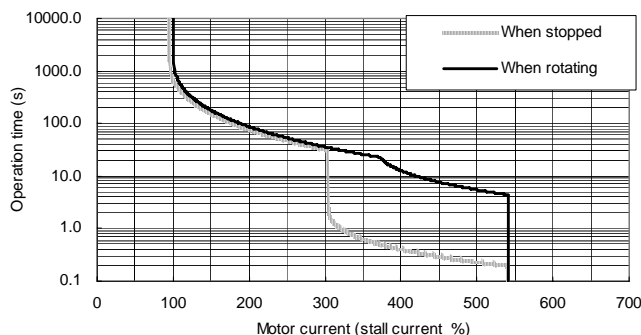


Stall torque	Rated rotation speed	Servomotor type			Explanation of type	
9.0N · m	3000r/min	HP154	(1)(2)	(3)	(1)Magnetic brake	B with brake
					None without brake	
					(2)Shaft end	S Straight
					T Taper	
(3)Detector	xxx Type					

Torque characteristics



Servo overload protection characteristics



Specifications

Item	Specifications	
Continuous characteristics	Rated output [kW]	1.5
	Rated current [A]	5.0
	Rated torque [N · m]	4.8
	Stall current [A]	9.4
	Stall torque [N · m]	9.0
Maximum momentary output [kW]	8.0	
Rated rotation speed [r/min]	3000	
Maximum rotation speed [r/min]	4000	
Maximum current [A]	52.0	
Maximum torque [N · m]	36.5	
Power rate at continuous rated torque [kW/s]	19.0	
Max. deceleration torque of dynamic brake(Tdp) [N · m]	17.41	
Motor inertia [kg · cm ²]	12.0	
(Brake inertia) [kg · cm ²]	12.5	
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	36.0
	General machine tool (interpolation axis) [kg · cm ²]	60.0
	Non-interpolation axis [kg · cm ²]	120.0
Weight	Without [kg]	8.0
	With brake [kg]	9.5
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level [m/s ²] ([G])	X:9.8(1), Y:24.5(2.5)	
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	392 (L=52.7)
	Thrust load [N]	490
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	980 (L=52.7)
	Thrust load [N]	490
Oil level (*2) [mm]	20	
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

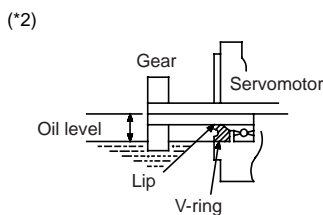
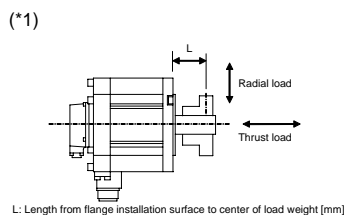
Magnetic brake characteristics

Item	Specifications
Rated voltage	24VDC
Rated current at 20°C [A]	0.86
Static friction torque [N · m]	9
Release delay time(*1) [s]	0.1
Braking delay time (DC OFF) (*1) [s]	0.1
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-D-V1-80
2-axis type	MDS-D-V2-8040 (L)
	MDS-D-V2-8080 (L,M)
	MDS-D-V2-16080 (M)
J-axis type	-

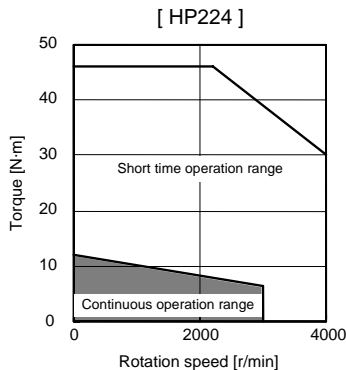


Environmental conditions

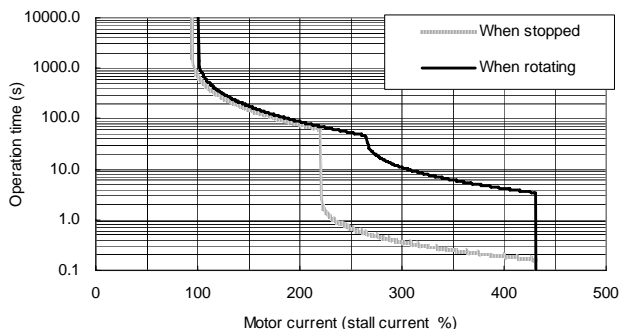
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Stall torque	Rated rotation speed	Servomotor type		Explanation of type	
12.0N · m	3000r/min	HP224	(1)(2) (3) -XXX	(1)Magnetic brake	B with brake
					None without brake
				(2)Shaft end	S Straight
					T Taper
				(3)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item	Specifications	
Continuous characteristics	Rated output [kW]	2.2
	Rated current [A]	7.4
	Rated torque [N · m]	6.4
	Stall current [A]	14.0
	Stall torque [N · m]	12.0
Maximum momentary output [kW]	11.0	
Rated rotation speed [r/min]	3000	
Maximum rotation speed [r/min]	4000	
Maximum current [A]	57.0	
Maximum torque [N · m]	46.0	
Power rate at continuous rated torque [kW/s]	20.0	
Max. deceleration torque of dynamic brake(Tdp) [N · m]	28.74	
Motor inertia [kg · cm ²]	20.0	
(Brake inertia) [kg · cm ²]	25.5	
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	60.0
	General machine tool (interpolation axis) [kg · cm ²]	100.0
	Non-interpolation axis [kg · cm ²]	200.0
Weight	Without [kg]	12.0
	With brake [kg]	13.9
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level [m/s ²] ([G])	X:9.8(1), Y:24.5(2.5)	
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	392 (L=52.7)
	Thrust load [N]	490
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	980 (L=52.7)
	Thrust load [N]	490
Oil level (*2) [mm]	20	
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

Magnetic brake characteristics

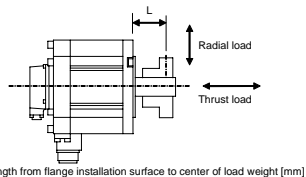
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C [A]	1.0
Static friction torque [N · m]	12
Release delay time(*1) [s]	0.1
Braking delay time (DC OFF) (*1) [s]	0.1
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

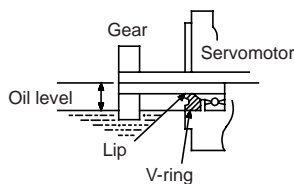
Compatible servo drive unit

Item	Type
1-axis type	MDS-D-V1-80
2-axis type	MDS-D-V2-8040 (L) MDS-D-V2-8080 (L,M) MDS-D-V2-16080 (M)
J-axis type	-

(*1)



(*2)

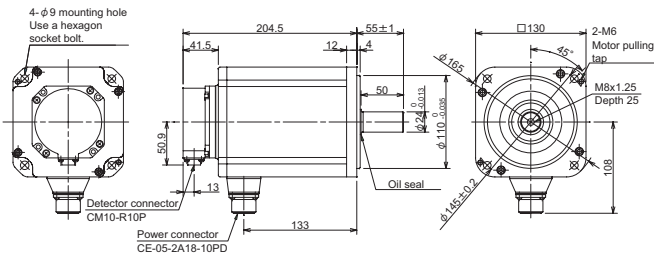


Environmental conditions

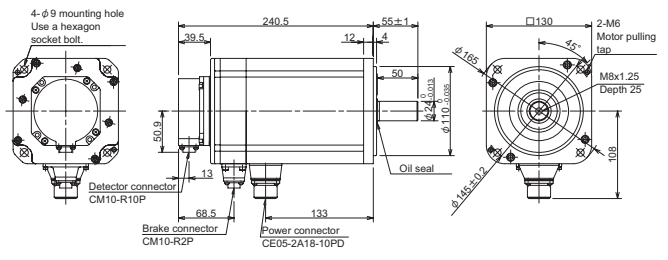
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 - +70 (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

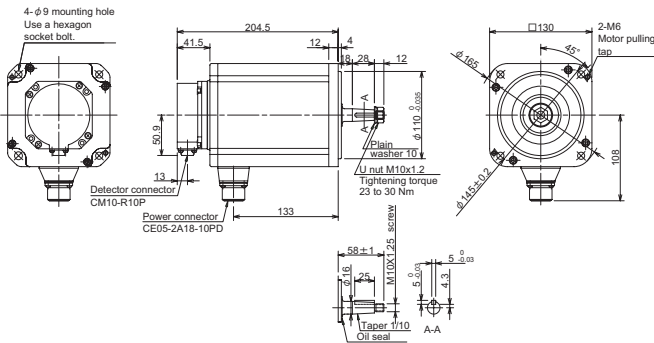
HP224S-A48



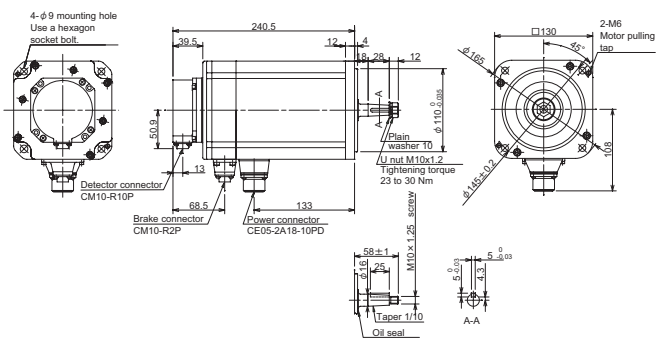
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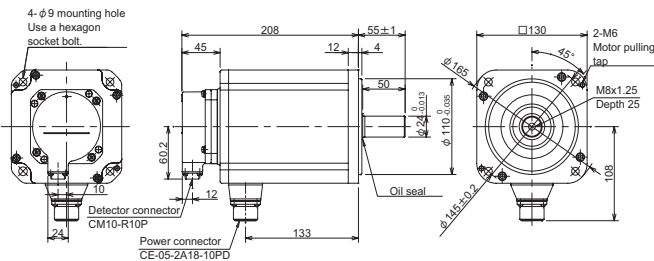
HP224T-A48



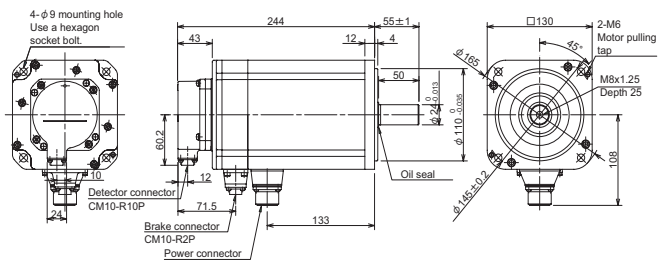
HP224BT-A48



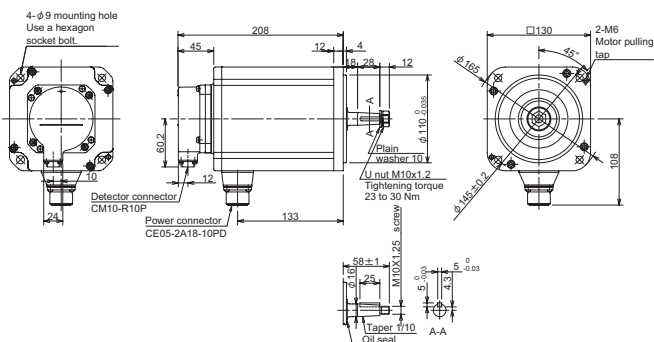
HP224S-A51,-A74



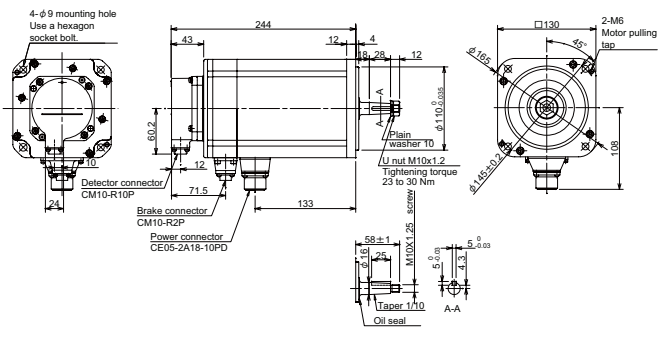
HP224BS-A51,-A74



P224T-A51,-A74

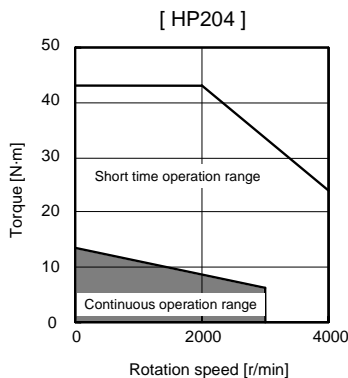


HP224BT-A51,-A74

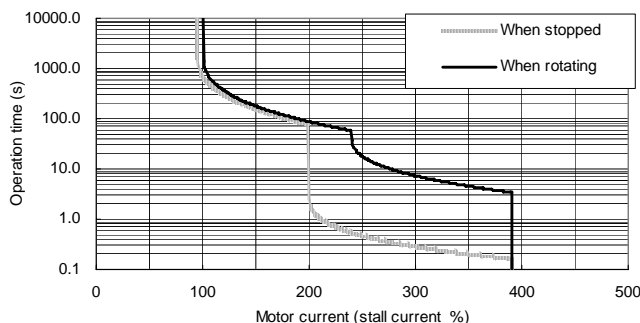


Stall torque	Rated rotation speed	Servomotor type		Explanation of type			
13.7N · m	3000r/min	HP204	(1)	(2)	S-xxx		
						(1)Magnetic brake	B with brake None without brake
						(2)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item	Specifications	
Continuous characteristics	Rated output [kW]	2.0
	Rated current [A]	7.2
	Rated torque [N · m]	6.4
	Stall current [A]	15.4
	Stall torque [N · m]	13.7
Maximum momentary output [kW]	11.0	
Rated rotation speed [r/min]	3000	
Maximum rotation speed [r/min]	4000	
Maximum current [A]	57.0	
Maximum torque [N · m]	43.0	
Power rate at continuous rated torque [kW/s]	14.0	
Max. deceleration torque of dynamic brake (Tdp) [N · m]	26.16	
Motor inertia [kg · cm ²]	29.0	
(Brake inertia) [kg · cm ²]	34.5	
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	87.0
	General machine tool (interpolation axis) [kg · cm ²]	145.0
	Non-interpolation axis [kg · cm ²]	290.0
Weight	Without [kg]	14.0
	With brake [kg]	15.9
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level [m/s ²] ([G])	X:19.6(2), Y:49(5)	
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	-
	Thrust load [N]	-
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	1500 (L=52.7)
	Thrust load [N]	490
Oil level (*2) [mm]	25	
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

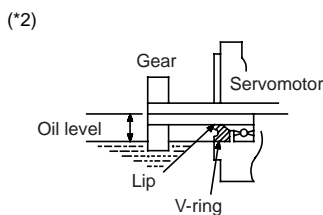
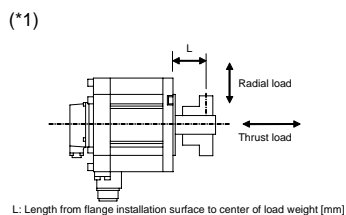
Magnetic brake characteristics

Item	Specifications
Rated voltage	24VDC
Rated current at 20°C [A]	1.0
Static friction torque [N · m]	12
Release delay time(*1) [s]	0.1
Braking delay time (DC OFF) (*1) [s]	0.1
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-D-V1-80
2-axis type	MDS-D-V2-8040 (L)
	MDS-D-V2-8080 (L,M)
J-axis type	-

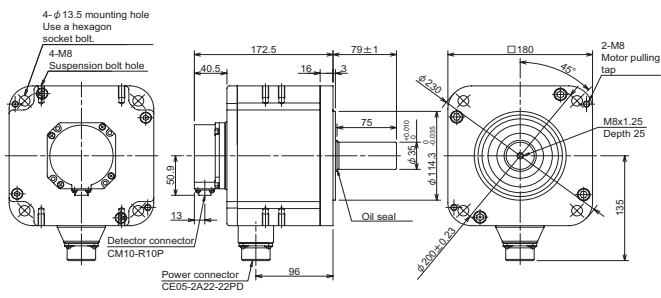


Environmental conditions

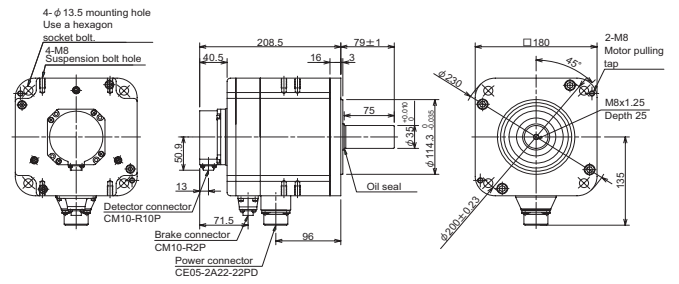
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 - +70 (with no freezing)
Ambient humidity	Operation: 80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

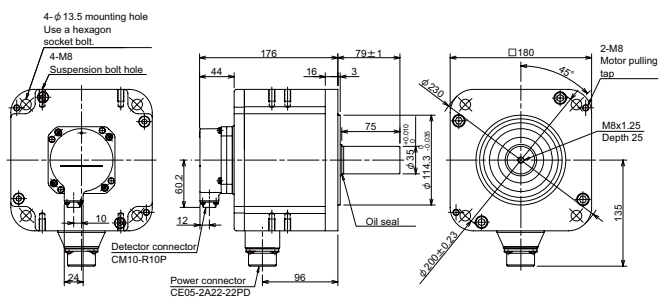
HP204S-A48



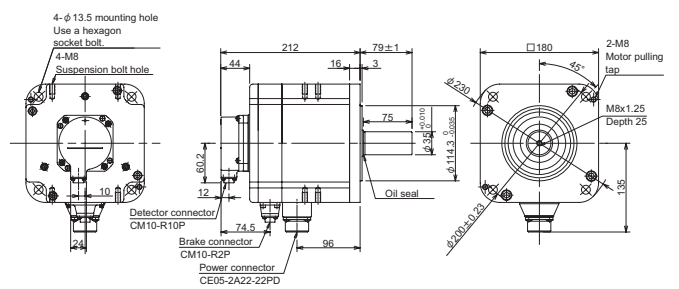
HP204BS-A48



HP204S-A51,-A74

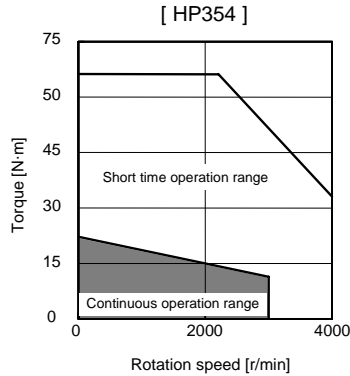


HP204BS-A51,-A74

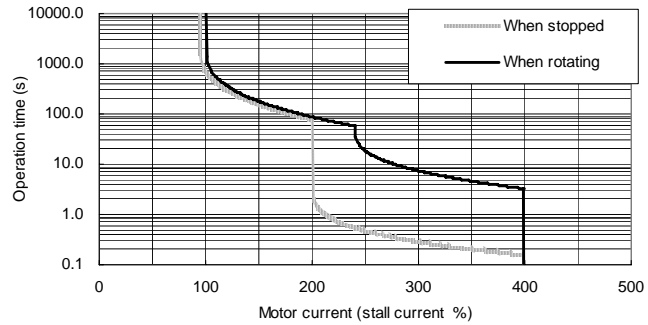


Stall torque	Rated rotation speed	Servomotor type		Explanation of type		
22.5N · m	3000r/min	HP354	(1)	(2)	(1)Magnetic brake	B with brake
						None without brake
					(2)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item	Specifications	
Continuous characteristics	Rated output [kW]	3.5
	Rated current [A]	15.2
	Rated torque [N · m]	11.1
	Stall current [A]	31.0
	Stall torque [N · m]	22.5
Maximum momentary output [kW]	15.0	
Rated rotation speed [r/min]	3000	
Maximum rotation speed [r/min]	4000	
Maximum current [A]	116.0	
Maximum torque [N · m]	66.0	
Power rate at continuous rated torque [kW/s]	33.0	
Max. deceleration torque of dynamic brake(Tdp) [N · m]	38.44	
Motor inertia [kg · cm ²]	37.0	
(Brake inertia) [kg · cm ²]	42.5	
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	111.0
	General machine tool (interpolation axis) [kg · cm ²]	185.0
	Non-interpolation axis [kg · cm ²]	370.0
Weight	Without [kg]	17.0
	With brake [kg]	22
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level [m/s ²] ([G])	X:19.6(2), Y:49(5)	
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	-
	Thrust load [N]	-
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	1500 (L=52.7)
	Thrust load [N]	490
Oil level (*2) [mm]	25	
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

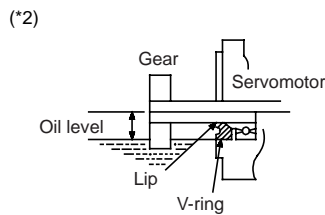
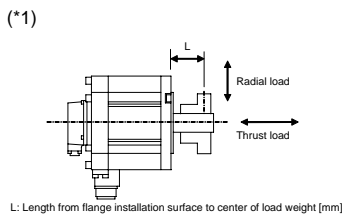
Magnetic brake characteristics

Item	Specifications
Rated voltage	24VDC
Rated current at 20°C [A]	1.4
Static friction torque [N · m]	32
Release delay time(*1) [s]	0.12
Braking delay time (DC OFF) (*1) [s]	0.1
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-D-V1-160
2-axis type	MDS-D-V2-16080 (L) MDS-D-V2-160160 (L,M)
J-axis type	-

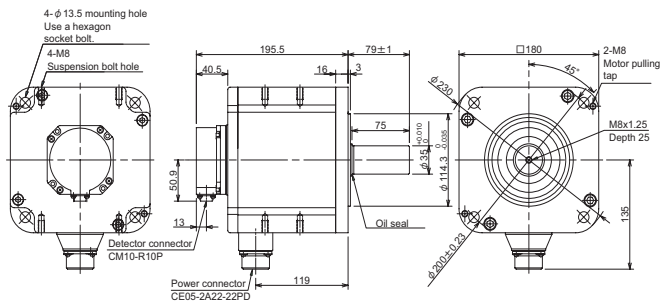


Environmental conditions

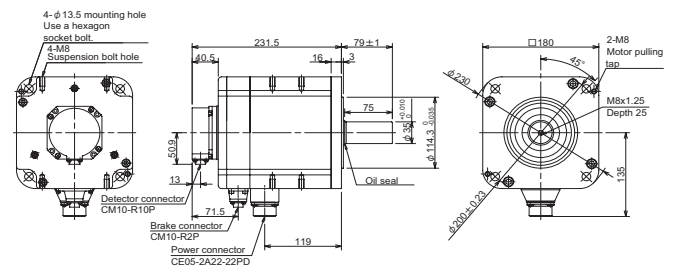
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation: 80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

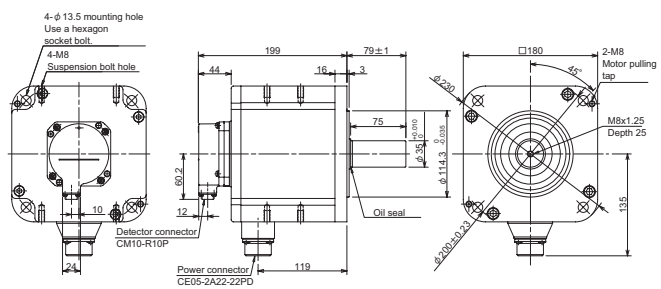
HP354S-A48



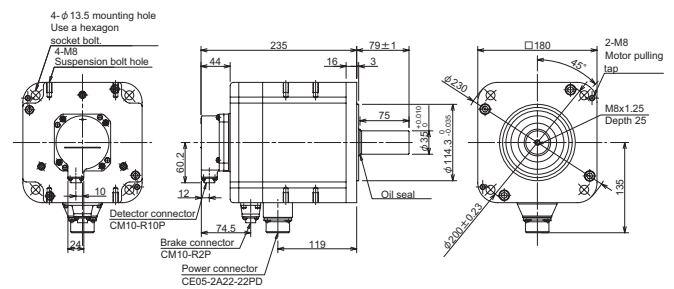
HP354BS-A48



HP354S-A51,-A74

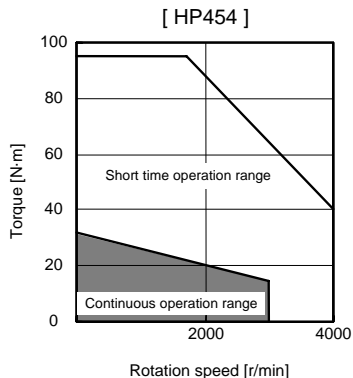


HP354BS-A51,-A74

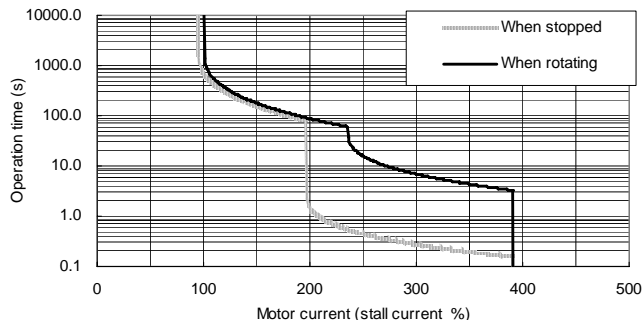


Stall torque	Rated rotation speed	Servomotor type		Explanation of type	
31.9N · m	3000r/min	HP454	S-xxx	(1)Magnetic brake	B with brake None without brake
				(2)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item	Specifications	
Continuous characteristics	Rated output [kW]	4.5
	Rated current [A]	14.2
	Rated torque [N · m]	14.3
	Stall current [A]	32.0
	Stall torque [N · m]	31.9
Maximum momentary output [kW]	21.0	
Rated rotation speed [r/min]	3000	
Maximum rotation speed [r/min]	4000	
Maximum current [A]	116.0	
Maximum torque [N · m]	95.0	
Power rate at continuous rated torque [kW/s]	36.0	
Max. deceleration torque of dynamic brake(Tdp) [N · m]	61.60	
Motor inertia [kg · cm ²]	55.0	
(Brake inertia) [kg · cm ²]	60.5	
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	165.0
	General machine tool (interpolation axis) [kg · cm ²]	275.0
	Non-interpolation axis [kg · cm ²]	550.0
Weight	Without [kg]	21.0
	With brake [kg]	26
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level [m/s ²] ([G])	X:11.7(1.2), Y:24.5(2.5)	
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	-
	Thrust load [N]	-
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	1500 (L=52.7)
	Thrust load [N]	490
Oil level (*2) [mm]	25	
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

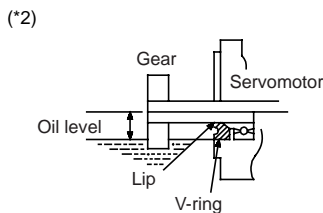
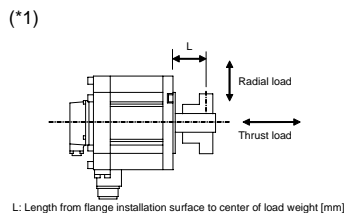
Magnetic brake characteristics

Item	Specifications
Rated voltage	24VDC
Rated current at 20°C [A]	1.4
Static friction torque [N · m]	32
Release delay time(*1) [s]	0.12
Braking delay time (DC OFF) (*1) [s]	0.1
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-D-V1-160
2-axis type	MDS-D-V2-16080 (L) MDS-D-V2-160160 (L,M)
J-axis type	-

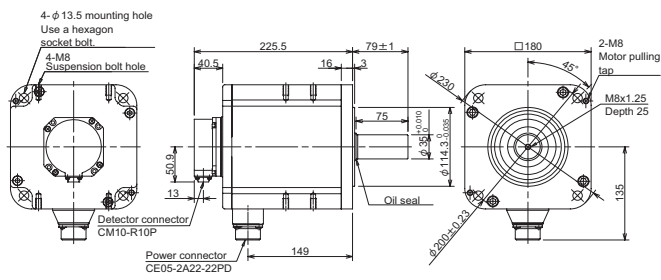


Environmental conditions

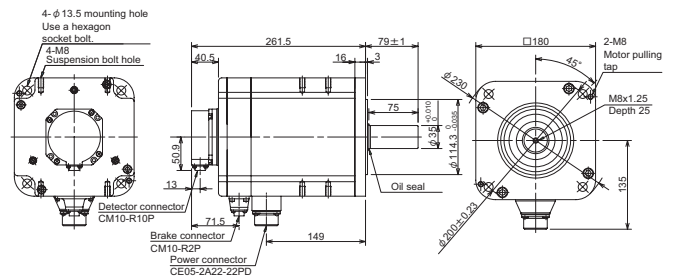
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation: 80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

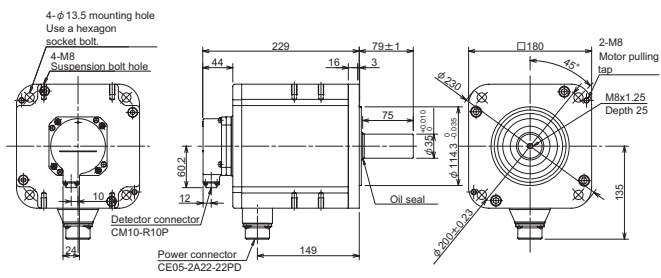
HP454S-A48



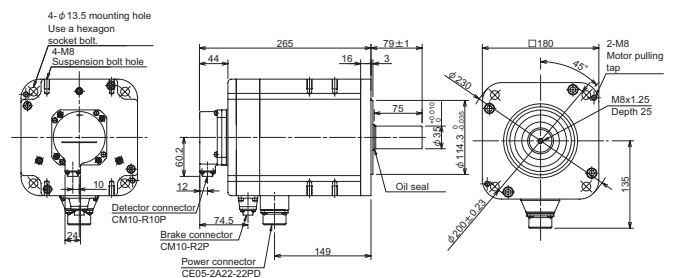
HP454BS-A48



HP454S-A51,-A74

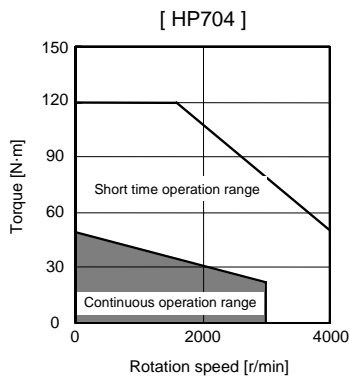


HP454BS-A51,-A74

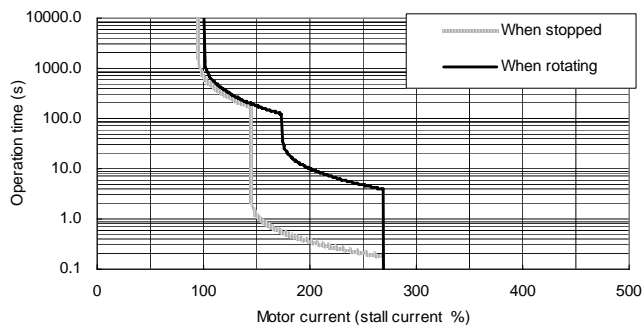


Stall torque	Rated rotation speed	Servomotor type		Explanation of type		
49.0N · m	3000r/min	HP704	(1)	(2)	(1)Magnetic brake	B with brake
						None without brake
					(2)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item	Specifications	
Continuous characteristics	Rated output [kW]	7.0
	Rated current [A]	19.2
	Rated torque [N · m]	22.3
	Stall current [A]	42.0
	Stall torque [N · m]	49.0
Maximum momentary output [kW]	27.0	
Rated rotation speed [r/min]	3000	
Maximum rotation speed [r/min]	4000	
Maximum current [A]	116.0	
Maximum torque [N · m]	120.0	
Power rate at continuous rated torque [kW/s]	59.0	
Max. deceleration torque of dynamic brake(Tdp) [N · m]	88.38	
Motor inertia [kg · cm ²]	82.0	
(Brake inertia) [kg · cm ²]	87.5	
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	246.0
	General machine tool (interpolation axis) [kg · cm ²]	410.0
	Non-interpolation axis [kg · cm ²]	820.0
Weight	Without [kg]	37.0
	With brake [kg]	43
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level [m/s ²] ([G])	X:11.7(1.2), Y:24.5(2.5)	
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	-
	Thrust load [N]	-
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	1300 (L=52.7)
	Thrust load [N]	590
Oil level (*2) [mm]	25	
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

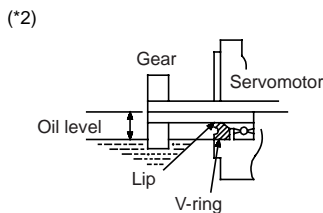
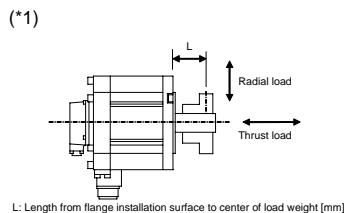
Magnetic brake characteristics

Item	Specifications
Rated voltage	24VDC
Rated current at 20°C [A]	1.4
Static friction torque [N · m]	54.9
Release delay time(*1) [s]	0.3
Braking delay time (DC OFF) (*1) [s]	0.1
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-D-V1-160W
2-axis type	-
	-
J-axis type	-

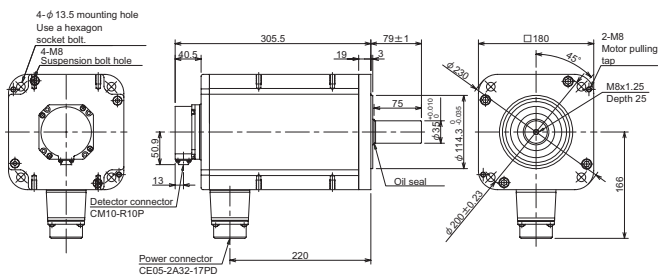


Environmental conditions

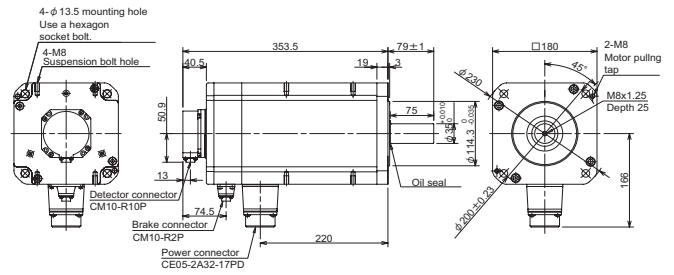
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation: 80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

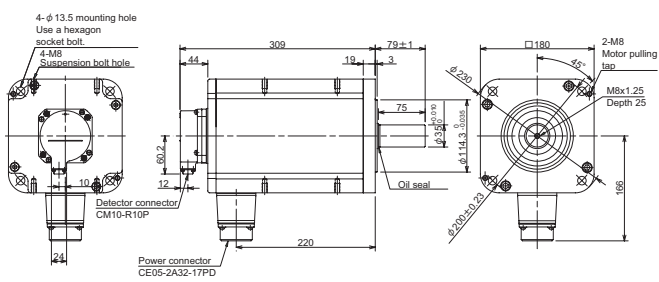
HP704S-A48



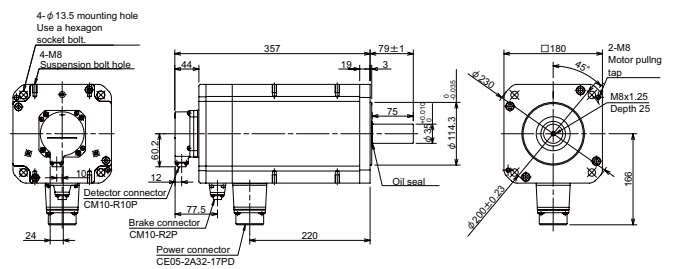
HP704BS-A48



HP704S-A51,-A74

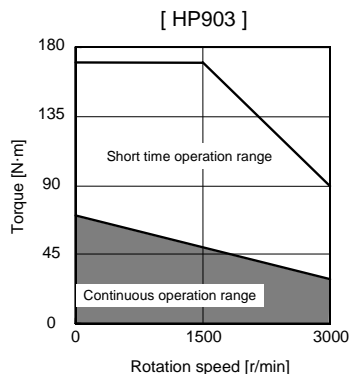


HP704BS-A51,-A74

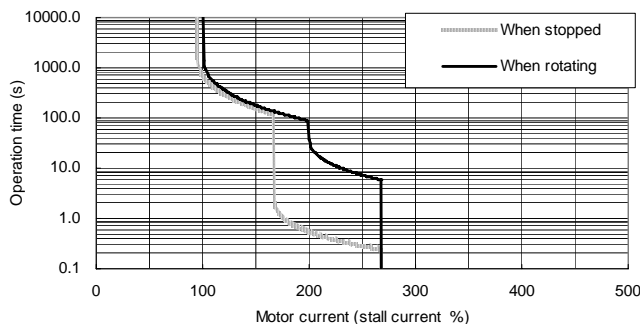


Stall torque	Rated rotation speed	Servomotor type		Explanation of type		
70.0N · m	3000r/min	HP903	(1)	(2)	(1)Magnetic brake	B with brake
						None without brake
					(2)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item	Specifications	
Continuous characteristics	Rated output [kW]	9.0
	Rated current [A]	22.2
	Rated torque [N · m]	28.7
	Stall current [A]	54.0
	Stall torque [N · m]	70.0
Maximum momentary output [kW]	33.0	
Rated rotation speed [r/min]	3000	
Maximum rotation speed [r/min]	3000	
Maximum current [A]	172.0	
Maximum torque [N · m]	170.0	
Power rate at continuous rated torque [kW/s]	52.0	
Max. deceleration torque of dynamic brake(Tdp) [N · m]	91.73	
Motor inertia [kg · cm ²]	225.0	
(Brake inertia) [kg · cm ²]	249.0	
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	675.0
	General machine tool (interpolation axis) [kg · cm ²]	1125.0
	Non-interpolation axis [kg · cm ²]	2250.0
Weight	Without [kg]	51.0
	With brake [kg]	61.4
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level [m/s ²] ([G])	X:9.8(1), Y:24.5(2.5)	
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	-
	Thrust load [N]	-
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	2500 (L=52.7)
	Thrust load [N]	1100
Oil level (*2) [mm]	30	
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

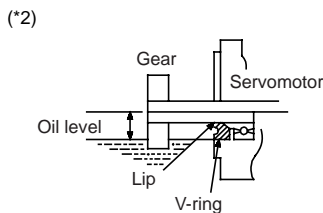
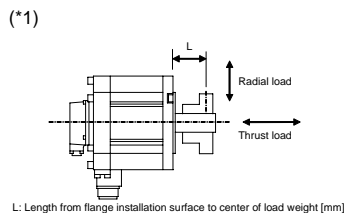
Magnetic brake characteristics

Item	Specifications
Rated voltage	24VDC
Rated current at 20°C [A]	1.7
Static friction torque [N · m]	90
Release delay time(*1) [s]	0.3
Braking delay time (DC OFF) (*1) [s]	0.1
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-D-V1-320
2-axis type	-
	-
J-axis type	-

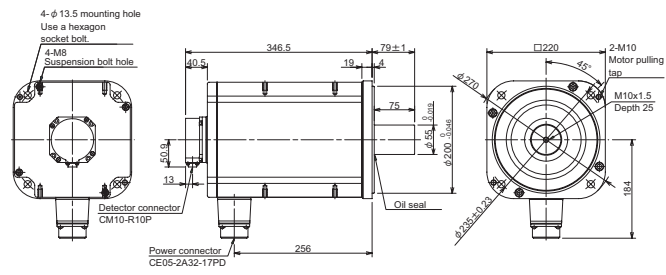


Environmental conditions

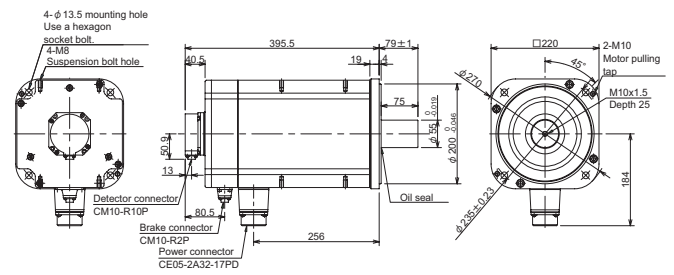
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation: 80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

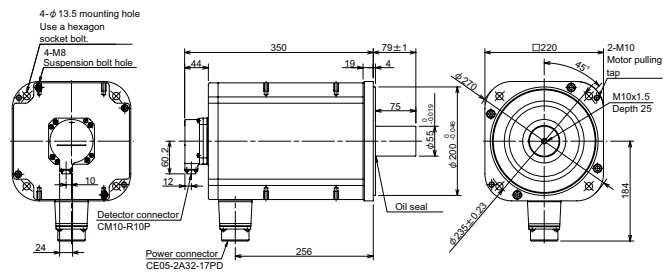
HP903S-A48



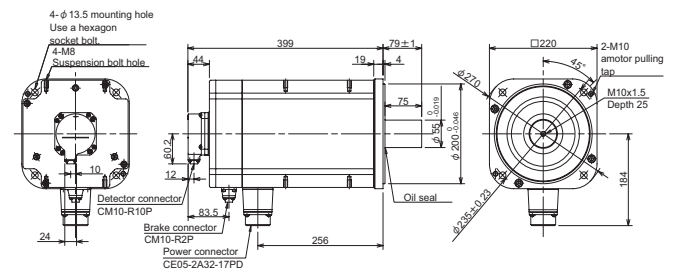
HP903BS-A48



HP903S-A51,-A74

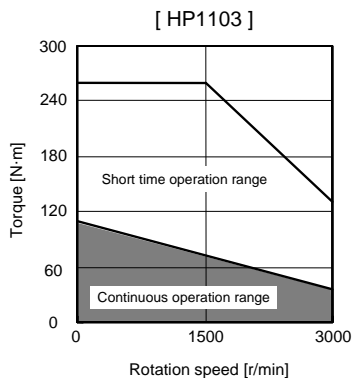


HP903BS-A51,-A74

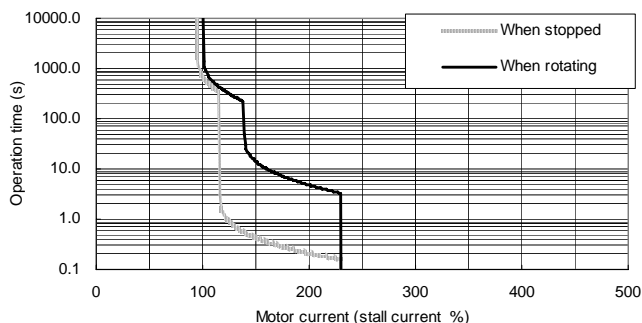


Stall torque	Rated rotation speed	Servomotor type		Explanation of type		
110.0N · m	3000r/min	HP1103	(1)	(2)	(1)Magnetic brake	B with brake
						None without brake
					(2)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item		Specifications
Continuous characteristics	Rated output	[kW] 11.0
	Rated current	[A] 25.2
	Rated torque	[N · m] 35.0
	Stall current	[A] 79.0
	Stall torque	[N · m] 110.0
Maximum momentary output	[kW] 50.0	
Rated rotation speed	[r/min] 3000	
Maximum rotation speed	[r/min] 3000	
Maximum current	[A] 212.0	
Maximum torque	[N · m] 260.0	
Power rate at continuous rated torque	[kW/s] 48.0	
Max. deceleration torque of dynamic brake(Tdp)	[N · m] 158.09	
Motor inertia	[kg · cm ²] 300.0	
(Brake inertia)	[kg · cm ²] 324.0	
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine	[kg · cm ²] 900.0
	General machine tool (interpolation axis)	[kg · cm ²] 1500.0
	Non-interpolation axis	[kg · cm ²] 3000.0
Weight	Without	[kg] 74.0
	With brake	[kg] 84.4
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level	[m/s ²] ([G]) X:9.8(1), Y:24.5(2.5)	
Axis tolerable load (Taper shaft)	Radial load (*1)	[N] ([mm]) -
	Thrust load	[N] -
Axis tolerable load (Straight shaft)	Radial load (*1)	[N] 2700 (L=52.7)
	Thrust load	[N] 1500
Oil level (*2)	[mm] 30	
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

Magnetic brake characteristics

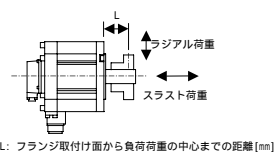
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C	[A] 1.7
Static friction torque	[N · m] 90
Release delay time(*1)	[s] 0.3
Braking delay time (DC OFF) (*1)	[s] 0.1
Brake life (*2)	[times] 20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

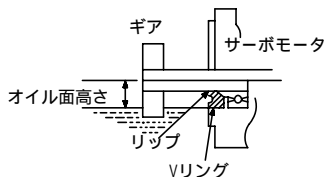
Compatible servo drive unit

Item	Type
1-axis type	MDS-D-V1-320W
2-axis type	-
	-
J-axis type	-

(*1)



(*2)

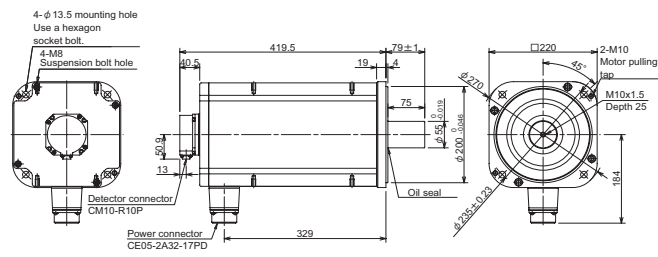


Environmental conditions

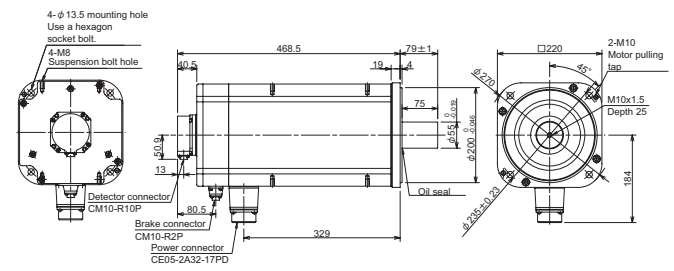
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 - +70 (with no freezing)
Ambient humidity	Operation: 80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

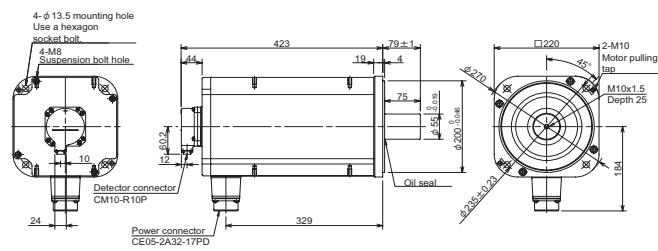
HP1103S-A48



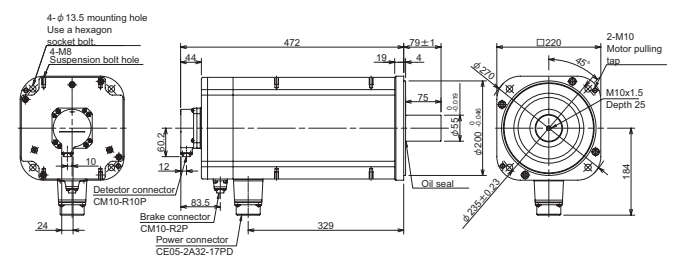
HP1103BS-A48



HP1103S-A51,-A74



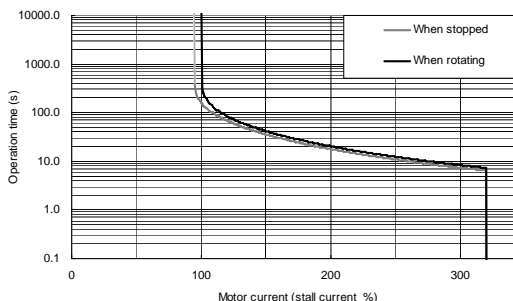
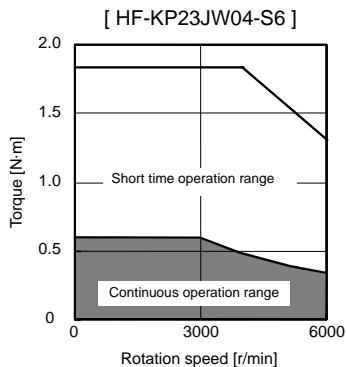
HP1103BS-A51,-A74



Stall torque	Rated rotation speed	Servomotor type		Explanation of type	
0.64N · m	3000r/min	HF-KP23	JW04-S6	(1)Magnetic brake	B with brake
					None without brake

Torque characteristics

Servo overload protection characteristics



Specifications

Item		Specifications
Continuous characteristics	Rated output	[kW] 0.2
	Rated current	[A] 1.4
	Rated torque	[N · m] 0.64
	Stall current	[A] 1.4
	Stall torque	[N · m] 0.64
Maximum momentary output		[kW] 1.0
Rated rotation speed		[r/min] 3000
Maximum rotation speed		[r/min] 6000
Maximum current		[A] 4.3
Maximum torque		[N · m] 1.9
Power rate at continuous rated torque		[kW/s] 16.9
Max. deceleration torque of dynamic brake(Tdp)		[N · m] -
Motor inertia		[kg · cm ²] 0.23
(Brake inertia)		[kg · cm ²] 0.31
Maximum motor shaft conversion	Non-interpolation axis	[kg · cm ²] 3.45
Weight	Without	[kg] 1.2
	With brake	[kg] 1.8
Armature insulation class		Class B
Protection method		IP67 (The shaft-through portion is excluded.)
Quakeproof level		[m/s ²] ([G]) X:49(5), Y:49(5)
Axis tolerable load (Taper shaft)	Radial load (*1)	[N] ([mm]) -
	Thrust load	[N] -
Axis tolerable load (Straight shaft)	Radial load (*1)	[N] 245 (L=30)
	Thrust load	[N] 98
Oil level (*2)		[mm] 12.5
Absolute position detector		[puls/rev] 260,000

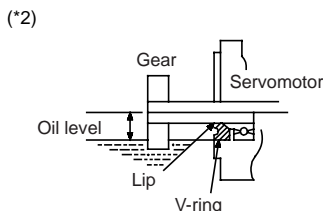
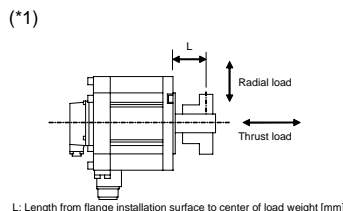
Magnetic brake characteristics

Item	Specifications
Rated voltage	24VDC
Rated current at 20°C	[A] 0.33
Static friction torque	[N · m] 1.3
Release delay time(*1)	[s] 0.03
Braking delay time (DC OFF) (*1)	[s] 0.03
Brake life (*2)	[times] 20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-D-V1-20
2-axis type	MDS-D-V2-2020 (L,M)
	MDS-D-V2-4020 (M)
J-axis type	MDS-D-SVJ3-03

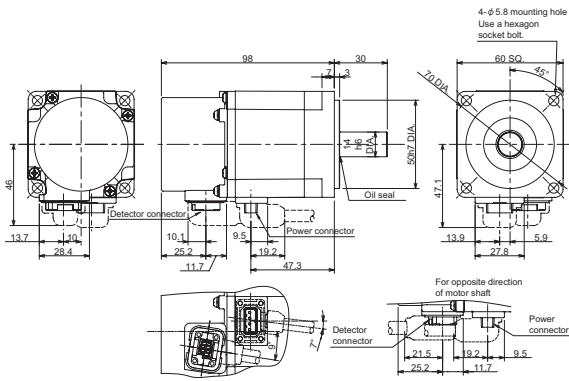


Environmental conditions

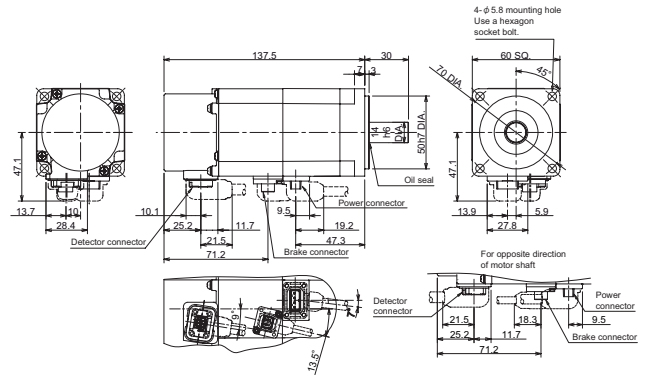
Item	Conditions
Ambient temperature	Operation: 0 ~ 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation: 80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

HF-KP23JW04-S6



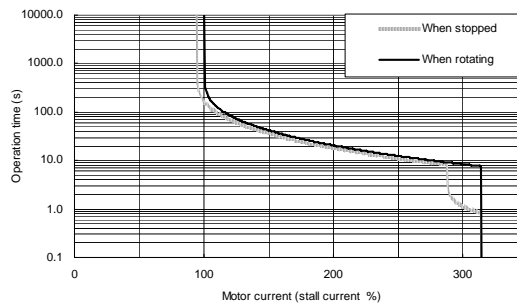
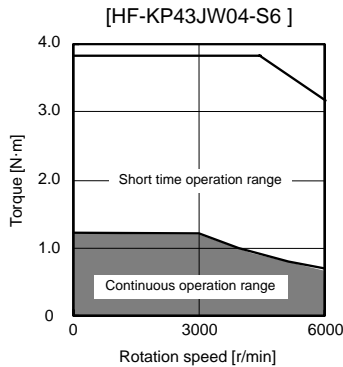
HF-KP23BJW04-S6



Stall torque	Rated rotation speed	Servomotor type		Explanation of type	
1.3N · m	3000r/min	HF-KP43	JW04-S6	(1)Magnetic brake	B with brake
					None without brake
(1)					

Torque characteristics

Servo overload protection characteristics



Specifications

Item		Specifications
Continuous characteristics	Rated output	[kW] 0.4
	Rated current	[A] 2.7
	Rated torque	[N · m] 1.3
	Stall current	[A] 2.7
	Stall torque	[N · m] 1.3
Maximum momentary output		[kW] 2.2
Rated rotation speed		[r/min] 3000
Maximum rotation speed		[r/min] 6000
Maximum current		[A] 8.5
Maximum torque		[N · m] 3.8
Power rate at continuous rated torque		[kW/s] 38.6
Max. deceleration torque of dynamic brake(Tdp)		[N · m] -
Motor inertia		[kg · cm ²] 0.42
(Brake inertia)		[kg · cm ²] 0.50
Maximum motor shaft conversion	Non-interpolation axis	[kg · cm ²] 6.3
Weight	Without	[kg] 1.7
	With brake	[kg] 2.3
Armature insulation class		Class B
Protection method		IP67 (The shaft-through portion is excluded.)
Quakeproof level		[m/s ²] ([G]) X:49(5), Y:49(5)
Axis tolerable load (Taper shaft)	Radial load (*1)	[N] ([mm]) -
	Thrust load	[N] -
Axis tolerable load (Straight shaft)	Radial load (*1)	[N] 245 (L=30)
	Thrust load	[N] 98
Oil level (*2)		[mm] 12.5
Absolute position detector		[puls/rev] 260,000

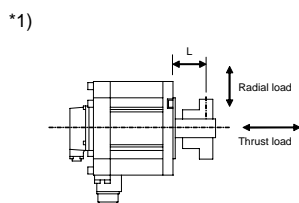
Magnetic brake characteristics

Item	Specifications
Rated voltage	24VDC
Rated current at 20°C	[A] 0.33
Static friction torque	[N · m] 1.3
Release delay time(*1)	[s] 0.03
Braking delay time (DC OFF) (*1)	[s] 0.03
Brake life (*2)	[times] 20,000

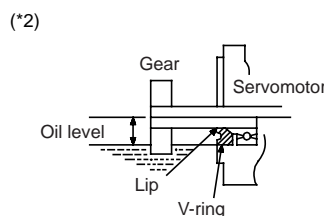
(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-D-V1-20
2-axis type	MDS-D-V2-2020 (L,M)
	MDS-D-V2-4020 (M)
J-axis type	MDS-D-SVJ3-04



L: Length from flange installation surface to center of load weight [mm]

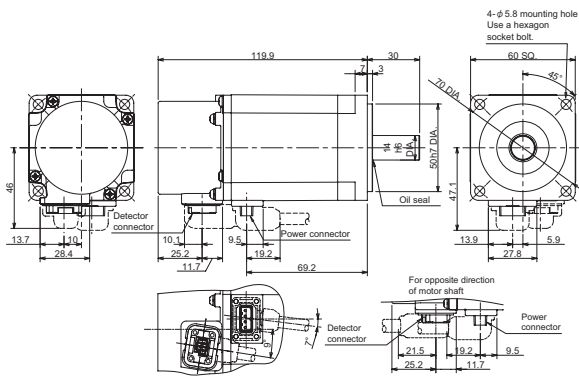


Environmental conditions

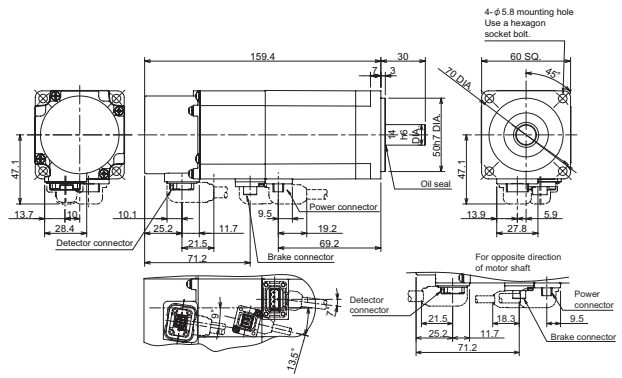
Item	Conditions
Ambient temperature	Operation: 0 ~ 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation: 80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

HF-KP43JW04-S6

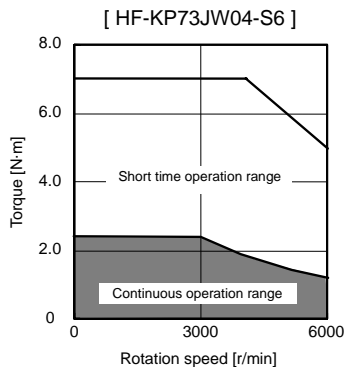


HF-KP43BJW04-S6

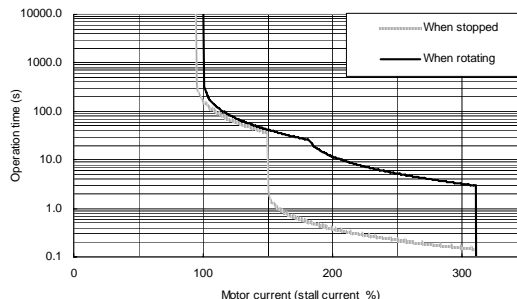


Stall torque	Rated rotation speed	Servomotor type		Explanation of type	
2.4N · m	3000r/min	HF-KP73	JW04-S6	(1)Magnetic brake	B with brake
					None without brake

Torque characteristics



Servo overload protection characteristics



Specifications

Item		Specifications
Continuous characteristics	Rated output	[kW] 0.75
	Rated current	[A] 5.2
	Rated torque	[N · m] 2.4
	Stall current	[A] 5.2
	Stall torque	[N · m] 2.4
Maximum momentary output		[kW] 3.1
Rated rotation speed		[r/min] 3000
Maximum rotation speed		[r/min] 6000
Maximum current		[A] 15.5
Maximum torque		[N · m] 7.2
Power rate at continuous rated torque		[kW/s] 39.9
Max. deceleration torque of dynamic brake(Tdp)		[N · m] -
Motor inertia		[kg · cm ²] 1.43
(Brake inertia)		[kg · cm ²] 1.63
Maximum motor shaft conversion	Non-interpolation axis	[kg · cm ²] 21.45
Weight	Without	[kg] 2.9
	With brake	[kg] 4.1
Armature insulation class		Class B
Protection method		IP67 (The shaft-through portion is excluded.)
Quakeproof level		[m/s ²] ([G]) X:49(5), Y:49(5)
Axis tolerable load (Taper shaft)	Radial load (*1)	[N] ([mm]) -
	Thrust load	[N] -
Axis tolerable load (Straight shaft)	Radial load (*1)	[N] 392 (L=40)
	Thrust load	[N] 147
Oil level (*2)		[mm] 15
Absolute position detector		[puls/rev] 260,000

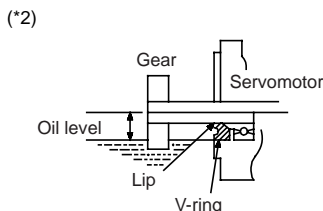
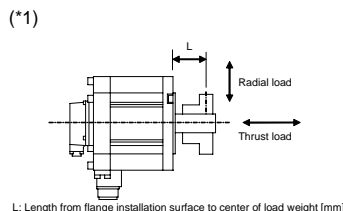
Magnetic brake characteristics

Item	Specifications
Rated voltage	24VDC
Rated current at 20°C	[A] 0.42
Static friction torque	[N · m] 2.4
Release delay time(*1)	[s] 0.1
Braking delay time (DC OFF) (*1)	[s] 0.03
Brake life (*2)	[times] 20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-D-V1-20
2-axis type	MDS-D-V2-2020 (L,M)
	MDS-D-V2-4020 (M)
J-axis type	MDS-D-SVJ3-07

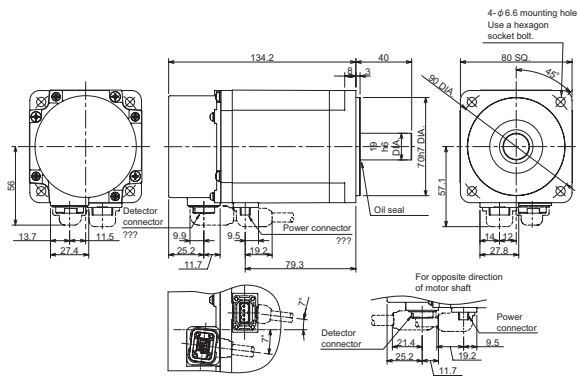


Environmental conditions

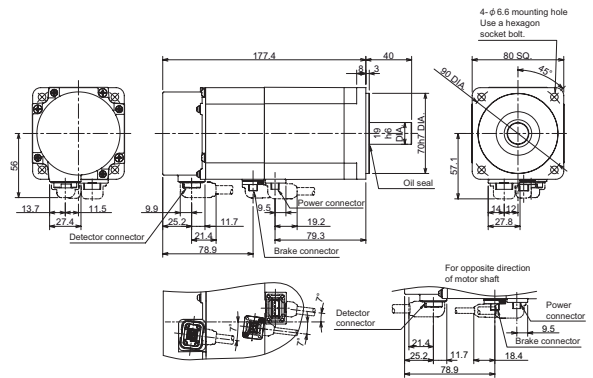
Item	Conditions
Ambient temperature	Operation: 0 ~ 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation: 80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

HF-KP73JW04-S6



HF-KP73BJW04-S6



Spindle motor

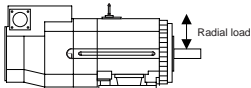
Base rotation speed 1500r/min series

SJ-V2.2-01T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	1.5
	30-minute rating50%ED rating [kW]	2.2
Base rotation speed	[r/min]	1500
Maximum rotation speed	[r/min]	10000
Frame No.		A90
Continuous rated torque	[N·m]	9.5
GD ²	[kg·m ²]	0.027
Inertia	[kg·m ²]	0.007
Tolerable radial load(*1)	[N]	980
Cooling fan	Input voltage	Single-phase 200V
	Maximum power consumption	42W
Protection method		IP44
Weight	[kg]	25
Insulation		Class F

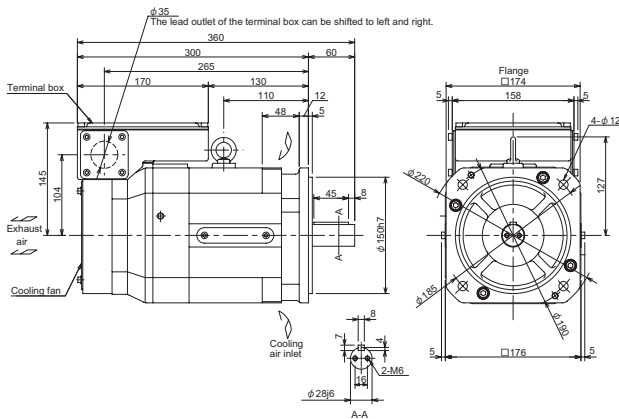
(*1)



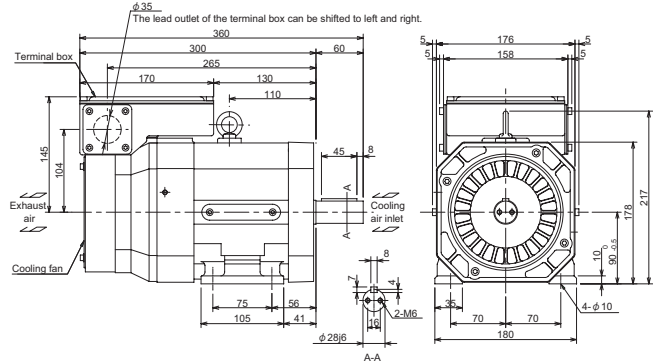
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-V2.2-01T with standard flange



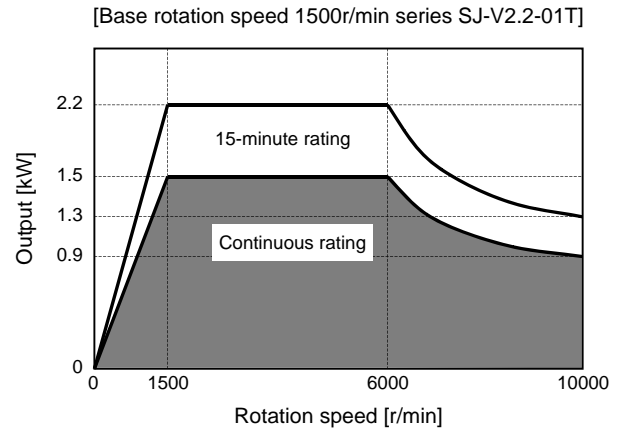
SJ-V2.2-01T with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-D-SP-40
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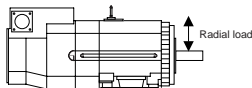
Base rotation speed 1500r/min series

SJ-V3.7-01T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	2.2
	30-minute rating50%ED rating [kW]	3.7
	Base rotation speed [r/min]	1500
Maximum rotation speed [r/min]		10000
Frame No.		B90
Continuous rated torque [N·m]		14.0
GD ² [kg·m ²]		0.035
Inertia [kg·m ²]		0.009
Tolerable radial load(*1) [N]		980
Cooling fan	Input voltage	Single-phase 200V
	Maximum power consumption	42W
Protection method		IP44
Weight [kg]		30
Insulation		Class F

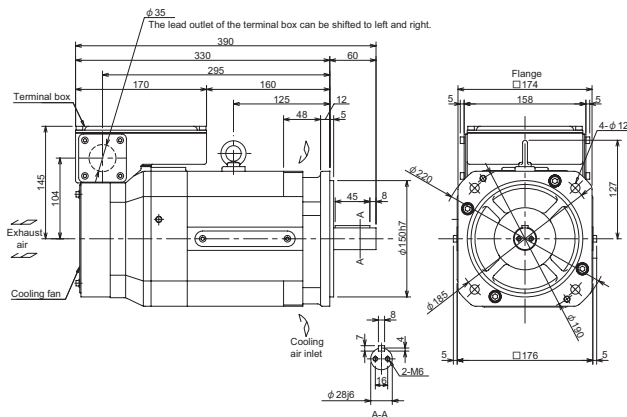
(*1)



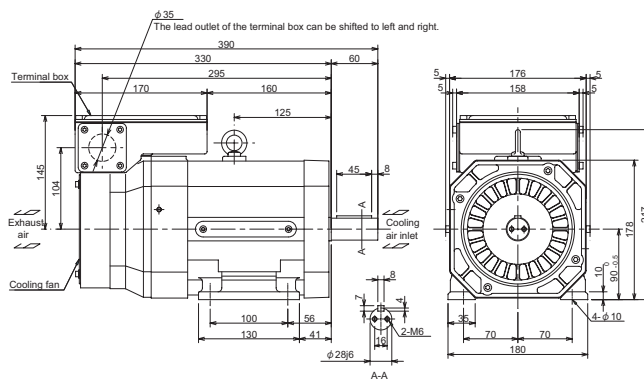
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-V3.7-01T with standard flange



SJ-V3.7-01T with standard legs

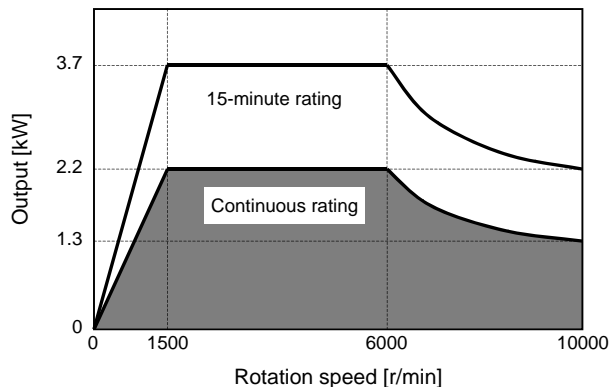


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics

[Base rotation speed 1500r/min series SJ-V3.7-01T]



Compatible spindle drive unit

Type	MDS-D-SP-80
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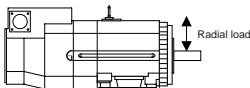
Base rotation speed 1500r/min series

SJ-V5.5-01T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	3.7
	30-minute rating [kW]	5.5
	50%ED rating [kW]	
Base rotation speed	[r/min]	1500
Maximum rotation speed	[r/min]	8000
Frame No.		D90
Continuous rated torque	[N·m]	23.5
GD ²	[kg·m ²]	0.059
Inertia	[kg·m ²]	0.015
Tolerable radial load(*1)	[N]	1470
Cooling fan	Input voltage	Single-phase 200V
	Maximum power consumption	42W
Protection method		IP44
Weight	[kg]	49
Insulation		Class F

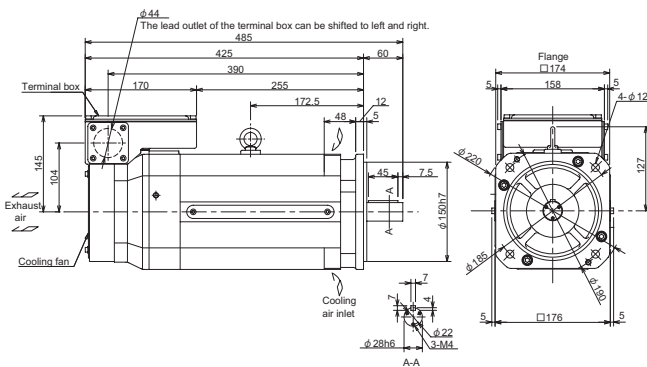
(*1)



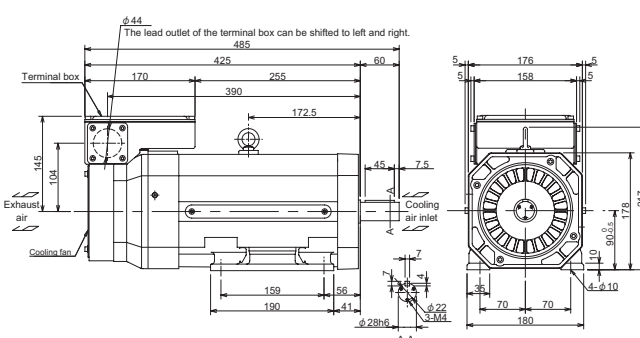
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-V5.5-01T with standard flange



SJ-V5.5-01T with standard legs

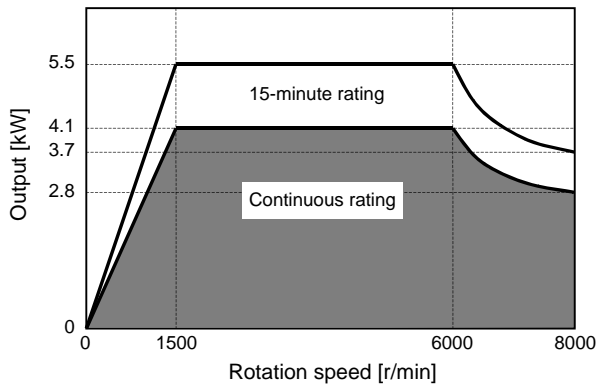


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics

[Base rotation speed 1500r/min series SJ-V5.5-01T]



Compatible spindle drive unit

Type	MDS-D-SP-80
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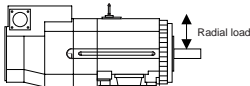
Base rotation speed 1500r/min series

SJ-V7.5-01T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	5.5
	30-minute rating 50%ED rating [kW]	7.5
Base rotation speed	[r/min]	1500
Maximum rotation speed	[r/min]	8000
Frame No.		A112
Continuous rated torque	[N·m]	35.0
GD ²	[kg·m ²]	0.098
Inertia	[kg·m ²]	0.025
Tolerable radial load(*1)	[N]	1960
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	40W
Protection method		IP44
Weight	[kg]	60
Insulation		Class F

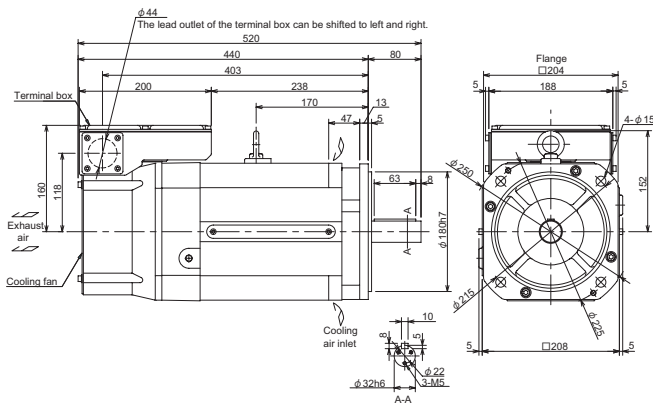
(*1)



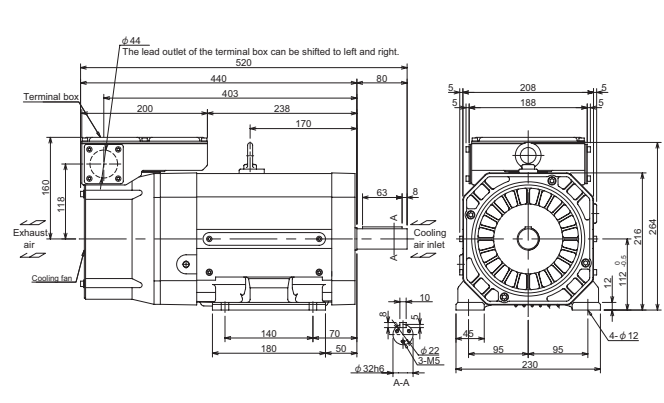
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-V7.5-01T with standard flange



SJ-V7.5-01T with standard legs

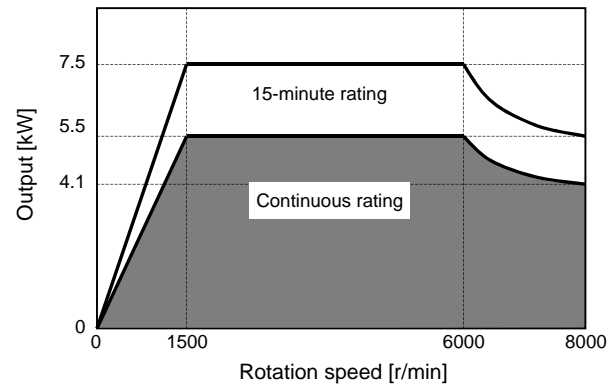


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics

[Base rotation speed 1500r/min series SJ-V7.5-01T]



Compatible spindle drive unit

Type	MDS-D-SP-160
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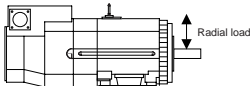
Base rotation speed 1500r/min series

SJ-V11-01T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	7.5
	30-minute rating [kW]	11
	50%ED rating [kW]	
Base rotation speed	[r/min]	1500
Maximum rotation speed	[r/min]	6000
Frame No.		B112
Continuous rated torque	[N·m]	47.7
GD ²	[kg·m ²]	0.12
Inertia	[kg·m ²]	0.03
Tolerable radial load(*1)	[N]	1960
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	40W
Protection method		IP44
Weight	[kg]	70
Insulation		Class F

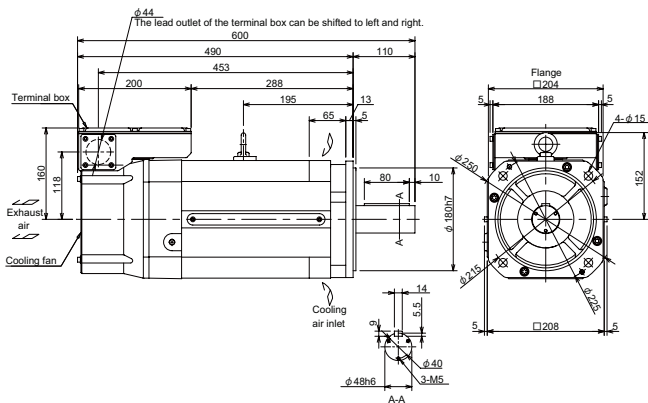
(*1)



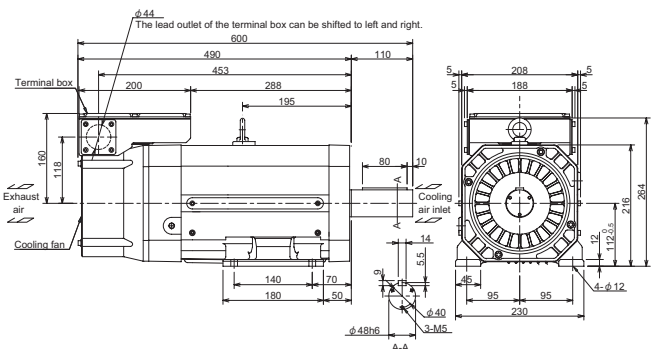
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-V11-01T with standard flange



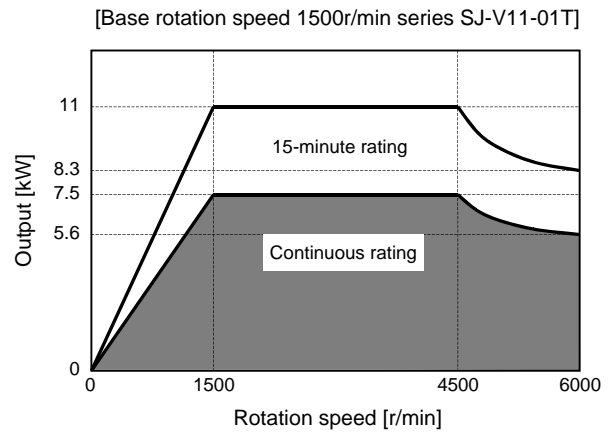
SJ-V11-01T with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-D-SP-160
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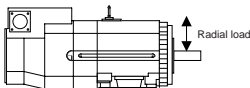
Base rotation speed 1500r/min series

SJ-V15-01T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	11
	30-minute rating 50%ED rating [kW]	15
Base rotation speed	[r/min]	1500
Maximum rotation speed	[r/min]	6000
Frame No.		A160
Continuous rated torque	[N·m]	70.0
GD ²	[kg·m ²]	0.23
Inertia	[kg·m ²]	0.06
Tolerable radial load(*1)	[N]	2940
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	63W
Protection method		IP44
Weight	[kg]	110
Insulation		Class F

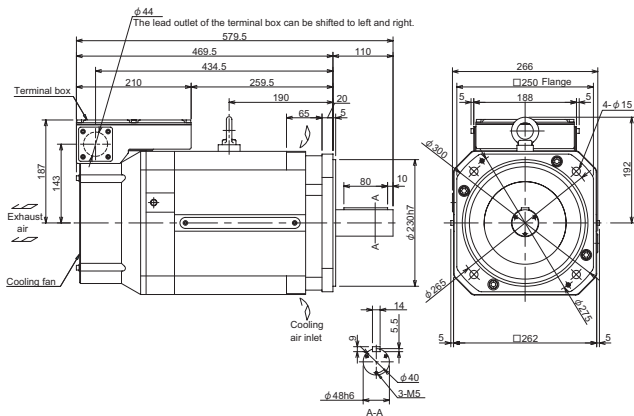
(*1)



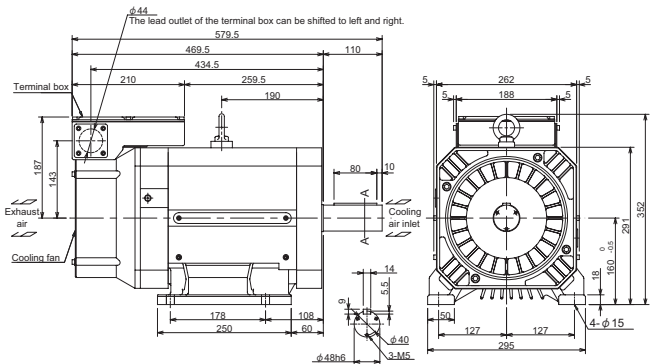
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-V15-01T with standard flange



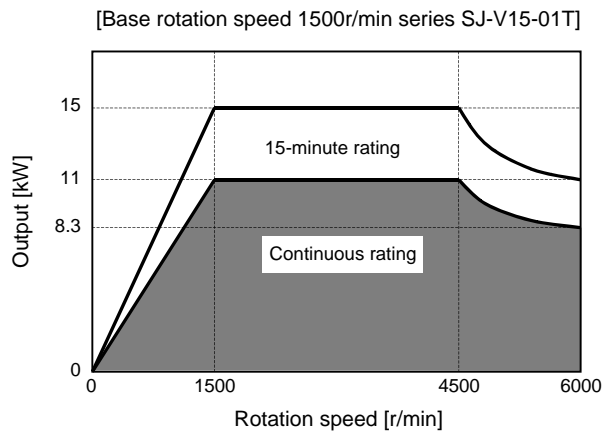
SJ-V15-01T with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-D-SP-200
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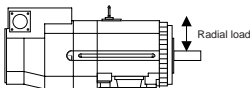
Base rotation speed 1500r/min series

SJ-V18.5-01T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	15
	30-minute rating50%ED rating [kW]	18.5
Base rotation speed	[r/min]	1500
Maximum rotation speed	[r/min]	6000
Frame No.		A160
Continuous rated torque	[N·m]	95.5
GD ²	[kg·m ²]	0.23
Inertia	[kg·m ²]	0.06
Tolerable radial load(*1)	[N]	2940
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	63W
Protection method		IP44
Weight	[kg]	110
Insulation		Class F

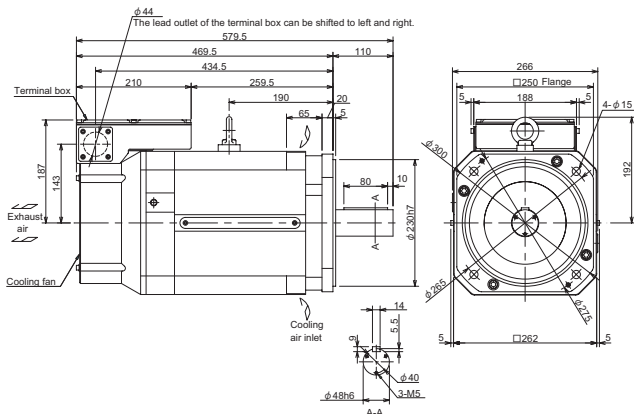
(*1)



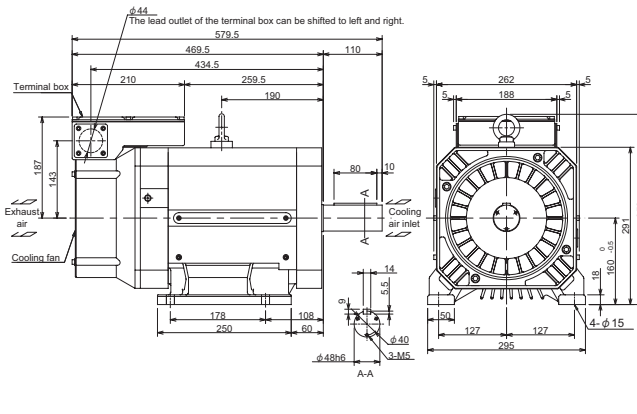
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-V18.5-01T with standard flange



SJ-V18.5-01T with standard legs

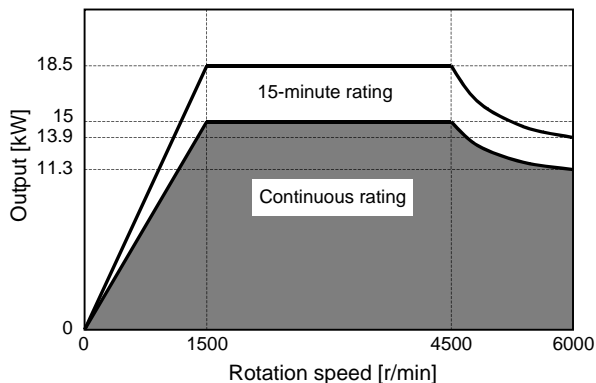


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics

[Base rotation speed 1500r/min series SJ-V18.5-01T]



Compatible spindle drive unit

Type	MDS-D-SP-200
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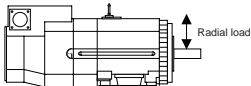
Base rotation speed 1500r/min series

SJ-V22-01T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	18.5
	30-minute rating 50%ED rating [kW]	22
Base rotation speed	[r/min]	1500
Maximum rotation speed	[r/min]	6000
Frame No.		B160
Continuous rated torque	[N·m]	118
GD ²	[kg·m ²]	0.32
Inertia	[kg·m ²]	0.08
Tolerable radial load(*1)	[N]	2940
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	63W
Protection method		IP44
Weight	[kg]	135
Insulation		Class F

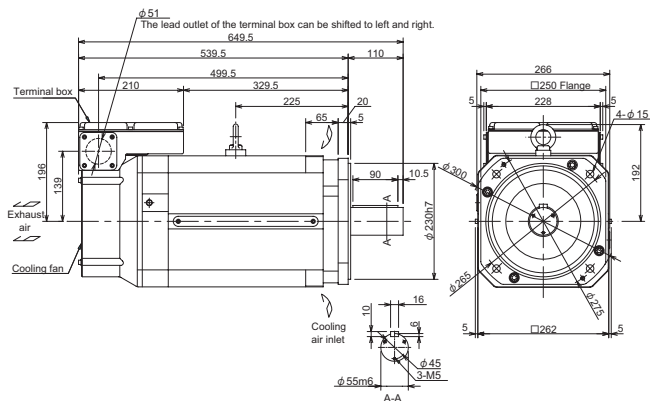
(*1)



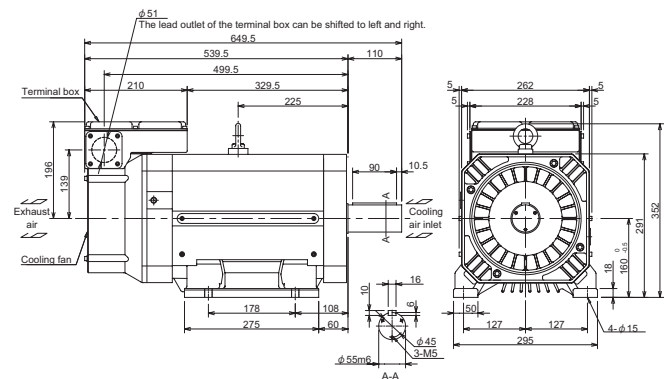
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-V22-01T with standard flange



SJ-V22-01T with standard legs

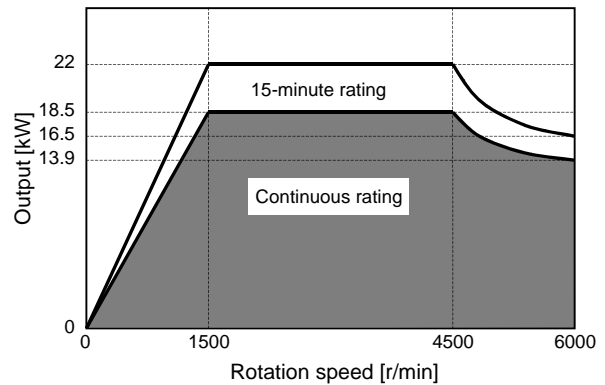


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics

[Base rotation speed 1500r/min series SJ-V22-01T]



Compatible spindle drive unit

Type	MDS-D-SP-240
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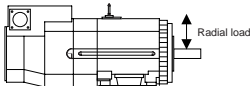
Base rotation speed 1500r/min series

SJ-V26-01T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	22
	30-minute rating50%ED rating [kW]	26
Base rotation speed	[r/min]	1500
Maximum rotation speed	[r/min]	6000
Frame No.		C160
Continuous rated torque	[N·m]	140
GD ²	[kg·m ²]	0.38
Inertia	[kg·m ²]	0.10
Tolerable radial load(*1)	[N]	2940
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	63W
Protection method		IP44
Weight	[kg]	155
Insulation		Class F

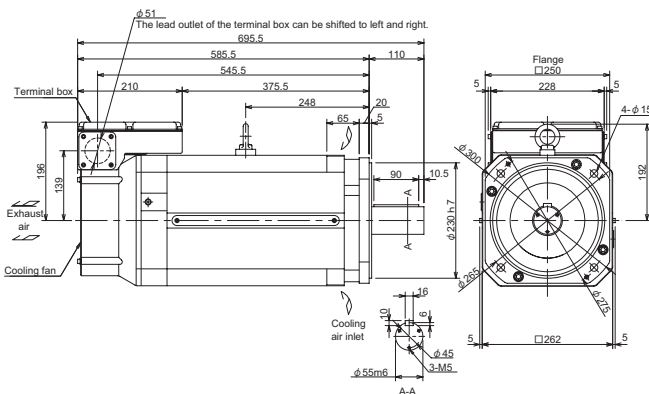
(*1)



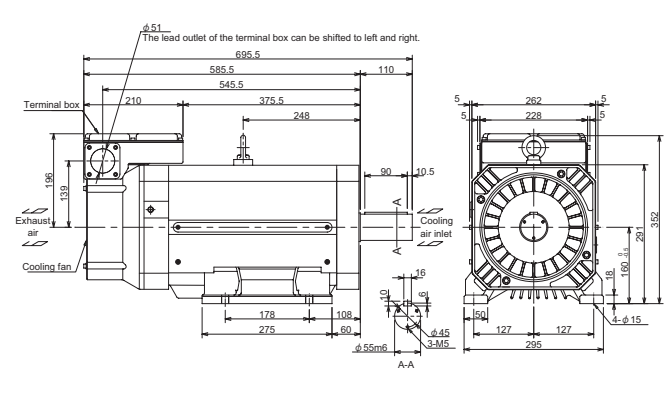
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-V26-01T with standard flange



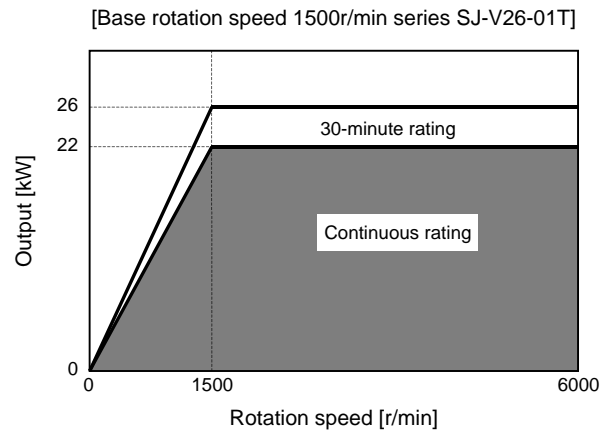
SJ-V26-01T with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-D-SP-320
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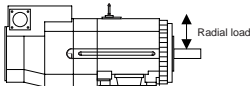
Base rotation speed 1150r/min series

SJ-V37-01T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	30
	30-minute rating [kW]	37
	50%ED rating [kW]	
Base rotation speed	[r/min]	1150
Maximum rotation speed	[r/min]	3450
Frame No.		A180
Continuous rated torque	[N·m]	249
GD ²	[kg·m ²]	1.23
Inertia	[kg·m ²]	0.31
Tolerable radial load(*1)	[N]	3920
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	175W
Protection method		IP44
Weight	[kg]	280
Insulation		Class F

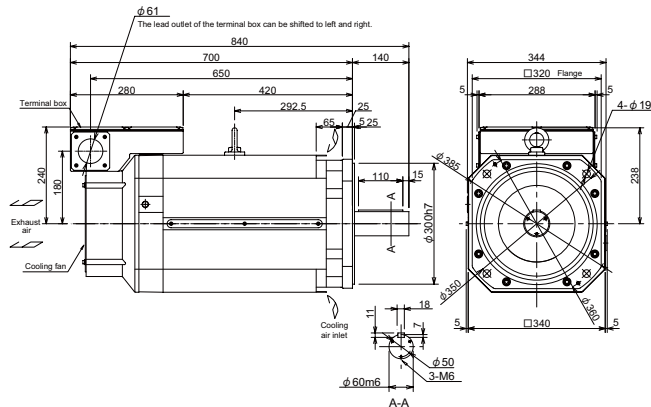
(*1)



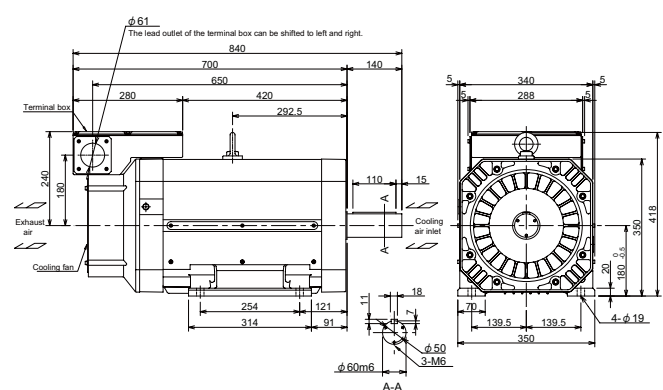
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-V37-01T with standard flange



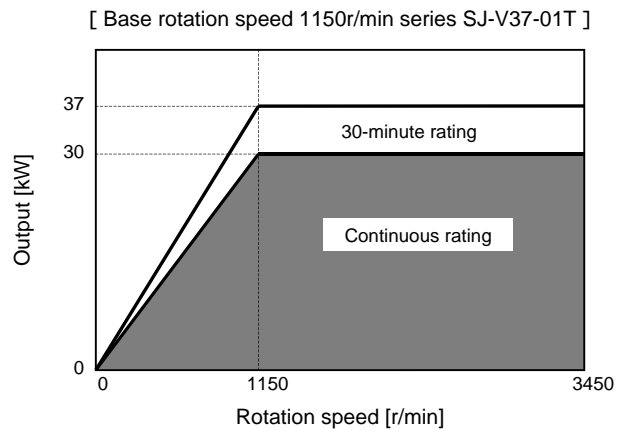
SJ-V37-01T with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-D-SP-400
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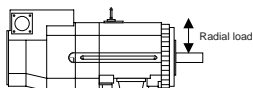
Base rotation speed 1500r/min series

SJ-V45-01T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	37
	30-minute rating 50%ED rating [kW]	45
Base rotation speed	[r/min]	1500
Maximum rotation speed	[r/min]	3450
Frame No.		B180
Continuous rated torque	[N·m]	236
GD ²	[kg·m ²]	2.19
Inertia	[kg·m ²]	0.55
Tolerable radial load(*1)	[N]	3920
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	175
Protection method		IP44
Weight	[kg]	390
Insulation		Class F

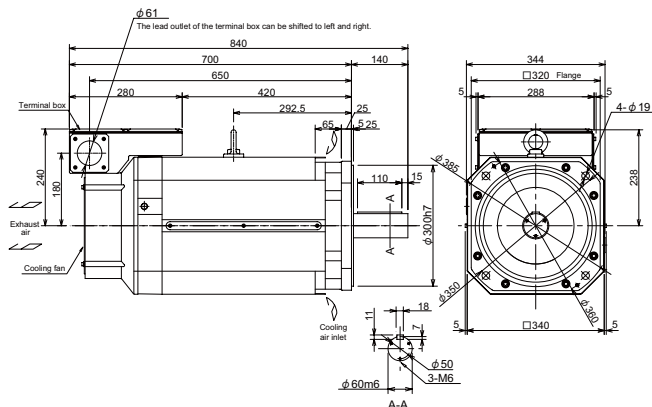
(*1)



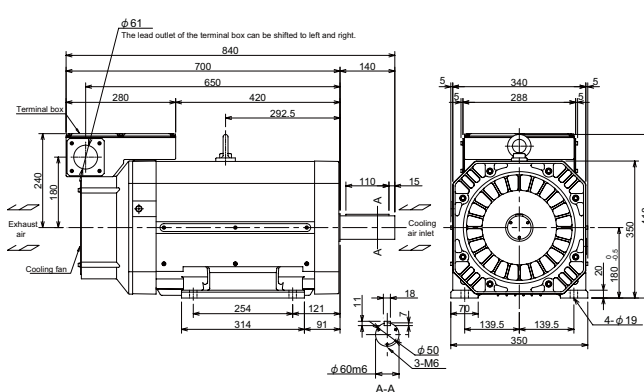
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-V45-01T with standard flange



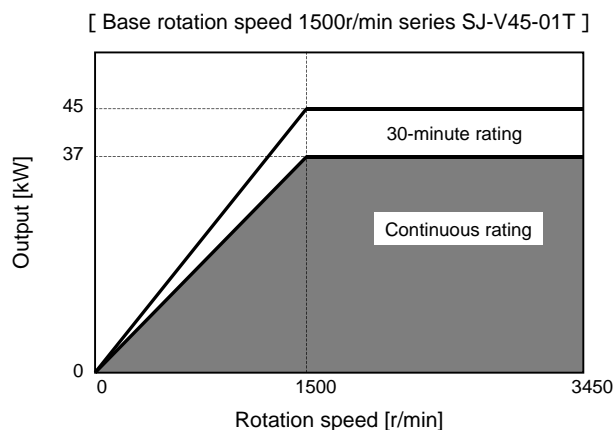
SJ-V45-01T with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-D-SP-640
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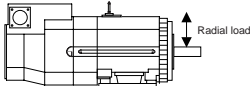
Base rotation speed 1150r/min series

SJ-V55-01T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	45
	30-minute rating 50%ED rating [kW]	55
Base rotation speed	[r/min]	1150
Maximum rotation speed	[r/min]	3450
Frame No.		A225
Continuous rated torque	[N·m]	374
GD ²	[kg·m ²]	3.39
Inertia	[kg·m ²]	0.85
Tolerable radial load(*1)	[N]	5880
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	115W
Protection method		IP44
Weight	[kg]	450
Insulation		Class F

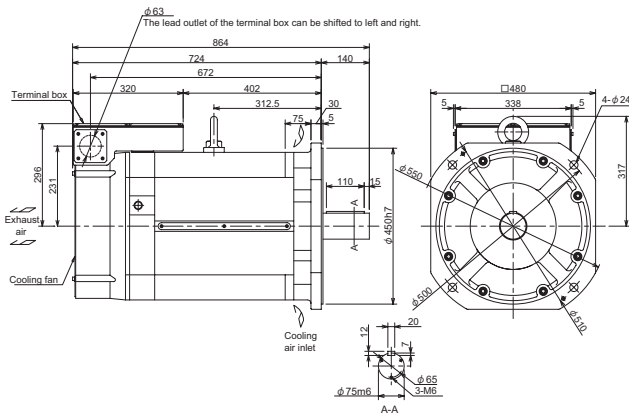
(*1)



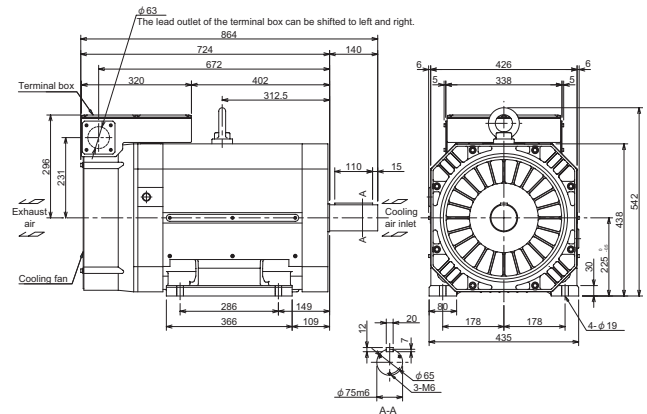
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-V55-01T with standard flange



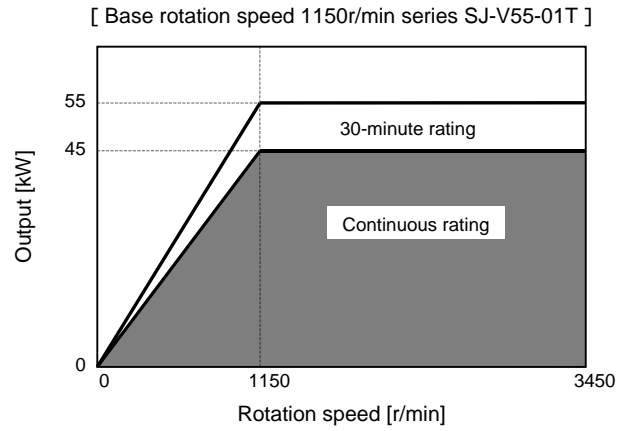
SJ-V55-01T with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-D-SP-640
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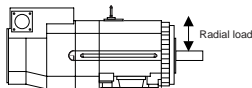
Wide range constant output series

SJ-V11-01T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	3.7
	30-minute rating 50%ED rating [kW]	5.5
Base rotation speed	[r/min]	750
Maximum rotation speed	[r/min]	6000
Frame No.		B112
Continuous rated torque	[N·m]	47.1
GD ²	[kg·m ²]	0.12
Inertia	[kg·m ²]	0.03
Tolerable radial load(*1)	[N]	1960
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	40W
Protection method		IP44
Weight	[kg]	70
Insulation		Class F

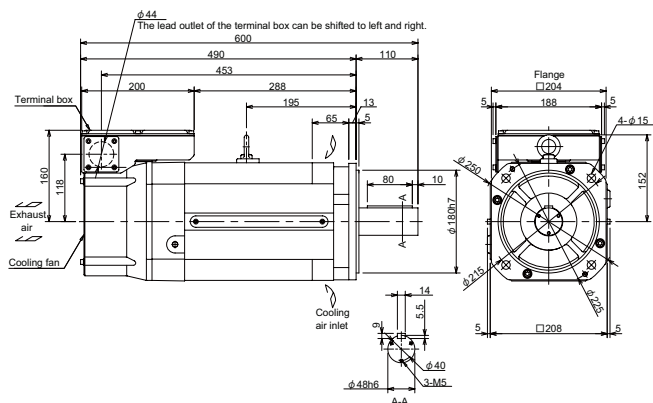
(*1)



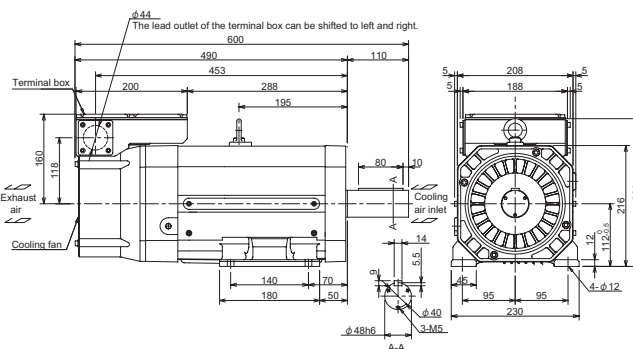
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-V11-01T with standard flange



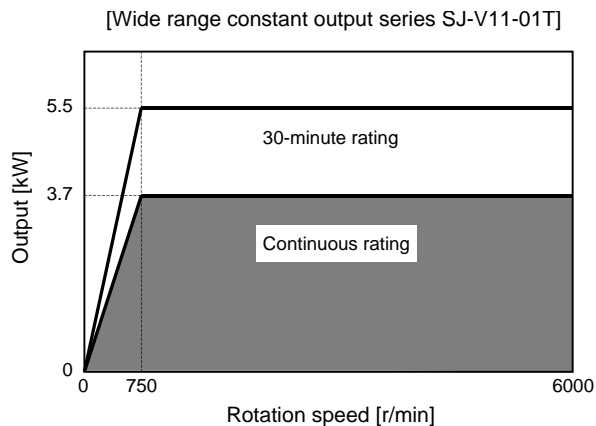
SJ-V11-01T with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-D-SP-160
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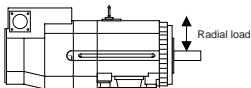
Wide range constant output series

SJ-V11-09T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	5.5
	30-minute rating 50%ED rating [kW]	7.5
Base rotation speed	[r/min]	750
Maximum rotation speed	[r/min]	6000
Frame No.		A160
Continuous rated torque	[N·m]	70.0
GD ²	[kg·m ²]	0.23
Inertia	[kg·m ²]	0.06
Tolerable radial load(*1)	[N]	2940
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	63W
Protection method		IP44
Weight	[kg]	110
Insulation		Class F

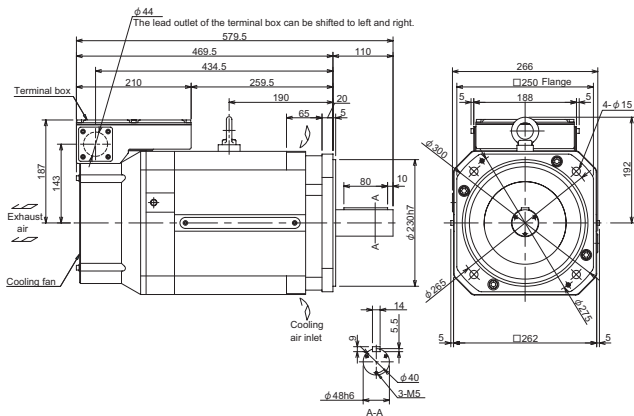
(*1)



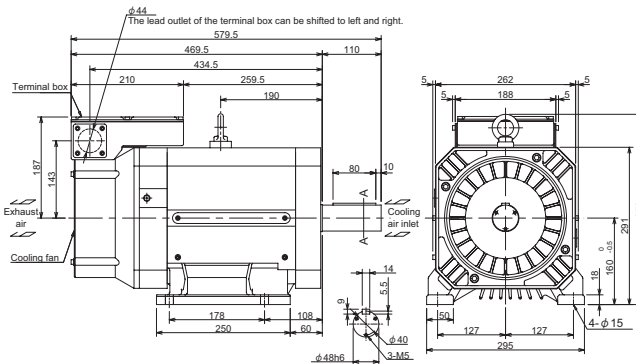
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-V11-09T with standard flange



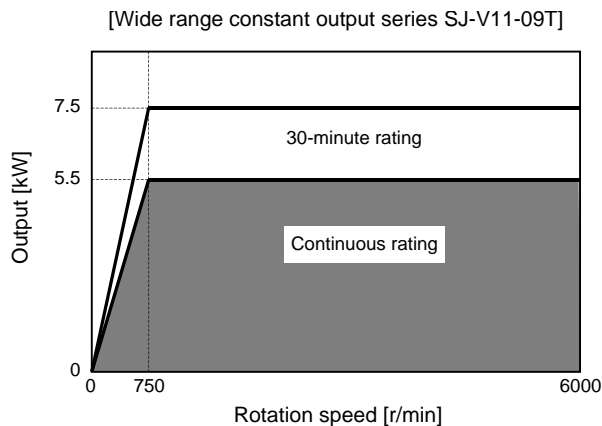
SJ-V11-09T with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-D-SP-160
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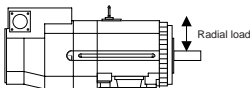
Wide range constant output series

SJ-V15-03T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	7.5
	30-minute rating 50%ED rating [kW]	9
Base rotation speed	[r/min]	750
Maximum rotation speed	[r/min]	6000
Frame No.		A160
Continuous rated torque	[N·m]	95.5
GD ²	[kg·m ²]	0.23
Inertia	[kg·m ²]	0.06
Tolerable radial load(*1)	[N]	2940
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	63W
Protection method		IP44
Weight	[kg]	110
Insulation		Class F

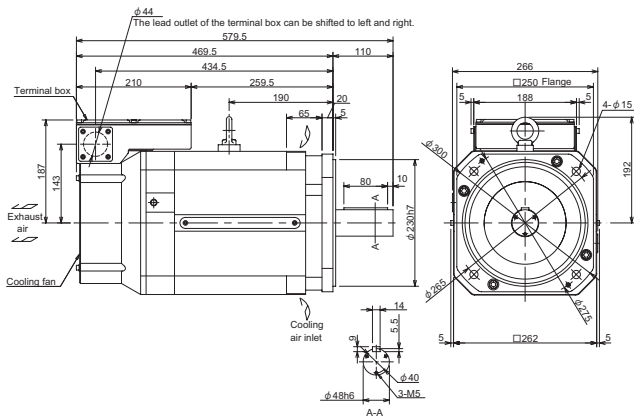
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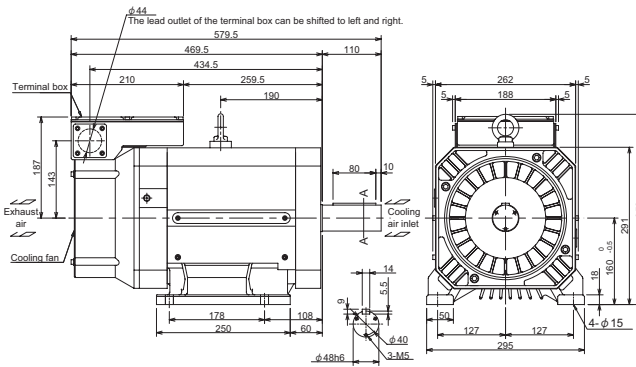
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-V15-03T with standard flange



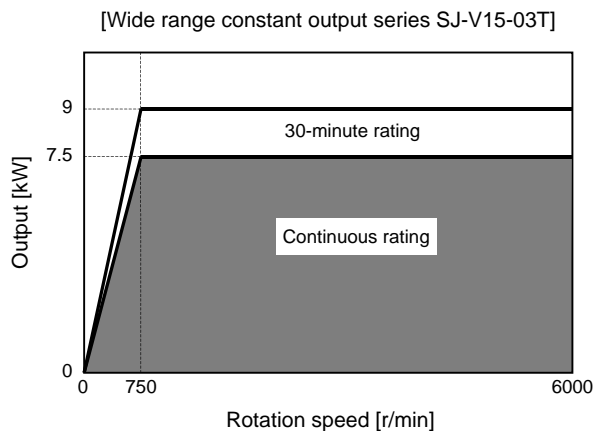
SJ-V15-03T with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-D-SP-200
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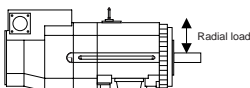
Wide range constant output series

SJ-V18.5-03T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	9
	30-minute rating50%ED rating [kW]	11
Base rotation speed	[r/min]	750
Maximum rotation speed	[r/min]	6000
Frame No.		B160
Continuous rated torque	[N·m]	115
GD ²	[kg·m ²]	0.32
Inertia	[kg·m ²]	0.08
Tolerable radial load(*1)	[N]	2940
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	63W
Protection method		IP44
Weight	[kg]	135
Insulation		Class F

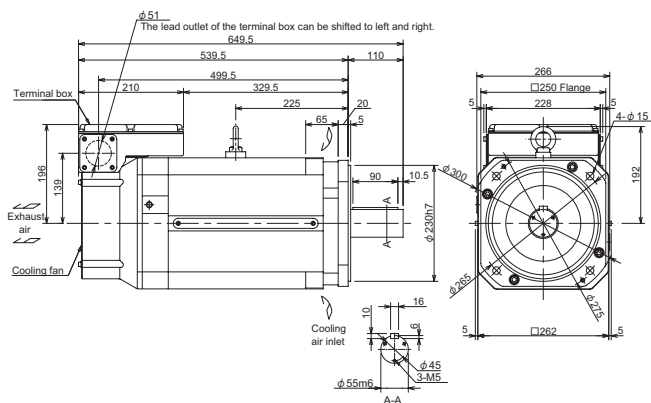
(*1)



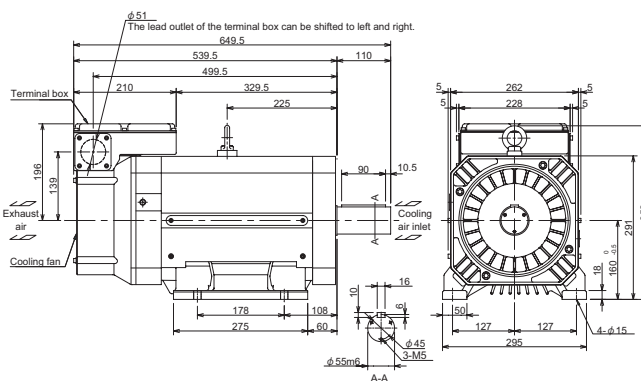
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-V18.5-03T with standard flange



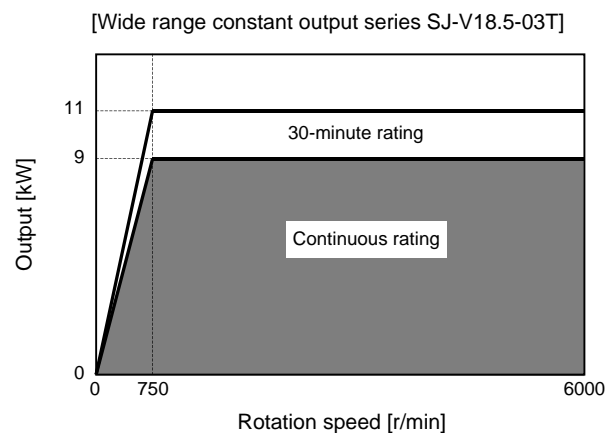
SJ-V18.5-03T with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-D-SP-240
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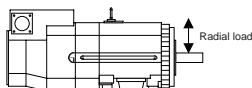
Wide range constant output series

SJ-V22-05T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	11
	30-minute rating 50%ED rating [kW]	15
Base rotation speed	[r/min]	750
Maximum rotation speed	[r/min]	6000
Frame No.		B160
Continuous rated torque	[N·m]	140
GD ²	[kg·m ²]	0.32
Inertia	[kg·m ²]	0.08
Tolerable radial load(*1)	[N]	2940
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	63W
Protection method		IP44
Weight	[kg]	135
Insulation		Class F

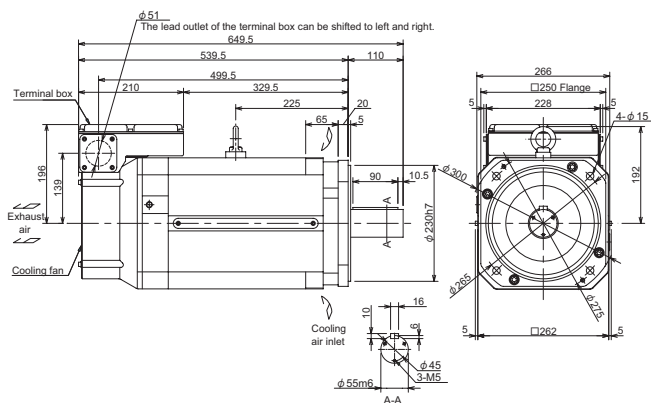
(*1)



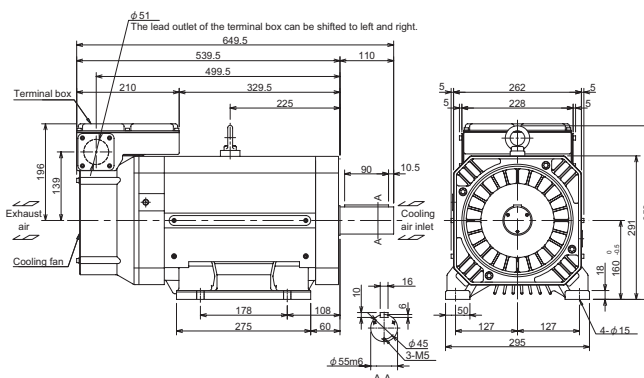
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-V22-05T with standard flange



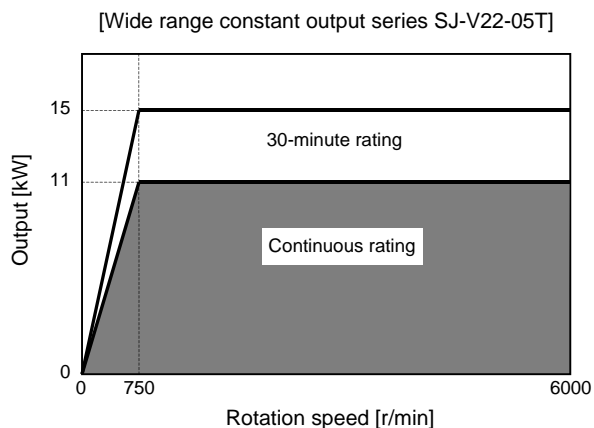
SJ-V22-05T with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-D-SP-320
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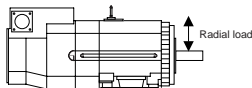
Wide range constant output series

SJ-V22-09T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	15
	30-minute rating [kW]	18.5
	50%ED rating [kW]	
Base rotation speed	[r/min]	500
Maximum rotation speed	[r/min]	4500
Frame No.		A180
Continuous rated torque	[N·m]	239
GD ²	[kg·m ²]	1.23
Inertia	[kg·m ²]	0.31
Tolerable radial load(*1)	[N]	3920
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	175W
Protection method		IP44
Weight	[kg]	280
Insulation		Class F

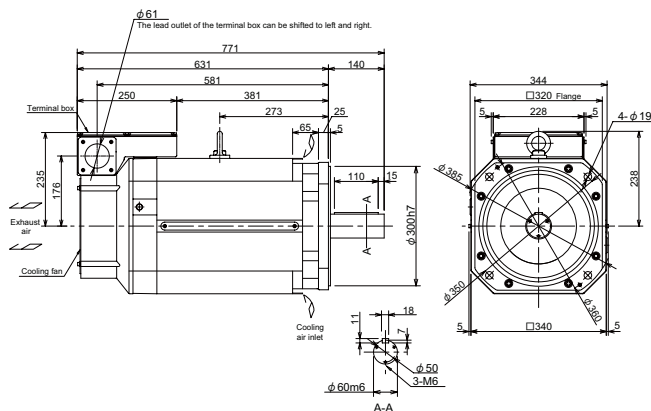
(*1)



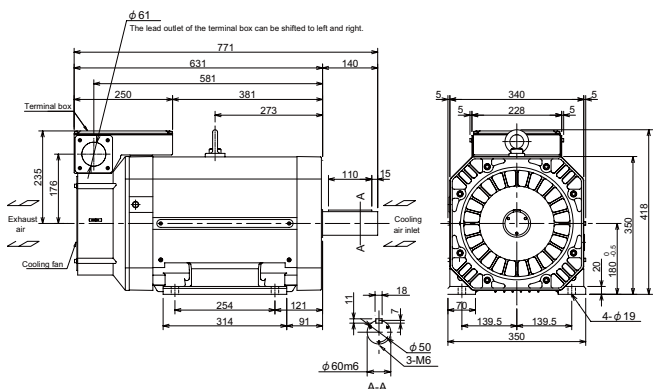
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-V22-09T with standard flange



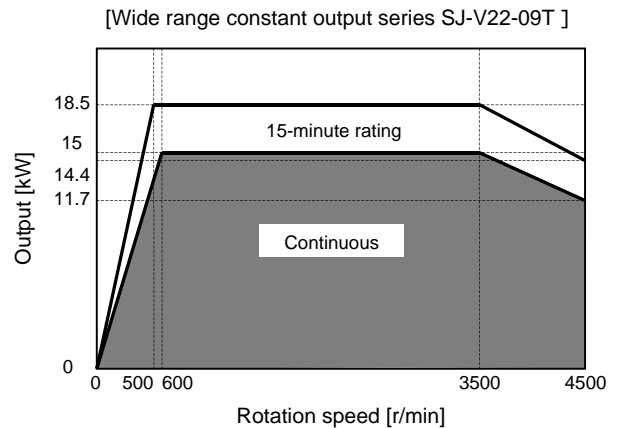
SJ-V22-09T with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-D-SP-320
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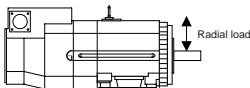
High-speed series

SJ-V3.7-02ZT

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	2.2
	30-minute rating 50%ED rating [kW]	3.7 (15-minute rating)
Base rotation speed [r/min]		3000
Maximum rotation speed [r/min]		15000
Frame No.		A90
Continuous rated torque [N·m]		7.0
GD ² [kg·m ²]		0.027
Inertia [kg·m ²]		0.007
Tolerable radial load(*1) [N]		490
Cooling fan	Input voltage	Single-phase 200V
	Maximum power consumption	42W
Protection method		IP44
Weight [kg]		25
Insulation		Class F

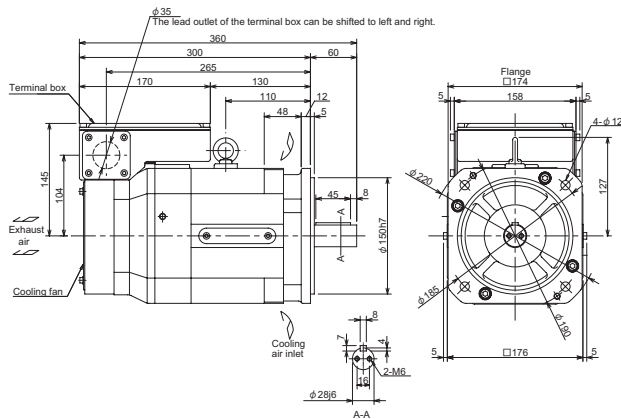
(*1)



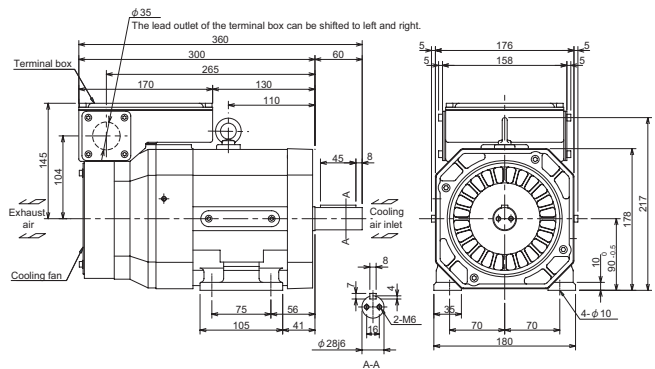
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-V3.7-02ZT with standard flange



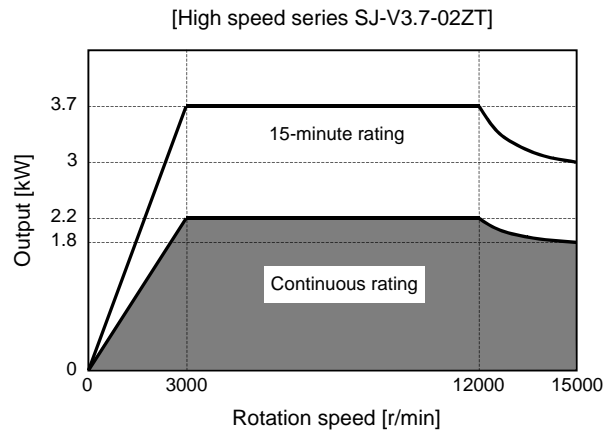
SJ-V3.7-02ZT with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-D-SP-80
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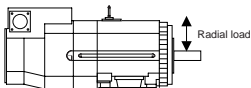
High-speed series

SJ-V7.5-03ZT

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	5.5
	30-minute rating 50%ED rating [kW]	7.5
Base rotation speed	[r/min]	1500
Maximum rotation speed	[r/min]	12000
Frame No.		A112
Continuous rated torque	[N·m]	35.0
GD ²	[kg·m ²]	0.098
Inertia	[kg·m ²]	0.025
Tolerable radial load(*1)	[N]	980
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	40W
Protection method		IP44
Weight	[kg]	60
Insulation		Class F

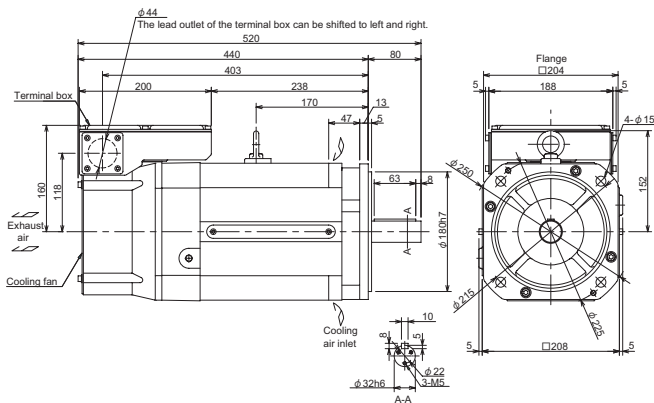
(*1)



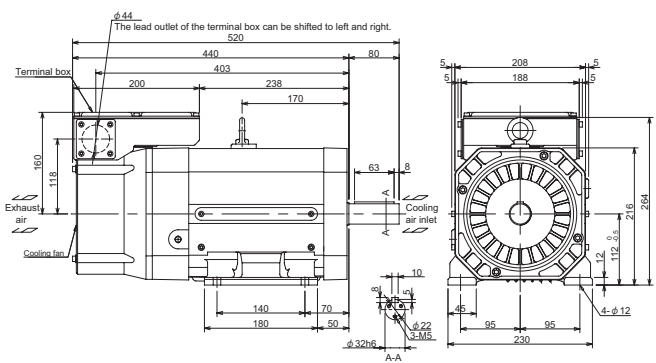
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-V7.5-03ZT with standard flange



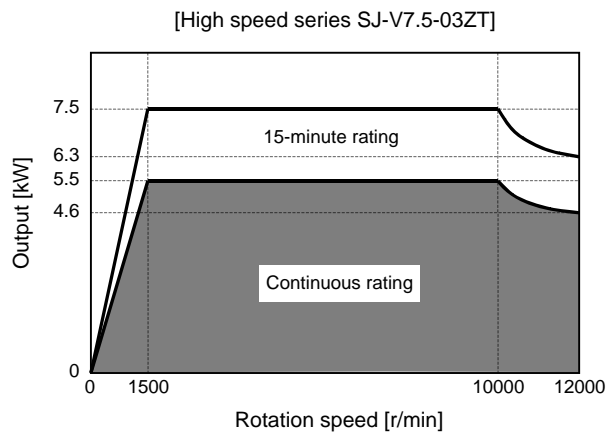
SJ-V7.5-03ZT with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-D-SP-160
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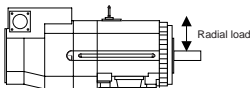
High-speed series

SJ-V11-06ZT

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	5.5
	30-minute rating 50%ED rating [kW]	7.5
Base rotation speed	[r/min]	1500
Maximum rotation speed	[r/min]	12000
Frame No.		A112
Continuous rated torque	[N·m]	35.0
GD ²	[kg·m ²]	0.098
Inertia	[kg·m ²]	0.025
Tolerable radial load(*1)	[N]	980
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	40W
Protection method		IP44
Weight	[kg]	60
Insulation		Class F

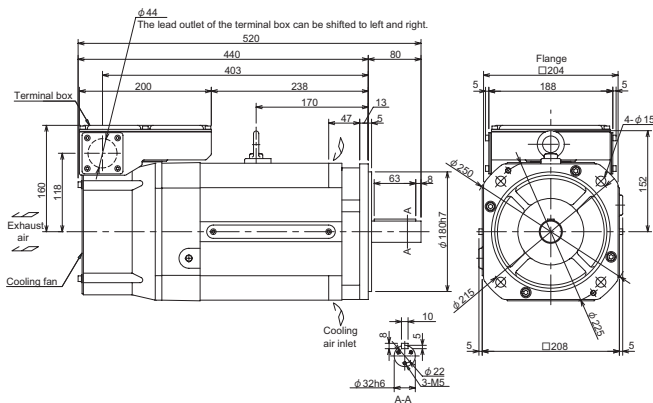
(*1)



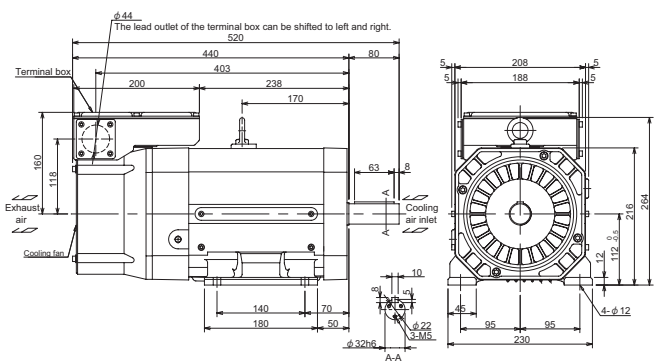
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-V11-06ZT with standard flange



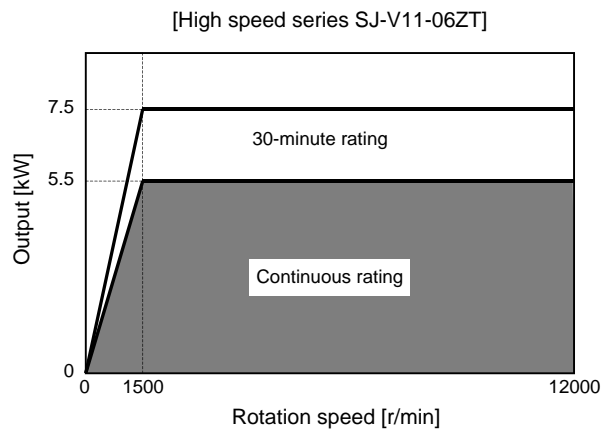
SJ-V11-06ZT with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-D-SP-200
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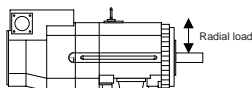
High-speed series

SJ-V11-08ZT

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	7.5
	30-minute rating 50%ED rating [kW]	11
Base rotation speed	[r/min]	1500
Maximum rotation speed	[r/min]	8000
Frame No.		B112
Continuous rated torque	[N·m]	47.7
GD ²	[kg·m ²]	0.12
Inertia	[kg·m ²]	0.03
Tolerable radial load(*1)	[N]	1470
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	40W
Protection method		IP44
Weight	[kg]	70
Insulation		Class F

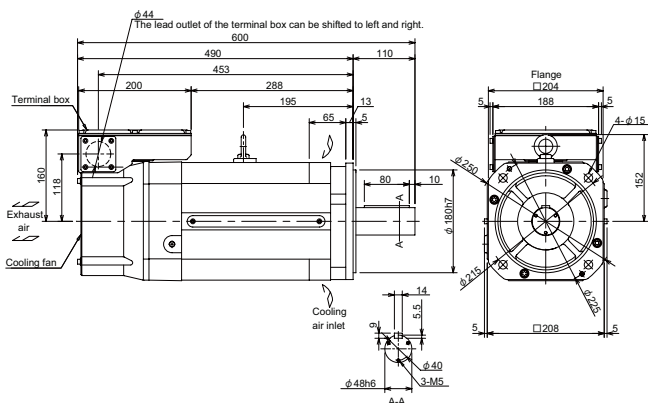
(*1)



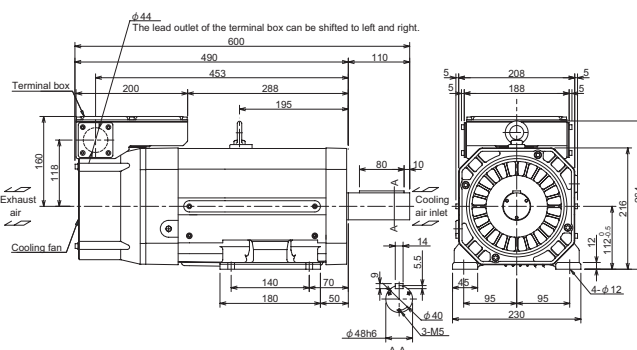
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-V11-08ZT with standard flange



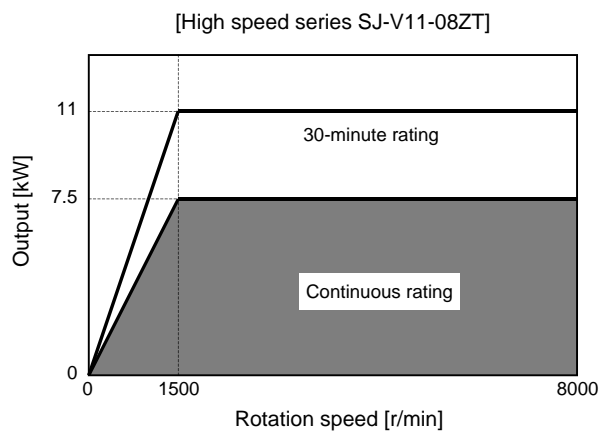
SJ-V11-08ZT with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-D-SP-200
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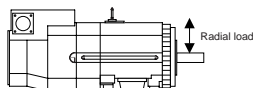
High-speed series

SJ-V22-06ZT

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	11
	30-minute rating50%ED rating [kW]	15
Base rotation speed	[r/min]	1500
Maximum rotation speed	[r/min]	8000
Frame No.		A160
Continuous rated torque	[N·m]	70.0
GD ²	[kg·m ²]	0.23
Inertia	[kg·m ²]	0.06
Tolerable radial load(*1)	[N]	1960
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	63W
Protection method		IP44
Weight	[kg]	125
Insulation		Class F

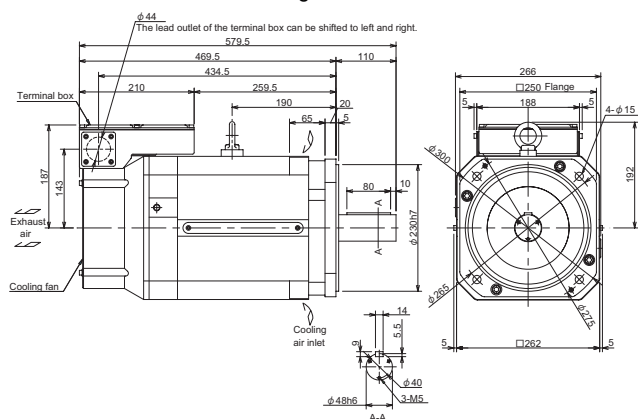
(*1)



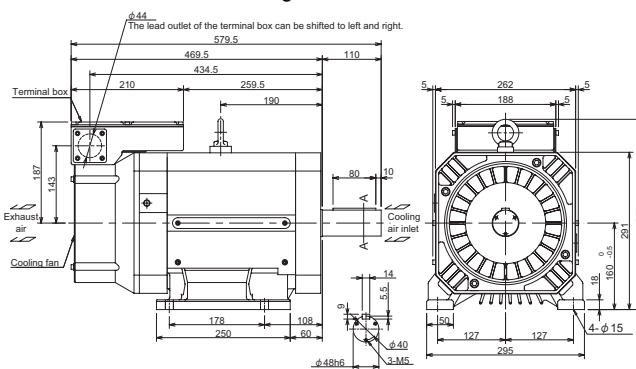
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-V22-06ZT with standard flange



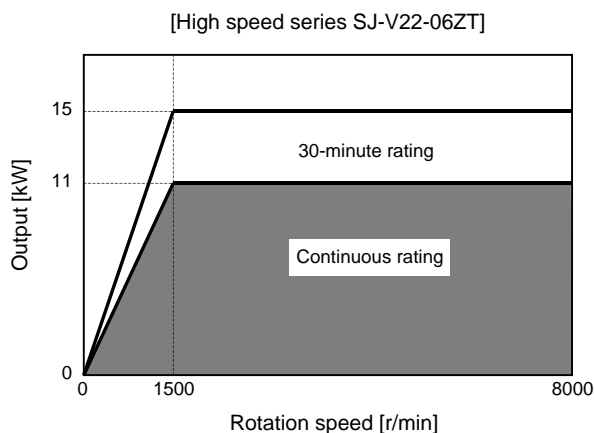
SJ-V22-06ZT with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-D-SP-240
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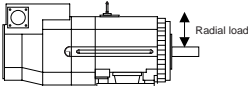
High-speed series

SJ-V30-02ZT

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	18.5
	30-minute rating 50%ED rating [kW]	22
Base rotation speed	[r/min]	1500
Maximum rotation speed	[r/min]	8000
Frame No.		B160
Continuous rated torque	[N·m]	118
GD ²	[kg·m ²]	0.32
Inertia	[kg·m ²]	0.08
Tolerable radial load(*1)	[N]	1960
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	63W
Protection method		IP44
Weight	[kg]	155
Insulation		Class F

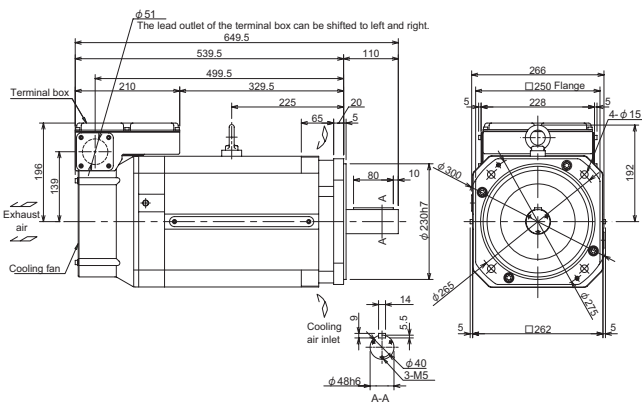
(*1)



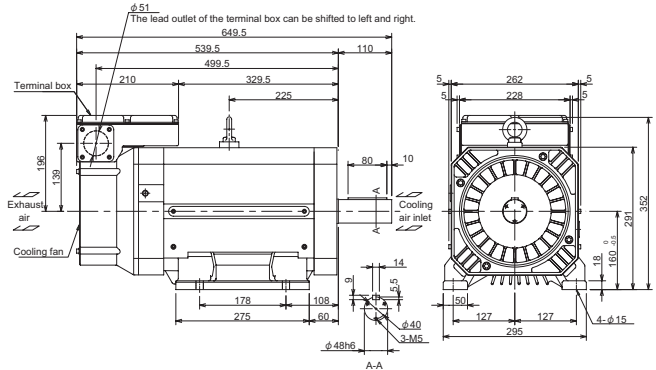
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-V30-02ZT with standard flange



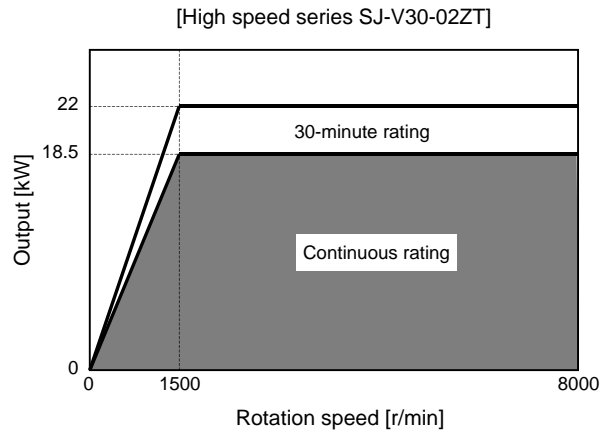
SJ-V30-02ZT with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-D-SP-320
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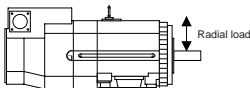
IPM series

SJ-PMF01830T-00

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	3.7
	30-minute rating 50%ED rating [kW]	5.5
Base rotation speed	[r/min]	3000
Maximum rotation speed	[r/min]	8000
Frame No.		71
Continuous rated torque	[N·m]	11.8
GD ²	[kg·m ²]	0.015
Inertia	[kg·m ²]	0.004
Tolerable radial load(*1)	[N]	1470
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	38W
Protection method		IP44
Weight	[kg]	23
Insulation		Class F

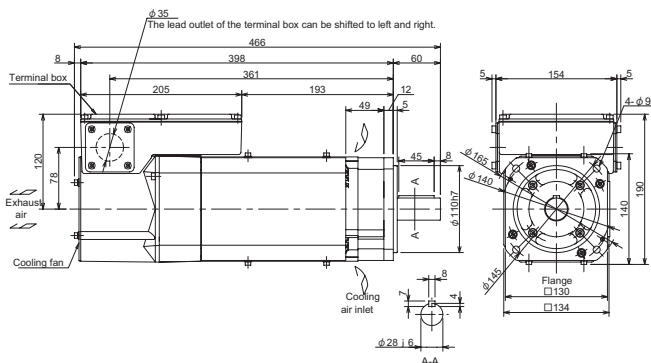
(*1)



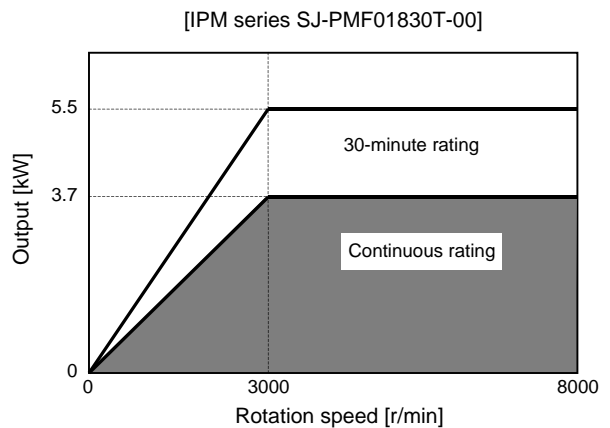
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-PMF01830T-00 with standard flange



Output characteristics



Compatible spindle drive unit

Type	MDS-D-SP-160
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Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

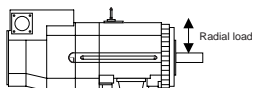
IPM series

SJ-PMF03530T-00

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	7.5
	30-minute rating 50%ED rating [kW]	11.0
Base rotation speed	[r/min]	3000
Maximum rotation speed	[r/min]	8000
Frame No.		90
Continuous rated torque	[N·m]	23.9
GD ²	[kg·m ²]	0.034
Inertia	[kg·m ²]	0.009
Tolerable radial load(*1)	[N]	1960
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	32W
Protection method		IP44
Weight	[kg]	35
Insulation		Class F

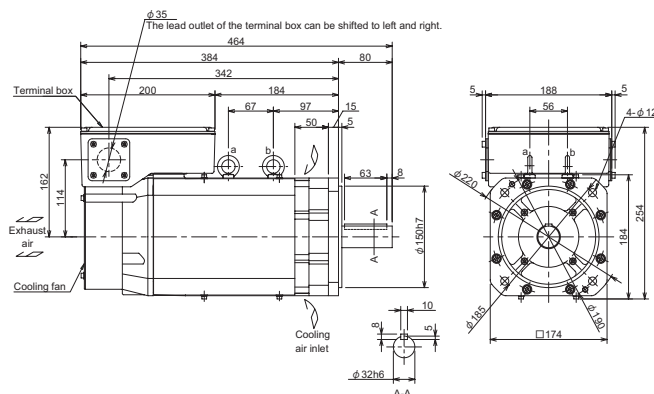
(*1)



(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

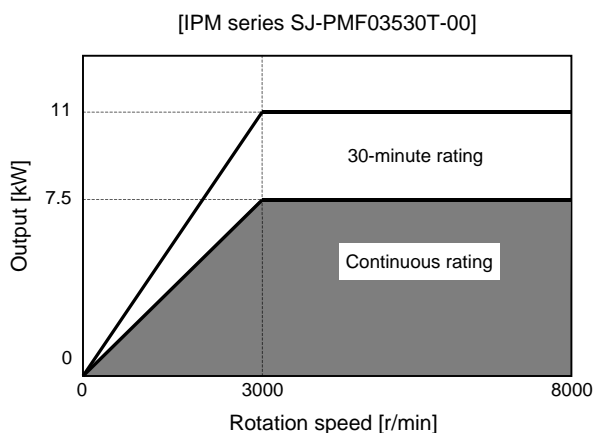
SJ-PMF03530T-00 with standard flange



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-D-SP-200
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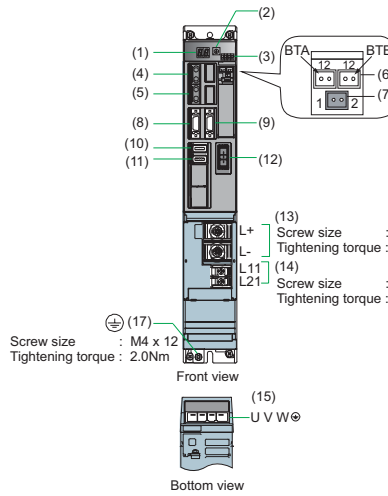
Servo drive unit

Servo drive unit

MDS-D-V1-20

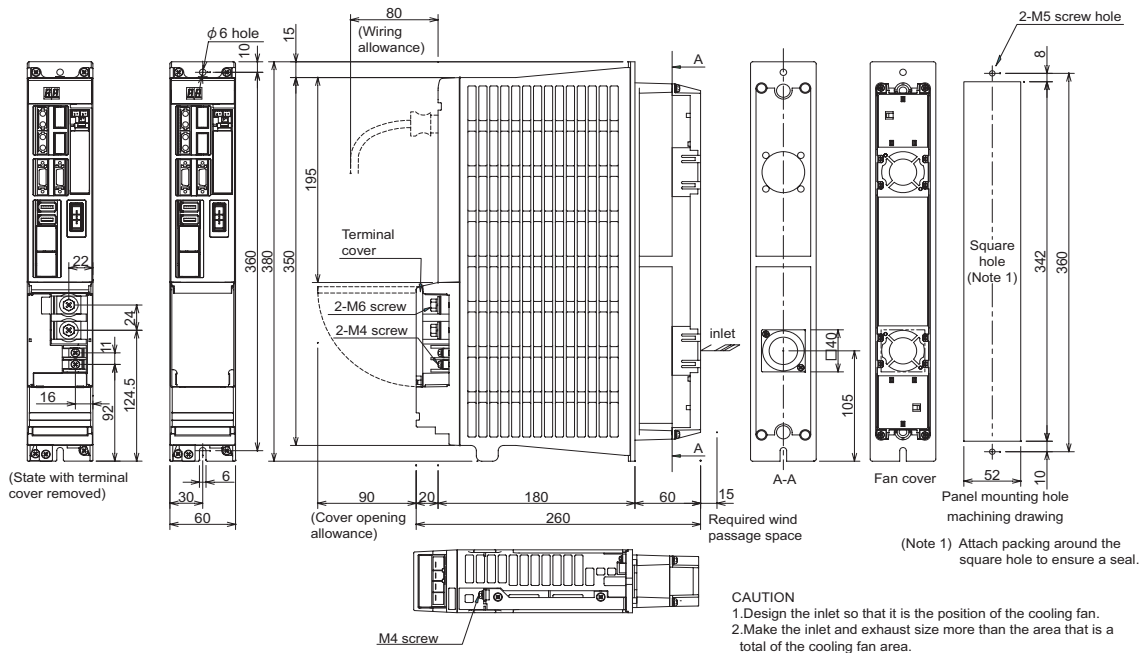
Specifications

Item		Specifications
Nominal maximum current(peak) [A]		20
Output	Rated voltage [V]	AC 155
	Rated current [A]	4.6
Input	Rated voltage [V]	DC 270 ~ 311
	Rated current [A]	7
Control power	Frequency [Hz]	50 / 60
	Tolerable frequency fluctuation [%]	±3% max
	Voltage(50Hz) [V]	AC 200
	Voltage(60Hz) [V]	AC 200 ~ 230
	Tolerable voltage fluctuation rate [%]	+10% , -15%
	Max. current [A]	0.2
	Max. rush current [A]	30
	Max. rush conductivity time [ms]	6
	Max. earth leakage current [mA]	2
	Braking	
Dynamic brakes		Built-in
Heating value	Inside panel [W]	18
	Outside panel [W]	22
Cooling method		Forced wind cooling
Weight [kg]		3.8



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA/BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER 6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side detector connection connector
(11)	CN3L	Machine side detector connection connector
(12)	CN20	Motor brake/dynamic brake control connector
(13)	TE2	Main circuit power supply input terminal (DC input)
(14)	TE3	Control power input terminal
(15)	TE1	Motor power supply output connector
(17)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding.

Outline dimension drawings [Unit: mm]



CAUTION
 1.Design the inlet so that it is the position of the cooling fan.
 2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21, L12, L22, MC1)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		2	14			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		2	14			1.25 ~ 2	16 ~ 14

Environmental conditions

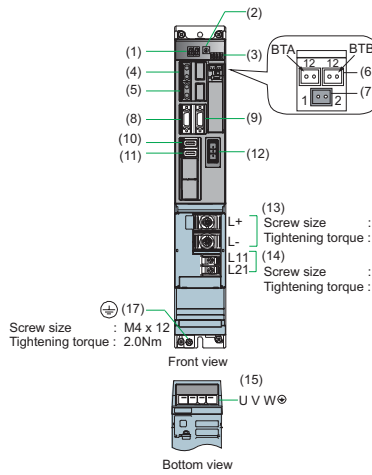
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Servo drive unit

MDS-D-V1-40

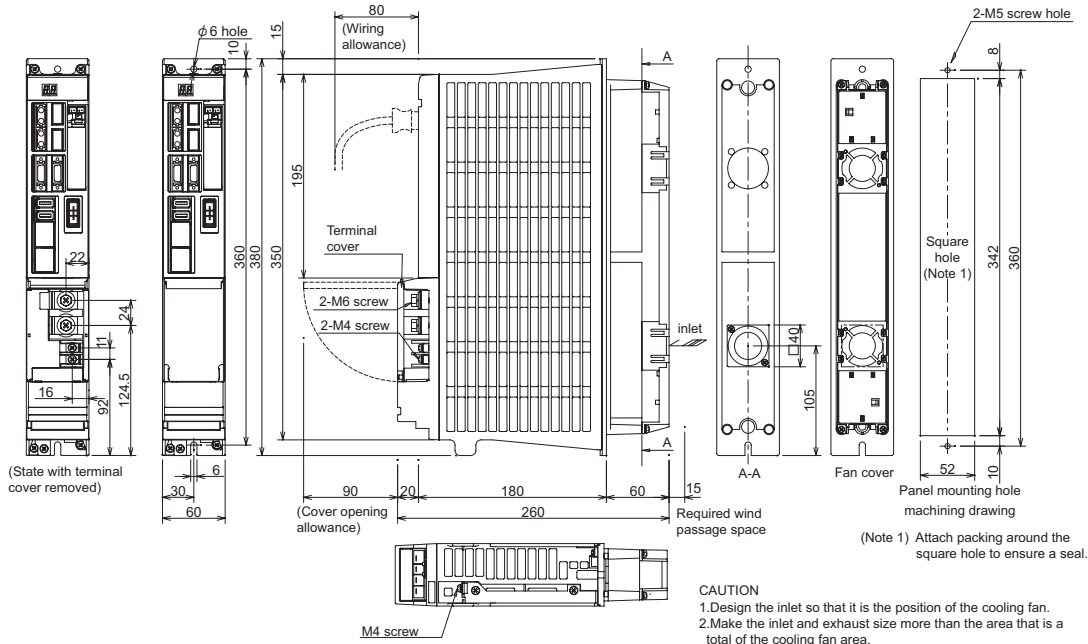
Specifications

Item		Specifications
Nominal maximum current(peak) [A]		40
Output	Rated voltage [V]	AC 155
	Rated current [A]	7.8
Input	Rated voltage [V]	DC 270 ~ 311
	Rated current [A]	7
Control power	Frequency [Hz]	50 / 60
	Tolerable frequency fluctuation [%]	±3% max
	Voltage(50Hz) [V]	1
	Voltage(60Hz) [V]	AC 200 ~ 230
	Tolerable voltage fluctuation rate [%]	+10% , -15%
	Max. current [A]	0.2
	Max. rush current [A]	30
	Max. rush conductivity time [ms]	6
	Max. earth leakage current [mA]	2
	Braking	
Dynamic brakes		Built-in
Heating value	Inside panel [W]	20
	Outside panel [W]	38
Cooling method		Forced wind cooling
Weight [kg]		3.8



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN 1A	NC or master axis optical communication connector
(5)	CN 1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER 6V-C119B
(8)	CN 9	(U nused)
(9)	CN 4	Power supply communication connector
(10)	CN 2L	Motor side detector connection connector
(11)	CN 3L	Machine side detector connection connector
(12)	CN 20	Motor brake/dynamic brake control connector
(13)	TE 2	Main circuit power supply input terminal (DC input)
(14)	TE 3	Control power input terminal
(15)	TE 1	Motor power supply output connector
(17)	PE	Grounding terminal>Note that TE1 connector is used for the motor grounding.

Outline dimension drawings [Unit: mm]



CAUTION
 1. Design the inlet so that it is the position of the cooling fan.
 2. Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21, L12, L22, MC1)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		2	14			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		2	14			1.25 ~ 2	16 ~ 14

Environmental conditions

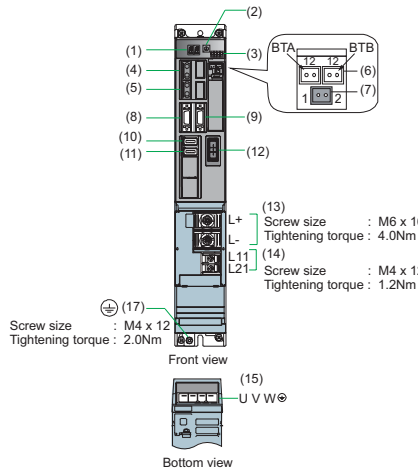
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Servo drive unit

MDS-D-V1-80

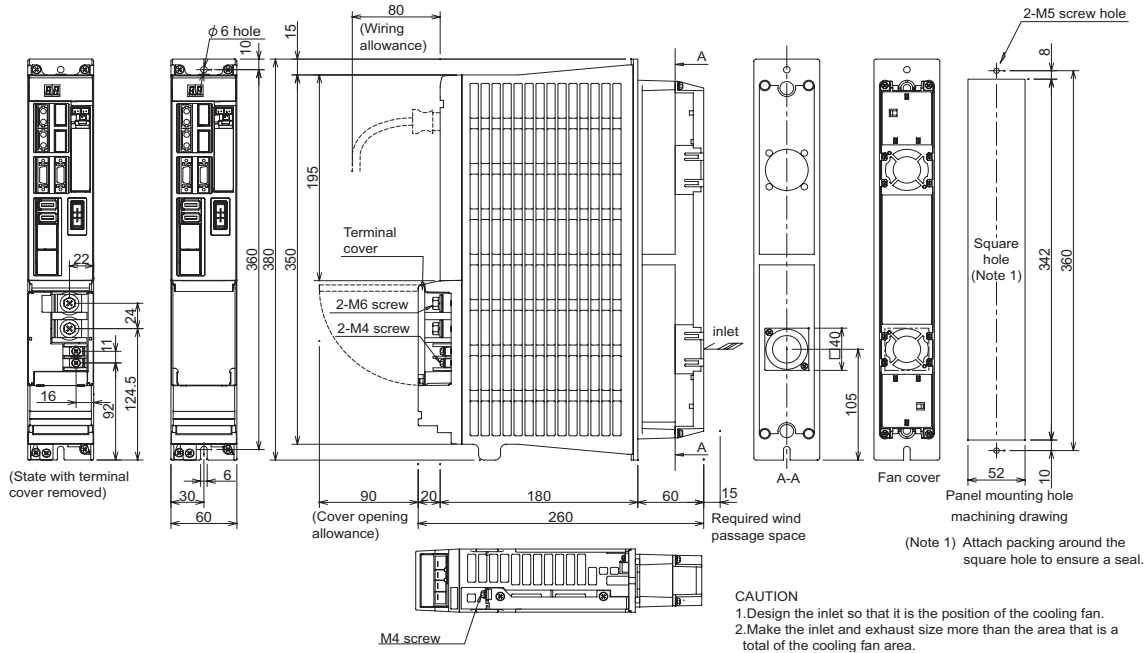
Specifications

Item	Specifications		
Nominal maximum current(peak) [A]	80		
Output	Rated voltage [V]	AC 155	
	Rated current [A]	14.6	
Input	Rated voltage [V]	DC 270 ~ 311	
	Rated current [A]	14	
Control power	Frequency [Hz]	50 / 60	
	Tolerable frequency fluctuation [%]	±3% max	
	Voltage(50Hz) [V]	AC 200	
	Voltage(60Hz) [V]	AC 200 ~ 230	
	Tolerable voltage fluctuation rate [%]	+10%, -15%	
	Max. current [A]	0.2	
	Max. rush current [A]	30	
	Max. rush conductivity time [ms]	6	
	Max. earth leakage current [mA]	2	
	Braking	Regenerative braking and dynamic brakes	
Dynamic brakes		Built-in	
Heating value	Inside panel [W]	25	
	Outside panel [W]	71	
Cooling method	Forced wind cooling		
Weight [kg]	3.8		



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN 1A	NC or master axis optical communication connector
(5)	CN 1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER 6V-C 119B
(8)	CN 9	(U nused)
(9)	CN 4	Power supply communication connector
(10)	CN 2L	Motor side detector connection connector
(11)	CN 3L	Machine side detector connection connector
(12)	CN 20	Motor brake/dynamic brake control connector
(13)	TE 2	Main circuit power supply input terminal (DC input)
(14)	TE 3	Control power input terminal
(15)	TE 1	Motor power supply output connector
(17)	PE	Grounding terminal>Note that TE1 connector is used for the motor grounding.

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21, L12, L22, MC1)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		2	14		2	14	
600V bridge poly ethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		2	14		1.25 ~ 2	16 ~ 14	

Environmental conditions

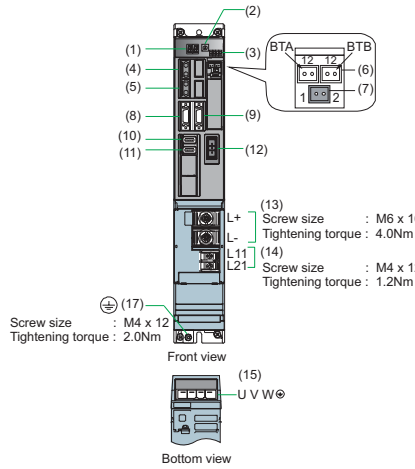
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Servo drive unit

MDS-D-V1-160

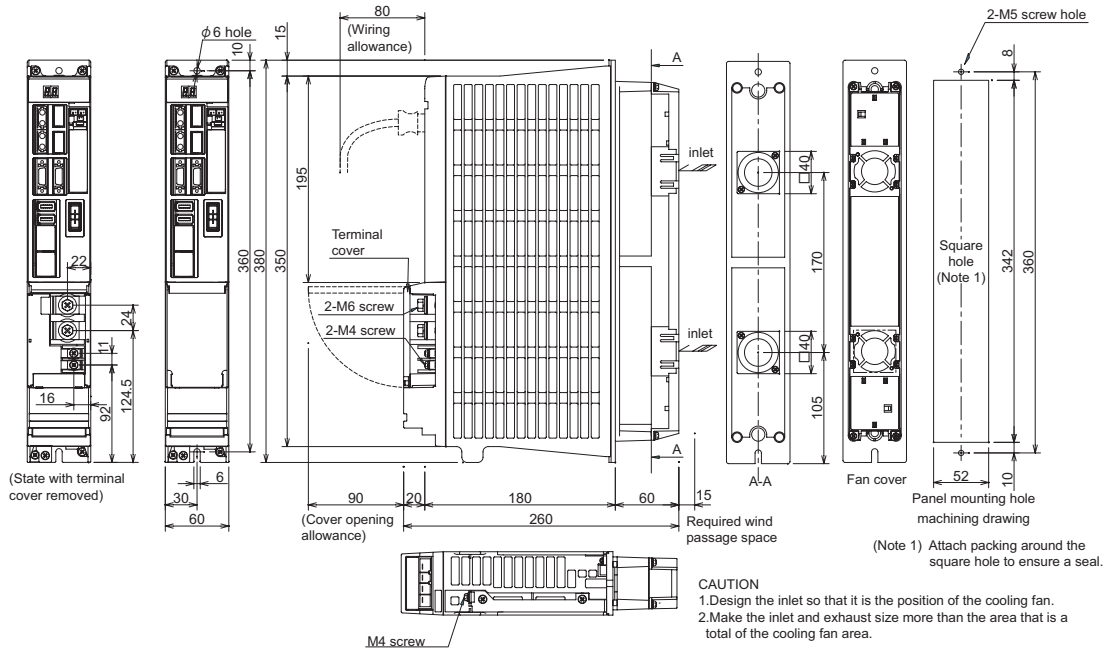
Specifications

Item	Specifications	
Nominal maximum current(peak) [A]	160	
Output	Rated voltage [V]	AC 155
	Rated current [A]	29.6
Input	Rated voltage [V]	DC 270 ~ 311
	Rated current [A]	30
Control power	Frequency [Hz]	50 / 60
	Tolerable frequency fluctuation [%]	±3% max
	Voltage(50Hz) [V]	AC 200
	Voltage(60Hz) [V]	AC 200 ~ 230
	Tolerable voltage fluctuation rate [%]	+10%, -15%
	Max. current [A]	0.2
	Max. rush current [A]	30
	Max. rush conductivity time [ms]	6
	Max. earth leakage current [mA]	2
	Braking	Regenerative braking and dynamic brakes
Dynamic brakes		Built-in
Heating value	Inside panel [W]	36
	Outside panel [W]	148
Cooling method	Forced wind cooling	
Weight [kg]	3.8	



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN 1A	NC or master axis optical communication connector
(5)	CN 1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT 1	For connecting battery built-in drive unit ER 6V-C 119B
(8)	CN 9	(Unused)
(9)	CN 4	Power supply communication connector
(10)	CN 2L	Motor side detector connection connector
(11)	CN 3L	Machine side detector connection connector
(12)	CN 20	Motor brake/dynamic brake control connector
(13)	TE 2	Main circuit power supply input terminal (DC input)
(14)	TE 3	Control power input terminal
(15)	TE 1	Motor power supply output connector
(17)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding.

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21, L12, L22, MC1)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		5.5	10	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		5.5	10			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		3.5	12			1.25 ~ 2	16 ~ 14

Environmental conditions

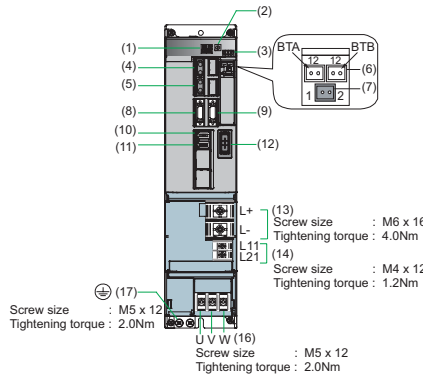
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Servo drive unit

MDS-D-V1-160W

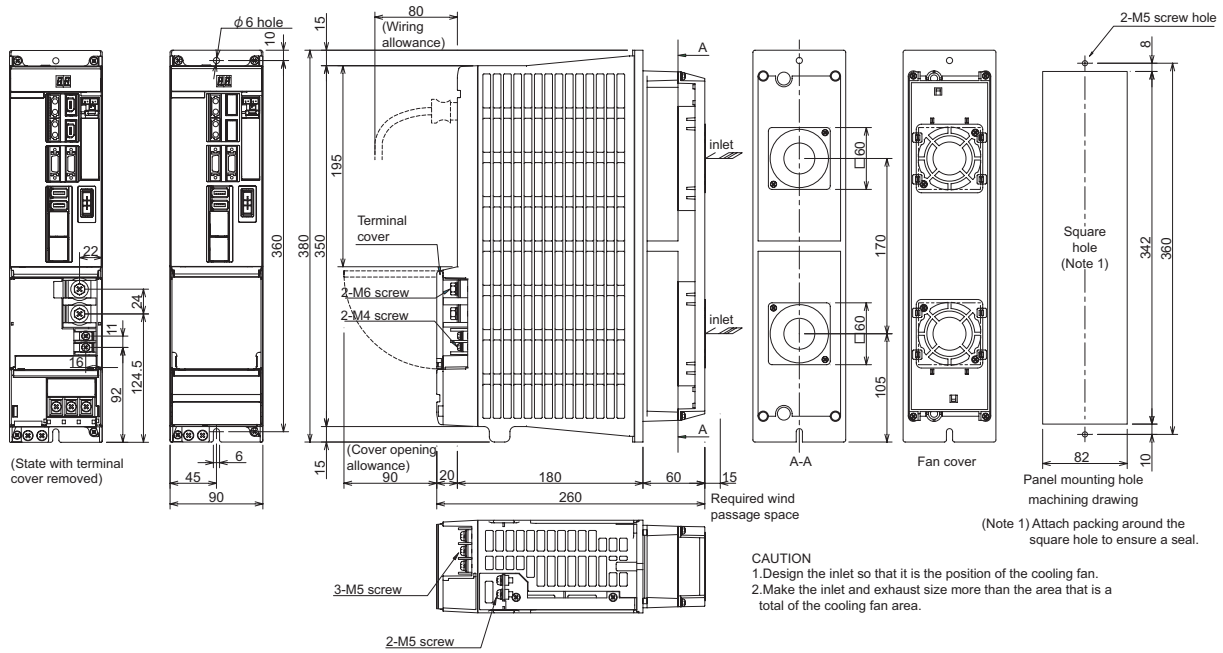
Specifications

Item	Specifications	
Nominal maximum current(peak) [A]	160	
Output	Rated voltage [V]	AC 155
	Rated current [A]	40.2
Input	Rated voltage [V]	DC 270 ~ 311
	Rated current [A]	35
Control power	Frequency [Hz]	50 / 60
	Tolerable frequency fluctuation [%]	±3% max
	Voltage(50Hz) [V]	AC 200
	Voltage(60Hz) [V]	AC 200 ~ 230
	Tolerable voltage fluctuation rate [%]	+10%, -15%
	Max. current [A]	0.2
	Max. rush current [A]	30
	Max. rush conductivity time [ms]	6
	Max. earth leakage current [mA]	2
Braking	Regenerative braking and dynamic brakes	
	Dynamic brakes	Built-in
Heating value	Inside panel [W]	44
	Outside panel [W]	201
Cooling method	Forced wind cooling	
Weight [kg]	4.5	



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER 6V-C119B (U used)
(8)	CN9	(U used)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side detector connection connector
(11)	CN3L	Machine side detector connection connector
(12)	CN20	Motor brake/dynamic brake control connector
(13)	TE2	Main circuit power supply input terminal (DC input)
(14)	TE3	Control power input terminal
(16)	TE1	Motor power supply output terminal
(17)	PE	Grounding terminal

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21, L12, L22, MC1)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		14	6	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		8	8			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		5.5	10			1.25 ~ 2	16 ~ 14

Environmental conditions

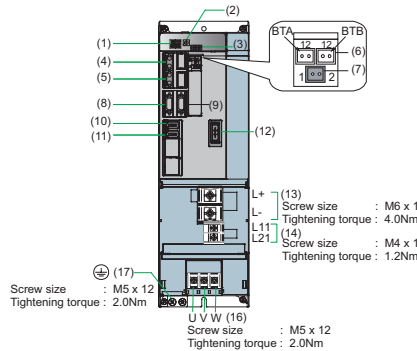
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Servo drive unit

MDS-D-V1-320

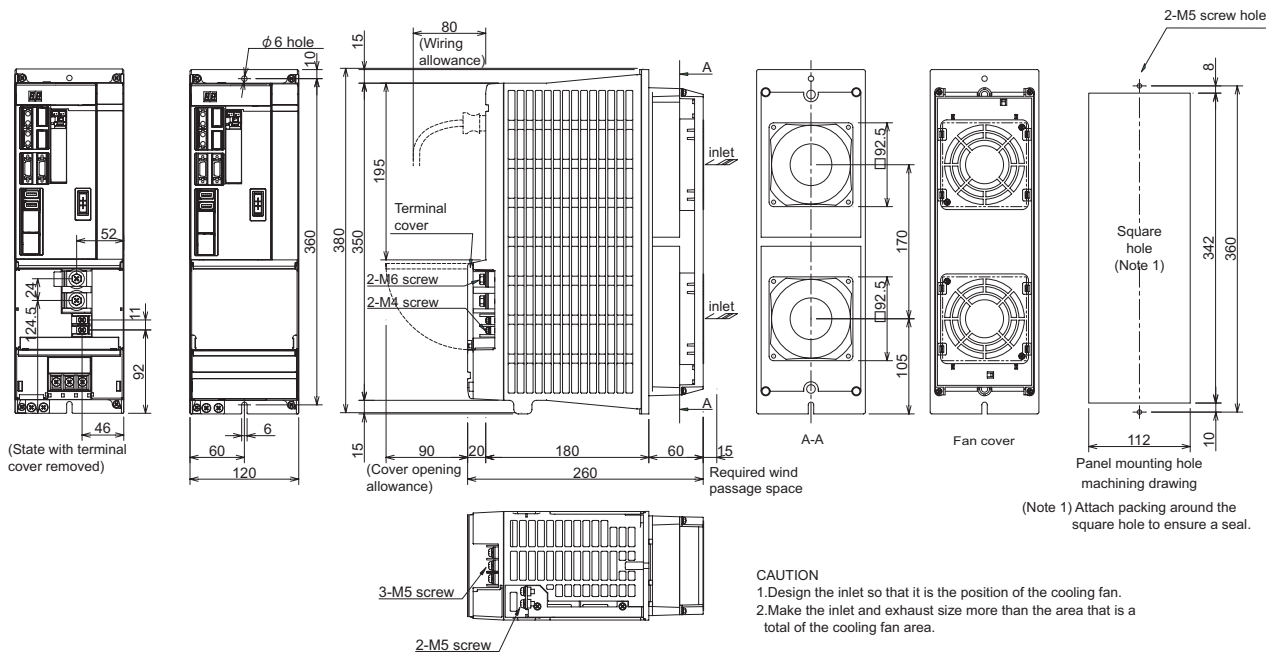
Specifications

Item	Specifications		
Nominal maximum current(peak) [A]	320		
Output	Rated voltage [V]	AC 155	
	Rated current [A]	59.6	
Input	Rated voltage [V]	DC270 ~ 311	
	Rated current [A]	45	
Control power	Frequency [Hz]	50 / 60	
	Tolerable frequency fluctuation [%]	±3% max	
	Voltage(50Hz) [V]	AC 200	
	Voltage(60Hz) [V]	AC 200 ~ 230	
	Tolerable voltage fluctuation rate [%]	+10%, -15%	
	Max. current [A]	0.2	
	Max. rush current [A]	30	
	Max. rush conductivity time [ms]	6	
	Max. earth leakage current [mA]	2	
	Braking	Regenerative braking and dynamic brakes	
Dynamic brakes		Built-in	
Heating value	Inside panel [W]	59	
	Outside panel [W]	307	
Cooling method	Forced wind cooling		
Weight [kg]	5.8		



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER 6V-C 119B (U nused)
(8)	CN9	(U nused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side detector connection connector
(11)	CN3L	Machine side detector connection connector
(12)	CN20	Motor brake/dynamic brake control connector
(13)	TE2	Main circuit power supply input terminal (DC input)
(14)	TE3	Control power input terminal
(16)	TE1	Motor power supply output terminal
(17)	PE	Grounding terminal

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21, L12, L22, MC1)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		22	4	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		14	6			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		14	6			1.25 ~ 2	16 ~ 14

Environmental conditions

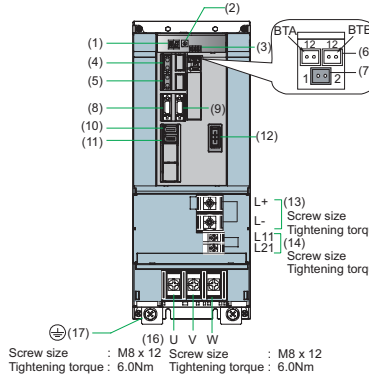
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Servo drive unit

MDS-D-V1-320W

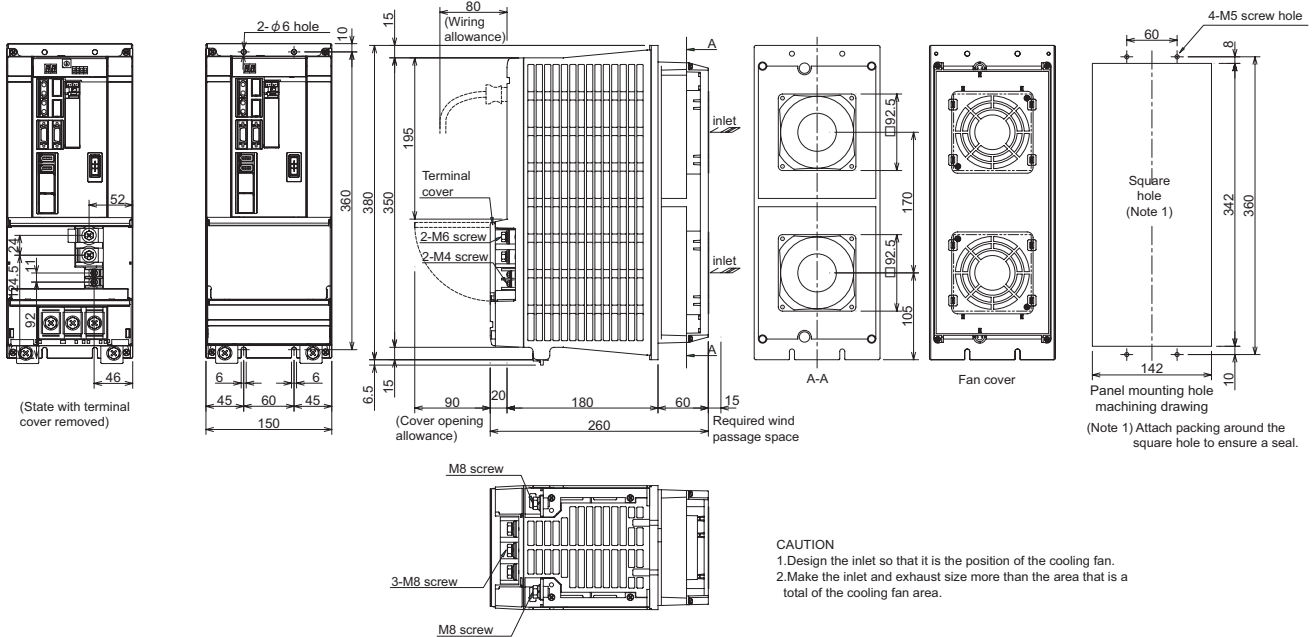
Specifications

Item	Specifications	
Nominal maximum current(peak) [A]	320	
Output	Rated voltage [V]	AC 155
	Rated current [A]	83.4
Input	Rated voltage [V]	DC 270 ~ 311
	Rated current [A]	55
Control power	Frequency [Hz]	50 / 60
	Tolerable frequency fluctuation [%]	±3% max
	Voltage(50Hz) [V]	AC 200
	Voltage(60Hz) [V]	AC 200 ~ 230
	Tolerable voltage fluctuation rate [%]	+10%, -15%
	Max. current [A]	0.2
	Max. rush current [A]	30
	Max. rush conductivity time [ms]	6
Max. earth leakage current [mA]	2	
Braking	Regenerative braking and dynamic brakes	
	Dynamic brakes	External (MDS-D-DBU)
Heating value	Inside panel [W]	72
	Outside panel [W]	399
Cooling method	Forced wind cooling	
Weight [kg]	7.5	



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B (Unused)
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side detector connection connector
(11)	CN3L	Machine side detector connection connector
(12)	CN20	Motor brake/dynamic brake control connector
(13)	TE2	Main circuit power supply input terminal (DC input)
(14)	TE3	Control power input terminal
(16)	TE1	Motor power supply output terminal
(17)	PE	Grounding terminal

Outline dimension drawings [Unit: mm]



CAUTION
 1.Design the inlet so that it is the position of the cooling fan.
 2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21, L12, L22, MC1)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		38	2	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		22	4		2	14	
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		22	4		1.25 ~ 2	16 ~ 14	

Environmental conditions

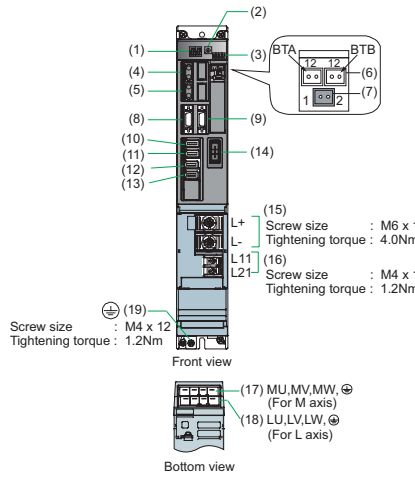
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Servo drive unit

MDS-D-V2-2020

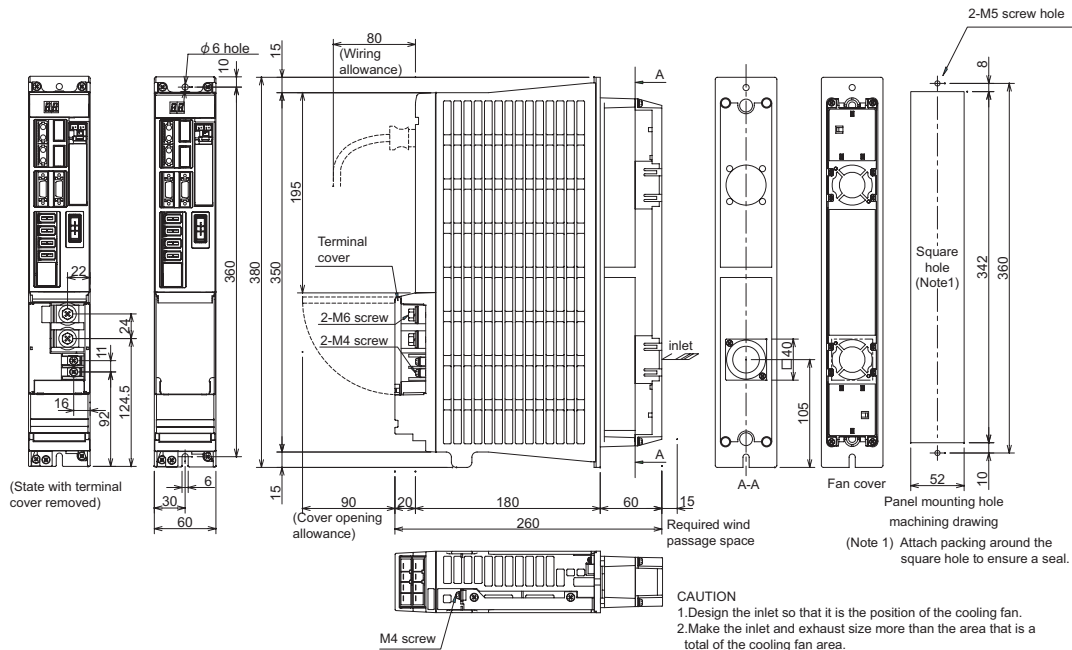
Specifications

Item	Specifications		
	L	M	
Nominal maximum current(peak) [A]	20	20	
Output	AC 155		
	Rated voltage [V]		
Rated current [A]	4.6	4.6	
Input	DC 270 ~ 311		
	Rated voltage [V]		
Rated current [A]	7	7	
Control power	50 / 60		
	Frequency [Hz]		
	Tolerable frequency fluctuation [%]	±3% max	
	Voltage(50Hz) [V]	AC 200	
	Voltage(60Hz) [V]	AC 200 ~ 230	
	Tolerable voltage fluctuation rate [%]	+10%, -15%	
	Max. current [A]	0.2	
Max. rush current [A]	30		
Max. rush conductivity time [ms]	6		
Max. earth leakage current [mA]	2	2	
Braking	Regenerative braking and dynamic brakes		
	Dynamic brakes	Built-in	
Heating value	Inside panel [W]	28	
	Outside panel [W]	54	
Cooling method	Forced wind cooling		
Weight [kg]	4.5		



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL SWM	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN 1A	NC or master axis optical communication connector
(5)	CN 1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT 1	For connecting battery built-in drive unit ER 6V-C 119B
(8)	CN 9	(Unused)
(9)	CN 4	Power supply communication connector
(10)	CN 2L	Motor side detector connection connector (L axis)
(11)	CN 3L	Machine side detector connection connector (L axis)
(12)	CN 2M	Motor side detector connection connector (M axis)
(13)	CN 3M	Machine side detector connection connector (M axis)
(14)	CN 20	Motor brake/dynamic brake control connector (Key way: X type)
(15)	TE 2	Main circuit power supply input terminal (DC input)
(16)	TE 3	Control power input terminal (single-phase AC input)
(17)	TE 1	Motor power supply output connector
(18)	TE 1	Motor power supply output connector
(19)	PE	Grounding terminal Note that TE 1 connector is used for the motor grounding.

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21, L12, L22, MC1)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		2	14			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		2	14			1.25 ~ 2	16 ~ 14

Environmental conditions

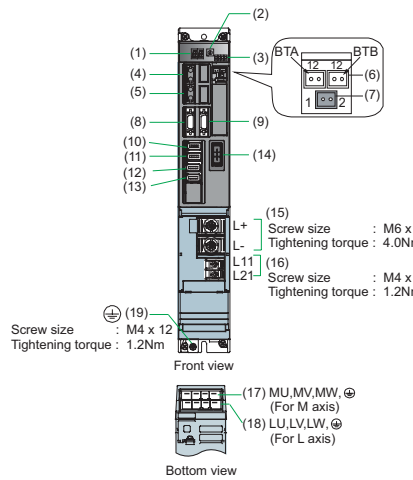
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Servo drive unit

MDS-D-V2-4020

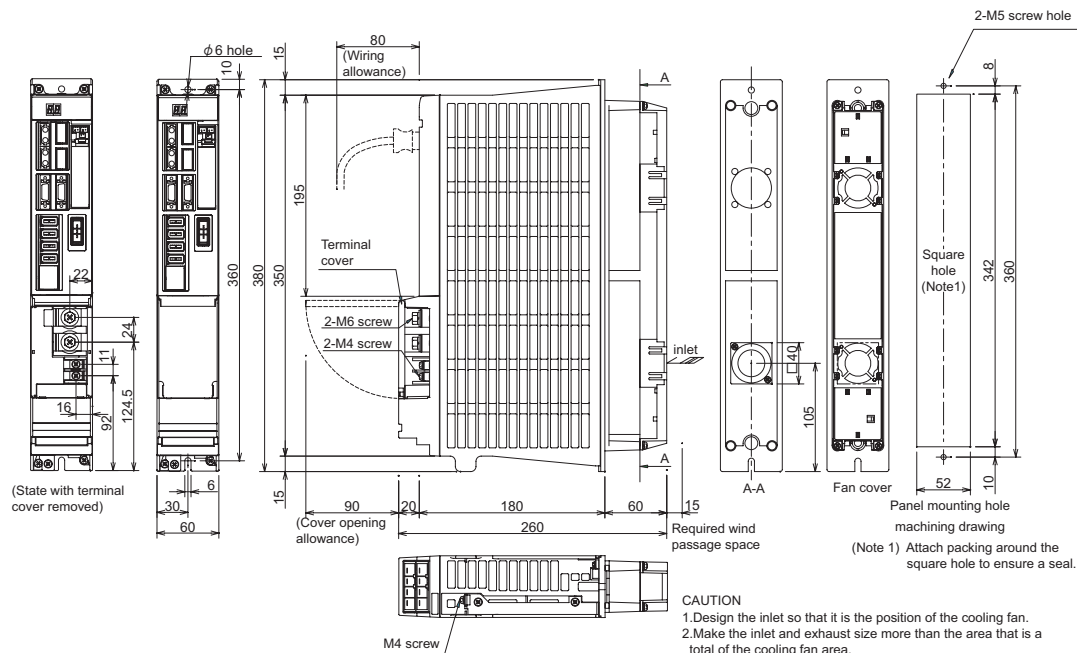
Specifications

Item	Specifications	
	L	M
Nominal maximum current(peak) [A]	40	20
Output	Rated voltage [V]	AC 155
	Rated current [A]	7.8 4.6
Input	Rated voltage [V]	DC 270 ~ 311
	Rated current [A]	7 7
Control power	Frequency [Hz]	50 / 60
	Tolerable frequency fluctuation [%]	±3% max
	Voltage(50Hz) [V]	AC 200
	Voltage(60Hz) [V]	AC 200 ~ 230
	Tolerable voltage fluctuation rate [%]	+10%, -15%
	Max. current [A]	0.2
	Max. rush current [A]	30
	Max. rush conductivity time [ms]	6
Max. earth leakage current [mA]	2	2
Braking	Regenerative braking and dynamic brakes	
	Dynamic brakes Built-in	
Heating value	Inside panel [W]	30
	Outside panel [W]	74
Cooling method	Forced wind cooling	
Weight [kg]	4.5	



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN 1A	NC or master axis optical communication connector
(5)	CN 1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT 1	For connecting battery built-in drive unit ER 6V-C 119B
(8)	CN 9	(Unused)
(9)	CN 4	Power supply communication connector
(10)	CN 2L	Motor side detector connection connector (L axis)
(11)	CN 3L	Machine side detector connection connector (L axis)
(12)	CN 2M	Motor side detector connection connector (M axis)
(13)	CN 3M	Machine side detector connection connector (M axis)
(14)	CN 20	Motor brake/dynamic brake control connector (Key way: X type)
(15)	TE 2	Main circuit power supply input terminal (DC input)
(16)	TE 3	Control power input terminal (single-phase AC input)
(17)	TE 1	Motor power supply output connector
(18)	PE	Grounding terminal Note that TE 1 connector is used for the motor grounding.

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21, L12, L22, MC1)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		2	14			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		2	14			1.25 ~ 2	16 ~ 14

Environmental conditions

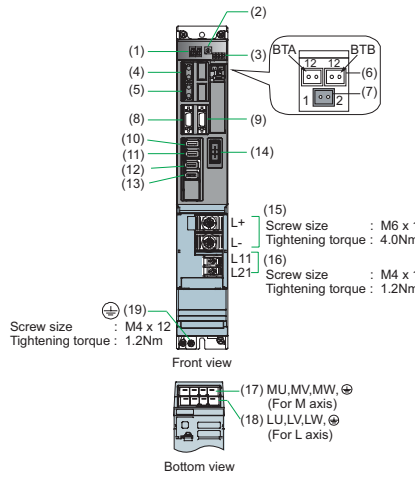
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Servo drive unit

MDS-D-V2-4040

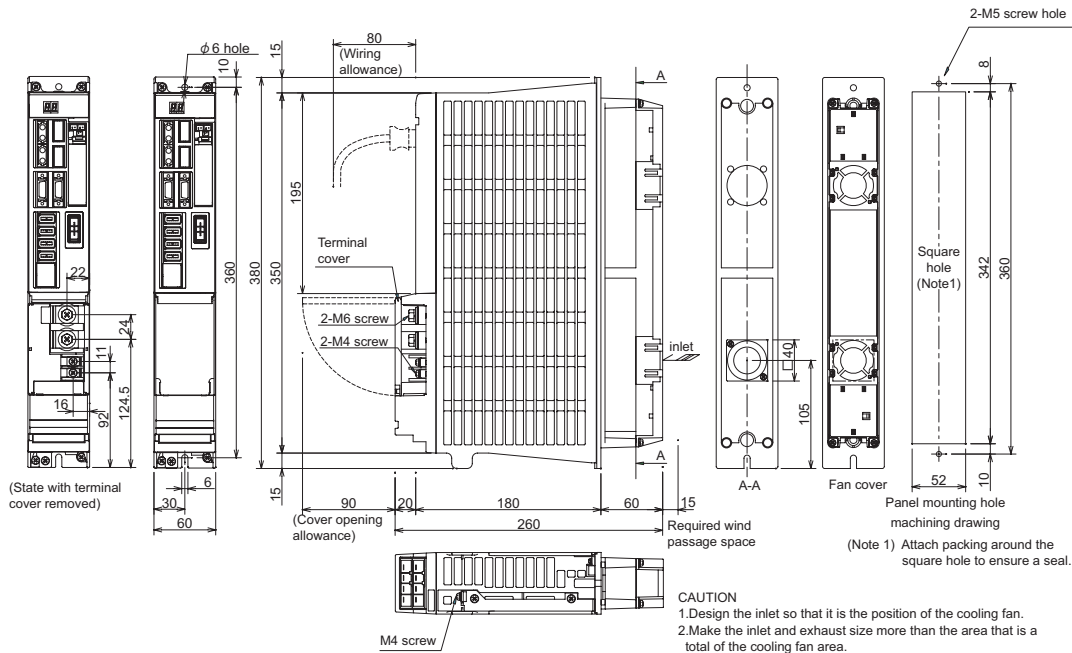
Specifications

Item	Specifications	
	L	M
Nominal maximum current(peak) [A]	40	40
Output	AC 155	
	Rated voltage [V]	
Rated current [A]	7.8	7.8
Input	DC 270 ~ 311	
	Rated voltage [V]	
Rated current [A]	7	7
Control power	Frequency [Hz]	50 / 60
	Tolerable frequency fluctuation [%]	±3% max
	Voltage(50Hz) [V]	AC 200
	Voltage(60Hz) [V]	AC 200 ~ 230
	Tolerable voltage fluctuation rate [%]	+10%, -15%
	Max. current [A]	0.2
	Max. rush current [A]	30
Max. rush conductivity time [ms]	6	
Max. earth leakage current [mA]	2	2
Braking	Regenerative braking and dynamic brakes	
	Dynamic brakes	Built-in
Heating value	Inside panel [W]	33
	Outside panel [W]	93
Cooling method	Forced wind cooling	
Weight [kg]	4.5	



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL SWM	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN 1A	NC or master axis optical communication connector
(5)	CN 1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT 1	For connecting battery built-in drive unit ER 6V-C 119B
(8)	CN 9	(Unused)
(9)	CN 4	Power supply communication connector
(10)	CN 2L	Motor side detector connection connector (L axis)
(11)	CN 3L	Machine side detector connection connector (L axis)
(12)	CN 2M	Motor side detector connection connector (M axis)
(13)	CN 3M	Machine side detector connection connector (M axis)
(14)	CN 20	Motor brake/dynamic brake control connector (Key way: X type)
(15)	TE 2	Main circuit power supply input terminal (DC input)
(16)	TE 3	Control power input terminal (single-phase AC input)
(17)	TE 1	Motor power supply output connector
(18)	TE 1	Motor power supply output connector
(19)	PE	Grounding terminal>Note that TE1 connector is used for the motor grounding.

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21, L12, L22, MC1)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		2	14		2	14	
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		2	14		1.25 ~ 2	16 ~ 14	

Environmental conditions

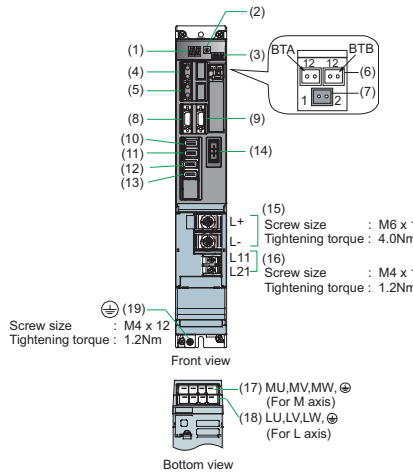
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Servo drive unit

MDS-D-V2-8040

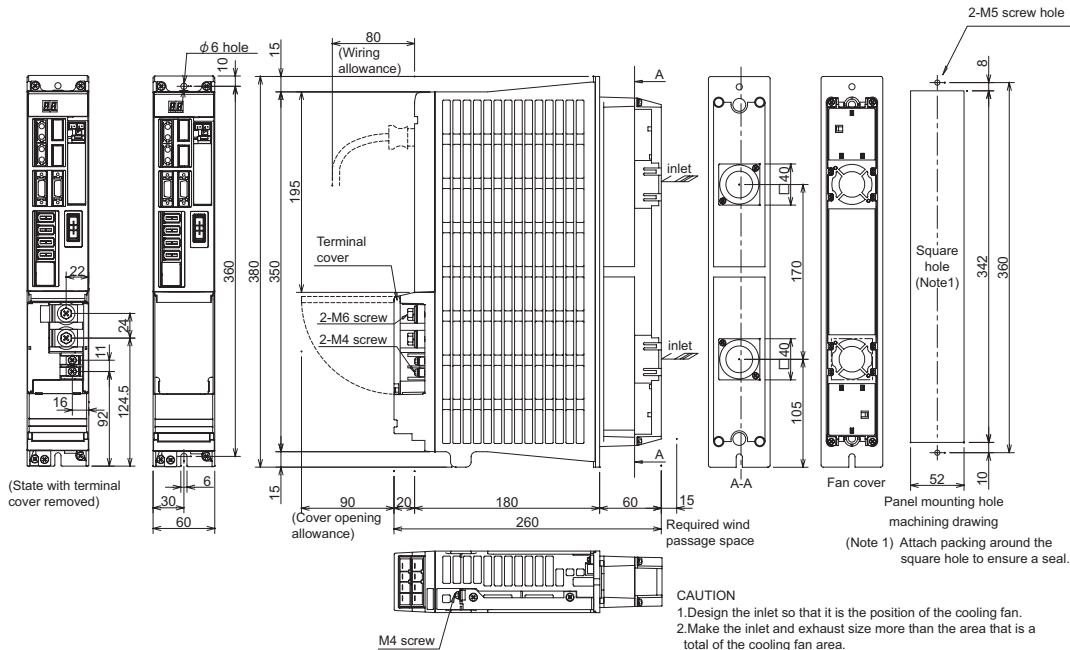
Specifications

Item	Specifications		
	L	M	
Nominal maximum current(peak) [A]	80	40	
Output	AC 155		
	Rated voltage [V]		
Rated current [A]	14.6	7.8	
Input	DC 270 ~ 311		
	Rated voltage [V]		
Rated current [A]	14	7	
Control power	Frequency [Hz]	50 / 60	
	Tolerable frequency fluctuation [%]	±3% max	
	Voltage(50Hz) [V]	AC 200	
	Voltage(60Hz) [V]	AC 200 ~ 230	
	Tolerable voltage fluctuation rate [%]	+10%, -15%	
	Max. current [A]	0.2	
	Max. rush current [A]	30	
Max. rush conductivity time [ms]	6		
Max. earth leakage current [mA]	2	2	
Braking	Regenerative braking and dynamic brakes		
	Dynamic brakes	Built-in	
Heating value	Inside panel [W]	39	
	Outside panel [W]	133	
Cooling method	Forced wind cooling		
Weight [kg]	4.5		



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL SWM	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN 1A	NC or master axis optical communication connector
(5)	CN 1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT 1	For connecting battery built-in drive unit ER 6V-C 119B (U used)
(8)	CN 9	(U used)
(9)	CN 4	Power supply communication connector
(10)	CN 2L	Motor side detector connection connector (L axis)
(11)	CN 3L	Machine side detector connection connector (L axis)
(12)	CN 2M	Motor side detector connection connector (M axis)
(13)	CN 3M	Machine side detector connection connector (M axis)
(14)	CN 20	Motor brake/dynamic brake control connector (Key way: X type)
(15)	TE 2	Main circuit power supply input terminal (DC input)
(16)	TE 3	Control power input terminal (single-phase AC input)
(17)	TE 1	Motor power supply output connector
(18)	TE 1	Grounding terminal Note that TE 1 connector is used for the motor grounding.
(19)	PE	

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21, L12, L22, MC1)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		2	14			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		2	14			1.25 ~ 2	16 ~ 14

Environmental conditions

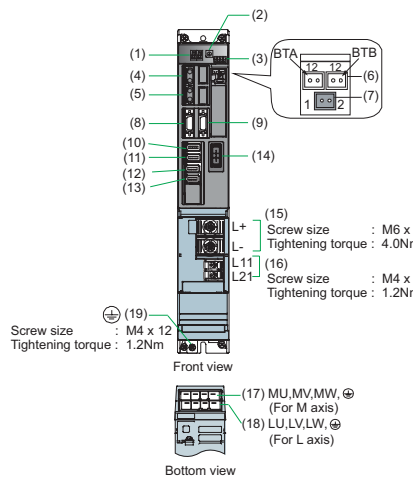
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Servo drive unit

MDS-D-V2-8080

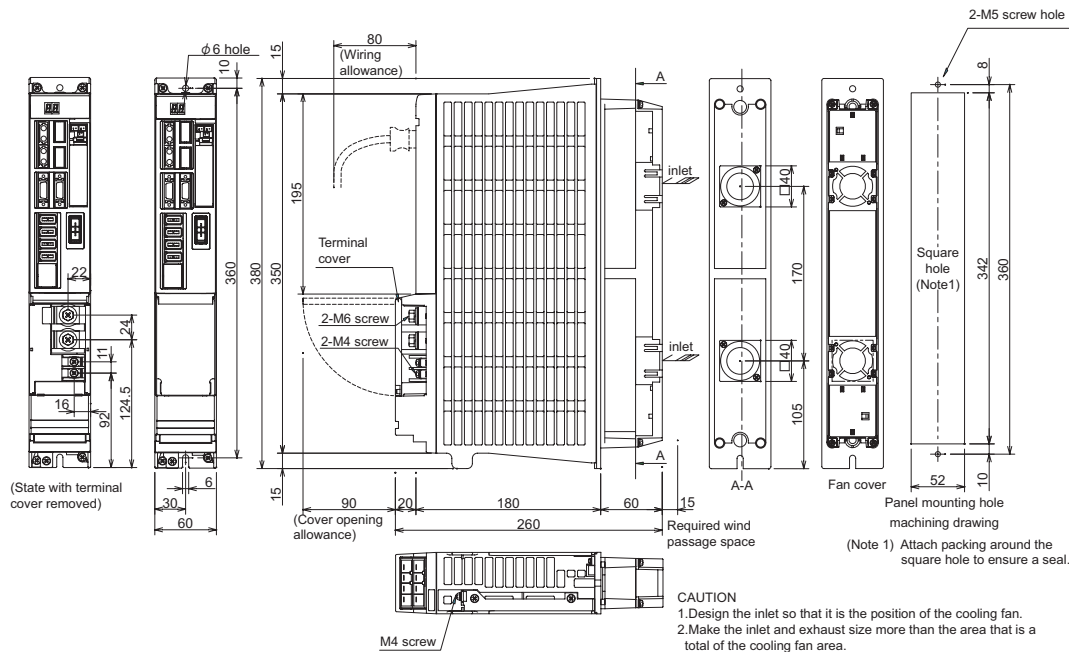
Specifications

Item	Specifications		
	L	M	
Nominal maximum current(peak) [A]	80	80	
Output	AC 155		
	Rated voltage [V]		
Rated current [A]	14.6	14.6	
Input	DC 270 ~ 311		
	Rated voltage [V]		
Rated current [A]	14	14	
Control power	50 / 60		
	Frequency [Hz]		
	Tolerable frequency fluctuation [%]	±3% max	
	Voltage(50Hz) [V]	AC 200	
	Voltage(60Hz) [V]	AC 200 ~ 230	
	Tolerable voltage fluctuation rate [%]	+10%, -15%	
	Max. current [A]	0.2	
	Max. rush current [A]	30	
	Max. rush conductivity time [ms]	6	
	Max. earth leakage current [mA]	2	2
Braking	Regenerative braking and dynamic brakes		
	Dynamic brakes	Built-in	
Heating value	Inside panel [W]	45	
	Outside panel [W]	173	
Cooling method	Forced wind cooling		
Weight [kg]	4.5		



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL SWM	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN 1A	NC or master axis optical communication connector
(5)	CN 1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT 1	For connecting battery built-in drive unit ER 6V-C 119B (U used)
(8)	CN 9	Power supply communication connector
(9)	CN 4	Motor side detector connection connector (L axis)
(10)	CN 2L	Machine side detector connection connector (L axis)
(11)	CN 3L	Motor side detector connection connector (M axis)
(12)	CN 2M	Machine side detector connection connector (M axis)
(13)	CN 3M	Motor brake/dynamic brake control connector (Key way: X type)
(14)	CN 20	Main circuit power supply input terminal (DC input)
(15)	TE 2	Control power input terminal (single-phase AC input)
(16)	TE 3	Motor power supply output connector
(17)	TE 1	Motor power supply output connector
(18)	PE	Grounding terminal Note that TE 1 connector is used for the motor grounding.

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21, L12, L22, MC1)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		2	14			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		2	14			1.25 ~ 2	16 ~ 14

Environmental conditions

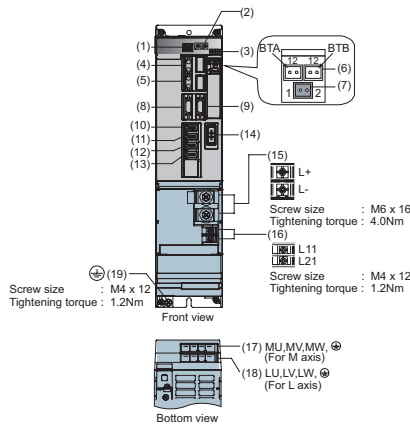
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Servo drive unit

MDS-D-V2-16080

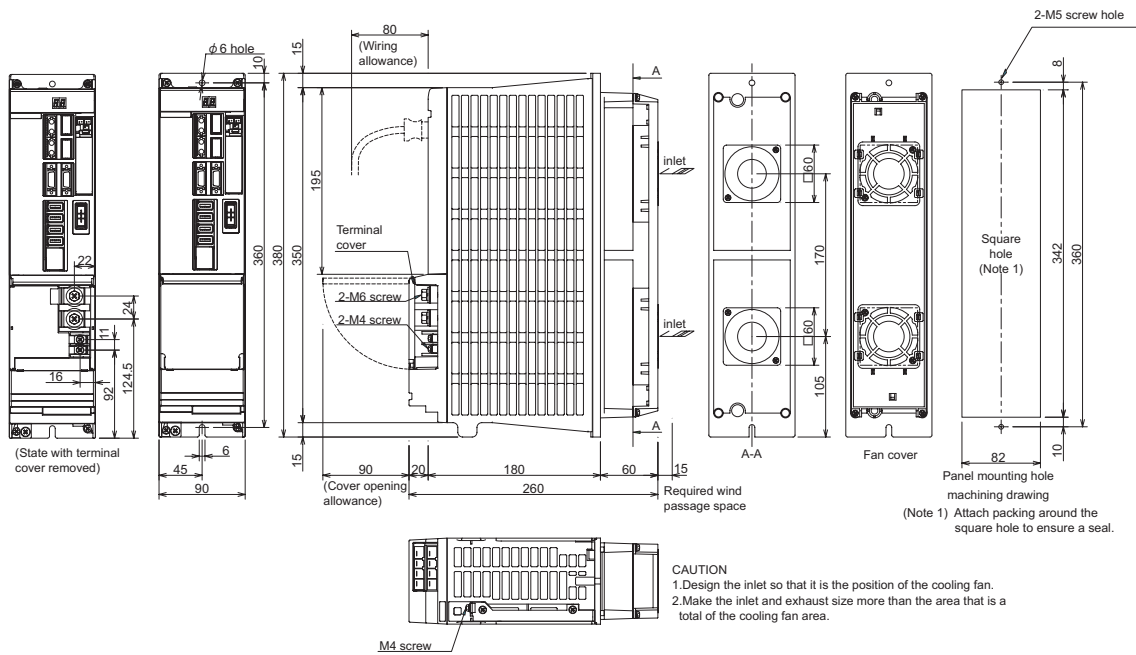
Specifications

Item	Specifications	
	L	M
Nominal maximum current(peak) [A]	160	80
Output	Rated voltage [V]	AC155
	Rated current [A]	29.6 14.6
Input	Rated voltage [V]	DC270 ~ 311
	Rated current [A]	30 14
Control power	Frequency [Hz]	50 / 60
	Tolerable frequency fluctuation [%]	±3% max
	Voltage(50Hz) [V]	AC200
	Voltage(60Hz) [V]	AC200 ~ 230
	Tolerable voltage fluctuation rate [%]	+10%, -15%
	Max. current [A]	0.2
	Max. rush current [A]	30
Max. rush conductivity time [ms]	6	
Max. earth leakage current [mA]	2	2
Braking	Regenerative braking and dynamic brakes	
	Dynamic brakes	Built-in
Heating value	Inside panel [W]	57
	Outside panel [W]	262
Cooling method	Forced wind cooling	
Weight [kg]	5.2	



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side detector connection connector (L axis)
(11)	CN3L	Machine side detector connection connector (L axis)
(12)	CN2M	Motor side detector connection connector (M axis)
(13)	CN3M	Machine side detector connection connector (M axis)
(14)	CN20	Motor brake/dynamic brake control connector (Key way: X type)
(15)	TE2	Main circuit power supply input terminal (DC input)
(16)	TE3	Control power input terminal (single-phase AC input)
(17)	TE1	Motor power supply output connector
(18)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding.

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21, L12, L22, MC1)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		5.5	10	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		5.5	10			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		3.5	12			1.25 ~ 2	16 ~ 14

Environmental conditions

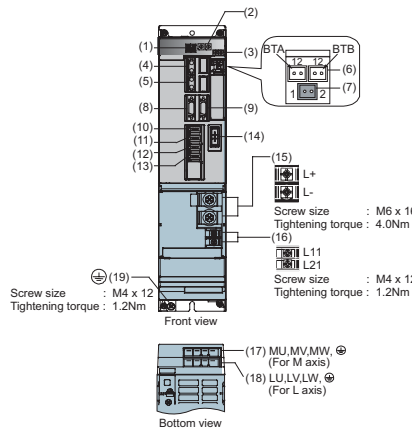
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Servo drive unit

MDS-D-V2-160160

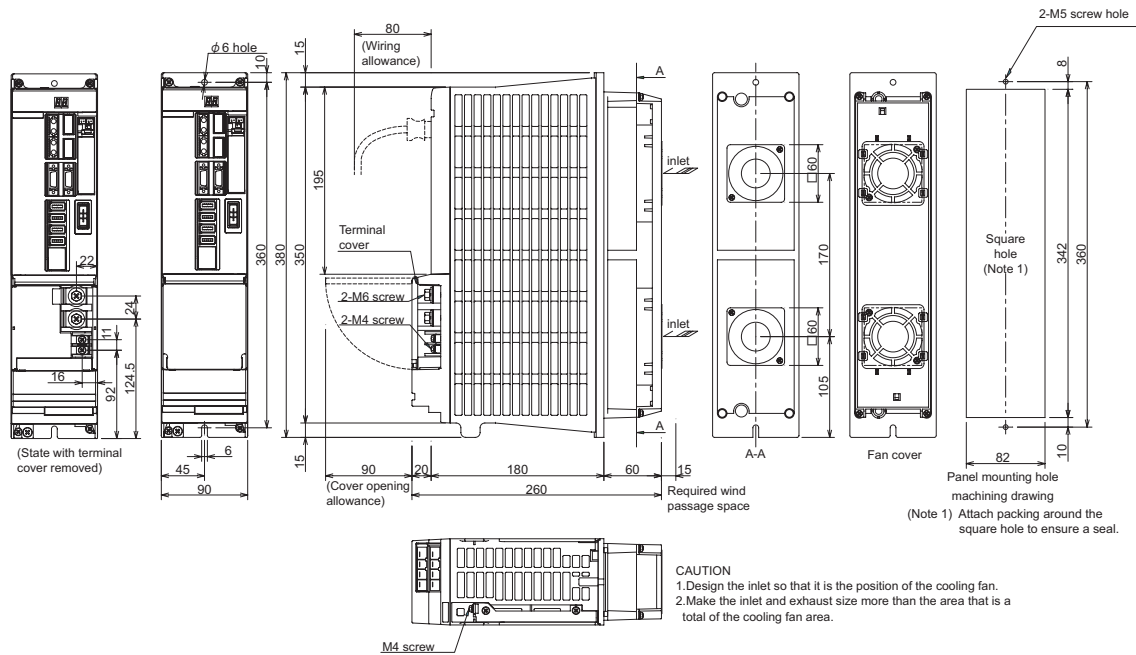
Specifications

Item	Specifications	
	L	M
Nominal maximum current(peak) [A]	160	160
Output	Rated voltage [V]	AC 155
	Rated current [A]	29.6 29.6
Input	Rated voltage [V]	DC 270 ~ 311
	Rated current [A]	30 30
Control power	Frequency [Hz]	50 / 60
	Tolerable frequency fluctuation [%]	±3% max
	Voltage(50Hz) [V]	AC 200
	Voltage(60Hz) [V]	AC 200 ~ 230
	Tolerable voltage fluctuation rate [%]	+10%, -15%
	Max. current [A]	0.2
	Max. rush current [A]	30
	Max. rush conductivity time [ms]	6
Max. earth leakage current [mA]	2	2
Braking	Regenerative braking and dynamic brakes	
	Dynamic brakes	Built-in
Heating value	Inside panel [W]	70
	Outside panel [W]	350
Cooling method	Forced wind cooling	
Weight [kg]	5.2	



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL SWM	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN 1A	NC or master axis optical communication connector
(5)	CN 1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT 1	For connecting battery built-in drive unit ER 6V-C 119B
(8)	CN 9	(Unused)
(9)	CN 4	Power supply communication connector
(10)	CN 2L	Motor side detector connection connector (L axis)
(11)	CN 3L	Machine side detector connection connector (L axis)
(12)	CN 2M	Motor side detector connection connector (M axis)
(13)	CN 3M	Machine side detector connection connector (M axis)
(14)	CN 20	Motor brake/dynamic brake control connector (Key way: X type)
(15)	TE 2	Main circuit power supply input terminal (DC input)
(16)	TE 3	Control power input terminal (single-phase AC input)
(17)	TE 1	Motor power supply output connector
(18)	TE 1	Motor power supply output connector
(19)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding.

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21, L12, L22, MC1)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		5.5	10	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		5.5	10			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		3.5	12			1.25 ~ 2	16 ~ 14

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

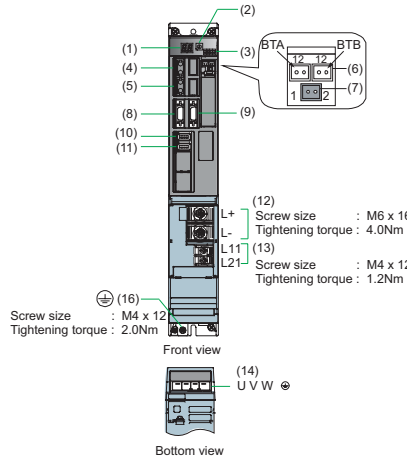
Spindle drive unit

Spindle drive unit

MDS-D-SP-20

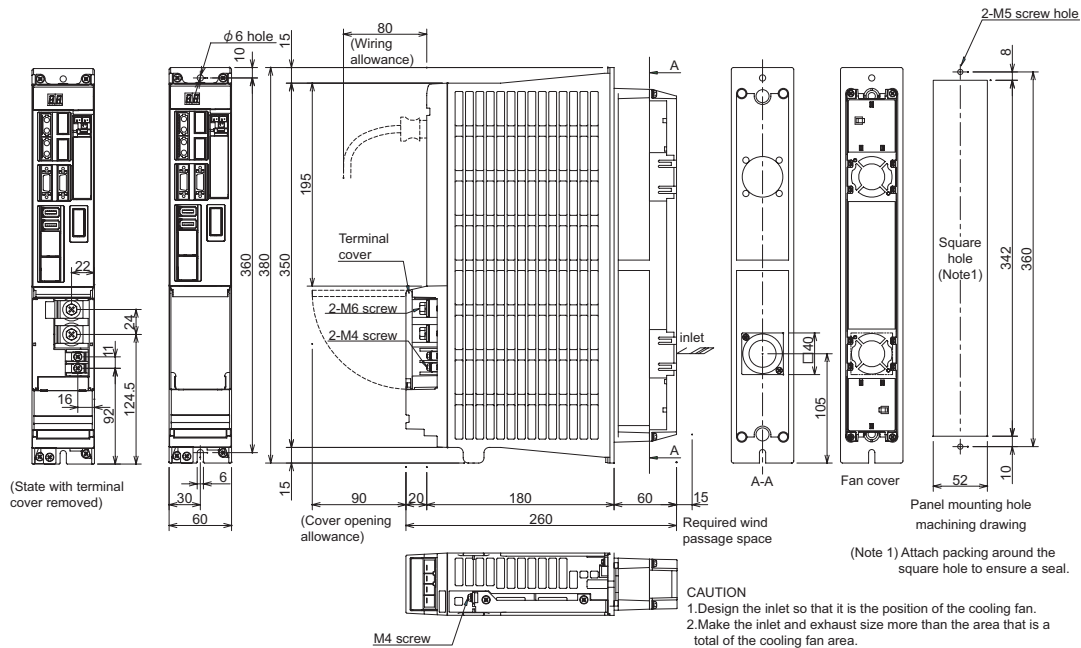
Specifications

Item	Specifications	
Nominal maximum current (peak) [A]	20	
Output	Rated voltage [V]	AC155
	Rated current [A]	4.5
Input	Rated voltage [V]	DC 270 - 311
	Rated current [A]	7
Control power	Frequency [Hz]	50 / 60
	Tolerable frequency fluctuation [%]	±3% max
	Voltage(50Hz) [V]	AC200
	Voltage(60Hz) [V]	AC200 - 230
	Tolerable voltage fluctuation rate [%]	+10%, -15%
	Max. current [A]	0.2
	Max. rush current [A]	30
	Max. rush conductivity time [ms]	6
	Max. earth leakage current [mA]	15
	Braking	Regenerative braking
Heating value	Inside panel [W]	24
	Outside panel [W]	31
Cooling method	Forced wind cooling	
Weight [kg]	3.8	



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER 6V-C 119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor built-in detector connection connector
(11)	CN3L	Spindle side detector connection connector
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal
(14)	TE1	Motor power supply output connector
(16)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding.

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		2	14			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		2	14			1.25 ~ 2	16 ~ 14

Environmental conditions

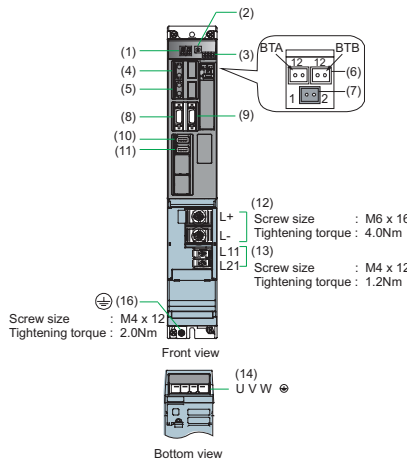
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Spindle drive unit

MDS-D-SP-40

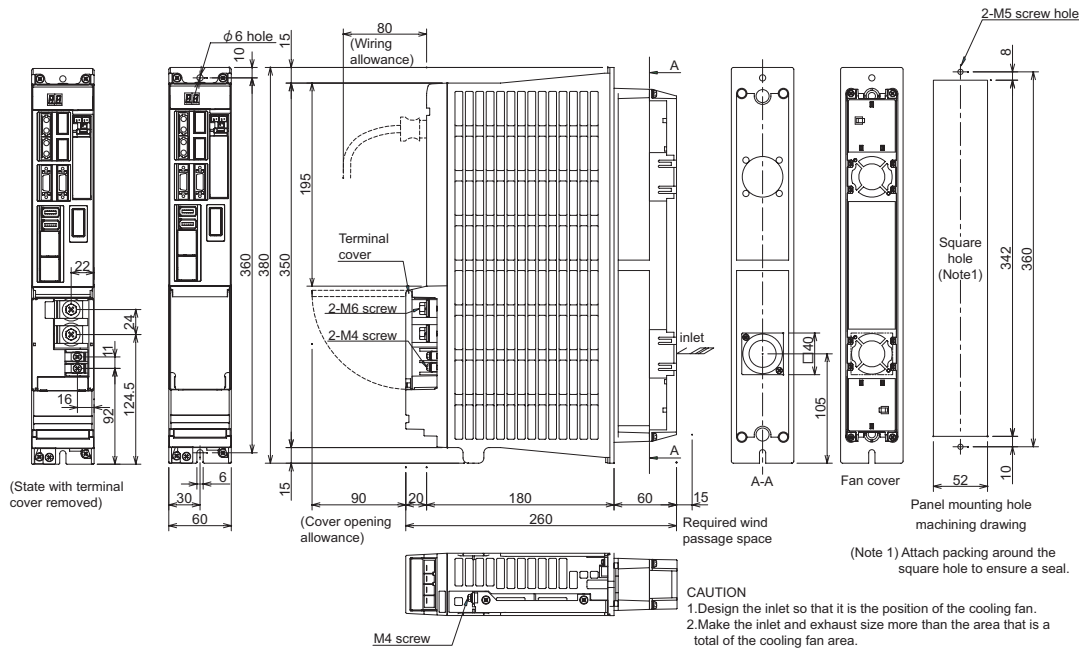
Specifications

Item	Specifications	
Nominal maximum current (peak) [A]	40	
Output	Rated voltage [V]	AC155
	Rated current [A]	10
Input	Rated voltage [V]	DC 270 - 311
	Rated current [A]	13
Control power	Frequency [Hz]	50 / 60
	Tolerable frequency fluctuation [%]	±3% max
	Voltage(50Hz) [V]	AC200
	Voltage(60Hz) [V]	AC200 - 230
	Tolerable voltage fluctuation rate [%]	+10%, -15%
	Max. current [A]	0.2
	Max. rush current [A]	30
	Max. rush conductivity time [ms]	6
	Max. earth leakage current [mA]	15
	Braking	Regenerative braking
Heating value	Inside panel [W]	29
	Outside panel [W]	65
Cooling method	Forced wind cooling	
Weight [kg]	3.8	



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER 6V-C 119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor built-in detector connection connector
(11)	CN3L	Spindle side detector connection connector
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal
(14)	TE1	Motor power supply output connector
(16)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding.

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		2	12		2	14	
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		2	14		1.25 ~ 2	16 ~ 14	

Environmental conditions

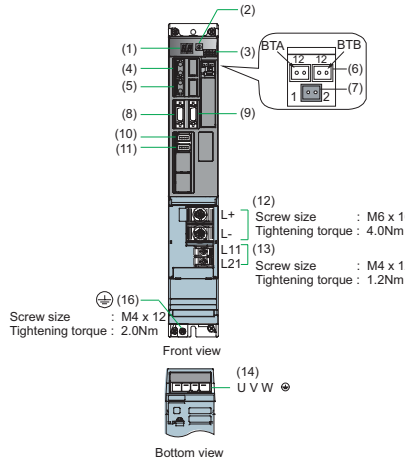
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Spindle drive unit

MDS-D-SP-80

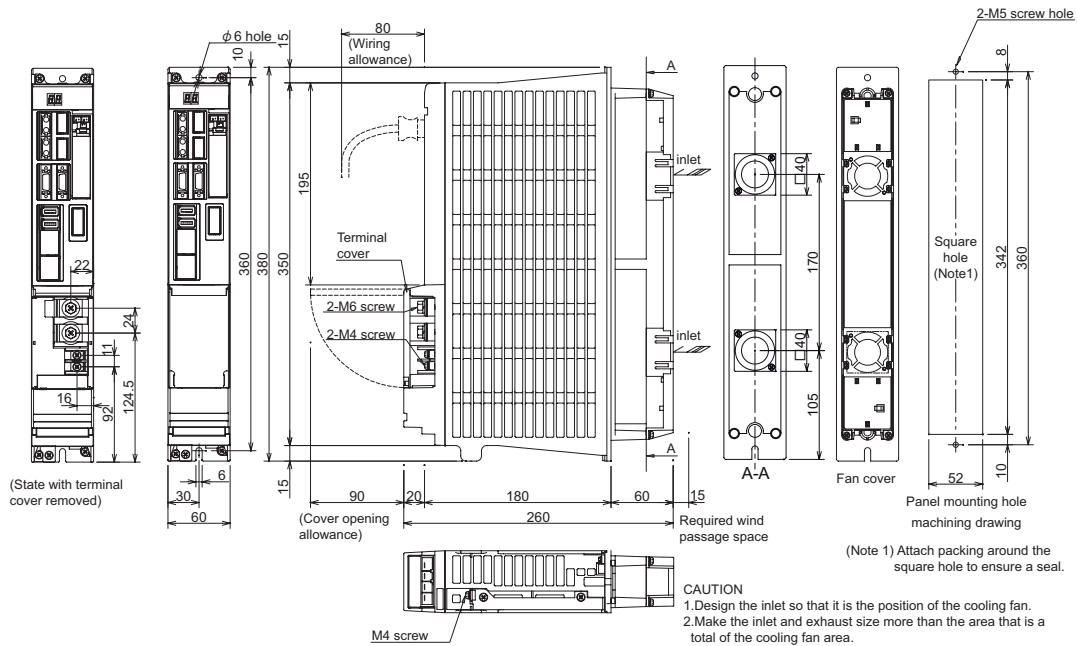
Specifications

Item	Specifications		
Nominal maximum current (peak) [A]	80		
Output	Rated voltage [V]	AC155	
	Rated current [A]	18	
Input	Rated voltage [V]	DC 270 ~ 311	
	Rated current [A]	20	
Control power	Frequency [Hz]	50 / 60	
	Tolerable frequency fluctuation [%]	±3% max	
	Voltage(50Hz) [V]	AC200	
	Voltage(60Hz) [V]	AC200 ~ 230	
	Tolerable voltage fluctuation rate [%]	+10%, -15%	
	Max. current [A]	0.2	
	Max. rush current [A]	30	
	Max. rush conductivity time [ms]	6	
	Max. earth leakage current [mA]	15	
	Braking	Regenerative braking	
Heating value	Inside panel [W]	37	
	Outside panel [W]	121	
Cooling method	Forced wind cooling		
Weight [kg]	3.8		



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor built-in detector connection connector
(11)	CN3L	Spindle side detector connection connector
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal
(14)	TE1	Motor power supply output connector
(16)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding.

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		5.5	10	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		3.5	12			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		3.5	12			1.25 ~ 2	16 ~ 14

Environmental conditions

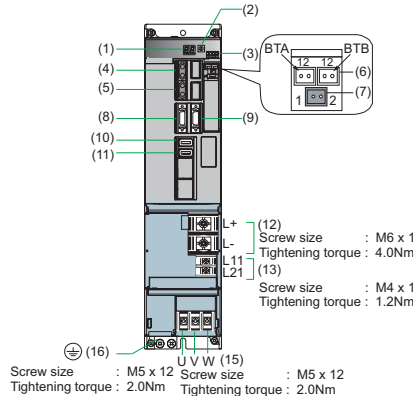
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Spindle drive unit

MDS-D-SP-160

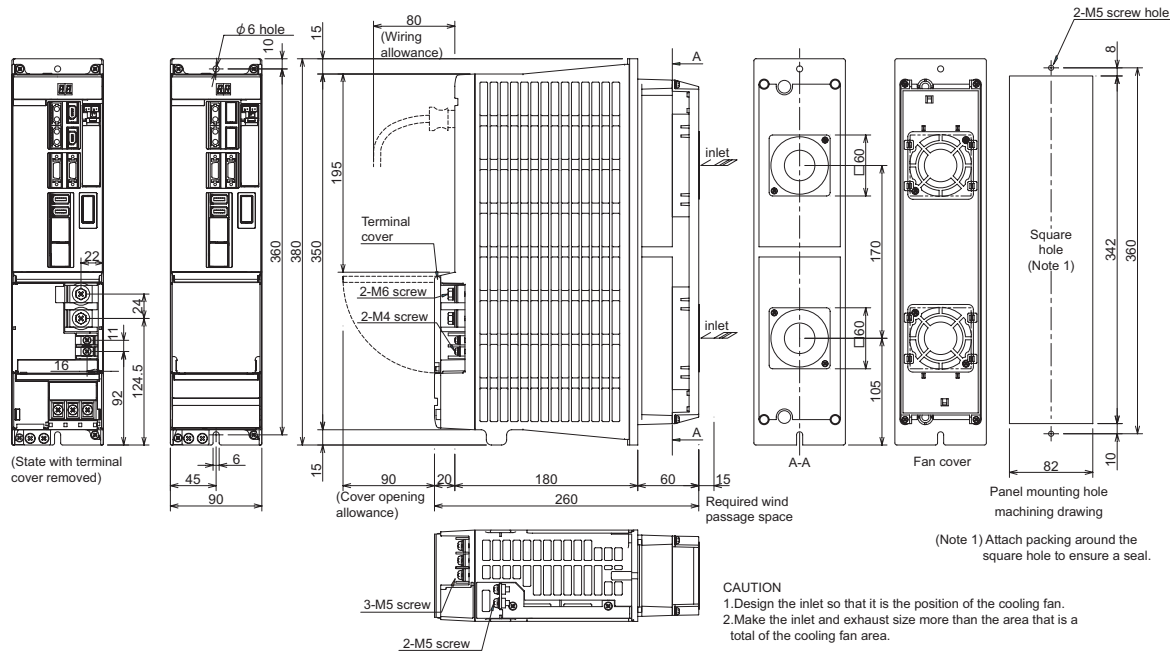
Specifications

Item	Specifications	
Nominal maximum current (peak) [A]	160	
Output	Rated voltage [V]	AC155
	Rated current [A]	37
Input	Rated voltage [V]	DC270 ~ 311
	Rated current [A]	41
Control power	Frequency [Hz]	50 / 60
	Tolerable frequency fluctuation [%]	±3% max
	Voltage(50Hz) [V]	AC200
	Voltage(60Hz) [V]	AC200 ~ 230
	Tolerable voltage fluctuation rate [%]	+10%, -15%
	Max. current [A]	0.2
	Max. rush current [A]	30
	Max. rush conductivity time [ms]	6
	Max. earth leakage current [mA]	15
Braking	Regenerative braking	
Heating value	Inside panel [W]	54
	Outside panel [W]	236
Cooling method	Forced wind cooling	
Weight [kg]	4.5	



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor built-in detector connection connector
(11)	CN3L	Spindle side detector connection connector
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal
(15)	TE1	Motor power supply output connector
(16)	PE	Grounding terminal

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		8	8	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		8	8		2	14	
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		8	8		1.25 ~ 2	16 ~ 14	

Environmental conditions

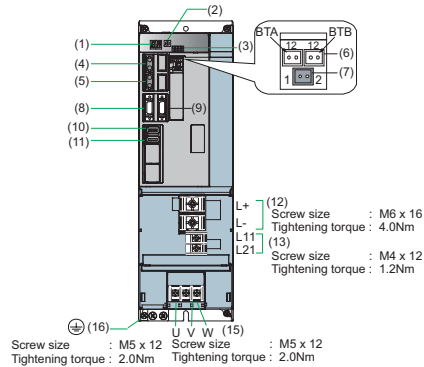
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Spindle drive unit

MDS-D-SP-200

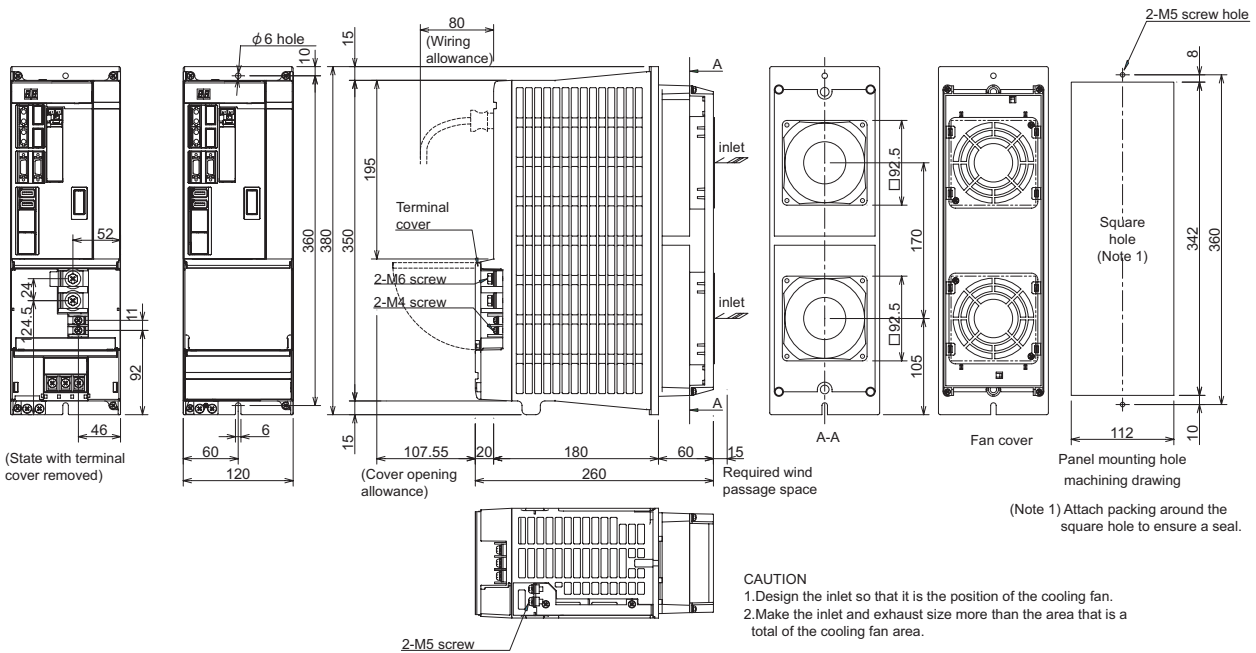
Specifications

Item	Specifications	
Nominal maximum current (peak) [A]	200	
Output	Rated voltage [V]	AC155
	Rated current [A]	63
Input	Rated voltage [V]	DC270 ~ 311
	Rated current [A]	76
Control power	Frequency [Hz]	50 / 60
	Tolerable frequency fluctuation [%]	±3% max
	Voltage(50Hz) [V]	AC200
	Voltage(60Hz) [V]	AC200 ~ 230
	Tolerable voltage fluctuation rate [%]	+10%, -15%
	Max. current [A]	0.2
	Max. rush current [A]	30
	Max. rush conductivity time [ms]	6
	Max. earth leakage current [mA]	15
	Braking	Regenerative braking
Heating value	Inside panel [W]	78
	Outside panel [W]	404
Cooling method	Forced wind cooling	
Weight	5.8	



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor built-in detector connection connector
(11)	CN3L	Spindle side detector connection connector
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal
(14)	TE1	Motor power supply output connector
(15)	PE	Grounding terminal

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		22	4	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		14	6			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		14	6			1.25 ~ 2	16 ~ 14

Environmental conditions

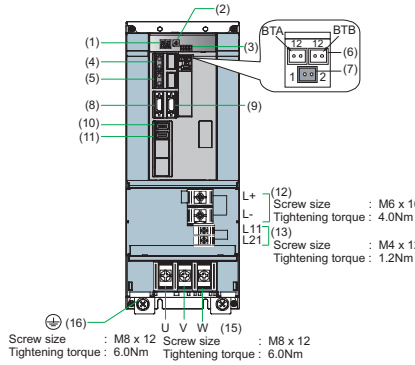
Item	Conditions	
Ambient temperature	Operation: 0 to +55 (with no freezing)	storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation)	Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles	
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level	
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)	

Spindle drive unit

MDS-D-SP-240

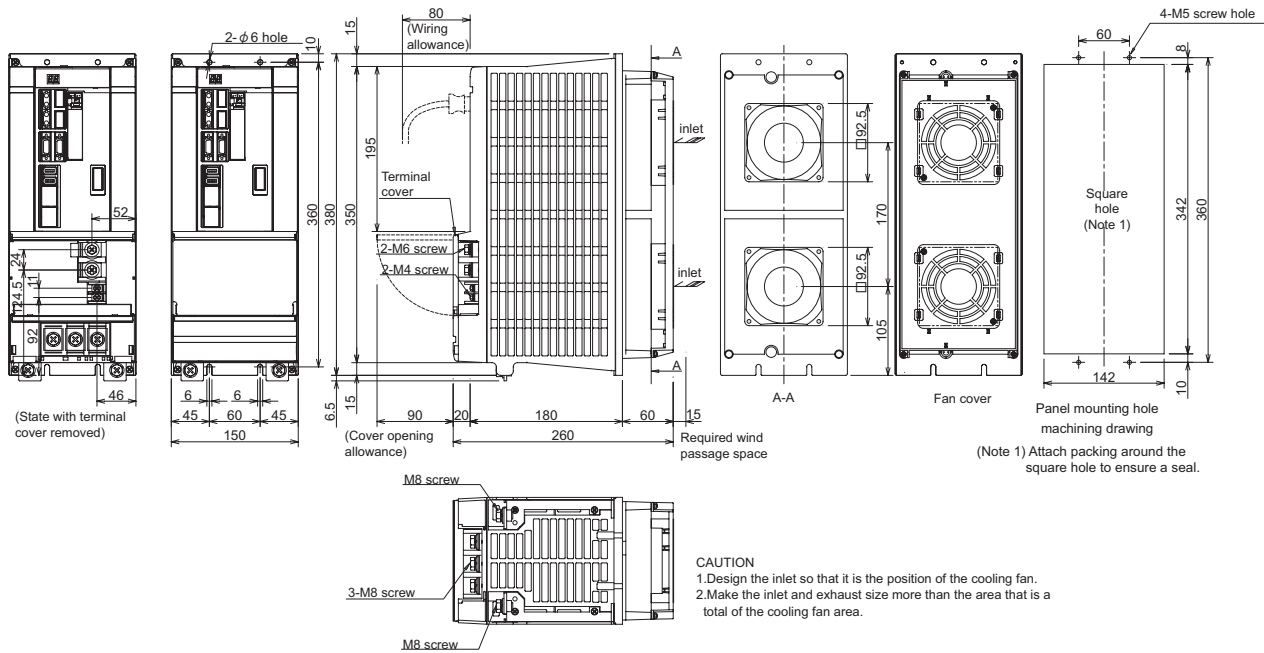
Specifications

Item	Specifications		
Nominal maximum current (peak) [A]	240		
Output	Rated voltage [V]	AC 155	
	Rated current [A]	79	
Input	Rated voltage [V]	DC 270 ~ 311	
	Rated current [A]	95	
Control power	Frequency [Hz]	50 / 60	
	Tolerable frequency fluctuation [%]	±3% max	
	Voltage(50Hz) [V]	AC 200	
	Voltage(60Hz) [V]	AC 200 ~ 230	
	Tolerable voltage fluctuation rate [%]	+10%, -15%	
	Max. current [A]	0.2	
	Max. rush current [A]	30	
	Max. rush conductivity time [ms]	6	
	Max. earth leakage current [mA]	15	
	Braking	Regenerative braking	
Heating value	Inside panel [W]	91	
	Outside panel [W]	529	
Cooling method	Forced wind cooling		
Weight [kg]	6.5		



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN 1A	NC or master axis optical communication connector
(5)	CN 1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER 6V-C 119B
(8)	CN 9	(Unused)
(9)	CN 4	Power supply communication connector
(10)	CN 2L	Motor built-in detector connection connector
(11)	CN 3L	Spindle side detector connection connector
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal
(14)	TE1	Motor power supply output connector
(15)	PE	Grounding terminal

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		38	2	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		22	4		2	14	
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		22	4		1.25 ~ 2	16 ~ 14	

Environmental conditions

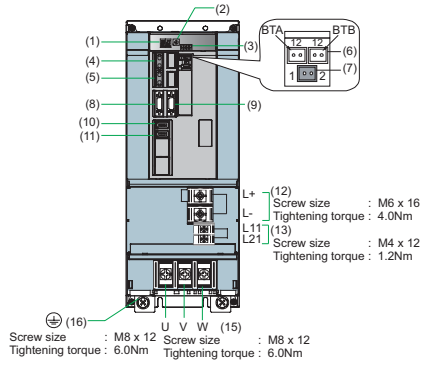
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Spindle drive unit

MDS-D-SP-320

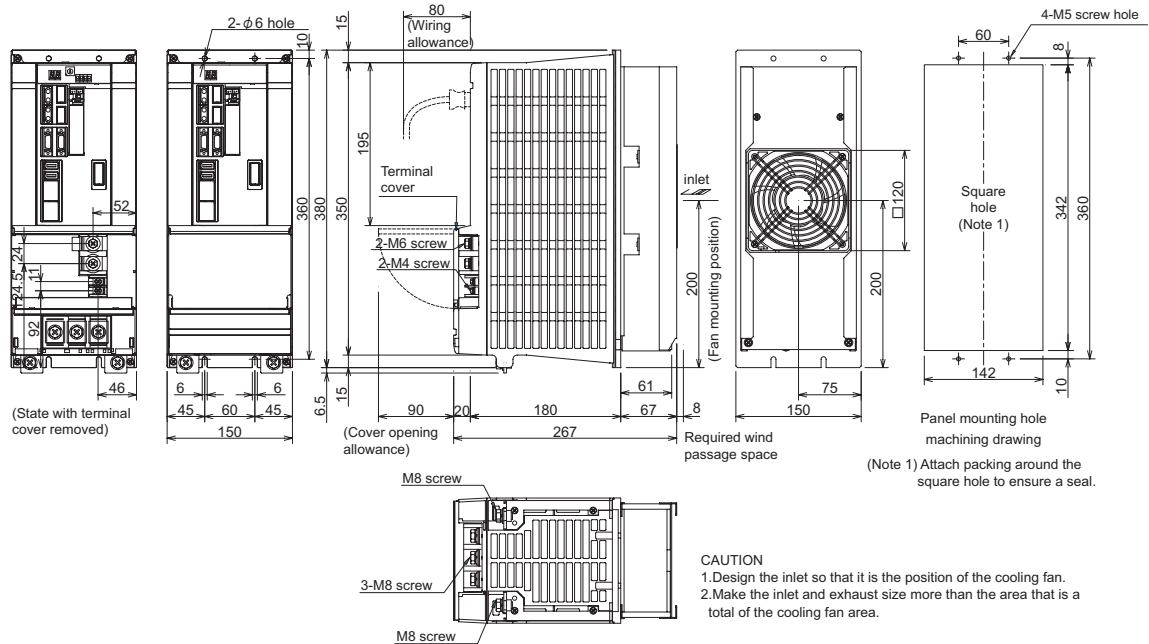
Specifications

Item	Specifications	
Nominal maximum current (peak) [A]	320	
Output	Rated voltage [V]	AC155
	Rated current [A]	130
Input	Rated voltage [V]	DC 270 - 311
	Rated current [A]	140
Control power	Frequency [Hz]	50 / 60
	Tolerable frequency fluctuation [%]	±3% max
	Voltage(50Hz) [V]	AC200
	Voltage(60Hz) [V]	AC200 - 230
	Tolerable voltage fluctuation rate [%]	+10%, -15%
	Max. current [A]	0.2
	Max. rush current [A]	30
	Max. rush conductivity time [ms]	6
	Max. earth leakage current [mA]	15
	Braking	Regenerative braking
Heating value	Inside panel [W]	118
	Outside panel [W]	688
Cooling method	Forced wind cooling	
Weight [kg]	7.5	



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN 1A	NC or master axis optical communication connector
(5)	CN 1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER 6V-C 119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor built-in detector connection connector
(11)	CN3L	Spindle side detector connection connector
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal
(14)	TE1	Motor power supply output connector
(15)	PE	Grounding terminal

Outline dimension drawings [Unit: mm]



CAUTION
 1. Design the inlet so that it is the position of the cooling fan.
 2. Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		-	-	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		60	-			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		38	2			1.25 ~ 2	16 ~ 14

Environmental conditions

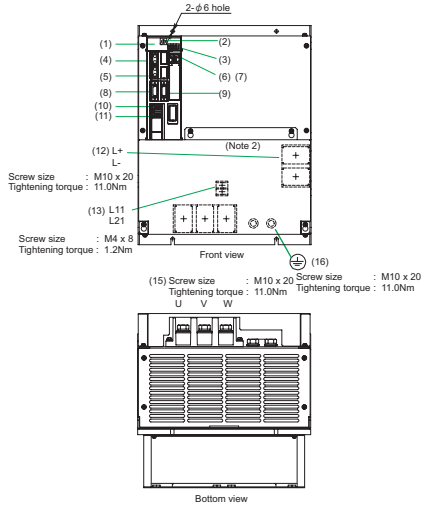
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Spindle drive unit

MDS-D-SP-400

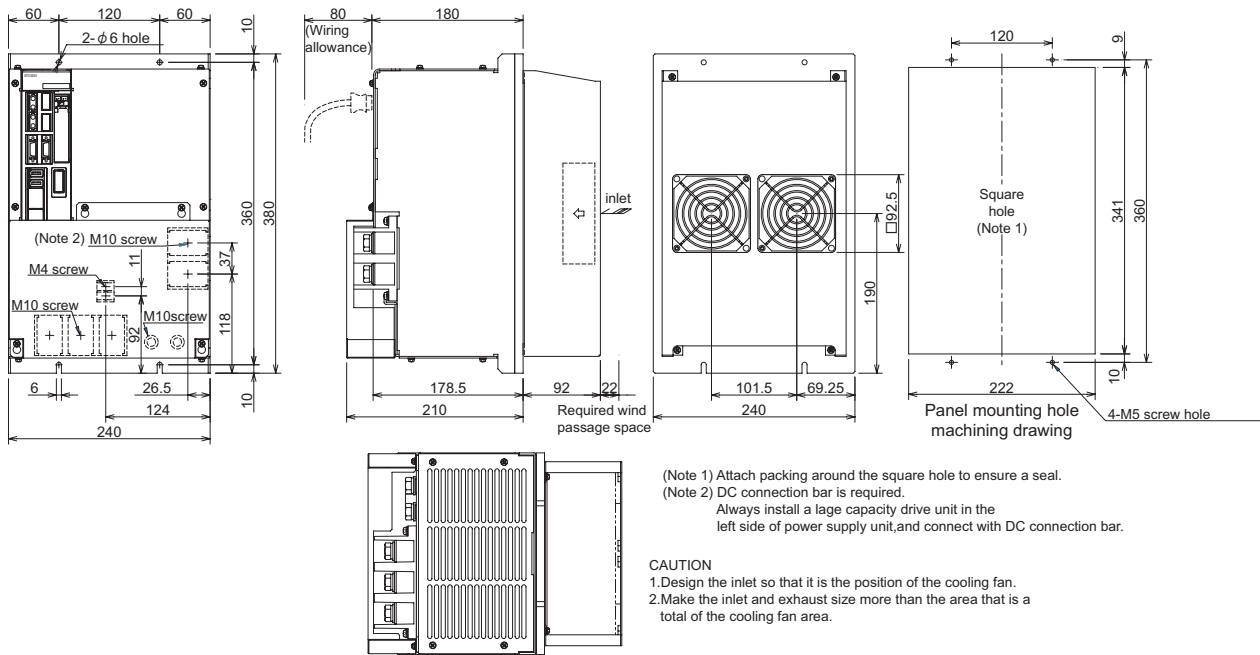
Specifications

Item	Specifications	
Nominal maximum current (peak) [A]	400	
Output	Rated voltage [V]	AC155
	Rated current [A]	174
Input	Rated voltage [V]	DC 270 - 311
	Rated current [A]	150
Control power	Frequency [Hz]	50 / 60
	Tolerable frequency fluctuation [%]	±3% max
	Voltage(50Hz) [V]	AC200
	Voltage(60Hz) [V]	AC200 - 230
	Tolerable voltage fluctuation rate [%]	+10%, -15%
	Max. current [A]	0.2
	Max. rush current [A]	30
	Max. rush conductivity time [ms]	9
	Max. earth leakage current [mA]	15
Braking	Regenerative braking	
Heating value	Inside panel [W]	148
	Outside panel [W]	897
Cooling method	Forced wind cooling	
Weight [kg]	16.5	



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor built-in detector connection connector
(11)	CN3L	Spindle side detector connection connector
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal
(15)	TE1	Motor power supply output connector
(16)	PE	Grounding terminal

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		-	-	Bar enclosed		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		70	-		2	14	
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		60	-		1.25 ~ 2	16 ~ 14	

Environmental conditions

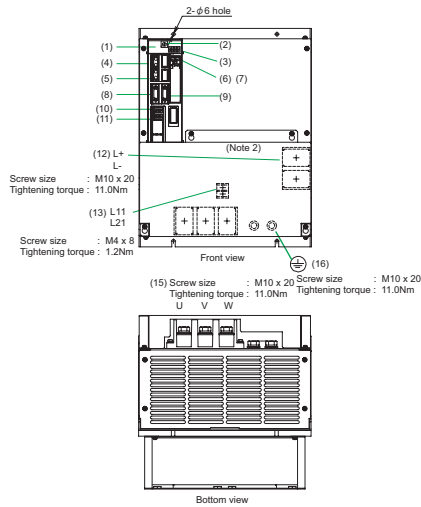
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Spindle drive unit

MDS-D-SP-640

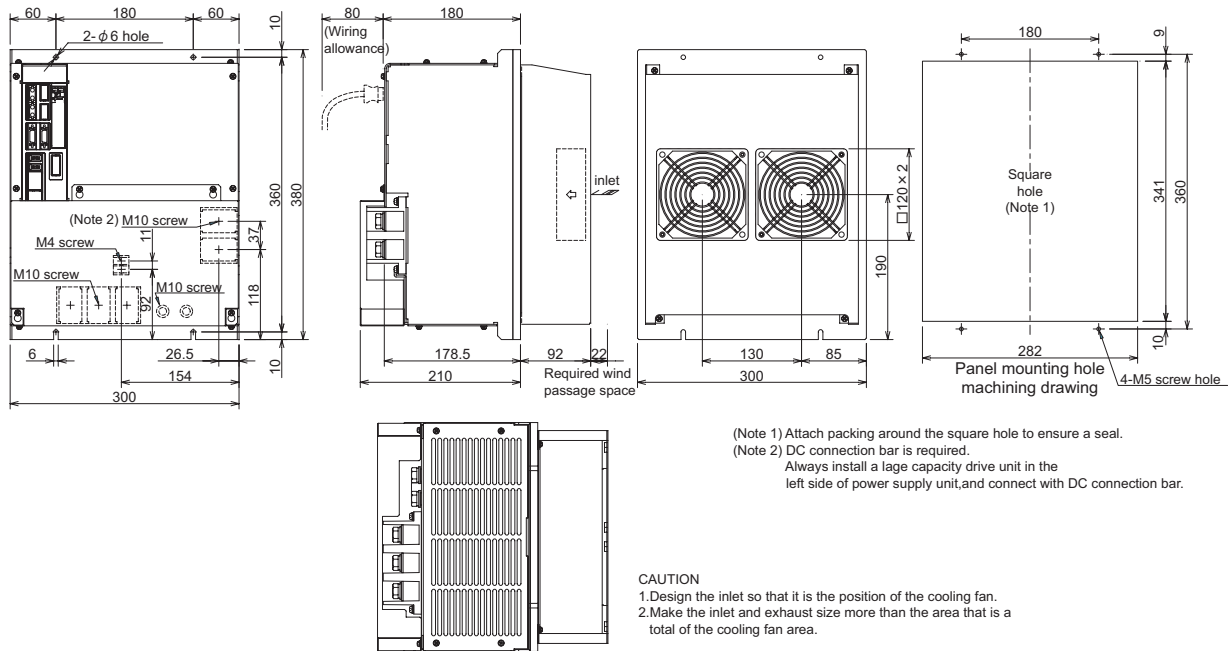
Specifications

Item	Specifications		
Nominal maximum current (peak) [A]	640		
Output	Rated voltage [V]	AC155	
	Rated current [A]	200	
Input	Rated voltage [V]	DC270 ~ 311	
	Rated current [A]	210	
Control power	Frequency [Hz]	50 / 60	
	Tolerable frequency fluctuation [%]	±3% max	
	Voltage(50Hz) [V]	AC200	
	Voltage(60Hz) [V]	AC200 ~ 230	
	Tolerable voltage fluctuation rate [%]	+10%, -15%	
	Max. current [A]	0.2	
	Max. rush current [A]	30	
	Max. rush conductivity time [ms]	9	
	Max. earth leakage current [mA]	15	
	Braking	Regenerative braking	
Heating value	Inside panel [W]	196	
	Outside panel [W]	1231	
Cooling method	Forced wind cooling		
Weight [kg]	16.5		



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor built-in detector connection connector
(11)	CN3L	Spindle side detector connection connector
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal
(15)	TE1	Motor power supply output connector
(16)	PE	Grounding terminal

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		-	-	Bar enclosed		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		85	-			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		85	-			1.25 ~ 2	16 ~ 14

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

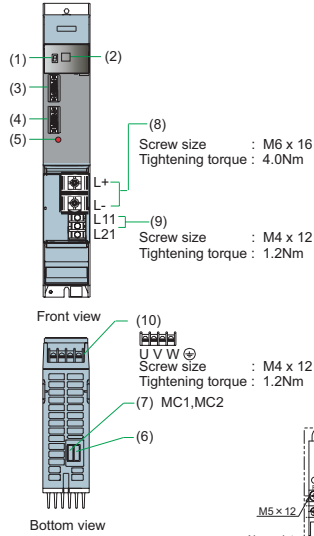
Power supply unit

Power supply unit

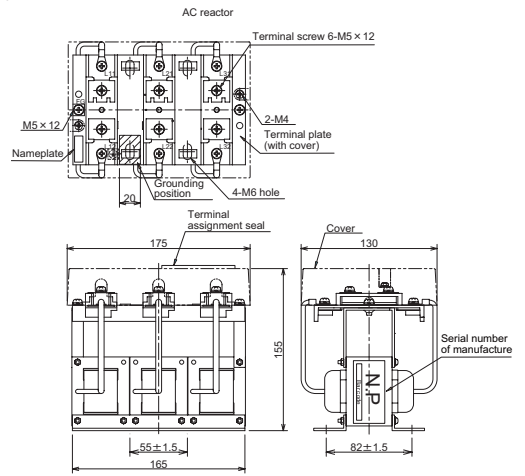
MDS-D-CV-37

Specifications

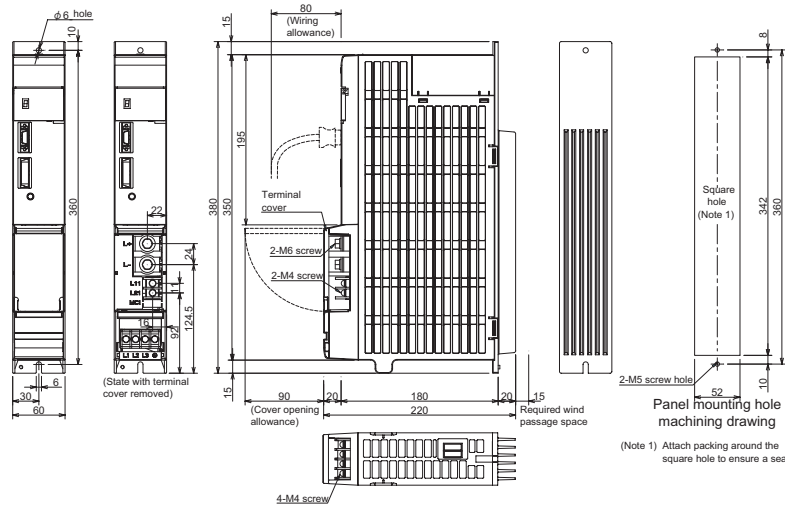
Item	Specifications
Rated output	[kW] 3.7
Power facility capacity	[kVA] 5.3
Output	Rated voltage [V] DC 513 ~ 648
	Rated current [A] 17
Input	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] ±3% max
	Rated voltage(50Hz) [V] AC 200
	Rated voltage(60Hz) [V] AC 200 ~ 230
	Tolerable voltage fluctuation rate [%] +10%, -15%
	Rated current [A] 15
Control power	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] ±3% max
	Voltage(50Hz) [V] AC 200
	Voltage(60Hz) [V] AC 200 ~ 230
	Tolerable voltage fluctuation rate [%] +10%, -15%
	Max. current [A] 0.2
	Max. rush current [A] 38
	Max. rush conductivity time [ms] 3
Heating value	Inside panel [W] 20
	Outside panel [W] 34
Cooling method	Forced wind cooling
Weight	[kg] 4.0
AC reactor	D-AL-7.5K
Recommended contactor (option part)	S-N 12-AC 200V
	Free-air thermal current [A] 20
	Selection current (for 200V input) [A] 15
	Rated output [kW] 3.7
Recommended circuit protector (option part)	NF 63-CW 3P-20A
	Rated current [A] 20
	Selection current (for 200V input) [A] 15
	Rated output [kW] 3.7



No.	Name	Description
(1)	LED	Power supply status indication LED
(2)	SW 1	Power supply setting switch
(3)	CN 4	Servo/spindle communication connector
(4)	CN 9	Servo/spindle communication connector
(5)	CHARGE LAMP	TE2 output charging/discharging circuit indication LED
(6)	CN 23A	External emergency stop input connector
(7)	CN 23B	Contact control signal Connector (MC1, MC2)
(8)	TE 2	Main circuit power supply output terminal
(9)	TE 3	Control power input terminal (single-phase AC input)
(10)	TE 1	Power input terminal (3-phase AC input) Grounding terminal



Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3), earth		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		2	14	3.5	12	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		2	14	3.5	12	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		2	14	2	14	1.25 ~ 2	16 ~ 14

Environmental conditions

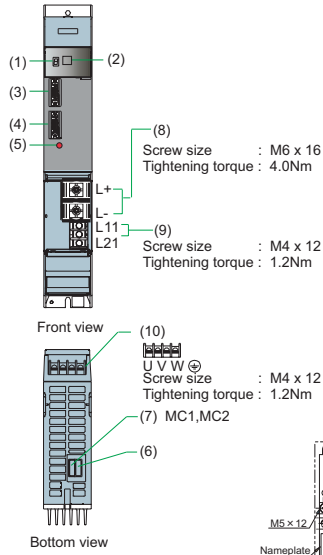
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Power supply unit

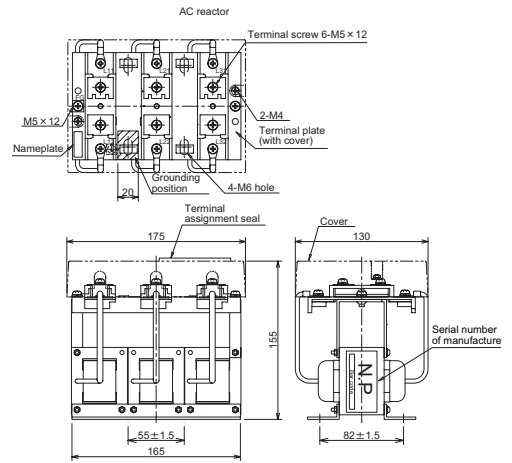
MDS-D-CV-75

Specifications

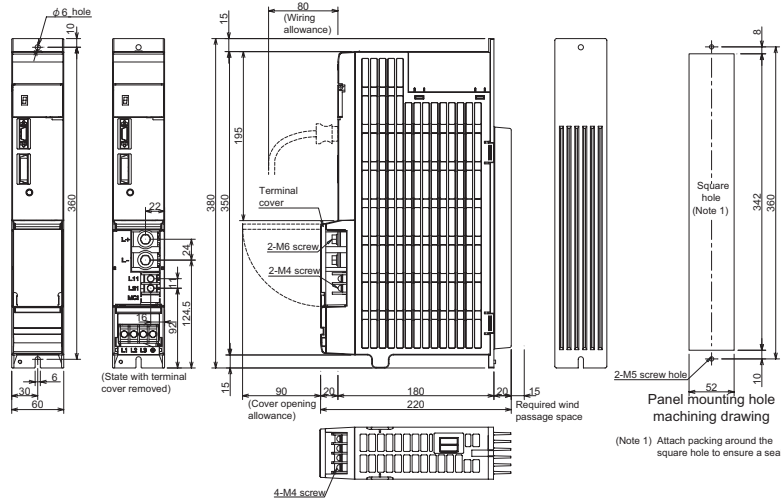
Item	Specifications
Rated output	[kW] 7.5
Power facility capacity	[kVA] 11.0
Output	Rated voltage [V] DC 513 ~ 648
	Rated current [A] 30
Input	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] ±3% max
	Rated voltage(50Hz) [V] AC 200
	Rated voltage(60Hz) [V] AC 200 ~ 230
	Tolerable voltage fluctuation rate [%] +10%, -15%
	Rated current [A] 26
Control power	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] ±3% max
	Voltage(50Hz) [V] AC 200
	Voltage(60Hz) [V] AC 200 ~ 230
	Tolerable voltage fluctuation rate [%] +10%, -15%
	Rated current [A] 0.2
Heating value	Max. current [A] 38
	Max. rush current [A] 3
	Max. rush conductivity time [m.s] 24
Cooling method	Inside panel [W] 55
	Outside panel [W] Forced wind cooling
Weight	[kg] 4.0
AC reactor	D-AL-7.5K
Recommended contactor (option part)	S-N 25-AC 200V
	Free-air thermal current [A] 50
	Selection current (for 200V input) [A] 31
	Rated output [kW] 7.5
Recommended circuit protector (option part)	N F 63-CW 3P-40A
	Rated current [A] 40
	Selection current (for 200V input) [A] 31
	Rated output [kW] 7.5



No.	Name	Description
(1)	LED	Power supply status indication LED
(2)	SW1	Power supply setting switch
(3)	CN4	Servo/spindle communication connector
(4)	CN9	Servo/spindle communication connector
(5)	CHARGE LAMP	TE2 output charging/discharging circuit indication LED
(6)	CN23A	External emergency stop input connector
(7)	CN23B	Contactors control signal Connector (MC1,MC2)
(8)	TE2	Main circuit power supply output terminal
(9)	TE3	Control power input terminal (single-phase AC input)
(10)	TE1	Power input terminal (3-phase AC input) Grounding terminal



Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3), earth		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		5.5	10	5.5	10	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		5.5	10	5.5	10	2	14
600V bridge poly ethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		3.5	12	3.5	12	1.25 ~ 2	16 ~ 14

Environmental conditions

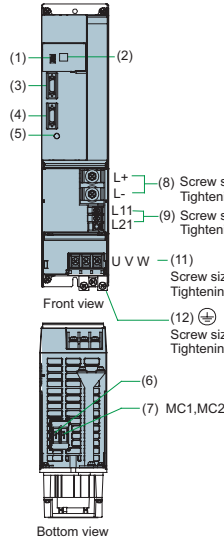
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Power supply unit

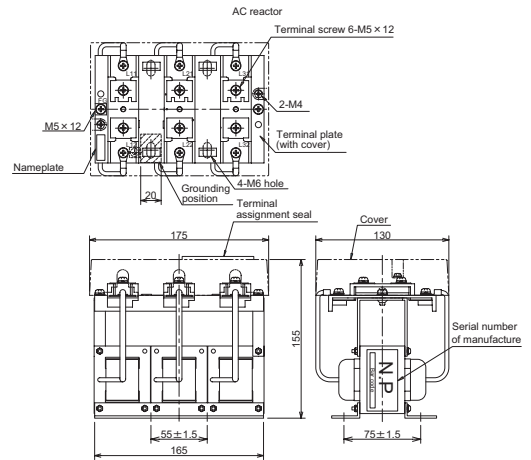
MDS-D-CV-110

Specifications

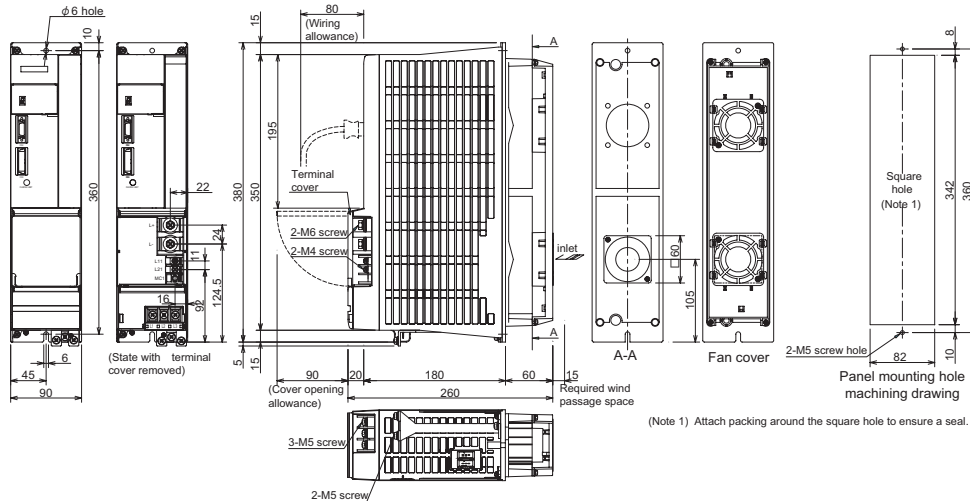
Item	Specifications
Rated output	[kW] 11.0
Power facility capacity	[kVA] 16.0
Output	Rated voltage [V] DC 513 ~ 648
	Rated current [A] 41
Input	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] ±3% max
	Rated voltage(50Hz) [V] AC 200
	Rated voltage(60Hz) [V] AC 200 ~ 230
	Tolerable voltage fluctuation rate [%] +10%, -15%
	Rated current [A] 35
Control power	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] ±3% max
	Voltage(50Hz) [V] AC 200
	Voltage(60Hz) [V] AC 200 ~ 230
	Tolerable voltage fluctuation rate [%] +10%, -15%
	Max. current [A] 0.2
	Max. rush current [A] 30
	Max. rush conductivity time [m s] 6
Heating value	Inside panel [W] 25
	Outside panel [W] 99
Cooling method	Forced wind cooling
Weight	[kg] 6.0
AC reactor	D-AL-11K
Recommended contactor (option part)	S-N 25-AC 200V
	Free-air thermal current [A] 50
	Selection current (for 200V input) [A] 45
	Rated output [kW] 11
Recommended circuit protector (option part)	NF 63-CW 3P-50A
	Rated current [A] 50
	Selection current (for 200V input) [A] 45
	Rated output [kW] 11



No.	Name	Description
(1)	LED	Power supply status indication LED
(2)	SW 1	Power supply setting switch
(3)	CN 4	Servo/spindle communication connector
(4)	CN 9	Servo/spindle communication connector
(5)	CHARGE LAMP	TE2 output charging/discharging circuit indication LED
(6)	CN 23A	External emergency stop input connector
(7)	CN 23B	External contactor control connector MC 1, MC 2 (Key way: Y type)
(8)	TE 2	Converter voltage output terminal (DC output)
(9)	TE 3	Control power input terminal (single-phase AC input)
(11)	TE 1	Power input terminal (3-phase AC input)
(12)	PE	Grounding terminal



Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3), earth		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		14	6	22	4	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		8	8	14	6	2	14
600V bridge poly ethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		5.5	10	14	6	1.25 - 2	16 - 14

Environmental conditions

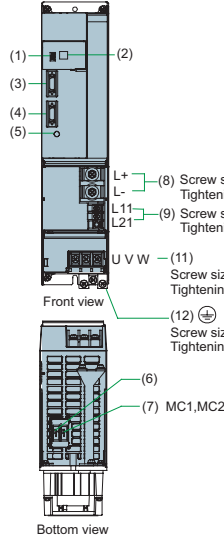
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Power supply unit

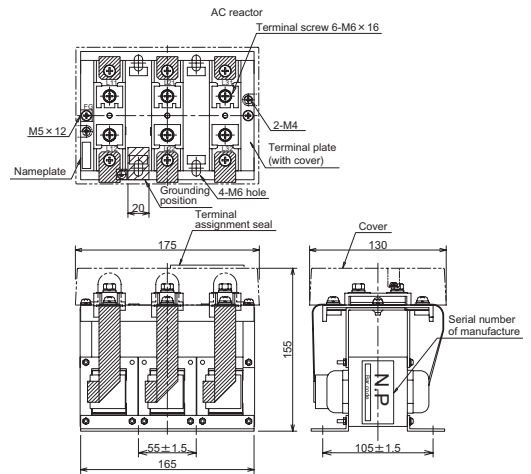
MDS-D-CV-185

Specifications

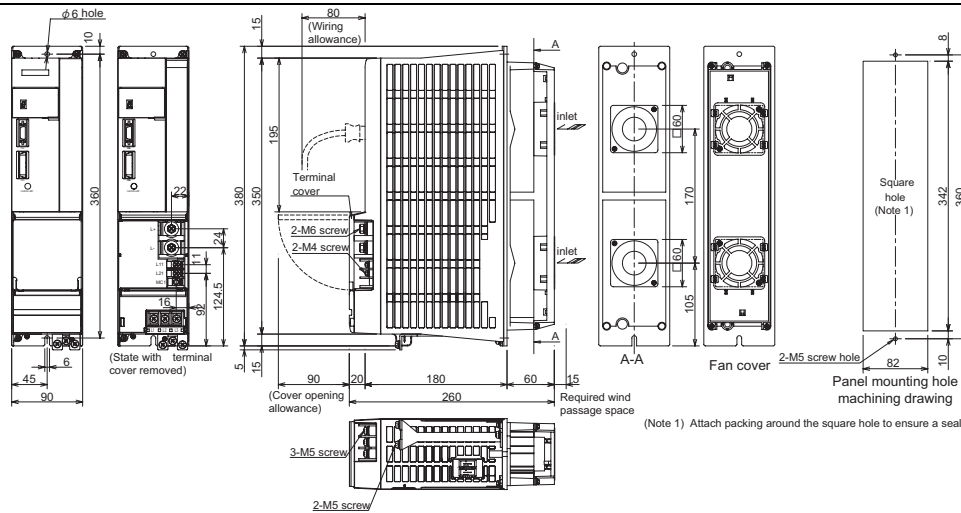
Item	Specifications
Rated output	[kW] 18.5
Power facility capacity	[kVA] 27.0
Output	Rated voltage [V] DC 513 ~ 648
	Rated current [A] 76
Input	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] ±3% max
	Rated voltage(50Hz) [V] AC 200
	Rated voltage(60Hz) [V] AC 200 ~ 230
	Tolerable voltage fluctuation rate [%] +10%, -15%
Control power	Rated current [A] 65
	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] ±3% max
	Voltage(50Hz) [V] AC 200
	Voltage(60Hz) [V] AC 200 ~ 230
	Tolerable voltage fluctuation rate [%] +10%, -15%
	Max. current [A] 0.2
Max. rush current [A] 30	
Heating value	Max. rush conductivity time [ms] 6
	Inside panel [W] 32
	Outside panel [W] 161
Cooling method	Forced wind cooling
Weight	[kg] 6.0
AC reactor	D-AL-18.5K
Recommended contactor (option part)	S-N 65-AC 200V
	Free-air thermal current [A] 100
	Selection current (for 200V input) [A] 76
	Rated output [kW] 18.5
Recommended circuit protector (option part)	N F 125-CW 3P-100A
	Rated current [A] 100
	Selection current (for 200V input) [A] 76
	Rated output [kW] 18.5



No.	Name	Description
(1)	LED	Power supply status indication LED
(2)	SW 1	Power supply setting switch
(3)	CN 4	Servo/spindle communication connector
(4)	CN 9	Servo/spindle communication connector
(5)	CHARGE LAMP	TE2 output charging/discharging circuit indication LED
(6)	CN 23A	External emergency stop input connector
(7)	CN 23B	External contactor control connector MC 1, MC 2 (Key way: Y type)
(8)	TE 2	Converter voltage output terminal (DC output)
(9)	TE 3	Control power input terminal (single-phase AC input)
(11)	TE 1	Power input terminal (3-phase AC input)
(12)	PE	Grounding terminal



Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name		TE2(L+, L-)		TE3(L11, L21)	
	mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	30	3	38	2	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	22	4	22	4	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	14	6	22	4	1.25 ~ 2	16 ~ 14

Environmental conditions

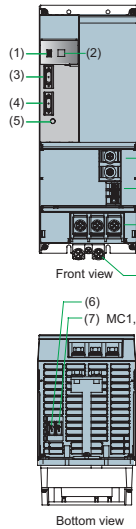
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Power supply unit

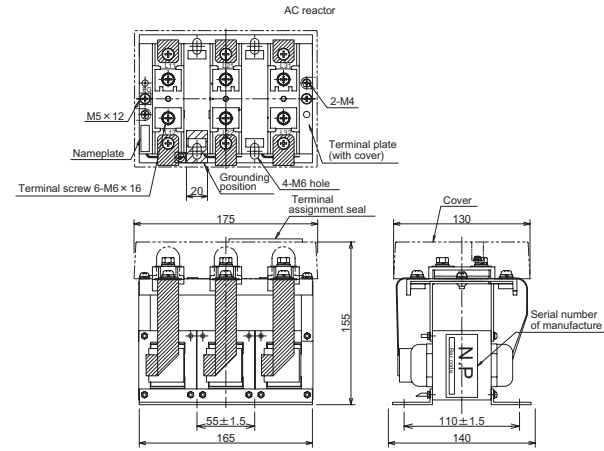
MDS-D-CV-300

Specifications

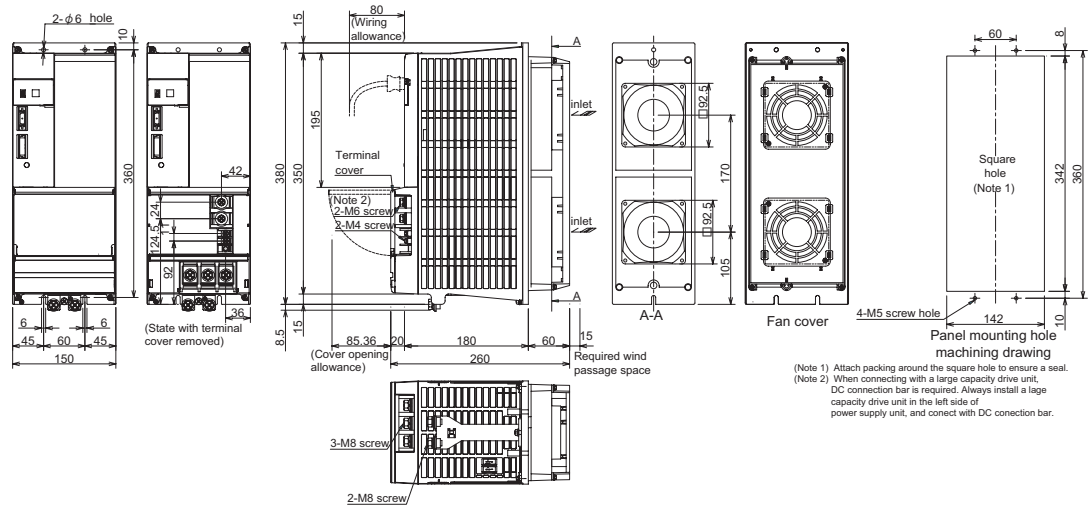
Item	Specifications
Rated output	[kW] 30.0
Power facility capacity	[kVA] 43.0
Output	Rated voltage [V] DC 513 ~ 648
	Rated current [A] 144
Input	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] ±3% max
	Rated voltage(50Hz) [V] AC 200
	Rated voltage(60Hz) [V] AC 200 ~ 230
	Tolerable voltage fluctuation rate [%] +10%, -15%
Control power	Rated current [A] 107
	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] ±3% max
	Voltage(50Hz) [V] AC 200
	Voltage(60Hz) [V] AC 200 ~ 230
Heating value	Tolerable voltage fluctuation rate [%] +10%, -15%
	Max. current [A] 0.2
	Max. rush current [A] 30
	Max. rush conductivity time [ms] 6
	Inside panel [W] 45
Outside panel [W] 272	
Cooling method	Forced wind cooling
Weight	[kg] 10.0
AC reactor	D-AL-30K
Recommended contactor (option part)	S-N 80-AC 200V
Free-air thermal current [A]	135
	Selection current (for 200V input) [A] 124
	Rated output [kW] 30
Recommended circuit protector (option part)	NF 250-CW 3P-125A
Rated current [A]	125
	Selection current (for 200V input) [A] 124
	Rated output [kW] 30



No.	Name	Description
(1)	LED	Power supply status indication LED
(2)	SW 1	Power supply setting switch
(3)	CN 4	Servo/spindle communication connector
(4)	CN 9	Servo/spindle communication connector
(5)	CHARGE LAMP	TE2 output charging/discharging circuit indication LED
(6)	CN 23A	External emergency stop input connector
(7)	CN 23B	External contactor control connector MC 1, MC 2 (Key way: Y type)
(8)	TE 2	Converter voltage output terminal (DC output)
(9)	TE 3	Control power input terminal (single-phase AC input)
(11)	TE 1	Power input terminal (3-phase AC input)
(12)	PE	Grounding terminal



Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3), earth		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		-	-	-	-	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		38	2	60	-	2	14
600V bridge poly ethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		38	2	50	-	1.25 ~ 2	16 ~ 14

Environmental conditions

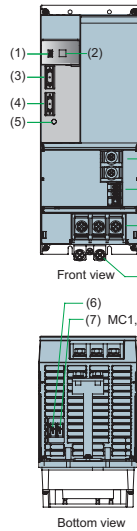
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Power supply unit

MDS-D-CV-370

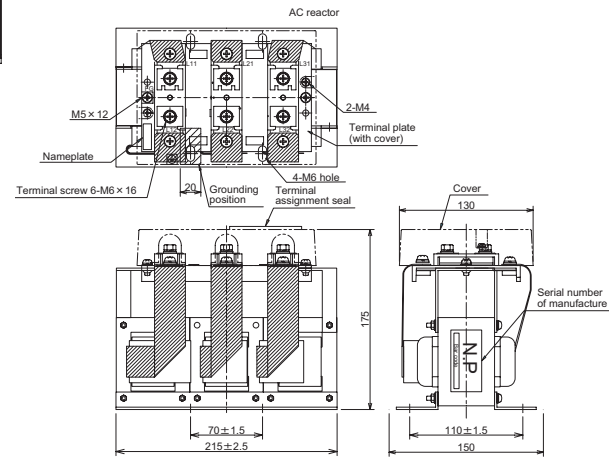
Specifications

Item	Specifications
Rated output	[kW] 37.0
Power facility capacity	[kVA] 53.0
Output	Rated voltage [V] DC 513 ~ 648
	Rated current [A] 164
Input	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] ±3% max
	Rated voltage(50Hz) [V] AC 200
	Rated voltage(60Hz) [V] AC 200 ~ 230
	Tolerable voltage fluctuation rate [%] +10%, -15%
Control power	Rated current [A] 121
	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] ±3% max
	Voltage(50Hz) [V] AC 200
	Voltage(60Hz) [V] AC 200 ~ 230
	Tolerable voltage fluctuation rate [%] +10%, -15%
	Max. current [A] 0.2
	Max. rush current [A] 30
	Max. rush conductivity time [ms] 6
Heating value	Inside panel [W] 53
	Outside panel [W] 343
Cooling method	Forced wind cooling
Weight	[kg] 10.0
AC reactor	D-AL-37K
Recommended contactor (option part)	S-N 150-AC 200V
	Free-air thermal current [A] 200
	Selection current (for 200V input) [A] 153
	Rated output [kW] 37
Recommended circuit protector (option part)	NF 250-CW 3P-175A
	Rated current [A] 175
	Selection current (for 200V input) [A] 153
	Rated output [kW] 37

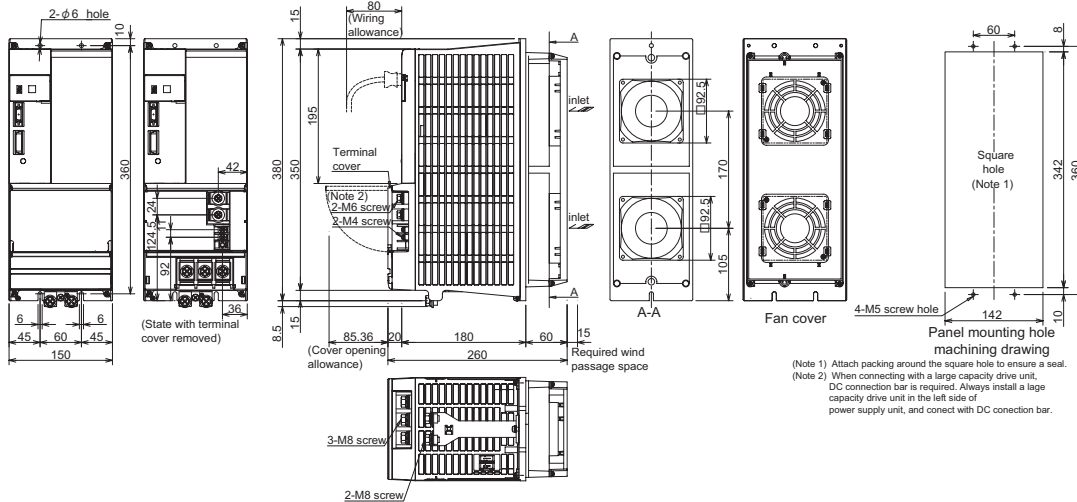


(8) Screw size : M6 x 16
Tightening torque : 4.0Nm
(9) Screw size : M4 x 12
Tightening torque : 1.2Nm
(11) U V W Screw size : M8 x 16
Tightening torque : 6.0Nm
(12) Screw size : M8 x 14
Tightening torque : 6.0Nm

No.	Name	Description
(1)	LED	Power supply status indication LED
(2)	SW 1	Power supply setting switch
(3)	CN 4	Servo/spindle communication connector
(4)	CN 9	Servo/spindle communication connector
(5)	CHARGE LAMP	TE2 output charging/discharging circuit indication LED
(6)	CN 23A	External emergency stop input connector
(7)	CN 23B	External contactor control connector MC1, MC2 (Key way : Y type)
(8)	TE 2	Converter voltage output terminal (DC output)
(9)	TE 3	Control power input terminal (single-phase AC input)
(11)	TE 1	Power input terminal (3-phase AC input)
(12)	PE	Grounding terminal



Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3), earth		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		-	-	-	-	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		50	-	60	-	2	14
600V bridge poly ethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		38	2	60	-	1.25 ~ 2	16 ~ 14

Environmental conditions

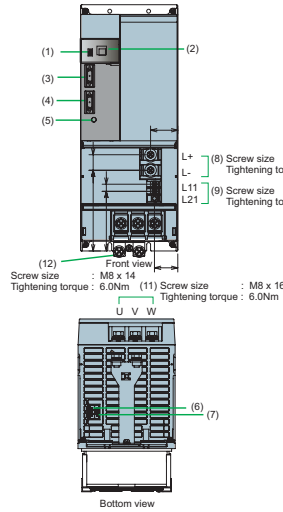
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Power supply unit

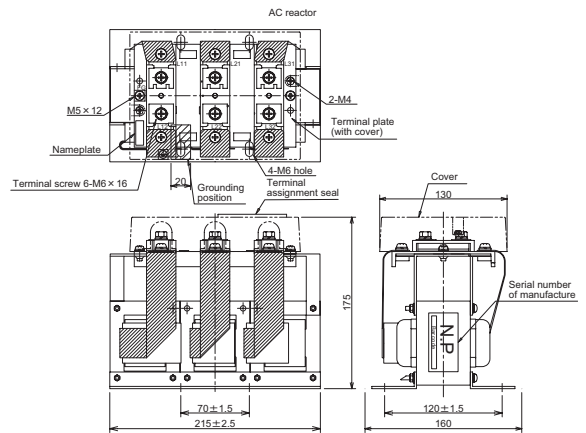
MDS-D-CV-450

Specifications

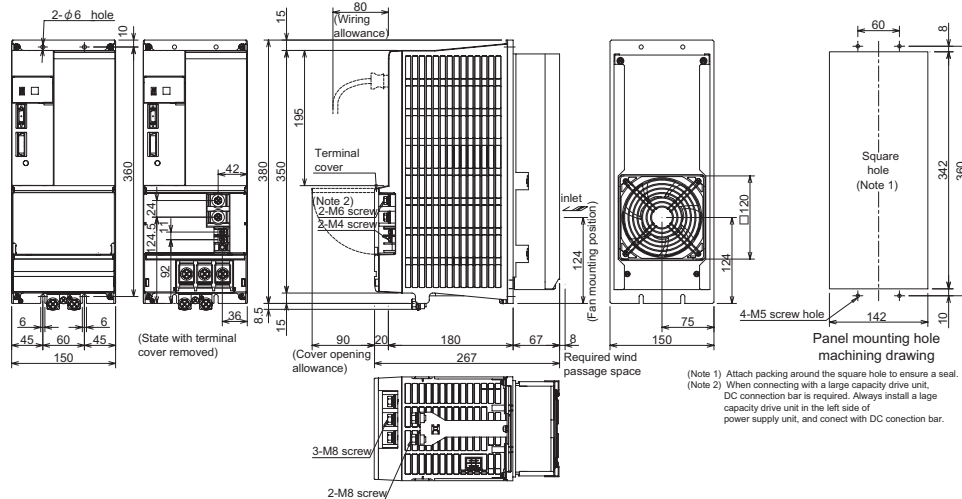
Item	Specifications
Rated output	[kW] 45.0
Power facility capacity	[kVA] 64.0
Output	Rated voltage [V] DC 513 ~ 648
	Rated current [A] 198
Input	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] ±3% max
	Rated voltage(50Hz) [V] AC 200
	Rated voltage(60Hz) [V] AC 200 ~ 230
	Tolerable voltage fluctuation rate [%] +10%, -15%
Control power	Rated current [A] 148
	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] ±3% max
	Voltage(50Hz) [V] AC 200
	Voltage(60Hz) [V] AC 200 ~ 230
Heating value	Tolerable voltage fluctuation rate [%] +10%, -15%
	Max. current [A] 0.2
	Max. rush current [A] 30
	Max. rush conductivity time [m s] 6
	Inside panel [W] 104
Outside panel [W] 392	
Cooling method	Forced wind cooling
Weight	[kg] 10.0
AC reactor	D-AL-45K
Recommended contactor (option part)	S-N 150-AC 200V
	Free-air thermal current [A] 200
	Selection current (for 200V input) [A] 186
	Rated output [kW] 45
Recommended circuit protector (option part)	N F 250-CW 3P-200A
	Rated current [A] 200
	Selection current (for 200V input) [A] 186
	Rated output [kW] 45



No.	Name	Description
(1)	LED	Power supply status indication LED
(2)	SW1	Power supply setting switch
(3)	CN4	Servo/spindle communication connector
(4)	CN9	Servo/spindle communication connector
(5)	CHARGE LAMP	TE2 output charging/discharging circuit indication LED
(6)	CN23A	External emergency stop input connector
(7)	CN23B	External contactor control connector MC1, MC2 (Key way: Y type)
(8)	TE2	Converter voltage output terminal (DC output)
(9)	TE3	Control power input terminal (single-phase AC input)
(11)	TE1	Power input terminal (3-phase AC input)
(12)	PE	Grounding terminal



Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name		TE2(L+, L-)		TE3(L11, L21)	
	mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	-	-	-	-	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	60	-	60	-	2	14
600V bridge poly ethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	60	-	60	-	1.25 ~ 2	16 ~ 14

Environmental conditions

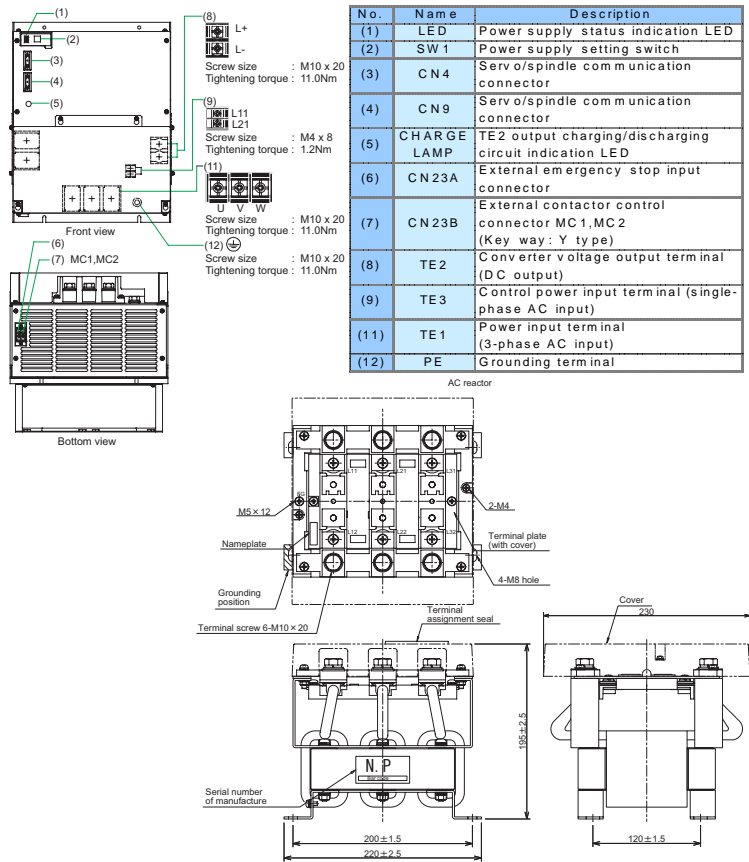
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Power supply unit

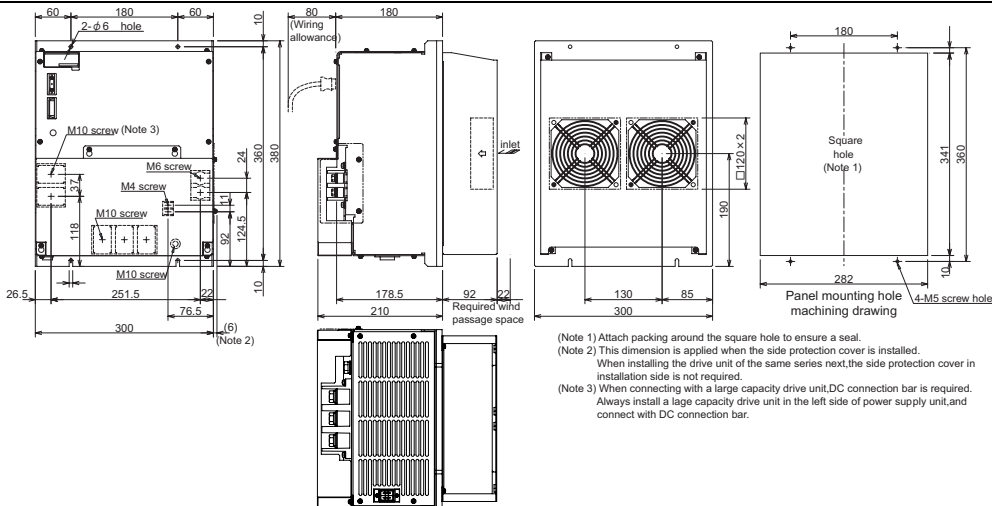
MDS-D-CV-550

Specifications

Item	Specifications
Rated output	[kW] 55.0
Power facility capacity	[kVA] 78.0
Output	Rated voltage [V] DC 513 ~ 648
	Rated current [A] 238
Input	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] ±3% max
	Rated voltage(50Hz) [V] AC 200
	Rated voltage(60Hz) [V] AC 200 ~ 230
	Tolerable voltage fluctuation rate [%] +10% , -15%
	Rated current [A] 200
Control power	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] ±3% max
	Voltage(50Hz) [V] AC 200
	Voltage(60Hz) [V] AC 200 ~ 230
	Tolerable voltage fluctuation rate [%] +10% , -15%
	Max. current [A] 0.2
	Max. rush current [A] 30
	Max. rush conductivity time [ms] 6
Heating value	Inside panel [W] 164
	Outside panel [W] 432
Cooling method	Forced wind cooling
Weight	[kg] 25.5
AC reactor	D-AL-55K
Recommended contactor (option part)	S-N 180-AC 200V
	Free-air thermal current [A] 260
	Selection current (for 200V input) [A] 224
	Rated output [kW] 55
Recommended circuit protector (option part)	NF250-CW 3P-225A
	Rated current [A] 225
	Selection current (for 200V input) [A] 224
	Rated output [kW] 55



Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3), earth		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		-	-	Bar enclosed		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		85	-			2	14
600V bridge poly ethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		60	-			1.25 ~ 2	16 ~ 14

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Machine side detector

The option units are required depending on the servo system configuration. Check the option units to be required referring the following items.

(1) Linear scale for the full closed loop control

Absolute position detector is not required for the motor side detector when using absolute position scale.

Machine side detector to be used	Detector signal output	Required interface unit (I/F)	I/F signal output	Servo system specifications	Remarks
OSA105-ET2, OSA166-ET2	Serial communication	-	-	Absolute position	Requires battery option ER6V-C119B, etc.
Relative position linear scale (Various types) Relative position rotary encoder (Various types)	Oblong wave signal output	-	-	Incremental	Contact: Each machine side detector manufacturer
Relative position linear scale SR33 (SONY)	-	CN33 (SONY)	Oblong wave signal output	Incremental	Contact: Sony Manufacturing
Relative position linear scale LS186, LS486, etc. (HEIDENHAIN)	Analog 1Vp-p SIN wave signal output	IBV series (HEIDENHAIN)	Oblong wave signal output	Incremental	Contact: HEIDENHAIN
Relative position linear scale (Various types) Relative position rotary encoder (Various types)	Analog 1Vp-p SIN wave signal output	MDS-B-HR-11	Serial communication	Incremental	Contact: Each machine side detector manufacturer
Relative position linear scale SH13 (SONY)	Analog 1Vp-p SIN wave signal output	MJ831 (SONY)	Serial communication	Incremental	Contact: Sony Manufacturing
Relative position linear scale LS186, LS486, etc. (HEIDENHAIN)	Analog 1Vp-p SIN wave signal output	APE391M A0 (HEIDENHAIN)	Serial communication	Incremental	Contact: HEIDENHAIN
Relative position rotary encoder ERM280 1024/1200/2048, etc. (HEIDENHAIN)	Analog 1Vp-p SIN wave signal output	APE391M C0 series APE391M C2 series (HEIDENHAIN)	Serial communication	Incremental	Contact: HEIDENHAIN
Absolute position linear scale AT342, AT343, AT543 (Mitutoyo)	Serial communication	-	-	Absolute position	Contact: Mitutoyo
Absolute position linear scale LC191M, LC491M (HEIDENHAIN)	Serial communication	-	-	Absolute position	Contact: HEIDENHAIN
Absolute position rotary encoder RCN223, RCN723 (HEIDENHAIN)	Serial communication	-	-	Absolute position	Contact: HEIDENHAIN
Absolute position rotary encoder MPRZ series (MME)	-	ADB-20J71 (MME)	Serial communication	Absolute position	Contact: MME Corporation

Contact information about machine side detector

Mitutoyo Corporation <http://www.mitutoyo.co.jp/>

Sony Manufacturing Systems Corporation <http://www.sonysms.co.jp/>

HEIDENHAIN CORPORATION <http://www.heidenhain.co.jp/>

MHI MACHINE TOOL ENGINEERING CO., LTD <http://www.mme-e.co.jp/>



The absolute position system cannot be established in combination with the relative position (incremental) machine side detector and absolute position motor side detector.

(2) Detector for the full closed loop control

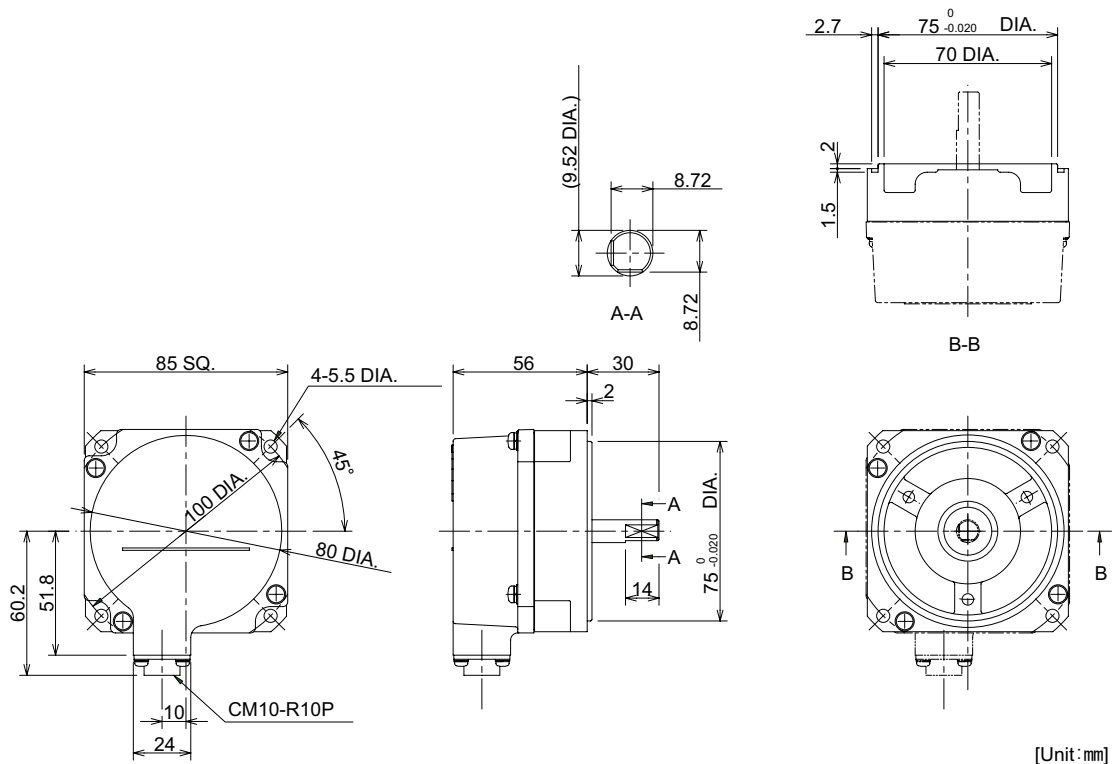
(a) Specifications

Detector type		OSA105-ET2	OSA166-ET2
Electrical characteristics	Detector resolution	1,000,000pulse/rev	16,000,000 pulse/rev
	Detection method	Absolute position method (battery backup method)	
	Tolerable rotation speed at power off (Note)	500r/min	
	Detector output data	Serial data	
	Power consumption	0.3A	
Mechanical characteristics for rotation	Inertia	$0.5 \times 10^{-4} \text{kgm}^2$ or less	
	Shaft friction torque	0.1Nm or less	
	Shaft angle acceleration	$4 \times 10^4 \text{rad/s}^2$ or less	
	Tolerable continuous rotation speed	4000r/min	
Mechanical configuration	Shaft amplitude (position 15mm from end)	0.02mm or less	
	Tolerable load (thrust direction/radial direction)	9.8N · m/19.8N · m	
	Weight	0.6kg	
	Protective structure	IP65 (The shaft-through portion is excluded.)	
	Recomended coupling	bellows coupling	
Working environment	Ambient temperature	0 ~ +55	
	Storage temperature	-20 ~ +85	
	Humidity	95%Ph	
	Vibration resistance	5 to 50Hz, total vibration width 1.5mm, each shaft for 30min.	
	Impact resistance	490m/s ² (50G)	

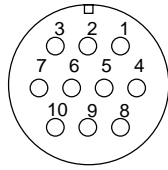
(Note) If the tolerable rotation speed at power off is exceeded, position deviation will occur.

(b) Outline dimension drawings

• OSA105-ET2 / OSA166-ET2



(c) Explanation of connectors



Connector pin layout

Pin	Function	Pin	Function
1	RQ	6	SD
2	RQ*	7	SD*
3	-	8	P5(+5V)
4	BAT	9	-
5	LG(GND)	10	SHD

(3) Detector for the system in the synchronous control

(a) For position command synchronous control

The synchronous control is all executed in the NC, and the each servo is controlled as an independent axis. Therefore, preparing special options for the synchronous control is not required on the servo side.

(b) For speed/current command synchronous control

The signal divider unit (MDS-B-SD) may be required because two axes share the feed back signal of the linear scale in the full closed control. Check whether the signal divider unit is required based on the following table.

System establishment	For control with MDS-D-V2		For control with MDS-D-V1×2 units	
	Need for signal divider unit (MDS-B-SD)	Need for detector conversion unit (MDS-B-HR)	Need for signal divider unit (MDS-B-SD)	Need for detector conversion unit (MDS-B-HR)
Semi closed control (only for motor side detector)	-	-		-
Relative position linear scale (Oblong wave signal output)	×	×	×	×
Relative position linear scale (SIN wave signal output)	-		-	
Absolute position linear scale AT342, AT343, AT543 (Mitutoyo)	-	-		-
Absolute position linear scale LC191M, LC491M (HEIDENHAIN)	-	-		-

: Required -: Not required x : Not applicable



POINT

When executing the synchronous control, use the servomotors of which the type and detector specifications are same.

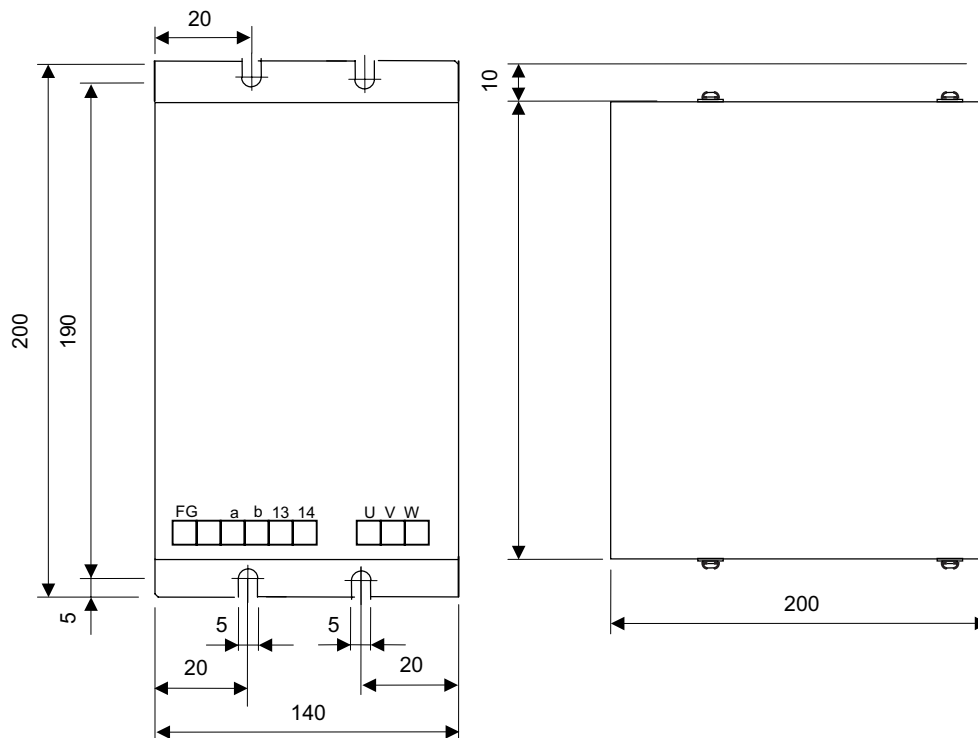
Dynamic brake unit (MDS-D-DBU) (mandatory selection for large capacity)

The MDS-D-V1-320W units do not have dynamic brakes built in, so install an external dynamic brake unit.

(1) Specifications

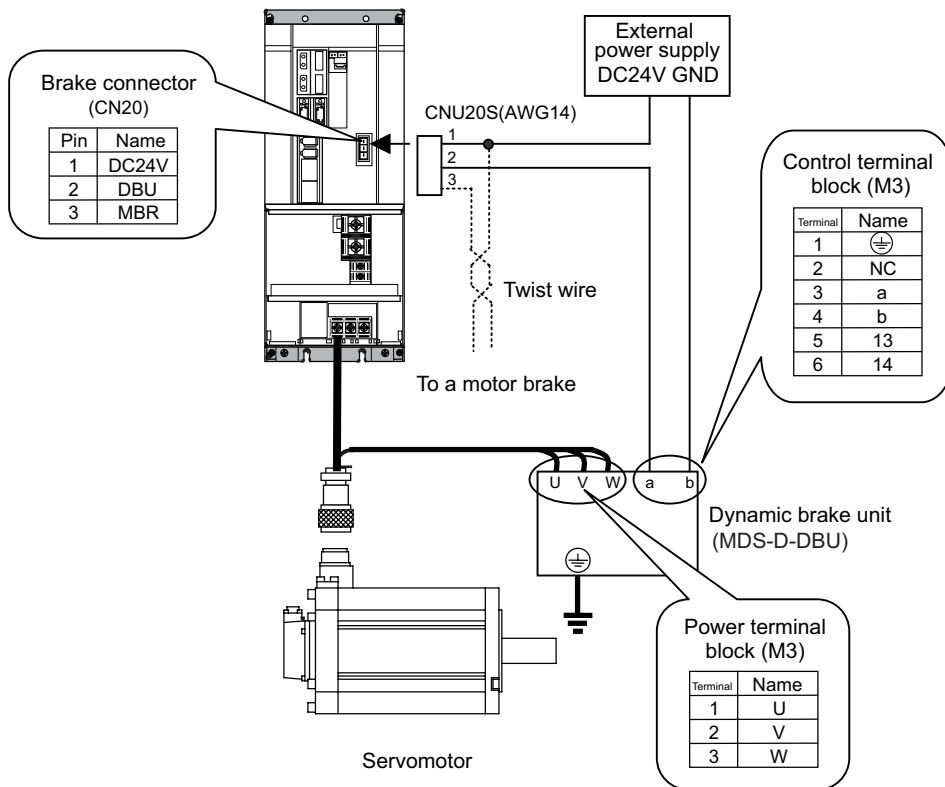
Type	Coil specifications	Compatible drive unit	Weight (kg)
MDS-D-DBU	24VDC 160mA	MDS-D-V1-320W	2

(2) Outline dimension drawings

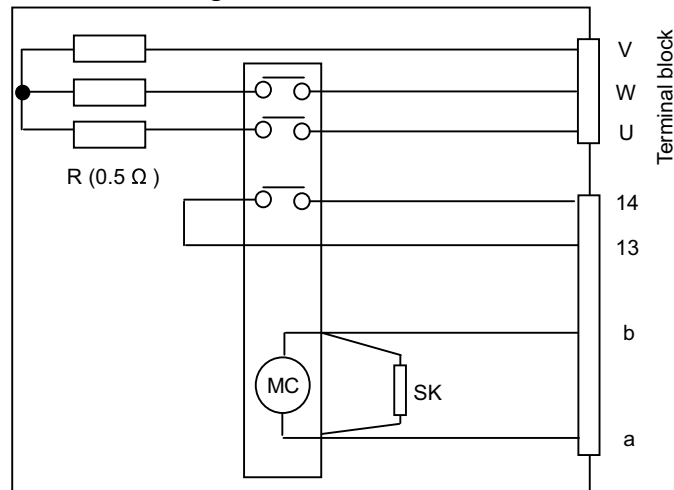


[Unit: mm]

(3) Connecting with the servo drive unit



Internal circuit diagram



CAUTION

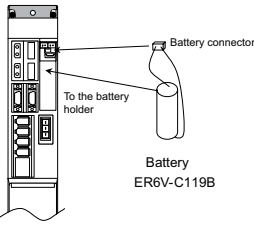
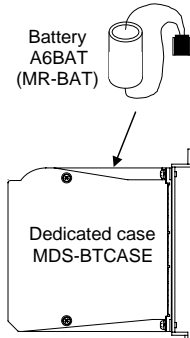
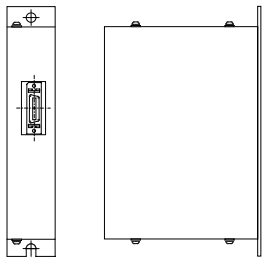
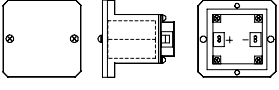
Correctly wire the dynamic brake unit to the servo drive unit. Do not use for applications other than emergencies (normal braking, etc.). The internal resistor could heat up, and lead to fires or faults.

POINT

When you use a motor with a brake, please wire (between 1pin and 3pin) for the CN20 connector.

Battery (MDS-A-BT, FCU6-BTBOX-36, ER6V-C119B, A6BAT)

This battery option may be required to establish absolute position system.

Type	ER6V-C119B	A6BAT (MR-BAT)	MDS-A-BT-	FCU6-BTBOX-36
Installation type	Drive unit with battery holder type	Dedicated case type	Unit and battery integration type	Unit and battery integration type
Hazard class	Not applicable	Not applicable (24 or less)	Class9 (excluding MDS-A-BT-2)	Not applicable
Number of connectable axes	Up to 2 axes	Up to 8 axes (When using dedicated case)	2 to 8 axes	Up to 6 axes
Battery change	Possible	Possible	Not possible	Possible
Appearance	(1) 	(2) 	(3) 	(4) 

 **CAUTION**

1. On January 1, 2003, new United Nations requirements, "United Nations Dangerous Goods Regulations Article 12", became effective regarding the transportation of lithium batteries. The lithium batteries are classified as hazardous materials (Class 9) depending on the unit. (Refer to Appendix 4.)
2. The lithium battery must be transported according to the rules set forth by the International Civil Aviation Organization (ICAO), International Air Transportation Association (IATA), International Maritime Organization (IMO), and United States Department of Transportation (DOT), etc. The packaging methods, correct transportation methods, and special regulations are specified according to the quantity of lithium alloys. The battery unit exported from Mitsubishi is packaged in a container (UN approved part) satisfying the standards set forth in this UN Advisory.
3. To protect the absolute value, do not shut off the servo drive unit control power supply if the battery voltage becomes low (warning 9F).
4. Contact the Service Center when replacing the MDS-A-BT Series and cell battery.
5. Replace the FCU6-BTBOX-36 battery with a new battery (2CR5) within the recommended service period. This battery is commercially available for use in cameras, etc.
6. The battery life (backup time) is greatly affected by the working ambient temperature. The above data is the theoretical value for when the battery is used 8 hours a day/240 days a year at an ambient temperature of 25°C. Generally, if the ambient temperature increases, the backup time and useful life will both decrease.

 **POINT**

The battery specifications of A6BAT are the same as MR-BAT.

(1) Cell battery (ER6V-C119B)

< Specifications >

Battery option type		Cell battery	
		ER6V-C119B (Note1)	
Lithium battery series		ER6V	
Nominal voltage		3.6V	
Nominal capacity		2000mAh	
Battery safety	Hazard class	-	
	Battery shape	Single battery	
	Number of batteries used	ER6V × 1	
	Lithium alloy content	0.7g	
	Mercury content	1g or less	
Number of connectable axes		Up to 2 axes	
Battery continuous backup time		Approx. 10000 hours	
Battery useful life (From date of unit manufacture)		7 years	
Data save time in battery replacement		HF/HP series: approx. 20 hours at time of delivery, approx. 10 hours after 5 years	
Back up time from battery warning to alarm occurrence (Note2)		Approx. 100 hours	
Weight		20g	

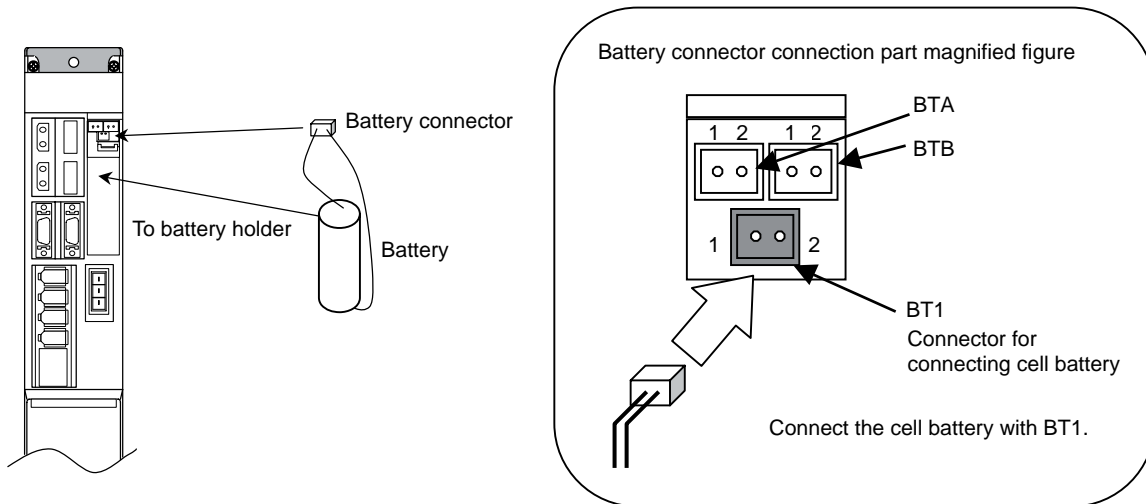
(Note1) ER6V-C119B is a battery built in a servo drive unit. Install this battery only in the servo drive unit that executes absolute position control.

(Note2) This time is a guideline, so does not guarantee the back up time. Replace the battery with a new battery as soon as a battery warning occurs.

< Installing the cell battery >

Open the upper front cover of the servo drive unit.

Connect the battery connector and then put the battery inside.



(Note) When using a cell battery, do not connect the battery unit, MDS-A-BT and FCU6-BTBOX-36.



When using a cell battery built-in drive unit, the wiring between units is not required. The cell battery can be changed in each drive unit.

(2) Cell battery (A6BAT)

Always use the cell battery (A6BAT) in combination with the dedicated case (MDS-BTCASE).

< Specifications >

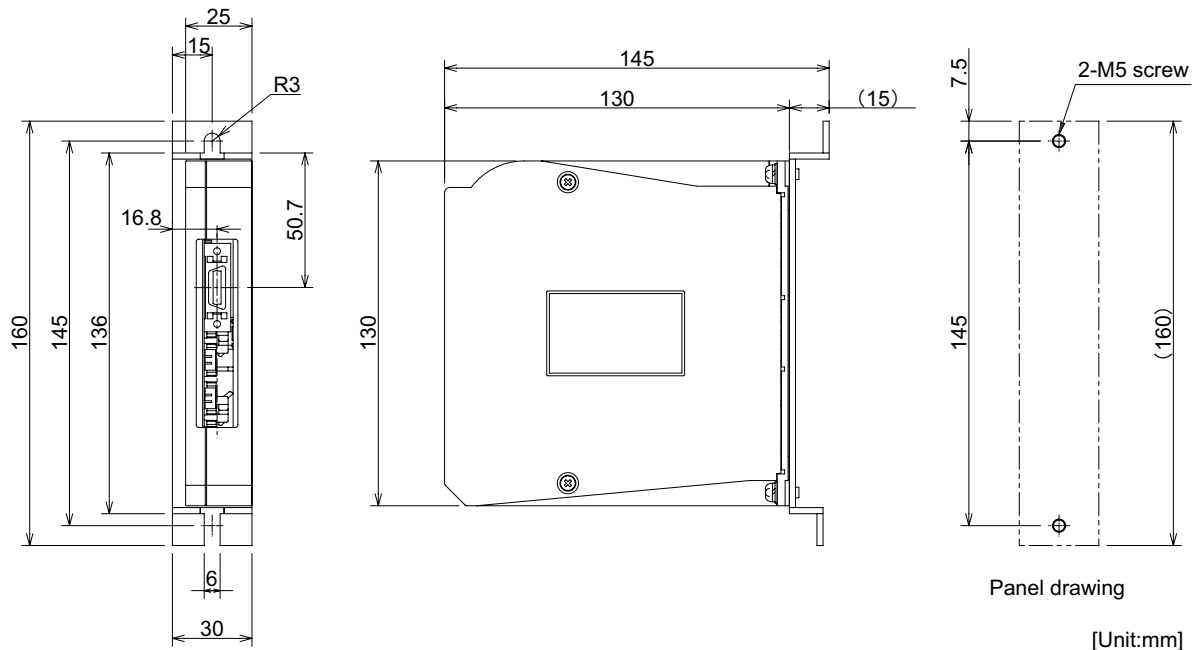
Battery option type		Cell battery
		A6BAT (MR-BAT)
Lithium battery series		ER17330V
Nominal voltage		3.6V
Nominal capacity		1700mAh
Battery safety	Hazard class	-
	Battery shape	Single battery
	Number of batteries used	A6BAT (MR-BAT) × 1
	Lithium alloy content	0.48g
	Mercury content	1g or less
Number of connectable axes		1 axis / (per 1 battery)
Battery continuous backup time		Approx. 10000 hours
Battery useful life (From date of unit manufacture)		5 years
Data save time in battery replacement		HF/HP series: approx. 20 hours at time of delivery, approx. 10 hours after 5 years
Back up time from battery warning to alarm occurrence (Note)		Approx. 80 hours
Weight		17g

(Note) This time is a guideline, so does not guarantee the back up time. Replace the battery with a new battery as soon as a battery warning occurs.

< Specifications of the dedicated case MDS-BTCASE >

Type	MDS-BTCASE
Number of batteries installed	Up to 8 A6BATs (MR-BATs) (Install either 2, 4, 6 or 8 A6BATs (MR-BATs))
Number of connectable axes	Max. 8 axes (It varies depending on the number of batteries installed.) When A6BAT (MR-BAT) × 2, 1 to 2 axis/axes When A6BAT (MR-BAT) × 4, 3 to 4 axes When A6BAT (MR-BAT) × 6, 5 to 6 axes When A6BAT (MR-BAT) × 8, 7 to 8 axes

< Outline dimension drawing of the dedicated case MDS-BTCASE >



(3) Battery unit (MDS-A-BT-)

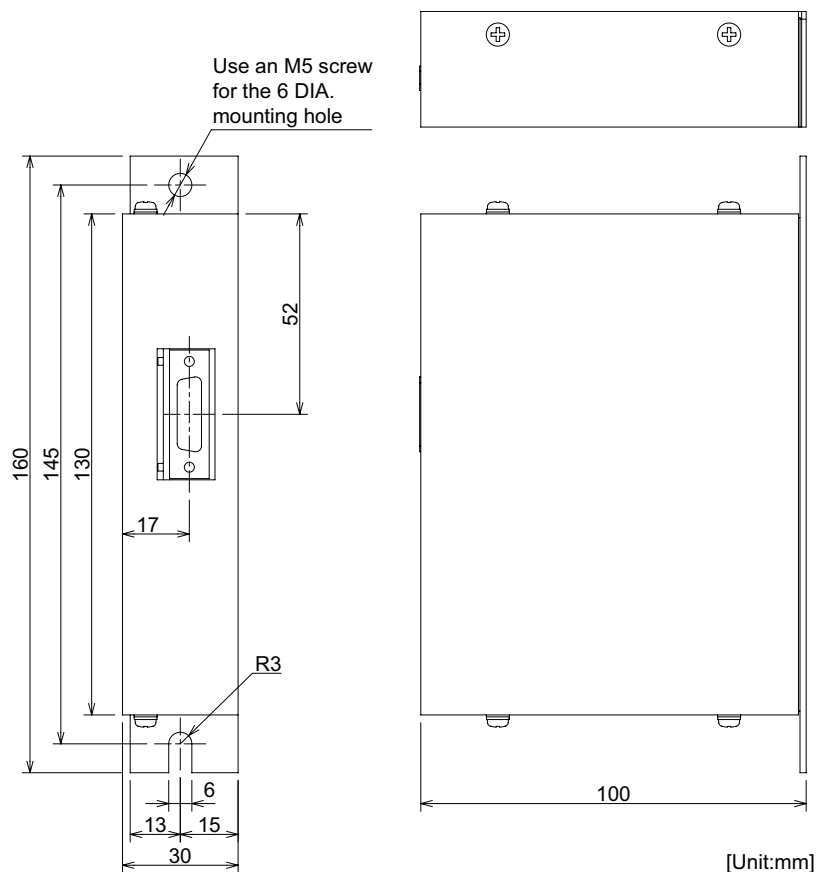
< Specifications >

Battery option type	Battery unit				
	MDS-A-BT-2	MDS-A-BT-4	MDS-A-BT-6	MDS-A-BT-8	
Lithium battery series	ER6V				
Nominal voltage	3.6V				
Nominal capacity	4000mAh	8000mAh	12000mAh	16000mAh	
Battery safety	Hazard class	Class 9			
	Battery shape	Set battery			
	Number of batteries used	ER6V x 2	ER6V x 4	ER6V x 6	ER6V x 8
	Lithium alloy content	1.3g	2.6g	3.9g	5.2g
	Mercury content	1g or less			
Number of connectable axes	Up to 2 axes	Up to 4 axes	Up to 6 axes	Up to 8 axes	
Battery continuous backup time	Approx. 30000 hours				
Battery useful life (From date of unit manufacture)	7 years				
Data save time in battery replacement	HF/HP series: approx. 20 hours at time of delivery, approx. 10 hours after 5 years				
Back up time from battery warning to alarm occurrence (Note)	Approx. 100 hours				
Weight	600g				

(Note) This time is a guideline, so does not guarantee the back up time. Replace the battery with a new battery as soon as a battery warning occurs.

< Outline dimension drawings >

• MDS-A-BT-2/-4/-6/-8



(4) Battery unit (FCU6-BTBOX-36)

< Specifications >

Battery option type		Battery unit
		FCU6-BTBOX-36 (Note1)
Lithium battery series		2CR5
Nominal voltage		6.0V (Lithium battery), 3.6V (Output)
Nominal capacity		2600mAh
Battery safety	Hazard class	-
	Battery shape	Single battery
	Number of batteries used	2CR5 × 2
	Lithium alloy content	1.96g
	Mercury content	1g or less
Number of connectable axes		Up to 6 axes
Battery continuous backup time		Approx. 5000 hours (when 6 axes are connected)
Battery useful life (From date of unit manufacture)		5 years ^{Note2}
Data save time in battery replacement		HF/HP series: approx. 20 hours at time of delivery, approx. 10 hours after 5 years
Back up time from battery warning to alarm occurrence (Note3)		Approx. 30 hours (when 6 axes are connected)
Weight		200g

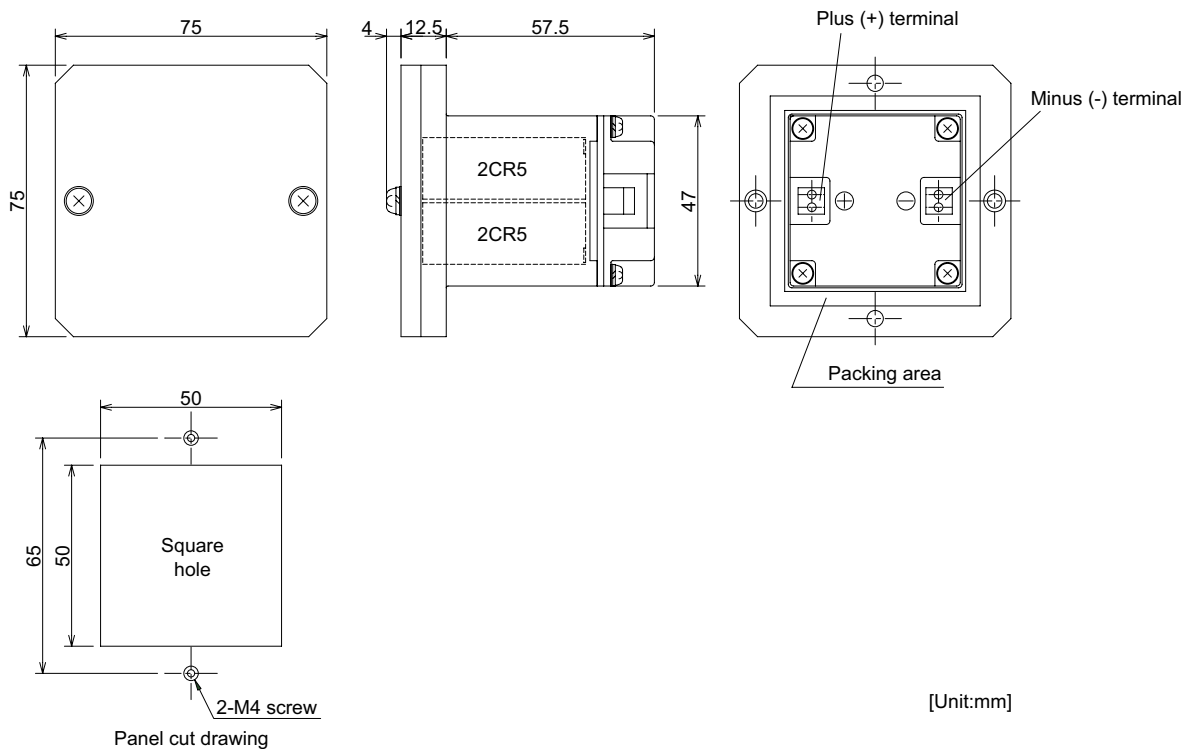
(Note1) A lithium battery in FCU6-BTBOX-36 is commercially available. The battery for replacement has to be prepared by the user.

(Note2) Use new batteries (nominal capacity 1300mAh or more) within five years from the date of manufacture. The batteries should be replaced once a year.

(Note3) This time is a guideline, so does not guarantee the back up time. Replace the battery with a new battery as soon as a battery warning occurs.

< Outline dimension drawings >

• FCU6-BTBOX-36

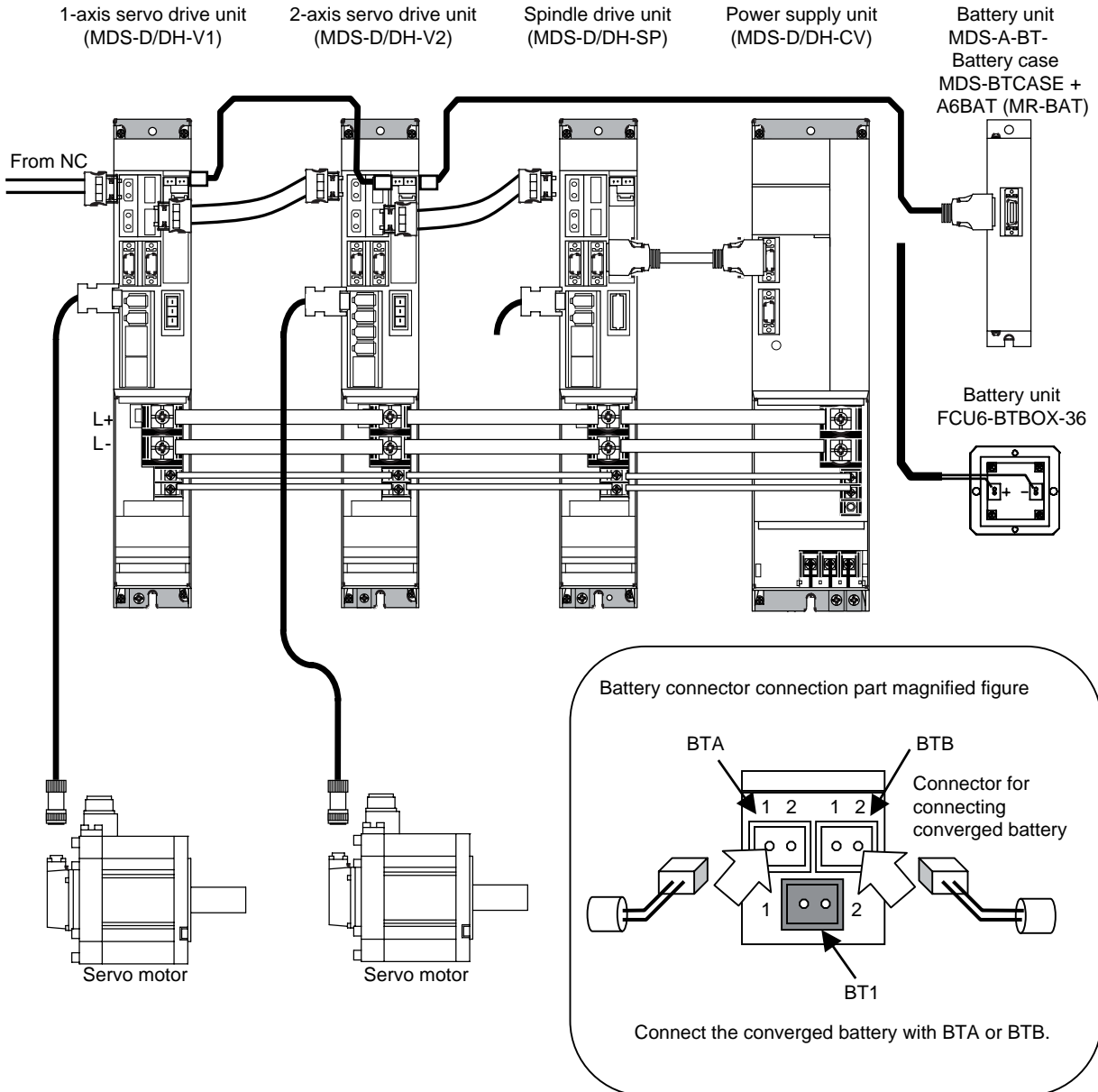


(5) Converged battery option

When using the following battery options, the wiring between units which configure an absolute position system is required.

Battery option type	Installation type	Battery charge
A6BAT (MR-BAT)	Dedicated case type (built-in MR-BTBOX)	Possible
MDS-A-BT series	Unit and battery integration type	Not possible
FCU6-BTBOX-36	Unit and battery integration type	Possible

<System configuration>



1. This wiring is not required for the drive unit or spindle drive unit which is not an absolute system.
2. Use a shield cable for wiring between drive units.
The drive unit could malfunction.

Detector for Spindle motor

(1) No-variable speed control

(When spindle and motor are directly coupled or coupled with a 1:1 gear ratio)

Spindle control item	Control specifications	Without spindle side detector	With spindle side detector
Spindle control	Normal cutting control	○	This normally is not used for no-variable speed control.
	Constant surface speed control (lathe)	○	
	Thread cutting (lathe)	○	
Orientation control	1-point orientation control	○	
	Multi-point orientation control	○	
	Orientation indexing	○	
Synchronous tap control	Standard synchronous tap	○	
	Synchronous tap after zero point return	○	
Spindle synchronous control	Without phase alignment function	○	
	With phase alignment function	○	
C-axis control	C-axis control	○	

(Note) ○ : Control possible

× : Control not possible

(2) Variable speed control

(When using V-belt, or when spindle and motor are connected with a gear ratio other than 1:1)

Spindle control item	Control specifications	Without spindle side detector	With spindle side detector
Spindle control	Normal cutting control	○	○
	Constant surface speed control (lathe)	△	○
	Thread cutting (lathe)	×	○
Orientation control	1-point orientation control	×	○
	Multi-point orientation control	×	○
	Orientation indexing	×	○
Synchronous tap control	Standard synchronous tap	▲	○
	Synchronous tap after zero point return	×	○
Spindle synchronous control	Without phase alignment function	△	○
	With phase alignment function	×	○
C-axis control	C-axis control	×	

(Note) ○ : Control possible

× : Control not possible

△ : Control not possible when using V-belt

▲ : Control not possible when varying the speed with a method other than the gears (when using V-belt or timing belt).

○ : Control not possible when using V-belt, or control not possible for the RFH-1024-22-1M-68(-8) detector

Spindle side detector (OSE-1024-3-15-68, OSE-1024-3-15-68-8)

When a spindle and motor are connected with a V-belt, or connected with a gear ratio other than 1:1, use this spindle side detector to detect the position and speed of the spindle. Also use this detector when orientation control and synchronous tap control, etc are executed under the above conditions.

(1) Specifications

Detector type		OSE-1024-3-15-68	OSE-1024-3-15-68-8
Mechanical characteristics for rotation	Inertia	$0.1 \times 10^{-4} \text{kgm}^2$ or less	$0.1 \times 10^{-4} \text{kgm}^2$ or less
	Shaft friction torque	0.98Nm or less	0.98Nm or less
	Shaft angle acceleration	10^4 rad/s^2 or less	10^4 rad/s^2 or less
	Tolerable continuous rotation speed	6000 r/min	8000 r/min
Mechanical configuration	Bearing maximum non-lubrication time	20000h/6000r/min	20000h/8000r/min
	Shaft amplitude (position 15mm from end)	0.02mm or less	0.02mm or less
	Tolerable load (thrust direction/radial direction)	10kg/20kg Half of value during operation	10kg/20kg Half of value during operation
	Weight	1.5kg	1.5kg
	Squareness of flange to shaft	0.05mm or less	
	Flange matching eccentricity	0.05mm or less	
Working environment	Ambient temperature range	-5°C to +55°C	
	Storage temperature range	-20°C to +85°C	
	Humidity	95%Ph	
	Vibration resistance	5 to 50Hz, total vibration width 1.5mm, each shaft for 30min.	
	Impact resistance	294.20m/s ² (30G)	

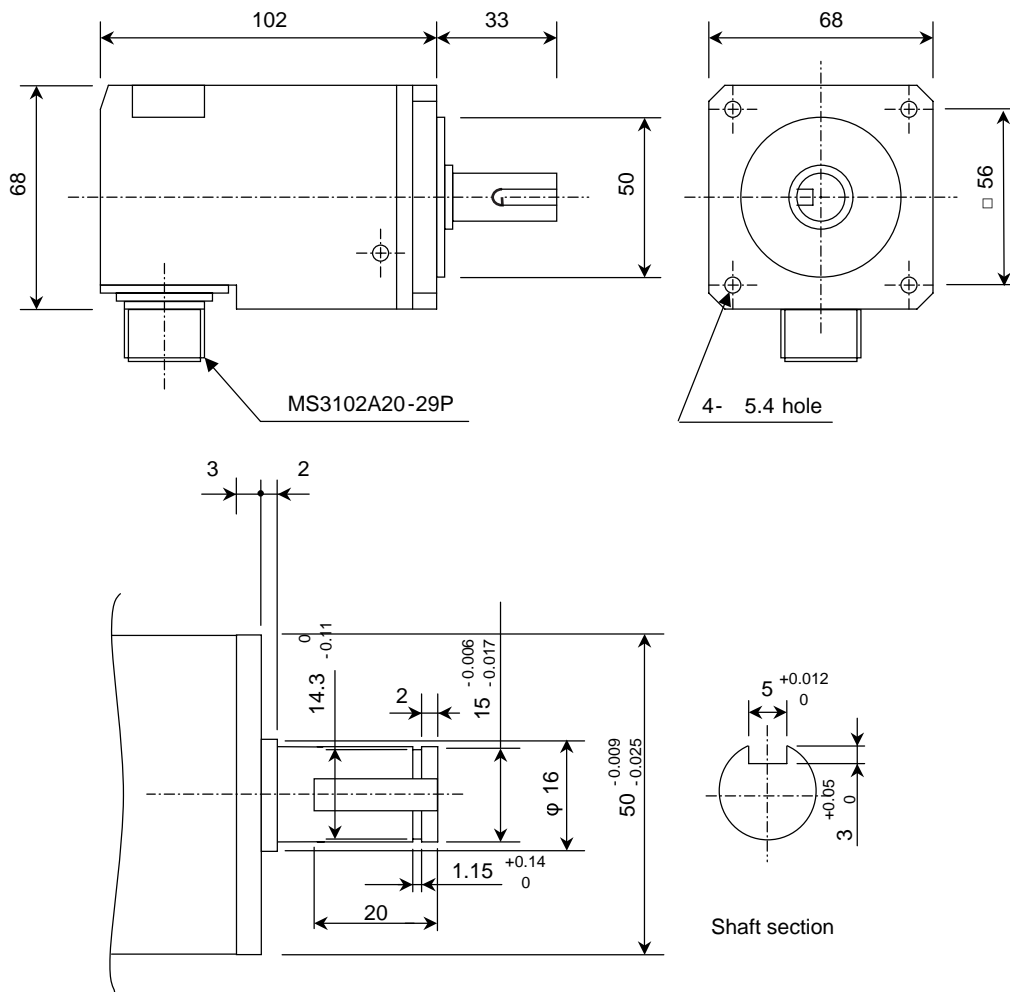
(2) Detection signals

Signal name	Number of detection pulses
A, B phase	1024p/rev
Z phase	1p/rev

Connector pin layout

Pin	Function	Pin	Function
A	A phase	K	0V
B	Z phase	L	-
C	B phase	M	-
D	-	N	A phase
E	Case earth	P	Z phase
F	-	R	B phase
G	-	S	-
H	+5V	T	-
J	-		

(3) Outline dimension drawings



Key way magnified figure

[Unit: mm]

C axis detector (HEIDENHAIN ERM280)

Highly accurate C axis control is possible by connecting HEIDENHAIN incorporable rotary encoder ERM280 series. ERM280 series encoder provides with high environmental resistance due to the magnetic memory drum. The spindle motor to be incorporated with is a built-in type, so the motor specifications must be considered, as well.

Note that HEIDENHAIN serial interface unit APE391M must be purchased as it is required for connecting ERM280 series to the MDS-D/DH drive unit.



Incorporable rotary encoder
ERM280 series



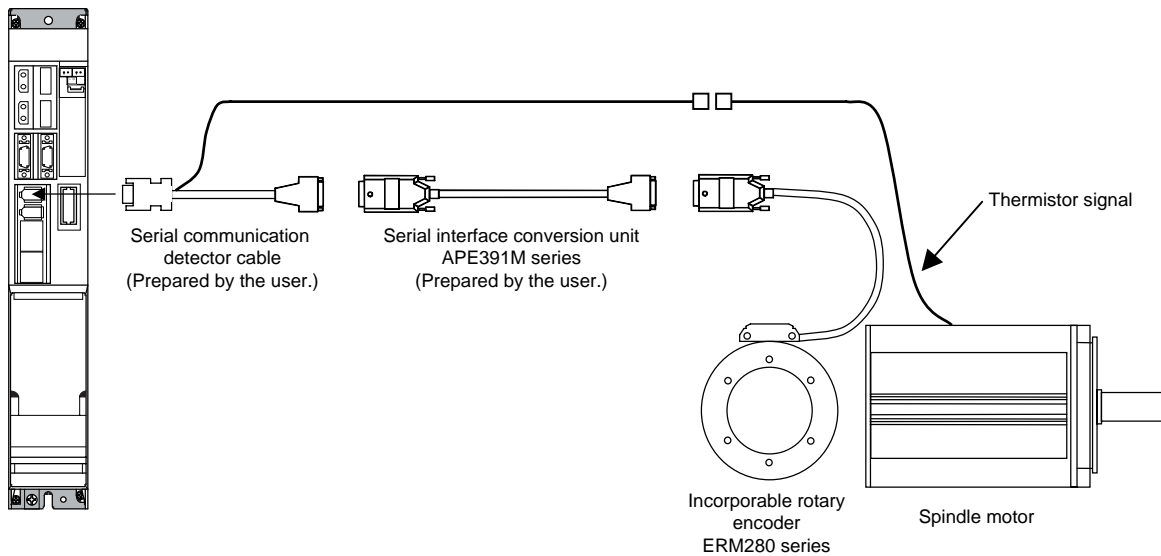
Serial interface conversion unit
APE391M series

(1) Procurement

ERM280 series and APE391M series must be purchased directly from HEIDENHAIN.

Contact: HEIDENHAIN CORPORATION <http://www.heidenhain.co.jp/>

(2) System overview



(3) Specifications

Type (Note 2)		ERM280 1024	ERM280 1200	ERM280 2048
Serial interface unit type		APE391M C2 1024	APE391M C0 1200	APE391M C2 2048
Electrical characteristics	Supply voltage ERM280	5V±10%		
	APE391M	5V±5%		
	Number of scale marks	1024	1200	2048
	Electrical tolerable rotation speed	17500r/min	15000r/min	8780r/min
	Combined resolution (Note 3) (Parameter setting value)	4,000,000P/rev	4,800,000P/rev	8,000,000P/rev
Mechanical characteristics	Drum inner diameter	80mm	120mm	180mm
	Drum outer diameter	128.75mm	150.88mm	257.5mm
	Mechanical tolerable rotation speed	13,000r/min	10,500r/min	6,000r/min
	Moment of inertia of rotary	$2.7 \times 10^{-3} \text{kg}\cdot\text{m}^2$	$3.5 \times 10^{-3} \text{kg}\cdot\text{m}^2$	$38 \times 10^{-3} \text{kg}\cdot\text{m}^2$
Use environment Drum section	Temperature range	-10 to 100 °C		
	Dust/water proof structure (IEC60529)	IP67		
	Weight Drum section	0.89kg	0.72kg	3.0kg
	Scanning head	0.15kg		

(Note 1) Specifications are subject to change. Confirm the details with HEIDENHAIN.

(Note 2) The above specifications are for some of the popular products of HEIDENHAIN.

For inquiries about the products having the number of scale marks other than those listed above, contact HEIDENHAIN directly.

(Note 3) Combined resolutions are not for the guarantee of the system accuracy.

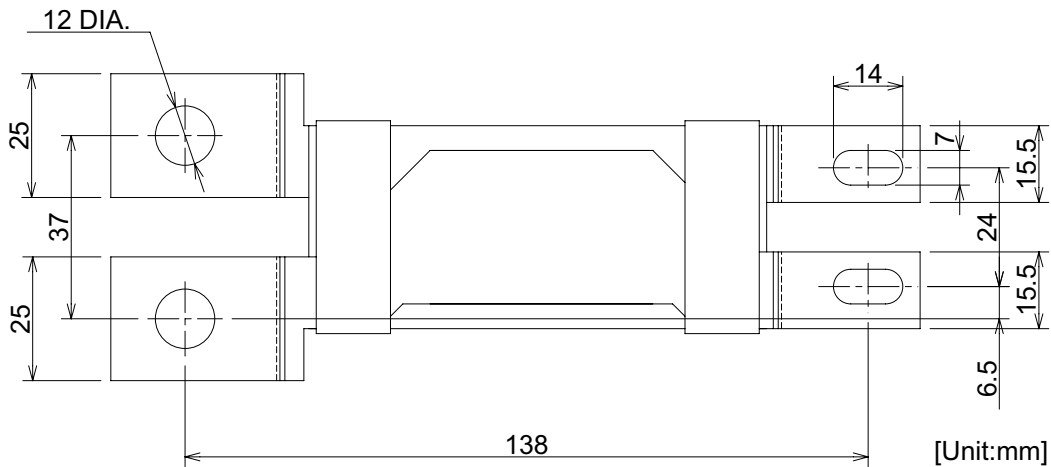
DC connection bar

When connecting a large capacity drive unit with L+L- terminal of power supply unit, DC connection bar is required. In use of the following large capacity drive units, use a dedicated DC connection bar. The DC connection bar to be used depends on the connected power supply, so make a selection according to the following table.

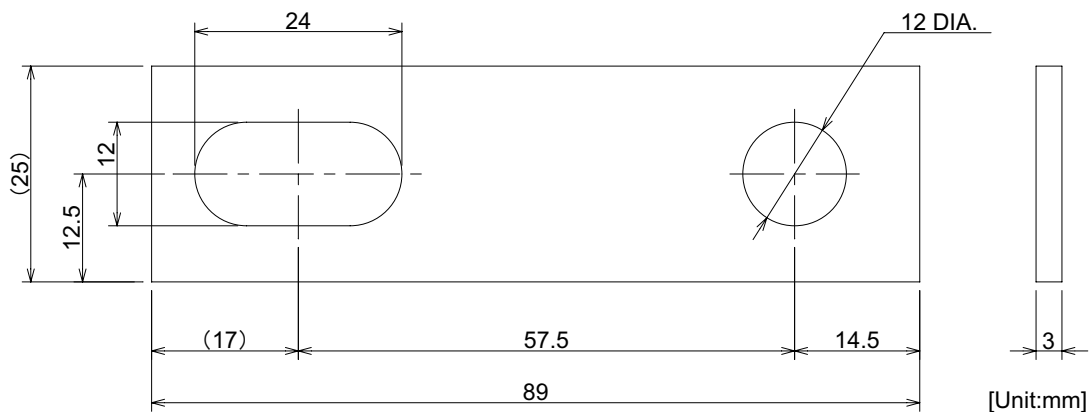
Large capacity drive unit	Power supply unit	Required connection bar
MDS-D-SP-400 MDS-D-SP-640	MDS-D-CV-300 MDS-D-CV-370 MDS-D-CV-450	D-BAR-B1006
MDS-D-SP-400 MDS-D-SP-640	MDS-D-CV-550	D-BAR-A1010 (Two-parts set)

(1) Outline dimension drawings

- D-BAR-B1006



- D-BAR-A1010



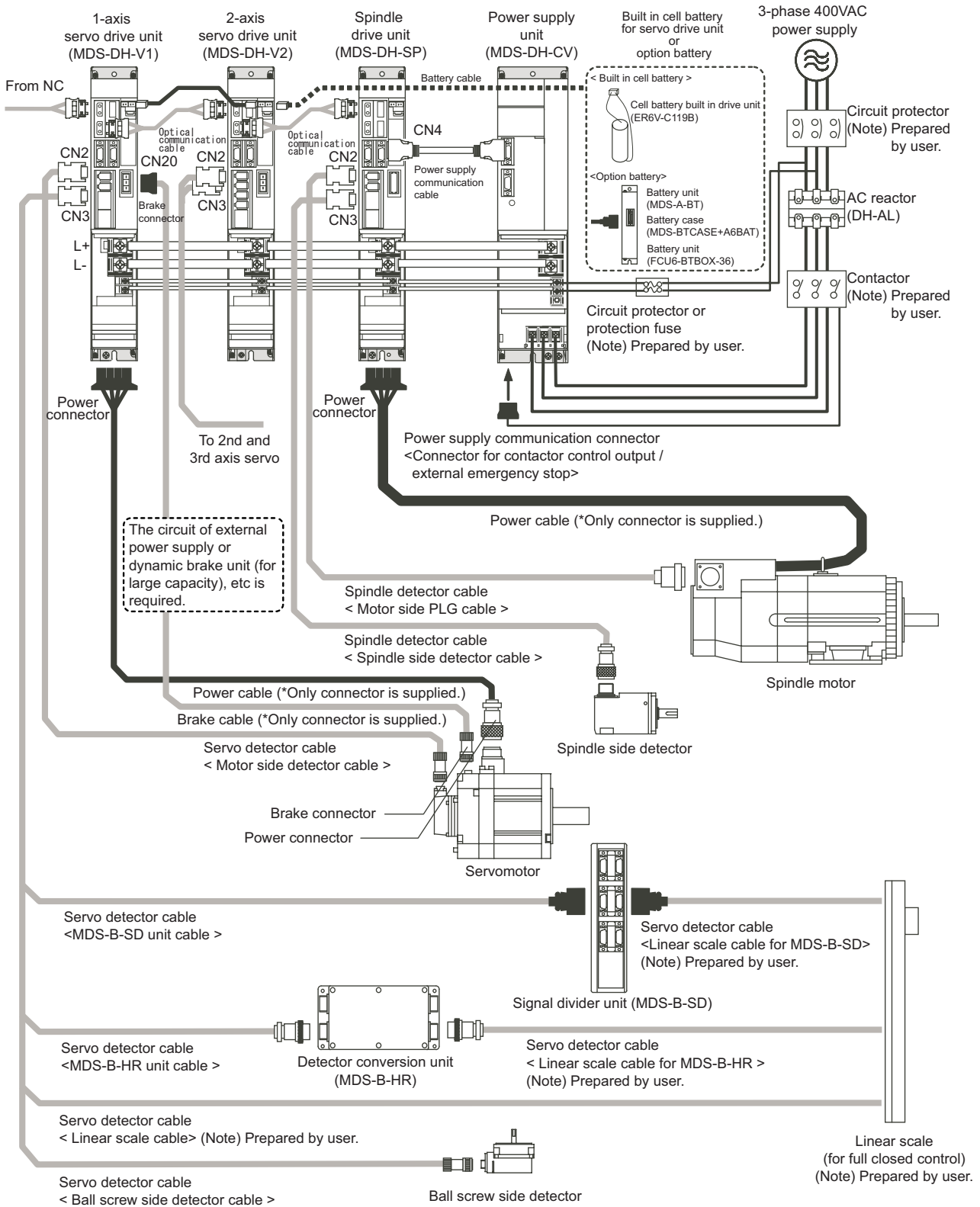
(Note) D-BAR-A1010 is a set of two DC connection bars.



Always install a large capacity drive unit in the left side of power supply unit, and connect with DC connection bar.

400V system Servo/spindle drive system

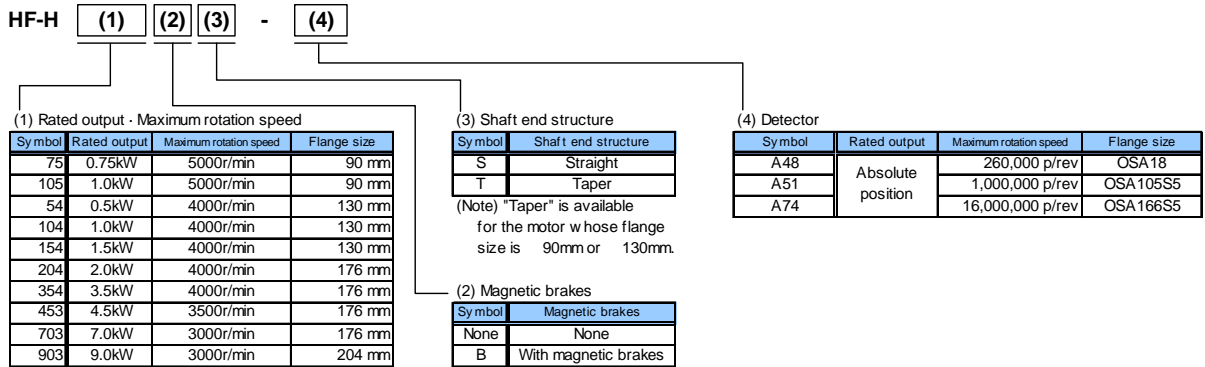
System configuration



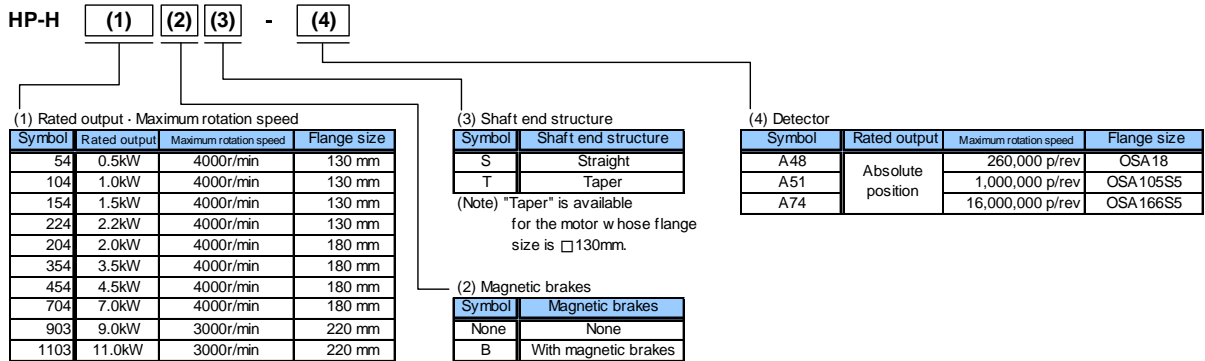
Explanation of type

1. Servomotor type

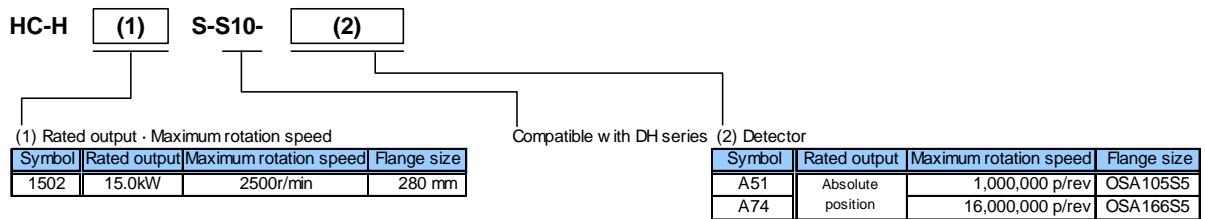
1-1 HF-H Series



1-2 HP-H Series



1-3 HC-H Series



2. Servo drive unit type

(1) 1-axis servo drive unit

MDS-DH- (1)

(1) Unit type MDS-DH	Compatible motor type		HF-H										HP-H						HC-H					
			75	105	54	104	154	204	354	453	703	903	54	104	154	224	204	354	454	704	903	1103	1502S-S10	
	Unit width	Unit nominal maximum current	Stall torque (N·m)																					
V1-10	60mm	10A	2.0	3.0	2.9	5.9	9.0	13.7	22.5	37.2	49.0	58.8	3.0	5.9	9.0	12.0	13.7	22.5	31.9	49.0	70.0	110.0	146.0	
V1-20		20A																						
V1-40		40A																						
V1-80		80A																						
V1-80W	90mm	80A																						
V1-160	120mm	160A																						
V1-160W	150mm	160A																						
V1-200	240mm (Note)	200A																						

Indicates the compatible motor for each servo drive unit.

(Note) DC connection bar is required. Always install a large capacity drive unit in the left side of power supply unit, and connect with DC connection bar.

(2) 2-axis servo drive unit

MDS-DH- (1)

(1) Unit type MDS-DH	Compatible motor type		HF-H										HP-H											
			75	105	54	104	154	204	354	453	703	903	54	104	154	224	204	354	454	704	903	1103		
	Unit width	Unit nominal maximum current	Stall torque (N·m)																					
			Axis																					
V2-1010	60mm	10+10A	LM																					
V2-2010		20+10A	L																					
			M																					
V2-2020		20+20A	LM																					
V2-4020		40+20A	L																					
			M																					
V2-4040	40+40A	LM																						
V2-8040	90mm	80+40A	L																					
			M																					
V2-8080	80+80A	LM																						

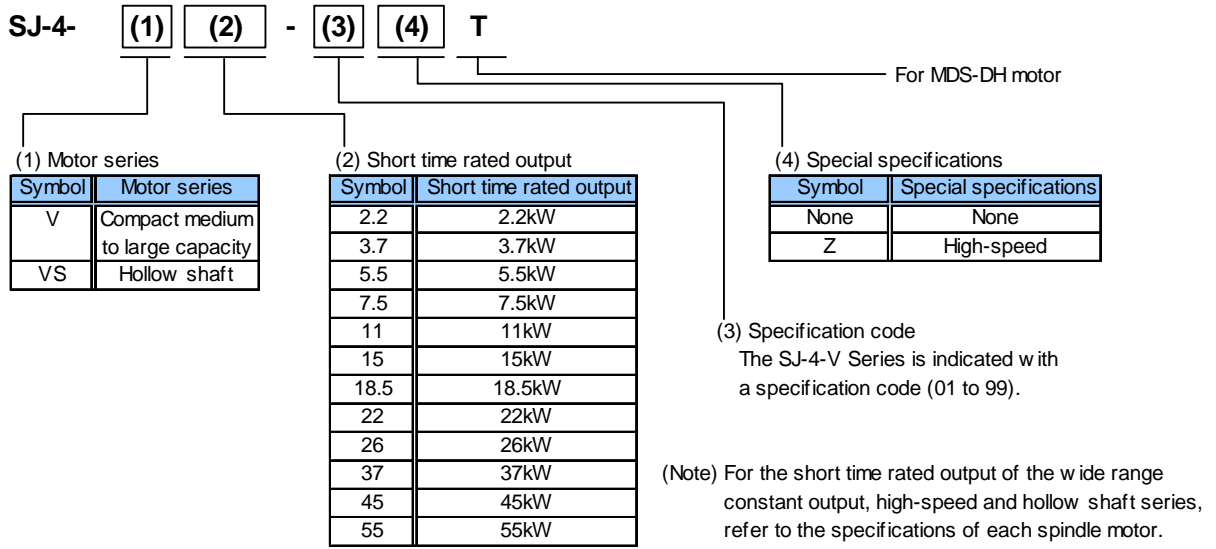
Indicates the compatible motor for each servo drive unit.



The dynamic brake unit (MDS-D-DBU) is required for the MDS-DH-V1-160W or larger.

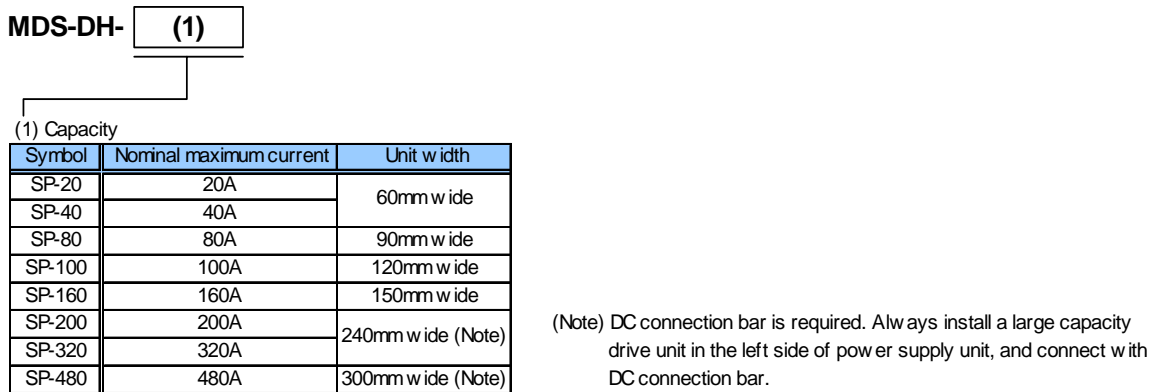
3. Spindle motor type

3-1 Standard spindle motor series



(Note) The built-in spindle motor is available by special order.

4. Spindle drive unit type



5. Power supply unit type

MDS-DH- (1)

Power supply unit			Compatible AC reactor	Compatible contactor (Mitsubishi) (Note 1)	Compatible circuit protector (Mitsubishi) (Note 1)
(1) Type MDS-DH-	Rated output	Unit width			
CV-37	3.7kW	90mm wide	DH-AL-7.5K	S-N12-AC400V	NF63-CW3P-10A
CV-75	7.5kW				NF63-CW3P-20A
CV-110	11.0kW				NF63-CW3P-30A
CV-185	18.5kW				NF63-CW3P-40A
CV-300	30.0kW	150mm wide (Note 2)	DH-AL-30K	S-N50-AC400V	NF125-CW3P-75A
CV-370	37.0kW		DH-AL-37K		NF125-CW3P-100A
CV-450	45.0kW		DH-AL-45K		NF125-CW3P-100A
CV-550	55.0kW	300mm wide (Note 2)	DH-AL-55K	S-N80-AC400V	NF250-CW3P-125A
CV-750	75.0kW		DH-AL-75K		NF250-CW3P-200A

(Note 1) This is an optional part, and must be prepared by the user.

(Note 2) When connecting with a large capacity drive unit, DC connection bar is required. Always install a large capacity drive unit in the left side of power supply unit, and connect with DC connection bar.

6. AC reactor type

DH-AL- (1)

AC reactor		Compatible power supply unit
(1) Type DH-AL-	Capacity	
7.5K	7.5kW	MDS-DH-CV-37
		MDS-DH-CV-75
11K	11.0kW	MDS-DH-CV-110
18.5K	18.5kW	MDS-DH-CV-185
30K	30.0kW	MDS-DH-CV-300
37K	37.0kW	MDS-DH-CV-370
45K	45.0kW	MDS-DH-CV-450
55K	55.0kW	MDS-DH-CV-550
75K	75.0kW	MDS-DH-CV-750

7. Peripheral devices type

MDS-B-HR- (1) (2)

(1) Signal division function class

Symbol	Scale output voltage class
11	Output number 1
12	Output number 2 (with division)

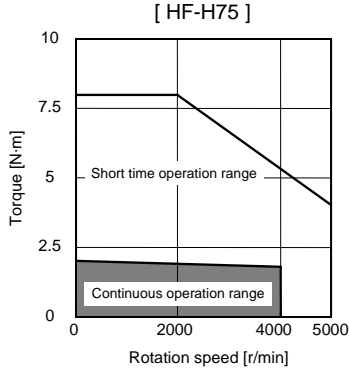
(2) Protective structure

Symbol	Protective structure
None	IP65
P	IP67

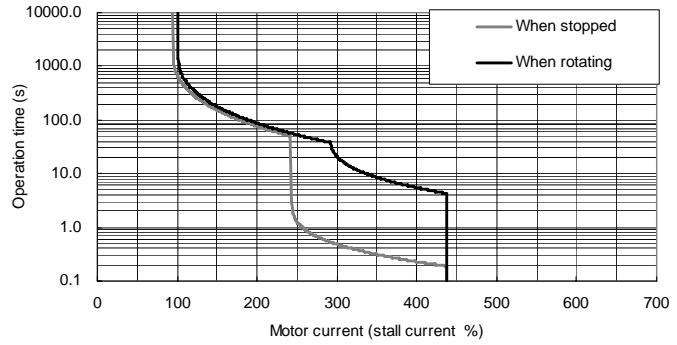
Servomotor

Stall torque	Rated rotation speed	Servomotor type	Explanation of type	
2.0N · m	4000r/min	HF-H75 (1)(2) (3) -XXX	(1)Magnetic brake	B with brake None without brake
			(2)Shaft end	S Straight T Taper
			(3)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item	Specifications	
Continuous characteristics	Rated output [kW]	0.75
	Rated current [A]	1.4
	Rated torque [N · m]	1.8
	Stall current [A]	1.6
	Stall torque [N · m]	2.0
Maximum momentary output [kW]	2.6	
Rated rotation speed [r/min]	4000	
Maximum rotation speed [r/min]	5000	
Maximum current [A]	7.0	
Maximum torque [N · m]	8.0	
Power rate at continuous rated torque [kW/s]	12.3	
Max. deceleration torque of dynamic brake(Tdp) [N · m]	5.11	
Motor inertia [kg · cm ²]	2.6	
(Brake inertia) [kg · cm ²]	2.8	
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	7.8
	General machine tool (interpolation axis) [kg · cm ²]	13.0
	Non-interpolation axis [kg · cm ²]	18.2
Weight	Without [kg]	2.5
	With brake [kg]	3.9
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level [m/s ²] ([G])	X:9.8(1), Y:24.5(2.5)	
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	245 (L=33)
	Thrust load [N]	147
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	245 (L=33)
	Thrust load [N]	147
Oil level (*2) [mm]	15	
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

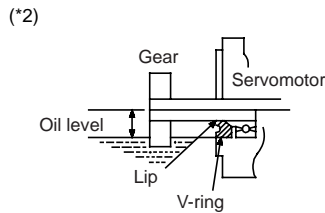
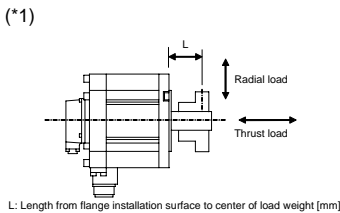
Magnetic brake characteristics

Item	Specifications
Rated voltage	DC24V
Rated current at 20°C [A]	0.38
Static friction torque [N · m]	2.4
Release delay time(*1) [s]	0.03
Braking delay time (DC OFF) (*1) [s]	0.03
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-DH-V1-10
2-axis type	MDS-DH-V2-1010 (L,M) MDS-DH-V2-2010 (M)
J-axis type	-

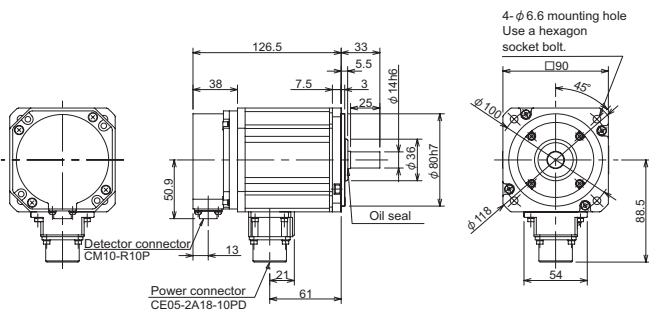


Environmental conditions

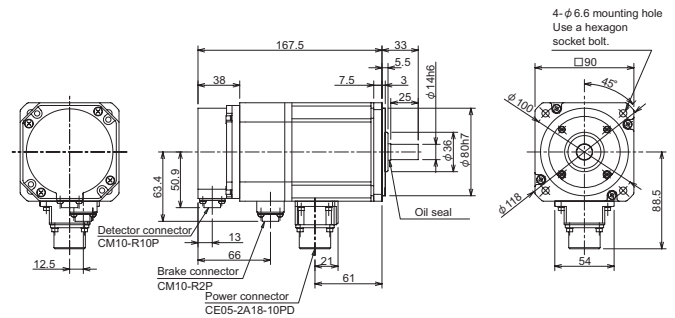
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

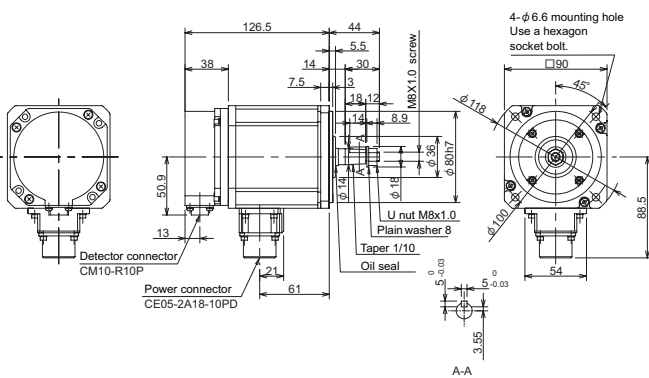
HF-H75S-A48



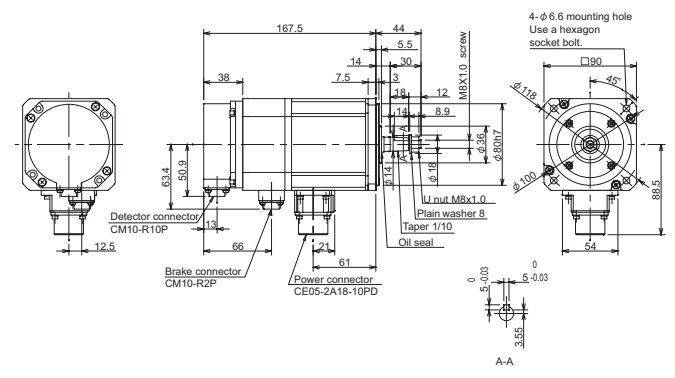
HF-H75BS-A48



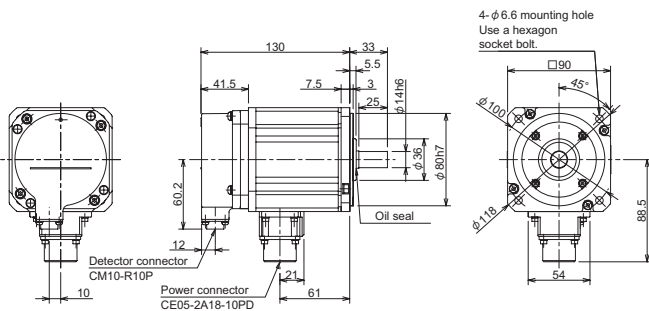
HF-H75T-A48



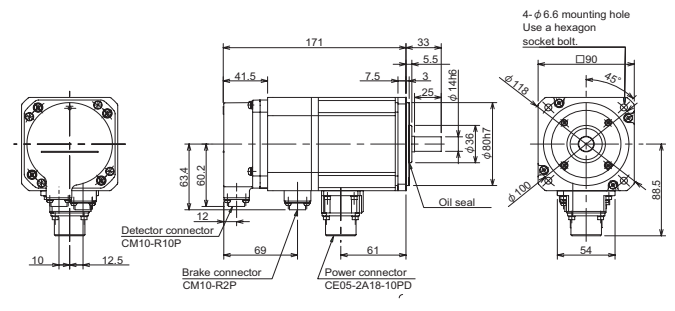
HF-H75BT-A48



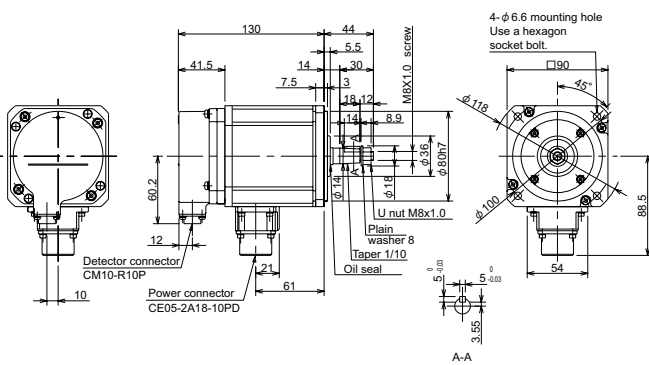
HF-H75S-A51,-A74



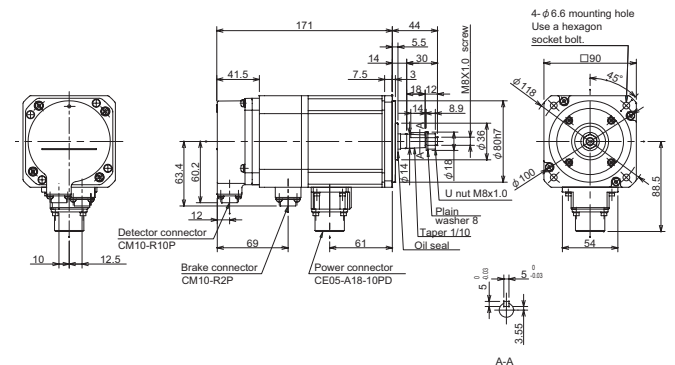
HF-H75BS-A51,-A74



HF-H75T-A51,-A74

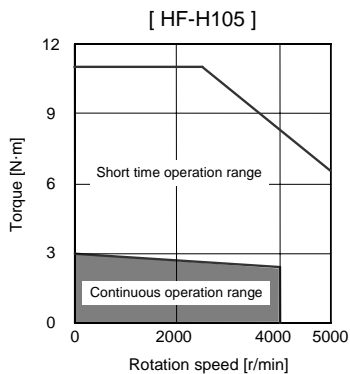


HF-H75BT-A51,-A74

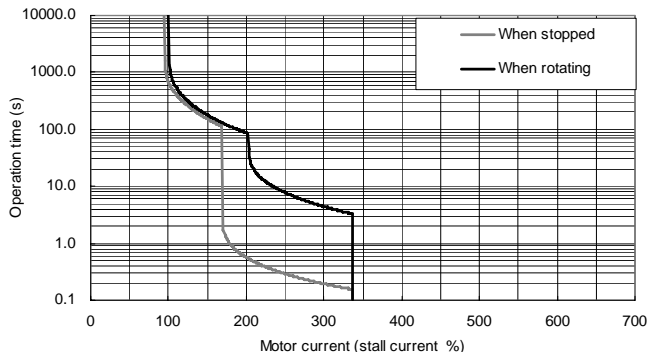


Stall torque	Rated rotation speed	Servomotor type	Explanation of type	
3.0N · m	4000r/min	HF-H105 (1)(2) (3) -XXX	(1)Magnetic brake	B with brake None without brake
			(2)Shaft end	S Straight T Taper
			(3)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item	Specifications	
Continuous characteristics	Rated output [kW]	1.0
	Rated current [A]	1.8
	Rated torque [N · m]	2.4
	Stall current [A]	2.3
	Stall torque [N · m]	3.0
Maximum momentary output [kW]	3.6	
Rated rotation speed [r/min]	4000	
Maximum rotation speed [r/min]	5000	
Maximum current [A]	7.75	
Maximum torque [N · m]	11.0	
Power rate at continuous rated torque [kW/s]	11.2	
Max. deceleration torque of dynamic brake (Tdp) [N · m]	10.19	
Motor inertia [kg · cm ²]	5.1	
(Brake inertia) [kg · cm ²]	5.3	
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	15.3
	General machine tool (interpolation axis) [kg · cm ²]	25.5
	Non-interpolation axis [kg · cm ²]	35.7
Weight	Without [kg]	4.3
	With brake [kg]	5.7
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level [m/s ²] ([G])	X:9.8(1), Y:24.5(2.5)	
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	245 (L=33)
	Thrust load [N]	147
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	245 (L=33)
	Thrust load [N]	147
Oil level (*2) [mm]	15	
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

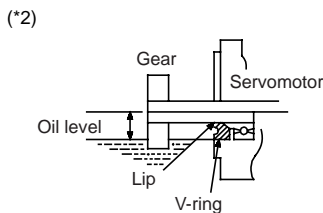
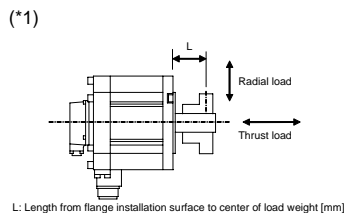
Magnetic brake characteristics

Item	Specifications
Rated voltage	DC24V
Rated current at 20°C [A]	0.38
Static friction torque [N · m]	2.4
Release delay time(*1) [s]	0.03
Braking delay time (DC OFF) (*1) [s]	0.03
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-DH-V1-10
2-axis type	MDS-DH-V2-1010 (L,M) MDS-DH-V2-2010 (M)
J-axis type	-

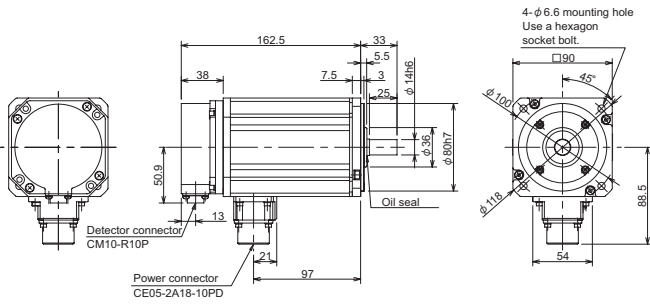


Environmental conditions

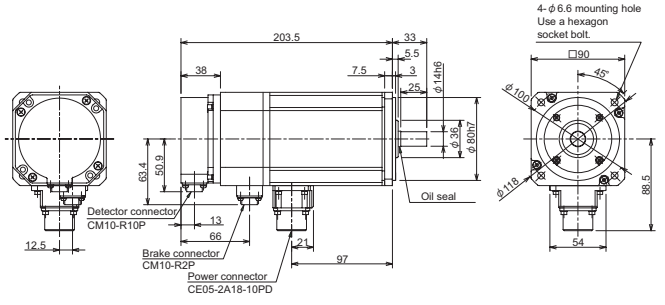
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation: 80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

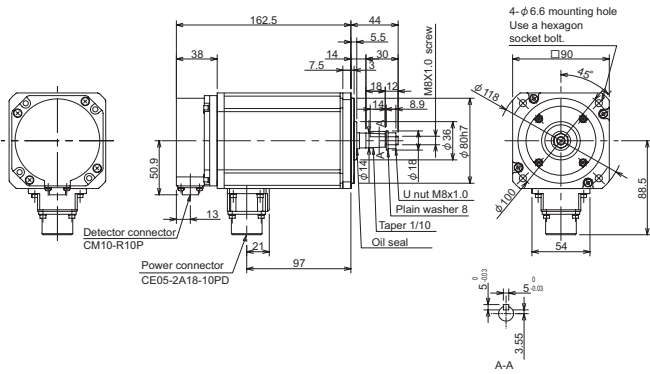
HF-H105S-A48



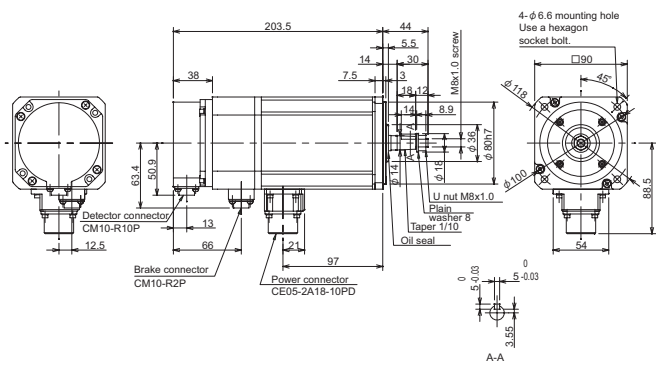
HF-H105BS-A48



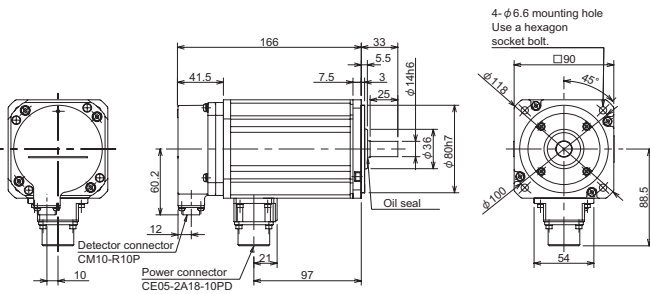
HF-H105T-A48



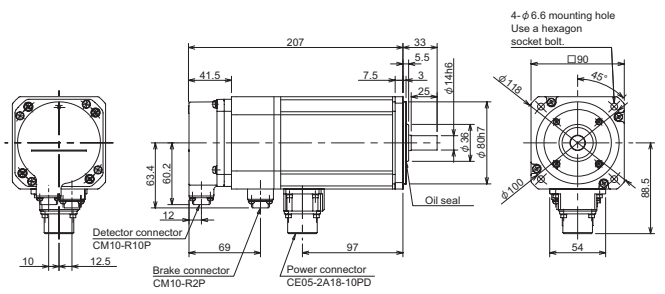
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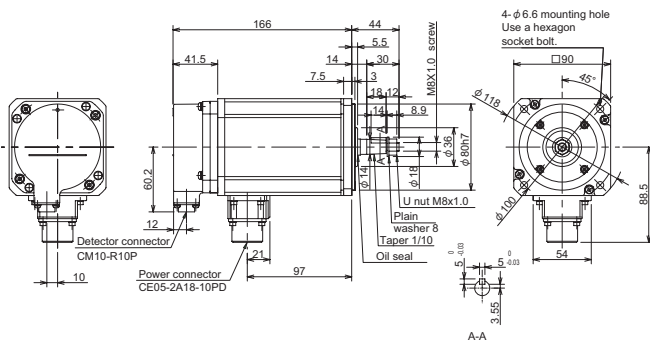
HF-H105S-A51,-A74



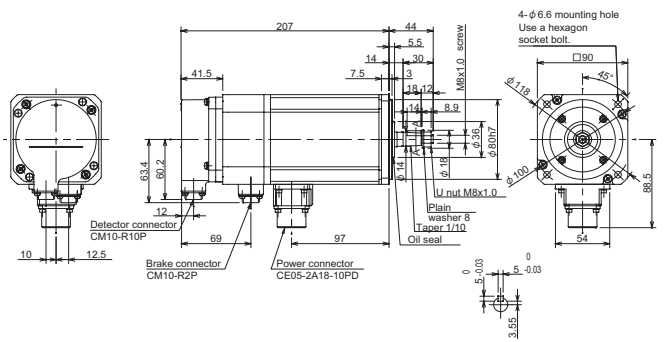
HF-H105BS-A51,-A74



HF-H105T-A51,-A74

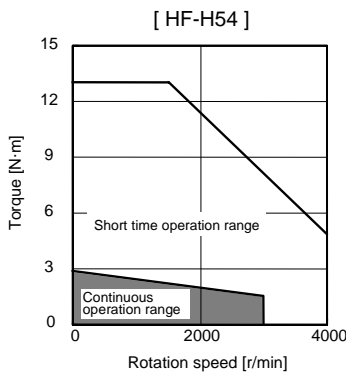


HF-H105BT-A51,-A74

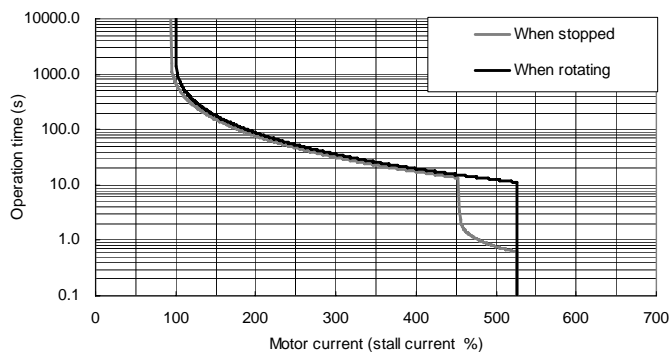


Stall torque	Rated rotation speed	Servomotor type	Explanation of type
2.9N · m	3000r/min	HF-H54 (1)(2) (3)	(1)Magnetic brake (2)Shaft end (3)Detector
		-XXX	B with brake None without brake S Straight T Taper xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item	Specifications	
Continuous characteristics	Rated output [kW]	0.5
	Rated current [A]	0.9
	Rated torque [N · m]	1.6
	Stall current [A]	1.6
	Stall torque [N · m]	2.9
Maximum momentary output [kW]	2.3	
Rated rotation speed [r/min]	3000	
Maximum rotation speed [r/min]	4000	
Maximum current [A]	8.4	
Maximum torque [N · m]	13.0	
Power rate at continuous rated torque [kW/s]	4.1	
Max. deceleration torque of dynamic brake (Tdp) [N · m]	3.96	
Motor inertia [kg · cm ²]	6.1	
(Brake inertia) [kg · cm ²]	8.3	
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	18.3
	General machine tool (interpolation axis) [kg · cm ²]	30.5
	Non-interpolation axis [kg · cm ²]	42.7
Weight	Without [kg]	4.8
	With brake [kg]	6.8
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level [m/s ²] ([G])	X:9.8(1), Y:24.5(2.5)	
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	392 (L=58)
	Thrust load [N]	490
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	980 (L=55)
	Thrust load [N]	490
Oil level (*2) [mm]	22.5	
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

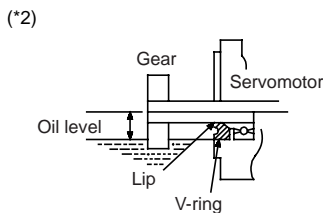
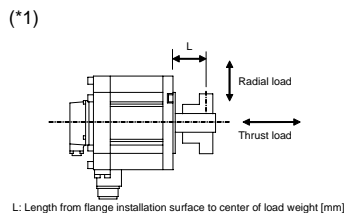
Magnetic brake characteristics

Item	Specifications
Rated voltage	DC24V
Rated current at 20°C [A]	0.8
Static friction torque [N · m]	8.3
Release delay time(*1) [s]	0.04
Braking delay time (DC OFF) (*1) [s]	0.03
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-DH-V1-20
2-axis type	MDS-DH-V2-2010 (L)
	MDS-DH-V2-2020 (L,M)
	MDS-DH-V2-4020 (M)
J-axis type	-

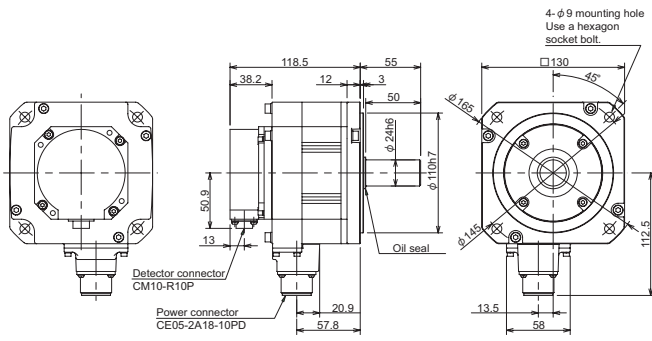


Environmental conditions

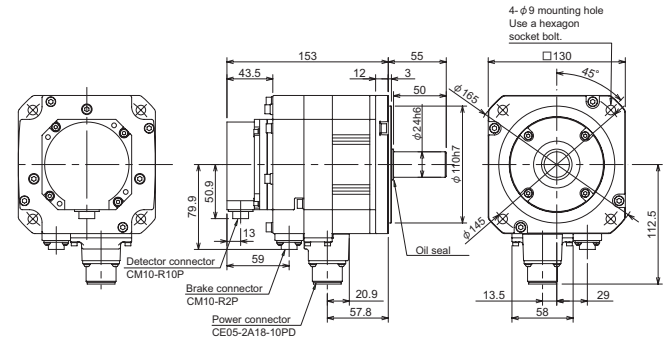
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation: 80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

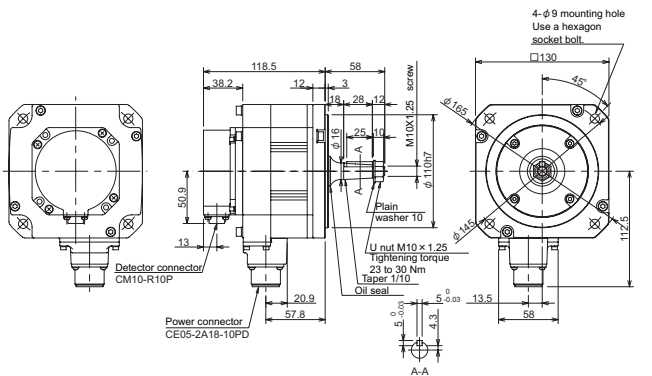
HF-H54S-A48



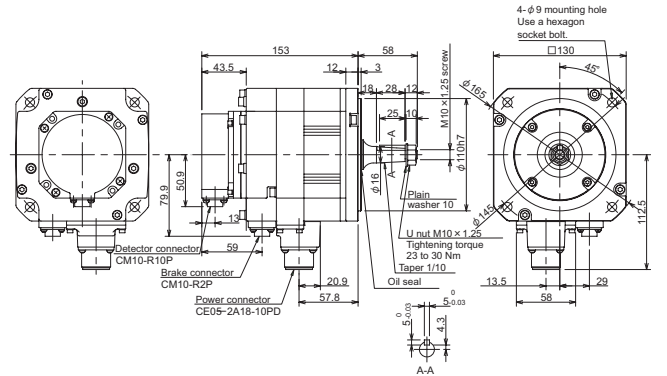
HF-H54BS-A48



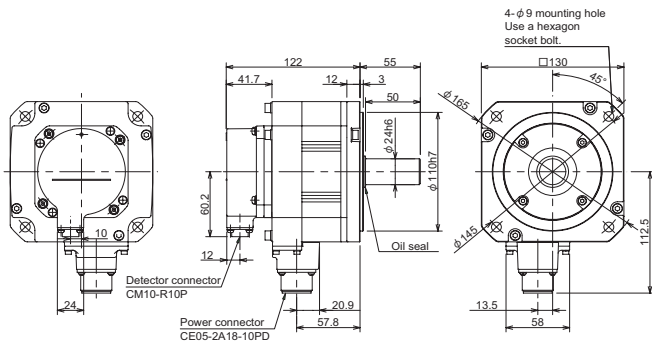
HF-H54T-A48



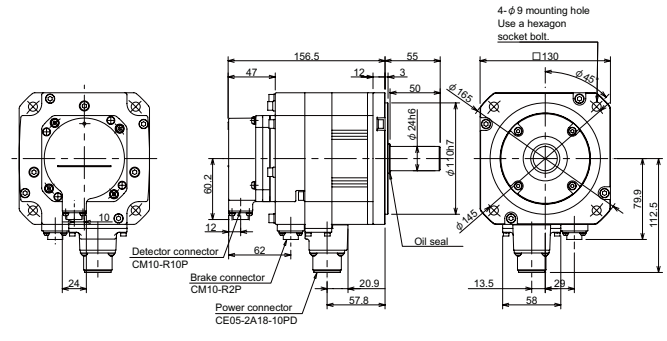
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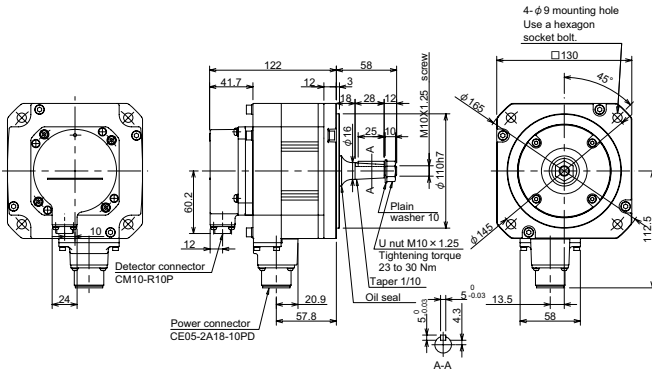
HF-H54S-A51,-A74



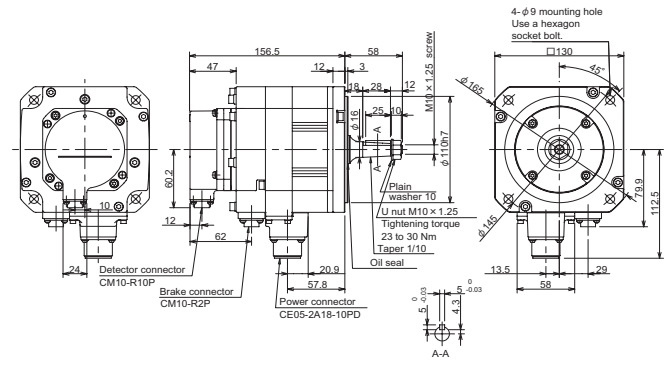
HF-H54BS-A51,-A74



HF-H54T-A51,-A74

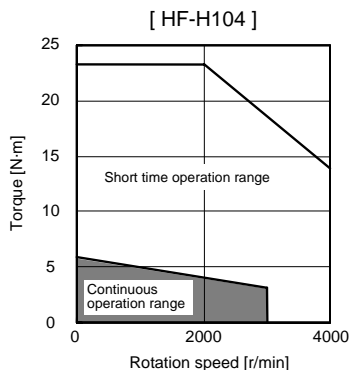


HF-H54BT-A51,-A74

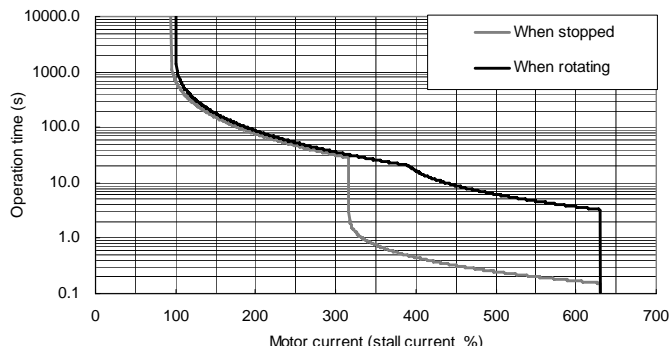


Stall torque	Rated rotation speed	Servomotor type	Explanation of type	
5.9N · m	3000r/min	HF-H104 (1)(2) (3) -XXX	(1)Magnetic brake	B with brake None without brake
			(2)Shaft end	S Straight T Taper
			(3)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item	Specifications	
Continuous characteristics	Rated output [kW]	1.0
	Rated current [A]	1.8
	Rated torque [N · m]	3.2
	Stall current [A]	3.3
	Stall torque [N · m]	5.9
Maximum momentary output [kW]	5.0	
Rated rotation speed [r/min]	3000	
Maximum rotation speed [r/min]	4000	
Maximum current [A]	14.5	
Maximum torque [N · m]	23.3	
Power rate at continuous rated torque [kW/s]	8.4	
Max. deceleration torque of dynamic brake (Tdp) [N · m]	10.04	
Motor inertia [kg · cm ²]	11.9	
(Brake inertia) [kg · cm ²]	14.1	
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	35.7
	General machine tool (interpolation axis) [kg · cm ²]	59.5
	Non-interpolation axis [kg · cm ²]	83.3
Weight	Without [kg]	6.5
	With brake [kg]	8.5
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level [m/s ²] ([G])	X:9.8(1), Y:24.5(2.5)	
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	392 (L=58)
	Thrust load [N]	490
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	980 (L=55)
	Thrust load [N]	490
Oil level (*2) [mm]	22.5	
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

Magnetic brake characteristics

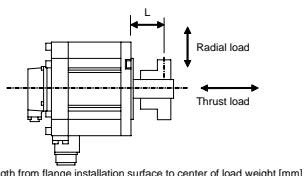
Item	Specifications
Rated voltage	DC24V
Rated current at 20°C [A]	0.8
Static friction torque [N · m]	8.3
Release delay time(*1) [s]	0.04
Braking delay time (DC OFF) (*1) [s]	0.03
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

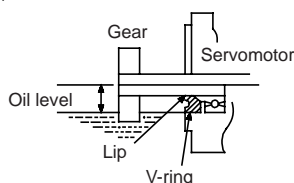
Compatible servo drive unit

Item	Type
1-axis type	MDS-DH-V1-20
2-axis type	MDS-DH-V2-2010 (L)
	MDS-DH-V2-2020 (L,M)
	MDS-DH-V2-4020 (M)
J-axis type	-

(*1)



(*2)

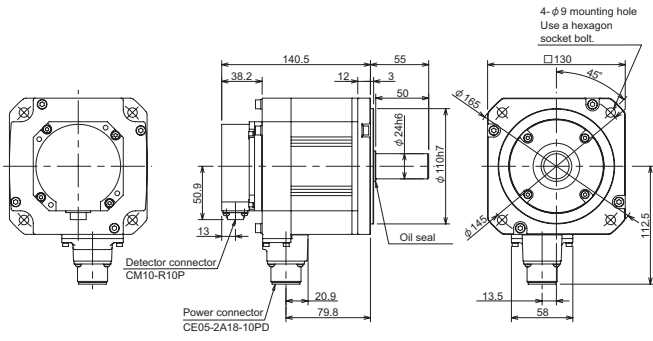


Environmental conditions

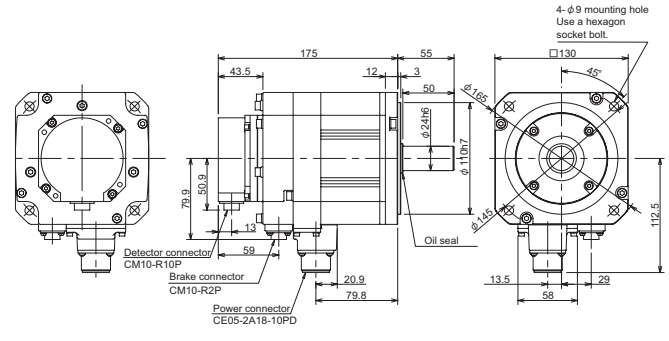
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation: 80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

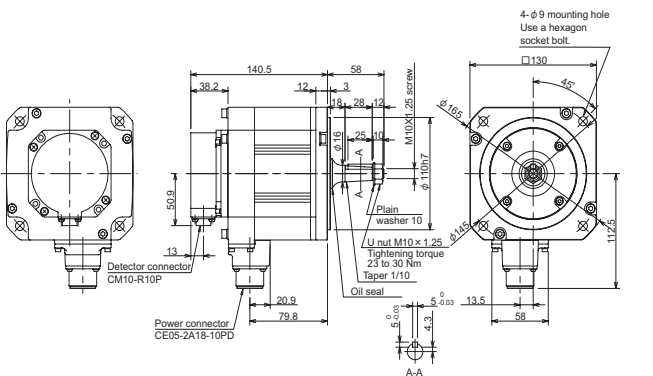
HF-H104S-A48



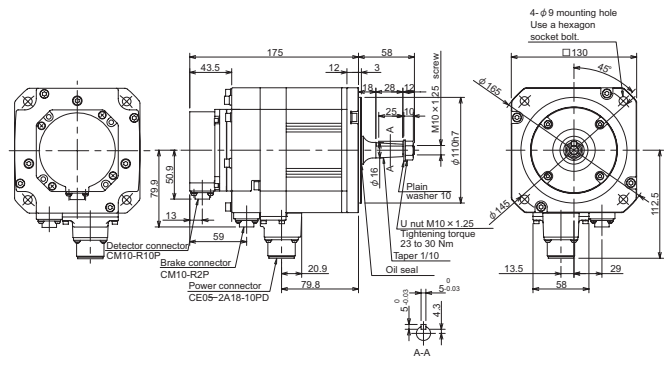
HF-H104BS-A48



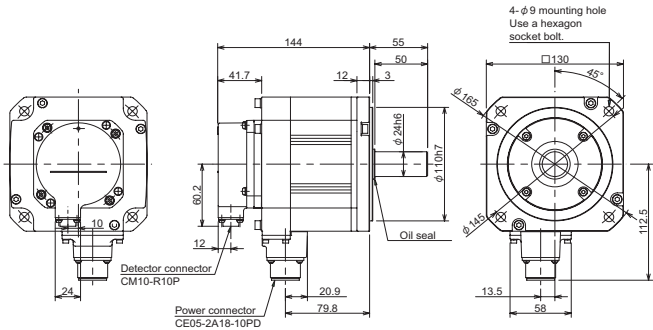
HF-H104T-A48



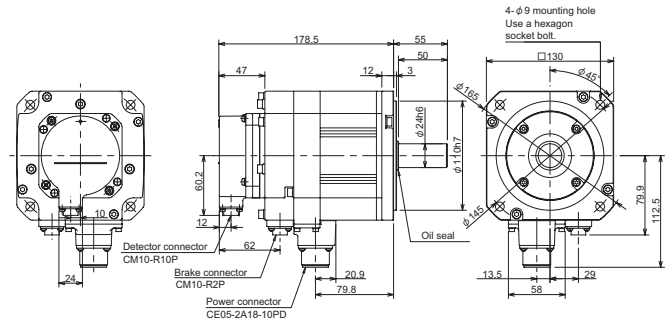
HF-H104BT-A48



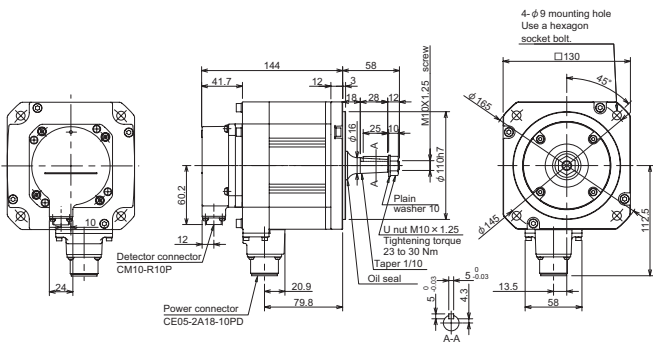
HF-H104S-A51,-A74



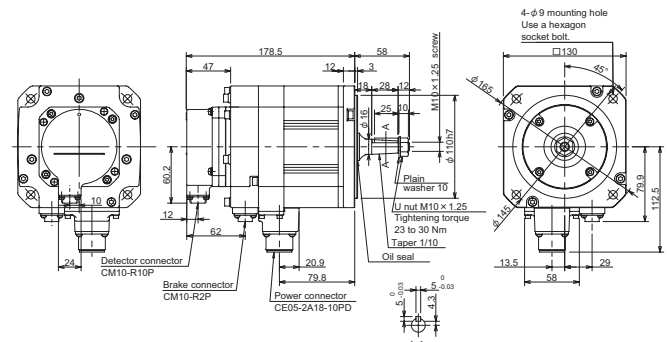
HF-H104BS-A51,-A74



HF-H104T-A51,-A74

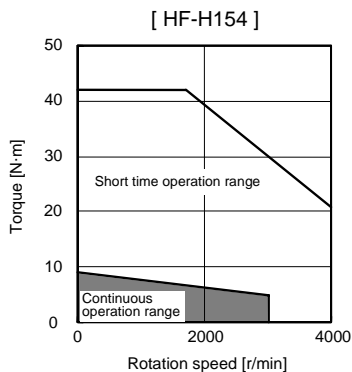


HF-H104BT-A51,-A74

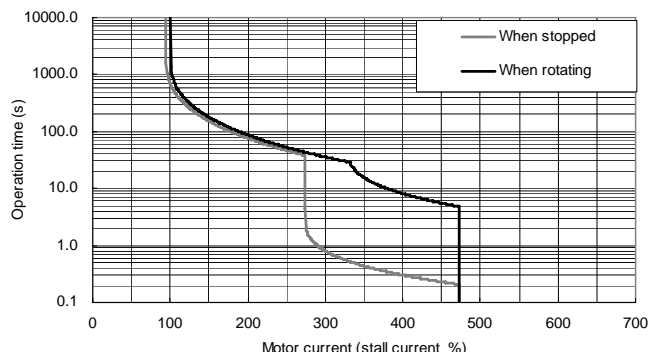


Stall torque	Rated rotation speed	Servomotor type	Explanation of type	
9.0N · m	3000r/min	HF-H154 (1)(2) (3) -XXX	(1)Magnetic brake	B with brake None without brake
			(2)Shaft end	S Straight T Taper
			(3)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item	Specifications	
Continuous characteristics	Rated output [kW]	1.5
	Rated current [A]	2.9
	Rated torque [N · m]	4.8
	Stall current [A]	5.5
	Stall torque [N · m]	9.0
Maximum momentary output [kW]	9.0	
Rated rotation speed [r/min]	3000	
Maximum rotation speed [r/min]	4000	
Maximum current [A]	26.0	
Maximum torque [N · m]	42.0	
Power rate at continuous rated torque [kW/s]	12.7	
Max. deceleration torque of dynamic brake(Tdp) [N · m]	15.04	
Motor inertia [kg · cm ²]	17.8	
(Brake inertia) [kg · cm ²]	20.0	
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	53.4
	General machine tool (interpolation axis) [kg · cm ²]	89.0
	Non-interpolation axis [kg · cm ²]	124.6
Weight	Without [kg]	8.3
	With brake [kg]	10.3
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level [m/s ²] ([G])	X:9.8(1), Y:24.5(2.5)	
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	392 (L=58)
	Thrust load [N]	490
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	980 (L=55)
	Thrust load [N]	490
Oil level (*2) [mm]	22.5	
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

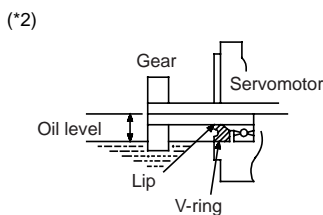
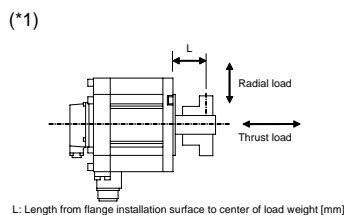
Magnetic brake characteristics

Item	Specifications
Rated voltage	DC24V
Rated current at 20°C [A]	0.8
Static friction torque [N · m]	8.3
Release delay time(*1) [s]	0.04
Braking delay time (DC OFF) (*1) [s]	0.03
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-DH-V1-40
2-axis type	MDS-DH-V2-4020 (L)
	MDS-DH-V2-4040 (L,M)
	MDS-DH-V2-8040 (M)
J-axis type	-

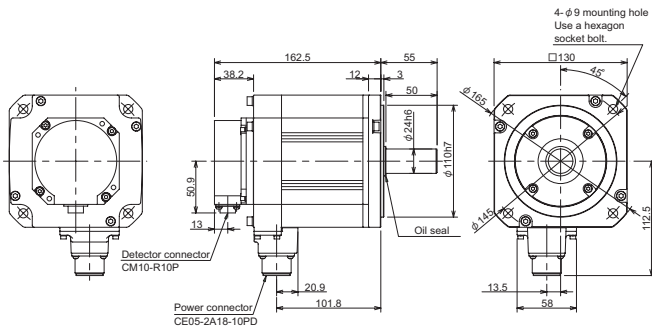


Environmental conditions

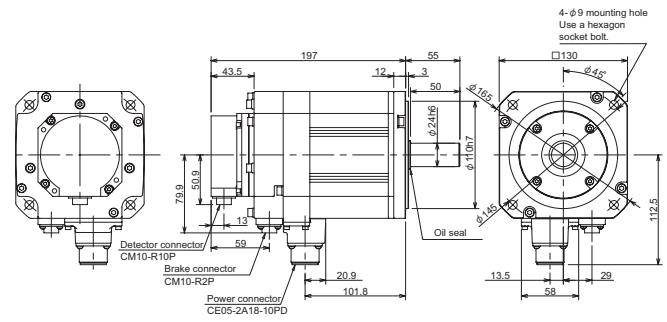
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

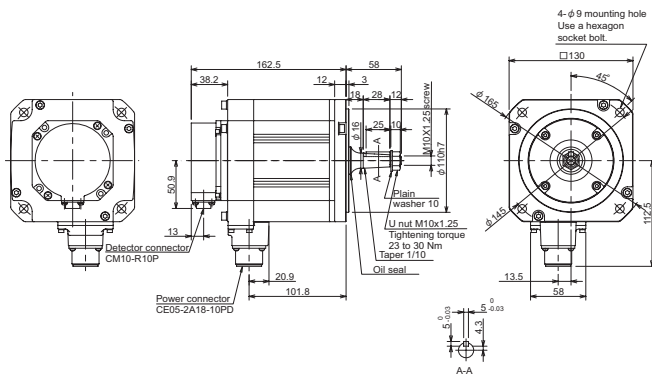
HF-H154S-A48



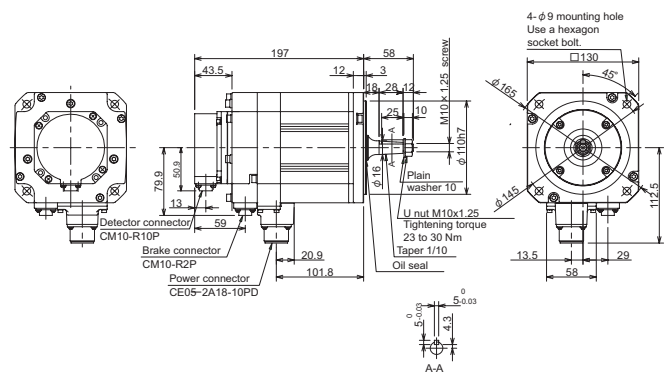
HF-H154BS-A48



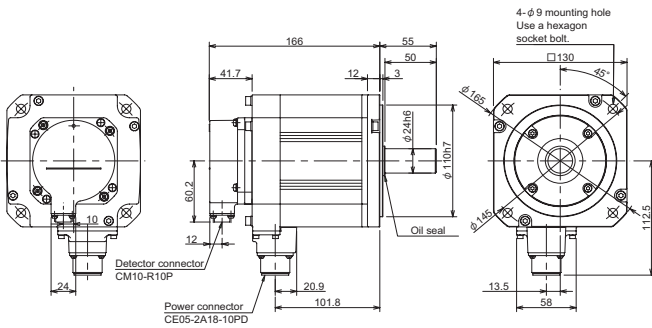
HF-H154T-A48



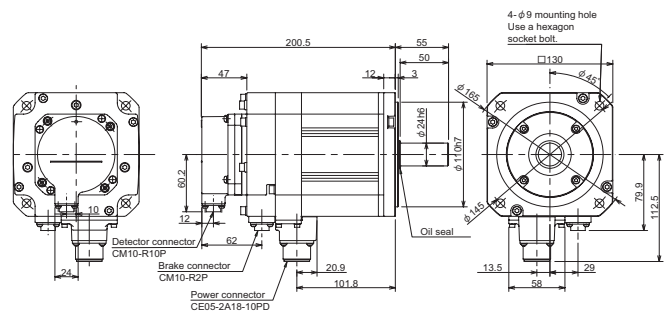
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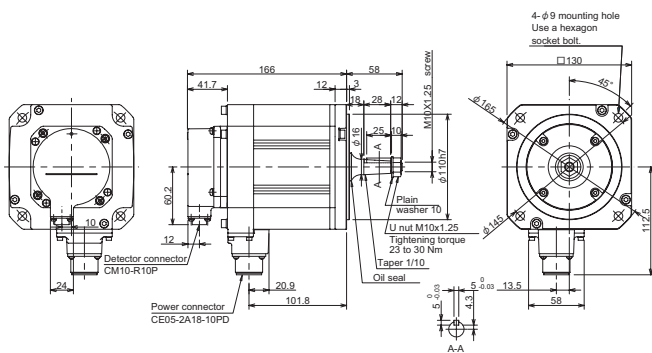
HF-H154S-A51,-A74



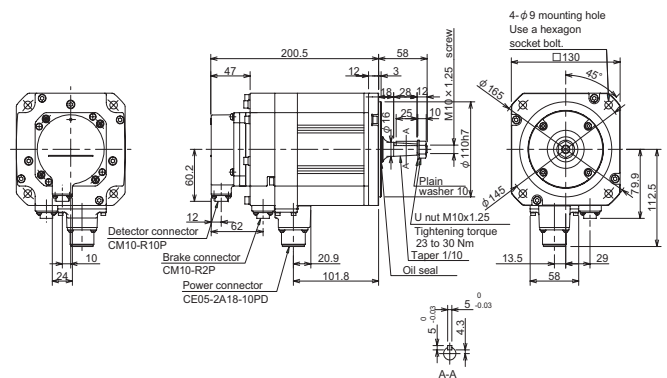
HF-H154BS-A51,-A74



HF-H154T-A51,-A74

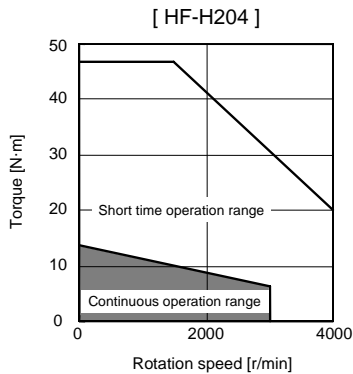


HF-H154BT-A51,-A74

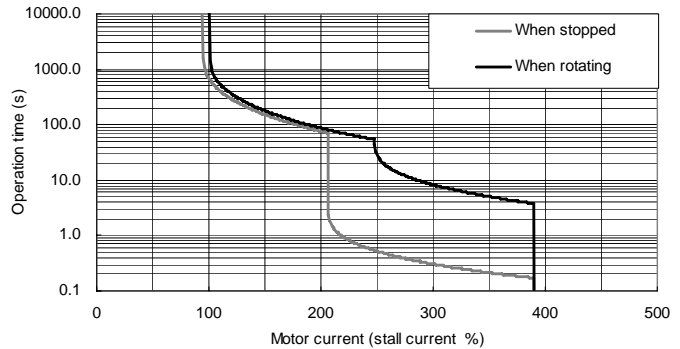


Stall torque	Rated rotation speed	Servomotor type		Explanation of type	
13.7N · m	3000r/min	(1)	(2)	(1)Magnetic brake	B with brake None without brake
		HF-H204	S-xxx	(2)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item	Specifications	
Continuous characteristics	Rated output [kW]	2.0
	Rated current [A]	3.4
	Rated torque [N · m]	6.4
	Stall current [A]	7.3
	Stall torque [N · m]	13.7
Maximum momentary output [kW]	8.0	
Rated rotation speed [r/min]	3000	
Maximum rotation speed [r/min]	4000	
Maximum current [A]	28.5	
Maximum torque [N · m]	47.0	
Power rate at continuous rated torque [kW/s]	10.6	
Max. deceleration torque of dynamic brake (Tdp) [N · m]	15.83	
Motor inertia [kg · cm ²]	38.3	
(Brake inertia) [kg · cm ²]	48.0	
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	114.9
	General machine tool (interpolation axis) [kg · cm ²]	191.5
	Non-interpolation axis [kg · cm ²]	268.1
Weight	Without [kg]	12.0
	With brake [kg]	18
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level [m/s ²] ([G])	X:19.6(2), Y:49(5)	
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	-
	Thrust load [N]	-
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	2058 (L=79)
	Thrust load [N]	980
Oil level (*2) [mm]	30	
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

Magnetic brake characteristics

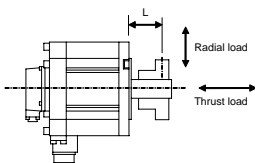
Item	Specifications
Rated voltage	DC24V
Rated current at 20°C [A]	1.4
Static friction torque [N · m]	43.1
Release delay time(*1) [s]	0.1
Braking delay time (DC OFF) (*1) [s]	0.03
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

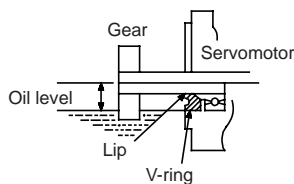
Item	Type
1-axis type	MDS-DH-V1-40
2-axis type	MDS-DH-V2-4020 (L)
	MDS-DH-V2-4040 (L,M)
	MDS-DH-V2-8040 (M)
J-axis type	-

(*1)



L: Length from flange installation surface to center of load weight [mm]

(*2)

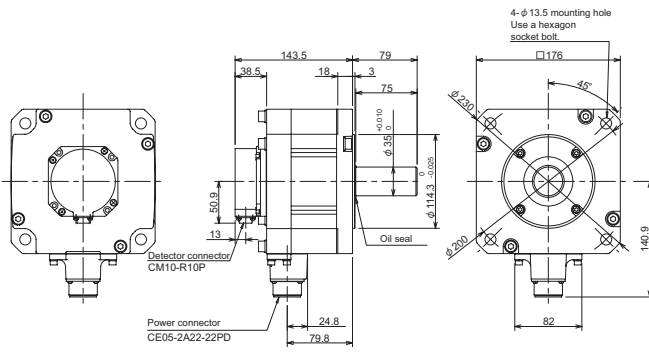


Environmental conditions

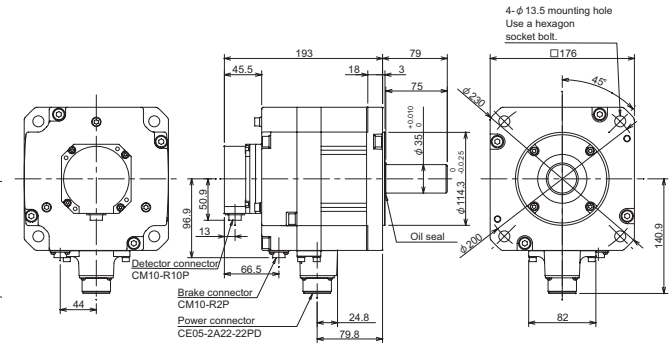
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation: 80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

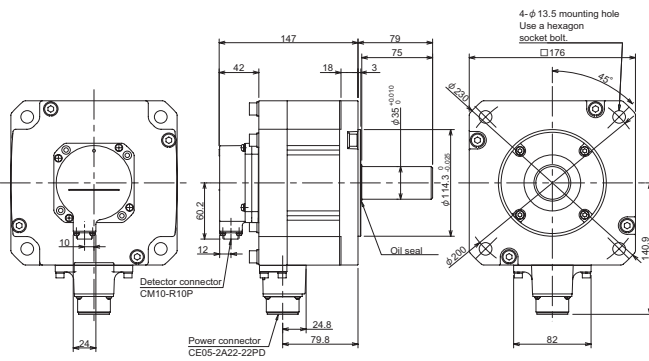
HF-H204S-A48



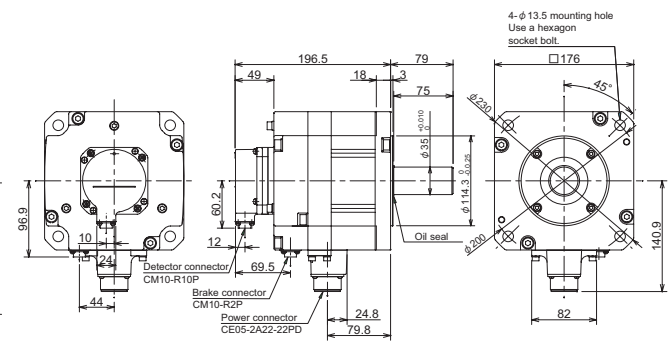
HF-H204BS-A48



HF-H204S-A51,-A74

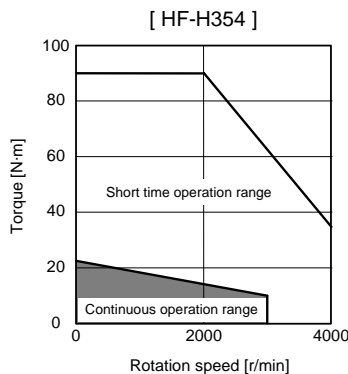


HF-H204BS-A51,-A74

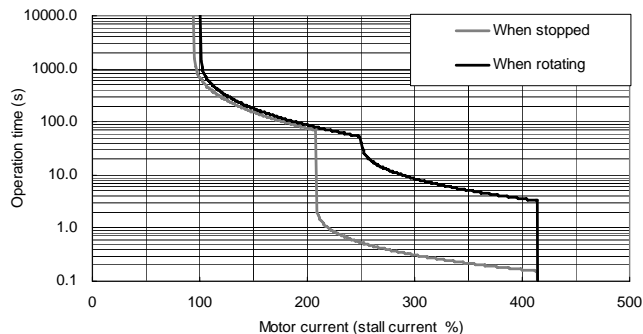


Stall torque	Rated rotation speed	Servomotor type		Explanation of type		
22.5N · m	3000r/min	HF-H354	(1)	(2)	(1)Magnetic brake	B with brake
						None without brake
					(2)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item		Specifications
Continuous characteristics	Rated output [kW]	3.5
	Rated current [A]	6.9
	Rated torque [N · m]	11.1
	Stall current [A]	14
	Stall torque [N · m]	22.5
Maximum momentary output [kW]		18.0
Rated rotation speed [r/min]		3000
Maximum rotation speed [r/min]		4000
Maximum current [A]		58.0
Maximum torque [N · m]		90.0
Power rate at continuous rated torque [kW/s]		16.5
Max. deceleration torque of dynamic brake(Tdp) [N · m]		37.35
Motor inertia [kg · cm ²]		75.0
(Brake inertia) [kg · cm ²]		84.7
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	225.0
	General machine tool (interpolation axis) [kg · cm ²]	375.0
	Non-interpolation axis [kg · cm ²]	525.0
Weight	Without [kg]	19.0
	With brake [kg]	25
Armature insulation class		Class F
Protection method		IP67 (The shaft-through portion is excluded.)
Quakeproof level [m/s ²] ([G])		X:19.6(2), Y:49(5)
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	-
	Thrust load [N]	-
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	2058 (L=79)
	Thrust load [N]	980
Oil level (*2) [mm]		30
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

Magnetic brake characteristics

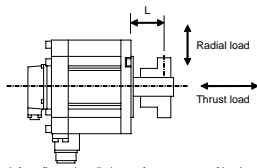
Item	Specifications
Rated voltage	DC24V
Rated current at 20°C [A]	1.4
Static friction torque [N · m]	43.1
Release delay time(*1) [s]	0.1
Braking delay time (DC OFF) (*1) [s]	0.03
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

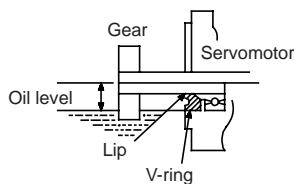
Item	Type
1-axis type	MDS-DH-V1-80
2-axis type	MDS-DH-V2-8040 (L) MDS-DH-V2-8080 (L,M)
J-axis type	-

(*1)



L: Length from flange installation surface to center of load weight [mm]

(*2)

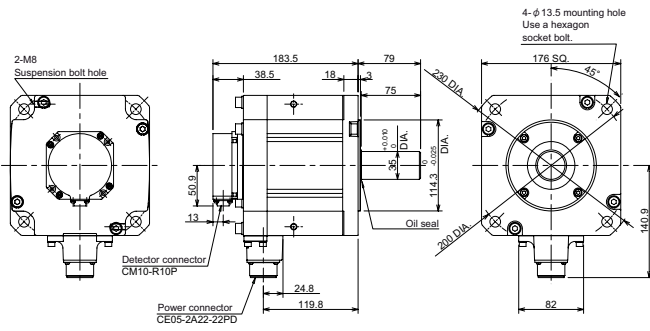


Environmental conditions

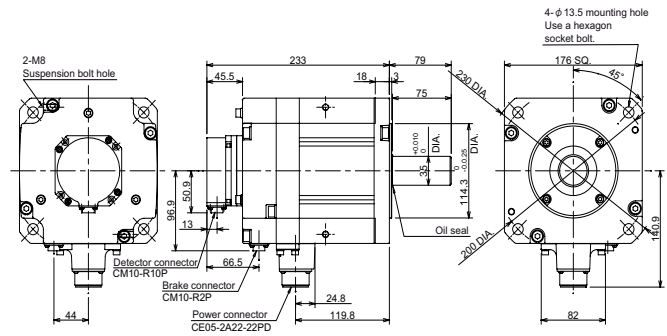
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation: 80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

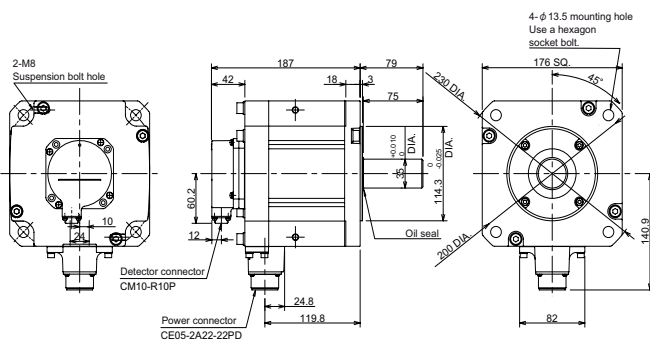
HF-H354S-A48



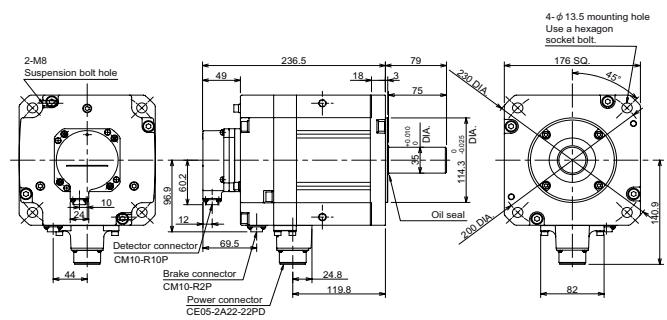
HF-H354BS-A48



HF-H354S-A51,-A74

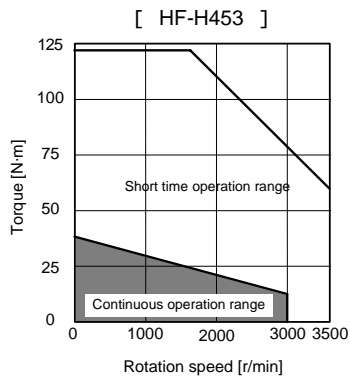


HF-H354BS-A51,-A74

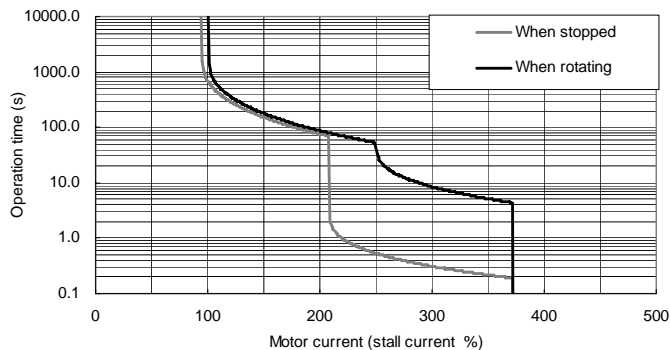


Stall torque	Rated rotation speed	Servomotor type		Explanation of type		
37.2N · m	3000r/min	HF-H453	(1)	(2)	(1)Magnetic brake	B with brake
						None without brake
					(2)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item		Specifications
Continuous characteristics	Rated output	[kW] 4.5
	Rated current	[A] 6.7
	Rated torque	[N · m] 14.3
	Stall current	[A] 17
	Stall torque	[N · m] 37.2
Maximum momentary output	[kW] 22.0	
Rated rotation speed	[r/min] 3000	
Maximum rotation speed	[r/min] 3500	
Maximum current	[A] 52.1	
Maximum torque	[N · m] 122.0	
Power rate at continuous rated torque	[kW/s] 18.3	
Max. deceleration torque of dynamic brake(Tdp)	[N · m] 52.90	
Motor inertia	[kg · cm ²] 112.0	
(Brake inertia)	[kg · cm ²] 121.7	
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine	[kg · cm ²] 336.0
	General machine tool (interpolation axis)	[kg · cm ²] 560.0
	Non-interpolation axis	[kg · cm ²] 784.0
Weight	Without	[kg] 26.0
	With brake	[kg] 32
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level	[m/s ²] ([G])	X:11.7(1.2), Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*1)	[N] ([mm]) -
	Thrust load	[N] -
Axis tolerable load (Straight shaft)	Radial load (*1)	[N] 2058 (L=79)
	Thrust load	[N] 980
Oil level (*2)	[mm]	30
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

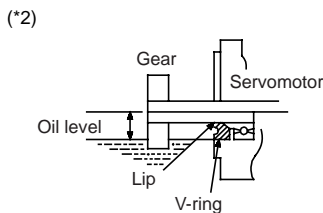
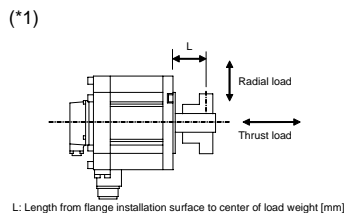
Magnetic brake characteristics

Item	Specifications
Rated voltage	DC24V
Rated current at 20°C	[A] 1.4
Static friction torque	[N · m] 43.1
Release delay time(*1)	[s] 0.1
Braking delay time (DC OFF) (*1)	[s] 0.03
Brake life (*2)	[times] 20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-DH-V1-80
2-axis type	MDS-DH-V2-8040 (L) MDS-DH-V2-8080 (L,M)
J-axis type	-

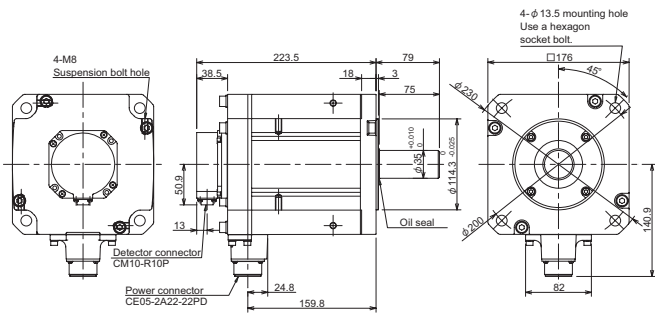


Environmental conditions

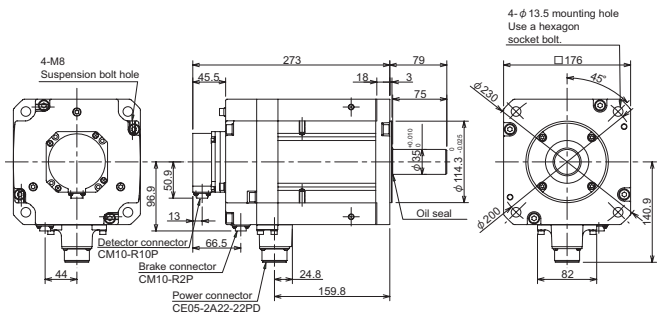
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 - +70 (with no freezing)
Ambient humidity	Operation: 80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

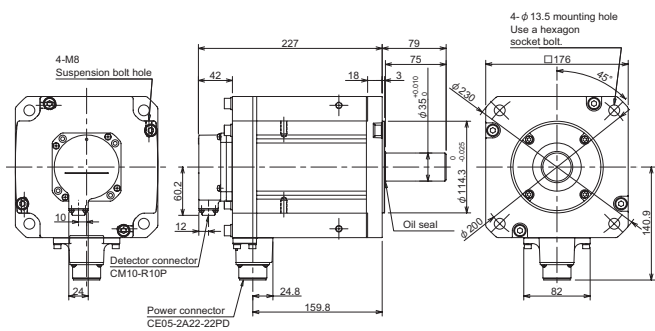
HF-H453S-A48



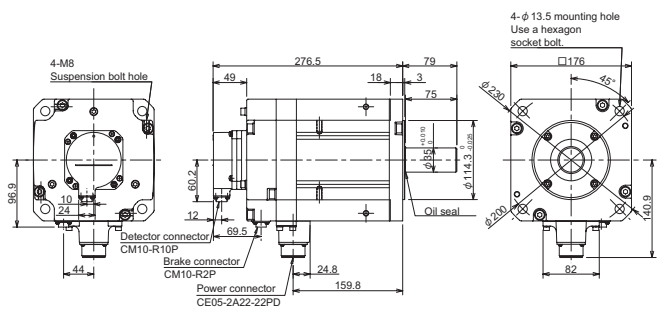
HF-H453BS-A48



HF-H453S-A51,-A74

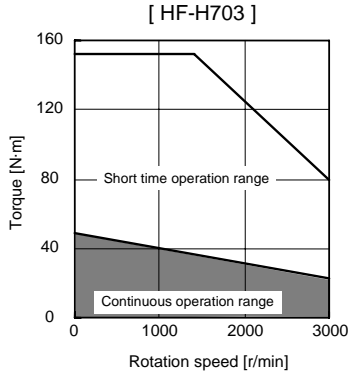


HF-H453BS-A51,-A74

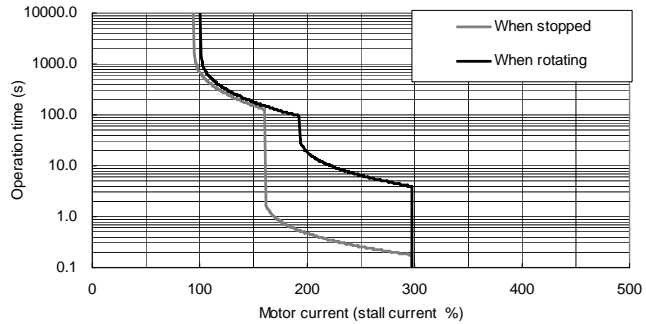


Stall torque	Rated rotation speed	Servomotor type		Explanation of type		
49.0N · m	3000r/min	HF-H703	(1)	(2)	(1)Magnetic brake	B with brake
						None without brake
					(2)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item		Specifications
Continuous characteristics	Rated output	[kW] 7.0
	Rated current	[A] 8.3
	Rated torque	[N · m] 22.3
	Stall current	[A] 18.2
	Stall torque	[N · m] 49.0
Maximum momentary output	[kW] 28.0	
Rated rotation speed	[r/min] 3000	
Maximum rotation speed	[r/min] 3000	
Maximum current	[A] 54.2	
Maximum torque	[N · m] 152.0	
Power rate at continuous rated torque	[kW/s] 32.2	
Max. deceleration torque of dynamic brake(Tdp)	[N · m] 71.79	
Motor inertia	[kg · cm ²] 154.0	
(Brake inertia)	[kg · cm ²] 163.7	
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine	[kg · cm ²] 462.0
	General machine tool (interpolation axis)	[kg · cm ²] 770.0
	Non-interpolation axis	[kg · cm ²] 1078.0
Weight	Without	[kg] 32.0
	With brake	[kg] 38
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level	[m/s ²] ([G])	X:11.7(1.2), Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*1)	[N] ([mm]) -
	Thrust load	[N] -
Axis tolerable load (Straight shaft)	Radial load (*1)	[N] 2058 (L=79)
	Thrust load	[N] 980
Oil level (*2)	[mm]	30
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

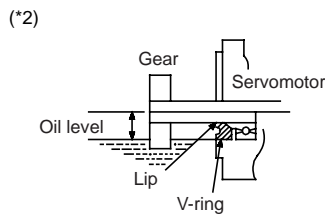
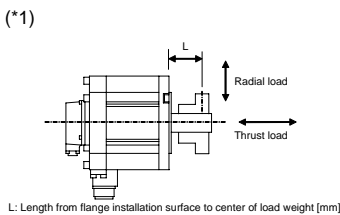
Magnetic brake characteristics

Item	Specifications
Rated voltage	DC24V
Rated current at 20°C	[A] 1.4
Static friction torque	[N · m] 43.1
Release delay time(*1)	[s] 0.1
Braking delay time (DC OFF) (*1)	[s] 0.03
Brake life (*2)	[times] 20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-DH-V1-80W
2-axis type	-
J-axis type	-

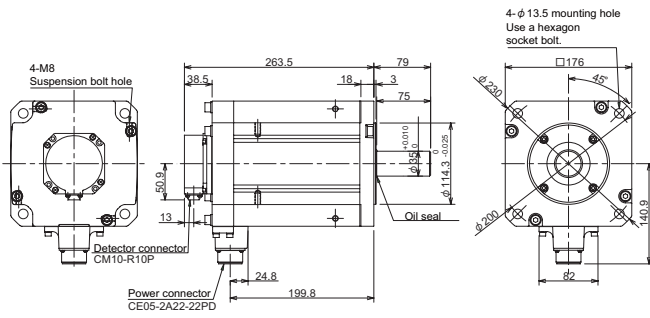


Environmental conditions

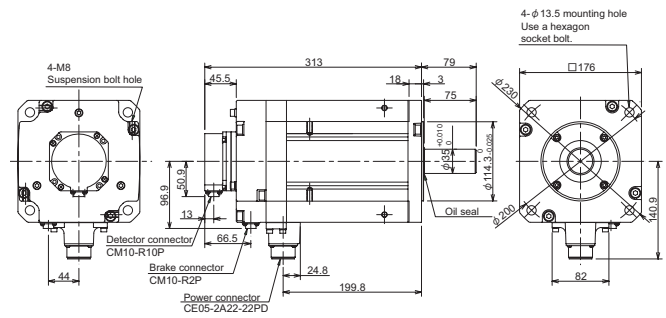
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 - +70 (with no freezing)
Ambient humidity	Operation: 80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

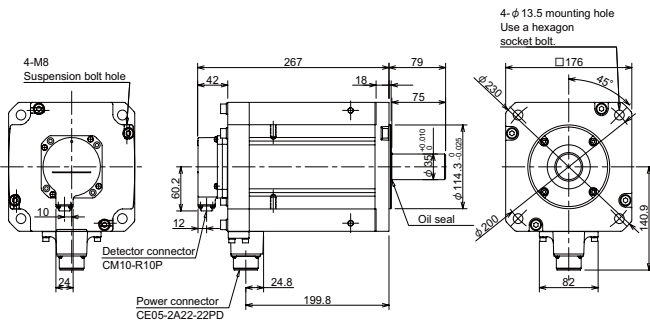
HF-H703S-A48



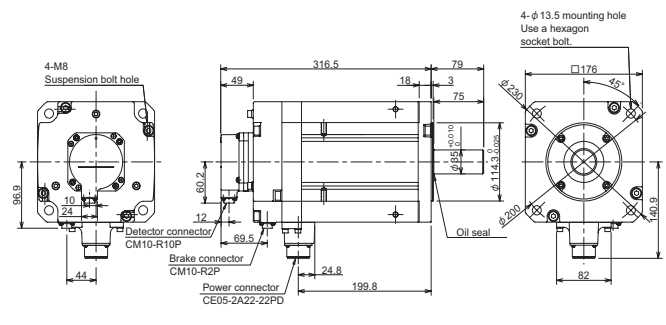
HF-H703BS-A48



HF-H703S-A51,-A74

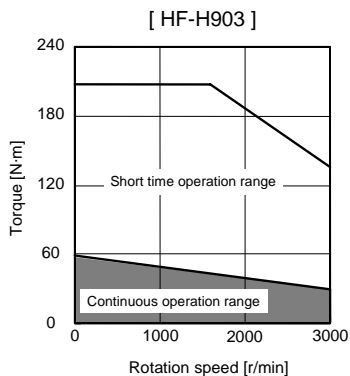


HF-H703BS-A51,-A74

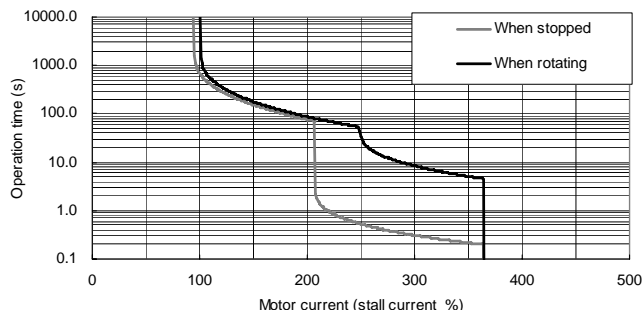


Stall torque	Rated rotation speed	Servomotor type		Explanation of type		
58.8N · m	3000r/min	HF-H903	(1)	(2)	(1)Magnetic brake	B with brake
						None without brake
					(2)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item		Specifications
Continuous characteristics	Rated output	[kW] 9.0
	Rated current	[A] 13.6
	Rated torque	[N · m] 28.7
	Stall current	[A] 28
	Stall torque	[N · m] 58.8
Maximum momentary output	[kW] 41.0	
Rated rotation speed	[r/min] 3000	
Maximum rotation speed	[r/min] 3000	
Maximum current	[A] 102.0	
Maximum torque	[N · m] 208.0	
Power rate at continuous rated torque	[kW/s] 42.1	
Max. deceleration torque of dynamic brake(Tdp)	[N · m] 89.57	
Motor inertia	[kg · cm ²] 196.0	
(Brake inertia)	[kg · cm ²] 205.7	
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine	[kg · cm ²] 588.0
	General machine tool (interpolation axis)	[kg · cm ²] 980.0
	Non-interpolation axis	[kg · cm ²] 1372.0
Weight	Without	[kg] 45.0
	With brake	[kg] 51
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level	[m/s ²] ([G])	X:9.8(1), Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*1)	[N] ([mm]) -
	Thrust load	[N] -
Axis tolerable load (Straight shaft)	Radial load (*1)	[N] 2450 (L=85)
	Thrust load	[N] 980
Oil level (*2)	[mm]	34
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

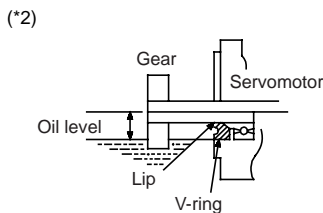
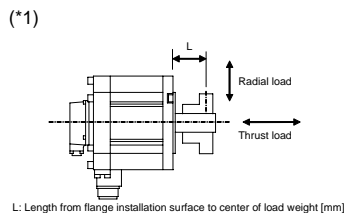
Magnetic brake characteristics

Item	Specifications
Rated voltage	DC24V
Rated current at 20°C	[A] 1.4
Static friction torque	[N · m] 43.1
Release delay time(*1)	[s] 0.1
Braking delay time (DC OFF) (*1)	[s] 0.03
Brake life (*2)	[times] 20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-DH-V1-160
2-axis type	-
J-axis type	-

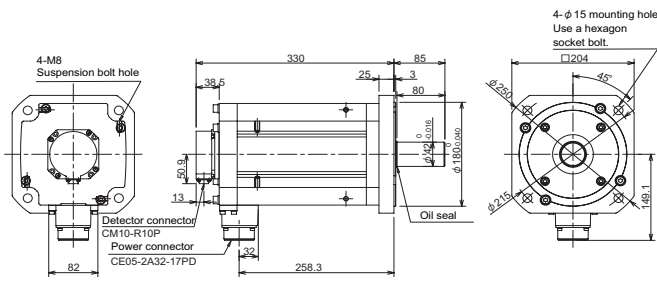


Environmental conditions

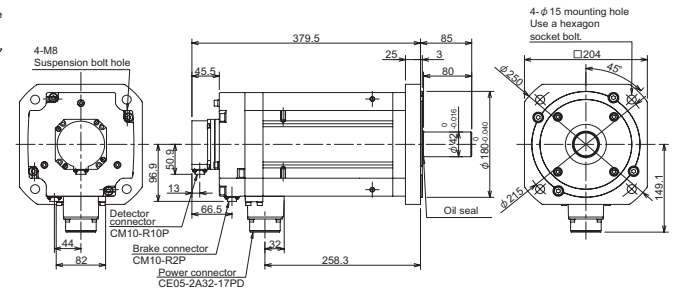
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 - +70 (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

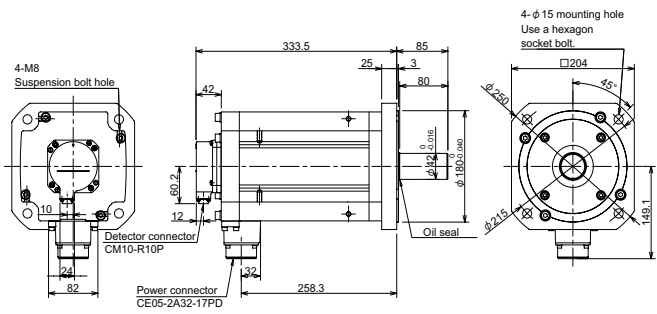
HF-H903S-A48



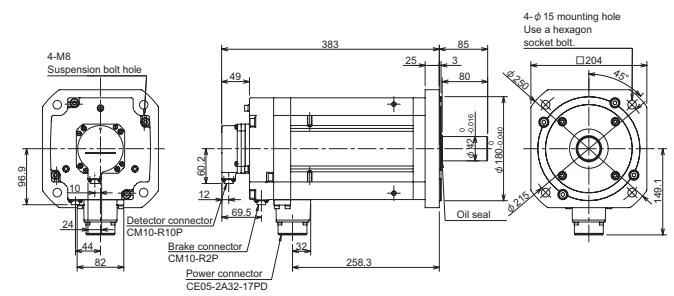
HF-H903BS-A48



HF-H903S-A51,-A74

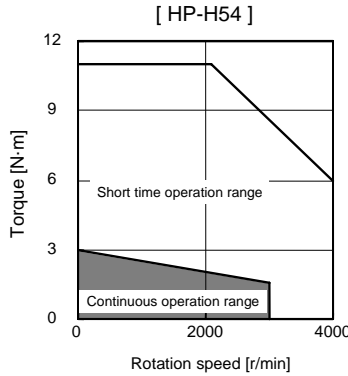


HF-H903BS-A51,-A74

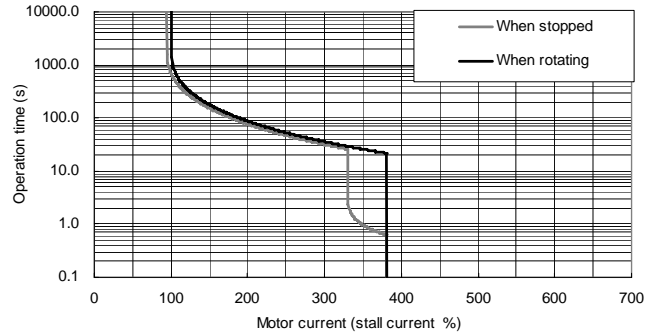


Stall torque	Rated rotation speed	Servomotor type	Explanation of type			
3.0N · m	3000r/min	HP-H54	(1)(2) (3)	-XXX		
					(1)Magnetic brake	B with brake None without brake
					(2)Shaft end	S Straight T Taper
					(3)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item	Specifications	
Continuous characteristics	Rated output [kW]	0.5
	Rated current [A]	0.9
	Rated torque [N · m]	1.6
	Stall current [A]	1.8
	Stall torque [N · m]	3.0
Maximum momentary output [kW]	2.3	
Rated rotation speed [r/min]	3000	
Maximum rotation speed [r/min]	4000	
Maximum current [A]	8.4	
Maximum torque [N · m]	11.0	
Power rate at continuous rated torque [kW/s]	5.5	
Max. deceleration torque of dynamic brake(Tdp) [N · m]	6.32	
Motor inertia [kg · cm ²]	4.6	
(Brake inertia) [kg · cm ²]	5.1	
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	13.8
	General machine tool (interpolation axis) [kg · cm ²]	23.0
	Non-interpolation axis [kg · cm ²]	46.0
Weight	Without [kg]	6.0
	With brake [kg]	7.3
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level [m/s ²] ([G])	X:9.8(1), Y:24.5(2.5)	
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	392 (L=52.7)
	Thrust load [N]	490
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	980 (L=52.7)
	Thrust load [N]	490
Oil level (*2) [mm]	20	
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

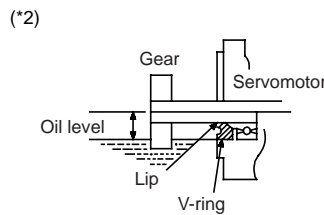
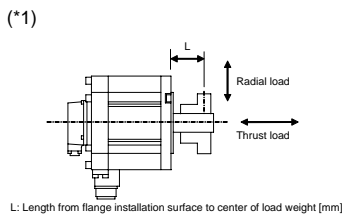
Magnetic brake characteristics

Item	Specifications
Rated voltage	DC24V
Rated current at 20°C [A]	0.91
Static friction torque [N · m]	3.5
Release delay time(*1) [s]	0.1
Braking delay time (DC OFF) (*1) [s]	0.1
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-DH-V1-20
2-axis type	MDS-DH-V2-2010 (L) MDS-DH-V2-2020 (L,M) MDS-DH-V2-4020 (M)
J-axis type	-

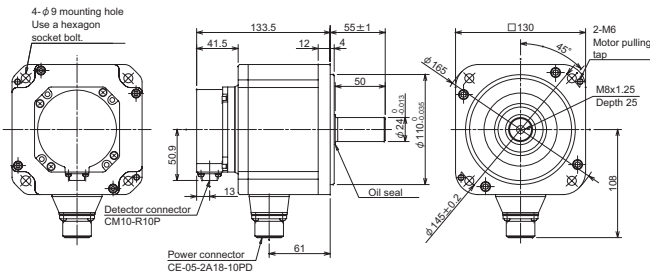


Environmental conditions

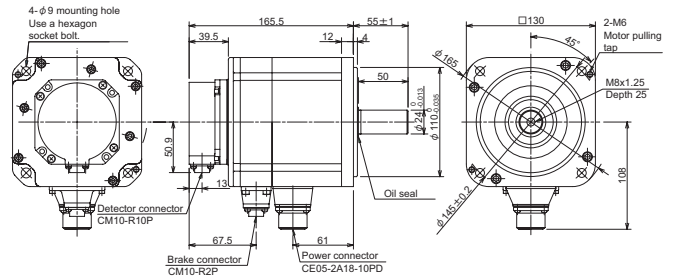
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

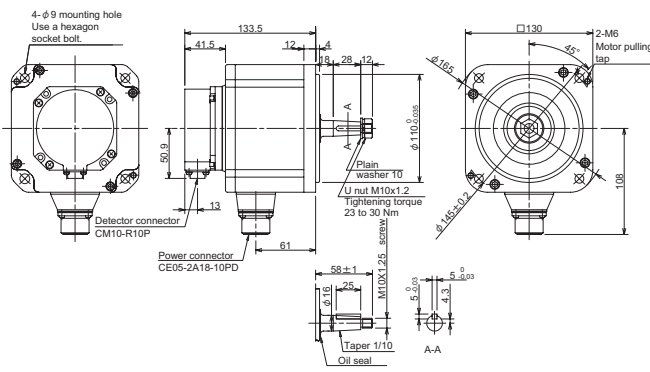
HP-H54S-A48



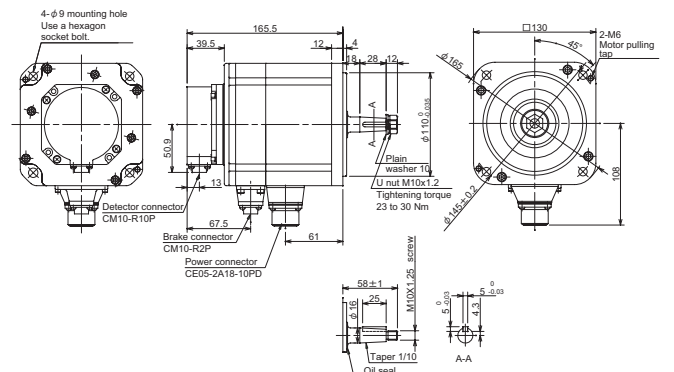
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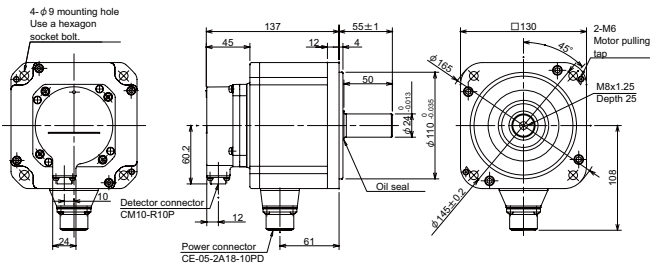
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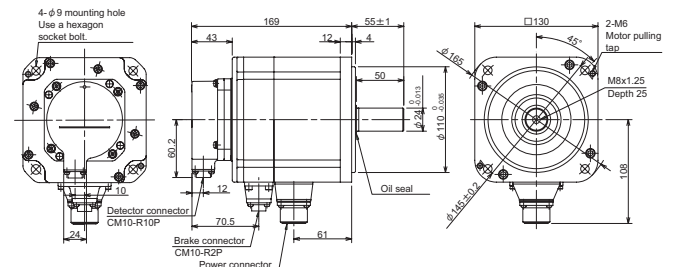
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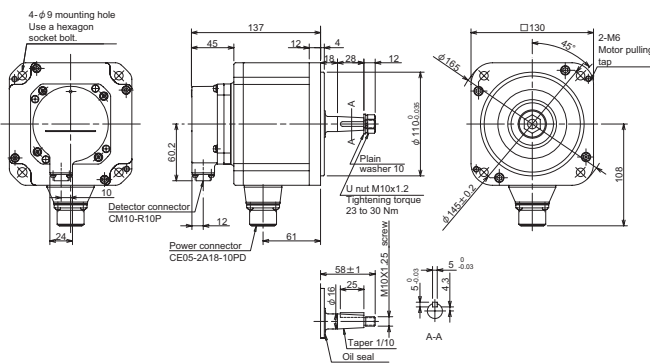
HP-H54S-A51,-A74



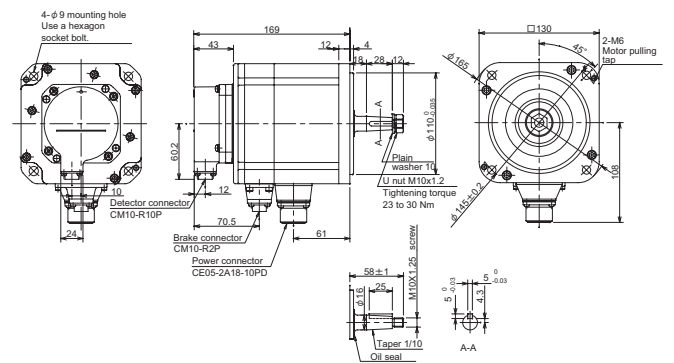
HP-H54BS-A51,-A74



HP-H54T-A51,-A74

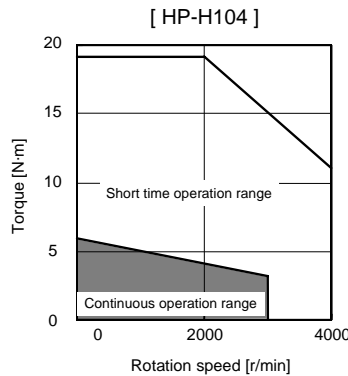


HP-H54BT-A51,-A74

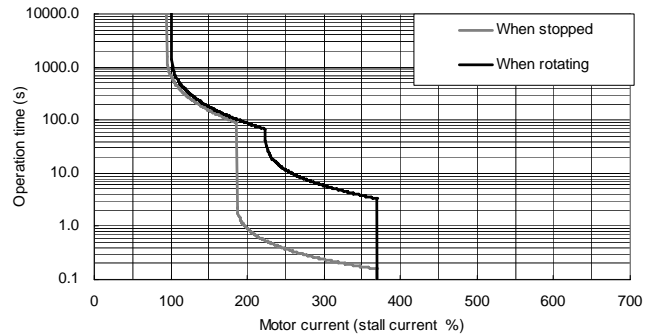


Stall torque	Rated rotation speed	Servomotor type		Explanation of type	
5.9N · m	3000r/min	HP-H104	(1)(2) (3) -XXX	(1)Magnetic brake	B with brake
					None without brake
				(2)Shaft end	S Straight
					T Taper
				(3)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item	Specifications	
Continuous characteristics	Rated output [kW]	1.0
	Rated current [A]	1.8
	Rated torque [N · m]	3.2
	Stall current [A]	3.4
	Stall torque [N · m]	5.9
Maximum momentary output [kW]	4.3	
Rated rotation speed [r/min]	3000	
Maximum rotation speed [r/min]	4000	
Maximum current [A]	12.8	
Maximum torque [N · m]	19.2	
Power rate at continuous rated torque [kW/s]	13.0	
Max. deceleration torque of dynamic brake(Tdp) [N · m]	11.10	
Motor inertia [kg · cm ²]	7.7	
(Brake inertia) [kg · cm ²]	8.2	
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	23.1
	General machine tool (interpolation axis) [kg · cm ²]	38.5
	Non-interpolation axis [kg · cm ²]	77.0
Weight [kg]	Without	7.0
	With brake	8.5
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level [m/s ²] ([G])	X:9.8(1), Y:24.5(2.5)	
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	392 (L=52.7)
	Thrust load [N]	490
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	980 (L=52.7)
	Thrust load [N]	490
Oil level (*2) [mm]	20	
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

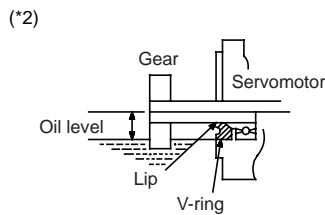
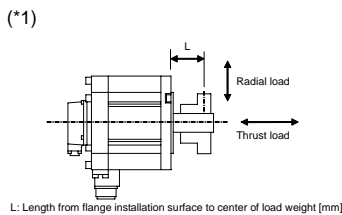
Magnetic brake characteristics

Item	Specifications
Rated voltage	DC24V
Rated current at 20°C [A]	0.86
Static friction torque [N · m]	9
Release delay time(*1) [s]	0.1
Braking delay time (DC OFF) (*1) [s]	0.1
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-DH-V1-20
2-axis type	MDS-DH-V2-2010 (L) MDS-DH-V2-2020 (L,M) MDS-DH-V2-4020 (M)
J-axis type	-

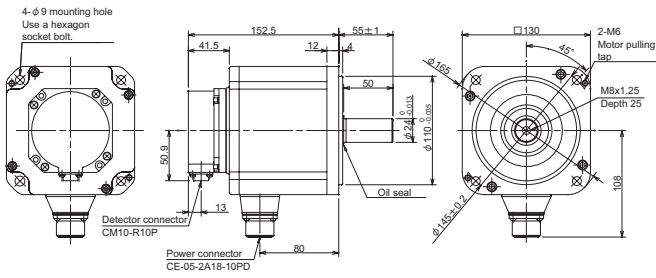


Environmental conditions

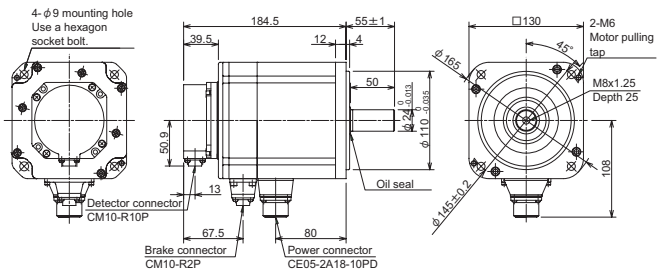
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

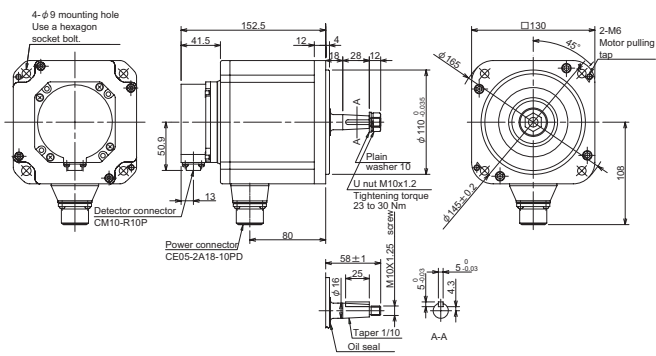
HP-H104S-A48



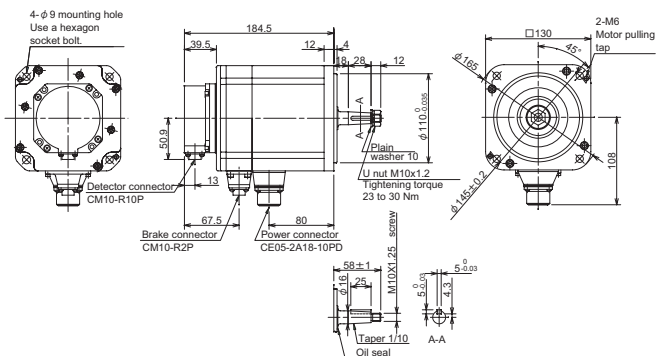
HP-H104BS-A48



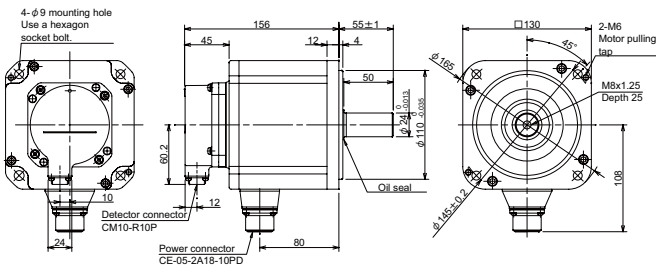
HP-H104T-A48



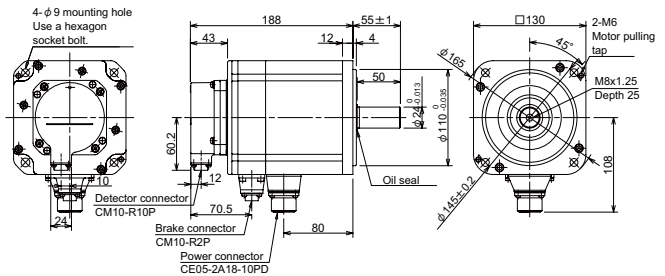
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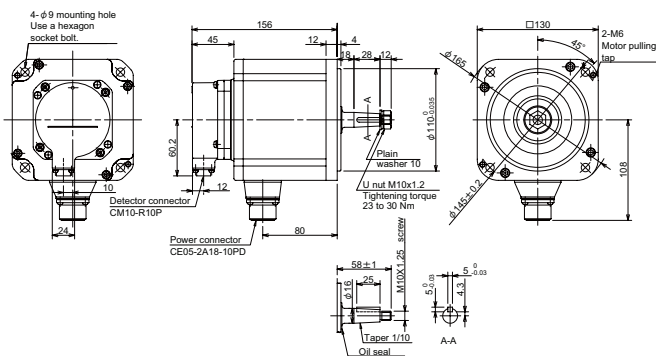
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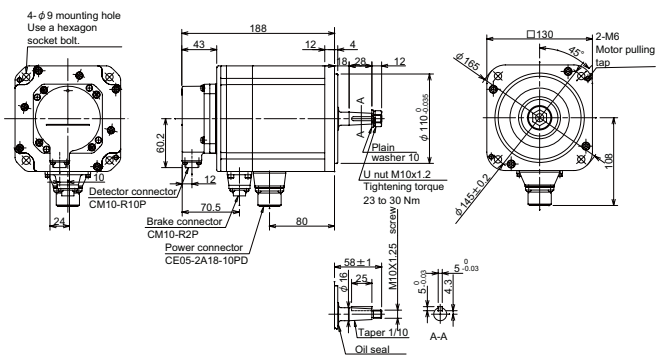
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HP-H104T-A51,-A74

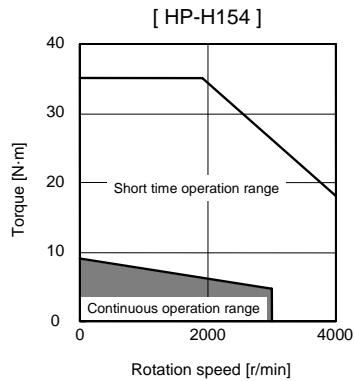


HP-H104BT-A51,-A74

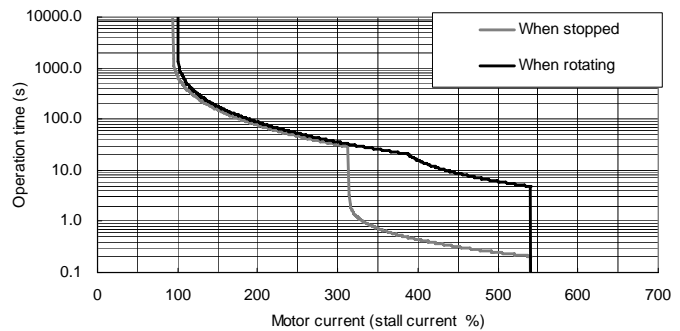


Stall torque	Rated rotation speed	Servomotor type	Explanation of type	
9.0N · m	3000r/min	HP-H154 (1)(2) (3) -XXX	(1)Magnetic brake	B with brake None without brake
			(2)Shaft end	S Straight T Taper
			(3)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item	Specifications	
Continuous characteristics	Rated output [kW]	1.5
	Rated current [A]	2.5
	Rated torque [N · m]	4.8
	Stall current [A]	4.7
	Stall torque [N · m]	9.0
Maximum momentary output [kW]	8.0	
Rated rotation speed [r/min]	3000	
Maximum rotation speed [r/min]	4000	
Maximum current [A]	26.0	
Maximum torque [N · m]	36.5	
Power rate at continuous rated torque [kW/s]	19.0	
Max. deceleration torque of dynamic brake(Tdp) [N · m]	18.08	
Motor inertia [kg · cm ²]	12.0	
(Brake inertia) [kg · cm ²]	12.5	
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	36.0
	General machine tool (interpolation axis) [kg · cm ²]	60.0
	Non-interpolation axis [kg · cm ²]	120.0
Weight [kg]	Without	8.0
	With brake	9.5
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level [m/s ²] ([G])	X:9.8(1), Y:24.5(2.5)	
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	392 (L=52.7)
	Thrust load [N]	490
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	980 (L=52.7)
	Thrust load [N]	490
Oil level (*2) [mm]	20	
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

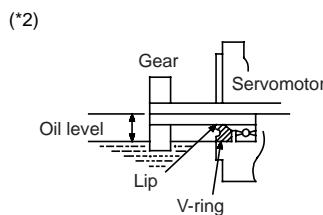
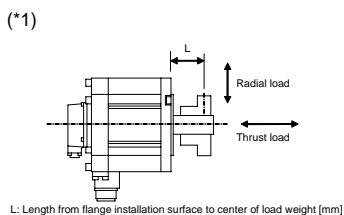
Magnetic brake characteristics

Item	Specifications
Rated voltage	DC24V
Rated current at 20°C [A]	0.86
Static friction torque [N · m]	9
Release delay time(*1) [s]	0.1
Braking delay time (DC OFF) (*1) [s]	0.1
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-DH-V1-40
2-axis type	MDS-DH-V2-4020 (L)
	MDS-DH-V2-4040 (L,M)
J-axis type	MDS-DH-V2-8040 (M)
	-

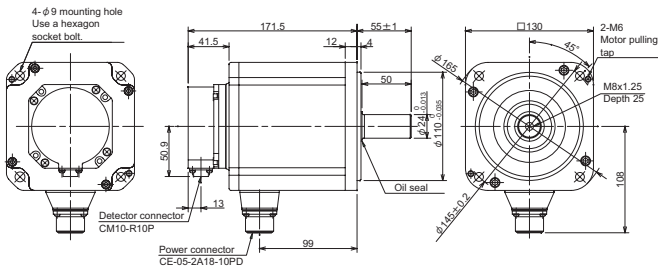


Environmental conditions

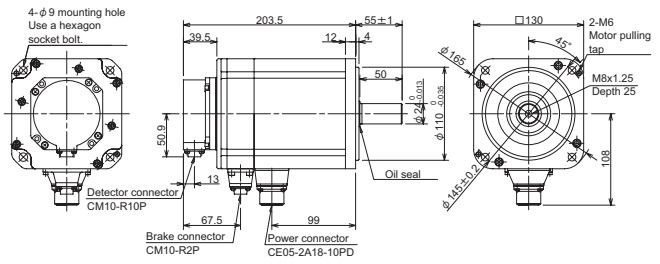
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation: 80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

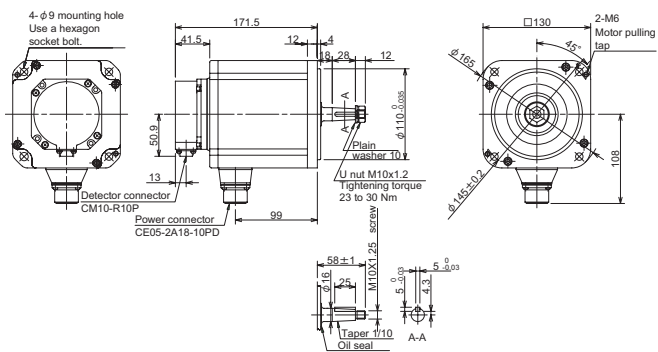
HP-H154S-A48



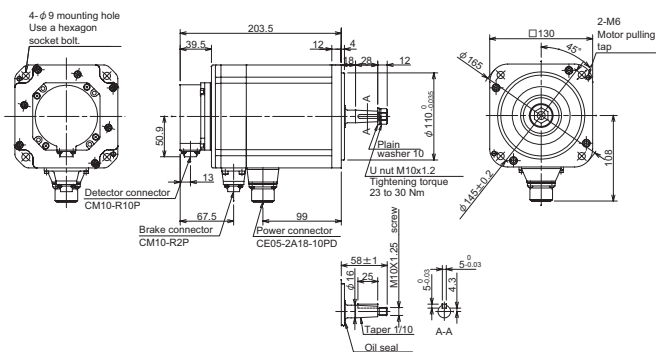
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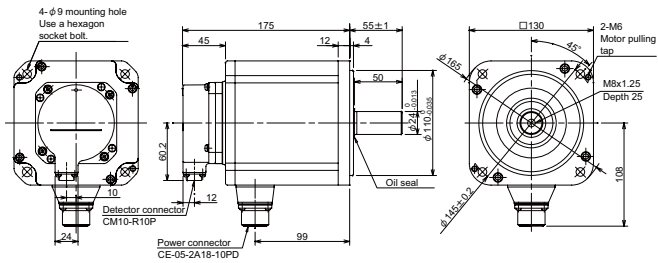
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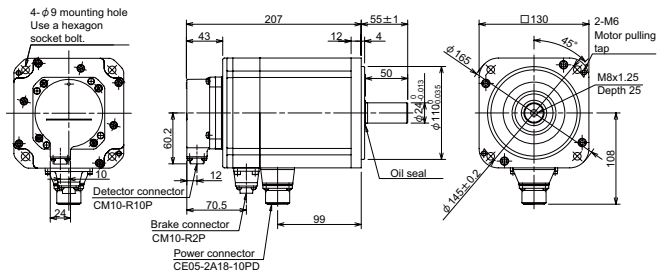
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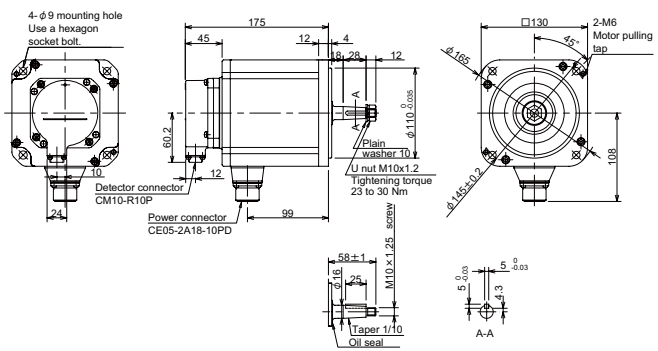
HP-H154S-A51,-A74



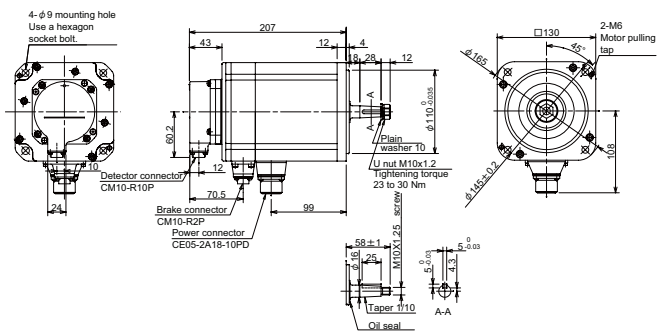
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HP-H154T-A51,-A74

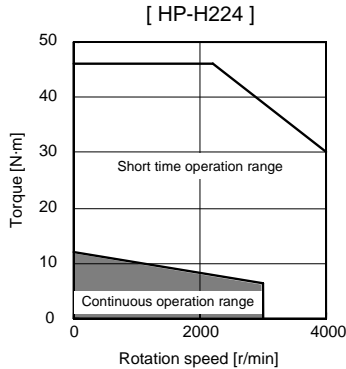


HP-H154BT-A51,-A74

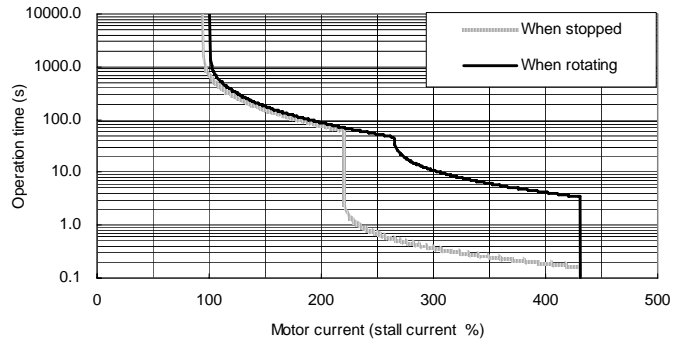


Stall torque	Rated rotation speed	Servomotor type	Explanation of type
12.0N · m	3000r/min	HP-H224 (1)(2) (3) -XXX	(1)Magnetic brake B with brake None without brake (2)Shaft end S Straight T Taper (3)Detector xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item	Specifications	
Continuous characteristics	Rated output [kW]	2.2
	Rated current [A]	3.7
	Rated torque [N · m]	6.4
	Stall current [A]	7.0
	Stall torque [N · m]	12.0
Maximum momentary output [kW]	11.0	
Rated rotation speed [r/min]	3000	
Maximum rotation speed [r/min]	4000	
Maximum current [A]	28.5	
Maximum torque [N · m]	46.0	
Power rate at continuous rated torque [kW/s]	20.0	
Max. deceleration torque of dynamic brake(Tdp) [N · m]	28.65	
Motor inertia [kg · cm ²]	20.0	
(Brake inertia) [kg · cm ²]	25.5	
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	60.0
	General machine tool (interpolation axis) [kg · cm ²]	100.0
	Non-interpolation axis [kg · cm ²]	200.0
Weight	Without [kg]	12.0
	With brake [kg]	13.9
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level [m/s ²] ([G])	X:9.8(1), Y:24.5(2.5)	
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	392 (L=52.7)
	Thrust load [N]	490
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	980 (L=52.7)
	Thrust load [N]	490
Oil level (*2) [mm]	20	
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

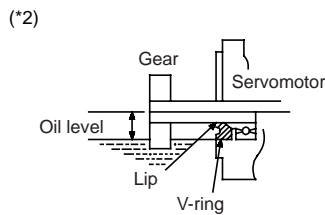
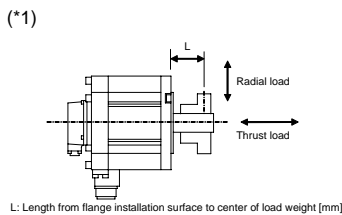
Magnetic brake characteristics

Item	Specifications
Rated voltage	DC24V
Rated current at 20°C [A]	1.0
Static friction torque [N · m]	12
Release delay time(*1) [s]	0.1
Braking delay time (DC OFF) (*1) [s]	0.1
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-DH-V1-40
2-axis type	MDS-DH-V2-4020 (L)
	MDS-DH-V2-4040 (L,M)
	MDS-DH-V2-8040 (M)
J-axis type	-

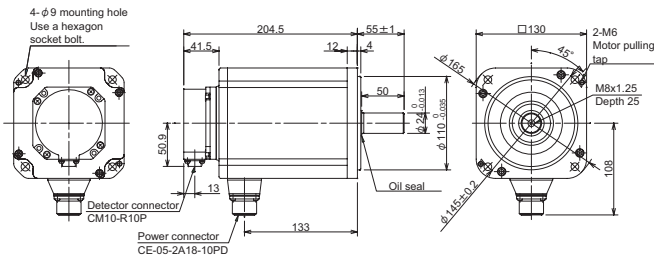


Environmental conditions

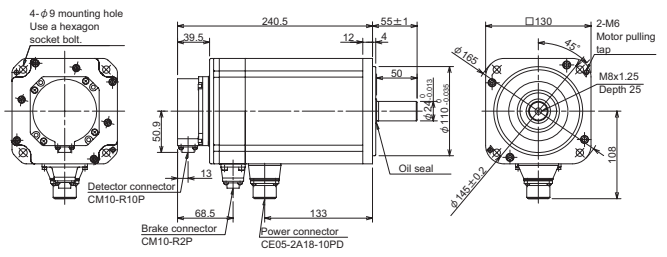
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation: 80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

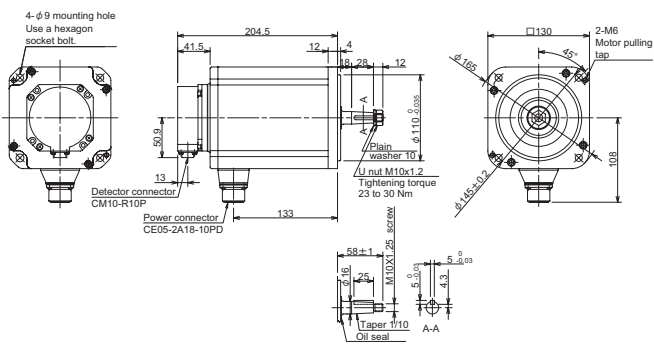
HP-H224S-A48



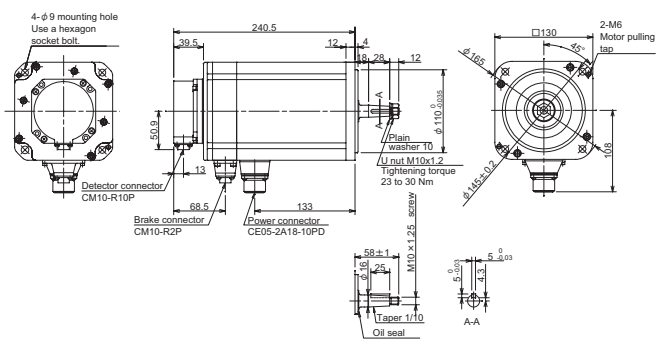
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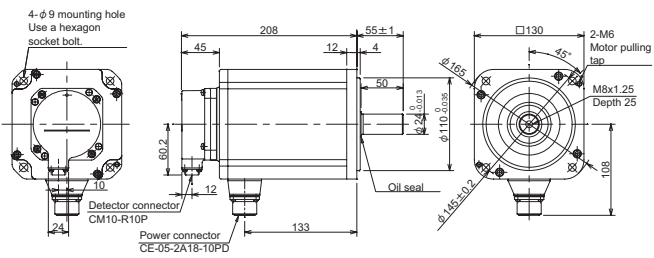
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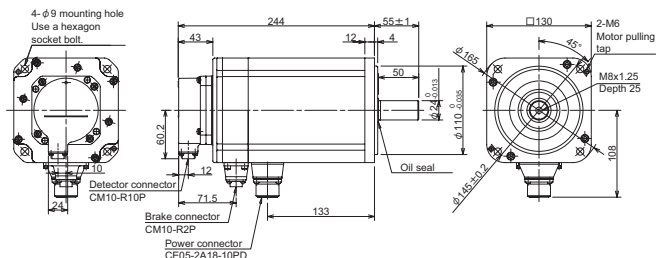
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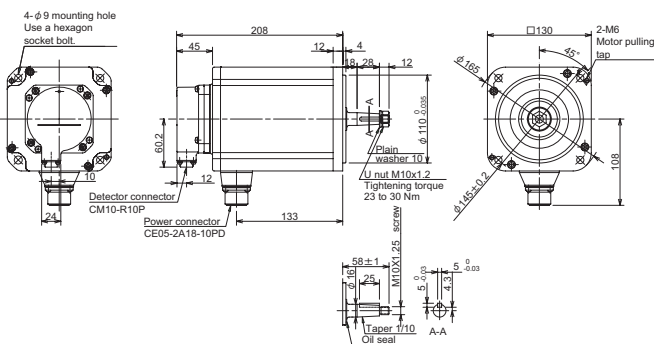
HP-H224S-A51,-A74



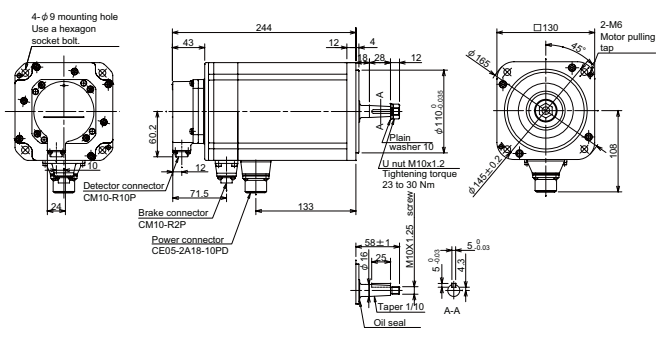
HP-H224BS-A51,-A74



HP-H224T-A51,-A74

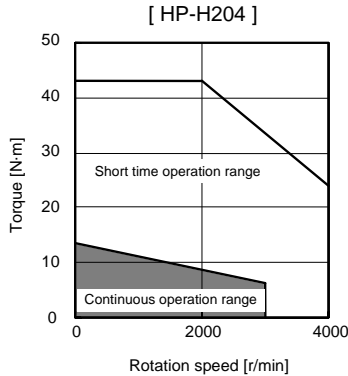


HP-H224BT-A51,-A74

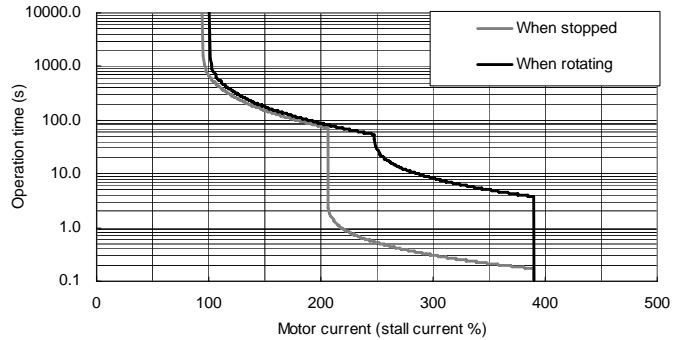


Stall torque	Rated rotation speed	Servomotor type		Explanation of type		
13.7N · m	3000r/min	HP-H204	(1)	(2)	(1)Magnetic brake	B with brake
						None without brake
					(2)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item	Specifications	
Continuous characteristics	Rated output [kW]	2.0
	Rated current [A]	3.6
	Rated torque [N · m]	6.4
	Stall current [A]	7.7
	Stall torque [N · m]	13.7
Maximum momentary output [kW]	11.0	
Rated rotation speed [r/min]	3000	
Maximum rotation speed [r/min]	4000	
Maximum current [A]	28.5	
Maximum torque [N · m]	43.0	
Power rate at continuous rated torque [kW/s]	14.0	
Max. deceleration torque of dynamic brake(Tdp) [N · m]	28.04	
Motor inertia [kg · cm ²]	29.0	
(Brake inertia) [kg · cm ²]	34.5	
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	87.0
	General machine tool (interpolation axis) [kg · cm ²]	145.0
	Non-interpolation axis [kg · cm ²]	290.0
Weight	Without [kg]	14.0
	With brake [kg]	15.9
Armature insulation class	Class F	
Protection method	IP67 (The shaft-through portion is excluded.)	
Quakeproof level [m/s ²] ([G])	X:19.6(2), Y:49(5)	
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	-
	Thrust load [N]	-
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	1500 (L=52.7)
	Thrust load [N]	490
Oil level (*2) [mm]	25	
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

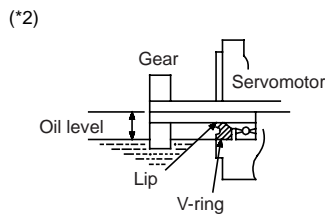
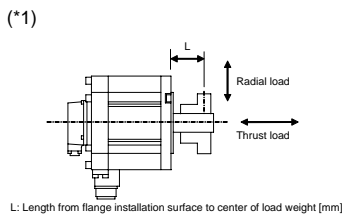
Magnetic brake characteristics

Item	Specifications
Rated voltage	DC24V
Rated current at 20°C [A]	1.0
Static friction torque [N · m]	12
Release delay time(*1) [s]	0.1
Braking delay time (DC OFF) (*1) [s]	0.1
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-DH-V1-40
2-axis type	MDS-DH-V2-4020 (L)
	MDS-DH-V2-4040 (L,M)
	MDS-DH-V2-8040 (M)
J-axis type	-

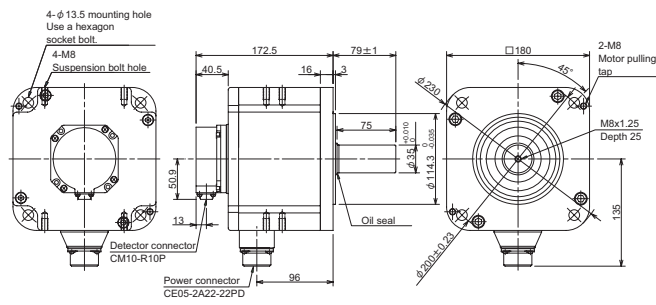


Environmental conditions

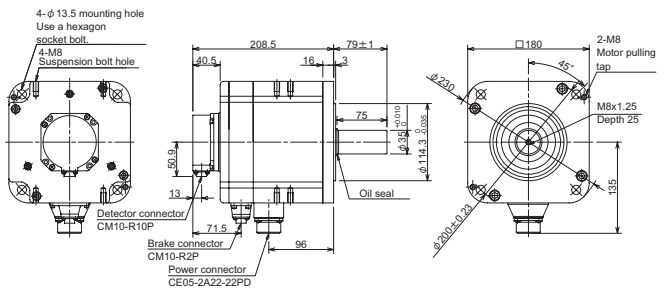
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation: 80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

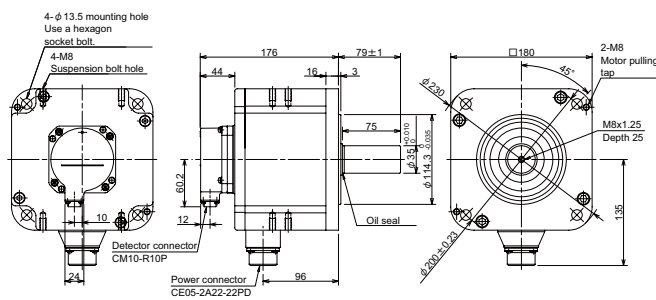
HP-H204S-A48



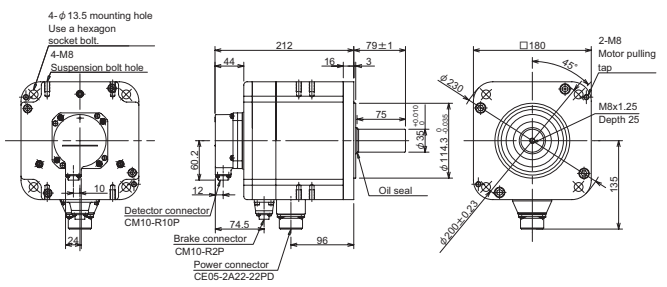
HP-H204BS-A48



HP-H204S-A51,-A74

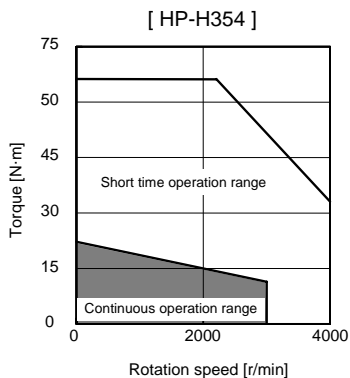


HP-H204BS-A51,-A74

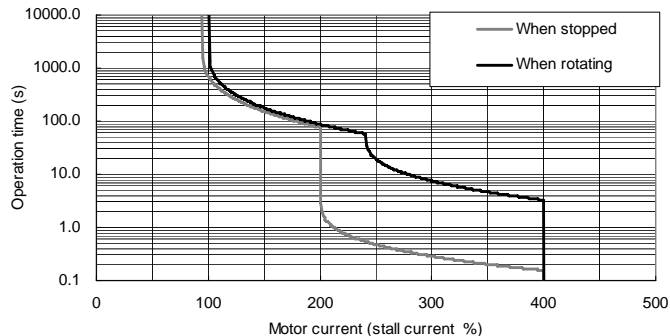


Stall torque	Rated rotation speed	Servomotor type		Explanation of type		
22.5N · m	3000r/min	HP-H354	(1)	(2)	(1)Magnetic brake	B with brake
						None without brake
					(2)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item		Specifications
Continuous characteristics	Rated output [kW]	3.5
	Rated current [A]	7.6
	Rated torque [N · m]	11.1
	Stall current [A]	15.5
	Stall torque [N · m]	22.5
Maximum momentary output [kW]		15.0
Rated rotation speed [r/min]		3000
Maximum rotation speed [r/min]		4000
Maximum current [A]		58.0
Maximum torque [N · m]		66.0
Power rate at continuous rated torque [kW/s]		33.0
Max. deceleration torque of dynamic brake(Tdp) [N · m]		37.93
Motor inertia [kg · cm ²]		37.0
(Brake inertia) [kg · cm ²]		42.5
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine [kg · cm ²]	111.0
	General machine tool (interpolation axis) [kg · cm ²]	185.0
	Non-interpolation axis [kg · cm ²]	370.0
Weight	Without [kg]	17.0
	With brake [kg]	22
Armature insulation class		Class F
Protection method		IP67 (The shaft-through portion is excluded.)
Quakeproof level [m/s ²] ([G])		X:19.6(2), Y:49(5)
Axis tolerable load (Taper shaft)	Radial load (*1) [N] ([mm])	-
	Thrust load [N]	-
Axis tolerable load (Straight shaft)	Radial load (*1) [N]	1500 (L=52.7)
	Thrust load [N]	490
Oil level (*2) [mm]		25
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

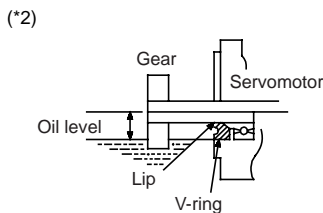
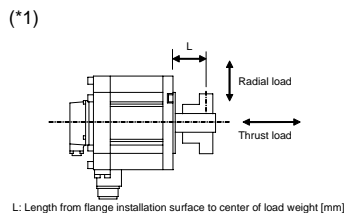
Magnetic brake characteristics

Item	Specifications
Rated voltage	DC24V
Rated current at 20°C [A]	1.4
Static friction torque [N · m]	32
Release delay time(*1) [s]	0.12
Braking delay time (DC OFF) (*1) [s]	0.1
Brake life (*2) [times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-DH-V1-80
2-axis type	MDS-DH-V2-8040 (L) MDS-DH-V2-8080 (L,M)
J-axis type	-

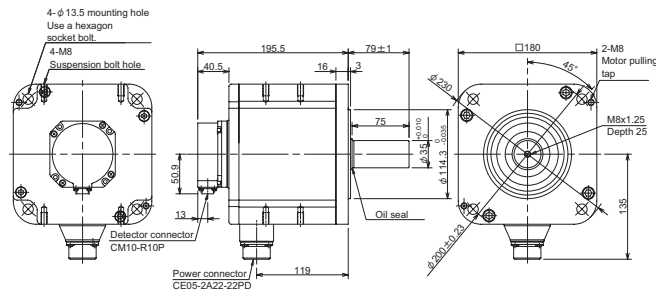


Environmental conditions

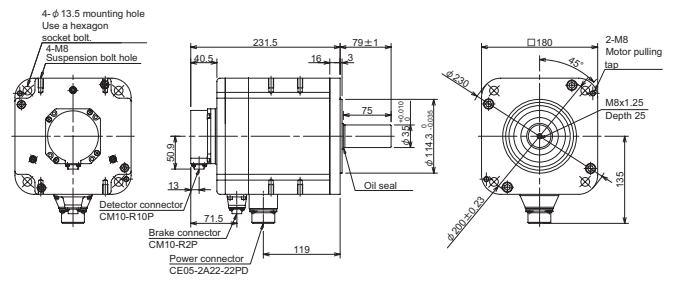
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation: 80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

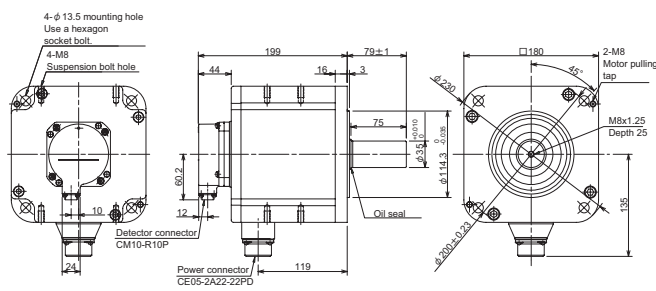
HP-H354S-A48



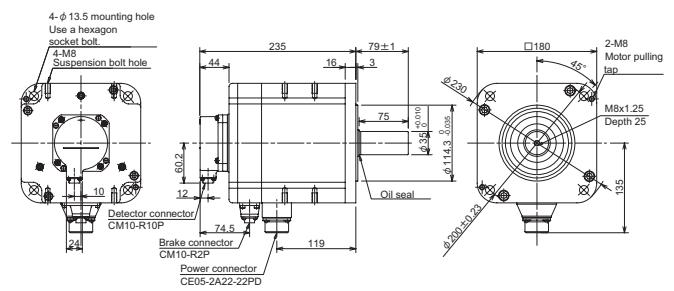
HP-H354BS-A48



HP-H354S-A51,-A74

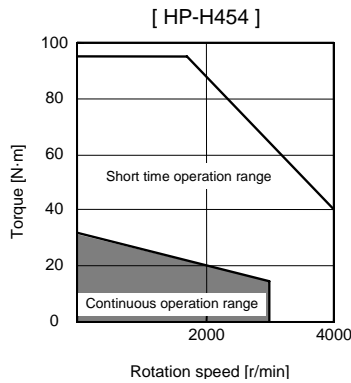


HP-H354BS-A51,-A74

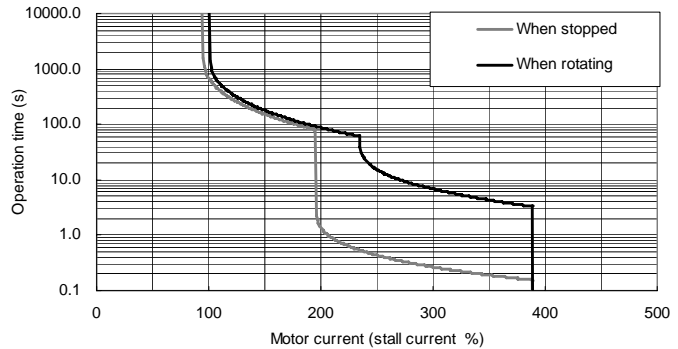


Stall torque	Rated rotation speed	Servomotor type		Explanation of type		
31.9N · m	3000r/min	HP-H454	(1)	(2)	(1)Magnetic brake	B with brake
						None without brake
					(2)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item		Specifications
Continuous characteristics	Rated output	[kW] 4.5
	Rated current	[A] 7.1
	Rated torque	[N · m] 14.3
	Stall current	[A] 16.0
	Stall torque	[N · m] 31.9
Maximum momentary output		[kW] 21.0
Rated rotation speed		[r/min] 3000
Maximum rotation speed		[r/min] 4000
Maximum current		[A] 58.0
Maximum torque		[N · m] 95.0
Power rate at continuous rated torque		[kW/s] 36.0
Max. deceleration torque of dynamic brake(Tdp)		[N · m] 60.58
Motor inertia		[kg · cm ²] 55.0
(Brake inertia)		[kg · cm ²] 60.5
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine	[kg · cm ²] 165.0
	General machine tool (interpolation axis)	[kg · cm ²] 275.0
	Non-interpolation axis	[kg · cm ²] 550.0
Weight	Without	[kg] 21.0
	With brake	[kg] 26
Armature insulation class		Class F
Protection method		IP67 (The shaft-through portion is excluded.)
Quakeproof level		[m/s ²] ([G]) X:11.7(1.2), Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*1)	[N] ((mm)) -
	Thrust load	[N] -
Axis tolerable load (Straight shaft)	Radial load (*1)	[N] 1500 (L=52.7)
	Thrust load	[N] 490
Oil level (*2)		[mm] 25
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

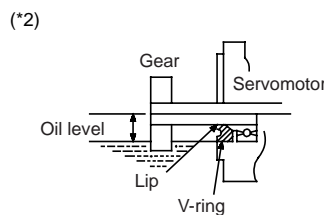
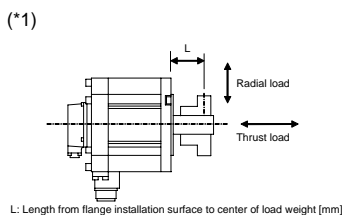
Magnetic brake characteristics

Item	Specifications
Rated voltage	DC24V
Rated current at 20°C	[A] 1.4
Static friction torque	[N · m] 32
Release delay time(*1)	[s] 0.12
Braking delay time (DC OFF) (*1)	[s] 0.1
Brake life (*2)	[times] 20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-DH-V1-80
2-axis type	MDS-DH-V2-8040 (L) MDS-DH-V2-8080 (L,M)
J-axis type	-

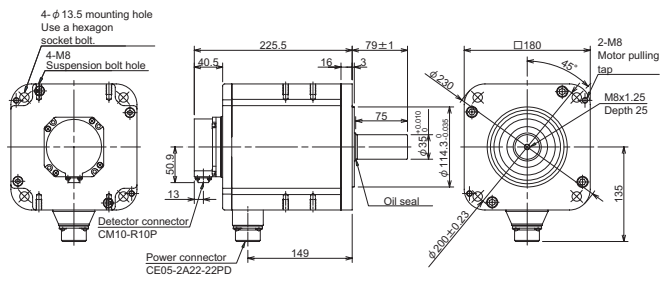


Environmental conditions

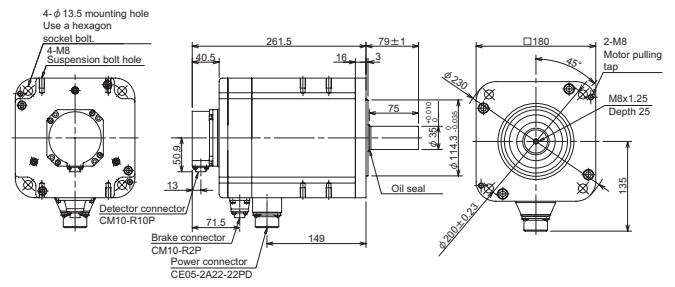
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation: 80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

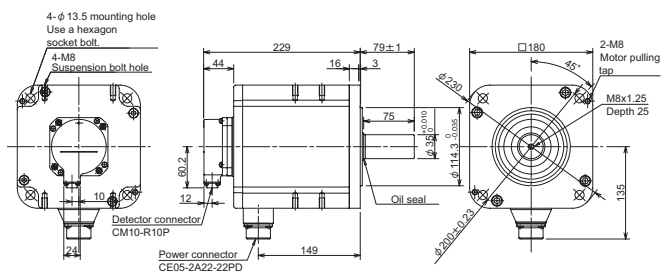
HP-H454S-A48



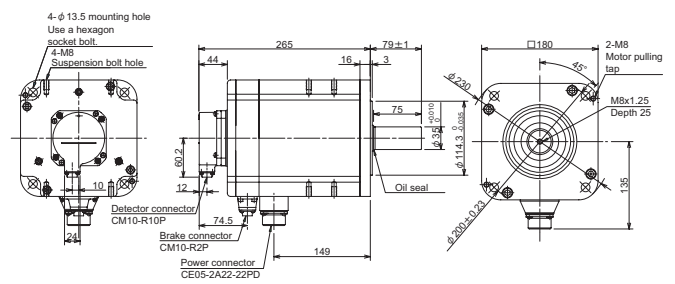
HP-H454BS-A48



HP-H454S-A51,-A74

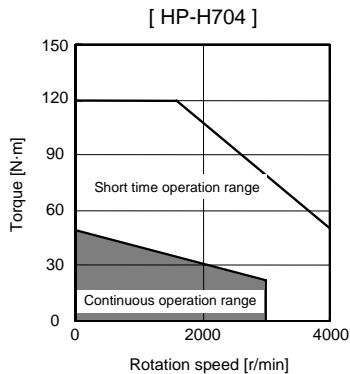


HP-H454BS-A51,-A74

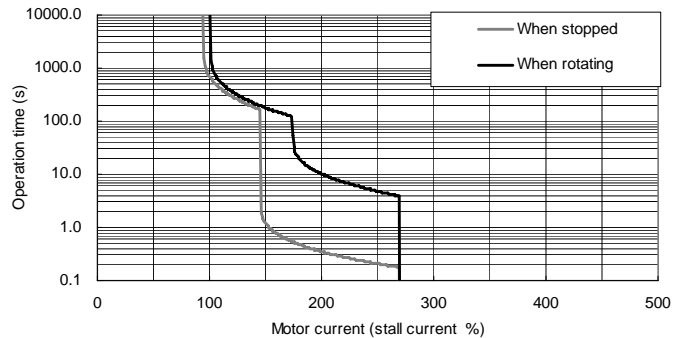


Stall torque	Rated rotation speed	Servomotor type		Explanation of type		
49.0N · m	3000r/min	HP-H704	(1)	(2)	(1)Magnetic brake	B with brake
						None without brake
					(2)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item		Specifications
Continuous characteristics	Rated output	[kW] 7.0
	Rated current	[A] 9.6
	Rated torque	[N · m] 22.3
	Stall current	[A] 21.0
	Stall torque	[N · m] 49.0
Maximum momentary output		[kW] 27.0
Rated rotation speed		[r/min] 3000
Maximum rotation speed		[r/min] 4000
Maximum current		[A] 58.0
Maximum torque		[N · m] 120.0
Power rate at continuous rated torque		[kW/s] 59.0
Max. deceleration torque of dynamic brake(Tdp)		[N · m] 95.47
Motor inertia		[kg · cm ²] 82.0
(Brake inertia)		[kg · cm ²] 87.5
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine	[kg · cm ²] 246.0
	General machine tool (interpolation axis)	[kg · cm ²] 410.0
	Non-interpolation axis	[kg · cm ²] 820.0
Weight	Without	[kg] 37.0
	With brake	[kg] 43
Armature insulation class		Class F
Protection method		IP67 (The shaft-through portion is excluded.)
Quakeproof level		[m/s ²] ([G]) X:11.7(1.2), Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*1)	[N] (mm) -
	Thrust load	[N] -
Axis tolerable load (Straight shaft)	Radial load (*1)	[N] 1300 (L=52.7)
	Thrust load	[N] 590
Oil level (*2)		[mm] 25
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

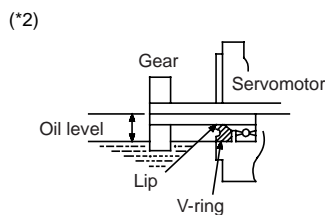
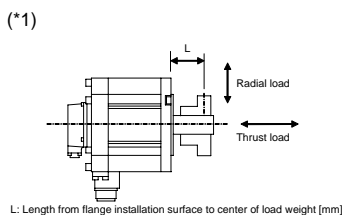
Magnetic brake characteristics

Item	Specifications
Rated voltage	DC24V
Rated current at 20°C	[A] 1.4
Static friction torque	[N · m] 54.9
Release delay time(*1)	[s] 0.3
Braking delay time (DC OFF) (*1)	[s] 0.1
Brake life (*2)	[times] 20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-DH-V1-80W
2-axis type	-
	-
J-axis type	-

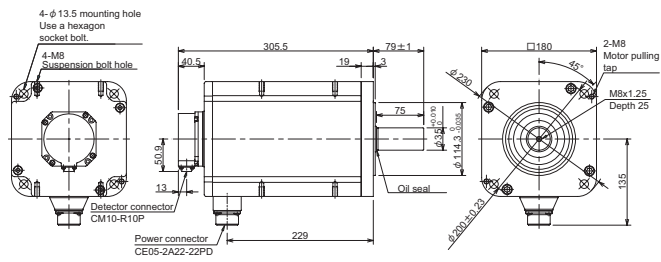


Environmental conditions

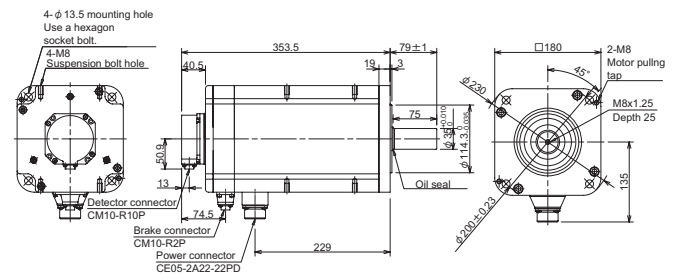
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation: 80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

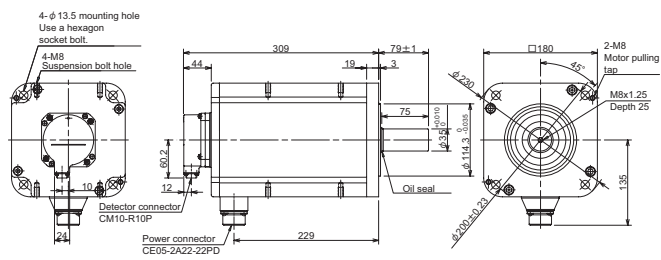
HP-H704S-A48



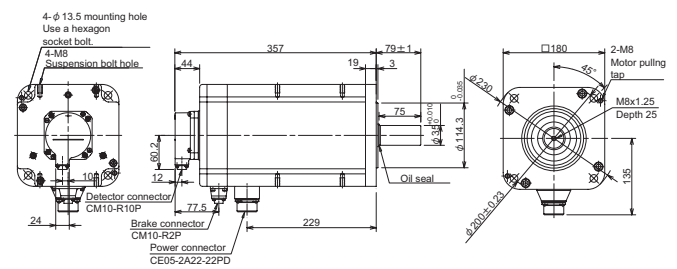
HP-H704BS-A48



HP-H704S-A51,-A74

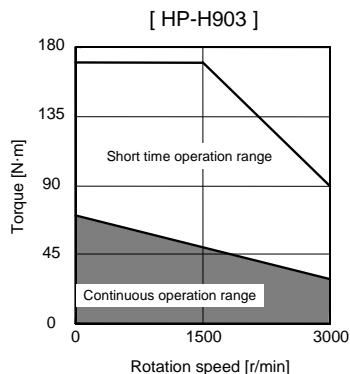


HP-H704BS-A51,-A74

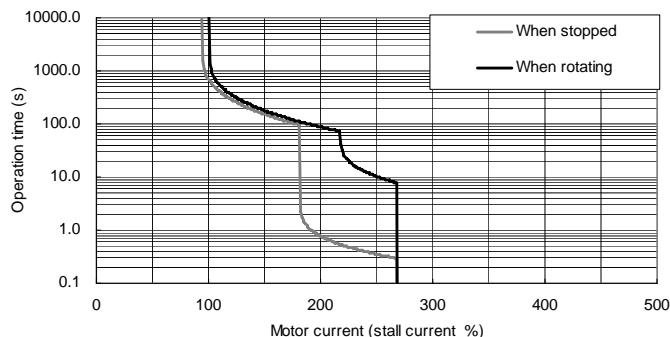


Stall torque	Rated rotation speed	Servomotor type		Explanation of type		
70.0N · m	3000r/min	HP-H903	(1)	(2)	(1)Magnetic brake	B with brake
						None without brake
					(2)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item		Specifications
Continuous characteristics	Rated output	[kW] 9.0
	Rated current	[A] 11.1
	Rated torque	[N · m] 28.7
	Stall current	[A] 27.0
	Stall torque	[N · m] 70.0
Maximum momentary output		[kW] 33.0
Rated rotation speed		[r/min] 3000
Maximum rotation speed		[r/min] 3000
Maximum current		[A] 86.0
Maximum torque		[N · m] 170.0
Power rate at continuous rated torque		[kW/s] 52.0
Max. deceleration torque of dynamic brake(Tdp)		[N · m] 100.47
Motor inertia		[kg · cm ²] 225.0
(Brake inertia)		[kg · cm ²] 249.0
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine	[kg · cm ²] 675.0
	General machine tool (interpolation axis)	[kg · cm ²] 1125.0
	Non-interpolation axis	[kg · cm ²] 2250.0
Weight	Without	[kg] 51.0
	With brake	[kg] 61.4
Armature insulation class		Class F
Protection method		IP67 (The shaft-through portion is excluded.)
Quakeproof level		[m/s ²] ([G]) X:9.8(1), Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*1)	[N] (mm) -
	Thrust load	[N] -
Axis tolerable load (Straight shaft)	Radial load (*1)	[N] 2500 (L=52.7)
	Thrust load	[N] 1100
Oil level (*2)		[mm] 30
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

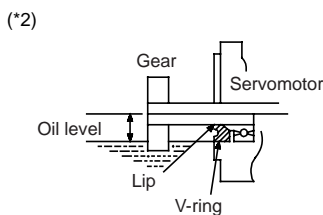
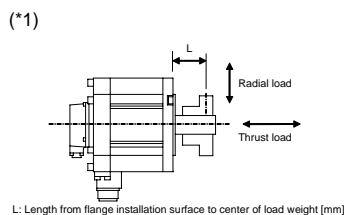
Magnetic brake characteristics

Item	Specifications
Rated voltage	DC24V
Rated current at 20°C	[A] 1.7
Static friction torque	[N · m] 90
Release delay time(*1)	[s] 0.3
Braking delay time (DC OFF) (*1)	[s] 0.1
Brake life (*2)	[times] 20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-DH-V1-160
2-axis type	-
	-
J-axis type	-

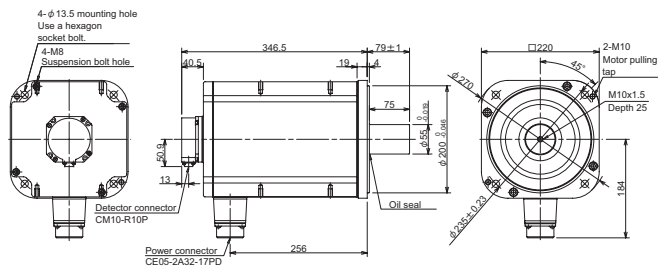


Environmental conditions

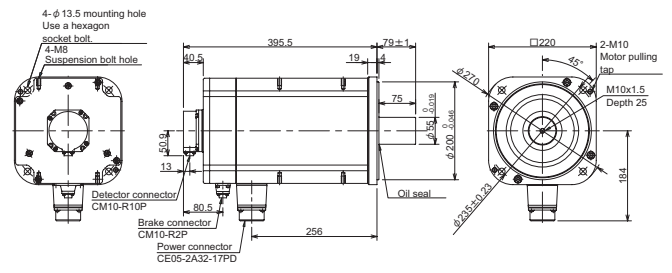
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation: 80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

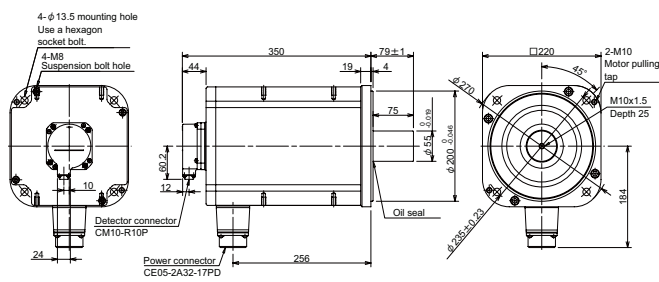
HP-H903S-A48



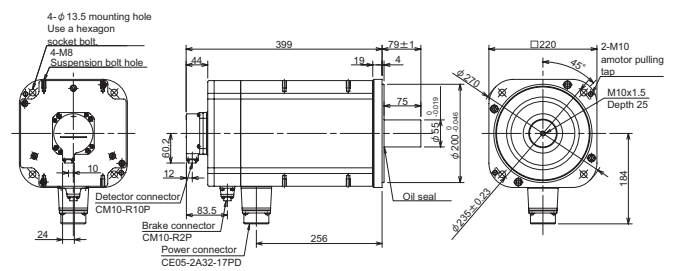
HP-H903BS-A48



HP-H903S-A51,-A74

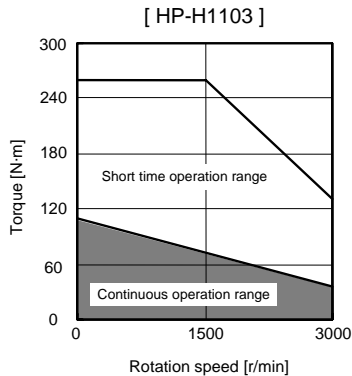


HP-H903BS-A51,-A74

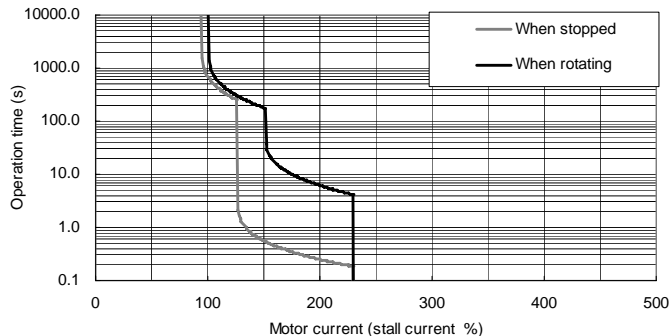


Stall torque	Rated rotation speed	Servomotor type		Explanation of type		
110.0N · m	3000r/min	HP-H1103	(1)	(2)	(1)Magnetic brake	B with brake
						None without brake
					(2)Detector	xxx Type

Torque characteristics



Servo overload protection characteristics



Specifications

Item		Specifications
Continuous characteristics	Rated output	[kW] 11.0
	Rated current	[A] 12.6
	Rated torque	[N · m] 35.0
	Stall current	[A] 39.5
	Stall torque	[N · m] 110.0
Maximum momentary output		[kW] 50.0
Rated rotation speed		[r/min] 3000
Maximum rotation speed		[r/min] 3000
Maximum current		[A] 106.0
Maximum torque		[N · m] 260.0
Power rate at continuous rated torque		[kW/s] 48.0
Max. deceleration torque of dynamic brake(Tdp)		[N · m] 170.39
Motor inertia		[kg · cm ²] 300.0
(Brake inertia)		[kg · cm ²] 324.0
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine	[kg · cm ²] 900.0
	General machine tool (interpolation axis)	[kg · cm ²] 1500.0
	Non-interpolation axis	[kg · cm ²] 3000.0
Weight	Without	[kg] 74.0
	With brake	[kg] 84.4
Armature insulation class		Class F
Protection method		IP67 (The shaft-through portion is excluded.)
Quakeproof level		[m/s ²] ([G]) X:9.8(1), Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*1)	[N] (mm) -
	Thrust load	[N] -
Axis tolerable load (Straight shaft)	Radial load (*1)	[N] 2700 (L=52.7)
	Thrust load	[N] 1500
Oil level (*2)		[mm] 30
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

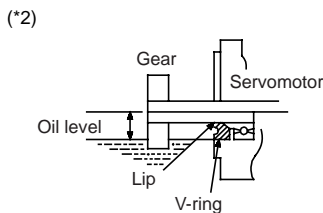
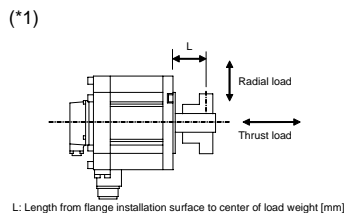
Magnetic brake characteristics

Item	Specifications
Rated voltage	DC24V
Rated current at 20°C	[A] 1.7
Static friction torque	[N · m] 90
Release delay time(*1)	[s] 0.3
Braking delay time (DC OFF) (*1)	[s] 0.1
Brake life (*2)	[times] 20,000

(*1) This is the representative value for the initial attraction gap at 20°C.
 (*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Compatible servo drive unit

Item	Type
1-axis type	MDS-DH-V1-160W
2-axis type	-
J-axis type	-

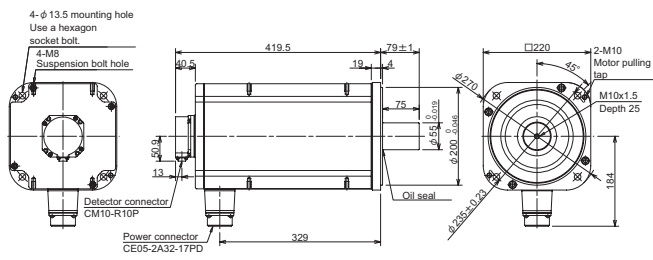


Environmental conditions

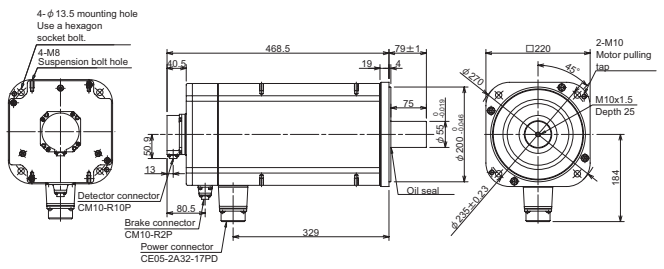
Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 ~ +70 (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

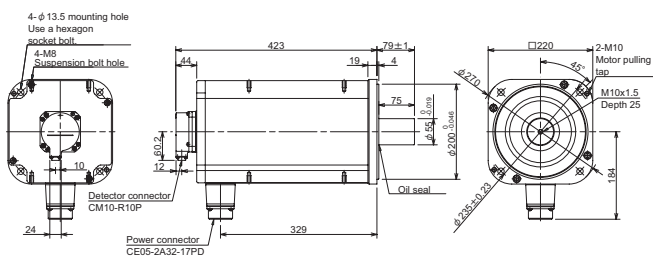
HP-H1103S-A48



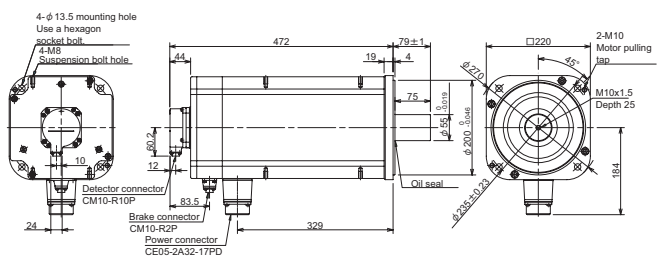
HP-H1103BS-A48



HP-H1103S-A51,-A74



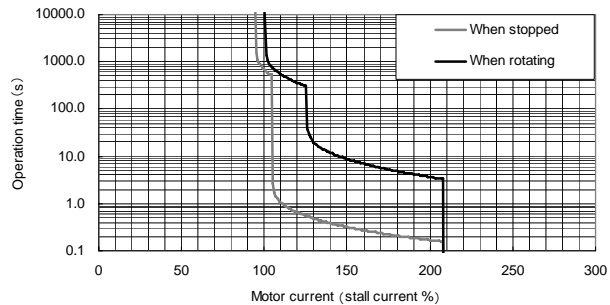
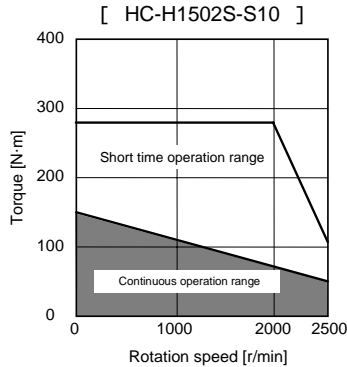
HP-H1103BS-A51,-A74



Stall torque	Rated rotation speed	Servomotor type	Explanation of type		
146.0N · m	2000r/min	HC-H1502S-S10-xxx	(1)Detector	xxx	Type
		(1)			

Torque characteristics

Servo overload protection characteristics



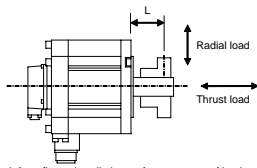
Specifications

Item		Specifications
Continuous characteristics	Rated output	[kW] 15.0
	Rated current	[A] 38.8
	Rated torque	[N · m] 71.6
	Stall current	[A] 76.8
	Stall torque	[N · m] 146.0
Maximum momentary output		[kW] 59.0
Rated rotation speed		[r/min] 2000
Maximum rotation speed		[r/min] 2500
Maximum current		[A] 160.0
Maximum torque		[N · m] 280.0
Power rate at continuous rated torque		[kW/s] 104.5
Max. deceleration torque of dynamic brake(Tdp)		[N · m] 237.67
Motor inertia		[kg · cm ²] 550
(Brake inertia)		[kg · cm ²] -
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine	[kg · cm ²] 1650
	General machine tool (interpolation axis)	[kg · cm ²] 2750
	Non-interpolation axis	[kg · cm ²] 5500
Weight	Without	[kg] 160
	With brake	[kg] -
Armature insulation class		Class F
Protection method		IP67 (The shaft-through portion is excluded.)
Quakeproof level		[m/s ²] ([G]) X:9.8(1), Y:9.8(1)
Axis tolerable load (Taper shaft)	Radial load (*1)	[N] ([mm]) -
	Thrust load	[N] -
Axis tolerable load (Straight shaft)	Radial load (*1)	[N] 3234 (L=140)
	Thrust load	[N] 1470
Oil level (*2)		[mm] 45
Absolute position detector	16,000,000puls/rev (OSA166)	A74
	1,000,000puls/rev (OSA105)	A51
	260,000puls/rev (OSA18)	A48

Magnetic brake characteristics

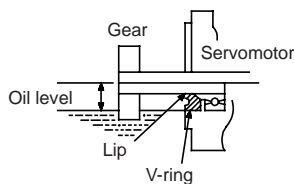
Item	Type
1-axis type	MDS-DH-V1-200
2-axis type	-
	-
J-axis type	-

(*1)



L: Length from flange installation surface to center of load weight [mm]

(*2)

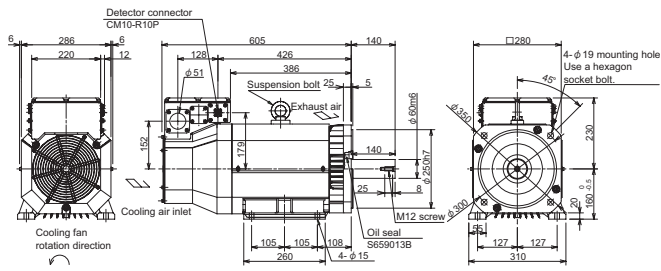


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 - 40 (with no freezing) Storage: -15 - +70 (with no freezing)
Ambient humidity	Operation: 80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit: mm]

HC-H1502S-S10



Spindle motor

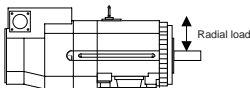
Base rotation speed 1500r/min series

SJ-4-V2.2-03T

Specifications

Item	Specifications	
Output capacity	Continuous rating [kW]	1.5
	30-minute rating [kW]	2.2
	50%ED rating [kW]	2.2
Base rotation speed	[r/min]	1500
Maximum rotation speed	[r/min]	10000
Frame No.		A90
Continuous rated torque	[N·m]	9.5
GD ²	[kg·m ²]	0.027
Inertia	[kg·m ²]	0.007
Tolerable radial load(*1)	[N]	980
Cooling fan	Input voltage	Single-phase 400V
	Maximum power consumption	30W
Protection method		IP44
Weight	[kg]	25
Insulation		Class F

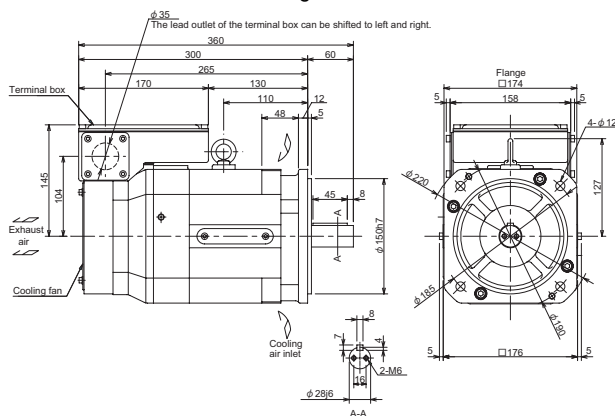
(*1)



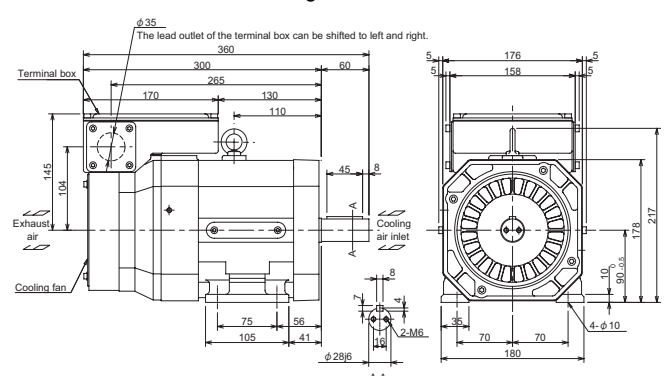
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-4-V2.2-03T with standard flange



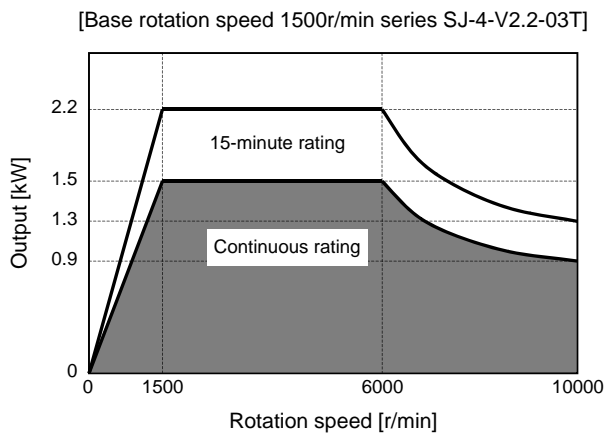
SJ-4-V2.2-03T with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-DH-SP-20
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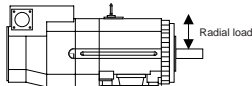
Base rotation speed 1500r/min series

SJ-4-V3.7-03T

Specifications

Item	Specifications	
Output capacity	Continuous rating [kW]	2.2
	30-minute rating [kW]	3.7
	50%ED rating [kW]	
Base rotation speed	[r/min]	1500
Maximum rotation speed	[r/min]	10000
Frame No.		B90
Continuous rated torque	[N·m]	14.0
GD ²	[kg·m ²]	0.035
Inertia	[kg·m ²]	0.009
Tolerable radial load(*1)	[N]	980
Cooling fan	Input voltage	Single-phase 400V
	Maximum power consumption	30W
Protection method		IP44
Weight	[kg]	30
Insulation		Class F

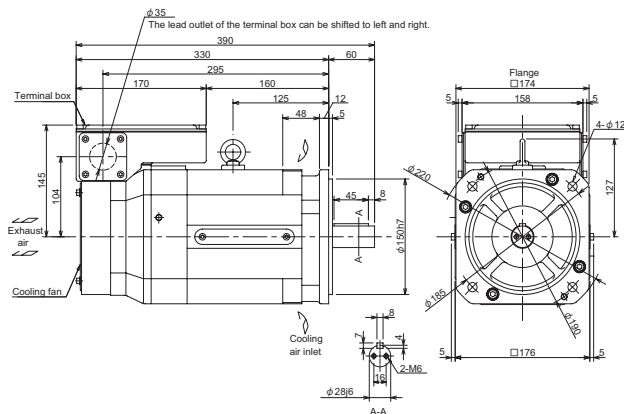
(*1)



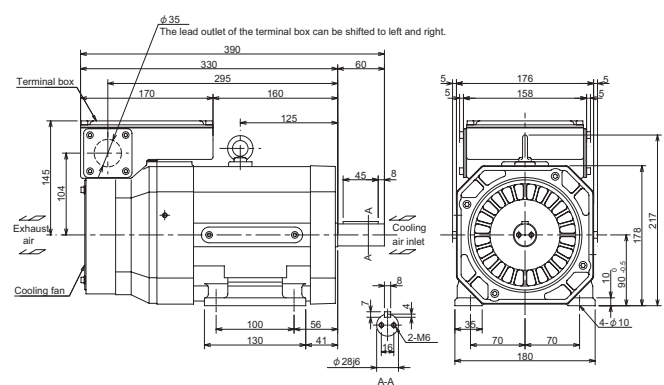
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-4-V3.7-03T with standard flange



SJ-4-V3.7-03T with standard legs

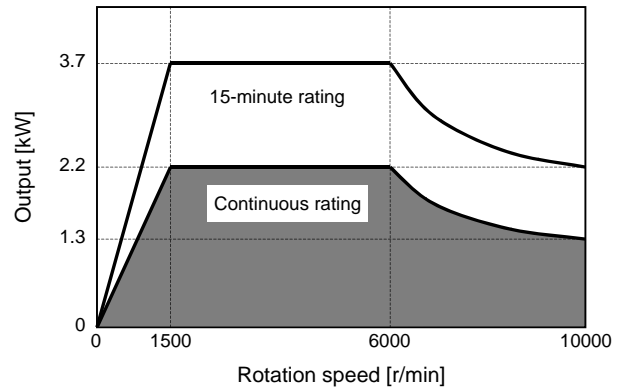


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics

[Base rotation speed 1500r/min series SJ-4-V3.7-03T]



Compatible spindle drive unit

Type	MDS-DH-SP-20
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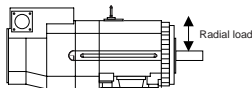
Base rotation speed 1500r/min series

SJ-4-V5.5-07T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	3.7
	30-minute rating [kW]	5.5
	50%ED rating [kW]	
Base rotation speed	[r/min]	1500
Maximum rotation speed	[r/min]	8000
Frame No.		D90
Continuous rated torque	[N·m]	23.5
GD ²	[kg·m ²]	0.059
Inertia	[kg·m ²]	0.015
Tolerable radial load(*1)	[N]	1470
Cooling fan	Input voltage	Single-phase 400V
	Maximum power consumption	30W
Protection method		IP44
Weight	[kg]	49
Insulation		Class F

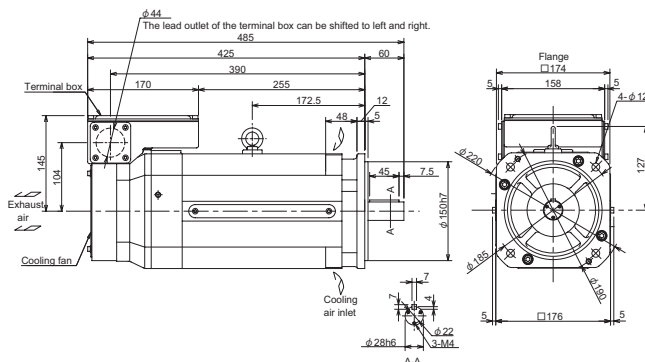
(*1)



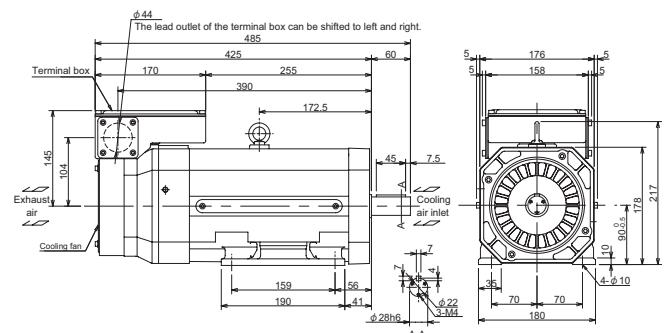
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-4-V5.5-07T with standard flange



SJ-4-V5.5-07T with standard legs

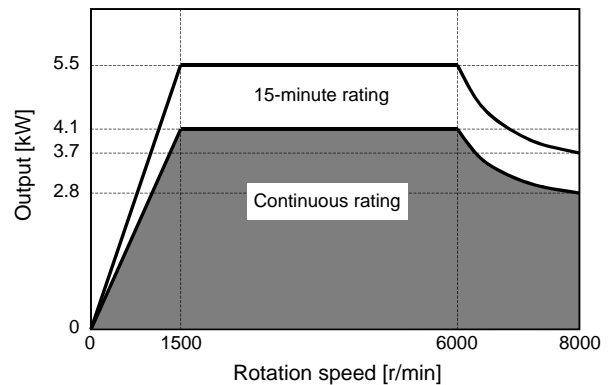


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics

[Base rotation speed 1500r/min series SJ-4-V5.5-07T]



Compatible spindle drive unit

Type	MDS-DH-SP-40
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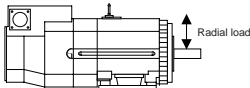
Base rotation speed 1500r/min series

SJ-4-V7.5-12T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	5.5
	30-minute rating [kW]	7.5
	50%ED rating [kW]	7.5
Base rotation speed	[r/min]	1500
Maximum rotation speed	[r/min]	8000
Frame No.		A112
Continuous rated torque	[N·m]	35.0
GD ²	[kg·m ²]	0.098
Inertia	[kg·m ²]	0.025
Tolerable radial load(*1)	[N]	1960
Cooling fan	Input voltage	Single-phase 400V
	Maximum power consumption	70W
Protection method		IP44
Weight	[kg]	60
Insulation		Class F

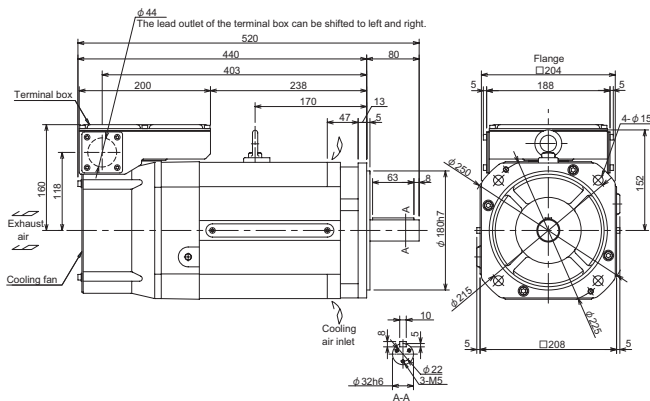
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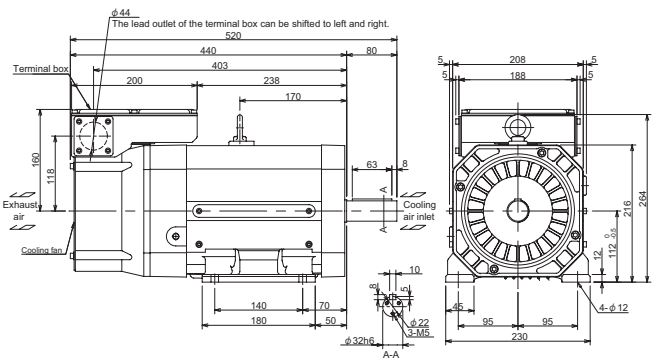
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-4-V7.5-12T with standard flange



SJ-4-V7.5-12T with standard legs

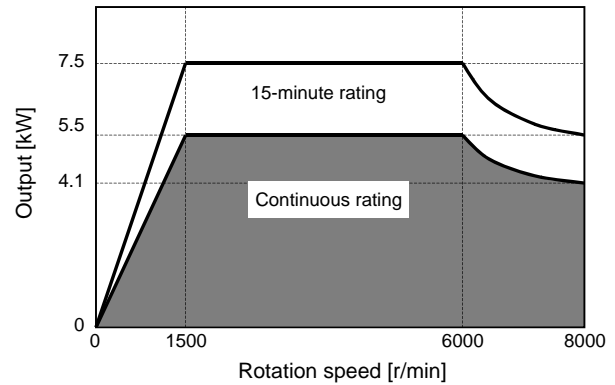


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics

[Base rotation speed 1500r/min series SJ-4-V7.5-12T]



Compatible spindle drive unit

Type	MDS-DH-SP-40
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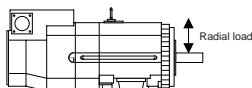
Base rotation speed 1500r/min series

SJ-4-V11-18T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	7.5
	30-minute rating [kW]	11
	50%ED rating [kW]	
Base rotation speed	[r/min]	1500
Maximum rotation speed	[r/min]	6000
Frame No.		B112
Continuous rated torque	[N·m]	47.7
GD ²	[kg·m ²]	0.12
Inertia	[kg·m ²]	0.03
Tolerable radial load(*1)	[N]	1960
Cooling fan	Input voltage	Single-phase 400V
	Maximum power consumption	70W
Protection method		IP44
Weight	[kg]	70
Insulation		Class F

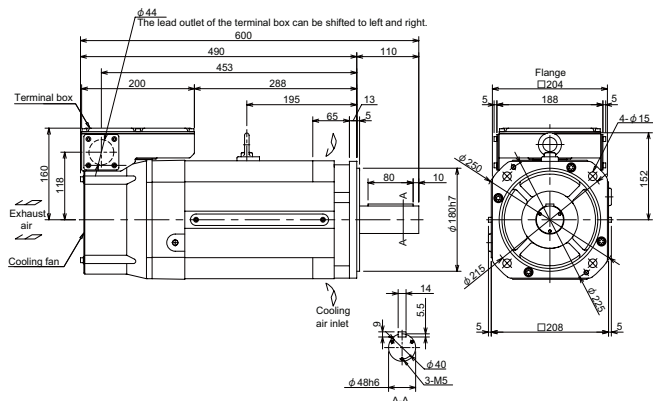
(*1)



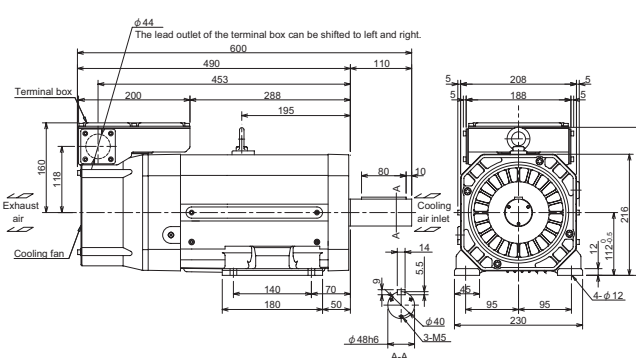
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-4-V11-18T with standard flange



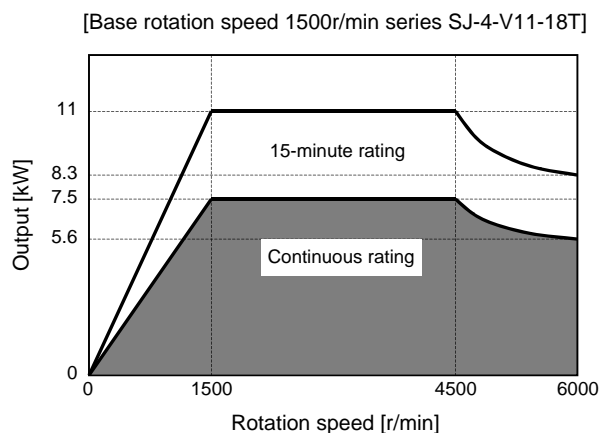
SJ-4-V11-18T with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-DH-SP-80
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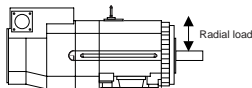
Base rotation speed 1500r/min series

SJ-4-V15-18T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	11
	30-minute rating [kW]	15
	50%ED rating [kW]	
Base rotation speed	[r/min]	1500
Maximum rotation speed	[r/min]	6000
Frame No.		A160
Continuous rated torque	[N·m]	70.0
GD ²	[kg·m ²]	0.23
Inertia	[kg·m ²]	0.06
Tolerable radial load(*1)	[N]	2940
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	72W
Protection method		IP44
Weight	[kg]	110
Insulation		Class F

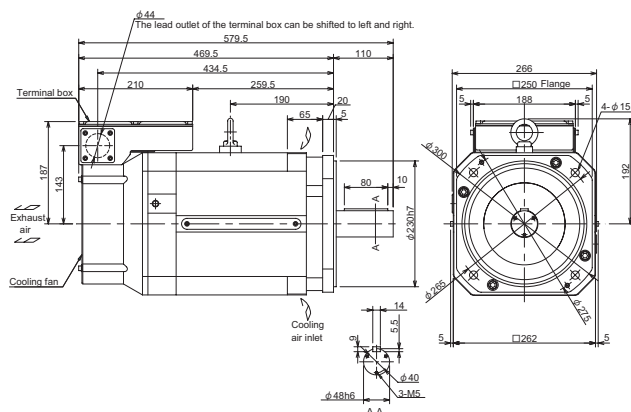
(*1)



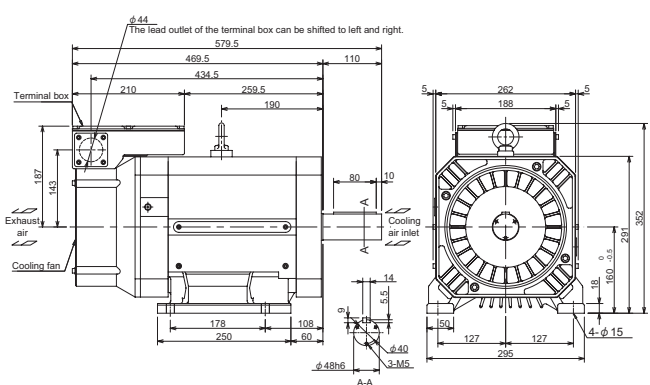
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-4-V15-18T with standard flange



SJ-4-V15-18T with standard legs

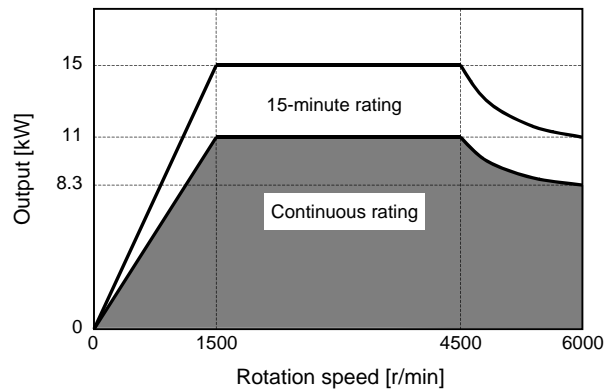


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics

[Base rotation speed 1500r/min series SJ-4-V15-18T]



Compatible spindle drive unit

Type	MDS-DH-SP-100
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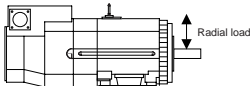
Base rotation speed 1500r/min series

SJ-4-V18.5-14T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	15
	30-minute rating [kW]	18.5
	50%ED rating [kW]	
Base rotation speed	[r/min]	1500
Maximum rotation speed	[r/min]	6000
Frame No.		A160
Continuous rated torque	[N·m]	95.5
GD ²	[kg·m ²]	0.23
Inertia	[kg·m ²]	0.06
Tolerable radial load(*1)	[N]	2940
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	72W
Protection method		IP44
Weight	[kg]	110
Insulation		Class F

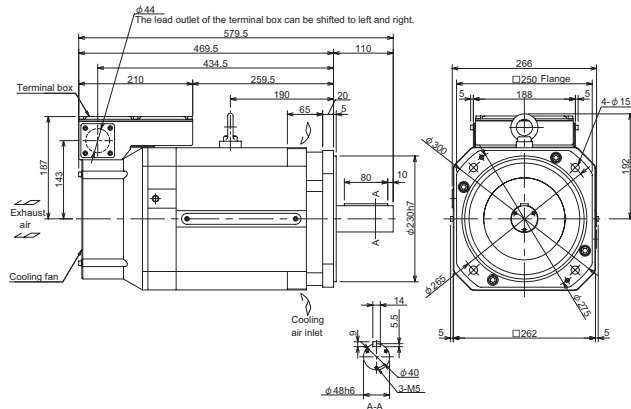
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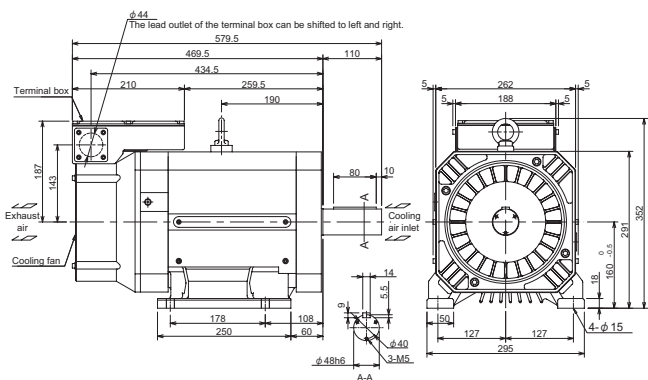
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-4-V18.5-14T with standard flange



SJ-4-V18.5-14T with standard legs

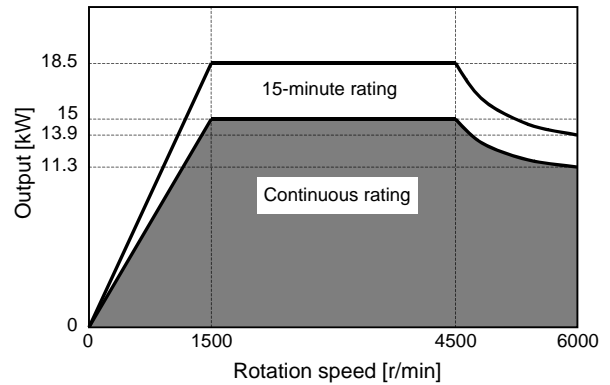


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics

[Base rotation speed 1500r/min series SJ-4-V18.5-14T]



Compatible spindle drive unit

Type	MDS-DH-SP-100
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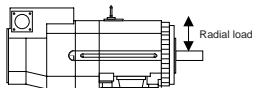
Base rotation speed 1500r/min series

SJ-4-V22-15T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	18.5
	30-minute rating [kW]	22
	50%ED rating [kW]	
Base rotation speed	[r/min]	1500
Maximum rotation speed	[r/min]	6000
Frame No.		B160
Continuous rated torque	[N·m]	118
GD ²	[kg·m ²]	0.32
Inertia	[kg·m ²]	0.08
Tolerable radial load(*1)	[N]	2940
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	72W
Protection method		IP44
Weight	[kg]	135
Insulation		Class F

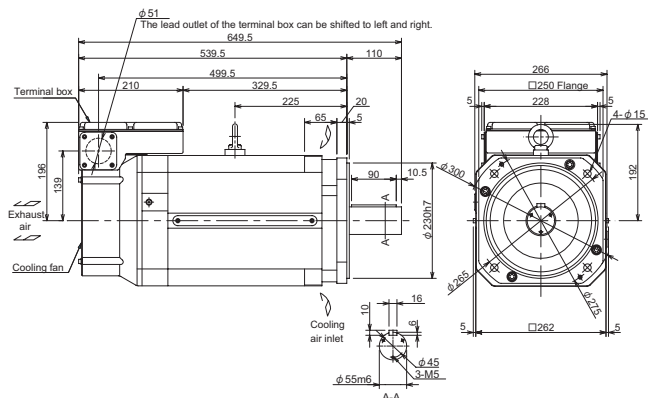
(*1)



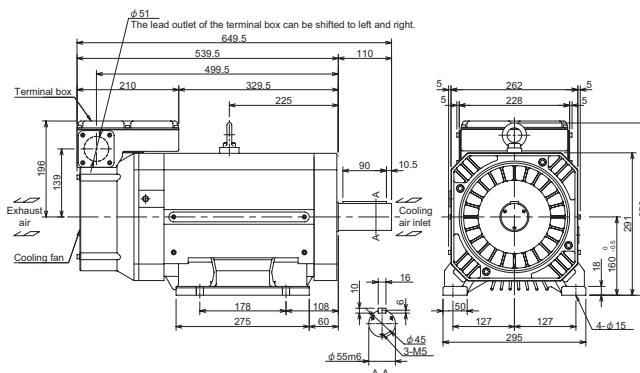
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-4-V22-15T with standard flange



SJ-4-V22-15T with standard legs

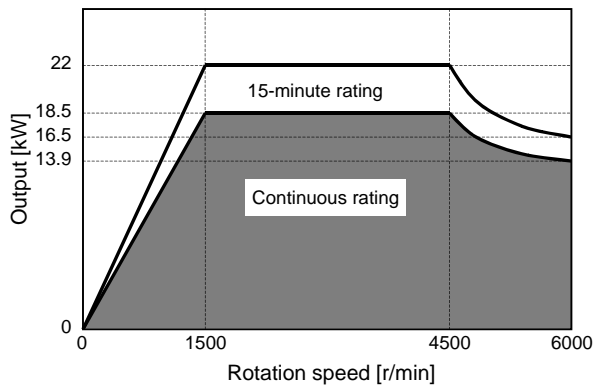


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics

[Base rotation speed 1500r/min series SJ-4-V22-15T]



Compatible spindle drive unit

Type	MDS-DH-SP-160
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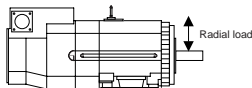
Base rotation speed 1500r/min series

SJ-4-V26-08T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	22
	30-minute rating [kW]	26
	50%ED rating [kW]	
Base rotation speed	[r/min]	1500
Maximum rotation speed	[r/min]	6000
Frame No.		C160
Continuous rated torque	[N·m]	140
GD ²	[kg·m ²]	0.38
Inertia	[kg·m ²]	0.10
Tolerable radial load(*1)	[N]	2940
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	72W
Protection method		IP44
Weight	[kg]	155
Insulation		Class F

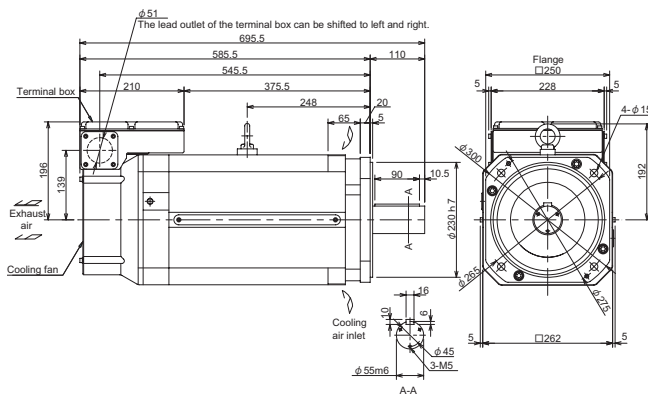
(*1)



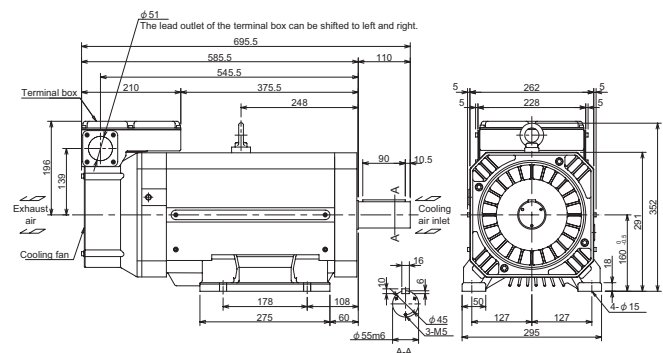
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-4-V26-08T with standard flange



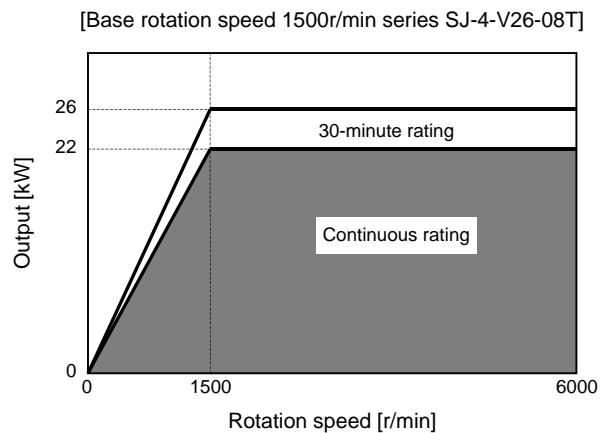
SJ-4-V26-08T with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-DH-SP-160
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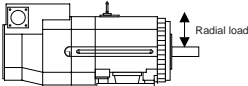
Base rotation speed 1150r/min series

SJ-4-V37-04T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	30
	30-minute rating [kW]	37
	50%ED rating [kW]	
Base rotation speed	[r/min]	1150
Maximum rotation speed	[r/min]	3450
Frame No.		A180
Continuous rated torque	[N·m]	249
GD ²	[kg·m ²]	1.23
Inertia	[kg·m ²]	0.31
Tolerable radial load(*1)	[N]	3920
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	(Confirm in each motor specifications)
Protection method		IP44
Weight	[kg]	280
Insulation		Class F

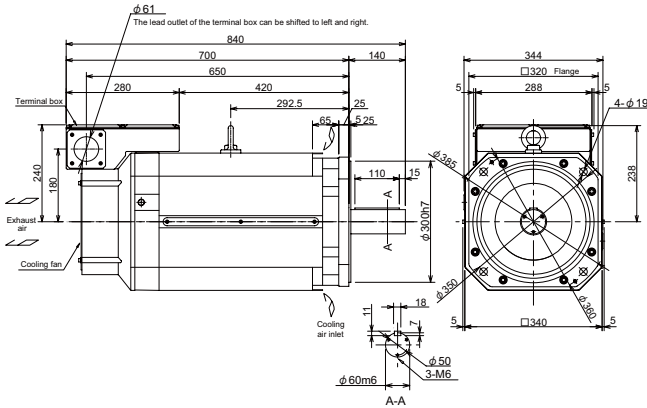
(*1)



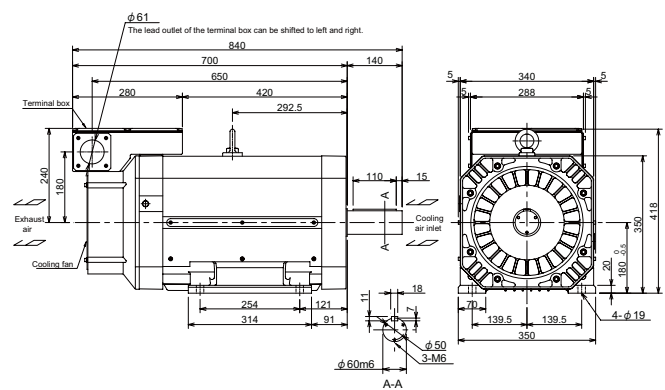
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-4-V37-04T with standard flange



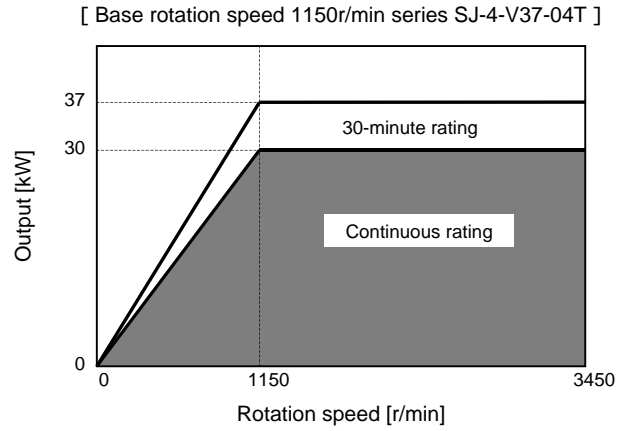
SJ-4-V37-04T with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-DH-SP-200
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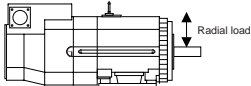
Base rotation speed 1500r/min series

SJ-4-V45-02T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	37
	30-minute rating [kW]	45
	50%ED rating [kW]	
Base rotation speed	[r/min]	1500
Maximum rotation speed	[r/min]	3450
Frame No.		B180
Continuous rated torque	[N·m]	236
GD ²	[kg·m ²]	2.19
Inertia	[kg·m ²]	0.55
Tolerable radial load(*1)	[N]	3920
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	(Confirm in each motor specifications)
Protection method		IP44
Weight	[kg]	390
Insulation		Class F

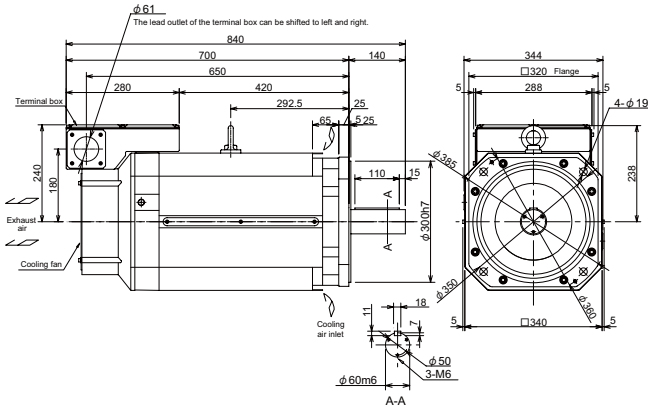
(*1)



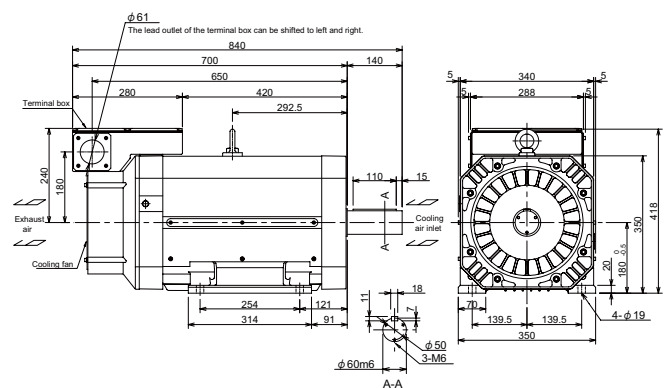
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-4-V45-02T with standard flange



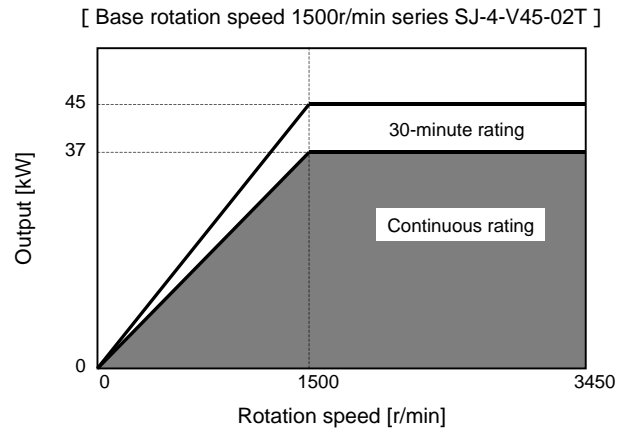
SJ-4-V45-02T with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-DH-SP-320
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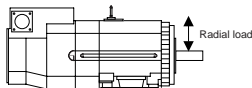
Base rotation speed 1150r/min series

SJ-4-V55-03T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	45
	30-minute rating [kW]	55
	50%ED rating [kW]	
Base rotation speed	[r/min]	1150
Maximum rotation speed	[r/min]	3450
Frame No.		A225
Continuous rated torque	[N·m]	374
GD ²	[kg·m ²]	3.39
Inertia	[kg·m ²]	0.85
Tolerable radial load(*1)	[N]	5880
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	(Confirm in each motor specifications)
Protection method		IP44
Weight	[kg]	450
Insulation		Class F

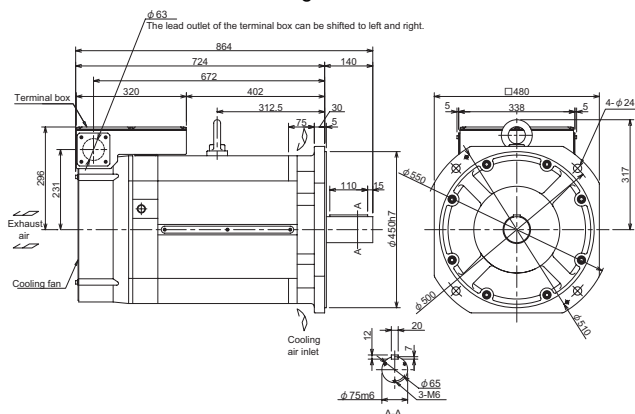
(*1)



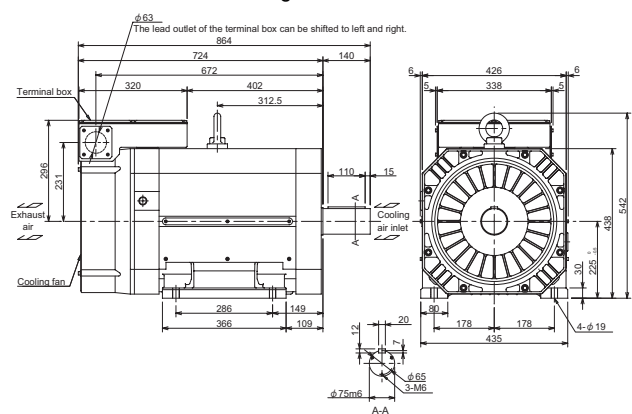
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-4-V55-03T with standard flange



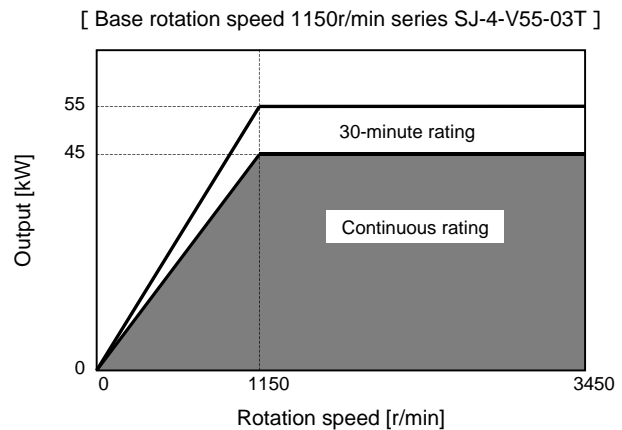
SJ-4-V55-03T with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-DH-SP-320
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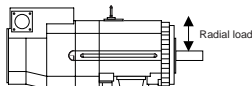
Wide range constant output series

SJ-4-V11-18T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	3.7
	30-minute rating [kW]	5.5
	50%ED rating [kW]	
Base rotation speed	[r/min]	750
Maximum rotation speed	[r/min]	6000
Frame No.		B112
Continuous rated torque	[N·m]	47.1
GD ²	[kg·m ²]	0.12
Inertia	[kg·m ²]	0.03
Tolerable radial load(*1)	[N]	1960
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	70W
Protection method		IP44
Weight	[kg]	70
Insulation		Class F

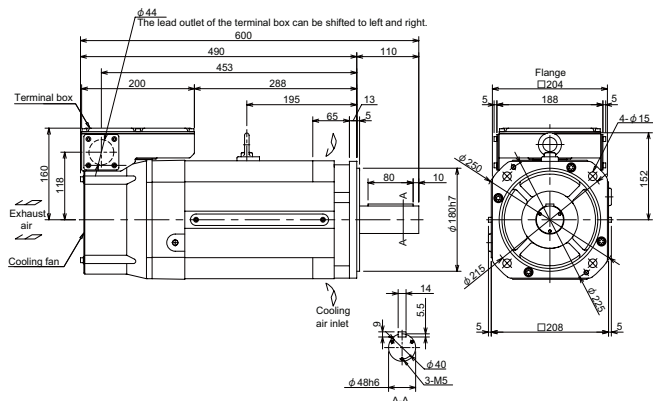
(*1)



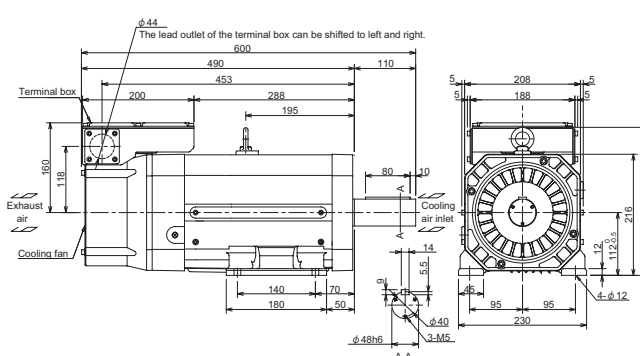
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-4-V11-18T with standard flange



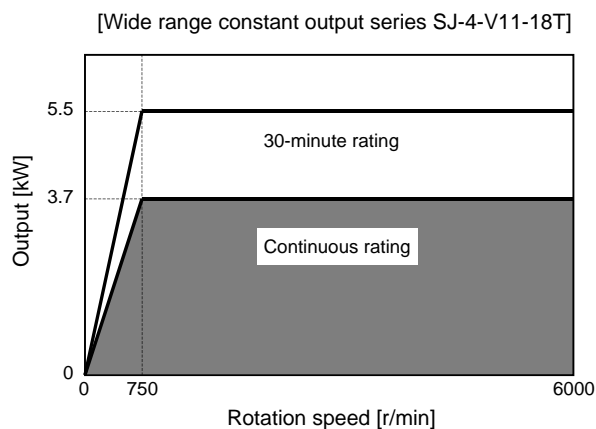
SJ-4-V11-18T with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-DH-SP-80
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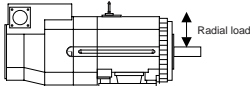
Wide range constant output series

SJ-4-V11-21T

Specifications

Item		Specifications
Output capacity	Continuous rating	[kW] 5.5
	30-minute rating	[kW] 7.5
	50%ED rating	
Base rotation speed	[r/min]	750
Maximum rotation speed	[r/min]	6000
Frame No.		A160
Continuous rated torque	[N·m]	70.0
GD ²	[kg·m ²]	0.23
Inertia	[kg·m ²]	0.06
Tolerable radial load(*1)	[N]	2940
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	72W
Protection method		IP44
Weight	[kg]	110
Insulation		Class F

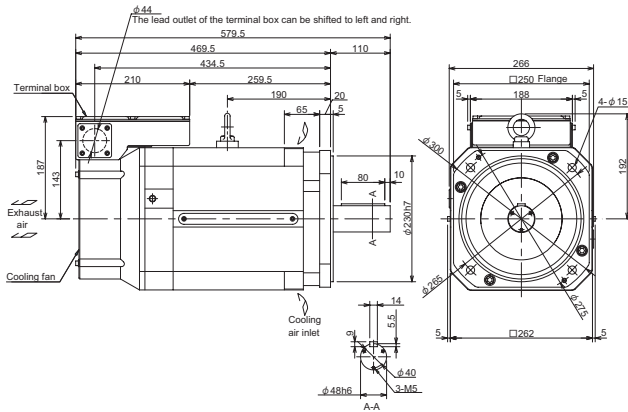
(*1)



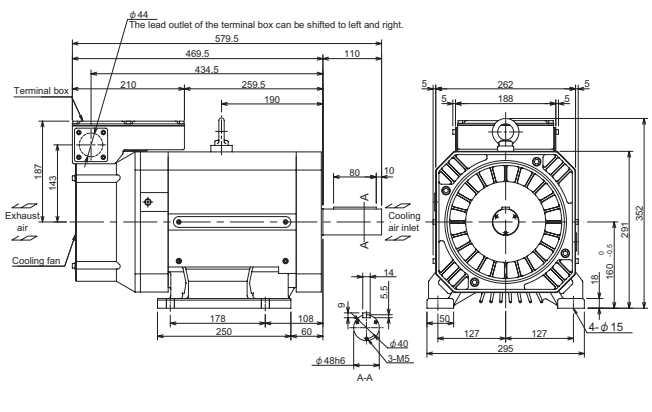
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-4-V11-21T with standard flange



SJ-4-V11-21T with standard legs

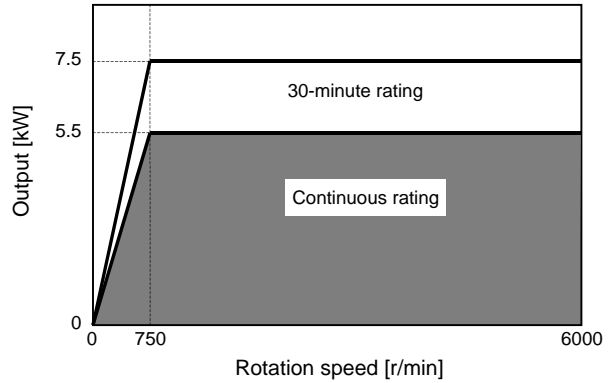


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics

[Wide range constant output series SJ-4-V11-21T]



Compatible spindle drive unit

Type	MDS-DH-SP-80
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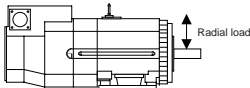
Wide range constant output series

SJ-4-V15-20T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	7.5
	30-minute rating [kW]	9
	50%ED rating [kW]	
Base rotation speed	[r/min]	750
Maximum rotation speed	[r/min]	6000
Frame No.		A160
Continuous rated torque	[N·m]	95.5
GD ²	[kg·m ²]	0.23
Inertia	[kg·m ²]	0.06
Tolerable radial load(*1)	[N]	2940
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	72W
Protection method		IP44
Weight	[kg]	110
Insulation		Class F

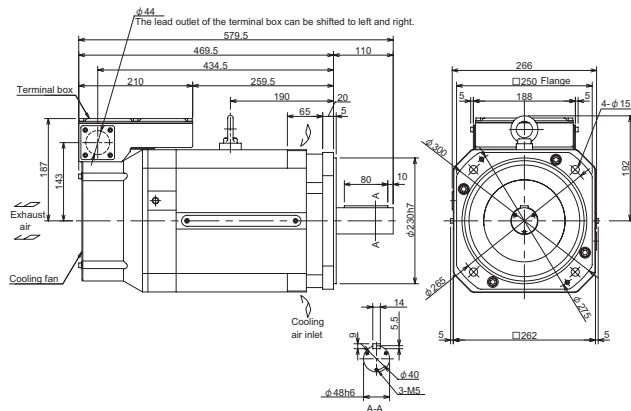
(*1)



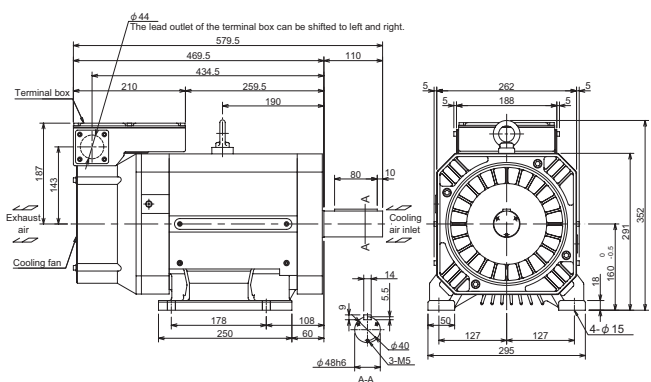
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-4-V15-20T with standard flange



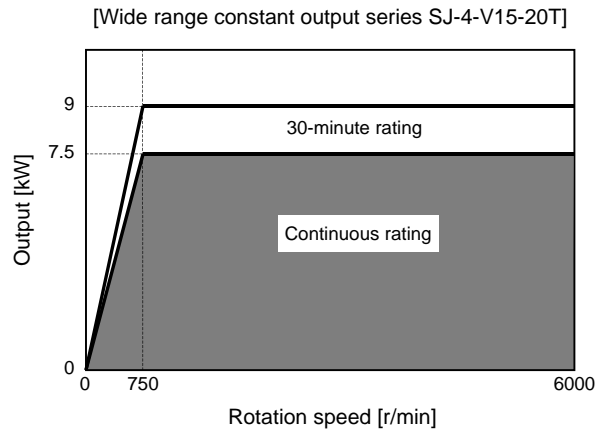
SJ-4-V15-20T with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-DH-SP-100
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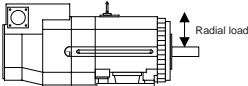
Wide range constant output series

SJ-4-V18.5-17T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	9
	30-minute rating [kW]	11
	50%ED rating [kW]	
Base rotation speed	[r/min]	750
Maximum rotation speed	[r/min]	6000
Frame No.		B160
Continuous rated torque	[N·m]	115
GD ²	[kg·m ²]	0.32
Inertia	[kg·m ²]	0.08
Tolerable radial load(*1)	[N]	2940
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	72W
Protection method		IP44
Weight	[kg]	135
Insulation		Class F

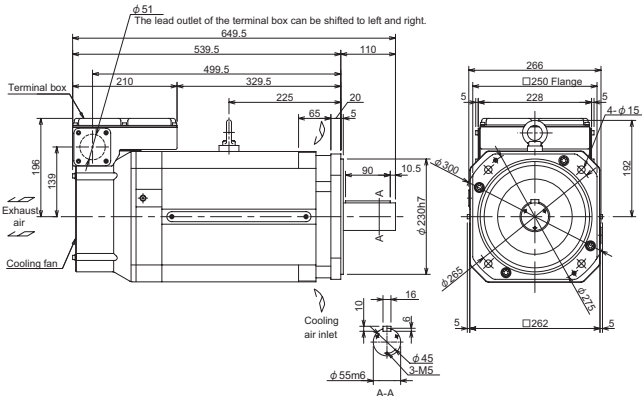
(*1)



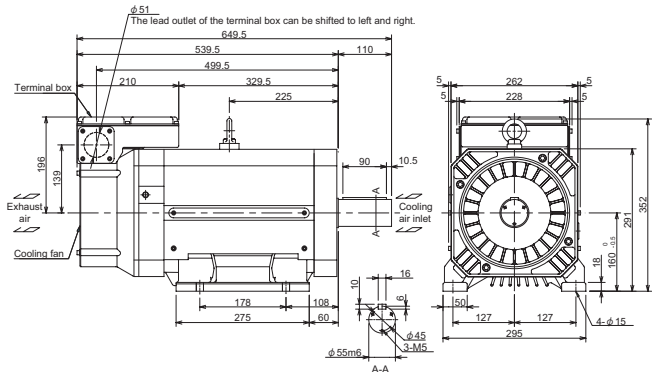
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-4-V18.5-17T with standard flange



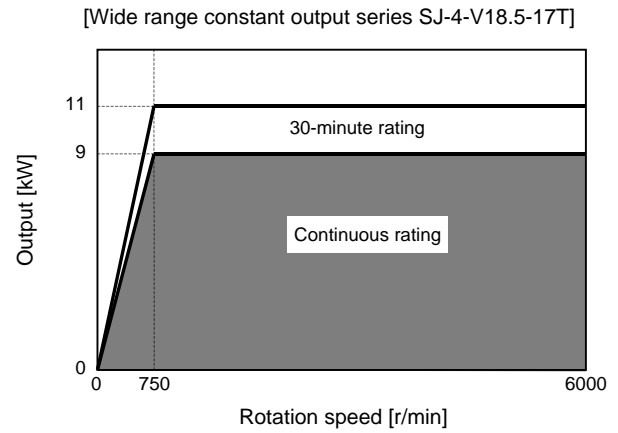
SJ-4-V18.5-17T with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-DH-SP-160
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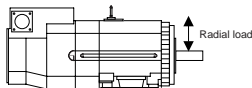
Wide range constant output series

SJ-4-V22-16T

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	11
	30-minute rating [kW]	15
	50%ED rating [kW]	
Base rotation speed	[r/min]	750
Maximum rotation speed	[r/min]	6000
Frame No.		B160
Continuous rated torque	[N·m]	140
GD ²	[kg·m ²]	0.32
Inertia	[kg·m ²]	0.08
Tolerable radial load(*1)	[N]	2940
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	72W
Protection method		IP44
Weight	[kg]	135
Insulation		Class F

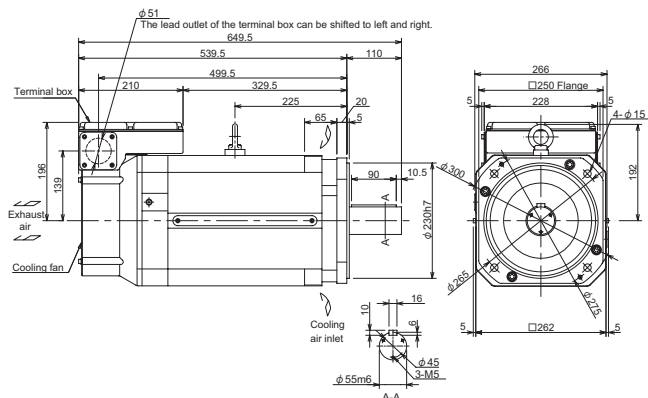
(*1)



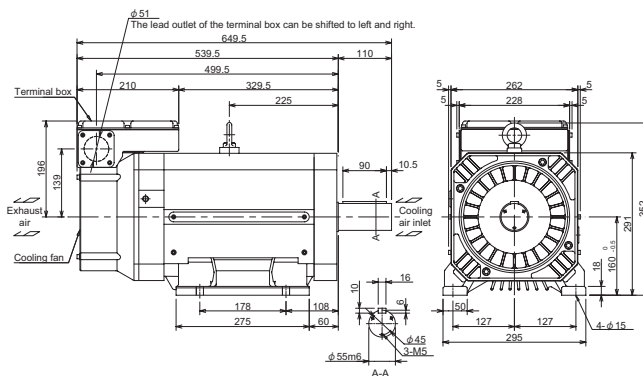
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-4-V22-16T with standard flange



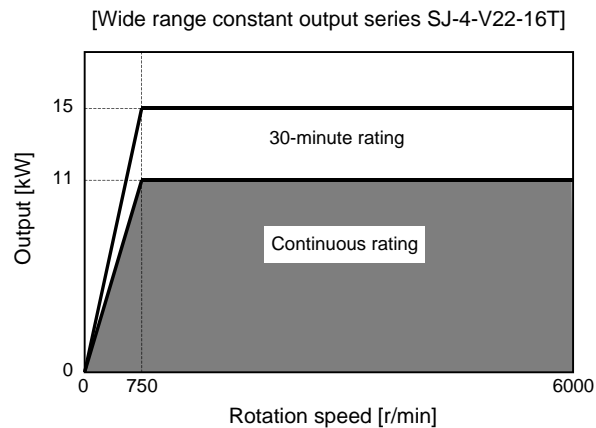
SJ-4-V22-16T with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-DH-SP-160
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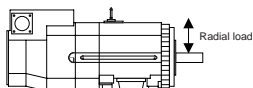
High-speed series

SJ-4-V3.7-05ZT

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	2.2
	30-minute rating [kW]	3.7(15min. rating)
	50%ED rating [kW]	
Base rotation speed	[r/min]	3000
Maximum rotation speed	[r/min]	15000
Frame No.		A90
Continuous rated torque	[N·m]	7.0
GD ²	[kg·m ²]	0.027
Inertia	[kg·m ²]	0.007
Tolerable radial load(*1)	[N]	490
Cooling fan	Input voltage	Single-phase 400V
	Maximum power consumption	30W
Protection method		IP44
Weight	[kg]	25
Insulation		Class F

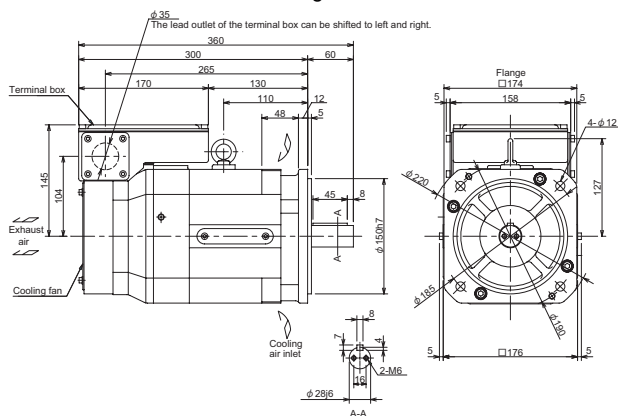
(*1)



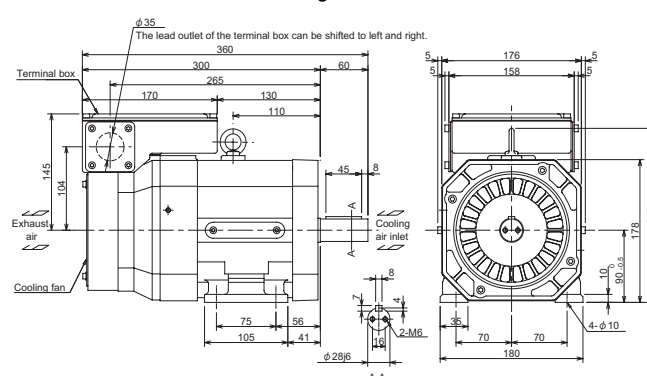
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-4-V3.7-05ZT with standard flange



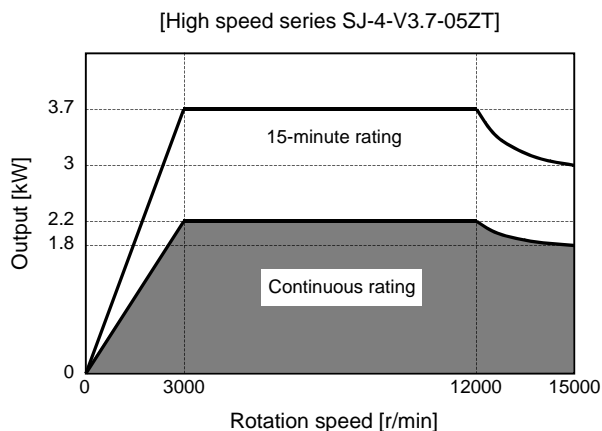
SJ-4-V3.7-05ZT with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-DH-SP-20
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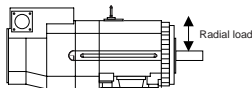
High-speed series

SJ-4-V7.5-13ZT

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	5.5
	30-minute rating [kW]	7.5
	50%ED rating [kW]	7.5
Base rotation speed	[r/min]	1500
Maximum rotation speed	[r/min]	12000
Frame No.		A112
Continuous rated torque	[N·m]	35.0
GD ²	[kg·m ²]	0.098
Inertia	[kg·m ²]	0.025
Tolerable radial load(*1)	[N]	980
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	70W
Protection method		IP44
Weight	[kg]	60
Insulation		Class F

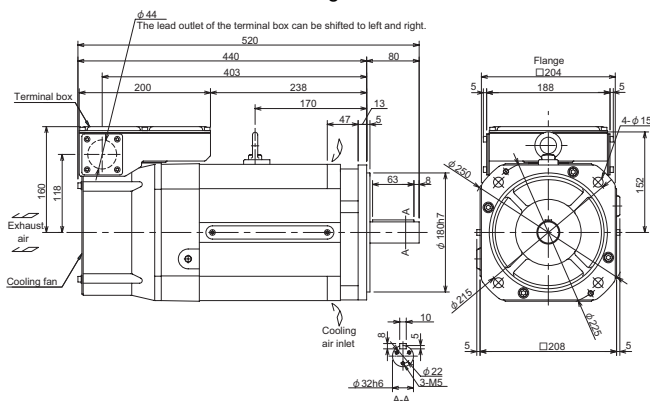
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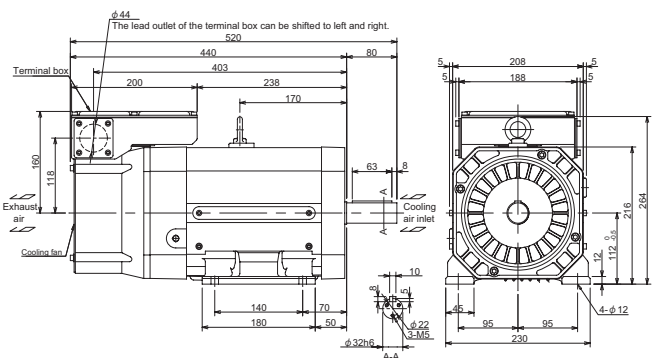
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-4-V7.5-13ZT with standard flange



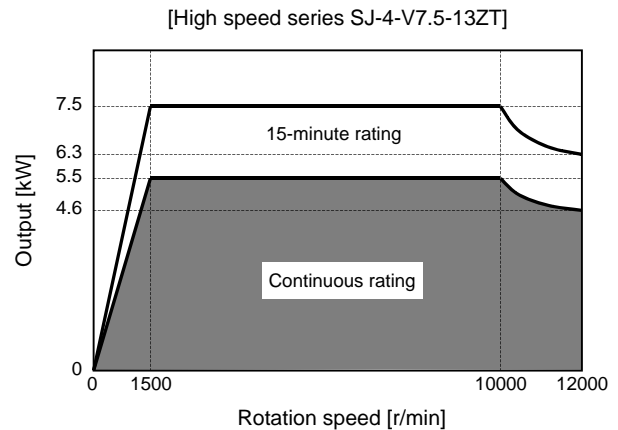
SJ-4-V7.5-13ZT with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-DH-SP-80
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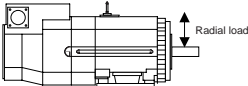
High-speed series

SJ-4-V11-22ZT

Specifications

Item	Specifications	
Output capacity	Continuous rating [kW]	5.5
	30-minute rating [kW]	7.5
	50%ED rating [kW]	
Base rotation speed	[r/min]	1500
Maximum rotation speed	[r/min]	12000
Frame No.		A112
Continuous rated torque	[N·m]	35.0
GD ²	[kg·m ²]	0.098
Inertia	[kg·m ²]	0.025
Tolerable radial load(*1)	[N]	980
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	70W
Protection method		IP44
Weight	[kg]	60
Insulation		Class F

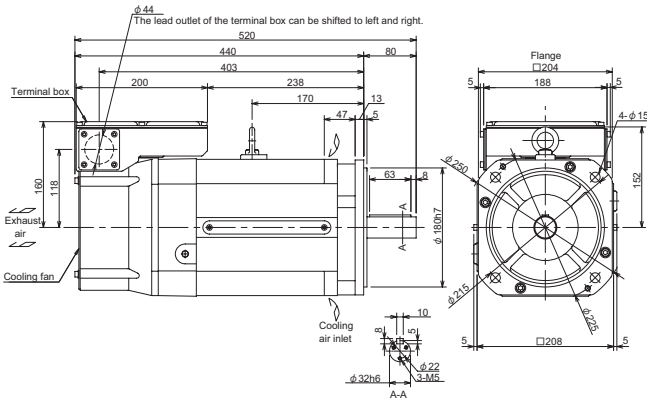
(*1)



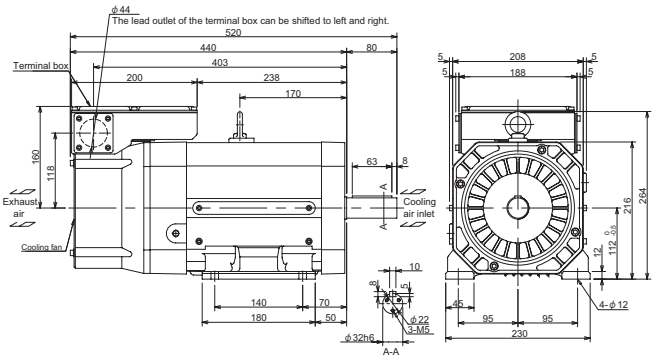
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-4-V11-22ZT with standard flange



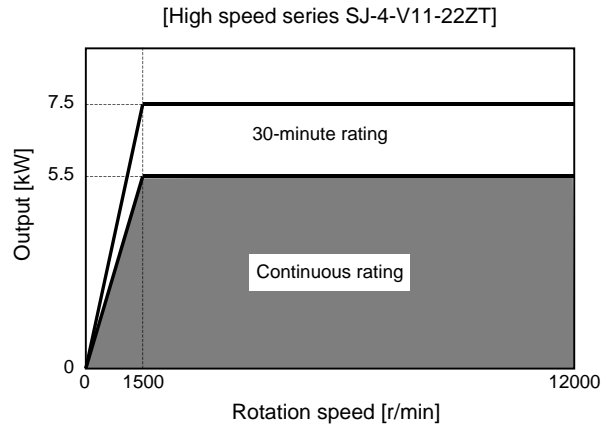
SJ-4-V11-22ZT with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-DH-SP-100
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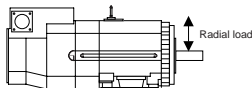
High-speed series

SJ-4-V11-23ZT

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	7.5
	30-minute rating [kW]	11
	50%ED rating [kW]	
Base rotation speed	[r/min]	1500
Maximum rotation speed	[r/min]	8000
Frame No.		B112
Continuous rated torque	[N·m]	47.7
GD ²	[kg·m ²]	0.12
Inertia	[kg·m ²]	0.03
Tolerable radial load(*1)	[N]	1470
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	70W
Protection method		IP44
Weight	[kg]	70
Insulation		Class F

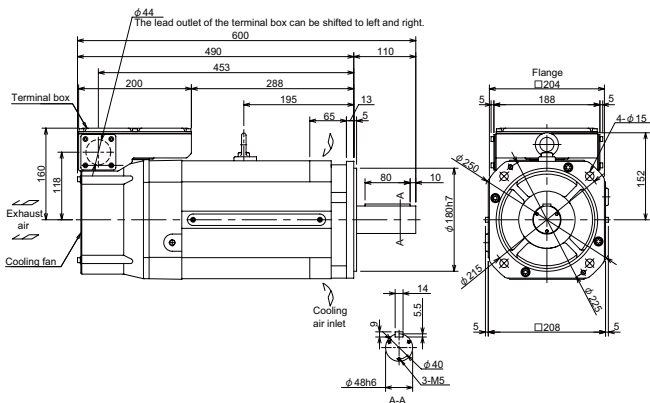
(*1)



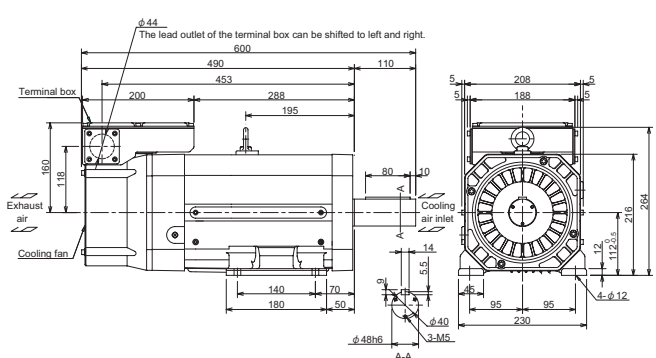
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-4-V11-23ZT with standard flange



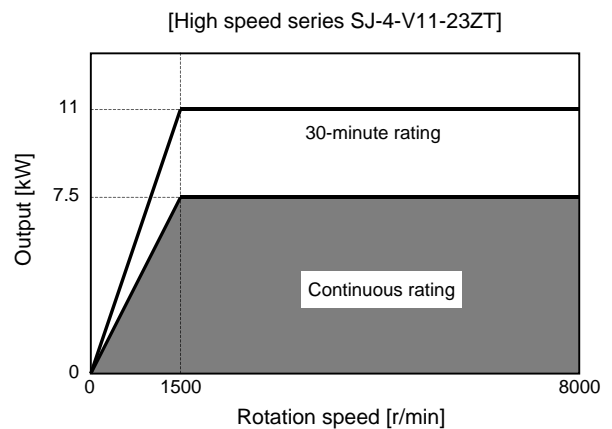
SJ-4-V11-23ZT with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-DH-SP-100
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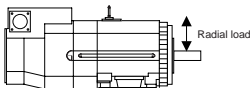
High-speed series

SJ-4-V22-18ZT

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	11
	30-minute rating [kW]	15
	50%ED rating [kW]	
Base rotation speed	[r/min]	1500
Maximum rotation speed	[r/min]	8000
Frame No.		A160
Continuous rated torque	[N·m]	70.0
GD ²	[kg·m ²]	0.23
Inertia	[kg·m ²]	0.06
Tolerable radial load(*1)	[N]	1960
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	72W
Protection method		IP44
Weight	[kg]	125
Insulation		Class F

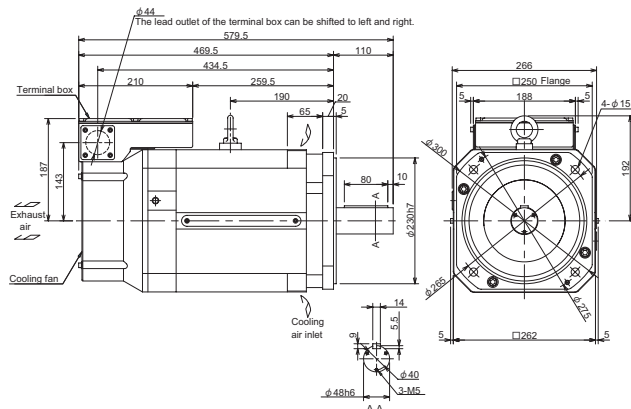
(*1)



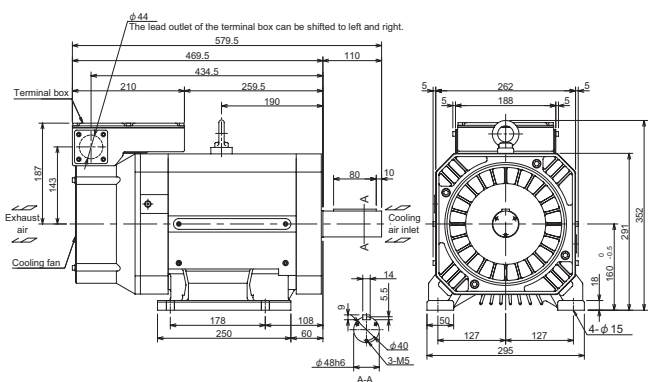
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-4-V22-18ZT with standard flange



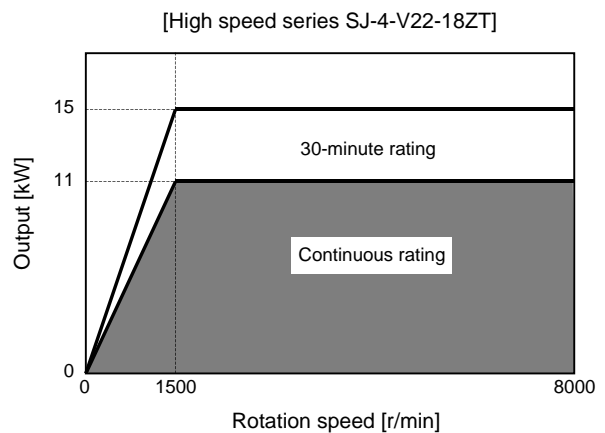
SJ-4-V22-18ZT with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-DH-SP-160
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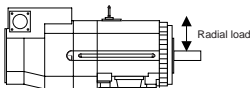
High-speed series

SJ-4-V30-15ZT

Specifications

Item		Specifications
Output capacity	Continuous rating [kW]	18.5
	30-minute rating [kW]	22
	50%ED rating [kW]	
Base rotation speed	[r/min]	1500
Maximum rotation speed	[r/min]	8000
Frame No.		B160
Continuous rated torque	[N·m]	118
GD ²	[kg·m ²]	0.32
Inertia	[kg·m ²]	0.08
Tolerable radial load(*1)	[N]	1960
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	72W
Protection method		IP44
Weight	[kg]	155
Insulation		Class F

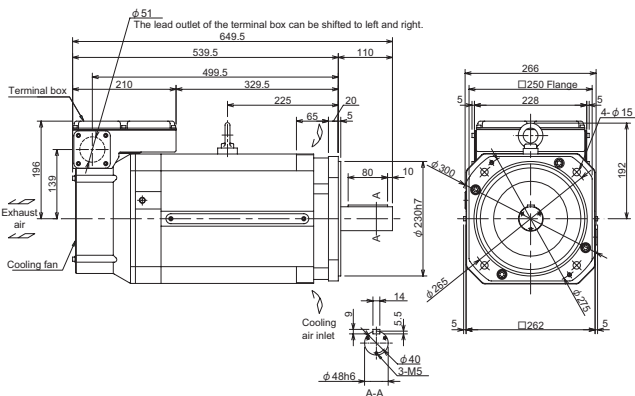
(*1)



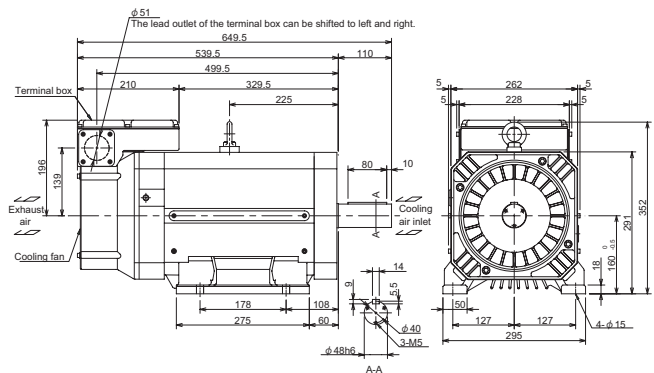
(Note) The load point is at the one-half of the shaft length.

Outline dimension drawings [Unit: mm]

SJ-4-V30-15ZT with standard flange



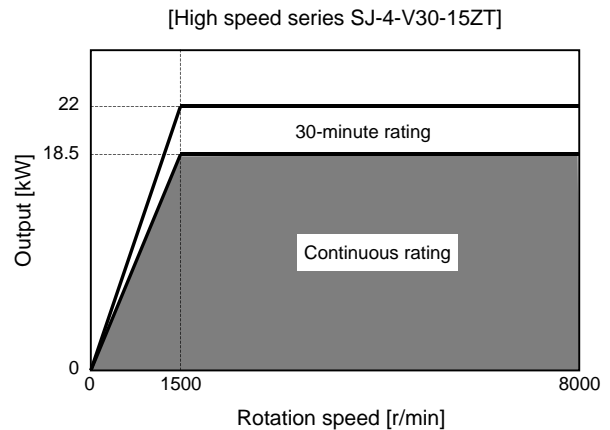
SJ-4-V30-15ZT with standard legs



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40 (with no freezing) Storage: -20 to +65 (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 10000m or less above sea level

Output characteristics



Compatible spindle drive unit

Type	MDS-DH-SP-160
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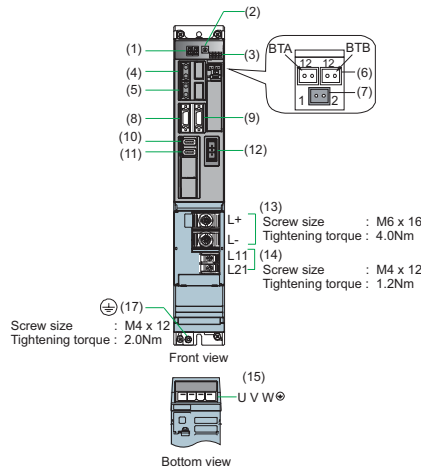
Servo drive unit

Servo drive unit

MDS-DH-V1-10

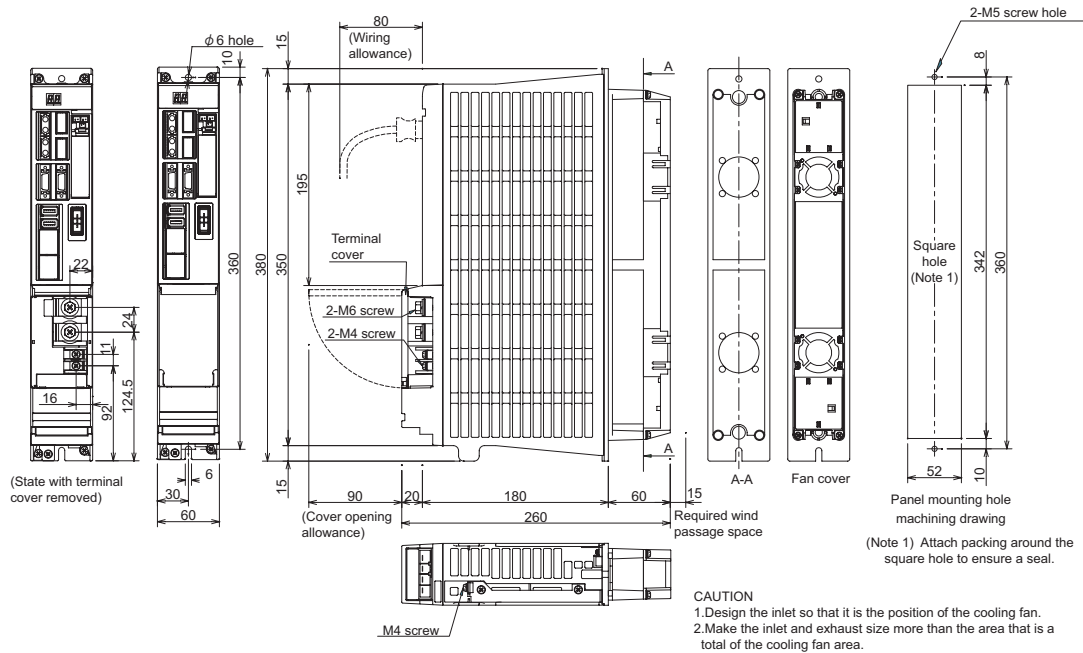
Specifications

Item	Specifications	
Nominal maximum current(peak)	[A]	10
Output	Rated voltage	[V] AC340
	Rated current	[A] 2.3
Input	Rated voltage	[V] DC513 ~ 648
	Rated current	[A] 0.9
Control power	Frequency	[Hz] 50 / 60
	Tolerable frequency fluctuation	[%] ±3% max
	Voltage(50Hz)	[V] AC380 ~ 440
	Voltage(60Hz)	[V] AC380 ~ 480
	Tolerable voltage fluctuation rate	[%] +10%, -10%
	Max. Current	[A] 0.1
	Max. Rush current	[A] 18
	Max. Rush conductivity time	[ms] 12
	Max. Earth leakage current	[mA] 2
	Braking	Regenerative braking and dynamic brakes
Dynamic brakes		Built-in
Heating value	Inside panel	[W] 19
	Outside panel	[W] 27
Cooling method	Forced wind cooling	
Weight	[kg] 3.8	



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN 1A	NC or master axis optical communication connector
(5)	CN 1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER 6V-C 119B
(8)	CN 9	(Unused)
(9)	CN 4	Power supply communication connector
(10)	CN 2L	Motor side detector connection connector
(11)	CN 3L	Machine side detector connection connector
(12)	CN 2O	Motor brake/dynamic brake control connector
(13)	TE 2	Main circuit power supply input terminal (DC input)
(14)	TE 3	Control power input terminal
(15)	TE 1	Motor power supply output connector
(17)	PE	Grounding terminal Note that TE 1 connector is used for the motor grounding.

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21, L12, L22, MC1)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		2	14			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		2	14			1.25 ~ 2	16 ~ 14

Environmental conditions

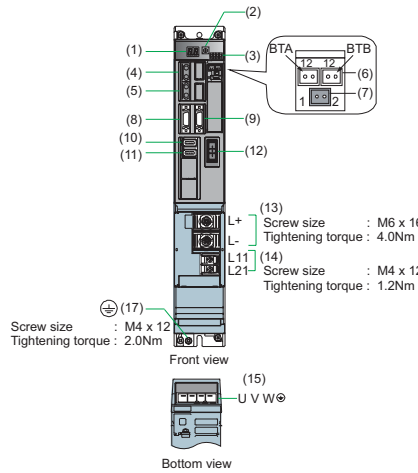
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Servo drive unit

MDS-DH-V1-20

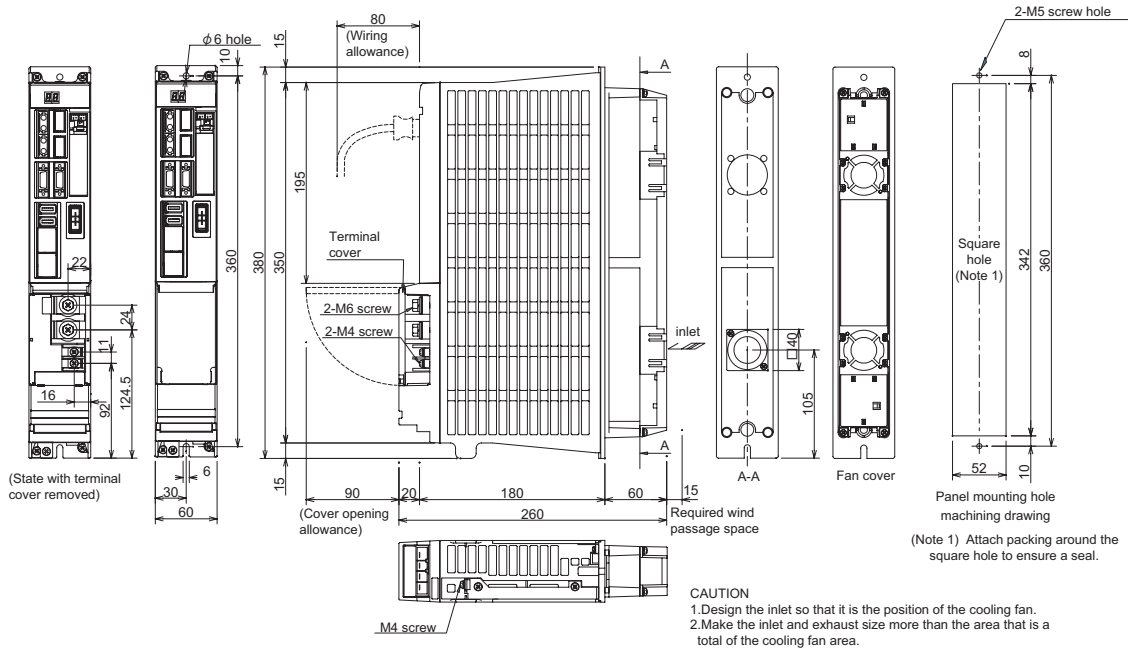
Specifications

Item	Specifications		
Nominal maximum current(peak) [A]	20		
Output	Rated voltage [V]	AC340	
	Rated current [A]	3.9	
Input	Rated voltage [V]	DC513 ~ 648	
	Rated current [A]	1.6	
Control power	Frequency [Hz]	50 / 60	
	Tolerable frequency fluctuation [%]	±3% max	
	Voltage(50Hz) [V]	AC380 ~ 440	
	Voltage(60Hz) [V]	AC380 ~ 480	
	Tolerable voltage fluctuation rate [%]	+10%, -10%	
	Max. Current [A]	0.1	
	Max. Rush current [A]	18	
	Max. Rush conductivity time [ms]	12	
	Max. Earth leakage current [mA]	2	
	Braking	Regenerative braking and dynamic brakes	
Dynamic brakes		Built-in	
Heating value	Inside panel [W]	22	
	Outside panel [W]	46	
Cooling method	Forced wind cooling		
Weight [kg]	3.8		



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN 1A	NC or master axis optical communication connector
(5)	CN 1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER 6V-C 119B
(8)	CN 9	(U used)
(9)	CN 4	Power supply communication connector
(10)	CN 2L	Motor side detector connection connector
(11)	CN 3L	Machine side detector connection connector
(12)	CN 2O	Motor brake/dynamic brake control connector
(13)	TE 2	Main circuit power supply input terminal (DC input)
(14)	TE 3	Control power input terminal
(15)	TE 1	Motor power supply output connector
(17)	PE	Grounding terminal Note that TE 1 connector is used for the motor grounding.

Outline dimension drawings [Unit: mm]



CAUTION
 1. Design the inlet so that it is the position of the cooling fan.
 2. Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21, L12, L22, MC1)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		2	14		2	14	
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		2	14		1.25 ~ 2	16 ~ 14	

Environmental conditions

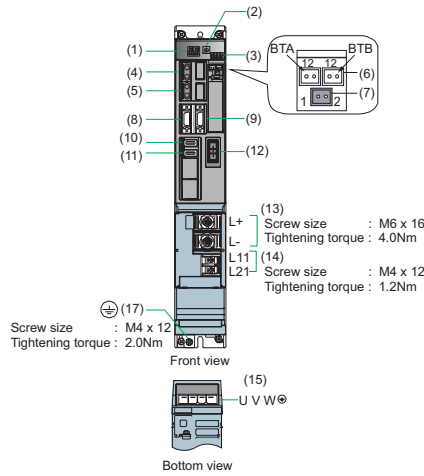
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Servo drive unit

MDS-DH-V1-40

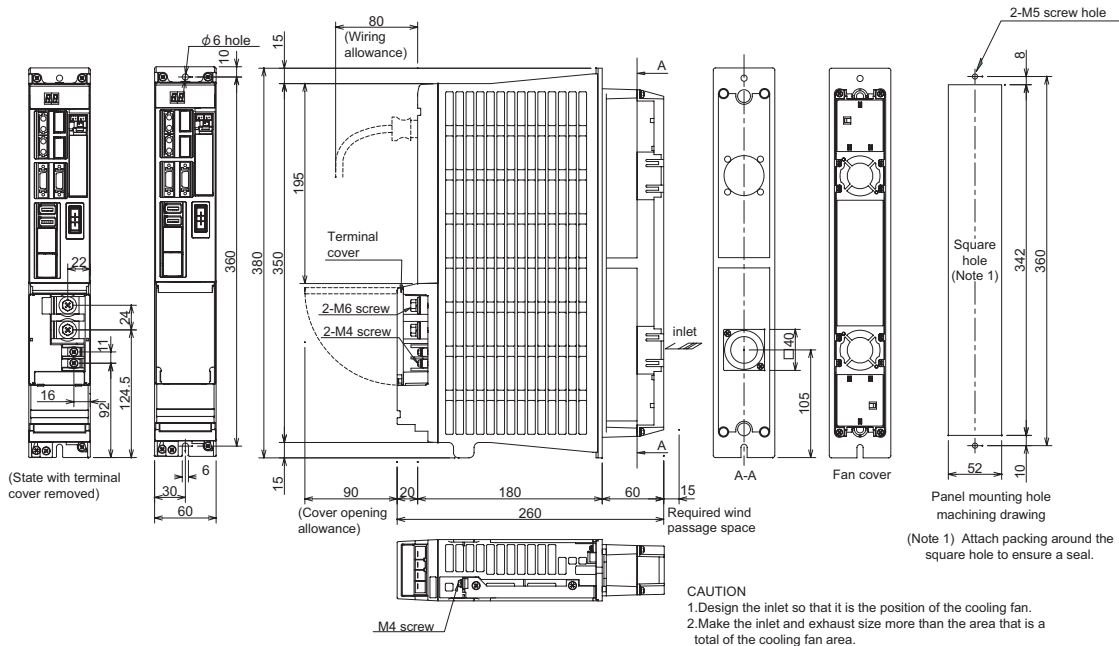
Specifications

Item	Specifications		
Nominal maximum current(peak) [A]	40		
Output	Rated voltage [V]	AC340	
	Rated current [A]	7.3	
Input	Rated voltage [V]	DC513 ~ 648	
	Rated current [A]	2.9	
Control power	Frequency [Hz]	50 / 60	
	Tolerable frequency fluctuation [%]	±3% max	
	Voltage(50Hz) [V]	AC380 ~ 440	
	Voltage(60Hz) [V]	AC380 ~ 480	
	Tolerable voltage fluctuation rate [%]	+10%, -10%	
	Max. Current [A]	0.1	
	Max. Rush current [A]	18	
	Max. Rush conductivity time [ms]	12	
	Max. Earth leakage current [mA]	2	
	Braking	Regenerative braking and dynamic brakes	
Dynamic brakes		Built-in	
Heating value	Inside panel [W]	27	
	Outside panel [W]	87	
Cooling method	Forced wind cooling		
Weight [kg]	3.8		



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	CN1A	NC or master axis optical communication connector
(4)	CN1B	Slave axis optical communication connector
(5)	BTA BTB	For connecting converged battery unit
(6)	BT1	For connecting battery built-in drive unit ER 6V-C 119B
(7)	CN9	(Unused)
(8)	CN4	Power supply communication connector
(9)	CN2L	Motor side detector connection connector
(10)	CN2R	Machine side detector connection connector
(11)	CN3L	Motor brake/dynamic brake control connector
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal
(14)	TE1	Motor power supply output connector
(15)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding.

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21, L12, L22, MC1)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		2	14			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		2	14			1.25 ~ 2	16 ~ 14

Environmental conditions

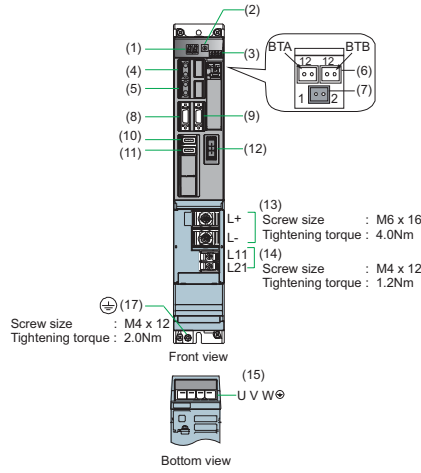
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Servo drive unit

MDS-DH-V1-80

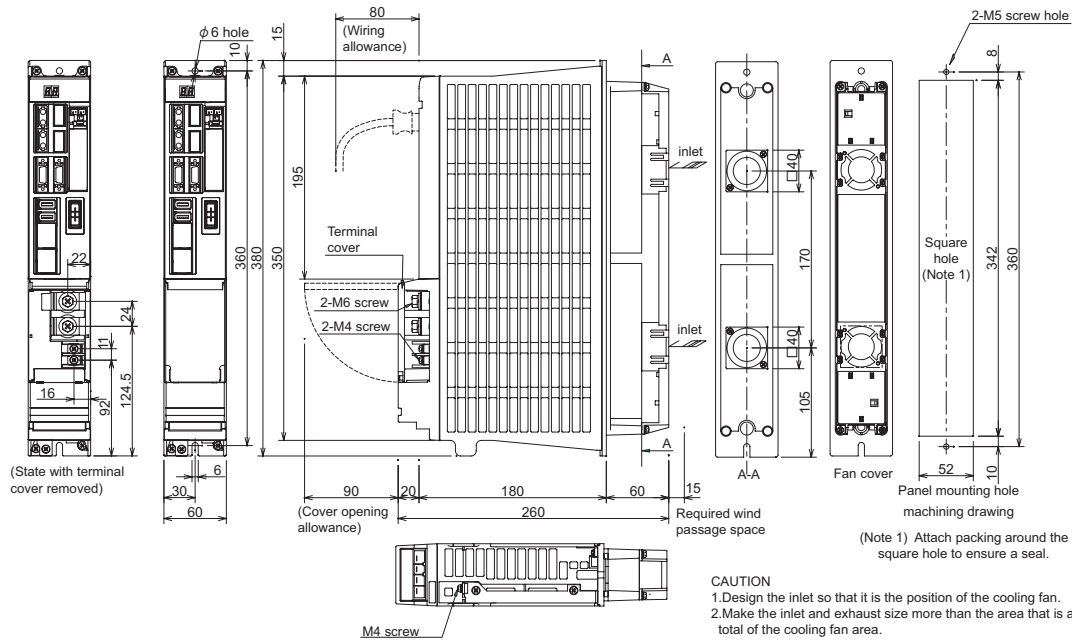
Specifications

Item	Specifications	
Nominal maximum current(peak) [A]	80	
Output	Rated v voltage [V]	AC340
	Rated current [A]	15.0
Input	Rated voltage [V]	DC513 ~ 648
	Rated current [A]	6.0
Control power	Frequency [Hz]	50 / 60
	Tolerable frequency fluctuation [%]	±3% max
	Voltage(50Hz) [V]	AC380 ~ 440
	Voltage(60Hz) [V]	AC380 ~ 480
	Tolerable v voltage fluctuation rate [%]	+10%, -10%
	Max. Current [A]	0.1
	Max. Rush current [A]	18
	Max.Rush conductivity time [ms]	12
Max. Earth leakage current [mA]	2	
Braking	Regenerative braking and dynamic brakes	
	Dynamic brakes	Built-in
Heating value	Inside panel [W]	40
	Outside panel [W]	175
Cooling method	Forced wind cooling	
Weight [kg]	3.8	



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN 1A	NC or master axis optical communication connector
(5)	CN 1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER 6V-C 119B
(8)	CN 9	(U used)
(9)	CN 4	Power supply communication connector
(10)	CN 2L	Motor side detector connection connector
(11)	CN 3L	Machine side detector connection connector
(12)	CN 2O	Motor brake/dynamic brake control connector
(13)	TE 2	Main circuit power supply input terminal (DC input)
(14)	TE 3	Control power input terminal
(15)	TE 1	Motor power supply output connector
(17)	PE	Grounding terminal Note that TE 1 connector is used for the motor grounding.

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21, L12, L22, MC1)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		2	14			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		2	14			1.25 ~ 2	16 ~ 14

Environmental conditions

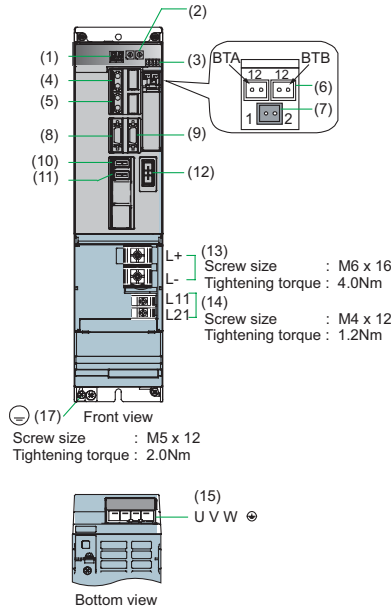
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Servo drive unit

MDS-DH-V1-80W

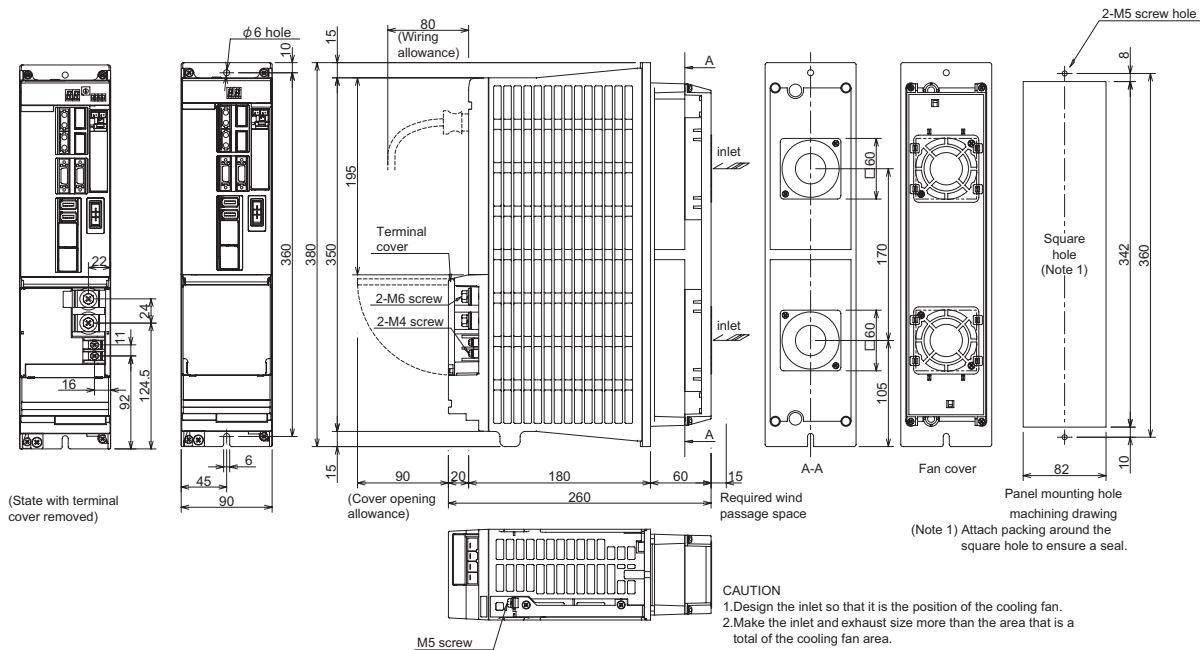
Specifications

Item	Specifications	
Nominal maximum current(peak) [A]	80	
Output	Rated voltage [V]	AC340
	Rated current [A]	20.1
Input	Rated voltage [V]	DC513 ~ 648
	Rated current [A]	8.0
Control power	Frequency [Hz]	50 / 60
	Tolerable frequency fluctuation [%]	±3% max
	Voltage(50Hz) [V]	AC380 ~ 440
	Voltage(60Hz) [V]	AC380 ~ 480
	Tolerable voltage fluctuation rate [%]	+10%, -10%
	Max. Current [A]	0.1
	Max. Rush current [A]	18
	Max. Rush conductivity time [ms]	12
Max. Earth leakage current [mA]	2	
Braking	Regenerative braking and dynamic brakes	
	Dynamic brakes	Built-in
Heating value	Inside panel [W]	47
	Outside panel [W]	222
Cooling method	Forced wind cooling	
Weight [kg]	4.5	



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN 1A	NC or master axis optical communication connector
(5)	CN 1B	Slave axis optical communication connector
(6)	BTA, BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER 6V-C 119B
(8)	CN 9	(Unused)
(9)	CN 4	Power supply communication connector
(10)	CN 2L	Motor side detector connection connector
(11)	CN 3L	Machine side detector connection connector
(12)	CN 20	Motor brake/dynamic brake control connector
(13)	TE2	Main circuit power supply input terminal (DC input)
(14)	TE3	Control power input terminal
(15)	TE1	Motor power supply output connector
(17)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding.

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21, L12, L22, MC1)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		5.5	10	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		5.5	10			2	14
600V bridge poly ethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		2	14			1.25 ~ 2	16 ~ 14

Environmental conditions

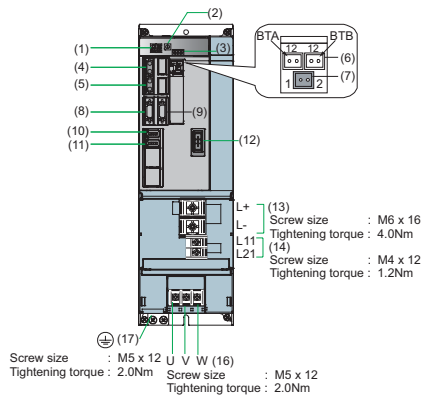
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Servo drive unit

MDS-DH-V1-160

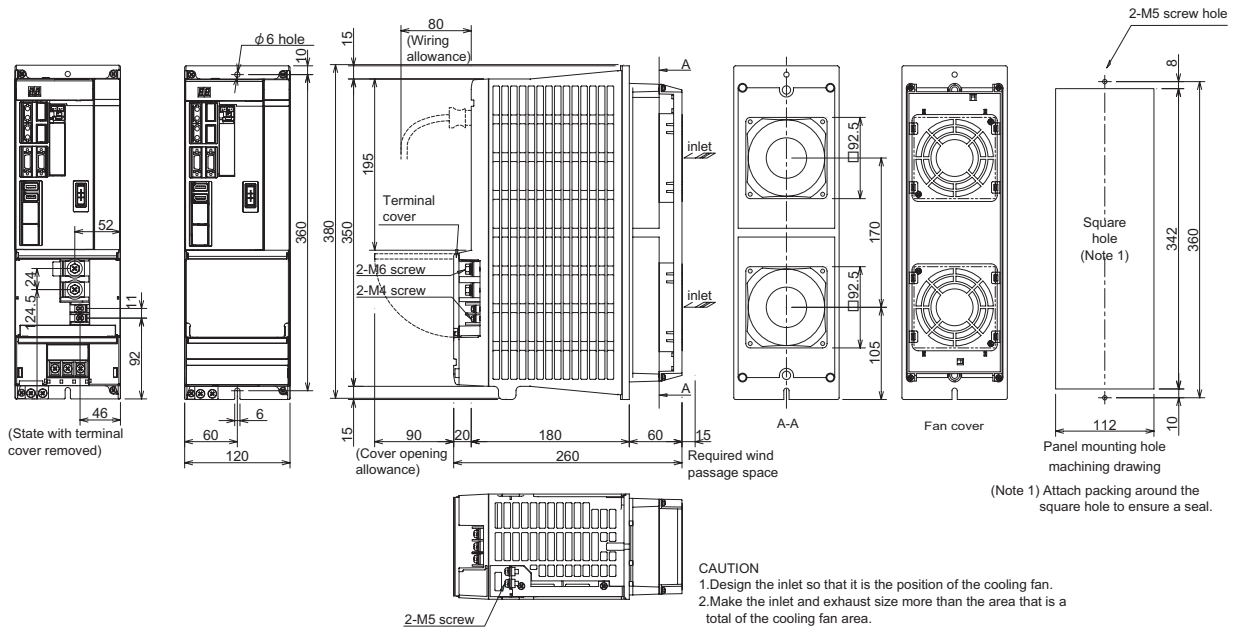
Specifications

Item	Specifications		
Nominal maximum current(peak) [A]	160		
Output	Rated v oltage [V]	AC340	
	Rated current [A]	29.8	
Input	Rated v oltage [V]	DC513 ~ 648	
	Rated current [A]	11.9	
Control power	Frequency [Hz]	50 / 60	
	Tolerable frequency fluctuation [%]	±3% max	
	Voltage(50Hz) [V]	AC380 ~ 440	
	Voltage(60Hz) [V]	AC380 ~ 480	
	Tolerable v oltage fluctuation rate [%]	+10%, -10%	
	Max. Current [A]	0.1	
	Max. Rush current [A]	18	
	Max. Rush conductivity time [ms]	12	
	Max. Earth leakage current [mA]	2	
	Braking	Regenerative braking and dynamic brakes	
Dynamic brakes		Built-in	
Heating value	Inside panel [W]	62	
	Outside panel [W]	328	
Cooling method	Forced wind cooling		
Weight [kg]	5.8		



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side detector connection connector
(11)	CN3L	Machine side detector connection connector
(12)	CN20	Motor brake/dynamic brake control connector
(13)	TE2	Main circuit power supply input terminal (DC input)
(14)	TE3	Control power input terminal
(16)	TE1	Motor power supply output terminal
(17)	PE	Grounding terminal

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21, L12, L22, MC1)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		5.5	10	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		5.5	10			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		3.5	12			1.25 ~ 2	16 ~ 14

Environmental conditions

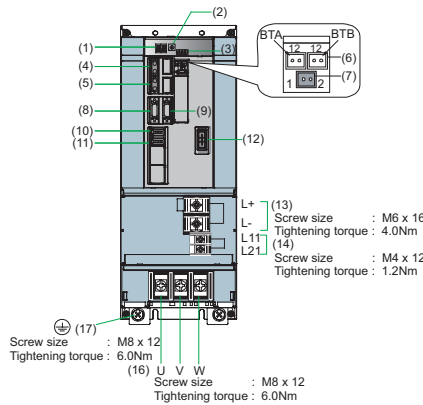
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Servo drive unit

MDS-DH-V1-160W

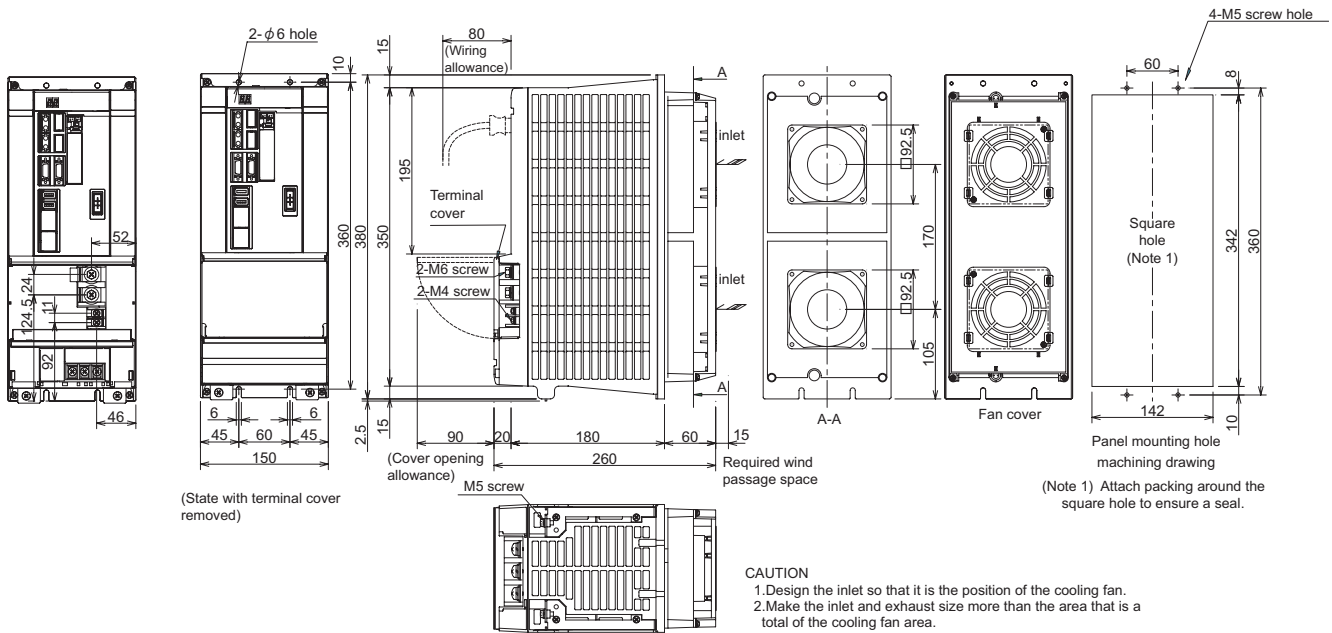
Specifications

Item	Specifications		
Nominal maximum current(peak) [A]	160		
Output	Rated v oltage [V]	AC340	
	Rated current [A]	41.7	
Input	Rated v oltage [V]	DC513 ~ 648	
	Rated current [A]	16.7	
Control power	Frequency [Hz]	50 / 60	
	Tolerable frequency fluctuation [%]	±3% max	
	Voltage(50Hz) [V]	AC380 ~ 440	
	Voltage(60Hz) [V]	AC380 ~ 480	
	Tolerable v oltage fluctuation rate [%]	+10%, -10%	
	Max. Current [A]	0.1	
	Max. Rush current [A]	18	
	Max. Rush conductivity time [ms]	12	
	Max. Earth leakage current [mA]	2	
	Braking	Regenerative braking and dynamic brakes	
Dynamic brakes		External (MDS-D-DBU)	
Heating value	Inside panel [W]	81	
	Outside panel [W]	461	
Cooling method	Forced wind cooling		
Weight [kg]	7.5		



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA	For connecting converged battery unit
(7)	BTB	For connecting battery built-in drive unit ER6V-C119B
(8)	BT1	(Unused)
(9)	CN9	Power supply communication connector
(10)	CN4	Motor side detector connection connector
(11)	CN2L	Machine side detector connection connector
(12)	CN3L	Machine side detector connection connector
(13)	CN20	Motor brake/dynamic brake control connector
(14)	TE2	Main circuit power supply input terminal (DC input)
(15)	TE3	Control power input terminal
(16)	TE1	Motor power supply output terminal
(17)	PE	Grounding terminal

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21, L12, L22, MC1)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		14	6	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		8	8			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		5.5	10			1.25 ~ 2	16 ~ 14

Environmental conditions

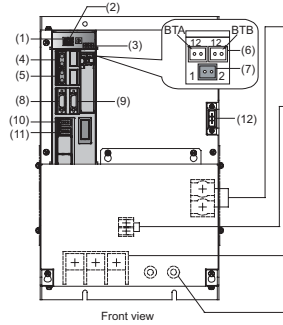
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Servo drive unit

MDS-DH-V1-200

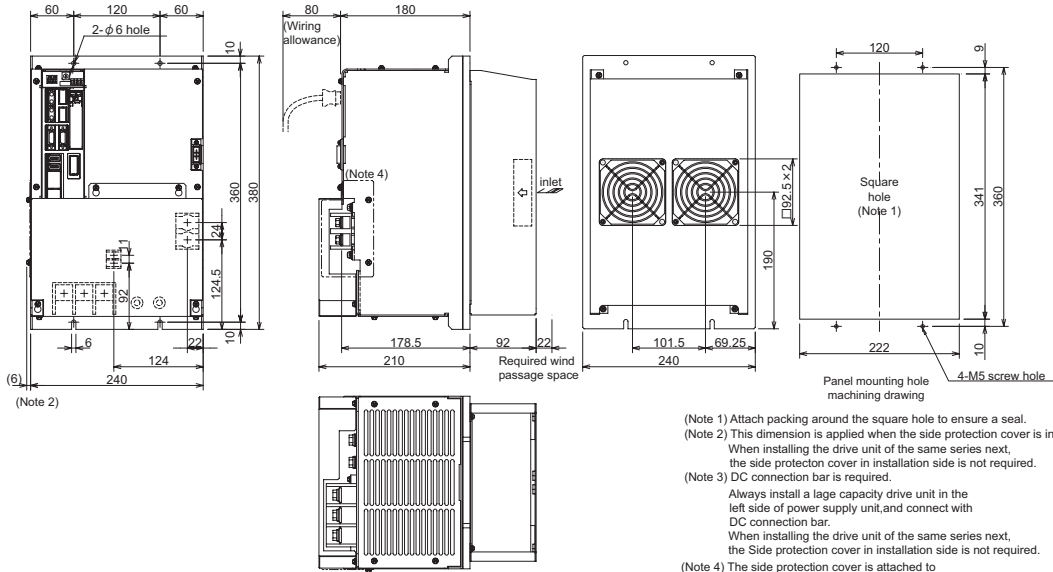
Specifications

Item	Specifications	
Nominal maximum current(peak) [A]	200	
Output	Rated voltage [V]	AC340
	Rated current [A]	76.8
Input	Rated voltage [V]	DC513 ~ 648
	Rated current [A]	39.0
Control power	Frequency [Hz]	50 / 60
	Tolerable frequency fluctuation [%]	±3% max
	Voltage(50Hz) [V]	AC380 ~ 440
	Voltage(60Hz) [V]	AC380 ~ 480
	Tolerable voltage fluctuation rate [%]	+10%, -10%
	Max. Current [A]	0.1
	Max. Rush current [A]	18
	Max. Rush conductivity time [ms]	18
	Max. Earth leakage current [mA]	2
Braking	Regenerative braking and dynamic brakes	
	Dynamic brakes	External (MDS-D-DBU)
Heating value	Inside panel [W]	105
	Outside panel [W]	630
Cooling method	Forced wind cooling	
Weight [kg]	16.5	



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side detector connection connector
(11)	CN3L	Machine side detector connection connector
(12)	CN20	Motor brake/dynamic brake control connector
(13)	TE2	Main circuit power supply input terminal (DC input)
(14)	TE3	Control power input terminal
(16)	TE1	Motor power supply output terminal
(17)	PE	Grounding terminal

Outline dimension drawings [Unit: mm]



CAUTION
 1. Design the inlet so that it is the position of the cooling fan.
 2. Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21, L12, L22, MC1)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		22	4	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		22	4			2	14
600V bridge poly ethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		14	6			1.25 ~ 2	16 ~ 14

Environmental conditions

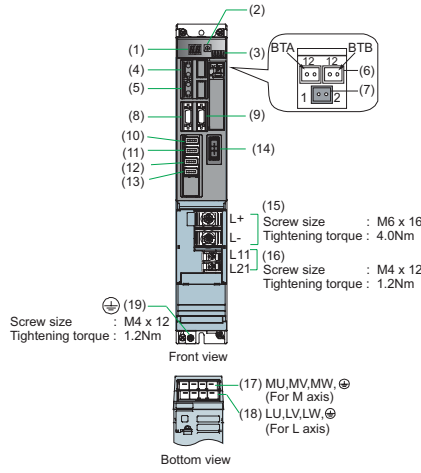
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Servo drive unit

MDS-DH-V2-1010

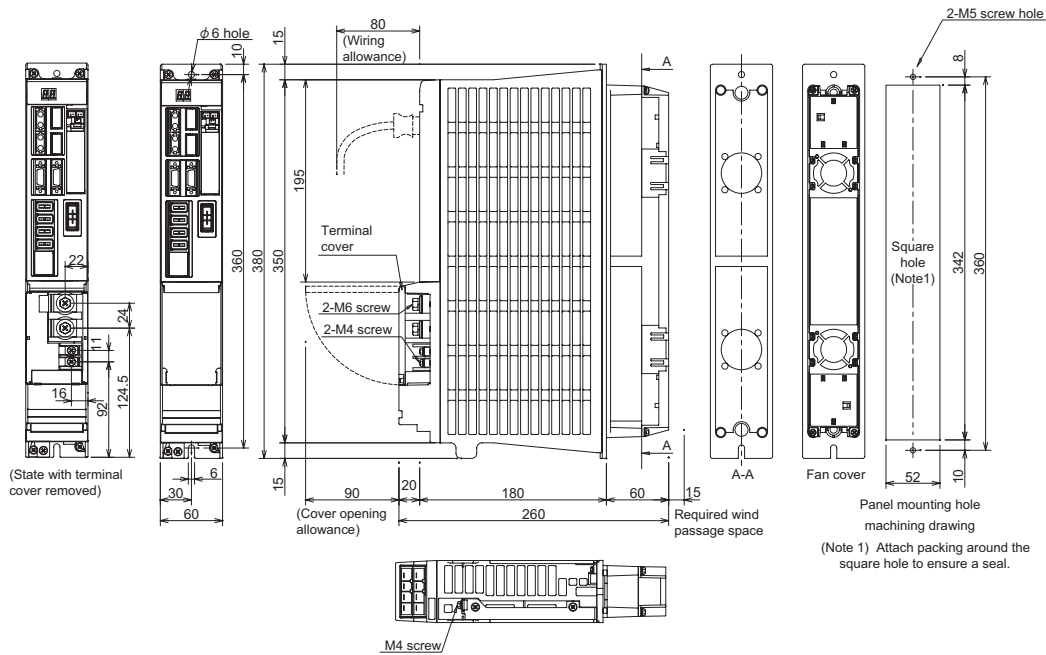
Specifications

Item	Specifications	
	L	M
Nominal maximum current(peak) [A]	10	10
Output	Rated voltage [V]	AC 340
	Rated current [A]	2.3
Input	Rated voltage [V]	DC 513 ~ 648
	Rated current [A]	0.9
Control power	Frequency [Hz]	50 / 60
	Tolerable frequency fluctuation [%]	±3% max
	Voltage(50Hz) [V]	AC 380 ~ 440
	Voltage(60Hz) [V]	AC 380 ~ 480
	Tolerable voltage fluctuation rate [%]	+10%, -10%
	Max. Current [A]	0.1
	Max. Rush current [A]	18
	Max.Rush conductivity time [ms]	12
	Max. Earth leakage current [mA]	2
	Braking	Regenerative braking and dynamic brakes
Dynamic brakes		Built-in
Heating value	Inside panel [W]	28
	Outside panel [W]	54
Cooling method	Forced wind cooling	
Weight [kg]	3.8	



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SWM	Unused axis setting switch
(4)	C N 1A	NC or master axis optical communication connector
(5)	C N 1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT 1	For connecting battery built-in drive unit ER 6V-C 119B
(8)	C N 9	(Unused)
(9)	C N 4	Power supply communication connector
(10)	C N 2L	Motor side detector connection connector (L axis)
(11)	C N 3L	Machine side detector connection connector (L axis)
(12)	C N 2M	Motor side detector connection connector (M axis)
(13)	C N 3M	Machine side detector connection connector (M axis)
(14)	C N 20	Motor brake/dynamic brake control connector (Key way: X type)
(15)	TE 2	Main circuit power supply input terminal (DC input)
(16)	TE 3	Control power input terminal (single-phase AC input)
(17)	TE 1	Motor power supply output connector
(18)	PE	Grounding terminal
(19)	PE	Note that TE1 connector is used for the motor grounding.

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21, L12, L22, MC1)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		2	14			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		2	14			1.25 ~ 2	16 ~ 14

Environmental conditions

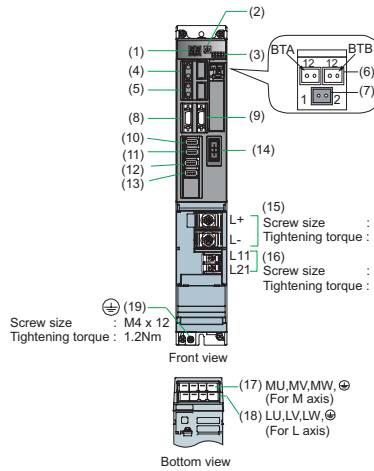
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Servo drive unit

MDS-DH-V2-2010

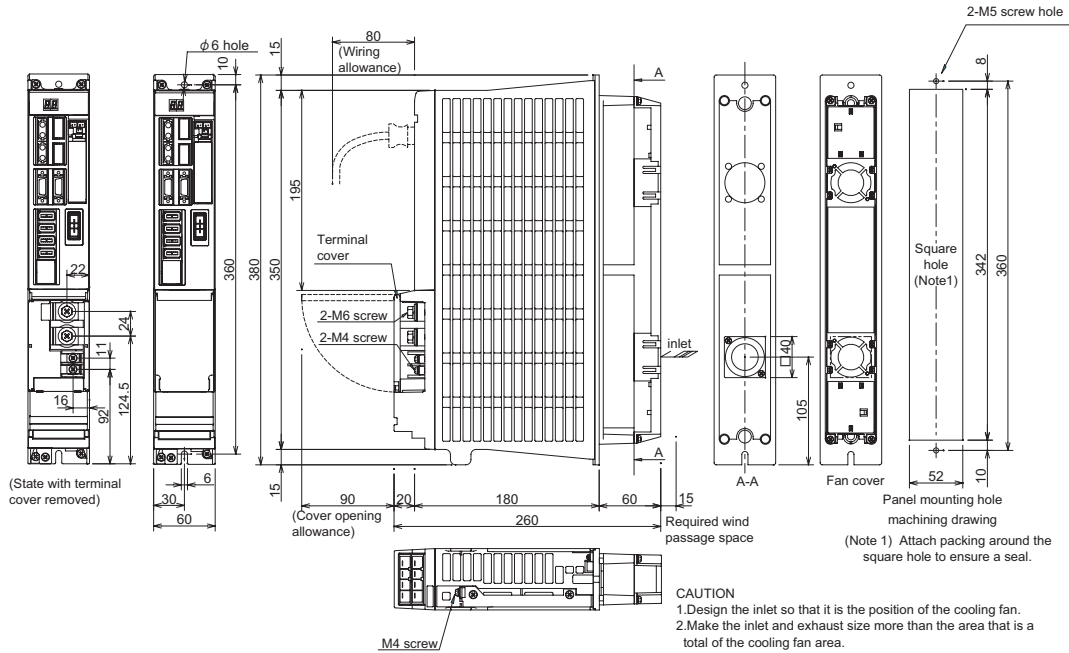
Specifications

Item	Specifications	
	L	M
Nominal maximum current(peak) [A]	20	10
Output	Rated voltage [V]	AC 340
	Rated current [A]	3.9 / 2.3
Input	Rated voltage [V]	DC 513 ~ 648
	Rated current [A]	1.6 / 0.9
Control power	Frequency [Hz]	50 / 60
	Tolerable frequency fluctuation [%]	±3% max
	Voltage(50Hz) [V]	AC 380 ~ 440
	Voltage(60Hz) [V]	AC 380 ~ 480
	Tolerable voltage fluctuation rate [%]	+10%, -10%
	Max. Current [A]	0.1
	Max. Rush current [A]	18
	Max.Rush conductivity time [ms]	12
	Max. Earth leakage current [mA]	2
Braking	Regenerative braking and dynamic brakes	
	Dynamic brakes	Built-in
Heating value	Inside panel [W]	30
	Outside panel [W]	74
Cooling method	Forced wind cooling	
Weight [kg]	3.8	



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN 1A	NC or master axis optical communication connector
(5)	CN 1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT 1	For connecting battery built-in drive unit ER 6V-C 119B
(8)	CN 9	(Unused)
(9)	CN 4	Power supply communication connector
(10)	CN 2L	Motor side detector connection connector (L axis)
(11)	CN 3L	Machine side detector connection connector (L axis)
(12)	CN 2M	Motor side detector connection connector (M axis)
(13)	CN 3M	Machine side detector connection connector (M axis)
(14)	CN 20	Motor brake/dynamic brake control connector (Key way: X type)
(15)	TE 2	Main circuit power supply input terminal (DC input)
(16)	TE 3	Control power input terminal (single-phase AC input)
(17)	TE 1	Motor power supply output connector
(18)	PE	Grounding terminal>Note that TE 1 connector is used for the motor grounding.

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21, L12, L22, MC1)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		2	14			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		2	14			1.25 ~ 2	16 ~ 14

Environmental conditions

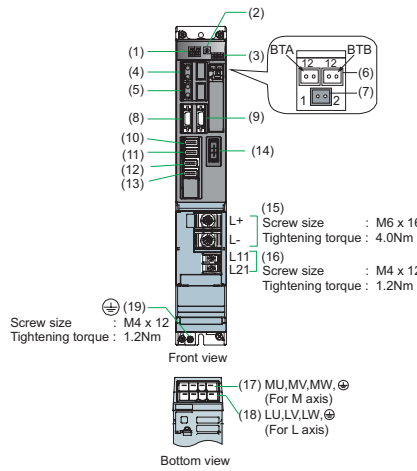
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Servo drive unit

MDS-DH-V2-2020

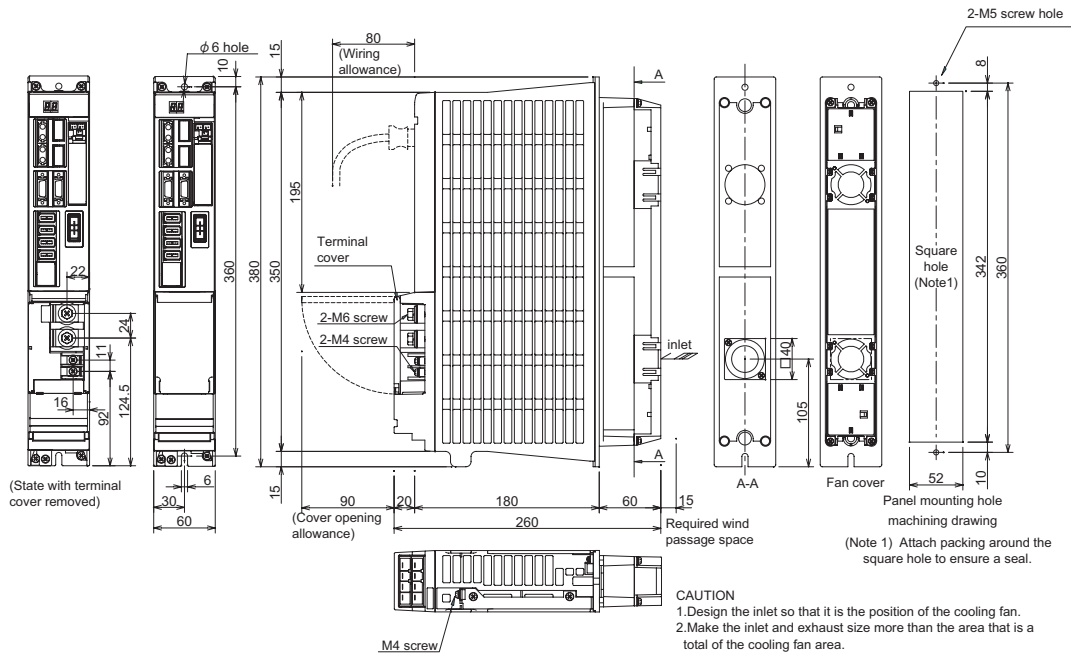
Specifications

Item	Specifications	
	L	M
Nominal maximum current(peak) [A]	20	20
Output	Rated voltage [V]	AC 340
	Rated current [A]	3.9 3.9
Input	Rated voltage [V]	DC 513 ~ 648
	Rated current [A]	1.6 1.6
Control power	Frequency [Hz]	50 / 60
	Tolerable frequency fluctuation [%]	±3% max
	Voltage(50Hz) [V]	AC 380 ~ 440
	Voltage(60Hz) [V]	AC 380 ~ 480
	Tolerable voltage fluctuation rate [%]	+10%, -10%
	Max. Current [A]	0.1
	Max. Rush current [A]	18
	Max.Rush conductivity time [ms]	12
	Max. Earth leakage current [mA]	2 2
	Braking	
Dynamic brakes		Built-in
Heating value	Inside panel [W]	33
	Outside panel [W]	93
Cooling method		Forced wind cooling
Weight [kg]		3.8



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SWM	Unused axis setting switch
(4)	C N 1A	NC or master axis optical communication connector
(5)	C N 1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER 6V-C 119B
(8)	C N 9	(Unused)
(9)	C N 4	Power supply communication connector
(10)	C N 2L	Motor side detector connection connector (L axis)
(11)	C N 3L	Machine side detector connection connector (L axis)
(12)	C N 2M	Motor side detector connection connector (M axis)
(13)	C N 3M	Machine side detector connection connector (M axis)
(14)	C N 20	M motor brake/dynamic brake control connector (Key way: X type)
(15)	TE2	Main circuit power supply input terminal (DC input)
(16)	TE3	Control power input terminal (single-phase AC input)
(17)	TE1	Motor power supply output connector
(18)	PE	Grounding terminal>Note that TE1 connector is used for the motor grounding.

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21, L12, L22, MC1)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		2	14		2	14	
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		2	14		1.25 ~ 2	16 ~ 14	

Environmental conditions

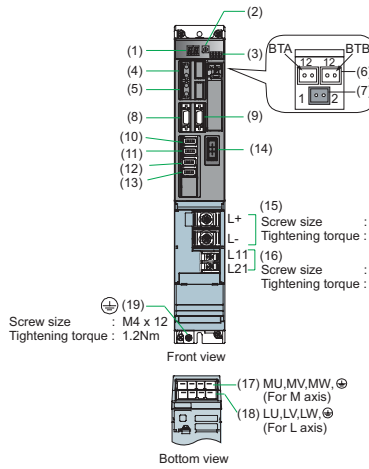
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Servo drive unit

MDS-DH-V2-4020

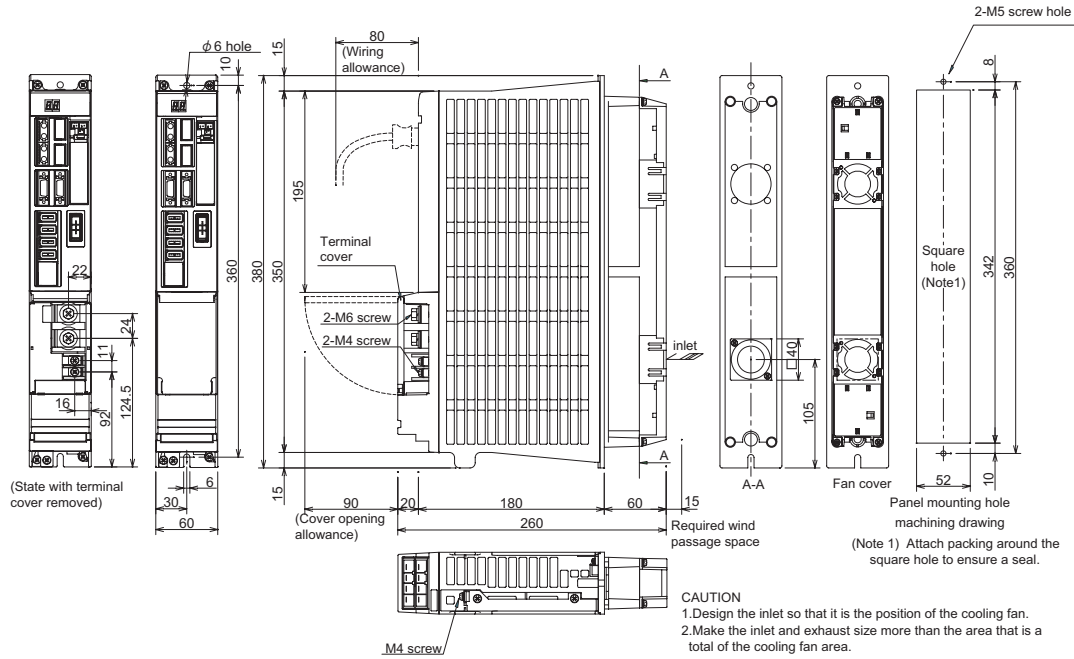
Specifications

Item	Specifications	
	L	M
Nominal maximum current(peak) [A]	40	20
Output	AC 340	
Rated voltage [V]	AC 340	
Rated current [A]	7.3	3.9
Input	DC 513 ~ 648	
Rated voltage [V]	DC 513 ~ 648	
Rated current [A]	2.9	1.6
Control power	50 / 60	
Frequency [Hz]	50 / 60	
Tolerable frequency fluctuation [%]	±3% max	
Voltage(50Hz) [V]	AC 380 ~ 440	
Voltage(60Hz) [V]	AC 380 ~ 480	
Tolerable voltage fluctuation rate [%]	+10%, -10%	
Max. Current [A]	0.1	
Max. Rush current [A]	18	
Max.Rush conductivity time [ms]	12	
Max. Earth leakage current [mA]	2	2
Braking	Regenerative braking and dynamic brakes	
Dynamic brakes	Built-in	
Heating value	Inside panel [W] 39	
	Outside panel [W] 133	
Cooling method	Forced wind cooling	
Weight [kg]	3.8	



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA, BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER 6V-C 119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side detector connection connector (L axis)
(11)	CN3L	Machine side detector connection connector (L axis)
(12)	CN2M	Motor side detector connection connector (M axis)
(13)	CN3M	Machine side detector connection connector (M axis)
(14)	CN20	Motor brake/dynamic brake control connector (Key way: X type)
(15)	TE2	Main circuit power supply input terminal (DC input)
(16)	TE3	Control power input terminal (single-phase AC input)
(17)	TE1	Motor power supply output connector
(18)	PE	Grounding terminal>Note that TE1 connector is used for the motor grounding.
(19)	PE	Grounding terminal

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21, L12, L22, MC1)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		2	14			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		2	14			1.25 ~ 2	16 ~ 14

Environmental conditions

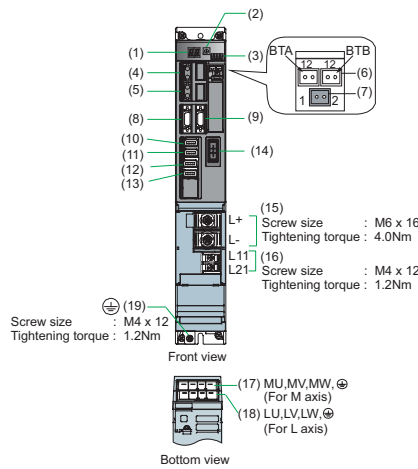
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Servo drive unit

MDS-DH-V2-4040

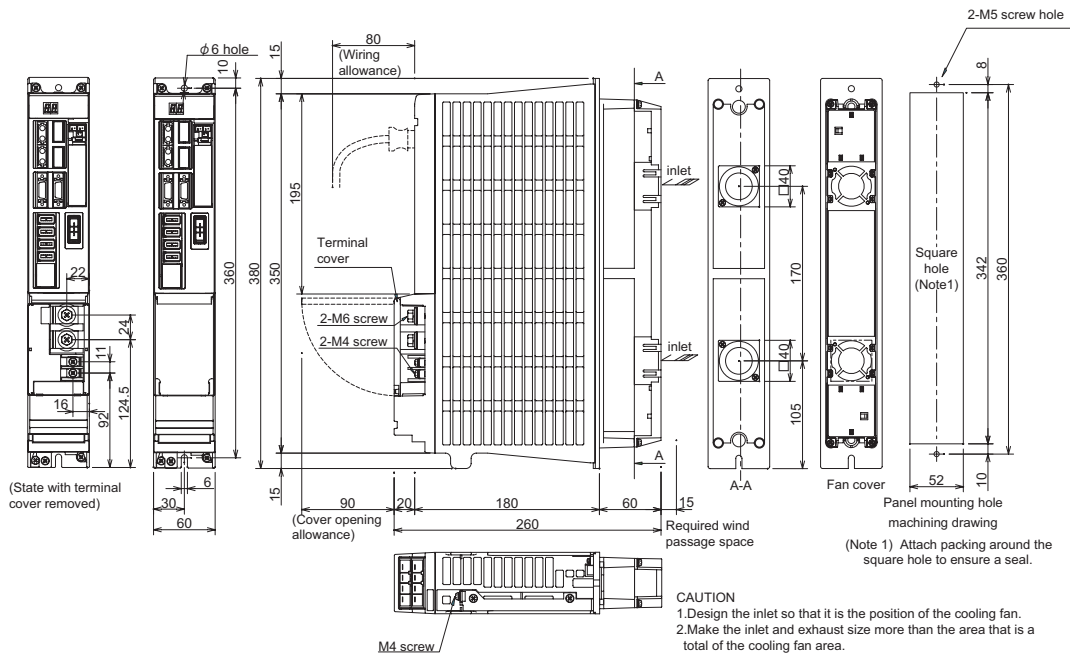
Specifications

Item	Specifications		
	L	M	
Nominal maximum current(peak) [A]	40	40	
Output	AC 340		
	Rated voltage [V]	7.3	7.3
Input	DC 513 ~ 648		
	Rated current [A]	2.9	2.9
Control power	Frequency [Hz]	50 / 60	
	Tolerable frequency fluctuation [%]	±3% max	
	Voltage(50Hz) [V]	AC 380 ~ 440	
	Voltage(60Hz) [V]	AC 380 ~ 480	
	Tolerable voltage fluctuation rate [%]	+10%, -10%	
	Max. Current [A]	0.1	
	Max. Rush current [A]	18	
Max. Rush conductivity time [ms]	12		
Max. Earth leakage current [mA]	2	2	
Braking	Regenerative braking and dynamic brakes		
	Built-in		
Heating value	Inside panel [W]	45	
	Outside panel [W]	173	
Cooling method	Forced wind cooling		
Weight [kg]	3.8		



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW 1	Unused axis setting switch
(4)	CN 1A	NC or master axis optical communication connector
(5)	CN 1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT 1	For connecting battery built-in drive unit ER 6V-C 119B
(8)	CN 9	(Unused)
(9)	CN 4	Power supply communication connector
(10)	CN 2L	Motor side detector connection connector (L axis)
(11)	CN 3L	Machine side detector connection connector (L axis)
(12)	CN 2M	Motor side detector connection connector (M axis)
(13)	CN 3M	Machine side detector connection connector (M axis)
(14)	CN 20	Motor brake/dynamic brake control connector (Key way: X type)
(15)	TE 2	Main circuit power supply input terminal (DC input)
(16)	TE 3	Control power input terminal (single-phase AC input)
(17)	TE 1	Motor power supply output connector
(18)	PE	Grounding terminal>Note that TE 1 connector is used for the motor grounding.

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21, L12, L22, MC1)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		2	14			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		2	14			1.25 ~ 2	16 ~ 14

Environmental conditions

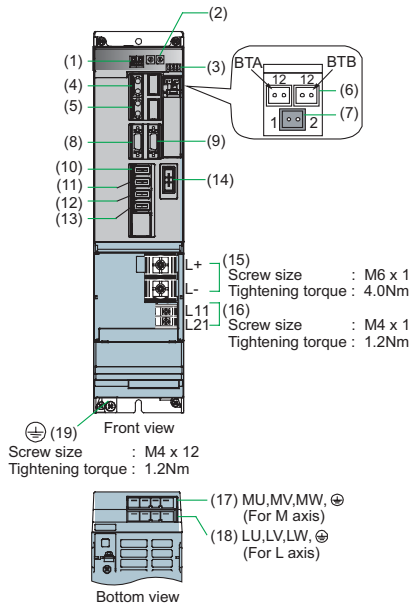
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Servo drive unit

MDS-DH-V2-8040

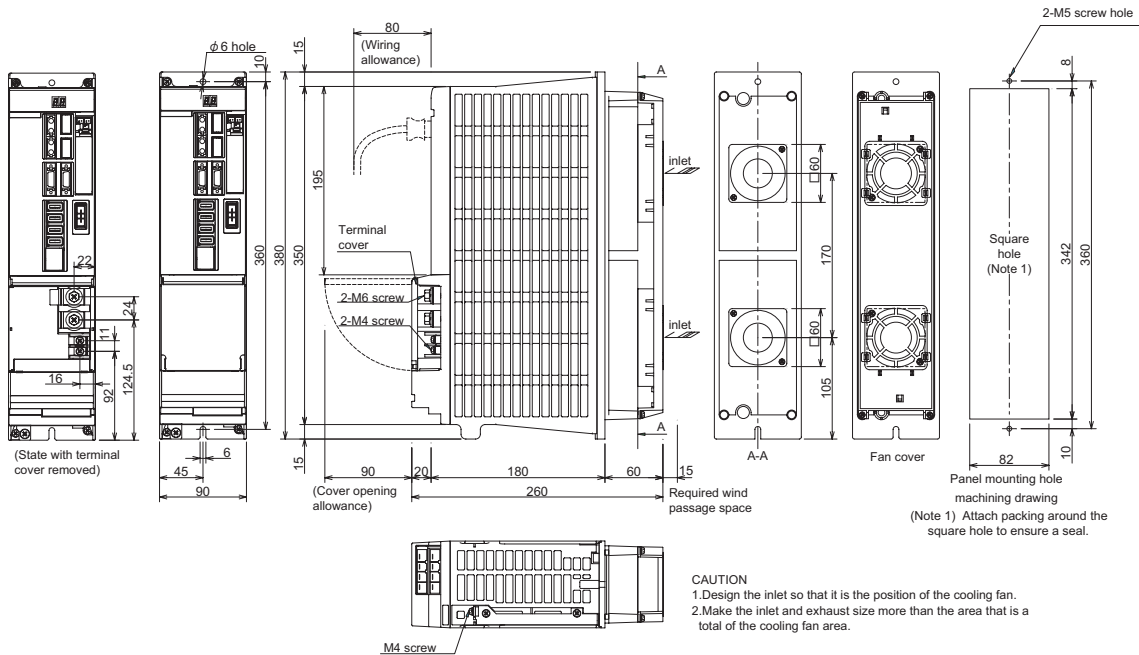
Specifications

Item	Specifications	
	L	M
Nominal maximum current(peak) [A]	80	40
Output	Rated voltage [V]	AC 340
	Rated current [A]	15.0 / 7.3
Input	Rated voltage [V]	DC 513 ~ 648
	Rated current [A]	6.0 / 2.9
Control power	Frequency [Hz]	50 / 60
	Tolerable frequency fluctuation [%]	±3% max
	Voltage(50Hz) [V]	AC 380 ~ 440
	Voltage(60Hz) [V]	AC 380 ~ 480
	Tolerable voltage fluctuation rate [%]	+10%, -10%
	Max. Current [A]	0.1
	Max. Rush current [A]	18
	Max. Rush conductivity time [ms]	12
Max. Earth leakage current [mA]	2	2
Braking	Regenerative braking and dynamic brakes	
	Built-in	
Heating value	Inside panel [W]	57
	Outside panel [W]	262
Cooling method	Forced wind cooling	
Weight [kg]	5.2	



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER 6V-C 119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side detector connection connector (L axis)
(11)	CN3L	Machine side detector connection connector (L axis)
(12)	CN2M	Motor side detector connection connector (M axis)
(13)	CN3M	Machine side detector connection connector (M axis)
(14)	CN20	Motor brake/dynamic brake control connector (Key way: X type)
(15)	TE2	Main circuit power supply input terminal (DC input)
(16)	TE3	Control power input terminal (single-phase AC input)
(17)	TE1	Motor power supply output connector
(18)	TE1	Grounding terminal Note that TE1 connector is used for the motor grounding.
(19)	PE	

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21, L12, L22, MC1)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		2	14			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		2	14			1.25 ~ 2	16 ~ 14

Environmental conditions

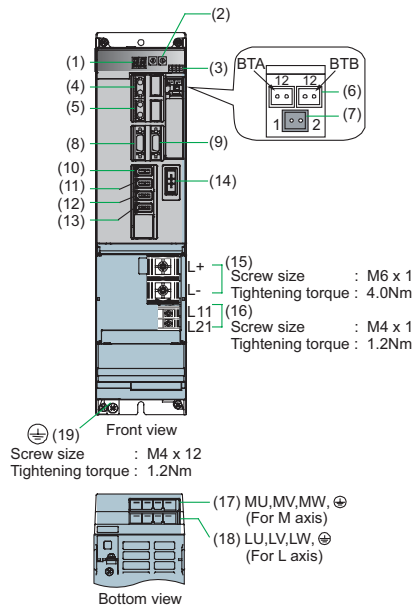
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Servo drive unit

MDS-DH-V2-8080

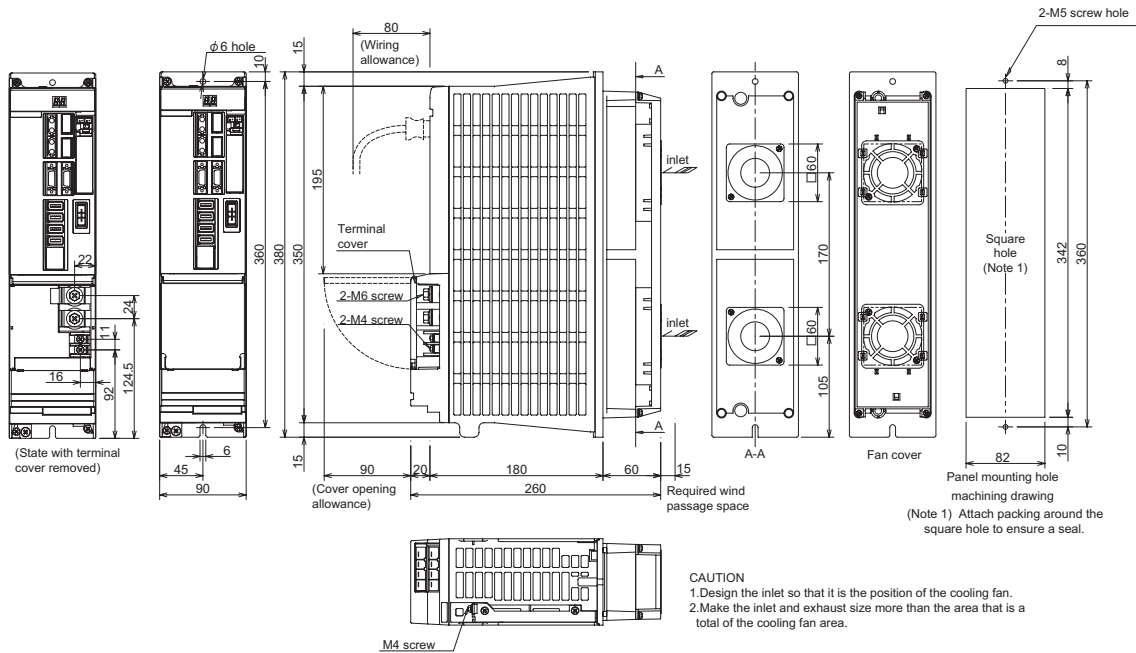
Specifications

Item	Specifications	
	L	M
Nominal maximum current(peak) [A]	80	80
Output	Rated voltage [V]	AC 340
	Rated current [A]	15.0 15.0
Input	Rated voltage [V]	DC 513 ~ 648
	Rated current [A]	6.0 6.0
Control power	Frequency [Hz]	50 / 60
	Tolerable frequency fluctuation [%]	±3% max
	Voltage(50Hz) [V]	AC 380 ~ 440
	Voltage(60Hz) [V]	AC 380 ~ 480
	Tolerable voltage fluctuation rate [%]	+10%, -10%
	Max. Current [A]	0.1
	Max. Rush current [A]	18
	Max. Rush conductivity time [ms]	12
	Max. Earth leakage current [mA]	2 2
	Braking	Regenerative braking and dynamic brakes
Built-in		
Heating value	Inside panel [W]	70
	Outside panel [W]	350
Cooling method	Forced wind cooling	
Weight [kg]	5.2	



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN 1A	NC or master axis optical communication connector
(5)	CN 1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT 1	For connecting battery built-in drive unit ER 6V-C 119B
(8)	CN 9	(Unused)
(9)	CN 4	Power supply communication connector
(10)	CN 2L	Motor side detector connection connector (L axis)
(11)	CN 3L	Machine side detector connection connector (L axis)
(12)	CN 2M	Motor side detector connection connector (M axis)
(13)	CN 3M	Machine side detector connection connector (M axis)
(14)	CN 20	Motor brake/dynamic brake control connector (Key way: X type)
(15)	TE 2	Main circuit power supply input terminal (DC input)
(16)	TE 3	Control power input terminal (single-phase AC input)
(17)	TE 1	Motor power supply output connector
(18)	TE 1	Grounding terminal Note that TE 1 connector is used for the motor grounding.
(19)	PE	

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21, L12, L22, MC1)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		2	14			2	14
600V bridge poly ethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		2	14			1.25 ~ 2	16 ~ 14

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

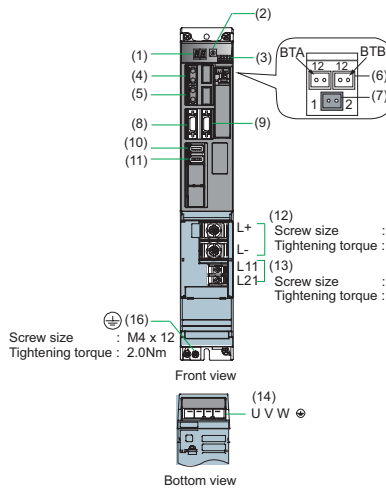
Spindle drive unit

Spindle drive unit

MDS-DH-SP-20

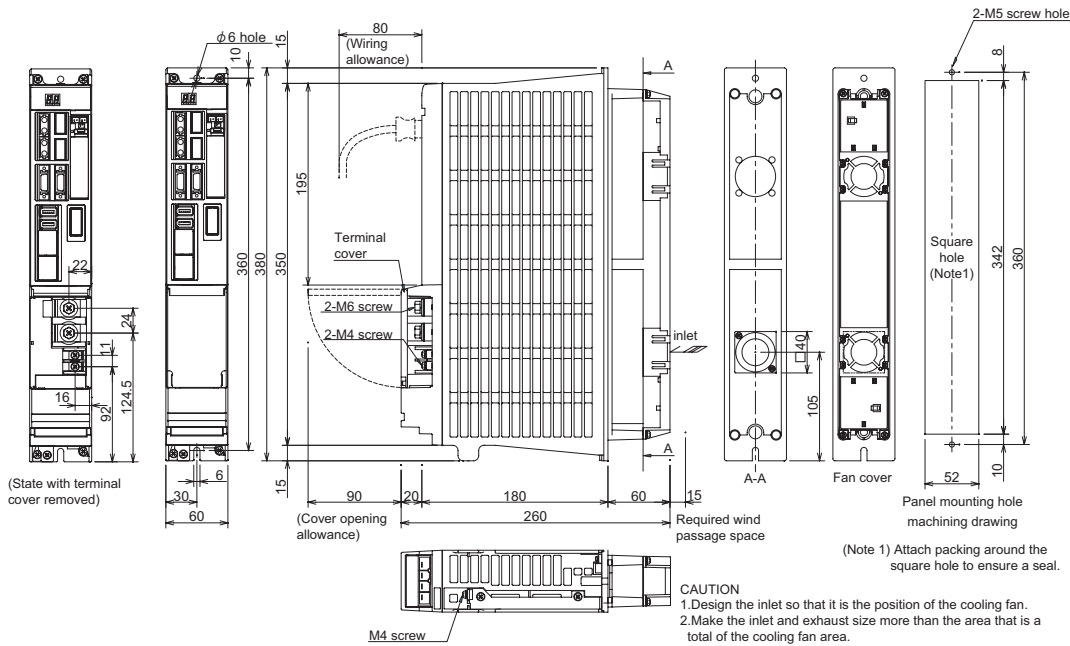
Specifications

Item	Specifications
Nominal maximum current(peak)	[A] 20
Output	Rated voltage [V] AC 340
	Rated current [A] 9
Input	Rated voltage [V] DC 513 ~ 648
	Rated current [A] 10
Control power	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] ±3% max
	Voltage(50Hz) [V] AC 380 ~ 440
	Voltage(60Hz) [V] AC 380 ~ 480
	Tolerable voltage fluctuation rate [%] +10%, -10%
	Max. Current [A] 0.1
	Max. Rush current [A] 18
	Max. Rush conductivity time [ms] 12
	Max. Earth leakage current [mA] 15
	Braking
Heating value	Inside panel [W] 32
	Outside panel [W] 88
Cooling method	Forced wind cooling
Weight	[kg] 3.8



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER 6V-C 119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor built-in detector connection connector
(11)	CN3L	Spindle side detector connection connector
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal
(14)	TE1	Motor power supply output connector
(16)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding.

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		2	14		2	14	
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		2	14		1.25 ~ 2	16 ~ 14	

Environmental conditions

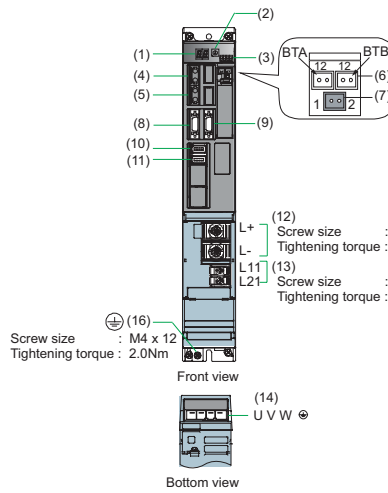
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Spindle drive unit

MDS-DH-SP-40

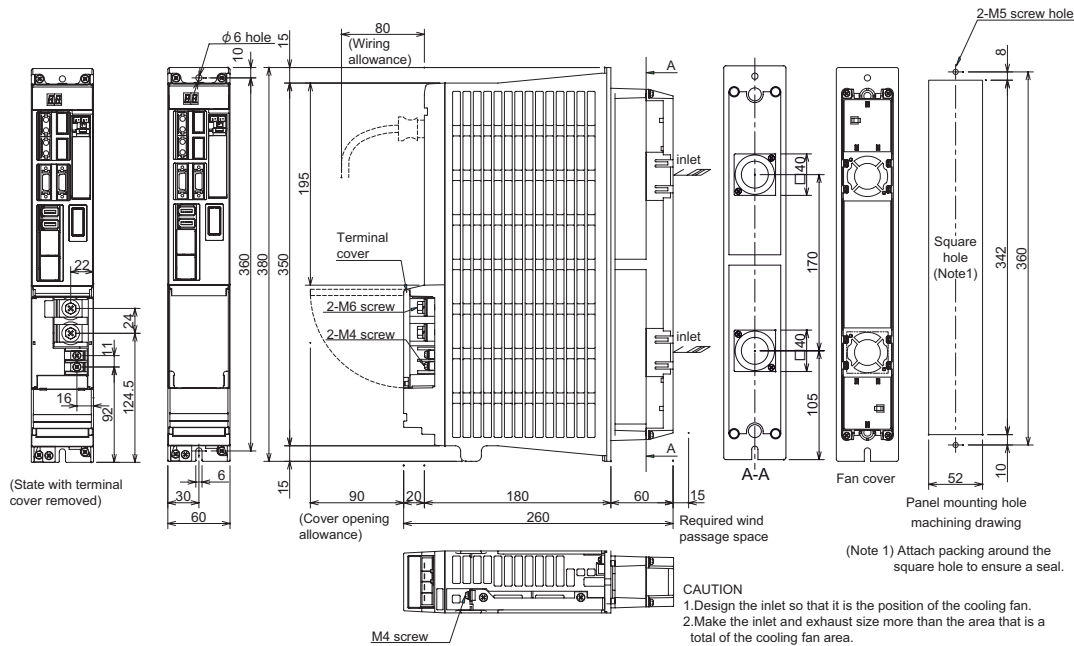
Specifications

Item	Specifications	
Nominal maximum current(peak) [A]	40	
Output	Rated voltage [V]	AC 340
	Rated current [A]	13
Input	Rated voltage [V]	DC 513 ~ 648
	Rated current [A]	15
Control power	Frequency [Hz]	50 / 60
	Tolerable frequency fluctuation [%]	±3% max
	Voltage(50Hz) [V]	AC 380 ~ 440
	Voltage(60Hz) [V]	AC 380 ~ 480
	Tolerable voltage fluctuation rate [%]	+10%, -10%
	Max. Current [A]	0.1
	Max. Rush current [A]	18
	Max. Rush conductivity time [ms]	12
	Max. Earth leakage current [mA]	15
	Braking	Regenerative braking and dynamic brakes
Heating value	Inside panel [W]	42
	Outside panel [W]	158
Cooling method	Forced wind cooling	
Weight [kg]	4.5	



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER 6V-C 119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor built-in detector connection connector
(11)	CN3L	Spindle side detector connection connector
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal
(14)	TE1	Motor power supply output connector
(16)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding.

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		2	14		2	14	
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		2	14		1.25 ~ 2	16 ~ 14	

Environmental conditions

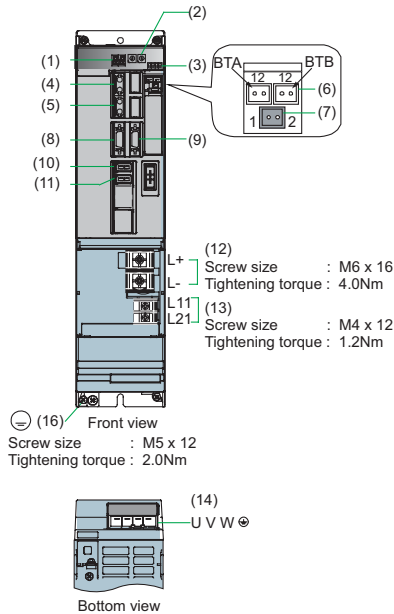
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Spindle drive unit

MDS-DH-SP-80

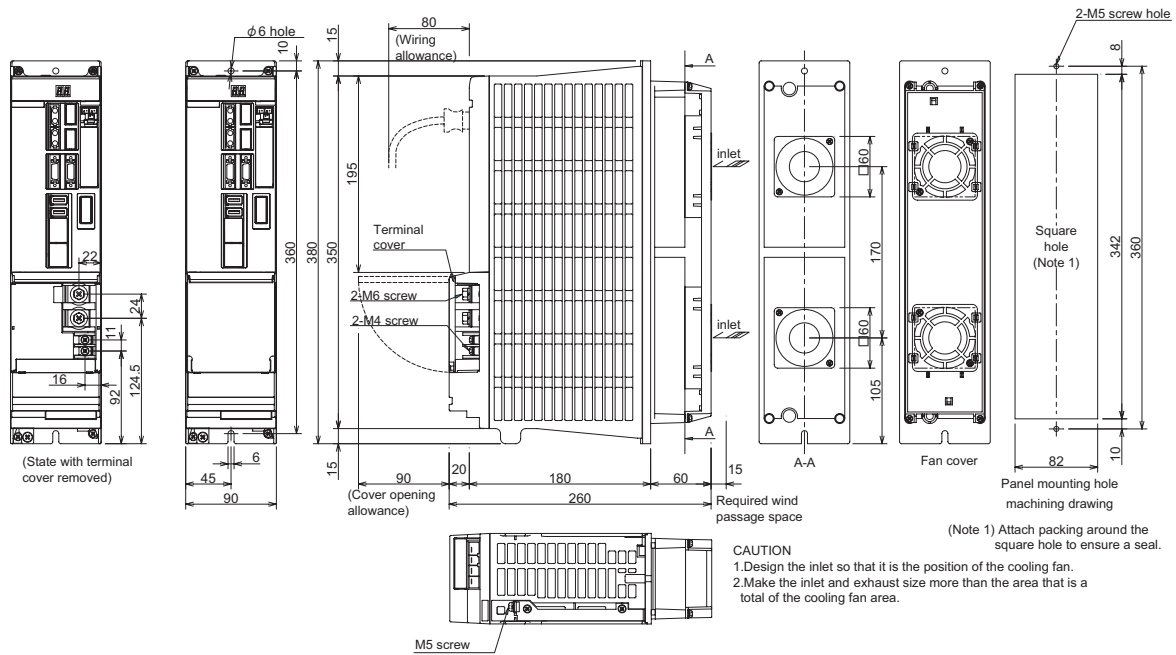
Specifications

Item	Specifications
Nominal maximum current(peak) [A]	80
Output	
Rated v voltage [V]	AC 340
Rated current [A]	19
Input	
Rated voltage [V]	DC 513 ~ 648
Rated current [A]	21
Control power	
Frequency [Hz]	50 / 60
Tolerable frequency fluctuation [%]	±3% max
Voltage(50Hz) [V]	AC 380 ~ 440
Voltage(60Hz) [V]	AC 380 ~ 480
Tolerable v voltage fluctuation rate [%]	+10%, -10%
Max. Current [A]	0.1
Max. Rush current [A]	18
Max. Rush conductivity time [ms]	12
Max. Earth leakage current [mA]	15
Braking	Regenerative braking and dynamic brakes
Heating value	
Inside panel [W]	54
Outside panel [W]	237
Cooling method	Forced wind cooling
Weight [kg]	4.5



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN 1A	NC or master axis optical communication connector
(5)	CN 1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER 6V-C 119B
(8)	CN 9	(Unused)
(9)	CN 4	Power supply communication connector
(10)	CN 2L	Motor built-in detector connection connector
(11)	CN 3L	Spindle side detector connection connector
(12)	TE 2	Main circuit power supply input terminal (DC input)
(13)	TE 3	Control power input terminal
(14)	TE 1	Motor power supply output connector
(16)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding .

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		5.5	10	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		5.5	10		2	14	
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		3.5	12		1.25 ~ 2	16 ~ 14	

Environmental conditions

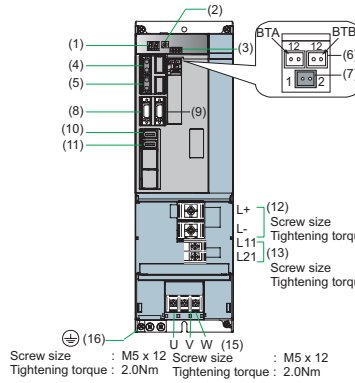
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Spindle drive unit

MDS-DH-SP-100

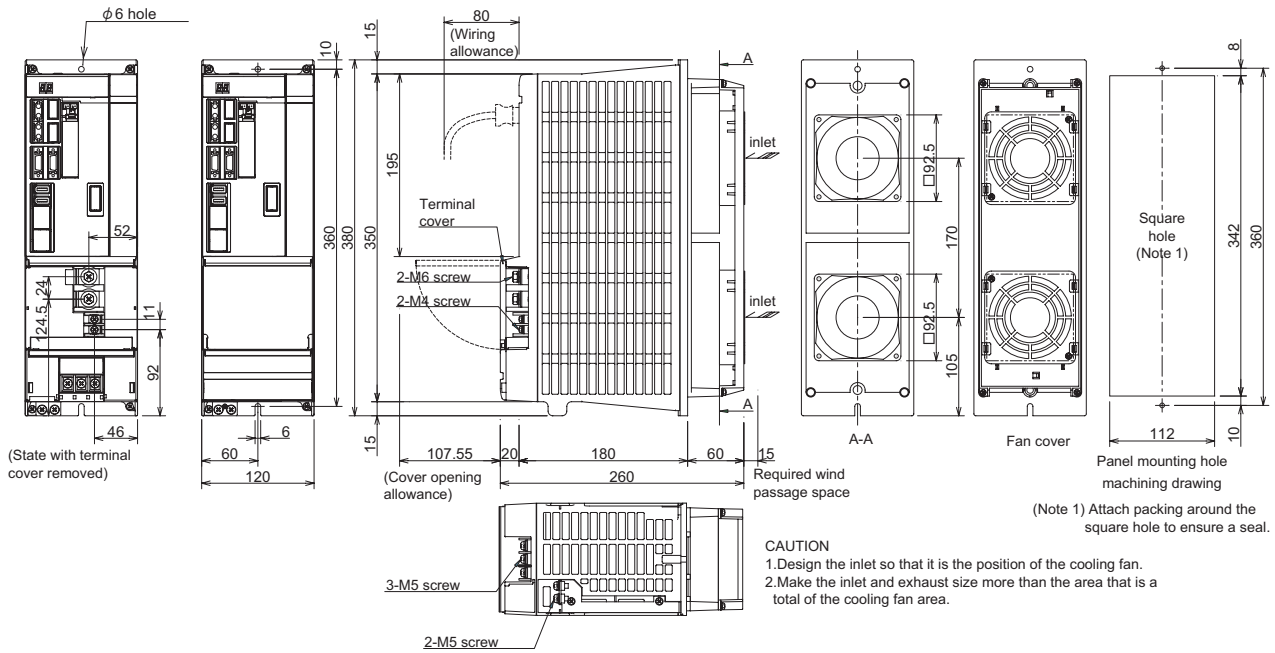
Specifications

Item	Specifications	
Nominal maximum current(peak)	[A] 100	
Output	Rated voltage [V] AC 340	
	Rated current [A] 30	
Input	Rated voltage [V] DC 513 ~ 648	
	Rated current [A] 38	
Control power	Frequency [Hz] 50 / 60	
	Tolerable frequency fluctuation [%]	±3% max
	Voltage(50Hz) [V]	AC 380 ~ 440
	Voltage(60Hz) [V]	AC 380 ~ 480
	Tolerable voltage fluctuation rate [%]	+10%, -10%
	Max. Current [A]	0.1
	Max. Rush current [A]	18
	Max.Rush conductivity time [ms]	12
	Max. Earth leakage current [mA]	15
	Braking	Regenerative braking and dynamic brakes
Heating value	Inside panel [W] 73	
	Outside panel [W] 369	
Cooling method	Forced wind cooling	
Weight	[kg] 5.8	



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER 6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor built-in detector connection connector
(11)	CN3L	Spindle side detector connection connector
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal
(15)	TE1	Motor power supply output connector
(16)	PE	Grounding terminal

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		8	8	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		8	8		2	14	
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		5.5	10		1.25 ~ 2	16 ~ 14	

Environmental conditions

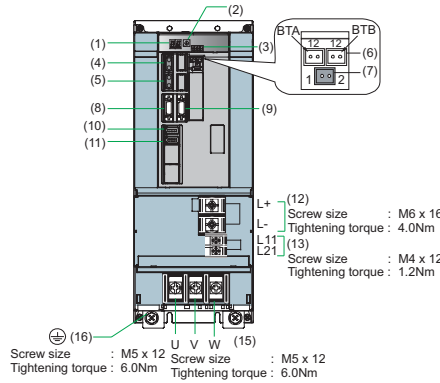
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Spindle drive unit

MDS-DH-SP-160

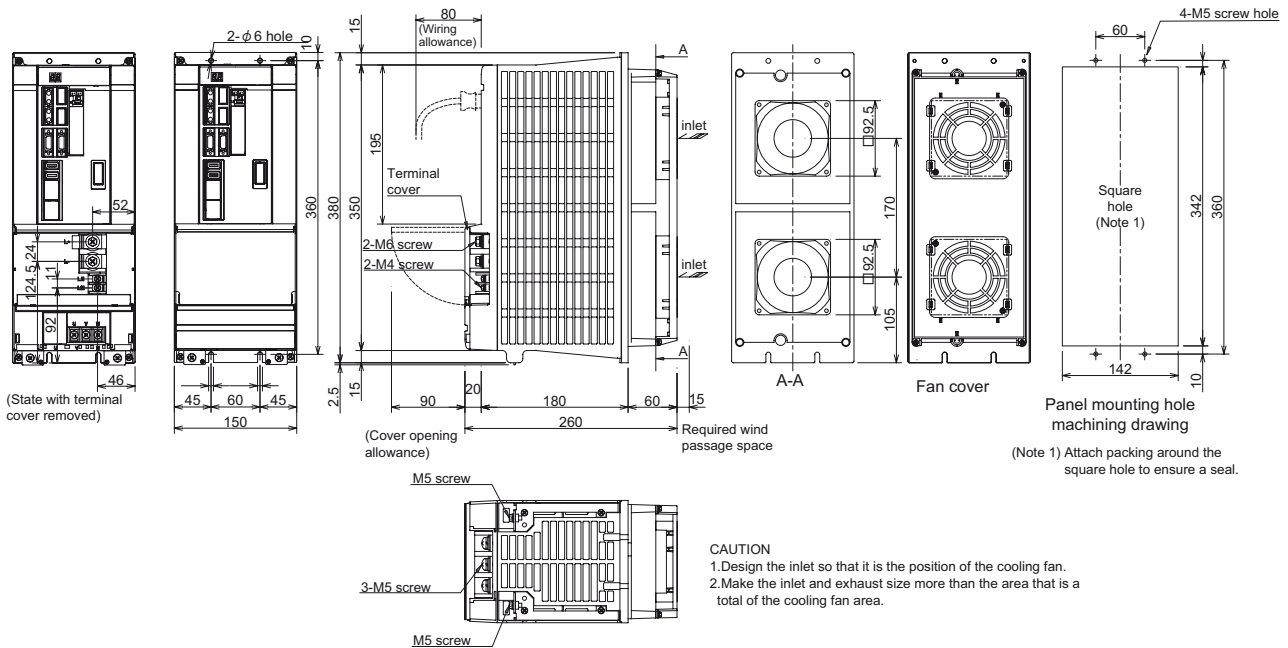
Specifications

Item	Specifications	
Nominal maximum current(peak) [A]	160	
Output	Rated v oltage [V]	AC 340
	Rated current [A]	65
Input	Rated voltage [V]	DC 513 ~ 648
	Rated current [A]	72
Control power	Frequency [Hz]	50 / 60
	Tolerable frequency fluctuation [%]	±3% max
	Voltage(50Hz) [V]	AC 380 ~ 440
	Voltage(60Hz) [V]	AC 380 ~ 480
	Tolerable v oltage fluctuation rate [%]	+10%, -10%
	Max. Current [A]	0.1
	Max. Rush current [A]	18
	Max. Rush conductivity time [ms]	12
Max. Earth leakage current [mA]	15	
Braking	Regenerative braking and dynamic brakes	
Heating value	Inside panel [W]	110
	Outside panel [W]	639
Cooling method	Forced wind cooling	
Weight [kg]	7.5	



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	(Unused)	(Unused)
(7)	BT1	For connecting battery built-in drive unit ER 6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor built-in detector connection connector
(11)	CN3L	Spindle side detector connection connector
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal
(15)	TE1	Motor power supply output connector
(16)	PE	Grounding terminal

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		8	8	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		8	8			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		5.5	10			1.25 ~ 2	16 ~ 14

Environmental conditions

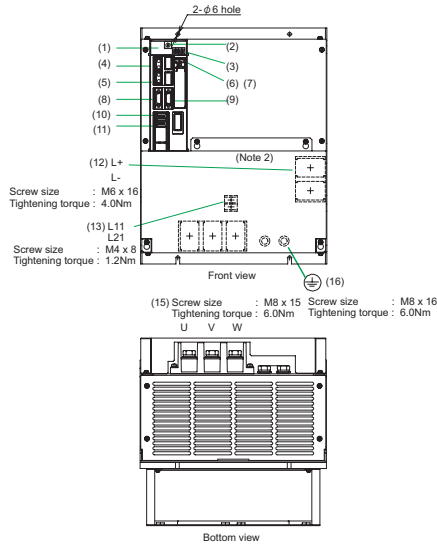
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Spindle drive unit

MDS-DH-SP-200

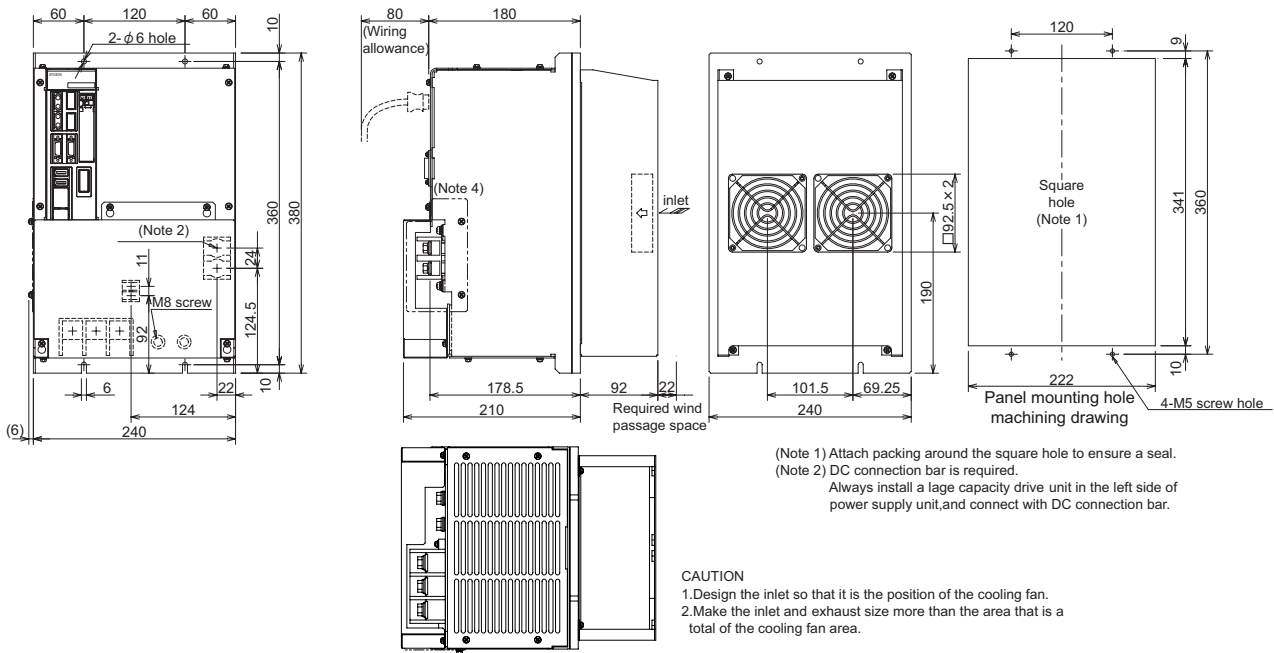
Specifications

Item	Specifications
Nominal maximum current(peak)	[A] 200
Output	Rated voltage [V] AC 340
	Rated current [A] 70
Input	Rated voltage [V] DC 513 ~ 648
	Rated current [A] 82
Control power	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] ±3% max
	Voltage(50Hz) [V] AC 380 ~ 440
	Voltage(60Hz) [V] AC 380 ~ 480
	Tolerable voltage fluctuation rate [%] +10%, -10%
	Max. Current [A] 0.1
	Max. Rush current [A] 18
Max. Rush conductivity time [ms] 18	
Max. Earth leakage current [mA] 15	
Braking	Regenerative braking and dynamic brakes
Heating value	Inside panel [W] 126
	Outside panel [W] 746
Cooling method	Forced wind cooling
Weight [kg] 16.5	



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor built-in detector connection connector
(11)	CN3L	Spindle side detector connection connector
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal
(15)	TE1	Motor power supply output connector
(16)	PE	Grounding terminal

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		22	4	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		14	6		2	14	
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		14	6		1.25 ~ 2	16 ~ 14	

Environmental conditions

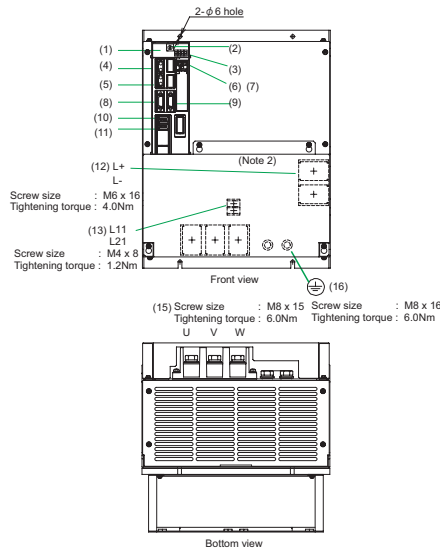
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Spindle drive unit

MDS-DH-SP-320

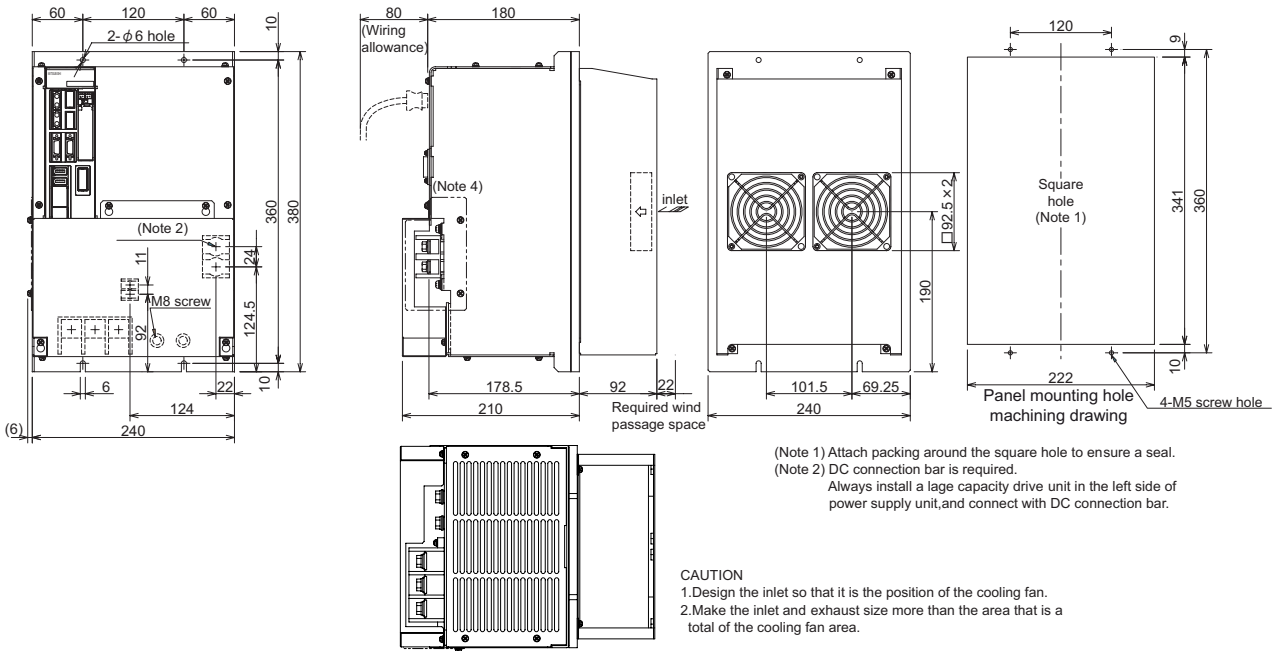
Specifications

Item	Specifications	
Nominal maximum current(peak)	[A] 320	
Output	Rated voltage [V] AC 340	
	Rated current [A] 103	
Input	Rated voltage [V] DC 513 ~ 648	
	Rated current [A] 119	
Control power	Frequency [Hz] 50 / 60	
	Tolerable frequency fluctuation [%]	±3% max
	Voltage(50Hz) [V]	AC 380 ~ 440
	Voltage(60Hz) [V]	AC 380 ~ 480
	Tolerable voltage fluctuation rate [%]	+10%, -10%
	Max. Current [A]	0.1
	Max. Rush current [A]	18
	Max. Rush conductivity time [ms]	18
Max. Earth leakage current	[mA] 15	
Braking	Regenerative braking and dynamic brakes	
Heating value	Inside panel [W] 168	
	Outside panel [W] 1034	
Cooling method	Forced wind cooling	
Weight	[kg] 16.5	



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor built-in detector connection connector
(11)	CN3L	Spindle side detector connection connector
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal
(15)	TE1	Motor power supply output connector
(16)	PE	Grounding terminal

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		38	2	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		22	4		2	14	
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		22	4		1.25 ~ 2	16 ~ 14	

Environmental conditions

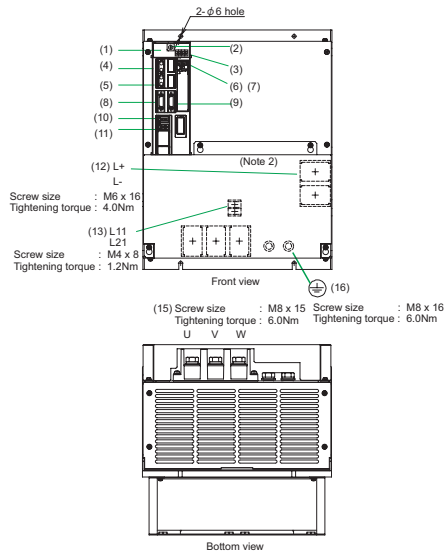
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Spindle drive unit

MDS-DH-SP-480

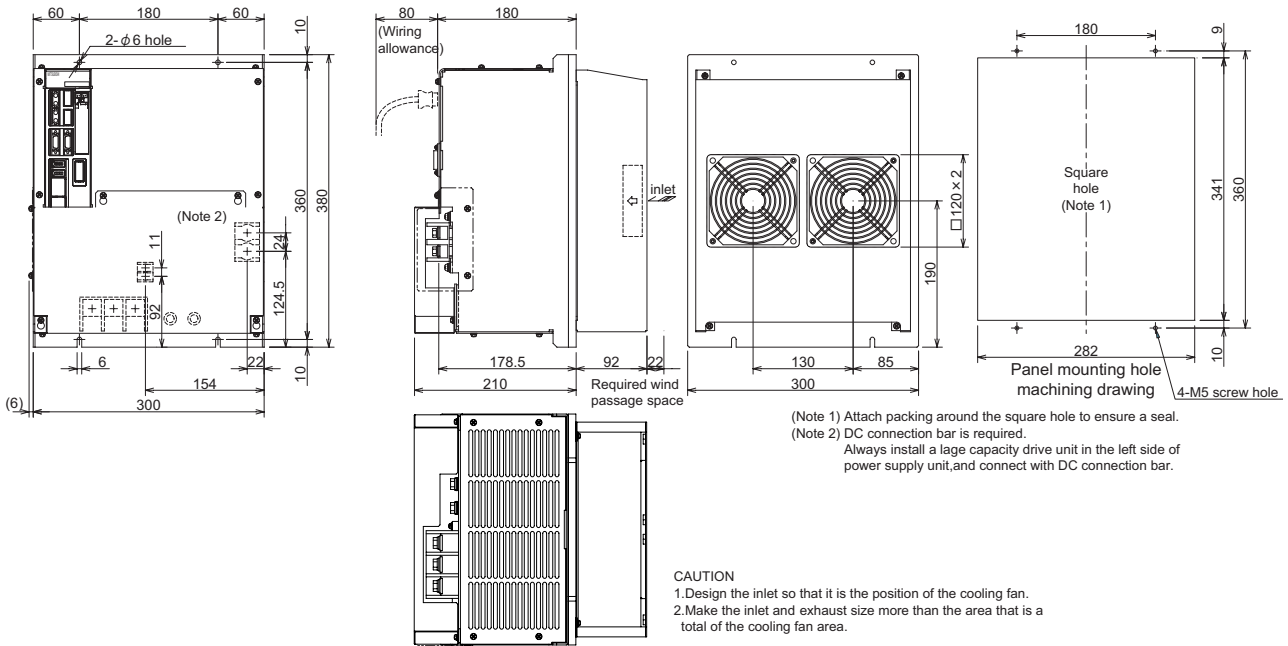
Specifications

Item	Specifications
Nominal maximum current(peak)	[A] 480
Output	Rated voltage [V] AC 340
	Rated current [A] 132
Input	Rated voltage [V] DC 513 ~ 648
	Rated current [A] 150
Control power	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] ±3% max
	Voltage(50Hz) [V] AC 380 ~ 440
	Voltage(60Hz) [V] AC 380 ~ 480
	Tolerable voltage fluctuation rate [%] +10%, -10%
	Max. Current [A] 0.1
	Max. Rush current [A] 18
	Max.Rush conductivity time [ms] 18
	Max. Earth leakage current [mA] 15
Braking Regenerative braking and dynamic brakes	
Heating value	Inside panel [W] 232
	Outside panel [W] 1488
Cooling method	Forced wind cooling
Weight	[kg] 22.5



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER 6V-C 119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor built-in detector connection connector
(11)	CN3L	Spindle side detector connection connector
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal
(15)	TE1	Motor power supply output connector
(16)	PE	Grounding terminal

Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3, earth)		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		-	-	Bar enclosed		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		60	-		2	14	
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		60	-		1.25 ~ 2	16 ~ 14	

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

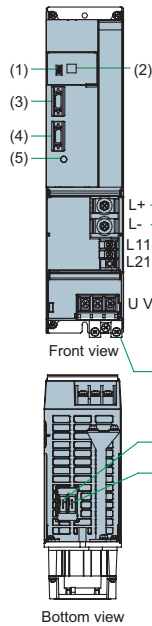
Power supply unit

Power supply unit

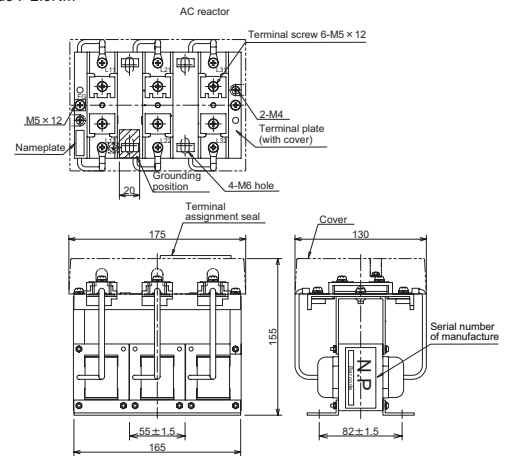
MDS-DH-CV-37

Specifications

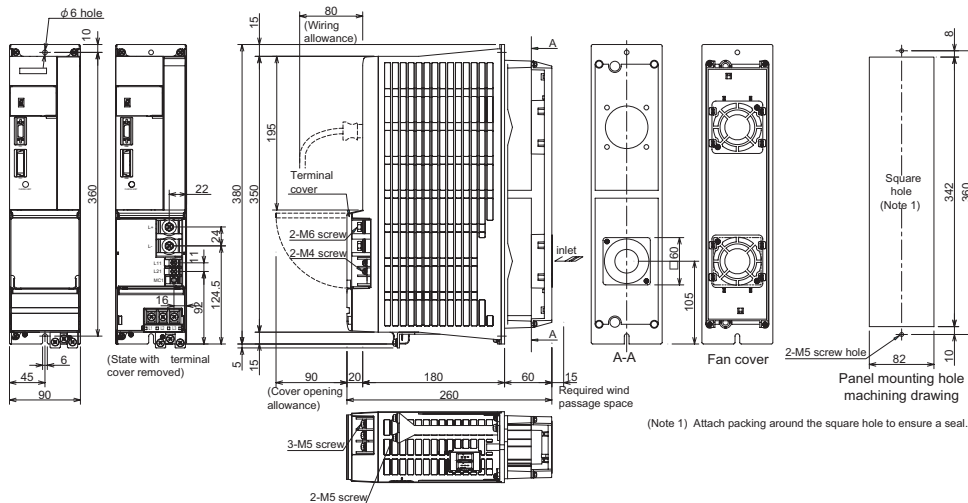
Item	Specifications
Rated output	[kW] 3.7
Power facility capacity	[kVA] 5.3
Output	Rated voltage [V] DC 513 ~ 648
	Rated current [A] 7.1
Input	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] $\pm 3\%$ max
	Rated voltage(50Hz) [V] AC 380 ~ 440
	Rated voltage(60Hz) [V] AC 380 ~ 480
	Tolerable voltage fluctuation rate [%] +10%, -10%
Control power	Rated current [A] 5.2
	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] $\pm 3\%$ max
	Voltage(50Hz) [V] AC 380 ~ 440
	Voltage(60Hz) [V] AC 380 ~ 480
	Tolerable voltage fluctuation rate [%] +10%, -10%
	Max. Current [A] 0.1
	Max. Rush current [A] 18
	Max. Rush conductivity time [ms] 12
	Heating value
	Outside panel [W] 34
Cooling method	Forced wind cooling
Weight	[kg] 6.0
AC reactor	DH-AL-7.5K
Recommended contactor(option part)	S-N12-AC400V
	Free-air thermal current [A] 20
	Selection current (for 380V input) [A] 8
	Rated output [kW] 3.7
Recommended circuit protector(option part)	NF63-CW3P-10A
	Rated current [A] 10
	Selection current (for 380V input) [A] 8
	Rated output [kW] 3.7



No.	Name	Description
(1)	LED	Power supply status indication LED
(2)	SW 1	Power supply setting switch
(3)	CN 4	Servo/spindle communication connector
(4)	CN 9	Servo/spindle communication connector
(5)	CHARGE LAMP	TE2 output charging/discharging circuit indication LED
(6)	CN 23A	External emergency stop input connector
(7)	CN 23B	External contactor control connector MC1, MC2 (Key way : Y type)
(8)	TE 2	Converter voltage output terminal (D C output)
(9)	TE 3	Control power input terminal (single-phase AC input)
(11)	TE 1	Power input terminal (3-phase AC input)
(12)	PE	Grounding terminal



Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3), earth		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		2	14			2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		2	14	2		2	14
600V bridge poly ethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		2	14			1.25 ~ 2	16 ~ 14

Environmental conditions

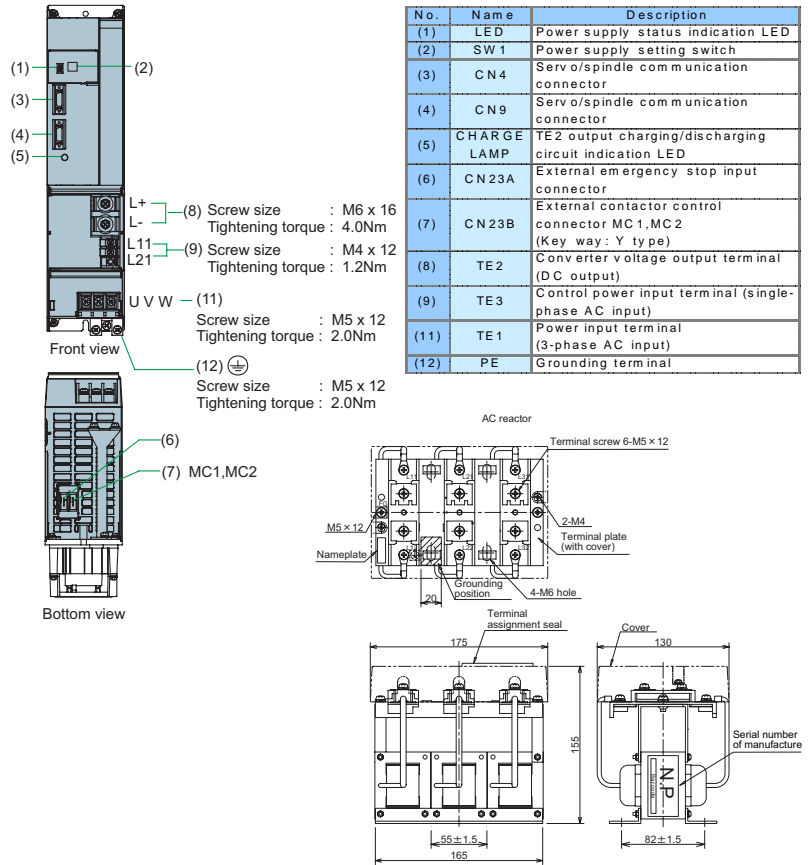
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Power supply unit

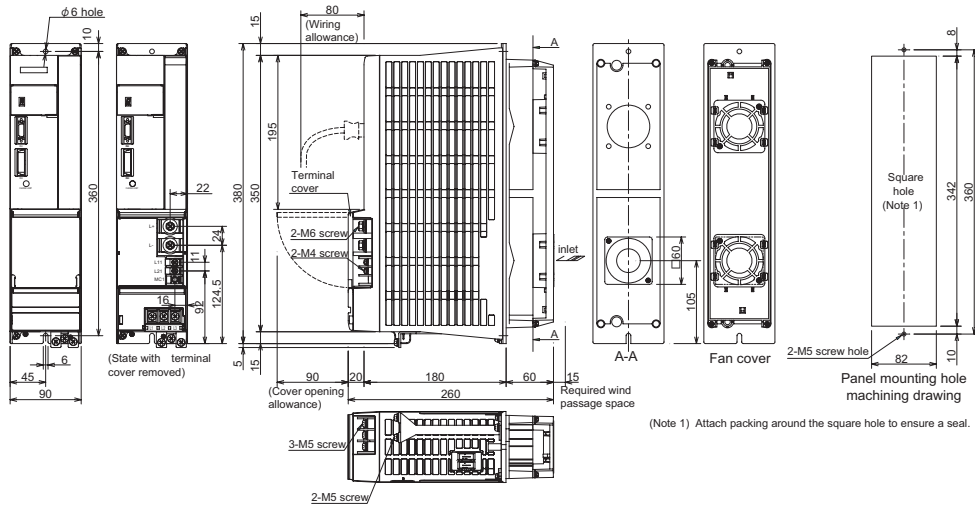
MDS-DH-CV-75

Specifications

Item	Specifications	
Rated output	7.5 [kW]	
Power facility capacity	11.0 [kVA]	
Output	Rated voltage [V]	DC 513 ~ 648
	Rated current [A]	15
Input	Frequency [Hz]	50 / 60
	Tolerable frequency fluctuation [%]	±3% max
	Rated voltage(50Hz) [V]	AC 380 ~ 440
	Rated voltage(60Hz) [V]	AC 380 ~ 480
	Tolerable voltage fluctuation rate [%]	+10%, -10%
Control power	Rated current [A]	13
	Frequency [Hz]	50 / 60
	Tolerable frequency fluctuation [%]	±3% max
	Voltage(50Hz) [V]	AC 380 ~ 440
	Voltage(60Hz) [V]	AC 380 ~ 480
	Tolerable voltage fluctuation rate [%]	+10%, -10%
	Max. Current [A]	0.1
	Max. Rush current [A]	18
	Max. Rush conductivity time [ms]	12
	Heating value	Inside panel [W]
Outside panel [W]		55
Cooling method	Forced wind cooling	
Weight	6.0 [kg]	
AC reactor	DH-AL-7.5K	
Recommended contactor(option part)	S-N12-AC400V	
Free-air thermal current	[A]	20
	Selection current (for 380V input) [A]	16
	Rated output [kW]	7.5
Recommended circuit protector(option part)	NF63-CW3P-20A	
Rated current	[A]	20
	Selection current (for 380V input) [A]	16
	Rated output [kW]	7.5



Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3), earth		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		2	14	3.5		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		2	14			2	14
600V bridge poly ethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		2	14			1.25 ~ 2	16 ~ 14

Environmental conditions

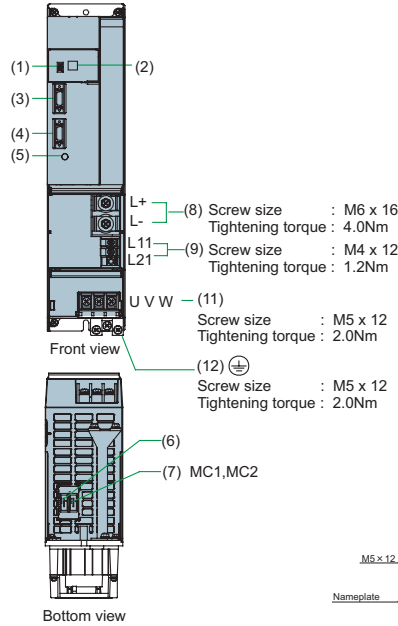
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Power supply unit

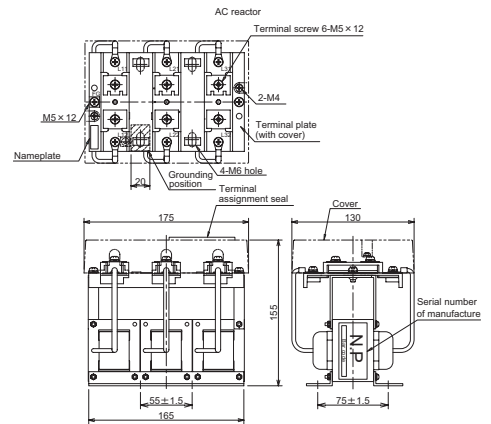
MDS-DH-CV-110

Specifications

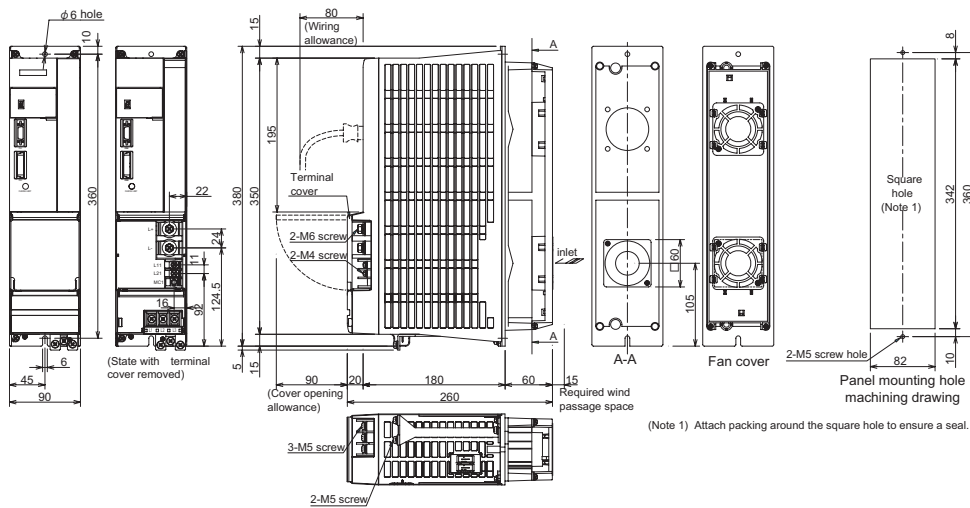
Item	Specifications	
Rated output	[kW] 11.0	
Power facility capacity	[kVA] 16.0	
Output	Rated voltage [V] DC 513 ~ 648	
	Rated current [A] 21	
Input	Frequency [Hz] 50 / 60	
	Tolerable frequency fluctuation [%] ±3% max	
	Rated voltage(50Hz) [V] AC 380 ~ 440	
	Rated voltage(60Hz) [V] AC 380 ~ 480	
	Tolerable voltage fluctuation rate [%] +10%, -10%	
	Rated current [A] 18	
Control power	Frequency [Hz] 50 / 60	
	Tolerable frequency fluctuation [%] ±3% max	
	Voltage(50Hz) [V] AC 380 ~ 440	
	Voltage(60Hz) [V] AC 380 ~ 480	
	Tolerable voltage fluctuation rate [%] +10%, -10%	
	Rated current [A] 18	
Heating value	Max. Current [A] 0.1	
	Max. Rush current [A] 18	
	Max. Rush conductivity time [ms] 12	
	Inside panel [W] 25	
Outside panel [W] 99		
Cooling method	Forced wind cooling	
Weight	[kg] 6.0	
AC reactor	DH-AL-11K	
Recommended contactor(option part)	S-N21-AC400V	
Free-air thermal current [A]	32	
	Selection current [A] 24	
	(for 380V input)	11
	Rated output [kW]	11
Recommended circuit protector(option part)	NF63-CW3P-30A	
Rated current [A]	30	
	Selection current [A] 24	
	(for 380V input)	11
Rated output [kW]	11	



No.	Name	Description
(1)	LED	Power supply status indication LED
(2)	SW1	Power supply setting switch
(3)	CN4	Servo/spindle communication connector
(4)	CN9	Servo/spindle communication connector
(5)	CHARGE LAMP	TE2 output charging/discharging circuit indication LED
(6)	CN23A	External emergency stop input connector
(7)	CN23B	External contactor control connector MC1, MC2 (Key way : Y type)
(8)	TE2	Converter voltage output terminal (D C output)
(9)	TE3	Control power input terminal (single-phase AC input)
(11)	TE1	Power input terminal (3-phase AC input)
(12)	PE	Grounding terminal



Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3), earth		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		3.5	12	5.5	10	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		3.5	12	5.5	10	2	14
600V bridge poly ethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		2	14	3.5	12	1.25 ~ 2	16 ~ 14

Environmental conditions

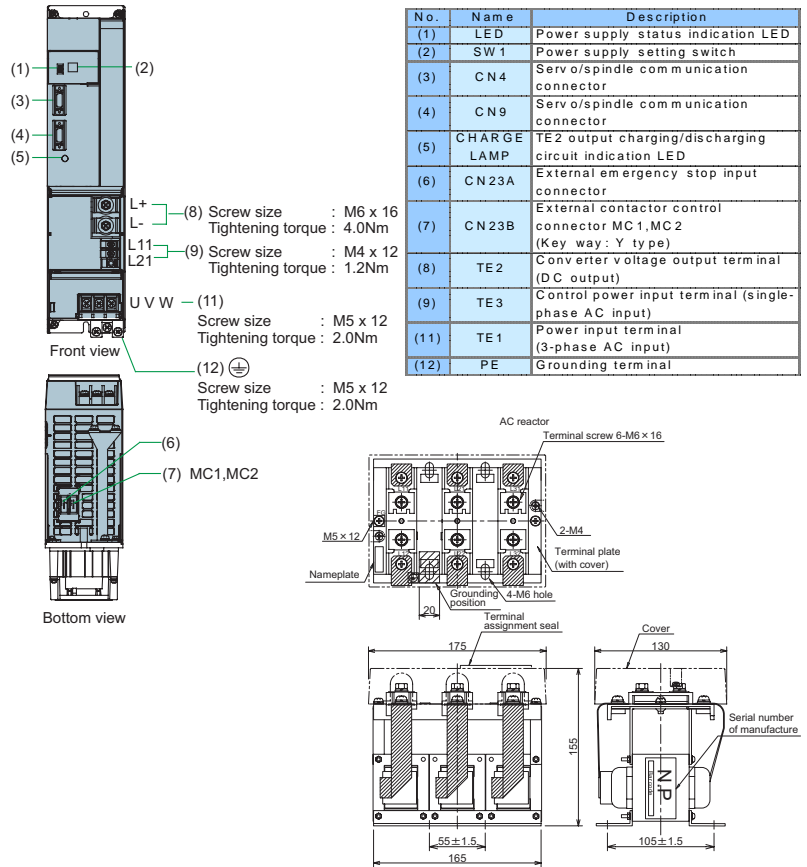
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Power supply unit

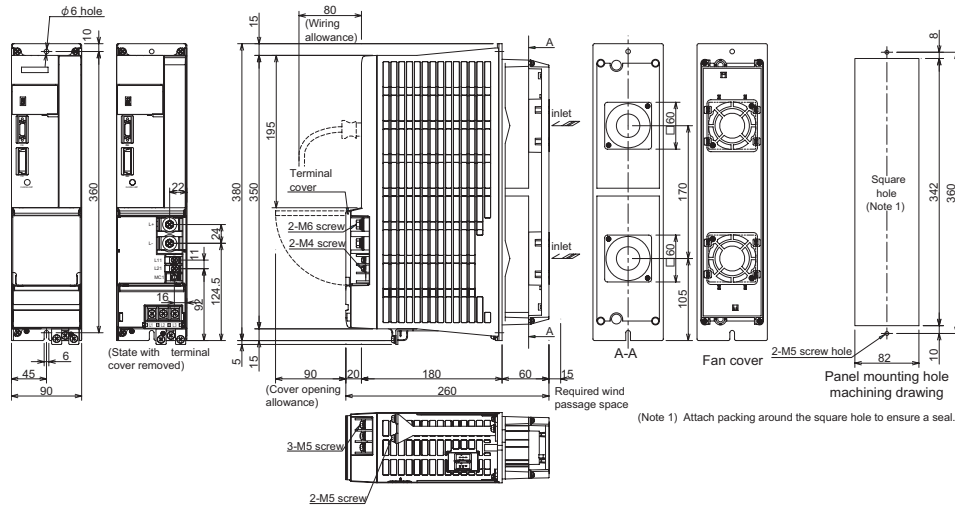
MDS-DH-CV-185

Specifications

Item		Specifications
Rated output		[kW] 18.5
Power facility capacity		[kVA] 27.0
Output	Rated voltage	[V] DC 513 ~ 648
	Rated current	[A] 38
Input	Frequency	[Hz] 50 / 60
	Tolerable frequency fluctuation	[%] ±3% max
	Rated voltage(50Hz)	[V] AC 380 ~ 440
	Rated voltage(60Hz)	[V] AC 380 ~ 480
	Tolerable voltage fluctuation rate	[%] +10%, -10%
	Rated current	[A] 35
Control power	Frequency	[Hz] 50 / 60
	Tolerable frequency fluctuation	[%] ±3% max
	Voltage(50Hz)	[V] AC 380 ~ 440
	Voltage(60Hz)	[V] AC 380 ~ 480
	Tolerable voltage fluctuation rate	[%] +10%, -10%
	Max. Current	[A] 0.1
	Max. Rush current	[A] 18
	Max. Rush conductivity time	[ms] 12
	Heating value	[W]
	Inside panel	[W] 32
Outside panel	[W] 161	
Cooling method		Forced wind cooling
Weight		[kg] 6.0
AC reactor		DH-AL-18.5K
Recommended contactor(option part)		S-N25-AC400V
	Free-air thermal current	[A] 50
	Selection current (for 380V input)	[A] 40
	Rated output	[kW] 18.5
Recommended circuit protector(option part)		NF63-CW3P-40A
	Rated current	[A] 40
	Selection current (for 380V input)	[A] 40
	Rated output	[kW] 18.5



Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3), earth		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		8	8			2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		8	8	14		2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		5.5	10			1.25 ~ 2	16 ~ 14

Environmental conditions

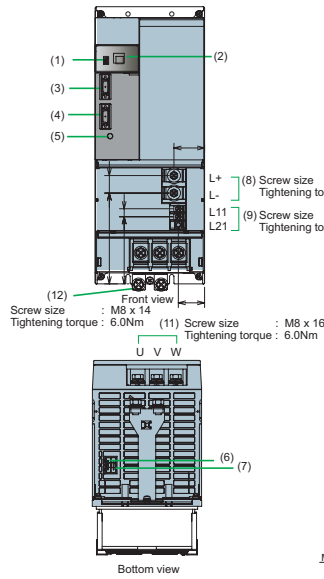
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Power supply unit

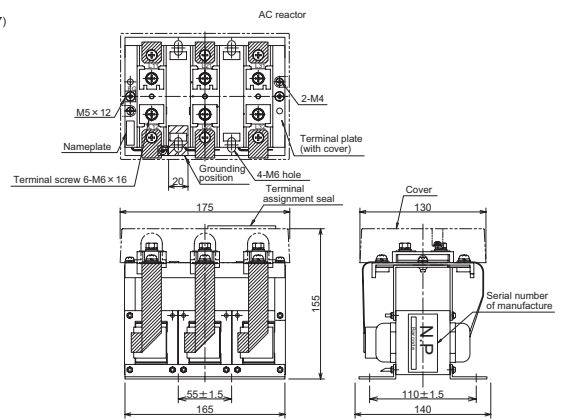
MDS-DH-CV-300

Specifications

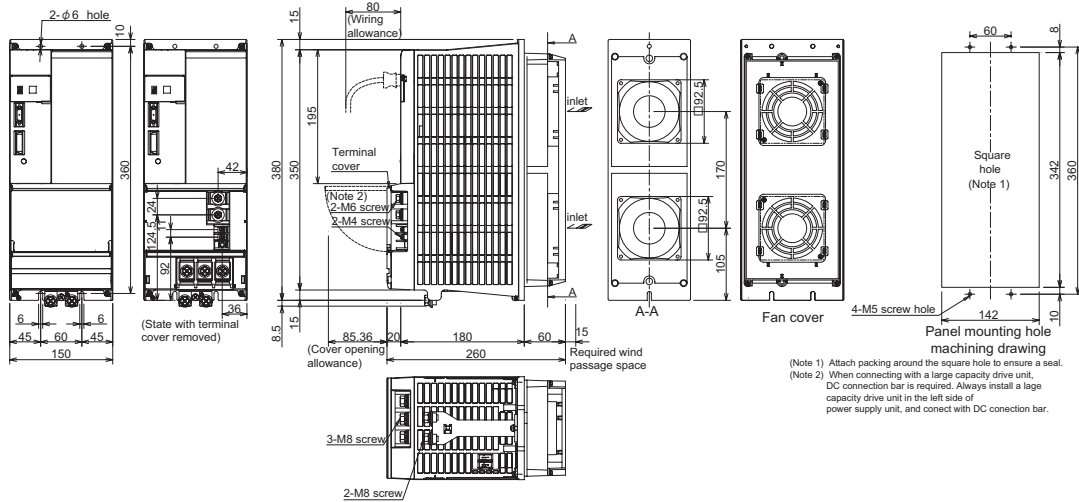
Item	Specifications
Rated output	[kW] 30.0
Power facility capacity	[kVA] 43.0
Output	Rated voltage [V] DC 513 ~ 648
	Rated current [A] 72
Input	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] ±3% max
	Rated voltage(50Hz) [V] AC 380 ~ 440
	Rated voltage(60Hz) [V] AC 380 ~ 480
	Tolerable voltage fluctuation rate [%] +10%, -10%
Control power	Rated current [A] 61
	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] ±3% max
	Voltage(50Hz) [V] AC 380 ~ 440
	Voltage(60Hz) [V] AC 380 ~ 480
	Tolerable voltage fluctuation rate [%] +10%, -10%
	Max. Current [A] 0.1
Max. Rush current [A] 18	
Heating value	inside panel [W] 45
	Outside panel [W] 272
Cooling method	Forced wind cooling
Weight	[kg] 10.0
AC reactor	DH-AL-30K
Recommended contactor(option part)	S-N 50-AC 400V
	Free-air thermal current [A] 80
	Selection current (for 380V input) [A] 65
	Rated output [kW] 30
Recommended circuit protector(option part)	NF125-CW3P-75A
	Rated current [A] 75
	Selection current (for 380V input) [A] 65
	Rated output [kW] 30



No.	Name	Description
(1)	LED	Power supply status indication LED
(2)	SW 1	Power supply setting switch
(3)	CN 4	Servo/spindle communication connector
(4)	CN 9	Servo/spindle communication connector
(5)	CHARGE LAMP	TE2 output charging/discharging circuit indication LED
(6)	CN 23A	External emergency stop input connector
(7)	CN 23B	External contactor control connector MC1, MC2 (Key way : Y type)
(8)	TE 2	Converter voltage output terminal (DC output)
(9)	TE 3	Control power input terminal (single-phase AC input)
(11)	TE 1	Power input terminal (3-phase AC input)
(12)	PE	Grounding terminal



Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3), earth		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		22	4	38		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		14	6			2	14
600V bridge poly ethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		14	6			1.25 ~ 2	16 ~ 14

Environmental conditions

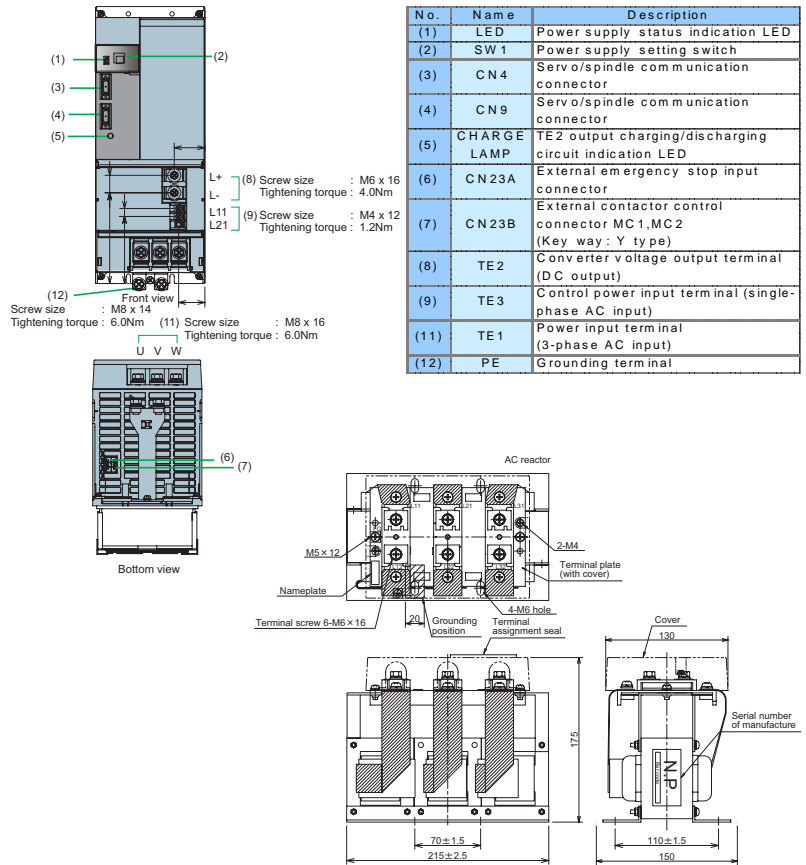
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Power supply unit

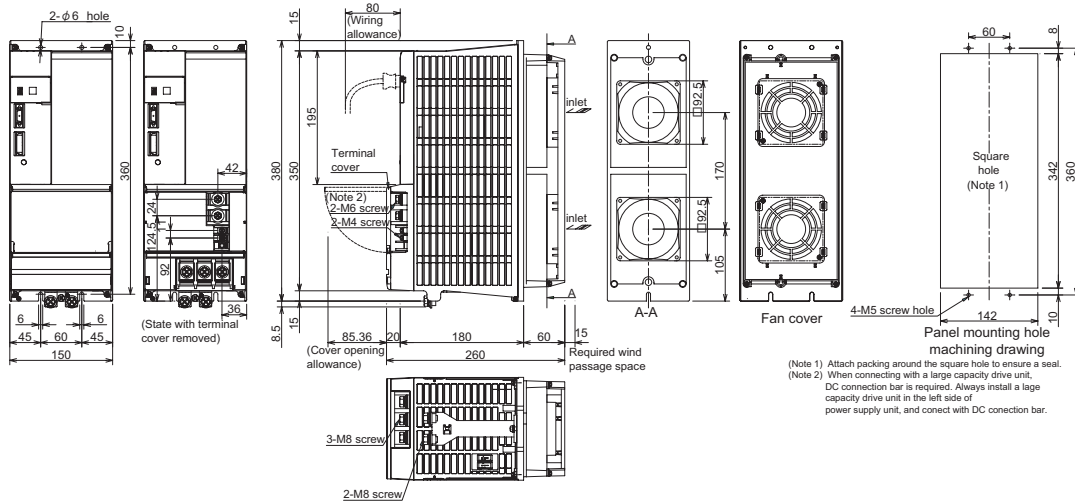
MDS-DH-CV-370

Specifications

Item	Specifications
Rated output	[kW] 37.0
Power facility capacity	[kVA] 53.0
Output	Rated voltage [V] DC 513 ~ 648
	Rated current [A] 82
Input	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] ±3% max
	Rated voltage(50Hz) [V] AC 380 ~ 440
	Rated voltage(60Hz) [V] AC 380 ~ 480
	Tolerable voltage fluctuation rate [%] +10%, -10%
Control power	Rated current [A] 70
	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] ±3% max
	Voltage(50Hz) [V] AC 380 ~ 440
	Voltage(60Hz) [V] AC 380 ~ 480
Heating value	Tolerable voltage fluctuation rate [%] +10%, -10%
	Max. Current [A] 0.1
	Max. Rush current [A] 18
	Max. Rush conductivity time [ms] 12
	Inside panel [W] 53
Outside panel [W] 343	
Cooling method	Forced wind cooling
Weight	[kg] 10.0
AC reactor	DH-AL-37K
Recommended contactor(option part)	S-N 65-AC 400V
Free-air thermal current	[A] 100
	Selection current (for 380V input) [A] 80
	Rated output [kW] 37
Recommended circuit protector(option part)	NF 125-CW 3P-100A
Rated current	[A] 100
	Selection current (for 380V input) [A] 80
	Rated output [kW] 37



Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3), earth		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		30	3	50		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		22	4			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		14	6			1.25 ~ 2	16 ~ 14

Environmental conditions

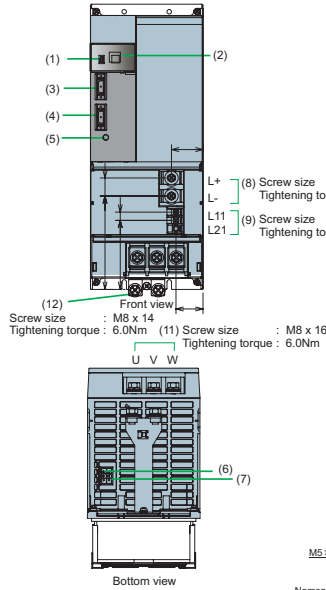
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Power supply unit

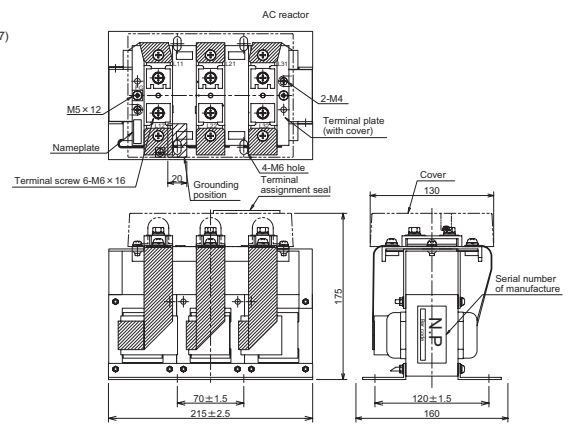
MDS-DH-CV-450

Specifications

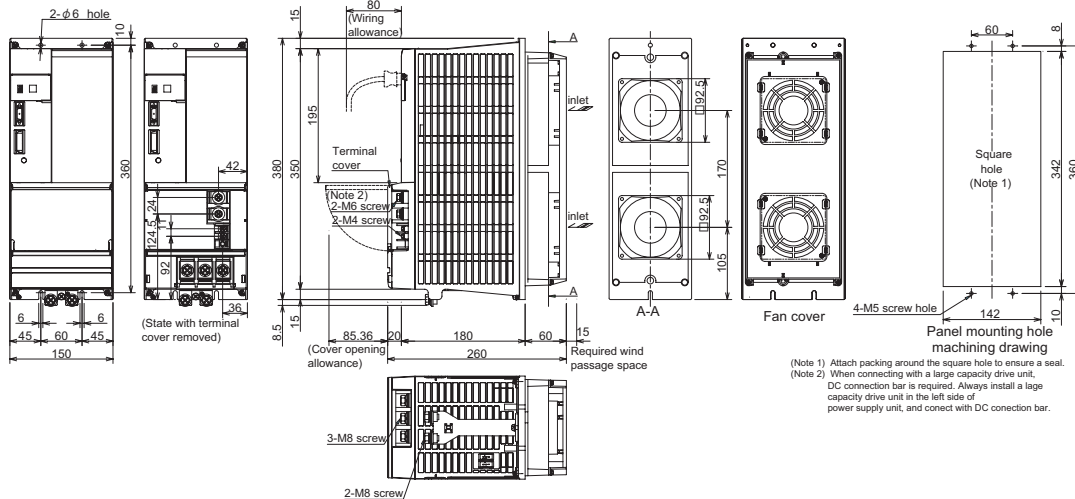
Item	Specifications
Rated output	[kW] 45.0
Power facility capacity	[kVA] 64.0
Output	Rated voltage [V] DC 513 ~ 648
	Rated current [A] 99
Input	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] ±3% max
	Rated voltage(50Hz) [V] AC 380 ~ 440
	Rated voltage(60Hz) [V] AC 380 ~ 480
	Tolerable voltage fluctuation rate [%] +10%, -10%
Control power	Rated current [A] 85
	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] ±3% max
	Voltage(50Hz) [V] AC 380 ~ 440
	Voltage(60Hz) [V] AC 380 ~ 480
Heating value	Tolerable voltage fluctuation rate [%] +10%, -10%
	Max. Current [A] 0.1
	Max. Rush current [A] 18
	Max. Rush conductivity time [ms] 12
	Inside panel [W] 104
Outside panel [W] 392	
Cooling method	Forced wind cooling
Weight	[kg] 10.0
AC reactor	DH-AL-45K
Recommended contactor(option part)	S-N 65-AC 400V
Free-air thermal current	[A] 100
	Selection current (for 380V input) [A] 98
	Rated output [kW] 45
Recommended circuit protector(option part)	NF 125-CW 3P-100A
Rated current	[A] 100
	Selection current (for 380V input) [A] 98
	Rated output [kW] 45



No.	Name	Description
(1)	LED	Power supply status indication LED
(2)	SW 1	Power supply setting switch
(3)	CN 4	Servo/spindle communication connector
(4)	CN 9	Servo/spindle communication connector
(5)	CHARGE LAMP	TE2 output charging/discharging circuit indication LED
(6)	CN 23A	External emergency stop input connector
(7)	CN 23B	External contactor control connector MC1, MC2 (Key way : Y type)
(8)	TE 2	Converter voltage output terminal (DC output)
(9)	TE 3	Control power input terminal (single-phase AC input)
(11)	TE 1	Power input terminal (3-phase AC input)
(12)	PE	Grounding terminal



Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3), earth		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		38	2	60		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		22	4			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		22	4			1.25 ~ 2	16 ~ 14

Environmental conditions

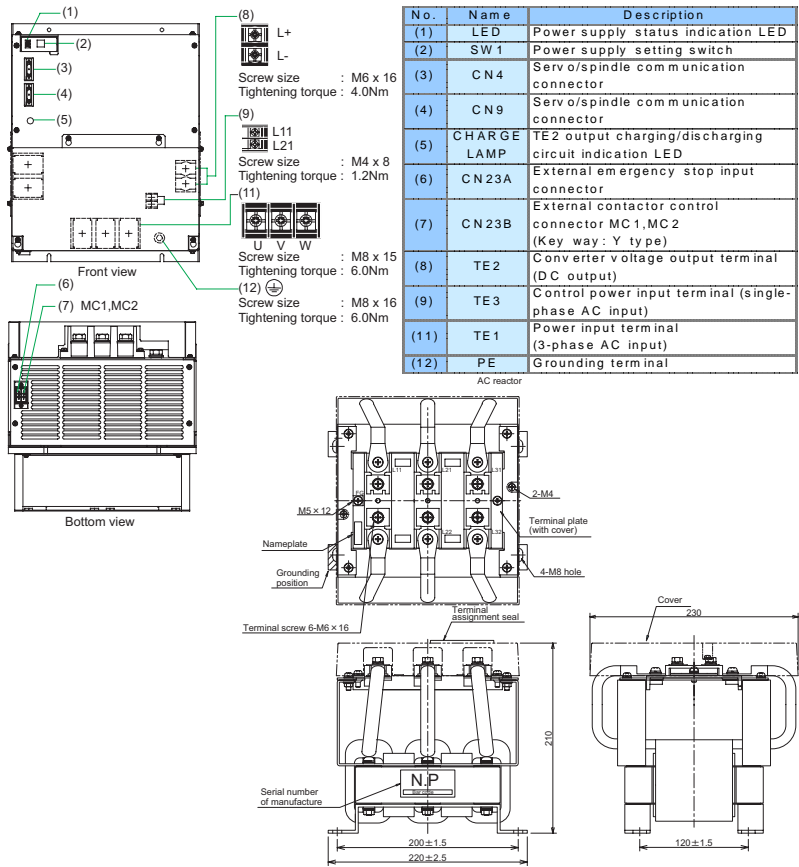
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Power supply unit

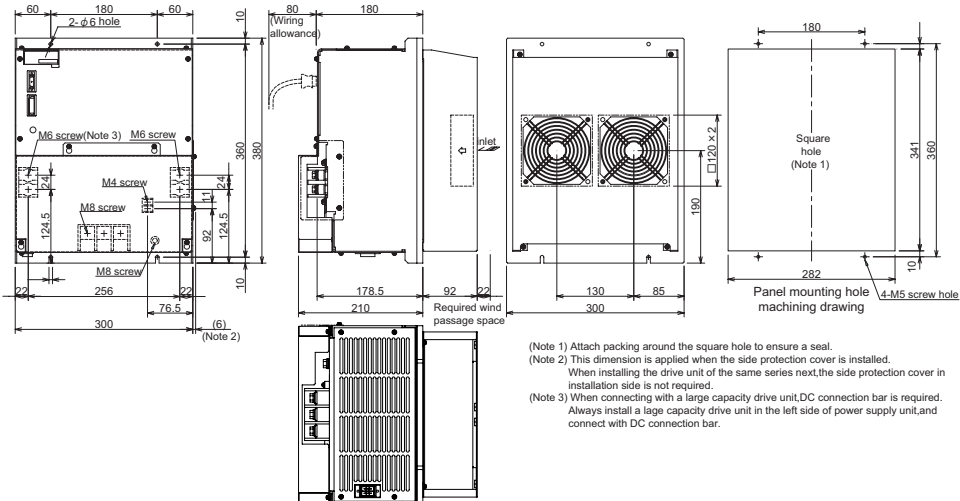
MDS-DH-CV-550

Specifications

Item	Specifications
Rated output	[kW] 55.0
Power facility capacity	[kVA] 78.0
Output	Rated voltage [V] DC 513 ~ 648
	Rated current [A] 119
Input	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] ±3% max
	Rated voltage(50Hz) [V] AC 380 ~ 440
	Rated voltage(60Hz) [V] AC 380 ~ 480
Control power	Tolerable voltage fluctuation rate [%] +10%, -10%
	Rated current [A] 106
	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] ±3% max
	Voltage(50Hz) [V] AC 380 ~ 440
	Voltage(60Hz) [V] AC 380 ~ 480
	Tolerable voltage fluctuation rate [%] +10%, -10%
	Max. Current [A] 0.1
	Max. Rush current [A] 18
	Max. Rush conductivity time [ms] 12
Heating value	Inside panel [W] 164
	Outside panel [W] 432
Cooling method	Forced wind cooling
Weight	[kg] 25.5
AC reactor	DH-AL-55K
Recommended contactor(option part)	S-N80-AC400V
Free-air thermal current	[A] 135
	Selection current (for 380V input) [A] 119
	Rated output [kW] 55
Recommended circuit protector(option part)	NF250-CW3P-125A
Rated current	[A] 125
	Selection current (for 380V input) [A] 119
	Rated output [kW] 55



Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3), earth		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		-	-	Bar enclosed		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)		38	2		2	14	
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)		22	4		1.25 ~ 2	16 ~ 14	

Environmental conditions

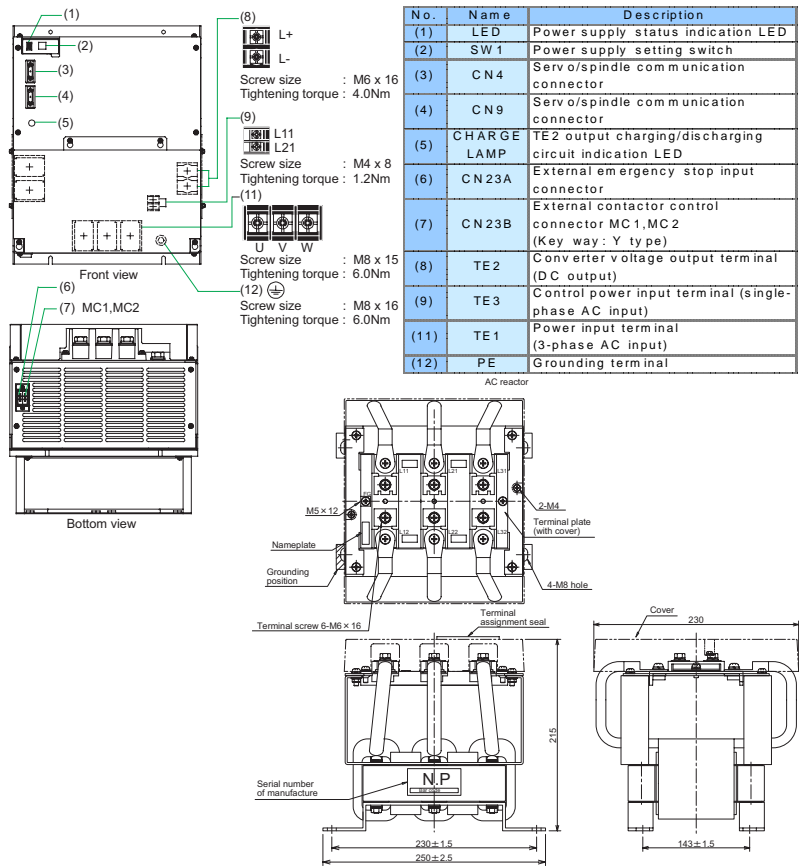
Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Power supply unit

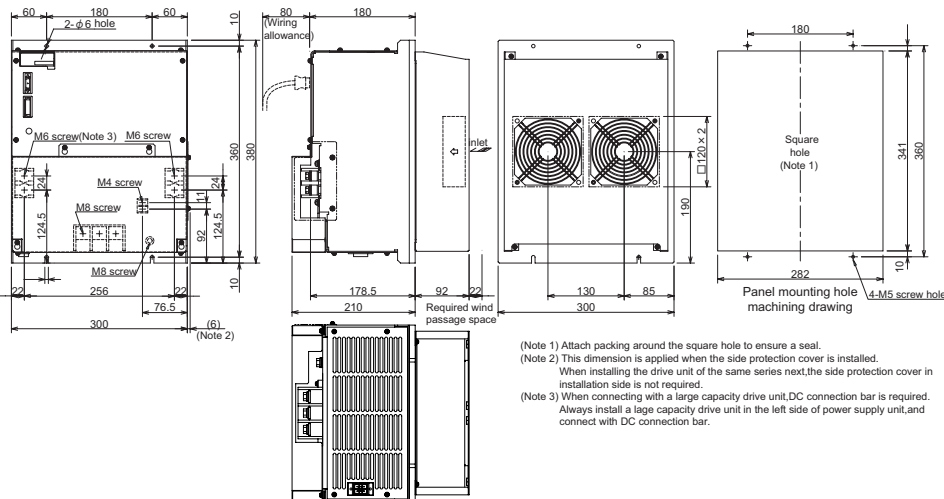
MDS-DH-CV-750

Specifications

Item	Specifications
Rated output	[kW] 75.0
Power facility capacity	[kVA] 107.0
Output	Rated voltage [V] DC 513 ~ 648
	Rated current [A] 150
Input	Frequency [Hz] 50 / 60
	Tolerable frequency fluctuation [%] ±3% max
Control power	Rated voltage(50Hz) [V] AC 380 ~ 440
	Rated voltage(60Hz) [V] AC 380 ~ 480
	Tolerable voltage fluctuation rate [%] +10%, -10%
	Rated current [A] 130
	Frequency [Hz] 50 / 60
Heating value	Tolerable frequency fluctuation [%] ±3% max
	Voltage(50Hz) [V] AC 380 ~ 440
	Voltage(60Hz) [V] AC 380 ~ 480
	Tolerable voltage fluctuation rate [%] +10%, -10%
	Max. Current [A] 0.1
	Max. Rush current [A] 18
	Max. Rush conductivity time [ms] 12
Cooling method	Inside panel [W] 228
	Outside panel [W] 614
Weight	[kg] 25.5
AC reactor	DH-AL-75K
Recommended contactor(option part)	S-N 150-AC 400V
Recommended circuit protector(option part)	Free-air thermal current [A] 200
	Selection current (for 380V input) [A] 163
	Rated output [kW] 75
Recommended circuit protector(option part)	Rated current [A] 200
	Selection current (for 380V input) [A] 163
	Rated output [kW] 75



Outline dimension drawings [Unit: mm]



Recommended wire

Types	Terminal name	TE1(L1, L2, L3), earth		TE2(L+, L-)		TE3(L11, L21)	
		mm ²	AWG	mm ²	AWG	mm ²	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)		-	-	Bar enclosed		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	60	-	2			14	
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	38	2	1.25 ~ 2			16 ~ 14	

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to +55 (with no freezing) storage/Transportation: -15°C to +70°C (with no freezing)
Ambient humidity	Operation: 90% RH or less (with no dew condensation) Storage/transportation: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s ² (0.5G) / 49m/s ² (5G)

Machine side detector

The option units are required depending on the servo system configuration. Check the option units to be required referring the following items.

(1) Linear scale for the full closed loop control

Absolute position detector is not required for the motor side detector when using absolute position scale.

Machine side detector to be used	Detector signal output	Required interface unit (I/F)	I/F signal output	Servo system specifications	Remarks
OSA105-ET2, OSA166-ET2	Serial communication	-	-	Absolute position	Requires battery option ER6V-C119B, etc.
Relative position linear scale (Various types) Relative position rotary encoder (Various types)	Oblong wave signal output	-	-	Incremental	Contact: Each machine side detector manufacturer
Relative position linear scale SR33 (SONY)	-	CN33 (SONY)	Oblong wave signal output	Incremental	Contact: Sony Manufacturing
Relative position linear scale LS186, LS486, etc. (HEIDENHAIN)	Analog 1Vp-p SIN wave signal output	IBV series (HEIDENHAIN)	Oblong wave signal output	Incremental	Contact: HEIDENHAIN
Relative position linear scale (Various types) Relative position rotary encoder (Various types)	Analog 1Vp-p SIN wave signal output	MDS-B-HR-11	Serial communication	Incremental	Contact: Each machine side detector manufacturer
Relative position linear scale SH13 (SONY)	Analog 1Vp-p SIN wave signal output	MJ831 (SONY)	Serial communication	Incremental	Contact: Sony Manufacturing
Relative position linear scale LS186, LS486, etc. (HEIDENHAIN)	Analog 1Vp-p SIN wave signal output	APE391M A0 (HEIDENHAIN)	Serial communication	Incremental	Contact: HEIDENHAIN
Relative position rotary encoder ERM280 1024/1200/2048, etc. (HEIDENHAIN)	Analog 1Vp-p SIN wave signal output	APE391M C0 series APE391M C2 series (HEIDENHAIN)	Serial communication	Incremental	Contact: HEIDENHAIN
Absolute position linear scale AT342, AT343, AT543 (Mitutoyo)	Serial communication	-	-	Absolute position	Contact: Mitutoyo
Absolute position linear scale LC191M, LC491M (HEIDENHAIN)	Serial communication	-	-	Absolute position	Contact: HEIDENHAIN
Absolute position rotary encoder RCN223, RCN723 (HEIDENHAIN)	Serial communication	-	-	Absolute position	Contact: HEIDENHAIN
Absolute position rotary encoder MPRZ series (MME)	-	ADB-20J71 (MME)	Serial communication	Absolute position	Contact: MME Corporation

Contact information about machine side detector

Mitutoyo Corporation <http://www.mitutoyo.co.jp/>

Sony Manufacturing Systems Corporation <http://www.sonysms.co.jp/>

HEIDENHAIN CORPORATION <http://www.heidenhain.co.jp/>

MHI MACHINE TOOL ENGINEERING CO., LTD <http://www.mme-e.co.jp/>



The absolute position system cannot be established in combination with the relative position (incremental) machine side detector and absolute position motor side detector.

(2) Detector for the full closed loop control

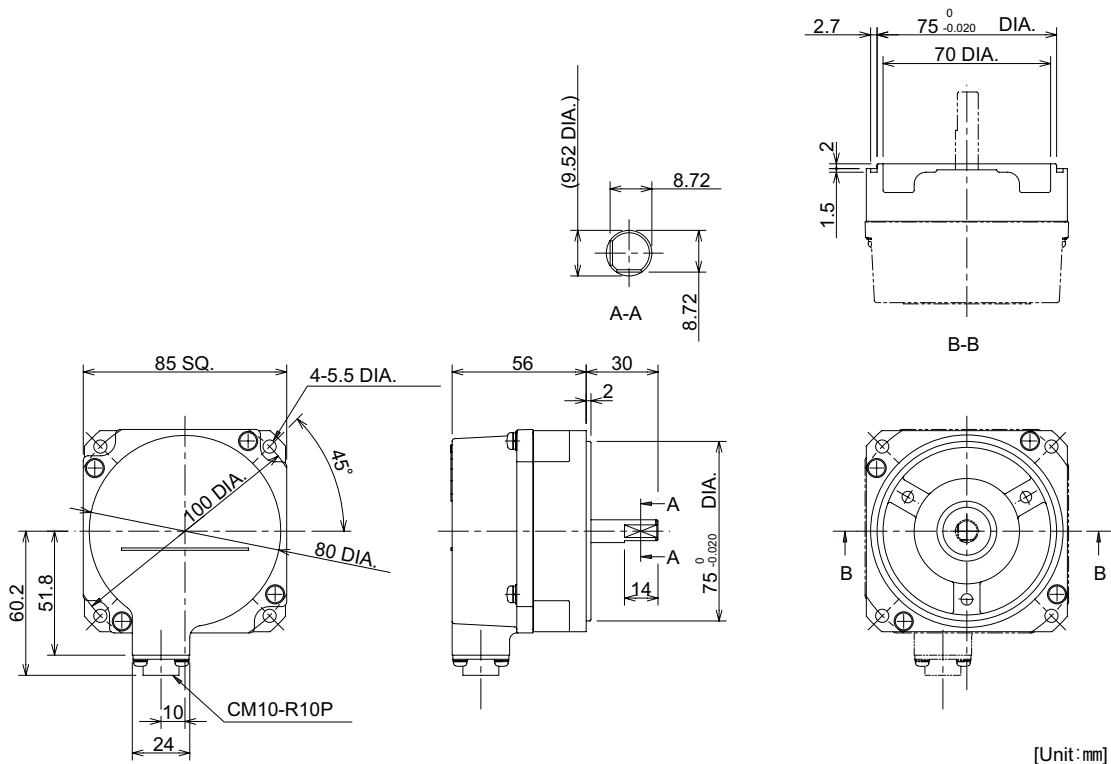
(a) Specifications

Detector type		OSA105-ET2	OSA166-ET2
Electrical characteristics	Detector resolution	1,000,000pulse/rev	16,000,000 pulse/rev
	Detection method	Absolute position method (battery backup method)	
	Tolerable rotation speed at power off (Note)	500r/min	
	Detector output data	Serial data	
	Power consumption	0.3A	
Mechanical characteristics for rotation	Inertia	$0.5 \times 10^{-4} \text{kgm}^2$ or less	
	Shaft friction torque	0.1Nm or less	
	Shaft angle acceleration	$4 \times 10^4 \text{rad/s}^2$ or less	
	Tolerable continuous rotation speed	4000r/min	
Mechanical configuration	Shaft amplitude (position 15mm from end)	0.02mm or less	
	Tolerable load (thrust direction/radial direction)	9.8N · m/19.8N · m	
	Weight	0.6kg	
	Protective structure	IP65 (The shaft-through portion is excluded.)	
	Recomended coupling	bellows coupling	
Working environment	Ambient temperature	0 ~ +55	
	Storage temperature	-20 ~ +85	
	Humidity	95%Ph	
	Vibration resistance	5 to 50Hz, total vibration width 1.5mm, each shaft for 30min.	
	Impact resistance	490m/s ² (50G)	

(Note) If the tolerable rotation speed at power off is exceeded, position deviation will occur.

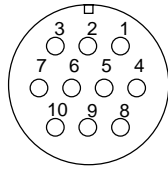
(b) Outline dimension drawings

• OSA105-ET2 / OSA166-ET2



[Unit: mm]

(c) Explanation of connectors



Connector pin layout

Pin	Function	Pin	Function
1	RQ	6	SD
2	RQ*	7	SD*
3	-	8	P5(+5V)
4	BAT	9	-
5	LG(GND)	10	SHD

(3) Detector for the system in the synchronous control

(a) For position command synchronous control

The synchronous control is all executed in the NC, and the each servo is controlled as an independent axis. Therefore, preparing special options for the synchronous control is not required on the servo side.

(b) For speed/current command synchronous control

The signal divider unit (MDS-B-SD) may be required because two axes share the feed back signal of the linear scale in the full closed control. Check whether the signal divider unit is required based on the following table.

System establishment	For control with MDS-DH-V2		For control with MDS-DH-V1×2 units	
	Need for signal divider unit (MDS-B-SD)	Need for detector conversion unit (MDS-B-HR)	Need for signal divider unit (MDS-B-SD)	Need for detector conversion unit (MDS-B-HR)
Semi closed control (only for motor side detector)	-	-		-
Relative position linear scale (Oblong wave signal output)	x	x	x	x
Relative position linear scale (SIN wave signal output)	-		-	
Absolute position linear scale AT342, AT343, AT543 (Mitutoyo)	-	-		-
Absolute position linear scale LC191M, LC491M (HEIDENHAIN)	-	-		-

: Required -: Not required x : Not applicable



POINT

When executing the synchronous control, use the servomotors of which the type and detector specifications are same.

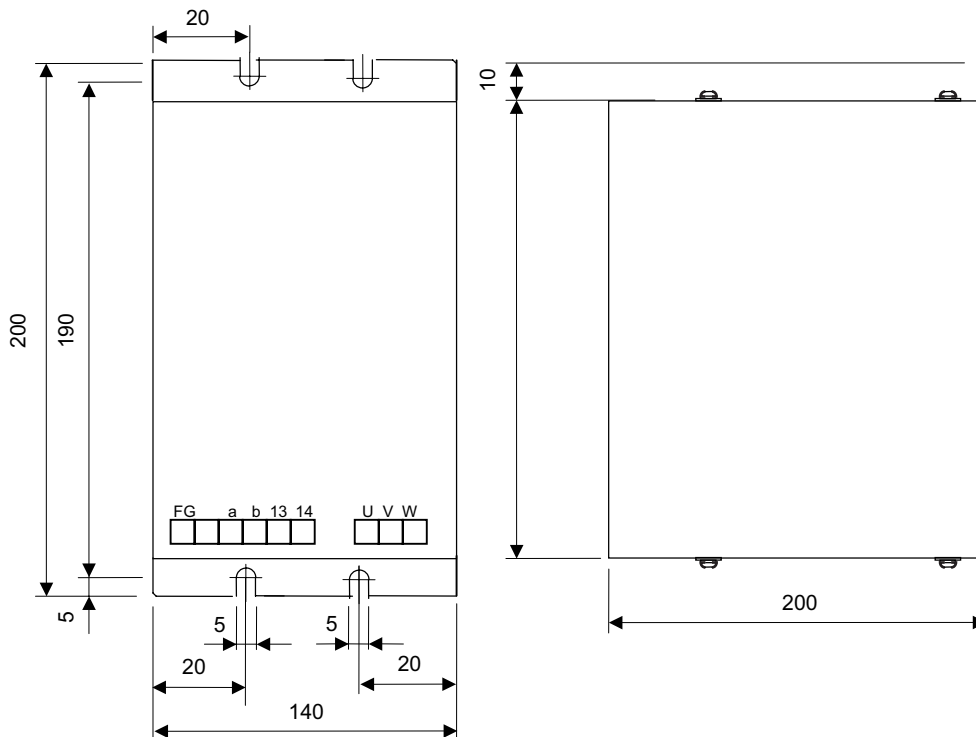
Dynamic brake unit (MDS-D-DBU) (mandatory selection for large capacity)

The MDS-DH-V1-160W or larger units do not have dynamic brakes built in, so install an external dynamic brake unit.

(1) Specifications

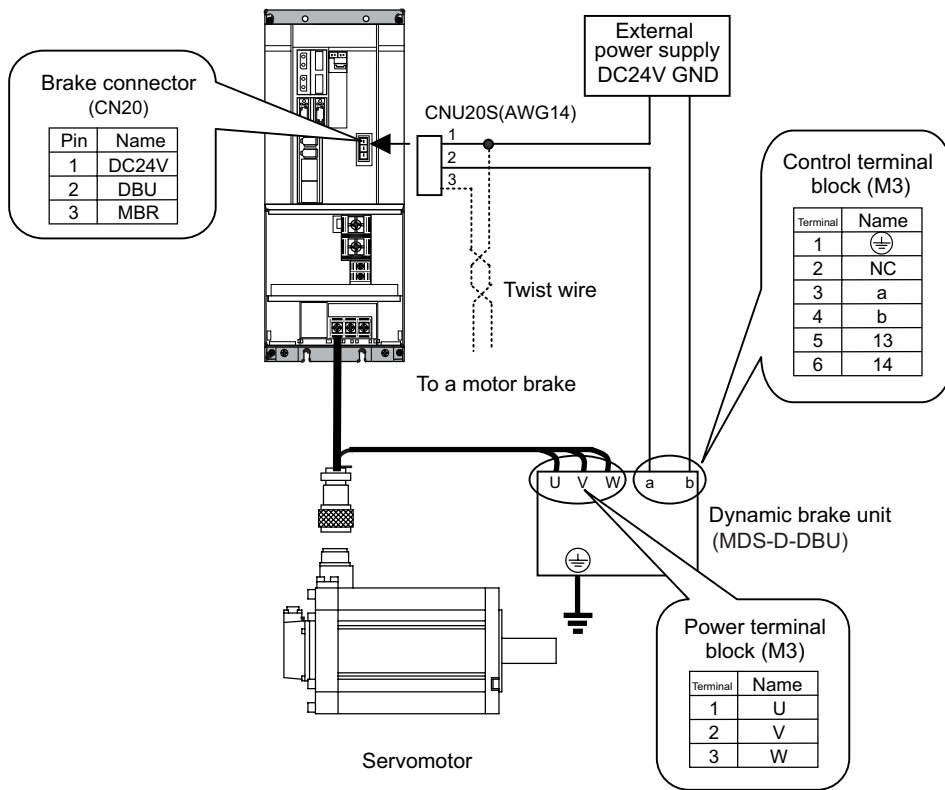
Type	Coil specifications	Compatible drive unit	Weight (kg)
MDS-D-DBU	24VDC 160mA	MDS-DH-V1-160W or larger	2

(2) Outline dimension drawings

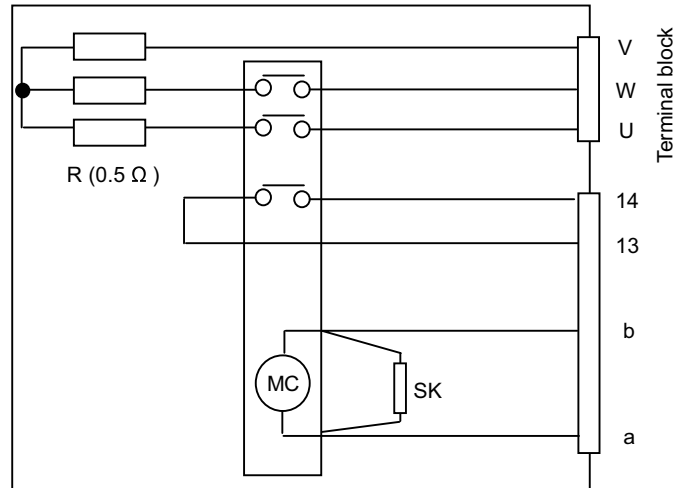


[Unit: mm]

(3) Connecting with the servo drive unit



Internal circuit diagram



CAUTION

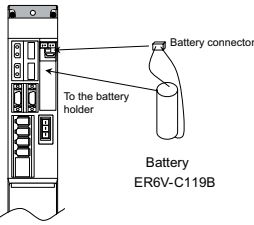
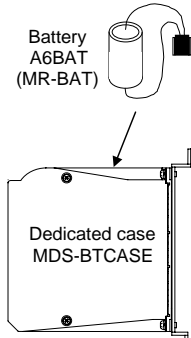
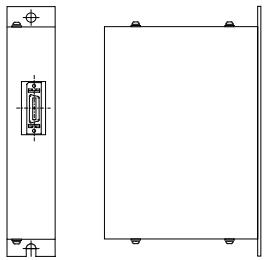
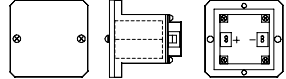
Correctly wire the dynamic brake unit to the servo drive unit. Do not use for applications other than emergencies (normal braking, etc.). The internal resistor could heat up, and lead to fires or faults.

POINT

When you use a motor with a brake, please wire (between 1pin and 3pin) for the CN20 connector.

Battery (MDS-A-BT, FCU6-BTBOX-36, ER6V-C119B, A6BAT)

This battery option may be required to establish absolute position system.

Type	ER6V-C119B	A6BAT (MR-BAT)	MDS-A-BT-	FCU6-BTBOX-36
Installation type	Drive unit with battery holder type	Dedicated case type	Unit and battery integration type	Unit and battery integration type
Hazard class	Not applicable	Not applicable (24 or less)	Class9 (excluding MDS-A-BT-2)	Not applicable
Number of connectable axes	Up to 2 axes	Up to 8 axes (When using dedicated case)	2 to 8 axes	Up to 6 axes
Battery change	Possible	Possible	Not possible	Possible
Appearance	(1) 	(2) 	(3) 	(4) 

 **CAUTION**

1. On January 1, 2003, new United Nations requirements, "United Nations Dangerous Goods Regulations Article 12", became effective regarding the transportation of lithium batteries. The lithium batteries are classified as hazardous materials (Class 9) depending on the unit. (Refer to Appendix 4.)
2. The lithium battery must be transported according to the rules set forth by the International Civil Aviation Organization (ICAO), International Air Transportation Association (IATA), International Maritime Organization (IMO), and United States Department of Transportation (DOT), etc. The packaging methods, correct transportation methods, and special regulations are specified according to the quantity of lithium alloys. The battery unit exported from Mitsubishi is packaged in a container (UN approved part) satisfying the standards set forth in this UN Advisory.
3. To protect the absolute value, do not shut off the servo drive unit control power supply if the battery voltage becomes low (warning 9F).
4. Contact the Service Center when replacing the MDS-A-BT Series and cell battery.
5. Replace the FCU6-BTBOX-36 battery with a new battery (2CR5) within the recommended service period. This battery is commercially available for use in cameras, etc.
6. The battery life (backup time) is greatly affected by the working ambient temperature. The above data is the theoretical value for when the battery is used 8 hours a day/240 days a year at an ambient temperature of 25°C. Generally, if the ambient temperature increases, the backup time and useful life will both decrease.

 **POINT**

The battery specifications of A6BAT are the same as MR-BAT.

(1) Cell battery (ER6V-C119B)

< Specifications >

Battery option type		Cell battery	
		ER6V-C119B (Note1)	
Lithium battery series		ER6V	
Nominal voltage		3.6V	
Nominal capacity		2000mAh	
Battery safety	Hazard class	-	
	Battery shape	Single battery	
	Number of batteries used	ER6V × 1	
	Lithium alloy content	0.7g	
	Mercury content	1g or less	
Number of connectable axes		Up to 2 axes	
Battery continuous backup time		Approx. 10000 hours	
Battery useful life (From date of unit manufacture)		7 years	
Data save time in battery replacement		HF-H/HP-H series: approx. 20 hours at time of delivery, approx. 10 hours after 5 years	
Back up time from battery warning to alarm occurrence (Note2)		Approx. 100 hours	
Weight		20g	

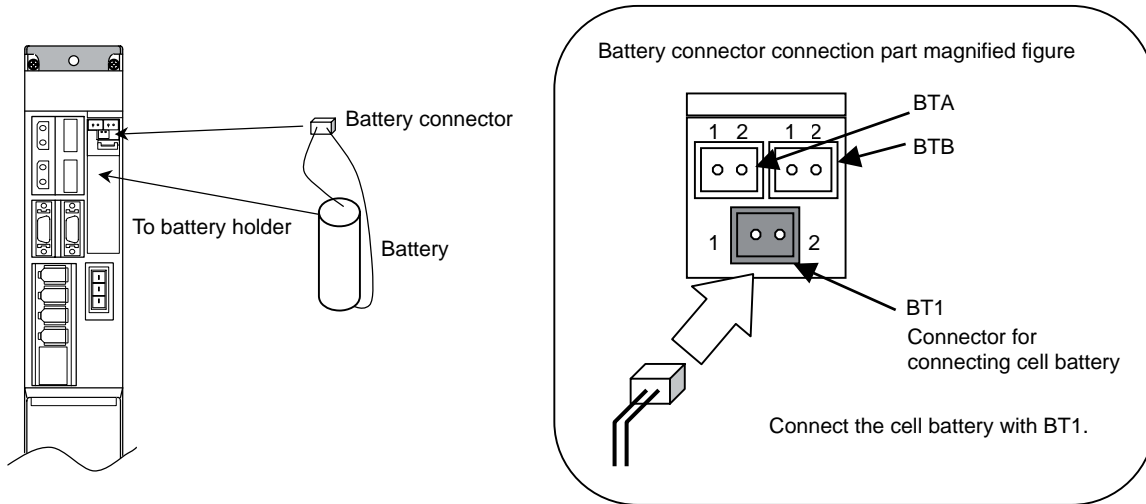
(Note1) ER6V-C119B is a battery built in a servo drive unit. Install this battery only in the servo drive unit that executes absolute position control.

(Note2) This time is a guideline, so does not guarantee the back up time. Replace the battery with a new battery as soon as a battery warning occurs.

< Installing the cell battery >

Open the upper front cover of the servo drive unit.

Connect the battery connector and then put the battery inside.



(Note) When using a cell battery, do not connect the battery unit, MDS-A-BT and FCU6-BTBOX-36.



When using a cell battery built-in drive unit, the wiring between units is not required. The cell battery can be changed in each drive unit.

(2) Cell battery (A6BAT)

Always use the cell battery (A6BAT) in combination with the dedicated case (MDS-BTCASE).

< Specifications >

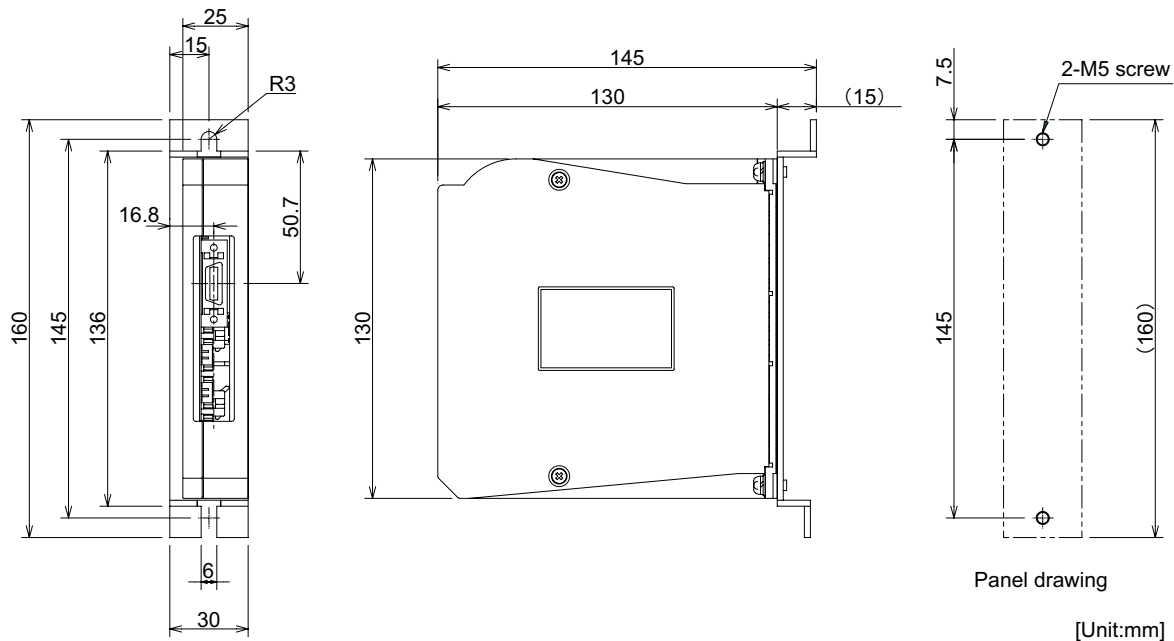
Battery option type		Cell battery
		A6BAT (MR-BAT)
Lithium battery series		ER17330V
Nominal voltage		3.6V
Nominal capacity		1700mAh
Battery safety	Hazard class	-
	Battery shape	Single battery
	Number of batteries used	A6BAT (MR-BAT) × 1
	Lithium alloy content	0.48g
	Mercury content	1g or less
Number of connectable axes		1 axis / (per 1 battery)
Battery continuous backup time		Approx. 10000 hours
Battery useful life (From date of unit manufacture)		5 years
Data save time in battery replacement		HF-H/HP-H series: approx. 20 hours at time of delivery, approx. 10 hours after 5 years
Back up time from battery warning to alarm occurrence (Note)		Approx. 80 hours
Weight		17g

(Note) This time is a guideline, so does not guarantee the back up time. Replace the battery with a new battery as soon as a battery warning occurs.

< Specifications of the dedicated case MDS-BTCASE >

Type	MDS-BTCASE
Number of batteries installed	Up to 8 A6BATs (MR-BATs) (Install either 2, 4, 6 or 8 A6BATs (MR-BATs)) Max. 8 axes (It varies depending on the number of batteries installed.)
Number of connectable axes	When A6BAT (MR-BAT) × 2, 1 to 2 axis/axes When A6BAT (MR-BAT) × 4, 3 to 4 axes When A6BAT (MR-BAT) × 6, 5 to 6 axes When A6BAT (MR-BAT) × 8, 7 to 8 axes

< Outline dimension drawing of the dedicated case MDS-BTCASE >



(3) Battery unit (MDS-A-BT-)

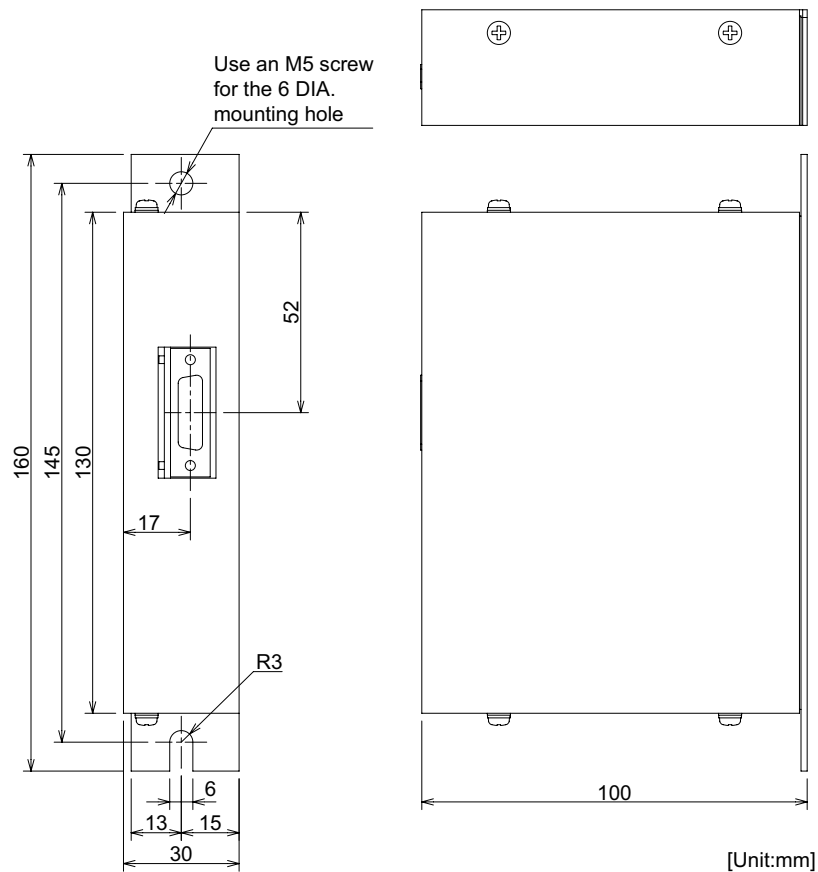
< Specifications >

Battery option type	Battery unit				
	MDS-A-BT-2	MDS-A-BT-4	MDS-A-BT-6	MDS-A-BT-8	
Lithium battery series	ER6V				
Nominal voltage	3.6V				
Nominal capacity	4000mAh	8000mAh	12000mAh	16000mAh	
Battery safety	Hazard class	Class 9			
	Battery shape	Set battery			
	Number of batteries used	ER6V x 2	ER6V x 4	ER6V x 6	ER6V x 8
	Lithium alloy content	1.3g	2.6g	3.9g	5.2g
	Mercury content	1g or less			
Number of connectable axes	Up to 2 axes	Up to 4 axes	Up to 6 axes	Up to 8 axes	
Battery continuous backup time	Approx. 30000 hours				
Battery useful life (From date of unit manufacture)	7 years				
Data save time in battery replacement	HF-H/HP-H series: approx. 20 hours at time of delivery, approx. 10 hours after 5 years				
Back up time from battery warning to alarm occurrence (Note)	Approx. 100 hours				
Weight	600g				

(Note) This time is a guideline, so does not guarantee the back up time. Replace the battery with a new battery as soon as a battery warning occurs.

< Outline dimension drawings >

• MDS-A-BT-2/-4/-6/-8



(4) Battery unit (FCU6-BTBOX-36)

< Specifications >

Battery option type		Battery unit
		FCU6-BTBOX-36 (Note1)
Lithium battery series		2CR5
Nominal voltage		6.0V (Lithium battery), 3.6V (Output)
Nominal capacity		2600mAh
Battery safety	Hazard class	-
	Battery shape	Single battery
	Number of batteries used	2CR5 × 2
	Lithium alloy content	1.96g
	Mercury content	1g or less
Number of connectable axes		Up to 6 axes
Battery continuous backup time		Approx. 5000 hours (when 6 axes are connected)
Battery useful life (From date of unit manufacture)		5 years ^{Note2}
Data save time in battery replacement		HF-H/HP-H series: approx. 20 hours at time of delivery, approx. 10 hours after 5 years
Back up time from battery warning to alarm occurrence (Note3)		Approx. 30 hours (when 6 axes are connected)
Weight		200g

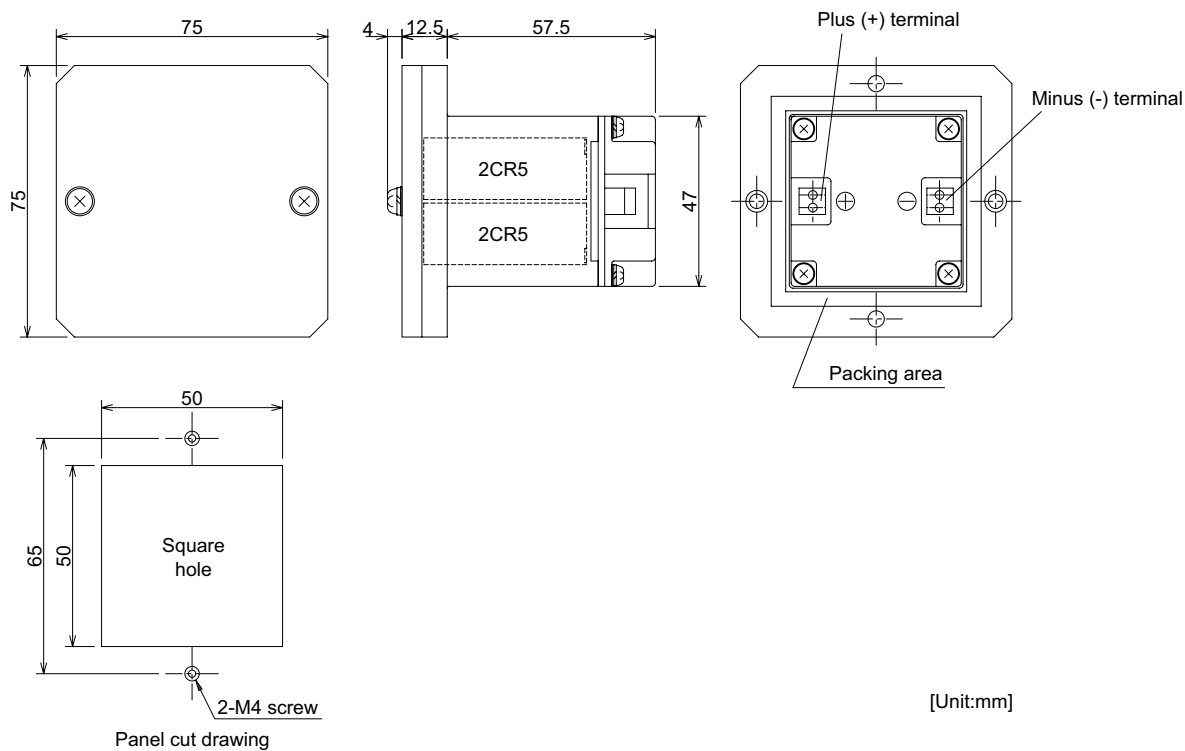
(Note1) A lithium battery in FCU6-BTBOX-36 is commercially available. The battery for replacement has to be prepared by the user.

(Note2) Use new batteries (nominal capacity 1300mAh or more) within five years from the date of manufacture. The batteries should be replaced once a year.

(Note3) This time is a guideline, so does not guarantee the back up time. Replace the battery with a new battery as soon as a battery warning occurs.

< Outline dimension drawings >

• FCU6-BTBOX-36

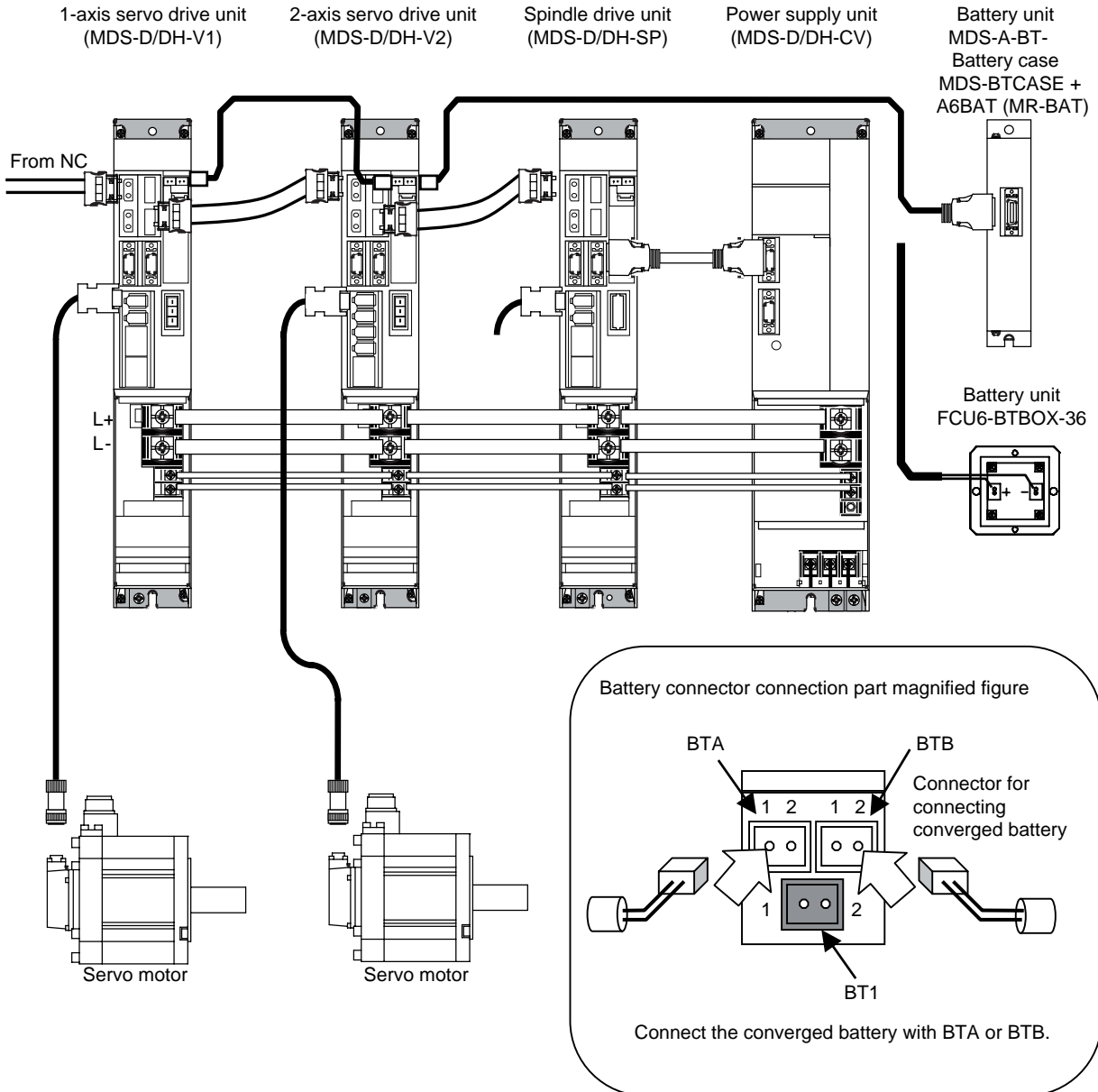


(5) Converged battery option

When using the following battery options, the wiring between units which configure an absolute position system is required.

Battery option type	Installation type	Battery charge
A6BAT (MR-BAT)	Dedicated case type (built-in MR-BTBOX)	Possible
MDS-A-BT series	Unit and battery integration type	Not possible
FCU6-BTBOX-36	Unit and battery integration type	Possible

<System configuration>



1. This wiring is not required for the drive unit or spindle drive unit which is not an absolute system.
2. Use a shield cable for wiring between drive units.
The drive unit could malfunction.

Detector for Spindle motor

(1) No-variable speed control

(When spindle and motor are directly coupled or coupled with a 1:1 gear ratio)

Spindle control item	Control specifications	Without spindle side detector	With spindle side detector
Spindle control	Normal cutting control	○	This normally is not used for no-variable speed control.
	Constant surface speed control (lathe)	○	
	Thread cutting (lathe)	○	
Orientation control	1-point orientation control	○	
	Multi-point orientation control	○	
	Orientation indexing	○	
Synchronous tap control	Standard synchronous tap	○	
	Synchronous tap after zero point return	○	
Spindle synchronous control	Without phase alignment function	○	
	With phase alignment function	○	
C-axis control	C-axis control	○	

(Note) ○ : Control possible

× : Control not possible

(2) Variable speed control

(When using V-belt, or when spindle and motor are connected with a gear ratio other than 1:1)

Spindle control item	Control specifications	Without spindle side detector	With spindle side detector
Spindle control	Normal cutting control	○	○
	Constant surface speed control (lathe)	△	○
	Thread cutting (lathe)	×	○
Orientation control	1-point orientation control	×	○
	Multi-point orientation control	×	○
	Orientation indexing	×	○
Synchronous tap control	Standard synchronous tap	▲	○
	Synchronous tap after zero point return	×	○
Spindle synchronous control	Without phase alignment function	△	○
	With phase alignment function	×	○
C-axis control	C-axis control	×	

(Note) ○ : Control possible

× : Control not possible

△ : Control not possible when using V-belt

▲ : Control not possible when varying the speed with a method other than the gears (when using V-belt or timing belt).

: Control not possible when using V-belt, or control not possible for the RFH-1024-22-1M-68(-8) detector

Spindle side detector (OSE-1024-3-15-68, OSE-1024-3-15-68-8)

When a spindle and motor are connected with a V-belt, or connected with a gear ratio other than 1:1, use this spindle side detector to detect the position and speed of the spindle. Also use this detector when orientation control and synchronous tap control, etc are executed under the above conditions.

(1) Specifications

Detector type		OSE-1024-3-15-68	OSE-1024-3-15-68-8
Mechanical characteristics for rotation	Inertia	$0.1 \times 10^{-4} \text{kgm}^2$ or less	$0.1 \times 10^{-4} \text{kgm}^2$ or less
	Shaft friction torque	0.98Nm or less	0.98Nm or less
	Shaft angle acceleration	10^4 rad/s^2 or less	10^4 rad/s^2 or less
	Tolerable continuous rotation speed	6000 r/min	8000 r/min
Mechanical configuration	Bearing maximum non-lubrication time	20000h/6000r/min	20000h/8000r/min
	Shaft amplitude (position 15mm from end)	0.02mm or less	0.02mm or less
	Tolerable load (thrust direction/radial direction)	10kg/20kg Half of value during operation	10kg/20kg Half of value during operation
	Weight	1.5kg	1.5kg
	Squareness of flange to shaft	0.05mm or less	
	Flange matching eccentricity	0.05mm or less	
Working environment	Ambient temperature range	-5°C to +55°C	
	Storage temperature range	-20°C to +85°C	
	Humidity	95%Ph	
	Vibration resistance	5 to 50Hz, total vibration width 1.5mm, each shaft for 30min.	
	Impact resistance	294.20m/s ² (30G)	

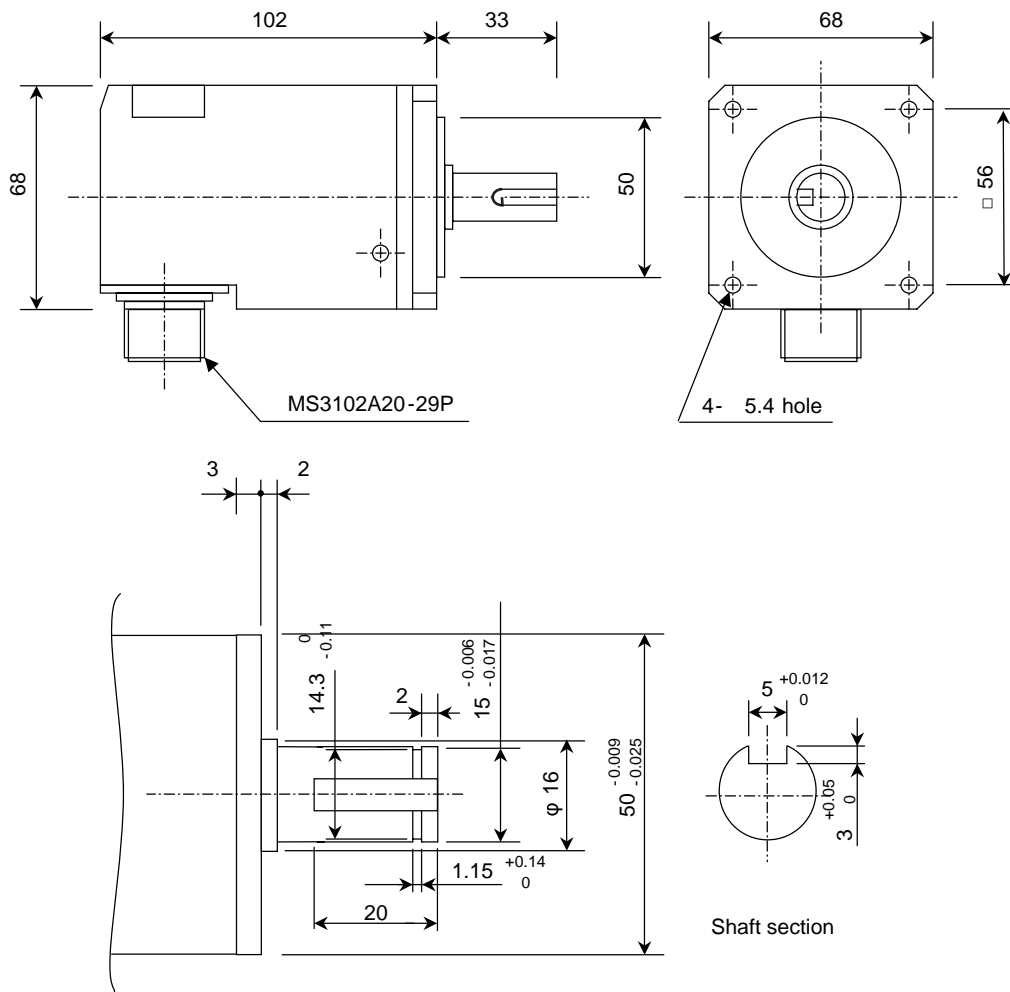
(2) Detection signals

Signal name	Number of detection pulses
A, B phase	1024p/rev
Z phase	1p/rev

Connector pin layout

Pin	Function	Pin	Function
A	A phase	K	0V
B	Z phase	L	-
C	B phase	M	-
D	-	N	A phase
E	Case earth	P	Z phase
F	-	R	B phase
G	-	S	-
H	+5V	T	-
J	-		

(3) Outline dimension drawings



[Unit: mm]

Spindle side detector (OSE-1024-3-15-68, OSE-1024-3-15-68-8)

C axis detector (HEIDENHAIN ERM280)

Highly accurate C axis control is possible by connecting HEIDENHAIN incorporable rotary encoder ERM280 series. ERM280 series encoder provides with high environmental resistance due to the magnetic memory drum. The spindle motor to be incorporated with is a built-in type, so the motor specifications must be considered, as well.

Note that HEIDENHAIN serial interface unit APE391M must be purchased as it is required for connecting ERM280 series to the MDS-D/DH drive unit.



Incorporable rotary encoder
ERM280 series



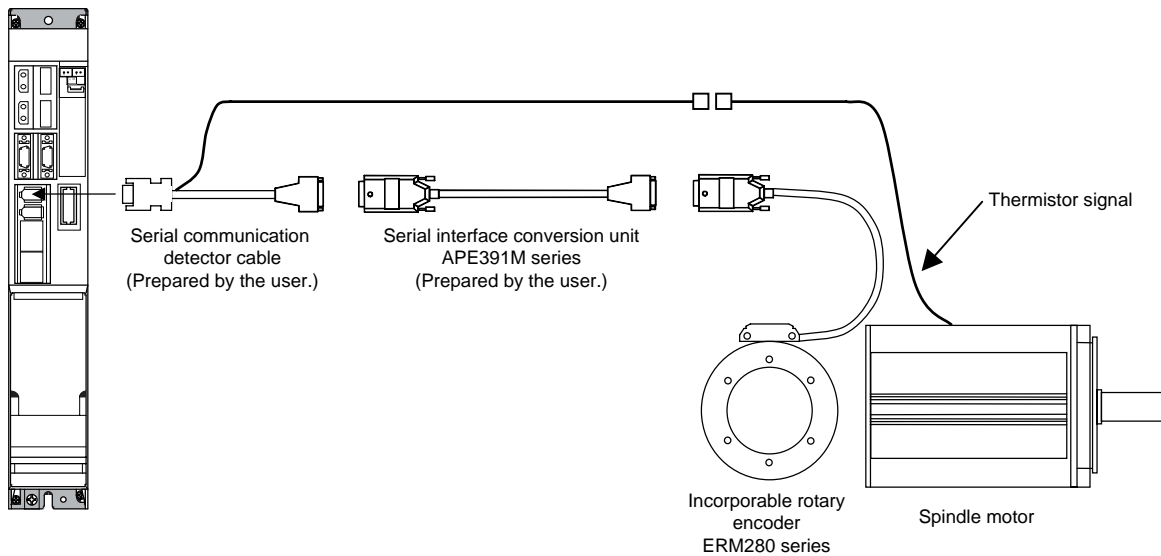
Serial interface conversion unit
APE391M series

(1) Procurement

ERM280 series and APE391M series must be purchased directly from HEIDENHAIN.

Contact: HEIDENHAIN CORPORATION <http://www.heidenhain.co.jp/>

(2) System overview



(3) Specifications

Type (Note 2)		ERM280 1024	ERM280 1200	ERM280 2048
Serial interface unit type		APE391M C2 1024	APE391M C0 1200	APE391M C2 2048
Electrical characteristics	Supply voltage ERM280	5V±10%		
	APE391M	5V±5%		
	Number of scale marks	1024	1200	2048
	Electrical tolerable rotation speed	17500r/min	15000r/min	8780r/min
	Combined resolution (Note 3) (Parameter setting value)	4,000,000P/rev	4,800,000P/rev	8,000,000P/rev
Mechanical characteristics	Drum inner diameter	80mm	120mm	180mm
	Drum outer diameter	128.75mm	150.88mm	257.5mm
	Mechanical tolerable rotation speed	13,000r/min	10,500r/min	6,000r/min
	Moment of inertia of rotary	$2.7 \times 10^{-3} \text{kg}\cdot\text{m}^2$	$3.5 \times 10^{-3} \text{kg}\cdot\text{m}^2$	$38 \times 10^{-3} \text{kg}\cdot\text{m}^2$
Use environment Drum section	Temperature range	-10 to 100 °C		
	Dust/water proof structure (IEC60529)	IP67		
	Weight Drum section	0.89kg	0.72kg	3.0kg
	Scanning head	0.15kg		

(Note 1) Specifications are subject to change. Confirm the details with HEIDENHAIN.

(Note 2) The above specifications are for some of the popular products of HEIDENHAIN.

For inquiries about the products having the number of scale marks other than those listed above, contact HEIDENHAIN directly.

(Note 3) Combined resolutions are not for the guarantee of the system accuracy.

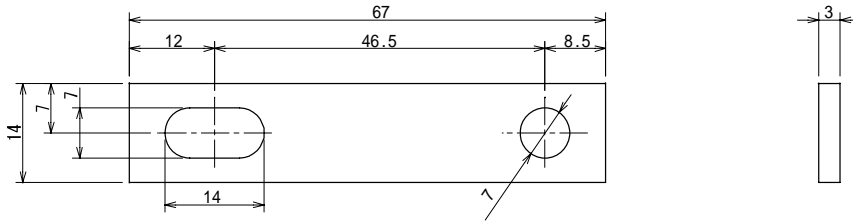
DC connection bar

When connecting a large capacity drive unit with L+L- terminal of power supply unit, DC connection bar is required. In use of the following large capacity drive units, use a dedicated DC connection bar. The DC connection bar to be used depends on the connected power supply, so make a selection according to the following table.

Large capacity drive unit	Power supply unit	Required connection bar
MDS-DH-SP-200 MDS-DH-SP-320 MDS-DH-SP-480	MDS-DH-CV-550 MDS-DH-CV-750	DH-BAR-A0606 (Two-parts set)
MDS-DH-V1-200 MDS-DH-SP-200 MDS-DH-SP-320	MDS-DH-CV-300 MDS-DH-CV-370 MDS-DH-CV-450	DH-BAR-B0606
MDS-DH-V1-200	MDS-DH-CV-185	DH-BAR-C0606

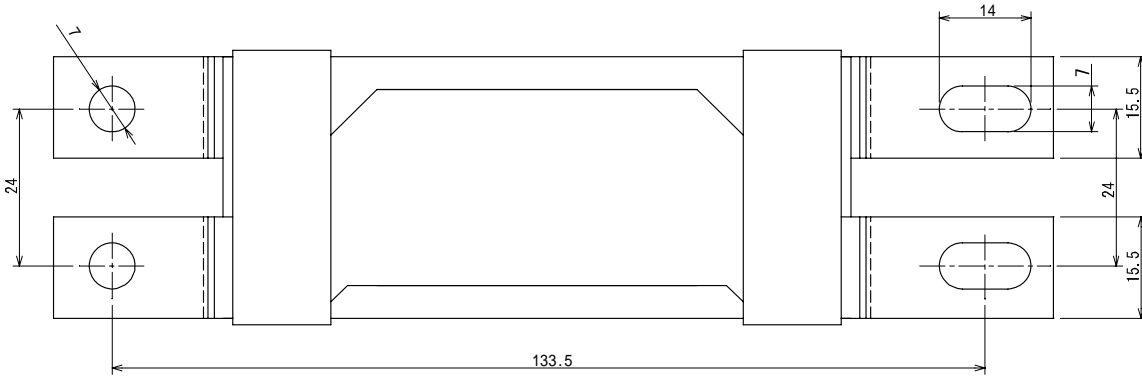
(1) Outline dimension drawings

- DH-BAR-A0606

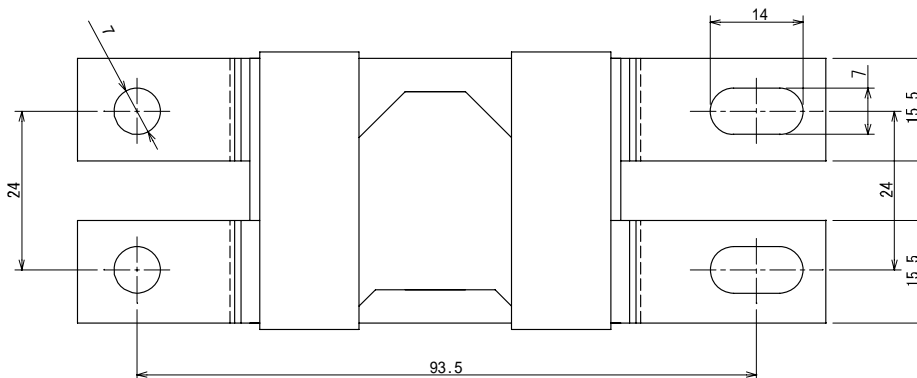


(Note) DH-BAR-A0606 is a set of two DC connection bars.

- DH-BAR-B0606



- DH-BAR-C0606



Always install a large capacity drive unit in the left side of power supply unit, and connect with DC connection bar.

Revision History

Date of revision	Manual No.	Revision details
Sep. 2007	IB(NA)1500273-C	First edition created.

Notice

Every effort has been made to keep up with software and hardware revisions in the contents described in this manual. However, please understand that in some unavoidable cases simultaneous revision is not possible.

Please contact your Mitsubishi Electric dealer with any questions or comments regarding the use of this product.

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MODEL	DATA BOOK
MODEL CODE	100—005
Manual No.	IB-1500273 (ENG)