

Servo Motor <HF-SP301, HF-SP421>

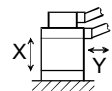
Medium inertia, medium capacity motor series 1000r/min, HF-SP301 and HF-SP421, have been added to the MELSERVO-J3 series. With the new rated output, 3kW and 4.2kW, the HF-SP series motors provide wider range of use. The HF-SP301 and HF-SP421 are typically suitable for material handling systems, robots or X-Y tables. The HF-SP301 and HF-SP421 also conform to the global standards (EN, UL, cUL standards).



■ Servo motor specifications

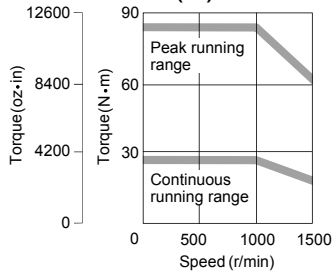
Servo motor model (Note 7)		HF-SP301(B)	HF-SP421(B)
Servo amplifier model (Note 6)		MR-J3-350A/B	MR-J3-500A/B
Power facility capacity (Note 1) (kVA)		4.8	6.3
Continuous running duty	Rated output (kW)	3.0	4.2
	Rated torque (N•m [oz•in])	28.6 (4050)	40.1 (5680)
Maximum torque (N•m [oz•in])		85.9 (12200)	120 (17000)
Rated speed (r/min)		1000	
Maximum speed (r/min)		1500	
Permissible instantaneous speed (r/min)		1725	
Power rate at continuous rated torque (kW/s)		84.6	104
Rated current (A)		16	24
Maximum current (A)		48	72
Regenerative braking frequency (times/min) (Note 2)		84	75
Moment of inertia J ($\times 10^{-4}$ kg•m ²) [J (oz•in ²)]	Standard	97.0 (530)	154 (842)
	With electromagnetic brake	107 (585)	164 (897)
Recommended load/motor inertia moment ratio		15 times the servo motor's inertia moment maximum (Note 3)	
Speed/position detector		18-bit encoder (Resolution per encoder/servo motor rotation: 262144p/rev)	
Attachments		– (Motors with an oil seal are available (HF-SP□U))	
Insulation class		Class F	
Structure		Totally enclosed non ventilated (protection level: IP67) (Note 4)	
Environment	Ambient temperature	0 to 40°C (32 to 104°F) (non freezing), storage: –15 to 70°C (5 to 158°F) (non freezing)	
	Ambient humidity	80%RH maximum (non condensing), storage: 90%RH maximum (non condensing)	
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust	
	Elevation	1000m or less above sea level	
	Vibration (Note 5)	X: 24.5m/s ² Y: 29.4m/s ²	
Mass (kg [lb])	Standard	22 (49)	32 (71)
	With electromagnetic brake	28 (62)	38 (84)

- Notes:
- The power facility capacity varies depending on the power supply's impedance.
 - The regenerative braking frequency shows the permissible frequency for decelerating the motor without a load and the optional regeneration unit from the rated speed to a stop.
 - Contact Mitsubishi if the load/motor of inertia moment ratio exceeds the value in the table.
 - The shaft-through portion is excluded.
 - The vibration direction is shown in the right-side diagram. The numeric value indicates the maximum value of the component (commonly the bracket in the opposite direction of the motor shaft). Fretting of the bearing occurs easily when the motor stops, so maintain vibration to approximately one-half of the allowable value.
 - The amplifier software version compatible with HF-SP301 and HF-SP421 is as follows:
A type: Version B0 or above B type: Version A0 or above
 - MRZJW3-SETUP221E software version B1 or above is planned to be compatible with HF-SP301 and HF-SP421.

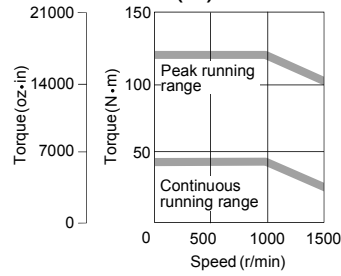


Servo motor torque characteristics

● HF-SP301(B) (Note)



● HF-SP421(B) (Note)

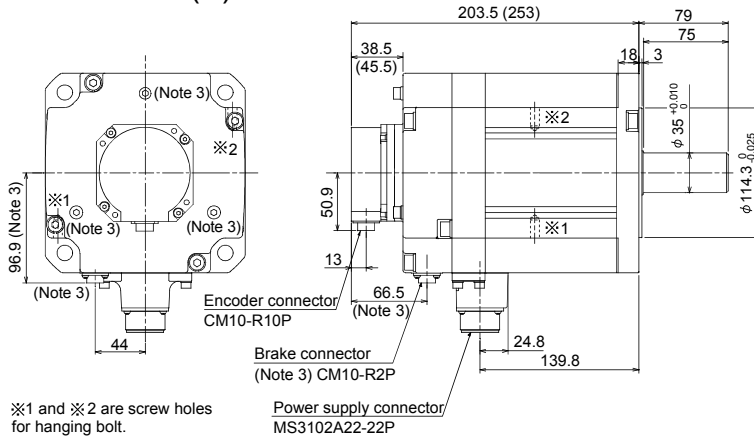


Note: ■ : For 3-phase 200VAC.

Servo motor dimensions

(Unit:mm)

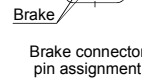
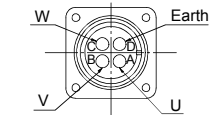
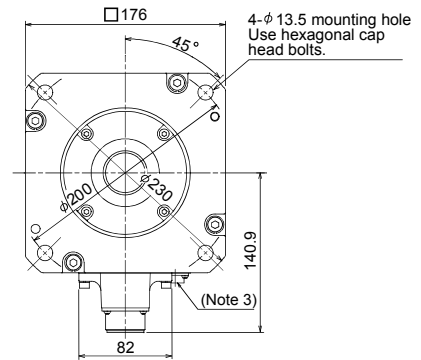
● HF-SP301(B)



※1 and ※2 are screw holes for hanging bolt.

Encoder connector CM10-R10P
Brake connector (Note 3) CM10-R2P
Power supply connector MS3102A22-22P

Model	Brake static friction torque (N·m [oz·in])
HF-SP301B	44 (6230)

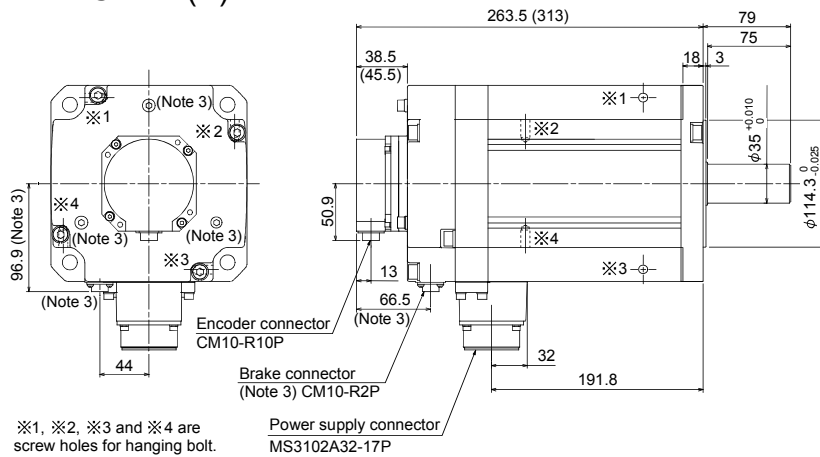


Brake connector pin assignment

Motor flange direction → (Note 3)

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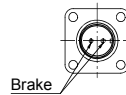
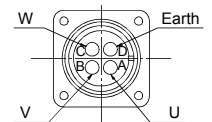
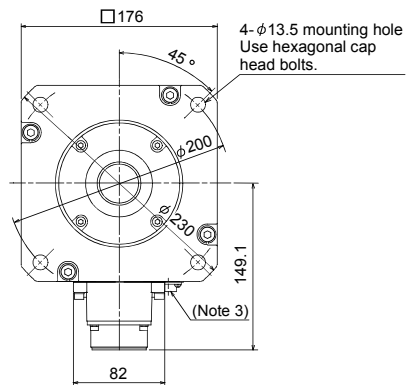
● HF-SP421(B)



※1, ※2, ※3 and ※4 are screw holes for hanging bolt.

Encoder connector CM10-R10P
Brake connector (Note 3) CM10-R2P
Power supply connector MS3102A32-17P

Model	Brake static friction torque (N·m [oz·in])
HF-SP421B	44 (6230)



Brake connector pin assignment

Motor flange direction → (Note 3)

Power supply connector pin assignment

Motor flange direction → (Note 3)

Notes: 1. Use a friction coupling to fasten a load.

2. Dimensions inside () are for the models with an electromagnetic brake.

3. Only for the models with an electromagnetic brake. The electromagnetic brake terminals do not have the polarity.

4. For dimensions where there is no tolerance listed, use general tolerance.