

**MDS-13 Series**

- Direct Drive Brushless AC Servo
- World's smallest direct drive motor
- 13mm diameter, 3 stack lengths
- Absolute encoder feedback



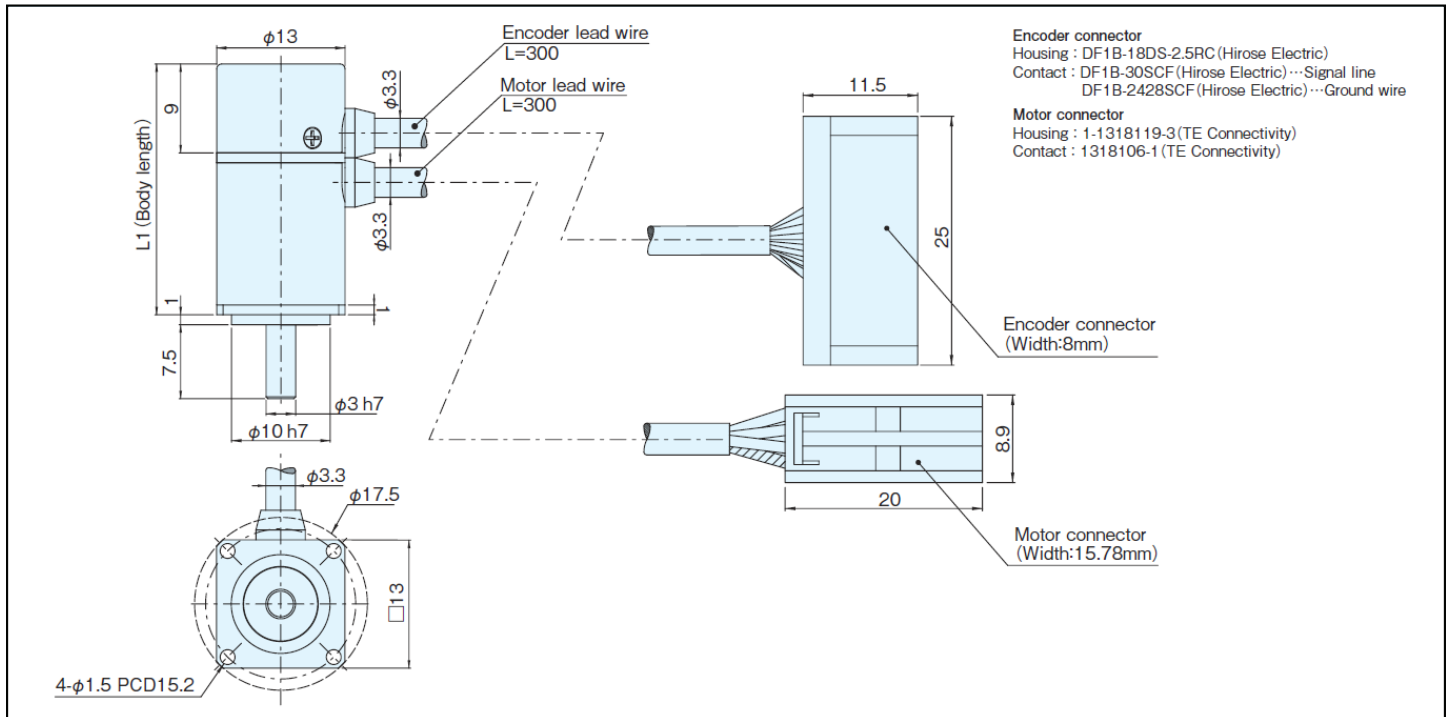
Visit [nipponpulse.com](http://nipponpulse.com) to download 3D CAD drawings and 2D prints of this motor.

Specifications	Unit	MDS-1306	MDS-1312	MDS-1318
Max Torque	mNm	7.0	15	25
Rated Torque	mNm	3.0	5.5	8.0
Continuous Rated Torque	mNm	3.0	5.0	7.5
Max Speed	rpm	3000		
Rated Speed	rpm	3000		
Max Encoder Resolution	P/R	Absolute: 2,048 (11 bit)		
Input Power (driver input)	VDC	24		
Peak Power	W	2.0	4.0	8.0
Peak Armature Current	Arms	2.6		
Rated Armature Current*	Arms	1.1	1.0	1.0
Voltage Constant	V/krpm	0.28	0.61	1.0
Torque Constant (at 25°C)	Nm/Arms	2.7	5.8	9.6
Line Armature Resistance (at 25°C)	Ω	1.1	1.8	2.5
Line Armature Inductance	mH	0.13	0.21	0.39
Rotor Poles	P	8		
Moment of Inertia (J)	g•cm <sup>2</sup>	0.11	0.17	0.23
Permissible Radial Load (Fr)	N	20		
Permissible Axial Load (Fa)	N	10		
Mass	kg	0.04	0.05	0.06
Standard Heatsink		55 x 55 x 4 Aluminum		

\* Rated armature current is the value measured with the standard heatsink attached to the motor at an ambient temperature of 40°C.

Encoder	Base Resolution	Interpolation Factors	Max. Resolution (post quad)
Absolute	18-bit	BiSS-C format	262,144

## MDS-13 Dimensions



### Standard Model

- MDS-13 $\Delta$ -11B (Absolute)

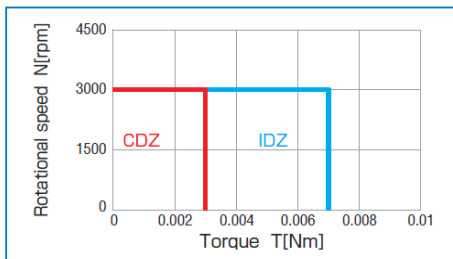
$\Delta$  = stack length indicator  
06, 12, 18

Model	Stack Length (L1)
MDS-1306	25.4 mm
MDS-1312	31.4 mm
MDS-1318	37.4 mm

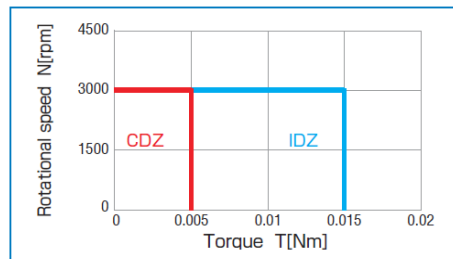
see drawings of motor dimensions on next page

### Performance Curves

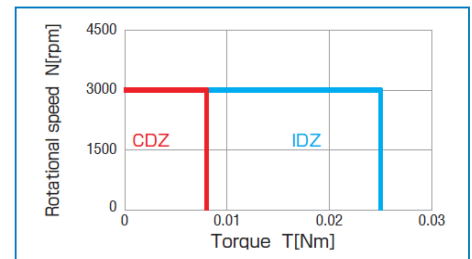
#### MDS-1306



#### MDS-1312



#### MDS-1318



CDZ = Continuous Duty Zone, IDZ = Intermittent Duty Zone

Performance curve based on MCC Drive, 24VDC input power

For assistance in selecting the best motor for your application, contact Nippon Pulse to speak with an applications engineer. 1-540-633-1677