

### MD□-20 Series

- Direct Drive Brushless AC Servo
- The smallest through-shaft servomotor in the world
- 21mm diameter, 3 stack lengths
- Incremental or absolute encoder feedback



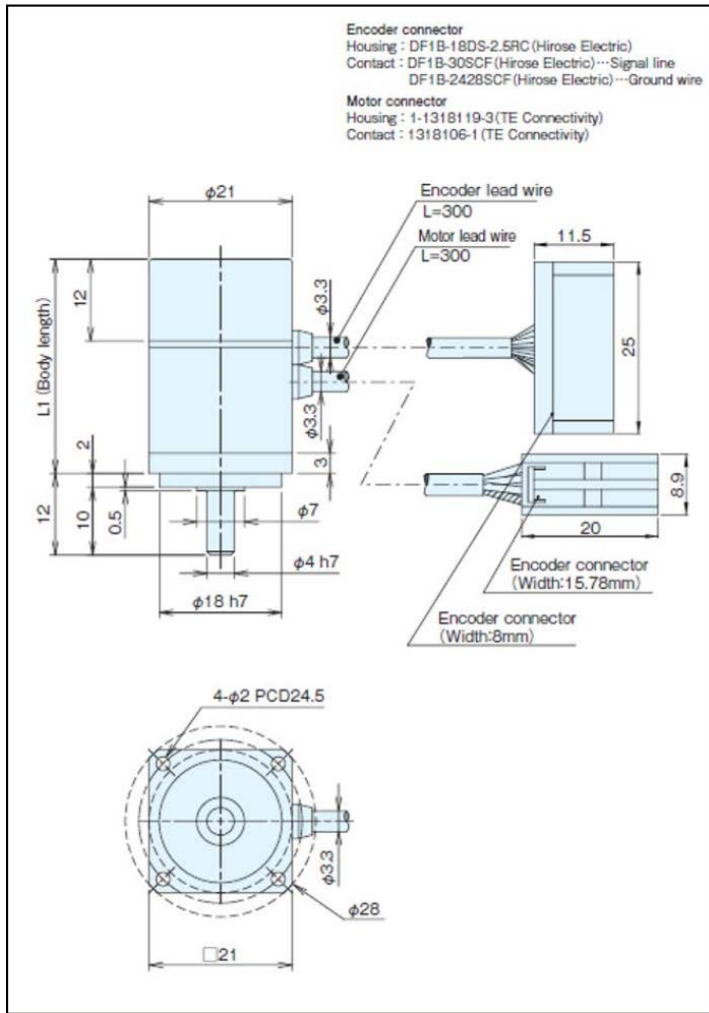
Visit [nipponpulse.com](http://nipponpulse.com) to download 3D CAD drawings and 2D prints of this motor.

Specifications	Unit	MDS-2006	MDH-2006	MDS-2012	MDH-2012	MDS-2018	MDH-2018
Body Length	mm	31.5		37.5		43.5	
Max Torque	Nm	0.04		0.09		0.13	
Rated Torque	Nm	0.017		0.030		0.040	
Continuous Rated Torque	Nm	0.014		0.026		0.030	
Max Speed	rpm	3000					
Rated Speed	rpm	1500					
Max Encoder Resolution	P/R	Incremental: 288,000 (multiplied by 4) / Absolute: 262,144 (18 bit)					
Input Power (driver input)	VDC	24					
Peak Power	W	5.0		10		17	
Peak Power Rate	kW/s	19	15	62	43	99	65
Peak Armature Current	Arms	2.6		4.3		5.6	
Rated Armature Current*	Arms	1.1		1.2		1.4	
Voltage Constant	V/krpm	1.6		2.5		2.4	
Torque Constant (at 25°C)	Nm/Arms	0.015		0.024		0.023	
Line Armature Resistance (at 25°C)	Ω	3.5		2.2		1.9	
Line Armature Inductance	mH	1.1		0.79		0.82	
Rotor Poles	P	10					
Moment of Inertia (J)	g·cm <sup>2</sup>	0.78	1.5	1.2	2.0	1.7	2.4
Permissible Radial Load (Fr)	N	44					
Permissible Axial Load (Fa)	N	22					
Load Reference Point Distance (La)	mm	29.8	28.5	35.7	34.5	41.7	40.4
Mass	kg	0.088		0.10		0.12	
Standard Heatsink		100 x 100 x 5 Aluminum					

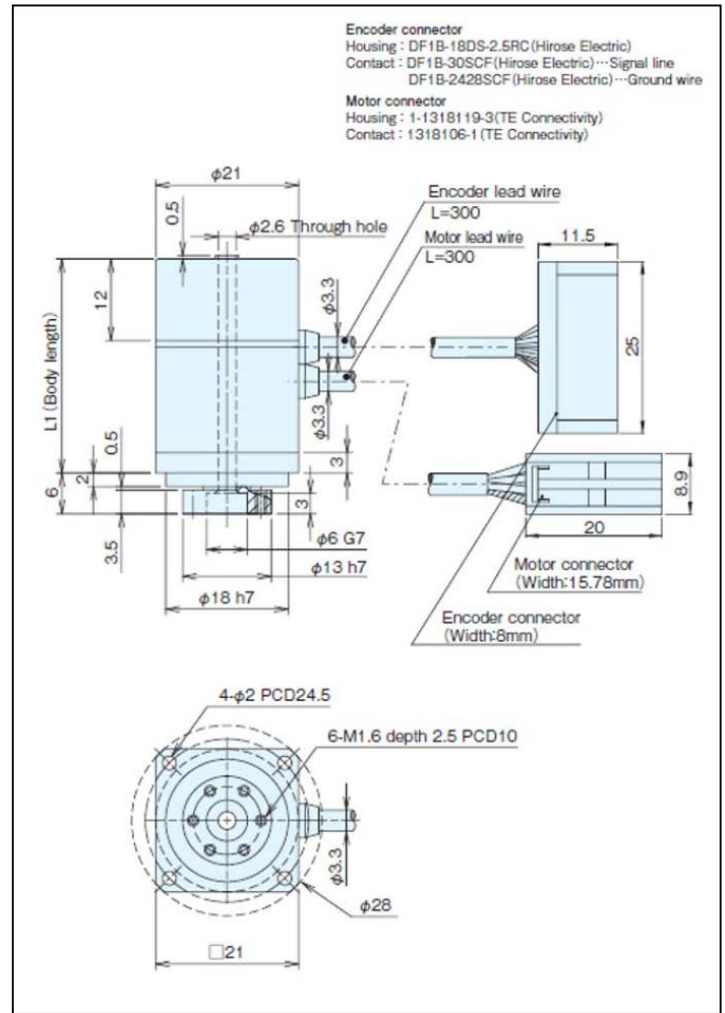
\* Rated armature current is the value measured with the standard heatsink attached to the motor at an ambient temperature of 40°C.

Encoder Options	Base Resolution	Interpolation Factors	Max. Resolution (post quad)
Incremental	1125	2, 4, 5, 8, 10, 16, 20, 32	144,000
	2250	20, 32	288,000
Absolute	18-bit	BiSS-C format	262,144

## MDS-20XX Dimensions



## MDH-20XX Dimensions



### Standard Models

- MD□-20△-36KE (Incremental)
- MD□-20△-18B (Absolute)

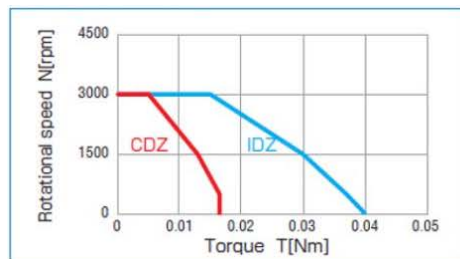
□ = shaft configuration    △ = stack length indicator  
S = solid shaft, H = hollow shaft    06, 12, 18

Model	Stack Length (L1)
MD□-2006	31.5 mm
MD□-2012	37.5 mm
MD□-2018	43.5 mm

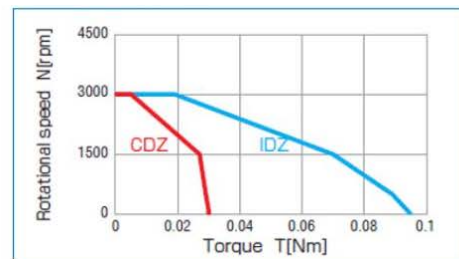
see drawings of motor dimensions on next page

### Performance Curves

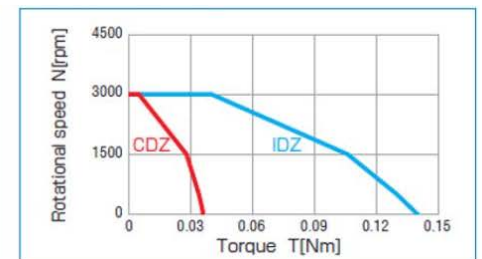
#### MD□-2006



#### MD□-2012



#### MD□-2018



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