

# Liberty MDrive 57mm Rotary Stepper Motor

Pulse & Direction NEMA 23 integrated 1.8°  
2-phase stepper motor & control electronics

UL LISTED CE RoHS REACH IP20/IP65



## PRODUCT OVERVIEW

Robust Liberty MDrive (LMD) Pulse/Direction products integrate 1.8° 2-phase stepper motors with on-board control electronics and hMT closed loop performance. Products have 4 modes of operation: pulse/direction input, variable speed control, constant velocity drive, and variable torque control.

With an RS-422/485 serial interface, settings can be downloaded and stored in nonvolatile memory. Commissioning, parameterization and monitoring is done via the user-friendly software provided.

Products may include an encoder, which is internal to the unit so no extra space is required. Encoders perform stall detection, position maintenance and find index mark, in addition to monitoring motor shaft position for real time closed loop feedback.

Especially well suited for industrial applications, products include an IP65 rated version with circular M12 connectors. A high torque motor (LMH•P57) is also available, increasing torque up to 50%.

Liberty MDrive products can reduce machine complexity, size and cost in many stepper and servo motor applications. Their high degree of integration can increase system reliability by reducing the number of individual components, eliminating multiple potential failure points.

## FEATURES AND BENEFITS

- Compact NEMA 23 1.8° 2-phase stepper motor integrated with control electronics, including programmable motion controller
- Standard Torque or Premium High Torque options
- Available in 1, 2, or 3 stack lengths
- Two (2) connection options available: Pluggable terminal and M12 circular. Pluggable model is IP20 rated, M12 circular connector model is IP20 or IP65 rated with proper motor shaft sealing
- RS-422/485 Serial Interface communication
- User interface available for download, providing quick & easy commissioning
- Incremental magnetic encoder available
- Operating temperature of -20 to 50 °C (-4 ... 122 °F)
- Nominal operating voltage: 24/48 VDC  
Maximum Current: 3.5A
- User selectable Temperature Warning (Range: 0° - 84° C (32° - 183.2° F))
- 4 year conditional warranty



Additional setup, quick reference information, and supporting documents are available for download from the Novanta IMS download website <https://novantaims.com/downloads/>

Three-dimensional depictions of this product are available for download from <https://novantaims.com/downloads/3dconfigurator/>



To select from the available features and build the LMD integrated stepper motor to fit your needs, use the Novanta IMS part number builder, available online at <https://novantaims.com/resources/part-number-builders/>

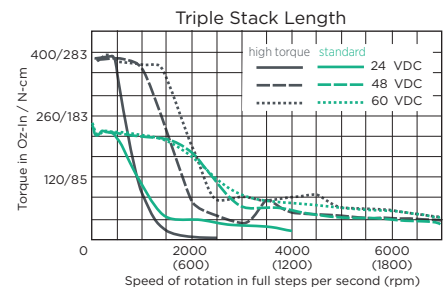
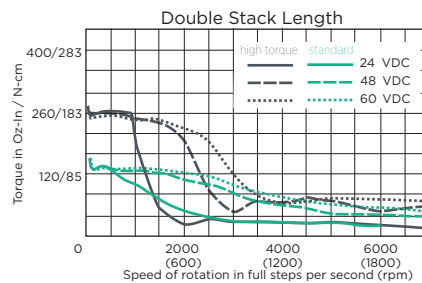
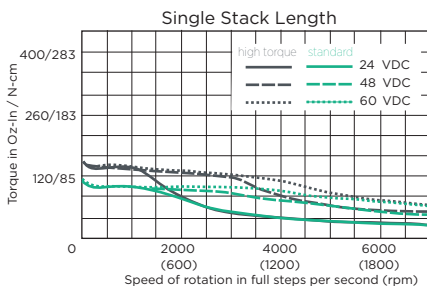
# LMDP•57 Pulse & Direction

## Motor Performance













		LMD•57 Standard Torque			LMH•57 High Torque		
Motor	Stack length	Single	Double	Triple	Single	Double	Triple
Holding torque	oz-in	103	159	242	152	264	416
	N-cm	73	112	171	107	186	294
Detent torque	oz-in	3.9	5.6	9.7	8.5	14.2	21.2
	N-cm	2.7	3.9	6.9	6.0	10	15
Rotor inertia	oz-in-sec <sup>2</sup>	0.0025	0.0037	0.0065	0.0019	0.0030	0.0065
	kg-cm <sup>2</sup>	0.18	0.26	0.46	0.14	0.22	0.46
Radial load limit, center of shaft	lbs	15	15	15	15	15	15
	kg	6.8	6.8	6.8	6.8	6.8	6.8
Axial load limit @ 1500rpm (5000 full steps/sec)	lbs	20	20	20	20	20	20
	kg	9	9	9	9	9	9
Weight (motor+driver)	oz	26.4	31.2	44.0	26.4	31.2	44.0
	g	748	885	1247	748	885	1247

## LM•57 NEMA 23 Speed Torque

Test conditions: 100% current with damper simulating load



## Accessories

Description	Length feet (m)	Part Number	Description	Length feet (m)	Part Number
 <b>Communication Converter</b> USB-pluggable converter to set/program communication parameters in 32- or 64-bit Windows® Mates to DB9 connector	6.0 (1.8)	MD-CC404-000	 <b>Straight Configuration Cordsets (IP65)</b> Shielded cables pre-wired with straight M12 mating connectors		
 Mates to M12 5-pin female connector	6.0 (1.8)	MD-CC405-000	 Communication cordset w/ leads, mates to 5-pin female connector	10.0 (3.0)	MD-CS600-000
 <b>Cable Accessory Kit (IP65)</b> Kits for M12 products			 I/O cordset w/ leads, mates to 12-pin female connector	10.0 (3.0)	MD-CS630-000
 Includes two M12 screw plugs and one sealing cap	—	CK-16	 Power cordset w/ leads, mates to 4-pin male connector	10.0 (3.0)	MD-CS620-000
 <b>Replacement Mating Connector Kit (IP20)</b> Kits for pluggable products			 <b>Right Angle Configuration Cordsets (IP65)</b> Shielded cables pre-wired with right angled M12 mating connectors		
 Includes one 2-pin power mate, and two 7-pin multifunction mates	—	CK-14	 Power cordset w/ leads, mates to 4-pin male connector	10.0 (3.0)	MD-CS621-000