

Industrial Linear Stages with Brushless Motor

IDL165-BL SERIES



The mid-travel IDL-BL industrial-grade linear stages feature a ballscrew and brushless motor drive for high duty cycle and high throughput applications. They are configurable in XY or XYZ stacks.

Industrial-Level Build and Performance

The IDL-BL line is designed with side-bands, a hard cover and air purge, which equates to IP50 level dust protection. IDL-BL stages are ideal for industrial use where the environment is not well-controlled. The focus for the IDL-BL is high through-put, heavy load capacity, and extreme reliability.

High Efficiency, Brushless DC Torque Motor

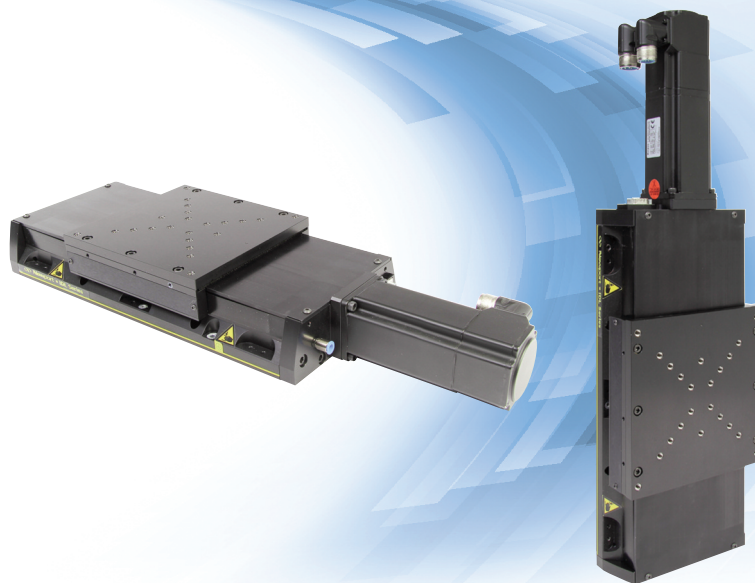
A high efficiency brushless DC torque motor with rare-earth magnets supplies an optimum ratio of torque per inertia for high acceleration, with minimal stage heating. At maximum continuous torque, the temperature of the motor increases by only 30°C.

Compatible With Industrial Controllers

The IDL-BL linear stage is designed to work with industrial controllers such as the XPS Universal Motion Controller, ACS Industrial Motion Controller, and other third party controllers.

Easy Direct Mounting of XY Stack Configurations

The IDL-BL industrial stages are designed for easy direct mounting of XY configurations using common hole patterns. In addition, IDL-BL stages feature both imperial and metric mounting hole patterns allowing for flexible mounting on standard optical tables or custom granite bases.



- 50 mm or 300 mm travel range
- High efficiency, brushless DC motor - speeds up to 300 mm/s
- Easy direct mounting of XY or XYZ configurations
- Compatible with many industrial controllers
- Optional brake available

DESIGN DETAILS

Base Material	Aluminum
Bearings	Recirculating caged ball bearings
Drive Mechanism	5 mm ball screw and brushless DC motor
Feedback	Motor mounted rotary encoder
Limit Switches	Positive and Negative End-Of-Run -5 V
Origin	Optical
Cable	4.5 m Connectorized, optional cable management

SPECIFICATIONS

	IDL165-150BL IDL165-150BLBK	IDL165-300BL IDL165-300BLBK
Travel Range (mm)	150	300
Minimum Incremental Motion ⁽²⁾ (µm)		0.5
Bidirectional Repeatability ⁽¹⁾ , (Guaranteed) (µm)		(±1.0)
Accuracy ⁽¹⁾ , Typical (Guaranteed) (µm)	±1.0 (±3.0)	(±5.0)
Origin Repeatability (µm)		±0.5
Maximum Speed (mm/s)		300
Max. Acceleration (m/s ²)		5
Moving Mass (kg)		2.5
Normal Center Load Capacity (N)		450
Axial Load, Continuous (N)		250
Pitch ⁽¹⁾⁽³⁾ , (Guaranteed) (µrad)	(±15)	(±30)
Yaw ⁽¹⁾⁽³⁾ , (Guaranteed) (µrad)	(±15)	(±30)
Straightness/Flatness (µm)	±1.0/±2.0	±2.0/±4.0

¹⁾ For the definition of Typical and Guaranteed specifications see "Motion Basics Terminology & Standards" Tutorial at www.newport.com

²⁾ Driver dependent.

³⁾ To obtain arcsec units, divide µrad value by 4.8.

Optional Brake

Models with optional brake are available. The brake is required for vertical applications to carry as much as 12 kg loads like laser heads or optical assemblies.

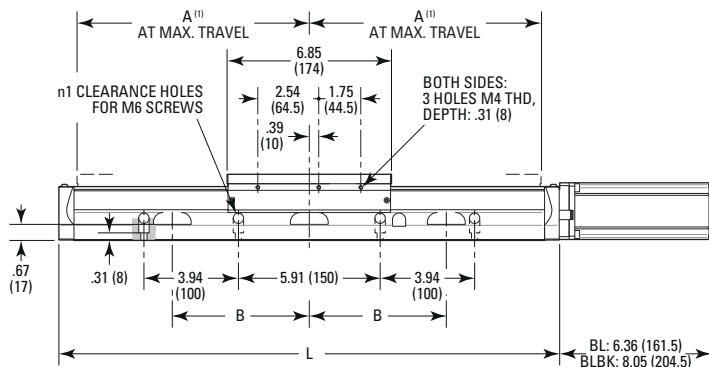
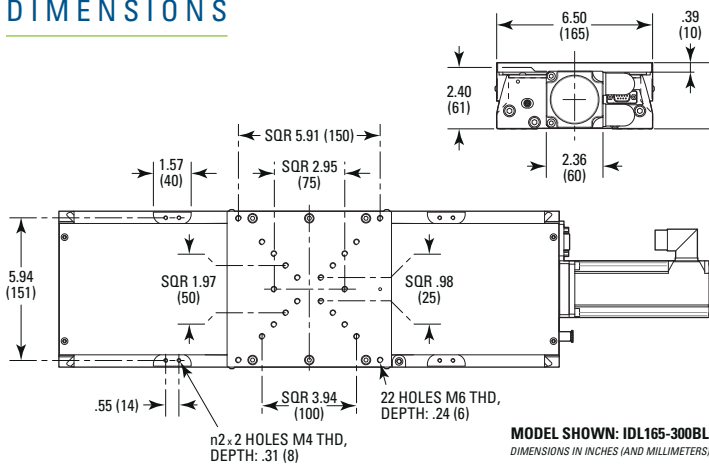
Reliable Stage Delivery

Just like any other Newport product, the IDL-BL series can be ordered both from stock or under a blanket schedule. This ensures that OEMs meet their commitments.

RECOMMENDED CONTROLLERS/DRIVERS

Model	Description
XPS-D	1- to 8-axis universal high-performance motion controller/driver
XPS-DRV11	Universal digital driver card for stepper, DC and direct motors
XPS-RL	1- to 4-axis universal high-performance motion controller/driver
XPS-DRV01	PWM drive module for DC brush and stepper motors, 3 A/43 V max.
XPS-DRV03	High performance PWM drive module for DC motors, 5 A/43 V max.

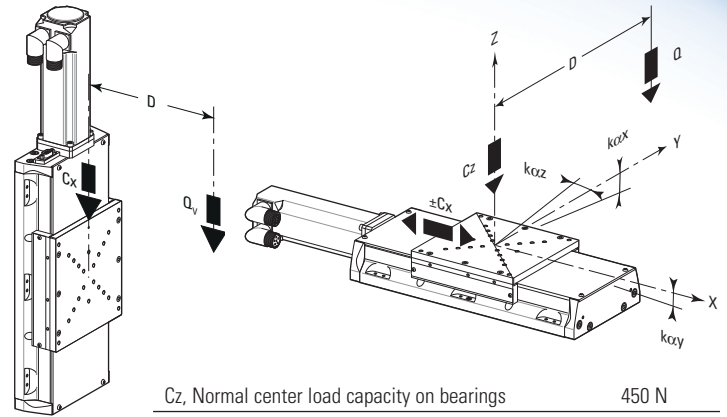
DIMENSIONS



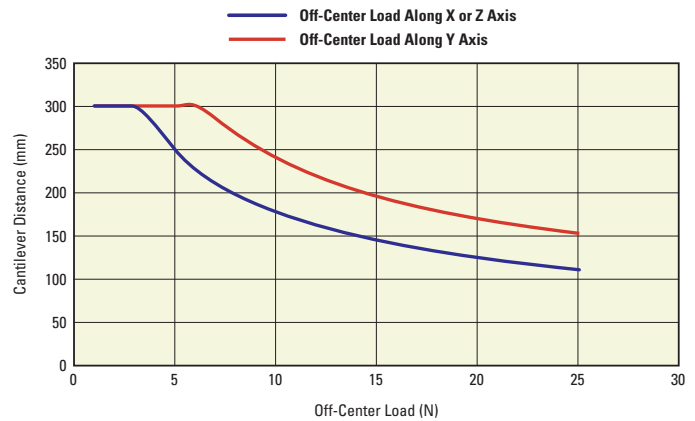
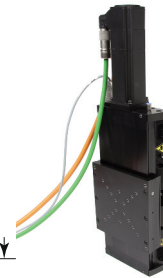
MODEL	TRAVEL	L	A ⁽¹⁾	n1	B	n2
IDL165-150BL(BK)	5.91 (150)	14.94 (379.5)	6.71 (170.3)	4	5.71 (145)	6
IDL165-300BL(BK)	11.81 (300)	20.85 (529.5)	9.66 (245.3)	8	5.71 (145)	6

⁽¹⁾ INCLUDING OVER-TRAVEL ALLOWED BY THE HARD STOP.

LOAD CHARACTERISTICS AND STIFFNESS



Cz, Normal center load capacity on bearings	450 N
±Cx, Continuous axial load capacity	250 N
kcx, Angular stiffness (Roll)	0.3 μrad/Nm
kcy, Angular stiffness (Pitch)	0.4 μrad/Nm
kcz, Angular stiffness (Yaw)	0.4 μrad/Nm
Q, Off-center load:	Max. values for the normal center load (Cz) and the off-center load (Q) are given in the graphs below



ORDERING INFORMATION

Model	Description
IDL165-150BL	Industrial-Grade Linear Stage, 150 mm Travel, 165 mm Width, Brushless DC Motor
IDL165-150BLBK	Industrial-Grade Linear Stage, 150 mm Travel, 165 mm, Brushless DC Motor, Brake
IDL165-300BL	Industrial-Grade Linear Stage, 300 mm Travel, 165 mm Width, Brushless DC Motor
IDL165-300BLBK	Industrial-Grade Linear Stage, 300 mm Travel, 165 mm, Brushless DC Motor, Brake

Notes: For other travel ranges, contact Newport.
Cable management and counterweight options available.



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