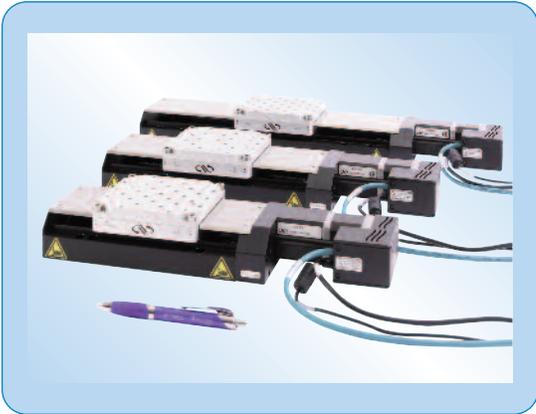


FCL Series

INTELLIGENT STEPPER MOTOR LINEAR STAGES



- Value-engineered
- Proven and robust construction
- Space-saving (iPP integrated step motor and controller)
- Plug and play
- Easy connection to the iPP graphical user interface via USB or directly via RS-422

The FCL linear stage line is an evolution of the industry proven ILS stage. Building on the robust construction of recirculating ball technology in the guide and screw, the ILS was value engineered, keeping only the features necessary for everyday precision positioning needs. This and the addition of an integrated stepper motor/controller makes the FCL the ultimate choice in user-friendly precision stages.

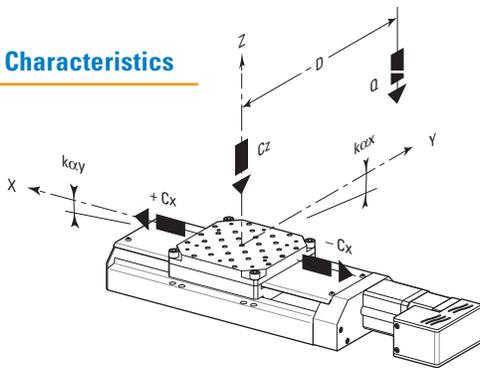
The FCL line incorporates similar stepper controller technology found in the popular SMC and ESP301 controllers and extended this further by integrating the electronics into the stepper motor housing, resulting in the Newport-proprietary iPP intelligent stepper motor. Similar to the successful CONEX concept for DC motors, iPP technology completely eliminates controller or driver set up. Just connect power and communication and install the GUI. Up to 4 FCL units can be daisy-chained and controlled with the same GUI.

FCL stages come with guaranteed performance and quality that is expected from Newport Motion products, which you can always rely on.

Design Details

Base Material	Aluminum
Motor	Integrated iPP 2-phase step motor and controller/driver
Drive Mechanism	Backlash-free ball screw
Drive Screw Pitch (mm)	2
Bearings	Recirculating ball bearings
Limit Switches	Optical
Origin	Optical at center of travel
Communication	RS422, USB
Cable	Cables and power supply sold separately. Refer to the next page for details

Load Characteristics



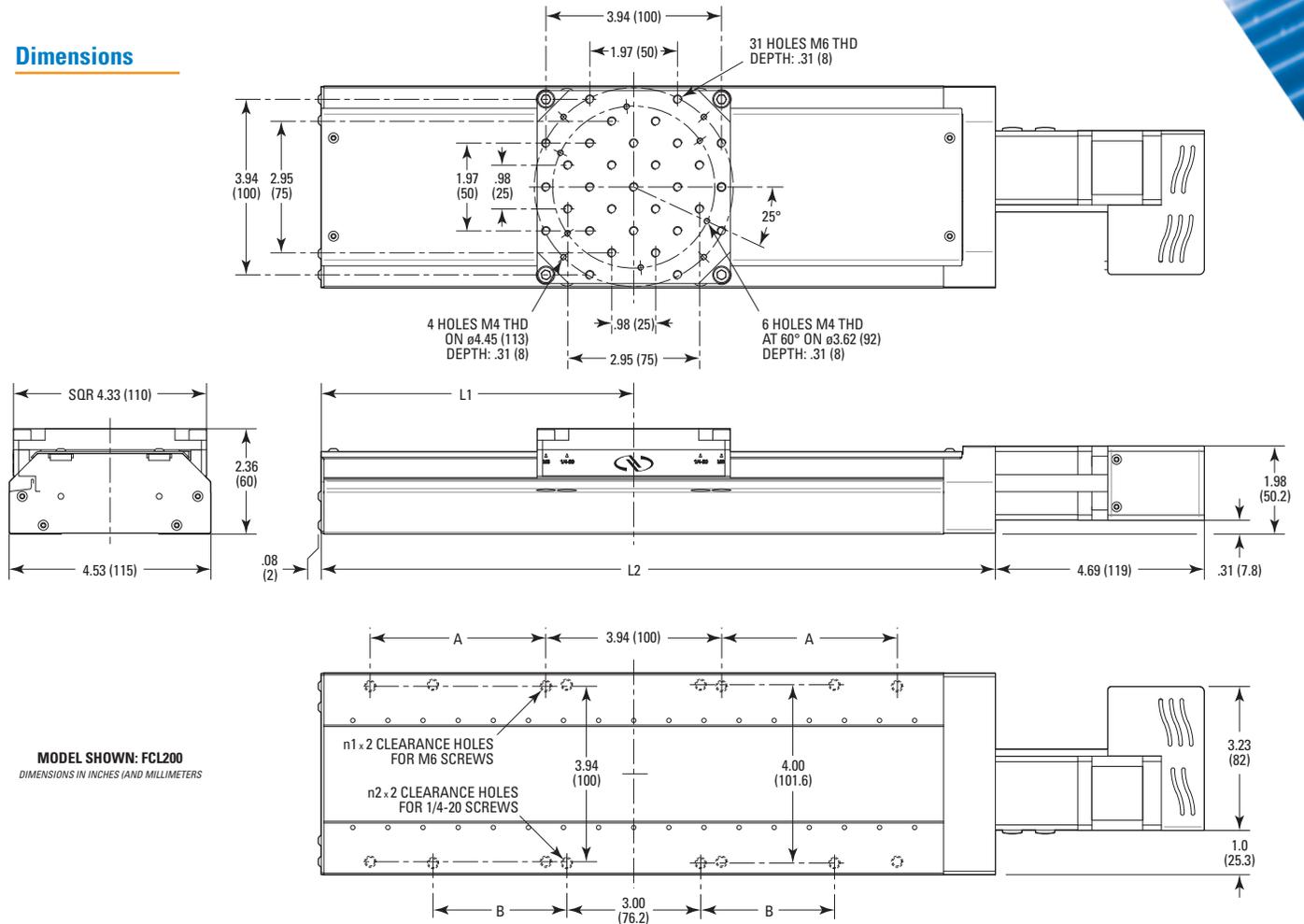
Cz, Normal center load capacity on bearings	250 N
Cx, Axial load capacity	40 N
kαx, Angular stiffness (Roll)	15 μrad/Nm
kαy, Angular stiffness (Pitch)	10 μrad/Nm
kαz, Angular stiffness (Yaw)	10 μrad/Nm
Q, Off-center load	$Q \leq C_z / (1 + D/60)$
D, Cantilever distance in mm	

Specifications

	FCL50	FCL100	FCL200
Travel Range (mm)	50	100	200
Minimum Incremental Motion (μm)		0.15	
Uni-directional Repeatability (μm)	1.5	2	2
Bi-directional Repeatability ⁽¹⁾ (μm)	4.5 or ±2.25	5 or ±2.5	5 or ±2.5
On-Axis Accuracy ⁽¹⁾ (μm)	4 or ±2	5 or ±2.5	10 or ±5
Maximum Speed (mm/s)		20	
Pitch ⁽¹⁾ , αy (μrad)	50 or ±25	100 or ±50	200 or ±100
Yaw ⁽¹⁾ , αz (μrad)	70 or ±35	100 or ±50	160 or ±80
MTBF (h)	20,000 with a 1 kg at 50% duty cycle		

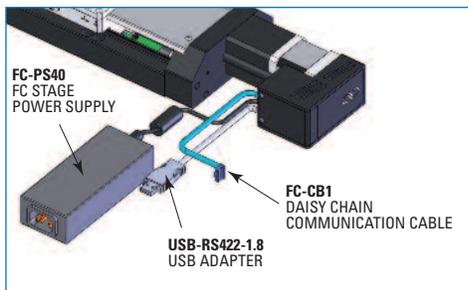
¹⁾ Shown are peak to peak, guaranteed specifications or ± half the value as sometimes shown. The typical specifications are about 2X better than the guaranteed values.

Dimensions



MODEL SHOWN: FCL200
DIMENSIONS IN INCHES (AND MILLIMETERS)

MODEL	A	n1	B	n2	L1	L2
FCL50	-	2	-	2	4.06 (103)	9.21 (234)
FCL100	-	2	-	2	5.04 (128)	11.18 (284)
FCL200	3.94 (100)	4	3.0 (76.2)	4	7.01 (178)	15.12 (384)



Use the FC-CB1 to daisy chain communication between axis.

Ordering Information

Model	Description
FCL50	50 mm Travel Stage
FCL100	100 mm Travel Stage
FCL200	200 mm Travel Stage
FC-PS40	FC Stage Power Supply (Cable Length: 1.75 m)
USB-RS422-1.8	USB Adapter (Cable Length: 1.8 m)
FC-CB1	Daisy Chain Communication Cable (Cable Length: 1 m)

Note: Power supply and cables are sold separately.



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