

PCL65 with 300mm travel



Features

- Travel to 600mm
- 5mm or 10mm lead ballscrew drivetrain
- 60kg payload capacity
- NEMA23 motor mount
- Limit sensors
- Compatible with PLG160 mounting pattern
- 65mm tall single axis, 130mm tall XY stack
- PCL50 mounts directly to carriage for XY stack
- All stages tested for specification compliance

Overview

Primatics PCL65 series are value priced, high precision linear motion stages. A backlash free precision ground ballscrew drivetrain provides precise positioning over travels of 50 to 600mm. The NEMA23 motor mount supports common servo or stepper motors.

Applications

The PCL65 series is ideal for applications such as precision assembly, inspection and material handling. They can be used individually or directly stacked for XY configurations.

Features

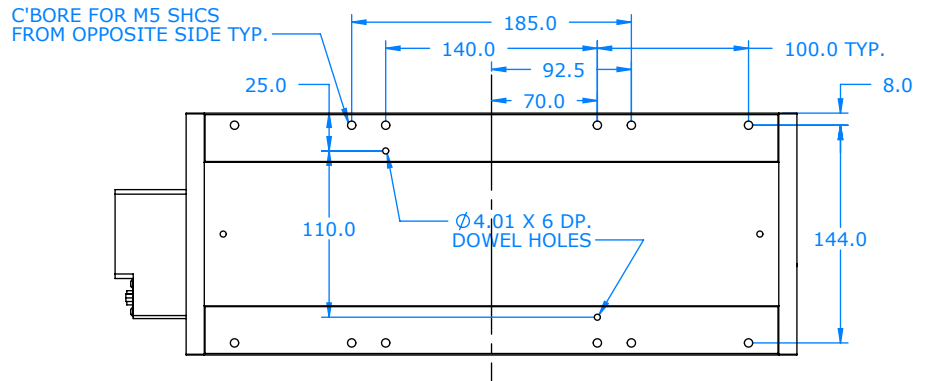
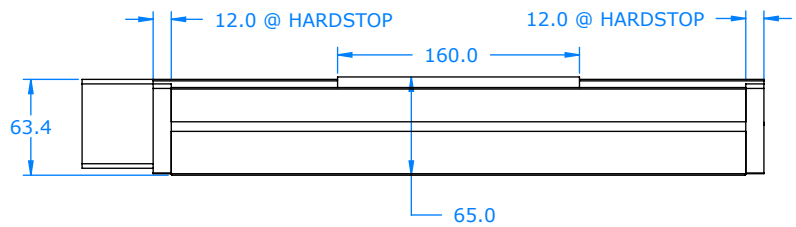
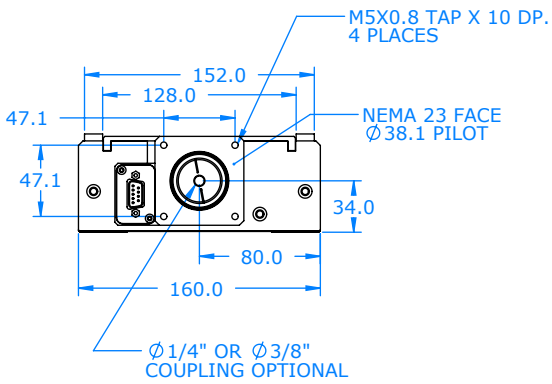
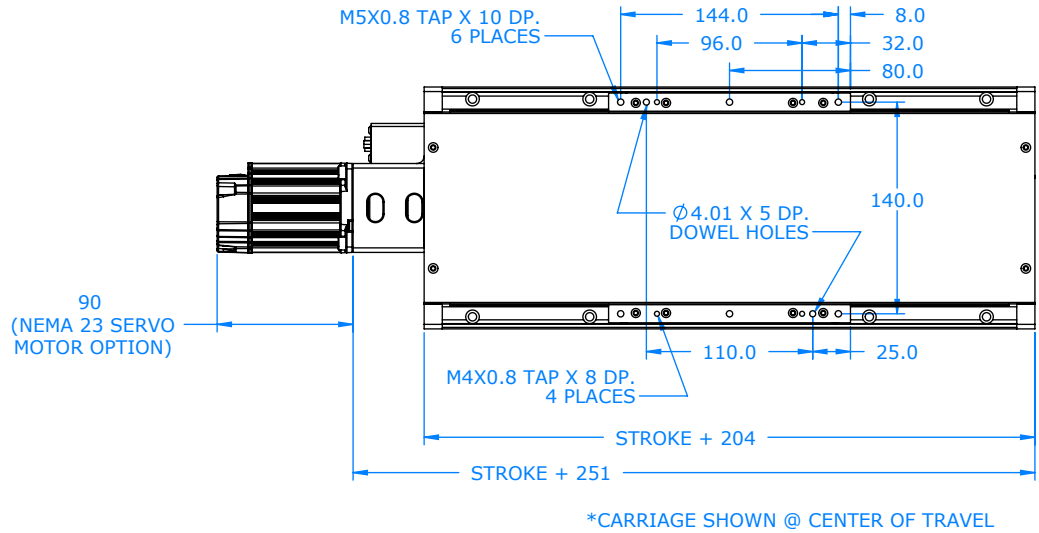
Standard features include forward and reverse limit sensors, standard NEMA23 motor mount, and a protective hard cover. The mounting patterns are compatible with the Primatics PCL50 and PLG160 linear stages and the PDR160 rotary stages.

Options

The ballscrew drivetrain has a 5mm lead. A 10mm lead ballscrew is optional. A high performance brushless servo motor with 4000 line encoder is a standard option or the user can supply their own NEMA23 motor and/or coupler.



Dimensions



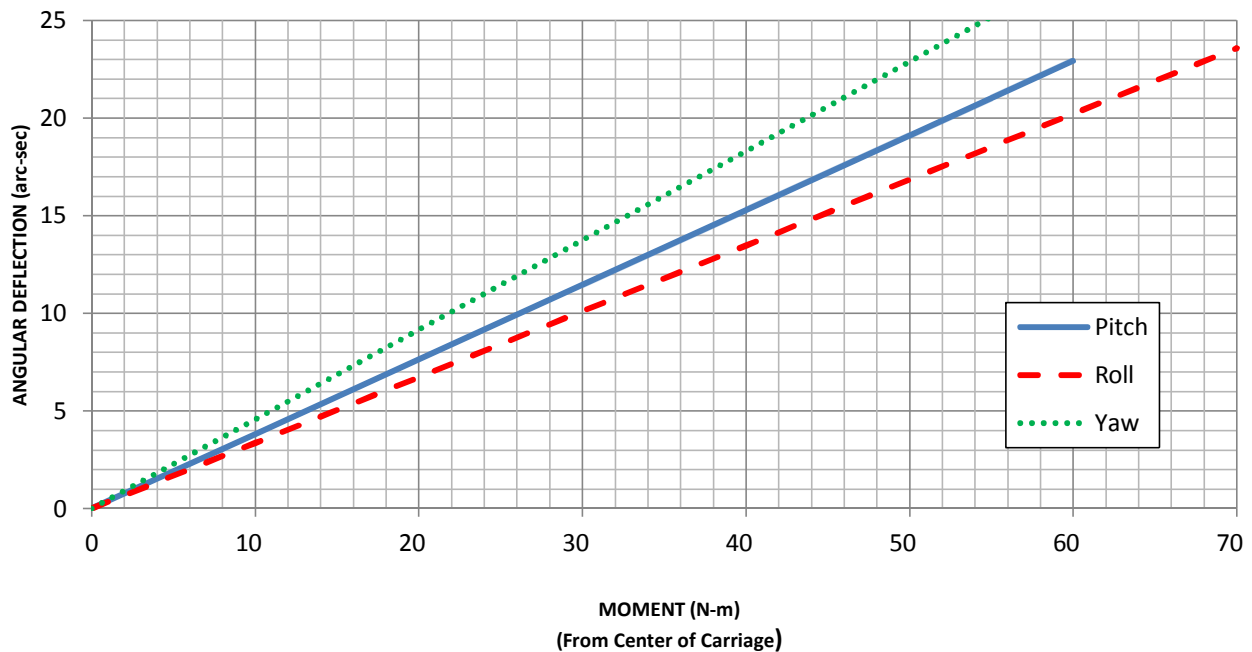
Specifications

Specifications	Notes	PCL65-050	PCL65-100	PCL65-200	PCL65-300	PCL65-400	PCL65-600
Travel (mm)		50	100	200	300	400	600
Positional Accuracy Over Total Travel (μm)	1, 2, 3, 5	+/- 5	+/- 6	+/- 7	+/- 8	+/- 9	+/- 10
Bi-directional Repeatability (μm)	1, 2	5mm lead +/- 1 ; 10mm lead: +/- 1.5					
Straightness of Travel Over Total Travel (μm)	2, 5	+/- 4	+/- 4	+/- 6	+/- 7	+/- 8.5	+/- 10
Flatness of Travel Over Total Travel (μm)	2, 5	+/- 4	+/- 4	+/- 6	+/- 7	+/- 8.5	+/- 10
Max Speed (mm/sec)		300 with 5mm lead, 600 with 10mm lead					
Direct Loading Capacity (kg)		60					
Rotational Inertia ($\text{kg}\cdot\text{m}^2$)	4	2.06E-05	2.26E-05	2.67E-05	3.08E-05	3.48E-05	4.29E-05
Pitch Moment Capacity (N-m)	5	60					
Roll Moment Capacity (N-m)	5	69					
Yaw Moment Capacity (N-m)	5	55					
Stage weight (kg)	4	6.0	6.8	8.3	9.9	11.5	14.6

Notes: 1 - Measured with NEMA23 servo motor with 16000 cts/rev; 2 - Measured 50mm above center of carriage; 3 - Slope corrected; 4 - With coupling and without motor; 5 - Stage affixed to flat continuous surface. All specifications subject to change without notice.

Stage Information	PCL65
Maximum Acceleration (G's, unloaded)	0.6
Maximum Allowable Drivetrain Torque (N-m)	1.6
Breakaway Torque (N-m)	0.12
Running Torque (N-m)	0.1
Life at Listed Specifications (Km)	5000

Carriage Stiffness



Motor / Encoder, Limit Data

Parameter	Notes	Value
Servo Motor (option M2)		
Motor Type		Brushless Servo
Continuous Torque (N-m)	1	0.46
Continuous Current (Arms)	1	3.9
Peak Torque (N-m)	2	0.9
Peak Current (Arms)	2	7.5
Torque Constant (N-m/Arms)		0.12
Back EMF Constant (V/Krpm)		11.7
Winding Resistance (ohms)		0.62
Winding Inductance (mH)		0.92
Thermal Resistance (C/W)		1.7
Poles		8
Rotor Inertia (kg-m ²)		1.41 E-5
Hall Sensor Power		5 to 24VDC, 50mA
Hall Outputs		Open collector, current sinking, 20mA max
Weight (kg)		0.93
Encoder (option M2)		
Encoder power		5VDC +/- 5%, 150mA
Output		Square wave differential line driver
Index		Synchronized pulse, duration equal to one resolution bit
Limit Sensors		
Limit Power		5 to 24VDC, 50mA
Output - L1 and L2 options		Current sinking, 100mA max
Brake option		Apply 24VDC, 200mA to release brake

Notes: 1 - At 25°C maximum temperature rise; 2 - At 10% duty cycle and 1 second maximum. All specifications subject to change without notice.

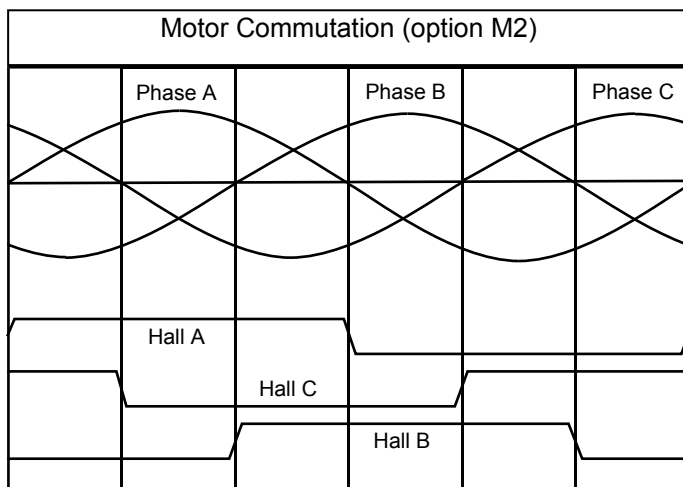


PCL50 on PCL65 XY stack,

Connectors

Limits	
Connector Type: Dsub, 9 pins Mates with Dsub, 9 sockets	
Pin	Function
1	Limit Power
2	Limit Power Return and Signal Common
3	Forward Limit - Activates at Full Forward Travel
4	Reverse Limit - Activates at Full Reverse Travel
5	No connection
6	No connection
7	No connection
8	No connection
9	No connection

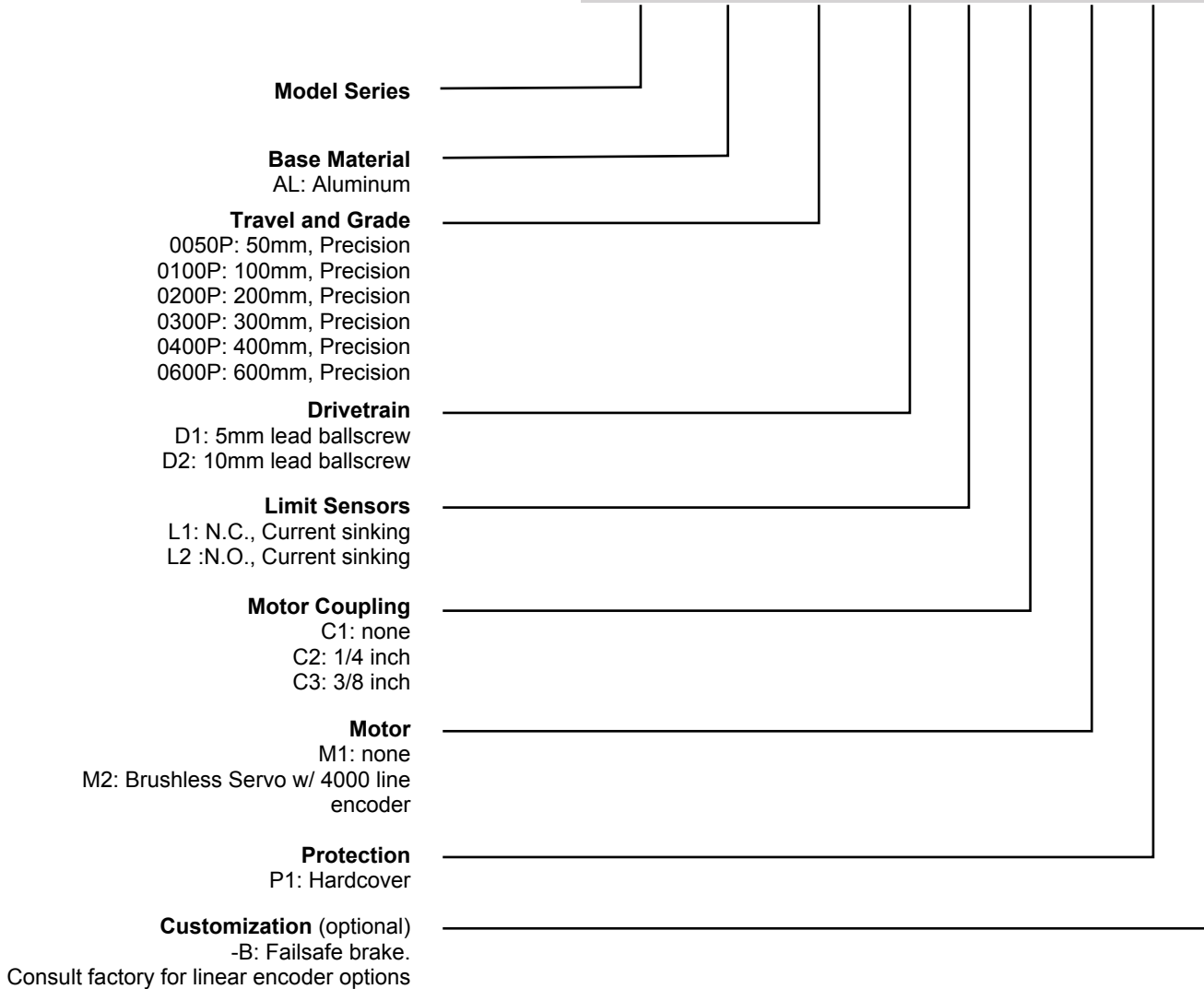
Brake	
Connector Type: Molex Mini-Fit Jr. Mates with Molex 39-01-2021 housing Cable length: 12 inches	
Pin	Function
1	Brake +
2	Brake -



Servo Motor (option M2)	
Connector: Cannon 192926-0480 Size 20, 28 pins	
Pin	Function
A	Motor Phase A
B	Motor Phase B
C	Motor Phase C
D	Motor Shield
E	Encoder 5V
F	Encoder Ch A+
G	Encoder Ch A-
H	Encoder Ch B+
J	Encoder Ch B-
K	Encoder Shield
L	Limit Power
M	Limit Return and Signal Common
N	Not Used
P	(Optional Brake+ output)
R	(Optional Brake- output)
S	Signal Shield
T	Hall V+
U	Hall V-
V	Encoder Power Return
W	Encoder Ch I+
X	Encoder Ch I-
Y	Forward Limit - Activates at Full Forward Travel
Z	Reverse Limit - Activates at Full Reverse Travel
a	KEY
b	Hall A
c	Hall B
d	Not used
e	Hall C

PCL65 Model Configuration

Example: **PCL65 AL 0200P D1 L1 C2 M2 P1**



Not all configurations are valid - consult factory for assistance

Accessories

Model	Description
CABLE-SENSORS-PIGTAIL	Cable assembly for Limit connector. Un-terminated at user end. 12 ft standard.
CABLE-SERVO-STAGE-PIG-TAIL	Cable assembly for M2 option. Un-terminated at user end. 12 ft standard
CABLE-SERVO-STAGE-DMC40X0-I200	Cable assembly for M2 option for use with Galil DMC-40x0-I200 with trap servo drives. 12 ft standard.
CABLE-SERVO-STAGE-DMC40X0-I200-SINE	Cable assembly for M2 option for use with Galil DMC-40x0-I200 with sine servo drives. 12 ft standard.
CABLE SERVO STAGE MC4U W/ HALLS	Cable assembly for M2 option for use with ACS MC4U. 12 ft standard.
CABLE-SERVO-ACS-CMNT-DIG	Cable assembly for M2 option for use with ACS MC4U. 12 ft standard.