PCR32 with 135mm travel

Features

- Travel to 135mm
- Encoder resolution to 5nm
- Center driven, non-contact linear motor drive
- Precision cross roller bearing
- Low profile
- High bandwidth
- Small footprint

Overview
The Primatics PCR32 Series positioning stages are the most compact of our linear stages. Ideal for demanding applications such as high precision alignment, attachment and inspection, the PCR32 offers unparalleled flexibility and allows the user to fit a precision stage into their most space restrictive applications.

Smooth Travel
The PCR32 delivers exceptionally smooth travel by utilizing anti-cage creep precision cross roller bearings and a center driven brushless linear motor. Since neither the bearings or drivetrain utilize recirculating elements, the PCR32 offers the best of all worlds; smooth, velocity ripple-free motion without cage creep.

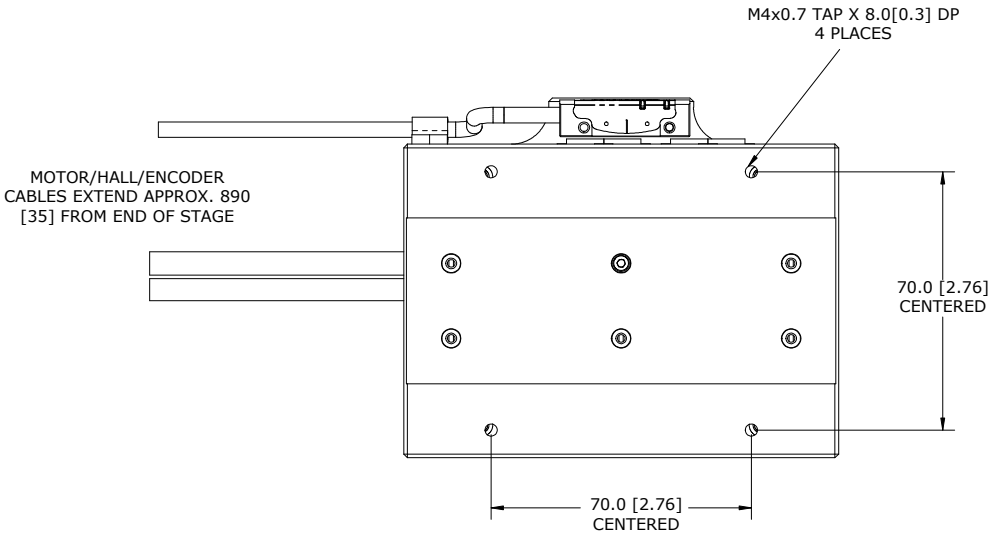
High Bandwidth
Oversized cross rollers and a re-enforced linear motor forcer yield a positioning stage with a very high natural frequency. This high bandwidth allows the PCR32 to step and settle very quickly making it ideal for applications where the stage must keep a camera in focus while following a terrain.

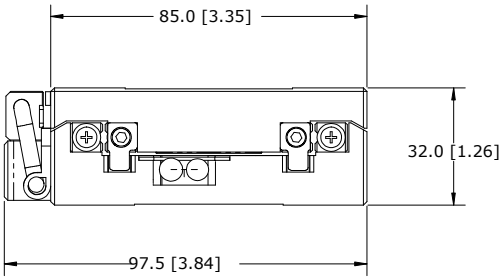
More Robust
Like the rest of the Primatics product family, the PCR32 is designed specifically for high throughput 24/7 applications. The cross rollers of the PCR32 are preloaded against machined reference edges to insure no loss of preload over time.

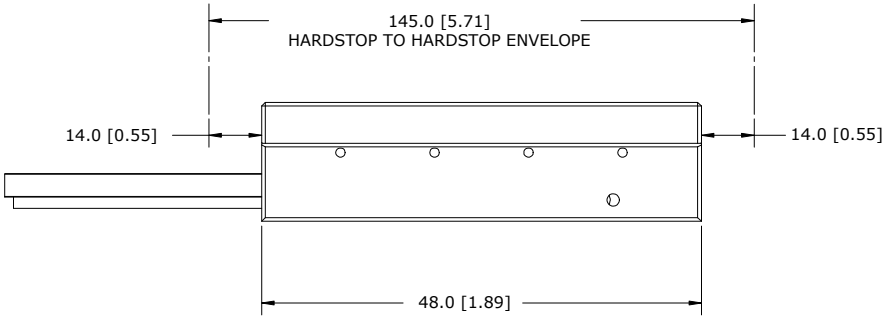
Performance Verification
All PCR32 performance specifications are verified with a laser interferometer system, and a full set of accuracy, repeatability, straightness and flatness plots are included with each stage.

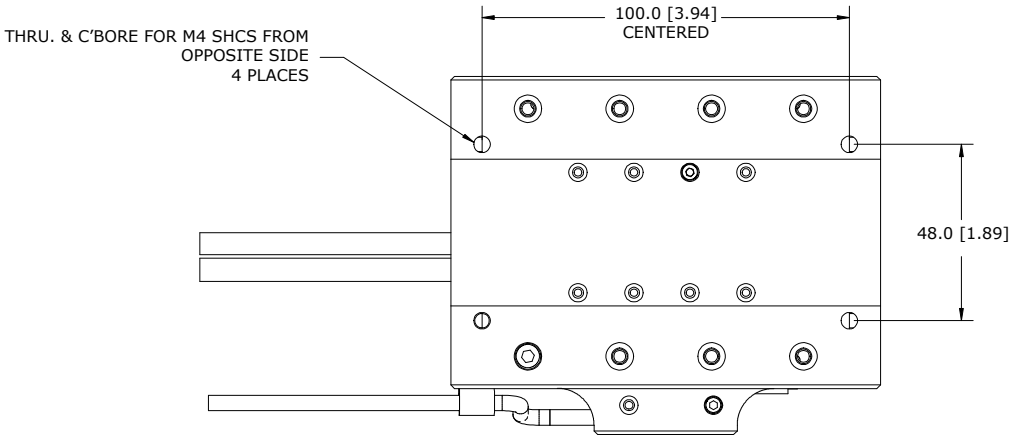
Dimensions

25mm travel



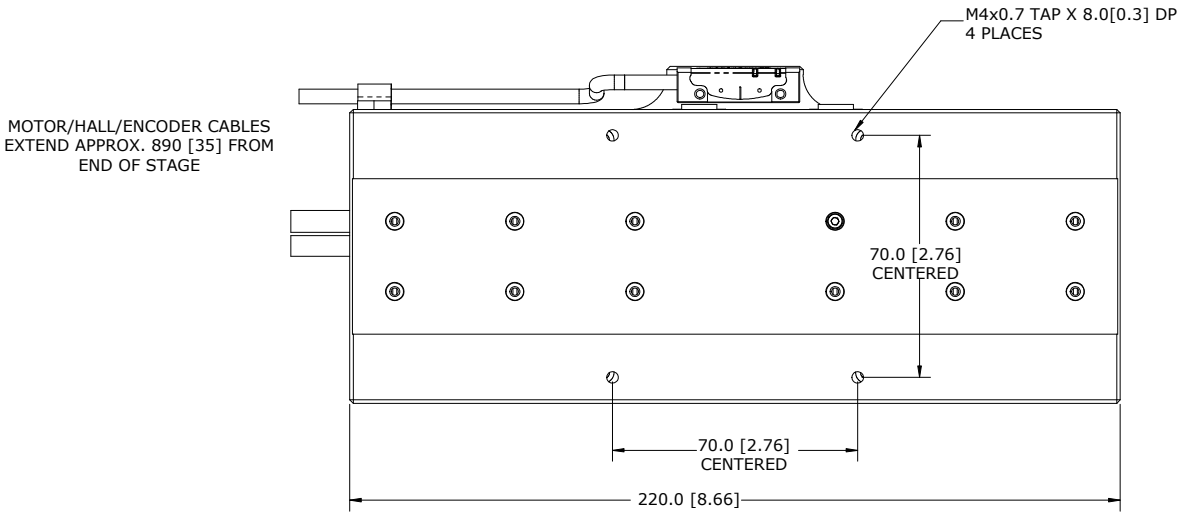


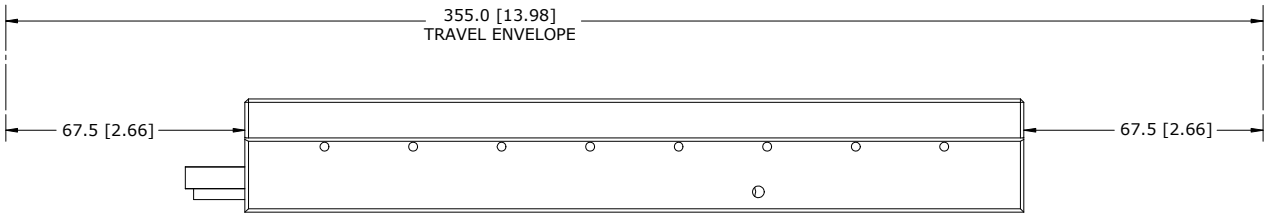


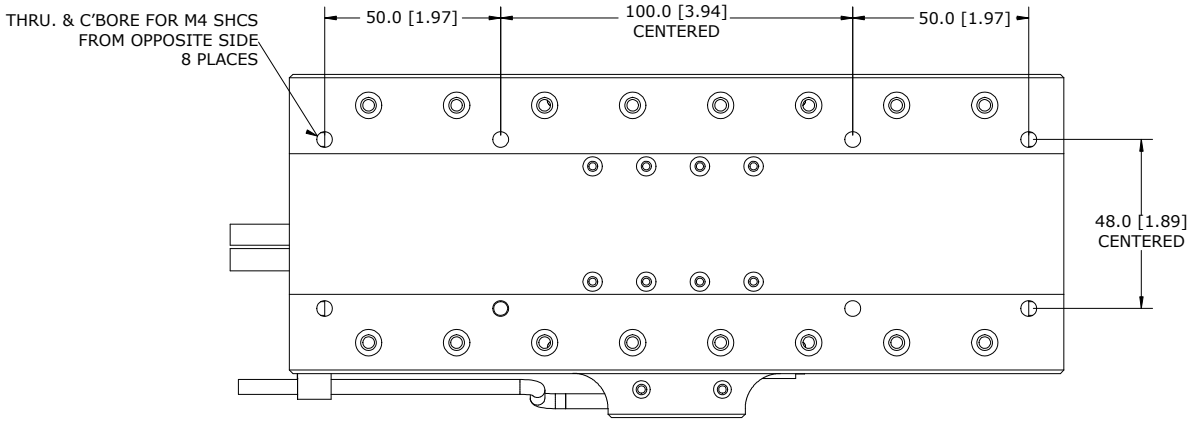


Dimensions

135mm travel







Specifications

Specifications	Notes	PCR32…0025	PCR32…0135
Travel (mm)		25	135
Positional Accuracy Over Total Travel (µm)	1, 2, 3	+/- 1	+/- 2
Mapped Accuracy Over Total Travel (µm)	1, 2, 3	+/- 0.3	+/- 0.3
Bi-Directional Repeatability (µm)	1	+/- 0.1	+/- 0.1
Flatness of Travel Over Total Travel (µm)	1, 3	+/- 0.75	+/- 2.0
Straightness of Travel over Total Travel (µm)	1, 3	+/- 0.75	+/- 2.0
Pitch Angular Error (arc-sec)		8	18
Yaw Angular Error (arc-sec)		8	18
Max Speed (mm/sec @ 10% duty cycle)		250	500
Maximum Acceleration (G's, unloaded)		0.3	0.3
Direct Loading Capacity (kg)		3	4.5
Pitch, Roll, Yaw Moment Capacity (N-m)		1.6	1.6
Stage weight (kg)		1.2	2.1

Notes: 1 - Measured 50mm above center of carriage; 2 - Slope corrected; 3 - Stage affixed to flat continuous surface.
All specifications subject to change without notice.

Motor / Encoder, Limit Data

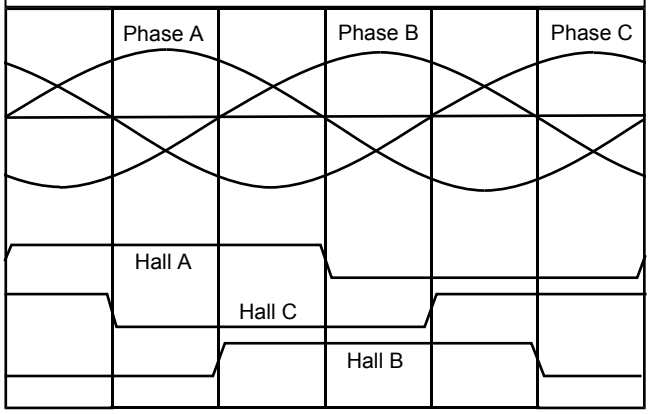
Parameter	Notes	Value
Motor Type		Brushless Linear Motor
Continuous Force (N)	1	5
Continuous Current (Arms)	1	1.8
Peak Force (N-m)	2	27
Peak Current (Arms)	2	10
Force Constant (N/Arms)		2.75
Back EMF Constant (V/m/sec)		2.5
Winding Resistance (ohms)		1.57
Winding Inductance (mH)		0.45
Thermal Resistance (C/W)		4.8
Magnetic pitch (mm)		22.86
Hall Sensor Power		5 to 24VDC, 50mA
Hall Outputs		Open collector, current sinking, 20mA max
Encoder		
Encoder power		5VDC +/- 5%, 150mA
Output		Differential
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

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

Connectors

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	Not Used
M	Reference for Temp Sensor
N	Not Used
P	Not Used
R	Not Used
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	Temp Sensor
e	Hall C

Motor Commutation (option M2)



PCR32 Model Configuration

Example: PCR32 AL 0025 A D3 L1 E0 B1 P1

Model Series

Base Material
AL: Aluminum

Travel
0025: 25m
0135: 135mm

Linear Bearing
A: Anti-cage creep, cross roller

Drivetrain
Brushless linear motor

Limit Sensors
L1: N.C., Current sinking
L2: N.O., Current sinking

Encoder
E0: Analog 1V SIN-COS
E1: 50nm digital
E2: 100nm digital
E9: 5nm digital

Counterbalance
B1: no counterbalance

Protection
P1: Class 10,000

Customization (optional)
-M: Mapped Accuracy

Not all configurations are valid - consult factory for assistance

Accessories

Model	Description
CABLE-SERVO-STAGE-PIGTAIL	Connects to stage at one end, other end is un-terminated. 12 ft standard
CABLE-SERVO-STAGE-DMC40X0-I200	Cable assembly for use with Galil DMC-40x0-I200 with trap servo drives. 12 ft standard.
CABLE SERVO STAGE MC4U W/ HALLS	Cable assembly for use with ACS MC4U. 12 ft standard.
CABLE-SERVO-ACS-CMNT-DIG	Cable assembly for use with ACS CMnt. 12 ft standard.