

Features

- Travel to 100mm
- Loads up to 10kg
- Encoder resolution to 10nm
- Precision cross roller bearings
- Center-driven brushless linear motor eliminates backlash, windup & stiction
- Non-contact drivetrain and feedback system
- Option for error mapped accuracy
- 100% tested for specification compliance

Overview

The Primatics PCR43 Series positioning stages are ideal for demanding applications such as high precision alignment, attachment and inspection. The PCR43 offers unparalleled flexibility and allows the user to fit a highly specialized product into their most space restrictive applications.

Smooth Travel

The PCR43 delivers exceptionally smooth travel by utilizing precision cross roller bearings. The anti-cage creep feature offers smoothness comparable to traditional cross rollers but do not exhibit the cage creep problems inherent to traditional cross roller bearings.

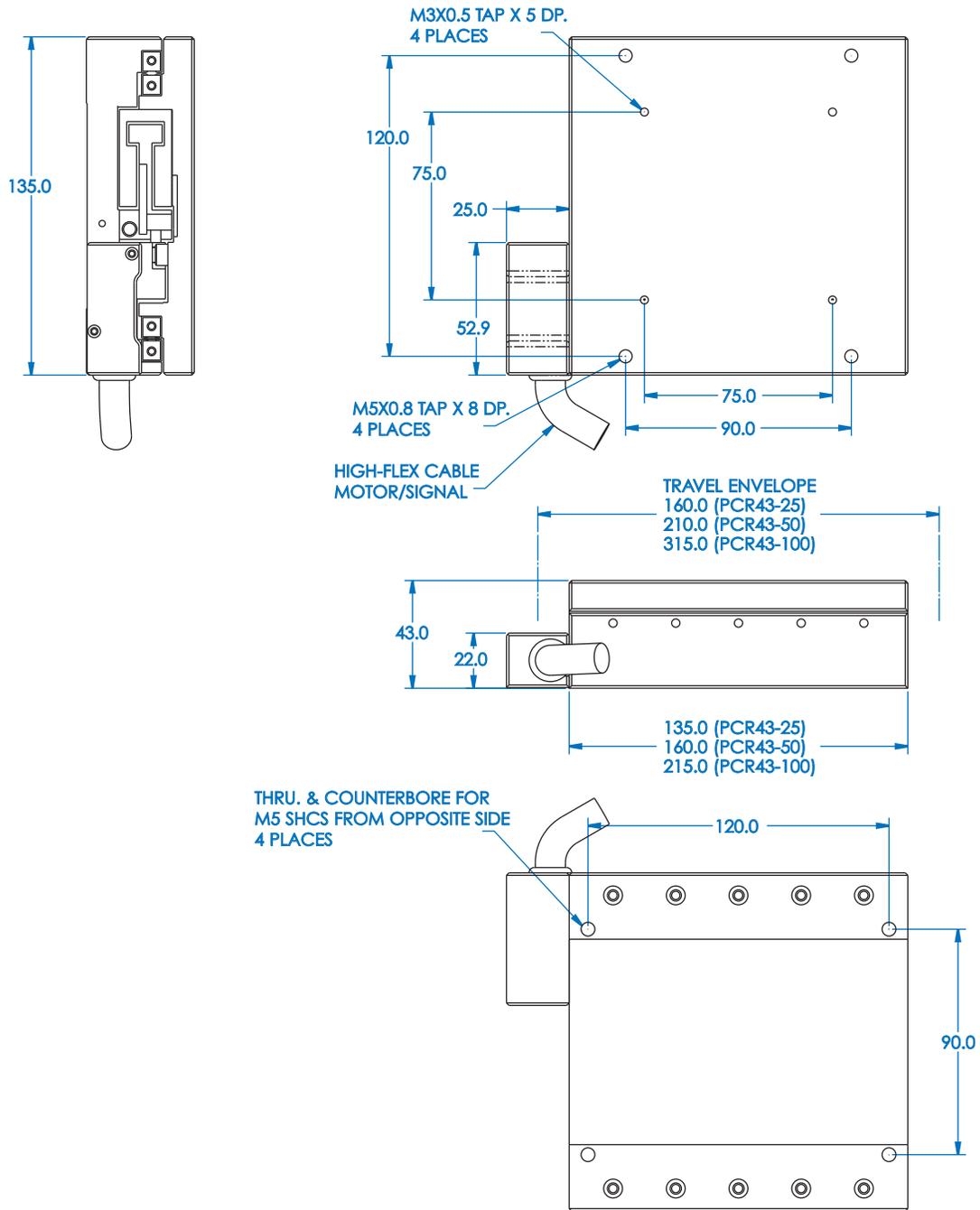
Lower Interpolation Error

Scanning and inspection applications typically demand extremely low velocity ripple. Achieving low velocity ripple requires not only smooth bearing and drivetrain elements, but also a feedback device with low interpolation error. The PCR43 meets this demand with a high performance feedback system specifically designed to minimize interpolation error.

Robust

Similar to the rest of the Primatics product family, the PCR43 is designed specifically for high throughput 24/7 applications. The drivetrain and feedback systems are non-contact and maintenance free. The PCR43 has no moving cables, eliminating the possibility of cable failure. In addition, the bearings and linear motor are oversized, yielding large safety margins in available thrust and moment load capacity, further improving long-term reliability.

Dimensions

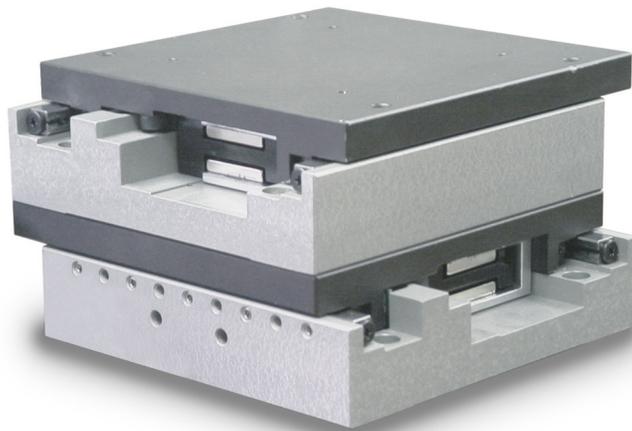


All drawings subject to change without notice.

Specifications

Specifications	Notes	PCR43-25	PCR43-50	PCR43-100
Travel (mm)		25	50	100
Positional Accuracy over Total Travel (μm)	1,3	+/-1	+/-2	+/-3
Error Mapped Accuracy over Total Travel (μm)	1,3	+/-0.25		
Bi-directional Repeatability Repeatability (μm)	1,3	+/-0.08		
Pitch Angular Error (arc-sec)	3	7	8	10
Yaw Angular Error (arc-sec)	3	7	8	10
Straightness Accuracy over Total Travel (μm)	1,3	+/-0.75	+/-1.0	+/-1.3
Flatness Accuracy over Total Travel (μm)	1,3	+/-0.75	+/-1.0	+/-1.3
Max Speed (mm/s)	2	200		
Direct Load Capacity (kg)		10		
Pitch Moment Capacity (N-m)		3.7		
Roll Moment Capacity (N-m)		4.8		
Yaw Moment Capacity (N-m)		4.2		
Carriage Mass (kg)		1.2	1.5	2.0
Stage Weight (kg)		2.4	2.8	3.9

Notes: 1 - Measured 50mm above center of carriage; 2 - Maximum obtainable speed is load, resolution, and move profile dependent; 3 - Mounted to a flat, continuous surface. All specifications subject to change without notice.



PCR43x25 XY Stack

Motor / Encoder / Sensor Data

Parameter	Notes	Value
Motor		
Motor Type		Brushless Servo Linear Motor
Continuous Force (N)	1	6.6
Continuous Current (Arms)	1	1.0
Peak Force (N)	2	41.5
Peak Current (Arms)	2	6.3
Force Constant (N/Arms)		6.6
Back EMF Constant (V/m/s)		6.6
Winding Resistance (ohms)		3.2
Winding Inductance (mH)		15.9
Thermal Resistance (°C/W)		5
Magnetic Pitch (mm)		60.96
Hall Sensor Power		5 to 24VDC, 50mA
Hall Outputs		Open collector, current sinking, 20mA max
Encoder		
Encoder Power		'5VDC +/- 5%, 150mA
Output		Square wave differential line driver. Default maximum output frequency is 12.M cts/sec. Contact factory for faster or slower rates.
Index		Synchronized pulse, duration equal to one resolution bit
Max Speed (mm/sec)		100 @ 10nm resolution, 200 @ 20nm and higher resolution
Limit and Home Sensors		
Power		5 to 24VDC, 50mA
Output		Current sinking, 100mA max

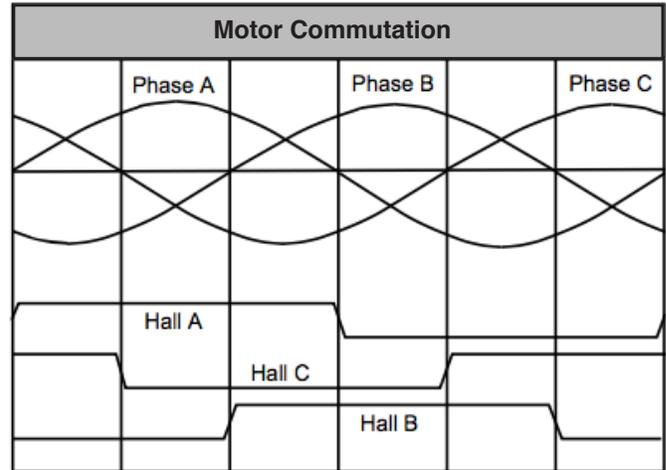
Notes: 1 - At 25°C maximum temperature rise; 2 - At 10% duty cycle and 1 second maximum; All specifications subject to change without notice.

Stage Information

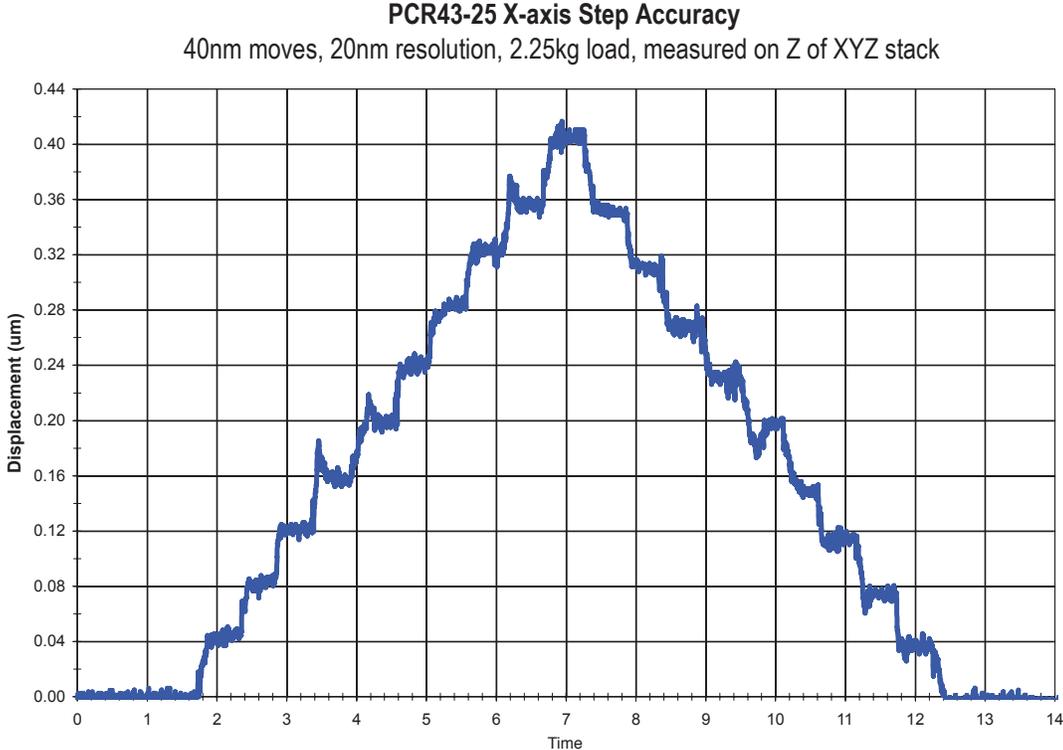
Stage Information	PDR210
Maximum Acceleration, Unloaded (G's)	0.5
Typ. Drag Force (N)	0.5
Max Bus Voltage (VDC)	170
Nominal Cable Length (mm)	450
Life at Listed Specifications (km)	5000
Counterbalance Option	
Max Air Pressure (psi)	80
Max Holding Force (kg)	4.5

Connector

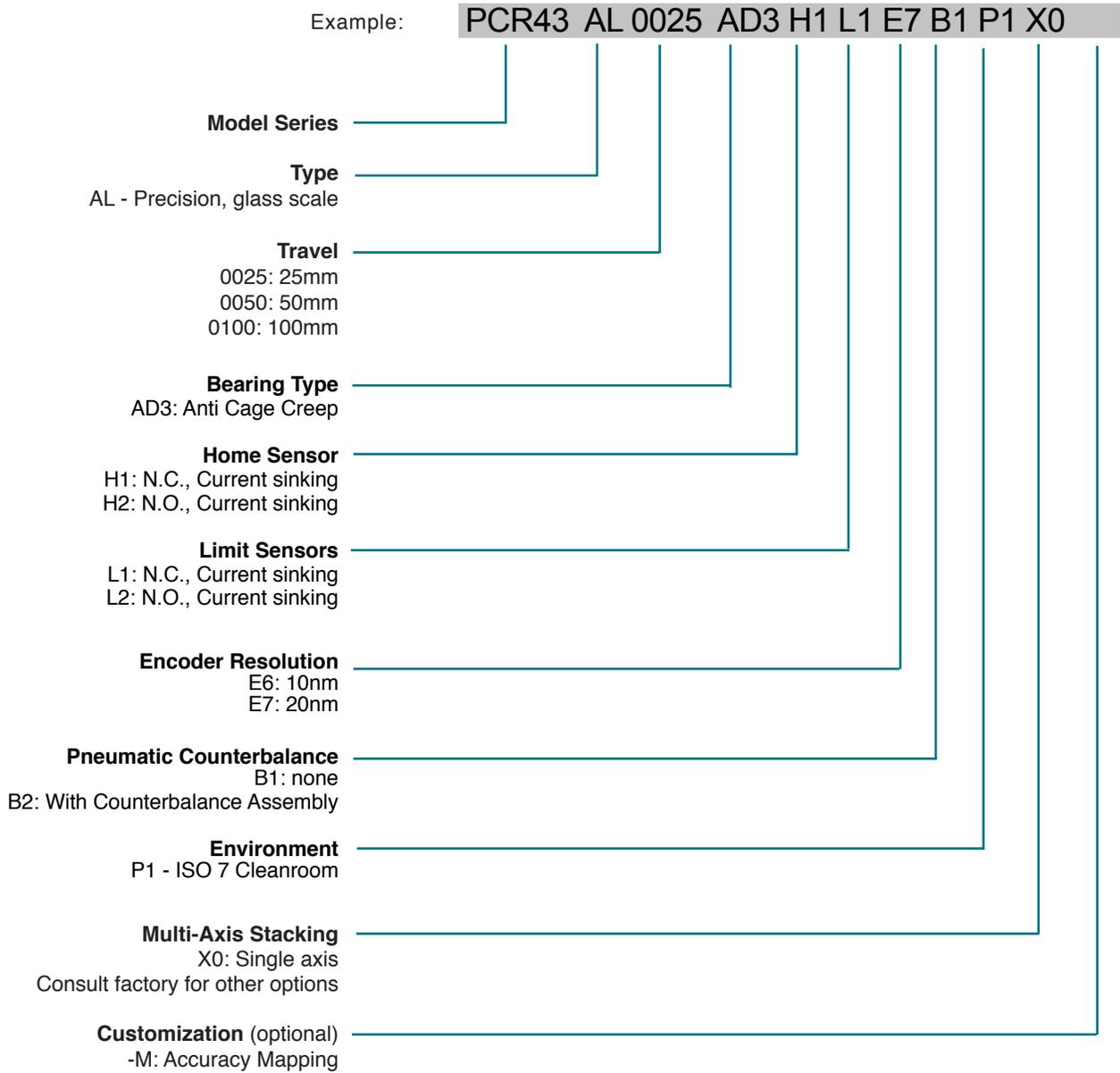
PCR43	
Connector: Cannon 192926-0480	
Size 20, 28 pins	
PIN	Function
A	Motor Phase A
B	Motor Phase B
C	Motor Phase C
D	Motor Shield
E	Encoder 5V
F	Encoder Ch A+
G	Encoder Ch A-
H	Encoder Ch B+
J	Encoder Ch B-
K	Encoder Shield
L	Limit Power
M	Limit Return and Signal Common
N	Home
P	Not Used
R	Not Used
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 Forward Travel
a	Key
b	Hall A
c	Hall B
d	Not Used
e	Hall C



Step Accuracy Sample



Model Configuration



Not all configurations are valid - consult factory for assistance

Accessories

Model	Description
CABLE-SERVO-STAGE-PIGTAIL	Un-terminated at user end. 12 ft. standard
CABLE-SERVO-STAGE -DMC40X0-I200	Use with Galil DMC-40x0-I200 with trap servo drives. 12 ft. standard
CABLE-SERVO-STAGE -DMC40X0-I200-SINE	Use with Galil DMC-40x0-I200 with sine servo drives. 12 ft. standard
CABLE-SERVO-STAGE-MC4U W/ HALLS	Use with ACS MC4U. 12 ft. standard
CABLE-SERVO-ACS-CMNT-DIG	Use with ACS MC4U. 12 ft. standard