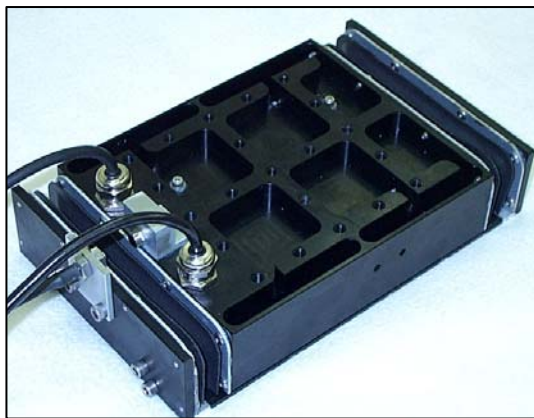


XR Positioning Stage



Travel	12 inches	[0.3 m]
Velocity	100 inches / sec	[2.5 m/s]
Acceleration	9 G's	9 G's
Peak Force	240 lbs	[1067 N]
Continuous Force	71 lbs	[316 N]
Resolution	.00004", .0002"	[1,5 micron]

The XR Positioning Stage is a compact, small cross section open or enclosed positioning stage for short stroke linear servo applications (up to 12 inch stroke). It is driven by either an iron core or ironless core 3-phase brushless linear motor and guided by 2 sets of parallel cross roller bearings. The stage can be with enclosed end covers and a set of bellows.

For higher force applications an iron core brushless linear motor is used. In this case the moving coil assembly is magnetically attracted to the stationary magnet assembly, which provides a preload for the crossed roller bearing system. For lower force applications and where velocity ripple is a concern due to cogging, an ironless core brushless linear motor is used

The dual parallel rail sets offer excellent load carrying capability.

The wide, low profile of the stage ensures a stable platform for the payload or as the bottom axis (X axis) of a stacked multi-axis system.

The small overall package size makes the XR stage ideal as a Y or Z-axis for short stroke positioning applications.

The XR stage comes standard without bellows (folded way covers), but they can be added as an option.

A cable carrier is not supplied with this stage because of the short stroke, but can be added as an option, if desired.

Advantages:

- Wider footprint, very stable platform
- Lowest Profile
- Ideal for short stroke servo applications
- Large load carrying capability
- Smooth Operation

Applications:

- Pick and Place
- Vision Inspection
- Parts transfer
- Clean room

The XR positioning stage incorporates the latest in linear motion technology:

- **Motors:**
 - 1) Non-contact 3 phase brushless, low cogging, iron core linear motor, commutated either sinusoidally or trapezoidally with Hall Effects. There is a large magnetic attractive force, which provides a preload for the crossed roller bearing system. The encapsulated laminated coil assembly moves and the multi-pole single sided permanent magnet assembly is stationary.
 - 2) Non-contact 3 Phase Brushless Linear Motor, Ironless Core, commutated either sinusoidally or trapezoidally with Hall Effects. The encapsulated coil assembly moves and the multipole permanent magnet assembly is stationary. The lightweight coil assembly allows for higher acceleration of light payloads
- **Bearings:** Linear guidance is achieved by using 2 parallel sets of crossed roller rails. The rollers and retainer are not sealed. Periodic lubrication of the guides is recommended.
- **Encoders:** Non-contact glass or metal scale optical linear encoders with a reference mark for homing. Multiple reference marks are

Required Electronics:

The motor requires a 3 phase brushless amplifier with power supply, that is rated with sufficient current and voltage to meet the motion requirements. The inductance of the linear motor coil should be greater than the minimum load inductance of the servo amplifier. A programmable motion controller is required to close the position loop on the system.

Environmental Considerations:

The stage is a precision device with sensitive components, it should not be mounted in an environment that is wet or excessively dirty. The optical encoder scale is open and it should be kept free of debris in order to operate properly. The stationary magnetic assembly is highly magnetic, it should not be placed in an area where loose steel particles can be drawn towards the open magnetic surfaces.

The stage must not be mounted in an environment with high ambient temperatures.

available and are spaced every 50 mm down the length of the scale. Typical encoder output is A and B square wave signals but sinusoidal output is available as an option

- **Limit Switches:** End of travel limit switches are included at both ends of the stroke. The switches can be either active high (5V to 24V) or active low. The switches can be used to shut down the amplifier or to signal the controller that an error has occurred. The limit switches are typically an integral part of the encoder, but can be mounted separately if required.
- **Cable Carriers:** Non-standard can be added as an option.
- **Bellows:** Non standard can be added as an option
- **Hard Stops:** Hard stops are incorporated into the ends of the stage to prevent over travel damage in the event of servo system failure

Mounting:

The stage should be mounted to flat and stiff surface. Counter bored thru holes are present in the stage to allow for the mounting of the stage to the customers system. The moving table assembly has threaded holes on the top surface for attaching the payload. The stage may be mounted in any orientation. When mounting the stage with the table moving vertical, it should be noted that the stage will be required to generate additional force due to gravity and that the stage will slide down to the bottom hard stop when power fails.

Maintenance:

The cross roller bearings in the stage should be periodically lubricated with the manufacturers recommended grease. The open glass encoder scale should be wiped with a glass cleaner occasionally to ensure trouble free operation.

Ordering Info:

Stages can be ordered for any stroke up to 12 inches and any continuous force up to 71 lbs. The stages are built as the orders are placed, they are not stocked, as each customer requirement is different.

Model # XRS – AAA – BB – CCC - D

where: AAA is the stroke in inches (12 inch stroke is -012)

BB is the width of the stage (9 inch width is -09)

CCC is the continuous force (60 lbs is -060)

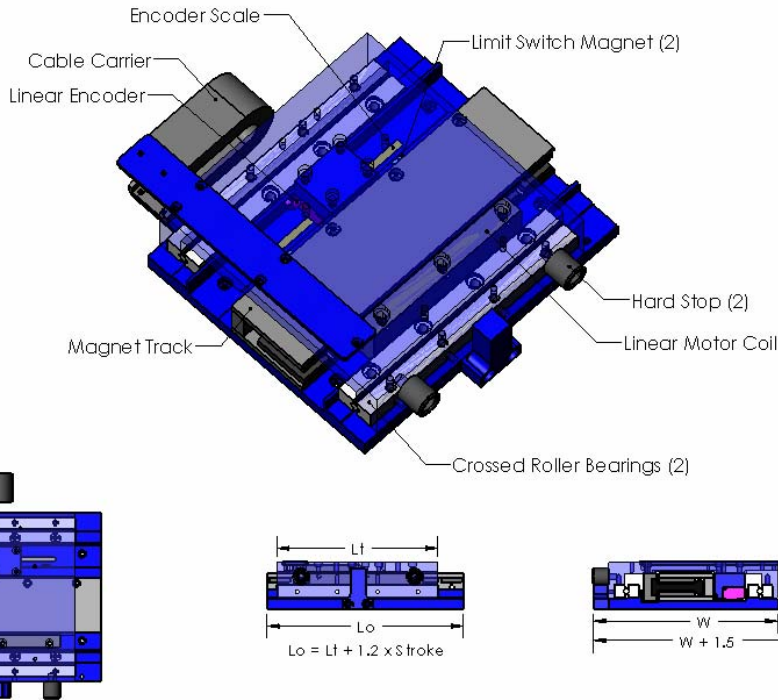
D is for special options

(i.e. XRS-006-05-047-0 is a 5" wide SR stage with a 6" stroke, 47 lbs of continuous force and no special options)

Specifications:

Flatness	±.0005" /ft	±41 micron / meter
Straightness	±.0005" /ft	±41 micron / meter
Accuracy*	±.0004" /ft	±33 micron / meter
Repeatability*	±.0002"	±16 micron
Load Capacity	100 lbs	45 Kg

(*Encoder dependent)



Model #	Stage width (w)	Stage height (H)	Table Length (Lt)	Continuous Force	Peak force	Maximum Travel
XRS-XXX-06-006A	5.50" [140 mm]	1.75" [44 mm]	4.0 [102 mm]	6.5 lbs [29 N]	15 lbs [67 N]	2.5" [64 mm]
XRS-XXX-06-014A	5.50" [140 mm]	1.75" [44 mm]	6.5 [229 mm]	14 lbs [62 N]	30 lbs [133 N]	4.0" [102 mm]
XRS-XXX-06-019A	5.50" [140 mm]	1.75" [44 mm]	9.0 [356 mm]	19 lbs [84 N]	45 lbs [200 N]	5.5" [140 mm]
XRS-XXX-06-023A	5.50" [140 mm]	1.75" [44 mm]	11.5 [102 mm]	23 lbs [102 N]	60 lbs [267 N]	7.0" [178 mm]
XRS-XXX-08-013A	7.65" [194 mm]	2.00" [51 mm]	4.0 [102 mm]	13 lbs [58 N]	40 lbs [178 N]	2.5" [64 mm]
XRS-XXX-08-025A	7.65" [194 mm]	2.00" [51 mm]	6.5 [165 mm]	25 lbs [111 N]	80 lbs [356 N]	4.0" [102 mm]
XRS-XXX-08-036A	7.65" [194 mm]	2.00" [51 mm]	9.0 [229 mm]	36 lbs [160 N]	120 lbs [533 N]	5.5" [140 mm]
XRS-XXX-08-013A	7.65" [194 mm]	2.00" [51 mm]	11.5 [292 mm]	47 lbs [209 N]	160 lbs [711 N]	7.0" [178 mm]
XRS-XXX-08-059A	7.65" [194 mm]	2.00" [51 mm]	14.0 [356 mm]	59 lbs [262 N]	200 lbs [889 N]	9.5" [241 mm]
XRS-XXX-08-071A	7.65" [194 mm]	2.00" [51 mm]	16.0 [102 mm]	71 lbs [316 N]	240 lbs [1067 N]	11.0" [279 mm]