

# X95

## Structural Rails and Carriers



*For Motion, Think Newport*

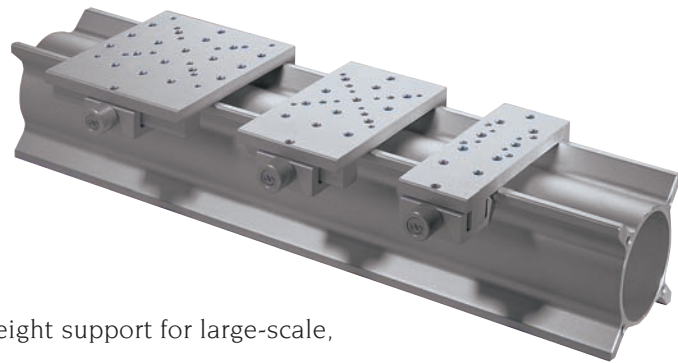
 **Newport**<sup>®</sup>  
Experience | Solutions

# X95

## Structural Rails and Carriers

### X95 Advantages

- ▶ Ideal for constructing large-scale, linear optical devices
- ▶ Rigid yet lightweight rail design
- ▶ Easy-on/Easy-off dovetail mounting
- ▶ Rail lengths of up to 20 ft (6 m)



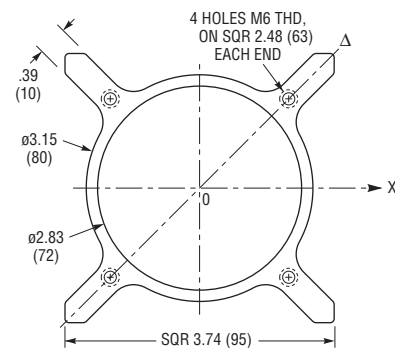
The X95 rail and carrier system is a rigid and lightweight support for large-scale, linear optical and instrumentation setups.

## Rails

X95 Rails are cylindrical aluminum extrusions with four longitudinal reinforcing ribs. The 10 mm thick ribs provide eight symmetrical dovetail clamping surfaces for carriers and significantly increase the longitudinal and torsional rigidity of the rail. X95 rails are available in standard lengths of up to 8.20 ft (2.5 m). On request, lengths of up to 20 ft (6 m) may be special-ordered. Rail end faces are tapped with four M6 holes in a 63 mm square pattern.

### Specifications

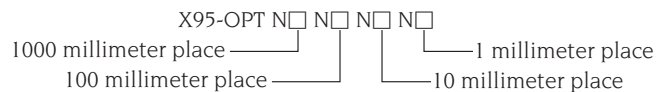
Cross-sectional Area (cm <sup>2</sup> )	20
Moment of Inertia about X Axis (cm <sup>4</sup> )	220
Moment of Inertia about Δ Axis (cm <sup>4</sup> )	220
Moment of Inertia about O Axis (cm <sup>4</sup> )	440
Bending Tolerance (mm/m)	0.8
Twisting Tolerance (°/m)	0.75
Weight [lb/ft (kg/m)]	3.7 (5.5)



### Ordering Information for Standard Lengths

Model	Rail Length [ft (m)]
X95-0.5	1.64 (0.5)
X95-0.64	2.10 (0.64)
X95-0.75	2.46 (0.75)
X95-1	3.28 (1.0)
X95-1.5	4.92 (1.5)
X95-2	6.56 (2.0)
X95-2.5	8.20 (2.5)

### Ordering Information for Special Lengths <sup>(1)</sup>



<sup>(1)</sup> Up to 20 ft (6 m).

#### Examples:

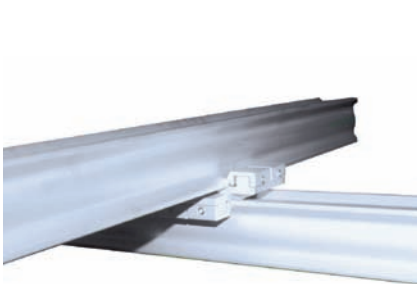
For X95 with length of 2873 mm order X95-OPTN2N8N7N3.  
 For X95 with length of 450 mm order X95-OPTN0N4N5N0.

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[Please click here](#)

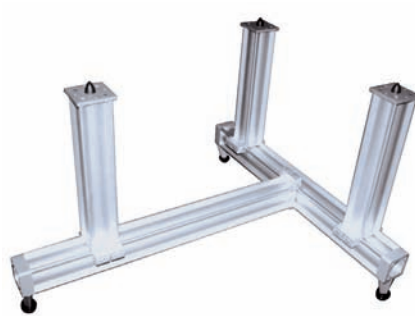
## Structures

Rigid support structures can be easily constructed using CX95A/CX95AS right angle joints and CX100 structural cubes. Large structures can be stiffened by AX94 (p/n 178221) or AX95 guys in a tension arrangement. Newport offers adaptor plates to attach X95 components to pneumatic Stable Level Mounts, elastomeric dampers or rubber bumpers. Casters and leveling feet are also available. These options allow flexible frame designs and workstation sizes for breadboards, granite tables or small optical tables.

### X95 Frame Designs



▲ X95 cross coupling with CX95A and CX95AS right angle joints.



▲ Three legged X95 stand with BEX95S bench legs and RB335 rubber bumpers.



▲ CX100 structural cubes enable versatile structures.



▲ X95 workstation frame with RB335 rubber bumpers.

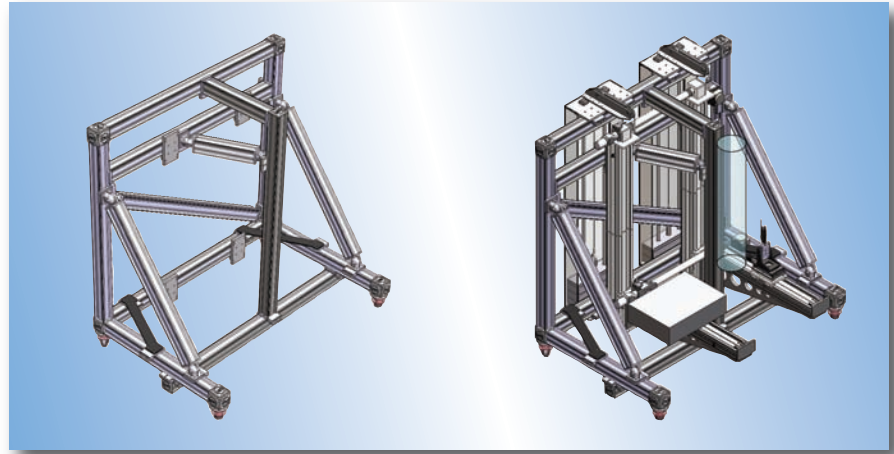


▲ Narrow workstation built with X95-T stands.



▲ X95 workstation with granite top and leg casters.

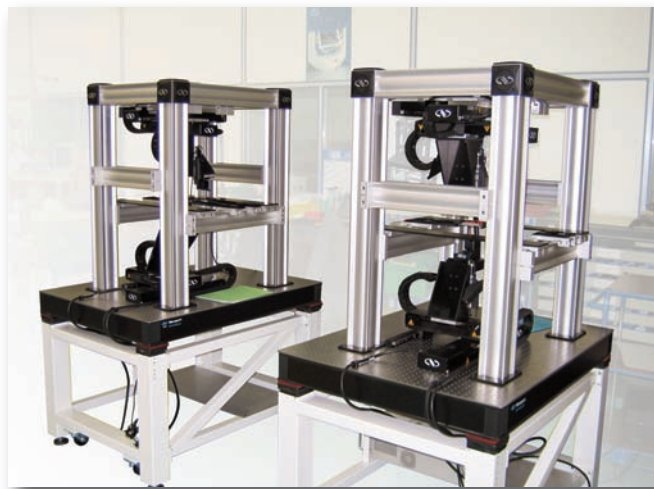
### Customized Systems with X95 Rigid Structure



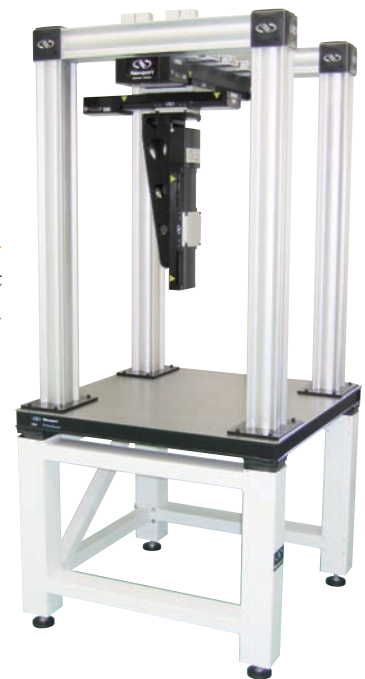
▲ X-Ray measurement bench mounted on an X95-structure.



◀ Data acquisition on antenna in anechoic chamber.



EMC test bench ▶  
(electro-magnetic compatibility).



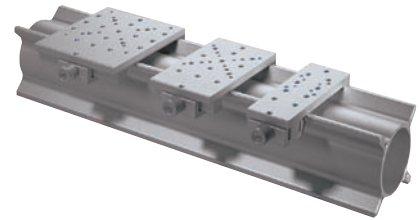
◀ Contact probing on integrated circuits.



# Carriers and Accessories

Components can be quickly mounted to or removed from rails via CXL95 carriers. CXL95-50, CXL95-80 and CXL95-120 carriers are designed to support positioners with 50 mm, 80 mm and 120 mm width sizes on the X95 rail. English or metric mounting holes allow direct mounting of a wide selection of linear stages, rotation stages and optical mounts.

For easy assembly and disassembly, carriers can be removed or installed at any point on the rail by loosening the thumbscrew and tipping the carrier. A unique clamp design eliminates contact between the screw shaft and rail for easier sliding, more stable positioning and prevention of possible rail damage from over tightening. Strong, secure dovetail mounting design allows carriers to be mounted vertically on the sides of the rail, or even suspended upside-down from the bottom of the rail.

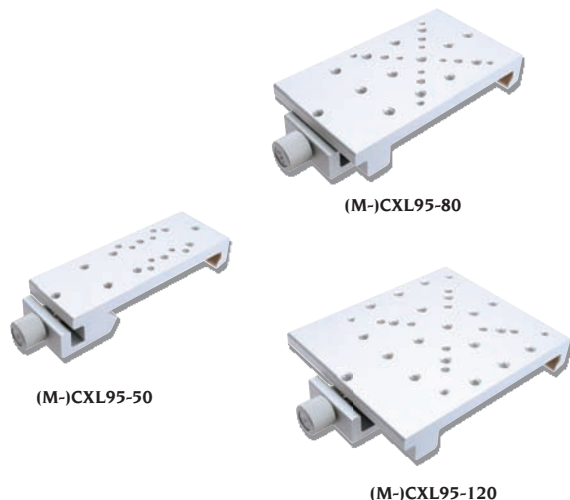
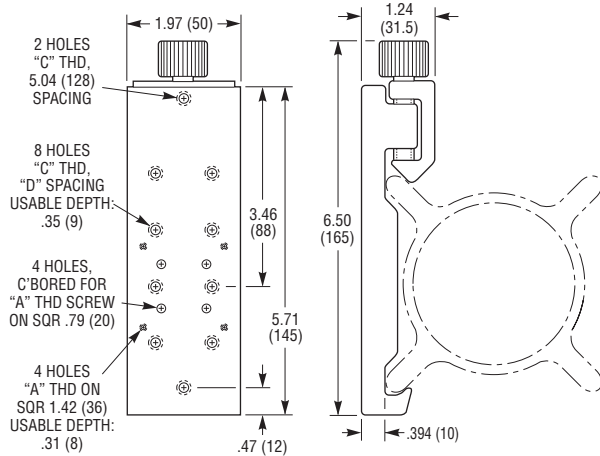


## Rail Carriers for X95

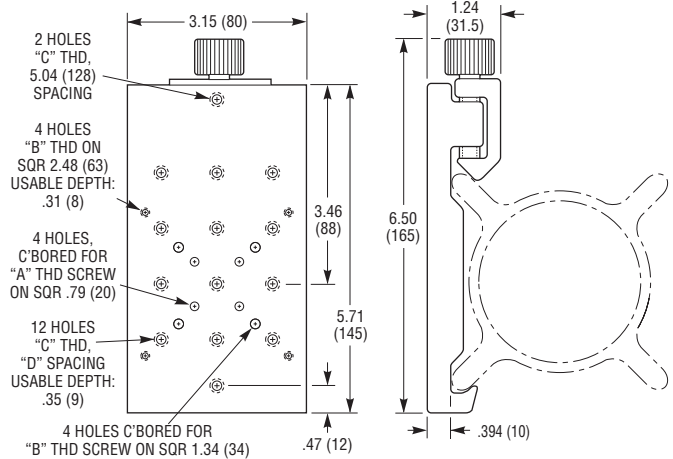
Model	Description
(M-)CXL95-50	1.97" width (50 mm) rail carrier
(M-)CXL95-80	3.15" width (80 mm) rail carrier
(M-)CXL95-120	4.72" width (120 mm) rail carrier

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### (M-)CXL95-50

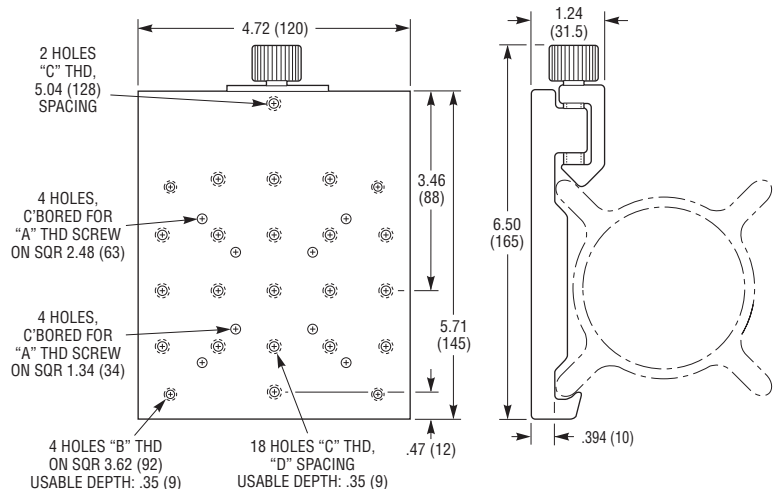


### (M-)CXL95-80



Model	Dimensions [in. (mm)]			
	A	B	C	D
(M-)CXL95-50	4-40 (M3)	-	1/4-20 (M6)	1.000 (25.0)
(M-)CXL95-80	4-40 (M3)	8-32 (M4)	1/4-20 (M6)	1.000 (25.0)
(M-)CXL95-120	8-32 (M4)	10-24 (M5)	1/4-20 (M6)	1.000 (25.0)

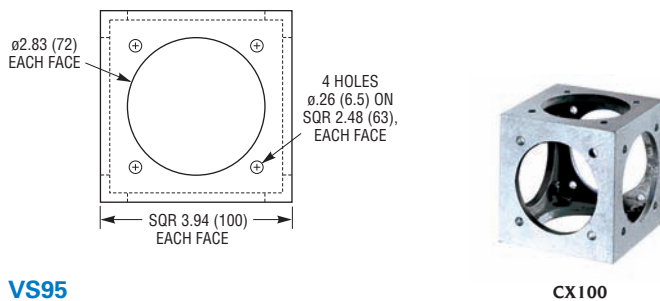
### (M-)CXL95-120



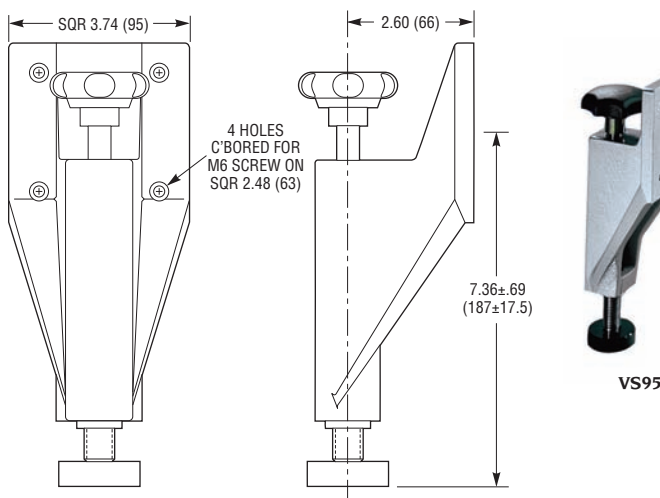
### Construction Hardware

Model	Description
178221	Steel rod guy AX94 (needs 2 CX95A carriers for attachment to X95 rail)
AX95	Guy pivot support
BCX95D	Double bench leg (side); max. load: 240 lb (110 kg)
BCX95S	Single bench leg (side); max. load: 240 lb (110 kg)
BEX95D	Double bench leg (end); max. load: 240 lb (110 kg)
BEX95S	Single bench leg (end); max. load: 240 lb (110 kg)
CAST95	Caster; max. load: 275 lb (125 kg)
CX95A	Right angle joint—thru holes
CX95AS	Right angle joint—tapped holes
CX100	Structural corner cube
M-PBN16	Steel base plate for vertical mounting of X95 rails to optical tables
(M-)ND40-A	NewDamp elastomeric mount; load capacity: 100–450 lb (45–200 kg)
(M-)ND41-A	NewDamp elastomeric mount load capacity: 70–225 lb (30–100 kg)
RB135	Rubber bumper; max. load: 135 lb (60 kg)
RB335	Rubber bumper; max. load: 335 lb (150 kg)
SLM-1A	Compact air mount; max. load: 100 lb (45 kg)
SLM-3A	Compact air mount; max. load: 300 lb (135 kg)
VS95	Leveling foot (side mounted); max. load: 240 lb (110 kg)
X95-AP1	Mounting plate for SLM-1A and RB135
X95-AP3	Mounting plate for SLM-3A and RB335
X95-EP	Plastic end plate
X95-LF	Leveling foot (centered); max. load: 240 lb (110 kg)
X95-T	T-stand; max. load: 240 lb (110 kg)

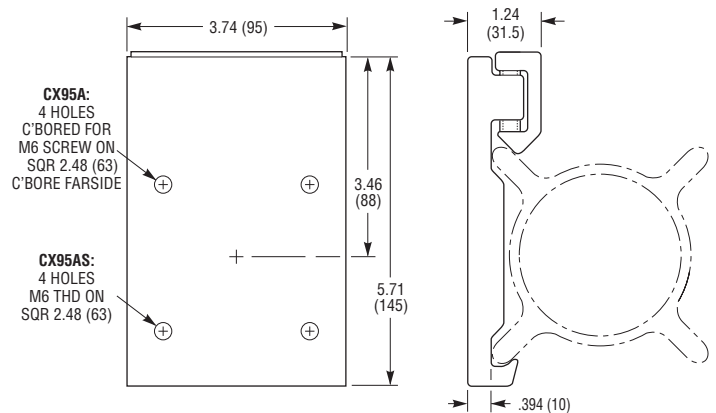
#### CX100



#### VS95



#### CX95A and CX95AS



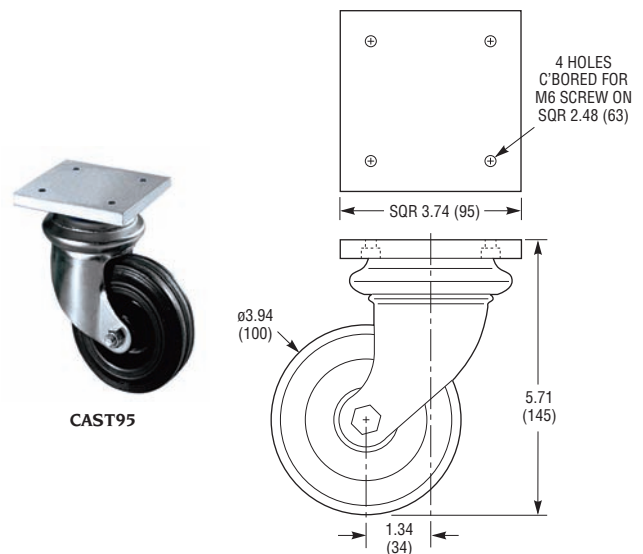
CX95A



CX95AS

▲ CX95A right angle joint connects the bottom of X95 rail to the side of X95 rail.

#### CAST95



CAST95

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CX100 structural cube with CAST95 caster and VS95 leveling foot. ▶



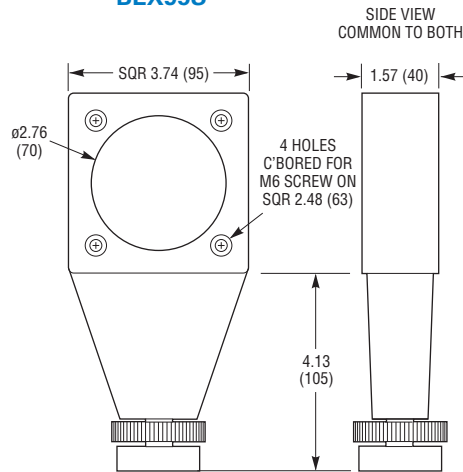


BEX95D

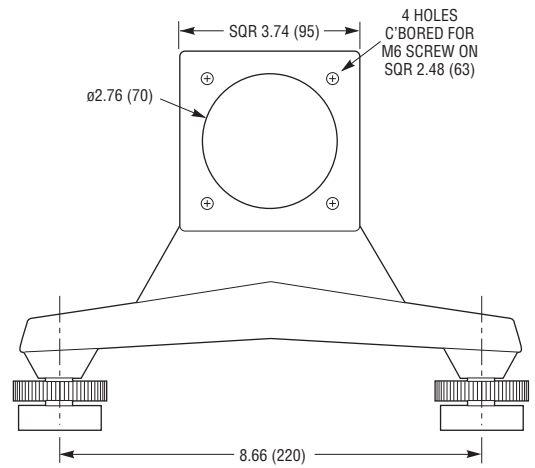


BEX95S

**BEX95S**



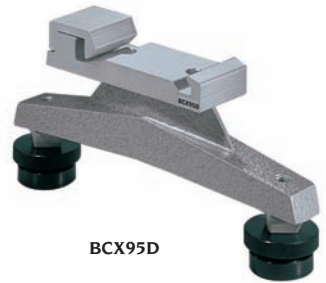
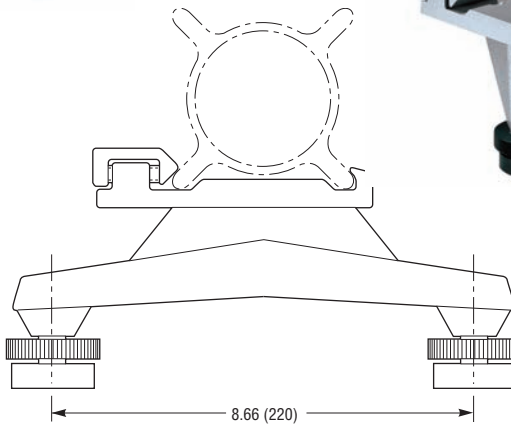
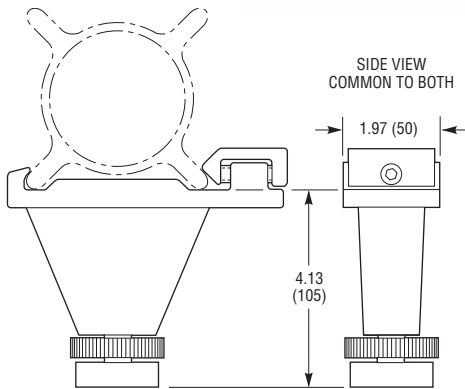
**BEX95D**



**BCX95S**

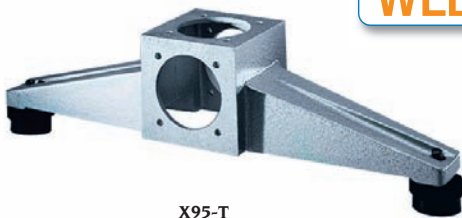
**BCX95D**

**BCX95S**



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Please click here

**X95-T**

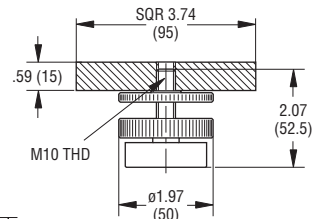


X95-T

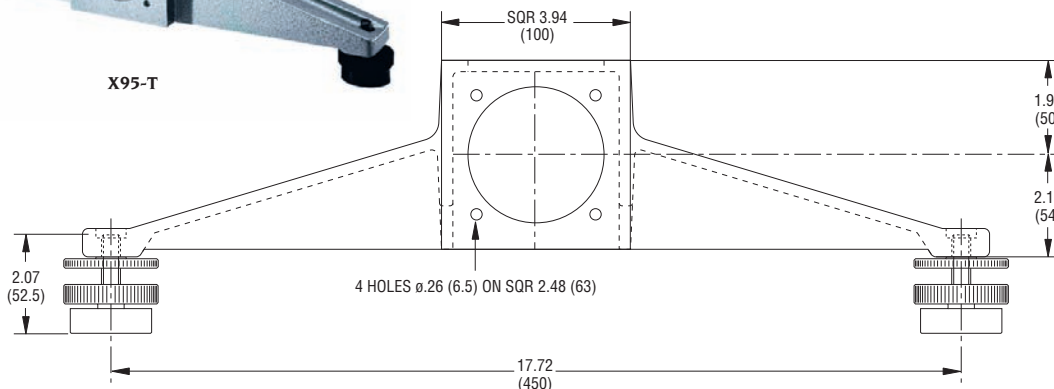


X95-LF

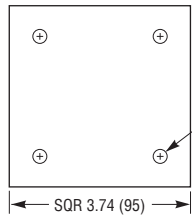
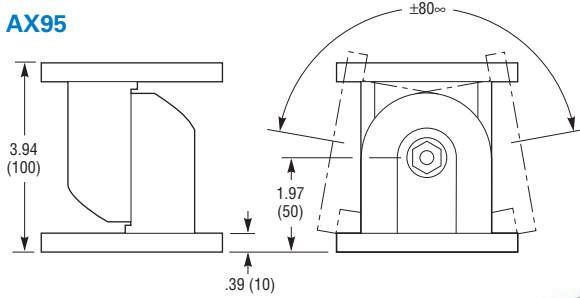
**X95-LF**



▲ X95-LF leveling foot.



**AX95**



4 HOLES C'BORED FOR M6 SCREW ON SQR 2.48 (63), EACH SIDE

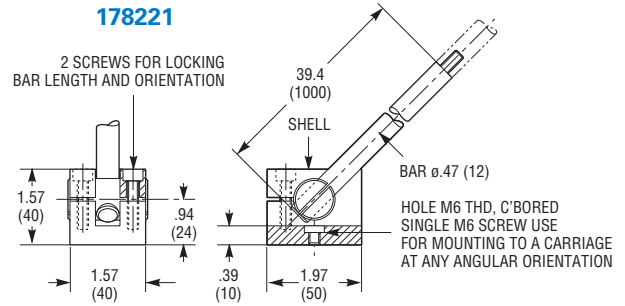


**AX95**



▲ Angled joint with AX95 guy pivot and CX95AS right angle joint.

**178221**



2 SCREWS FOR LOCKING BAR LENGTH AND ORIENTATION

SHELL

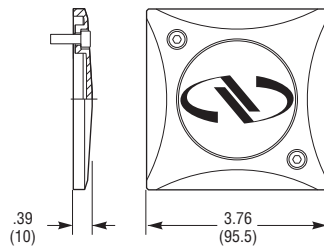
BAR  $\phi$ .47 (12)

HOLE M6 THD, C'BORED SINGLE M6 SCREW USE FOR MOUNTING TO A CARRIAGE AT ANY ANGULAR ORIENTATION

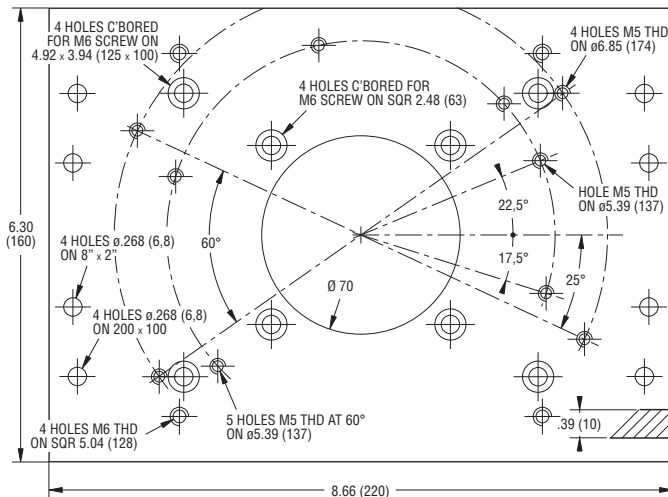


**X95-EP**

**X95-EP**



**M-PBN16**

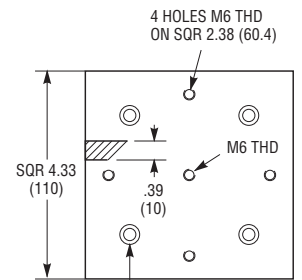


**M-PBN16**

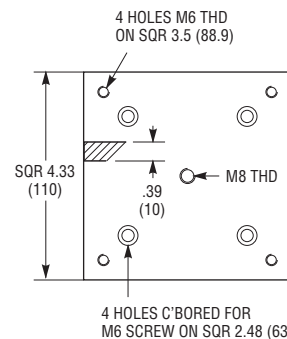
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◀ M-PBN16 base plate supporting vertical X95 leg.

**X95-AP1**



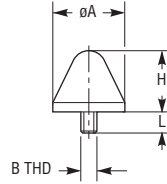
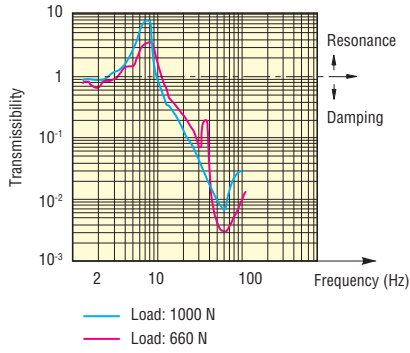
**X95-AP3**





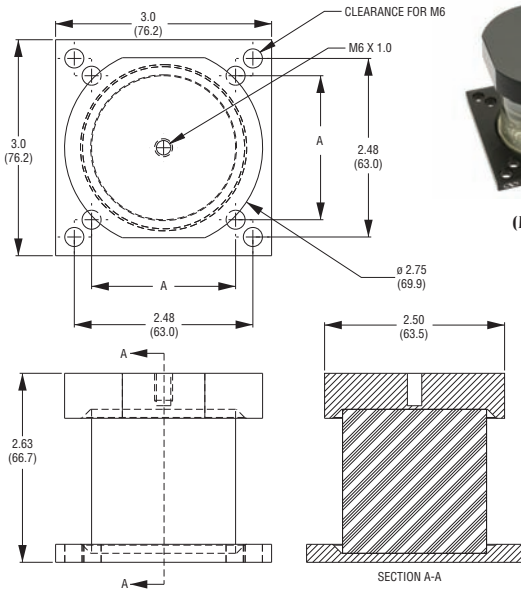
**RB135 and RB335**

Model	Load [lb (kg)]	
	Min.	Max.
RB135	45	135
	(20)	(60)
RB335	110	330
	(50)	(150)



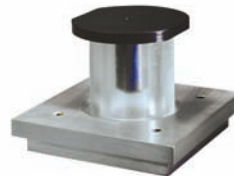
Model	Dimensions [in. (mm)]			
	$\phi A$	B THD	H	L
RB135	1.18	M6	1.18	.53
	(30)		(30)	(13.5)
RB335	1.97	M8	2.52	1.38
	(50)		(64)	(35)

**(M-)ND40-A**

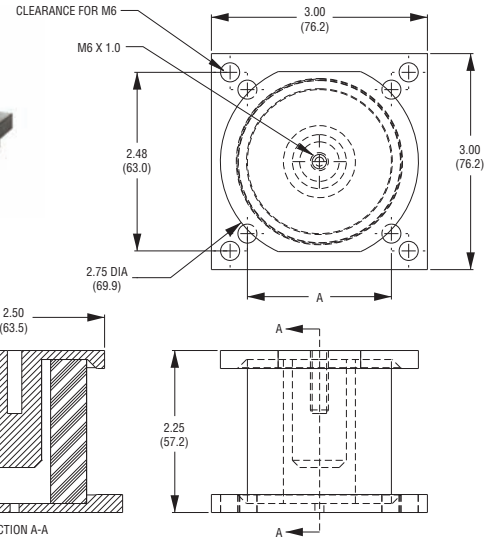


**(M-)ND40-A**

**(M-)ND41-A**



**(M-)ND41-A**

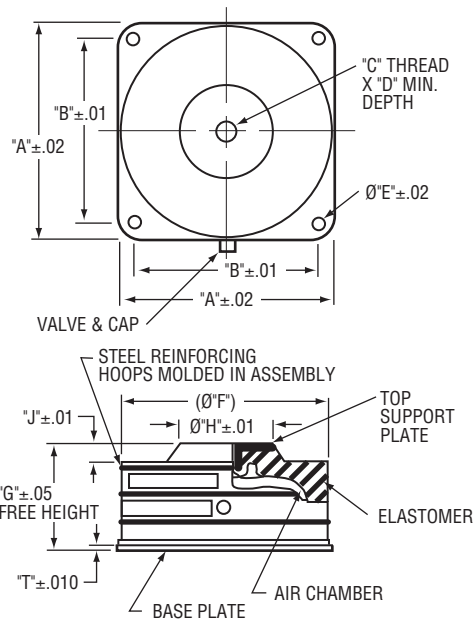


Model	Dimensions [in. (mm)]	
	A	B
(M-)ND40-A	2.00 (50.0)	1.00 (25.0)
(M-)ND41-A	2.00 (50.0)	1.00 (25.0)

**WEB** See our website for more info on ND40-A. [Please click here](#)

**WEB** See our website for more info on ND41-A. [Please click here](#)

**SLM-1A and SLM-3A**



**SLM-1A**

**WEB** See our website for more info on SLM-1A. [Please click here](#)

Model	Dimensions [in. (mm)]									
	A	B	C THD	B	E	F	G	H	J	T
SLM-1A	3.00	2.38	0.375-16	0.47	0.28	2.88	2.50	1.00	0.50	0.125
	(76.2)	(60.4)	UNC-2B	(11.9)	(6.9)	(73.2)	(63.5)	(25.4)	(12.7)	(3.2)
SLM-3A	4.19	3.50	0.500-13	0.53	0.28	4.14	2.45	1.75	0.54	0.125
	(106.4)	(88.9)	UNC-2B	(13.5)	(17.4)	(105.2)	(62.2)	(44.4)	(12.5)	(3.2)

**WEB** See our website for more info on SLM-3A. [Please click here](#)



**SLM-3A**

[www.newport.com](http://www.newport.com)



**Newport Corporation, Global Headquarters**  
1791 Deere Avenue, Irvine, CA 92606, USA

[www.newport.com](http://www.newport.com)

**PHONE:** 1-800-222-6440 1-949-863-3144 **FAX:** 1-949-253-1680 **EMAIL:** [sales@newport.com](mailto:sales@newport.com)

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Japan	+81-3-3794-5511	<a href="mailto:spectra-physics@splasers.co.jp">spectra-physics@splasers.co.jp</a>	Germany / Austria / Switzerland	+49-(0)6151-708-0	<a href="mailto:germany@newport.com">germany@newport.com</a>
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