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Introduction

Manual Linear UniSlide® Assemblies



For Nearly Four Decades Velmex...

positioning equipment has been used to produce linear and rotational motion in scientific, research, machine, instrument and industrial applications. Hundreds of thousands of UniSlides and BiSlides are in use providing simple, rugged, reliable motion.

Velmex applications are limited only by your imagination. For example: measurement, alignment, inspection and QA/QC, optical focusing, antenna alignment, film and animation work, medical and biological analysis, for moving probes, sensors, components, and thousands of other uses. If you need precise, versatile movement in one, two or three dimensions, do it more efficiently and less expensively with a Velmex UniSlide®, BiSlide® or XSlide™.

UniSlides are available in nearly 1000 standard models, including Free Sliding, Screw Drive, Graduated Knob and Scale with Vernier. Read position from 0.025" to 1 micron using mechanical or optical mechanisms. Finally, our Rapid Advance models save time.

That is an impressive array of products, but the real versatility of UniSlides is their amazing flexibility. Every UniSlide is built to order. Customers are not limited to off the shelf products — you can customize your UniSlide to meet your exact requirements. Rapid/fine motion, thumb screw locks, special finishes, way covers, revolution counters, position encoders or some other feature? We can do it.

BiSlide, XSlide and UniSlides Assemblies from Velmex, we've put quality into motion.

Note: *Throughout this catalog you'll see*
Keywords in a RED rectangle.
Clicking the word takes you the relevent page on our website. There you can get more information, including access to drawings, specs, prices, photos of examples and our latest innovations.

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UniSlide Features

- Widths from 1.5” to 9”
- Lengths from 3” to 93”
- Weight capacities to 400 pounds
- Resolutions to 0.00005”
- Manual and motorized versions
- More compact than ball screw-driven stages
- Lighter weight-high strength aluminum alloys
- Low friction adjustable Rulon® sliding element eliminates lubrication, greatly decreases wear
- Resistant to impact loads
- Corrosion resistant
- Fewer parts
- Lower cost
- Completely nonferrous models possible

Keyword: examples



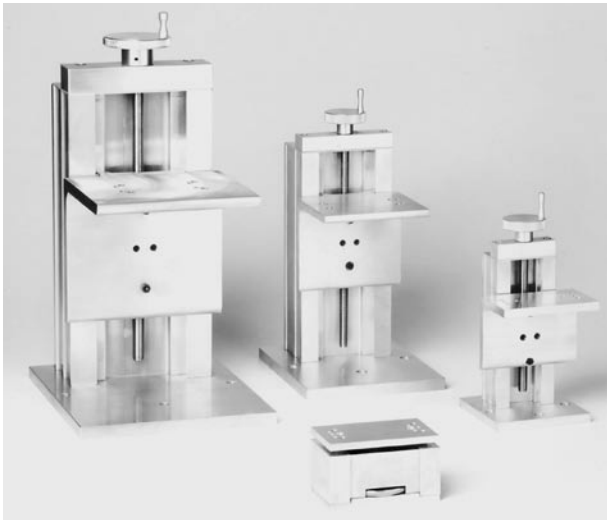
Scale and Vernier and Graduated Knob Series A25 Manual UniSlide Assemblies.

BiSlide Features

- Rugged I-beam design
- Integrated T-slot system for mounting and configuring XYZ systems
- Manual and motorized versions
- Corrosion resistant anodized finish
- In stock



Manual BiSlide Assembly with optional base.



UniSlide Elevating Tables for applications requiring more strength and rigidity.

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Table of Contents

Manual

Manual UniSlide®

Contents	
Examples and Application Photos	1.4
Actual Size Cross-Sections	1.6
Selecting the Right UniSlide	1.8
Series A15	1.9
Series A25	1.15
Series A40	1.21
Series A60	1.27
Series B90	1.31
Options	1.34
Engineering Data	1.36
Lead Screws	1.38
XY Tables	1.39
Elevating Tables	1.42
XY Adapter Plates	1.44
XZ Adapter Plates	1.46
XZ Adapter Brackets	1.49
TA Rapid Advance UniSlide with Linear Encoder	1.52
B Series Dovetail Base	1.54
Modifications	1.55
Warranty	1.56
Combining UniSlides	1.57
Manual Products Fax-A-Quote	1.58

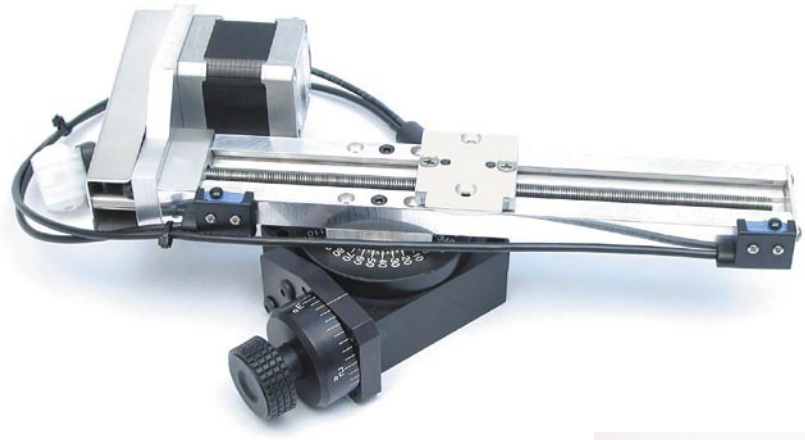


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Examples and Application Photos

Here are examples of UniSlide® stock and custom positioning equipment. Many more examples are shown on our website.

For help, please call our engineering staff, fill out the RFQ/RFA form on our website or the Fax-a-Quote form on page 1.58.



Example 1: *A manual rotary table that rotates a small, motorized slide.*

Example 2: *A three axis system including an elevating table, all with a black anodized finish.*



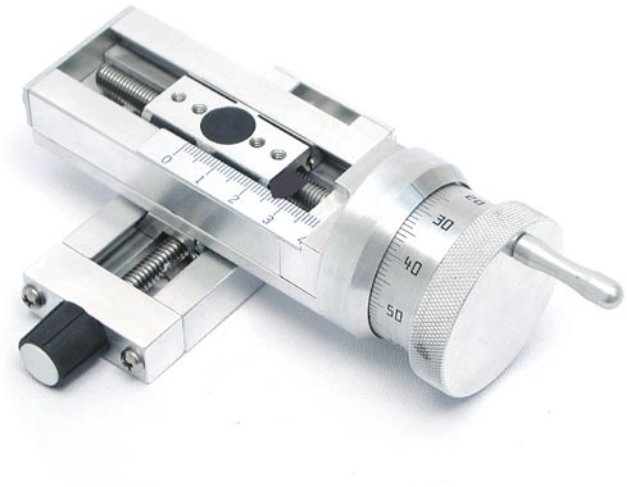


Example 3: *A four axis system to measure travel distance for medium-sized payloads.*

Keyword: examples

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Example 4: *Choose screw controlled positioning with or without travel measurement.*





Example 5: *Choose your assemblies width: 1.5", 2.5", 4", 6" or 9".*

Example 6: *Choose linear encoders with 1 or 5 µm resolution.*

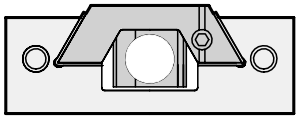


Keyword: examples

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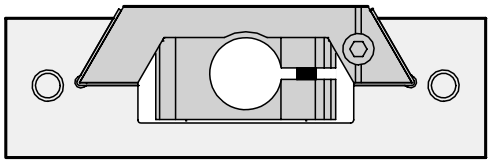
Choose a Size or Series

Actual size cross sections of the 5 different UniSlide Assembly Series. Drive nut diameter will vary.



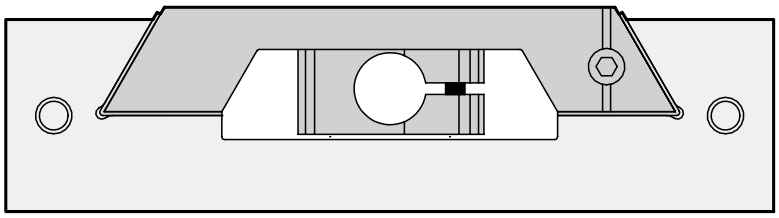
A15 Series

See page 1.9 for details.



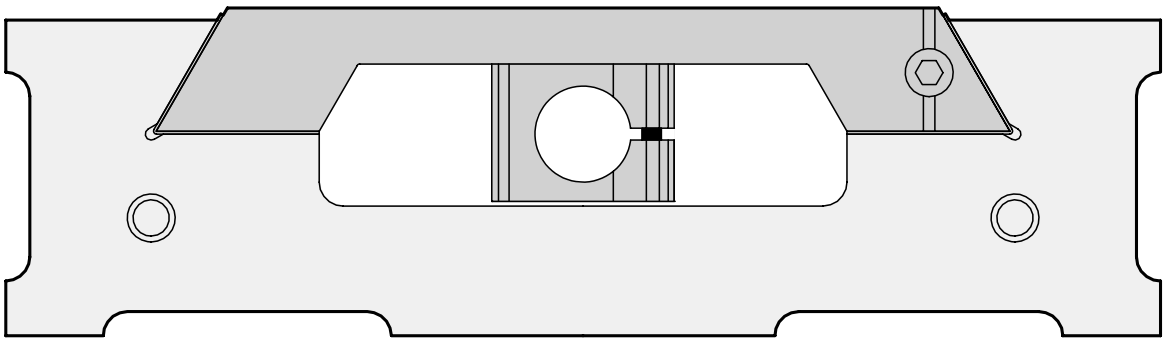
A25 Series

See page 1.15 for details.



A40 Series

See page 1.21 for details.



A60 Series

See page 1.27 for details.

Keyword: size

Travel Distances and Load Capacities of Manual UniSlides

Width Series		Travel Range	Horizontal Central	Cantilevered Load	Vertical Central
1.5"	A15	0-25.5"	15 lbs. or 6.8 kgs.	20 lbs.-in. or 23 kgs.-cm.	10 lbs. or 4.5 kgs.
2.5"	A25	0-24.5"	30 lbs. or 13.6 kgs.	40 lbs.-in. or 46 kgs.-cm.	10* lbs. or 4.5* kgs.
4"	A40	0-60"	100 lbs. or 45.5 kgs.	130 lbs.-in. or 150kgs.-cm.	50 lbs. or 22.7 kgs.
6"	A60	0-87"	240 lbs. or kgs.	320 lbs.-in. or 369 kgs.-cm.	100 lbs. or 45 kgs.
9"	B90	0-84"	400 lbs. or 182 kgs.	480 lbs.-in. or 550 kgs.-cm.	100 lbs. or 45 kgs.

** A25 Vertical Central Load Capacity with a 10 pitch (W1 and P10) screw is 30 lbs./15.5 kg. to due to a stronger thrust bearing design.*

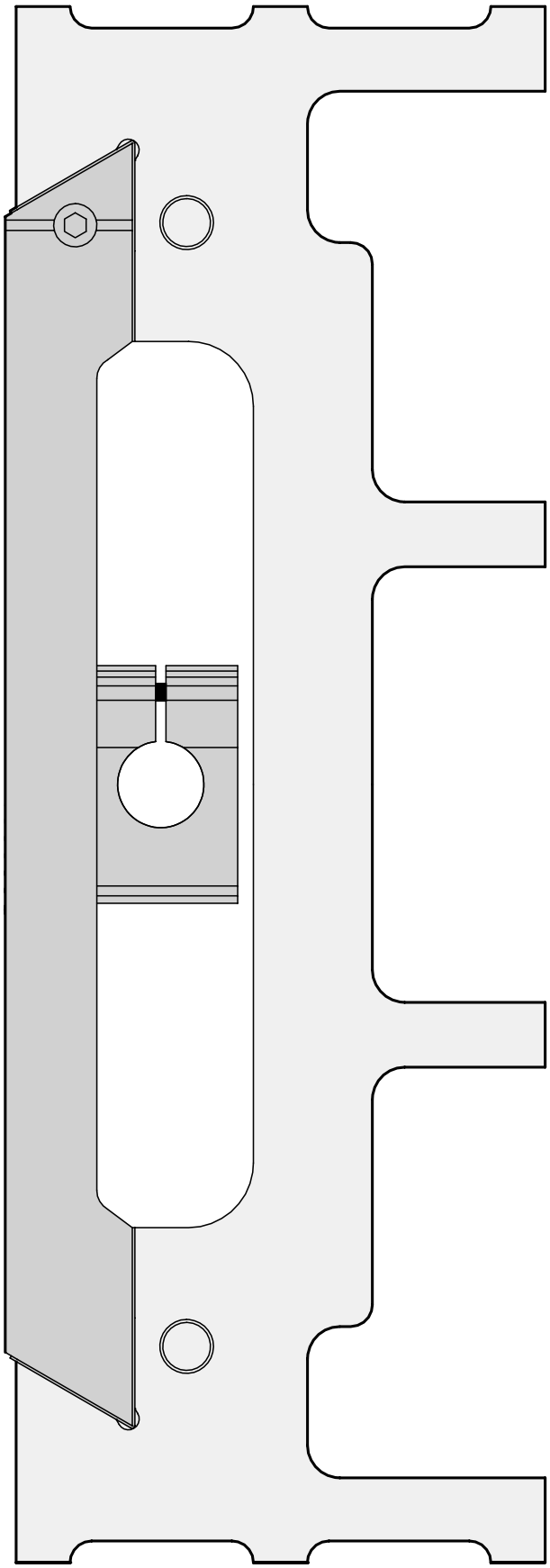
Also, for greater base stiffness, Series A25, A40 and A60 are available in deeper cross sections. See the B Series Bases on page 1.54 for more information.

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B90 Series

See page 1.31 for details.



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Selecting the Right Size UniSlide

Load and slide size are major variables to consider when choosing your UniSlide. This page gives general guidelines on load handling for horizontal, vertical and cantilevered loads. Detailed dimensional information for each series is provided on the following pages.

Nominal Load Capacity for Single (X) and (Y) Axis

Series	Load Normal (L_N)*		Load Thrust (L_T)*	
A15	0-5 lbs.	0-2.7 kgs.	0-1 lbs.	0-4.5 kgs.
A25	0-10 lbs.	0-4.54 kgs.	0-3 lbs.	0-1.36 kgs.
A40	0-40 lbs.	0-18.14 kgs.	0-20 lbs.#	0-9.07 kgs.
A60	0-80 lbs.	0-36.29 kgs.	0-40 lbs.#	0-18.14 kgs.
B90	0-140 lbs.	0-63.5 kgs.	0-70 lbs.	0-31.75 kgs.*

Values are less than minimum; refer to the engineering specifications on page 1.36 for operational limits.

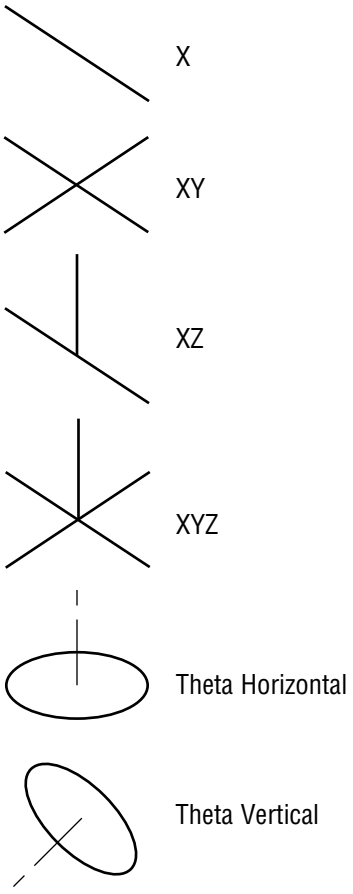
 # 5 lbs. max for Rapid Advance models.

Load Capacity for Low Deflection on the X Axis of XY and XYZ or Other Cantilever Loads

Series	Cantilever Side (L_{CS})*	Cantilever Inline (L_{CI})*
A15	0-5 lbs.-in.	0-10 lbs.-in.
A25	0-10 lbs.-in.	0-20 lbs.-in.
A40	0-32 lbs.-in.	0-64 lbs.-in.
A60	0-80 lbs.-in.	0-160 lbs.-in.
B90	0-120 lbs.-in.	0-204 lbs.-in.

** Values are less than minimum; refer to the engineering specifications on page 1.36 for operational limits.*

Load Configurations

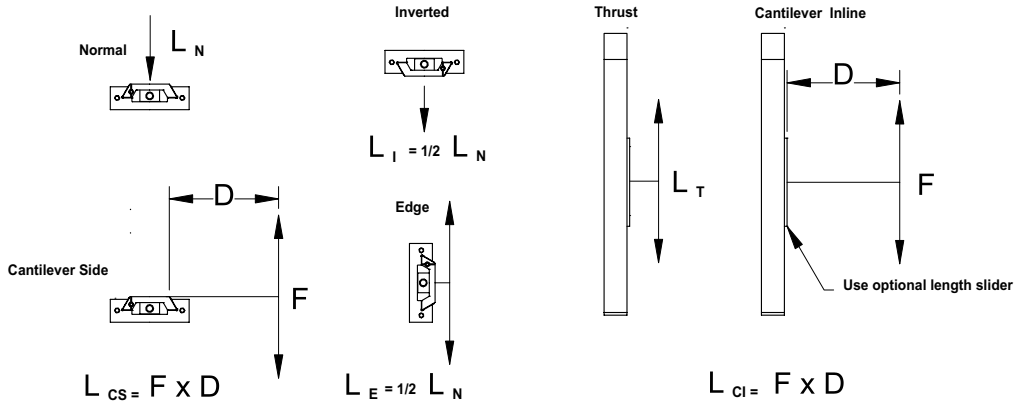


Working With Cantilever Loads in XY and XYZ

The X axis carries the weight of the Y axis, the Z axis and the attached load. For good stability, the X axis should be one model larger when the Y axis length (L) is longer than three times (3x) the width of the X.

Example 1: *Two A4012B-S4 UniSlides* would be suitable in an X and Y configuration. These A40 models are 4" wide and 12" long.

Example 2: If considering two A4015B-S4 UniSlides for an X and Y configuration, choose an A6018B-S6 for the X axis instead. This will be more stable, since the A60 model is 6" wide. The A4015B-S4 is only 15" long – not enough to meet the 3x criteria spelled out above.



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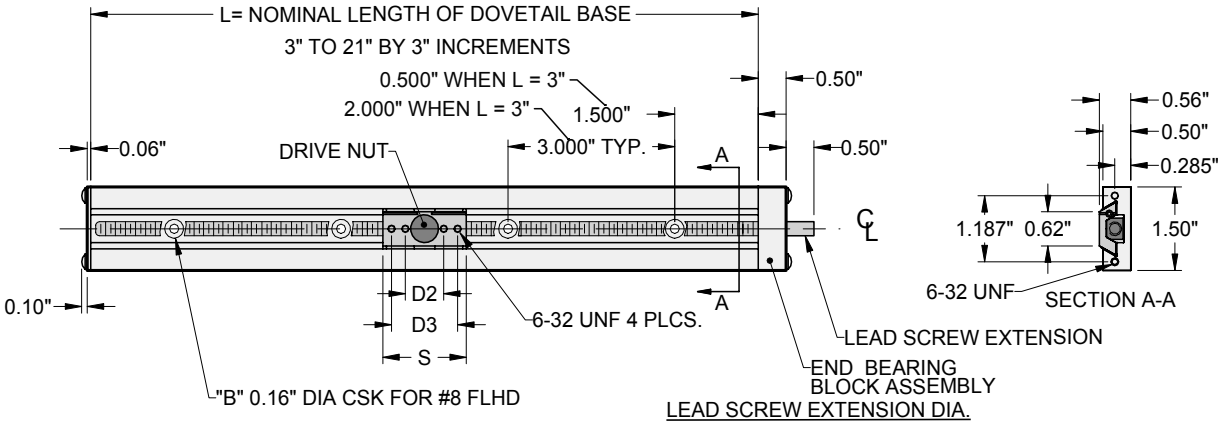
Screw driven and graduated knob UniSlides

Introduction

All Series A15 UniSlides are 1.5” wide. Lengths vary by Type. There are 9 types. Each Type offers you specific features and benefits to satisfy your requirements. The UniSlide Model Number specifies the Type and other characteristics. ***Prices and Model Numbers are listed on the separate Price List and at “Input Your Specifications” on our web site.*** *Enter keyword “find” in Quick Search Box.*

Series A15

Series A15 Common Dimensions and Load Capacity



SLIDER LENGTH S		D2	D3
STANDARD	1.50"	0.688"	1.188"
OPTIONAL	2.00"	1.188"	1.688"
OPTIONAL	3.00"	1.188"	2.688"

S is the slider length. The standard length is 1 1/2.” Optional longer 2” and 3” length sliders are available to increase stability for large or cantilevered load.

L is the dovetail base length. Bases begin at 3” and increase in 3” increments. Your choice for base length is incorporated as the third and fourth digits of the Model Number. For example, Model A1506 has a 6” base length.

Travel = L - S. For an A1506B-S1.5, travel is 6”- 1.5” or 4.5”. See Price List for Model Numbers and travel with standard length sliders.

Mounting holes “B” in the UniSlide Base – The first B mounting hole is 1 1/2” from the bearing block end of the dovetail base. All subsequent holes are 3” apart lengthwise along the base, e.g., A1512 has 4 mounting holes. Exception: any model with a base length of less than 6” has two base mounting holes 1/2” from each end.

Load Capacity
Dynamic Central Horizontal = 15 lbs. or 6.8 kg.
Dynamic Central Vertical = 10 lbs. or 4.5 kg.
Cantilevered = 20 lbs. -in. or 23 kg. -cm.

When Combining 2 or 3 units using XY and XZ Adapters (pages 1.44), see load considerations on Selecting the Right Size UniSlide on page 1.8.

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Free Sliding UniSlide Assembly

The simplest assembly, a linear dovetail bearing. To specify, add "***A***" after the base length in the Model Number, e.g., A1503A-S1.5.

Feature: Linear Dovetail Be aring
Benefit: Linear motion
Length (Travel): Models from 0-25.5 inches

Some Available Options (see pages 1.34)
- Hard anodized or electroless nickel base
- Black anodizing on all surfaces
- 2" or 3" sliders
- Traveling slider lock

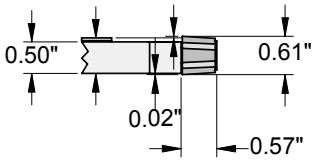


Screw Drive UniSlide Assembly

A Lead Screw controlled positioning slide. For 0.01" or 0.1 mm DRO position indication using a revolution counter and K1 lead screws, see page 1.35.

Feature: Free sliding plus lead screw drive
Benefit: Screw controlled positioning
Length (Travel): Models from 0-16.5 inches

Available Options (see pages 1.34)
- Lead screw lock — slider lock
- Hard anodized or electroless nickel base
- Black anodizing on all surfaces
- 2" or 3" sliders
- 1 3/4" diameter aluminum knob and crank



Note: *Throughout this catalog you'll see* ***Keywords in a RED rectangle.*** *Clicking the word takes you the relevent page on our website. There you can get more information, including access to drawings, specs, prices, photos of examples and our latest innovations.*

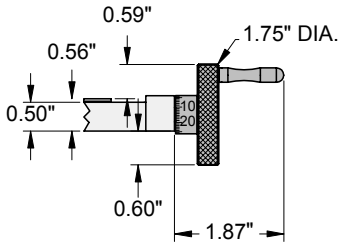
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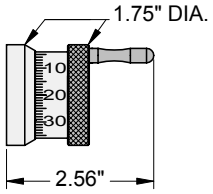
Graduated Knob UniSlide Assemblies

Measures position to 0.001” or 0.01 mm.

Your position is measured from the combined readings of the linear scale and engraved knob or drum dial. Each increment on the drum dials or knobs represents 0.001” or 0.01 mm. Scales have 0.025” or 1 mm increments. P20 or P40 lead screw models have a knob as in the drawing below. Q1 or Q2 lead screw models have a drum dial as shown below. ***More***



50 division P20 or 25 division P40 model knobs



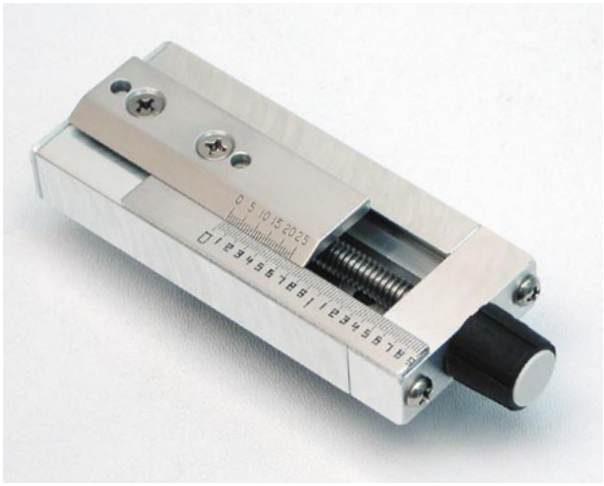
100 division Q1 or 200 division Q2 model knobs

Graduated Knob type Models have a high precision lead screw (accuracy 0.0015”/10”. or 0.033 mm/20 cm or better).

Feature: Screw drive plus accurate lead screw, engraved knob and printed scale

Benefit: Measures position to 0.001” or 0.01 mm

Length (Travel): Models from 0-16.5 inches0



Scale and Vernier Screw Drive UniSlide Assembly

Measures position to 0.001” or 0.05 mm.

This type adds a precision engraved English or Metric scale and vernier to the Screw Drive UniSlide. Vernier position on the slider is offset to allow placement of a “Y” cross slide without blocking view of lower unit. Travel, as listed in the Price List, is reduced by 0.3” when the vernier cover plate comes into contact with the Rogan knob. See also the Rapid Advance with Scale and Vernier Style on the next page.

Feature: Engraved scale and vernier

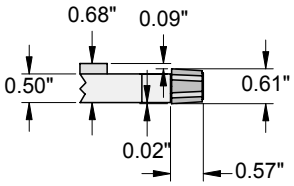
Benefit: Measures position to 0.001” or 0.05 mm

Length (Travel): Models from 0-10.5 inches

Available Options

(for both models on this page, see pages 1.34)

- Lead screw lock — slider lock
- Hard anodized or electroless nickel base
- Black anodizing on all surfaces
- 2” or 3” long sliders



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All Rapid Advance Models

If you will be moving the slider frequently or your base length is long, consider one of these models. They **save time** by allowing you to quickly reposition the slider. This is accomplished by uncoupling from the drive system. There are two different Model groups, D, and G. They both use a clamping type drive and have different lengths of fine-adjust control. Mounting in a vertical position is not recommended.

To operate, rotate the control lever on the slider to the "Release" station. Next, manually push the slider to the approximate desired location. Finally, rotate the control lever to the "Engage" station and fine-adjust the slider position with the knob. All Scale and Vernier units have a 1/8" top plate making the height to the top of slider 11/16". More

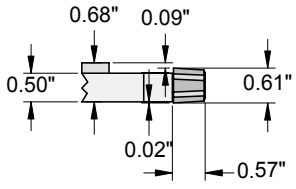




Rapid Advance with Limited Fine Adjust (Model D)

D Models have a 1/2" length of fine pitch adjust control. Moving the control lever clamps the slider to a central mandrel. Turning the Rogan knob rotates a short, 40 thread/inch screw into a threaded insert in the end of the mandrel. All metal parts are stainless and aluminum. Rogan knob is 0.61" diameter. If measured movement is required, see Models DE and GE.

Feature: Quick gross position
Benefit: Save time. Fine pitch adjustment
Length (Travel): Models from 0-16.5 inches



Rapid Advance with Scale and Vernier (Models DE and DM)

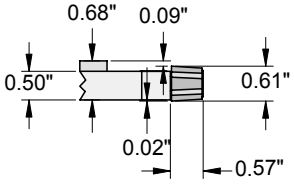
DE and DM Models add an engraved scale and vernier to the Model D which provides measured movement and fixed zero reference point. Model DE has an English scale; Model DM has a Metric scale.

Feature: Quick gross position with vernier
Benefit: Save time and measure position to 0.001"or 0.05 mm
Length (Travel): Models from 0-16.5 inches

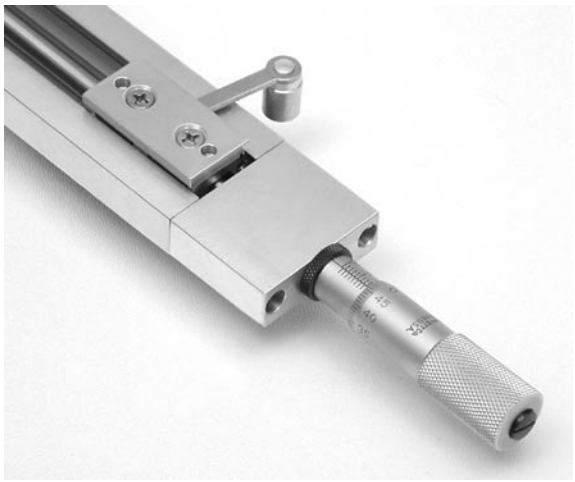
Available Options

(for both models on this page, see pages 1.34)

- Slider lock
- Hard anodized or electroless nickel base
- Black anodizing on all surfaces
- Optional 3" length slider



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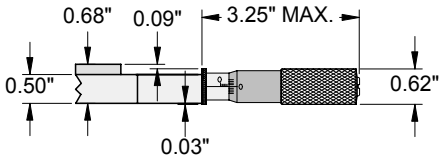
Rapid Advance with Micrometer Head (Models GE and GM)

GE and GM Models have measured movement (1" or 25 mm) anywhere along the base and a movable zero reference point. Fine adjustment is made with a micrometer calibrated to 0.001" (Model GE) or 0.01 mm (Model GM). The mandrel clamping mechanism is the same as Model D. The end bearing block is 1 1/4" long.

Feature: Quick gross position; micrometer head
Benefit: Save time and measure position. Moveable zero reference point.
Length (Travel): Models from 0-10.5 inches

Available Options (see pages 1.34)

- Hard anodized or electroless nickel base
- Black anodizing on all surfaces
- Optional 3" length slider





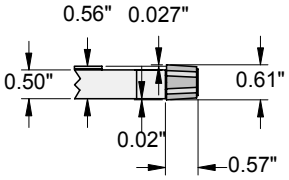
Left-Hand Right-Hand Screw Drive

These unique UniSlides incorporate two sliders driven by a single right and left-hand threaded standard accuracy lead screw. When the knob is turned the sliders simultaneously move toward or away from each other. These slides are very useful for applications where two objects must share a common axis of movement. Typical uses for Left-Right UniSlides include centering or mating operations in manufacturing, testing and research environments. For example, guide forks can be mounted on the sliders to insure that roll goods of different widths are precisely centered. ***More***

Feature: Left and right-hand thread on a common shaft
Benefit: Simultaneous together or apart motion
Length (Travel): Models from 0-15 inch separation

Available Options (see pages 1.34)

- Lead screw lock
- Hard anodized or electroless nickel base
- Black anodizing on all surfaces
- 2" or 3" length sliders
- Independent (separate) lead screws
- 1 3/4" diameter aluminum knob and crank



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Rack and Pinion Drive

These models delivers precision motion without backlash. Choose from 3 travel distances (models): 1.375", 2.875" or 5.875".

Operation: A side knob rotates a pinion engaging a helical rack attached to slider; advance per turn is 0.737"

Feature: Helical rack and pinion drive
Benefit: Compact, side access, minimal backlash, rapid, smooth motion
Length (Travel): 1.375, 2.875 or 5.875
Length (Slider): Varies with travel (See chart below).

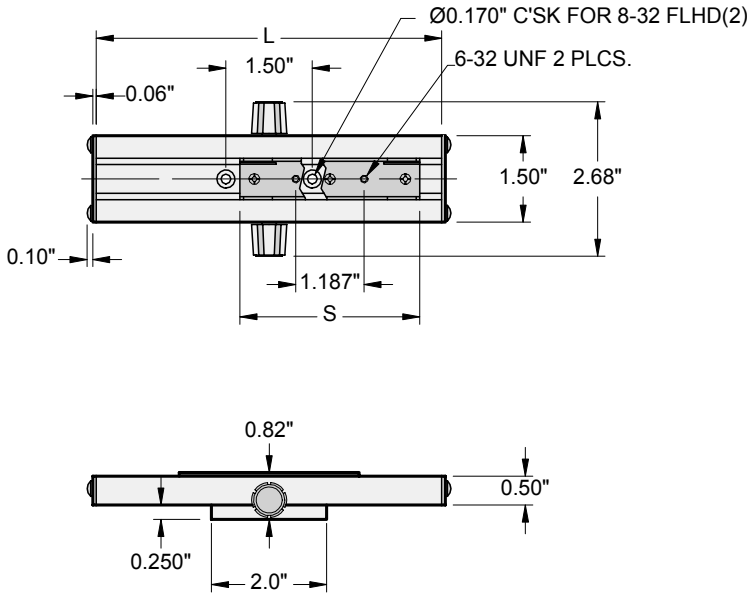
Depth from the bottom of the 1/4" base plate to the pinion center line is 11/32" and to the top of the slider is 13/16". Slider holes are tapped for 6-32 thread and are 1 3/16" apart. A pair of base mounting holes for 8-32 flat head mounting screws are centered 1 1/4" apart. The Model A1512R includes two extra mounting holes 31/32" from each end of the slider.

Available Options

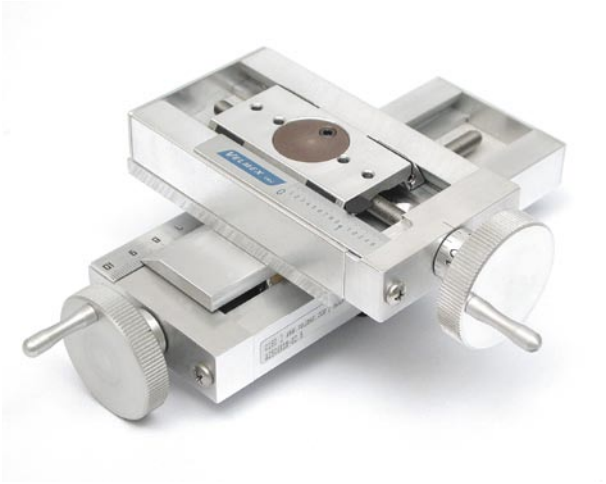
- Hard anodized or electroless nickel base
- Black anodizing on all surfaces
- Lock: A second knob locks the pinion. To order, add "L" to the end of the model number.

For a side drive in other Series, see also Right Angle Gear Drive on page 1.35.

Model No.	Travel	Length L	Slider Length S	Weight
A1503R	1 3/8"	3"	1 5/8"	6 oz.
A1506R	2 7/8"	6"	3 1/8"	9 oz.
A1512R	5 7/8"	12"	6 1/8"	15 oz



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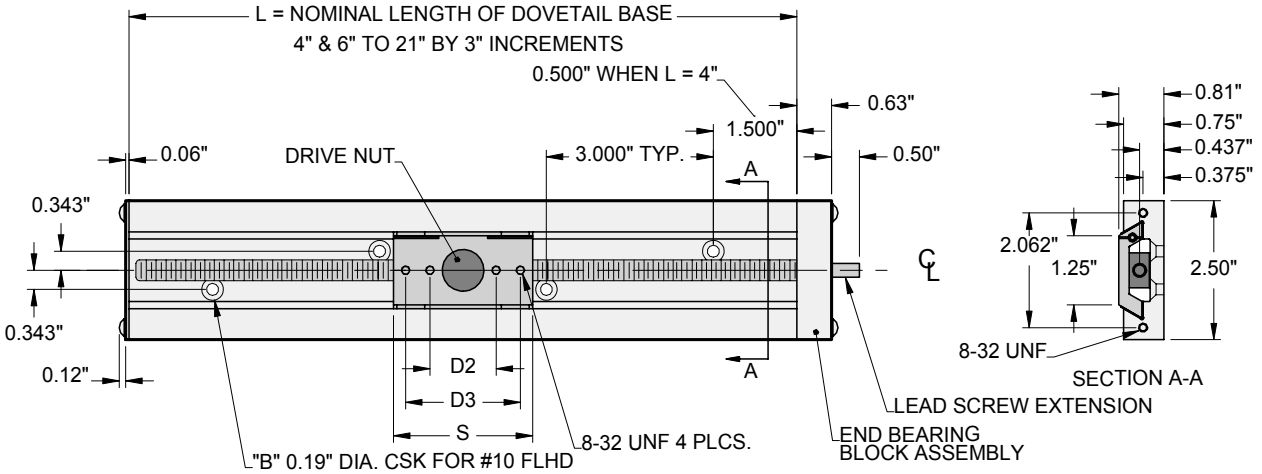


Introduction

All Series A25 UniSlides are 2.5" wide. Lengths vary by Type. There are 8 Types. Each Type offers you specific features and benefits to satisfy your requirements. The UniSlide Model Number specifies the Type and other characteristics. ***Prices and Model Numbers are listed on the separate Price List and at "Input Your Specifications" on our web site. Enter keyword "find" in Quick Search Box.***

Series A25

Series A25 Common Dimensions and Load Capacity



SLIDER LENGTH S		D2	D3
STANDARD	2.50"	1.188"	2.062"
OPTIONAL	3.00"	2.062"	2.562"
OPTIONAL	4.00"	2.062"	3.562"

LEAD SCREW EXTENSION DIA.

0.218" FOR B & P20 *
0.231" FOR C & P40 *
0.250" FOR W1 & P10
0.250" FOR K1 & Q1
0.250" FOR K2 & Q2
0.250" FOR LEFT/RIGHT UNITS

S is the slider length. The standard length is 2 1/2." Optional 3" and 4" sliders are available to increase stability for large or cantilevered load.

L is the dovetail base length. Bases begin at 4" and after 6", increase in 3" increments. Your choice for base length is incorporated as the third and fourth digits of the Model Number. For example, Model A2506 has a 6" base length.

Travel = L - S. For an A2506B-S2.5, travel is 6"- 2.5" or 3.5". See Price List for Model Numbers and travel with standard length sliders.

Mounting holes "B" in the UniSlide Base – The first B mounting hole is 1 1/2" from the bearing block end of the dovetail base. All subsequent holes are 3" apart lengthwise along the base, e.g., A2512 has 4 mounting holes. Also note, mounting holes in Model A2504 are 1/2" inward from each end of the dovetail base or 3" apart.

Load Capacity

Dynamic Central Horizontal = 25 lbs. or 6.8 kgs.
Dynamic Central Vertical = 10 lbs. or 4.5 kgs.*
Cantilevered = 40 lbs. -in. or 46 kgs. -cm.

*Exception: W1 and P10 lead screw = 30 lbs.

See Options (pg. 1.34) for way covers, optional finishes, etc.
See Combining UniSlides (pg. 1.57) to combine 2 or 3 units.

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Free Sliding UniSlide Assembly

The simplest assembly. A Linear Dovetail Bearing. To specify, add “A” after the base length in the Model Number, e.g., A2506A-S2.5.

Feature: Linear Dovetail Bearing
Benefit: Linear motion
Length (Travel): Models from 0-24.5 inches

Available Options (see pages 1.34)

- Hard anodized or electroless nickel base
- Black anodizing on all surfaces
- Optional length sliders
- Traveling slider lock



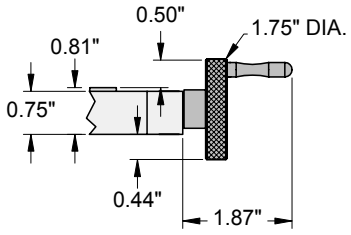
Screw Drive UniSlide Assembly

A Lead Screw controlled positioning slide. For 0.01 or 0.1 mm DRO position indication using a revolution counter and the W1 and K1 lead screws, see page 1.35.

Feature: Free sliding plus lead screw drive
Benefit: Screw controlled positioning
Length (Travel): Models from 0-24.5 inches

Available Options (see pages 1.34)

- Lead screw and slider locks
- Hard anodized or electroless nickel base
- Black anodizing on all surfaces
- Optional 3” or 4” long sliders



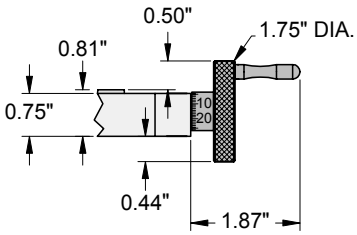
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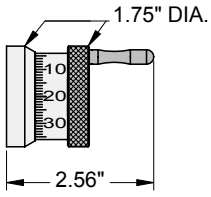
Graduated Knob UniSlide Assemblies

Measures position to 0.001" or 0.01 mm.

Your position is measured from the combined readings of the linear scale and engraved knob or drum dial. Each increment on the drum dials or knobs represents 0.001" or 0.01 mm. Scales have 0.025" or 1 mm increments. P20 or P40 lead screw models have a knob as in the drawing below. P10, Q1 or Q2 lead screw models have a drum dial as shown below. *More*



50 division P20 or 25 division P40 model knobs



100 division P10, Q1 or 200 division Q2 model knobs

Graduated Knob type Models have a high precision lead screw (accuracy 0.0015"/10". or 0.033 mm/20 cm or better).

Feature: Screw drive more accurate lead screw, engraved knob and printed scale
Benefit: Measures position to 0.001" or 0.01 mm
Length (Travel): Models from 0-15.5 inches



Scale and Vernier Screw Drive UniSlide Assembly

Measures position to 0.001" or 0.05 mm.

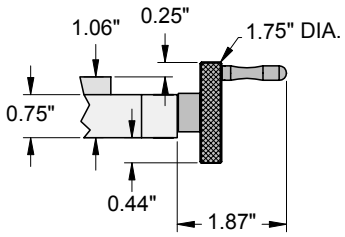
This type adds a precision engraved English or Metric scale and vernier to the Screw Drive UniSlide. Vernier position on the slider is offset to allow placement of a "Y" cross slide without blocking view of lower unit. See also the Rapid Advance with Scale and Vernier Style on the next page.

Feature: Engraved scale and vernier
Benefit: Measures position to 0.001" or 0.05 mm
Length (Travel): Models from 0-16.5 inches

Available Options

(for both models on this page, see Options page 1..34)

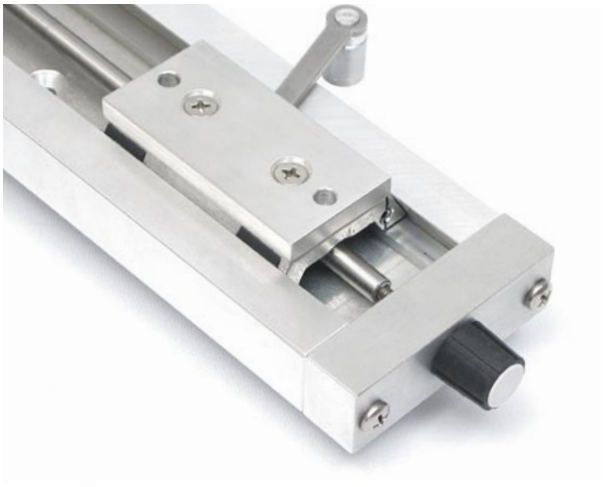
- Lead screw lock
- Hard anodized or electroless nickel base
- Black anodizing on all surfaces
- Optional length sliders



All Rapid Advance Models

If you will be moving the slider frequently or your base length is long, consider one of these models. They **save time** by allowing you to quickly reposition the slider. This is accomplished by uncoupling from the drive system. There are three different Model groups, D, G, and H. The D and G Models use a clamping type drive. The H Model uses a lead screw and pinion design. They have different lengths of fine-adjust control. Mounting in a vertical position is not generally recommended.

To operate, rotate the control lever on the slider to the "Release" station. Next, manually push the slider to the approximate desired location. Finally, rotate the control lever to the "Engage" station and fine-adjust the slider position with the knob. All Scale and Vernier units have a 1/4" top plate making the height to the top of slider 1 1/16".
More

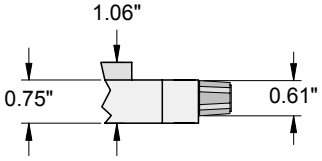




Rapid Advance with Limited Fine Adjust (Model D)

D Models have a 1/2" length of fine pitch adjust control. Moving the control lever clamps the slider to a central mandrel. Turning the Rogan knob rotates a short, 40 thread/inch screw into a threaded insert in the end of the mandrel. All metal parts are stainless and aluminum. Rogan knob is 0.61" diameter. If measured movement is required, see Models DE and GE.

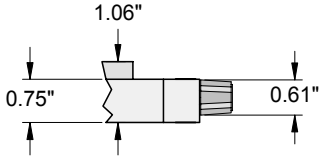
Feature: Quick gross position
Benefit: Save time. Fine pitch adjustment
Length (Travel): Models from 0-15.5 inches



Rapid Advance with Scale and Vernier (Models DE and DM)

DE and DM Models add an engraved scale and vernier to the Model D and provides measured movement and fixed zero reference point. Model DE has an English scale; Model DM has a Metric scale.

Feature: Quick gross position with vernier
Benefit: Save time and measures position to 0.001" or 0.05 mm
Length (Travel): Models from 0-16.5 inches



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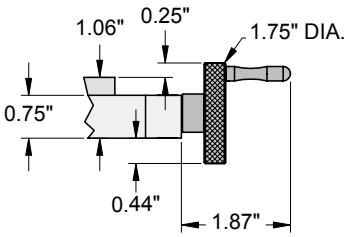


Rapid Advance with Full Travel Fine Adjust (Model H1 and H20)

Model H units provide fine adjust control over the full travel length, using a standard lead screw. Fine motion is accomplished using a unique system that applies a brake on two threaded brass pinions secured in a Delrin® carrier and delivers a smooth, quiet linear motion. Model H20 uses a 1/4"-20 thread/inch lead screw; Model H1 has a 7 x 1 mm pitch lead screw. These units are not recommended for vertically mounted applications. Load capacity is limited to 15 pounds horizontal or 2 pounds vertical.

Feature: Rapid Advance mechanism
Benefit: Save time. Full length screw control
Length (Travel): Models from 0-14 inches

Available Options (see pages 1.34)
- Slider lock
- Hard anodized or electroless nickel base
- Black anodizing on all surfaces



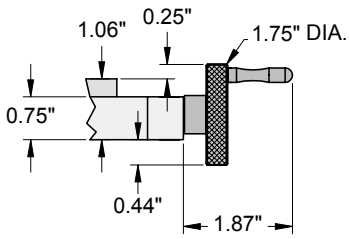


Rapid Advance with Full Travel Fine Adjust with Scale and Vernier (Models HE and HM)

HE and HM versions add an engraved scale and vernier, (0.001" or 0.05 mm resolution) to the H-model, and feature measured movement and a fixed zero reference point.

Feature: Rapid Advance mechanism, scale and vernier
Benefit: Saves time; measures movement
Length (Travel): Models from 0-17 inches

Available Options (see pages 1.34)
- Slider lock
- Hard anodized or electroless nickel base
- Black anodizing on all surfaces



Note: *Throughout this catalog you'll see* ***Keywords in a RED rectangle.***
Clicking the word takes you the relevent page on our website. There you can get more information, including access to drawings, specs, prices, photos of examples and our latest innovations.

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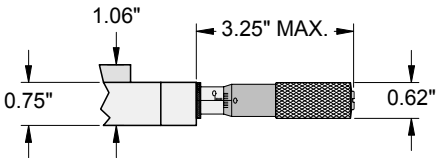


Rapid Advance with Micrometer Head (Models GE and GM)

GE and GM Models have measured movement (1" or 25 mm) anywhere along the base and a movable zero reference point. Fine adjustment is made with a micrometer calibrated to 0.001" (Model GE) or 0.01 mm (Model GM). The mandrel clamping mechanism is the same as Model D. The end bearing block is 5/8" long.

Feature: Quick gross position; micrometer head
Benefit: Save time and measure position. Moveable zero reference point.
Length (Travel): Models from 0-12.5 inches

Available Options (see pages 1.34)
- Hard anodized or electroless nickel base
- Black anodizing on all surfaces



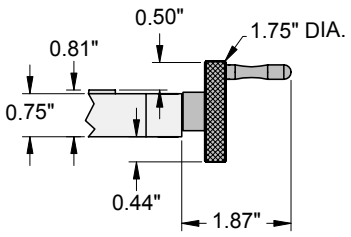


Left-Hand Right-Hand Screw Drive

These unique UniSlides incorporate two sliders driven by a single right and left-hand threaded standard accuracy lead screw. When the crank is turned the sliders simultaneously move toward or away from each other. These slides are very useful for applications where two objects must share a common axis of movement. Typical uses for Left-Right UniSlides include centering or mating operations in manufacturing, testing and research environments. For example, guide forks can be mounted on the sliders to insure that roll goods of different widths are precisely centered.

More
Feature: Left and right-hand thread on a common shaft
Benefit: Simultaneous together or apart motion
Length (Travel): Models from 0-16 inch separation

Available Options (see pages 1.34)
- Hard anodized or electroless nickel base
- Black anodizing on all surfaces
- Optional length sliders
- Lead screw lock
- Independent or separate lead screws



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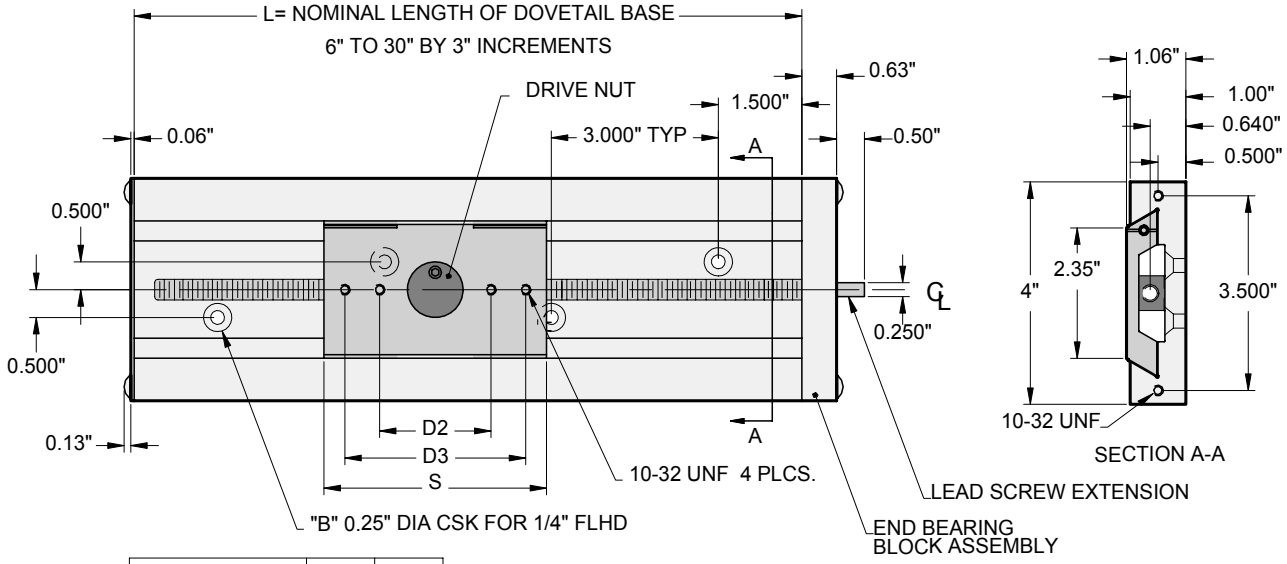


Introduction

All Series A40 UniSlides are 4" wide. Lengths vary by Type. There are 8 Types. Each Type offers you specific features or benefits to satisfy your requirements. The UniSlide Model Number specifies the Type and other characteristics. ***Prices and Model Numbers are listed on the separate Price List and at "Input Your Specifications" on our web site.*** *Enter keyword "find" in Quick Search Box.*

Series A40

Series A40 Common Dimensions and Load Capacity



SLIDER LENGTH S	D2	D3
STANDARD 4.00"	2.000"	3.250"
OPTIONAL 6.00"	3.250"	5.250"

S is the slider length. The standard length is 4." Optional 6" long slider is available to increase stability for large or cantilevered load.

L is the dovetail base length. Bases begin at 6" and increase in 3" increments. Your choice for base length is incorporated as the third and fourth digits of the Model Number. For example, Model A4006 has a 6" base length.

Travel = L - S. For an A4015B-S4, travel is 15"- 4" or 11". See Price List for Model Numbers and travel with standard length sliders.

Load Capacity
Dynamic Central Horizontal = 100 lbs. or 45 kgs.
Dynamic Central Vertical = 50 lbs. or 22 kgs.
Cantilevered = 130 lbs. -in. or 150 kgs. -cm.

See *Options* (pg. 1.34) for way covers, optional finishes, etc.
See *Combining UniSlides* (pg. 1.57) to combine 2 or 3 units.

Mounting holes "B" in the UniSlide Base – The first B mounting hole is 1 1/2" from the bearing block end of the dovetail base. All subsequent holes are 3" apart lengthwise along the base, e.g., A4015 has 5 mounting holes.



Free Sliding UniSlide Assembly

The simplest assembly, a Linear Dovetail Bearing. To specify, add "A" after the base length in the Model Number, e.g., A4009***A***-S4.

Feature: Linear Dovetail Bearing
Benefit: Linear motion
Length (Travel): Models from 0-56 inches

Available Options (see pages 1.34)
- Hard anodized or electroless nickel base
- Black anodizing on all surfaces
- Optional 6" long slider
- Traveling Slider Lock

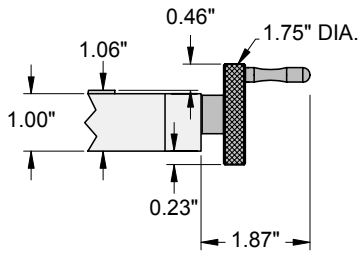


Screw Drive UniSlide Assembly

A lead screw controlled positioning slide. For 0.01" or 0.1 mm DRO position indication using a revolution counter and the W1 and K1 lead screws, see page 1.35.

Feature: Free sliding plus lead screw drive
Benefit: Screw controlled positioning
Length (Travel): Models from 0-56 inches

Available Options (see pages 1.34)
- Lead screw and slider locks
- Hard anodized or electroless nickel base
- Black anodizing on all surfaces
- Optional 6" long slider



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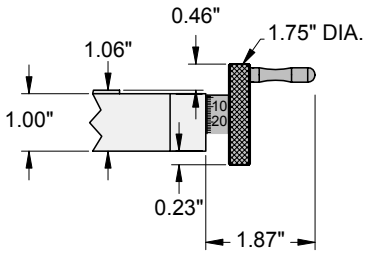




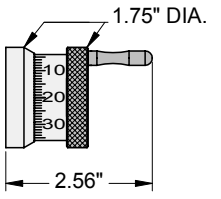
Graduated Knob UniSlide Assemblies

Measures position to 0.001" or 0.01 mm.

Your position is measured from the combined readings of the linear scale and engraved knob or drum dial. Each increment on the drum dials or knobs represents 0.001" or 0.01 mm. Scales have 0.025" or 1 mm increments. P20 or P40 lead screw models have a knob as in the drawing below. P5, P10, Q1 or Q2 lead screw models have a drum dial and collar as shown below. *More*



50 division P20 or 25 division P40 model knobs



100 division P10 and Q1 or
200 division P5 or Q2 model knobs

Graduated Knob type Models have a high precision lead screw (accuracy 0.0015"/10". or 0.033 mm/20 cm or better).

Feature: Accurate lead screw, engraved knob and printed scale
Benefit: Measures position to 0.001" or 0.01 mm
Length (Travel): Models from 0-35 inches

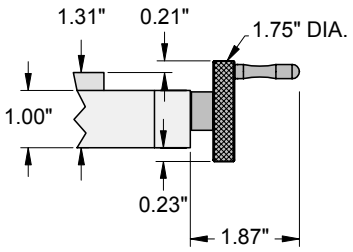
Scale and Vernier Screw Drive UniSlide Assembly

Measures position to 0.001" or 0.05 mm.

This type adds a precision engraved scale and vernier to the Screw Drive UniSlide. To formulate your Model Number, choose one of the lead screw code letters from Code Letter for Model Number above. Add the letter "E" for English scale or "M" for Metric scale. Vernier position on the slider is offset to allow placement of a "Y" cross slide without blocking view of lower unit. See also the Rapid Advance with Scale and Vernier Style on the next page.

Feature: Engraved scale and vernier
Benefit: Measures position to 0.001" or 0.05 mm
Length (Travel): Models from 0-17 inches

Available Options
(for both models on this page, see Options pages 1.34)
- Lead screw lock — slider lock
- Optional 6" long slider
- Special finishes or plating
- Encoders and revolution counters



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All Rapid Advance Models

If you will be moving the slider frequently or your base length is long, consider one of these models. They **save time** by allowing you to quickly reposition the slider. This is accomplished by uncoupling from the drive system. There are three different Model groups, D, G, and H. The D and G Models use a clamping type drive. The H Model uses a lead screw and pinion design. They have different lengths of fine-adjust control. Mounting in a vertical position is not recommended.

To operate, rotate the control lever on the slider to the "Release" station. Next, manually push the slider to the approximate desired location. Finally, rotate the control lever to the "Engage" station and fine-adjust the slider position with the knob. All Scale and Vernier units have a 1/4" top plate making the height to the top of slider 1 5/16".
More





Rapid Advance with Limited Fine Adjust (Model D)

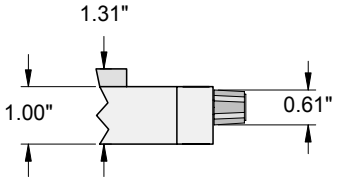
D Models have a 1/2" length of fine pitch adjust control. Moving the control lever clamps the slider to a central mandrel. Turning the Rogan knob rotates a short, 40 thread/inch screw into a threaded insert in the end of the mandrel. Most metal parts are stainless or aluminum. Rogan knob is 0.61" diameter. If measured movement is required, see Models DE and GE.

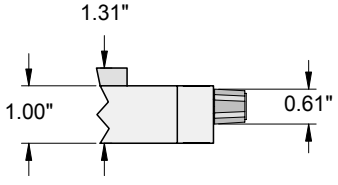
Feature: Quick gross position
Benefit: Save time. Fine pitch adjustment
Length (Travel): Models from 0-17 inches

Rapid Advance with Scale and Vernier (Models DE and DM)

DE and DM Models add an engraved scale and vernier to Model D and provides measured movement and fixed zero reference point. Model DE has an English scale; Model DM has a Metric scale.

Feature: Quick gross position with vernier
Benefit: Save time and measures position to 0.001" or 0.05 mm
Length (Travel): Models from 0-14 inches





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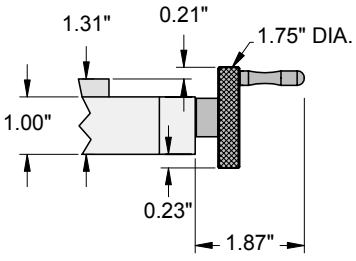


Rapid Advance with Full Travel Fine Adjust (Model H1 and H20)

Model H units provide fine adjust control over the full travel length, using a standard lead screw. Fine motion is accomplished using a unique system that applies a brake on two threaded brass pinions secured in a Delrin® carrier and delivers a smooth, quiet linear motion. Model H20 uses a 3/8”-20 thread/inch lead screw; Model H1 has a 10 x 1 mm pitch lead screw. These units are not recommended for vertically mounted applications. Load capacity is limited to 50 pounds horizontal or 2 pounds vertical.

Feature: Rapid Advance mechanism
Benefit: Saves time. Full length screw control
Length (Travel): Models from 0-14 inches

Available Options (see pages 1.34)
- Slider lock
- Hard anodized or electroless nickel base
- Black anodizing on all surfaces



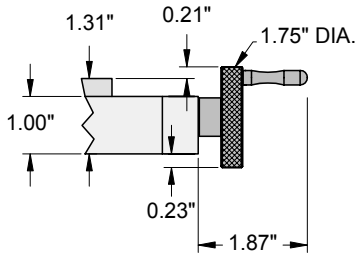


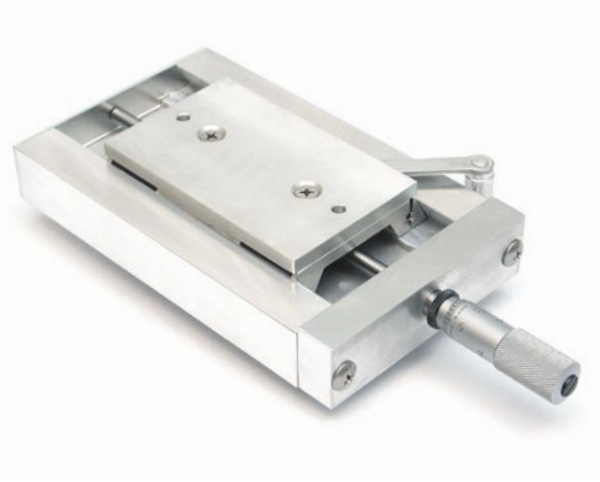
Rapid Advance with Full Travel Fine Adjust with Scale and Vernier (Models HE and HM)

HE and HM versions add an engraved scale and vernier, (0.001”or 0.05 mm resolution) to the H-model, and features measured movement and a fixed zero reference point. Fine motion is accomplished using a unique system that applies a brake on two threaded brass pinions secured in a Delrin® carrier and delivers a smooth, quiet linear motion. Model HM uses a 3/8”-20 thread/inch lead screw; Model HE has a 10 x 1 mm pitch lead screw. These units are NOT recommended for vertically mounted applications. Load capacity is limited to 50 pounds horizontal or 2 pounds vertical.

Feature: Rapid Advance mechanism, scale and vernier
Benefit: Saves time; measures movement
Length (Travel): Models from 0-17 inches

Available Options (see pages 1.34)
- Slider lock
- Hard anodized or electroless nickel base
- Black anodizing on all surfaces



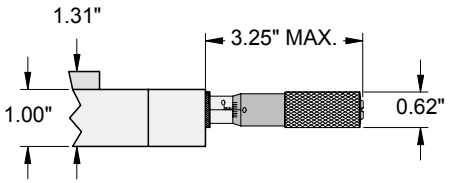


Rapid Advance with Micrometer Head (Models GE and GM)

GE and GM Models have measured movement (1" or 25 mm) anywhere along the base and a movable zero reference point. Fine adjustment is made with a micrometer calibrated to 0.001" (Model GE) or 0.01 mm (Model GM). The mandrel clamping mechanism is the same as Model D. The end bearing block is 5/8" long.

Feature: Quick gross position; micrometer head
Benefit: Save time and measure position. Moveable zero reference point.
Length (Travel): Models from 0-14 inches

Available Options
(for Rapid Advance Models, see pages 1.34)
- Hard anodized or electroless nickel base
- Black anodizing on all surfaces
- Optional 6" long slider



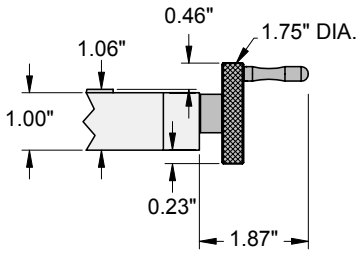


Left-Hand Right-Hand Screw Drive

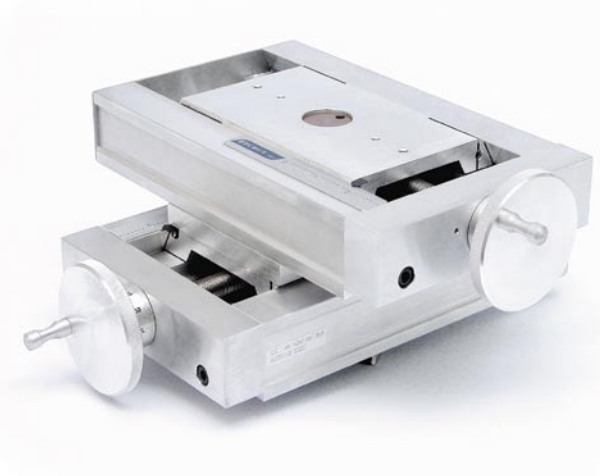
These unique UniSlides incorporate two sliders driven by a single right and left-hand threaded standard accuracy lead screw. When the crank is turned the sliders simultaneously move toward or away from each other. These slides are very useful for applications where two objects must share a common axis of movement. Typical uses for Left-Right UniSlides include centering or mating operations in manufacturing, testing and research environments. For example, guide forks can be mounted on the sliders to insure that roll goods of different widths are precisely centered.

More
Feature: Left and right-hand thread on a common shaft
Benefit: Simultaneous together or apart motion
Length (Travel): Models from 0-16 inch separation

Available Options (see pages 1.34)
- Hard anodized or electroless nickel base
- Black anodizing on all surfaces
- Optional length sliders
- Lead screw lock
- Independent or separate lead screws



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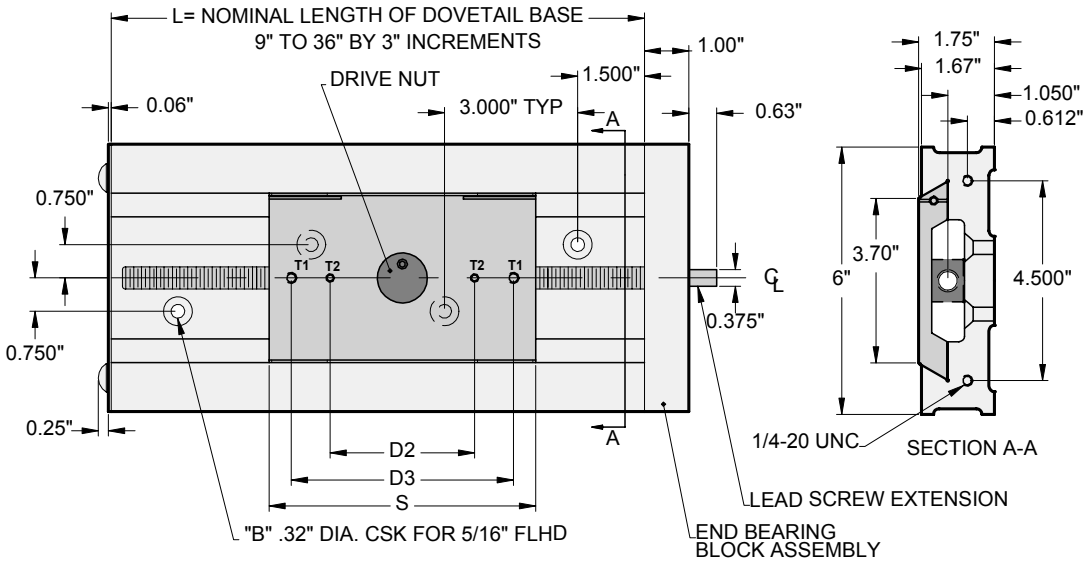


Introduction

All Series A60 UniSlides are 6" wide. Lengths vary by Type. There are 6 Types. Each Type offers you specific features or benefits to satisfy your requirements. The UniSlide Model Number specifies the Type and other characteristics. ***Prices and Model Numbers are listed on the separate Price List and at "Input Your Specifications" on our web site.*** *Enter keyword "find" in Quick Search Box.*

Series A60

Series A60 Common Dimensions and Load Capacity



SLIDER LENGTH S	D2	D3	T1	T2
STANDARD 6.00"	3.250"	5.000"	1/4-20	10-32
OPTIONAL 8.00"	5.000"	7.000"	1/4-20	1/4-20

S is the slider length. The standard length is 6." Optional 8" long slider is available to increase stability for large or cantilevered load.

L is the dovetail base length. Bases begin at 9" and increase in 3" increments. Your choice for base length is incorporated as the third and fourth digits of the Model Number. For example, Model A6015 has a 15" base length.

Travel = L - S. For an A6015B-S6, travel is 15"- 6" or 9". See Price List for Model Numbers and travel with standard length sliders.

Load Capacity
Dynamic Central Horizontal = 240 lbs. or 109 kgs.
Dynamic Central Vertical = 100 lbs. or 45 kgs.
Cantilevered = 320 lbs. -in. or 369 kgs. -cm.

See *Options* (pg. 1.34) for way covers, optional finishes, etc.
See *Combining UniSlides* (pg. 1.57) to combine 2 or 3 units.

Mounting holes "B" in the UniSlide Base — The first B mounting hole is 1 1/2" from the bearing block end of the dovetail base. All subsequent holes are 3" apart lengthwise along the base, e.g., A6015 has 5 mounting holes.

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Free Sliding UniSlide Assembly

The simplest assembly, a Linear Dovetail Bearing. To specify, add “A” after the base length in the Model Number, e.g., A6009***A***-S6.

Feature: Linear Dovetail Bearing
Benefit: Linear motion
Length (Travel): Models from 0-66 inches

Available Options (see pages 1.34)
- Hard anodized or electroless nickel base
- Black anodizing on all surfaces
- Optional 8” long slider
- Traveling Slider Lock

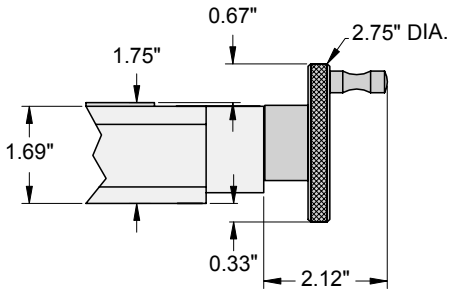


Screw Drive UniSlide Assembly

A lead screw controlled positioning slide. For 0.01” or 0.1 mm DRO position indication using a revolution counter and the W1 and K1 lead screws, see page 1.35.

Feature: Free sliding plus lead screw drive
Benefit: Screw controlled positioning
Length (Travel): Models from 0-66 inches

Available Options (see pages 1.34)
- Lead screw and slider locks
- Hard anodized or electroless nickel base
- Black anodizing on all surfaces
- Optional 8” long slider



Note: *Throughout this catalog you'll see* ***Keywords in a RED rectangle.*** *Clicking the word takes you the relevent page on our website. There you can get more information, including access to drawings, specs, prices, photos of examples and our latest innovations.*

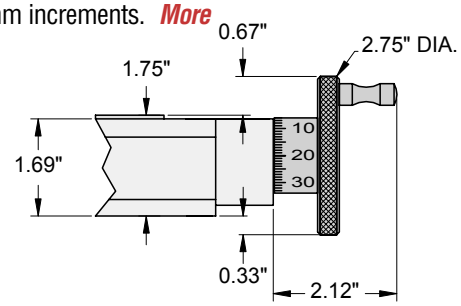
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Graduated Knob UniSlide Assemblies

Measures position to 0.001” or 0.01 mm.

Your position is measured from the combined readings of the linear scale and engraved knob. Each increment on the knob represents 0.001” or 0.01 mm. Scales have 0.025” or 1 mm increments. *More*



Graduated Knob type Models have a high precision lead screw (accuracy 0.0015”/10”. or 0.033 mm/20 cm or better)

Feature: Accurate lead screw, engraved knob and printed scale
Benefit: Measures position to 0.001” or 0.01 mm
Length (Travel): Scale version models from 0-36 inches, pictured above. Counter version models from 0-66 inches



Scale and Vernier Screw Drive UniSlide Assembly

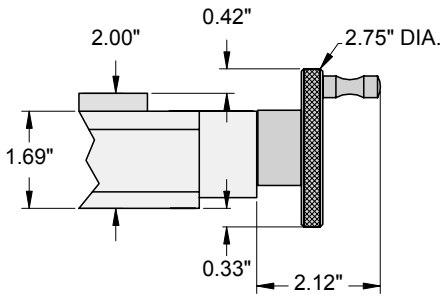
Measures position to 0.001” or 0.05 mm.

This type adds a precision engraved scale and vernier to the Screw Drive UniSlide. To formulate your Model Number, choose one of the lead screw code letters from Code Letter for Model Number above. Add the letter “E” for English scale or “M” for Metric scale, e.g., A6015BE-S6.

Vernier position on the slider is offset to allow placement of a “Y” cross slide without blocking view of lower unit. Travel is listed in the Price List. See also the Rapid Advance with Scale and Vernier Style on the next page.

Feature: Screw drive, plus engraved scale and vernier
Benefit: Measures position to 0.001” or 0.05 mm
Length (Travel): Models from 0-15 inches

Available Options
(for both models on this page, see Options pages 1.34)
- Lead screw and slider locks
- Hard anodized or electroless nickel base
- Black anodizing on all surfaces
- Optional 8” long slider



All Rapid Advance Models

If you will be moving the slider frequently or your base length is long, consider one of these models. They **save time** by allowing you to quickly reposition the slider. This is accomplished by uncoupling from the drive system. Model H uses a 3/8" or 10 mm lead screw and pinion design with full length fine-adjust control. Mounting in a vertical position is not recommended.

To operate, rotate the control lever on the slider to the "Release" station. Next, you manually push the slider to the approximate desired location. Finally, you rotate the control lever to the "Engage" station and fine-adjust the slider position with the knob. All Scale and Vernier units have a 1/2" top plate making the height to the top of slider 2.25". Caution: When used vertically, load may drop suddenly when slider is released.More





Rapid Advance with Full Travel Fine Adjust (Model H1 and H20)

Model H units provide fine adjust control over the full travel length, using a standard lead screw. Fine motion is accomplished using a unique system that applies a brake on two threaded brass pinions secured in a Delrin® carrier and delivers a smooth, quiet linear motion. Model H20 uses a 3/8"-20 thread/inch lead screw; Model H1 has a 10 x 1 mm pitch lead screw. These units are not generally recommended for vertically mounted applications. Load capacity is limited to 50 pounds horizontal or 2 pounds vertical.

Feature: Rapid Advance mechanism
Benefit: Saves time. Full length screw control
Length (Travel): Models from 0-30 inches

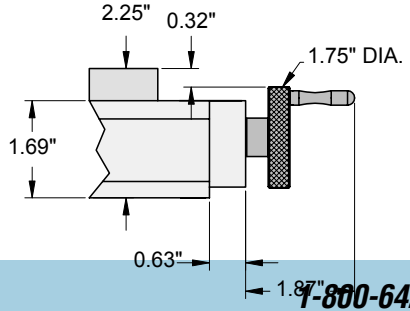
Available Options (see pages 1.34)
- Slider lock
- Hard anodized or electroless nickel base
- Black anodizing on all surfaces
- Optional 8" length slider

Rapid Advance with Full Travel Fine Adjust with Scale and Vernier (Models HE and HM)

HE and HM versions add an engraved scale and vernier, (0.001"or 0.05 mm resolution) to the H-model, and features measured movement and a fixed zero reference point.

Feature: Rapid Advance mechanism, scale and vernier
Benefit: Saves time; measures movement
Length (Travel): Models from 0-12 inches

Available Options (see pages 1.34)
- Slider lock
- Hard anodized or electroless nickel base
- Black anodizing on all surfaces
- Optional 8" length slider



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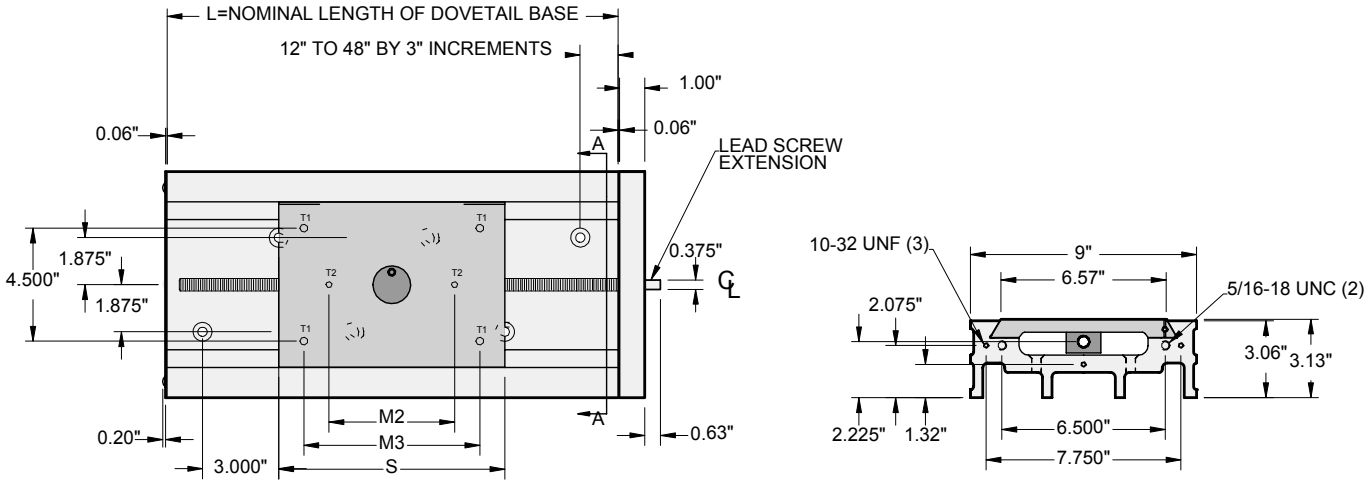


Introduction

All Series B90 UniSlides are 9” wide. Lengths vary by Type. There are 3 Types. Each Type offers you specific features or benefits to satisfy your requirements. The UniSlide Model Number specifies the Type and other characteristics. ***Prices and Model Numbers are listed on the separate Price List and at “Input Your Specifications” on our web site.*** *Enter keyword “find” in Quick Search Box.*

Series B90

Series B90 Common Dimensions and Load Capacity



SLIDER LENGTH S	M2	M3	T1	T2
STANDARD 9.00"	5.000"	7.000"	5/16-18	1/4-20
OPTIONAL 12.00"	5.000"	10.000"	5/16-18	1/4-20

S is the slider length. The standard length is 9.” Optional 12” long slider is available to increase stability for large or cantilevered load.

L is the dovetail base length. Bases begin at 9” and increase in 3” increments. Your choice for base length is incorporated as the third and fourth digits of the Model Number. For example, Model B9012 has a 12” base length.

Travel = L - S. For an B9015B-S9, travel is 15”- 6” or 6”. See Price List for Model Numbers and travel with standard length sliders.

Load Capacity
Dynamic Central Horizontal = 400 lbs. or 182 kgs.
Dynamic Central Vertical = 100 lbs. or 45 kgs.
Cantilevered = 320 lbs. -in. or 369 kgs. -cm.

See *Options* (pg. 1.34) for way covers, optional finishes, etc.
See *Combining UniSlides* (pg. 1.57) to combine 2 or 3 units.

Mounting holes “B” in the UniSlide Base – The first B mounting hole is 1 1/2” from the end of the dovetail base. All subsequent holes are 3” apart lengthwise along the base, e.g., B9015 has 5 mounting holes.



Free Sliding UniSlide Assembly

The simplest assembly, a Linear Dovetail Bearing. To specify, add "A" after the base length in the Model Number, e.g., B9012A-S9.

Feature: Linear Dovetail Bearing
Benefit: Linear motion
Length (Travel): Models from 0-75 inches

Available Options (see pages 1.34)
- Hard anodized or electroless nickel base
- Black anodizing on all surfaces
- Optional 12" long slider
- Locks per page 1.34

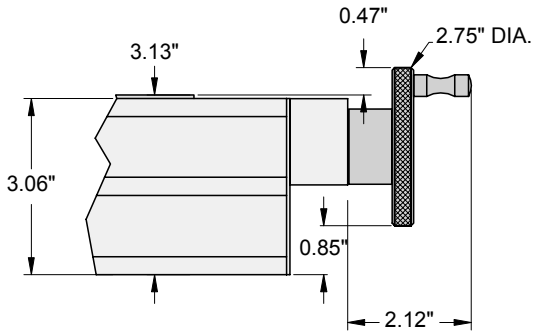


Screw Drive UniSlide Assembly

A large lead screw controlled positioning slide. For 0.01" or 0.1 mm DRO position indication using a revolution counter and the W1 and K1 lead screws, see page 1.35.

Feature: Free sliding plus lead screw drive
Benefit: Screw controlled positioning
Length (Travel): Models from 0-75 inches

Available Options (see pages 1.34)
- Lead screw and slider locks
- Hard anodized or electroless nickel base
- Black anodizing on all surfaces
- Optional 12" long slider



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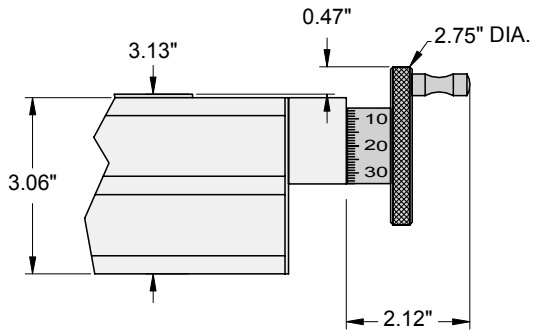
Graduated Knob UniSlide Assemblies

Measures position to 0.001” or 0.01 mm.

Your position is measured from the combined readings of the linear scale and engraved knob. Each increment on the knob represents 0.001” or 0.01 mm. Scales have 0.025” or 1 mm increments. These Models have a high precision lead screw (accuracy 0.0015”/10”. or 0.033 mm/20 cm or better). *More*

Feature: Accurate lead screw, engraved knob and printed scale
Benefit: Measures position to 0.001” or 0.01 mm
Length: Travel is 0-36 inches with scale. For units with travel from 36-75", a revolution counter is required. See page 1.35

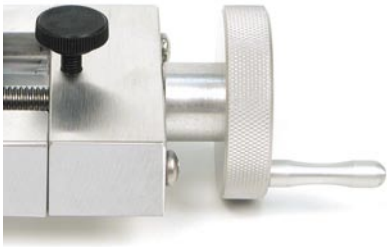
Available Options (see pages 1.34)
- Lead screw and slider locks
- Hard anodized or electroless nickel base
- Black anodizing on all surfaces
- Optional 12” long slider



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UniSlide Options

Velmex offers the most versatile slide of any manufacturer in North America. One of the reasons for that amazing versatility is the range of options and accessories that can be added to your UniSlide, allowing you to customize it to your exact application. Here are some of the options available:

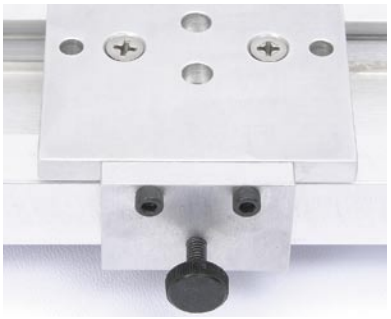


Lead Screw Lock

Thumbscrew-on-Lead-Screw Lock (-TL)

This is the most common lock, and is an easy method for fixing the position of the slider. It uses a simple thumb screw to secure the lead screw near the end bearing block. Note that the overall length of the UniSlide is slightly increased. Series A15 end block (W) is 0.78"; Series A25 and A40 end block is 1.00". Series A60 and B90 have a 1 3/8" thick end block. This lock type is not appropriate for Rapid Advance Style UniSlides. To order a UniSlide with Lead Screw Lock, add "-TL" to the end of the model number.

Keyword: locks



Traveling Slider Lock

Traveling Slider Lock (-TSL)

This lock attaches to the slider; the thumb screw presses against the outside edge of the base. It can be mounted for use on right or left side of the base. The lock is available in all Series but limited to Free Sliding, Screw Motion, Graduated Knob. Slider height is increased by 3/16" Series A15, 1/4", Series A25, and 3/8" Series A40, A60 and B90.



Slider Lock

Slider Lock (-SLR or -SLL)

Typically for short units, if slider length S is greater than 1/2 the base length L, a Slider Lock is available. This is a thumbscrew located at the midpoint of the base length. The screw tightens against a 90° step milled into the side of the slider, preventing movement of the slider. To order lock on the right side, append "-SLR" to the model number. For a lock on the left side, add "-SLL". See page 1.36, Engineering Data, to identify right and left sides.



Black Anodized Finish

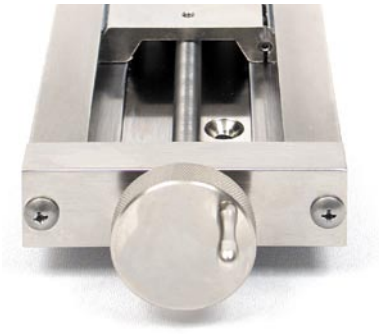
Optional Finishes (-BK, Z, N)

Standard UniSlide components have a brushed aluminm finish; aluminum knobs have a clear anodized finish. Please see our web site (keyword: options) for complete details of the many optional finishes available to meet your requirements.

UniSlides can be cosmetically anodized in different colors, hard coat anodized to increase surface hardness and abrasion resistance, or coated with electroless nickel to provide a slick, even and corrosion resistant surface.

Finally, we offer AnoLube III-15K which provides a ceramic-hard, lubricous, protective coating for very harsh environments such as food processing, medical and offshore oil platforms.

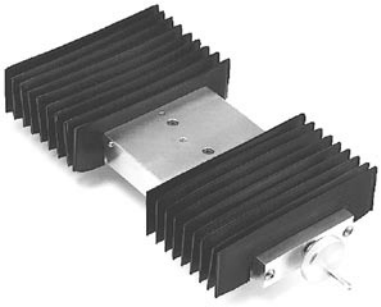
Keyword: options



Nickel Plated Finish

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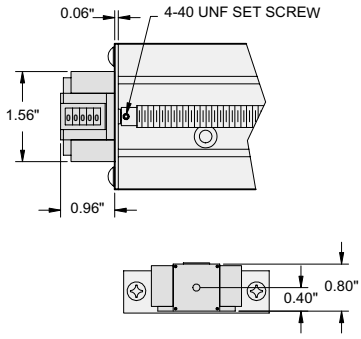
Revolution counter (-RC)

This modestly priced mechanical rev counter provides a convenient digital readout of either 0.01” or 0.1 mm. It increments every 1/10 revolution, and counts correctly with 0.100” or 1 mm (W1, P10, K1 or Q1) lead screws. Other screws require multiplying or dividing. Zero position is at the counter end of the unit and is not resetable.

Counters can replace the linear scale on Graduated Knob Drive models when the linear scale is obscured by the payload or way covers.

To order the Revolution Counter, add “-RC” to the end of the model number.





Way Covers (-WC)

Way covers are a convenient method to protect the slider and dovetail from dust, dirt and grit that may be in the working environment. These consist of Estane bellows and attaching plates, and are available for Free Sliding, Screw Drive and Graduated Knob (requires P10 or Q1 screw and Revolution Counter) UniSlides. Way covers are not available for A15 Series.

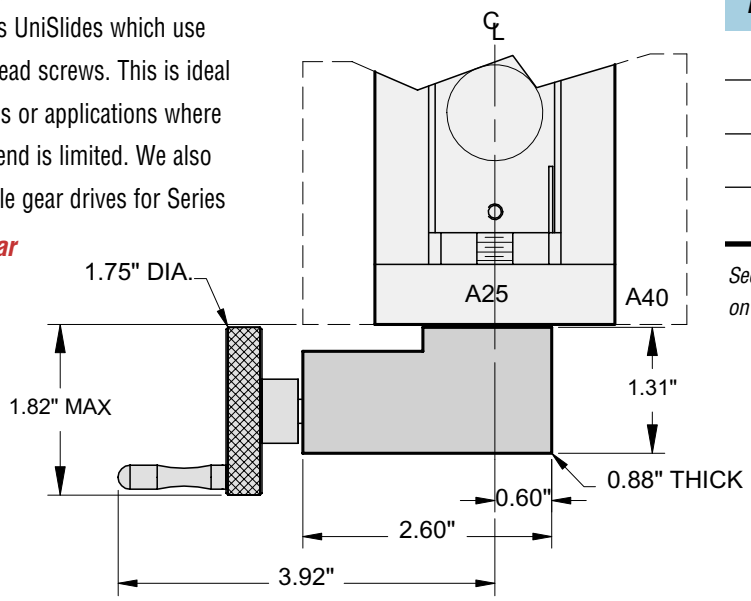
Adding way covers will increase slider height and reduce the travel of a standard UniSlide. See our web site for complete details including a travel distance graph, drawings and more.

Keyword: rev ***Keyword: way***

Gearbox (Part No. 5005B-A3-L Shown)

This 1:1 ratio gearbox fits on A25 and A40 Series UniSlides which use 3/8”diameter lead screws. This is ideal for tight spaces or applications where access to the end is limited. We also have right angle gear drives for Series A60 and B90 models. See web site or call for details.

Keyword: gear



Gear Box Ordering Information

Knob Orientation	Model Number
Down	5005B-A3-D
Up	5005B-A3-U
Left	5005B-A3-L
Right	5005B-A3-R

See Engineering Data, Up, Down, Left Right, on page 1.36 for orientation.

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Engineering Data

Design Advantages of Linear UniSlide Assemblies

- Compact design yields long travel in a short work space
- A simple, reliable design easily adaptable
- Modular components facilitate multiple axis system
- A broad variety of lengths, sizes and feature
- Customizing to accommodate special circumstances or uses

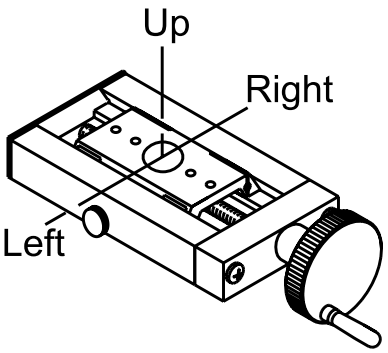
Load Capacity

The size of the slide selected for a given application will depend on user requirements. The chart below provides maximum dynamic load capacities for each model for three different load positions.

**A25 Series with W1 or P10 lead screws: LT = 30 lbs./13.5 kg. Static loads are twice the dynamic load values given above.*

Orientation: Up, Down, Left and Right

The reference position for linear UniSlide Assemblies is with the base down, the slider up, and the knob, if any, facing the user.



Construction

We begin as an extrusion of aluminum alloy with a straightness tolerance of half the normal commercial tolerance. Subsequent machining and lapping operations produce a very high degree of straightness and parallelism in the dovetail ways.

Base Stiffness

For increased base stiffness, three of our A-series bases — A25, A40 and A60 — are also available in the deeper B Series style. This extra stiffness is useful when the full length of the base cannot be adequately supported. Typical stiffness of the B Series base is two to four times greater than the A-series. See B Series bases on page 1.54.

Deviations from Straightness

There are three types of deviations from straightness than can occur: X, Y and Z. Picture a UniSlide Assembly resting base down on a flat surface, with its linear motion in the X or longitudinal direction. A departure from straightness in the upward direction — the Z axis — is designated as the bow error. A deviation in the horizontal direction — the Y axis — is horizontal run out, often referred to simply as run out. And a twist in the direction of the slide — the X axis — is called twist. The upper limits for these deviations from straightness, as determined by our manufacturing processes, are:

- Bow* 0.002" per foot
- Run Out 0.001" per foot
- Twist 1 milliradian per foot

** As installed, bow can be affected by the degree of flatness of the supporting surface and the relative tension of the mounting screws.*

Load Capacities

Series	Horizontal Central	Cantilevered Load	Vertical Central
A15	15 lbs. or 6.8 kgs.	20 lbs.-in. or 23 kgs.-cm.	10 lbs. or 4.5 kgs.
A25	30 lbs. or 13.6 kgs.	40 lbs.-in. or 46 kgs.-cm.	10* lbs. or 4.5* kgs.
A40	100 lbs. or 45.5 kgs.	130 lbs.-in. or 150kgs.-cm.	50 lbs. or 22.7 kgs.
A60	240 lbs. or kgs.	320 lbs.-in. or 369 kgs.-cm.	100 lbs. or 45 kgs.
B90	400 lbs. or 182 kgs.	480 lbs.-in. or 550 kgs.-cm.	100 lbs. or 45 kgs.

** A25 Vertical Central Load Capacity with a 10 pitch (W1 and P10) screw is 30 lbs./15.5 kg. to due to a stronger thrust bearing design.*

Also, for greater base stiffness, Series A25, A40 and A60 are available in deeper cross sections. See the B Series Bases on page 1.54 for more information.

Keyword: engineering

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Enhanced Straightness Tolerances

If your application requires improved straightness tolerances, we can supply Models with straightness tolerances approximately one-half of the nominal values given previously. We individually select, measure and certify UniSlide Assemblies.

Wear Resistance

The standard aluminum alloy dovetail base and low friction polymer pads of the slider provide excellent performance as a bearing material combination. Unlike ball screw slide mechanisms, no lubrication is required. Under light to moderate loads, sideways play caused by wear during the first 30,000 cycles of operation will be approximately 0.00015 inches. Wear after that is reduced, to approximately 0.00005 inches over the next 50,000 cycles. Sliders are equipped with adjustment screws to compensate for wear, if necessary. For harsh environments and/or a higher number of cycles, UniSlide Assemblies with hard coat anodized ways are available. For clean room environments we recommend electroless nickel plating.

Magnetic Properties

We can make linear positioners with very low or no ferric (iron) content. UniSlide base and slider assemblies are made from aluminum alloy. Most lead screws are 303 stainless steel. The exceptions are the double and quad lead screws which are electroless nickel-plated cold rolled steel. We can also substitute brass lead screws for some models. Brass lead screws are only offered in standard grade accuracy. In a few models with small steel parts, no nonmagnetic replacements are available. For further information please contact the factory.

Base and Slider Lengths

Standard and maximum base lengths for all models are listed in the specifications for each model. Custom base lengths are available on special order. Slider lengths available are only those listed in the model specifications.

Vacuum Applications

UniSlide Assembly's patented dovetail bearings give it certain advantages over other designs. They have been used in a myriad number of environments from outer space to vacuum chambers. The necessity for modification depends upon the so-called hardness of the vacuum and other specific requirements. Velmex can supply assemblies that are free of grease and oils. However, for critical applications the assemblies should be cycled in an outgassing chamber to remove residual contamination. Search web site for "vacuum" for more details.

Back driving the Lead Screw

Models with 5 or 2.5 pitch lead screws (codes W2, W4, P5 or P2.5) can be back driven by the payload. See Lead Screws for additional details.

Scale and Control Lever Position

The control lever for Rapid Advance units is on the right hand side. Printed and engraved scales are on the left side as shown in the drawings and photos in this catalog. Scale numbering always progresses toward the knob end of the unit — i.e., the largest numbers on the scale are closest to the knob. Control levers, top plates, thumbscrew locks and verniers can be mounted on the alternate side on special request. If requested, the scale can be mounted on the right side of the unit, with the largest numbers going away from the operator. For models with the base mounting holes located off the center line, holes begin at the bearing block end with the first hole to the right of the lead screw. See Dimensional Drawing for series of choice for details.

Material Substitutions

Material substitutions for drive nuts, lead screws and thrust bearing are possible. Drive nuts are available in brass, oil-impregnated bronze, and, for high temperature or radiation applications, in Vespel. Thrust bushings can be manufactured from Vespel. Alternatively, thrust bearings made with polymer raceways and cages, and stainless steel or ceramic balls are also available. Brass lead screws are available in a limited pitch selection.

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Lead Screws

A Few Words About Lead Screws

The lead screws in our UniSlide Assemblies are formed by rolling through precision dies, rather than cut on a screw machine. This results in higher quality and accuracy. Our lead screws are 303 stainless steel except W2, W4 and P5 lead screws which are electroless nickel plated cold rolled steel. Nonmagnetic brass lead screws are available-please refer to the Engineering Data on page 1.36.

Accuracy

The accuracy of standard lead screws is 0.007"/10" or better. The accuracy of Graduated Knob Model screws is 0.0015"/10" or 0.033 mm/20 cm or better, and is checked to not exceed this value.

Thrust Bearings Design

A15 and A25 lead screws use pre-loaded Delrin® thrust bearings except A25 W1, and P10, which have pre-loaded ball bearings. A40, A60 and B90 lead screws have pre-loaded ball bearings.

Backdriving

Because of the steep helix angle of the threads in W2, W4 and P5 lead screws, they may backdrive (coast back down) when supporting a vertical load or, if horizontal and a linear thrust load is applied, the slider will move away until the thrust has been equalized. If you want the slide to stay where you put it, be aware of this characteristic and design accordingly.

Keyword: lead

Lead Screw Diameters

Series	Type Code	Diameter
A15 & A25	C, B, P40, P20	1/4 "
A15 & A25	K1, K2, Q1, Q2	7 mm
A25	W1, P10, W2, W4, P5	3/8"
A40	C, B, W1, W2, W4, P40, P20, P10, P5	3/8"
A40	K1, K2, Q1, Q2	10 mm
A60 & B90	C, B, W1, W2, W4, P40, P20, P10, P5	1/2"
A60 & B90	K1, K2, Q1, Q2	14 mm

See Input Your Specifications on web site for UniSlide model number selection.

Lead Screw Code Letters for Series Numbers

Use these code letters when constructing model numbers. Lead screw code letter(s) follow base length value.

Series English Thread	Turns per Inch English Tread	Advance per Revolution	Screw Motion Type Code Letter for Standard Accuracy	Scale and Vernier Type Code Letter	Graduated Knob Code Letter for Precision Accuracy	Divisions on Graduated Knob
A15, A25, A40, A60, B90	40	0.025"	C	CE*	P40	25
A15, A25, A40, A60, B90	20	0.050"	B	BE*	P20	50
A25, A40, A60, B90	10	0.100"	W1	W1E*	P10	100
A25, A40, A60, B90	5	0.200"	W2	W2E*	P5	200
A25, A40, A60, B90	2.5	0.400”	W4	—	—	—
Series Metric Thread	**Turns per cm Metric Thread**					
A15, A25, A40, A60, B90	10	1 mm	K1	K1M*	Q1	100
A15, A25, A40, A60, B90	5	2 mm	K2	K2M*	Q2	200

** Not available in B90. Delrin® is a trademark of E. I. duPont Co.*

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Assembled UniSlide XY Tables

AXY40 and AXY60 Series

Although any two UniSlide Assemblies in combination offer a very wide variety of XY possibilities, we also have these assembled XY tables to meet common applications. These tables feature a large top work surface combined with a stable base, and can provide load handling from 25 to 100 pounds. Tables are designed with crossed and inverted (slider down) A40 or A60 UniSlides and XY plates. Overall height is 3 3/4" on the AXY40, and 5 1/2" on the AXY60. The standard lead screw is the W1 with a lead of 0.100" /revolution.

Available Options

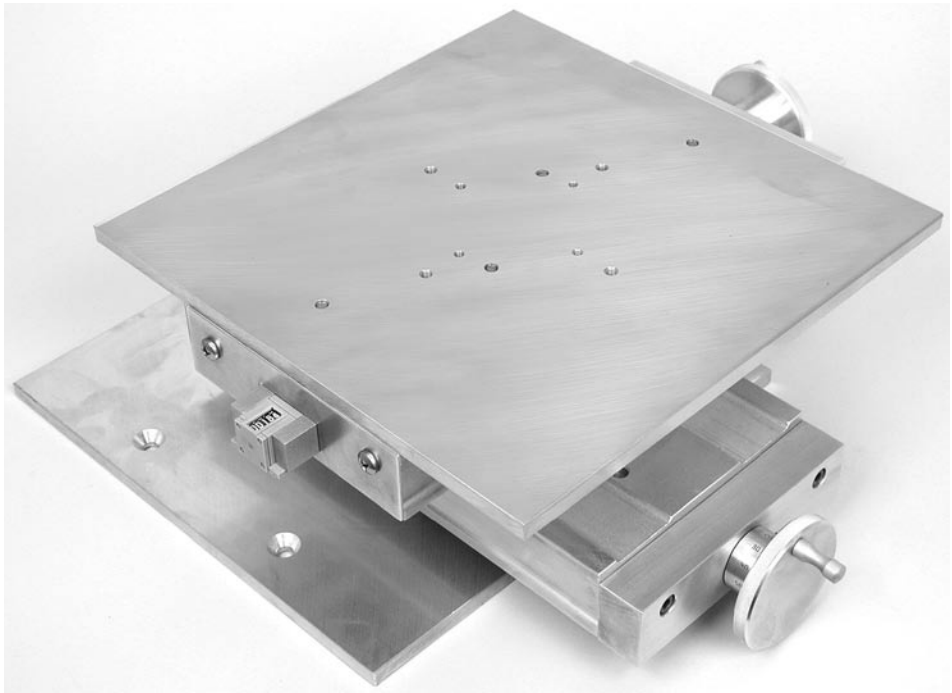
B (0.050"/rev), C (0.025"/rev) or K1 (1 mm/rev) lead screws can be substituted for the standard W1. A Graduated Knob 0.001" resolution and/ or revolution counter providing 0.01" resolution are also available. Refer to the Options pages for additional information on rev counters.



Model AXY4009W1 — 5" x 5" travel. A 2" x 2" travel model is also available.

Model Number	Travel
AXY4006W1	2" x 2"
AXY4009W1	5" x 5"

Model Number	Travel
AXY6009W1	3" x 3"
AXY6012W1	6" x 6"
AXY6015W1	9" x 9"



Model AXY6012W1 — 6" x 6" travel with optional revolution counters. Models with 3" and 9" travels are also available.

Keyword: axy

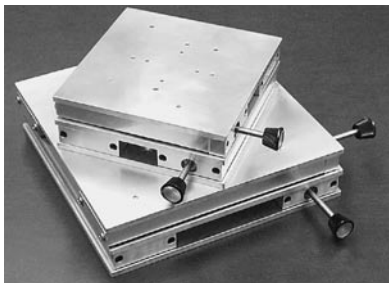
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AXY25 Series

These low profile tables feature a height of just 2 3/8" and provide exceptional rigidity and a large work surface area. They are designed around four A25 Series UniSlide Assemblies. The standard lead screw is the W1 or 0.100" per revolution. All models have a 25 pound load capacity.

Available Options

B (0.050"/rev), C (0.025"/rev) and K1 lead screws can be substituted for the standard W1. Black Anodizing (-BK).



Models AXY2506W1 and AXY2509W1



Model AXY25 with optional window

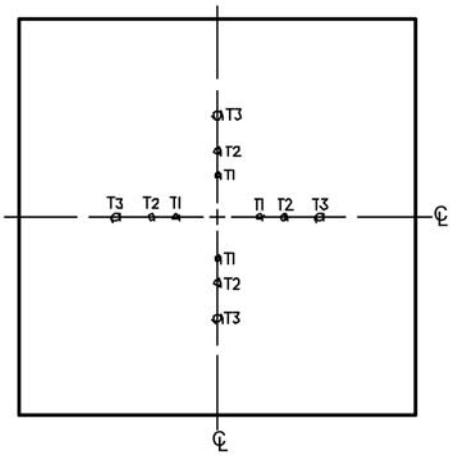
Model Number	Travel
AXY2506W1	2" x 2"
AXY2509W1	3" x 3"
AXY2512W1	4" x 4"

Model Number	Travel	Height (H)	Load	Work Envelope
AXY2506W1	2" X 2"	2.40"	25 lbs.	13" x 13"
AXY2509W1	3" X 3"	2.40"	25 lbs.	18" x 18"
AXY2512W1	4" X 4"	2.40"	25 lbs.	23.38" x 23.38"
AXY4006W1	2" X 2"	3.75"	60 lbs.	12.53" x 12.53"
AXY4009W1	5" X 5"	3.75"	25 lbs.	18.53" x 18.53"
AXY6009W1	3" X 3"	5.50"	100 lbs.	17.03" x 17.03"
AXY6012W1	6" X 6"	5.50"	60 lbs.	23.03" x 23.03"
AXY6015W1	9" X 9"	5.50"	30 lbs.	29.03" x 29.03"

Note: *Throughout this catalog you'll see* ***Keywords in a RED rectangle.*** *Clicking the word takes you the relevent page on our website. There you can get more information, including access to drawings, specs, prices, photos of examples and our latest innovations.*

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AXY Table Plates



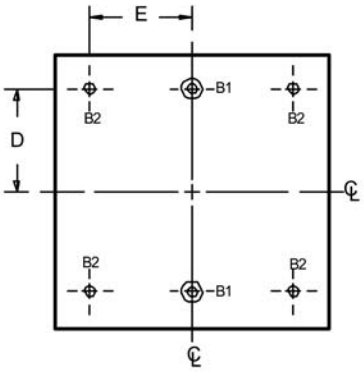
TOP PLATE FOR ALL AXY SERIES TABLES

T1- 8-32 ON A 2.062 DIA BOLT CIRCLE
ACCEPTS A25 ADAPTERS & A2505TS TURNTABLES

T2- 10-32 ON A 3.250 DIA BOLT CIRCLE
ACCEPTS A40 ADAPTERS, A4007TS, AND *A4800 ROTARY TABLES

T3- 1/4-20 ON A 5.000 DIA BOLT CIRCLE
ACCEPTS A60 ADAPTERS AND * A4800 ROTARY TABLE

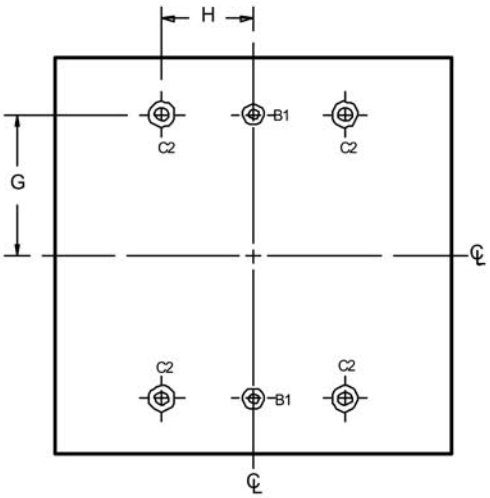
*A6000TX ADAPTER PLATE USED TO MOUNT
A4800 ROTARY TABLE



BOTTOM PLATE FOR AXY2506, AXY4006 &
AXY4009 SERIES TABLES

B1- CLEARANCE (AND CSK IN AXY 2506) FOR 1/4 FLHD MACHINE SCREWS
FOR MOUNTING ON A60 SERIES SLIDER OR OTHER SURFACE

B2- CLEARANCE FOR 1/4 DIA CPHD AND FOR MOUNTING ON ANY CUSTOMER
SURFACE



BOTTOM PLATE FOR AXY2509, AXY2512, AXY6009,
AXY6012 & AXY6015 SERIES TABLES

B1- CLEARANCE AND CSK FOR 1/4 FLHD MACHINE SCREWS
FOR MOUNTING ON A60 SERIES SLIDER OR OTHER SURFACE

C2- CLEARANCE AND CSK FOR 5/16 FLHD MACHINE SCREW
FOR MOUNTING ON B90 SERIES SLIDER OR OTHER SURFACE

Model Number Top & Bottom	Plate Size Mtg. Holes	Top Plate Mtg. Holes	Bottom Plate	D	E	G	H
AXY2506W1	1/4" X 6.75" X 6.75"	T1 & T2	B1	2.500"	On Ctr. Line		
AXY2509W1	1/4" X 9.75" X 9.75"	T2 & T3	C2			3.500"	2.250"
AXY2512W1	1/4" X 12.75" X 12.75"	T2 & T3	C2			3.500"	2.250"
AXY4006W1	3/8" X 6" X 6"	T1 & T2	B1 & B2	2.500"	2.500"		
AXY4009W1	3/8" X 9" X 9"	T1 & T2	B1 & B2	2.500"	2.500"		
AXY6009W1	3/8" X 9" X 9"	T2 & T3	Ctr. Line			3.500"	2.250"
AXY6012W1	3/8" X 12" X 12"	T2 & T3	C2			5.000"	2.250"
AXY6015W1	3/8" X 12" X 12"	T2 & T3	C2			5.000"	2.250"

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Elevating Tables

UniSlide Series B29, B49, and B69

Although most UniSlide Assemblies can be used in a vertical position, some applications require greater strength and rigidity, and more overall versatility. UniSlide Elevating Tables are designed for these applications.

Because the dovetail base is freestanding, B29, B49 and B69 Series Elevating Tables use the deeper "B"-type cross sections for greater rigidity. See page 1.54. The standard lead screw is the W1, with 0.100" revolution. Each Elevating Table features a convenient top-mounted knob for easy table height adjustment, and has a large, stable base plate and a right angle platform secured to the slider. This right angle platform may be removed and remounted in an inverted position. This platform can also be purchased separately.

Available Options

Elevating Tables are available in plain or Black Anodized finishes, with finer pitch lead screws, with Graduated Knob position readout, and with longer travel distances.



B69 ELEVATING TABLE

Keyword: elevating

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Elevating Table Models and Specifications (see drawing on previous page). All dimensions are in inches.

Model No.	B29 Series B2904W1	B2906W1	B2909W1	B49 Series B4906W1	B4909W1	B4912W1	B69 Series B6909W1	B6912W1	B6915W1
Travel Distance	1 1/2	3 1/2	6 1/2	2	5	8	3	6	9
Height	6 7/8	8 3/4	11 7/8	8 7/8	11 7/8	14 7/8	12 3/4	15 3/4	18 3/4

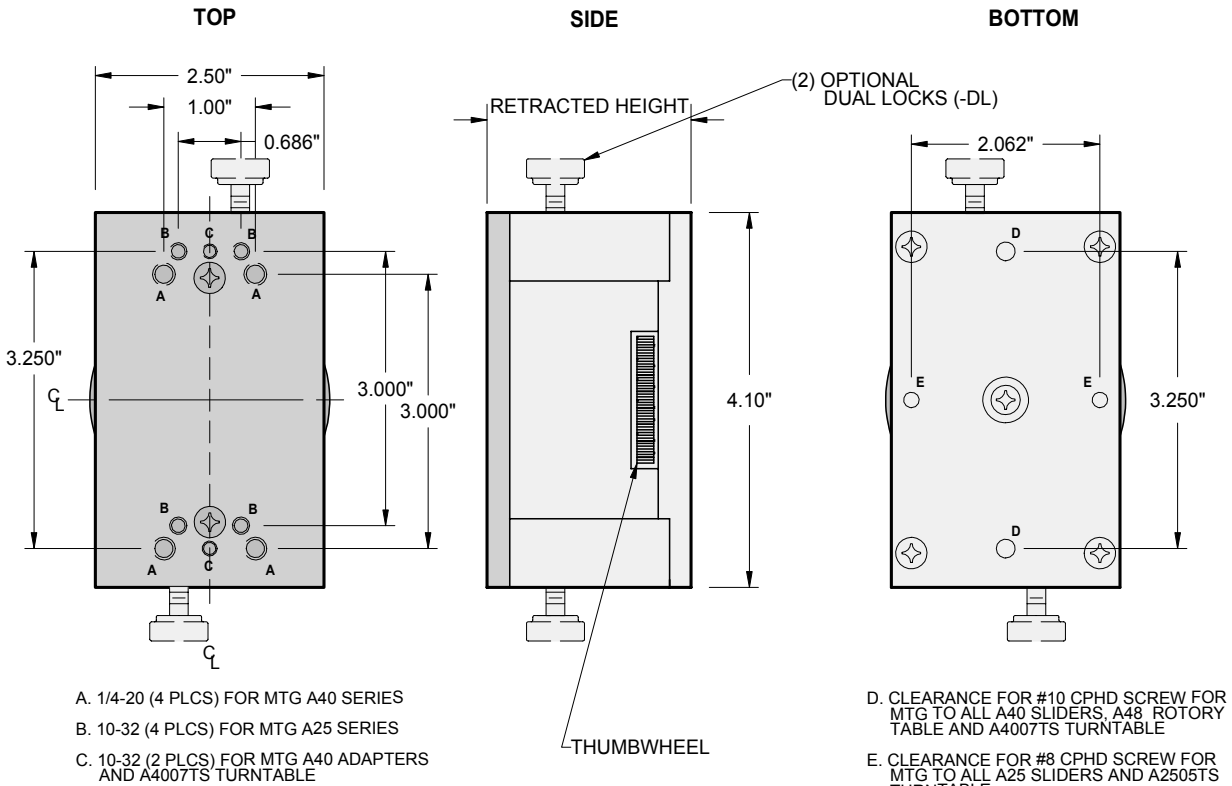
Series	Load Capacity	Min. Platform Height	Base Clearance Holes	A	B	C	D	E	F	G	T
B29	30 lbs	3.375	0.196	4	3 1/4	3/8	2	3 9/16	3 5/8	4	3/8
B49	50 lbs	4.5	0.25	6	5	5/16	3 21/32	5 7/32	5 5/16	7 5/16	1/2
B69	100 lbs	6.5	0.25	8	7	5/16	4 7/8	6 7/8	7 5/16	9 3/4	1/2

UniSlide A39 Series Elevating Tables

With these tables, the space above and around the table top is unobstructed. Our design provides a stable platform with a large thumb wheel for moving small loads. Central load capacity is 25 lbs. The standard lead screw is 3/8-20 double lead Acme, with a lead of 0.100". Other lead screws are available, please consult factory. Options include dual locking screw and black anodized finish.

Keyword: elevating

Model Number	Retracted Height	Vertical Travel
A3901W1	2.25"	1.00"
A3903W1	4.50"	3.25"



Note: This drawing shows table with optional locking screws.

XY Adapter Plates

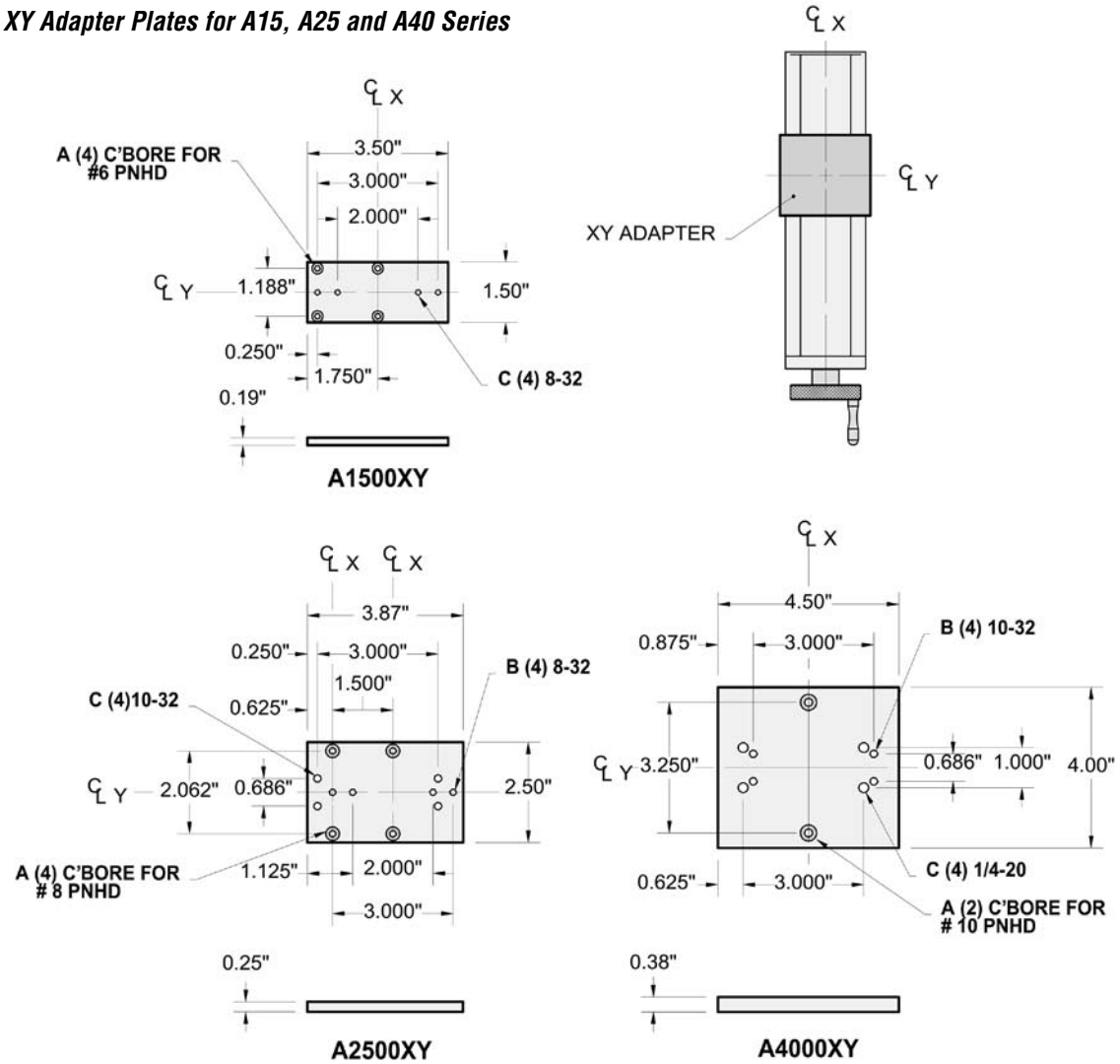
These aluminum XY Plates allow you to configure an XY motion system using two UniSlides. Each plate has a hole pattern that mates the slider of the lower (X) UniSlide, and at right angles to that, a pattern matching the base of the top (Y) UniSlide.

Select the adapter plate to match the lower UniSlide Series you will be using. For example, use the A4000XY Adapter Plate with A40 Series UniSlides. Typical examples are illustrated on page 1.57.

If the moment on the supporting (X axis) unit is significant, you will want to combine two different Series, using the larger Series for the supporting unit. To accommodate this, all adapter plates include a hole pattern for the base of the next smaller UniSlide Series. Therefore, the A2500XY Adapter Plate will also accept A15 Series using the base hole pattern. Similarly, the A4000XY Plate accepts both A40 and A25 Series UniSlides, the A6000XY Plate accepts both A60 and A40 UniSlides, and the B9000XY Plate accepts both B90 and A60 UniSlides. The A1500XY Plate accepts only A15 Series UniSlides.

There are other uses for these plates too. They can be used as auxiliary payload mounting plates or as intermediate plates between the load and the slider. This provides more mounting surface area, and is also a quick way to change loads while maintaining their alignment to the UniSlide. And they provide an easy way to mount a UniSlide upside (slider) down.

XY Adapter Plates for A15, A25 and A40 Series

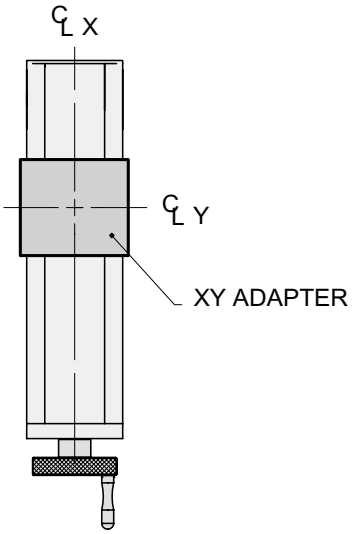


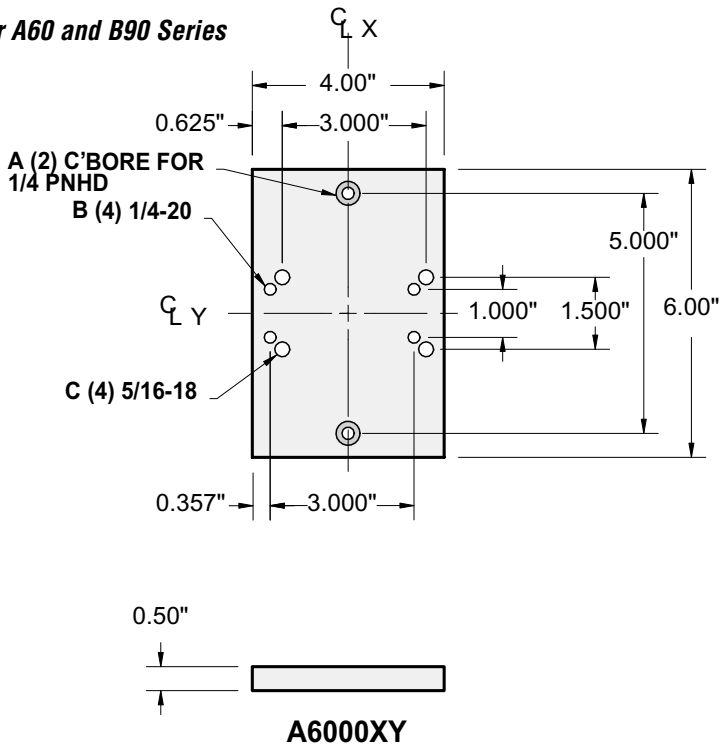
A = FOR MOUNTING TO LOWER "X" UNISLIDE
B = FOR MOUNTING TO UPPER "Y" UNSLIDE OF NEXT SMALLER SERIES
C = FOR MOUNTING TO UPPER "Y" UNISLIDE OF THE SAME SERIES

Keyword: adapter

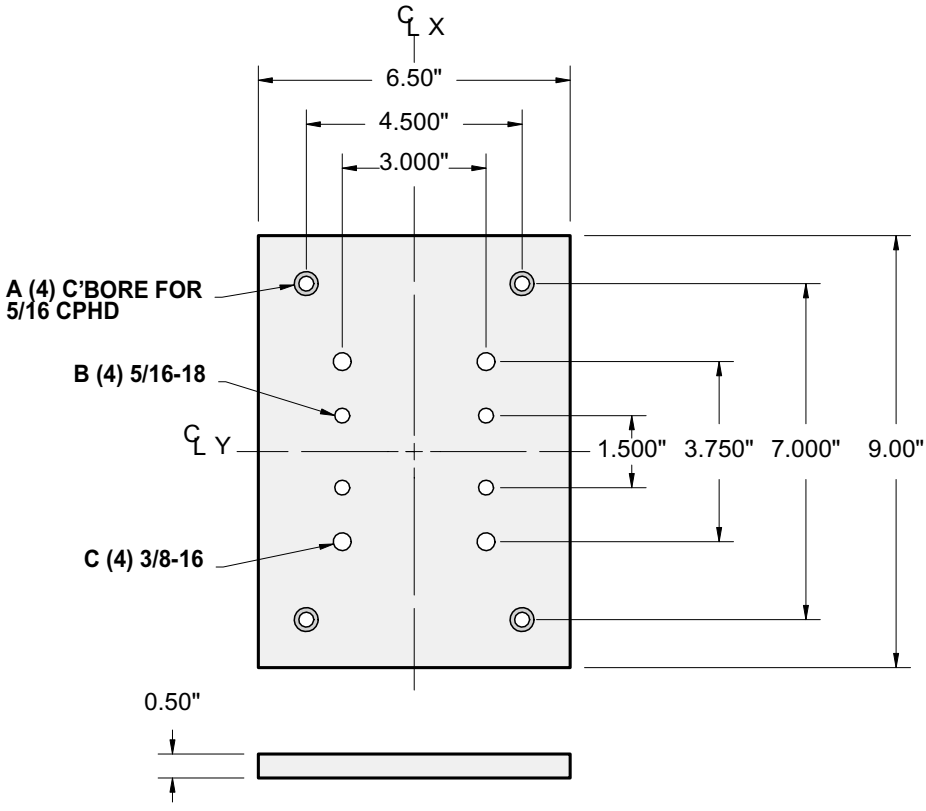
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XY Adapter Plates for A60 and B90 Series





A6000XY



B9000XY

A = FOR MOUNTING TO LOWER "X" UNISLIDE

B = FOR MOUNTING TO UPPER "Y" UNSLIDE OF NEXT SMALLER SERIES

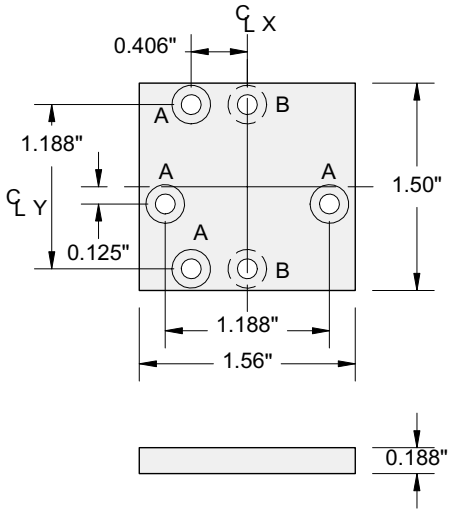
C = FOR MOUNTING TO UPPER "Y" UNISLIDE OF THE SAME SERIES

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XZ Adapter Plates

XZ Adapter Plates and Brackets allow UniSlide Assemblies to be positioned vertically or end mounted, facing any one of four directions, all of which are perpendicular to the X or Y planes. Look at Combining UniSlides, page 1.57, now for examples. The XZ Plate Adapter end-mounts the UniSlide using the two holes in the nameplate end of the base. It is for light loads and short slides, while the bracket designs (page 1.49) are more rigid to handle heavier loads.

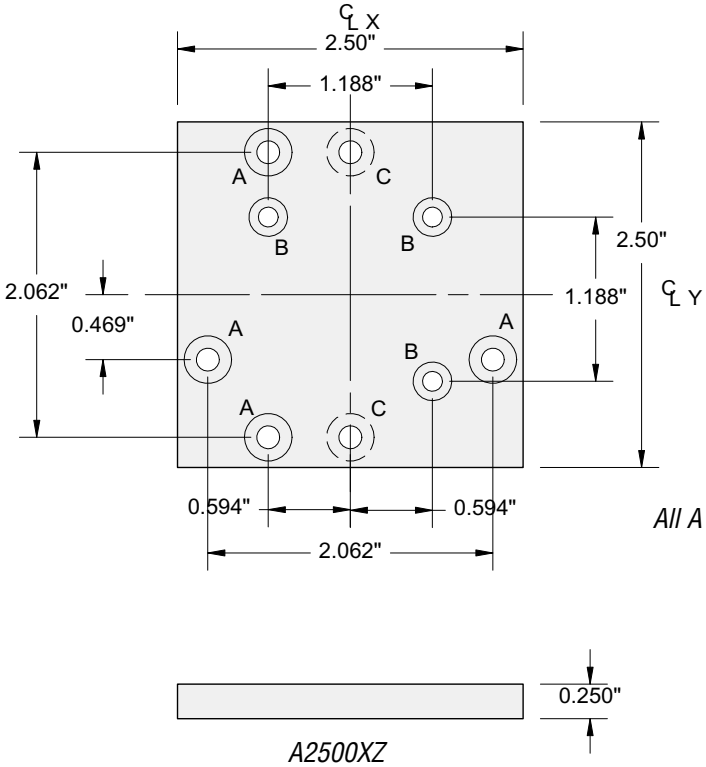
At the end of this section is the A6000TX adapter for A4800 Rotary tables.



A= (4) C'BORE FOR 6-32 PNHD SCREW. FOR MOUNTING A15 SERIES UNISLIDE VERTICALLY

B= (2) C'BORE FOR 6-32 PNHD SCREW. FOR MOUNTING PLATE TO A15 SERIES UNISLIDE (OPPOSITE SIDE)

A1500XZ



A= (4) C'BORE FOR 8-32 PNHD SCREW. FOR MOUNTING A25 SERIES UNISLIDE VERTICALLY

B= (3) C'BORE FOR 6-32 PANHEAD. FOR MOUNTING A15 SERIES UNISLIDE VERTICALLY

C= (2) C'BORE FOR 8-32 PNHD SCREW. FOR MOUNTING PLATE TO 25 SERIES UNISLIDE (OPPOSITE SIDE)

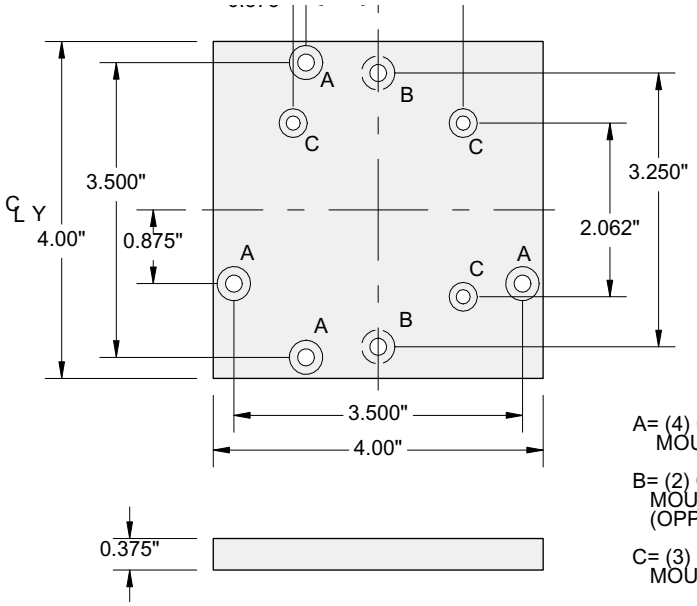
All A and C holes will mount to A25 end or slider holes.

A2500XZ

Keyword: adapter

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XZ Adapter Plates for A40 and A60 Series

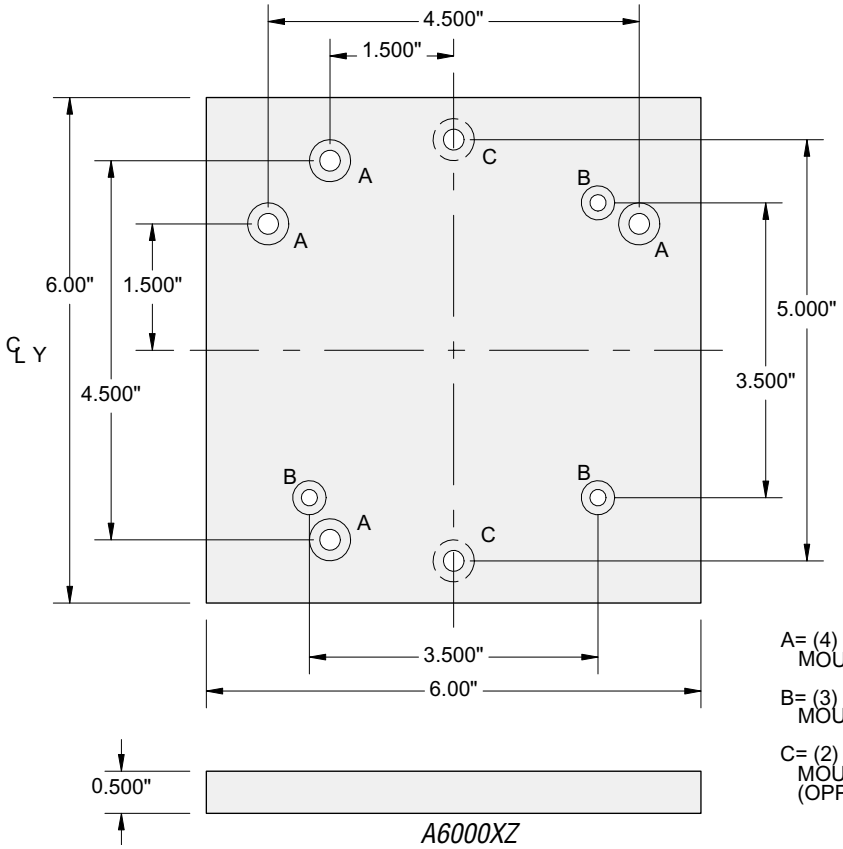


A= (4) C'BORE FOR 10-32 PNHD SCREW. FOR MOUNTING A40 SERIES UNISLIDE VERTICALLY

B= (2) C'BORE FOR 10-32 PNHD SCREW. FOR MOUNTING PLATE TO 40 SERIES UNISLIDE (OPPOSITE SIDE)

C= (3) C'BORE FOR 8-32 PNHD SCREW. FOR MOUNTING A25 SERIES UNISLIDE VERTICALLY

A4000XZ



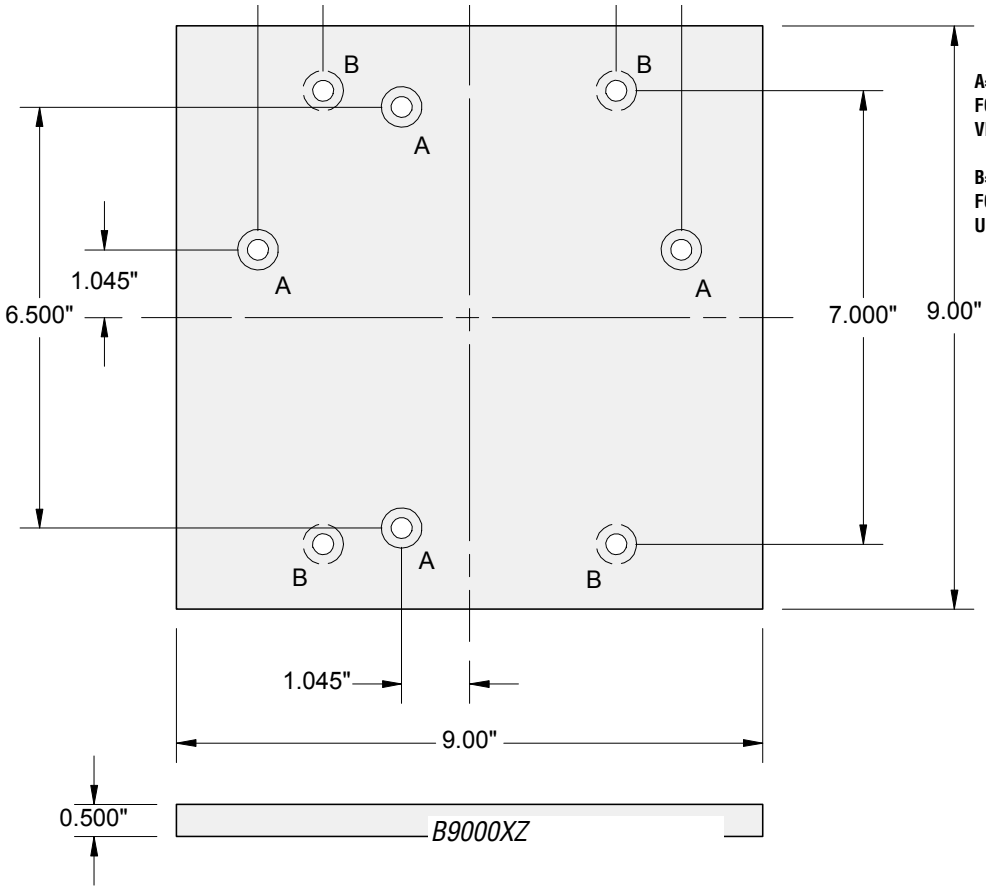
A= (4) C'BORE FOR 1/4-20 PNHD SCREW. FOR MOUNTING A60 SERIES UNISLIDE VERTICALLY

B= (3) C'BORE FOR 10-32 PANHEAD. FOR MOUNTING A40 SERIES UNISLIDE VERTICALLY

C= (2) C'BORE FOR 1/4-20 PNHD SCREW. FOR MOUNTING PLATE TO 60 SERIES UNISLIDE (OPPOSITE SIDE)

A6000XZ

XZ Adapter Plate for B90 Series



A= (4) C'SINK FOR 5/16-18 FLHD SCREW. FOR MOUNTING B90 SERIES UNISLIDE VERTICALLY

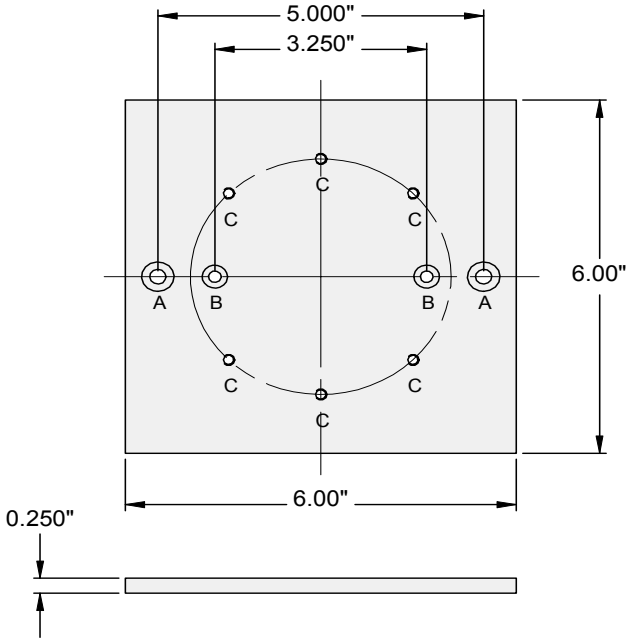
B= (4) C'SINK FOR 5/16-18 FLHD SCREW FOR MOUNTING PLATE TO B90 SERIES UNISLIDE (OPPOSITE SIDE)

Adapter Plate A6000TX for A4800 Series Rotary Table

A: (2) C'SINK FOR 1/4" FLHD SCREW. FOR MOUNTING A60 SERIES UNISLIDE

B: (2) C'SINK FOR #10 FLHD SCREW. FOR MOUNTING TO A40 SERIES UNISLIDE

C: (6) TAP 10-32 ON A 4" BOLT CIRCLE. FOR MOUNTING 4800 SERIES ROTARY TABLE



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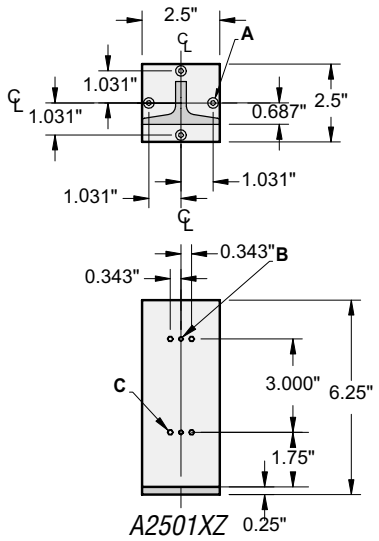
XZ Adapter Brackets

XZ Adapter Brackets and Plates allow UniSlide Assemblies to be positioned vertically, facing any one of four directions, all of which are perpendicular to the X or Y planes. Look at Combining UniSlides, page 1.57, now for examples. The XZ plates (page 1.46) are for light loads and short slides, while brackets support the dovetail base, provide more rigidity and handle heavier loads.

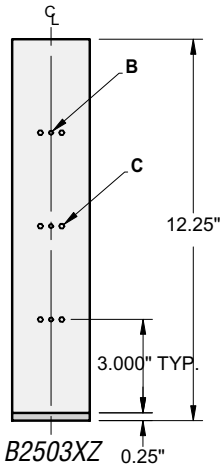
Similar to the XY adapter plan, a bracket for a given Series will accept the base of that Series and the next smaller Series. Those brackets with the "B" prefix, such as B4004XZ, are designed for dual use: they accept both manual "A" UniSlides or motor drive "B" bases. Optional longer length sliders for X axis UniSlides are recommended to increase stability when using medium or long XZ brackets.

Keyword: XZ adapter

XZ Adapter Brackets for A15, A25 and A40 Series

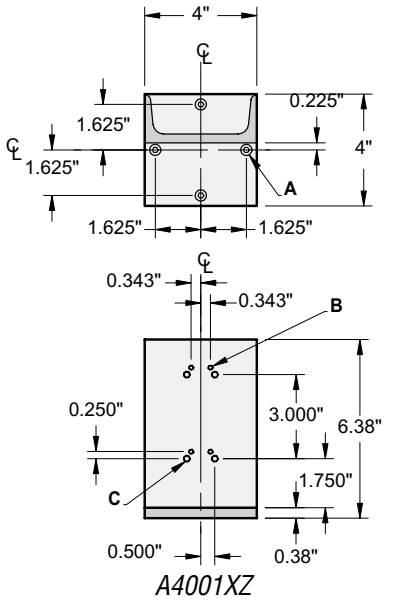


A2501XZ

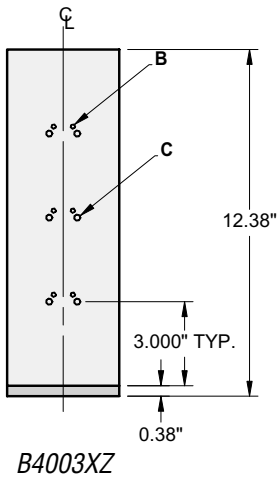


B2503XZ

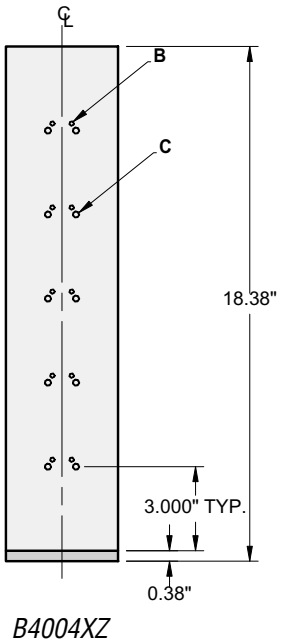
A=(4) COUNTER BORE FOR #8 PANHEAD. FOR MOUNTING TO 25 SERIES SLIDER, A2505TS, A4007TS, AND AX40
B= 8-32 THREAD FOR MOUNTING 15 SERIES UNISLIDE
C= 10-32 THREAD FOR MOUNTING 25 SERIES UNISLIDE



A4001XZ



B4003XZ

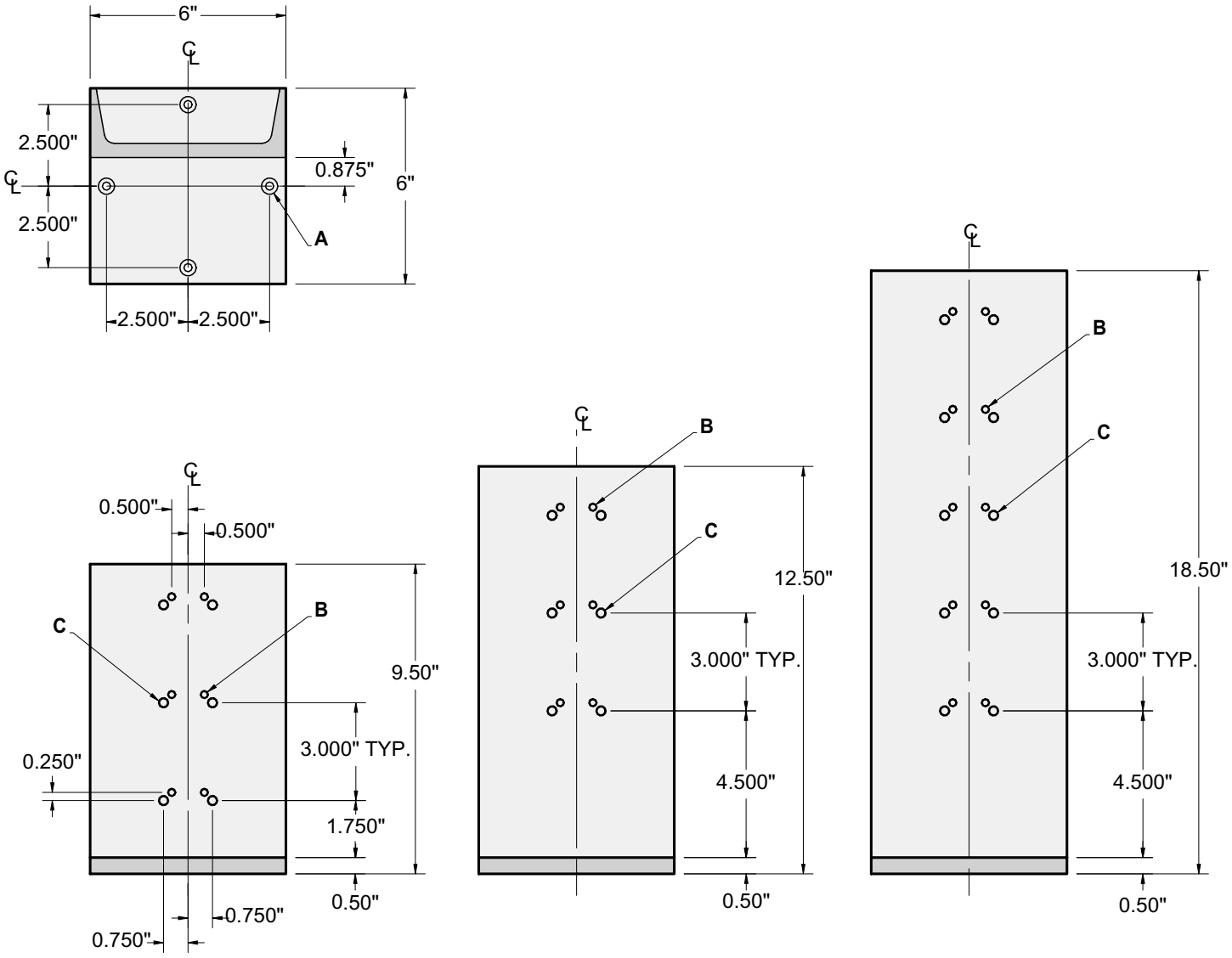


B4004XZ

A=(4) COUNTER BORE FOR #10 PANHEAD. FOR MOUNTING TO 40 SERIES SLIDER, 60 SERIES SLIDERS, A4007TS, A4800 ROTARY TABLE, AXY40 AND AXY60

B=10-32 THREAD FOR MOUNTING 25 SERIES UNISLIDE
C= 1/4-20 THREAD FOR MOUNTING 40 SERIES UNISLIDE

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A6001XZ **B6003XZ** **B6004XZ**

A =(4) COUNTERBORE FOR 1/4" PANHEAD, FOR MOUNTING TO 60 SERIES SLIDERS, B90 SERIES SLIDERS AND AXY60

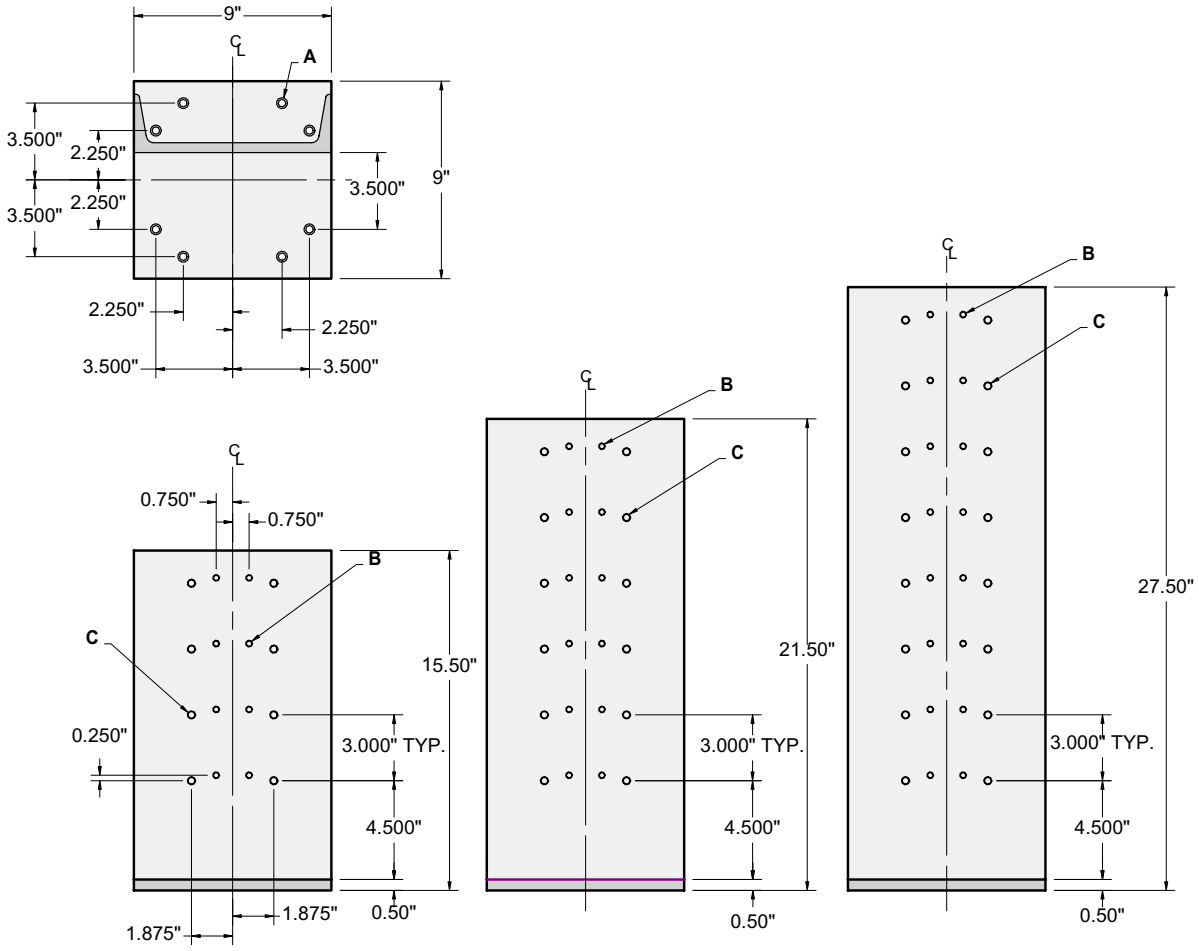
B = 1/4-20 THREAD FOR MOUNTING 40 SERIES UNISLIDE

C = 5/16-18 THREAD FOR MOUNTING 60 SERIES UNISLIDE

Note: *Throughout this catalog you'll see* ***Keywords in a RED rectangle.*** *Clicking the word takes you the relevent page on our website. There you can get more information, including access to drawings, specs, prices, photos of examples and our latest innovations.*

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XZ Adapter Brackets for B90 Series



B9001XZ *B9002XZ* *B9003XZ*

A =(8) COUNTERBORE FOR 5/16 CPHD , FOR MOUNTING TO B90 SERIES SLIDERS

B = 5/16-18 THREAD FOR MOUNTING 60 SERIES UNISLIDE

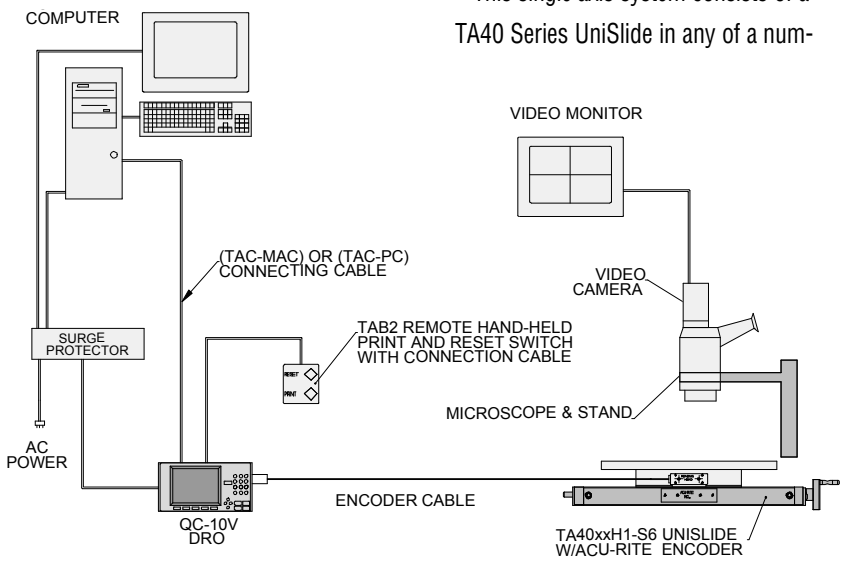
C = 3/8-16 THREAD FOR MOUNTING B90 SERIES UNISLIDE

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TA Rapid Advance UniSlide with Linear Encoder

Several years ago a customer came to us with an unusual request. He needed a very high accuracy system to observe and measure tree rings. The requirements were high resolution readout, computer interface for data acquisition, fine motion control with rapid release for quick repositioning, a selection of travels, and modest cost. Working with him, we developed the TA4000 measurement system. Thus far, we have sold hundreds of systems.

This single axis system consists of a TA40 Series UniSlide in any of a number of travel distances, an ACU-RITE Linear Encoder in one of three resolutions, a Metronics QC10V Quick-Chek™ digital readout with resolution down to 0.000004"/0.0001 mm, and a Tab2 remote zero reset/ print control. The user supplies the computer (PC or Mac), microscope, video system, and miscellaneous electrical and mechanical hardware, as shown in the drawing.



The above schematic illustrates the components of a complete "TA" System. *They are: "TA" Rapid Advance UniSlide Assembly with Linear Encoder; Quick-Chek Digital Readout, CE-compliant, QC10V; TAB2 Two-Button Remote (print or reset of Quick-Chek); TAC-PC 10' connecting cable from Quick-Chek to PC computer or TAC-MAC 10"; connecting cable from Quick-Chek to MAC computer.*

The TA system uses a 10 x 1 mm lead screw with a unique rapid advance system that allows the user to disengage the lead screw, move rapidly to another area of the specimen to be studied, engage the lead screw and begin to take accurate measurements.

In addition to being used for a tree ring measurement, this system can be used in a variety of other applications such as QC/QA, manufacturing and research. If you need to make precise position measurements of a camera, sensor or other device, please give us a call. We can help you design an accurate, versatile system.

"TA" Rapid Advance UniSlide with Linear Encoder Specifications

Travel Distance w/Standard 6" Slider	UniSlide P/N	UniSlide Weight	0.005 mm 0.0002" Resolution Encoder P/N	0.001 mm 0.00005" Resolution Encoder P/N	Nominal Scale Length	Maximum Usable Travel	Scale Length
3"	TA4009H1-S6	6 lbs	585275-02	585271-02	2"	3.75"	7.437"
6"	TA4012H1-S6	7 lbs	585275-06	585271-06	6"	7.75"	11.437"
9"	TA4015H1-S6	8 lbs	585275-08	585271-08	8"	9.75"	13.437"
12"	TA4018H1-S6	9 lbs	585275-12	585271-12	12"	13.75"	17.437"
15"	TA4021H1-S6	10 lbs	585275-14	585271-14	14"	15.75"	19.437"
18"	TA4024H1-S6	11 lbs	585275-18	585271-18	18"	19.75"	23.437"
21"	TA4027H1-S6	12 lbs	585275-20	585271-20	20"	21.75"	25.437"
24"	TA4030H1-S6	13 lbs	585275-24	585271-24	24"	25.75"	29.437

Keyword: tree

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High Resolution Position Readout

Linear Encoders

For high resolution position readout, we can mount ACU-RITE glass scale encoders to most linear UniSlide Assemblies except Series A15 and A25. Mounting an encoder directly to the slider gives a true and accurate reading eliminating lead screw and backlash errors. Typically, encoders are mounted to Screw Drive or Rapid Advance type UniSlide Assemblies. See the table on TA page 1.52 for ACU-RITE encoder numbers. Please call us for help in selecting the proper encoder.

Encoder Specifications

Resolutions:
0.0002"/0.005 mm;
0.00005"/0.001 mm

Repeatability: Within one resolution count

Scale Medium: Chrome-coated glass

Output: Two line TTL quadrature signal Cable Length: 10 ft.

UniSlide Specifications when equipped with Linear Encoder:

B25 Series (see page 1.54): 4" slider required. Height increased by 3/4". Max length of 36" with travel of 32".

A or B40 Series: 6" slider required. Height increased by 1". Max length of 30" with travel of 24".

A or B60 Series: Uses standard 6" slider. Height increased by 3/4". Max length of 66" with travel of 60".

Digital Readout (DRO) and Quatro-Chek™

The Metronics Quick-Chek™ DROs are compatible with a wide variety of input signals, including those from optical comparators, microscopes, multi-axis measurement systems and, of course, ACU-RITE linear encoders.

Readout systems

One Axis: QC110 or QC-10V

Two Axis: QC120

Three Axis: QC130

Three Axis + Theta QC131

Remote Zero Reset & Print Button

Control w/ 10 ft. cable — PN# TAB2 QC to PC Interface Cable. 10 ft — PN# TAC-PC QC to Mac Interface Cable, 10 ft PN# TAC-MAC

Metronics features:

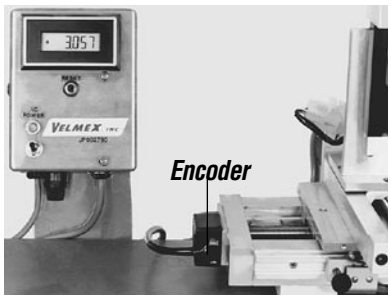
- Selectable encoder resolution down to 0.000004"/0.0001 mm
- Linear error compensation
- Selectable angular or linear readout
- Incremental offset
- Reversible axis count direction
- Absolute and incremental datum
- Instant inches to mm conversion
- Reference mark capability
- TTL square wave input for compatibility with most linear encoders
- RS-232 port allows printing out data or sending it to your PC
- Tracks position even when in Sleep mode

Keyword: encoder



Optical Rotary Encoder

This encoder has quadrature output using 5 V logic and delivers 0.001" or 0.01 mm resolution. The encoder is attaches to a lead screw shaft extension at the nameplate end. It can be used with the A40, A60 and B90 Series, and is available with or without a remote LCD for readout. To order the Rotary Encoder with LCD readout, specify part number 3-919. To order the Encoder only, with no readout, specify part number 3-919E.



Rotary Encoder mounted to A40 Series

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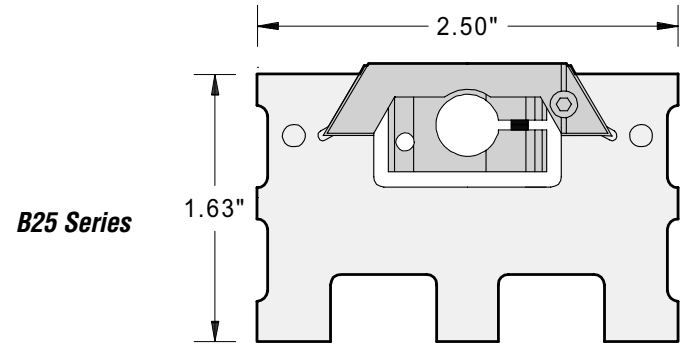
B Series Dovetail Base

The A25, A40 and A60 Series dovetail base shown on pages 1.6 -1.8 are also available in the B25, B40 and B60 Series cross sections illustrated here. This design has the same width but greater depth providing more rigidity and strength, will defect less when the base is only partially supported.

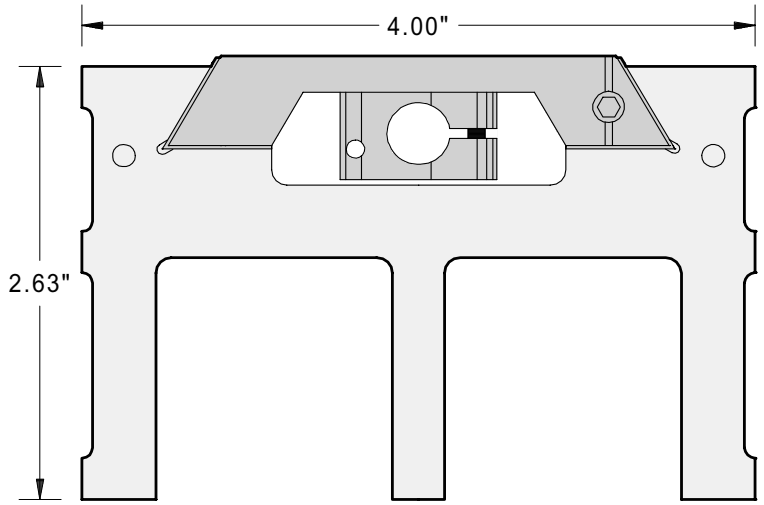
This is also a great way to provide clearance for easy access to the hand wheel knob if it extends below the dovetail base.

Please see the price list for the added cost/inch to substitute the B style base for your A style UniSlide Assembly.

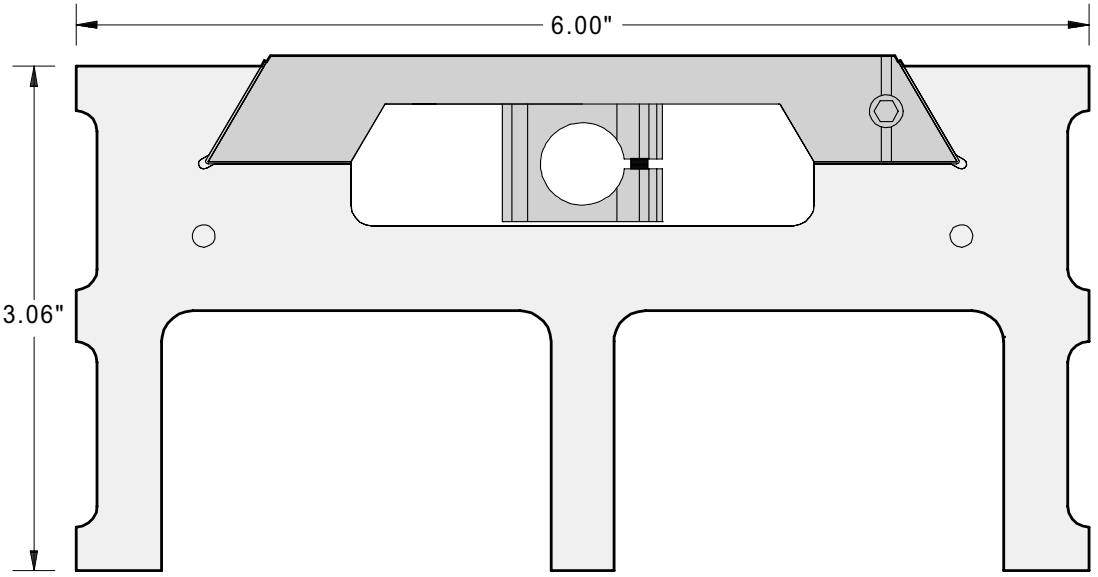
Keyw deeper



B25 Series



B40 Series



B60 Series

UniSlide Modifications

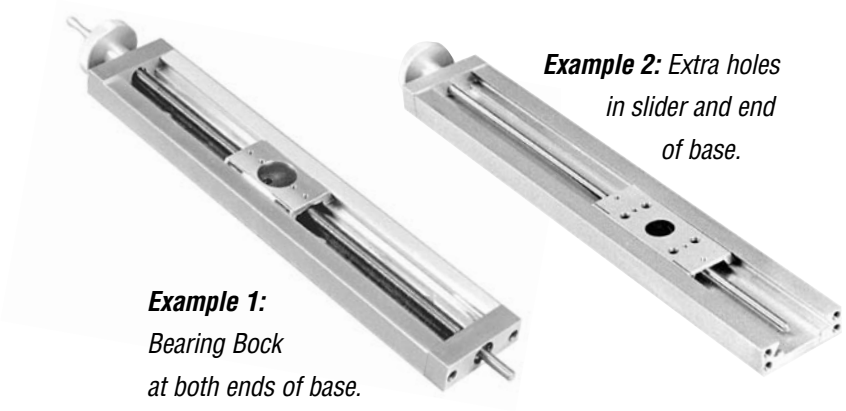
Nearly 1000 standard UniSlide models are available. But sometimes, the standard versions just won't suit your application.

We understand. That's why we offer a wide range of custom modification capabilities, including these:

- Additional holes in base, slider or plates
- Additional sliders or multiple sliders
- Different knobs
- Special length dovetail bases
- Deeper bases, using the "B" base cross-sections — see page 1.54
- Lead screw shaft extensions
- Vacuum preparation
- Milled slots
- Optional finishes
- Choice of lead screw materials, including brass
- Choice of drive nut materials, including brass, oil-impregnated bronze and Vespel
- Gearbox
- Right and left-hand threads on the same lead screw, allowing a pair of sliders to move together or apart

Still don't see what you want? Give us a call. If it can be done with UniSlides, we can do it.

Keyword: modified



Example 1: *Bearing Bock at both ends of base.*

Example 2: *Extra holes in slider and end of base.*



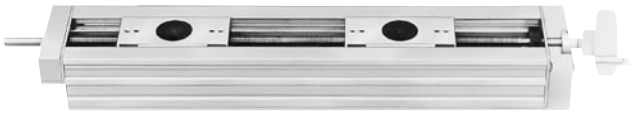
Example 3: *Shorter than standard dovetail base.*

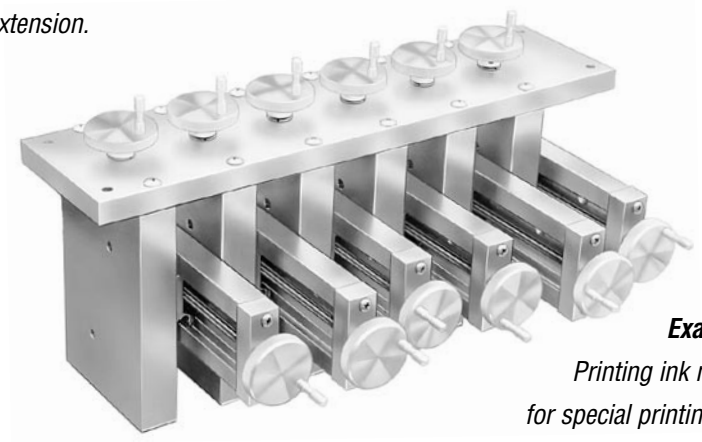


Example 4: *Five Rapid Advance sliders on a stationary central rod*



Example 5: *Left-right lead screw on B25 Series (page 1.34) dovetail base with lead screw shaft extension.*





Example 6: *Special B29 Elevating Table and right angle gearbox on cross-side. This fixture operates inside an enclosure.*

Example 7: *Printing ink manifold for special printing press.*

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Warranty and Policies

Warranty

Velmex Inc. warrants all manual UniSlide Assemblies supplied by Velmex Inc. to be free from defects in materials and workmanship for one year from date of invoice. Velmex's sole obligation under this warranty is limited to furnishing, without additional charge, a replacement for, or at its option, repairing or issuing credit for, any product which is returned freight prepaid. This warranty shall not apply to any unit which has been subjected to misuse, improper operating conditions, or any alterations. The seller makes no claim that its products are intended for every use or purpose to which they may be put by the buyer. *IN NO EVENT SHALL VELMEX INC. BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES.*

Notice

Failure, improper selection or improper use of the products described herein or related items can cause personal injury and property damage. This catalog from Velmex Inc. provides product options for further investigation by users having technical expertise. It is important that you thoroughly analyze all aspects of your application and review the information in this catalog. Due to the variety of operating conditions and applications for these products, the user, through his own analysis and testing, is solely responsible for making the final selection of products and determining that all performance, safety and warning requirements of the application are met. The products, including, without limitation, product features, specifications, designs, availability and pricing, are subject to change by Velmex Inc. at any time without notice.

Cancellation Policy

Cancellation of orders consisting of standard products, for any reason, is subject to a 15% cancellation charge. Cancellation of orders for special products and nonstandard UniSlide Assemblies are subject to a cancellation charge to be determined by Velmex Inc.

Repair Return Policy

If you need to return a product to us for repair, please contact us for an RMA number before returning the product. Include a written explanation of the problem. We will inspect the unit and notify you of the cost, if any, before any work is performed or if we determine it is not cost-effective to repair the unit. The charge for non-warranty work will be billed at the current hourly rate.

Keyword: warranty

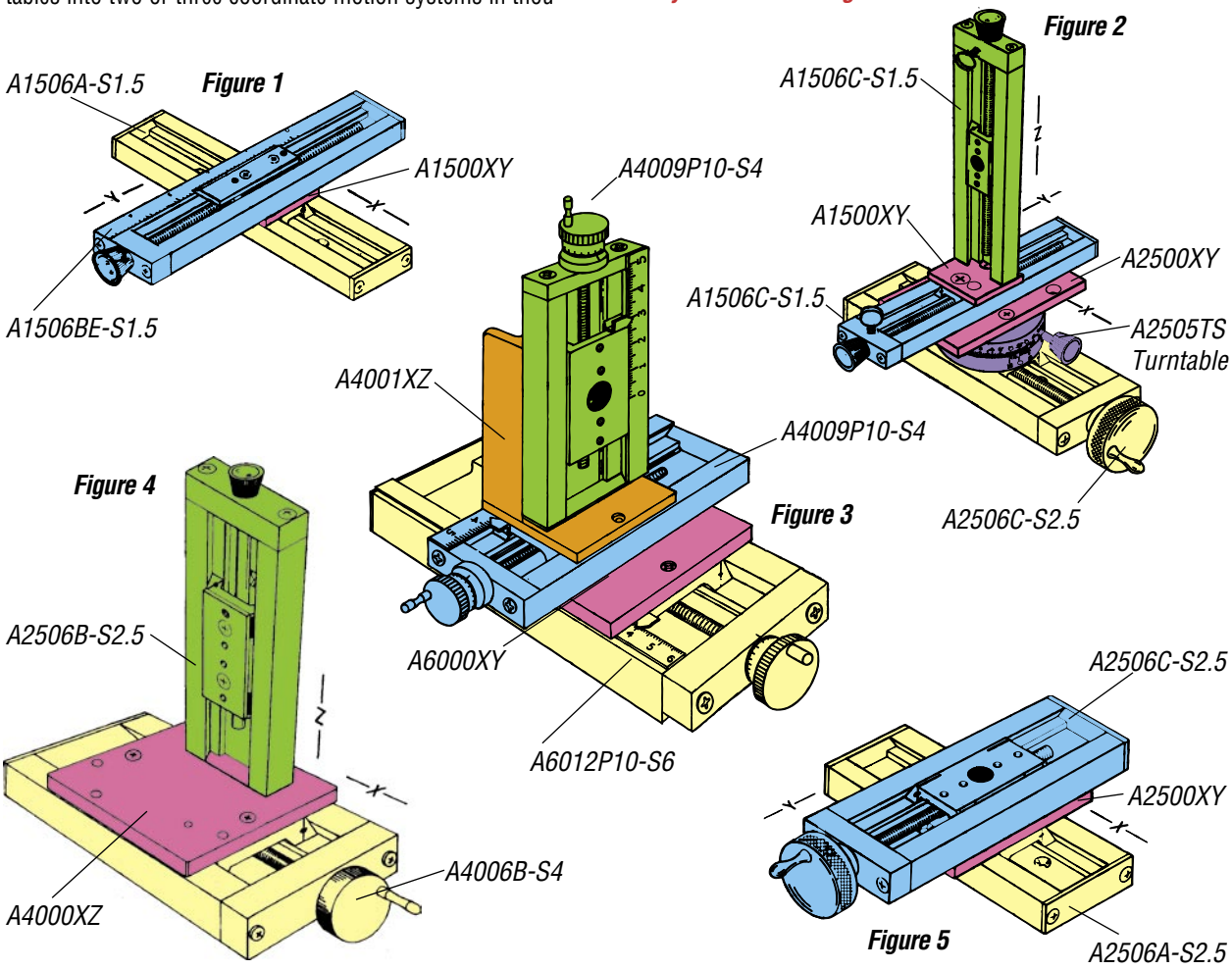
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Combining UniSlides/UniSlide Components

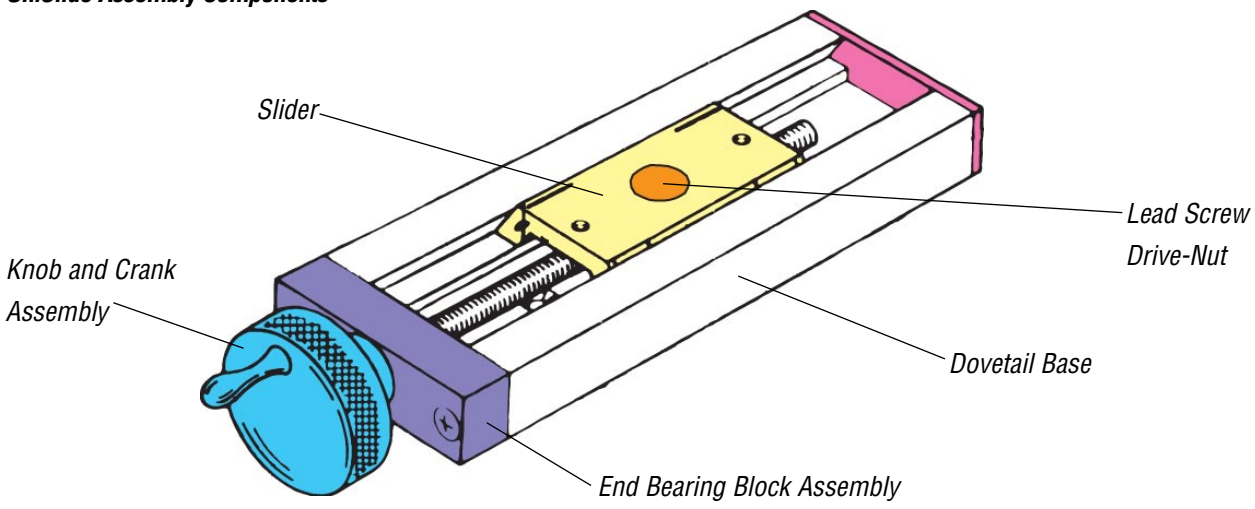
Combinations of UniSlide Assemblies with Adapter Plates

UniSlide Assemblies may be assembled into a limitless variety of shapes, sizes and functions when used with adapter plates. It's easy to combine linear slides, elevating tables and rotary tables into two or three coordinate motion systems in thousands of combinations. Using the versatile XZ adapters, the vertical UniSlide can be located in any of four positions, all perpendicular to the X or Y planes Figures 3 and 4 illustrate two possibilities.

Keyword: combining



UniSlide Assembly Components



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Fax form to us at 585-657-6153

Request for Assistance or Quotation

Please fill out this form for help in selecting a manual UniSlide or BiSlide Assembly.

For faster response, click here to go to online RFA form.

Name _____ Phone _____

Company _____ Fax _____

Address _____ E-mail _____

City _____ State _____ Zip _____

Application Objective _____

_____

_____

_____

_____

Have you used Velmex Assemblies before? Yes No

Operating environment is _____

Do you need options? _____

☐ I need nonmagnetic slides

A sketch or drawing of your application is helpful.

Axis*	Travel Distance	Payload Weight	Measure Travel or Position?		Position Readout Resolution	Other Requirements
X			Yes	No		
Y			Yes	No		
Z			Yes	No		
Rotary			Yes	No		

* See page 1.57 for orientation of XYZ axes.

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Bi Manual Section 6/5/06 11:02 AM Page 1

Manual

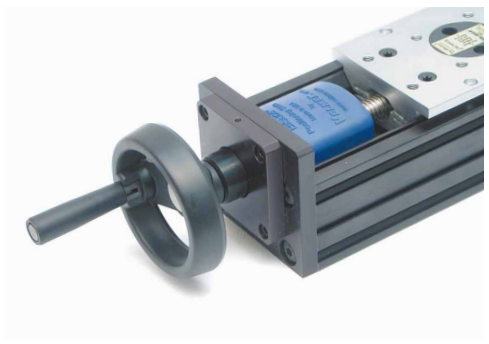
Manual BiSlide and XSlide

New XSlide assemblies— See Motorized BiSlide and XSlide for information on the new motor driven, knob/crank, and free motion XSlide versions.

Note: *Throughout this catalog you'll see* ***Keywords in RED.*** *To get more information, including access to drawings, specs, photos of examples and the latest innovations, go to our web site,* ***www.velmex.com****, and enter the corresponding* ***Keyword in the Quick Search Box.***



BiSlide with counter. Resolution is 0.001"



BiSlide without counter



BiSlide without lead screw



Vertical BiSlide with platform base



BiSlide with right angle gear drive

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Bi Manual Section 6/5/06 11:02 AM Page 2

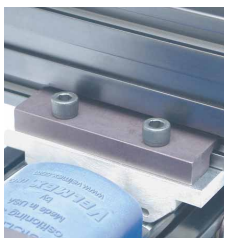
Manual BiSlides Assemblies are Modular, Compact, and Durable

- 45 degree opposing way guides carry high loads in all directions
- Long life anodized ways standard
- Biggest lead screw drive for higher thrust capacity
- Improved modular design eliminates adapter plates and brackets

The Velmex BiSlide is a modular system of positioning stages and hardware that allows you to quickly and easily create a complete one, two and three axis system by simply bolting together modular components. These components can be configured and assembled to form a work cell dedicated to a specific task. Because BiSlide components are all standard and interchangeable, if this task changes or ends, you can readily disassemble the components and put them to work elsewhere.

Manual BiSlides are easily upgraded to a motor driven system by replacing the hand wheel with a motor and limit switches. It's fast, simple, inexpensive, and requires no machining or other modifications.

If you're a manufacturer, you'll find the BiSlide system delivers ease of service and upgradeability to keep up with your rapidly changing marketplace. If you're a researcher, you'll like BiSlide's easy reconfigurability and expandability for different projects. Everyone appreciates BiSlide's durable construction and low cost.



Cleats make mounting multiple units easy



3 axis system



BiSlide with 80 inch travel length

Features and Benefits of BiSlides

- Lighter weight
- Fewer parts
- Lower cost
- Higher strength to weight ratio – uses hard aluminum alloys and a rigid I-beam cross section
- More compact than most ball screw driven stages
- Self-holding – unlike ball screws, the 10 pitch or 2 mm lead screw will not creep or backdrive
- Resistant to impact loads
- Natural wiping action expels debris
- Gradual wear not sudden failure of rolling element type screws and guide-ways
- Corrosion resistant anodized finish
- Operate without lubrication
- Spare set of guide-ways built-in on the flip side just in case the primary ones get damaged

Options

- Knob/Crank
- Knob/Crank/Counter
- Right Angle Drive
- Side Knob Drive
- Right/Left-hand Drives
- Extra Carriages
- Short Carriages
- Carriage Lock
- Custom Lengths
- Special Holes
- Rotary, Linear Encoders, and Digital Readouts

For More Information:

- Call Velmex at 1-800-642-6446 from 8 am to 5:30 pm EST.
- See specifications at Motor Driven BiSlide Assemblies on page 2.37.
- Visit www.Velmex.com to input your specifications, lookup prices, see photographs and download drawings of specific BiSlide models. ***Keyword: Find***
- Visit www.BiSlide.com for more examples of BiSlide's extraordinary versatility.

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Manual Rot/Turn Section 6/5/06 10:53 AM Page 1

Table of Contents

Manual







Manual Rotary Tables & Turntables

Rotary Tables	*1.62*
Turntables	*1.64*

Note: Throughout this catalog you'll see ***Keywords in RED.***
To get more information, including access to drawings, specs, photos of examples and the latest innovations, go to our web site, ***www.velmex.com****, and enter the corresponding* ***Keyword in the Quick Search Box.***

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Manual Rot/Turn Section 6/5/06 10:53 AM Page 2

Rotary Tables

Rotary Tables use a rugged worm and gear drive design with a central rotating ball bearing. We offer two sizes: A4800, a series of three Models with gear ratios of 18:1, 36:1 and 72:1. Also, we have the smaller Model A5990TS with a 90:1 gear ratio. See Model Details table on the following page.

All Series A4800 features include a hollow spindle or clear aperture in the center, 360° scale, graduated knob, and a readily accessible adjustment to minimize gear backlash. They can also be motorized by simply removing the knob and shaft and attaching a size NEMA 23 motor. See page 3.9.

Model A5990TS features include a hollow spindle or clear aperture in the center, 360° scale, graduated knob, standard black anodized finish. They can also be motorized by simply removing the knob and shaft and attaching a NEMA 17 motor. See page 2.52.

Note: Gear ratios 18:1, (Model A4818TS) and 36:1 (Model A4836TS) may backdrive if sufficient rotational torque is applied to the table top.

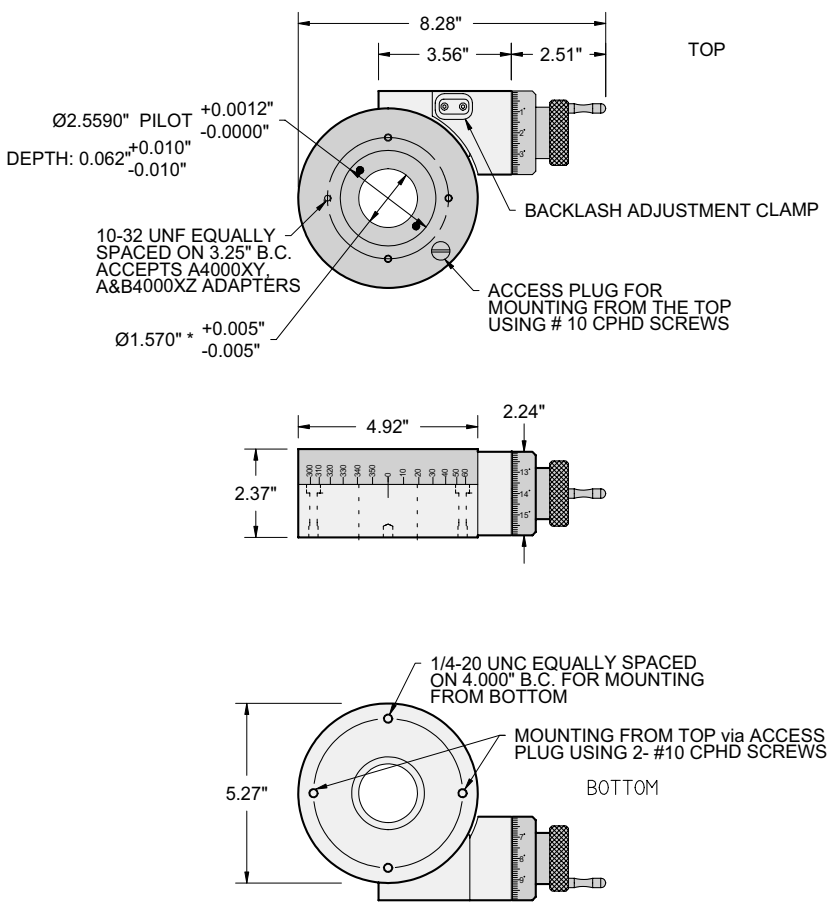
To attach any A48 table to the slider of an A40 or A60 Series UniSlide, use the A6000TX adapter plate. See page 1.48.

See also Turntables on page 1.64.



Series A4800 *Model A5990TS*

Model A48 Series Rotary Table



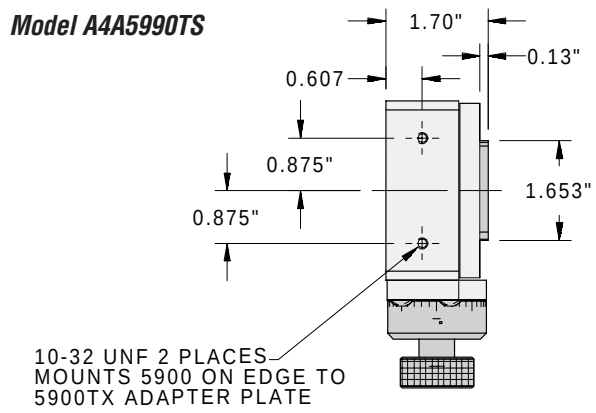


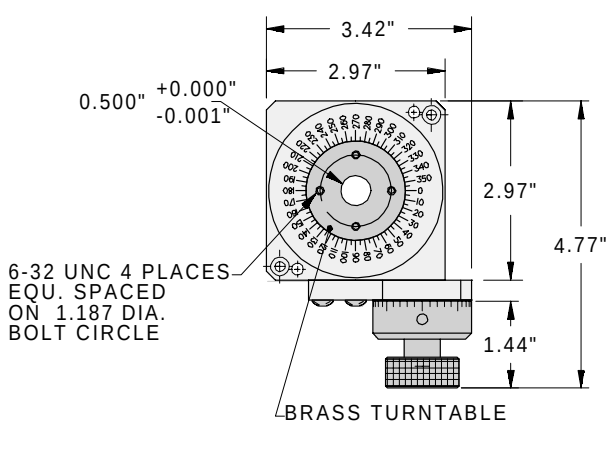
Locking knob option on Series A4800

Keyword: worm

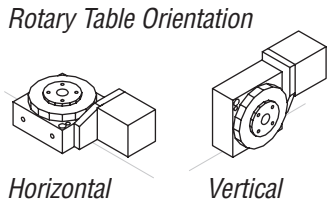
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Model A4A5990TS

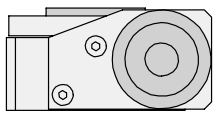


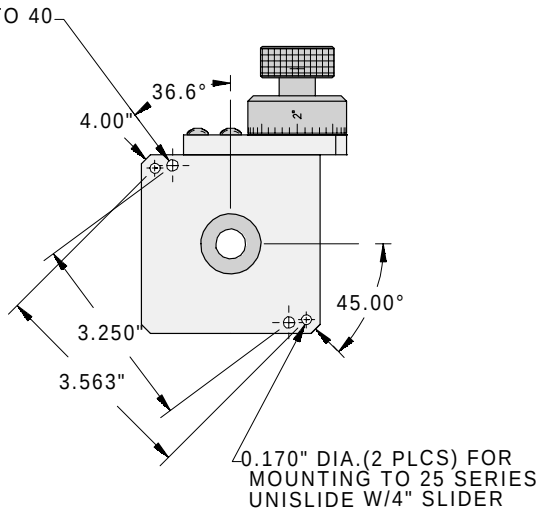


Rotary Table Orientation



Horizontal *Vertical*



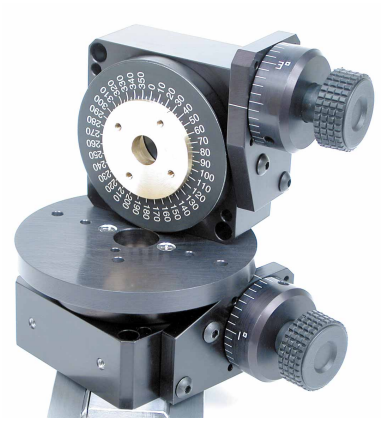


Specifications

	A4818TS A4836TS, A4872TS	A5990TS
Central Horizontal Load Capacity	200 lbs/90.7 kg	50 lbs/22.6 kg
Central Vertical Load Capacity	25 lbs/11.3 kg	5 lbs/2.3 kg
Cantilever Load-Horizontal	500 in-lbs	20 in-lb
Table Top Axial Runout	0.00025" TIR	0.00011" TIR
Table Top Radial Runout	0.0005" TIR	0.00008" TIR
Accuracy	100 arc-second	100 arc-second
Table Weight	5.5 lbs/2.5 kg	2.7 lbs/1.23 k

More Details

Model Number	Gear Ratio	Table Top Rotation per Turn of Knob	Typical Backlash	Calibration on Drum Dial	Adapter Plate
A4818TS	18:1	20 degrees	600 arc-second	0.1°	A6000TX
A4836TS	36:1	10 degrees	400 arc-second	0.1°	A6000TX
A4872TS	72:1	5 degrees	200 arc-second	0.1°	A6000TX
A5990TS	90:1	4 degrees	200 arc-second	0.1°	B5990TX



Two A5990TS tables joined with A5990TXZ adapter plate.

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Manual Rot/Turn Section 6/5/06 10:53 AM Page 4

Turntables

Turntables differ from Velmex Rotary Tables in that turntables can be spun freely by hand. They also feature a 12° range of fine position adjustment. Typical applications include mounting and rotation of test specimens, cameras, transducers, sensors, and mirrors.

Unlike the rotary tables on page 1.62, turntables do not use a worm and gear design. They use a spring-loaded tangent screw drive for fine adjustments. With the clamping knob released, the turntable can be freely rotated into position by hand. Tightening the clamping knob engages a tangent screw driven against a spring-loaded yoke, allowing fine motion control. The spring will resist up to 14 oz-in of rotational torque.

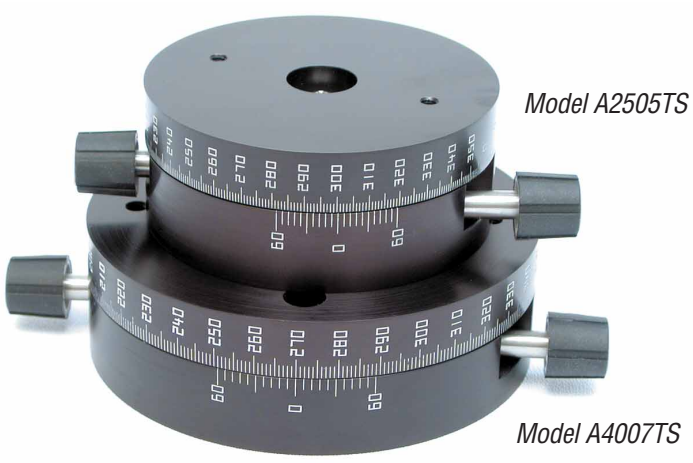
Table features include an easy to read engraved 360° scale, 6 minute (0.1 degree) resolution, maximum horizontal load capacity of 200 pounds, and rugged black finish. These tables cannot be motor-driven and are not recommended for tensile (pulling) loads or vertical loads greater than 1 lb.

Base Mounting

Model A2505TS: This table will mount on an A15 Series 3" slider using the C holes, and A25 or B25 2 1/2" sliders using the D holes. If the A25 Series unit has a 2.5" slider and thumbscrew lock, 0.650" travel will be relinquished.

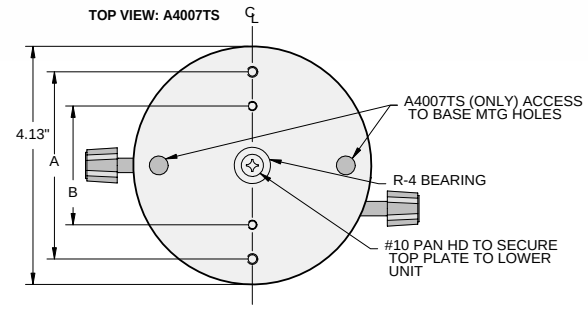
Model A4007TS: This turntable will mount on all A40 or B40 sliders using the C holes and A/B 60 sliders.

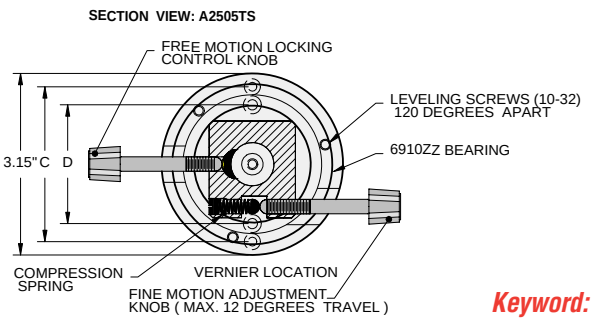
Model	Diameter	Height
A2505TS	3.15"	1.3"
A4007TS	4.13"	1.3"



Model A2505TS

Model A4007TS





Keyword: turntable

Model Number		Thread	Center to Center	Accepts
A2505TS	A	8-32	2.062"	All A2500 Adapters
	B	N/A	N/A	--
		Clearance	**Center to Center**	**Mounts On**
	C	#6 CPHD	2.688"	A1500 3" Slider
	D	#8 CPHD	2.062"	All A2500 Sliders
Model Number			**Thread**	**Center to Center**
A4007TS	A	10-32	3.250"	All A4000 Adapters
	B	8-32	2.062	All A2500 Adapters
		Clearance	**Center to Center**	**Mounts On**
	C	#10 CPHD	3.250"	All A40/60 Sliders
	D	N/A	N/A	--

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