Velmex Rotary Tables

Robust, Fast and Smooth Performance

Manual and Motorized

Rotary Tables

Compact Positioning Stage

360° Continuous Motion

VELMEX, INC.™

Positioning Systems for Science and Industry

Velmex Versatility

Velmex positioning products provide a variety of precise, yet simple, modular configurations to satisfy a broad range of applications where high precision and value are essential. Velmex applications are limited only by your imagination. For example:

- Measurement
- Antenna Alignment
- Automation
- Camera Positioning
- Film and Animation Work
- Inspection and QA/QC
- Medical And Biological Analysis
- Moving Probes, Sensors, Components
- Optical Focusing
- Photonics
- Pick and Place
- Prototyping
- Research and Testing
- Workhold Fixturing and Light Industrial
- And thousands of other uses.

You are not limited to off-the-shelf items. Every Velmex product is built to order. We can customize your device to meet your exact requirements with:

- Locks
- Counters and Scales
- Position Encoders
- Special Finishes
- Prep for Special Environments
- Framing
- Plates and Brackets

Velmex's very broad range of positioning equipment for science and industry delivers quality, precision, selection and value.

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Rotary Table Assemblies

Manual versions of the A4800 and A5990 Series Rotary Tables

A manual (A4800) and a motorized (B4800) Rotary Table in a black anodized finish.

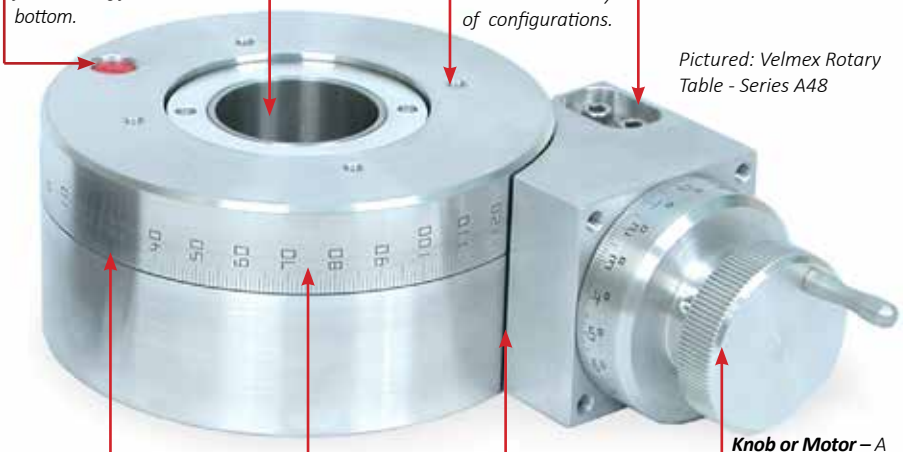
Velmex Rotary Tables deliver precise, continuous rotating motion for scanning, assembly, testing and production. They are a convenient, accurate method of quickly positioning a payload. The tables use a rugged worm and gear drive design with a central rotating ball bearing.

Velmex offers two series of Rotating Tables in manually-driven or motorized configurations – the A4800 (B4800 - motorized) in three different gear ratios (18:1, 36:1 and 72:1) and the A5990 (B5990 - motorized) with a 90:1 gear ratio.

The A4800/B4800 Series of Rotary Tables has a load capacity up to 200 lbs. (90.7 kg.) horizontally and 25 lbs. (11.3 kg.) vertically. The A5900/B5990 can handle 50 lbs. (22.6 kg.) horizontally and 5 lbs. (2.3 kg.) vertically. They easily integrate with Velmex UniSlides®, BiSlides® and XSlides™ in a array of configurations.

The Series A5990/B5990 Rotary Table, although smaller, has many of the same features.

- The A5990/B5990 features a brass turntable/platform for the payload.
- They can be mounted at the bottom, or vertically on their side.
- They can be easily changed from manual to motorized by replacing the knob with a step motor.



Mounting Access – *Access plug to allow mounting the rotary table from the top. Four holes are located on the bottom for mounting from the bottom.*

Center Aperture – *Hollow spindle or clear aperture in center for optical applications.*

Mounting Holes (4) – *Easily secure the payload or attach Velmex adapter plates and brackets to create a variety of configurations.*

Back Lash Adjustment – *Easily accessible adjustment clamp to minimize backlash.*

Pictured: Velmex Rotary Table - Series A48

Rotating Ball Bearing – *Heavy-duty central rotating ball bearing for smooth rotation. Very responsive with 360° rotation in either direction.*

Scale – *At a glance, easy-to-read 360° scale for operator convenience.*

Motor Conversion – *Easily motorize Velmex Rotary Tables by simply removing the knob and shaft and replacing with an appropriate step motor.*

Knob or Motor – *A graduated knob for precise positioning. An optional knob and crank is also available for the A59 Series. A stepper motor replaces the knob on the motorized version B5990.*

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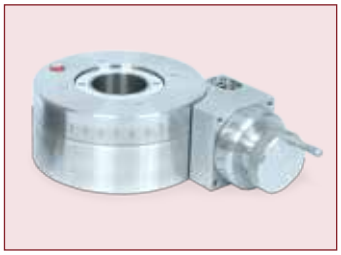
Rotary Table Configurations - Manual and Motorized Stages



A48 Series of Manual Rotary Tables. Three models with gear ratios of 18:1, 36:1 and 72:1.

A59 Series Manual Rotary Tabe with a 90:1 gear ratio.

The motorized B59 series can handle up to 50 lbs.

Three models in the B48 Series can handle loads up to 200 lbs.

Rotary Table Applications

Typical applications for Velmex Rotary Tables include mounting and rotation of test specimens, cameras, transducers, sensors, mirrors and other components. The tables can also be used to tilt and pan.

Rotary Table Specifications

Rotary Tables†		A4818TS / B4818TS	A4836TS / B4936TS	A4872TS / B4872TS	A5990TS / B5990TS
Gear Ratio		18:1	36:1	72:1	90:1
Advance per (1 turn knob - manual or 1 rev. on input - motorized)		20°	10°	5°	4°
Diameter of Table	Inches	5”	5”	5”	1.65”
	cm	12.7	12.7	12.7	4.2
Maximum Horizontal Load	lbs.	200	200	200	50
	kg.	90.7	90.7	90.7	22.6
Vertical Central Load	lbs.	25	25	25	5
	kg.	11.3	11.3	11.3	2.3
Weight	lbs.	5.5	5.5	5.5	2.7
	kg.	2.5	2.5	2.5	1.23
Height	Inches	2.37”	2.37”	2.37”	1.7”
	cm	6.0	6.0	6.0	4.3
Length with Knob and Shaft	Inches	8.28”	8.28”	8.28”	4.77”
	cm	21.0	21.0	21.0	12.1
Clear Aperature Dia.	Inches	8.28”	8.28”	8.28”	4.77”
	cm	21.0	21.0	21.0	12.1
Additional Motorized Specifications					
Increment per 400 step motor		0.05°	0.025°	0.0125°	0.01°
Max input RPM		600	600	600	600
Speed (degrees per second at max. rpm)		200°	100°	50°	40.2°
Max input Torque		150 oz-in	150 oz-in	150 oz-in	50 oz-in

† Motors Sold Separately

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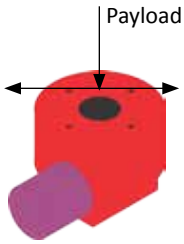
Additional Rotary Table Specifications:

Repeatability:	1 arc - second
Accuracy:	100 arc - second
Operating Temperature:	0 to 180° F (-18 to 82° C)

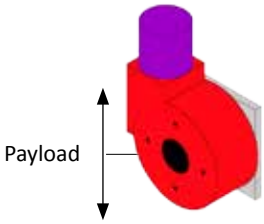
Rotary Table Specifications (continued)

Loads

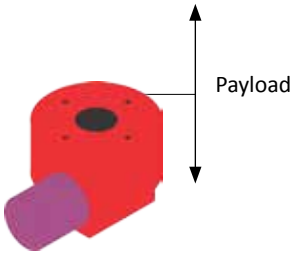
<u>Normal</u>
200 lbs. (max)



<u>Vertical Central Load</u>
25 lbs. (max)

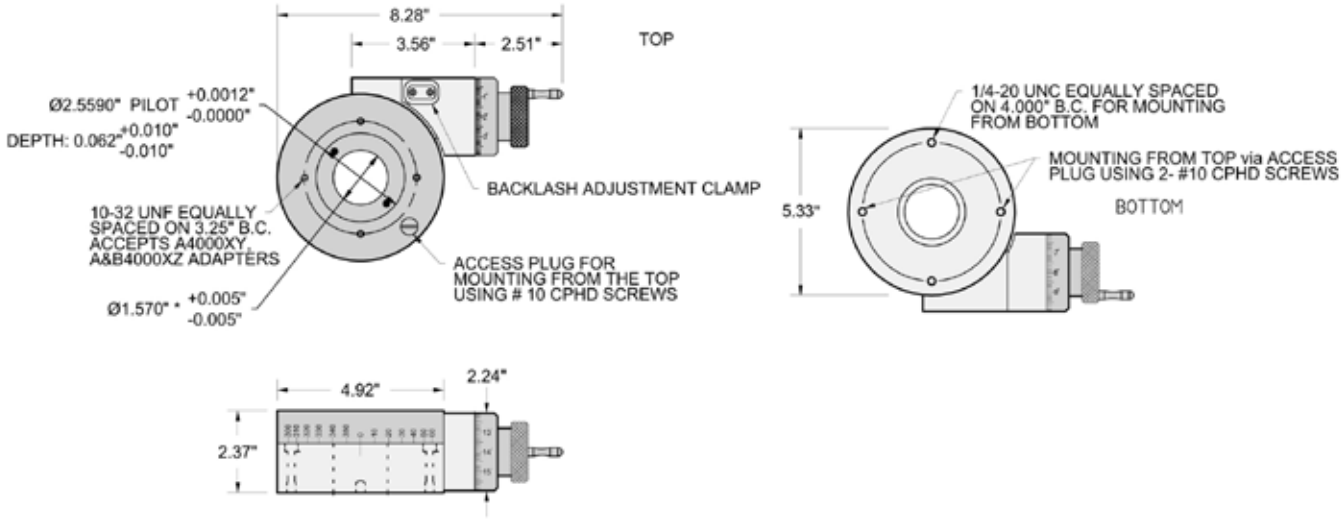


<u>Cantilever</u>
500 lb-inches (max)

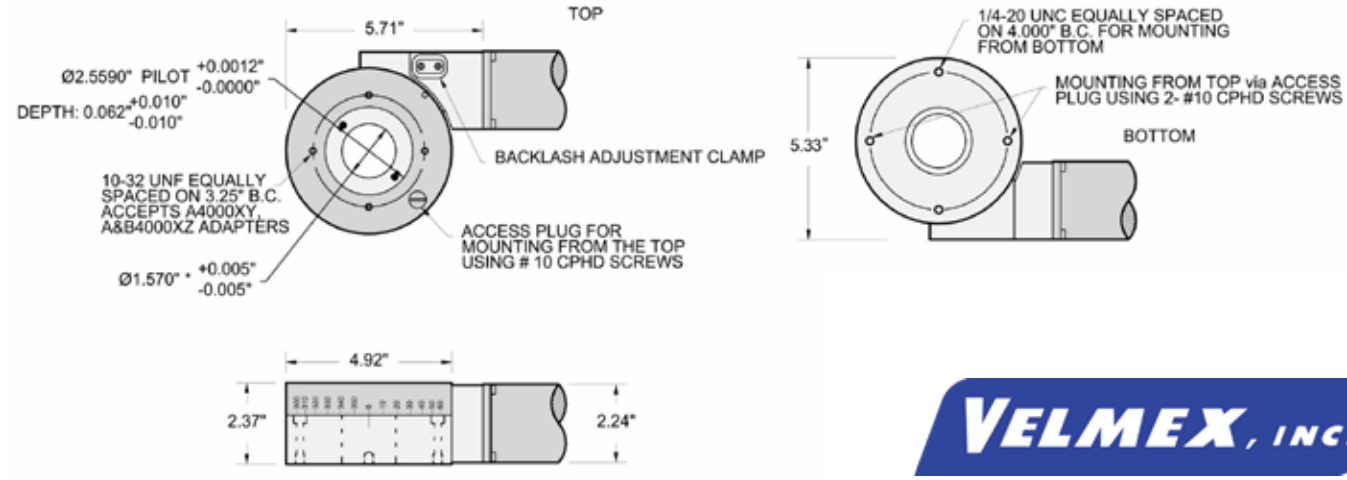


Rotary Table Dimensional Drawings

A48 Series (Manual)



B48 Series (Motorized)



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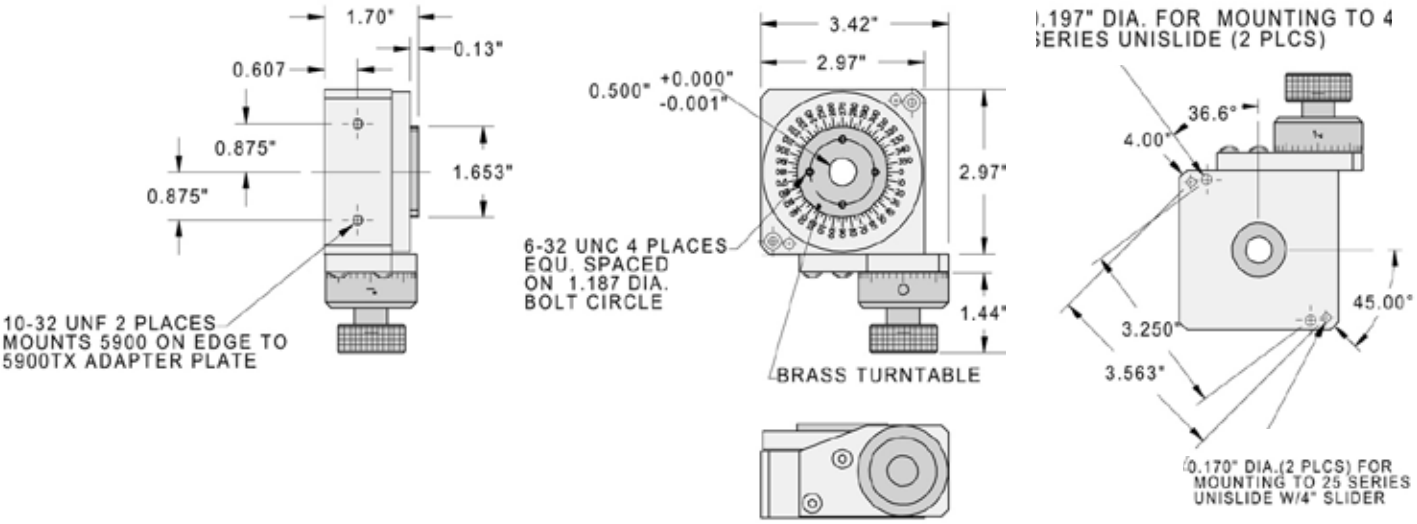
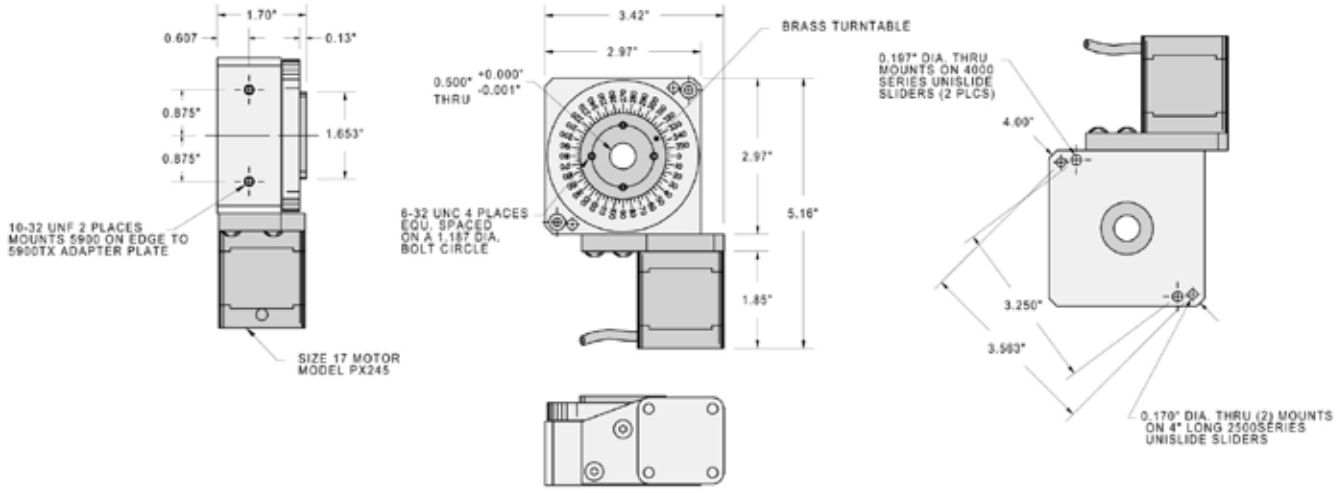
Rotary Table Dimensional Drawings

A59 Series (Manual)

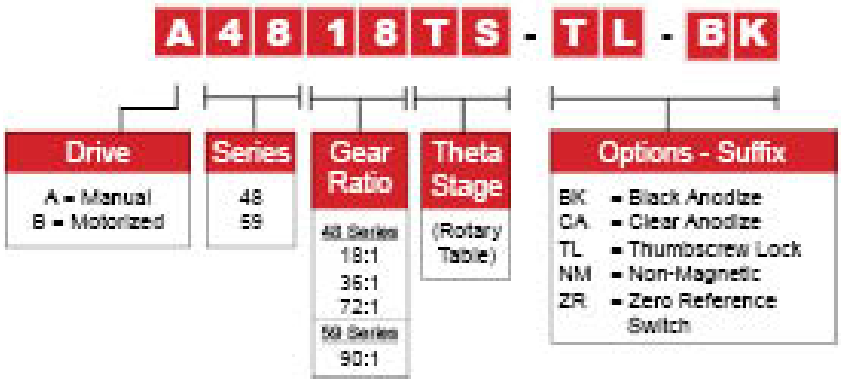


B59 Series (Motorized)



Rotary Table Part Number

Rotary Table Part Number schematic for either Manual (A) or Motorized (B) configurations.



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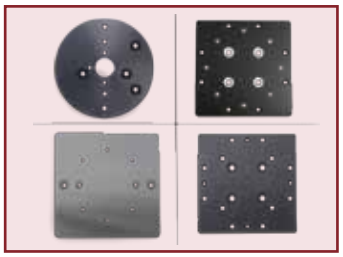
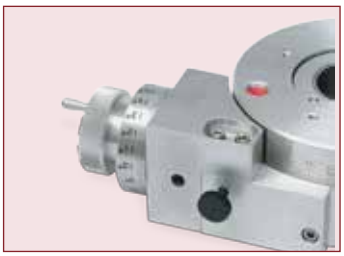
Velmex Rotary Table Options and Accessories



Rotating Table Adapter Plates – *to mount Velmex Rotary Tables to other Velmex Assemblies either in horizontal or vertical positions.*

XZ Brackets – *allow Rotary Tables to be positioned vertically. They can mount two Rotary Tables at right angles. The brackets can also be used as the base and support to mount other Velmex products or the payload on the Rotary Table vertically.*

Platform shelf – *A right angled bracket designed to be used with UniSlide® Elevating Tables. However, they also can be used with vertically mounted Rotary Tables to support a payload. The shelf can be inverted depending on the motion required.*



Thumbscrew Lock (-TL) – *An easy method to lock the table utilizing a simple thumbscrew.*

Alternative Knob – *An knob with a crank for faster rotation is available for the A5990TS. Standard configuration is the knob only.*

Home Switch – *A magnetic reed home switch sets and returns the carriage to home (starting) position. This is moveable. (Available on motorized only.)*

Limit Switches – *Using two zero-reference (home) switches on a Rotary Table creates limits that restrict travel to a specific degree arc.*

Finishes – *The A48 Series of Rotary Tables has a brushed aluminum finish. Optional finishes are available.*

Encoders and VRO™ Encoder Read-out – *For a high resolution position readout a rotary encoder and Velmex's VRO encoder readout can be mounted to Velmex Rotary Tables.*

Motors and Motor-Controllers – *A variety of motors are available to power Velmex Rotary Tables, most popular is the DC step motor. Step motors coupled with a motor controller like the Velmex VXM™ are a cost effective solution for accurate speed and precise incremental positioning.*

Motorized / Manual Operation – *It is possible, using a double shaft motor, to produce a Velmex rotary stage that can be manually operated or motor-driven. A shaft extension accommodates the either a Rogan or standard aluminum knob. It is also relatively easy to change out a manual knob for a motor on Velmex Rotary Tables.*

Velmex Rotary Table combined with an BiSlide® Gantry System – *Rotary Tables can easily be combined with other Velmex products to make custom systems for specialized motion and positioning projects. (The indexing system to the left also included Velmex framing components.)*

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More Positioning Solutions from Velmex

Velmex manufactures standard and custom linear and rotary motion-control positioning equipment for scientific, research, machining and industrial applications. Velmex produces UniSlide®, BiSlide® and XSlide™ manual and motor-driven assemblies; manual and motor-driven XY tables, rotary tables, elevating tables and turntables; VXM™ motor controls and VRO™ digital readouts. Products include slides, stages and actuators in a variety of configurations and a broad range of sizes and payload capacities.

Velmex UniSlide® Assemblies are available in a variety of configurations, models and sizes including Linear Slide Assemblies, Elevating Tables and XY Tables.

Velmex BiSlide® Assemblies offer durable, easy-to-configure, low cost and modular design for a highly effective and very versatile positioning device.

Velmex XSlide™ Assemblies are compact positioning stages, highly suitable for high performance scanning of smaller loads. They are very effective in limited space applicaitons.

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Visit the Velmex web site at www.velmex.com for more details and specifications on all the Velmex stages; along with motors, controllers, encoders and readouts. The site includes CAD files, numerous examples , news and updates.

Velmex is leader in delivering rugged, reliable, precision positioning systems at a reasonable cost. We have helped thousands of companies and organizations with solutions to the application challenges. If you need help in designing a positioning system, please contact us and to talk with one of our Application Engineers.

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