

Engineering Information

Design Advantages of Linear UniSlide Assemblies

- Compact design yields long travel in a short work space
- A simple, reliable design that is easily adaptable
- Modular components facilitate multiple axis system
- A broad variety of lengths, sizes and features

Straightness

Commencing with a aluminum alloy extrusion having a straightness tolerance of half the normal commercial tolerance, the subsequent machining and lapping operations are designed to secure a high degree of straightness and parallelism in the dovetail ways. There are essentially three types of deviation from straightness that can occur. Referring to a UniSlide Assembly resting base down on a flat surface with its linear motion or longitudinal direction, X, there can be a departure from straightness in the upward direction, Z, which is designated as the bow error. There can be a deviation from straightness in the horizontal direction, Y, designated as horizontal run-out, or simply run-out. There can also be a twist in the direction of the slide, X.

The upper limits for these three 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

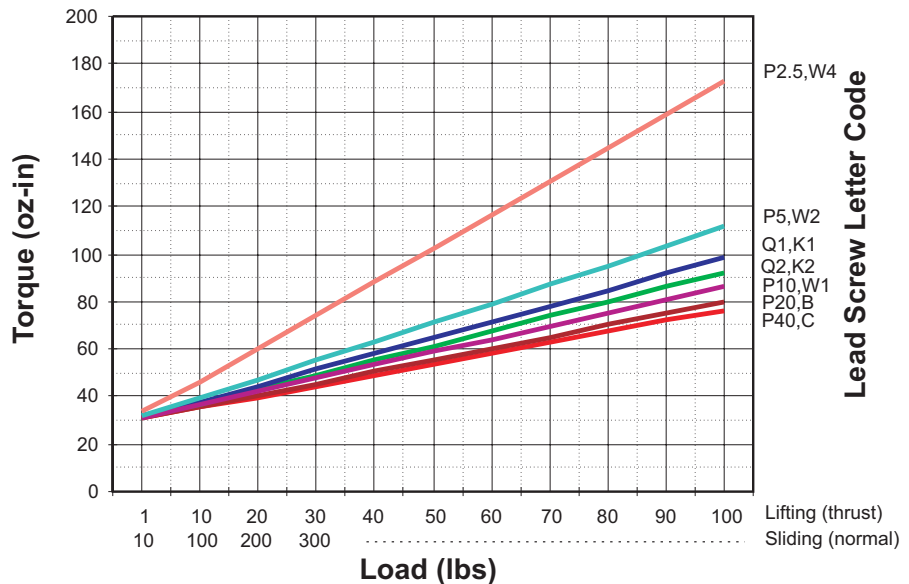
**As installed, bow can be affected by the degree of flatness of the supporting surface and relative tension in the mounting screws.*

If reduced straightness tolerances are required in the order of one half of the nominal values above, Velmex will select, measure and certify UniSlide Assemblies for the customer at an extra charge of \$7/in.

Wear Resistance

The aluminum alloy dovetail base and low friction polymer pads of the slider give excellent performance as a bearing material combination. Under moderate and light loads, the sideways play developed by wear during the first 30,000 cycles of operation is approximately 0.00015 inches. Thereafter, the wear is further reduced, amounting to approximately 0.00005 inches during the next 50,000 cycles. The slider has adjustment screws to compensate for moderate wear. Replacement bearing pads can be laminated to the slider at a nominal cost to recondition the slide after long periods of use, if necessary. For harsh environments and/or a higher number of cycles, UniSlide assemblies are available with hard coat anodized ways. See page 2.31, Options.

UniSlide Lead Screw Torque/Load*



Protective Limit Switch Assembly

Velmex recommends limit switches be included whenever motor torque could damage the lead screw or drive nut at the end of slider travel and for operator safety. This includes most applications except those with small stepper motors. See our website for a complete selection of limits.

Keyword: limits

Vacuum Applications

UniSlide linear and rotary positioners can be used in a vacuum to 10⁻⁶ torr with modifications. Please see our web site for an in-depth discussion of vacuum applications.

Keyword: vacuum

Nonmagnetic properties

Lead screws are made of 303 stainless steel (except W2/P5 and W4/P2.5) and are slightly magnetic. Where an exceptionally high degree of nonmagnetic character is required, Velmex may supply plated brass fasteners and brass lead screws. Rotary tables have several essential steel ball bearings. Electric motors are inherently magnetic.

Lengths

Catalog lengths are those listed, but longer units are also available. In-between lengths are also available on special order. Slider lengths are only those listed.

Warranty, Cancellation and Repair Return Policies**Warranty**

Velmex Inc. warrants all mechanical UniSlide Assemblies supplied by Velmex Inc. to be free from defects in materials and workmanship for one year from date of invoice.

Velmex motor controls have a two year limited warranty. 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 it's 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.

Material Substitutions

Drive nuts: brass, oil-impregnated bronze, Vespel®.

Lead screws: brass, in some sizes.

Notice

Failure, improper selection or improper use of the products described herein or related items may 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.

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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 non standard UniSlide Assemblies are subject to a cancellation charge to be determined by Velmex Inc.

Repair Return Policy

Please contact Velmex for an RMA number. When returning a UniSlide Assembly, include a written explanation of the problem. Velmex will inspect the unit and notify you of the cost, if any, before any work is undertaken. If the unit is unrepairable it will be returned at the owner's expense. The charge for non-warranty work will be assessed at the current hourly rate.