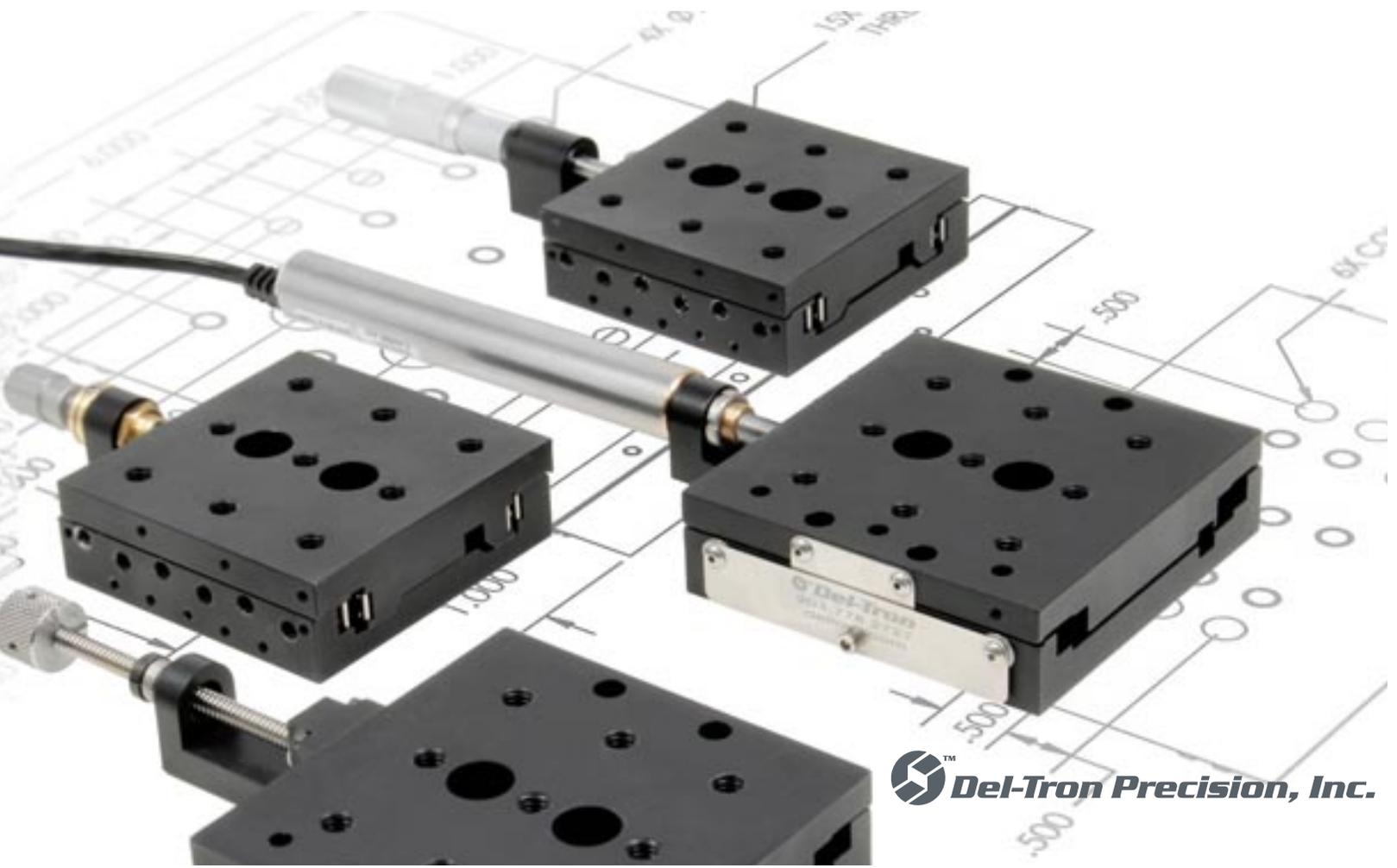


# Precision Linear Motion Components

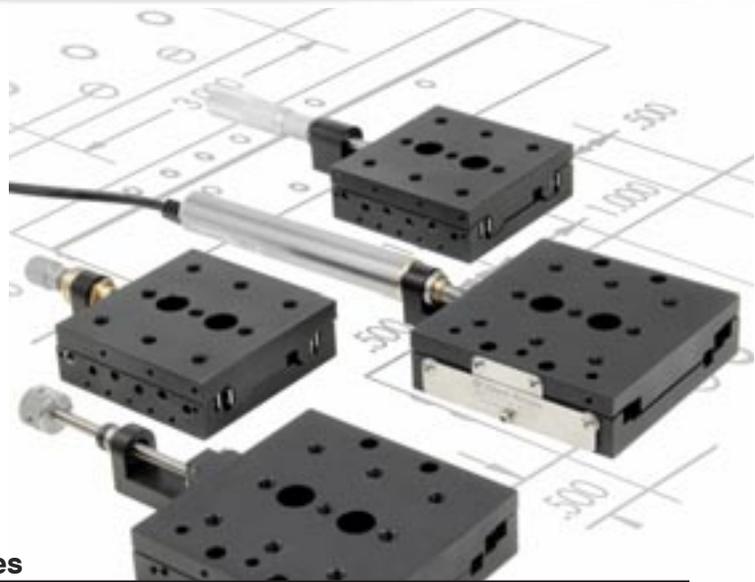
## VB/VR/VS Series High Precision Positioning Stages

Inch & Metric Versions



# High Precision Positioning Stages

Del-Tron's VB, VR and VS High Precision Positioning Stages take positional accuracy, performance and actuator flexibility to a new level. Utilizing Del-Tron's proven ball and crossed roller technology and more than three decades of experience manufacturing linear slides and stages we offer three new model numbers and you can choose the method of actuation best suited for your application. Build your own High Precision Stage by simply picking out the ball or crossed roller stage that meets your applications needs and choosing one of the 4 methods of actuation, Micrometer head, Fine thread adjustment, Lead screw or Motorized actuator. Solid models for all of our High Precision Positioning Stages are available on our website. Please visit us at [www.deltron.com](http://www.deltron.com).



## VB Series

Our VB High Precision Positioning Stages utilize our proven ball bearing and shaft technology. They are factory preloaded to provide smooth, accurate positioning and performance. These units are spring loaded to provide a positive load on the actuator tip eliminating backlash. They require no lubrication and are available in travels ranging from .5" (12.5 mm) to 2" (50 mm). Actuator mounting brackets are available in both a center line or side drive configurations. A locking mechanism (Posi-Lock) is also available and can be set to hold a desired position when necessary. The aluminum carriage and base of each stage are machined and ground. Stainless steel is used for the internal components and all mounting actuator brackets are machined from aluminum. Carbide inserts are used where the actuator and stage make contact.

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## VR Series

The VR High Precision Positioning Stages employ crossed roller bearings and steel shafts with flats ground onto them. These hardened shafts with flats provide a greater surface contact for the crossed roller bearings increasing load and rigidity while maintaining the smallest possible footprint. These units are spring loaded to provide a positive load on the actuator tip eliminating backlash. They require no lubrication and are available in travels ranging from .5" (12.5 mm) to 2" (50 mm). Actuator mounting brackets are available in both a center line or side drive configurations. A locking mechanism (Posi-Lock) is also available and can be set to hold a desired position when necessary. The aluminum carriage and base of each stage are machined and ground. Stainless steel is used for the internal components and all mounting actuator brackets are machined from aluminum. Carbide inserts are used where the actuator and stage make contact.

## VS Series

The VS High Precision Positioning Stages incorporate V grooved rails and crossed roller bearings offering ultra-smooth linear motion. These hardened rails and crossed roller bearings are machined and ground, and provide excellent load carrying capability while maintaining low linear friction and excellent rigidity. They are available in travels ranging from .5" (12.5 mm) to 2" (50 mm). Actuator mounting brackets are available in both a center line or side drive configurations. A locking mechanism (Posi-Lock) is also available and can be set to hold a desired position when necessary. The aluminum carriage, base and actuator mounting brackets of each stage are machined. Carbide inserts are used where the actuator and stage make contact.



*Shown with Fine Adjustment Screw*



*Shown with Side Drive Micrometer*



*Shown with Lead Screw*

## Actuator Options

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### Micrometer Head:

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Micrometer heads are available in .001" graduations for the inch version and metric micrometer heads are available in .01mm graduations.

### Fine Adjustment Screw:

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Standard fine adjustment screw is supplied with 100 threads per inch.

### Lead screw:

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Lead screw assembly is supplied with an anti-backlash nut and a .050" lead for the inch version and a 1mm lead for the metric version.

### Motorized Actuator:

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Our motorized DC Servo motor is available on all .5" (12.5mm) and 1" (25mm) travel High Precision Positioning Stages.

#### Motorized Actuator Specifications:

**Minimum Incremental Motion** ( $\mu\text{m}$ ) 0.2

**Uni-directional Repeatability** ( $\mu\text{m}$ ) 2

**Bi-directional Repeatability** ( $\mu\text{m}$ ) 3 or +/- 1.5

**Backlash** ( $\mu\text{m}$ ) 10

**On-Axis Accuracy** ( $\mu\text{m}$ ) 10 or +/- 5

**Maximum Speed** ( $\mu\text{m/s}$ ) 0.4

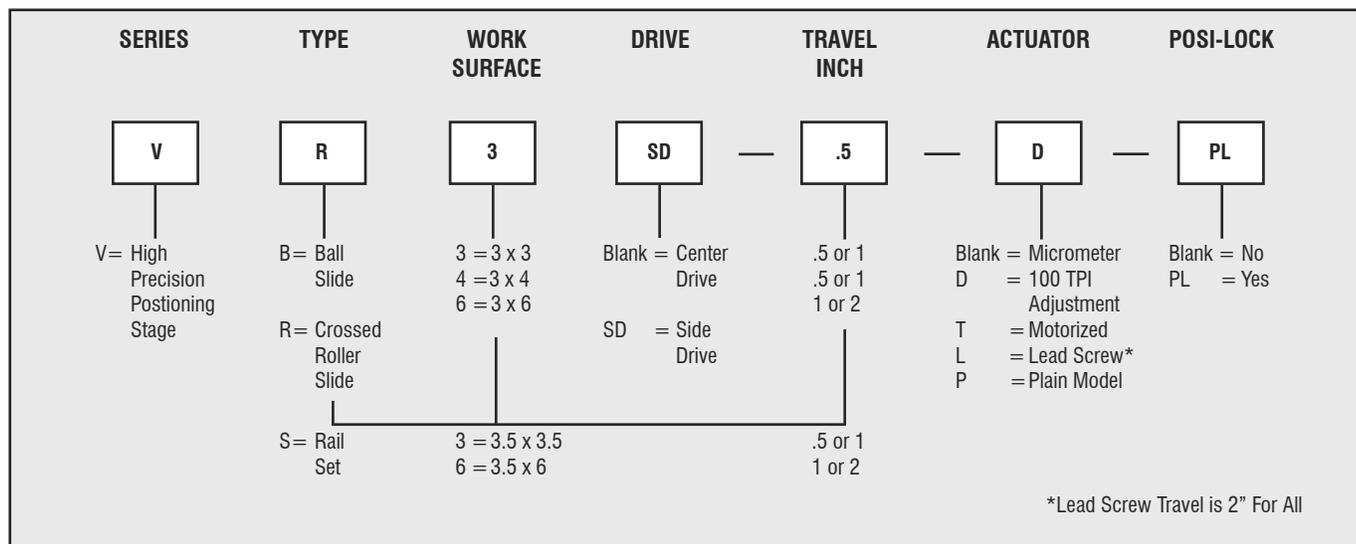
**Axial Load Capacity** (N) 60

*Note: All stages are also available as plain models if no method of actuation is needed.*

# High Precision Positioning Stages

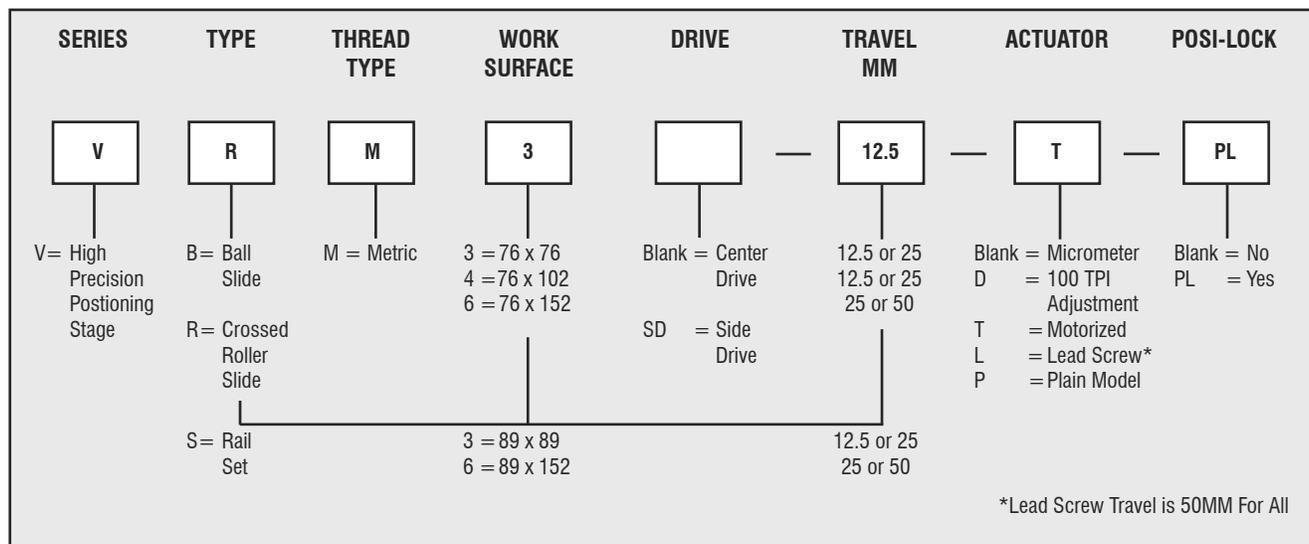
## Nomenclature - INCH

Nomenclature (example for part # VR3SD-.5-D-PL)



## Nomenclature - METRIC

Nomenclature (example for part # VRM3-12.5-T-PL)



## Load Ratings - INCH

SERIES	POUNDS LOAD CAPACITY	LB-IN			"/" ACCURACY	" REPEATABILITY	COEFFICIENT OF FRICTION
		M1	M2	M3			
VB3	58	32.28	26.60	28.18	0.00004	0.00002	0.002
VB4	67	48.98	65.86	69.15	0.00004	0.00002	0.002
VB6	105	76.98	162.62	170.75	0.00004	0.00002	0.002
VR3	176	126.61	105.18	110.44	0.00004	0.00002	0.002
VR4	200	144.40	179.94	188.94	0.00004	0.00002	0.002
VR6	312	266.39	464.64	487.87	0.00004	0.00002	0.002
VS3	116	37.04	99.76	104.72	0.0001	0.0001	0.002
VS6	158	75.84	325.12	341.44	0.0001	0.0001	0.002

Plain model shown in all drawings for work surface and mounting dimensions. Refer to actuators for dimensions of actuator desired.

## Load Ratings - METRIC

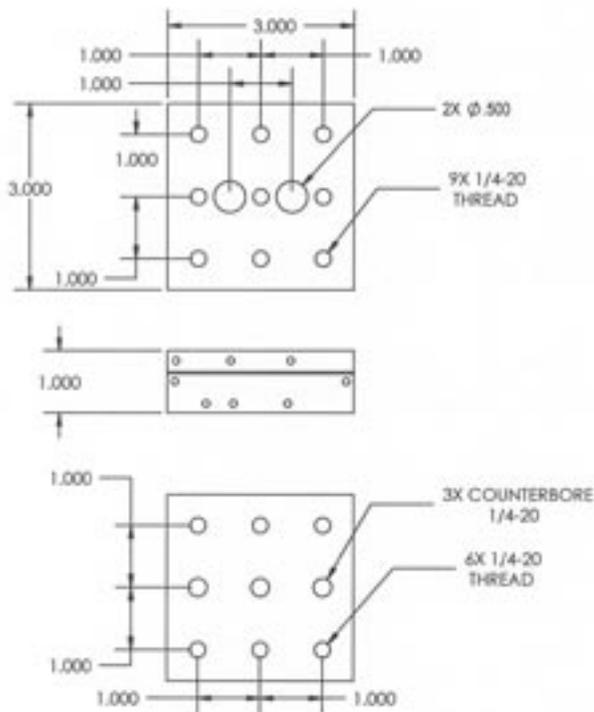
SERIES	kgf LOAD CAPACITY	N-m			mm/25mm ACCURACY	mm REPEATABILITY	COEFFICIENT OF FRICTION
		M1	M2	M3			
VBM3	26	3.65	2.85	3.18	0.001	0.0005	0.002
VBM4	30	5.54	7.44	7.82	0.001	0.0005	0.002
VBM6	48	8.70	18.38	19.30	0.001	0.0005	0.002
VRM3	80	14.30	11.88	12.48	0.001	0.0005	0.002
VRM4	91	16.31	20.33	21.34	0.001	0.0005	0.002
VRM6	142	30.10	52.50	55.12	0.001	0.0005	0.002
VSM3	52	4.18	11.27	11.83	0.0025	0.0025	0.002
VSM6	71	8.57	36.74	38.58	0.0025	0.0025	0.002

Plain model shown in all drawings for work surface and mounting dimensions. Refer to actuators for dimensions of actuator desired.

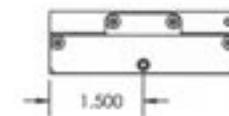
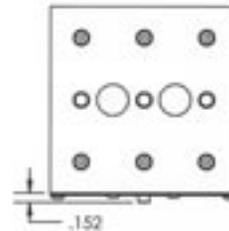
# High Precision Positioning Stages

## Ball or Crossed Roller - INCH

VB3-P, VR3-P

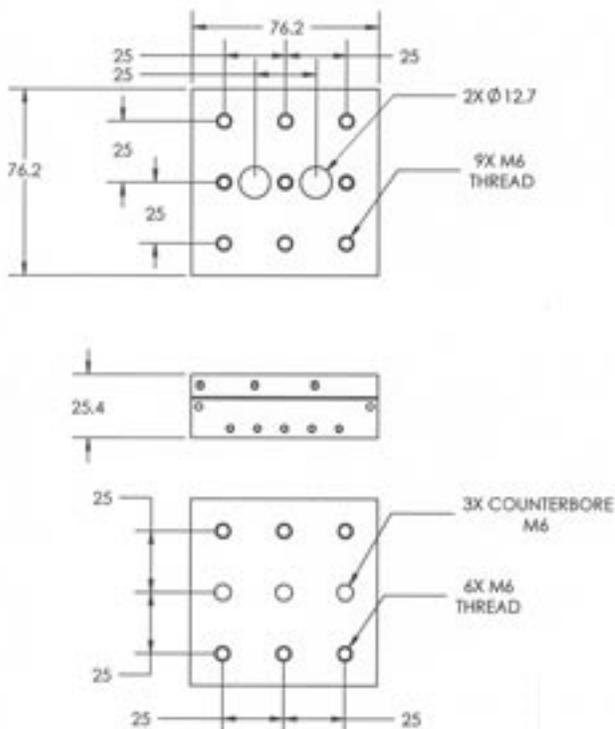


VB3/VR3-PL  
POSI-LOCK FEATURE CAN BE  
ADDED TO EITHER SIDE

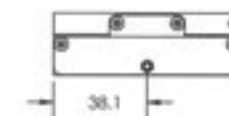
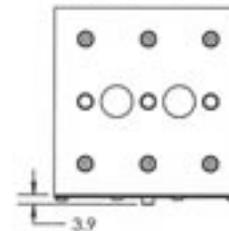


## Ball or Crossed Roller - METRIC

VBM3-P, VRM3-P

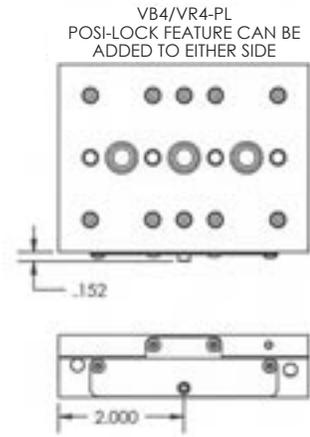
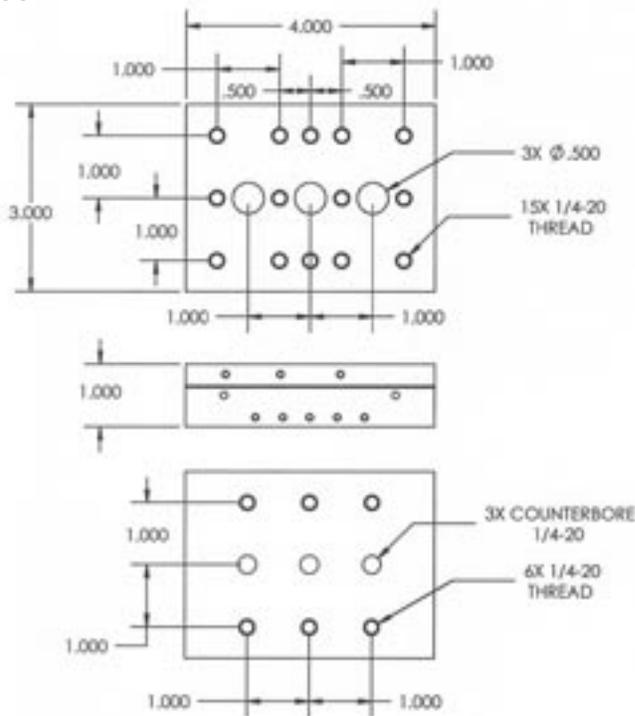


VBM3/VRM3-PL  
POSI-LOCK FEATURE CAN BE  
ADDED TO EITHER SIDE



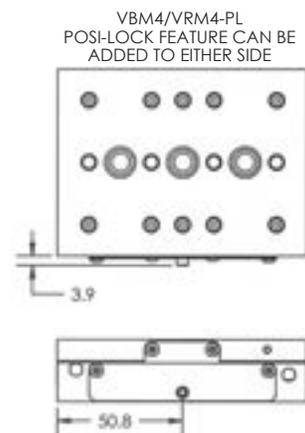
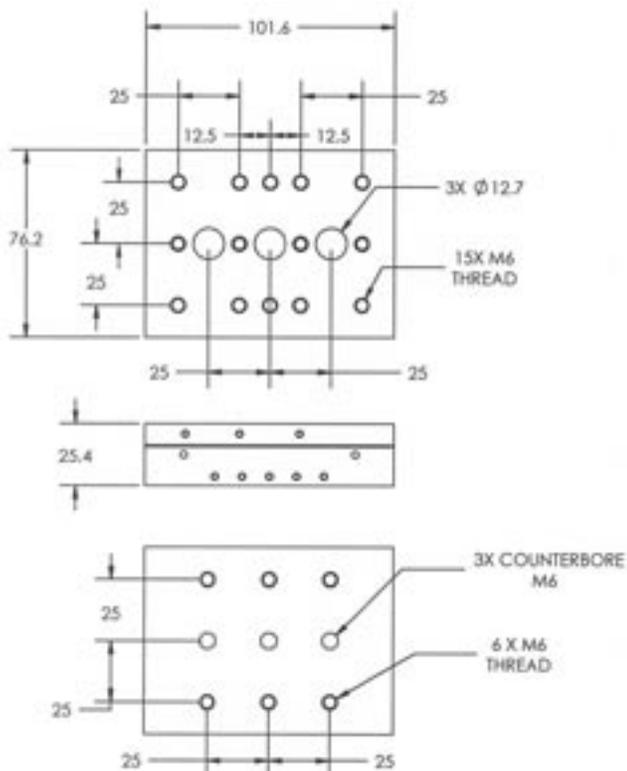
## Ball or Crossed Roller - INCH

VB4-P, VR4-P



## Ball or Crossed Roller - METRIC

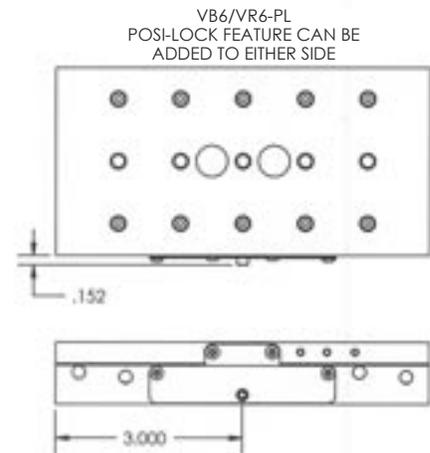
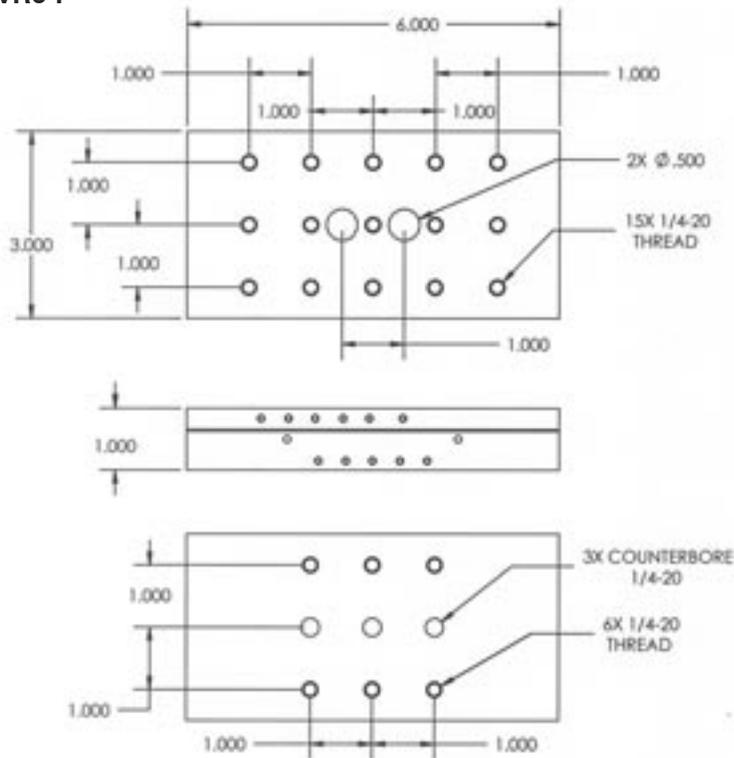
VBM4-P, VRM4-P



# High Precision Positioning Stages

## Ball or Crossed Roller - INCH

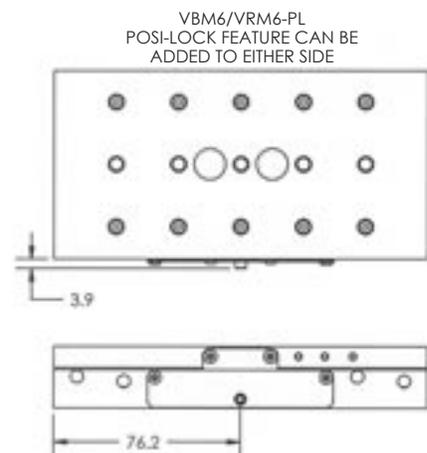
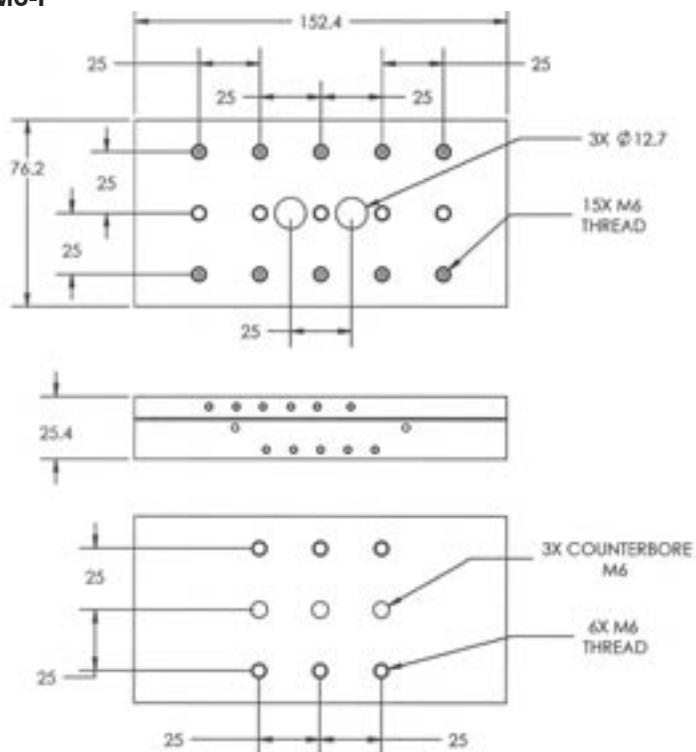
VB6-P, VR6-P



VB6/VR6-PL  
POSI-LOCK FEATURE CAN BE  
ADDED TO EITHER SIDE

## Ball or Crossed Roller - METRIC

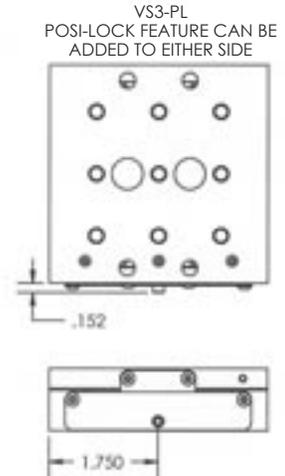
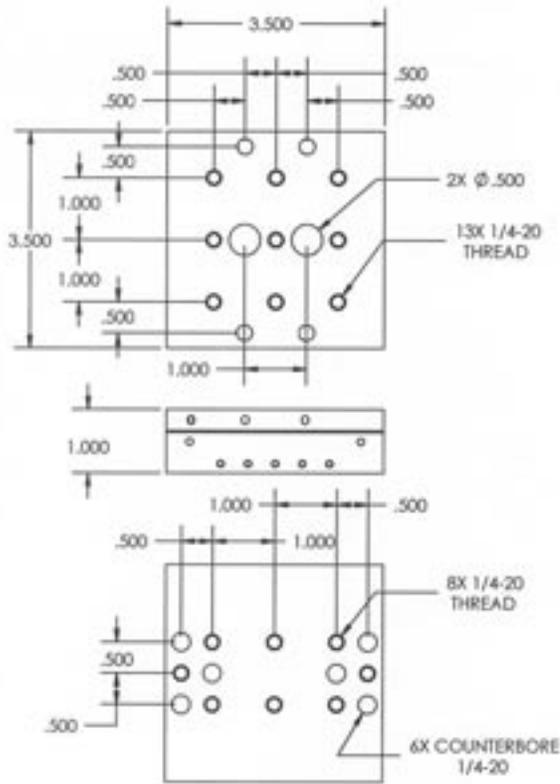
VBM6-P, VRM6-P



VBM6/VRM6-PL  
POSI-LOCK FEATURE CAN BE  
ADDED TO EITHER SIDE

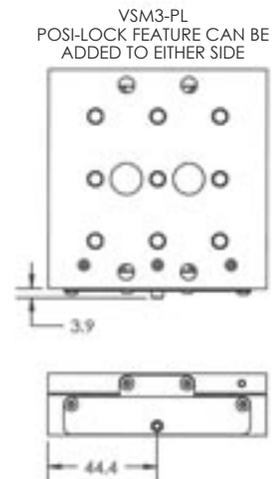
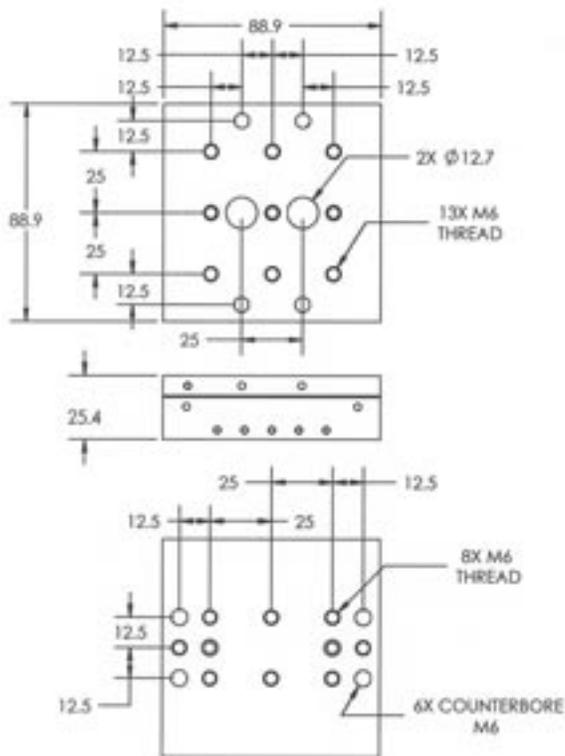
## Rail Set - INCH

### VS3-P



## Rail Set - METRIC

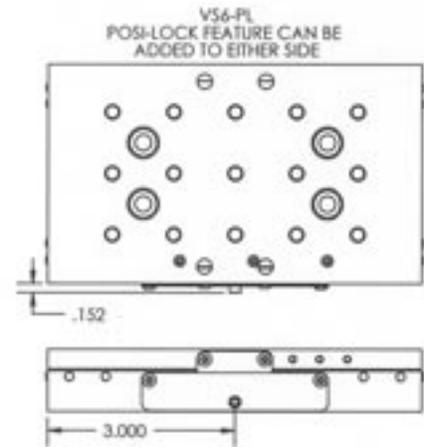
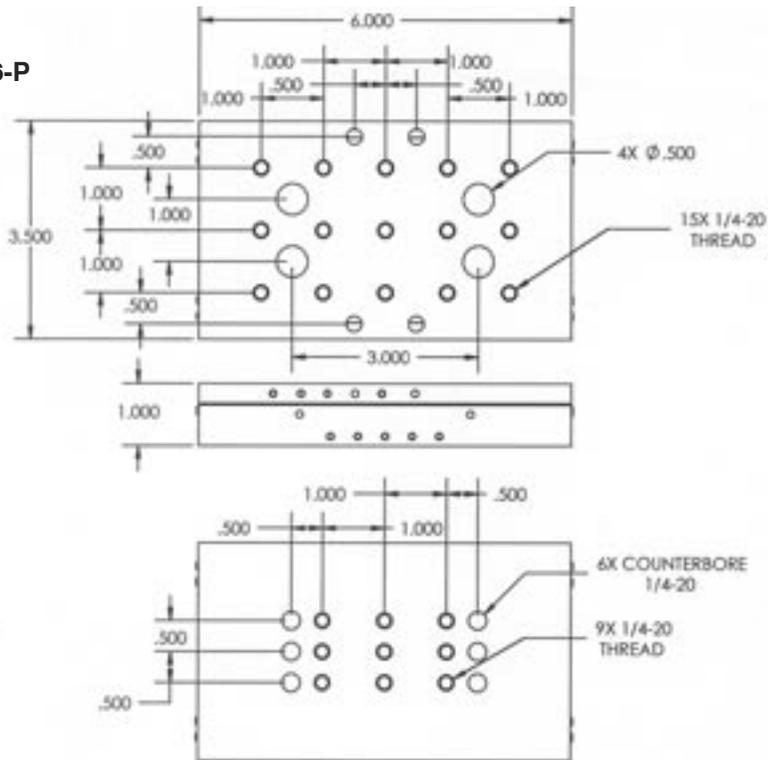
### VSM3-P



# High Precision Positioning Stages

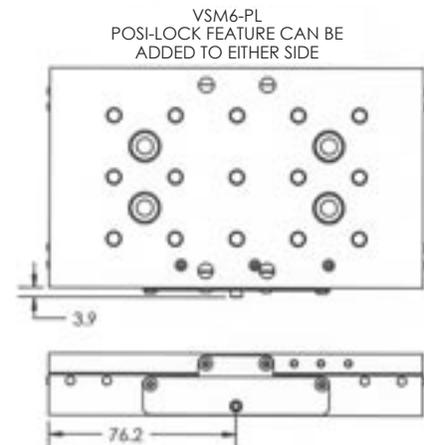
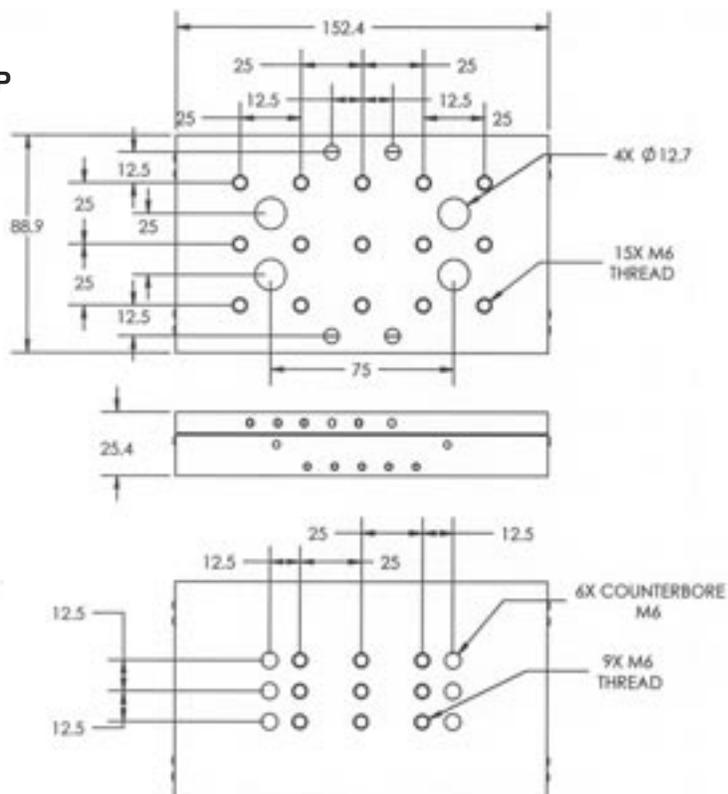
## Rail Set - INCH

VS6-P



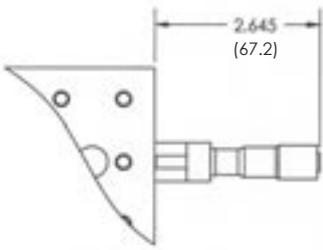
## Rail Set - METRIC

VSM6-P

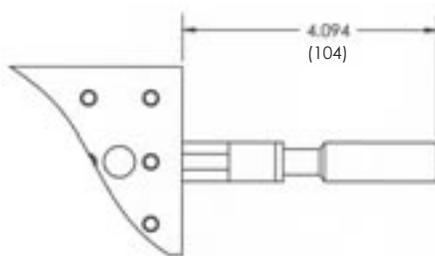


# Actuators - INCH & METRIC

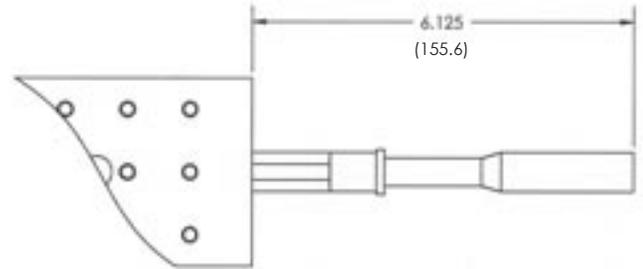
## Center Drive Micrometer Options



CENTER DRIVE .5" (12.5MM) MICROMETER

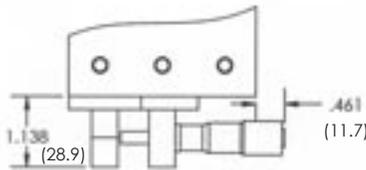


CENTER DRIVE 1" (25MM) MICROMETER

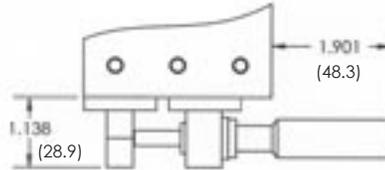


CENTER DRIVE 2" (50MM) MICROMETER

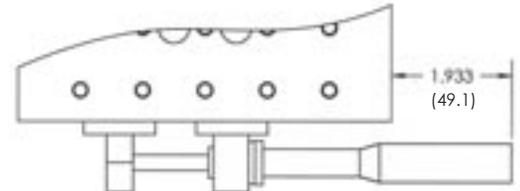
## Side Drive Micrometer Options



SIDE DRIVE .5" (12.5MM) MICROMETER  
(Dimensions shown with VB3/VR3, (VBM3/VRM3))

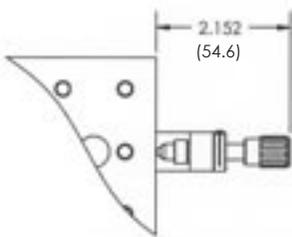


SIDE DRIVE 1" (25MM) MICROMETER  
(Dimensions shown with VB3/VR3, (VBM3/VRM3))

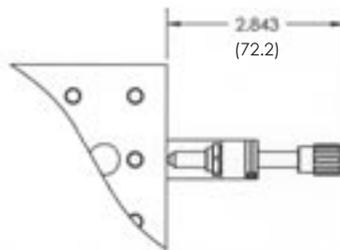


SIDE DRIVE 2" (50MM) MICROMETER  
(Dimensions shown with VB6/VR6, (VBM6/VRM6))

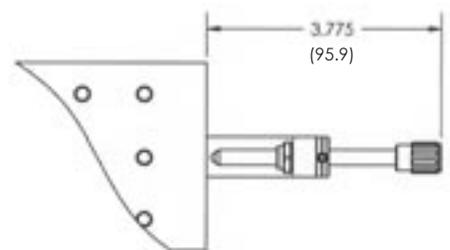
## Center Drive 100 TPI Adjustment Options



CENTER DRIVE .5" (12.5MM) 100 TPI ADJUSTMENT

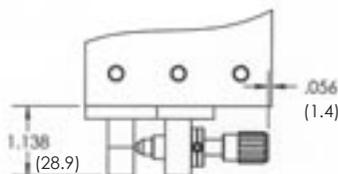


CENTER DRIVE 1" (25MM) 100 TPI ADJUSTMENT

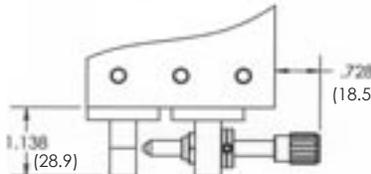


CENTER DRIVE 2" (50MM) 100 TPI ADJUSTMENT

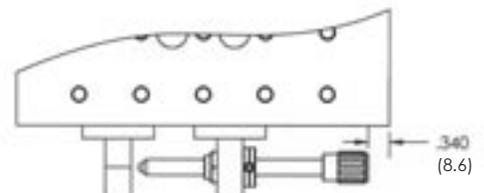
## Side Drive 100 TPI Adjustment Options



SIDE DRIVE .5" (12.5MM) 100 TPI ADJUSTMENT  
(Dimensions shown with VB3/VR3, (VBM3/VRM3))



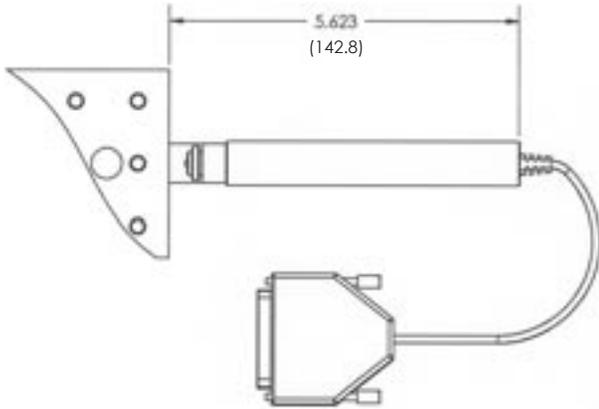
SIDE DRIVE 1" (25MM) 100 TPI ADJUSTMENT  
(Dimensions shown with VB3/VR3, (VBM3/VRM3))



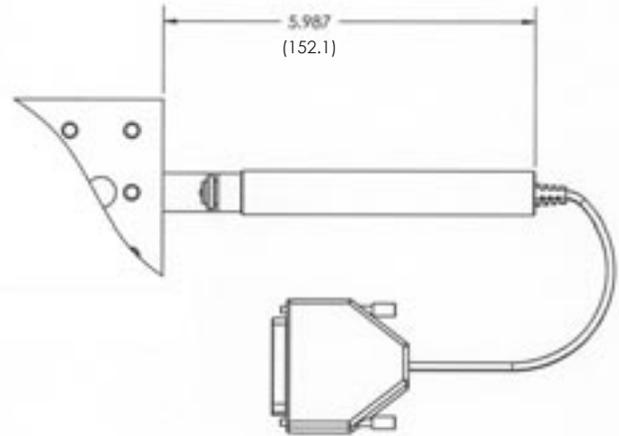
SIDE DRIVE 2" (50MM) 100 TPI ADJUSTMENT  
(Dimensions shown with VB6/VR6, (VBM6/VRM6))

# Actuators - INCH & METRIC

## Center Motorized Actuator Options

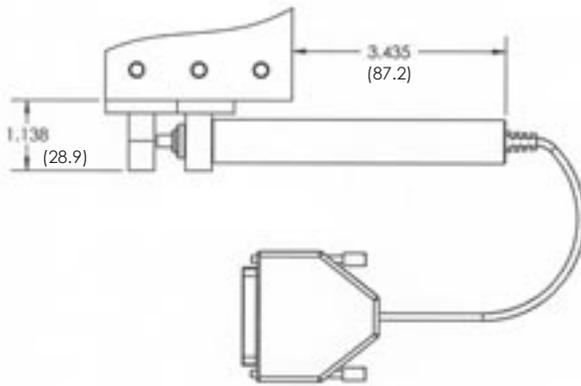


CENTER DRIVE .5" (12.5MM)  
MOTORIZED ACTUATOR

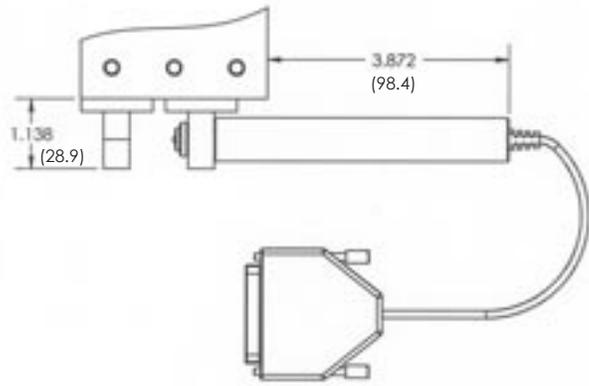


CENTER DRIVE 1" (25MM)  
MOTORIZED ACTUATOR

## Side Drive Motorized Actuator Options

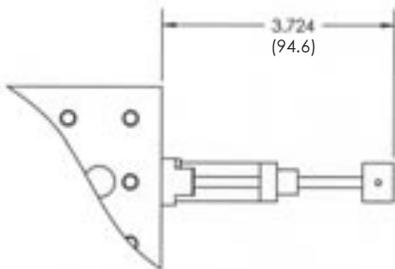


SIDE DRIVE .5" (12.5MM)  
MOTORIZED ACTUATOR  
*(Dimensions shown with VB3/VR3, (VBM3/VRM3))*

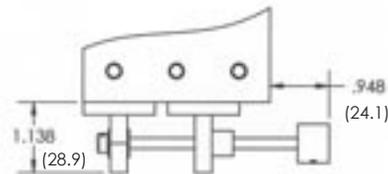


SIDE DRIVE 1" (25MM)  
MOTORIZED ACTUATOR  
*(Dimensions shown with VB3/VR3, (VBM3/VRM3))*

## Lead Screw Options - Direct Drive



CENTER DRIVE 2" (50MM) LEAD SCREW



SIDE DRIVE 2" (50MM) LEAD SCREW  
*(Dimensions shown with VB3/VR3, (VBM3/VRM3))*

