

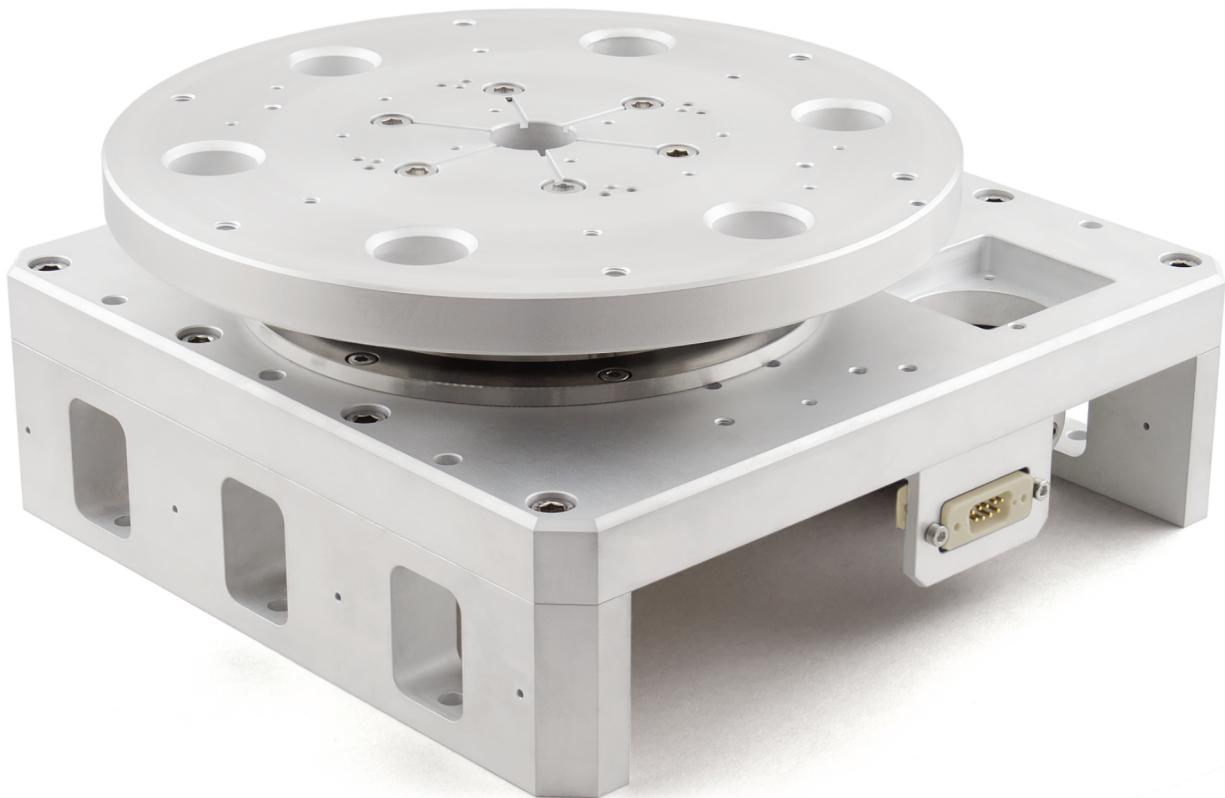
# VSM24-R Datasheet

High Load (Rigid) UHV Rotation Stage

Ultra high vacuum compatible rotation stage designed for high load applications. Featuring high specification bearings and a rigid bearing arrangement, the VSM24-R is ideal for applications requiring high load capacity and cantilever loads.

The VSM24-R is constructed with a combination of stainless-steel and UHV-prepared aluminium. This material combination, alongside weight-saving design features, has been used to minimise weight whilst retaining the strength needed for high loads.

An integrated D-sub connector is designed into the body of the stage for ease of connectivity.



## FEATURES

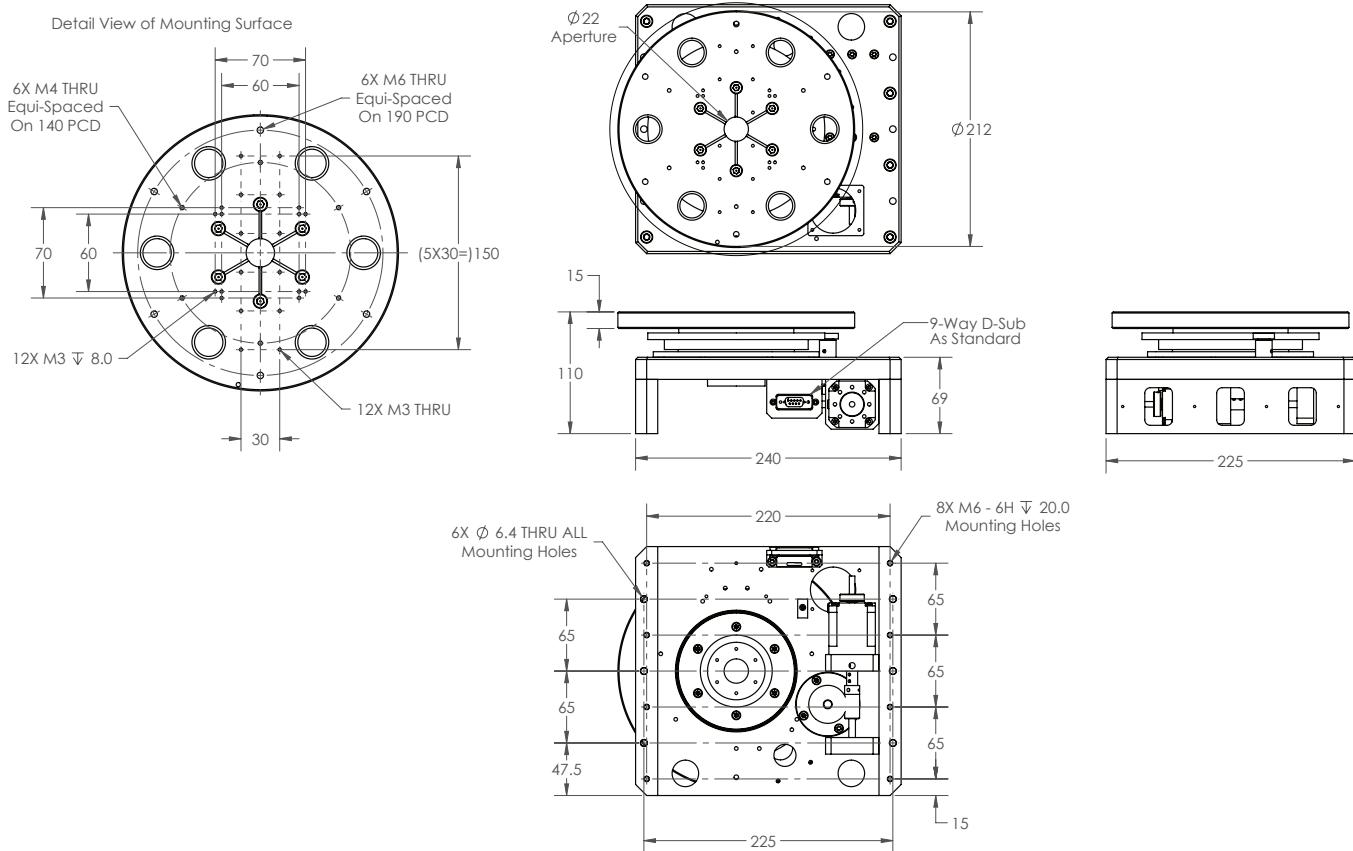
- 360° continuous rotation range
- 0.005° resolution
- Better than resolution uni-directional repeatability
- 250 kg centred load capacity
- High torque using AML's D42.2 UHV motor
- Large 212 mm diameter mounting table
- Optional anti-backlash spring for <0.005° backlash
- Limit switch and encoder options available

## SPECIFICATIONS

Specification	VSM24-R	VSM24-R-AB
Rotation Range	360° continuous	0-360°
Resolution in Full Steps		0.005°
Steps per Revolution		72,000
Bi-Directional Repeatability	N/A	0.025°
Uni-Directional Repeatability		Better than resolution
Compliance		13.6 $\mu$ rad/Nm
Maximum Unloaded Speed		5 RPM
Centred Load Capacity (Normal)		250 kg
Maximum Torque		15 Nm
Backlash (Unloaded)	0.15°	<0.005°
Concentricity		Better than $\pm 20 \mu$ m
Vacuum Environment		$<1 \times 10^{-10}$ mBar
Maximum Temperature		150°C (120°C when fitted with optional encoder)
Aperture Diameter		22 mm (H6)
Motor		D42.2
Mass		10 kg

Optional Encoder Specification	ER (Incremental Encoder)	EA (Absolute Encoder)
Readhead	Renishaw TONiC™ T2621-15M	Renishaw RESOLUTE™ RA26BVA052B15V
Scale	RESM20USA052 20 $\mu$ m scale 52 mm nominal o/d 8192 line count	RESA30USA052B 30 $\mu$ m scale 52 mm nominal o/d 67108864 counts per rev.
Interface Module	TI0020A10A 20x interpolation factor	None
Electrical Interface	Square wave differential line driver to EIA RS422A	BiSS-C (unidirectional) 26 bit
Resolution	0.002197 ° / 7.9 arcsecond	0.000005346 ° / 0.019 arcsecond

## DIMENSIONS

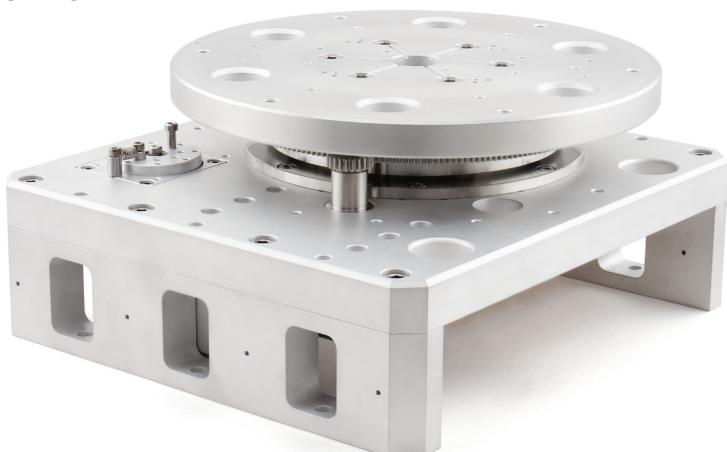


## OPTIONS

- AB Adds an anti-backlash spring to the stage. Improves backlash and repeatability (see specification table on page 2). Limits travel range to 0-360°
- LS Adds 2x limit switch to the stage. Option LS is mutually exclusive to the below encoder options.
- ER Adds a Renishaw TONiC™ UHV incremental encoder on the stage.  
Renishaw readhead part number: T2621-15M
- EA Adds a Renishaw RESOLUTE™ UHV absolute encoder on the stage.  
Renishaw readhead part number: RA26BVA052B15V

### EXAMPLE: VSM24-R-AB

High load (rigid) UHV rotation stage with anti-backlash spring.



## RELATED PRODUCTS

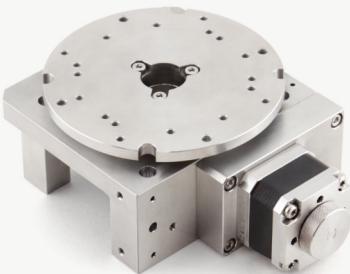
VSAB01



VSA MOUNTING BRACKETS AND TABLE

Mounting Brackets and Table For UHV Compatible Stages.

AML UHV compatible mounting brackets for use with VSM stages. Used to reorient stages and create complex multi-axis mechanisms with standard products. Constructed with lightweight uhv-prepared aluminium to reduce mass whilst maintaining stability.



VSM17-R-72K

High Performance, Modular UHV Rotation Stage.

Rotation stage suitable for use in UHV. Can support loads of up to 100 kilograms. Resolutions from 0.1° to 0.005° with 360° of continuous rotation.



SMD4

Single-axis Bipolar Stepper Motor Drive.

Engineered to operate vacuum-compatible stepper motors with maximum performance while minimising temperature rise. It is optimised for use with AML UHV-compatible motors.

## ORDERING INFORMATION

Order Codes	
VSM24-R	UHV rotation stage, 0.005° resolution (high load)
VSM24-R-AB	UHV rotation stage, 0.005° resolution (high load), anti-backlash spring
VSM24-R-LS	UHV rotation stage, 0.005° resolution (high load), limit switches
VSM24-R-ER	UHV rotation stage, 0.005° resolution (high load), encoder (incremental)
VSM24-R-EA	UHV rotation stage, 0.005° resolution (high load), encoder (absolute)

Example Order Code	
VSM24-R-AB-LS	UHV rotation stage, 0.005° resolution (high load), anti-backlash spring, limit switches



AML

Arun Microelectronics Ltd.  
Unit 2, Bury Mill Farm  
Bury Gate  
PULBOROUGH  
RH20 1NN  
United Kingdom

Tel: +44 (0)1903 884141  
Email: sales@arunmicro.com

AML pursues a policy of continuous improvement and reserves the right to make detail changes to specifications without consultation. E and OE.