

VSM17-G-114 Goniometer Stage

Modular UHV Goniometer Stage

AML ultra high vacuum compatible goniometer stage with $\pm 180^\circ$ travel, provides rotation on a transverse axis above the table.

Can be used standalone or as part of a complex motion system when combined with other VSM17 modular stages. It is possible to build a Euler goniometer with a common centre of rotation when combined with a VSM17-G-070.

The VSM17-G features rigid construction to allow for high load capacity whilst maintaining smooth motion through the full range of travel. They are manufactured with UHV compatible material and construction methods and utilise AML UHV stepper motors.



FEATURES

- $\pm 180^\circ$ travel
- 0.005° resolution in full steps
- Rotational centre to table 114 mm
- Suitable for use to 1×10^{-10} mBar
- Bakeable to 200 °C
- 20 kg centred load capacity
- Features AML D35.1 stepper motor
- Can optionally be fitted with a limit switch or encoder
- Radiation resistant versions available
- Compatible with most VSM17 modular stages
- May be customised for specific requirements

SPECIFICATIONS

Specification	VSM17-G-114
Travel	$\pm 180^\circ$
Resolution in Full Steps	0.005°
Rotation Axis Height Above Table	114 mm
Maximum Speed	4 rpm
Maximum Torque	8 Nm
Bi-directional Repeatability	47 μ rad
Rotational Centre Displacement	400 μ m
Angular Accuracy	0.05°
Backlash	0.12°
Centred Load Capacity	20 kg
Stepper Motor	AML D35.1
Cable Length	1.5 m
Vacuum Environment	$<1 \times 10^{-10}$ mBar
Maximum Operating Temperature	190 °C (reduces to 120 °C when an optical encoder is fitted)
Maximum Bake Temperature	200 °C (reduces to 120 °C when an optical encoder is fitted)
Mass Including Motor	2.5 kg

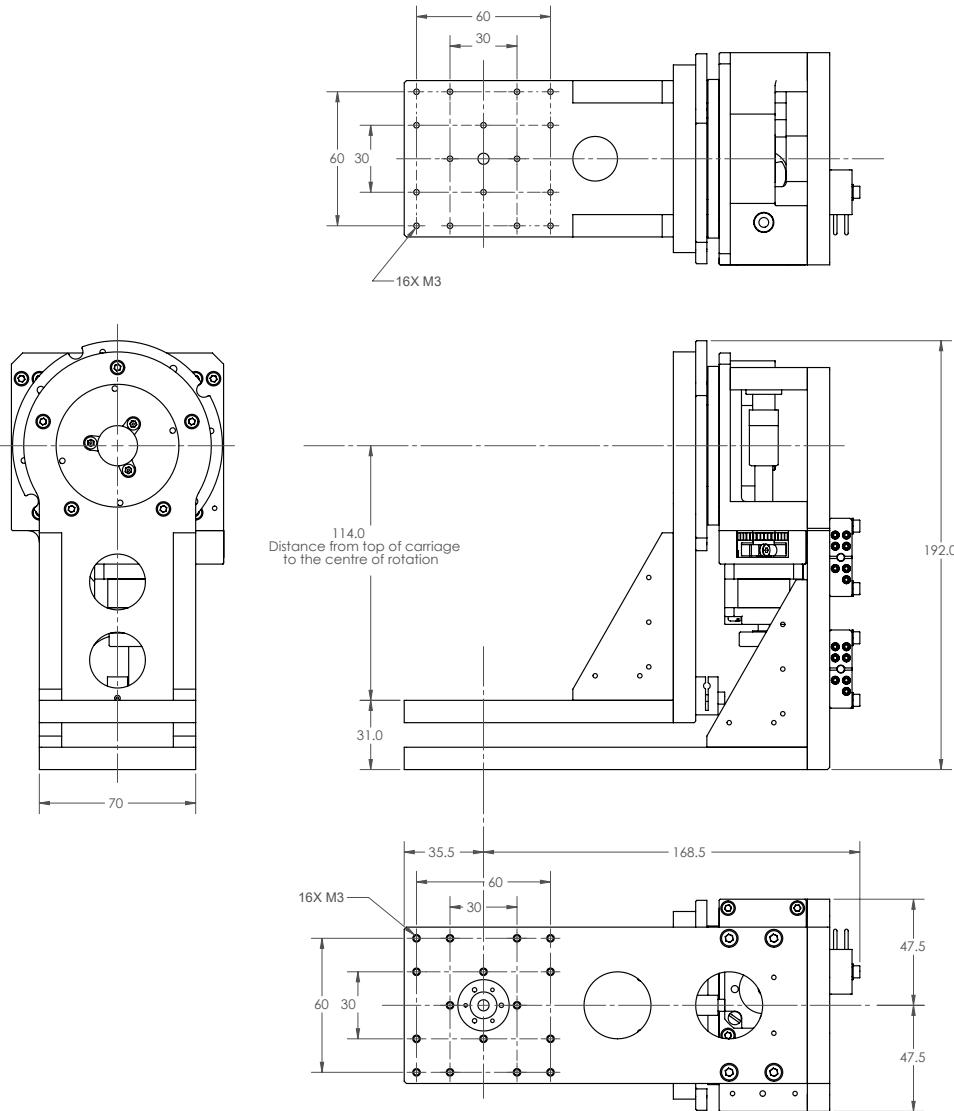
Sphere of Confusion - Diameter of the spherical volume within which the sample remains centred during rotation.	500 μ m (only applicable for 2-axis euler goniometer: VSM17-G-070 + VSM17-G-114)
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Optional Encoder Specification	ER (Incremental Encoder)	EA (Absolute Encoder)
Readhead	Renishaw TONiC™ T2621-15M	Renishaw RESOLUTE™ RA26BVA052B15V
Scale	RESM20USA052 20 μ m scale 52 mm nominal o/d 8192 line count	RESA30USA052B 30 μ 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

NOTES

LUBRICATION: Running surfaces are dissimilar materials or dry lubricated with molybdenum disulfide. Leadscrews are lubricated with Nyetorr® 6300 UHV grease. Dry lubrication can be specified.

DIMENSIONS



EXAMPLE: VSM17-G EULER GONIOMETER

VSM17-G-114 and VSM17-G-070
assembled together to form a common
centre of rotation.



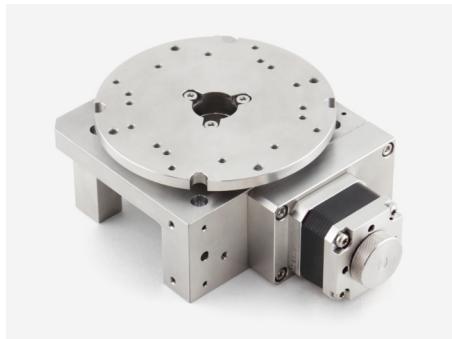
RELATED PRODUCTS



VSM17-G-070

High Performance, Modular UHV Compatible Goniometer Stage.

Provides a second rotation with the same pivot point. 0.005° resolution with ±15° rotation



VSM17-R

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.



VSM17-Z

High Performance, Modular UHV Stage for Z-Axis Translation.

Linear vertical translation stage suitable for use in UHV. Can support loads of up to several kilograms and travel from 50 mm. Designed specifically for Z-axis translation with its high load capacity.

ORDERING INFORMATION

Order Code	
VSM17-G-114	Goniometer stage, 0.005° resolution
VSM17-G-114-LS	Goniometer stage, with limit switch
VSM17-G-114-ER	Goniometer stage, with encoder (incremental)
VSM17-G-114-EA	Goniometer stage, with encoder (absolute)
VSM17-G-114-R	Goniometer stage, radiation resistant



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