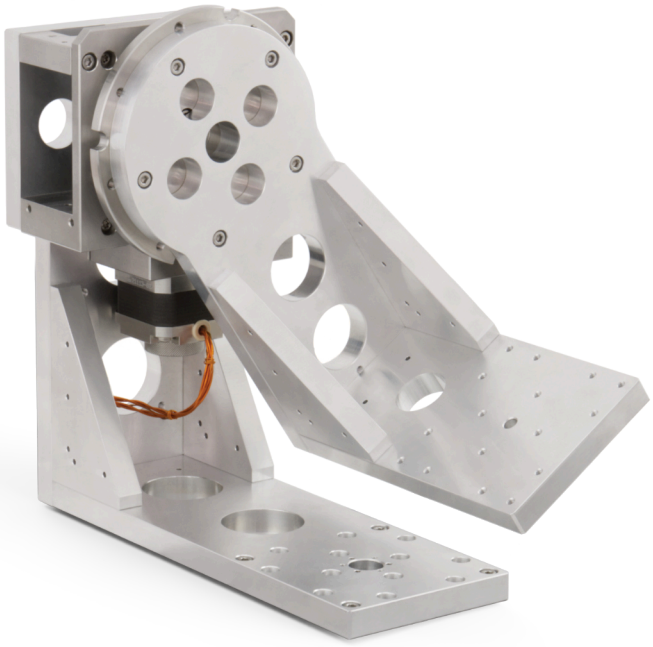
# VSM17-G-114 Goniometer Stage

**Modular UHV Goniometer Stage**

ARUN MICROELECTRONICS LTD

AML ultra high vacuum compatible goniometer stage with ±180° 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

- ±180° travel
- 0.005° resolution in full steps
- Rotational centre to table 114 mm
- Suitable for use to 1 x $10^{-10}$ 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 | ±180° |
| 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 µrad |
| Rotational Centre Displacement | 400 µm |
| 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 x $10^{-10}$ 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 |

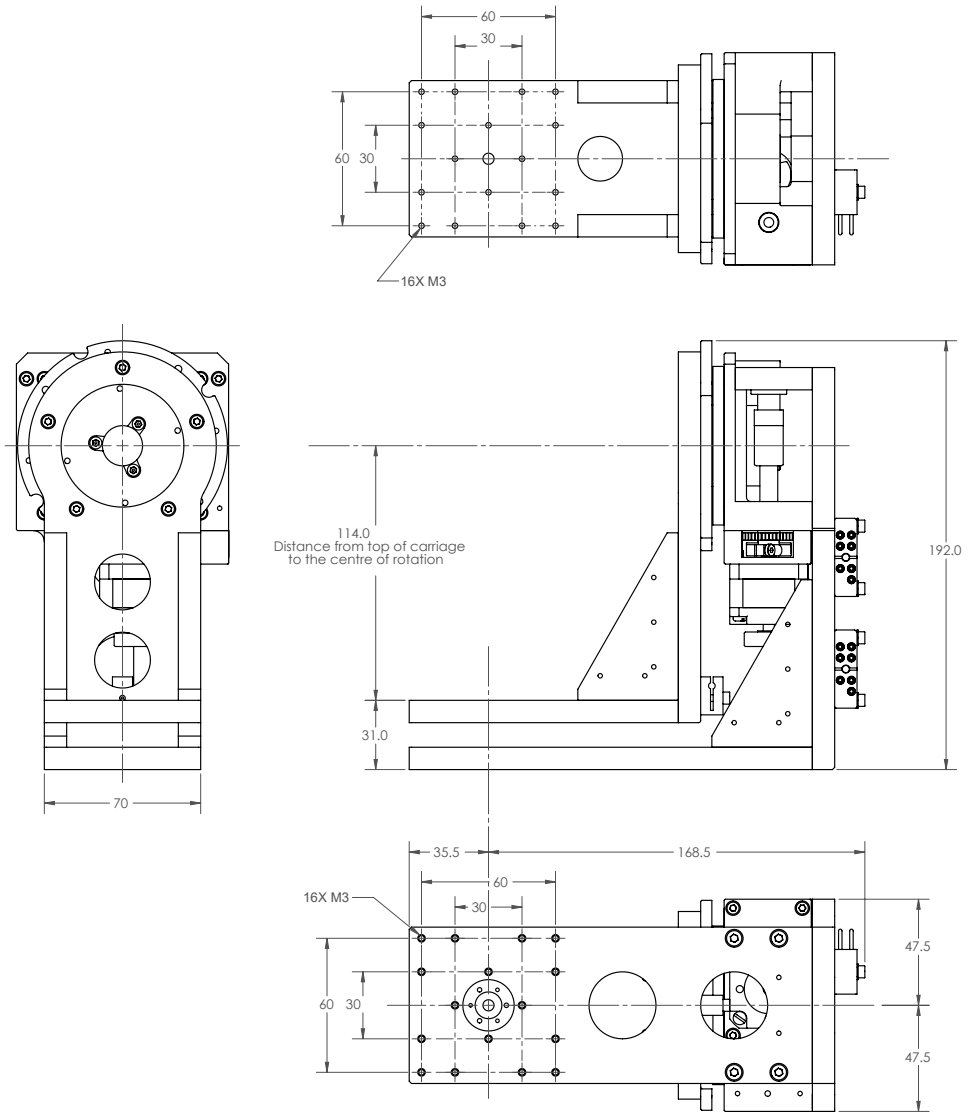
| | |
|---|---|
| Sphere of Confusion - Diameter of the spherical volume within which the sample remains centred during rotation. | 500 µm (only applicable for 2-axis euler goniometer: VSM17-G-070 + VSM17-G-114) |

| Optional Encoder Specification | ER (Incremental Encoder) | EA (Absolute Encoder) |
|---|---|---|
| Readhead | Renishaw TONiC™ T2621-15M | Renishaw RESOLUTE™ RA26BUA052B15V |
| Scale | RESM20USA052<br>20 um scale<br>52 mm nominal o/d<br>8192 line count | RESA30USA052B<br>30 um scale<br>52 mm nominal o/d<br>67108864 counts per rev. |
| Interface Module | TI0020A10A<br>20x interpolation factor | None |
| Electrical Interface | Square wave differential line driver to EIA RS422A | BiSS-C (unidirectional)<br>26 bit |
| Resolution | 0.002197 ° / 7.9 arcsecond | 0.000005346 ° / 0.019 arcsecond |

## NOTES

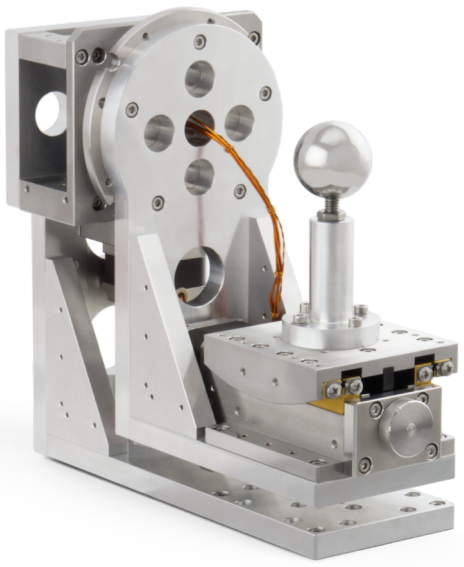
LUBRICATION: Running surfaces are dissimilar materials or dry lubricated with molybdenum disulfide. Leadscrews are lubricated with Nyetorr® 6300 UHV grease. Dry lubrication can be specified.

## DIMENSIONS

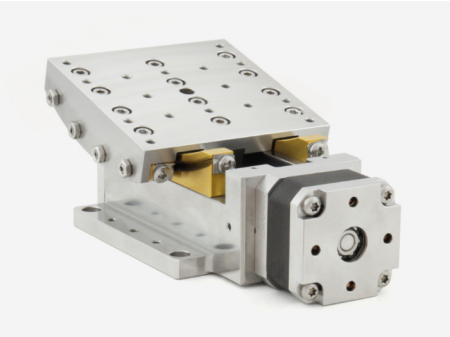



***EXAMPLE: VSM17-G EULER GONIOMETER***

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



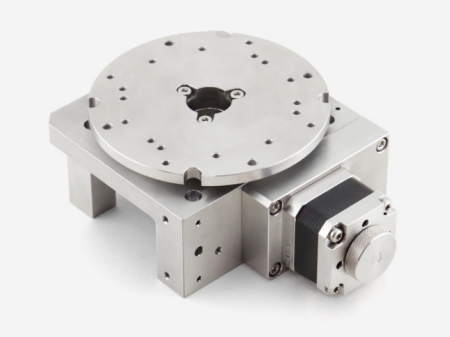
## RELATED PRODUCTS



VSM17-G-070

High Performance, Modular UHV Compatible Goniometer Stage.

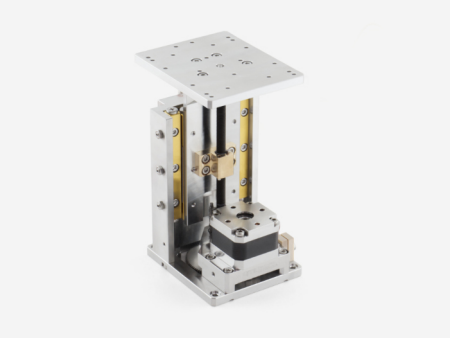
Provides a second rotation with the same pivot point. 0.005° resolution with ±15° rotation



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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