

## BOOMERAX MANIPULATOR SERIES

BOOMERAX modules can be combined into multi axis manipulators for up to 6 degrees of freedom. Equipped with linear encoders and motorization, resolutions in the nanometer range are achieved.

Shown here is a 5-axis configuration with sample tilt and Helium flow cryostat.

**Helium Flow Cryostat**

**Differentially Pumped Rotary Feedthrough**

**Z-Module**

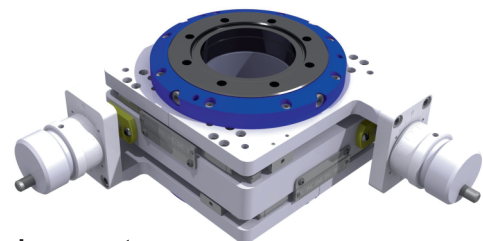
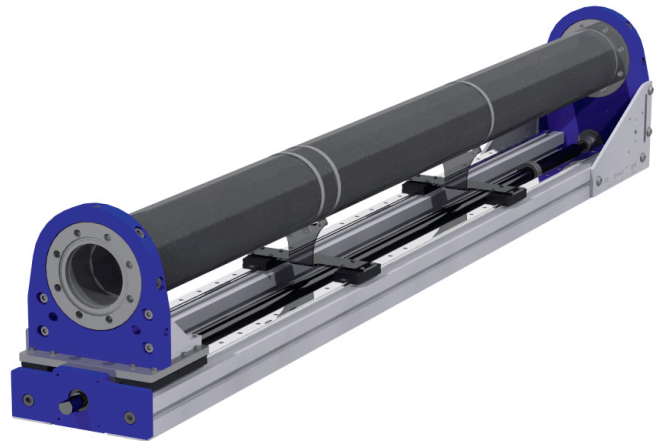
Z-Modules are available with a nominal free bore ranging from 16 to 160mm and with mounting flanges DN16CF (1.33") to DN160CF (8").

**XY module**

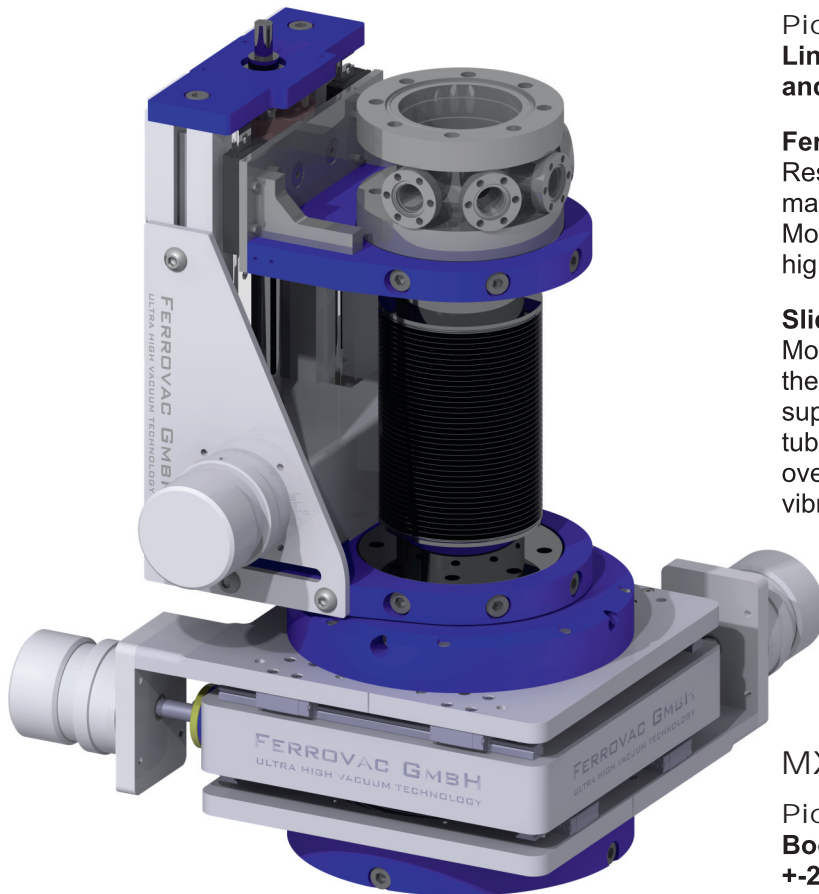
XY modules are presently available with a nominal free bore from 16 to 100mm and with mounting flanges DN16CF (1.33") to DN160CF (8").

**Insert and Sample Environment**

Manipulator inserts include a rigid support tube and an application specific sample environment. End pieces can include heating, cooling and azimuthal rotation or tilt.



## BOOMERAX MODULES AND OPTIONS



### MZ-Z Axis Manipulator

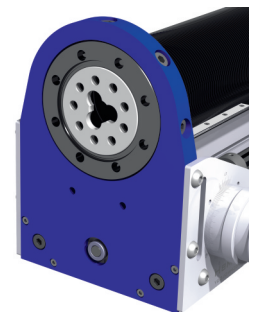
Pictured: MZ63CH63CF63-0100  
**Linear Z-Drive with two DN63CF flanges and 100mm travel**

#### Ferrovac Precision

Resolution: 5 microns with manual operation.  
Motorized versions achieve higher resolution.

#### Slide bearing for Insert

Mounted inside the base flange of the Z-Module, a slide bearing supports and guides the insert tube. This greatly adds to the overall stability and minimizes vibrations on the sample.



### Linear Encoder

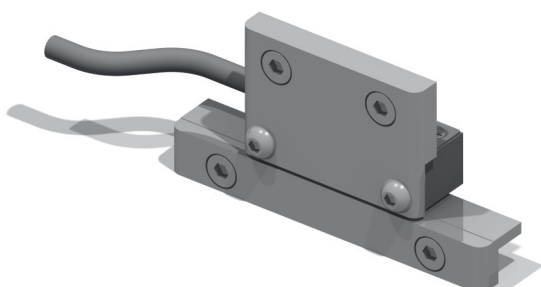
#### Ferrovac Precision

Step resolution down to 160 nanometers

#### Linear Absolute Optical Encoders

X, Y and Z modules can be equipped with linear absolute encoders.

The sensor head can be easily dismantled for bakeout.



### MXV Boomerax Manipulator

Pictured: MXY100CF100TCF63TXY  
**Boomerax XY Stage with +25mm XY travel 100mm free bore.**

#### Ferrovac Precision

Resolution: 2 microns with manual operation.  
Motorized versions achieve higher resolution.

#### Axis adjustment (tilt) of mounting flanges

Both flanges can be tilted up to 2° by set screw adjustment.

