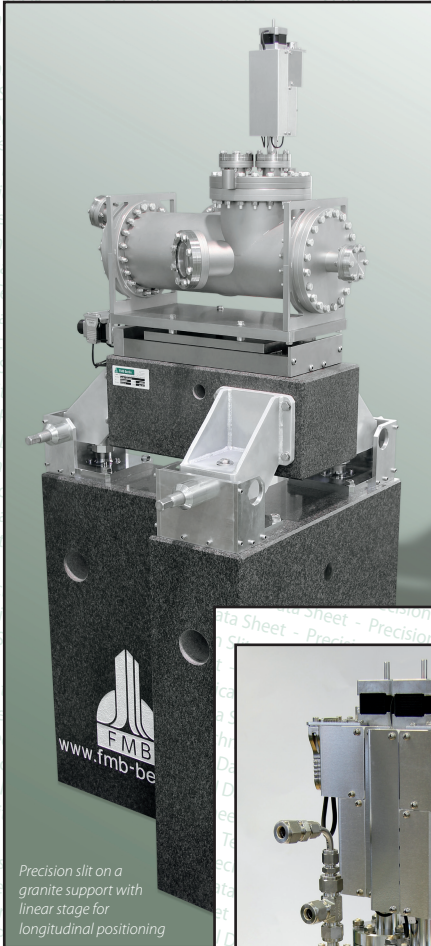


# Technical Data Sheet

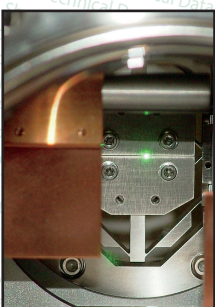


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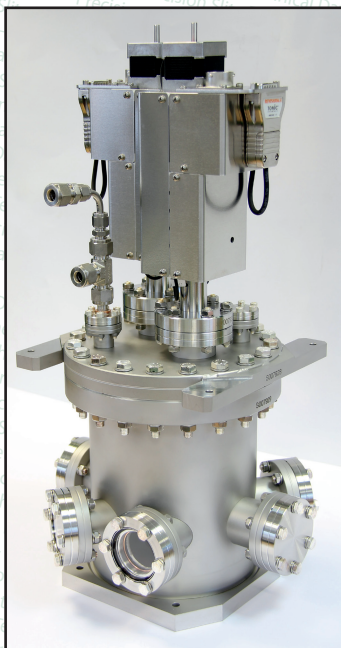
## Precision Slit



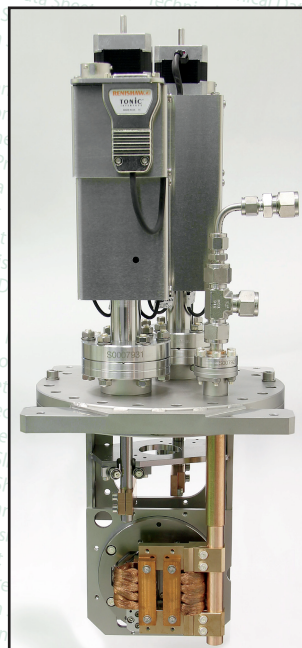
Precision slit on a granite support with linear stage for longitudinal positioning



Slit blades of a vertical defining precision slit



Precision slit with vacuum chamber



Water cooled vertical and horizontal defining precision slit insert



Precision slit on a granite column support

The FMB precision slit is a precisely controllable aperture. Two highly precise blades are moved parallel and symmetrically by a backlash-free flexure mechanism. The gap size is usually defined in vertical direction only but systems with a second blade pair defining an additional aperture in horizontal direction are also available.

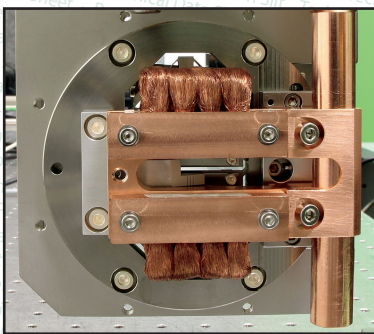
The precision slit assembly is supported from a DN150CF flange and can be mounted on top of any appropriately sized vacuum chamber. Using diagonal viewports in the vacuum chamber, it is possible to observe the opening of the slit gap. A viewport orientated orthogonally to the incoming beam allows a grazing incidence view to the blade edge, which can be useful for surveying of the longitudinal slit position.

Different support designs are available on request. Granite or concrete based supports are typically used.

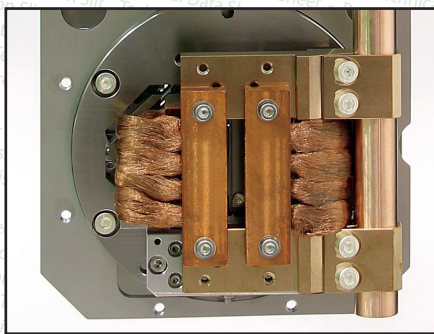
The slit blades can be either electrically isolated or temperature stabilized. In the latter case, the blades are connected via Copper braids to the water cooling. When electrically isolated, the photo current of each blade can be measured individually.

A fluorescent screen can be mounted at the upstream side of the slit blades just below the bottom blade edge or above the upper blade edge. It allows a fluorescence image without obstructing the beam path through the precision slit.

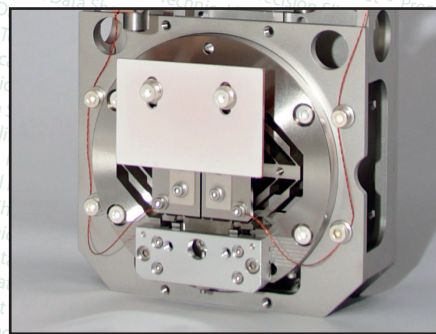
# Precision Slit



Water cooling for vertical defining precision slit



Water cooling for horizontal defining precision slit



Precision slit with current measurement and fluorescence screen

Parameter	Specification
Blade material:	Tungsten or Tungsten Carbide (other materials on request)
Blade edge length:	38 mm
Blade thickness:	2.5 mm
Thickness at blade edge:	≤ 0.1 mm
Blade rear side rake angle:	10° or 20° (other angles available on request)
Edge straightness & roughness:	≤ 1 µm
Slit gap parallelism:	≤ 1 µm over 20 mm edge length
Minimum slit gap:	0 mm (closed slit)
Maximum slit gap:	2.5 mm (symmetrically opened)
Drive:	Stepper motor
Full step resolution:	0.05 µm (gap size) / full step
Encoder resolution:	
Incremental encoder:	0.05 µm (gap size) / count
Absolute encoder:	0.05 nm (gap size) / count
Repeatability:	≤ 1 µm
Limit switches:	2 limit switches per limit, normally closed
Vacuum compatibility:	UHV (10-10 mbar)
Baking temperature:	200°C (short term 250°C) for all vacuum sided parts 100°C for all air sided parts (precision feedthrough)
Options, available on request:	<ul style="list-style-type: none"> <li>• Blade material</li> <li>• Blade rake angle</li> <li>• Blade mounting type (electrically isolated for current measurement or cooled for temperature stabilization)</li> <li>• Encoder type (incremental or absolute)</li> <li>• Fluorescence screen</li> <li>• Single or double slit</li> <li>• Chamber for slit system</li> <li>• Support for slit system</li> <li>• Longitudinal linear slide system</li> <li>• Vertical/horizontal motorized stage ±5mm</li> </ul>



## FMB Berlin



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