

Technical Data Sheet



FMB Berlin

Baffle slits / Adjustable Apertures

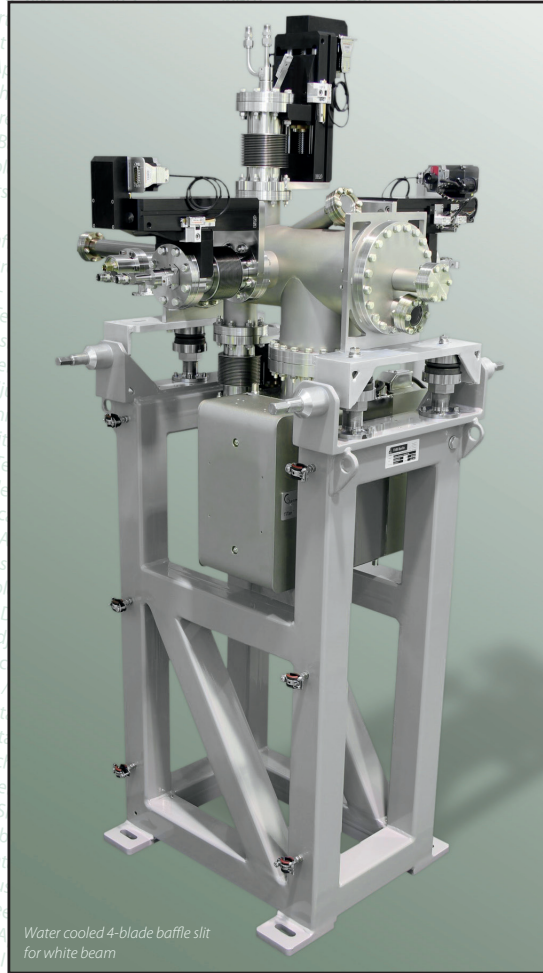
FMB has extensive experience in building adjustable apertures and masks for synchrotron sources worldwide.

FMB produces apertures for high heatload, needed in the white beam, as well as for low power applications needed in the monochromatic beam.

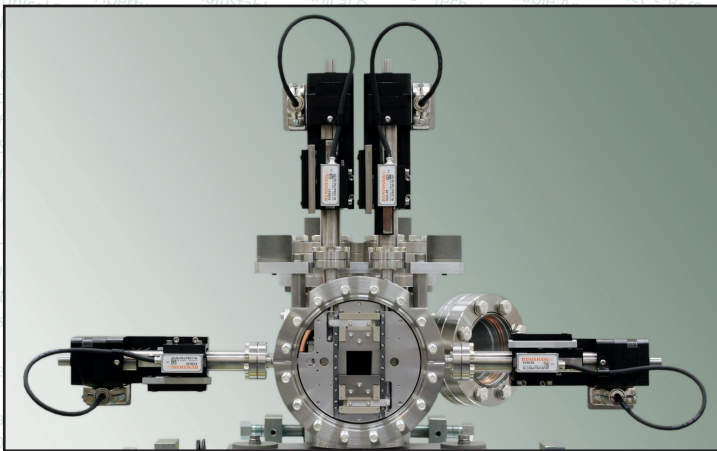
Depending on the application and the beam power, these apertures are either cooled or uncooled and available in different size and precision. Total power load, power density and aperture size are the main parameters defining the design of the system.

Electrically isolated blades or blades coated with fluorescent material are also available.

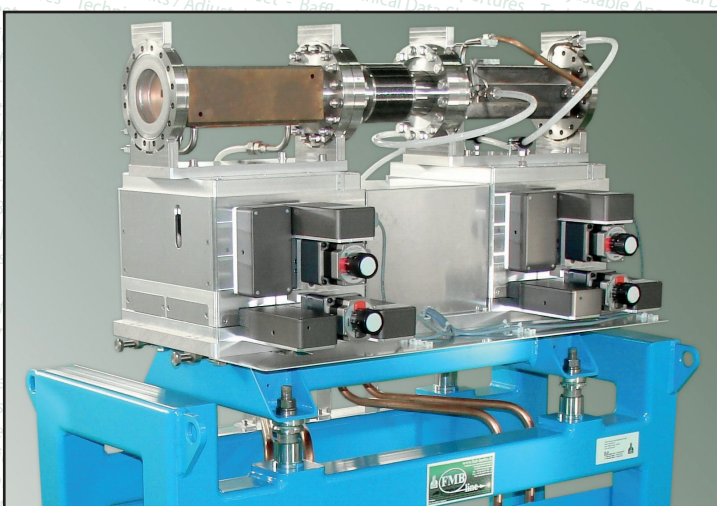
Supports built from welded steel frames as well as granite or concrete based supports are available.



Water cooled 4-blade baffle slit for white beam



Uncooled 4-blade baffle slit for monochromatic beam



High heatload white beam slit

The range of adjustable apertures and slits for synchrotron radiation made by FMB can be divided into:

- Compact uncooled in-flange systems
- Systems with two parallel blades each controlled by one linear actuator, mounted on one common flange
- Systems with up to four separate blades each mounted with its own linear feedthrough on a vacuum chamber
- Two movable masks mounted on motorized horizontal and vertical moving stages

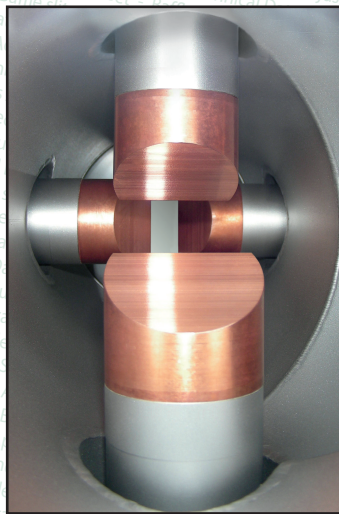
Baffle slits / Adjustable Apertures



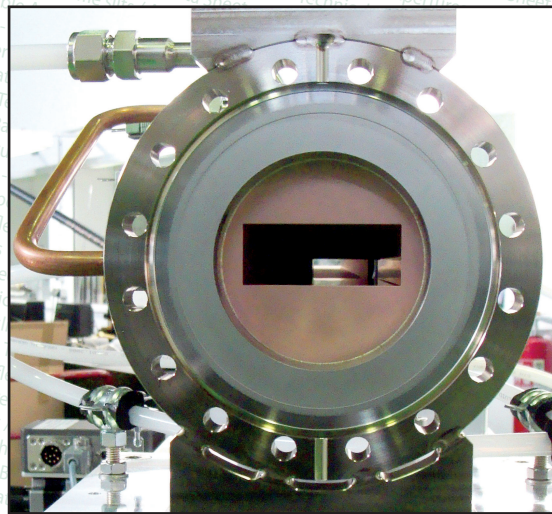
Uncooled baffle slit blade



Slit blade of a water cooled white beam baffle slit



Slit blades of a water cooled 4-blade white beam baffle slit



High heatload movable mask

Parameter

Typical Specifications

Blade material:	OFHC-Copper, GLIDCOP® (other materials on request)
Maximum power:	up to 15 kW (depending on design)
Maximum power density:	up to 150 W/mm ² (depending on design)
Blade edge length:	from a few mm up to more than 100 mm
Stroke:	from a few mm up to more than 100 mm
Drive:	stepper motor or manually driven
Fullstep resolution:	usually a few μm/full step, depending on the actuator
Encoder resolution:	1 μm/count (other resolutions available on request)
Repeatability:	from ≤ 2 to around 20 μm (depending on design)
Vacuum compatibility:	UHV (10 ⁻¹⁰ mbar)
Baking temperature:	200°C
Selectable options:	<ul style="list-style-type: none"> • Blade material, shape and size • Power load and density • Blades electrically isolated (depending on power load) • Blades with fluorescent material (depending on power load) • Actuator stroke and resolution • Driven manually or by stepper motor • With or without encoder • Encoder type (incremental or absolute) • Support type



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