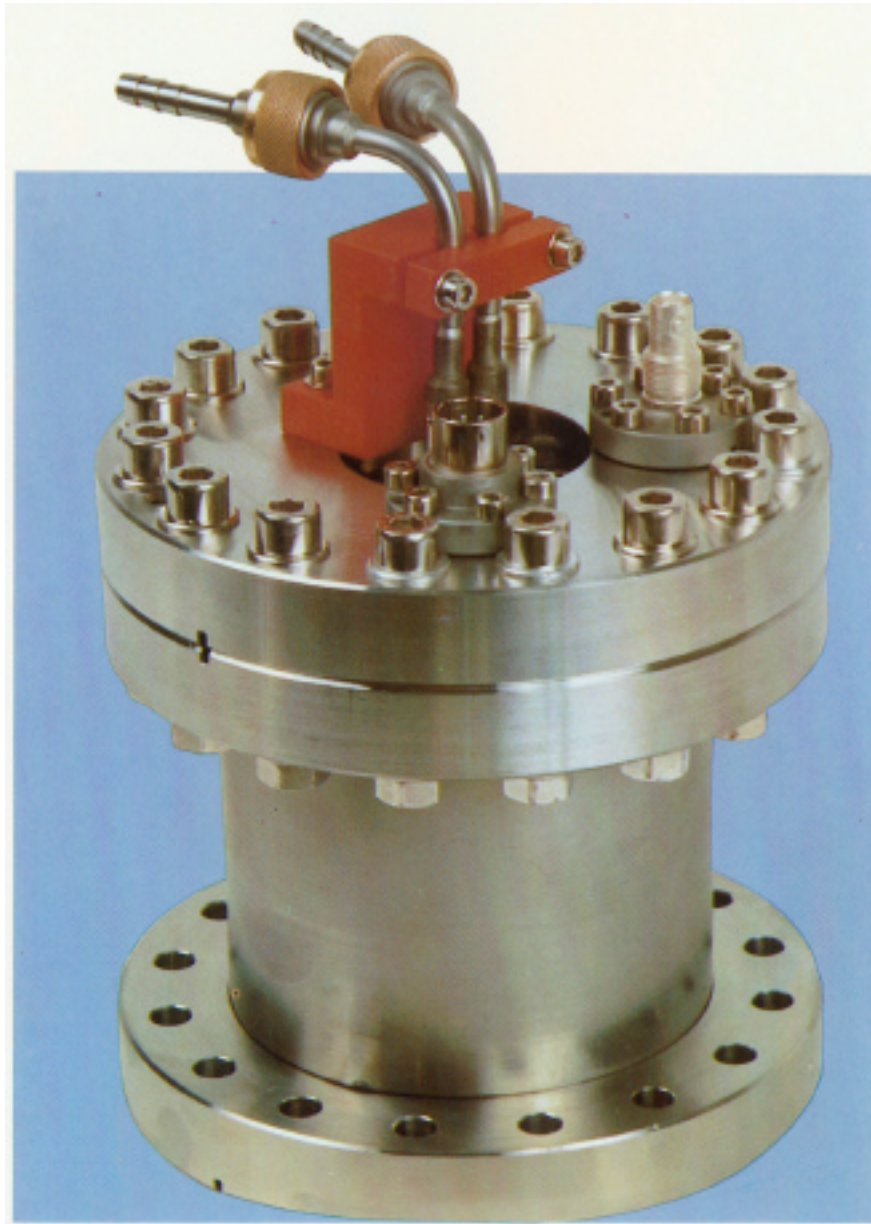


Beam Stopper combined with Beam Position Determination

Type DF 080



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Beam Stopper combined with Beam Position Determination

Type DF 080

Application:

The beam stopper is provided to collect accelerated particles and can be mounted on the end of a beam line or on the down-stream flange of a standard diagnostics chamber, e.g. at the end of a beam or at the “straight-socket” of a magnetic chamber.

Principle:

The particles are stopped on a cooled disc of tantalum. In the event of charged particles, the collected charge represents the beam intensity (neutral particles can be monitored by observing the charge of secondaries). In front of the stopper disc, a segmented aperture allows sensitive beam centering and a rough measurement of beam position. A cylinder in front of the electrode system is provided for secondary particle suppression and can be supplied with an appropriate high voltage.

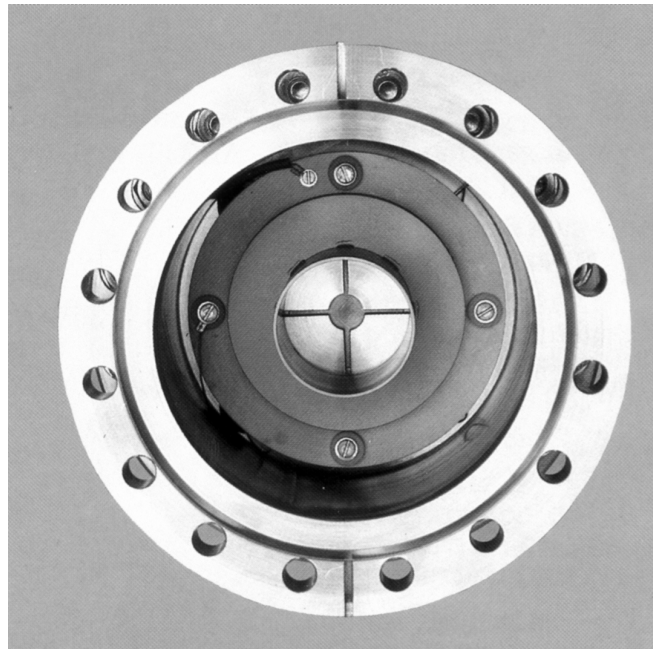


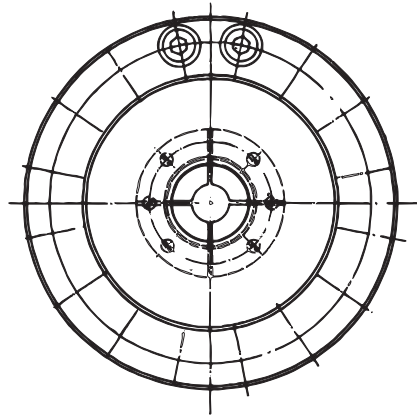
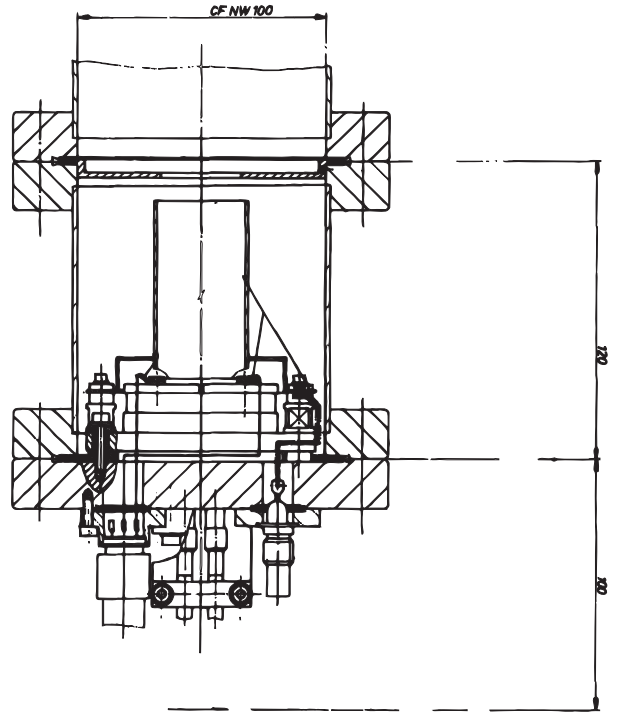
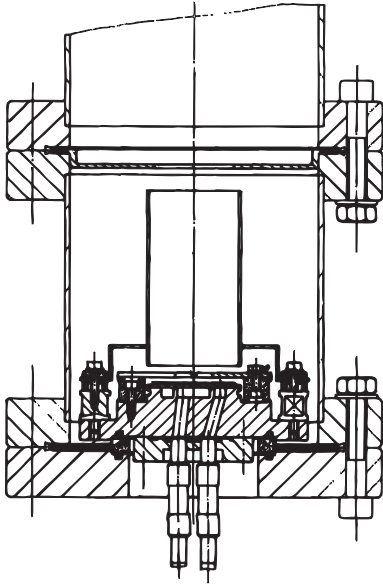
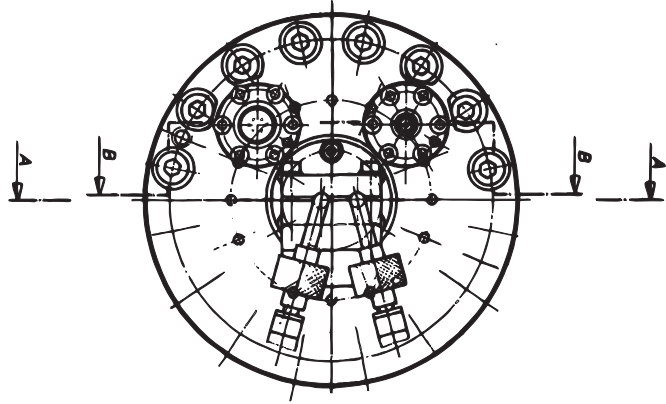
Fig. 1

Stopper plate with four (4) segmented apertures in front, these are provided for the measurement of beam position, a cylinder serves for suppression of secondary particle emission; the shield in front of the cylinder has been removed.

Cover Photograph: Assembled beam stopper designed for installation on a standard diagnostics chamber or a beam pipe; included in photograph are cooling pipes, mini conflat flanges with UHV-BNC, high voltage connector and multipole connector.

Technical Specifications:

Housing unit flanges	:	Stainless steel
Stopper disc	:	Tantalum
Cooling body	:	Copper
Segmented apertures	:	Stainless steel
Signal leads	:	Kapton insulated wires
Insulation of high voltage	:	Ceramics; Kapton foil
Connecting flange	:	6 inches O.D.(CF-100)
Diameter of Tantalum disc	:	1.2 inches
Accuracy of centering	:	0.01 inches
Diameter of free beam entrance to the stopper disc (= 2 x inner radius of segmented apertures)	:	0.6 inches
Number of segments	:	Four (4)
Width of slits between segments	:	0.06 inches
Diameter of secondary particle suppression cylinder	:	1.38 inches
Length of cylinder	:	2.76 inches
I.D. of shield in front of cylinder	:	1.26 inches
I.D. of housing unit	:	3.94 inches
Length of stopper system in beam direction	:	6.30 inches
High voltage connector	:	Mini conflat w. high voltage BNC
Maximum suppression voltage	:	2000 V
Insulation	:	Ceramics, Kapton foil & wires
Current feedthrough	:	Mini conflat with 6- pin UHV connector
Insulation of cooling pipes	:	Ceramics; plastics
Maximum beam power loss	:	6 kW
Cooling medium	:	Deionized water
Recommended conductivity	:	(2.5 - 25) 10 ⁻⁶ x mho/inch
Cooling water flow rate (60 psi)	:	85 gallons/hour
Vacuum sealing	:	CF system
Maximum leakrate	:	10 ⁻⁹ Torrs x liters/second



DF 080

All Dimensions in Millimeters