AVALANCHE

HAMMERHEAD

300 KV HIGH-VOLTAGE VACUUM FEEDTHROUGH

Compact, fully shielded, single-conductor feedthrough for UHV systems

Product class: High-voltage vacuum power feedthrough
Mount: 8" ConFlat (DN160CF)
Configuration: Fully shielded single conductor

Rated voltage: 300 kV DC
Document type: Preliminary web / datasheet / catalog spec
Part number: HH-300-CF8

Voltage rating	Vacuum interface	Architecture
300 KV DC	**8" CONFLAT (DN160CF)**	**FULLY SHIELDED, SINGLE CONDUCTOR**

01. PRODUCT OVERVIEW

Hammerhead is a compact 300 kV high-voltage vacuum feedthrough designed for UHV-compatible systems requiring a shielded single-conductor interface across an 8 in CF flange. The feedthrough is intended for high-voltage vacuum platforms including fusion research, accelerators, ion sources, electron-beam systems, x-ray systems, dielectric testing, and advanced laboratory instrumentation.

KEY FEATURES

- 300 kV DC product class (unique on the market)
- Fully shielded high-voltage geometry
- Single-conductor design (can be customized to 3 conductors)
- Ultra-high-vacuum (UHV)-compatible ceramic-to-metal sealed assembly
- Application guide (Conditioning and baking instructions)
- Standard Detachable Flat Connector Included

APPLICATIONS

- Fusion and plasma systems
- Particle accelerators and beamlines
- Ion source and extractor assemblies
- Electron-beam / x-ray source platforms
- High-voltage dielectric test chambers
- Semiconductor Industry

02. TECHNICAL PERFORMANCE SPECIFICATION

PARAMETER	SPECIFICATION
Voltage rating	300 kV DC rated maximum voltage. Qualification assumes vacuum-side conditioning per approved Hammerhead conditioning SOP. Polarity: can be negative or positive
Current rating	5 A continuous
Mount style and size	8" ConFlat (DN160CF), 304 stainless steel
Cable connection style	A fully shielded, detachable flat connector with an integrated EPR cable that can be compressed against the ceramic using a silicone gasket
Center conductor	Molybdenum, diameter: 0.95 in / 2.4 cm
Conductor, housing, and dielectric materials	Center conductor / electrode: Molybdenum Housing / flange: stainless steel 304 Insulator: MACOR
Operating temperature range	−50 °C to 120 °C
Leak rate	Helium leak rate: less than 1×10^{-9} atm·cc/s
Ultimate pressure	10^{-9} Torr (10^{-7} Pa)
Weight and dimensions	Mass: ~ 16 kg / 35 lb (excluding cable) Diameter: 20 cm / 8 in Length (excluding cable): 30 cm / 12 in Cable length: 6 m / 20 ft (custom length available on request)

03. DOCUMENTATION & CERTIFICATIONS

DOCUMENT	NOTES	DOWNLOAD
Technical drawing	Controlled 2D drawing showing envelope dimensions, flange interface, conductor details, tolerances, materials, finish, and revision.	Drawing PDF ↗
3D model / CAD files	STEP file.	STEP File ↗
Installation manual	Mounting, gasket selection, flange bolt pattern, torque sequence, cleaning/handling, cable installation, grounding, conditioning, troubleshooting, and safety warnings.	Installation Manual ↗
Application notes	Including conditioning and baking guides. High-voltage operation should follow the proposed conditioning procedure to safely reach the full operating voltage.	Application Notes ↗

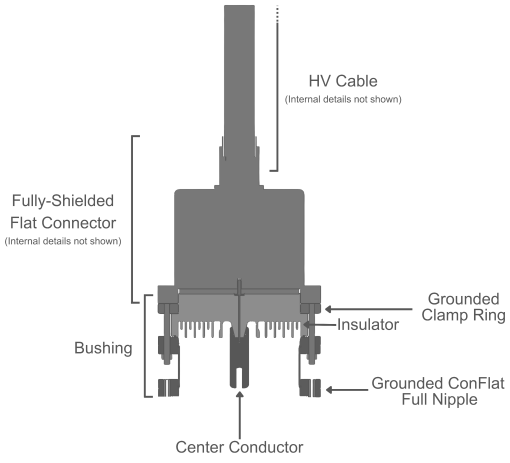

Figure 1 - Cross section of the Hammerhead in CAD software.

Figure 2 - Installation example of a Hammerhead feedthrough on vacuum chamber

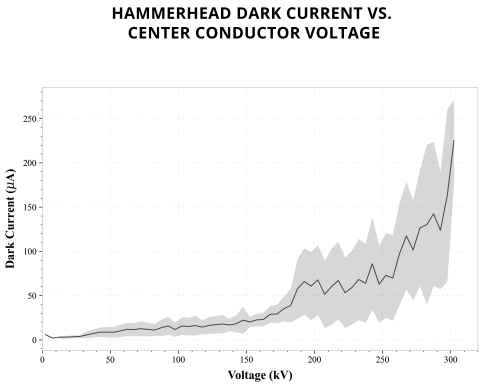

Figure 3 - Example of dark current as a function of voltage.