

Busek Hollow Cathodes



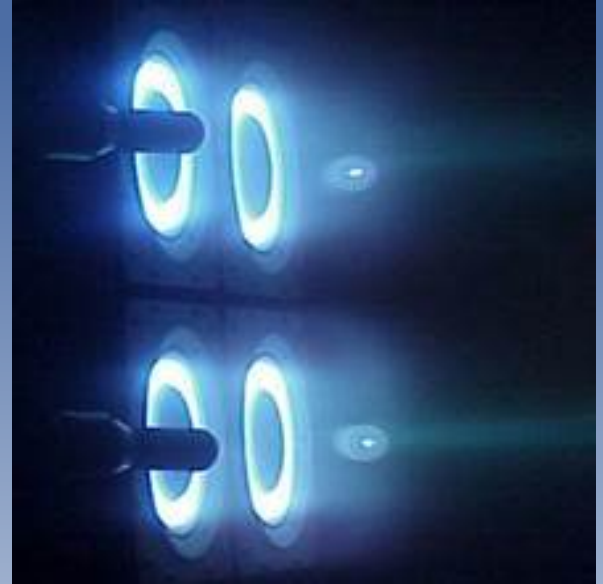
Busek's family of barium-impregnated cathodes features extensive NASA heritage.

The mechanical design builds off our BHC-1500 cathode successfully operated on the Operationally Responsive Space satellite TacSat-2.

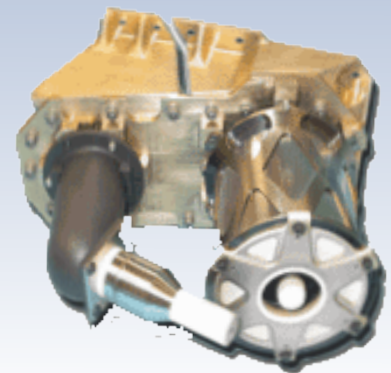
- Emission currents up to 200A.
- Externally-mounted and center-mounted versions available.
- Space qualified and general laboratory and industrial assemblies are available.

Our design uses a porous tungsten hollow insert impregnated with a low work function emitter comprised of a barium-calcium-aluminate mixture. A co-axial tantalum swaged heater wire is used to bring the emitter to ignition temperature of approximately 1000-1200 C.

The cathode assembly incorporates an integral enclosed keeper to start the cathode and sustain an internal discharge before establishing thruster operation. The keeper also provides a radiation and sputter shield to protect the emitter from environmental damage. Operating conditions are dependent upon the application process gas and required emission current. A key in the cathode design is sizing of the emitter orifice diameter is to ensure spot mode operation which is characterized as much smoother in terms of discharge current oscillation and lower coupling voltage. For in-space applications, lower discharge current oscillations results in lower radiated emission and lower coupling voltage results in better overall system performance.



Cluster of 4 BHT-600 thrusters, using BHC-1500 cathodes, under test

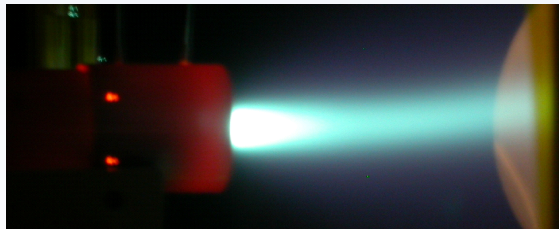


BHT-200 thruster using the BHC-1500 cathode (shown with TacSat-2 bracket)

Busek Hollow Cathode Technical Specifications



Cathode Designation	BHC-1500	BHC-2500	BHC-5000	BHC-10000
Emitter Tube Diameter	3.2 mm	6.4 mm	12.7 mm	25.4 mm
Emission Current	0 - 3 A	0 - 25 A	0 - 70 A	0 - 200 A
Emitter Type	Barium (6:1:2) impregnated porous tungsten emitter			
Notes	Igniter included Lab and Flight electronics available			



BHC-10000
Current: 120 A
Discharge Voltage: 19.5V
Flow Rate: 33 sccm (Xenon)

About Busek Co, Inc

Busek Co., Inc. is an engineering-focused space propulsion company that provides a wide range of thrusters, electronics, research and complete mission and system engineering support. Busek's flight heritage includes: FalconSat-5, Lisa Pathfinder, TacSat-2, and FalconSat-3.