



## SAFECONN™ High Voltage Interlock



SAFECONN Controller and Pump End  
SHV 10 KV Connectors



SAFECONN SHV 10 KV  
High Voltage Feedthrough

The integrated SAFECONN™ high voltage interlock system was introduced by Gamma Vacuum to create a safe environment when working with the high voltage cables of an ion pump.

Materials carry up to 10kV of DC current at temperatures up to 250° C. Radiation tolerance is balanced with material flexibility to provide a 90° turning radius while maintaining exposures up to  $2 \times 10^5$  Gray.

The silicone cable carries high voltage and an isolated 5-volt signal for the safety circuit. When properly connected, the 5-volt circuit is satisfied and only then can the DIGITEL™ controllers enable high voltage by the end user or through remote commands.

Once high voltage is enabled, the controller automatically disables high voltage when the cable is disconnected from the ion pump or controller.

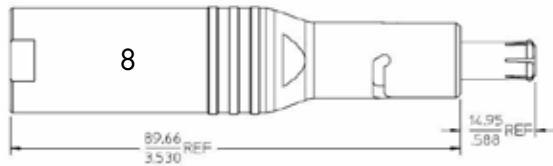
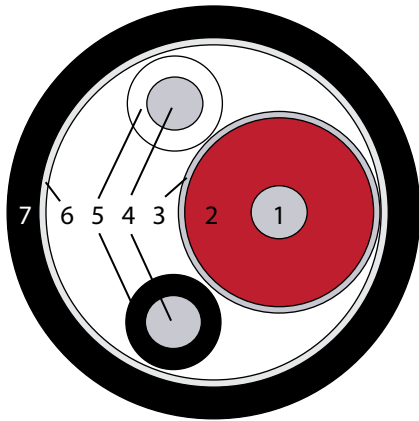
The system is electrically isolated to eliminate noise potential that could interfere with other electrical equipment on the same vacuum system.

The SAFECONN safety connection guarantees ground, high voltage, and then safety interlock connectivity when connecting to prevent accidental arcing.

The SAFECONN system guarantees the safety of the operator and equipment from the hazards of working with high voltage by eliminating electrical shocks and false positive vacuum

# SAFECONN Silicone Cable & Connector Material Properties

Sources:  
 1. P. Beynel, P. Maier and h. Schonbacher, Compilation of Radiation Damage Test Data, Part II: Materials Used Around High-Energy Accelerators, Copyright CERN, 1982  
 2. E. Avallone and T. Baumeister, Mark's Standard Handbook for Mechanical Engineers, Copyright by McGraw-Hill Companies, Inc., 1996



## TECHNICAL SPECIFICATIONS

Material (reference)	Radiation (Gray, tolerance)	Temperature (°C, max)
Copper (1, 3, 4)	>10 <sup>8</sup>	250
Brass/Nickel (8)	>10 <sup>8</sup>	327
Beryllium/Copper/Gold (8)	>10 <sup>8</sup>	643
Spring Steel/Nickel (8)	>10 <sup>8</sup>	1427
PEEK (8)	5 x 10 <sup>7</sup>	325
Fiberglass Braid (6)	2 x 10 <sup>7</sup>	250
Silicone Rubber (2, 5, 7, 8)	2 x 10 <sup>5</sup>	250

Specification	
Bend Radius, mm (in)	12.7 (0.5)
Minimum Clearance, mm (in)	127 (5.0)

## Standard SAFECONN Connector Options



SCP

FB

**Controller Connector Options**  
 Compatible with Gamma Vacuum or Agilent/Varian Interlock System



SC

FI

SCO

**Pump End Connector Options**  
 Compatible with current or legacy Gamma Vacuum or Agilent/Varian Feedthroughs (non- SAFECONN connectors available)



## GAMMA VACUUM

2915 133rd Street West  
 Shakopee, MN 55379 | USA  
 800.237.3603 T | 952.445.4841 P  
 952.445.7615 F

[gammavacuum.com](http://gammavacuum.com) | [info@gammavacuum.com](mailto:info@gammavacuum.com)