

# DIAMOND

## Fiber Optic Components

### SPECIALS

Diamond proposes vacuum feedthrough **V-FT** solutions, for a large range of optical fiber and adapters, using an epoxy sealing technology.

**V-FT** integrates a standard 2.5mm ferrule permanently sealed in a standard CF flange with a variety of adapters.

The obtained feedthrough benefits from a very low leak rate. It can be ordered for many types of fiber, including SM, MM, PM, PS, large core MM and others. Multi-channels systems are also available using standard CF building block elements.

The standard **V-FT** comes in a CF DN16 size flange with a one meter long connectorized pigtail on the vacuum side. The standard atmospheric interface is based on FC flange. Other interfaces such as DIN LSA/AVIM, Mini-AVIM, and Diamond's MAS universal system which allows for additional flanges and MAS adapters allows for fast turnaround and easy modularity for connector choice.

**V-FT** is ideal for vacuum chambers commonly used in the micro-electronic industries, medicine and in research and development.

### STANDARDS

- ▶ IEC 61755-3-8 Fiber optical interfaces
- ▶ IEC 61754 series Mechanical interfaces for each connector type
- ▶ ISO 3669-2 CF flange standard

### BENEFITS

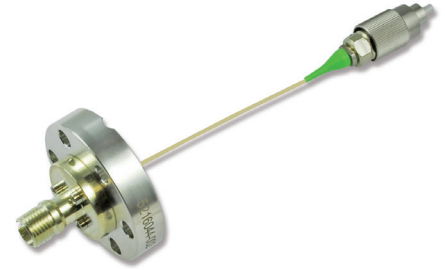
- ▶ Compact, robust, stable
- ▶ Low loss due to Diamond Active Core Alignment
- ▶ High return loss due to Diamond polishing technique
- ▶ Low leakage due to Diamond sealing technology
- ▶ Easy installation on a wide range of flanges

### AVAILABLE AS

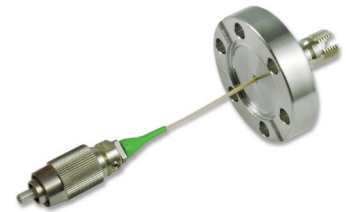
- ▶ Standard series with CF DN16 flange AISI316 stainless steel
- ▶ V-FT Multichannel available on request
- ▶ SM, MM, PM, PS, PSf, fiber termination
- ▶ Atmospheric side connectors: MAS or fixed FC, DIN LSA/AVIM, Mini-AVIM flanges.
- ▶ Vacuum side connectors: FC, Mini-AVIM, DIN LSA/AVIM, DMI, cleaved bare fiber

## V-FT

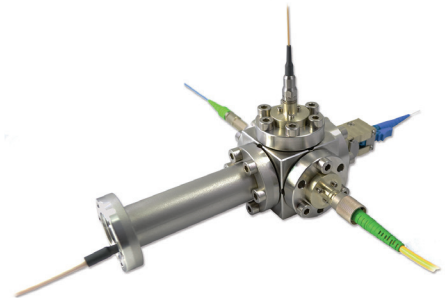
### VACUUM FEEDTHROUGH



V-FT on CF DN16 flange with FC flange on atmospheric side and FC connector on the vacuum side.



V-FT on CF DN16 flange vacuum side with groove for copper seal and exiting FC pigtail.



Multi-channel system using CF DN16 flanges and standard multipoint component as a cube, here equipped with four flange. The end of the long tube would be fixed on the vacuum chamber.

**SPECIFICATIONS**

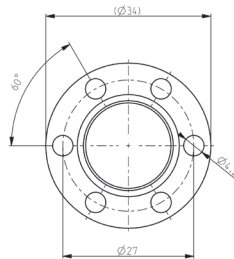
V-FT - TECHNICAL CHARACTERISTICS			
	COMMERCIAL GRADE		
PRESSURE PERFORMANCES			STANDARDS
He Leak	< 10 <sup>-9</sup>	Pa·m <sup>3</sup> /s	
MECHANICAL PERFORMANCES		Value using ITU-G.652d	
Mating durability Vibration	250 1oct/min, 10g@10Hz-2kHz, 30min	ΔIL < 0.2dB ΔIL < 0.2dB	IEC 61300-2-2 IEC 61300-2-1
ENVIRONMENT CHARACTERISTICS			
Operation Temperature Non-Operation Temperature	-40°C to +85°C -40°C to +85°C		
OPTICAL CHARACTERISTICS	For ITU-G.652D fiber		
Insertion Loss, IL Return Loss, RL Extinction Ratio, ER	0.3dB typical, 0.6dB max PC >40dB; APC >75dB ER>23dB, ER typical 25dB*		IEC 61300-3-4 method C Between references IEC 61300-3-6 method OLCR Similar to IEC 61300-3-40
CABLE RELATED CHARACTERISTICS	Homologated cables		
Torsion Static side load Fiber Retention	2N, 25 cycles 180° 0.2N, 90°, 5min 5N, 1min	ΔIL < 0.2dB ΔIL < 0.2dB ΔIL < 0.2dB	IEC 61300-2-5 IEC 61300-2-42 IEC 61300-2-4

\* with Fujikura PM1550nm fiber

**MATERIALS**

Vacuum flange: **316 stainless CF DN 16**  
 Seal: **copper**  
 Boot: **Hytrel 8068, vacuum baked 24h, 110-120°C, 10-2 Torr**

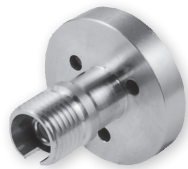
CF DN 16 flange  
(6 mounting holes)



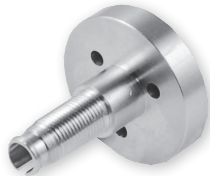
**FLANGE TYPES**



MAS Universal Flange  
(Adapter required)



FC Flange  
Wide 2.14mm or narrow  
2.0mm key

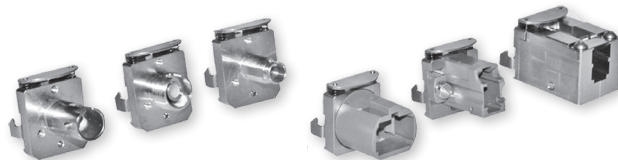


DIN LSA/AVIM Flange



Mini-AVIM Flange

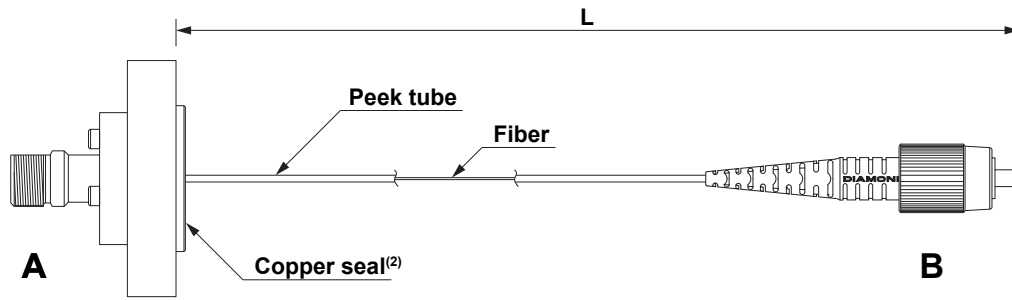
For the MAS universal flange, requires selection of an appropriate adapter (ST™, FC, DIN LSA/AVIM, SC, F-3000™, E-2000™ adapter is required). Please refer to the MAS adapter datasheet.



ORDER INFORMATION

Atmospheric side

Vacuum side



End A - Atm	Fiber/Cable	End B - Vac
<b>Flange type</b> <input type="checkbox"/> FC wide key <input type="checkbox"/> FC narrow key <input type="checkbox"/> DIN LSA/AVIM <input type="checkbox"/> Mini-AVIM <input type="checkbox"/> MAS™ (order adapter separately)	<b>Fiber type</b> <input type="checkbox"/> SM 9 <input type="checkbox"/> MM 50 <input type="checkbox"/> MM62.5 <input type="checkbox"/> PM (1) <input type="checkbox"/> Other (1)	<b>Con. type</b> <input type="checkbox"/> Mini-AVIM <input type="checkbox"/> FC wide key <input type="checkbox"/> FC narrow key <input type="checkbox"/> DIN LSA <input type="checkbox"/> AVIM <input type="checkbox"/> DMI <input type="checkbox"/> None
<b>Polishing</b> <input type="checkbox"/> PC <input type="checkbox"/> APC <input type="checkbox"/> Other (1)	<b>Length</b> L vac[m] <input type="text"/> Tolerance -0/+0.1  0.5m < L < 5m	<b>Polishing</b> <input type="checkbox"/> PC <input type="checkbox"/> APC <input type="checkbox"/> Flat (R>40mm) <input type="checkbox"/> Cleaved <input type="checkbox"/> Other (1)
<b>Process</b> <input type="checkbox"/> Standard <input type="checkbox"/> PM <input type="checkbox"/> PS <input type="checkbox"/> PSf <input type="checkbox"/> Custom (1)	<b>Cable type</b> <input type="checkbox"/> 1mm PEEK <input type="checkbox"/> Other (1) <input type="checkbox"/> None	<b>Process</b> <input type="checkbox"/> Standard <input type="checkbox"/> PM <input type="checkbox"/> PS <input type="checkbox"/> PSf <input type="checkbox"/> Custom (1)
Notes:	<b>Vacuum flange type</b> <input type="checkbox"/> CF DN16 <input type="checkbox"/> Custom flange (1)	

(1) Please provide technical specifications  
 (2) Product delivery with 5 copper seals

NOTE Diamond's standard boot colors are as follows: Black for MM and SM PC, and SM APC.