

DIAMOND

Fiber Optic Components

CABLE ASSEMBLIES AND ADAPTERS

The Mini-AVIM connector has been developed after market request of a smaller and lighter version of our acclaimed AVIM connector for harsh environment, especially space applications.

The Mini-AVIM combines two leading edge technologies: the AVIM MIL-style ratchet system and the base construction of Diamond Micro Interface (DMI) connector.

Commercial Off-The-Shelf (COTS) availability and economy backed by component availability from stock and quick turnaround of terminations and assemblies.

The Mini-AVIM is aligned precisely in rotation and therefore it can be used for both standard SM and MM fibers, as well as for PM technologies and multi-fiber ferrules or multi-core fibers.

Our Power Solution (PS) technology can also be applied to this connector lower the power density with a GRIN lens to improve resistance to power failure.

Harsh environment applications will range from Space to underwater, applying to mobile, avionics, shipboard, oil downhole, etc.

FEATURES

- ▶ Compact, small and lightweight
- ▶ Low loss thanks to Diamond Active Core Alignment (A.C.A.)
- ▶ High return loss thanks to Diamond polishing technique and A.C.A.
- ▶ Miniaturized MIL-style ratchet system with high vibration/shock resistance
- ▶ All Titanium – ZrO₂ material for ultra low CTE mismatch

STANDARDS

- ▶ ESCC standards in preparation

The Mini-AVIM has been successfully submitted to evaluation tests and qualified according to ESCC standards for the Space Grade and against IEC 61753-2-1 cat. U. for the Commercial Grade.

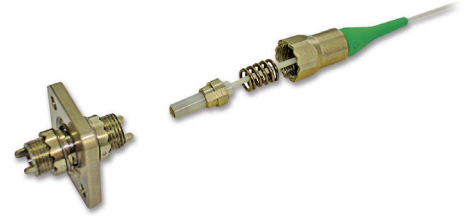
- ▶ ESCC (ESA Space Component Coordination)

AVAILABLE AS

- ▶ Terminated connector (commercial, space grade and space qualified)
- ▶ Multi-fiber custom connector set and assembled terminations
- ▶ Mating adapters (commercial, space qualified)

Mini-AVIM

SINGLE MODE PC/APC
MULTIMODE PC
PM PC/APC
PS APC4°



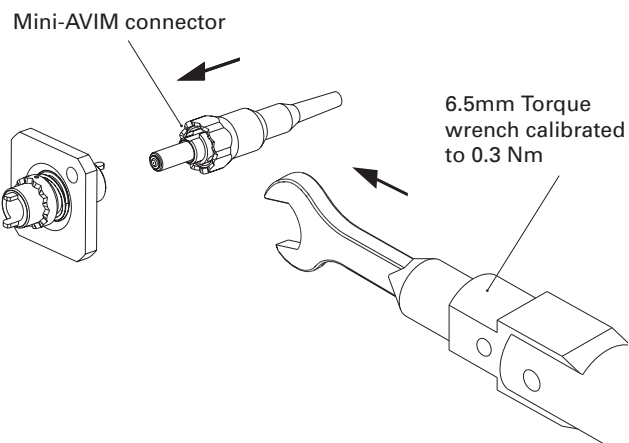
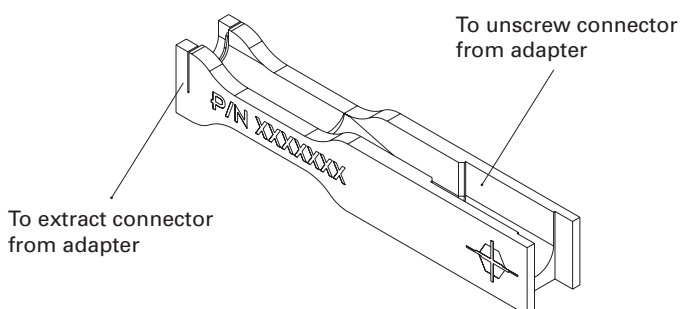
SPECIFICATIONS

Mini-AVIM - TECHNICAL CHARACTERISTICS						
	COMMERCIAL GRADE - QTR040			SPACE GRADE - QTR065		
Mechanical Performances		IL value using ITU G.652C	Standards		IL value using PM 1550nm	Standards
Mating durability	500	≤ 0.2dB	IEC 61300-2-2	100	≤ 0.4dB	IEC 61300-2-2
Shock	n.a.			500 g, 2ms	≤ 0.4dB	IEC 60068-2-27
Vibration	1oct/min, 20g@60Hz-2kHz	≤ 0.2dB	IEC 61300-2-1 sinus	35gRMS, 20Hz-2kHz, 7.5min/axis	≤ 0.4dB	IEC 60068-2-64
Environment Characteristics						
Operation Temperature	-40°C to +85°C, 1°C/min, 1h dwell, 12 cycles	≤ 0.2dB	IEC 61300-2-22	-55°C to +85°C, 1°C/min, 1h dwell, 100 cycles	≤ 0.4dB	IEC 61300-2-22
Temperature Storage/ Dry heat	96h, +85°C	≤ 0.2dB	IEC 61300-2-18	1000h, +85°C	≤ 0.4dB	IEC 61300-2-18
Cold	96h, -40°C	≤ 0.2dB	IEC 61300-2-17			
Damp Heat cycling	+25°C to +55°C, 95% r.h., 6 cycles, 144h	≤ 0.2dB	IEC 61300-2-46	+25°C to +55°C, 95% r.h., 6 cycles, 144h	≤ 0.4dB	IEC 61300-2-46
Low pressure	n.a.			4*10 ⁻⁸ Torr, ambient, 8h	≤ 0.4dB	IEC 60068-2-13
Dust	n.a.			1h at +30°C, 1h at +65°, <30%r.h. Red China clay, 6g/m ³ , 8.9m/s	≤ 0.4dB	IEC 61300-2-27
Salt mist	n.a.			+35°C 85% r.h., 5% salt, 96h	≤ 0.4dB	IEC 60068-2-11
Rapid Depressurisation	n.a.			atm to 50mbar in 5s, 5 cycles	≤ 0.4dB	MIL-STD.810G, met. 500.5
Optical Characteristics**						
Insertion Loss, IL	0.15dB typical, 0.4max		IEC 61300-3-4 method B	0.25dB typical, 0.5dB max		IEC 61300-3-6 met B.
Return Loss, RL	PC >40dB; APC >75dB		IEC 61300-3-6 method OLCR	PC >40dB; APC >75dB		IEC 61300-3-4 met OLCR
Extinction Ratio, ER	ER >23dB, ER typical 28dB		Similar to IEC 61300-3-40	ER >23dB, ER typical 25dB		Similar to IEC 61300-3-40
Radiation	n.a.			>1Mrad, ca. 8krad/h, ambient temp and humidity		ESCC229000
Cable related Characteristics	Homologated cables			Homologated cables		
Torsion	2N, 25 cycles 180°	≤ 0.2dB	IEC 61300-2-5	3N, 25 cycles 180°	≤ 0.4dB	IEC 61300-2-5
Static side load	0.2N, 90°, 5min	≤ 0.2dB	IEC 61300-2-42	0.2N, 90°, 60min	≤ 0.4dB	IEC 61300-2-42
Fiber Retention	5N, 1min	≤ 0.2dB	IEC 61300-2-4	5N, 2min	≤ 0.4dB	IEC 61300-2-4
Bending moment	10N, l=25mm	≤ 0.2dB	IEC 61300-2-7			

* with Fujikura PM1500nm Panda

** vary with fiber type

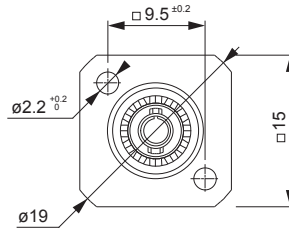
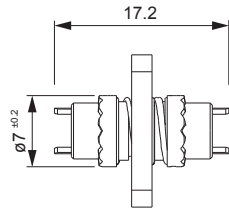
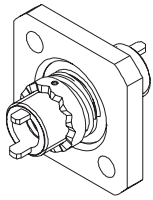
MINI-AVIM UN-MOUNTING TOOL



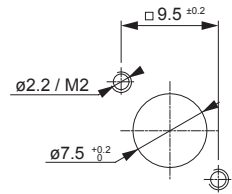
MINI-AVIM ADAPTER AND DIMENSIONS

Available types: Square flange adapter for wall mount

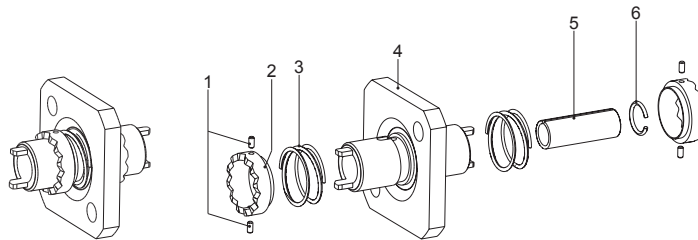
Material: According to part list



CUTOUT DIMENSIONS



BILL OF MATERIAL - BOM



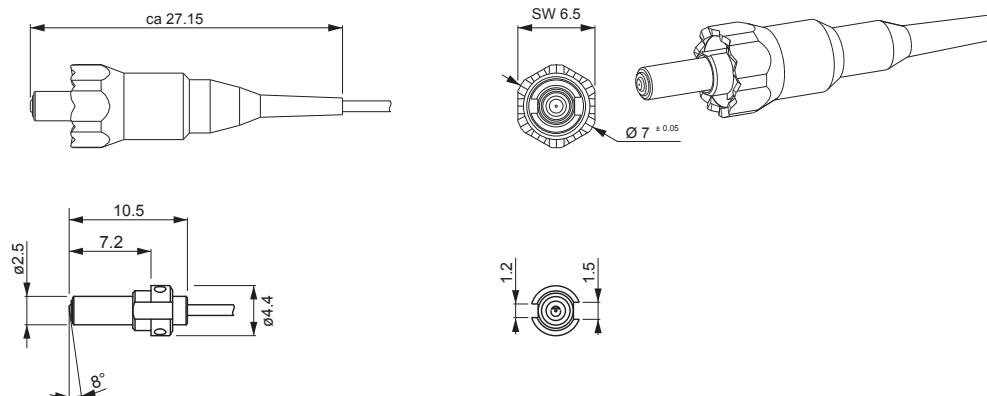
POS.	DESCRIPTION	MATERIAL		WEIGHT (gr.)
		NAME	NORMS	
1	Pin for Anti-rotation ring (4x)	Titanium	UNS R56400	0.01
2	Anti-rotation ring (2x)	Titanium	UNS R56400	0.20
3	Anti-rotation spring (2x)	Stainless steel	1.4401	0.14
4	Main body	Titanium	UNS R56400	2.12
5	Split sleeve	Zirconia	ZrO2	0.16
6	Clip for split sleeve	Stainless steel	1.4310	0.01
Total				2.64

MINI-AVIM CONNECTOR DIMENSIONS

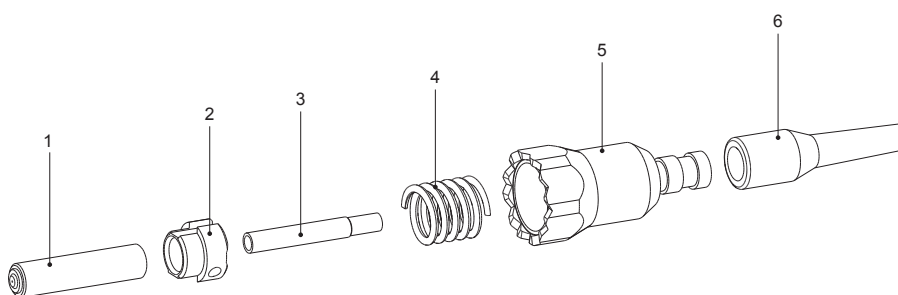
Connectors for 900um buffer coatings (or loose tube) up to 1.2mm cable

Available types: **Mini-AVIM (PC, APC, PM, PS)**

Material: According to part list



BILL OF MATERIAL - BOM



POS.	DESCRIPTION	MATERIAL		UNIT MASS (g)
		NAME	NORMS	
1	Ferrule	Ceramic-Titanium	ZrO ₂ , UNS R50250	0.21
2	DMI ring	Titanium	UNS R56400	0.09
3	Ferrule back tube	Brass	CuZn	0.03
4	Spring	Stainless steel	1.4310	0.11
5	Outside shell	Titanium	UNS R56400	0.52
6	Vacuum backed boot	Thermoplastic Elastomer TCP-ET	Hytrel 8068 ¹	0.08
7	Epoxy	EpoTek	353ND	0.02
8	Epoxy	NOA 061		0.001
Total				1.06

¹ Vacuum baked, 144h at 110°C to 125°C and 10⁻² Torr

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

ORDER INFORMATION

Please refer to the part numbers provided in the separate P/N list.

For assemblies or other configurations, please contact your nearest local Diamond representative or fill in the contact form available on the www.diamond-fo.com website.