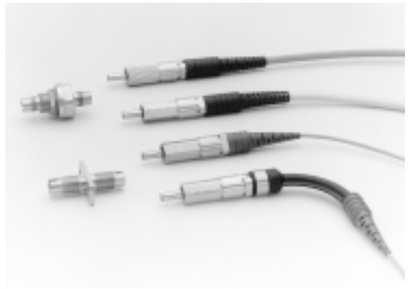
DIAMOND
Fiber Optic Components

AVIO/AVIM
D-6106.1/D-6206.1
C-636.1/C-6236.1
D-6108.1/D-6208.1



AVIO/AVIM are multipurpose, Commercial Off-The-Shelf fiber optic connectors offering high optical performance and qualified for the dynamic environments of mobile platforms, including avionics and space flight.

Multi-purpose in that these connectors are compatible with the widest range of optical fibers, including singlemode (SM), multimode (MM) fibers of all core/cladding sizes.

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

High performance in the form of lowest insertion loss provided by Diamond SA's unique Active Core Alignment termination process as well as Ultra PC/Angled PC high return loss for the most demanding, high bandwidth transmission systems.

Qualified to the highly dynamic vibration and shock environments of military and commercial mobile platforms, including land transportation, avionics, shipboard, downhole, weapon systems, missiles and space launch.

Avionics-grade AVIO connector and aerospace-qualified AVIM.

By design, the AVIO/AVIM is the sum of several engineering achievements:

- *Compact, low profile and lightweight*
- *Typical 0.2dB loss for most common SM/MM applications*
- *45+dB Ultra PC or 65+dB Angled PC SM return loss performance*
- *Environmentally robust, hirel Tungsten Carbide ferrules*
- *Miniaturized MIL-style ratchet system with vibration/shock tolerance to 46 G's*
- *Unique AVIM 2-piece cleanable adapter for mounting on aerospace "black" boxes offers external access for cleaning and maintenance of internal connector without compromising tamper seals*
- *Compatible with standard CECC EN 86130 optical interface for facilitating COTS-qualified active device package design*
- *Right angle boot available for facilitating unique installation and routing requirements*

DIAMOND
the fiber meeting

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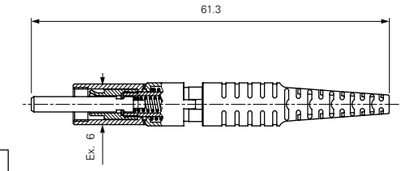
Specifications subject to change without notice

002-037-201P020127

CONNECTOR (AVIM)

SINGLE MODE

Type designation: **D-6206.1**
Ferrule material: Tungsten carbide
External parts: Copper-nickel alloy
Polish geometry: Convex (PC)



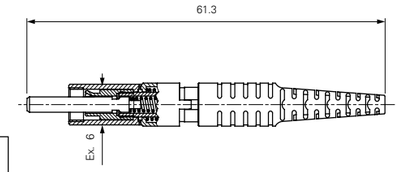
Dimensions Fiber/Cable	Order Number: Unterminated connector	Order Number: Terminated assembly
9/125/900	131 - 000 - 001 L 000	131 - xxx - 001 L xxx
9/125/900/2100	131 - 000 - 002 L 000	131 - xxx - 002 L xxx
9/125/900/2500	131 - 000 - 003 L 000	131 - xxx - 003 L xxx
9/125/900/3000	131 - 000 - 004 L 000	131 - xxx - 004 L xxx
9/125/900/3500	131 - 000 - 005 L 000	131 - xxx - 005 L xxx

Connectors for other fiber and cable dimensions available upon request

1 2 3 4

MULTIMODE

Type designation: **C-6236.1**
Ferrule material: Tungsten carbide
External parts: Copper-nickel alloy
Polish geometry: Convex (PC)



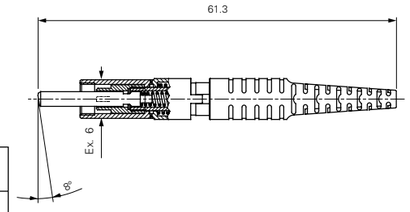
Dimensions Fiber/Cable	Order Number: Unterminated connector	Order Number: Terminated assembly
50/125/900	132 - 000 - 001 L 000	132 - xxx - 001 L xxx
50/125/900/2100	132 - 000 - 002 L 000	132 - xxx - 002 L xxx
50/125/900/2500	132 - 000 - 003 L 000	132 - xxx - 003 L xxx
50/125/900/3000	132 - 000 - 004 L 000	132 - xxx - 004 L xxx
50/125/900/3500	132 - 000 - 005 L 000	132 - xxx - 005 L xxx

Connectors for other fiber and cable dimensions available upon request

1 2 3 4

SINGLE MODE HRL KONVEX (APC)

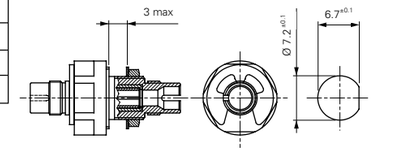
Type designation: **D-6208.1**
Ferrule material: Tungsten carbide
External parts: Copper-nickel alloy
Polish geometry: 8° angled convex (APC)



Dimensions Fiber/Cable	Order Number: Unterminated connector	Order Number: Terminated assembly
9/125/900	133 - 000 - 001 L 000	133 - xxx - 001 L xxx
9/125/900/2100	133 - 000 - 002 L 000	133 - xxx - 002 L xxx
9/125/900/2500	133 - 000 - 003 L 000	133 - xxx - 003 L xxx
9/125/900/3000	133 - 000 - 004 L 000	133 - xxx - 004 L xxx
9/125/900/3500	133 - 000 - 005 L 000	130 - xxx - 005 L xxx

Connectors for other fiber and cable dimensions available upon request

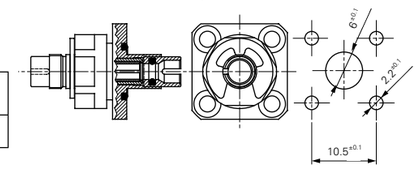
1 2 3 4



ADAPTOR (AVIM)

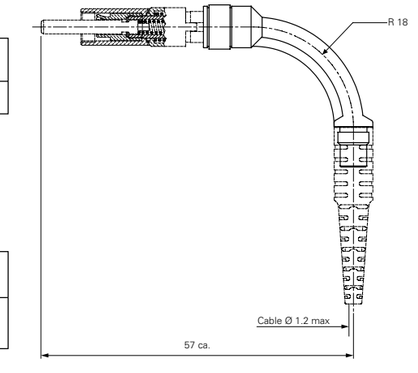
Type designation: **D-626**

Material: Mating sleeve	Material: External parts	Order Number
Zirconia	Copper-nickel alloy	100 - 301 - 910 V 001



Type designation: **D-624/F**

Material: Mating sleeve	Material: External parts	Order Number
Zirconia	Copper-nickel alloy	100 - 301 - 909 V 001



RIGHT ANGLE FIBER PROTECTION-BOOT

It suits to all AVIO/AVIM connectors; can be mounted after termination

Material: Material	Material: Color	Order Number
Teflon FEP 106N	black	070 - 515 - 015 V 001
Teflon FEP 106N	green	070 - 515 - 015 V 002

SPECIFICATIONS D-6000 SERIES CONNECTOR

PARAMETER	SINGLE MODE * (Corning SMF-28 9/125)		MULTIMODE **
	SPC	APC	PC
INSERTION LOSS	<0.5 dB (0.2dB, typ)	<0.5 dB (0.2dB, typ)	<0.5 dB (0.2dB, typ)
RETURN LOSS	>40dB (50dB, typ)	>60dB (68dB, typ)	>30dB (50dB, typ)
CONCENTRICITY	≤0.5µm (0.25µm, typ)	≤0.5µm (0.25µm, typ)	≤3µm (2µm, typ)
CHANGE IN OPTICAL TRANSMITTANCE	Per EIA/TIA -455-20, ≤ 0.4 dB (Insertion Loss not to exceed the maximum of 0.7dB when applied to any mechanical or environmental test, as specified herein)		
MATING DURABILITY	Per EIA/TIA -455-21A, 500 mating cycles		
OPERATING TEMPERATURE***	Thermal Cycling per EIA/TIA -455-3A, Test Cond. C, -55/+ 125°C Temp Life per EIA/TIA -455-4B, Test Cond. 240 hrs @ 125°C		
VIBRATION	Per EIA/TIA 455-11A, Test Cond. IV Random Vibration Power Spectral Density Table: 20 Hz 9.06E-03g²/Hz 300 Hz 2.00E+00g²/Hz 800 Hz 2.00E+00g²/Hz 2000 Hz 3.22E-01g²/Hz G_{RMS} = 46.4		
SHOCK (G'S Peak, Q = 10)	Shock Power Spectral Density Table: 11G at 100Hz 0.58G/Hz to 3550 Hz 2000 G over 3550 - 10.000 Hz		
Weight: AVIM-C AVIM/S Bulkhead Adapter 0624 Cable Strain Relief	 6.20g (max) 5.90g (max) 7.80g (max) 900 µm fiber, 5N 3mm cable, 100 N		

NOTEN:

* Singlemode optical performance measured with SMF-28 9/125 at 1310nm and 1550nm.

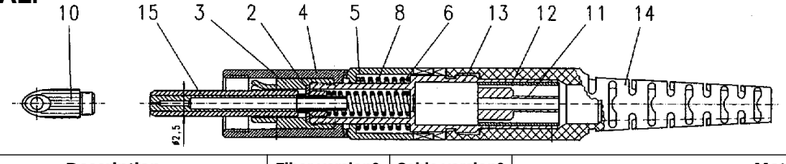
** Multimode optical performance measured with 50/125 GI at 1300nm.

***Temperature Test issued with appropriate cable/fibre.

Temperature, Vibration and Shock Acceptance Testing has been performed by our Customer as part of a DoD Classified Space Program. The test results are not available for distribution.

Specifications subject to change without notice.

MATERIAL:



Pos.	Description	Fiber version?	Cable version?	Material
2	Fork	Y	Y	$X_{10}CrNiS_{18}$-9
3	Key Nut	Y	Y	$X_{10}CrNiS_{18}$-9
4	Hex Nut	Y	Y	$CuNi_{12}Zn_{30}Pb$ Hard
5	Stop ring	Y	Y	$CuNi_{12}Zn_{30}Pb$ Hard
6	Ferrule Spring	Y	Y	$X_{12}CrNi_{17}$-7
8	Antirotation Spring	Y	Y	$X_{12}CrNi_{17}$-7
10	Dust Cap	Y	Y	NORYL 604 (PPO)
11	Support Bushing	N	Y	$CuZn_{39}Pb_3$
12	Crimp Sleeve	N	Y	Cu-DHP (Sulfate Nickel Plate 0.005)
13	Connector Body	Y	Y	$CuNi_{12}Zn_{30}Pb$ Hard
14	Boot	Y	Y	Hytrel 8068 (Green = HRL, Black = PC)
15	Ferrule	Y	Y	Tungsten Carbide+ $CuNi_{12}Zn_{30}Pb$ + Brass

Notes:

1 Spring Force at 12 mm position: 10-20N

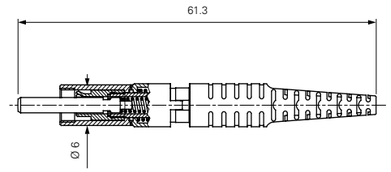
2 Torque Value for position 3 and 13 is 0,5Nm

Order numbers:

CONNECTOR (AVIO)

SINGLE MODE

Type designation: **D-6106.1**
Ferrule material: Tungsten carbide
External parts: Copper-nickel alloy
Polish geometry: Convex (PC)



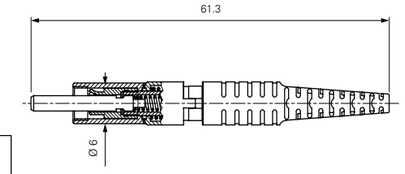
Dimensions Fiber/Cable	Order Number Unterminated connector	Terminated assembly
9/125/900	128 - 000 - 001 L 000	128 - xxx - 001 L xxx
9/125/900/2100	128 - 000 - 002 L 000	128 - xxx - 002 L xxx
9/125/900/2500	128 - 000 - 003 L 000	128 - xxx - 003 L xxx
9/125/900/3000	128 - 000 - 004 L 000	128 - xxx - 004 L xxx
9/125/900/3500	128 - 000 - 005 L 000	128 - xxx - 005 L xxx

Connectors for other fiber and cable dimensions available upon request

1 2 3 4

MULTIMODE

Type designation: **C-636.1**
Ferrule material: Tungsten carbide
External parts: Copper-nickel alloy
Polish geometry: Convex (PC)



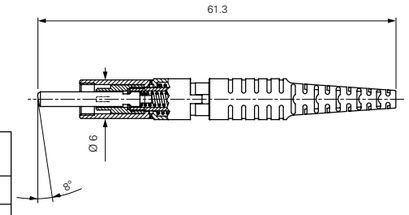
Dimensions Fiber/Cable	Order Number Unterminated connector	Terminated assembly
50/125/900	129 - 000 - 001 L 000	129 - xxx - 001 L xxx
50/125/900/2100	129 - 000 - 002 L 000	129 - xxx - 002 L xxx
50/125/900/2500	129 - 000 - 003 L 000	129 - xxx - 003 L xxx
50/125/900/3000	129 - 000 - 004 L 000	129 - xxx - 004 L xxx
50/125/900/3500	129 - 000 - 005 L 000	129 - xxx - 005 L xxx

Connectors for other fiber and cable dimensions available upon request

1 2 3 4

SINGLE MODE HRL KONVEX (APC)

Type designation: **D-6108.1**
Ferrule material: Tungsten carbide
External parts: Copper-nickel alloy
Polish geometry: 8° angled convex (APC)



Dimensions Fiber/Cable	Order Number Unterminated connector	Terminated assembly
9/125/900	130 - 000 - 001 L 000	130 - xxx - 001 L xxx
9/125/900/2100	130 - 000 - 002 L 000	130 - xxx - 002 L xxx
9/125/900/2500	130 - 000 - 003 L 000	130 - xxx - 003 L xxx
9/125/900/3000	130 - 000 - 004 L 000	130 - xxx - 004 L xxx
9/125/900/3500	130 - 000 - 005 L 000	130 - xxx - 005 L xxx

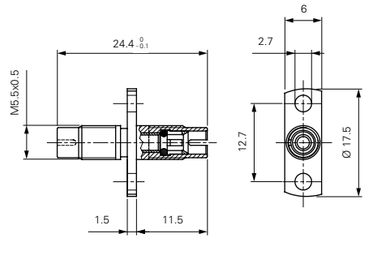
Connectors for other fiber and cable dimensions available upon request

1 2 3 4

ADAPTOR (AVIO)

Type designation: **D-604**

Material Mating sleeve	Material External parts	Order Number
Zirconia	Cu-Ni alloy, incl."O-Ring" seal	103 - 304 - 901 V 001



Order Number Codes

[1] Connector code*

[2] Connector code for termination on other end of assembly*
- For pigtails: insert 000
- For patch assemblies: insert connector code for other connector

[3] Code for fiber or cable

[4] Length in meters