

DIAMOND

Fiber Optic Components

CABLE ASSEMBLIES AND ADAPTERS

Diamond has developed an advanced COTS **MIL-38999** connector that demonstrates exceptional performance in demanding optical applications. For the first time, rugged 38999 connectors are available for use with small-core single mode fiber, polarization-maintaining (PM) fiber, and other specialty fiber types.

Built around the innovative **Diamond Multipurpose (DM)** insert, the connector incorporates four (4) termini with Diamond's two-component ferrules, assembled with the company's Active Core Alignment (ACA) process for unparalleled core concentricity. Also available are electrical contacts for hybrid E/O applications.

Furthermore, Diamond splice-on termini for repairs can be field terminated with the Diamond ZEUS D50 HE fusion splicer.

FEATURES AND BENEFITS

- ▶ Up to 4 channels on size 13 shells (according to MIL std., 38999 serie III)
- ▶ Based on standard 2.5mm PC and APC version Alberinos with integrated spring to prevent termini separation
- ▶ Compatible with tight cable construction, semi loose cable/fibre construction
- ▶ Compatible with several fibre types such as MM, SM, PM, Small core fibers
- ▶ Steady and repeatable low IL and High return loss
- ▶ High and steady ER when terminated with PM fibre
- ▶ IP 67 rated enclosures (Connector and bulkhead)
- ▶ Hybrid, E/O termini. Electrical pins 20 AWG
- ▶ Easy ferrule front-face access for cleaning & inspection
- ▶ Easy termini insertion end removal for field termination and repair

CHARACTERISTICS OF DM INSERT

- ▶ Precise and repeatable pre-alignment, thanks to the well dimensioned hollow guide pins
- ▶ Interacting, space saving pre-alignment hollow guide pins
- ▶ Resilient alignment sleeve protected in the hollow pre-alignment guide pins
- ▶ Alignment sleeves individually removable for easy cleaning
- ▶ Full protection of the optical elements from all external influences such as rotational, bending and/or lateral stress
- ▶ Ability for mechanical keying

MIL-38999 DM

(Harsh environment)



MIL-38999 DM connector and bulkhead on simplex cables



MIL-38999 DM connector on multi-fiber cable, and bulkhead



Diamond Multipurpose (DM) insert



Optical – electrical termini



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Specifications subject to change
without notice

BDD 1951599 07_17

OPTICAL PERFORMANCES (obtained with the diamond proposed cables)

MEASUREMENT/TEST	MULTIMODE	SINGLE MODE PC/APC	STANDARDS
Insertion loss (std. version)	typ. 0.20 dB max. 0.50 dB	typ. 0.15 dB max. 0.45 dB	IEC 61300-3-4 ($\lambda = 1310 / 1550$ nm)
Insertion loss (fusion version)	typ. 0.20 dB max. 0.50 dB	typ. 0.25 dB max. 0.45 dB	IEC 61300-3-4 ($\lambda = 1310 / 1550$ nm)
Insertion loss (PM) version)	-	typ. 0.25 dB max. 0.45 dB	IEC 61300-3-4 ($\lambda = 1310 / 1550$ nm)
Return loss	min. 40 dB	min. 75 dB (APC) min. 50 (PC)	IEC 61300-3-6 ($\lambda = 1550$ nm)
Extinction Ratio	-	typ. 23 dB min. 20 dB	Diamond validated cross polarizers method ($\lambda = 1550$ nm)

ELECTRICAL TESTS

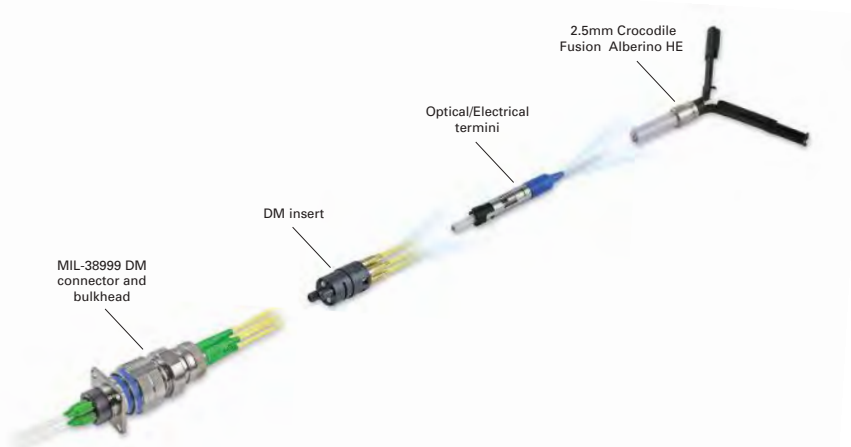
Insulation resistant test	Resistance >200 M Ω	IEC 60512-3-1: 2002 (500V / 60 s)
Voltage Proof test	PASS	IEC 60512-4-1: 2003 (2500V / 60 s / 50 Hz)

MECHANICAL AND ENVIRONMENTAL CONDITIONS

Change of temperature	-55 / + 85 °C	IEC 61300-2-22 ($\lambda = 1310 / 1550$ nm)
Low temperature	-55 °C (96h)	MIL-STD-810G ($\lambda = 1310 / 1550$ nm)
High temperature	+85 °C (96h)	MIL-STD-810G ($\lambda = 1310 / 1550$ nm)
Humidity	95% r.h. / 10 cycles	MIL-STD-810G ($\lambda = 1310 / 1550$ nm)
Temperature shock	-55 / + 85 °C	MIL-STD-810G ($\lambda = 1310 / 1550$ nm)
Low pressure / altitude	110 mbar / 15240 m	MIL-STD-810G ($\lambda = 1310 / 1550$ nm)
Vibration	10/2000 Hz (3h)	MIL-STD-202G ($\lambda = 1310 / 1550$ nm)
Mating durability	500 cycles	IEC 61300-2-2 ($\lambda = 1310 / 1550$ nm)
Cable torsion	+/-180° / 25 cycles	IEC 61300-2-5 ($\lambda = 1310 / 1550$ nm)
Flexing of strain relief	+/-90° / 25 cycles	IEC 61300-2-44 ($\lambda = 1310 / 1550$ nm)
Static side load	2N/90° (5min.)	IEC 61300-2-42 ($\lambda = 1310 / 1550$ nm)
Cable retention on connector side	70N on simplex cable / 800N on multi-fiber cable	IEC 61300-2-4 ($\lambda = 1310 / 1550$ nm)
Cable retention on bulkhead side	70N on simplex cable	IEC 61300-2-4 ($\lambda = 1310 / 1550$ nm)
Fibre retention	5N	IEC 61300-2-4 ($\lambda = 1310 / 1550$ nm)
Shock	1.2m / 26 drops	MIL-STD-810G ($\lambda = 1310 / 1550$ nm)
IP67 protection degree	1m / 30min.	IEC 60529
Salt Spray Exposure for shells*	500 hours	Tested by Amphenol

*For stainless steel or cadmium over nickel plating shells. Cable glands, cable strain relief, cables and internal components are excluded.

DIAMOND Zeus D50 HE FUSION SPLICER FOR FIELD INSALLATION AND REPAIR



FEATURES AND BENEFITS OF THE ZEUS D50 HE KIT

- ▶ Complete set of all tools required for full termination process starting from cable preparation to connector assembly (Including cleaver and automatic stripper with heated jaws for tough secondary coating - 900 μ m)
- ▶ Suitable for use with 3mm-8mm OD multi-channel military and outdoor cables
- ▶ Special cable clamps on bearing slides for secure, easy, and proper cable handling
- ▶ Removable work plate – compatible with stand
- ▶ Hard protective case for harsh environments, IP65 rated
- ▶ Total weight: 15 kg

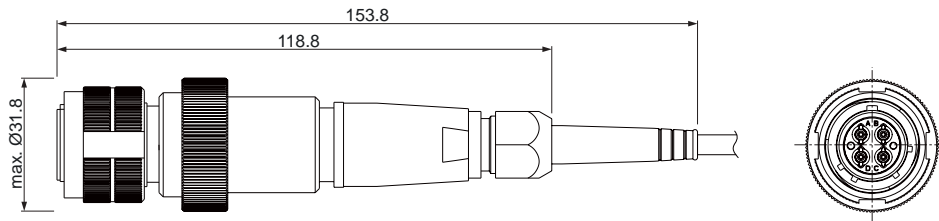


ORDER INFORMATION

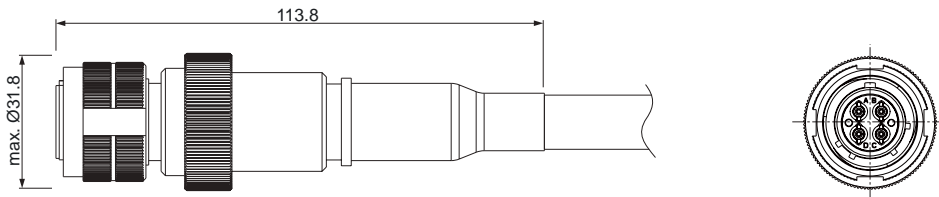
Please contact your nearest local Diamond representative or fill in the contact form available on the www.diamond-fo.com website.

AVAILABLE CONNECTORS AND BULKHEAD CONFIGURATIONS

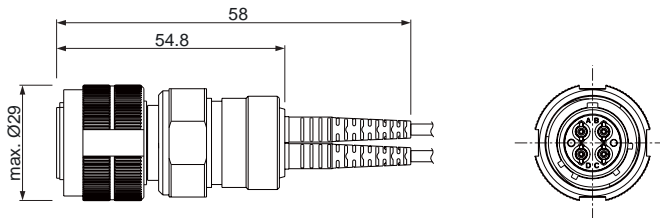
Type 1 Connector with mini-break cable (5mm or 5.5mm)



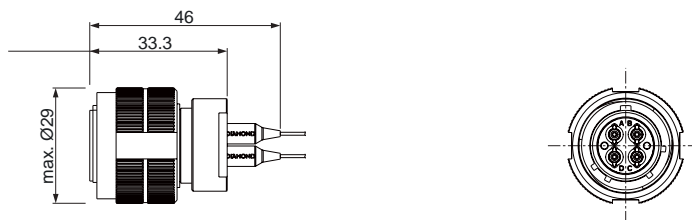
Type 2 Connector with protection tube for fiber 900um max.



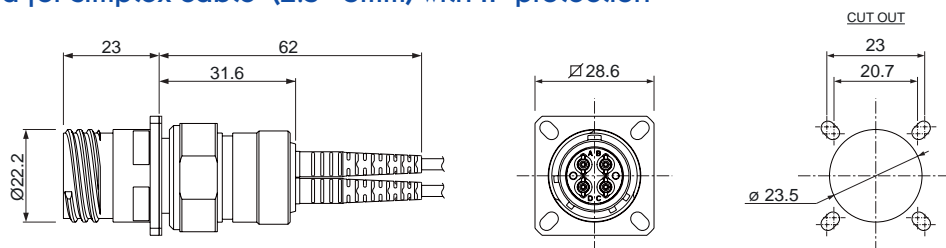
Type 3 Connector for simplex cable version (2.5 - 3mm) with IP protection



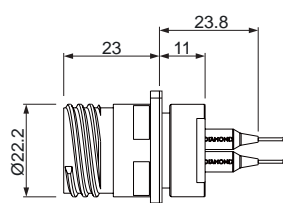
Type 4 Connector for simplex cable (2-3mm) or fiber 900um max. without IP protection



Type 5 Bulkhead for simplex cable (2.5 - 3mm) with IP protection



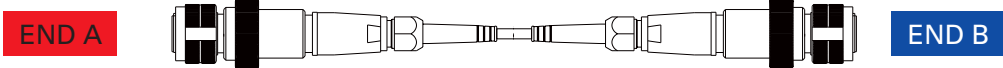
Type 6 Bulkhead for simplex cable (2 - 3mm) or fiber 900um max. without IP protection



NOTE Connectors are delivered with plastic protection cap. Metal cap is available as option.

ORDER INFORMATION

Assembly configuration



Connector/Bulkhead configuration

		END A	END B
Connector with Mini-break out cable (5mm or 5.5mm)	Type 1	Plastic cap <input type="checkbox"/> Metal cap <input type="checkbox"/>	Plastic cap <input type="checkbox"/> Metal cap <input type="checkbox"/>
Connector with protection tube for special fiber 900um max.	Type 2	Plastic cap <input type="checkbox"/> Metal cap <input type="checkbox"/>	Plastic cap <input type="checkbox"/> Metal cap <input type="checkbox"/>
Connector for simplex cable versione (2.5 - 3mm) with IP protection	Type 3	Plastic cap <input type="checkbox"/> Metal cap <input type="checkbox"/>	Plastic cap <input type="checkbox"/> Metal cap <input type="checkbox"/>
Connector for simplex cable (1.6 - 3mm) or fiber 900um max. without IP protection	Type 4	Plastic cap <input type="checkbox"/> Metal cap <input type="checkbox"/>	Plastic cap <input type="checkbox"/> Metal cap <input type="checkbox"/>
Bulkhead for simplex cable (2.5 - 3mm) with IP protection	Type 5	Plastic cap <input type="checkbox"/> Metal cap <input type="checkbox"/>	Plastic cap <input type="checkbox"/> Metal cap <input type="checkbox"/>
Bulkhead for simplex cable (1.6 - 3mm) or fiber 900um max without IP protection	Type 6	Plastic cap <input type="checkbox"/> Metal cap <input type="checkbox"/>	Plastic cap <input type="checkbox"/> Metal cap <input type="checkbox"/>
Other simplex connector typer (END B)			<input type="checkbox"/> E-2000™ <input type="checkbox"/> F-3000™ <input type="checkbox"/> FC <input type="checkbox"/> SC <input type="checkbox"/> ST™ <input type="checkbox"/> _____

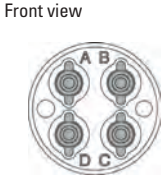
END A DM insert configuration

CHANNEL	OPTICAL			ELECTRICAL PIN	NONE
	* Hollow pin: Yes/No	Fiber type: MM, SM, PM	Polishing: PC/APC	Male (with hollow pin) / Female (without)	
A					<input type="checkbox"/>
B					<input type="checkbox"/>
C					<input type="checkbox"/>
D					<input type="checkbox"/>



END B DM insert configuration

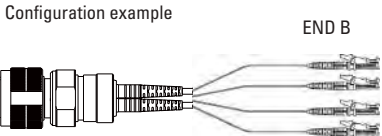
CHANNEL	CHANNEL FROM END A	OPTICAL		ELECTRICAL PIN	NONE
		* Hollow pin: Yes/No	Polishing: PC/APC	Male (with hollow pin) / Female (without)	
A					<input type="checkbox"/>
B					<input type="checkbox"/>
C					<input type="checkbox"/>
D					<input type="checkbox"/>



* The hollow pin allows a mechanical coding

END B Simplex connector configuration

CHANNEL FROM END A	OPTICAL			ELECTRICAL
	Connector type	** Duplex (E-2000™, F-3000™, SC only)	Polishing: PC/APC	
A		<input type="checkbox"/>		TBD with customer
B		<input type="checkbox"/>		TBD with customer
C		<input type="checkbox"/>		TBD with customer
D		<input type="checkbox"/>		TBD with customer



** Duplex channels have TBD with customer. As well as color/mechanical coding for E-2000™ connector

Cable/Fiber Ø _____ Length _____ m	<input type="checkbox"/> Delivered as air ring (Standard max. 100m) <input type="checkbox"/> Delivered on reel (Standard min. 100m)
Quantity _____	