

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

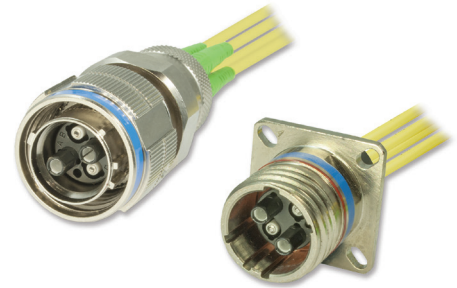
- ▶ Up to 4 channels on size 13 shells (according to MIL std., 38999 serie III)
- ▶ Based on standard 2.5mm PC and APC version Alberinos with integrated spring to prevent termini separation
- ▶ Compatible with tight cable construction, semi loose cable/fibre construction
- ▶ Compatible with several fibre 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)



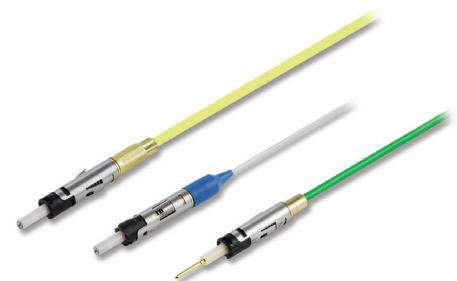
MIL-38999 DM connector and bulkhead on simplex cables



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



Diamond Multipurpose (DM) insert



Optical – electrical termini

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 (λ =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 (λ =1310 / 1550 nm)
Insertion loss (PM) version)	-	typ. 0.25 dB max. 0.45 dB	IEC 61300-3-4 (λ =1310 / 1550 nm)
Return loss	min. 40 dB	min. 75 dB (APC) min. 50 (PC)	IEC 61300-3-6 (λ = 1550 nm)
Extinction Ratio	-	typ. 23 dB min. 20 dB	Diamond validated cross polarizers method (λ = 1550 nm)

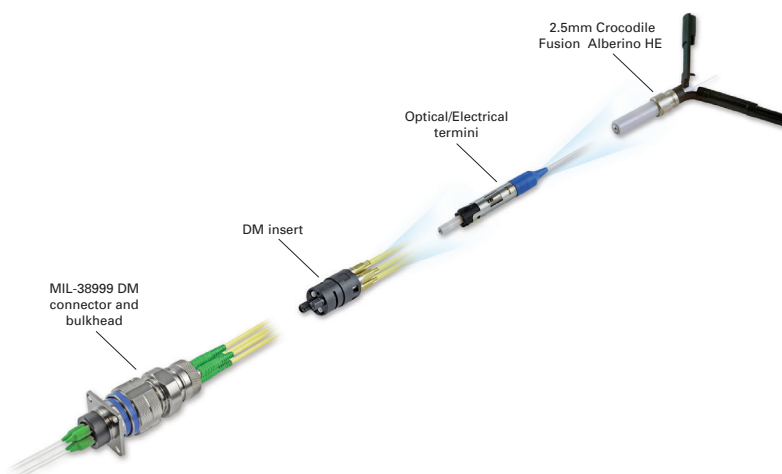
ELECTRICAL TESTS

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

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

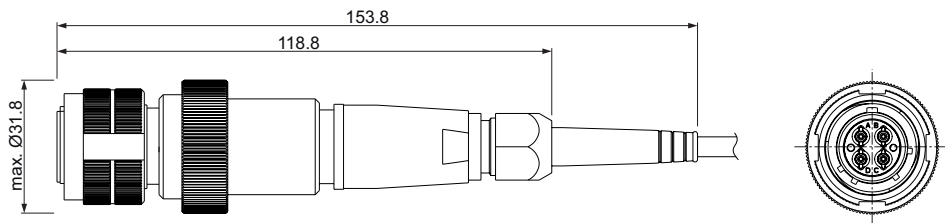


ORDER INFORMATION

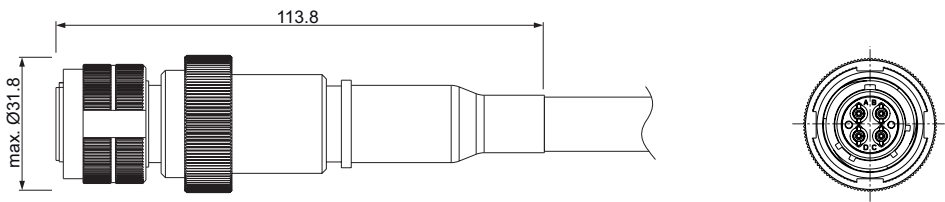
Please contact your nearest local Diamond representative or fill in the contact form available on the www.diamond-fo.com website.

AVAILABLE CONNECTORS AND BULKHEAD CONFIGURATIONS

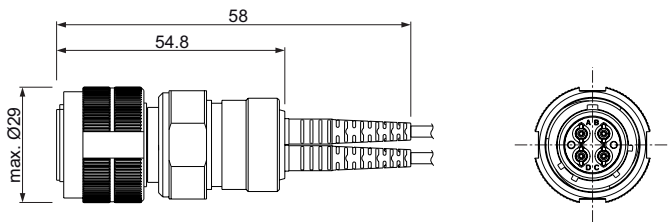
Type 1 Connector with mini-break cable (5mm or 5.5mm)



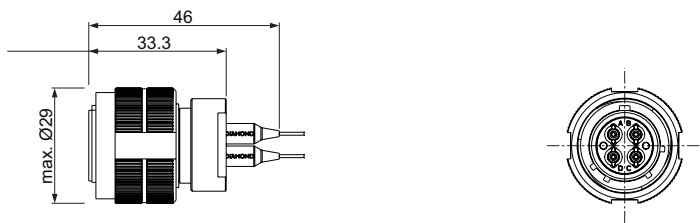
Type 2 Connector with protection tube for fiber 900um max.



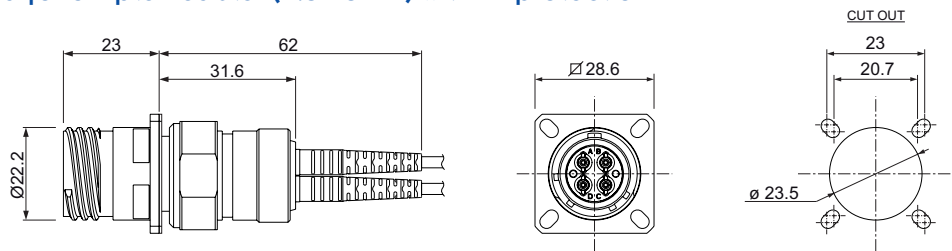
Type 3 Connector for simplex cable version (2.5 - 3mm) with IP protection



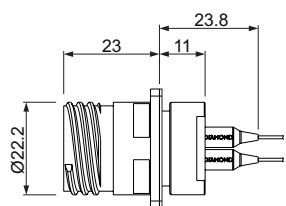
Type 4 Connector for simplex cable (2-3mm) or fiber 900um max. without IP protection



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

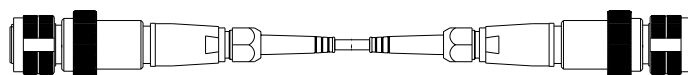


NOTE Connectors are delivered with plastic protection cap. Metal cap is available as option.

ORDER INFORMATION

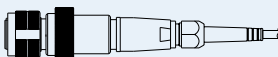

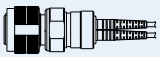




Assembly configuration

END A



END B

Connector/Bulkhead configuration

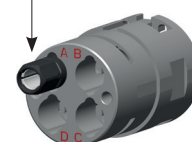
		END A	END B
Connector with Mini-break out cable (5mm or 5.5mm)	Type 1 	Plastic cap <input type="checkbox"/> Metal cap <input type="checkbox"/>	Plastic cap <input type="checkbox"/> Metal cap <input type="checkbox"/>
Connector with protection tube for special fiber 900um max.	Type 2 	Plastic cap <input 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"/>

Hollow pin

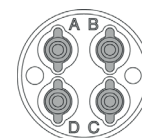


END B

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"/>

Front view



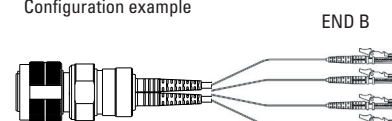
* The hollow pin allows a mechanical coding

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

Configuration example



** 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 _____	