

DIAMOND

Fiber Optic Components

CABLE ASSEMBLIES AND ADAPTERS

Diamond PS connector systems are designed for high power applications up to 3 Watts optical power for SM fibers (6W for E-2000™ PS). These have been developed to support the continuous rise of higher bitrates and longer transmission distances within DWDM technology. Diamond PS connectors are based on contacted expanded beam technology; where a section of graded index fiber is spliced as a collimating lens, which enlarges the beam diameter and reduces power density at the connector interface. Using Diamond Active Core Alignment (ACA) technology, we can achieve unrivaled low IL performance for the PS technology by aligning the fiber exit angle instead of the core eccentricity as Diamond usually does on SM fiber. This technology is applicable to most connectors interfaces, but due to safety issues Diamond suggests to use it on E-2000™ and F-3000™ connectors with integrated metal protection caps and shutters.

All of the features, users have come to expect from the E-2000™, F-3000™ and DMI family, are available on the PS version.

For more information about the technical specifications, please refer to the PS Optical Interfaces datasheet available on Diamond website.

FEATURES AND BENEFITS

- ▶ 16x reduced power density
- ▶ Low Insertion loss
- ▶ Ultra high polish for High return loss
- ▶ E-2000™ and F-3000™ with integrated metal protection caps and Shutters
- ▶ E-2000™ with interchangeable colour- and mechanical-coded frames and thumb-latches.
- ▶ DMI: Minimal space requirement, PC board mount capability and excellent vibration resistance

STANDARDS

- ▶ Passed long term test at 6W, 2000h on E-2000™ PS connector
- ▶ Passed Performance qualification according to IEC 61753-2-1, cat. U
- ▶ Passed Reliability qualification according to IEC 62005-9-2, cat. U
- ▶ Passed Long term Damp Heat according to Telcordia GR-032685°C / 85% r.h. 2000h

AVAILABLE AS

Terminated connector:

(E-2000™, F-3000™, DMI) simplex, and E-2000™ Backplane 2-6 channels

SPECIFICATIONS

CONNECTOR TYPE	WAVELENGTH (nm)	IL (dB) AGAINST REFERENCE		RL AGAINST REFERENCE		
		Typ.	Max.	Connected		Unmated
				PC 0°	APC 4°	APC 4°
E-2000™ PS	1625 - 1550 - 1310	0.2	0.4	45	75	50
	1060 - 980	0.3	0.6	35*	60*	
DMI PS	1625 - 1550 - 1310	0.2	0.4	45	75	50
	1060 - 980	0.3	0.6	35*	60*	
F-3000™ PS	1625 - 1550 - 1310	0.2	0.4	45	75	50
	1060 - 980	0.3	0.6	35*	60*	
TEST CONDITIONS		IEC 61300-3-4		IEC 61300-3-6 OLCR method / *OCWR method		

	VALUE	UNIT	TEST CONDITIONS
Mating durability	500	mate/demate cycles	IEC 61300-2-2
Fibre retention (fiber)	5	N	IEC 61300-2-4, 1min, longitudinal
Fibre torsion (fiber)	0.2	N	IEC 61300-2-5, ±180°, 25 cycles
Operating temperature	-40/+85**	°C	IEC 61300-2-22
Storage temperature	-40/+85**	°C	IEC 61300-2-17m -18

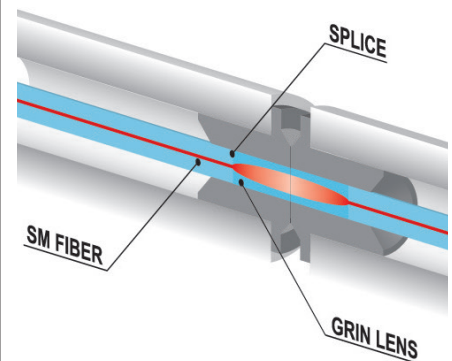
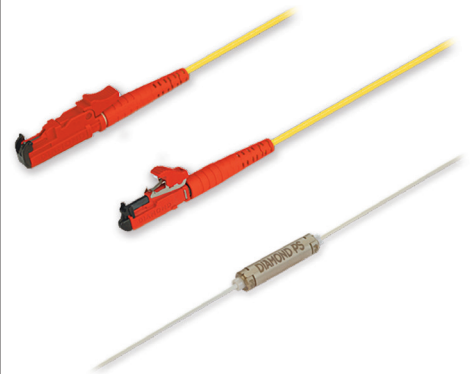
* Measured with high precision reflectometer

** May be further limited by cable specifications

PS

(Power Solution)

E-2000™ PS, F-3000™ PS, DMI PS
SINGLE MODE PC/APC 4°



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Specifications subject to change
without notice

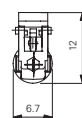
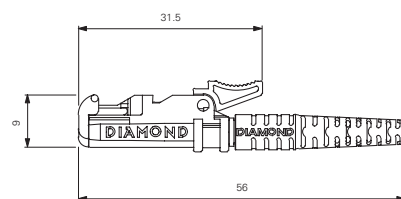
BDD 1951541 11_15

CONNECTOR TYPES AND DIMENSIONS

E-2000™ PS connectors 900 µm - 3 mm boot style

Available types: **E-2000™ PS PC 0°**
E-2000™ PS APC 4°

Ferrule material: Zirconia/metal insert
 External parts PC 0°: Plastic (red body and thumb-latch; blue boot)
 External parts APC 4°: Plastic (red body, thumb-latch and boot)

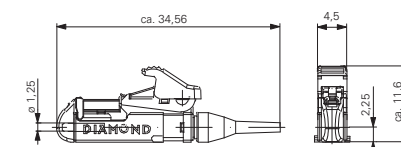
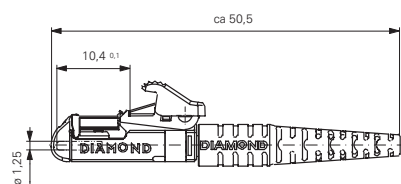


NOTE For color or mechanical keying thumb-latches, please refer to the E-2000™ standard datasheet

F-3000™ PS connectors 900 µm - 3 mm boot style

Available types: **F-3000™ PS PC 0°**
F-3000™ PS APC 4°

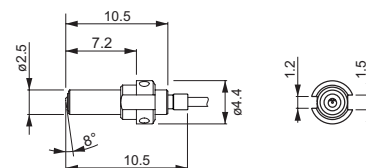
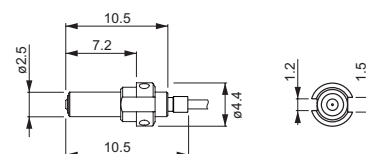
Ferrule material: Zirconia/metal insert
 External parts PC 0°: Plastic (red body and thumb-latch; blue boot)
 External parts APC 4°: Plastic (red body, thumb-latch and boot)



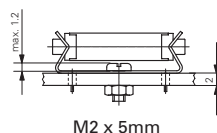
DMI PS connectors on 900 µm fiber, without boot

Available types: **DMI PS - PC 0°**
DMI PS - APC 4°

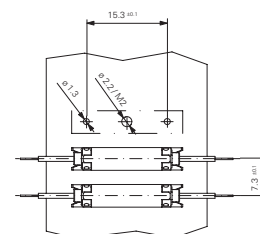
Ferrule material: Zirconia/metal insert
 External parts: Metal



Mounting tool and instructions:



M2 x 5mm



For further information about mounting instructions, please refer to the DMI Part number list

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.

ADAPTER TYPES AND DIMENSIONS

E-2000™ PS mating adapter

Available types:

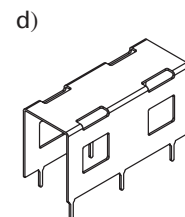
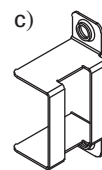
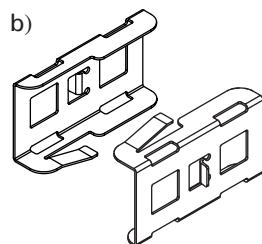
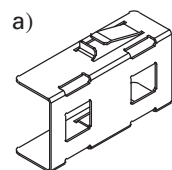
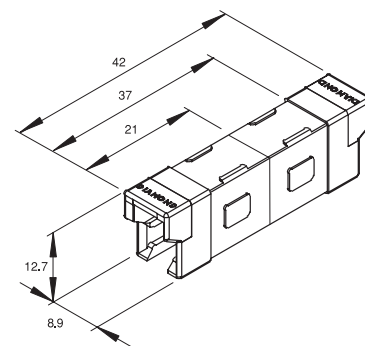
E-2000™

External parts PC 0°: Plastic (red body and blue frames)

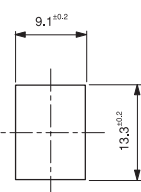
External parts APC 4°: Plastic (red body and frames)

Mating sleeve: Zirconia

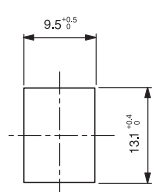
NOTE For complete product descriptions, please refer to the part-specific E-2000™ Simplex datasheet.



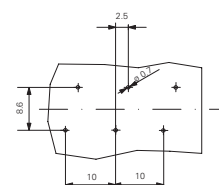
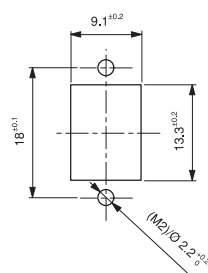
CUTOUT DIMENSIONS



Max wall thickness 1.6 mm



Max wall thickness 1.6 mm



F-3000™ PS mating adapter

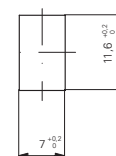
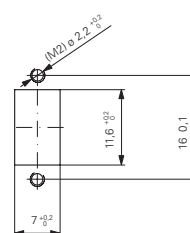
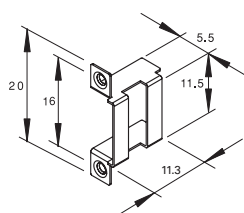
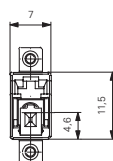
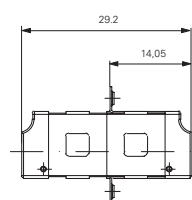
Material:

Plastic red

Mating sleeve:

Zirconia

CUTOUT DIMENSIONS



Max wall thickness 1.6 mm

DMI PS mating adapters

External parts:

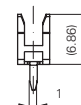
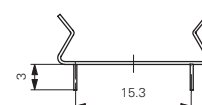
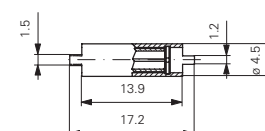
Metal

Mating sleeve:

Zirconia

Cap colors:

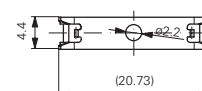
Red



DMI mating adapters clip

External parts:

Metal (Cu Be2; tinned solderable)



SAFETY INFORMATION FOR POWER SOLUTION CONNECTORS

The Power Solution (PS) connector takes advantage of the expanded beam technology to reduce the density of the optical power at the interface of the connection. This way the connector is less sensitive to contamination, and the maximum power that can be transmitted without damage to the connector is greater.

CLEANING

Cleanliness still remains the key word using high power. The basic concept using PS connectors is therefore the following:

“before each mating procedure, the connectors must be absolutely clean and inspected with a microscope”.

The ferrule's surface inspection should be performed using an optical microscope with a magnification of at least 200x.

The connector is normally affected by contamination during handling and mating procedures; the degree of cleanliness of the overall installation is also a critical parameter to be taken into consideration.

HANDLING

The Power Solution connectors should be operated with high power only when connected. When unmated, the light source must absolutely be switched off.

SAFETY

Optical connectors are passive components not subjected to Laser safety, but when integrated in an active system, as the output side of a light source, they will be submitted to it.

The following aspects are to be taken into account when evaluating the laser safety requirements:

- The exit beam of these connectors have a lower NA as standard connectors in air ($NA=0.035$) or ca. 2° divergence. This is used in the calculation of the amount of light that can enter the pupil at 1m.
- The DMI connector does not have a protection cap, and Diamond recommend to put a protection tap on top with the indication of the laser class according to IEC 60825-1.

The following safety precautions are to be considered as a starting point, each is responsible to edict proper safety protocols and we intend here just as to help doing this. The following precautions should not be considered as sufficient and should be re-evaluated from case to case.

- usage in restricted area, access only for authorized and qualified personnel.
- use protective glasses, skin protective measures recommended.
- optical behavior under control: eliminate reflections (also diffuse), close unused optical channels, avoid light beams at eye level.
- switch on/off system with remote control or interlock and additional automatic switch off safety system.
- warning signal when sources are active.
- laser classification markings and danger indications.

The PC 0° version has been provided to the market in order to help interlock system based on laser integrated RL measurement system that can discriminate the contact – non-contact PC version (large difference) whereas the APC 4° is not easily detectable (small difference).