

# DIAMOND

## Fiber Optic Components

### CABLE ASSEMBLIES AND ADAPTERS

DIAMOND supplies high-quality solutions for polarization-maintaining (PM) and polarizing (PZ) fiber-optical interfaces providing optimum control of the signal polarization state.

Low insertion losses (IL) are achieved in conjunction with high polarization extinction ratios (PER) and high return losses (RL) thanks to a combination of precise optical and mechanical design across a very broad spectral range. Utilizing our Active Core Alignment process, we are able to independently optimize both insertion loss (IL) and extinction ratio (ER), eliminating the need to compromise one performance feature over another

The extensive number of different connector variants allows adaptation of a broad palette of applications, ranging from the laboratory environment to outdoor applications exposed to harsh conditions.

### APPLICATION FIELDS

- ▶ Biomedicine
- ▶ Sensor technology
- ▶ Spectroscopy
- ▶ Laser technology

### FEATURES AND BENEFITS

- ▶ Processes for active polarization orientation (APO)
- ▶ Outstandingly low insertion loss (IL) values
- ▶ Designed and tested for uncontrolled environment category U
- ▶ Homologated fiber types for wavelengths ranging from 405 to 1625 nm

### AVAILABLE AS

- ▶ Configuration: Patchcord, pigtail
- ▶ Connector type: E-2000®, F-3000®, AVIM®, Midi AVIM®, Mini-AVIM®, Micro AVIM®, DMI, SC, FC, LSA (DIN), HE-2000®, MIL-83526 DM4, MIL-38999 DM4 size 13
- ▶ Ferrule interface: APC, PC, active slow axis orientation
- ▶ Fiber type: Diamond homologated PANDA and Bow-tie fibers
- ▶ Fiber protection: Secondary coated fiber, loose-tube construction,
- ▶ Cables/tubes: Cables, stainless-steel armored tubes

### QUALITY & STANDARDS

All Diamond products meet the international quality standards governing polarization-maintaining optical fibers and connectors.

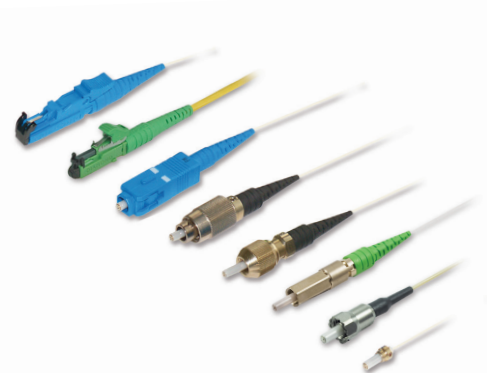
This includes the Standards IEC 61755-3-7/8 (PC and APC 2.5-mm and 1.25-mm zirconium dioxide (ZrO<sub>2</sub>) with titanium ferrules) for standard single-mode (SM) fibers in the standard telecommunications wavelengths (1310 and 1550 nm).

The qualification testing program of the E-2000® simplex PM SM PC/APC titanium connector is specified in accordance with the guidelines stipulated in IEC 61753-2-1, which defines the minimum requirements and grades of severity that a single-mode connector must meet in order to be classed as a Category U (uncontrolled environment ) device to IEC 61753-1 performance standards.

## PM

(Polarization-maintaining optical fiber)  
Broad range of connector and fiber types

E-2000® PM / F-3000® PM / SC PM /  
FC PM / LSA (DIN) PM / AVIM® PM /  
Mini AVIM® PM / DMI PM



Connector for harsh environments with 4-channel Diamond Multipurpose (DM4) insert:  
HE-2000®, MIL-83526 DM4, MIL-38999 DM4



4-channel DM4 OEM Insert

# PM

## PM CONNECTOR SPECIFICATIONS

WAVELENGTH (nm)	IL (dB)		PER (dB)		RL (dB)	
	Typ.	Max.	Typ.	Min.	PC 0°	APC 8°
1625 - 1550 - 1310	0.15	0.30	28	23	50*	70*
1060 - 980	0.20	0.40	26	23	50**	60**
830 - 780	0.25	0.50	25	21	40**	60**
680 - 638	0.30	0.60	22	21	35**	60**
532 - 460	0.40	0.80	20	20	35**	60**
405	0.60	1.20	20	18	35**	60**
TEST CONDITIONS	IEC 61300-3-4 Method B		IEC 61300-3-55 Method A		IEC 61300-3-6 *OLCR / OFDR method **OCWR method, limited by test conditions	
Lifetime	500 mate/demate cycles					

- Performance is based on the indicated connector types. Other mechanical interconnections may lead to deviations in optical performance.
- Optical values specified at room temperature, and based upon high-quality Panda and Bow-Tie fibers (fiber's NA 0.12± 0.02) qualified by Diamond.
- Only applies to the following connector types: E-2000® PM / F-3000® PM / SC PM / FC PM / LSA (DIN) PM / AVIM® PM / Mini AVIM® PM / DMI PM.

## ENVIRONMENTAL CONDITIONS

MEASUREMENT / TEST	PARAMETER	METHOD
Temperature change (reliability)	-40°C / +85°C / 1 h dwell / 12 cycles	IEC 61300-2-22
Dry heat (reliability)	+85°C / 2'000 h	IEC 61300-2-18
Damp heat, cyclic (reliability)	+25°C / +55°C / 95% r.h. / 100 cycles	IEC 61300-2-46
Connection cycles (mating durability)	500 cycles	IEC 61300-2-2
Strain relief bending	2 N / +/-90° / 100 cycles	IEC 61300-2-44

## MECHANICAL CONDITIONS

MEASUREMENT / TEST	PARAMETER	METHOD
Cable tensile stress	100 N / 2 min	IEC 61300-2-4
Cable torsion	15 N / ±180° / 25 cycles	IEC 61300-2-5
Vibration, sinusoidal	10 Hz - 55 Hz / 1.5 mm / 30 min	IEC 61300-2-1
Connection cycles (mating durability)	500 cycles	IEC 61300-2-2

## PM CONNECTOR SPECIFICATIONS FOR HARSH ENVIRONMENT WITH DM4

MEASUREMENT/TEST	MULTIMODE	SINGLE MODE PC/APC	STANDARDS
Insertion loss (PM) version)	-	typ. 0.25 dB max. 0.45 dB	IEC 61300-3-4 (λ =1310 / 1550

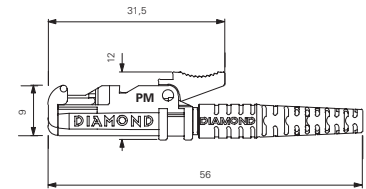
- More info on datasheets HE-2000® and MIL-38999 DM4 Family.

## CONNECTOR TYPES AND DIMENSIONS

### E-2000®-PM

Available types:  
Ferrule material:  
External parts:

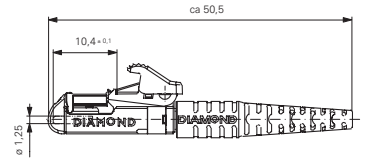
**E-2000® PM - PC and APC**  
Zirconia/metal insert  
Plastic



### F-3000®-PM

Available types:  
Ferrule material:  
External parts:

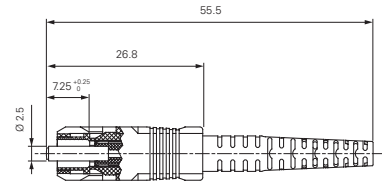
**F-3000® PM PC and APC**  
Zirconia/metal insert  
Plastic



### SC-PM

Available types:  
Ferrule material:  
External parts:

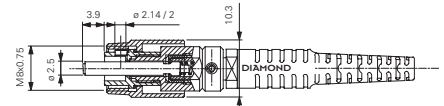
**SC PM - PC and APC**  
Zirconia/metal insert  
Plastic



### FC-PM

Available types:  
Ferrule material:  
External parts:

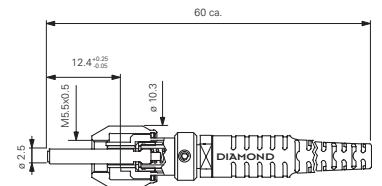
**FC PM - PC and APC (Key 2.14 or 2 mm)**  
Zirconia/metal insert  
Ni-plated brass



### LSA (DIN)-PM

Available types:  
Ferrule material:  
External parts:

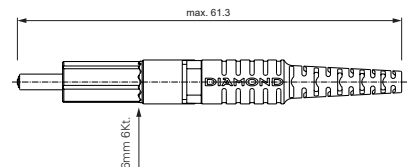
**DIN PM - PC and APC**  
Zirconia/metal insert  
Copper-nickel alloy



### AVIM®-PM

Available types:  
Ferrule material:

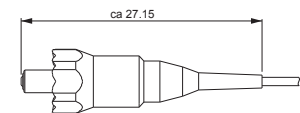
**AVIM® PM - PC and APC**  
Zirconia/metal insert, custom upon request



### Mini-AVIM®-PM

Available types:  
Material:

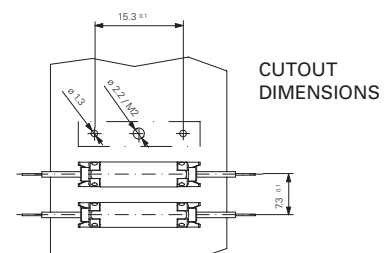
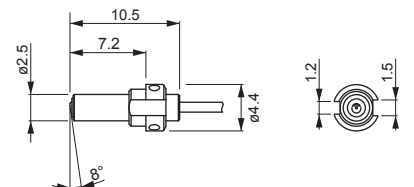
**Mini AVIM® PM - PC and APC**  
According to part list



### DMI-PM

Available types:  
Ferrule material:  
External parts:

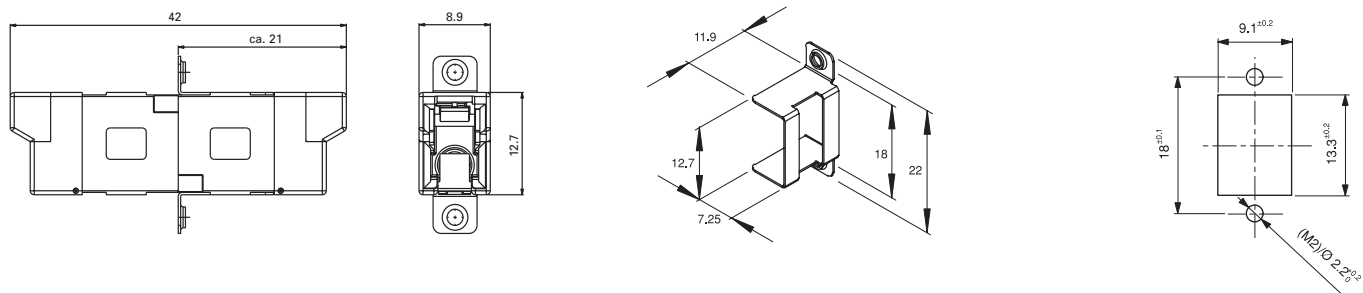
**DMI PM - PC and APC**  
Zirconia/metal insert  
Metal



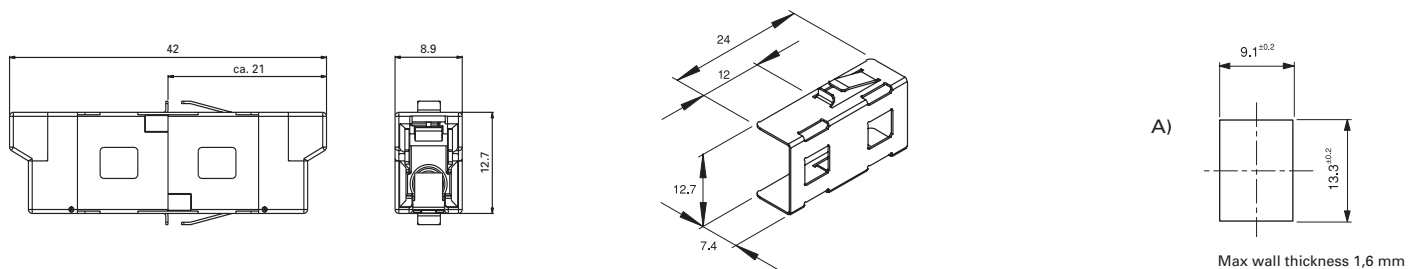
**NOTE** Standard colors for connectors and mating adapters made from plastic:  
Blue for PC and green for APC.

## ADAPTER TYPES AND DIMENSIONS

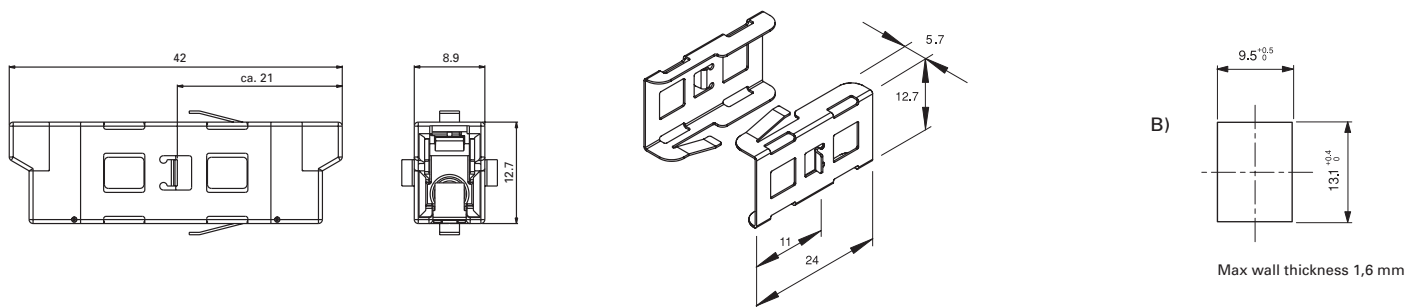
### E-2000® Simplex PM mating adapter with screw fixing clip



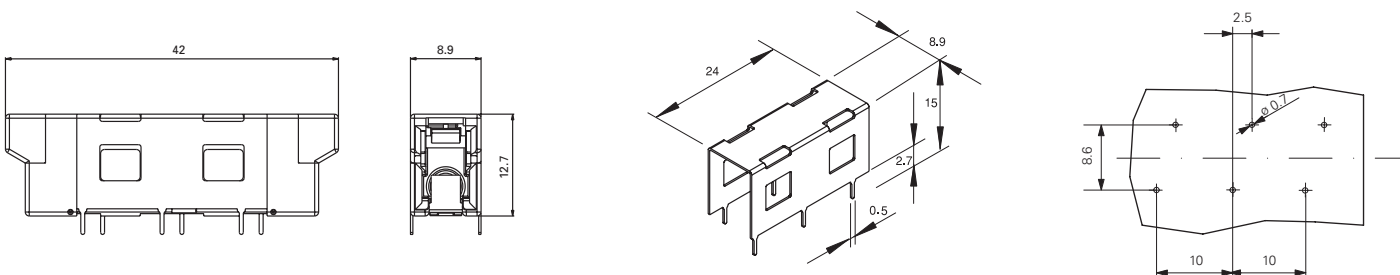
### E-2000® Simplex PM mating adapter with quick fixing clip (Type A: for higher packaging density within E-2000® cutout)



### E-2000® Simplex PM mating adapter with quick fixing clips (Type B: for excellent stability within SC cutout.)

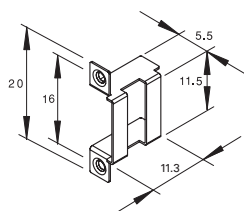
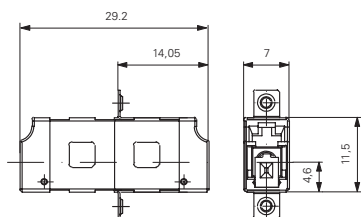


### E-2000® Simplex PM mating adapter with print fixing clip

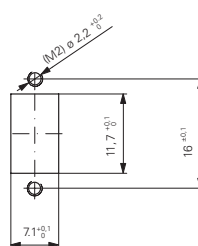


## F-3000® Simplex PM mating adapters

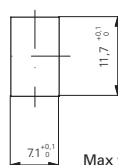
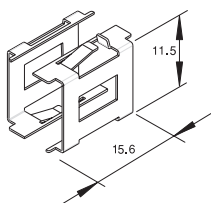
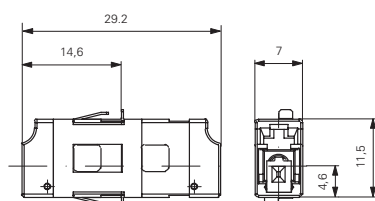
### Screw fixing clip



### CUTOUT DIMENSIONS



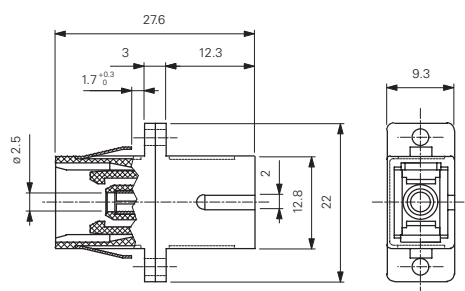
### Quick fixing clip



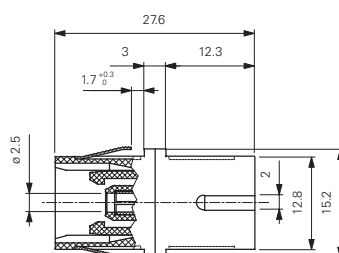
Max wall thickness 1.6 mm

## SC-PM mating adapters

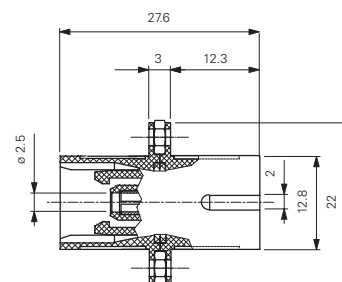
### Screw and clip fixing type



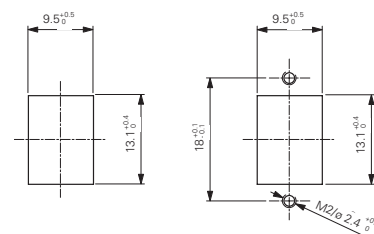
### Small clip fixing type



### Screw nut fixing type

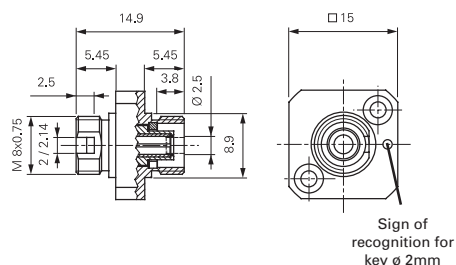


### CUTOUT DIMENSIONS

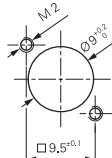


## FC PM mating adapters

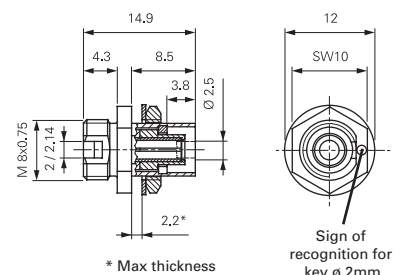
### Square flange



### CUTOUT DIMENSIONS

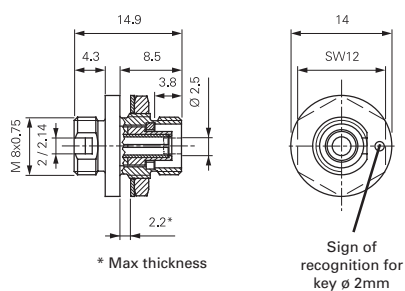


### Hexagonal flange

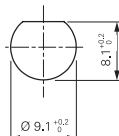


\* Max thickness

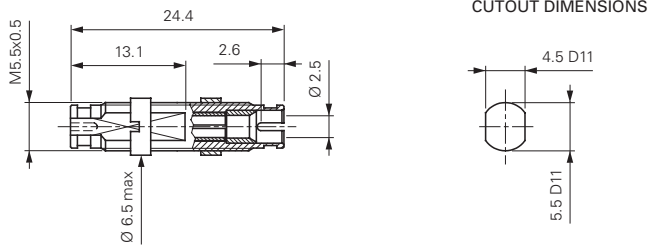
### Round flange



### CUTOUT DIMENSIONS

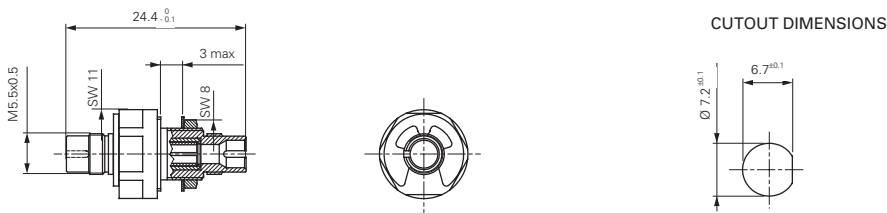


## LSA (DIN) PM mating adapter

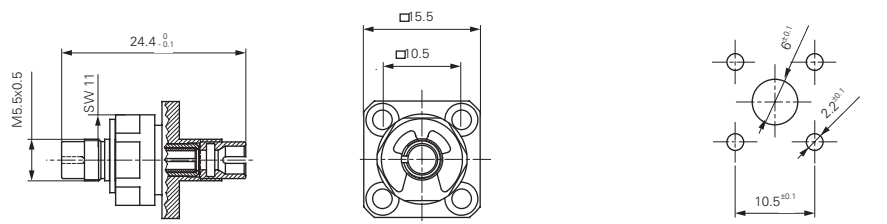


## AVIM® PM mating adapter

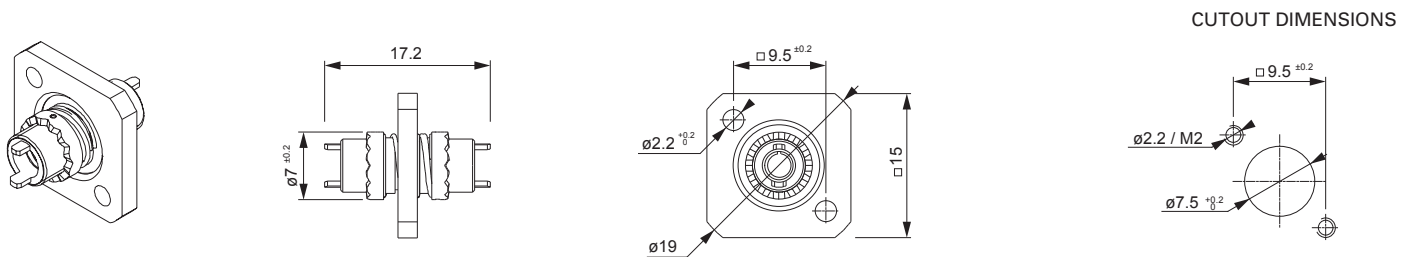
## Hexagonal flange



## Square flange

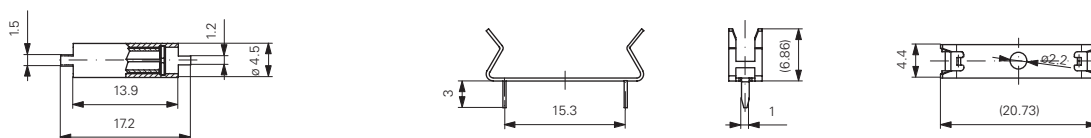


## Mini AVIM® PM mating adapter



## DMI PM mating adapter

## DMI-PM mating adapter clip



**NOTE** For technical information about the connectors HE-2000®, MIL-83526 DM4, MIL-38999 DM4 and DM4 OEM Insert, please check the standard data sheets.

## 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](http://www.diamond-fo.com) website.