O/E LAND INC.
7639 Cordner
Lasalle, QC, Canada, H8N 2X2
Tel:1-514-334-4588
Fax:1-514-334-0216
www.o-eland.com

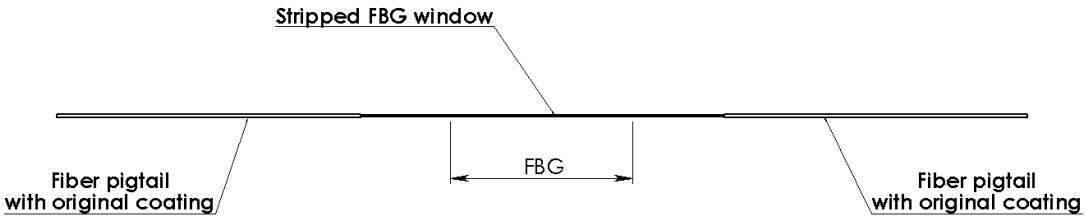
[OEFBG-100]

Fiber Bragg Grating Packages

Product description:

The Fiber Bragg Gratings with model OEFBG-100 from O/E Land Inc. are manufactured on an optical fiber, where part of the fiber original coating is initially removed (fiber is partially stripped). The length of this stripped window depends on the FBG specification, which are defined by the customer, and based on the feasibility.

The finished FBG fiber contains two originally coated-fiber pigtails, and a stripped window in the middle, where the actual FBG is located. Therefore, the FBG fibers are fragile, especially in the center, at the un-coated part, and they should be handled with attention and care. The stripped part should not be bent, stretched, heated, touched by hand, as any of such interference can easily damage the fiber, and also alter the initial FBG specifications.



The bare fiber-FBGs from O/E Land Inc. are usually delivered to the customer in a specially designed plastic box. The box is made from rigid thick plastic and prevents damaging of the FBG fiber during the shipment.

For further physical protection of the FBG, as well as for additional enhancement of the FBG parameters and stability, several other packages were developed, and are available upon request, including*:

- Re-coating of the stripped FBG window
- Protective tubing
- Standard package
- Athermal package
- Thermo-sensitive package
- High-power package
- Other specialized and custom packages

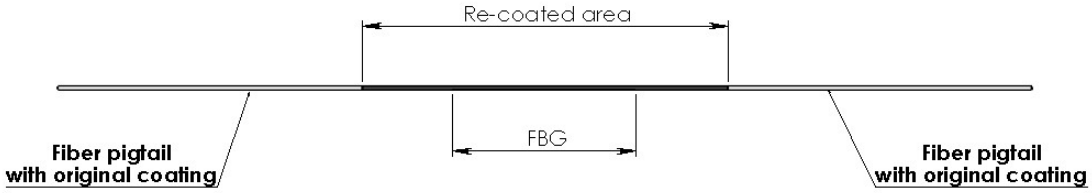
** Termination with connectors available. Some limitations apply.*

O/E LAND INC.
7639 Cordner
Lasalle, QC, Canada, H8N 2X2
Tel:1-514-334-4588
Fax:1-514-334-0216
www.o-eland.com

Re-coating of the stripped FBG window:

The coating of the already stripped window of the fiber during the FBG fabrication can be restored by re-coating of this area. This will better protect the fiber from physical damages, and improve the handling of the FBG fiber, as there will be no stripped part anymore.

We offer two general types of re-coating: with acrylate epoxy, and with polyamide material. The choice of the material depends on the original coating of the FBG fiber, but in some cases, it can be applied vice-versa. The acrylate type of re-coating can be used not only on standard 250 um-coating size fibers, but it is also available for bigger fiber diameters.



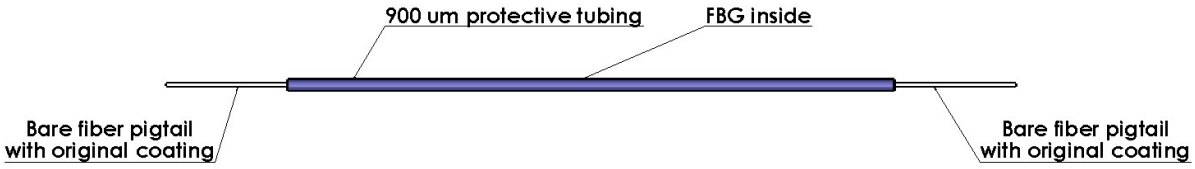
Features	Acrylate		Polyamide
Type	**Regular**	**Low-index**	**Regular**
Material index of refraction (cured)	1.55	1.37	N/A
Optical power handling	< 500 mW	< 5 W	< 500 mW
Diameter of the recoated area	280; 400; 610 µm		~ 160 µm
For fiber types	Originally acrylate-coated		Originally polyamide-coated
For fiber coating diameter	250, 390, 550 µm		160 µm
Operating temperatures (max)	< 85 °C		< 300 °C

** Some limitations apply.*

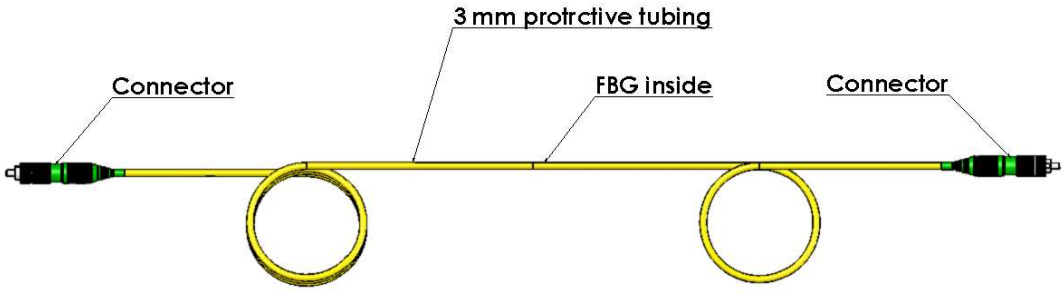
The re-coating package can be combined with some other types of packaging, like the Protective tubing, and the Standard package. Also available is termination of the fiber pigtails with connectors.

Protective tubing:

To protect the full length of the FBG fiber, a protective tubing can be added. The standard tubing diameter is 900 µm, but bigger sizes and different materials tubing is also available. The choice of the size and the material depends on the fiber type/size, the application, and on the feasibility.



O/E LAND INC.
7639 Cordner
Lasalle, QC, Canada, H8N 2X2
Tel:1-514-334-4588
Fax:1-514-334-0216
www.o-eland.com



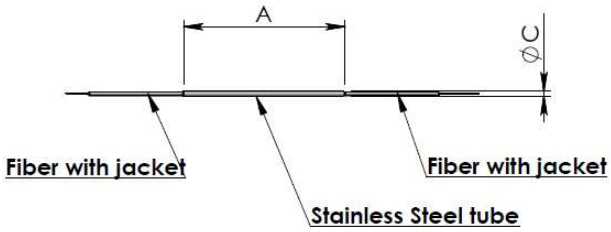
Features	Standard furcation tube		Teflon tube	Metal tube	
Type	**Small**	**Big**	**Small**	**Armored**	**Rigid**
Material	PVC	PVC	PTFE (Teflon)	Steel	Steel
Tube diameter (OD)	0.9 mm	3.0 mm	0.9 mm 3.0 mm	3 mm 6 mm	custom
Operating temperatures (max)	< 85 °C		< 250 °C	< 300 °C	
Typical applications	Fiber protection in normal environment		High temperature	High temperature, harsh environment	

** Some limitations apply.*

The protective tubing package can be combined with other types of packaging, such as the Re-coating, and the Standard and Athermal package (on the fiber pigtails only). Also available is termination of the fiber pigtails with connectors. Some restrictions apply.

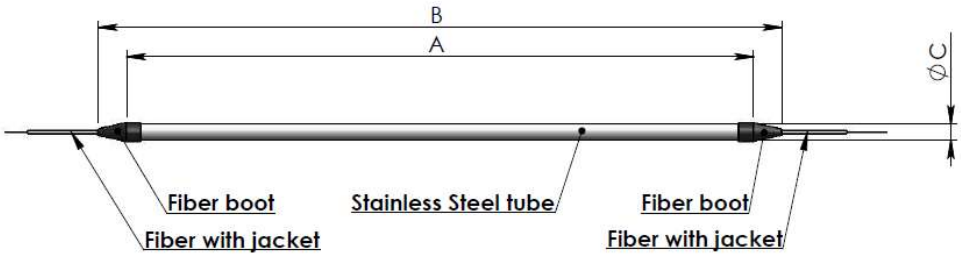
Standard package:

For even better protection of the FBG, a rigid and hard stainless steel tube can be added on top of the FBG window area. In this case, our Standard package should be used. Usually combined with a 900 µm protective tubing along the whole length of the FBG fiber, this package provides ultimate protection of the FBG area, when frequent manipulation of the fiber is required. Additional advantage is the small diameter circular shape of the package, which allows quick and easy mounting and fixing.



Dimensions [mm]	A	ØC
X-SMALL	40	1.5
SMALL	50	2.5

O/E LAND INC.
7639 Cordner
Lasalle, QC, Canada, H8N 2X2
Tel:1-514-334-4588
Fax:1-514-334-0216
www.o-eland.com



Dimensions [mm]	A	B	ØC
MEDIUM	75	89	4.6
X-MEDIUM	80	94	4.6
LONG	110	124	4.6
X-LONG	180	194	5

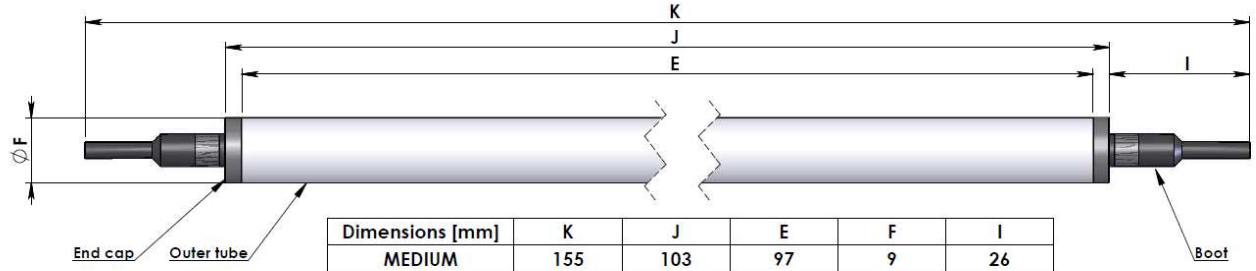
The Standard package comes in 6 different sizes, depending on the FBG length. The FBG fiber is first protected with tubing (jacket), and then with a steel tube. For the bigger packages (medium size and above), strain-relief rubber boots are added on the two side of the tube, to prevent the fiber from breaking. For these sizes, 3 mm protective tubing can be also added.

Also available is termination of the fiber pigtails with connectors. Some restrictions apply.

Athermal package:

Athermal package is needed when the sensitivity of the FBG center wavelength to the ambient temperature needs to be minimized. Our Athermal package can decrease this sensitivity more than 10 times, and it can provide stable FBG center wavelength in the temperature range of 0-70°C. The center wavelength drift can reach as low as 1 pm/°C, or less.

The Athermal package also comes in a rigid and hard stainless steel. Usually, it is combined with a 900 µm protective tubing along the whole length of the FBG fiber, and strain-relief rubber boots. Additional advantage is the circular shape of the package, which allows quick and easy mounting and fixing.



Dimensions [mm]	K	J	E	F	I
MEDIUM	155	103	97	9	26
X-MEDIUM	194	142	136	9	26
LONG	230	178	172	12	26
X-LONG	284	232	226	12	26

7639 Cordner
Lasalle, QC, Canada, H8N 2X2
Tel:1-514-334-4588
Fax:1-514-334-0216
www.o-eland.com

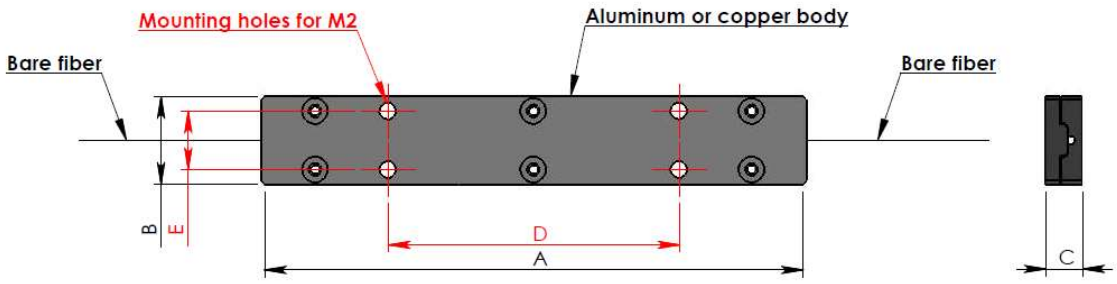
The Athermal package comes in 4 different sizes, depending on the FBG length. As an option, this package can be delivered without any strain-relief boots on the side, so the overall length will be smaller, but the fiber still be fragile at the two ends of the package. This is only helpful when the mounting space is limited.

The Athermal package of all sizes can be combined with 3 mm protective tubing and strain-relief rubber boots. Also available is termination of the fiber pigtails with connectors. Some restrictions apply.

Thermo-sensitive package:

The Thermo-sensitive package is useful when the sensitivity of the FBG center wavelength to the ambient temperature needs to be increased. When SMF-28e+ fiber is used, our Thermo-sensitive package can increase the FBG center wavelength sensitivity more than 2 times, and it can provide FBG center wavelength dependency of more than 20 pm/°C in the temperature range of 23-60°C.

The Thermo-sensitive package comes in a shape of metal plate, made of aluminum. This package is used with bare FBG fiber, or with 900 um protective tubing. Mounting holes are available for quick and easy fixing.



PACKAGE TYPE	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
SMALL	50	12	5.1	25	8
MEDIUM	75	12	5.1	40	8
LARGE	100	12	5.1	60	8

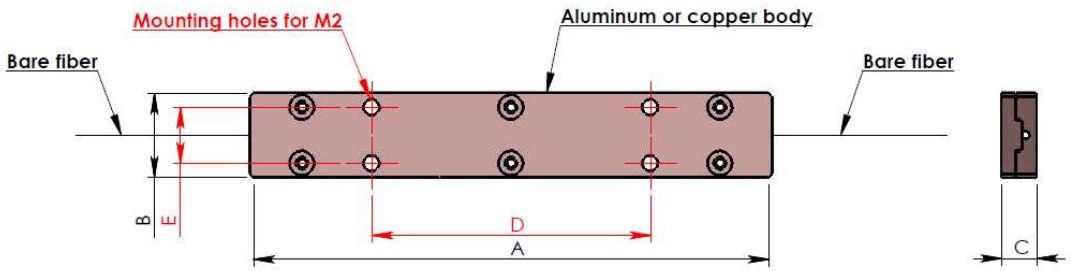
High-power package:

When the FBG is used in high-power applications, for example in the fiber lasers, the FBG should be able to withstand the heat, generated by light passing through it. Our High-power package not only can do that, but it can also help to dissipate this heat, and thus prevent the FBG fiber from damaging in the FBG area.

The High-power package comes in a shape of metal plate, usually made of copper or aluminum. As these materials has high thermo-conductive efficiency, the heat generated in the fiber will be easily dissipate in the body of the package, and not be concentrated in the fiber cladding. Additionally, the package itself can be mounted on a heatsink, on which some fans can be additionally attached, especially for very high-power applications. This package is used with bare FBG fiber only.

7639 Cordner
Lasalle, QC, Canada, H8N 2X2
Tel:1-514-334-4588
Fax:1-514-334-0216
www.o-eland.com

For quick and easy mounting of the package, some mounting screw holes are available.



PACKAGE TYPE	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
SMALL	50	12	5.1	25	8
MEDIUM	75	12	5.1	40	8
LARGE	100	12	5.1	60	8

The High-power package comes in 3 different sizes, depending on the FBG length. As an option, this package can be also delivered mounted on a heatsink for better heat management (optional; subject to availability).

Other specialized and custom packages:

O/E Land Inc. has the capacity for producing some specialized and custom-made FBG packages. These packages will be based on the customer particular requirements, such as FBG specification, application, environmental factors, performance, etc.

Please contact us for more information or to discuss your specific inquiry.