

## ES9 and LS9 buffers

### ES9 and LS9 fact sheet

#### ES9 tight buffer

The ES9 tight buffered fibres consist of a 1% proof tested fibre, a dual acrylate primary Colorlock™ coating to nominally 242 µm and a secondary buffer to 900 µm. The buffer is tightly extruded around the primary buffer in order to make a versatile and robust buffering system.

The buffer material consists of a low smoke and fumes, zero halogen flame retardant compounds. The buffer material fulfils or exceeds the requirements of IEC 60290-2-27 as well as is complies with the EU RoHS requirements. It contains a high amount of advanced flame retardant fillers giving the buffer very good properties in case of burning.

The buffer is extruded on the coated fibre to a narrow tolerance of  $\pm 50 \mu\text{m}$ . The buffer may be coloured to any colour of IEC 60304.

The combined coating and buffer may be removed to the 125 µm glass cladding diameter in one operation with ease and low force. Stripping is ideally done in bites of 15 – 25 mm.

The buffer alone may be removed over a length of 150 mm to the 242 µm primary coating. The primary coated fibre is thereafter, available for splicing. The 242 µm coating may then in a second step be mechanically stripped to the 125 µm glass diameter. Stripping length is then up to the mentioned 150 mm.

#### Standards

The ES9 adhere to the requirements for a tightly buffered fibre according to all known national and international standards, among them:

IEC 60794-2-10 and IEC 60794-2-11	EN 60794-2-10 and IEC 60794-2-11
IEC 60794-2-20 and IEC 60794-2-21	EN 60794-2-20 and IEC 60794-2-21
IEC 60794-2-50 and IEC 60794-2-51 (draft)	EN 60794-2-50 and IEC 60794-2-51 (draft)
GR-409-CORE : 2008	

#### Properties

Diameter	900 µm $\pm$ 50 µm
Possible colours	According to IEC 60304
Stripping	> 150 mm to the coating 15 – 25 mm to the cladding in one step > 150 mm to the cladding in two steps
Possible Fibres	All Draka fibres
Buffer material	LSHF-FR /LSZH fire retardant polymer compound, according to EN 50290-2-27
Properties in case of fire:	
Heat of combustion	17 MJ/km; 0.005 kWh/m
No halogens	IEC 60754-1, pass
No acid matters	IEC 60754-2, pass
No dense smoke	IEC 61034-2, pass
Temperature range	-40 °C – 70 °C
Shrink back	< 0,1 %, IEC 60811-1-3, ( 70°C, 3 hours, 1 meter sample)
Kink	No kink
Crush resistance	100N/100 mm
Repeated bending	500 cycles, R= 20 mm , no damage

## ES9 and LS9 buffers

### LS9 dry semi tight buffer

The LS9 dry semi tight buffered fibre consist of a 1% proof tested fibre, a dual acrylate primary Colorlock™ coating to nominally 242 µm and a secondary buffer to 900 µm. The buffer is extruded around the primary buffer in order to make a versatile, and robust buffering system.

The buffer material consists of a low smoke and fumes, zero halogen flame retardant compounds. The buffer material fulfils or exceeds the requirements of IEC 60290-2-27 as well as is complies with the EU RoHS requirements. It contains a high amount of advanced flame retardant fillers giving the buffer very good properties in case of burning.

The buffer is extruded on the coated fibre to a narrow tolerance of ± 50 µm. The buffer may be coloured to any colour of IEC 60304.

The buffer alone may be removed over a length of more than 1000 mm to the 242 µm primary coating. The primary coated fibre is thereafter, available for splicing. The 242 µm coating may then in a second step be mechanically stripped to the 125 µm glass diameter.

The combined LS9 coating and buffer may be removed to the 125 µm glass cladding diameter in one operation with ease and low force. Stripping is thus done in bites of 15 – 25 mm.

### Standards

The LS9 adhere to the requirements for a semi tight buffered fibre according to all known national and international standards, among them:

IEC 60794-2-10 and IEC 60794-2-11	EN 60794-2-10 and IEC 60794-2-11
IEC 60794-2-20 and IEC 60794-2-21	EN 60794-2-20 and IEC 60794-2-21
IEC 60794-2-50 and IEC 60794-2-51 (draft)	EN 60794-2-50 and IEC 60794-2-51 (draft)
GR-409-CORE : 2008 (loosely bound buffered fibre)	

### Properties

Diameter	900 µm ± 50 µm
Weight	0.7 kg/km
Possible colours	According to IEC 60304
Stripping	>1000 mm to the coating for single mode fibres > 300 mm to the coating for multimode fibres 15 – 25 mm to the cladding in one step > 150 mm to the cladding in two steps
Possible Fibres	All Draka fibres
Buffer material	LSHF-FR /LSZH fire retardant polymer compound, according to EN 50290-2-27
Properties in case of fire:	
Heat of combustion	17 MJ/km; 0.005 kWh/m
No halogens	IEC 60754-1, pass
No acid matters	IEC 60754-2, pass
No dense smoke	IEC 61034-2, pass
Temperature range	-5 °C to 60 °C -20 °C to 70 °C properly cabled
Shrink back	< 1%, IEC 60811-1-3, ( 70°C, 3 hours, 1 meter sample)
Kink	No kink
Crush resistance	100N/100 mm
Repeated bending	500 cycles, R= 20 mm , no damage

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