

## DISPERSION COMPENSATING MODULES

### Specification Sheet

# RightWave HSDK L

For NZDF



A Furukawa Company

### Product Description

OFS HSDK-L dispersion compensating modules are optimized for compensating the dispersion and dispersion slope of a Nonzero Dispersion Fiber with reduced slope in the L-band 1570 - 1610 nm.

The modules are based entirely on mature and reliable optical fiber technology and do not exhibit the problems with dispersion ripple associated with other dispersion compensating technologies.

OFS dispersion compensating modules consist of a box with a spooled length of dispersion compensating fiber spliced to connectorized pigtails.

OFS HSDK-L modules are available with any dispersion value required down to -2000 ps/nm at 1590 nm.

### Typical Applications

- DWDM networks based on Nonzero Dispersion Fibers (G.655) operating in the L-Band 1570-1610 nm

### Features and Benefits

- 65-100% slope compensation of G.655 fiber operating in the L-Band
- 100% slope compensation of TrueWave RS Fiber operating in the L-Band
- Low Polarization Mode Dispersion (PMD)
- Customer specified dispersion
- Available with specification of Raman-related optical parameters
- Single-mode fiber => No multiple path interference (MPI) due to higher order modes
- Robust and compact package
- High reliability
- Telcordia GR-2854-CORE compliant
- Reliability according to Telcordia GR-1221-CORE

### Nonlinear Properties

Measured at 1550 nm

- $A_{\text{eff}} = 15 \mu\text{m}^2$  (typical)
- $n_2/A_{\text{eff}} = 1.8 \cdot 10^{-9} \text{W}^{-1}$  (typical)

To order items on this spec sheet, please contact our facility in:

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# Module Specifications

## Optical Properties

	HSDK-L:252 <sup>†</sup>	HSDK-L:504 <sup>†</sup>	HSDK-L:756 <sup>†</sup>
Length of TrueWave RS fiber compensated for (km)	40	80	120
Dispersion at 1585 nm (ps/nm)	-252 ± 2%	-504 ± 2%	-756 ± 2%
Relative dispersion slope <sup>†</sup> at 1590 nm (nm <sup>-1</sup> )	0.0071 ± 20%	0.0071 ± 20%	0.0071 ± 20%
Relative dispersion slope <sup>†</sup> at 1590 nm (typical)	0.0071	0.0071	0.0071
Insertion loss <sup>**</sup> @ 1590 nm (dB)	3.1	4.2	5.5
Insertion loss <sup>**</sup> @ 1590 nm (typical)	2	3.2	4.4
Insertion loss <sup>**</sup> @ 1570-1610 nm (dB)	≤3.4	≤4.8	≤5.8
Insertion loss <sup>**</sup> @ 1570-1610 nm (typical)	2.1	3.3	4.6
PMD <sup>†</sup> (ps)	≤0.35	≤0.5	≤0.60
PMD <sup>†</sup> (typical)	0.15	0.20	0.25
PDL (dB)	≤0.1	≤0.1	≤0.1

## Physical Properties

Standard dimensions: mm (in) (up to HSDK L 1100)	224 (8.82) x 238 (9.37) x 45 (1.77)
Connectors: As requested	

<sup>†</sup> Relative dispersion slope is dispersion slope divided by dispersion.

<sup>\*\*</sup> Including fiber loss, splice loss, and one connector/connector interface loss.

<sup>†</sup> As measured using the interferometric method (per ITU G.650 (2000)).

<sup>†</sup> Specification examples. Modules are available with dispersion values down to -2000 ps/nm at 1590 nm.

All specifications are at room temperature

## Definition of Relative Dispersion Slope (RDS)

To achieve dispersion compensation at a specific wavelength the following equation must be satisfied:

$$L_{TF} \cdot D_{TF} + L_{DCF} \cdot D_{DCF} = 0$$

Where  $L_{TF}$  is the length of the transmission fiber,  $D_{TF}$  is the dispersion of the transmission fiber,  $L_{DCF}$  is the length of the dispersion compensating fiber and  $D_{DCF}$  is the dispersion of the dispersion compensating fiber.

To achieve dispersion slope compensation, the following equation must be satisfied:

$$L_{TF} \cdot S_{TF} + L_{DCF} \cdot S_{DCF} = 0$$

$S_{TF}$  is the dispersion slope of the transmission fiber and  $S_{DCF}$  is the dispersion slope of the dispersion compensating fiber. Combining the two equations and thereby having both dispersion- and dispersion slope compensation yields:

$$RDS_{DCF} = S_{DCF}/D_{DCF} = S_{TF}/D_{TF}$$

The RDS value of a TrueWave RS fiber is around 0.0071 nm<sup>-1</sup> at 1590 nm.

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