

# Dense Wavelength Division Multiplexing (DWDM) Solutions

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## Features and Benefits

### Passive and outside plant hardened

No power or temperature-controlled environment required

### Epoxy-free optical path

Higher reliability

### Low insertion loss and high isolation

Minimum impact on insertion loss budgets and lower transmission costs

### Transport protocol independent

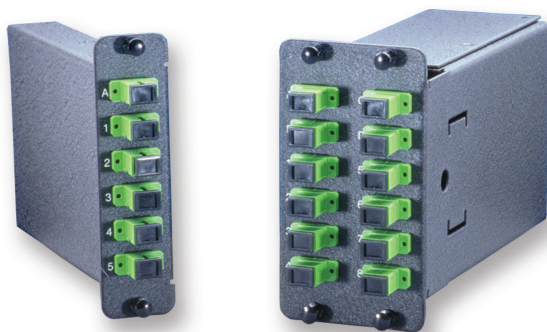
Flexibility

Corning DWDM multiplexers and de-multiplexers utilize advanced thin-film filter and athermal waveguide technology designed for low insertion loss, high isolation and excellent temperature stability in a totally passive device. They are available in various channel counts at ITU industry standard 100 and 200 GHz spacing, in both the C and L Band. Corning's DWDM devices are Telcordia GR-1209 and GR-1221 qualified and have a wide variety of packaging options.

## Standards

Approvals and Listings

Telcordia qualified



Single-width (ECL) and Double-width (EC2) Eclipse Hardware Modules | Photo ICH106



LDC Module (LGX-compatible) with LC APC Adapters | Photo CRR470

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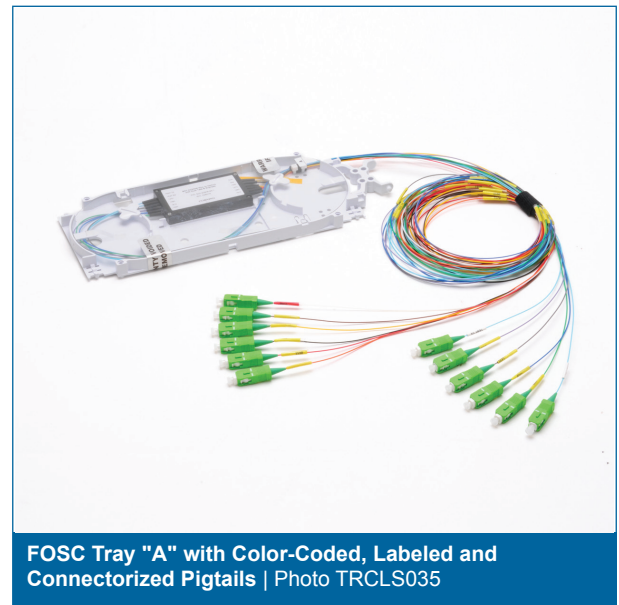
## DWDM Cassettes for Sealed Outdoor Applications

DWDM cassettes are available in many formats.

1. Sheet metal cassette, preconnectorized with connectors of choice and 2.0 mm pigtails for use in Corning UCAO OptiSheath® sealed terminal.
2. Sheet metal cassette, not connectorized, with 250  $\mu$ m fiber legs protected by color-coded buffer tubes for use in closure platform.
3. FOSC tray, connectorized with connectors of choice or 250  $\mu$ m color-coded and labeled pigtails.
4. FOSC "B" basket, connectorized with connectors of choice or 250  $\mu$ m color-coded and labeled pigtails.

The sheet metal cassette provides added vibration protection and improved strain-relief features that make Corning DWDM cassettes suitable for the most stringent OSP environments. FOSC-type platforms have been modified to improve strain relief and ensure DWDM devices are vibration proof.

Labeling is of utmost importance when installing DWDMs. Corning cassettes identify each wavelength by labeling each individual pigtail at a predetermined spacing. This adds craft-friendliness to wavelength management and installation.



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## Inside Plant Product Platforms

### Rack-Mounted Hardware

Rack-mountable DWDM product sets are engineered around Corning hardware platforms, including Eclipse®, LDC and ACH™ families. These housings may utilize modules with either SC APC or LC APC connectors for increased density. Preconnectorized cassettes or splice cassettes provide the operator with an organized and functional DWDM-capable headend (HE).

*Note: For more information on Eclipse hardware, reference specification sheet EVO-461-EN.*



Eclipse Hardware  
| Photo FOH085

### DWDM Module Capacities

	Single-Wide		Double-Wide	
	Mux OR Demux	Mux AND Demux	Mux OR Demux	Mux AND Demux
<b>Eclipse*</b>	Up to 5 ch with SC Up to 12 ch with LC	Up to 4 ch (22) with SC Up to 10 ch (55) with LC	Up to 12 ch with SC Up to 26 ch with LC	Up to 10 ch (55) with SC Up to 24 ch (99) with LC
<b>ACH**</b>	Up to 4 ch with SC Up to 10 ch with LC	Up to 2 ch (11) with SC Up to 8 ch (44) with LC	N/A	N/A
<b>LDC*</b>	Up to 5 ch with SC Up to 12 ch with LC	Up to 4 ch (22) with SC Up to 10 ch (55) with LC	Up to 12 ch with SC Up to 26 ch with LC	Up to 11 ch (55) with SC Up to 24 ch (99) with LC
<b>SCA</b>	Up to 6 ch with SC Up to 14 ch with LC	Up to 4 ch (22) with SC Up to 12 ch (66) with LC	N/A	N/A

\*7 SC or LC duplex adapters in single-wide.  
14 SC or LC duplex adapters in double-wide.

\*\*6 SC or LC duplex adapters.

# Dense Wavelength Division Multiplexing (DWDM) Solutions

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Part Number	Description	Units per Delivery
DAX6C1A082900ZZUY	DWDM Eclipse®, module, 100 GHz, mux OR demux, 8 Ch 29-36 with 95/5 test port, SC APC	1/1
DAXB32B082900ZZUY	DWDM, Eclipse®, module, 200 GHz, double wide, mux AND demux, 8 Ch 29-43 with 95/5 test port, LC APC	1/1
DCXB31B042100ZZUN	DWDM, LDC (platinum), 100 GHz, double wide, mux AND demux, 4 Ch 21-24, LC Duplex APC	1/1

*Note: For additional information, contact your Corning Customer Care Representative at 800-743-2675.*

# Dense Wavelength Division Multiplexing (DWDM) Solutions

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## Inside Plant Product Platforms (continued)

### Eclipse® Hardware DWDM Shelf

The Eclipse hardware DWDM shelf is a convenient and cost-effective way to provide DWDM multiplexers/de-multiplexers in an indoor rack-mount environment where space is limited to one or two rack units. The Eclipse hardware DWDM shelf is capable of 22 SC simplex or 32 SC duplex adapter ports per rack and up to 44 adapter ports with LC duplex connectors in any multiplexer/de-multiplexer.

*Note: For more information on Eclipse hardware, reference specification sheet EVO-461-EN.*



Part Number	Description	Units per Delivery
DFXB31B162100ZZUT	DWDM, Eclipse®, 1 U shelf 100 GHz, 16 Ch (21-36) mux AND de-mux, with 95/5 test port, LC APC	1/1
DFJB31A402100ZZUT	DWDM, Eclipse®, 2 U shelf 100 GHz, 40 Ch (21-60) mux OR de-mux, with 95/5 test port, LC APC	1/1
DTX6C2A202100ZZUN	DWDM, Centrix™, cassette shelf 200 GHz, 20 Ch (21-59) mux OR demux, with 95/5 test port, SC APC	1/1
DHX6C1B082100ZZUN	DWDM, LDC (LGX® compatible-platinum) 1 U shelf, 100 GHz, 8 Ch (21-28), mux AND demux SC APC	1/1

*Note: For additional information, contact your Corning Customer Care Representative at 800-743-2675.*

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## DWDM Single Filter for Indoor/ Outdoor Applications

Corning single filters are an excellent choice in low-density customer applications where wavelength management is minimally required. Filters are typically used in splice closures where splice trays already exist or may be easily added. The common and individual wavelength legs are spliced as necessary in either a mux or demux configuration.

Part Number	Description	Units per Delivery
DXANC1A012500ZZUN	Single Channel, DWDM Filter channel 25	1/1

*Note: For additional wavelengths, contact your Corning Customer Care Representative at 800-743-2675.*

# Dense Wavelength Division Multiplexing (DWDM) Solutions

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## DWDM specifications |

Multi-channel DWDM Connectorized – Concatenated										
Parameters	4 Channel		8 Channel		16 Channel		32 Channel		40 Channel	
Operating Temperature	-40° to +85°C		-40° to +85°C		-40° to +85°C		-40° to +85°C			
Frequency spacing (GHz)	100	200	100	200	100	200	100	200	100	200
<b>Mux and Demux with Connectors</b>										
Channel Spacing (nm)										
Channel Passband (nm)	± 0.11	± 0.25	± 0.11	± 0.25	± 0.11	± 0.25	± 0.11	± 0.25	± 0.11	± 0.25
Ripple within passband (dB)	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
DWDM Channel Insertion Loss (dB)	≤ 2.5	≤ 2.35	≤ 4.3	≤ 3.95	≤ 5.15	≤ 4.8	≤ 5.65	≤ 5.15	≤ 6.1	≤ 5.55
Optical Express Channel Insertion Loss (dB)	≤ 2.1	≤ 1.9	≤ 3.9	≤ 3.5	≤ 4.35	≤ 3.9	≤ 5.25	≤ 4.7	≤ 5.7	≤ 5.1
Non-Adjacent Channel Isolation (dB)	≥ 40	≥ 40	≥ 40	≥ 40	≥ 40	≥ 40	≥ 40	≥ 40	≥ 40	≥ 40
Adjacent Channel Isolation (dB)	≥ 30	≥ 30	≥ 30	≥ 30	≥ 30	≥ 30	≥ 30	≥ 30	≥ 30	≥ 30
Directivity (dB)	≥ 50	≥ 50	≥ 50	≥ 50	≥ 50	≥ 50	≥ 50	≥ 50	≥ 50	≥ 50
Return Loss (dB)	≥ 45	≥ 45	≥ 45	≥ 45	≥ 45	≥ 45	≥ 45	≥ 45	≥ 45	≥ 45
Polarization Dependent Loss (dB)	≤ 0.2	≤ 0.2	≤ 0.2	≤ 0.2	≤ 0.2	≤ 0.2	≤ 0.2	≤ 0.2	≤ 0.2	≤ 0.2
Polarization Mode Dispersion (dB)	≤ 0.1	≤ 0.1	≤ 0.1	≤ 0.1	≤ 0.1	≤ 0.1	≤ 0.1	≤ 0.1	≤ 0.1	≤ 0.1
<b>Mux and Demux with Connectors and 1310 nm port</b>										
DWDM Channel Insertion Loss	≤ 2.95	≤ 2.75	≤ 4.75	≤ 4.35	≤ 5.2	≤ 4.75	≤ 6.1	≤ 5.55	≤ 6.55	≤ 5.95
Isolation of 1310 nm channel	≥ 40	≥ 40	≥ 40	≥ 40	≥ 40	≥ 40	≥ 40	≥ 40	≥ 40	≥ 40
<b>Mux and Demux with Connectors and 5 percent monitoring port</b>										
DWDM Channel Insertion Loss	≤ 3.1	≤ 2.9	≤ 4.9	≤ 4.5	≤ 5.3	≤ 4.9	≤ 6.2	≤ 5.7	≤ 6.7	≤ 6.1
Monitoring Port Insertion Loss*	≤ 15.5	≤ 15.5	≤ 15.5	≤ 15.5	≤ 15.5	≤ 15.5	≤ 15.5	≤ 15.5	≤ 15.5	≤ 15.5
<b>Mux and Demux with Connectors and 2 percent monitoring port</b>										
DWDM Channel Insertion Loss	≤ 3.1	≤ 2.9	≤ 4.9	≤ 4.5	≤ 5.3	≤ 4.9	≤ 6.2	≤ 5.7	≤ 6.7	≤ 6.1
Monitoring Port Insertion Loss*	≤ 15.5	≤ 15.5	≤ 15.5	≤ 15.5	≤ 15.5	≤ 15.5	≤ 15.5	≤ 15.5	≤ 15.5	≤ 15.5
<b>Mux and Demux with Connectors and 1 percent monitoring port</b>										
DWDM Channel Insertion Loss	≤ 3.1	≤ 2.9	≤ 4.9	≤ 4.5	≤ 5.3	≤ 4.9	≤ 6.2	≤ 5.7	≤ 6.7	≤ 6.1
Monitoring Port Insertion Loss*	≤ 15.5	≤ 15.5	≤ 15.5	≤ 15.5	≤ 15.5	≤ 15.5	≤ 15.5	≤ 15.5	≤ 15.5	≤ 15.5
Notes: *Monitor port insertion loss = Measurement from Mon port - Measurement from Com port										
*All values specified are with connectors.										



# Dense Wavelength Division Multiplexing (DWDM) Solutions

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DWDM Channels									
100 GHz Channels	Wavelength (in nm)	Frequency (in THz)	100 GHz Channels	Wavelength (in nm)	Frequency (in THz)				Popular channels
(DWDM Channel C36)	1548,51	193,60	(DWDM Channel C72)	1520,25	197,20				C60
(DWDM Channel C35)	1549,32	193,50	(DWDM Channel C71)	1521,02	197,10				C59
(DWDM Channel C34)	1550,12	193,40	(DWDM Channel C70)	1521,79	197,00				C58
(DWDM Channel C33)	1550,92	193,30	(DWDM Channel C69)	1522,56	196,90				C57
(DWDM Channel C32)	1551,72	193,20	(DWDM Channel C68)	1523,34	196,80				C56
(DWDM Channel C31)	1552,52	193,10	(DWDM Channel C67)	1524,11	196,70				C55
(DWDM Channel C30)	1553,33	193,00	(DWDM Channel C66)	1524,89	196,60				C54
(DWDM Channel C29)	1554,13	192,90	(DWDM Channel C65)	1525,66	196,50				C53
(DWDM Channel C28)	1554,94	192,80	(DWDM Channel C64)	1526,44	196,40				C52
(DWDM Channel C27)	1555,75	192,70	(DWDM Channel C63)	1527,22	196,30				C51
(DWDM Channel C26)	1556,55	192,60	(DWDM Channel C62)	1527,99	196,20				C50
(DWDM Channel C25)	1557,36	192,50	(DWDM Channel C61)	1528,77	196,10				C49
(DWDM Channel C24)	1558,17	192,40	(DWDM Channel C60)	1529,55	196,00				C48
(DWDM Channel C23)	1558,98	192,30	(DWDM Channel C59)	1530,33	195,90				C47
(DWDM Channel C22)	1559,79	192,20	(DWDM Channel C58)	1531,12	195,80				C46
(DWDM Channel C21)	1560,61	192,10	(DWDM Channel C57)	1531,90	195,70				C45
(DWDM Channel C20)	1561,42	192,00	(DWDM Channel C56)	1532,68	195,60				C44
(DWDM Channel C19)	1562,23	191,90	(DWDM Channel C55)	1533,47	195,50				C43
(DWDM Channel C18)	1563,05	191,80	(DWDM Channel C54)	1534,25	195,40				C42
(DWDM Channel C17)	1563,86	191,70	(DWDM Channel C53)	1535,04	195,30				C41
(DWDM Channel C16)	1564,68	191,60	(DWDM Channel C52)	1535,82	195,20				C40
(DWDM Channel C15)	1565,50	191,50	(DWDM Channel C51)	1536,61	195,10				C39
(DWDM Channel C14)	1566,31	191,40	(DWDM Channel C50)	1537,40	195,00				C38
(DWDM Channel C13)	1567,13	191,30	(DWDM Channel C49)	1538,19	194,90				C37
(DWDM Channel C12)	1567,95	191,20	(DWDM Channel C48)	1538,98	194,80				C36
(DWDM Channel C11)	1568,67	191,10	(DWDM Channel C47)	1539,77	194,70				C35
(DWDM Channel C10)	1569,59	191,00	(DWDM Channel C46)	1540,56	194,60				C34
(DWDM Channel C09)	1570,42	190,90	(DWDM Channel C45)	1541,35	194,50				C33
(DWDM Channel C08)	1571,24	190,80	(DWDM Channel C44)	1542,14	194,40				C32
(DWDM Channel C07)	1572,06	190,70	(DWDM Channel C43)	1542,94	194,30				C31
(DWDM Channel C06)	1572,89	190,60	(DWDM Channel C42)	1543,73	194,20				C30
(DWDM Channel C05)	1573,71	190,50	(DWDM Channel C41)	1544,53	194,10				C29
(DWDM Channel C04)	1574,54	190,40	(DWDM Channel C40)	1545,32	194,00				C28
(DWDM Channel C03)	1575,37	190,30	(DWDM Channel C39)	1546,12	193,90				C27
(DWDM Channel C02)	1576,20	190,20	(DWDM Channel C38)	1546,92	193,80				C26
(DWDM Channel C01)	1577,03	190,10	(DWDM Channel C37)	1547,72	193,70				C25
									C24
									C23
									C22
									C21

# Dense Wavelength Division Multiplexing (DWDM) Solutions

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## *Notes*

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