

DISTRIBUTION SERIES FIBER OPTIC CABLE TYPE OFNR RISER PRODUCT SPECIFICATIONS



I/O 1 | INDOOR/OUTDOOR CABLES

D-Series Riser

Applications

- Indoor/outdoor tight-bound tight-buffered design allows cables to be installed in intra-building backbone and inter-building campus locations without costly transitions between cable types
- Ideal configuration for a single termination point requiring multiple fibers

Features

- High performance components and construction
- Cable materials are indoor/outdoor – UL-listed OFNR and UV, water and fungus resistant
- UL Listed in accordance with NEC section 770.179(b) for use in vertical runs in building riser shafts or from floor to floor
- Wide operating temperature range of -40°C to +85°C
- Helically stranded core for greater flexibility and mechanical protection of the optical fibers
- High strength-to-weight ratio
- 2-144 fiber configuration is smaller and lighter than comparable sub-grouped cables, which is ideal for installation in areas with limited space or tight bends
- Can be armored for additional protection in direct burial and aerial installations
- Interlocking armor can be applied to cables as an alternative to conduit installation

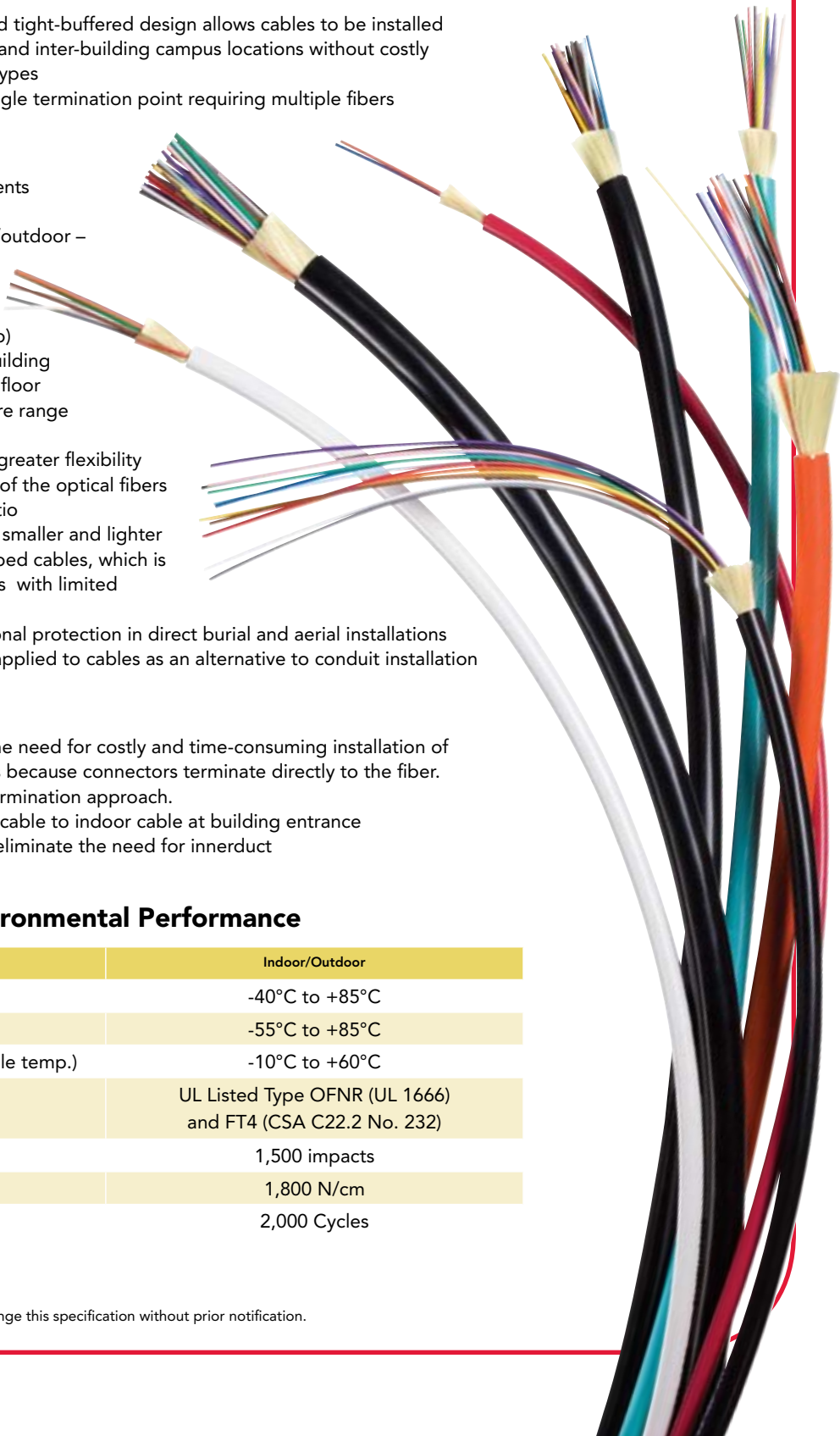
Cost savings

- 900 µm buffer eliminates the need for costly and time-consuming installation of fanout kits or pigtail splices because connectors terminate directly to the fiber. See page PI-4 for typical termination approach.
- No need to splice outdoor cable to indoor cable at building entrance
- High crush resistance may eliminate the need for innerduct

Mechanical and Environmental Performance

	Indoor/Outdoor
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +85°C
Installation Temperature (cable temp.)	-10°C to +60°C
Flame Retardancy	UL Listed Type OFNR (UL 1666) and FT4 (CSA C22.2 No. 232)
Impact Resistance:	1,500 impacts
Crush Resistance:	1,800 N/cm
Flex Resistance:	2,000 Cycles

Optical Cable Corporation reserves the right to change this specification without prior notification.

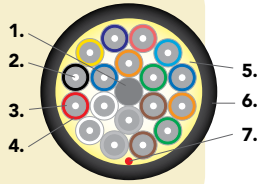


DISTRIBUTION SERIES FIBER OPTIC CABLE TYPE OFNR RISER PRODUCT SPECIFICATIONS



1/0 2 | INDOOR/OUTDOOR CABLES

1. Central Filler
2. Optical Fiber
3. Acrylate Fiber Coating
4. Color-Coded 900 µm Diameter Tight-Buffer
5. Aramid Strength Member
6. Outer Jacket
7. Ripcord



Applicable Standards

Optical Cable Corporation indoor/outdoor tight-buffered fiber optic cables meet the functional requirements of the following standards

- ICEA -S-83-596
- ICEA-S-104-696
- GR-409-CORE
- TIA-568
- TIA-598



Cable Characteristics: D-Series Distribution Riser Cables

Fiber Count	Diameter mm (in)	Weight kg/km (lbs/1,000')	Installation Tensile Load N (lbs)	Operational Tensile Load N (lbs)	Minimum Bend Radius Installation cm (in)	Minimum Bend Radius Long-Term cm (in)
2*	4.8 (0.19)	22 (14)	660 (150)	180 (40)	7.3 (2.9)	4.8 (1.9)
4	5.1 (0.20)	24 (16)	1,400 (310)	450 (100)	7.7 (3.0)	5.1 (2.0)
6	5.7 (0.22)	32 (22)	1,400 (310)	450 (100)	8.6 (3.4)	5.7 (2.2)
8	5.9 (0.23)	34 (23)	1,600 (360)	525 (120)	8.9 (3.5)	5.9 (2.3)
10	7.0 (0.28)	43 (29)	1,800 (400)	600 (135)	10.6 (4.1)	7.0 (2.8)
12**	6.5 (0.26)	38 (25)	2,700 (600)	600 (135)	9.8 (3.8)	6.5 (2.6)
12***	7.3 (0.28)	42 (32)	2,700 (600)	600 (135)	10.8 (4.3)	7.3 (2.9)
18	7.2 (0.28)	48 (32)	2,700 (600)	700 (160)	10.8 (4.3)	7.2 (2.8)
24	8.9 (0.35)	67 (45)	3,000 (670)	1,000 (220)	13.4 (5.3)	8.9 (3.5)
30	8.8 (0.35)	75 (50)	3,000 (670)	1,000 (220)	13.3 (5.2)	8.8 (3.5)
36	9.1 (0.36)	73 (49)	3,000 (670)	1,000 (220)	13.7 (5.4)	9.1 (3.6)
48	10.1 (0.40)	93 (63)	4,200 (940)	1,400 (310)	15.2 (6.0)	10.1 (4.0)
60	12.4 (0.49)	135 (91)	4,800 (1,080)	1,600 (360)	18.6 (7.3)	12.4 (4.9)
72	14.0 (0.55)	177 (119)	5,400 (1,210)	1,800 (400)	21.0 (8.3)	14.0 (5.5)
84	14.4 (0.57)	190 (128)	6,000 (1,350)	2,000 (450)	21.6 (8.5)	14.4 (5.7)
96	16.0 (0.63)	225 (151)	6,000 (1,350)	2,000 (450)	24.1 (9.5)	16.0 (6.3)
108	16.8 (0.66)	246 (165)	6,000 (1,350)	2,000 (450)	25.3 (10.0)	16.8 (6.6)
120	17.9 (0.70)	271 (182)	6,000 (1,350)	2,000 (450)	26.8 (10.6)	17.9 (7.0)
132	17.8 (0.70)	291 (195)	6,000 (1,350)	2,000 (450)	26.8 (10.6)	17.8 (7.0)
144	20.3 (0.80)	339 (228)	6,000 (1,350)	2,000 (450)	30.5 (12.0)	20.3 (8.0)

*-40° C to +70° C

**62.5 µm multimode and single-mode fiber

***50 µm multimode fiber

Installation loads in excess of 2,700 N (600 lbs) are not recommended.

DISTRIBUTION SERIES FIBER OPTIC CABLE
TYPE OFNR RISER PRODUCT SPECIFICATIONS



INDOOR/OUTDOOR CABLES | 1/0 3

Laser Ultra-Fox™ Fiber Performance

Fiber Code	Core/Cladding Diameter (µm)	Wavelength (nm)	Industry Standard Designation	Gigabit Ethernet Distance (m)	10-Gigabit Ethernet Distance (m)	Maximum Cabled Attenuation (dB/km)	Minimum Laser Bandwidth (MHz-km)	Minimum LED Bandwidth* (MHz-km)
WLS	62.5/125 Standard	(850/1310)	OM1 ISO/IEC 11801	300/600	33/300 ¹	3.5/1.5	220/500	200/500
WLX	62.5/125 XL	(850/1310)	OM1 ISO/IEC 11801	500/1000	33/300 ¹	3.0/1.0	385/500	200/500
ALS	50/125 Standard	(850/1310)	OM2 ISO/IEC 11801	600/600	82/300 ¹	3.5/1.5	510/500	500/500
ALX	50/125 XL	(850/1310)	OM2 ISO/IEC 11801	750/600	150/300 ²	3.0/1.0 ³	950/500	700/500
ALT	50/125 (300 meter 10-GbE)	(850/1310)	OM3 ISO/IEC 11801	1000/600	300/300 ²	3.0/1.0 ³	2000/500	1500/500
ALE	50/125 (550 meter 10-GbE)	(850/1310)	OM3 ISO/IEC 11801	1040/600	550 ¹ /300 ²	3.0/1.0 ³	4700/500	3500/500
SLX	9µ/125 Low Water Peak Single-mode	(1310/1550)	ITU-T G.652.D	5 km ⁴	10 km ⁵	0.5/0.5	—	—
SLA	9µ/125 Bend-Insensitive Single-mode	(1310/1550)	ITU-T G.657.A ITU-T G.652.D	5 km ⁴	10 km ⁵	0.5/0.5	—	—
SLB	9µ/125 Bend-Insensitive Single-mode	(1310/1550)	ITU-T G.657.A & B ITU-T G.652.D	5 km ⁴	10 km ⁵	0.5/0.5	—	—

Ordering Information

	D	X				D				9		R
Digit No:	1	2	3	4	5	6	7	8	9	10	11	12

- 1 – 2 Distribution Series Ultra-Fox™ = **DX**
- 3 – 5 Fiber count: (See Cable Characteristics Chart) = **002-144**
- 6 Jacket type: PVC = **D**
- 7 – 9 Fiber type: (See Laser Ultra-Fox™ Fiber Performance Table)
- 10 250 µm fiber with 900 µm tight buffer = **9**
- 11 Standard Jacket Color: Black = **K**
Optional colors available:
62.5 µm multimode (WLS, WLX): Orange = **O**
50 µm multimode (ALS, ALX): Orange = **O**
50 µm Ten-Gigabit multimode (ALT, ALE): Aqua = **Q**
Single mode: Yellow = **Y**
- 12 Rating: Riser = **R**

Example: 12-fiber indoor/outdoor riser cable using 62.5 µm standard laser optimized fiber, black jacket –

D	X	0	1	2	D	W	L	S	9	K	R
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* For backward compatibility to LED based systems, overfilled launch (OFL)

¹ 1310 nm CWDM lasers (10GBASE-LX4)

² Reach assuming 3.0 dB maximum cabled attenuation at 850 nm and 1.3 dB total connection and splice loss

³ Supports 220 meter 10GBASE-LRM distance, or 300 meter 10GBASE-LRM distance with 300 meter capable equipment

⁴ 3.5/1.5 dB/km maximum attenuation applies for DX-Series cables greater than 36 fibers, and for all DX-Series cables with armor (corrugated steel tape or interlocked armor) or any other secondary outer jacketing

⁵ 10 km for 1310 nm 1000BASE-LH, and 5 km for 1310 nm 1000BASE-LX

⁶ 10 km for 1310 nm 10GBASE-LR, and 40 km for 1550 nm 10GBASE-ER

⁷ Nominal Mode Field Diameter at 1310 nm

Note: many other fiber types, fiber bandwidth, and attenuation performances are available.