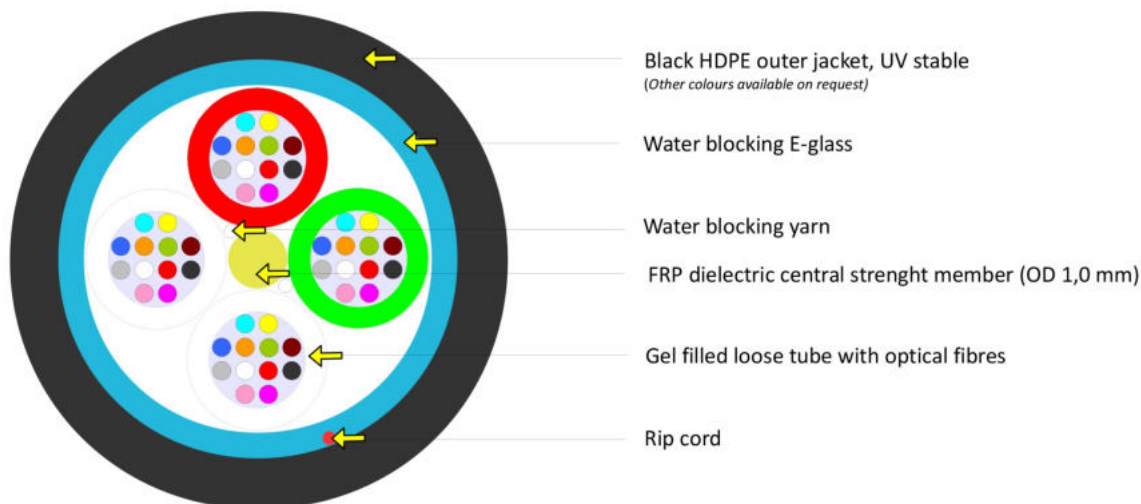


## Multi Loose Tube Cable

ID: **LROI**

# A-DQ(BN)2Y HD WBF 4×2,3 max. 48F

This cable is suitable for outdoor use. The cable has higher level of rodent protection.



Black HDPE outer jacket, UV stable  
(Other colours available on request)

Water blocking E-glass

Water blocking yarn

FRP dielectric central strength member (OD 1,0 mm)

Gel filled loose tube with optical fibres

Rip cord

### Fibre colour coding

According to IEC 60304

1 Red	7 Brown
2 Green	8 Violet
3 Blue	9 Turquoise
4 Yellow	10 Black
5 White	11 Orange
6 Grey	12 Pink

Other fibre colour sequences available on request

### Tube colour coding

1 Red
2 Green
3-4 White

in the case of lower number of fibres some tubes are replaced by uncoloured fillers

Other tubes colour sequences available on request

### Fibre Type

Single mode fiber 9/125  
Multi mode fiber 50/125  
Multi mode fiber 62,5/125

See the Fibre Specification sheet

### Sheat Marking

Print colour	White
Print method	INK-Jet or Hot-foil
Print legend	manufacturer's name, job number, type of cable, length marking @ 1 m intervals

Other print legends available on request

### Order example

2100 m A-DQ(BN)2Y HD WBF 48E9/125G.652D jacket colour BLK, specification LROI

### Mechanical and Environmental properties

Max. tensile strength	*E1A	2000 N
Crush resistance	*E3	2000 N/10cm
Impact resistance	*E4	3 impacts (w/20N.m)
Min. bend radius	*E11A	15× cable diameter
	*E11B	20× cable diameter (load)
Moisture resistance	*F5	passed
Compound flow	*E14	30 cm / 24h / 70°C passed
Temperature range	*F1	
	installation	-15 °C to +50 °C
	operation	-40°C to +70 °C
	storage	-40 °C to +70 °C
Cable informative nominal weight (calc.)		81 kg/km
Standard put-up length		2100 m, 4100 m
Packaging		Plywood drum
Loose tube diameter		2,3 mm
Outer jacket thickness		1,5 ± 0,2 mm
Cable outer diameter		9,7 ± 0,4 mm
		(measured acc..to EN 60811-1-1)

\* IEC 60794-1-2

Note: When installing or assembly under temperature bellow 5°C cable has to be stock in temp of 20°C at least 24h before installation.

Cable life time - minimum 30 years



# Fibre specification

Values are valid for cabled fibre.

Multi mode fiber		62,5/125 µm OM1	50/125 µm OM2	50/125 µm OM2	50/125 µm OM2	50/125 µm OM3	50/125 µm OM4
Bandwidth (overfilled launch)							
@ 850 nm	Mhz.km	≥ 220	≥ 500	≥ 600	≥ 600	≥ 1500	≥ 3500
@ 1300 nm		≥ 600	≥ 500	≥ 1200	≥ 1200	≥ 500	≥ 500
Bandwidth (laser EMB <sup>13</sup> )							
@ 850 nm	Mhz.km	-	-	-	-	≥ 2000	≥ 4700
@ 1300 nm		-	-	-	-	≥ 500	≥ 500
1Gbps Ethernet operation Link Length							
@ 850 nm	(m)	≤ 300	550 <sup>11</sup>	≤ 600 <sup>11</sup>	≤ 750 <sup>11</sup>	-	-
@ 1300 nm		≤ 550	550 <sup>12</sup>	≤ 600 <sup>12</sup>	≤ 2000 <sup>12</sup>	-	-
10 Gigabit Ethernet Link Lengths							
@ 850 nm	(m)	-	-	-	-	≤ 300	550
Attenuation- Loose Tube Cables							
@ 850 nm (typical / maximum)	dB/km	2.6 / 3.2	2.4 / 3.5	2.3 / 3.0	2.3 / 3.0	2.0 / 3.0	2.0 / 3.0
@ 1300 nm (typical / maximum)		0.5 / 1.0	0.7 / 1.5	0.6 / 1.0	0.6 / 1.0	0.5 / 1.0	0.5 / 1.0
Attenuation-Tight Buffer Cables							
@ 850 nm (typical / maximum)	dB/km	2.6 / 3.2	2.0 / 3.5	2.0 / 3.5	2.0 / 3.5	2.1 / 3.5	2.1 / 3.5
@ 1300 nm (typical / maximum)		0.5 / 1.0	0.5 / 1.5	0.5 / 1.5	0.5 / 1.5	0.7 / 1.5	0.7 / 1.5
Numerical Aperture	µm	0.275 ± 0.015	0.20 ± 0.015	0.20 ± 0.015	0.20 ± 0.015	0.20 ± 0.015	0.20 ± 0.015
Core Diameter	µm	62.5 ± 2.5	50.0 ± 2.5	50.0 ± 2.5	50.0 ± 2.5	50.0 ± 2.5	50.0 ± 2.5
Core Non-Circularity		≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %
Cladding Diameter	µm	125 ± 1.0	125 ± 1.0	125 ± 1.0	125 ± 1.0	125 ± 1.0	125 ± 1.0
Clad Non-Circularity		≤ 1 %	≤ 1 %	≤ 1 %	≤ 1 %	≤ 1 %	≤ 1 %
Coating Diameter	µm	245 ± 10	245 ± 10	245 ± 10	245 ± 10	245 ± 10	245 ± 10
Coating Non-Circularity	%	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
Core/Clad Concentricity Error	µm	≤ 1.0	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5
Coating-Clad Concentricity Error	µm	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8
Zero Dispersion Wavelength (λ <sub>0</sub> )	nm	1320 – 1365	1295 – 1340	1295 – 1340	1295 – 1340	1295 – 1340	1295 – 1340
Group Refractive Index							
@ 850 nm		1.496	1.483	1.483	1.483	1.483	1.483
@ 1300 nm		1.491	1.479	1.479	1.479	1.479	1.479

1 - serial Laser 1000BASE-SX

2 - serial Laser 1000BASE-LX

3 - Effective Modal Bandwidth per TIA/EIA-492AAAC and draft IEC 60793-2-10 for type A1a.2, ensured by DMD performance specifications for sources meeting launch conditions specified in 10Gbit Ethernet (IEEE 802.3ae), OIF OC-192/STM-64 VSR-4-04, and 10 Gbit Fibre Channel (10GFC).

Single mode fiber		9/125µm OS2 G.652D – ZWP	9/125µm OS2 G.657.A1	9/125µm OS2 G.657.A2	9/125µm OS2 G.657.B3	9/125µm G.655C&D	9/125µm G.655C & E, G.656
Chromatic Dispersion							
@ 1285 - 1330 nm		≤ 3.5	-	-	-	-	-
@ 1550 nm		≤ 18	-	-	-	-	-
@ 1530 – 1565 nm	ps/(nm.km)	-	-	-	-	2.6 – 6.0	5.5 – 8.9
@ 1565 – 1625 nm		-	-	-	-	4.0 – 8.9	6.9 – 11.4
@ 1460 – 1625 nm		-	-	-	-	-1.0 – 8.9	2.0 – 11.4
Attenuation- Loose Tube Cables							
@ 1310 nm (typical / maximum)	dB/km	0.31 / 0.35	0.31 / 0.35	0.31 / 0.35	0.31 / 0.35	-	-
@ 1550 nm (typical / maximum)		0.20 / 0.24	0.20 / 0.24	0.20 / 0.24	0.20 / 0.24	0.25 / 0.30	0.25 / 0.30
@ 1625 nm (typical / maximum)		0.21 / 0.26	0.21 / 0.26	0.21 / 0.26	0.21 / 0.26	0.27 / 0.34	0.27 / 0.34
Attenuation-Tight Buffer Cables							
@ 1310 nm (typical / maximum)	dB/km	0.35 / 0.40	0.35 / 0.40	0.35 / 0.40	0.35 / 0.40	-	-
@ 1550 nm (typical / maximum)		0.25 / 0.30	0.25 / 0.30	0.25 / 0.30	0.25 / 0.30	0.25 / 0.35	0.25 / 0.35
@ 1625 nm (typical / maximum)		0.35 / 0.40	0.35 / 0.40	0.35 / 0.40	0.35 / 0.40	0.27 / 0.40	0.27 / 0.40
Cable Cut-Off Wavelength (λ <sub>cc</sub> )	µm	≤ 1260	≤ 1260	≤ 1260	≤ 1260	-	-
Mode Field Diameter							
@ 1310 nm	µm	9.2 ± 0.4	8.6 - 9.3	8.8 ± 0.4	6.3 – 9.5	-	-
@ 1550 nm		10.4 ± 0.5	9.5 - 10.5	-	9.2 - 10.4	8.4 ± 0.6	8.6 ± 0.4
Cladding Diameter	µm	125.0 ± 0.7	125.0 ± 0.7	125.0 ± 0.7	125.0 ± 0.7	125.0 ± 0.7	125.0 ± 0.7
Clad Non-Circularity		≤ 1%	≤ 1%	≤ 1%	≤ 1µm	≤ 0.7%	≤ 0.7%
Coating Diameter	µm	235 – 245	235 – 245	235 – 245	245 ± 10	245 ± 5	245 ± 5
Core/Clad Concentricity Error	µm	≤ 0.5	≤ 0.5	≤ 0.5	-	≤ 0.5	≤ 0.5
Coating-Clad Concentricity Error		≤ 12µm	≤ 12µm	≤ 5%	≤ 5%	≤ 10µm	≤ 10µm
Zero Dispersion Wavelength (λ <sub>0</sub> )	nm	1302 – 1322	1302 – 1322	1302 – 1322	1302 – 1324	-	≤ 1405
Group Refractive Index							
@ 1310 nm		1.467	1.467	-	-	1.471	1.471
@ 1550 nm		1.468	1.468	-	1.468	1.470	1.470
Fiber PMD Individual fiber	ps/√km	0.1	0.1	0.1	0.2	0.1	0.1

ZWP – Zero Water Peak

