

Fiber optic cables

General cable specification

 **KDP**[®]
WORLD CONNECTING CABLES

CONTENT

CODING OF FIBER OPTIC CABLES ACCORDING TO THE VDE 0888	2
COLOUR CODING CHARTS	3
SINGLE-MODE FIBER ITU-T G.652.D	4
BEND INSENSITIVE SINGLE-MODE FIBER ITU-T G.652.D & G.657.A1	5
BEND INSENSITIVE SINGLE-MODE FIBER ITU-T G.652.D & G.657.A2	6
BEND INSENSITIVE SINGLE-MODE FIBER ITU-T G.652.D & G.657.B3	7
NZDSF SINGLE-MODE FIBER ITU-T G.655	8
BEND INSENSITIVE SINGLE-MODE FIBER ITU-T G.652.D & G.657.A1 200 µm	9
LEGACY 10, 40 100 GB/S GRADED-INDEX MULTIMODE FIBER 50/125 OM2	10
LEGACY 10, 40 100 GB/S GRADED-INDEX MULTIMODE FIBER 50/125 OM3 & OM4	11
LEGACY OM1 GRADED-INDEX MULTI-MODE FIBER 62,5/125	12
CHEMICAL RESISTANCE TABLE (@ 20°C)	13
PROPERTIES OF THE CABLE SHEATH	13
COMPARISON OF OS1 AND OS2 FIBER	14
STRIPABILITY OF THE TIGHT BUFFERED FIBER	14
FIRE PROPERTIES	14
FLAME-RETARDANT	14
FIRE-RESISTANT	15
USED ABBREVIATIONS	15
CABLE DRUMS	16

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Example: **A – D S Q (ZN) 2Y (SR) 2Y 144 E9/125 BLK**

1 - 2 3 4 5 6 7 8 9 10 11

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COLOUR CODING CHARTS

	IEC 60304 (STANDARD)	
	TIGHT BUFFER	LOOSE TUBE
1	Red	Red
2	Green	Green
3	Blue	Blue
4	Yellow	Yellow
5	White	White
6	Grey	Grey
7	Brown	Brown
8	Violet	Violet
9	Aqua	Aqua
10	Black	Black
11	Orange	Orange
12	Pink	Pink
13	Red + black strip	Red + black strip
14	Green + black strip	Green + black strip
15	Blue + black strip	Blue + black strip
16	Yellow + black strip	Yellow + black strip
17	White + black strip	White + black strip
18	Grey + black strip	Grey + black strip
19	Brown + black strip	Brown + black strip
20	Violet + black strip	Violet + black strip
21	Aqua + black strip	Aqua + black strip
22	Black + white strip	Natur + black strip
23	Orange + black strip	Orange + black strip
24	Pink + black strip	Pink + black strip

TIA/EIA 598	
TIGHT BUFFER	LOOSE TUBE
Blue	Blue
Orange	Orange
Green	Green
Brown	Brown
Grey	Grey
White	White
Red	Red
Black	Black
Yellow	Yellow
Violet	Violet
Pink	Pink
Aqua	Aqua
Blue + black strip	Blue + black strip
Orange + black strip	Orange + black strip
Green + black strip	Green + black strip
Brown + black strip	Brown + black strip
Grey + black strip	Grey + black strip
White + black strip	White + black strip
Red + black strip	Red + black strip
Black + white strip	Natur + black strip
Yellow + black strip	Yellow + black strip
Violet + black strip	Violet + black strip
Pink + black strip	Pink + black strip
Aqua + black strip	Aqua + black strip

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COLOUR CODING CHARTS - PART 2

MULTI LOOSE TUBE – TUBES COLOUR CODE	
1	Red
2	Green
Rest	Natur / White

Note: Different colour sequences and sheath colours available on request

LOOSE TUBE CABLES – SHEATH COLOUR	
All Cables	Black

TIGHT BUFFER CABLES – SHEATH COLOUR	
SM E9/125	Yellow
G62,5/125 OM1	Blue
G50/125 OM2	Orange
G50/125 OM3	Aqua
G50/125 OM4	Violet

OUTER SHEATH PRINTING COLOUR	
Black Sheet	White
All other colours	Black

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SINGLE-MODE FIBER ITU-T G.652.D

Cladding Diameter	125,0 ± 0,7 μm
Cladding Non-Circularity	≤ 0,7%
Core/Cladding Concentricity	≤ 0,5 μm
Coating Diameter	242 ± 5 μm
Coating –Cladding Concentricity	≤ 12 μm
Attenuation – Loose Tube Cables	
@ 1310 nm (typical / maximum)	0,31 / 0,35 dB/km
@ 1550 nm (typical / maximum)	0,20 / 0,24 dB/km
@ 1625 nm (typical / maximum)	0,21 / 0,26 dB/km
Attenuation – Tight Buffer Cables	
@ 1310 nm (typical / maximum)	0,30 / 0,35 dB/km
@ 1550 nm (typical / maximum)	0,25 / 0,30 dB/km
@ 1625 nm (typical / maximum)	0,35 / 0,40 dB/km
Dispersion	
@ 1550 nm	≤ 18 ps/nm.km
@ 1625 nm	≤ 22 ps/nm.km
Chromatic Dispersion	
Zero Dispersion Wavelength (λ ₀)	1304 – 1324 nm
Zero Dispersion Slope (S ₀)	≤ 0,092 ps/nm ² km
Group Refractive Index	
@ 1310 nm	1,4676
@ 1550 nm	1,4682
Mode Field Diameter	
@ 1310 nm	9,2 ± 0,4 μm
@ 1550 nm	10,4 ± 0,5 μm
Cut-Off Wavelength (λ _{cc})	≤ 1260 nm
PMD Individual Fiber	< 0,1 ps/√km
Tensile Proof Test	≥ 100 kpsi (0,7 GPa)
Fiber Curl	≥ 4,0 m radius
Coating Strip Force	
Dry	3N
Wet, 14-day room temperature	3N
Macrobanding 100 turns, 60 mm, @ 1625 nm	< 0,03 dB
Macrobanding 100 turns, 50 mm, @ 1310 nm	< 0,03 dB
Macrobanding 100 turns, 50 mm, @ 1550 nm	< 0,03 dB
Macrobanding 1 turn, 32 mm, @ 1550 nm	< 0,03 dB

Values are valid for cabled fiber, local attenuation discontinuity ≤ 0,1 dB

Note: due to OTDR measurement uncertainty KDP cannot guarantee attenuation values at fibers shorter than 1000m.

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BEND INSENSITIVE SINGLE-MODE FIBER

ITU-T G.657.A1

Cladding Diameter	125,0 ± 0,7 μm
Cladding Non-Circularity	≤ 0,7%
Core/Cladding Concentricity Error (Offset)	≤ 0,5 μm
Coating Diameter (Uncoloured)	242,0 ± 7,0 μm
Coating –Cladding Concentricity Error (Offset)	≤ 12 μm
Attenuation – Loose Tube Cables	
@ 1310 nm (typical / maximum)	0,31 / 0,35 dB/km
@ 1550 nm (typical / maximum)	0,20 / 0,24 dB/km
@ 1625 nm (typical / maximum)	0,21 / 0,26 dB/km
Attenuation – Tight Buffer Cables	
@ 1310 nm (typical / maximum)	0,30 / 0,35 dB/km
@ 1550 nm (typical / maximum)	0,25 / 0,30 dB/km
@ 1625 nm (typical / maximum)	0,35 / 0,40 dB/km
Chromatic Dispersion	
Zero Dispersion Wavelength (λ ₀)	1300 – 1322 nm
Zero Dispersion Slope (S ₀)	≤ 0,090 ps/nm ² km
Group Refractive Index	
@ 1310 nm	1,467
@ 1550 nm	1,468
Mode Field Diameter	
@ 1310 nm	9,0 ± 0,4 μm
@ 1550 nm	10,1 ± 0,5 μm
Cut-Off Wavelength (λ _{cc})	≤ 1260 nm
PMD Individual Fiber	≤ 0,1 ps/√km
Tensile Proof Test	100 kpsi (0,7 GPa)
Coating Strip Force	1,2N ≤ CSF ≤ 8,9N
Macrobending 10 turns, 15 mm, @ 1550 nm	≤ 0,25 dB
Macrobending 10 turns, 15 mm, @ 1625 nm	≤ 1,0 dB
Macrobending 1 turn, 10 mm, @ 1550 nm	≤ 0,75 dB
Macrobending 1 turn, 10 mm, @ 1625 nm	≤ 1,5 dB

Values are valid for cabled fiber, local attenuation discontinuity ≤ 0,1 dB

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BEND INSENSITIVE SINGLE-MODE FIBER

ITU-T G.657.A2

Cladding Diameter	125,0 ± 0,7 μm
Cladding Non-Circularity	≤ 0,7%
Core/Cladding Concentricity Error (Offset)	≤ 0,5 μm
Coating Diameter (Uncoloured)	242,0 ± 7 μm
Coating –Cladding Concentricity Error (Offset)	≤ 12 μm
Attenuation – Loose Tube Cables	
@ 1310 nm (typical / maximum)	0,31 / 0,35 dB/km
@ 1550 nm (typical / maximum)	0,20 / 0,24 dB/km
@ 1625 nm (typical / maximum)	0,21 / 0,26 dB/km
Attenuation – Tight Buffer Cables	
@ 1310 nm (typical / maximum)	0,30 / 0,35 dB/km
@ 1550 nm (typical / maximum)	0,25 / 0,30 dB/km
@ 1625 nm (typical / maximum)	0,35 / 0,40 dB/km
Chromatic Dispersion	
Zero Dispersion Wavelength (λ ₀)	1300 – 1324 nm
Zero Dispersion Slope (S ₀)	≤ 0,092 ps/nm ² km
Group Refractive Index	
@ 1310 nm	1,467
@ 1550 nm	1,467
Mode Field Diameter	
@ 1310 nm	8,8 ± 0,4 μm
@ 1550 nm	9,8 ± 0,5 μm
Cut-Off Wavelength (λ _{cc})	≤ 1260 nm
PMD Individual Fiber	< 0,1 ps/√km
Tensile Proof Test	100 kpsi (0,7 GPa)
Coating Strip Force	1,2N ≤ CSF ≤ 8,9N
Macrobanding 10 turns, 15 mm, @ 1550 nm	≤ 0,03 dB
Macrobanding 10 turns, 15 mm, @ 1625 nm	≤ 0,1 dB
Macrobanding 1 turn, 10 mm, @ 1550 nm	≤ 0,1 dB
Macrobanding 1 turn, 10 mm, @ 1625 nm	≤ 0,2 dB
Macrobanding 1 turn, 7,5 mm, @ 1550 nm	≤ 0,5 dB
Macrobanding 1 turn, 7,5 mm, @ 1625 nm	≤ 1,0 dB

Values are valid for cabled fiber, local attenuation discontinuity ≤ 0,1 dB

Note: due to OTDR measurement uncertainty KDP cannot guarantee attenuation values at fibers shorter than 1000m.

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BEND INSENSITIVE SINGLE-MODE FIBER

ITU-T G.657.B3

Cladding Diameter	125,0 ± 0,4 μm
Cladding Non-Circularity	≤ 0,3%
Core/Cladding Concentricity Error (Offset)	≤ 0,3 μm
Coating Diameter (Uncoloured)	242±5 μm
Coating –Cladding Concentricity Error (Offset)	≤ 12 μm
Attenuation – Loose Tube Cables	
@ 1310 nm (typical / maximum)	0,31 / 0,35 dB/km
@ 1550 nm (typical / maximum)	0,20 / 0,24 dB/km
@ 1625 nm (typical / maximum)	0,21 / 0,26 dB/km
Attenuation – Tight Buffer Cables	
@ 1310 nm (typical / maximum)	0,30 / 0,35 dB/km
@ 1550 nm (typical / maximum)	0,25 / 0,30 dB/km
@ 1625 nm (typical / maximum)	0,35 / 0,40 dB/km
Chromatic Dispersion	
Zero Dispersion Wavelength (λ ₀)	1300 – 1324 nm
Zero Dispersion Slope (S ₀)	≤ 0,092 ps/nm ² km
Group Refractive Index	
@ 1310 nm	1,467
@ 1550 nm	1,467
Mode Field Diameter	
@ 1310 nm	8,8 ± 0,4 μm
@ 1550 nm	9,8 ± 0,5 μm
Cut-Off Wavelength (λ _{cc})	≤ 1260 nm
PMD Individual Fiber	< 0,1 ps/√km
Tensile Proof Test	200 kpsi (1,4 GPa)
Coating Strip Force	1,2N ≤ CSF ≤ 8,9N
Macrobending 1 turn, 10 mm, @ 1550 nm	≤ 0,03 dB
Macrobending 1 turn, 10 mm, @ 1625 nm	≤ 0,1 dB
Macrobending 1 turn, 7,5 mm, @ 1550 nm	≤ 0,08 dB
Macrobending 1 turn, 7,5 mm, @ 1625 nm	≤ 0,25 dB
Macrobending 1 turn, 5 mm, @ 1550 nm	≤ 0,15 dB
Macrobending 1 turn, 5 mm, @ 1625 nm	≤ 0,45 dB

Values are valid for cabled fiber, local attenuation discontinuity ≤ 0,1 dB

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THE LOWEST LOSS SINGLE-MODE FIBER

ITU-T G.654

Cladding Diameter	125,0 ± 0,7 μm
Cladding Non-Circularity	≤ 0,7%
Core/Cladding Concentricity Error (Offset)	≤ 0,5 μm
Coating Diameter (Coloured)	242 ± 5 μm
Coating –Cladding Concentricity Error (Offset)	≤ 12 μm
Attenuation – Loose Tube Cables	
@ 1310 nm (typical / maximum)	0,31 / 0,36 dB/km
@ 1550 nm (typical / maximum)	0,17 / 0,19 dB/km
@ 1625 nm (typical / maximum)	0,20 / 0,23 dB/km
Dispersion	
@ 1565 nm	18,0 ps/nm.km
@ 1625 nm	22,0 ps/nm.km
Dispersion	
Zero Dispersion Wavelength (λ ₀)	1300 – 1324 nm
Zero Dispersion Slope (S ₀)	≤ 0,092 ps/nm ² km
Group Refractive Index	
@ 1550 nm	1,4683
@ 1625 nm	1,4685
Mode Field Diameter	
@ 1550 nm	9,2 ± 0,5 μm
@ 1625 nm	10,5 ± 0,5 μm
PMD Individual Fiber	< 0,1 ps/√km
Fiber Curl	≥ 4,0 m radius
Tensile Proof Test	100 kpsi (0,70 GPa)
Coating Strip Force	≥ 3N
Macrobanding 1 turn, 32 mm, @ 1550 nm	≤ 0,1 dB
Macrobanding 100 turn, 50 mm, @ 1550 nm	≤ 0,05 dB
Macrobanding 100 turn, 60 mm, @ 1625 nm	≤ 0,05 dB

Values are valid for cabled fiber, local attenuation discontinuity ≤ 0,1 dB

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NZDSF SINGLE-MODE FIBER ITU-T G.655

Cladding Diameter	125,0 ± 0,7 μm
Cladding Non-Circularity	≤ 0,7%
Core/Cladding Concentricity Error (Offset)	≤ 0,5 μm
Coating Diameter (Coloured)	242 ± 7 μm
Coating –Cladding Concentricity Error (Offset)	≤ 12 μm
Attenuation – Loose Tube Cables	
@ 1550 nm (typical / maximum)	0,25 / 0,30 dB/km
@ 1625 nm (typical / maximum)	0,27 / 0,34 dB/km
Attenuation – Tight Buffer Cables	
@ 1550 nm (typical / maximum)	0,25 / 0,35 dB/km
@ 1625 nm (typical / maximum)	0,27 / 0,40 dB/km
Dispersion	
@ 1530 nm	2,0 ps/nm.km
@ 1565 nm	8,0 ps/nm.km
@ 1625 nm	12,0 ps/nm.km
Chromatic Dispersion	
1530 – 1565 nm	5,5 – 10,0 ps/(nm km)
1565 – 1625 nm	7,5 – 13,4 ps/(nm km)
Dispersion Slope @1550 nm	≤ 0,052ps/(nm ² km)
Cut-Off Wavelength (λ _{cc})	≤ 1300 nm
Group Refractive Index	
@ 1550 nm	1,4683
@ 1625 nm	1,4685
Mode Field Diameter	
@ 1550 nm	9,2 ± 0,5 μm
Effective area @ 1550 nm	63 μm ² (typical) @1550 nm
PMD Individual Fiber	< 0,1 ps/√km
Fiber Curl	≥ 4,0 m radius
Tensile Proof Test	100 kpsi (0,70 GPa)
Coating Strip Force	≥ 1,2 N ≤ 8,9 N
Macro bending 1 turn, 16 mm, @ 1550 nm	≤ 0,5 dB
Macro bending 100 turn, 25 mm, @ 1550 nm	≤ 0,05 dB
Macro bending 100 turn, 30 mm, @ 1625 nm	≤ 0,05 dB

Values are valid for cabled fiber, local attenuation discontinuity ≤ 0,1 dB

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BEND INSENSITIVE SINGLE-MODE FIBER

ITU-T G.657.A1 **200μm**

Cladding Diameter	125,0 ± 0,7 μm
Cladding Non-Circularity	≤ 0,7%
Core/Cladding Concentricity Error (Offset)	≤ 0,5 μm
Coating Diameter (Coloured)	200±10 μm
Coating –Cladding Concentricity Error (Offset)	≤ 12 μm
Attenuation – Loose Tube Cables	
@ 1310 nm (typical / maximum)	0,31 / 0,35 dB/km
@ 1550 nm (typical / maximum)	0,20 / 0,24 dB/km
@ 1625 nm (typical / maximum)	0,21 / 0,26 dB/km
Attenuation – Tight Buffer Cables	
@ 1310 nm (typical / maximum)	0,30 / 0,35 dB/km
@ 1550 nm (typical / maximum)	0,25 / 0,30 dB/km
@ 1625 nm (typical / maximum)	0,35 / 0,40 dB/km
Chromatic Dispersion	
Zero Dispersion Wavelength (λ ₀)	1300 – 1324 nm
Zero Dispersion Slope (S ₀)	≤ 0,092 ps/nm ² km
Group Refractive Index	
@ 1310 nm	1,467
@ 1550 nm	1,468
Mode Field Diameter	
@ 1310 nm	8,8 ± 0,4 μm
@ 1550 nm	9,8 ± 0,5 μm
Cut-Off Wavelength (λ _{cc})	≤ 1260 nm
PMD Individual Fiber	< 0,1 ps/√km
Tensile Proof Test	>100 kpsi (0,7 GPa)
Coating Strip Force	1,0N ≤ CSF ≤ 8,9N
Macrobending 10 turns, 15 mm, @ 1550 nm	≤ 0,03 dB
Macrobending 10 turns, 15 mm, @ 1625 nm	≤ 0,1 dB
Macrobending 1 turns, 10 mm, @ 1550 nm	≤ 0,1 dB
Macrobending 1 turns, 10 mm, @ 1625 nm	≤ 0,2 dB
Macrobending 1 turn, 7,5 mm, @ 1550 nm	≤ 0,5 dB
Macrobending 1 turn, 7,5 mm, @ 1625 nm	≤ 1,0 dB

Values are valid for cabled fiber, local attenuation discontinuity ≤0,1 dB

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MULTIMODE FIBER OM1

Core Diameter	62,5 ± 2,5 µm
Core Non-Circularity	≤ 5%
Cladding Diameter	125,0 ± 1,0 µm
Cladding Non-Circularity	≤ 0,7 %
Core/Cladding Concentricity Error (Offset)	≤ 1,0 µm
Coating Diameter (Coloured)	242 ± 5,0 µm
Coating –Cladding Concentricity Error (Offset)	≤ 10 µm
Attenuation – Loose Tube Cables	
@ 850 nm (typical / maximum)	2,6 / 3,5 dB/km
@ 1300 nm (typical / maximum)	0,5 / 1,5 dB/km
Attenuation – Tight Buffer Cables	
@ 850 nm (typical / maximum)	2,6 / 3,5 dB/km
@ 1300 nm (typical / maximum)	0,5 / 1,5 dB/km
Group Refractive Index	
@ 850 nm	1,496
@ 1300 nm	1,491
Bandwidth (overfilled launch)	
@ 850 nm	≥ 220 MHz-km
@ 1300 nm	≥ 500 MHz-km
Numerical Aperture	0,275 ± 0,015
Transmission Distance (Link Length)	
Gigabit Ethernet 850 nm	300 meters
Gigabit Ethernet 1300 nm	550 meters
Chromatic Dispersion	
Zero Dispersion Wavelength (λ ₀)	1320 – 1365 nm
Zero Dispersion Slope (S ₀)	≤ 0.11 ps/nm ² -km (1320 ≤ λ ₀ ≤ 1348 nm) ≤ 0.001 x (1458 – λ ₀) (1348 ≤ λ ₀ ≤ 1365 nm)
Tensile Proof Test	100 kpsi (0,7 GPa)
Coating Strip Force	1,3 – 8,9 N (3,8 N typical)
Macrobending 100 turns, 75 mm, @ 850 nm	≤ 0,5 dB
Macrobending 100 turns, 75 mm, @ 1300 nm	≤ 0,5 dB

Values are valid for cabled fiber, local attenuation discontinuity ≤ 0,2 dB

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MULTIMODE FIBER OM2

Core Diameter	50 ± 2,5 µm
Core Non-Circularity	≤ 5%
Cladding Diameter	125,0 ± 1,0 µm
Cladding Non-Circularity	≤ 0,7 %
Core/Cladding Concentricity Error (Offset)	≤ 1,0 µm
Coating Diameter (Coloured)	242,0 ± 0,5 µm
Coating –Cladding Concentricity Error (Offset)	≤ 10 µm
Attenuation – Loose Tube Cables	
@ 850 nm (typical / maximum)	2,0 / 3,5 dB/km
@ 1300 nm (typical / maximum)	0,7 / 1,5 dB/km
Attenuation – Tight Buffer Cables	
@ 850 nm (typical / maximum)	2,4 / 3,5 dB/km
@ 1300 nm (typical / maximum)	0,5 / 1,5 dB/km
Group Refractive Index	
@ 850 nm	1,482
@ 1300 nm	1,477
Bandwidth (overfilled launch)	
@ 850 nm	≥ 500 MHz-km
@ 1300 nm	≥ 500 MHz-km
Numerical Aperture	0,20 ± 0,015
Fiber capacity	
100 G Ethernet (100GBASE-SR10)	-
40 G Ethernet (40GBASE-SR4)	-
10 G Ethernet (10GBASE-SR)	83 m
1 G Ethernet (1GBASE-SR)	600 m
Tensile Proof Test	100 kpsi (0,7 GPa)
Coating Strip Force	1,3 – 8,9 N (3,8 N typical)
Banding Loss 100 turns, 75,0 mm, @ 850 nm	≤ 0,5 dB
Banding Loss 100 turns, 75,0 mm, @ 1300 nm	≤ 0,5 dB

Values are valid for cabled fiber, local attenuation discontinuity ≤ 0,2 dB

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MULTIMODE FIBER OM3 & OM4

Core Diameter	50 ± 2,5 µm	50 ± 2,5 µm
Core Non-Circularity	≤ 5%	≤ 5%
Cladding Diameter	125,0 ± 1,0 µm	125,0 ± 1,0 µm
Cladding Non-Circularity	≤ 0,7 %	≤ 0,7 %
Core/Cladding Concentricity Error (Offset)	≤ 1,0 µm	≤ 1,0 µm
Coating Diameter (Coloured)	242,0 ± 5,0 µm	242,0 ± 5,0 µm
Coating –Cladding Concentricity Error (Offset)	≤ 10 µm	≤ 10 µm
Attenuation – Loose Tube Cables		
@ 850 nm (typical / maximum)	2,0 / 3,5 dB/km	2,0 / 3,5 dB/km
@ 1300 nm (typical / maximum)	0,5 / 1,5 dB/km	0,5 / 1,5 dB/km
Attenuation – Tight Buffer Cables		
@ 850 nm (typical / maximum)	2,1 / 3,5 dB/km	2,1 / 3,5 dB/km
@ 1300 nm (typical / maximum)	0,7 / 1,5 dB/km	0,7 / 1,5 dB/km
Chromatic Dispersion		
Zero Dispersion Wavelength (λ ₀)	1295 – 1340 nm	1295 – 1340 nm
Zero Dispersion Slope (S ₀)	≤ 0,105 ps/nm ² km	≤ 0,105 ps/nm ² km
Group Refractive Index		
@ 850 nm	1,482	1,482
@ 1300 nm	1,477	1,477
Laser Bandwidth/EMB		
Overfilled @850 nm	1500 MHz-km	3500 MHz-km
Overfilled @1300 nm	500 MHz-km	500 MHz-km
Numerical Aperture	0,200 ± 0,015	0,200 ± 0,015
Fiber capacity		
100 G Ethernet (100GBASE-SR10)	140 m	170 m
40 G Ethernet (40GBASE-SR4)	140 m	170 m
10 G Ethernet (10GBASE-SR)	300 m	550 m
1 G Ethernet (1GBASE-SR)	1000 m	1100 m
Tensile Proof Test	100 kpsi (0,7 GPa)	100 kpsi (0,7 GPa)
Coating Strip Force	1,3 – 8,9 N (3,8 N typical)	1,3 – 8,9 N (3,8 N typical)
Banding Loss 100 turns, 75,0 mm, @ 850 nm	≤ 0,5 dB	≤ 0,5 dB
Banding Loss 100 turns, 75,0 mm, @ 1300 nm	≤ 0,5 dB	≤ 0,5 dB

Values are valid for cabled fiber, local attenuation discontinuity ≤ 0,2 dB

Note: due to OTDR measurement uncertainty KDP cannot guarantee attenuation values at fibers shorter than 1000m.

1) Distances assume maximum 1.0 dB total splice/connection loss, maximum 3.0 dB/km cable attenuation at 850 nm, and VCSEL spectral width of ≤ 0.45 nm. 100

Meter reach over OM3 and 150 meter reach over OM4 as defined by IEEE 802.3ba.

2) 1000-meter reach assuming total connection plus splice loss of 0.9 dB.

3) 550 meter reach assuming 3.5 dB/Km maximum cabled attenuation at 850 nm plus 1.0 dB of total connection and splice loss, or 3.0 dB maximum cabled

Attenuation at 850 nm and 1.3 dB total connection and splice loss. 400 meter reach as defined by IEEE 802.3ae.

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CHEMICAL RESISTANCE TABLE (@ 20°C)

	LDPE	HDPE	PA	FR-LSZH	PUR
Acids, Dilute or Weak	E	E	F	N	G
Acids*, Strong or Concentrated	E	E	N	N	F
Alcohols, Aliphatic	E	E	N	N	F
Aldehydes	G	G	F	F	G
Bases	E	E	F	G	N
Esters	G	G	E	N	N
Hydrocarbons, Aliphatic	F	G	E	F	E
Hydrocarbons, Aromatic	F	G	E	N	N
Hydrocarbons, Halogenated	N	F	G	N	N
Ketones	G	G	E	N	N
Oxidizing Agents, Strong	F	F	N	N	N
Salts	E	E	E	G	E
Crude Oil	N	N	G	F	F
Kerosene	F	F	E	N	F
Mineral Oil	G	G	E	N	F

E 30 days of constant exposure causes no damage. Plastic may tolerate for years.
G Little or no damage after 30 days of constant exposure to the reagent.
F Some effect after 7 days of constant exposure to the reagent. The effect may be crazing, cracking, loss of strength or discoloration, depending on the plastic.
N Not recommended. Immediate damage may occur. Depending on the plastic, the effect may be severe crazing, cracking, loss of strength, discoloration deformation, dissolution or permeation loss.

Note: This table must be considered as an orientation

PROPERTIES OF THE CABLE SHEATH

	MDPE	HDPE	PA	FR-LSZH	PUR
Flexibility	Medium	Low	Low	High	Very High
Water Resistance	High	High	Medium	Medium	Medium
Abrasion Resistance	High	High	High	Low	High
UV Radiation Resistance	High	High	Low	High	High
Brittleness in Low Temperature	Medium	Medium	Low	Medium	Very Low

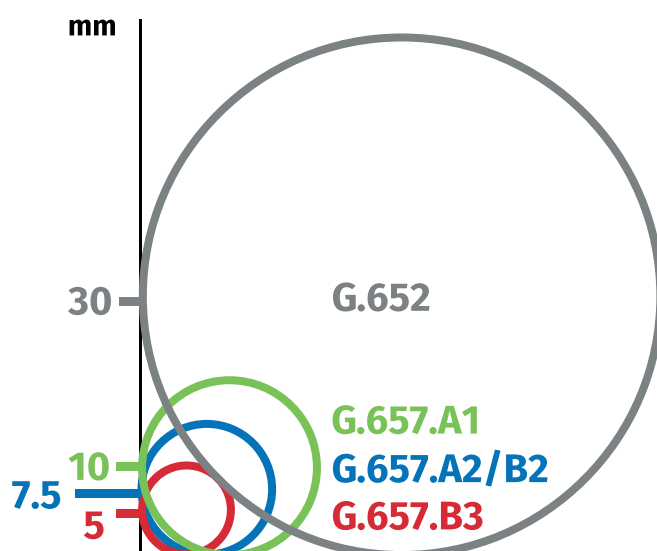
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STRIPABILITY OF THE TIGHT BUFFERED FIBER

Tight (code T) - stripability up to 10 cm
Free (code F) - stripability more than 100 cm

MACROBENDING



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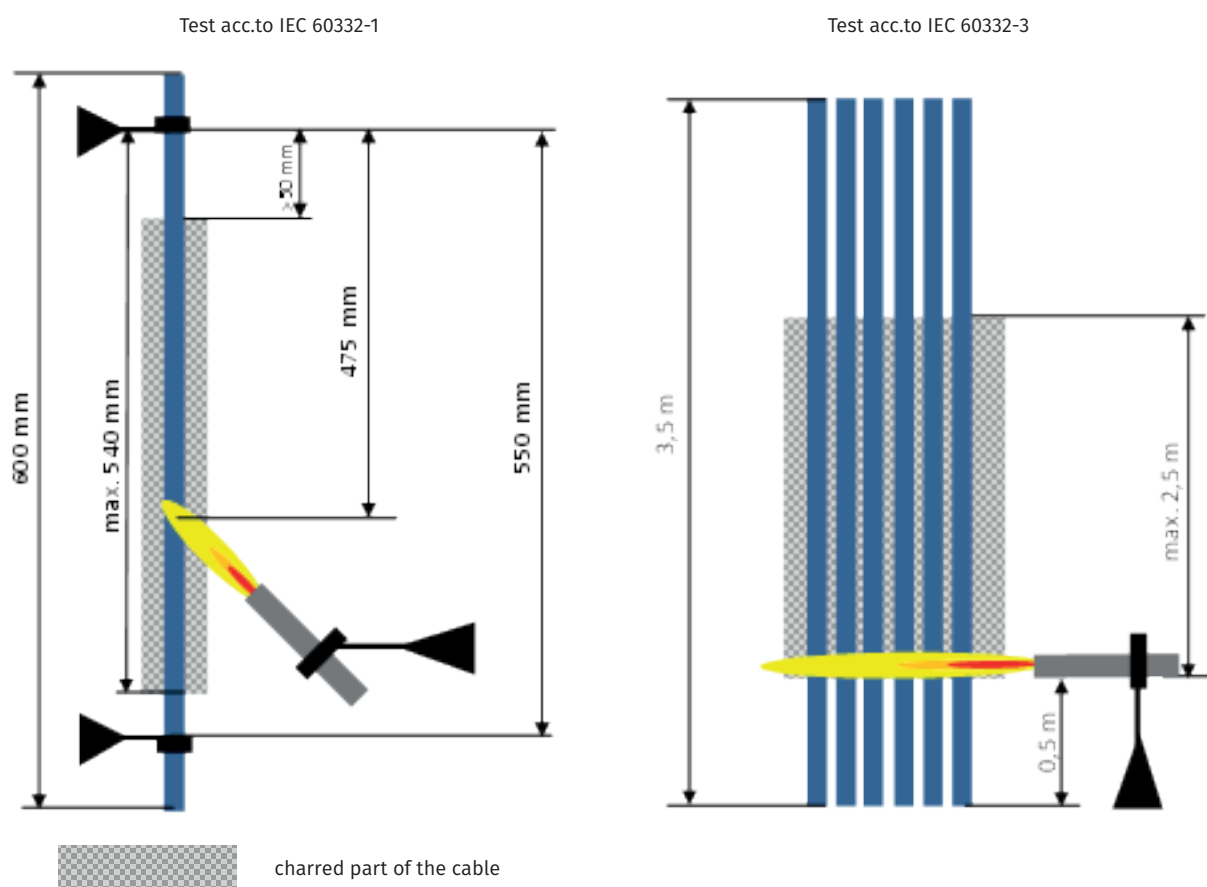
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FIRE PROPERTIES

Flame-Retardant

The cable must meet the requirements of the test specified in IEC standard 60332-3 or IEC 60332-1. The cable does not propagate fire and is self-extinguishing.

Notice: You can not assume that if the cable passes the test according 60332-1, a bundle of such cables passing a test 60332-3



CABLE DIAMETER	BURNING TIME
≤ 25 mm	60 sec.
≥ 25 mm; ≤ 50 mm	120 sec.

CATEGORY	AMOUNT OF BURNING MATERIAL	BURNING TIME
A*	7,0 lt/m	40 min.
B	3,5 lt/m	40 min.
C	1,5 lt/m	20 min.
D	0,5 lt/m	20 min.

*KDP cables

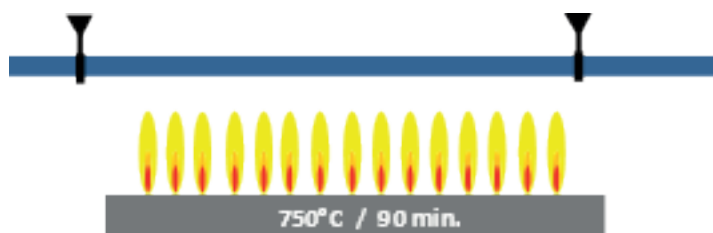
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FIRE PROPERTIES

Flame-Resistant

The cable must meet the requirements test specified in standard IEC 60331-11 and 25. The cable must be functional a minimum of 90 minutes in direct fire



Used Abbreviations

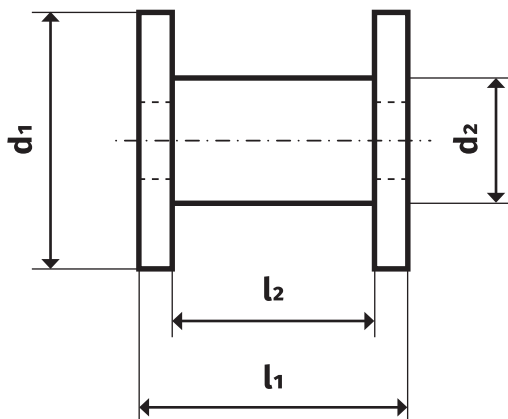
LSZH	Low S moke, Z ero H alogen
LSOH	Low S moke, Z ero H alogen
LSHF	Low S moke, H alogen F ree
HFFR	H alogen F ree, F lame R etardant
FRNC	F ire R etardant, N on- C orrosive
FR-LSZH	F ire R etardant - Low S moke, Z ero H alogen

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CABLE DRUMS

DRUM	MATERIAL	d ₁ [mm]	d ₂ [mm]	l ₁ [mm]	l ₂ [mm]
450	Plywood	450	300	420	390
600	Plywood	600	300	420	490
755	Plywood	755	300	420	390
1000	Plywood	1000	640	630	600
1200	Plywood	1200	640	630	600
1200	Plywood	1200	640	740	710
1400	Plywood	1400	640	740	700
1400	Plywood	1400	640	830	790
KTS710	Solid wood	710	355	502	400
KTS800	Solid wood	800	400	502	400
KTS900	Solid wood	900	450	662	560
KTS1000	Solid wood	1000	500	662	560
KTS1250	Solid wood	1250	630	830	710
KTS1400	Solid wood	1400	710	860	710
KTS1600	Solid wood	1600	800	1050	900
KTS1800	Solid wood	1800	1000	1100	840
KTS2000	Solid wood	2000	1250	1350	1045
KTS2240	Solid wood	2240	1400	1450	1140



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