Optical Fiber Selection Chart

Single Mode

Besten Wire and Cable Corporation

					Fiber Type (Designator)	Conventional (9)	Reduced Water Peak (3)	Zero Water Peak (2)	TeraFlex® Bend Resistant G.657.A1 (K)	TeraFlex® Bend Resistant G.657.A2 (J)	TeraFlex® Bend Resistant G.657.B3 (L)	NZDS (8)
Cable Performance	Parameter	Test Method/Standard	Units	Wavelength	Cable Type							
	Maximum Attenuation	ANSI/TIA-455-78-B-2002	dB/km	1310 nm	Tight Buffer	0.70	0.70	0.70	0.70	0.70	0.70	-
					Loose Tube	0.40	0.35	0.35	0.35	0.35	0.35	-
				1383 nm	Tight Buffer	-	0.70	0.70	0.70	0.70	0.70	-
					Loose Tube	-	0.35	0.31	0.35	0.35	0.35	-
				1490 nm	Tight Buffer	0.70	0.70	0.70	0.70	0.70	0.70	0.70
					Loose Tube	0.25	0.25	0.25	0.25	0.25	0.25	0.30
				1550 nm	Tight Buffer	0.70	0.70	0.70	0.70	0.70	0.70	0.70
					Loose Tube	0.30	0.25	0.25	0.25	0.25	0.25	0.30
				1625 nm	Tight Buffer	0.70	0.70	0.70	0.70	0.70	0.70	0.70
					Loose Tube	0.25	0.25	0.25	0.25	0.25	0.25	0.25
	Typical Attenuation	ANSI/TIA-455-78-B-2002	dB/km	1310 nm	Tight Buffer	N/A	0.41	0.41	0.41	0.41	0.41	-
					Loose Tube	0.34	0.34	0.34	0.34	0.34	0.34	-
				1383 nm	Tight Buffer	-	0.41	0.41	0.41	0.41	0.41	-
					Loose Tube	N/A	0.33	0.31	0.31	0.31	0.31	-
				1550 nm	Tight Buffer	N/A	0.41	0.41	0.41	0.41	0.41	0.41
					Loose Tube	0.19	0.19	0.19	0.19	0.19	0.19	0.25

Fiber Performance	Parameter	Test Method/Standard	Units	Conditions								
	Nominal Group Refractive Index	-	-	1310 nm		1.467	1.467	1.467	1.467	1.467	1.467	1.467
				1550 nm		1.468	1.468	1.468	1.468	1.468	1.468	1.468
	Maximum Individual Fiber Polarization Mode Dispersion	ANSI/TIA/EIA-455-113-96	ps/√km	-		0.2	0.2	0.2	0.2	0.2	0.2	0.2
	Cable Cutoff Wavelength	ANSI/TIA-455-80-C-2003	nm	-		1260	1260	1260	1260	1260	1260	1260
	Zero Chromatic Dispersion Wavelength	ANSI/TIA-455-175-B-2003	nm	-		1300-1324	1300-1324	1300-1324	1300-1324	1304-1324	1304-1324	N/A
	Typical Chromatic Dispersion Slope	ANSI/TIA-455-175-B-2003	ps/nm2-km	-		0.087	0.087	0.087	0.087	0.087	0.087	0.047
	Proof Strength	ANSI/TIA/EIA-455-31-C-2005	kpsi	On-line		100	100	100	100	100	100	100
			GPa	On-line		0.69	0.69	0.69	0.69	0.69	0.69	0.69
	Mode Field Diameter	ANSI/TIA-455-191-B-2003	µm	1310 nm		8.8-9.6	8.8-9.6	8.8-9.6	8.8-9.6	8.2-9.2	8.2-9.2	N/A
				1550 nm		9.5-11.5	9.9-10.9	9.9-10.9	9.9-10.9	9.1-10.1	9.1-10.1	7.8-10.0
	Maximum Macrobend Attenuation Increase	ANSI/TIA-455-62-B-2003	dB	1310 nm 100 turns on 50 mm mandrel		0.05	0.05	0.05	0.01	0.01	0.01	0.05
				1550 nm 1 turn on 15 mm mandrel		-	-	-	-	0.40	0.40	-
				1550 nm 1 turn on 10 mm mandrel		-	-	-	-	0.10	0.10	-
	Cladding Diameter	ANSI/TIA-455-176-A-2003	µm	-		125.0 ± 1.2	125.0 ± 0.9	125.0 ± 0.9	125.0 ± 0.7	125.0 ± 0.7	125.0 ± 0.7	125.0 ± 0.7
	Coating Diameter	ANSI/TIA-455-176-A-2003	micron	-		250 ± 10	250 ± 10	250 ± 10	250 ± 10	250 ± 10	250 ± 10	250 ± 10
	Maximum Core/Clad Concentricity Error	ANSI/TIA-455-176-A-2003	µm	-		0.6	0.5	0.5	0.5	0.5	0.5	0.5
	Maximum Cladding Non-circularity	ANSI/TIA-455-176-A-2003	%	-		1	1	1	1	0.7	0.7	0.7
	Maximum Coating/Cladding Concentricity Error	ANSI/TIA-455-176-A-2003	µm	-		12	12	12	12	12	12	12

Guaranteed Supportable Ethernet Distances	Data Rate	Protocol	Units	Wavelength		Maximum Transmission Distances (km)						
	1 Gbps	1000BASE-LH, 1000BASE-LH-LX	km	1310 nm		10	10	10	10	10	10	10
		1000BASE-ZX	km	1550 nm		70	70	70	70	70	70	70
	10 Gbps	10GBASE-LR	km	1310 nm		25	25	25	25	25	25	25
		10GBASE-ER	km	1550 nm		40	40	40	40	40	40	40
		10GBASE-ZR	km	1550 nm		80	80	80	80	80	80	80
	40 Gbps	40GBASE-LR4	km	1550 nm		10	10	10	10	10	10	10
	100 Gbps	100GBASE-LR4	km	1550 nm		10	10	10	10	10	10	10
		100GBASE-ER4	km	1550 nm		40	40	40	40	40	40	40

Standards	ISO/IEC		Tight Buffer	11801: OS1	11801: OS1	11801: OS1	11801: OS1	11801: OS1	11801: OS1	-
			Loose Tube	11801: OS1	24702: OS2	24702: OS2	24702: OS2	24702: OS2	24702: OS2	-
	Telcordia			GR-20-CORE						
	ITU-T			G.652.B	G.652.D	G.652.D	G.652.D G.657.A1	G.652.D G.657.A2	G.652.D G.657.B3	G.655.C, E G.656
	TIA-492			CAAA	CAAB	CAAB	CAAB	CAAB	CAAB	N/A
	IEC 60793-2-50 Type			B1.1	B1.3	B1.3	B1.3	B1.3	B1.3	-
	ANSI/ICEA		Tight Buffer	S-83-596						
			Loose Tube	S-87-640						
	RUS		Loose Tube	PE-90						

Beşten Wire and Cable Corporation

Optical Fiber Selection Chart

Multimode

					Fiber Type (Designator)	TeraGain® 62.5/125 (6)	TeraGain 50/125 (5)	TeraGain Laser Optimized 50/125			TeraFlex® Bend Resistant Laser Optimized 50/125		
								10G/150 (A)	10G/300 (B)	10G/550 (F)	10G/150 (M)	10G/300 (N)	10G/550 (P)
Cable Performance	Parameter	Test Method/ Standard	Units	Wavelength	Cable Type								
	Maximum Attenuation	TIA/EIA-455-78	dB/km	850 nm	Tight Buffer/ Loose Tube	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
		TIA/EIA-455-78	dB/km	1300 nm	Tight Buffer/ Loose Tube	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	Typical Attenuation	TIA/EIA-455-78	dB/km	850 nm	Tight Buffer	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
					Loose Tube	2.7	2.2	2.2	2.2	2.2	2.2	2.2	2.2
		TIA/EIA-455-78	dB/km	1300 nm	Tight Buffer	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
					Loose Tube	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Fiber Performance	Parameter	Test Method/ Standard	Units	Conditions									
	Numerical Aperture	ANSI/TIA-455-177-B-2003	-	-		0.275 ± 0.015	0.200 ± 0.015	0.200 ± 0.015	0.200 ± 0.015	0.200 ± 0.015	0.200 ± 0.015	0.200 ± 0.015	0.200 ± 0.015
	Nominal Group Refractive Index	OTDR	-	850 nm		1.496	1.483	1.483	1.483	1.483	1.483	1.483	1.483
			-	1300 nm		1.491	1.479	1.479	1.479	1.479	1.479	1.479	1.479
	Macrobend Attenuation Change	ANSI/TIA-455-62-B-2003	dB	100 turns on 75 mm Mandrel	850 nm	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
					1300 nm	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
				2 turns on 30 mm Mandrel	850 nm	-	-	-	-	-	≤ 0.1	≤ 0.1	≤ 0.1
					1300 nm	-	-	-	-	-	≤ 0.3	≤ 0.3	≤ 0.3
				2 turns on 15 mm Mandrel	850 nm	-	-	-	-	-	≤ 0.2	≤ 0.2	≤ 0.2
					1300 nm	-	-	-	-	-	≤ 0.5	≤ 0.5	≤ 0.5
	Proof Strength	TIA/EIA-455-31	kpsi	On-line		100	100	100	100	100	100	100	100
			GPa	On-line		0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
	Cladding Diameter	ANSI/TIA-455-176-A-2003	micron	-		125 ± 2	125 ± 2	125 ± 2	125 ± 2	125 ± 2	125 ± 2	125 ± 2	125 ± 2
	Coating Diameter	ANSI/TIA-455-176-A-2003	micron	-		250 ± 10	250 ± 10	250 ± 10	250 ± 10	250 ± 10	250 ± 10	250 ± 10	250 ± 10
	Core/Clad Concentricity Error	ANSI/TIA-455-176-A-2003	microns	-		1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	Cladding Non-Circularity	ANSI/TIA-455-176-A-2003	%	-		1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
	Coating/Clad Concentricity Error	ANSI/TIA-455-176-A-2003	microns	-		12 µm	12 µm	12 µm	12 µm	12 µm	12 µm	12 µm	12 µm
	Minimum Bandwidth: Overfilled Launch	TIA/EIA-455-124-2000	MHz-km	850 nm		220	500	700	1,500	3,500	700	1,500	3,500
				1300 nm		600	500	500	500	500	500	500	500
	Minimum Bandwidth: Laser Effective Modal Bandwidth	TIA-455-220-A	MHz-km	850 nm		N/A	N/A	950	2,000	4,700	950	2,000	4,700
				1300 nm		N/A	N/A	500	500	500	500	500	500

Guaranteed Supportable Ethernet Distances	Data Rate	Protocol	Units	Wavelength	Maximum Transmission Distances (meters)							
	10 Mbps	10BASE-FL	meters	850 nm	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250
	100 Mbps	100BASE-SX	meters	850 nm	500	750	1,000	1,000	1,000	1,000	1,000	1,000
		100BASE-FX	meters	1300 nm	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
	1 Gbps	1000BASE-SX	meters	850 nm	300	750	1,000	1,000	1,040	1,000	1,000	1,040
		1000BASE-LX	meters	1300 nm	600*	600*	600	600	600	600	600	600
	10 Gbps	10GBASE-SR	meters	850 nm	35	82	150	300	550	150	300	550
		10GBASE-LRM	meters	1300 nm	300	300	300	300	300	300	300	300
	40 Gbps	40GBASE-SR4	meters	850 nm	-	-	-	100	125	-	100	125
	100 Gbps	100GBASE-SR10	meters	850 nm	-	-	-	100	125	-	100	125

Mode conditioning patch cord required

Standards								
ISO/IEC 11801		OM1	OM2	OM2	OM3	OM4	OM2	OM3	OM4
Telcordia		GR-20-CORE							
ITU-T		N/A	G.651.1						
TIA-492		AAAA-A	AAAB	AAAB	AAAC-A	AAAD	AAAB-A	AAAC-B	AAAD
IEC 60793-2-10 Type		A1b	A1a.1	A1a.1	A1a.2	A1a.3	A1a.1	A1a.2	A1a.3
ANSI/ICEA	Tight Buffer	S-83-596							
	Loose Tube	S-87-640							