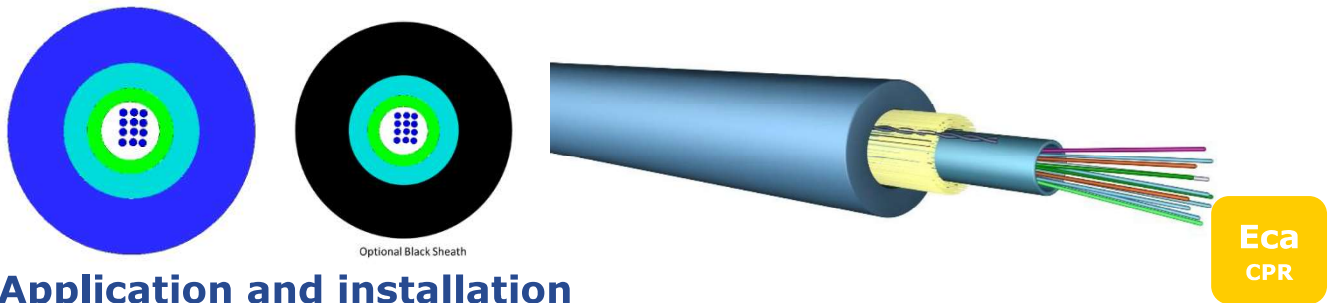


E14a: UC^{FIBRE™} Universal Central Tube Cable

2000N central tube cable with 2-24 fibres, glass elements and FireBur® sheath, VDE U-DQ(ZN)BH



Application and installation

This cable can be used for LAN and WAN backbones, telecom access lines, fibre to business and fibre to the building drop connections as well as fibre to the home drop and access connections.

With its FireBur® LSHF sheathing this cable is ideal for mixed indoor and outdoor installation. It is equally suited for installation in ducts and on trays. It has a degree of rodent protection.

Standards

ISO 11801-1, EN 50173-1:2011, IEC 60794-1

Flame Resistance

LSHF (LSOH): IEC 60332-1-2, IEC 60754-1, IEC 60754-2, IEC 61034-2; Class Eca

Construction

Loose tube	Ø2.8 mm gel-filled loose tube with 2 – 24 fibres		
Fibre colour code	1	Red	13 Red w/mark every 70mm
	2	Green	14 Green w/mark every 70mm
	3	Blue	15 Blue w/mark every 70mm
	4	Yellow	16 Yellow w/mark every 70mm
	5	White	17 White w/mark every 70mm
	6	Grey	18 Grey w/mark every 70mm
	7	Brown	19 Brown w/mark every 70mm
	8	Violet	20 Violet w/mark every 70mm
	9	Turquoise	21 Turquoise w/mark every 70mm
	10	Black	22 White w/mark every 35mm
	11	Orange	23 Orange w/mark every 70mm
	12	Pink	24 Pink w/mark every 70mm
Strength member	Water-blocked E-Glass fibre elements		
Sheath	1.0 mm Blue (Black optional) FireBur® sheath, UV stabilised, IEC 50290-2-27		
Sheath marking	Draka UC ^{FIBRE} I/O CT LSHF 2.0 kN <Fibre count> <Fibre type><Fibre brand><Item No><Factory code><Batch Number><Meter mark> U-DQ(ZN)BH <Fibre count> <Fibre family> <Mode field diameter> /125 <Transmission Class>		

E14a: UC^{FIBRE}™ Universal Central Tube Cable

Physical Properties

Attribute	IEC 60794-1-21/22 Method	Limits
Nominal outer diameter	-	2 - 24 fibres: 5,8 mm
Nominal weight	-	2 - 24 fibres: 40 kg/km
Maximum installation tensile strength	E1	2000 N (fibre strain ≤ 0,6%)
Permanent tensile strength	E1	750 N (fibre strain ≤ 0,2%)
Compressive strength (crush)	E3	2000 N / 100 mm
Impact	E4	15 Nm (no attenuation change, no broken cable elements)
Torsion	E7	5 cycles ± 1 turn
Kink	E10	The cables do not form a kink when a loop is drawn together to a diameter of 100 mm
Min. bending radius, unloaded (permanent)	E11	R = 58 mm
Min. bending radius, loaded (installation)	-	R = 116 mm
Temperature range	F1	Storage: -40°C to +60°C Installation: -30°C to +40°C Operation: -30°C to +60°C.
Water penetration	F5B	No water on free end
Heat of combustion	-	2-24 fibres: 630 MJ/km = 0,18 kWh/m

Product Codes

Product Code	DoP Number*	Product Description	Fibre Count	Fibre Type	Fibre Data Sheet
60043938	1002435	UC ^{FIBRE} I/O CT LSHF 2kn 2 OM2B	2	MaxCap-BB-OM2	C34
60018814	1002406	UC ^{FIBRE} I/O CT LSHF 2kn 4 OM2B	4	MaxCap-BB-OM2	C34
60018815	1002407	UC ^{FIBRE} I/O CT LSHF 2kn 6 OM2B	6	MaxCap-BB-OM2	C34
60018780	1002401	UC ^{FIBRE} I/O CT LSHF 2kn 8 OM2B	8	MaxCap-BB-OM2	C34
60011400	1002397	UC ^{FIBRE} I/O CT LSHF 2kn 12 OM2B	12	MaxCap-BB-OM2	C34
60073246	1008123	UC ^{FIBRE} I/O CT LSHF 2kn 24 OM2B	24	MaxCap-BB-OM2	C34
60019958	1002415	UC ^{FIBRE} I/O CT LSHF 2kn 4 OM2B BK	4	MaxCap-BB-OM2	C34
60019959	1007110	UC ^{FIBRE} I/O CT LSHF 2kn 8 OM2B BK	8	MaxCap-BB-OM2	C34
60029781	1002397	UC ^{FIBRE} I/O CT LSHF 2kn 12 OM2B BK	12	MaxCap-BB-OM2	C34
60073317	1008126	UC ^{FIBRE} I/O CT LSHF 2kn 24 OM2B BK	24	MaxCap-BB-OM2	C34
60018863		UC ^{FIBRE} I/O CT LSHF 2kn 4 OM3B	4	MaxCap-BB-OM3	C31
60011320		UC ^{FIBRE} I/O CT LSHF 2kn 6 OM3B	6	MaxCap-BB-OM3	C31
60018784	1002402	UC ^{FIBRE} I/O CT LSHF 2kn 8 OM3B	8	MaxCap-BB-OM3	C31
60018785	1002403	UC ^{FIBRE} I/O CT LSHF 2kn 12 OM3B	12	MaxCap-BB-OM3	C31
60019389		UC ^{FIBRE} I/O CT LSHF 2kn 16 OM3B	16	MaxCap-BB-OM3	C31
60073248	1008125	UC ^{FIBRE} I/O CT LSHF 2kn 24 OM3B	24	MaxCap-BB-OM3	C31
60019960	1002416	UC ^{FIBRE} I/O CT LSHF 2kn 4 OM3B BK	4	MaxCap-BB-OM3	C31
60019961	1004779	UC ^{FIBRE} I/O CT LSHF 2kn 8 OM3B BK	8	MaxCap-BB-OM3	C31
60019962	1002418	UC ^{FIBRE} I/O CT LSHF 2kn 12 OM3B BK	12	MaxCap-BB-OM3	C31
60073155	1008272	UC ^{FIBRE} I/O CT LSHF 2kn 24 OM3B BK	24	MaxCap-BB-OM3	C31
60019938	1002414	UC ^{FIBRE} I/O CT LSHF 2kn 4 OM4B	4	MaxCap-BB-OM4	C32
60020010	1002420	UC ^{FIBRE} I/O CT LSHF 2kn 6 OM4B	6	MaxCap-BB-OM4	C32
60020747		UC ^{FIBRE} I/O CT LSHF 2kn 8 OM4B	8	MaxCap-BB-OM4	C32

E14a: UC^{FIBRE}™ Universal Central Tube Cable

60019481	1002411	UC ^{FIBRE} I/O CT LSHF 2kN 12 OM4B	12	MaxCap-BB-OM4	C32
60073244	1008122	UC ^{FIBRE} I/O CT LSHF 2kN 24 OM4B	24	MaxCap-BB-OM4	C32
60032535	1002428	UC ^{FIBRE} I/O CT LSHF 2kN 4 OM4B BK	4	MaxCap-BB-OM4	C32
60020747	1002422	UC ^{FIBRE} I/O CT LSHF 2kN 8 OM4B BK	8	MaxCap-BB-OM4	C32
60029958	1005428	UC ^{FIBRE} I/O CT LSHF 2kN 12 OM4B BK	12	MaxCap-BB-OM4	C32
60032388	1004361	UC ^{FIBRE} I/O CT LSHF 2kN 16 OM4B BK	16	MaxCap-BB-OM4	C32
60073165	1008170	UC ^{FIBRE} I/O CT LSHF 2kN 24 OM4B BK	24	MaxCap-BB-OM4	C32
		UC ^{FIBRE} I/O CT LSHF 2kN 4 OM5B	4	WideCap-OM5	C39
		UC ^{FIBRE} I/O CT LSHF 2kN 8 OM5B	8	WideCap-OM5	C39
		UC ^{FIBRE} I/O CT LSHF 2kN 12 OM5B	12	WideCap-OM5	C39
		UC ^{FIBRE} I/O CT LSHF 2kN 16 OM5B	16	WideCap-OM5	C39
		UC ^{FIBRE} I/O CT LSHF 2kN 24 OM5B	24	WideCap-OM5	C39
60019305		UC ^{FIBRE} I/O CT LSHF 2kN 2 SM2D	2	OS2 G652.D	C03e
60011327	1004732	UC ^{FIBRE} I/O CT LSHF 2kN 4 SM2D	4	OS2 G652.D	C03e
60011330	1002394	UC ^{FIBRE} I/O CT LSHF 2kN 6 SM2D	6	OS2 G652.D	C03e
60011304	1002390	UC ^{FIBRE} I/O CT LSHF 2kN 8 SM2D	8	OS2 G652.D	C03e
60024865	1004785	UC ^{FIBRE} I/O CT LSHF 2kN 12 SM2D	12	OS2 G652.D	C03e
60011335	1002398	UC ^{FIBRE} I/O CT LSHF 2kN 16 SM2D	16	OS2 G652.D	C03e
60073062		UC ^{FIBRE} I/O CT LSHF 2kN 24 SM2D	24	OS2 G652.D	C03e
60058208	1004812	UC ^{FIBRE} I/O CT LSHF 2kN 2 SM2D BK	2	OS2 G652.D	C03e
60027528	1002425	UC ^{FIBRE} I/O CT LSHF 2kN 4 SM2D BK	4	OS2 G652.D	C03e
60026545	1002424	UC ^{FIBRE} I/O CT LSHF 2kN 8 SM2D BK	8	OS2 G652.D	C03e
60011334	1002434	UC ^{FIBRE} I/O CT LSHF 2kN 12 SM2D BK	12	OS2 G652.D	C03e
60028301	1003030	UC ^{FIBRE} I/O CT LSHF 2kN 16 SM2D BK	16	OS2 G652.D	C03e
60073166	1008171	UC ^{FIBRE} I/O CT LSHF 2kN 24 SM2D BK	24	OS2 G652.D	C03e
60033658		UC ^{FIBRE} I/O CT LSHF 2kN 4 SM7A1	4	BendBright G.657.A1	C17
60033659	1002429	UC ^{FIBRE} I/O CT LSHF 2kN 8 SM7A1	8	BendBright G.657.A1	C17
60037350	1004796	UC ^{FIBRE} I/O CT LSHF 2kN 12 SM7A1	12	BendBright G.657.A1	C17
60073325	1008211	UC ^{FIBRE} I/O CT LSHF 2kN 24 SM7A1	24	BendBright G.657.A1	C17
60066411		UC ^{FIBRE} I/O CT LSHF 2kN 12 SM7A1 BK	12	BendBright G.657.A1	C17
60019522	1004769	UC ^{FIBRE} I/O CT LSHF 2kN 4 SM7B	4	BendBright ^{XS} G.657.A2	C24
60020265		UC ^{FIBRE} I/O CT LSHF 2kN 6 SM7B	6	BendBright ^{XS} G.657.A2	C24
60060409	1004830	UC ^{FIBRE} I/O CT LSHF 2kN 12 SM7B	12	BendBright ^{XS} G.657.A2	C24
60073264		UC ^{FIBRE} I/O CT LSHF 2kN 24 SM7B	24	BendBright ^{XS} G.657.A2	C24
60020751		UC ^{FIBRE} I/O CT LSHF 2kN 16 SM2D/OM3B	16	Hybrid 8 OS2 single mode + 8 MaxCap-BB-OM3	C03 C31
		UC ^{FIBRE} I/O CT LSHF 2kN 24 SM2D/OM3B	24	Hybrid 12 OS2 single mode + 12 MaxCap-BB-OM3	C03 C31

*DoP Numbers are per product code and any DoP number proves CPR approval for the cable. DoP files can be downloaded from the website: www.prysmiangroup.com/cpr

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Properties of cable with standard Enhanced SM fibre

ESMF, low water peak single mode fibre G652D, OS2

General and application

The optical fibres are made of a high grade doped silica core surrounded by a silica cladding.

They are coated with a dual layer, UV cured acrylate based coating.

This enhanced single mode fibre provides improved performance across the entire 1260 nm to 1625 nm wavelength spectrum due to its low attenuation in 1383 nm, the water-peak region.

Standards and Norms

IEC / EN 60793-2-50 Category B.1.3	EN 50 173-1:2011, cat. OS2 and OS1
ITU-T Recommendation G.652.D and C, B, A	ISO / IEC 11801:2002, cat. OS2 and OS1
IEEE 802.3 – 2012	ISO / IEC 24702: 2006, cat. OS2 and OS1

Optical properties

Attribute	Measurement method	Units	Limits
Mode field diameter at 1310 nm	IEC/EN 60793-1-45	µm	9.0 ± 0.4
Mode field diameter at 1550 nm		µm	10.1 ± 0.5
Chromatic dispersion coefficient:	IEC/EN 60793-1-42		
In the interval 1285 nm – 1330 nm		ps/km • nm	≤ 3
At 1550 nm		ps/km • nm	≤ 18.0
At 1625 nm		ps/km • nm	≤ 22.0
Zero dispersion wavelength, λ ₀		nm	1300 - 1322
Zero dispersion slope		ps/(nm ² • km)	≤ 0.090
Cut-off wavelength	IEC/EN 60793-1-44	λ _{cc} nm	≤ 1260 *
Polarisation mode dispersion (PMD) coefficient	IEC/EN 60793-1-48	ps/√km	≤ 0.5
PMD ₀ Link Design Value (computed with Q=0.01%, N=20)	IEC/EN 60794-3	ps/√km	≤ 0.2

* guaranteed value according to the ITU-T (ATM G650) method

Attenuation

Attribute	Measurement method	Units	Limits
Maximum attenuation value of cable in the interval 1310 nm – 1625 nm	IEC/EN 60793-1-40	dB/km	≤ 0.39
Maximum attenuation value of cable at 1550 nm	IEC/EN 60793-1-40	dB/km	≤ 0.25
Local discontinuity at 1310 and 1550 nm	IEC/EN 60793-1-40	dB	Max. 0.1

Attenuation variation vs Bending

Attribute	Measurement method	Units	Limits
100 turns on a R=25 mm mandrel at 1310 & 1550 nm	IEC/EN 60793-1-47	dB	≤ 0.05
100 turns on a R=30 mm mandrel at 1625 nm	IEC/EN 60793-1-47	dB	≤ 0.05

Available from FS Cables Ltd, please contact 01727 840841 or sales@fscables.com for more information.

Group index of refraction

Attribute	Measurement method	Units	Values
1310 nm	IEC/EN 60793-1-22	-	1.467
1550 nm	IEC/EN 60793-1-22	-	1.468
1625 nm	IEC/EN 60793-1-22	-	1.468

Rayleigh Backscatter coefficient (1ns pulse width)

Attribute	Measurement method	Units	Values
1310 nm	-	dB	-79.4
1550 nm	-	dB	-81.7
1625 nm	-	dB	-82.5

Geometrical properties

Attribute	Measurement method	Units	Limits
Cladding diameter	IEC/EN 60793-1-20	µm	125.0 ± 0.7
Cladding non-circularity	IEC/EN 60793-1-20	%	≤ 0.7
Core (MDF) -cladding concentricity error	IEC/EN 60793-1-20	µm	≤ 0.5
Primary coating diameter – ColorLock ^{®XS} and natural	IEC/EN 60793-1-21	µm	242 ± 7
Primary coating non-circularity	IEC/EN 60793-1-21	%	≤ 5
Primary coating-cladding concentricity error	IEC/EN 60793-1-21	µm	≤ 12

Mechanical properties

Attribute	Measurement method	Units	Limits
Proof stress level	IEC/EN 60793-1-30	GPa	≥ 0.7 (≈ 1 %)
Strip force (peak)	IEC/EN 60793-1-32	N	1.2 ≤ F _{peak,strip} ≤ 8.9
Dynamic fatigue resistance aged and unaged	IEC / EN 60793-1-33	(N _d)	≥ 20
Static fatigue, aged	IEC / EN 60793-1-33	(N _s)	≥ 23

All measurements in accordance with ITU-T G650 recommendations

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