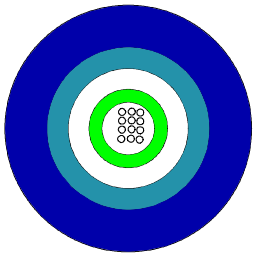
E07a: UC^{FIBRE} Universal Central Tube Armoured Cable

3000 N, Ind/Out, unitube up to 24 fibres, glass yarns, steel tape armouring and FireBur® sheath. DIN/VDE: U-D(ZN)(SR)H



E_{ca} CPR

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® sheathing this cable is ideal for indoor/outdoor mixed installation.
The cable, having a corrugated steel tape armouring, is rodent proof.
The cable is well suited for installation in ducts and on trays, indoor as well as outdoor.
The cable is excellent for direct burial with proper sand back filling.

Standards

ISO 11801-1, EN 50173-1:2002, IEC 60794-1

Flame Resistance

LSHF (LSOH): IEC 60332-1-2, IEC 60754-1, IEC 60754-2, IEC 61034-2, Class E_{ca}

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	E-Glass yarns			
Armouring	0.15 mm corrugated steel tape			
Sheath	1.5 mm, Blue (Black optional) FireBur® sheath, UV stabilised, EN 50290-2-27			
Sheath marking	Draka UC^{FIBRE} I/O CT CST LSHF 3.0 kN <Fibre count> <Fibre type><Fibre brand><Item No><Factory Code><Batch Number><Meter mark> U-D(ZN)(SR)H <Fibre count> <Fibre family> <Mode field diameter> /125 <Transmission Class>			

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Physical Properties

IEC 60974-1-21/22

Attribute	Method	Limits
Nominal outer diameter	-	2 - 24 fibres: 8.5 mm
Nominal weight	-	2 - 24 fibres: 75 kg/km
Tensile strength (dynamic)	E1	3000 N (fibre strain ≤ 0.6%)
Tensile strength (permanent)	E1	1000 N (fibre strain ≤ 0.2%)
Compressive strength (crush)	E3	2200 N / 100 mm
Impact	E4	30 Nm
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 = 85 mm
Min. bending radius loaded (installation)		R = 170 mm
Temperature range	F1	Storage and installation: -40°C to +70°C Operation: -40°C to +70°C
Heat of combustion		2-24 fibres: 1200 MJ/km 0.33 kWh/m

Product Codes

Product Code	DoP Number*	Product Description	Fibre Count	Fibre Type	Fibre Data Sheet
60042298	1004803	UC^{FIBRE} I/O CT CST LSHF 3kN 4 OM2B	4	MaxCap-BB-OM2	C34
60047155	1002468	UC^{FIBRE} I/O CT CST LSHF 3kN 6 OM2B	6	MaxCap-BB-OM2	C34
60026599		UC^{FIBRE} I/O CT CST LSHF 3kN 4 OM2B BK	4	MaxCap-BB-OM2	C34
60020527		UC^{FIBRE} I/O CT CST LSHF 3kN 8 OM2B BK	8	MaxCap-BB-OM2	C34
60024971		UC^{FIBRE} I/O CT CST LSHF 3kN 12 OM2B BK	12	MaxCap-BB-OM2	C34
60071393		UC^{FIBRE} I/O CT CST LSHF 3kN 24 OM2B BK	24	MaxCap-BB-OM2	C34
		UC^{FIBRE} I/O CT CST LSHF 3kN 4 OM3B	4	MaxCap-BB-OM3	C31
60020317		UC^{FIBRE} I/O CT CST LSHF 3kN 6 OM3B	6	MaxCap-BB-OM3	C31
		UC^{FIBRE} I/O CT CST LSHF 3kN 8 OM3B	8	MaxCap-BB-OM3	C31
		UC^{FIBRE} I/O CT CST LSHF 3kN 12 OM3B	12	MaxCap-BB-OM3	C31
		UC^{FIBRE} I/O CT CST LSHF 3kN 24 OM3B	24	MaxCap-BB-OM3	C31
60025024		UC^{FIBRE} I/O CT CST LSHF 3kN 4 OM3B BK	4	MaxCap-BB-OM3	C31
60020748		UC^{FIBRE} I/O CT CST LSHF 3kN 8 OM3B BK	8	MaxCap-BB-OM3	C31
60020268		UC^{FIBRE} I/O CT CST LSHF 3kN 12 OM3B BK	12	MaxCap-BB-OM3	C31
60071397		UC^{FIBRE} I/O CT CST LSHF 3kN 24 OM3B BK	24	MaxCap-BB-OM3	C31
		UC^{FIBRE} I/O CT CST LSHF 3kN 4 OM4B	4	MaxCap-BB-OM4	C32
		UC^{FIBRE} I/O CT CST LSHF 3kN 6 OM4B	6	MaxCap-BB-OM4	C32
60030797		UC^{FIBRE} I/O CT CST LSHF 3kN 8 OM4B	8	MaxCap-BB-OM4	C32
		UC^{FIBRE} I/O CT CST LSHF 3kN 12 OM4B	12	MaxCap-BB-OM4	C32
		UC^{FIBRE} I/O CT CST LSHF 3kN 24 OM4B	24	MaxCap-BB-OM4	C32
60047371		UC^{FIBRE} I/O CT CST LSHF 3kN 4 OM4B BK	4	MaxCap-BB-OM4	C32
60032040		UC^{FIBRE} I/O CT CST LSHF 3kN 8 OM4B BK	8	MaxCap-BB-OM4	C32
60038327		UC^{FIBRE} I/O CT CST LSHF 3kN 12 OM4B BK	12	MaxCap-BB-OM4	C32
60038334		UC^{FIBRE} I/O CT CST LSHF 3kN 16 OM4B BK	16	MaxCap-BB-OM4	C32
60071411		UC^{FIBRE} I/O CT CST LSHF 3kN 24 OM4B BK	24	MaxCap-BB-OM4	C32
		UC^{FIBRE} I/O CT CST LSHF 3kN 4 OM5B	4	WideCap-OM5	C39

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		UC^{FIBRE} I/O CT CST LSHF 3kN 6 OM5B	6	WideCap-OM5	C39
		UC^{FIBRE} I/O CT CST LSHF 3kN 8 OM5B	8	WideCap-OM5	C39
		UC^{FIBRE} I/O CT CST LSHF 3kN 12 OM5B	12	WideCap-OM5	C39
		UC^{FIBRE} I/O CT CST LSHF 3kN 24 OM5B	24	WideCap-OM5	C39
60019682		UC^{FIBRE} I/O CT CST LSHF 3kN 4 SM2D	4	OS2 G.652.D	C03e
60018755		UC^{FIBRE} I/O CT CST LSHF 3kN 6 SM2D	6	OS2 G.652.D	C03e
60033012	1002083	UC^{FIBRE} I/O CT CST LSHF 3kN 8 SM2D	8	OS2 G.652.D	C03e
60018759	1001586	UC^{FIBRE} I/O CT CST LSHF 3kN 12 SM2D	12	OS2 G.652.D	C03e
60071179	1007601	UC^{FIBRE} I/O CT CST LSHF 3kN 24 SM2D	24	OS2 G.652.D	C03e
60027087		UC^{FIBRE} I/O CT CST LSHF 3kN 4 SM2D BK	4	OS2 G.652.D	C03e
60025893		UC^{FIBRE} I/O CT CST LSHF 3kN 8 SM2D BK	8	OS2 G.652.D	C03e
60020206		UC^{FIBRE} I/O CT CST LSHF 3kN 12 SM2D BK	12	OS2 G.652.D	C03e
60032318		UC^{FIBRE} I/O CT CST LSHF 3kN 16 SM2D BK	16	OS2 G.652.D	C03e
60070582		UC^{FIBRE} I/O CT CST LSHF 3kN 24 SM2D BK	24	OS2 G.652.D	C03e
60071405	1007586	UC^{FIBRE} I/O CT CST LSHF 3kN 24 MM61	24	OM1 62.5 µm	C02
60071409	1007646	DR I/O CT CST LSHF 3kN 24 MM61 BK	24	OM1 62.5 µm	C02

**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*

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_Q 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

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	$1.2 \leq F_{peak.strip} \leq 8.9$
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