SIROCCO^{HD} brings you fibre density off the chart.

Our FTTH optical fibre system covers it all.

Made in EU

prysmian

The planet's pathways

Preparing for the future.

Germany is preparing for a huge acceleration of Fibre To The Home (FTTH) deployments. To meet the increasing demands, Prysmian offers optical fibres, cables and connectivity. Our connectivity product range covers the complete range of passive network components from subscriber to telecom exchange.

FTTH for the federal funding programme.
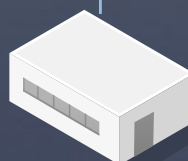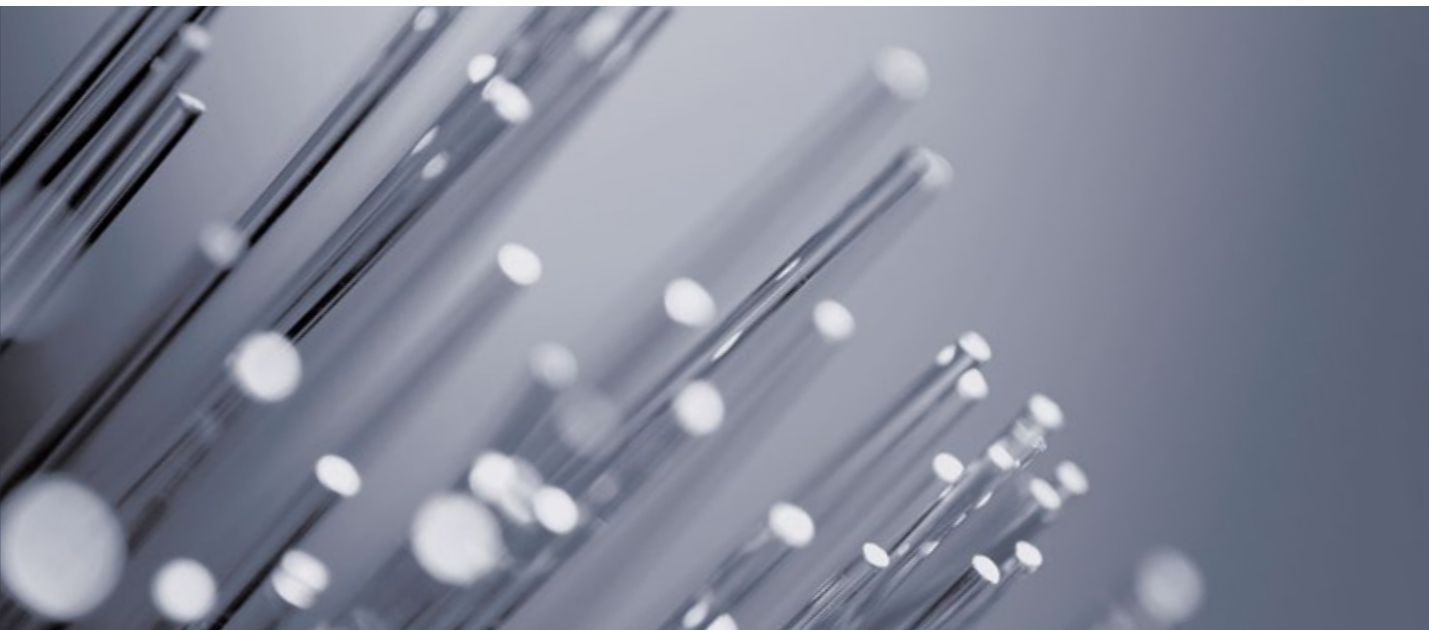
Long-distance

Distribution level

Rack mounted products – see page 9

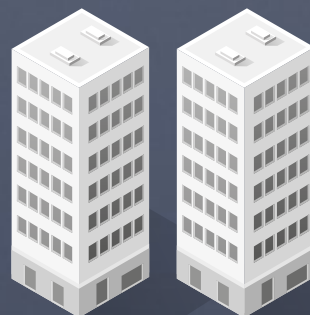Street distributor – see page 9

Main distributor POP

Residential areas

Closures – see page 6-8

Wall boxes – see page 10

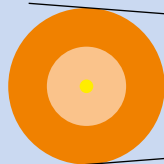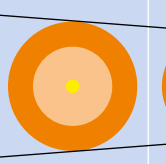Customer termination boxes – see page 11

SIROCCO Microduct cables

SIROCCO Microcables allows 20 % smaller cables and SIROCCO^{HD} allows significant more than previously available micro cables on the market, making it possible to install more fibres within a limited space faster and more cost effective.

- SIROCCO Microduct cables with BendBright-A1 200µm single-mode fibre (ITU-T G.657.A1).

- SIROCCO^{HD} microduct cables with BendBright-A2 200µm single-mode fibre (ITU-T G.657.A2).

- SIROCCO^{HD} provides maximum fibre for each microduct diameter and fibre densities for blown microduct cables, making it possible to install more fibres into congested duct space and enable the use of smaller ducts for new installations, resulting in lower installation costs and the use of less raw materials.

- SIROCCO^{HD} are available from 72 to 576 fibre.

- SIROCCO Microcable family enables a much higher fibre count in existing ducts systems and reducing civil works cost for building of greenfield networks.
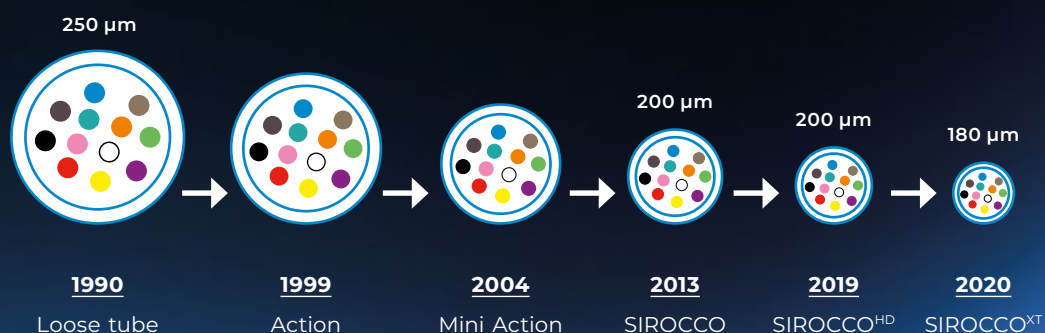
Microduct cables – Evolution of Density

- Prysmian were first to launch new commercially available fibres:
  - 2009 – 200 µm fibre
  - 2019 – **180 µm fibre**

- BendBright^{XS} fibre technologies enable greater packing of fibres into tubes.

- Same core diameter, smaller coating, reductions in cross sectional area:

	250 µm	200 µm	180 µm
OD:	100 %	80 %	72 %
A$_{eff}$:	100 %	64 %	52 %

The innovation doesn't stop here!

Prysmian will always be committed to meeting the evolving needs of the telecom and connectivity markets.

We were the first manufacturer to introduce the 180-µm fibre diameter to the market in 2019. An innovation that allowed us to launch reduced diameter cables such as SIROCCO^{XT}. Take a look at the development of our products below and keep your eyes open for our next generation cables.

250 µm			200 µm	200 µm	180 µm
1990	**1999**	**2004**	**2013**	**2019**	**2020**
Loose tube	Action	Mini Action	SIROCCO	SIROCCO^{HD}	SIROCCO^{XT}

BendBright^{XS}
bend insensitive fibres.

The denser the cable, the higher the risk of fibre stress and bending loss, especially in space limited connectivity devices. Our bend insensitive BendBright^{XS} 200μm single-mode fibres easily overcome these challenges, offeringa stable connectivity and increased resilience.

Maximum fibre capacity for needed duct size												
	SIROCCO (G652D and BB-A1)			SIROCCO (BB-A1-200)			SIROCCO^{HD} (BB-A2-200 and BB-XS-200)			SIROCCO EXTREME (BB-XS-180)		
Duct size	Fibre count	Design	Cable Ø (mm)	Fibre count	Design	Cable Ø (mm)	Fibre count	Design	Cable Ø (mm)	Fibre count	Design	Cable Ø (mm)
7/4	12	1x12	2.5	24	1x24	2.4	–	–	–	–	–	–
10/6	24	1x24	3.9	–	–	–	72	6x12	4.4	144	6x24	4.5
	48	1x48	4.2	–	–	–	96	8x12	4.6			
12/8	96	8x12	6.0	144	6x24	6.0	144	12x12	5.9	192	8x24	5.5
	144	6x24	6.5	192	8x24	6.3	192	8x24	6.0	288	12x24	6.7
14/10	144	12x12	8.0	216	9x24	7.5	288	24x12	7.9	576	24x24	8.2
	192	8x24	7.9				288	12x24	7.5			
							432	18x24	8.0			
16/12	288	24x12	9.3	432	18x24	9.6	552	23x24	8.7	–	–	–
				480	20x24	9.7	576	24x24	9.5	–	–	–
18/14	–	–	–	–	–	–	864	24x36	11	–	–	–

Relationship between minicables and microducts					
Cable max. fibre count	Inner diameter of the microduct				
	4 mm	6 mm	8 mm	10 mm	12 mm
12	███	███			
24	███				
48		███			
72		███			
96		███	███		
144		███	███	███	
192			███	███	
216				███	
288				███	███
432				███	
552				███	

Connectivity products

CLOSURES

We can offer a comprehensive portfolio for fibre optic cable assembly in different sizes that can be used with and configurated to a wide range of different cable types.

Large Multi-Function Joint (LMJ)

Branch joint for connection of participants with the main cable.

Features:

· Reliable products with robust construction based on high-qualitative materials and constant improvements

· Available in various lengths

· Sealed to IP68 (water and dust protection): tested in 5 meters water depth

· Complete fibre management: simple and fast installation

· Fit for any application and any type of network configuration

· Possibility of accommodating tubes and gas blocks.

Technical data – LMJ			
Multi-Function Joint	Short Cap	Medium Cap	Long Cap
Height	493 mm	600 mm	721 mm
Base size	Ø 310 mm	Ø 310 mm	Ø 310 mm
Max. no. of standard tray	48 trays (24+24)	80 trays (40+40)	112 trays (56+56)
Splice capacity using standard 12f splice trays for 45 mm HS splice protectors or crimps	576f	960f	1344f
No. of oval ports	1	1	1
No. of circular ports*	10	10	10
No. of microduct 7/4	40	40	40
No. of microduct 10/6	30	30	30
Microduct cables up 4.2 mm	80	80	80
Environmental protection	IP68		

* Can be used as multiport, depending on cable diameter up to 8 cables per port.
Every closure accepts splitters to be mounted either in splice trays or in dedicated spaces.

Configuration examples

The LMJ multifunction joint can be used in both long-distance and access networks, and be configured for both Point to Point (P2P) and Point to Multipoint (G-PON).

Example 1:

Closure for 16 single-family houses connection with microducts inserted into the joint.

In the joint enters a 96 fibre minicable Prysmian A-DQ(ZN)2Y 8x12 E9/125 (TV04602-6.1 mm).

It is splitted into 16X6 fibre microcables Prysmian URE39 1x6 G.657.A1, 3.9 mm diameter for house connection (10/6 mm microducts).

The microducts are inserted into the closure and sealed on the cable with gas water stops. Cable strain relief is made outside the closure.

LMJ Socket Kit XLMSC00012	
1	LMJ Short Cap
2	LMJ SOSA Crimp 4Way ASSY module (4SE trays module / 12 Shrink splice protection)
100	Heat shrink Splice Protectors
1	Mechanical seal for Ø 7-20 mm
1	Gas/water block 16 mm for Ø 6.1 mm
8	Mechanical seal for 2 x Ø 5-9 mm
16	Gas/water block 10 mm for Ø 0-3.9 mm
1	LMJ Cable/microduct strain relief outside the closure

Example 2:

Closure for 24 single-family houses connection with microducts inserted into the joint.

Into the joint enters a 144 fibre minicable Prysmian A-D(ZN)2Y 6x24 E9/125 (TV04606-6.0 mm).

It is splitted into 24X6 fibre microcables Prysmian URE39 1x6 G.657.A1, diameter 3.9 mm for house connection (10/6 mm microducts).

Each house connection is stored separately in a splice tray. The microducts are inserted into the closure and sealed on cable with gas water stops. Cable strain relief is made outside the closure.

LMJ Socket Kit XLMSC24X06	
1	LMJ Short Cap
6	LMJ SOSA Crimp 4Way (4SE trays module / 12xCrimp) 144Sples
3	Mechanical Crimp Splice Protectors (150 pc)
1	Mechanical seal for Ø 7-20 mm
1	Gas/water block 12 mm for Ø 6.1 mm
8	Mechanical seal for cable 3 x Ø 7-10 mm
24	Gas/water block 10 mm for Ø 0-3.9 mm
1	LMJ Cable/microduct strain relief outside the closure
1	Wall/mast bracket

Example 3:

Closure for a 80 single-family houses connection with microcables inserted into the joint.

Into the joint enters a 552 fibre minicable Prysmian SIROCCO[HD] A-DQ(ZN)2Y 23x24 E9/125 (TV05021-en-8.2 mm).

It is divided into 80X6 fibrous microcables Prysmian URE39 1x6 G.657.A1, diameter 3.9 mm for house connection (10/6 mm microducts).

Each house connection is stored separately in a splice tray. The microducts end outside the closure. Only the cables are inserted.

LMJ Socket Kit XLMSC23X24	
1	LMJ Long Cap
20	LMJ SOSA Crimp 4Way (4SE trays module / 12xCrimp) 144Sples
10	Mechanical Crimp Splice Protectors (500 pc)
1	Mechanical seal for Ø 7-20 mm
10	Mechanical seal for 8 x Ø 2.5-4.2 mm
1	LMJ Cable/microduct strain relief outside the closure
1	Wall/mast bracket

Small Joint Closure (SJC)

The SJC Closure is a splice closure that is used for track or branch applications. It has 4 cable entry ports, a splice cassette for 24 splices and a cable management and storage area. The closure is sealed to IP 68 for water and dust tightness. The closure is supplied with four knock-out ports and two entry glands. Up to two additional entry glands can be ordered separately.

Features:

· A compact closure for track and branch applications.

· Closure has four knock out ports.

· Each port accommodates a cable gland for cables 5–9 mm or 6–12 mm.

· Closure is supplied with two glands. Additional glands are available separately.

· Contains a single splice tray for up to 24 splices.

· Splice tray accommodates 2.2 mm splice protectors.

· Cable management plate to secure cables and route fibres.

· Robust construction enabling direct buried applications.

· Can be used underground or can be mounted to a wall.

· Sealed to IP68 at 5 m and UV resistant to ISO 4892.

· Gland available for double entry – 8 entries in total for 4–6 mm cables.

Technical data – SJC	
Dimensions	L200 x W170 x D66 mm
No. of cable ports	4 ports, 2 on each side
Maximum capacity each port	Cables or micro ducts: 5–9 mm or 6–12 mm
Number of splice cassettes	1
Maximum splice capacity	24
Minimum fibre bending radius	20 mm (fibre types ITU T G.657 A1 and A2)
Splice protector type	Heat shrink 45 mm x 2.2 mm
Material	Polypropylene housing and ABS inner parts
UV resistance	Resistant to ISO 4892 1000 hours
Temperature range	Transport and storage: 30 °C to +60 °C. Installation: 10 °C to +50 °C. Operation: 25 °C to +60 °C
Cable retention	80 N
Impact resistance	10 Nm @ 20 °C, radius 100 mm
Static load	1000 N @ 20 °C on top surface of the box according to EN 50411-2-3
Water immersion	IP68 (No water ingress at 1.5 m water pressure for 20 days)

RACK MOUNTED PRODUCTS

Prysmian offers a wide range of racks, together with a large variety of shelves and trays, for splicing, patching, splitting and/or storage. All are suitable for application in exchanges, central hubs, offices and data centres.

Sub-Rack System 4000 (SRS4000)

Features:

- Modules pivot outwards for easy access
- Fibres are completely protected from entry to exit of panel
- Fibre management
- Can accommodate optical splitters
- Modular sub-rack available in a variety of configurations for integration into 19" and ETSI racks, street-side cabinets or wall mounted cabinets
- Subracks available in 1U, 2U and 3U.

Technical data – SRS4000	
Max. no. of splices per U	96 f
Max. no. of adapters per U	96 (LC), 48 (SC)*
Rack size (W x H x D)	480 x 245 x 44.5 mm

* Other adapters available on request.
U = rack unit

Rack SR4000

Standard Rack

19" mounting rails

4512 mx. fibre capacity LC/APC

WALL BOXES

Features:

- Ergonomic designs
- Made of UV stabilised fire resistant UL94-V0 material
- Removable cover for easy access
- Can be mounted internally or externally (ECT, Medium OneBox)
- Easy fibre management.

Customer Lead-in unit (CLI)

CLI is designed for use in residential and small business premises to manage the entry of cables into buildings, or through internal building walls.

Technical data – CLI	
External/internal unit size	W36 x H180 x D36 mm
No. of cables/tubes	1
No. of gas blocks	1
Max. cable/tube outer diam.	13 mm
Environment protection	IP68
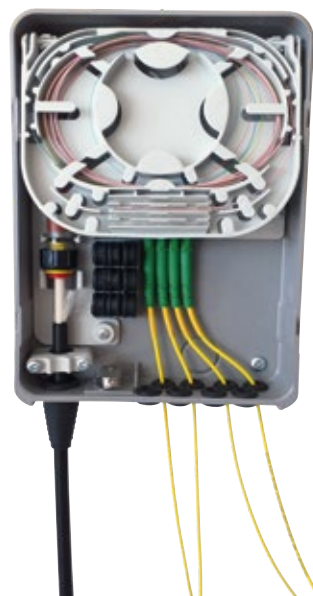
External/Internal Compact termination (ECT)

Standard configuration for one residential building.

Technical data – ECT	
Box size	W140 x H185 x D32 mm
Number of splice trays	1
Fibre splice capacity	≤8
No. of input cable ports	1
Gas blocks for 7/4 or 10/6	1
No. of pigtails and adapters	≤8 LC/APC
Environment protection	IP55

Medium OneBox

Standard configuration for residentials including 2-5 buildings.

Technical data – Medium OneBox	
Box size	W240 x H250 x D55 mm
Number of splice trays	2
Fibre splice capacity	≤24 crimp splices
No. of input cable ports	1 top and 2 bottom
No. of gas blocks	2
No. of splitters	2
No. of pigtails and adapters	≤24 LC/APC
Environment protection	IP55 (external product only)

PRE-TERMINATED CUSTOMER TERMINATION BOX (CTB)

CTB is designed for use in residential and business applications. The wall box is supplied on a cardboard reel with a length of cable pre-installed in the factory.

The standard drop cable is 2.8 mm in diameter and contains between 1 and 4 fibres terminated with LC/APC connectors. Other cable types and connectors can be supplied on demand. Standard configuration in e.g. 30 m, 50 m or 70 m.
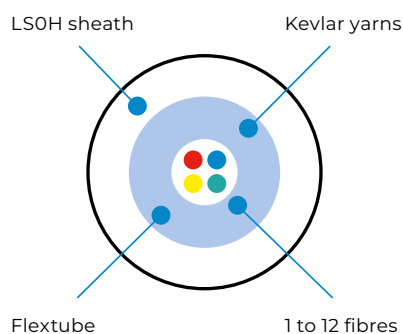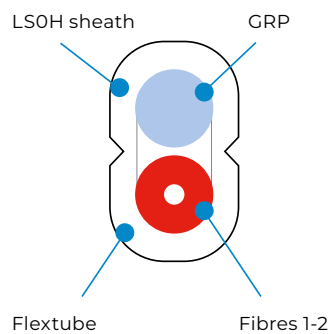
Pre-terminated CTB can be standardized with Low Smoke Zero Halogen (LS0H) that can be either pulled or pushed. They include 4 fibres for example and are designed for duct or direct-to-wall installation. The push-type cable is dielectric.

Technical data – CTB	
Max. capacity	4 adapters
CTB (FO outlet) dimensions	L80 x W80 x D28 mm
CTB material / colour	ABS / White RAL9010
Adapter type	LC/APC
Standard cable type	Indoor white round 2.8 mm, CPR B2$_{ca}$

Cable types – CTB	Pullable	Pushable
Cable diameter	2.8 mm	2.7 x 1.9 mm
Weight	7.5	7
Tensile strength (N)	500	150
CPR Class	B2$_{ca}$	C$_{ca}$

Pullable cable

LS0H sheath   Kevlar yarns

Flextube   1 to 12 fibres

Pushable cable

LS0H sheath   GRP

Flextube   Fibres 1-2

Fat on fibre!

The optical cable SIROCCO[HD] can swallow surprising quantities of fibre.

Despite its apparently modest size, the fibre cable SIROCCO[HD] can stuff down incredible amounts of optical fibres – while remaining highly flexible! It actually provides world record diameters and fibre densities for blown microduct cables. And that's not the only thing being minimized – as they are made in the EU the lead times are short and transports can be kept to a minimum. That in combination with a clean electricity mix at our factories, the CO_2 emissions will be held on lower levels. Less is more!

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Alternative laying methods.

RETRACTANET^{XS}

Our direct buried outdoor solution RETRACTANET^{XS} is easily deployed in an existing duct or sub-duct infrastructure.

Features:

- Simple concept reduces the need for skilled labour
- Ideal for existing neighbourhoods
- Extremely efficient in greenfield sites
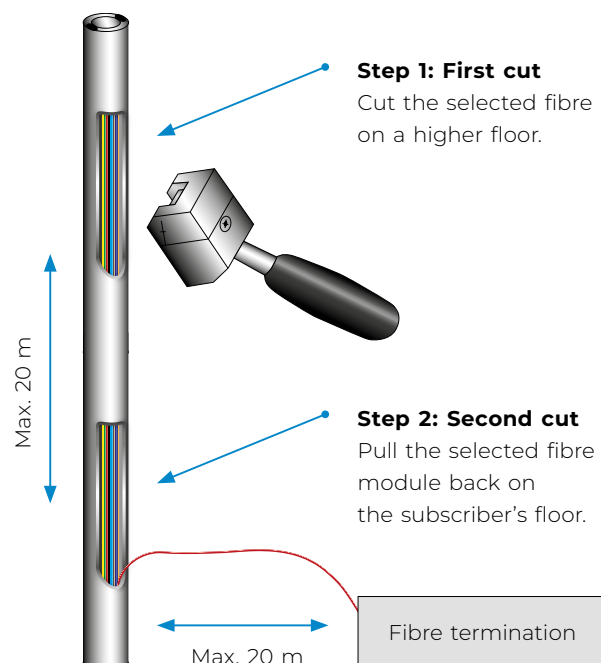- Includes fully integrated connectivity products and tools.
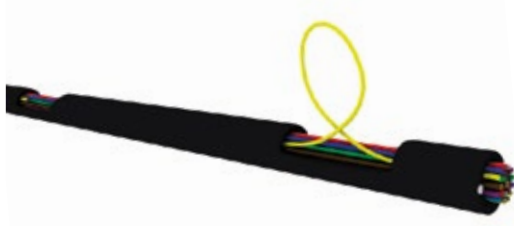
VERTICASA^{XS}

This system is designed specifically for bringing optical fibre directly to apartments and offices of high-rise Multi Dwelling Units (MDU).

Features:

- Easy fibre access reduces the need for skilled labour
- Simplicity decreases installation time and costs
- Comprises a main riser cable of up to 96 fibres
- Pre-connectorized drop cable may be used for final customer connection.

Installation steps:

Step 1: First cut
Cut the selected fibre on a higher floor.

Step 2: Second cut
Pull the selected fibre module back on the subscriber's floor.

Max. 20 m

Fibre termination

Max. 20 m

Safe and sound.

The Construction Product Regulation, known as CPR and mandatory throughout the EU since 2017, is the European directive that sets the conditions for the commercialisation of cables and products intended for use as fixed installations in various constructions.

Classification of the euro classes according to EN 50575								
Classification		A_{ca}	$B1_{ca}$	$B2_{ca}$	C_{ca}	D_{ca}	E_{ca}	F_{ca}
EN 60332	H (mm)	EN 1716 Gross heat of combustion	≤ 425	≤ 425	≤ 425	≤ 425	≤ 425	> 425
EN 50399	FS (m)[1]	EN 1716 Gross heat of combustion	≤ 1.75	≤ 1.5	≤ 2.0		Additional criteria D_{ca}-$B1_{ca}$	
	THR (MJ)[2]		≤ 10	≤ 15	≤ 30	≤ 70		
	HRR (kW)[3]		≤ 20	≤ 30	≤ 60	≤ 400		
	FIGRA (W/s)[4]		≤ 120	≤ 150	≤ 300	≤ 1300		
EN 61034 EN 50399	Smoke emissions	s1a, s1b s1, s2, s3						
EN 60754	Acidity	a1, a2, a3						
EN 50399	Flame drops	d0, d1, d2						

[1] FS / Flame spread, [2] THR / Total Heat Release (MJ), [3] HRR / Peak Heat Release Rate (kW), [4] FIGRA / Fire Growth Rate (W/s)

SAFE CABLES LEAD THE WAY

Our optical fibre cables are $B2_{ca}$ classified in accordance with the EU Construction Products Regulation (CPR). Hence, a safe choice that won't add fuel, nor impenetrable smoke, to the fire.

N11: UCFIBRE™ Universal Stranded Loose Tube Non-Metallic Gel-Filled $B2^{ca}$ Cable

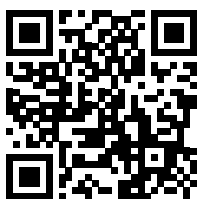FTTH Indoor Drop cable with 2, 4 and 8 fibres, CPR class $B2_{ca}$

E25, UCFIBRE™ Universal Central Tube $B2_{ca}$ Non-Metallic Gel-Filled Cable

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