

Fiber Optic Cables Products

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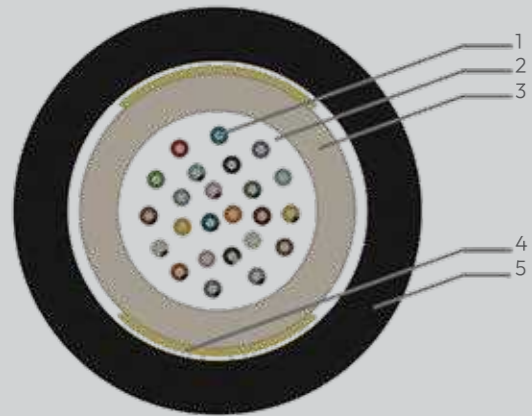


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Fiber Optic Cables Technical Catalogue

Fiber Optic Micro Cable



1. Optical Fiber Core
2. Waterproof thixotropic jelly
3. PBT Tube (Loose Tube)
4. Non-metallic strength member (FRP or Yarn)
5. UV resistant halogen-free (LSOH) HDPE Black or LSZH outer jacket

**FTTH Optic Fiber
Micro Cable Sample**



	Minimum Bending Radius		Temperature Range		
Operation	20 x cable Ø	Storage	-10°C to +70°C	Installation	-30°C to +60°C
Fixed	15 x cable Ø	Transport	-10°C to +70°C	Operating	-30°C to +60°C

Characteristics of Drop Cable

	Test Standard	Specified Value	Acceptance Criteria
Maximum Installation Tension ²	IEC 60794_1_2_E1	Max. 600 N	Fiber strain \leq 0.33%
Crush Strength	IEC 60794_1_2_E3	800 N / 100 mm, max. 15 min	$\Delta\alpha \leq$ 0.05 dB, No damage
Impact	IEC 60794_1_2_E4	0.74 Nm, 3 impacts, R= 25 mm	$\Delta\alpha \leq$ 0.05 dB after the test
Torsion	IEC 60794_1_2_E7	1m. 100N, +/- 360° ,10 cycles	$\Delta\alpha \leq$ 0.05 dB, No damage
Repeated Bending	IEC 60794_1_2_E6	R=20x D, 100 N, 35 cycles	No damage
Bending Radius	IEC 60794_1_2_E11	R=20x D, 5 turns, 3 cycles	$\Delta\alpha \leq$ 0.05 dB, No damage
Temperature Cycling	IEC 60794_1_2_F1	-10°C to +60°C	$\Delta\alpha \leq$ 0.10 dB/km
Waterproofness	IEC 60794_1_2_F5B	Sample= 3 m, water column= 1 m	No water leakage in 24 hours.

Notes:

1.Optical Fiber Core could be applied as G.652.D, G.655, G.657.A1, G.657.A2, OM1, OM2, OM3, OM4 according to needs.

2.Maximum Tensile Strength could be changed according to technical demand.
Standard: TS EN 60794

Standard Tests for Drop Cable

Low Smoke Test

IEC 61034, EN 50268

Non Corrosiveness Test

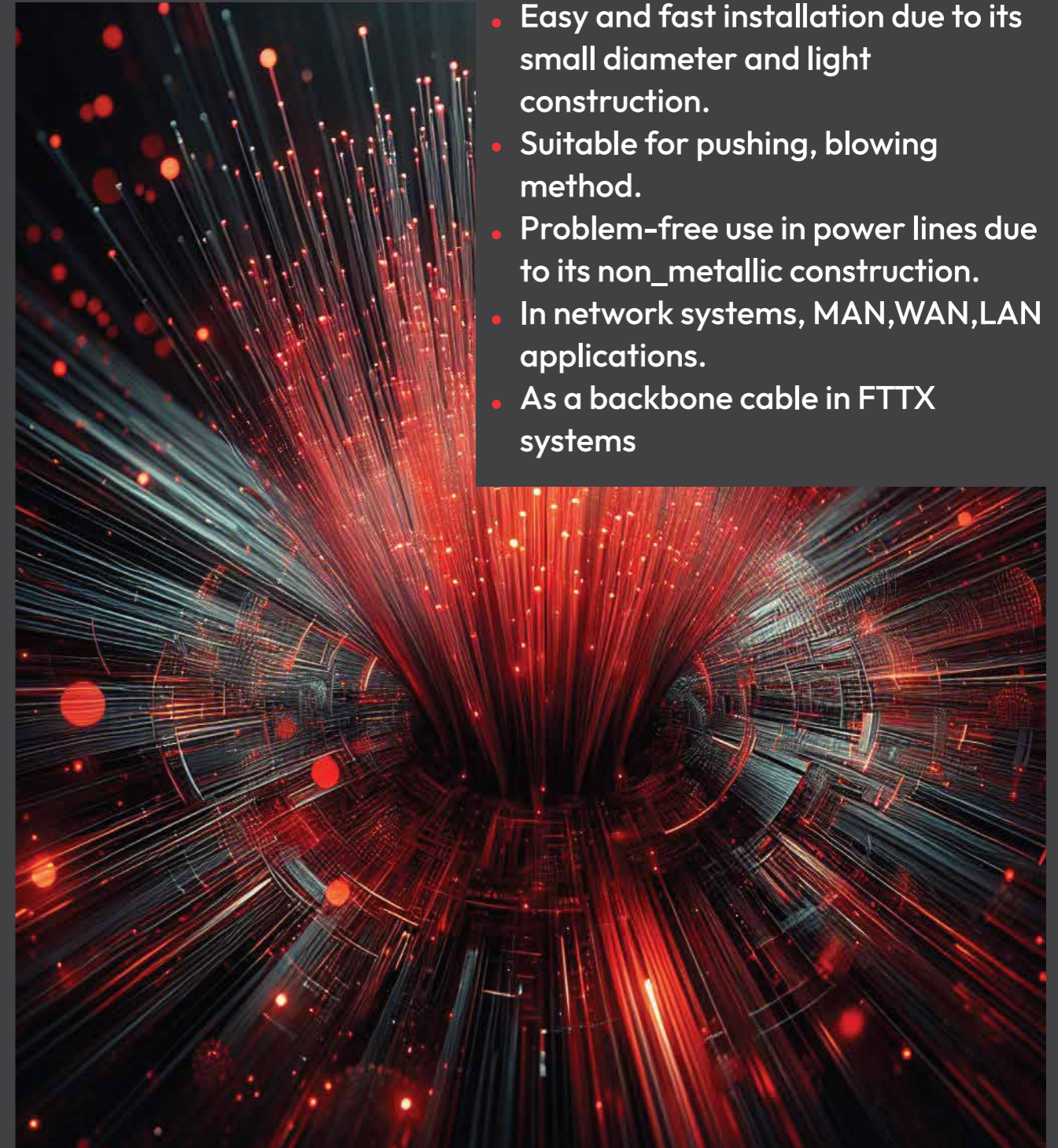
IEC 60754, EN 50267

Flame Retardancy Test

IEC 60332_1

Environmental Concerns

- Easy and fast installation due to its small diameter and light construction.
- Suitable for pushing, blowing method.
- Problem-free use in power lines due to its non_metallic construction.
- In network systems, MAN,WAN,LAN applications.
- As a backbone cable in FTTX systems



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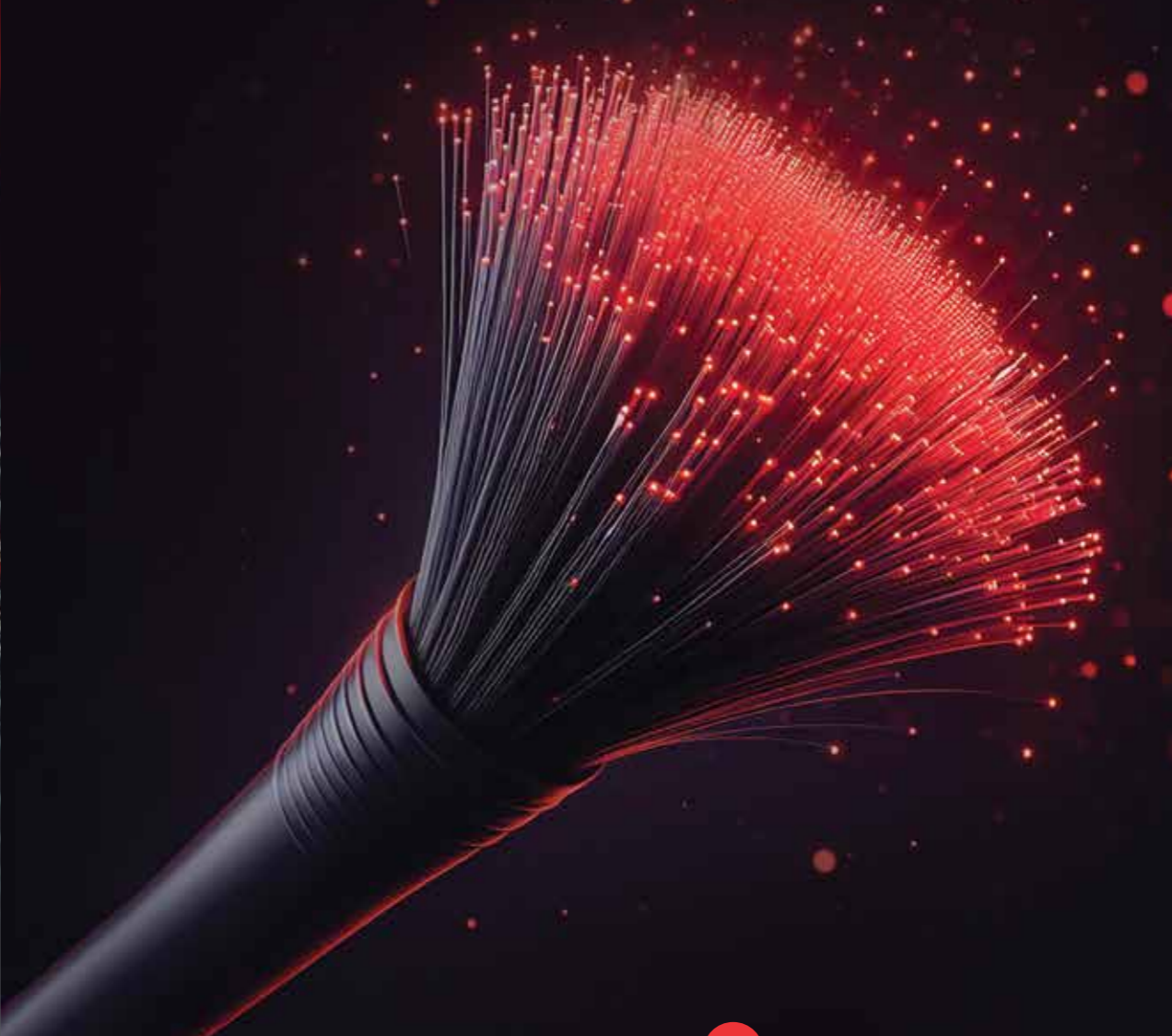
Properties for Loose Tube Micro Cable

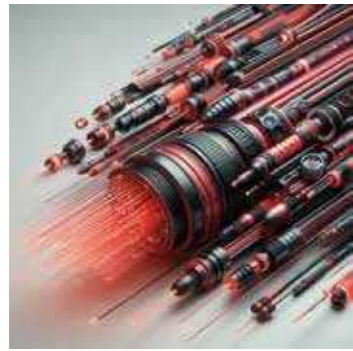
	Test Standard	Specified Value	Acceptance Criteria
Maximum Installation Tension ²	IEC 60794_1_2_E1	Max. 650 N (96 FO, 144 FO Max. 1000 N)	Fiber strain \leq 0.33 %
Maximum Operation Tension	IEC 60794_1_2_E1	Max. 200 N	$\Delta\alpha \leq$ 0.05 dB, No fiber strain
Crush Strength	IEC 60794_1_2_E3	700 N / 100 mm, max. 15 min.	$\Delta\alpha \leq$ 0.05 dB, No damage
Impact	IEC 60794_1_2_E4	1 Nm, 3 impacts, R= 300 mm	$\Delta\alpha \leq$ 0.05 dB after the test
Torsion	IEC 60794_1_2_E7	1 m. 100N, +/- 180°, 10 cycles	$\Delta\alpha \leq$ 0.05 dB, No damage
Repeated Bending	IEC 60794_1_2_E6	R=20x D, 100 N, 35 cycles	No damage
Bending Radius	IEC 60794_1_2_E11	R=20x D, 4 turns, 3 cycles	$\Delta\alpha \leq$ 0.05 dB, No damage
Temperature Cycling	IEC 60794_1_2_E1	-40°C to +70°C	$\Delta\alpha \leq$ 0.05 dB/km
Waterproofness	IEC 60794_1_2_F5B	Sample= 3 m, water column= 1 m	No water leakage in 24 hours

	Minimum Bending Radius	Temperature Range			
Operation	20 x cable Ø	Storage	-40°C to +70°C	Installation	-30°C to +60°C
Fixed	15 x cable Ø	Transport	-40°C to +70°C	Operating	-30°C to +60°C

Notes:

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2. Maximum Tensile Strength could be changed according to technical demand.
Standard: TS EN 60794





Specification for FTTH Drop Cable

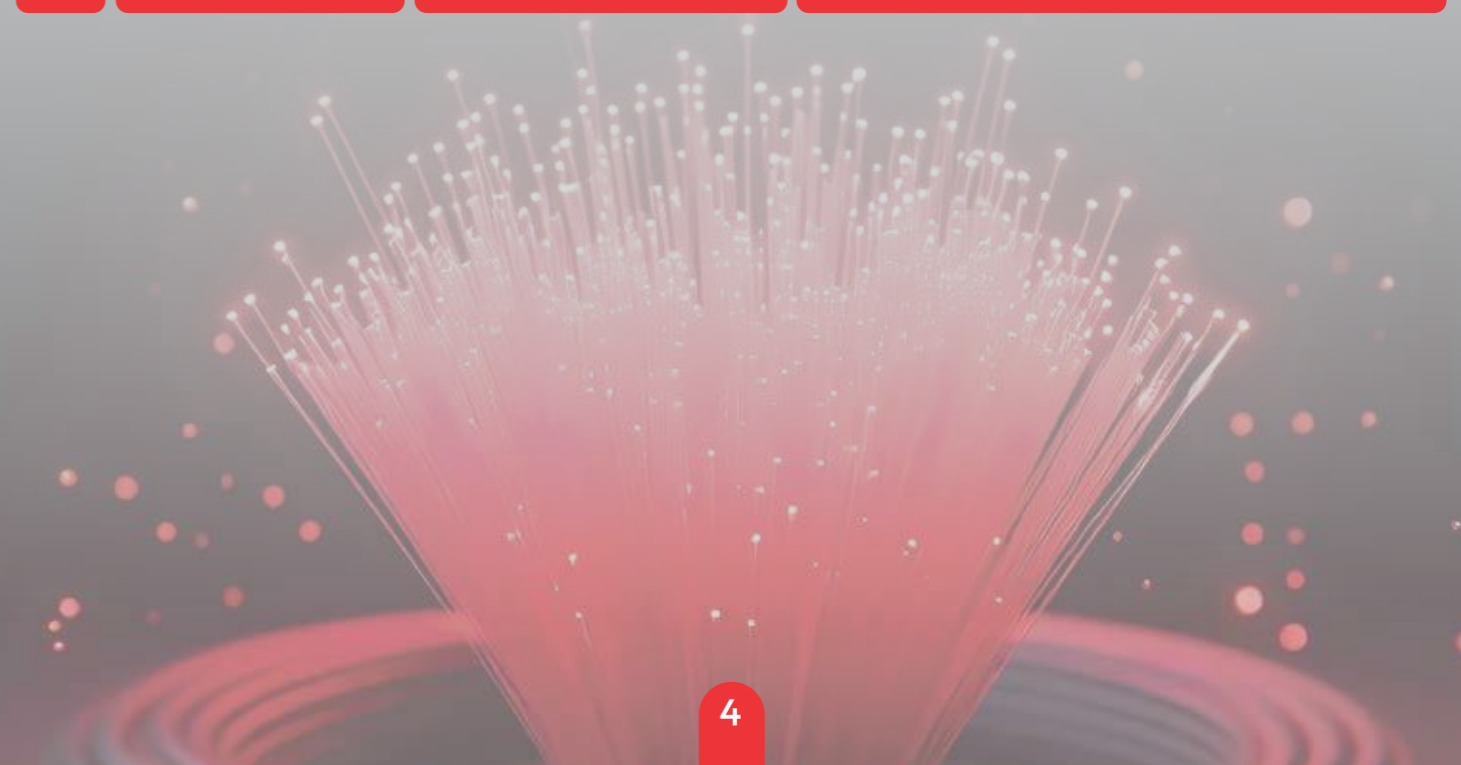
Parameter	Unit	Value
Crush (short term)	N/100 mm	500
Strength Member		FRP
Storage Temperature	°C	-20 to 60
Installation Temperature	°C	-5 to 50
Operating Temperature	°C	-20 to 60
Primary Buffer Diameter	µm	250
Fiber Count	n	1 to 4
Nominal Outer Diameter	mm	2.0 x 3.0 ± 0.2
Nominal Weight	kg/km	7
Maximum Tensile load	N	80
Minimum Bend Radius (installation)	mm	44
Minimum Bend Radius (installed)	mm	25
Jacket Material		HDPE, PP, PVC or LSZH, LSOH
Drum Length	m	2

Size and Overall Specification of Micro Cable

Core Type	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm)	FRP Diameter (mm)
SM G.657.A2/ G.652.D	12	1	5	1.6	1.65
SM G.657.A2/ G.652.D	24	2	4	1.6	1.65
SM G.657.A2/ G.652.D	36	3	3	1.6	1.65

Tests for Micro Cable

NO	ITEM	TEST METHOD	SPECIFICATION
1	Tensile performance IEC60794_1_21_E1	_Short-term load: 80N _Time: 5minutes	Loss changes ≤ 0.10 dB@1550 nm (after test) -Fiber strain ≤ 0.60 % -No sheath damage
2	Crush test IEC60794_1_21_E3	_Load: 300 N /100mm _ime: 5 minutes _Length: 100 mm	Loss changes ≤ 0.10 dB@1550 nm (during test) - No sheath damage
3	Temperature Cycling IEC60794_1_22_E1	-Temperature step: +20°C→-20°C→+70°C→+20°C -Number of cycles: 2 turns -Time per each step: 12 hrs.	-Loss changes ≤ 0.15dB/km@1550 nm (during test) -Loss changes ≤ 0.05dB/km@1550 nm (after test) -No sheath damage



Drop Cable:

Drop Cable for FTTH Network

Features:

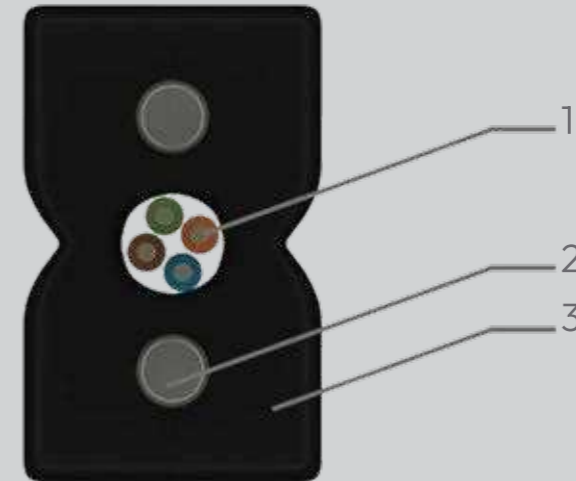
- Capable of accommodating 1 to 8 fibers.
- Approximate dimensions of 3x2 millimeters.
- Equipped with two non-metallic FRP elements to protect optical fibers.
- Direct connector installation possible.
- Has a desirable bending radius and high tensile strength.
- Features LSZH coating to prevent flame spread and the release of toxic gases after ignition.
- Capability of production with PVC and polyethylene PE coatings.
- This cable is produced in two variants: Indoor (with white or yellow coating) and Outdoor (with black coating).



Applications:

Suitable for FTTX networks and access networks.
Can be used to connect subscriber units to building entry cabinets.

Indoor FTTH Drop Cable



1. Optical Fiber Core
2. FRP or Steel wire strength member
3. UV resistant halogen free (LSOH), LSZH or any other possible materials



Indoor and Outdoor Drop Cable