Fibre optic cable

LTC-S

Article number: 77613 | 21-02-2025

Description

72x SM G.657.A1 (6x12)

The Loose Tube Cable Slim (LTC-S) is a non-metallic, loose tube outdoor duct cable, longitudinal water-protected. Due to its slim design (small diameter and light in weight), this cable is perfectly suitable for installation in ducts with limited space. Installation: by blowing or pulling, into conduits or on cable trays.

* This image may differ from the actual product.

Trading information

Product group	Fibre optic cable
Type	LTC-S
Net. Weight	0.052 kg/m
Sheath marking	ACE - TKF LTC-S 72x SM G.657.A1 (6x12) A-DQ(ZN)2Y 77613 {Batch} {Year} {Length}

Trade unit (length or pieces)

		Minimal order
	(77613 / 8713182228514)	1 MTR
à 4000	(77613H X 4000/200 / 8713182478582)	1 PCE
à 8000	(77613H X 8000/400 / 8713182478599)	1 PCE
à 12000	(77613H X 12000/600 / 8713182478575)	1 PCE

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Product characteristics

Cable type	LTC
Fibre type	Single mode 9/125
Optical fibre standard	ITU-T G.657.A1
Number of fibres	72
Number of fibres per tube	12
Type of tube	Loose tube, gel filled
Cable metal free	Yes
Number of layers	1 Layer
Strip method	1 Rip cord
With strain relief	Yes
Type of strain relief	FRP
Material outer sheath	HDPE
Colour outer sheath	Black
Outer sheath thickness	1 mm
Outer diameter approximate	8.2 mm

Application

Standardization	EN IEC 60794-3-10
Test procedures	IEC 60794-1-2
Application	Outside
Blow in	Yes
Reaction-to-fire according to EN 13501-6: Class	Fca

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Mechanical specification

Tensile load short term (Tm)	2,500 N
Tensile load long term (Tl)	1,500 N
Min. bending radius during installation	165 mm
Min. permitted bending radius, stationary application/permanent installation	125 mm
Crush resistance E3A short (1min)	2,500 N/dm
Crush resistance E3A long	1,500 N/dm
Crush load E3A long application time	10 min
Impact strength	15 J
Striking surface radius	300 mm
Torsion resistance	360 °/m

Optical specification

Fibre category	OS2
Max. attenuation @ 1310 nm	0.35 dB/km
Max. attenuation @ 1550 nm	0.22 dB/km
Max. attenuation @ 1625 nm	0.25 dB/km

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Environmental specification

Longitudinal water blocking	Yes
Longitudinal watertight construction	Super Absorbing Polymer
Installation temperature	-15 / 55 °C
Transportation and storage temperature	-40 / 70 °C
Operational temperature range Ta1 - Tb1	-30 / 70 °C
Max. attenuation increase during Ta1 - Tb1	0.05 dB
Operational temperature range Ta2 - Tb2	-40 / 70 °C
Max. attenuation increase during Ta2 - Tb2	0.15 dB
TC sample length for TC acc F1 or F12	1,000 m
UV resistant	Yes
UV protection	ISO 4892/2

Other specification

Halogen free according to EN 60754-1/2	Yes

DECLARATION OF PERFORMANCE (DOP) CE

Nr. DoP0084

1. Unique identification code for the product type:
This declaration concerns all optical fibre cables which are not tested for CPR rating.

2. Intended use of the construction product:
Supply of optical fibre cables in buildings and other civil engineering works with the objective of limiting the generation and spread of fire and smoke.

3. Manufacturer:
TKF (B.V. Twentsche Kabelfabriek)
Spinnerstraat 15
7481 KJ Haaksbergen
Netherlands
Tel.: +31(0)53 573 22 55
E-mail: info@tkf.nl

4. System of assessment and verification of constancy of performance of the construction product asset out in CPR, Annex V: **System 4**

5. Notified body: N.A.

6. Declared performance:

Essential characteristics	Performance	Harmonized technical specification
Reaction to fire	Fca	EN50575:2014/A1:2016
Dangerous substances	NPD	(EC) No 1907/2006, (REACH)

7. The performance of the product identified is in conformity with the declared performance.

This declaration of performance is issued under the sole responsibility of the manufacturer identified in this document.

Signed for and on behalf of the manufacturer by:

H. Woldhuis
R&D Manager Optical Fibre Cables

Haaksbergen, September 20th 2023

Signature

TECHNICAL PRODUCT INFORMATION

Product characteristics - optical fibres **20-12-2024**

Fibre specification G.657.A1

Fibre	
Type of fibre	Hydrogen passivated, dispersion unshifted, matched cladding, bending loss insensitive single mode fibre 9/125 µm Full compatible with G.652.D fibre Optical and geometrical properties exceed ITU-recommendations G.652.D and G.657.A1
Standard	IEC-60793-2-50, B-657.A1
Standard	ITU-T G.657.A1

Characteristics

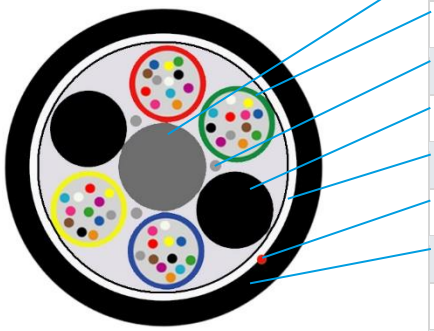
Parameter		Properties	Unit
Mode field diameter: 1310 nm		9.0 ± 0.3	µm
Mode field diameter: 1550 nm		10.2 ± 0.4	µm
Core non-circularity	max.	6	%
Core/cladding concentricity error	max.	0.4	µm
Cladding diameter		125.0 ± 0.5	µm
Cladding non-circularity	max.	0.7	%
Coating diameter		242 ± 5	µm
Coating/cladding concentricity error	max.	8	µm
Temperature sensitivity: -60 to +85 ºC	max.	0.05	dB/km
Bending sensitivity - 100 turns around Ø50 mm - 1550 nm	max.	0.05	dB
Bending sensitivity - 100 turns around Ø60 mm - 1625 nm	max.	0.05	dB
Bending sensitivity - 10 turns around Ø30 mm - 1550 nm	max.	0.1	dB
Bending sensitivity - 10 turns around Ø30 mm - 1625 nm	max.	0.3	dB
Bending sensitivity - 1 turn around Ø20 mm - 1550 nm	max.	0.75	dB
Bending sensitivity - 1 turn around Ø20 mm - 1625 nm	max.	1.5	dB
Proof test level	min.	0.70	GPa
Fibre curl	min.	4	m
Cable cut-off wavelength	max.	1260	nm
Zero-dispersion wavelength		1300 – 1324	nm
Zero-dispersion slope	max.	0.090	$ps/nm^2 \cdot km$
Chromatic dispersion: 1285 - 1330 nm	max.	|3.2|	ps/nm·km
Chromatic dispersion: 1550 n	max.	17	ps/nm·km
Chromatic dispersion: 1625 nm	max.	21	ps/nm·km
Polarisation mode dispersion: max. individual fibre	max.	0.1	ps/√km
PMD_Q	max.	0.04	ps/√km
Max. attenuation at 1383 nm (α_{1383}) [note a]	< max.	α_{1310}	-
Effective group core refractive index: 1310 nm		1.4671	-
Effective group core refractive index: 1550 nm		1.4675	-
Effective group core refractive index: 1625 nm		1.4680	-

[note a: after hydrogen ageing]

TECHNICAL PRODUCT INFORMATION

Cable construction and colour code **12-12-2023**

LTC-S

Cross section image	Description
	Central strength element (GFRP), with additional coating (if necessary)
	Gel-filled loose tube with optical fibres
	Water blocking layer (yarns or tape)
	Filler (if necessary)
	Water blocking layer (yarns or tape)
	Ripcord
	Outer sheath

Standard colours

Fibres				Tubes					
Group 1		Group 2		Layer 1		Layer 2		Layer 3	
1	Red	13	Red +t	1	Red				
2	Green	14	Green +t	2	Green				
3	Blue	15	Blue +t	3	Blue				
4	Yellow	16	Yellow +t	4	Yellow				
5	White	17	White +t	5	White				
6	Grey	18	Grey +t	6	Grey				
7	Brown	19	Brown +t	7	Brown				
8	Violet	20	Violet +t	8	Violet				
9	Turquoise	21	Turquoise +t	9	Turquoise				
10	Black	22	Natural +t	10	Black				
11	Orange	23	Orange +t	11	Orange				
12	Pink	24	Pink +t	12	Pink				

note +t: indicates a black tracer