

## DAC

### 2x SM G.657.A1

Article number: 75098

Date: 18-04-2023

The Direct Access Cable (DAC) is a light-weight, non-metallic, central tube direct-buried Access cable with low bend radius, no waterpeak G.657.A1 fibres, with small diameter for easy installation, longitudinally water-protected. This cable has a very high crush resistance and tensile strength, is fast strippable (over >4 meter in one stroke). Due to extra strength-members in the cable outer sheath, this central tube design has an improved temperature range. Installation: direct burial application. Also blowable in (mini)tubes over a limited distance.

DAC  
2x SM G.657.A1



### Product characteristics

Cable type	DAC
Fibre type	Single mode 9/125
Optical fibre standard	ITU-T G.657.A1
Number of fibers	2
Number of fibers per optical element	2
Number of cores	1
Optical element	Loose tube, gel filled
Cable metal free	Yes
Stripability outer sheath	1000 mm
Strain relief	Yes
Type of strain relief	FRP + Aramid
Material outer sheath	Polypropylene
Colour outer sheath	Orange

Outer sheath thickness	1,5 mm
Outer diameter approx.	5,9 mm
Max. outer diameter	6,3 mm
Marking	ACE - TKF DAC 2x SM G.657.A1 (1x2) A-DQ(ZN)9Y 75098 {Batch} {Year} {Length}

## Application

Standardization	EN IEC 60794-3-10
Test procedures	EN IEC 60794-1-2
Application	Outside
Blow in	No
Euro fire class according to EN 13501-6	Fca

## Mechanical specification

Tensile load short term (Tm)	1200 N
Cable strain by Tm	0,33 %
Tensile load Long Term (TI)	360 N
Impact strength	8 J
Min. bending radius during installation	60 mm
Min. bending radius after installation	45 mm
Crush resistance E3A short (1min)	4000 N/dm
Crush resistance E3A long	2750 N/dm
Crush resistance E3B short term (1min)	1300 N/dm
Crush resistance E3B long term	400 N/dm
Impact strength (Shofel test)	3 J
Cut-through resistance	300 N
Torsion resistance	1800 °/m
Kink resistance	60 mm

## Optical specification

Category according to EN 50173	OS2
Max. attenuation @ 1310 nm	0,37 dB/km
Max. attenuation @ 1550 nm	0,22 dB/km
Max. attenuation @ 1625 nm	0,24 dB/km
Bending radius fibre storage (<10 turns acc ITU rec)	15 mm
Bending radius fiber (1 turn acc. to ITU rec.)	30 mm

## Environmental specification

Longitudinal water blocking	Yes
Longitudinal watertight construction	Super Absorbing Polymer
Cable longitudinally watertight	Yes
Radial water blocking	No
Radial water blocking cable	No
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
UV resistant	Yes
UV-protection	ISO 4892/2
Color fastness	Blue wool scale 5
With rodent protection	Yes

## Other specification

Halogen free (acc. EN 60754-1/2)	Yes
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## Logistical specifications

Unit	meter
Netto Weight (kg/m)	0.027
Default packaging	H X 6000/300

# Fibre specification G.657.A1

ACE-DS-OT-VSP-SM-G657A1-v03-e

date : 11-08-2020

## Technical product information

### Product characteristics - optical fibers

#### 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 °C	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 <sup>2</sup> ·km
Chromatic dispersion: 1285 nm – 1330 nm	max.  3.2	ps/nm·km
Chromatic dispersion: 1550 nm	max. 17	ps/nm·km
Chromatic dispersion: 1625 nm	max. 21	ps/nm·km
Polarisation mode dispersion: max. individual fibre	max. 0.1	ps/nm·km
PMD <sub>Q</sub>	max. 0.06	ps/√km
Max. attenuation at 1383 nm (α <sub>1383</sub> ) [note a]	< max. α <sub>1310</sub>	-
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	-

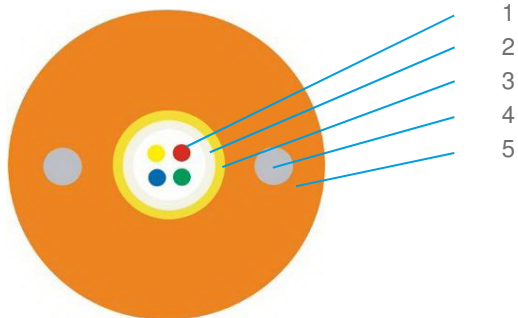
note a: after hydrogen ageing

## TECHNICAL PRODUCT INFORMATION

### Cable construction and colour code

#### DAC

Direct Access Cable



#### Description

- |   |                   |
|---|-------------------|
| 1 | Optical fibres    |
| 2 | Central tube      |
| 3 | Reinforcement     |
| 4 | Rigid elements    |
| 5 | Outer sheath (PP) |

#### Standard colours

Fibres

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

note +t: indicates a black tracer

# DECLARATION OF PERFORMANCE (DOP)



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 3**
5. Notified body: **SP NB 0402**
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, March 17<sup>th</sup> 2023

Signature