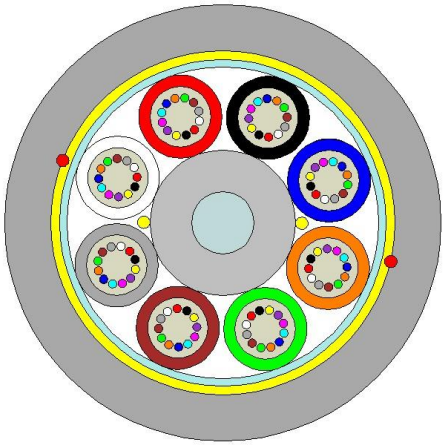
12F 24F 48F 96F 144F ADSS Cable, 200m Span (1.5% SAG, NESC Light)

Cable Design

IEC/EN 60794-3-20



- not to scale -

- **Central strength member (CSM):** glass fibre reinforced plastic material (FRP) with PE coating when needed.
- **Tube:** thermoplastic material, containing up to 12 optical fibres and filled with a suitable water tightness compound.
- **Stranding:** the required number of elements (tubes or fillers) are SZ stranded around the central strength member.
- **Core Wrapping:** water blocking tape (dry core).
- **Peripheral reinforcement**: aramid yarns.
- **Outer Sheath:** HDPE. 2 ripcords beneath.

Technical data

No. of Fibres		**12,24**	**48**	**96**	**144**
Design(element × fibre per tube)		6x6	6x12	8x12	12x12
Loose Tube / Filler - Ø nominal	mm	2.2	2.4	2.4	2.4
CSM/coating nominal diameter	mm	2.5	2.7	2.7/4.2	2.7/7.5
Outer sheath nominal thickness	mm	1.5	1.5	1.5	1.5
Cable nominal Diameter	mm	10.6	11.1	12.7	15.9
Cable Weight	kg / km	85	93	116	180
Maximum installation tension	N	1300	1500	1900	3000
Max. Operating tension	N	3000	3300	3800	5000
Maximum span	m	200			
Minimum sag	%	1.5			
NESC CONDITIONS		NESC Light			
Min. bending radius	mm	Without Tension 10 x Cable-Ø		Under Maximum Tension 20 x Cable-Ø	
Temperature range	°C	Installation -10 -> +60;	Transport. & Storage -40 -> +70 ;	Operation -40 -> +70	

Please refer to our General Installation, Safety & Handling recommendations before handling.

Main characteristics

Test	**Standard**	**Value**	**Sanction***
Max. installation tension	IEC 60794-1-2-E1	see above table	no visible fibre strain, $\Delta\alpha$ reversible
Max. Operating tension	IEC 60794-1-2-E1	see above table	fibre strain $\leq$ 0.2%, $\Delta\alpha$ reversible
Crush(short term)	IEC 60794-1-2-E3	2200 N / 100mm	$\Delta\alpha \leq$ 0.1 dB
Temperature range	IEC 60794-1-2-F1	-40 -> +70°C	$\Delta\alpha \leq$ 0.1 dB /km
Water Penetration	IEC 60794-1-22-F5C	sample=3m, water=1m	No water leakage after 24 hour

** values for single-mode fibres, all optical measurements performed at 1550 nm.*

Optical Characteristics

See the attached cabled optical fibre data sheet.

Identification

Fibre Colours

No.	1	2	3	4	5	6	7	8	9	10	11	12
Colour	blue	orange	green	brown	grey	white	red	black	yellow	violet	pink	aqua

Buffer Tube Colours

Tube No.	1	2	3	4	5	6	7	8	9	10	11	12
Tube Colour	blue	orange	green	brown	grey	white	red	black	yellow	violet	pink	aqua

Fillers are black

Sheath Colour:
The outer sheath colour is black.

Sheath Marking:
The outer sheath is marked in 1 meter intervals as follows:

PRYSMIAN FYCO TELECOM YYYY XXF G652D ADSS CABLE 200M SPAN XXXXM

Logistic

Packing:
Wooden drums with protection.

Delivery Lengths:
Standard delivery length is 4km with a tolerance of ±3%.

Prysmian Code	FYCO Code	Description
60089405	FO12HADSS200PRYS	CABLE DE FIBRA OPTICA ADSS 12 HILOS SPAN 200
60089406	FO24HADSS200PRYS	CABLE DE FIBRA OPTICA ADSS 24 HILOS SPAN 200
60089407	FO48HADSS200PRYS	CABLE DE FIBRA OPTICA ADSS 48 HILOS SPAN 200

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 50 173-1:2007, 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 – 2002 incl. 802.3ae	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	9.2 ± 0.4
Mode field diameter at 1550 nm		µm	10.4 ± 0.5
Chromatic dispersion coefficient:	IEC/EN 60793-1-42		
In the interval 1285 nm – 1330 nm		ps/km • nm	≤ | 3.5 |
At 1550 nm		ps/km • nm	≤ 18.0
At 1625 nm		ps/km • nm	≤ 22.0
Zero dispersion wavelength, λ_0		nm	1300 - 1324
Zero dispersion slope		ps/(nm^2 • km)	≤ 0.092
Cut-off wavelength	IEC/EN 60793-1-44	λ_{CC} nm	≤ 1260 *
Polarisation mode dispersion (PMD) coefficient, cabled	IEC/EN 60793-1-48	ps/√km	≤ 0.2
PMD_Q Link Design Value (computed with Q=0.01%, N=20)	IEC/EN 60794-3	ps/√km	≤ 0.06

** guaranteed value according to the ITU-T (ASTM G650) method*

Attenuation

Attribute	Measurement method	Units	Limits
Maximum attenuation value of cable at 1310 nm	IEC/EN 60793-1-40	db/km	≤ 0.36
Maximum attenuation value of cable at 1550 nm	IEC/EN 60793-1-40	db/km	≤ 0.22
Inhomogeneity of OTDR trace for any two 1000 meter fibre lengths		db/km	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	Limits
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

Geometrical properties

Attribute	Measurement method	Units	Limits
Cladding diameter	IEC/EN 60793-1-20	µm	125.0 ± 1.0
Cladding non-circularity	IEC/EN 60793-1-20	%	≤ 1
Core (MDF) – cladding concentricity error	IEC/EN 60793-1-20	µm	≤ 0.6
Primary coating diameter - ColorLock®^{XS} and natural	IEC/EN 60793-1-21	µm	245 ± 10
Primary coating non-circularity	IEC/EN 60793-1-21	%	≤ 6
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	$1.3 \leq F_{peak.strip} \leq 8.9$
Dynamic fatigue resistance aged and unaged (N_d)	IEC/EN 60793-1-33		≥ 20
Static fatigue, aged n_s	IEC/EN 60793-1-33		≥ 23

All measurements in accordance with ITU-T G650 recommendations