fiber optic cable series

DSS V3 / V4 / V9

Structured Strain-Sensing Fibre Cable



Structured-profile (V3, V4 & V9) concrete & soil anchorage strain sensing fibre cables

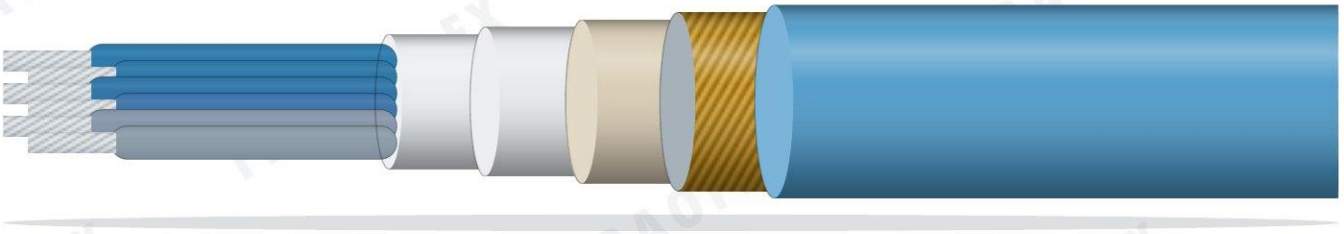
IEC 61757-1-1 DSS | V3 / V4 / V9 Ribbed | Concrete & Soil Anchor

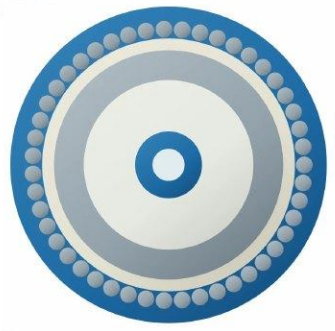
Application

DSS V3 / V4 / V9 Structured Strain-Sensing Fibre Cable family with periodic mechanical anchorage ribs and central stainless-steel or monolithic strain-locked cores for slip-free embedment in concrete, grout, soil and rock.

Typical uses: Concrete Dam & Foundation Crack Monitoring, Grouted Rock Bolts & Soil Nails, Tailings Dam & Embankment Slip Detection, Precast Tunnel Lining & Shotcrete SHM, Geothermal & CCS Borehole Grout Annulus

Construction





Cross-section, not to scale

1	Strain-locked optical fibre	Linear Brillouin frequency shift 0.050 MHz/με
2	Central carrier (FIMT on V3/V9 · Elastomer on V4)	
3	Separator / barrier tape	Linear Brillouin frequency shift 0.050 MHz/με
4	Tensile reinforcement (V9 steel / V4 aramid)	
5	Ribbed / indented anchorage outer sheath	

Technical data

Typical values

Sensing principle	Brillouin (BOTDA / BOTDR) & Rayleigh OFDR	**Strain sensitivity**	≈ 0.050 MHz / με @ 1550 nm
Dielectric option	DSS V4 is 100 % metal-free all-dielectric	**Operating temperature**	-40 °C to +85 °C (+100 °C concrete hydration)
Installation temperature	-15 °C to +60 °C	**Storage temperature**	-40 °C to +85 °C
Operating strain range	-10,000 με to +10,000 με (±1.0 %)	**Axial stiffness (EA)**	25 kN (V4) · 85 kN (V3) · 220 kN (V9)
Max. tensile load	800 N (V4) · 1,400 N (V3) · 2,800 N (V9)	**Crush resistance**	2,500 N (V4) · 4,000 N (V3) · 5,500 N/100 mm (V9)
Min. bend radius	15 × OD static · 20 × OD dynamic	**Fibre specification**	ITU-T G.657.A1 / G.652.D (200 kpsi proof test)
Attenuation @ 1550 nm	≤ 0.25 dB/km	**Attenuation @ 1310 nm**	≤ 0.38 dB/km
Cement & alkali resistance	PA12 / HDPE resists pH 13.5 hydrating concrete	**Hydrostatic pressure**	Up to 10 MPa (100 bar) on V3 and V9 FIMT models
Pull-out bond strength	Ribbed profile locks into grout with zero slip	**Standards**	IEC 61757-1-1 Distributed Strain Measurement

Sizes

4 standard constructions

Tick the sizes you need and send this page to info@tebaoflex.com or WhatsApp +86 185 9591 3361.

Order designation	Core & surface structure	Outer Ø mm	Weight ≈ kg/km	Max. load N	Crush N/100 mm
Structured-Surface Concrete & Soil Strain Cables 4 sizes					
☐ **DSS V4-01SM**	1F All-Dielectric Ribbed PA12 (EA 25 kN)	4.0	16	800	2,500
☐ **DSS V3-01SM**	1F 316L FIMT + Ribbed PA12 (EA 85 kN)	4.6	28	1,400	4,000
☐ **DSS V3-02SM**	2F 316L FIMT + Ribbed PA12 (EA 85 kN)	4.6	29	1,400	4,000
☐ **DSS V9-02SM**	2F FIMT + Steel Wire + Ribbed PA12 (EA 220 kN)	6.0	58	2,800	5,500

– Periodic surface ribs anchor directly into curing concrete, cement grout or compacted soil without adhesives.

Standards and approvals

- IEC 61757-1-1 Distributed Strain
- IEC 60794-1-21 & ITU-T G.657.A1
- RoHS 2 & REACH Compliant

Certifications

Management systems: ISO 9001, ISO 14001, ISO 45001

Request a quotation

Send the size, length and destination. An application engineer replies within 2 business hours.

WhatsApp / phone
+86 185 9591 3361

Email
info@tebaoflex.com

Web
tebaoflex.com/cables/brusens-dss-v3-v4-v9-structured-strain-sensing-fibre-cable

Typical values for this cable type, based on IEC 61757-1-1 / IEC 60794-1-21 / ITU-T G.657.A1. Values for your order are confirmed in the quotation. Subject to change without notice. Jiangsu Tebaoflex Special Cable Co., Ltd., Taicang, Jiangsu, China.