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Technical Specification 43-126: Part 4

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FITTINGS FOR OVERHEAD LINE OPTICAL CABLES – ALL DI-ELECTRIC SELF SUPPORTING CABLES (ADSS)

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FITTINGS FOR OHL OPTICAL CABLE – PART 4 ADSS

FOREWORD & SCOPE

This specification is for All Di-electric Self Supporting (ADSS) cable fittings used on permanent installations on lattice tower and wood pole lines up to 150kV. It also includes line mounted fittings and structure mounted splice enclosures together with any additional hardware required to attach the cable to tower or pole structures.

1 INTRODUCTION

This specification outlines the requirements for overhead line optical cable fittings.

All Di-electric Self Supporting Cable is installed on electricity transmission or distribution overhead line support structures, lattice towers or poles. The ADSS cables are separate from the electricity cables and therefore require dedicated fittings with additional hardware to provide an attachment to the support structure.

Fittings in common use and attachment hardware are described in this specification, however it is not intended to exclude other fittings and hardware that may become available and can be used on an installation. New designs may from time to time become available that offer enhanced performance, simpler installation or are cheaper to manufacture. Any new designs however shall meet the general requirements in this specification.

2 REFERENCES

BS EN 1341-1	Terminations for steel wire ropes. Safety. Thimbles for steel wire rope slings
BS 3288	Insulator and conductor fittings for overhead power lines
BS 3643	ISO metric screw threads. Principles and basic data
BS 3692	ISO metric precision hexagon bolts, screws and nuts - specification
BS 4190	ISO metric black hexagon bolts, screws and nuts. Specification
BS EN 1301	Aluminium and aluminium alloys. Drawn wire
BS EN ISO 1461	Hot dip galvanized coatings on fabricated iron and steel articles
BS ISO 1891	Fastener Terminology
CISPR/TR 18-3 ed2.0	Radio interference characteristics of overhead power lines and high-voltage equipment - Part 3: Code of practice for minimizing the generation of radio noise
BS EN 10244	Steel wire and wire products. Non-ferrous metallic coatings on steel wire
BS EN 10270	Steel wire for mechanical springs
BS EN 60529	Degrees of protection provided by enclosures (IP Code)
BS EN 60793	Optical fibres. Measurement methods and test procedures
BS EN 60794-1-1	Optical fibre cables - Part 1-2: Generic specification - Basic optical cable test procedures
BS EN 61284	Overhead lines. Requirements and tests for fittings
ENA TS 43-15	Insulator binds and equivalent helical fittings for overhead lines
ASTM B415	Standard Specification for Hard-Drawn Aluminum-Clad Steel Wire
IEE 664	IEEE Guide on the Measurement for the Performance of Aeolian Vibration Dampers for Single Conductors

3 DEFINITIONS

For the purposes of this document the following definitions apply.

ADSS	An all di-electric optical fibre cable that can support its own weight in a short or long span.
FITTINGS	Any hardware attached to the ADSS or related to the interface between the ADSS and the tower/pole.
ELASTOMER	A cross-linked polymer with the properties of elasticity, often used to reduce bending stress between ADSS and holding devices.
DEAD-END	A device for holding the ADSS under tension typically manufactured from factory formed helical rods.
HELICAL SUSPENSION UNIT (HSU) or (AGS)	A suspension device that uses helical rods to reduce bending stress to the ADSS
THIMBLE	A protective insert used on some preform fittings that transfers the load between a shackle and the fittings
SHACKLE	U-shaped piece of metallic forging or casting secured with a pin or bolt across the opening
NRTS	Nominal Rated Tensile Strength
BUFFER TUBE	A tube used to house the optical fibre within the ADSS. Usually filled with an inert gel to both cushion the fibre and prevent ingress of moisture along the cable
REINFORCING ROD	Factory formed helical rods used in a set under helical dead ends and helical suspension units to protect ADSS.
LINE MOUNTED SPLICE ENCLOSURE	A cable mounted enclosure for joining fibre optic cables that operates at line potential
STRUCTURE MOUNTED SPLICE ENCLOSURE	A enclosure for joining fibre optic cables supported by an insulator.
SUSPENSION UNIT	For the purposes of this specification a suspension unit also includes fixed support units. These devices hold the cable and are attached via shackles or links (suspension), or attached directly (fixed) to support structures.
CABLE STORAGE UNIT	This device is used to store spare cable that may be used at a later date to provide a breakout connection. The storage unit can be either structure mounted or line mounted (snow shoe)
ATTENUATION	The reduction in optical power as it passes along a fibre, usually expressed in decibels (dB)
MIT	Maximum Installation Tension; maximum recommended stringing tension during the installation process and maximum tensile load applied to the cable for sagging.