

SECTION 16735

FIBER OPTIC SPLICE ENCLOSURE

1. Description. Furnish and install underground and aerial splice enclosures.
 - A. Submittals. Provide all submittals identified in these specifications no later than two (2) weeks following award of contract.
2. Materials. Do not purchase fiber optic splice enclosure for use on this project prior to receiving written approval of submittals for fiber optic splice enclosure by the Engineer, as established in Section 1A. All fiber optic splice enclosure(s) supplied and utilized on this project will be from a single manufacturer. Fiber optic enclosure and the fiber optic cable manufacturer shall be vertically integrated. Manufacturers proposing to supply fiber optic enclosure(s) for this project will be Certified ISO-9001 and TL 9000 Certified.

Ensure materials and construction methods conform to the current NEC and National Electrical Safety Code. Closures shall pass Telcordia Technologies Generic Requirements GR-771-CORE, Generic Requirements for Fiber Optic Splice Closures

A. Splice Trays.

(1). General Requirements.

Accept single mode fibers and meet the following requirements:

- Completely re-enterable
- Accept 12 or 24 fusion splices
- Metal trays with black powder coating and aluminum tops
- Stackable tray design

(2). Technical Requirements. Splice Trays shall be available for a variety of splicing methods

(3). Submittals. Manufacturer cut sheets.

B. Optical Fiber Organizers.

Store splice trays in such a way as to protect and support cable splices within an environmentally protected area, an outside plant entrance point within a basement junction box, etc. Store splices in all configurations for up to four cables. Accept a minimum of four splice trays and offer bonding and grounding hardware as required from project to project. Use a one piece cable strapping system for easy storage.

3. Construction. Install underground and aerial splice enclosures in accordance with the following requirements:

A. Installation Guidelines.

(1). Use Locations

- Underground vault
- Communications Service Box
- Manhole
- Aerial mounted on messenger
- Hub building

(2). Design Requirements. Aerial application requires proper mounting hardware and shall be mounted using messenger cable. Ensure re-entry does not cause damage to drop cables or their jackets. Splice enclosures must withstand the most severe conditions of moisture, vibration, impact, cable stress and flex temperature extremes. If requested by the Engineer, provide the factory test procedures and their results of the minimum specifications listed below, which are the minimum requirements for any underground or aerial splice enclosure. Splice Enclosures shall be compatible for use in the Communications Service Box used by City of Houston.

Allow for cable entry or re-entry in butt configuration, using mid-span cable breakout and splicing methods.. Closure shall have two (2) express ports and shall require Add-a-Cable kits for the cable drop ports Use cable addition kits when all existing ports in butt configuration are in use. No inline cable entry into splice enclosure is allowed. Enclosure to meet the following requirements:

- Rigid non filled case,
- Withstand compression up to 200 pounds,
- Made of molded plastic,
- Two entrance express ports and cable drop ports on one end only.
- Cable drop ports that require Add-a-Cable kits for drop cables
- Closure shall be a domed canister type

B. Testing Requirements for Splice Enclosures.

	TEST	PROCEDURE	RESULTS
Environmental Requirements	UV Resistance	ASTM-G26 for 740 hours	No loss in material strength
	Fungus Resistance	ASTM-G21	Zero rating
	Water Immersion	20 foot depth for 7 days	No water intrusion
	Freeze/Thaw	Ten 28 hour freeze/thaw cycle from 104°F (40°C) to 158°F (70°C)	No loss in material strength
	Salt Fog	30 days	No damage to metallic parts
	Acidified Saltwater	90 days in a salt/sulfuric acid bath (sulfuric acid, 0.2N sodium hydroxide)	No damage to metallic parts
	Chemical Immersion	24 hours at 100°F in Kerosene	No loss in material strength (Closure Body Material)
	Gasket Material	Sulfuric acid, 0.2N sodium hydroxide, gasoline, wasp spray	Weight change less than 10%
Mechanical Requirements	Compression Set	100° C for 22 hours	<22%
	Impact Torsion	100 ft-lb at 104°F (40°C) and 0°F (18°C) 10 twists at 104°F (40°C) and 0°F (18°C)	No mechanical damage No mechanical damage or loss of seal
	Bending	25 bends at 104°F (40°C) and 0°F (18°C)	No mechanical damage or loss of seal
	Drop Compression	Drop from 30 inches at 104°F (40°C) and 0°F (18°C) 300 lbf for 15 min. at 104°F (40°C) and 0°F (18°C)	No mechanical damage No mechanical damage
	Cable Pullout	100 lbf for 30 min.	No cable movement
Electrical Requirements	Current Surge	300 amps/10 secs.	No damage to bonding hardware
	Bond Clamp Retention	20 lbf for 1 min.	No bond clamp movement

4. Documentation. Submit manufacturer's cut sheets to ensure that the specifications are met.
5. Measurement. This Item will be measured by the number of Fiber Optic Splice Enclosures furnished, installed, connected, and tested.
6. Payment. The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Fiber Optic Splice Enclosure". This includes testing; connecting; and for materials, equipment, labor, tools, documentation, warranty, training and incidentals.

END OF SECTION