

# GJS-I-2023 Fiber Optical Splice Closure Technical Datasheet

Version:1.0



# **GJS-I-2023 Fiber Optic Splice Closure Technical Specification**



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Revision record

| Issue Date | Version NO. | Change Statement | Drafter  | Reviewers |
|------------|-------------|------------------|----------|-----------|
| 2023-07-01 | Rev.1.0     | Initial Release: | Feng Jie |           |

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# 1 General Information and Compliant Standard

## 1.1 General Information

GJS-I-2023 Dome Nut-Sealed Splice Closure, adopts innovative structure design of dome form, with its cover and bottom locked, fixed and sealed by hoop, and cables inlet and outlet ports at one end. The main function of this product is to provide splicing protection of mid-span, branching splices for cables of various types in optical transmission links, and it can play mid-span, branching, splitting and distributing effect. The product shell is made of modified PP engineering plastics with good physical and chemical properties, and it is suitable for overhead, pole, wall mounting, handhole-mounting, duct-mounting etc. .

## 1.2 Compliant Standard

This product follows the standards beneath:

ITU-T L.13-2003;

YD/T814.1-2013;

ISO 9001:2015.

## 1.3 Applicable Environment

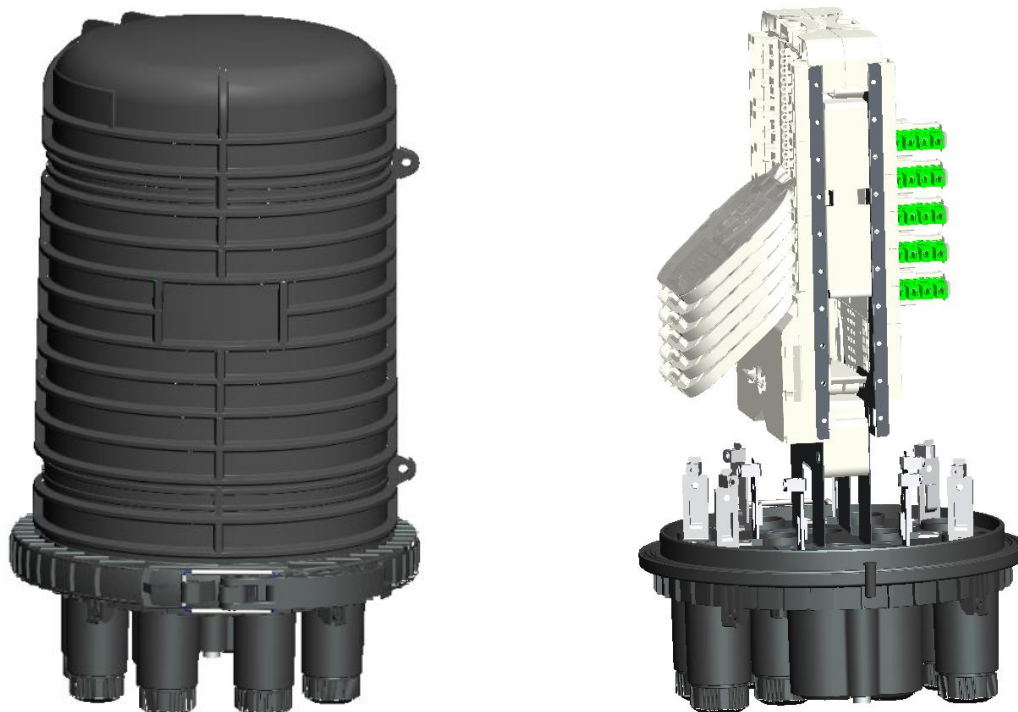
Operating Ambient Temperature:  $-40^{\circ}\text{C}\sim+65^{\circ}\text{C}$

Ambient Pressure: 70~106KPa

Storage Temperature:  $-40^{\circ}\text{C}\sim+70^{\circ}\text{C}$ .



## 2 Appearance and Components

### 2.1 Appearance



### 2.2 Components

Components:

| NO. | Components Names    | Type           | Quantity                      | 备注   |
|-----|---------------------|----------------|-------------------------------|--|
| 1   | Splice Closure      | GJS-I-2023.asm | 1 pc                          |  |
| 2   | Splitter            | /              | As per specific circumstances |  Blockless PLC Splitter.pdf |
| 3   | Adaptor             | /              | As per specific circumstances |  PC-APC Adaptor.pdf         |
| 4   | Pigtail             | Not involved   | Non                           | /  |
| 5   | Accessory Packages  | /              | 1 bag                         | See details of packing list  |
| 6   | Packing List        | /              | 1 sheet                       | papery   |
| 7   | Installation Manual | /              | 1 pc                          | papery   |

## 3 Product Overview

### 3.1 Requirements of Specifications

**Requirements of Product Specifications**

| NO. | Item                                   | Requirements Specification   |
|-----|--|--|
| 1   | Outside Dimension (D×H(mm))            | 313×490mm (for reference only)   |
| 2   | Mounting Ways                          | overhead/wall-mounting   |
| 3   | Max. Capacity                          | Max. 48 pieces 070# 6-12-core splice tray, Max. 576 cores;<br>Max. 24 pieces 071# 6-12-core splitter tray, Max. 288 cores;   |
| 4   | Material                               | Shell: PP engineering plastics; Splice Tray: PC+ABS  |
| 5   | Color                                  | Black  |
| 6   | Logo                                   | Can be customized  |
| 7   | Environmental Protection               | As per customer requirements   |
| 8   | Flammibility                           | UL94-HB (Sample bar thickness is 2.0mm)  |
| 9   | Salt Spray                             | Metals with different materials as per customer requirements   |
| 10  | Protection Grade                       | IP68   |
| 11  | Size and Number of Optical Cable Ports | 8 pcs branch cable inlet/outlet ports, diameter: $\phi 8 \sim 22\text{mm}$ ;<br>1 pc mid-span port, diameter: $\phi 8 \sim 23\text{mm}$ ;<br>Sealing rings for cable inlet/outlet ports can be selected as per customers' requirement. In general, only one specification of them will be equipped when leaving factory. |
| 12  | Cable in-and-out Mode                  | Cable inlet-and-outlet ports are at lower end  |
| 13  | Mid-span                               | Supporting mid-span  |
| 14  | Pressure Testing Valve                 | Equipped with Valve (Optional)   |
| 15  | Grounding Device                       | Equipped with grounding device (Optional)  |

## 4 Product Technical Requirements

### 4.1 Main Characteristics

- Restore the integrity of the cable sheath and the mechanical continuity of the cable reinforced components.
- Provide the function of electrical connection, grounding or disconnection of metal members in optical cables.
- Protect fiber optic splices free from environmental influences.
- It can make the mid-span optical cable go straight through without being cut off, and ensure that the loose sleeve is not broken when the cable passes through the inlet/outlet cable ports.
- Hold fiber splices and store reserved fibers.

- f) It is suitable for directly buried, aerial, manhole, pipeline and handhold mounting.
- g) The cable splice closure should also be termite-resistant when required. The testing method of termite resistance shall be carried out according to the group method in GB/T 2951.38-1986, and there should be no tooth marks of termite decay on the surface and along the edge of the sealing material sample.

## 4.2 Performance of Material

- (1) The material and surface treatment of all sheet metal parts and small hardware parts (such as screws, nuts, gaskets, etc.) used in the product shall be strictly treated to meet customer requirements and the corresponding salt spray test requirements. **(Note: The metal fittings are available in three types: 304#stainless steel, 201#stainless steel and ordinary iron galvanized. The time of salt spray test is different for different materials.)**
- (2) The base should be made of PP+GF(30%) to ensure the strength and test requirements of the closure bottom .
- (3) Hoops, hoop shafts, etc., should be made of PA66 material to ensure the airtight performance of the splice closure.

## 4.3 Requirements of Mechanical Performance

The product should meet the following mechanical property test requirements:

**List of Mechanical Performance Test**

| Items                         | Test Methods   | Evaluation Criteria   | Reference Standard |
|-------------------------------|--|---|--------------------|
| Air Tightness Test            | <ol style="list-style-type: none"> <li>1. Internal pressure: <math>(40 \pm 2)</math> kPa;</li> <li>2. Test temperature: <math>(23 \pm 3)^{\circ}\text{C}</math>;</li> <li>3. Test time: 15 minutes;</li> <li>4. Depth: Just below water surface.</li> </ol>  | No bubbles indicating a leakage shall be observed during the test.  | ITU-T L.13         |
| Pressure Loss during the Test | <ol style="list-style-type: none"> <li>1. Internal pressure: <math>(40 \pm 2)</math> kPa;</li> <li>2. Temperature: <math>(23 \pm 3)^{\circ}\text{C}</math>;</li> <li>3. Elapsed time: 12 hrs.</li> </ol>   | Difference in pressure before and after the test $\leq 2$ kPa at the same atmospheric conditions.   | ITU-T L.13         |
| Impact Test (IK10)            | <p>After reaching temperature plateau at <math>(-15 \pm 2)^{\circ}\text{C}</math>, <math>(23 \pm 2)^{\circ}\text{C}</math>, and <math>(45 \pm 2)^{\circ}\text{C}</math>, respectively, mount the test sample.</p> <ol style="list-style-type: none"> <li>1. Internal pressure: <math>(40 \pm 2)</math> kPa</li> <li>2. Use a 1kg steel ball at a height of 2m to impact the splice closure;</li> </ol> | <ol style="list-style-type: none"> <li>1. Difference in pressure before and after the test <math>\leq 2</math> kPa;</li> <li>2. The samples are undamaged and the internal devices are fixed and not</li> </ol> | ITU-T L.13         |



|                  |  |  |                |
|------------------|--|--|----------------|
|                  | <p>3. The impact location is at the centre of the closure at 0°, 90°, 180°, 270° around the longitudinal axis;</p> <p>4. Impact one location once.</p>   | loose.   |                |
| Static Load Test | <p>After reaching temperature plateau at (-15±2)°C, (23±2)°C, and (45±2)°C, respectively, mount the test sample.</p> <p>1. Internal pressure: (40 ± 2) kPa;</p> <p>2. Apply 1000N to the 25 cm<sup>2</sup> surface of the closure;</p> <p>3. The location of force application is at the centre of the closure at 0° and 90° around the longitudinal axis;</p> <p>4. Each force application lasts 10 minutes</p> | <p>1. Difference in pressure before and after the test ≤ 2 kPa;;</p> <p>2. The samples are undamaged and the internal devices are fixed and not loose.</p> | ITU-T L.13     |
| Free Drop Test   | <p>After reaching temperature plateau at (-15±2)°C, (23±2)°C, and (45±2)°C, respectively, mount the test sample.</p> <p>1. Severity: drop height 75 cm;</p> <p>2. Number of drops: 1.</p> <p>3. Drop method: Install 2 meters of optical cable, clamp the end of the optical cable, release the sample to make it drop</p>   | <p>1. Meet the requirements of air tightness test; 2. The sample is not damaged under visual inspection</p>  | IEC 61300-2-12 |

#### 4.4 Requirements of Environmental Performance

The product should meet the following test requirements of environmental performance.

**List of Environmental Performance Test**

| Items         | Test Methods  | Evaluation Criteria  | Reference Standard |
|---------------|---|--|--------------------|
| IP Protection | <p>IP68</p> <p>1. Temperature: 15~35°C</p> <p>2. Install the cables in the closure and assembly the closure;</p> <p>3. It is not inflated, and immersed at the depth of 5m. The immersion lasts 7 days;</p> | <p>1. No damage to the exterior;</p> <p>2. No water ingresses the product.</p>   | ITU-T L.13         |
| Salt Fog Test | <p>1. The mass percentage concentration of sodium chloride (NaCl) solution is (5 ± 1)%</p> <p>2. The pH value of the salt solution is 6.5~7.2 (at</p>   | Clean and inspect the tested sample after 10 days of salt fog test in the closed box. There should be no visible rust on the | ITU-T L.13         |

|                             |   |   |                        |
|-----------------------------|---|---|------------------------|
|                             | <p>20° C±2° C)</p> <p>3. The temperature of spray is 35°C</p>   | <p>appearance;</p> <p><b>(Note: The metal parts of this test are 304# stainless steel after passivation.</b></p> <p><b>The 201# stainless steel or ordinary iron galvanized materials will suffer different salt fog test time. 。 )</b></p>   |                        |
| Temperature Cycling Test    | <p>1. Place the test sample in the temperature cycling chambers, and the test sample accepts pneumatic pressure 60kPa (原文是0kPa) ;</p> <p>2. Keep the temperature 25°C for 10 minutes;</p> <p>3. Raise the temperature to 80°C at a temperature change rate of 1°C/min, and then keep the temperature 80°C for 4 hours.</p> <p>4. Cool down to -40°C by 120 min and keep the -40°C for 4 h;</p> <p>5. Then heat up to 80°C by 120 minutes and maintain the 80°C for 4 hours;</p> <p>6. Repeat steps 3~5 for 20 times;</p> <p>7. Cool down the temperature to 25°C at a rate of change of 1°C/min and recover the closure for 2 hours;</p> <p>8. Inspect the product.</p> | <p>1. The air tightness meets the requirements of 40kPa;</p> <p>2. Non-metallic components should not be discolored, cracked, degummed, etc;</p> <p>3. The surface coating of non-metallic and metallic components should have no peeling, cracking, wrinkling, separation, etc;</p> <p>4. The deformation of non-metallic components should not affect the normal assembly, or cause loss of the specified function;</p> | ODN Test Specification |
| Storage in High Temperature | <p>1. Visual inspection and mechanical performance inspection of samples before testing;</p> <p>2. Test conditions:<br/>+85°C, 48h, 1°C/min</p> <p>3. Check sample appearance</p>   | <p>1. Non-metallic components should not be discolored, cracked, degummed, etc.;</p> <p>2. The surface coating of non-metallic and metallic components should have no peeling, cracking, wrinkling, separation, etc;</p> <p>3. The deformation of non-metallic components should not affect the normal assembly, or cause loss of the specified function;</p>   | IEC 60068-2-2          |

## 5 Packaging, Transportation and Storage

### 5.1 Packaging

**(1) Requirements for package dimensions:**

Outer dimensions of cartons: 560\*360\*370mm (for reference only), tolerance: -5~+5mm.

**(2) Packaging requirements for accessory:**

The installation accessories are packed in different ziplock bags according to the requirements, and finally placed in the carton;



The pictures are for inspection reference and are not used as the basis for the inspection of the number or specifications of the accessories

**(3) Packing Instruction:**

When the product is packed into the bag, the product should be put into the same direction, and the packing style should be unified (the size of the open-end bags and the direction of the product is subject to the approval sample, and it should not be changed after the determination of the approval sample); in the process of packing, it should be operated carefully, and the surface of the product is prohibited from obvious scratches and dirt, etc.; wrap the product in place with a bubble column and pay attention to expelling the gas from the packaging bag. The breakage of the gas column in the bubble column should be less than 20%.

Put installation instructions into the side of the carton. The bags with accessories should be put into the side of the carton by a reasonable choice in accordance with its size. The packing reference is as shown in the figure below:



**(4) Packing List**

The packing list is printed on A4 paper and then the paper can be cut into a certain size (no

specification for paper size). The side of the packing list with words is facing out. **The accessories cased at the time of delivery can be selected from the following table according to the customer's actual use requirements.**

**Optional Accessories List for GJS-I-2023 Fiber Optic Splice Closure**

| NO. | Name   | Unit | Quantity           | Remarks   |
|-----|--|------|--------------------|---|
| 1   | Heat Shrinkable Protective Sleeve for Fiber Splice | pc   | As per capacity    | 40mm long, 1mm diameter steel needle                  |
| 2   | Nylon Tie  | pc   | As per capacity    | 2.5*100 mm  |
| 3   | Specialized Wrench                                 | pc   | 2                  | Wrench for branch port + T-wrench for mid-span port   |
| 4   | Label Paper  | pc   | As per capacity    |   |
| 5   | Insulation Tape                                    | roll | 1                  |   |
| 6   | Sealing Tape                                       | roll | 1                  |   |
| 7   | Abrasive Paper                                     | pc   | 1                  |   |
| 8   | Wall Mounting Kit1 + Expansion Screw               | set  | As per requirement | wall mounting kit 1+2-M6*60mm metal expansion screw   |
| 9   | Wall Mounting Kit2 + Expansion Screw               | set  | As per requirement | wall mounting kit 2+2-M6*45mm plastic expansion screw |
| 10  | Pole Mounting Kit                                  | set  | As per requirement |   |
| 11  | Seal Ring for Branch Cable Port                    | pc   | As per requirement | See 4.5.10 for details                                |
| 12  | Seal Ring for Mid-Span Cable Port                  | pc   | As per requirement | See 4.5.10 for details                                |
| 13  | Hose Clamp   | pc   | As per requirement | Φ8-16mm   |
| 14  | Hose Clamp   | pc   | As per requirement | Φ16-25mm  |
| 15  | Installation Specification                         | pc   | 1                  | One English Manual                                    |
| 16  | Conformity Certificate                             | pc   | 1                  |   |

## 5.2 Transportation

- (1) Products with proper packing can withstand the test requirements for transportation;
- (2) The packing of this product should be suitable for any transportation tools. And the packed products should avoid collision, falling, direct rain, snow and sun exposure during transportation.

### 5.3 Storage

The product should be stored in a well-ventilated and dry warehouse, with no corrosive gases around it. The storage temperature should refer to list of product specification requirements.