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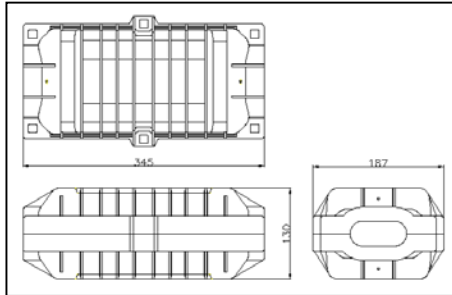
# Fiber Optic Splice Closures



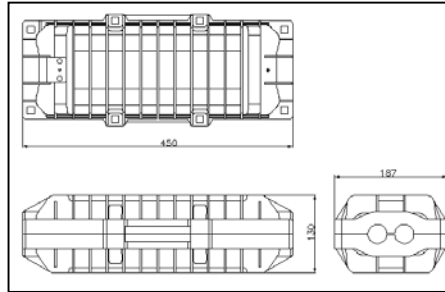
# 1. Products

## ❖ Descriptions of Optical Closure and Splice Tray

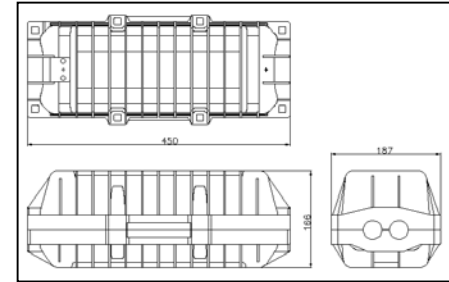
### ■ FOCSS



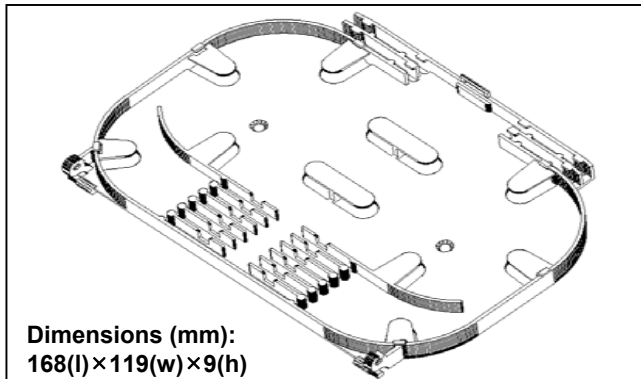
### ■ FOCS



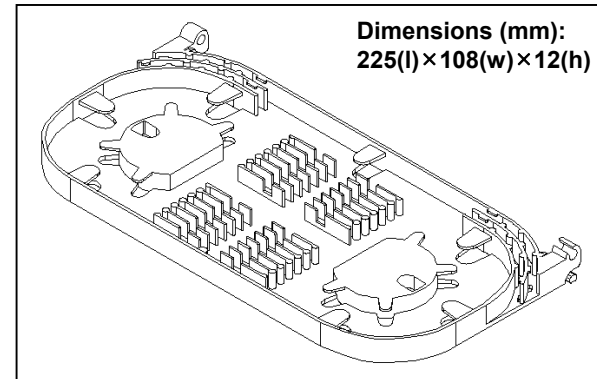
### ■ FOCM



### ■ Splice Tray-12C



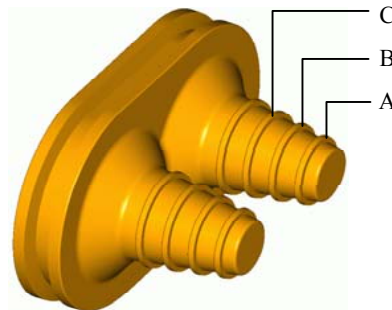
### ■ Splice Tray-24C



# 1. Products

## ❖ Structure, Dimension and Weight

Items	Ports	In-Let Cable Size (mm)	Dimensions (l×w×h)	Weight with box
<b>FOCSS</b>	<b>3 ports per each end</b>	Min. $\Phi 8$ ~ max. $\Phi 19$	325×187×130, mm	3.9 kg
<b>FOCS</b>	<b>2-2 ports</b>	Min. $\Phi 8$ ~ max. $\Phi 29$	450×187×130, mm	5.0 kg
	<b>2-3 ports</b>	Min. $\Phi 8$ ~ max. $\Phi 29$		
	<b>3-3 ports</b>	Min. $\Phi 8$ ~ max. $\Phi 24$		
<b>FOCM</b>	<b>2-2 ports</b>	Min. $\Phi 8$ ~ max. $\Phi 29$	450×187×166, mm	5.7 kg
	<b>2-3 ports</b>	Min. $\Phi 8$ ~ max. $\Phi 29$		
	<b>3-3 ports</b>	Min. $\Phi 8$ ~ max. $\Phi 24$		



Cutting Point	Applicable exterior diameter, in (mm)
A	$\Phi 0.35 \sim \Phi 0.60$ ( $\Phi 8 \sim \Phi 15$ )
B	$\Phi 0.61 \sim \Phi 0.87$ ( $\sim \Phi 24$ )
C	$\Phi 0.88 \sim \Phi 1.06$ ( $\sim \Phi 29$ )



# 1. Products

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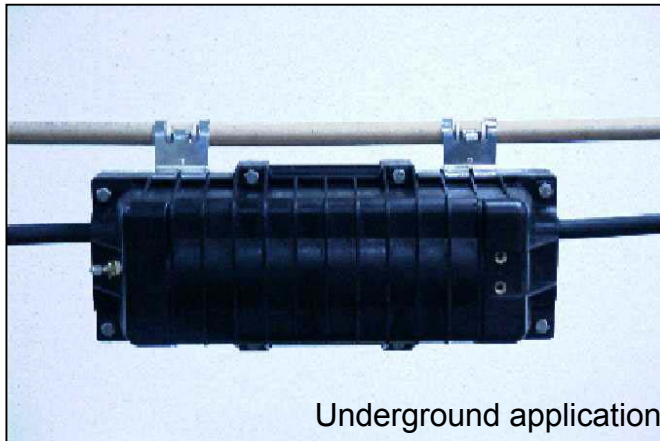
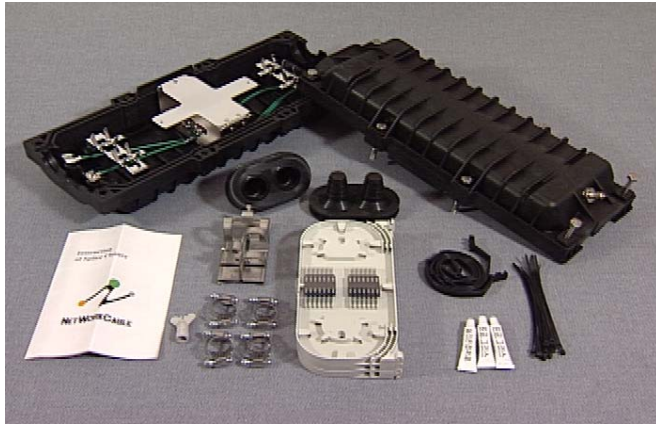
## ❖ Capacity

Items	Max. Capacity			
	Single Core	2-Core Ribbon	4-Core Ribbon	8-Core Ribbon
<b>FOCSS</b>	48 core	48 core	80 core	128 core
<b>FOCS</b>	72 core	72 core	144 core	192 core
<b>FOCM</b>	144 core	144 core	288 core	384 core
<b>Splice Tray-12C</b>	12 core	12 core	20 core	32 core
<b>Splice Tray-24C</b>	24 core	24 core	40 core	64 core



# 1. Products

## ❖ Components



Descriptions	Quantity		
	FOCSS	FOCS	FOCM
Housing	1 Pair	1 Pair	1 Pair
Side Gasket	1 Pair	1 Pair	1 Pair
End Gasket	1 Pair	1 Pair	1 Pair
Splice Tray	User define		
Bracket	1	1	1
Grounding Wire	1 Pair	1 Pair	1 Pair
Grounding terminal	1	1	1
Bolt/Nut	5	8	8
Sealant/Vacuum Grease	Option/10g	Option/10g	Option/10g
Hose Clamp	12 EA	12 EA	12 EA
Cable Ties	12 EA	12 EA	12 EA
Protection tube	12 EA	6~12 EA	24 EA
Air Check Valve	1	1	1
Installation Manual	1	1	1



## 2. Specifications

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### ❖ Requirements of closures

Properties	Requirements	Test methods and Conditions
Appearance	No defects which would adversely affect product performance.	
Tightness Test	<ul style="list-style-type: none"> <li>• No leakage (pressure loss &lt; 1.0 psi)</li> </ul>	Sample shall be pressurized to 6 psi (41.5kPa) and immersed in a water bath at 23±2°C for more than 30 minutes.
Residual Loss	<ul style="list-style-type: none"> <li>• &lt; 0.05dB per incoming fiber</li> </ul>	<ul style="list-style-type: none"> <li>• Source wavelength: 1550±30 nm</li> </ul>
Fiber Organization	<ul style="list-style-type: none"> <li>• &lt; 0.05dB per incoming fiber</li> </ul>	<ul style="list-style-type: none"> <li>• Source wavelength: 1550±30 nm</li> </ul>
Vibration Test	<ul style="list-style-type: none"> <li>• No leakage (pressure loss &lt; 1.0 psi)</li> <li>• &lt; 0.1dB per incoming fiber</li> </ul>	<ul style="list-style-type: none"> <li>• Inner pressure of closure : 6 psi (41.5kPa)</li> <li>• Frequency: 5Hz-55Hz-5Hz per 2min.</li> <li>• Amplitude: 1 mm</li> <li>• Test time: 2hrs</li> </ul>
Axial Tension Test (Tensile Test)	<ul style="list-style-type: none"> <li>• No leakage (pressure loss &lt; 1.0 psi)</li> <li>• &lt; 0.1dB per incoming fiber</li> </ul>	Sample shall be pressurized to 6 psi (41.5kPa). A Load of cable dia./45×1000N shall be applied to cable in the longitudinal axis of the cable for 8 hours. Sample shall be subjected to tightness test.



## 2. Specifications

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Properties	Requirements	Test methods and Conditions
Torsion Test (Rotating Test)	<ul style="list-style-type: none"> <li>No leakage (pressure loss &lt; 1.0 psi)</li> </ul>	<p>The test sample shall be pressurized to 6 psi (41.5kPa). The extending cable shall be clamped rigidly at a distance <math>D(\text{cable outer dia.})/45</math> x10mm from the entrance port. The cable shall be rotated as a clockwise twist of 90° followed by a 180° twist counter-clockwise followed by a 90° clockwise twist back to the starting position per a cycle. The twisted cable shall be maintained in each position for 5 minutes. After two cycle per cable, sample shall be subjected to tightness test.</p>
Flexure Test (Bending Test)	<ul style="list-style-type: none"> <li>No leakage (pressure loss &lt; 1.0 psi)</li> </ul>	<p>The test sample shall be pressurized to 6 psi (41.5kPa) and clamped on a smooth, flat, horizontal surface. The extending cable shall be clamped at 1.0m from the end of the entrance port then bent 90° and the procedure repeated three rotation in the opposite direction. Each bending operation shall be held in each position for 15 minutes. After the test, sample shall be subjected to tightness test.</p>
Impact Test	<ul style="list-style-type: none"> <li>No leakage (pressure loss &lt; 1.0 psi)</li> <li>Free from cracks</li> </ul>	<ul style="list-style-type: none"> <li>Duration time: 2hrs at <math>-20 \pm 3^\circ\text{C}</math></li> <li>2.4kg steel ball shall be dropped freely and vertically from a height of 1.0m in to the center . After the test, sample shall be subjected to tightness test.</li> </ul>



## 2. Specifications

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Properties	Requirements	Test methods and Conditions
Static Load Test (Compression)	<ul style="list-style-type: none"> <li>No leakage (pressure loss &lt; 1.0 psi)</li> <li>Free from cracks</li> </ul>	<ul style="list-style-type: none"> <li>Duration time: 2hrs at <math>-20\pm 3^{\circ}\text{C}</math> and <math>40\pm 3^{\circ}\text{C}</math></li> <li>A static load of 1000N shall be placed on the closure for 15minutes using a circular tool of <math>5\text{ cm}^2</math> surface area. After the test, sample shall be subjected to tightness test.</li> </ul>
Handling Test (Drop test)	<ul style="list-style-type: none"> <li>No leakage (pressure loss &lt; 1.0 psi)</li> <li>No mechanical damage</li> </ul>	<ul style="list-style-type: none"> <li>Duration time: 2hrs at <math>-20\pm 3^{\circ}\text{C}</math></li> <li>The sample shall be subjected to a vertical drop from a height of 76cm. After the test, sample shall be subjected to tightness test.</li> </ul>
Environment Temperature Test (Thermal Cycle Test)	<ul style="list-style-type: none"> <li>No leakage (pressure loss &lt; 1.0 psi)</li> <li>&lt; 0.1dB per incoming fiber</li> </ul>	<ul style="list-style-type: none"> <li>Sample shall be subjected to 20 cycles defined as follows:  <math>23^{\circ}\text{C}</math> to <math>-35^{\circ}\text{C}</math>, 1hrs transition  <math>-35^{\circ}\text{C}</math> for 2 hrs  <math>-35^{\circ}\text{C}</math> to <math>75^{\circ}\text{C}</math>, 2hrs transition  <math>75^{\circ}\text{C}</math> for 2 hrs  <math>75^{\circ}\text{C}</math> to <math>23^{\circ}\text{C}</math>, 1hrs transition</li> <li>After the test, sample shall be subjected to tightness test.</li> </ul>
Chemical Test	<ul style="list-style-type: none"> <li>No leakage (pressure loss &lt; 1.0 psi)</li> <li>No visible corrosion</li> <li>No mechanical damage</li> </ul>	<ul style="list-style-type: none"> <li>The test sample shall be pressurized to 6 psi (41.5kPa) and immersed in the three test fluids ( pH2 Hcl, pH12 NaOH, 10% IGEPAL ) for 120 hours.</li> <li>After the test, sample shall be subjected to tightness test, impact and compression test at <math>-20\pm 3^{\circ}\text{C}</math>.</li> </ul>





## 2. Specifications

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Properties	Requirements	Test methods and Conditions
Water Immersion Test	<ul style="list-style-type: none"> <li>• No water permeation</li> <li>• No visible corrosion</li> </ul>	The assembled closure shall be immersed in water of depth 1.5m for 20days.
Re-entry Test (Repeated Usage Test)	<ul style="list-style-type: none"> <li>• No leakage (pressure loss &lt; 1.0 psi)</li> </ul>	After completing the thermal cycle test, sample shall be reassembled for 3 times and subjected to tightness test.
Dielectric Test	<ul style="list-style-type: none"> <li>• No damage or cracking</li> </ul>	Between cable sheath retainer and closure outside surface, apply a 10kV DC power for 1 minute.
UV Resistance Test	The specimen shall not cause a reduction in tensile strength greater than 25%.	<ul style="list-style-type: none"> <li>• Measure and record the tensile strength of 5 test bars per ASTM D 638 using a crosshead speed of 50 mm/min.</li> <li>• Using the xenon lamp of wavelength between 300 and 700 nm, expose the 5 test bars to UV radiation of <math>390\text{w}/\text{m}^2 \pm 10\%</math> for 500 hours.</li> <li>• Repeat the tensile strength measurements on the exposed test bars.</li> </ul>



### 3. Evaluations

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#### ❖ Evaluations of closures

- Pass BellCore **GR-771-CORE.**
  - Location: LG Cable Indong Facility
  - Inspector: Won, young-joon
  - Test Period: 2000. 5. 01 ~ 5. 22
- Pass **Dacom-6060-0001-2.**
  - Location: Dacom Test & Inspection Institute
  - Inspector: Kang, soo-chang
  - Test Period: 2000. 4. 17 ~ 5. 17
- Pass Korean Telecom Standard **KT(표준) - 6145-3294-1-1**
  - Location: Korea Telecom Network Institute(Dae-jon)
  - Inspecting Breau: Korea Telecom Procurement Headquater
  - Inspector: Jung, Kee-jung, Kang, bong-kwon
  - Test Period: 2000. 9. 05 ~ 9. 25
- Awarded **Certificate of Excellent Quality**
  - Location/organizer: Agency for Technology and Standards, Ministry of Commerce, Industry & Energy
  - Inspecting Breau: Ministry of Commerce, Industry & Energy
  - Test Period: 2001. 4.05 ~5. 10



### 3. Evaluations

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❖ Pictures of the test.



Residual Loss and Fiber Organization Test



Tightness Test



Environment Temperature Test (Thermal Cycle Test)



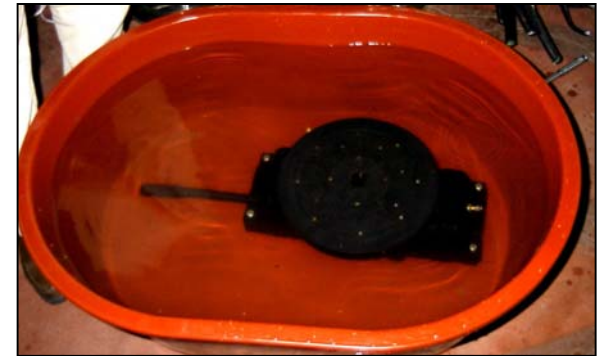
Impact Test



Axial Tension Test (Tensile Test)



Vibration Test



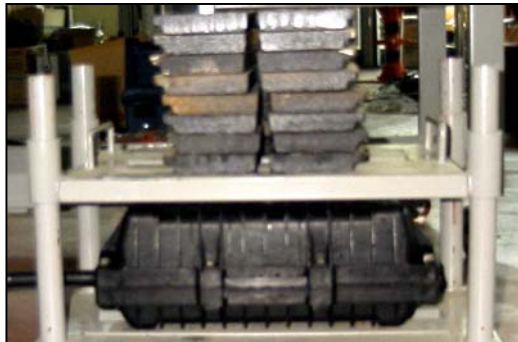
Chemical Test



### 3. Evaluations

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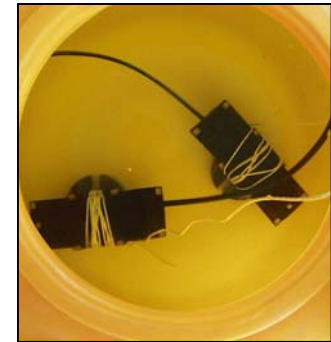
❖ Pictures of the test.



Static Load Test  
(Compression)



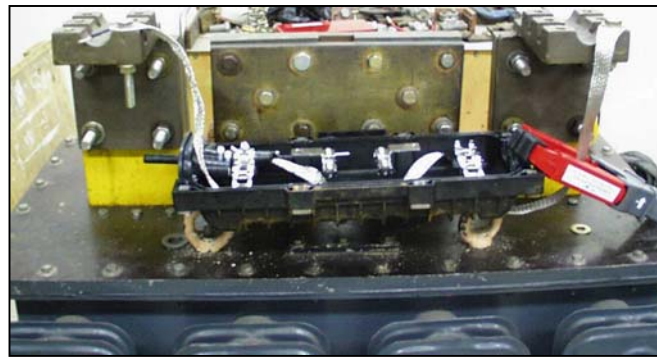
Torsion Test (Rotating Test)



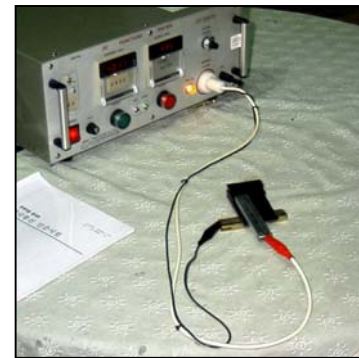
Immersion Test



Flexure Test  
(Bending Test)



Dielectric Test (Current)



(Voltage)



## 4. Ordering Information

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