Pasivní prvky 3M na optické přístupové síti

Martina Kubalíková

Make the Most of your Network

3M

Solutions for Outside Plant

Branch Closure
(1)

Distribution Closures
(72)

Customers
(1152)

Central Office
(1)

Street Cabinets
(2)

3M

2
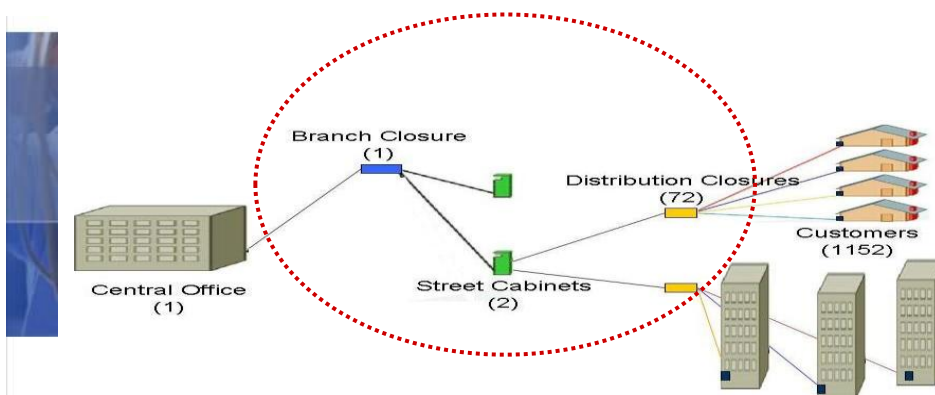
3M Optical Fiber Splice Closures Range

3M Innovation

3M

3

BPEO Closure Range

3M

4

BPEO Cable Entry Ports

Cable seal prepared outside the box

- **TOOL FREE MECHANICAL CABLE SEALS**
  - Patented innovative fully mechanical cable seal,
  - Prepared outside the box
  - No risk of damaging working circuit
  - Round and Oval ports

- **PORT ALLOCATIONS AND CABLE DIAMETERS**
  - Small Size BPEO Size 1 – BUTT Application

  from 5 to 20 mm
  from 5 to 18 mm
  from 5 to 12 mm
  from 4 to 8 mm

  - Medium and Large Sizes; BPEO Size 2, BPEO Size 3 – BUTT and INLINE Application

  from 5 to 27 mm

3M

5

BPEO Direct Splice Drop Closures

6

BPEO Terminal Drop Closures

•Example; BPEO Size 1

•FRP type drop cables 6 x 6 drops (36)

•With FA (Field Assembly) connectors

•Example; BPEO Size 3

•Standard patch cables

•With SC (SC/APC) pre-terminated pigtails

7

3M
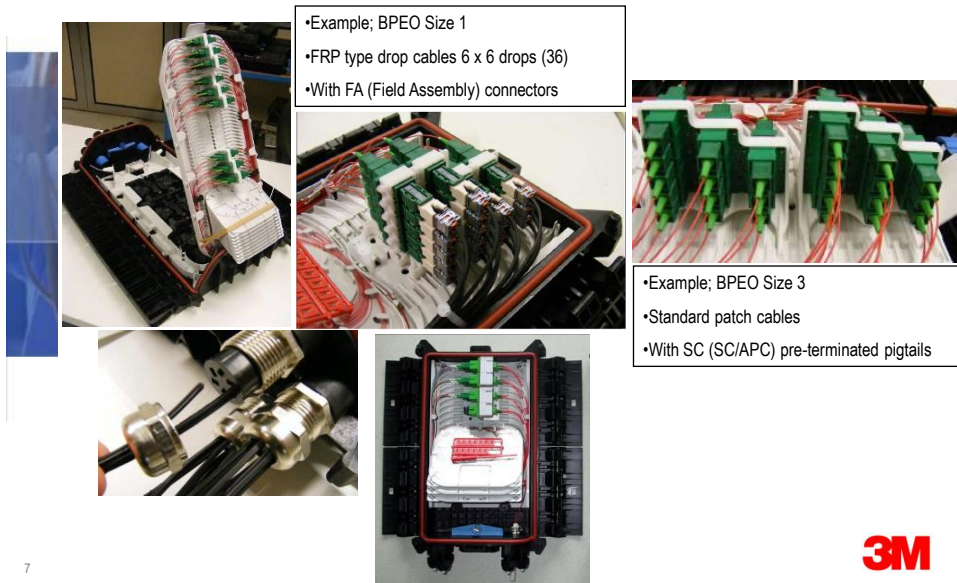
BPEO Special Applications

8

3M

3M Fiber Dome Terminal Closures

FDT 08 to FDT 12

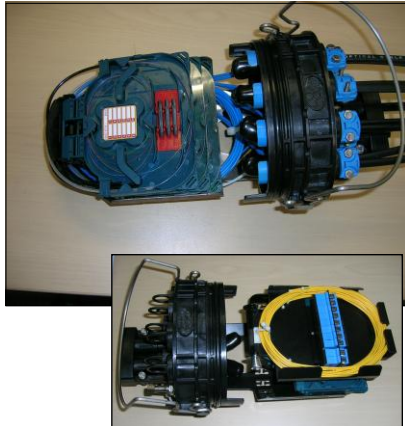FDT 08 Pre-connect

3M

9
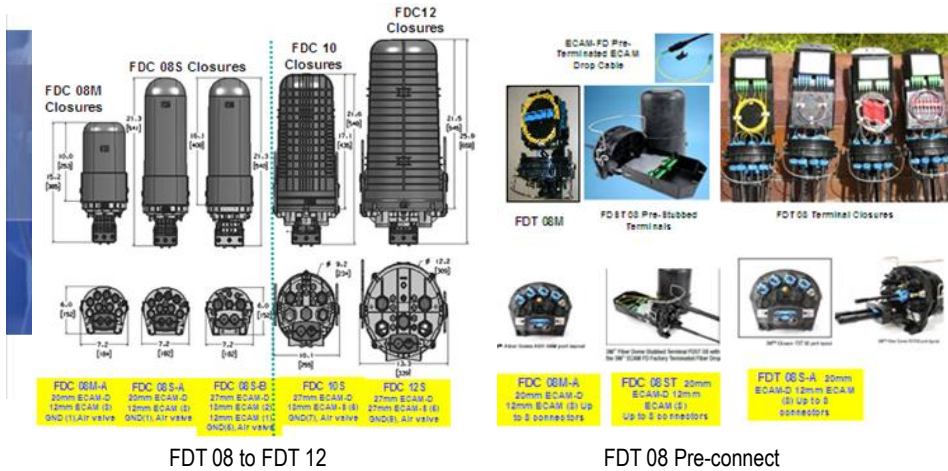
FDT 08S Direct Splice

• Hermetically-sealed fiber dome terminal closure for aerial, buried above-grade, and buried below-grade applications

• Accommodates up to 12 direct fusion or mechanical spliced drop terminations

• Accommodates 4, 6, or 8 SC/APC or SC/UPC ECAM FD factory terminated drops

• Oval main cable port accommodates two 20mm (0.79") all-dielectric or armored cables

• Designed for butt, single or ribbon fiber applications

• Splice Capacity (single & mass fusion)

• FDT 08: 72 single & 216 mass fusion

3M
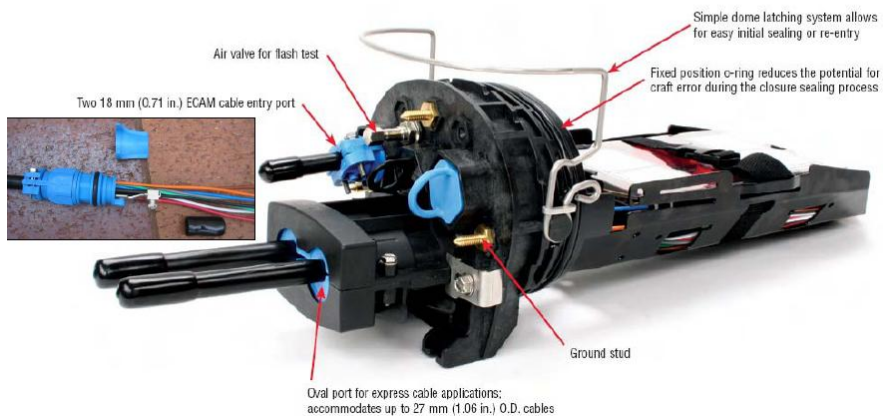
10

5

FDT 08M Direct Splice

- Hermetically-sealed fiber dome terminal closure for aerial, buried above-grade, and buried below-grade applications

- Accommodates up to 12 direct fusion or mechanical spliced drop terminations

- Accommodates 4, 6, or 8 SC/APC or SC/UPC ECAM FD factory terminated drops

- Oval main cable port accommodates two 20mm (0.79") all-dielectric or armored cables

- Designed for butt, single or ribbon fiber applications

3M

11

FDC 08S Direct Splice

Simple dome latching system allows for easy initial sealing or re-entry

Air valve for flash test

Fixed position o-ring reduces the potential for craft error during the closure sealing process

Two 18 mm (0.71 in.) ECAM cable entry port

Ground stud

Oval port for express cable applications; accommodates up to 27 mm (1.06 in.) O.D. cables
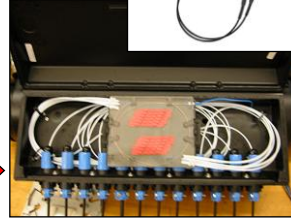
3M

12

SLIC 530 Direct Splice

12mm ECAM Drop Cable Entry System

- Weather-tight, free-breathing, aerial, strand mount fiber terminal closure
- Comprised of two separate chambers: Distribution cable splice and Drop termination chamber
- Allows easy & secure access for service connections & drop maintenance (cleaning & testing) without entering the closure splice chamber
- Designed for strand-mount in-line, butt, or taut sheath single or ribbon fiber applications
- Accommodates up to 12 fusion or mechanical direct spliced drops
- Accommodates 4, 6, 8, & 12 factory terminated SC/APC or SC/UPC ECAM FD Fiber Drops

3M

13

Fiber Dome Heat Shrink Closure – FDC-HS-L5 (S4)

Features :
- O-ring sealing
- Latching/Locking Mechanism
- L5 = 510x180 mm – 1 oval port (two 25 mm cables), 5 round ports (20 mm)
- S4 = 485x160 mm – 1 oval port (two 28 mm cables), 4 round ports (20 mm)
- L5 = 6 splices trays max / S4 = 2 splices trays max
- 2533 trays 24 fusion splices
- 2,4 mm x 60 mm fusion sleeves
- 2 ground lugs max

Benefits :
- Flash Test = 10 PSI
- IP 68
- Simple & Flexible design for high installation productivity
- Trays holder for mechanical & ribbon splices
- Price competitive solution

3M

14

7

3M Communication Markets Division
3M Fiber Dome Heat Shrink Closures: FDC-HS-L5 & FDC-HS-S4

2533 Tray

Splice Inserts

| For single fusion 2.4mm x 60mm sleeves | For 4- and 6-fiber ribbon, and FibrLok 2529 | For 8- and 12-fiber ribbon |

15

3M

Light Linker (LL2) Fiber Optic Splice Closure

Choices for Flexible Design

3M offers a full range of closure sizes in diameters from 76 mm-305 mm (3" to 12"), and lengths to 914 mm (36"). This range gives system designers the flexibility to locate splices for maximum reliability. Larger fiber optic closures can be used to provide extra storage space for ribbon or buffered tube fiber. 3M™ Fiber Optic Closures are compatible with all types of fiber optic cable in cut, uncut and taut sheath applications. Interchangeable endplates allow each closure to house up to 8 cables per end.

Applications

- Watertight
- Underground
- Aerial
- Central Office/Building
- Wall Mount (LL2-418 only)

3M Innovation
3M

16

8

## LL2 Series Models 4, 5, 7, 8, 9 and 12 Fiber Optic Closures

Features	Benefits
Constructed from thermoplastic material	Extremely chemical and U.V. resistant
Sheath retention, central member termination system	Allows easy installation and reduces the potential for microbending
No special tools required	Low cost installation
Can be flash tested	Ensures seal integrity
Complies with Telcordia (formerly Bellcore) GR-771 requirements and international standards for fiber optic splice closures	Lab tested under various applications
Hinged trays	Allows for easy fiber organization and access to multiple levels
Plugging spools are provided in each kit	Allows extra cables to be added at any time
Closures are available in standard black and gray fire retardant plastic	Meets requirements for vault and building entrance applications
Anti-rotation stops are provided in each kit	Maintains closure stability during assembly and fiber splicing
Slack trays may be added below tray platforms	Allows storage of ribbon or buffer tube fiber
A variety of kits are available for closure re-entry, adding cables to existing splices or converting butt splices into inline configurations	All plant configurations can be accommodated

17

3M

2178 Family Fiber Optic Splice Closures
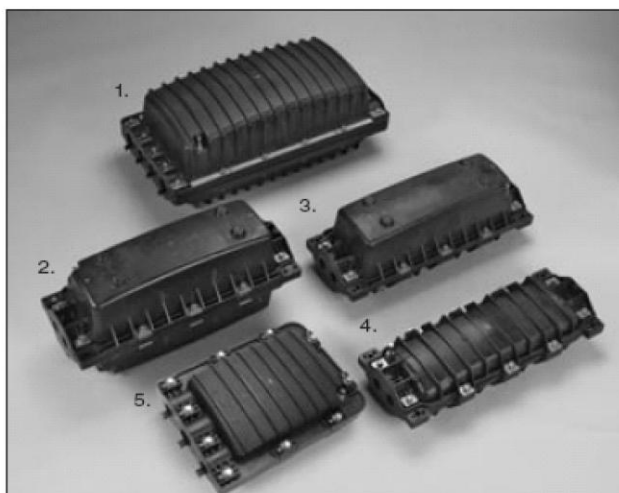
3M™ FIBER OPTIC CLOSURES 2178

1. 2178-XL
2. 2178-LL
3. 2178-LS
4. 2178-S
5. 2178-XSB

18

3M

9

2178 Family Fiber Optic Splice Closures

3M Fiber Optic Splice Closure: 2178 Product Family
- Product Features for Base Models -

Product Number	Size in. (mm)	Splice Configuration	Cable Entry Ports	Maximum Splice Capacity
2178-XSB	14.6 x 10.1 x 4.6 (369.8 x 256.5 x 117.3)	Butt	3 Butt	48 Single Fusion 144 Mass Fusion
2178-S	21.9 x 8.5 x 4.7 (556.3 x 215.9 x 119.4)	Inline Butt	4 Inline 2 Butt	96 Single Fusion 288 Mass Fusion
2178-LS	21.9 x 8.5 x 8.0 (556.3 x 215.9 x 203.2)	Inline Butt	4 Inline 2 Butt	288 Single Fusion 864 Mass Fusion
2178-LL	21.9 x 8.5 x 11.3 (556.3 x 215.9 x 287.0)	Inline Butt	4 Inline 2 Butt	288 Single Fusion 864 Mass Fusion
2178-XL	26.0 x 13.3 x 11.0 (660.4 x 336.6 x 279.4)	Inline Butt	8 Inline 4 Butt	576 Single Fusion 1728 Mass Fusion

3M

19

2178 Family Fiber Optic Splice Closures

❑**Adaptable to any environment** – highly chemical-resistant material construction & gasket seal technology makes it ideal for manhole, handhole, aerial, pedestal, and direct buried applications; fire retardant for cable vault & building applications

❑**Easy to install** – requires no special tools or complicated training procedures

❑**Simple and economical reentry** – reusable gasket seal allows easy reentry with no additional material costs

❑**Flexible** – multiple cable entry options allow for both butt and in-line configurations for aerial, buried, and underground applications

❑**Expandable** – interchangeable parts permit expansion of cable entry ports and splice capacity to meet current and future network needs without splice rebuilding

❑**Versatile** – small to large (24 to 1728 individual or ribbon fiber capacity, flame retardant or OSP protection with common functionality & installation procedures

3M

20

10

2179-CS Fiber Optic Splice Closure

Molded plastic enclosure!
Fully mechanical.
No special tooling!

For buried, underground, aerial and pedestal applications!

Outside Dimensions (LxWxH);	15,7" x 6,9" x 4,2"
Splice chamber space (LxWxH);	12" x 4,7" x 3,3"
Weight (closure body);	1715 gr
Cable port diameter;	0,4-1 inch
Number of Cable entry ports	4 (2 on each side)
Quantity of cables installed	2-4
Maximum number of splice trays	
2524SR	2 (24 splices per tray)
DIN	4 (12 splices per tray)
Looping length of bare fibers	>2 x 0.8m
Looping length of loose-tube	>2 x 0.8m

3M

2179-CS Fiber Optic Splice Closure
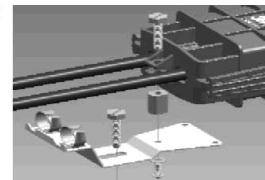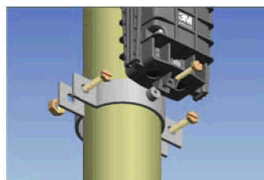
Features :
- Dim = 447x175,2x106,7 mm
- 2 cables entrance at each end
- Cables diameter from 10,1 to 25,4 mm
- 4 trays of 12 splices ⇔ 48 splices
- IP68

Advantages – Benefits :
- Compact size
- Butt or In Line splicing
- Sliding latch mechanism
- Wide area of usage = aerial , buried , pedestal
- Proven sealing technology

3M

2179-C Series Closures

2179CLS Closure

2179CLM Clos

"2179CL with 2525 trays

3M

23

'Last Mile' Branch Off Closures

- μQODC, QODC Closure for G657 Fibre Splices

- OSSC & OSLC   BOC (Branch Off Closure)

3M

24

8900D Series Cabinet

- Outdoor Modular design
- IP-55
- IK-08
- Double-wall
  - Painted steel Outside
  - Aluminum Inside
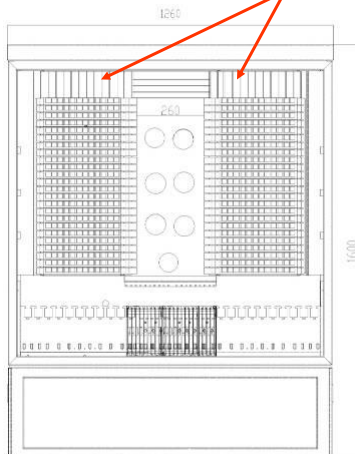- 3M plating and sealing
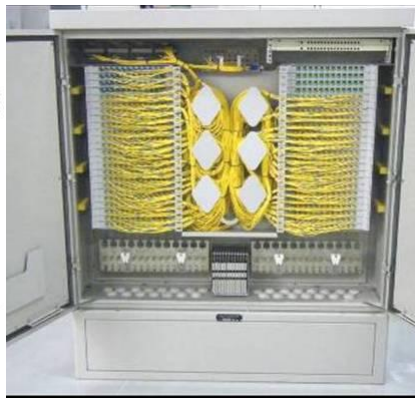- 3M 4411 pedestal seal
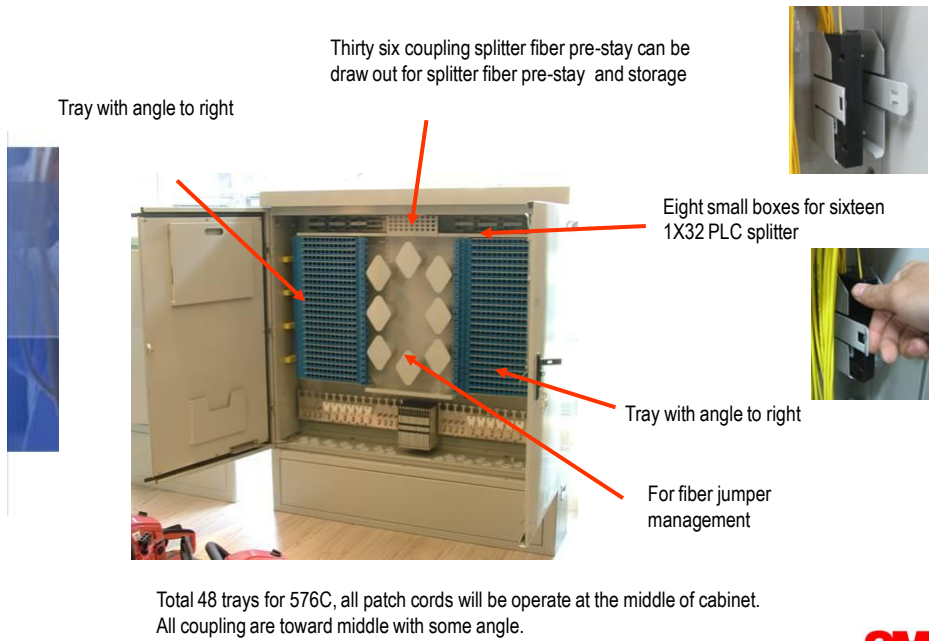

8900DL   8900D   8900DS

3M

8900DL

Splitter

576C fiber cross cabinet with 16 1x32 PLC splitters

1600mm X 1360mm X 360mm

3M

Thirty six coupling splitter fiber pre-stay can be draw out for splitter fiber pre-stay and storage

Tray with angle to right

Eight small boxes for sixteen 1X32 PLC splitter

Tray with angle to right

For fiber jumper management

Total 48 trays for 576C, all patch cords will be operate at the middle of cabinet.
All coupling are toward middle with some angle.

3M

8900D

288C fiber cross cabinet with 6 1x32 PLC splitters

1450mm X 760mm X 360mm

3M

Total 24 trays for 288C, all patch cords will be operate at the right of the cabinet. All couplings are towards right with some angle.

The tray with the wire management.

12 trays for direct splice.

25 PG29 for optical cable in-out.
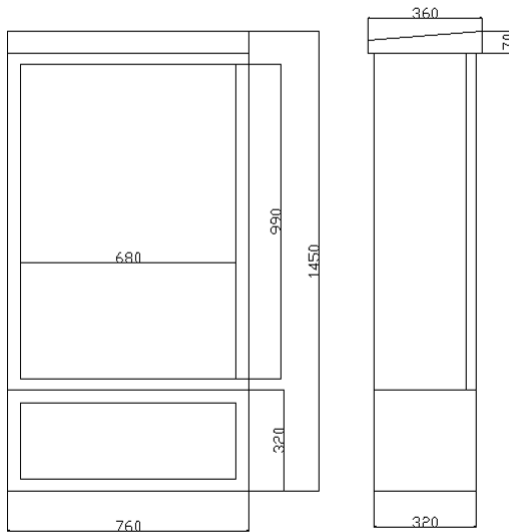
3M

Three small boxes for six 1X32 PLC splitter
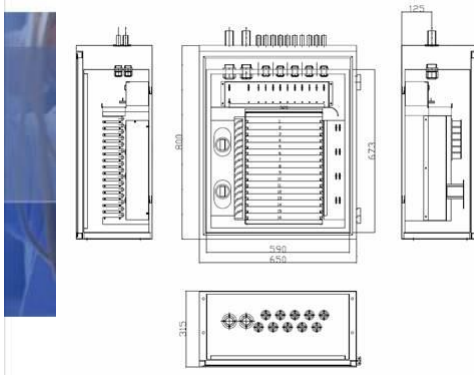

The splitter can be fix easily

3M

8900DS

144C fiber cross cabinet with 2 1x32 splitters

800mm X 650mm X 315mm

- All fiber cables will come into cabinet from the top
- Wall mount installation
- The hollow structure avoid to clot water
- Special tray for 1x32 splitter

MDU Dbx 89 series Metallic Distribution Boxes

•**MDU Dbx 8912EU M :**
  •Metallic box with locking mechanism
  •Organizer type PBPO/C 12 fibers (common)
  •Window Cut Cable application
  •Storage area for micro structures or loose tubes
  •4 trays 5 mm or 2 trays 10 mm
  •2 SC/APC couplings
  •Dimensions : 300 x 180 x 55 mm
  •IP 44

•**MDU Dbx 8934EU M :**
  •Metallic box with locking mechanism
  •Separate access for drop connections
  •Capacity of 32 SC/APC couplings
  •Uncut cable management
  •Storage of the patch cords management
  •Dedicated space for jacketed splitter
  •Dimensions : 430 x 355 x 100 mm
  •IP 44

•**MDU Dbx 8980EU M :**
  •Metallic box with locking mechanism
  •Separate access for drops connections
  •Capacity of 73 SC/APC couplings
  •Uncut cable management
  •Storage of the patch cords management
  •Dedicated space for jacketed splitter
  •Dimensions : 450 x 400 x 131 mm
  •IP 44

33

Communication Markets Division

Díky za pozornost!

mkubalikova@mmm.com

3M