

# Optical Distribution Frame ODF-SCM

Tender Text

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## 1. General conditions

- The optical distribution frame (ODF) shall be designed to provide a termination point to rearrange fiber connections and circuits at will. ODF should provide a centralized termination, interconnection and cross-connection facility for optical cables, breakout cables, optical minicables, microcables and blown-in applications.
- The frame should be designed around a modular fiber management system which combines high fiber density with ease of use, fiber safety, and simplified maintenance techniques.
- The frame should be of a lightweight construction which can be assembled by one single person.
- The frame should be able to accommodate several types of splice and breakout units.
- Termination capacity must be achieved by a tray system which should facilitate no more than 24 fibers per Single Element tray, 6 or 12 fibers per Single Circuit tray or max. 2:32 Splitter tray.
- Splice and fiber management should be based on the fiber management unit of the splice tray. The tray system should carry the splice protectors to protect the splices between the pigtails and the incoming fibers.
- The interconnection between the splice and patch unit should be done with short fiber runs in a safe, protected and guided way.
- The tray system should have two fiber channels built into it, one for the pigtails and the other for the incoming fibers which will be spliced to the pigtails.
- There should be a guaranteed bending radius within the tray system, constraining the minimum fiber bending radius to 40 mm.
- The tray holders should be stackable for easy extension and should be able to accommodate several SCM trays (Single Element, Single Circuit and Splitter trays).
- The tray holders and trays should be suitable for other platforms like ODF, cross connection cabinets, splice closures, building entry points (BEP), etc.

## 2. Applications of ODFs

The following applications are required:

- Rack ODF, indoor
- Splice and patch units useable as BEP
- Splice and patch units useable in cross connection cabinets

## 3. Termination capacity

As to termination capacity, the ODF should consist of four basic groups:

- Up to 576 fibers per splice unit
- Up to 576 fibers per patch or splice/patch unit
- Up to 2304 with splice/patch unit per ODF (900 x 300 x 2200)
- Up to 4608 with splice unit per ODF (900 x 300 x 2200)

## 4. Detailed specifications

### 4.1 ODF design and construction

- The ODF is a lockable rack with a splicing part as well as the patching part. The splicing part itself has to be lockable as well. The ODF shall allow cable entry both from the top and bottom. The number of cable entries (top/bottom) shall correspond to the maximum capacity of the rack. Minicable – loose tube construction, for blown-in applications, including tube termination with gas blockers.
- The ODF shall comply with IP20 rating (protection class) in accordance with EN 60529.
- The functional part shall consist of:
  - separated splicing and patching part based on a physical subscriber management, SCM.
  - combined splicing and patching part, or
  - patching part only, or
  - splicing part only.
- All components shall be designed to ensure a minimum bending radius of the fiber (min. 30 mm respectively 40 mm inside the splice and patch units).
- The rack ODF construction shall allow the storing of excess patch cords (minimum 3 meters. 0.9mm, for 2mm and 3mm outside diameter, depending on its purpose), according to the minimum bending radius of the fibers and also ensure that signals on active circuits shall not be affected by subsequent extensions or patching.
- The patch cord redirections should allow individual positioning as needed.
- Any metal parts shall be resistant to corrosion.
- The ODF shall consist of minimum two parts:
  - rack
  - splice, patch or combination unit

### 4.2 Rack construction

The rack shall be designed and manufactured of light compact aluminum/steel material to allow a one-person installation of the rack, including the functional parts and accessories.

The rack shall be installable in the following applications

- back to back
- standalone

Dimensions: Width x Depth x Height

900 x 300 x 2200 mm

600 x 300 x 2200 mm

300 x 300 x 2200 mm

900 x 300 x 1800 mm

900 x 300 x 1200 mm

900 x 300 x 700 mm

## 5. Functional units

### 5.1 Splicing unit

- The splicing unit shall have a swing-down mechanism without stressing the fibers to allow easy access to the splices. The design and organization of the splicing part shall be transparent, ensuring clear subscriber identification and easy installation and maintenance when installing cables and pigtails.
- The trays shall be fitted to the base tool-free (snap-in) to avoid any change of the position of the trays.
- The labeling (subscriber identification) shall feature color coding, numbering and individual labeling which can be exchanged in case of later changes.

- The trays shall be dimensioned for fusion or mechanical splices or for one splitter up to a 2:32 splitting ratio.
- The tray shall store a maximum of 24 individual fiber splices (fusion or mechanical) or min. one splitter. The minimum bending radius of a fiber shall not be smaller than 40mm.
- The design of the tray shall allow the storing of excess fibers (minimum 1.5 meters) for fiber alignment and re-splicing.
- The tray shall also ensure that there is minimal increase in optical loss. Due to possible re-entering, adding cables and re-arranging fibers the tray design shall secure that re-entry of a closure shall not cause fiber failure or damage (this shall be described in detail in the installation manual/guideline).
- The fused fiber optic splices shall be mechanically protected with heat-shrink protections of max. 60mm in length.
- The mounting of the splicing unit shall be tool-free without screws or nuts, by snap-in or similar adequate mounting mechanism.
- The maximum density of a splicing unit shall be up to 576 fibers.

Dimensions:

Height x Width x Depth  
450 mm x 230 mm x 190 mm

## **5.2 Patching unit**

- The patching unit shall be modular and able to accommodate several types of patch inserts with min 24 FO duplex adapters.
- The patching unit should have an optional physical protection cover, to be mounted tool-free.
- The patching unit should be pre-numbered.
- The maximum packing density of one patching unit shall be up to 576 fibers.
- The mounting of the patching unit shall be tool-free without screws or nuts, by snap-in or similar adequate mounting mechanism.
- Pre-assembled splitter inserts shall be easily installed in and removed from the patching unit.

Dimensions:

Height x Width x Depth  
458mm x 230mm x 167mm

## **5.3 Combination unit**

The combi unit shall consist of a splicing and patching unit in acc. with the above stated requirements for the single patching and splicing units. The interconnection between the patching and splicing unit shall be done with multi-pigtails with 12 or 24-fiber minicore cables to ensure easy handling.

Dimensions:

Height x Width x Depth  
450 mm x 460 mm x 190 mm

## 6. Vibration

The testing shall be carried out in accordance with IEC 61300-2-1.

## 7. Shock

The testing shall be carried out in accordance with IEC 61300-2-9.

## 8. Temperature cycling

The testing shall be carried out in accordance with IEC 60300-3-3.

## 9. Warranty period

The manufacturer should offer more than the obligatory term of warranty on these products.

## 10. Temperature range

The ODF shall withstand the following temperature conditions without any deterioration in characteristics:

- temperature range in storage                      -40° up to +70°C
- temperature range at installation                0° up to +40°C
- temperature range in operation                  -40° up to +70°C