

# European Lightframe

## “Down to Earth” Fiber Management

The Lightframe concept is designed for maximum Fiber management therefore having features such as:

- Bend radius protection throughout the frame
- The Frames are conform the Telcordia Specification GR-449-CORE
- Modular splice, patch and splice & patch units with locking
- Modular custom panels for splitter/coupler wavelength division multiplexers etc.
- Build-in storage spools for fiber jumper cables
- Fully front accessible
- Metal cable throughs for top and/or bottom entry/exit
- Metal/glass doors and site panels for maximum safety



### CONTENTS

Introduction	2		
<b>Lightframe ODF</b>		<b>Fiber Optic Ducting</b>	
The Frame	3	Overview	21
Overview	4	Ducting Parts	22
Incoming Fiber	5	Application Views	26
Outgoing Fiber	6	<b>Pigtails and Patchcords</b>	
The Splice & Patch Module (2HU)	7	Pigtails	28
The Splice Cassettes	10	Simplex Patchcords	29
Density & Connector Style	12	Multimode Pre-Connectorized	
Features and Benefits	13	Cable Assemblies	30
High Density Patch ODF	14	Single Mode Pre-Connectorized	
<b>Fiber Distribution Frame</b>		Cable Assemblies	32
<b>High Density (FDF-HD)</b>		Single Mode Pre-Connectorized MiniCords	
Overview	15	Breakout Cable Assemblies	33
Features and Benefits	18	<b>Installation Accessories</b>	
Wall ODF - Small Fibercount	19	Hook & Loop Fasteners	34
19" Splice and Patch Modules	20	Fiber Identification	35
Wall Mount Splice & Patch Modules	20		

# European Lightframe

## “Down to Earth” Fiber Management

Today's networks are increasingly based upon optical fiber.

The best solution is found in safe and sound fiber management.

Your solution must meet the requirements it is designed for, and more...

It must be flexible, expandable and future proof.

And still being manageable...

When designing the Lightframe, we took a step backward to rethink the do's and don'ts for Optical Distribution Frames.

We found out that safe Fiber Management is depending on factors like visibility and reachability of your fibers. Taking the step backward it all comes down to simplicity. Today's trend to make a high tech issue of fiber management is not always improving workability. We look at this issue in a “down to earth” way “Keep It Simple Stupid”, the well known KISS-rule.

Every Optical Frame will provide “bend radius protection”. However, protection of the bend radius does not end here, it starts in your ODF and stops in the application. Therefore we provide the end-to-end solution in Fiber Management. For example, this also implicates fiber ducting (Lightpaths) and tailor made cabling.

The Lightpaths Fiber Management Products are futureproof for high density demanding applications such as Fiber-To-The Home, Hosting and Data communication in General.

***We can provide you with the end-to-end solution in Fiber Management***




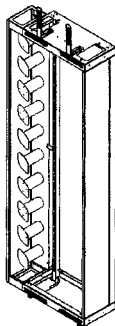
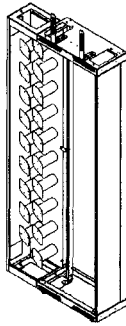
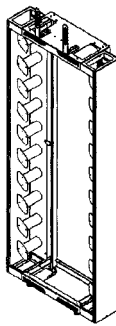
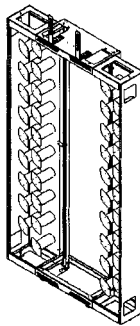
# THE FRAME

Today's floor space is very expensive and Optical Transmission Systems are very high revenue earning systems, where even a small, unplanned outage or fault can cause a high loss of income revenue. On the other hand applications such as Fiber-To-The-Home or Fiber-To-The-Business (FttX) require a very high density in order to keep the Access Points small and initial investment low. Therefore, practical and effective measures are needed to protect Optical Transmission Systems. These include using an Optical Distribution Frame (ODF) and a Management System to fully and completely guide the optical fiber cords (yellow ducting). The frame is based upon a central mounting rack for the individual splice & patch panels. This 600 mm wide rack is completed with a cable entry unit on the left (150 mm) and a cable-routing & storing unit on the right. We advise the double spool version of 300 mm for proper storage, but there is a wide range of possibilities. The frame is approx. 300 mm deep and can be supplied side-by-side or back-to-back. Both the cable entry unit and the cable storage unit are built symmetrically; therefore you can change position of the units when required on site. The frame can be supplied with full metal doors or plexi-glass doors. The average height of 2.2 meters is a standard height but different sizes are possible:



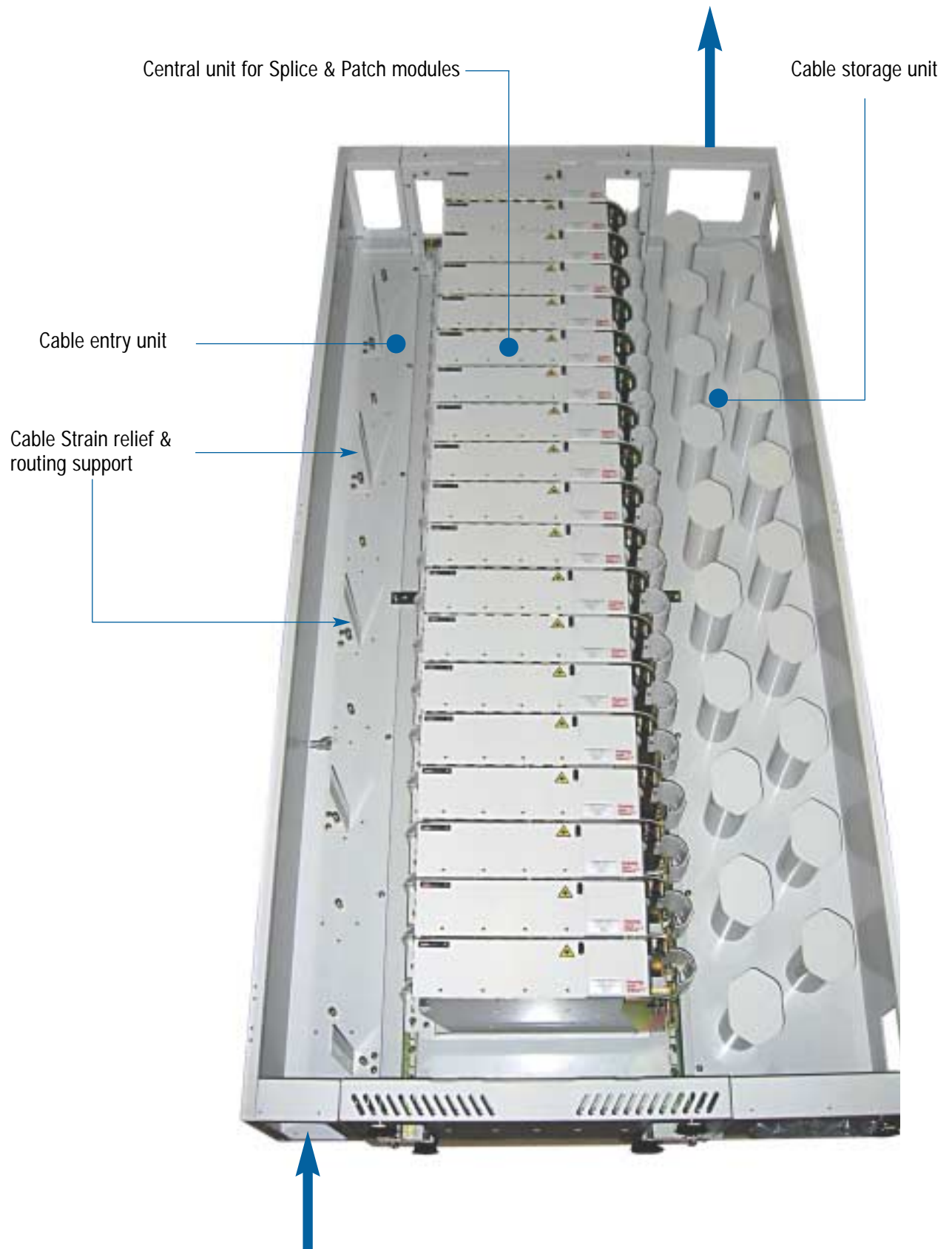
Ordering Information					
Footprint	Height 2.7m	Height 2.2m	Height 2.1m	Height 1.8m	Height 1.2m
WxD	58 RU	46RU	43RU	37RU	22RU
600x300	TC4046A	TC4046B	TC4046C	TC4046D	TC4046E
750X300	TC4046A-1LS	TC4046B-1LS	TC4046C-1LS	TC4046D-1LS	TC4046E-1LS
900X300	TC4046A-2LS	TC4046B-2LS	TC4046C-2LS	TC4046D-2LS	TC4046E-2LS
900X300	TC4046A-1LRS	TC4046B-1LRS	TC4046C-1LRS	TC4046D-1LRS	TC4046E-1LRS
1200X300	TC4046A-2LRS	TC4046B-2LRS	TC4046C-2LRS	TC4046D-2LRS	TC4046E-2LRS

1LS = One left hand side storage spool unit  
 2LS = Double left hand side storage spool unit  
 1LRS = Both left & right hand side storage spool unit  
 2LRS = Double left & right hand side storage spool unit

PART NO TC4046B	PART NO TC4046B-1LS	PART NO TC4046B-2LS	PART NO TC4046B-1LRS	PART NO TC4046B-2LRS
				
<b>Rack Dimensions</b>	<b>Rack Dimensions</b>	<b>Rack Dimensions</b>	<b>Rack Dimensions</b>	<b>Rack Dimensions</b>
W mm x D mm x H m	W mm x D mm x H m	W mm x D mm x H m	W mm x D mm x H m	W mm x D mm x H m
600 x 300mm x 2.2m	750 x 300mm x 2.2m	900 x 300mm x 2.2m	900 x 300mm x 2.2m	1200 x 300mm x 2.2m
No Side Storage Units	1 x LHS Single Spool Storage Unit	1 x LHS Dual Spool/s Storage Unit	1 x LHS Single Spool Storage Unit 1 x RHS Single Spool Storage Unit	1 x LHS Dual Spool/s Storage Unit 1 x RHS Dual Spool/s Storage Unit
	<b>Storage Unit Size</b>	<b>Storage Unit Size</b>	<b>Storage Unit Size</b>	<b>Storage Unit Size</b>
	W mm x D mm x H m	W mm x D mm x H m	W mm x D mm x H m	W mm x D mm x H m
	150 x 300mm x 2.2m	300 x 300mm x 2.2m	2 x 150 x 300mm x 2.2m	2 x 300 x 300mm x 2.2m

# THE FRAME

## Overview



In general the cables come in from the bottom left side and leave the frame on the top right side. However the frame has the possibility to reverse this direction.

# THE FRAME

## Incoming Fiber



*The protected fibers go to the swing out module and safely enter the splice cassette.*



*In the cable entry unit, strain relief and cable guiding brackets are mounted to enable a fan-out for the incoming fibers.*



*Mounting bracket.*



*Tubes or cabling entering at the left bottom side.*



*Loose Tube, High Fiber Count, cable entering at the left bottom side.*

# THE FRAME - Outgoing Fiber

On the right hand side of the rack double storage spools provide safe routing of the patchcords leaving the ODF.

Each swing out module has its own spool.  
In the picture the frame is fully wired with 1920 (!!!)  
SC patchcords leaving the ODF.

Even with such extreme density the individual patchcords are still accessible. This is a must for fiber management.  
The patchcords are safely guided outside the ODF by means of the special zero-halogen fiber ducting know as Lightpaths™



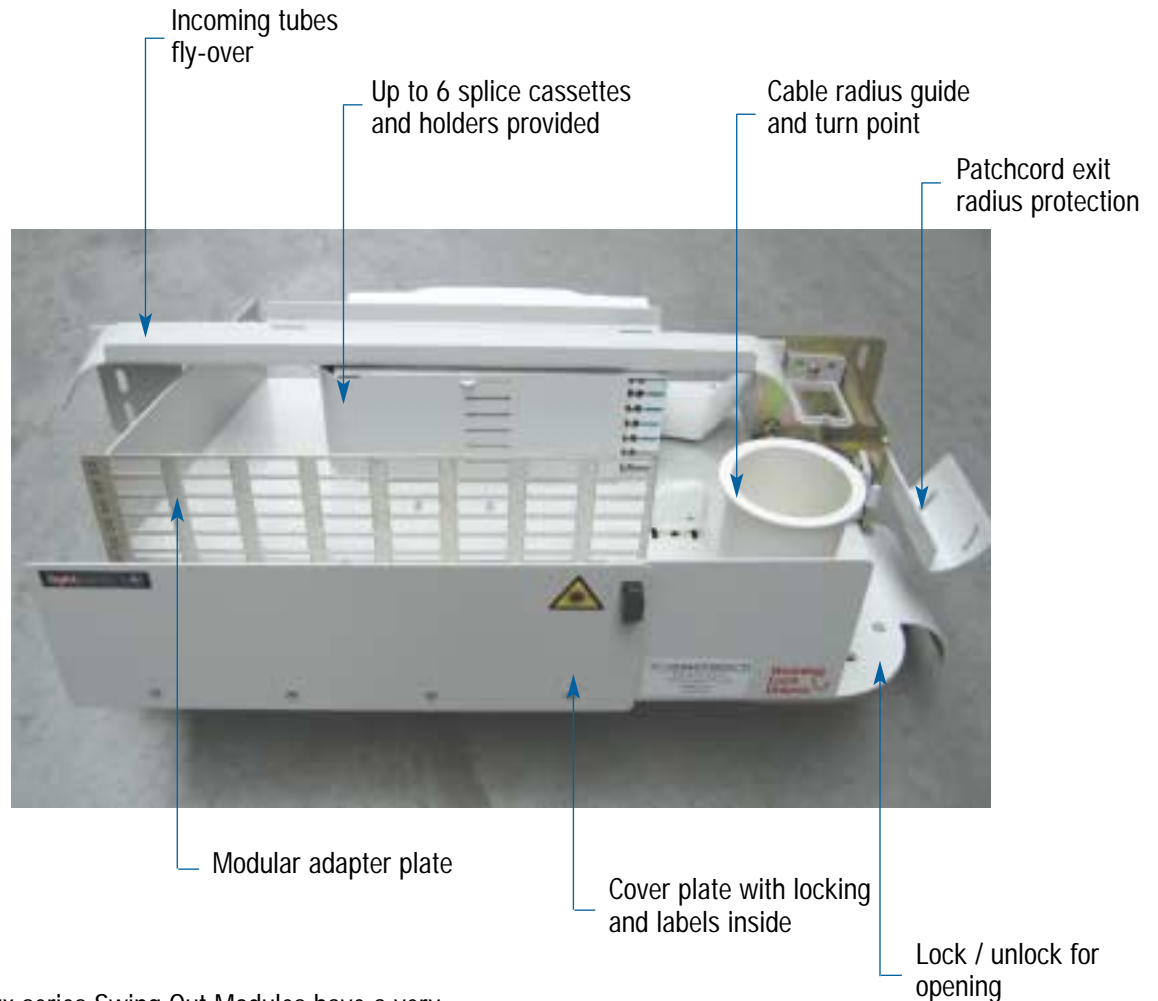
*Patchcords leaving the swing out module smoothly run over the radius guide which also provides a fixing point using Hook & Loop Fasteners.*



# THE SPLICE & PATCH MODULE (2HU)

For high-density applications the combined splice & patch units have been developed. When combining splicing and patching in the same Swing-Out module, one can double the density of the frame. This also increases the Optical Fiber Jumper cable bundles between separate splice and patch modules.

When we designed this new module we listened very carefully to our customers. Their wishes and demands were carefully taken in consideration and as a result of this a revolutionary new design was conceived:

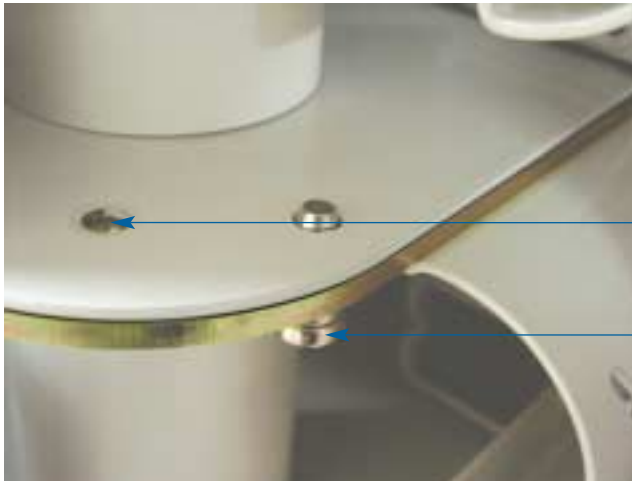


The TC3094xx series Swing Out Modules have a very important benefit:

## ***Minimal Cable Movement!***

When designing an ODF this is the first issue to tackle since fiber movement increases the possibility of fiber damage. Due to it's unique design, the fibers only move approximately 3 cm (!!!) when opening / closing the module over 90 degrees.

# THE SPLICE & PATCH MODULE (2HU)



Locking hole when opened 90 degrees

Pull down to unlock

*All Swing Out Modules have a spring loaded locking pin on the right side to prevent accidentally opening of the modules. The module is automatically locked at the 90° swing out position.*



*The coverplate features a warning label and the easy panel opener on the front.*



*Also, radius guides are provided with fixing possibilities when using Hook & Loop Fasteners.*



*When opened the cover plate also provides a large label area inside.*



*The special hinge protects the patchcables.*

# THE SPLICE & PATCH MODULE (2HU)



*Swing Out Module closed*



*Swing Out Module opened*

The photo's above show you how little cable movement (3 cm) is involved in opening and closing the modules. This is essential for the network integrity!

Also keep in mind that in order to make a patch you don't necessarily have to open the swing module because you can open the cover plate (see picture below).

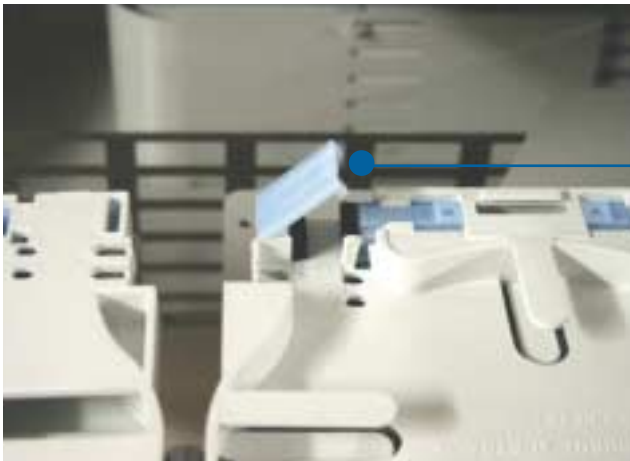


*Open the cover plate for access to the patchfield.*

# THE SPLICE CASSETTES



Up to 24 fibers can be spliced and stored on the Universal Splice Tray using the metal splice protector. The adjustable cassette support holds the upper cassettes in the right position when splicing occurs in the cassettes beneath.



The unique ratchet clamp secures any quantity of any cable diameter in a safe way. This gives the fiber the proper strain relief without any stress on the fiber.

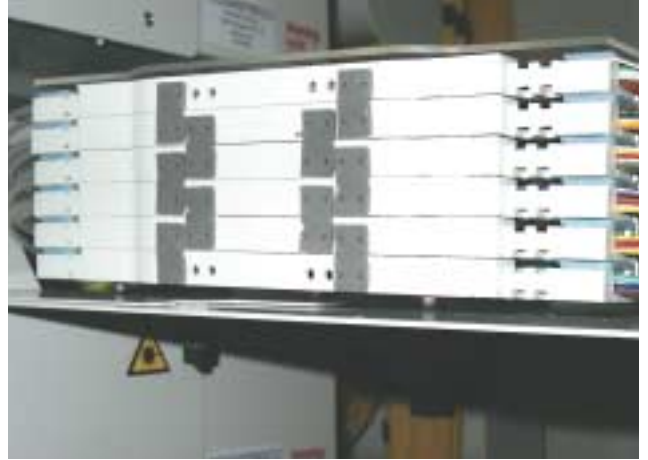
*The splice cassettes can be accessed when the swing out module is opened.*



*The top cassette lid has a locking hook.*

# THE SPLICE CASSETTES

*The cassettes are stacked by means of rubber hinges.*



A special support bracket is provided on each module for the cassette(s) to be flipped over so that the splicing activities can start.



1) *Open the module*

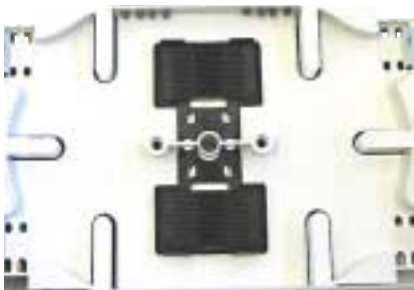


2) *Place the bracket*

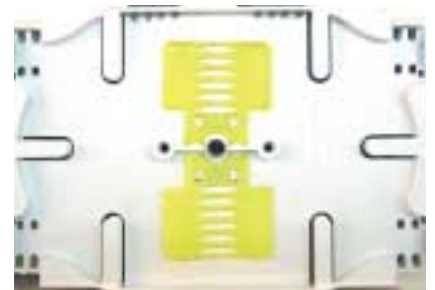


3) *Flip over the cassette(s)*

Each cassette has two splice holders fitted.  
The splice holders can be various types, e.g. heatshrink (HS), ANT (metal type) mechanical splice etc.



*ANT Splice holders, hold 24-splices*



*HS Splice holders, hold 12-splices*

***All modules are typically equipped with splice cassettes and splice holders.***

# THE SPLICE & PATCH MODULE (2HU)

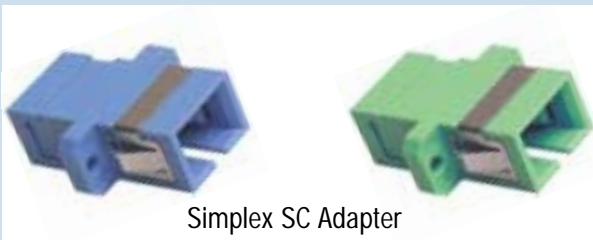
## Density & Connector Style

The modular adapter plate & number of splice cassettes can be adjusted for your specific application. All known connector types such as SC, FC, ST, E2000, LC, MU etc. are possible. Simply specify the type of your choosing.

Most common connector types:



SC Simplex or Duplex blue (standard) or green (APC)



Simplex SC Adapter

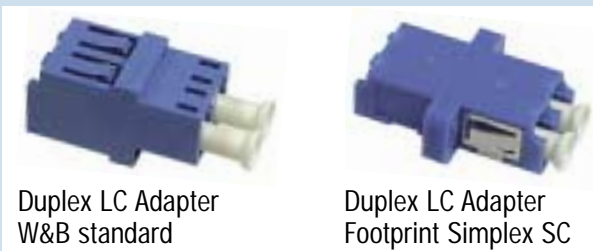


Duplex SC Adapters

Density Splice & Patch per Module

Simplex SC: up to 48W  
Duplex SC: up to 96W

Duplex LC Adapters



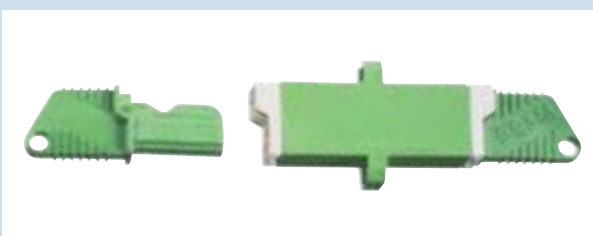
Duplex LC Adapter  
W&B standard

Duplex LC Adapter  
Footprint Simplex SC

Density Splice & Patch per Module

Duplex LC: 72W up to 96W

E2000 Adapter



Density Splice & Patch per Module

E2000 standard: 48W  
E2000 compact: 72W up to 96W

ST, FC, MU and all other connector styles are possible.

**Based upon a 2.2 meter frame the maximum density for any connector style is:  
20 modules, each 96W = 1920 terminations (spliced & patched)**

# Features and Benefits

- Very high density.  
Up to **1920 terminations** based upon a 2.2 m high rack.  
This saves a lot of valuable floor space and rack costs.
- The modules are suitable for **any connector type**.  
Both standard and small form factor connectors.
- **Minimal cable movement** when opening and closing the modules.  
No crushed or stressed fibers.
- All Splice & Patch units are supplied **with Splice Cassettes** and holders.  
Easy ordering. No separate ordering needed.
- The modules can be **pre-fitted with adapters and pigtails**.  
Maximum ease of termination since all components are assembled in the frame already.
- The cable storage unit provides **excellent cable storage and routing**.
- The ODF is supplied **fully assembled**, saving a lot of installation time and less packing material on the site.
- The ODF Frames comes together with pigtails, adapters and splice protectors as a **total solution!**  
The adapters and pigtails are specified on page 12 and 28.

*Simply unpack and start terminating!*

## Technical Specifications

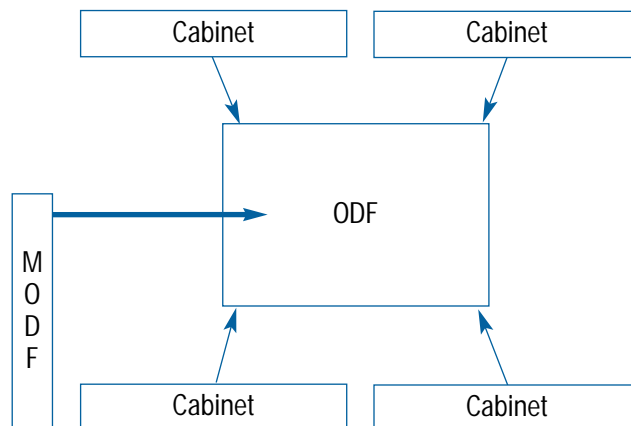
Dimensions : 1050 mm (W) x 300 mm (D) x 2.2 m (H)  
Material : Mild steel  
Color : Powdercoat RAL7047

# High density patch ODF

In addition to the Main ODF (MODF) for both splicing and patching there may be a need for a central Patch ODF.

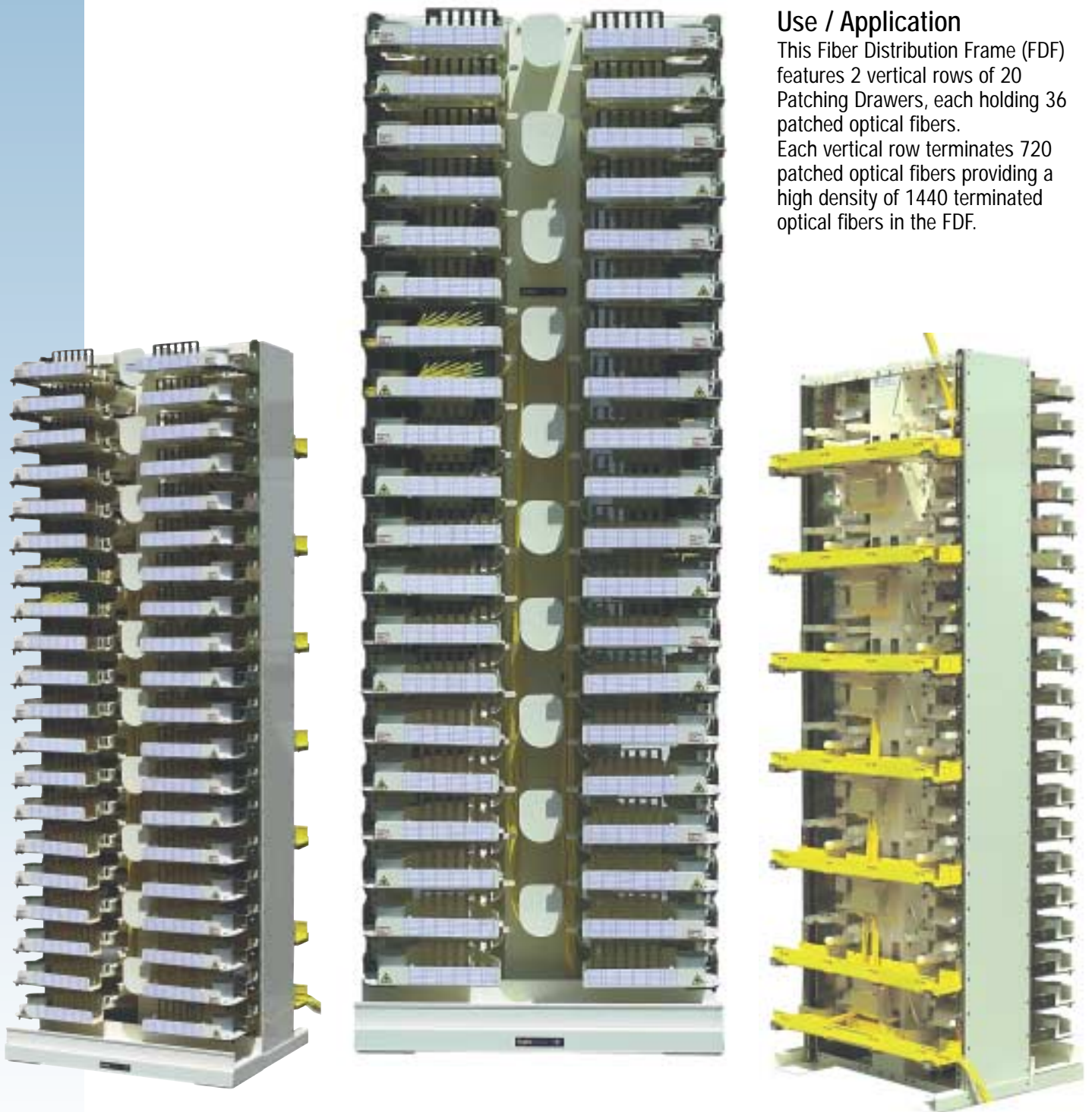
The centrally placed patch ODF provides an interface between the backbone and customer cabinets or separates active and passive sides.

At the central ODF you are therefore capable of connecting any cabinet to any other connection point without pulling new cables in. This situation is very useful in dynamic environments such as co-location or in larger server rooms with high fiber counts and critical circuits.



# Fiber Distribution Frame, High Density, (FDF-HD)

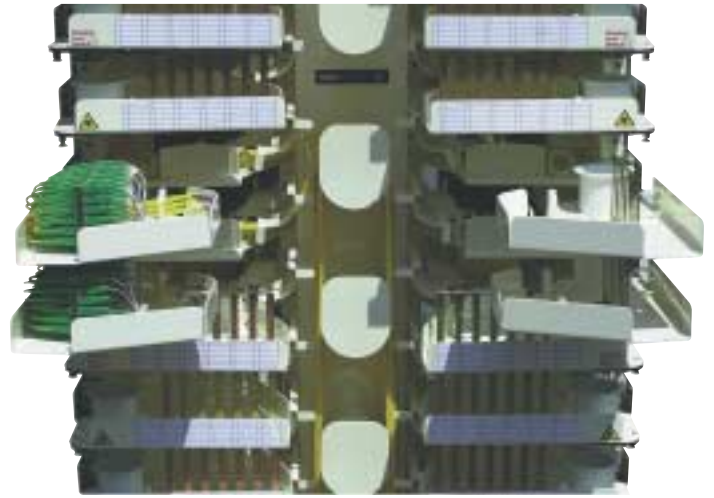
INCLUDING STORAGE FOR 1440 PATCHED FIBERS  
PART NO: TC4071B1440SC



## Use / Application

This Fiber Distribution Frame (FDF) features 2 vertical rows of 20 Patching Drawers, each holding 36 patched optical fibers. Each vertical row terminates 720 patched optical fibers providing a high density of 1440 terminated optical fibers in the FDF.

Each drawer at a 100 mm pitch, opens to 90° and is secured by a spring loaded catch. Each vertical row of drawers is positioned at the front corners of the FDF and has a separate feeding/leaving area for entering and leaving optical fiber cords.



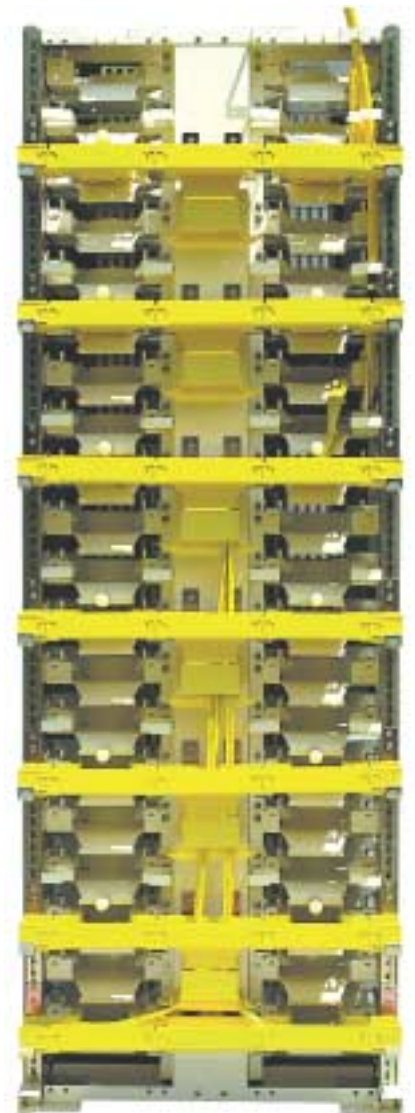
Located in the middle of the front of the FDF is an optical fiber cord storage area containing 10 flanged storage spools. Access to the storage spools is from the optical fiber cord 'leaving area' of the Drawers. Excess length of optical fiber cords can be stored on the spools, at a **guaranteed safe radius**.



On the rear of the rack behind the spool module are two sets of vertical, accessible style guides, that enable optical fiber cords to travel between different levels. Also, at the outer rear corners of the FDF are two sets of vertical, accessible style guides that enable the cords to travel between different levels. Located on the back of the FDF, evenly spaced, are six 100 mm x 50 mm horizontal ducts, with a central outlet fitted, that enables optical fiber cords to travel between different levels and to other FDF's.

At the rear bottom of the rack is a 100 mm x 50 mm duct for optical fiber cords leaving or entering the FDF.

Also, fitted to the front bottom of the FDF is a 200 mm (W) x 50 mm (H) metal trough for the entering and exiting of optical fiber cords.





Everywhere throughout the FDF a radius control system is provided for all optical fiber cords that guarantees the MBR at 38 mm.

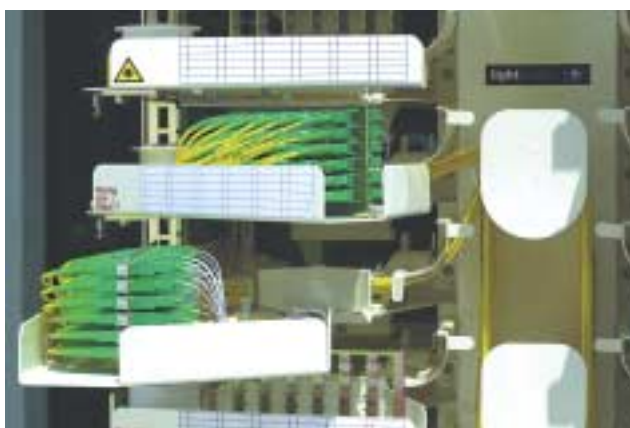


A radius control guide is provided on every drawer for entrance and exit of optical fiber cords. Each drawer has a patch panel for SC connectors. Patching panels can be provided for other connectors, such as: ST, FC, LC, MU etc. A recording sheet is provided on the front of every drawer.

## Modular SWING-OUT patch module COVERED

The swing-out module is also available in a covered version. This includes a hinged faceplate featuring:

- One-piece hinge, protecting the fiber cables when opening or closing the faceplate.
- Laser-light protection. The faceplate covers the feedthrough connectors providing safety for the human eye.
- Easy hand or coin operated plastic snap locking on the front, providing quick access to the patch cords.
- The faceplate is labeled inside for circuit identification. The patch strip can also be labelled vertically.
- When closed, the faceplate can be labeled for general identification eg. WDM, SDH, MONITOR etc.



*A major feature of this FDF is the minimum amount of movement that occurs to entering and exiting optical fiber cords, as the drawers open and close. This ensures a very high degree of security and protection for working services.*

# Features and Benefits

- Can terminate up to 1440 patched optical fibers in one rack
- Provided with two vertical rows of 20 patching drawers, each holding 36 patched fibers
- Separate pathways provided for both intra-bay and inter-bay optical fiber cord jumpers
- Optical fiber cord storage unit, for excess cord length, provided at the front centre of the FDF
- A 200 mm x 50 mm trough, provided at the bottom front of the FDF for connecting optical fiber cords
- Four vertical rows of accessible style guides, provided at rear of FDF
- Six x 100 mm x 50 mm horizontal ducts, with a central outlet, provided at rear of FDF
- One x 100 mm x 50 mm horizontal duct, provided across rear base of FDF
- **Radius control**, for every optical fiber cord, provided **throughout the FDF**
- accessible style guides for optical fiber cords, provided on every drawer
- Radius control for entering and leaving optical fiber cords, provided on every drawer
- Highly flexible FDF for running, terminating and storing optical fiber cords
- The FDF system provides a readily **expandable, modular system** for a large number of optical fiber cords
- Patch panels available for most connector types eg SC, ST, FC, MU, LC, E2000 etc.

## Technical Specifications

Dimensions : 750 mm (W) x 610 mm (D) x 2.13 m (H)

Material : Mild steel and Noryl plastic

Color : Powdercoat Beige

# WALL ODF - SMALL FIBERCOUNT

Max. 480 terminations in a 17HU Wall cabinet

## Use / Application

These versatile wall mountable ODF units are used for low density applications.

Often used where floor or rackspace is limited, these units combine both splicing and patching using the same modular unit used in the larger European Lightframe.

Wall applications are often used in metropolitan, customer premises or remote locations.

The wall unit can be supplied in a 12 or 17U version. Cable entry from the bottom or top is possible. A special slack storage plate can be mounted in the housing providing safe storage for the overlength of fiber patch cables. The glass or metal door can be easily placed on the left or right due to the quick lock/unlock hinge. As the side panels can be easily removed once the front door is opened, full access to the fibers enables proper fiber management.

## Features

- Rack, 12 or 17U 600 mm (W) x 400 mm (D) footprint
- Terminates max. 480 optical fibers, with 100% patching
- Material: Steel, glass or steel door
- Color: Cabinet grey antracite ODF modules beige



*Closed Faceplate*



*Opened Faceplate*

# 19" Splice and Patch Modules

The same benefits that the swing out modules have in a high density ODF are available for 19-inch cabinet mounting.

For customer premises there is often a need for 6-12-24-48 terminations that can be combined in an existing 19-inch rack. We developed the modules for this goal.



## 19-inch front or rear mount 1HU

TC1758I series for terminating 12 fibers on SC, ST, FC, LC, E2000, MU connectors and so on.

## 19-inch front or rear mount 1 1/2 HU

TC1759I series for terminating 24 fibers on SC, ST, FC, LC, E2000, MU connectors and so on.

## 19-inch front or rear mount 1HU

TC1758SL24 series for splicing only 12 fibers.

## 19-inch front or rear mount 3HU

TC1759I series for terminating 48 fibers on SC, ST, FC, LC, E2000, MU connectors and so on.

# Wall Mount Splice & Patch Modules

## Wall mount outdoor termination unit TC4022 series

24 Fibers terminated in a 2 door lockable housing.

Weatherproof IP65 rating.

Dimensions 490 mm (W) x 385 mm (H) x 75 mm (D)

Weight 4.6 Kg.

## Wall mount indoor termination unit TC2994 series

48 Fibers terminated in a 2 door lockable housing.

Dimensions 440 mm (W) x 310 mm (H) x 100 mm (D).

Weight 5.7 Kg.

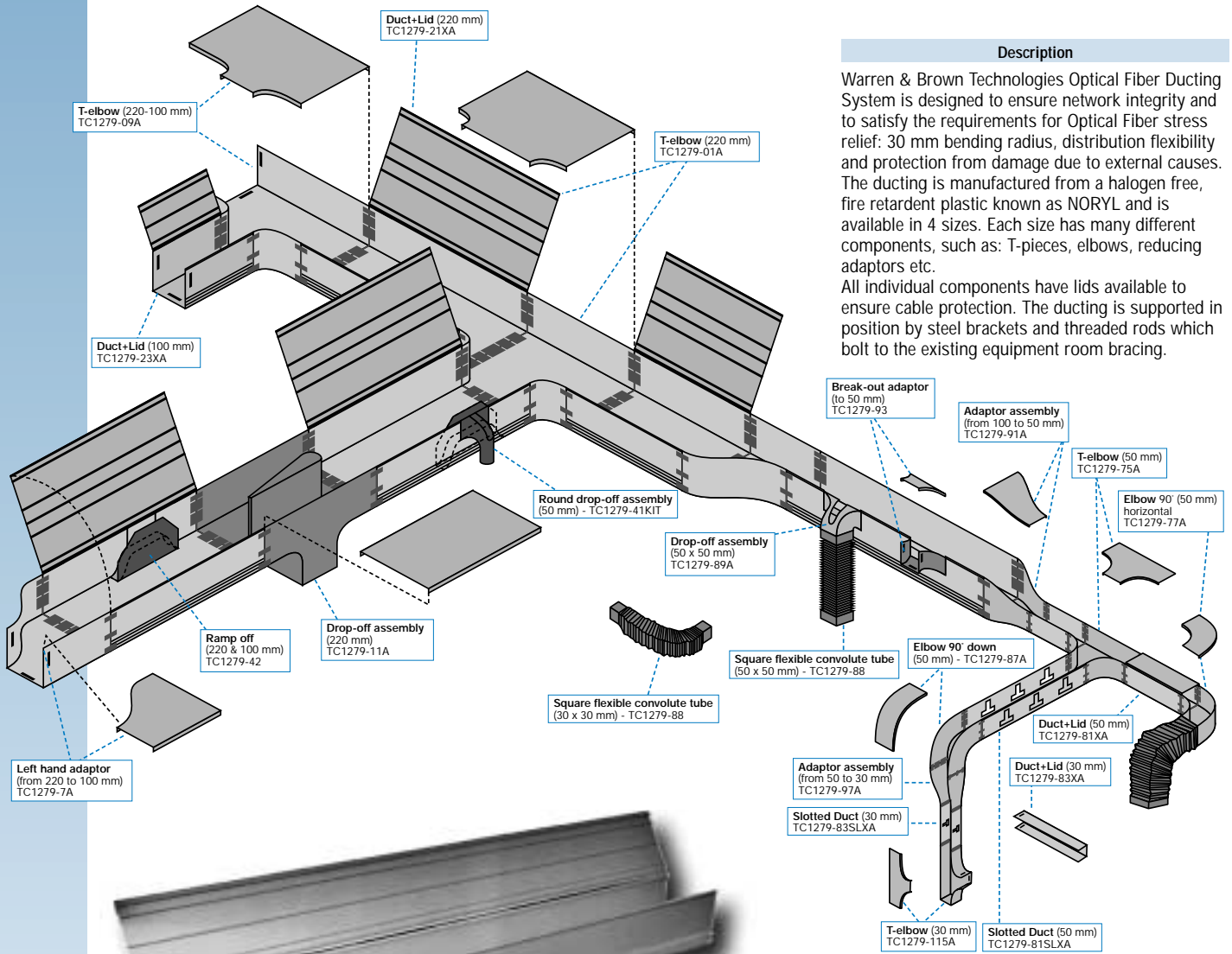


Customer side



# Optical Fiber Ducting

Halogen free, fire retardant Noryl



## Description

Warren & Brown Technologies Optical Fiber Ducting System is designed to ensure network integrity and to satisfy the requirements for Optical Fiber stress relief: 30 mm bending radius, distribution flexibility and protection from damage due to external causes. The ducting is manufactured from a halogen free, fire retardant plastic known as NORYL and is available in 4 sizes. Each size has many different components, such as: T-pieces, elbows, reducing adaptors etc. All individual components have lids available to ensure cable protection. The ducting is supported in position by steel brackets and threaded rods which bolt to the existing equipment room bracing.

## Features

- Halogen free ducting system
- Flexible tube and vertical ducting provide access to multiple fiber optic transmission system equipment within a rack.
- A range of components is available to allow the system to be easily installed in both old and new overhead and underground exchange situations.
- Available in six sizes: 30 x 30, 50 x 50, 100 x 50, 100 x 100, 220 x 100 and 300 x 100 mm (W x H)
- Standard length: 2000 mm
- 300 mm duct only available in slotless



## Ordering Information

Part no.	Width/ mm	Height/ mm
<b>Solid Duct and Lid</b>		
TC1279-83XA	30	30
TC1279-81XA	50	50
TC1279-223A	100	50
TC1279-23A	100	100
TC1279-21A	220	100
<b>Slotted Duct and Lid</b>		
TC1279-83SLXA	30	30
TC1279-81SLXA	50	50
TC1279-23SLXA	100	100
<b>Solid Duct and Snap on Lid</b>		
TC1279-23ASN	100	100
TC1279-21ASN	220	100
TC1279-275A	300	100

# Optical Fiber Ducting

Halogen free, fire retardant Noryl



Ordering Information	
Part no.	Width (mm)
<b>T-Assembly Vertical</b> TC1279-145A	50 mm



Ordering Information		
Part no.	Angle	Dimensions/ mm
<b>Elbow Assembly</b>		
TC1279-135A	90° down	30 x 30 mm
TC1279-87A	90° down	50 x 50 mm
TC1279-111A	90° down	100 x 100 mm
TC1279-123A	90° down	220 x 100 mm
TC1279-296KIT	90° down	300 x 100 mm



100 mm



220 mm

Ordering Information		
Part no.	Angle	Dimensions/ mm
<b>Elbow Assembly</b>		
TC1279-31A	90° horizontal	100 x 100 mm
TC1279-29A	90° horizontal	220 x 100 mm



Ordering Information	
Part no.	Width (mm)
<b>Drop-off Assembly</b> TC1279-63A	100 mm



Ordering Information	
Part no.	Angle / Dimensions/ mm
<b>Enclosed Elbow Assembly</b>	
TC1279-39A	90° up & down, 100 x 100 mm
TC1279-37A	90° up & down, 220 x 100 mm



Ordering Information		
Part no.	Angle	Dimensions/ mm
<b>Elbow Assembly</b>		
TC1279-137A	90° horizontal	30 x 30 mm
TC1279-77A	90° horizontal	50 x 50 mm
TC1279-269A	90° horizontal	100 x 50 mm



Ordering Information	
Part no.	Width (mm)
<b>Adaptor</b> TC1279-281A	220 - 300 mm



300 mm

Ordering Information	
Part no.	Dimensions/ mm
<b>T-Assembly</b>	
TC1279-115A	30 x 30 mm
TC1279-75A	50 x 50 mm
TC1279-224A	100 x 50 mm
TC1279-03A	100 x 100 mm
TC1279-01A	220 x 100 mm
TC1279-279A	300 x 100 mm
<b>Universal Radius Limiter</b> TC1279-156	



Ordering Information		
Part no.	Angle	Dimensions/ mm
<b>Elbow Assembly</b>		
TC1279-247A	90° up	30 x 30 mm
TC1279-143A	90° up	50 x 50 mm
TC1279-246A	90° up	100 x 50 mm
TC1279-113A	90° up	100 x 100 mm
TC1279-125A	90° up	220 x 100 mm
TC1279-298KIT	90° up	300 x 100 mm



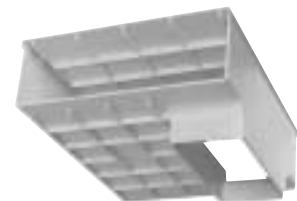
Ordering Information	
Part no.	Width (mm)
<b>Right-hand Adaptor</b>	
TC1279-05A	220 - 100 mm
TC1279-150KIT	220 mm to 6" ADC



Ordering Information	
Part no.	Width (mm)
<b>Left-hand Adaptor</b>	
TC1279-07A	220 - 100 mm
TC1279-149KIT	220 mm to 6" ADC



Ordering Information	
Part no.	Dimensions/mm
<b>T-Assembly</b>	
TC1279-09A	220 - 100 mm
<b>Breakout, Single Assembly</b>	
TC1279-312KIT	300 - 100 mm



Ordering Information	
Part no.	Dimensions/ mm
<b>Intra Suite entry Assembly</b>	
TC1279-277A	300 x 100 mm

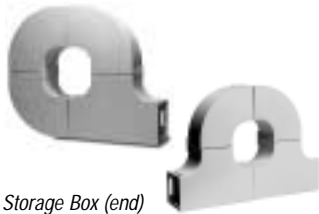
# Optical Fiber Ducting



Ordering Information	
Part no.	Width (mm)
<b>Intra Suite Entry Assembly</b>	
TC1279-63R	100 mm
TC1279-11R	100 and 220 mm



Ordering Information	
Part no.	Width (mm)
<b>Drop-off Assembly</b>	
TC1279-11A	100 and 220 mm



Storage Box (end)

Storage Box (in-line)

Ordering Information	
Part no.	Width (mm)
<b>Storage Box end</b>	
TC1279-178KIT	for 50 mm Duct
TC1279-192KIT	for 100 mm Duct
TC1279-191KIT	for 220 mm Duct
<b>Storage Box in-line</b>	
TC1279-209KIT	for 50 mm Duct
TC1279-208KIT	for 100 mm Duct
TC1279-207KIT	for 220 mm Duct
<b>Storage Box end / in-line with extra T-Shape</b>	
TC1279-34KIT	for 50 mm Duct
TC1279-33KIT	for 100 mm Duct
TC1279-35KIT	for 220 mm Duct



Ordering Information	
Part no.	Description
<b>Square Flexible Convolute Tube</b>	
TC1279-88	30 x 30 mm, length 350 mm
TC1279-85	50 x 50 mm, length 350 mm, fits on 30 mm elbow
<b>Round Flexible Convolute Tube</b>	
TC1279-26	50 mm OD, length 1000 mm
TC1279-54	ø 20 mm ID, length 2000 mm
TC1279-53	ø 44 mm ID, length 2000 mm



Ordering Information	
Part no.	Description
<b>Square Flexible Convolute Spliceable Tube</b>	
TC1279-85KIT	50 x 50 mm, length 350 mm with Velcro ties. See also Chapter D - Fastening Devices



50 mm

Ordering Information	
Part no.	Description
<b>Convolute Tube Kit</b>	
TC1279-68KIT	50 mm OD Adaptor - 32 mm OD Tube, length 2000 mm



Ordering Information	
Part no.	Dimensions
<b>Flexible Tube</b>	
TC1279-26	50 mm OD, length 1000 mm
TC1279-53	50 mm OD, length 2000 mm
TC1279-54	25 mm OD, length 2000 mm
<b>Flexible Convolute Tube</b>	
TC1279-68	38 mm OD, length 2000 mm



Outlet Trumpet

**Description**

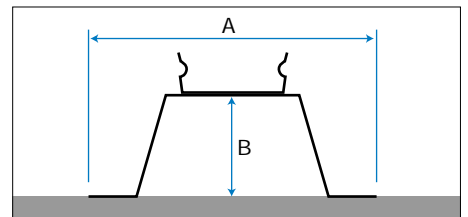
This radius guide (outlet trumpet) allows patch-cords to enter and leave the optical fiber duct system in an organised manner, while maintaining the 30 mm minimum fiber, bending radius. It is fitted in the slot of the 50 mm duct system where it snaps into place to provide organised, low stress fiber access. Slotted duct TC1279-81SLA.

Ordering Information	
Part no.	Description
TC1279-212KIT	Duct radius guide 50 and 100 mm slotted duct

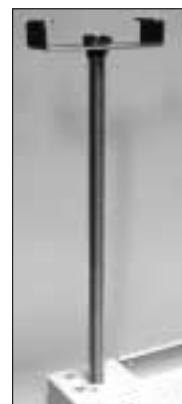
# Halogen free, fire retardant Noryl



Ordering Information			
Part no.	Duct width	A	B
<b>Floor Clamps with Clips</b>			
VLRB1-50	for 50 mm	195 mm	80 mm
VLRB1-100	for 100 mm	175 mm	40 mm
<b>Clips (Separate)</b>			
CLIP2-50	for 50 mm		
CLIP1-100	for 100 mm		
CLIP1-220	for 220 mm		



Ordering Information	
Part no.	Description
<b>Computer Floor Pipe Connection</b>	
C-24EC	Clamp, 20-24 mm ø (two needed)
1149191	Clip Carrier
CLIP2-50	Clip for 50 mm duct
CLIP1-100	Clip for 100 mm duct



Ordering Information	
Part no.	Dimensions
<b>Mounting Bracket Assembly</b>	
TC1279-14A	100 mm
TC1279-13A	220 mm

# Optical Fiber Ducting

Halogen free, fire retardant Noryl



Ordering Information	
Part no.	Description
<b>Dual Break-out Kit 50 mm down</b> TC1279-93DKIT	100, 220 and 300 mm ducting



Ordering Information	
Part no.	Description
<b>Break-out Kit 50 mm up</b> TC1279 MH1 KIT	100, 220 and 300 mm ducting



Ordering Information	
Part no.	Description
<b>Square (drop-off) Assembly</b>	
TC1279-89A	50 x 50 mm, 50 mm
TC1279-89KIT	50 x 50 mm kit, 100, 220 and 300 mm ducting
<b>Round (drop-off) Assembly</b>	
TC1279-41A	ø 44 mm, 50 mm
TC1279-41KIT	ø 44 mm, for 100, 220 and 300 mm ducting



Ordering Information	
Part no.	Description
<b>Break-out Kit 50 mm down</b> TC1279-93KIT	100, 220 and 300 mm ducting
TC1279-42	Ramp off 100, 220 and 300 mm ducting



Ordering Information	
Part no.	Width (mm)
<b>Break-out Adaptor - Outlet Trumpet</b> TC1279-93A	50 x 50 mm
TC1279-218A	100 mm



Ordering Information	
Part no.	Width (mm)
<b>Centering Adaptor Assembly</b>	
TC1279-47A	2 x 30", 100 mm
TC1279-45A	2 x 30", 220 mm



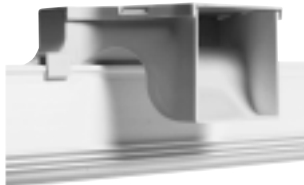
Ordering Information	
Part no.	Description
<b>Top Outlet Assembly, Vertical 100mm</b> TC1279-307A	100, 220 and 300 mm <i>Slotted version /TC1279-307ASL</i>



Ordering Information	
Part no.	Width (mm)
<b>Cross Connector</b>	
TC1279-139A	50 x 50 mm
TC1279-234A	100 x 50 mm
TC1279-71A	100 x 100 mm
TC1279-61A	220 x 100 mm
TC1279-279A	300 x 100 mm



Ordering Information	
Part no.	Width (mm)
<b>Adaptor Assembly</b>	
TC1279-91A	100 - 50 mm
TC1279-97A	50 - 30 mm
<b>Adaptor Kit, lightpaths to ADC ducting system 4"</b>	
TC1279-109KIT	ADC ducting system 4" - 100 mm



Ordering Information	
Part no.	Width (mm)
<b>Top Outlet drop-off to 100 x 100 mm Ducting Raceway, Horizontal</b> TC1279-290A	100, 220 and 300 mm <i>Slotted version /TC1279-290ASL</i>



Ordering Information	
Part no.	Width (mm)
<b>Joiner</b>	
TC1279-98	30 x 30 mm
TC1279-73	50 x 50 mm
TC1279-226	100 x 50 mm
TC1279-27	100 x 100 mm
TC1279-248A	100 x 100 mm
TC1279-25	220 x 100 mm
TC1279-250A	220 x 100 mm
TC1279-287A	300 x 100 mm



Solid End Cover



Ordering Information	
Part no.	Width (mm)
<b>Break-out, drop-off Kit</b> TC1279-87KIT	50 mm

Ordering Information	
Part no.	Width (mm)
<b>End Cover</b>	
TC1279-128	30 mm
TC1279-127	50 mm
TC1279-57	100 mm
TC1279-251	100 mm (Solid)
TC1279-56	220 mm
TC1279-252	220 mm (Solid)
TC1279-288	300 mm

# Optical Fiber Ducting

Halogen free, fire retardant Noryl



Ordering Information	
Part no.	Description
<b>Floorstand with Clips, Height: 215 - 370 mm</b>	
<b>1149135</b>	Floorstand for 220 mm duct
<b>CLIP1-220</b>	Clip for 220 mm duct
<b>Floorstand with Clips, Height: 125 - 185 mm</b>	
<b>211135-02</b>	Floorstand for 220 mm duct
<b>CLIP1-220</b>	Clip for 220 mm duct



Ordering Information	
Part no.	Description
<b>TC1279-79KIT</b>	Velcro Mounting Kit



Ordering Information	
Part no.	Width
<b>Mitre &amp; Slotting Kit</b>	
<b>TC1279-51KIT</b>	100 and 220 mm



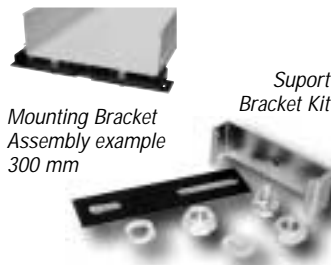
Ordering Information	
Part no.	Width
<b>Wall Mount Bracket</b>	
<b>TC1279-104KIT</b>	100 mm
<b>TC1279-133KIT</b>	220 mm



Ordering Information	
Part no.	Width
<b>Mounting Bracket Kit</b>	
<b>TC1279-78KIT</b>	30 and 50 mm



Ordering Information	
Part no.	Description
<b>Cut-out Tool Kit</b>	
<b>TC1279-50KIT</b>	for 50 mm Break-out
<b>TC1279-231KIT</b>	for 100 mm Break-out



Ordering Information	
Part no.	Width
<b>Support Bracket Kit</b>	
<b>TC1279-103KIT</b>	100 mm
<b>TC1279-32KIT</b>	220 mm
<b>Mounting Bracket Kit</b>	
<b>TC1279-297</b>	300 mm



Ordering Information	
Part no.	Angle / Width
<b>Elbow Assembly, External Lid</b>	
<b>TC1279-285A</b>	45° down 300 mm



Ordering Information	
Part no.	Width
<b>Duct Slotting &amp; Mitre Box Kit</b>	
<b>TC1279-119KIT</b>	for 30 mm
<b>TC1279-140KIT</b>	for 30 and 50 mm
<b>TC1279-118KIT</b>	for 50 mm



Ordering Information	
Part no.	Description
<b>TC1279-156</b>	Universal Radius Guide



Ordering Information	
Part no.	Angle / Width
<b>Elbow Assembly, Internal Lid</b>	
<b>TC1279-283A</b>	45° up 300 mm

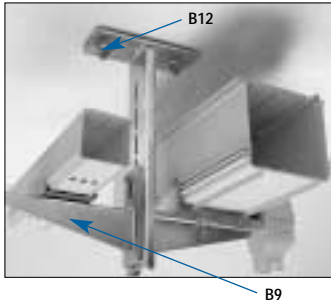


Ordering Information	
Part no.	Description
<b>Impact Drilling Machine</b>	
<b>GDS18E</b>	For use with Cut-out Tool
<b>Cut-out Tool Kit</b>	
<b>TC1279-50KIT-MOD</b>	for 50 mm Break-out

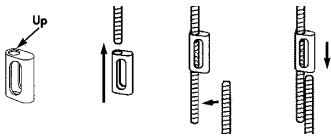
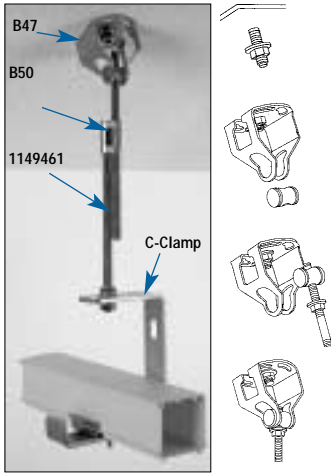


Ordering Information	
Part no.	Width
<b>Hinge Kit</b>	
<b>TC1279-43KIT</b>	for 100 and 220 mm

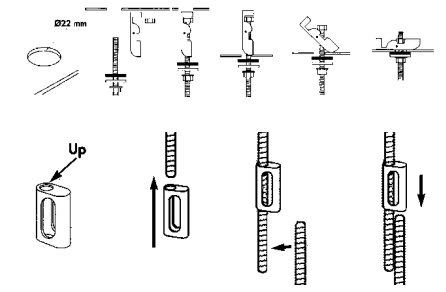
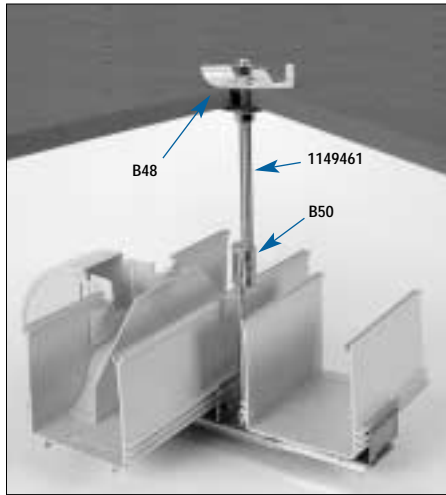
## Ceiling Mounting Kits



Ordering Information	
Part no.	Description
<b>1149136</b>	B12 Hang console
<b>1149121</b>	B9 Wing console 180 mm
<b>1149122</b>	B9 Wing console 280 mm
<b>CLIP2-50</b>	Support clip for 50 mm duct
<b>CLIP1-100</b>	Support clip for 100 mm duct
<b>CLIP1-220</b>	Support clip for 220 mm duct



Ordering Information	
Part no.	Description
<b>1149476</b>	B47/M10 Ceiling fitting, variable angle
<b>1149461</b>	M10 Threaded rod, length 1000 mm
<b>1149466</b>	B50/M10 Thread lock
<b>MH1947431</b>	C-clamp 120 mm M10
<b>MH1954254</b>	C-clamp 250 mm M12
<b>CLIP2-50</b>	Support clip for 50 mm duct
<b>CLIP1-100</b>	Support clip for 100 mm duct
<b>CLIP1-220</b>	Support clip for 220 mm duct



Ordering Information	
Part no.	Description
<b>1149473</b>	B48/M10 Ceiling clamp
<b>1149461</b>	M10 Threaded rod, length 1000 mm
<b>1149466</b>	B50/M10 Thread lock
<b>1149464</b>	M10 Flange nut
<b>CLIP2-50</b>	Support clip for 50 mm duct
<b>CLIP1-100</b>	Support clip for 100 mm duct
<b>CLIP1-220</b>	Support clip for 220 mm duct

## Application Views



# Optical Fiber Ducting

Halogen free, fire retardant Noryl

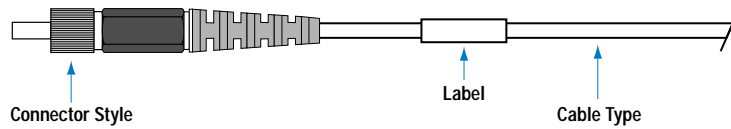


# Pigtails

All Optical Termination Frames and Modules may be supplied with the additional couplers, pigtails and adapters. We can provide all connector styles available with any cable type. The most common outer diameter for pigtails is 900 micron.

Please contact our sales department for further information.

## Pigtail Cable Assembly - Partnumber Matrix



FIELD A	
<b>Connector Style</b>	
A = HFBR Plastic	K = FC Single Mode
B = DIN Single Mode	L = FC Multimode
C = SC Single Mode	S = FSMA Multimode
D = SC Multimode	T = ST Plastic
E = DIN Multimode	V = E2000 Single Mode
H = ST Multimode	W = LC Single Mode
J = ST Single Mode	X = LC Multimode
	Y = FSMA Plastic

FIELD B
<b>Product</b>
1 = SIMPLEX CONNECTOR

FIELD C
<b>Termination Polish Type, IL ≤ 0.4dB</b>
O = MULTIMODE STANDARD
S = SM SUPER PC, -45dB RL Max.
U = SM ULTRA PC, -55dB RL Max.
A = SM ANGLED PC, 8', -65dB RL Max.

FIELD F
<b>Certificate</b>
M = METHODE Cert.
C = CUSTOMER Cert.
P = PLAIN Cert.
N = NONE

FIELD E
<b>Length in Meters</b>
From Connector Tip to Tip
Tolerance = +1% (Min. 200 mm)/-0

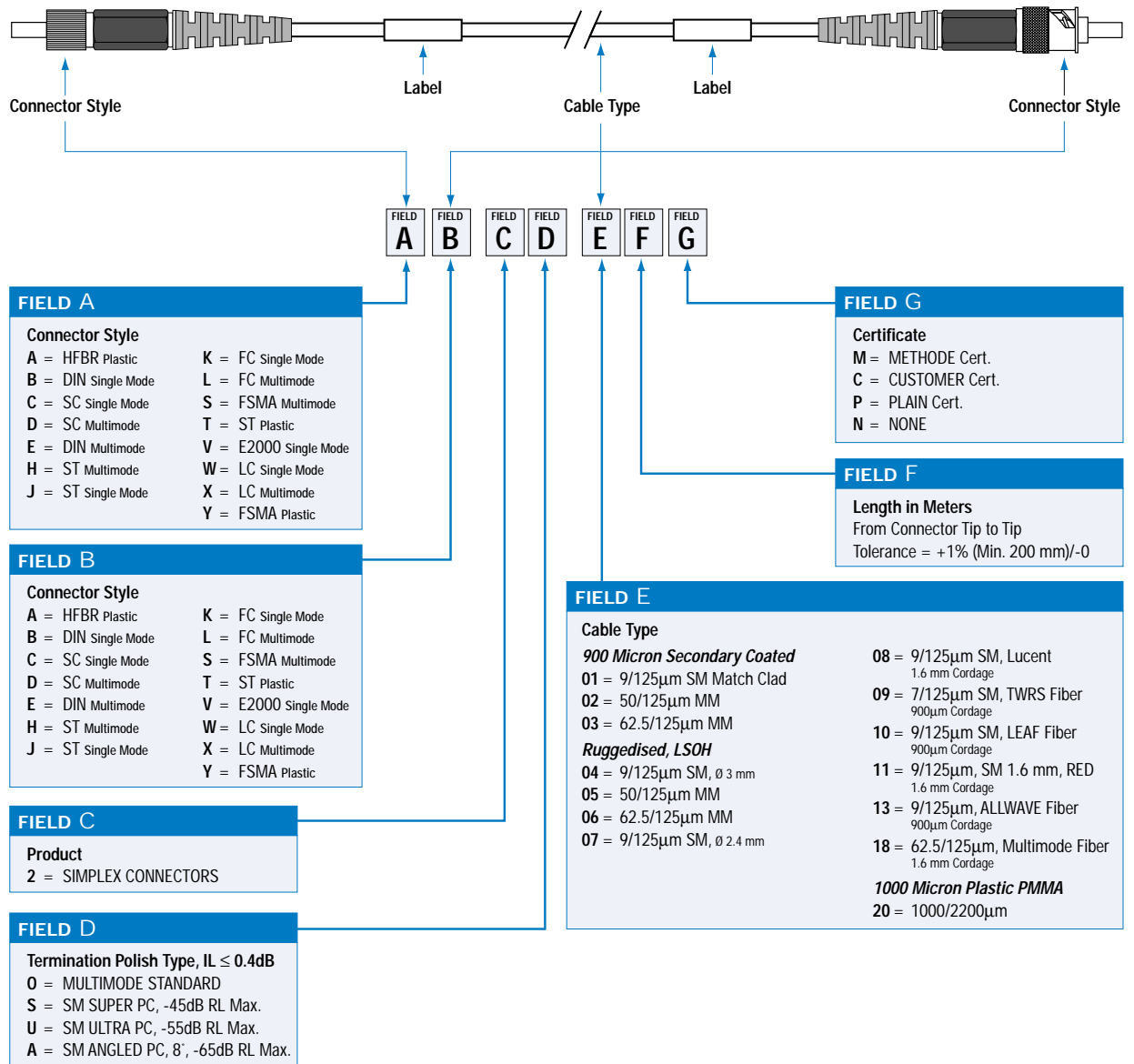
FIELD D	
<b>Cable Type</b>	
<b>900 Micron Secondary Coated</b>	
01 = 9/125µm SM Match Clad	08 = 9/125µm SM, Lucent 1.6 mm Cordage
02 = 50/125µm MM	09 = 7/125µm SM, TWRS Fiber 900µm Cordage
03 = 62.5/125µm MM	10 = 9/125µm SM, LEAF Fiber 900µm Cordage
<b>Ruggedised, LSOH</b>	
04 = 9/125µm SM, Ø 3 mm	11 = 9/125µm, SM 1.6 mm, RED 1.6 mm Cordage
05 = 50/125µm MM	13 = 9/125µm, ALLWAVE Fiber 900µm Cordage
06 = 62.5/125µm MM	18 = 62.5/125µm, Multimode Fiber 1.6 mm Cordage
07 = 9/125µm SM, Ø 2.4 mm	
<b>1000 Micron Plastic PMMA</b>	
	20 = 1000/2200µm

# Simplex Patchcords

All Optical Termination Frames and Modules may be supplied with the additional couplers, pigtails and adapters. We can provide all connector styles available with any cable type. The most common outer diameter for patch cables is 2.4 mm or less.

Please contact our sales department for further information.

## Simplex Patch Cord Cable Assembly - Partnumber Matrix



# Pre-Connectorized Cable Assemblies

## Multimode

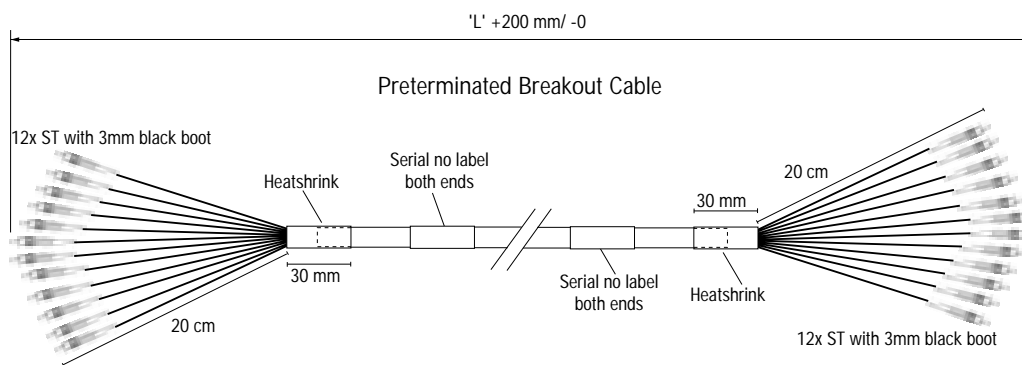
The drawing below shows all the product elements, measurements and product assembly itself.

Every assembly will be marked/coded with a part and batch number for production and quality identification. During installation the cable can be marked on both sides.

The standard breakout stripped length is 0.2 m. When longer breakout lengths are needed the following can be done:

- Remove the outer shrink sleeve with a pair of scissors (the shrink sleeve has no glue inside)
- Remove the outer cable sheath to the desired length with a small pair of scissors

- Remark: Take care not damaging the mini cordage!
- Slide the heat protection tube back to the cable sheath edge
- Place some tape partly over the tube and partly over the cable sheath



### Building Protocol:

- 1 Coil onto drum
- 2 Custom logo and test certificate
- 3 Custom and Methode partnumbers on test certificate
- 4 Connectors to be placed in a plastic bags

## Packaging Details

The cable is spooled on a special reel like in the illustration below. This reel is again placed in a protection box for transport.

The connectors on both ends of the cable are bundled in plastic. The first end is spooled in the small compartment of the spool so that beginning and end of the cable is clearly recognizable.

The spool itself is protected with a carton box or sheet to protect the cable during transport. The reels and protection box are labeled as shown below.



*A test label with Insertion loss and Return loss is enclosed with the packaging.*

# Pre-Connectorized Cable Assemblies

## Multimode (continued)

Specifications	
Minimum Bend Radius:	
Under Installation Tensile Load	15x outside diameter
Under Long-Term Tensile Load	10x outside diameter
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +85°C
Crush Resistance	2200 N/cm
Impact Resistance	1500 impacts
Flex Resistance	2000 cycles

### Resilient, Elastomeric, Core-Locked™ Low Smoke Zero Halogen (LSZH) Outer Jacket

Unlike conventional cable jackets, the special Core-Locked™ jacket is extruded under high pressure directly over the cable's core, resulting in the internal surface of the cable jacket having helical cusped ridges that interlock with the stranded cable core. Wire mesh grips can be used directly over the jacket because the cable core cannot slip and move axially within the cable jacket during installation. This eliminates the jacket damage that typically occurs with other cables. The Core-Locked™ jacket also contains 25% more material than conventional jackets. This helps keep the cable cross-section circular for better crush and impact protection and improved tear resistance during installation. All this and a ripcord for easy stripping! The outer jacket consists of Low Smoke Zero Halogen (LSZH) material for low smoke, fume and no acid gas generation.



Core-Locked™ jacket:  
25% more material;  
greater protection  
and stability.

### Features

- Most rugged and "installer friendly" cable design for Local Area Networks.
- Subcables for direct termination where ease of termination and termination costs are important factors.
- Fungus, water, UV, petroleum and chemical resistant cable is ideal for short and moderate distance links between buildings or within buildings.
- Widest operating, installation and storage temperature ranges for increased reliability.
- Ideal for multi-fiber patch cables.
- Core-Locked™ outer jacket design for the ultimate in installation survivability and long-term, trouble-free service.
- Helically stranded subcables provide maximum flexibility, survival in difficult pulls, and superior mechanical protection for the optical fibers.
- Suitable for both indoor and outdoor use - no need to splice outdoor cable to indoor cable at the building entrance.
- Flame-retardant for indoor installations.
- Zero halogen so no corrosive gas is generated which helps to protect sensitive electronics.
- Excellent individual fiber protection with 900 µm tight-buffer, aramid yarn strength member and subcable jacket.
- High fiber counts are available upon request, as well as custom coloring and labeling.

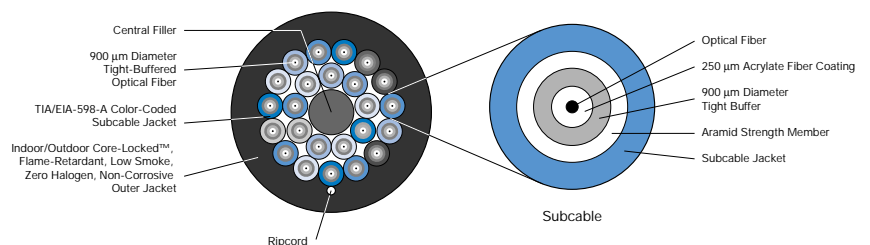
## Universal Breakout Cable



### Ordering Information

Part no.	Fiber size	Fiber Count	Ø mm	Weight kg/km	Tensile Load Rating	
					Short-Term N	Long-Term N
<b>UB002-62</b>	62.5/125 µm	2	7.0	50	1200	500
<b>UB004-62</b>	62.5/125 µm	4	8.0	65	2000	800
<b>UB006-62</b>	62.5/125 µm	6	9.5	82	3000	1200
<b>UB008-62</b>	62.5/125 µm	8	11.0	111	4000	1700
<b>UB010-62</b>	62.5/125 µm	10	12.5	150	6000	2500
<b>UB012-62</b>	<b>62.5/125 µm</b>	<b>12</b>	<b>12.5</b>	<b>150</b>	<b>6000</b>	<b>2500</b>
<b>UB014-62</b>	62.5/125 µm	14	14.5	210	8000	3500
<b>UB016-62</b>	62.5/125 µm	16	14.5	210	8000	3500
<b>UB018-62</b>	62.5/125 µm	18	14.5	210	8000	3500
<b>UB024-62</b>	62.5/125 µm	24	17.5	273	10000	3800

### Cable Build-Up



## Pre-Connectorized Cable Assemblies - Single Mode

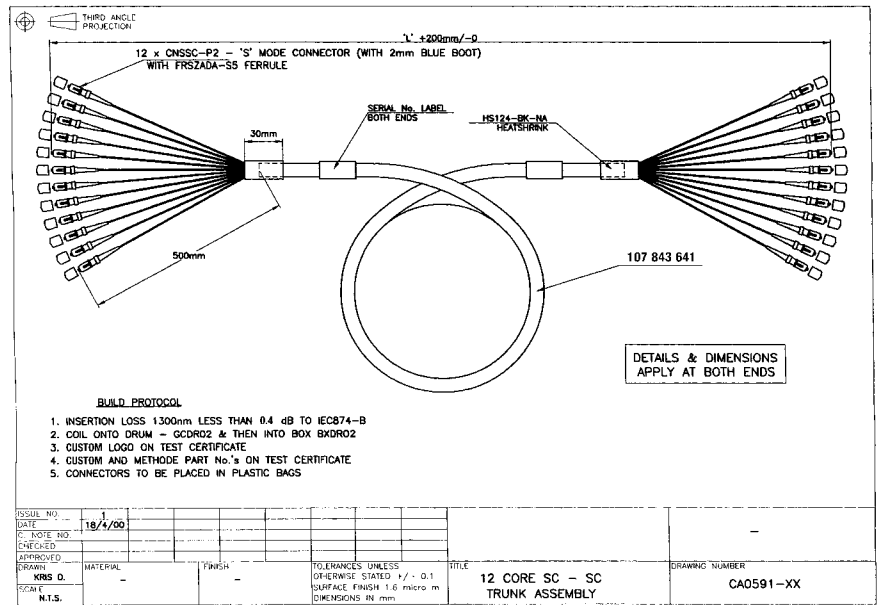


The standard breakout stripped length is 0.5 m. When longer breakout lengths are needed the following can be done:

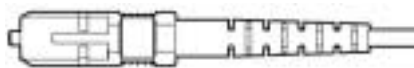
- Remove the outer shrink sleeve with a pair of scissors (the shrink sleeve has no glue inside)
- Remove the outer cable sheath to the desired length with a small pair of scissors
- Remark: Take care not damaging the mini cordage!
- Slide the heat protection tube back to the cable sheath edge
- Place some tape partly over the tube and partly over the cable sheath

The drawing below shows all the product elements, measurements and product assembly itself. Every assembly will be marked/coded with a part

and batchnumber for production and quality identification. During installation the cable can be marked on both sides and in between with a barcode number.



### Optical Connector SC Ultra Polish



#### Technical Specifications

Performance Characteristics	
Insertion Loss*	≤ 0.2 dB (multi-/single-mode)
*Typical, @ 850nm wavelength using 62.5/125 micron fiber	
Return Loss	Depend on Polish Type
Durability	≤ 0.1 dB (500 cycles)
Cable Retention	200 N (51 lbs.)
Temperature Range	-40° to +85°C (Operating)
Materials	
Grip and Plug Body	Thermoplastic (reinforced, flame retardant)
Rear Body	Zinc alloy, nickel plated
Crimp Sleeve	Brass, tin plated
Boot	Thermoplastic Rubber (flame retardant)
Ferrule	Zirconia Ceramic or Polymer
Dust Cover	Vinyl

#### Description

Methode 308 Series SC connector products are designed and manufactured to meet JIS, IEC EIA/TIA and ANSI specifications for intermateability and optical performance. This Methode SC connector features a unique grip housing and a pre-assembled plug body for easy termination. The duplex clip positions two SC connector ferrules on 0.5" (12.7 mm) centers. The duplex configuration is compliant with ANSI X3T11 Fiber Channel specifications. This Methode SC connector has unsurpassed float and duplex plugging characteristics. Our 308 Series SC connectors are installed using Methode 900 Series universal termination tooling and consumables. The Universal Polishing Disk can handle up to four (4) simplex SC plugs at one time. When combined with the Methode Quick-Cure adhesive system, connector termination takes less than two (2) minutes.

#### Features

- Pull proof
- Meets ISO/IEC 11801 and TIA 568A performance standards.
- Pre-assembled option simplifies field termination
- Polymer ferrules available for a variety of fiber sizes
- Pre-radiused ceramic ferrules configured for "Ultra" and "Super" PC Polishing
- Bend relief boots meet Bellcore TR-NWT-000326 side load specification
- Terminates with same tools as ST and FC
- Duplex clip available separately
- Dust Cover with lanyard (optional) stays with the connector
- Crimpset & Boot suitable for 1.6 mm Cable, 2 mm Blue Boot

### Packaging Details

The cable is spooled on a special reel, like in the illustration below. This reel is again placed in a protection box for transport. The connectors on both ends of the cable are bundled in plastic. The first end is spooled in the small compartment of the spool so that beginning and end of the cable is clearly recognizable. The spool itself is protected with a carton box or sheet to protect the cable during transport. The reels and protection box are labeled as shown below.



A test label with insertion loss and return loss is enclosed with the packaging.

## Pre-Connectorized Cable Assemblies - Single Mode (continued)

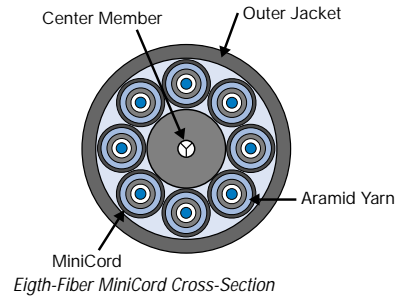
### Description

The MiniCord Break-Out Cable is available in fiber counts of 6, 8, 12, 18, 24, 30, 36, 48, 60 and 72. In fiber counts 18 and higher, submits of six or twelve MiniCords are enclosed (not stranded) in color-coded PVC jackets and individually labeled. The single-mode fibers are tight buffered and available in depressed clad or matched clad. The cable may be placed in a

vertical riser or horizontal distribution system. Cable meets or exceeds standards set by EIA, CSA, NEC and UL. The UL listing OFNR and CSA OFN FT4 certification is printed on the jacket.

Subsystems: Riser, Horizontal/Distribution, Prewired Shelves, Value to Frame, Equipment Interconnect and Cross-Connect.

### MiniCord Breakout Fiber Cable



Technical Specifications		
<b>Physical Specifications</b>		
Max. Length:	6, 8 & 12 fiber (2.7 km) 18 to 36 fiber (1.2 km) 48 to 72 fiber (1 km)	<b>Individual MiniCord Minimum Bending Radius:</b>
		During installation: 3.8 cm After installation: 2.5 cm
<b>Fiber Dimensions:</b>	Core: 8.3µm Cladding: 125µm Coating: 250µm Buffering: 900µm	<b>Buffered fiber minimum bend radius:</b> 1.9 cm
		<b>Operating Temperature range:</b> -20 to 70°C
		<b>Storing Temperature range:</b> -40 to 70°C
<b>Break-out Cable or Submit Minimum Bending Radius:</b>		
During installation:	20 times cable/submit diameter	<b>Optical Specification: Maximum fiber loss:</b>
After installation:	10 times cable/submit diameter	Depressed Clad Fiber: 0.4dB/km at 1310 nm 0.3dB/km at 1550 nm
		Matched Clad Fiber: 0.5dB/km at 1310 nm 0.5dB/km at 1550 nm
		<b>Min. order quantity:</b> 61 meters

Color Code Identification for Individual MiniCords											
1	2	3	4	5	6	7	8	9	10	11	12
Blue	Orange	Green	Brown	Slate	White	Red	Black	Yellow	Violet	Rose	Aqua
Color Code Identification for Submits											
1	2	3	4	5	6						
Blue	Orange	Green	Brown	Slate	White						

## Riser Rated

Ordering Information Depressed Clad Single-Mode MiniCord Break-Out Cable OFNR Riser Rated								
Part no. <sup>1</sup>	Description	No. of Fibers	Cable Diameter	Submit MiniCords	Submit Diameter	MiniCord Diameter	Cable Weight	Tension Rating
<b>107 843 286</b>	LGMC-006B-SRX	6	0.24" - 6.1 mm	n/a	n/a	0.06" - 1.6 mm	28.7 kg/km	200 lbs. - 888 N
<b>107 966 723</b>	LGMC-008B-SRX	8	0.28" - 7.1 mm	n/a	n/a	0.06" - 1.6 mm	42.2 kg/km	300 lbs. - 1320 N
<b>107 843 641</b>	<b>LGMC-012B-SRX</b>	<b>12</b>	<b>0.30" - 7.7 mm</b>	<b>n/a</b>	<b>n/a</b>	<b>0.06" - 1.6 mm</b>	<b>44.6 kg/km</b>	<b>400 lbs. - 1776 N</b>
<b>107 843 294</b>	LGMC-018B-SRX	18	0.57" - 14.5 mm	6	0.24" - 6.1 mm	0.06" - 1.6 mm	137 kg/km	500 lbs. - 2224 N
<b>107 508 467</b>	LGMC-024B-SRX	24	0.80" - 20.3 mm	6	0.24" - 6.1 mm	0.06" - 1.6 mm	260 kg/km	500 lbs. - 2224 N
<b>107 843 302</b>	LGMC-030B-SRX	30	0.80" - 20.3 mm	6	0.24" - 6.1 mm	0.06" - 1.6 mm	270 kg/km	500 lbs. - 2224 N
<b>107 508 483</b>	LGMC-036B-SRX	36	0.80" - 20.3 mm	6	0.24" - 6.1 mm	0.06" - 1.6 mm	280 kg/km	500 lbs. - 2224 N
<b>108 203 365</b>	LGMC-048B-SRX	48	0.98" - 24.9 mm	12	0.30" - 7.6 mm	0.06" - 1.6 mm	440 kb	600 lbs. - 2670 N
<b>108 203 373</b>	LGMC-060B-SRX	60	0.98" - 24.9 mm	12	0.30" - 7.6 mm	0.06" - 1.6 mm	452 kb	600 lbs. - 2670 N
<b>108 203 381</b>	LGMC-072B-SRX	72	0.98" - 24.9 mm	12	0.30" - 7.6 mm	0.06" - 1.6 mm	462 kb	600 lbs. - 2670 N

<sup>1</sup> Designed for LC, ST II+ & SC Connectors; may be used with all connectors.

### Assembly Product Codes

SM Breakout Cable, 12 Cordages of 1.6 mm, SC/PC-SC/PC; 0.5/0.5 m Ultra Polish					
Part no.	Description	Length	Part no.	Description	Length
<b>PSS-0654-0010</b>	Patchcable 12f	10 m	<b>PSS-0654-0050</b>	Patchcable 12f	50 m
<b>PSS-0654-0012</b>	Patchcable 12f	12 m	<b>PSS-0654-0060</b>	Patchcable 12f	60 m
<b>PSS-0654-0015</b>	Patchcable 12f	15 m	<b>PSS-0654-0070</b>	Patchcable 12f	70 m
<b>PSS-0654-0018</b>	Patchcable 12f	18 m	<b>PSS-0654-0080</b>	Patchcable 12f	80 m
<b>PSS-0654-0020</b>	Patchcable 12f	20 m	<b>PSS-0654-0090</b>	Patchcable 12f	90 m
<b>PSS-0654-0025</b>	Patchcable 12f	25 m	<b>PSS-0654-0100</b>	Patchcable 12f	100 m
<b>PSS-0654-0027</b>	Patchcable 12f	27 m	<b>PSS-0654-0110</b>	Patchcable 12f	110 m
<b>PSS-0654-0030</b>	Patchcable 12f	30 m	<b>PSS-0654-0120</b>	Patchcable 12f	120 m
<b>PSS-0654-0032</b>	Patchcable 12f	32 m	<b>PSS-0654-0130</b>	Patchcable 12f	130 m
<b>PSS-0654-0040</b>	Patchcable 12f	40 m	<b>PSS-0654-0140</b>	Patchcable 12f	140 m
<b>PSS-0654-0045</b>	Patchcable 12f	45 m	<b>PSS-0654-0150</b>	Patchcable 12f	150 m

Other cable lengths than described above can be ordered.

Also other connectors can be added: LC, FC, E2000, ST and DIN. Call MH for your requirements.

### Termination Polish Type

- S** = SM SUPER PC, -45dB RL Max.
- U** = SM ULTRA PC, -55dB RL Max.
- A** = SM ANGLED PC, 8', -65dB RL Max.

# Installation accessories

## Hook & Loop Fasteners








- Features**
- Easy and quick installation without tools
  - Very high pull strength
  - Re-use about 500 times without loss of characteristics
  - High resistance against most chemicals
  - Wide range of types and colours
  - Temperature range: -56° to +93°C

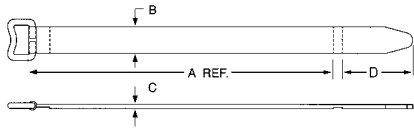
**Description**

These straps bundle wires or cables securely, and are Glass Fiber & Cat 5 friendly. They are reusable and eliminate the potential for damage to fiber optic cables caused by over cinching or accidental cutting.

**General Specifications**

	Specially designed for glassfiber		Very high tensile-strength
	High resistance against chemicals, oil, salt, water, etc.		Flexible bundel diameter
			Wide range of types available

## Hook & Loop Cable Ties, Type 50H

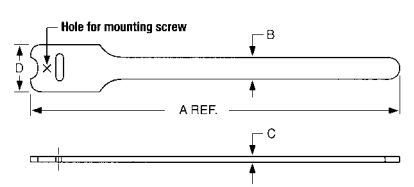


**Ordering Information**

Part no.	A	Dimensions in mm			Max. Bundle-Ø in mm	Min. Tensile-strength N <sup>1</sup>	qty.
		B	C	D			
50H/170L50/804	170	50.0	2.6	50.0	120	222	50
50H/250L50/804	250	50.0	2.6	50.0	200	222	50
50H/350L50/804	350	50.0	2.6	50.0	300	222	50

<sup>1)</sup> With minimum overlap of 50 mm. Other specifications on request.

## Hook & Loop Cable Ties, Type MH12

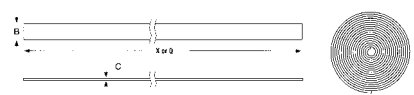


**Ordering Information**

Part no.	A	Dimensions in mm			Max. Bundle-Ø in mm	Min. Tensile-strength N <sup>1</sup>	qty.
		B	C	D			
MH12/120/804/804	120	12.7	2.6	25.4	22	178	6
MH12/200/804/804	200	12.0	2.6	25.4	48	178	6
MH12/300/804/804	300	12.0	2.6	25.4	81	178	6

<sup>1)</sup> With minimum overlap of 50 mm. Other specifications on request.

## Hook & Loop, Back to Back, Type F13TB



**Ordering Information**

Part no.	Dimensions in mm		Max. Bundle-Ø in mm	Min. Tensile-strength N <sup>1</sup>	qty.
	A	B			
F13TB15mm/804	15.0	2.6	variable Ø	222	p. reel
F13TB20mm/804	20.0	2.6	variable Ø	222	p. reel
F13TB25mm/804	25.0	2.6	variable Ø	222	p. reel
F13TB50mm/804	50.0	2.6	variable Ø	222	p. reel

<sup>1)</sup> With minimum overlap of 50 mm. Other specifications on request.

Length code: X=10 metres, Q=25 metres

Example: F13TB25 mm/804X = Type F13TB, 25 mm, colour: black, reel of 10 metres



For Tie Holders, see page N.10 of the MH Fiber Optic Products catalog or call MH.

## Self Adhesive Hook & Loop, Type F11H/F11L



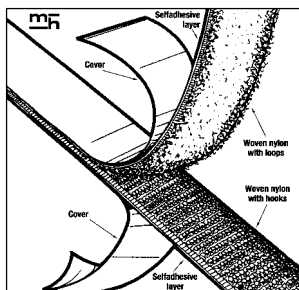
**Ordering Information**

Part no.	Dimensions in mm		Max. Bundle-Ø in mm	Min. Tensile-strength N <sup>1</sup>	qty.
	A	B			
F11H20mm804AV	20.0	2.0	variable Ø	222	p. rol
F11L20mm804AV	20.0	2.0	variable Ø	222	p. rol
F11H50mm804AV	50.0	2.0	variable Ø	222	p. rol
F11L50mm804AV	50.0	2.0	variable Ø	222	p. rol

<sup>1)</sup> With minimum overlap of 50 mm. Other specifications on request.

Length code: V=5 metres, X=10 metres, Q=25 metres

Example: F13TB25 mm/804X = Type F13TB, 25 mm, colour: black, reel of 10 metres



### Color Codes

/801 = White	/816 = Blue
/802 = Marine blue	/821 = Olive Green
/804 = Black (standard)	/837 = Fluorescent Yellow
/806 = Grey	/852 = Fluorescent Orange
/807 = Yellow	/862 = Fluorescent Green
/840 = Red	/895 = Fluorescent Pink

# Fiber Identification



Especially for Identification & Labelling Fiber Optic Patch Cables we developed a so called P-Label. The P-label is made of Nylon B-425 flame retardant and zero-halogen plastic. It only uses a small area behind the connector boot, therefore providing the cable to break at that point. The labels can be printed with any text or symbol on the standard Brady printers. The labels are folded around so that they will not fall off, not even in warm environments over a longer period of time.

Ordering Information	
Part nrs.	Description
<b>217020</b>	P-label*
<b>018558</b>	Ink cartridge for TLS2200 printer
<b>TLS2200</b>	Palm printer TLS2200
* 250 labels per roll	



## ADDRESSES

### **Mulder-Hardenberg B.V.**

Westerhoutpark 1<sup>A</sup>

2012 JL Haarlem

**Netherlands**

Tel. : +31 (0)23 - 531 91 84

Fax : +31 (0)23 - 532 59 32

### **Mulder-Hardenberg N.V.**

Hoge Weg 129

B-2940 Stabroek

**Belgium**

Tel. : +32 (0)3 - 660 13 20

Fax : +32 (0)3 - 664 99 01

### **Mulder-Hardenberg GmbH**

Nordring 13

D-65719 Hofheim/Ts.

**Germany**

Tel. : +49 (0)6192 - 97 91 85

Fax : +49 (0)6192 - 97 91 87

### **E-mail & Website addresses:**

#### **Group Site:**

[www.mulder-hardenberg.com](http://www.mulder-hardenberg.com)

#### **Netherlands**

[infonl@m-h.biz](mailto:infonl@m-h.biz)

#### **Belgium**

[infobe@m-h.biz](mailto:infobe@m-h.biz)

#### **Germany**

[infode@m-h.biz](mailto:infode@m-h.biz)

