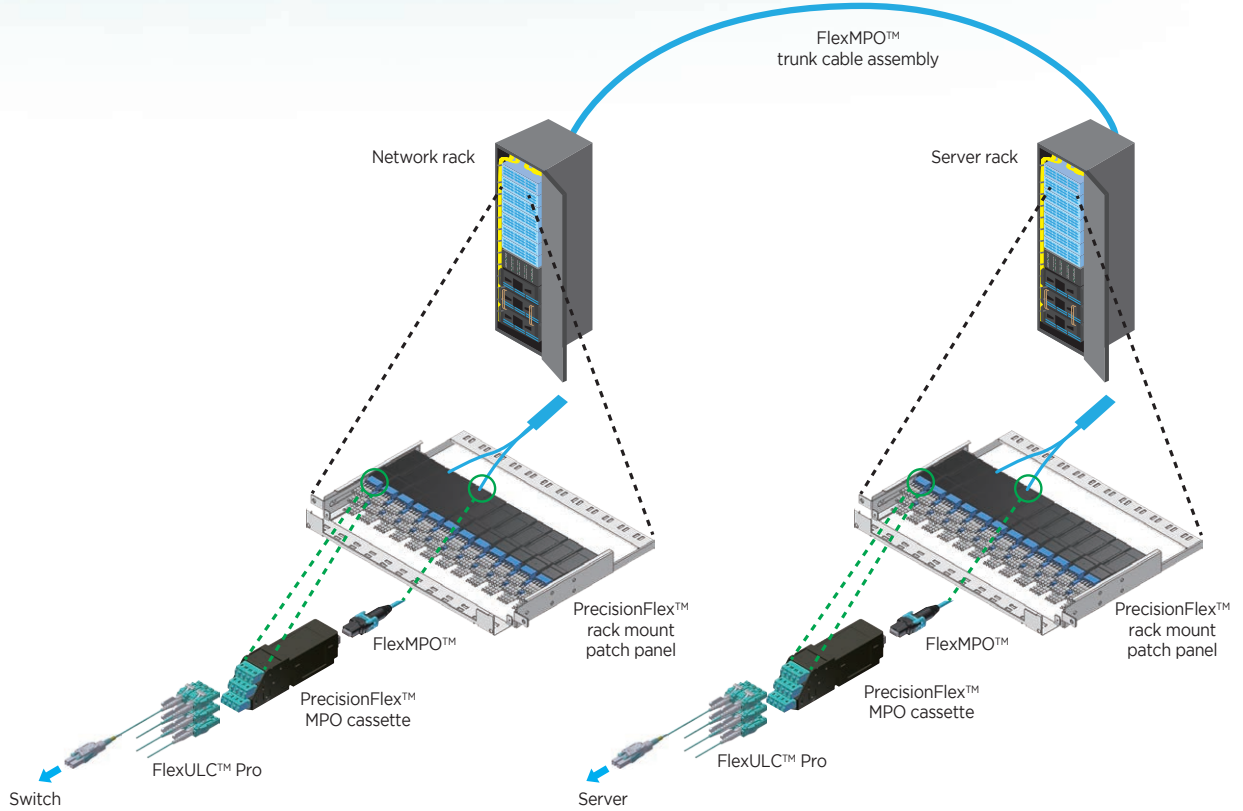


# Optical Connectors

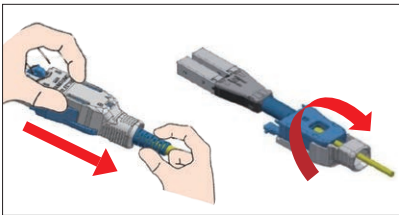
## MPO cabling solution

### MPO cabling solution

Our MPO cabling solution enables users to efficiently install high-density connections between optical switches and servers.

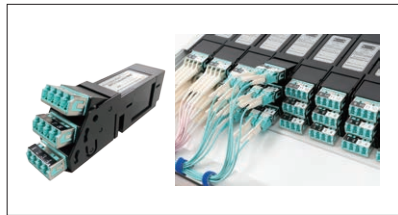


#### FlexULC™ Pro Uniboot LC connector



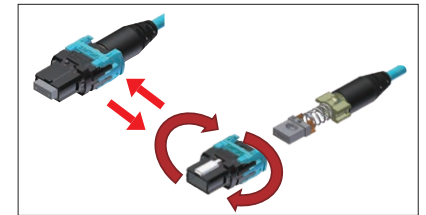
- Easy to change polarity
- Applicable with  $\phi 1.6\text{mm}$  slim cord

#### PrecisionFlex™ MPO cassettes & rack mount patch panel



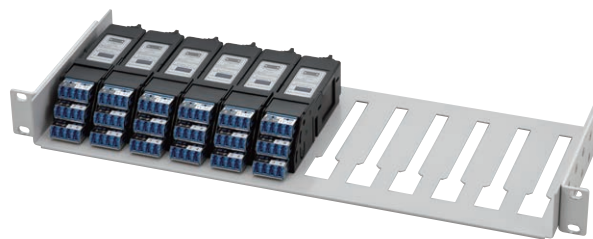
- Unique LC adaptor tiltup design
- 144 Fibers per 1U high-density connections

#### FlexMPO™ connector



- Ultra compact
- Easy to change polarity

### MPO cassettes for 19 inch rack (Fixable Modle)



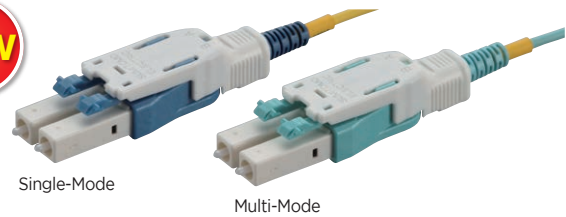
- More cost efficiency
- Max.12 MPO cassettes per 1RU.

Product name	Code tray	Capacity of 12MPO cassettes	Capacity of LC connectors	Size	Dimensions W×H×D(mm)	Weight
PFCST-1U-S	●	Max.12	Max.144	1U	440×44×345	Approx. 2.2kg
PFCST-1U-F12	-	Max.12	Max.144	1U	440×44×209	Approx. 1.0kg

## MPO cabling solution

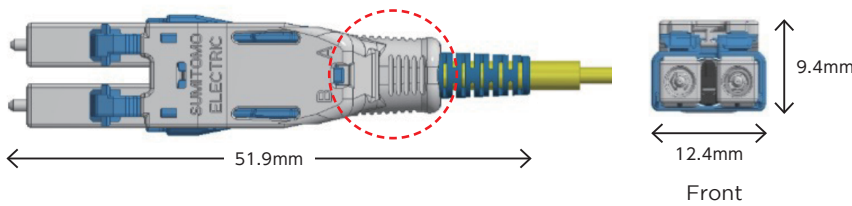
### FlexULC™ Pro

New Uniboot LC connector with easy handling for high-density applications

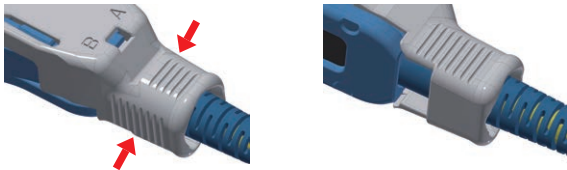


#### Refined design, Compact body

■ Approx. 52 mm body allows users to handle easily even in limited workspaces.

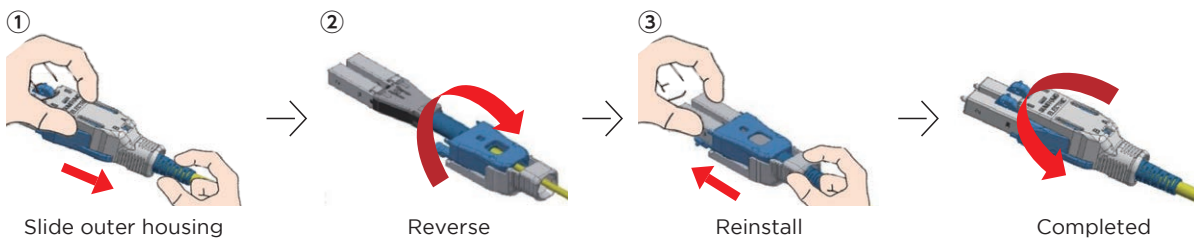


#### User friendly design, Push-Pull with outer housing



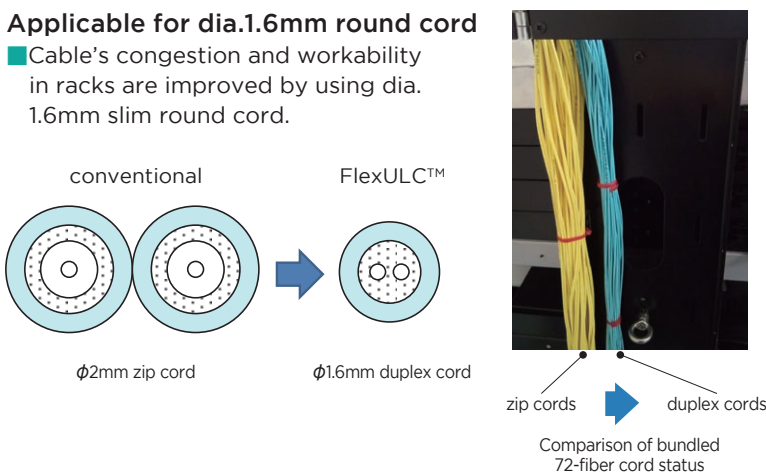
#### Easy polarity change, Toolless

■ Unique housing design enables users to change polarity without exposing fibers and tools.



#### Applicable for dia.1.6mm round cord

■ Cable's congestion and workability in racks are improved by using dia. 1.6mm slim round cord.



# Optical Connectors

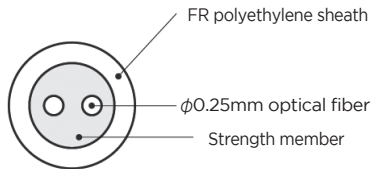
## MPO cabling solution

### Round cord with FlexULC™ Pro connectors

- FlexULC™ Pro patch cords are applicable for various applications such as 10G/25G/100G LC Ethernet connections and LC optical patch panels
- Applying with world top class  $\phi$ 1.6mm 2-fiber slim cords allows users to improve cable congestions, handling more easily.
- Flammability (LSZH grade)



Cable type	Round cord
Fiber count	2
Nom. Cable Diameter [mm]	1.6
Nom. Weight [kg/km]	3.0
Max. tensile strength [N]	80
Min. bend radius [mm]	OS2:7.5 OM3:15 OM4:15



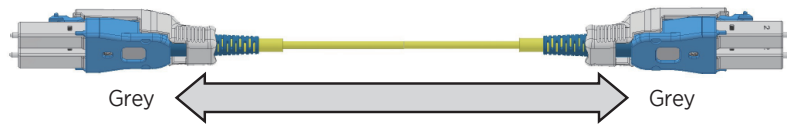
$\phi$  1.6mm Round cord (2-fiber)

	Single-Mode	Multi-Mode
Insertion Loss	$\leq 0.5$ dB	$\leq 0.3$ dB
Return Loss	$\geq 40$ dB	$\geq 25$ dB
Applicable Media	$\phi$ 1.6mm Round cord (2-fiber)	
Polarity change	Available	
Interface	IEC61754-20	

### LSZH cord assembly with FlexULC™ Pro connectors



TIA568.3 A-to-A



TIA568.3 A-to-B

### Ordering Information

Fiber Count	Fiber type	Connector A/ polishing	Connector B/ polishing	Polarity	Product Name
2	OS2 SM(PA-A2)	FlexULC/SPC	FlexULC/SPC	A-to-A	2-FULC.S-FULC.S-SM(PA-A2)-LR-A-L
		FlexULC/SPC	FlexULC/SPC	A-to-B	2-FULC.S-FULC.S-SM(PA-A2)-LR-B-L
	OM3 GI(PE-A10G)	FlexULC/PC	FlexULC/PC	A-to-A	2-FULC.P-FULC.P-GI(PE-A10G)-LR-A-L
		FlexULC/PC	FlexULC/PC	A-to-B	2-FULC.P-FULC.P-GI(PE-A10G)-LR-B-L
	OM4 GI(PE-A10G+)	FlexULC/PC	FlexULC/PC	A-to-A	2-FULC.P-FULC.P-GI(PE-A10G+)-LR-A-L
		FlexULC/PC	FlexULC/PC	A-to-B	2-FULC.P-FULC.P-GI(PE-A10G+)-LR-B-L

## MPO cabling solution

### PrecisionFlex™ MPO cassettes & rack mount patch panel

Unique design MPO cassettes and rack mount patch panel with easy handling and high-density connection.

- New rack mount patch panel can accommodate max.144-Fiber connections per 1RU.

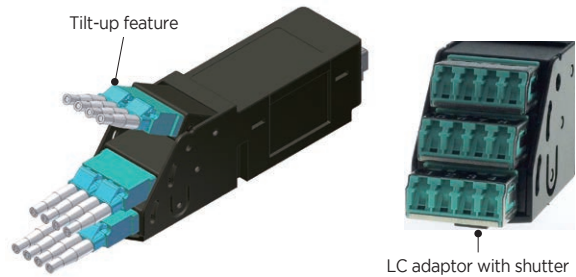
- 12pcs cassettes (12-fiber) can be arranged horizontally on new patch panel. This allows users to install and remove the cassettes easily.

- Unique LC adaptor tilt-up feature has been applied and allows users to connect and release easily. LC adaptor has a shutter and has been enhanced dust resistance.

- New MPO cassette has 12-fiber(12MPO) and 24-fiber(24MPO) configurations.

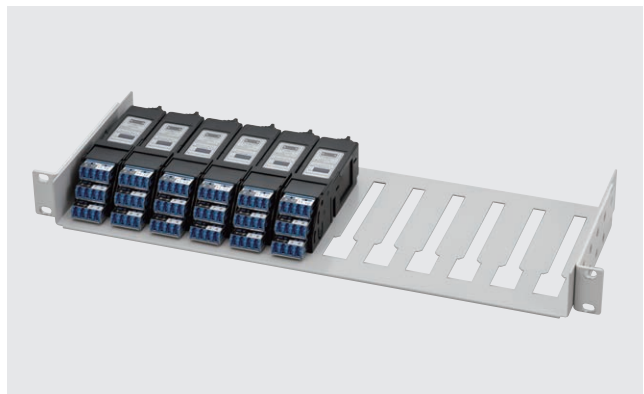
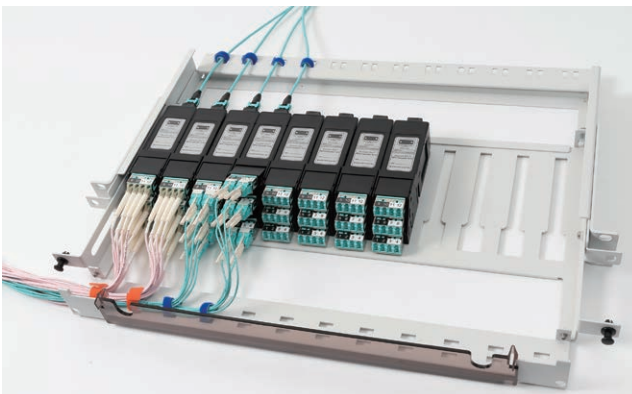


Front view: LC adaptor arrangement



Tilt-up feature

LC adaptor with shutter



1U rack mount patch panel

### Ordering Information

#### PrecisionFlex™ MPO cassette

Product name	Fiber count	Fiber type	Connector	Insertion loss (dB)	Dimensions W×H×D(mm)
PFCST-SM-1X12MPOM-LC-S	12	SM OS1/OS2	12MPO-LC	SM:0.65 MM:0.55 (Against Master)	34×150×40
PFCST-MM-1X12MPOM-LC-S	12	MM OM3/OM4	12MPO-LC		34×150×40

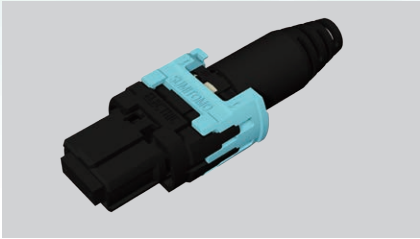
#### PrecisionFlex™ 1U rack mount panel

Product name	Code tray	Capacity of 12MPO cassettes	Capacity of LC connectors	Size	Dimensions W×H×D(mm)	Weight
PFCST-1U-S	●	Max.12	Max.144	1U	440×44×345	Approx. 2.2kg
PFCST-1U-F12	-	Max.12	Max.144	1U	440×44×209	Approx. 1.0kg

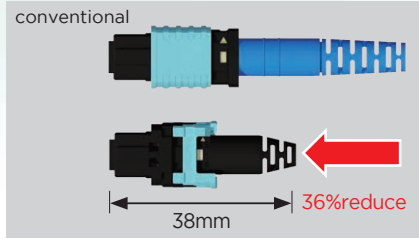
# Optical Connectors

## MPO cabling solution

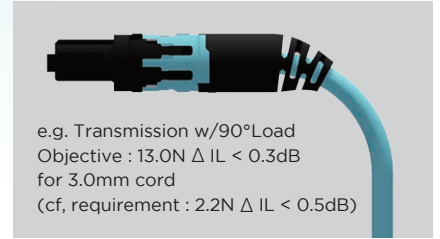
### FlexMPO™ Housing for Round cord (dia. 3.0mm. dia.3.8mm)



Easy to Use & Ultra compact

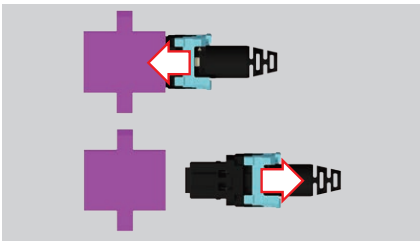


World Top Class, Super Short

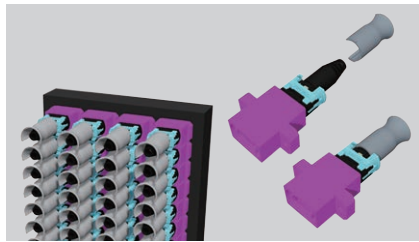


e.g. Transmission w/90°Load  
Objective : 13.ON Δ IL < 0.3dB  
for 3.0mm cord  
(cf, requirement : 2.2N Δ IL < 0.5dB)

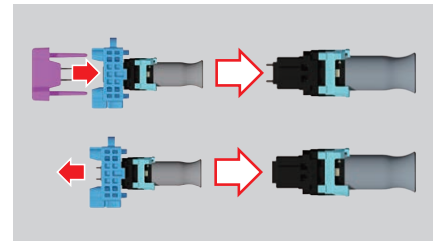
Telcordia GR1435 Objective spec. compliant



Push-Pull with outer housing  
(Like SC connection)



Push-Pull and compact Tab  
(Can set after mounting)



Can change gender w/o disassembly  
Can change polarity( w/ disassembly)

### MPO Connector

#### Features

- Easy to attach/detach by a push-on action
- Enables high-density connection of many fibers as a unit

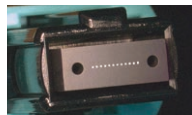


Ribbon cord Ribbon

Connector	MPO (1 row type)			
Fiber Type	SM		MM62.5,MM50,MM50 (10G)	
Media Type	Bare Ribbon, 3mm Round Cord, Jacketted Ribbon Cord			
Fiber Count	8,12		12	
Polish	APC		Flat PC	
Insertion Loss*	Std.Loss	Low Loss	Std.Loss	Low Loss
	0.75dB	0.35dB	0.75dB	0.35dB
Typical**	0.2dB	0.1dB	0.15dB	0.08dB
	Return Loss*			≥ 55dB

### MPO (1 row type)

- With 12-fiber ribbons arranged on ferrule



MPO (1 row type)

Connector	MPO (2 row type)			
Fiber Type	SM		MM62.5,MM50,MM50 (10G)	
Media Type	Bare Ribbon, 3.8mm Round Cord, Jacketted Ribbon Cord			
Fiber Count	24			
Polish	APC		Flat PC	
Insertion Loss*	Std.Loss	Low Loss	Std.Loss	Low Loss
	0.75dB	0.35dB	0.75dB	0.35dB
Typical**	0.2dB	0.15dB	0.2dB	0.15dB
	Return Loss*			≥ 55dB

\*: Values against master plug

\*\*: Reference Values

### Q8MPO

- Only both side 4 fibers are embedded in the connector. Suitable for QSFP+ module connection.



MPO (2 row type)

### MPO (2 row type)

#### Features

- With two 12-fiber ribbons arranged in parallel on a ferrule, 24 fibers are connected as a unit.
- Most suitable for high-density fiber connection



Connector	Common				
Housing Color	SM.Std Loss Green	SM.Low Loss Yellow	MM62.5 Beige	MM50 Black	MM50(10G) Aqua
Interface	IEC 61754-7				

\*: At the time of order, specify whether or not the guide pin is necessary.



New MPO was awarded a elite score in Lightwave Magazine's 2016 Innovation Review!

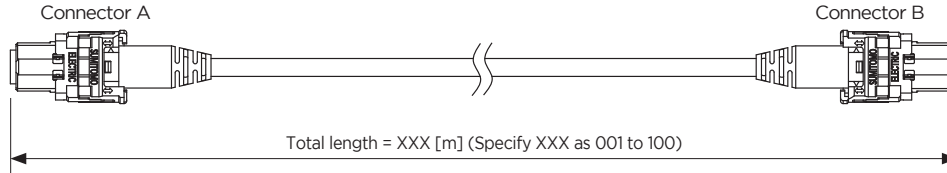


## MPO cabling solution

### Round cord with FlexMPO™ connectors

- Round cross section for any direction bending at installation
- UL1651 flammability(Plenum grade)

Fiber count	8	12	24
Fiber Diameter [mm]	0.25		
Nom. Cable Diameter [mm]	3	3	3.8
Nom. weight [kg/km]	9.0	9.0	13
Max. tensile strength [N]	100		
Min bend radius [mm]	25		



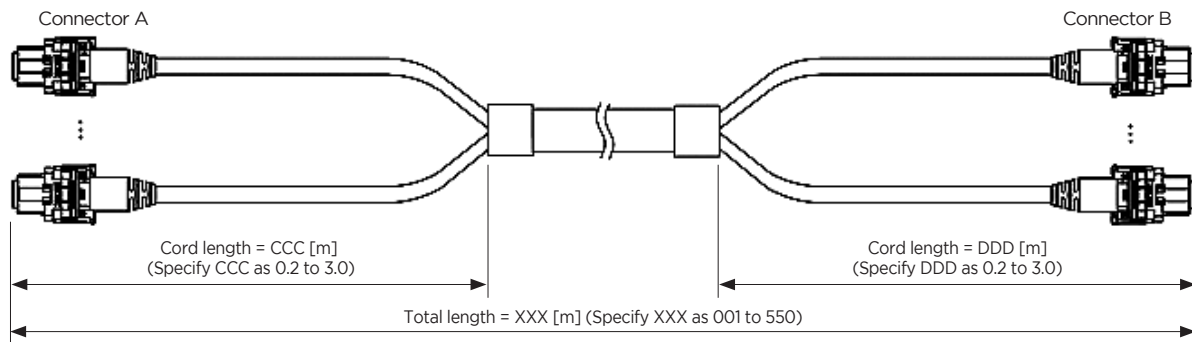
### Ordering Information

Fiber Count	Fiber type	Connector A	Connector B	MPO Polarity TIA-568.3	Insertion Loss	Product Name
8	OM3 PEA10G	No pin Q8MPO	No pin Q8MPO	Type-B	Low Loss	3A008AP-VJ1VJ1ZZZB-XXXM
	OM4 PEA10G+			Type-B		4A008AP-VJ1VJ1ZZZB-XXXM
12	OS2 PAPB	No pin 12MPO	No pin 12MPO	Type-A		2A012LP-VD1VD1ZZZA-XXXM
	OM3 PEA10G			Type-A		3A012AP-VD1VD1ZZZA-XXXM
				Type-B		3A012AP-VD1VD1ZZZB-XXXM
	OM4 PEA10G+			Type-A		4A012AP-VD1VD1ZZZA-XXXM
24	OS2 PAPB	No Pin 24MPO	No Pin 24MPO	Type-B		4A012AP-VD1VD1ZZZB-XXXM
				Type-A		2A024LP-VD1VD1ZZZA-XXXM
	OM3 PEA10G			Type-A		3A024AP-VD1VD1ZZZA-XXXM
				Type-A		4A024AP-VD1VD1ZZZA-XXXM

### Trunk cable with FlexMPO™ connectors

- Optical cables with enhanced mechanical strength for backbone cabling and horizontal cabling

Fiber count	8	12	24	24	48
Fiber count per sub unit	8	12	12	24	12
Fiber Diameter [mm]	0.25				
Nom. Cable Diameter [mm]	5.5	5.5	10	6.5	10
Nom. weight [kg/km]	40	40	85	50	85
Max. tensile strength [N]	660	660	660	660	660
Min bend radius [mm]	55	55	100	65	100



### Ordering Information

Fiber Count	Fiber count per sub	Fiber type	Connector A	Connector B	MPO Polarity TIA-568.3	Insertion Loss	Product Name
8	8	OM3 PEA10G	No pin Q8MPO	No pin Q8MPO	Type-B	Low Loss	3C008AJ-VJ1-CCC-VJ1-DDDB-XXXM
		OM4 PEA10G+			Type-B		4C008AJ-VJ1-CCC-VJ1-DDDB-XXXM
12	12	OS2 PAPB	No pin 12MPO	No pin 12MPO	Type-A		2C012LJ-VD1-CCC-VD1-DDDA-XXXM
		OM3 PEA10G			Type-A		3C012AJ-VD1-CCC-VD1-DDDA-XXXM
					Type-B		3C012AJ-VD1-CCC-VD1-DDDB-XXXM
		OM4 PEA10G+			Type-A		4C012AJ-VD1-CCC-VD1-DDDA-XXXM
24	12	OM3 PEA10G	No pin 12MPOx2	No pin 12MPOx2	Type-B		4C012AJ-VD1-CCC-VD1-DDDB-XXXM
		OS2 PAPB			Type-A		3C024AJ-VD1-CCC-VD1-DDDB-XXXM
	24	OM3 PEA10G	No pin 24MPO	No pin 24MPO	Type-A		2D024LJ-VD1-CCC-VD1-DDDA-XXXM
		OM4 PEA10G+			Type-A		3D024AJ-VD1-CCC-VD1-DDDA-XXXM
48	12	OM3 PEA10G	No pin 12MPOx4	No pin 12MPOx4	Type-A		4D024AJ-VD1-CCC-VD1-DDDA-XXXM
		OM3 PEA10G			Type-A		3C048AJ-VD1-CCC-VD1-DDDA-XXXM