

# MT Ferrule

Hakusan can offer a wide variety of Multi-fiber optical connection solutions with over 30 years of expertise and experience.



12/24/36/48 MT Ferrule



12MT



36MT



24MT



48MT

16/32 MT Ferrule



16MT



32MT

**Hakusan Inc.**



16-4, 2-chome, Minamiikebukuro, Toshima-ku, Tokyo 171-0022, Japan  
TEL: +81(0)3 5951 1614 / FAX: +81(0)3 5951 1216

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HS-CN001 2024.8

# MT Ferrule

We've been producing a wide range of MT ferrule products lineup using ultra-high precision injection molding technology cultivated in our long manufacturing history. The premium, super low loss type is also available for single-mode and multi-mode transmission with various fiber counts.

## ▼ 12/24/36/48 MT Ferrule Series

Transmission Mode	Product Name	Expected Polishing	P/N	Fiber Count	Insertion loss (dB)		
					0.35	0.5	0.7
Single Mode	12MT-PA-S	Angled PC	90A11634	12			●
	12MT-PA-SLS	Angled PC	90A11427	12	●		
	24MT-PA-S	Angled PC	90A11450	24			●
	24MT-PA-SLS <sup>※</sup>	Angled PC	ORD2023-040	24	●		
	36MT-PA-S <sup>※</sup>	Angled PC	ORD2022-013	36			●
	36MT-PA-SLS <sup>※</sup>	Angled PC	ORD2023-052	36	●		
	48MT-PA-S <sup>※</sup>	Angled PC	ORD2022-037	48			●
Multi Mode	12MT-PF-M	Flat PC	90A11524	12		●	
	12MT-PF-SLM	Flat PC	90A11632	12	●		
	24MT-PF-M	Flat PC	90A11330	24		●	
	24MT-PF-SLM	Flat PC	90A11453	24	●		
	36MT-PF-M <sup>※</sup>	Flat PC	Not Fixed	36		●	
	48MT-PF-M <sup>※</sup>	Flat PC	ORD2023-010	48		●	

◆ Comply with the following standard : IEC 61754-5 / IEC 61754-7-1 / IEC 61754-7-2 / TIA-604-5-C

※: Under development

■ MT ferrule manufactured by Hakusan Inc. has acquired technology transfer from NTT.

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# MT Ferrule

We've been producing a wide range of MT ferrule products lineup using ultra-high precision injection molding technology cultivated in our long manufacturing history. The premium, super low loss type is also available for single-mode and multi-mode transmission with various fiber counts.

## ▼ 16/32 MT Ferrule Series

Transmission Mode	Product Name	Expected Polishing	P/N	Fiber Count	Insertion loss (dB)		
					0.35	0.5	0.7
Single Mode	16MT-PA-S	Angled PC	90A11622	16			●
	16MT-PA-SLS	Angled PC	90A11619	16	●		
	32MT-PA-S※	Angled PC	ORD2021-036	32			●
	32MT-PA-SLS※	Angled PC	ORD2023-032	32	●		
Multi Mode	16MT-PF-M	Flat PC	90A11499	16		●	
	16MT-PA-SLM	Angled PC	90A11585	16	●		
	32MT-PF-M	Flat PC	90A11503	32		●	
	32MT-PF-SLM	Flat PC	90A11647	32	●		
	32MT-PA-SLM	Angled PC	90A11648	32	●		

◆ Comply with the following standard : IEC 61754-5 / IEC 61754-7-3 / IEC 61754-7-4 / TIA 604-18

※: Under development

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16-4, 2-chome, Minamiikebukuro, Toshima-ku, Tokyo 171-0022, Japan  
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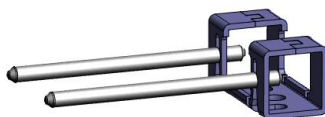
# Metal Pin Clamp

MT ferrule should have guide pins for optical connection.  
 Hakusan can offer a wide variety of Metal Pin Clamps based on the performance.  
 Metal Pin Clamp consists of Pin + Pin Keeper.

Pin Keeper Type	Application	Applicable MT Ferrules	Product Name	P/N	Grade
Box Type	MPO Connectors	12/24 MT	Metal Pin Clamp CMM	90A11517	MM-SL
			Metal Pin Clamp CSM	90A11518	MM-LL SM-SL
			Metal Pin Clamp CE	90A11532	SM-LL
		16/32 MT	Metal Pin Clamp 0.55 CMM	90A11547	MM-SL
			Metal Pin Clamp 0.55 CSM	90A11548	MM-LL SM-SL
			Metal Pin Clamp 0.55 CE	90A11549	SM-LL
Flat Type	MT-Jumper (for Optical Transceiver)	12/24 MT	Metal Pin Clamp FLAT CMM	90A11560	MM-SL
			Metal Pin Clamp FLAT CSM	90A11561	MM-LL SM-SL
			Metal Pin Clamp FLAT CE	90A11562	SM-LL
		16/32 MT	Metal Pin Clamp FLAT 0.55 CMM	90A11557	MM-SL
			Metal Pin Clamp FLAT 0.55 CSM	90A11558	MM-LL SM-SL
			Metal Pin Clamp FLAT 0.55 CE	90A11559	SM-LL



BOX Type



FLAT Type



**Hakusan Inc.**



16-4, 2-chome, Minamiikebukuro, Toshima-ku, Tokyo 171-0022, Japan  
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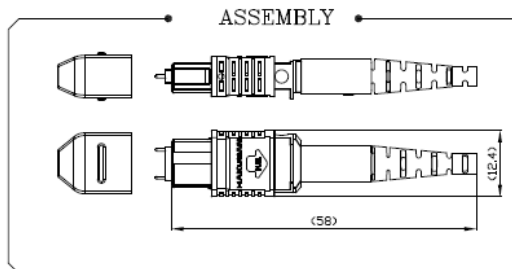
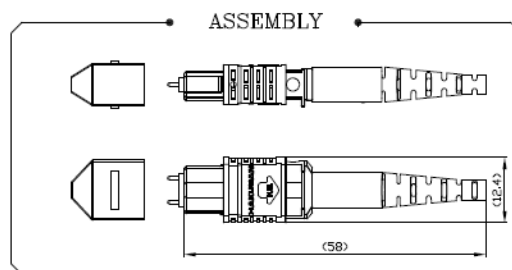
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# MPO Connector

Hakusan can offer Hakusan Brand MPO connectors and ensure quality with good-quality MT ferrule to support the market demands for multi-fiber optical connection solutions.

Specifications	Details
Fiber Counts	12F/16F/24F
Performance	Upon MT ferrules grade
Housing Color	Yellow/Green/Magenta/Aqua/Beige
Boots Type *Standard : Black Green/Blue/White optional	3.0/3.2/3.5/3.8 Round Boots Bare Ribbon Boots Oval Round boots
Operating Temp.	-40°C~75°C
Durability	500 mating *TIA 568.3 based
*IEC 61754-7 and TIA/EIA 604-5 Compliant for MPO interfaces *Telcordia GR-1435-CORE Compliant	



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# MPO Connector

## ▼MPO Connector Typical Parts Description/Number List Parts Description Example

① 12F — ② YE — ③ R — ④ E — ⑤ BK

① Fiber Counts	② HSG Color	③ Cable Type	④ Pin Type	⑤ Boots Color
12F 12 fibers	BE Beige	B Bare Ribbon	F Female	BK Black
16F 16/32 fibers	AQ Aqua	R Round Cable(3.0/3.2)	M Multimode <sup>*1)</sup>	GR Green
24F 24 fibers	GR Green	O Oval Jacket Cable	S Single-mode <sup>*2)</sup>	BL Blue
	YE Yellow	38R 3.8mm Round Cable	E Elite <sup>*3)</sup>	WH White
	MA Magenta	35R 3.5mm Round Cable (16F Only)		

\*1) Male Pin for MultiMode Standard Loss

\*2) Male Pin for Single-mode Standard Loss and Multimode Low Loss

\*3) Male Pin for Single-mode Low Loss

### ▼Ex.SM Low Loss MPO Housing List for 3.0/3.2 Round Cable

Fiber Count	Housing Color	Cable Type	Pin Type	Boots Color	Part Description
12F	YE	R	F	BK	12F-YE-R-F-BK
12F	YE	R	E	BK	12F-YE-R-E-BK
16F	YE	R	F	BK	16F-YE-R-F-BK
16F	YE	R	E	BK	16F-YE-R-E-BK
24F	YE	R	F	BK	24F-YE-R-F-BK
24F	YE	R	E	BK	24F-YE-R-E-BK

Please feel free to contact us when you need any MPO housing kits.

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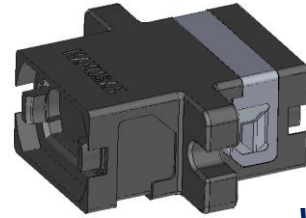
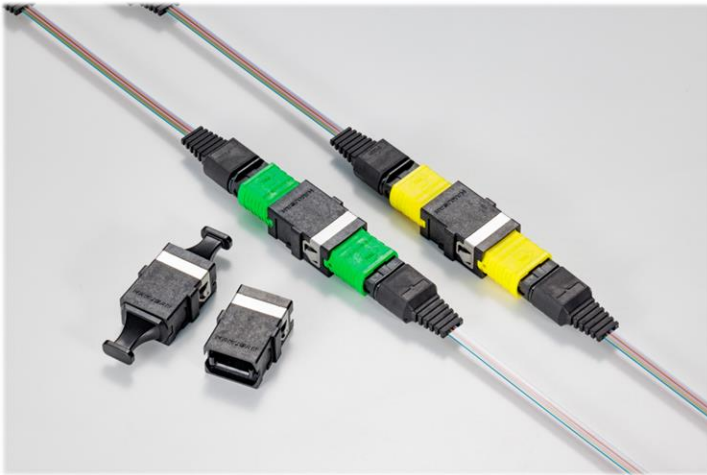
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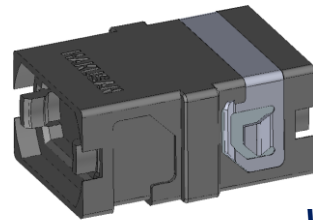
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# MPO Adapter

## Standard 12F/16F MPO-MPO Adapters (with/without flange)

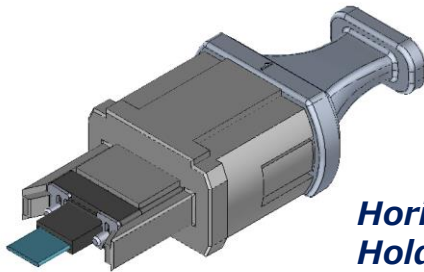


*with flange*

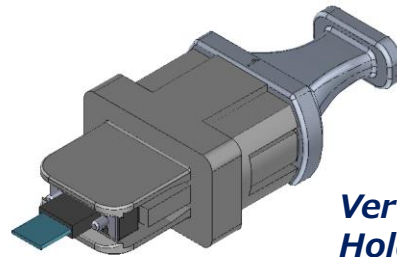


*without flange*

## Standard MT-MPO adapter (Horizontal/Vertical)



*Horizontal  
Holding Type*



*Vertical  
Holding Type*

Style	Type	Fiber	P/N
MPO-MPO	with flange	12F/24F	ORD2024-053
		16F/32F	ORD2024-055
	w/o flange	12F/24F	ORD2024-052
		16F/32F	ORD2024-054
MT-MPO	Horizontal	12F	ORD2024-037
	Vertical	12F/24F	ORD2024-085
		16F	ORD2024-085

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# MPO Master Cord

*For Precise Insertion Loss Measurement*



## ➤ Single-Mode 12/16 Master Cord

- VS.master IL MAX  $\leq 0.20$  dB
- Random Mating IL 100%  $\leq 0.25$  dB

## ➤ Single-Mode 24 Master Cord

- VS.master IL MAX  $\leq 0.25$  dB
- Random Mating IL 100%  $\leq 0.35$  dB

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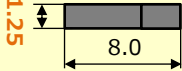
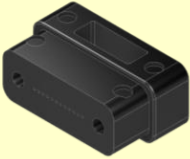
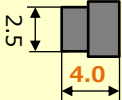
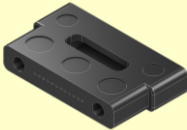
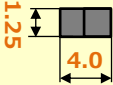
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# MTCOMPACT®

We have a lineup of size-reduced MT ferrules.  
These MT ferrules are helpful for limited space within equipment.

## ▼ MTCOMPACT® Series

Product features		Transmission Mode	Product Name	Fiber Count
<b>Slim</b> Half thickness of standard MT Ferrule		Multi Mode	<b>12MT-PF-M-T1.25<sup>A)</sup></b> P/N: 90A11508	12
				
<b>Short</b> Half length of standard MT Ferrule		Multi Mode	<b>12MT-PF-M-L4<sup>A)</sup></b> P/N: ORD2023-087	12
				
<b>Slim &amp; Short</b> Half thickness & length of standard MT Ferrule		Single Mode	<b>16MT-PF-M-L4<sup>B)</sup>※</b> P/N: ORD2023-026	16
			<b>12MT-PA-S-L4<sup>A)</sup>※</b> P/N: ORD2022-005	12
		Multi Mode	<b>16MT-PA-S-L4<sup>B)</sup>※</b> P/N: ORD2023-025	16
			<b>12MT-PF-M-T1.25-L4<sup>A)</sup></b> P/N: 90A11553	12
		Single Mode	<b>16MT-PF-M-T1.25-L4<sup>B)</sup>※</b> P/N: ORD2023-051	16
			<b>12MT-PA-S-T1.25-L4<sup>A)</sup>※</b> P/N: ORD2022-014	12
			<b>16MT-PA-S-T1.25-L4<sup>B)</sup>※</b> P/N: ORD2023-080	16

A) Optical interfaces comply with the following standards: : IEC 61754-5 / IEC 61754-7-1 / TIA-604-5

B) Optical interfaces comply with the following standards: IEC 61754-7-3 / TIA 604-18

※: Under development

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16-4, 2-chome, Minamiikebukuro, Toshima-ku, Tokyo 171-0022, Japan  
TEL: +81(0)3 5951 1614 / FAX: +81(0)3 5951 1216

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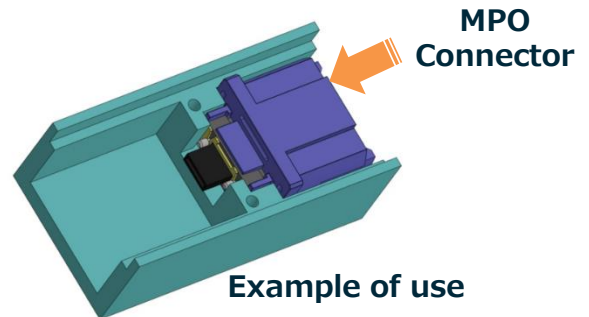
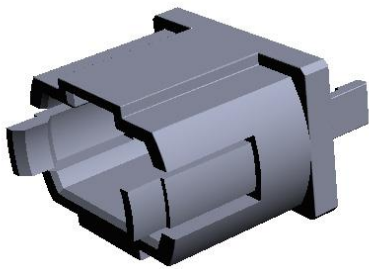
# MTCOMPACT® Short - MPO Adapter

We've developed an adapter for MTCOMPACT® Short ferrule. This adapter connects the MTCOMPACT® Short ferrule to the MPO connector. We offer two types of adapters.



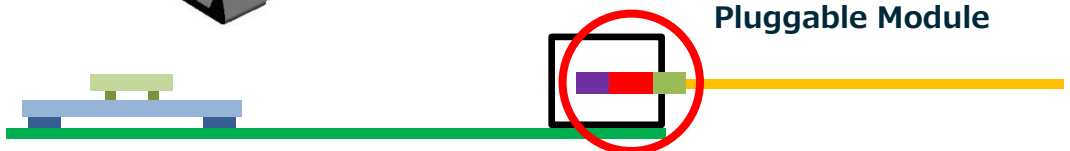
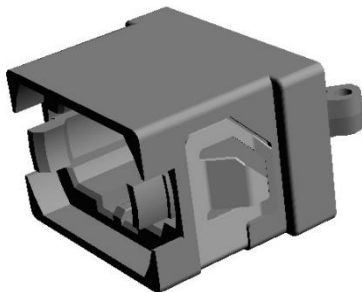
## Transceiver type(12F/16F)

The "Transceiver type" is suitable for expanding the mounting space in an optical transceiver.



## Panel type(12F)

The "Panel type" is suitable for expanding the mounting space inside the optical patch panel.



◆ Optical and mechanical reference planes comply with the following standard: IEC 61754-7-1, IEC 61754-7-3

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# MT Ferrule $\Phi 80$

We are on track with development for the MT ferrule with a fiber hole diameter of 80 $\mu$ m. These MT ferrules are the same size as the standard MT ferrule.



## ▼ $\Phi 80$ MT Series

	Product features	Mode	Product Name	Fiber count
250 $\mu$ m pitch fiber hole	<p><math>P\ 0.250 \times 11 = 2.750</math></p>	Single Mode	<b>12MT-PA-SLS-<math>\phi 80^A</math>※</b> P/N: ORD2021-044	12
	<p><math>P\ 0.250 \times 15 = 3.750</math></p>		<b>16MT-PA-SLS-<math>\phi 80^B</math>※</b> P/N: ORD2021-045	16
125 $\mu$ m pitch fiber hole	<p><math>P\ 0.125 \times 11 = 1.375</math></p>	Multi Mode	<b>24MT-PF-M-<math>\phi 80</math>-125※</b> P/N: ORD2023-056	24

A) Optical interfaces comply with the following standards: IEC 61754-5 / IEC 61754-7-1 / TIA-604-5

B) Optical interfaces comply with the following standards: IEC 61754-5 / IEC 61754-7-3 / TIA 604-18

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