

# Cleaning Methodology – MPO/MTP<sup>®</sup>

White paper

## Introduction

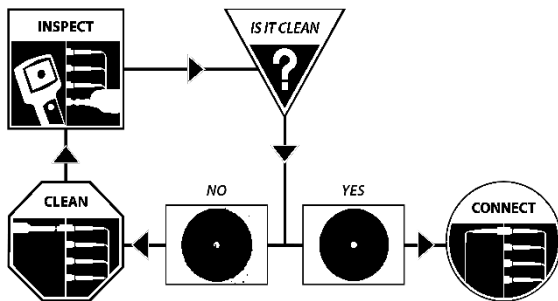
Array connectors like the MTP<sup>®</sup> (mechanical transfer pull-off) are high density connectors that terminate 4 to 24 fibres in a single ferrule. An MTP<sup>®</sup> connector is a high performance MPO (multi-fibre push on) connector manufactured by US Conec Ltd. MTP connectors are commonly used with modular cassettes in data centres

MPO/MTP connectors play an important role in enterprise networks and are common throughout the high-density network today. They give us the power to add, drop, move and change the network. Fibre connectors are critical joining points in the fibre network. If this connection fails, the light path is broken and the channel is down. Thus, inspection and cleaning are very important aspect for them since that issues with connector cleanliness and contamination are the greatest cause of network failure.

This white paper explores the procedures in accordance to get the expected results cleaning the MPO/MTP connector before connection.

## Benefits & Standards

Always do the inspection before connecting to ensure the fibre end faces are clean, prior to mating connectors. Inspecting both sides of the connection is the only way to ensure that it will be free of contamination and defects.



This is a quick and easy way leading to benefits that are indisputable.

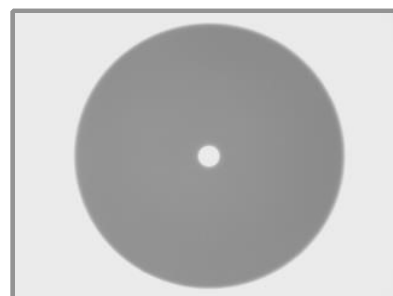
- Reduce Network Downtime  
Active network = satisfied customers
- Reduce Troubleshooting  
Prevent costly truck rolls and service calls
- Optimize Signal Performance  
Allow network components to operate at highest level of performance
- Prevent Network Damage  
Ensure longevity of costly network

Important Standards Regarding End Face Quality and Cleaning are taken into consideration.

IEC 61300-3-35 (Fibre Optic Interconnecting Devices and Passive Components –Basic Test and Measurement Procedures) is a set of requirements for Fibre Optic connector quality.

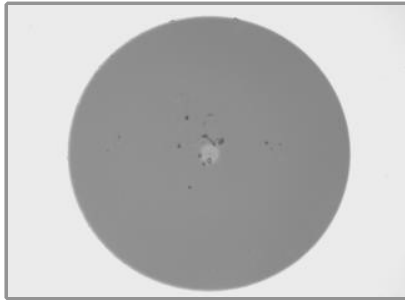
- It is designed to guarantee insertion loss and return loss performance
- It is used as a common reference between supplier and customer or between work groups
- It is used as a condition for accurate testing of components or links.

Visually inspecting fibre connectors at every stage of handling BEFORE mating them is proactive inspection. Connectors are much easier to clean prior to mating, before embedding debris into the fibre.



Fibre After Cleaning

Visually inspecting fibre connectors AFTER a problem is discovered, typically during troubleshooting is reactive inspection. By this time, connectors and other equipment may have suffered permanent damage.



Fibre After Mating and Numerous Cleanings

## Cleaning Best Practises

Inspection should be done first before cleaning as it can decide if you need to clean. Once cleaning is required, dry cleaning which is an efficient method to remove dusts and finger grease is usually the preferred method to use due to the possibilities of residue when using alcohol based products. However, dry cleaning method is not always sufficient to completely remove all contaminants.

Thus, if the second inspection reveals that the MPO/MTP connector is still contaminated after the first dry cleaning, wet + dry cleaning method is recommended to use for second cleaning using clean wipes. If the connector is still contaminated after second cleaning using wet + dry method, you could try to redo it once more. But in this case, permanent damage of the connector must be excluded. Once permanent damage is detected, the connector has to be replaced.



Many tools exist to clean fibre. Many companies have their own "best practices". You must always dry clean first. If that does not clean, then try wet cleaning. Always finish with dry cleaning.

Note:

- Always re-inspect connector after cleaning
- Always finish with dry cleaning
- Do not scrub the fibre against the wipe, doing so can cause scratches. Improper cleaning can cause damage to the equipment

## Cleaning Options

MPO/MTP Cassette and connector cleaner are both available for MPO/MTP connector dry cleaning

### A. MPO/MTP connector cleaning tool

- Cleans male and female MPO/MTP/MPO ferrule
- Simple dial turn engagement is easy to operate
- Nozzle is keyed for precise alignment of the cleaning tip to the fibre array
- Alignment cap lid opens for cleaning the unmated connectors
- Intermateability with FOCIS-5 (MPO)
- Capable of cleaning MPO ferrules inside or outside an MPO adaptor
- Capable of cleaning ferrules with or without guide pins
- 500 cleanings



MPO/MTP connector cleaning tool

### B. MPO/MTP cassette cleaning tool

- If you only need to clean the accessible connector with a wide range of connector styles, it is an ideal choice for you.
- For cleaning all single fibre and female/male (with guide pins) MPO/MTP ferrule connectors
- Eliminates electrostatic charge
- The washed, ultra clean micro-fibre cloth captures debris and other contamination
- The cloth is robust, it does not fray or leave any fibrous materials behind

- Moreover, by replacing the tape, it is more cost-effective for long-term use. But always remember that don't reverse cleaning direction to avoid bringing back the wiped contaminants while using cassette cleaner.



MPO/MTP cassette cleaning tool

In addition to the cleaner, other cleaning accessories such as lint-free wipe, optical grade dust remover, lint-free swab, etc. are necessary to achieve dry or wet + dry cleaning.

## Other Factors to Consider

- Every fibre connector is DIRTY until you clean it
- Every cassette is DIRTY until you clean it
- Leave the caps on until you plug into equipment
- Throw out caps if you are not using them
- 90 percent of cassettes return for warranty are because they were not cleaned properly

## Conclusion

Fibre optic cleaning is a key part in whole fibre optic systems. MPO/MTP connector is more susceptible to contamination due to its larger contact area and multiple fibre design. Thus, choosing a right cleaning method and cleaning tool is very important for MPO/MTP cleaning.

This paper recommended cleaning methods and tools for MPO/MTP cleaning. Fibre is expanding wider and deeper into our networks. Connectivity brings advantages and considerations. Contamination is the number one source of troubleshooting in optical networks. IEC Standard compliance guarantees component and network performance and certifies the quality of the work.

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