

USER'S MANUAL

FIBRE OPTIC CONNECTORS INSPECTION AND CLEANING PROCEDURES FOR HE CONNECTORS



HE-2000™



MIL-38999 DM4 Family



MIL-83526 DM4



DIAFLEX MT MULTI FIBRE



X-BEAM

INDEX




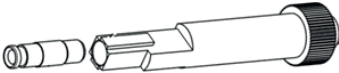
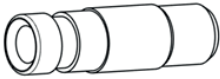

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1 INTRODUCTION

Inspection of the front surface is performed with a video microscope. The system is optically separated by a monitor. Therefore there is no direct contact with the eye and there is no possibility of eye danger. It can be used with active channels as well.



1.1 LIST OF EQUIPMENT FOR INSPECTING & CLEANING DM INSERT

Denomination	P.N.	Image
Video Inspection Microscope Viavi - OLP-82P microscope with built-in Powermeter - P5000i digital inspection probe with SC, LC (PC) tips for in-adapter inspection - universal adapter 1.25mm and 2.5mm for free PC connectors	1081582	
P5000i Digital inspection probe, including universal 2.5mm (PC) tip for free connector inspection. Further tips maybe ordered.	1074601	
Specific cleaner for DM insert	1080656	
FBT-E2000-N (modified) With reduced cap fitting Set for inspecting the following: E-2000™ APC/4°/PC for in-adapter inspection HE-2000™ APC/4°/PC for connector inspection HE-2000™ APC/4°/PC for bulkhead inspection MIL-38999 DM APC/4°/PC for connector+bulk-head inspection MIL83526 DM APC/4°/PC for connector+bulk-head inspection (The set contains adapter tip & reduced cap fitting)	1090197	
Spare reduced cap fitting for above long reach adapter	1090196	
Clip for keeping the internal spring down	1087258	

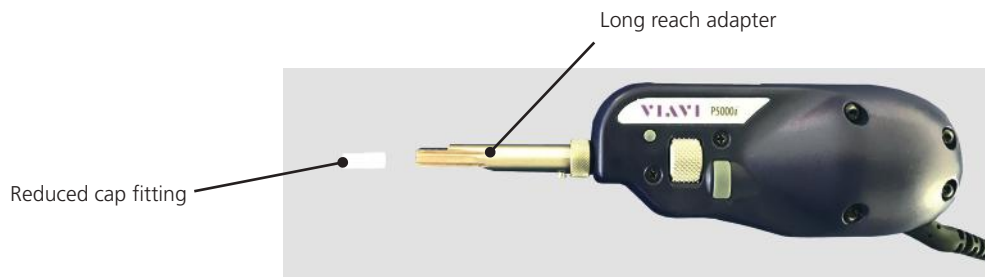
Denomination	P.N.	Image
Tool for mounting/demounting the hollow pin guide	1074744	
Extended tool for mounting/demounting the hollow pin guide of HE-2000 Bulkhead	1082991	
Replacement hollow guide pin with split sleeve	1073767	

2. INSPECTION AND CLEANING PROCEDURE FOR HE-2000, MIL 38999 & MIL 83526

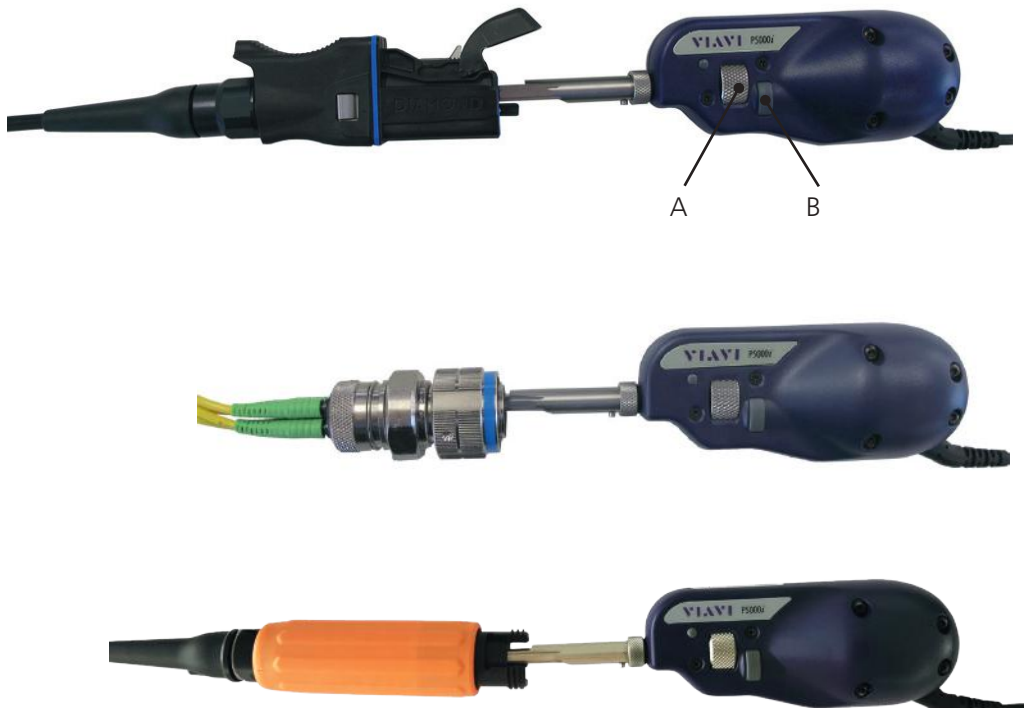
2.1 INSPECTION PROCEDURE



- a) For HE-2000 connector open the front protection cap. For MIL-38999 & MIL-83526 connector remove the front protection cap.



- b) Mount the cap fitting on the long reach adapter. Mount the long reach adapter on Pi5000 probe.

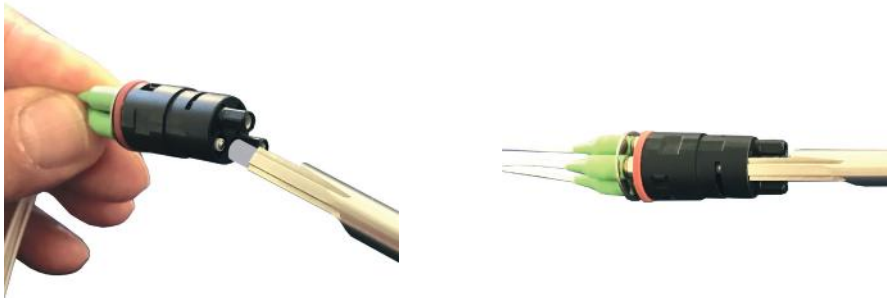


3. INSPECTION OF THE FERRULE END FACE OF THE FERRULE OF THE DM4

3.1 INSPECTION OF THE END FACE OF THE FERRULE WITHOUT THE HOLLOW GUIDE PIN



- a) To inspect the end face of the ferrule without the hollow guide pin, the cap fitting must be inserted in the long reach adapter.



- b) Gently insert the long reach adapter with cap fitting at a slight angle. This avoids end face damage of the ferrule.

3.2 INSPECTION OF THE END FACE OF THE FERRULE IN THE HOLLOW PIN GUIDE



- a) To inspect the end face of the ferrule with hollow guide pin, the cap fitting must be removed from the long reach adapter.



- b) Gently insert the long reach adapter over the hollow guide pin.



- c) When the front surface of the connector is displayed on the monitor, look for the best image by gently tilting the long reach adapter left/right/up/down.
By acting on the ring nut, the focus maybe adjusted.

4. INSPECTION OF THE FERRULE END FACE OF THE HE-2000™ BULKHEAD WITHOUT DISMANTLING THE DM4

4.1 TOOLS NEEDED



- a) Place the clip (P.N: 1087258) for keeping the internal spring down.



- b) Inspection of the end face of the ferrule without the hollow guide pin





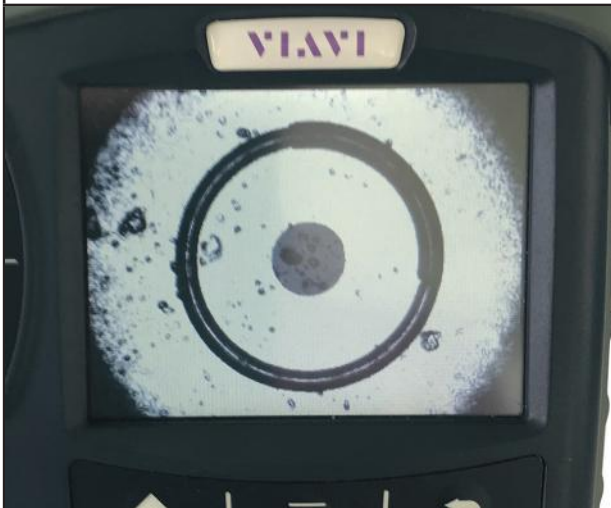
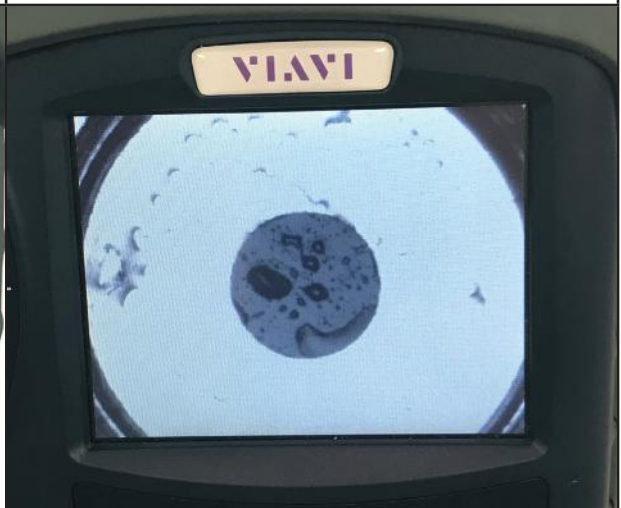


- c) Inspection of the end face of the ferrule with the hollow guide pin.

5. EXAMPLES

VISUAL INSPECTION EXAMPLES 0° VERSION



5.1 VISUAL INSPECTION EXAMPLES 0° VERSION

	
<p>Accepted – clean end face (100X magnification)</p>	<p>Accepted – clean fibre (200X magnification)</p>
	
<p>Not accepted - dirt on the end face (100X magnification)</p>	<p>Not accepted - dirt on the fibre (200X magnification)</p>
	
<p>Not accepted – scratches after cleaning (100X magnification)</p>	<p>Not accepted – scratches after cleaning (200X magnification)</p>

5.2 VISUAL INSPECTION EXAMPLES 8° VERSION



Accepted – clean end face
(100X magnification)



Accepted – clean fibre
(200X magnification)



Not accepted - dirt on the end face
(100X magnification)



Not accepted - dirt on the fibre
(200X magnification)



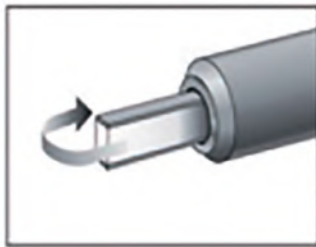
Not accepted – scratches after cleaning
(100X magnification)



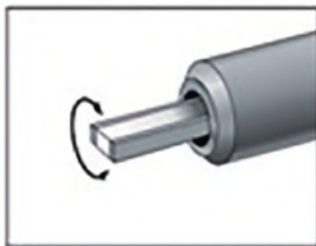
Not accepted – scratches after cleaning
(200X magnification)

6 PROCEDURE FOR CLEANING THE END FACE OF THE FERRULE

The IBC™ Brand Cleaning Tools are dry micro cloth cleaning tools specially designed to clean single fibre connectors residing in an adapter, faceplate or bulkhead. The dust cap of the cleaning tool acts as an adapter for cleaning unmated connectors. The IBC-M250 is a device designed for cleaning the front surfaces of connectors with $\varnothing 2,5\text{mm}$.



Pre-treatment with the first click



Clean using the second click

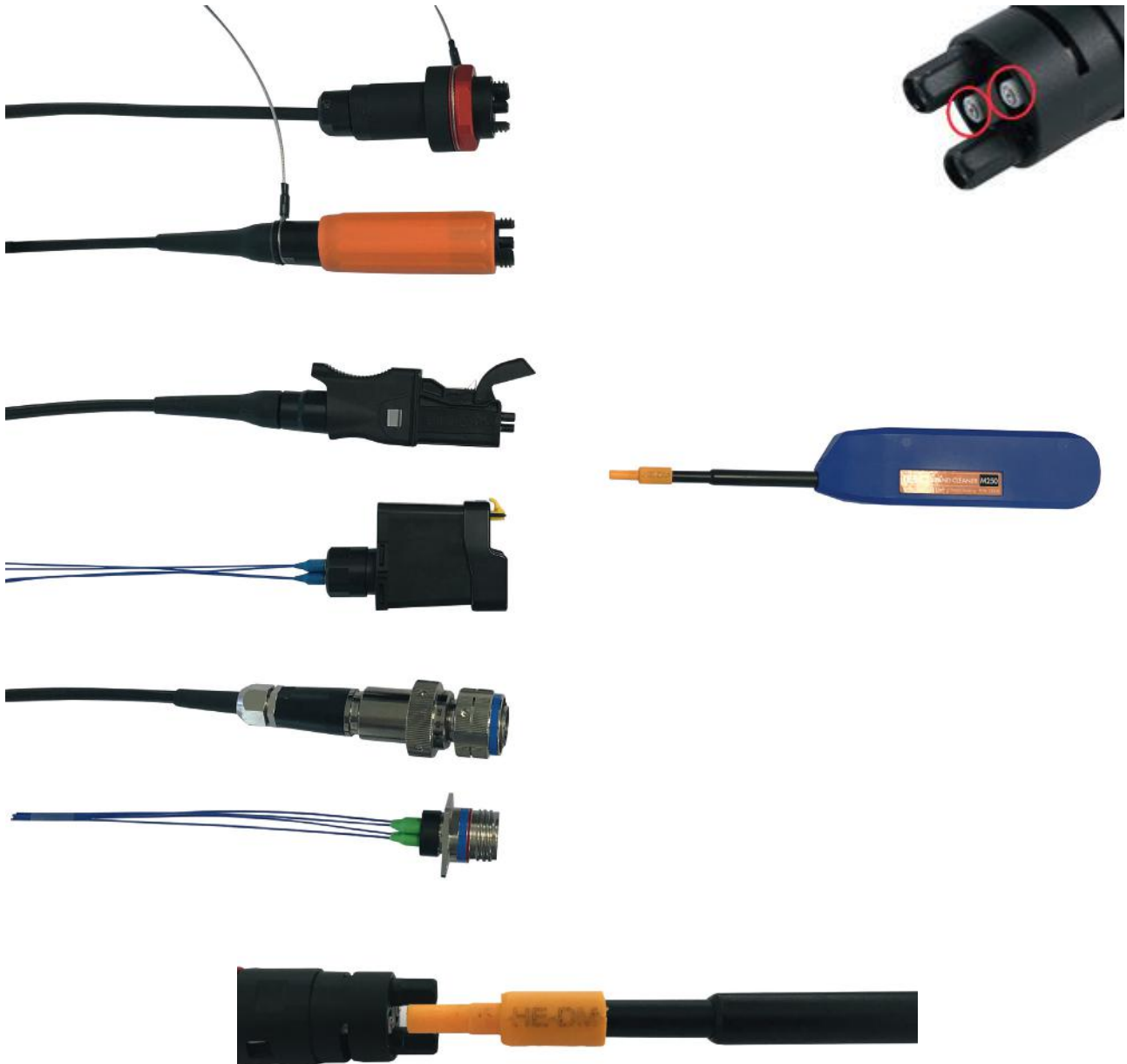
Simple pushing motion to engage tool.
Audible CLICK to alert the operator when tools is fully engaged.

Proceed as follows:



7. CLEANING FRONT-END FACE OF FERRULES OF THE DM 4 IN EITHER THE CONNECTOR OR BULKHEAD

7.1 CLEANING FRONT-END FACE OF FERRULE WITHOUT THE HOLLOW GUIDE PIN

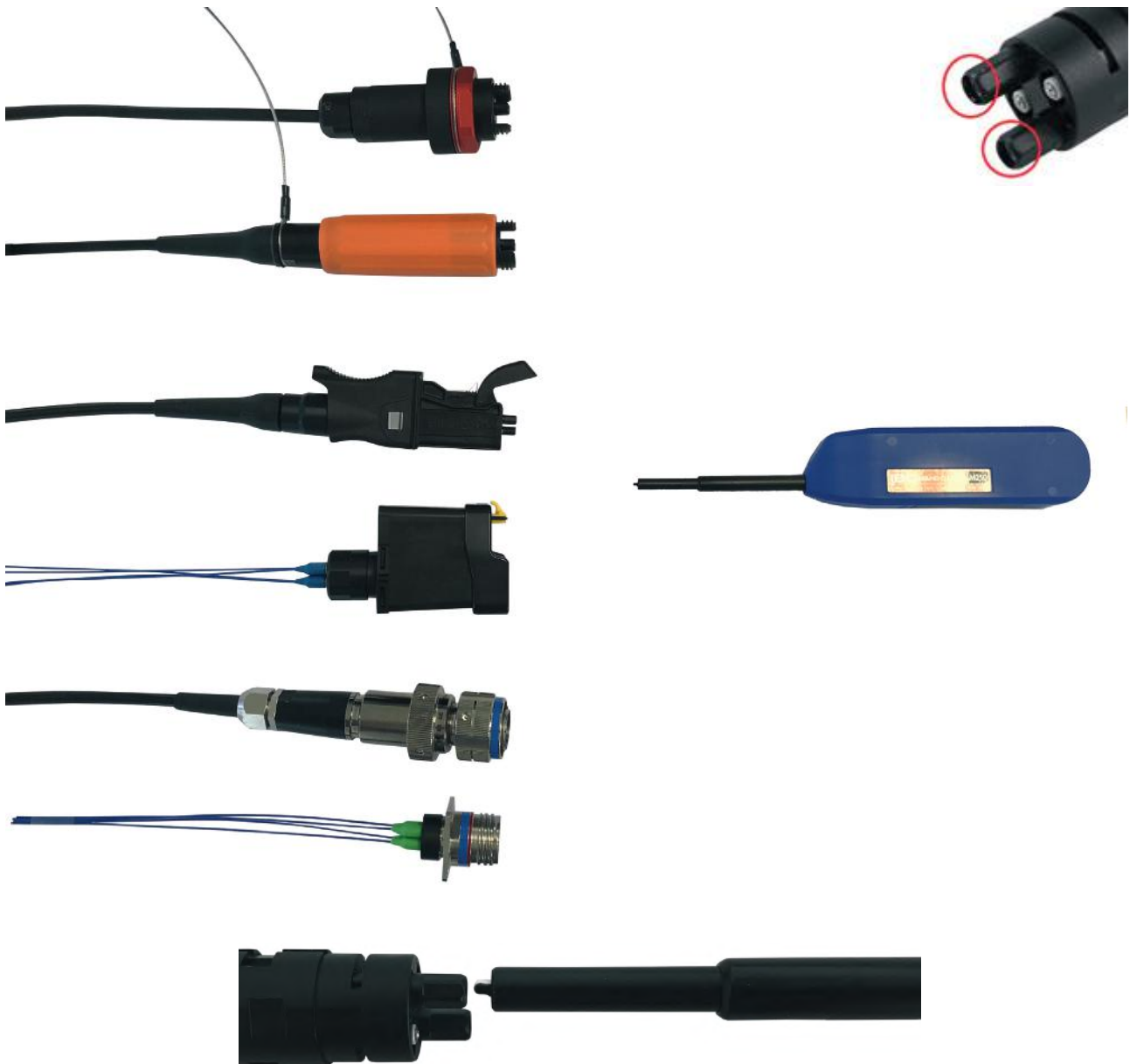


- a) Insert the nozzle tip (orange colour) over the ferrule.



- b) Perform three movements (as long as you hear a "click") by pushing the tool in the direction of the front surface.

7.2 CLEANING FRONT-END FACE OF FERRULE WITH THE HOLLOW GUIDE PIN



- a) Insert the nozzle tip in the hollow guide pin.



- b) Perform three movements (as long as you hear a "click") by pushing the tool in the direction of the front surface.

After performing the cleaning, check the status of the connector end face.

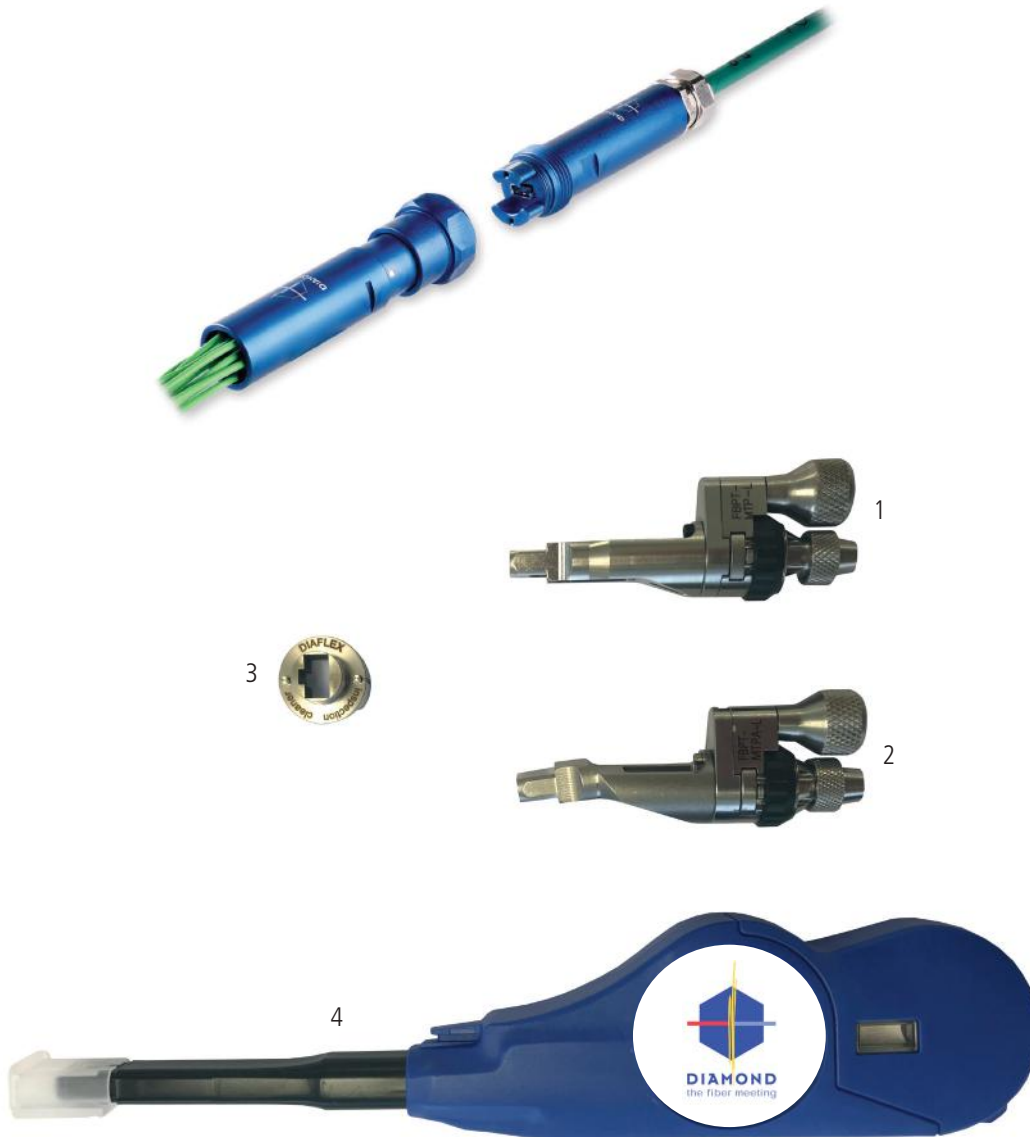
If necessary, repeat the cleaning procedure.

With this cleaning tool you will have 80% success. The rest of the cases have to be cleaned with wipes damped in isopropyl alcohol .

In severe cases, the connectors needs to be exchanged or re-polished.

8. INSPECTION & CLEANING DIAFLEX MT MULTI FIBRE

8.1 "DIAFLEX MT MULTI FIBRE"



8.1 TOOLS NEEDED

No.	Denomination	P.N
1	Long reach DiaFlex/MPO 0° for P5000i Digital inspection probe Includes both X + Y-axis panning. (FYI standard version has only X-axis)	In progress
2	Long reach DiaFlex/MPO 8° for P5000i Digital inspection probe Includes both X + Y-axis panning. (FYI standard version has only X-axis)	1083076
3	Adapter for inspecting & cleaning DiaFlex	1083992
4	DiaFlex/MPO Ferrule cleaner IBC	1083813

8.1 MALE INSPECTION & CLEANING



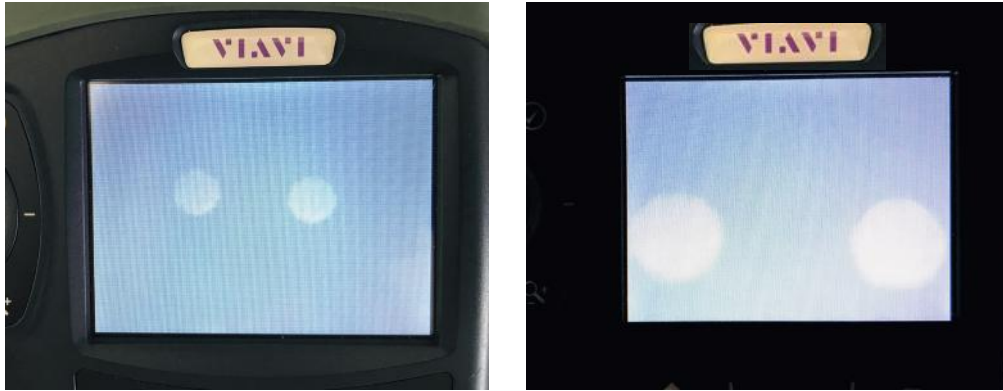
- a) Place the inspection adapter on the male connector. Pay attention that the white mark of the connector meets the black mark of the adapter.



- b) Place the long reach APC/PC adapter tip on the P5000i digital inspection probe.



- c) Insert the long reach tip in the Diaflex adapter. Pay attention that the key matches.



- d) The quality of the image of the fibre is not as good as with the single fibre 2.5/1.25 mm.

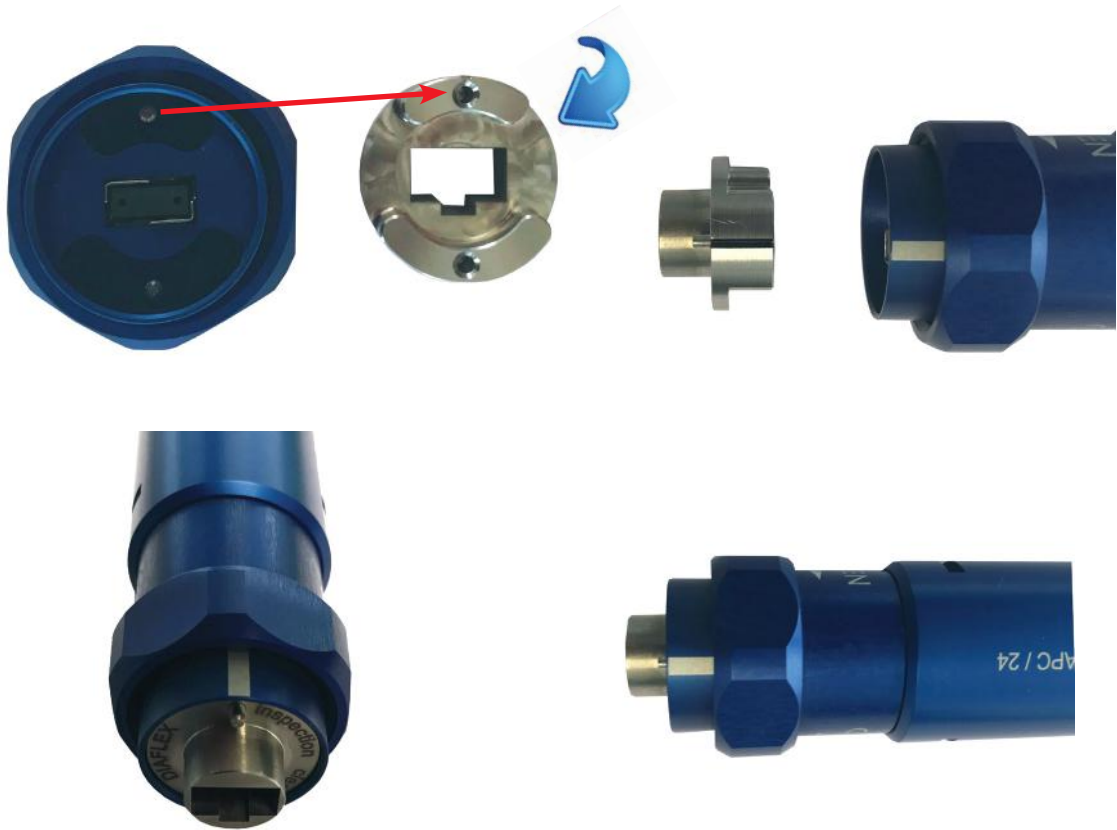


- e) To clean the end face of the ferrule, insert the Diaflex cleaner in the adapter. Pay attention that the key matches.



- f) Perform 2-3 movements (as long as you hear a "click") by pushing the ferrule cleaner in the direction of the front surface. After cleaning, check the fibres again. Repeat cleaning if necessary.

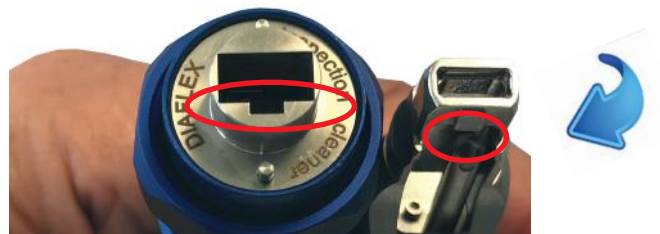
8.2 FEMALE INSPECTION & CLEANING



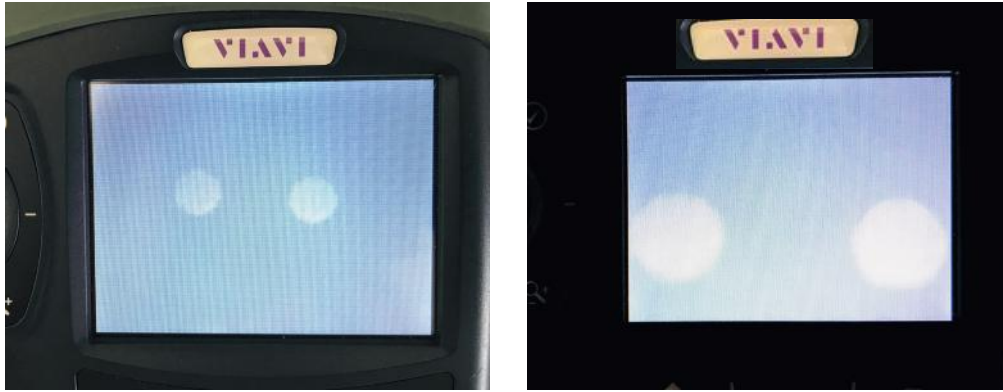
- a) Place the inspection adapter on the female connector. Pay attention that the white mark of the connector meets the black mark of the adapter.



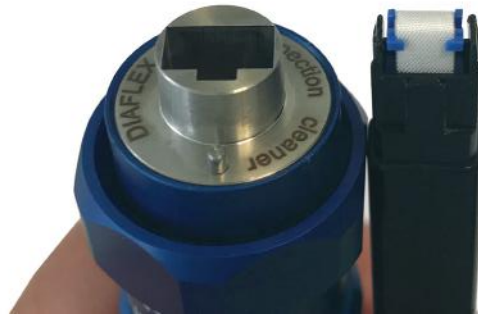
- b) Place the long reach APC/PC adapter tip on the P5000i digital inspection probe.



- b) Insert the long reach tip in the Diaflex adapter. Pay attention that the key matches.



- d) The quality of the image of the fibre is not as good as with the single fibre 2.5/1.25 mm.








- e) To clean the end face of the ferrule, insert the Diaflex cleaner in the adapter. Pay attention that the key matches.



- f) Perform 2-3 movements (as long as you hear a "click") by pushing the ferrule cleaner in the direction of the front surface. After cleaning, check the fibres again. Repeat cleaning if necessary.

9 LIST OF EQUIPMENT FOR INSPECTING X-BEAM CONNECTORS



Denomination	P.N.	Image
Cleaning sticks large size	1079184	
Loupe	1020640	
Cleaning Liquid	1073654	
Hand air pump	1073166	
Clean canned air (cannot be transported, against flight regulations)	1020910	

10 INSPECTION AND CLEANING PROCEDURE FOR X-BEAM CONNECTORS

10.1 INTRODUCTION

Inspection of the front surface is performed with a 4x loupe.

If active channels are connected the system is NOT optically separated by a monitor, therefore there is to pay attention to not have direct contact with the eye.

10.2 INSPECTION PROCEDURE



Open the front protection cap



With clean air or a hand pump blow away any dirt. Clean air spray makes cleaning even more effective in highly dirty environments, in case of need you could buy from your local dealer, it is not inserted in your suitcase because of directives set by IATA.



Inspect the front surface of the X-beam lenses using a loupe.



If the front surface of the lenses are dirty clean with a cleaning stick dampened with the Sticklers™ cleaning liquid.

If after repeated cleaning the lenses still does not meet the acceptance criteria, repeat the cleaning procedure with wipes damped in isopropyl alcohol.



Fold a new disposable wipe three times to obtain a cleaning surface cushioned with eight layers of folded material.



Moisten a small area of the cleaning surface with some 99% isopropyl alcohol, ensuring that a small area of the surface remains dry.



Moisten the lenses with the tissue and leave it to act briefly.
Rotate the tissue on the lenses with an axial movement several times applying a slight pressure.
If the lenses surface is not clean repeat the procedure.
After cleaning always inspect the front surface again.

If after repeated cleaning the lenses still does not meet the acceptance criteria, the connector must be replaced. If the criteria is met, the connector may be returned to service.