

# Cavitar Welding Camera C300

## Guide for working distance adjustment

This guide describes how to adjust the working distance of Cavitar Welding Camera C300. This guide only applies to the model having this optional feature. The actual appearance of C300 camera unit may vary (e.g. housing material).

### **IMPORTANT SAFETY NOTICE:**

PLEASE READ AND UNDERSTAND THESE INSTRUCTIONS BEFORE PERFORMING ANY ADJUSTMENT PROCEDURES TO PREVENT RISK OF INJURY TO THE USER AND TO AVOID DAMAGE TO THE CAMERA.

DO NOT STARE AT THE LASER OUTPUT UNDER ANY CIRCUMSTANCES (SEE CHAPTER 2 OF THE OPERATION MANUAL FOR MORE DETAILS).

ENSURE THERE IS NO RISK OF UNINTENDED EYE EXPOSURE TO THE LASER OUTPUT DURING THE WORKING DISTANCE ADJUSTMENT PROCEDURE (SEE CHAPTER 2 OF THE OPERATION MANUAL FOR MORE DETAILS).

Cavitar Welding Camera, model C300 with adjustable working distance feature

Guide for working distance adjustment, Revision 1.0.2

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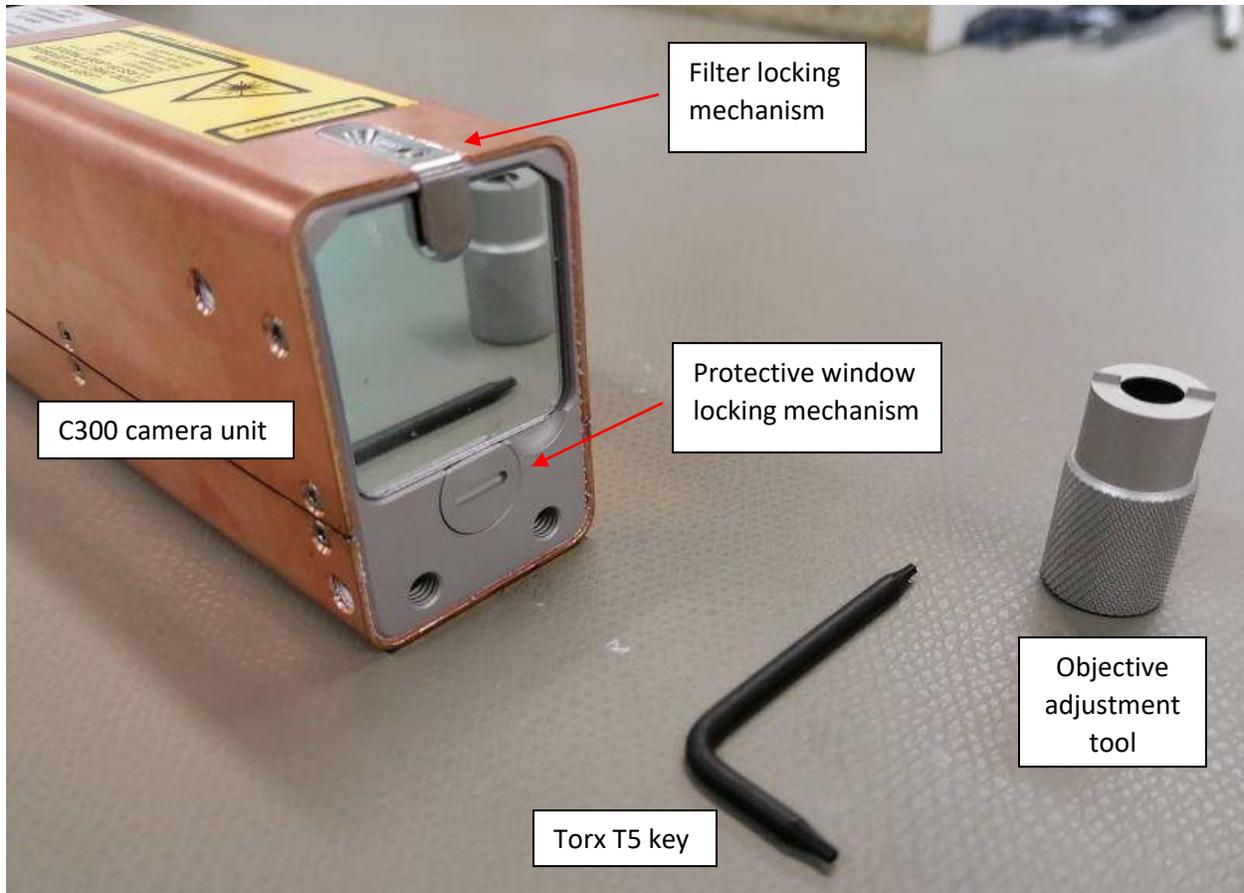


Fig. 1. Description of the components.

The working distance (WD) adjustment procedure consists of the following steps:

1. Unlocking of the protective window locking mechanism
2. Removal of the protective window
3. Loosening of the filter locking mechanism (with Torx T5 key)
4. Removal of the filter
5. Loosening of the objective locking setscrew (with Torx T5 key)
6. Adjustment of the objective position for desired WD (with Objective adjustment tool)
7. Tightening of the objective locking setscrew (with Torx T5 key)
8. Mounting of the filter
9. Tightening of the filter locking mechanism (with Torx T5 key)
10. Mounting of the protective window
11. Locking of the protective window locking mechanism

Each step is described in more detail below.

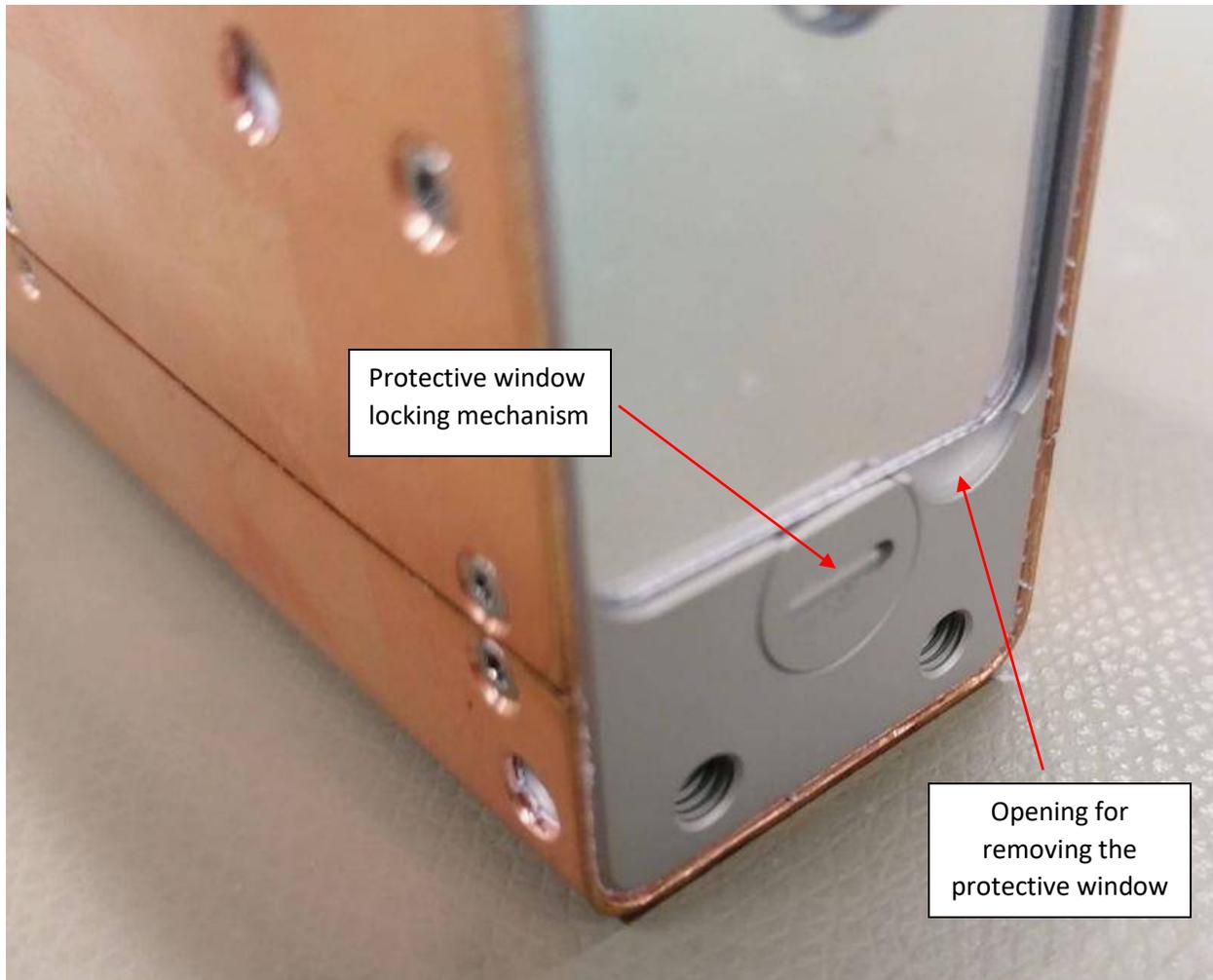


Fig. 2. Protective window locking mechanism opened.

Unlock the protective window locking mechanism by rotating it 90 deg counter-clockwise e.g. with a suitable screw driver in such a way that the groove is horizontal as shown in Fig. 2.

The replaceable protective window can now be carefully removed. Avoid touching the surfaces of the window as dirt on window surfaces will reduce system performance. The opening on the right side of the protective window locking mechanism makes it easier to remove the window.

Fig. 3 shows the situation after the protective window has been removed.

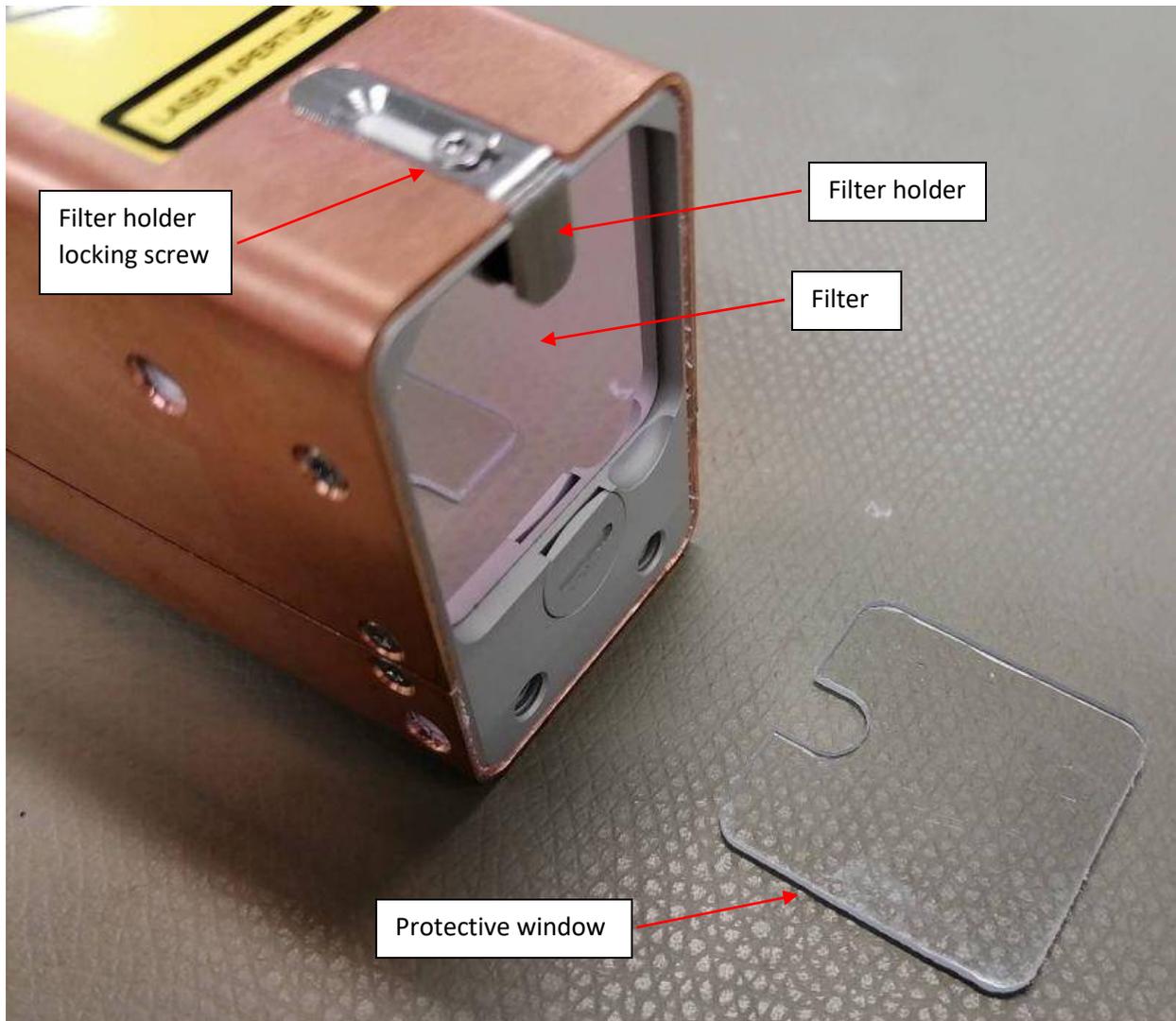


Fig. 3. Protective window removed.

Loosen the filter holder screw with the Torx T5 key and slide the filter holder as much forward as it moves. Gently tighten the filter holder locking screw. Carefully remove the filter. Pay special attention not to scratch or touch filter surfaces.

Fig. 4 shows the situation after the filter has been removed. Notice the mark for filter orientation. This mark helps in mounting the filter back in correct orientation. The filter must be mounted in such a way that the mark faces the filter holder.

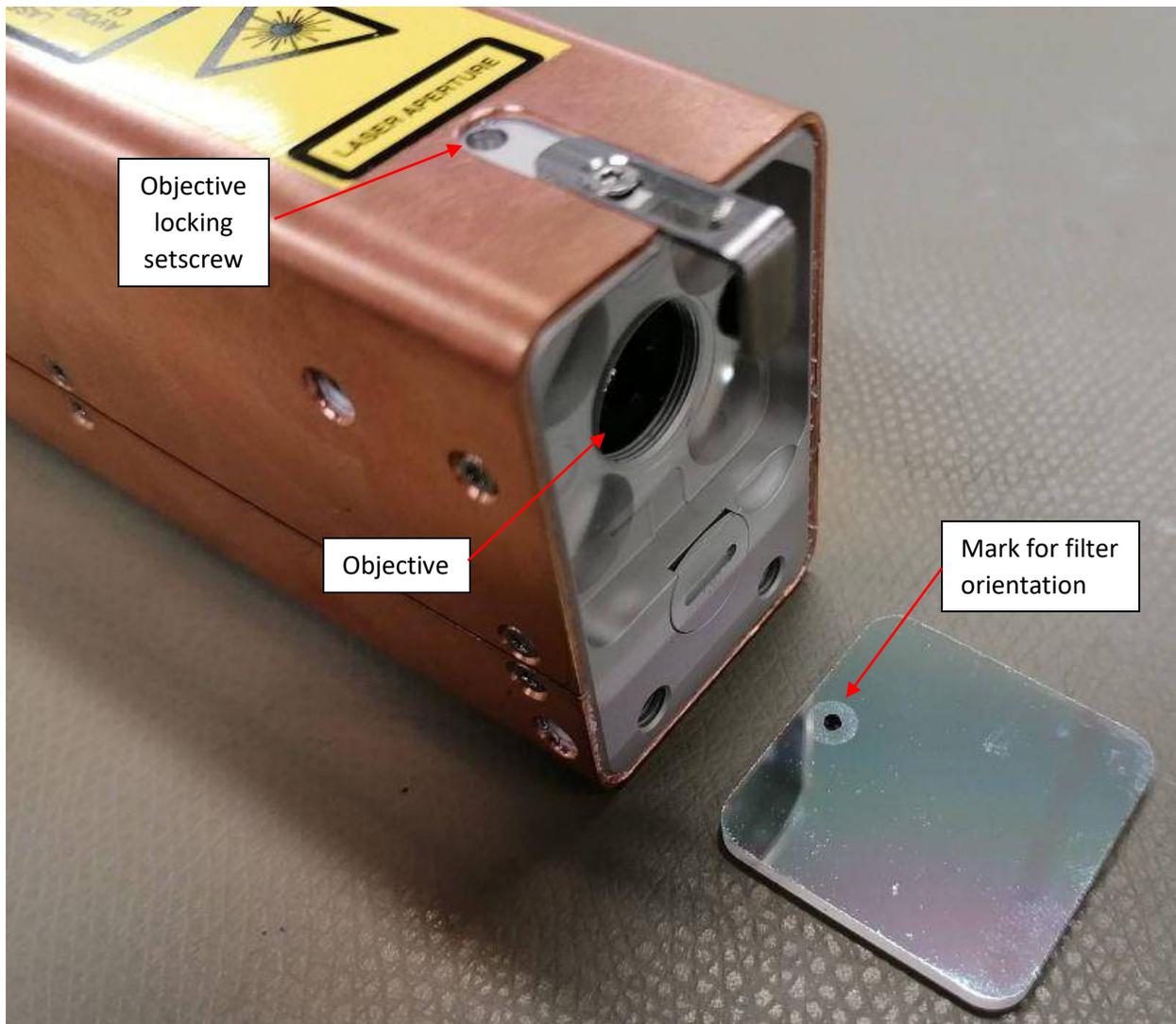


Fig. 4. Filter removed.

Loosen the objective locking setscrew with the Torx T5 key.

The position of the objective can now be adjusted with the objective adjustment tool as shown in Fig. 5. Moving the objective inwards will increase WD and moving the objective outwards will decrease WD.

Place an appropriate target at the desired WD and adjust the objective position until the camera image is sharp. For optimal results, position the objective in such a way that the desired WD is in the middle of the depth of field. Please note that the intensity of illumination decreases as the WD increases and vice versa.

It is forbidden to completely remove the objective from the threads as this may damage the camera. The objective surface visible to the user mustn't be moved beyond the surface where the camera threads start (see Fig. 6). Similarly, moving of the objective inwards must be stopped when the objective adjustment tool touches the casing (see Fig. 7).



Fig. 5. Objective adjustment tool in place.

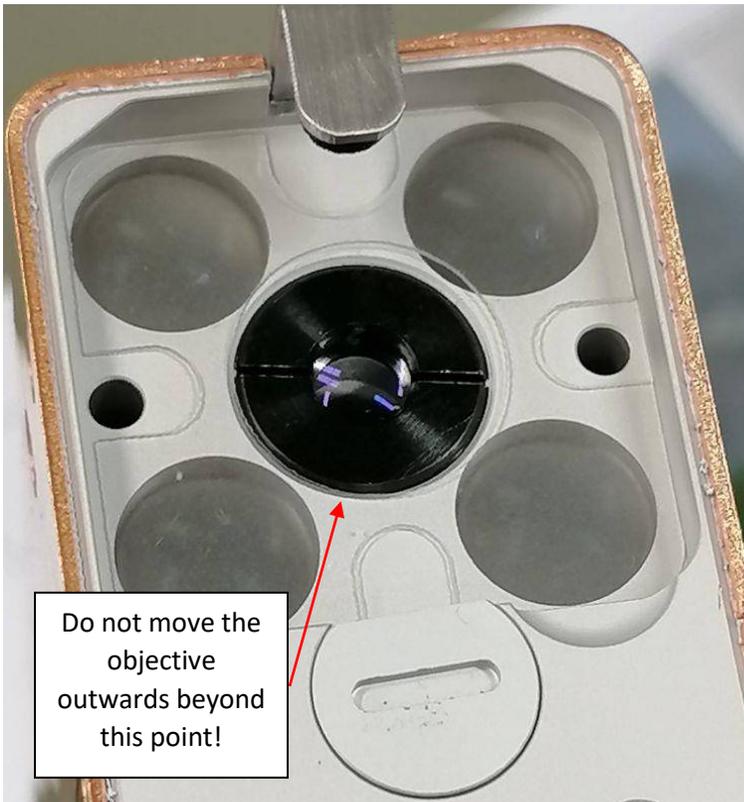


Fig. 6. Outermost allowed position of the objective.

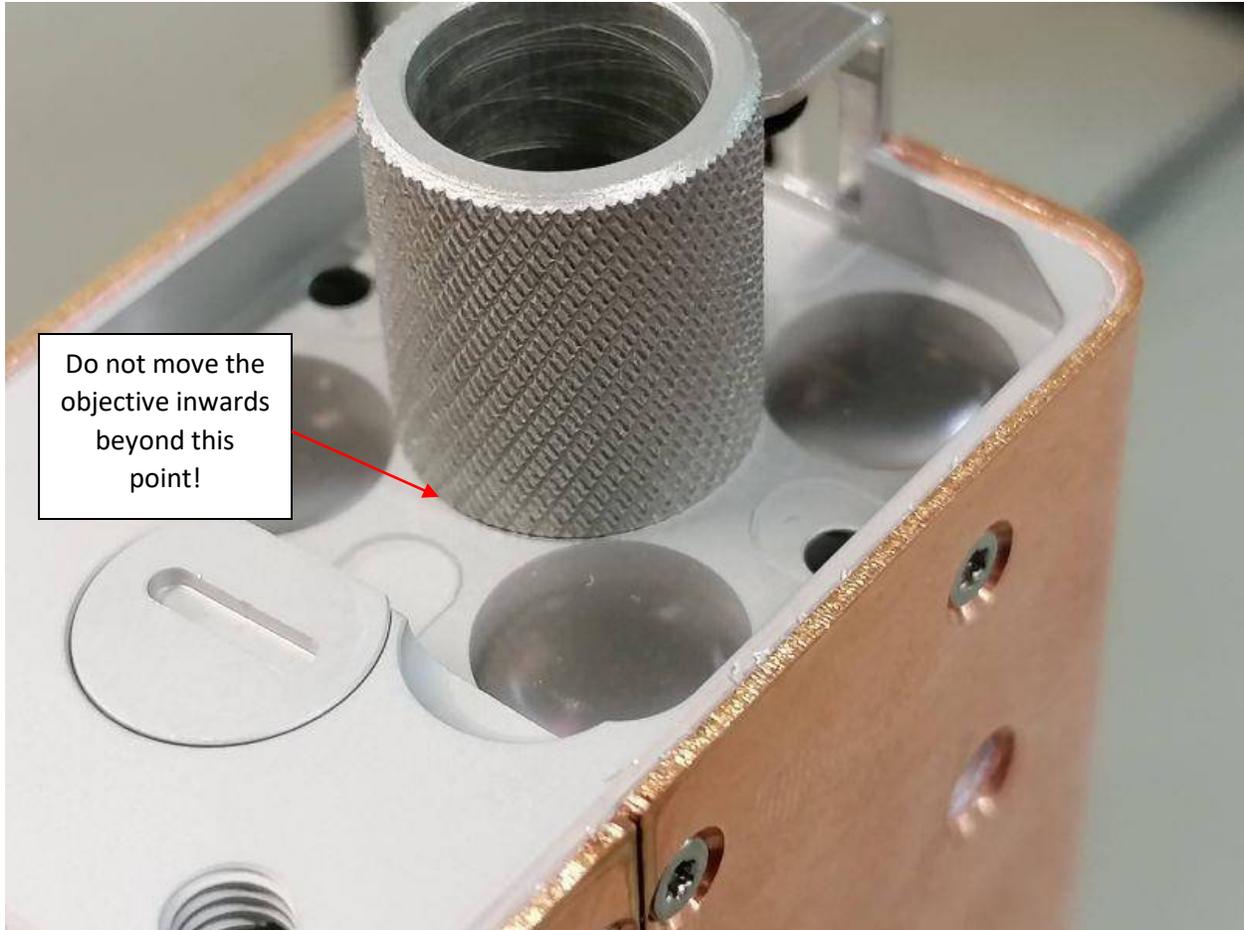


Fig. 7. Innermost allowed position of the objective.

Once the desired WD has been found, very gently lock the objective locking setscrew with the Torx T5 key (Fig. 8). Do not use excessive force as this can damage objective threads and prevent the future adjustment of the objective.



Fig. 8. Tightening the objective locking setscrew.

Mount the filter in such a way that the mark for filter orientation faces the filter holder (Fig. 9).

Loosen the filter holder screw (see Fig. 3) and slide the filter holder backwards so that it holds the filter firmly in place as shown in Fig. 10. Tighten the filter holder screw gently but firmly.

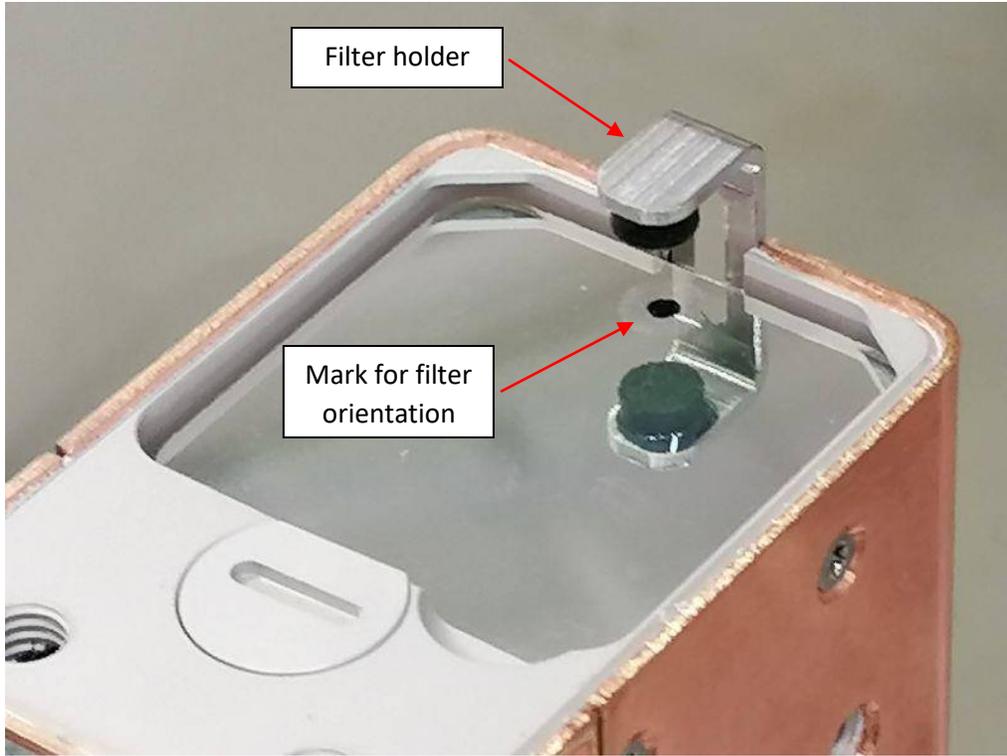


Fig. 9. Mounting of the filter.



Fig. 10. Filter holder in place.

Finally mount the protective window back and lock it in place by rotating the protective window locking mechanism 90 deg clockwise in such a way that the groove is vertical as shown in Fig. 11.



Fig. 11. Protective window in place.