

**Instructions**

The Ogles™ Mesoscope viewer constituent parts are shown in the following diagram:

**Specific operation of each part is described in this instruction document:**

Also provided is a brush and air blower for cleaning of the exposed viewer optical surfaces. Under no circumstances should any of the viewer optical surfaces be touched or cleaned with anything other than the provided brush and/ or air blower.

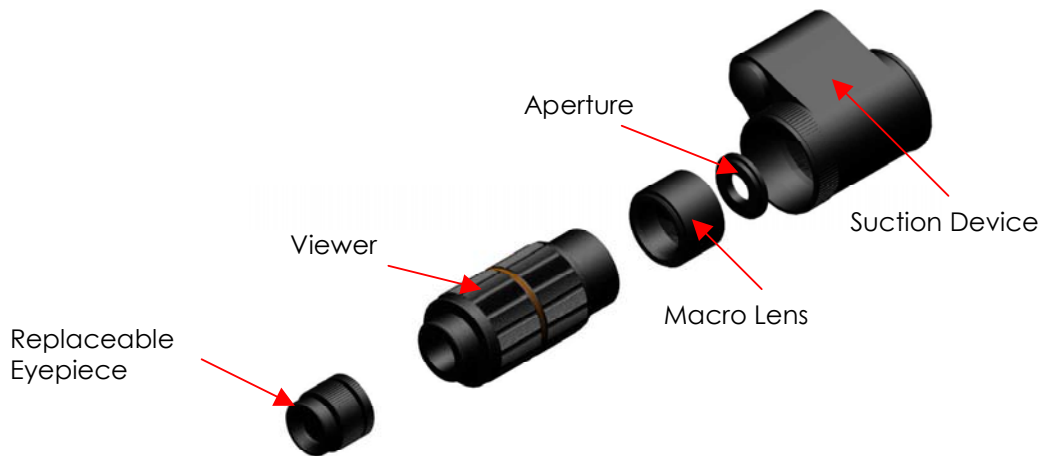


Fig 1 Constituent parts of the Ogles Mesoscope Viewer

**Operation**

**(i) Suction Device & Viewer Mounting**

The suction device, shown in Fig 2, consists of an opening into which the viewer can be located and secured. Prior to placing the viewer into the suction device the alignment mark on the locking ring must be aligned with the mark on the main body of the viewer.

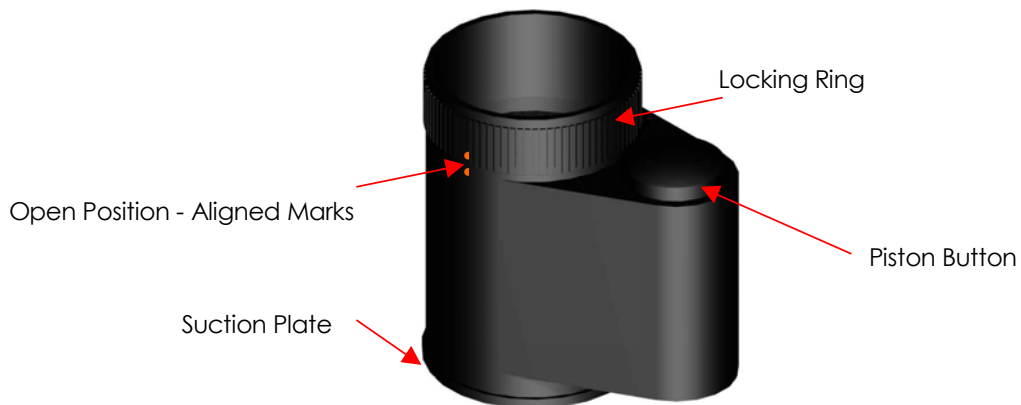
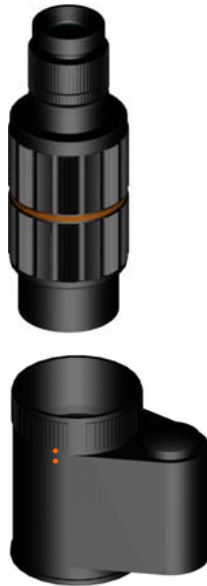


Fig 2 Suction Device

This places the locking ring in the open position ready to insert the viewer as shown in **Figure 3a** below.



**Fig 3a** Locking Ring in Open Position



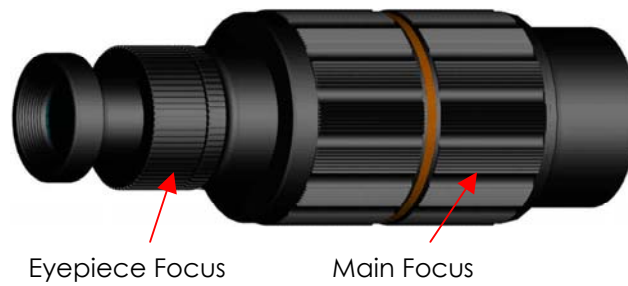
**Fig 3b** Locking Ring in Clamp Position

Securing the viewer is achieved by rotating the locking ring either clockwise or anticlockwise to the clamp position as shown in **Figure 3b**.

Once viewer is secured into the suction device, the suction plate is then placed on the side of the tank. The piston button is then pressed to full extent and will depress under the action of an internal spring (*this action should be checked for full return of travel and if necessary the piston should be pulled once pressed to ensure the piston is fully depressed to create maximum vacuum*). This action creates a partial vacuum within a small chamber between an optical window within the suction device and the tank glass.

**Note** the tank side and device suction plate must be clean, dry and free from dirt or other contamination, which otherwise may disrupt creation of necessary vacuum. The tank or any other vessel should be able to support the weight of the viewer or any force necessary to apply the vacuum mount. The vacuum mount is intended to aid in providing a steady image under high magnification and to eliminate refraction; if the vacuum mount has been applied correctly it should remain in place for several hours although it should **never** be left unattended. The Mesoscope should **never** be immersed in water. Care of: The Mesoscope and/or any of its components should be stored in a dry environment.

Removal of the suction device is simply achieved by pressing the piston button again to relieve the partial vacuum. Withdrawal of the viewer is achieved by aligning the marks as shown in **Figure 3a** above and carefully pulling viewer out of the suction device.



**Fig 4** Optical Focus – Eyepiece and Main Focus Barrels

**(ii) Optical Focus**

The viewer has two focus actions as shown above **Fig 4**.

The main focus barrel provides primary movement of the eyepiece over an extended range, thereby enabling focus over the object distance ranges shown below for minimum and maximum eyepiece travel.

	Minimum Eyepiece Travel	Maximum Eyepiece Travel
	Object Focus Distance* [mm]	Object Focus Distance* [mm]
Without macro lens	$\infty$	$\geq 230\text{mm}$
With Macro Lens	$\leq 300\text{mm}$	$\geq 70\text{mm}$

\* Note quoted values are nominal.

Continuous focus action for distances between minimum [typical object distance 270mm] and maximum [ $\infty$ ] object ranges are achieved by using the main focus barrel and eyepiece focus barrel. Fine adjustment at a particular object range as set by the main focus barrel can be achieved using the eyepiece focus barrel.

**(iii) Macro Lens**

The macro lens is provided to enable viewing of near field objects depending upon eyepiece travel. For maximum eyepiece travel with macro lens attachment object distance is typically 70mm whilst for minimum eyepiece travel object range is typically 300mm. The macro lens is screw fitted to the front of the viewer as required.

**Note** with and without the macro lens there is an overlap region between object ranges over which image formation is possible, as summarized above.

**(iv) Aperture**

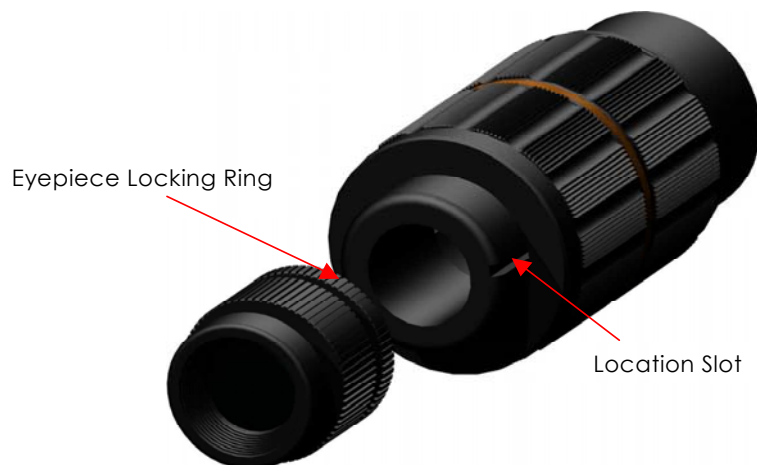
An aperture is provided [for use in high light applications] to increase depth of field at any particular object distance with or without the macro lens. Fitment of the aperture is by screw thread to either the front of the viewer or the macro lens.

**(v) Interchangeable Eyepiece**

The standard eyepiece supplied with the viewer provides a nominal 12 x magnification level over the focus range. The eyepiece assembly can be easily removed to enable fitment of alternative eyepiece assemblies to provide various magnification levels or relay optics for matching to webcam/ digital camera attachments.

Shown in the following is the eyepiece removal.

The eyepiece is removed by un-screwing the locking ring indicated in **Figure 5**. Fitment of an eyepiece is achieved by rotating the eyepiece assembly to ensure the location pin at the base of the eyepiece engages with the location slot prior to carefully screwing tight the locking ring.



**Fig 5** Eyepiece Removal/ Fitment

The Ogles Mesoscope has high quality fully coated optics and precise focusing. All of the component parts are covered by a 12-month manufacturers warranty.