

alignment telescope



for die casting machines

An Introduction

This equipment has been specifically designed to meet the needs of the diecasting industry. By allowing easy and accurate alignment of the shot cylinder and platen.

The equipment consists of:-

1. Focusable telescope which locates in the shot end.
Makeup pieces may be required when fitting onto a range of machines.
2. A target tube which locates into the platen, again a number of tubes may be required depending upon machine sizes.

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ALIGNMENT TELESCOPE

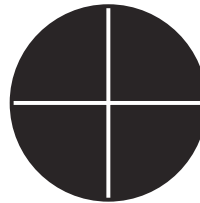
FOCUSABLE TELESCOPE

The telescope has a movable objective lens which allows focussing at distances from 300mm to 2000mm.

The focusable telescope has a cross hair graticule positioned to be readable from the eyepiece. The cross hair is positioned central to the 25.00mm location diameter to within 0.05mm radius.

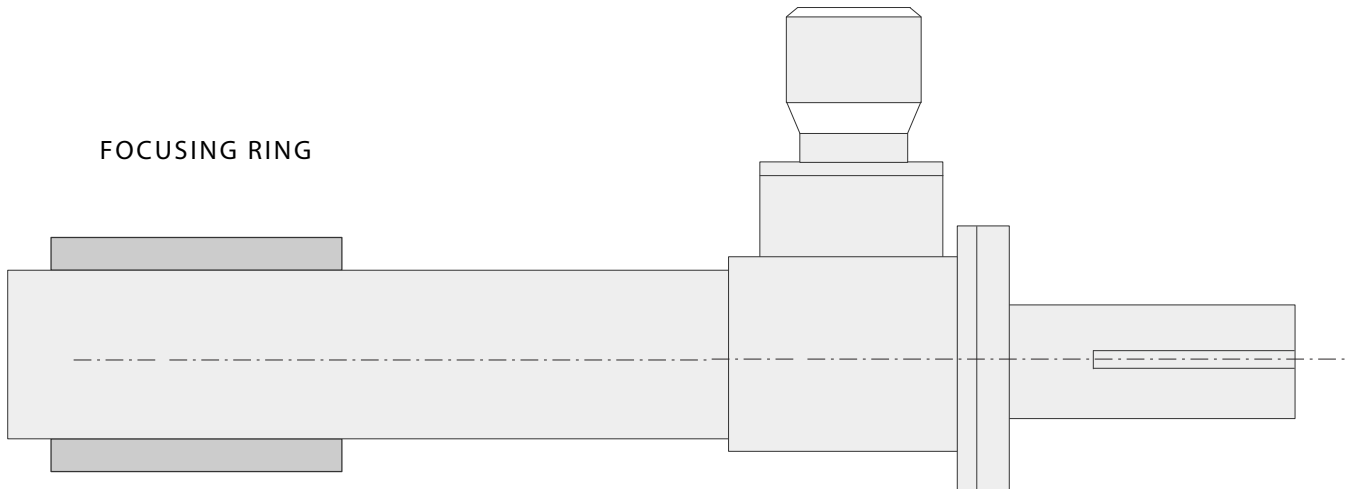
There are two eyepieces supplied with the telescope... 4mm and 6mm. The 4mm will provide greater mag which may be of benefit on the larger gap machine.

CROSS LINE (HAIR) RETICLES



Eyepiece gratic simple cross hair

FOCUSING RING



LOCATION dia 25mm

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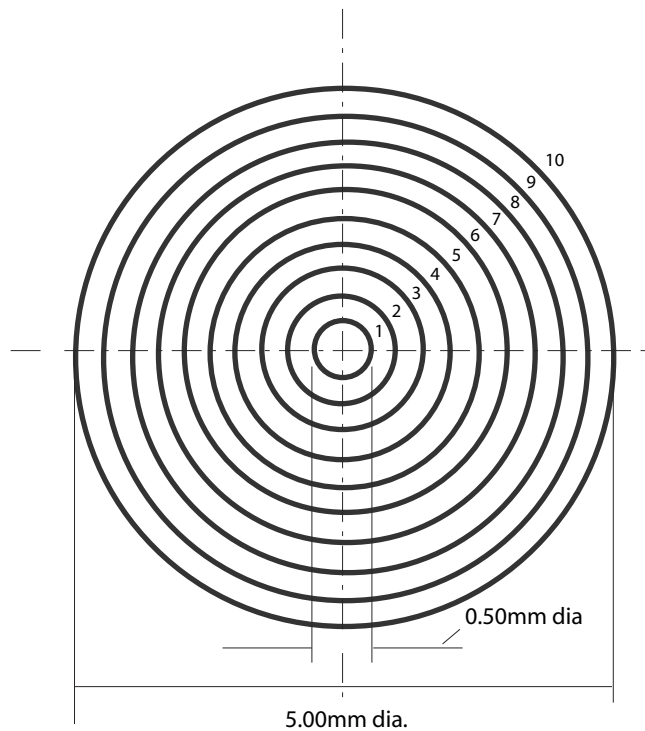
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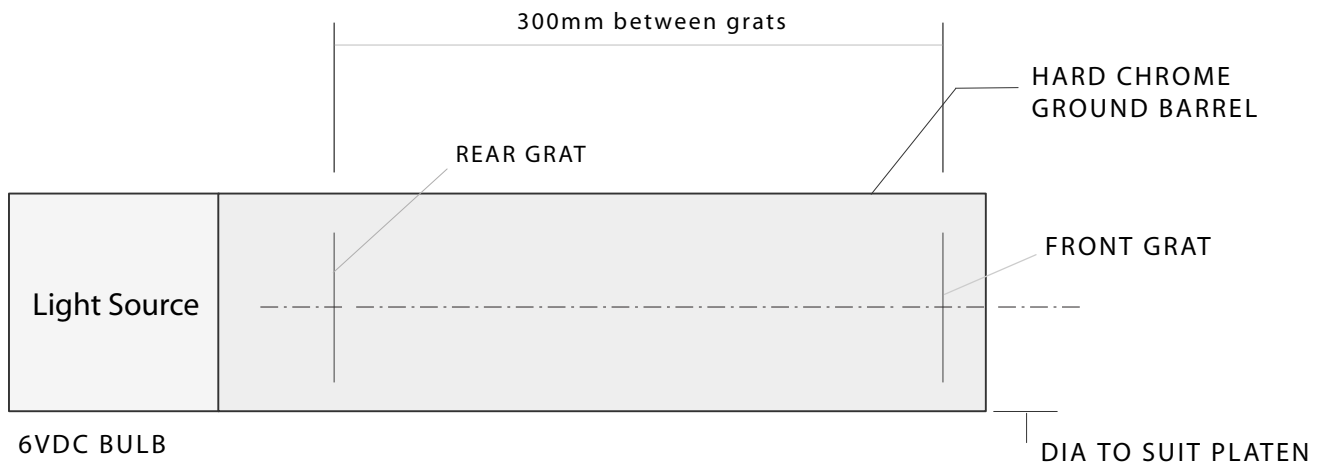
TARGET GRATICULE

There is a graticule situated at each end of the chrome alignment tube. Each graticule has been aligned accurately to the outer diameter of of the tube to within 0.05mm.

The graticule itself is calibrated to read up to 5.00mm in 0.50mm increments of diameter with a cross-hair through the centre.



TARGET TUBE



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ALIGNMENT TELESCOPE

METHOD OF ALIGNMENT

Place the alignment telescope in the machine spindle and the target tube in the platen. By means of the focusing ring, focus the telescope until the front target graticule is in focus. Align as necessary then focus on the rear graticule and again align as necessary (front graticule will have a larger image than rear graticule).

ACCURACY OF ALIGNMENT

If the telescope cross-hair is aligned exactly with central cross-hair in both graticules in the alignment tube the whole system would be aligned to better than 0.10mm (the accuracy in position of the graticules). Exact alignment may not be practical or, in some cases, possible. Therefore, an assessment of error must be made using the graticules.

NB - If Figs 1 & 2 were readings taken from front and rear graticules, even though their alignments to axis are within specification, they are on opposite sides of the graticule and therefore their alignment to each other is 0.75mm which represents a large tilt in the alignment of the tube. The tilt as measured by previous means was 2mins. of arc. Based on the distance between the 2 alignment graticules, the 2 graticules should be within 0.17mm of each other (about 2/3 of a space between lines).

Fig 1

The eyepiece cross-hair is on the circle No 2. This means that this graticule is aligned to 0.50mm of the axis.

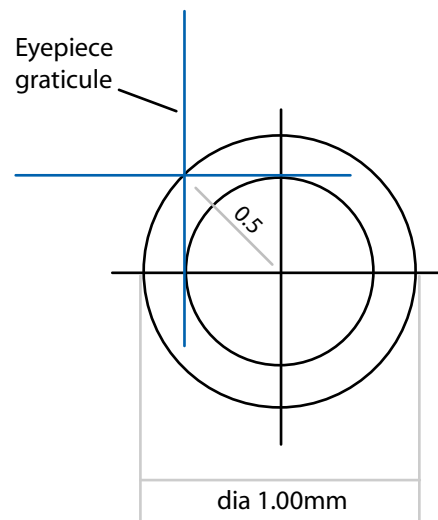
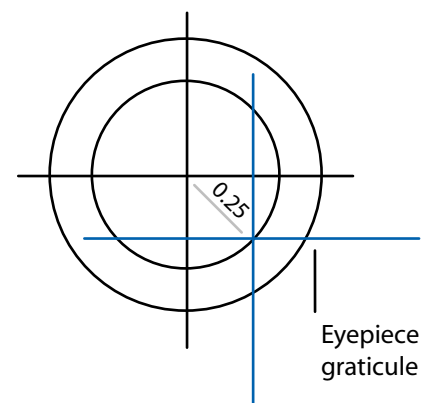


Fig 2

The eyepiece cross-hair is on the circle No. 1. This means that this graticule is aligned to 0.25mm of the axis.



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