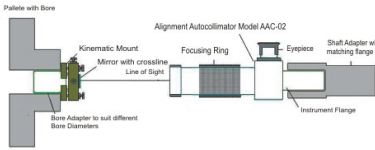


Applications: Alignment Autocollimator

Shaft and Bore Alignment using Alignment Autocollimator for Die Casting Machines

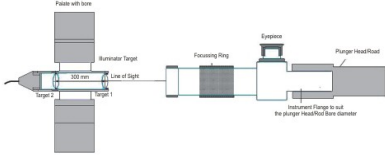


The spindle target is a special target and works as a reflector and as well a cross line target. The Optics has a provision for fine tilt and linear motion. The rear plate of the target could be mounted to a shaft of your choice. With reference to the shaft axis, the reflective cross line target could be centered by adjusting the tilt and linear motion.

When viewed through the Alignment Autocollimator in Autocollimator mode (focused for infinity) an illuminated cross line target is projected and returned after reflection from the spindle target. The angular tilt of the bore of the platen / the spindle target axis with respect to the Machine spindle axis / Telescope axis is the shift of the cross line image and the eyepiece graduated reticule.

When viewed through the Alignment Autocollimator in Telescope mode (focused to view the cross line on the spindle target), the separation between the eyepiece reticule and the image of the spindle target cross line.

Alignment of Bore and Plunger Head using Alignment Telescope and Illuminated Targets in Die Casting Machines



The illuminated target consists of two cross line targets spaced at a distance of 300 mm and their centre preset to within 0.02 mm with reference to the hard chrome coated outer diameter. Outer diameter is custom made to suit platen of die cast machine.

An Alignment Telescope has a hard chrome cylindrical portion suit the bore of the machine spindle. The axis of the hard chrome machine fit is within 0.02 mm to the telescope axis.

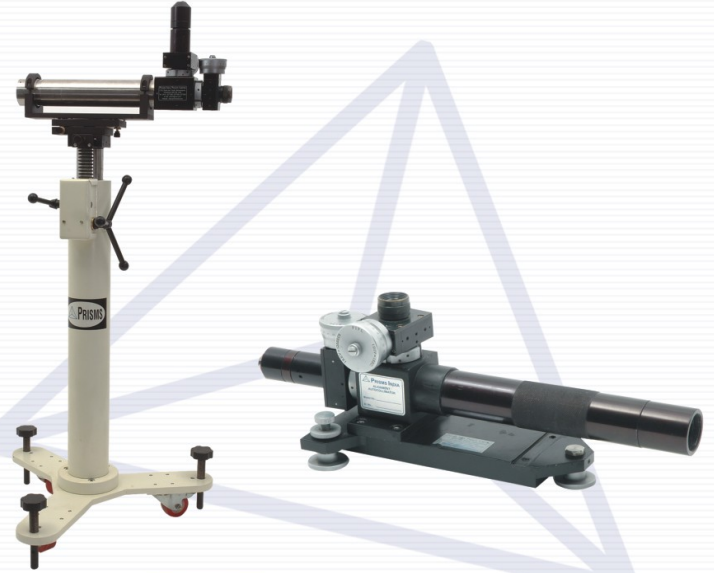
When viewed through the Telescope eyepiece each of the two cross line target could individually be focused by adjusting the focusing ring.

The misalignment of the platen and the bore of the machine spindle could be determined by measuring the shift in the cross line image of each of the targets on the graduated eyepiece reticules.

Other Products

Optical Prisms	Optical Windows	Optical Mirrors	Autocollimator
Optical Flats	Optical Parallels	Monochromatic Light Source	Laser Interferometer
Fizeau Interferometer	Interference Autocollimator	Michelson Interferometer	Grazing Interferometer

ALIGNMENT AUTOCOLLIMATOR / ALIGNMENT TELESCOPE



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An Autocollimator is for measurement of angular tilts whereas the Alignment Telescope is for establishing an accurate line of sight.

Alignment Autocollimator is a combination of Alignment Telescope and Autocollimator. The Optical System consists of Lens with focusing arrangement as shown in the Sketch.

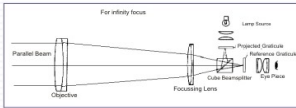


Fig: 1 represent Autocollimator mode where a collimated light beam is projected out of the Instrument and received back after the reflection from a mirror target.

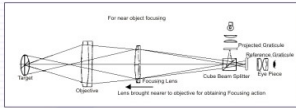


Fig: 2 represent Telescope mode where the lens position is altered to focus a cross line target located at different distances.

The advantage of this Instrument is to measure the angular tilts and the shift of centre location in one setting.

Application:

- Bore straightness
- Alignment of rolls in paper, metal, and plastic mills
- Bearing run out
- Checking parallelism of bearings in a gear box
- Shaft alignments
- Gear box evaluations

Specifications:

Alignment Autocollimator – Model AAC-01

Focal Length: 163 mm @ 0.5 m to 430 mm @ infinity
Clear Aperture: 35 mm diameter
Eyepiece focal length: 18 mm (Magnification: 14X)
Measurement Readout: Dual Axis Graticule / Micrometer
Angular Range of Measurement: +/- 10 minutes
Resolution: 1 arc sec (Micrometer), 20 arc sec (Graticule)
Accuracy: 2 arc sec over 1 minute & 10 arc sec over full range
Line of sight accuracy: <50 microns at the graticule/image plane

Shift in the Target position (Resolution chart)

Distances in Meters	0.5	1	5	10	20
Shift in the Target position for 1 div of Micrometer	0.00437 mm	0.00889 mm	0.0475 mm	0.0959 mm	0.1928 mm
Shift in the Target position for 1 div of Graticule	0.087 mm	0.177 mm	0.950 mm	1.919 mm	3.856 mm

Spindle Target



Mirror & Beamsplitter Target with cross line
Beamsplitter: 25 mm dia x 2 mm
Mirror: 25 mm dia x 5 mm
Parallelism of beamsplitter < 2 secs
Flatness of Reflector / Beamsplitter: $\lambda/6$ 633nm

Illuminated Target



Two Targets spaced at 300mm and concentric to the OD

MOUNTING STANDS



Vertical Stand

Vertical motion: 24" to 42"
Vertical axis rotation: 360°
Vertical axis fine tilt range: 2°
Horizontal axis fine movement: 5 mm
Horizontal axis fine tilt range: 2°
Rollers with pedal locking

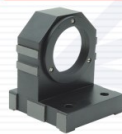


Table Stand

Vertical motion: 300 mm
Vertical axis rotation: 360°
Horizontal axis rotation: 360°
Kinematic tilt: 2°
Base: Cast Iron 300 x 300 mm

Front Surface Reflectors

Standard Reflector



Flatness: $\lambda/6$ @ 633 nm
Center Height: 75 mm
Base Dimension: 100 x 100 mm
Coatings: Al + SiO

Corner Reflector



Flatness: $\lambda/6$ @ 633 nm
Center Height: 75 mm
Base Dimension: 100 mm ϕ
Coatings: Al + SiO

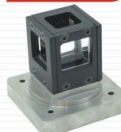
Alignment Prism & Cube

Penta Prism



Angle Deviation: < 5" or 30"
Entrance & Exit Faces: AR Coated
Clear Aperture: 30 mm
Center Height: 75 mm
Base dimensions: 100 x 100 mm

Optical Cube



Orthogonal Angles: < 2"
5 Faces are reflective Al + SiO coated
Clear Aperture: 35 mm
Center Height: 75 mm
Base dimensions: 100 x 100 mm

A wide range of reflectors, mounting devices and other accessories further enhances the capability of the Instruments. Special purpose reflectors and Telescope mounts with magnetic base and custom built accessories available on request.