LASER MECH
REPLACEMENT
PARTS & SERVICE

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BEAMTOOL

THE PRECISION ALIGNMENT TOOL FOR CO2 LASER CUTTERS

FAST
Labor saving one man procedure

SAFE
Closed beam path – no more burned fingers or clothing

CLEAN
No more burn cards, smoke, ash and contamination of optics

PRECISE
Electronic position measurement with large visual display

PORTABLE
Rechargeable batteries for easy use around machine

RECORDABLE
Computer interface for permanent record of alignment results

BeamTool – The Precision Alignment Tool For CO2 Laser Cutters

The BeamTool was specifically developed for use with CO_2 flatbed laser cutting machines requiring regular testing and adjusting of the optical path to guarantee reliable production. In such machines there can be up to ten adjustable beam bender mirrors between the laser and the cutting head which require alignment. To date this alignment procedure has been accomplished by using burn cards and crosshair targets. Several associated problems with this method include smoke, ash and open beam path dangers.

With the new BeamTool from Laser Mech RPS these alignment tasks are substantially simpler, faster, cleaner and safer. The sensor head (diameter 50 mm) can be inserted in place of the bender mirror, or without removing the mirror, at the entrance of the beam bender. The position of the laser beam centroid is indicated on a robust, highly-visible LED crosshair display for use at the machine or, using the users PC and supplied software, the position of the centroid can be displayed and recorded to an accuracy of better than 0.25 mm.

BeamTool has a response time of approximately one second, it takes about ten seconds to coarsely establish the correct position and about one minute more for fine tuning to the highest accuracy. The laser power is set, for example 1000 W amplitude, 50 Hz rate and a 5 percent duty cycle to produce the required 30-50 W average power (specific details are supplied in the laser manual). The high allowed peak power guarantees a good quality laser mode due to the clean discharge in the laser resonator at these settings. Overall sensor setup is simple and it takes only a short time for each adjustment.

Technical Specifications

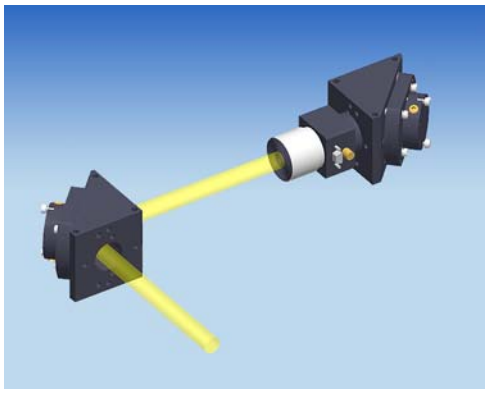
Sensor Head

- Thermal determination of the beam centroid
- Specially designed for CO_2 lasers
- Outer diameter 50 mm
- Active sensor diameter 48 mm
- Absorption > 70 percent (CO_2 wavelength)
- Absolute accuracy in center < 0.25 mm (35 W average power, 1.5 BAR)
- Response time < 2 seconds
- Relative accuracy after warm-up < ± 0.15 mm
- Maximum allowable intensity < 1000 W/cm^2
- Maximum allowable average power < 75 W, minimum power > 5 W
- Pressure of air cooling 1.5 ± 0.3 BAR (21 PSIG)

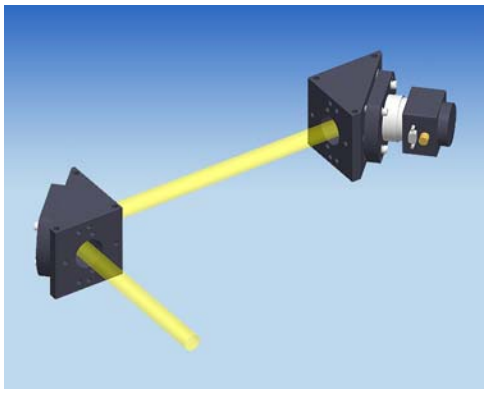
Display

- Ultra-bright LED crosshair
- Does not require any special equipment for standard operation
- LED codes for designating limits (over-temperature, low input power)
- Nonlinear scale for large range (0-25 mm) and fine accuracy in center (0.25 mm)
- Six AA (UM3) batteries or Akku rechargeable
- Serial port connector
- PC software to designate beam position and other features

Examples of BeamTool Use When Adjusting a Machine



Mount in front of mirror



Mount in place of mirror