

# FocusGage

FocusGage is a versatile, multi-function PC based measurement system that provides the analytical and graphical power of the 7-blades Beam Profiler, along with the ability to measure the 2 axis depth of focus, waist size, waist location, divergence (NA) of CW lasers and laser diodes. The depth of focus is measured by scanning the laser beam along its propagation axis and measuring beam size at different locations.



## Measured Parameters:

- Laser Beam Divergence
- Focus Location
- Numerical Aperture
- Waist Location
- Depth of Focus

## Modular Construction

The basic construction of the FocusGage is a 7-blades beam profiler detector head assembly installed into a Waist Scanning Assembly. As shown in the figure - Option A, the Scanning Assembly consists of a corner cube mounted on a stepper motor driven lead screw that effectively translates the waist of the input beam relative to the detection plane of the beam profiler head. A waist location must be generated within the Scanning Assembly for waist measurements. A second option, Option B, where the corner cube is removed, and replaced with a laser projector, enables direct measurements of the examined laser beam. Option A is a perfect solution for direct measurements of lasers and laser systems that can not be fitted into the Waist Scanning Assembly because of the laser size or measurement needs (such as increased scan length). Option B is a perfect solution for direct measurements of bare diodes or mounted laser diode projectors.

## Easy Alignment

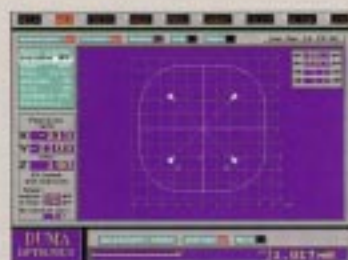
The Waist Scanning Assembly is designed to provide four degrees of freedom for aligning the laser to the input beam. Horizontal and vertical axis angles can be adjusted  $\pm 1.5^\circ$  relative to the mounting base. The Horizontal axis plane can be translated  $\pm 10\text{mm}$  and the vertical location can be adjusted  $\pm 3\text{mm}$  relative to the mounting base.



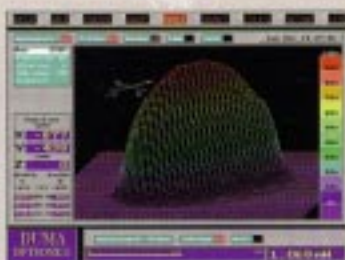
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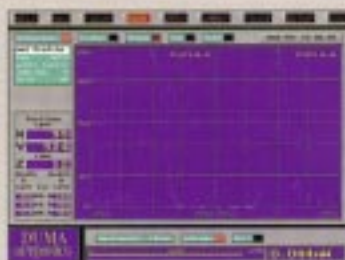
# Main Screens



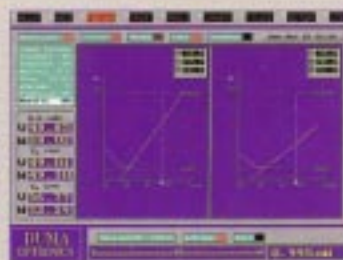
Adjust



3D



Profile



Focus

# System Specifications

## Input Beam:

Wavelength Range: 350-1100nm (Si) or 800-1800nm (InGaAs) or 190-1100nm (UV)  
 Measurable Power: 10µW-1W(\*) (\*with supplied ND filters for the Si version)  
 10µW-5mW For InGaAs & UV versions  
 Maximal Beam size: Si & UV: 9mm diameter, 12.7mm for elliptical beams  
 InGaAs: 3mm diameter, or 5mm diameter

## Scan Parameters for the corner cube (Option A):

Minimum distance from Input Aperture to measuring area: 230mm  
 Minimum Step Size: 100µm  
 Selectable Profile Locations: 0-140 Scan length: 280mm

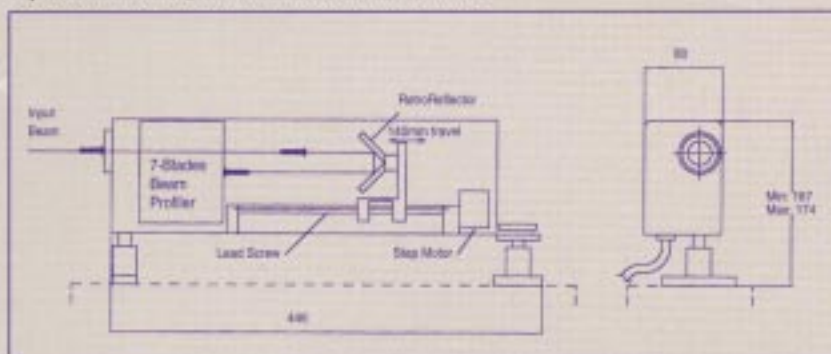
## Scan Parameters for direct coupling (Option B):

Length of scan: 140mm Waist position: ±50µm  
 All axes resolution: down to 1%

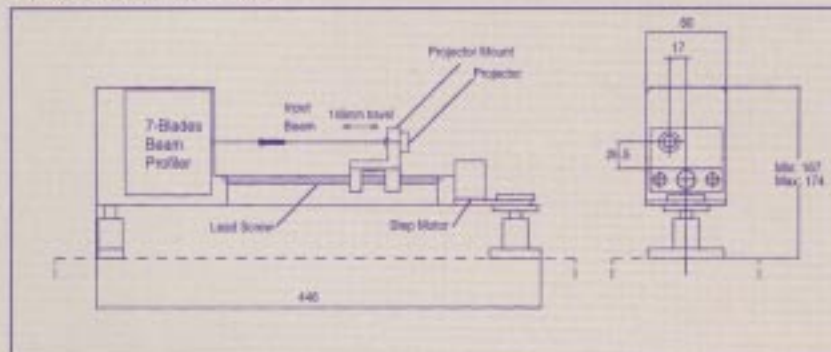
## Accuracy

Depth of focus accuracy: ±50µm Resolution down to 10µm

## Option A: Moving Retro-Reflector, fixed source



## Option B: Moving source



## Stand Alone unit specification

Construction	Heavy - duty steel
Power supply maximum output	60 Watts AC input voltage: 90 to 264 VAC
Input frequency	47 to 63 Hz
Safety standards	Meets UL, CAS, VDE, FCC standards
FDD	Equipped with one 3.5" FDD 1.44MB
Printer port	Standard Parallel port, 25 Pin (LPT2)
Serial ports	One port for RS232, One port for mouse
Super VGA driver	Super VGA ISA board installed, 1MB

## General Information

Construction Material:	Aluminum
Mounting:	M6 or 1/4" screws
Mechanical adjustment:	Horizontal Angle: ±1.5° Vertical Angle: ±1.5°
Scanning Assy dimensions:	100x173x415mm, 2.5kg
SA unit dimensions:	248x122x215mm, 4.5kg
Cable:	2.5m long, 0.5kg

# Models

FG-Si: FocusGage Si version  
 FG-InGaAs - 3mm: FocusGage InGaAs 3mm  
 FG-InGaAs - 5mm: FocusGage InGaAs 5 mm  
 FG-UV: FocusGage UV-enhanced version

\* All models can be supplied with either option A or option B configurations.