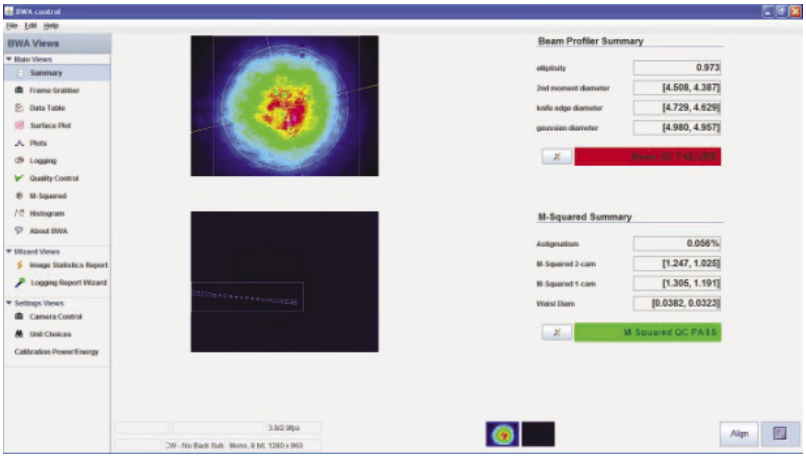
HAAS Laser Technologies Inc.
Your Single Source Solution for Laser Beam Delivery Systems

LASER COMPONENTS®

BWA-CAM™
Laser Beam Profiling System

The Beam Waist Analyzer (BWA-CAM) Laser Beam Profiling system and software enables "real-time" laser beam measurement, analysis and monitoring of high power CW and pulsed lasers.

The system design is based on the international standards ISO 11146 and ISO 13694 which relate to lasers and laser related equipment as well as laser beam spatial metrics.



In every laser application, the laser beam profile provides valuable information for the most efficient use of the laser.

By monitoring the laser beams spatial profile, circularity, centroid, astigmatism and M2 values, you have early warning of any problems with the laser and entire beam delivery optical system. This relates to increased quality, process reliability, and reduced scrap.

The Laser Beam Profiling system is modular in design and can be configured for most applications and laser wavelengths.

The design contains no "moving components" and provides instantaneous measurements and analysis of the laser beam and all active optical elements.

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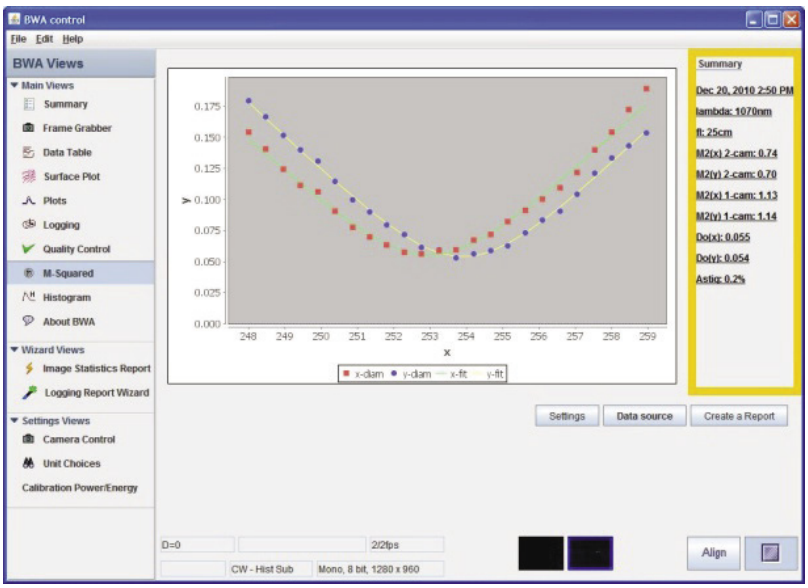
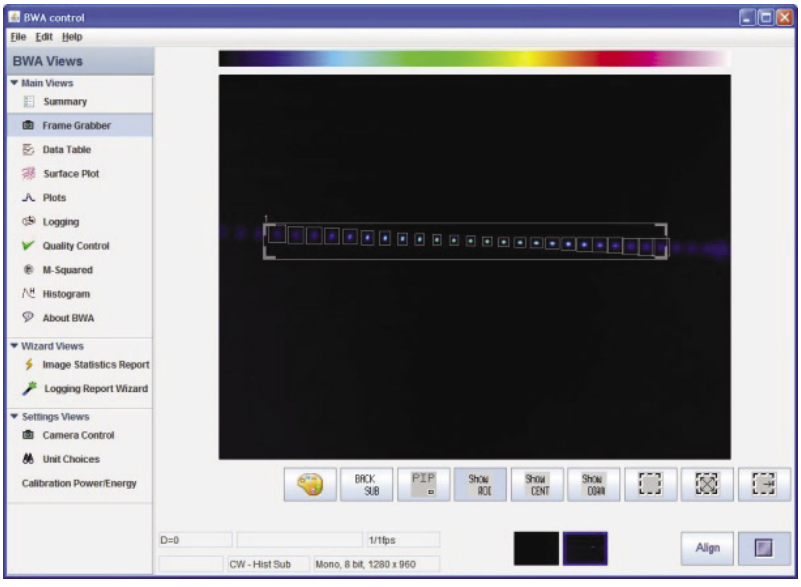


The BWA-CAM is simply placed after the laser focusing lens of the system under evaluation and adjusted until the beam waist can be seen in the primary region of interest (ROI). The smallest spot is located about midway in the series of spots (see image to the right).

Once the multiple spots, each one a spatial crossection along the beam waist, are nearly horizontal, the software automatically tracks and sizes the ROIs for accurate M2 measurement.



The BWA-CAM can measure the laser beam waist metrics for any focal length of 75 mm or more without a focus adapter. Lens systems with focal lengths < 75 mm will require an optional focal length adapter which mounts into the entrance port of the BWA-CAM.

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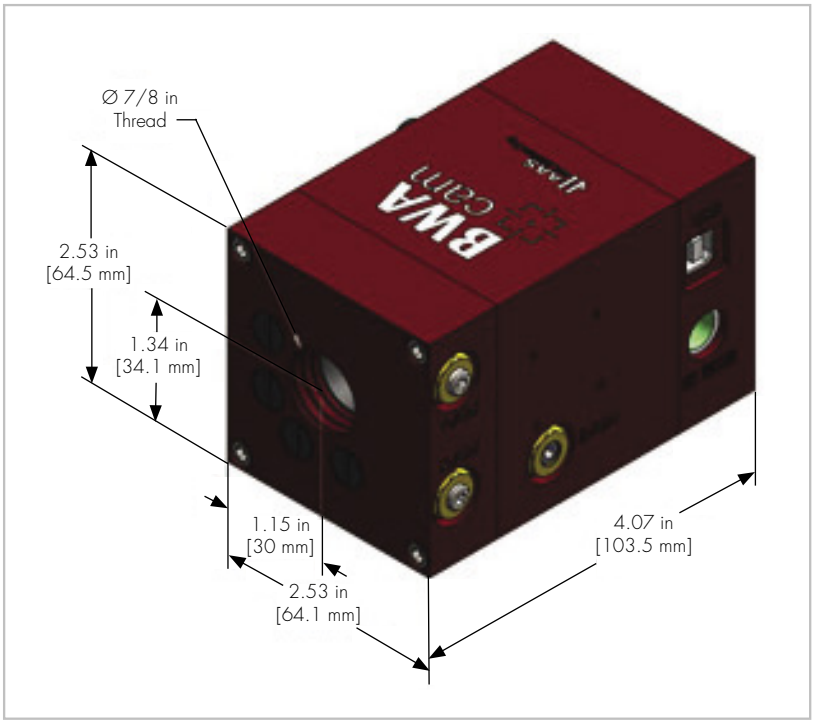
Features

M2 measurement	real time with no moving optics or hardware
Rayleigh range	50 microns to 6 mm
Single or dual camera	M2 measurement with single or dual camera
Auto tracking of ROIs	software auto sizes and tracks all ROIs
QC measurement	all beam quality metrics monitored and flagged for external interlocking control
Extended report generations	ISO report generator of all beam quality metrics
Extended logging capabilities	all beam quality metrics
Attenuation	4 to 7 OD attenuation built-in
Optional high power attenuator	for power levels to 20 kilowatts
Alignment	easy setup, alignment and calibration
Focal lengths	≥ 75 mm



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Specifications

Parameter	Desciption	Units
Sensor	CMOS chip, ½" (5:4)	
Resolution	1280 x 1024 monochrome	
Pixel size	5.2 x 5.2	µm
Active sensor area	6.66 x 5.32	mm
Scanning system	progressive	
Dynamic range	68	dB
Sensor SNR	45	dB
Gray level	8	bit
Responsivity	2.1	V/lux-sec
Frame Rate	>6	fps
Trigger	auto or external (DIN 8)	
Power consumption	<1.8	W
Connection	USB 2.0 host controller	
Dimensions (l x w x h)	82.5 x 60.3 x 60.3	mm^3
Weight	535	g
Temperature range	0 to 45	°C
Relative humidity (non-condensing)	5% - 95%	nm
Wavelength range	190 to 1100	OD
Built-in attenuation	4.0 to 7.0	

Specifications subject to change without notice.

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