UniBEaM25-D

Dual-Axis Ion Beam Profiler System Using Scintillating Fiber Sensor

UniBEaM25-D
Dual Axis Probe
(shown with quick clamp option)

Front

Back

UniBEaM25-D – Dual Axis Controller

- **Measures beams from keV to GeV and pA to mA depending on the power density deposited**
- **Maximum beam diameter[2] 25 mm**
- **Beam energy density[3] 1 W/mm²**
- **No vacuum box required**
- **Insertion length[4] of just 70mm**
- **Scintillating sensor fibers**
- **Dual X & Y axis profiles**
- **In-plane scanning**
- **Radiation resistant – no electronics in the probe**
- **Low electromagnetic susceptibility**
- **Complete turnkey system**

UniBEaM was conceived by the **AEC-LHEP** of the **University of Bern**[1] and commercialized by **D-Pace.** UniBEaM is a charged-particle beam profiling system - similar to a wire scanner except an optical sensor fiber is used instead of a metal wire. Ø50µm to 400µm sensing fibers scintillate in the visible spectrum as they pass through the beam. The scintillation light is transmitted through the short sensor fiber into a standard multimode optical fiber, which transmits the light long distances with minimal attenuation and no electromagnetic susceptibility. The light is converted by a high-sensitivity photo sensor located in the UniBEaM controller, amplified, digitized, and displayed on a monitor.

The system is a standalone device, requiring only the addition of a monitor and keyboard. A TCP/IP text-based command set is in development. This will allow UniBEaM to be used as a slave device to a higher-level controller or to interface with EPICS over Ethernet.

The probes are very compact, and require only 70mm along the beam axis[4]. X and Y scans can be conducted individually or concurrently.

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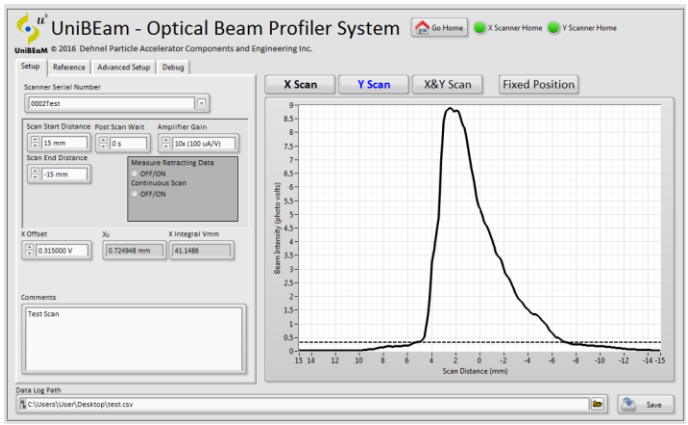
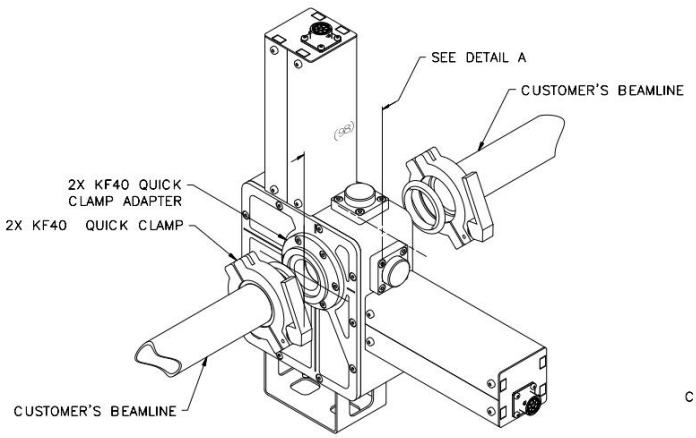
Replaceable Sensor Fiber



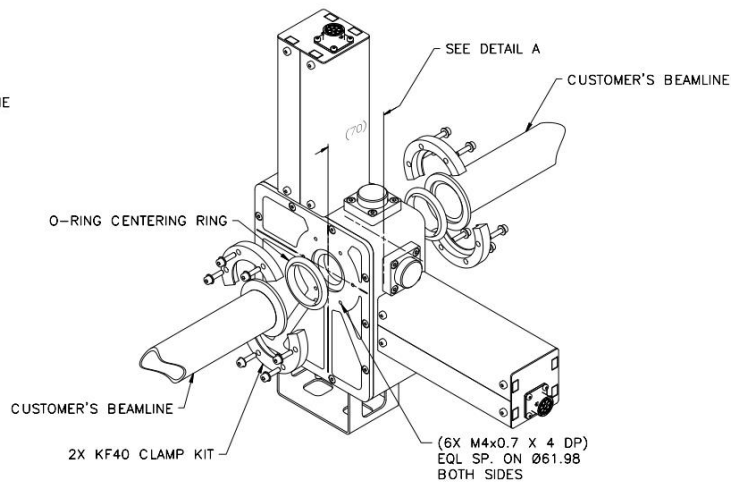
Control & Analysis Software

SPECIFICATIONS: UniBEaM25-D	
Max Beam Diameter[2]	25mm
Particle Kinetic Energy	> keV
Sensitivity (Standard)[5]	12pA @ 18MeV
Max Power Density[3]	1 W/mm^2
Sensor Fibers	Doped Silica Ø200µm (Ø50µm to Ø600µm)
Position Resolution	0.025mm
Scan Speed	18mm/second
Probe Insertion Length[4]	70mm
Flange Options	KF40 quick clamp or bulkhead CF40 flange
Probe Mass	7 kg
Data File Format	CSV with header
View port	KF16 quartz w/ cap
Controller	19" Rack Mount, 2U
Input Power	100-240VAC 50/60Hz
Cable & Fiber Length	15 meters (custom available)

1. UniBEaM is licensed from AEC-LHEP University of Bern to D-Pace Inc. for exclusive worldwide manufacturing, sales, and distribution.
2. UniBEaM50 (50mm) and UniBEaM100 (100mm) are in development.
3. Higher beam power densities possible for > 5MeV. At 18MeV, maximum beam power density is 18W/mm^2.
4. With QF40 bulkhead clamp (98mm with QF40 quick clamp option, 92mm for CF40 option - see D-Pace drawing 1590329).
5. For signal-to-noise of 2 for standard system at 18MeV H^+. Contact D-Pace for higher sensitivity systems.
6. D-Pace reserves the right to update specifications as part of its ongoing product improvement program.



KF40 QUICK CLAMP



KF40 DIRECT MOUNT

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