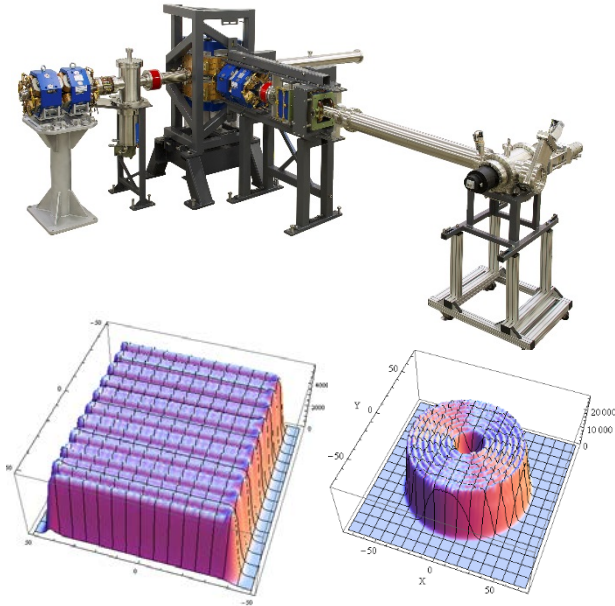




High Energy Beamline for BNCT

Transports 50 kW proton beams (20 mA, 2.5 MeV) from Accelerator to Target, for Boron Neutron Capture Therapy



The **D-Pace High Energy Beam Transport (HEBT)** beamline product has been designed for the transport of 50 kW proton beams (20 mA, 2.5 MeV) for Boron Neutron Capture Therapy (BNCT). Beams are transported with low losses due to large acceptance apertures throughout the system, and can be uniformly distributed on target to mitigate power density issues. The beamline consists of two sets of quadrupole doublets, a DC XY steering magnet, 90° bending dipole magnet, and one pair of AC XY scan magnets. Diagnostics include: two Bergoz NPCT beam current transformers; two graphite, water-cooled collimators with beam current readback; and a low power, pneumatic, beam profile monitor. The system comes complete with all stands, vacuum chambers, pumps, gauges, beampipes, bellows, power supplies, and scan function generators. Gate valves are provided at beamline entrance, exit, and thru-lines. Its 2 meter by 4 meter transport layout, with a 2.5 meter thru-line, can be set up in a horizontal or vertical arrangement. Installation, commissioning, and training services can be provided. Custom ion-optical and engineering modifications can also be undertaken to meet your particular beam energy, current, and power conditions.

- Uniformly distribute beam on target with scan magnets.
- Beam Profile Monitor for low power beam scan visualization.
- Large acceptances for low transmission losses.
- Install in horizontal or vertical arrangement.
- Includes:
 - Magnets and stands.
 - Power supplies and cabinet.
 - Beam diagnostics.
 - Vacuum equipment, beampipes and chambers.

SPECIFICATIONS: *HEBT Beamline*

Mass (Weight)	~2950 kg
Beamline Layout	2 m × 4 m, with 2.5 m thru
Beam Axis Height	1.25 m
Ion-Optical Elements	<ul style="list-style-type: none"> - Quadrupole Doublet (two pair) - DC XY Steering Magnet - 90° Bending Magnet - AC XY Scan Magnet Pair (with arbitrary function generators)
Diagnostics	<ul style="list-style-type: none"> - Bergoz NPCT beam current monitor (two) - Beam Collimators (two) with current readback - Pneumatic Beam Profile Monitor (500 W)
Quadrupole Magnet Specifications:	Bore Dia. = 82.3 mm, $L_{\text{Eff}} = 202.3$ mm, $B_{\text{max}} = 0.4$ T
DC XY Magnet Specifications:	Iron Gap = 105 mm, $L_{\text{Eff}} = 184$ mm, $B_{\text{max}} = 0.01$ T
90° Bending Magnet Specifications:	Iron Gap = 52 mm, $L_{\text{Eff}} = 300$ mm, $B_{\text{max}} = 1.3$ T Pole-Face Entrance/Exit: Normal to beam
AC XY Scan Magnets (SM97-A spec. sheet)	