

**ENTRY NO:** CM01  
**Date:** 03 Feb 2005 10:27:13  
**Machine Name:** Cyclone 14+  
**Institution:** Ion Beam Applications  
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**Person Reporting Information:** IBA Technology  
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#### History

**Designed by:** IBA  
**Construction Dates:** 1996  
**First Beam Date:** 1997  
**Characteristic Beams**  
p 14 (MeV) 5.e15 (pps) 14 (kw)  
**Transmission Efficiency (source to extracted beam)**  
**Typical (%):**  
**Best (%):**  
**Emittance**  
**Emittance Definition:**  
**Vertical (pi mm mrad):**  
**Horizontal (pi mm mrad):**  
**Longitudinal (dE/E[%] x RF[deg.]):**

#### USES

**Basic Research (%):**  
**Development (%):**  
**Therapy (%):**  
**Isotope Production (%):** 100  
**Other Application (%):**  
**Maintenance (%):**  
**Beam Tuning (%):**  
**Total Time (h/year):**

#### TECHNICAL DATA

##### (a)Magnet

**Type:** compact  
**Kb (MeV):** 18  
**Kf (MeV):** 18  
**Average Field (min./max. T):** 1.15  
**Number of Sectors:** 4  
**Hill Angular Width (deg.):** 56  
**Spiral (deg.):** 0  
**Pole Diameter (m):** 1.08  
**Injection Radius (m):** 0  
**Extraction Radius (m):**  
**Hill Gap (m):** 0.03  
**Valley Gap (m):** 0.65  
**Trim Coils**  
**Number:** 0x2  
**Maximum Current (A-turns):**  
**Harmonic Coils**  
**Number:** 0xNsectorsx2  
**Maximum Current (A-turns):**  
**Main Coils**  
**Number:** 1x2  
**Total Ampere Turns:** 86400  
**Maximum Current (A):** 120  
**Stored Energy (MJ):**  
**Total Iron Weight (tons):** 34  
**Total Coil Weight (tons):** 2  
**Power**  
**Main Coils (total KW):** <10  
**Trim Coils (total, maximum, KW):**  
**Refrigerator (cryogenic, KW):**

##### (b)RF

**Acceleration**  
**Frequency Range (MHz):** 83  
**Harmonic Modes:** 4  
**Number of Dees:** 2  
**Number of Cavities:** 2

**Dee Angular Width (deg.):**30  
**Voltage**  
**At Injection (peak to ground, KV):** 45  
**At Extraction (peak to ground, KV):**  
**Peak (peak to ground, KV):** 45  
**Line Power (max, KW):** <25  
**Phase Stability (deg.):**  
**Voltage Stability (%):** 5.e-3

##### (c)Injection

**Ion Source:** PIG  
**Source Bias Voltage (kV):**  
**External Injection:**  
**Buncher Type:**  
**Injection Energy (MeV/n):**  
**Component:**  
**Injection Efficiency (%):**  
**Injector:**

##### (d)Extraction

**Elements, Characteristic:**  
**Typical Efficiency (%):**  
**Best Efficiency (%):** % f)vacuum  
**Pumps:** Oil diffusion  
**Achieved Vacuum (Pa):** 2.e-3

#### REFERENCES

#### EXPERIMENTAL FACILITIES

#### COMMENTS