

**ENTRY NO:** CU30  
**Date:** 20 Apr 2005 09:54:59  
**Machine Name:** MC 17, Cyclotron  
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#### History

**Designed by:** Scanditronix Uppsala Sweden  
**Construction Dates:** 1989  
**First Beam Date:** 1991  
**Characteristic Beams**  
ions / energy(MeV/N)/current(pps)/power(w)  
F- 17 MeV n1 25 $\mu$ A  
C11 17 MeV n1 45 $\mu$ A  
O15 8.5 MeV n2 40 $\mu$ A  
Br76 17 MeV n1 10 $\mu$ A  
**Transmission Efficiency (source to extracted beam)**  
Typical (%): 80  
Best (%): 87

#### Emittance

**Emittance Definition:**  
**Vertical (pi mm mrad):**  
**Horizontal (pi mm mrad):**  
**Longitudinal (dE/E[%] x RF[deg.]):**

#### USES

**Basic Research (%):**  
**Development (%):**  
**Therapy (%):**  
**Isotope Production (%):** 97  
**Other Application (%):**  
**Maintenance (%):** 3  
**Beam Tuning (%):**  
**Total Time (h/year):** 2000

#### TECHNICAL DATA

##### (a)Magnet

**Type:**  
**Kb (MeV):**  
**Kf (MeV):**  
**Average Field (min./max. T):**  
**Number of Sectors:**  
**Hill Angular Width (deg.):**  
**Spiral (deg.):**  
**Pole Diameter (m):**  
**Injection Radius (m):**  
**Extraction Radius (m):**  
**Hill Gap (m):**  
**Valley Gap (m):**  
**Trim Coils**  
Number: x2  
Maximum Current (A-turns):  
**Harmonic Coils**  
Number: xNsectorsx2  
Maximum Current (A-turns):  
**Main Coils**  
Number: x2  
Total Ampere Turns:  
Maximum Current (A):  
**Stored Energy (MJ):**  
**Total Iron Weight (tons):**  
**Total Coil Weight (tons):**  
**Power**  
Main Coils (total KW): 50  
Trim Coils (total, maximum, KW): 3  
Refrigerator (cryogenic, KW):

##### (b)RF

#### Acceleration

**Frequency Range (MHz):** 26  
**Harmonic Modes:**  
**Number of Dees:** 2  
**Number of Cavities:** 1  
**Dee Angular Width (deg.):**  
**Voltage**  
At Injection (peak to ground, KV):  
At Extraction (peak to ground, KV): 35  
**Peak (peak to ground, KV):**  
**Line Power (max, KW):**  
**Phase Stability (deg.):** +-5  
**Voltage Stability (%):**

##### (c)Injection

**Ion Source:** PIG discharge type  
**Source Bias Voltage (kV):** 1  
**External Injection:**  
**Buncher Type:**  
**Injection Energy (MeV/n):**  
**Component:** tantalum cathodes  
**Injection Efficiency (%):**  
**Injector:**

##### (d)Extraction

**Elements, Characteristic:** efficiency  
**Typical Efficiency (%):**  
**Best Efficiency (%):**

##### (e)Vacuum

**Pumps:** Baltzer  
**Achieved Vacuum (Pa):** -6

#### REFERENCES

#### EXPERIMENTAL FACILITIES

#### COMMENTS