

**ENTRY NO:** CU18  
**Date:** 3 Feb 2005 08:21:39  
**Machine Name:** Scanditronix MC-17F  
**Institution:** PET-Center Groningen University Hospital  
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#### History

**Designed by:** Scanditronix, Uppsala, Sweden  
**Construction Dates:** 1990  
**First Beam Date:** march 1991  
**Characteristic Beams**  
ions / energy(MeV/N)/current(pps)/power(w)  
p 17 (MeV) > 50 (uA)  
d 8.5 (MeV) > 50 (uA)  
**Transmission Efficiency (source to extracted beam)**  
Typical (%): 80  
Best (%): 90  
**Emittance**  
**Emittance Definition:**  
**Vertical (pi mm mrad):**  
**Horizontal (pi mm mrad):**  
**Longitudinal (dE/E[%] x RF[deg.]):**  
**USES**  
**Basic Research (%):**  
**Development (%):**  
**Therapy (%):**  
**Isotope Production (%):** 40  
**Other Application (%):** standby 50  
**Maintenance (%):** 10  
**Beam Tuning (%):**  
**Total Time (h/year):** 2000

#### TECHNICAL DATA

**(a)Magnet**  
**Type:** compact, see Scanditronix for specs  
**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):**  
**Trim Coils (total, maximum, KW):**  
**Refrigerator (cryogenic, KW):**

#### (b)RF

**Acceleration**  
**Frequency Range (MHz):** 24-25

**Harmonic Modes:**  
**Number of Dees:** 2  
**Number of Cavities:**  
**Dee Angular Width (deg.):** 90  
**Voltage**  
**At Injection (peak to ground, KV):**  
**At Extraction (peak to ground, KV):** 45  
**Peak (peak to ground, KV):** 50  
**Line Power (max, KW):**  
**Phase Stability (deg.):**  
**Voltage Stability (%):**

#### (c)Injection

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

#### (d)Extraction

**Elements, Characteristic:** Electrostatic deflector  
**Typical Efficiency (%):** 80  
**Best Efficiency (%):** 95

#### (e)Vacuum

**Pumps:** Oil diffusion  
**Achieved Vacuum (Pa):** 1x E-06

**REFERENCES** Scanditronix MC-17F standard design without beam line.

#### EXPERIMENTAL FACILITIES

Is in use for the production of 11C, 13N, 15O and 18F exclusively. These radionuclides are used for the labeling of radiopharmaceuticals to be used in Positron Emission Tomography (PET) diagnostic procedures. Next to a radiochemical laboratory 2 PET scanners are in operation.

#### COMMENTS