**ENTRY NO:** CU09
**Date:** 04 Feb 2005 11:17:25
**Machine Name:** MGC-20
**Institution:** Institute of Nuclear Research (ATOMKI)
**Address:** Bem ter 18/c., H-4026 Debrecen, Hungary
**Telephone:** +36 (52) 417-266
**Fax:** +36 (52) 416-181
**Web Address:** www.atomki.hu
**Person in Charge of Cyclotron:** F. Tarkanyi
**Person Reporting Information:** Z. Kormany
**E-mail Address:** kormany@atomki.hu

**History**
**Designed by:** NIIEFA, St. Petersburg, Russia
**Construction Dates:** 1984-85
**First Beam Date:** Nov. 1985
**Characteristic Beams**

| ions / energy(MeV/N)/current(pps)/power(w) | | | |
|---|---|---|---|
| proton | 18 | 3.1E14 | 900 |
| deuteron | 5 | 3.1E14 | 500 |
| He3++ | 9 | 7.5E13 | 675 |
| alpha | 5 | 7.5E13 | 500 |

**Transmission Efficiency (source to extracted beam)**
**Typical (%):**
**Best (%):**
**Emittance**
**Emittance Definition:**
**Vertical (pi mm mrad):** 15
**Horizontal (pi mm mrad):** 30
**Longitudinal (dE/E[%] x RF[deg.]):**
**USES**
**Basic Research (%):** 20
**Development (%):**
**Therapy (%):**
**Isotope Production (%):** 43
**Other Application (%):** 7
**Maintenance (%):** 20
**Beam Tuning (%):** 10
**Total Time (h/year):** 2400

**TECHNICAL DATA**
**(a)Magnet**
**Type:** compact
**Kb (MeV):** 20
**Kf (MeV):**
**Average Field (min./max. T):** 1.4/0.7
**Number of Sectors:** 3
**Hill Angular Width (deg.):**
**Spiral (deg.):**
**Pole Diameter (m):** 1.03
**Injection Radius (m):**
**Extraction Radius (m):** 0.45
**Hill Gap (m):** 0.072
**Valley Gap (m):** 0.120
**Trim Coils**
**Number:** 4x2
**Maximum Current (A-turns):** 15 A
**Harmonic Coils**
**Number:** 2xNsectorsx2
**Maximum Current (A-turns):** 15 A
**Main Coils**
**Number:** 1x2
**Total Ampere Turns:**
**Maximum Current (A):** 400
**Stored Energy (MJ):**
**Total Iron Weight (tons):** 25
**Total Coil Weight (tons):**
**Power**
**Main Coils (total KW):** 32
**Trim Coils (total, maximum, KW):** 1
**Refrigerator (cryogenic, KW):**

**(b)RF**
**Acceleration**
**Frequency Range (MHz):** 8-24
**Harmonic Modes:** 1, 3
**Number of Dees:** 2
**Number of Cavities:** 2
**Dee Angular Width (deg.):**180
**Voltage**
**At Injection (peak to ground, KV):**
**At Extraction (peak to ground, KV):**
**Peak (peak to ground, KV):** 30
**Line Power (max, KW):** 80
**Phase Stability (deg.):**
**Voltage Stability (%):** 0.1

**(c)Injection**
**Ion Source:** internal, Livingstone-Jones
**Source Bias Voltage (kV):**
**External Injection:**
**Buncher Type:**
**Injection Energy (MeV/n):**
**Component:**
**Injection Efficiency (%):**
**Injector:**

**(d)Extraction**
**Elements, Characteristic:** electrostatic deflector, passive magnetic channel
**Typical Efficiency (%):** 40
**Best Efficiency (%):** 55

**(e)Vacuum**
**Pumps:** oil diffusion
**Achieved Vacuum (Pa):** 2E-04

**REFERENCES**

**EXPERIMENTAL FACILITIES**

**COMMENTS**

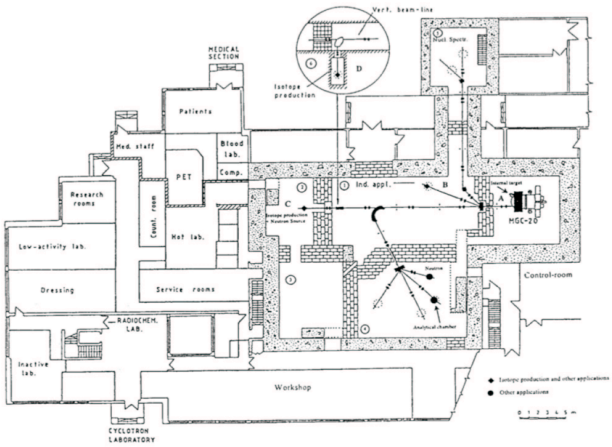


Figure 1 Layout of the cyclotron laboratory