

ENTRY No. 104

NAME OF MACHINE Medi-Physics Cyclotron DATE
INSTITUTION Medi-Physics, Inc.
ADDRESS 5855 Christie Ave, Emeryville, CA 94608 - USA
TEL TELEX
IN CHARGE E.R. Russell REPORTED BY E.R. Russell

HISTORY AND STATUS

DESIGN, date Model tests
ENG DESIGN, date
CONSTRUCTION, date
FIRST BEAM, date (or goal) Accepted 12/70
MAJOR ALTERATIONS None

COST, ACCELERATOR
COST, FACILITY, total
FUNDED BY Medi-Physics, Inc.

ACCELERATOR STAFF, OPERATION AND DEVELOPMENT
SCIENTISTS 1 ENGINEERS
TECHNICIANS 5 CRAFTS

GRAD STUDENTS involved during year
OPERATED BY Research staff or Operators
OPERATION 168 hr/wk, On target 120 hr/wk
TIME DISTR. in house 99 % Outside 1 %
BUDGET, op & dev
FUNDED BY Medi-Physics, Inc.

RESEARCH STAFF, not included above
USERS, in house outside
GRAD STUDENTS involved during year
RESEARCH BUDGET, in house
FUNDED BY

MAGNET
POLE FACE, diameter (compact) 97. cm, R extraction 42. cm
R injection cm

GAP, min 5. cm, Field 21. kG }
max 10. cm, Field 13.5. kG } at 2×10^6
AVERAGE FIELD at R ext 16.5. kG } Ampere turns
B max/ 1.22

NUMBER OF SECTORS { compact } Spiral, max .. deg
separated

SECTOR ANGLE (SSC) deg
TRIMMING COILS Harmonic correction 1

CONDUCTOR, material and type
STORED ENERGY (cryogenic) MJ
POWER: main coils max, kW; current stability 3×10^{-5}

trimming coils max, kW; current stability
WEIGHT: Fe 19.5 tons; coils tons
COOLING system

ION ENERGY (bending limit) E/A = q^2/a^2 MeV/amu
(focusing limit) E/A = q^2/a^2 MeV/amu

ACCELERATION SYSTEM

DEES, number 2; angle 90. deg
BEAM APERTURE 2. cm; DC Bias 1.5. kV
TUNED by, coarse straps fine panel

RF 12. to 25. mHz, stable \pm
Orb F to mHz

HARMONICS, RF/Orb F, used
DEE - Gnd, max 30. kV, min gap cm

STABILITY, (pk-pk noise)/(pk RF volt)
ENERGY GAIN, max 100. kV/turn

RF PHASE, stable to \pm deg
RF POWER input, max 70. kW
FREQUENCY MODULATION, rate /s

modulator, type
beam pulse, width

VACUUM SYSTEM
OPERATING PRESSURE Torr or mbar
PUMPS, No, Type, Size

ION SOURCES
Internal, cold cathode¹⁾

INJECTION SYSTEM

EXTRACTION SYSTEM

Electrostatic and magnetic channel

FACILITIES FOR RESEARCH

SHIELDED AREA, fixed 100. m²; movable m²
TARGET STATIONS 8. In 1. rooms
STATIONS served at same time, max 1

MAG SPECTROGRAPH, type None
COMPUTER model None
OTHER FACILITIES

CHARACTERISTIC BEAMS

PARTICLE	ENERGY (MeV)		CURRENT (pμA)	
	Goal	Achieved	Internal	External
p	22	400	60	
d	12	400	100	
³ He	32	100	50	

SECONDARY (part/s)

BEAM PROPERTIES

MEASURED CONDITIONS
PULSE WIDTH RF deg pμA of MeV ions
PHASE EXC, max RF deg pμA of MeV ions

EXTRACT eff % pμA of MeV ions
RESOL ΔE/E % pμA of MeV ions
EMITTANCE

(π mm. mrad) { axial } pμA of MeV ions
rad

OPERATING PROGRAMS, time distribution
BASIC NUCLEAR PHYSICS SOLID STATES PHYSICS
BIOMEDICAL APPLICAT. ISOTOPE PRODUCTIONS 100.

REFERENCES/NOTES

- 1) IEEE Trans. Nucl. Sci. NS-14, 70-71 (1967)
- 2) IEEE Trans. Nucl. Sci. NS-16, 500-503 (1969)

PLAN VIEW OF FACILITY, NOTEWORTHY FEATURES, COMMENTS

Designed by the Cyclotron Corporation.
* Data confirmed October, 1981.