

ENTRY NO. 100

NAME OF MACHINE Medi-Physics Cyclotron
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 2.10⁶
AVERAGE FIELD at R ext 16.5 kG } Ampere turns
B max / < B > 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 = q²/A² MeV/amu
(Focusing limit) E/A = q/A 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 ±
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 ± 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 cathode 1)

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	
	RF deg	μA of	RF deg	MeV
PULSE WIDTH				ions
PHASE EXC. max				ions
EXTRACT eff.	%	μA of		ions
RESOL ΔE/E	%	μA of		ions
EMITTANCE				
(π mm-mrad)	axial	μA of		MeV
	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, COMMENTS, ETC.

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