ENTRY NO. 84

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
min 10 cm, Field 13.5 kG } at 2.10^6 Ampere turns

AVERAGE FIELD at R ext 16.5 kG

B max/ < B > 1.22

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

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/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 POWEP 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

STATIONS served at same time, max 1

MAG SPECTROGRAPH, type None

COMPUTER model None

OTHER FACILITIES .....

.....

.....

CHARACTERISTIC BEAMS

PARTICLE	ENERGY (MeV) Goal	Achieved	CURRENT (pμA) 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	..... pμ A of ..... MeV ..... ions
PHASE EXC. max.....RF deg	..... pμ A of ..... MeV ..... ions
EXTRACT eff .....%	..... pμ A of ..... MeV ..... ions
RESOL ΔE/E.....%	..... pμ A of ..... MeV ..... ions
EMITTANCE (π mm. mrad) { .....axial / .....rad }	..... pμ A of ..... MeV .....

OPERATING PROGRAMS, time distribution

BASIC NUCLEAR PHYSICS ..... SOLID STATES PHYSICS.....

BIOMEDICAL APPLICAT..... ISOTOPE PRODUCTIONS 100...

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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.