ENTRY NO. 103

NAME OF MACHINE: Medi-Physics 750 P.V. Cyclotron

INSTITUTION: Medi-Physics Inc.

ADDRESS: 3350 N. Ridge Ave., Arlington Heights, Il. 60004 U.S.A.

TEL (312)398-8400 TELEX 230-25-4439

IN CHARGE: R. Hubbard REPORTED BY: E. A. Kowalski

HISTORY AND STATUS (CGR-MEV/Sumitomo)

DESIGN, date: Model tests

ENG DESIGN, date:

CONSTRUCTION, date:

FIRST BEAM, date (or goal): Feb. 18, 1986

MAJOR ALTERATIONS:

COST, ACCELERATOR:

COST, FACILITY, total:

FUNDED BY:

ACCELERATOR STAFF, OPERATION AND DEVELOPMENT

SCIENTISTS: ENGINEERS: 4

TECHNICIANS: 11 CRAFTS: 2

GRAD STUDENTS involved during year:

OPERATED BY: Research staff or xx Operators

OPERATION planned 120 hr/wk. On target: 100 hr/wk

TIME DISTR. in house: 100 %, outside: %

BUDGET, op & dev:

FUNDED BY:

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): 180 cm, R-extraction: 75 cm

R injection: cm

GAP, min: 13.3 m, Field: 21 kG

max: 31.5 m, Field: kG } at

AVERAGE FIELD at R ext: 16.4 kG Ampere turns

B max/<B>:

NUMBER OF SECTORS { compact: 4, separated: } Spiral, max: deg

SECTOR ANGLE (SSC): deg

TRIMMING COILS: 10 sets, max 300A

CONDUCTOR, material and type: OHFC Square Tube

STORED ENERGY (cryogenic): MJ

POWER: main coils 103 max kW: current stability ±4x10-5

trimming coils 10 max kW: current stability ±5x10-4

WEIGHT: Fe 120 tons: coils 5.6 tons

COOLING system: 92 L/min. for Main Coil

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: 83° deg

BEAM APERTURE: 2.4 cm; DC Bias: 0 kV

TUNED by, coarse: shorting stub fine: capacity

RF: 13 to 25 MHz, stable ± 10-7

Orb F: to MHz

HARMONICS, RF/Orb F, used: 1

DEE–Gnd, max: 50 K.V. kV, min gap: cm

STABILITY, (pk-pk noise)/(pk RF volt): ±10-3

ENERGY GAIN, max: 123 KEV/turn kV/turn

RF PHASE, stable to ±: deg

RF POWER input, max.: 2x50 K.W. class B amp. kW

FREQUENCY MODULATION, rate: /s

modulator, type:

beam pulse, width:

VACUUM SYSTEM

OPERATING PRESSURE: 1x10-5 Torr or mbar

PUMPS, No, Type, Size: 2x2,000 L/S

Diffstak

ION SOURCES

Livingston-Jones (Hot Filament)

INJECTION SYSTEM

Axial Probe ion source

EXTRACTION SYSTEM

Electro Static/Electromagnetic

FACILITIES FOR RESEARCH

SHIELDED AREA, fixed: m^2; movable: m^2

TARGET STATIONS: in rooms

STATIONS served at same time, max:

MAG SPECTROGRAPH, type:

COMPUTER model:

OTHER FACILITIES:

CHARACTERISTIC BEAMS

PARTICLE	ENERGY (MeV) Goal	Achieved	CURRENT (pμA) Internal	External
Proton		70	230μA	65μA
Proton		30	250μA	100μA
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.	80 %	65	pμA of 70	MeV	P ions
RESOL ΔE/E	%		pμA of	MeV	ions
EMITTANCE					
(π mm-mrad)	30 axial, 50 rad		pμA of	MeV	

OPERATING PROGRAMS, time distribution

BASIC NUCLEAR PHYSICS: SOLID STATES PHYSICS:

BIOMEDICAL APPLICAT.: ISOTOPE PRODUCTIONS: only

REFERENCES/NOTES

1)

2)

PLAN VIEW OF FACILITY, COMMENTS, ETC.

Computer controlled with fiber optic control link and data link