ENTRY No. CU65

NAME OF MACHINE ---- DATE September 1986

INSTITUTION Mallinckrodt Diagnostics (Holland) B.V. (until Jan. 1979 Philips Duphar B.V.)

ADDRESS P.O. Box 3 1755 ZG Petten NETHERLANDS

TEL 31(0)2246-7010 TELEX 57326 CILPN nl TELEFAX 31(0)2246 7008

IN CHARGE B. Reiff REPORTED BY J.G. van der Baan

HISTORY AND STATUS

DESIGN, date Model tests

ENG DESIGN, date

CONSTRUCTION, date 1963-1964

FIRST BEAM, date (or goal) protons, June 1964

MAJOR ALTERATIONS 1966

multi particle, machine

COST, ACCELERATOR 1×10^6

COST, FACILITY, total

FUNDED BY privately Philips Duphar B.V.

ACCELERATOR STAFF, OPERATION AND DEVELOPMENT

SCIENTISTS 1 ENGINEERS 1

TECHNICIANS 5 CRAFTS 10

GRAD STUDENTS involved during year -

OPERATED BY - Research staff or 10 Operators

OPERATION 132 hr/wk, On target 130 hr/wk

TIME DISTR. in house 100 %, Outside - %

BUDGET, op & dev -

FUNDED BY privately

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) 140 cm, R extraction 57. cm

R injection - cm

GAP, min 16. cm, Field kG
max 30. cm, Field kG
at 0.503 10^6 Ampere turns

AVERAGE FIELD at R ext 15.3 kG

B max/ <B>

NUMBER OF SECTORS compact 3 / separated - Spiral, max 48 deg

SECTOR ANGLE (SSC) deg

TRIMMING COILS

CONDUCTOR, material and type Al

STORED ENERGY (cryogenic) MJ

POWER : main coils 160 max, kW ; current stability

trimming coils max, kW ; current stability

WEIGHT : Fe 100 tons ; coils tons

COOLING system closed circuit dem water

ION ENERGY (bending limit) E/A = 30 q^2/a^2 MeV/amu

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

ACCELERATION SYSTEM

DEES, number 1 ; angle 180 deg

BEAM APERTURE 3.5 cm ; DC Bias 0.75 kV

TUNED by, coarse MS fine trim cap

RF 10 to 21 mHz, stable ± 5×10^{-6}

Orb F 7. to 21 mHz

HARMONICS, RF/Orb F, used 1st or 3rd

DEE - Gnd, max 50 kV, min gap cm

STABILITY, (pk-pk noise)/(pk RF volt) 10^{-3}

ENERGY GAIN, max 100 kV/turn

RF PHASE, stable to ± deg

RF POWER input, max 90 kW

FREQUENCY MODULATION, rate /s

modulator, type

beam pulse, width

VACUUM SYSTEM

OPERATING PRESSURE 5×10 Torr or mbar

PUMPS, No, Type, Size 1 Oil diff.-pump 12000 l/s

ION SOURCES

INTERVAL. PIG, 800V, 8A
Filament 8 V, 1000 A

INJECTION SYSTEM

EXTRACTION SYSTEM

none

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 none

CHARACTERISTIC BEAMS

PARTICLE	ENERGY (MeV) Goal	Achieved	CURRENT (pμA) Internal	External
H 1	28	30	400	
H 2	15	16	400	
He3	45	48	-	-
He4	30	32	200	-
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		pμA of MeV ions

OPERATING PROGRAMS, time distribution

BASIC NUCLEAR PHYSICS .. SOLID STATES PHYSICS ...

BIOMEDICAL APPLICAT. .... ISOTOPE PRODUCTIONS 99%

Development 1%

REFERENCES/NOTES

Hagedoorn, H.L. and Verster, M.F.C.
CERN report 63-19(1963) pp 286-290

PLAN VIEW OF FACILITY, NOTEWORTHY FEATURES, COMMENTS

Accelerator exclusively used for radionuclide production with protons.