

ENTRY No. 69

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
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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 x 10^9
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 503 10^6
AVERAGE FIELD at R ext 15.3 kG } Ampere turns
B max/ <B >
NUMBER OF SECTORS { compact 3 } Spiral, max 48 deg
SECTOR ANGLE (SSC) { separated } deg
TRIMMING COILS
CONDUCTOR, material and type A1
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 er im cap
RF 10 to 21 MHz, stable +/- 5x10^-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

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

Table with columns: PARTICLE, ENERGY (MeV) Goal, Achieved, CURRENT (pA) Internal, External. Rows include H 1, H 2, He3, He4.

SECONDARY

BEAM PROPERTIES

MEASURED CONDITIONS
PULSE WIDTH RF deg pA of MeV ions
PHASE EXC, max RF deg pA of MeV ions
EXTRACT eff % pA of MeV ions
RESOL ΔE/E % pA of MeV ions
EMITTANCE

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

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.