

ENTRY No. 48

NAME OF MACHINE ----- DATE June 30, 1981
INSTITUTION Byk Mallinckrodt CIL BV (until Jan. 1979 Philips Duphar BV)
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IN CHARGE H. Soepboer REPORTED BY J.G. van der Beek

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 10^6
COST, FACILITY, total
FUNDED BY privately Philips Duphar BV
ACCELERATOR STAFF, OPERATION AND DEVELOPMENT
SCIENTISTS 1 ENGINEERS 1
TECHNICIANS 3 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
separated
SECTOR ANGLE (SSC) 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/a 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 10^-6
RF 10 to 21 MHz, stable +/- 50 : 10^-6
Orb F 7 to 21 MHz
HARMONICS, RF/Orb F, used 1 st or 3 rd
DEE - Gnd, max 50 kV, min gap 3 cm
STABILITY, (pk-pk noise)/(pk RF volt) 10
ENERGY GAIN, max 100 KeV /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 u Torr
PUMPS, No, Type, Size 1 oil diff, -pump 5000l/s

ION SOURCES

INTERNAL, HOODED, ARC, 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, He 3, He 4.

SECONDARY

(part/s)

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 rad } pA 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