ENTRY NO. 53

NAME OF MACHINE ----

INSTITUTION Mallinckrodt Diagnostica B.V.

ADDRESS P.O. Box 3 1755 ZG Petten Netherlands

TEL 31(0)2246-7979 TELEX 5 73 26 cilpn nl

IN CHARGE H. Soepboer 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 BV

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
min 30 cm, Field ... kG } at $503 \cdot 10^6$ 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/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

RF 10 to 21 mHz, stable ± 50 : 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 KeV /turn

RF PHASE, stable to ± ... deg

RF POWEP input, max 90 kW

FREQUENCY MODULATION, rate ... /s

modulator, type ...

beam pulse, width ...

VACUUM SYSTEM

OPERATING PRESSURE 5 - 10 μ 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

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	300
H 2	15	16	400	300
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	pμ A of	MeV	

OPERATING PROGRAMS, time distribution

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

BIOMEDICAL APPLICAT ... ISOTOPE PRODUCTIONS 99%

Development 1%

...

REFERENCES/NOTES

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

PLAN VIEW OF FACILITY, COMMENTS, ETC.