

ENTRY No. 39

NAME OF MACHINE MGC DATE April 1989
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IN CHARGE A. Valek REPORTED BY Z. Kormány

HISTORY AND STATUS

DESIGN, date Model tests
ENG DESIGN, date
CONSTRUCTION, date 1982-1984
FIRST BEAM, date (or goal) Aug. 1985
MAJOR ALTERATIONS

COST, ACCELERATOR
COST, FACILITY, total 250 Million Hungarian Ft
FUNDED BY Hungarian Academy of Sciences

ACCELERATOR STAFF, OPERATION AND DEVELOPMENT
SCIENTISTS 2 ENGINEERS 4
TECHNICIANS 8 CRAFTS 8

GRAD STUDENTS involved during year
OPERATED BY Research staff or 6 Operators
OPERATION 106 hr/wk, On target hr/wk
TIME DISTR. in house %, Outside %

BUDGET, op & dev
FUNDED BY Hung. Acad. Sci.

RESEARCH STAFF, not included above
USERS, in house 30 outside 5
GRAD STUDENTS involved during year

RESEARCH BUDGET, in house
FUNDED BY

MAGNET
POLE FACE, diameter (compact) 103 cm, R extraction 45 cm
R injection cm

GAP, min 7.2 cm, Field 16.5 kG
max 1.2 cm, Field 10.2 kG } at 1.2x10^5
AVERAGE FIELD at R ext 14.5 kG } Ampere turns

B max/ <B> 1.14
NUMBER OF SECTORS { compact 3 } Spiral, max 35 deg
{ separated }
SECTOR ANGLE (SSC) deg

TRIMMING COILS 4 sets

CONDUCTOR, material and type
STORED ENERGY (cryogenic) MJ

POWER: main coils 35 max, kW; current stability 10^-4
trimming coils 1 max, kW; current stability 10^-3
WEIGHT: Fe 24 tons; coils 1.2 tons

COOLING system demineralized water
ION ENERGY (bending limit) E/A = 20 q^2/a^2 MeV/amu
(focusing limit) E/A = q^2/a^2 MeV/amu

ACCELERATION SYSTEM
DEES, number 2; angle 180 deg
BEAM APERTURE 1.9 cm; DC Bias kV

TUNED by, coarse panels fine capacitors
RF 8.0 to 24.0 MHz, stable +/- 10^-5
Orb F 5.6 to 21.7 MHz

HARMONICS, RF/Orb F, used 1st, 3rd
DEE - Gnd, max 35 kV, min gap cm

STABILITY, (pk-pk noise)/(pk RF volt)
ENERGY GAIN, max 120 kV/turn
RF PHASE, stable to +/- deg

RF POWER input, max 80 kW
FREQUENCY MODULATION, rate /s
modulator, type
beam pulse, width

VACUUM SYSTEM
OPERATING PRESSURE 10^-5 Torr or mbar
PUMPS, No, Type, Size diffusion pumps 3x2150 l/s

ION SOURCES
hot-filament Livingstone-Jones

INJECTION SYSTEM

EXTRACTION SYSTEM
Electrostatic deflector + magnetic channel

FACILITIES FOR RESEARCH
SHIELDED AREA, fixed m^2; movable 550 m^2
TARGET STATIONS 10 in 5 rooms

STATIONS served at same time, max 1
MAG SPECTROGRAPH, type
COMPUTER model JPA.11440
OTHER FACILITIES

CHARACTERISTIC BEAMS

Table with columns: PARTICLE, ENERGY (MeV) Goal, Achieved, CURRENT (pA) Internal, External. Rows for p, d, alpha, He.

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 50% pA of 18 MeV p. ions
RESOL delta E/E 0.3% pA of 18 MeV p. ions
EMITTANCE

(pi mm. mrad) { axial rad } pA of MeV ions
OPERATING PROGRAMS, time distribution

BASIC NUCLEAR PHYSICS 30% SOLID STATES PHYSICS 30%
BIOMEDICAL APPLICAT. 20% ISOTOPE PRODUCTIONS 30%
Industrial application 20%

REFERENCES/NOTES

PLAN VIEW OF FACILITY, NOTEWORTHY FEATURES, COMMENTS