ENTRY NO. 33

NAME OF MACHINE MGC (manufactured by NIIEFA, Leningrad)

INSTITUTION Institute of Nuclear Research of the Hungarian Acad.of. Sciences

ADDRESS Bem tér 18/c. H-4001 Debrecen Pf.51 HUNGARY

TEL 52/17266 TELEX 72-210

IN CHARGE A.Valek REPORTED BY G.Bibok

HISTORY AND STATUS

DESIGN, date ... Model tests ...

ENG DESIGN, date ...

CONSTRUCTION, date 1982-1984

FIRST BEAM, date (or goal) (1985)

MAJOR ALTERATIONS ...

COST, ACCELERATOR ... 10^6

COST, FACILITY, total 250 x 10^6 Hungarian Ft 1)

FUNDED BY Hungarian Academy of Sciences

ACCELERATOR STAFF, OPERATION AND DEVELOPMENT

SCIENTISTS 2 ENGINEERS 4

TECHNICIANS ... CRAFTS 8

GRAD STUDENTS involved during year ...

OPERATED BY ... Research staff or ... Operators

OPERATION (100) hr/wk. On target ... hr./wk

TIME DISTR. in house ... % Outside ... %

BUDGET, op & dev ...

FUNDED BY Hung. Acad. Sciences

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) 103 cm, R extraction 46 cm

R injection ... cm

GAP, min 7.2 cm, Field 16.5 kG
min 12 cm, Field 12.5 kG } at ... Ampere turns

AVERAGE FIELD at R ext ... kG

B max/ < B > 14.5

NUMBER OF SECTORS { compact 3 / separated ... } Spiral, max 35 deg

SECTOR ANGLE (SSC) ... deg

TRIMMING COILS 4 sets

CONDUCTOR, material and type ...

STORED ENERGY (cryogenic) ... MJ

POWER: main coils 35 max, kW; current stability ...
trimming coils 1 max, kW; current stability ...

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/a MeV/amu

ACCELERATION SYSTEM

DEES, number 2 deg

BEAM APERTURE 2 cm; DC Bias ... kV

TUNED by, coarse panels fine capacitors

RF 8.5 to 26 mHz, stable ± 10 ppm

Orb F ... to ... 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 POWEP 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 3 diffusion pumps

ION SOURCES

hot-filament Livingstone-Jones

INJECTION SYSTEM

EXTRACTION SYSTEM

electrostatic defl. and magnetic channel

FACILITIES FOR RESEARCH

SHIELDED AREA, fixed ... m^2; movable 550 m^2

TARGET STATIONS 9 in 5 rooms

STATIONS served at same time, max 1

MAG SPECTROGRAPH, type ...

COMPUTER model TPA 11440

OTHER FACILITIES ...

CHARACTERISTIC BEAMS

PARTICLE	ENERGY (MeV) Goal	Achieved	CURRENT (pμA) Internal	External
p	20		200	50
d	10		300	50
α	20		25	12
3He	26		25	12
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	50 %	pμ A of 18 MeV p ions
RESOL ΔE/E	0.3 %	pμ A of 18 MeV p ions
EMITTANCE (π mm. mrad)	17 axial / 17 rad	pμ A of MeV

OPERATING PROGRAMS, time distribution

BASIC NUCLEAR PHYSICS 30 % SOLID STATES PHYSICS ...

BIOMEDICAL APPLICAT. 20 % ISOTOPE PRODUCTIONS 30 %

INDUSTRIAL APPLICAT 20 %

REFERENCES/NOTES

1) The project is partly supported by the IAEA Vienna

PLAN VIEW OF FACILITY, COMMENTS, ETC.