ENTRY NO. 7

NAME OF MACHINE ...Japan Steel Works JSW BC - 10/7

INSTITUTION Montreal Neurological Institute, McGill University

ADDRESS ...3801 University St., Montreal, Quebec H3A 2B4

TEL 514-284-4675 ..... TELEX .....

IN CHARGE Dr. Mirko Diksic ..... REPORTED BY Dr. Mirko Diksic

HISTORY AND STATUS

DESIGN, date ..... Model tests .....

ENG DESIGN, date .....

CONSTRUCTION, date .....

FIRST BEAM, date (or goal) .....

MAJOR ALTERATIONS .....

.....

COST, ACCELERATOR ...$600,000 US.....

COST, FACILITY, total .....$1,500,000 Can.$.....

FUNDED BY..Montreal Neurological Institute.....

ACCELERATOR STAFF, OPERATION AND DEVELOPMENT

SCIENTISTS four(direct).... ENGINEERS ..-.....

TECHNICIANS ..two..... CRAFTS .....

GRAD STUDENTS involved during year ..-.....

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

OPERATION ..30..... hr/wk. On target ...25..... hr./wk

TIME DISTR. in house .....95..... % Outside ..5..... %

BUDGET, op & dev)...it is not separated from.....

FUNDED BY .....)the research funds.....

RESEARCH STAFF, not included above

USERS, in house ..5-6 groups..... outside ..two.....

GRAD STUDENTS involved during year ....one.....

RESEARCH BUDGET, in house ....$150,000 Can.$.....

FUNDED BY ..Medical Research Council and MNI Endowment Funds.....

MAGNET

POLE FACE, diameter (compact) ..72... cm, R extraction 30... cm

R injection ..... cm

GAP, min 5.5 cm, Field ....22..... kG
min ..... cm, Field ..... kG } at 1.2×10^5 Ampere turns

AVERAGE FIELD at R ext ...18.5..... kG

B max/ < B > .....

NUMBER OF SECTORS { compact ..... / separated ...4..... } Spiral, max ... deg

SECTOR ANGLE (SSC) .....45..... deg

TRIMMING COILS .....Removed.....

.....

CONDUCTOR, material and type .square section copper conductor.....

STORED ENERGY (cryogenic) .....none..... MJ

POWER: main coils ..30.... max, kW; current stability ±5parts/10^5

trimming coils ..... max, kW; current stability .....

WEIGHT: Fe 12.1,..Cu = ..9.. tons; coils ..... tons

COOLING system Heat exchanger (Flow=200g/min at 7Kgf/cm^2 pressure)

ION ENERGY (bending limit) E/A = ...q^2/a^2 MEV/amu

(focusing limit) E/A = ... q/a MeV/amu

ACCELERATION SYSTEM

DEES, number ..2 dees and 2 dummy dees...45..... deg

BEAM APERTURE ...1-2..... cm; DC Bias ..... kV

TUNED by, coarse shorting plates. fine compensator.....

RF ....55..... ~~xx~~ and 46.5... mHz, stable ± 1×10^{-5}/Hr.

Orb F ..... to .....mHz

HARMONICS, RF/Orb F, used Proton = 2nd, Deuteron = 4th

DEE—Gnd, max .....30..... kV, min gap ~~-~~.....1..... cm

Frequency STABILITY, ~~(pk-pk noise)/(pk RF volt)~~ ..1×10^{-5}/Hr.....

ENERGY GAIN, max ..... kV/turn

RF PHASE, stable to ± .compensator for phase shift to keep dee volt max.

RF POWEP input, max ...25..... kW

FREQUENCY MODULATION, rate Fixed 46.5 & 55mHz..... /s

modulator, type Master Oscillator Power Amplifier..

beam pulse, width .....

VACUUM SYSTEM

OPERATING PRESSURE .....x..10^{-5}..... Torr or mbar

PUMPS, No, Type, Size Mechanical roughing pump and.....

Turbo molecular pump (450 ℓ/sec).....

...(chamber volume = 60 ℓ.).....

ION SOURCES

.....Hot cathode Penning type.....

INJECTION SYSTEM

.....

EXTRACTION SYSTEM

..Electrostatic deflector and septum.....

FACILITIES FOR RESEARCH

SHIELDED AREA, fixed ....20..... m^2; movable ....-..... m^2

TARGET STATIONS ....one..... in .....

STATIONS served at same time, max .....one.....

MAG SPECTROGRAPH, type ..-.....

COMPUTER model ..-.....

OTHER FACILITIES .....

.....

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CHARACTERISTIC BEAMS

PARTICLE	ENERGY (MeV) Goal	Achieved	CURRENT (pμA) Internal	External
d	7		145	50 μA
p	10		150	50 μA
SECONDARY		(part/s)		

BEAM PROPERTIES

MEASURED	CONDITIONS
PULSE WIDTH 0.6ms RF deg	..... pμ A of ..... MeV ..... ions
PHASE EXC. max ~0 RF deg	..... pμ A of ..... MeV ..... ions
EXTRACT eff ~33...%	..... 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.....

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REFERENCES/NOTES

1)

2)

PLAN VIEW OF FACILITY, COMMENTS, ETC.