

ENTRY No. 9

NAME OF MACHINE Japn. Steel Works JSW BC-10/7. DATE
 INSTITUTION Montreal Neurological Institute, McGill University
 ADDRESS 3801 University St., Montreal, Quebec H3A 2B4
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 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 MNL

MAGNET Endowment Funds
 POLE FACE, diameter (compact) .72 cm, R extraction 30 cm
 R injection cm
 GAP, min 5.5 cm, Field 22 kG }
 max cm, Field kG } at 1.2×10^5 ..
 AVERAGE FIELD at R ext 18.5 kG } Ampere turns
 B max/

NUMBER OF SECTORS { compact } Spiral, max .. deg
 separated 4 ..
 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 5 parts/10⁵
 trimming coils max, kW; current stability
 WEIGHT: Fe 12.1 Cu 9 tons; coils tons
 COOLING system He at exchanger (Flow=200/min at 7Kgf/cm² pressure)
 ION ENERGY (bending limit) E/A = q²/a² MeV/amu
 (focusing limit) E/A = q²/a² MeV/amu

ACCELERATION SYSTEM

DEES, number 2 dees+2 dummy dees 45 deg
 BEAM APERTURE 1.2 cm; DC Bias kV
 TUNED by, coarse shorting plates fine compensator
 RF 55 to and 46.5 MHz, stable $\pm 1 \times 10^{-5}$ /Hr
 Orb F to MHz
 HARMONICS, RF/Orb F, used Proton=2nd, Deuteron=4th
 DEE - Gnd, max .30 kV, min gap 1 cm
 STABILITY, (pk-pk noise)/(pk RF-volt) 1×10^{-5} /Hr
 ENERGY GAIN, max kV/turn
 RF PHASE, stable to \pm compensator for phase shift to deg
 RF POWER input, max .25 keep dee volt max kW
 FREQUENCY MODULATION, rate fixed 46.5 & 55 MHz /s
 modulator, type Master Oscillator Power Amplifier ...
 beam pulse, width

VACUUM SYSTEM

OPERATING PRESSURE $\times 10^{-5}$ Torr or mbar
 PUMPS, No, Type, Size Mechanical roughing pump and
 Turbo molecular pump (450/sec)
 chamber volume = 60l

ION SOURCES

..... Hot cathode Penning type

INJECTION SYSTEM**EXTRACTION SYSTEM**

..... Electrostatic deflector and septum

FACILITIES FOR RESEARCH

SHIELDED AREA, fixed 20 m²; movable m²

TARGET STATIONS in rooms

STATIONS served at same time, max

MAG SPECTROGRAPH, type

COMPUTER model

OTHER FACILITIES

CHARACTERISTIC BEAMS

PARTICLE	ENERGY (MeV)		CURRENT (μ A)	
	Goal	Achieved	Internal	External
d	7		145	50 μ A
p	10		150	50 μ A

SECONDARY

(part/s)

BEAM PROPERTIES

MEASURED CONDITIONS
 PULSE WIDTH 0.6 RF deg μ A of MeV ions
 PHASE EXC, max 0 RF deg μ A of MeV ions
 EXTRACT eff 33% μ A of MeV ions
 RESOL $\Delta E/E$ % μ A of MeV ions
 EMITTANCE

(π mm. mrad) { axial }
 { rad } μ A of MeV ions

OPERATING PROGRAMS, time distribution

BASIC NUCLEAR PHYSICS .. SOLID STATES PHYSICS

BIOMEDICAL APPLICAT. ISOTOPE PRODUCTIONS

REFERENCES/NOTES**PLAN VIEW OF FACILITY, NOTEWORTHY FEATURES, COMMENTS**