

ENTRY No. C41  
 NAME OF MACHINE C-30 DATE 04.05.89  
 INSTITUTION SOLTAN INSTITUTE FOR NUCLEAR STUDIES  
 ADDRESS 05-400 OTWOCK-SWIERK, POLAND  
 TEL 798138 TELEX 813244  
 IN CHARGE J.Sura REPORTED BY J.SURA

HISTORY AND STATUS  
 DESIGN, date 1983 Model tests 1983  
 ENG DESIGN, date 1984  
 CONSTRUCTION, date 1985-1987  
 FIRST BEAM, date (or goal) 7.02.1989  
 MAJOR ALTERATIONS

COST, ACCELERATOR  
 COST, FACILITY, total 350 Mz  
 FUNDED BY Polish Atomic Agency  
 ACCELERATOR STAFF, OPERATION AND DEVELOPMENT  
 SCIENTISTS 4 ENGINEERS 5  
 TECHNICIANS 4 CRAFTS 2

GRAD STUDENTS involved during year  
 OPERATED BY Research staff or Operators  
 OPERATION hr/wk, On target hr/wk  
 TIME DISTR. in house % Outside %  
 BUDGET, op & dev  
 FUNDED BY  
 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) 105 cm, R extraction .45 cm  
 R Injection cm  
 GAP, min 2 cm, Field 22.5 kG } at 164000  
 max 10 cm, Field 12.5 kG }  
 AVERAGE FIELD at R ext 18 kG } Ampere turns  
 B max/ <B> 1.25  
 NUMBER OF SECTORS {compact 4 } Spiral, max 0 deg  
 {separated }  
 SECTOR ANGLE (SSC) 45 deg  
 TRIMMING COILS none

CONDUCTOR, material and type copper  $\phi$  12x2  
 STORED ENERGY (cryogenic) MJ  
 POWER: main coils 65 max, kW; current stability 10  
 trimming coils max, kW; current stability  
 WEIGHT: Fe 38 tons; coils 1.38 tons  
 COOLING system water  
 ION ENERGY (bending limit) E/A = .31 q<sup>2</sup>/a<sup>2</sup> MeV/amu  
 (focusing limit) E/A = .50 q<sup>2</sup>/a<sup>2</sup> MeV/amu

ACCELERATION SYSTEM  
 DEES, number 2; angle 45 deg  
 BEAM APERTURE 2 cm; DC Bias kV  
 TUNED by, coarse fixed line  $\pm 0.4$  MHz trimmer  
 RF 52.78 to MHz, stable  $\pm 10^{-6}$   
 Orb F 26.39 to MHz  
 HARMONICS, RF/Orb F, used 2  
 DEE - Gnd, max 50 kV, min gap 0.5-3 cm  
 STABILITY, (pk-pk noise)/(pk RF volt) 10<sup>-3</sup>  
 ENERGY GAIN, max 141 kV/turn  
 RF PHASE, stable to  $\pm$  dees bridged deg  
 RF POWER input, max 25 kW  
 FREQUENCY MODULATION, rate /s  
 modulator, type  
 beam pulse, width

VACUUM SYSTEM  
 OPERATING PRESSURE 5\*10<sup>-6</sup> Torr or mbar  
 PUMPS, No, Type, Size oil diffusion  
 2x2000 l/s

ION SOURCES  
 cold cathode used, external during assembling

INJECTION SYSTEM  
 axial during assembling  
 EXTRACTION SYSTEM  
 stripping by carbon foil

FACILITIES FOR RESEARCH  
 SHIELDED AREA, fixed 2x60 m<sup>2</sup>; movable m<sup>2</sup>  
 TARGET STATIONS 1 in 1 rooms  
 STATIONS served at same time, max 1  
 MAG SPECTROGRAPH, type  
 COMPUTER model  
 OTHER FACILITIES

CHARACTERISTIC BEAMS  

PARTICLE	ENERGY (MeV)		CURRENT (pA)	
	Goal	Achieved	Internal	External
H <sup>+</sup> -> P	30	15 test		50 goal

SECONDARY (part/s)

BEAM PROPERTIES  

MEASURED	CONDITIONS	
	MEASURED	CONDITIONS
PULSE WIDTH RF deg	pA of	MeV ions
PHASE EXC, max RF deg	pA of	MeV ions
EXTRACT eff %	pA of	MeV ions
RESOL $\Delta E/E$ %	pA of	MeV ions

EMITTANCE  
 ( $\pi$  mm. mrad) { axial } pA of MeV ions  
 { rad }

OPERATING PROGRAMS, time distribution  
 BASIC NUCLEAR PHYSICS .. SOLID STATES PHYSICS  
 BIOMEDICAL APPLICAT. .... ISOTOPE PRODUCTIONS 100%

REFERENCES/NOTES  
 1/ J.Sura et al., IPJ 1982, Warszawa /1983/.  
 2/ IEEE Trans. Nucl. Sci., Vol. NS-32,5 /1985/.  
 3/ 11-th Cycl. Conf., Tokyo, 76-79 /1986/.

PLAN VIEW OF FACILITY, NOTEWORTHY FEATURES,  
 COMMENTS