

ENTRY NO. 26 MC - 35, Scanditronix  
 NAME OF MACHINE  
 INSTITUTION Medizinische Hochschule Hannover, Abt. Nuklearmedizin u. spez. Biophysik  
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 IN CHARGE Dr. D. Junker REPORTED BY Dr. H.-J. Helmeke

**HISTORY AND STATUS**

1976  
 DESIGN, date Model tests  
 ENG DESIGN, date  
 CONSTRUCTION, date  
 FIRST BEAM, date (or goal) 21.01.1977  
 MAJOR ALTERATIONS

COST, ACCELERATOR  
 COST, FACILITY, total  
 FUNDED BY

**ACCELERATOR STAFF, OPERATION AND DEVELOPMENT**

SCIENTISTS 2 ENGINEERS 1  
 TECHNICIANS 1 CRAFTS  
 GRAD STUDENTS involved during year  
 OPERATED BY Research staff or 2 Operators  
 OPERATION 20 hr/wk. On target 8 hr/wk  
 TIME DISTR. in house 100 % Outside %  
 BUDGET, op & dev  
 FUNDED BY

**RESEARCH STAFF, not included above**

USERS, in house 3 outside  
 GRAD STUDENTS involved during year  
 RESEARCH BUDGET, in house  
 FUNDED BY

**MAGNET**

POLE FACE, diameter (compact) 130 cm, R extraction 51 cm  
 R injection 10 cm  
 GAP, min 10 cm, Field 20.3 kG }  
 min 18 cm, Field 12.6 kG } at 800/280  
 AVERAGE FIELD at R ext 17.2 kG } Ampere turns  
 B max / < B >

NUMBER OF SECTORS { compact 3 } Spiral, max 50 deg  
 { separated }  
 SECTOR ANGLE (SSC) 4 harmonic deg  
 TRIMMING COILS 8 circular

CONDUCTOR, material and type Cu-coils, H-type  
 STORED ENERGY (cryogenic)  
 POWER: main coils 100 max, kW; current stability 10<sup>-4</sup>  
 trimming coils 10 max, kW; current stability 10<sup>-4</sup>  
 WEIGHT: Fe 53 tons; coils 2.3 tons  
 COOLING system water  
 ION ENERGY (bending limit) E/A = q<sup>2</sup>/a<sup>2</sup> MEV/amu  
 (focusing limit) E/A = q/a MEV/amu

**ACCELERATION SYSTEM**

DEES, number 2 90 deg  
 BEAM APERTURE cm; DC Bias kV  
 TUNED by, coarse resonator fine flaps  
 RF 12 to 24 MHz, stable ± quartz oscillator  
 Orb F to MHz 10  
 HARMONICS, RF/Orb F, used  
 DEE-Gnd, max 40 kV, min gap cm  
 STABILITY, (pk-pk noise)/(pk RF volt)  
 ENERGY GAIN, max kV/turn  
 RF PHASE, stable to ± automatically regulated deg  
 RF POWER input, max 100 kW  
 FREQUENCY MODULATION, rate /s  
 modulator, type  
 beam pulse, width

**VACUUM SYSTEM**

OPERATING PRESSURE < 10<sup>-5</sup> Torr of ~~mer~~  
 PUMPS, No, Type, Size  
 two diffusion pumps  
 three prevakuum pumps

**ION SOURCES**

PIG - type

**INJECTION SYSTEM**

**EXTRACTION SYSTEM**

electrostatic deflector and magnetic channel

**FACILITIES FOR RESEARCH**

SHIELDED AREA, fixed 65 m<sup>2</sup>; movable m<sup>2</sup>  
 TARGET STATIONS 1 with six targets  
 STATIONS served at same time, max 1  
 MAG SPECTROGRAPH, type  
 COMPUTER model  
 OTHER FACILITIES

**CHARACTERISTIC BEAMS**

PARTICLE	ENERGY (MeV)		CURRENT (μA)	
	Goal	Achieved	Internal	External
protons		7,5 - 35		65 2)
deuterons		3,8 - 18		65
helium-3		5,6 - 47		30
helium 4		7,5 - 36		30
SECONDARY		(part/s)		guarenteed

**BEAM PROPERTIES**

MEASURED CONDITIONS  
 PULSE WIDTH RF deg μA of MeV ions  
 PHASE EXC. max RF deg μA of MeV ions  
 EXTRACT eff ≥ 85 % 60 μA of 35 MeV p<sup>+</sup> ions  
 RESOL ΔE/E 0,5 % guarenteed μA of 35 MeV p<sup>+</sup> ions  
 EMITTANCE { 30 axial } 1) μA of 35 MeV He-4  
 { 30 rad }

**OPERATING PROGRAMS, time distribution**

BASIC NUCLEAR PHYSICS SOLID STATES PHYSICS  
 BIOMEDICAL APPLICAT ISOTOPE PRODUCTIONS 100%  
 C-11, N-13, O-15, F-18, Rb-81, J-123 (1984/85)

**REFERENCES/NOTES**

- guarenteed axial and rad: 50 mm mrad
- max. measured : 35 MeV p<sup>+</sup> = 100 μA  
 35 MeV He-4 = 55 μA

**PLAN VIEW OF FACILITY, COMMENTS, ETC.**