ENTRY NO. 29

NAME OF MACHINE ....Juelich Compact Cycl. (CV28) DATE SEPT 81
INSTITUTION .....Kernforschungsanlage Juelich - IFF
ADDRESS .....Postfach 1913, D-5170 Juelich, Germany
TEL ..... TELEX .....
IN CHARGE ....R. Holzle, W. Kogler REPORTED BY ....R. Holzle

HISTORY AND STATUS

DESIGN, date .....1969..... Model tests .....1973.....
ENG DESIGN, date .....1970.....
CONSTRUCTION, date ...1973-1975.....
FIRST BEAM, date (or goal) .Oct. 1975.....
MAJOR ALTERATIONS ....none.....
.....
COST, ACCELERATOR ...$...1 Mio.....
COST, FACILITY, total ....$...2 Mio.....
FUNDED BY .....German Government.....

ACCELERATOR STAFF, OPERATION AND DEVELOPMENT

SCIENTISTS .....---..... ENGINEERS .....2.....
TECHNICIANS .....4..... CRAFTS .....
GRAD STUDENTS involved during year .....
OPERATED BY ...---..... Research staff or .....4.. Operators
OPERATION .....80..... hr/wk. On target .....72..... hr./wk
TIME DISTR. in house .....40... % Outside ....80..... %
BUDGET, op & dev ..$...100 000 per year.....
FUNDED BY .....German Government.....

RESEARCH STAFF, not included above

USERS, in house .....6..... outside .....20.....
GRAD STUDENTS involved during year .....
RESEARCH BUDGET, in house .....
FUNDED BY .....

MAGNET

POLE FACE, diameter (compact) ...96.. cm, R extraction ..42.. cm
R injection ..... cm
GAP, min ..5... cm, Field ..... kG
min .10... cm, Field ..... kG } at ...2x10^6
AVERAGE FIELD at R ext ....18,5..... kG } Ampere turns
B max/ < B > .....
NUMBER OF SECTORS { compact ...3..... } Spiral, max .60 deg
{ separated ..... }
SECTOR ANGLE (SSC) ..... deg
TRIMMING COILS .....
.....
CONDUCTOR, material and type ....Copper.....
STORED ENERGY (cryogenic) ..... MJ
POWER: main coils ..60.... max, kW; current stability ..5x10^-6
trimming coils ..50.... max, kW; current stability .....
WEIGHT: Fe ...total 23..... tons; coils ..... tons
COOLING system ..Demineralized water.....
ION ENERGY (bending limit) E/A = ...28.....q²/a² MEV/amu
(focusing limit) E/A = ... q/a MeV/amu

ACCELERATION SYSTEM

DEES, number .....2....;...angle..90..... deg
BEAM APERTURE .....2.5..... cm; DC Bias ..0.5-2..... kV
TUNED by, coarse short plane..... fine ..Var. cap.....
RF .....6..... to ...26..... mHz, stable ± ..1/10^6.....
Orb F ..... to .....mHz
HARMONICS, RF/Orb F, used ...fundamental.....
DEE—Gnd, max ..... kV, min gap ....1.27..... cm
STABILITY, (pk-pk noise)/(pk RF volt) ..1 x 10^-3.....
ENERGY GAIN, max ..... kV/turn
RF PHASE, stable to ± ..... deg
RF POWEP input, max ....75..... kW
FREQUENCY MODULATION, rate ..... /s
modulator, type .....
beam pulse, width .....

VACUUM SYSTEM

OPERATING PRESSURE ..5 x 10^-5..... Torr or mbar
PUMPS, No, Type, Size .....
.....2x1500 l/s Turbo.....
.....

ION SOURCES

....."cold cathode" Penning or thermionic.....

INJECTION SYSTEM

.....---.....

EXTRACTION SYSTEM

.dc electrostatic + mag. channel.....

FACILITIES FOR RESEARCH

SHIELDED AREA, fixed ....200..... m²; movable ....---..... m²
TARGET STATIONS .....8..... in .....4.....
STATIONS served at same time, max .....1.....
MAG SPECTROGRAPH, type .....none.....
COMPUTER model .....PDP 11-40 (1981).....
OTHER FACILITIES ...Pneumatic transfer for internal
.....and external target.....
.....

CHARACTERISTIC BEAMS

PARTICLE	ENERGY (MeV) Goal	Achieved	CURRENT (pμA) Internal	External
P	2-24	2-24	500	70
d	3-14	3-14	500	100
$^3He^{++}$	5-36	5-36	100	70
α	6-28	6-28	100	50
SECONDARY		(part/s)		
n			$3x10^{12}$	

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 .....% ..... pμ A of ..... MeV ..... ions
RESOL ΔE/E.....% ..... pμ A of ..... MeV ..... ions
EMITTANCE (π mm. mrad) { 15 axial / 15 rad } ...5... pμ A of ..24.. MeV ..P.. ions

OPERATING PROGRAMS, time distribution

BASIC NUCLEAR PHYSICS ..... SOLID STATES PHYSICS...40...
BIOMEDICAL APPLICAT....20 % ISOTOPE PRODUCTIONS..40...
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REFERENCES/NOTES

J. Hemmerich, R. Holzle, W. Kogler,
Kerntechnik 19 (1977)

PLAN VIEW OF FACILITY, COMMENTS, ETC.