ENTRY NO. C7 Date January 2, 1996

Name of Machine CYCIAE 30

Institution CHINA INSTITUTE OF ATOMIC ENERGY

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In Charge: Reported by: MINGWU FAN

HISTORY

MILESTONE DATES:
Design 1989 Model Tests
Construction First Beam 1994

DESIGN/CONSTRUCTION BY:
in house other

COST: Accelerator Facility

FUNDED BY:

STATUS

STAFF: Machine
Scientists 3 Engineers 6
Technicians 5 Students 3
Research (in house/external)
Scientists / Engineers /
Technicians / Students /

BUDGET: Machine Funded by
Research Funded by

TIME DISTRIBUTION:
Basic Research (in house/external) % /
Applied Program (in house/external) 90 % / %
Maintenance 5 % Development 5 %

MAGNET

POLE PARAMETERS:
Diameter 160 cm $R_{extract}$ 72 cm R_{inject} 3 cm

HILL PARAMETERS: Gap (min) 3 cm B_{max} 1.7 T
(@ AT) Gap (max) cm B_{min} T

VALLEY PARAMETERS: Gap (min) cm B_{max} T
(@ AT) Gap (max) 110 cm B_{min} 0.12 T

AVERAGE FIELD: $<B>_{min}$ 0.9 T $<B>_{max}$ T

NUMBER OF SECTORS: compact/separated 4 /
sector angle 54 deg. spiral (max) deg.

FIELD TRIMMING: Trim Coils
Harmonic Coils
Other

CURRENT: Main Coils 110 Amps Stability 10^{-5}
Trim Coils Amps Stability
Stored Energy (cryogenic) MJ

WEIGHT: Iron 45 T Conductor 4T

ION ENERGY: Bending Limit E/A = q^2/A^2 MeV/u
Focusing Limit E/A = q/A MeV/u

ACCELERATION SYSTEM

FUNDAMENTAL ACCELERATION:
Description:
No. of Gaps/turn 4 dE/dn(max) 0.200 MeV/q
Voltage (max) 0.05 MV Harmonic f_{rf}/f_{ion} 4
Freq 65 MHz Power in(max) 0.025 MW
Stability: Phase Voltage

OTHER CAVITIES (Flattopping or otherwise):
Description:
Region of Influence: R_{min} cm R_{max} cm
No. of Gaps/turn dE/dn(max) MeV/q
Voltage (max) MV Harmonic f_{rf}/f_{ion}
Freq MHz Power in(max) MW
Stability: Phase Voltage

VACUUM SYSTEM

OPERATING PRESSURE: 5×10^{-7} Torr

PUMPS: (No. and type) 3 Oil pumps
2 cryo pumps

ION SOURCE(S)

	Type	Intensity (mA)	@ $\varepsilon_n = \beta\gamma\varepsilon$ (π mm mrad)	Ion Species
(a)	Multicusp	2		H^-
(b)				
(c)				
(d)				

INJECTION SYSTEM

H^- Efficiency 20 %

EXTRACTION SYSTEM

P Efficiency 99 %

CHARACTERISTIC BEAMS

Accelerated Ions	E/A (MeV/u)	Current (part μA) Internal	External
(a) H^-	30	375	371
(b)			
(c)			
(d)			

Secondary Particles	E (MeV)	part/sec
(a)		
(b)		
(c)		

EXTRACTED BEAM PROPERTIES:
For 371 μA of 30 MeV/u P ions
$\Delta E/E$ % $\Delta\phi$ °rf
$\varepsilon_n = \beta\gamma\varepsilon$ x 10 π mm mrad z 5 π mm mrad

FACILITIES FOR RESEARCH

SHIELDED AREA: Fixed: m^2 Moveable m^2
Target Stations: No. Served At Same Time:
MAGNETIC SPECTROMETERS:
OTHER FACILITIES:

REFERENCES/NOTES

(a) 0-7803-1203-1/93, IEEE - pp 1721-1723
(b)

PLAN VIEW OF FACILITY, COMMENTS