ENTRY NO. CM15 Date 30.06.92
Machine Name MGC-20
Manufacturer D.V.Efremov Institute
Address 189631 St.-Petersburg, Russia
Tel (812) 2655682 Telex
Fax (812) 2657880 EMAIL
In Charge: Reported by: Vorogushin

HISTORY AND STATUS
DATES: Design 1970 First Machine 1974
SALES: No. Sold/Operational / Currently Available
COST: Accelerator Facility

MAGNET
POLE PARAMETERS:
Diameter 103 cm $R_{extract}$ 45 cm R_{inject} cm
HILL PARAMETERS: Gap (min) 7.2 cm B_{max} 1.62 T
(@ 1.2 10^5 AT) Gap (max) 7.2 cm B_{min} T
VALLEY PARAMETERS: Gap (min) 12.0 cm B_{max} 1.02 T
(@ 1.2 10^5 AT) Gap (max) 12.0 cm B_{min} T
AVERAGE FIELD: $< B >_{min}$ 0.65 T $< B >_{max}$ 1.48 T
NUMBER OF SECTORS: compact/separated 3 /
sector angle deg. spiral (max) 35 deg.
FIELD TRIMMING: Trim Coils 4 pairs
Harmonic Coils 2 sets
Other
CURRENT: Main Coils 420 Amps Stability 0.01%
Trim Coils 15 Amps Stability 0.1%
Stored Energy (cryogenic) MJ
WEIGHT: Iron 24 t Conductor 1.2 t
ION ENERGY: Bending Limit E/A = q^2/A^2 MeV/u
Focussing Limit E/A = q/A MeV/u

ACCELERATION SYSTEM
FUNDAMENTAL ACCELERATION:
Description: 2 dees 180-140 deg
No. of Gaps/turn 2 dE/dn(max) 0.12 MeV/q
Voltage(max) 0.030 MV Harmonic f_{rf}/f_{ion} 1.3
Freq 8-24 MHz Power in(max) 0.05 MW
Stability: Phase ± 5 deg Voltage 0.1%

VACUUM SYSTEM
OPERATING PRESSURE: 10^{-5}
PUMPS: No. and type 3 deffusion pumps

ION SOURCE(S)

	Type	Intensity (mA)	@ $\epsilon_n = \beta\gamma\epsilon$ (π mm mrad)	Ion Species
(a)	hot filament Levingstone p.d.			$He^-3(++)$
(b)				

INJECTION SYSTEM
Efficiency %

EXTRACTION SYSTEM
electrostatic deflection Efficiency 50 %

CHARACTERISTIC BEAMS

Accelerated Ions	E/A (MeV/u)	Current(part. μA) Internal	External
(a) P, d	18 5	200	500
(b) $He^-3(++)$	5, 8	50	25

EXTRACTED BEAM PROPERTIES:
For 50 μA of 18 MeV/u P ions
$\Delta E/E$ 0.3 % $\Delta\phi$ °rf
$\epsilon_n = \beta\gamma\epsilon$ x 50 πmm mrad z 15 πmm mrad

REFERENCES/NOTES
(a)
(b)

ENTRY NO. CM16 Date July 6, 1992
Machine Name U-250
Manufacturer D.V. Efremov Institute
Address 189631 St. Petersburg, Russia
Tel (812) 2655682 Telex
Fax (812) 2657880 EMAIL
In Charge: V. Glukhikh Reported by: Vorogushin/Muminov

HISTORY AND STATUS
DATES: Design 1991 First Machine 1994
SALES: No. Sold/Operational / Currently Available
COST: Accelerator Facility

MAGNET
POLE PARAMETERS:
Diameter 250 cm $R_{extract}$ cm R_{inject} cm
HILL PARAMETERS: Gap (min) 2.6 cm B_{max} 2.4 T
(@ AT) Gap (max) 4.5 cm B_{min} T
VALLEY PARAMETERS: Gap (min) 15 cm B_{max} T
(@ AT) Gap (max) 15 cm B_{min} 1.4 T
AVERAGE FIELD: $< B >_{min}$ 1.6 T $< B >_{max}$ 1.9 T
NUMBER OF SECTORS: compact/separated 4 /
sector angle 45 deg. spiral (max) - deg.
FIELD TRIMMING: Trim Coils 7 x 4
Harmonic Coils
Other
CURRENT: Main Coils 900 Amps Stability 10^{-5}
Trim Coils 20 Amps Stability 0.01
Stored Energy (cryogenic) MJ
WEIGHT: Iron 385t Conductor 5.4t
ION ENERGY: Bending Limit E/A = 204 q^2/A^2 MeV/u
Focussing Limit E/A = q/A MeV/u

ACCELERATION SYSTEM
FUNDAMENTAL ACCELERATION:
Description: 2 dees 42 deg
No. of Gaps/turn dE/dn(max) MeV/q
Voltage(max) 0.075 MV Harmonic f_{rf}/f_{ion} 1,2,3,4
Freq 8-19 MHz Power in(max) 0.150 MW
Stability: Phase ± 1 deg Voltage 0.1%

VACUUM SYSTEM
OPERATING PRESSURE: 10^{-6}
PUMPS: No. and type 2 diff. pumps 10m/sec

ION SOURCE(S)

	Type	Intensity (mA)	@ $\epsilon_n = \beta\gamma\epsilon$ (π mm mrad)	Ion Species
(a)	pig	600	30	H_2^+
(b)	heavy ions		to 84Kr +8	

INJECTION SYSTEM
axial inter injection Efficiency %

EXTRACTION SYSTEM
stripping foil, electrostatic DEFL Efficiency 50-95 %

CHARACTERISTIC BEAMS

Accelerated Ions	E/A (MeV/u)	Current(part. μA) Internal	External
(a) H_2^+, d, H_3^+, H_4^+	40-12,5	500	
(b) $^{12}C^{+3}$ - $^{84}Kr^{+8}$	12,5-1,9	5-100	

EXTRACTED BEAM PROPERTIES:
For 500 μA of 40 MeV/u H_2^+ ions
$\Delta E/E$ 0,1-1 % $\Delta\phi$ °rf
$\epsilon_n = \beta\gamma\epsilon$ x 50 πmm mrad z 20 πmm mrad

REFERENCES/NOTES
(a)
(b)