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CC-18/9M Cyclotron System

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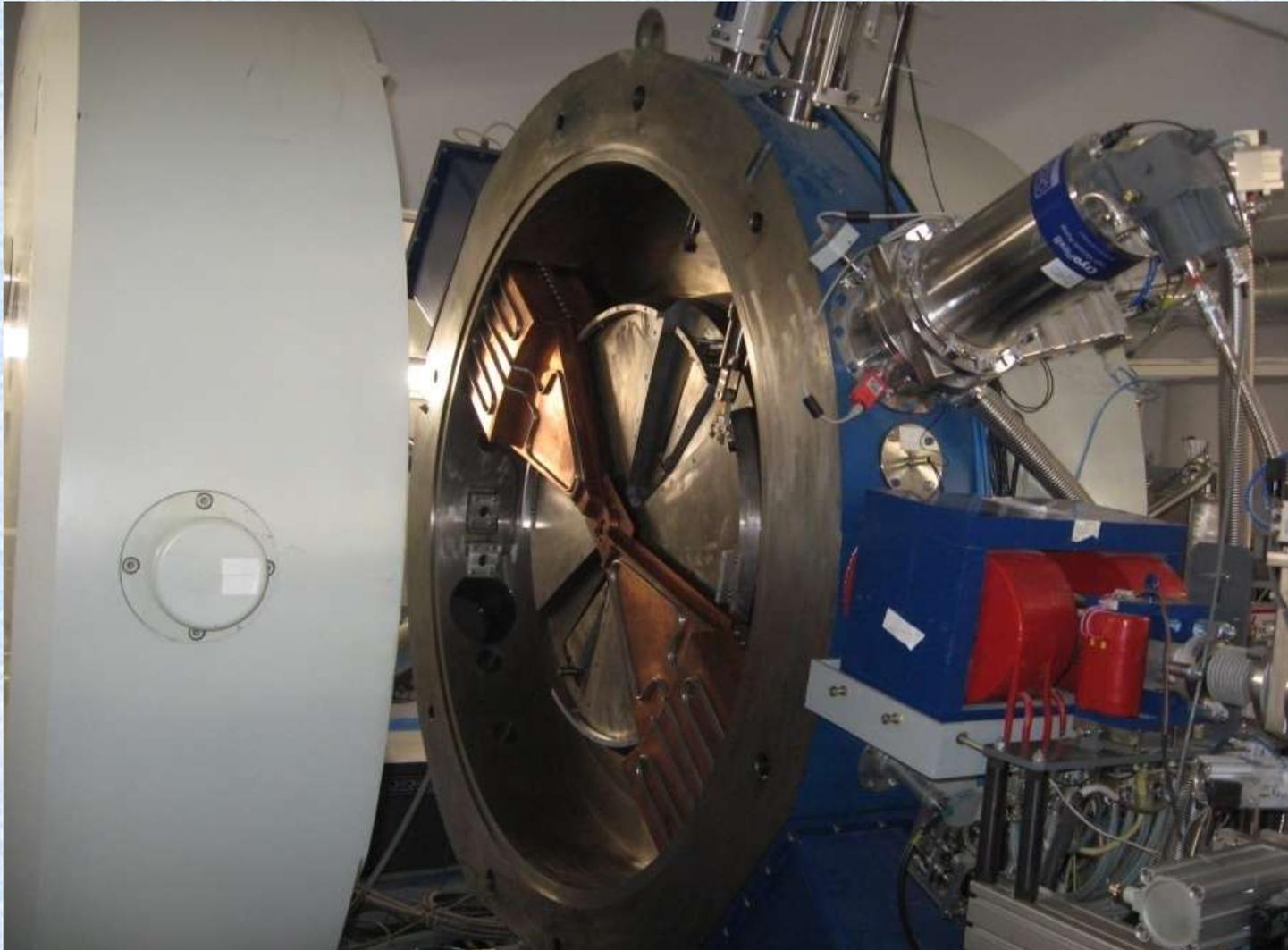
The Main Technical Characteristics of Compact Cyclotrons CC-18/9 and CC-18/9M

Technical Characteristics	Cyclotron model	
	CC-18/9	CC-18/9 M
Type of accelerated ions	H ⁻ /D ⁻	H ⁻ /D ⁻
Type of extracted ions	H ⁺ /D ⁺	H ⁺ /D ⁺
Beam energy, MeV	18/9	12...18/6...9
Beam current, μA	100/50	150/70
Power consumption, kW	70	70
Shielding magnet weight, t	20	25
Frequency of RF oscillations, MHz	38,2	40,68
Output power of the RF power supply system, kW	25	25
Radionuclides produced	Ultra short-lived: C-11, N-13, F-18, O-15 and short-lived: Rb-81, I-123, In-11, Tl-201, Ga-67, Y-87, etc.	

The CC-18/9M cyclotron in a cyclotron hall with radiation shielding



The CC-18/9M cyclotron with open vacuum chamber



Target station rack

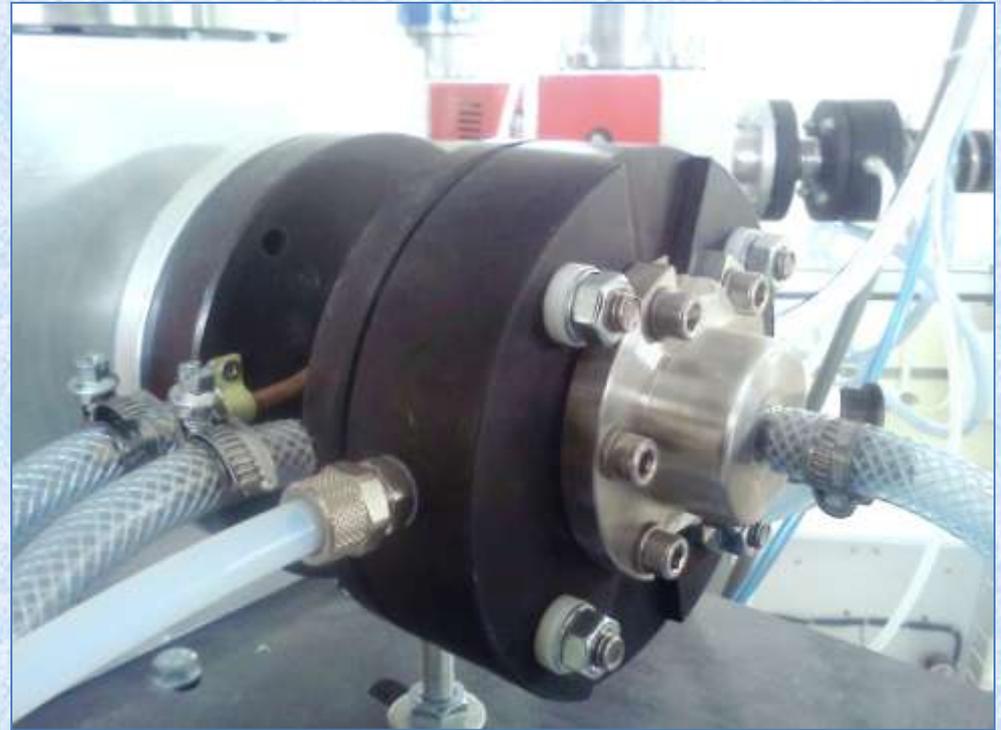


Target devices with loading units



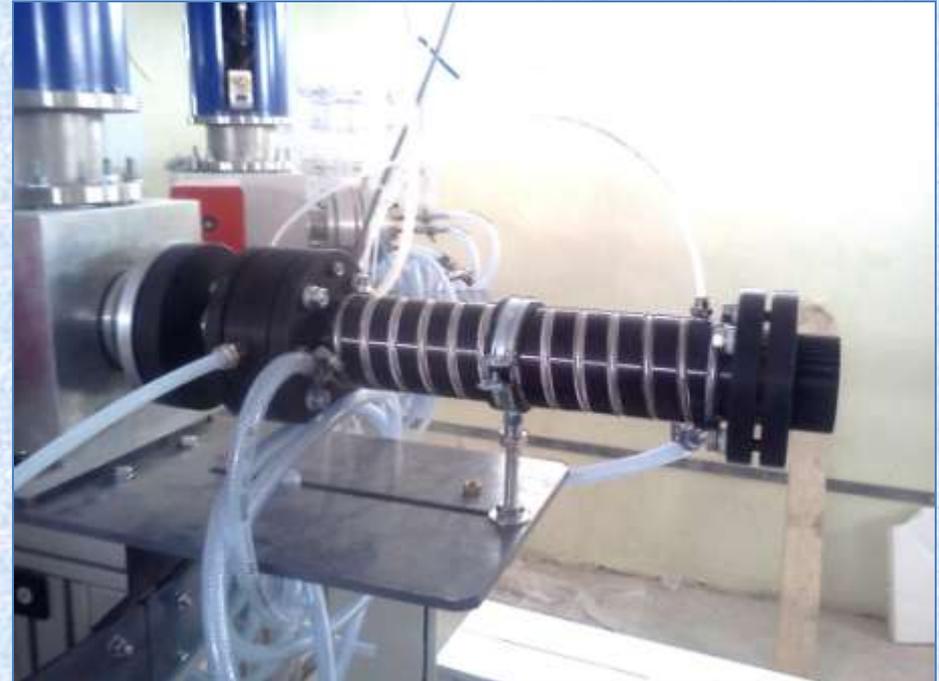
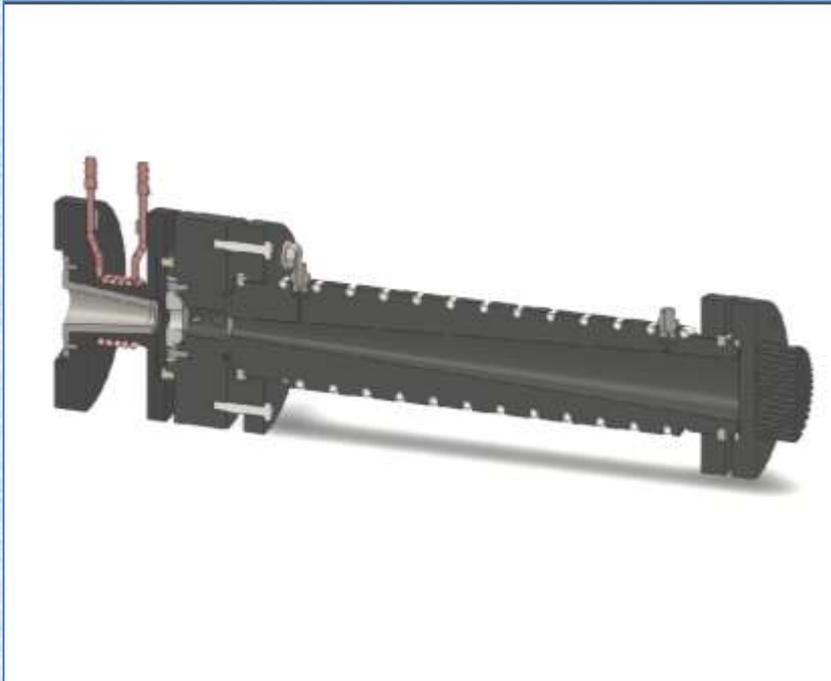
Target Device for Production of F-18 Radionuclide

F-18 is produced by the $^{18}\text{O}(p,n)^{18}\text{F}$ nuclear reaction under irradiation of the water enriched with ^{18}O isotope (95%) with 12–18 MeV protons.



Target Device for Production of C-11 Radionuclide

C-11 radionuclide is produced by the $^{14}\text{N}(p,\alpha)^{11}\text{C}$ nuclear reaction under irradiation of gaseous nitrogen with protons.



To date, the adjustment works have been finished, and the design range of proton energy has been attained. Final acceptance tests with extraction of proton beams to targets have been performed. Tests of the target system with production of F-18 and C-11 radionuclides and their transport to modules of radiopharmaceuticals' synthesis have been carried out.

Information on the target system and promising results of its practical approval are given in a separate report to be presented at this conference.

THANK YOU FOR ATTENTION