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Heavy ion injector based on ECR ion source for RISP linac

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The injector for the main driver linac of the Rare Isotope Science Project (RISP) in Korea has been developed to supply heavy ions up to uranium which will be used to inflight fragmentation (IF) system. The injector has critical components, composed of superconducting electron cyclotron resonance (ECR) ion sources, a radio frequency quadrupole (RFQ), and matching systems for low and medium energy beam. Physical and engineering design of these critical components was performed. We have built superconducting magnets for ECR ion source and a prototype of one segment of the RFQ structure for the following purposes to develop a fabrication technology to satisfy the specifications, to demonstrate stable operation in wide dynamic range, and to compare the experiment with simulation results for the design.