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Electrostatic septa development at FNAL

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Mu2e experiment requires 8 GeV proton beam to study rare neutrinoless decays of a muon to an electron. The delivery of 8 spills every 1.4 seconds with 1E12 protons per spill is provided by means of resonant slow extraction. Two electrostatic septa (ESS) have been designed to facilitate the slow extraction. Each septum will have a cathode that is energized to a nominal voltage of 100kV with a gap of 14m to achieve a 2mrad kick. ESS1 is the leading septum with 544 foil strips and one diffuser foil with a cathode length of 133.6cm. ESS2 is the trailing septum with 673 foils with a cathode length 166.4cm. The mechanical design, assembly, conditioning, and installation of the ESS will be discussed in detail.

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