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The new ion-implantation chamber in the General Low Mass (GLM) area of ISOLDE.

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A new ion-implantation chamber has been commissioned at the General Low Mass (GLM) beamline of ISOLDE to improve operational efficiency and safety in handling radioactive ion beams. Replacing the former single-chamber system, the new setup features a dual-chamber load-lock design comprising an implantation chamber and a loading/unloading chamber, separated by a DN200 gate valve. Each chamber is evacuated by an independent turbomolecular pump (HiPace 700 and 1200), allowing rapid evacuation to 1E-6 mbar within minutes without relying on the beamline vacuum. The system integrates computer-controlled stepper motors that automate sample transfer, collimator alignment, and Einzel-lens focusing, enabling precise and reproducible implantation conditions. This configuration maintains continuous high-vacuum integrity during sample exchange, reduces manual intervention, and minimizes radiological exposure to users. The upgraded chamber represents a significant advancement in the automation, throughput, and safety of radioactive isotope implantation experiments at ISOLDE.

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