

7 - 18 Construction of Demonstration Section of HIAF-BRing

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The High Intensity heavy-ion Accelerator Facility (HIAF) has large scale and multiple systems, which faces many problems such as cross process interfaces, complex construction and installation, high quality requirements, and limited time. Although the overall design of the machinery has carried out a lot of simulated assembly design as well as the whole system and professional BIM (Building Information Modelling) modeling design of HIAF accelerator complex, due to uncontrollable factors such as equipment processing and construction errors, it will bring unpredictable problems to the installation at IMP (Hui Zhou campus). Especially the construction of the last-meter line is the key link restricting the progress. In 2022, the HIAF project team decided to build the BRing (Booster Ring) demonstration section in Tianshui Electric Drive Research Institute Group Co., LTD, which was built according to the actual line installation. The total length of the beam line was about 26 meters, including 4 sets of fast pulse dipole magnets, 2 sets of quadrupole magnets, 2 sets of corrector magnets, 2 sets of sextupole magnets, the vacuum system, beam diagnostic system, as well as the ancillary system of the accelerator, *etc.* Figure 1 shows the layout of BRing demonstration section. According to the three-dimensional collaborative design, the pipeline connection process scheme is optimized, the connection of the final “one-meter line” is completed, the detailed BOM (Bill Of Material) is issued, and the assembly design is adopted to improve the installation efficiency and reduce the on-site production process.

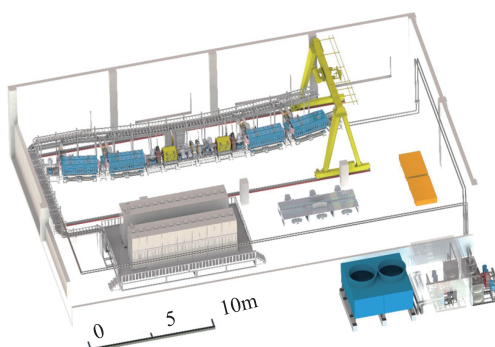


Fig. 1 (color online) Layout of the BRing demonstration section.



Fig. 2 (color online) Photo of the installation site of BRing process sample section.

At present, the equipment of the demonstration section has been aligned and installed with high standard and quality, and the joint testing of the various systems is being carried out. Figure 2 shows the installation site of BRing process sample section. In the process of installation, we constantly improve the quality, formulate the installation process, and summarize experience. The installation process and standardization have been completed, which lays a solid foundation for the efficient and rapid installation in Huizhou.