

Air-Pads for Alignment of Heavy Accelerator Components

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The X-ray SASE-FEL project (SCSS project) is under development at SPring-8/RIKEN. In order to move and align the heavy accelerator components, air-floating pads are used. The base table of the buncher/pre-accelerator beamline (about 2 ton) has four pads under the table. The high voltage tank of the electron gun (about 3 ton) also has same pads. When air is supplied to each pad, the air pressure floats the table and tank over the flat surface of the grinded concrete floor. Therefore, we can easily slide and rotate them by hand along the beamline. Air pads are also installed under the high voltage tank of the klystron (about 2.5 ton). By sliding the klystron, we can connect to / disconnect from the accelerator through the waveguide.

Last year we constructed the 250 MeV accelerator test facility in SPring-8. Then we used the air pad system. The 60 m accelerator beamline was aligned within 100 μm accuracy. In this presentation, the concept, design and the test results of the air-pad system are discussed.



Test with dummy weight.



The air pads attached under the klystron tank.