Plans of Cavity Production Facility at KEK

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Purpose of Cavity Production Facility at KEK

• Cavity manufacturer in Japan is only MHI at this time.
• High-gradient performance is not enough. Although distinction between fabrication and processing is necessary, fabrication is imperfect (ununiform bead width, pit/bump).
• Cost is high.
• We started collaborative research with other vendors.
• We will work with these vendors (inc. MHI) using this Facility.
• We expect
  - reveal limiting factors of HG performance
  - quick feed back this knowledge to fabrication at vendors
  - establish cavity manufacturing procedure for mass production
  - cost down by competition
Building for Cavity Production Facility
Specification of EBW machine

Committee on EBW (June, 09~)

- Power$_{\text{max}}$
- HV$_{\text{max}}$
- Gun slide
- Rotary device
- Vacuum pump performance
- Monitor
- Software
Scenario for EBW process

1) Establish conditions for EBW. HV, current, beam size, speed, vacuum, inner/outer, positioning/direction, etc. (KEK has 3 experienced people)

2) Establish fabrication procedure of 9-cell cavity.

3) Improve fabrication efficiency.
   - application of multi cavities and/or road lock system.
   - automatic operation system.

4) Demonstrate capability for mass production.
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<td>Building (old PS</td>
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<td>STF Phase 2</td>
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<td>4-9 cavities</td>
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<td>VT</td>
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<td>4 cavities</td>
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<td>5 cavities</td>
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- **EBW machine**
  - 2009: Contract
  - 2011: Installation
  - 2012: Operation

- **Building (old PS energy center)**
  - 2009: Repair
  - 2010: Install machines

- **EBW R&D**
  - 2009: Cavity trial
  - 2010: Manufacture

- **STF Phase 2**
  - 2009: 9 cavities (MHI)
  - 2010: 4-9 cavities
  - 2011: 4 cavities
  - 2012: 4 cavities
  - 2013: 5 cavities

- H. P. Gas check