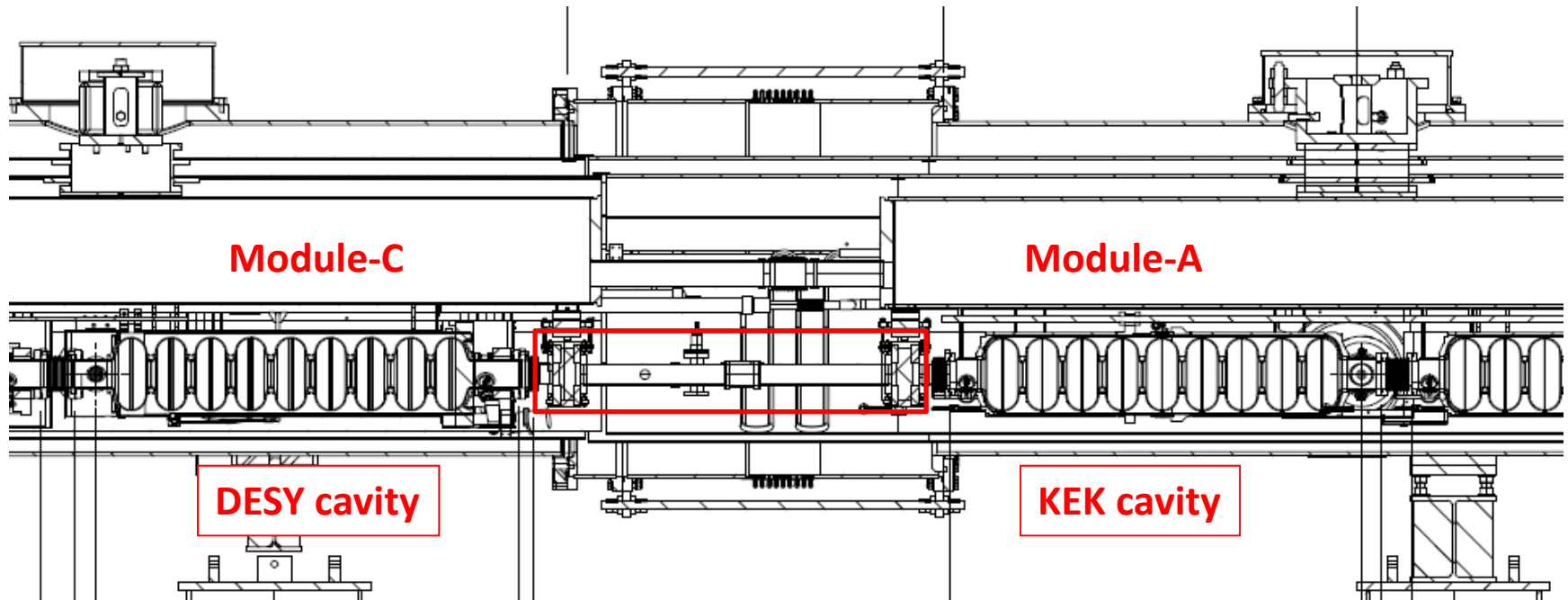


S1-G Module components (20091013)

Norihito Ohuchi

1. Beam pipe and gate valves between Module-A and C
2. Bellow pipe between FNAL cavity and gate valve
3. Input coupler vacuum line
4. Cutting and welding of liquid helium supply pipes
5. Terminal port on the Module-C vessel

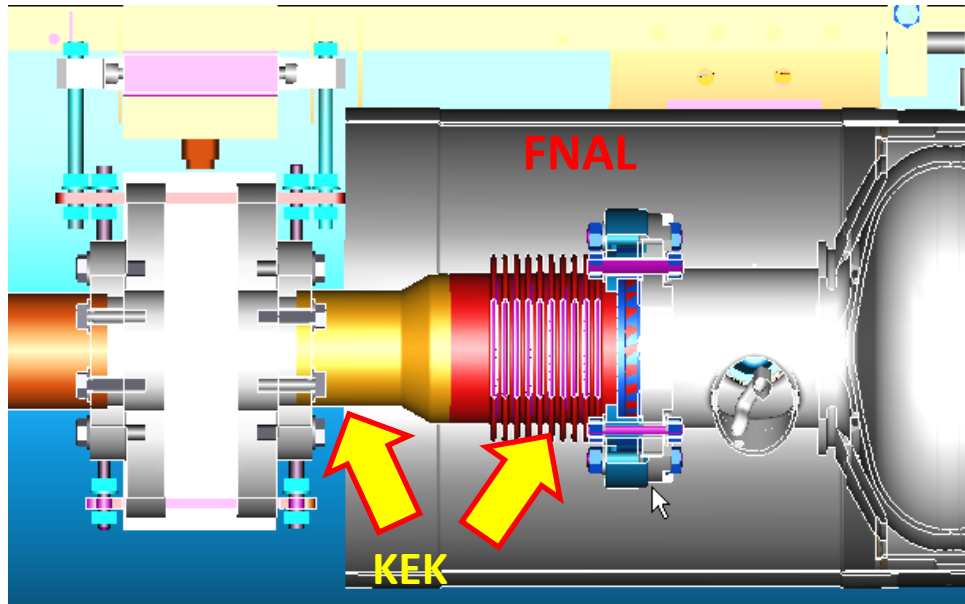
Beam pipe and gate valves between Module-A and C



1. The gate valves and the beam pipe between Module-A and Module-C will not be assembled.
2. The DESY and KEK cavities will be closed with flanges.

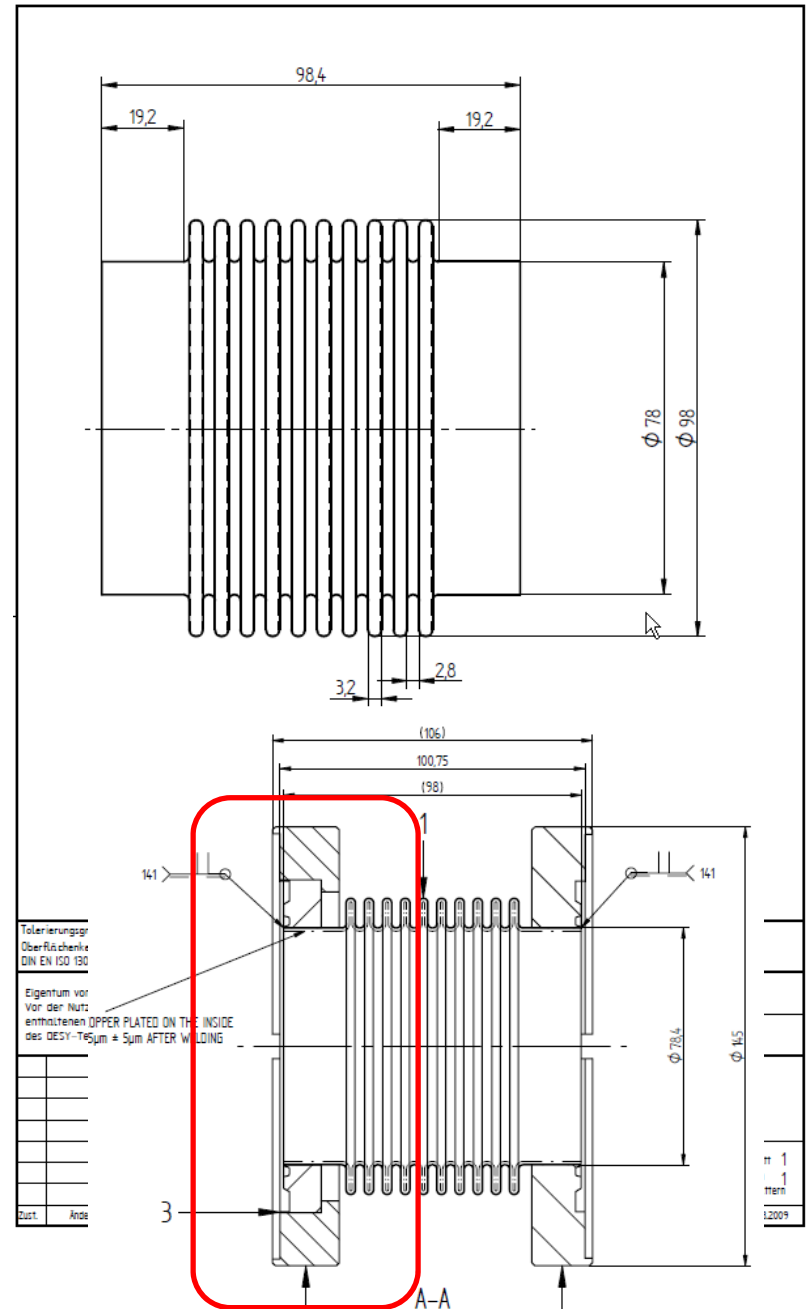
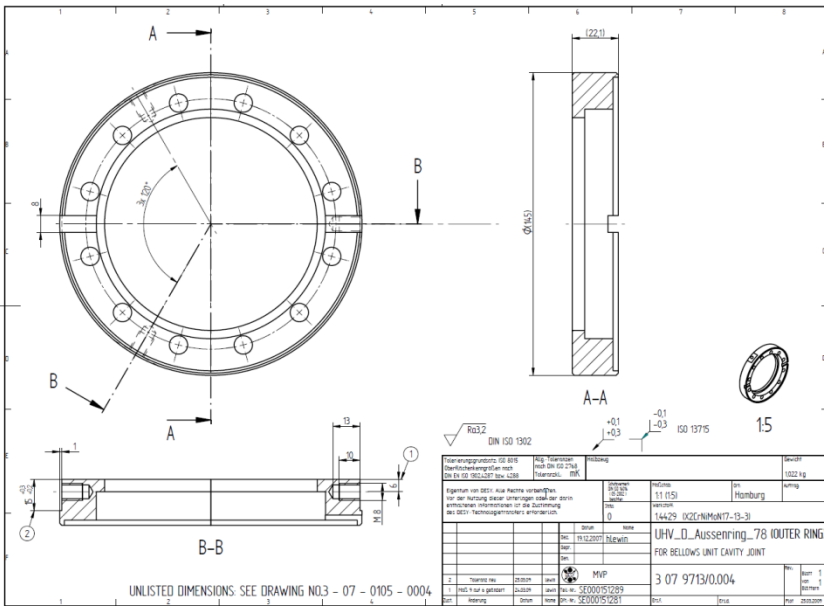
Proposal at ALCPG09:

Bellow pipe between the gate valve and FNAL cavity



- Bellow pipe and the flange of the gate valve : KEK
- Cavity flange : FNAL
- KEK will send the bellow pipe with welded the gate valve flange to FNAL, and FNAL welds the FNAL cavity flange and the KEK bellow pipe.

1. At the internal KEK meeting after the ALCPG09, the KEK cavity group proposed the whole set of the connection bellow pipe with the KEK flange and the FNAL flange.
2. Before assembling the bellow pipe in the KEK clean room, the bellow pipe must be checked as to the performance of vacuum tight against the FNAL flange.
 - **Proposal: Could FNAL supply the flange (blind) on the cavity side and the hexagon Al seal for this checking?**



Vacuum pipe for input couplers



Proposal at ALCPG09

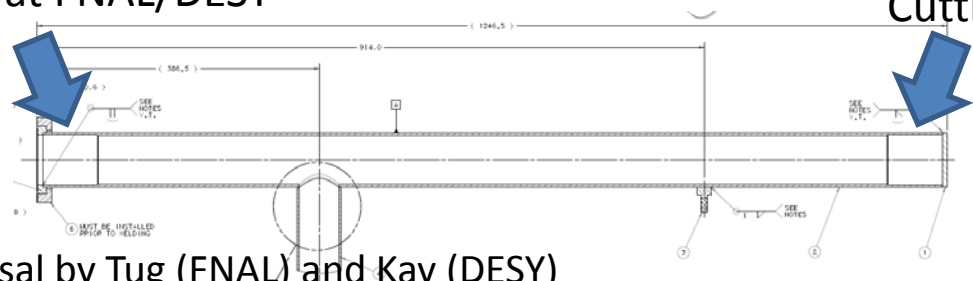
Vacuum pipe for input couplers: **KEK (Cavity group)**

Connection bellows and flanges: DESY and FNAL

In order to manufacture the vacuum pipe, KEK needs the dimensions of the connection flange and the seal to the input coupler bellow flange.

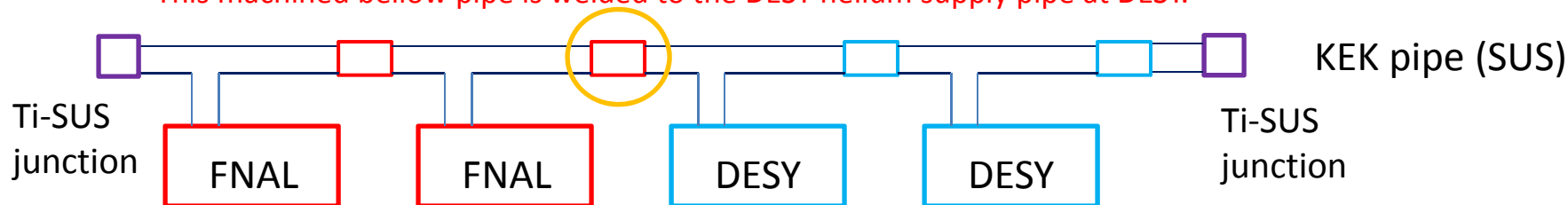
Cutting and welding of liquid helium supply pipes

Cutting at FNAL/DESY

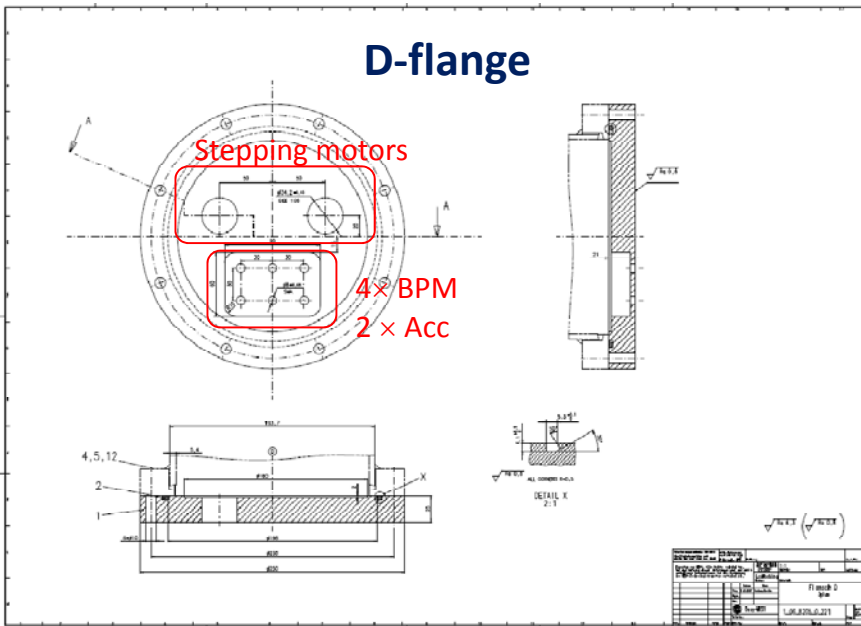
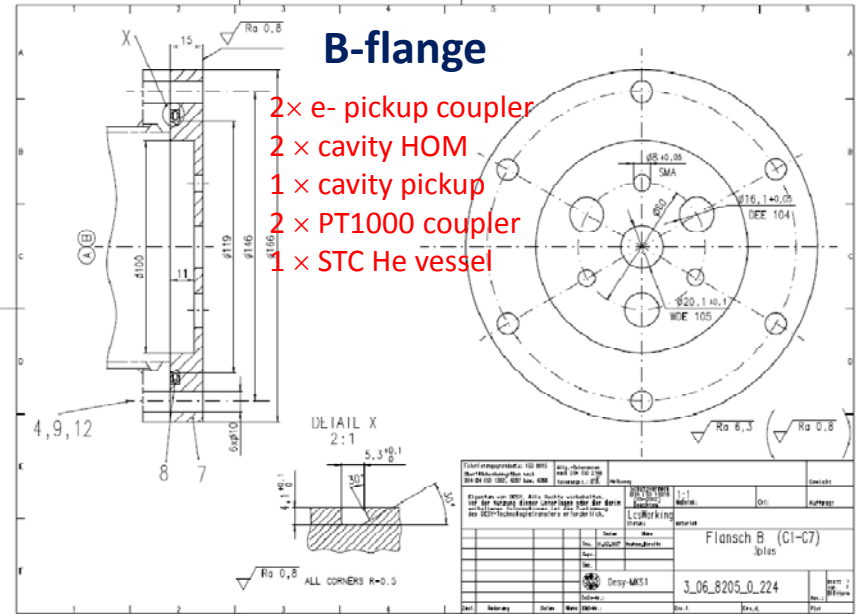
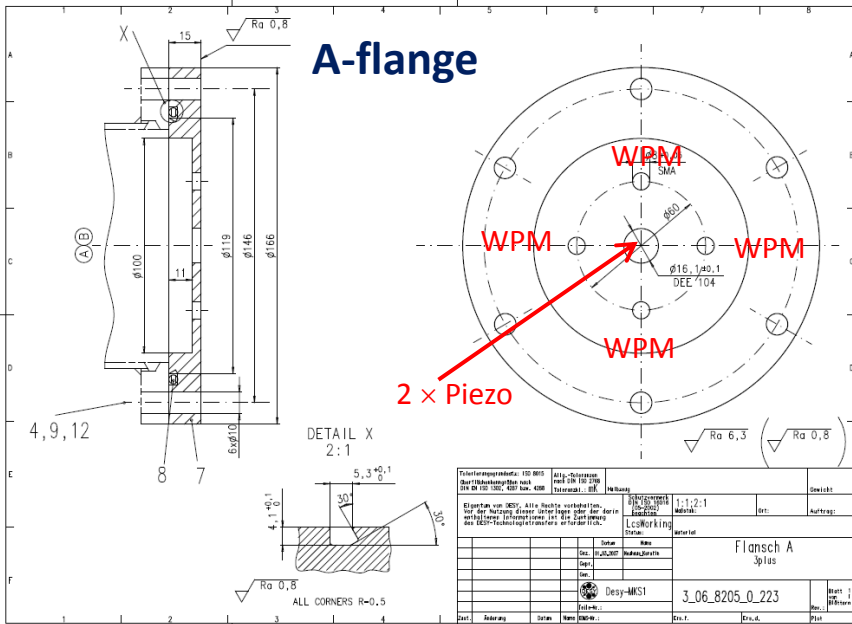


Cutting at FNAL/DESY

- Proposal by Tug (FNAL) and Kay (DESY)
 - DESY can supply the auto welding machine.
 - FNAL and DESY cut the flanges and blind ends of the pipes before sending the cavities to KEK.
 - Welding work by DESY and FNAL at KEK-STF:
 - Proposal by KEK: one set of the bellow pipe and the helium supply pipe are welded at DESY and FNAL. The welding between cavities will be done in KEK.
 - DESY is very busy for the FLASH upgrade activity. No confirmation of welding work at STF by DESY personnel.
 - FNAL ?
- Pipe size
 - FNAL: OD=73.02 mm, DESY: OD=76.1 mm
 - Proposal by DESY (Kay) :
 - DESY machine shop can machine process the FNAL bellow pipe to fit into the DESY supply pipe.
 - Proposal by KEK:
 - This machined bellow pipe is welded to the DESY helium supply pipe at DESY.



Flanges of T-shape port shown by DESY, Kay



For S1-G cryomodule:

- 2 × Piezo
- 2 × e- pickup coupler
- 2 × cavity HOM
- 1 × cavity pickup
- Stepping motor

Thermal sensor cables will go through from another terminals.

No BMP and No Acc (?)

Summary

(Confirmation items)

1. Gate valves and beam pipe between Module A and C
2. Bellow pipe between FNAL cavity and KEK gate valve
3. Input coupler vacuum line
4. Liquid helium supply pipe
5. Terminals of sensor and HOM cables