




Femto pre-acceptance at Finetech December 3rd and 4th



The CMS Femto-machine was accepted

ACCEPTANCE DETAILS

- All standard parts function 
 - Safety appliance, movement, rotation, accuracy, repeatability, force, heating, dispensing, imaging, pattern recognition etc.
- All standard parts within specs 
 - In fact our machine fits the specs very well and is one of the most precise Femtos ever made (concerning position reproducibility and planarity)
- Special CMS parts work, but need small rework 


It was the first live test of:

 - the improved formic acid chamber design
 - the new chip bond tool
 - new technology: first ever made (to our needs)
 - high force, fast heating AND self leveling

The CMS formic acid chamber receives minor rework until installation at DESY

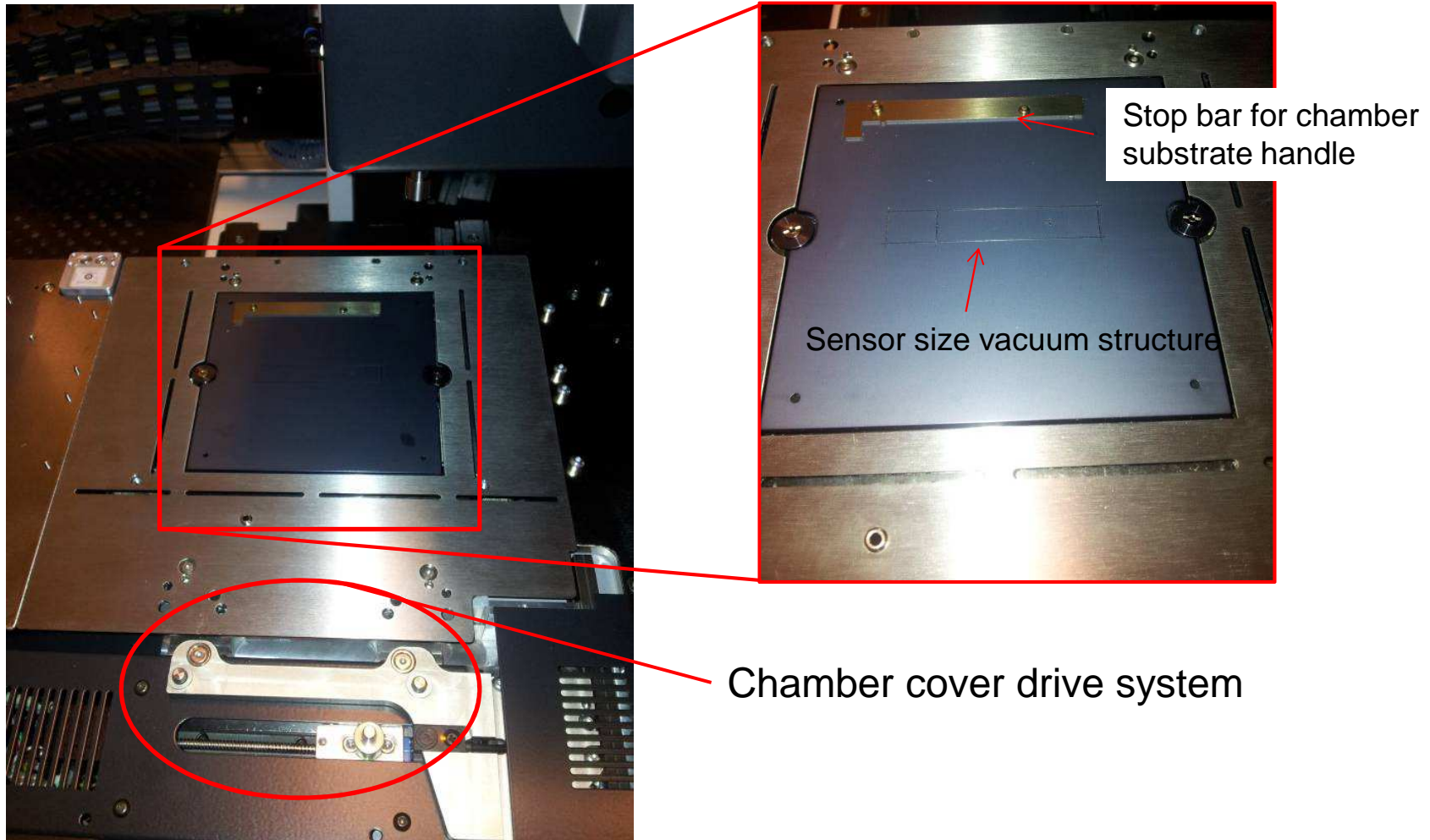
FORMIC ACID CHAMBER ISSUES

The first handling during bonding tests with CMS dummy revealed some issues:

- Moveable chamber cover didn't move far enough to include the whole sensor area in its workspace 
- Annoying software warnings occurred when cover was to move to sensor corners for alignment procedure (limit of x and y movement)
- Handles missing on the chamber cover
- Alignment pins of the substrate handle transport cover stick with the substrate handle due to thermal expansion (100°C)

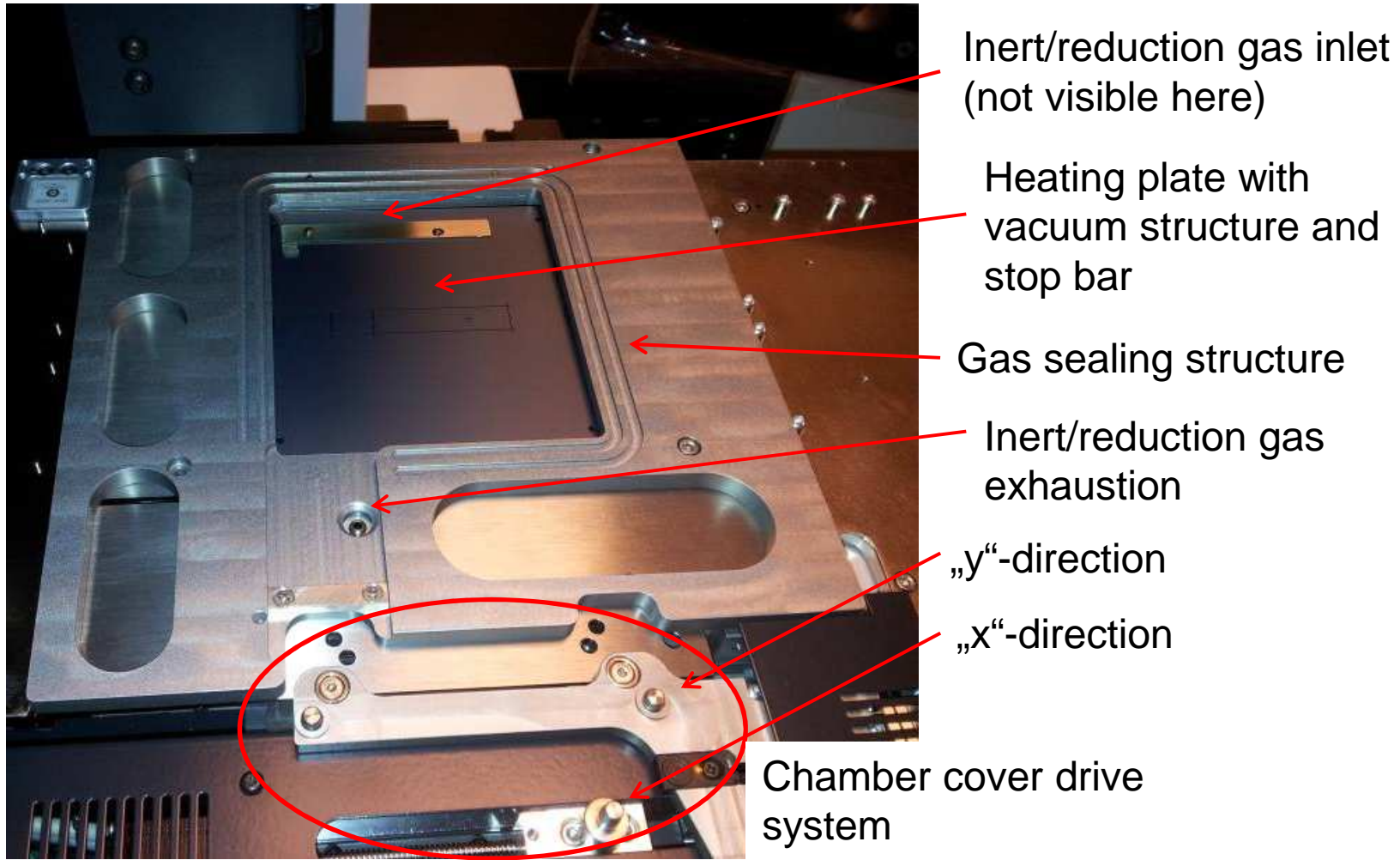
The formic acid chamber was constructed and built to CMS specifications

CMS FEMTO HEATING PLATE PICTURES



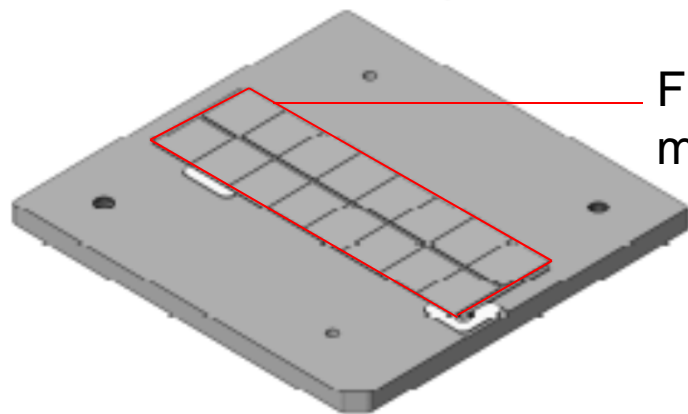
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CMS FEMTO FORMIC ACID CHAMBER / PICTURE OF THE CHAMBER FRAME

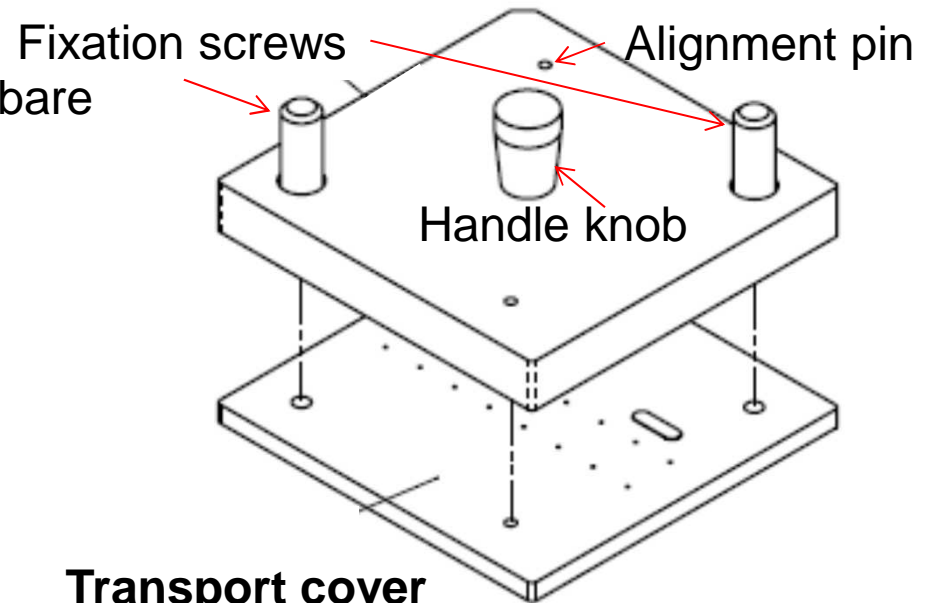


The formic acid chamber was constructed and built to CMS specifications

CMS FEMTO FORMIC ACID CHAMBER / SCHEMATICS OF THE SUBSTRATE HANDLING



Finished bare module



Transport cover

- Screwed to substrate handle
- For (de-)mounting the handle to/from the chamber
- Pocket allows for mounted bare module

Substrate handle inside process chamber

- Constructed to CMS sensor and ROC dimensions
- Vacuum hold below each chip area
- Also usable with single sensors

Also flip cover made for module flipping and handling on probe station

The formic acid chamber was constructed and built to CMS specifications

CMS FEMTO FORMIC ACID CHAMBER / PICTURE OF THE CLOSED CHAMBER

- Cover is moved to position its opening above the current placing position
- During reflow the chip bond tool is lowered to close the opening in the cover

