Project PETER – technical kick-off meeting (summary of 28.01.2018) – MECHANICAL DESIGN

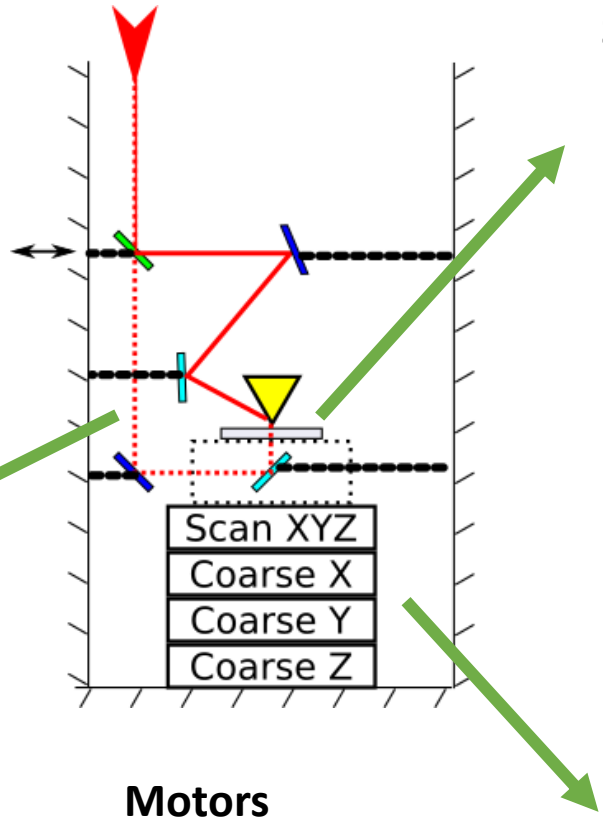
29.01.2018

SPM unit specification:

- Contact and non-contact mode
- Low temperatures - 1,5K
- Scanning piezo unit X, Y axis - 100 x 100 um^2
- Closed loop X, Y, Z manipulator

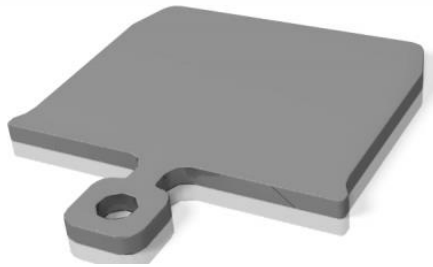
- Tuning fork based sensors, or self sensing
- Fixed sensor position

Concept



Sample

- Maximum sample size (10 x 10 x 1) mm^3
- Preffered standard SHOM sample holder



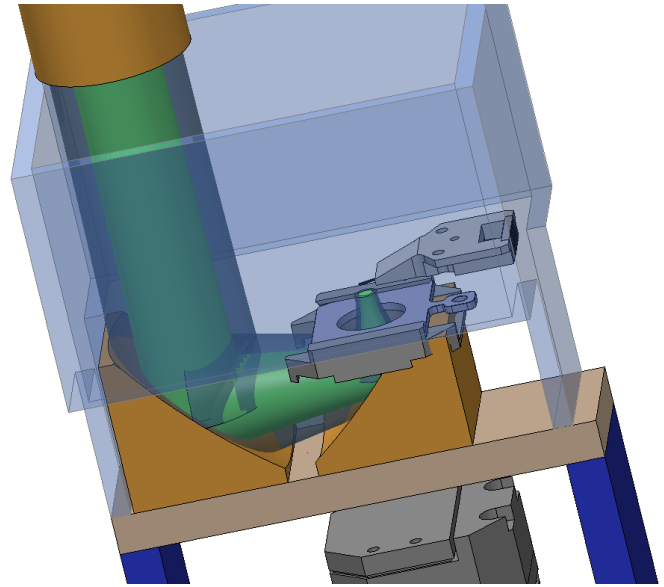
Optical setup

- Focus on transmission (induction) mode (first phase)
- Design for both (reflection and induction)
- Manufacturing only induction

- Mirror size aprox (20 x 20 x 20) mm^3
- Waveguide aprox ø 18 mm – part of hang mechanism

Motors

- Coarse - ANPx101/RES/LT/HV (2 pcs)
- Coarse - ANPz101/RES/LT/HV (1 pcs)
- Scanner - ANSx150/LT/HV (2 pcs)
- Scanner - ANSz100/LT/HV (1 pcs)



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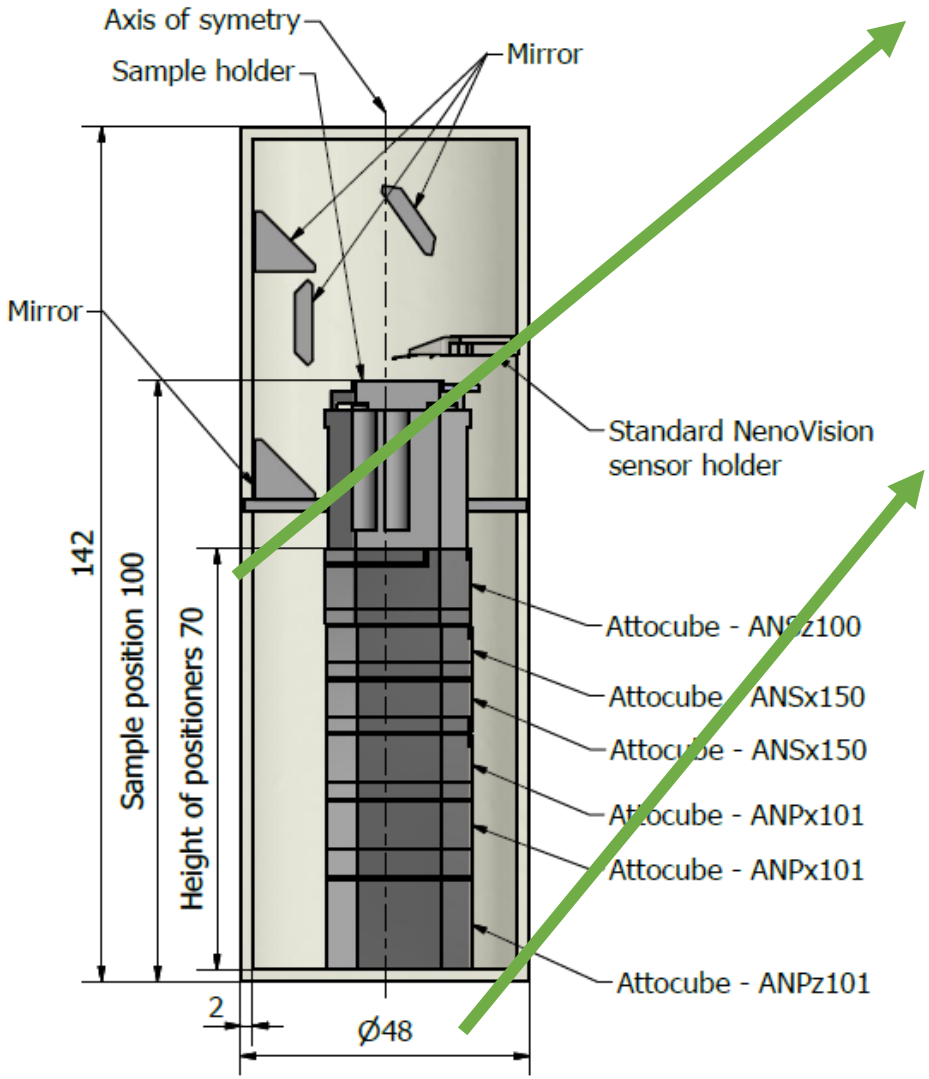
Concept



VTI Size

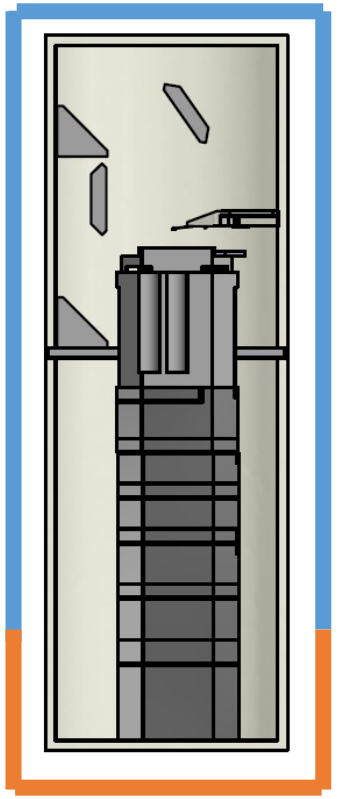
- Distance between bottom part of VTI and sample – min 150 mm
- Cryostat height min 1,4 m

Size

- First focus to fit into VTI 100

Shield

- Additional shield between micriscipe and VTI



Stainless steel
+
Brass/Copper

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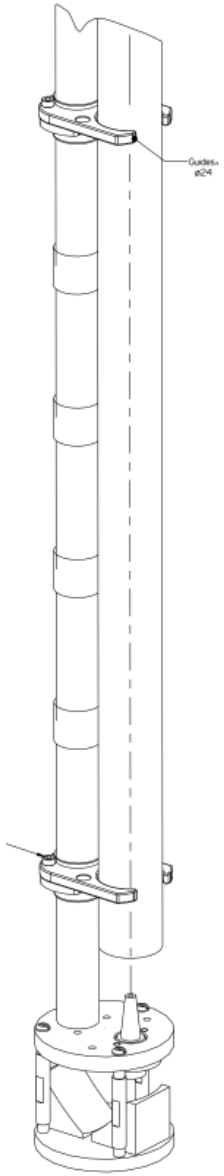
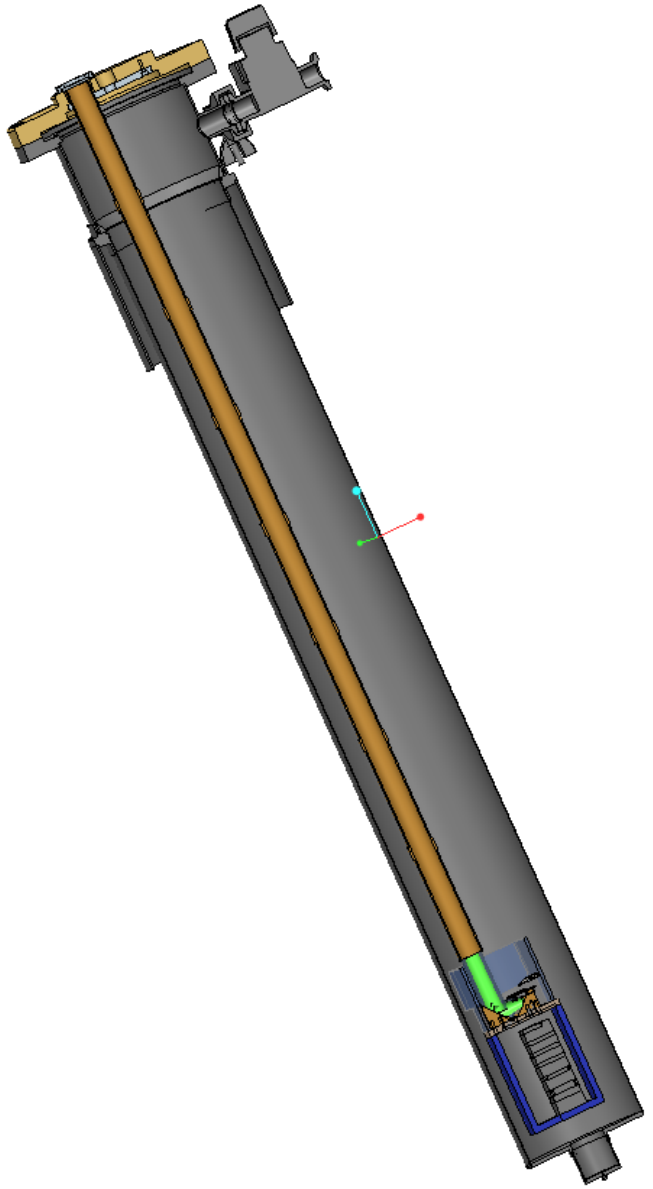


Hang mechanism

- Hang mechanism designed by TK
- Waveguide aprox ø 18 mm – part of hang mechanism
- Top flange designed by TK
  - BUT – information about number of ports and connectors
- Wires – coaxial or twisted pair with low temperature conductivity
- Number of wires > 30(UK)
  - Motors
  - Probe and sample
  - Sensors (temperature)

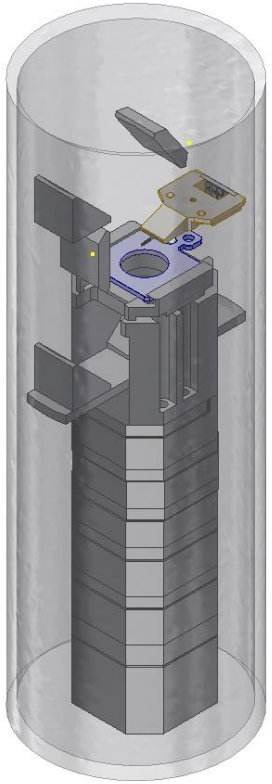
Schedule

- Mechanical design 3 months
- Manufacturing and assembly 3-6 months (UK)



Project PETER – technical kick-off meeting – PRODUCTION AND ASSEMBLY - RESPONSIBILITY

29.01.2018



Responsibility for design production

- Integration to EPR
- Hang mechanism
- SPM head
  - Optical part
  - Mechanical Part
- Electronic part
  - Wires
  - Feedtroughs
  - Connectors
- Software
  - SPM
  - EPR