

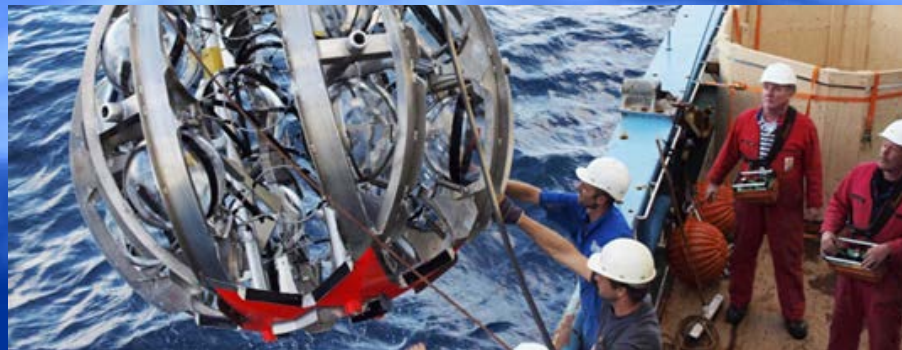


Royal Netherlands Institute for Sea Research

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Recent developments at Royal NIOZ

“A walk through the workshop”



Marck G Smit
INMARTECH 2014
Oregon State University
Corvallis
Nov 2014



Royal NIOZ at a glance:

- On the island of Texel and Yerseke
- Major working areas: North/Mid Atlantic, North Sea, Mediterranean, etc!
- Staff: 400 people
- Founded in 1876



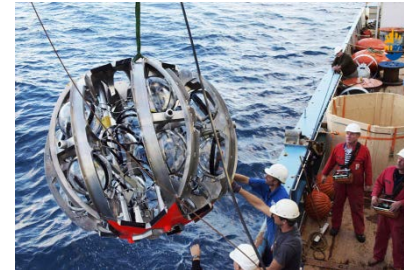
RV Pelagia





Subjects

- Developments in Piston Coring
 - Joint development program with NOC and Ifremer
 - Core splitter for thick liner
 - Joint mill for thick liner
- KM3Net deployment system
- HD stereo photo camera system for Coral reef habitat mapping
- Hi-res stereo water lens video camera system
- Shallow water sedimentation sensor
- Progress in Pressure Retaining water Sampler
- 3D Hi-res Thermistor mooring
- Hi-res temp calibration tank



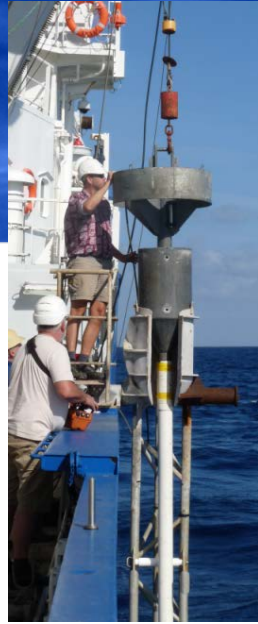


Developments in Piston Coring-1

Joint PC development program.

Partners: NIOZ, NOC & Ifremer

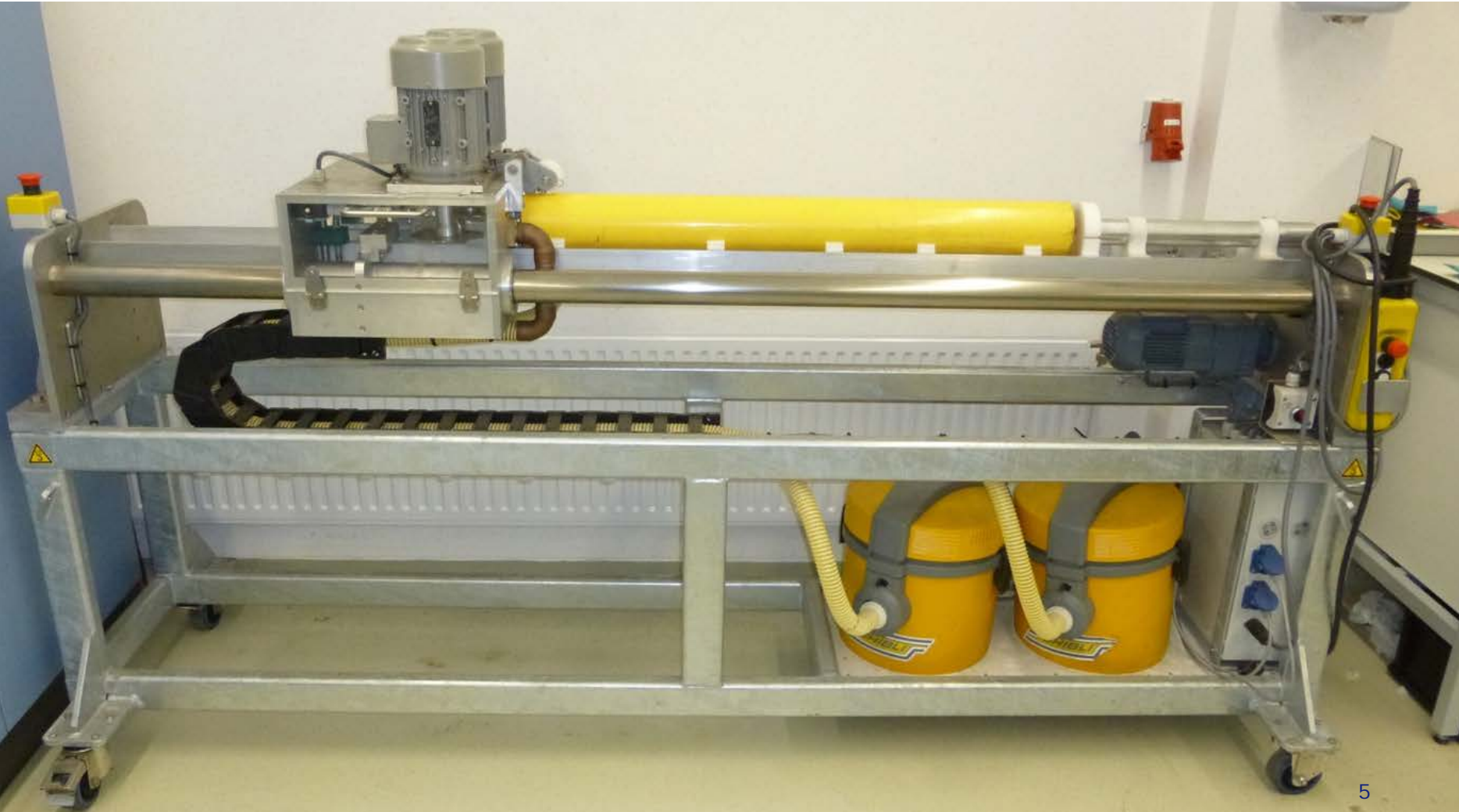
- Joint development/test cruises
- Introduction of Ifremer accelerometer-system (cable and rebound properties)
- Core catcher trials
- Thicker liner resulted in improved performance
- Tools to work with these liners





Developments in Piston Coring-2

NIOZ Core cutter for thick liner (10 mm max)

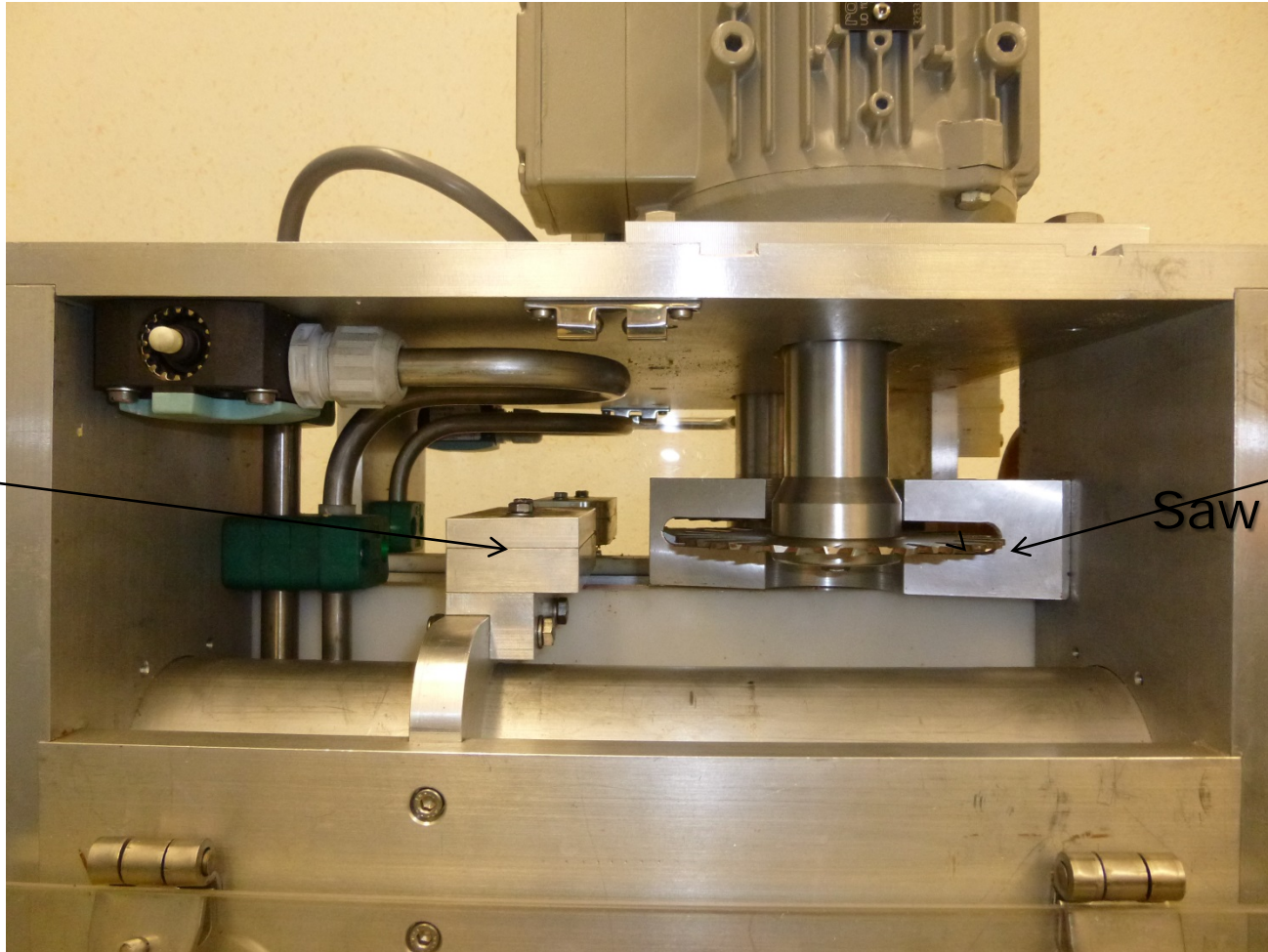




Developments in Piston Coring-3

Combination of sawing and cutting

Stanly
Cutting
Knife



Saw Blade



Developments in Piston Coring-4

NIOZ Core Cutter commercially available at Avaatech





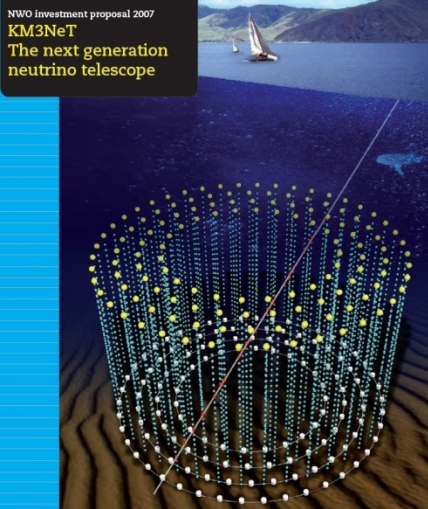
Developments in Piston Coring-5

PC joint mill
for thick liners

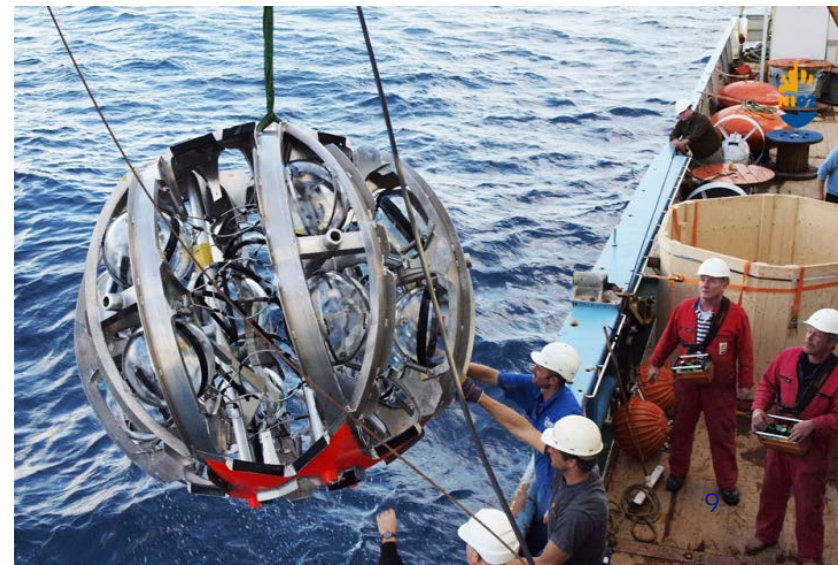
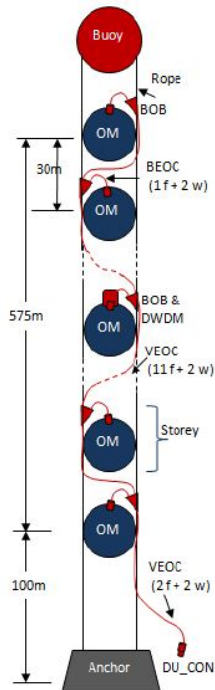




KM3Net deployment system



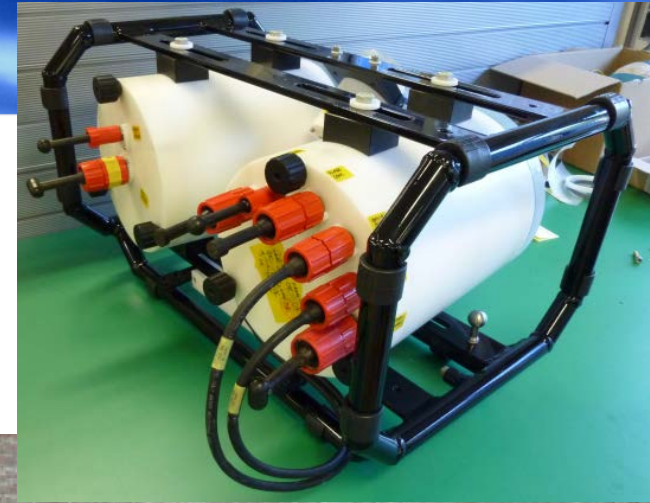
- Approved deployment system
- Successful trials with fibers & copper
- 3 deployment spheres in operation





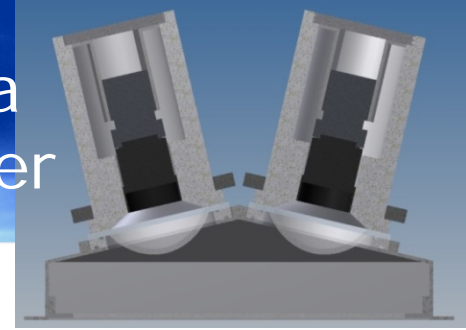
HD Stereo Photo Cam for coral reef habitat mapping

- Vessel or diver operated
- Stand alone or via umbilical
- 100 m depth rating
- 2 x webcam (forw + downw)
- Flash lights
- Laser beam scaling

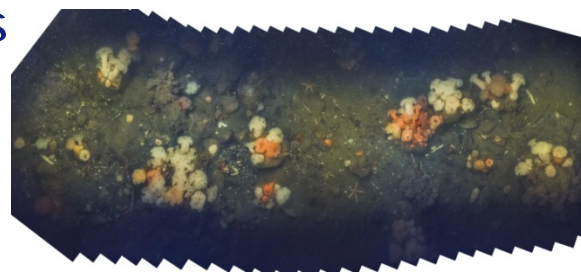
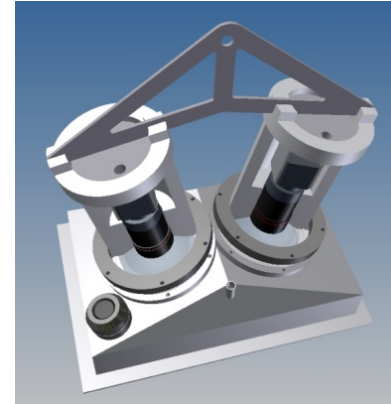




Water lens stereo HD-video camera for seabed imaging in turbid water



- Seabed imaging in turbid water
- Depth rating 300 m
- Opto-electrical cable
- Online video
- LED light system
- Automatic analysis and sizing
- frame size: 4008 x 2672 pixels
- 5 fps
- Allied GE4000C cam's





Shallow water sedimentation sensor



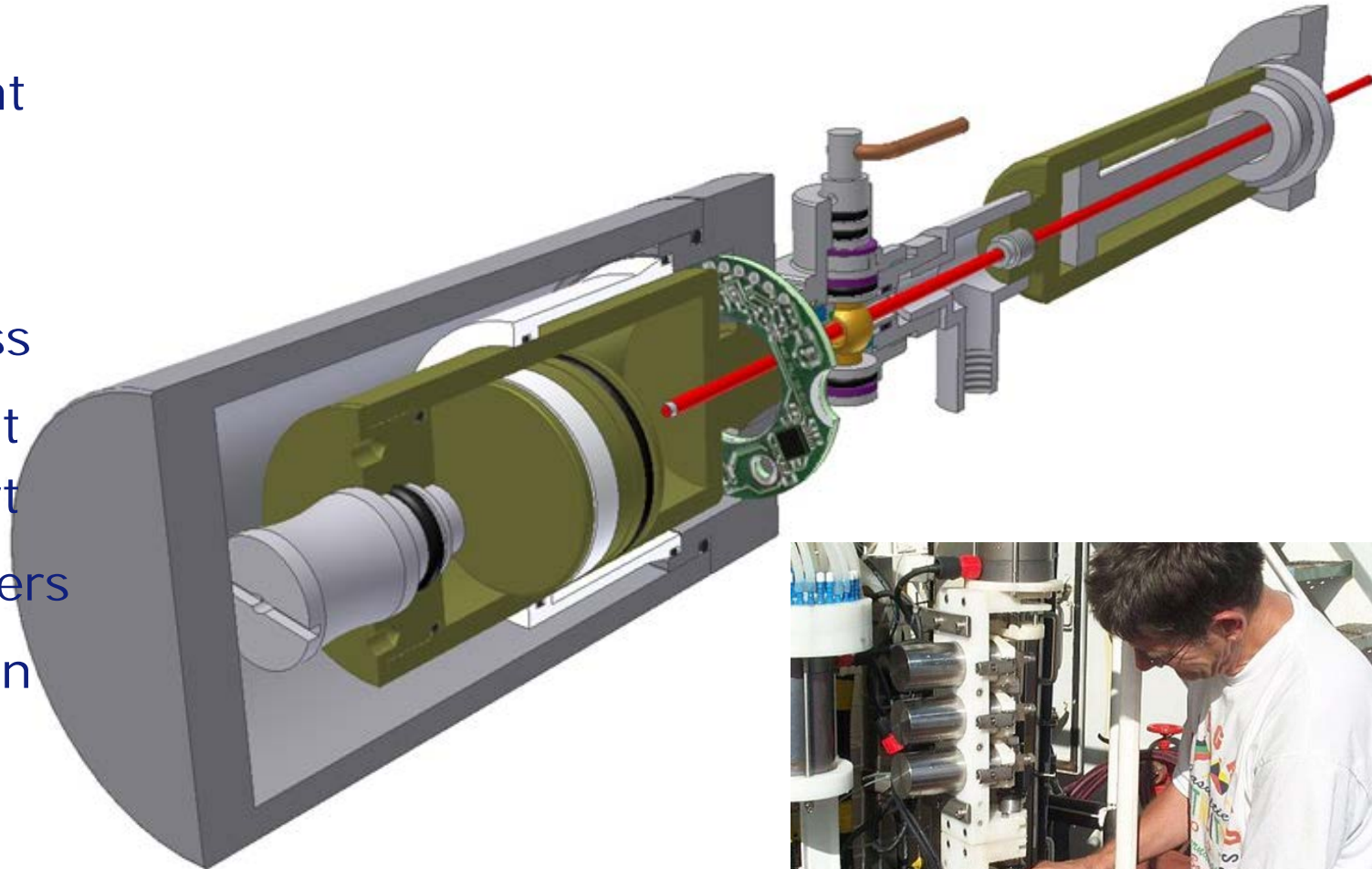
- Shallow water
- Dynamic sedimentation deposit
- Optical
- 2 mm accuracy
- 40 cm range
- 2 months endurance
- Very good results!





High Pressure Sampler – progress microbiological activity

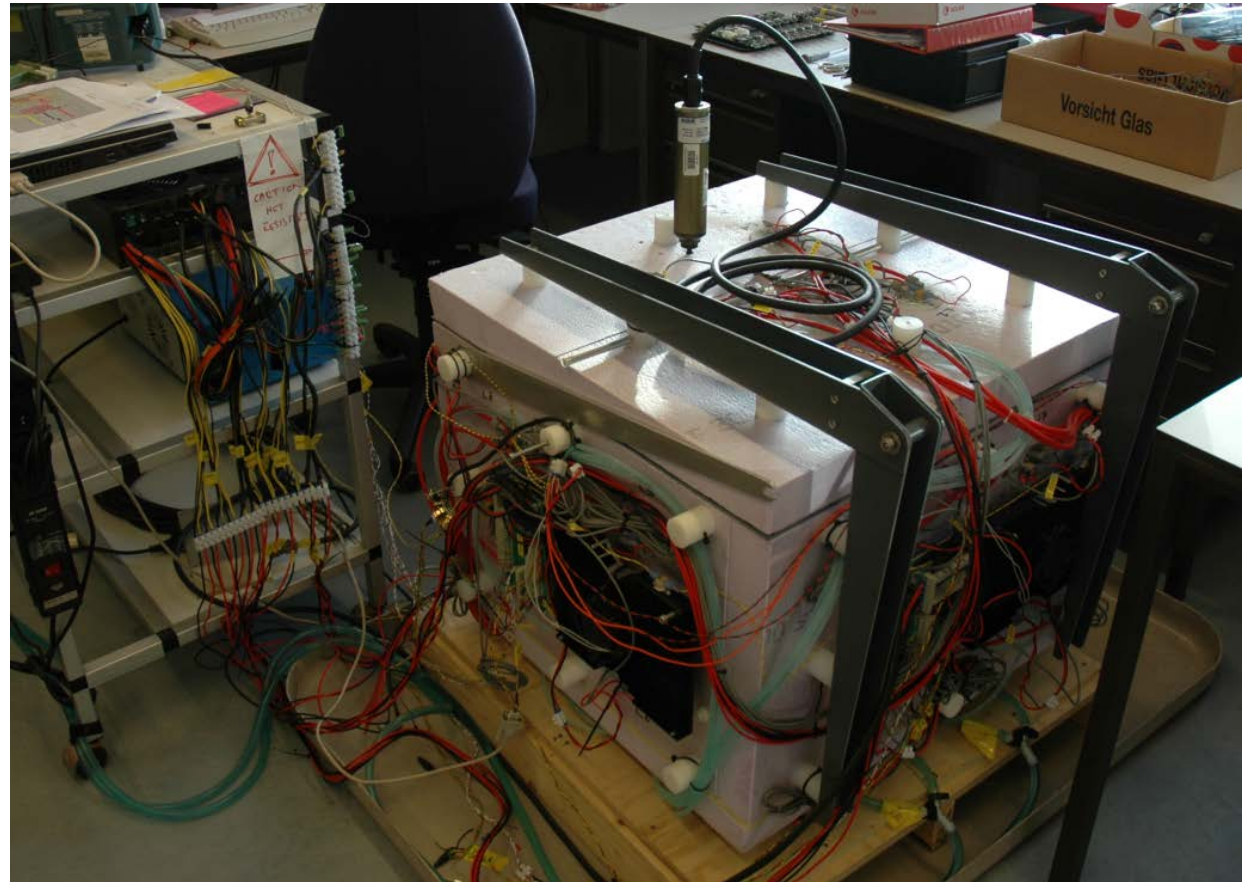
- Ongoing development
- 600 bar
- appr. 5% pressure loss
- Titanium not enough inert
- PolyProp liners
- Collaboration Univ Vienna





Hi accuracy temperature calibration tank

- Calibrating thermistors
- Down to 1 mK ($0,001^{\circ}$ C)
- Volume 80 L
- Range: $- 2^{\circ}$ C – 30° C (28 F – 86 F)





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Questions?