



# Updated Design of TCLD with reduced jaw length

Collimation Upgrade Specification meeting  
18-10-2013

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- **Overview**
- **Preliminary design study**
  - Actuation system
  - Vacuum tank
  - Jaws
  - Cooling system
  - Instrumentation
- **Status**

# OVERVIEW

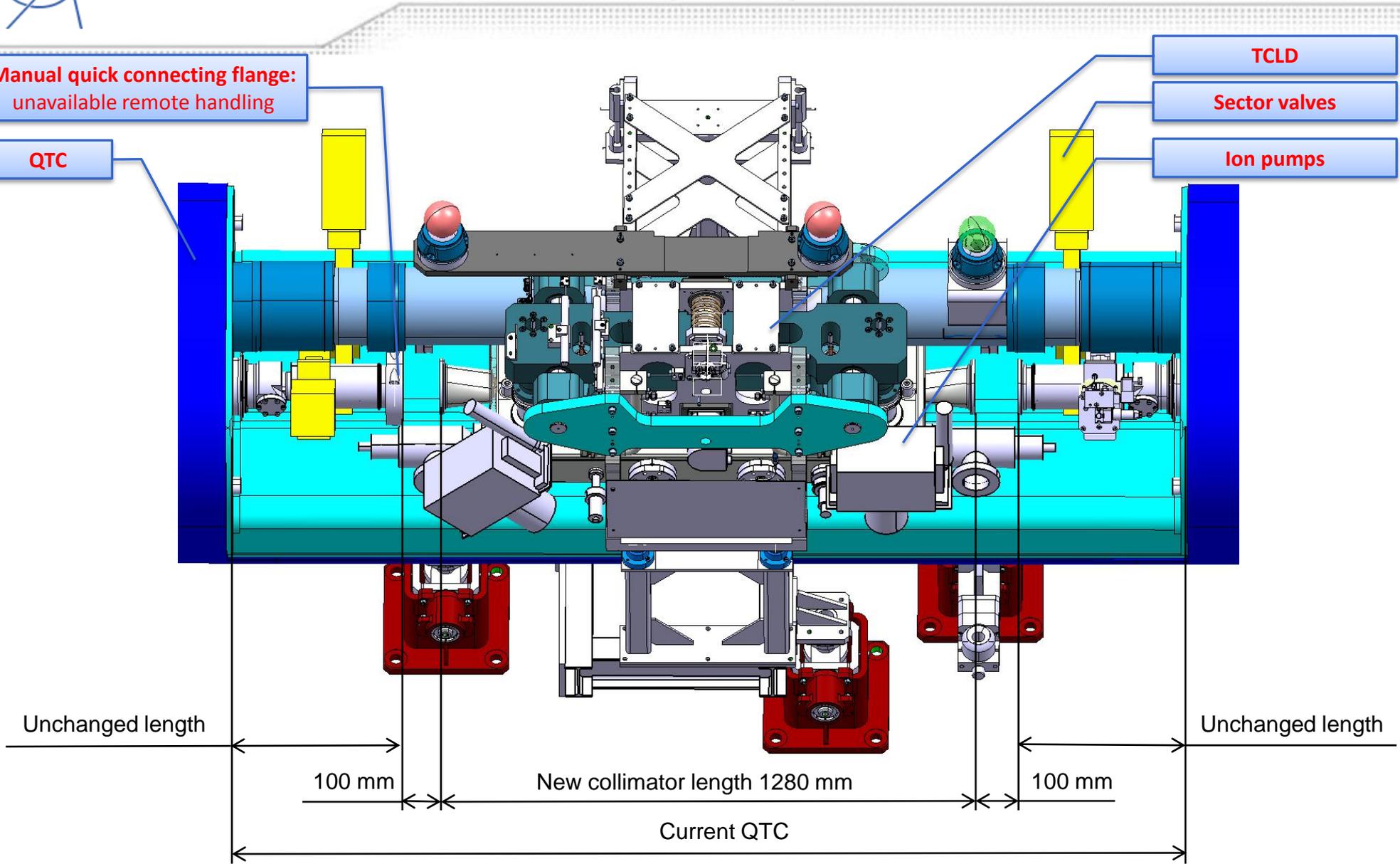
**Manual quick connecting flange:**  
unavailable remote handling

**QTC**

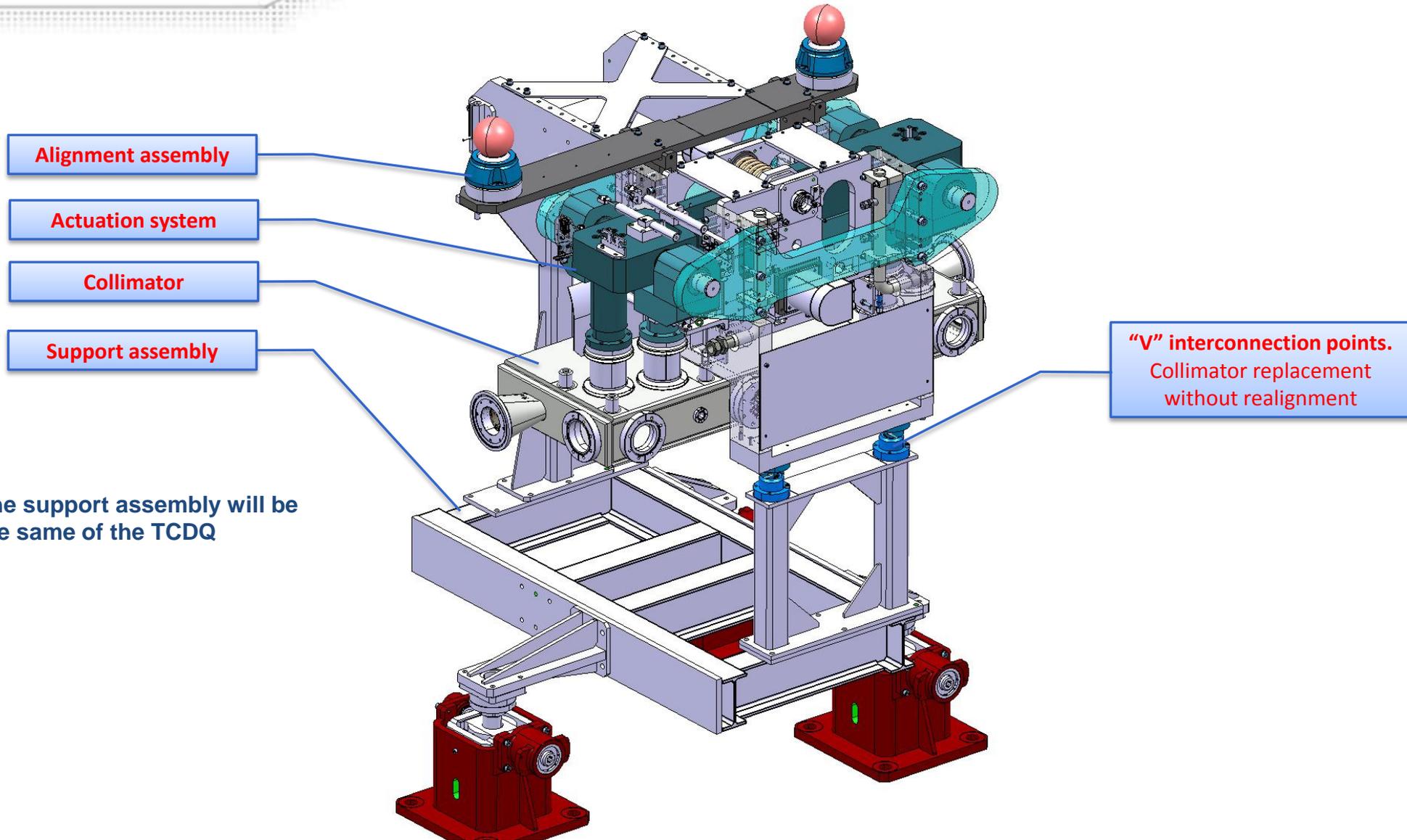
**TCLD**

**Sector valves**

**Ion pumps**



# COLLIMATOR ASSEMBLY



The support assembly will be the same of the TCDQ

# ACTUATION SYSTEM

## Frame

- Partially recovered from existing TCLD actuation system

## Movement

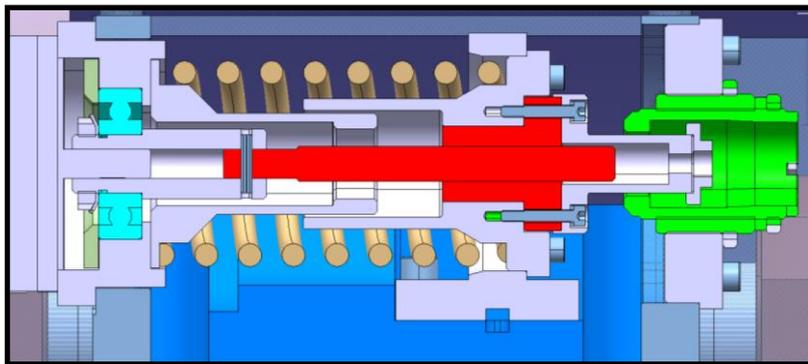
- No jaw tilting
- Stroke: 0 → 25 mm
- One step motor each jaw
- Spring-back: in case of electrical short-cut the jaws must not go in beam direction

## Instrumentation

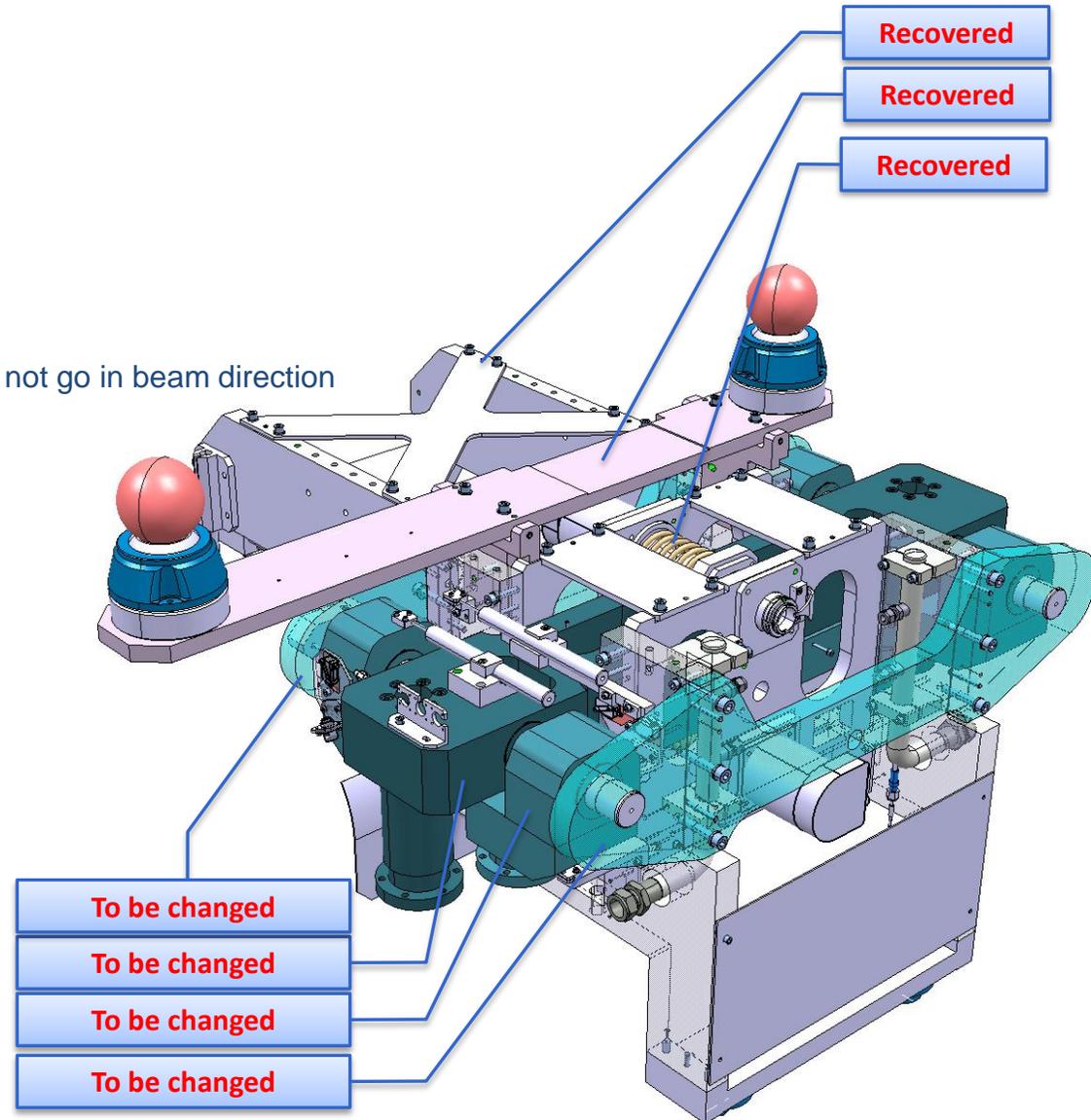
- 3x LVDT (1x each jaw, 1x anti-collision)
- 3x switch assemblies (1x each jaw, 1x anti-collision)

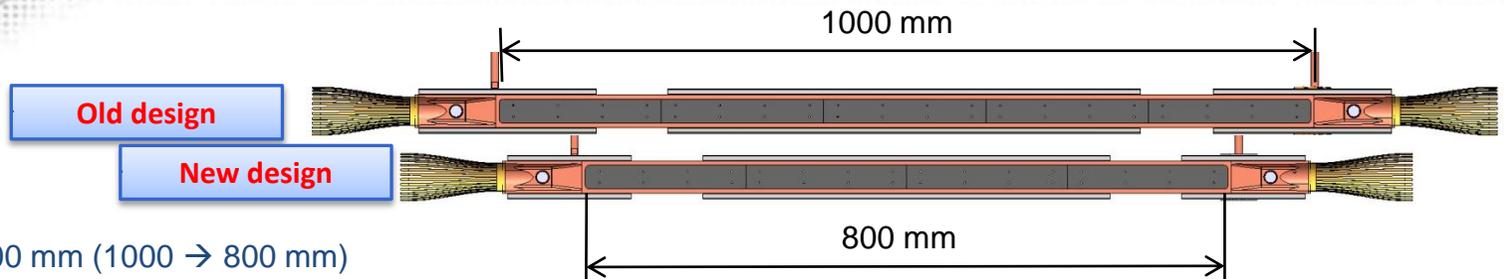
## Alignment

- Adjusting assembly with 2x laser trackers



Jaw actuation





## General

- Active length reduced by 200 mm (1000 → 800 mm)
- Brazed jaws
- 4x screwed tungsten blocs each jaw
- Tapering slopes 10° and 15°
- Cantilever jaws

## Cooling system

- Square pipes (9 mm edge, CuNi)
- 3x cooling pipes in the central cross-section

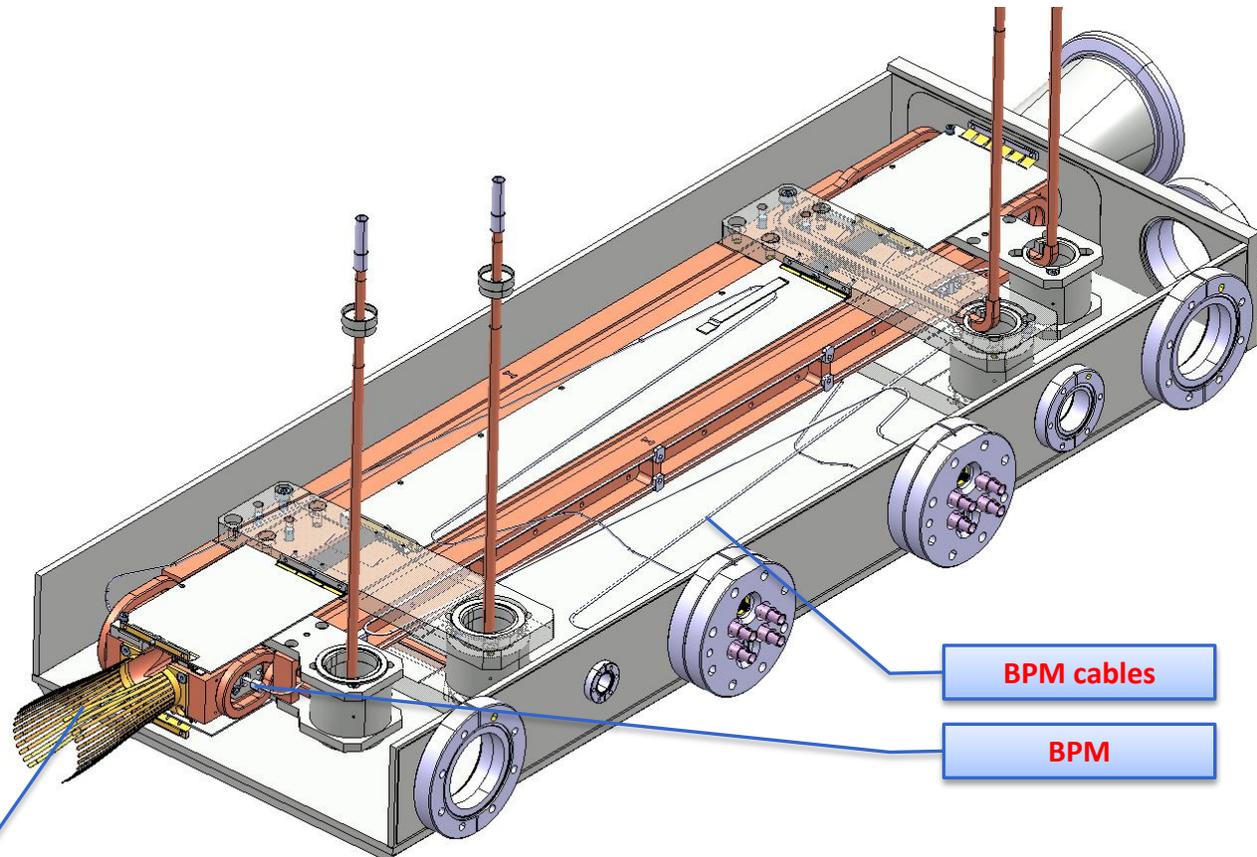
## Instrumentation

- 2x temperature probes (TP100) each jaw
- 2x Beam Position Monitor each jaw
- BPM cables: same electrical length of TCTP with different shape

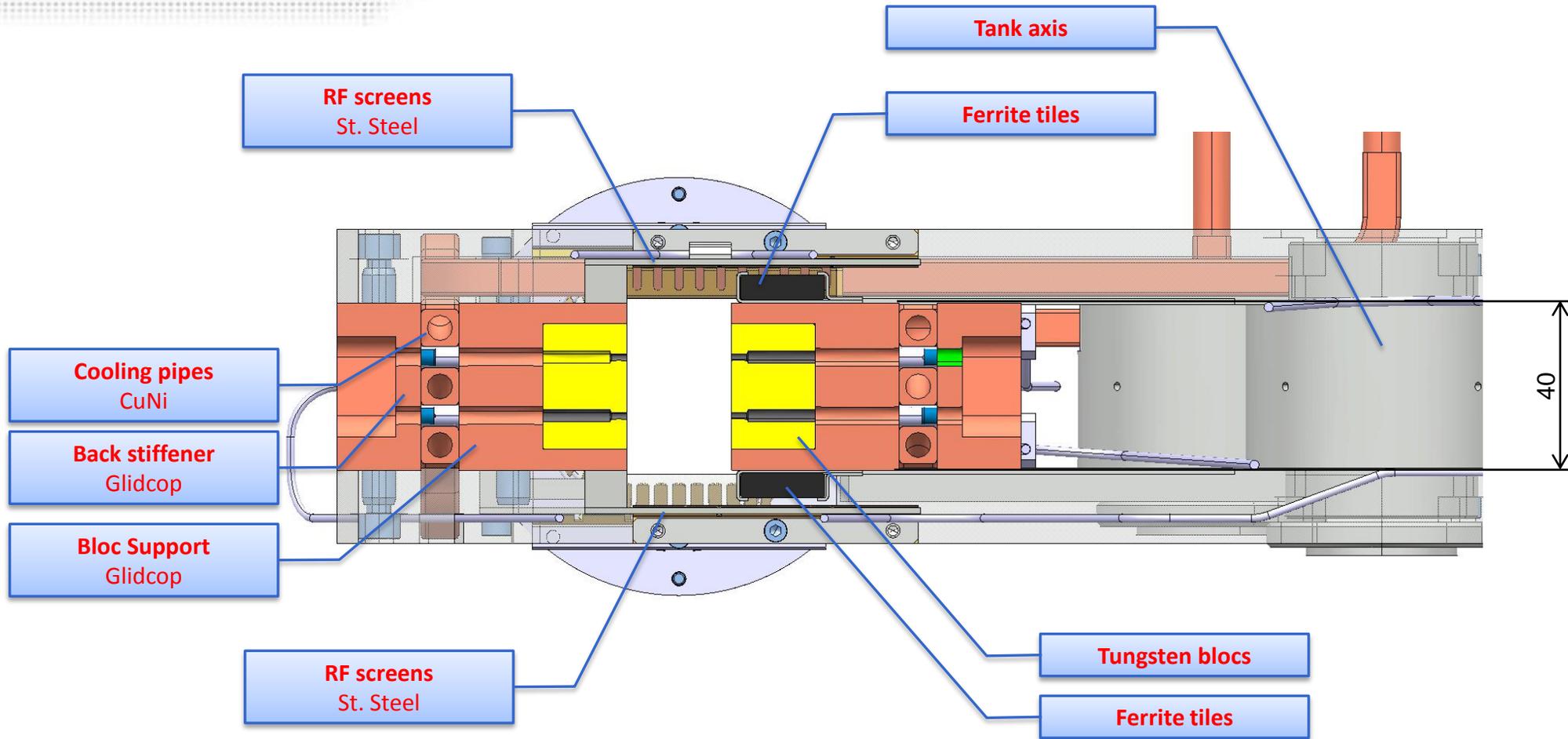
## RF system

- Ferrite tiles + St. steel screens

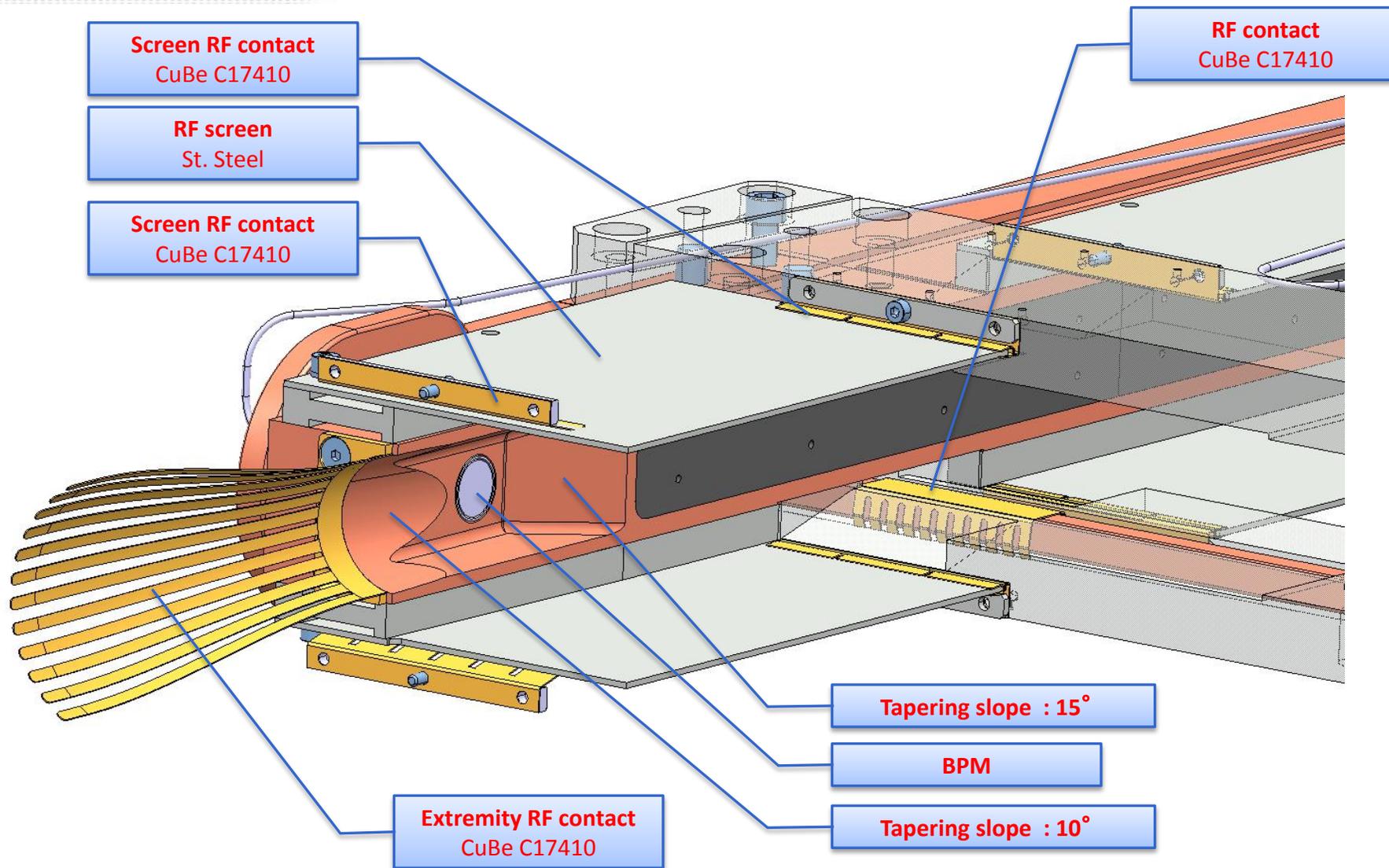
## Vacuum tank based on Ph.II collimator



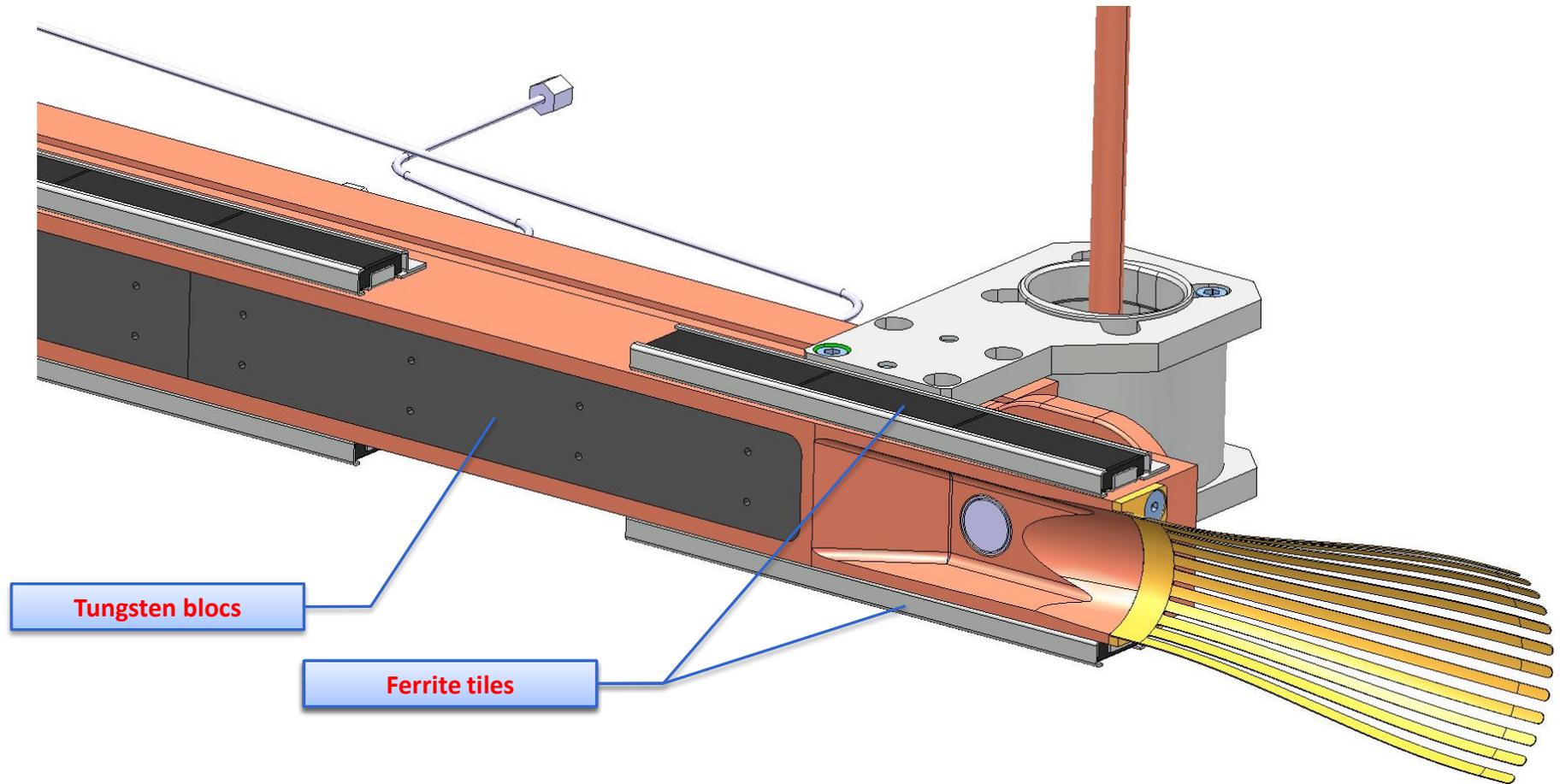
# JAW DETAILS



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# JAW DETAILS





# TCLD UPDATED DESIGN STATUS

<b>18-10-2013</b>	<b>Study</b>	<b>3D models</b>	<b>Drawings</b>	<b>Controls</b>	<b>Manufacturing</b>
<b>Actuation System</b>	100%	95%	70%	70%	60%
<b>Jaws</b>	80%	70%	30%	0%	0%
<b>Tank</b>	100%	100%	50%	0%	0%
<b>Support</b>	100%	100%	0%	0%	0%
<b>Jacks</b>	70%	70%	70%	70%	70%
<b>Test tools</b>	30%	30%	20%	20%	20%

**Thank you for your attention!**