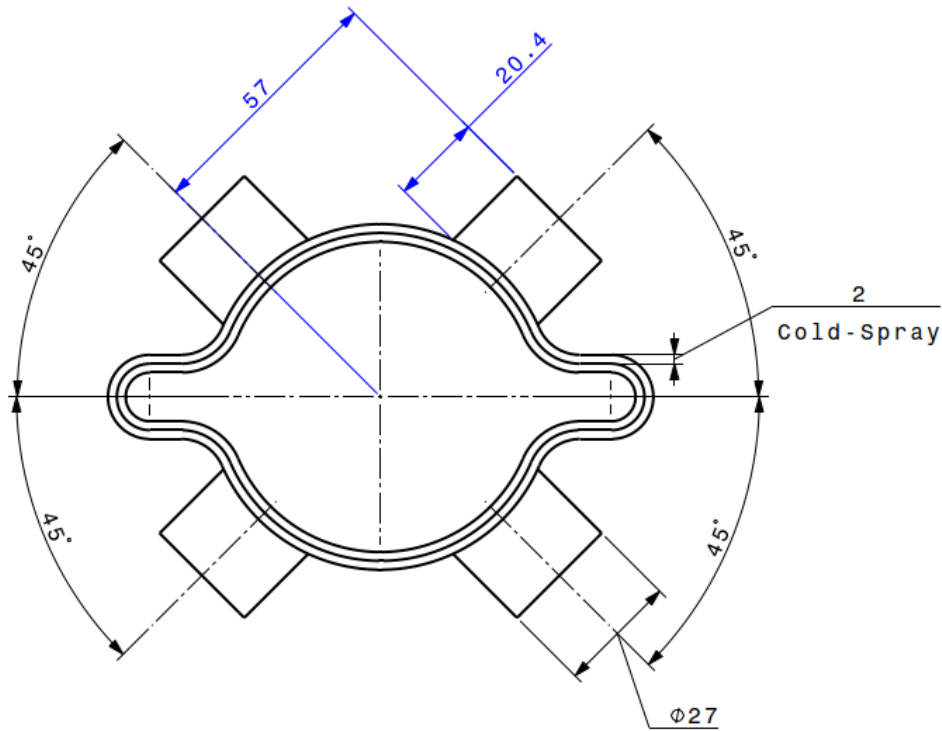


# BPM Prototyping

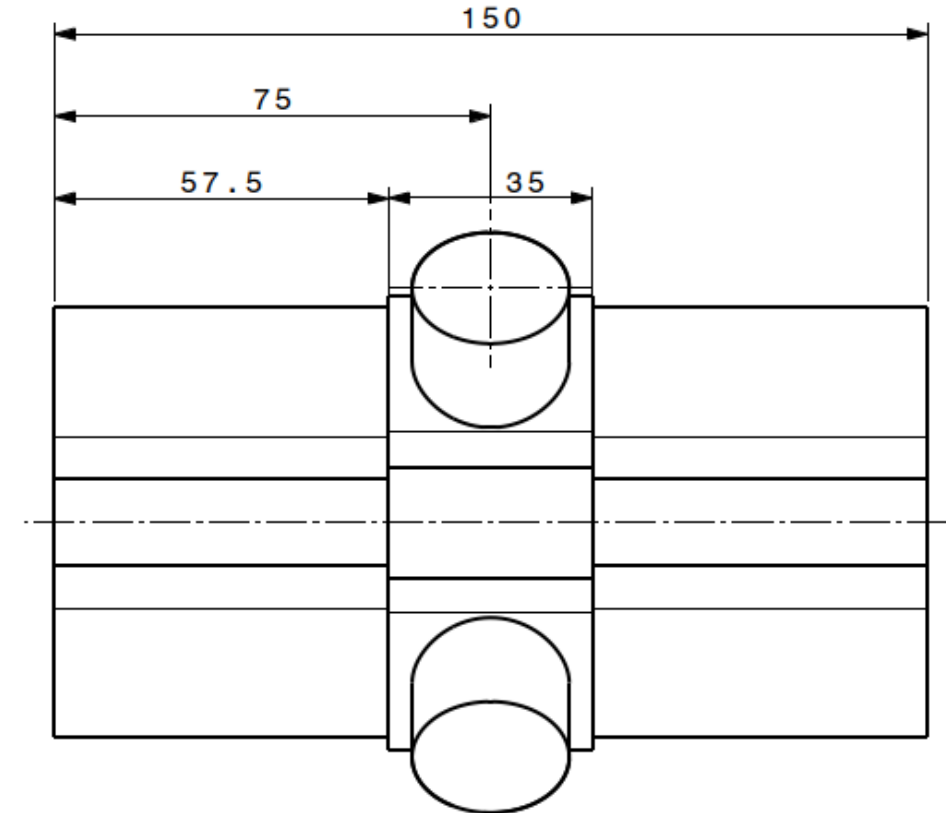
## *Current status of BPM design from vacuum group*



As sprayed (or 'pre-machined') prototype BPM dimensions

The scope of this prototyping is to:

- Prove feasibility of cold-spraying a complex geometry;
- Test machining / post-processing options of cold-sprayed copper;
- Conduct UHV related tests (Leak testing);
- Mechanical characterisations of copper cold-spray;
- Test SMA connectors

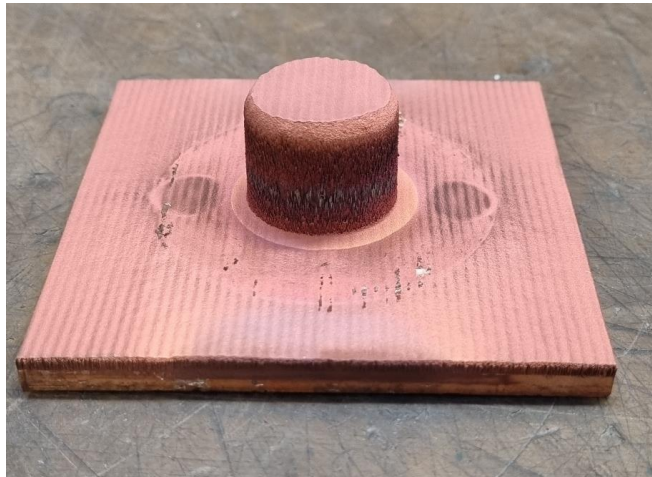


# BPM Prototyping

First prototypes of complex cold-spray geometry applied to copper plate and FCC-ee vacuum chamber profile (cold-extrusion)

It is clear that optimisation and further study of the manufacturing process is required to enable this method for the scale required for FCC.

For example, using robotic spray setup to avoid de-bonding issues on bosses.



Test-plate. Boss sprayed to same dimensions as chamber bosses (x4)

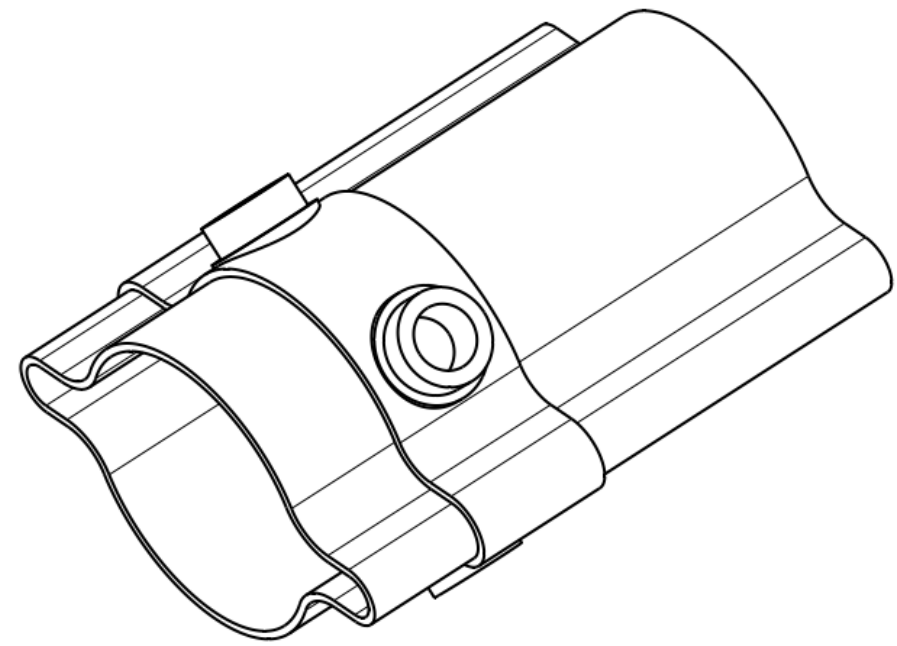
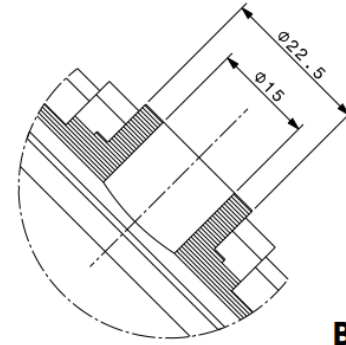
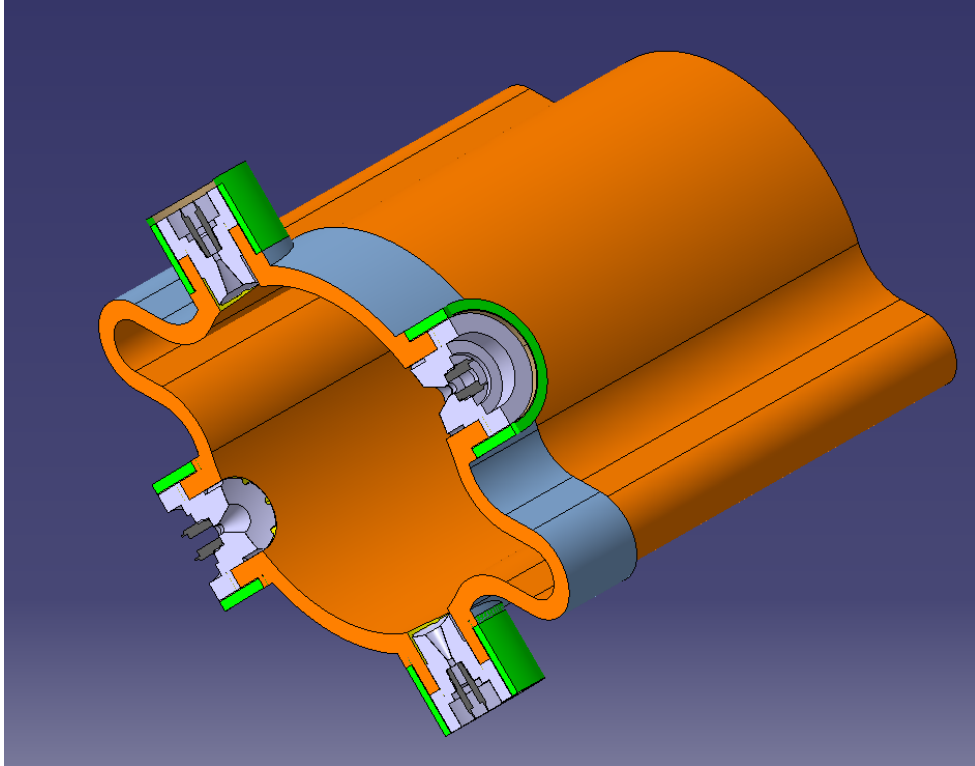


Chamber; 2mm layer sprayed all around



Chamber prototype with x4 bosses

# BPM Prototyping



Components provided by BPM team early 2022,  
Should therefore not be considered current while  
BPM design is on-going

For alignment with magnets / machine so the  
chamber is not 'floating', vacuum group propose  
to spray another boss that could house alignment  
equipment

