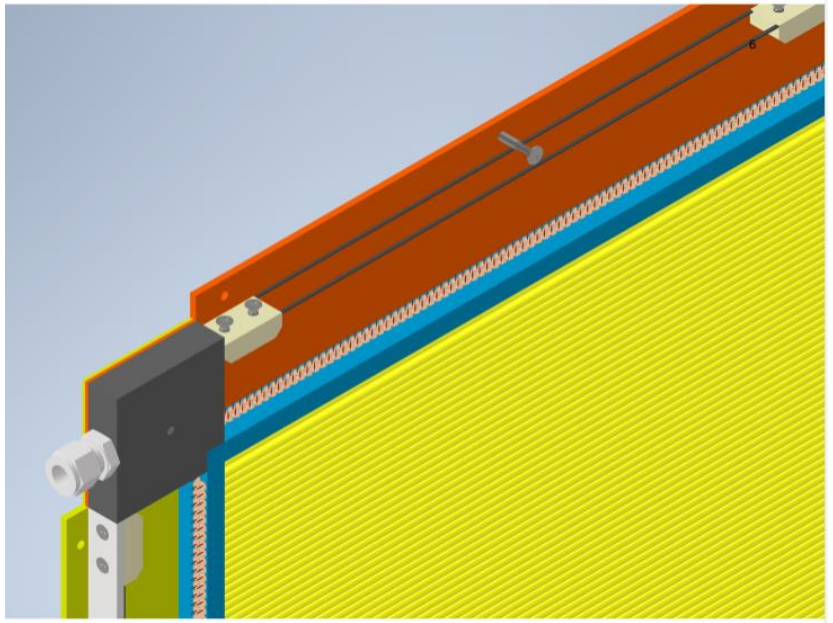
Sealing of gas STT frame volume.

One of requirements is to have access to the inner volume. The cover to give access to the inside straw volume requires a sealing system.

- One possibility is to use a removable sealant.

- The other is to use a elastomeric interface between two contact surfaces.



Removable sealant.

One of requirement is to have access to the inside volume. The cover to give access to the inside straw volume requires a sealing system.

- One possibility is to use a removable sealant.
- The other is to use a elastomeric interface between two contact surfaces.

Removable sealant:
In the past we have used the ARTV sealant families to seal wire chamber.
Recently we have had a good experience with Japanese sealant. We seal a Meg2 wire chamber that contains helium. we have successfully sealed a wire chamber filled with Helium

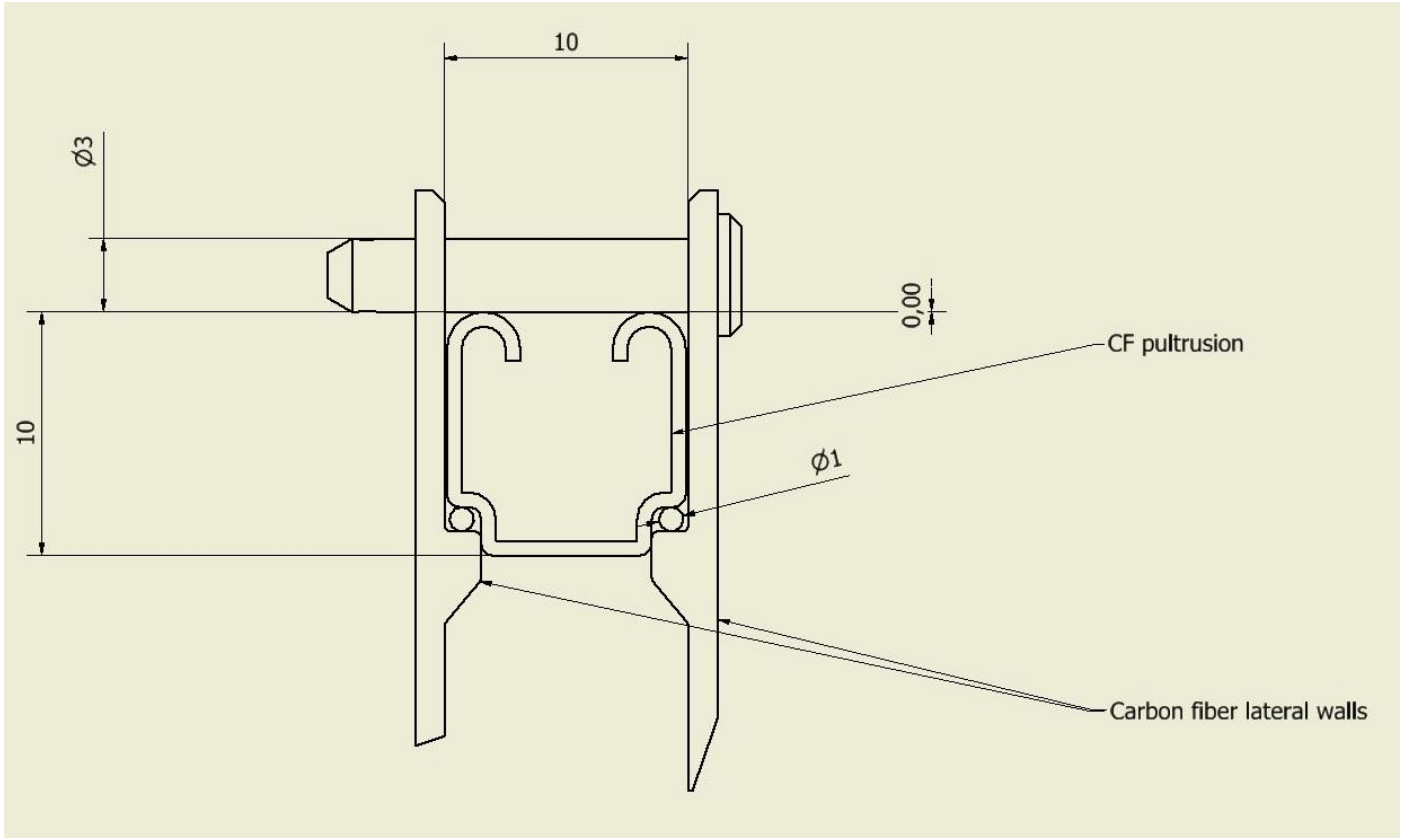
Tri-bond TB1533 White Elastic Adhesive/threebond1533 is an improved version of 1530.

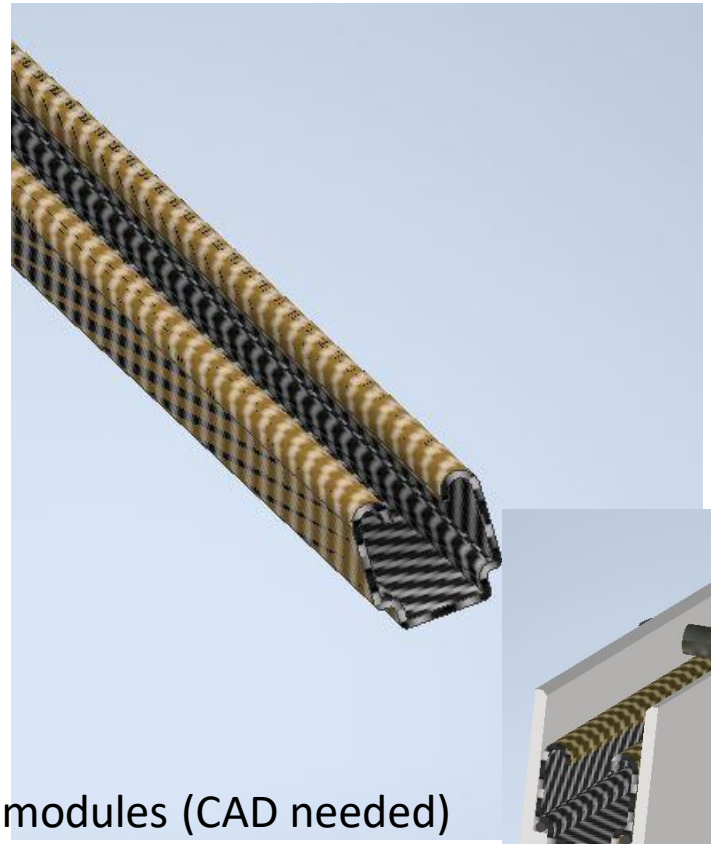
The Japanese sealant shown in the picture

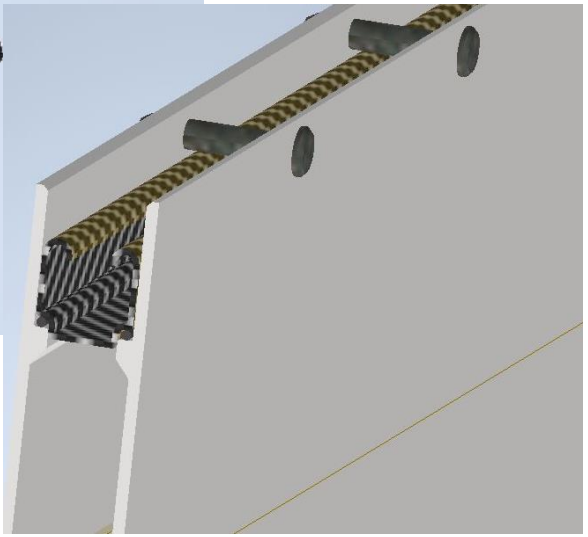
Elastomeric interface.

- Another possibility is to use an elastomeric interface between two contact surfaces.

I have assumed a 10 mm gap between the lateral wall







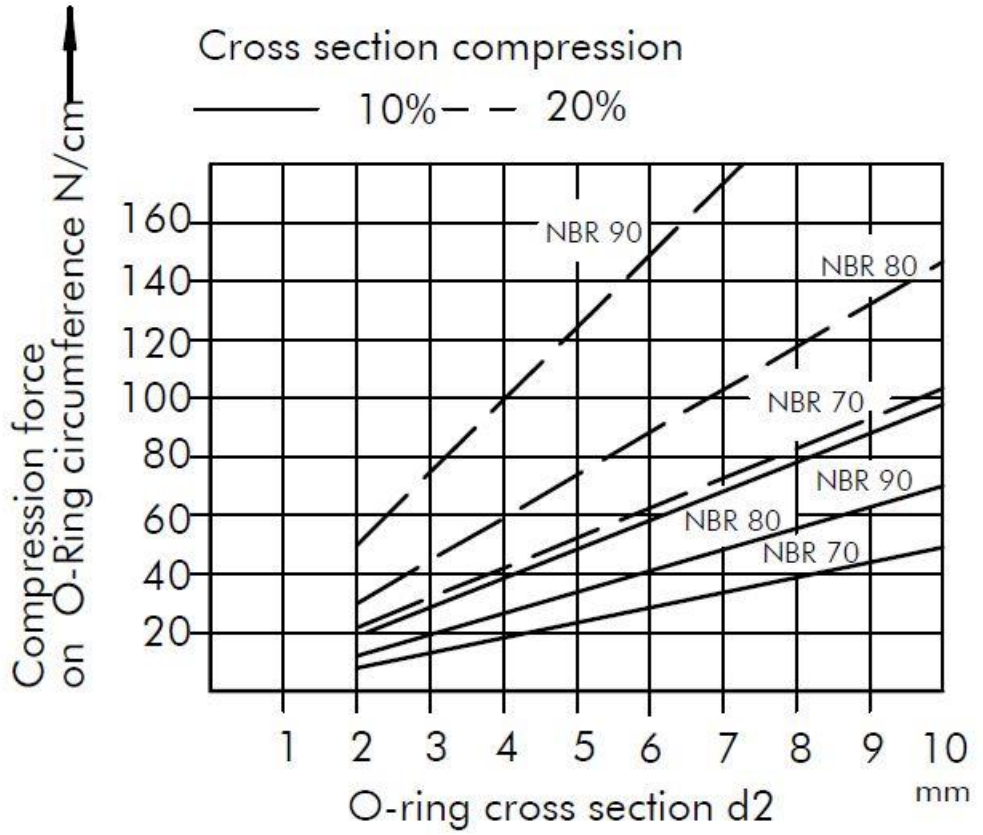
A more accurate design can be done having the precise dimensions of the modules (CAD needed)

The carbon fiber C profile can be obtained by pultrusion or by molding with female molds.
The lateral walls with a female mold.

Compression force.

- The total compression force is 1.632 ton force for 8 meter of length. The presetting force considered is 20 N/cm.

Considering 20% of compression we have a good margin of safety on the leak. The total force considered has a safety factor as we can see from the diagram



Conclusions and next steps.

Two possible solutions for the sealing of STT have been presented.

To finalized the sealing design of STT we need a detailed mechanical CAD of the STT module.

This will also allows to investigate the critical points for the gas leakage in the corners and junction.

The c profile is very rigid Its shape can be further optimized as well as the carbon fiber lateral walls.

A prototype will be necessary to validate the proposed design.