The background of the slide features a close-up photograph of industrial machinery. It shows several large, horizontal pipes made of a dark, possibly black or dark brown, material. A vertical pipe runs along the right side. In the center-right, a pressure gauge with a white face and black markings is mounted on a horizontal pipe. The gauge has a needle and is connected to the pipe via a brass-colored fitting. The overall scene is set against a dark, textured background, likely the interior of a well or a large industrial tank.

Vertical Drift Field Cage(FD) QA/QC Procedure

Samriddha Chakraborty

Slide : 1

Aluminum Profiles



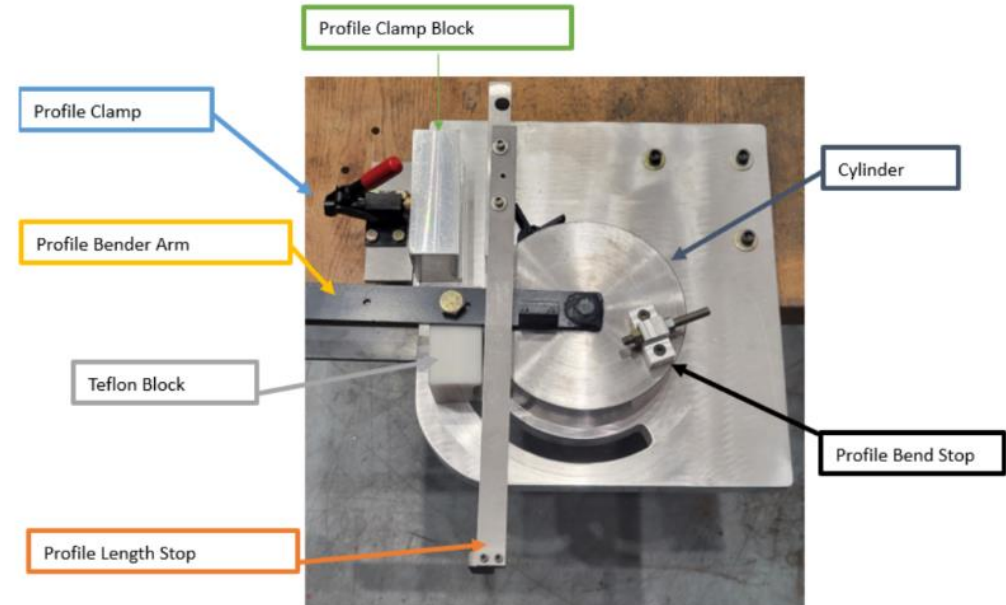
Fig 1. 2mm thickness of the cutter

Type of profile	Length cut	Number of profiles required
Thick Straight Profile	2950mm	84ct
Thick Bend Profile	3623.16mm	168ct
Thin Straight Profile	2950mm	144ct
Thin Bend Profile	3616.1	288ct

-For the field cage we need four different kinds of Aluminum profiles - 1) Thick Straight, 2) Thin straight, 3) Thick Bend, 4) Thin Bend. These components are important for maintaining a stable electric field inside the cryostat of vertical drift.

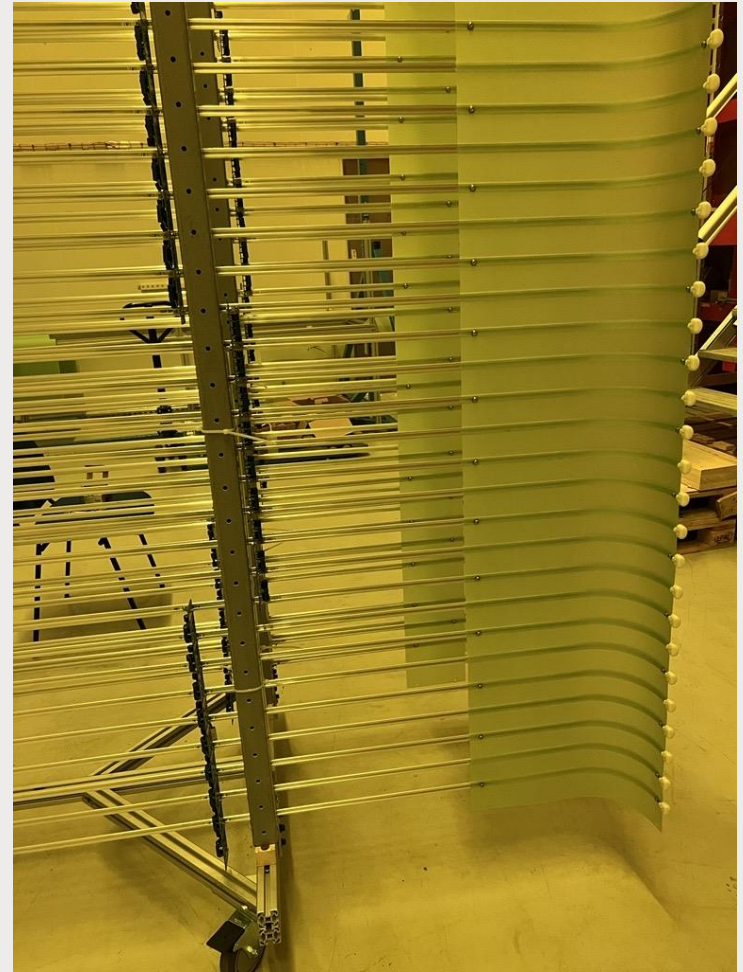
-We will use a Profile Bending tool for bending the aluminum profile.

-We don't need to cut the aluminum profiles as it's already done following a specific measurement.





Thick aluminum profiles



Thin aluminum Profiles



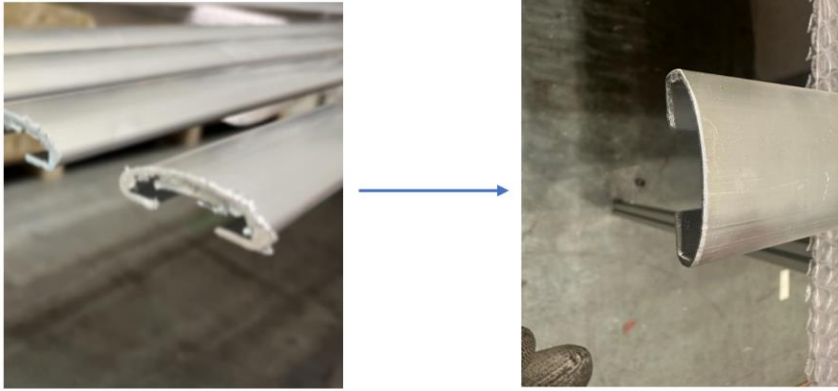


Fig 3. Left: Cut profile before cleaning. Right: Cut profile after cleaning using a flat metal file.

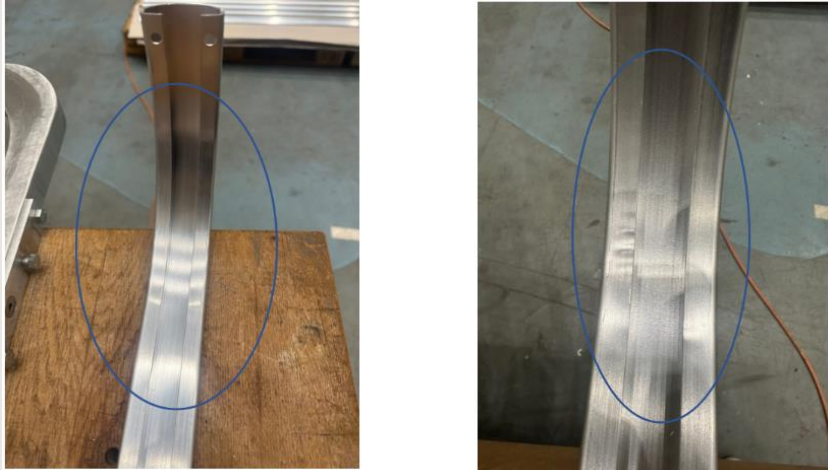


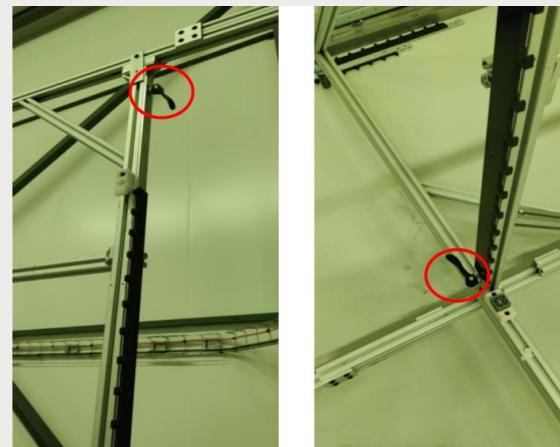
Figure 6. Thick bend profiles showing improper bending. The small ripples in the bend area cause the profiles to fail by visual inspection.

QA/QC Procedure :

- We need to make sure there are no rough surfaces on the already cut profiles. If there is, we will use flat metal plates to get rid of it.
- We will bend profiles using Bending tool. After bending it we need to make sure there are no bumps or waves. We will insert rubber inside the profile while bending to get smooth bent profiles.
- After that, the bent profiles need to be packed using multiple layers of plastic bags to avoid any damages before shipping to the site.

Vertical Assembly Table(VAT) & QA/QC

- We need to prepare it using correct set of Black plastic combs.
- There are two types of black combs. Longer ones are for thick profiles and shorter ones are for the thin profiles.
- These will be attached to the VAT using two rotating-locking handles at the top and bottom to hold combs in its place.

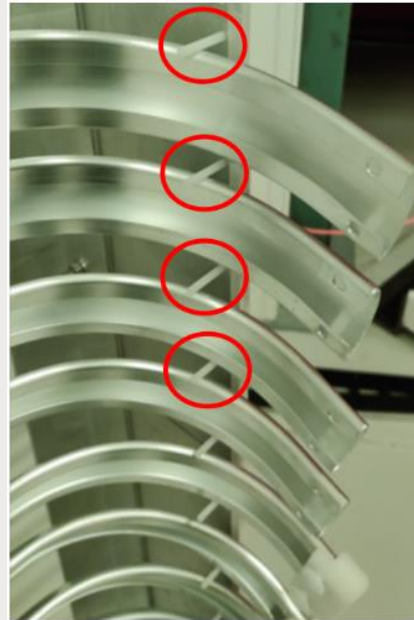


QA/QC for loaded Profiles

- Now, we can load the profiles one-by-one and fill the comb with all the aluminum profiles. We need to make sure that the bent side of the bent-thick profiles are on the right side of the VAT.
- Bent part should be resting on the white plastic screws of the VAT.

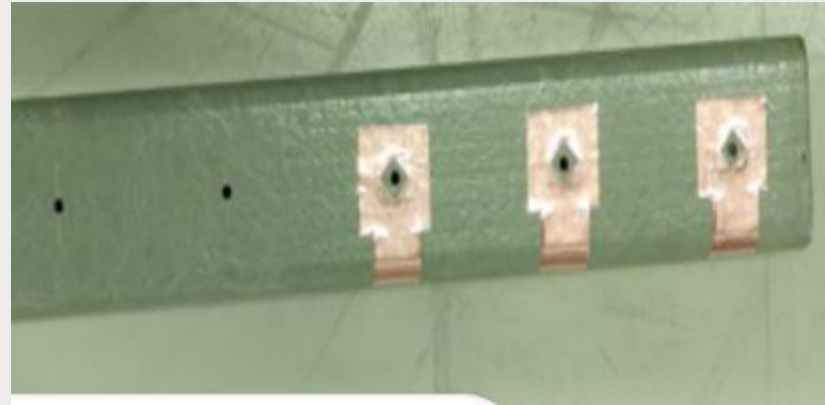


Example picture of loading bent-thick profiles on the VAT, bent side on the right.



Box Beams:

- There are two types of box beams- long and short. Long ones have copper stickers on its top three holes.



- The long box beams can be placed in any orientation because they are symmetric but short box beams need to be placed in a specific manner.
- Then we need to lock the box beams using plastic holder on top.



QA/QC Of box beams:

- We need to make sure that box beams are straight. There should be no bent beams. If we have, we need to replace it.
- There should be no bumps and rough surfaces on the box beams.
- The copper wholes on the box beams should be dust-free to prevent any disturbance on the electrical contact.
- We need to make sure the box beams are properly placed and locked. They need to be in contact with the black teeth of the comb. The plastic holder can be rotated to make sure the box beams are staying straight.
- We need to make sure that the aluminum profiles behind it must also be in touch with the back of the box beams.

After all the set up the module will look like the picture below :



Example picture of thick-bent (on the right) module with box beams



Thank you

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