ITk Strips EC System Test

Progress on the System Test & Petal Coldbox

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Hamburg, 11.09.2023

HELMHOLTZ

DESY.

What we need to do

What we need to do

Pipe Bending

Task

- Cooling pipes have to be bent at 90° angle
- The shape/direction of the bending determine the position (front/back layer) of the petal
- Bending is performed with the bending kit we got from Nikhef

Status

- Bending frame + Kit are in 26
- Bending in theory possible, a slight mismatch from specs needs to be better understood
- Time: ~2h, faster for later petals

People: Frauke, Jannik

What we need to do

Petal Insertion

Task

- Petal needs to be inserted into ST structure
- Insertion tower + hands are needed

Status

- We will need to use a prototype insertion tower
- Without modifications, we can insert into discs 3-5
- Time: 2 days including preparations

People: Volker

What we need to do

CO_2 Cooling

Task

- Connecting the petal to the cooling manifold
- Vacuuming the manifold, filling it with CO_2

Status

- Two LUCASZ machines available
- Only NIKHEF one produces adequate pressure differential
- Both machines need to be refilled (multiple day operation if vacuuming involved)
- All necessary equipment available
- Time: > 1 day after petal insertion

People: Frauke, Jannik

What we need to do

Powering

Task

- Connecting the Type-II and -III cables to PP2
- Operating the PSU + PP2 to supply the petal with power

Status

- All cables + zip ties available in 26
- Cabling for one petal already connected
- To do: Lay cables for 11 other petals
- Time: ~ 30 mins per petal
- Constraints: CO_2 cooling must be available
- Long run: PP2 water cooling might be needed (connection available, still needs piping inside the hall)

People: Max

What we need to do

DAQ

Task

- Perform a full cold test in the ST cold box
- Repeat the test with FELIX

Status

- Fibres already connected to the ST harness
- Constraints: Inserted petal, CO_2 cooling, Power, DAQ

People: All of us!

Insertion Schedule

Insertion Schedule

The plan (as of now)

This Week

- Preparations for petal insertion
- Remove petal from petal cold box

People: Everyone who can help!
Key: Frauke & Jannik (CO_2 & bending), Volker (insertion)

Insertion Schedule

The plan (as of now)

This Week

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Monday

- Pipe Bending in the morning
- Insertion after lunch

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- Connection to LUCASZ, refilling CO_2
- Power cable connections
- Dry air flushing over night

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Wednesday

- Beginning of Full Test efforts

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Materials & Deliverables

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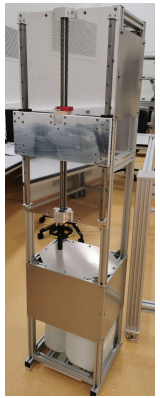
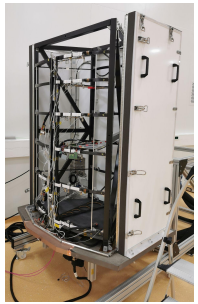
What we have, what we need

Insertion

- Insertion tool available
- We need to buy a stacker truck to reach higher than disc 3





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Electrical + DAQ

- All necessary PSUs, cables, DAQ boards and fibres should be available in 26
- Big-ass scintillating tiles (**BAST**) currently being procured

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Safety

- Interlock System only available for monitoring as of now
- Cold tests are only performed when people are present and observing temperatures + dew point!

Big Picture

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What's next?

More petals

- Next petal set to arrive in > 3 weeks
- We expect another 2 from Vancouver, 1 from Valencia, 1 from us
- All of these need to be reception tested & loaded into the System Test

Big picture

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More petals

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- This year: another 2 from Vancouver, 1 from Valencia, 1 from us
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CO_2

- Get the LUCASZ local box inside the clean room to prepare for parallel connection of system test and endcap

The Tests

- Test every petal cold
- Perform noise crosstalk tests in the structure
- Max: Take cosmic ray data and write a thesis

Thank you

Contact

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