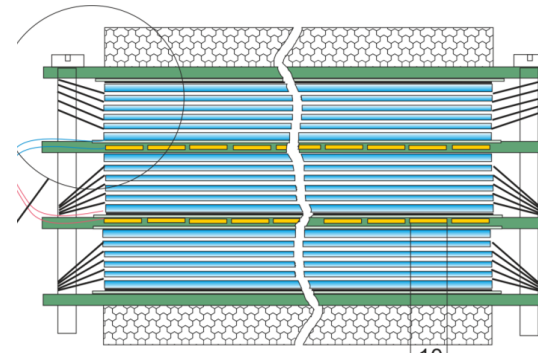
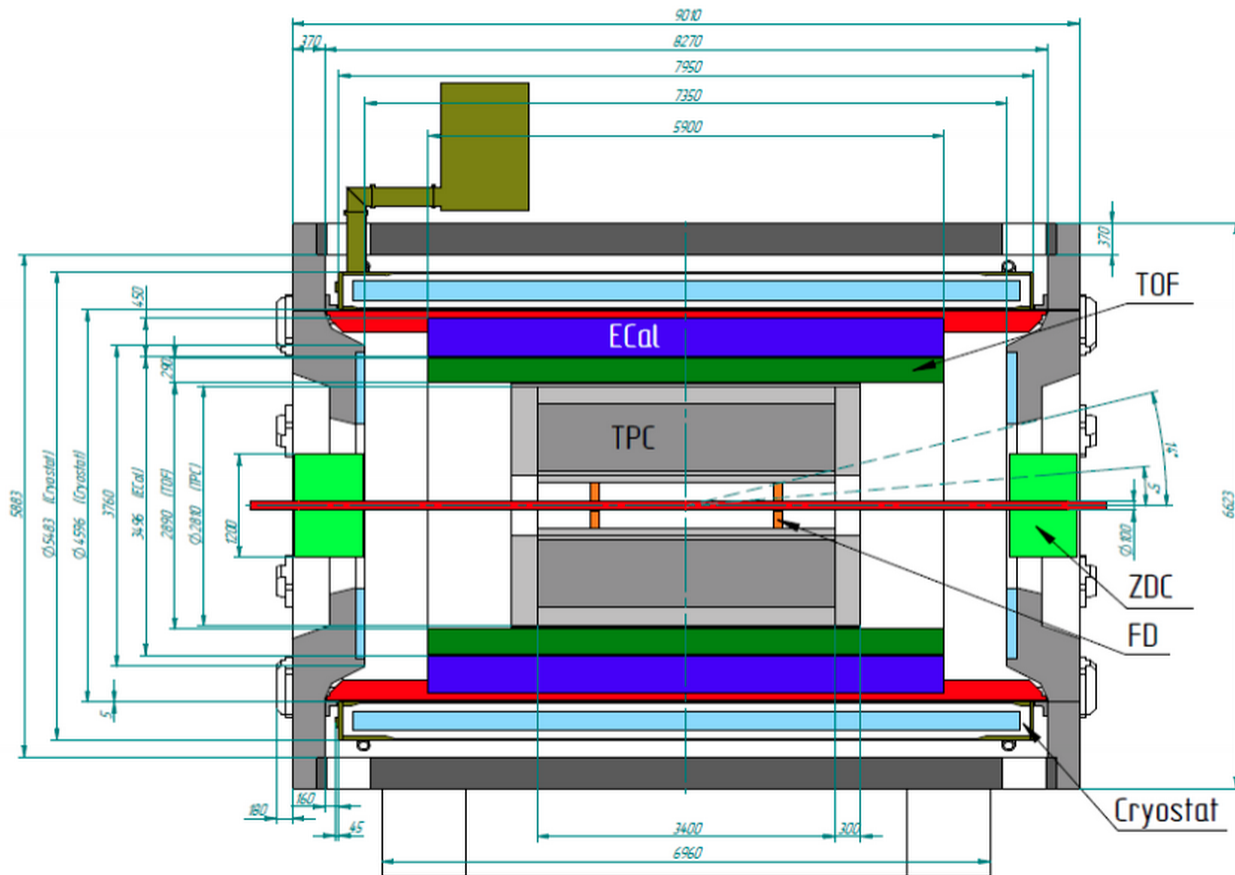


# TOF Status

# Contents

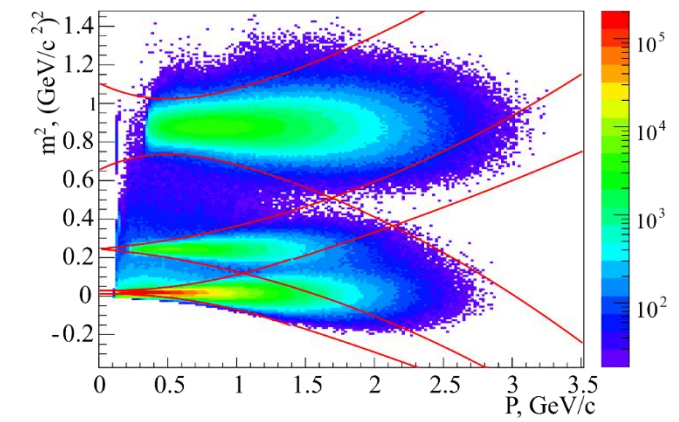
- 1) Brief description of the TOF system
- 2) Current situation of TOF production
- 3) TOF installation equipment status
- 4) The assembling of the gas system in the MPD Hall
- 5) Conclusions

# Time-of-Flight system in the basic configuration of the MPD

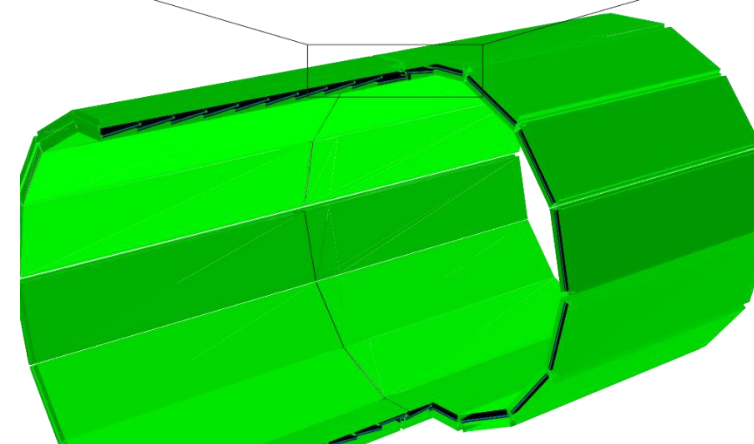
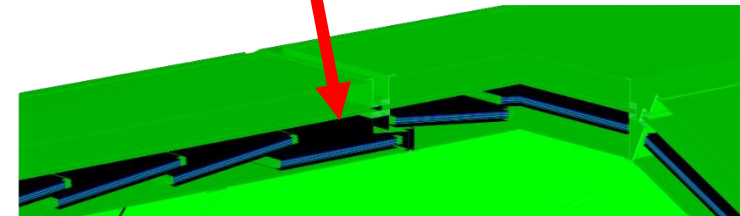


Multigap RPC

Time resolution  $\sim 50$  ps



Momentum dependence of  $m^2$  distribution from the MPD TOF



TOF Barrel

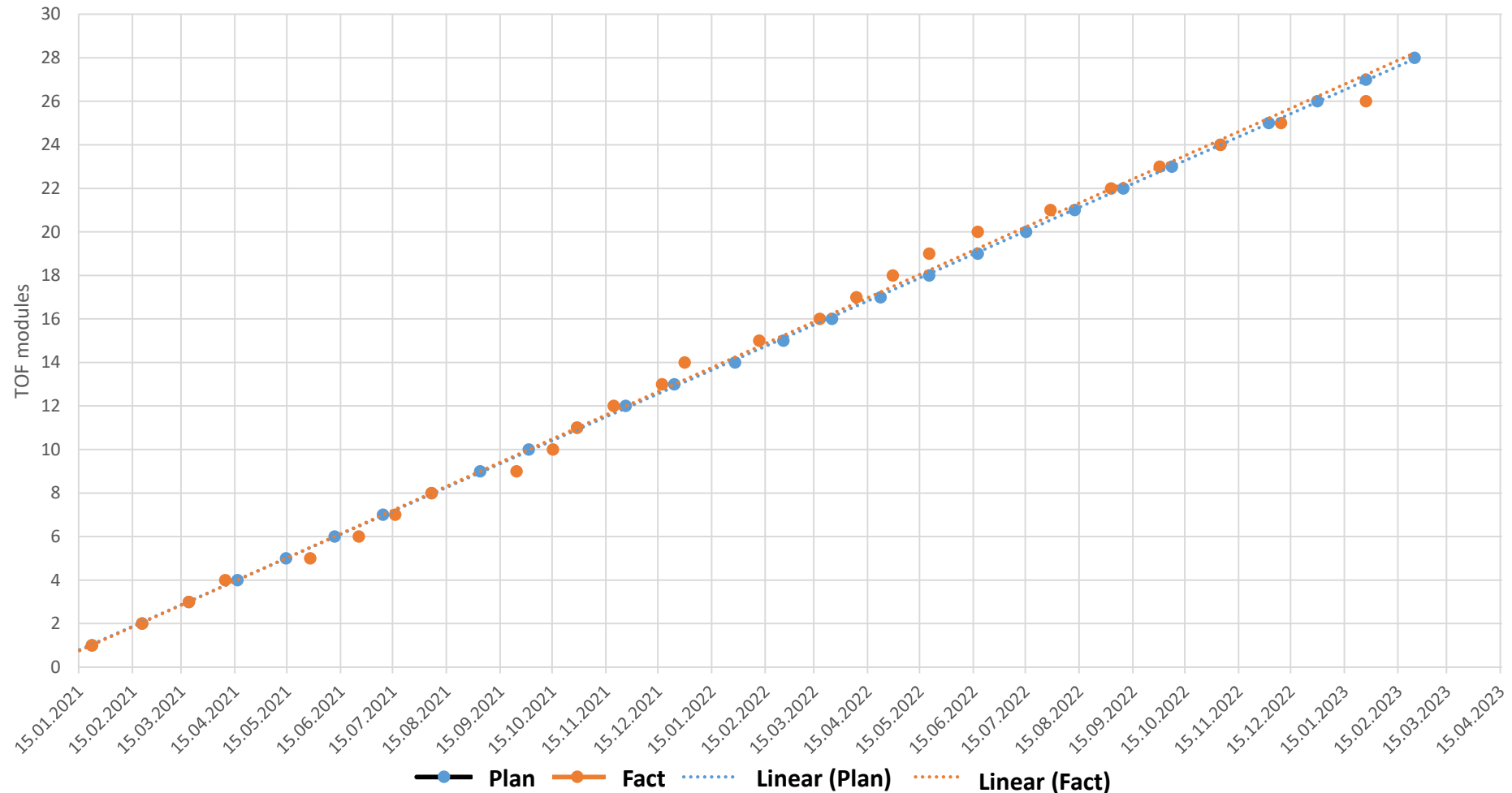
	Number of detectors	Number of readout strips	Sensitive area, $\text{m}^2$	Number of FEE cards	Number of FEE channels
MRPC	1	24	0.192	2	48
Module	10	240	1.848	20	480
Barrel (28 modules)	<b>280</b>	6720	<b>51.8</b>	560	<b>13440</b>

## Progress of the TOF detectors and modules assembling

The production of MRPC detectors has been completed.  
Totally, to date, **300 (107%)** MRPC detectors are produced.

26 of 28 (93%) TOF MPD modules are already assembled. The production and testing of the last TOF module out of 28 is scheduled for spring 2023.

Actual schedule of the TOF MPD modules production





## Store of tested TOF modules





# Cosmic rays test of TOF modules



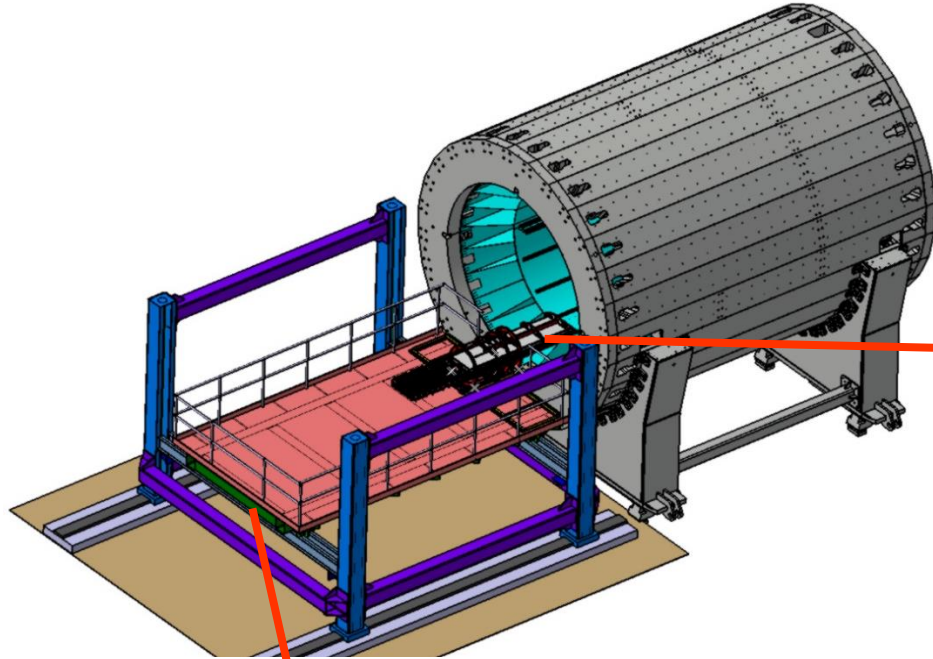
Laboratory stand for testing TOF modules on cosmic rays operate in full power in the buld.42 since beginning of August 2021

The main tasks of this testing:

- checking all channels for operability;
- long-term stability of operation parameters;
- measuring the efficiencies of all channels;
- preliminary calibration and measurement of some characteristics;



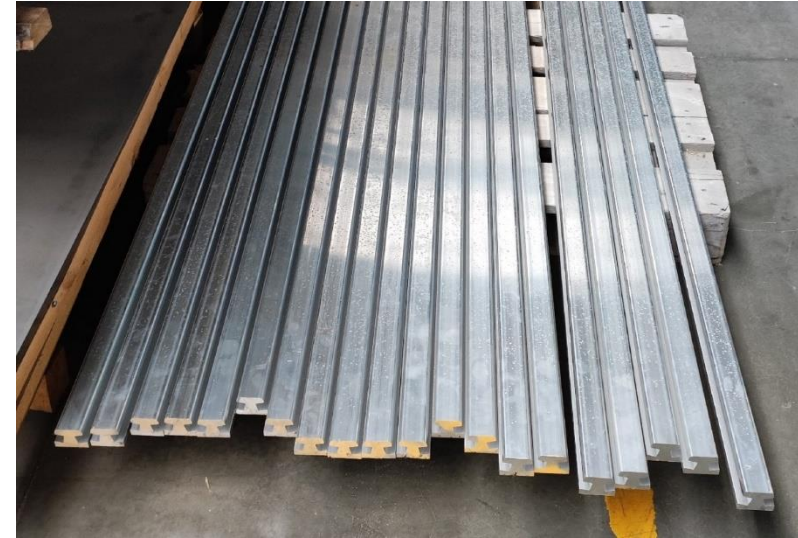
## Equipment for TOF installation



The TOF installation bench is fully assembled and stored in the VBLHEP



Lifting platform



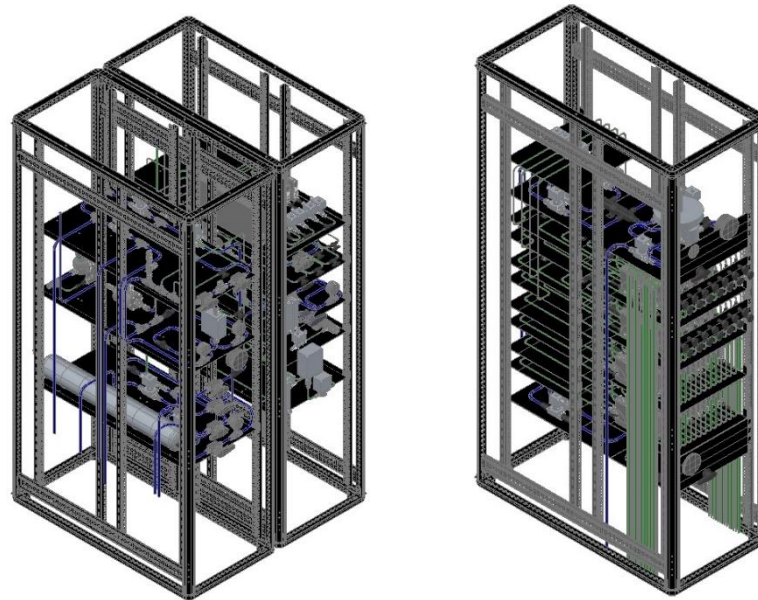
Aluminum rails for the TOF are ready for installation on the power frame



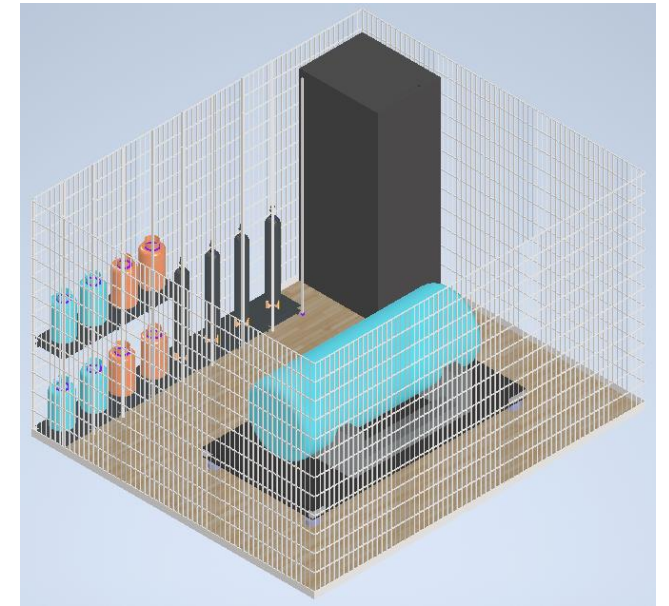
## Gas system for the TOF in the MPD hall



Scheme of gas systems position in the MPD hall



Model of mixer (left) and distributor (right) of TOF gas systems



Gas supply area in the MPD hall



“Tent” for assembling gas system in the MPD hall

18.04.2023





## Current status of production and equipment purchasing

Task	Current status	Readiness
<b>TOF modules</b>		
Materials for detectors	Purchased all the materials and components.	100%
TOF module box	In stock – 28 pcs.	100%
<b>TOF cosmic test stand</b>	In operation.	100%
<b>Front-end electronics</b>	In stock – ~600 (560 needed).	100%
<b>DAQ sysytem</b>		
Signal cables	In stock – 680 pcs (560 needed).	100%
VME64x VXS crates	In stock – 16 pcs (14 needed).	100%
TDC72VHL modules	In stock – 210 pcs (v4) (196 needed).	100%
<b>Gas system</b>	Gas system for building 17 is in assembling. Control system & purifier – in production.	80%
<b>TOF integration</b>	The installation bench for the TOF is in stock.	100%
<b>HV &amp; LV systems</b>		
Mpod LV+HV power crate	In stock – 8 pcs (6 needed).	100%
LV modules	In stock – 16 pcs (14 needed).	100%
HV modules	In stock – 32 pcs (28 needed).	100%
HV&LV cables	All new HV and LV cables are in stock.	100%
HV distribution modules	In stock – 28 pcs (28 needed).	100%

## Conclusions

- 1) Mass production of MRPCs – 300 of 280 are ready (~107%)
- 2) Mass production of TOF modules – 26 of 28 are ready (~93%)
- 3) Integration equipment – completed
- 4) Gas supply and storage for the gas system in building 17 – in the assembly
- 5) VME crates, cables, and HV distributors on the MPD yoke – in development



**Thank you for the attention!**