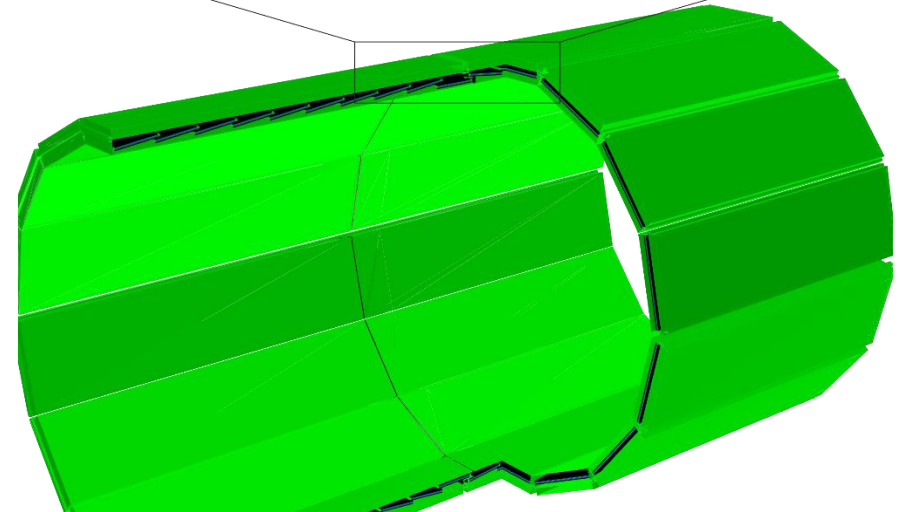
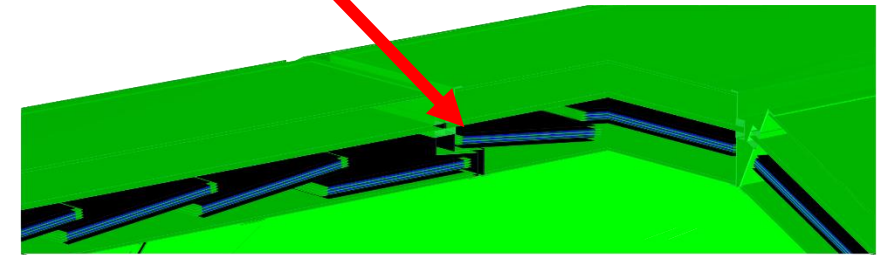
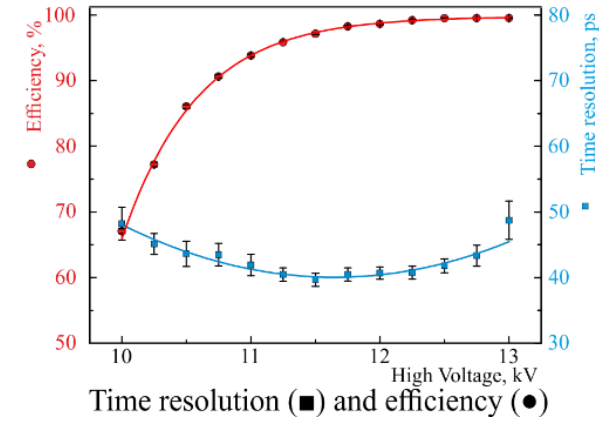
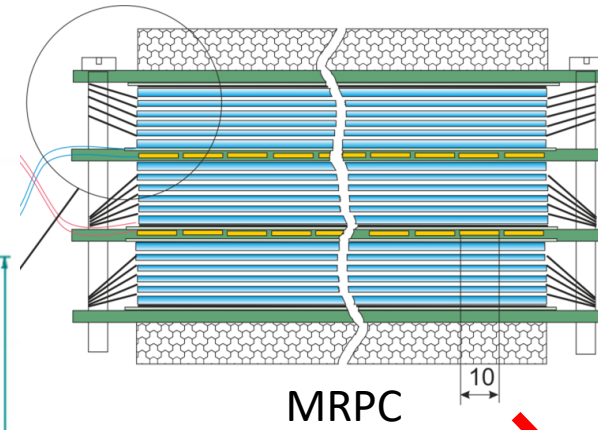
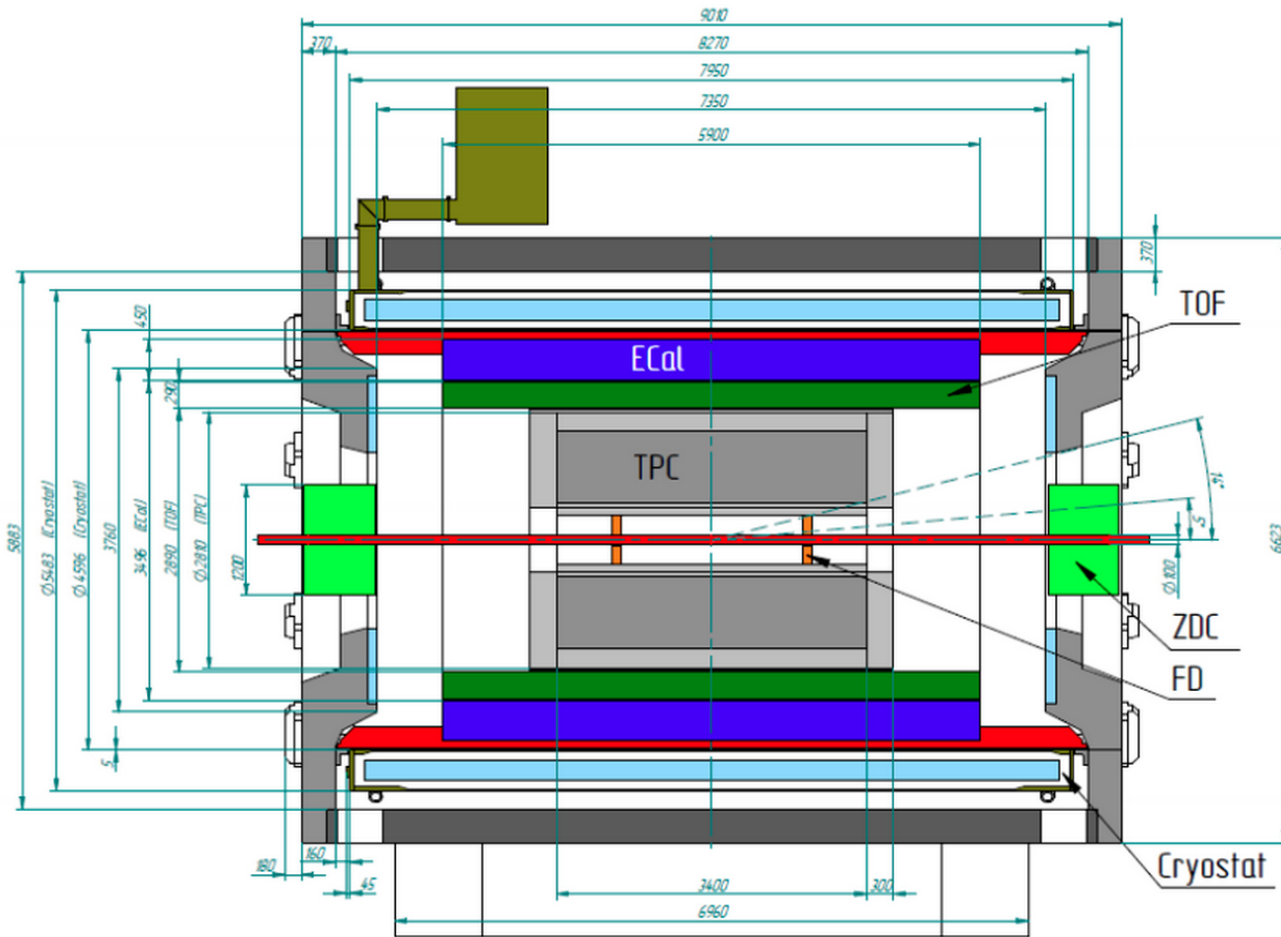


Status of the TOF

Contents

- 1) TOF introduction.
- 2) Solution of the problem of dark currents. New schedule.
- 3) TOF modules testing.
- 4) Position of VME crates on the MPD yoke.
- 5) Installation equipment.
- 6) Gas supply system in building 17.

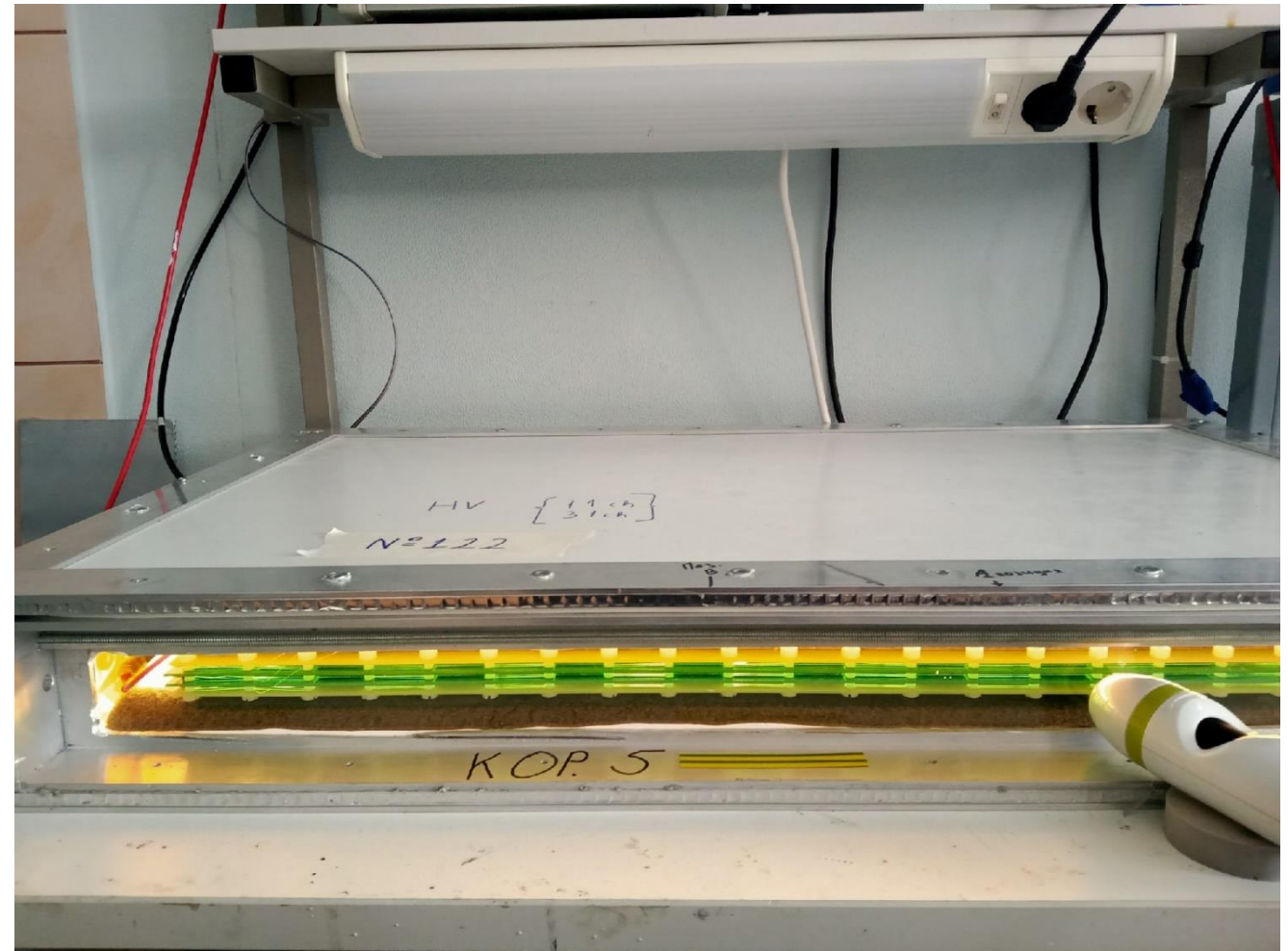
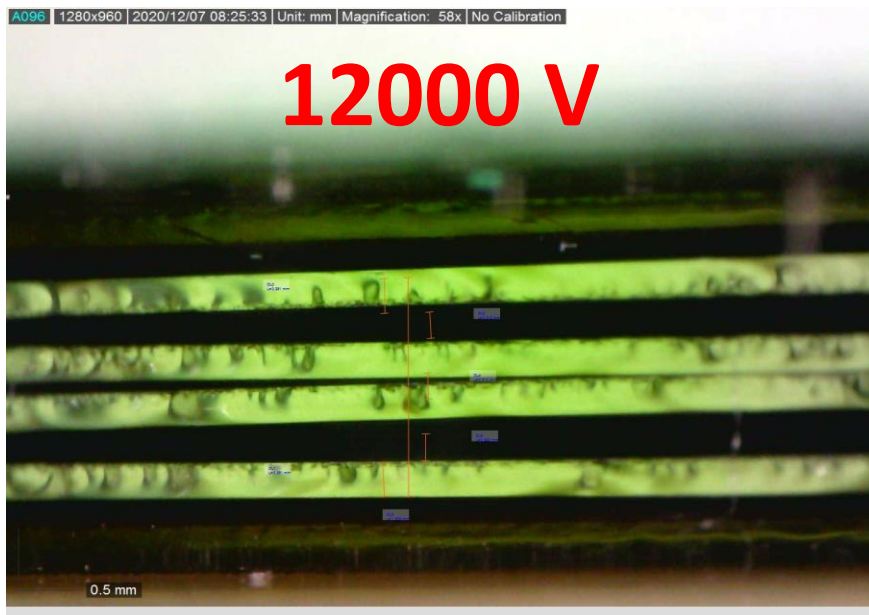
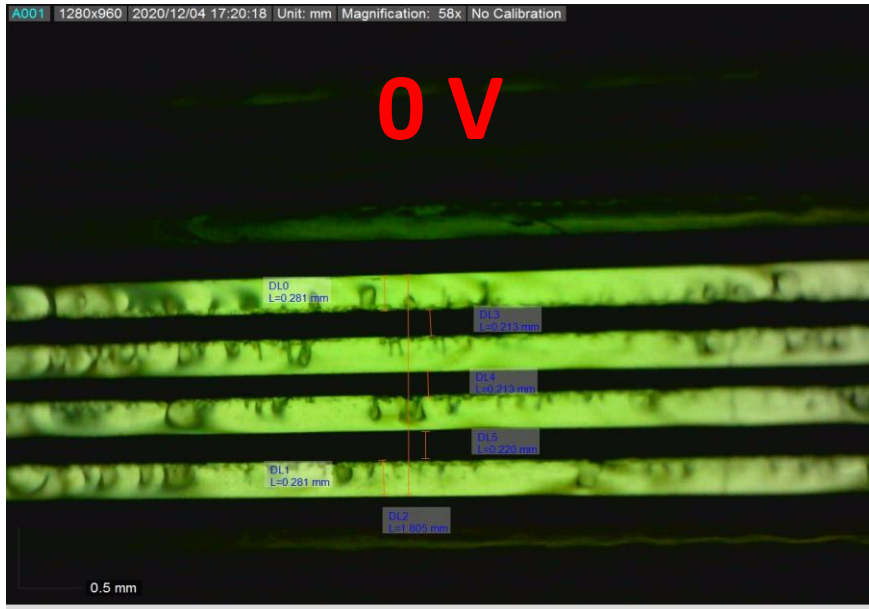
Time-of-Flight system description



	Number of detectors	Number of readout strips	Sensitive area, 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	280	6720	51.8	560	13440 (1680 NINO)

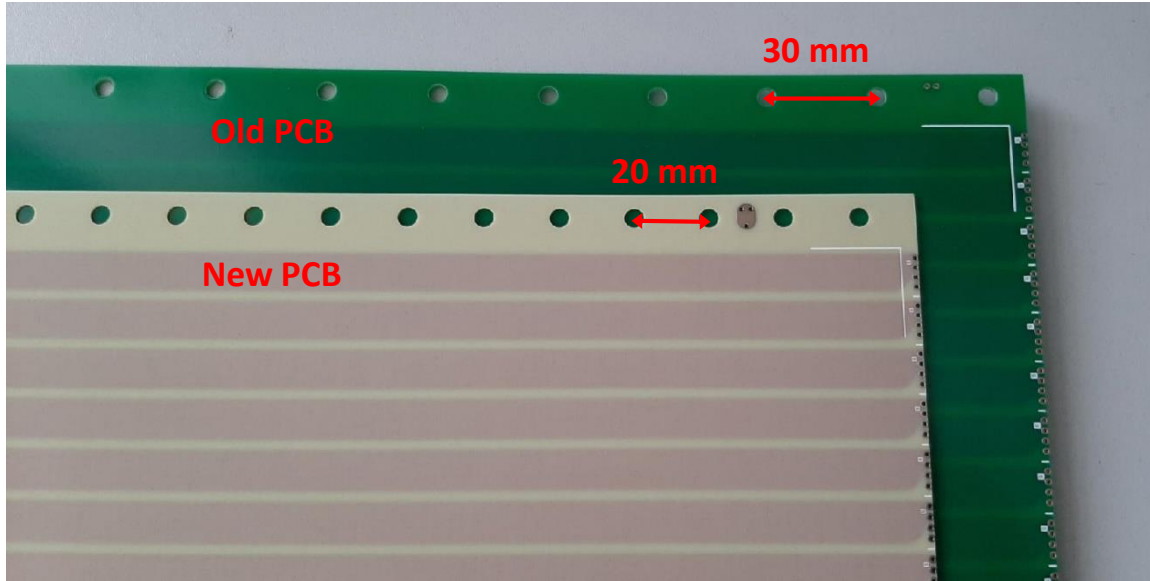
Problem of dark currents with new detectors

Using special gas box with Plexiglass window we have found the effect of electrostatic attraction of glass floating electrodes. The effect was not observed in air, only in the gas mixture for a given design of the detector. Thus, the current flows through the glass, which is a semiconductor.

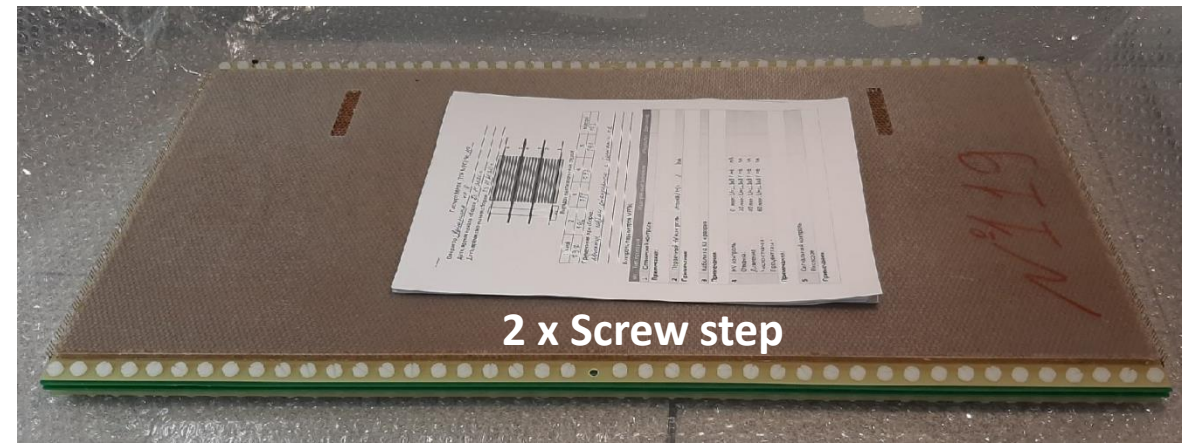


Problem of dark currents with new detectors

New PCB with screws step of 20 mm



Assemble (reassemble) of MRPCs with extra spacers



Actual time schedule of the TOF detectors assembling (in accordance with MPD time schedule)

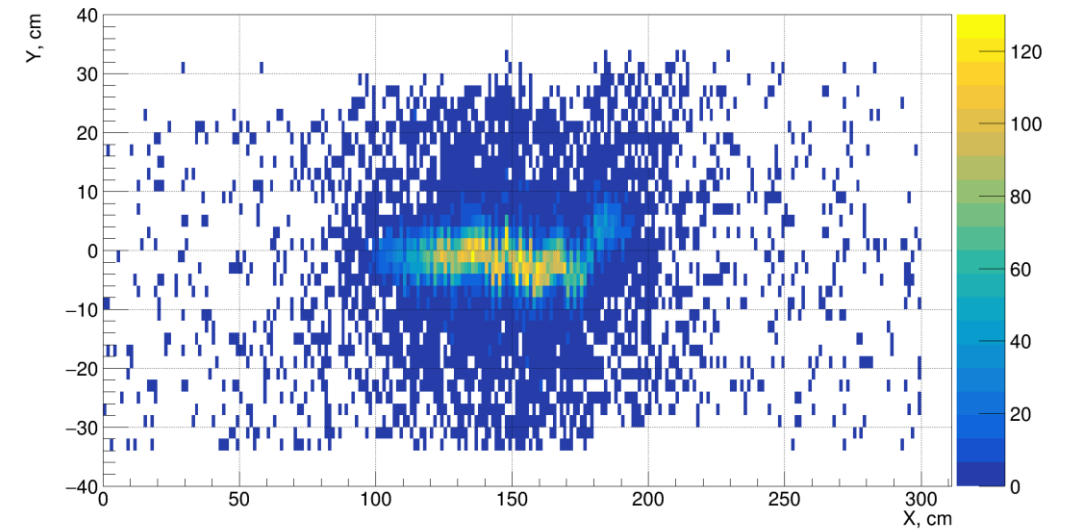
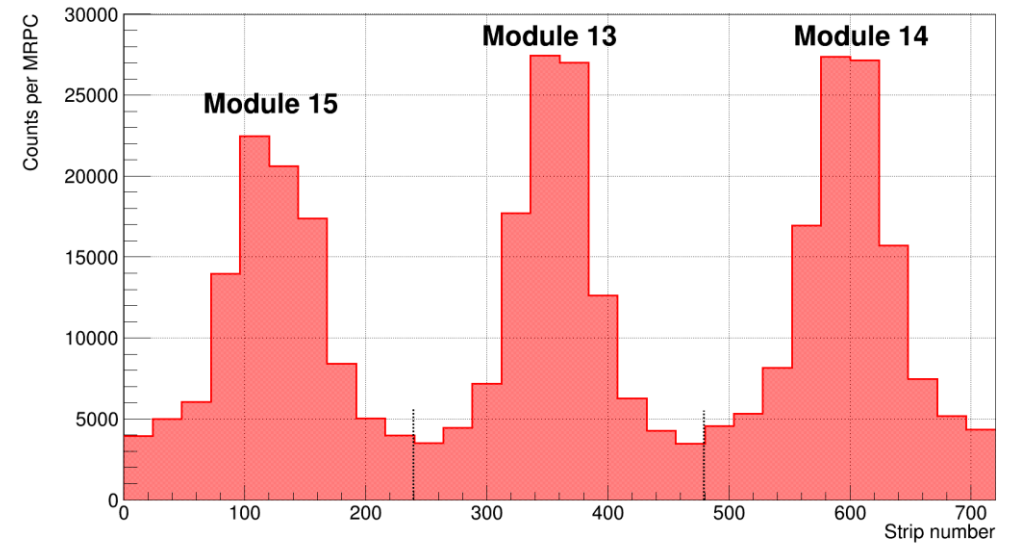
Month/year	Weeks (days)	New detectors	Reassembled
January/2021	3 (15)	3 (3 of 150)	12 (12 of 130)
February/2021	4 (19)	4 (7)	14 (26)
March/2021	4 (18)	4 (11)	14 (40)
April/2021	5 (25)	5 (16) 20 (20.04.2021)	20 (60) 55 (20.04.2021)
May/2021	4 (18)	4 (20)	14 (74)
June/2021	4 (19)	4 (24)	15 (99)
July/2021	5 (25)	5 (29)	20 (119)
August/2021	4 (20)	4 (33)	11 (130)
September/2021	5 (25)	25 (58)	
October/2021	4 (20)	20 (78)	
November/2021	4 (18)	18 (96)	
December/2021	5 (24)	24 (120)	
January/2022	3 (15)	15 (135)	
February/2022	4 (19)	15 (150)	

130 before NY

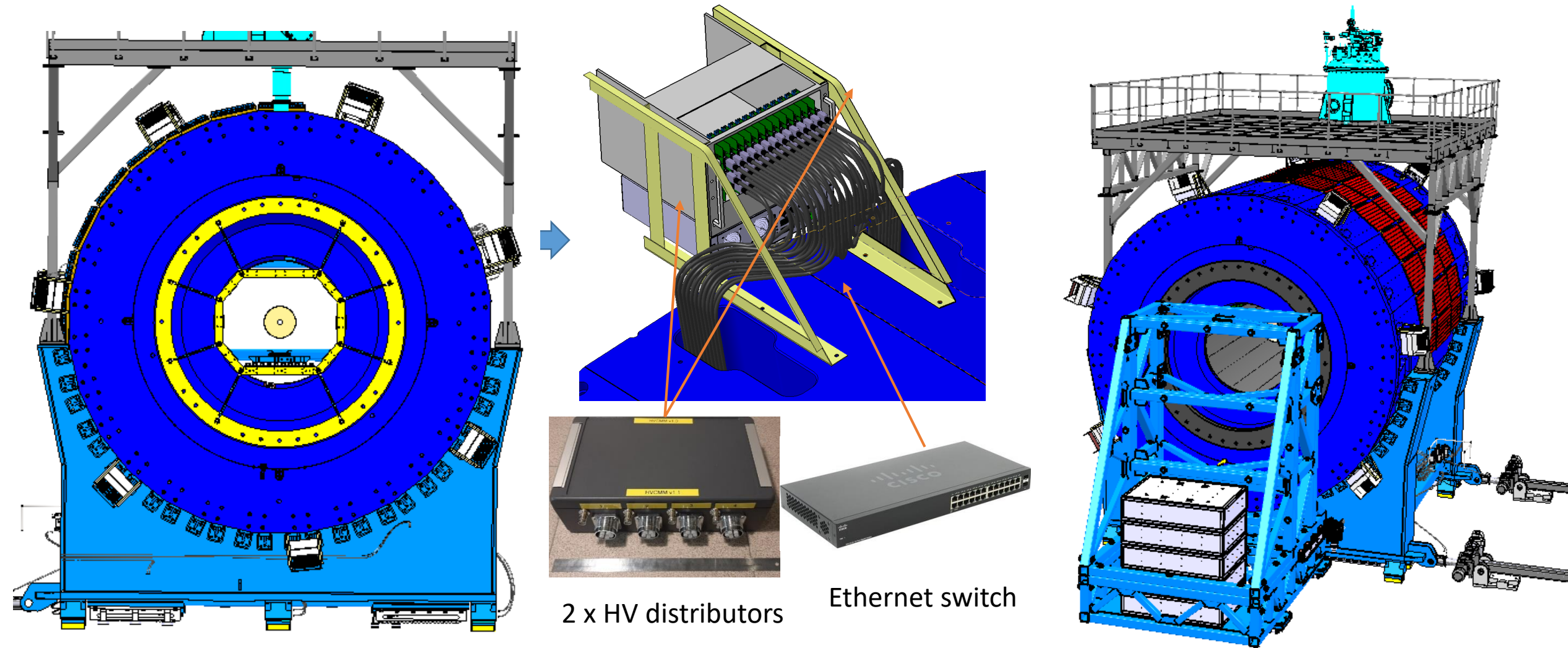
280 total

Testing of TOF modules with cosmic rays

5 modules with reassembled and new MRPCs are ready. 4 of them on the cosmic rays stand.



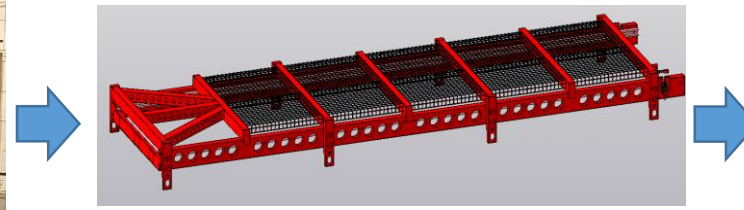
VME crates, HV distributors and signal cables on the yoke



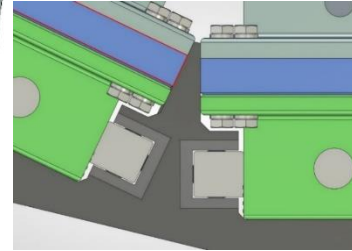
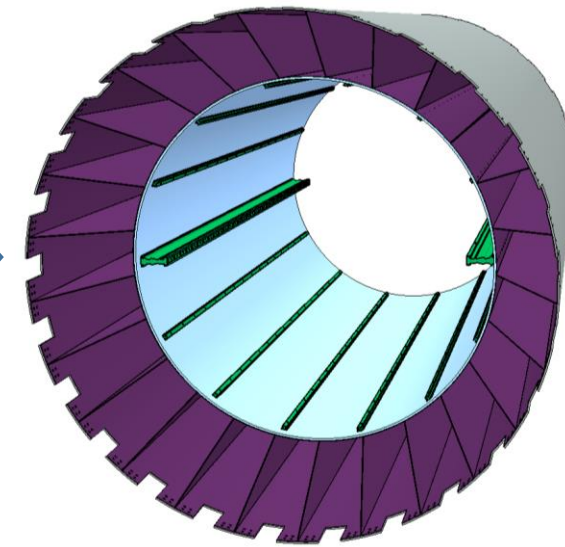


Shelving for TOF modules with cartridges

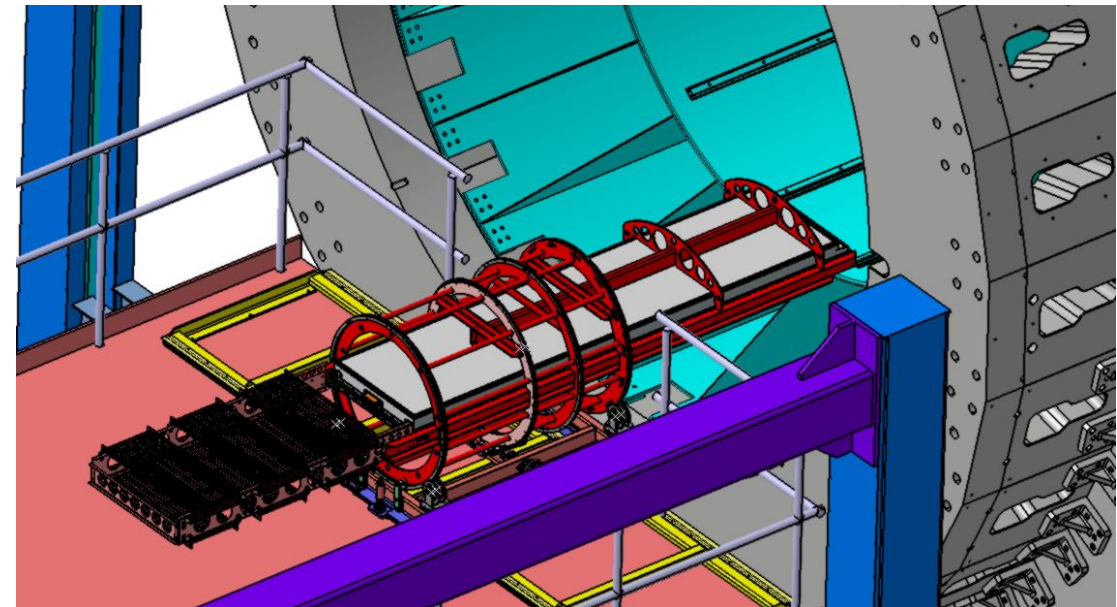
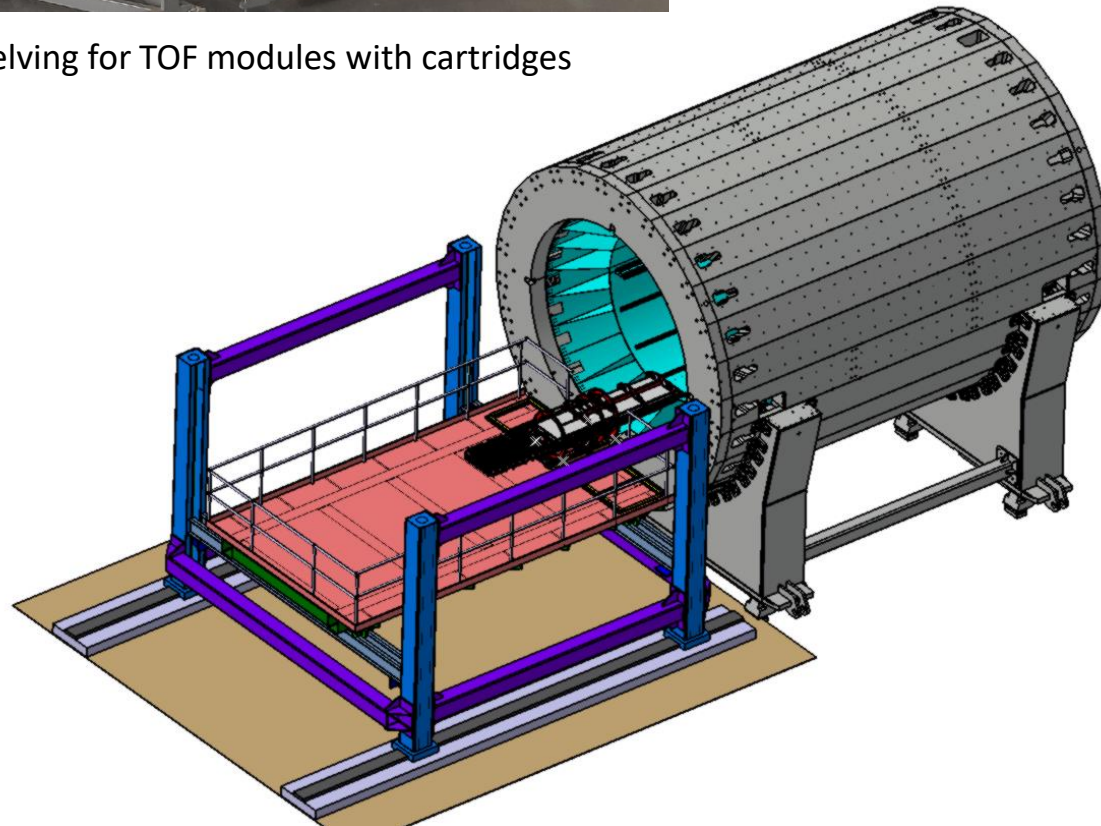
Equipment for installation



Storage cartridge for one module

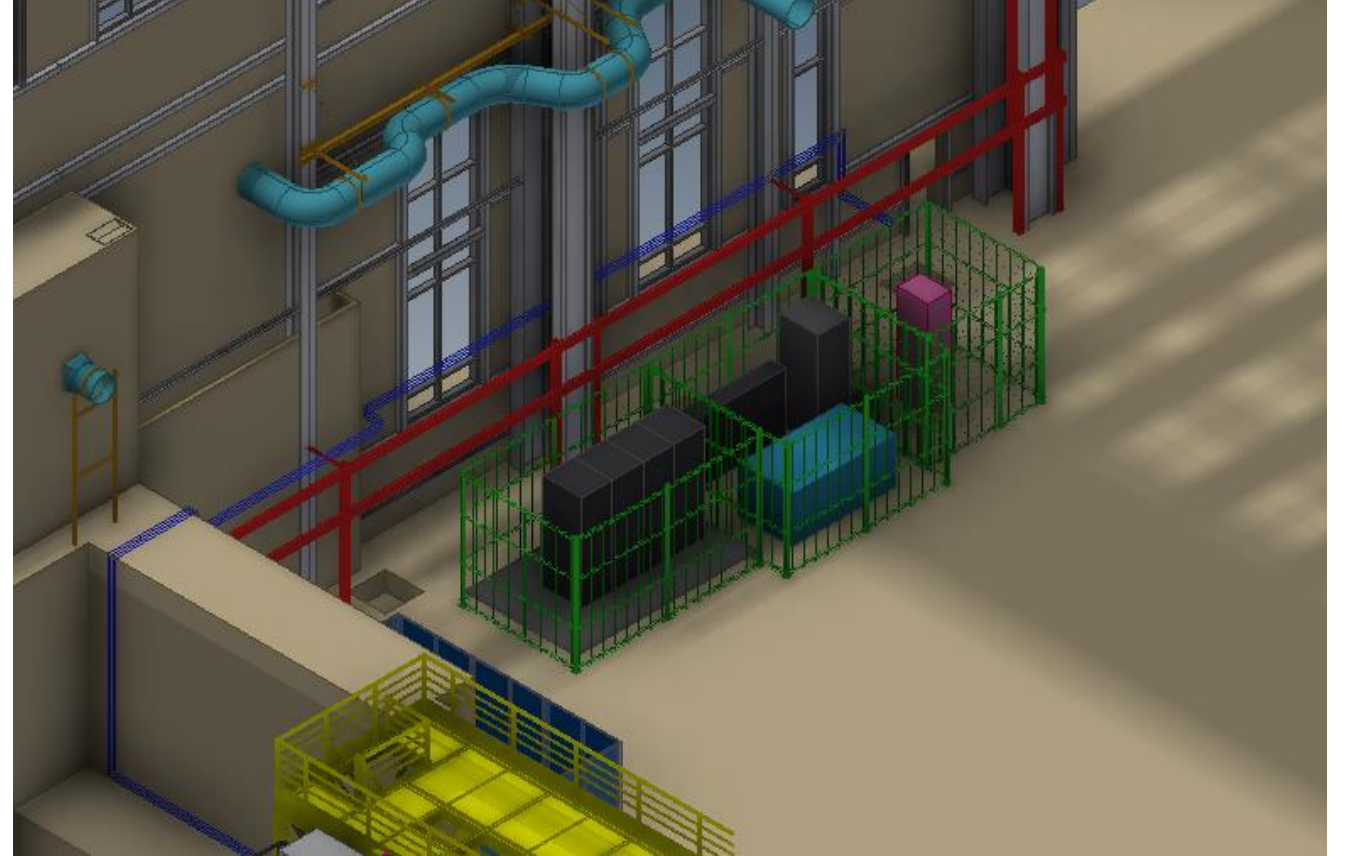
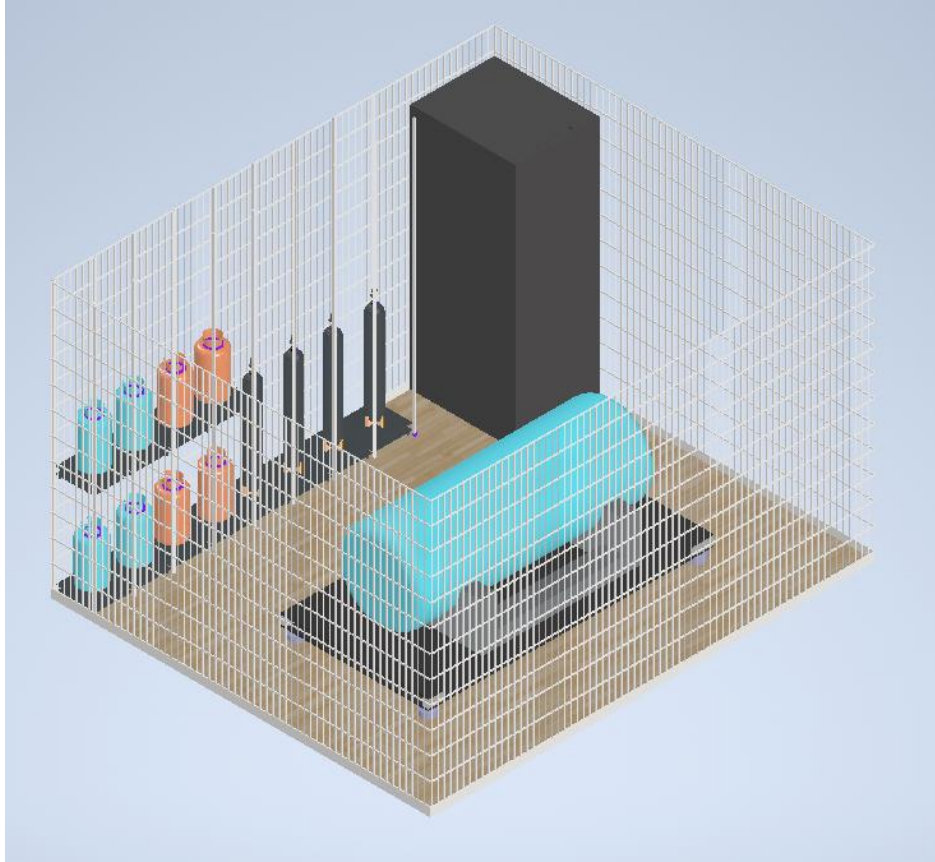


Rails on the power frame



The technical documentation of the TOF installation bench is done. The production tender will be announced shortly.

Gas system for the TOF in the MPD



Current status of production and equipment purchasing

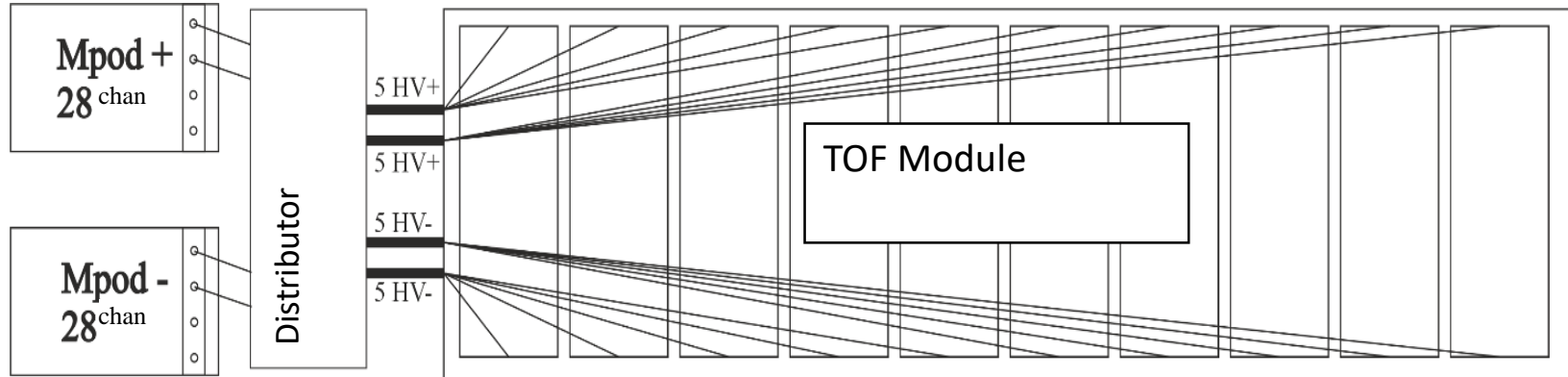
Task	Current status	Readiness
TOF modules		
Materials for detectors	Purchased all the materials and components.	100%
TOF module box	In stock – 22 pcs of 28. There is no information about the final delivery.	78%
TOF cosmic test stand	In operation.	100%
TOF front-end electronics	In stock – ~600 (560 needed).	100%
DAQ sysytem		
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%
Gas system	Fully functional gas system for cosmic stand is in operation. Gas system for building 17 in production. All components are in stock.	80%
TOF integration	The production tender for installation equipment will be announced shortly.	60%
HV & LV systems		
Mpod LV+HV power crate	In stock – 6 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 purchased. HV distribution modules are in mass-production.	100%

Conclusions

- 1) MRPC dark current problem – **solved**
- 2) Integration equipment – **in development**
- 3) VME crates, switches, and HV distributors on the MPD yoke – **discussion**
- 4) Gas supply and storage for the gas system in building 17 – **in development**

Thank you for the attention!

HV&LV cables and distribution



High voltage distribution scheme



5-cores HV cable with GES connectors



98 HV cables and 28 new distribution boxes for 28 TOF modules in production now



98 one core HV long cables with SHV connectors will be made directly in the MPD area