
Status of works on barrel mechanics at IHEP

Andrey Ryazantsev

on behalf of the NRC “Kurchatov Institute” – IHEP Protvino group

Work is in progress, delay is not due to IHEP: waiting for the final decision on pattern of openings and mounting holes

Milestone	Work Description	Prerequisites to start work/ procurement	Validation Criteria	Date
Pre-Series Slice				
1.6 M8	Testing of Pre-Series Slice	1.5	SAT Ab for mechanics of Pre-Series Slice	Aug 2017
Full System				
2.1 M6	Finalise technical specifications for complete Barrel EMC Mechanics	1.6	Technical specifications	Sep 2017
2.2 M7	Develop design documentation for complete Barrel EMC Mechanics	0.0	Final Design Review allowing for series production	Oct 2017
2.3 MX1	Production and delivery of batch 1.1 of the Barrel EMC Mechanics (BEM-B1.1)	2.2	SAT Aa for BEM-B1.1	Nov 2017
2.4 MX1	Production and delivery of batch 1.2 of the Barrel EMC Mechanics (BEM-B1.2)	2.2	SAT Aa for BEM-B1.2	Sep 2018
2.5 MX1	Production and delivery of batch 2.1 of the Barrel EMC Mechanics (BEM-B2.1)	2.2	SAT Aa for BEM-B2.1	June 2019
2.6 M9	Production and delivery of all remaining (batch 2.2) Barrel EMC Mechanics (BEM-B2.2)	2.2	SAT Aa for BEM-B2.2	Nov 2019
2.7 M10	Participation in the assembly of the Barrel EMC Mechanics	2.3	SAT Ba for complete Barrel EMC Mechanics	Dec 2020

Delay with returning of the assembling devices

 New date: May-June 2019



April, 2018 : first installation of the Support beam was successfully performed by Specialist From IHEP, but...

Cooling pipes and thermo insulation are not ready yet!



Current work at IHEP

- Preparation of working space and equipment for the beginning of alveoli packs mass production immediately after receiving of the assembling devices;

- Precise cut using special tools



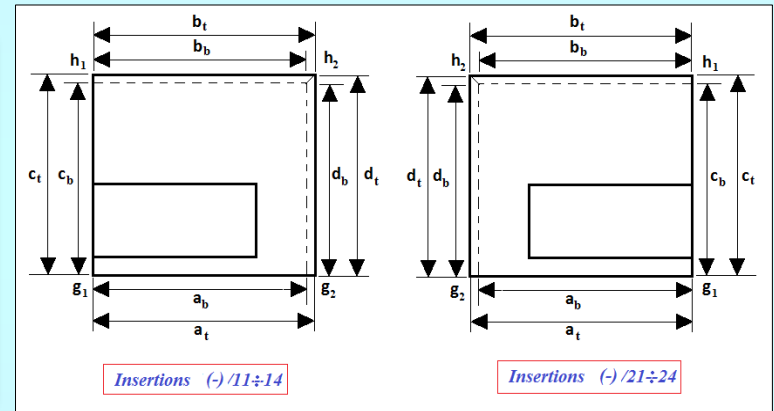
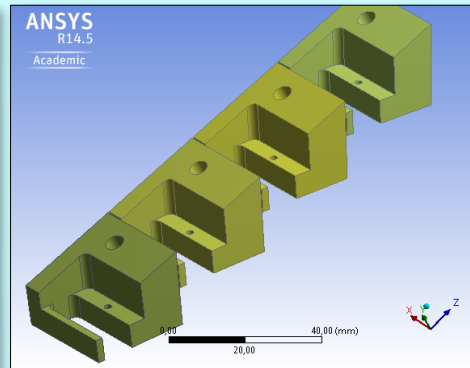
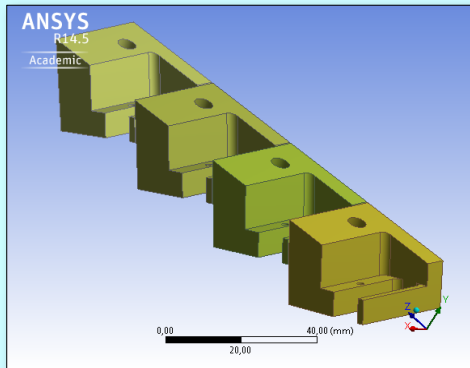
- Precise gluing in packs of five units using devices, Special hardening technology in oven.



- About 1500 single alveoli units of 18 types



• Mass production and quality control (measurements with the CMM according to Quality Plan) of rear inserts and intermediate plates of types 4(-) through 7(-) and 4(+) through 11(+) is in progress;



Name	Δa bot / top	Δb bot / top	Δc bot / top	Δd bot / top	Δg 1 / 2	Δh 1 / 2	
I5(-)/11a	-0.15 / -0.15	-0.13 / -0.14	-0.14 / -0.16	-0.17 / -0.18	-0.05 / -0.03	-0.11 / -0.10	OK
I5(-)/12a	-0.16 / -0.17	-0.14 / -0.16	-0.18 / -0.19	-0.20 / -0.21	-0.06 / -0.04	-0.14 / -0.13	OK
I5(-)/13a	-0.17 / -0.17	-0.16 / -0.17	-0.17 / -0.18	-0.20 / -0.21	-0.07 / -0.04	-0.15 / -0.14	OK
I5(-)/14a	-0.16 / -0.16	-0.15 / -0.15	-0.21 / -0.22	-0.19 / -0.19	-0.03 / -0.04	-0.14 / -0.13	OK
I5(-)/21a	-0.16 / -0.16	-0.15 / -0.16	-0.20 / -0.20	-0.19 / -0.19	-0.04 / -0.04	-0.12 / -0.12	OK
I5(-)/22a	-0.16 / -0.15	-0.14 / -0.14	-0.19 / -0.21	-0.18 / -0.19	-0.03 / -0.04	-0.10 / -0.10	OK
I5(-)/23a	-0.14 / -0.14	-0.13 / -0.14	-0.21 / -0.23	-0.17 / -0.19	0.00 / -0.02	-0.12 / -0.12	OK
I5(-)/24a	-0.16 / -0.17	-0.14 / -0.14	-0.21 / -0.21	-0.19 / -0.20	-0.03 / -0.04	-0.14 / -0.14	OK

- **Nearest milestone:** production and delivery of batch 1.2 of the Barrel EMC Mechanics (BEM-B2.1) is shifted in time – new date is ~ **May-June 2019**, IHEP is fully managing this work;

- **Next goal:** production and delivery of two support rings, all support beams, support feet and module plates (BEM-B2.1). IHEP is partly managing this work:

Pattern definition of openings and different mounting holes in the bottom of the Support beam (work is in progress in collaboration with Giessen University, new strength calculations will be necessary) as well as the final design of cooling system (out of IHEP responsibility) must be done first.

