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Surface treatment experience of the all superconducting gun cavities

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The performance of superconducting cavities depends extremely on the material and surface properties. In the last decades processes have been developed for the successful series production of accelerating cavities needed for large scale facilities like the European XFEL. A main feature of these cavities are relatively large beam ports on both sides which can be used for the surface treatment processes. In contrast, superconducting gun cavities have only one beam port and a half-cell with a back-wall acting as mirror plate with some small space for the cathode in the center. Being apparently only a small feature, this fact tuns out requiring special attention for the surface treatment. This is in particular the case, if the target are similar high gradients like in the accelerating cavities. In our contribution we present the experience made within the last years and how we finally achieved high gradients.

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