

NINE - CELL TESLA SHAPE CAVITIES PRODUCED FROM HYDROFORMED CELLS

W. Singer, A. Ermakov, G. Kreps, A. Matheisen, X. Singer, K. Twarowski [DESY, Hamburg, Germany]
R. Crooks [Black Laboratories, L.L.C., Newport News, USA]
P. Kneisel [JLAB, Newport News, Virginia, USA]
I.N. Zhelezov [RAS/INR, Moscow, Russia]

Abstract

Production of two types of seamless niobium tubes for hydroforming of RF cavities has been developed. The first type of tubes, developed at DESY, have been spun from sheets and flow formed. The second type of tubing was developed by Black Laboratories in collaboration with the company ATI Wah Chang. These longer length tubes were extruded from a heavily deformed billet, processed for a fine-grained microstructure and flow formed. Several seamless three cell units have been produced by hydroforming at DESY. Some of the units have been treated by buffered chemical polishing and RF tested at JLab. The accelerating gradient Eacc of the units exceeded in most cases 30 MV/m. Three of the 3-cell units from the first type of tubing were combined to three 9-cell niobium cavities at the company E. Zanon. The 3-cell units from extruded tubing are welded together to the fourth 9-cell cavity at JLab. All cavities are in preparation for the RF tests at DESY and JLab. Up to now two of the cavities are electropolished and tested at DESY. The first cavity reached an accelerating gradient of Eacc of ~30 MV/m, the second one ~35 MV/m.

**CONTRIBUTION NOT
RECEIVED**