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Innovative Clamping and Braze-Free Accelerating Structure.

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Recent high RF power experiments show that hard structures, fabricated without high-temperature processes, achieve a better high gradient performance in terms of accelerating gradients. Two three-cell standing-wave accelerating structures, designed to operate in the pi-mode at 11.424 GHz, have been successfully built and cold tested. In order to guarantee a vacuum envelope and mechanically robust assembly, we used the Electron Beam Welding (EBW) and the Tungsten Inert Gas (TIG) processes. We present an innovative and compact type of accelerating cavity that avoids any high-temperature processes like brazing or diffusion bonding. Temperature characterization on the cell features during the welding process is also discussed.

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