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Fabrication of a vacuum vessel for a cusp confinement plasma using cast Al¹ MIKE CLARK, CAMI COLLINS, NOAM KATZ, DAVE WEISBERG, JOHN WALLACE, CARY FOREST, Department of Physics, University of Wisconsin - Madison — The Madison Plasma Dynamo Experiment (MPDX) facility will create large, un-magnetized, fast flowing, hot plasma for investigating magnetic field self-generation and flow driven MHD instabilities. The scale of the experiment is important to do this science, and so bigger is better. The core infrastructure of MPDX is the matching pair of 3 meter diameter hemispheres. For MPDX the cost and complexity of the vacuum vessel built by traditional means challenged the budget. The path to making this high-vacuum vessel led the research team and collaborators to push the limit cast Al. The challenges and solutions of making the MPDX vessel will be discussed and illustrated today.

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Mike Clark
Department of Physics, University of Wisconsin - Madison

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