WP12-MAT-01-HHFM-04-06/KIT/BS
“Deep Drawing W Thimble”
Reporting period: July 2012 - February 2013
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Ø28 mm sheet, 700°C, path-controlled ~1 µm/s
Last deep drawing tests results

W. Basuki, P. Norajitra, L. Spatafora, EFDA MON MTG, Ljubljana, June 2012

Best result achieved:
Ø 28, 700 °C, new flat tool

h = ~12 mm

Sample EDM cut in half and prepared
Optimisation: Computer simulation of 2-step deep drawing (DD) with W sheet, $\varnothing$ 30 mm, 1 mm, $@T = 1000 \, ^{\circ}C$

First step: $D_{\text{thimble}} = \varnothing 20 \, \text{mm}$

Advantage of 2-step DD: Thimble wall thickness adjustable within good tolerance

Second step: $D_{\text{thimble}} = \varnothing 15 \, \text{mm}$
Summary

- Best deep-drawing result was achieved with “thimble-like” punch shape at 700 °C.

- Computer simulation with ABAQUS shows that deep-drawing in two steps even enables a better result with respect to the thimble wall thickness.