



D3.4 – Hydroformed pre-coated test interconnects with various shaping depths, slopes and curvature radii delivered for investigation at CU and FZJ

PROJECT INFORMATION

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PROJECT FULL TITLE	Low Cost Interconnects with highly improved Contact Strength for SOC Applications
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CALL IDENTIFIER	H2020-JTI-FCH-2018-1
PROJECT WEBSITE	www.lowcost-ic.eu

DELIVERABLE INFORMATION

WP NO.	3
WP LEADER	Julich
CONTRIBUTING PARTNERS	Borit
NATURE	
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CONTRIBUTORS	
CONTRACTUAL DEADLINE	1/10/2019
DELIVERY DATE TO EC	1/10/2019

DISSEMINATION LEVEL

PU	Public	
PP	Restricted to other programme participants (incl. Commission Services)	
RE	Restricted to a group specified by the consortium (incl. Commission Services)	
CO	Confidential, only for the members of the consortium (incl. Commission Services)	X

1 Introduction

The aim of task 3.4 is to investigate the forming behavior of the various materials considered in this project. Based on the design of the interconnect provided by Sunfire, Borit performed some forming tests using the materials provided by Sandvik.

2 Forming of samples based on Sunfire interconnect

Based on the positive outcome of some initial tests, Borit designed and milled a test tool based on the SunFire interconnect design. Figure x shows the design and the area selected for the forming trials as this includes all relevant features of the entire design.

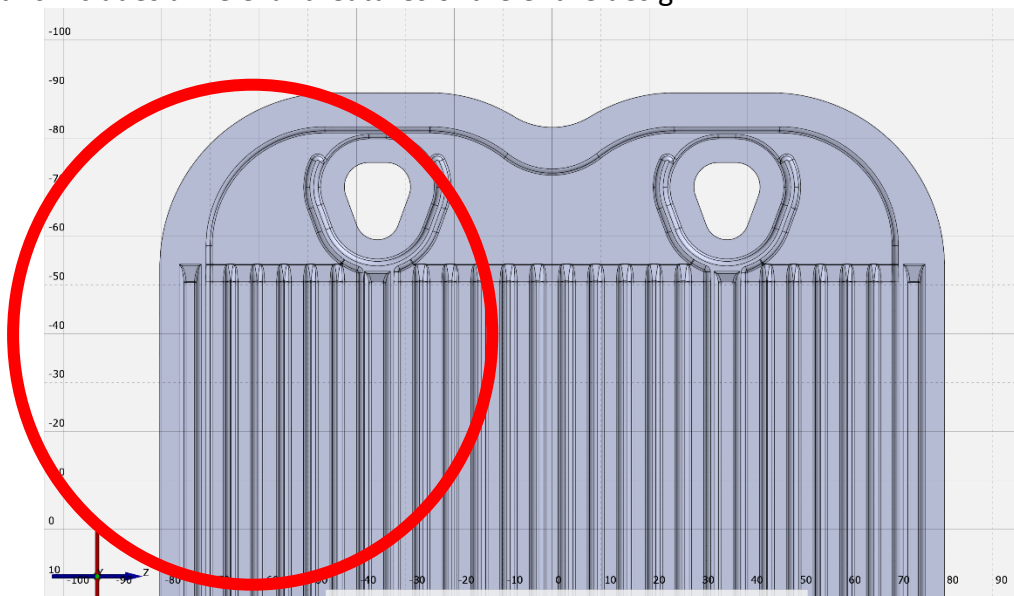


Figure 5 Design of the interconnect and area selected for the forming tests

Using this tool, samples in coated 441 in 0.3 and 0.5 mm thickness and Crofer H 0.3mm are produced. For all materials, the forming didn't show any problems wrt cracking the material as evident from the figure 6-7-8 shown below. Measurements are then performed to investigate and quantify the achieved shape and to guide the design of the new interconnect, taking the production constraints into account. From these measurements it can be concluded that the achieved depth is almost independent of the material, indicating that the Hydrogate process can be used without any issue to form the Sunfire interconnect in the 2 tested materials. As expected the achieved radii at the bottom of the channels are depending on the material thickness.

The formed samples will now be tested to investigate the influence of the forming process on the material and coating.

2.1 Coated 441, 0.3 mm

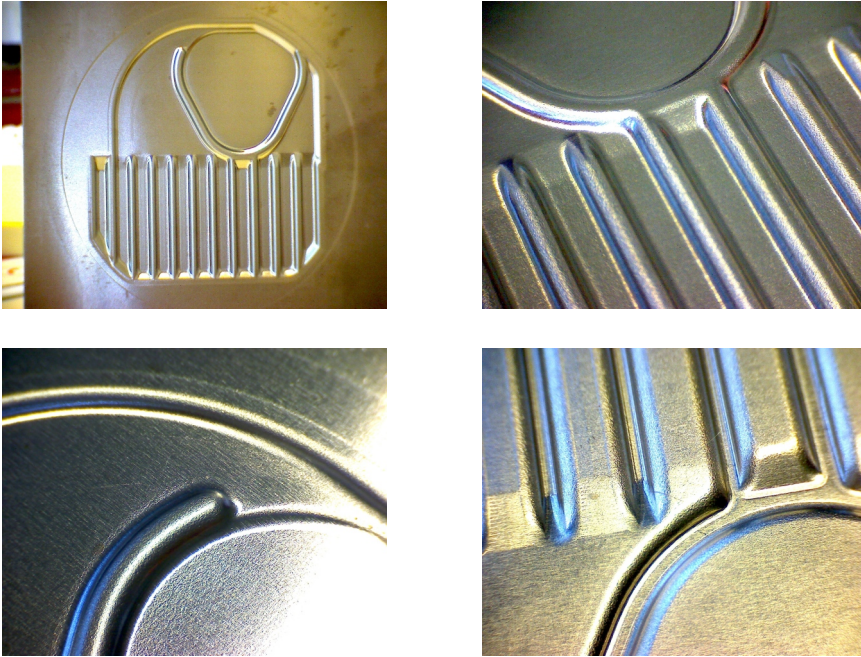


Figure 6 Formed samples in coated 441, 0.3mm

2.2 Coated 441, 0.5 mm

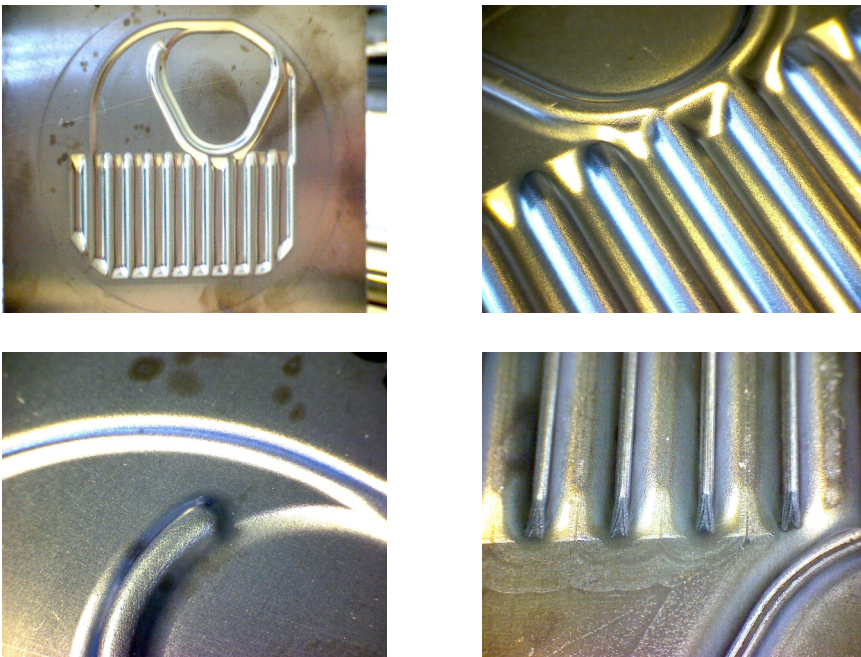


Figure 7 Formed samples in coated 441, 0.5mm

2.3 Coated 441, 0.3 mm

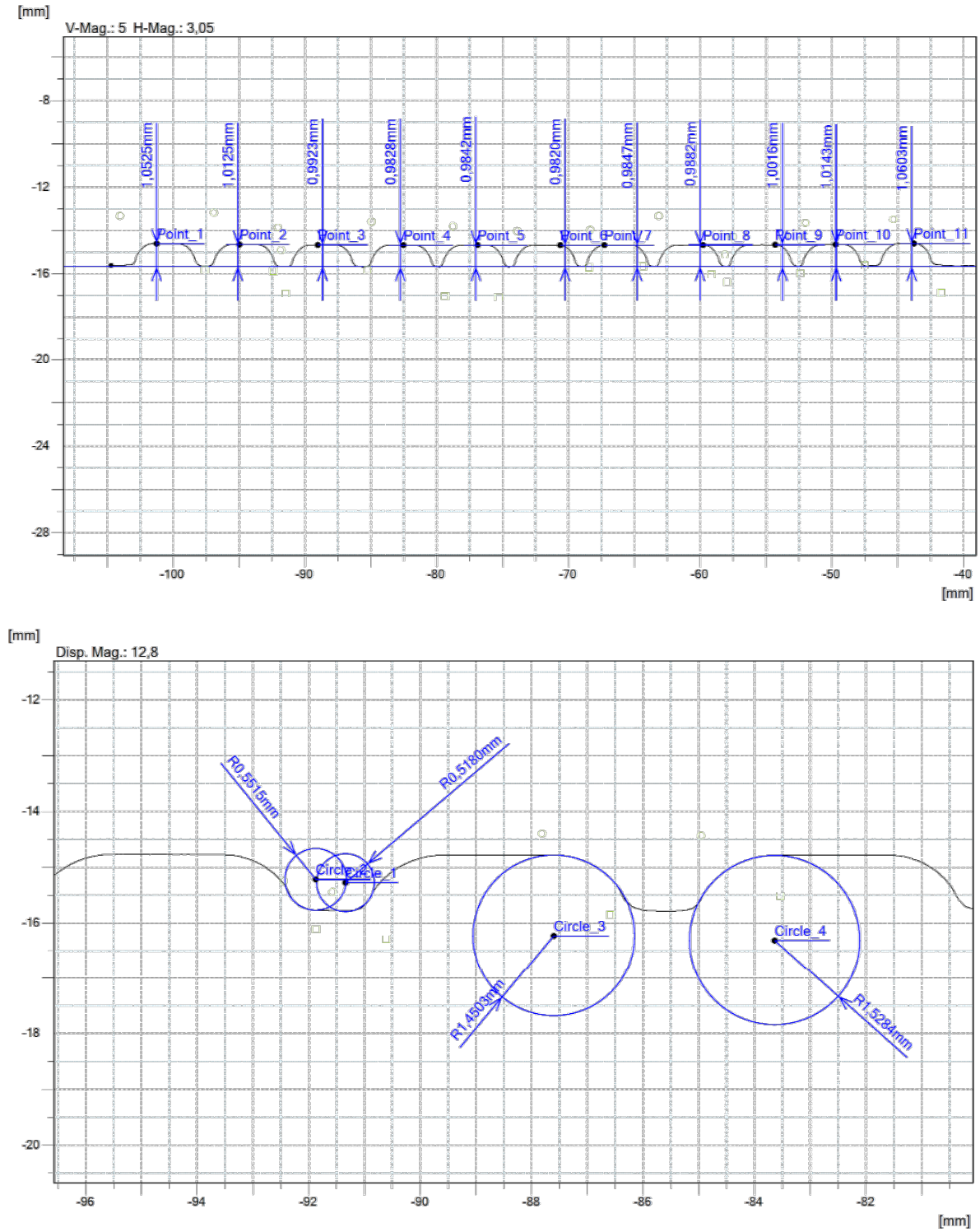


Figure 9 Measurements on the formed samples in coated 441, 0.3mm

2.4 Coated 441, 0.5 mm

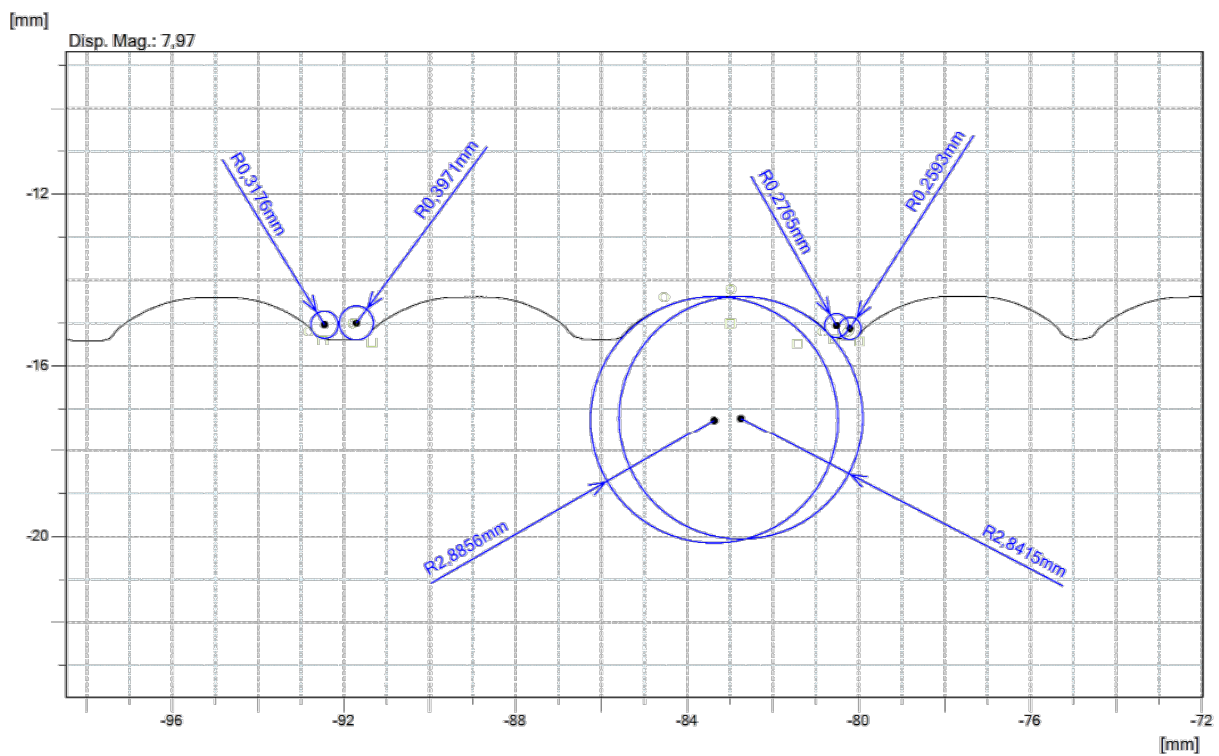
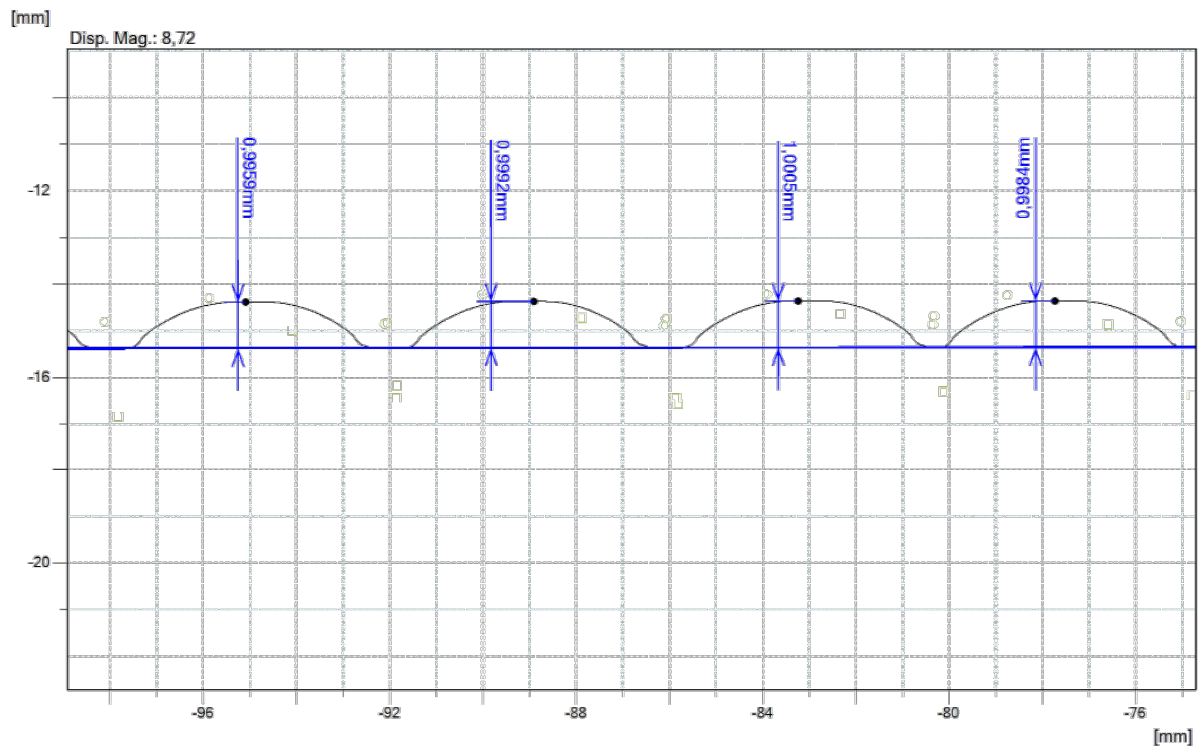


Figure 10 Measurements on the formed samples in coated 441, 0.5mm

3 Acknowledgment



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