

The Effect of Creasing Method and Tooling on the Geometry of Formed Creases in the Creasing Process of Coated and Uncoated Paperboard

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Abstract. Creasing is a method, which is used to produce grooves in fibre-based materials, such as multi-layer paperboard or composite materials such as polymer-coated multi-layer paperboard. These grooves act as folding lines, which guide and control the subsequent folding of the material. The formation of creases is crucial for the functionality of produced blanks in subsequent processes, such as press-forming where the creases have an effect on the formability of materials. The plastic deformation and geometry of creases for polymer-coated and uncoated multi-layer paperboard were investigated using two different creasing processes, flatbed die-cutting and a digital creasing and cutting table with a creasing wheel. The presence and dimensions of the creasing grooves were varied to investigate the effect on the formed shapes. A wide area 3D measurement system was used to analyse and measure (Figure 1) the dimensions of the formed creases. The analysis occurred in machine-direction (MD) and cross-direction (CD) of the fibre-orientation in the formed material. The results show that that the used process and tool selection has a clear effect on the formed shapes.

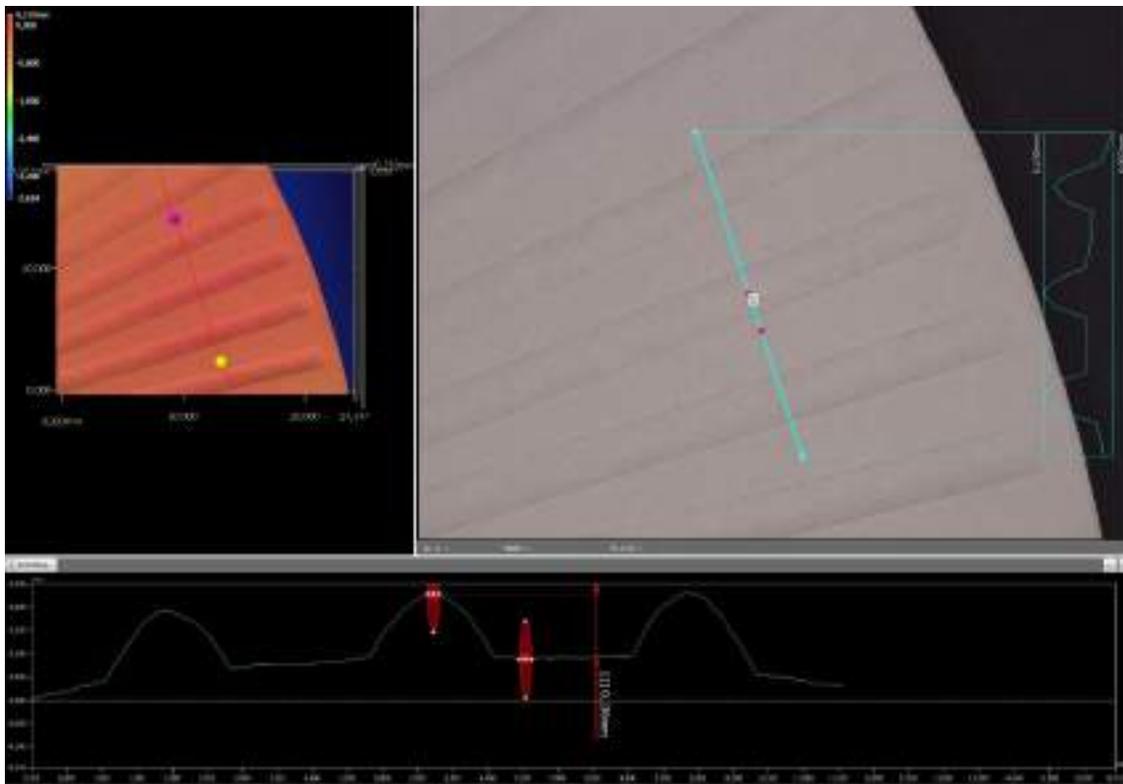


Figure 1. An example of the measurement of the formed creases