

DEVELOPMENT OF A LASER BASED PROCEDURE FOR FORMING OF FLEXIBLE EDGED AND CAVITIES OF ALUMOSILICATE FLAT GLASS

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The local heat input in very short process times is one of the important advantages of glass processing by laser radiation. This recent technology is based on partial heating whereby it is necessary to preheat the whole substrate because of the high thermal coefficient and the low thermal shock resistance. The laser scanning system deflects the material-specific CO₂ laser radiation onto the bending zone, thus the induced energy heats up the material and the viscosity decreases. The most promising results are from the variation of the pressure and the path length of rolling of the bending tool and the laser performance. On the basis of these effects, a specific furnace including three heating chambers was developed. In conjunction with the laser radiation, it is possible to generate flexible forms of edges and cavities. Currently, the achieved results of the radius (5 mm) have a deviation of ± 0.2 mm. It is also possible to generate different cavities by using local vacuum deep drawing. Laser forming of cover glasses allows flexible forms of edges and cavities for the high expectations of the entertainment and automotive industry.

