

STUDIES REGARDING THE DOOR CAISSONS DEFECTS IN THE FORMING PROCESS

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Abstract: *The purpose of this article is to present the results of a study regarding the defects appeared in door caissons forming process. The study realized is a result of parts experiments based on 3D measurement laboratory. There were used 3D instruments. Finding out and avoiding the defects is very important in the forming process. The research must be extended for other door caissons for different types of cars. The studies presented offers useful information in avoiding defects of door caissons of the cars and obtaining high quality automobile parts.*

Keywords: *forming, caisson, defects, wrinkles, folds*

1. Introduction

The theme was chosen for its importance and actuality in industrial automotive field and for necessity of improving the quality of parts obtained under the forming process. Even it seems unrealistic to obtain parts without defects, this is an objective pursued by a lot of companies and partially realised. It can be stated that there is no factory of machines and apparatus not having a department for cold forming processes [7]. The quality of formed parts is an important goal and depends of factors as: material and its structure, the semi finished surface condition, the geometry, condition of active areas, the value of clearance between active elements, the forming degree and quality of lubrication [3].

The most common defects of formed parts are:

- folds, wrinkling in the fledge, wrinkling in the wall, tearing, earrings, scratches, cracks and imprints.

In figure 1 can be seen the folds on a formed part.



Figure 1: Folds

2. Study of defects on a front door caisson

The most common defects of formed parts are:

- folds occurring because of tangential compression[17] or insufficient press of Blank holder force (BHF) or because of a too great radius of the forming plate, that makes the semi - finished to fall under the pressing element and to form plies [9] .

- wrinkling in the fledge, occurring because of the buckling in circumferential direction. The cause that leads to wrinkles appearance is the insufficient press of the retaining element or binder [11].