

Quality function deployment essay

[Business](#), [Industries](#)



Improving the casting process is of a great importance for researchers and engineers, because, by this process, can be manufactured very complex parts having very high engineering characteristics which cannot be obtained by other processes. Quality planning of each process represents an important activity in assuring the unimproved quality of the final products.

SF (Quality Function Deployment) is an important tool in production planning, which starts with identifying the customer requirements and parameterization of the steps to be achieved in getting the desired demands. SF method is recommended to be used for strategic deployment of the aims which refer to product and company market, starting with conceiving phase and analyzing its behavior on the consuming market. This paper presents a route of SF implementation for products manufactured by casting . Due to SF mechanism itself, there will be returned a product designed with modified characteristics that concern the customer requirements. KEYWORDS: SF, casting, engineering characteristics, efficiency, customer requirements.

. INTRODUCTION Casting is the most used method for ransoming raw materials to final components. Casting process provides the possibility to manufacture near-net-shape castings with high quality level and dimensional accuracy [1, 2]. In automotive industry, hundreds of thousands of engine blocks and transmission cases are manufactured every year and one of the most important research subjects in casting industry is to conceive the most suitable fabrication plan. Casting process provides some advantages, as reducing or eliminating the machining processes for obtaining the final product, manufacturing of parts with very employ geometry, which otherwise

would demand assembling of several components and the simplicity for adapting to mass-production processes [3, 4].

Owing to a very strong competition on the market, the companies are forced to develop very high quality products in order to survive and to be profitable.

Quality planning is the activity of quality goals identification and the development of products and processes used for attachment the goals.

Quality planning includes 6 stages: 1) identification of quality goals, 2) customer identification, 3) determination of customer requirements, 4) development of new product engineering characteristics in order to answer to customer requirements, 5) development of the processes which are capable to manufacture the product and 6) establishing the process control.

Quality function deployment (SF) is a strong tool of quality planning. It is a structured methodology used to translate the customer requirements to engineer characteristics and manufacturing plans.

The dimensional accuracy for manufacturing this part must be very high in order to fulfill its purpose. The dimensional accuracy consists in obtaining the parts dimensions between some limits imposed by condition that the values of this limits to comply with the functional purpose. The geometry precision insists in generating with accuracy the entire surface of the cast part. In casting, there are not generated one or more surfaces of the cast part, like in case of other machining processes, but is simultaneously generated the entire cast part surface. In this case, it can be considered that the part has a unique surface, very complex and shut, which is the result of a unique generation process and having a unique set of process parameters [8]. The

main question which is posed here is “ Why is it necessary the quality planning of the cast parts? “. Very often the defects may occur because of the crosscurrent, casting regime or moulds machining quality. That leads to incomplete shapes (break caliper.

The mould is not adequate filled because there is not enough melt material or the melt material is solidifying to fast because the incorrect feeding system positioning or because of the wrong position of the complex cast parts axes). During the designing and manufacturing stages of a new product, it is necessary to determine exactly the product final form that fulfils the entire final purpose. Redesigning and remaking the product is a very expensive and time-consuming process [9].