



DRS - Design for residual stress in gear manufacturing chain

Motivation

Gears arise as one of the components most influenced by residual stresses (RS) that originate from the combination of a complex stress state generated by the evolution profile and manufacturing chain with a wide variety of processes. Qualitative studies have been conducted with the main objective of optimizing the manufacturing chain in order to obtain an optimal state of RS at the end of manufacturing.

Objective

Develop a predictive model for RS in gears induced by the interaction between manufacturing processes. This oriented development of the manufacturing chain in search of a specific state of RS conceptualizes the Design for Residual Stress (DRS).

Approach

The main contribution of this project will be the expansion of a concept, currently phenomenological, to a predictive approach. With this, the analysis of the interaction between processes can be made computationally.

