SAFEFORMING

Intelligent System for Defect Prevention in Cold Stamping Components

RESEARCH PROJECT 2017 - 2020

The occurrence of defects, namely edge cracking, in cold metal stamping components is a major inefficiency factor of this operation, leading to high unproductiveness and unforeseen costs that diminishes the competitiveness of companies.

200 SAMPLES

MATERIAL REELS

STEEL - STAINLESS - ALUMINUM

14 different types

of metal sheet

between 0,8mm and 8 mm

Defect Characterization

Cause Identification

193

Borehole Expansion Tests

Tensile Tests

Samples for Analysis and Microstructural Characterization

RESULTS

Edge cracking occurrence prediction model
by computational learning algorithm

1 SAMPLE COLLECTION

2 STRUCTURAL ASSESSMENT

3 TRACTION & BOREHOLE EXPANSION TESTS

4 INTRODUCTION OF DATA IN THE APPLICATION

5 EDGE CRACKING PROBABILITY ASSESSMENT

Decision support tool in the selection / reception of raw material, and the tool design process and stamping process to minimize production problems.

DATA BASE

Predictive edge cracking parameters based on the data of each material chemical composition, microstructure, mechanical properties and plastic deformation limit by numerical simulation