The ThermoPlastic composites Research Center (www.tprc.nl) is an open research center for fiber reinforced thermoplastic composites. TPRC performs research in co-operation with national and international partners, such as GKN/Fokker, Toray and Boeing, on the processing and performance of thermoplastic composites. TPRC would like to reinforce its research team with an intern or graduation student on the topic of:

CHARACTERIZATION OF THE DEGREE OF SPRING-IN FOR STAMP FORMED PARTS

Project description

Thermoplastic composite parts are increasingly used in the aerospace industry because of their superior stiffness to weight ratio and rapid manufacturability. However, there are still some challenges in manufacturing. During part production, defects such as warpage and spring-in can occur. Parts with such defects are generally scrapped because of problems during assembly, as well as uncertainties in the mechanical performance and reliability.

More knowledge on this subject is required to properly simulate and predict part warpage and spring-in. This assignment is aimed at characterising the degree of spring-in for the v-shape research geometry. The results of this research will contribute to the optimization of production processes at the industrial partners of the TPRC.

Tasks

This assignment focusses on spring-in and warpage in thermoplastic composite parts. The work includes:

- Production of laminates and stamp forming of thermoplastic composite parts at the TPRC
- Measuring the degree of spring-in of v-shape parts using an experimental measurement set-up
- Evaluation of experimental results, identifying the relation between temperature and degree of spring-in
- Discussion of the results in a technical report

Practical information

The project is to be performed within a time frame of six-nine months. You will have a desk at TPRC and receive a monthly trainee remuneration of 250 Euro. Please contact Erik Krämer (erik.kramer@tprc.nl or 0618587793) for additional information.