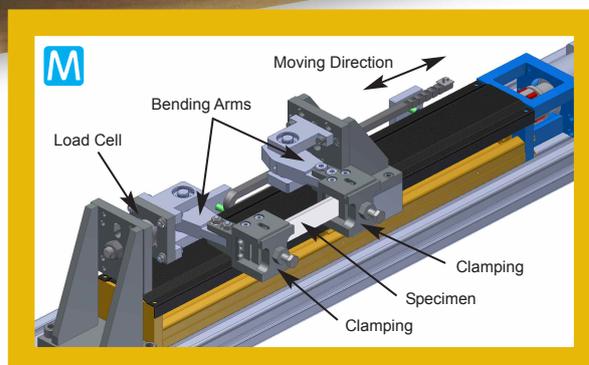


Rollforming the Future®

Exact material
properties,
best simulation
results!

COPRA® FEA BendTester

Advanced Material Testing
for Rollforming



M data M
Sheet Metal
Solutions

► COPRA® FEA BendTester

Finite Element Simulation requires the knowledge of detailed material parameters. The standard tensile test is no longer sufficient to determine the properties of high sophisticated materials. Due to the uniaxial load of the specimen the gradients of material properties in thickness direction are neglected. These variation over the sheet thickness are arising e.g. during special thermal treatments or skin pass rolling.

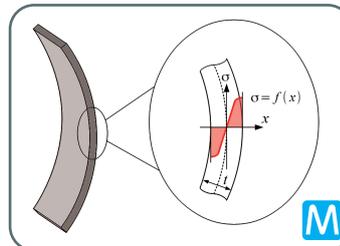
To take into account that the outer parts of the sheet behave in a different way compared to the core of the material the COPRA® FEA BendTester is suitable. Due to the bending of the specimen the load varies in thickness direction of the sheet, which allows the determination of the gradient of the material properties. This test setup is especially advantageous to determine the material parameters as base for a FEA simulation of the rollforming process, as we have similar loading situations in both cases.

For the investigation of the material parameters the results of a test with the COPRA® FEA BendTester are imported into an optimization software which does the calculation of the suitable input parameters for COPRA® FEA RF. Thus the bend test allows an improvement of the simulation results due to adapted material data. The test can be performed for metals with low strength as well as with UHS steels. The geometry of the specimen is a simple rectangle and regular sheet thicknesses can be used.

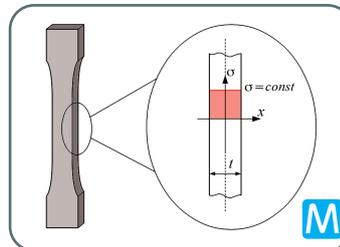
Benefit of the COPRA® FEA BendTester:

- Improved material modelling
- Software for easy determination of the material parameters
- Fully integrated in COPRA® FEA RF
- Best simulation results for e.g. high sophisticated materials
- Useable for nearly all materials
- Easy specimen preparation and test procedure
- Comparative analysis
- Incoming material inspection

Stress curve through the thickness:

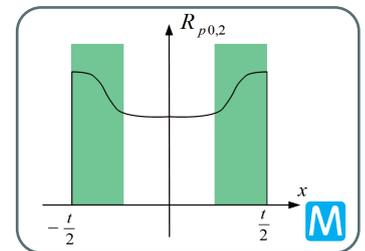


Bend test

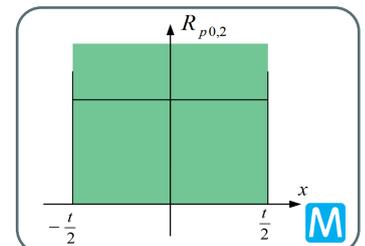


Tensile test

Consideration of the yield stress distribution through the thickness:



Bend test



Tensile test

Rollforming the Future®

www.data-m.com

data M Sheet Metal Solutions GmbH

Am Marschallfeld 17

D-83626 Valley | Oberlandern

Germany

Tel.: +49(0)8024-640-0

Fax: +49(0)8024-640-300

e-mail: datam@data-m.com

Internet: <http://www.data-m.com>

