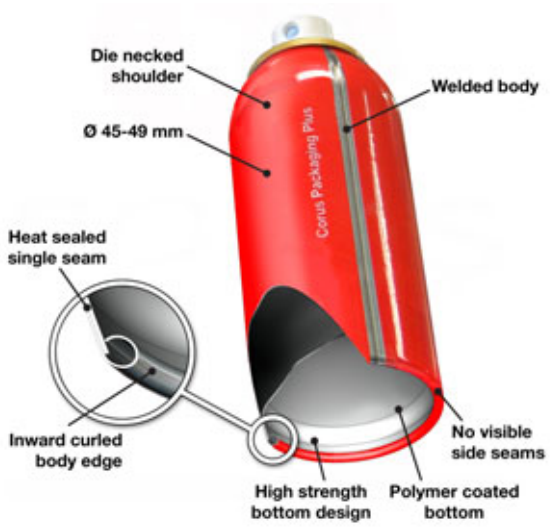
Corus Research, Development & Technology

Die necking

Necking of welded bodies and wrinkling prediction

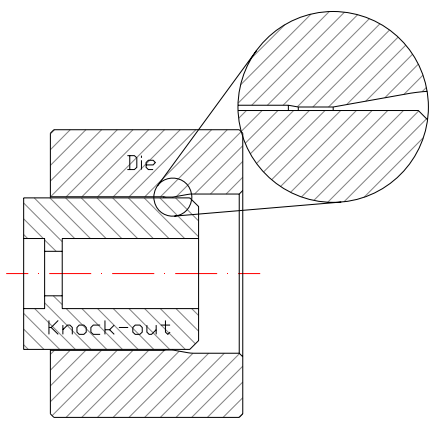
Necking of welded aerosol bodies

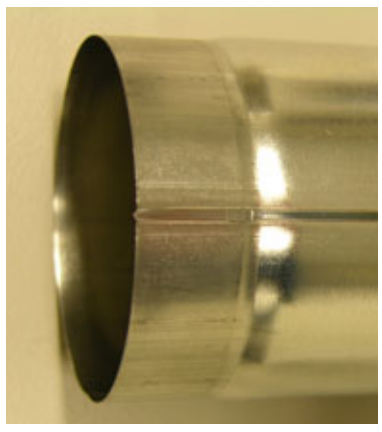


New concept of a welded aerosols

Characteristics:

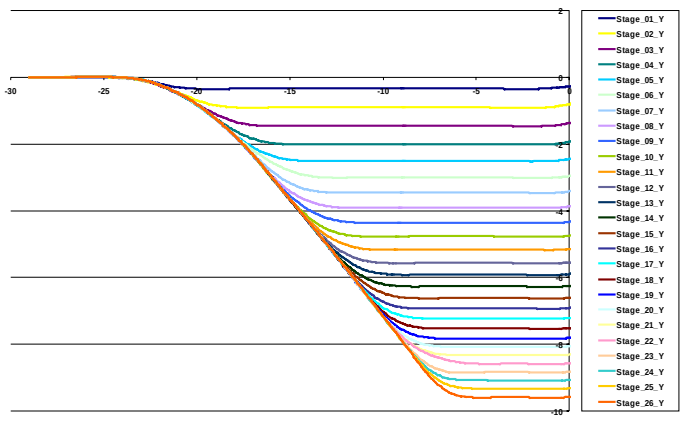
- Improved appeal, reduced metal consumption
- No separate top
- Heat sealed Protact® bottom with strong design
- Inward curled body at bottom end used as stand rim





Weld ironing

- Ironing of the weld for homogeneous thickness to prevent wrinkling at die necking
- 26-step die necking process from 45 mm to 25 mm

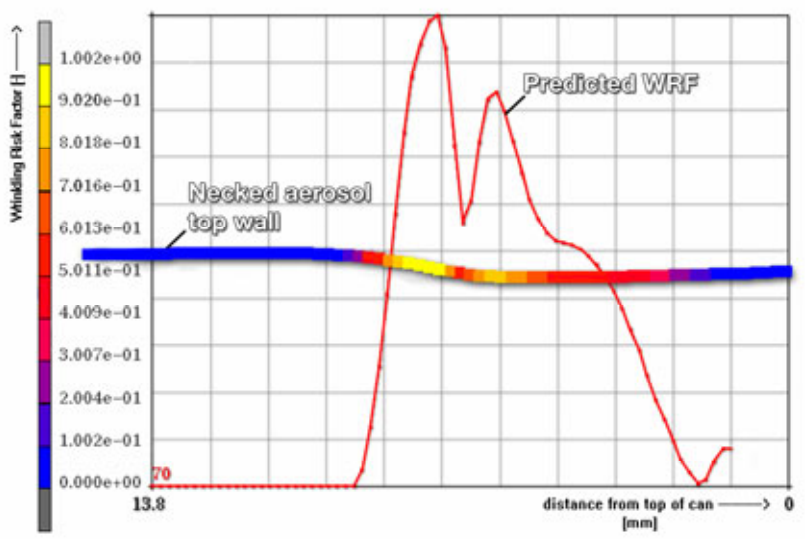


Final can; neck shape optimised by finite element analysis

Wrinkling prediction at die necking

Example of a severely wrinkled can

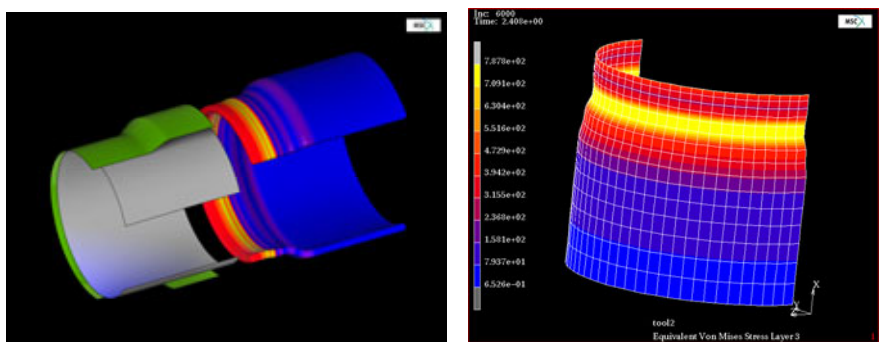
- Predicting wrinkling risk during forming
- Based on critical compressive stress
- Based on the critical area for wrinkling
- Adapted for all possible contact situations with tooling
- Using finite element analysis simulation



Predicted Wrinkling Risk Factor (WRF) during die necking (stage 3). If the WRF exceeds 1.0, risk of wrinkling is present.

Right-first-time engineering by:

- Prediction of wrinkling risk
- Prediction of tooling forces
- Optimisation of tooling



Stresses in the can during die necking

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