

## The future of three-piece cans – a question of appearance too?

**To contend with tough competition from PET, cardboard and other packaging materials, the canmaking industry is increasingly facing the need firstly to reduce production costs, and secondly to enhance the attractiveness of cans.**

If the vast range of different cans is categorised, we have on the one hand printed cans with an eye-catching appearance, and on the other hand lacquered-only or blank cans for simple bulk products.

The development objective for printed cans is more and more a further improvement of the appearance. For blank or lacquered-only cans, by contrast, the primary aim is cost reduction. Measures to improve the appearance are shaping and embossing, or surface-structuring of the can body, plus their combination with visually and functionally adapted can ends. The most widespread methods used industrially for shaping can bodies are expanding and pressure-reshaping.

The expansion method uses tools with rails moved radially outwards, which although imposing their outer contour on the can body as a form, also have restricting features such as the creation of a polygonal body, heavy local stretching of the can body material, close restriction of the materials selected (costs!), uneven shortening of the can body over its circumference, and no possibility of widening up to the end of the body, since a sufficiently precise flange is no longer created.

With pressure-reshaping, the can body is shaped in a mold with the aid of a liquid or gaseous high-pressure medium supplied to the can interior and pressing the cylinder walls into contact with the shaping die. This method offers a wide range of possible shapes, but its operating costs are very high due to the need to supply the pressure medium and possibly also to wash and dry the shaped cans. All in all, this method is expensive and slow.

When the market for shaped cans is analysed, it will be found that these cans have so far been used predominantly for niche products, high-price products, eye-catchers for newly launched products, and temporarily for special events.

The reason for this is that these cans are normally more expensive than standard cans due to restrictions on the material that can be used and due to the expensive production process.

To achieve a higher industrial production and make the use of shaped and structured cans more widespread, and hence to strengthen the position of the can in comparison with other packaging materials, the following requirements must be placed on the shaping process:

use of the same normal material as used or could be used for the same can without shape, i.e. DR material too, and a reshaping method that does not cause high additional operating costs. The quantity output from the additional shaping machine or shaping operation should not limit the normal line output.



**Spin-flow shaper**

To achieve these aims, an even reshaping must be achieved for the circumference, in order to make fuller use of the standard material, principally working with mechanical tool principles such as die-shaping, spin-flow shaping, spin-flow necking or spin-embossing. Mechanical reshaping machines as a rule have the advantage that thanks to their generally high efficiency they only have a low energy consumption, do not require any expensive additional pressure media, and normally have a high quantity output.

But even the most favourable reshaping processes cause additional production costs that make the shaped or embossed can more expensive. These extra costs are mostly not accepted and must be compensated for by reduced costs elsewhere, for example by saving material and costs for the top end in the case of necked cans, or by saving costs during the sterilisation process by means of improved hot steam circulation in the case of shaped cans. This compensation is as a rule only possible when the extra costs resulting from the shaping process are low. To do so, mechanical reshaping machines are needed with high capability and flexibility, and which can be adjusted easily to current situations and requirements.



**Spin-flow shaped coffee cans**