

Quenching thirst made easy

Georg Fischer is helping mould the PET bottle's triumph

„Is beer in a PET bottle the real thing?“ People apparently get so worked up about this question that the German TV network WDR started a large-scale survey. Some beer drinkers thought the very idea outrageous. „Fine ale from a cheap plastic bottle? No thanks. Cheers!“ But most of those surveyed took a rational view. „The people down in the pub are getting too emotional. I've always drunk beer from PET bottles and have never been able to notice any difference between plastic and glass beer bottles.“



It really looks as though this practical packaging option, which has long been the first choice for mineral water, soft drinks or energy drinks, is now going to storm the beer bastion too. „The advantages are obvious: PET bottles are light, reclosable and ‚cool‘ – unlike the old-fashioned beer can. I'm confident that the PET bottle will win the day“, was another opinion in the survey.

It's no accident that a bottle as light as PET is riding on the wave of success... A big factor in its popularity is GF Machine Tools – the Agie Charmilles Group and more particularly its Mikron division.

Light bottles thanks to heavy-duty thinking

A PET bottle is produced in two steps. The first step is to shape the preform. The thread for the screw-on top is made to the original size, and the rest of the bottle is about the size of a balloon with no air in it. The bottle is then blown up („stretch blowing“) into the desired shape only seconds before the liquid is poured in. The required moulds are especially demanding to manufacture. The two halves (often together with a third element for the complex bottle base) have to open and close with absolute accuracy, over and over again and fast. The precision of the seams is decisive for the thinness of the bottle's wall. The issue is not simply one of weight but also of money. In the case of soft drinks, for instance, the bottle may well become more expensive than the contents, so every gram and every cent counts.

In addition to the milled concave bottle shapes, a mould also needs a number of ventilation drill holes as well as other elements for centring the two halves of the mould and the closing mechanism. Production is most efficient when a sophisticated, single-step process is used.

Competence Centres quench thirst for knowledge

In order to support its customers across the board, Mikron supplies not only machines but also, if so desired, comprehensive expertise in processes involving high-speed machining (HSM) and high-performance machining (HPM). „We were able to take a whole new approach to producing stretch blow moulds for PET bottles“, enthuses Ralf Löttgen, coordinator of the worldwide HSM Competence Centres, which have received visits from hundreds of companies.

Given all this competence, a generally acceptable solution for the hot topic of PET beer bottles shouldn't be hard to find.

The bottom line

Complexity is not so terrible

„Through a combination of high-speed machining and high-calibre expertise, the lead time for producing even highly complex parts can be considerably reduced. Nowadays, for instance, a customer can manufacture in about 40 minutes a mould that it would have taken over five hours to produce with traditional methods.“

Ralf Löttgen, Coordinator HSM Competence Centres

Expanded offering

Increasingly a service provider too

HSM Competence Centres all over the world, ... Mikron's HSM Competence Centres (HSM = High-Speed Machining or high-speed milling) can be found from Nidau to North America and from São Paulo to Shanghai.

... for all questions ...

For instance:

- How is HSM technology best integrated into the whole process chain?
- How far ahead should a „look ahead“ system be able to look?
- What's the easiest way to test a new manufacturing idea?

... and also for hands-on support.

The HSM Competence Centres offer seminars, general training and individualized advice as well as serving good customers as an „extended workbench“ for specific tasks.

Examples of other applications

HSM – shaping the world of tomorrow

Production of electrodes From copper or graphite – moulds for manufacturing everything from watch bands to computer plugs.

Aluminium Moulds for bottles or ski boots, for instance, or for the direct production of metal parts.

5-axis machining For parts ranging from turbine wheels to model trains.

Micro-machining For precision parts (thousandths of a millimetre).

Special materials Kevlar brake disks, titanium dental implants, etc.

Prototypes For instance, car prototypes for wind tunnels.

«Adding Quality to People's Lives»

Not a gram too much

Easier fluid intake Adequate fluid intake in every situation is important for health and well-being. Fluid intake is made easier the more exactly a bottle that you carry with you is shaped.

Easier recycling PET is extremely easy to recycle. This is what Fraunhofer Institute, a specialist in process engineering and packaging, has to say: „Modern recycling systems make it possible to process unadulterated, colourless PET into high-quality material that is ‚as good as new‘ and can be used in direct contact with foodstuffs.“ Ultra-light bottles also have less of an environmental impact, for instance when being transported.