

## KRONES Lightweighting

The fitness regime for high-performance PET bottles



# Low weight, low costs

Perfect job sharing: KRONES is putting its PET bottles on a diet - and allowing you to benefit from considerable cost savings as a result. Regardless of whether you would like to slim down an existing design or drastically change your bottle's appearance: with KRONES, you can take the direct route to reach your goal. How is this possible? KRONES designers are specialists in the field of lightweighting and are guaranteed to whip any bottle into premium shape.

## Every gramme counts

What difference can one gramme more or less make?

A practical example proves that it can really make all the difference!

### The task:

- To reduce the weight of a 0.5 litre bottle weighing 15 g.
- The bottle is run on three lines, each with a speed of 36,000 containers per hour, a production time of 5,000 hours per year and an overall equipment effectiveness of 75 %

### The result:

A saving of ...

- 3 g per bottle – with a consistent quality and processability
- € 1,822.500 per year (using PET costing € 1,500 € per tonne)



# This is possible: PET bottles in tip-top shape

**PET lite 9.9 carbonated:**  
Bubbly on the inside, light as a feather on the outside

## Dimensions

- Capacity: 0.5 l
- Total weight: 9.9 g
- Neck finish: 2.5 g

## Technology

KRONES Contiform 3:

- Produces up to 81,000 bottles per hour
- Is suitable for a great variety of container shapes and sizes
- Saves energy and recycles compressed air
- Can be converted quickly and easily to other containers

## Design features

- Striking shape
- Ring-pull closure
- Winner of the iF packaging design award 2014



## Advantages

- Also makes lightweight containers that are suitable for carbonated beverages
- Can be fully recycled
- High machine output possible
- Can also be pressurised using innovative direct pressure technology



# This is possible: PET bottles in tip-top shape

## A square deal: the bottle for the Contiform Asept Bloc

### Dimensions

- Capacity: 0.5 l
- Total weight: 12.5 g
- Neck finish: 3 g

### Technology

The Contiform Asept Bloc:

- Blow moulds, fills and seals containers in a continuous sterile chain of sequences.
- Does not shrink the bottle during sterilisation and is therefore suitable for reduced-weight containers
- Only consumes a small amount of sterilisation medium as it sterilises the preform, not the bottle
- Sterilises with particularly productive hydrogen peroxide steam

### Design features

- Innovative design
- Square bottle cross-section
- Round cross-section in the middle of the bottle to ensure optimum handling



### Advantages

- Is perfectly suited for aseptic filling
- Reduces material consumption
- Can be fully recycled

# This is possible: PET bottles in tip-top shape

## NitroHotfill 15.5: hot filling without compromising on design

### Dimensions

- Capacity: 0.5 l
- Total weight: 15.5 g
- Neck finish: 4.2 g

### Technology

- Filling with KRONES  
NitroHotfill procedure:
  - Bottle is pressurised with nitrogen after filling
  - Increased bottle internal pressure compensates for the shrinking behaviour – and therefore makes the unattractive vacuum panels on the bottle unnecessary
  - Suitable for filling temperatures of up to 87 °C

### Design features

- Straight, slim design
- Vacuum panels omitted



### Advantages

- Opens up a completely new freedom of design due to the omission of the vacuum panels
- Allows for considerable savings in the amount of PET material and flushing air used

# On the road to the perfect Bottle Mass Index

If you want to lose weight, you have got to do it right: Reducing the weight of bottles is a tricky business. For even minor changes can have unpleasant implications for the bottle's processability. Therefore, lightweighting means more than just cutting off a few grammes. Behind lightweighting lies a complex design process which uses ideal material distribution to save weight and achieve quality.



# Personal training for branded products

Just imagine you have lost weight and nobody notices. A wonderful idea - at least where beverage bottles are concerned. For they should be sturdy and fit perfectly in your hand. This should also be the case once they lose weight. Just as well that KRONES designers are experienced professionals when it comes to bottle anatomy. As a result, they can also find areas where a gramme or two can be shifted on containers in the high-price segment. This weight loss is unnoticeable on the bottle itself - but is extremely visible when you take a look at your budget.



*A workout which only has visible results on the scales. The bottle's stability and its feel both remain the same.*



# Design that works

A lot of things only look good on paper. KRONES containers also shape up well in both production and sales. The secret: In our company, marketing professionals, designers and engineers all work together as a team. The result: An exceptional design that is easy on your line yet still expresses your brand personality. A fact that will make both your customers and your production managers happy!



## Benefits to you: KRONES design

- Creative design combined with technical feasibility
- Groups together all of the process steps under one roof: from the initial design concept to the production bottle
- Guarantees that the bottle can be both produced and processed in an optimum way
- Allows smooth coordination between machine technology and bottle design



We do more.

Subject to technical changes · The illustrations can contain optional auxiliary equipment · PDF\_en\_09/14

 **KONPLAN**

 **SYSKRON**

 **KIC KRONES**

 **KOSME**

 **HST**  
KRONES GROUP

 **EVOGUARD**

**KRONES AG**

Böhmerwaldstraße 5  
93073 Neutraubling  
Germany  
Phone +49 9401 70-0  
Fax +49 9401 70-2488  
E-mail [info@krones.com](mailto:info@krones.com)  
Internet [www.krones.com](http://www.krones.com)

**KOSME s.r.l. unipersonale**

Via dell' Artigianato, 5  
46048 Roverbella (Mantova)  
Italy  
Phone +39 0376 751011  
Fax +39 0376 751012  
E-mail [kosme@kosme.it](mailto:kosme@kosme.it)  
Internet [www.kosme.com](http://www.kosme.com)

**EVOGUARD GMBH**

Dr.-Hermann-Kronseder-Straße 1  
93149 Nittenau  
Germany  
Phone +49 9436 307 700  
Fax +49 9401 70 94 3700  
E-mail [info@evoguard.com](mailto:info@evoguard.com)  
Internet [www.evoguard.com](http://www.evoguard.com)

**KIC KRONES**

Internationale Cooperationsgesellschaft mbH  
Böhmerwaldstraße 5  
93073 Neutraubling  
Germany  
Phone +49 9401 70-3020  
Fax +49 9401 70-3696  
E-mail [kic@kic-krones.com](mailto:kic@kic-krones.com)  
Internet [www.kic-krones.com](http://www.kic-krones.com)

**KONPLAN s.r.o.**

Poděbradova 2842/1  
301 00 Plzeň  
Czech Republic  
Phone +420 377 918 109  
Fax +420 377 918 139  
E-mail [pilsen@konplan.cz](mailto:pilsen@konplan.cz)  
Internet [www.konplan.cz](http://www.konplan.cz)

**HST MASCHINENBAU GMBH**

Gewerbstraße 19  
23942 Dassow  
Germany  
Phone +49 38826 8878-0  
Fax +49 38826 8878-1  
E-mail [info@hst-gmbh.com](mailto:info@hst-gmbh.com)  
Internet [www.hst-maschinenbau-gmbh.de](http://www.hst-maschinenbau-gmbh.de)

**SYSKRON GMBH**

Oskar-von-Miller-Straße 6b  
92442 Wackersdorf  
Germany  
Phone +49 9431 79857-0  
Fax +49 9431 79857-11  
E-mail [info@syskron.com](mailto:info@syskron.com)  
Internet [www.syskron.com](http://www.syskron.com)

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