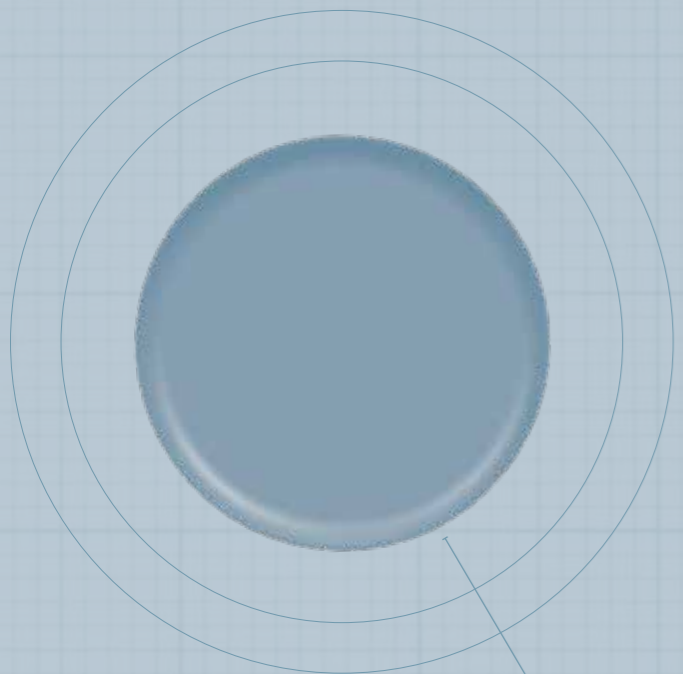




Caps are  
Rocket Science

$$P_{abs} = P_{atm} * \left( 0.58839 + 2.3061 * 10^6 * e^{-\frac{T}{20^{0.04211}}} \right) + 21.173 * P_{abs}^{-0.5}$$

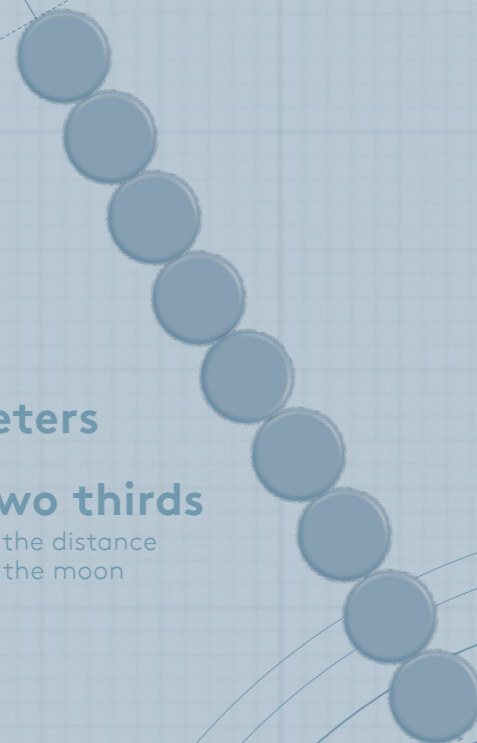




DISTANCE TO THE MOON

Greatest distance:  
roughly  
**406,000 kilometers**

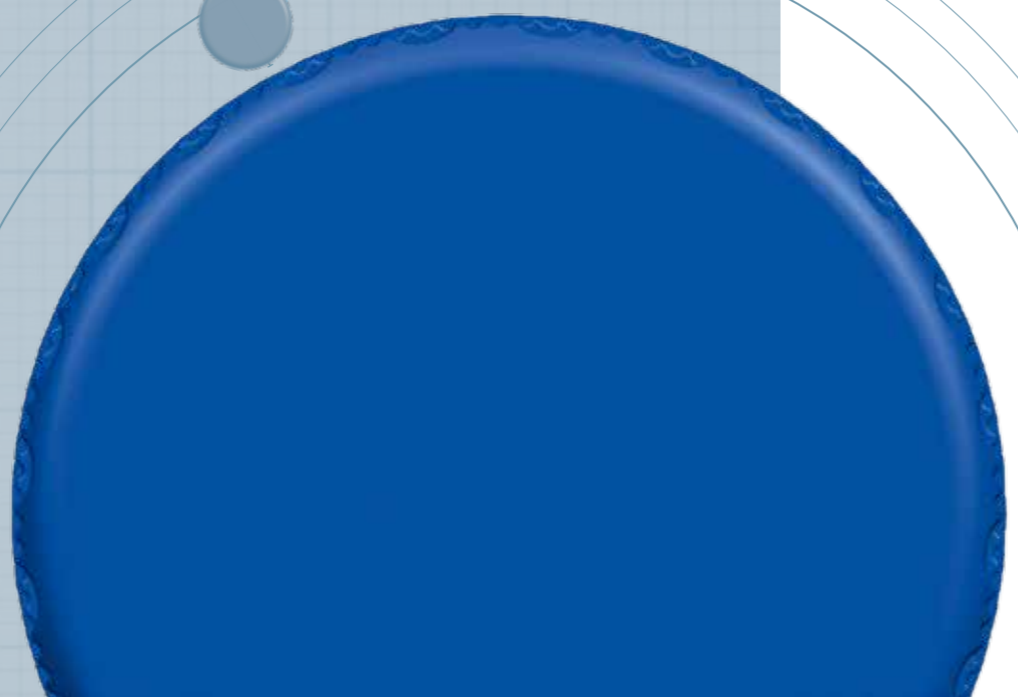
Smallest distance:  
roughly  
**356,000 kilometers**



ANNUAL PRODUCTION 2020

**9 billion**  
caps **X 30 millimeters**  
diameter

**= 270,000 kilometers**  $\approx$  **two thirds**  
of the distance  
to the moon



The World of corvaglia



# EXPERTISE PIONEER SPIRIT



A cap is a cap. It is round, made of plastic, and can be screwed on and off. It's that simple – or is it?

In reality, it's all a bit more complex and sophisticated than a cap might suggest at first glance. A cap integrates all our know-how and experience, vast innovation, the odd patent or two, and our commitment to meticulously produce caps that are just a little bit better, more innovative, more lightweight, more precise, more rugged, more flexible, more sustainable, and more cost-efficient. Many design details are considered throughout our product and research in the development of caps and capping systems. Every detail, no matter how big or small, along with broad knowledge in various fields of expertise, are what it all comes down to.

**Caps are why we exist, and we invite you along a journey into our world.**

# WE ARE YOUR PARTNER

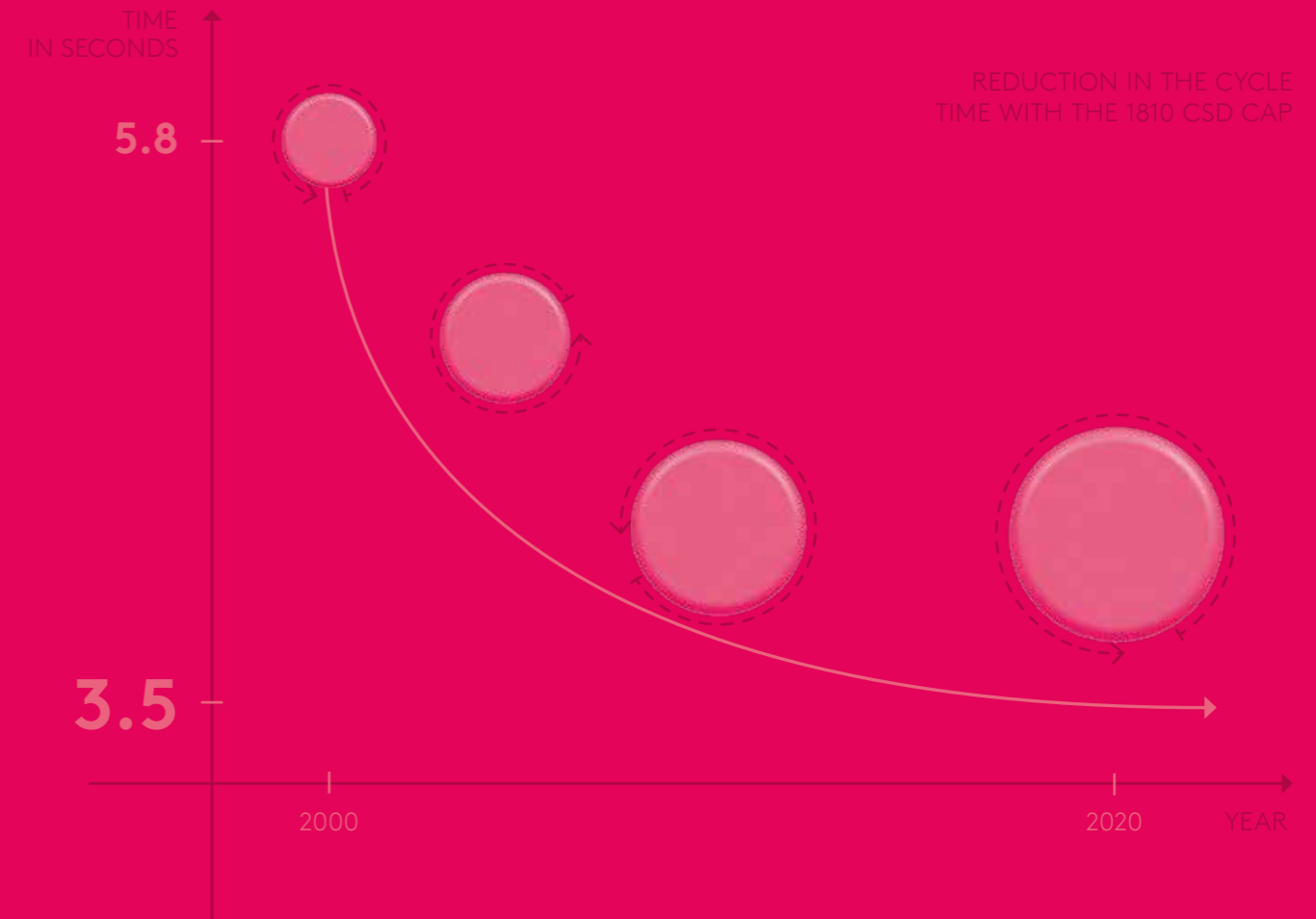
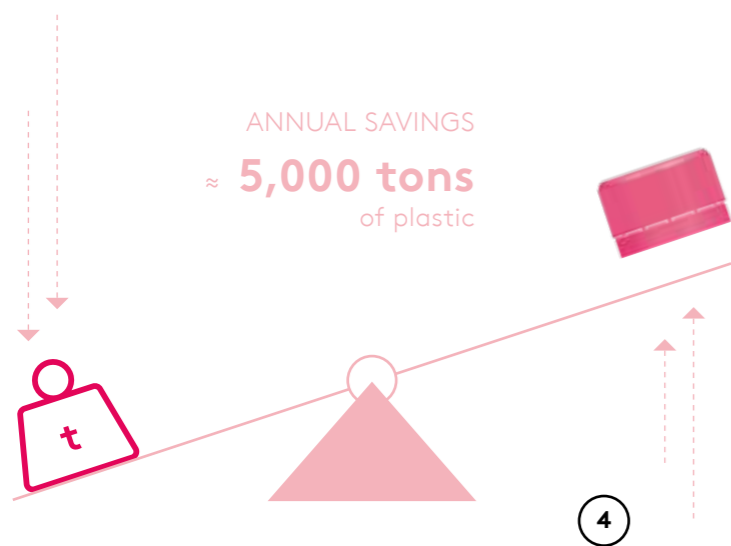


## THINK CAPS

**A good cap system is based on the right concept:**

achieving the best solution with as little material as possible. In the development of our products, we provide customers with design experts to find this balance. Our aim is always to provide a cap that complements the bottle design and reduces material costs. The design and functionality of a cap are the result of constant adjustments in the development process. To this end, we meticulously test various parameters in our laboratories – such as venting performance, opening torque, or pressure resistance to name a few. All to reduce risks and ensure the cap is absolutely safe, tight, and ergonomically sound.

**In this way, customers benefit from our profound expertise across the entire value chain.**



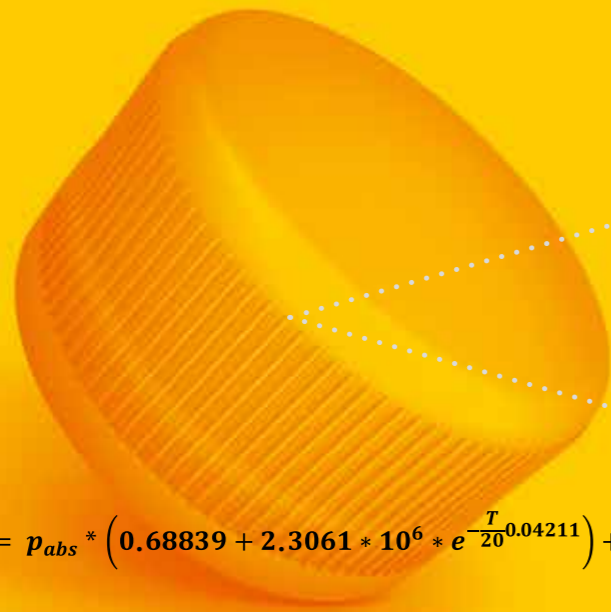
## SHAPE CAPS

In production, the crucial factor is how many good caps can be manufactured as efficiently as possible. The caps must be easy to apply and use.

At corvaglia, robust, tried-and-tested mold concepts go hand in hand with quality and precision. This means maximizing the production in order to minimize both planned and unplanned downtime.

Since we also design and manufacture molds, we make sure that every component is compatible with the other. This modular injection molding approach has significant customer advantages including greater flexibility to only replace individual parts if a cap design change is needed. This provides 100% exchangeability, which saves time and effort in servicing and repairs.

Carbonated



$$CO_2 = p_{abs} * \left( 0.68839 + 2.3061 * 10^6 * e^{-\frac{T}{20} 0.04211} \right) + 21.173 * \frac{p_{abs} - 1}{T}$$

Isotonic



Sensitive



## MAKE CAPS

Caps also need to be precisely matched to the various requirements of the beverages and bottle design to which they are being attached. Our focus is on plastic caps for non-alcoholic beverages in PET bottles such as fruit juices, still water, isotonic, and carbonated beverages.

Our fully automated production facilities produce caps around the clock. Integrated camera systems inspect every single cap produced before being packaged for shipment.

High-speed processing and precision inspection prevent defective products from reaching the customer. Flexibility and accessible technical expertise also provide peace-of-mind and risk avoidance for high-speed beverage operations. In short, **we are subject matter experts for economic solutions and reliable caps designed for the highest efficiencies.**

Still water



Dairy or edible oil



## APPLY CAPS



The requirements for beverage closures are as varied as our customers. Regardless if the cap is used in cold-fill, hot-fill, or aseptic bottling, our innovative closures offer high functionality and easy handling at a reduced weight while minimizing energy and investment costs.

Our one-piece caps are suitable for a variety of applications ranging from aseptic bottling to carbonated drinks and still waters. The capping process is an important aspect to consider when it comes to efficiency and we consider this throughout the design process.

Experience has proven that our caps neither increase set-up time nor reduce throughput of the bottling line partly because of our capping engineers on-site support to assure the highest efficiency.

### CORVAGLIA 1881 STANDARD

2.35 g



Beverage type	<b>CSD</b> (Carbonated Soft Drinks) <b>Bottled Water</b> (Carbonated)
Bottling method	<b>aseptic, cold</b>
Number of parts	<b>1</b>
Number of knurls	<b>120</b>

### CORVAGLIA 1881 STANDARD

2.40 g



Beverage type	<b>CSD</b> (Carbonated Soft Drinks) <b>Bottled Water</b> (Carbonated) <b>Still Bottled Water</b> (Pressurized & Non-pressurized)
Bottling method	<b>cold</b>
Number of parts	<b>1</b>
Number of knurls	<b>60</b>

### CORVAGLIA 1881 COMFORT-GRIP

2.00 g



Beverage type	<b>CSD</b> (Carbonated Soft Drinks) <b>Bottled Water</b> (Carbonated) <b>Still Bottled Water</b> (Pressurized & Non-pressurized)
Bottling method	<b>aseptic, cold</b>
Number of parts	<b>1</b>
Number of knurls	<b>120</b>

### CORVAGLIA 1881 S/F


2.00 g



Beverage type	<b>CSD</b> (Carbonated Soft Drinks) <b>Bottled Water</b> (Carbonated) <b>Still Bottled Water</b> (Pressurized & Non-pressurized)
Bottling method	<b>aseptic, cold</b>
Number of parts	<b>1</b>
Number of knurls	<b>120</b>



... but we make  
them easy!

 All our flat caps are printable  
on the top and underneath.



### CORVAGLIA 1810 STANDARD

2.95 g



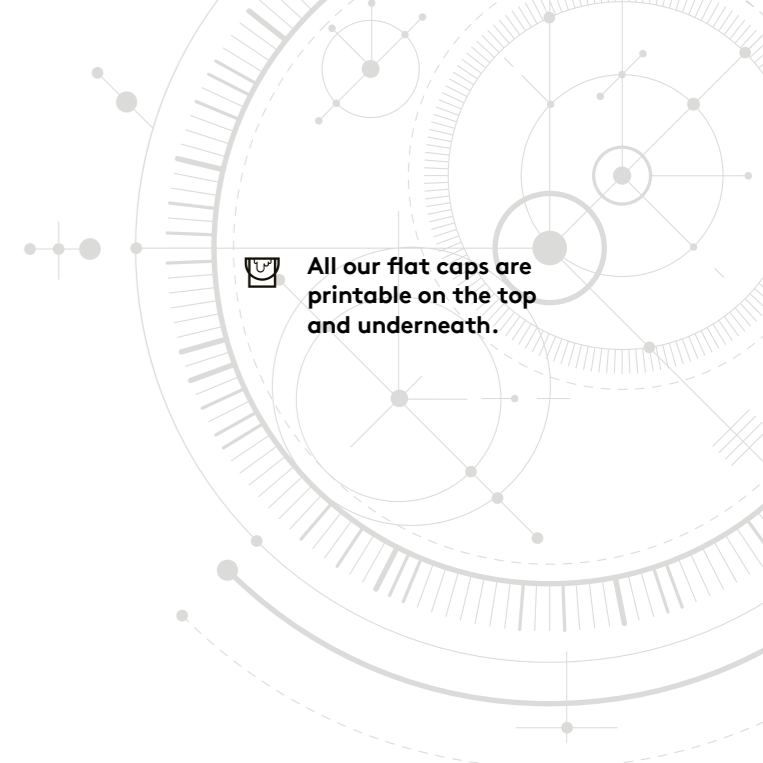
Beverage type	<b>CSD</b> (Carbonated Soft Drinks) <b>Bottled Water</b> (Carbonated)
Bottling method	<b>aseptic, cold</b>
Number of parts	<b>1</b>
Number of knurls	<b>120</b>

### CORVAGLIA CSN26

1.00 g

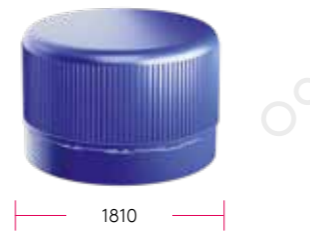


Beverage type	<b>Still Bottled Water</b> (Pressurized & Non-pressurized)
Bottling method	<b>cold</b>
Number of parts	<b>1</b>
Number of knurls	<b>60</b>



### CORVAGLIA 1810 LIGHT

2.30 g



Beverage type	<b>CSD</b> (Carbonated Soft Drinks) <b>Bottled Water</b> (Carbonated)
Bottling method	<b>aseptic, cold</b>
Number of parts	<b>1</b>
Number of knurls	<b>60</b>

### CORVAGLIA 1873 S/F

2.00 g



Beverage type	<b>CSD</b> (Carbonated Soft Drinks)
Bottling method	<b>aseptic, cold</b>
Number of parts	<b>1</b>
Number of knurls	<b>120</b>

### CORVAGLIA AQUA 2670

1.45 g



Beverage type	<b>Still Bottled Water</b> (Pressurized & Non-pressurized)
Bottling method	<b>cold</b>
Number of parts	<b>1</b>
Number of knurls	<b>120</b>

### CORVAGLIA 30/25 MM

1.70 g - 1.90 g



Beverage type	<b>Still Bottled Water</b> (Pressurized & Non-pressurized)
Bottling method	<b>cold</b>
Number of parts	<b>1</b>
Number of knurls	<b>72</b>

### CORVAGLIA 1810 SPORTS

5.95 g



1810

### CORVAGLIA 1881 SPORTS

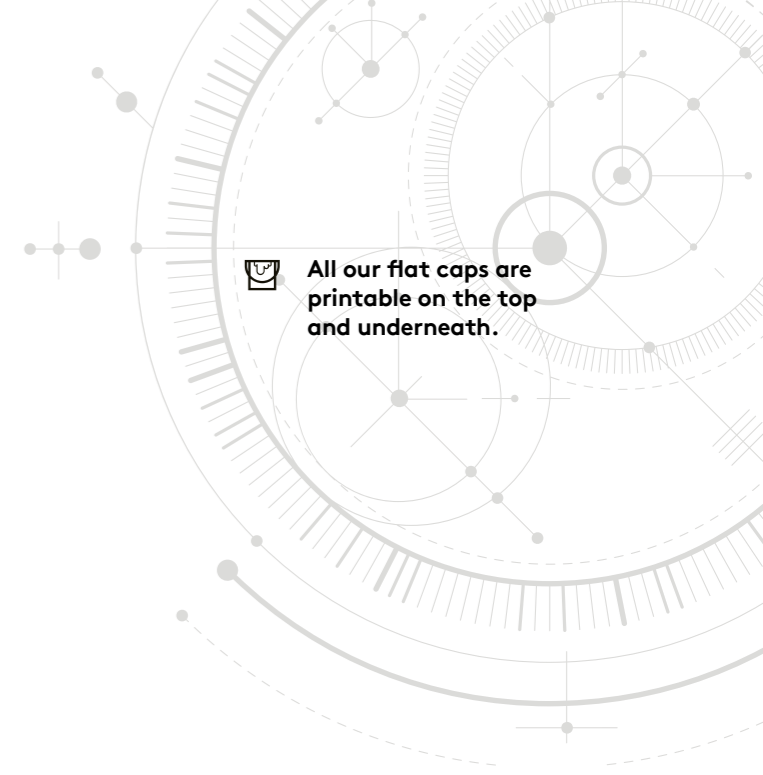
5.35 g



1881

Beverage type	<b>Sports &amp; Energy Drinks</b>
Bottling method	<b>cold</b>
Number of parts	<b>3</b>
Number of knurls	<b>80</b>

Beverage type	<b>Sports &amp; Energy Drinks</b>
Bottling method	<b>cold</b>
Number of parts	<b>3</b>
Number of knurls	<b>144</b>



## SPECIALIZED BEVERAGE TYPES

Beverage caps for PET bottles have been our focus since 1991. Every beverage type is unique and has specific requirements. All that matters to us is the perfectly suited closure for every need, taste, and application.

### Carbonated

Our CSD caps are designed for carbonization of up to 9 grams per liter – and still lightweight and ergonomic.

### Still water

Our caps ensure that your still water stays clean and pure.

### Isotonic

Sport and energy drinks usually need to be opened with one hand – no problem at all with our sport caps.

### Sensitive

Our caps are suitable for sensitive beverages such as juices, teas, flavored water, and so on.

### CORVAGLIA 33 MM HOTFILL

2.45 g



33 mm 2-start

### CORVAGLIA 33 MM HOTFILL S/F

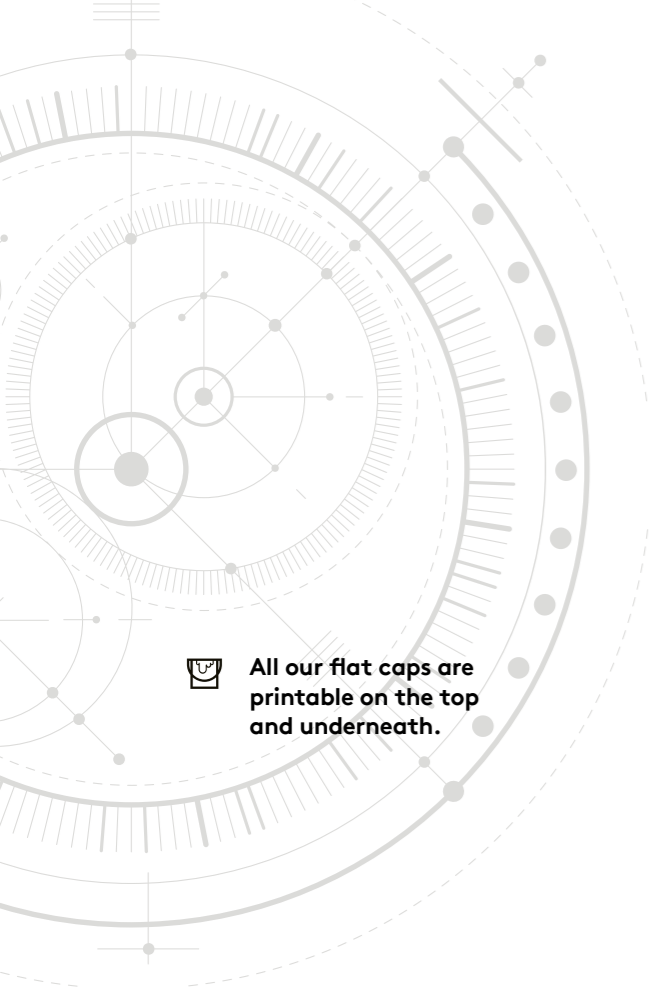
2.45 g



33 mm 2-start

Beverage type	<b>Sensitive Drinks</b> (Juices, Teas, Flavored Waters, ...)
Bottling method	<b>hot</b>
Number of parts	<b>1</b>
Number of knurls	<b>120</b>

Beverage type	<b>Sensitive Drinks</b> (Juices, Teas, Flavored Waters, ...)
Bottling method	<b>hot</b>
Number of parts	<b>1</b>
Number of knurls	<b>120</b>



 All our flat caps are printable on the top and underneath.

### CORVAGLIA 38 MM HOTFILL

3.50 g



38 mm 2-start

Beverage type	<b>Sensitive Drinks</b> (Juices, Teas, Waters, Isotonics, ...)
Bottling method	<b>hot</b>
Number of parts	<b>1</b>
Number of knurls	<b>120</b>

### CORVAGLIA 43 MM NITRO

3.75 g



43 mm

Beverage type	<b>Still Bottled Water</b> (Pressurized)
Bottling method	<b>cold</b>
Number of parts	<b>1</b>
Number of knurls	<b>120</b>

### CORVAGLIA 38 MM ACF 2-START

3.05 g



38 mm 2-start

Beverage type	<b>Sensitive Drinks</b> (Juices, Teas, Flavored Waters, ...)
Bottling method	<b>aseptic, cold</b>
Number of parts	<b>1</b>
Number of knurls	<b>120</b>

### CORVAGLIA 38 MM ACF 3-START

2.70 g



38 mm 3-start

Beverage type	<b>Still Bottled Water</b> (Pressurized & Non-pressurized)
Bottling method	<b>aseptic, cold</b>
Number of parts	<b>1</b>
Number of knurls	<b>90</b>

### CORVAGLIA 48 MM STANDARD

4.50 g



48 mm 3-start

Beverage type	<b>Still Bottled Water</b> (Non-pressurized)
Bottling method	<b>cold</b>
Number of parts	<b>1</b>
Number of knurls	<b>120</b>

### CORVAGLIA 48 MM NITRO

4.55 g – 5.10 g



48 mm 3-start

Beverage type	<b>Still Bottled Water</b> (Pressurized)
Bottling method	<b>cold</b>
Number of parts	<b>1</b>
Number of knurls	<b>120</b>



# TETHERED CAPS

According to European Union Directive 2019/904 addressing the environmental impact of certain plastic packaging, future beverages may be sold in plastic containers only if the cap remains attached to the container.

Our development engineers have worked intensively on innovative beverage closure solutions that not only meet the requirements of the European Union directive but also ensure 100% compatibility with existing bottling lines, improve the drinking experience for the consumer, minimize additional material usage, and also offer the same physical performance as standard caps.

Our many years of experience in designing closures with different types of tamper-evident bands and production technologies have allowed us to develop a wide range of tethered caps, three designs of which are to be highlighted in particular: Lasso caps, film hinge caps, and shift caps.

## The advantages at a glance

- High quality and user-friendliness
- No modification of the neck finish or bottling line necessary
- No effect on production costs

## The Single-Use Plastics Directive

### LASSO CAPS

These caps have an opening angle of more than 180 degrees without a locking mechanism. This design features a reseal option that is particularly user-friendly. As with most types of caps, no additional material is required for this solution.

- Effect on the cap weight from +/- 0 grams to +0.05 grams
- For all CSD applications
- For all NCB, HF, and ACF applications



### FILM HINGE CAPS

Film hinge caps have an opening angle of 180 degrees and can be easily locked in a defined position with an audible "click." The consumer can drink from the bottle or pour out the contents without the closure part of the cap getting in the way.

- Effect on the cap weight from +/- 0 grams to +0.05 grams
- For some CSD applications
- For all NCB, HF, and ACF applications



### SHIFT CAPS

With the patent-pending design of this closure solution, we are already heralding the next step in the evolution of tethered caps. Shift caps can be easily attached to the container after they are opened, with the advantage that the cap does not get in the way despite remaining on the bottle. This solution can be used for all beverage types.

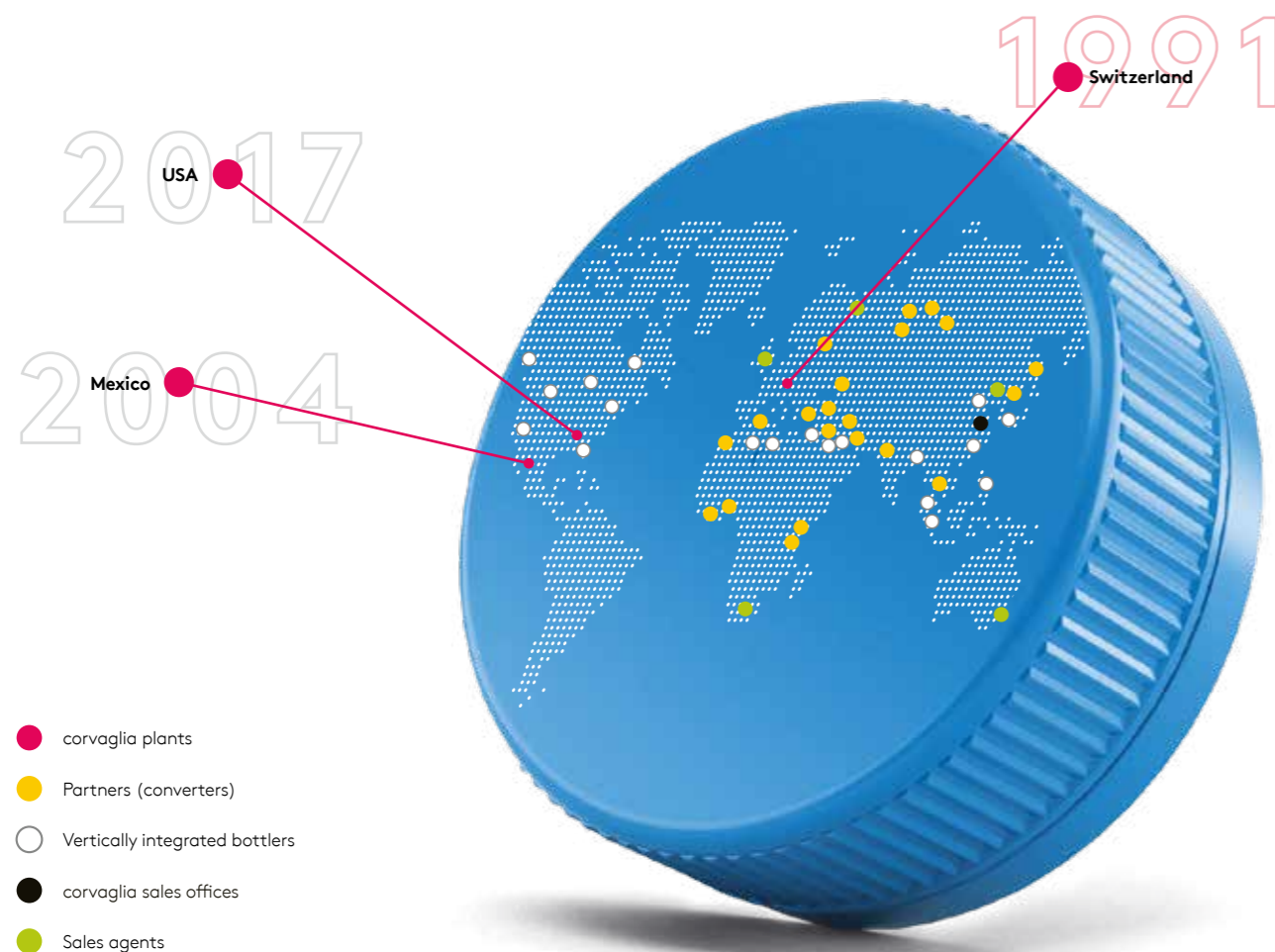
- Effect on the cap weight from +/- 0 g grams to +0.05 grams
- For all CSD applications
- For all NCB, HF, and ACF applications



# VALIDATED PRODUCTS

## SUCCESSFUL ON THE MARKET

Our quality management system guarantees the processes surrounding development, production, and sales of injection molding machines and beverage closures. We are ISO 9001:2015, ISO 14001:2015, FSSC 22000 V5, SQF, and ISO 45001:2018 certified – the relevant regulations and standards are part of our everyday work.



## FOOD SAFETY

Legislation and customers demand rigorous safety and hygiene standards when it comes to the manufacture of packaging components for foods. For corvaglia, compliance with the relevant requirements is a matter of course. We address the issues of food safety, the specific requirements of the packaging industry, and the needs of the bottling companies head-on. Years of production know-how, setting up hygiene zones, inspection of incoming raw materials, and in-process and functional inspections of semi-finished and finished goods allow us to provide food-compliant solutions.

## OCCUPATIONAL HEALTH AND SAFETY

The safety of employees and visitors is our highest priority. We continuously strive to improve workplace safety and prevent accidents. To do this, we analyze accidents, record near-accidents, regularly audit all departments, and support training and education.

## A LONG-TERM VIEW OF THE ENVIRONMENT

We work hard every day to make our closure solutions lighter while maintaining the same performance. In this way, we avoid the use of more than 5,000 tons of plastic each year.

We are also constantly increasing the efficiency of our processes by applying modern waste disposal concepts and adjusting our processes to reduce operational waste.

## CONTACT

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**IT'S ALL ABOUT CAPS**