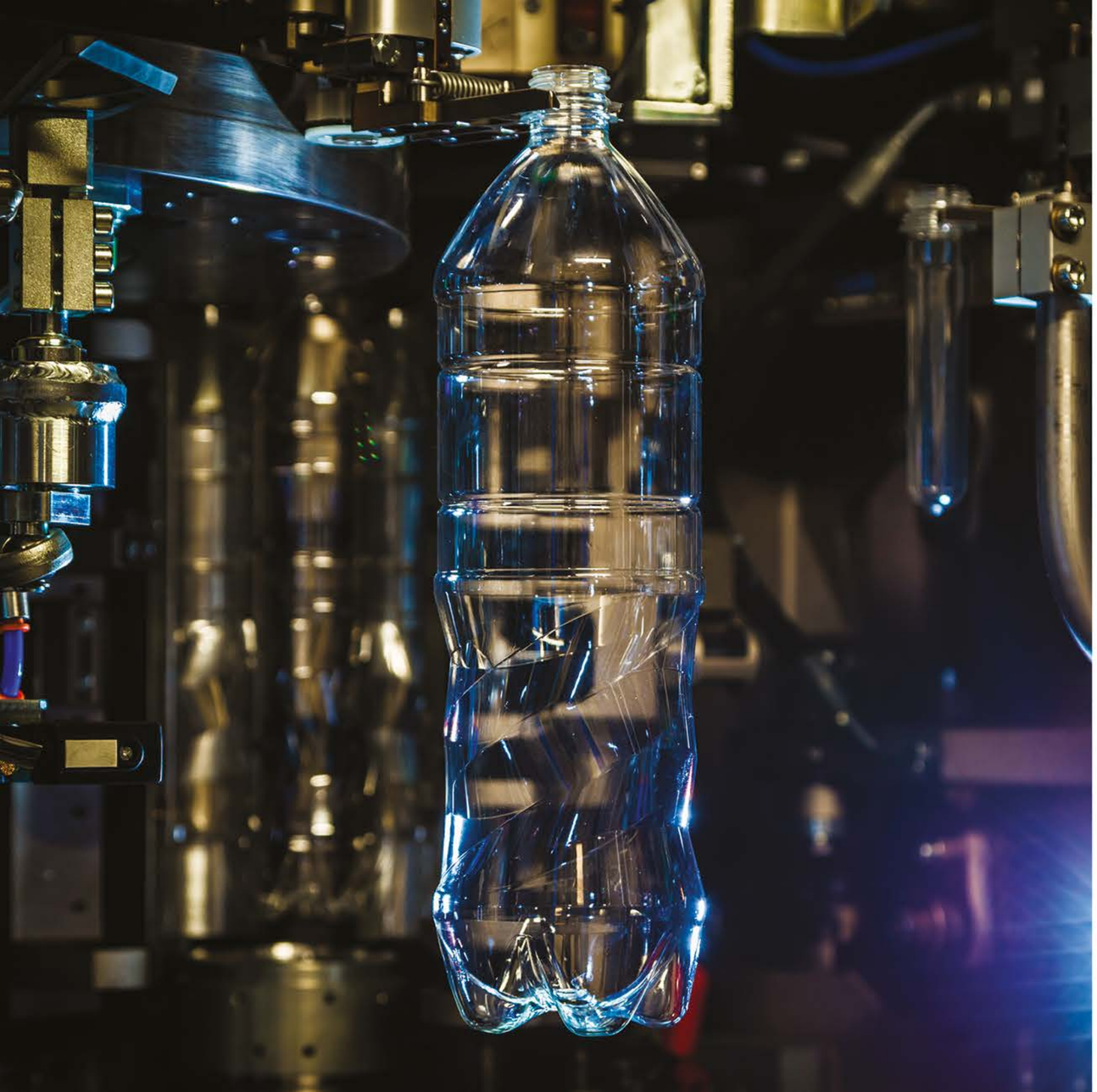
FOCUS ON
**READY FOR THE CIRCULAR ECONOMY**

PET PACKAGING NEWS OF THE WORLD

# SIPAMAGAZINE



**SIPAMAGAZINE**
PET PACKAGING NEWS OF THE WORLD

# SUMMARY



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# EDITORIAL

**WE NEED TO STOP THE DEMONIZATION OF PLASTICS PACKAGING THROUGH GOOD WORK**

I wonder if we are at a tipping point in the history of plastics packaging. Our industry today risks becoming a victim of its own success, as solutions are sought to bring an end to a global waste problem, long in the making and which has been largely out of our hands to control. I believe it is vital that a circular economy is implemented as quickly as possible. Without it, the levels of plastics packaging re-use will not be enough for a full sustainable packaging sector.

Later on in this edition of SIPA MAGAZINE, we discuss the circular economy and SIPA's important role in making it come to pass. I hope and trust that our actions will provide an important boost in making PET packaging sufficiently sustainable for its future success. Arguments are raging around the world about the damage that single-use plastics packaging is doing to our environment. I would like to say that people are talking about the irresponsible way in which so many of us deal with plastics packaging after it has reached the end of its first useful life – but many are not. It is not bad behavior that gets the blame, it is plastics. The call for cuts, even bans, on plastics packaging is getting louder. Plastics and the plastics packaging industry are the enemy. Where did it all go wrong? We have long grown used to throwing things away. Somehow, we have to gain control of how plastics packaging is used and re-used. We must help institute a strong culture of sensible use, of recovery and recycling. Consumers need to be given a complete picture of the roles we all play in making this happen. There is too little understanding about how plastics packaging, used intelligently, sustain the lifestyles that so many of us aspire to. Yes, plastics can pollute, but only when we make it so.

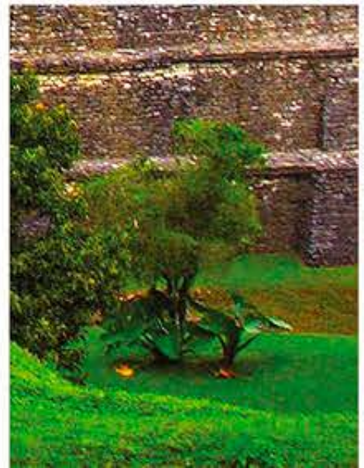
As I have said before, SIPA is working in many ways to make PET packaging even better for the environment. Elsewhere in this magazine, we talk about Xtreme Renew, the world's first integrated system for producing preforms from 100% recycled post-consumer PET, but with the same quality as preforms made from virgin PET. We are very proud of that development, made together with recycling technology specialist EREMA. We are also helping drinks companies operate more energy-efficiently by expanding our range of Sincro Bloc integrated bottle blowing and filling systems. There are numerous other examples I could provide of work we are doing to reduce the carbon footprint of PET packaging producers and users. We will continue to work on developments that help make PET the best, most cost-effective AND environment-friendly option for liquid packaging.

Repeat orders that we continue to receive – and which we highlight in these pages – are a clear sign that packaging companies appreciate what we are doing to promote sustainable packaging. For example, in South Africa, we are helping Little Green Beverages save energy and be more sustainable, thanks to its acquisition of other integrated bottle production and filling lines of the latest generation. In Germany, PET-Verpackungen is once again trusting in SIPA technology, this time our ECS SP single-stage injection-stretch-blow molding technology for miniatures for spirits, enabling it to take a lot of weight off each little bottle. SIPA is engaged in Japan with major coffee maker UCC, which has just invested in another highly energy-efficient XFORM preform injection molding system. In Italy, Sangemini (Acque Minerali d'Italia) has bought its second XTRA – the latest generation of rotary stretch blow molding technology – in just a few months. And all around the world, companies are turning to SIPA for more sustainable packaging: Mega Empack in Mexico being one of the latest, with its new project for refillable bottles.

An ECS SP system very similar to the one installed at PET-Verpackungen is running on the SIPA stand at NPE2018 in Orlando, FL in May. We will be very happy to have you come by and let us explain the advantages of this and other examples of cutting-edge SIPA technology. Technology that we know will be an important part of the future circular economy.

*Enrico Gribaudo*
General Manager

# AROUND THE GLOBE:
# NEWS FROM THE DIFFERENT CONTINENTS



# MYANMAR DRINKS MAKER AIMS FOR MARKET LEADERSHIP WITH THE FULL SIPA PACKAGE

CGM Quality healthy happy life

Consumer Goods Myanmar Co., Ltd has made an important investment in SIPA equipment for PET bottle production and filling. Last year, it took delivery of two XFORM 500/128 preform systems, and three systems based on SIPA's SFR 24 EVO3 latest generation of rotary stretch-blow molding machines. One of the bottle systems is in a SincroBloc configuration with a filling unit, while another is coupled to a separate hot-fill unit. The SIPA equipment is being put to use producing bottles between 250 mL (for hot-fill drinks) and one liter (mineral water). The bottle lines are operating at up to 48,000 bottles per hour. Consumer Goods Myanmar, a brand owner with around 1000




employees headquartered in the city of Yangon, has set its sights on becoming high-end market leader in Myanmar's Fast Moving Consumer Goods (FMCG) market. In fact, it says that most of its products are already top in their respective sectors. All of its output is currently consumed within the country. Apart from water and soft drinks, Consumer Goods Myanmar also sells a variety of food and non-food products. The company has numerous subsidiaries that make and sell its products through distribution centers which it also owns across the country. "Consumer Goods Myanmar chose SIPA because we have variety of products to serve its diverse needs," says Gianfranco Perricci at SIPA. "Moreover, we can provide it with our one-stop service for bottle design and prototyping."






# TOP COFFEE SUPPLIER UCC DOUBLES UP WITH SIPA

Bottled coffee is big in Japan. And SIPA is helping top bottled coffee producer UCC make it even bigger. SIPA recently installed its second XFORM 500 system for high-volume production of PET preforms, intended for production of bottles of coffee, at UCC's plant in Gunma. UCC chose the third-generation system, equipped with a SIPA 128-cavity preform mold, following successful experience with a 96-cavity system from the XFORM first generation that has been operating at another Japanese plant, in Shiga, since June 2014.

"Getting a repeat order from a company like UCC means a lot to SIPA," says Gianfranco Perricci, Sales Manager for the region. "Competition anywhere in the world is tough, but especially so in Japan, where quality standards are so high. And of course, UCC is a big name in food and beverage, with operations not only in Japan, but around the world."

*UCC and SIPA Team*

UCC knows all about high quality coffee. Founded in 1933 by Tadao Ueshima, affectionately known as "the father of coffee in Japan,' it now cultivates seedlings on its own estates – including the prestigious Blue Mountain Coffee Estate in Jamaica – imports the beans, roasts them, and sells various coffee products all around the world. The company is constantly developing new technologies and deploying the latest advancements to produce even more delicious coffee, and actively promotes coffee culture – it has even opened a coffee museum in Kobe, Japan. Obviously UCC (which stands for Ueshima Coffee Co.) also knows a lot about packaging, whether it is for vacuum-packed coffee beans, grounds and powder, or for putting fresh-tasting coffee drinks in consumer-friendly containers. In fact, Tadao Ueshima invented the concept of ready-to-drink coffee in a can way back in 1969, quickly putting it into production. Its popularity took off when samples were offered at the World Exposition in Osaka in 1970 and today coffee drinks can be bought from any of the five million vending machines in Japan. And now of course UCC is also putting coffee into PET bottles. Its Barista Blend Coffee is offered in 900-mL doses. Says Perricci: "With our latest project for UCC, we have supplied the XFORM 500/128 in a complete package, including PET drying System. In addition, we engaged in a unique light-weighting program to decrease the weight of the preform from 30g down to 28g. Perricci also points out that the preform mold makes use of several important features built into the third-generation (GEN3) cold half that distinguish it from rival designs. These include: X guide and coated neck rings to extend the lifetime of the mold; self-centering gate inserts, precisely centered to the cavities to enhance the quality of the parting line; water-cooled cavity flanges to further reduce cycle times; and finally the "smart-lock" design. This features special taper design, a wider taper surface, and an optimized parting line location, all of which help reduce flash and improve durability.

Optimized cooling in the smart-lock design also reduces cycle time.





# LITTLE GREEN BEVERAGES GETS BIGGER WITH SIPA

South African carbonated drinks company Little Green Beverages has once again put its faith in SIPA for bottle production and filling systems at its expanding plant in East London.

Back in 2013, we reported in SIPA MAGAZINE on the company's rapid growth and its investment in two SIPA lines based on SFR Sincro Bloc integrated bottle blowing and filling systems. That was soon after Little Green Beverages had come to SIPA for the first time, when it decided to take a step up in quality and replace some ageing Asian equipment.

Once again, Little Green Beverages purchased further three new SIPA lines, equipped with the very latest technologies to satisfy its needs for high-quality, energy-efficient production - and the needs of its customers for its top-tasting drinks. Both lines are based on EVO3 SFR rotary stretch-blow molding systems.

The first line uses an SFR EVO3 blower with 16 blowing cavities fitted with GreenOven™ and ARS™ Plus air recovery system to minimize power consumption and the need for high pressure compressed air. The need for blowing air is further reduced through the incorporation of XVENT™ design on the blowing moulds.

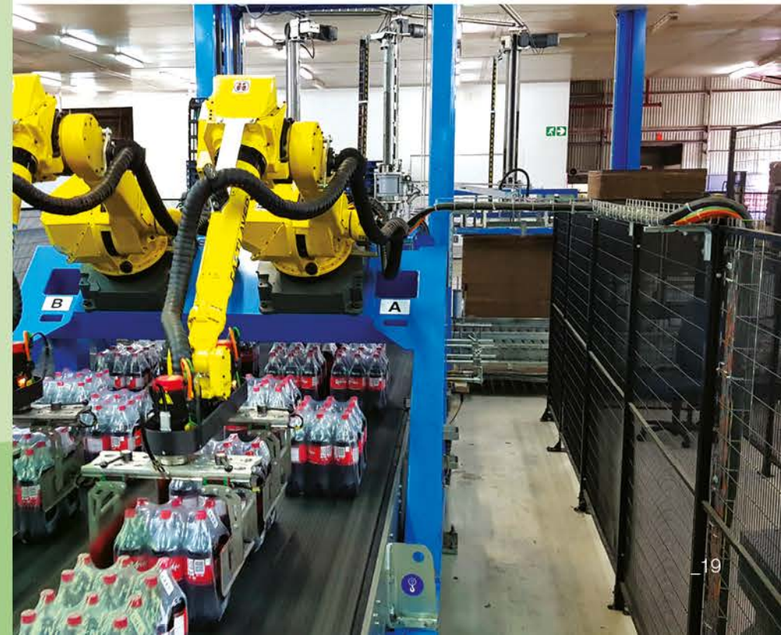
XVENT™ makes possible to use blowing air at much lower pressure lower than with standard technology, without affecting productivity and bottles specifications. In this case, Little Green Beverages can blow two-liter bottles using air at 24 bar, instead of up to 30 bar.

A Flextronic C electronic volumetric filling monobloc with 140 heads then fills the bottles at 18°C. Little Green Beverages saves big on energy here, since there is no need to cool its product down to possibly as low as 10°C, as happens with other systems.

The second new line, based on an SFR EVO3 blower with 20 cavities, is fitted with a Flextronic C monobloc that has no fewer than

160 filling heads. This is one of the largest Flextronics ever built by SIPA. Both lines also use SIPA palletizing systems with Fanuk robots. What has brought on this new need for premium equipment from SIPA? Little Green Beverages has in recent months begun bottling for some of South Africa's top supermarket chains. The new business called for output not only to increase substantially, but also to broaden in product type. The company needed new lines that run at high speeds and which can quickly and efficiently change from one drink to another as well as from one bottle size to another. It also needed an equipment supplier that was on-hand at all times to provide technical support.

"Little Green Beverages is making fully use of our local operations," says Giovanni De Rosa, South Africa Branch General Manager. "Our growing team based in Johannesburg is perfectly placed to respond quickly and professionally to this important customer's requirements."

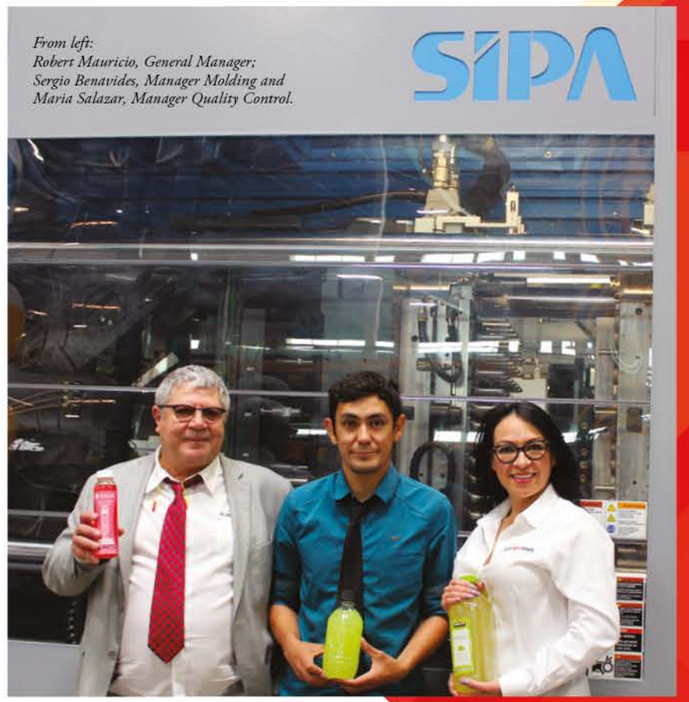



# XFORM PASSES WITH FLYING COLORS AT FLUID FORMS

FLUID FORMS

Californian converter Fluid Forms Inc. has had to think again about where to go to get the best in PET preform injection molding. It used to believe there was only one way to go, and that involved taking a trip to Canada. But not so long ago it was persuaded to take a SIPA XFORM 350 for the first time. It was so impressed that it now says it won't be the last SIPA system it invests in. "We were very critical in our assessment of the XFORM 350, but it came through with flying colors," says Plant director Robert Mauricio.

From its operations in Colton, CA, Fluid Forms serves multiple markets such as water, carbonated beverages, flavored beverages, alcoholic beverages, and food products. In operation for four years,



*From left:*
*Robert Mauricio, General Manager;*
*Sergio Benavides, Manager Molding and*
*Maria Salazar, Manager Quality Control.*


the company molds preforms and also produces bottles, always operating with state-of-the-art equipment. "We always ensure that our customers receive premium products that meet and exceed quality and performance standards," says Robert.

Fluid Forms is currently using the XFORM 350 to produce 72-g preforms for a 1.75-liter margarita mixer bottle, as well as 28.5-g preforms for 12-ounce HPP (High Pressure Processing, a form of low-temperature pasteurization) bottles. Both of these have 38-mm necks. Output is 22,530 preforms per hour for the 72-g preforms and 27,284/h for the 28.5-g preforms.

"We are now working with SIPA on developing preforms in the region of 70 to 78 g with a 33-mm Kerr finish for our growing liquor bottle business," says Robert. Fluid Forms chose SIPA, not only because of the high performance of the XFORM 350, but also because of its in-depth industry knowledge, strong customer service, and competitive pricing. "SIPA has been a great partner, standing by us in the development of complex bottles and containers that most convertors avoid. It has consistently exceeded our expectations in helping us design new bottles and of course with its equipment. Their support especially on sales side is exceptional as Mr Remos has been very instrumental in many ways to introduce new technologies to us". "The high throughput of the system and its two-stage injection system makes the XFORM 350 a perfect match for our needs. The toggle clamping is amazingly fast and precise, which translates into high-quality preforms and improved margins for us. The added bonus is SIPA's talented technical team and its training programs for our staff. "We are looking forward to our next system!"



AROUND THE GLOBE - NORTH AMERICA


# PET-VERPACKUNGEN EXPANDS IN MINIATURES

PET-Verpackungen GmbH
Deutschland

Historic family-run German bottle producer PET-Verpackungen is once again investing in SIPA technology, as it extends its capability in production of small containers. The company recently took delivery of an ECS SP 80 single-stage injection-stretch-blow molding system with 12 cavities, for production of miniatures for liqueurs. PET-Verpackungen is part of Wiegand-Glas, which began making glass bottles well over 400 years ago. The company's venture into PET began a little more recently, in 1997.

The new equipment is already up and running at PET-Verpackungen's operation in Großbreitenbach, midway between Frankfurt and Dresden.


*From left:*
*Mr. Stefan Möller, Production Manager at PET-Verpackungen and Mr. Matthias Raab, Technical Director at PET-Verpackungen.*

A very similar set-up can be seen on SIPA's stand at NPE2018 in Orlando, FL, in early May.

PET-Verpackungen chose the ECS SP 80 because of an increased requirement from one of its customers. The ISBM system is now making lots and lots of very small but perfectly formed bottles for schnapps and fruity liqueurs. Each bottle is less than 80 mm high and contains just 20 mL of precious liquid; the very particular neck finish is just 12 mm in diameter. The bottles weigh close to 5 g, which is around 10 percent less than previous designs. In shape, they are almost identical to the full-sized versions. SIPA worked closely with PET-Verpackungen to fine-tune the designs to ensure optimum weight and performance. PET-Verpackungen is a long-time SIPA partner, with several SFL 6/6 six-cavity linear reheat blow molding machines already running. It produces a very wide range of bottle and jar shapes and sizes, reaching up to 1.5 liters. The containers are sold into many markets, mostly in Wiegand's traditional base in food and drink, but also pharmaceuticals and other sectors.running. It produces a very wide range of bottle and jar shapes and sizes, reaching up to 1.5 liters. The containers are sold into many markets, mostly in Wiegand's traditional base in food and drink, but also pharmaceuticals and other sectors.

AROUND THE GLOBE - GERMANY





# SIPA BENEFITS GEPP WITH PRODUCTIVITY IN MEXICO

Major Mexican beverage company GEPP has chosen SIPA for a new bottle blowing and filling line for carbonated soft drinks. GEPP, which is partly owned by Pepsico (in partnership with another Mexican company Cultiba and the Venezuelan group Empresas Polar), recently took delivery of the line, based on an SFR16 Evo 3 rotary unit in a Sincro Bloc with a 144-valve filling unit, at its plant in Celaya, central Mexico.

In addition to the SIPA Sincro Bloc, the line also benefits from SIPA's Fastlayer robotic system for positioning shrink-wrapped packs of filled bottles on pallets.

GEPP has plants all across Mexico, and SIPA already has equipment - SFR 16 and SFR 12 bottle producing units, filling systems and molds - operating in several of them. The new line is producing bottles in two sizes - 3 L and 1.5 L - at rates of 17,500 and 28,000 bottles per hour respectively. "The new CSD line is one of the most productive in the GEPP network," says Ezio Magagnin, Regional Sales Manager at SIPA. "It is also especially energy-efficient. SIPA is one of GEPP's key equipment suppliers and we are particularly

happy with the success of this installation. Early word back from GEPP is that they are most satisfied!" GEPP is the only beverage company in Mexico with nationwide operations and full capabilities in manufacturing, distribution and marketing. The company produces, sells and distributes carbonated and non-carbonated soft drinks as well as water. It is the exclusive bottler of PepsiCo beverages in Mexico, and also develops and markets its own beverage brands and distributes third-party brands.

# SIPA SATISFIES SANGEMINI'S THIRST FOR TOP QUALITY BOTTLE PRODUCTION

Italian drinks producer Sangemini has taken to SIPA's new XTRA linear stretch blow molding system. Sangemini was a very early adopter, taking its first installation, an XTRA 10, in July of 2016, well ahead of the new line's public debut at Drinktec last September.

It expressed its satisfaction not long after by ordering a second unit - this time an XTRA 12 - which SIPA delivered in early December of last year.

Sangemini is producing bottles for various brands of mineral water and also a stylish sport bottle on its XTRA machines, with volumes ranging from 330 mL to 1.5 L. Sangemini was founded in 1889 in the town of the same name (actually San Gemini) in Umbria, not far from Perugia. It is now part of

the Acque Minerali d'Italia group, which has operations within five "centers of excellence" that sit on new fewer than 26 sources of spring water spanning Italy from near Venice in the North to Basilicata in the South. Most famous brands from the company include Gaudianello and Norda, as well as Sangemini.

The source in San Gemini is rich in a form of calcium that is easily absorbed by the body, making the water especially suitable for the very young and the very old.

The waters are also recommended for people with various disorders of the digestive system, with visitors coming for a cure swelling the local population of around 4500 in the summer months.

SIPA's new XTRA has higher unit output than any of its rivals - up to 2550 bottles per hour per cavity - reduced energy consumption, high flexibility and ease of use, as well as compatibility with other machines upstream and downstream.

The equipment can produce bottles from 0.2 up to 3.5 liters in volume, quickly and easily.

The new system combines unique features to boost performance and cut Total Cost of Ownership (TCO).





It has an extra-wide processing angle of 275 degrees, leading to an astonishing active angle of 200° - a value that exceeds current market standards by some 15% - making it possible to apply high pressure air for longer and enabling production of containers with extreme accuracy. The clamp stroke has two settings: short, to produce bottles of up to 1.5 L at a maximum speed of 2550 bhc; and long, for containers up to 3 L and an output of up to 2400 bhc, with a simple replacement of a mechanical part .

# FOCUS ON
# CIRCULAR ECONOMY

# SIPA MAKES A STRAIGHT LINE FOR THE CIRCULAR ECONOMY


Plastics packaging is at a critical point in its history. Never before has there been so much talk about reducing or even ending the use of plastics for packaging foods and drinks.

Within the industry, we all know that these materials offer major benefits with their abilities to keep foods fresh, reduce energy consumption in transport and handling, and improve safety. But graphic images that demonstrate the results of the irresponsible and unthinking disposal of plastics packaging – massive floating islands of plastics in our seas, despoiled beaches and countrysides, suffering wildlife and so on - are leading to a public backlash.

Nostalgia is building for the days when rigid packaging was all glass and metal and some supermarkets are already introducing what they term "plastics-free" aisles. There is something of an "out of sight, out of mind" element to this attitude of course: metal and glass packaging is also dumped, but in our oceans it virtually all sinks to the bottom.

Legislation is also changing the landscape. The European Commission says its first-ever European Strategy for Plastics in a Circular Economy, adopted at the beginning of this year, will transform the way plastic products are designed, used, produced and recycled in the EU. "It will deliver greater added value for a more competitive, resilient plastics industry," the Commission says. "Better design of plastic products, higher plastic waste recycling rates, more and better quality recyclates will help boosting the market for recycled plastics." Under the new plans, all plastic packaging on the EU market will be recyclable by 2030 and the consumption of single-use plastics will be reduced.

Trying to keep ahead of the game, at the World Economic Forum in Davos in January, 40 of the world's biggest companies agreed to come up with cleaner ways to make and consume plastic. Companies including Unilever and Procter and Gamble made a commitment to increase recycling and cut back overall use, with Unilever saying it would ensure that all of its plastic packaging is fully reusable, recyclable or compostable by 2025. At the same meeting, the Ellen MacArthur Foundation awarded $1 million to five new recyclable and compostable flexible packaging solutions intended to stop plastics becoming waste.

Today though, too much of the circular economy is still theory. Many of its concepts are largely untried. Only by putting them into practice will we find out how

realistic they are and how they can be improved for real-life situations. SIPA can stand proud in this regard. For a long time, the company has been working, alone and with partners, to develop PET container production technologies and product designs that minimize the use of materials as well as energy and other utilities. It is also putting its own house in order.

## LEADING THE WAY WITH XTREME RENEW

SIPA last November signed an agreement with the Italian Ministry for the Environment for the reduction of emissions and the improvement of energy efficiency within its own production operations. Under the agreement, SIPA will analyse and enhance the sustainability of all its operations, identifying procedures for environmental management of products and processes using life cycle assessment and the identification of measure for further improvement and optimization measures in accordance with ISO 14040 standards.

SIPA is the first company in its sector to engage in a complete and coherent project for the reduction of its environmental footprint.

Says Gianfranco Zoppas, president of SIPA owner Zoppas Industries: "This is a confirmation of our commitment to combine environmental sustainability and economic development. We firmly believe that manufacturers can help deliver a better world to future generations."

## BOTTLE-TO-BOTTLE

The agreement stems from the recent introduction of XTREME Renew, the world's first integrated system for the production of preforms containing 100% of recycled PET, but with the same quality as preforms made from virgin PET. XTREME Renew was developed in collaboration with EREMA, the Austrian company specializing in plastics recycling technologies. "XTREME Renew allows to put in place the principles of the circular economy," says Zoppas.

XTREME Renew is the synergistic combination of two already successful innovations - Erema's Vacurema and XTREME from SIPA. Compared with alternative systems for recycling old PET bottles back into new ones, it uses less energy, creates less CO2, and costs less to run. A key reason for this is that the XTREME unit can process PET directly from the Vacurema recycling system in flake form. There is no need to transform the recycled material into granules that would otherwise have to be cooled and then reheated.

Vacurema makes use of innovative technology to produce recycled PET (rPET) flakes that are exceptionally clean and ideal for food and beverage containers. In a fully integrated, fully automated, continuous process, output is then fed directly to SIPA's revolutionary XTREME rotary injection-compression platform for producing lightweight preforms at high speed and with high efficiency. The preforms can be as much as 10% lighter than preforms made on traditional injection molding systems. The XTREME system is not alone among SIPA technologies in being able to process recycled PET material. The XFORM system for producing preforms using more conventional injection molding can run with 100% rPET. XFORM is well-known for its high level of energy-efficiency as well as its ruggedness and versatility in being able to accept legacy molds from all major suppliers.

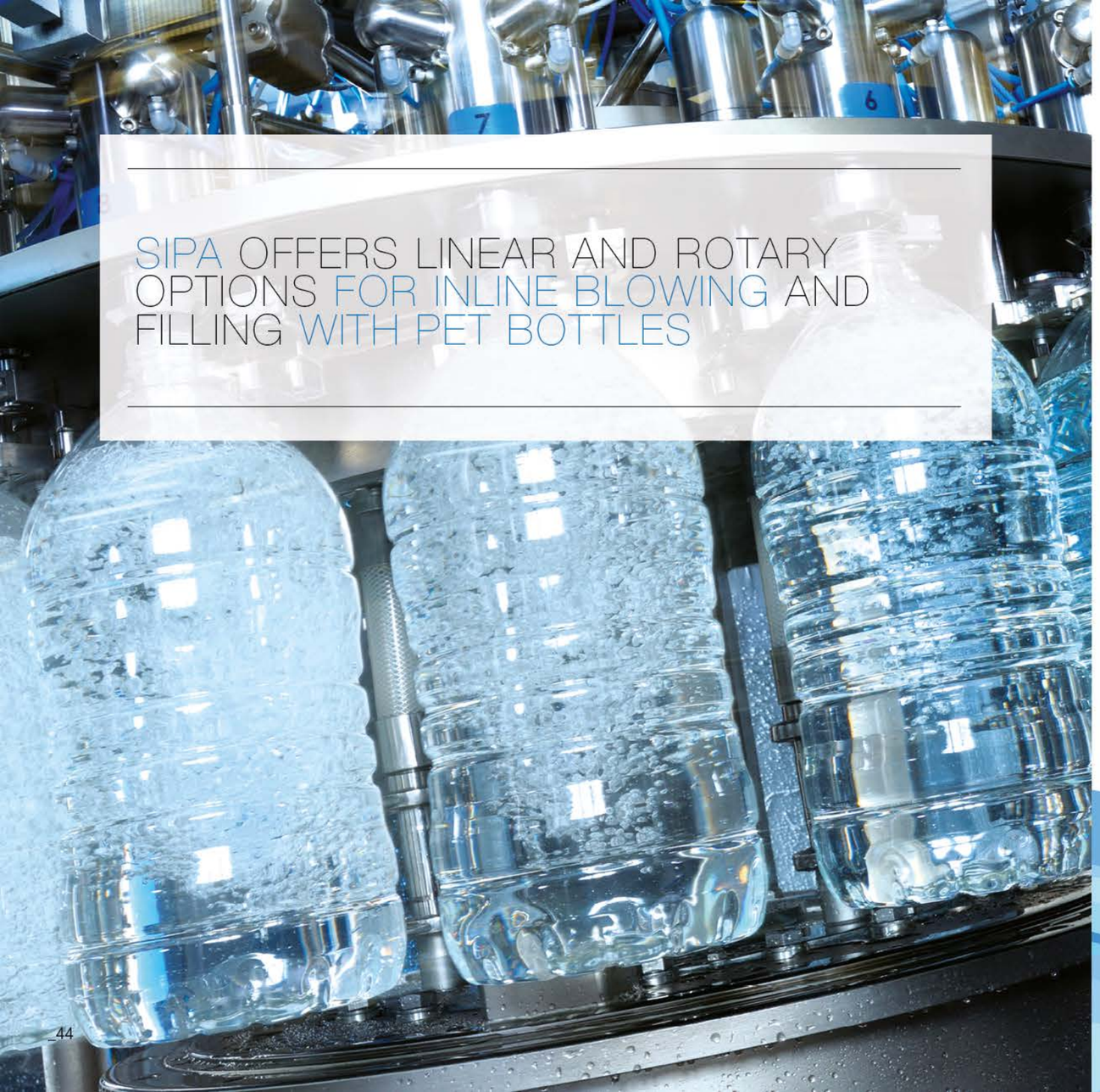
## BRINGING BACK MORE POST-CONSUMER PET

PET packaging is already more sustainable than many other forms of packaging, but the situation can always be improved. On the supply side, increasing amounts of PET polymer are coming from renewable resources. We need to increase the rate of post-consumer recovery and recycling as well.

Today, more PET is recycled in Europe than any other plastic. According to Petcore Europe, the association representing the complete PET value chain in Europe, close to 70 billion PET bottles are collected and recycled every year - that's close to 60% of all PET bottles produced. But more can be done, and indeed Petcore and other groups are involved in projects around the world to make it happen.

There are so many ways that PET can be given a life that extends well beyond a single use as a bottle for water, or juice, or oil - however important and beneficial that use is. The global throw-away culture must be broken. SIPA is playing its part to break it.

# TECHNICAL WINDOW:
# LATEST DEVELOPMENTS



# SIPA OFFERS LINEAR AND ROTARY OPTIONS FOR INLINE BLOWING AND FILLING WITH PET BOTTLES





Following the addition by SIPA several months ago of SincroBloc fully integrated PET bottle blowing/filling/capping systems based on SFL linear stretch-blow moulding units, beverage companies can now choose the line that best fits their production requirement for formats of all sizes.

## LINEAR BLOWERS FOR BIGGER BOTTLES, SHORTER RUNS, AND MORE

In the beginning, all SincroBloc models were based on SFR rotary stretch-blow moulding equipment. But SIPA found that some customers, especially those bottling water and edible oil, needed a system, clean and compact like the originals, for larger formats up to 12 litres. For this, only linear stretch-blowers will do. Some customers also want to produce only limited quantities, possibly at only 2000 bottles per hour, and for this a linear machine is again more appropriate. Outputs from SincroBlocs now account for all tastes. For example, rotary types can work at speeds of up to 54,000 small and medium-sized bottles per hour, while a system matching an SFL for large formats with a BigFill volumetric gravity-filling monobloc can push out 4000 12-L containers over the same period.

## VERSATILITY IN LINEAR AND ROTARY FORMATS

But the capabilities of the SFL SincroBloc units stretch well beyond big bottles and short runs. They can produce and fill small and large containers, in various formats, including bottles with handles. They can also work with all types of liquids, whether they be still water, CSDs, milk, hot-filled products, or products with high added value such as oils, detergents and personal care. In truth, all SincroBloc systems are very versatile. For example, any one line, whether it is based on a linear or rotary blower, can produce and fill hot-fill and CSD drinks. Numerous SIPA customers have taken advantage of this feature.

## LOWER TCO

The linear format has further important advantages. It is very compact, for example, and mechanical movements are simpler than with a rotary stretch-blow section, which facilitates its use. Total cost of Ownership (TCO) is lower too, thanks to lower investment cost and reduced maintenance requirements. That's not forgetting that SIPA SFL stretch-blow systems are among the best on the market.

In the last few weeks, SIPA has installed a new complete line incorporating the SFL SincroBloc system at an important customer in Turkey – for production, filling and packing of 5-L mineral water bottles. The line starts with an SFL 6/6XXL and BIGFILL 18-6 with laminar flow according to ISO7 and also includes labelling and shrink-wrapping systems and a Genius-PTF/2 palletizing system. It is designed to run at a speed of 6600 bottles per hour.

## MANY OPTIONS TO KEEP THINGS CLEAN, GOODBYE PRESERVATIVES!

Linear and rotary systems both excel with their simplicity and hygiene. There is no need for rinsing between blowing and filling, no need for external conveying systems, and total protection from the outside environment from the moment the preform enters the feed shoot until the filled and sealed bottle emerges, ready for wrapping. The high levels of cleanliness make it possible for customers to use them for CSDs that contain no artificial preservatives.

On SIPA systems with integrated PET preform and bottle production, various options are now available to maintain the cleanliness of the preforms between the injection moulding machine and the stretch-blow moulding unit. The collection hopper, lift and slide can all be enclosed and subject to over-pressure to keep out dust, for example; preforms can be blown with ionized air and subject to ventilation to remove possible dust; and special ventilation filters can be installed in the reheat oven area.

Various enhancements can also be made to ensure that the filling system is extremely clean and easily sanitized, with advanced cleaning systems for both the production circuit (Clean-In-Place, CIP) and the total filling environment (Clean-Out-of-Place, COP). Automatic false bottle loading, together with the use of microbiological isolation around the immediate filling area, produce a drastic reduction in the space that needs to be kept under control, making it possible to use sanitizing systems that are highly cost effective.

Furthermore, contamination of closures can be minimized with the use of a peroxide washing tunnel.

## A VARIETY OF MECHANICAL AND ELECTRONIC FILLERS

SIPA produces various types of fillers that can be coupled with the linear and rotary blow moulders for small formats. These include the Stillfill Evo mechanical gravity filler for hot- and cold-filled non-carbonated drinks; the mechanical Isofill isobaric level filler for carbonated soft drinks and mineral waters; the Flextronic S and SE electronic volumetric fillers for various types of still liquids and hot-fill products respectively; and the Flextronic W electronic weight filler for products with extra added value.

The Flextronic C electronic multi-product volumetric filling monobloc is suitable for filling CSDs, still and sparkling mineral waters, cold- and hot-fill juices. The configuration of the valve makes it suitable for processing products containing pulps and fibres. On top of all this, maintenance is once again very straightforward.

# XFORM:
# MORE IN-FORM THAN EVER





SIPA's XFORM 500 preform injection molding system is getting another upgrade. The 500-tonne system is already into its third generation since it was introduced at NPE 2012 just six years ago.
It stands out for its speed, its versatility (it accepts any generation of legacy tooling from any major mold maker), its energy efficiency - consumption is under 220 Watts for every kilo of PET consumed - and its reliability. These should be definitely the reasons behind the record in sales volume for SIPA XFORM on this first part of 2018.
Now, a new feature on the mold cold half lets XFORM 500 stay out even longer between pitstops. Till today, GEN3 third-generation cold halves were guaranteed to run for eight million cycles before maintenance was recommended to ensure that there was never any flash over 0.2 mm. SIPA can make this guarantee, thanks to the use of its LongLife surface treatment and a strong mold structure with very low deformation, high precision and high reliability - as well as optimized cooling.

## 11 MILLION MAINTENANCE-FREE CYCLES

Eight million maintenance-free cycles is a lot. But now SIPA is going well beyond this. It is extending the guarantee period by close to 40% - to 11 million cycles.
More time saving, more money saving, more satisfaction all round. The XFORM 500 is capable of running with preform molds holding up to 180 cavities while XFORM 350 can accept molds up to 128 cavities. This means that between one refurbishment and the next, the system can produce almost two billion preforms. That's a lot of bottle.

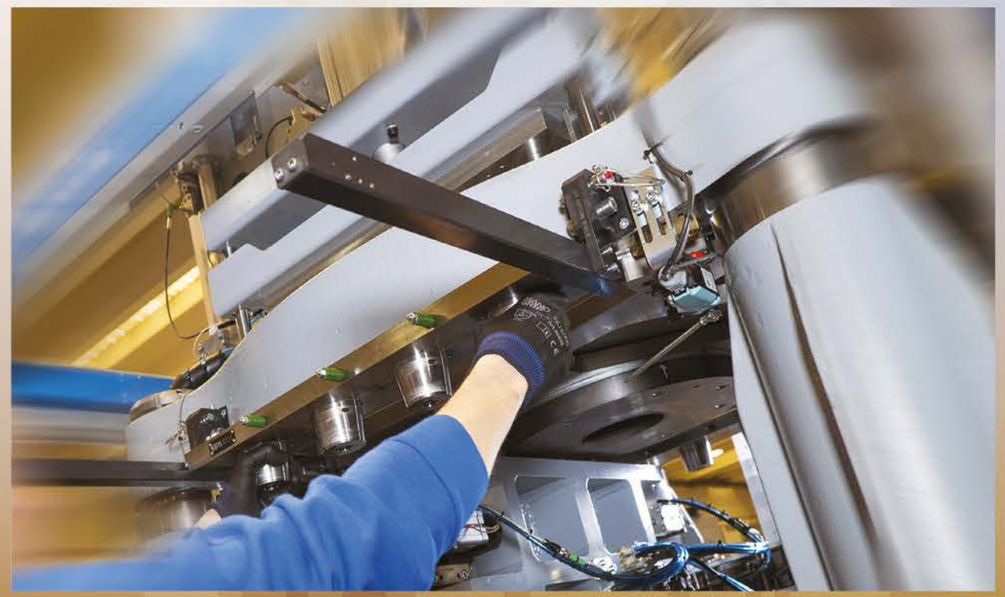
# CHANGING MOLDS ON ECS SP SYSTEMS IS SWIFTER AND SAFER THAN EVER

A new quick mold change system just developed by SIPA's topengineers for its ECS SP single-stage injection-stretch-blow molding machines means changeover times can be slashed by around a quarter. New features also add extra safety and user-friendliness for operators, especially for some critical operations. The SIPA ECS SP system is ideal for production of specialty products such as containers for pharmaceuticals, cosmetics, personal care products, and spirits, particularly (but not exclusively) in sizes between 20 and 50 mL. Two models are available: the ECS SP 50 with a 500-kN injection clamp force, and the 800-kN ECS SP 80. Since introducing the range, SIPA has given it a thorough overall, making improvements to numerous aspects - preform injection, conditioning, blowing, the operator interface among them. It has also made it easier to mount molds originally intended for other ISBM system. All this (and more) makes the ECS SP system especially very versatile, capable of producing all sorts of shapes within its chosen size range. For this reason - and because production runs are quite often of fairly limited duration - there is an important need to be able to change the injection and blow molds quickly so that down-time between runs is minimized.

At the same of course, special care needs to be taken to ensure that change-over operations are carried out very safely.

The system involves a new automated procedure for loading and unloading the preform core plates; this incorporates additional

sensors to ensure that the mold opening stroke adjusted correctly according to the preform length. Operations for assembling and disassembling the neck ring plate have also been modified.
SIPA has developed a patent-pending system that now makes it possible for the procedure to be carried out by one person instead of two, in all safety. Changing the blow mold is much easier too. Intelligent modifications to the press and the introduction of roller bearings in critical positions, for example, now mean that once the forklift has positioned the mold next to the clamp unit, the mold can then be pushed into position by hand. Height adjustment of the mold, once it is in the clamp, is also easier. Finally, modifications have been made to sealing plate and stretch rods, and standard screw fittings for the water cooling system have been replaced by quick-fit push/pull fittings - all with the aim of making things simpler, faster and even safer for the operator of these outstanding ISBM systems.



# PETWORK: CONCEPT, DESIGN, ENGINEERING. WHAT'S NEW IN PACKAGING WORLD

# REFILLABLE BOTTLES NEED LIGHTWEIGHTING TOO

All around the world, interest is growing in the substitution of single-use plastics containers by ones that can be reused and refilled many times. As long as they can make a minimum number of trips, refillables can provide an economically viable alternative to one-way PET bottles and they can provide an economic, lighter and shatter-proof alternative to the original multi-trip glass bottles.

Because they are designed to last longer, these sorts of containers generally need to be more robust and heavier, but just as is the case with one-way types, there is an important need to keep their weight as low as possible.

Mexican container maker Mega Empack is one of the latest packaging companies to take advantage of SIPA's expertise, not only in producing refillable large PET containers and preforms, but also in helping to design products that are high in performance but low in weight. Over the years, SIPA has amassed a considerable amount of experience in designing such types of bottles.

Mega Empack (part of the Bepensa group that has activities in


*Marco Antonio Romero Rugarcia, Gerente de Negocio at Mega Empack.*

beverage production and distribution as well as in chemicals, various types of industrial and automotive equipment, and logistics) is an important supplier of bottles to The Coca-Cola Company.

Its latest production line, inaugurated this February, is now running with refillable PET bottles, with inline production of preforms and bottles. Depending on bottle size, output can be well over 4000 bottles per hour.

The preforms are produced on a third-generation SIPA XFORM 500/48, while containers are blown on an SFL4-4XL. SIPA developed new fewer than five formats of lightweight bottles for Mega Empack. SIPA was given the task of developing bottles that needed to withstand durability tests, carried out in the lab and also in real-life conditions, which ensure they can withstand multiple washing cycles, just like glass bottles. Washing was carried out at up to 60°C in alkaline conditions of up to pH 14, for as long as half an hour each time. Lab tests involved putting the bottles through 25 cycles.

At the same time, MegaEmpack wanted to use bottles that were lighter than versions already on the market. And since the bottles are mainly used for carbonated soft drinks or sparkling water, they had to resist internal pressures and stress cracking, and have good thermal stability.

Two sizes of preform were designed, one weighing 93g for 1.5-L bottles and another weighing 119g for 2.0- and 2.5-L bottles (SIPA and Mega Empack continue to collaborate on a further weight reduction for the 2.0-L version). Both are characterized by low ovality and good concentricity and perpendicularity.

The preforms are blown in molds that have a special copper alloy in the champagne-bottle-style base, to enhance cooling; while the body is heated to around 85°C, the base (and the neck) are cooled to around 12°C.

# COMING TO GRIPS WITH HANDLES





PET provides excellent light-weighting solutions for all sorts of bottles and containers. The packages are not only attractive, they are also highly resistant to rough handling, knocks and falls.
Even so, with contents that are heavier and more voluminous, special attention needs to be given to the ease with which PET containers can be carried and how the contents can be poured out.
Such considerations take on extra importance when we consider products that are more likely to be used by the elderly and infirm.
A simple round or square container with contents weighing hundreds or even thousands of grams can be difficult to pick up and hold in one hand, so some sort of feature to improve grip is more than desirable: it becomes essential.
But there is no single ideal solution. Both in terms of function and esthetics, container makers have various and diverse needs.
That is why SIPA provides several options to improve 'handleability' of medium-sized and large containers. These can be divided into four categories:

- **A container designed with a built-in grip.**
- **Ahandle around the container neck.**
- **A separate handle that is attached to the body after the bottle is blown.**
- **A handle that is pre-loaded into the mold and bonds to the container during blowing.**

## BUILT-IN

- **THE BUILT-IN SOLUTION**

An interesting option for containers from 250 ml to two and three liters in volume is to incorporate a pinch grip, indented panels, or a slot, directly into the body. This is a solution that requires little or no extra investment in container blowing or downstream handling equipment, and which does not affect the output of the production line, which can be linear or rotary.

Further step is to impress a deep shape in bottle, with an additional mold movement. This can be done on SFL machine. Gripping is improved, while output is reduced.

Users of preforms with the new neck can cut down their PET consumption without compromising on container performance. In addition, no modifications are needed to existing preform handling equipment.

## HANDLE TO THE NECK

- **ATTACHING THE HANDLE TO THE NECK**

This is a simple and effective solution that is easy to incorporate into existing filling lines.

The handle is injection molded in a separate operation (mostly likely by a third party) and attached around the neck of the container downstream. It does not affect the blowing operation at all, and so output, whether the blower is linear or rotary, remains unchanged. Some downstream investment is required, but the equipment necessary to attach the handle to the container after it has been filled is relatively low-cost.





## HANDLE TO THE BODY

- **ATTACHING A HANDLE TO THE BODY AFTER BLOWING**

This solution also makes use of a separately molded handle.

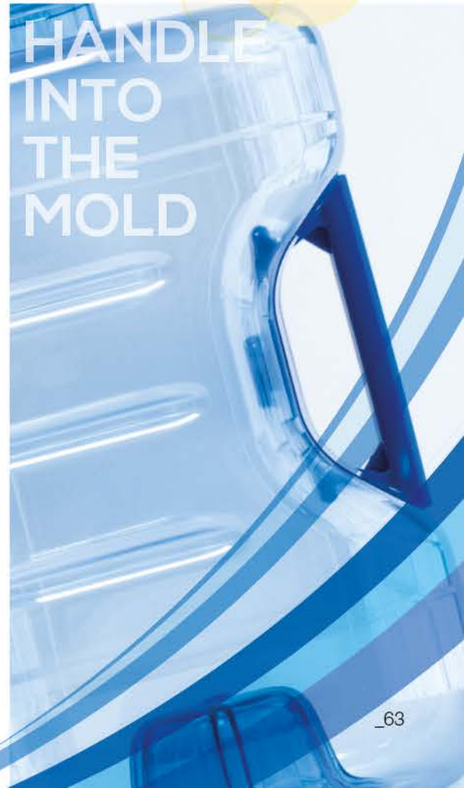
It makes the container easier to carry, and additionally facilitates pouring with one hand.

It is suitable for a wide range of bottle designs. Once again, no special blowing equipment is required: all that is needed is a standard SFL unit, which can be equipped or retroffited with a simple hydraulic unit that moves a special device (inside the mold) to create two slots: these areas will host the handle (that will be placed with a separate machine, down the line). This does affect output however, with limited speed reduction.

- **LOADING THE HANDLE INTO THE MOLD BEFORE BLOWING**

This is a solution that produces a very robust product, since the handle is more firmly attached to the container body. It does require a modified SFL blowing unit that provides a special thermal treatment of the preform before it is blown, as well as a robot to place the handle (or more handles) inside the mold before the hot preform arrives. No additional downstream equipment is required though. Output is around half that of a system producing containers without handles.

## HANDLE INTO THE MOLD



# NEW NECK FINISHES FOR HOT-FILL BOTTLES PAY FOR THEMSELVES IN WEEKS





SIPA's HotLight 38 neck finish for hot-fill bottles is a massive 10.6% lighter than a traditional neck finish. It has the same diameter - 38 mm - and the same height - 17.83 mm - but design changes made with pinpoint precision enable it to hit the scales at just 6.7 g, compared with 7.5 g.

Bottle makers save material and cut running costs, while still being able to use the same closure and obtain the same performance from the bottle.

Is it worth the investment in new tooling? No question about it: Yes! To change from the old to the new is a matter of replacing neck rings and nothing else. A converter using a 96-cavity mold to produce close to 250 million 22-gram preforms a year (typical for this size of mold), will be able to cut their consumption of PET by around 200 tonnes. With PET currently costing a little over €1/tonne, that works out at a saving of €210,000. The rings will pay for themselves in little more than three months.

You might say: Change the rings and ring the changes!

# KEEP BALANCE WITH ULTRA-HIGH-CAVITATION HOT RUNNER SYSTEMS

Mold making has always been a strange brew of engineering expertise and artistry. That is especially so in the world of PET preforms, where customers want something that can be turned into a product - the bottle - that combines beauty and strength. Can we extend this observation to hot runner systems? After all, they have a certain skeletal elegance about them. But it is a stretch. Hot runner design is very much a case of form following function, and obtaining that functionality is very much in the hands of the engineers.When it comes to hot runner systems for preform molds holding close to 200 cavities, SIPA has engineering expertise that few can match.

As a demonstration of this, consider that SIPA has just conceived, designed, built and delivered a preform mold with 192 cavities to one of the world's leading PET container makers, based in North America.

Creating a hot runner system that consistently and reliably enables so many cavities to be filled identically, at high speed, without excessive force, is a task that extremely few are capable of handling. Thanks to its Xflow melt distribution system, which is now available for use on GEN 3 (third generation) XFORM 350 and 500 high-performance injection molding machines, SIPA can do it.

The new system incorporates an innovative hot runner manifold design that provides the best balance of melt distribution in the industry. It exhibits the lowest pressure drop ever measured.

That is one reason why SIPA can significantly extend the maintenance interval, since wear and tear is reduced. Furthermore, any maintenance required is easy to carry out.

Tooling and hot runners R&D team, says: "Xflow technology, which is unique to SIPA, allows us to create very high-cavitation systems without having to compromise on balance, pressure losses, and the formation of acetaldehyde due to polymer degradation. It goes without saying that Xflow can also be applied to molds with more modest levels of cavitation with equally impressive results.

Xflow is extremely efficient and it is scalable according to customer needs." Over the course of the

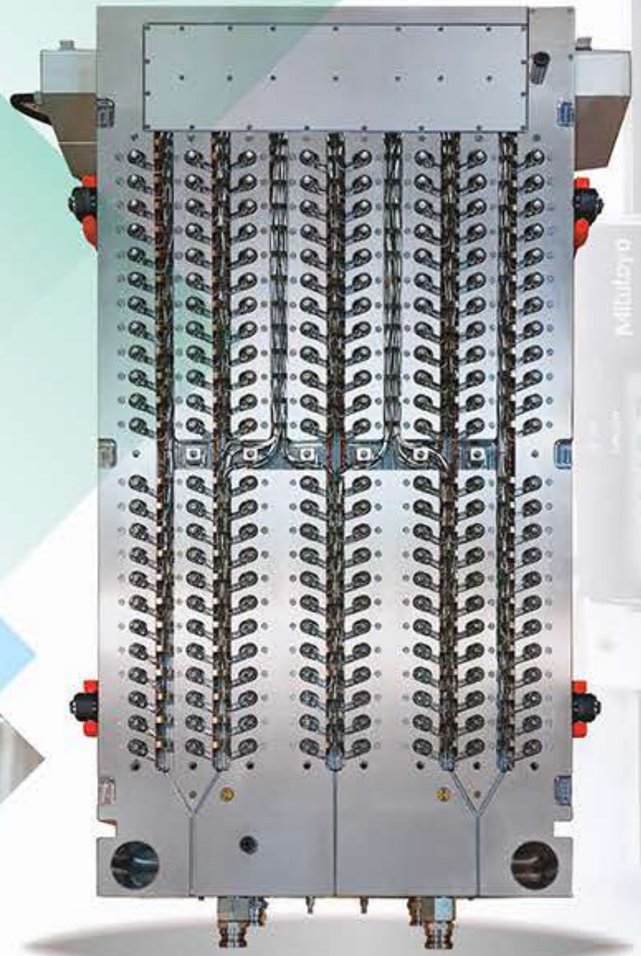
last five years, SIPA has made great strides in hot runner technology. The first generation of SIPA hot runners depended on a purely mechanical technology for balancing melt flow. Then in 2013, SIPA introduced a new generation of hot runners, which marked a decisive turning point in the approach to flow balance. This is when Xflow first came onto the scene.

The Xflow solution applies the most advanced concepts of polymer fluid dynamics to hot runner engineering. By taking melt rheology aspects into account, it became possible to obtain balancing results quite beyond those of traditional systems. Almost at a stroke, Xflow halved the imbalance in melt flow compared with the first generation. SIPA has since gone further. Third generation hot runner systems, introduced soon after the second generation, incorporate a further evolved version of Xflow that benefits from a total overhaul of the cylinder units, valve guides and nozzles. "When we design Xflow hot runner systems, we now take full consideration of rheological properties all along the many flow paths to the individual cavities," says SIPA team spokesperson. "This is really important, given that these days we are increasingly working on projects where preform walls are thinner than ever before. This means that it is critical for the hot runners to consume as little energy as possible so that the injection unit can push the molten polymer as quickly and efficiently as possible into all the cavities.

"Xflow is without doubt the best solution in this respect. Use of rheological rather than mechanical balancing translates into minimum energy demand and a very low pressure drop. Xflow can be applied to any application to provide the best solution for high-speed injection of critical preforms.

Without Xflow, such results are impossible to achieve."

PETWORK - 192 CAVITIES HOT HALF



# NEXT EVENTS 2018

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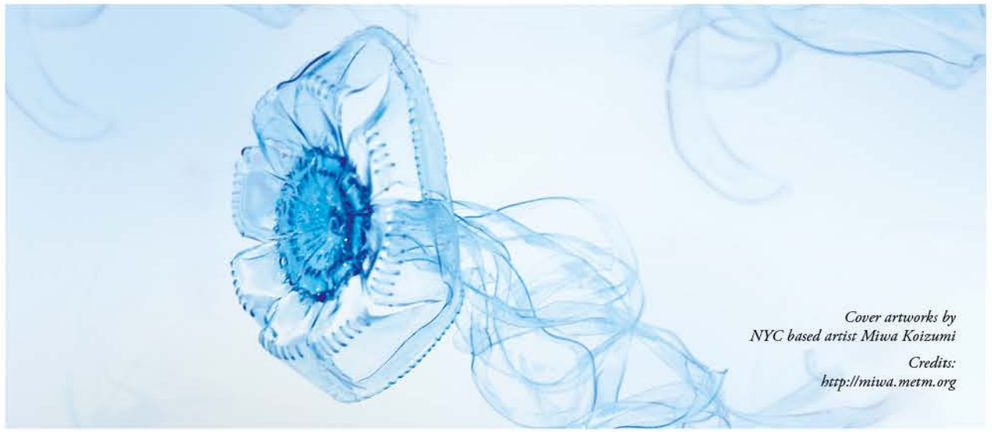
| 7 - 11 MAY | **NPE 2018**<br>ORLANDO, USA | *www.npe.org* |
| 13 - 16 JUNE | **PROPAK ASIA 2018**<br>BANGKOK, THAILAND | *www.propakasia.com* |
| 6 - 8 NOV. | **GULF FOOD MANUFACTURING 2018**<br>DUBAI, UAE | *www.gulfoodmanufacturing.com* |
| 13 - 15 NOV. | **BRAU BEVIALE 2018**<br>NURNBERG, GERMANY | *www.braubeviale.de/en* |



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