FOCUS ON

CUSTOMIZED PREFORM MANUFACTURING SOLUTIONS

PET PACKAGING NEWS OF THE WORLD

SIPAMAGAZINE

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via Caduti del Lavoro, 3
31029 Vittorio Veneto - Italy
+39 0438 911511
www.sipa.it

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EDITORIAL

I was looking through a book of quotations that other day. Here is one from Alan Kay: "The best way to predict the future is to invent it." We at SIPA strongly believe that our task is not only meeting our customer's demands, but also anticipate them and – just as important, if not even more important – meeting ones they never even knew they had. We see it as our job to get inside a customer's head (without losing our own), to see how it feels to use preform molding equipment, stretch-blow molding equipment, filling equipment, packaging equipment, day-in, day-out – and to try and find a better way of making things happen. Because there is always a better way.

This edition of SIPA MAGAZINE is full of examples of how our experts have created new ways to solve problems at our customers, to avoid them before they arise, and to create new futures. Probably our most startling development is the XTREME injection-compression molding system, which now makes it possible to produce preforms that are up to 10% lighter than even the lightest injection molded preform. And as visitors to our stand at the BrauBeviale exhibition in Nuernberg will be informed about, we are now extending the philosophy behind this technology to its logical conclusion downstream too.

For those of our customers happily married to more traditional injection molding technology, we continue to extend the possibilities here too. SIPA has for example created new designs of ultra-light "BottLess" bottles, based on preforms with extra-high length-to-thickness ratios that can only be achieved with its highly innovative XMOULD mold technology.

On the bottle production front, meanwhile, SIPA has developed a preferential heating system for preforms that is ideal for stretch-blow molding systems producing non-round bottles, for such applications as beauty & cosmetics, squeezable sauces and salad dressings. Customers producing containers for household products that have integral handles will also benefit from the new system.

There is even a completely new unit in SIPA's range of linear stretch-blow molding machines, the SFL 1 XL, which meets a growing need among processors involved in small- and medium-scale production of containers anywhere from 15 to 30 liters in size, and who are looking for the most cost-efficient and reliable equipment on the market today.

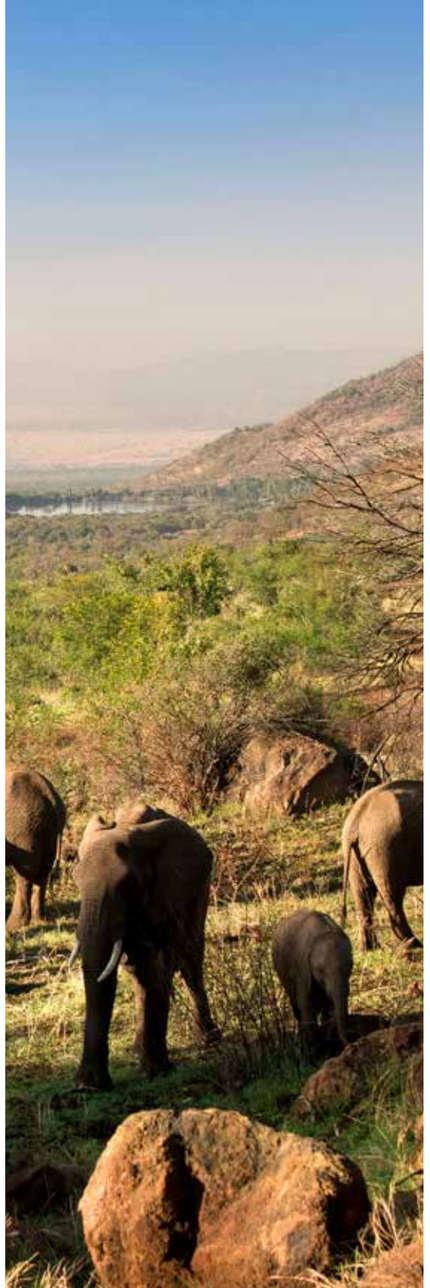
And finally, SIPA is reinforcing its position as a total system provider with the introduction of the Flextronic W weight filler, a piece of equipment characterized by outstanding accuracy, precision, and speed, and perfect for numerous high-value products in food and non-food applications.

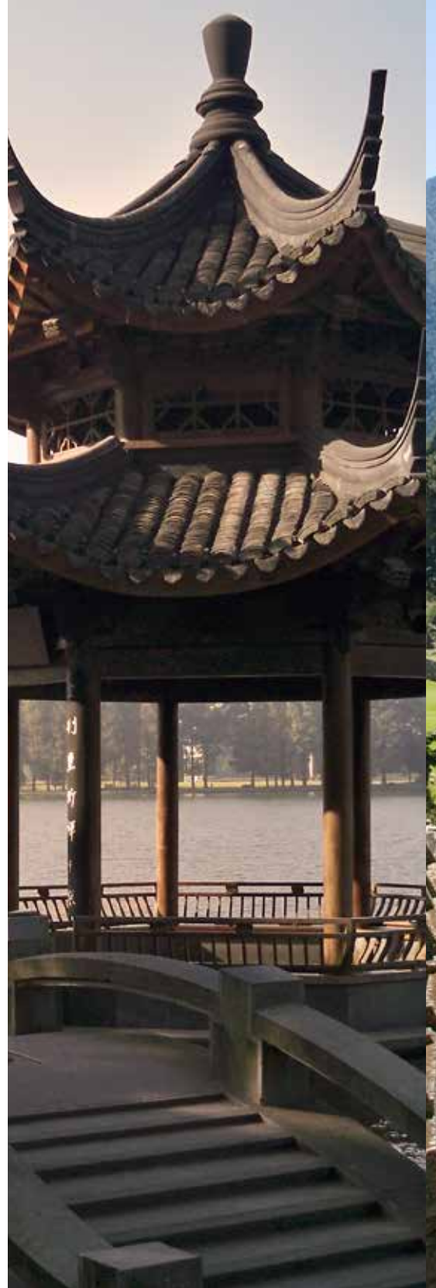
SIPA is the only company in the world today offering fully complete turnkey systems for such products, all the way from the conception and development of the preform and bottle, to forming and filling, and onto packaging and palletizing. Its experience in plant engineering and systems integration is unrivalled, and continues to grow of course.

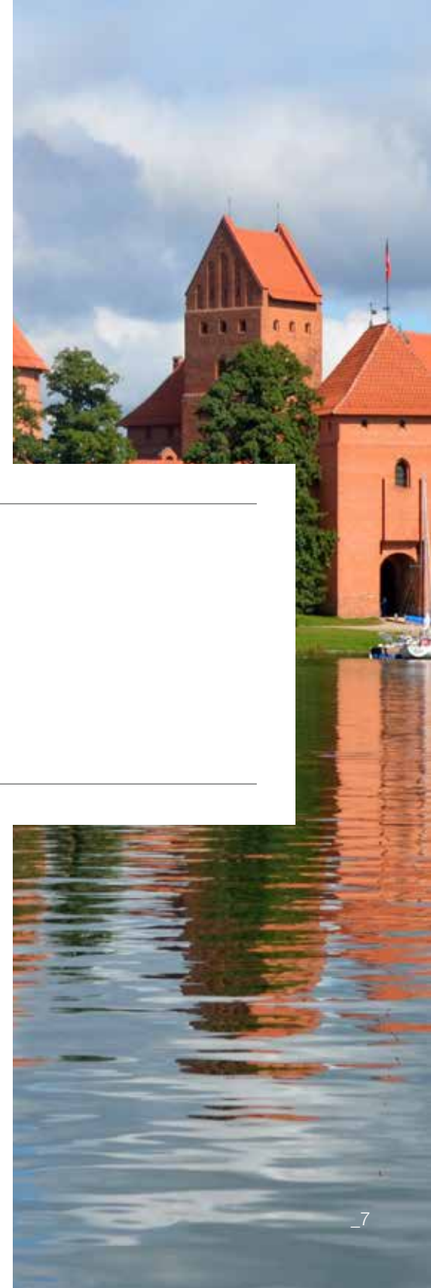
All these examples are further proof of SIPA's ability to innovate – and innovate for a purpose, which is to make its customers more successful. Other companies can do this too, but I believe what makes SIPA special is that it can do it on so many different fronts, and in a coordinated way that is not just in tune with expectations, but which exceeds them and, as I said at the beginning, makes you think: "I didn't know I needed that – but I did!"

I shall conclude with one of my favorite quotations of the moment, this time from another rather well-known physicist and philosopher, Albert Einstein: "The one who follows the crowd will usually go no further than the crowd. Those who walk alone are likely to find themselves in places no one has ever been before." If you enjoy the spirit of innovation, stay with SIPA!

Enrico Gribaudo
General Manager







AROUND THE GLOBE:
NEWS FROM THE DIFFERENT CONTINENTS

SIPA HELPS PONTI ADD A TOUCH OF CLASS TO ITS GLAZES

Here's one for the foodies. With its gastronomic glazes, Ponti – the most famous Italian producer of vinegar, pickles, condiments and sauces – offers intense sweet and sour flavours in a dense liquid that merges modernity and heritage and which is just dying to bring all sorts of dishes to life. Ponti has been using SIPA SFR rotary stretch-blow molding machines for a few years now to produce 1-L PET bottles for various wine vinegars. Last year, it took its first linear unit, an SFL 4/4, to produce a new design of small bottles for its Gastronomic Glazes. The Ponti Gastronomic Glazes have been on the market for a while, but they were originally bottled in high density polyethylene. The new PET versions were launched earlier this year with an extensive publicity campaign on Italian TV. They have a personalized and more attractive look, both in terms of their shape and also because the bottles have a beautiful shine that shows the contents in their best light. Ponti now offers five different Gastronomic Glazes: the original, based on Aceto Balsamico di Modena IGP, has now been joined by four more: one containing Moscato grape must; another with soy sauce; a third with lemon juice; and the final one with apple juice. The PET bottles come in two squeezable sizes, holding around 145 or 250 g of product, for each flavour. The bottles themselves weigh 14.5g. SIPA provided Ponti with a fully comprehensive package deal. Not only did it supply the processing equipment, it also produced original designs and prototypes, carried out product

Giacomo Ponti, manager of PONTI, the family business that produces vinegar from 1867 in Ghemme, on the hills close to Novara.
Abandoning glass for PET was a small revolution. "Now," says Giacomo Ponti, "we have a bottle that is lighter, which does not alter the quality of our product, and which is also 'eco-friendly': because we blow the bottles ourselves in-house, it allows us to reduce the number of truck deliveries to our factories by more than 1500 a year.

testing and offered other complementary services. SIPA has a well-proven capability to develop and prototype new bottle designs for its customers. It has partnered with numerous customers, around the world and across various sectors, to develop containers with innovative features that exploit the potential of PET to its maximum. In its prototyping operations, SIPA can produce original new preforms and containers, optimize existing preforms and containers and develop and test containers using different PET resins. The company's test laboratory, equipped with 16 laboratory machines, is certified by leading brand owners in the food and drink industry. The new bottles are relatively simple to blow, but particular attention did have to be paid to the bases to make sure they are oriented correctly during the high-speed filling and labelling operation; this is because they have a slightly oval cross section, so the label has to be in exactly the right position.
Attention also had to be paid to how the bases behaved during filling. One particular feature of the bottles is that they have a champagne bottle-style base, higher at the centre than around the rim. In early trials, with the bottles still hot from the stretch-blow operation as they were filled, the internal pressure of up to 35 bar tended to flatten out the bases. SIPA optimized the blowing sequence so that the bases were cool enough by the time they were filled to resist the filling pressure and retain their shape. Tests carried out in the SIPA laboratory included standard checks on dimensions and top load strength. In addition, controls were carried out to ensure that the bottles retain their oval shape over time. The Ponti Gastronomic Glaze, being based on wine vinegar, tends to absorb oxygen, creating a partial vacuum in the still-unopened bottle, and providing the potential to distort its shape. However, even after a year, there was no discernable change.

MPACT CALLS ON SIPA SKILLS FOR COST-EFFECTIVE PET PREFORM MOLD REFURBISHMENT

One of southern Africa's largest plastics and paper packaging businesses has been investing in SIPA mold-making technology and expertise. Mpact, headquartered in Johannesburg, South Africa, and with 22 manufacturing sites across Mozambique, Namibia and Zimbabwe, as well as its home country, already relies on SIPA SFL 4/4 linear stretch-blow molding machines for the production of PET hot-fill bottles – Mpact is in fact the only company in South Africa making this type of container. But in recent months the company has been benefitting from SIPA's leading position in PET preform mold production and refurbishment as well.

Mpact called on SIPA to refurbish some existing molds that had originally been supplied by a competitor of SIPA's. SIPA was given five molds to work on, with several set objectives. Work done, Mpact is now benefitting from some highly cost-effective upgrades.

The first job was relatively straightforward, involving the refurbishment of a 72-cavity cold half. SIPA put in new cavities, lips, and locking rings. The other jobs, however, called on much more of SIPA's expertise in mold making.

On the first of these, Mpact called for a complete change of use of a 144-cavity mold.

This involved new injection stacks, a new take-out plate, and the installation of SIPA's "Air Pick", a preform handling device with an integrated system for cooling the inner and outer walls of the preform at the same time

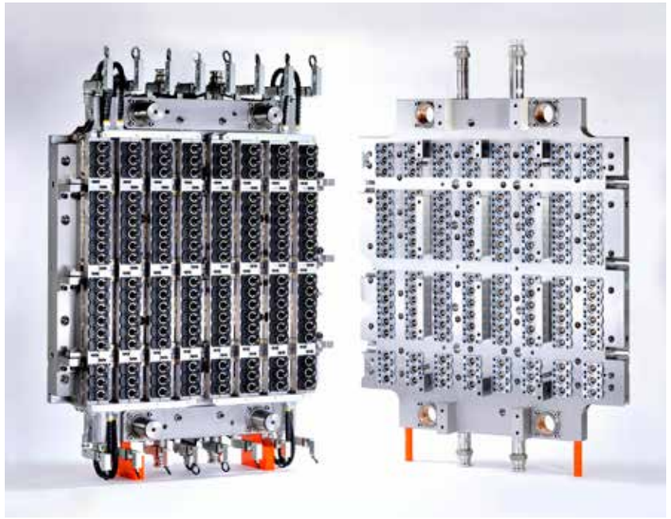
Pet Hot -fill bottles produced by Mpact

to reduce cycle time and increase part quality. The mold was used to make preforms for 500-mL bottles for a major soft drinks producer. Mpact's aim was to have it converted to production of preforms for bottles in a format new to South Africa.

These preforms incorporate special lightweight bases, which SIPA calls "Smart Base."

The final job involved refurbishment of three hot halves for molds with 48, 72 and 144 cavities, and which involved shipping the hot halves from Johannesburg to SIPA's mold-making operation in Vittorio Veneto, Italy. Other mold makers, when they carry out maintenance operations after a certain number of cycles, tend to change all the internal components as a matter of course. SIPA takes a more analytical approach: it opens the hot half and evaluates which components need changing, and which don't. For the components that it decides do not need replacing, SIPA provides a guarantee on their reliability.

The overall cost of carrying out the refurbishment this way is less, with the customer obviously participating in the saving.



144 Cavities Mold

Mpact has 32 operating sites, 22 of which are manufacturing operations, and employs close to 4000 people. Apart from its operations in PET preforms and bottles, it is a market leader in southern Africa in corrugated packaging, recycled-based cartonboard and containerboard, and recovered paper collection, and it also produces non-PET bottles, jars, and closures, polystyrene trays, and plastics crates and jumbo bins.

Mpact's plastics business manufactures a range of products for the food, beverage, personal care, homecare, pharmaceutical, agricultural and retail markets, primarily in South Africa.

SIPA HELPS NONGFU SPRING TURN A FRESH IDEA FOR BOTTLED TEA INTO REALITY

One of China's largest beverage companies has turned to SIPA to help it bring a new concept to life.

Nongfu Spring is a major supplier of mineral water, tapping into no fewer than eight sources across the country, with its filling operations all located close by. It also produces various fruit and vegetable juices, health drinks, and teas. The company is headquartered in Hangzhou, in China's eastern Zhejiang Province.

Last year, SIPA collaborated with Nongfu Spring on the development of a novel bottle for two new products – a matcha milk tea and black tea latte. Unlike many other teas on the market, these Nongfu Spring teas contain milk, which is one reason why the bottles have shrink labels covering their entire visible surfaces. This prolongs shelf life, and also makes the bottles particularly attractive.

Cheng Feng-senior packaging specialist at SIPA says the development of the bottle was quite challenging. Original concepts were developed by Mousegraphics, a leading packaging design studio located in Athens. Mousegraphics came up with a highly innovative design, a circular bottle with a straight taper all the way to the top – echoing the shape of a bamboo whisk that is used when these drinks are prepared traditionally. This presented challenges in obtaining good material distribution, especially around the neck area, says Cheng Feng.

"This is not a normal bottle, it's special," he says. "Our engineering also had to think of ways to get the center of gravity in the right place, to make the bottle stable. But SIPA has been solving industrial design

水

problems for a long time, and we have a knowledge base that goes back more than 25 years, so of course in the end the problem was solved."

Indeed, when the new teas were launched on the market, they drew lavish praise from consumers.

SIPA's product development input for the new tea bottle was complemented with new tools. The company built supplied Nongfu Spring with molds for the preforms as well as for the finished bottles. The molds run on machines from diverse suppliers.

Nongfu already had good experience with SIPA molds. It began using cold halves from the company for preforms for 1.5-L mineral water bottles in mid-2012, and now has three sets. Last year, it took delivery in July of two complete sets (29 cavities) of blow molds for 320ml bottles; then in November SIPA supplied a cold half for the production of preforms for 4-L water bottles.

Nongfu is satisfied with SIPA that we succeeded in taking the original design for these bottles and turning it into an industrial product. Nongfu is also very happy that the SIPA molds match their existing injection and stretch-blow moulding machines very well. SIPA is helping Nongfu Spring keep its leading position in the market here in China.

SIPA HELPS BACKUS STAY IN FRONT WITH CSD BOTTLING LINE

Peru's largest brewery is also making a name for itself in carbonated soft drinks. The Union of Peruvian Breweries Backus and Johnston, commonly known simply as Backus, has been producing beer since 1879, and has been part of the SABMiller group for the last nine years. One of its operation bottling CSDs was recently designated the most efficient in the entire global group.

SIPA can take some of the credit for that, since it supplied the complete bottling line. It also supplied the stretch-blow molding equipment used by Backus' in-house bottle supplier, SMi. Three brands are bottled on the line: Guaraná, which contains extract from the guarana fruit native to the Amazon basin; Viva, a type of cream soda; and Maltin Power, which Bakus says is the only natural malt drink enriched with vitamins "that nourishes and gives you energy to overcome any physical or mental challenge."

Two SFR rotary stretch blow molding systems, one with eight cavities, the other with 12, supply the filling line directly via a

pneumatically operated transport system. The filling line itself comprises an ISOFILL isobaric filling monoblock, a DRINKMIX continuous mixing unit, labelling and bundling units from SIPA partners in Italy, and a FASTLAYER palletisation system.

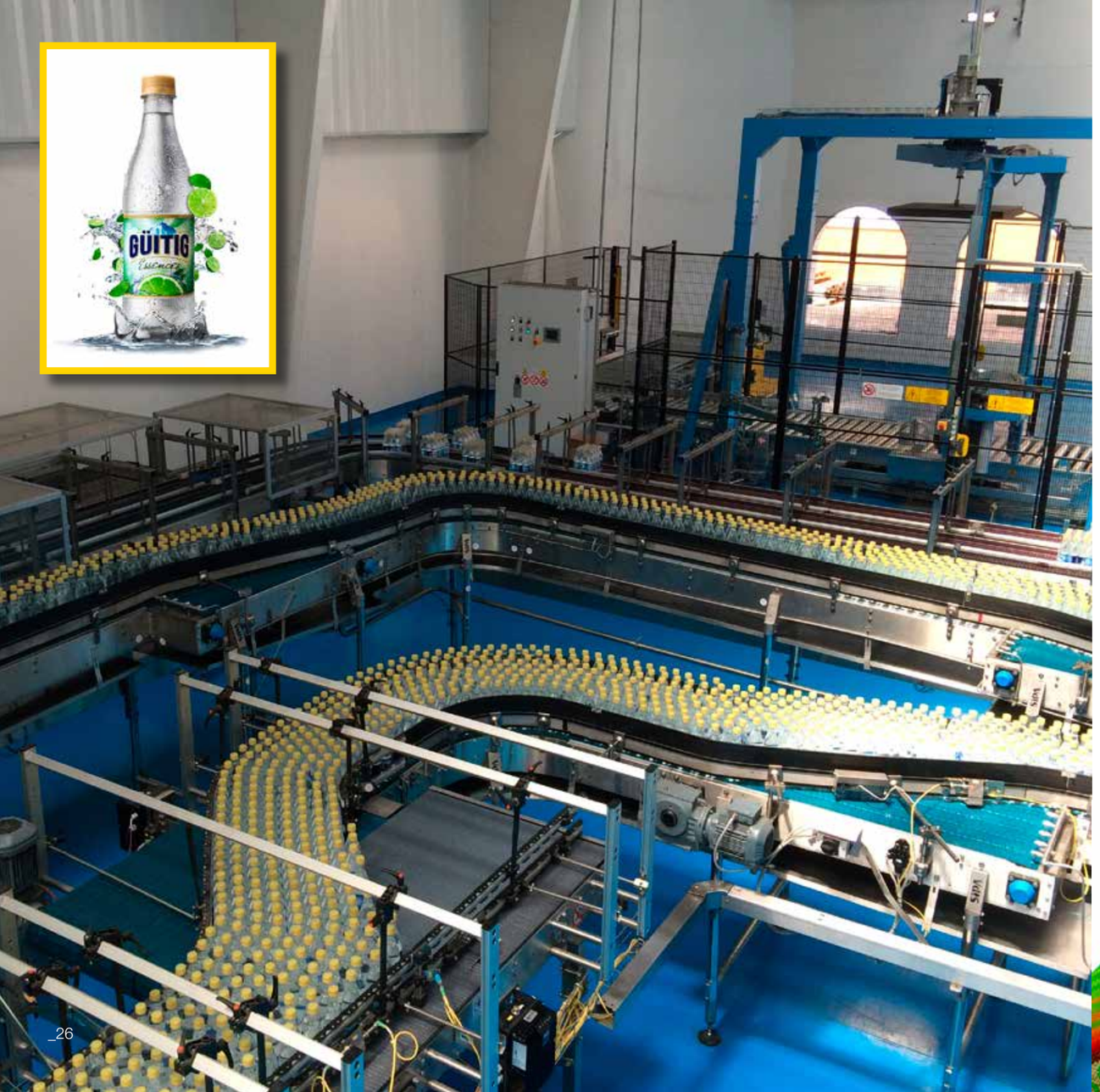
The Backus and Johnston brewery was founded in 1879 by Jacob Backus and John Howard Johnston in the Rímac District in Lima. The company operated as a British corporation until 1954, when it was incorporated in Peru and renamed as Cervecería Backus & Johnston S.A. In 1994 Backus and Johnston acquired a controlling interest in a rival brewer, the National Beer Company (Compañía Nacional de Cerveza S.A.), and in 1996 four breweries, including Backus and Johnston, merged to form Unión de Cervecerías Peruanas Backus y Johnston. Four years later, the Brewery Company of Southern Peru (Cervesur) joined the group.

In recent years, Backus has enjoyed significant growth in sales of its soft drinks as well as its mineral water (which happens to be the only one produced in Peru). It now produces around 2.5 million hectoliters of soft drinks and water per year. The company has done well, not only because of market conditions, but also because it has an excellent team working with quality equipment.

Backus works with a focus on sustainable development, aiming to create shared value with its supply chain partners and the communities in which it operates. Plus, it strives hard to ensure that its personnel feel part of success. "Everyone in the operation must try, within their own sphere of activity, to optimise quality, quantity, and cost," says Jorge Ayestas at Backus.

CBC CONFIRMS CONFIDENCE IN SIPA WITH ANOTHER COMPLETE SINCRO LINE

Central America's leading soft drinks supplier, CBC, is boosting operations in its southernmost operation, with a new complete Sincro-Bloc PET bottle production, filling, and packing line from SIPA that spans bottle blower to pallet wrapper for production of bottled water. This is the second Sincro-Bloc line that CBC is ordering from SIPA for the plant in Machachi, Ecuador, following one that was installed in 2010.
CBC is using the line to put still and sparkling water into bottles ranging in size from 500 mL to 3 L. Components in the system include an SFR 20 rotary stretch-blow molding unit, an ISOFILL P mechanical level filling monoblock, a Variclean ultrasonic cleaning unit, an Acquamix 42 Carbo Cooler, the labeller and Shrink Wrapper are from other Italian partners and SIPA's own GENIUS-PTF2 Palletizer/Wrapper. CBC which last year changed its name from Cabcorp, is headquartered in Guatemala, and is present in 17 countries across Central America, throughout the Caribbean, and into the USA. It moved into Ecuador in 2012 through the acquisition of Grupo Tesalia which, like CBC itself, is



an important bottler for PepsiCo. SIPA Sincro Bloc lines are now running at three CBC plants, the other two being in Cuyotemango, Guatemala, and in Kingston, Jamaica. Each line has been configured to take account of the local conditions and product mix. But in all cases, CBC appreciates the compact layout of the Sincro, which enables it to optimize the use of available installation space. CBC is the most diversified beverage company in the region. It has two soft-drink plants and a brewe-

ry with AmBev in Guatemala, one soft-drinks plant in Honduras and another in Nicaragua, and a bottling plant for juices and functional beverages, LivSmart, in El Salvador. LivSmart is now also one of the most important logistics companies in Central America, exporting nutritional drinks to over 20 countries around the world. It is one of the fastest growing companies in the region.

Cbc ´s new corporate identity and image is a mark of its continuing success: a logo made up of a ring of 'C's symbolizes "competitivity, conviction, culture, courage and commitment to contribute to a better world." Company president Carlos Enrique Mata says the new image "reflects the progress, the modernisation and the development of a multinational company in constant evolution, focused always on dreaming big and innovating."

MICRO MANAGEMENT ON SIPA PREFORM MOLDS PUTS PUTOKŠNIS IN POSITION TO WIN NEW BUSINESS

One of the Baltic region's leading producers of PET preforms has increased its customer base with minimal plant investment, thanks to some innovative mold technology from SIPA.

Private Limited Liability Company UAB "Putokšnis" produces preforms at locations in Lithuania It also blows PET bottles in Lithuania. Established in Šiauliai, Lithuania, back in 1994, Putokšnis now has customers across Europe, Scandinavia, and CIS countries.

Putokšnis has been collaborating with SIPA for around five years. Together, the two companies have developed new preform designs and lightweighted existing ones. SIPA has supplied Putokšnis with several complete mold sets,

such as a 72-cavity system with hot half, cold half and associated components. SIPA has also worked closely with Putokšnis to develop an oval-shaped bottle which Putokšnis produces on an SFL 4/4 linear stretch-blow molding system.

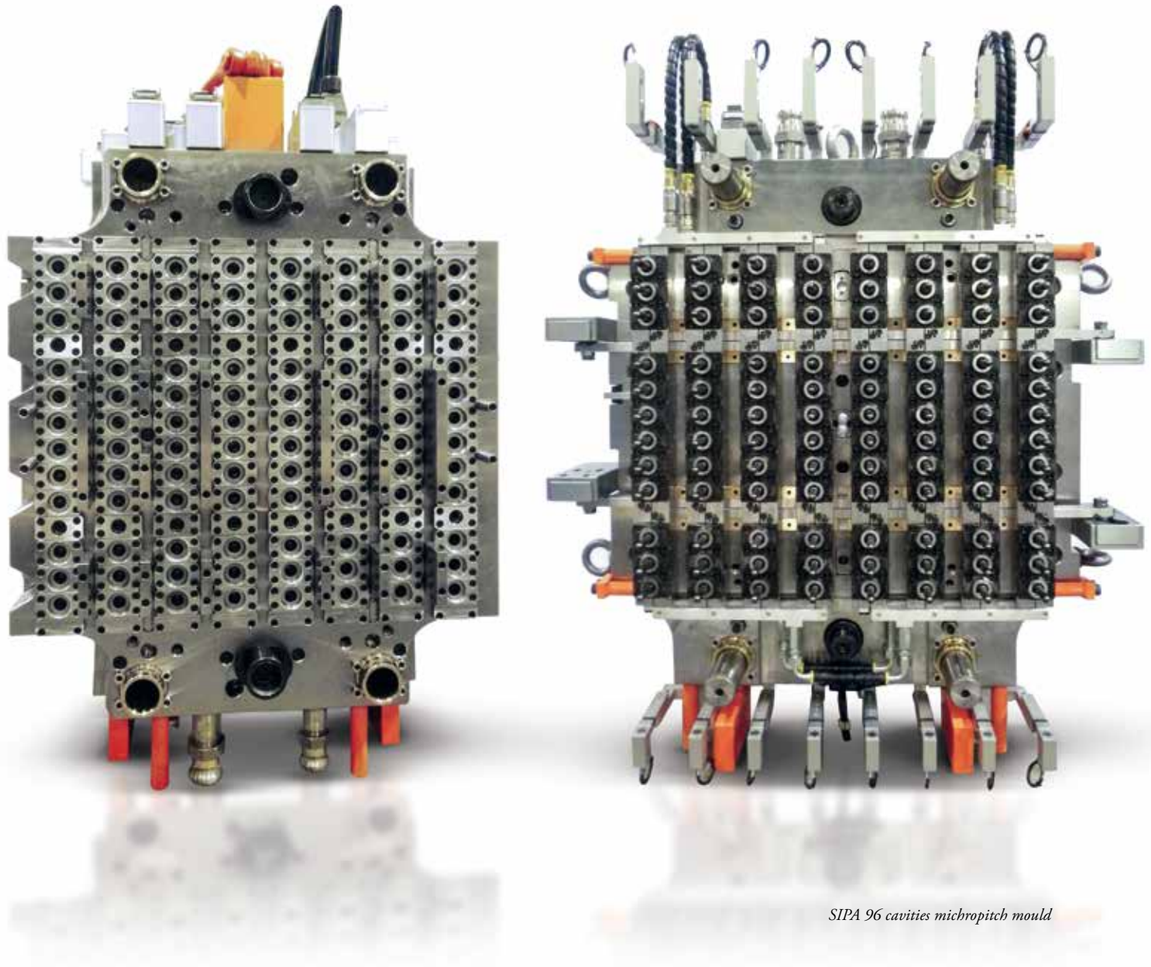
Most recently, SIPA supplied the company with a complete 96-cavity Micropitch preform mold, which Putokšnis is now running

on an injection molding machine originally intended only for molds with up to 72 cavities. As a result, Putokšnis has been able to clinch a new order for which it originally thought a complete new injection molding system might be necessary. Needless to say, thanks to SIPA, its final financial outlay was much reduced.

Algis Atkociunas, Active CEO at Putokšnis says: "Thanks to SIPA, we have succeeded in signing a contract with our customer in the best way possible, minimizing our investment." With the new 96-cavity mold replacing the old 72-cavity one, Putokšnis has increased output on its existing machine by a third. On SIPA Micropitch molds, 96 cavities fit into the space normally required for 72 cavities, in eight columns of 12 cavities in place of six columns – all across the same mold width. This is achieved without any compromise in processing performance, either in terms of preform quality or cycle time.

Because SIPA is expert in the design of hot runners as well as molds, it has managed to achieve excellent hot runner balancing with the new cavity layout, and an optimal clamping force distribution that minimizes wear. So the mold should be producing high quality preforms for a long time to come.

AROUND THE GLOBE - LITHUANIA



SIPA 96 cavities michropitch mould

FOCUS ON:
CUSTOMIZED PREFORM MANUFACTURING SOLUTIONS

SIPA'S CUSTOMIZED PET PREFORM PROCESSING TECHNOLOGIES HAVE APPLICATIONS IN MIND

SIPA stands alone in the PET preform production arena with the breadth of technologies it offers to its many and varied customers. Unlike others, SIPA does not believe that a single type of machine is best for both high and low cavitation molds. While it is certainly true that offering more than one type of machine adds important costs to the development budget, it is just as true that offering just one type of machine comes at a cost to the customer - in terms of choice and, in the long run, in terms of their own bottom line, since they may end up with equipment not fully fit for purpose. SIPA puts its customers' needs at the center of its development efforts. It is for this reason that the company has developed several families of machines, each with its own distinctive technology and set of operating characteristics, for different sectors of the global packaging industry.

The world of PET preforms and bottles is rich and varied. PET preform producers and users across the planet have a wide range of requirements in terms of shape, size, functionality, and output. Companies in the mainstream drinks business most often need to produce standard preforms in high volumes, while processors and converters operating in specialist areas are more likely to need special preforms, possibly designed to their specific needs, and produced in rather lower quantities.

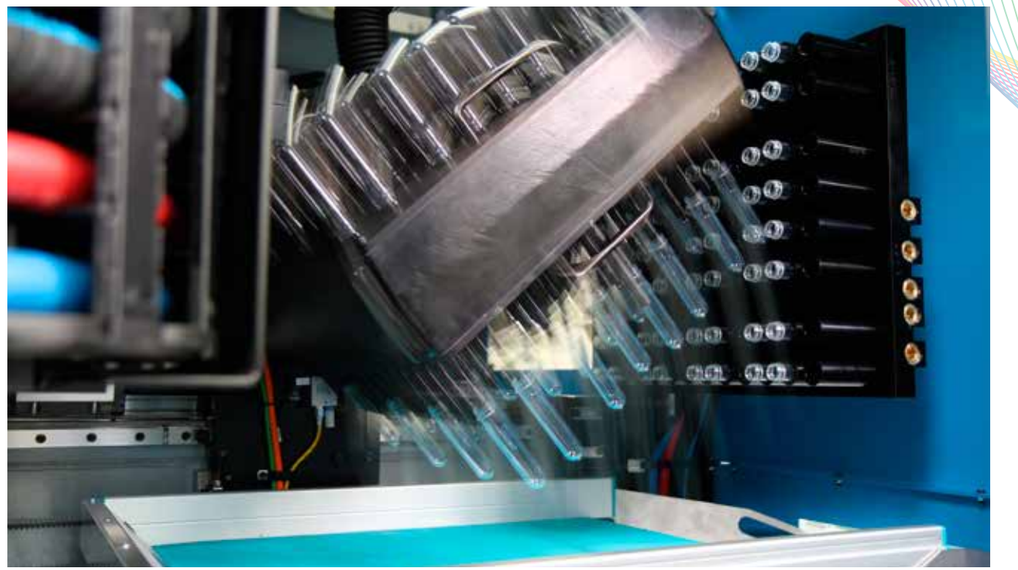
"We do not believe that the same design is just as good for a small producer making a limited number of preforms for special applications such as detergents as it is for a major in the beverage sector producing many millions of ultra-lightweight preforms," says Stefano Baldassar. No single preform production system can cater for all these different demands—which is why SIPA for its part also offers a rich and varied range of equipment. It is not always a simple task to decide which machine is right for you, especially as the choice in recent months has become even more diverse, so on the following pages we provide a run-through of all that is available.

The full SIPA line-up for production of PET preforms now comprises the following:

XFORM

The XFORM platform for highly cost-efficient production of PET preforms by conventional injection molding includes models to accommodate diverse production requirements:

- **XFORM 500.** This is SIPA's largest injection molding system, based on a 500-tonne machine with a double-toggle clamp. XFORM



XFORM 150 Cooling System

500 stands out with its high energy efficiency and low maintenance costs, and its ability to accept molds built by any manufacturer. It is for molds with many cavities, molds with a weight that demands a clamp system capable of handling heavy loads, and for long periods.

• **The XFORM 150/300** family is for smaller molds, with lower cavitation, and which are ideally suited to electrically-driven two-platen clamp systems. These two machines, developed with Athena Automation, the Canadian company founded by PET technology pioneer Robert Schad, have clamp forces of 150 and 300 tonnes respectively. With their ability to produce a wide range of preform shapes and sizes, including thick-walled types, they provide users with a high degree of production flexibility.

• **XTREME.** The latest addition to the range, this is a revolutionary injection-compression molding system intended specifically for processors wanting to produce preforms for extremely lightweight bottles. It is the best - and cleanest - solution on the market for high-speed production of lightweight preforms destined for bottles for water and aseptic filling.

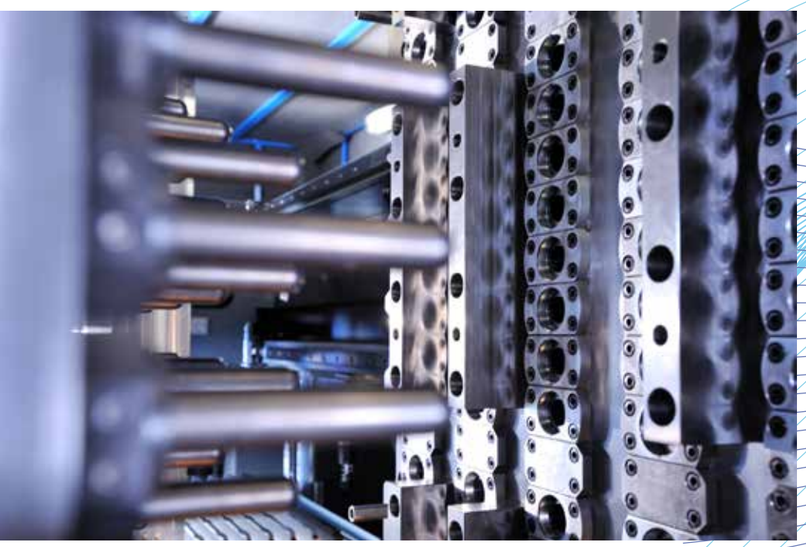
The XFORM 500

XFORM 500: HIGH OUTPUT OF STANDARD PREFORMS

The original XFORM, the 500-tonne XFORM 500, is designed to handle very large preform molds, with up to 144 cavities. It accepts molds from all the world's leading preform mold manufacturers. It stands among the leaders in terms of speed, with a dry cycle time of 1.6 seconds or better on a 400-mm stroke.

Cost of ownership of the XFORM 500 is the lowest of any machine in its class. Initial investment costs are especially low for processors with an existing park of preform molds. Low maintenance, high efficiency, and water consumption that is lower than any rival, all help to minimize running costs. Mold wear is very low, thanks to such features as the robust construction of the double-toggle clamp unit and its even clamp force distribution. The XFORM 500 boasts the lowest platen deflection in the industry. Machine operators and maintenance staff will appreciate the ease of access to the mold area for inspection and component replacement.

On the injection unit side, the XFORM 500 uses the classical configuration of a continuously running extruder feeding a shooting pot. The very low screw rotation speed ensures that material stress is low and there is only minimal reduction in intrinsic viscosity. Up to 50% of recycled flakes can be incorporated into the feedstock without the need for any modifications to the standard plasticating group. The XFORM 500 can be fitted with either a 120-mm or 140-mm extruder, with respective outputs of 800 and 1200 kg/h. The XFORM 500 now features SIPA's new EVO™ cooling robot, which provides the most effecti-



XFORM 500 - Preform molding

ve cooling yet of preform body and neck, helping the processor cut cycle times while improving dimensional consistency in the product. In tune with the concept of the XFORM 500 injection molding machine itself, the new EVO™ robot accepts legacy EOATs (End Of Arm Tools), increasing even further the flexibility of the machine and eliminating additional costs for the user.

XFORM 150 AND XFORM 300: FLEXIBLE, ENERGY-EFFICIENT, EASY TO INSTALL

The XFORM 500 for high-series production is complemented by two smaller systems, XFORM 150 and XFORM 300. Both allow for the highest cavitation at their respective tonnage: 48 cavities for the XFORM 150, and 96 cavities on the XFORM 300. They are ideal for frequent mold changes and special preform production. These two systems benefit from electrically-driven two-platen clamp units. Both also have two-stage extruder/shooting pot injection systems, and the XFORM 150 can also be fitted with a hydraulic reciprocating screw drive. In all cases, energy efficiency is excellent. Neither servo-valves nor oil accumulator are necessary on this platform. In common with the XFORM 500, the XFORM 150 and XFORM 300 feature outstanding

The XFORM 300

platen parallelism, wide tie bar spacing and sensitive mold protection. They too will accept legacy molds from all leading mold manufacturers, and like their big brother they can also be fitted with an innovative post-mold cooling system that, in its DUO™ configuration, cools the preforms for up to six cycles.

The XFORM 150 and XFORM 300 both handle multiple PET preform applications: mineral water, soft drinks juices, cold teas, dairy products, beer, edible oils, detergents, foods, and more. Both machines are engineered for quick and easy mold changeovers, so the time between production of one type of preform and another completely different one can often be under an hour. Both systems have footprints in terms of floorspace that are among the smallest in the industry.

XTREME: HIGH SPEED, LOW PRESSURE, HYGIENIC, LOW AA PRODUCTION FOR WATER, ASEPTIC APPLICATIONS

With the radical XTREME injec-

XTREME

tion-compression molding system, SIPA has taken PET preform production into a new dimension. It is now possible to produce preforms that are up to 10% lighter than even the lightest injection molded preform – but without losing any key properties. More weight can be shaved off the body and base of the preform than ever before. For the first time, XTREME enables the production of a preform for a 500-mL bottle that weighs just six grams.

These advantages, together with low energy consumption, low transport costs, and reduced waste production, all combine to yield preform costs that are lower than on any other production system in the world. Preform molds in blocks of three cavities are mounted on a high-speed carousel.

A continuously rotating extruder delivers melt to dosing devices mounted directly under the molds. There is no hot runner system in the conventional sense.

The XTREME system is very simple to operate, and uses only pneumatic valves. No hydraulics are used, which is an extra bonus in terms of cleanliness.

The whole system fits into a space covering less than 35 m^2.

The pressure involved in the molding process is a fraction of the one used in conventional injection molding. This has a significant effect on stress levels in the preform, and improves mechanical properties as well as aesthetics. Lower injection pressures, together with the lower clamp forces that can be used, reduce acetaldehyde levels and extend mold life.

Finally, XTREME provides developers with the freedom to create new and unique designs. There is almost no limitation on wall thickness, and L/t can be up to 80 – close to twice that normally possible with injection molding.

	APPLICATIONS			
	CAVITIES	MW/ASEPTIC	CSD	HOT FILL	SPECIALTIES
XFORM 500	144	++	+++	++	+
	128	+++	+++	++	+
	96	+++	+++	++	+
	72	+++	+++	++	+
XFORM 300	96	++	+++	+++	+++
	72	+	+++	+++	+++
	48	++	+++	+++	+++
	24	+	+++	+++	+++
	16	+	+++	+++	+++
	8	+	+++	+++	+++
XFORM 150	48	++	+++	+++	+++
	32	+	+++	+++	+++
	24	+	+++	+++	+++
	16	+	+++	+++	+++
	12	+	+++	+++	+++
	8	+	+++	+++	+++
	6	+	+++	+++	+++
	4	+	+++	+++	+++
XTREME		++++	+	--	--
		++++	+	--	--
		++++	+	--	--
		++++	+	--	--
		++++	+	--	--
		++++	+	--	--

The XFORM 150

TECHNICAL WINDOW ON SIPA PRODUCT PORTFOLIO: LATEST DEVELOPMENTS

PREFORMS FOR ODD-SHAPED BOTTLES GET PREFERENTIAL HEATING TREATMENT

High-speed production of asymmetric containers with uniform wall thicknesses is possible with the use of Preferential Heating on SIPA's SFR rotary stretch-blow molding machines.

Bottles for such applications as beauty & cosmetics, squeezable sauces and salad dressings often have non-round shapes, while numerous containers for household products have integral handles to make it easier to use trigger sprays. All of these products are of course created from circular preforms.

A standard stretch-blow molding machine with a conventional oven can provide differential heating in the vertical direction – but what it cannot do is heat different parts of the circumference to different temperatures. So when it comes to blowing a symmetric preform into an asymmetric bottle, some parts of the wall end up thinner than others. Sometimes that can be tolerated, sometimes not.

For those applications where an even wall distribution around the circumference of asymmetric bottles is critical, SIPA offers Preferential Heating, PH. This is ideal where the ratio between the large and the small sides of a container is greater than 2:1.

What makes SIPA's PH ovens different from conventional ones has to do with the way the preforms rotate as they pass through them – or rather the way they do not rotate. The ovens have two distinct zones. In the first, in seven sections, they provide penetration heating, just like any normal oven. Here, the preforms rotate as usual, reaching a certain minimum temperature around their circumference. In the second, two-zone preferential heating section, the preforms stop rotating (both sections use individually-controllable infrared lamps on both sides). The obvious consequence of this is that certain parts of the circumference come out of the oven hotter than others. These are the parts that under normal conditions would stretch less in the blow mould.

Using a standard heating process on a complex container would result in premature cooling of material that is stretched less, causing areas of over-thickness on the finished container. This problem is overcome with PH.

SFR units with up to six cavities can currently be equipped with Preferential Heating. The SFR6 unit can produce up to 1800 bottles per cavity per hour and accepts preforms with bodies up to 150 mm in height and 38 mm diameter, and with neck heights up to 25 mm. SIPA is currently considering providing the PH option on SFR8 units as well.

ONE AT A TIME, BIG-TIME: SIPA PRESENTS THE SFL 1 XL

SIPA is extending its offering for the production of large PET containers. The SFL 1 XL is its response to the rise in interest in small- and medium-scale production of containers anywhere from 15 to 30 liters in size. Requests are coming from sectors as varied as water, oil, beer, wine, and beyond.
The new machine answers calls for for low unit costs, coming especially from companies producing water containers who lay more emphasis on initial investment cost and less on running costs and technical support. SIPA is now in anexcellent position to cater for this special market with equipment that is best in class, and which has a highly competitive performance:price ratio and very attractive running costs. On top of that, it brings its experience and knowledge in the production process, package development and lightweighting, backed by a support network that includes 16 technical assistance centers on four continents.

FAST WORK

The SFL 1 XL is ideal for production of returnable containers at a rate of around 250-300 units per hour, or as many as 700 stackable/one-way containers in the same period. It was designed from the ground up to produce one container at a time. Maximum volume is 30 L. The new unit can produce a wide range of containers, with neck finishes up to 93 mm.
Preforms are discharged in bulk from octabins into the preform

hopper. From there, an elevator belt provides a continuous supply of preforms to an unscrambler that aligns them with the neck finish upward. Preforms can then slide down a chute with an adjustable width into the machine. A loading cup picks up each preform and inserts it on the spindle.

TWO OVENS STANDARD, THREE IS OPTIONAL

In standard configuration there are two ovens, but if needed, a third oven can be installed. Preforms are carried in front of 16 infrared lamps on one side and mirrors having vertical slots on the other side. Different lamp configurations can be optionally installed to accommodate special preforms.
At the exit of the ovens a gripper moves each preform to a transferring cup, which then moves to the blowing station where another gripper inserts it into the blowing mold.

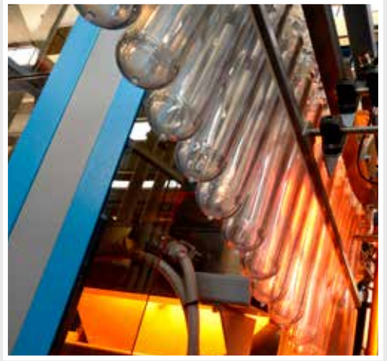
HIGH PRECISION IN STRETCHING

The stretch and blowing phase is made within a toggle blowing press with pneumatic compensation. The axial stretching of the preforms is carried out by a servo-driven stretching rod that provides a high level of repeatability and consistency.
Once the bottle is completely formed and the blowing air is exhausted, the mould opens and the blown bottle is evacuated by a linear transfer system electronically synchronized to the blowing press movement.

USED AIR CAN BE RECOVERED

Air recovery to keep As option the SFL machine can be equipped with the Air Recovery System® (ARS) which recovers the air exhausted from each blowing cavity into a machine-embedded air vessel, re-distributing it for pre-blowing air needs and for service air machine needs, as well as other plant utilities, where applicable.
An alternative option is ARS PLUS®, an advanced upgrading package that allows even higher saving rates on compressed air without interfering with process conditions.

TECHNICAL WINDOW - SFL 1 XL



SIPA ROUNDS OUT FLEXTRONIC RANGE WITH HIGH –PRECISION WEIGHT FILLER

SIPA has taken another step ahead of the competition with the introduction of the Flextronic W. This is a weight filler with outstanding accuracy and precision, ideally suited to filling PET bottles with edible oils, but also an excellent candidate for use in lines filling such high-value products as milk, drinking yoghurts and juices. It could also find use in the non-foods area for such products as home care, personal care and mineral oil.

AN ENTIRE LINE FROM A SINGLE SUPPLIER

SIPA is the only company in the world today offering fully complete turnkey systems for such products, all the way from the conception and development of the preform, through bottle design, prototyping and testing, preform and bottle product production, to filling using various systems (weight, volume, level), and onto packaging and palletising. Its experience in plant engineering and systems integration is unrivalled. The Flextronic W is the latest step by SIPA to extend its in-house capabilities in technologies associated with bottle filling systems, and it provides an important response to growing market needs for increased precision and flexibility.

ACCURATE, PRECISE, AND FAST

The new Flextronic W is not only accurate and precise, featuring the state of the art in terms of filling precision, it also adds to this technology all the cleaness taken from Sipa experience with

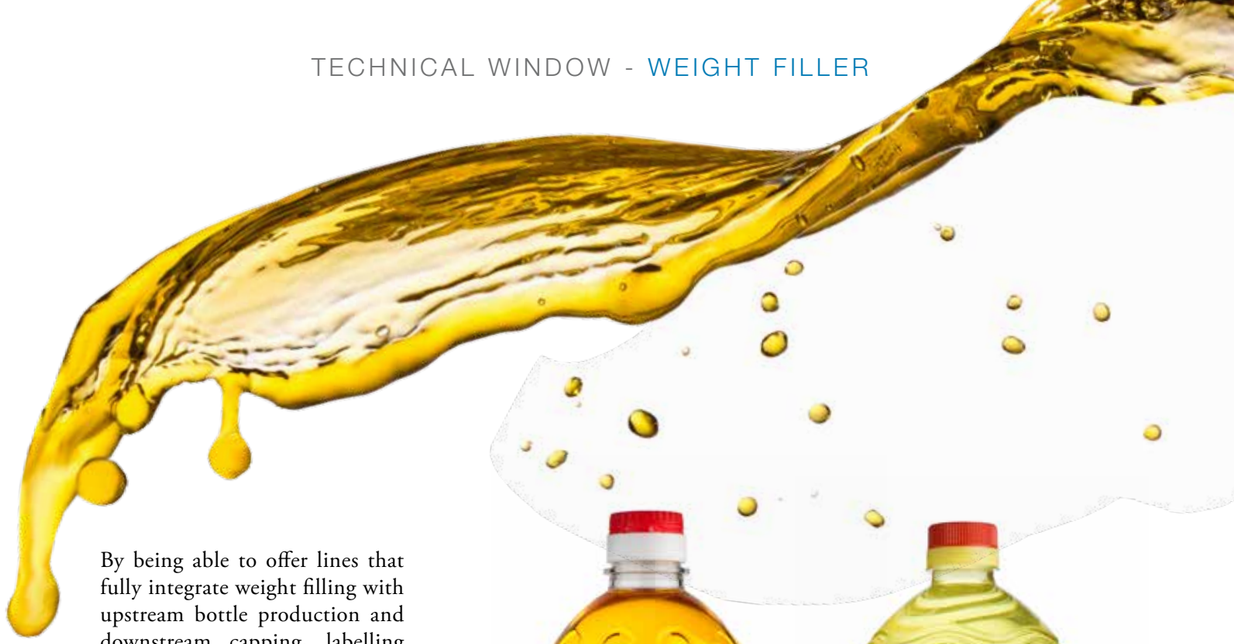
sensitive products.
The valve integrates perfectly into the Flextronic range, using the same carrousel structure, feeding system tank and control electronics,. taking advantage of all the flexibility of the modular approach, which allows the future use of different types of filling valves on the same machine.

VERY CLEAN

The Flextronic W is very hygienic. There is no contact between the valve and the bottle, and the entire system is very clean: the cleaning cycle is performed in a close loop with automatic loading of the CIP cups. Components throughout are in stainless steel, including the weighing system, and cleanliness is easy to maintain. All filling products benefit from this, but especially sensitive ones such as milk derivatives.
The precision in the mechanics of the Flextronic W is matched by that in its electronics. Dedicated software serves to enhance both the precision and accuracy of the weighing system.

IDEAL FOR OIL

Weight filling technology is considered the most reliable, clean and efficient system for filling bottles with edible oil. It is particularly appreciated for the fact that it avoids overfills: by measuring the weight directly in the container (net weight), it takes into account the changes in the tare as well as in the temperature or nature of the oil, and adapts to intrinsic changes of the product during the production cycle.



By being able to offer lines that fully integrate weight filling with upstream bottle production and downstream capping, labelling and packaging, SIPA offers its customers the opportunity to save on investments in bottle conveyor and storage systems, and ensure a higher level of product cleanliness as well as a low footprint on the factory floor. In addition, integration of the blowing and filling operations makes it possible to use lighter bottles.

ON AN UPWARD PATH

SIPA has already installed over 100 lines for edible oil all around the world. With the new all-SIPA Flextronic W, it confidently expects the number to keep growing.

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

SIPA SHOWS STRENGTH IN BEAUTY WITH ITS DEVELOPMENT AND PRODUCTION SYSTEMS FOR COSMETICS BEAUTY AND HOME CARE PET BOTTLES

SIPA sees strong prospects for making inroads into the prestigious market for very high quality small bottles for cosmetics, beauty and household products. The company has a proven capability to develop and prototype new bottle designs for its customers, and it offers different systems for manufacturing preforms and containers that meet the special requirements for visual appeal, performance, and extra added value that make this sector particularly demanding.

Prototype cosmetic containers recently developed and produced by SIPA provide an ample demonstration of the company's capability. The containers, varying in volume from 50 mL to around 500 mL (in metric and US dimensions) in round, oval, and rectangular shapes, have striking designs to complement their target contents. "In this sector more than any other, the aesthetics of the container are especially important," says Dino Zanette, Chief of Packaging Design at SIPA. "Containers need to stand out with eye-catching features and designs to appeal to the most discerning consumer."

SIPA can provide cosmetic container makers with equipment for making their products in a single injection-stretch-blow molding stage, as well as in two separate stages. Its ECS single stage machines stand out for their ability to produce bottles with high aesthetic qualities. This is due in large part to the fact that preforms are kept separate from one another throughout the process, eliminating any chance of their surfaces being damaged as they touch each other. Any rub marks or scratches on preforms are often very easy to see in the blown bottles. "Scratches are simply not permitted in this sector," says Zanette. "The image of the product depends on a perfect presentation."

A second advantage of ECS single stage technology is that the preform is always optimized for the container. "The technology removes any potential problem with the type or size of the neck finish," point out Zanette. "In addition, the preform has a thermal profile that makes it easy to blow. Production of small jars for beauty creams and balms is possible, as well as oval containers for soaps, shampoos, shower gels, and so on."

Two-stage machines do have their place in this sector, all the same. They have something of a cost advantage, since the preforms can be bought on the market, for example. However, for certain neck finishes, preforms are often not available on the open market – so the producer is constrained to make their own. In either case, bought or self-produced, special attention has to be paid to the quality of the preform. For oval shaped containers, the oven on the stretch-blow molding unit needs to be equipped with preferential heating, but once that is done, it is possible to produce oval containers for soaps (even with neck orientation), shampoos, shower gels, and the like.

HELP WITH DESIGN AND PROTOTYPING

SIPA is able to provide its customers in the cosmetics sector with a broad range of pre-production services. In its prototyping department, for example, it can carry out structural

calculations and simulations, and its laboratories offer testing facilities for performance assessment and qualification. Even before producing a physical prototype, SIPA carries out a deep technical assessment of the existing production environment, and can simulate preform and bottle performance.
SIPA R&D specialists can quickly conduct advanced performance simulations. Also with the use of Finite Elements Analysis, they are able to check package technical feasibility and identify potential improvements for cost-effectiveness at the prototype stage.
Design ideas created in-house and in partnership with customers undergo rigorous testing and development via process engineering and SIPA's highly advanced prototyping operations before any metal is cut on production molds.
SIPA designers balance creative inspiration with technical, safety, and cost considerations.
They know exactly what properties PET containers must have to succeed in production and how to stretch the limits.

SIPA GETS A GRIP ON LARGE WATER BOTTLES FOR DISPENSERS

Large water bottles in PET intended for use in dispensers in the office or the home – so-called HOD bottles – have lots of advantages in terms of convenience and cost. But if they have a down side, it is in their handling: big bottles full of water are heavy. A typical 5-US-gallon PET bottle when full weighs close to 20 kg. And while it is true that dispenser bottles in PET are much lighter than glass ones, which weigh much more than the water they hold, handling full bottles is no child's play. Picking up HOD bottles, carrying them around, and putting them into position on the dispenser may not be back-breaking work, but it is close to it.

VERSATILITY IN DESIGN

SIPA has created two new designs, which it calls GripEasy, that make the job much easier. One has a handle built into the bottle itself, and the other has a thin waist into which a separate handle is easily inserted after the bottle has been blown. In both new designs, the container can have a transversal cross-sectional area of various types (circular, square, polygonal, etc).
The new designs contrast with designs already on the market with a separate vertical handle, which is often inserted in the blowing mold. This type of handle certainly aids in the transport of the container, but it is a little awkward to use when lifting the bottle from the ground and placing it on the dispenser.

FULLY INTEGRATED HANDLE

The first of SIPA's latest designs has fully integral handles near the shoulder of the bottle and also in the base. The handles are formed during the blowing process of the bottle, and no inserts are required. The handles near the shoulder are diametrically opposite to each other, as are those in the base, with top and bottom handles in vertical alignment. The vertical location of the upper handles is around the center of the body of the container. The position of the handles is such that the container can be carried by a person holding the container with one hand in the upper handle and one in the base handle.
This new design has numerous advantages, not only in terms of handling. Being a single-piece design, for example, it is easy to clean in the washing cycles. And there is a large area for the label.

RING AROUND THE BOTTLE

SIPA's second new design has a separate horizontal handle in the form of a circumferential ring that is inserted into a groove designed into the bottle. It can be put in place either automatically on the blow molding machine after the container has been blown (a system that can be retrofitted to any existing equipment), or clipped in place manually away from the machine. It is made in two halves, which join together with a simple snap-fit mechanism once they are in place. The bottle and handle are designed to leave space on either side of the bottle to enable the user's fingers to wrap around the handle and hold it tightly.

EXTRA STRENGTH

Once again, the handle is in an optimum position for removing the container from the rack and also for transporting the container and aiding positioning on the dispenser. The design has the additional advantage that the handle reinforces the container, helping to avoid bulging, and making possible a reduction in the weight of the container (but even without the handle, the bottle has sufficient strength for use on its own). There is still plenty of room on the bottle for labels. The handle is molded in PET, so once the container's useful life is over, the two can be recycled together or the handle can be removed and re-used.

PETWORK - GRIP EASY

SIPA HELPS LIGHTWEIGHT COMPOSITE TECHNICAL CYLINDERS WORK UNDER PRESSURE

SIPA received a very interesting call recently from a new company, not far from Vittorio Veneto, that was developing an innovative range of ultralight high-performance compressed gas cylinders. CTS, Composite Technical Cylinders, near Udine, wanted SIPA's help in the creation of an all-new "Type IV" pressure tanks.
Type IV pressure cylinders comprise a plastics liner inside a protective skin made from a continuous carbon fiber reinforced plastics composite. They differ from Type I, II and III pressure cylinders, which are either partly of completely made from metal and which weigh a lot more. Type IV pressure cylinders are already on the market, but virtually all of them have a liner blow molded in high density polyethylene. CTS wanted to use PET, which would be lighter and would give the

liner a barrier to oxygen up to as much as 100 times higher.
Initial target application for its new invention is oxygen breathing tanks for use by fire fighters, but the potential is much greater, ranging from scuba diving kit, through fuel tanks for cars, to apparatus in outer space. CTS came to SIPA to help it perfect a process for making PET liners that it had begun to develop on its own, without achieving the results it was looking for. It had developed its own rudimentary injection molding machine, as well as an equally simple blow molding machine, which together were capable of producing containers with tolerances that were unacceptable. In fact, dimensions varied between containers by a centimetre or more! No two containers were the same, and machine operators were constantly adjusting the settings. Something had to be done. And done it was. SIPA's experts worked with the CTS team to create a PET liner perfectly matched to the application. The two companies worked hand in hand on container development, prototyping, testing, and production.

CTS General Manager Giovanni Artusi says he is totally satisfied with the work SIPA has done in helping to create a product ready for the market that offers the very highest levels of safety. Production is now underway on a range of the new pressure cylinders, with volumes ranging from two to nine liters. The smallest one weighs 0.9 kg, and the largest one just 4.0 kg – that's around 30% lighter than a cylinder with an aluminium liner, and five times lighter than an all-steel one. They can all withstand a service pressure of 300 bar, and CTS gives them an unlimited service life. For its part, SIPA is very happy to be working with such a highly innovative customer. "The collaboration with CTS has provided us with extra insight into the capabilities of PET as a packaging material," says Alberto Uliana. "This is the very first time that we have worked on an application where internal pressures so high! We have all gained a lot from the experience."

The two companies are now collaborating on experimentation with various types of plastics for the liners that could provide even higher performance in terms of oxygen barrier. CTS is a new company, but the experience of its founders in pressure canisters dates back some 30 years. With its highly innovative know-how, CTS describes itself as "an organization capable of grasping the global opportunities that the composite materials sector has to offer in the field of pressure cylinders." CTS has patented its new technology for making the PET liner around the world.

SUPER RESULTS FROM SIPA AND SACMI NECK & CAP WATER BOTTLE COLLABORATION

Collaboration between SIPA and Italian cap & closure production technology specialist SACMI is yielding positive results. The two companies have been working together since 2012 on the S.U.P.E.R. project, which aims to deliver new combinations of lightweight screw caps and PET bottle necks for the latest generation of bottles for still and sparkling waters. Their target is a new combination of PET preforms and closures that provides advantages for processors and end-users alike. S.U.P.E.R. stands for Sustainable, Unique, Productive, Easy, and Reliable.

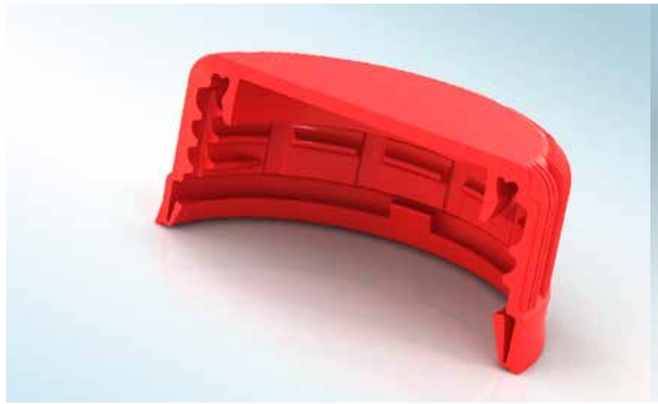
The two companies set themselves various objectives, apart from weight reduction. The first objective was to use the same combination of neck/cap both for still and carbonated water eliminating the time for line changes and therefore saving money. Then, they wanted to create a closure system that was as easy as possible to use while still offering the safety and security features of current systems, for example. The development was aimed at bottles up to 3.5vol of CO2 and 1,5L in volume, and was intended to be compatible with 26-mm CETIE GME 30.28 necks.

The new SUPER 26/22 system is distinguished by a very low height and weight – the neck is just 12.0 mm high in its standard version and weighs just 1.86 grams (1.82 g in a version with SACMI's Multi-Lock system, which breaks all the links on the security ring as soon as the user begins to unscrew the cap). A CETIE 26/22 for still water is the same height as the SUPER 26/22 neck, but weighs 1.90 g.

A special "high" version suitable also for CSD till 4,2 CO2 weights 2.3 g. This contrasts with a PCO1881 cap that is 17.0 mm high and weighs 3.8g, almost twice as much – and which takes caps that can be up to 0.6g heavier.

The two companies have in recent months been carrying out various validation tests, in the laboratory and on production lines, on the functionality and ease of use of the SUPER 26/22 system. In a nutshell: the system passed all the tests.

A joint development team checked, in particular, to make sure that the threads on the new neck are sufficient to keep the cap in place, and to ensure that there is minimal risk of 'blow-off' when the cap is first unscrewed from the bottle (this is obviously more important for carbonated products). In the Opening Performance Test, the cap & neck



combination was assessed to make sure that any excess pressure that builds up in a half-empty bottle is released during opening while the cap is still attached to the thread, and that no blow-off occurs – this is when the internal pressure is sufficient to force the cap explosively off the thread).

The two companies have additionally carried out tests to make sure that the closure system is easy to use by the consumer, also due to the multi-lock system. They looked at how much force is needed to open a still-sealed bottle, for example. This is a particularly important test, not only because there is nothing worse than a closure that won't open, but also because the new SUPER 26/22 cap, being smaller than any other, is a little less easy to grip. Once again, the SUPER 26/22 came through with flying colours. Converting current preform injection molds to the SUPER 26/22 requires few hardware changes. No significant modifications are needed in the blowing machine and in the filling line changing from CETIE26-22 to Super. Whatever the costs involved in such modifications, these can quickly be recouped through savings in raw materials and in energy. A company producing 150 million preforms a year (in this case, 90 million for still water bottles, 60 million for sparkling water) stands to save close to €250,000 on their PET bill at current prices, and some €25,000 in electricity (in Europe). That works out to a return on investment inside four months.

SIPA PRESENTS NEW DESIGNS OF ULTRA-LIGHT 1.5-L 'BOTTLESS' BOTTLES, MADE WITH XMOULD

SIPA has created new designs of 1.5L bottles for mineral flat water that push lightweighting to a new limit. What makes this possible is an innovative patent-pending preform type that can only be turned into reality using SIPA's XMould technology for injection moulds (see the last issue of SIPA Magazine for more details on this ground-breaking development). The preform has an extra-high L/t ratio (the ratio of length to wall thickness) that enables optimum stretch ratios and material distribution in the final bottle.

The bottle designs, which SIPA has christened "BottLess," weigh just 17.5 g - that's over 20% less than is normally used to make a PET bottle of this size. With this weight reduction comes a reduction in the energy consumed in making the bottles, due to the thinner walls that heat up more easily and require less pressure to be blown into shape.

The BottLess bottle also satisfies consumers' desire to cut down on the amount of packaging that protects the food and drink they buy - but without affecting the packaging's resistance to handling and pouring. With its optimal material distribution, the bottle has a top load resistance greater than 500N, which is comparable to that of heavier 1.5L bottles currently on the market (26-24g). Once it is empty, the bottle is easy to crush, so it takes up less space in the recycling bin.

TheBottLess bottle will also stand out on the shelves with its extra transparency and brightness, providing extra value to its contents - just what premium brands request.

SIPA has in fact developed three different, distinct, and highly attractive designs of the 1.5-L BottLess bottle. LINE, WAVE and ARCH, all weigh the same, and share the same level of functionality.

TORCHIATO DI FREGONA

Italy has countless fine wines, red and white, and we all know at least some of their names: Barolo, Chianti, Soave, Valpolicella, to name but a few. Torchiato di Fregona, however, probably does not feature on so many lists. That's a pity, because it is a beautiful and very distinct wine, made only in and around Fregona, a small town close to Vittorio Veneto. Powerful and intense, but delicate and sweet at the same time, Torchiato di Fregona is ideal for accompanying various types of dish, or for just sipping it on its own. It's a type of wine known as a passito, which translates as raisin.

According to local legend, around the beginning of the 17th century, an enterprising farmer found a way to ripen the grapes that adverse weather conditions had prevented from maturing in the vineyard. He did this by hanging the grapes from beams inside his barn.

During the winter, the grapes wilted and their juice became more concentrated and sweet. In the spring, the farmer put them through his wine press – the 'torchio' – and put the juice in small barrels to finish fermenting. Torchiato di Fregona was born.

From that time on, the wine has been produced by numerous families in the community of Fregona, with the highly unusual production technique that produces its special flavour being handed down from generation to generation. Every year, the families proudly present their wine at a special exhibition that takes place in the final week of April.

The technique sounds pretty basic, but there are some important and precise rules to follow to ensure a high quality wine. One bunch at a time, the grapes are removed from the vine and placed gently in a single layer (traditionally, a job done by the women) in wooden crates (in a concession to modernity, plastic crates are also used today),each containing no more than 3.5 kg of fresh grapes. This way, the individual grapes do not get crushed and break. After careful selection, only 60% of the grapes are picked for drying.

In the entire production process, no additional chemicals are used, with everything happening according to the seasons, the particular microclimate of the area of Fregona, and the experience of the wine maker who, more often than not, with caution

JUST AROUND SIPA - TORCHIATO DI FREGONA

and wisdom acquired from his ancestors, predicts the evolution of wine rather than reacts to any deviations from the processs. In this sense, there are very few wines that merit the title of a "natural" product more than Torchiato di Fregona, which now has the DOCG quality assurance label attached to it. (Denominazione di Origine Controllata e Garantita, or Controlled and Guaranteed Designation of Origin).

You don't drink Torchiato di Fregona, so much as sip it and savour it. But first, you look at it, and admire its bright, clear, deep yellow colour – gold or amber really; then you breathe it in, and appreciate the complex perfumes: apricots and peaches, a touch of citrous fruits and the strong hint of honey, possibly vanilla too. Only then do you take a taste. There is a full and round sweetness to this wine, smooth, velvety, intense and fragrant, with accents of almonds and raisins, with a long final and fresh fruit note.

Drink it with a fine paté, a mature cheese, or sweet biscuits and pastries. Or simply meditate with it. Just remember to take it slow.

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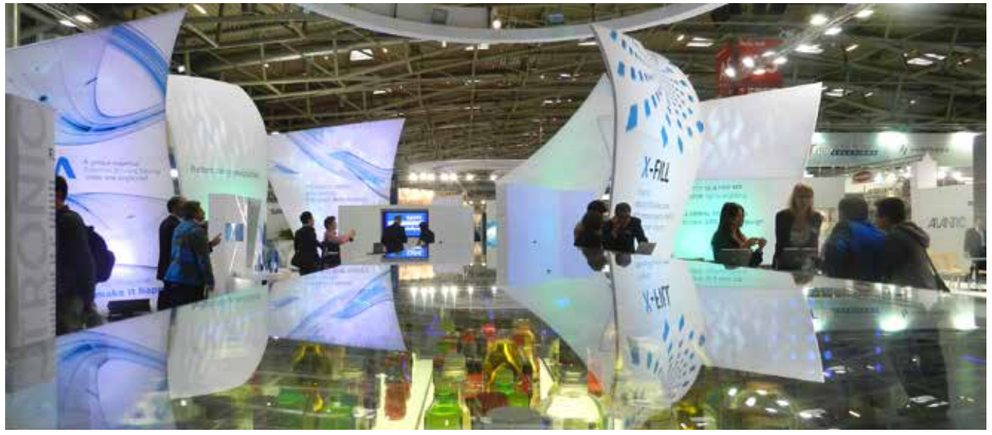
02-05 NOV.
PACK EXPO 2014
CHICAGO, ILL, USA *www.packexpo.com*

11-13 NOV.
BRAU BEVIALE 2014
NUERNBERG, GERMANY *www.brau-beviale.de*

17-20 NOV.
EMBALLAGE 2014
PARIS, FRANCE *www.emballageweb.com*

23-27 MAR.
NPE 2015
ORLANDO, FLORIDA, US *www.npe.org*



Zoppas Industries

SIPA S.p.A. via Caduti del Lavoro, 3 · 31029 Vittorio Veneto (ITALY)
T_ +39 0438 911 511 · F_ +39 0348 912 273 · E_ sipa@zoppas.com · **www.sipa.it**