



SBO CompactTM

**New benchmark in linear machine design,
pure SBO performance**



BASED ON EXPERIENCE AND KNOW HOW GAINED OVER MORE THAN TWO DECADES IN THE FIELD OF BLOW MOLDING MACHINES, THE SBO COMPACT™ RANGE SHARES KEY FEATURES WITH THE UNIVERSAL RANGE, INCORPORATES SIDEL “BEST PRACTICES” IN BLOW MOLDING MACHINE DESIGN AND FEATURES INNOVATIVE CONCEPTS.

New standards for performance and package quality, for output capacity less than 7,000 bph

The new SBO Compact™ range expands Sidel's portfolio of stretch blow molding machines. Available in models equipped with 2 and 4 cavities, SBO Compact™ is the new entry-level product for the SBO range in the 3,000 to 7,000-bph low output segment. For higher outputs, production shifts to SBO Universal™ range, starting with 6 cavity machines.

Similar to the SBO Universal™, SBO Compact™ equipment produces packages ranging from 0.25 L to 3 L on standard models. In addition, a special model of the Compact range, fitted with 2 molds, produces containers with capacities up to 10 liters.



For improved performance/price ratio

LINEAR DESIGN

The SBO Compact™ stands out with its linear architecture. No functions duplicated, auxiliary functions eliminated, the machine is stripped of complex parts and boasts a smaller footprint. These are key advantages stemming from this drastic change in SBO architecture. Hence the machine price is reduced by up to 40% compared to an equivalent rotary machine: the SBO Compact™ is a “ready to blow” solution at a competitive price.

INCORPORATING HIGH-END COMPONENTS

The SBO Compact™ range shares critical components with other machines in the SBO family. The machines offer the unique opportunity to benefit from Sidel's latest technological breakthroughs specifically developed for the high speeds of Universal blow molding machines. The SBO Compact™ makes SBO technology available on linear machines at low output rates.

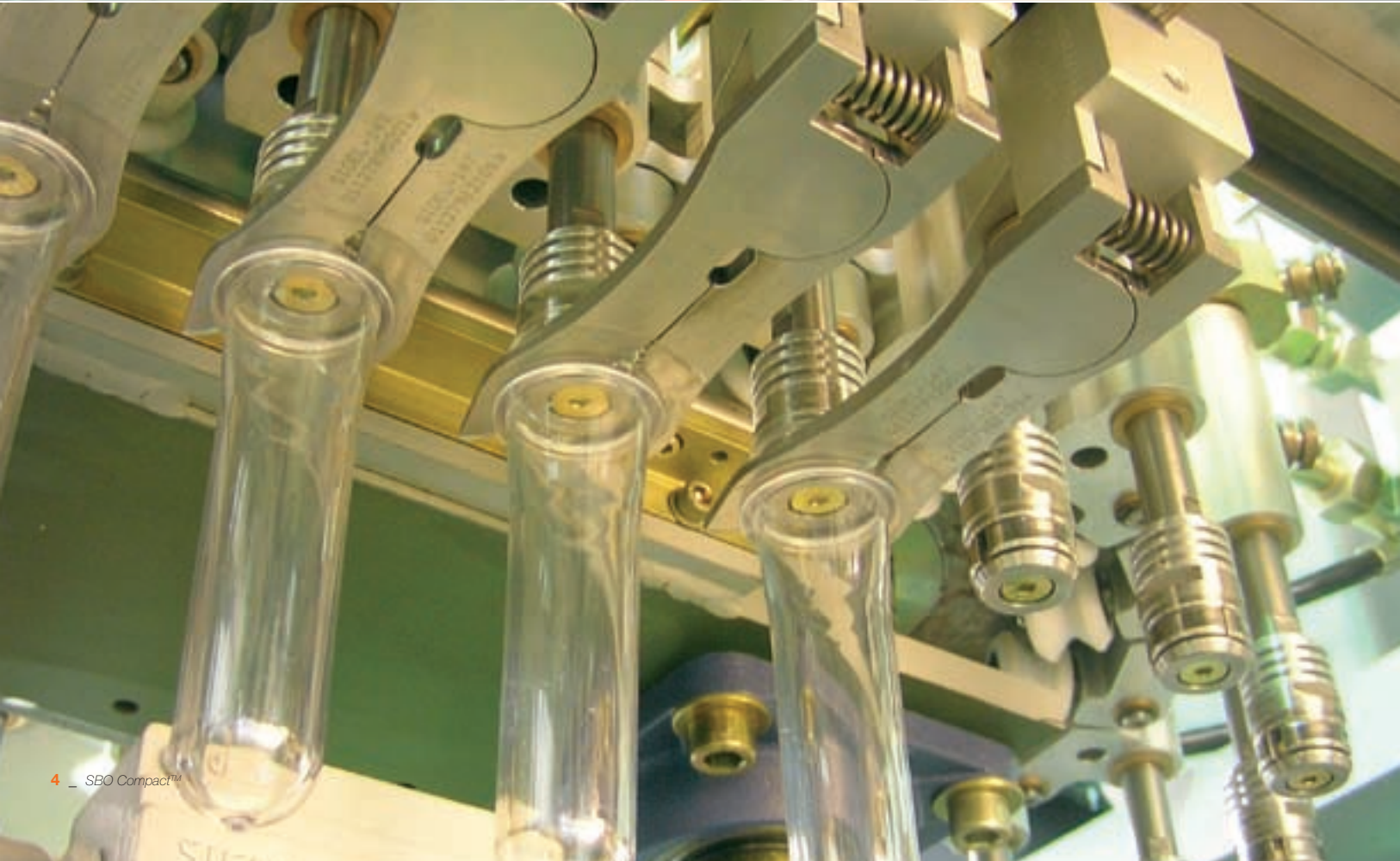
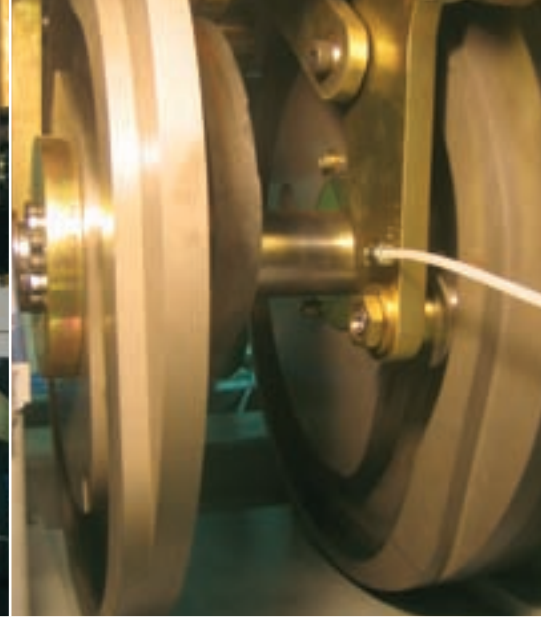
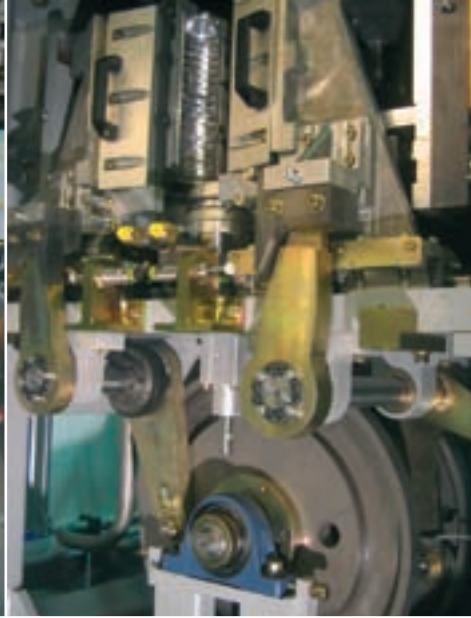
Advanced performance of SBO Universal™

Function	Shared components
Reheating	Reheating modules, module command system
Blowing	Blowing nozzles and cylinders, preblow-blow & exhaust electrovalves
Customized parts	Universal Shell™, spindle tips, grippers



The linear SBO Compact™ costs up to 40 % less than an equivalent rotary machine.





Fast and reliable

HIGH OUTPUT RATE BLOWING UNIT

At the heart of the machine, the blowing unit relies on a fully mechanical drive concept. All of the cam-driven movements, including blowing mold unit opening & closing, mold base up & down drive and mold locking can reach speeds of up to 1,600 bottles/hour/mold.

HIGH REHEATING POWER AVAILABLE

The SBO Compact™ oven is fitted with a number of reheating modules with a reheating potential that exceeds the needs of even the most demanding processes. Thanks to reheating power and time primarily offered as a standard machine feature, the machine can process thicker preforms without compromising output to increase reheating time.

Indicative output rates*

	0.5 L	1.5 L	2 L
Bottles for flat beverages	16 g	29 g	39 g
	1,600	1,600	1,500
Bottles for carbonated beverages	22.5 g	45 g	48 g
	1,600	1,500	1,400

*bottles/hour/mold

HIGH SPEED OF BLOWING VALVES

New blowing valves contribute to speed increase, thanks to optimized airflow and reduced dead space. Along with better response time, reduced dead space helps reduce air consumption.

REDUCED CYCLE TIME

The oven, transfer and blowing unit all have independent drives for optimized individual cycles. This unique feature offers the flexibility to adjust blowing time according to the package, while the dead mechanical cycle time remains the same.

INNOVATIVE POSITIVE TRANSFER

The SBO Compact™ introduces a fully positive linear transfer with patented preform pitch setting. Transfer handles items by the neck and

has a limited number of interfaces: preforms are gripped in the oven and ungripped only after they are securely set in the mold, while bottles are gripped in the mold before being released at bottle exit.

CONSISTENCY OF CAM BASED KINEMATICS

Mold unit opening & closing, mold base up & down drive and mold locking at the blowing station are operated by a set of cams, mounted on one single shaft for highly consistent synchronization. Similarly, preform and bottle transfers, including pitch setting, are also cam based and built on a single transfer table.

PREFORM FEEDER

Unlike other conventional orienting systems that churn preforms up until they are properly oriented, the preform feeder recycles non-oriented preforms back to the hopper. Less jam in the orienting rollers improves system efficiency and reduces scratches on the preforms. This cuts down on machine stops due to preform shortage, improves bottle quality, while the recycling rate remains at a low 5%. The high level of reliability provides a global machine efficiency at 95% guaranteed.

1	2	3
4		
5		

- 1 - Reheating banks with remote command and control electrical cabinets.
- 2 - Fully mechanical drive of the blowing unit.
- 3 - All cams driving the blowing unit are mounted on the same shaft.
- 4 - New blowing nozzle blocks improve response time and reduce air consumption.
- 5 - Transfer offers positive handling by grippers and limited number of interfaces.

Best bottle quality and lightweighting possibilities

PERFECT BOTTLES

Like all SBO machines, the SBO Compact™ handles items by the neck only. No contact occurs between mechanical parts and material under preform neck until bottle is blown; this prevents any defects on the finished package.

ALMOST NONEXISTENT PARTING LINE

Mold locking is combined with pneumatic compensation of blowing pressure to ensure mold remains tightly closed during blowing and to guarantee a consistent quality parting line. Clamping efforts apply on highly resistant bars, keeping molds from wearing over time.

NO NECK DEFORMATION

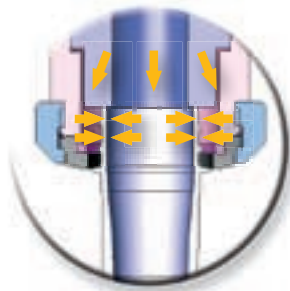
Throughout the reheating process, water-cooled protection ramps and specific cool “air blades” keep necks at low temperature to avoid deformation. This risk is limited further thanks to patented bell shaped blowing nozzles that reduce stress on preform neck by balancing pressure on both sides of neck during blowing.

OPTIMIZED MATERIAL DISTRIBUTION

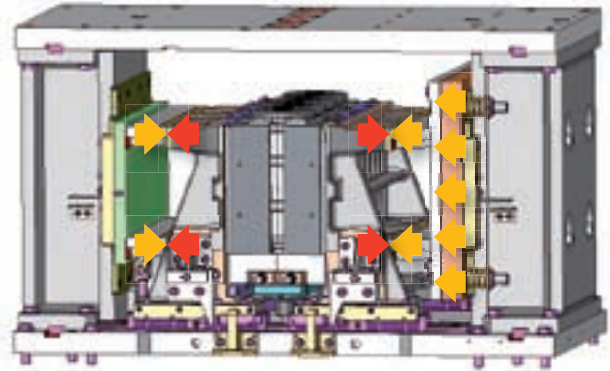
For preform heating, the 9 infrared lamp modules on the progressive pitch rack ensure precision of the longitudinal heating profile. The rotations of preforms in front of lamps provide perfect homogeneity of circumferential temperature. These combined features result in an even material thickness that guarantees superior bottle appearance and makes it possible to reduce bottle weight.

STRETCHING OF CRITICAL ZONES

During reheating, a heat gradient is created between under neck ring zone facing high power 3500 W IR lamps and the neck itself, kept at low temperature. Thanks to this gradient, under neck ring material can be fully and uniformly stretched: reducing wall thickness helps bottle lightweighting.



Stress on neck is balanced under the bell nozzle.



Pressure in mold during blowing is fully compensated in order to ensure parting line quality.



1		
2	3	4

- 1 - Cooling ramp and air blades keep necks at low temperature.
- 2 - The 9 infrared lamp modules on the progressive pitch rack ensure precision of the longitudinal heating profile.
- 3 - Handling preforms solely by the neck ensures bottle quality.
- 4 - For validation purposes, overheating tests show that all areas of preform body can be heated up to the highest temperature, without the neck being affected.

Flexible and user-friendly “plug and blow” commissioning



For an SBO 4 Compact, it takes only 15 min for an operator to switch from one production to another (same neck).



Reduced maintenance and easy operations help reduce scheduled downtime.



SBO Compact™ equipment incorporates Simotion technology from Siemens. This system controls all machine movements 1,000 times per second with precision down to .10/mm. The system offers total flexibility in operating virtual cams.

QUICK FORMAT CHANGEOVERS

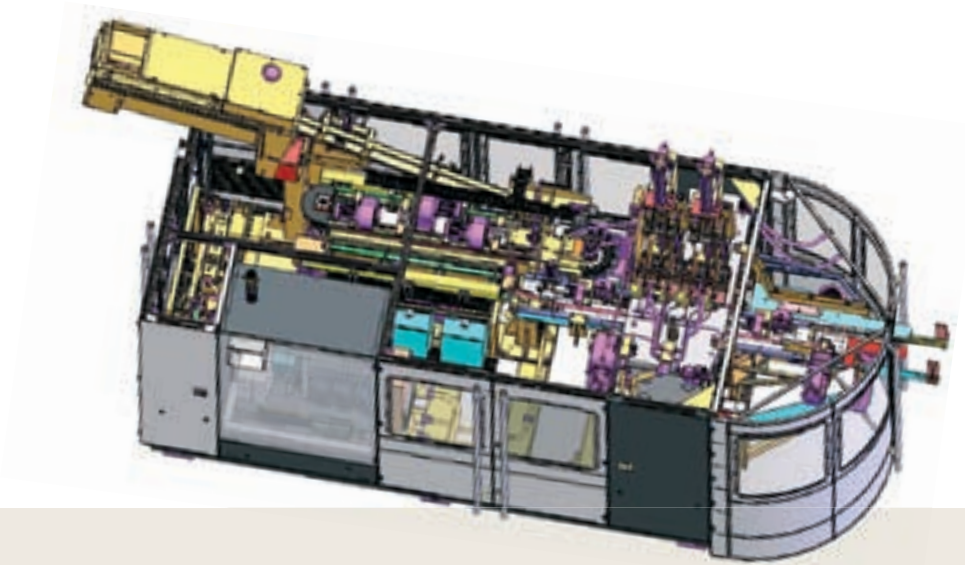
SBO Compact™ is fitted with quick change Universal Shell™ molds. Individual light-weight aluminum shell molds, together with a single support plate for base mold, are replaced with no setting required. Universal Shell™ molds are fully interchangeable between SBO Compact™ and other machines in the Universal range.

FEWER CUSTOMIZED PARTS

From preform inlet to blowing station, neck handling drastically reduces the burden of production customization since no customized parts related to preform body are needed. Bell shaped blowing nozzles also cover a wide range of bottle necks with no part changeover needed.

EASY MAINTENANCE

Key machine functions stand out as individual modules. A simple, clear and open design for each module makes machine operation easy to understand, facilitates settings, improves accessibility to parts and facilitates default diagnostics. For heavy maintenance, modules can ultimately be pulled out of the machine.



Options for more flexibility

Performance	Options
Flexibility	<ul style="list-style-type: none"> - Quick change spindle tip - Air conveyor for bottle exit - Emptying trap in the rail - Nozzle & cylinder for bigger neck finish diameter
Hygiene	<ul style="list-style-type: none"> - Cover on the hopper - Blowing air filtration
Quality	<ul style="list-style-type: none"> - Preform vision inspection - Stretching speed regulation - Preblow audit
Cost	<ul style="list-style-type: none"> - Air recycling device
Maintenance	<ul style="list-style-type: none"> - Remote access - Air conditioning for electrical cabinet - Automatic lubrication

All sub-assemblies are factory pre-set so that installation takes only 2 days.

Only a few customized parts are needed.



OPERATION-FRIENDLY HOUSING DESIGN

Housing gives access to all sections of the machine, with doors covering the full machine height and circumference. Housing steps just below the blowing unit exit to give full access to the mold unit drive and blowing stations, without any structure to step over.

USER-FRIENDLY OPERATOR STATION

15" color touch screen displays a comprehensive range of machine setting and monitoring functions. For improved flexibility of machine operation, the interface also manages a wide selection of preset positions for the blowing unit and the transfer.

EASY SHIPMENT BY CONTAINER

Machine alone, including standardized packing, stands inside a 20ft container. Machine together with preform feeder fit into a 40 ft container.

QUICK INSTALLATION AND START UP

Machine can be set in its position using a crane or a forklift. Installation time is reduced to 2 days only: the complete machine stands on a single frame, no wiring is needed and all sub-assemblies, including orienting rollers and infeed rail, are factory pre-set.

On line benefits with Sidel service

INTEGRATING SBO Compact™ EQUIPMENT INTO «START LINES»

Blow molding machines in the SBO Compact™ range are an ideal fit for «start lines» especially developed for this low output rate market. «Start lines» include blowing, filling and capping operations with semi-automatic or manual end of line operations and manual palletizing. «Start lines» are suitable for still and carbonated products and edible oils packaged in capacities ranging from 0.5 L to 2.5 L and for rates up to 6,400 bph.

«Start lines» benefit from the same advantages featured on SBO Compact™ equipment:

- Reduced footprint, with different inter-machine configurations and equipment designed to integrate blowing, filling and capping.

- Reliability with specially designed equipment like the SBO Compact™ blowing machine or the SF Classic 28-nozzle filler and line management especially designed for lower output rates.

- Packages are of the same level of quality as those produced on other Sidel equipment.

- Quick and simple commissioning thanks to standard interfaces offering quick connection.

- Easy line operation with specially designed human machine interfaces, increased flexibility for quick production changeovers and simple, limited maintenance operations.

- Lower initial investment cost offers the same Sidel quality.

SERVICES

As with all Sidel equipment, purchasers of SBO Compact™ equipment receive Sidel support throughout the lifetime of their product.

During the pre-project phase, Sidel specialists design innovative, competitive packages with optimum weights and preforms thanks to Sidel's unrivaled experience in this field. At the conclusion of the design phase and validation of a bottle's blowability, Sidel can supply marketing samples within 7 days to provide a realistic rendering of the final package. Finally, industrial feasibility tests validate the package's mechanical and industrial performance.

In addition, over 600 specialists located around the world are standing by to assist you with the installation, start-up and maintenance of equipment and training of operators. The SBO Compact™ can also receive remote access service for long-distance diagnostics and troubleshooting through an optional connection kit. To manage spare parts, the SBO Compact™ relies on the same solid distribution infrastructure employed for the rest of the SBO range, ensuring parts are available quickly.

Finally, Sidel consults with customers on how to improve line productivity, reduce operating costs (especially maintenance costs) and regularly offers upgrades available from Sidel.







www.sidel.com

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