



360° FROM PELLET TO PALLET EXPERTISE

PRODUCT PREPARATION UNITS

Continuous carbonation and blending solutions

SIPA



Product preparation range introduction

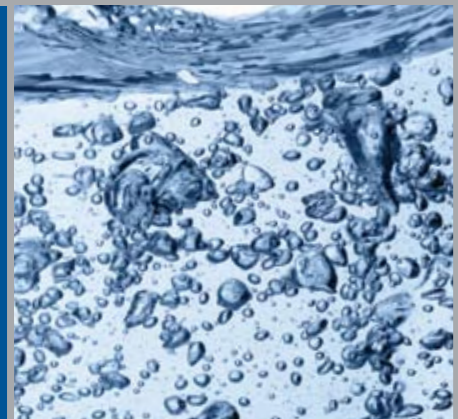
An extremely important part of managing a bottling line and obtaining a high quality finished product is the product preparation phase. In recent years, the bottling world has experienced an explosion in the range of products aimed at satisfying consumers' increasingly diverse and demanding requests. SIPA has designed a range of product preparation systems with higher performance and flexibility in order to respond to all needs arising in bottling plants. Our range allows us to guarantee a very high quality and stability of the final product in the preparation of any type of non-alcoholic refreshment drink available on the market today. Precision, flexibility, hygienic design, total cost of ownership and maintenance reduction were the main guidelines we followed during the design of our renewed range.

SIPA product preparation systems include Acquamix, Drinkmix and Massblend. They all feature a very compact design that combines degassing, mixing (only for mixers) and carbonation processes in the least possible space.

Features common to all models in the range are:

- Highest final product standards in terms of quality, accuracy and repeatability.
- Product flow control by means of level regulating system in the buffer tank.
- Infinitely adjustable outflow quantity to the filler, between 25% and 100%.
- Gentle product handling.
- Easy accessible design: ergonomic positioning of the interface components.
- Pumps with quick-change solutions for the mechanical seal.
- Very easy logistics: machines are packable in containers for fast installation and commissioning.
- Vacuum-assisted degassing.
- Frequency-controlled pumps.
- Economical use of space, thanks to the tank's horizontal arrangement.
- Inline carbonating using an exclusive mixing principle.
- Long service life.
- Minimum oxygen level in the final product, enabling high-performance filling.
- Optimum, automatic quick changeover system for product flavour change (only for mixers).
- Very simple management.
- Highly hygienic design concept, for easy cleaning and to provide the highest levels of sanitation in the equipment.
- Reduced gas consumption through capacity control in accordance with the level in the carbonation tank.

Optimization of the starting phase and automatic product change, reducing the product loss (only for mixers): very short "bottle to bottle" interval!





ACQUAMIX

Continuous degassing and carbonation unit

Acquamix is a compact degassing and carbonating module for the automatic production of sparkling water. The system is based on the two stage degassing principle, combined with the latest technologies in the carbonation field.

Application:

Production of sparkling water & flavoured water (by dosing a flavour component).

Final product performance:

- Carbonation range: 1.5 - 4.5 V/V.
- CO₂ control accuracy: ± 0.05 V/V or better in any condition.
- Residual oxygen in the final beverage: < 0.2 ppm.
- Outflow rangeability: 1:3.

Additional equipment:

- Cooling of the carbonated product including control and measuring equipment.
- Quantity measurement for oxygen, CO₂ etc.
- Flavour dosing.
- Piping exposed to product is made of 1.4401 stainless steel (AISI 316).





DRINKMIX

Continuous beverage blending and carbonation unit

Drinkmix is a compact and continuous mixing unit for the automatic production of carbonated and non-carbonated beverages. The system is based on the two stage degassing principle, combined with the latest technologies in the mixing and carbonation field. A multi-stage beverage homogenisation system guarantees high quality standards of the final product. Free-foam filling is guaranteed by the excellent levels of water de-aeration and the defined syrup beverage control. Syrup is dosed in the water pipe train by a high-precision magnetic flow meter.

Application:

Production of mineral water, fruit juice drinks, soft drinks etc., as well as for production of carbonated and non-carbonated products in general.

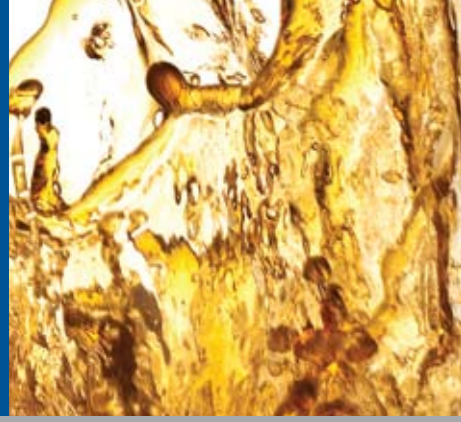
Final product performance:

- Carbonation range: 1.5 - 4.5 V/V.
- Standard mixing ratio: from 1:4 up to 1:10.
- CO₂ control accuracy: ± 0.05 V/V or better in any condition.
- Brix control accuracy: ± 0.1 °Bx or better in any condition.
- Residual oxygen in the final beverage: < 0.2 ppm.
- Outflow rangeability: 1:3.

Additional equipment:

- Cooling of the carbonated product including control and measuring equipment.
- Quantity measurement for conductivity, oxygen, CO₂, °Bx etc.
- Mixing ratio up to 1:1.
- Energy saving insulation of the beverage buffer tank for cold beverage filling.
- Piping exposed to product is made of 1.4401 stainless steel (AISI 316).





MASSBLEND

Continuous beverage blending and carbonation unit

Massblend is a two-component compact and continuous mixing unit for the automatic production of carbonated and non-carbonated beverages. The system is based on the two-stage degassing principle combined with the latest technologies in the mixing and carbonation field. A multi-stage beverage homogenisation system guarantees high quality standards of the final product. Free-foam filling is guaranteed by the excellent levels of water de-aeration and the defined syrup beverage control. Syrup is dosed in the water pipe train by a high-precision mass flow meter. Real-time control system for flow rate & blending ratios of all beverage components, for use of a pre-diluted syrup phase.

Application:
Production of mineral water, fruit juice drinks, soft drink etc., as well as for production of carbonated and non-carbonated products In general.

Final product performance:

- Carbonation range: 1.5 - 4.5 V/V.
- Standard mixing ratio: from 1:4 up to 1:10.
- CO₂ control accuracy: ± 0.05 V/V or better in any condition.
- Brix control accuracy: ± 0.03 °Bx or better in any condition.
- Process capability index; Cpk: > 1.33 related to the finished drink.
- Residual oxygen in the final beverage: < 0.2 ppm.
- Outflow rangeability: 1:3.

Additional equipment:

- Cooling of the carbonated product including control and measuring equipment.
- Quantity measurement for conductivity, oxygen, CO₂, °Bx etc;
- Mixing ratio up to 1:1.
- Energy-saving insulation of the beverage buffer tank for cold beverage filling.
- Piping exposed to product is made of 1.4401 stainless steel (AISI 316).
- Double stage vacuum degassing process is pressure control assisted.





Principle of operation

Degassing

The water is guided to a horizontal degassing tank. Individually water operated spraying nozzles in the tank enable a speed control. Degassing is effected by the principle of high vacuum, after which a flow meter measures the amount of water to be pumped for the beverage production.

Blending (only for mixers)

The amount of water serves as a reference variable for the dosing of syrup. The flow meter measures the Brix value of the sugar syrup and uses the data to control the mixing ratio. The syrup is dosed using a frequency-controlled pump, a modulating control valve and a pressure measuring device. Utilising the constant pressure on the control valve, the syrup is dosed with highest accuracy. Practically 100% syrup utilization, including the mixing phase from the syrup room (for Massblend version).

Carbonation

The CO₂ is fed via a control valve and measured with a mass flow meter. Using a special injector nozzle, the CO₂ is finely dissolved to guarantee the maximum solubility in the treated product, utilising exactly the amount required for the beverage carbonation.

Mixing

The multi-stage product homogenisation function delivers top-quality products. A constantly active recirculation cycle in front of the buffer tank mixes the product during carbonation. Furthermore, the product circulates at the tank discharge, so that it will be mixed again at this section and a quality check can take place.



Electronic design features

- Menu-based operation using a 15-inch touch-screen, with processes shown in the active flow diagram.
- Fully automatic process with no manual operation of valves.
- Operator intervention is reduced to a minimum.
- Perfectly coordinated components, e.g. pumps and instrumentation.
- The operator simply selects the product to handle from a recipe list and the unit automatically adjusts the parameters to start the production phase.

- The operator touch panel also allows continuous monitoring of the production and the recording function.
- Type parameters can be saved on a USB stick for use in verification and documentation workflows.
- Prepared for integration in a higher-level process control system; WS ready.
- Large recipe memory for reliable, reproducible production using predefined parameters.
- All product-dependent parameters can be set on the touch-screen and be saved in the integrated program for type management.

- Less stress on the operator thanks to signal exchange between the mixer, filler and syrup station, enabling automatic sequences for starting and ending the production and for CIP workflows.

Start-up and transportability

A Plug & Play solution has been studied in a single machine frame, to guarantee very fast start-up and commissioning times and to offer high logistic flexibility. All applications have in fact been optimized in order to be packable in standard containers.



Technical data

	ACQUAMIX	DRINKMIX	MASSBLEND
Production capacity	from 12 up to 66 m ³ /h		
Skid dimensions	Width 2.2 m x height 2.3 m x depth 4.6 m (packable as one unit in a standard container)		
Carbonation range	1.5 ÷ 4.5 V/V (@ 20 °C)		
Standard blending ratio	-	From 1:4 up to 1:10	
CO ₂ control accuracy	± 0.05 V/V		
Brix control accuracy	-	± 0.1 °Bx	± 0.03 °Bx
Residual oxygen in the final beverage	< 0.2 ppm		
Outflow rangeability	From 25% to 100%		



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SIPA S.p.A.

Via Caduti del Lavoro, 3
31029 Vittorio Veneto (TV) ITALY
Tel: +39 0438 911511
Fax: +39 0438 912273
E-mail: sipa@zoppas.com
Website: www.sipa.it

SIPA FILLING & PACKAGING DIVISION

Via Provinciale, 36
43038 Sala Baganza (PR) ITALY
Tel: +39 0521 548111
Fax: +39 0521 548112
E-mail: sipaberchi@zoppas.com
Website: www.sipa.it

SIPA RUSSIA

Ul. Ordzhonikidze, 11 Str. 1/2
115419 Moscow - RUSSIA
Tel: +7 495 2324191
Fax: +7 495 2324190
E-mail: sipa_russia@co.ru

SIPA UKRAINE

Office 37, 9 Turovs'ka St., Kyiv
254655 Kiev - UKRAINE
Tel: +38 044 4636817
Fax: +38 044 4257275
E-mail: sipa.ukraine@zoppas.com

SIPA ENGINEERING S.r.l.

Str. Mangalia, 61
300186 Timisoara - ROMANIA
Tel: +40 356 434200
Fax: +40 356 434280
E-mail: sipa.romania@zoppas.com

SIPA TURKEY

SIPET
Kisikli Caddesi No: 2. A Blok Kat: 3
34662 Altunizade - Uskudar - Istanbul
TURKEY
Tel: +90 216 4749780
Fax: +90 216 4749779
E-mail: sipet@sipet.com.tr

SIPA NORTH AMERICA

3800 Camp Creek Parkway
Building 2400, Suite 106
Atlanta, Georgia 30331 - U.S.A.
Tel: +1 404 3493966
Fax: +1 404 3493858
E-mail: sales.northamerica@zoppas.com

SIPA SUL AMERICA Ltda

Wt Empresarial Parque
Av. Gupê, 10.767 - Galpão 08 Bloco II
Jardim Belval
06422-120 Barueri - SP - BRAZIL
Tel: +55 11 47728300
Fax: +55 11 47728301
E-mail: sipa@sipa.com.br

SIPAMERICAN INDUSTRIES

ZOPPAS TOOLS & MACHINERY S.A. DE C.V.
Circuito Mexico 120
Parque Industrial Tres Naciones
San Luis Potosi S.L.P. CP 78395 - MEXICO
Tel: +52 444 8047400
Fax: +52 444 8047499
E-mail: sipamerican.industries@zoppas.com

SIPA ANDINA Ltda

Avenida El Dorado 68 C 61
Oficina 628, Piso 6
Bogota, Colombia
Tel: +571 479 5252
Fax: +571 4763444
E-mail: Sipa_Andina@zoppas.com

SIPA JAPAN Ltd.

Komai Bldg. 2F, 3-2-9 Nihombashi Muromachi,
Chuo-ku, Tokyo 103-0022, JAPAN
Tel: +81 352554848
Fax: +81 352554849
E-mail: tanigaki@sipajapan.com

SIPA CHINA

19/F, unit 1905, Zhong Yu Plaza,
No. jia-6 Gongtibi Road,
Chaoyang District
100027 Beijing - CHINA
Tel: +86 10 65120447 - 48
Fax: +86 10 65120449
E-mail: sipachina@sipacina.com.cn

SIPA MACHINERY HANGZHOU

3 Road 14, Economic & Technology Development Zone
310018 Hang Zhou, Zhejiang province - CHINA
Tel: +86 571 86913106
Fax: +86 571 86913548

SIPA THAILAND

3dr Floor, MSC Building, 571, Sukhumvit 71 Rd.,
Klongton - Nua, Vadhana
Bangkok 10110 - THAILAND
Tel: +66 27130973-5
Fax: +66 27130976

SIPA INDIA

B 101, Mangalya
Off Marol Maroshi Road
Marol, Andheri (East)
Mumbai - INDIA 400 059
Tel: +91 22 29201785
Fax: +91 22 29201795
E-mail: sipa.india@zoppas.com

SIPA

Zoppas Industries