

KRONES Contiflow, Carboflow and Multiblend Mixing systems



For the right product mix

KRONES Mixing systems

Non-alcoholic refreshment drinks are the hit. New blended flavours are breathing new life into the market and arousing the consumer's interest and thirst. Scope for the production and mixing of these new products needs flexible plant technology. With their performance and precision, KRONES mixing and carbonating systems offer you ideal starting conditions for the production of all types of drinks.

The Contiflow mixer, the Carboflow carbonator and the Multiblend automatic mixing station (syrup mixer) form the basis for precisely mixed and economically produced refreshment drinks. Enhanced automation, integrated recipe management and optional connection to a higher-level process control system guarantee reliable production workflows. A compact design featuring modules built with hygiene in mind makes life easier for operators as well as maintenance personnel.



KRONES Contiflow, Carboflow, Multiblend Design features

KRONES Mixing systems

- Fully automatic process with no manual operation of valves
- Operator intervention is reduced to a minimum
- Perfectly coordinated components, e.g. pumps and instrumentation
- Precise program flows and exchanging of signals with downstream processes such as filling, thermal product treatment and syrup processing
- Minimisation of stoppage times, product losses and media consumption
- Large recipe memory for reliable, reproducible production using pre-defined parameters
- Buffer tank for the next product to be mixed enables quick product changes without the operator needing to intervene
- Vacuum-proof container for hot and cold cleaning without drawing in atmospheric air
- Open, easily accessible design on a frame made of stainless steel round tubing, with all feed inlets uniformly arranged in a single work area
- Menu-based operation using a 15-inch touch-screen, with processes shown in the active flow diagram
- Controlled access to operator interfaces using a transponder system
- Prepared for integration in a higher-level process control system



All pumps are positioned for easy access on one side



Quick-change device for the pump's mechanical seal

Contiflow Continuous mixer

KRONES Mixing systems

The Contiflow continuous-type mixer featuring product water degassing and a carbonating unit is excellently suited for the soft drinks sector. Depending on the number of basic components, one or more linear dosing units and a multi-stage product homogenisation function ensure that the finished products display a high level of quality. The system can be expanded to handle up to ten liquid and two gaseous dosing components.



Contiflow

Figures, data, facts

Principle of operation

The Contiflow comprises a degassing module, a dosing module and a carbonating module.

■ Degassing

Water is directed to the horizontal degassing tank via two nozzle sets of different size. This enables the water supply to be controlled in steps of 1/3, 2/3 or 3/3. Degassing takes place with either vacuum or pressure. The vacuum pump is equipped with a water-saving function which reduces the consumption of buffer water to a minimum.

■ Dosing

Syrup is dosed by means of a pressure-controlled pump, a mass flow meter and a control valve. The flow meter measures the brix value of the sugary syrup and uses the data to control the mixing ratio. Up to ten liquid components can be dosed depending on requirements. The multi-stage product homogenisation function delivers top-quality products

■ Carbonation

Using the circulating carbonation system it is possible to reduce the mixer performance to 33 %. This is done in accordance with the level in the carbonation tank. A very low level of gas consumption in the carbonation tank is achieved as the result. Up to two gaseous components can be dosed. The technological values such as brix, CO₂ dosing accuracy and degassing remain constant in spite of the adjusted performance level. The mixer stops working only when the receiving machine (filler or flash pasteuriser) stops completely for a prolonged period.



Circulating carbonation for adapting the performance with no gas consumption

Application

Continuous production of non-alcoholic refreshment drinks with and without CO₂ from two to ten dosing components and direct juice; production of mixed beer drinks and slightly carbonated mixed fruit juice drinks, cider, alcopops

Performance range

- Five sizes with an output of 15, 30, 45, 60 and 90 m³/h
- Dosing accuracy – related to the finished drink:
 - for syrup 1 sigma = 0.01° brix (continuous production),
 - for CO₂ 1 sigma = 0.04 g CO₂/l (continuous production)

Contiflow

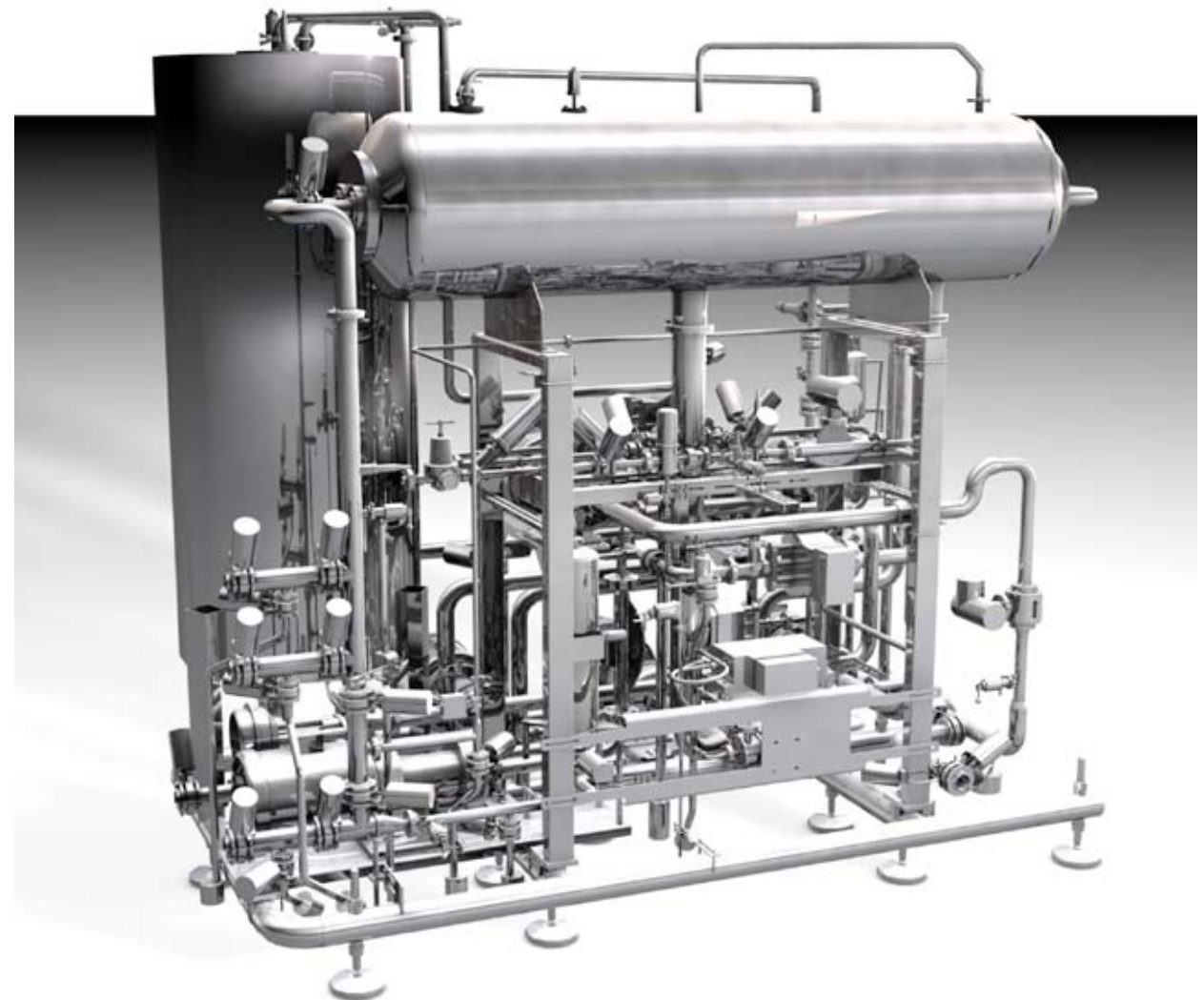
Figures, data, facts

KRONES Mixing systems

Multi-stage product homogenisation – Dosing and carbonation synergy effects

The Contiflow has a multi-stage product homogenisation function for carbonated refreshment drinks:

- during syrup dosage.
- during circulating carbonation: approx. 25 % of the product circulates through a short bypass line within the CO₂ dosage line.
- during inflow into the carbonation tank.
- in the circulation line at the tank outlet with a share of approx. 6 %. There the finish-mixed product can be measured for brix, CO₂ and alcohol before it is conveyed by a pressure-controlled pump to the thermal product treatment system or the filler.



The Contiflow mixer offers multi-stage product homogenisation

Contiflow

Figures, data, facts

KRONES Mixing systems

Additional equipment

- Quick product change within ten minutes when the filler is equipped with additional drainage valves, a ring boiler spray system and a fully automatic valve manifold (last bottle/first bottle with intermediate water rinsing)
- Production logging
- Use of double degassing
- Conductivity measurement (water connection/product discharge)
- Gas sterile filter
- O₂/CO₂/alcohol measurement in the product discharge
- Flavour dosing
- Finished drinks connection for syrup infeed
- PWT cooling unit for the finished drink



Valve manifold



Six-component mixer with dry running vacuum pump

Contiflow Your benefits

KRONES Mixing systems

- Prevention of syrup losses during start-up and shut-down and during a change of product where sugary syrup versions are involved
- Minimised syrup consumption through production at the lower limit of the brix range
- Dosing of sugar-free components using high-precision register control
- Adjustment of the mixer production speed to the filler loading capacity between 33 to 100 % of the nominal capacity with maximum CO₂ dosing accuracy
- Reduced gas consumption through capacity control (33 to 100 %) in accordance with the level in the carbonation tank
- Less stress on the operator thanks to signal exchange between the mixer, filler and syrup station which enables automatic sequences for starting and ending the production and for CIP workflows
- Minimum buffer water consumption by the vacuum pump due to temperature-dependent refeeding of the buffer water
- Easily accessible pump with quick-change device for the mechanical seal
- Rinsing function started via the water or syrup feed during production mode in some modules
- Large volume for atomising the water through the horizontal degassing tank
- Use of the single-stage or two-stage pressure or vacuum degassing method
- Control of the degassing quantity at 1/3, 2/3 or 3/3 of the total volume using two separately switchable nozzle devices of different size
- High quality of products with fluctuating alcohol content (e.g. cider) through use of an optional alcohol meter in the dosing line
- All product-dependent parameters can be set on the touch-screen and be saved in the integrated program for type management
- Type parameters can be saved on a USB stick for use in verification and documentation workflows



Carboflow

Degassing and carbonation unit

KRONES Mixing systems

Degassing and carbonation are the main process steps in the production of mineral water and table water.

The system is based on the two-stage pressure degassing principle, with optional connection of a flavour dosing line for the production of aromated drinks.

The Carboflow is also used if medicinal waters or other still products are to be filled – the plant section for degassing is bypassed by a change of circuit.

The Carboflow is characterised by high flexibility, a robust design and a very attractive price/performance ratio.



Carboflow

Figures, data, facts

Principle of operation

The Carboflow comprises a degassing module and a carbonating module.

■ Degassing

The water is fed to the degassing tank through a control valve and an injector. Degassing takes place by means of pressure. Oxygen and nitrogen in the water are expelled by the addition of CO₂.

■ Carbonation

CO₂ is dissolved in accordance with the saturation carbonation principle. This results in the water being degassed a second time and carbonated simultaneously. An integrated controller calculates the pressure required and adjusts it continuously to the current temperature of the drink.

Pressure degassing and carbonation are performed in a hermetically divided two-chamber tank.

Application

- Continuous degassing and carbonation of water
- Production of aromated water by dosing a flavour component

Performance range

- Six sizes with an output of 8, 15, 30, 45, 60 and 90 m³/h (output between 6.5 and 90 m³/h)
- Carbonation in the range of 3 – 10 g/l CO₂ (up to 20 °C) with gas loss minimised simultaneously
- Dosing accuracy for CO₂ 1 sigma = 0.08 g CO₂/l (continuous production)



Touch-screen with interactive flow diagram

Carboflow Your benefits

KRONES Mixing systems

- Degassing of the product water in accordance with the two-stage pressure degassing principle, with the first stage in the degassing tank and the second stage in the saturation carbonation
- Robust and simple technology without extensive and expensive sensor technology
- Main characteristics of pressure degassing: Prevention of water consumption and little maintenance
- Continuous mode of operation in the range from 80 to 100 % of rated capacity
- Production of aromated water products by connecting a flavour dosing line with register control for high-precision dosing of the aroma components
- Less stress for the operator thanks to the program-controlled performance of all work steps (production including start-up, shut-down and CIP)
- All product-dependent parameters can be set on the touch-screen and be saved in the integrated program for type management
- Type parameters can be saved on a USB stick for use in verification and documentation workflows



Multiblend Automatic syrup mixing system

KRONES Mixing systems

Flexibility is everything: The fast and individual mixing of finished syrup is a key factor in the successful production of numerous flavours. Multi-blend transforms syrup production into an automatic system that manufactures all types of syrup with the highest precision. The syrup is prepared in batch mode, i.e. the starter syrup for the next production step is manufactured in the two-component mixer.



*Multiblend
MF 24/12*

Multiblend

Figures, data, facts

KRONES Mixing systems

Principle of operation

The main component, i.e. water, sugar or alcohol, is mixed with different basic materials or flavours into a finished concentrate (syrup). The basic dosing configuration is comprised of a dosing section in which up to 32 components are dosed in series. Dosing is performed in the hydraulically full system and guarantees maximum efficiency of the components used. Flow meters are integrated to measure and verify the exact quantity of the dosed flavour components .



Valve manifold

Application

- Production of finished concentrate from up to 32 components
- Flavour dosing in the spirits and liqueur segment using a machine version with explosion protection

Performance range

- Production of 1,500 l/h to 24,750 l/h finished syrup
- Dosing accuracy of 0.3 % for the finished syrup (continuous production)

Multiblend Your benefits

KRONES Mixing systems

- Automatic mixing of liquid basic materials in the soft drinks sector or for the dosing of flavours in the spirits and liqueur production segment
- Fully automatic system for unsupervised batch-wise production
- Serial dosing section for up to 32 components
- Central control terminal for calling up individually preprogrammed recipes
- High efficiency in terms of investment, maintenance and servicing costs thanks to finely coordinated dosing devices and sensors
- Supply tanks are quickly available for production use through connection to common transport containers or already available basic material tanks



*Multiblend with
component
dosing*