# Data Sheet

## Description

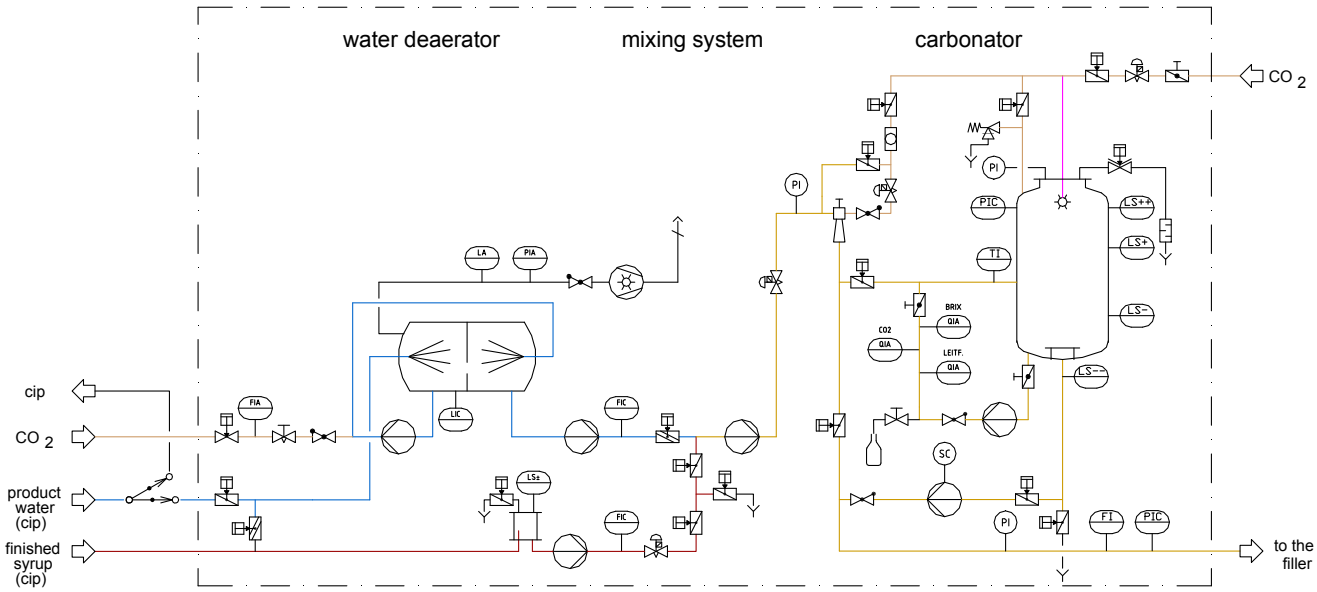
The mixing and carbonating system type **DIMIX** is a combination of the:
a) water deaerating system type **DIOX2-TE,**
b) 2-components' blending system, and
c) carbonating system type **DICAR**

Special features:
- optimum water deaeration (≤0.1 mg of $O_2$/litre)
- high-precision flow metering of water and finished syrup
- pulse-accurate mixing permitted by the ratio control
- single-stage re-carbonation up to 10 g of $CO_2$/litre of product
- superfine distribution of $CO_2$ in the product
- minimized loss of $CO_2$
- continuous product monitoring by analysers
- minimum service requirements due to the fact that the system is equipped with a few movable parts only
- easy handling due to the existing recipe storage

A 2-stage water deaeration enables an optimum deaeration of the product water (also see the technical data sheet D49.33E for DIOX2-TE). In the first stage the deaeration is carried out by means of a vacuum. Before the second stage is started, $CO_2$ is injected into the water, with the effect that the amount of oxygen released is increased. That amount of oxygen is set free and sucked off in the second stage together with the $CO_2$.

The mixing component of the system is designed for a continuous high-precision blending of finished syrup and water. Liquid flows are measured by accurate flow meters and compared by a digital controller in consideration of the desired mixing ratios. Any deviations are fully compensated. A variety of different ratio extents can be realized by the correct selection of the best suitable flow meters.

## Scheme





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**Mixing and carbonating system**
**DIMIX**
**for soft drinks**

**D 46.45 E**

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A booster pump conveys the finished beverage to the $CO_2$ saturator. The flow velocity through the saturator is kept constant within the optimum working range by an optimizing control operation. The partial vacuum generated in the area of the smallest cross-section of the saturator causes a reduction of the pressure level and thus involves the desired suction effect for $CO_2$. Apart from that, the instantly increased flow velocity guarantees a fine distribution of the $CO_2$ gas and its homogeneous mixing with the product. $CO_2$ is supplied to the saturator from the pressure tank, the constant overpressure of which guarantees an equal carbonation of the beverage. In addition, this process permits a lossfree supply of $CO_2$.

Consequently, the carbonation of the beverage essentially depends on the tank pressure, which is adjusted as a function of the desired $CO_2$ setpoint of the specific beverage and which is only slightly higher than the saturating pressure of the product. Moreover, the temperature compensation adapts the pressure in the tank to the saturating curve.
The dimensioning of the system depends on the required flow rate of the complete system. For that purpose, the following nominal widths are available: DN50, DN65, DN80, and DN100.

The realization of an analysis of the following essential product data is another firm component of the GEA Diessel carbonating system:
- $CO_2$ content
- conductivity for the acid content
- Brix value

These values are measured and monitored within the predetermined limits.

## Technical data

**Product:** Soft drinks of a maximum particle size of 0.5 mm and a maximum viscosity of 10 mPa x s.

**Total flow rates:** 15,000 l/h, 25,000 l/h, 35,000 l/h, and 50,000 l/h.
An adaptation to the respective filler capacity is possible.

**Mixing ratio:**
(standard, other ratios possible) 2 - 20 % (adjustable),
addition of syrup referred to the total flow rate

**Water admission pressure:** 3.5 - 4 bar

**Syrup admission pressure:** Free supply by gravity

**Carbonating range:** 10 g/l or 5 l/l max.
(at a $CO_2$ content of 0 g/l at the inlet of the system)

**Max. $O_2$ content:** 0.5 ppm in the ready mixed beverage

**$CO_2$ supply:** 8 - 10 bar

**Max. product temperature:** 20°C (higher values on demand)

**Output pressure:** 2 - 3 bar above the saturating pressure

**Dimensions:**

| Flow rate | L | W | H |
|---|---|---|---|
| 15,000 l/h | 3,100 | 1,400 | 3,200 |
| 25,000 l/h | 3,300 | 1,500 | 3,400 |
| 35,000 l/h | 3,600 | 1,700 | 3,500 |
| 50,000 l/h | 4,000 | 2,000 | 3,800 |