

Description

The GEA Diessel carbonating system, type **DICAR-C™**, has been designed for the continuous high-accuracy carbonation of beverages. It is an ideal system for alcopops or sparkling wines.

Besides the pressure tank, the saturator that is working according to the Venturi principle is an essential component of the system. By the aid of a booster pump the ready-mixed beverage is conveyed to the saturator. The flow velocity in the saturator is kept constant. The increased flow velocity reduces the pressure level around the smallest cross-section of the saturator, thus obtaining the desired suction effect for CO₂ in the feeding area. The fine distribution of the CO₂ gas in the beverage ensures a quick saturation and achieves the desired “fine-sparkling” behaviour.

CO₂ is supplied straight from the pressure tank, the constant overpressure of which guarantees an even carbonation of the beverage.

This procedure enables a lossless use of CO₂ in a continuous operation. The quality of the carbonation mainly depends on the temperature, the saturating pressure resulting from the temperature and the specific product features.

Some specific parameters are stored in the recipes in order to obtain the required CO₂ setpoint for different products and temperatures.

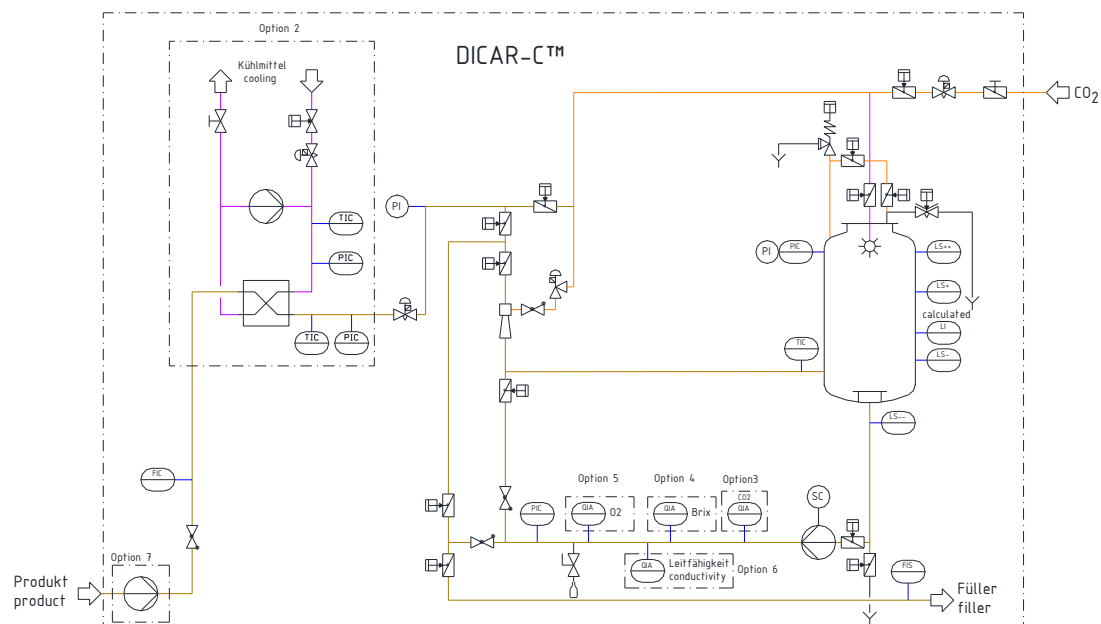
The system is designed according to the demanded filling capacity. The **DICAR-C™** can be combined with any type of filling machine available on the market.

As an option, a high-precision in-line analyser for product criteria belongs to the component parts of the **DICAR-C™**.

Features

- Carbonation to 10 g of CO₂/l of product
- In-line measurement of the CO₂ content in the product (option)
- Product-specific control of the CO₂ content
- Efficient CO₂ dissolution by means of a special saturator
- No CO₂ losses in a continuous operation
- Easy operation
- Compact factory-tested unit
- Can be combined with an in-line blending unit type **DICON™** and a water deaerating unit type **DIOX™** to the continuous mixer type **DIMIX-C™** for the production of carbonated beverages

Scheme (Example)



The DICAR-C™ is available with the following options:

1. Aseptic design
2. Cooler
3. CO₂-measurement
4. Brix measurement
5. O₂ measurement
6. Conductivity measurement
7. Booster pump

Technical data

Materials	1.4301/EPDM, other materials on request																																																
Dimensions	<table border="1"> <thead> <tr> <th>Qmax. l/h</th> <th>Length mm</th> <th>Width mm</th> <th>Height mm</th> <th>Nominal width DN</th> <th>Installed electrical power kW</th> <th>Weight approx. kg</th> </tr> </thead> <tbody> <tr> <td>20,000</td> <td>2,300</td> <td>1,600</td> <td>3,850</td> <td>65</td> <td>12</td> <td>1,200</td> </tr> <tr> <td>35,000</td> <td>2,500</td> <td>1,800</td> <td>3,850</td> <td>80</td> <td>18</td> <td>1,500</td> </tr> <tr> <td>55,000</td> <td>2,900</td> <td>2,000</td> <td>4,450</td> <td>100</td> <td>23</td> <td>2,000</td> </tr> </tbody> </table> <p>Other flow rates possible on request.</p>	Qmax. l/h	Length mm	Width mm	Height mm	Nominal width DN	Installed electrical power kW	Weight approx. kg	20,000	2,300	1,600	3,850	65	12	1,200	35,000	2,500	1,800	3,850	80	18	1,500	55,000	2,900	2,000	4,450	100	23	2,000																				
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Product	Soft drinks of a maximum particle size of 0.5 mm and a maximum viscosity of 10 mPas																																																
Carbonation	10 g/l or 5 l/l maximum (at a CO ₂ content of 0 g/l and a maximum oxygen content of 0.5 mg/l in the beverage at the inlet of the system)																																																
	<div style="text-align: center; border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;">CO₂ saturation of soft drinks</div> <table border="1"> <caption>Approximate data from CO₂ saturation graph</caption> <thead> <tr> <th>Temperature (°C)</th> <th>2,0 bar</th> <th>2,5 bar</th> <th>3,0 bar</th> <th>3,5 bar</th> <th>4,0 bar</th> </tr> </thead> <tbody> <tr><td>10</td><td>3.7</td><td>4.3</td><td>4.9</td><td>5.5</td><td>6.1</td></tr> <tr><td>12</td><td>3.4</td><td>4.1</td><td>4.6</td><td>5.2</td><td>5.8</td></tr> <tr><td>14</td><td>3.3</td><td>3.9</td><td>4.4</td><td>5.0</td><td>5.5</td></tr> <tr><td>16</td><td>3.1</td><td>3.7</td><td>4.2</td><td>4.7</td><td>5.3</td></tr> <tr><td>18</td><td>3.0</td><td>3.5</td><td>4.0</td><td>4.5</td><td>5.0</td></tr> <tr><td>20</td><td>2.8</td><td>3.3</td><td>3.8</td><td>4.3</td><td>4.7</td></tr> <tr><td>22</td><td>2.7</td><td>3.2</td><td>3.6</td><td>4.1</td><td>4.5</td></tr> </tbody> </table>	Temperature (°C)	2,0 bar	2,5 bar	3,0 bar	3,5 bar	4,0 bar	10	3.7	4.3	4.9	5.5	6.1	12	3.4	4.1	4.6	5.2	5.8	14	3.3	3.9	4.4	5.0	5.5	16	3.1	3.7	4.2	4.7	5.3	18	3.0	3.5	4.0	4.5	5.0	20	2.8	3.3	3.8	4.3	4.7	22	2.7	3.2	3.6	4.1	4.5
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CO ₂ quality	≥ 99.99 % purity																																																
Control air	6 – 8 bar																																																

Figure: DICAR-C™ aseptic design (example)

