Design and Operation of a Quasi-Continuous Small Batch Blending Unit for the Production of Beer Mix Beverages

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Karlsberg – At a Glance

**Total Area:** 127,942 m²

Thereof Warehouse: 23,000 m²

**Number of FTE:**

Production: 239

Sales: 169

Administration: 65

Logistics: 65

**Sales Volume:** approx. 2.8mn hl per Year
Initial Situation in Production

Brewhouse/Cellars

Filtration

BBTs

Tanker

Filling Department

Bottles

Cans

Kegs

Party Cans (5 l)

Number of Types/SKU

10

40

90

400

- Beer for Domestic Markets
- Beer for Export Markets
- Malt Beer Base/Wort

- Beer for Domestic Markets
- Beer for Export Markets
- Malt Beer Base/Wort
- Dealcoholised Beer

- Beer for Domestic Markets
- Mixed Beer Beverages
- Beer for Export Markets
- Malt Beer Base/Wort
- Flavoured Malt Beer
- Dealcoholised Beer
- Soft Drinks
Blending Unit - Conception

- Quasi-Continuous Production of Beer Mix Beverages

- Alcoholic and Non-Alcoholic

- 250 – 500 hl/h
Discontinuous Process - DIMA

- Syrup Base
- Flavours
- Citric Acid
- Premix I
- Premix II

Syrup from DIMA
Technical Flowchart
Continuous Process - DICON

Degassed Water → Liquid Sugar → Beer → Beer Mix Beverage

- Syrup from DIMA
- CO₂
Production of Beer Mix Beverages

Diagram showing the production process of beer mix beverages, with stages labeled as Container 7 to Container 1, Mag 2, Mag 3, Premix 2, Premix 3, 5 l, 800 l, 1000 l, Beer from BBT, CO2, Cooler, Buffer, Degassed Water, Sugar Tank 3, Sugar Tank 2, Sugar Tank 4, Sugar Tank 5, and Beer Mix Beverage to BBT.
7 Storing Positions for Containers

Flexible Tube Connection

Emptying into Batch-Tank
• PREMIX I and II

• Dosage of Powders and Flavours

• Alternating Usage
• Upper Tank with Stirrer

• Homogenisation of Syrup Components

• Time-Controlled Emptying into Lower Tank
Degassed Water

- Degassing with Vacuum and CO₂

- Water Dosage According to Beer Dosage

- Continuous Adjusting of Proportion
Liquid Sugar

• 5 Sugar Tanks

• 3 Types of Sugar

• Continuous Control and Adjusting of Brix-Level in Mixed Lemonade
• Beer from BBT

• Control of Alcohol and Gravity in Beer Mix Beverage

• Pressure Increase for Carbonation
### Experiences

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<tr>
<th>Pro</th>
<th>Contra</th>
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<tr>
<td>Performance up to 500 hl/h possible</td>
<td>Min. performance not lower than 250 hl/h</td>
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<tr>
<td>Very flexible related to ingredients</td>
<td>Smallest batch 250 hl</td>
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<td>High proportion of water and beer possible (12 - 85 % beer)</td>
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<td>User friendly</td>
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<td>Simple design</td>
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<td>High repeatability</td>
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Thank you for your kind Attention.