

## Helping to set the standards of tomorrow's breweries

SPX Flow Technology has been a leading supplier to the brewing industry for over 80 years and has developed more key technologies together with customers. This strong cooperation and experiences gained from deliveries worldwide means that many global brands are produced using SPX Technologies today.

SPX Flow Technology offers a series of technologies, skid mounted systems, products, parts, spares and service for the brewery industry. The unit systems include wort cooling, aeration and yeast dosing, yeast propagation, beer pasteurization, carbonation, nitrogenation, water deaeration and high gravity brewing. Furthermore SPX Flow Technology

supply evaporation, distillation and dialysis for de-alcoholisation and other General Processing Technology like heat transfer, tank sections and cleaning-in-place (CIP). The highest quality and optimisation of production performance can be achieved by help of APV Factory Expert automation solutions.

Every Brewery processing systems can be supplied as a stand-alone system, ideally equipped for smooth and trouble free operation and suitable for integration into a central control system. But the maximum benefit will be gained with a combination of systems which have specifically designed to operate together for optimum performance,

both from a mechanical and control perspective.

The many reference installations demonstrate SPX Flow Technology capabilities to provide key technologies required for main brewery processes. Equally, SPX Flow Technology offer cost-effective improvements to selected unit operations in existing production lines. SPX Flow Technology's in-depth knowledge and active involvement in the development of the world's brewery industry, makes SPX Flow Technology the ideal partner for the design and installation of state-of-the-art Brewery processing equipment.

## Wort cooling, yeast dosing and wort aeration - WortMaster

Economical production by minimising production time and the use of additives



### Specifications

Field of application	Brewery
Description	The WortMaster product range comprises wort cooling, yeast dosing and wort aeration units. In addition to fast and efficient wort cooling, Designed for easy integration with existing lines, WortMaster units enable effective and accurate in-line dosing of yeast and oxygen using the patented APV gas injector
Capacity	50 - 1,200 hl/h (1,000 - 30,000 U.S. g/h)

### Advantages

- Constant monitoring and improved regulation of the process
- Repeatable fermentation performance
- Higher accuracy in yeast and oxygen dosing
- Reduced fermentation time
- Turn down ratio to 25% of nominal capacity
- Constant yeast/oxygen ratio, regardless of flow
- Fully CIP-cleanable
- Traceable production data

# In-line blending - BlendMaster

Adds new dimensions to accurate standardising and efficiency



## Specifications

Field of application	Brewery
Description	The BlendMaster range covers units designed for continuous in-line blending of liquid components. It ensures precise recipe conformity, regardless of whether two or more liquid components are combined. The BlendMaster is used, for example in high gravity brewing and in combination with other unit types like the CarboMaster or the HGB Master
Capacity	50 - 1,200 hl/h (1,000 - 30,000 U.S. g/h)

## Advantages

- Ensures exact conformity with the specified recipe
- High calibration stability
- High-precision blending
- Space-saving design (high capacity/m<sup>2</sup>) (sq. feet)
- Continuous monitoring and regulation of the combined product
- Automatic switch-off, if offset exceeds the limit
- Easy change of recipe for fast product change
- Turn down ratio 25% of nominal capacity
- Blending ratio 1:10 to 1:2

# Carbonation and nitrogenation - CarboMaster

Cost effective, accurate and flexible gas-dosing



## Specifications

Field of application	Brewery
Description	The CarboMaster range comprises units for continuous in-line injection and dissolving of gasses such as CO <sub>2</sub> and N <sub>2</sub> , using the patented APV gas injector to ensure precise and uniform injection. The CarboMaster can be integrated with other unit types, including the BlendMaster and the HGB Master
Capacity	50 - 1,200 hl/h (1,000 - 30,000 U.S. g/h)

## Advantages

- High dosing accuracy (+/- 0.05 g gas/kg product)
- Injection independent of inlet temperature and pressure
- No gas losses
- Space-saving design
- Holding time not necessary
- Turn down to 25% of nominal capacity
- Injects and dissolves up to 10 g gas/kg product
- Constant monitoring and control of final product
- Fully CIP-cleanable

# High gravity brewing - HGB Master

A compact three-in-one unit that deals you all the aces in the pack



## Advantages

- Constantly low oxygen content 50 ppb at 12°C (below 30 ppb at >20°C) (measured as a standard deviation)
- Continuous monitoring for required specification
- Exact conformity with the specified recipe
- High calibration stability
- High dosing accuracy (+/- 0.05 g gas/kg product, measured as a standard deviation)
- Injection independent of inlet temperature and pressure low running costs
- High precision blending
- Space-saving design (high capacity/m<sup>2</sup>)
- No gas losses

## Specifications

Field of application	Brewery
Description	The HGB Master combines water deaeration (Derox), inline blending (BlendMaster) and carbonation (CarboMaster) into a single, all-inclusive process. The HGB Master ensures a cost-effective high gravity brewing process combined with very high production flexibility. And is designed for easy integration with existing lines
Capacity	50 - 1,200 hl/h (1,000 - 30,000 U.S. g/h)

- Holding time not necessary
- Variable capacity
- Independent of water inlet temperature (optional)
- Variable deaeration levels
- Easy change of recipe for fast product changeover
- Turn down ratio 25% of nominal capacity
- Blending ratio 1:10 to 1:2
- Injects and dissolves up to 10 g gas/kg product
- No rings and plates inside vacuum tanks
- Constant monitoring and control of final product
- Automatic switch-off, if offset exceeds the limit
- Fully CIP-cleanable

# Controlled beer pasteurisation - PU pasteuriser

Gentle and accurate heat treatment that protects delicate aromas and flavour



## Specifications

Field of application	Brewery
Description	The PU pasteuriser enables continuous, gentle and effective heat treatment of beer and other carbonated drinks. The PU pasteuriser ensures precision temperature control at high working pressures
Capacity	50 - 500 hl/h (1,000 - 10,000 U.S. g/h)

## Advantages

- Very high accuracy (computer controlled PU regulation)
- Low  $\Delta T$  between product and heating media
- Large heat regeneration (up to 94%) with low-temperature filling
- Waste-saving design (beer/water zone)
- Turn down ratio 40% of nominal capacity
- Constant overpressure downstream
- Constant monitoring and control of final product

# Dealcoholisation plant for beer

## APV Dialysis System - continuous dealcoholisation



### Advantages

- No thermal or mechanical stress to beer
- Reduction of alcohol volume from 4,7% ≤ 0,5%
- Operation temperature of ≤ 10°C.
- No dilution
- Excellent beer quality (as near as possible to beer)
- Proven technology
- Turn-Key Delivery
- Long operation times

### Specifications

Field of application	Brewery
Description	<p>The plant consists of six operational units:</p> <ul style="list-style-type: none"><li>▪ the Dialysis membrane modules</li><li>▪ a stripper column for thermal alcohol reduction</li><li>▪ steam generator unit</li><li>▪ feeding unit</li><li>▪ diafiltration unit</li><li>▪ CIP-Unit</li></ul> <p>The method of dialysis operates on the cross flow principle. In this case, a beer to be de-alcoholised flows through the hollow fibre membrane, whereas a dialysate (thermally treated beer) is feeded to cross flow on outer side of the membrane.</p> <p>The alcohol passes over to dialysate by the power of concentration gradient - drop between beer and dialysate - and is removed in a vacuum rectifier.</p> <p>The de-alcoholised dialysate is feeded at closed cycle to membrane again.</p>
Capacity	20 hl/h