

BUCHER
denwel

Brewery Solutions





Innovative Brewing Technologies

Bucher Denwel develops and produces a wide range of specialized equipment and provide engineering solutions dedicated to help brewers to optimize their processes.

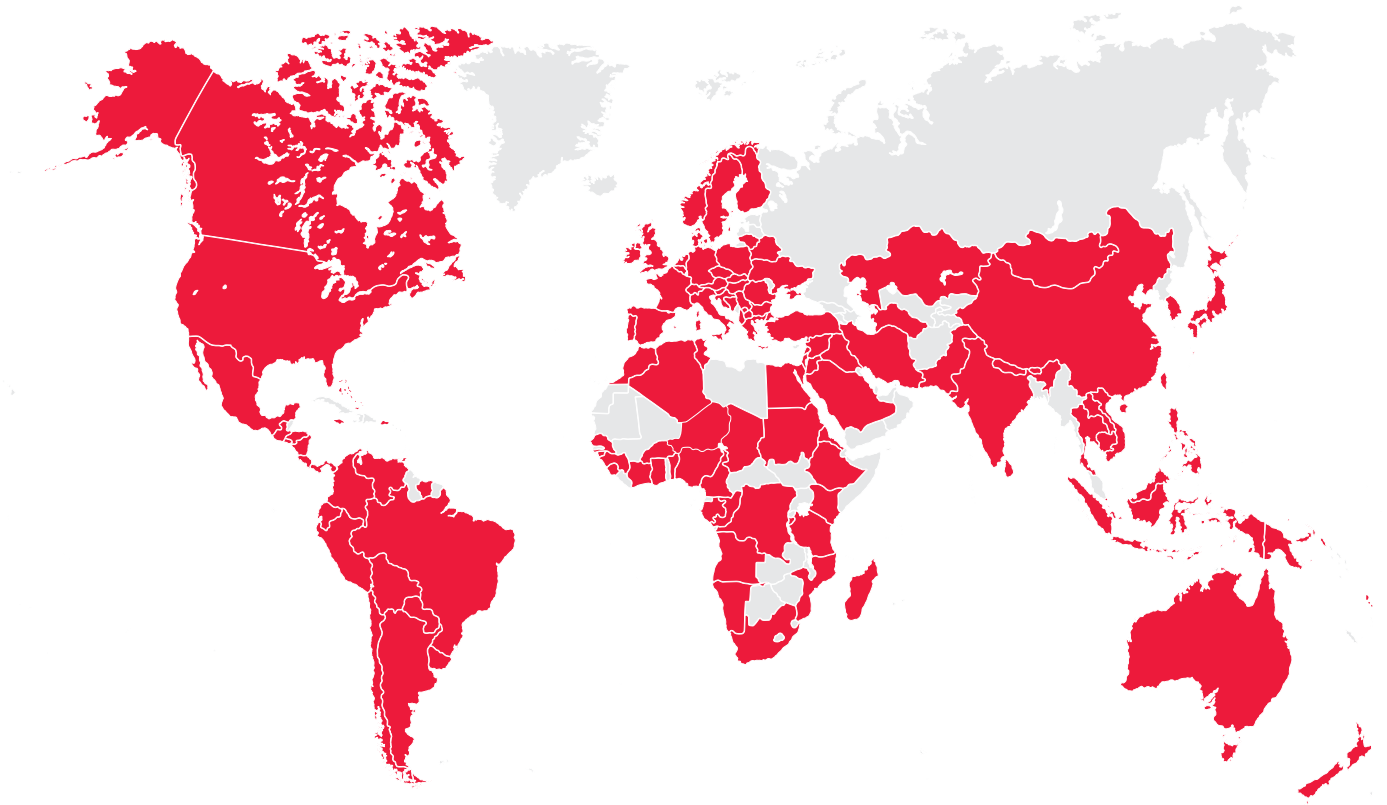
We build safe and reliable Cold Blocks for your brewery. Our scope includes technological design, supply of the equipment and process automation, installation and commissioning. We offer complete new turnkey projects or upgrades and extensions of existing plants.

Combining experience and innovation we supply brewing equipment such as Filtration systems, Yeast plants, Water Deaeration, Blending, Carbonation, Dosing and Hard Seltzer systems, Dealcoholisation, CIP, Cold sterilisation, Flash Pasteurization and Beer tanks.

We have a global presence. Our sales and service network are always available for you to provide consultancy, technical support and after sales service.

Bucher Denwel is member of Bucher Unipektin, Swiss leading supplier of process technology for the beverage and food industry.

Our Playground

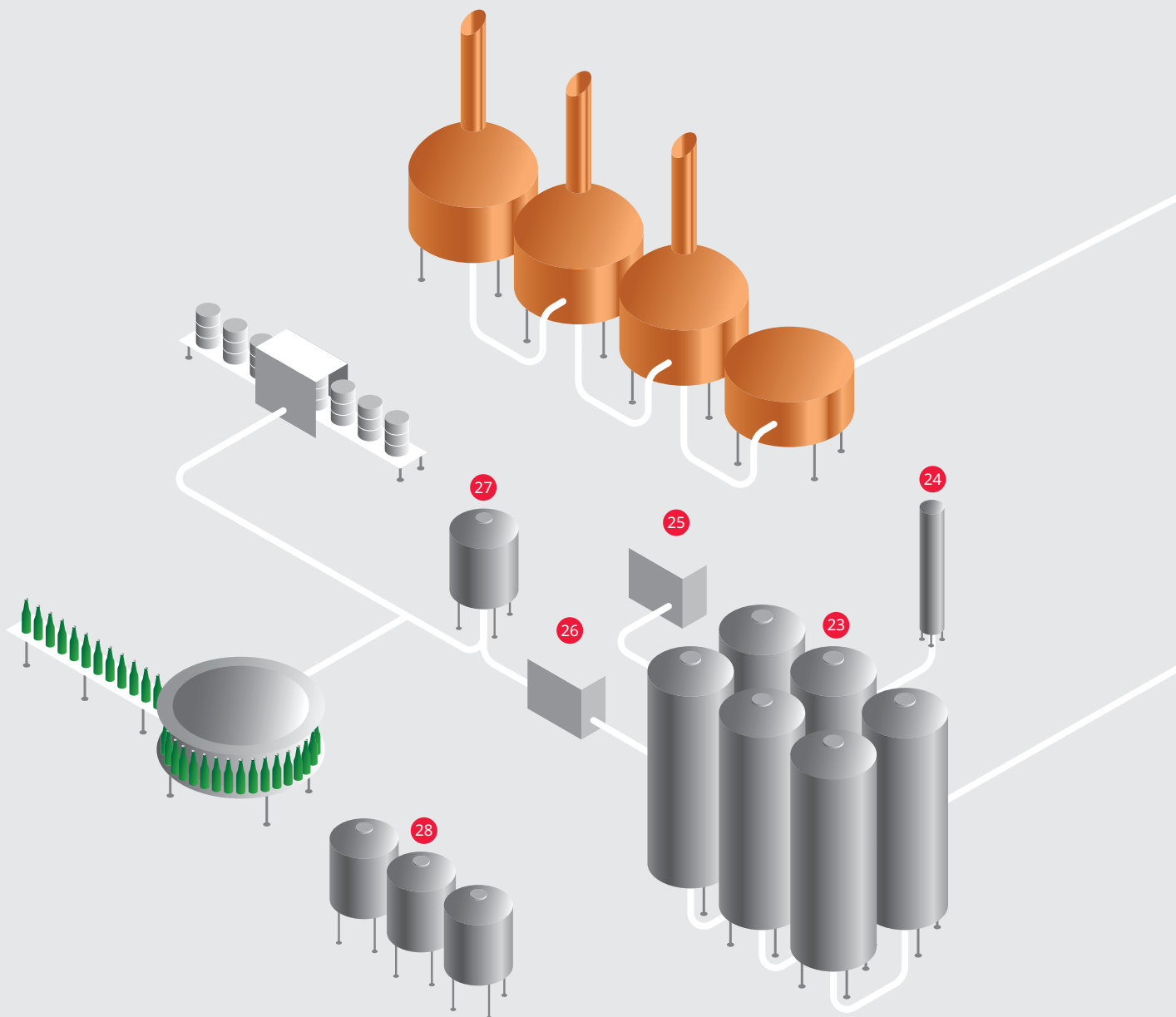


Over 4,600 References
in 130 Countries

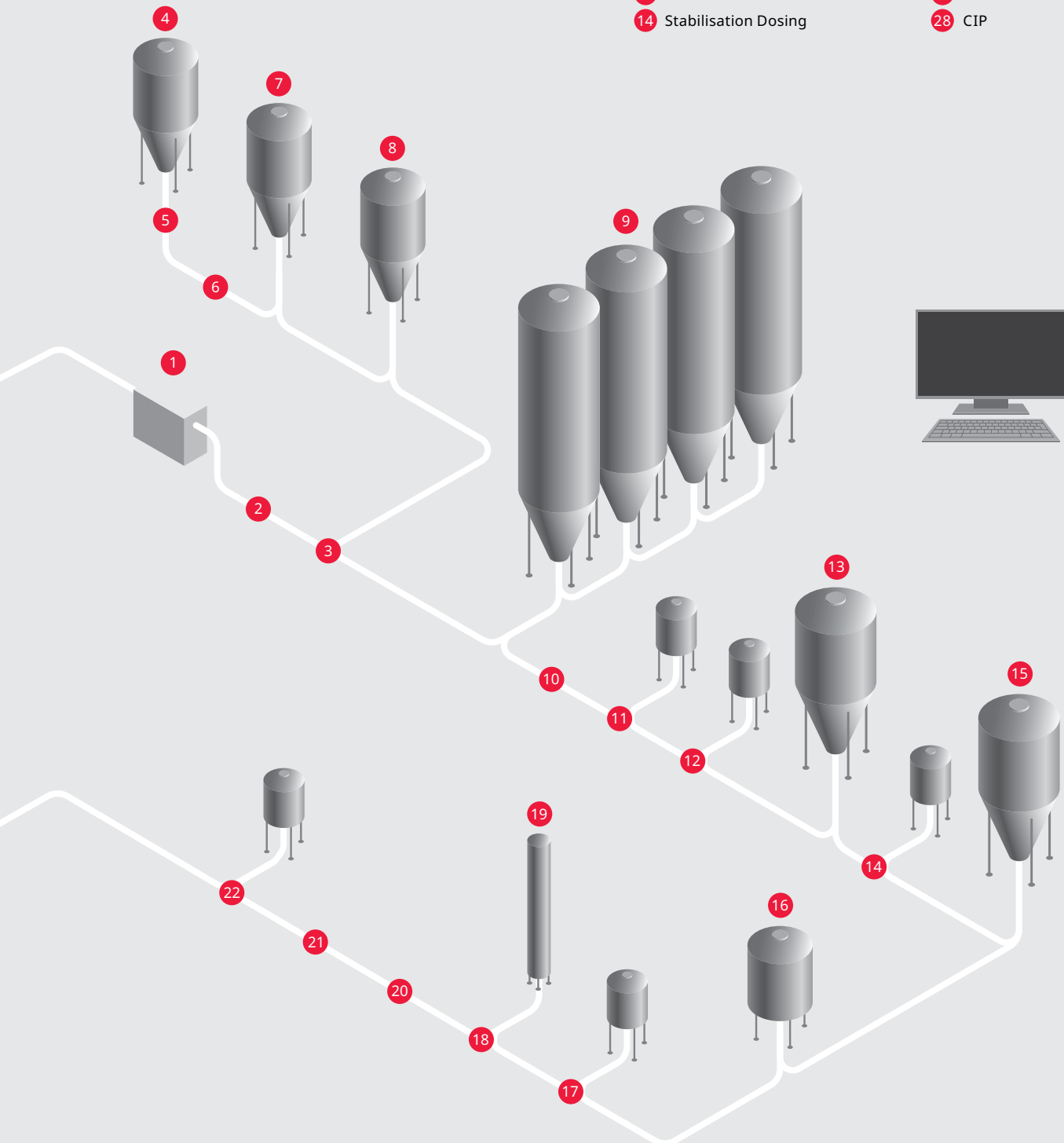
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Cold Block Solutions for Brewing



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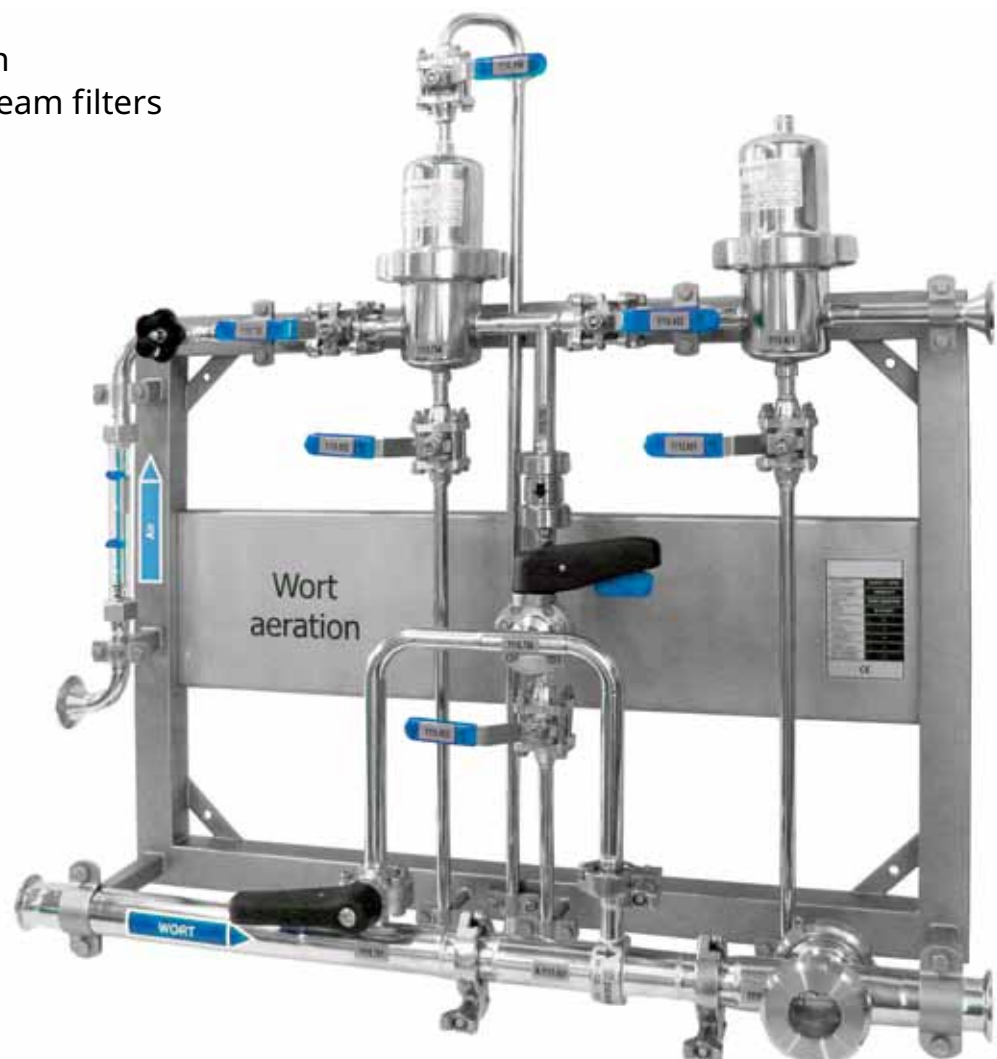


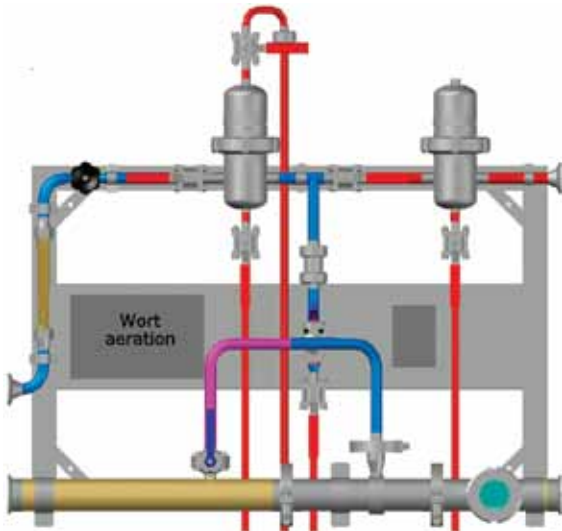
Inline Aeration/Oxygenation

Manual Unit

For instant wort aeration/oxygenation

- Micro bubble size
- Instant saturation
- Sterile gas and steam filters





Principle

Oxygen or air is injected into the wort through Bucher Denwel Injector, which splits the gas into micro bubbles. Most efficient and instant saturation of the gas is achieved with only a minimal pressure drop, no gas loss and a fully hygienic design. No static mixer or sinter candles needed.

The system includes a sterile filter for cleaning the gas and a steam filter cleaning the steam used for sanitization of the sterile filter.

Technical data

| | |
|--------------------------|---|
| Air addition: | up to 15 ppm (P & T dependent) |
| O ₂ addition: | up to 25 ppm (P & T dependent) |
| Pressure: | operating 2 to 5 barg, 30 to 72 psig |
| Temperature: | operating 0 to 15 °C, 32 to 60 °F |
| CIP: | 2 to 5 barg, 30 to 72 psig; max. 90 °C, 200 °F; Steam 120 °C, 248 °F |
| Connection: | Tri-clamp; other connections upon request |
| Dimensions: | from Height 0,8m, 31,5"; Width 0,9m, 35,4"; Depth 0,2m, 6,5" |
| Weight: | from 25 kg, 55 lb |
| Material: | Stainless Steel 304, EPDM, PSU, PP |
| Models: | Aeration DASxxxM; Oxygenation DOSxxxM; Aeration and Oxygenation DOAxxxM |

| | | | | | |
|---------|-------|-----|----------------|--------------|-----------------|
| D__025M | DN 25 | 1" | 10 to 25 hl/h | 5 to 11 gpm | 9 to 21 bbls/h |
| D__040M | DN 40 | 1½" | 16 to 40 hl/h | 8 to 17 gpm | 14 to 34 bbls/h |
| D__050M | DN 40 | 1½" | 20 to 50 hl/h | 9 to 22 gpm | 18 to 42 bbls/h |
| D__075M | DN 40 | 1½" | 30 to 75 hl/h | 14 to 33 gpm | 26 to 63 bbls/h |
| D__100M | DN 50 | 2" | 40 to 100 hl/h | 18 to 44 gpm | 35 to 85 bbls/h |

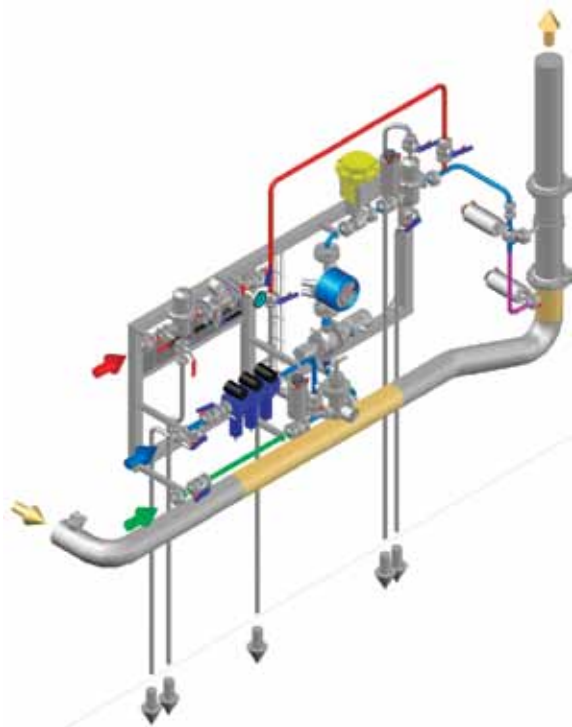
Inline Aeration/Oxygenation

Automatic Unit

For instant wort aeration/oxygenation

- Micro bubble size
- Instant saturation
- O₂ analyzer controlled





Application

Brewing yeast needs oxygen to multiply. While insufficient aeration results in reduced yeast reproduction, overdosing may cause the formation of undesired substances and wort foaming. Therefore, controlled wort aeration is required for a consistent fermentation rate and constant product quality.

Designed for fast and accurate injection and dissolution of air or oxygen, Bucher Denwel provides a fully automated solution for continuous wort aeration.

Principle

Oxygen or Air is injected into the wort through Bucher Denwel Injector, which splits the gas into micro bubbles. Most efficient and instant saturation of the gas is achieved with only a minimal pressure drop, no gas loss and a fully hygienic design. No static mixer or sinter candles needed. The injected gas can be cleaned and sterilized by micro and sub-micro sterile filters.

An inline O₂ analyzer continuously monitors the O₂ concentration. The output signal is processed by the PLC to control the O₂ dosing. A high precision control valve accurately adjusts the injection, avoiding any over- or under- aeration/oxygenation.

Technical data

| | |
|--------------------------|---|
| Air addition: | up to 15 ppm (P & T dependent) |
| O ₂ addition: | up to 25 ppm (P & T dependent) |
| Pressure: | operating 2 to 5 barg, 30 to 72 psig |
| Temperature: | operating 0 to 15 °C, 32 to 60 °F |
| CIP: | 2 to 5 barg, 30 to 72 psig; max. 90 °C, 200 °F; Steam 140 °C, 286 °F |
| Connection: | Tri-clamp; other connections upon request |
| Dimensions: | from Height 1,9m, 6,2'; Width 2,0m, 6,5'; Depth 0,6m, 2' |
| Weight: | from 100kg, 220 lb |
| Material: | Stainless Steel 304, EPDM, PSU, PP |
| Models: | Aeration DASxxxA; Oxygenation DOSxxxA; Aeration and Oxygenation DOAxxxA |

| | | | | | |
|---------|--------|-----|------------------|----------------|-------------------|
| D__050A | DN 40 | 1½" | 20 to 50 hl/h | 9 to 22 gpm | 18 to 42 bbls/h |
| D__075A | DN 40 | 1½" | 30 to 75 hl/h | 14 to 33 gpm | 26 to 63 bbls/h |
| D__100A | DN 50 | 2" | 40 to 100 hl/h | 18 to 44 gpm | 35 to 85 bbls/h |
| D__150A | DN 65 | 2½" | 60 to 150 hl/h | 27 to 66 gpm | 52 to 127 bbls/h |
| D__200A | DN 65 | 2½" | 80 to 200 hl/h | 36 to 88 gpm | 69 to 170 bbls/h |
| D__300A | DN 80 | 3" | 120 to 300 hl/h | 53 to 132 gpm | 103 to 225 bbls/h |
| D__500A | DN 100 | 4" | 200 to 500 hl/h | 88 to 220 gpm | 171 to 426 bbls/h |
| D__750A | DN 125 | 5" | 300 to 750 hl/h | 132 to 330 gpm | 256 to 639 bbls/h |
| D__A00A | DN 150 | 6" | 400 to 1000 hl/h | 176 to 440 gpm | 341 to 852 bbls/h |

Yeast Plant

Propagation, Storage, Pitching

For yeast management

- Various yeast strains
- Flexible design
- Highest hygienic standard



Application

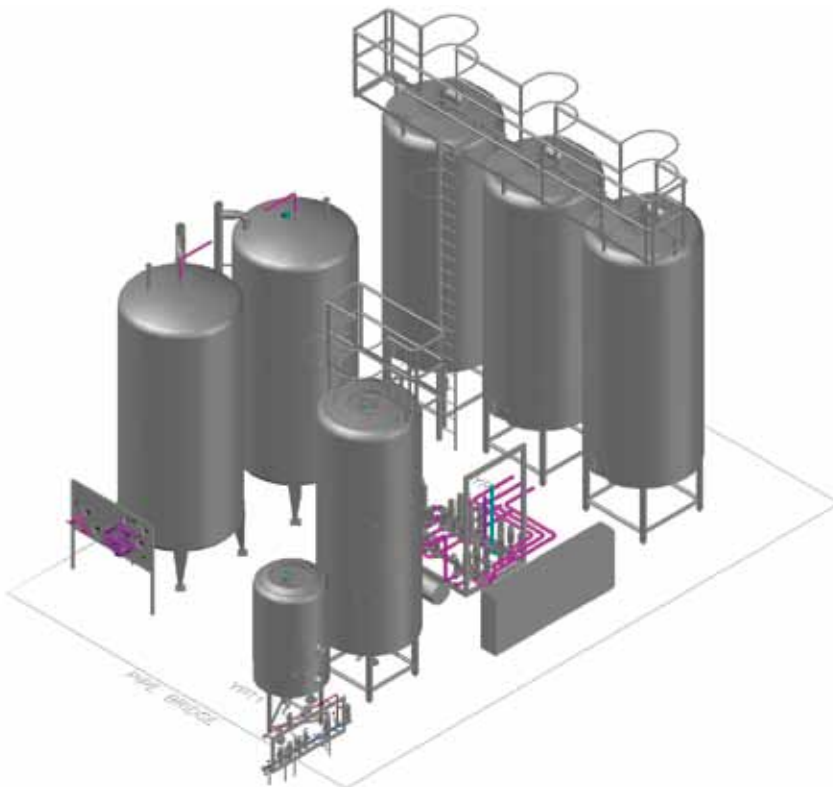
Bucher Denwel Yeast management systems ensures that highest hygienic and quality standards are maintained. Yeast is propagated in time at required concentration and volume, yeast is harvested and treated directly after fermentation, multiple yeast strains are properly stored and scheduled to make sure, that each batch is pitched with corresponding and vital yeast with no cross contamination of strains. For optimal efficiency beer is recovered from surplus yeast with our cross flow filtration plant.

A typical Yeast management includes following production operations:

- Propagation
- Pitching
- Harvesting
- Treatment
- Storage
- Beer recovery
- Sanitation and sterilization

We are strong, single source and highly qualified supplier for your Yeast management system

- Vital yeast propagation in one or multiple propagation vessels under sterile conditions with gently homogenizing and optimizing aeration
- Yeast harvest, treatment and storage
- Precise yeast pitching
- Yeast autolysis plant and yeast disposal vessels
- Beer recovery filtration plant
- CIP plant



Cerinox[®] BR

Cross-flow filtration plant with ceramic membranes

For beer recovery from surplus yeast

- Short payback period
- Economic system with diafiltration
- High quality of recovered beer



Characteristics

Cerinox® is a compact cross-flow filtration plant equipped with ceramic tubular membranes. The plant consists of two main parts, the filter unit and the CIP station. Both parts can be arranged separately or on a common skid. Different automation levels are available, from manually controlled units up to fully automated plants.

The special design of the so-called dual-flow modules allows high packing density of filter surface, which leads to small footprints and lower heights of Cerinox® plants. Especially because of the latter, the Cerinox® is easy to maintain. Due to the compactness of the plant, its inner volume is small compared to the installed filter area. This leads to low water and energy consumption as well as low product losses. Tailor-made ceramic membranes for beer recovery from surplus yeast guarantee high economical benefit and high quality of recovered beer. The high durability of the membranes, together with a well proven process based on over 20 years of experience with more than 100 plants installed worldwide, lead to very reliable systems with very low demand for operator presence and maintenance. This, and the short pay back periods, made the CERINOX® a standard solution for beer recovery today.

Basic process

During the brewing of beer, surplus yeast settles in the fermentation and storage tanks. The total volume of surplus yeast represents about 2 to 3% of a brewery's output. Approximately 50% of the volume of surplus yeast is beer, which is lost to the brewery if the slurry is sent untreated to farms or food producers. If yeast is discharged into the sewerage system, very high treatment charges arise because of the very high biological oxygen demand. The average B.O.D. value is around 140,000 mg/kg. For these reasons, the valuable component "beer" is recovered from surplus yeast.

Characteristics of the membranes

For the beer recovery, process tailor-made ceramic membranes in tubular multi channel elements have been developed:

| | |
|---------------------|---------|
| Channel diameter | 8 mm |
| Pore size | 0.3 µm |
| Pressure resistance | 30 bar |
| Temperature | > 90 °C |
| pH | 0-14 |



The robustness of the ceramic material guarantees long lifetime of the membranes, high availability of the plants, low membrane replacement costs and low maintenance costs.

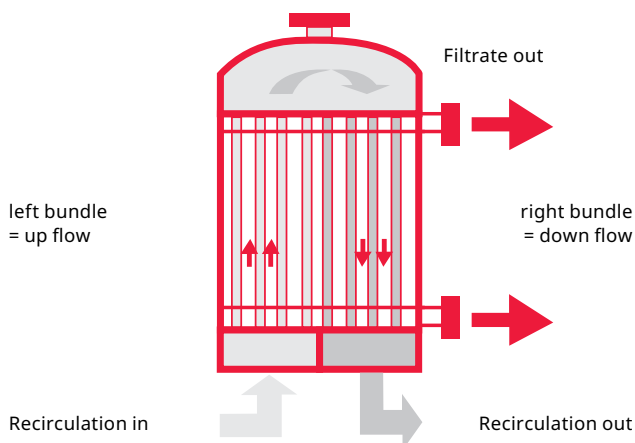
Quality of recovered beer

The membrane's pore size of 0.3 µm guarantees high quality of recovered beer:

| | |
|-------------------------|-----------------------|
| Turbidity of filtrate | < 08. EBC (90° angle) |
| Yeast cells in filtrate | < 5 cells / 100 ml |
| Bacteria reduction | > 10 ⁵ |

The dual-flow module

The name of the dual-flow-module is derived from the two different flow directions – upwards and downwards – of the unfiltered liquid in the channels of the installed ceramic elements.



Thanks to this concept, a maximum of packing density and a minimum of pipe connections are achieved. Complete venting and draining are guaranteed by discharging the liquid through the top and bottom plate.

This concept allows for easy maintenance by simply taking away the top cover of the housing.

With two different sizes of dual-flow modules, one with 20 m² filter area, the other one with 48 m², and hence by modularly increasing filter area, an optimal plant design for all required brewery sizes is possible.

Reconnection Lantern

Automatic Unit

For safe beverage transfer

- Efficient air removal
- Minimizes extract losses
- Instant reconnection
from empty to selected tank
- Controlled beer flow
to minimize oxygen pickup





Principle

The Deaeration Lantern safely transfers beer from cellar to filter, or BBT to filling line and removes air automatically with very high efficiency. Flowing through the lantern, air bubbles are released from beer and vented out by pneumatic valve.

When a source tank slowly becomes empty, flow of beer is automatically reduced minimizing air pickup. Once the tank is empty, the lantern automatically reconnects to the next full tank. This way several tanks can be connected and being emptied at the same time without a danger, that some of the tanks become empty and let gas into the beer stream.

The modular layout is expandable from two to eight lanterns. The system comes assembled on a compact frame, is tested and rapidly put into operation.

Technical data

| | |
|------------------|------------|
| Connected tanks: | 2 to 8 |
| Temperature: | 0 to 10 °C |
| Pressure: | 2 to 8 bar |

Models:

| | | | | | |
|---------|--------|-----|------------------|----------------|-------------------|
| DLS075R | DN 40 | 1½" | 30 to 75 hl/h | 14 to 33 gpm | 26 to 63 bbls/h |
| DLS100R | DN 50 | 2" | 40 to 100 hl/h | 18 to 44 gpm | 35 to 85 bbls/h |
| DLS200R | DN 65 | 2½" | 80 to 200 hl/h | 36 to 88 gpm | 69 to 170 bbls/h |
| DLS300R | DN 80 | 3" | 120 to 300 hl/h | 53 to 132 gpm | 103 to 225 bbls/h |
| DLS500R | DN 100 | 4" | 200 to 500 hl/h | 88 to 220 gpm | 171 to 426 bbls/h |
| DLS750R | DN 125 | 5" | 300 to 750 hl/h | 132 to 330 gpm | 256 to 639 bbls/h |
| DLSA00R | DN 150 | 6" | 400 to 1000 hl/h | 176 to 440 gpm | 341 to 852 bbls/h |

M-Polynox MC

Crossflow beer filtration with polymeric membranes

Kieselguhr free beer filtration with organic membranes

- Bright, yeast free filtered beer
- High flexibility for a wide range of beer types
- Easy to operate





The reliable solution for membrane filtration of beer

The technologies set up by Bucher Denwel ensure performance, reliability, short return on investment and sound operating profits.

Bucher Denwel presents M-Polynox MC, the reliable solution for crossflow beer filtration with polymeric membranes.

- M-Polynox MC filtration process for high-quality filtered beer and steady flow rates.
- High filtrate yield without solid waste.
- Flexible automation system with maximum operational safety thanks to permanent self-controlling devices.

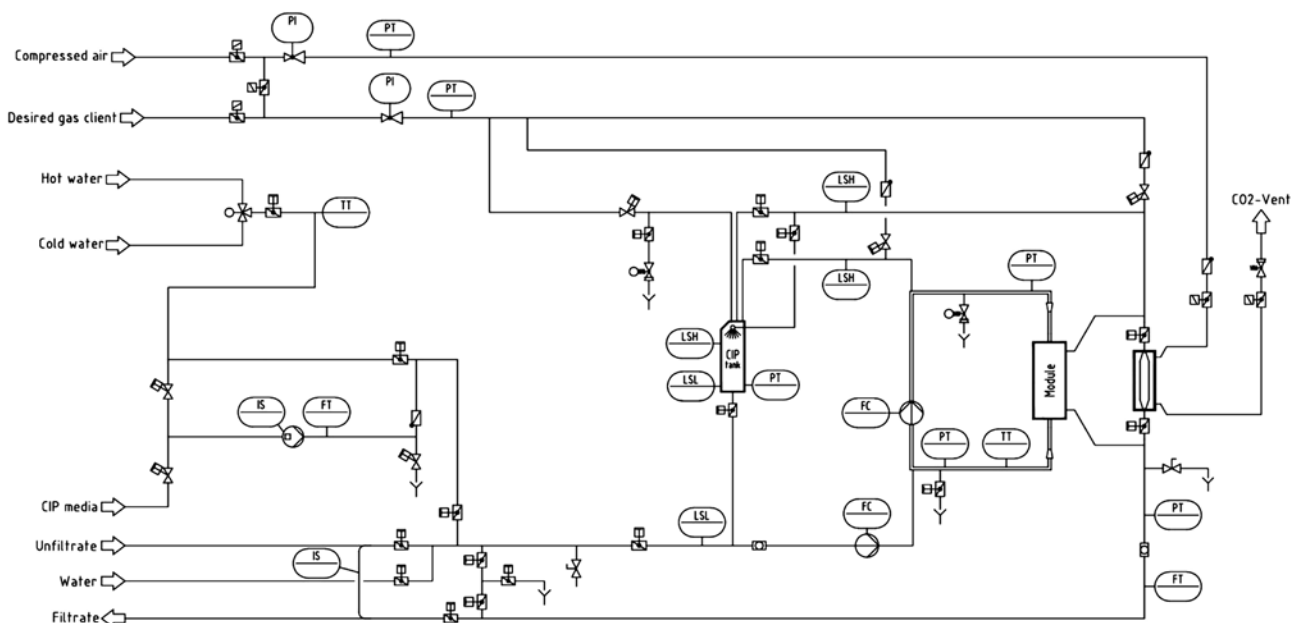
Plant sizes from 10–50 hl/h / 100 hl/h (4–22/44 gpm, 8–42/85 bbls/h) for twin plants.

Membranes

The filters are equipped with a polymeric, hydrophilic membrane with asymmetrical structure specially adapted to beer.

The asymmetrical structure greatly contributes to maintaining a steady filtration flow rate. The membranes can be exposed to alkaline, acidic and oxidising cleaning agents for reliable recovery of filtration performance.

Process flow diagram



Polynox MF

Industrial cross-flow beer filtration
with polymeric membranes

Kieselguhr free beer filtration with innovative filter cartridges
with organic membranes

- Bright, yeast free filtered beer
- High flexibility for a wide range of beer types
- Longer average lifetime of membranes due to cartridge concept
- Easy expandability



The reliable solution for membrane filtration of beer

The technologies set up by Bucher Denwel ensure performance, reliability, short return of investment and sound operation profits.

Bucher Denwel presents Polynox MF, the reliable solution for industrial cross-flow beer filtration with innovative filter cartridges with polymeric membranes.

- Polynox MF filtration process for high-quality filtered beer and steady flow rates.
- High filtrate yield without solid waste.
- Flexible automation system with maximum operational safety thanks to permanent self-controlling devices.
- Plant sizes from 50 to 500 hl/h (22 – 220 gpm).

Module design

Stainless steel module holds up to 19 pcs of 2 m² filter cartridges BD20 which corresponds to approximate beer flow of 16 hl/h. Each filter cartridge is easy exchangeable and thus longer average lifetime of membranes is provided.

Membranes

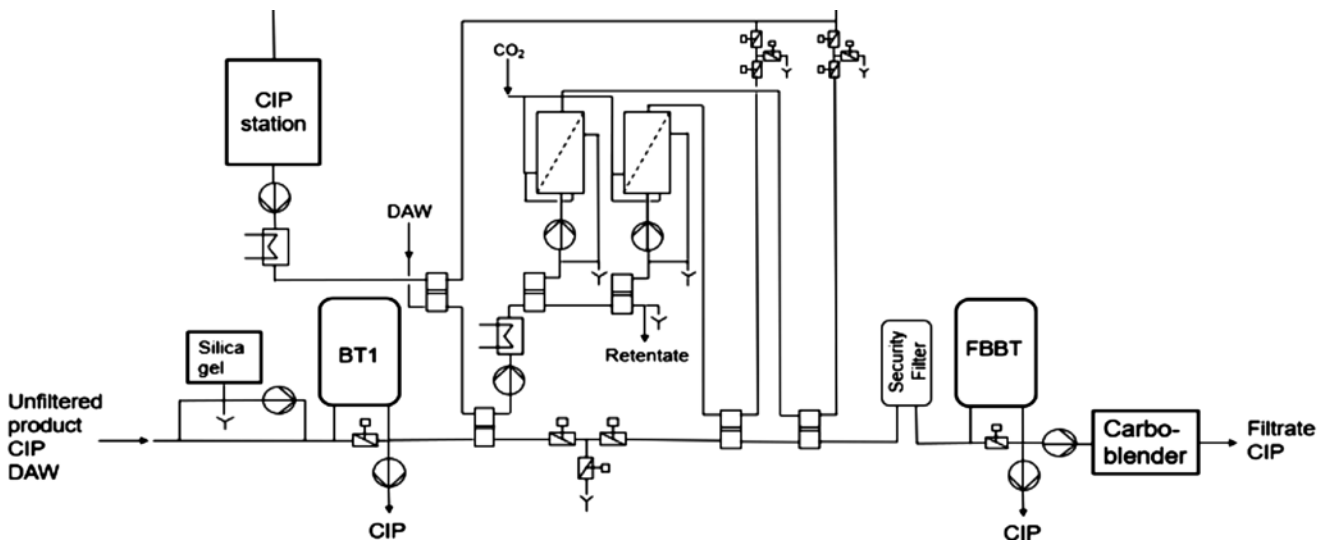
Filter cartridges are filled with hydrophilic polyether sulfone (PES) membrane with asymmetrical structure specially adapted to beer. All materials are FDA approved.

The asymmetrical structure greatly contributes to maintaining a steady filtration flow rate. The membranes can be exposed to alkaline, acidic and oxidizing cleaning agents for reliable recovery of filtration performance.



2 m² filter cartridge BD20

Process flow diagram



Kieselguhr/Stabilizer Preparation

Compact Unit

For efficient
Kieselguhr/Stabilizer
preparation

- Final Oxygen below 30 ppb
- CO₂/N₂ and energy savings
- Safe & hygienic design
- Turnkey unit or upgrade

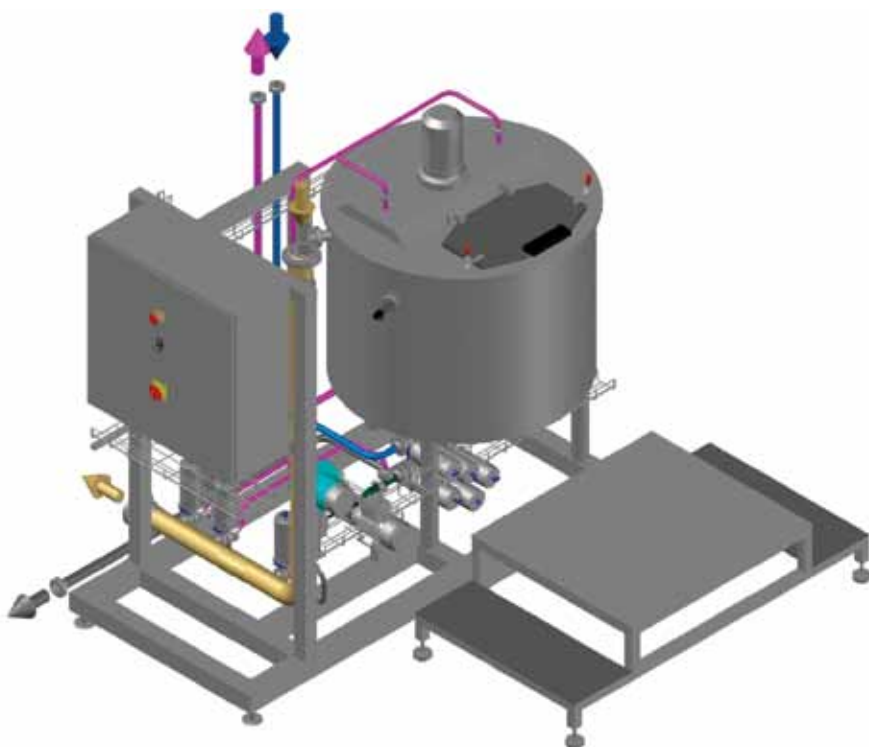


Principle

The Kieselguhr/Stabilizer Preparation & Deaeration vessel is equipped with Bucher Denwel axial agitator, developed in cooperation with the technical university. High speed is applied for fast homogenization and deaeration of the suspension. Once the required parameters are reached, the agitator speed slows down for significant energy saving.

A single CO₂ inlet aligned to the stirrer blades ensures the highest stripping efficiency and low gas consumption.

The enhanced homogeneity provides fast filtration cake setting and consistent pre-coating; the low oxygen improves the flavor stability of the final product.



Technical data

| | |
|-------------------------------|-----------------------------------|
| Vessel capacity: | 300 to 3 000l |
| O ₂ concentration: | down to 30 ppb |
| Stripping gas: | CO ₂ or N ₂ |

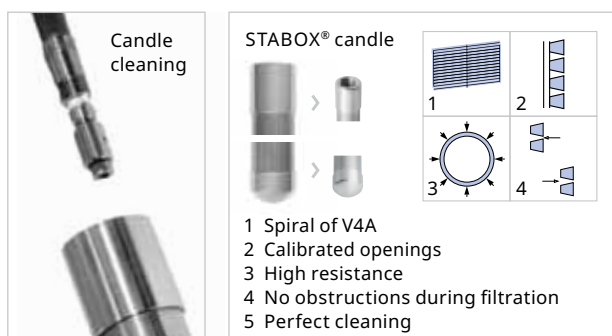
M-Synox BF

Compact precoat candle filter

The smart candle filter for precoat filtration

- Compact design
- Easy handling
- High flexibility





Characteristics

The M-SYNOX BF is the advanced version of the former Secu-jet candle filter but with hanging candles from a top plate. The design of the filter and the usage of the same STABOX candles (25 mm diameter) make it the small version of the large SYNOX® filters.

Applications

The M-SYNOX BF was developed with the focus on the rising amount of small Craft-Breweries worldwide and their increasing demand for filtered beer. But also, for any other beverage to be filtered with filter aid like diatomaceous earth this filter will be a reliable solution.

Advantages

- compact skid mounted design
- movable with wheels
- low water and energy consumption
- long service life due to high quality design
- very little maintenance required, no moving parts inside
- efficient cleaning device inside the vessel
- dosing pump separately mounted on the skid for easy maintenance

Technical data

| Type | M-Synox BF / 380 | M-Synox BF / 500 | M-Synox BF / 560 |
|--|------------------|------------------|------------------|
| Operating pressure / bar | 0-6 | 0-6 | 0-6 |
| Operating temperature / °C | 0-100 | 0-100 | 0-100 |
| Max. flow rate / hl/h | 32 | 47 | 55 |
| Min. flow rate / hl/h | 16 | 23 | 27 |
| Sludge volume / ltr | 141 | 201 | 226 |
| Filter area / m ² | 6.4 | 9.4 | 11.0 |
| Number of candles / pcs | 60 | 60 | 60 |
| Candle length / mm | 945 | 1381 | 1603 |
| Total DE capacity / kg | 41.3 | 59.2 | 66.5 |
| Precoat charge DE / kg | 7.7 | 11.3 | 13.2 |
| Body feed charge DE / kg | 33.7 | 48.0 | 53.4 |
| Volume of dosing tank / ltr | 130 | 130 | 130 |
| Performance of dosing pump / kW | 0.75 | 0.75 | 0.75 |
| Dosing flow rate / ltr/h | 16-160 | 16-160 | 16-160 |
| Performance of process pump / kW | 5.5 | 5.5 | 5.5 |
| Weight of complete unit (empty) / kg | 780 | 840 | 880 |
| Weight of complete unit (operating) / kg | 1300 | 1480 | 1580 |

Synox 2.0[®] PF

Precoat candle filter

The new generation of candle filter offers the most efficient and economical solution

- Reduced pre-run
- Reduced beer losses
- Reduced cleaning water consumption





Candle cleaning

The new generation of candle filter for precoat filtration presented by the market leader

The SYNOX 2.0® offers excellent value for all kind of precoat filtration within a hygienic environment. Typical applications include filtration of beer, wine; all clear beverages as well as liquid food components such as gelatine, sugar syrup, edible oil and the like.

New features

- New CFD optimized flow pattern (= computational fluid dynamics)
- New and patented inlet distributor
- New cleaning device

Benefits

- Reduced beer losses
- Capability of small batch handling
- Reduced pre-run
- Reduced interphase between brands
- Reduced cleaning water consumption

Proven features

- Unique, patented 25mm STABOX® candle completely in stainless steel for high packing density with reduced void volume; best utilisation of slurry space
- Gasket free candle fixing for minimum maintenance
- Hygienic vessel design according to EHEDG guidelines
- Internal cleaning of candles in situ, without removing candles from filter
- Compatibility with the new generation of regenerable filter media
- Minimum required space above the filter as candles are mounted from the bottom

Technical data

| Synox 2.0® PF | Filter area Sqm | Sludge holding capacity in liters | Vessel volume in hl | Operating pressure | Capacity in hl/hr |
|---------------|--------------------|--------------------------------------|------------------------|-----------------------|----------------------|
| 800 | 12-22 | 300-460 | 8.5 / 11.5 | 7 bar / 100 °C | 60-110 |
| 1100 | 24-46 | 640-1010 | 17 / 21 / 23 | 7 bar / 100 °C | 120-230 |
| 1300 | 45-70 | 1150-1500 | 29 / 32 / 34 | 7 bar / 100 °C | 225-350 |
| 1500 | 67-95 | 1670-2090 | 42 / 44 / 47 | 9 bar / 100 °C | 335-475 |
| 1800 | 90-139 | 2270-3020 | 59 / 62 / 65 / 69 | 9 bar / 100 °C | 450-695 |
| 2000 | 121-175 | 3080-3770 | 79 / 83 / 88 | 9 bar / 100 °C | 605-875 |
| 2300 | 153-237 | 3870-5130 | 104 / 109 / 114 / 121 | 9 bar / 100 °C | 765-1185 |

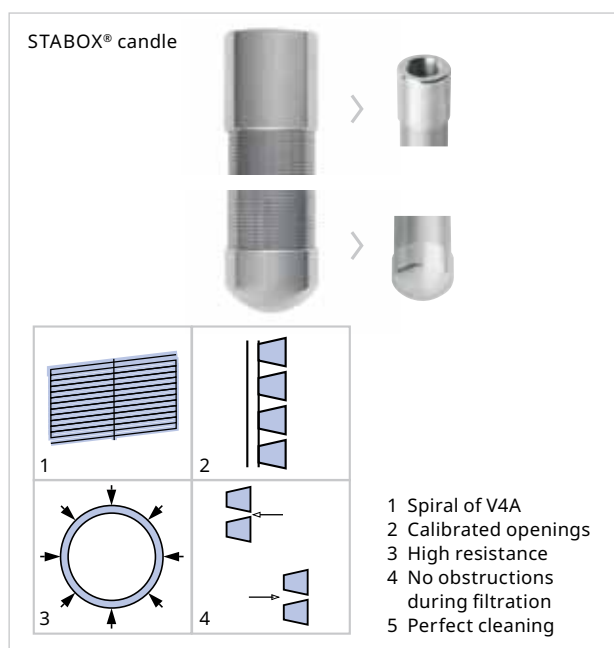
Synox 2.0[®] PS

Candle filter for PVPP stabilisation

For treatment of beer and other beverages

- Reliable beer stabilisation
- Low PVPP losses
- Easy to handle





Characteristics

The Synox 2.0® PS is an especially developed version of our market leading kieselguhr candle filters, and uses the same robust and reliable, patented Stabox® candles. Recognising the serious shortcomings of "traditional" horizontal pressure-leaf PVPP filters, the Synox® PS is based on two decades of positive experience with candle filters. The new and patented inlet distributor allows superior flow control.

Higher reliability:

- stable and long-life filter elements (non-fouling, welded, steel wedge-wire lasting >15 years without deterioration)
- a simple and reliable process concept (constant hydraulic conditions)
- no moving parts and few elastomer seals

Lower operating costs:

- lower PVPP losses compared to horizontal leaf filters
- short regeneration and total downtimes
- infrequent, semi-skilled maintenance
- high productivity and low specific costs

Lower investment costs compared to horizontal leaf filters:

- special foundations not needed
- optimised (smaller & simpler) design
- reduced first charge (fill) of PVPP

Applications

The Synox 2.0® PS is designed for economical treatment of beer and other beverages by using regenerable PVPP to achieve a long shelf-life, wherein the PVPP is regenerated in-situ. Expensive sacrificial (single-use) PVPP is eliminated. Even for moderate production capacities, the required investment can be amortised in a short time-scale.

Technical data

| Synox 2.0® PS size | Filter volume (litres) | Filtration capacity (hl / hr) | max. PVPP load (kg) |
|--------------------|------------------------|-------------------------------|---------------------|
| 800 | 770 | 50-90 | 50 |
| 1100 | 1850 | 90-200 | 125 |
| 1300 | 3200 | 200-350 | 225 |
| 1500 | 4600 | 350-550 | 370 |
| 1800 | 7000 | 550-750 | 540 |
| 2000 | 8700 | 700-950 | 625 |
| 2300 | 10600 | 600-1200 | > 700 |

Securox[®] BF

Filter cartridge housing

For particle and final
filtration of beer
after precoat filters

- Two chamber design
- Safe particle retention
- Efficient backwash



Characteristics

The SECUROX® BF is a high precision stainless steel filter housing for filter cartridges, designed and manufactured especially for the brewing industry.

The enclosed system allows high capacity filtration with no drip loss. Its unique two chamber design allows an efficient cleaning of the cartridges at the end of the filtration cycle.



Inlet and outlet connections

Applications

Securox® BF series filters are especially designed to be integrated within automated beer filtration lines. Their construction guarantees long service life of both filter media and equipment for heavy duty use in a industrial 24/7 operation. The technology is designed for high service life of filter media and equipment.

Its high filtration performance, top manufacturing quality and comprehensive set of certificates meet the high standards of the brewing industry.

Advantages of the SECUROX® BF – cartridge system

- two chamber-system for optimized cleaning procedure
- vertical construction
- small volume of unit
- adaptable to desired performance with possibility to add filter area
- short regeneration and sterilization cycles
- easy replacement of the cartridges
- perforated plate to accommodate standard filter cartridges with bayonet adapter and double o-ring
- also available as compact, movable system. Custom design versions for the pre-, final and sterile filtration

Options

The typical setup requires gauges and valves, as well as a check valve. Securox® BF is available in many options:

- Connections can be triclamp (sanitary), or dairy (DIN).
- Gaskets: EPDM (standard), silicone, viton® or teflon® encapsuled.

Technical data

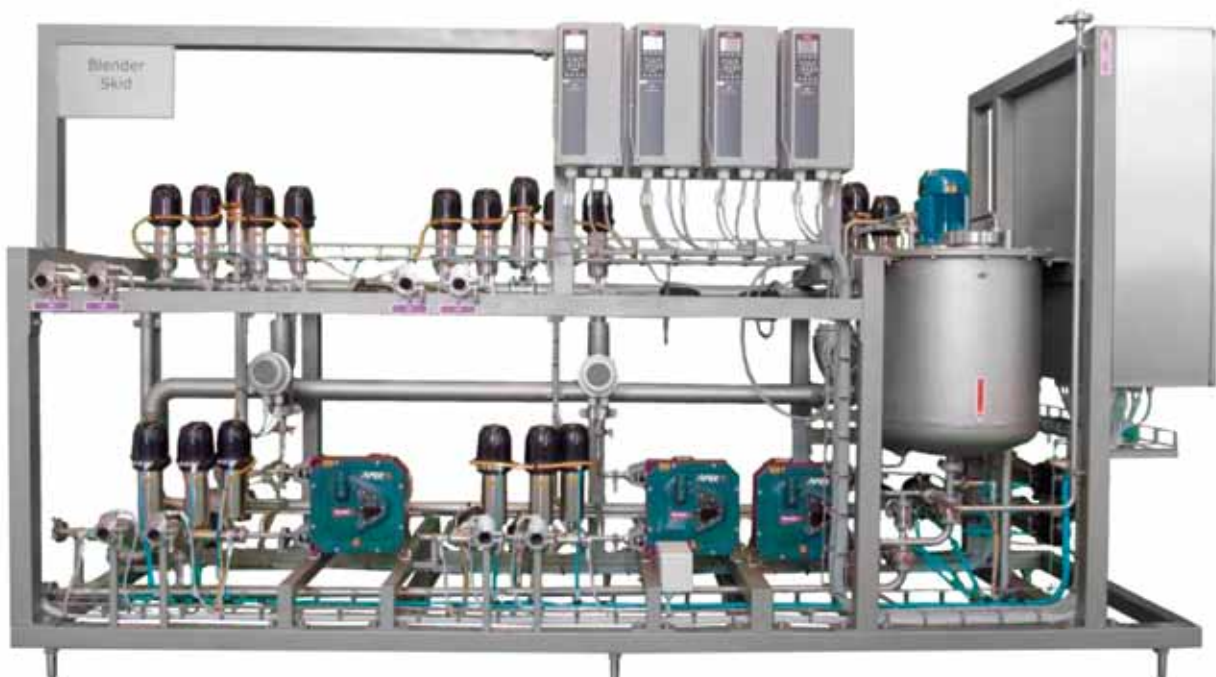
| Securox® BF | Unit | 30/10 | 40/14 | 40/20 | 60/32 | 60/46 |
|--|------|-------------|--------|--------|--------|--------|
| Max. operating pressure | bar | 7 | 7 | 7 | 7 | 7 |
| Max. operating temperature | °C | 100 | 100 | 100 | 100 | 100 |
| Volume of filter – without pipe system | l | 70 | 152 | 152 | 275 | 275 |
| Weight of perforated plate – with cartridges | kg | 40 | 56 | 56 | 103 | 103 |
| Number of cartridges | pcs | 10 | 14 | 20 | 32 | 46 |
| Material quality filter | | 316L | 316L | 316L | 316L | 316L |
| Material quality gaskets | | EPDM | EPDM | EPDM | EPDM | EPDM |
| Material quality pipe system, valves, etc. | | 1.4301 | 1.4301 | 1.4301 | 1.4301 | 1.4301 |
| | | Option 316L | | | | |

Dosing

Compact Unit

Customized dosing systems

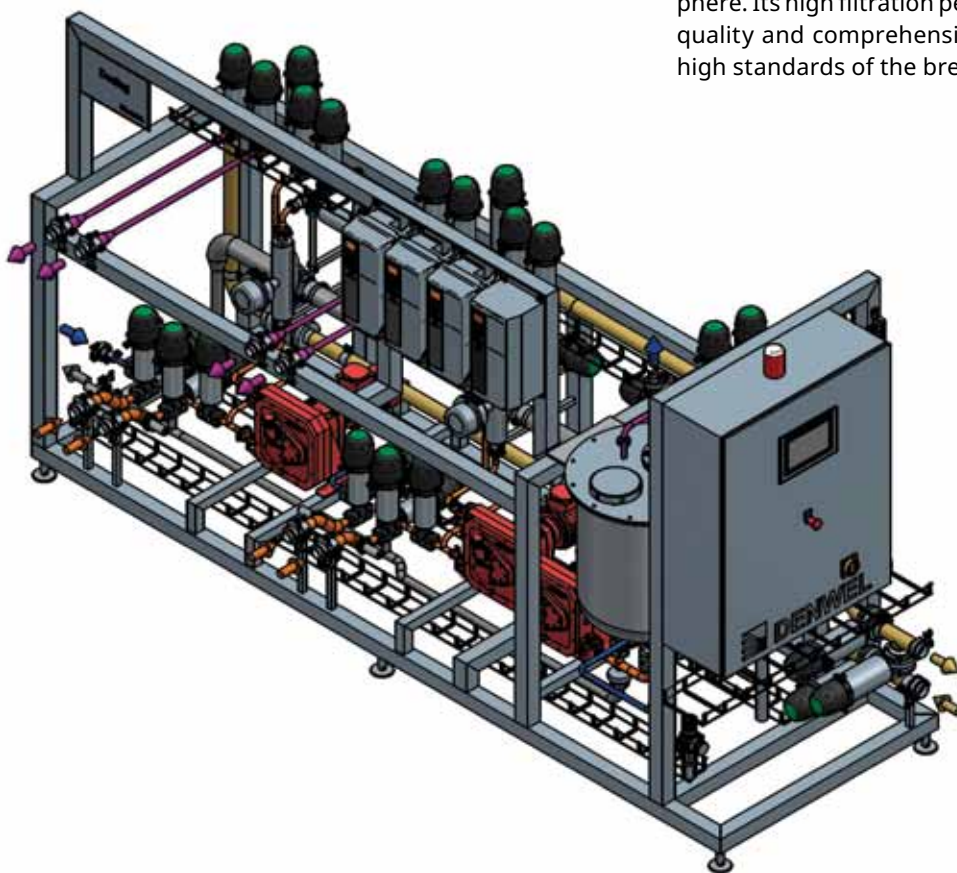
- Full capacity range
- Vessels with stirrer
- Precise and reliable dosing



Color concentrate / Fruit syrup / Fructose / Bitterness / Iso hops / Tetra hops / Kieselguhr / Hydragel / Silicagel / PVPP

Principle

The Compact Dosing Unit provides continuous dosing of one, or more additives into beverage, water or cleaning solution. A precise dosing rate is controlled by process analytics or volume / mass flow measurement. Additives can be dosed directly from barrels, storage vessels or agitated reactors and can be kept under protective atmosphere. Its high filtration performance, top manufacturing quality and comprehensive set of certificates meet the high standards of the brewing industry.



Technical data

| | |
|---------------|----------------------------|
| Medium: | Beer |
| Pressure: | 1 to 5 barg, 15 to 72 psig |
| Temperature: | 0 to 10 °C, 32 to 50 °F |
| CIP Pressure: | 3 to 6 bar, 43 to 87 psig |
| CIP Temp.: | max. 90 °C, 200 °F |

Models:

| | | | | | |
|---------|--------|-----|-----------------|---------------|-------------------|
| DDS075C | DN 40 | 1½" | 30 to 75 hl/h | 14 to 33 gpm | 26 to 63 bbls/h |
| DDS100C | DN 50 | 2" | 40 to 100 hl/h | 18 to 44 gpm | 35 to 85 bbls/h |
| DDS200C | DN 65 | 2½" | 80 to 200 hl/h | 36 to 88 gpm | 69 to 170 bbls/h |
| DDS300C | DN 80 | 3" | 120 to 300 hl/h | 53 to 132 gpm | 103 to 225 bbls/h |
| DDS500C | DN 100 | 4" | 200 to 500 hl/h | 88 to 220 gpm | 171 to 426 bbls/h |

Inline Carboblender

Automatic Unit

For precise beverage blending and instant carbonation

- Instant blending and CO₂ saturation
- Multiple valve control for precise blending
- Alcohol, Extract and CO₂ analyser controlled



Application

High Gravity Brewing is a standard procedure in modern brewing. Precise adjustment of the extract or alcohol concentration is performed directly after filtration rather than in the brewhouse. It allows increasing the final output with the existing brew capacity and gives high flexibility in brewing different types of beers.

Designed for fast and accurate dosage of deaerated water, Bucher Denwel provides a fully automated solution for continuous blending ensuring consistent product quality.

Principle

An inline Alcohol / Extract analyser continuously monitors standardized beer. Two parallel valves of different size control accurate dosing of deaerated water. Special software algorithm regulates both control valves simultaneously anticipating their required position: the coarse valve acts for the fine valve so that the latter never remains in any end position but can do fine tuning in its most efficient range. This results in very fast regulation and most precise adjustment in just one process step.

Two electromagnetic flow meters measure the volumes of high gravity beer and deaerated water. If the resulting ratio is not within expected range, the system sends a warning or stops. The beer pump reliably blends the two liquids and therefore no additional mixer is necessary. Pressure drop can be avoided and superior sanitary design maintained.

Technical data

| | |
|-------------------|---|
| Blending ratio: | up to 100% |
| Original Gravity: | Measuring range 0 to 20 °P, ±0,05 °P |
| Alcohol: | Measuring range 0 to 10 %vol, ±0,03 %vol |
| Carbonation: | up to 6 g/l, 3 V/V (P & T dependent) |
| Pressure: | operating 2 to 5 barg, 30 to 72 psig |
| Temperature: | operating 0 to 5 °C, 32 to 40 °F |
| CIP: | 2 to 5 barg, 30 to 72 psig; max. 90 °C, 200 °F |
| Connection: | Tri-clamp; other connections upon request |
| Dimensions: | from Height 1,9m, 6,2'; Width 2,0m, 6,5'; Depth 0,6m, 2' |
| Weight: | from 250kg, 550 lb |
| Material: | Stainless Steel 304, EPDM, PSU, PP |

Models:

| | | | | | |
|---------|--------|-----|------------------|----------------|-------------------|
| DBC050A | DN 40 | 1½" | 20 to 50 hl/h | 9 to 22 gpm | 18 to 42 bbls/h |
| DBC075A | DN 40 | 1½" | 30 to 75 hl/h | 14 to 33 gpm | 26 to 63 bbls/h |
| DBC100A | DN 50 | 2" | 40 to 100 hl/h | 18 to 44 gpm | 35 to 85 bbls/h |
| DBC150A | DN 65 | 2½" | 60 to 150 hl/h | 27 to 66 gpm | 52 to 127 bbls/h |
| DBC200A | DN 65 | 2½" | 80 to 200 hl/h | 36 to 88 gpm | 69 to 170 bbls/h |
| DBC300A | DN 80 | 3" | 120 to 300 hl/h | 53 to 132 gpm | 103 to 225 bbls/h |
| DBC500A | DN 100 | 4" | 200 to 500 hl/h | 88 to 220 gpm | 171 to 426 bbls/h |
| DBC750A | DN 125 | 5" | 300 to 750 hl/h | 132 to 330 gpm | 256 to 639 bbls/h |
| DBCA00A | DN 150 | 6" | 400 to 1000 hl/h | 176 to 440 gpm | 341 to 852 bbls/h |



Water Deaeration

Column Cold Unit

Stripping technology for deaerated water production

- Final oxygen below 10 ppb
- Carbonation of deaerated water
- No vacuum required
- Low CO₂/N₂ consumption



Principle

The deaeration column is filled with high efficient structured packing. Its large internal surface ensures a maximal contact area between gas and liquid. Water is homogeneously distributed on the top and CO₂/N₂ is injected at the bottom of the column. While the water flows downwards through the packing, the CO₂/N₂ rises in counter current removing the oxygen to concentrations as low as 10 ppb. A drive controlled pump maintains the level in the column and forwards the deaerated water into a buffer tank or point of use.

The unit has an uncompromising sanitary design and is fully CIP cleanable.



Technical data

| | |
|---|---|
| Final Oxygen: | less than 10 ppb (0,01 ppm) |
| Pressure: | operating 2 to 4 barg, 30 to 60 psig |
| Temperature: | operating 8 to 30 °C, 40 to 90 °F |
| CIP: | 2 to 4 barg, 30 to 60 psig; max. 90 °C, 200 °F |
| CO ₂ /N ₂ purity: | 99,995% |
| Stripping gas flow: | app. 0,5 g/l (final O ₂ , water temperature and column height dependent) |
| Carbonation: | app. 2 g/l (water temperature dependent) |
| Connection: | Tri-clamp; other connections upon request |
| Dimensions: | from Height 5,5m, 16,4'; Width 1,0m, 3,3'; Depth 0,5m, 1,6' |
| Weight: | from 200kg, 440 lb |
| Material: | Stainless Steel 304, EPDM, PSU, PP |

| | | | | | |
|---------|--------|-----|------------------|----------------|-------------------|
| DWD010C | DN 25 | 1" | 4 to 10 hl/h | 2 to 4 gpm | 4 to 8 bbls/h |
| DWD015C | DN 25 | 1" | 6 to 15 hl/h | 3 to 6 gpm | 6 to 12 bbls/h |
| DWD025C | DN 25 | 1" | 10 to 25 hl/h | 5 to 11 gpm | 9 to 21 bbls/h |
| DWD050C | DN 40 | 1½" | 20 to 50 hl/h | 9 to 22 gpm | 18 to 42 bbls/h |
| DWD075C | DN 40 | 1½" | 30 to 75 hl/h | 14 to 33 gpm | 26 to 63 bbls/h |
| DWD100C | DN 50 | 2" | 40 to 100 hl/h | 18 to 44 gpm | 35 to 85 bbls/h |
| DWD150C | DN 50 | 2" | 60 to 150 hl/h | 27 to 66 gpm | 52 to 127 bbls/h |
| DWD200C | DN 65 | 2½" | 80 to 200 hl/h | 36 to 88 gpm | 69 to 170 bbls/h |
| DWD250C | DN 65 | 2½" | 100 to 250 hl/h | 44 to 110 gpm | 86 to 213 bbls/h |
| DWD400C | DN 80 | 3" | 160 to 400 hl/h | 70 to 176 gpm | 136 to 340 bbls/h |
| DWD600C | DN 100 | 4" | 240 to 600 hl/h | 105 to 264 gpm | 204 to 511 bbls/h |
| DWDA00C | DN 125 | 5" | 400 to 1000 hl/h | 176 to 440 gpm | 340 to 852 bbls/h |

Water Deaeration

Vacuum Unit

Vacuum enhanced stripping
technology for deaerated
water production

- Final oxygen below 10 ppb
- Very low CO₂ or N₂ consumption
- Efficient and hygienic design





Principle

The deaeration column is filled with high efficient structured packing. Its large internal surface ensures a maximal contact area between gas and liquid. Water is homogeneously distributed on the top and CO₂ or N₂ is injected at the bottom of the column. While the water flows downwards through the packing, the CO₂ or N₂ rises in counter current removing the oxygen to concentrations as low as 10 ppb. The deaeration column operates under vacuum, decreasing gas solubility in water. Therefore, stripping gas consumption is significantly lower compared to the unit working under atmospheric pressure.

A drive controlled pump maintains the level in the column and forwards the deaerated water into a buffer tank or point of use.

The unit has an uncompromising sanitary design and is fully CIP cleanable.

Technical data

| | |
|---|---|
| Final Oxygen: | less than 10 ppb (0,01 ppm) |
| Pressure: | operating 2 to 4 barg, 30 to 60 psig |
| Temperature: | operating 8 to 30 °C, 40 to 90 °F |
| CIP: | 2 to 4 barg, 30 to 60 psig; max. 90 °C, 200 °F |
| CO ₂ /N ₂ purity: | 99,995% |
| Stripping gas flow: | app. 0,2 g/l (final O ₂ , water temperature and column height dependent) |
| Carbonation: | app. 0,2 g/l (water temperature dependent) |
| Connection: | Tri-clamp; other connections upon request |
| Dimensions: | from Height 5,5 m, 16,4'; Width 1,0m, 3,3'; Depth 0,5m, 1,6' |
| Weight: | from 200kg, 440 lb |
| Material: | Stainless Steel 304, EPDM, PSU, PP |

| | | | | | |
|---------|--------|-----|------------------|----------------|-------------------|
| DWD010V | DN 25 | 1" | 4 to 10 hl/h | 2 to 4 gpm | 4 to 8 bbls/h |
| DWD010V | DN 25 | 1" | 4 to 10 hl/h | 2 to 4 gpm | 4 to 8 bbls/h |
| DWD015V | DN 25 | 1" | 6 to 15 hl/h | 3 to 6 gpm | 6 to 12 bbls/h |
| DWD025V | DN 25 | 1" | 10 to 25 hl/h | 5 to 11 gpm | 9 to 21 bbls/h |
| DWD050V | DN 40 | 1½" | 20 to 50 hl/h | 9 to 22 gpm | 18 to 42 bbls/h |
| DWD075V | DN 40 | 1½" | 30 to 75 hl/h | 14 to 33 gpm | 26 to 63 bbls/h |
| DWD100V | DN 50 | 2" | 40 to 100 hl/h | 18 to 44 gpm | 35 to 85 bbls/h |
| DWD150V | DN 50 | 2" | 60 to 150 hl/h | 27 to 66 gpm | 52 to 127 bbls/h |
| DWD200V | DN 65 | 2½" | 80 to 200 hl/h | 36 to 88 gpm | 69 to 170 bbls/h |
| DWD250V | DN 65 | 2½" | 100 to 250 hl/h | 44 to 110 gpm | 86 to 213 bbls/h |
| DWD400V | DN 80 | 3" | 160 to 400 hl/h | 70 to 176 gpm | 136 to 340 bbls/h |
| DWD600V | DN 100 | 4" | 240 to 600 hl/h | 105 to 264 gpm | 204 to 511 bbls/h |
| DWDA00V | DN 125 | 5" | 400 to 1000 hl/h | 176 to 440 gpm | 340 to 852 bbls/h |

Water Deaeration

Column Hot Unit

Stripping technology
for deaerated water production
with water sterilization

- Final oxygen below 5 ppb instead of 10 ppb
- No vessels, no vacuum
- Heat Recovery up to 96%
- Compact short column



Application

Deaerated water is used in the brewing industry for flushing filters, centrifuges, pipes, tanks, etc. When used to adjust the alcohol concentration or original gravity after filtration, residual oxygen concentration of the deaerated water is critical as it directly influences the quality and shelf life of the final product.

Bucher Denwel provides a fully automated solution able to economically achieve oxygen down to 5 ppb.

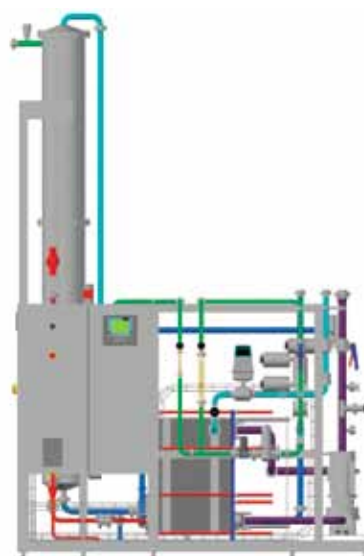
Principle

The deaeration column is filled with high efficient structured packing. Its internal surface of $500 \text{ m}^2 / \text{m}^3$ ensures a maximal contact area between gas and liquid. Water is homogeneously distributed from the top and CO_2/N_2 is injected at the bottom of the column. While the water flows downwards through the packing, the CO_2/N_2 rises in counter current removing the dissolved oxygen from the water. This process is distinguished by high efficiency and reliability and consumes just a fraction of energy compared to other methods.

With hot deaeration water sterilization is part of the process: the incoming water is heated up to high temperature in order to remove contamination and ensuring high water quality. No further water sterilization is required. An efficient three-zone plate heat exchanger with a large regenerative zone ensures heat recovery rate up to 96%. The unit has an uncompromising sanitary design and is fully CIP cleanable.

Technical data

| | |
|----------------------------------|---|
| Final Oxygen: | less than 10 ppb (0,01 ppm) |
| Pressure: | operating 2 to 4 barg, 30 to 60 psig |
| Temperature: | operating 1 to 90 °C, 34 to 194 °F |
| CIP: | 2 to 4 barg, 30 to 60 psig; max. 90 °C, 200 °F |
| CO_2/N_2 purity: | 99,995% |
| Stripping gas flow: | app. 0,4 g/l (final O_2 and column height dependent) |
| Carbonation: | app. 0,5 g/l |
| Connection: | Tri-clamp; other connections upon request |
| Dimensions: | from Height 3,5m, 16,4'; Width 1,5m, 4,9'; Depth 0,5m, 1,6' |
| Weight: | from 300 kg, 660 lb |
| Material: | Stainless Steel 304, EPDM, PSU, PP |



| | | | | | |
|---------|--------|-----|-----------------|----------------|-------------------|
| DWD010H | DN 25 | 1" | 4 to 10 hl/h | 2 to 4 gpm | 4 to 8 bbls/h |
| DWD015H | DN 25 | 1" | 6 to 15 hl/h | 3 to 6 gpm | 6 to 12 bbls/h |
| DWD025H | DN 25 | 1" | 10 to 25 hl/h | 5 to 11 gpm | 9 to 21 bbls/h |
| DWD050H | DN 40 | 1½" | 20 to 50 hl/h | 9 to 22 gpm | 18 to 42 bbls/h |
| DWD075H | DN 40 | 1½" | 30 to 75 hl/h | 14 to 33 gpm | 26 to 63 bbls/h |
| DWD100H | DN 50 | 2" | 40 to 100 hl/h | 18 to 44 gpm | 35 to 85 bbls/h |
| DWD150H | DN 50 | 2" | 60 to 150 hl/h | 27 to 66 gpm | 52 to 127 bbls/h |
| DWD200H | DN 65 | 2½" | 80 to 200 hl/h | 36 to 88 gpm | 69 to 170 bbls/h |
| DWD250H | DN 65 | 2½" | 100 to 250 hl/h | 44 to 110 gpm | 86 to 213 bbls/h |
| DWD400H | DN 80 | 3" | 160 to 400 hl/h | 70 to 176 gpm | 136 to 340 bbls/h |
| DWD600H | DN 100 | 4" | 240 to 600 hl/h | 105 to 264 gpm | 204 to 511 bbls/h |

Water Deaeration

Membrane Unit

Membrane technology
for deaerated water production

- Final oxygen below 10 ppb
- Water prefiltration
- Expandable capacity



Application

Deaerated water is used in the brewing industry for flushing filters, centrifuges, pipes, tanks, etc. When used to adjust the alcohol concentration or original gravity after filtration, residual oxygen concentration of the deaerated water is critical as it directly influences the quality and shelf life of the final product.

Designed for the most efficient deaeration of water, Bucher Denwel provides a fully automated solution able to economically achieve oxygen levels below 10 ppb.

Principle

The membrane contactor contains thousands of microporous hydrophobic hollow fibers. They form a large internal surface ensuring a maximal contact area between gas and liquid.

A strip gas (CO₂ or N₂) is applied on the inside of the hollow fibers and pulled out by a vacuum. The water flows in counter current on the outside of the fibers. The high difference in partial pressure forces the oxygen out of the liquid. Depending on the required oxygen level or the total capacity, several membrane contactors can be arranged in parallel and/ or series for optimal performance.

The unit has an uncompromising sanitary design and is fully cleanable. The polypropylene hollow fibers are FDA approved and CIP compatible. For prolonged high performance given concentrations and gentle temperature gradient must be applied.

Technical data

| | |
|---|--|
| Final Oxygen: | less than 10 ppb (0,01 ppm) |
| Pressure: | operating 2 to 4 barg, 30 to 60 psig |
| Temperature: | operating 10 to 30 °C, 40 to 90 °F |
| CIP: | 50 °C, 120 °F, at 7 barg, 100 psig; Max. 65 °C, 150 °F, at 2 barg, 30 psig |
| CO ₂ /N ₂ purity: | 99,995% |
| Stripping gas flow: | app. 0,5 g/l (final O ₂ and water temperature dependent) |
| Carbonation: | 0 g/l |
| Connection: | Tri-clamp; other connections upon request |
| Dimensions: | from Height 1,6m, 63"; Width 0,7m, 47"; Depth 0,6m, 24" |
| Weight: | from 550 lb, 250kg |
| Material: | Stainless Steel 304, EPDM, PE, PSU, PP |



| | | | | | |
|---------|-------|-----|----------------|--------------|------------------|
| DWD010M | DN 25 | 1" | 4 to 10 hl/h | 2 to 4 gpm | 4 to 8 bbls/h |
| DWD025M | DN 25 | 1" | 10 to 25 hl/h | 5 to 11 gpm | 9 to 21 bbls/h |
| DWD040M | DN 40 | 1½" | 16 to 40 hl/h | 8 to 17 gpm | 14 to 34 bbls/h |
| DWD075M | DN 40 | 1½" | 30 to 75 hl/h | 14 to 33 gpm | 26 to 63 bbls/h |
| DWD100M | DN 50 | 2" | 40 to 100 hl/h | 18 to 44 gpm | 35 to 85 bbls/h |
| DWD150M | DN 50 | 2" | 60 to 150 hl/h | 27 to 66 gpm | 52 to 127 bbls/h |
| DWD200M | DN 65 | 2½" | 80 to 200 hl/h | 36 to 88 gpm | 69 to 170 bbls/h |

Inline Carbonation

Mobile Manual Unit

For instant beverage carbonation

- Micro bubble size
- Instant saturation
- No CO₂ and flavor loss
- Efficient, hygienic design

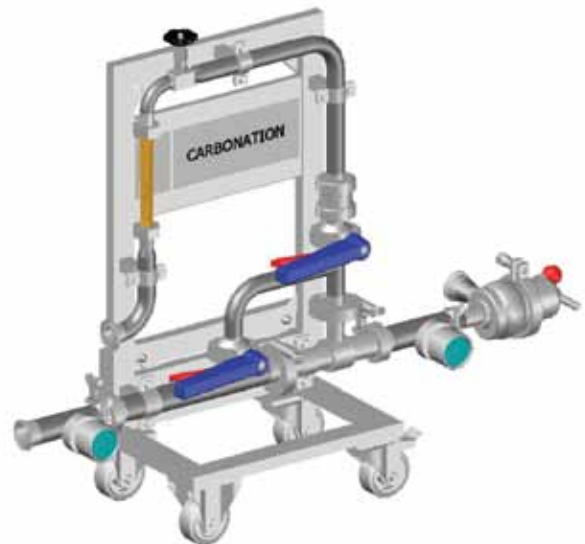


Principle

CO₂ is injected into the beverage through Bucher Denwel Injector, which splits the gas into micro bubbles. Most efficient and instant dissolution of CO₂ is achieved with only a minimal pressure drop and no gas and flavor loss. No static mixer, sinter candle or tank with stone is required. Designed for CIP, no parts of the Injector have to be removed for sanitation.

Precise CO₂ injection adjustment using beer flow determination always maintains carbonation at desired level. The integrated a pressure holding valve keeps the injected CO₂ dissolved in the beer.

The unit comes assembled on a compact frame, is tested and rapidly put into operation. Proven components guarantee reliability and extended lifetime. The modular layout allows easy integration into production and efficient combination with other process units.



Technical data

| | |
|--------------|--|
| Carbonation: | up to 6 g/l, 3 V/V (P & T dependent) |
| Pressure: | operating 3 to 5 barg, 44 to 72 psig |
| Temperature: | operating 0 to 5 °C, 32 to 40 °F |
| CIP: | 3 to 5 barg, 44 to 72 psig; max. 90 °C, 200 °F |
| Connection: | Tri-clamp; other connections upon request |
| Dimensions: | from Height 0,8m, 31,5"; Width 1,1 m, 43,3"; Depth 0,2 m, 6,5" |
| Weight: | from 25 kg, 55 lb |
| Material: | Stainless Steel 304, EPDM, PE, PSU, PP |

| | | | | | |
|---------|-------|-----|----------------|--------------|-----------------|
| DCS025M | DN 25 | 1" | 10 to 25 hl/h | 5 to 11 gpm | 9 to 21 bbls/h |
| DCS040M | DN 40 | 1½" | 16 to 40 hl/h | 8 to 17 gpm | 14 to 34 bbls/h |
| DCS050M | DN 40 | 1½" | 20 to 50 hl/h | 9 to 22 gpm | 18 to 42 bbls/h |
| DCS075M | DN 40 | 1½" | 30 to 75 hl/h | 14 to 33 gpm | 26 to 63 bbls/h |
| DCS100M | DN 50 | 2" | 40 to 100 hl/h | 18 to 44 gpm | 35 to 85 bbls/h |

Inline Carbonation

Semi-Automatic Unit

For instant beverage carbonation

- Micro bubble size
- Instant saturation
- Precise CO₂ injection
- CO₂ ratio controlled



Principle

CO₂ is injected into the beverage through Bucher Denwel Injector, which splits the gas into micro bubbles. Most efficient and instant dissolution of CO₂ is achieved with only a minimal pressure drop, no gas loss and a fully hygienic design. No static mixer, sinter candles are needed.

Precise CO₂ ratio controlled injection using a flow meter always maintains carbonation at desired concentration. An integrated pump with a pressure holding valve maintains required pressure for carbonation.

The unit comes assembled on a compact frame, is tested and rapidly put into operation. Proven components guarantee reliability and extended lifetime. The modular layout allows easy integration into production and efficient combination with other process units.



Technical data

| | |
|--------------|--|
| Carbonation: | up to 6 g/l, 3 V/V (P & T dependent) |
| Pressure: | operating 2 to 5 barg, 30 to 72 psig |
| Temperature: | operating 0 to 5 °C, 32 to 40 °F |
| CIP: | 2 to 5 barg, 30 to 72 psig; max. 90 °C, 200 °F |
| Connection: | Tri-clamp; other connections upon request |
| Dimensions: | from Height 1,9m, 6,2'; Width 2,0m, 6,5'; Depth 0,6m, 2' |
| Weight: | from 200kg, 440 lb |
| Material: | Stainless Steel 304, EPDM, PE, PSU, PP |

Models:

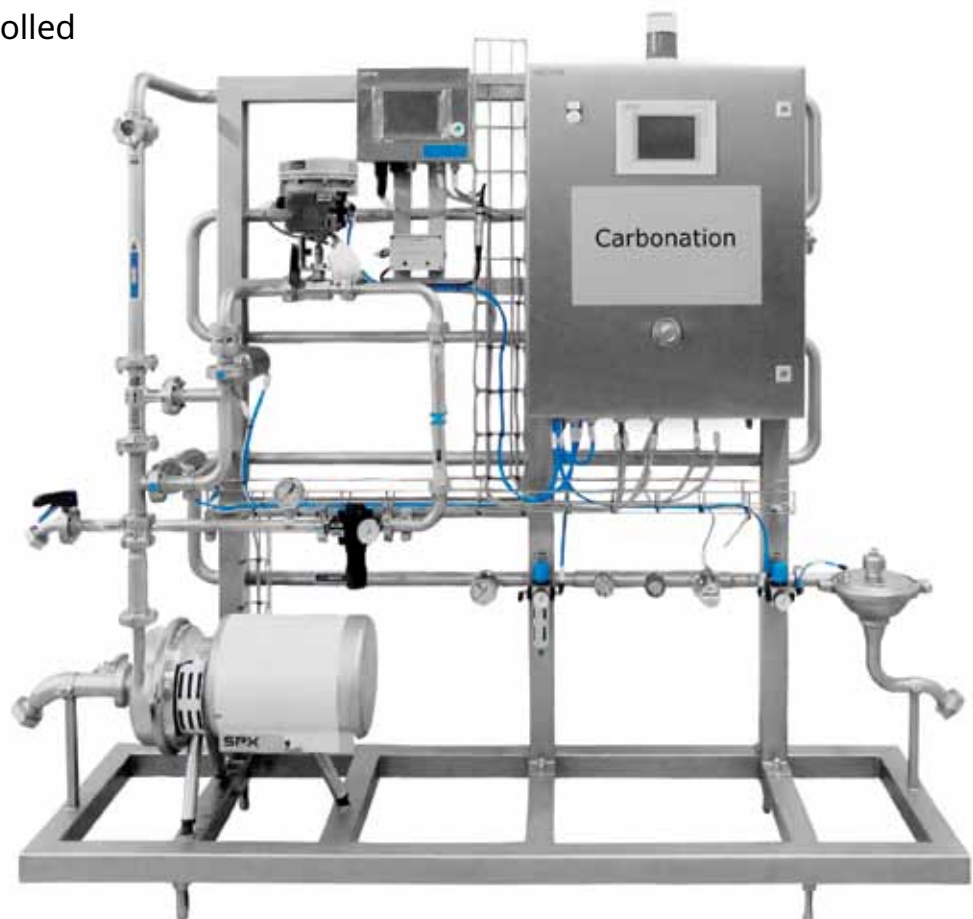
| | | | | | |
|---------|--------|-----|------------------|----------------|-------------------|
| DCS050S | DN 40 | 1½" | 20 to 50 hl/h | 9 to 22 gpm | 18 to 42 bbls/h |
| DCS075S | DN 40 | 1½" | 30 to 75 hl/h | 14 to 33 gpm | 26 to 63 bbls/h |
| DCS100S | DN 50 | 2" | 40 to 100 hl/h | 18 to 44 gpm | 35 to 85 bbls/h |
| DCS150S | DN 65 | 2½" | 60 to 150 hl/h | 27 to 66 gpm | 52 to 127 bbls/h |
| DCS200S | DN 65 | 2½" | 80 to 200 hl/h | 36 to 88 gpm | 69 to 170 bbls/h |
| DCS300S | DN 80 | 3" | 120 to 300 hl/h | 53 to 132 gpm | 103 to 225 bbls/h |
| DCS500S | DN 100 | 4" | 200 to 500 hl/h | 88 to 220 gpm | 171 to 426 bbls/h |
| DCS750S | DN 125 | 5" | 300 to 750 hl/h | 132 to 330 gpm | 256 to 639 bbls/h |
| DCSA00S | DN 150 | 6" | 400 to 1000 hl/h | 176 to 440 gpm | 341 to 852 bbls/h |

Inline Carbonation

Automatic Unit

For instant beverage carbonation

- Micro bubble size
- Instant saturation
- Precise CO₂ injection
- CO₂ analyzer controlled



Application

CO₂ is an essential ingredient of carbonated beverages. It enhances flavor and body of the product and the effect of effervescence characterizes the refreshing taste of the beverage. The CO₂ content also influences beer foam structure and its stability. Therefore, consistent and accurate CO₂ is one of the main quality factors in the production of beer and soft drinks. Designed for fast and accurate injection and dissolution of CO₂, Bucher Denwel provides a fully automated solution for continuous carbonation.

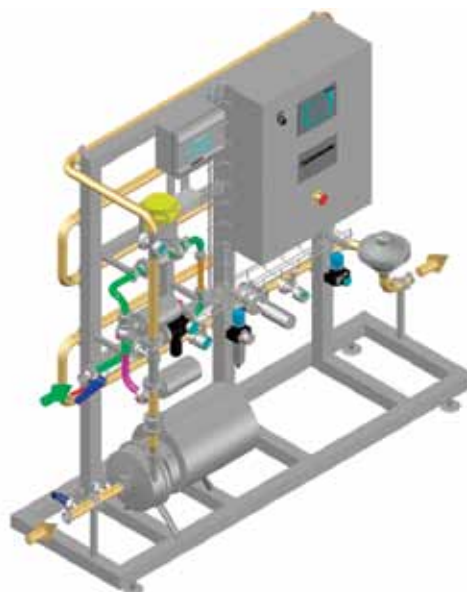
Principle

CO₂ is injected into the beverage through Bucher Denwel Injector, which splits the gas into micro bubbles. Most efficient and instant dissolution of CO₂ is achieved with only a minimal pressure drop, no gas loss and a fully hygienic design. No static mixer, sinter candles or recirculation-tanks are needed.

The system is PLC controlled and has automatic modes for continuous carbonation and CIP. The selective inline CO₂ analyzer continuously monitors the CO₂ concentration. The output signal is processed by the PLC to control the CO₂ dosing. A high precision control valve accurately adjusts the CO₂ injection, avoiding any over or under carbonation. The back pressure valve maintains constant pressure in the system despite any changes in flow. Constant system pressure ensures fast and accurate control of CO₂ dosing.

Technical data

| | |
|--------------|--|
| Carbonation: | up to 6 g/l, 3 V/V (P & T dependent) |
| Pressure: | operating 2 to 5 barg, 30 to 72 psig |
| Temperature: | operating 0 to 5 °C, 32 to 40 °F |
| CIP: | 2 to 5 barg, 30 to 72 psig; max. 90 °C, 200 °F |
| Connection: | Tri-clamp; other connections upon request |
| Dimensions: | from Height 1,9m, 6,2'; Width 2,0m, 6,5'; Depth 0,6m, 2' |
| Weight: | from 550 lb, 250kg |
| Material: | Stainless Steel 304, EPDM, PE, PSU, PP |



Models:

| | | | | | |
|---------|--------|-----|------------------|----------------|-------------------|
| DCS050A | DN 40 | 1½" | 20 to 50 hl/h | 9 to 22 gpm | 18 to 42 bbls/h |
| DCS075A | DN 40 | 1½" | 30 to 75 hl/h | 14 to 33 gpm | 26 to 63 bbls/h |
| DCS100A | DN 50 | 2" | 40 to 100 hl/h | 18 to 44 gpm | 35 to 85 bbls/h |
| DCS150A | DN 65 | 2½" | 60 to 150 hl/h | 27 to 66 gpm | 52 to 127 bbls/h |
| DCS200A | DN 65 | 2½" | 80 to 200 hl/h | 36 to 88 gpm | 69 to 170 bbls/h |
| DCS300A | DN 80 | 3" | 120 to 300 hl/h | 53 to 132 gpm | 103 to 225 bbls/h |
| DCS500A | DN 100 | 4" | 200 to 500 hl/h | 88 to 220 gpm | 171 to 426 bbls/h |
| DCS750A | DN 125 | 5" | 300 to 750 hl/h | 132 to 330 gpm | 256 to 639 bbls/h |
| DCSA00A | DN 150 | 6" | 400 to 1000 hl/h | 176 to 440 gpm | 341 to 852 bbls/h |

Carbonation/ Nitrogenation

High Concentration Unit

For beverage
carbonation/nitrogenation
in batch mode

- All types of beverages
- Precise CO₂/N₂ dosing
- Integrated CIP
- Integrated cooling
- Direct connection to the filler



Principle

Batch carbonator is a unit made for carbonation / nitrogenation and cooling of a small amount of product in off line mode. The system is designed for most efficient carbonation / nitrogenation of product with a wide range of CO₂ or N₂ content.

CO₂/N₂ is injected into the product using Bucher Denwel Injector during circulation process. Requested pressure and temperature is kept in the product tank during carbonation and nitrogenation.

The unit is equipped with integrated CIP tank.



Technical data

| | |
|----------------|---|
| Carbonation: | up to 10 g/l, 5 V/V |
| Nitrogenation: | up to 60 ppm, mg/l |
| Capacity: | batch production |
| Temperature: | product cooled down to 2 °C, 35 °F |
| CIP: | integrated CIP vessel and heating up to 90 °C, 200 °F |
| Connection: | Tri-clamp |
| Dimensions: | from Height 2,3m, 75"; Width 2,2m, 72"; Depth 0,9m, 29" |
| Frame: | Mobile |
| Weight: | from 550 lb, 250 kg |
| Material: | Stainless Steel 304, EPDM, PE, PSU, PP |

Models:

| | | | | |
|---------|-------|-----|------------|---------------|
| DCS120B | DN 25 | 1" | 30 to 120l | 7,5 to 30 gal |
| DCS300B | DN 40 | 1½" | 75 to 300l | 19 to 75 gal |

Inline Nitrogenation

Manual Unit

For instant beverage
nitrogenation

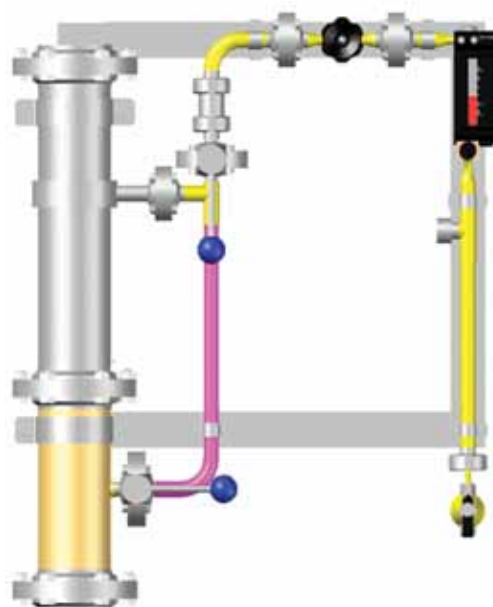
- Improves foam stability
- Micro bubble size
- Instant saturation
- Efficient, hygienic design



Principle

N₂ is injected into the beverage through Bucher Denwel Injector, which splits the gas into micro bubbles. Most efficient and instant saturation of N₂ is achieved with only a minimal pressure drop, no gas loss and a fully hygienic design. No static mixer, sinter candle or recirculation-tank is needed. Designed for CIP, no parts of the Injector have to be removed for sanitation.

The unit comes assembled on a compact frame, is tested and rapidly put into operation. Proven components guarantee low maintenance and extended lifetime. The modular layout allows for easy integration into the plant and efficient combination with other process units.



Technical data

| | |
|----------------|--|
| Nitrogenation: | up to 20 ppm (P & T dependent) |
| Pressure: | operating 3 to 5 barg, 44 to 72 psig |
| Temperature: | operating 0 to 5 °C, 32 to 40 °F |
| CIP: | 3 to 5 barg, 44 to 72 psig; max. 90 °C, 200 °F |
| Connection: | Tri-clamp; other connections upon request |
| Dimensions: | from Height 0,8m, 31,5"; Width 1,1m, 43,3"; Depth 0,2m, 6,5" |
| Weight: | from 25 kg, 55 lb |
| Frame: | Mobile or Wall-mount |
| Material: | Stainless Steel 304, EPDM, PE, PSU, PP |

Models:

| | | | | | |
|---------|--------|-----|------------------|----------------|-------------------|
| DNS025M | DN 25 | 1" | 10 to 25 hl/h | 5 to 11 gpm | 9 to 21 bbls/h |
| DNS040M | DN 40 | 1½" | 16 to 40 hl/h | 8 to 17 gpm | 14 to 34 bbls/h |
| DNS050M | DN 40 | 1½" | 20 to 50 hl/h | 9 to 22 gpm | 18 to 42 bbls/h |
| DNS075M | DN 40 | 1½" | 30 to 75 hl/h | 14 to 33 gpm | 26 to 63 bbls/h |
| DNS100M | DN 50 | 2" | 40 to 100 hl/h | 18 to 44 gpm | 35 to 85 bbls/h |
| DNS150M | DN 65 | 2½" | 60 to 150 hl/h | 27 to 66 gpm | 52 to 127 bbls/h |
| DNS200M | DN 65 | 2½" | 80 to 200 hl/h | 36 to 88 gpm | 69 to 170 bbls/h |
| DNS300M | DN 80 | 3" | 120 to 300 hl/h | 53 to 132 gpm | 103 to 225 bbls/h |
| DNS500M | DN 100 | 4" | 200 to 500 hl/h | 88 to 220 gpm | 171 to 426 bbls/h |
| DNS750M | DN 125 | 5" | 300 to 750 hl/h | 132 to 330 gpm | 256 to 639 bbls/h |
| DNSA00M | DN 150 | 6" | 400 to 1000 hl/h | 176 to 440 gpm | 341 to 852 bbls/h |

Inline Nitrogenation

Automatic Unit

For instant beverage
nitrogenation

- Efficient, hygienic Injector
- Micro bubble size
- Instant N₂ dissolution
- PLC controlled



Application

When added to beer, nitrogen creates creamy and fine foam head with small bubble size; it improves the foam stability and softens the beer on the palate. While traditionally nitrogenation was applied in ales and stouts, the same process is nowadays successfully used for the classical lagers treating. Nitrogen increases beer foam stability of lagers up to 30 seconds. Due to its low solubility, nitrogen consumption is very low. Consistent and accurate nitrogenation will determine the appearance and quality of the final beverage.

Principle

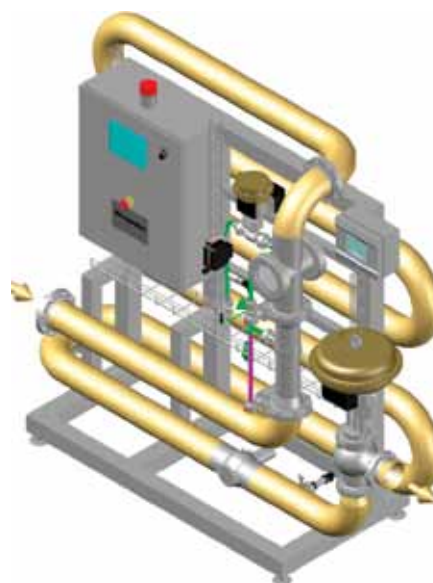
N₂ is injected into the beverage through Bucher Denwel Injector, which splits the gas into micro bubbles. Most efficient and instant dissolution of N₂ is achieved with only a minimal pressure drop, no gas loss and a fully hygienic design. No static mixer, sinter candle or recirculation-tank is needed.

The system is PLC controlled and has automatic modes for continuous nitrogenation and CIP. The selective inline N₂ analyzer continuously monitors the nitrogen concentration. The output signal is processed by the PLC to control the N₂ dosing. A high precision control valve accurately adjusts the Nitrogen injection, avoiding any over or under carbonation.

The unit has an uncompromising sanitary design and is fully CIP cleanable. It comes assembled on a compact frame and is tested to be rapidly put into operation. The modular layout allows for easy integration into production and efficient combination with other process units.

Technical data

| | |
|----------------|--|
| Nitrogenation: | up to 20 ppm (P & T dependent) |
| Pressure: | operating 3 to 5 barg, 44 to 72 psig |
| Temperature: | operating 0 to 5 °C, 32 to 40 °F |
| CIP: | 3 to 5 barg, 44 to 72 psig; max. 90 °C, 200 °F |
| Connection: | Tri-clamp; other connections upon request |
| Dimensions: | from Height 0,8m, 31,5"; Width 0,5m, 19,7"; Depth 0,2m, 6,5" |
| Frame: | Mobile or Wall-mount |
| Weight: | from 550 lb, 250kg |
| Material: | Stainless Steel 304, EPDM, PE, PSU, PP |



Models:

| | | | | | |
|---------|--------|-----|------------------|----------------|-------------------|
| DNS050A | DN 40 | 1½" | 20 to 50 hl/h | 9 to 22 gpm | 18 to 42 bbls/h |
| DNS075A | DN 40 | 1½" | 30 to 75 hl/h | 14 to 33 gpm | 26 to 63 bbls/h |
| DNS100A | DN 50 | 2" | 40 to 100 hl/h | 18 to 44 gpm | 35 to 85 bbls/h |
| DNS150A | DN 65 | 2½" | 60 to 150 hl/h | 27 to 66 gpm | 52 to 127 bbls/h |
| DNS200A | DN 65 | 2½" | 80 to 200 hl/h | 36 to 88 gpm | 69 to 170 bbls/h |
| DNS300A | DN 80 | 3" | 120 to 300 hl/h | 53 to 132 gpm | 103 to 225 bbls/h |
| DNS500A | DN 100 | 4" | 200 to 500 hl/h | 88 to 220 gpm | 171 to 426 bbls/h |
| DNS750A | DN 125 | 5" | 300 to 750 hl/h | 132 to 330 gpm | 256 to 639 bbls/h |
| DNSA00A | DN 150 | 6" | 400 to 1000 hl/h | 176 to 440 gpm | 341 to 852 bbls/h |

Inline Nitrogenation

High Concentration Unit

Membrane technology for beverage nitrogenation

- Efficient, hygienic Injector
- Micro bubble size
- Instant N₂ dissolution
- PLC controlled

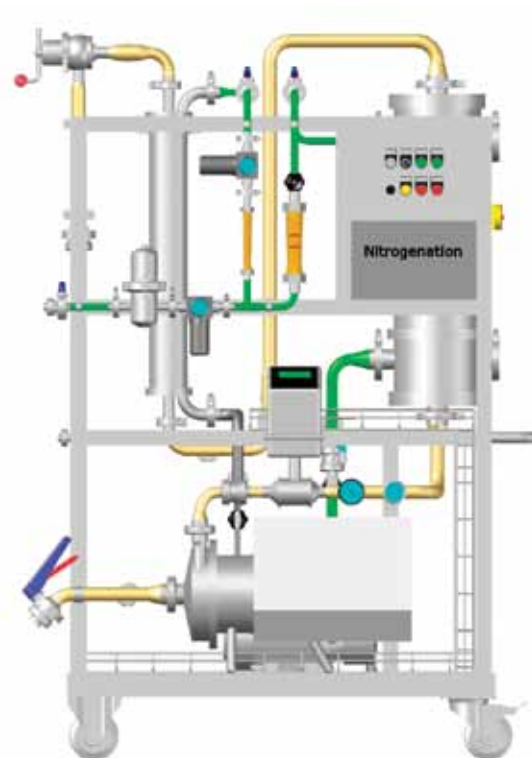


Principle

The unit is equipped with a membrane contactor for nitrogenation. The internal fibers of the membrane contactor form a large contact area between gas and beverage ensuring instant and efficient dissolution. The applied N₂ pressure controls final N₂ concentration in beverage.

Optionally an additional membrane contactor is used to remove CO₂. This is useful for beverage with higher CO₂ concentration, or beverage where a specific CO₂/N₂ concentrations shall be achieved. The removal of CO₂ is set by the level of vacuum applied to the Decarbonation membrane contactor.

The unit is typically installed between two BBTs. The centrifugal pump transfers beverage from the first tank into the unit at constant pressure, temperature and flow. The outlet valve is used to set up required beverage pressure and flow. Final beverage is pushed to the second tank.



Technical data

| | |
|--------------------------|--|
| CO ₂ removal: | up to 3 g/l, 1,5 V/V (P & T dependent) |
| N ₂ addition: | up to 80 ppm (P & T and other gases presence dependent) |
| Pressure: | Operating 1 to 6 barg, 15 to 90 psig |
| Temperature: | Operating 0 to 5 °C, 32 to 40 °F |
| CIP: | 50 °C, 120 °F, at 7 barg, 100 psig; Max. 65 °C, 150 °F, at 2 barg, 30 psig |
| Connection: | Tri-clamp; other connections upon request |
| Dimensions: | from: Height 1,9m, 75"; Width 1,4m, 55"; Depth 0,7m, 28" |
| Weight: | from 100kg, 220 lb |
| Material: | Stainless Steel 304, EPDM, PE, PSU, PP |

Models:

| | | | | | |
|---------|--------|-----|------------------|----------------|-------------------|
| DNS050H | DN 40 | 1½" | 20 to 50 hl/h | 9 to 22 gpm | 18 to 42 bbls/h |
| DNS100H | DN 50 | 2" | 40 to 100 hl/h | 18 to 44 gpm | 35 to 85 bbls/h |
| DNS200H | DN 65 | 2½" | 100 to 200 hl/h | 36 to 88 gpm | 85 to 170 bbls/h |
| DNS300H | DN 80 | 3" | 200 to 300 hl/h | 88 to 132 gpm | 170 to 256 bbls/h |
| DNS300H | DN 100 | 4" | 300 to 500 hl/h | 132 to 220 gpm | 256 to 426 bbls/h |
| DNS750A | DN 125 | 5" | 300 to 750 hl/h | 132 to 330 gpm | 256 to 639 bbls/h |
| DNSA00A | DN 150 | 6" | 400 to 1000 hl/h | 176 to 440 gpm | 341 to 852 bbls/h |

De-Alconox B

Thermal dealcoholisation of beer

Dealcoholisation of beer

- Processing at lowest temperatures (<39 °C)
- Dealcoholisation down to <0.03% vol.
- Suitable for filtered and non-filtered beer



Application

Bucher Denwel dealcoholisation plants are designed in a way to produce a highly dealcoholised beer as well as rectified alcohol with minimum negative side effects on beer quality. Additionally, the design is flexible regarding product flow and composition and is also well suitable for non-filtered beer. It is therefore a sustainable investment enabling a brewery to serve all current or future market trends.

Process

Firstly, the beer is gently degassed in order to avoid foaming throughout the process. The temperature of the incoming product is adjusted in counterflow to the outgoing dealcoholised beer. In a special Bucher Denwel degassing system very low final gas levels are achieved at a pressure slightly below the boiling pressure.

The alcohol is then removed from the beer and rectified in a special column. The column consists of two sections: a first section for stripping the alcohol out of the beer and a second section for rectifying the alcohol to the desired concentration.

The unique design of the high precision inserts provides several advantages:

- minimum pressure drop allows a low temperature at the bottom of the column with least impact on beer quality and optimised energy consumption compared to similar systems
- high tolerance for suspended particles enabling trouble-free processing of non-filtered beers
- very low alcohol content achievable providing maximum options for final blending with non-treated beer

The energy for the stripping and rectifying column is supplied by a small amount of vapour which is evaporated out of the already dealcoholised beer. Bucher Denwel uses evaporator bodies with a large heat transfer surface which minimises the required surface temperature in contact with the product. Finally, the beer is cooled back and carbonised again.

The whole process is operated under vacuum limiting the product temperature to <math><39^{\circ}\text{C}</math> and excellently preserving the quality of the treated beers.

Technical data / Capacities

Standardised dealcoholisation plants are available from 5 up to 200 hl/h.



Hard Seltzer

Continuous unit

Customized continuous technology for production of mixed drinks

- Continuous and precise production of mixed drinks
- "Just in Time" production without the need for storage and conditioning vessels
- Immediate switch over to another product with minimal losses
- Numerous individual recipes



Principle

Hard Seltzers and other RTDs are bespoke beverages that should be custom blended to the producer's wishes. Hard Seltzer continuous units offer "Just in Time" production without the need for large storage and conditioning vessels. The modular and CIP-able design supports set up of bespoke systems to reach any of the ambitious demands. Microbiologically clean potable water is provided by a Filter set, unnecessary oxygen is efficiently removed by Water Deaeration Column system after. Without the need of water storage, concentrate is precisely blended and liquid additives dosed from a container or from a mix preparation tank. Unique carbonation and/ or nitrogenation process provides zero-loss of gas, flavor and time. The intuitive touch panel displays and allows the recipe based operations.



Technical data

| | |
|------------------------------------|---|
| Potable water filtration: | Particle size $\leq 0,2 \mu\text{m}$ |
| Water Deaeration | |
| Final Oxygen: | less than 10 ppb, typically around 5 ppb |
| Gas Saturation: | app. 2 g/l CO ₂ or app. 20 mg/l N ₂ (water temperature dependent) |
| Blending: | up to 10:1, ratio / analyzer control |
| Multistream Additive Dosing: | up to 10%, ratio / analyzer control |
| Carbonation and/ or Nitrogenation: | up to 8 g/l, 4 V/V (P & T dependent), up to 50 mg/l (P & T dependent), ratio / analyzer control |
| Chilling: | down to 0 to 5°C |
| Water Inlet: | 2 to 4 barg, 30 to 60 psig, < 1 μm particles, 8 to 30 °C, 40 to 90 °F |
| Beverage Outlet: | 1,5 to 3 barg, 22 to 44 psig 0 to 5 °C, 32 to 40 °F |
| CIP: | 2 to 4 barg, 30 to 60 psig; max. 90 °C, 200 °F |
| Connection: | Tri-clamp; other connections upon request |
| Dimensions: | from Height 5,5m, 16,4'; Width 2,0m, 6,5'; Depth 1,5m, 4,9' |
| Weight: | from 700kg, 1.500 lb |
| Material: | Stainless Steel 304, EPDM, PSU, PP |

Models:

| | | | | | |
|---------|--------|------|------------------|----------------|-------------------|
| DHS050C | DN 40 | 1 ½" | 20 to 50 hl/h | 9 to 22 gpm | 18 to 42 bbls/h |
| DHS100C | DN 50 | 2" | 40 to 100 hl/h | 18 to 44 gpm | 35 to 85 bbls/h |
| DHS150C | DN 65 | 2 ½" | 60 to 150 hl/h | 27 to 66 gpm | 52 to 127 bbls/h |
| DHS200C | DN 65 | 2 ½" | 80 to 200 hl/h | 36 to 88 gpm | 69 to 170 bbls/h |
| DHS300C | DN 80 | 3" | 120 to 300 hl/h | 53 to 132 gpm | 103 to 225 bbls/h |
| DHS500C | DN 100 | 4" | 200 to 500 hl/h | 88 to 220 gpm | 171 to 426 bbls/h |
| DHS750C | DN 125 | 5" | 300 to 750 hl/h | 132 to 330 gpm | 256 to 639 bbls/h |
| DHSA00C | DN 150 | 6" | 400 to 1000 hl/h | 176 to 440 gpm | 341 to 852 bbls/h |

Flash Pasteurization

Automatic Unit

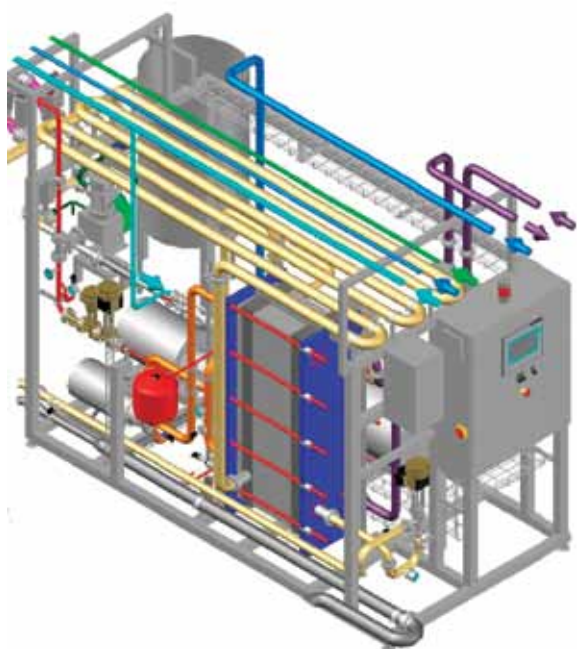
For beverage pasteurization

- Gentle and precise heat treatment
- Consistent Pasteurization
- Heat recovery up to 96%



Application

Pasteurization is a heat treatment with the purpose of improving the microbiological stability of the beverage in order to prolong its shelf life. While reducing the number of harmful microorganisms, uniform and gentle treatments are required to maintain the original taste and appearance of the beverage.



Principle

Cold beer enters the regenerative zone of the plate heat exchanger being pre-heated by already pasteurized beer and is then heated up to the pasteurization temperature and held in the holding tube during the pasteurization time. Pasteurized beer is then cooled down in the regenerative zone and if required, cooled in the cooling zone to the filling temperature.

Flash pasteurizer is typically installed in front of a filler which speed often varies considerably. To keep the required pasteurization units (PU) within tight limits, we use intelligent control in combination with a buffer tank, capable to match variations in filler demand. If the filling capacity decreases, the flow has to be reduced as well. Lower flow means longer holding time and therefore the pasteurization temperature has to be decreased to keep the same PU.

The control reduces the flow according to the heat exchanger characteristics and increases the level in the buffer tank. When the filling capacity increases again, the level in the buffer tank will be lowered and the nominal pasteurization values will be re-established. This way any over- and under-pasteurization can be avoided and gentle and consistent treatment is always guaranteed.

Technical data

| | |
|----------------|---------------|
| PU range: | 10 to 150 PU |
| Pressure: | up to 16 barg |
| Heat recovery: | 94 to 96% |

Models:

| | | | | | |
|---------|-------|-----|-----------------|---------------|-------------------|
| DFP010A | DN 25 | 1" | 5 to 10 hl/h | 2 to 4 gpm | 4 to 8 bbls/h |
| DFP015A | DN 25 | 1" | 8 to 15 hl/h | 3 to 6 gpm | 6 to 12 bbls/h |
| DFP025A | DN 25 | 1" | 13 to 25 hl/h | 6 to 11 gpm | 11 to 21 bbls/h |
| DFP040A | DN 40 | 1½" | 20 to 40 hl/h | 9 to 17 gpm | 17 to 34 bbls/h |
| DFP050A | DN 40 | 1½" | 25 to 50 hl/h | 11 to 22 gpm | 21 to 42 bbls/h |
| DFP075A | DN 40 | 1½" | 38 to 75 hl/h | 17 to 33 gpm | 32 to 63 bbls/h |
| DFP100A | DN 50 | 2" | 50 to 100 hl/h | 22 to 44 gpm | 43 to 85 bbls/h |
| DFP150A | DN 65 | 2½" | 75 to 150 hl/h | 33 to 66 gpm | 64 to 127 bbls/h |
| DFP200A | DN 65 | 2½" | 100 to 200 hl/h | 44 to 88 gpm | 85 to 170 bbls/h |
| DFP250A | DN 80 | 3" | 125 to 250 hl/h | 55 to 110 gpm | 107 to 213 bbls/h |

Stefinox

For cold sterile filtration of beer

Skids for sterile filtration of beer

- Standardised skids for easy installation
- Prefiltration – sterile filtration – media filtration all on one skid
- Maximum safety and cartridge lifetime
- Stand-alone skid or for integration



Technical data – capacity range for the skids

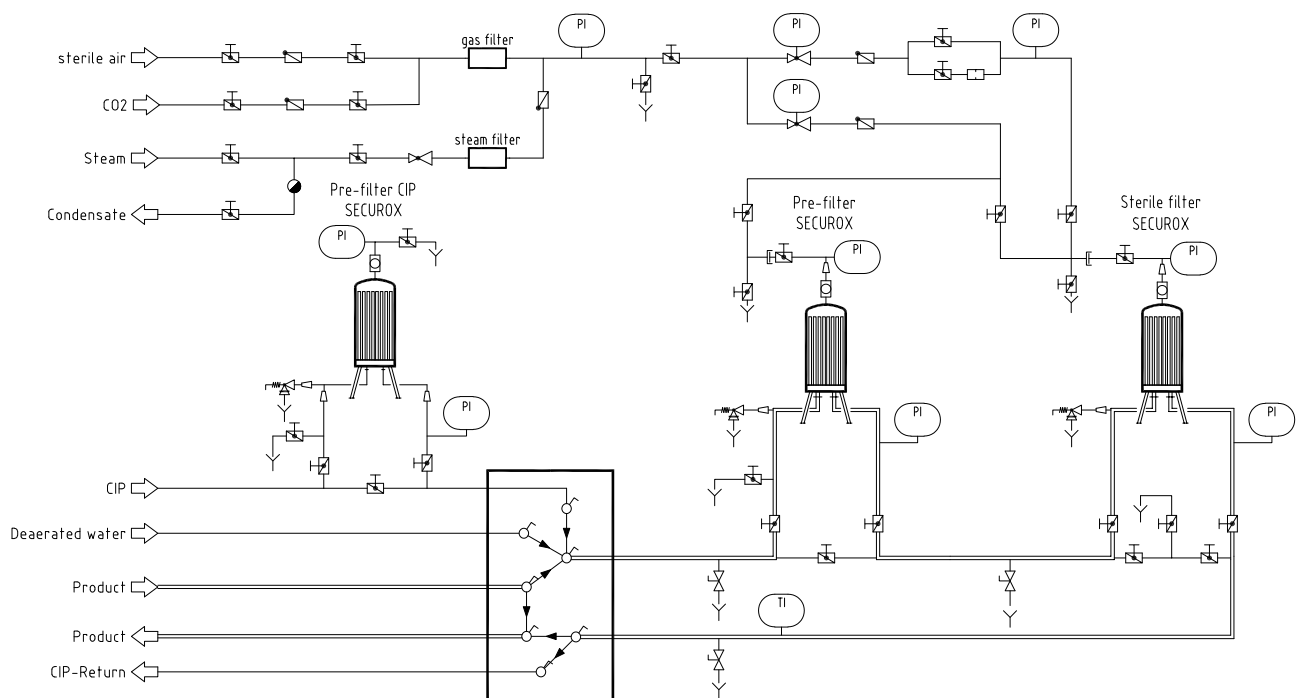
| | Min flowrate skid in hl/h beer | Max flowrate skid in hl/h beer |
|------------|--------------------------------|--------------------------------|
| STEFINOX 1 | 0 | 70 |
| STEFINOX 2 | 70 | 200 |
| STEFINOX 3 | 200 | 250 |
| STEFINOX 4 | 250 | 500 |

- Wide variety of cartridges for prefiltration, sterile filtration and water filtration.
- Membrane cartridges can be integrity tested for a maximum safety.
- Installation at end of filter cellar or prior to filling.
- Modular design, flowrates from 0–500 hl/h of beer.

Application

Cold sterile filtration before the filler is an alternative to flash pasteurizing. The Bucher Denwel skid allows a flexible and easy-to-integrate solution for small to medium size breweries (flowrates from 0–500 hl/h). This safe solution for a reliable product shelf life uses standard cartridges, and an integrity test of these membrane cartridges can be performed before each run.

Process flow diagram



CIP

Mobile Unit

For cleaning of process technology

- Three sizes of caustic and acid vessels
- For tanks, pipes and equipment cleaning
- Automatic temperature control
- Optimal cleaning performance





Principle

The Mobile CIP Unit reliably removes minerals and biological residues. CIP sequencing valves are used so no pipe reconnection is required. Includes sampling valve for concentration check during cleaning and automatic temperature control. The unit can be used with various detergents for cold or hot cleaning.

The Mobile CIP Unit consists of two vessels, where the cleaning solution is prepared and then circulated in single line. The integrated heating allows heating up of the cleaning media to the required temperature.

Other options can include pressurized tank cleaning, strainer, CIP vessel spray nozzles and heating during cleaning.

Technical data

| | |
|--------------|--|
| Detergents: | Acid, Caustic, Disinfectants |
| Vessels: | Hot caustic (with heating) Ambient acid / Disinfectants / Rinse water (not insulated) |
| Pressure: | Operating 1 to 3 barg, 15 to 43 psig |
| Temperature: | Operating 0 to 90 °C, 32 to 200 °F |
| Connection: | Tri-clamp; other connections upon request |
| Dimensions: | from Height 1,6m, 63"; Width 2,0m, 79"; Depth 0,7m, 28" |
| Weight: | from 100kg, 220 lb |
| Material: | Stainless Steel 304, EPDM |
| Models: | |
| DCP050M | To clean pipes DN 25 (1") up to 300m (1000 ft) or vessels up to diameter 1,5m (4,5 ft) Flow: 20 to 50 hl/h, 9 to 22 gpm, 18 to 42 bbls/h 2x 200l vessels with heating 4,5 kW + 4,5 kW as option |
| DCP100M | To clean pipes DN 40 (1½") up to 300m (1000 ft) or vessels up to diameter 2,5m (8,2 ft) Flow: 40 to 100 hl/h, 18 to 44 gpm, 35 to 85 bbls/h 2x 350l vessels with heating 7,5 kW + 7,5 kW as option |
| DCP150M | To clean pipes DN 50 (2") up to 250m (800 ft) or vessels up to diameter 2,5m (8,2 ft) Flow: 60 to 150 hl/h, 27 to 66 gpm, 52 to 127 bbls/h 2x 500l vessels with heating 15 kW + 15 kW as option |

CIP

Compact Unit

For cleaning of process technology

- Caustic, acid and water recovery vessel
- For tanks, pipes and equipment cleaning
- Automatic CIP sequencing
- Intuitive and simple user interface
- Optimal and consistent cleaning performance





Principle

The CIP Compact Unit provides a single line cleaning of pipes, tanks and process technology in the brewery. It includes insulated Caustic and not insulated Acid and Water recovery vessels. Automatic CIP sequencing with defined sanitation parameters like temperature, flow, pressure and solution concentration. Easily configurable parameters via user friendly interface.

Technical data

| | |
|--------------|---|
| Detergents: | Acid, caustic, disinfectants |
| Vessels: | Hot caustic (insulated), Ambient acid (not insulated), Recovery water (not insulated) |
| Pressure: | Operating 1 to 4 barg, 15 to 43 psig |
| Temperature: | Operating 0 to 90 °C, 32 to 200 °F |
| Connection: | Tri-clamp; other connections upon request |
| Dimensions: | from Height 1,8m, 71"; Width 4,5m, 177"; Depth 1,5m, 59" |
| Weight: | from 500kg, 1100 lb |
| Material: | Stainless Steel 304, EPDM, |

Models:

| | |
|---------|---|
| DCP100C | To clean pipes DN 40 (1½") up to 600m (2000 ft) or vessels up to diam. 2m (6,6 ft) Flow: 40 to 100 hl/h, 18 to 44 gpm, 35 to 85 bbls/h 3x 10hl vessels with heating 115 kW |
| DCP150C | To clean pipes DN 50 (2") up to 550m (1800 ft) or vessels up to diam. 3,2m (10,5 ft) Flow: 60 to 150 hl/h, 27 to 66 gpm, 52 to 127 bbls/h 3x 15hl vessels with heating 175 kW |
| DCP300C | To clean pipes DN 65 (2½") up to 600m (2000 ft) or vessels up to diam. 3,8m (12,5 ft) Flow: 120 to 300 hl/h, 53 to 132 gpm, 103 to 225 bbls/h 3x 30hl vessels with heating 345 kW |
| DCP400C | To clean pipes DN 80 (3") up to 500m (1600 ft) or vessels up to diam. 4,8m (15,8 ft) Flow: 160 to 400 hl/h, 71 to 176 gpm, 137 to 340 bbls/h 3x 40hl vessels with heating 460 kW |

CIP

Plant

For cleaning of process technology

- Fully automatic CIP programs ensure perfect cleaning
- Economical production due to full automation
- Individual programming of each cleaning circuit
- 3, 4 or 5 vessel system
- Vessel size up to 20 m³
- Up to 6 different cleaning circuits

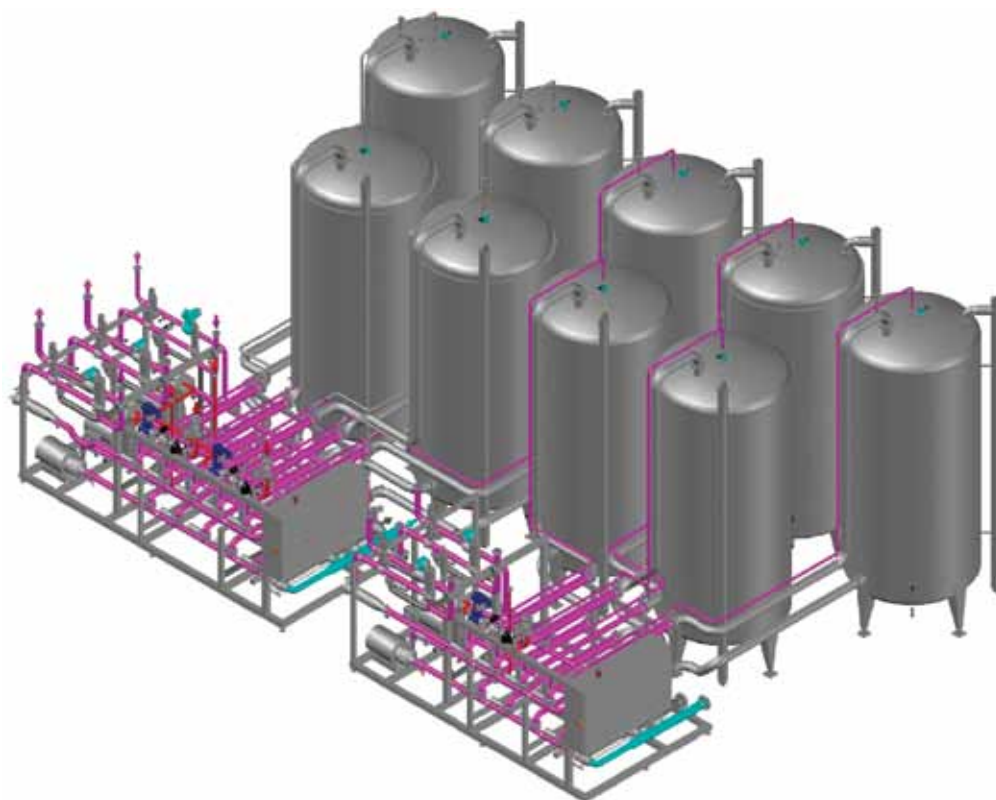


Principle

Brewing high quality beer using modern production techniques requires effective and careful cleaning of process equipment. Bucher Denwel offers CIP plant designed exactly to customer's specific project needs.

Bucher Denwel CIP is a fully automatic system, programmed to achieve optimal sanitation of the entire production line. It comprises of a complete set of equipment for CIP, including tanks for recovering water, acid and hot caustic, pumps, heat exchangers, valves and instrumentation such as conductivity and flow transmitters.

Automatic CIP sequencing with defined sanitation parameters to covers the complete cleaning cycle: detergent or water selection, detergent concentrations and cycle temperatures.



Tanks and Vessels

Food & Beverage

Process and storage tanks and vessels

- CCTs, BBTs, Buffer tanks and Storage vessels
- Heating/Cooling system and Insulation
- Pressurized/Atmospheric/Vacuum
- Customized design, Vertical or Horizontal layout
- Up to volume 2 500 hl produced in workshop, larger assembled on site



Application

Process and storage tanks and vessels made of stainless steel are widely used in the beer industry. We supply tanks and vessels, each custom designed and developed applying the latest version of the computer calculation software and project design tools. State-of-the-art manufacturing equipment ensures improved time to delivery and cost reductions.

Tanks with capacities up to 2 500 hl are manufactured at the production facility. Larger tanks are available as per customer needs and requirements and built at the customer's premises.

Our tanks offer includes various design options such as heating/cooling systems with different insulation executions, foundation types, materials and surface finishings, as well as design according to various tanks' manufacturing norms and standards with certifications.



Technical data

| | | |
|--------------------------|---|---|
| Capacity and dimensions: | Workshop production: | Volume up to 2 500 hl OD up to 4 200 mm Height up to 25 m |
| | On site assembly: | Volume up to 50 000 hl |
| Material: | SS 1.4301/1.4307, 1.4404, 1.4571, 1.4541, 1.4435 | |
| Surface finishing: | Standard (inside/outside): | 2B, welds ground Ra<0,8 µm/ 2B, welds brushed |
| | Special: | Ra<0,02 µm, mirror polishing, electropolishing |
| Heating/Cooling system: | Halfpipe, dimple jacket, pillow plate, double jacket, electric heating | |
| Insulation: | Mineral wool, PUR, RIR | |
| Cladding: | Fully welded stainless steel, riveted/bolted stainless steel, riveted/bolted aluminium/coated plates | |
| Foundation type: | Legs, skirt, flat bottom, foundation ring | |
| Standards: | SEP, PED 2014/68/EU, EN 13445, AD 2000, ASME Section VIII Div.1, TSG 21-2016 | |

Cold Block

Manual, Semiautomatic, Automatic

Complete solutions for Cold Block

- Yeast plant & Beer recovery
- Fermentation & Maturation Cellar
- Filtration & Bright beer Cellar
- Water Deaeration & Blending
- CIP



Application

We build safe and reliable Cold Blocks for your brewery. Our scope includes technological design, supply of the equipment and process automation, installation and commissioning. We offer complete new turnkey projects, or upgrades and extensions of existing plants. Product safety and cleaning performance are the highest consideration in designs.

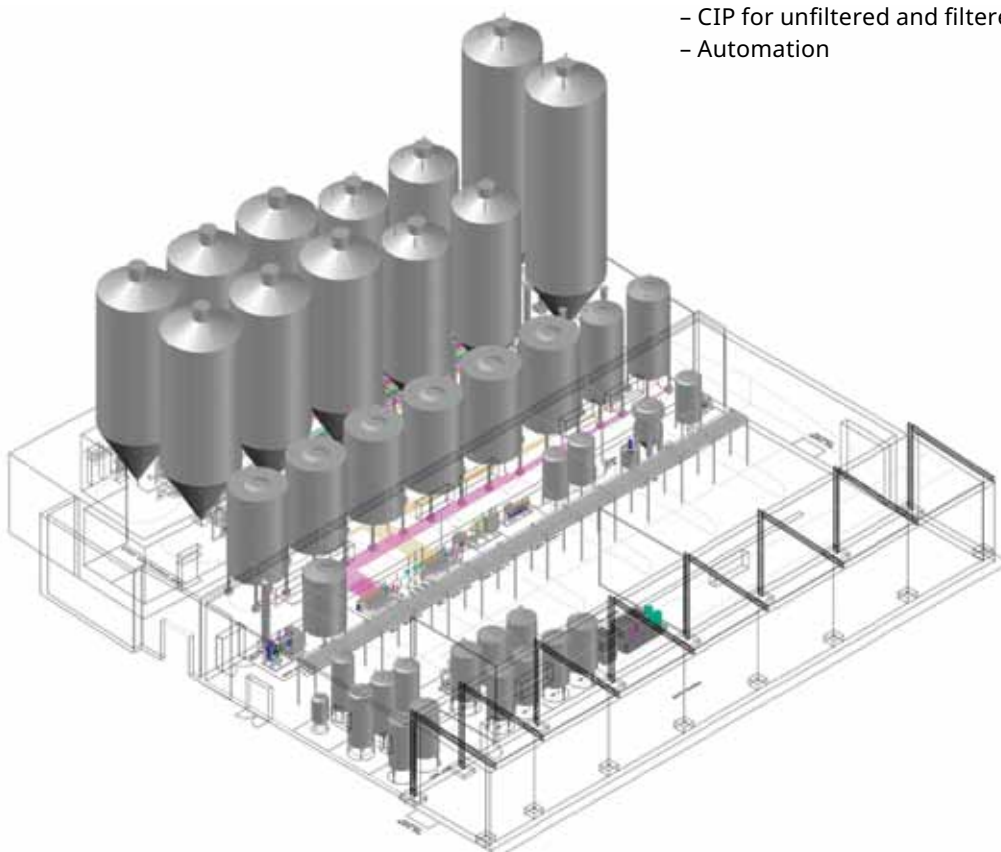
No matter if it's Manual, Semiautomatic or Automatic system, you will always receive an excellent technology increasing the efficiency of your operation from its first day of use.

A typical Cold Block includes following production operations

- Yeast plant & Beer recovery
- Fermentation & Maturation Cellar
- Filtration & Bright beer Cellar
- Water Deaeration & Blending
- CIP

We are strong, single source and highly qualified supplier for your Cold Block equipment

- Yeast propagation, recovery and pitching
- Spent yeast
- Beer recovery
- Beer filtration and stabilization
- Deaerated water production, storage and distribution
- Blending
- Carbonation
- Nitrogenation
- Additive dosing
- BBT and CCT
- CIP for unfiltered and filtered area
- Automation

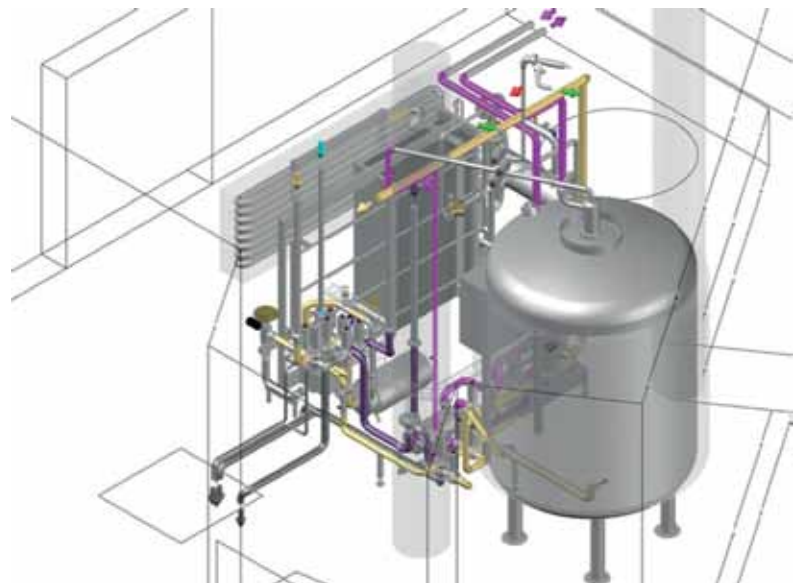


Engineering

Brewing

Engineering services

- Basic and Detailed Engineering
- Feasibility Studies
- Documentation for Tenders
- Technical and Technological Audits
- Process Automation



Engineering and Automation

Our engineers provide consulting, feasibility studies, project documentation for tenders, basic and detailed engineering, technical and technological audits. We deliver automation solutions based on PLC and SCADA. We manufacture PCC, LCC and pneumatic cabinets.

Our effective project management ensures that the project runs on time and within the budget, meets all service level commitments, keeps the team motivated and is focused on performance and successful realization. Customer satisfaction is our goal.

Technical support

Our comprehensive after sales service provides immediate and effective support as we understand service as the key to our success.

Automation

- Input & Output list
- Wiring & Pneumatic Diagram
- PLC
 - Siemens
 - Rockwell
- Visualization and Scada systems
 - WinCC
 - RS View
 - InTouch
- ProLeiT Brewmaxx
- Siemens BRAUMAT



Your success is our mission

Bucher Unipektin is your partner and supplier for single units as well as complete lines for the solid-liquid separation, filtration, juice treatment and concentrate production. These beverage technologies are mainly used for the production of fruit juices and purées as well as in brewing beer. But also, for vegetable and citrus juices, flavors and plant extract recovery within the pharmaceutical industry we offer solutions. Further we design and construct industrial vacuum and freeze dryers (lyophilisation). These are, among other fields, used for the production of instant-soups and -beverages.

Another business area is environmental technology, where we achieve successful results in sewage sludge and industrial sludge dewatering as well as in the solid-liquid separation of drinking water treatment plants.

First class products and services form the base of our market leading position. We operate with high motivation and flexibility with our customers, based on defined needs as well as new market-trends' innovative solutions and products are developed. Thereby ecological aspects are respected.

Our vision

We seek to achieve superior profitability and a sound balance sheet through technological leadership, a strong market position and strict cost management. We will continue to build the Group through organic growth and innovation, as well as by acquiring and integrating selected, complementary businesses. We invest to reduce our ecological footprint.



Part of Bucher Unipektin

Bucher Denwel, spol. s r.o.
K Hajum 2
155 00 Praha
Czech Republic
+420 270 007 400
sales@bucherdenwel.com
bucherdenwel.com