

BEVERAGE INDUSTRY EQUIPMENT

POREX
Filtration & Separation Products
SA



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Porex SA supplies equipment and products to the wine, beer and beverage market. With more than 20 years' experience, we are one of the leading companies in South Africa through our German and Italian suppliers.

We provide complete plant solutions for Apple Juice, Pineapple Juice and Citrus Juice concentrate. Our staff consists of technical and commercial sales people, alongside the equipment technicians for installation, commissioning and after-sales.

We are proud to be distributors for Erbslöh, Armbruster, Willmes, Flottweg, Eaton, and TMCI.

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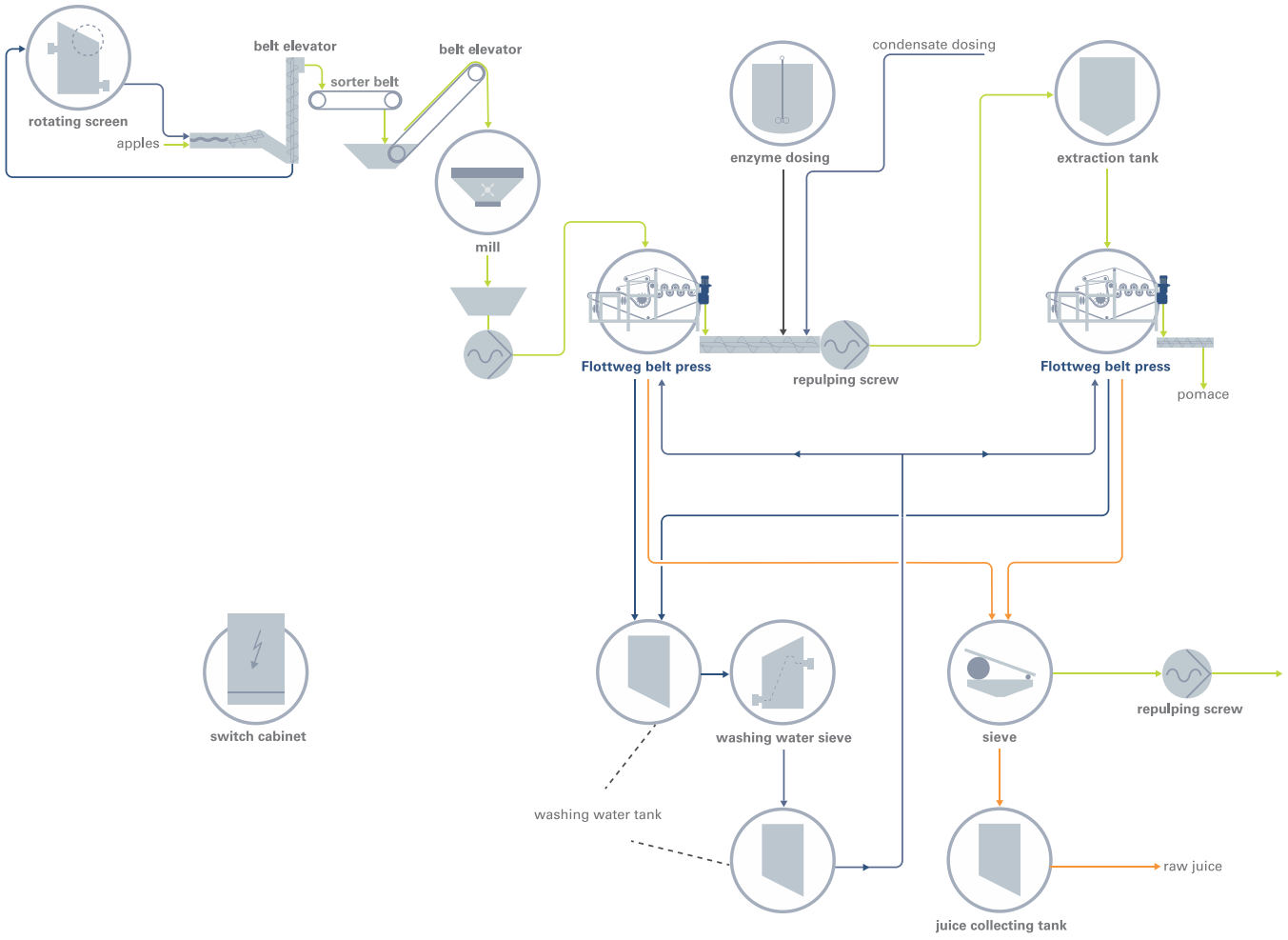
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JUICE MANUFACTURING

The production of a high-quality end product and the reduction of operating costs by creating continuous processes are important success factors in juice production. Flottweg supports this with efficient, hygienically optimised and robus machines.

TWO-PHASE APPLE JUICE PROCESSING USING A BELT PRESS AND POMACE TREATMENT WITH ENZYMES



EXTRACTION & MILLING

Flottweg

ERBSLÖH

Progress is our future

HAMMER MILLS

FRUIT MILLS
FOR ALL FRUIT TYPES

Available in:

- 5 Ton p/hr
- 10 Ton p/hr
- 15 Ton p/hr
- 25 Ton p/hr



ENZYME DOSING

FRACTOZYME UF
OPTIMISED ESSENTIAL OIL YIELD

Depending on the extraction process, orange oil is removed from the peel before or during extraction. Essential oil is a valued ingredient for beverages, food and fragrances. Mechanical brushing is essential before juice extraction to open the oil cells in the skin.Then the oil is extracted with warm water.The emulsion is centrifuged in steps to separate the oil from the water.

Application of Fructozym® UF improves the separation of oil phase. The combination of arabanase and acidic protease improves the release of oil from the cells and phase separation in further separation steps. Fructozym® UF shows a great stability when recirculated with the extraction water.

CITROLASE® TF CLEAR
PECTIN DEGRADATION IN TROPICAL JUICES

Tropical fruits, such as mango, passion fruit, guava, pineapple, banana and cashew vary greatly in their sugar, acid and pH levels. They also vary in their consistency, which is mainly affected by different pectin levels and the content of celluloses and hemicelluloses, such as araban and mannan.

Citrolase® TF Clear is a unique pectinase formulation, which is enriched with special hemicellulytic activities to degrade pectin and hemicellulose in tropical fruit mash or purée for clear juice production. Even the stability of clear, stable tropical juice is significantly increased by full degradation of haze-forming polysaccharides from the pectin molecule as araban.



BELT PRESSES

FLOTTWEG BELT PRESS

The Belt Press is used for dewatering products containing a large quantity of solids, e.g. for extracting fruit mashes. The machine excels in high yields and a high dry substance content in the pomace.

The special design of the profile rollers and the belt alignment results in high pressure and shear stress, thus assuring a fast and efficient extraction of the product.

Features:

- Continuous operation.
- Easy operation.
- Automatically adjusted belt tension.
- Easy accessibility.
- High yields.
- Long life-cycle.
- Exclusive use of high-grade steel.
- Sturdy design / German engineering.



DECANTERS

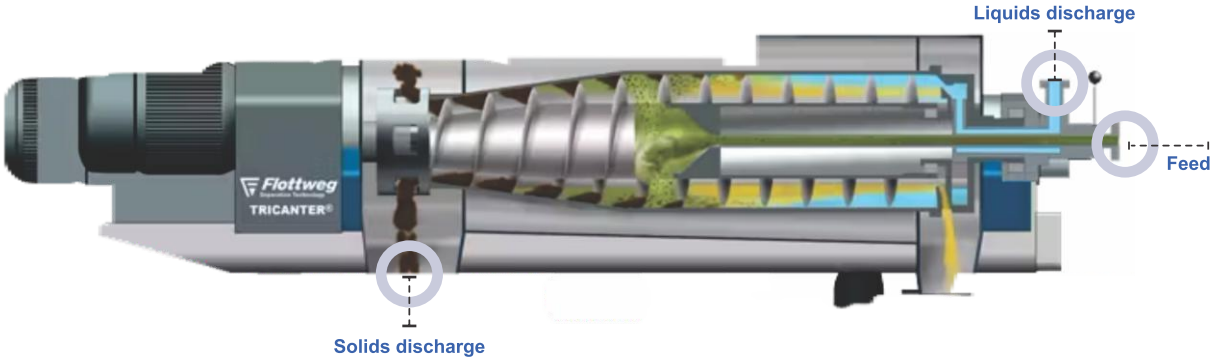
FLOTTWEG DECANTERS

Separate Solids and Liquids efficiently. The Flottweg decanter - the most versatile solid bowl scroll centrifuge in mechanical separation technology.





FLOTTWEG DECANTER FOR THE SEPARATION OF SOLIDS FROM LIQUIDS UNDER PRESSURE



Decanters used for the extraction of finely solubilized fruit and vegetable mashes. They excel in high yields and can be used flexibly for different applications.

CONTINUOUS OPERATION

- Flexibility.
- Quick and gentle processing.
- Hygienic due to the closed system.

ADJUSTABLE IMPELLER

- High yields also in case of changing feed conditions.
- Flexible and easy adaption to various types of fruit and vegetables.
- Optimum cleaning.
- Juice discharge under pressure.

MODULAR CONSTRUCTION

- Optimal adaptation to your specific requirements (e.g. hard-facing in case of "sandy" products).
- High yields due to optimum dimensioning (scroll, cone angle etc.).

DRIVE SYSTEM SIMP DRIVE®

- Lower energy consumption due to high separation efficiency.
- Constant differential speed, also in case of high torque, resulting in high yields.
- The bowl is discharged when it is shut down (e.g. when production is finished).

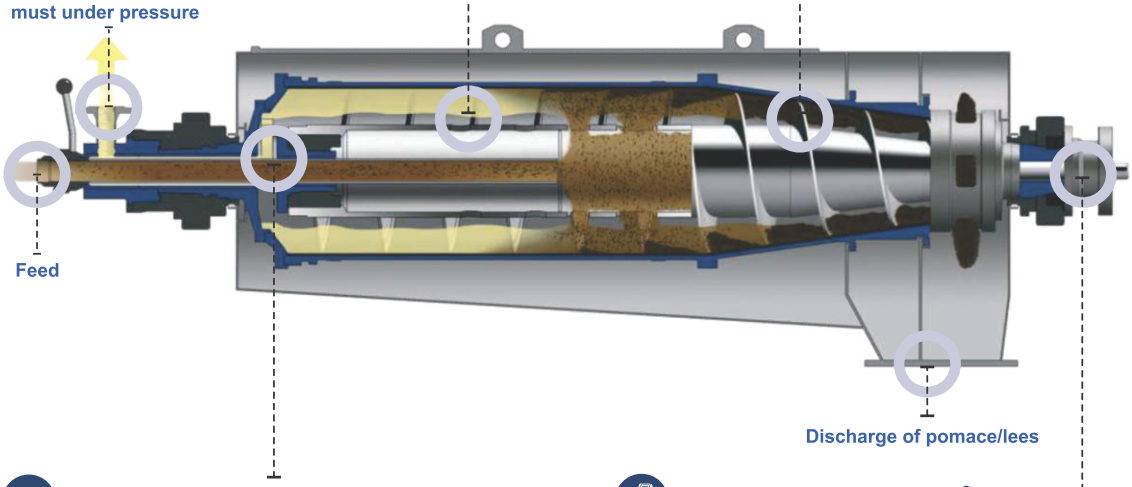


Must clarification zone

- Flottweg decanter with high clarifying efficiency thanks to the optimum centrifuge bowl and scroll design adapted to the wine industry's requirements.
- Flexible adjustment of the separation zone using the adjustable impeller, enabling an optimum clarification result, even under varying product conditions.

Extraction zone

- Optimum configuration of the differential speed enables "dewatering" of the solids in the bowl cone.
- High dry matter content in the separated solids, high must yields.



Flottweg impeller

- Closed discharge of clarified must under pressure, preventing the formation of foam oxidation processes are minimized, improving the quality of the final product.
- Liquid discharge under pressure means no supply pump is required, which would normally be necessary.
- Optimized CIP cleaning.
- Option for automation.

Flottweg Simp Drive®

- Torque-controlled adjustment of the differential speed, resulting in consistently high dry matter content in the separated solids. High level of added value through improved overall grape must yield.
- Gearbox installed outside the product room.
- Lubricants used in compliance with NSF H1.

CLARIFICATION DECANTERS

Decanters used for the extraction of finely solubilized fruit and vegetable mashes. They excel in high yields and can be used flexibly for different applications.





SEDICANTER®

PROCESSING FINE AND PASTY PRODUCTS

The Flottweg Sedicanter® is an innovative solid bowl centrifuge (decanter centrifuge) which combines the advantages of decanter centrifuges and disk stack centrifuges alike. The centrifugal force of the Sedicanter® is between 7000 and 10,000 x g. Its clarification efficiency is thus similar to that of a disk stack centrifuge. At the same time its construction design allows the Sedicanter® to process high solids loads in the feed, like a decanter. In contrast to a decanter, however, the Sedicanter® can also process fine and pasty solids – which can be discharged from a decanter only with difficulties due to their soft consistency. The Sedicanter® is appropriate for processing soft products such as biomass, yeast suspensions, protein suspensions, fermentation broth, and many more.

CONFIRMATION OF CHARACTERISTICS



Decanter

- High solids load in the feed.
- Good adjustment to fluctuating solids loads in the feed.
- Low separation efficiency compared to disk stack centrifuges.



Disk Stack Centrifuge

- High separation efficiency and excellent clarification.
- Sensitive to fluctuating solids loads in the feed.
- Problems when processing high solids loads.



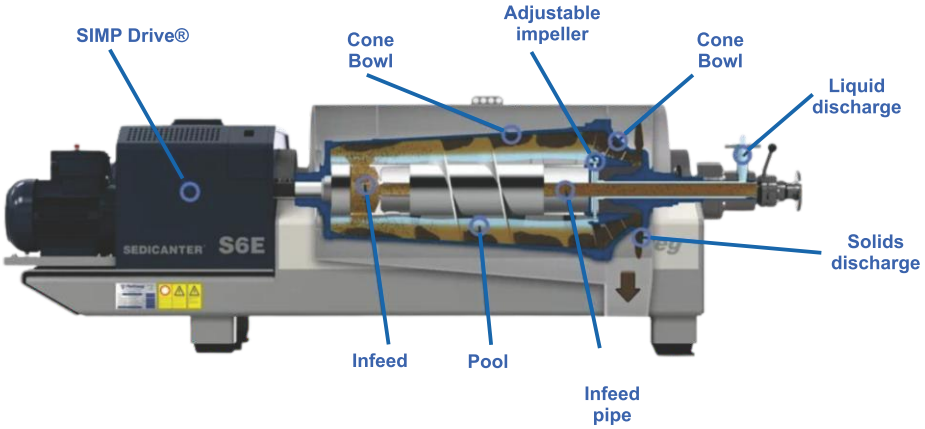
Sedicanter®

- High solids loads in the feed.
- Good adjustment to fluctuating solids loads in the feed.
- High separation efficiency and excellent clarification.



ADVANTAGES OF THE FLOTTWEG SEDICANTER

- Efficient separation of suspensions for which decanter centrifuges or disk stack centrifuges provide only insufficient results.
- Processing of suspensions with fine and pasty solids or fluid sediments (yeast, protein, etc.).
- High g-forces for efficient solids separation and maximum clarification of the liquids, similar to disk stack centrifuges.



DISC STACK CENTRIFUGES

FLOTTWEG AC-SERIES

Disc stack centrifuges with self-cleaning bowls are used for the separation of suspended solids from liquids and for two immiscible liquids with the simultaneous separation of solids.

Flottweg developed the AC-series of disc stack centrifuges. They are equipped with the Soft Shot® discharge system and feature accurate partial discharges and smooth operation.

The range of Flottweg Centrifuges also includes special centrifuges which are used in soap production like the separation of toilet soap and lye. Flottweg's Soap Centrifuges can process capacities from 1,000 to 10,000 kg/h soap.

Flottweg's Disc Stack Centrifuges have capacities from below 1 m^3/h (4 gallons per minute) to 85 m^3/h (370 gallons per minute).



Typical applications:
- Beverage industry.
- Food.
- Chemical, biotech.
- Animal and vegetable fats and oils.
- Mineral oils etc.



PLATE FLASH PASTEURIZER

Flash pasteurizers are designed to preserve the characteristics of the liquids, through the inactivation of existing microorganisms and enzymes naturally present in the product, or added during its processing. TMCI Padovan Flash Pasteurizers assure maximum security and minimum alterations of products according to HTST principle (high temperature short time) and they guarantee:

- High thermal exchange coefficient.
- Low dirtying rate.
- Easy and speedy cleaning and maintenance.
- Enlargement or transformation possibility.

They can be of various types and, in particular, plate flash pasteurizers are in stainless steel AISI 316 or titanium, available in various sizes and models, including the free-flow type.





UF FILTRATION

Ultrafiltration plant is specially designed for producers of juices, in particular:

- Juices to be reduced in yellow colour in order to obtain clear and long time stable products, with absorbance OD at 420nm > 0,4.
- Juices with TAB (Thermo Acidophilic Bacterium), a dangerous agent for juice oxidation, after filling into aseptic boxes and long time storing.
- Plants are available from 5 to 60 t/h with a cut off variable from 100.000 to 500.000 dalton.





CARBON FILTRATION

VICTORIA - D.E. PRESSURE PED TESTED FILTER

The filtration chamber is designed and manufactured according to European Directive PED to filter liquids in presence of CO_2, like soft drinks, and to inject compressed gases into the filter during the processing phases.

The filtering discs, from an original Padovan design, are flat and crushproof, they allow a high drainage flow in the filtration phase and during the pre-panel formation and a complete and accurate cleaning in the washing phase, even below the filtration cloth.

The filtering elements are made up of a sheet in AISI 304 stainless steel provided with a series of projections obtained thanks to a drawing process on which the filtration cloth in AISI 316L lays with 65 micron meshes.



SHEET FILTERS

BECO COMPACT PLATE A400

Eaton´s BECO COMPACT PLATE A400 depth filtration system is the most flexible depth filtration system Eaton has to offer. It is easily adaptable to customers' specific requirements and applications through the use of different filter elements, cake frames, or depth filter sheets. A special diversion plate for double filtration adds to its flexibility.

The versatility of the system provides many filtration options for applications in food, cosmetics and fine chemical industries.

Material : Stainless Steel, AISI 316L
Max. Filter Area : 17.92 m²
Use : Particle, Sterile, Pre-Coating Filtration



Core features:

- Highly flexible filter area from 0.28 – 17.92 m² allows for customizable solutions for individual applications.
- Variable application options through the use of filter plates, feeding plates and cake frames.
- Easy handling and good cleanability thanks to ergonomic design, smooth surfaces, and open support grid of filter plates.
- Low drip loss due to the compact design of the filter and a larger spindle.



BECO COMPACT PLATE A600

A particularly high-class multi sheet filter with various equipment options. BECO Compact plate A600 depth filtration system is used for liquids with large variability.The system utilizes different filter elements and a wide range of different depth filter sheets for applications in the biotechnology, chemical, cosmetics, and food industries.

Material : Stainless Steel, AISI 316L
Max. Filter Area : 69.30 m^2
Use : Particle, Sterile, Pre-Coating Filtration

Core features:

- High flexibility through the simple adaptation of the filter area from 0.66 to 69.3m^2 to the respective application.
- Variable application options through the use of filtrate plates, unfiltrate plates and cake frames.
- Easy handling and good cleanability thanks to ergonomic design, smooth surfaces, and open support grid of filter plates.
- Low drip loss due to the hydraulic tightening unit with automatic subsequent pressing.



DEPTH FILTERS

BECO STANDARD DEPTH FILTER

The BECO Standard depth filter sheets have superior clarification performance for reliable removal from particles to microorganisms due to optimal pore structure and adsorption.These filter sheets cover filtration grades from 4.0 µm to 0.1 µm nominal rating in applications such as wine, beer, fruit juice, cosmetics, fine chemicals, pharmaceuticals and biotechnologies.

BECO STERIL 60, STERIL 40
DEPTH FILTER SHEETS WITH A HIGH GERM RETENTION RATE

These sheet types are particularly suitable for cold-sterile bottling or storing of liquids.The high germ retention rate is achieved through the fine-pored structure of the depth filter sheet and an electrokinetic potential with an adsorptive effect. Due to their high retention capacity for colloidal ingredients, these sheet types are particularly suitable as prefilters for subsequent membrane filtration.

Core features:

- Ideal pore structure for reliable retention of the components to be separated.
- Use of high-quality raw materials for high clarification performance.
- Economic service life through high dirt-holding capacity.
- Comprehensive quality control of all raw and auxiliary materials.
- In-process monitoring ensures consistent quality.



BECOPAD
PREMIUM DEPTH FILTER SHEETS

Eaton's BECOPAD premium depth filter sheets are made of cellulose, characterized by high-purity, strength and performance for excellent color and flavor fidelity, which even for microbial removal does not require mineral components. BECOPAD depth filter sheets offer exceptionally high chemical resistance both in alkaline and acidic applications.



Core features:
- Without the addition of mineral components, therefore low ion content.
- Up to 20% higher performance due to maximum backwash capability.
- Very good chemical and mechanical resistance.
- Low charge-related adsorption.
- Water required for pre-flushing and regenerating reduced by up to 50%.
- Drip losses reduced by up to 99%.
- Virtually no ash content.
- Biodegradable.

LENTICULAR FILTER DISCS

BECODISC PREMIUM STACKED DISC CARTRIDGES

BECODISC premium stacked disc cartridges with BECOPAD depth filter sheets are made of cellulose, characterized by high-purity, strength and performance for excellent colour and flavour fidelity, which even for microbial removal does not require mineral components. BECOPAD depth filter sheets offer exceptionally high chemical resistance both in alkaline and acidic applications.



Core features:
- Made of cellulose, characterized by high purity.
- Up to 20% higher performance.
- Reduced pre-rinse volumes.
- Increased strength of the depth filter media used versus conventional depth filter sheets.
- Rinsing volume reduced by up to 50%, resulting in reduced process costs.
- Very good chemical and mechanical resistance.
- Low charge-related adsorption.
- Virtually no ash content.
- No undesirable affects to the product.



CARTRIDGE HOUSINGS

BECO INTEGRA CART KA

Eaton´s BECO INTEGRA CART KA cartridge housings are manufactured of stainless steel AISI 316L and can be applied within the filtration of liquids in the food and beverage industry. This series is available as a 1-, 3-, 5-, 8-, 12-, 18-, 24- and 30-fold cartridges version for sterile filtration or prefiltration purposes.



Core features:

- ATEX certified.
- Application of material AISI 316L avoids corrosion even at long term use.
- High safety by application of code 7 adapters (double-leaf bayonet locking).
- Optimized design allows thorough and quick cleaning.
- Low product loss thanks to compact design.
- Resistant to hot water or steam sterilization.
- CIP-cleanable (fluid group 1).

BECO INTEGRA CART KK

Eaton´s BECO INTEGRA CART KK filter cartridge housings are manufactured of stainless steel AISI 316L and designed for gas or steam filtration.



Core features:

- ATEX certified.
- Corrosion resistant, stainless steel 1.4404 material.
- Increased safety though the use of code 7 adapters (double-leaf bayonet locking).
- The optimized housing design allows thorough and fast cleaning.
- Suitable for filtration of gases and particle filtration of steam.
- Suitable for hot water or steam sterilization.

BECO INTEGRA CART KHF

BECO INTEGRA CART cartridge housings are manufactured of stainless steel AISI 316L and can be applied within the filtration of liquids with high flow rates in Life Science applications.



Core features:

- ATEX certified.
- The application of material AISI 316L avoids corrosion even at long term use.
- Especially designed for high flow rates.
- Easy and fast cartridge change.
- The optimized design allows thorough and fast cleaning.
- Low product loss thanks to compact design.
- Resistant to hot water or steam sterilization.



BECO INTEGRA DISC MB

Eaton's BECO INTEGRA DISC MB stacked disc cartridge housing is an enclosed depth filtration system which can be used from coarse filtration to microbial removal filtration of liquids in the food and beverage industries.



Core features:

- ATEX certified.
- Application of material AISI 316L avoids corrosion even at long term use.
- High safety by application of code 7 adapters (double-leaf bayonet locking).
- Optimized design allows thorough and quick cleaning.
- Low product loss thanks to compact design.
- Resistant to hot water or steam sterilization.
- CIP-cleanable (fluid group 1).

MICROFILTRATION PLANT

Microfiltration plants, from 10 to 500 hl/h, are made in AISI 316 stainless steel and they strictly observe the most rigid hygiene criteria.

Equipped with valves and bypass, they permit the exclusion of each housing, in order to allow filtration while the other chamber is in the cleaning phase. 1 or 2-stage filtration lines for the water service for CIP and thermal sterilization. In case of anomalies the operator is alerted.

The PLC, in the automatic versions controls all the process phases and allows the interfacing with other devices inside the production site.

Competitive advantages:

- Barrier with mix-proof valves between the filtration chambers and the washing chambers to prevent any leakage of chemical solutions.
- Washing circuits specifically studied for a 100% sanitization.
- Automatic control of the filter change.
- Total recovery of the product inside the plant.



EVAPORATION & ASEPTIC FILLING

PADOVAN
TMCI PADOVAN

EVAPORATION

Forced circulation, Falling film or Thin film type. On demand with aroma recovery and / or mechanical or thermodynamic compressor.

Superior product quality as a result of:
- Reduced holding time especially for higher concentrations where thermal damage could occur.
- Automatic control and regulation instruments for the main process parameters to keep the operation conditions constant.

Very low water consumption for:
- Pump seals cooling.
- Make-up water in the cooling tower circuit.

Complete condensate recovery. Very precise outlet concentration control. Transfer and volumetric pumps are driven automatically.





ASEPTIC FILLING

TMCI Padovan places its decades of experience in the aseptic filling, by proposing its fillers to be combined with tubular or plates sterilizers.

There are many configuration possibilities:
- Single or double head.
- With or without aseptic buffer tank.
- Single drum or automatic management of the four bag in drums on pallet.
- Big bag (1.000 kg) or smaller sizes (5-10 kg).



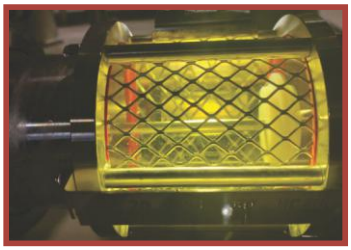


DECOLOURATION PLANTS





Victoria inlet from plant



Victoria outlet

SYRUP ROOMS

Blendtech syrup rooms, for the production of CSD, non CSD, juices and hybrid systems, are now installed and well known worldwide. Thanks to our technical support, we are able to identify and meet all the customer needs providing tailor-made solutions. Internally developed software, together with the TeleService, allows us to intervene in real time in case of needs.

Our syrup rooms can have continuous or discontinuous sugar dissolving, different levels of automation and capacities starting from 1.000 l/h up to 200.000 l/h.





CARBONATOR & DEACARBO

Carbonators are machines designed to obtain a high quality sparkling beverage, thanks to the precise dosage of CO_2 .

Generally they are complete with:

- PLC to handle the process.
- CO_2 flowmeter in line.
- Pump to stabilize the flowrate.
- Pressure gauge, pression reducer, CO_2 dosage, static mixer and flowmeter.
- Holding to combine carbon dioxide.
- Buffer tank, to stabilize the final beverage.

Each equipment is compact and mounted on a frame easy to move, it is customizable depending on the necessities, and it is always combinable with a CIP plant.



PREMIX

Premix units are designed to assure carbonated soft beverages and non-carbonated soft beverages preparation by process water deaeration, mixing with aromatized syrup and carbonation with CO_2 injection. Our plants flexibility allows, by choosing different production recipes, the following processing phases:

- CSD : Deaerated Water + Aromatized Syrup + CO_2.
- Non CSD : Deaerated Water + Aromatized Syrup.
- Sparkling Water : Deaerated Water + CO_2.
- Natural Water : Deaerated Water.

Plant consisting of:

- Deaeration group vacuum type to extract process water dissolved oxygen. Deaeration tank and vacuum pump are included in the system.
- Aromatized Syrup / Process water mixing zone assured with magnetic or mass flow meters, according to the configuration and related feeding pumps.
- Static Mixer system downstream flow meters.
- Carbonation group by CO_2 Injector and magnetic or mass flow meter, according to the configuration.
- Existing Filler & CIP interface by digital or BUS & NET signals.
- Integrated filler delivery and CIP return pump.





SUGAR DISSOLVER

Sugar dissolvers are equipment used in the soft drink and juice industry. They are used for the production of sugar syrup, usually at 60-65°Brix, that is the base for the production of the final drink.

Dissolution systems can be made both in continuous and batch, with different levels of automation.

It can be cold or hot, according to the customer's needs and the required production capacity.



CLEANING IN PLACE (CIP)

CIP plants can be manual, semi automatic or fully automatic, with or without PLC. They are complete with feeding and recovery pump, thermostat, valves (manuals or automatic).

Heating can be electric, by steam with alkaline solution or with external exchanger. It can be composed by 1, 2, 3, 4 or 5 tanks, and volume can go from 10 to 200 hl.





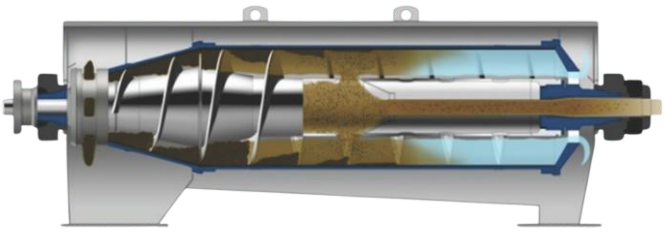
WASTE WATER DECANTERS

FLOTTWEG C SERIES DECANTER

Flottweg C Series decanters designed for the specific environmental requirements of waste water treatment.

- High dry solids values in the discharged material.
- Higher power density within a small footprint.
- Powerful Flottweg Simp Drive® drive.
- Reduction of operating costs due to reduced need for flocculant.





FLOTTWEG X SERIES DECANTER

Flottweg X Series, the most economical solution for your sewage sludge dewatering.

- Xtra dewatering performance:
  Up to 10%* less sludge volume due to up to 2% higher total dry solids in dewatered sludge.
- Xtra polymer savings: Up to 20%* less flocculant needed.
- Xtra energy savings: Up to 20%* lower energy consumption.
- Xtra clean: The separation degree is greater than 99%.
- Xtra capacity: Up to 15%* more throughflow.

* in comparison with our centrifuges in the C Series





QUALITY SERVICE & CUSTOMER SATISFACTION

From troubleshooting and repairs to maintenance and support, our technicians are available to assist with the following:

- Decanters
- Centrifuges
- Membranes presses [all types]
- Membranes crossflow [all Types]
- Presses: Willmes
- Destemmers: Armbruster
- Filters: Bulk filters, Lees filters and Crossflow Filters

OUR SUPPLIERS

















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