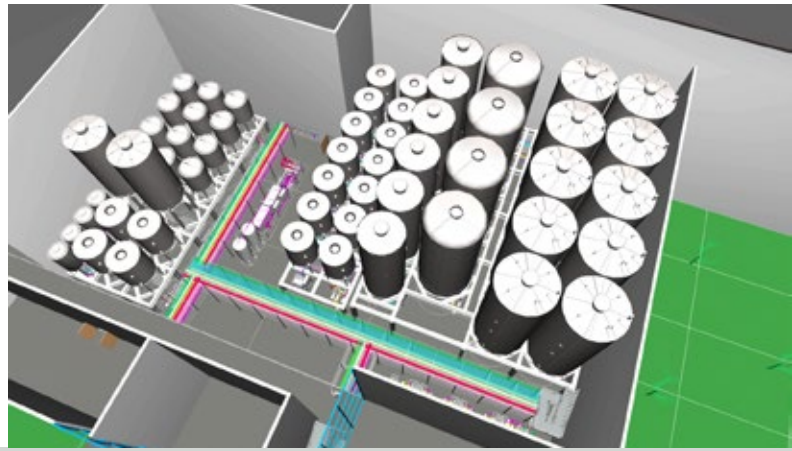


PROCESS AND PRODUCT SAFETY – FROM THE SPECIALIST

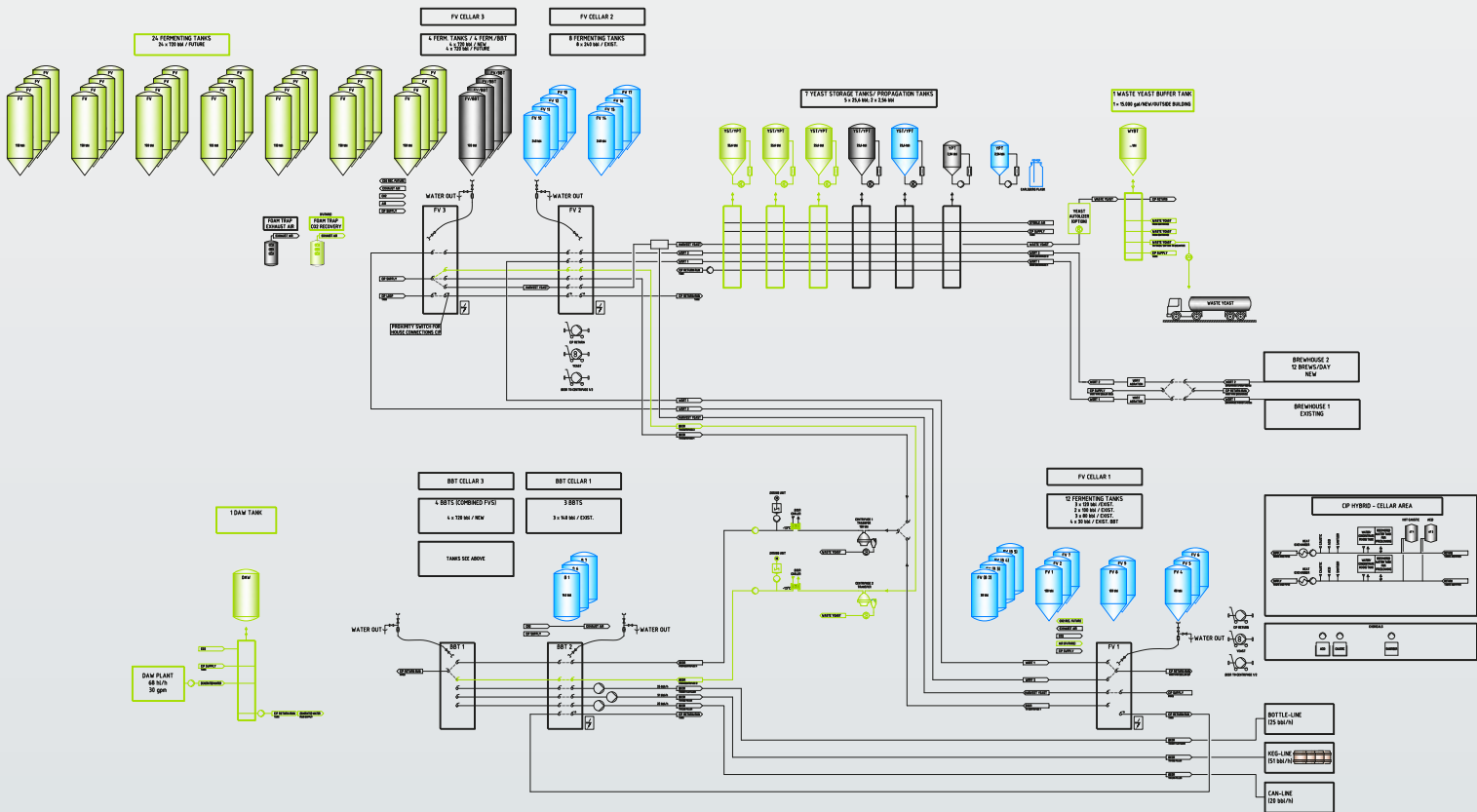
Components, systems and engineering – All from one source

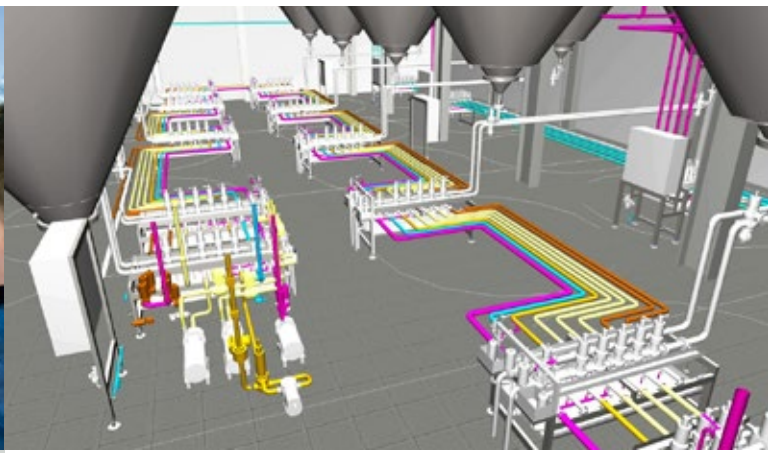




PERFECT HANDTMANN ENGINEERING

For your products and processes





From brewhouse to bottling - Handtmann Engineering provides solutions for the construction, renovation, expansion and optimization of your cold block.

- Preparation and planning
- Consulting and design
- Tailor-made for your specific system
- Project management
- Overall project planning in 3D

Our Engineering for your success

- Tailor-made concepts to meet your aims and objectives
- Handtmann expertise focuses on your process and plant parameters, resulting in excellent cost efficiency
- Our experienced team of engineers and brewing technologists support you with functional descriptions and flow diagrams from the rough concept to the system start up and training



Brewery



Dairy



**Pharmaceutical, Beauty care
and Biotechnology**



Refrigeration technology

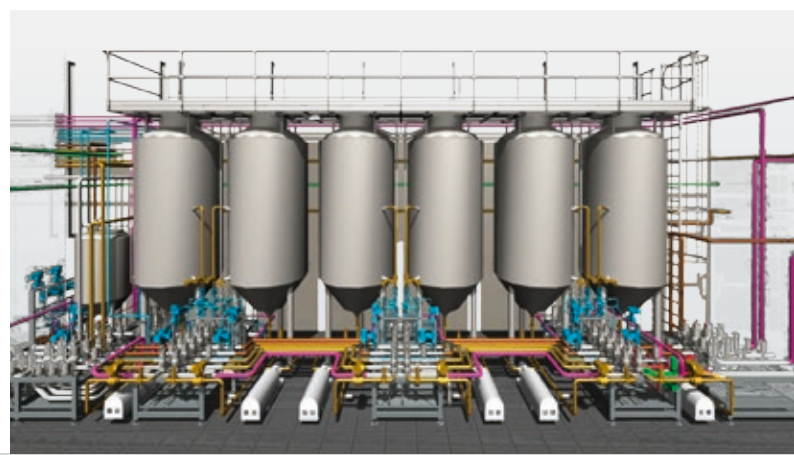


Winery



Special process technology

→
VERSA FLEX Yeast Management,
the fully automated spa & wellness
for your yeast cells



YEAST MANAGEMENT

Propagation, storage, revitalization





YEAST WRANGLER semi-automated

Tailor-made Yeast Management solutions with „Versa Flex“ and „Yeast Wrangler“.

The global trend of brewing different specialty beers holds new challenges in the management of various yeast strains. The tailored Handtmann yeast management system, available as „Versa Flex“ and „Yeast Wrangler“, offer the best solution for the brewer.

With multi-functional equipment and intelligent process design, different yeast strains can be simultaneously propagated, stored and revitalized.

Yeast Management Properties

- Gentle mixing with positive displacement pumps
- Best mix of the entire tank by using two tangential tank inlets
- Fully automated tank pressure regulation
- Aeration through the proven Handtmann Vario-Air
- All components are CIP- / SIP-capable
- In house prefabricated orbitally welded elements assure easy installation and the highest quality standards
- Globally proven Handtmann technology in “Hygienic Design”

Through the use of proven Handtmann components and technology, cross-contaminations are eliminated and high cell rates with vital yeast are achieved. The Handtmann yeast systems can be planned and delivered as a fully automatic solution called „Versa Flex“, as well as in the semi-automatic version „Yeast Wrangler“. The modular construction of the systems can be easily expanded and upgraded.

Your Benefits

- Gentle yeast treatment ensures optimal reproduction rates
- Cost savings through multi-functional equipment
- Several propagations per week are possible
- The number of yeast strains is taken into account
- Tailor-made solutions for the yeast management is our strength
- The Handtmann automation team integrates the yeast management into your existing system

→
Handtmann double outlet separates
the beer and the yeast



PIPING SYSTEMS

For your fermentation, storage and bright beer tank area





← Fully automated fermentation / storage with the piping system SOL

↑ Tailor-made pipe fence combined with INOVA double seat valves

Handtmann piping systems - Developed for your requirements.

Handtmann develops, designs and manufactures piping systems, pipe fence elements and valve blocks for the brewing and beverage industries. Our systems from brewhouse to bottling are in worldwide use. The Handtmann piping systems are individually designed to the highest

quality standards. Due to the in house prefabrication, systems are being installed on-site the shortest time and highest quality. Tailor-made solutions for the highest demands – with proven Handtmann components and technology.

Piping System Properties

- Completely prefabricated pipe fence elements and valve blocks
- Highest quality due to prefabrication with orbital welding
- Manual and semi-automatic pipe fences in swivel bend design
- Semi-automatic and fully automatic SOL-systems (Short-Outlet-Loop)
- Customer-oriented systems for „Dry-Hopping“
- Engineering from a single source, from initial design to final acceptance
- Complete planning of systems and equipment in 3D technology
- Integration of foam separators in the CO₂ recovery line enables continuous processes
- Handtmann „Power Blow“ reduces air consumption during the CO₂ blow out step tank cleaning

Your Benefits

- Pipe concepts are designed individually for your requirements
- Individual consulting with solution proposals for the building design
- Handtmann pipe fence technology with over 40 years of in house experience
- Due to the high degree of prefabrication, the installation time is reduced on-site
- High standard of quality through the manufacturing process developed by Handtmann
- Supervision during the entire construction phase by project manager, site manager and commissioning engineer

← Inhouse prefabricated pipe fences allow for fast installation on site and guarantee highest quality

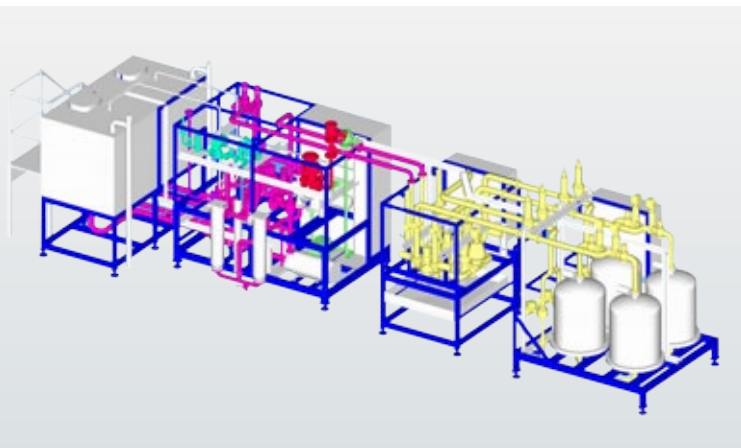
→
The Handmann CIP media filtration
through a ceramic Crossflow filter
provides economical and ecological
caustic recycling



FILTRATION

Fine and sterile filtration of beverages, gentle beer stabilization, innovative protein recovery





↖
MMS - Sterile filtration in front
of the bottling line

↗
CSS - Continuous beer stabilization

From classic beer clarification to modern nanofiltration.

MMS Multi Micro System fine and sterile filtration for beer

The Multi Micro System is the filter that combines the classic features of the deep-bed filtration with modern technology. The MMS allows the preservation of product quality and combines a simple and safe procedure with the best biological safety. The delivery program includes plant sizes of 30 hl / h to 600 hl / h, fully automated on request.

Your Benefits

- Retains fresh taste and quality of your beer
- „Cold Filtration“, therefore no thermal stress
- High efficiency and long service life
- Filter pad can be backwashed and regenerated

CSS beer stabilization

The CSS system consists of one or more modules. The adsorbent material is permanently fixed therein, thus making the approach and the dosage of a suspension in stabilizing superfluous.

Your Benefits

- The CSS adsorbs haze-forming proteins and tannins in one step
- The degree of stabilization is adjustable
- The CSS can be operated over a long period with constant stabilization results
- The adsorbent is chemically / physically stable so it can be regenerated without loss
- The waste quantities, as well as the initial and final legs are very low due to the small volume module
- Use by KG or Crossflow filter
- Continuous stabilization possible

CIP media filtration for breweries and dairies

In a modern production, a large amount of CIP caustic was previously discarded. A treatment of the caustic by CF filtration is not only ecologically, but also economically viable. The CF filtration reduces the consumption of:

- Caustic
- Water
- Wastewater
- Energy

Your Benefits

- The CF filter uses a very robust ceramic membrane with long life and high performance
- Fully automatic and continuous caustic filtration
- Contains the full cleaning effect of your caustic
- Safe removal of particles and organic contamination from the caustic
- Reduction of water and wastewater, conc. caustic and additives and heat capacity for new approach in hot caustic
- A user-friendly operating software allows easy customization of the process parameters or evaluation of the data recording

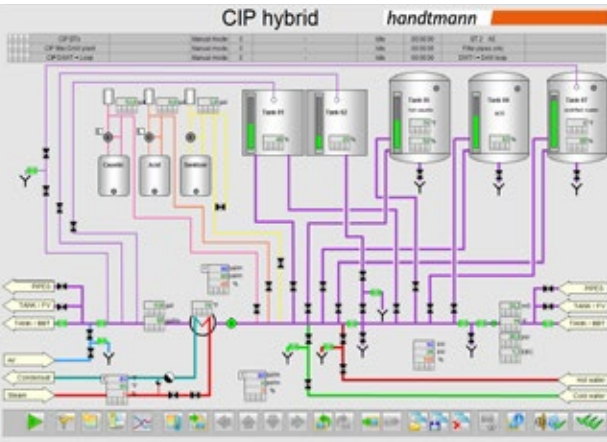


→
CIP Hybrid station

CIP-SYSTEMS

Hygienic & Hybrid systems





← Visualization of a CIP-system

↑ Chemical dosing station of a CIP-system in a brewery

Handmann CIP concepts meet increased process requirements.

Handmann CIP-systems are designed and manufactured according to the latest technical developments under sanitary aspects. The systems are designed according to customer specific tasks and operating conditions. Matched to the process, cleaning programs guarantee maximum safety and productivity in daily use.

CIP Hygienic & Hybrid Properties

- For maximum hygiene requirements
- Avoid „Cross Contamination“
- Controlled storage of CIP media
- Minimal consumption of cleaning media
- Exact dosage control the cleaning media through flowmeters
- Highest quality through pre-assembly

Handmann CIP-systems are designed and manufactured in the versions: CIP Hygienic, CIP Hybrid and CIP Recovered. Due to pre-assembly at the factory our high quality is guaranteed.

Your Benefits

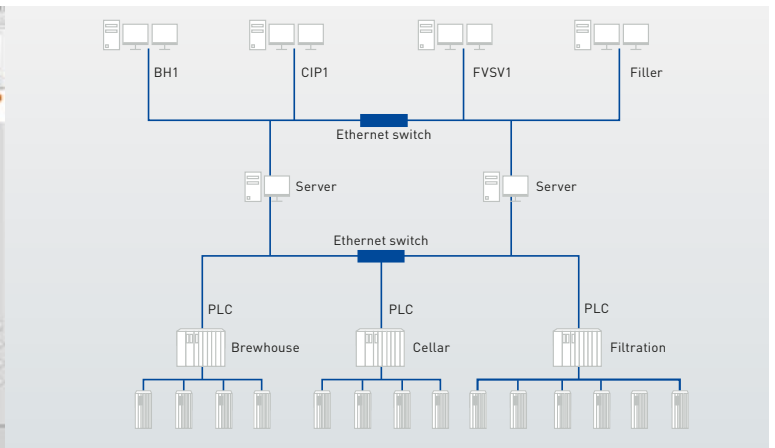
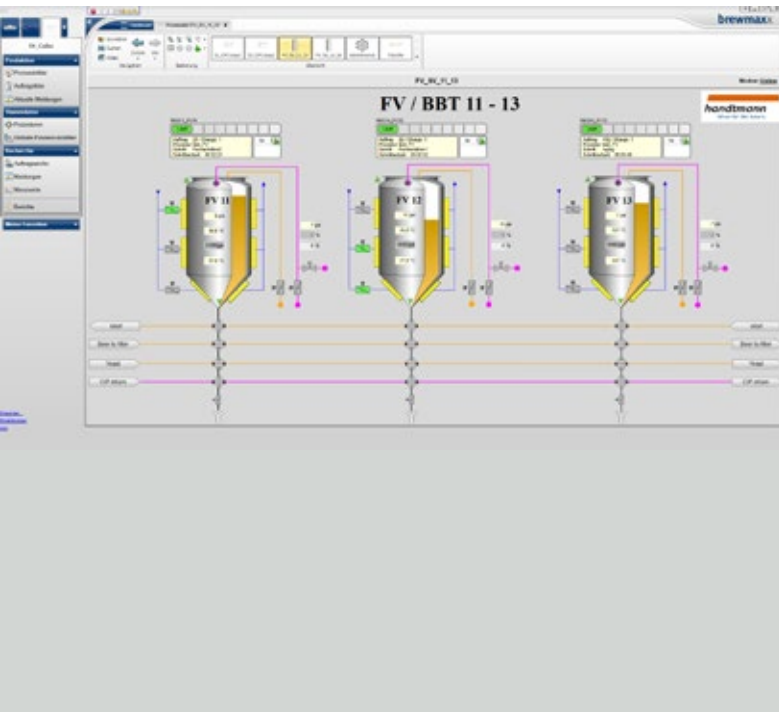
- CIP interpretation shall be specific for your processes and applications
- Compact design for minimum space requirements reduce the building costs
- Conserving energy, chemicals and water is guaranteed by detailed solutions
- Intelligent software for validated cleaning results

← CIP Hygienic for the complete cold block cleaning

AUTOMATION

Protects your product and your process





← Visualization fermentation

↑ Overview system structure

A clear and functional system piping, with meaningful user-friendly automation, is the optimal condition for the efficient operation of a plant.

The automation of the system enables a clear control of the program sequences and the actual process parameters. The integrated data acquisition, data storage allows a representation of current process data, as well as a documentation of expired processes.

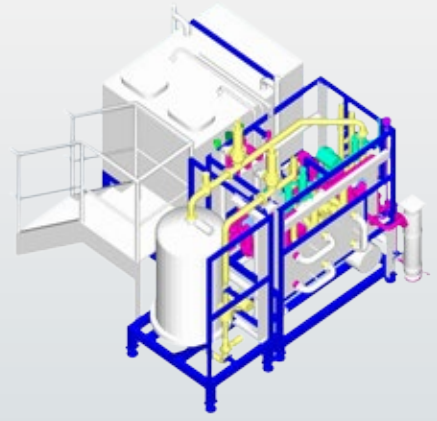
Our Competence

- From small investment plan to the complex process plant we provide reliable, maintenance-friendly automation systems for the operation and monitoring of your processes
- Integration of existing systems in complete systems
- Taking into account your specific needs by our engineers and supply appropriate automation solutions
- Software engineering with all major automation systems
- Programming of sequential programs and commissioning by our own engineers and specialists in software and control

Your Benefits

- Individual planning and preparation for tailor-made automation systems
- Experienced, innovative engineers ensure the smooth operation of your equipment
- Process equipment and automation from one source

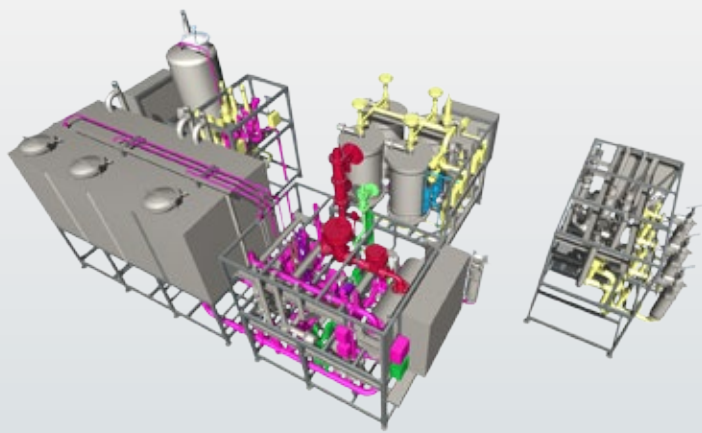
→
Semi-automatic RFC System
in batch production



PROTEIN CAPTURE

Protein purification / extraction





↑ Fully automatic RFC System in continuous production



← RFC radial flow column for the industrial biotechnology

RFC Radial Flow Chromatography.

Industrial chromatography processes in biotechnology and in „Functional Food Applications“ such as lactoferrin recovery have been derived from the pharmaceutical industry. High investment costs for the plant were the

result. The Handtmann RFC columns and the matched peripheral (piping, manifolds, CIP-systems) offer immense savings while maintaining fully automatic processes on an industrial scale.

RFC Properties

- RFC column content up to 265 liters
- Temperature resistant up to 100°C
- High flow rates at low pressure difference
- Low dead volume for high separation efficiencies

Your Benefits

- The RFC columns are easy to pack and unpack
- Most commercially available gels are held securely in the system
- RFC Packing Station available

YOUR PARTNER.

Made in Germany



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