СИСТЕМЫ ПИВОВАРЕННЫЕ ECO-MATRIX

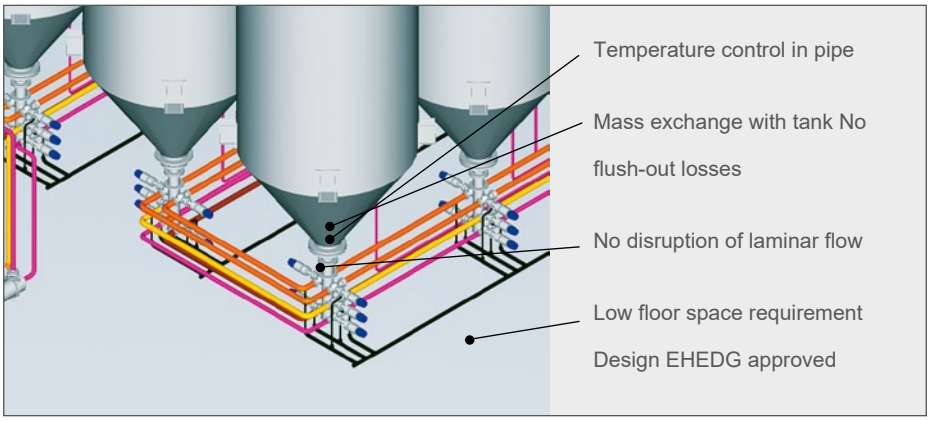
Технические характеристики

The optimal piping concept ECO-MATRIX™.

In the innovative ECO-MATRIX™ piping systems, the process lines and valves are connected directly beneath the tank outlet. The process valves will be arranged laterally at the tank outlet tree. The pipe system is separated from the tank and enables complete product discharge and pipe cleaning processes to be performed independently of tank cleaning. All pipes are suitable for hot cleaning. In comparison with conventional piping systems, the cost of instrumentation is reduced. Product losses during the process are minimized.

Fully automatic: ECO-MATRIX™
The system is based on a compact tank outlet tree. The short vertical pipe in combination with the ECO-MATRIX™ mixproof valve guarantees excellent cleaning conditions and minimum losses.

Tank connection with the ECO-MATRIX™ system



Upgrade your beer quality.

Temperature profiles

Basically, with the conventional tank connection with long horizontal outlet pipes we have different temperature profiles in the tank and in the pipe resulting in different processes. This affects the yeast and leaves its mark on pH value and extract reduction. The outlet tree of the ECO-MATRIX™, however, provides the same temperature conditions as the tank, thus ensuring identical processes.

Impact on the yeast

Examinations of the pH value and the number of viable yeast cells have shown identical processes in the tank and in the outlet tree of the ECO-MATRIX™ system, whereas with a traditional tank connection a significant increase in pH value and a decreased viable cell count were found in the pipe. In parallel with this, undesirable flavors and free fatty acids are excreted. These undesirable substances affect the taste and aging stability of the beer. None of these negative effects occurs with the ECO-MATRIX™.

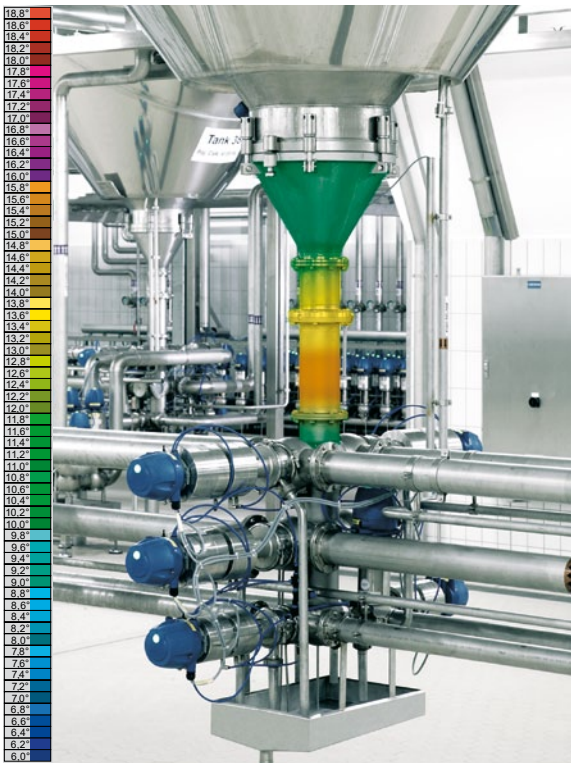
CIP

Thanks to the optimal hygienic design of the ECO-MATRIX™ system, cleaning times can be reduced. Most of the effort is put into the cleaning of the horizontal tank outlet line. Since this part of the cleaning process is no longer required with the ECO-MATRIX™ system, additional tank capacity will be freed up. If implemented consistently, this can even reduce the number of tanks required. The table below shows the cleaning effort.

Cleaning intervals in comparison

Tank cleaning CCT	Standard (min)	ECO-MATRIX™ (min)
Total pre-cleaning	13	9
Total caustic CIP	30	20
Total intermediate rinse	9	6
Total acid CIP	30	20
Total intermediate rinse	9	6
Total disinfection	9	6
Total CIP for the tank	**100**	**67**

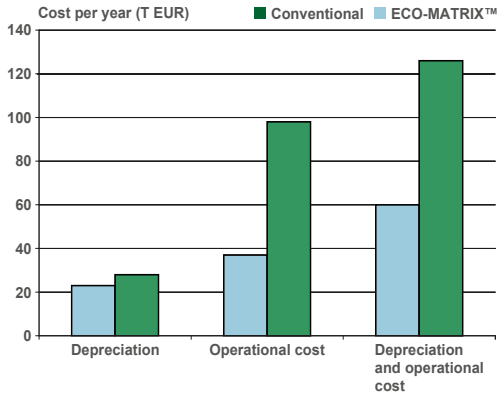
GEA Brewery Systems – understanding the details!



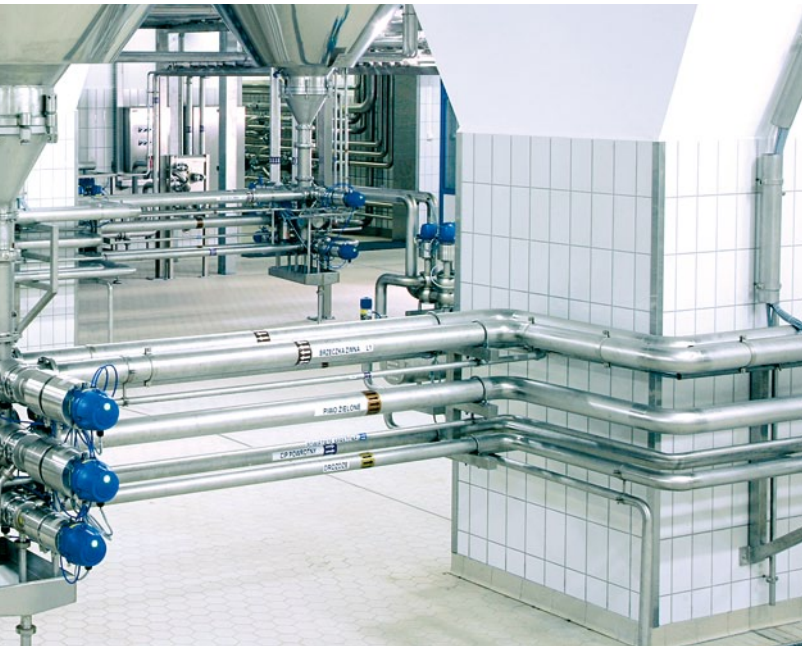
Temperature profile in the tank outlet and the ECO-MATRIX ™ tank tree

Investment and operational cost benefits.

The ECO-MATRIX™ concept has a highly positive effect on the costs of tank piping and the running costs. The following example will illustrate this cost advantage by comparing two fully automatic tank farms, one in conventional design and one with the ECO-MATRIX™ system.



In the conventional concept, the use of LEFF® (an innovative seat lift control system for mixproof valves, which minimizes water and detergent losses, from GEA Tuchenhagen) is optional. The conventional plant needs more mixproof valves and large pipe diameters are also more frequent. This is reflected in the investment costs and can be represented as annual depreciation costs.



Water and cleaning agent consumption figures can be calculated based on the average operational data of a plant. The running costs for a model plant have thus been determined on the basis of the prices for water, waste water and cleaning media in Europe and media losses.

The chart on the left shows all cost categories for the conventional and the ECO-MATRIX™ system: Depreciation of the plant investment, CIP losses (which can largely be influenced by using LEFF® technology), media losses in the cellar and the total of the individual costs. It easily becomes obvious that both ECO-MATRIX™ piping and LEFF® lead to a significant reduction in operational cost.

Efficient space utilization

Additional savings can be achieved by an optimal space utilization. The ECO-MATRIX™ can be installed directly beneath the tanks, even at considerable height. This allows for optimal space utilization, because other process equipment can be placed underneath. The building costs can be reduced drastically.

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