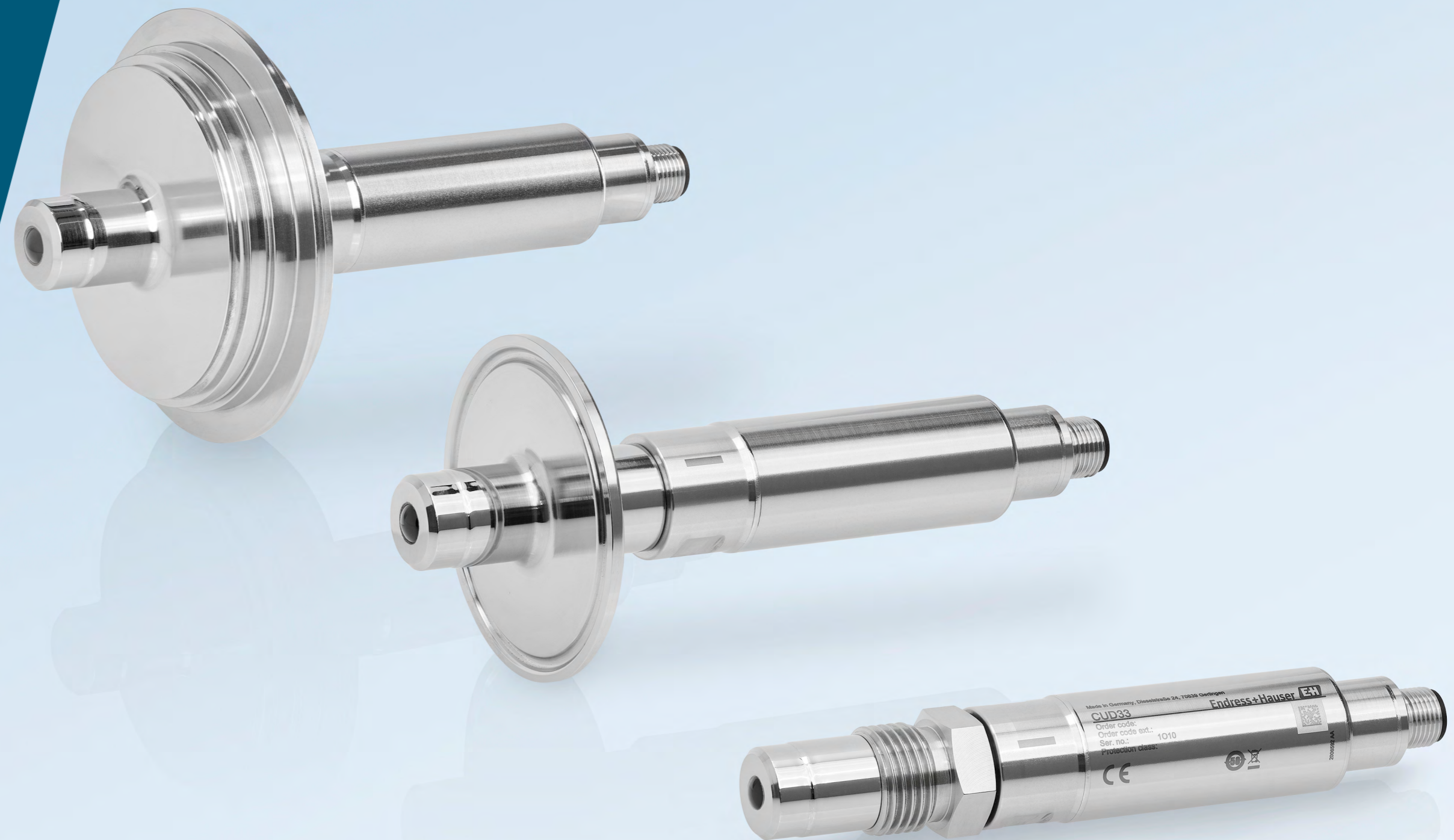


Phase separation - fast and reliable

CUD33 compact turbidity device for
maximized product yield in Food &
Beverage applications



CUD33 compact turbidity device

The CUD33 compact turbidity device enables reliable, resource-saving phase separation in Food & Beverage applications. It ensures maximum product yield through fast and precise phase separation, for example between milk and water, and can be easily integrated into any control system via its 4-20 mA output.

- Reliable phase detection for dairy, brewery and CIP applications
- Fast and precise recognition of media change to avoid product loss
- Compact, maintenance-free design with hygienic process connections (Varivent, Tri-Clamp) and common process connections (G1/2").



CUD33 compact turbidity device for phase separation applications

Benefits at a glance

Designed for efficient processes and maximum product yield, the CUD33 enables fast and precise phase detection based on inline turbidity analysis. Automated phase switching helps reduce process time and operating costs compared to fixed time or volume control. By reliably detecting media changes, product and resource losses are minimized, ensuring consistently high product quality and optimized downstream processes. In addition, reduced wastewater volumes, lower disposal efforts, and more efficient CIP and SIP processes contribute to overall cost savings and sustainable operation.

Maximized yield

Detect phases of your CIP process fast and precisely to avoid product loss.

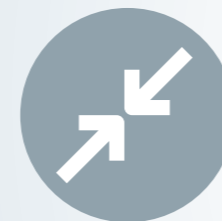


Easy handling and truly maintenance-free

The innovative design without replaceable sealing materials eliminates O-ring replacement and ongoing maintenance effort. Only an annual ball lens cleaning is required, independent of CIP cycles.

Compact design

Benefit from small installation dimensions to save space and install the phase separation device even in tightest areas.



Simple installation

Various process connections allow for easy installation. No further configuration is necessary, since the compact device delivers measured values once it's connected to the PLC.



Reliable measurements

The unique ball lens prevents interference due to air bubbles.



Compliance

The phase separation device complies with all relevant hygienic certifications such as 3-A, EHEDG, EU Food Contact Materials (EC) 1935/2004 and US Food Contact Materials FDA CFR 21.



Challenges in Food & Beverage industry

Media changes are an integral part of many processes in the food and beverage industry, for example during CIP cleaning, product changeovers, or recovery processes. Accordingly, reliable detection of process phases is crucial. Uncertain switching points often lead to product losses, extended flushing times, and reduced plant availability. Reliable turbidity measurement provides the necessary transparency. It detects phase transitions consistently and clearly, even when media and

process conditions vary. This enables operators to define switching points safely and automate workflows with confidence. The result is reduced product loss, shorter cleaning times, and more efficient water usage. Processes become more stable and predictable, plants run more smoothly, and downtime can be reduced. Operators gain confidence in their process and the assurance that media changes can be controlled reliably at any time.





Pre-rinse in CIP return lines

In CIP processes within Food & Beverage production, the pre-rinse step plays a critical role in removing remaining product residues from the process line before the actual cleaning phases begin.

In the CIP return line, it is essential to reliably detect when residues such as milk, cream, or whey have been completely flushed out of the system. Turbidity measurement provides direct, optical insight into the presence of organic product residues, independent of the cleaning media used. Across all CIP stages, turbidity measurement is used to detect when product and solids are present in water, caustic, or acid.

After the pre-rinse, caustic solution (NaOH) is typically used to displace and dissolve product remnants.

By combining turbidity measurement with conductivity measurement, the process gains full transparency: turbidity confirms product removal, while conductivity verifies the correct cleaning medium. This enables a precise and reliable decision point to end the pre-rinse phase and transition to the next CIP step. As a result, CIP times can be reduced, water and chemical consumption minimized, and overall cleaning efficiency significantly improved.



Up to 40%
time savings



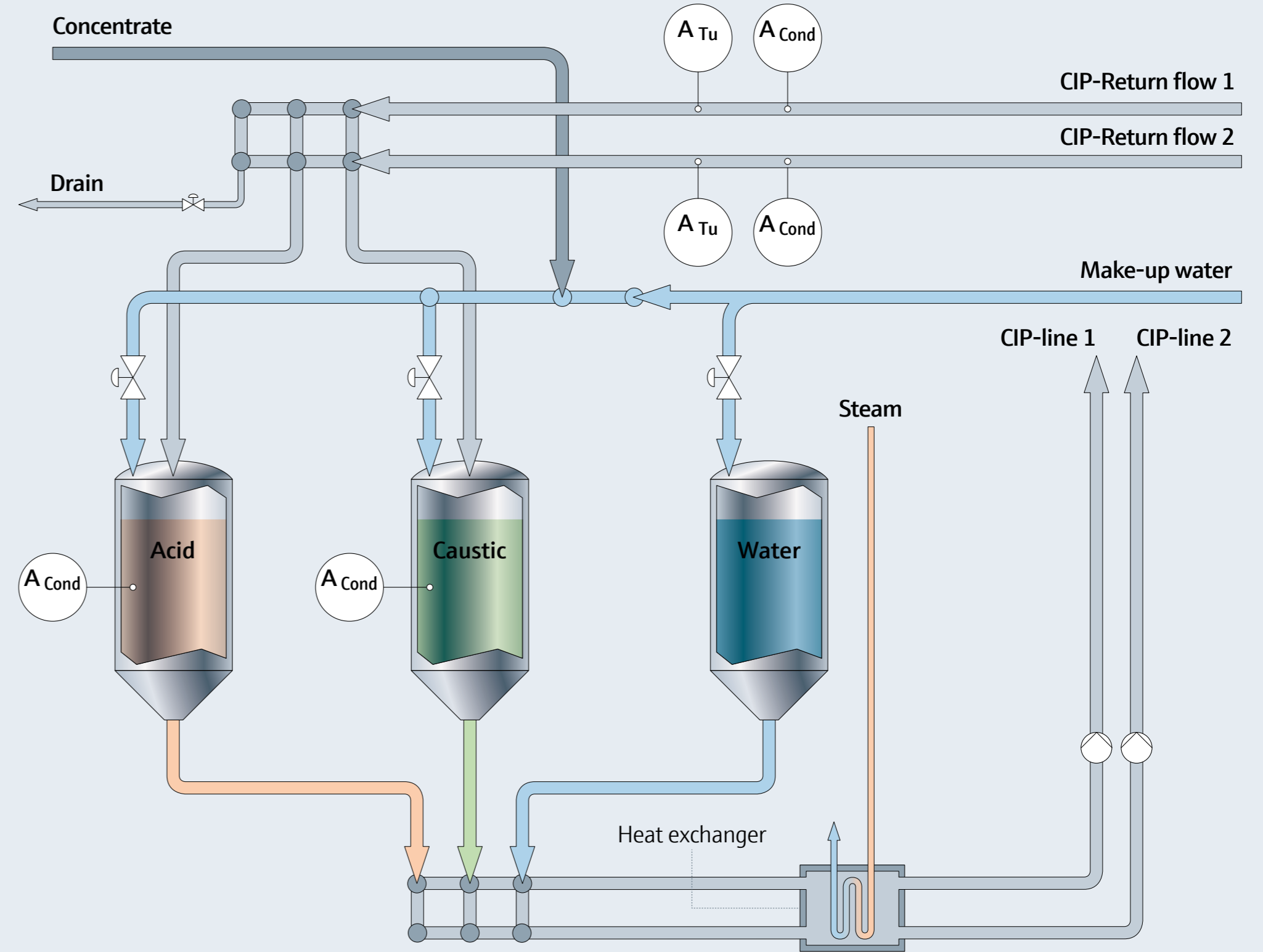
Up to 30%
energy savings



Up to 25%
freshwater savings



Up to 30%
wastewater savings





Phase separation for products

In dairies, it is crucial to know which medium is currently present in the pipeline immediately before filling. During product changeovers, clear phase transitions occur between product and water or vice versa.

The turbidity measurement with the CUD33 compact device enables reliable and automatic detection of these media transitions. Typical examples include transitions from milk to water, cream to water, or whey to milk.

CUD33 detects these transitions clearly and in real time, allowing precise identification of whether product or water is currently in the line. This enables accurate definition of switching points before filling and helps minimize product loss by ensuring that filling starts at exactly the right moment.



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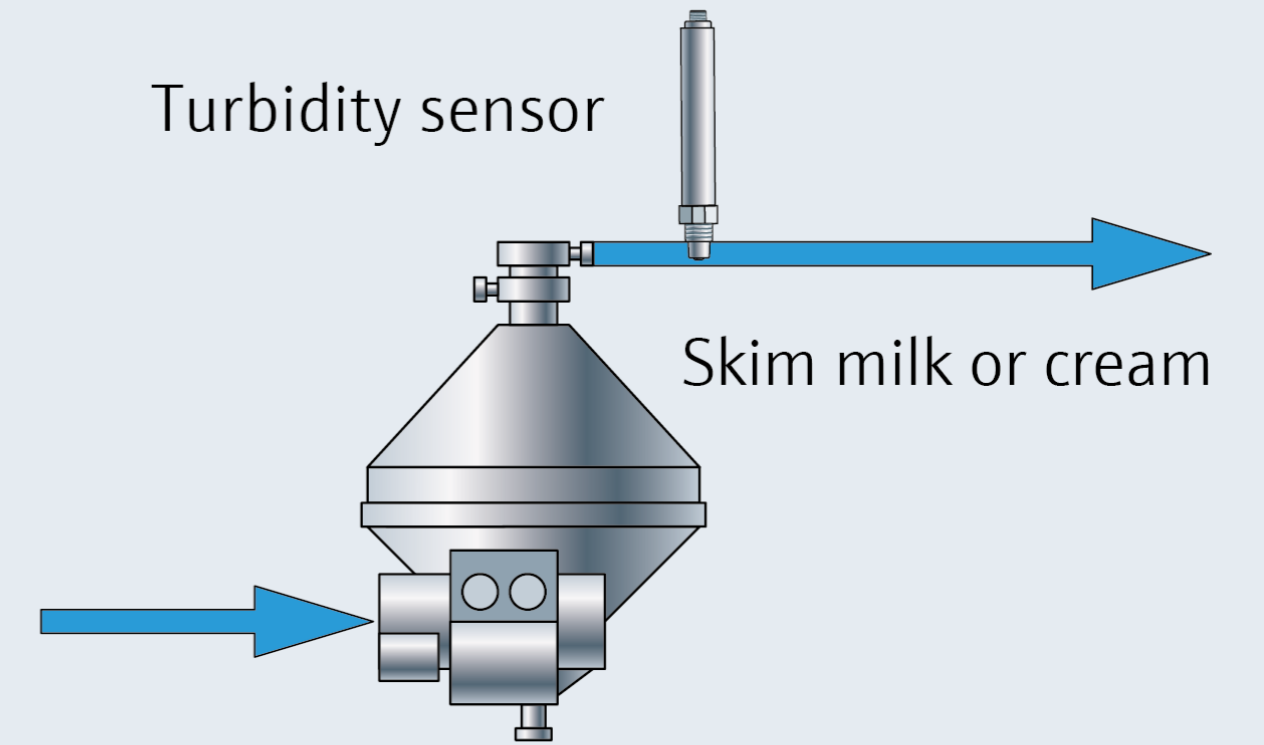


Dairy separators

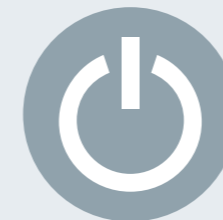
In dairy separators, milk is separated into skim milk and cream by centrifugal force. Due to density differences, the lighter, fat-rich cream accumulates above the heavier skim milk. Depending on the position of the phase boundary, either skim milk or cream flows through the same outlet line.

To ensure stable operation, it is essential to always know which phase is currently present in the line and exactly when a phase change occurs.

The CUD33 compact turbidity device is installed in the outlet line and continuously monitors the flowing medium. Based on turbidity, it reliably distinguishes between skim milk and cream and detects phase changes in real time. This enables stable separation, minimized product losses, and optimized yield.



Reliable media identification



Stable separator operation



Process-based control



Efficient cream processing

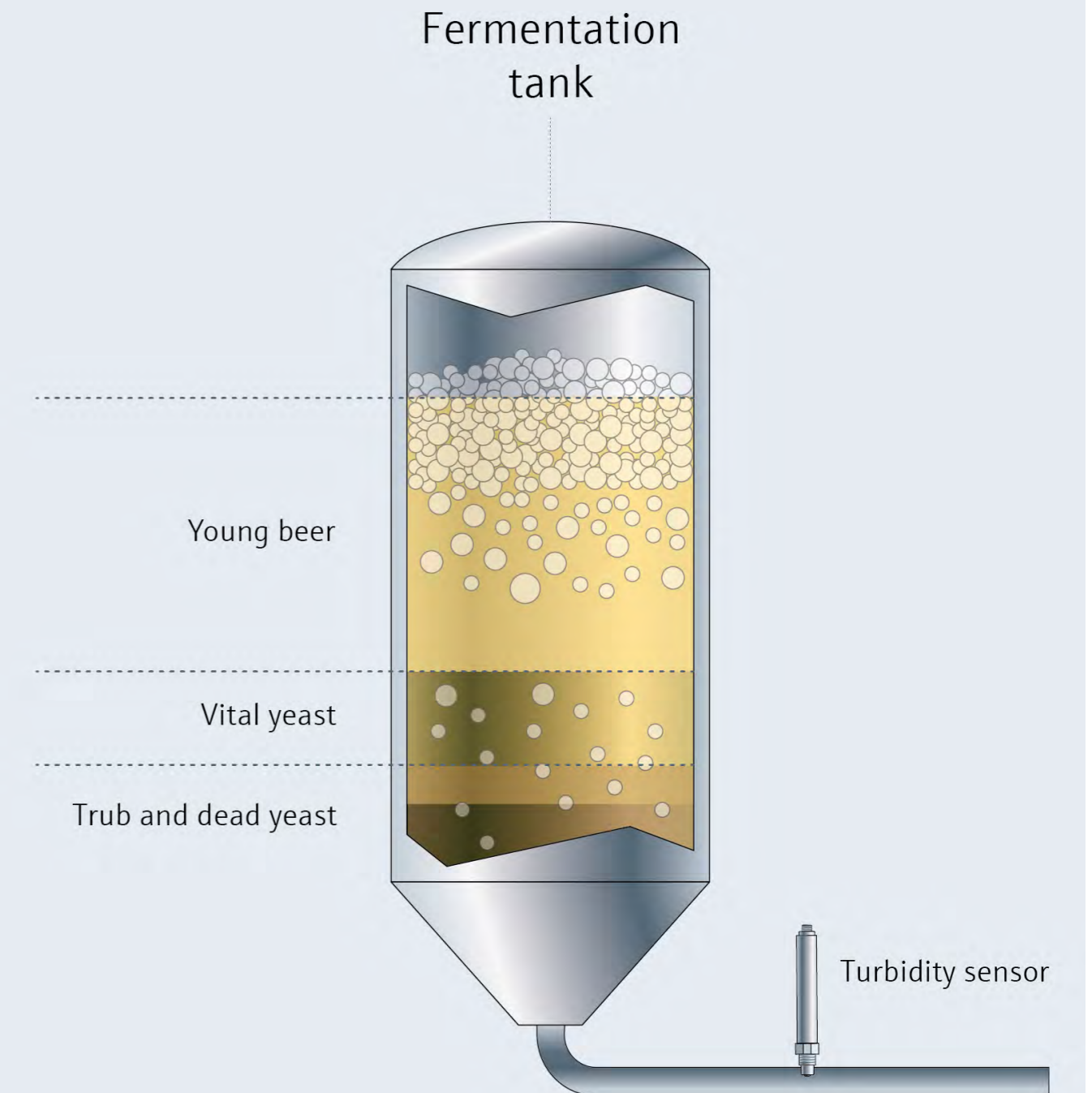


Yeast harvesting in breweries

During fermentation, yeast settles in defined layers inside the fermentation tank. The most vital yeast fraction can be selectively harvested and reused for subsequent fermentation cycles. Therefore, a key task is the precise phase separation between yeast and beer in the pipe.

Turbidity measurement provides exactly this information. It enables real-time detection of yeast concentration and clearly distinguishes reusable yeast from beer and low-yeast phases. This allows yeast harvesting to be controlled based on the actual process conditions rather than fixed time intervals.

The CUD33 compact turbidity device delivers fast and stable inline measurements and can be directly connected to the control system. It enables targeted yeast withdrawal, reproducible reuse, and seamless integration into automated brewery processes.



Portfolio overview

Comprehensive product portfolio for turbidity and conductivity measurement in Food & Beverages processes

Together with the complementary products shown, CUD33 completes our food & beverage measurement portfolio. Benefit from a one-stop solution from a single source and a consistent, intuitive user experience across all devices.

Find more information on our website by clicking on the product images.

CUD33 compact turbidity device and Smartec CLD18 compact conductivity device Compact devices for smooth and efficient CIP processes

- Basic turbidity and conductivity measurement in CIP return lines and tanks
- Intuitive compact devices which do not require any additional components for your measuring loop
- Conductivity measurement ensures the optimal concentration of cleaning detergents and thus optimized consumption
- Turbidity shows you what's in your pipe and whether cleaning detergent is still present or if the product has been completely rinsed.

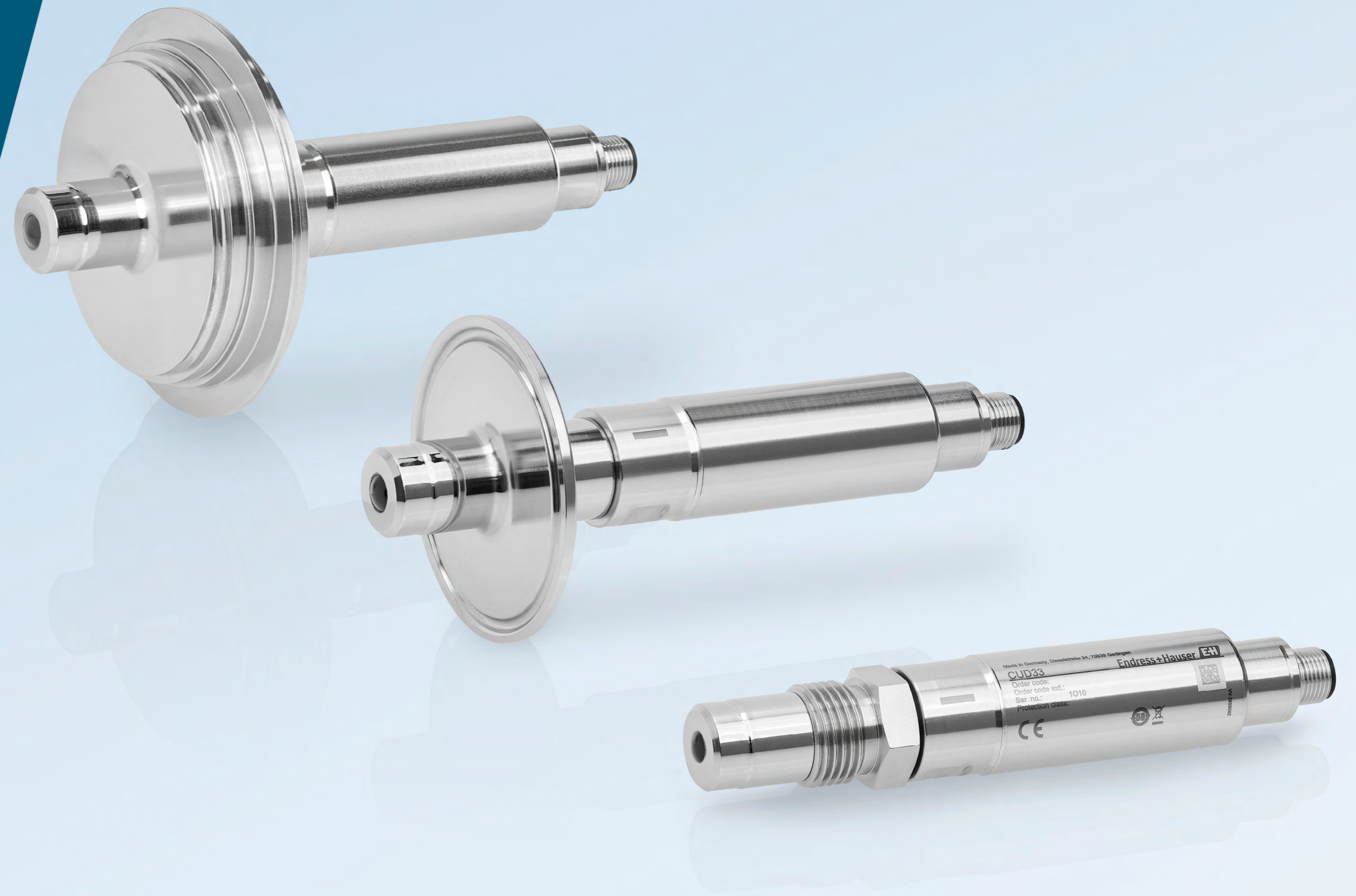
OUSAF11 glass-free absorption sensor and Indumax CLS54D conductivity sensor Advanced measuring loop for turbidity and conductivity measurement and maximized accuracy

- Advanced measurement for higher accuracy thanks to absorption-based measuring principle with OUSAF11
- Connection to Liquiline CM44P - this allows for more flexibility and seamless system integration into existing infrastructures (e.g. Ethernet IP, Profinet, Modbus, ...)
- Scalable measuring point and possibility to connect up to four Memosens sensors and two optical sensors with just one transmitter

CUD33 compact turbidity device

Optical phase separation device for maximized product yield and optimized cleaning processes in Food & Beverage applications

The CUD33 compact turbidity device ensures reliable CIP phase separation in Food & Beverage applications. It enables fast and accurate detection of media changes (e.g. milk/water) to maximize product yield. The 4–20 mA output integrates easily into any control system, and common hygienic and process connections (G1/2", Varivent, Tri-Clamp) are available.



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