

# CIP – Clean in place sensors

Food safety with maximum overall equipment effectiveness





## Together we get safe and competitive CIP automation done



### Food safety

State of the art technology leads to precise and safe cleaning processes.



### Investment

Tailored solutions for each demand combines safety and investment feasibility.



### Efficient engineering

Straight structured systems support mechanical and electrical integration saving time before installation and in operation.



### Efficient CIP operation

Smart technologies and smart integration enable accurate cleaning process, saving time, energy, detergents and water.



### Reliable long life partner

Built for the application with decades of experience, the Baumer technology is made to last.



### One stop shop

All relevant technologies with outstanding performance from one supplier. Single or as package.

# The perfect solution for every application



## Concentrate dosing

Electromagnetic flow meter PF555 is the compact and robust solution for accurate dosing of detergents into caustic and acid tanks. Accurate control helps avoid overdosing, protecting both, plant and environment. Information on the used detergent is provided to the control system for traceability and documentation.



## Quality measuring point and phase separation

Reliable conductivity measurement with fast temperature compensation is the basis for successful cleaning cycles, optimizing the use of cleaning agents and fast, accurate phase separation. *CombiLyz*<sup>®</sup> AFI in rugged design with one-piece PEEK tip and integrated temperature sensor offers market-leading performance in terms of reaction time and signal quality. CIP is only safe if the requirements of concentration is also achieved in the back end of the cleaning cycle.



## Tank temperature monitoring

Since temperature is one of the four main parameters, the correct temperature prevailing right at the start of the cleaning cycle saves valuable time. Temperature sensor *CombiTemp*<sup>®</sup> TFRH enables hygienic temperature measurement right inside the tank. The large DFON display changing color allows for clear readout even from a distance whether temperature is within the correct limits.



## Point level detection

Universal level switch *CleverLevel*<sup>®</sup> is the perfect protection for process and environment. Safe limit detection, optionally ignoring or detecting any foam formation, prevents tanks from damage and any escape of cleaning agents into the drains. Finally, the empty-tank signal protects the cleaning process from failures caused by missing media.



### Continuous level measurement

Flush mounted hydrostatic level measurement and displayed with CombiTemp PFMH sensor ensures the availability of cleaning agent for the next batch. The high accuracy of 0,1% max is unaffected by temperature changes, foam or uneven surfaces. The graphical touch display DFON changes color and make critical level visible from a distance



### Pump protection

Level switch *CleverLevel*<sup>®</sup> installed directly in-line with the CIP supply pump delivers reliable signals to avoid pump damage by dry run. Unaffected by build up, media characteristics and adherence, any lack of liquid that would disturb the cleaning will safely be detected.



### Heat supply monitoring

Flow sensor *FlexFlow* PF20 delivers required information both on flow speed and hot water supply temperature from a single sensor. Tight monitoring of energy and process uses only one process connection. The MEX5 gauge indicates the pressure currently present in the system.



### Condition control in CIP supply

The sensitive pressure sensors PP20H detects changes in the CIP loop. Leakages causing pressure drops are recognized as well as increasing pressure pointing to blockages.



### Velocity in CIP supply

Used in the CIP supply line, the FlexFlow serves two purposes. It ensures that the supply pump already delivers the desired velocity. Besides that, the flow and temperature data can be used to preset the heat exchanger operation. Both help to save time until the desired quality parameter are reached and cleaning time counts.



### Quality point temperature

Since the temperature plays a major role, the CombiTemp TFRH sensor in the quality measurement point is equipped with a large DFON display. As in *CombiLyz*® and *CombiFlow*®, the display will change colors, when the value is out of range.



### Velocity control in the return pipes

Electromagnetic flow meter PF75H with 0.2% accuracy delivers best-in-class performance and reporting stability of cleaning conditions, further it remains unaffected by any temperature change. In a robust and compact all-stainless steel design with large DFON touchscreen display, *CombiFlow*® is the robust, stainless steel product solution.

### Compliance and approvals

Baumer products meet international industrial standards. Where appropriate or selected by options, they are FDA and GB4806 compliant, fulfil the requirements of the respective 3-A Sanitary Standards or comply with EU regulations 1935/2004, 10/2011 and 2023/2006. In addition certain products are EHEDG certified.



# CIP sensor portfolio



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## Conductivity

- Small and compact sensor, both in and outside the process
- Concentration curves can be stored
- Fastest integrated temperature compensation
- Measuring range 50  $\mu$ S ... 1000 mS
- Display with additional concentration value



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## Temperature

- Fastest sensor with outstanding t90 time
- Wide range of sensors, from flush to reduced tip
- Flush sensor without ambient influence
- Available in all accuracy classes



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## Point level detection and process safety

- Reliable switching independent of foam and adhesions
- One sensor type for all media
- Reliable switch to protect pumps and avoid overfilling also of aggressive media
- Bright 360° LED status signal

## Process connections & accessories

- Connections in hygienic design
- Baumer Hygienic Connection for safe integration
- Clamp, screwed and welded installations
- Cable and connectors, IO-Link Master



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## Flow

- Electromagnetic flow meter, 0.2% accuracy
- Robust stainless steel sensors with compact footprint
- Calorimetric flow sensor for combined flow and temperature measurement
- EMF for dosing control of cleaning agents



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## Continuous level measurement

- Variety of suitable technologies, application tailored
- Excellent accurate hydrostatic sensors, unaffected by temperature changes
- Focused ultrasonic sensors
- Accurate and contactless radar technology



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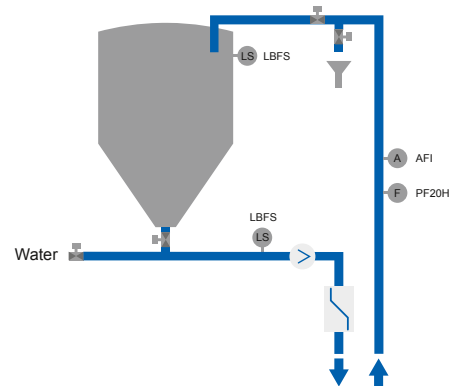
## Pressure

- Robust, abrasion and chemical resistance
- Durable compact sensors in CIP and SIP conditions
- Flush mounted process integration

# CIP Segments

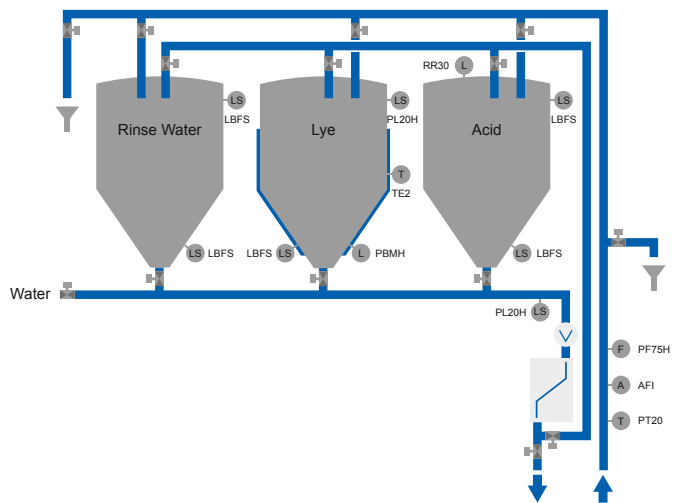
## Single tank system for lost cleaning

- Used as starter skid in either simple or very challenging cleaning conditions
- 4 sensors for 100% safety, 2 LBFS switches, 1 concentration sensor *CombiLyz*® AFI and, one combined flow and temperature sensor *FlexFlow* PF20



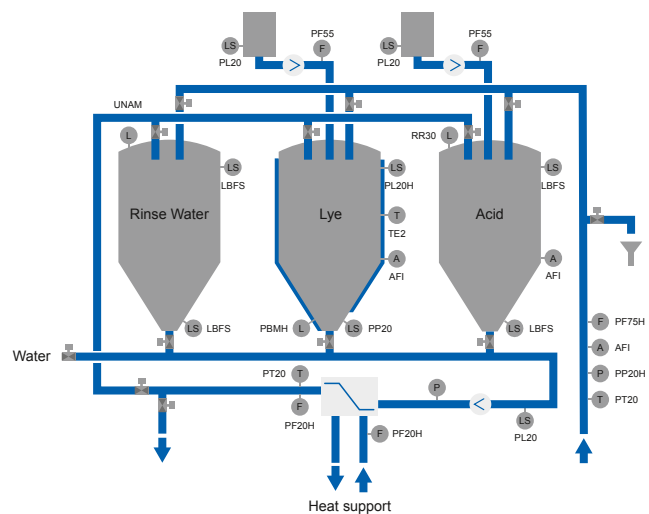
## Standard 3tank CIP with media recovery

- Recovery of media and energy in level controlled and isolated buffer tanks
- Next level of quality measurement, adding separate temperature PT20 and electromagnetic flow meter *CombiFlow*® PF75H



## Advanced CIP system with fully automated media and energy control

- Automated concentration adjustment with electromagnetic flow meter PF55S
- Traceability of all quality and consumption data
- Energy monitoring with *FlexFlow* PF20 calorimetric sensors
- In tank measurement enables short ramp up times for temperature and concentration. Hydrostatic pressure sensors PBMH, radar sensors RR30 or ultrasonic sensors UNAM ensure availability for the next run
- PP20H pressure sensors detect leakages or blockages in the system





For more information about CIP sensors go to:  
[www.baumer.com/CIP](http://www.baumer.com/CIP)