



Hygienic Design and Application of Sensors

EHEDG Document 37

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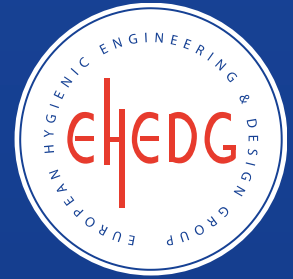


- Brewer and Malster
- Brewmaster
- Plant and Machine Building
- Automation Companies



- Chairing the WG 37 for more than a decade
- Member of the advisory board from 2015 to 2019 and again since January 2022
- Industry Manager Food and Beverage Mettler Toledo GmbH

My perspective on hygienic design



- 1987: 12l water per l beer

manual operation, mowing hoses, cleaning takes at least as long as the breakfast break, change over by manual testing, concentration control sometimes, in general the more the better



Vormann Brauerei

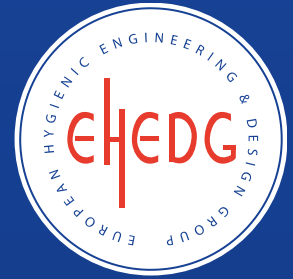
- 2021: 3l water per l beer

fully automated, double seat valves, cleaning along Sinners circle with automated concentration adjustment, all on the spot, saving cleaning time, detergents, energy and water



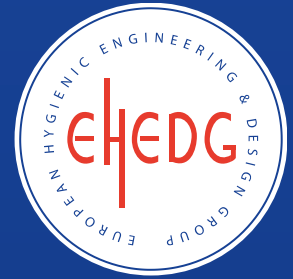
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Working group

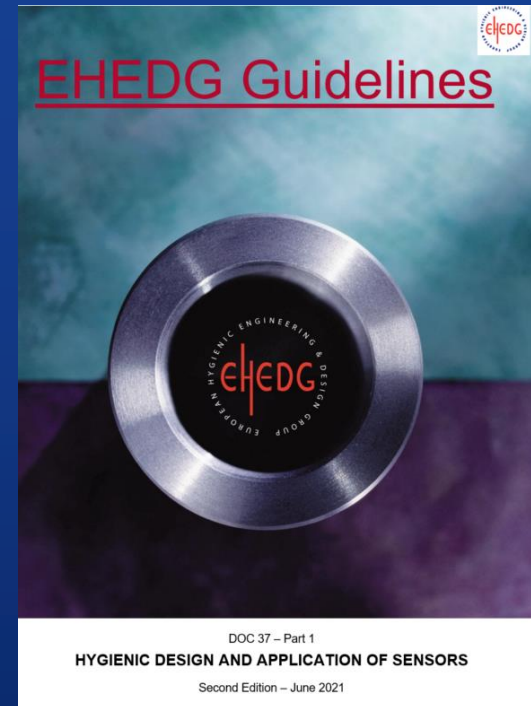


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Document 37 about Sensors

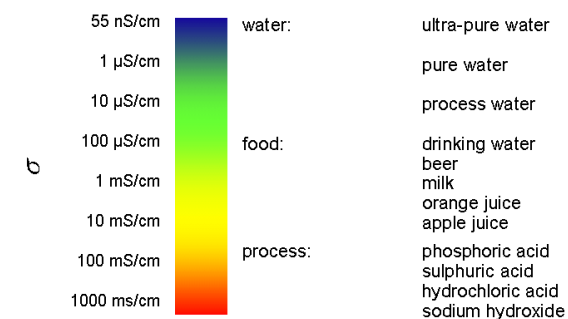
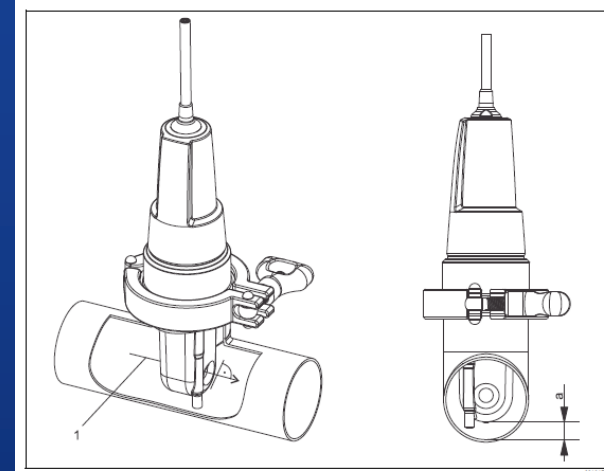


- Decisions required
 - Best possible signal?
 - Best cleanability?
 - What compromise is possible?
- In Doc 37 we tried to
 - Show the technical requirements
 - The impact on cleanability
 - Necessary considerations
- The target: sensitize and give background for a decision

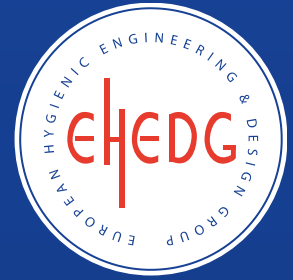


What role do sensors play ?

- Part of the problem
 - hygienic threat, as with product contact
 - Specific installation requirements
 - Some with technology driven shapes
- Part of the solution
 - The signal help to optimize cleaning
 - Safeguarding the CIP process
 - Reporting what was done



Aim and use of the standard



- Jointly decided target:
 - Covering the main applications
 - Showing the major used technologies
 - Showing how the technology
 - Impacts
 - Is impacted by cleaning and process
- Show, which technologies might have stainless steel hygienic process connections, but the sensors are not well cleanable



How grey is your process

- Black?



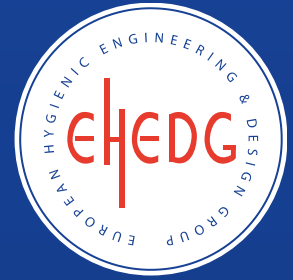
- White?




- Most processes are grayish



Setup and content



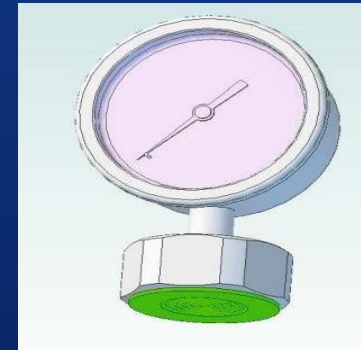
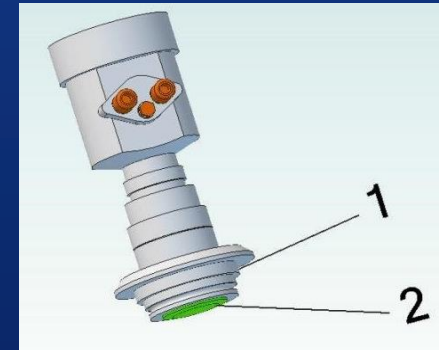
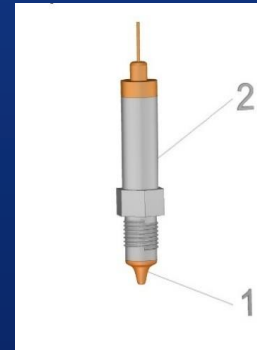
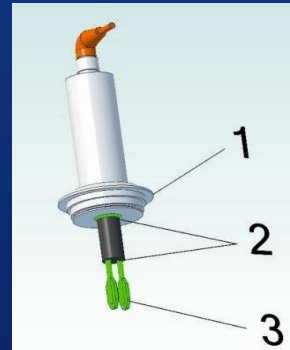
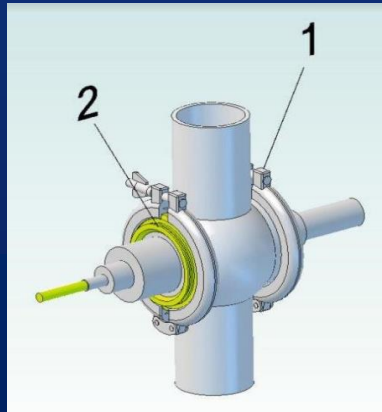
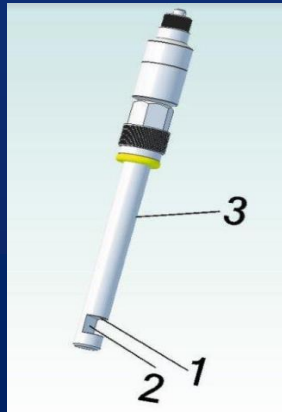
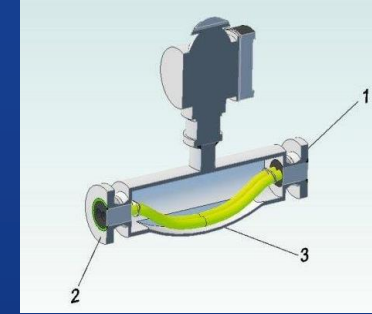
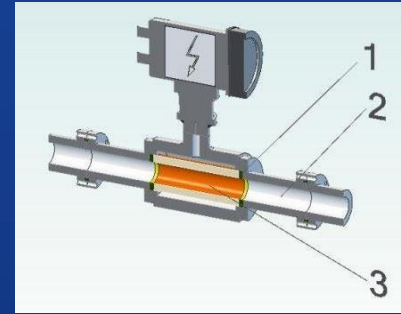
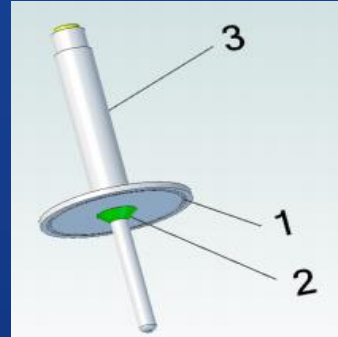
- Objectives and scope, normative references and definitions as for all documents in EHEDG
- General consideration and external parts of process sensors:
 - focus on the generic topics
 - relevant for all sensors and holder
- References
 - Pointing to the main Documents of relevance
- Key Learning Points
 - Short summary



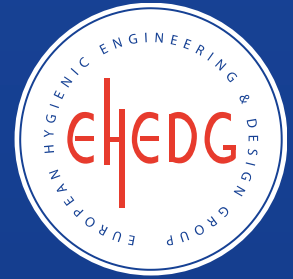
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What kind of liquid sensor technologies

- Temperature
- Flow
- Level
- Pressure
- Analytical



Doc 37 in the definition of the grey



- Basis for the own risk assessment
 - Define your Target
 - Use Doc37 Guideline to find the hot spots of attention
 - Cross check if technology can solve the task (involve supplier)
 - Recognize the impact on cleaning
 - Decide what sacrifices are necessary and useful
- Act like as the choice is part of the HACCP concept, even if the application is not critical for consumer safety
- Back up the decision with the expected savings (time, raw material, water, energy, detergents, waste water) and document it

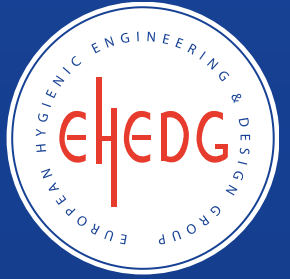
Safety

Quality

Availability

Costs

Document 37 Part 2



- Part one is
 - User focused
 - Shows available technologies
 - Give operative hints
- Aim of Part 2
 - Generalize the requirements
 - Enable pointed future development
 - Sensitize designer and developer of future sensors
- As generic as possible, as focused as needed

I hope you had a valuable time.



Questions?