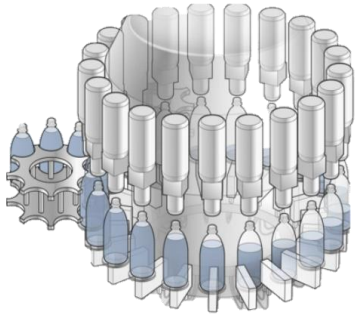
Hygienic Dynamic Weighing

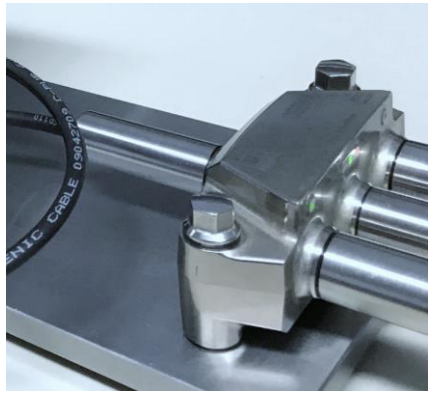
IN STATE-OF-THE-ART INDUSTRIAL PACKAGING SYSTEMS

Thomas Langer

Hygienic Dynamic Weighing

1. Food packaging challenges today
2. Aseptic packaging and hygienic design
3. HBMs hygienic filling/dosing solutions
4. Live Demo





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Classic ways of packaging and their problems

- Hot filling
  - Heated products
  - Not possible with plastic containers
- Pasteurization
  - Heated products
  - Very energy consuming
  - Hard to recover heat energy
  - Space consuming
- Preservatives
  - Strongly affects product‘s taste
  - Practically no customer acceptance
- Cold sterilization
  - Within the EU no declaration necessary – for now
  - Would have no customer acceptance if it was declared on the package

Market trends

- Fresh Food – strong Taste
  - Makes heating a product impossible
  - Comes with strong hygienic requirements for processing and filling
- Small footprint – low energy consumption
  - No space for pasteurizers
  - No energy for additionally heating up food
  - Cleaning in place needs to be as efficient as possible
- General hygiene
  - Food scandals already made society quite sensitive to the subject
  - Our current situation will increase this sense for hygiene even more
- No added preservatives
  - Adding preservatives will hardly have a future
  - Cold sterilization is at risk to become obsolete as well

Solution: Cold aseptic filling/dosing/packaging

- The filling / dosing / packaging process essentially happens in a sterile clean room
- If there is no contamination during filling, food can have a shelf life of 2 years without preservatives
- No additional heating necessary
- Fully meets modern market trends
- Food needs to be sterile before the filling / dosing/packaging process
- System needs sterilization/aseptic cycle every ~20-36 hours
- Cleaning needs to be automatic and really remove all possible contaminants

➢ **High requirements for hygienic design**

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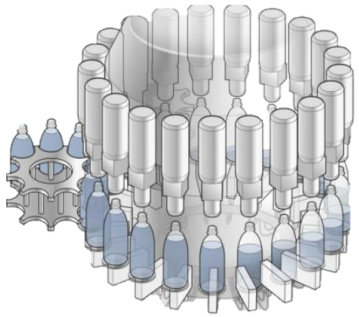

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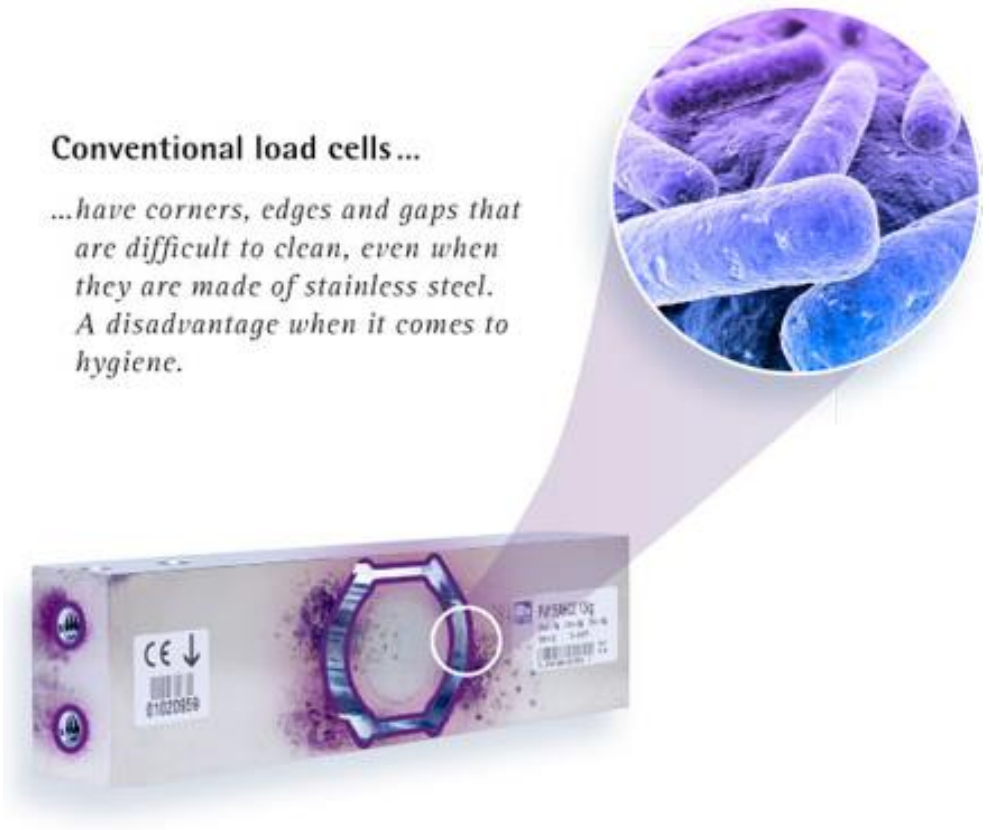
Hygienic design – why?



- Washing with high pressured water basically just means spreading the dirt
- In order to actually clean a system from dirt and contaminants this water needs to run off freely without places to settle or parts that causes the water to swirl
- Currently no European standards that allow certificates for hygienicly designed machines
- Manufacturers in Food and Pharma fall back to GMP, nGMP, 3-A, FDA Standards in order to maintain some level of quality – those standards are not sufficient to build fully self cleaning aseptic systems though.

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EHEDG

- European Hygienic Engineering and Design Group
- Consortium of individuals, businesses and institutions
- Devoted to the promotion of safe food by improving hygiene in all stages of the food manufacturing process
- Founded in 1989, currently more than 1300 members from 55+ countries
- Provides unified guidelines and rules for certification for hygienicly designed machines and machine components
- Partners with 3-A
- HBM is EHEDG member

Guidelines for hygienic design

- Use of physiologically harmless safe for food materials
- Corrosion resistant materials
- Smooth surfaces
- No pores, cracks, gaps and surface errors of any kind
- Minimized and optimized designs to avoid gaps and bumps
- Flow-optimized geometry of machine parts to avoid swirls and resting water
- Easy to access and easy to service machines
- Cleaning-in-place (without taking the machine apart)

„According to guidelines“ or *EHEDG certified*?

- Practically every player in the food packaging industry is member of the EHEDG and advertises with their logo
- Many of these players advertise their product as designed according to these hygienic guidelines
- However it is always unclear how closely those guidelines have been followed without third party proof
- **HBM goes the extra mile and actually has their load cells *certified by the EHEDG*.**
- **This provides *solid proof*, that these load cells meet the standards required to build your aseptic machine.**

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PW25

- IP68/69k easy to clean load cell (hygienic entry level!)
- Based on SP4M footprint
- Y=10.000 at C3 precision
- 10-20kg capacity
- Overload stop: 1000% (=100 or 200kg, survives standing on the weighing platform!)

- Examples for certified scales:
  - 10kg: Any 3kg scale at 1g, any 6kg scale at 2g
  - 20kg: Any 6kg scale at 2g or 15kg scale at 5g

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PW27

- Flange mounted EHEDG-Certified load cell – first single point that ever received an EHEDG certificate in 2010!
- Y=10.000 at C3 precision
- 10-20kg capacity
- Overload stop: 1000% (=100 or 200kg, survives standing on the weighing platform!)

- Examples for certified scales:
  - 10kg: Any 3kg scale at 1g, any 6kg scale at 2g
  - 20kg: Any 6kg scale at 2g or 15kg scale at 5g

PW27

CERTIFICATE OF COMPLIANCE

Date of issue: 18 June 2019

Valid until: 31 December 2020

EL Class I AUX

EHEDG hereby declares that the product

hermetically sealed single point load cell with stainless steel housing, type PW27A / PW27AP with EPDM gasket and M12 plug/connector

from

Hottinger Baldwin Messtechnik GmbH, Im Tiefen See 45 , 64293 Darmstadt, Germany

has/have been evaluated for compliance and meets/meet the current criteria for Hygienic Equipment Design of the EHEDG

Certificate No. EHEDG-C1800059

Signed _____ *President EHEDG*
Ludvig Joesefsberg

Signed _____ *EHEDG Certification Officer*
Mirjam Steenaard

EHEDG Secretariat
Lyoner Straße 18
60528 Frankfurt am Main
Germany

PW37

- EHEDG-Certified load cell with SP4M footprint – certified in 2020!
- Y=10,000 & 25,000 at C3 precision
- 50, 100, 200kg capacity
- Safe overload 150%, „Breaking Load“ >300%

- Examples for certified scales:
  - 50kg/Y=10,000:
    Any 15kg scale at 5g, any 30kg scale at 10g
  - 50kg/Y=25,000:
    Adds possiblity for a 6kg range at 2g

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PW37

CERTIFICATE OF COMPLIANCE

EHEDG HYGIENIC ENGINEERING & DESIGN GROUP EUROPEAN

Date of issue: 18 June 2019

Valid until: 31 December 2020

EL Class I AUX

EHEDG hereby declares that the product

hermetically sealed single point load cell with stainless steel housing type PW37 with EPDM gaskets and M12 plug/connector

from

Hottinger Baldwin Messtechnik GmbH, Im Tiefen See 45 , 64293 Darmstadt, Germany

has/have been evaluated for compliance and meets/meet the current criteria for Hygienic Equipment Design of the EHEDG

Certificate No. EHEDG-C1800039

Signed _____ *President EHEDG*
Ludvig Joesefsberg

Signed _____ *EHEDG Certification Officer*
Mirjam Steenaard

EHEDG Secretariat
Lyoner Straße 18
60528 Frankfurt am Main
Germany

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DSE – the fully hygienic digital measuring chain

- First hygienically designed IP68/69k weighing electronic
- Designed to be close to the load cell for maximum precision – right within the aseptic zone
- Precision 10.000e, 2000 measurements per second
- EHEDG conform, ECOLAB certified
- Ethernet TCP/IP, Profinet (RT and IRT!), EtherCAT
- Easy to use multi-client web interface for easy configuration
- Optimized for Daisy Chain
- Hygienic Plugs and Cables

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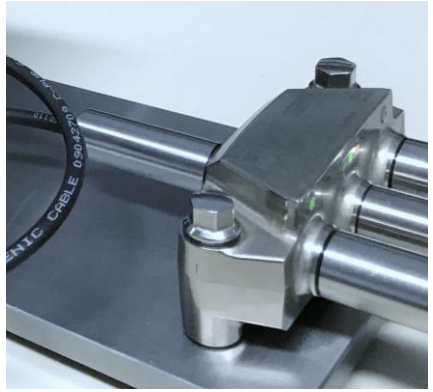

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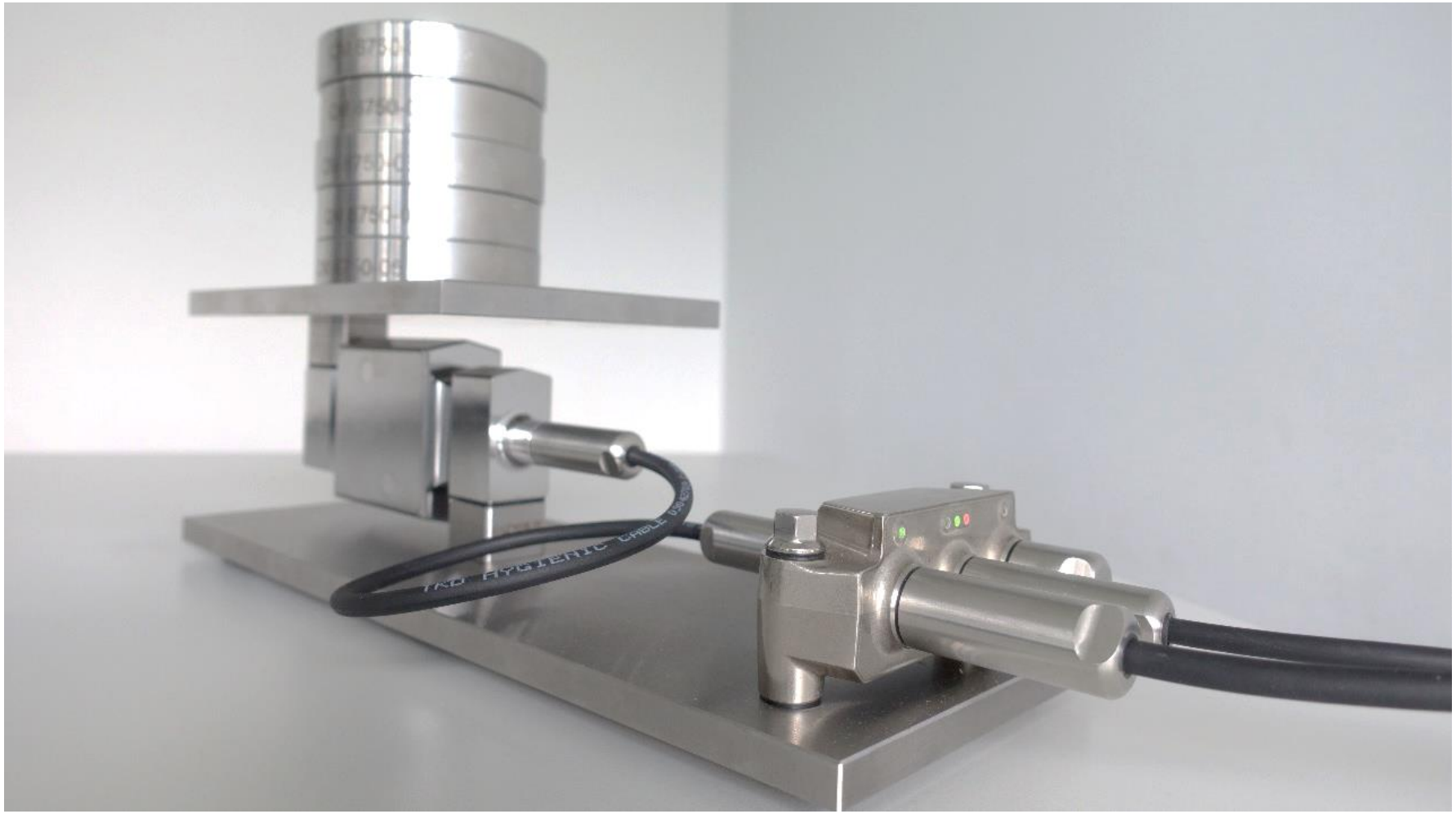
P37 + DSE:

The state of the art hygienic and dynamic measuring chain



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Thank You

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