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# HEUFT *spotter II* BFS – Blow-Fill-Seal bottle inspection machine



# GMP - Annex 1 Manufacture of Sterile Medicinal Products

## Finishing of sterile products

*“(...) Containers closed by fusion, e.g. Form-Fill-Seal Small Volume Parenteral (SVP) & Large Volume Parenteral (LVP) bags, glass or plastic ampoules, should be subject to 100% integrity testing. (...)”*



# HEUFT *spotter II* BFS

All-around quality inspection of Blow-Fill-Seal bottles based on the HEUFT *SPECTRUM II*.



black spots



particle

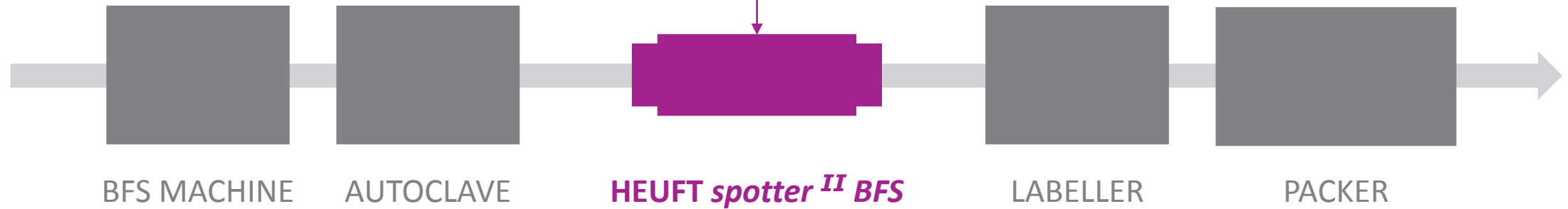


leaking bottle

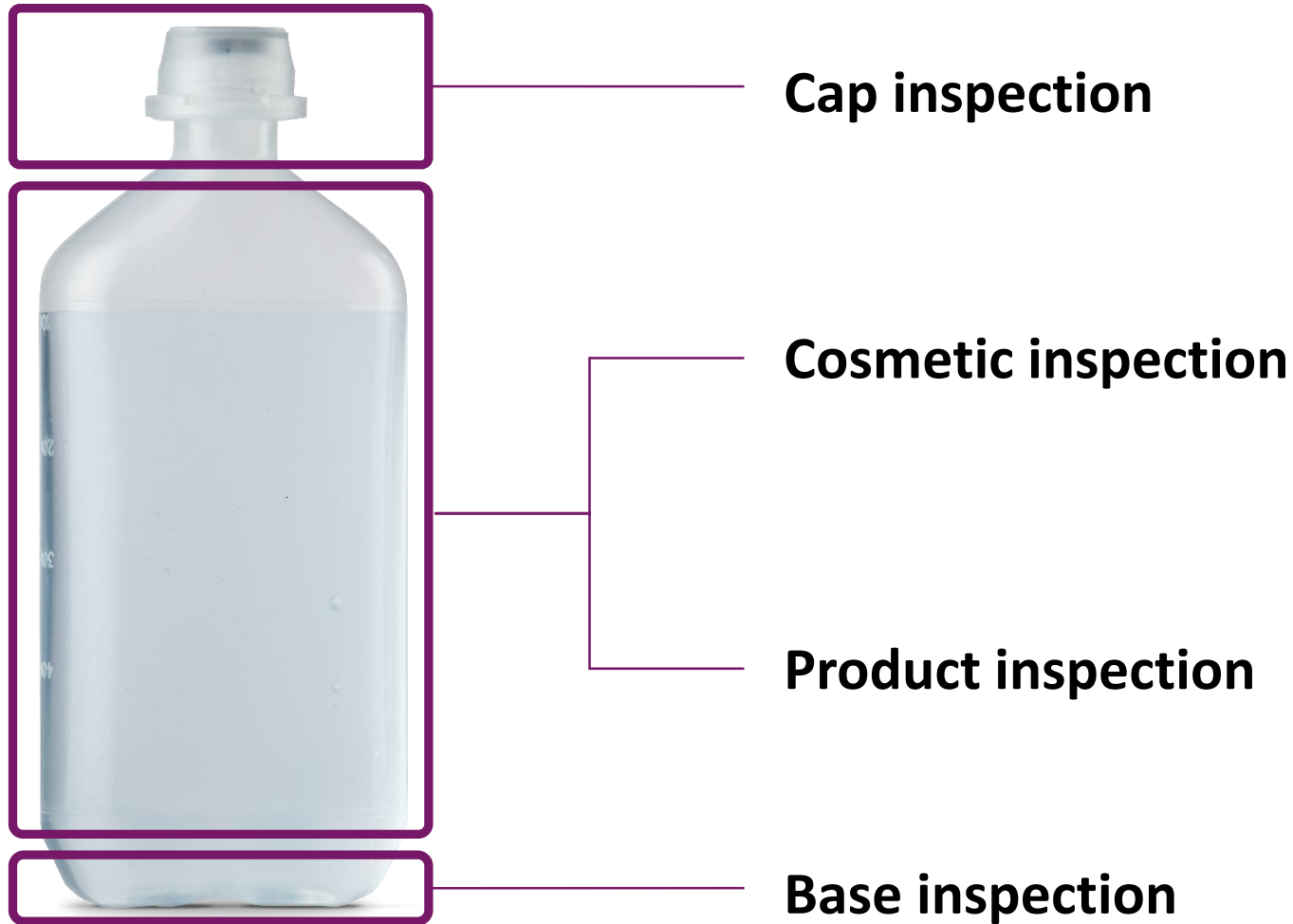


cap defective

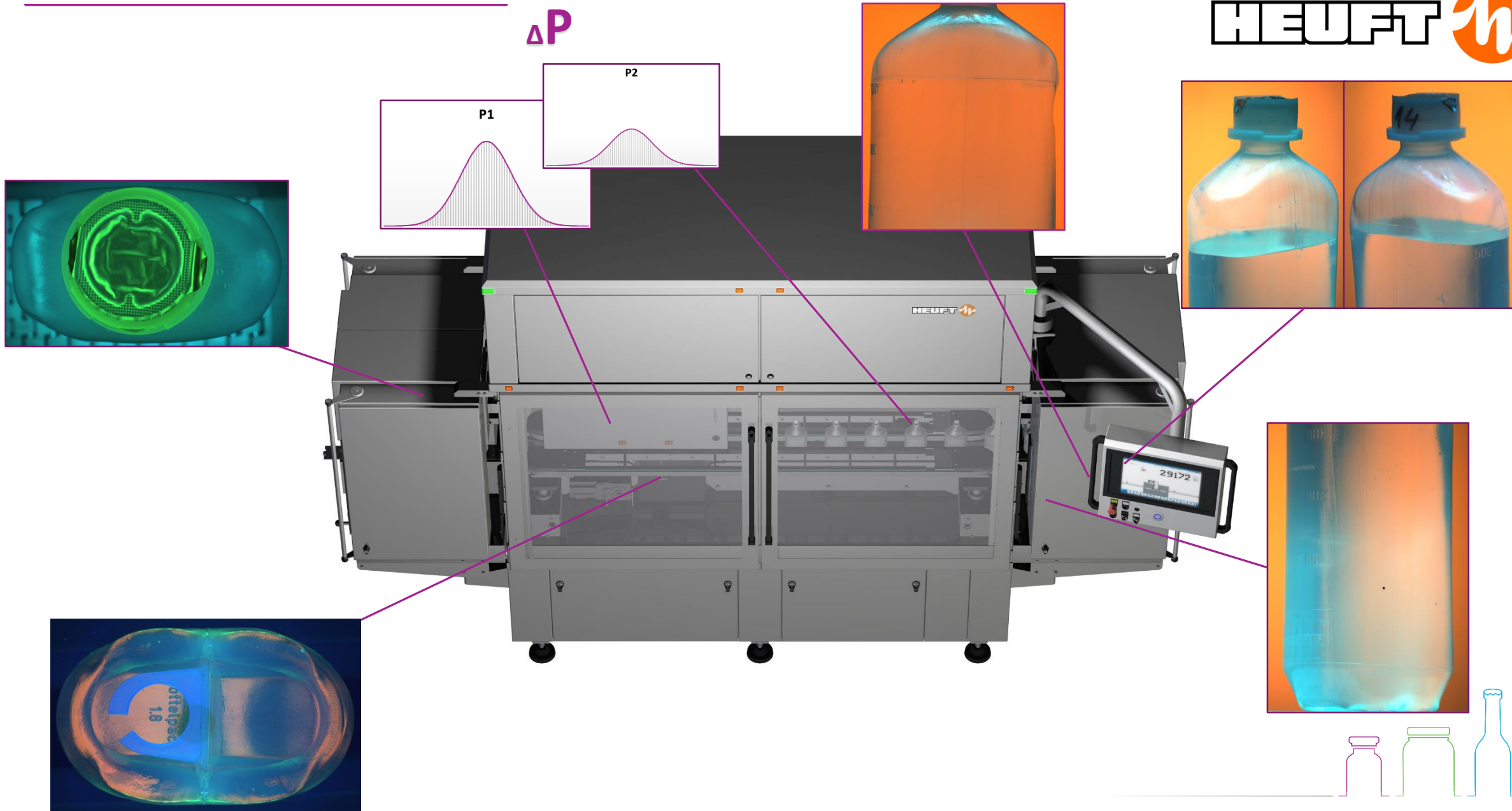


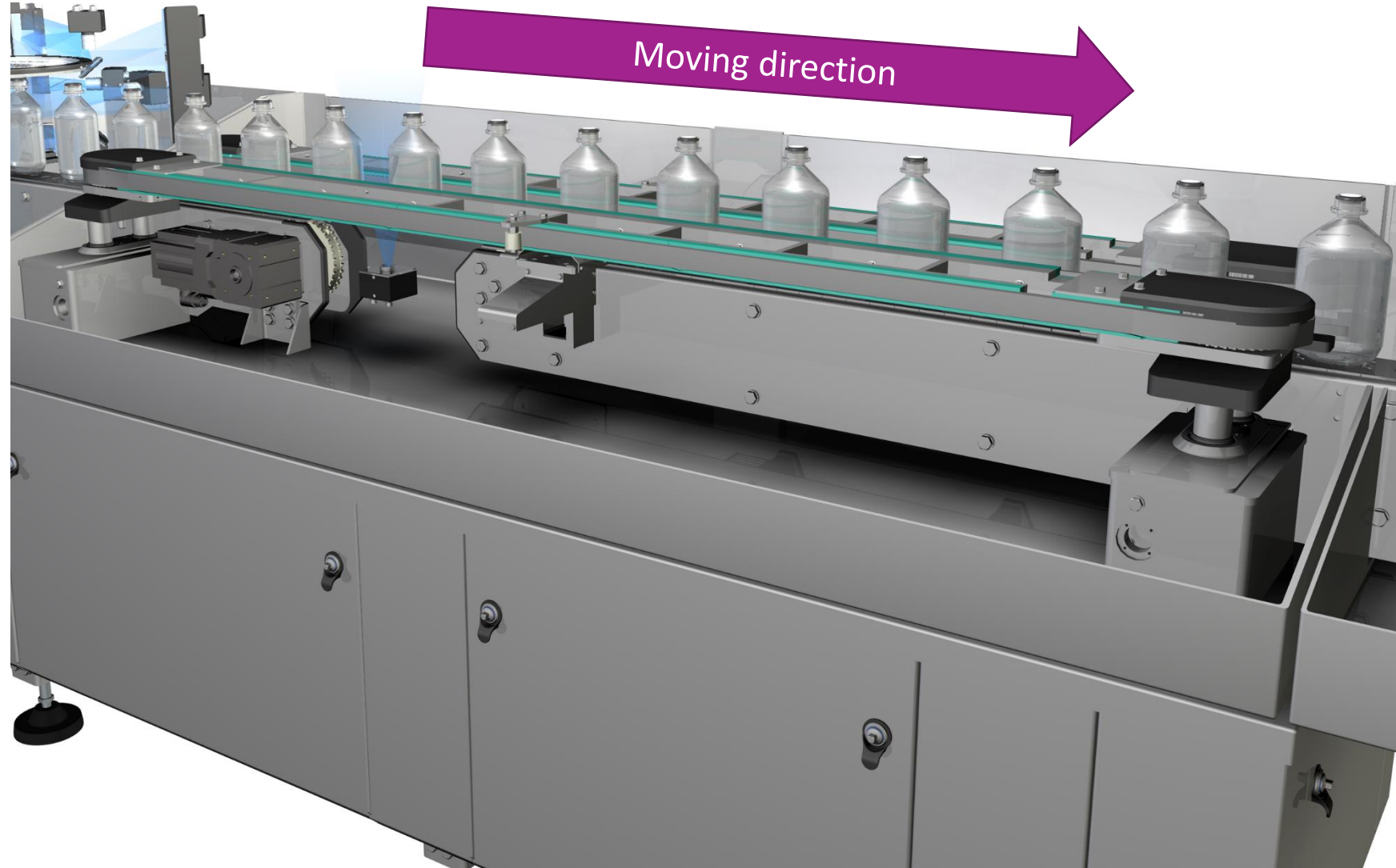


## Line layout

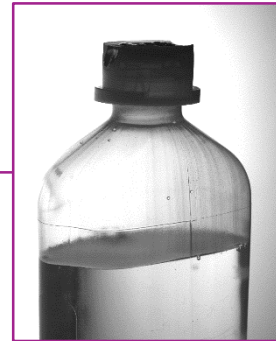
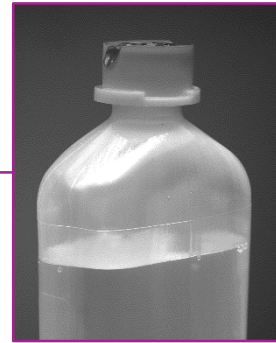


## Inspection areas





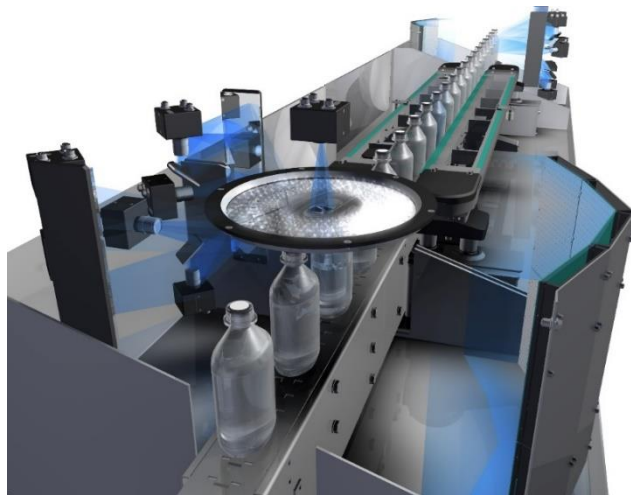
Transportation method



- **MCIP (Multi Colour Image Processing)**
- Advanced illumination set-up
- Image subtraction method
- Optimized evaluation image depending on fault category
- 3Mpx camera resolution

## Illumination principle





- **Upper sidewall inspection**
  - Closure inspection
  - Cosmetic defect detection
  - Particle detection
- **Upper sidewall front view**
  - Fill-level detection
  - Cosmetic defect detection
  - Particle detection
- **Lower sidewall inspection**
  - Cosmetic defect detection
  - Particle detection

## Sidewall inspection



**Black spot**  
*inclusion*

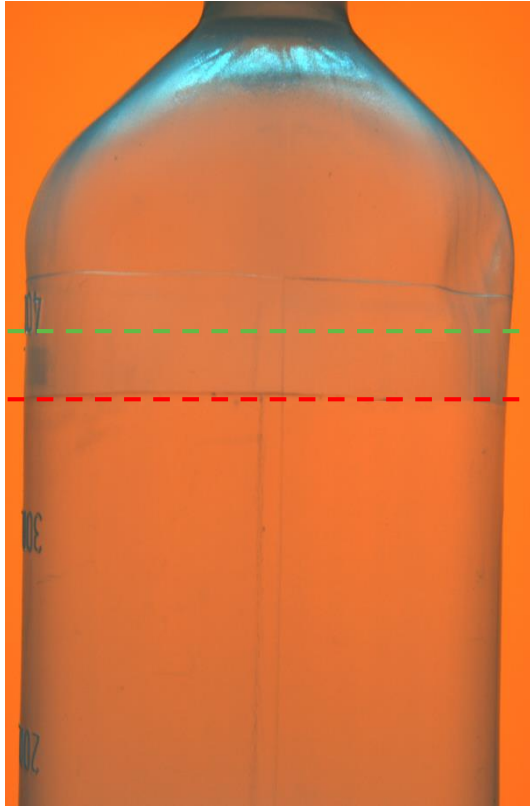


**Particle**  
*filter material*



**Body damage**  
*scratch*

Example of various defects



**Fill-level**  
*Underfilled*

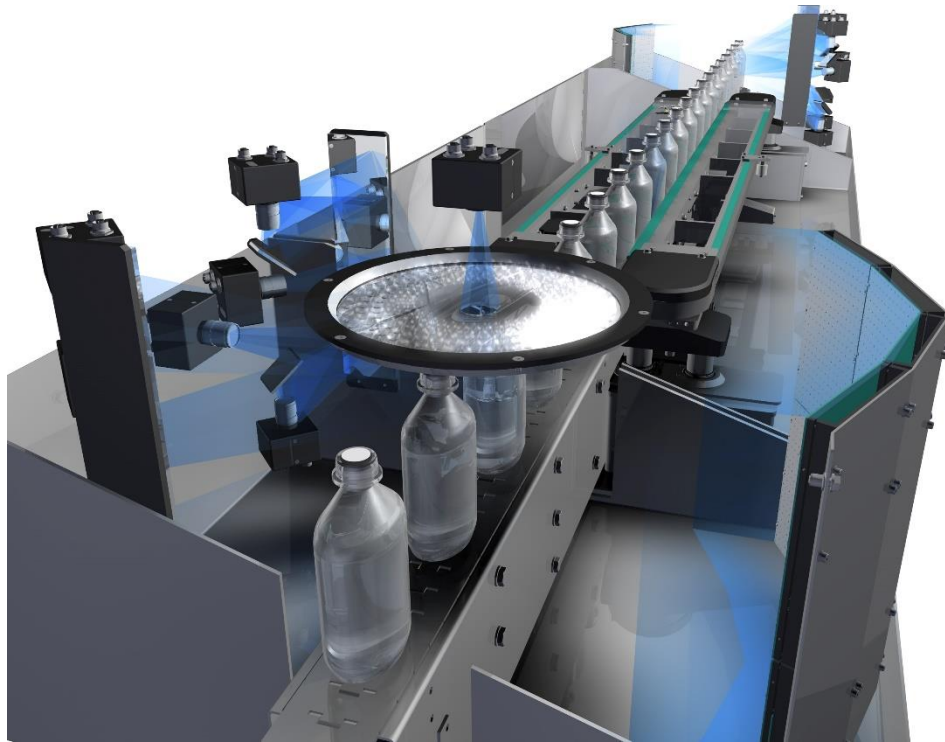


**Black spot**  
*inclusion*



**Excess material**

## Example of various defects

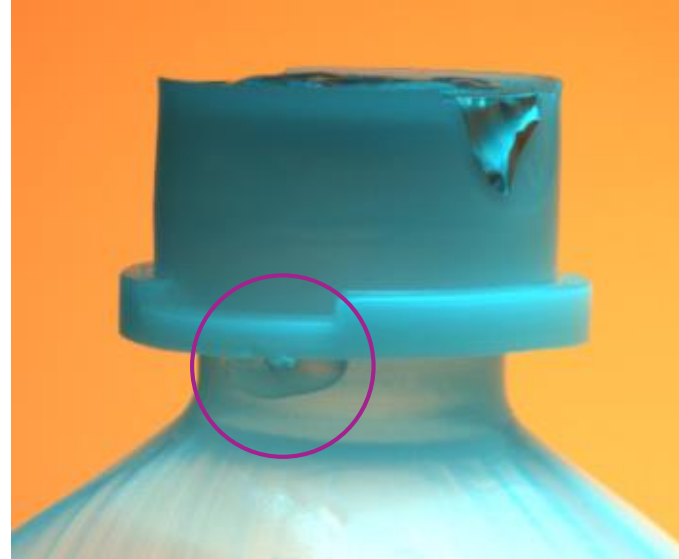


- 360° cap inspection
- Four inspection images in total

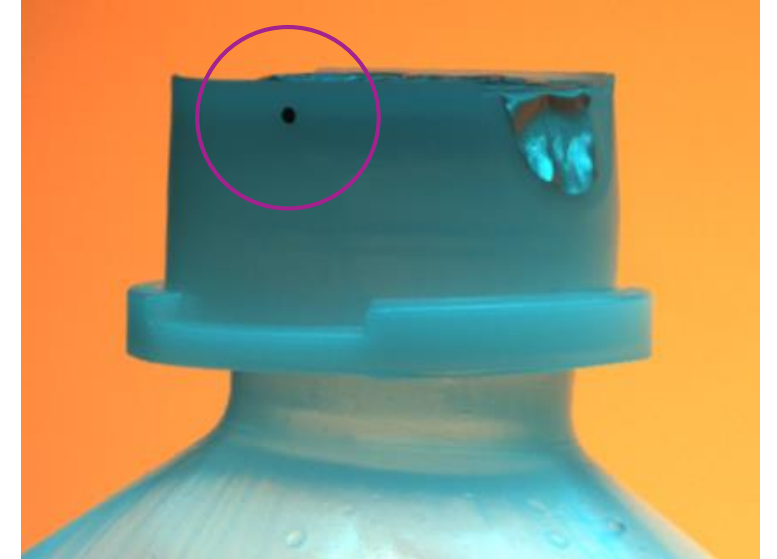
## Cap inspection



**Lack of material**  
*sealing ring*

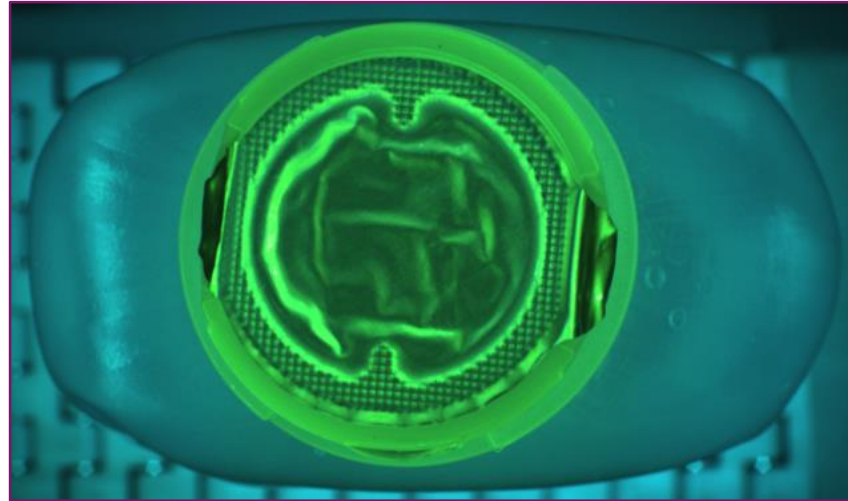


**Excess material**  
*sealing ring*



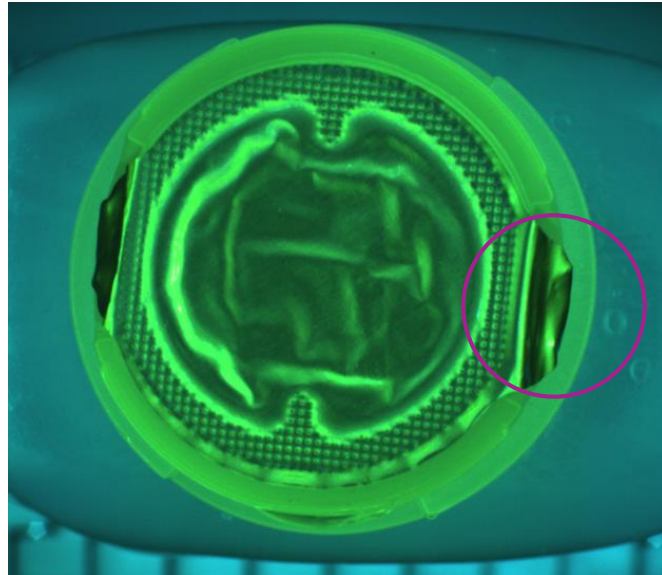
**Black spot**  
*inclusion*

Example of various defects

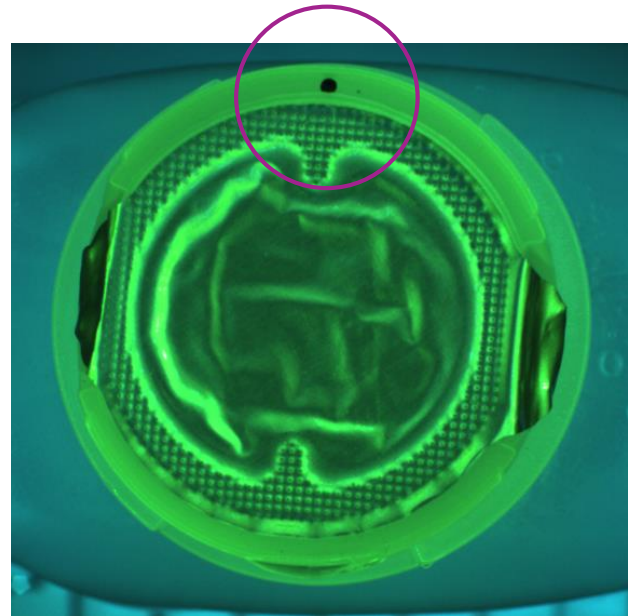


- Presence
- Alignment
- Contamination
- Damage

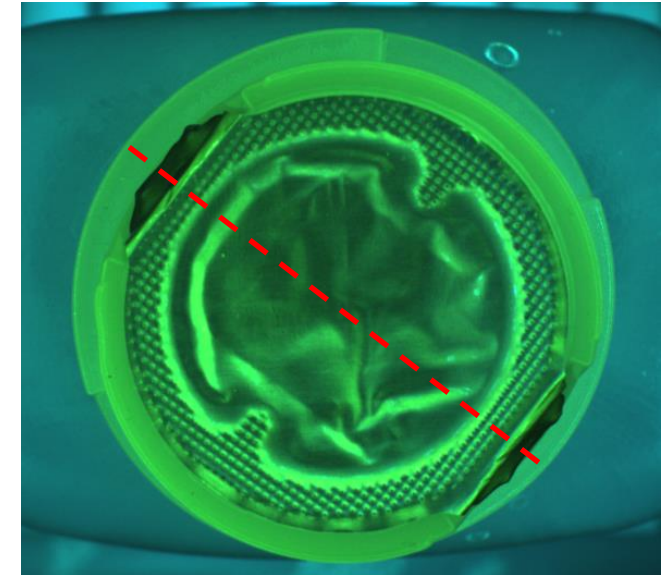
Top-down inspection



**Closure defect**  
*flagging sealing foil*

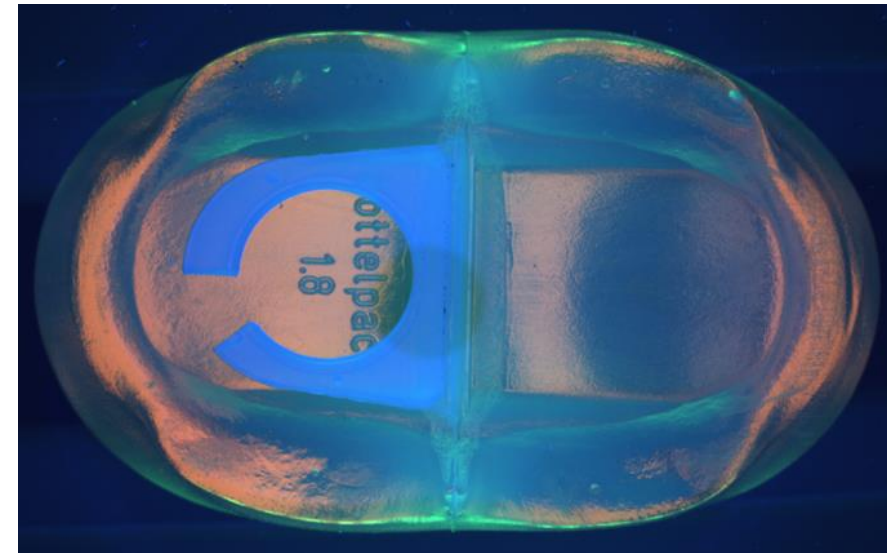
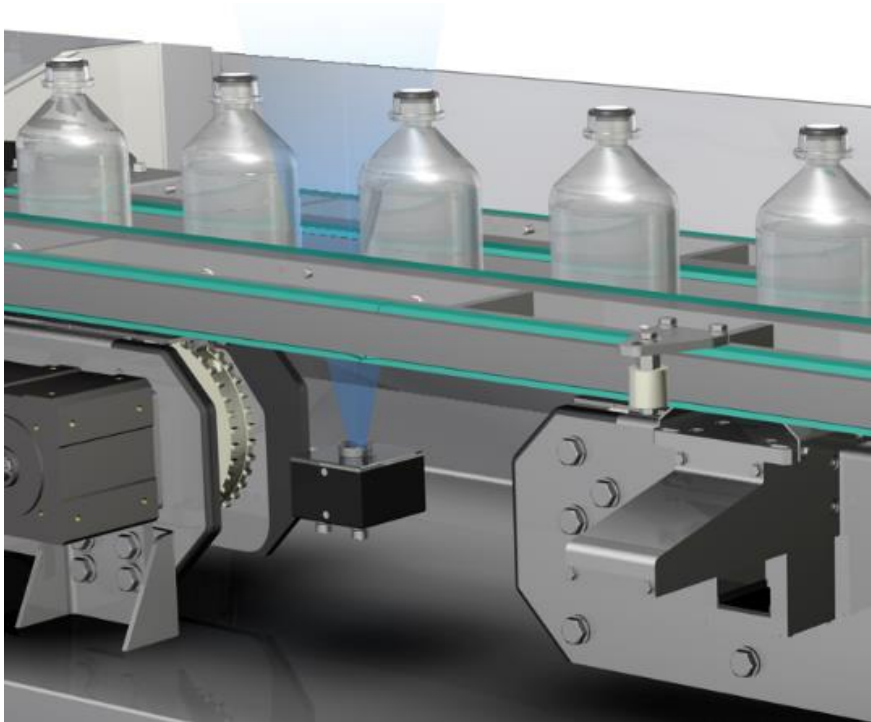


**Black spot**  
*inclusion*



**Closure defect**  
*wrong closure angle*

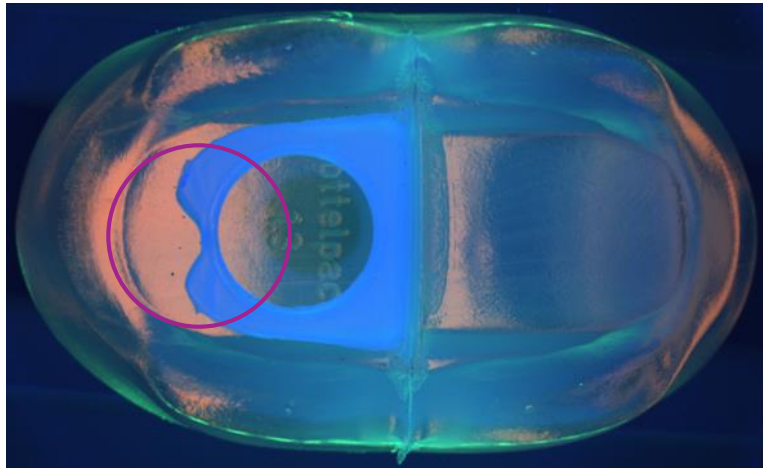
## Example of various defects



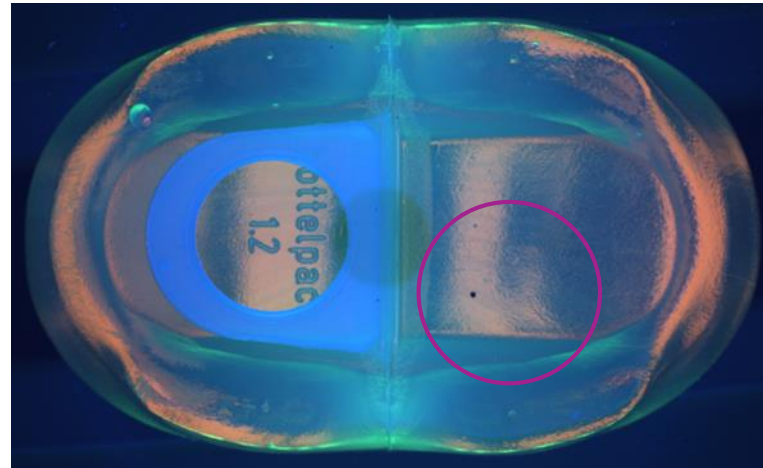
The belt-drive presents the containers to the base inspection.

## Base inspection

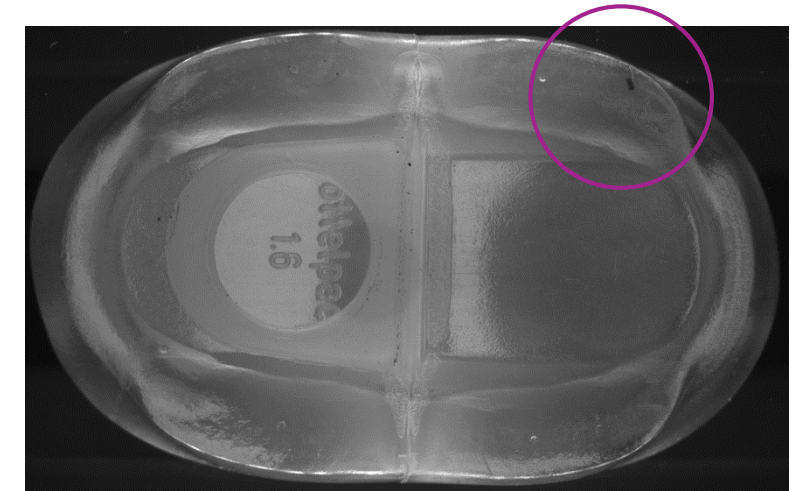




**Forming defect**  
*hanger deformed*

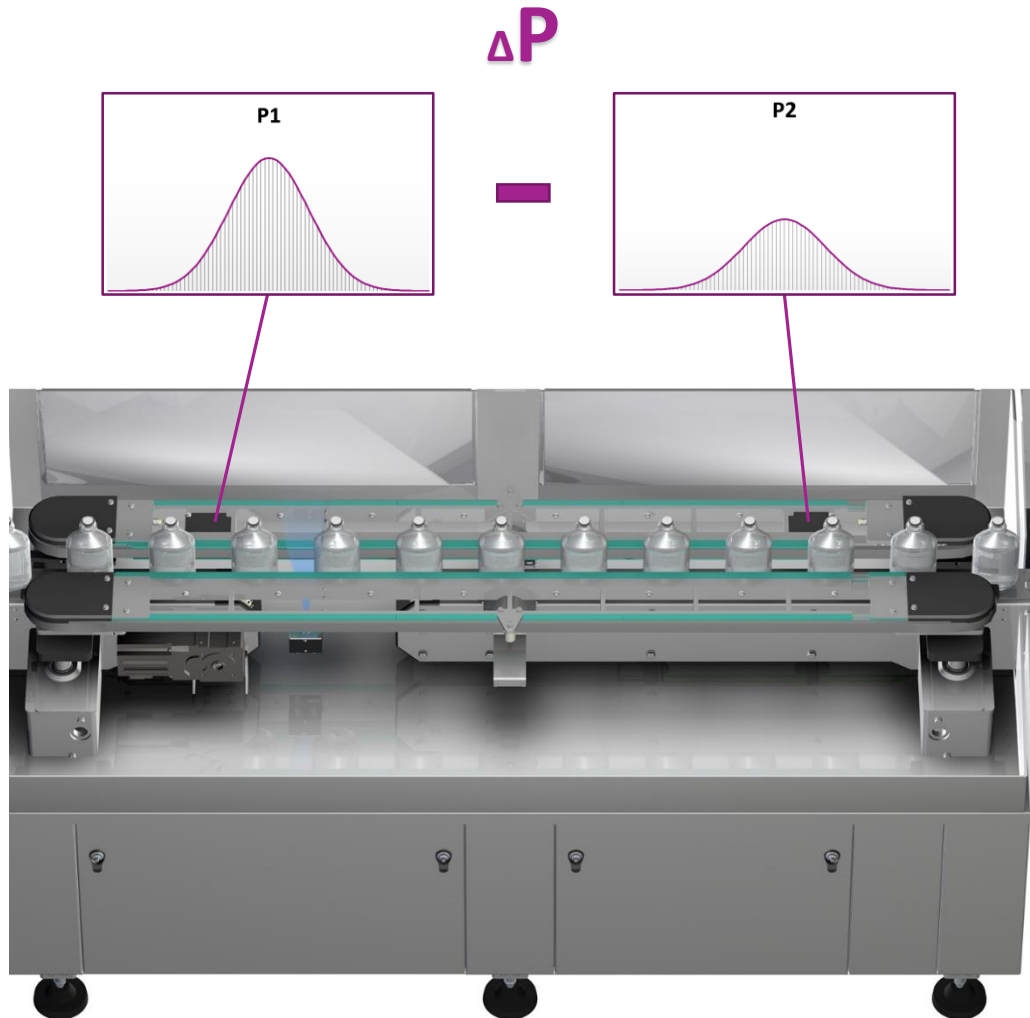


**Black spot**  
*inclusion*



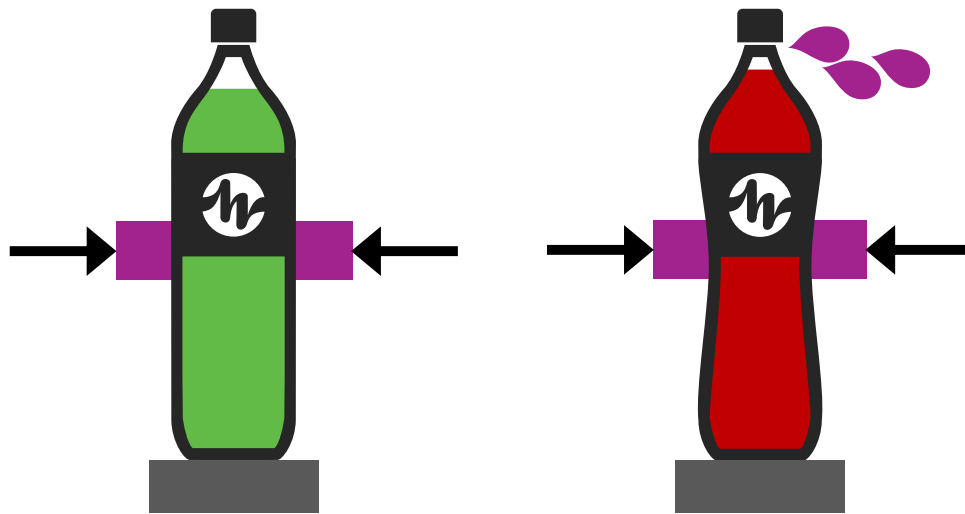
**Particle**  
*metal particle*

Example of various defects



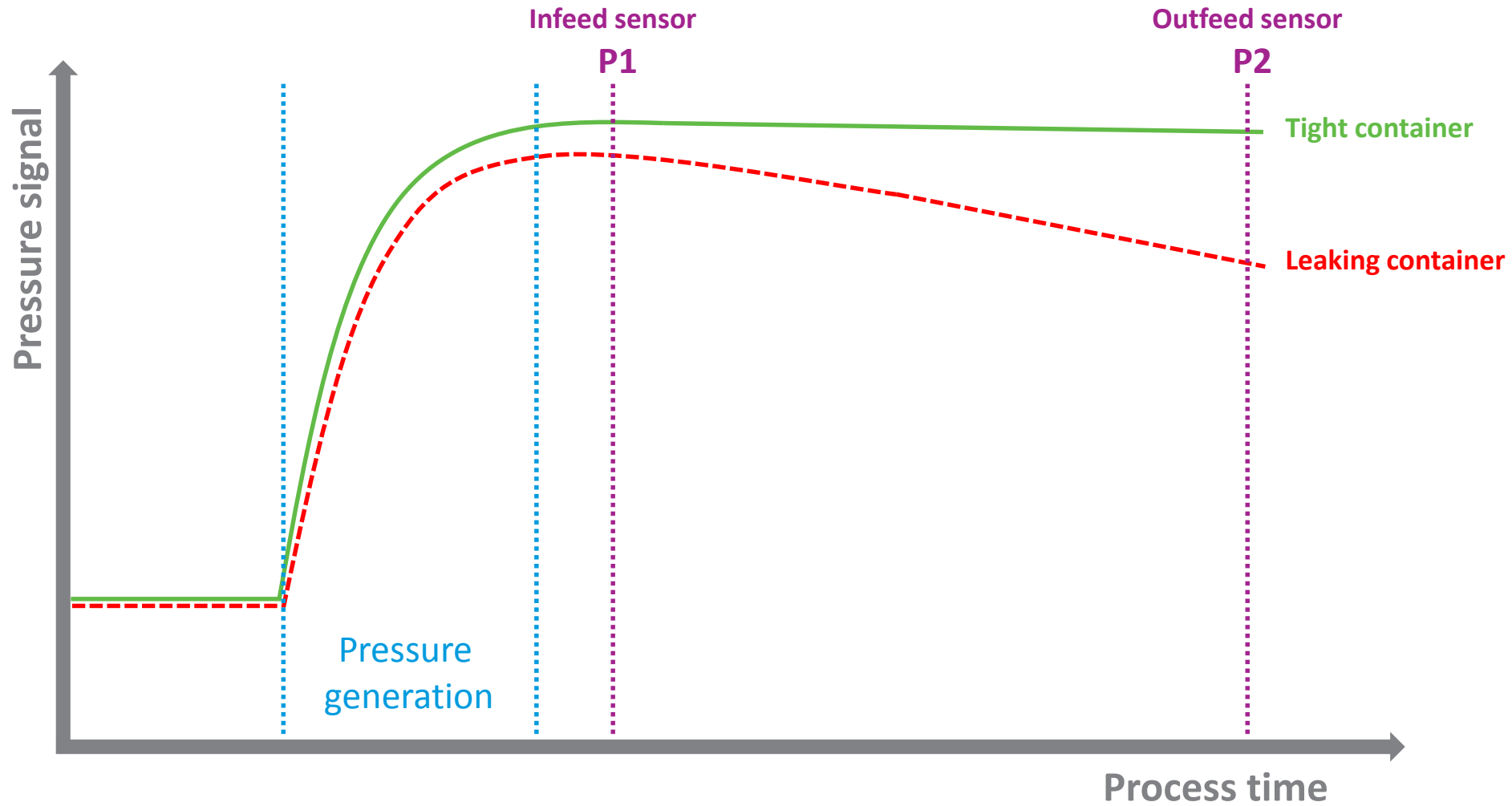
- The containers are guided between two belts that apply a defined lateral force
- Inside the belt drive two pressure sensor are installed
- $\Delta P$  is calculated from the measured infeed (P1) and outfeed (P2) pressure

## Leakage detection – Pressure decay method



- The principle of the pressure decay method is based on the same principle as the vacuum decay method or the manual inspection method
- Capable for high speed lines (12,000 c/h)
- Independent from the electrical conductivity of the product
- No format parts required
- Very little maintenance required

## Leakage detection



Pressure curve

Various automatic rejection systems are available for the rejection of incorrect products.



Rejection

Conveyor mechanics &  
conveyor control from  
**HEUFT!**



Thank you...

We are glad to get in contact with you!

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