XPAR Vision - Philosophy

Provide to the container glass industry:

- solutions for **Continuous Improvement**
- of **Process** and **Product Quality**
- to **reduce losses** (cost) and **improve efficiency** (profit)
- by developing **innovative solutions** for the **Hot End**
- that’s where quality is made...!!!
- for **customer’s satisfaction**
1999 XPAR Vision
2000 Hot End infrared camera systems GlassTech
2003 IR Gob Weight Control
2006 IR Dual Camera system

Real time process information
Hot End Inspection
XPAR Vision – heading for perfection

- Continuous developments to improve existing solutions
  - New & Improved Software Modules (v6)
- Bring new solutions to the Glass Industry:
  
  **Gob Assist**

Why the new Gob Assist?

- Can any one see by eye what happens exactly in 20ms?
Why Gob Assist?

- Gob loading is an important process step
- 60%-80% (aspect) defects are related to Gob Loading
- No tools available, only years of experience (eye)
- Incomplete know-how loading process
- Much room to improve

What is Gob Assist?

Design goal’s:

- To find the optimal loading of the gob
- To maintain the optimal loading of the gob
- To retrieve the optimal loading after (equipment) change
- To retrieve the optimal loading after a Job Change
- To improve the gob loading process
Principle of the Gob Assist

Example Camera 1:
Example Camera 2:

The Gob Assist system
The Gob Assist Camera Module

Water cooled camera's

Protective slides  Disposable glasses

The Gob Assist System
The Gob Assist System

Gob Assist & XPAR IR-D

1 = deflector adjusted
2 = stable / optimal loading
3 = adjusted deflector
Gob Assist & XPAR IR-D

- No direct information about the Gob Loading
- Adjusting time can be long
- No product dependent optimal preset possible
  (Material change & Job Change)

Gob Assist Measurements:

Parameters:
- Position into the blank mould
- Speed
- Length
- Shape
- Diameter
- Orientation
- Time of Arrival (T.O.A.)
Gob position definition

Gob speed & orientation definition
Gob length 3D

Example test results Gob Assist

Ardagh Glass
Dongen, The Netherlands

10 section, double gob
156 gram jar

Test: Section 7
Example image of the gobs

Left camera  Right camera

Test results Gob Assist
Change the position of the deflector in a “controlled” way
Deflector adjustment X direction +2 mm steps

Gob Assist X-position

Deflector adjustment X direction +2 mm steps

Gob Assist Y-position
Why changes also the Y-value's?

Deflector adjustment X direction +2 mm steps

Gob Assist XY-plot
Deflector adjustment X direction  -2 mm steps

Gob Assist X- positions

Gob Speed Z-direction

Zmean = 6.56 m/s  Sigma = 0.05 m/s
Gob orientation ZX plane

Orientation influences the optimal position of the gob!
Deflector adjustment Y direction 2 mm steps

Gob Assist Y position

[Graph showing Y displacement over cycles]

Deflector adjustment Y direction steps

Gob Assist X-position

[Graph showing Y displacement over cycles]
Deflector adjustment Y direction 2 mm steps

Gob Assist XY position

Deflector adjustment

Gob Assist XY position
XPAR IR Data

Gob length

Lmean = 177 mm    Sigma = 1,10 mm
Now you have access to factual information on gob loading
Easy finding, maintaining and retrieving optimal gob loading
- Improve gob loading process
Reduce defects due to loading
- Improve product quality

Gob Assist: an indispensable tool for the container glass industry!
Thanks for listening!

Questions?