Hot End infrared camera solution for hot end process monitoring and quality control
The IR-D - Infrared Dual camera system - assists container glass and tableware manufacturers to improve their glass forming process capabilities. This results in better product quality and increased efficiency. The innovative solution is suitable for all forming processes (Blow & Blow, Press & Blow and NNPB) and for round and non-round ware in each glass colour.

**IR-D operating principle**
Immediately after the forming of the glass product the IR-D detects the intensity of infrared radiation emitted by the hot containers. The measured intensity is translated into essential information about the status of the glass forming process and makes accurate defect inspection possible, already in the Hot End.

The IR-D rejects glass products with critical defects before these enter into the annealing lehr. The real-time process information is related to each cavity which helps the operator to take the right remedial actions.

The IR-D enables access for any user in the company’s network to review the status of the forming process and the quality of the glass products.

**IR-D open data interface**
 XPAR Vision enables open data connections to standard and proprietary Production Information Systems to present and correlate real time hot end information with other production data from furnace, feeder, Cold End inspection and laboratory systems.

Uniquely XPAR Vision teams with major IS-machine manufacturers to provide closed loop interfaces with IS-timing systems for automatic Ware Spacing and Glass Distribution control.

**XPAR Vision partner in implementation**
An important part of all XPAR Vision Hot End solutions is the customized implementation program with training, assistance and support from XPAR Vision’s consultants, who bring many years of expertise in glass forming. This ensures an embedded and sustainable implementation resulting in increased performance and higher product quality.

**IR-D capabilities**
**Accurate inspection of critical defects**
- Thin bottom
- Inclusions
- Verticality
- Wedged bottom
- Thin spots (sidewall)
- Hot spots
- Fallen ware
- Container position on belt
- Ovality

**Real time cavity related information about the forming process**
- Glass quality
- Gob loading
- IS timing setup
- Section performance
- Swabbing disturbance
- Ware positioning
- Gob condition
- Mould condition
- Cooling
- Job Change
- Ware spacing

**Special functions:**
- Critical defect detection to activate special actions
- Operator Assistance by root cause indication
- All image storage for full traceability (short and long term)
- Real-inspect*: sample images for verification of optimized setup and customer audits.