

SYMPLEX HEXKON

Seal Face- / Closure Wall Inspection



Planity measurement at the finish surface Closure wall and thread inspection

- Detection of dip and saddle defects as well as defects in the closure wall / thread area
- Measurement precision down to +/- 0,01 mm on 360° of the finish area
- Inspects container heights from 40 mm to 420 mm and diameters from 25 mm to 170 mm
- Inspects all types of Twist-off and Press-on-twist-off finishes with diameters from 25 mm to 80 mm (optional up to 110 mm)
- Advanced LED lighting methods allow to inspect transparent containers - white, green, brown and blue (other colours on request)
- Long-time production data storage and detailed statistical evaluation options
- Minimum space requirements.
- eSupports production speeds up to 350 C/min
- Software-guided changeover procedures via touch screen
- Remote maintenance / network



BULL
INFORMATIK & INDUSTRIE
ELEKTRONIK

CENTRO
KONTROLLSYSTEME

STRATEC
CONTROL-SYSTEMS

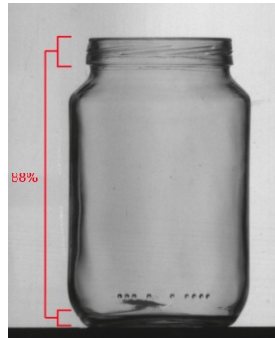
SYMPLEX
VISION SYSTEMS

INSPECTION TASKS

Reliable product quality is the key issue in modern container production. 80-88% of all customer complaints result from flaws in the finish / finish wall area and from the transition between wall and base. Therefore, **BULL TECHNOLOGY** offers **SYMPLEX HEXKON**, the first online inspection machine that controls the finish / finish wall areas on 100% of the produced containers.

SYMPLEX HEXKON offers:

- Planity inspection of the seal face
- Inspection of the finish wall area including the thread area



We use the latest hardware and software developments to achieve the best possible result. The system can detect dip and saddle defects with a metering precision of $\pm 0,01\text{mm}$. In comparison: common tests can only measure steps of $0,10\text{ mm}$. Using **SYMPLEX HEXKON** ensures that the manufactured containers leave the production line in best quality.

GAPLESS 360° CONTROL

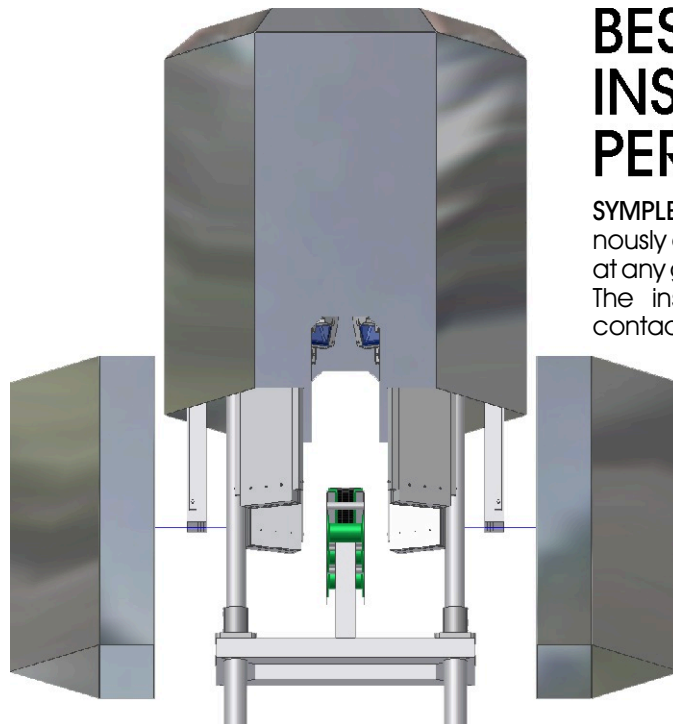
SYMPLEX HEXKON uses the most advanced firewire camera technology, specially tailored high-performance optical components, a variety of adaptable image processing units and an ergonomic user interface.

Revolutionary LED light sources ensure an unmatched image quality, which allows meeting even the highest quality demands.

Six identical optical units permit a gapless 360° evaluation of the seal face possible. In this manner, image data from six cameras are fed into the inspection computer to judge each specimens quality. Furthermore, the optical design not only allows evaluating the seal surface, but also the entire finish wall area. **SYMPLEX HEXKON** reliably finds glass defects and deformations of the thread at the same time.

Although **SYMPLEX HEXKON** is a powerful system, it requires minimum space. It can be mounted in locations where other inspection machines do not fit in. Additionally rejection units are able to remove the defective specimens even at highest line speeds.

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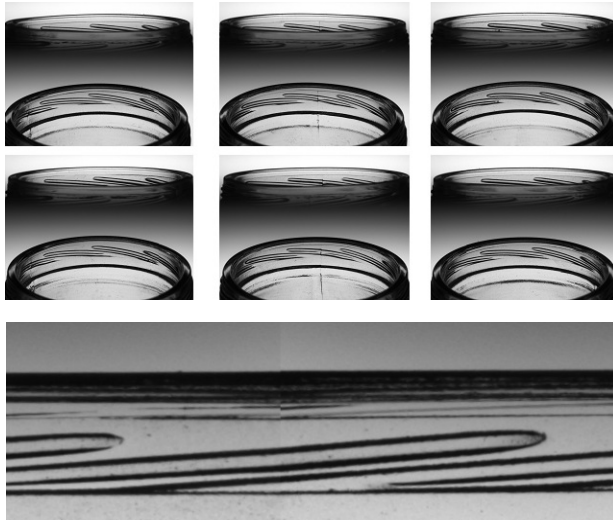
BEST INSPECTION PERFORMANCE

SYMPLEX HEXKON operates asynchronously and, therefore, can be mounted at any given space along the conveyor. The inspection procedure is entirely contactless, which reduces wear and maintenance to a minimum. Since **SYMPLEX HEXKON** consists of six identical modules, changeover times and parameter adjustments can be carried out within a very short period.

FUNCTIONALITY

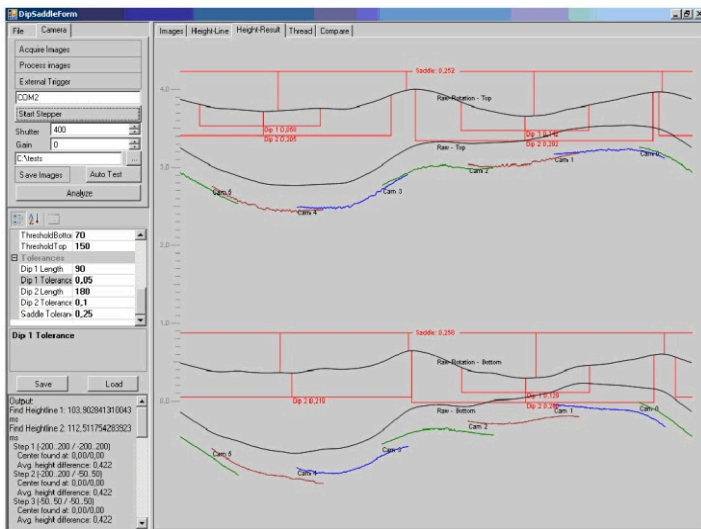
SYMPLEX HEXKON offers a reproducible measurement of the entire seal face and finds the two defect types Dip and Saddle. The inspection comprises optical control methods that combine the most advanced achievements in lighting technology, high end cameras and computers. The system records each specimen from six different angles and aligns the results to evaluate the contour of the seal face. The user can define the machine's tolerances and display the measurements and corresponding graphs together with their respective scales on a coloured touch screen. This allows a precise judgement of the general container quality as well as the inspection system's performance

Compared to traditional measurement methods, **SYMPLEX HEXKON** not only applies spot tests, but measures the seal face on every single pro-



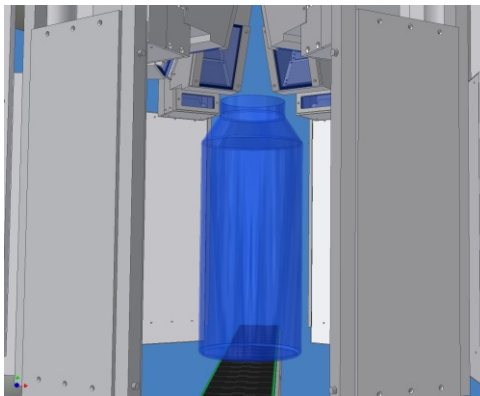
duced specimen. Together with an external mould number reader, the user can spot trends precisely and reliably. This allows much faster reactions to problems at the hot end. Dip and saddle defects do not show a statistical distribution, but can always be attributed to problems in the production process, and to defective moulds in particular. The combination of the **SYMPLEX**

HEXKON machine and a mould number reader enables you to expand the possibilities of optimizing this critical field.



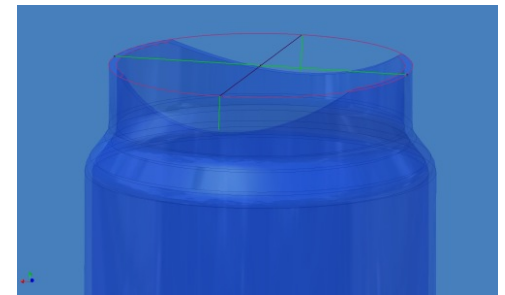
While being transported standing on a conveyor, the containers are fed through the machine. At the same time, all six **SYMPLEX HEXKON**'s cameras take pictures of the passing specimen. **SYMPLEX HEXKON** can operate at production speeds of up to 350 containers per minute. High performance LED-modules provide a suitable light to inspect all kinds of transparent container types (colourless, blue, green, brown and other colours).

Thus **SYMPLEX HEXKON** is able to inspect Twist-off finishes as well as Press-on-twist-off finishes with diameters from 25 mm to 110 mm.



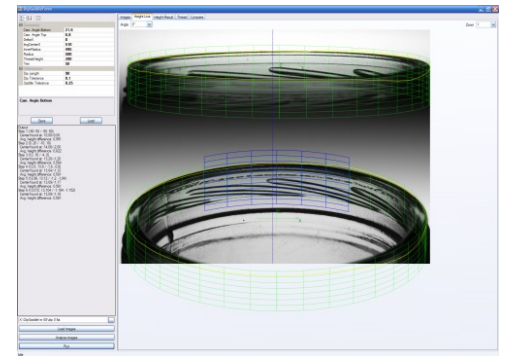
OPERABILITY

All necessary settings are effected by a touch screen with a coloured display. The user interface uses the common platform Windows XP. This allows carrying out even advanced adjustment tasks without vocational adjustment. High-quality optical components and megapixel cameras guarantee the best possible inspection performance. Tests performed out by leading glass producers in Germany showed the superiority of **SYMPLEX HEXKON** in comparison to existing measurement methods in both respects, speed and scrutiny.



ONLINE HELP

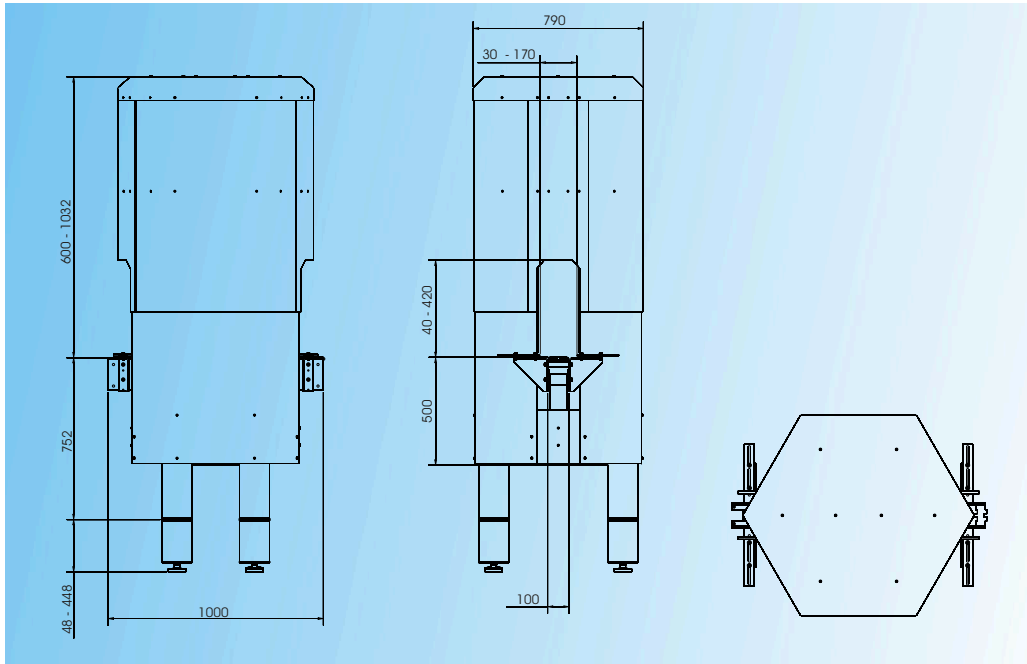
A comprehensive context-sensitive help system explains all tasks in the user's language. In order to facilitate service tasks and in multi lingual environment, **SYMPLEX HEXKON** provides the run-time switching of languages. Software guided changeover procedures arrange all necessary parameters in easy step by step menus and lead the user through basic settings and fine adjustment of the machine.



REMOTE MAINTENANCE

Saving your time and money, Symplex service specialists can log in on your machine to help your staff to find the correct parameter settings. The machine control status is transferred to one of our workstations and we carry out the necessary adjustments via a standard ISDN or analogue connection. In case of malfunctioning, we provide a fast and qualified diagnostic assessment and transfer necessary program updates.

SKETCH



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