

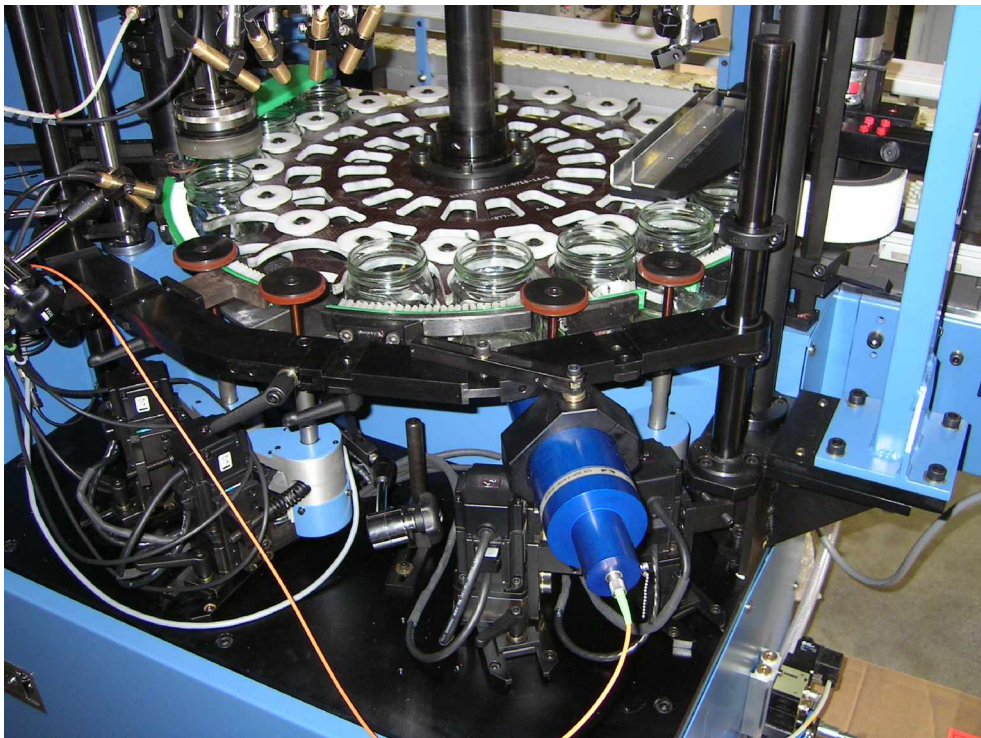
New at Glasstec in Düsseldorf

Bottle inspection at the cold end of hollow glass production now quicker and more economical

An outstanding innovation on the stand of specialist machine manufacturers Busch & Spreen drew the particular attention of visitors to the Glasstec 2006 exhibition.

Busch & Spreen are working in conjunction with the sensor manufacturer Precitec Optronik and specialists from both companies presented the ISM inspection machine for use in hollow glass production. It outperforms all systems previously available in this sector.

By fitting the CHRocodile M4 thickness measuring system, they have made the machine capable of the contact-free inspection of up to 350 non-round containers per minute, i.e. of bottles of various shapes and colours, for thickness, glass shape, roundness and glass quality. What is more: bottles may have steeply sloping surfaces, or even angled sides. This new measuring system can read and reliably inspect all hollow containers. There are practically no limits on its ability to measure an item: practically all round or non-round, individually formed products may be measured. In essence, the inspection can cover all areas of the product. Neither constantly varying distances from the optical probe nor the colour of the bottles being inspected will have any effect on the accuracy of measurement.



Machine with inspection system:

The ISM inspection machine working contact-free with the new CHRocodile M4 thickness measuring system (blue optical probe in the foreground) checks up to 350 glass containers per minute for wall thickness, form and quality. The new measuring system can also inspect bottles with highly inclined surfaces.

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This leap forward in technology has been made possible by the optical probes that Precitec-Optronik has developed especially for the glass industry.

The CHRcodile M4 measuring system built into the inspection machine is modular in structure and uses a method for chromatic measurement of wall thickness of unparalleled robustness in a unique configuration by Precitec Optronik. This method entails white light being guided down fibre optics to the measuring head. The optical probe comprises a lens with a known chromatic aberration which focuses the light emitted from the optical fibre onto the glass surface to be measured, according to the wavelength. A spectrometer then analyses the reflected light and calculates the material thickness from this with high precision.

Up to 4 independent measuring points record the glass thickness between 0.1 mm and 35 mm depending on the head option and the form of the product. It does not matter whether the bottles are smooth, have relief moulding or are engraved.

CHRcodile M4 operates at an unusually high measuring rate of 4000 measurements per second so that even at high belt speeds of 4 metres/second it is able to detect the smallest flaws.



Optical sensor:

The modular CHRcodile M4 thickness sensor with four optical probes.

The temperature of the glass or streaking effects because of the ambient air make no difference to the measuring accuracy. The CHRcodile M4 captures the data just as reliably at the cold end of hollow glass production as inline on the hot end of the bottle production belt. The sensor is able to report quality defects detected to the process control system via RS 232 and RS 422 interfaces. This can all be achieved without the need to take specimens during the production process and then, where necessary to readjust the plant after the production of a number of defective products.

The CHRcodile sensor can easily be integrated into existing plant from different manufacturers. The sensors have already been calibrated in the factory and are designed for years of maintenance-free operation.

A comprehensive software package can be supplied for the automatic analysis of the measured values; it is based on the experience gained in several hundred installations of the tried-and-tested CHRcodile series of sensors. The sensor's full command set and DLLs are available for use by plant designers. This means that the CHRcodile M4 in its 19" rack can easily be incorporated into existing inspection stations.



In summary, the new CHRcodile M4 contact-free measuring system offers serious benefits in glass bottle production:

- Ø Monitoring of glass thickness and roundness
- Ø Measurement of round and non-round shaped items
- Ø Measurement of clear and coloured glass containers
- Ø Ensuring product quality through 4000 measurements/second
- Ø Reliable data capture at the cold end of hollow glass production and from hot glass
- Ø Rapid detection and prevention of faulty glass containers
- Ø Simple adaptation thanks to the modular design of up to four measuring heads
- Ø Can be integrated with ease into the production process (plug & play)
- Ø Highly precise, rapid, robust

Specifically, the benefits to the user are:

- Ø Increase in bottle quality
- Ø Serious increase in economic efficiency in bottle production