

Plastic bottle production

**DC 150 application
Quality assurance for
a production line**

- Fast data acquisition
- Leakage test for inner sachet
- Quality assurance for plastic bottle production
- Online evaluation of data
- 5 Mbyte buffer memory for measurement data
- Simple operation test stand operation

KEYWORDS

Measurement data acquisition, quality assurance, plastic bottle production, leakage test, plastics testing equipment

DESCRIPTION

Certain pharmaceutical products are filled into plastic bottles with an inner sachet, which prevents the bottle's contents being contaminated by bacteria due to pressure equalization after a dose has been removed, e.g. by a spray pump. The best-known examples are nasal spray bottles.

Reliable operation of these small bottles can only be ensured if the thin inner sachets are completely tight. To ensure that the sachets compress under atmospheric pressure as the contents are removed, an extremely thin material is required. However, thin material is more likely to develop a leak. Therefore, the inner sachets must be tested carefully during production.

IMPLEMENTATION

A German plant has been equipped, using DC 150 as main control unit. The measurement setup consists of a holder for 8 bottles, with a separate pressure sensor and a motor-operated piston pump for each bottle. Measurement data acquisition and control of the pumps are handled by the CPU of a DC150 module.

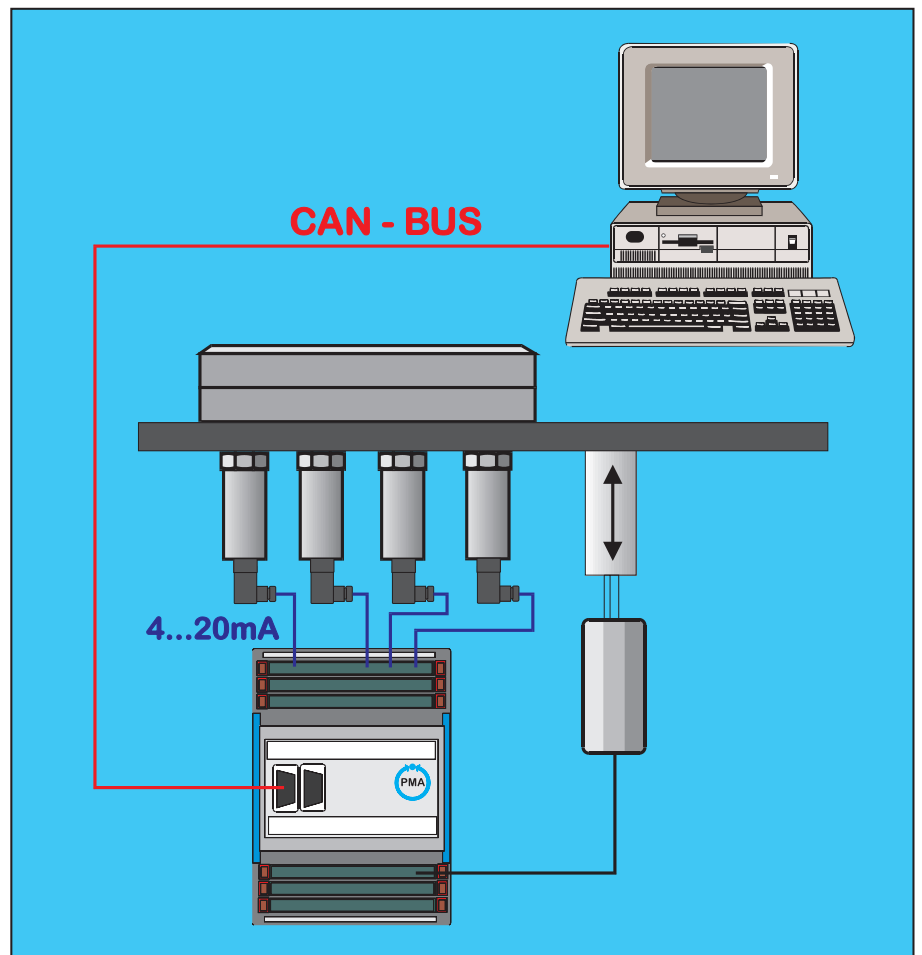


Fig. 1: Test and measurement setup

Via a CANbus, the DC150 controls the pump motors by means of a sinusoidal signal, thus causing the pressure in the bottles to oscillate. The internal pressure of the test samples is recorded during 4 cycles over a period of 2 seconds.

For this, the DC150 scans the 8 pressure values at intervals of 10 ms. Consequently, each test sequence involves the recording of 1600 measurement values, which are then transferred to a PC via the CANbus for subsequent evaluation.

The recorded values are compared with an ideal curve. Any deviations, the 'collapse areas', which are indicated by pressure drops (Fig. 2), are a sign for a faulty sachet.

Running under Windows, the test program provides numerous options for viewing the test data, e.g. a survey of all 8 pressure curves, the display of an individual test sample, or a detailed inspection of the collapse area (Fig. 3).

Furthermore, the test program permits the measurement data to be stored for the purpose of quality assurance and analysis. Test data can be assigned to individual batches, enabling them to be archived together with the other production details, as well as the ID of the test operator.

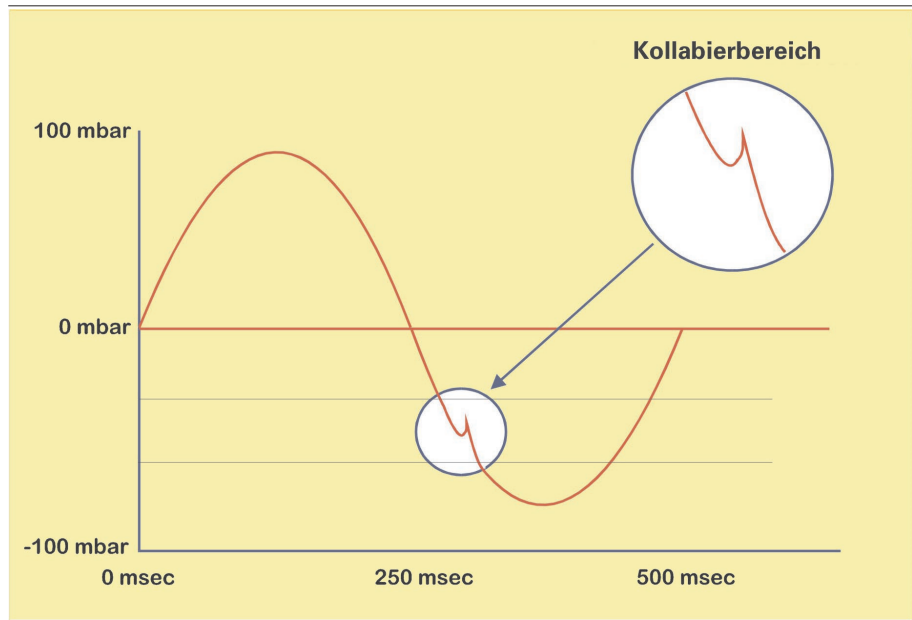


Fig. 2: Collapse area

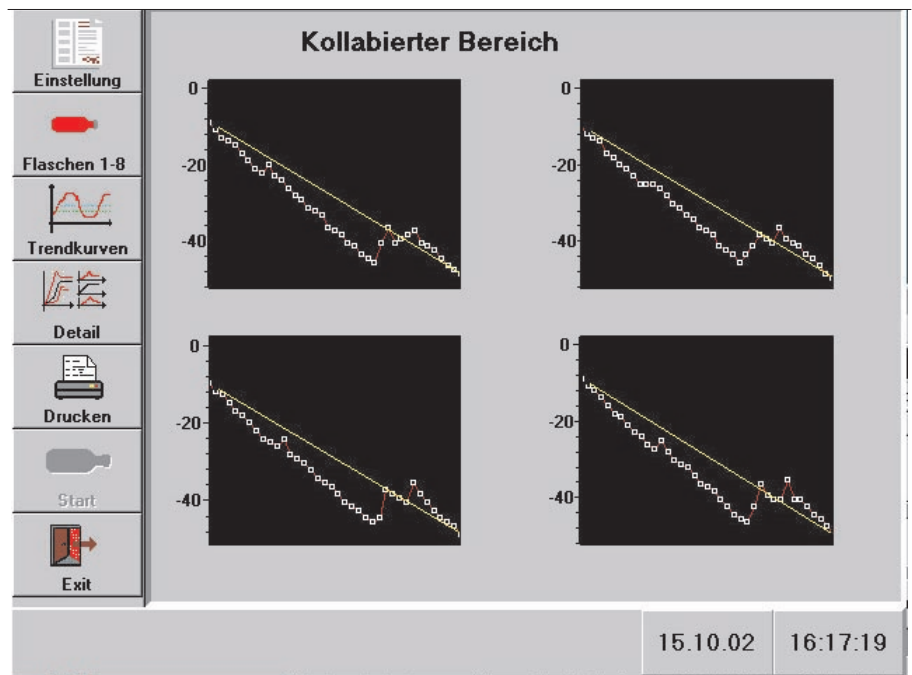


Fig. 3: Detailed view of collapse area



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