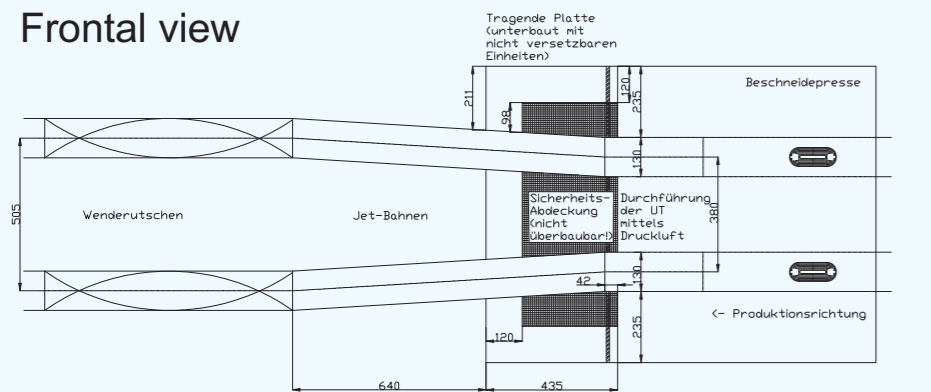
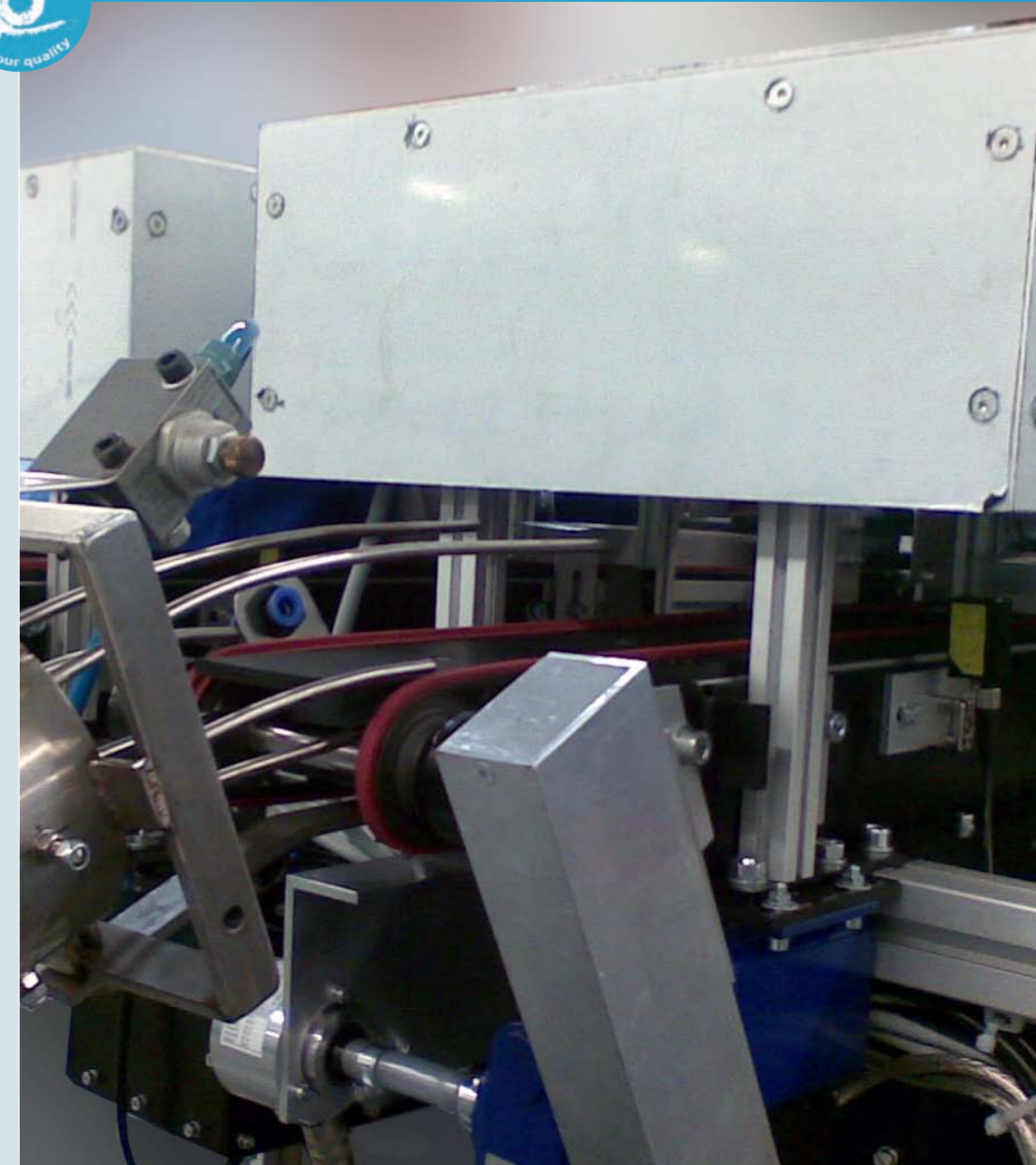
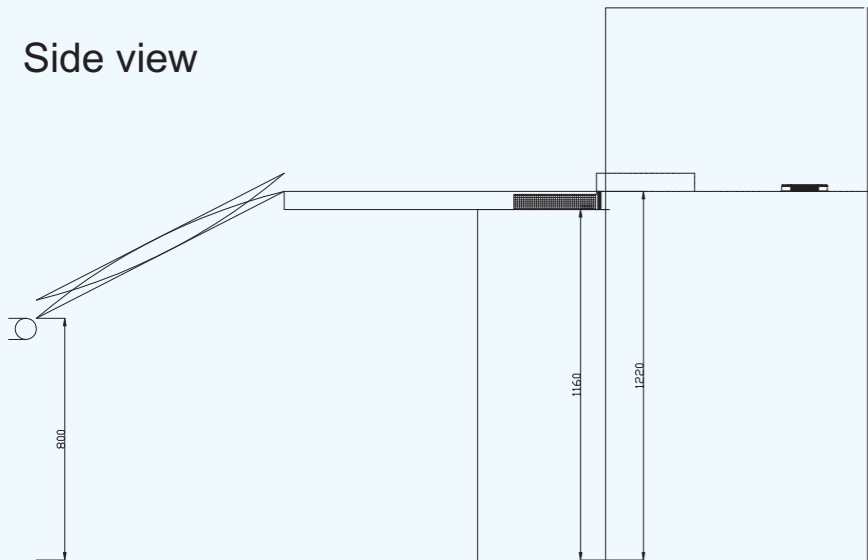




Frontal view



Side view



### Technical specifications for Light Pinhole Tester

**Inputs:**

- 110 - 240 VAC 50 - 70 Hz (16A) input voltage
- 6 bar compressed pressure
- 24 VDC input for conveyor speed gauge
- 24 VDC input for trigger light barrier
- 3 PLC - inputs

**Outputs:**

- 3 x 24 VCC (1A) output per line for reject valves (1 x included)
- Serial interface RS 232
- Ethernet interface RS 232
- 6 more freely programmable system outputs 24 VDC

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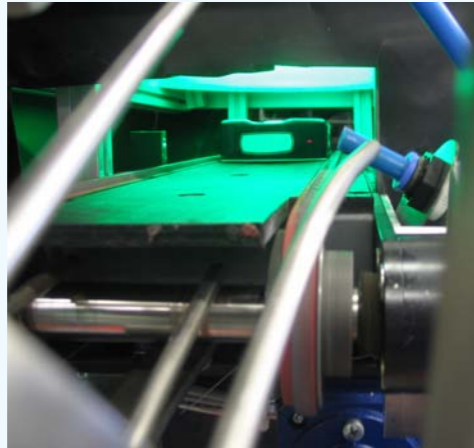
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# Light Pinhole Tester

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In-line leak detection for drawn shallow cans by using a running through conveyer without any stops. Very precise timing allows the inspection for Pinhole of 50 µm in drawn cans.

#### Compact in-line inspection

The Light Pinhole Tester 7000 leak detection module for cans was designed for compactness, ease of integration into any production line, requiring no special transport. The compact can inspection module accepts cans directly from a conveyor or track work. Cans are accepted by guide-rails and fed forward by a belt brush, driven by an brush less servo drive, to the inspection mask, arrested momentarily by a high speed electronically controlled stop, inspected and accelerated to the downstream line or diverted by the rejection if a leak is detected.

Cans must normally be fed bottom up to the module.

Can height change requires no adjustment for cans fed bottom-up. Interlocking with the press will halt the press and a alarm will be activated (blinking warning light, siren etc.) if a light source fails, or if the LPT for some reason is not operational.

The basic control design has a number of self-monitoring features that report to the operator monitor, featuring a high level of information about its internal status to an operator or service person.

Modules are connected through a robust industrial network to the LPT. The LPT operator monitor provides a permanent operator interface for setting up the modules, monitoring the process, logging/printing/uploading of production data and has helpful menus for service personnel.

#### Rejection system

The exit end of the inspection module is provided with a reject system to divert leaking cans into a funnel leading downwards for collection in a box below the module.

The reject system is based on controlled timing of pneumatic blow-off nozzle.

Timing and electrical control is integrated in the system, and the reject has a detector to positively verify that a rejected can is actually dumped.

#### Optical inspection

The basic inspection principle is an optical transmission measurement, whereby a strobed light source delivers an intense illumination to on side of the can, while a high sensitivity light detector "looks" at the other side to detect any light transmitted through a possible hole.

The occasional hole where a clear lacquer film stays intact will also be detected as opposed to systems based on vacuum or pressure.

Light sources are based on solid state LEDs, with their long life time.

Placing specially prepared cans with calibrated holes in the inspection stations enables the operator to check the system sensitivity.

#### Sensitivity

When applying the LPT 7000 to can inspection the sensitivity is different for holes in the bottom of the can and on the sidewalls.

Bottom holes may be detected down to 50 µm sidewall holes to 100 µm. Very large can sizes may result in reduced sensitivity.

The sensitivity is monitored during production by inserting specially prepared cans with calibrated holes laser punched in a stainless steel foil attached to the can. The operator can then verify on the LPT Operator Monitor the amount of light being detected.

#### Light sources

The lamp units each contain a dense matrix of hundreds of solid state light emitting diodes LEDs plus special optics to focus the light onto the entire surface to be inspected.

Control electronics is integrated in the lamp housing to ensure constant light output with changing temperature.

The electronics also monitor the current of each individual LED, and in the event just one single LED should fail, inspection will be halted, an alarm output set and the error cause will be displayed on the LPT.

The actual layout and size of a lamp unit depends on the physical outline of the can(s) to be inspected.

## LPT 7000

### Technical Data

#### Camera Features:

- Image sensor with a resolution of 4 mega pixel (2048 x 2048), which offers a very high performance, high fidelity and high resolution

Special highly sensitive optics

#### Light:

- High-Domer-LED-Array extremely high light flash  
Bottom holes may be detected down to 50 µm  
Inspection rate up to max. 600 ppm

### Partlist

#### Electronic Rack:

- VGA-Monitor incl. Keyboard/Mouse
- Image Processing Unit (IPU)

Measurement appr.: L 0,65 x W 0,65 x H 1,80  
or.: L 0,65 x W 0,65 x H 1,00

#### Options to E-Rack:

- Uninterruptible power supply
- Air Condition

#### IPU Equipment:

- PC-Slot CPU Pentium 4 / 2,8 Ghz
- Operating system LINUX
- Hard disk 250 GB
- Grabber P3i2 (depending on version, by using more than 4 cameras 2 grabbers are used)
- C-RTS with 6 programmable PLC-outputs e.g. for mass error and system, and 3 outputs
- Electronics for Power Down
- CFL light and Pusher electronics

#### Imager (camera and illumination)

- Up to 6 progressive scan-cameras of well-known suppliers with high-quality lenses for industrial applications
- Version 1: (ViS-C-LD) RGB-Flashdome LD with double diffuser and big dielectric beamsplitter
- Version 2: (ViS-C-LD BEAM) RGB-Flashdome LD with double diffuser and big dielectric beamsplitter
- Connecting plate for rotary encoder and pusher

Measurement appr.: L 0,30 x W 0,30 x H 0,45