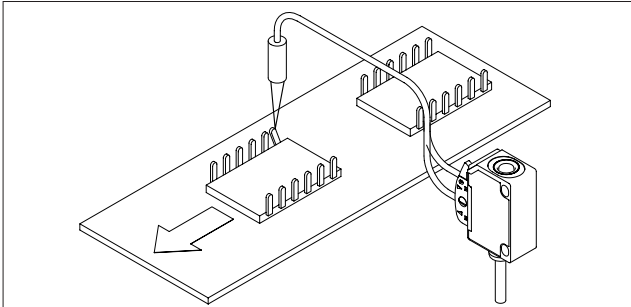


## FL 20 R

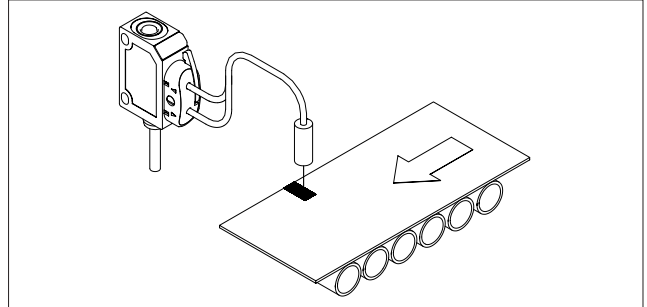
### Detection of IC-pins



Because of the small light spot diameter, even very small objects can be reliably detected, as e.g. IC-pins.

## FL 20 R

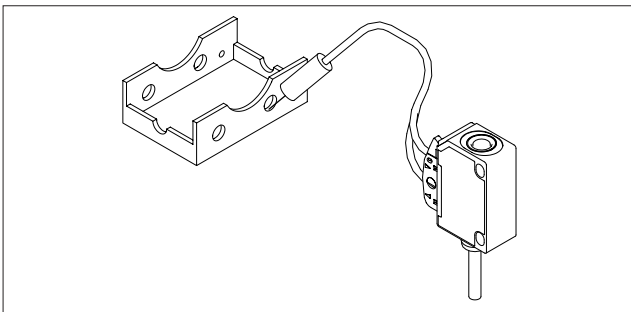
### Detection of pressure marks



Apart from the optical requirements, the detection of pressure marks also demands a high clock frequency.

## FL 20 R

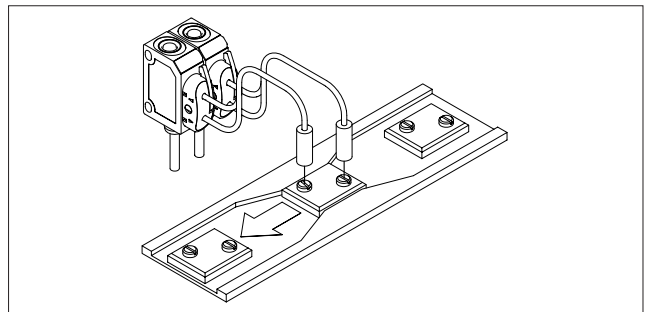
### Testing if thread is existing



Because of the restricted space, the use of a fibre optic is obvious.

## FL 20 R

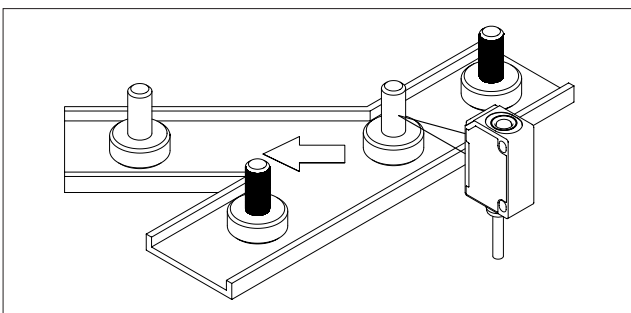
### Detection of missing screws



In restricted spaces, very small bending radius can be attained thanks to the small diameter of the optical fibre.

## FT 20 R

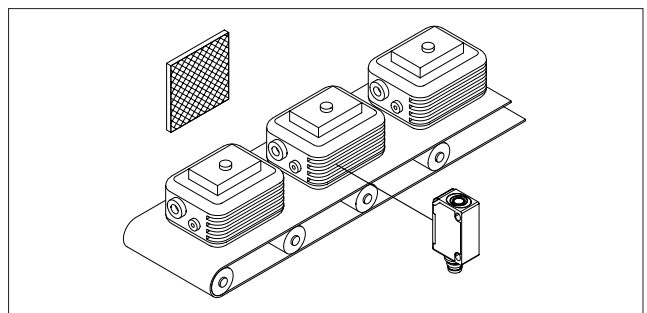
### Sorting out of non-coated parts



With an energetic optical sensor, differences in light intensity can be detected in a reliable way.

## FR 20 R

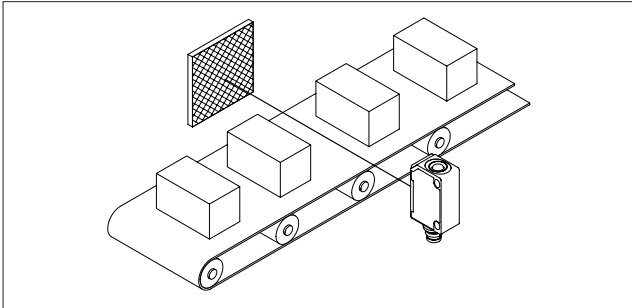
### Fitting control



Before continuing production, the presence of the added component has to be checked.

## FR 20 RD

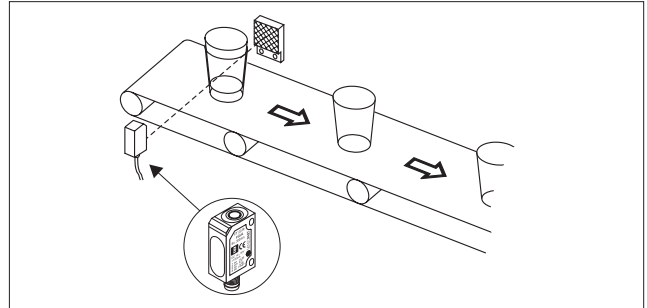
### Detection of parcels



With a retro-reflective sensor, parcels on a conveyor belt are detected in a reliable way even at high speeds.

## FR 20 RG

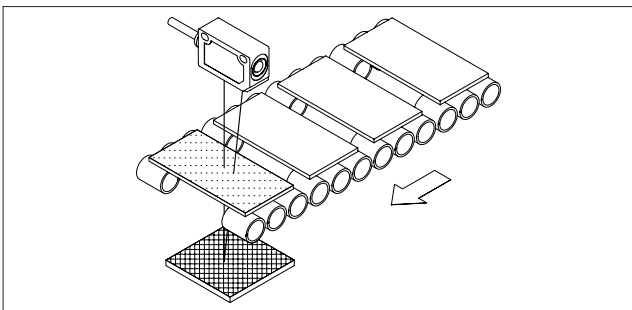
### Detection of double drawn-in plastic cups



The special sensor for glass detection recognises differences in the light transmission capacity.

## FR 20 RG

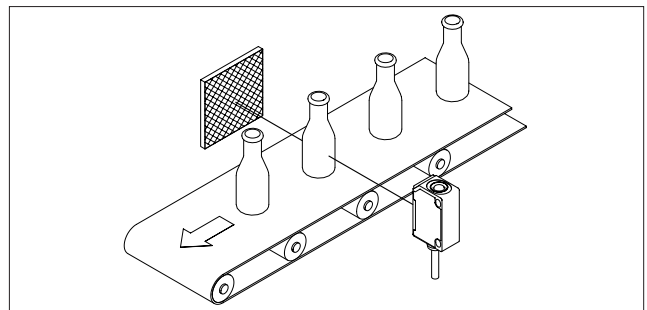
### Detection of non-tinted glass panes



Panels that are mistinted or not tinted at all can be detected with a special retro-reflective sensor for glass detection in a reliable way.

## FR 20 RG

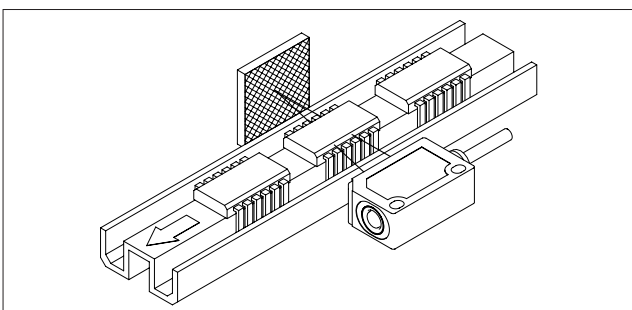
### Bottle control



With the specially developed retro-reflective sensor, the reliable recognition of transparent objects is a success.

## FR 20 RL

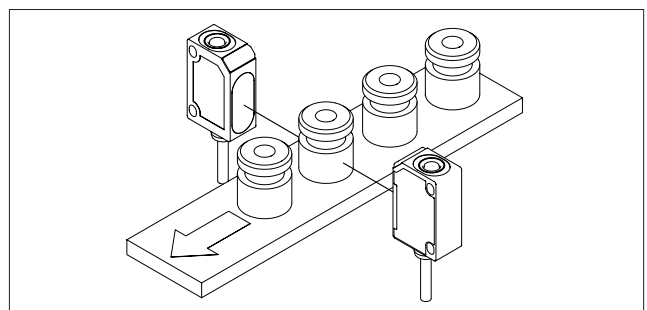
### Position monitoring



Particularly for the production of electronic components, the precise switching point of a laser sensor is imperative.

## FS/FE 20 R

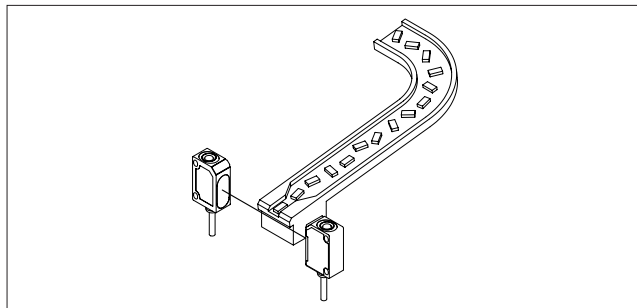
### Detection of work pieces in rough conditions



Thanks to their high reliability, through-beam sensors can guarantee a detection even under unfavourable circumstances.

## FS/FE 20 R

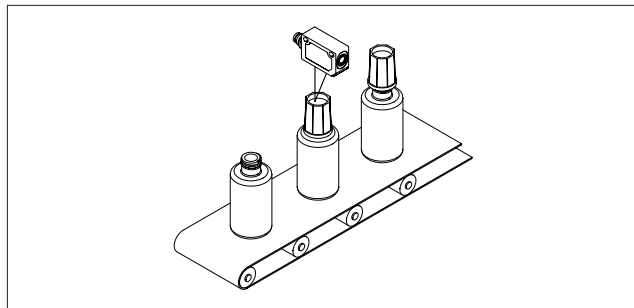
### Counting of conveyed objects



The through-beam sensor detects the parts conveyed by the vibroconveyor.

## FT 20 RA

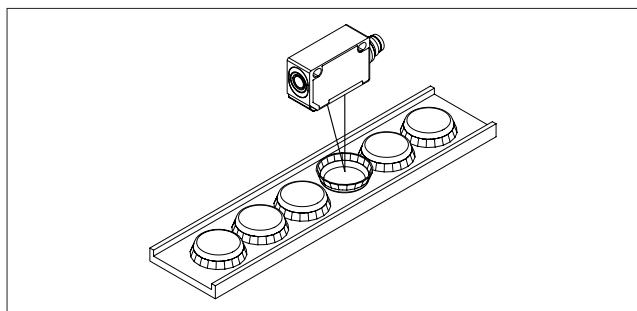
### Lid control



Lids that rise above or stay below the switching window, are sorted out.

## FT 20 RA

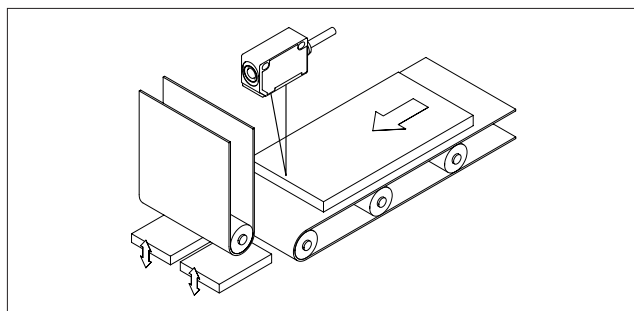
### Position control of lids



Due to the adjustable switching window, lids that lie the wrong way around or are bulged too lightly or strongly can be reliably sorted out.

## FT 20 RA

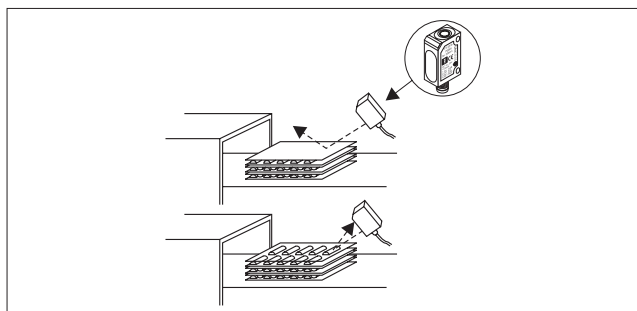
### Adjustment of the grind thickness



The thickness of the board put out by the analogue output serves for the adjustment of the grinding machine in real time.

## FT 20 R

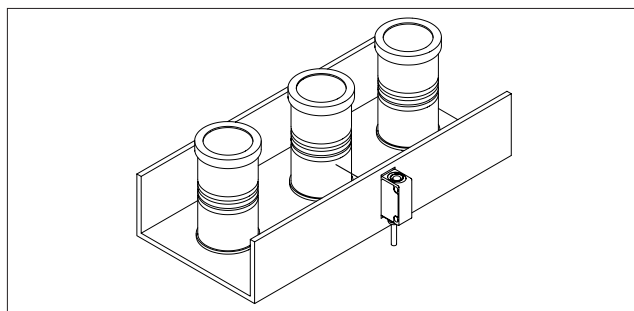
### Detection of the packing quantity



The number of packed units can be controlled with an energetic switch.

## FT 20 R

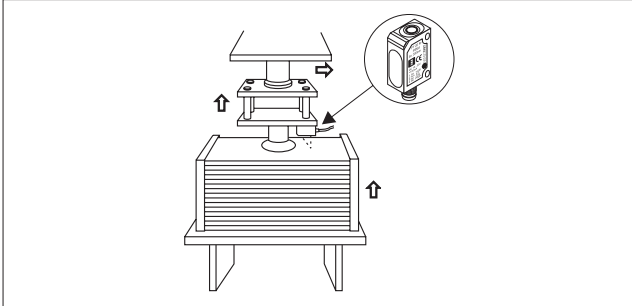
### Detection of packings



Due to its small size, the proximity switch can be installed directly on the conveyor belt.

## FT 20 RH

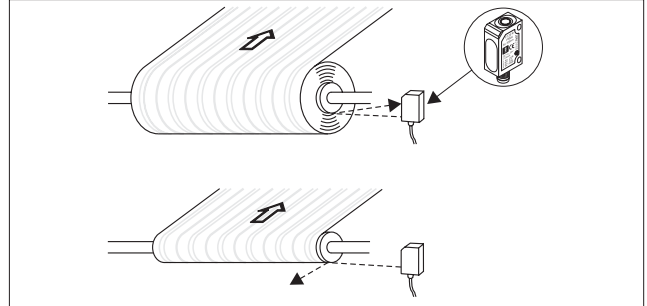
### Confirmation of plate lifting



This plate conveyor is equipped with a proximity switch with background suppression that reports the lifting of a plate.

## FT 20 RH

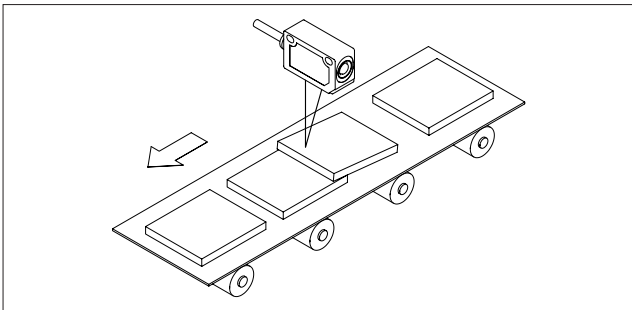
### Checking of the wallpaper quantity during uncoiling



In time before the bolt of wallpaper is uncoiled, the proximity switch puts out an acknowledgement message.

## FT 20 RH

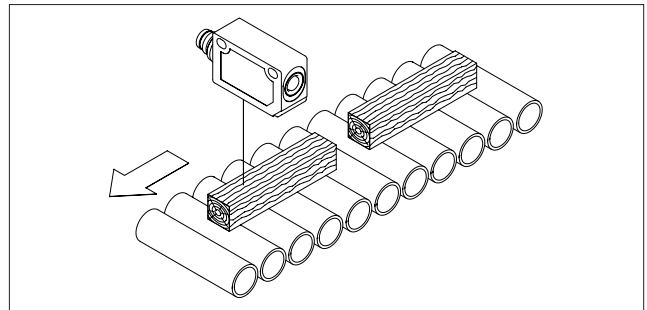
### Control of overlapping wood plates



Before varnishing, overlapping plates can be detected by means of a proximity switch with background suppression.

## FT 20 RH

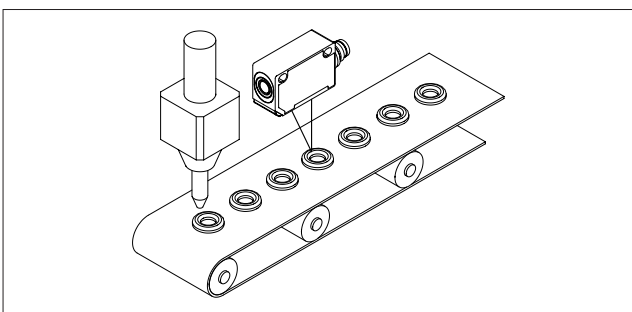
### Detection of tree-trunks



Even rough, irregular structures are reliably detected with the proximity switch.

## FT 20 RH

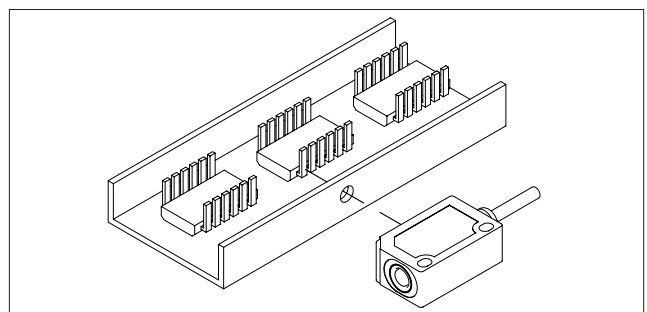
### Detection of cookies



With a proximity switch with background suppression, the even application of dough is controlled.

## FT 20 RLH

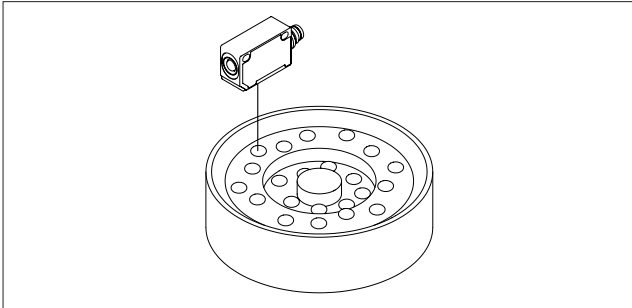
### Checking of pins



The fine light beam of the laser sensor allows the precise recognition of such small objects.

## FT 20 RLH

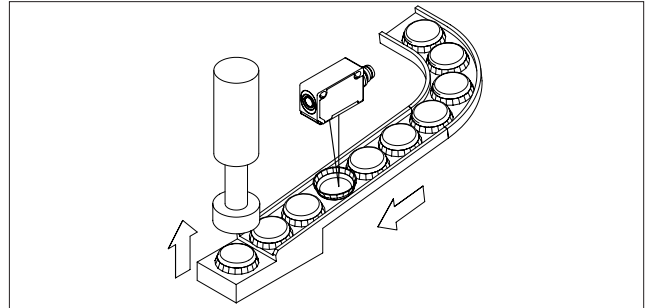
### Presence control in a feeding machine



By means of the presence control with a proximity switch, the supply of new work pieces is controlled.

## FT 20 RLH

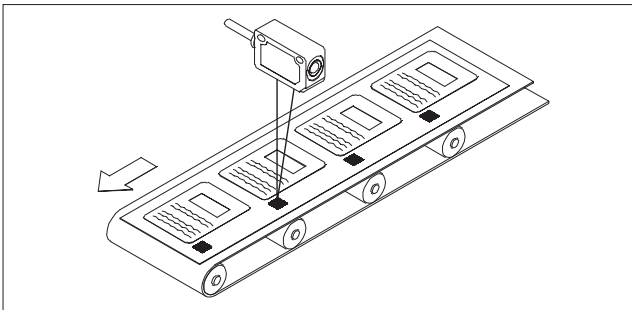
### Lid control



Lids that lie the wrong way around are detected by means of the background suppression.

## FT 20 RL

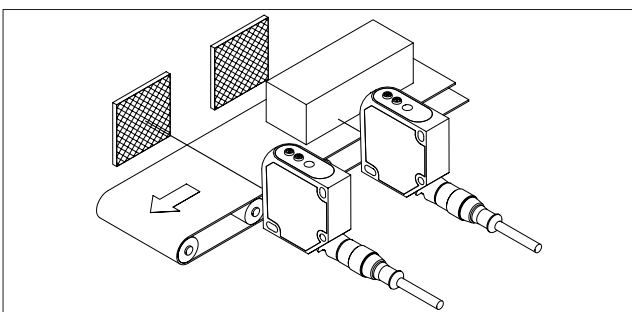
### Detection of printing marks



The difference in contrast of the printed marks is detected here.

## FR 50 R

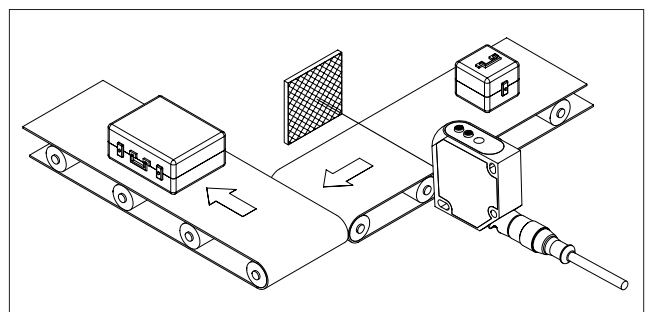
### Position test



Two retro-reflective sensors check the alignment of the parcel. When both sensors switch, the parcel lies lengthways on the conveyor belt.

## FR 50 R

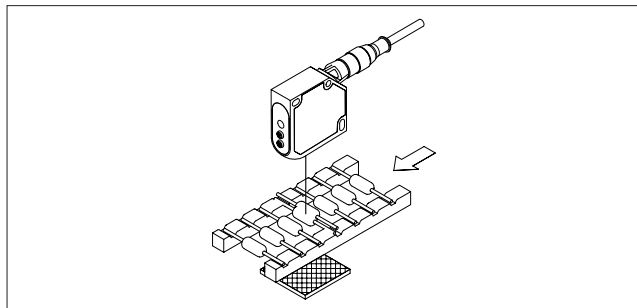
### Luggage distribution



The retro-reflective sensor detects the arrival of a piece of luggage at the end of the conveyor belt.

## FR 50 RL

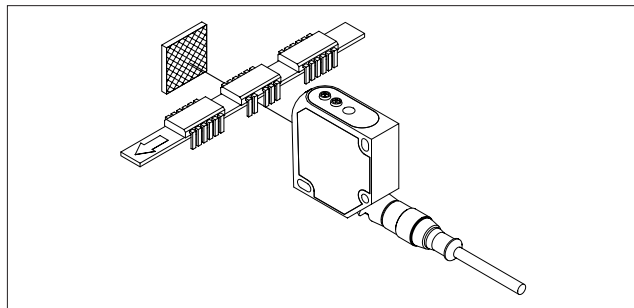
### Detection of double drawn-in parts



The laser sensor detects the component drawn in double because of the longer interruption of the light beam.

## FR 50 RL

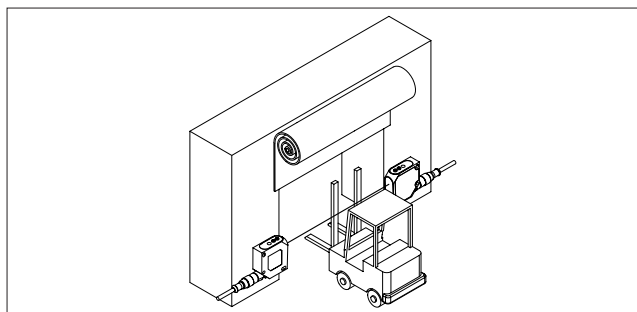
### Counting of plug pins



A precise laser retro-reflective sensor recognizes even pins with a very small diameter.

## FS/FE 50 I

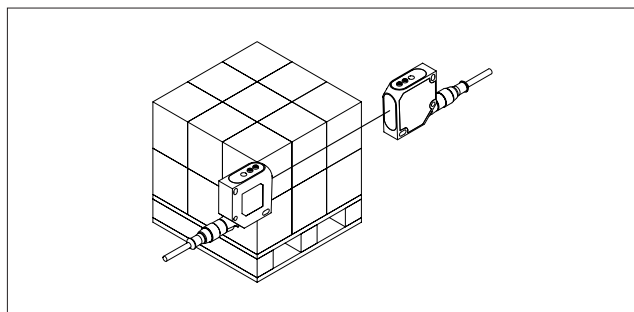
### Control of a sliding gate



The sensing distance of a through-beam sensor facilitates its use even with very broad gates.

## FS/FE 50 I

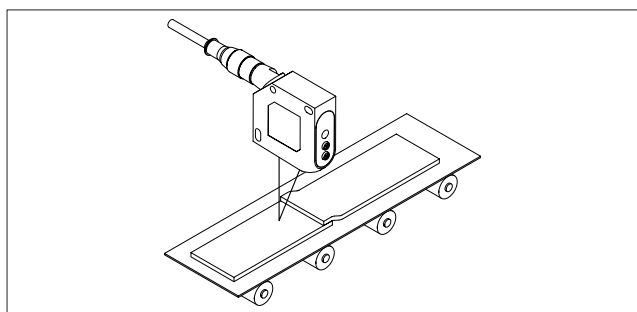
### Pallet position



A shifting of the pallet causes the interruption of the light beam.

## FT 50 IH

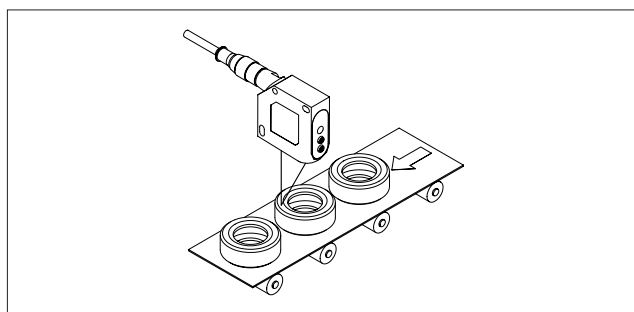
### Recognition of seams



An infrared proximity switch with background suppression is used in order to detect the seam reliably.

## FT 50 IH

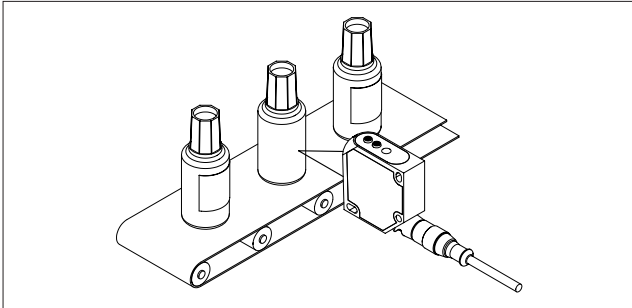
### Recognition of tires



The recognition of dark objects in front of a light background is made easier by the background suppression.

## FT 50 C

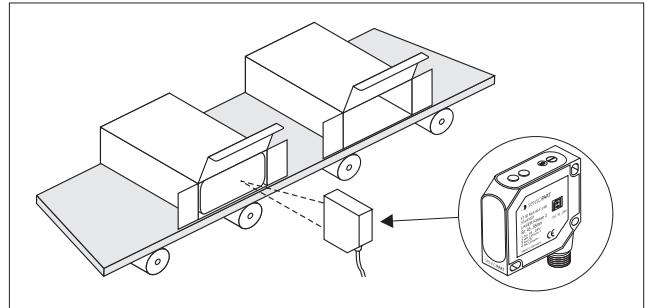
### Label control



Multi-coloured labels are detected by the scanning function in a reliable way.

## FT 50 RH

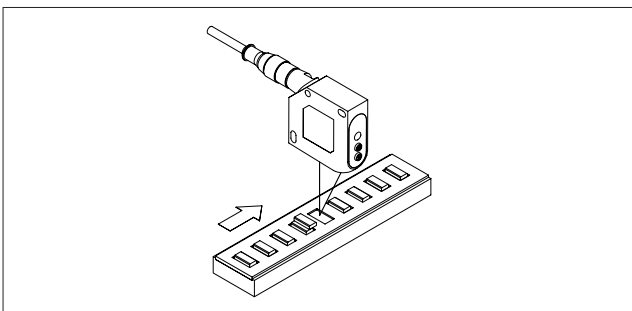
### Recognition of objects in packagings



The completion of packaging is checked with a proximity switch with background suppression.

## FT 50 RH

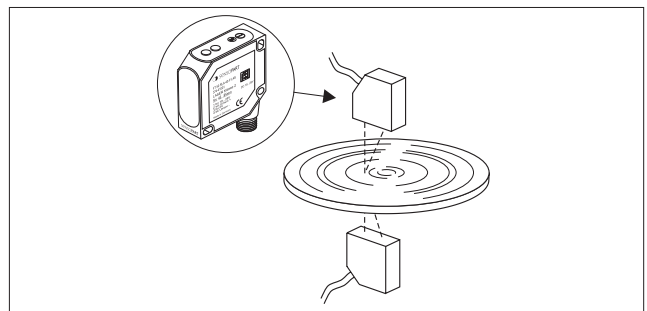
### Control of ICs before assembly



By means of a proximity switch, double or missing ICs can be detected before assembly.

## FR 50 RLA

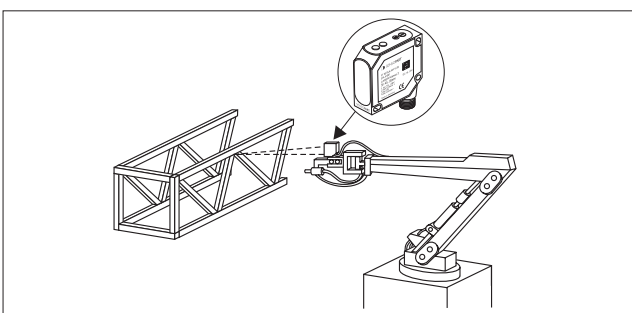
### Measurement of wafer thickness



The laser proximity switch puts out a distance-adequate voltage via its analogue output, which corresponds to the thickness of the wafers.

## FT 50 RLA

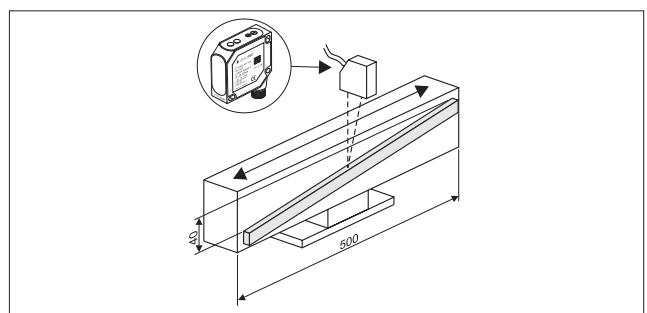
### Positioning of a robot arm



Thanks to the distance-dependent voltage at the analogue output of the sensor, a precise positioning can be effected.

## FT 50 RLA

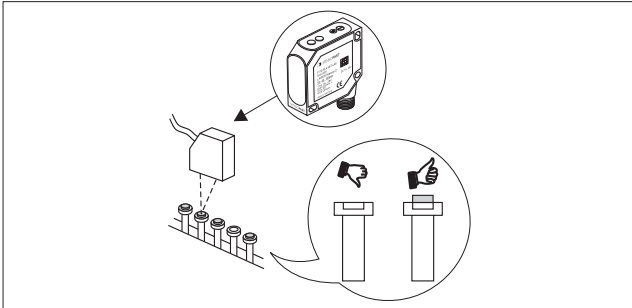
### Position control



From detecting the distance, the position of the work piece can be concluded.

## FT 50 RLH

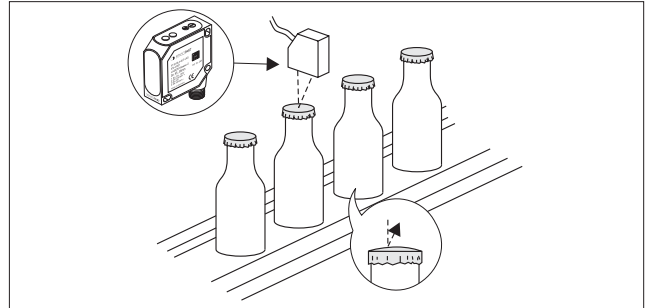
### Checking of pins



The laser proximity switch detects the presence of the rubber inserts in the pins in a reliable way.

## FT 50 RLH

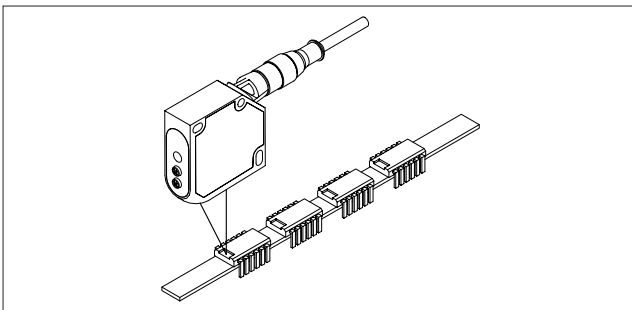
### Checking of the bulge of aluminium lids



A bulge too strong can indicate fermentative processes or putrefaction and is detected by means of a laser proximity switch with background suppression.

## FT 50 RLH

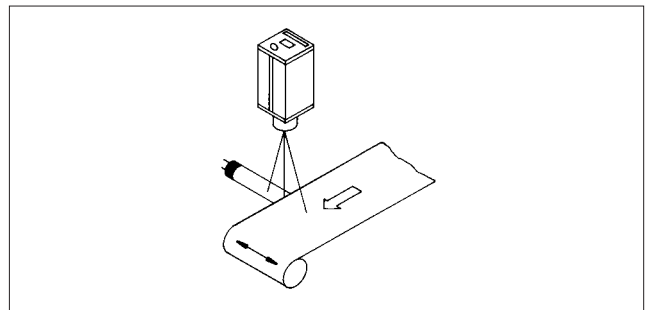
### Alignment of microprocessors



The laser sensor can control the position of the processors with the help of the openings.

## FZS I 024

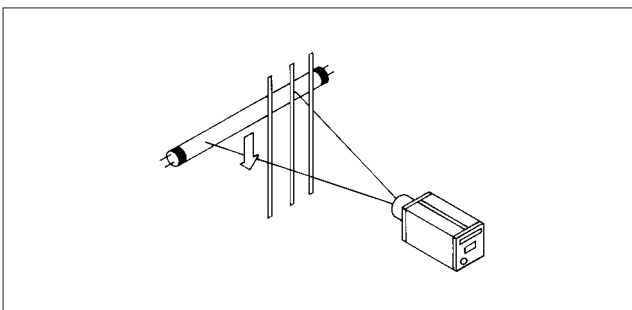
### Edge control



Horizontal deviations are detected accurately to the millimetre, enabling immediate reaction.

## FZS I 024

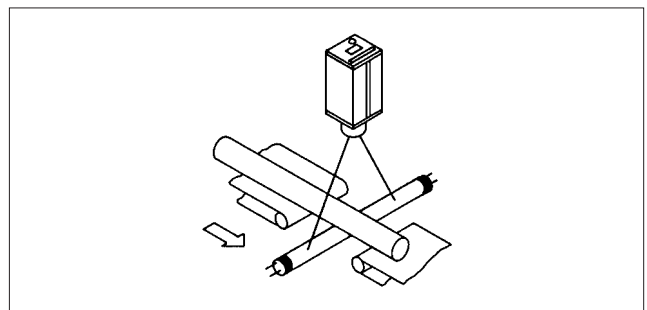
### Detection of missing parts



A missing string is reliably detected.

## FZS I 024

### Diameter control

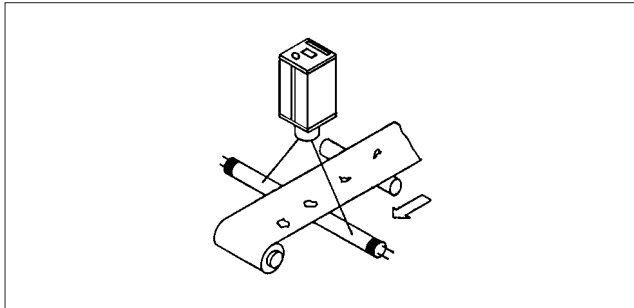


A change in the diameter causes an immediate change in the quantity of light falling on the CCD line of the FZS.



## FZS I024

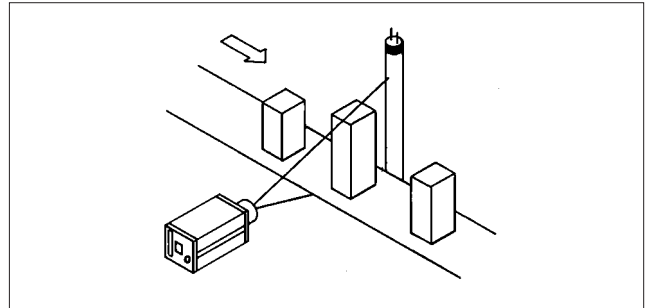
### Detection of holes



Holes would result in a short light incidence.

## FZS I024

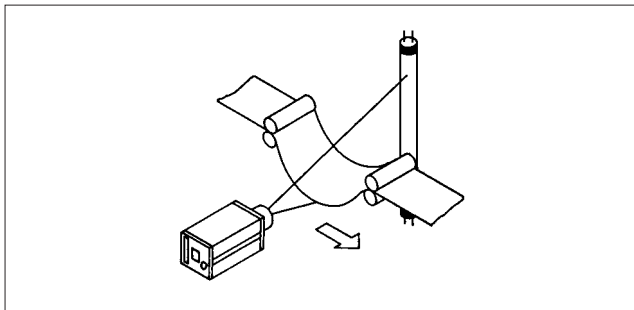
### Measuring of length



Sorting tasks can be accomplished with the FZS as well.

## FZS I024

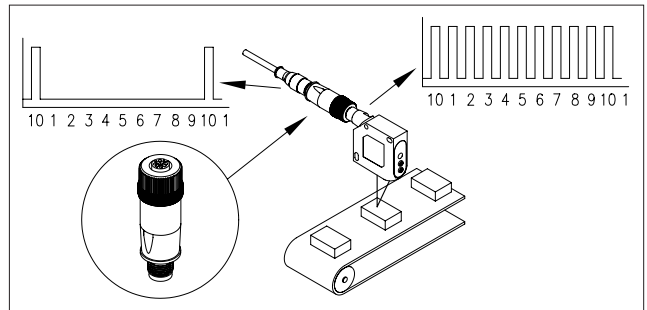
### Detection for a sag



The sag of a belt is controlled in order to avoid tearing.

## SmartPlug MFC

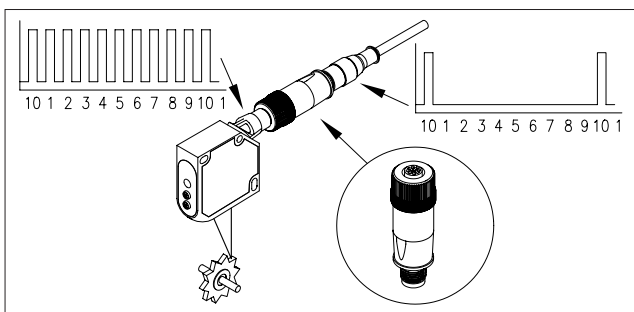
### Counting of parts in a container with F50



There is a switch signal after every 10th object - a typical application in packaging.

## SmartPlug MFC

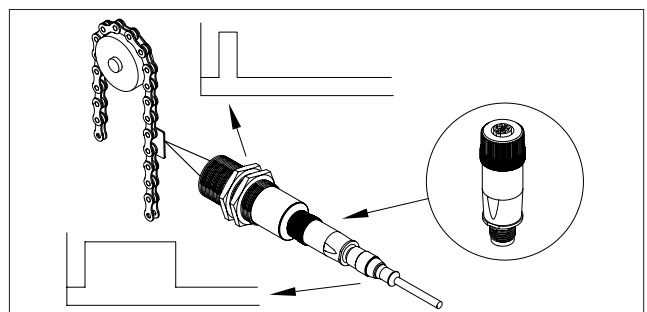
### Counting of the teeth of a gear wheel with F50



The rotation of a gear wheel can also be counted.

## SmartPlug MFT

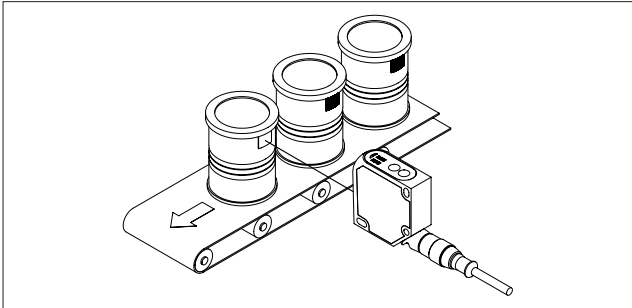
### FMS 30, chain detection with FMS 30



Here the SmartPlug causes a pull-off delay, so that the SPS can evaluate the fast movement of the chain.

## FT 50 C

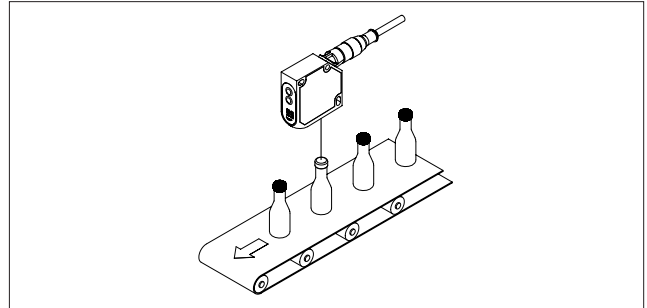
### Sorting of tins



Batches of tins can be sorted by means of printed colour marks.

## FT 50 C

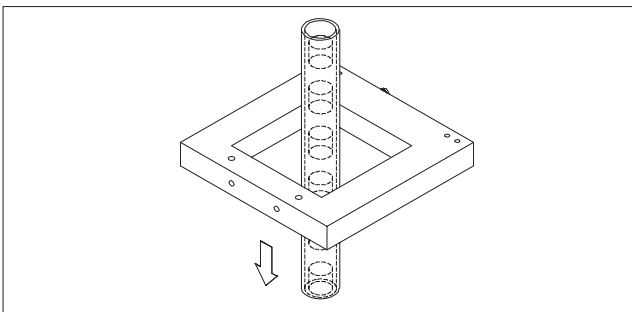
### Checking of lids by colour code



False-colour lids are sorted out.

## FG

### Detection of objects, moving through a hose



Due to the dynamic processing, it is possible to detect objects that are moving through a partly transparent hose.