## Comparison of Xcam IL GAP ECOsys / AUTOsys

The two systems differ in terms of the laser selection, the laser beam width and in the automation of movement. Xcam IL GAP ECOsys is the more economical variant but it requires the customer to intervene manually if the GAP is beyond laser beam width of 350 mm. In contrast, the Xcam IL GAP AUTOsys is largely automated.

Parameter	Xcam IL GAP ECOsys	Xcam IL GAP AUTOsys
Conveyor unit	not included, the camera and laser must be shifted manually on a crossbeam for a GAP position outside of the 350mm viewing window	with conveyor unit, once saved, the camera moves to the correct position for a repeat order
Conveyor widths		two versions: 100 and 160 cm
Field of vision	350 mm	30 mm
Standard crossbeam widths	up to 120 cm larger sizes must be requested specially	100-160 cm
Machine speed	up to 300 m/min	up to 300 m/min
Measurement accuracy	±2 mm	±2 mm
Positioning speed		5 m/min
Positioning accuracy		0,5 mm

Xcam IL GAP ECOsys / AUTOsys
GAP control

Gluing Systems
Quality Assurance Systems
Camera Verification Systems
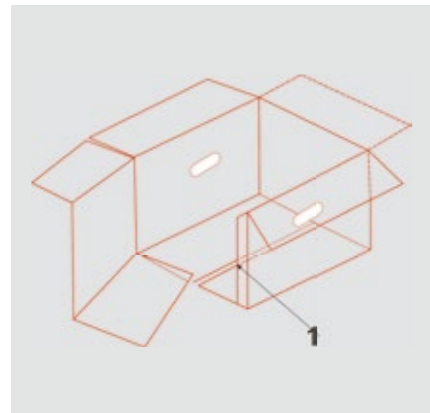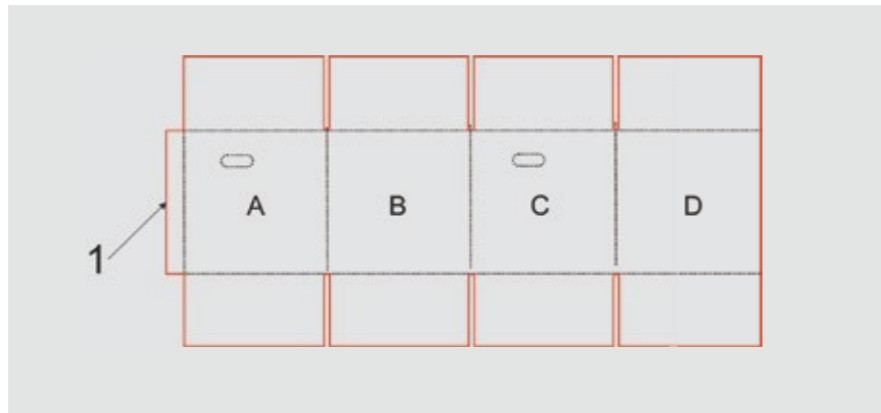
Quality control of folding in an inliner machine (flexo folder gluer)
Process background
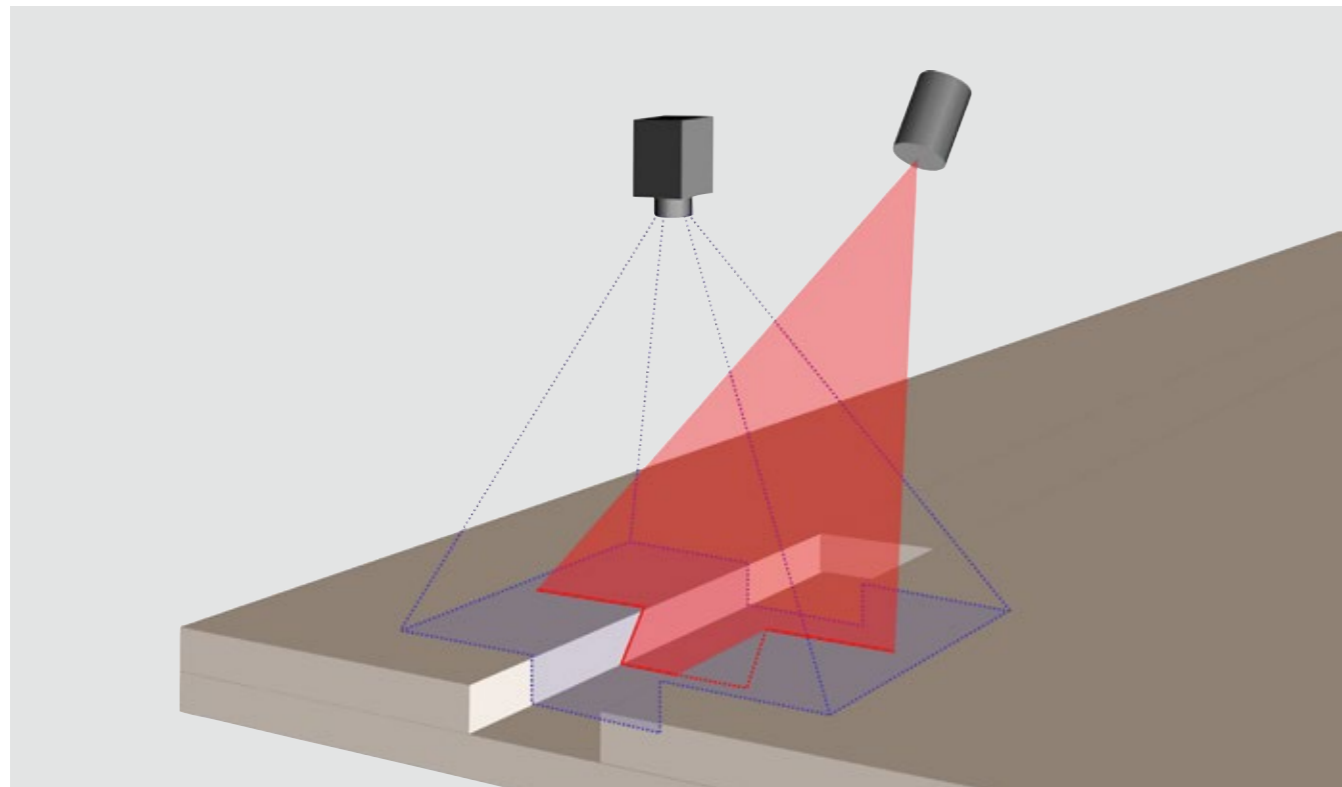
GAP measurement principle

Carton open, folded

Carton open

At the groove slot station of an inliner, the printed corrugated board is grooved to create the four panels (A-D).

The slots on the lid and bottom flaps are slit open, forming a glue flap (1).

Glue is applied to this glue flap (1) by means of a glue application system.

At the folding station, the first panel (A) and the fourth panel (D) are brought together with the glue flap and attached.

Definition of GAP

By a GAP, experts mean the slot that is produced when the first (A) and fourth (D) panels are joined together in an adhesive joint. The English term GAP is also common in other countries, even though the term „manufacturer's joint" is common in some English-speaking countries.

Why are tolerances a problem?

The width of the GAP slots must be within definable limits. Slots that are too narrow lead to problems in packing systems, slots that are too wide result in the packaged product not being fixed optimally in the outer packaging. This especially applies to automatic packaging systems that are increasingly being used in the industry.
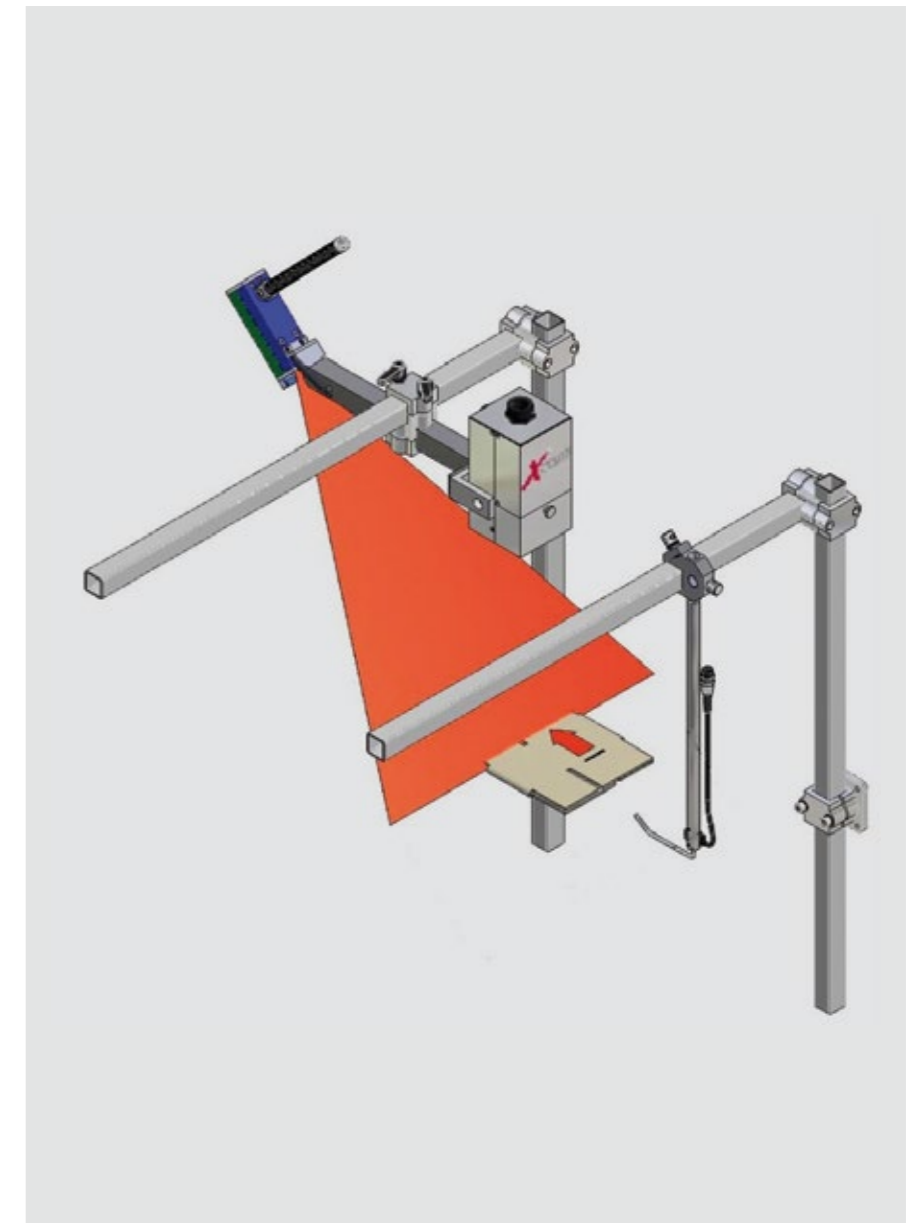
In practice, these prove to be more sensitive to dimension fluctuations than with manual packaging. If necessary, a person can push a product into tight packaging, a machine cannot.

Fish-tailing causes particular problems, which primarily results in skewed gluing or a misalignment of the two layers.

In this case, the GAPs in the area of the lid and bottom flaps will have differing widths or the flaps will be misaligned with one another. The box will then lose its rectangular shape. The measurement and production control of the GAP slots is therefore an industry-wide focus, as interruption to the automated packaging process often leads to reclamation.

What advantages does the Baumer hhs system offer to customers?

- Measurement is independent of the properties of the surface due to the measurement principle. The GAP dimensions around the lid and base flaps are also measured precisely in the event of critical printings. Printing tends to be on the rise in the corrugated board industry from an already high level. For this reason, investment in the Baumer hhs system provides a high level of future security.

- Two different measurement processes provide a higher level of process security. Measurements can be carried out in nearly all cases.

- The simply and intuitively used operating software enables the user or quality manager to set the tolerances for individual jobs. Thus, the operator can control how strictly the print run is monitored. Tolerances can be set wider for manual packaging, meaning the rejection rate is lowered. For automated packaging, the tolerances are set tighter. Limits are set to ensure an optimum machine handling process.

GAP ECOsys