The future of shrink sleeves: Third Generation Seamer

KARLVILLE
BEYOND CONVERTING

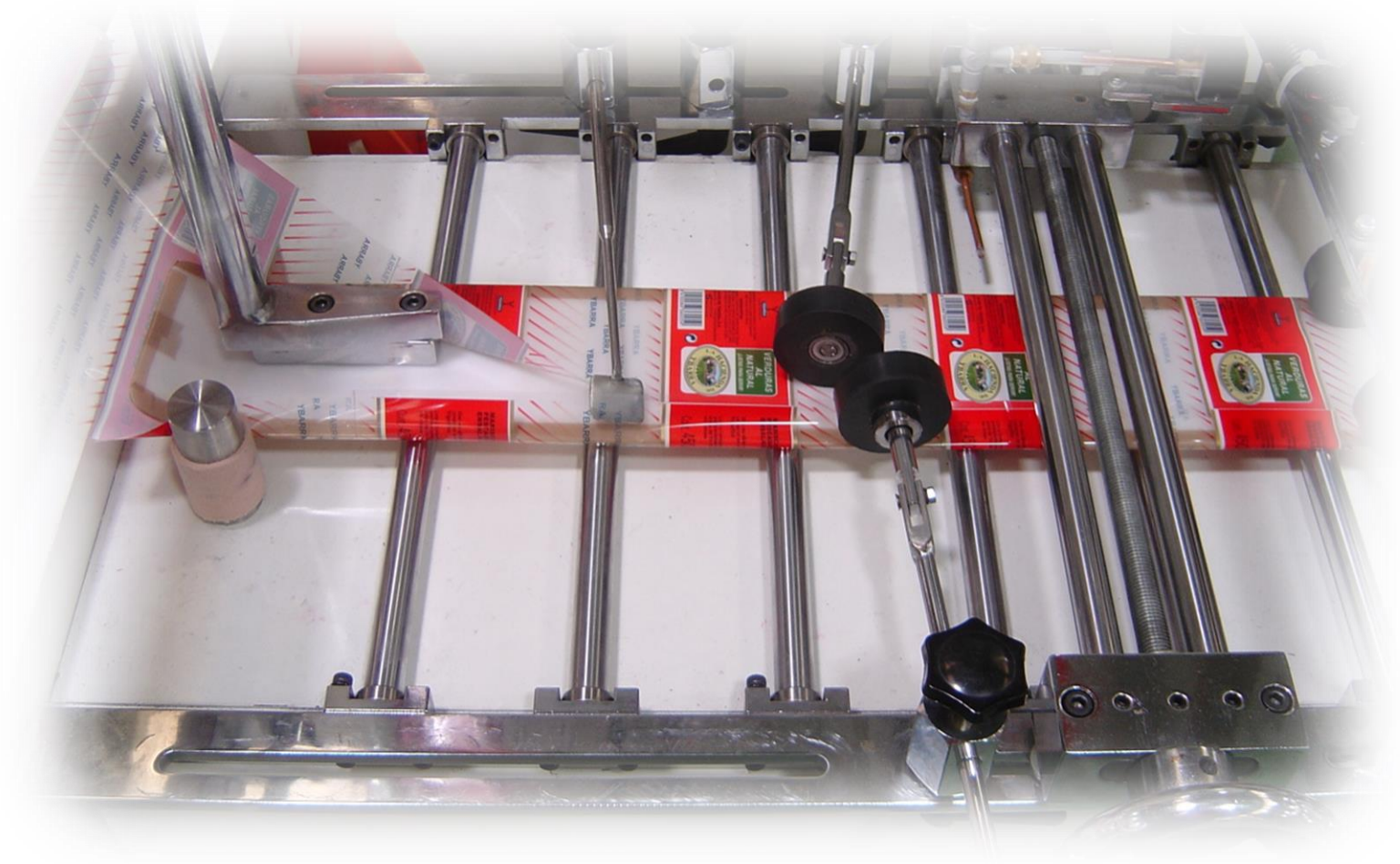
Topics

1) Seamers though time
2) The challenges
   a) Square containers
   b) Raised lip seam
   c) Hourglass container – pin holes
   d) Poor quality continuous perforation
   e) Tamper evident integration
   f) Friction and scratching
3) 3rd generation seamer
4) Main advantages
5) Unwind section
6) Pin holes
7) Needle positioning
8) Fingerless forming section
9) Closed lay-flat feedback loop
10) Laser integration
11) Solvent

Seamers through time

First Generation

- Plate based system, one lay-flat, one plate
- Lots of tooling which needs to be maintained
- Long change overs
- Scratches & Tolerance Issues
- Operator Intervention & Know How
- More art than science



Seamers through time

Second Generation

- Adjustable forming system: launched by Karlville early 2000s
- This system uses fixed fingers that are adjusted to the desired lay-flat by the operator
- Some competitors' systems adjust the lay flat automatically via servo motors – challenges with maintenance and misadjustment over time

Challenges

KARLVILLE
BEYOND CONVERTING

Challenges – Square bottles

- Square and rectangular containers require fold positioned on corners
- Seams need to be as close to fold in order to maintain best graphic layout
- 15mm offet common but not easy, 10mm possible on certain machines

Challenges - Raised lip seam

- Solvent positioning is one of the most critical aspects of seaming
- Most machines offer a fixed needle with a web guide for film
- Rolls however aren’t always perfect and can present winding, tension and film quality issues
- These issues are very difficult to correct by the operator
- This can result in a “raised lip seam” or even worst: solvent migrating to the inside of the sleeve and causing “blocking”, which can lead to rejection

Challenges – Hourglass shapes

- Hourglass shapes add complexity during the shrinking process
- When the sleeve starts to Shrink in the tunnel, air gets trapped in the middle section of the bottle, causing it to feel like a balloon
- In order to solve this issue, pin holes are added to the sleeve, allowing the air to escape. This can be done on applicator or seamer.
- Ideally, this is done while the film is flat, so the hole is clean and precise.

Poor quality continuous perforation

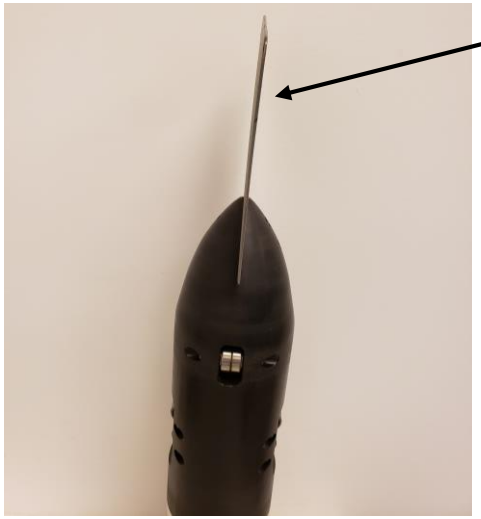
- Continuous perforation on flat film gives better results
- Continuous perforation on sleeved film gives a different hole diameter on each side
- Mechanical perforation is always the same diameter – distortion can be corrected with laser
- Holes are absent – tooling maintenance / adjustment

Tamper evident integrated to label

- Integrated tamper evident is more difficult than continuous perforation
- Mechanical solutions lead to tears in label
- Label is ripped when product consumed

Friction and scratching

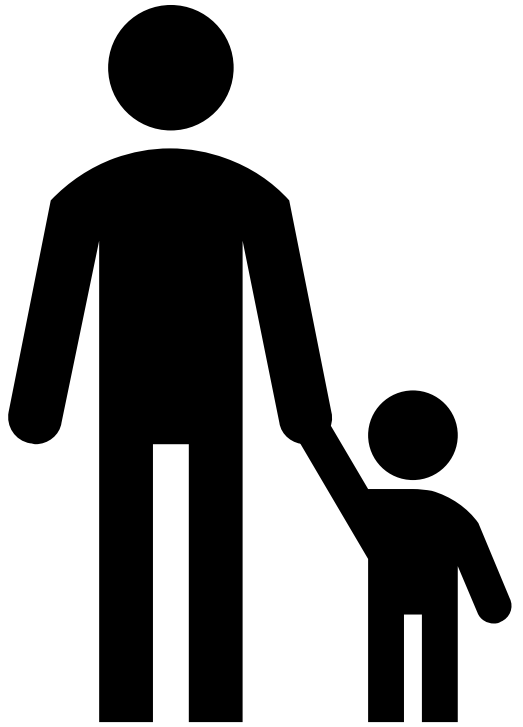
- Friction between the forming fingers / film causes problems both for inks and for the film.
- The forming fingers cause friction on the side of the film, where the fold will be created. Point 1
- Application machines then also stress the same area. Point 1



1

Short runs

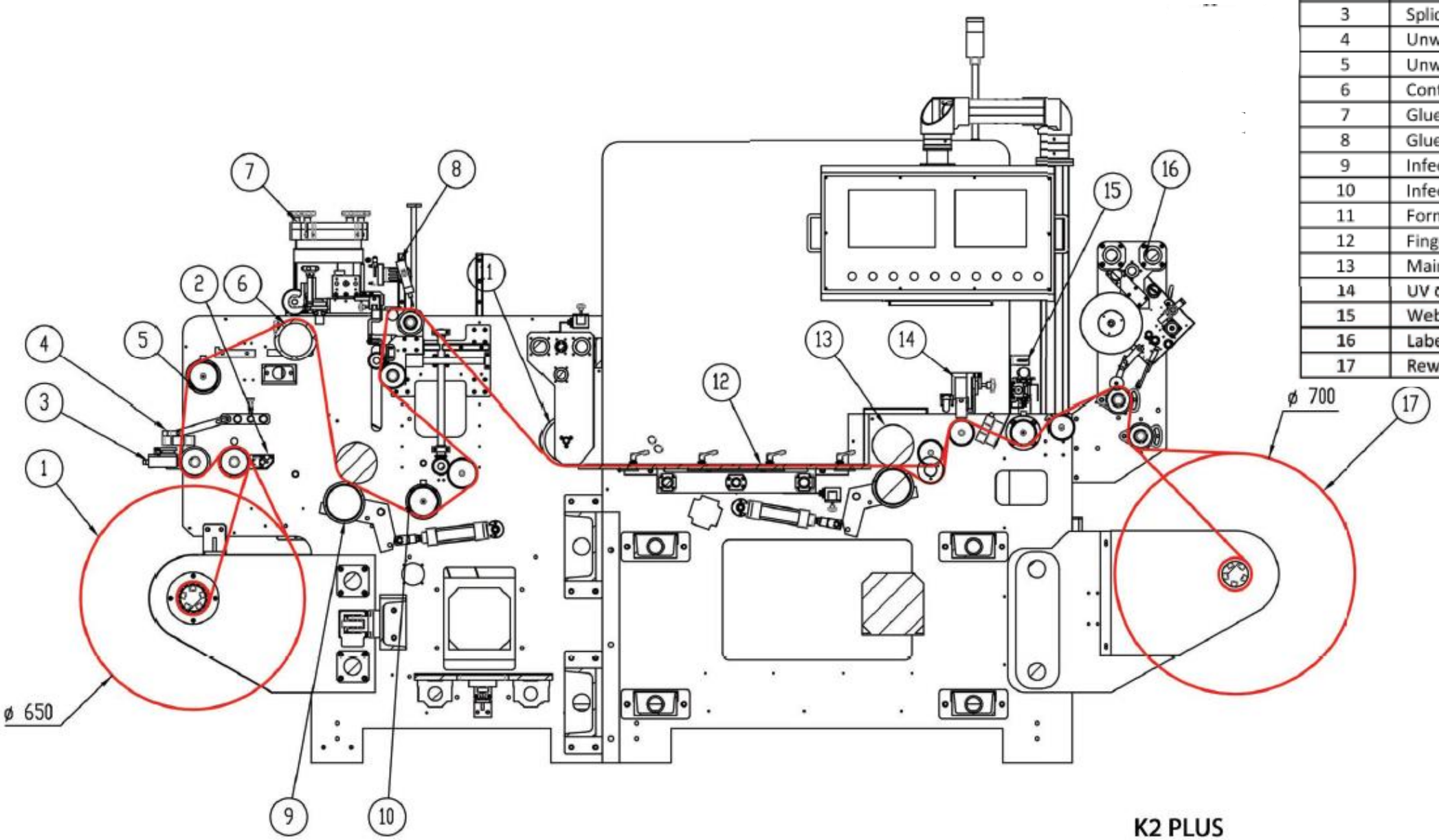
- Fragmented markets
- More short runs on market
- Digital printing
- Waste
- Change-over



Third Generation

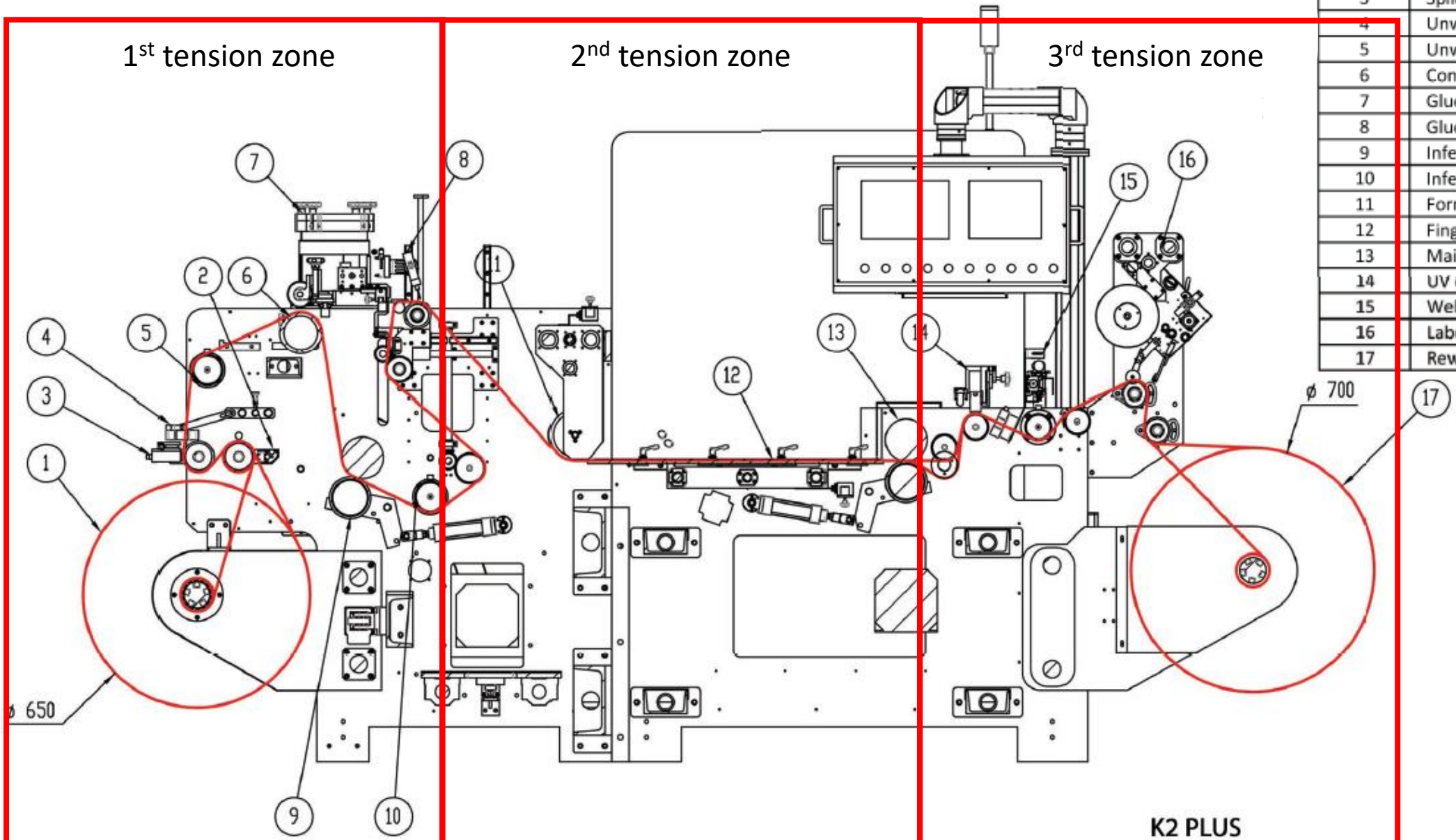
KARLVILLE
BEYOND CONVERTING


KARLVILLE
BEYOND CONVERTING



1	Unwind shaft
2	Unwind Web Clamp device
3	Splice detecting device
4	Unwind EPC
5	Unwind loadcell
6	Continuous perforation device
7	Glue tank with auto feeding system
8	Glue EPC
9	Infeed nip roller
10	Infeed load cell
11	Forming wheel
12	Fingerless forming plate
13	Main nip roller
14	UV open seam detector
15	Web width measuring system
16	Labeler
17	Rewind shaft

K2 PLUS



1	Unwind shaft
2	Unwind Web Clamp device
3	Splice detecting device
4	Unwind EPC
5	Unwind loadcell
6	Continuous perforation device
7	Glue tank with auto feeding system
8	Glue EPC
9	Infeed nip roller
10	Infeed load cell
11	Forming wheel
12	Fingerless forming plate
13	Main nip roller
14	UV open seam detector
15	Web width measuring system
16	Labeler
17	Rewind shaft

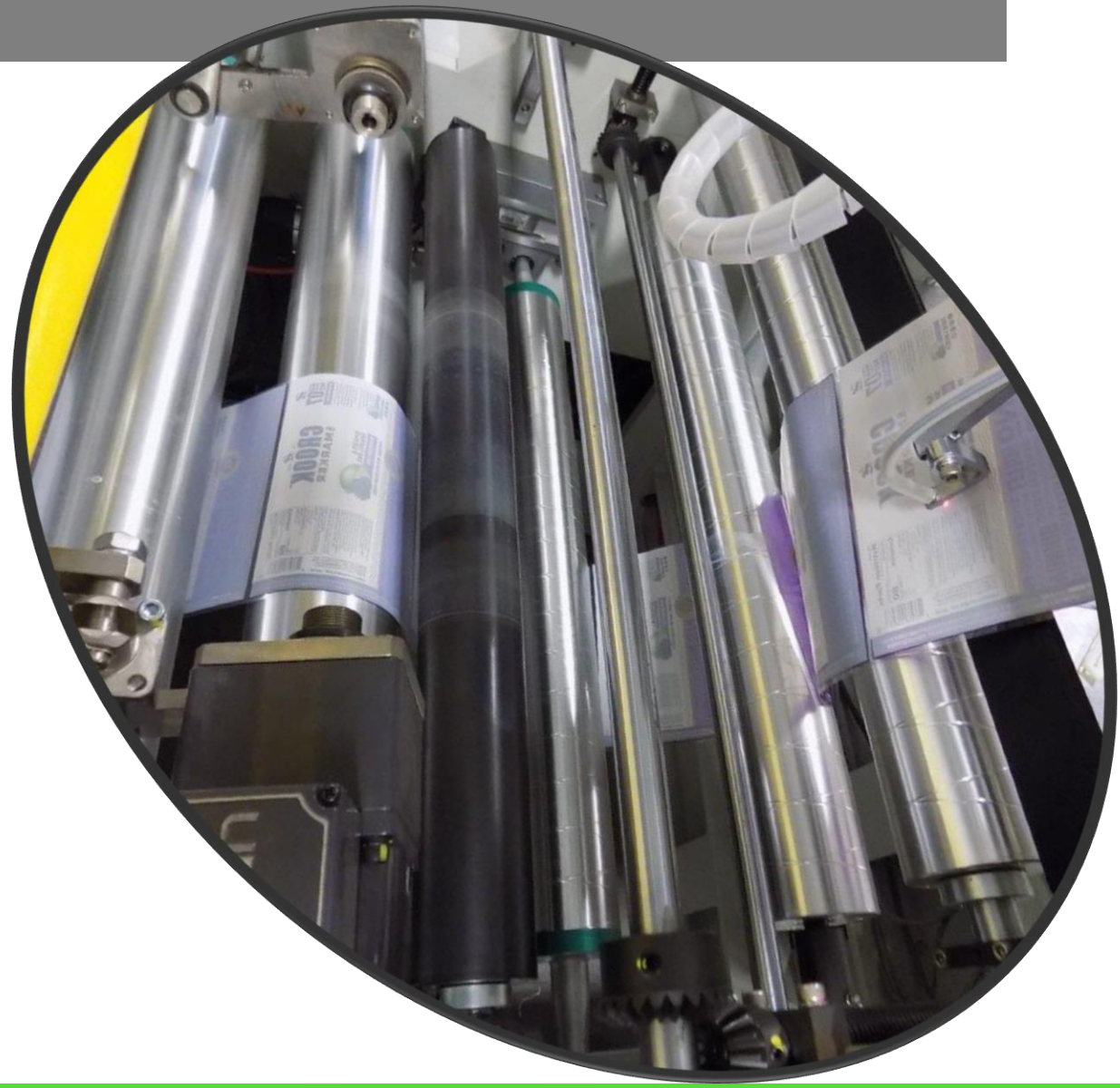
Main Advantages

- No forming fingers = no friction = less ink and film wear
- Fastest set-up in the industry
- Auto-correct feedback loop, recipes
- Additional nip = better tension control
- Unwind independent tension zone
- Seam as close as 5mm from the edge of the film
- Narrow web labels without tooling
- No wear parts on forming system

Unwind section

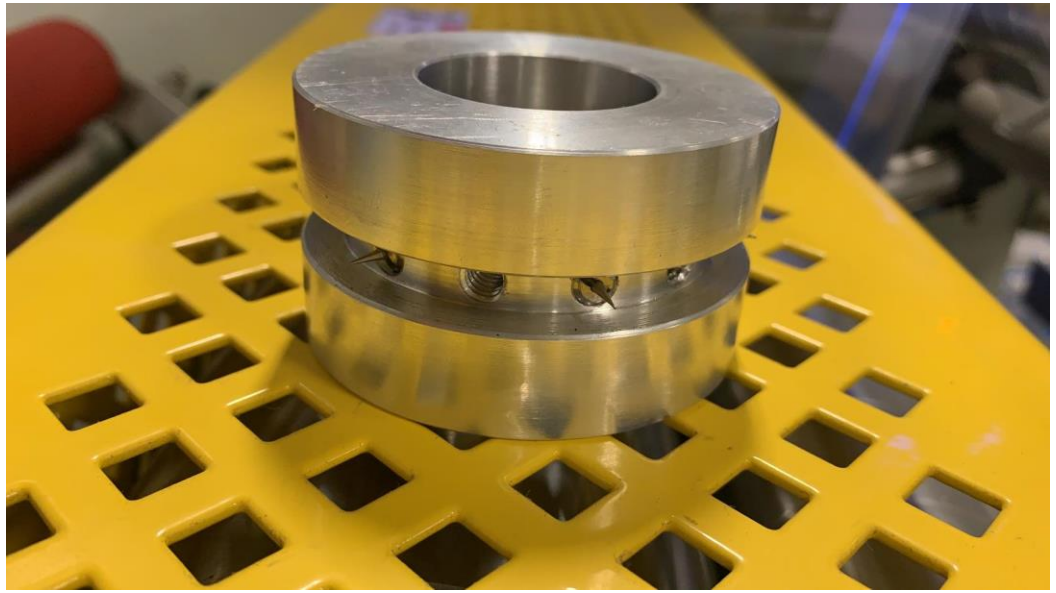
- Nip roller before the forming section

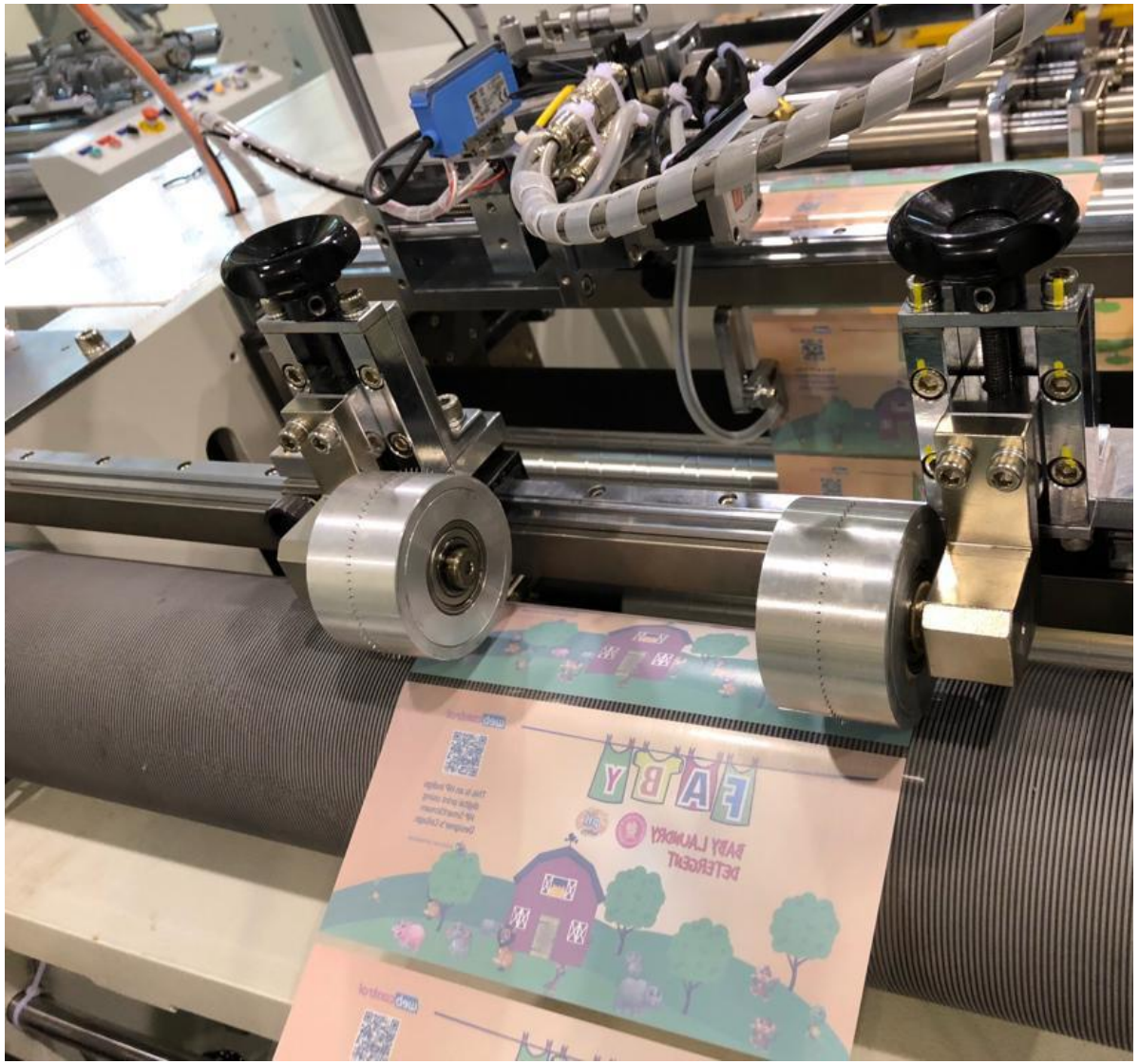
- Isolated tensions in the unwind section:
  - pin holes
  - mechanical perforation
  - laser perforation



Un Registered Pin holes

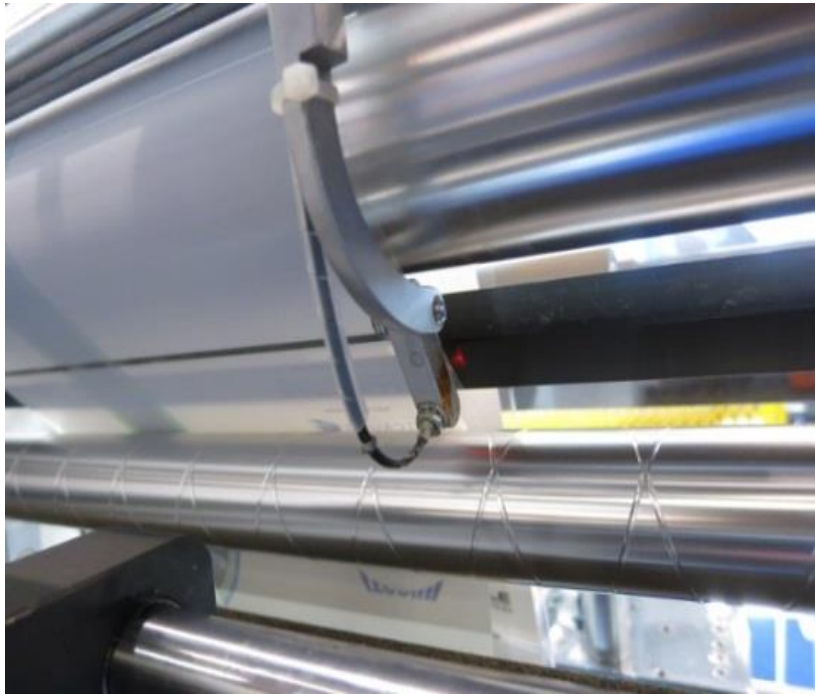
- Pin holes on flat film
- Isolated tension
- Pin holes interchangeable with continuous perforation

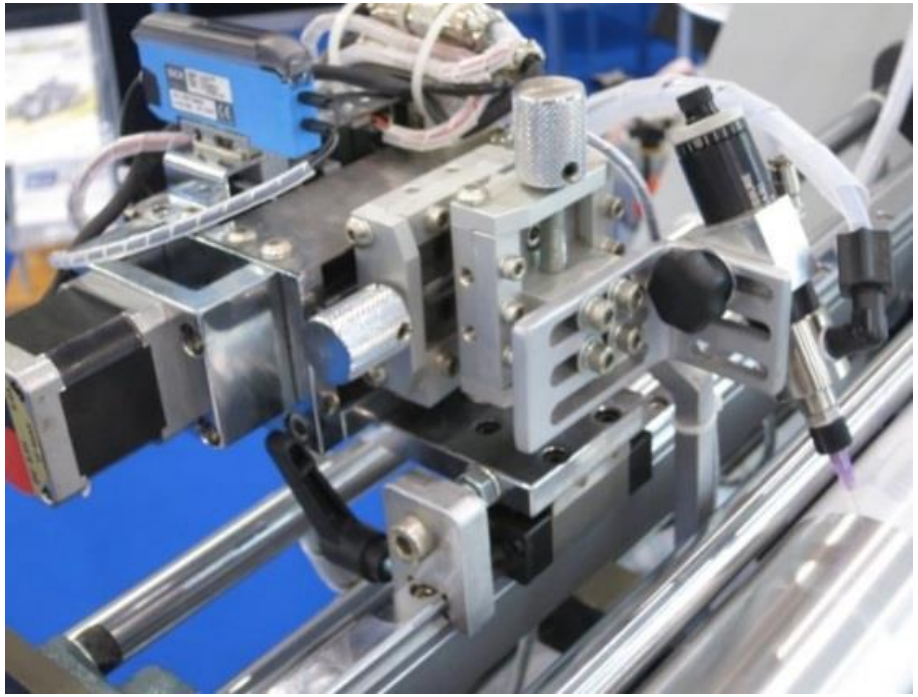




Needle Positioning – Secondary Edge Guide

- Available for more than 5 years.
- Needle needs to adjust to the edge of the film.
- Avoid blocking issues and raised lips.





Automatic Friction-Free Lay Flat System

- No forming fingers = friction eliminated inside the film
- The ink layer is isolated from the process
- Easy to place the seam 5mm from the side
- No adjustments of the forming section over time: the side plates are flat on a table
- Fast Change Over 5 to 10 Minutes
- High Quality Lay Flat
- Patent Pending

Closed lay flat feedback loop

The Third Generation Seamer sets-up:

- Lay flat entered by operator
- Plates move automatically
- Film set-up/folding
- Auto Lay Flat Correction
- 5-10 min set-up - 10m of waste or less per set-up

Laser

KARLVILLE
BEYOND CONVERTING

K5 Non Stop Laser Integration

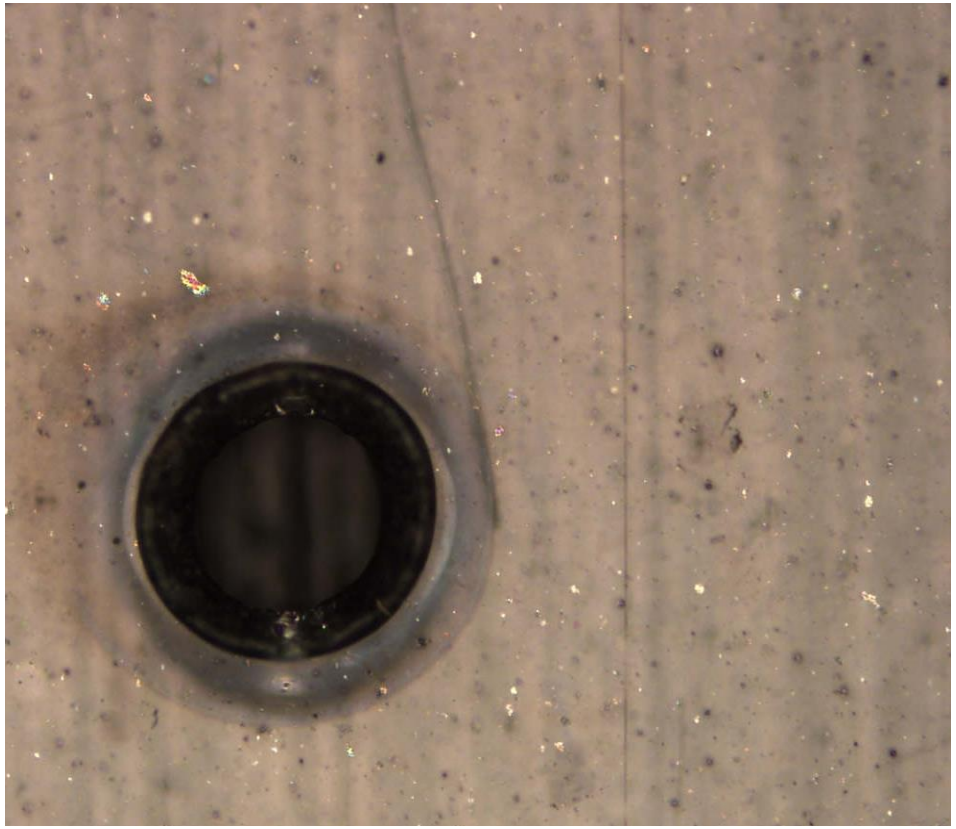
- Installed Between Unwind & Forming Section
- Extra Tension Zone to Isolate Tension during Perforating
- Continuous Vertical Perforation
- In Register Cross Perforation
- In Register Pin Holes

LasX
The Laser Experts

Advantages of Laser versus Mechanical

- No Wear Parts
- Flexibility / No Tooling
- Accuracy
- Registration
- Quality
- Consistency
- Innovation

LasX
The Laser Experts



Solvent

KARLVILLE
BEYOND CONVERTING

Solvent

- Seaming Solvents now distributes solvent from Canada, USA and France
- Tested and proven formulations for PVC/PETG
- Excellent customer service
- www.seamingsolvents.com

Thank You.

KARLVILLE
BEYOND CONVERTING