



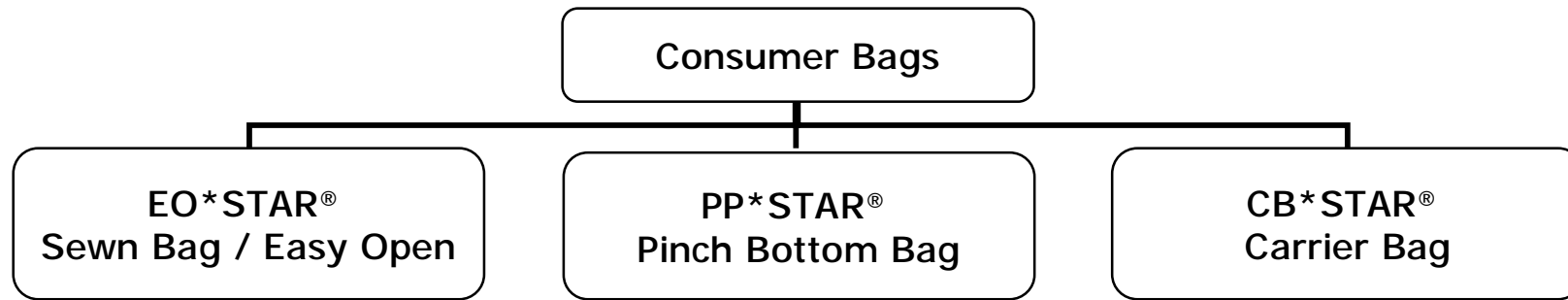
Starlinger's



Poly Pinch Bottom Bag

made of a Polypropylene composite

Consumer Bag Technology out of wPP+BOPP



PP*STAR® – Poly Pinch Bottom Bag



Advantages of the Pinch Bottom Bag




- High-productivity
- Siftproof
- Perfect shelf-display
- Less material input
- Economic production
- No breakage during handling
- Environment friendly
- 100 % Recyclable*



Perfect shelf-display

* Recycled material can be used for injection molding or thermo forming.

Opening and Closing features for PP*STAR®

<p>TOP STYLE Bag Producer's End</p>	 <p>Pinch Top</p>	 <p>Easy-Open feature with Pinch Top</p>	 <p>Reclosable feature with flush-cut</p>
<p>Required Equipment Bag Producer</p>	<ul style="list-style-type: none"> • pp*starKON 	<ul style="list-style-type: none"> • pp*starKON • Easy-Open Applicator 	<ul style="list-style-type: none"> • pp*starKON incl. flush-cut • Slider Applicator inline or offline
<p>BOTTOM STYLE Petfood Producer's End</p>	<p>Pinch Bottom</p>	<p>Pinch Bottom</p>	<p>Pinch Bottom</p>
<p>Required Equipment Petfood Producer</p>	<p>Pinch Closer</p>	<p>Pinch Closer</p>	<p>Pinch Closer</p>
<p>Status/Availability</p>	<p>Ready</p>	<p>In a few months</p>	<p>New development necessary!</p>

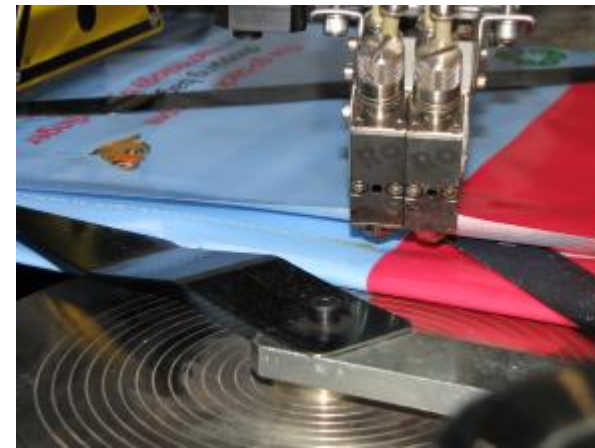
 **Facts**

- Shape: Poly Pinch Bottom Bag
- Material: woven PP Composite
- Fabric weight: $\geq 50 \text{ g/m}^2$
- Coating weight: $\sim 25 \text{ g/m}^2$
- BOPP-film: $\sim 20 \text{ g/m}^2$
- Joints (Top, Bottom & Backseam): Bonded with hotmelt
- Cutting: Laser Cutting
- approx. weight of sample bag: 77 g
(bag face dimension: 573 x 381 x 89 mm / 22,6 x 15 x 3,5")

Hotmelt

(for backseam and bottom)

- Hardens at room temperature
- Storage temp. range: -20°C to $+60^{\circ}\text{C}$
- Recyclable
- FDA approved for direct food contact
- Animal approved*



* Palatability test: Petfood filled and stored in PP*STAR was fed to cats. Tested at the University of Veterinary Medicine Vienna

Availability of our hotmelt worldwide



Application for PP*STAR®

The PP*STAR® pinch bottom bag is the ideal packaging solution for the growing petfood industry.

But it also meets the requirements of many other industries e.g.:

- Fertiliser
- Seed
- Flour
- Sugar
- Rice

The material: wPP/BOPP composite



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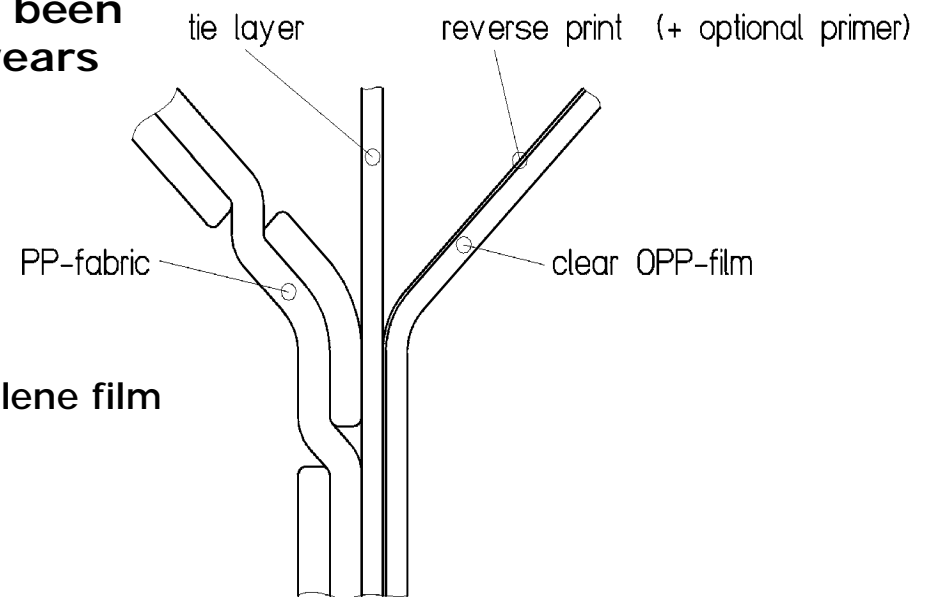
Material

wPP + BOPP è wPP/BOPP-composite

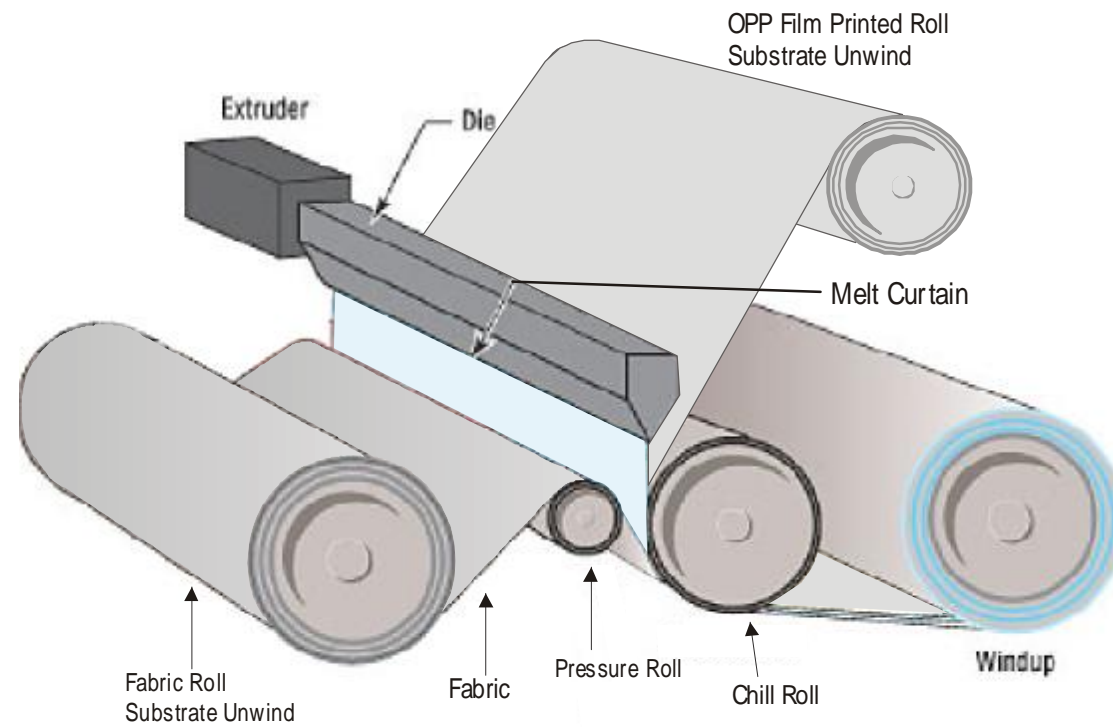
A sophisticated packaging material has been launched on the market over the past years

It is a composite of two popular substrates:

- polypropylene fabric (wovenPP, wPP)
- reverse printed (biaxially) oriented polypropylene film



The wPP/BOPP-composite production on our stacoTEC



Advantages of woven poly and its composites

Thin, light & strong
Tear-growth resistance
Break-proof
Punch strength
Surface tension

Odorless & food safe
Grease & moisture
resistant



Brilliant print quality
High end graphics
Long-life image

Environmentally friendly
Less raw material
100 % recyclable
Good carbon footprint

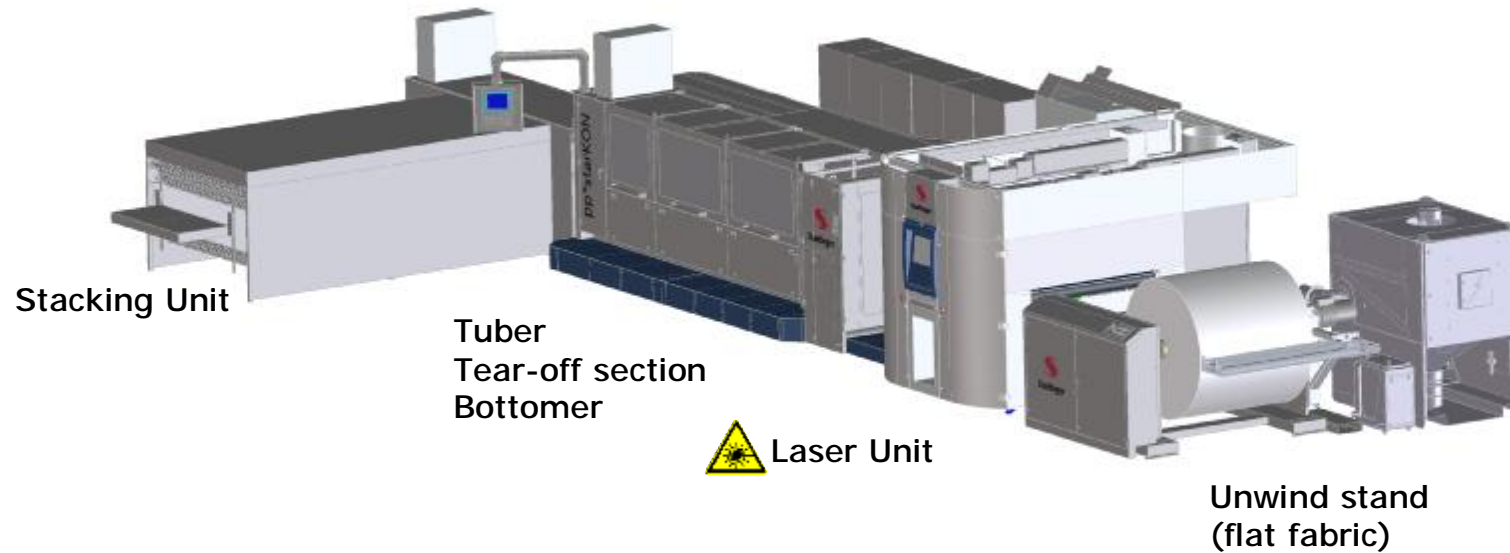
pp*starKON technology
Conversion line for PP*STAR® bags



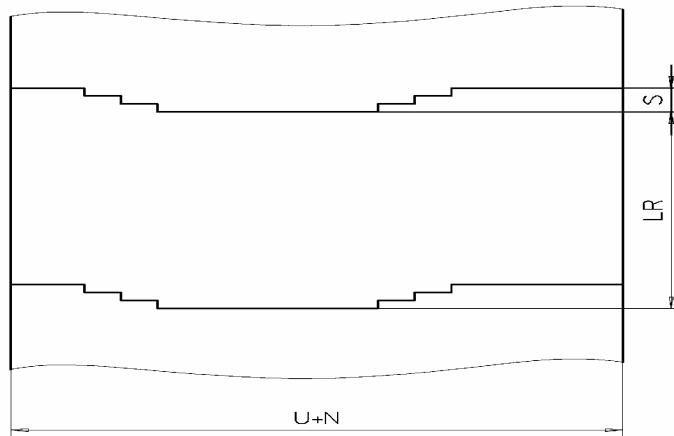
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pp*starKON – poly pinch machine layout

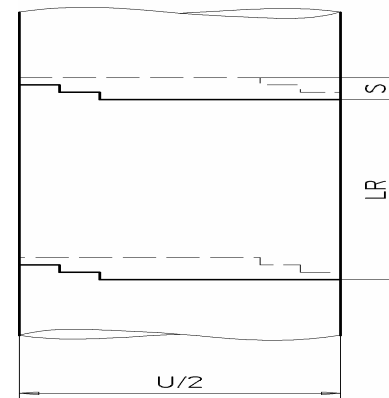
2. Hotmelt application



Laser perforation of PP*STAR® bags

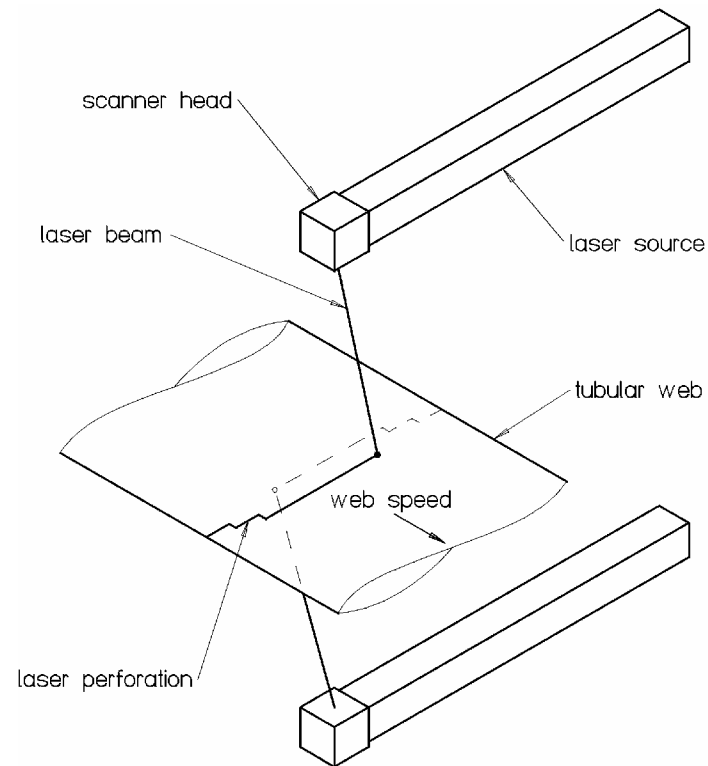


Flat fabric



Tubular fabric (prospective)

Laser perforation of tubular bags



Advantages of Laser Perforation

- Format change at the push of a button
- No format sets
- Nearly wear-free
- For flat fabric but also for tubular fabric
- Hence: very economic compared to a rotary cutter



Specification

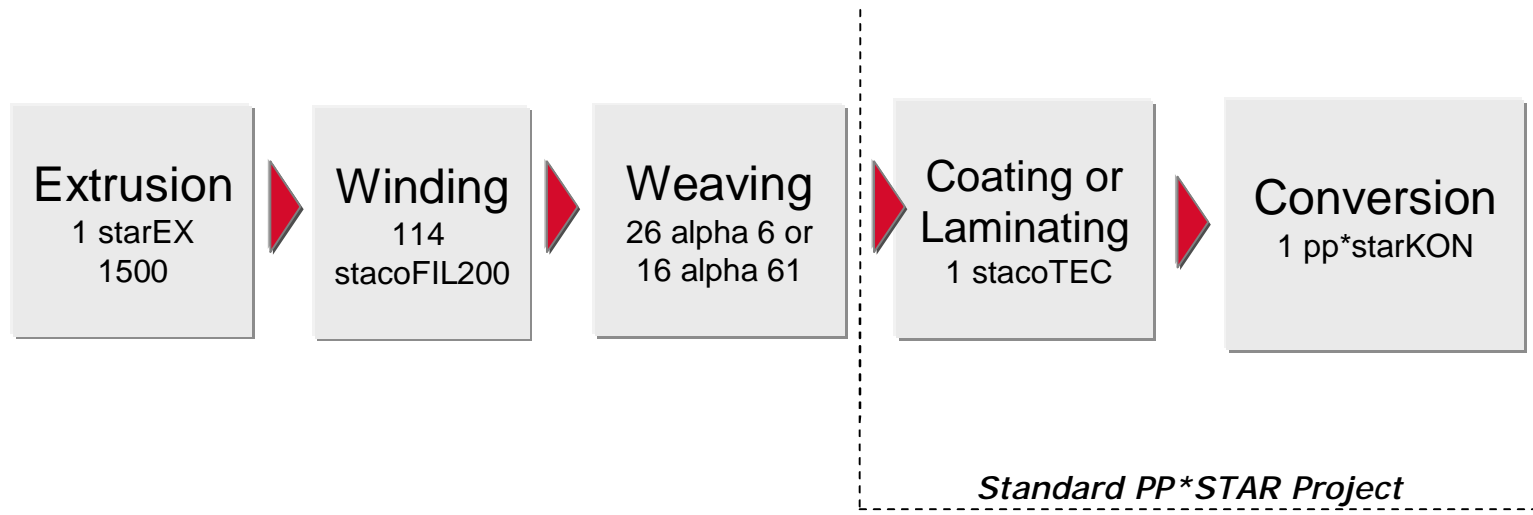
Machinery

- Production speed approx. 120 bags/min
- Annual production (7.200 hrs) ~ 40 Mio. bags

Bag dimensions

- Bag face width 250 – 480 mm | ~ 10 – 19"
- Gusset width 50 – 200 mm | ~ 2 – 8"
- Repeat length 500 – 1070 mm | ~ 20 – 42"
- Flat fabric width 600 – 1400 mm | ~ 24 – 55"

Production Process PP*STAR® - 40 Mio bags



No responsibility is taken for the correctness of this information

Outlook

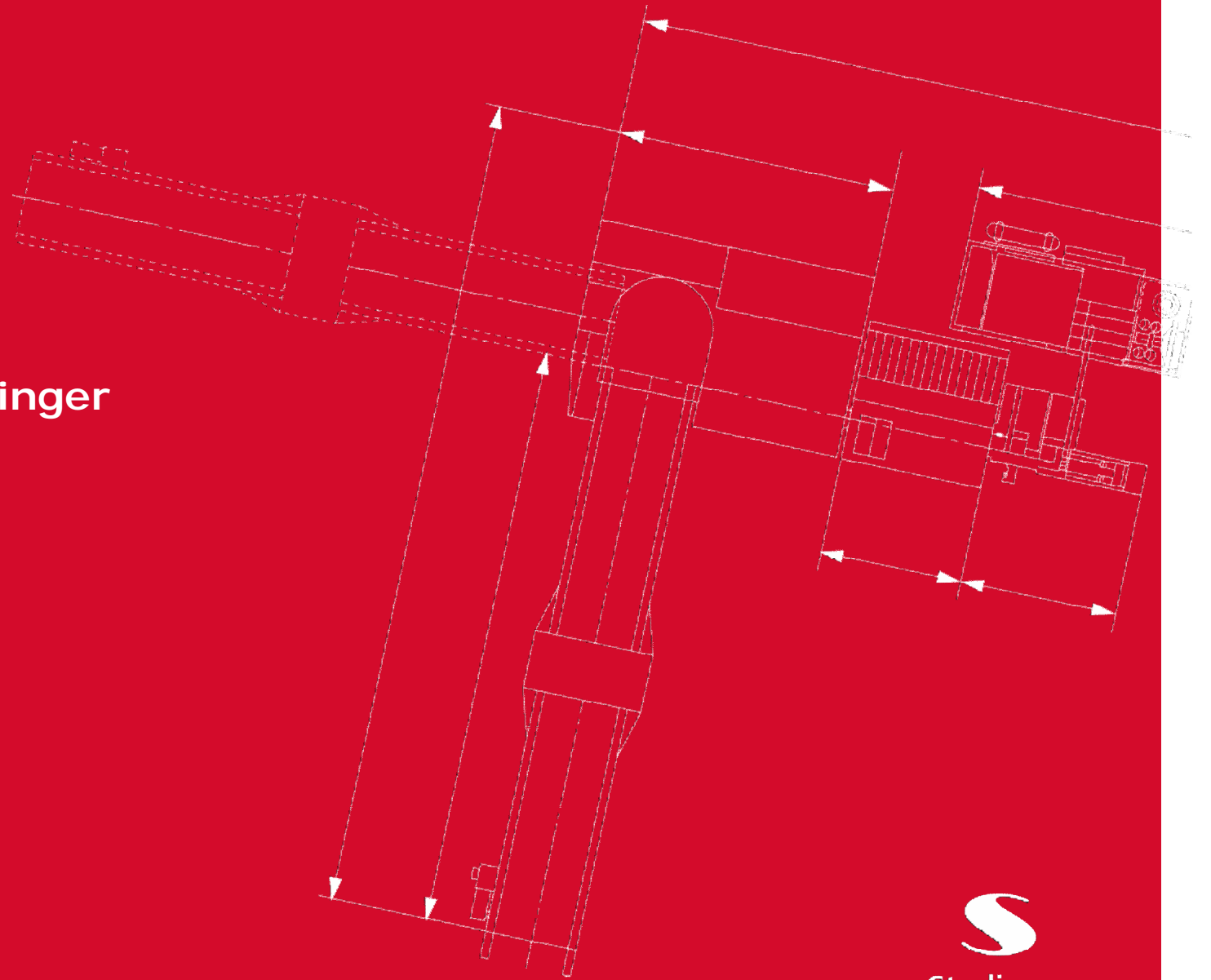
- Prototype available:

1st quarter 2010

- First series available:

1st half 2010

About Starlinger



Starlinger



Starlinger

- Weissenbach and Vienna, Austria
- Founded 1835 in Vienna
- World market leader in machinery for woven PP sacks; recycling technology
- Starlinger's customers in 130 countries produce around 15 billion sacks every year
- About 540 employees
- Turnover of more than € 130 million
- Export ratio of 98 %

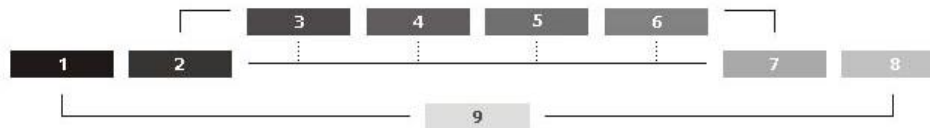
Product Portfolio

- Tape extrusion lines
- Circular looms
- Coating lines
- Printing lines
- Tubing lines
- Conversion lines
- Recycling lines

Customer Products

Woven PP/HDPE bags,
uncoated or coated,
unprinted or printed

- Industrial Bags
- Pinch Bottom Bags
- Carrier Bags
- Big Bags/FIBC
- Artificial grass and ropes





END

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