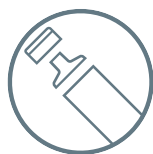


PACKAGING TECHNOLOGY INNOVATION

➤ 2024



Aisa's patented packaging production technologies have set new standards in the industry.



SAESA[®]

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TECHNOLOGY FOR RECYCLING PLASTIC WASTE

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Together, let's create the future of tube packaging

For over 20 years, Aisa Packaging has focused on new market requirements and the needs of our customers. We develop innovative packaging concepts and manufacturing solutions for tube packaging, combining performance and environmental commitment. Our solutions are tailored to meet the expectations and requirements of the cosmetic, oral care, pharmaceutical, household products, and food markets.

Making packaging more efficient to support a circular economy or adhere to the 3Rs principle has always been our intention. This involves making packaging lighter without sacrificing strength and functionality, producing packaging tubes from recycled and recyclable materials, or utilising bio-based materials like paper laminates with over 85% fibre content. Our daily mission is to create sustainable and efficient packaging solutions, and we tackle it with passion and innovation.

Our Aisa Packaging team designs cutting-edge solutions and provides tailor-made product development services and offer our customers, using their extensive packaging knowledge to advise and to offer support in developing their packaging solutions. By integrating the latest technologies, our team of experts, who is dedicated to environmentally mindful innovation, creates forward-thinking solutions that cater to our customers' current needs and expected future market demands.

Discover a detailed and visual guide to Aisa's advanced technologies, covering the whole range from component assembly to packaging tube welding. Look at this brochure to get an overview of our innovative packaging solutions.

To learn more about our machines and their features, please refer to the dedicated Packaging Production Machinery brochure.



Download brochures



Please contact our experts directly by scanning the QR code below.

**SAESA®****COMPONENT ASSEMBLY TECHNOLOGY**

➤ What is it?

Saesa® tube packaging assembly technology is a process using sleeves, moulded shoulders and caps in order to assemble them into finished tubes ready to be filled.

➤ Advantages

- Scalability by simply multiplying the assembly stations, machines run from 100 to 600 tubes per minute with compact footprints.
- High performance, process times are not slowed down by cooling time required for a component moulding process.
- Shoulder and cap are assembled on the same mandrel.
- High flexibility to add additional value capabilities such as cap or shoulder orientation, oval and safety seal applicator.
- Cold shoulder allows for a more stable capping process eliminating the risk of shrinkage from an inline moulding operation.

➤ Availability

On SAESA® Performance machines and Decoseam™ lines running at outputs of 100, 120, 200, 240 and 600 tubes/min.

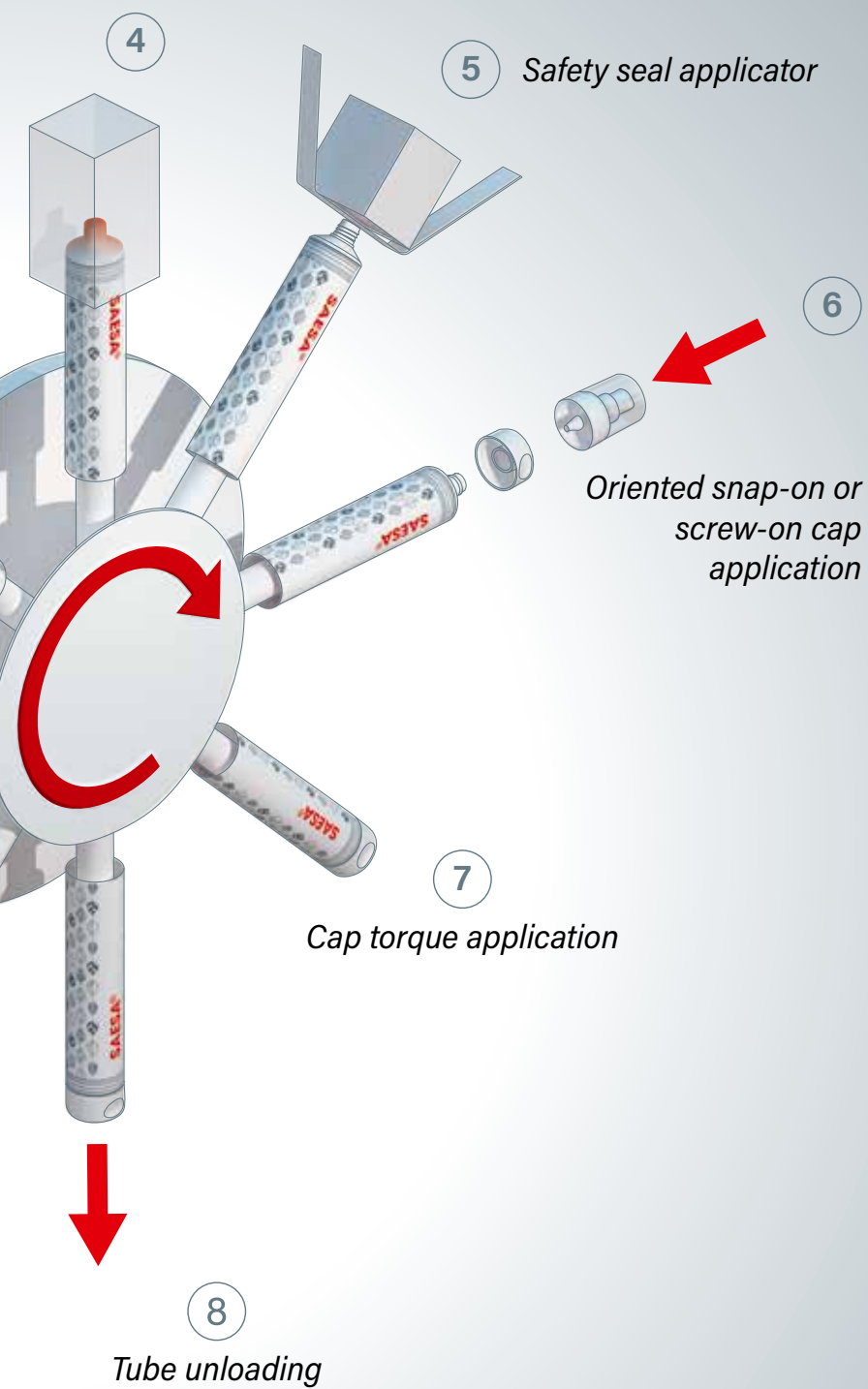
➤ Markets

- According to our knowledge, more than 33 billion laminate tubes, are sold yearly and when looking at the installed machine capacity more than half comes from machines delivered by Aisa.
- The largest market segment for laminate tubes are toothpaste producers but not only, from 12.7 mm diameter artistic paint tubes, over 19 mm pharmaceutical eye ointments all the way to 40 mm sweet condensed milk and 50 mm cosmetic hair treatment shampoos, Saesa® tubes have countless applications today.

***SAESA®**

Stands for "Système automatique pour le façonnage d'emballages SA" or "Automatic system for packaging processing".

*Shoulder welding***3****2***Sleeve loading with or without orientation***1***Shoulder loading with or without orientation*



➤ Packaging technology

- Saesa® tube Ø12.7 mm.
- Flexography printed.
- The laminate used is an ultra-thin 220 µm PBL, certified as recyclable in the HDPE stream by RecyClass.





DECOSEAM™

EDGE WELDING TECHNOLOGY

➤ What is it?

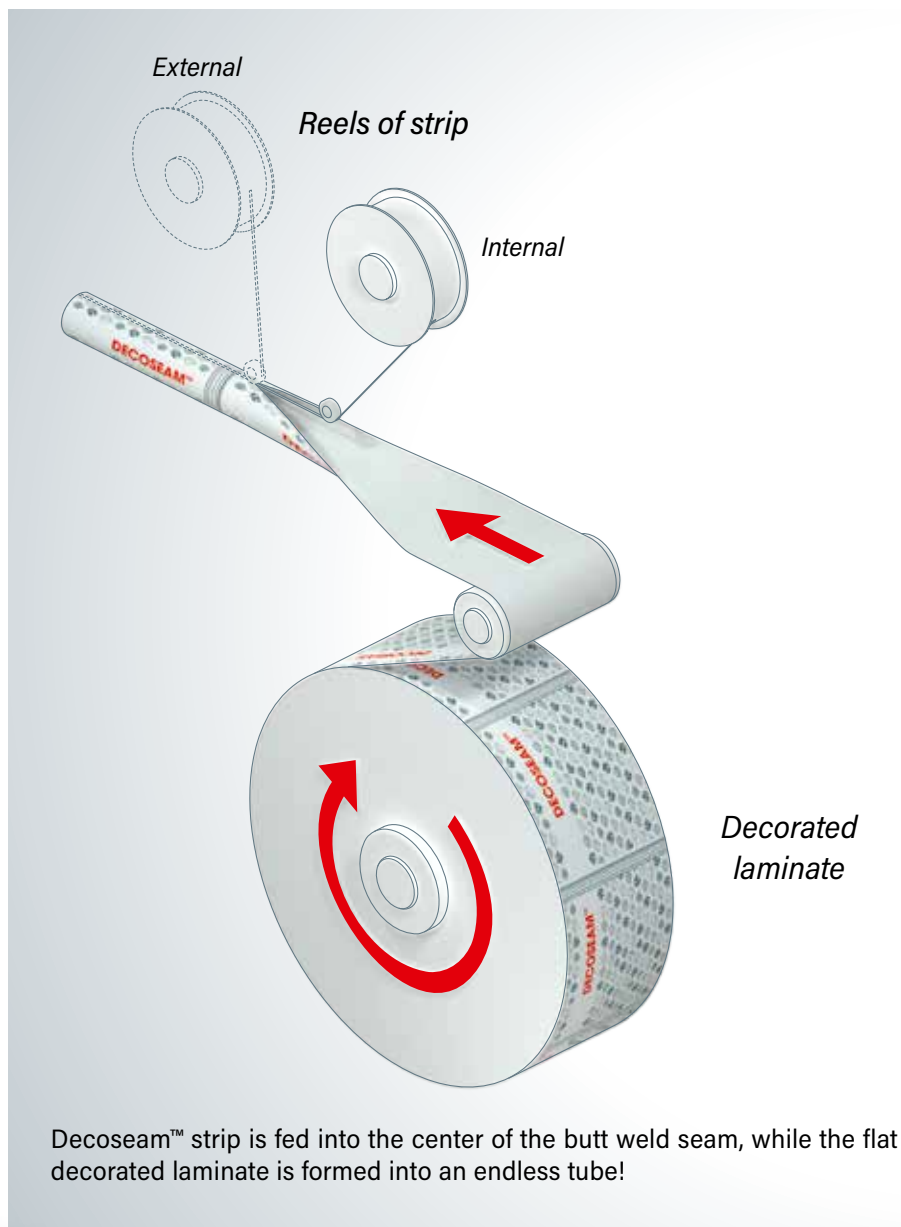
Decoseam™ is Aisa's unique side seam welding technology. For the first time, this technology allows to change properties of the outer web layer independently from the inner web layer. In fact, because the outer layer is no longer welded onto the inner layer (overlap), we can now optimise for sustainability, security, touch, decoration or any other value added functionality that markets desire.

➤ Availability

On Decoseam™ lines running at outputs at 100 up to 240 tubes/min.

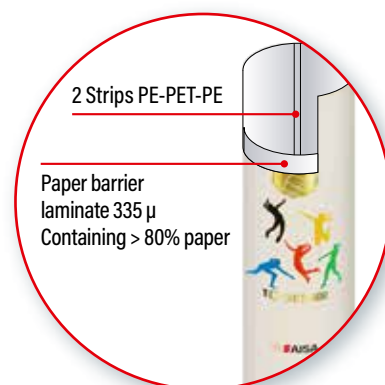
➤ New market opportunities

- Allows the use of new functional web structures.
- Tube performance guaranteed.
- Decoseam™ uses DIBS welding system in order to edge weld a tube side seam with a reinforcement strip.
- 360° decoration.
- Tube range covers diameters from 19 to 63.5 mm.



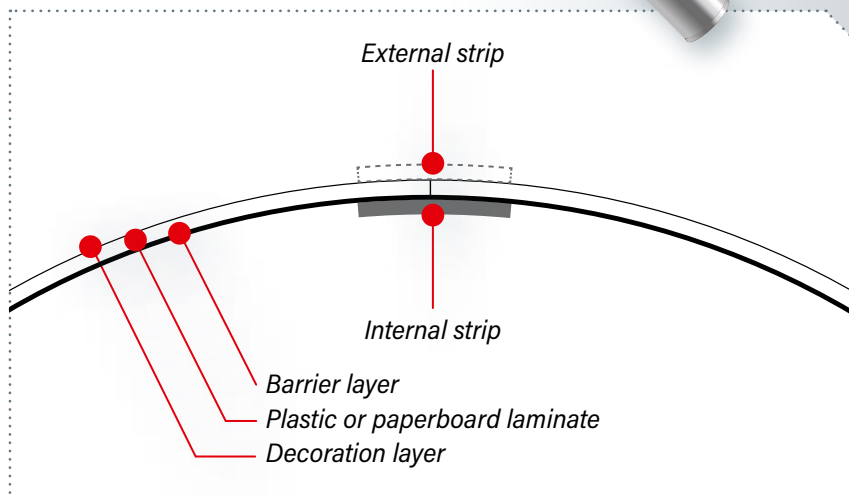
➤ Packaging technology

- Bio-based, carbon-reducing paper tubes.
- The sleeve is composed of a Blueloop™ paperboard barrier laminate from Huhtamaki, containing more than 80% paper fiber.
- This Together tube is a Ø50 mm Decoseam™ paper laminate tube, flexography printed and flat foiled and embossed.



DECOSEAM™ EDGE WELDING TECHNOLOGY

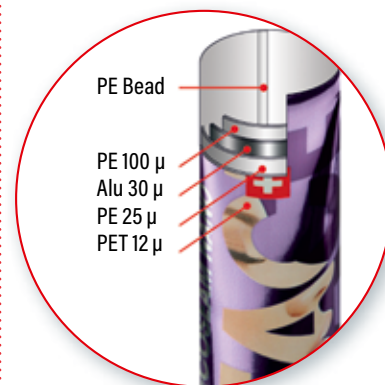
➤ Tube cut side seam area



To prevent the paperboard from absorbing external moisture, a second strip is welded on the outside of the sleeve.

➤ Packaging technology

- Digitally CMYK inkjet printed, high gloss laminate structure; 180 µm thick, metallised PET surface and 30 µm aluminium barrier layer.
- Edge welded Decoseam™ Nano using extruded PE strip welded to the inside of the tube. Inner PE laminate layer and strip can be Pharmacopeia grades.
- Bacomex™ shoulder, PE with layers of EVOH barrier material moulded onto the tube sleeve.
- Cylindrical screw on cap.
- Improved barrier properties vs standard ABL tube (BIF 2.5).
- Bounce back index: 42%.



DECOSEAM™ NANO

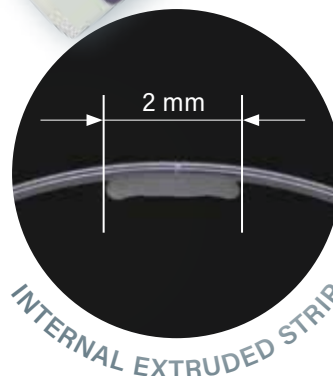
SIMPLY A PERFECT SEAM

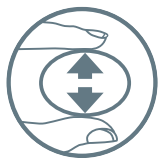
➤ What is it?

The Decoseam™ Nano has a simple, yet clean production process. It can be implemented on Decoseam™ lines and complements the standard Decoseam™ technology by covering the smaller diameter range of 30 mm down to 10 mm. It is the edge welding technology of the Decoseam™ Nano that sets it apart.

➤ Advantages

- Extremely good protection of the side seam foil edges.
- No degradation of the decorated outer side seam area.
- No moving parts in the welding shaft, reducing contamination risk ideally suited for pharmaceutical packaging.
- Only few welding parameters, for less production variation.





DECOPLAS™

EXTRUSION LABELLING TECHNOLOGY

➤ What is it?

Decoplas™ is a revolutionary technology developed by Aisa which combines standard plastic tube extrusion with innovative labelling decoration.

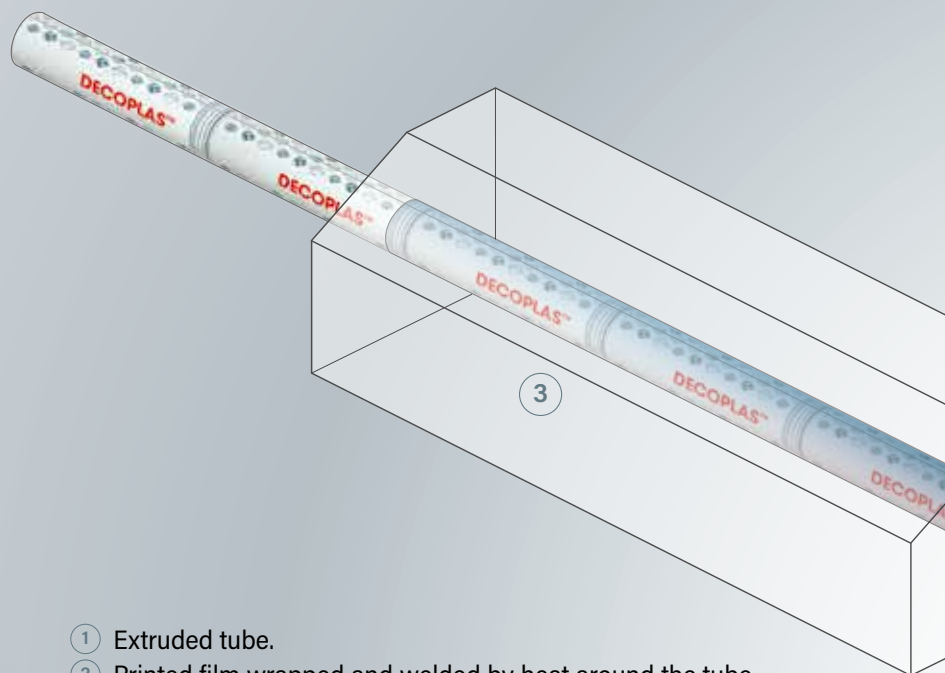
Decoplas™ tube has unmatched bounce back property and 360° decoration using a printed film.

➤ Markets

▪ Packaging users who want the decoration and logistic advantages of the label in a tube format but with the feel and touch of an extruded tube.

➤ Packaging technology

- Decoplas™ extruded tube Ø50 mm.
- Flexography printed.
- Complete polyolefin made, recycling ready.
- Bounce back index of 71.4%.



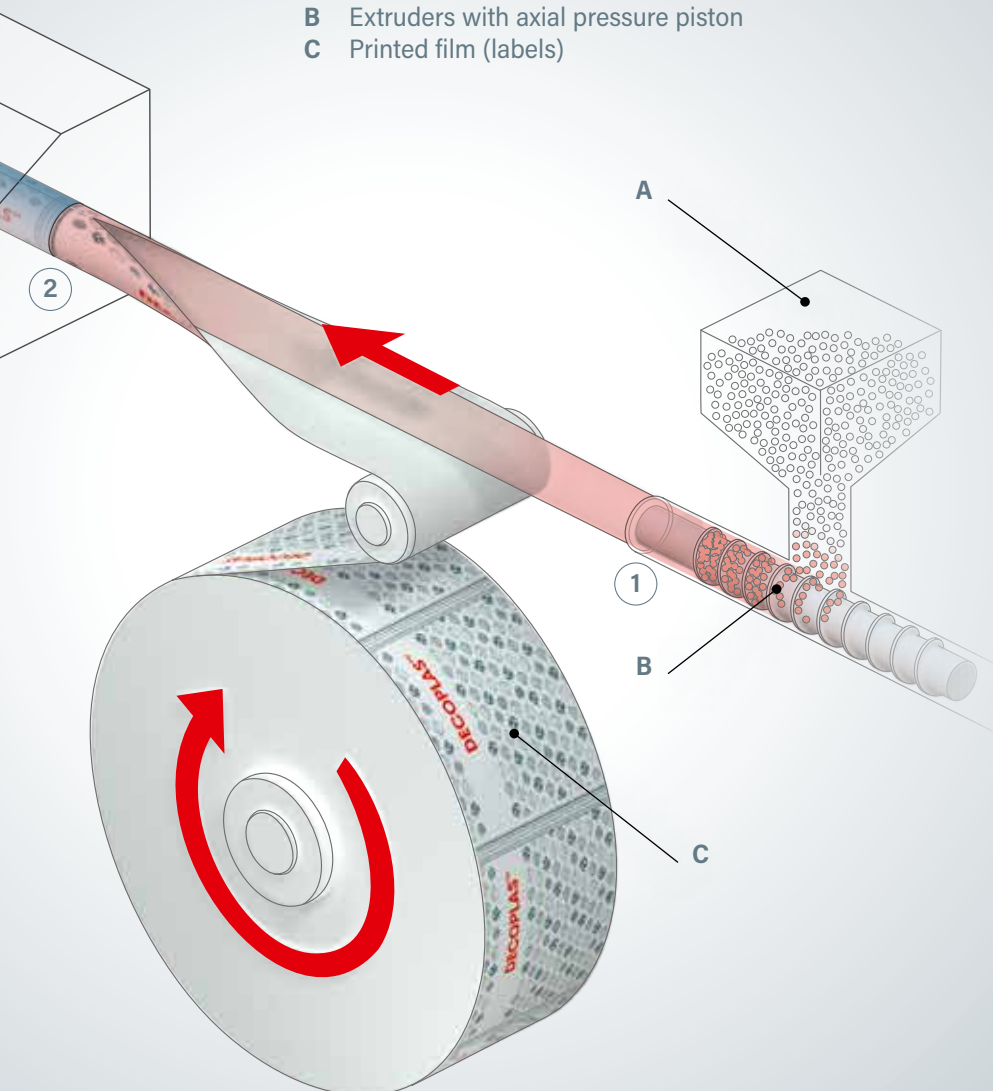
- ① Extruded tube.
- ② Printed film wrapped and welded by heat around the tube.
- ③ Tube calibrated and cooled.

**DECOPLAS™ TUBE
WITH UP TO
100% PCR
ALSO POSSIBLE!**



Find out more

- A Raw material for extrusion
- B Extruders with axial pressure piston
- C Printed film (labels)

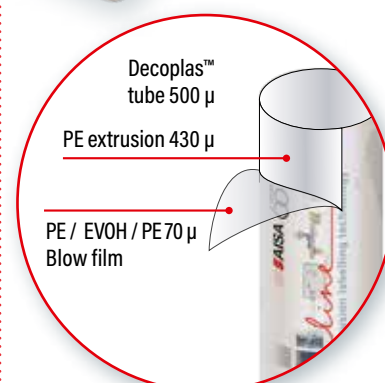


➤ Availability

When integrating Decoplas™ within a production line, Aisa offers various speed options. For larger tubes, Aisa sets the speed at 120 tubes per minute, while smaller and shorter tubes can be processed at either 120 or 240 tubes per minute. To provide turnkey solutions, clients can choose from Aisa heading machine types, namely KSM and PTH, which are available at speeds of either 120 or 240.

➤ Packaging technology

- Decoplas™ tube Ø50 mm.
- 70 micron PE-EVOH-PE film.
- Flexography printed.
- Extruded sleeve and shoulder made with PCR PE material with barrier added through film.
- Cylindrical snap-on cap.





SYNCHROFLOW™

COMPRESSION HEADING TECHNOLOGY

➤ What is it?

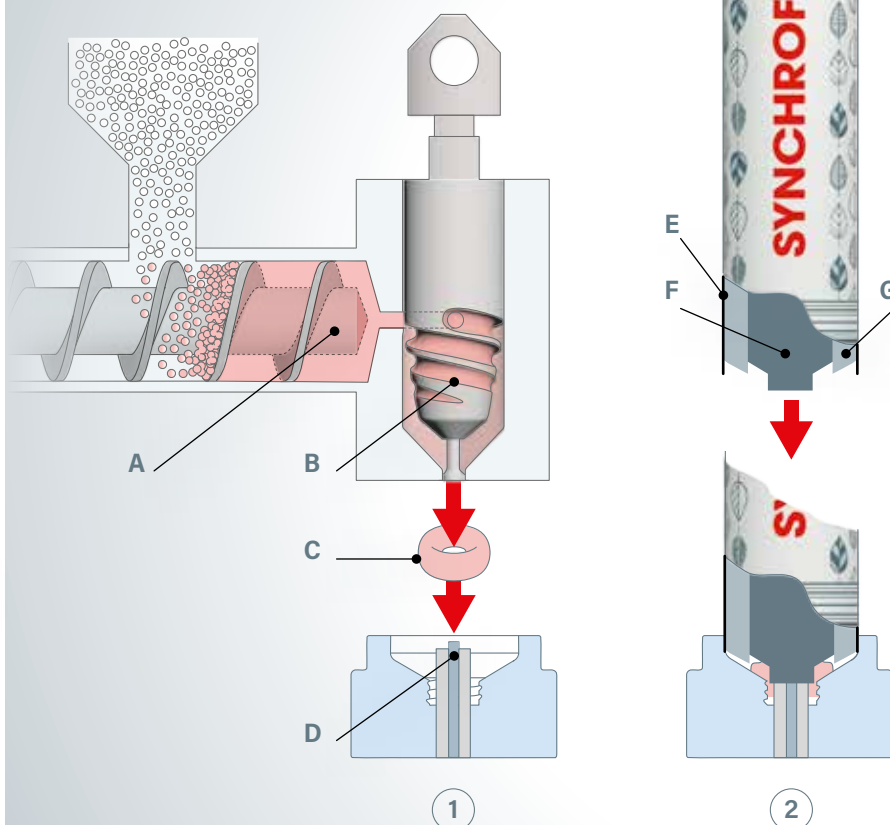
Aisa's compression moulding technology at the forefront

- Extruder with axial pressure piston for better material melts and fast colour change.
- Optimised extruder and dosing heating profile for evenly low tempered doses and improved sleeve welding.
- Spiral flow dosing head for stress free symmetrical doses.
- Volumetric dosing ensures consistent dosage weight.
- Our in-house production includes high cooling moulds made with laser sintering.
- Two-step compression process adapts compression mode based on material and design criteria.

➤ Availability

On all Aisa PTH heading tube machines.

- A Extruder with axial pressure piston for better material melt and fast color change
- B Volumetric dosing system
- C Doughnut (PE dose)
- D Orifice pin
- E Sleeve
- F Internal mandrel
- G External mandrel

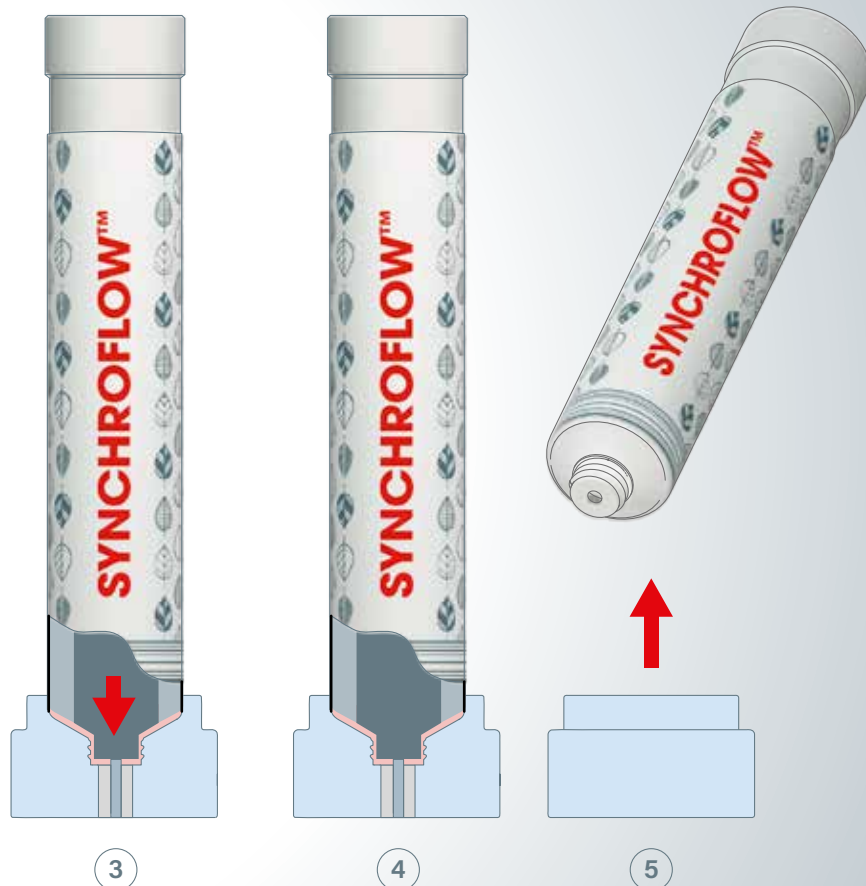


- ① Volumetric dosing (B) eliminates dose weight variation of the donought (C).
- ② Outer and inner parts (F)(G) of the mandrel are pushed down. The outer part (G) of the mandrel is closing the mould before pressure is applied.



➤ **Synchroflow™ technology benefits**

- Enhanced tube shoulder appearance.
- Excellent aesthetics, no flow lines on coloured shoulder.
- Perfect welding for round and oval shoulder.
- Cleaner and smaller orifice.
- No air trapped on shoulder head.
- No crooked shoulder head.
- Improved economics.
- Faster and less frequent tooling change-over.
- Improved process stability leading to higher productivity.
- Reduced tooling needs through standardisation.
- Up to 60% lower investment on dosing nozzles.
- Faster colour change-over.



③ Pushing the inner part (F) of the mandrel further down moulds the shape of the tube head. ④ The measurement of the thickness of the moulded shoulder is done and transmitted to the dosing regulation system. This system controls the shoulder dosing and can adjust the thickness by varying the amount of material dispensed. If you're working with PCR and non-homogenous materials, this feature will prove very useful. ⑤ After cooling under pressure in the closed mould and welding the shoulder to the sleeve, the mandrel lifts and releases the perfectly shaped tube with a clean orifice.





ULTRALIGHT™

COMPRESSION HEADING AND CAPPING TECHNOLOGY

➤ What is it?

Ultralight™ is introducing an innovative shoulder and closure assembly design technology that utilises Aisa's compression moulding and PTH machinery.

➤ Availability

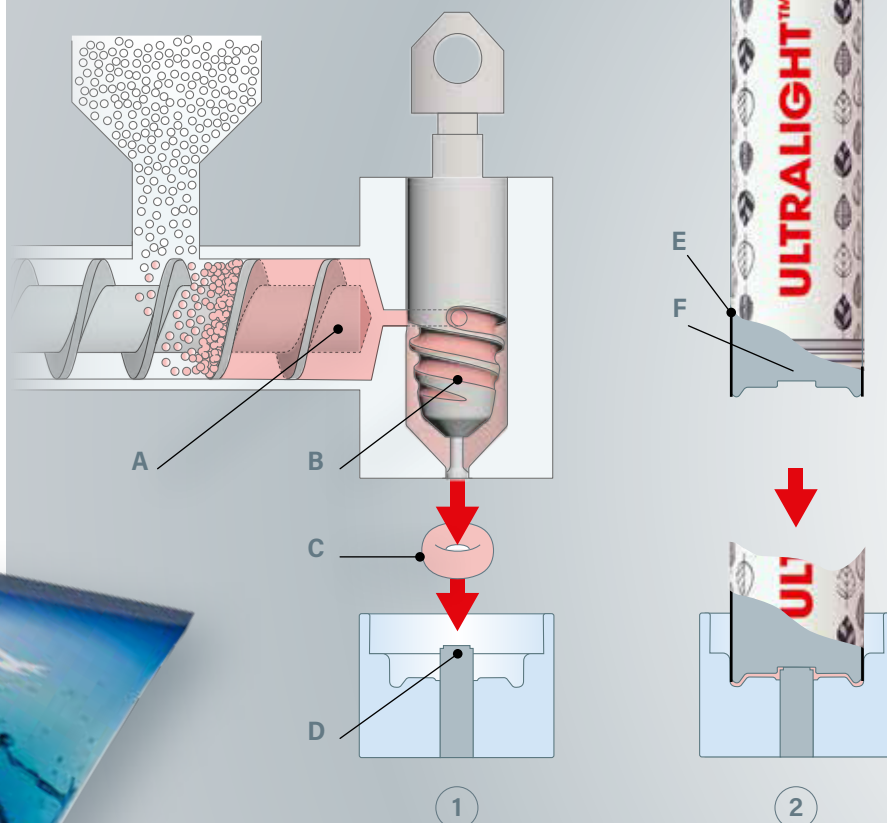
It is compatible with both the latest PTH and CM machines, as well as older generation PTH heading machines.

➤ Ultralight™ technology benefits

- Using less material can help achieve more sustainable tube packaging.
- Existing PTH production lines can be retrofitted.
- It is possible to introduce new cosmetic tube designs.
- We can establish a new standard for tube closures.
- Realising tooling size parts with short lead times is possible.



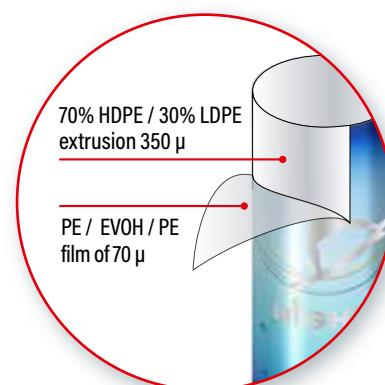
- A Extruder with axial pressure piston for better material melt and fast color change
- B Volumetric dosing system
- C Doughnut (PE dose)
- D Orifice pin
- E Sleeve
- F Mandrel
- G Cap

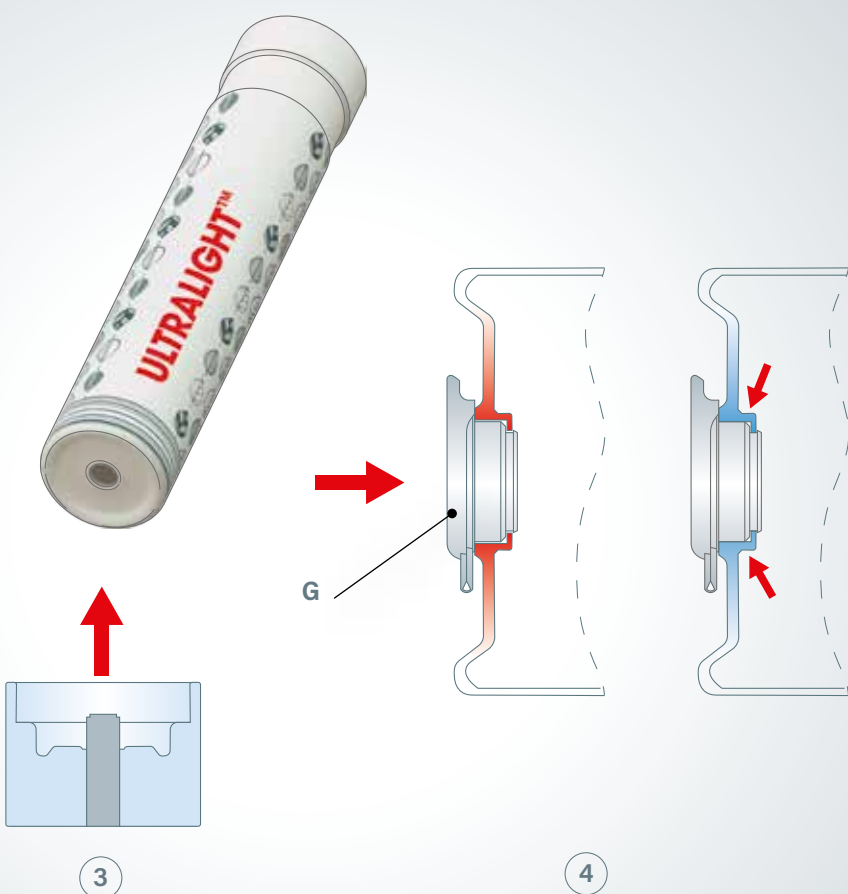


- ① Volumetric dosing (B) eliminates dose weight variation of the doughnut (C).
- ② The mandrel (F) is pushed down and the pressure is applied.

➤ Packaging technology

- Decoplas™ Ø50 mm tube.
- Flexography printed.
- Recyclable tube designed for the HDPE coloured bottle stream.



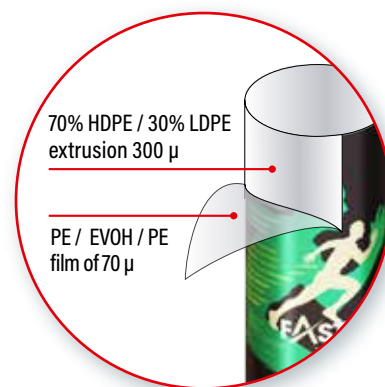


③ The mandrel lifts up, the shoulder is perfectly moulded and welded with a clean orifice to the sleeve. ④ Next, on the capping machine, the cap is clipped on the tube. As it cools, the shoulder orifice contracts and seals around the cap, guaranteeing a tightness of the clipping.



➤ Packaging technology

- Decoplas™ oval Ø35 mm tube.
- Flexography printed.
- Recyclable tube designed for the HDPE coloured bottle stream.





BACOMEX™

MULTILAYER BARRIER COMPRESSION MOULDING TECHNOLOGY

➤ What is it?

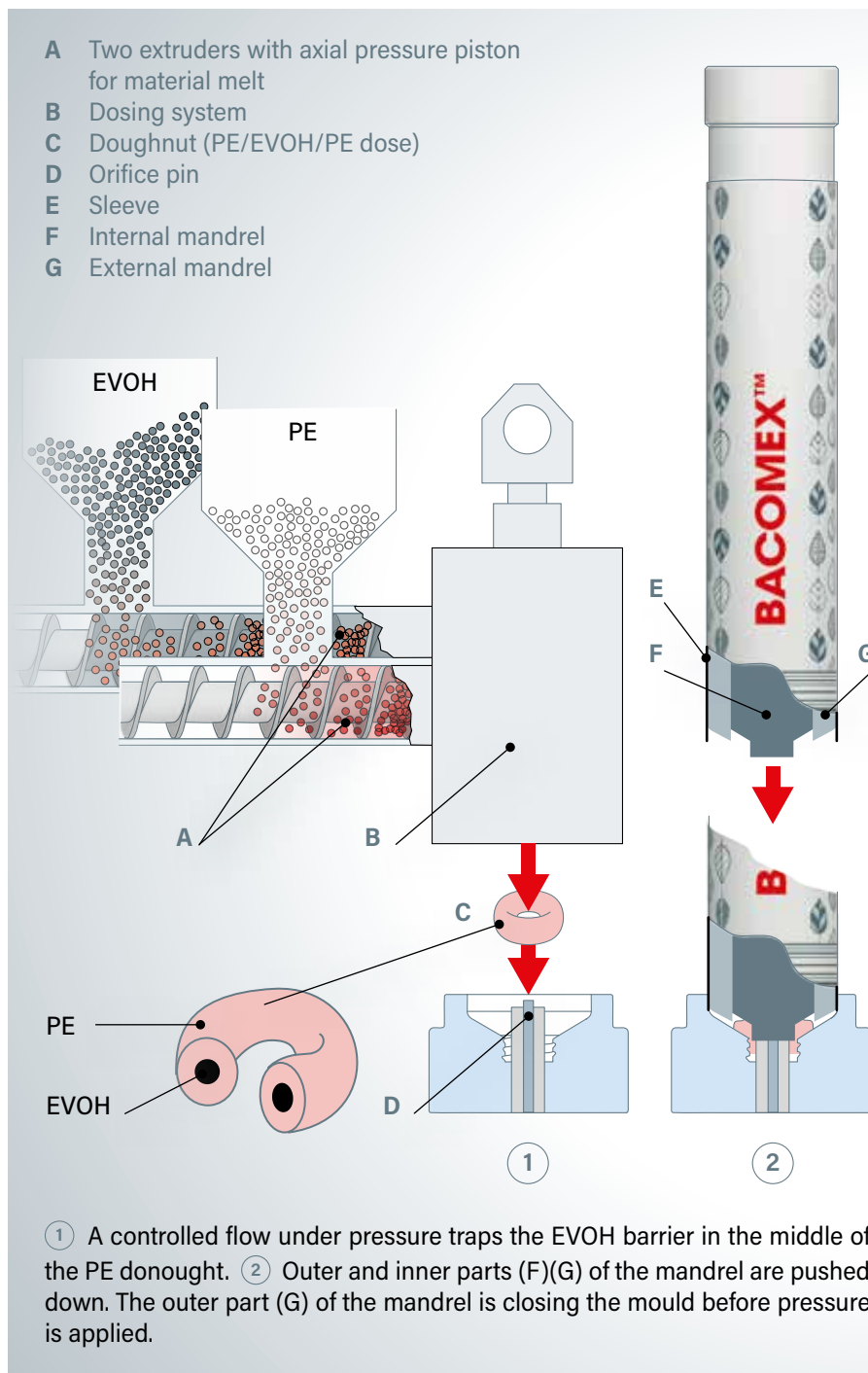
Bacomex™ is a multilayer barrier moulding technology. In the production of laminate tubes, the moulded shoulder is often referred to as the vulnerable point through which oxygen can infiltrate, leading to the loss of aromas and essential vitamins. Bacomex™ multilayer compression moulding technology embeds an efficient barrier protection layer throughout the entire tube head.

➤ Availability

Aisa presented a variety of PTH heading machines and a SFM shoulder-forming machine, featuring Bacomex™ technology.

➤ Packaging technology

- Symmetric PE laminate sleeve structure; 250 µm thick and 12 µm aluminium barrier layer.
- Induction welded overlap seam.
- Bacomex™ shoulder, PE with layers of EVOH barrier material.
- Cylindrical screw on cap.
- Improved barrier properties vs standard ABL tube (BIF 12.5).
- Bounce back index: 47%.



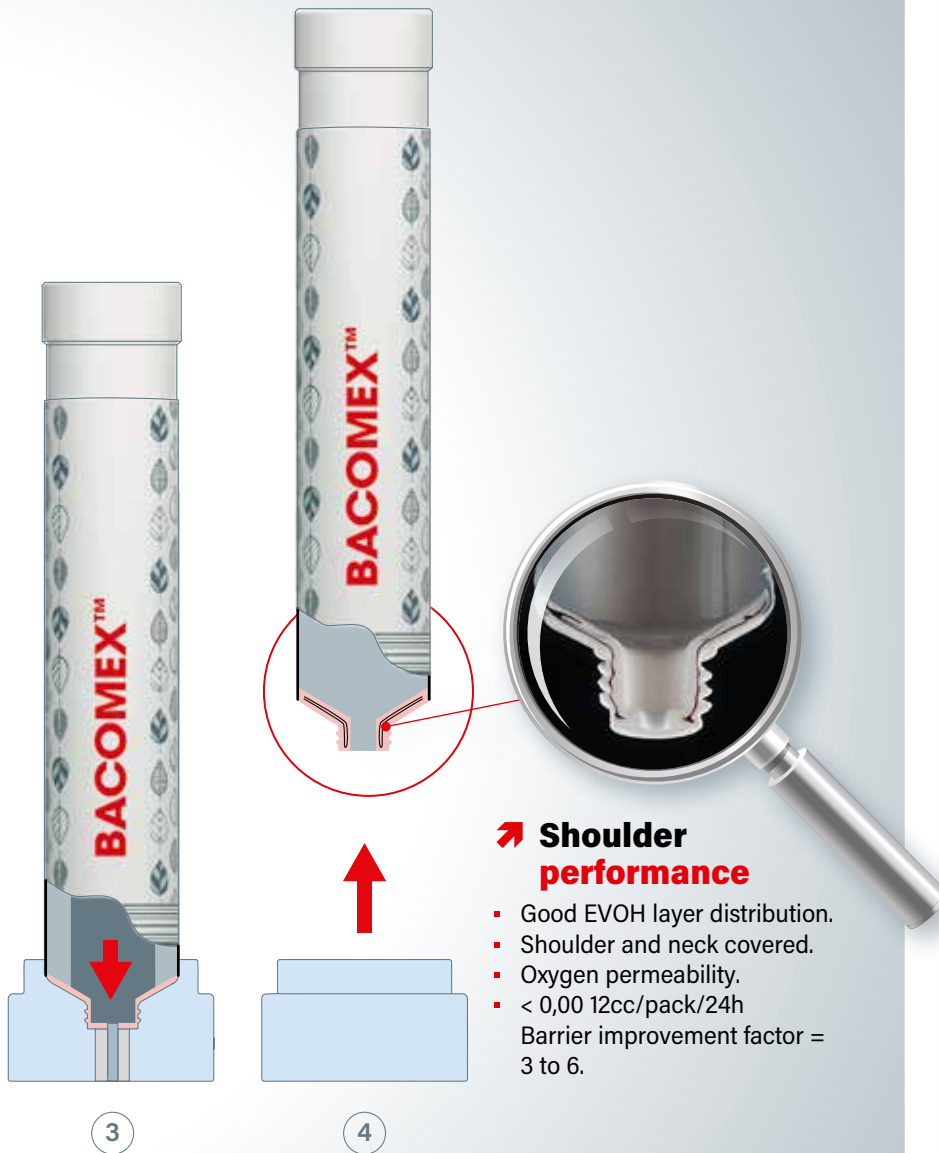
➤ Technical achievement

- Very low dosing weight.
- 25 mg EVOH barrier resin.
- 475 mg PE resin.
- Precise layer distribution.
- Reproducible dosing process and shape.



➤ Packaging technology

- Inspiration 375 ml bottle with Bacomex™ barrier components: 1.75 ccO₂/pack/year/atm.
- Bacomex™ bottle cap 38 mm BIF=4 or 0.0056 ccO₂/pack/day/atm.



➤ Shoulder performance

- Good EVOH layer distribution.
 - Shoulder and neck covered.
 - Oxygen permeability.
 - < 0,00 12cc/pack/24h
- Barrier improvement factor = 3 to 6.

③ Inner part (F) of the mandrel is pushed further down to form the mold for the tube head. ④ The mandrel lifts up, the shoulder is perfectly moulded and welded with a clean orifice to the sleeve. The multi-layer barrier is formed during the compression moulding.



Bacomex™ barrier coffee capsules with or without hole at the top.





INDEXED INJECTION MOULDING TECHNOLOGY

➤ What is it?

The development of indexed injection heading machines has been driven by the need to meet the demands of specialised tube applications. These machines can handle twist-off, tamper-proof, and single-use head styles, as well as head styles equipped with applicator tips for a wide range of applications. Besides tubes, this technology can also create cartridge applicators for dispensing glue and grease.

➤ Markets

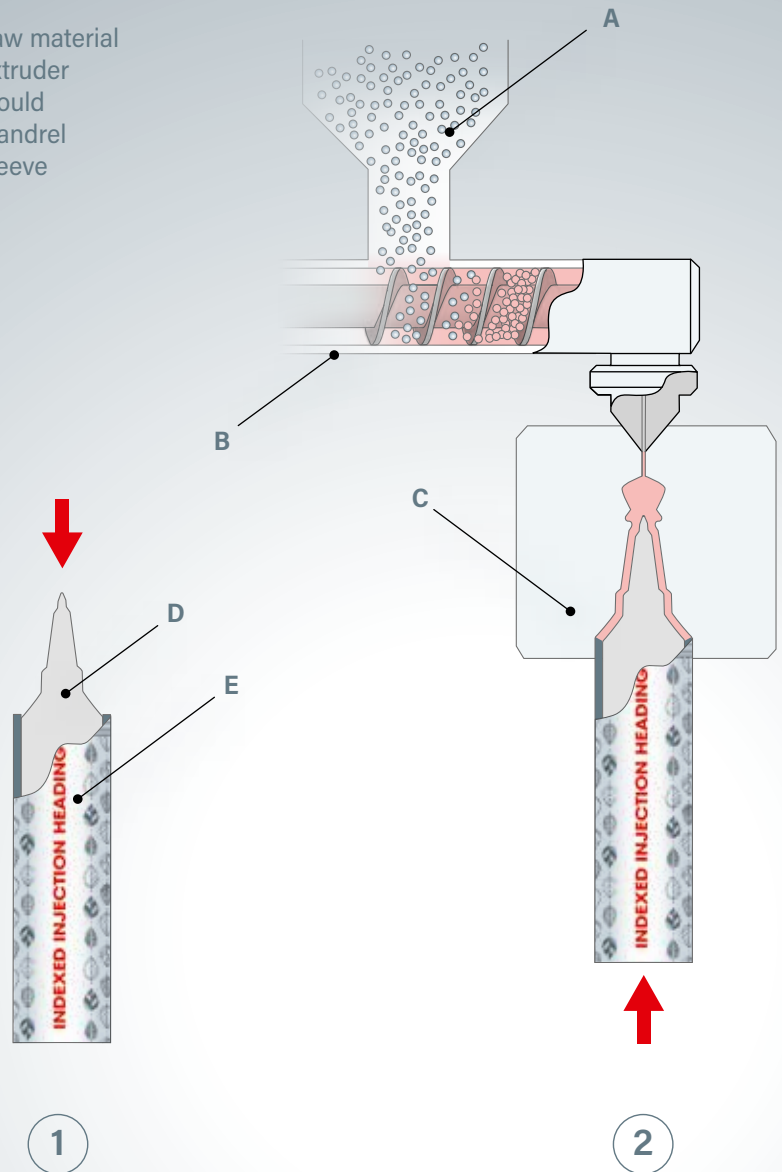
- Cosmetics.
- Pharmaceuticals.
- Technical.

➤ Availability

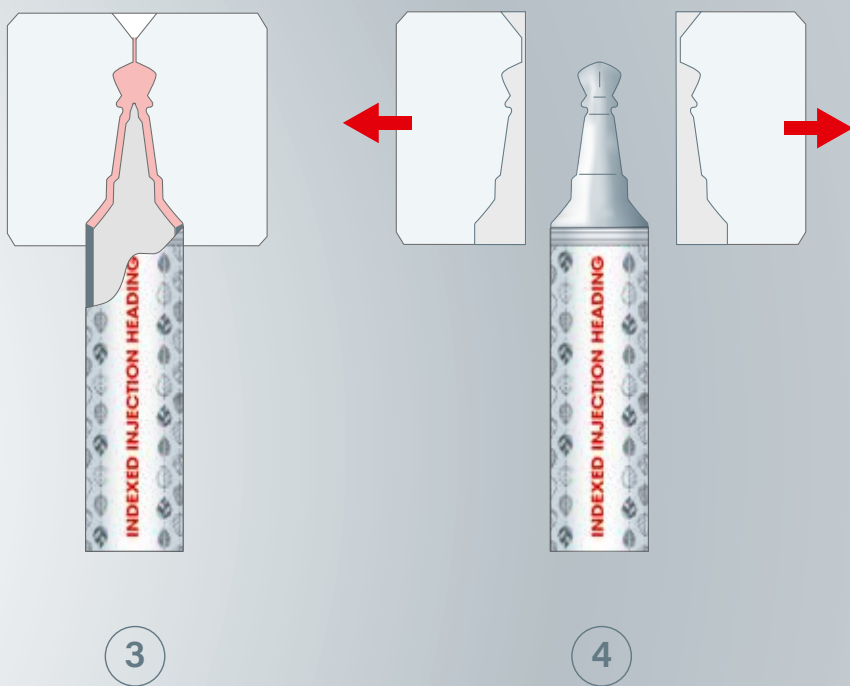
On Decoplas™ 120 cartridge line and TV764/4 header.



- A Raw material
- B Extruder
- C Mould
- D Mandrel
- E Sleeve



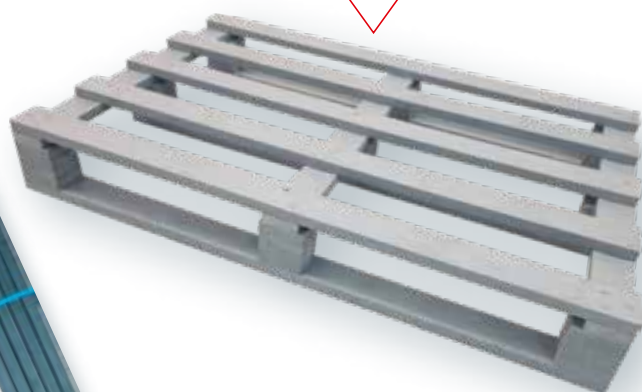
- ① The sleeve (E) is loaded on the mandrel (D).
- ② Once the mandrel and mold are in the injection position, the extruder dispenses the necessary amount of melted material to form the shoulder-cap.
- ③ Cooling.
- ④ Tube demolding and unloading.





- In partnership with REPLACE, Aisa France developed and manufactures the IPRA™ machine.
- IPRA™ machine technology allows to directly convert plastic waste into a usable product, making it an efficient solution. Examples of products include items like wine posts, signalling poles, and planks that can be used to build urban furniture or pallets.
- REPLACE provides an alternative solution for non-recyclable composite plastics, considering that incineration or landfill deposition are currently the only available options.
- In the circular economy, we transform plastic-based multi-material waste into useful, competitive, recyclable products that can be used locally.
- Decreasing the carbon footprint of the plastics industry, the Replace business model has undergone rigorous optimisation measures at every level, as evidenced by a validated life cycle analysis.
- REPLACE is a French company selected as one of the 1000 solutions for changing the world accredited by Bertrand Piccard's Solar Impulse Foundation.





Aisa, a worldwide presence



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Tube volume calculator



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