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Issue 2008/2009

Heat-shrink technology equipment, compounds and consultancy



The unique single source for heat-shrink technology

Providing solutions for the heat shrink and special plastics industry

Innovative new designs!

The Inhol/PTL team members have been involved in designing and implementing expansion equipment and manufacturing systems for thin-, medium- and thick wall tubing and molded parts for more than 25 years. Nowadays, PTL equipment and systems for heat-shrinkable products are world-wide recognized as a standard for manufacturing reliability.

Manufacturing systems inspired by new technologies

Through international partnerships Inhol/PTL is continuously involved in new projects to develop and test (in-line) manufacturing systems offering energy savings and manufacturing efficiency. Leading heat-shrinkable product industries have chosen to team up with Inhol/PTL to get access to these new technologies. Some developments are focused on testing compound compositions for new efficient crosslink systems based on alternative crosslink technologies.

Equipment

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HW-expansion line

For the expansion of thin wall heat-shrinkable tubing. Expanded sizes (shrink ratio 2:1) up to 20 mm and 3:1 up to 6 mm (expanded inside diameter) for shrink ratio. Speeds of up to 25 m/minute, depending on size, quality and consistency of the crosslinked tubing.

Features:

- New design for easy operation
- Non-liquid heating system
- Changing from 1 size to the other in less than 5 minutes
- Reliability



IR-expansion line

For the expansion of thin wall heat-shrinkable tubing. Expanded sizes from 5 mm up to 50 mm (expanded inside diameter). The IR machine will expand 2:1 and 3:1 thin and medium wall heat-shrinkable tubing. Speeds of up to 12 m/minute, depending on size, compound composition and consistency of the crosslinked tubing.

Features :

- New design for easy operation
- Non-liquid heating system
- Changing from 1 size to the other in less than 5 minutes
- Reliability
- Ideal machine for single and dual wall (adhesive lined) polyolefin and elastomeric, Kynar (PVDF) and fluoro-elastomeric tubing

NEXA-expansion line

The NEXA expansion line has been developed as a modular system for the continuous expansion of heavy wall tubing in the range of 12 - 200 mm (expanded diameter) with wall-thickness ranging from 2.0 - 6.0 mm.

Depending on the size, quality and consistency of the crosslinked tubing, speeds of 3 - 4 m/minute or even higher can be achieved.

The expansion line consists of the following major modules:

- Portal unwinder
- Belt Haul-input module
- Double pressure oil-heating modules
- Expansion and calibration module
- Belt Haul-output module with pinch rollers.
- Clamping module
- Cutting module

Features:

- New modular design
- State of the art electronics and drives
- Reliability
- Longitudinal change control



- 1 illuminated view window per element for observing the product during the production process and for maintenance
- Heating by means of heating elements
- Precise Temperature control
- Continuous circulation of the heating liquid
- Pressure control for pressure inside the tubular heater
- All drive elements are made of none-corrosive materials
- Liquid level indicator
- Internal/external pressure controls

CAPEX-expansion line

For the expansion of heat-shrinkable polyolefin end-caps.

Features:

- Three expansion stations for the expansion of two caps per station. Two caps are expanded per operation in each station
- The three stations operate independent of each other
- Caps can be expanded immediately after injection moulding, provided that the caps are being chemically crosslinked in the mould and still hot
- Irradiated crosslinked caps can be expanded after pre-heating
- High output due to simultaneous operating of the three stations
- Typical size range from 12 - 120 mm



Flattening line

The PTL/Compo flattening line is for flattening heat-shrinkable tubing to be used as identification sleeves. This line is capable of flattening expanded heat shrinkable tubing of multiple diameters. Consistent flattening can be easily achieved. The flattener has been designed and equipped with controls for product consistency and reproducibility.

Halogen free and halogenated, flame-retarded polyolefin heat-shrink tubing in 2:1 and 3:1 shrink ratio, as well as other heat-shrinkable tubing (such as fluoropolymer based products) can be easily flattened to any desired 'puff'.



CAPCOA-coating line for end caps

The CAPCOA-coating line is able to coat various sizes/diameters of heat-shrinkable end caps at various lengths.

The unit is equipped with integrated corona unit for maximum adherence to the tubing and cutting devices to trim the end of the end cap. The adhesive can be applied in a spiral or a film coating.

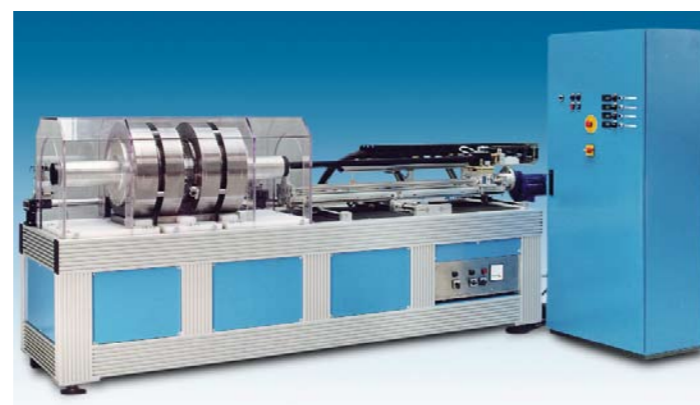


Cutting lines

Various PTL cutting lines can be supplied. Both stand-alone units and in-line cutting systems. Heavy duty pneumatically operating lines for the cutting of medium and heavy wall products as well as electrical driven cutting lines with in-line dancer/speed control and feeder systems for thin wall products are available.

TUBECO-coating line for large size tubing

The TUBECO-coating line is able to coat medium and thick wall heat-shrinkable tubing in 1.0 or 1.2 m lengths of expanded tubing having inside diameters ranging from 50 - 250 mm. This unit is equipped with integrated corona unit for maximum adherence to the tubing. An integrated cutting device is able to trim the ends and cut the tubing in 2 pieces. The adhesive can be applied in a spiral or a film coating.



Extrusion lines, extruder heads and tooling winders and other equipment

- Complete tubing extrusion lines, including calibration & cooling sections, take-off, single or double winder and OD control
- Extruder heads and tooling for single and dual wall heat-shrinkable tubing (co-extrusion) and color striping
- Extrusion systems for profiles, large pipes and transparent packing and mailing tubes
- Spiral binding production lines
- Take-offs/Haul-offs with or without integrated pinch-rollers for demanding applications
- Pipe shredders for recycling of large pipes up to a diameter of 1.200 mm
- Sheet extrusion, expansion and coating system. The MDO system is designed to stretch and orient the PE backing material after the sheet has been extruded on the sheet line and crosslinked by the customer's offline process. The PE sheet is coated with a tacky adhesive layer



Take-off/Haul-off



Heavy duty winder



Compact winder



Extrusion head and tooling

Moisture crosslink system and conditioning system

The partly stainless steel and well insulated crosslink system can be supplied in various dimensions to meet the required crosslink capacity. Doors on the front and back side improves logistics in the crosslink system where products usually are cross linked between 24 - 120 hours at 70 to 80 degrees Celsius for complete crosslinking.



Crosslink system

The partly stainless steel and well insulated conditioning system can be supplied in various dimensions to meet the required conditioning capacity. Doors on the front and back side improves logistics in the conditioning system where products usually are conditioned between 48 hours at 80 Celsius for complete crosslinking. The air is vented to ensure that saturated air is replaced by fresh air.

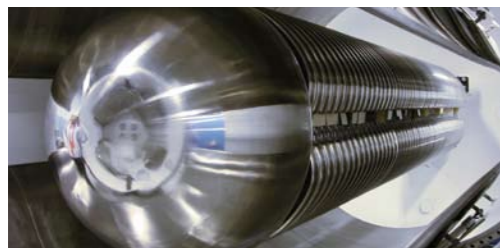


Conditioning system

E-beam crosslink facilities and systems

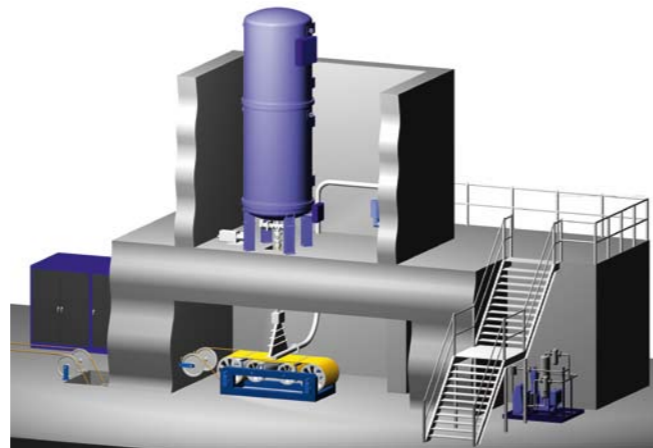
An E-beam crosslink facility requires:

- an electron-beam (also called e-beam or accelerator)
- underbeam-equipment (dedicated to the type of product to be crosslinked)
- a specially designed concrete building
- special safety equipment and procedures



Accelerator tube, heart of the E-beam

3D view of an E-beam radiation facility



Wire & cable compounds

- High grade halogenated and halogen free crosslinkable compounds
- Halogenated and halogen free thermoplastic and TPE based compounds

Applications: Insulation and jacketing of wire and cables in following industries: automotive, shipbuilding, off-shore, defence, rolling stock like railways, power, appliances.



Crosslinkable compounds for heat-shrinkable products

- High grade compounds for low voltage and medium voltage applications, as well as for electronics, defence, telecom and corrosion protection
- Polyolefin, elastomers PVDF, Fluoropolymers
- Special compounds to meet UL 224, UL 224 VW1, ESI 09-11. Military specifications like SAE-AMS-DTL 23053, Def Standard 59-97, Aerospace specifications, KEMA, VDE and many other international specifications



Heat resistant compound for steam foil

One of the applications of steam foil is to disinfect arable land. This is a specially developed, heat resistant compound to make this foil. Foil made with PTL compound has recognisable top quality.

Special products and services

- **Outsized heat-shrinkable products from very large to very small.** These specialty heat shrink products are made to meet special demand for outsized applications where very large sleeves, sheets or pre formed heat shrink products are required. Just ask our specialist if he can meet your special demand!
- **Special plastic products for packing and mailing tubes to special extruded tubes and rods.**
- **General Polymer and processing consulting**
- **Sales & Marketing support**
- **Project feasibility studies for heat shrink plants**

UT 6050 HS hot-set elongation oven

The UT 6050 HS test oven has been designed for hot-set tests that demand a maximum of accuracy and reproducibility under well-controlled temperature and air conditions. This test oven ensures a homogeneous temperature structure with a deviation of +/- 3°C in the region of the test piece up to a nominal temperature of 250°C.

The air conduction system allows a short recovery period once the door has been opened. The large (380 mm x 380 mm) glass observation panel in the door is essential to detect high thermal stretching values.

The heating oven with opto-electronic laser allows rapid measurement of thermal stretching and degree of crosslinking with high reproducibility and accuracy.

