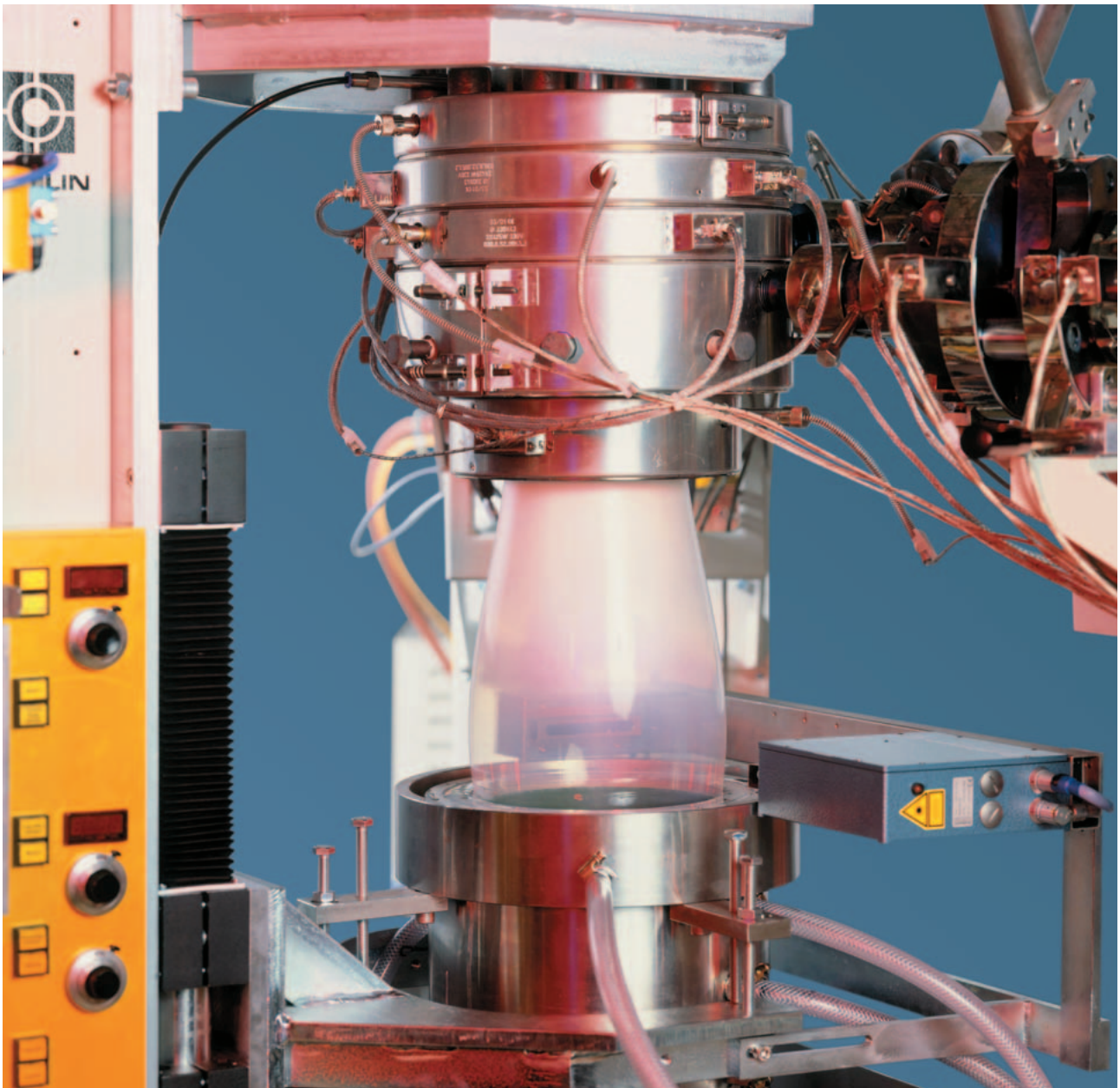


# Blown Film Lines with water cooling

*The new and reliable system for the production of sterile multi-layer-tubes*



**3, 5 and 7-layer Blown Film Lines  
for the production of infusion bags and secondary packaging**

## Production of Blown Films with water cooling (Quenching)

The desire to replace plasticized PVC as a material for infusion bags and secondary packaging promotes the increasing use of PE, PP, also PA or other suitable materials.

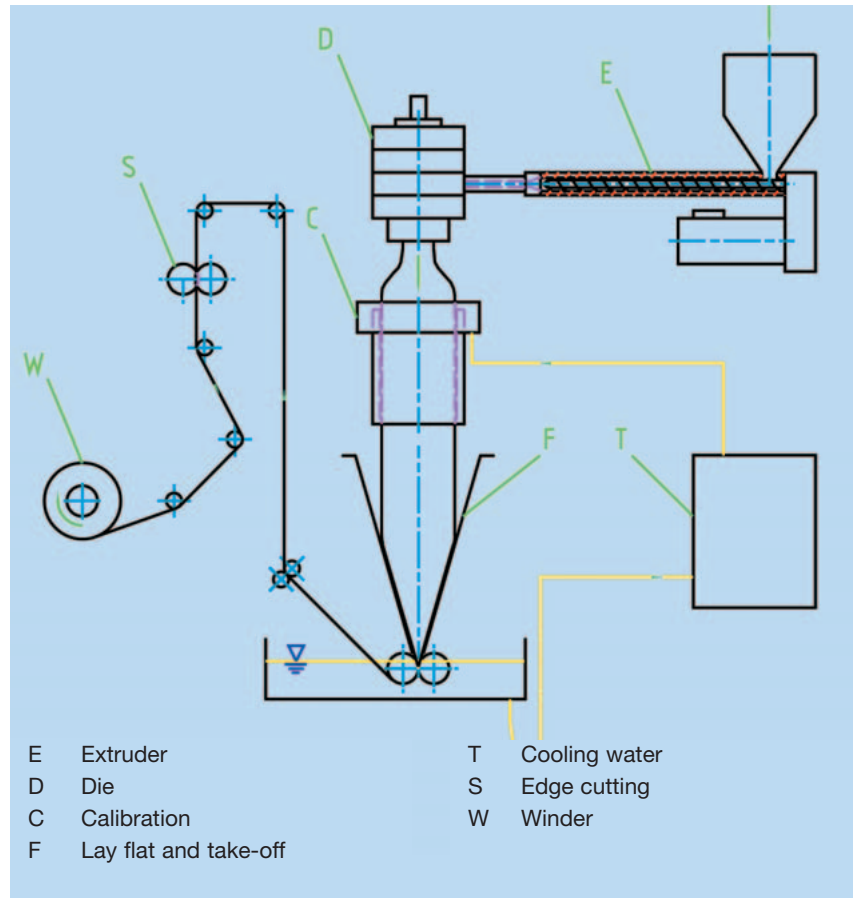
However, a PO material mono layer does not cover all properties provided by plasticized PVC. This problem requires the development of composite systems consisting of 3, 5 or 7 layers, which cater for special cases.

The lines developed by Dr. Collin GmbH are used for the development of such composites as well as for the production of film bubbles for further processing in compounding lines.

### Operation method

The principle of guiding the product downwards into a water calibration tank has proved most effective for an efficient and high-quality production of thick-walled blown film with a thickness of approximately 170 up to 300 µm.

Several elevated extruders are used to feed the blown film coextrusion die. The film bubble is guided down into a water cooling ring, collapsed, dried, treated by a film gauge equalising unit if required, or just cut off and wound onto rolls.



### Advantages

Compared with others, this method has the following advantages:

- During all processes, from the production of the film bubble to the welding of the bag, the inside of the bag always remains clean.
- The shock cooling method promotes a high clarity of the PP composite.

- The produced material has an even orientation.
- The use of suitable materials for the different layers optimally adapts the desired properties to the requirements.

Specific properties of infusion bags include:

- Flexibility
- Softness
- Ability to be sealed
- Barrier properties
- Ability to be sterilised
- Rigidity
- No migration of injurious softeners from the bag into the infusion solution

## Main components

The lines have the following advantages:

- compact design
- small footprint
- low stack height
- suitable for clean room use
- material selection according to customer requirements

### Extruders

The extruders are optimally adapted to the required melt throughput and the polymer material to be processed. The gravimetric metering of one or several components ensures a precisely even layer thickness and quality level.

### Die

The concept of the coextrusion die with a radial melt distributor guarantees

- low stack height
- short residence times
- optimal thickness distribution of each individual layer
- quick change-over of die inserts to accommodate different layflat widths

### Water calibration

Water calibration is the core element of the line. An accomplished water flow adjustment system ensures a homogeneous cooling even at high take-off speeds.

### Take-offs

All take-off components are designed to deliver reproducible film guiding conditions. The control of parameters such as the film bubble diameter, speed, geometric data or the web tension is optimised prior to the production.

### The cooling system

An optimally adjustable water cooling system provides absolutely clean cooling water.

### Data acquisition

The central VDU screen control ensures an easy and reproducible line control and the documentation of all processes.

Line models:

## 3-Layer Blown Film Line with water cooling

A compact line for the development and production of small tubes



3-layer quenching line for the production of infusion bags

## 5-Layer Blown Film Line with oscillating take-off unit

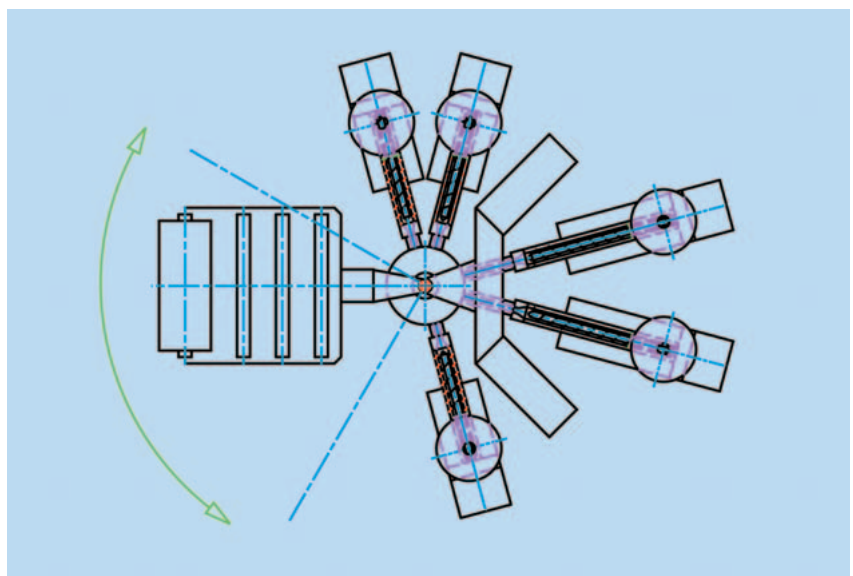
A high-performance line for efficient production



A high-quality planar reel is achieved by an oscillating movement of the take-off with winders arranged around the die axle.

The stationary die is supported by a stand. Five stationary extruders are allocated to the die.

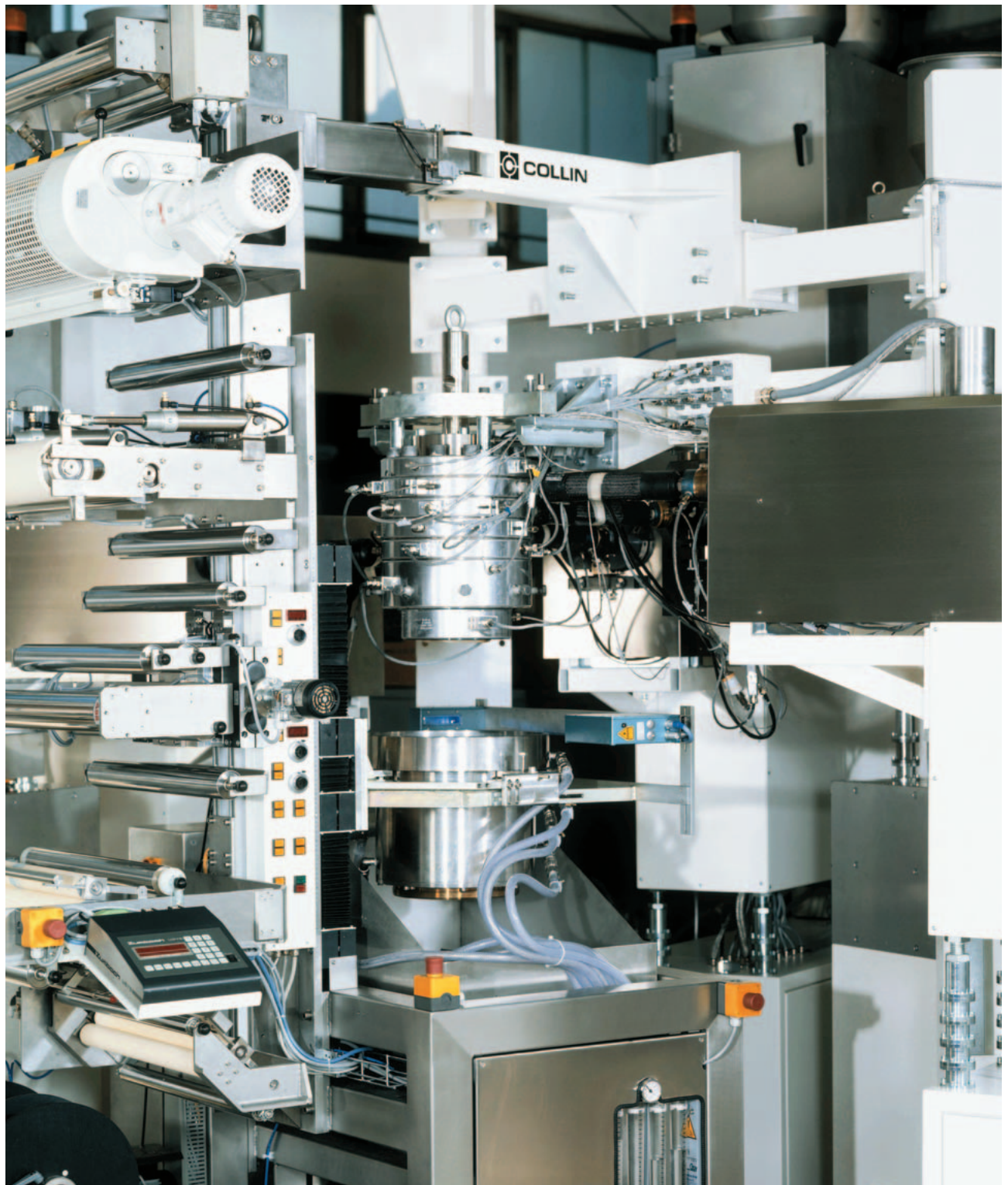
The design allows a line operation from the ground and prevents security problems created by the use of platforms.



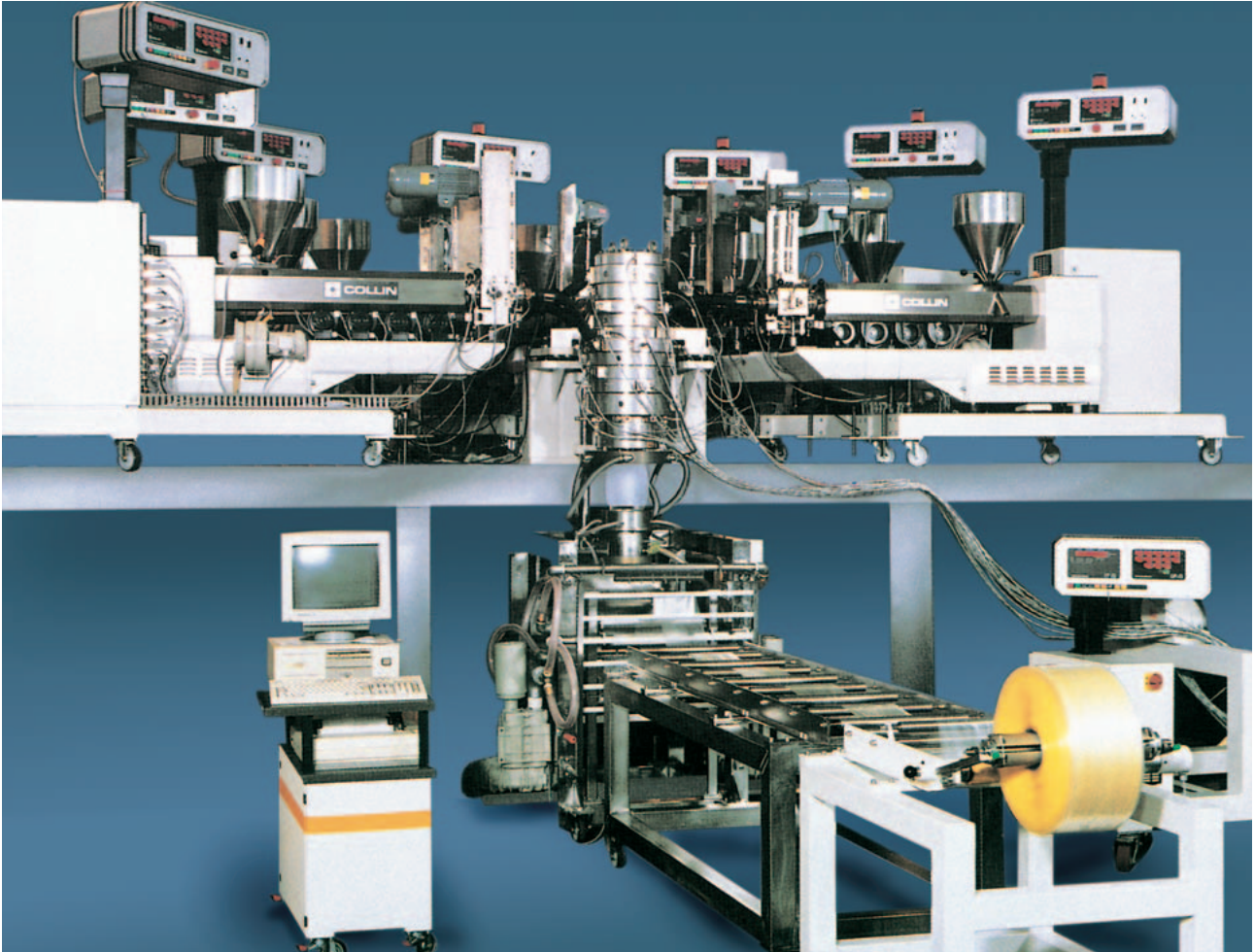
## 5-Layer Blown Film Die with water cooling

The sectional photo shows some of the line's main components:

- height adjustable extruders
- 5-layer coextrusion blown film die
- coex-blown film die support
- film bubble diameter gauge
- height adjustable water calibration
- motor adjustable collapsing boards with take-off
- film guiding
- longitudinal cutting
- control units



## 7-Layer Blown Film Line



Overall view of a 7-layer line. Extruder units can be moved on a platform. The coextrusion blown film die can be adjusted on this platform. Cooling unit, take-off, winder and control unit are situated at ground level

### Available systems

Layers	3 to 7 layers
Die types	RWT 40 for Ø 30 to 100 mm RWT 80 for Ø 80 to 180 mm
Layflat widths	80 to 470 mm
Film thicknesses	50 to 300 µm
Throughput rate	30 to 100 kg/h depending on the Ø and the layflat width

Technical modifications reserved

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