

BLOWN FILM EXTRUSION

LATEST TECHNOLOGY AND UPCOMING TRENDS

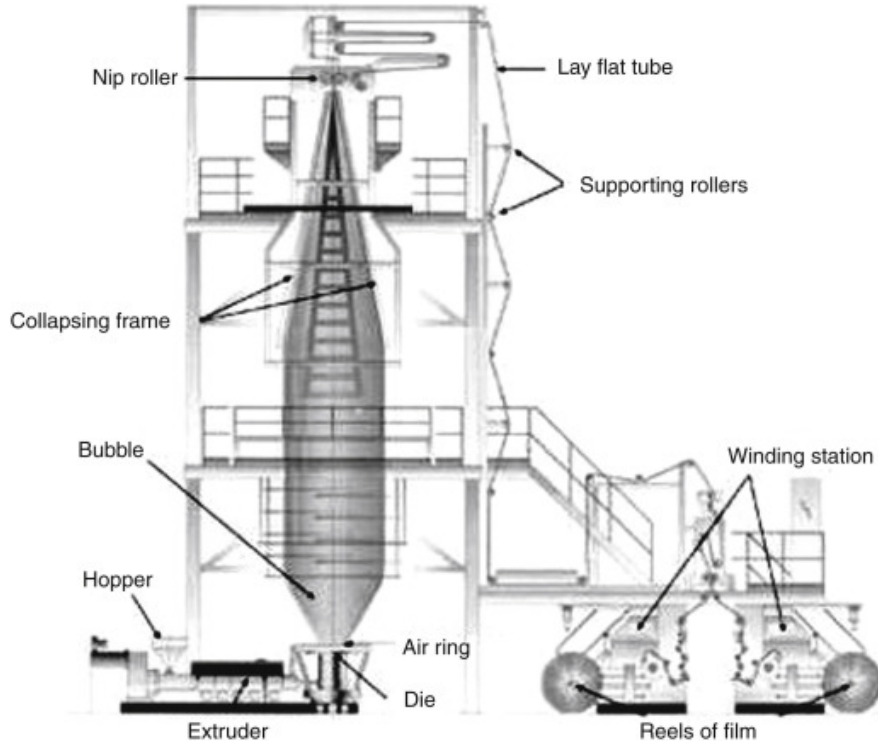
Ing. Marco Bissoli (GAMBIT srl)

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EXTRUSION LINE FOR BLOWN FILM



Plant components:

- Motor
- Extruder
- Die
- Air ring
- Collapsing frame
- Rollers
- Winding stations



TECHNOLOGY TRENDS

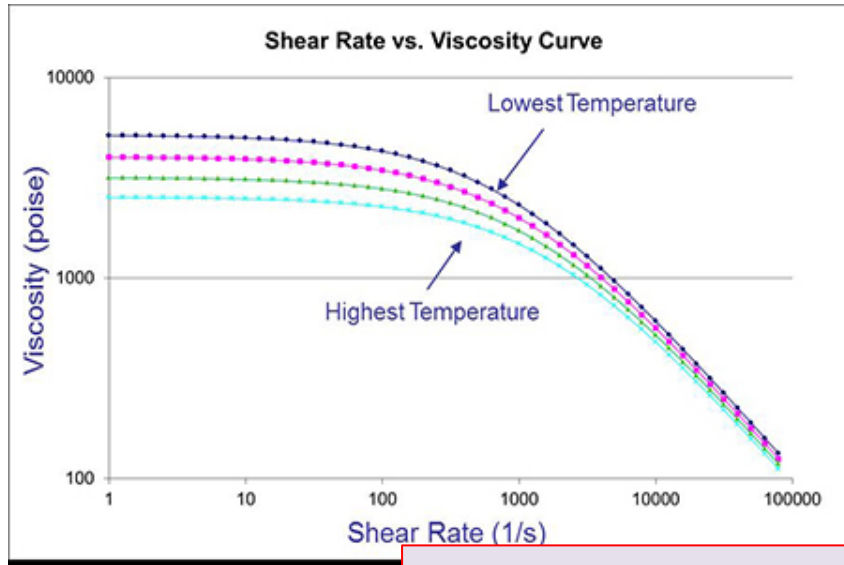


Challenge for the producers:

- New materials
- Throughput / Output
- Flexibility
- Coextrusion
- Energy savings
- Automatic gauge profile control
- Winder



NEW MATERIALS (BUT ALSO OLD ONES)



Biodegradable plastics
Recycling requirements
Special polymers

The role of rheology

- Measuring the rheological properties of the materials
- Understanding the importance of the shape of the rheological curve
- Handling of the rheological data by the use of specific software to design extruders and dies
- Preparing human resources to manage the whole process



THROUGHPUT / OUTPUT

Increasing extruder capacity

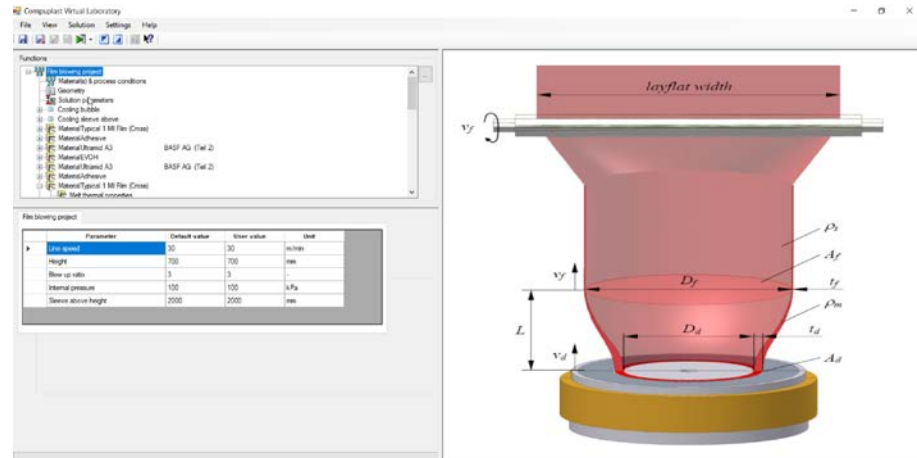
- High viscosity melt focus
- Lowering melt temperatures by design
- Barrier screw / Grooved feeding section

Enhancing die distribution

- Spiral die distributors
- Feeding channels
- Multi manifold sections

Bubble stability

- Improving melt cooling system
- Multiple deck air ring
- CFD calculations

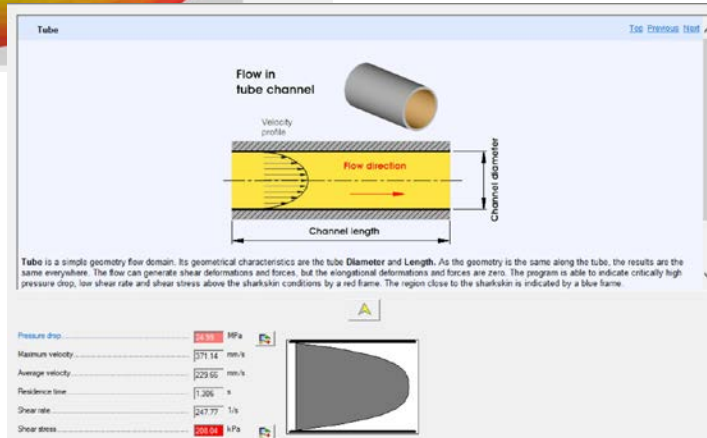
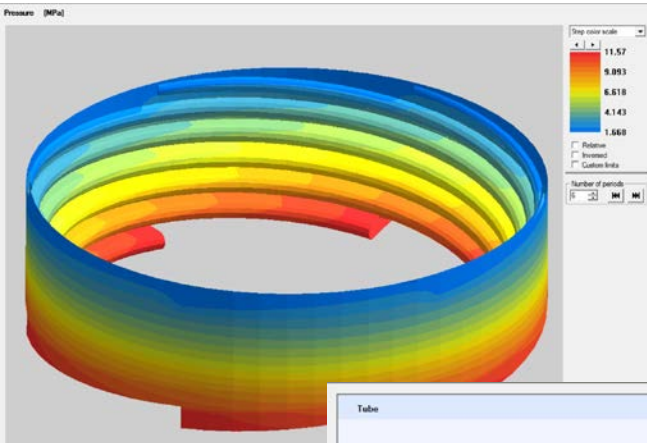




FLEXIBILITY

Managing reduced order volumes and specialty products

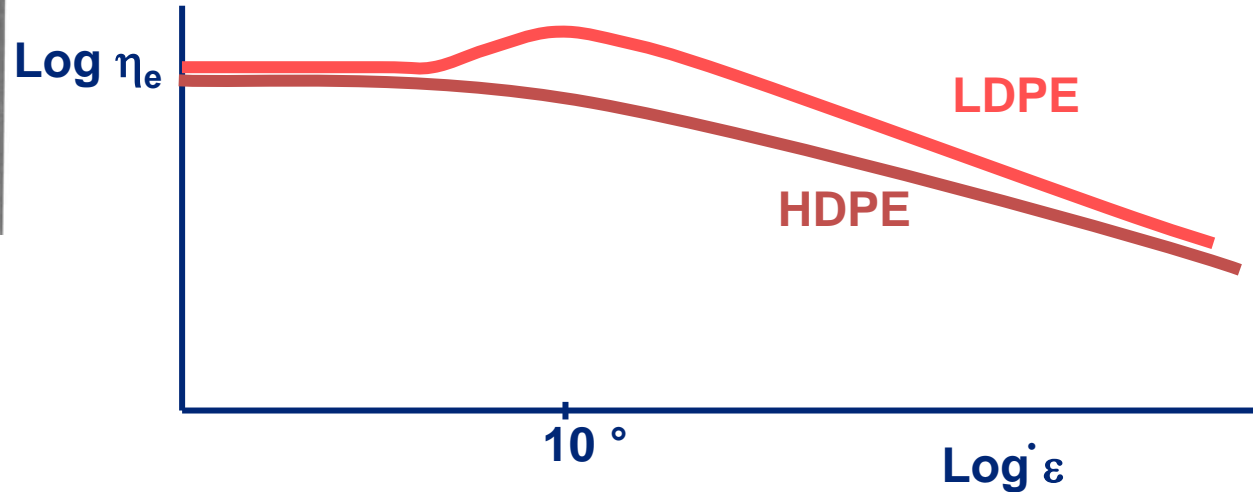
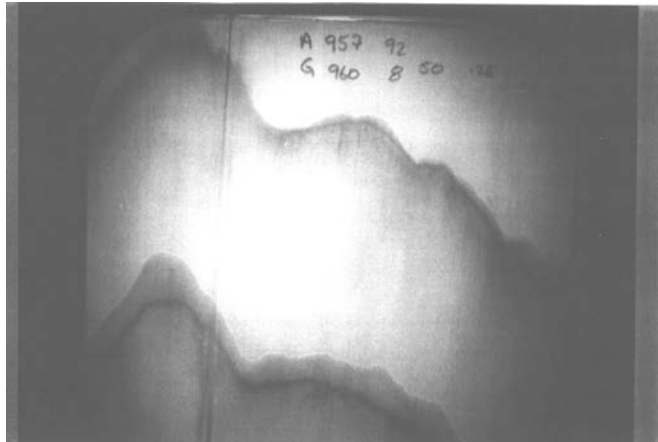
- Short startup and changeover times
 - Compact design for short flow paths
 - Reducing amount of resin in the die
 - High velocity to «wash» previous production
- Minimum labor requirements





COEXTRUSION

- Monolayer products are disappearing
- Multilayer coextrusion market is growing faster and faster
- 3 layer -> 5 layer -> 7 or more layer



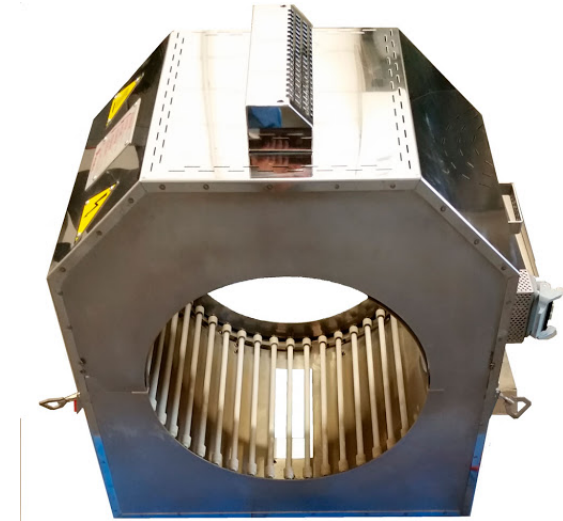


ENERGY SAVINGS



- High-efficiency motors and variable-speed drives have excellent payback

- IR (Infrared) heaters for barrel thermo regulations allow rapid heating, accuracy, long service life and minimum maintenance





AUTOMATIC GAUGE PROFILE CONTROL AND WINDERS

Standard feature but some lines still operate without them

- Capacitive system gauges (contact and no contact)
- Radiometric thickness gauges (no contact)
- Laser thickness gauges (no contact)
- Control algorithms to gain optimum gauge tolerances

- Surface and turret winder specifically designed and equipped to meet the application

