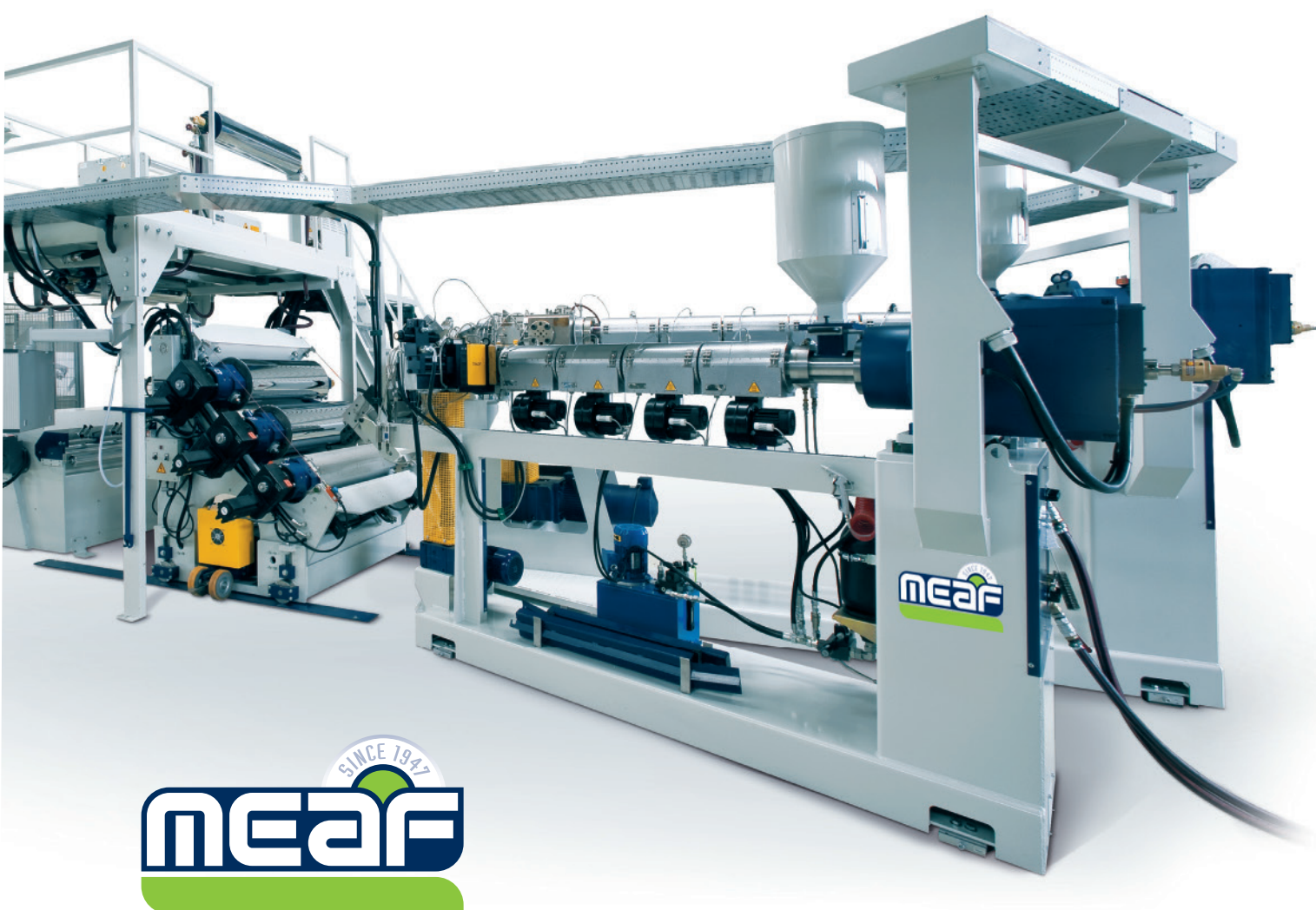


# Sheet Extrusion Lines



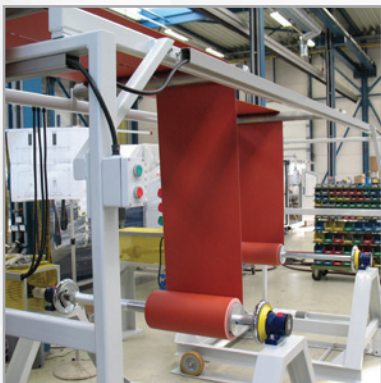
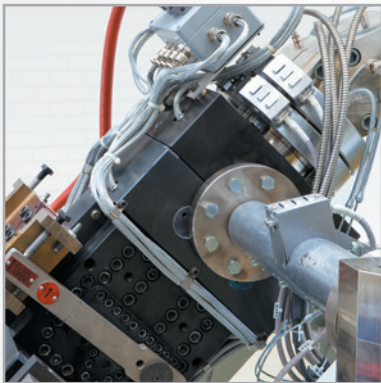
# Extrusion equipment for professional companies



MEAF Machines B.V. has been manufacturing equipment for the plastics industry for over six decades and has positioned itself as a specialist in building very robust and compact sheet extrusion lines, thermoforming machines, vacuum forming machines and auxiliary equipment that meet specific customer requirements.







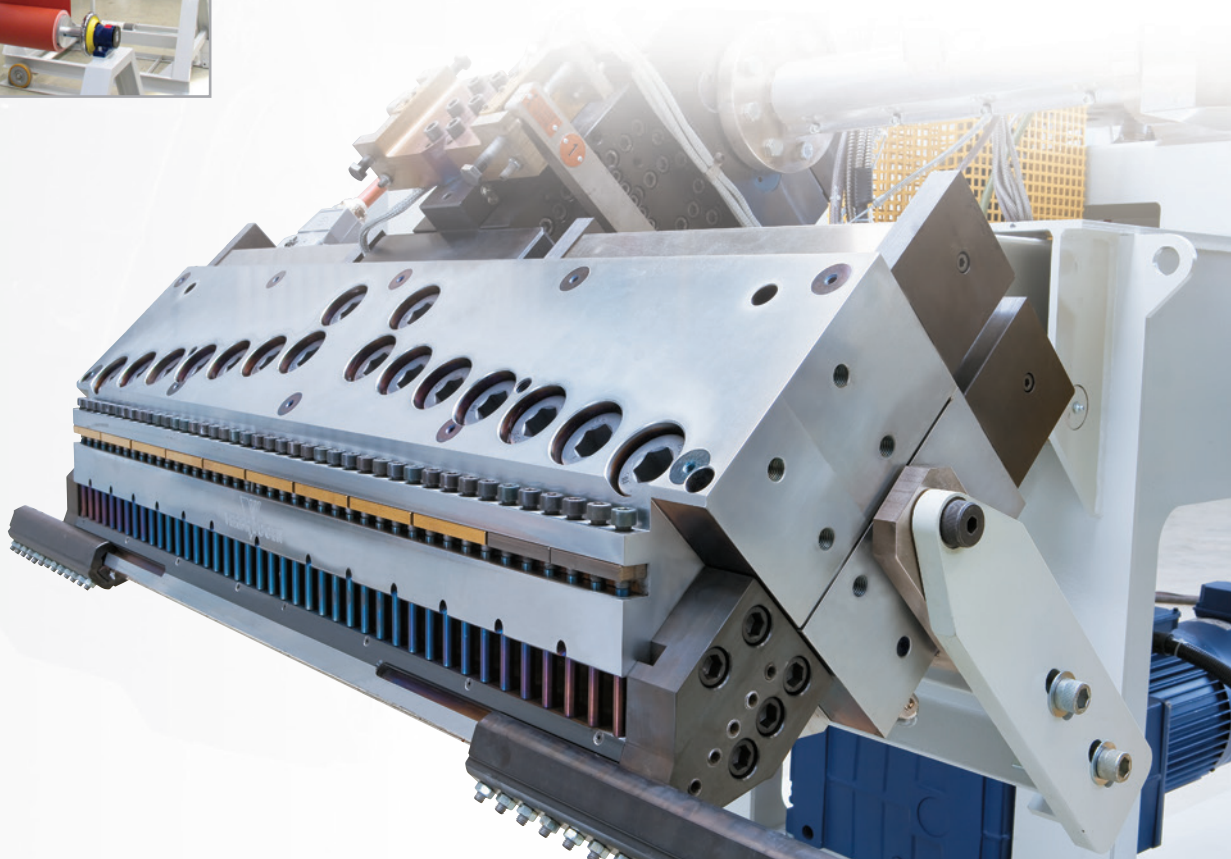
## Process and applications

The challenge in sheet extrusion is to deal with a wide range of polymers and at the same time reach the highest possible sheet quality to cope with the end-user markets.

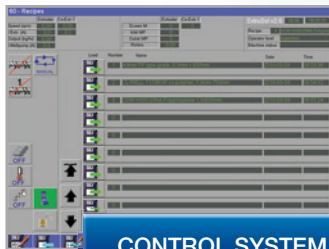
To satisfy our customer's requirements, MEAF employs a professional engineering team and skilled technicians for the design, engineering and manufacturing of customized machinery. The main applications for calendared films are thermoformed products, like cups, containers and lids for the food industry, made out of PP, PS and PET, with options for PA or EVOH barrier layers.

Even for the new range of biodegradable resins, like PLA and others, we can supply an excellent and professional solution for the ever changing customer demands!

Another area of the calendaring process is the heavy sheet application of ABS, PMMA, etc. for the automotive industry. Also sheet for the production of refrigerator doors and liners, shower trays and bathtubs, advertisement displays and other industrial products can be produced on customized equipment.



# Modular sheet extrusion equipment



CONTROL SYSTEM EXTRUSOL



WINDER



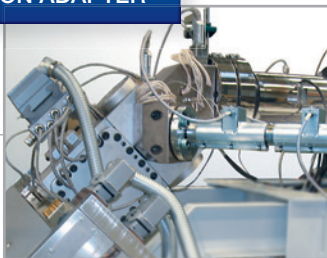
ACCUMULATOR



TAKE OFF UNIT



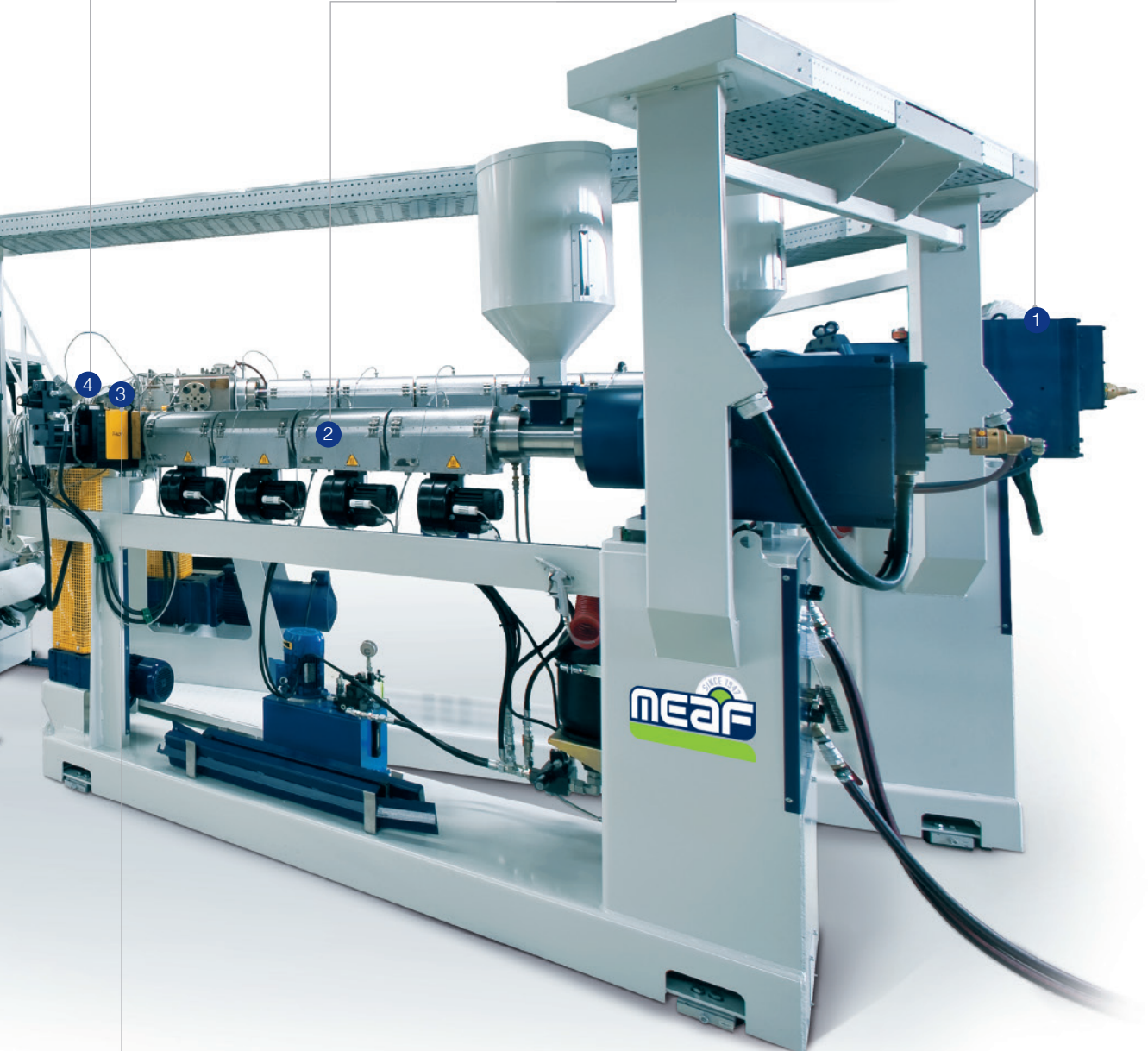
COEXTRUSION ADAPTER



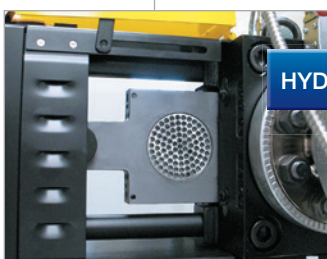
HIGH PERFORMANCE SCREW



DIRECT DRIVE UNIT



HYDRAULIC SCREENCHANGER



## PP/PS Sheetlines

The manufacturing of sheet extrusion lines for PP and PS remains one of the main activities of MEAF. We can provide a wide range of sheet lines, for example:

- Smaller sized extrusion equipment, with the possibility of "in-line" thermoforming activities
- Higher output extrusion sheet lines for off-line production

Co-extrusion options are available for multiple layer sheet production, for example:

- Two colored sheet
- BAB or BABC layer configuration for regrind material solutions
- 5-7 layer EVOH barrier sheet

Other well known applications for coextrusion are:

- G-PET, the so called GAG sheet
- A coextruded layer with additives like anti-blocking

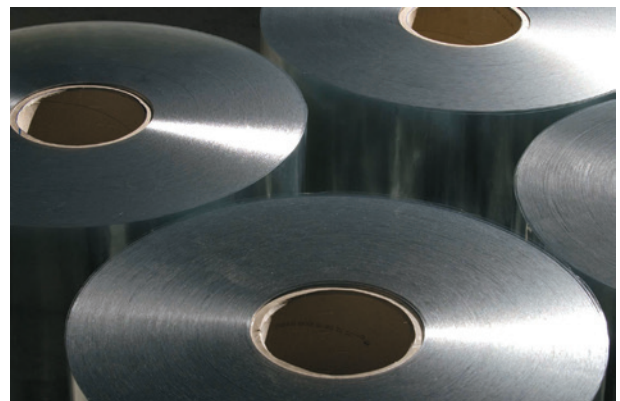
With a wide selection in roller widths and diameters, nearly all the thermoforming requirements can be fulfilled. Different types of sheet winding systems are available in order to meet each customer's specific requirement. Our delivery program includes different solutions from a small cantilever double winder till a jumbo two or four station winding system with moveable A-Frames plus automatic sheet cutting.

## PET Sheetlines

A couple of years have passed since MEAF has manufactured and supplied its first PET sheet extrusion line. Growing experience and new ideas for further developments have been integrated and proud we can say that we have the ideal solution for medium sized production companies!

A significant worldwide growth for PET thermoforming films is taking place and besides the use of virgin material, also running 100% flakes or other regrind material is becoming more and more important. Besides the conventional process with single screw extrusion and pre-drying with dried air, other degassing processes are under our constant evaluation.

Twin-screw extrusion systems are gaining a significant market share and although MEAF is a manufacturer of single-screw extruders, in co-operation with specialized companies, we can offer turnkey projects with this technology.



### Drive unit

Direct drive design with hollow shaft construction enables to extract the screw to the back side of the machine. Reduced noise levels, quiet running, liquid cooling and a higher efficiency than traditional drive units.



### High performance screw

Our screws have an excellent mixing and plastification capacity with less masterbatch needed and a lower energy usage.



### Hydraulic screenchanger

Contamination of the melt stream by metal, wood, paper or internally generated black specks yields products that are unacceptable in appearance and/or performance. The MEAF hydraulic screen changers are suitable for processing a wide variety of thermoplastics on applications ranging from sophisticated multiple layer thin film extrusion to the heavy demands of recycling.



### Multilayer coextrusion adapter

With exchangeable cassettes for flexible layer configuration.



### Take-off unit

Double shell polishing rollers, all individually servo controlled, outer shell hardened, with cooling spiral for efficient and uniform heat transfer and cooling over the full cylinder length. Available with or without bending resistant construction



### Anti-static bath

For applying and drying of an anti-static emulsion mostly on A-PET sheet. As an alternative for dosing master batches in a co-extrusion layer. Made from stainless steel to prevent corrosion.



### Accumulator

For temporary storage of sheet during reel change on winding system. Servo motor driven for smooth and controlled movement. Can also be used for extra cooling capacity for sheet before winding.



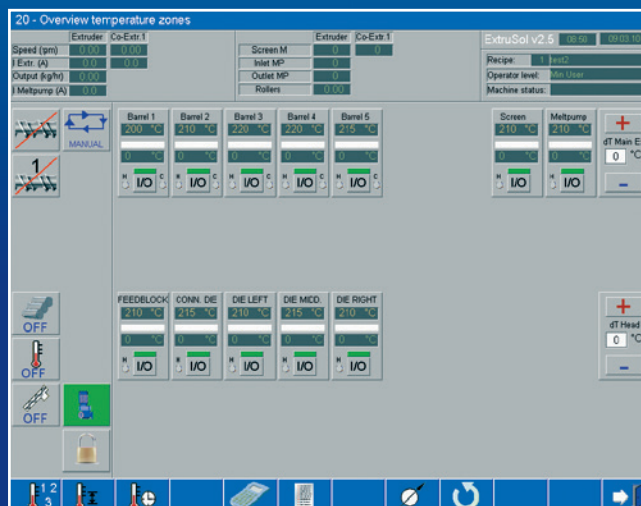
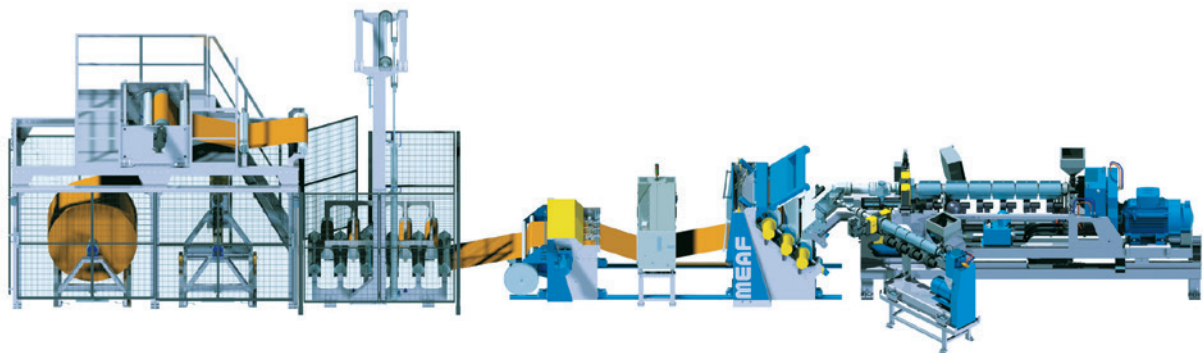
### Winder

Different types of sheet winding systems are available in order to meet each customer's specific requirement. Our delivery program includes different solutions from a small cantilever double winder and bigger turret winders with two or four winding shafts, till a jumbo two or four station winding system with movable A-frames plus automatic sheet cutting.

# Control technology

To reach efficiency and production optimum we consider full synchronization the most professional system. Modern production machines can only fulfill the high expectations of customers, if they can be operated and controlled in an easy but efficient way. The MEAF control system with user-friendly features and many diagnostic tools, makes operating and maintenance easy for your personnel!

The standard volume-based synchronization of the extruder, co-extruders and calander can be optionally changed into a weight-based synchronization in order to be completely independent of variations in specific weight and mixtures of the raw material used in the extrusion line.



## Extrusol Control System

### The friendly interface between man and machine

- Excellent monitoring of all machine functions from a single point for easy operation with automatic synchronization of every (co-)extruder, calander, till the winding system.
- Recipe management for storage of machine settings and production lots certification through process parameter printouts on a printer and USB-stick.
- Fast and accurate extruder control with the SpeedAdjust hand wheels
- High-precision, integrated soft-temperature control of heating zones
- High operational availability due to powerful diagnostic tools (e.g. actual and historical alarming and trending etc.)
- Remote assistance via internet connection
- Network connections (CAN, VARAN-bus) of frequency inverters, servo controllers, remote I/O's for high performance and real-time positioning of moving axis

Meaf worldwide



Sheet Extrusion



Thermoforming



Vacuumforming



Auxiliaries



Custom Engineering



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