COLLIN®

TEACH-LINE®

Laboratory and pilot plants for polymer processing

The series of very compact machines for polymer evaluation

TEACH-LINE® is a new line of extremely compact table-top machines for the processing of polymers being designed especially for education and training. A multitude of discontinuous and continuous polymer processing methods can be simulated in a simple way.

However, in research and development, when working with small samples, these machines can be used successfully as well.

The special feature is that complete production lines can be built up, for instance for the manufacture of pellets, blown film, cast film or sheets and tubing as well as stretched films. All modules are matching in design, output and overall height thus enabling very rapid changeovers.

The outstanding feature of the TEACH-LINE® is the interconnected design.

The electric drive and the controls are built into the substructure of the machines. An ergonomically designed, angled control panel enables the instruments and controls to be used in the best possible way. On top of the substructure you will find the drive and the processing unit of the different machines.

In spite of extremely small dimensions, the machines show the well known advantages of bigger testing and pilot machines namely solid dimensioning for a long working life and excellent engineering for the production of perfect test samples.

The following lines are available at present:

- Table-top Extruders E 16 T and E 20 T
- Extruder E 20 TH
- Blown-Film Take-off BL 50 T
- Tube Calibrating and Haul-off Winder BAW 130 T
- Chill-Roll CR 72 T
- Mono-Axial Stretching Unit MDO-AT and MDO-BT
- Chill-Roll CR 144 T
- Extruder with Melt Pump and Pressure Filter Test FT-MP-IS
- Table-top Compounder ZK 25 T
- Strand Pelletizer CSG 171 T
- Table-top Platen Press P 200 T
- Table-top Roll Mill W 100 T

Table-top Extruders E 16 T und E 20 T

The single-screw extruder is the standard unit for the continuous plastifcation of polymers.
The newly designed table-top machines combine high processing variability and exact control and adjustment of all parameters. The ergonomic design allows optimal operation.
The extruders of the TEACH-LINE® series having an out-put of between 50 and 3000 g/h are the ideal tool for training and science as well as for research for the testing of new materials in small batches.
SCD control: A new microprocessor control allows exact and extremely easy setting of all parameters.

Extruder E 20 TH

The extruder is a special design with separate electric cabinet.
The extruder is mounted to allow for both rotation and height adjustment.
The design has a very small footprint and is therefore the ideal machine to build up 3-, 5- or 7-layer co-extrusion lines.
This type of extruder can also be combined with the bigger Extruders Type E or P of the series of pilot machines.

Blown-Film Take-off BL 50 T

The new Blown-Film Take-off BL 50 T is a compact easy to use unit for the production of blown film made of all commercially available polymers. Special features are an adjustable height for the nip-rolls, an individually driven winder and a cooling fan integrated into the control panel. The control panel contains all operating and operator's controls. A blown film die (up to a diameter of 30 mm) with optimised melt flow and a cooling ring with adjustable gap guarantee extremely thin and even blown film.
Co-extrusion: Multi-layer blown film dies are used for the production of barrier film for the packaging range or other technical films.

Vacuum-Calibration Tank VKT 1000 T for Tubes and Haul-off with Winder BAW 130 T

The modular design enables to build up a complete tube-line, using the bench top units. Dies in Mono- or Co-extrusion design, fitted to the TEACH-LINE® Extruder feed into the Vacuum Calibration-Cooling Unit VKT 1000. Regulation of vacuum and water-throughput enable processing of a wide range of materials, diameters and speeds.

At the combined belt Haul-off and Winding Unit BAW 130 T adjustable take-off speed and force and the horizontal winder grant a very low tension wind.

Chill-Roll and Calender CR 72 T

A three-roll unit with pneumatically operated pivoted top roll allows the simulation of all known processes of cast film and sheet production:

- Smoothing or calendering of film and sheet
- Laminating of film or sheets made of different materials
- Finishing of flat film with a horizontal die
- Casting of low viscosity polymers with a vertical die.

Co-extrusion: For the production of 3 or 5-layer film and sheet we can offer

- Feedblock-systems
- Multimanifold dies.

Mono-Axial Stretching Units MDO-AT and MDO-BT

By mono-axial stretching the physical properties of polymers can be drastically changed, widening the range of applications. Not only are mechanical properties like tear strength improved, but also optical behaviour or barrier effect against vapor or gases.

A modular system has been developed for the mono axial stretching of film, strap or monofilament consisting of cooling systems for the primary product, holding back godet MDO-AT, different types of heating zones, and take-off godets with winder, Type MDO-BT.

The units can be delivered for:

a) short gap stretching of film of PE or PP

b) long gap stretching of film of PET

c) long gap stretching with heated wedge for strap or monofilament.

Chill-Roll Type CR 144 T with Gel Counter CC 30 / 30

Besides the combined calender and Chill-Roll CR 72 T, **Dr. Collin GmbH** also offers a single purpose chill-roll unit for the production of film in the range of 20 to 150 µm. Together with a two-roll take-off and a central winder this is a completely self contained unit.
By adapting the Gel Counter Unit SR 70, consisting of an intensive light source combined with a line camera with high resolution, this unit can be used very efficient for the precise evaluation of gels, fisheyes and black spots in films. The unit is also especially capable in the determination of non dispersed pigments in coloured film.

Extruder with Melt Pump E 20 T – MP

Filter Pressure Value Test FT-MP-IS (Intern. Pat. pending)

This unit is used for:

a) the extrusion with high pressure and high consistency in through-put, as in co-extrusion.

b) specifically in a new combination with an integrated screen changer and an additional pressure transducer for the so called 'filter pressure value test' (Pat. pend.).
The advantages of this test are:
- easy of use
- safe handling
- extreme fast screen changing

The Extruder E 20 T can be configured with a built-in melt pump.

Table-top Compounder ZK 25 T x 18 D or 24 D

The compounder is the universally accepted process machine for continuous blending, alloying and dispersing of polymer materials. The process can be effected by either co- or counter-rotating screws.

Tasks are for instance:
- Incorporating pigments and / or fillers
- Alloying of polymers
- Degassing of molten masses.

Axial shifting of the whole barrel unit allows simple cleaning and control of the plastification process.

We offer a complete granulating line with suitable waterbath and pelletizer.

Co-Rotating
The compounder with co-rotating screws is the standard machine for the production of batches of polyolefins and technical polymers with pigments and fillers.

Counter-Rotating
The compounder with counter-rotating screws is used when higher pressure build-up or precise residence time is required for instance for the plastification of PVC.

Strand Pelletizer CSG 171 T

The Strand Pelletizer CSG 171 T is the universal equipment for granulating 1 to 3 strands. Precise speed control, wide range adjustment, exact cutter clearance together with visual access by means of a polycarbonat cover does make this unit to be the optimal tool for granulating small batches of 0,1 to 10 kg/h.

Table-top Platen Press P 200 E

Wherever test plates are to be produced for the plastics, rubber or ceramic industries under reproducible temperature and pressure conditions, the heating / cooling press of TEACH-LINE® is the competent machine.
Laminating of different materials as well as pressing of thick plates with adequate tools are further tasks.

The optional available cassette cooling system allows extremely short cooling times and process cycles with low energy consumption.

Table-top Roll Mill W 100 T

The roll mill is a standard unit for compounding, kneading, plastification and sheeting of plastics and elastomers to form sheets.
Small batches of 30 bis 50 g allow speedy and cost-effective testing method. Good temperature constancy of the roll, high torque and a completely protected working area allow the Table-top Roll Mill W 100 T to be the ideal instrument for training and for testing of small batches.

Represented by:

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