COLLIN

LAB & PILOT SOLUTIONS

LAB LINE

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PLATEN PRESSES

Laboratory platen presses are used in the manufacturing of polymer sheets for optical and physical tests of moulded forms. Depending on the requirements, these machines are also suitable for composites, components or for embossing. The wide variety of products allows Collin to deliver the right solution for each application.

Presses E

P 200 E, P 200 E air, P 300 E, P 300 E air, P 400 E, P 500 E, P 200 E+, P 300 E+ und P 400 E+

The Type E series platen presses is the entrance version among Collin pres-ses. As a 4-column design with a fixed, upper counter-plate and moveable, lower platen, Collin presses cover an enormous range of pressure. The big distance between the columns creates ideal opportunities to act within the interior of the press. The Type E+ has a special control with touch, which allows temperature ramps.

- Presses P 200 E to P 400 E: single-stage hydraulic with double-acting hydraulic cylinder
- Exception Press Type Air: the Collin pneumatic press for lowest pressure and very high accuracy
- Press materials: Processing of polymer materials, ceramic materials, composites and further specialities within a temperature range from 20°C to 300°C
- With the E+ presses, the cooling ramp specified in the Test Standard ASTM D4703-2016 can be met. Moreover, the E+ presses offer more sensitive hydraulics and a more accurate pressure range can be achieved. In addition 10 program steps and a graphic representation of the process.

Presses S, SV

P 200 S, P 300 S, P 400 S, P 500 S
P 200 SV, P 300 SV, P 400 SV, P 500 SV

Press Type S particularly convinces with its quiet hydraulic aggregate, which does not run constantly. Moreover, no oil cooler is needed, resulting in a lower consumption of cooling water. Another advantage is the vertically moveable, ergonomic door. Optically, the Press Type S impresses with its futuristic, reduced design.

- High pressure accuracy +/- 0.5 bar
- Very high temperature accuracy across the plate surface
- High-precision regulation of the temperature and pressure ramps
- Reduced energy consumption of the motor
- Can be used within a temperature range from 20 to 300°C, optionally up to 450°C
- User-friendly via touch-screen control
- Also available with vacuum chamber (Type SV)

EXTRUDERS

Collin has more than 45 years of experience in the manufacture of single screw extruders. This expertise is always up to date with the latest technology and influences the ongoing development of the extruders. Particularly in the recent years, Collin has developed two extruder lines based on the different needs of the customers – the E and P series.

Extruders E

E 12 E, E 16 E, E 20 E, E 25 E, E 30 E, E 45 E

The Type E series extruder is the entrance version of the Collin extruders. Designed for laboratory operations and test runs in R&D, the compact systems are a cost-effective alternative to the Type P Professional series extruder.

The extruder is assembled on a moveable electric cabinet which includes the power electronics, connections and the main switch. The Collin E series extruders can especially be used for polyolefins and several technical polymers (without abrasive, corrosive fillers).

- Useful alternative for laboratory and test runs
- Different sizes for different requirements
- Various follow up systems – depending on requirements – are possible
- Very good handling due to compact design

Extruders P

E 12 P, E 16 P, E 20 P, E 25 P, E 30 P, E 45 P, E 60 P

Powered by an innovative compact gear motor, the Type P series extruders, whose drive electronics and control are directly integrated in the base of the device, can be used in a variety of ways: for R&D or production. Modularity is experienced with the P series extruders. Different kinds of downstream equipment can be connected and numerous additional options as well as features are possible depending on the requirements of the customer.

- Abundance of options for use and extension
- Very good handling due to compact design
- Optimal operation via touch-screen control
- Ideal for multi-layer lines as the different downstream equipment can be adjusted individually
- The extruders can nearly be adapted to any extrusion task

Collin also offers extruders for the processing of rubber and ceramic which can be built according to specific customer requirements.

The high speed machines of the Type T extruder (Pilot Line) series combine the advantages of Type P, however, due to the highly increased speed and simultaneously high drive torque, they reach an essentially higher output. Particularly the development of the screw geometry and the feeder for the high speed extruder require enormous technical expertise.

COMPOUNDERS

Compounders are used for continuous plasticising, mixing and dispersing, but also for alloying, degassing and chemical conversion or degradation. In this field, Collin provides maximum standards for technology and quality.

Compounders E

ZK 16 E, ZK 25 E

The Collin Compounder Type E Entrance is perfectly suitable for easy compounding tasks. The free-standing machine can connect different polymers in various ways and is very flexible when it comes to dosing – side feeders, volumetric or gravimetric dosing units. The compounder also shows flexibility with the downstream equipment, which can range from a water bath or pelletizer to a small blown film line or cast film line.

Technical data

- Processing length 36 or 42 x D
- Throughput: approx. 0.5 - 15 kg/h
- Standard sub cabinet on rollers
- Co-rotating screws and counter-rotating screws possible

Compounders P

ZK 25 P, ZK 35 P

The ergonomic operation and the modular design are characteristic for Collin and allow for co-rotating and counter-rotating operation of the compounders. It is possible to flexibly combine cylinders, screws and processing length.

The cylinder segments are located on a slide rail and can be moved, either manually or electrically. Advantages are the fast cleaning processes and the quick material changes.

Collin compounders are also available as high-temperature version for processing temperatures up to 450°C.

Torque: up to 300 Nm/screw (ZK 35 P)
Speed: up to 1200 Um/min

CALENDERS

Calenders are normally used for the continuous production of semi-finished, thermoplastic films or the continuous finishing of different films and surfaces. An extremely variable, modular system allows for adapting calender units to a wide range of requirements. With 2-roll or 3-roll calenders, many different configurations can be achieved.

Calenders CL

CL 144/144/144-400 E, CL 144/144/144-600 E, CL 168/168/168-400 P, CL 168/168/168-600 P, CL 168/250/250-400 P, CL 168/250/250-600 P

Laboratory calenders help in developing continuous processes. They are suitable for the production of films and sheets with different kinds of layer thickness made from different polymer materials such as PVC, polyolefins, PU, etc. The Collin calenders are available with roll diameters of 144 mm, 250 mm or bigger. Special products adapted to process conditions are the standard for Collin.

2-roll and 3-roll calenders for high precision films
For the production of films with extremely low wall thickness tolerance. The gaps between the rolls can be measured or controlled with lowest tolerance and high measuring accuracy.

Laminating calender
Collin calenders are used in the finishing of films and sheets by lamination or contact lamination. Complete lines can be laid out:
Take-off – Pre-treatment – Pre-heating – Calendering – Finishing – Laminating – Cooling – Cutting – Winding

Finishing calender
The finishing calender is used for smoothing thick-walled films or sheets, or for embossing, coating and laminating. A swivelling and height adjustable group of three rolls allows for adjustment to all usual processing techniques. Apart from heating with hot water or oil, electrical roll heating up to 450°C is also possible.

ROLL MILLS

With laboratory roll mills, quality and processing features of polymer material can be tested by discontinuously plasticising, mixing or kneading. The roll mills from Collin set standards when it comes to accuracy and reliability in processing rubber, ceramic or special materials.

Roll mills E, ER

W 110 E, W 150 E, W 110 ER, W 150 ER

The customers of Collin use the laboratory roll mills of the more cost-effective E Entrance series which is used as training machine for examining small quantities, for routine operations or for testing thermoplastics as well as elastomers (ER version).

The roll mills are used for mixing, plasticising, kneading or laminating of plastics and are simple roll mills with manual gap adjustment. This is why the E for Entrance series exists as useful alternative for laboratory and pilot tests.

- Cost-effective series
- Perfect machine for routine operations in the laboratory
- Stand-alone use
- Practical handling due to the design

Roll mills ER
Stronger drives ensure that elastomers can be processed. The gap adjustment is done manually.

Roll mills P, PR

W 110 P, W 150 P, W 150 PR

The P series roll mills feature very high reproducibility and are designed for demanding laboratory tests. In order to mix, plasticise, knead or laminate plastics, the Collin test roll mills are equipped with a motor-driven gap adjustment. Optionally, Collin also delivers gap measurements and controls.
The roll mill can be laid out at high temperatures of up to 450°C.

- Perfect for more demanding laboratory tests
- Very good reproducibility plus log data
- Stand-alone use or as downstream equipment

Roll mills PR
Stronger drives ensure that elastomers can be processed. Motor-driven gap adjustment.

Roll mills M

W 150 M, W 200 M

M roll mills are essential for all processes in the development and production control.

The setting accuracy for sizes and the large number of integrated measuring instruments allow for a reproducible determination of characteristic material data, which supports the perfect creation of setting parameters for all production machines.

Optionally, gap measurements and regulations as well as layout at high temperatures of up to 450°C are possible.

BLOWN FILM LINES

Blown film lines of Collin are used in various ways: Function tests of polymers and compounds, development of multi-layer films, quality control of the color distribution or detection of defects, control of the dispersing behaviour of compounds and extruders as well as the production of small film hoses in the food and medical sector.

Blown film lines E (air-cooled)

BL 400 E

The version Blown Film Line E is the entrance version and is particularly used for quality control. This line has got a central column with a fixed overall height and a simple mono cooling ring.

Blown film lines P (air-cooled)

BL 400 P, BL 600 P

The unit features a compact design with a small stand space. It is easy to operate and provides precise, repeatable movements and a quick change between products and parameters. Mono or dual-lip cooling rings and a closed loop of the lay-flat width guarantee reliable quality. The laboratory line can be used as continuous quality control via a Collin online rheometer or the optical film control COFIS (Collin Film Inspection System).

Multi-layer Blown Film Extrusion Line

The modular system of Collin allows for the configuration of lines with up to 13 extruders and the corresponding screw diameter. The machines can be equipped with melt pumps or gravimetric dosing to ensure that the necessary wall thickness proportions are observed.

Blown film dies

Mono-blown film dies and multi-layer blown film dies Type RW 40, RW 80, RW 120, AW Mono

Mono-blown film dies are available with axial or radial spiral mandrel distributor, depending on application and expandability.

Multi-layer dies for 2 up to 13 layers are suitable for many different numbers of layers. For these processes, Collin provides dies with radial spiral mandrel distributor and matching mandrels and female dies. The retrofit between different layers is easy and quick – e.g. from 3 layers to 5 layers.

Blown film lines P (water-cooled)

WBL 400 P, WBL 600 P

These lines are designed for the production of films. The radial distribution system provides accurate thickness distribution, the vertical extrusion in a water cooling ring guarantees optimal transparency of films.

Several extruders in an elevated position discharge into a multi-layer die. The hose is guided downwards into a water cooling ring. After that, it is laid flat, dried if necessary, positioned or cut and then wound on rolls.

Advantages of the procedure

- From the production of the hose up to the welding of the bag, the inner surface of the bag remains clean.
- By shock-cooling, the clearness of the PP compound is reached.
- A material with even orientation is produced.
- By selecting suitable materials for the different layers, desired characteristics are optimally adapted to the requirements.

FLAT FILM LINES

The Collin lines include a variety of options for smoothing, embossing and laminating and are particularly used for the production of films or sheets.

Flat film lines with two rolls

CR 144/144-200 XS, CR 144/144-200, CR 144/144-400, CR 250/250-400, CR 250/250-600

The base unit consists of two horizontally arranged chill rolls, suitable for cast films within a thickness range from 20 to 300 µm. Collin adapts the speed and roll-diameter of the chill rolls according to the customer‘s needs. Downstream equipment can also be implemented flexibly – depending on the requirements, different types of take-off rolls, edge cuttings, measuring instruments or unwinders and winders.

Flat film lines with three rolls

CR 72/144/72-200, CR 72/144/72-200 Air, CR 72/144/72-400, CR 72/144/72-400 Air, CR 72/144/144-200, CR 72/144/144-400

These versions combine finishing calender and the chill roll and are used for the production of thin-walled or double-wall films. The 3-roll unit can be used for vertical or horizontal operation. The forces in the polishing gap can be created in a hydraulic or pneumatic way. The polishing roll is suitable for a wide range of applications such as smoothing, embossing or laminating.

Multifunctional coating lines

MF 250/144/126-400, MF 400/144/126-400, MF 400/144/126-500

Multifunctional coating lines are used in the packaging sector, helping to produce polymer composites with carrier materials such as paper, textile, fleece or aluminium. The system allows for integrating different additional devices, e.g. corona pretreatment, application of glue, IR-oven or further unwinders.

Custom-made solutions can be delivered for the following applications:

- Flat film extrusion
- Extrusion coating
- Laminating

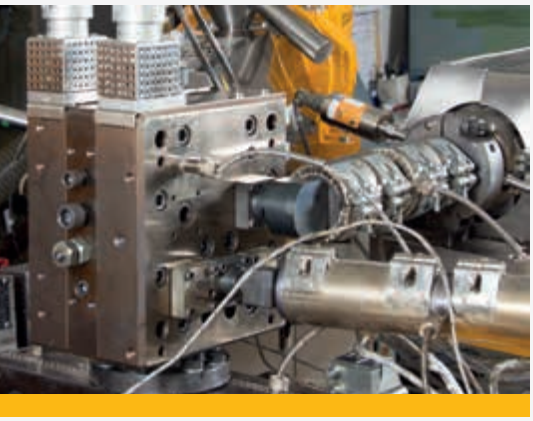
Flat film dies

BSD 150 to BSD 500 with a width grading of 50 mm

- Available with flexlip from 150 mm, gap adjustment via tractive pressure screws
- Manually adjustable gap
- Coat hanger distributor
- Prepared for co-extrusion
- Available as high temperature version
- Die lip heating and side jaw heating optional
- Multi-distributor optional
- Dies with small gaps (<150 µm) on request.

Feedblock

FB 40



- The flow-optimised feedblock represents excellent layer thickness distribution
- Up to 13 layers possible
- Extremely compact design and shape
- Very short purging times allow for quick materials changes

Stretching lines

MDO single 400, MDO single 600, MDO dual 400, MDO dual 600

The stretching of polymer films improves their characteristics in a variety of ways. Collin stretching lines consist of an extrusion group, the stretching unit, take-off and winder. These lines are used for quality control and the development of new products and processes. They can also be used in the production of narrow films.

The machines also show high variability by the option of one or two stretching gaps. The film can easily and manually be pulled in due to the compact design.

Stretching Frames

Stretcher 5-750, Stretcher 7-750, Stretcher 9-750

Stretching frames are used for the biaxial stretching of plastic films. It is particularly worth mentioning that these machines were specifically designed for a film thickness of up to 3.5 mm and stretching at temperatures of up to 400°C.

The touch screen control allows for the programming of many different stretching sequences with heating and cooling cycles, which can additionally be taken into account. This makes it possible to accurately duplicate production processes.

The control system records all machine and process parameters and also automatically provides test reports.

Winders

W 200 E central, W 400 E central, W 600 E central,
W 400 E contact, W 600 E contact, W 400 E gap, W 600 E gap

Winders are available in many different designs, and all winders are designed for the respective web speed:

1. Simple contact or central winder (with or without roller way)

2. Winder centrally powered by a lay-on roller

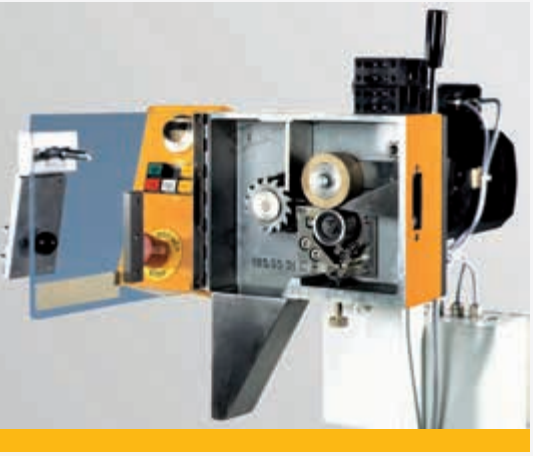
3. Winder with a contact slide:
   There are three options of winding with this winder unit – central winding, contact winding with adjustable pressure and gap winders with an adjustable gap (0 - 30 mm)

PELLETIZERS

The Collin pelletizers are responsible for the optimal cutting process during the production of different pellet geometries. The machines feature a huge control range for the take-off speed and the fine adjustment option of the cutting distance.

Strand pelletizers

SP 1, SP 2, SP max, UWP, AP



SP 1: The basic system has a drive for a pre-defined pellet length of about 3 mm.
SP 2: Two independent, variable drives allow for infinitively setting the pellet length from 0.8 to 5 mm.
SP max: These winders are laid out for higher take-off speeds and more than two strands.

Optionally, Collin also offers underwater pelletizing.

Underwater pelletizing systems

With this system, the polymer is directly cut at the die plate under water. With the water, the pellets are transported into the drying system in which the water is separated from the pellets. The water system is tempered in order to allow a constant process. The system includes die plate, cutting device and tempered water system. As option, Collin offers a polymer diverter valve. The complete unit is mounted on a moveable frame and can easily be connected to the extruder with a C-clamp. The die plate can be delivered with different die designs and heatings.

Characteristics

- Wide range of viscosity can be pelletized
- Less dust
- Micropellets are possible
- Low noise level

Die face pelletizer

With this system, the polymer is directly cut at the outlet of the die plate. Compared with the underwater pelletizing system, here, Collin uses a blower for generating an airstream for transporting the pellets into a cyclone. The system includes die plate, cutting device and cyclone. The complete unit is mounted on a moveable frame and can easily be connected to the extruder with a C-clamp.

Characteristics

- Compact system
- Low operating pressure
- Easy and quick cleaning

Water baths

WB 1000, WB 1500, WB 2000, WB 3000

Water baths are available with standard lengths of 1000 mm, 1500 mm, 2000 mm and 3000 mm as well as with individual length on demand.

Multi-filament lines

MF 1000

The multi-filament line MF 1000 is an ideal system for testing and developing multi-filament fibres. The performance of this compact, modular line is laid out in a way that makes it suitable for pilot production as well as production processes.

Thanks to very short cleaning cycles, the system is extremely economical, even with frequent material changes. The swivelling safety cover guarantees a high level of security for the operator and also reduces the noise level. High-performance machine components, which can also be found with production machines, allow for using the results to transfer them unto the production lines.

The standard speed is up to 1000 m/min.

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