COLLIN

Laboratory machines for the
processing of polymers

Elastomer extruders E 30 G, E 45 G
Ceramics extruders E 30 K, E 40 K

The versatile machines for processing elastic, adhesive or past-like products formed as strands or with bad free-flowing properties.

The high-performance machine for

- **elastomer and silicone processing**
- **processing of ceramic compounds**
- **co-extrusion of elastomer profiles and pipes**

Elastomer extruders E 30 G and E 45 G
Ceramics extruders E 30 K and E 40 K

Elastomer extruders

Elastomer
An almost unlimited number of elastomers and compounds can be used e.g. for:
- single and multi-layer tubes
- single and multi-layer profiles

Silicone
Development of tubes and profiles with high durability and inert performance as in:
- process engineering
- food engineering
- medical engineering

Ceramic
Development of ceramic compounds e.g. for :
- consumer goods
- high-performance industrial goods
- catalytic compounds used in the automotive industry

Extruder for Elastomers

The extruder consists of a drive unit which is mounted on the electric cabinet base. The processing unit is directly connected to the bearing assembly. Both the barrel and the screw are designed with temperature control by means of a heating-cooling fluid, therefore allowing precise control of the temperature.
Dies can be connected to the extruder by means of a quick-change C-clamp as required.
The operating panel of the electric control unit is mounted in an ergonomic position above the extruder in a swivel-hinged housing. It contains all elements for temperature and screw speed control and operation.
The multi-circuit control system enables the measurement and control of the screw speed, melt pressure and melt temperature.

Ceramics extruders

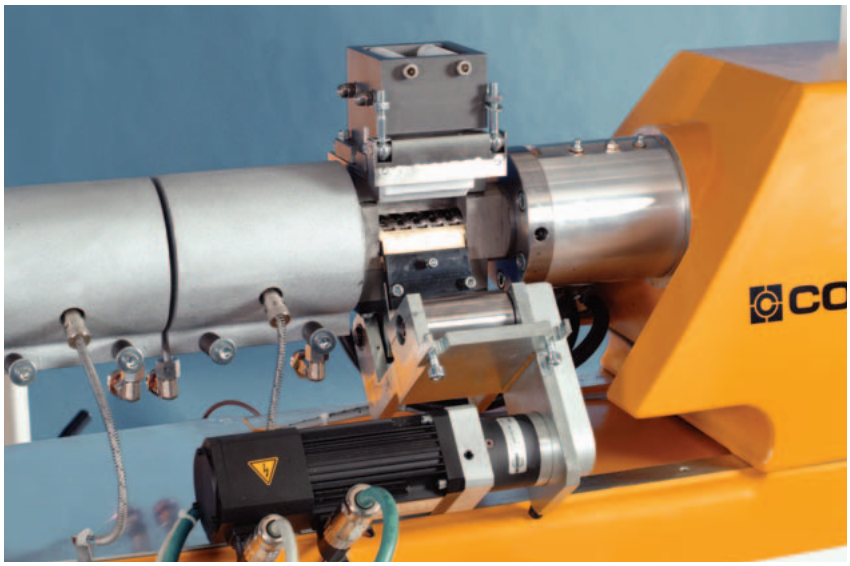
This model has the advantage of highly abrasion-resistant materials being used for both the screw and the barrel.
The screw geometry is adapted to the processing requirements. Die adaptors for different numbers and shapes of strands or profiles are available.

Extruder for Elastomer E 30 G with hydraulically adjustable working height

Feed roll

A feed roll with an independent drive is a characteristic element in extruders processing elastomer material.
It allows force-feeding materials with poor flow properties or adhesive materials to ensure a constant production without interruption.

The roll is driven independently in order to allow an optimisation of its friction relative to the screw.
The feed roll with drive can be opened downwards to facilitate cleaning and adjustment of the gap.



Swing-out feed roll with drive

Extruder with vacuum section

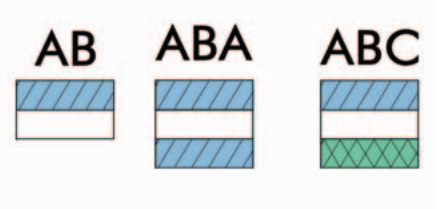
Extended to 20 D, this extruder allows the integration of a vacuum section. The vacuum section extracts gas or vapours from the melt to ensure a void-free product.
A strand shaped melt is produced within the degassing zone with help of a specially designed screw profile.

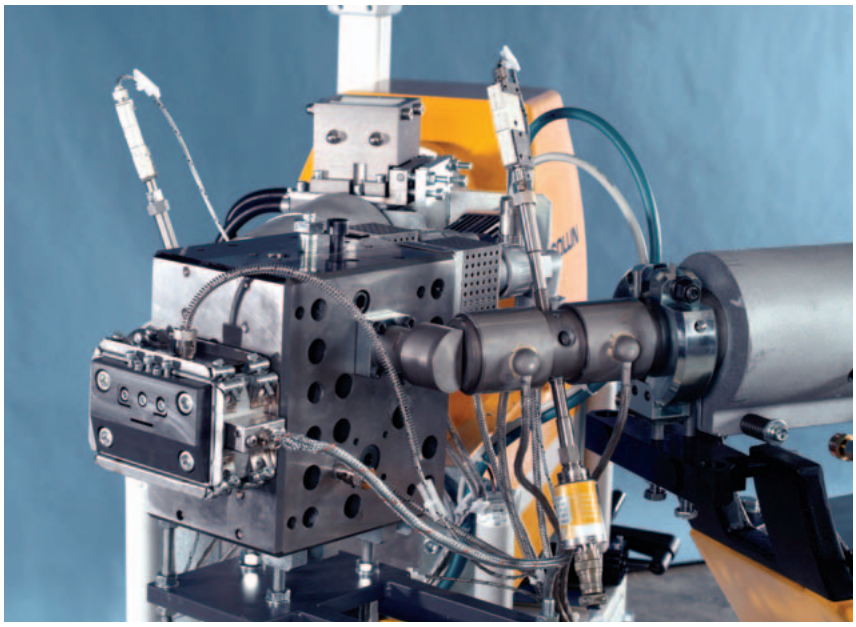
Extruder for Elastomer E 30 G x 20 D with feed roll and degassing zone

Co-extrusion of multi-layer elastomer profiles

A newly-developed **COLLIN** multi-layer die allows the production of two-layer to three-layer flat film profiles with a combination of AB, ABA or ABC layers. Quick-change dies speed up the adaptation to suit the required dimensions.

Dies and lines for the production of multi-layer pipes are also available.





3-layer die for AB, ABA or ABC profiles

Line for the production of multi-layer flat profiles

Elastomer extruders Ø 45 mm x 12 to 24 D

- with variable length
- with motor-driven travelling barrel

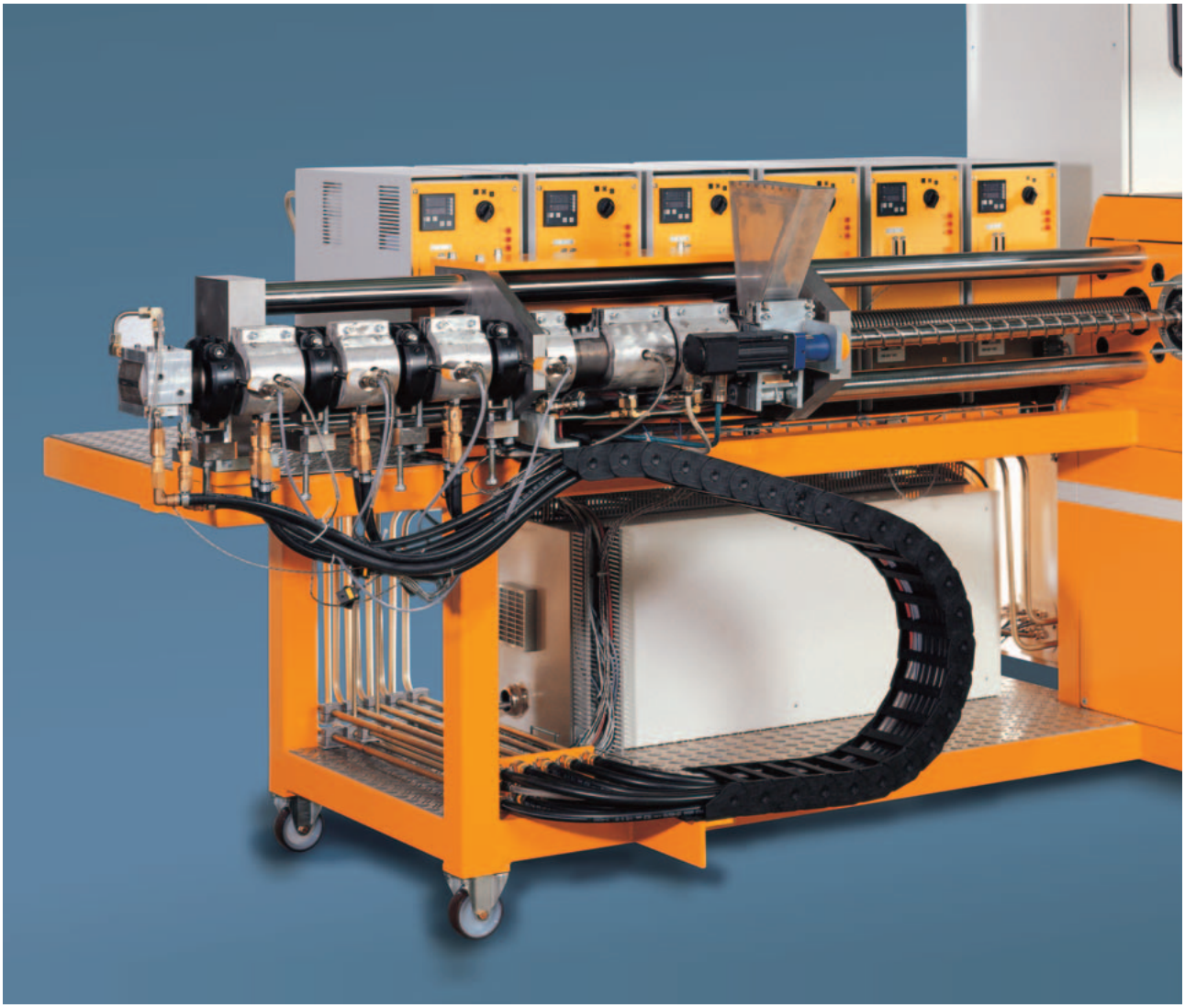
Application
Ideal machine for research and development in the elastomer sector.

Variable length
A basic barrel section of 12 D with a venting zone is suitable for processing standard formulations.
3 barrel extensions of 4 D each can be used to increase the processing length to 16, 20 or 24 D.

Motor-driven travelling barrel
The barrel is moved with the aid of the large motor-driven thrust shaft at a shear force of 20 t.
The full barrel can thus travel forward so that the processing state of the screws can be inspected.
The picture on the cover page shows a barrel in working position.

Temperature control
Precise temperature control of the different barrel sections and screw by means of hot-water heating.

Feed roll
A separately driven feed roll can be adjusted to change the feed characteristics by selecting positive or negative friction on the screw shaft.



Extruder 45 mm Ø x 12 to 24 D in opened position

Measuring devices

In addition to measuring the melt pressure and the temperature in all barrel sections, **COLLIN** also supplies devices for measuring the screw torque. The drive is mounted on a rocker arm and supported by a force transducer on the machine frame.

This device enables extremely precise measurement of the real screw torque.

Material feed

The material feed can be adapted to suit different raw material grades. The machine can be fitted with a variety of hoppers for pellets and powder or with guide idler rollers for feeding tape.

Hopper for dosing pellets

Guide idler rollers for feeding tape

Technical Specification

Extruder size		E 30 G/K	E 40 K	E 45 G
Screws Ø	(mm)	30	40	45
Processing length	(LD)	12	10	12/16/20/24
Processing length with venting zone	(LD)	20	20	24
Screw speed	(rpm)	10-120	10-120	5-60
Drive load	(kW)	5	4,3	18,8
Temperature control medium		Hot water	Hot water	Hot water
Torque	(Nm)	378	327	2835
Weight	(kg)	375	400	1300
Dimensions LHD	(mm)	1160x1700x600	1290x1700x600	2950x2000x1440

Subject to technical changes

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