Bench Top Compounder ZK 25 T x 18/24 D

Mixing, kneading and extrusion of small batches

Application

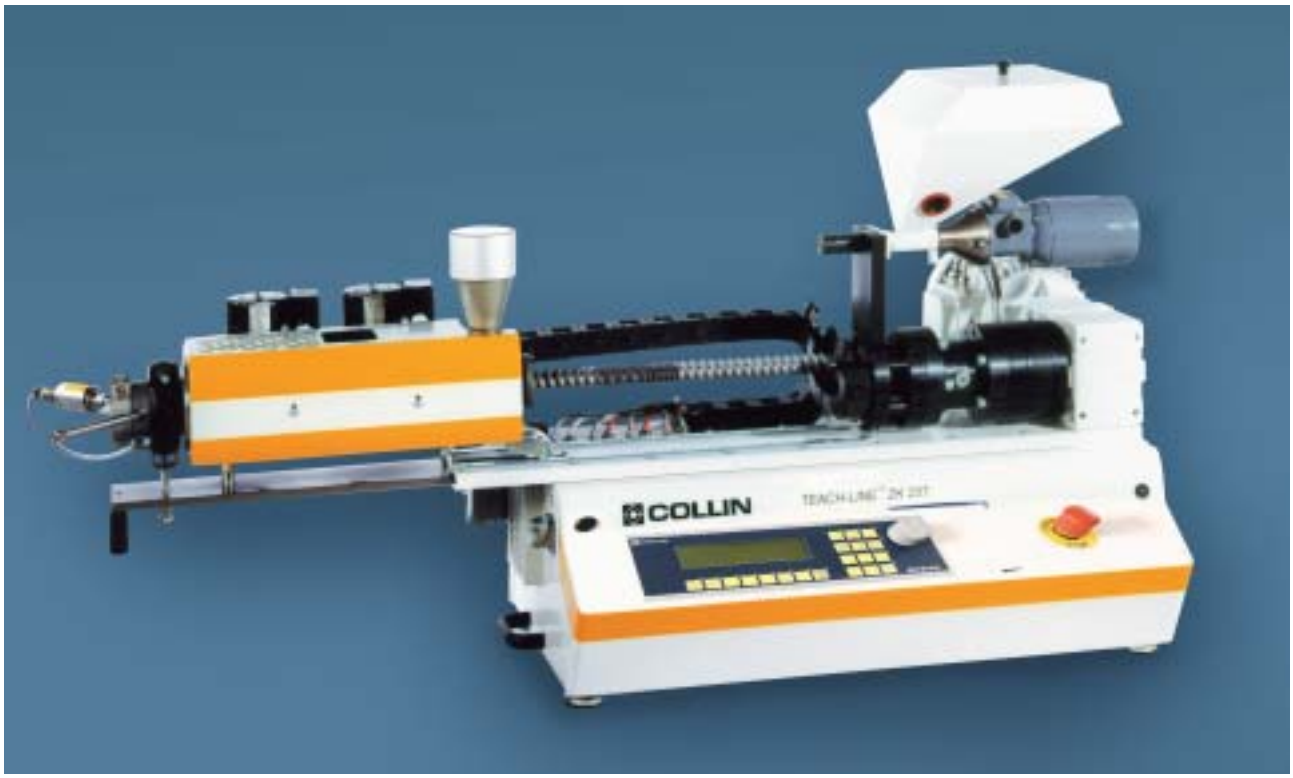
The Bench Top Compounder ZK 25 T is a universally applicable machine for the research and testing of polymers. Typical tasks are:

- Incorporation of pigments
- Introducing fillers
- Alloying different polymers
- Degassing melts

In addition to its suitability for training purposes, the compounder is the ideal unit for development and test tasks where small batches are a prime consideration.

Special features

- Capable of being configured as a co-rotating or counter-rotating unit
- Sliding barrel for examination of melt or fast cleaning
- Large diameter feedscrews to enable easy feeding of standard pellets
- Low “free-space“ due to short installed length
- Modular design for screws and barrels



Bench Top Compounder ZK 25 T x 18 D with barrel slid forward for screw cleaning.

Design details

The Bench Top Compounder ZK 25 T consists of
- a processing unit with drive,
- mounted on its electrical cabinet.

Drive
A three-phase motor drives the distributor gear unit via a bevel gear reducer. Flanged onto is the processing unit with 3/4 barrel segments, hopper, water-cooled inlet zone, 3/4 heating and 2/3 cooling and barrel cover providing protection against contact with hot machine parts.
All the dies in the **COLLIN** extrusion range can be connected to the barrel enabling the setting up of complete pelletizing or extrusion lines.

Control cabinet
The electrical controller, the frequency converter for the drive, temperature controller and melt pressure measurement are mounted within the machine substructure.
The ergonomically designed operating panel contains the multi-functional control surface with display, operating buttons and data wheel for pre-setting the set value.

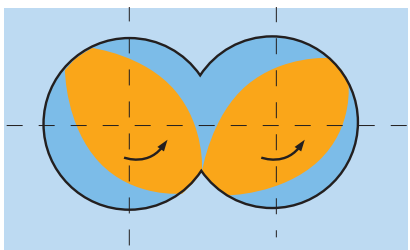
Distributor gear

The distributor gear is directly flange-joined to the drive unit. The gear supports the two drive shafts with tandem roller bearings and a thrust roller bearing.
The important aspect of this feature is the ease of
- **fast machine conversion from co-rotating operation to counter-rotating operation.**

This means that all techniques of twin screw extrusion used in practice can be applied.

Co-rotation operation

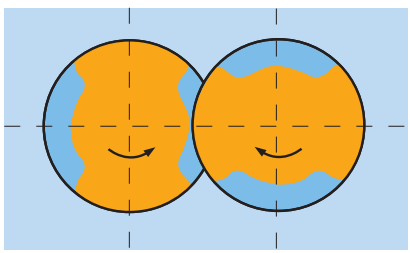
The co-rotation system is used for compounding polyolefins and technical polymers.



Co-rotation pair of screws

Counter-rotating operation

... is used for generating higher melt pressures and for processing PVC, because of better-defined residence time.



Counter-rotating pair of screws

Barrels

Interchangeable barrel elements, each of 6 D length in nitrided steel, are flange-joined to the bearing system.
They are held together by conical clamp joints (C clamp); tie rods are therefore not needed.
The following barrel elements are mounted:

- Feeding section with 6 D length, with intensive water cooling, circular feed inlet, supply hopper in stainless steel and an electric heaterband
- Side feeding section 6 D length, or above opened cylinder for split feed working procedure.
- Degassing section 6 D length, electrically heated and air cooled (fan) with vent opening for mounting a degassing adapter.
- Non-vented barrel section of 6 D length, electrically heated and cooling via a mounted fan.
- End flange with transition from the barrel cross-section to a single circular hole. Here, other dies can be flange-joined, such as strand dies, flat-film dies or strip dies.

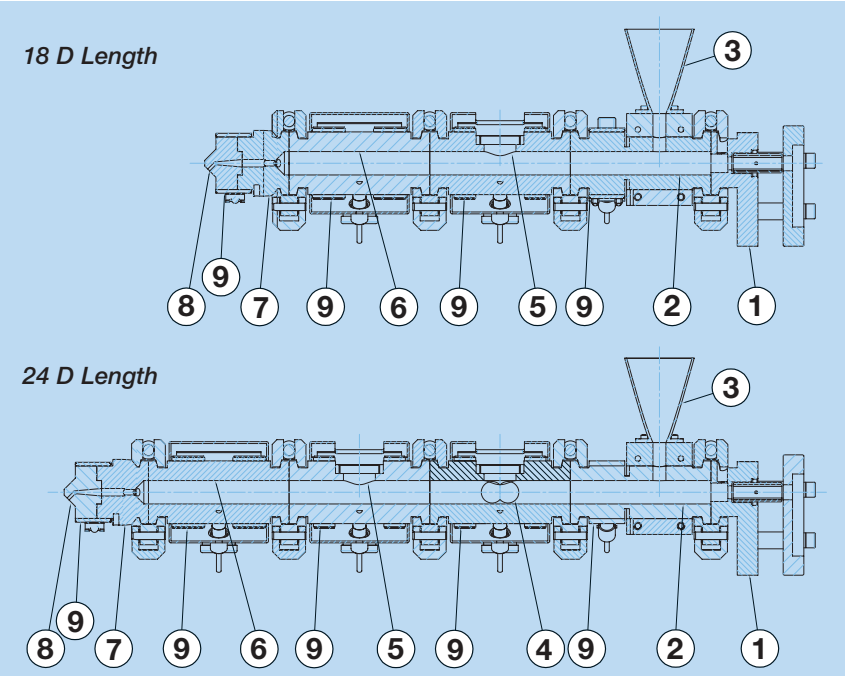
Barrel support

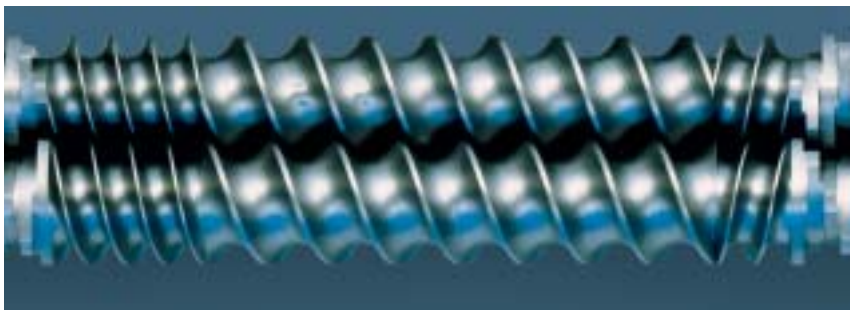
The barrel segments are supported on a manually operated slide.
Once the C-flange on the bearing system has been opened it enables easy movement of the complete barrel unit.
This system offers easy and quick cleaning of the screws, screw exchange and examination of the polymer mass along the length of the screws.

Screws 25 mm diam. x 18 D
Screws 25 mm diam. x 24 D

The screws are designed and constructed in a modular form.
Depending on the task in hand, the various screw elements are combined together on a central shaft.
Screw elements with various pitches and lengths as well as different actions are available. The following illustrations show examples of some of the screw geometries in use.

Picture caption:
1: Coupling flange
2: Feeding section
3: Hopper
4: Side feeding section
5: Venting section
6: non-vented section
7: End flange
8: Die
9: Heaters





Co-rotating set of screws

Counter-rotating set of screws for kneading

BENCH TOP COMPOUNDER ZK 25 T

COLLIN

Compounder ZK 25 T x 18 D with Waterbath WB 850 T and Pelletizer CSG 171 T; volumetric feeding for the main feeding part, gravimetric feeding for the side-feeder.

Technical data

Screw diam.	25 mm
Screw length	18 x D / 24 x D
Drive power	2,5 kW
Screw speed	5 - 200 rpm
Screw torque	2 x 44 Nm
Max. throughput (LDPE)	0,3 - 5,0 kg/h
Power rating, kneader only	8,2 kW / 9,2 kW
Required electrical connection	3 x 400/230 V, 50/60 Hz
Required electrical network	L1; L2; L3; N; PE
Type of network	TN-S network
Fuses	3 x 16 A
Connection for cooling water, inlet/outlet	Hose connector 8 mm
Water consumption	Approx. 3 ltr/min
Centre height of screw	375 mm
Dimensions: Length x width x height	1060 x 670 x 515 mm 1210 x 670 x 515 mm
Weight (net)	125 kg / 135 kg

Design modifications reserved.

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