



Twin Screw Extruders for Laboratory and Pilot Plant



... where quality is measured.

Twin Screw Extruders

Principle

The basic steps of compounding can perfectly be realized with co-rotating twin screw extruders. This makes modular co-rotating twin screw extruders the ideal companion for plastics from synthesis up to recycling.

Profit from the harmonized, modular conception of screws and barrels for optimally realizing all processing steps (feeding, conveying, plasticizing, dispersing, reacting, venting, pressure build-up).

The system configuration of each model can easily be adapted to the individual processing task - anytime and at low cost.

Or combine several processing steps within a continuously working extruder and use your **Brabender®** twin screw extruder as a modern in-line compounder.

Depending on the extruder size, on the material to be tested, and on the processing task, throughputs up to 60 kg/h can be reached. This opens up the entire application range to these extruders - from material development up to small-scale production of sheets and films.

Of course, the necessary additional equipment like measuring and control units or metering systems (gravimetric, volumetric, liquid) as well as down-stream equipment is available, too, allowing for modular setup of complete extrusion lines.

Expansion is possible whenever needed.

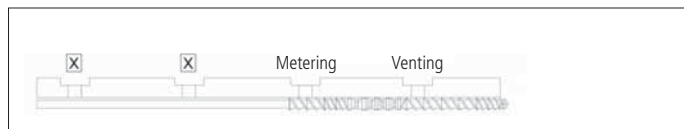
Advantages

Intermeshing co-rotating twin screw extruders stand out for decisive processing features:

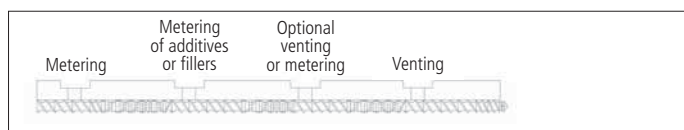
- Good feeding characteristics, even with materials with poor flow properties
- High conveying constancy without pulsation or irregular thermal loads
- Narrow residence time spectrum of the melt within the screw area
- Constantly high quality of the extrudate
- High output at long energy transfer
- High energy input as compared to the free screw volume
- Well-defined plastification time and purposive shearing
- Gentle mixing at low energy input and high-quality homogenization
- Gentle material treatment without temperature peaks even at high speed
- Variable shearing by using mixing and kneading elements
- Kneading blocks with different disk widths and offset angles
- Good control of the pressure in the melt for optimum venting
- Self-cleaning of the screws by intermeshing flights

Application

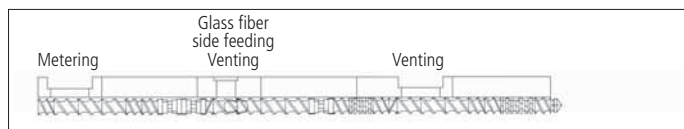
TSE 20 x 40 used as a 20 D Venting of polyethylene / polypropylene



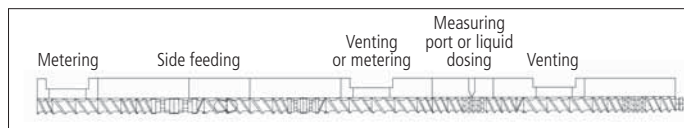
TSE 20 x 40 D Blending of a polyphenylene oxide



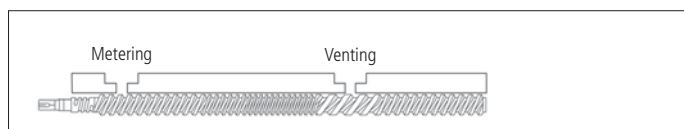
TSE 25 x 32 D Glass reinforcement of polyamide 6.6



TSE 25 x 42 D Peroxide cross-linking of polyethylene



Standard screw



CTSE





Twin Screw Extruder TSE 20/40 D

The TSE 20 is available with barrel length of 40 D. In the 40 D version, the barrel length can be reduced to 30 or 20 D by means of a distance sleeve in the screw configuration to easily adapt your extruder to the individual processing task.

Metering and/or vent ports can be installed every 10 D. For this purpose, the barrel is equipped with 4 ports which can be closed. Furthermore, side feeding is possible.

The barrel of the TSE 20 is divided horizontally and can be tilted open on both sides. This allows visual assessment of individual processing steps and makes this extruder particularly suited for application in research and development.

This extruder is also available as stand-alone version.

Twin Screw Extruder TSE 25/16 - 54 D

Due to its segmented barrel design allowing for processing lengths of 16 up to 54 D, the TSE 25 is the all-rounder among the Brabender® twin screw extruders. Use it as a pilot plant, for recipe development, as an in-line compounder or for small-scale production - there are no limits.

Short barrel lengths are conceived for one- or two-step processing

(e.g. metering and venting), where as complex tasks require barrel lengths of 42 D or more (examples).

A large program of additional equipment, e.g. volumetric or gravimetric metering and liquid dosing systems, is available to meet every requirement.



TSE 20/40 D with opened barrel

	TSE 20	TSE 25 ¹
Screw diameter [mm]	20	25
Screw length [L:D]	40 D	16-54 D
Flight depth [mm]	3.75	4
Screw speed max. [min ⁻¹]	1200	700
Screw torque [Nm]	2x40	2x90
Operating temperature max. [°C]	450	400 (450)
Pressure max. [bar]	300	300
Throughputs max. [kg/h] ²	0.5 -20	0.5-40

¹ available with counter-rotation as well (different technical specification)

² depends on polymer and processing task

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Twin Screw Extruders

Twin Screw Extruder TSE 35/12 D and 35/17 D

The counter-rotating TSE 35 was conceived for processing tasks implying a high torque.

Different screw geometries are available, according to the processing task.

Its fixed processing lengths of 12 or 17 D and the available torque of

200 Nm per screw make this extruder particularly suited for one- or two-step processing of difficult material.

This extruder is supplied as counter-rotating version (option: co-rotating).



Twin Screw Extruder CTSE

Conical twin screw extruder, counter-rotating for laboratory scale production. Including venting zone and measurement of pressure /

temperature inside the cylinder and at the screw tip. There are various screw geometries available.

Brabender® support

A modern applicational laboratory is at the disposal of all customers and interested parties for trials with their own materials.

All **Brabender®** measuring systems can be tested under practice-oriented conditions.

An experienced expert team will assist the tests and will stay at your disposal at any time for further questions.



Brabender® experimental laboratory

Together, we will find the optimum solutions for your special problems and prove their suitability.

	TSE 35	CTSE
Screw diameter [mm]	35	32/20
Screw length [L:D]	12, 17 D	342
Flight depth [mm]	5.1	2.2
Screw speed max. [min ⁻¹]	350	350
Screw torque [Nm]	2 x 200	200
Operating temperature max. [°C]	300	350
Pressure max. [bar]	500	700
Throughputs max. [kg/h] ¹	0.6 - 60	0.5 - 10

¹ depends on polymer and processing task



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