



**EXTRUDERS
COMPOUNDERS**

50
YEARS
SOLUTIONS FOR
TOMORROW

HIGH-PERFORMANCE EXTRUDERS T

E 25 T, E 30 T

The high-speed machines of the Type T series extruder unite the advantages of Type P, however, due to the strongly increased speed at a high drive torque, the output is essentially higher. Especially the development of the screw geometry and the feeder for the high-speed machine required enormous technical competence.

The T series Extruder is driven by a torque motor.

Max. temperature: 500°C

Application: Production

Advantages

- ▶ Drive concept torque – up to 800 U/min
- ▶ Variety of application and extension possibilities
- ▶ Good handling due to compact design
- ▶ Optimal operation via touch screen
- ▶ Ideal for multi-layer lines, since different downstream equipment can individually be adapted

Exemplary materials

- ▶ Polyolefins
- ▶ Technical polymers
- ▶ Highly filled plastics
- ▶ Fluoropolymers
- ▶ High-temperature plastics
- ▶ Biopolymers
- ▶ Upgradable for nearly any material

Technical description

- ▶ **Drive.** High torque motor
- ▶ **Cylinder.** High-quality nitrided steel and hopper made of stainless steel. Feeding zone with exchangeable feeding bush, water cooling resp. temperature control by means of an aluminum mould cooling jacket.
- ▶ **Screws.** Depending on the customer requirement / material.
- ▶ **Clamping flange.** Safe and easy coupling of the die and other downstream equipment with the cylinder. Heated clamping flange.



EXTRUDER P

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

COLLIN has about 50 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.

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 follow-up systems 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.

Exemplary materials

- ▶ Polyolefins
- ▶ Technical polymers
- ▶ Highly filled plastics
- ▶ Fluoropolymers
- ▶ High-temperature plastics
- ▶ Biopolymers
- ▶ Upgradable for nearly every material

Standard design

- ▶ With air cooling for a process temperature of up to 400°C
- ▶ With water cooling for a process temperature of up to 350°C

High temperature design

- ▶ With air cooling for a process temperature of up to 500°C
- ▶ With water cooling for a process temperature of up to 450°C

Application

- ▶ Production
- ▶ Pilot lines
- ▶ R&D, quality control
- ▶ Laboratory lines

Technical description

- ▶ **Drive.** High torque motor
- ▶ **Cylinder.** High-quality nitrided steel and hopper made of stainless steel. Feeding zone with exchangeable feeding bush, water cooling resp. temperature control by means of an aluminum mould cooling jacket.
- ▶ **Screws.** Depending on the customer requirement / material.
- ▶ **Clamping flange.** Safe and easy coupling of the die and other downstream equipment with the cylinder. Heated clamping flange.



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

Exemplary materials

- ▶ Polyolefins
- ▶ Many technical polymers

Standard design with air-cooling
process temperature up to 350°C

High-temperature design with air-cooling
process temperature up to 400°C

Application

Laboratory operation, test series, research & development

Technical description

- ▶ **Feeding zone.** Water-cooled.
- ▶ **Cylinder material.** Nitrided steel.
- ▶ **Hopper.** Stainless steel.
- ▶ **Screw.** Extra depending on the customer requirement / material processing.
- ▶ **Clamping flange.** Safe and easy coupling of the die with the cylinder.
- ▶ **Cylinder tempering.** Heating with heating bands. Air cooling via additional blowers below the cylinder. Cylinder and heating bands are completely covered by a stainless steel cover.
- ▶ **Electrical cabinet.** The extruder is mounted on a movable electrical cabinet.
- ▶ **Height adjustment.** Mountable between 1100 mm and 1500 mm, as desired. As option, electrical heightadjustment available.



EXTRUDERS TEACH LINE

E 12, E 16, E 20, E 20 H

The table-top machines combine high procedural variability with exact control of all parameters. The single-screw extruder is the standard machine for continuous plastification of polymers.

Advantages

- ▶ High procedural variability
- ▶ Exact control of all parameters
- ▶ Compact table-top machine

Exemplary materials

- ▶ Polyolefins
- ▶ Numerous technical polymers

Max. temperature: 300°C

Applications

- ▶ Trainings
- ▶ Apprenticeship
- ▶ Further training
- ▶ Screenings
- ▶ Laboratory operation
- ▶ Test series
- ▶ Research & development



Technical description

- ▶ **Drive.** The extruder is driven by a motor.
- ▶ **Cylinder.** High-quality nitrided steel, equipped with a hopper made of stainless steel. Feed zone cooled via an aluminium mould cooling jacket, zone tempering via heating bands and air cooling. Cylinder and heating bands are completely covered with stainless steel in order to guarantee safe operation.
- ▶ **Screw.** Extra on demand. Standard geometry 3-zone screw. Others on demand.
- ▶ **Measuring devices.** Melt temperature sensors and one melt pressure sensor at the end of the cylinder.
- ▶ **Clamping flange.** Because of the solid flange design, coupling the dies on the cylinder is safe and easy to realize. Sealing between adapter and cylinder flange via spacing ring or breaker plate.
- ▶ **Control.** 7" Touch Screen Control, function keys and a data wheel.
- ▶ **Electrical cabinet.** The extruder is mounted on an electrical cabinet, which contains the power electronics, connections and main switch, Type of Protection IP 44.
- ▶ **Safety.** The melt pressure is safely controlled with a pressure sensor (PLC). Temperature control of all extruder zones.

Technical data

Parameters / Extruder	E 12 E	E 16 E	E 20 E	E 25 E	E 30 E	E 45 E	E 12 P
Cylinder diameter	12 mm	16 mm	20 mm	25 mm	30 mm	45 mm	12 mm
Cylinder length	25 x D, 30 x D	25 x D, 30 x D	25 x D, 30 x D	25 x D, 30 x D	25 x D, 30 x D	25 x D, 30 x D	25 x D, 30 x D
Drive power	0.8 kW	1.9 kW	3.8 kW	5.2 kW	9.5 kW	35 kW	1.5 kW
Speed max. Optional	320 min-1	320 min-1	320 min-1	210 min-1 320 min-1	210 min-1 320 min-1	320 min-1	450 min-1
Torque max. Optional	30 Nm	70 Nm	140 Nm	250 Nm 195 Nm	490 Nm 360 Nm	1100 Nm	30 Nm
Integrated pressure speed control	optional	optional	optional	optional	optional	optional	yes
Max. throughput LDPE MFR 2, 190°C, 2.16 kg Optional	approx. 2 kg/h	approx. 6 kg/h	approx. 11 kg/h	approx. 11 kg/h approx. 17 kg/h	approx. 18 kg/h approx. 28 kg/h	approx. 65 kg/h	approx. 4 kg/h
Max. Temperatur Optional	350°C 400°C	350°C 400°C	350°C 400°C	350°C 400°C	350°C 400°C	350°C 400°C	400°C 500°C
Max. feeding temperature	50°C Option: 90 °C	50°C Option: 90 °C	50°C Option: 90 °C	50°C Option: 90 °C	50°C Option: 90 °C	50°C Option: 90 °C	90°C
Required net	3 x 400 V, 50/60 Hz	3 x 400 V, 50/60 Hz	3 x 400 V, 50/60 Hz	3 x 400 V, 50/60 Hz	3 x 400 V, 50/60 Hz	3 x 400 V, 50/60 Hz	3 x 400 V, 50/60 Hz
Required electrical net	L1; L2; L3; N; PE (TN-S-net)	L1; L2; L3; N; PE (TN-S-net)	L1; L2; L3; N; PE (TN-S-net)	L1; L2; L3; N; PE (TN-S-net)	L1; L2; L3; N; PE (TN-S-net)	L1; L2; L3; N; PE (TN-S-net)	L1; L2; L3; N; PE (TN-S-net)
Cooling water inlet and outlet	hose nipple	hose nipple	hose nipple	hose nipple	hose nipple	hose nipple	quick coupling
Required Cooling water temperatures	16 - 30°C	16 - 30°C	16 - 30°C	16 - 30°C	16 - 30°C	16 - 30°C	16 - 30°C
Water consumption (at a water temperature of approx. 17°C)	approx. 1 l/min	approx. 3 l/min	approx. 3 l/min	approx. 3 l/min	approx. 3 l/min	approx. 16 l/min	approx. 2 l/min
Standard-Extrusion height	1100 mm	1100 mm	1100 mm	1100 mm	1100 mm	1100 mm	1100 mm
Dimensions L x W x H	1330 x 680 x 1650 mm	1330 x 680 x 1650 mm	1330 x 680 x 1650 mm	1330 x 680 x 1650 mm	1400 x 680 x 1650 mm	2150 x 780 x 1800 mm	1330 x 680 x 1650 mm
Weight (without options)	approx. 175 kg	approx. 250 kg	approx. 250 kg	approx. 290 kg	approx. 505 kg	approx. 925 kg	approx. 350 kg
Heating zones (standard use)	3 (25D) 3 (30D)	3 3	4 5	4 5	4 5	4 5	3 3
Standard operating pressure	405 bar	405 bar	405 bar	405 bar	405 bar	405 bar	405 bar
Control	CMI 7 - 7" Touch Display						

E 16 P	E 20 P	E 25 P	E 30 P	E 45 P	E 60 P	E 25 T	E 30 T
16 mm	20 mm	25 mm	30 mm	45 mm	60 mm	25 mm	30 mm
25 x D, 30 x D	25 x D, 30 x D	25 x D, 30 x D	25 x D, 30 x D	25 x D, 30 x D	25 x D, 30 x D	35 x D	35 x D
2.7 kW	5.3 kW	9.5 kW	18 kW	46 kW	92 kW	15 kW	28 kW
450 min-1	450 min-1	450 min-1	450 min-1	450 min-1	320 min-1	800 min-1	800 min-1
70 Nm	140 Nm	260 Nm	490 Nm	1480 Nm	2940 Nm	260 Nm	495 Nm
yes	yes	yes	yes	yes	yes	yes	yes
approx. 6 kg/h	approx. 11 kg/h	approx. 24 kg/h	approx. 34 kg/h	approx. 80 kg/h	approx. 155 kg/h	approx. 34 kg/h	approx. 46 kg/h
400°C 500°C	400°C 500°C	400°C 500°C	400°C 500°C	400°C 500°C	400°C 500°C	400°C 500°C	400°C 500°C
90°C	90°C	90°C	90°C	90°C	90°C	90°C	90°C
3 x 400 V, 50/60 Hz L1; L2; L3; N; PE (TN-S-net)	3 x 400 V, 50/60 Hz L1; L2; L3; N; PE (TN-S-net)	3 x 400 V, 50/60 Hz L1; L2; L3; N; PE (TN-S-net)	3 x 400 V, 50/60 Hz L1; L2; L3; N; PE (TN-S-net)	3 x 400 V, 50/60 Hz L1; L2; L3; N; PE (TN-S-net)	3 x 400 V, 50/60 Hz L1; L2; L3; N; PE (TN-S-net)	3 x 400 V, 50/60 Hz L1; L2; L3; N; PE (TN-S-net)	3 x 400 V, 50/60 Hz L1; L2; L3; N; PE (TN-S-net)
quick coupling	quick coupling	quick coupling	quick coupling	quick coupling	quick coupling	quick coupling	quick coupling
16 - 30°C	16 - 30°C	16 - 30°C	16 - 30°C	16 - 30°C	16 - 30°C	16 - 30°C	16 - 30°C
approx. 5 l/min	approx. 5 l/min	approx. 8 l/min	approx. 8 l/min	approx. 20 l/min	approx. 20 l/min	approx. 10 l/min	approx. 10 l/min
1100 mm	1100 mm	1100 mm	1100 mm	1100 mm	1100 mm	1100 mm	1100 mm
1330 x 680 x 1650 mm	1330 x 680 x 1650 mm	1620 x 500 x 1600 mm	1840 x 680 x 1650 mm	2330 x 780 x 1800 mm	3100 x 1200 x 2000 mm	1840 x 680 x 1650 mm	1960 x 680 x 1650 mm
approx. 350 kg	approx. 350 kg	approx. 375 kg	approx. 525 kg	approx. 1050 kg	approx. 1800 kg	approx. 400 kg	approx. 550 kg
3 3	4 5	4 5	4 5	4 5	4 5	(35 D)	(35 D)
405 bar	405 bar	405 bar	405 bar	405 bar	405 bar	405 bar	405 bar
CMI 17 - 17" Touch Display							

COMPOUNDERS P

ZK 25 P, ZK 35 P

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.

The ergonomic operation and the modular design are characteristic for COLLIN and allow for co-rotating and counterrotating operation of the compounders. It is possible to flexibly combine cylinders, screws and processing length. Therefore, the Compounders Type P, for Professional, can realise very complex compounding tasks.

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 500°C (with air-cooling).

Advantages

- ▶ Quick retrofitting between co and counterrotating
- ▶ Modular design and different applications
- ▶ Easy operability
- ▶ Different applications
- ▶ Modular screws for different mixing tasks
- ▶ Different screw length for high flexibility

Standard design

- ▶ With air cooling for a process temperature of up to 400°C
- ▶ With water cooling for a process temperature of up to 350°C

High-temperature design

- ▶ With air cooling for a process temperature of up to 500°C
- ▶ With water cooling for a process temperature of up to 450°C

Exemplary materials

- ▶ Polymers
- ▶ Thermoplasts
- ▶ Elastomers
- ▶ Special materials
- ▶ Highly filled materials

Technical description

- ▶ **Cylinder.** Modular with individual segments in different designs. The positioning of each individual cylinder element on a sliding rail allows easy cleaning and dismounting.
- ▶ **Cylinder operation.** For easy operation, the cylinder elements are coupled with clamping flanges.
- ▶ **Screws.** Modular for different mixing tasks. Different screw lengths for high flexibility in development. The screws consist of two shafts on which the screw elements are arranged. High torques and easy dismounting for cleaning purposes, also after long production times.



- ▶ **Screw assembly sets.** A variety of individual elements with different screw threads and designs.
- ▶ **Drive unit.** The ZK 25 is driven by a high torque motor.
- ▶ **Control cabinet.** The power components and the main switch are in a separate control cabinet. The cabinet is the base frame of the machine and can be displaced.

COMPOUNDERS E

ZK 16 E, ZK 25 E

Compounders are used for testing, developing and producing different polymeric materials such as thermoplasts, elastomers, food and for medical & pharmaceutical applications.

The COLLIN Compounder Type E for Entrance is perfectly suitable for 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.

- ▶ Modular design and application versions
- ▶ Easy operability
- ▶ Different applications
- ▶ Different screw lengths for high flexibility in development
- ▶ Clamping flanges for easy dismounting
- ▶ Standard base cabinet on rollers

Standard design

- ▶ With air cooling for a process temperature of up to 350°C
- ▶ With water cooling for a process temperature of up to 350°C

High-temperature design

- ▶ With air cooling up to 400°C process temperature

Exemplary materials

- ▶ Polymere
- ▶ Thermoplaste
- ▶ Elastomere

Technical data

- ▶ Processing length 36, 42 or 48 D
- ▶ Throughput: approx. 0.5 - 15 kg/h
- ▶ Standard sub cabinet on rollers
- ▶ Co-rotating screws and counter-rotating screws possible



COMPOUNDERS TEACH LINE

ZK 12, ZK 16, ZK 25

The COLLIN compounders are suitable for the continuous melting, mixing, homogenising, alloying and extruding of plastic materials.

All COLLIN compounders are available for co-rotating and counterrotating operation. The table-top compounder consists of a process part with a drive, set up on the electrical switch cabinet and also a retrofit is possible.

Advantages

- ▶ Compact table-top machine
- ▶ Less material required
- ▶ Available and retrofittable for co or counter-rotating operation

Exemplary materials

- ▶ Polymers
- ▶ Thermoplasts
- ▶ Elastomers

Applications

- ▶ Mixing and dispersing of pigments
- ▶ Admixing of fillers and other additives into polymers
- ▶ Admixing of fibre strands
- ▶ Mixing of polymers or pastes
- ▶ Degassing of volatile components
- ▶ Continuous reaction extrusion

Technical description

The compounder is driven by a servomotor with planetary gear, the distribution gear is directly attached. The separate gear unit allows easy maintenance and retrofitting from co-rotating to counter-rotating. The processing section with cylinder segments, hopper, water-cooled feed zone, heating/cooling zones as well as covering of the cylinder as protection against contact is flanged to it.



Compounder data	Nominal diameter (mm)	Torque per shaft (Nm)	Max. speed (rpm)	Motor capacity (kW)	Cooling	Processing length
Teach Line ZK 12	12	6,3	500	1.0	air / water (opt)	24 D / 36 D
Teach Line ZK 16	16	15	500	1.9	air / water (opt)	24 D / 36 D
Teach Line ZK 25	25	56	200	2.6	air	18 D / 24 D / 30 D
Lab Line ZK 16 E	16	15	500	1.9	air	36 D
Lab Line ZK 25 E	25	90	460	9.1	air	36 D / 42 D / 48 D
Lab Line ZK 25 P	25	110	1200	24	air / water (opt)	variable from 36 D
Lab Line ZK 35 P	35	300	1200	83	air / water (opt)	variable from 36 D



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