

Extruder

Twin screw extruder, co-rotating

ZE 18 / 24 / 32 / 50 / 77 / 100 HMI



APPLICATION

Multifunctional extrusion from small quantities to production scale for research and development as well as production applications. Extrusion results are optimally suited for upscaling or downscaling. The extruders perform complex extrusion tasks under difficult conditions such as high pressure, high torque or steep temperature gradients.

The temperature profiles of the heating zones and the torque profile of the motor are recorded and can be read out via USB or Ethernet interface.

FEATURES

Three-Tec extruders feature a compact design, high torque and intuitive touch panel operation. A closed extruder housing incl. enclosed motor enables use in a pharmaceutical production environment.

ADVANTAGES OF THREE-TEC EXTRUDERS

- High mixing effect
- Short residence time
- Steep temperature gradients possible
- Suitable for scale up
- Continuous process
- High active ingredient content
- Intuitive operation via touch panel
- Barrels completely customised (heating and cooling zones, sensors, degassing etc.)
- Split barrel for easy cleaning and process analysis
- Customised solutions
- GMP-compliant

CONTROL

The extruder control is based on the latest PLC technology from Siemens and can be operated via touch panel, includes extensive software functions and enables the recording of process-relevant data. Customer-specific adaptations to the software and various communication protocols enable additional functions and the integration of the control into higher-level systems and plants.

MATERIAL

Parts in contact with the product	Stainless steel
Barrel, extrusion tools	various stainless steels hardened, adapted to the customer application
Seals	PTFE, silicone (up to 230 °C), metallic up to 400 °C



EXTRUSION TOOLS AND EXTRUSION PERFORMANCE

The appropriate extrusion tools are selected according to the material to be extruded. The extrusion performance depends on the material properties, the temperature, the feeding capacity, the die diameter, the flow properties and the segment structure of the die (conveying segments, return segments, kneading segments, mixing segments).

We recommend carrying out tests with original products in our test laboratory.

TECHNICAL DATA

	ZE 18	ZE 24	ZE 32	ZE 50	ZE 77	ZE 100
Max. torque (Nm)	60 (30/screw)	120 (60/screw)	according to customer requirements			
Max. temperature (°C)	230 (optional 400)					
Cooling	Water / Air or Water / air mixture					
Heating zones	1 to 12					
Rotational speed (rpm)	0.1–300, optional –1'000					
L/D	20, 25, 30, 40, 50, 60 or according to customer requirements					
Weight (kg) *	≈ 150	≈ 200	≈ 1'000	≈ 2'500	≈ 3'500	≈ 8'000
Throughput (kg/h)	10	50	150	500	1'500	4'000
Drive	low-noise servo motor with constant torque over the entire speed range					

* The specifications are variable depending on additional equipment

SUITABLE FEEDING DEVICES

Feeding devices ►	ZD 5 FB / ZD 9 FB	ZD 12 B / FB ZD 22 B / FB	ZD 32 B / FB	ZD 55 FB	ED 12 / ED 20 / 20 B	ED 40	ED 55 / 55 B
ZE 18	x	x	-	-	x	-	-
ZE 24	x	x	x	-	x	x	-
ZE 32	x	x	x	-	x	x	x
ZE 50	-	x	x	x	x	x	x
ZE 77	-	x	x	x	x	x	x
ZE 100	-	x	x	x	x	x	x

FB = Flat-tray, B = with discharge aid/bridge breaker, () = without discharge aid/bridge breaker

OPTIONS

- Melt temperature sensor
- Pressure sensor
- PTFE seal with purge gas connection
- Special materials on request
- Customer-specific supply voltages possible

ATEX (EXPLOSION PROTECTION)

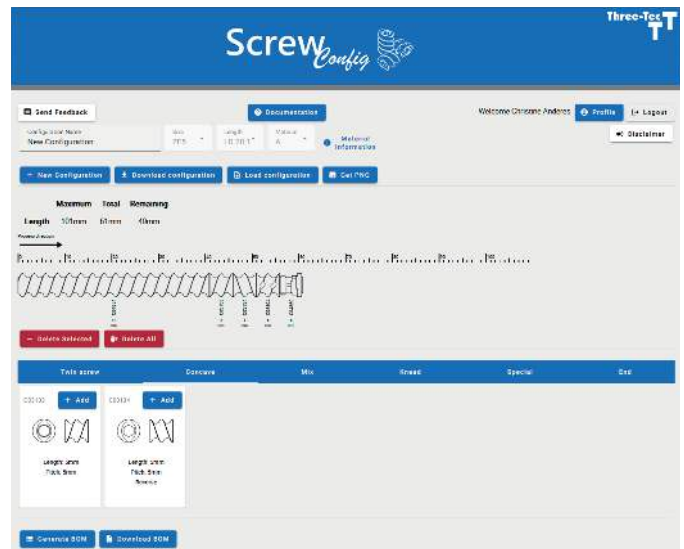
Our equipment can be certified for all categories according to customer requirements in compliance with the ATEX Directive 2014/34/EC.

FDA

All plastic parts and seals in contact with the product that we use for our devices meet the requirements of the Food and Drug Administration (FDA) and are therefore FDA-compliant. The greases and lubricants used are certified according to NSF-H1.

QUALITY AND DOCUMENTATION

- Risk analysis
- GMP documentation
- Material and surface certificates
- Welding certificate and welding seam documentation



SCREW CONFIGURATOR

With our configurator, you can assemble extrusion tools from different segments to exactly match your application purposes. The configuration can be saved to a file that can be loaded, visualised and adjusted from any device. The drag-and-drop functionality makes it easy to change the configuration. Once completed, a material list can be automatically generated, which can be used as a basis for ordering new extrusion tools.

Contact us at info@three-tec.ch to get a login to the screw configurator.

AVAILABLE ACCESSORIES

- Volumetric / gravimetric feeding
- Die with shaping according to customer requirements
- Pelletizer
- Hot cutter
- Spheronizer
- Conveyor belt / cooling conveyor belt
- Cooling bath
- Stuffing feeding device
- Side feeding device
- Chill-Roll