

Three-Tec
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Three-Tec GmbH

Your partner for feeding systems,
extruders, process equipment
and special machinery

THREE-TEC – YOUR PARTNER FOR HIGHEST QUALITY AND CUSTOMIZED SOLUTIONS

Three-Tec is the specialist for the development and production of feeding systems, extruders and process equipment in process technology. We offer our international customers from all demanding industrial sectors a comprehensive range of quality products, rounded off by competent advice and fast, reliable and individual service.

Thanks to the in-house development and manufacture of our products, we can offer our customers the highest quality standards and the greatest possible flexibility and are able to develop customized solutions. Our products are Swiss Made: They are developed and manufactured at our site in Seon AG.



Swiss Quality

Highest quality standards are a matter of course for us



Customized

Customized special solutions are our core competence



Flexibility

We offer our customers the greatest possible flexibility and shortest response times



Experienced

Thanks to our many years of experience, we can find the right solution for all requirements

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Feeding systems

Our extensive product range includes a large number of feeding systems with screw diameters from 5 to 130 mm. From very small quantities starting at 5 g per hour up to several tons, a wide range of materials can be precisely fed. The performance of the equipment is particularly evident in the efficient feeding of poorly flowing powders. Both for gravimetric as well as the volumetric feeding, Three-Tec offers the appropriate devices incl. control system.

The sophisticated design allows assembly, disassembly and cleaning of all components in contact with the product in just a few steps and in a very short time. All components in contact with the product consist of stainless steel 1.4404 (AISI 316L) and can therefore be cleaned easily and efficiently with a wide range of liquids and solvents. Automated cleaning systems such as WIP (washing in place), CIP (cleaning in place) or SIP (sterilization in place) are available on request.

HIGHLIGHTS OF OUR FEEDING SYSTEMS



Efficient feeding
even of poorly flowing materials



Various solutions
for gravimetric and volumetric feeding



Quick assembly and disassembly
of all components in contact with the product



Dismantling of the feeding screw
uncomplicated without tools



Customer requirements
are implemented during development and production



A wide range of throughputs
Smallest quantities from 5 g per hour up to several tons

APPLICATION AREAS

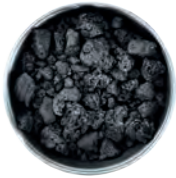
Pharma

- > Active ingredients
- > Auxiliary materials
- > Feeding to tablet presses
- > Multiple feeding systems
- > Volumetric feeding
- > Gravimetric feeding
- > Batch filling or continuous feeding



Chemistry

- > Detergent
- > Minerals & mineral substances
- > Fertilizer
- > De-icing
- > Toner
- > Dust & pollen
- > Ceramics
- > Cosmetics
- > Metal powders & heavy flowing powders



Food & Pet Food

- > Cereals
- > Pet food, fish food
- > Food supplements
- > Flavors
- > Textured vegetable protein & meat analogs
- > Powdered drink
- > Flour, starch & bakery ingredients



Plastics

- > Granules
- > Masterbatch
- > Recycling



FLAT-TRAY FEEDERS

Three-Tec's flat-tray feeders guarantee precise volumetric and gravimetric feeding of good to poor-flowing, moist or bridging products with flowabilities of ffc 1 - 5. All flat-tray feeders can be supplemented with a scale and control system at any time and operated as a gravimetric «Loss in Weight» or «Gain in Weight» and as a continuous system, or used for batch filling.

The flat-tray feeders are equipped with easily exchangeable feeding tools. Various feeding tools such as auger, concave or spiral screws facilitate adaptation to the product to be fed.

Features

- > Precise feeding even with complex product behavior
- > Extension with scale and weighing electronics possible
- > Various feeding tools such as auger, concave or spiral screws facilitate adaptation to the product to be fed
- > Very easy to clean
- > Stable feeding thanks to gentle conveyance of the bulk material
- > Feeding screws easy to replace thanks to bayonet fasteners
- > Tray scrapers can be designed and manufactured according to customer requirements
- > Wide open screw channel
- > Very small residual quantities when fed until empty



Flat-tray feeding systems with gravimetric control



Flat-tray feeder ZD 5 FB Logo



Flat-tray feeder with tray scraper

DOSING DEVICE WITH INTEGRATED LOAD CELL

The two feeder types ZD 5 i6000 and ZD 9 i10000 are also available with integrated load cells instead of the platform scale. The all-in-one solution makes the feeder smaller, lighter (only 5 kg) and easier to handle and thus easier to position.

Due to the low drop height, the feeder has a lower susceptibility to external disturbances such as drafts or vibration. In addition, the resolution of the load cell is considerably better due to the smaller weight of the device.



Flat-tray feeder ZD 5 FB i6000

TWIN AND SINGLE SCREW FEEDERS

Twin and single screw feeders allow precise volumetric and gravimetric feeding of well-flowing powders, granules, micro-granules, grain, pellets, chips, flakes and short fibers.

All standard feeding units can be upgraded with a scale and weighing electronics and operated as gravimetric «Loss in Weight» or as batch systems. The flat-tray feeders are equipped with easily exchangeable feeding tools. Various feeding tools such as auger, concave or spiral screws facilitate adaptation to the product to be fed. The horizontally rotating bridge breaker prevents the product from bridging and the bulk material thus flows into the feeding screws without interruption. For free-flowing bulk solids units are also available without bridge breaker.

The standard feeding units are available in a type version «Quick Clean» as volumetric or gravimetric version, which are very easy to disassemble and clean.



Volumetric single screw feeder ED 65

Features

- > Precise volumetric and gravimetric feeding
- > Extension with scale and weighing electronics possible
- > Easily exchangeable feeding tools
- > Various feeding tools such as auger, concave or spiral screws facilitate adaptation to the product to be fed
- > Easy to clean and easy to disassemble
- > Available with and without bridge breaker



Twin screw feeder Quick Clean ZD 12 TQ

OPTIONS

In order to configure the feeding system perfectly for the respective process, Three-Tec offers a wide variety of options:

Feeding tools

With the right feeding tool, you adapt your feeding device exactly to the product and thus achieve the best results. In addition to standard feeding tools, we also manufacture special screws from 5 mm to 130 mm screw diameter, single-, double- or multi-flight, linear, conical progressive or relief ground.



Enclosure

For special applications in the pharmaceutical industry the drive is completely enclosed and ventilated with compressed air.

Dust cover

Filters prevent dusty products from escaping when refilling the feeding hopper or vertical discharge pipes. At the discharge pipe, dusty product can be sucked off and conveyed back in the feeding hopper.

Scales

For the highest accuracy, choosing the right scale is crucial. Platform scales are used for small to medium batching capacities, «Loss in Weight» scales with three load cells are used for larger feeding rates.

Hoppers

Feeding hoppers are available in a wide variety of sizes and shapes depending on customer requirements. Choosing the right hopper, suitable for the properties of the product to be fed, guarantees optimal feeding.



Ionization

To prevent static charge and adhesion of certain products to the walls of the containers or tubes, they are ionized during hopper refilling or discharge.

Control system

Gravimetric control systems are equipped with hardware components from Siemens.

Drive

Most Three-Tec feeding systems are available with either one or two drives. In one-engined machines, the tray scraper or bridge breaker and feeding tools are driven by the same drive via a gearbox, on twin-engine machines, tray scrapers or bridge breakers are driven by separately controlled engines.



Outlet pipe

Depending on the application and process requirements, vertical or horizontal discharge tubes can be mounted. The connection to customer systems can be adapted and prepared.

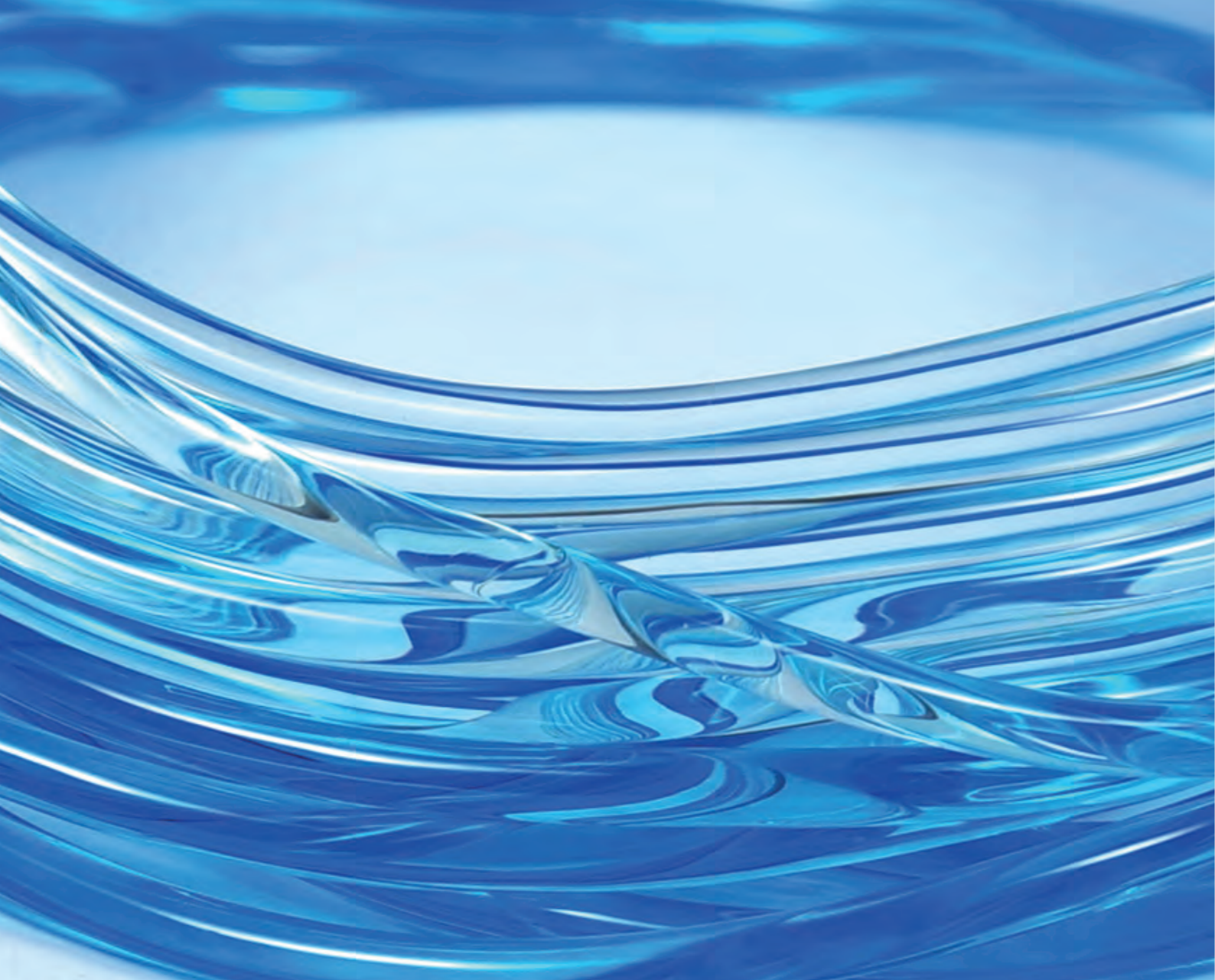
Bellows

In order to avoid interference with gravimetric systems due to dust protection, bellows are as flexible connections.



More options

- > Seals with purge gas connection
- > Dust tight +/- 50 mbar
- > Gas-tight
- > Flow inhibitor
- > Extension of discharge pipe and feeding tools
- > Counter bearing of the feeding tools
- > Surface treatments according to customer requirements
- > ATEX versions



Extruders

The extruders from Three-Tec are characterized by a compact design, a high torque and a intuitive operation by means of a touch panel. They are available with various screw diameters from 5 to 100 mm and can process smallest quantities from 0.5 gram as well as large quantities up to 2 tons.

Our mini extruders, which we have been deve-

loping and producing since 2005, are among the most world's smallest devices. Through the compact and user-friendly construction the total cost per test is significantly lower than for other devices.

Special customer requirements can be realized at short notice thanks to Three-Tec's flexible approach and extensive know-how.

HIGHLIGHTS OF OUR EXTRUDERS



Screw diameter

different screw diameters and L:D ratios (15:1 to 50:1) available



Rapid assembly or disassembly capability

Tri-clamp and bayonet connections enable a higher sample throughput



Easy cleaning

designed for easy cleaning and simple cleaning validation



Temperature gradients

Steep temperature gradients between segments are possible due to cuts in the barrel



Compact and lightweight

Due to their small size and light weight, the mini extruders are easy to transport



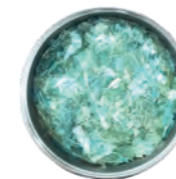
Low active ingredient requirement

Mini-extruders with low active ingredient requirements enable smallest approaches

APPLICATION AREAS

Pharma

- > Solid dispersion
- > Formulation development
- > Continuous processes
- > High-precision feeding of active ingredients
- > Film extrusion (oral, dermal)
- > Implant production
- > Clean room applications



Chemistry

- > Polymer production
- > Mechanochemistry
- > Colors & inks
- > Reactive extrusion
- > Extraction
- > Battery production
- > Fertilizer
- > etc.



Food & Pet Food

- > Vegetable proteins
- > Dairy products & milk powder
- > Flour & starch
- > Drinks
- > Chocolate & confectionery
- > Meat substitute
- > Pet & fish food
- > etc.



Plastics

- > Compounding
- > Bio-materials
- > Recycling
- > Processing of plastics
- > Fiber-reinforced plastics
- > Film extrusion
- > Filament for 3D printing
- > etc.



UTILIZATION

Multifunction 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 extruders are equipped with easily exchangeable tools, which are individually structured and adapted to the extrusion task by different segments such as conveying, return conveying, kneading or mi-

xing segments. 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.



Advantages of our extruders

- > High mixing effect
- > Short residence time
- > Steep temperature gradients possible
- > Scale up suitable
- > Continuous process
- > High active ingredient content
- > Intuitive operation via touch panel
- > Easy data output thanks to USB connection
- > All parts in contact with the product are made of stainless steel
- > Simple barrel mounting with only one clamping ring, which withstands high loads
- > Barrels can be produced completely according to customer requirements (heating and cooling zones, sensor technology, degassing, etc.)



Twin screw extruder ZE 24 HMI

TECHNICAL DATA EXTRUDER PRODUCTION

	ZE 18	ZE 24	ZE 32	ZE 50
Max. pressure [bar]	250	250	250	250
Max. torque [Nm]	60	120	According to customer requirements	
Max. temperature [°C]	230 (optional 400)			
Cooling	Water / Air			
Heating zones	1 to 8			
L/D	15, 20, 25, 30, 40, 50, 60 or according to customer requirements			

LABORATORY EXTRUDERS

With screw diameters starting at 5 mm, our miniature-scale laboratory extruders are among the world's smallest devices. Due to the compact and user-friendly design, the total costs per test are significantly lower than with other devices. Thanks to the small and compact design, the laboratory extruders can be set up and used quickly at changing locations.



Twin screw laboratory extruder ZE 12 HMI

TECHNICAL DATA LABORATORY EXTRUDERS

	ZE 5	ZE 9	ZE 12	ZE 16
Max. pressure [bar]	200	200	250	250
Max. torque [Nm]	2.5	14.5	20	40
Max. temperature [°C]	230 (optional 400)			
Cooling	Water / Air			
Heating zones	1 to 8			
L/D	15, 20, 25, 30, 40, 50, 60			

HYBRID MINI EXTRUDER

The parallel twin-screw Hybrid Mini Extruder is built in the same enclosure as our proven standard extruders as a table-top execution. As a combination unit, however, it additionally offers the choice between two different extruder sizes. Three variations are available, each with two selectable screw diameters (5, 9 or 12 mm).

Thanks to an empty volume of only 1.2 cm³ with a 5 mm screw diameter (L/D ratio 15:1) – the smallest of its kind in the world – the Hybrid Mini Extruder has a very low active ingredient consumption. This makes it possible to produce very small batches from as little as 0.5 grams. Since only very small residual amounts remain in the extruder, a high yield can be achieved with the substances available. The results can also be used optimally for reproducible scaling.

Thanks to the universal use of heating cartridges, cooling systems, die plates, pressure and temperature sensors, the unit offers the flexibility to convert from a 5 mm to a 9 or 12 mm screw diameter within a few minutes.



OPTIONS AND ACCESSORIES

Barrels

Extruder barrels are manufactured entirely in our own workshop. Customer requirements can thus be taken into account flexibly and easily.

Advantages of Three-Tec extruder barrels:

- > Barrels can be completely modulated according to customer requirements
- > Barrel in one piece or split
- > Different process lengths available and interchangeable at any time
- > Combination of barrels with clamping rings possible
- > Compact, weight-saving design
- > Free-standing barrel offers dispensing and sensing capabilities from all four sides



Heating

The heating elements of the Three-Tec extruders can be mounted easily, quickly and without tools. Due to the high power and the large contact surface, an optimal temperature transfer and thus a fast heating takes place.



Cooling

Cooling is performed per individual barrel zone. It is possible to operate the cooling manually or to regulate it via the extruder control system using solenoid valves. Water cooling, air cooling or liquid nitrogen cooling are available.

Screws from 5 to 100 mm

The extruder screws are configured to customer specifications on the basis of the process task and manufactured in the company's own workshop. Three-Tec offers the following types of screws:

- > Standard screws (in one piece)
- > Modular screws (interchangeable screw segments)
- > Monobloc screws (demanding screw geometries, made from one piece)

A wide range of screw segments for conveying, kneading, compacting, stopping, relaxing and mixing is available.



Dies

The dies are defined and manufactured according to customer and process requirements. The following die geometries are possible:

- > Single and double dies
- > Sieve dies
- > Film dies (fixed or adjustable)
- > Hose dies
- > Cooling dies for meat substitutes



Control system

- > Input of parameters via touch panel or alternatively via Ethernet connection
- > Real-time monitoring of various process parameters
- > Trend plot and recording of process parameters
- > Export of recorded data as CSV file via USB connection
- > Additional devices controllable (feeding, conveyor belt)



Process equipment

In our process equipment range, our customers will find a wide selection of peripheral devices to cover all their needs. All products are manufactured at our site. This allows us to guarantee the highest quality and to respond to customer requests individually and promptly.

- > Pelletizer
- > Hot cutter
- > Spheronizer
- > Conveyor belt laboratory
- > Cooling conveyor belt
- > Cooling bath
- > Film roller
- > Rewinder
- > Calender
- > Stuffer feeder
- > Side feeder

Pelletizer



The pelletizer can be used to process strands into pellets or granules. The speed of the feed roller and the cutter are independently adjustable. This allows the extrudate feed to be perfectly matched to the extrudate and the pellet length or pellet size to be adjusted between 0.5 and 10 mm during processing.

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Food
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Pharma
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Laboratory
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Research & Development

Hot cutter



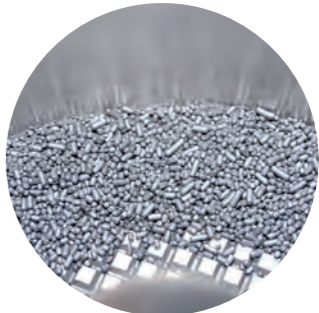
With the hot cutter, the extrudate can be reliably processed into pellets or granules with one or more knives in direct contact with the die plate. Both wet and melt extrudates can be processed. The number of knives used and the speed setting allow the production of pellet lengths or pellet sizes between 0.5 and 10 mm.

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Research & Development

Spheronizer



The Spheronizer is used for reducing the length and rounding off fine extrudate strands. The desired geometry of the end product is influenced by the batch size, the speed and the surface structure of the friction disc. Depending on the container size, a batch quantity of 5 to 5,000 grams can be processed.



Conveyor belt laboratory



The conveyor belt is suitable for gentle removal and cooling of the extrudate. In order to achieve more efficient cooling of the extrudate, a cooling tank can optionally be integrated on which the belt rests and is continuously cooled. This enables the haul-off of extrudates with a temperature of up to 300 °C.



Food



Pharma



Laboratory



Research &
Development

Cooling conveyor belt



The cooling conveyor belt is suitable for the gentle removal and efficient cooling of extrudates and granules. The conveyor belt rests on actively cooled cooling elements and is permanently cooled during operation. Air connections in the lid of the cooling conveyor belt allow additional air cooling of the product. The belt speed can be variably adjusted between 0 and 20 m/min.



Food



Pharma



Laboratory



Research &
Development

Cooling bath



The cooling bath in different lengths and designs is used for efficient cooling of various extrudates before further processing by means of a winder or pelletizer. It is equipped with holding-down bars or holding-down rollers and scraper brush and mounted on damping elements. The water can be drained via a valve. In our larger cooling baths, a cooling unit can be connected and the water level is adjustable.

Film roller



The film roller from Three-Tec enables the calibration of flat, dry extrudates. Furthermore, round extrudates can also be rolled into a film with a defined thickness. Subsequently, the product is evenly wound onto a spool. The film roll consists of an adjustable and temperature-controlled pair of rolls, an adjustable pair of tension rolls and a rewinder, or spool.



Food



Pharma



Laboratory



Research &
Development

Rewinder



The rewinder from Three-Tec is suitable for winding the extrudate onto a spool. The tensile force between the take-off roller and the spool is adjustable, which enables very uniform winding. In addition to round strands, the winder can also be used to wind ribbon-shaped extrudates onto a spool. The rewinder is controlled by means of an integrated potentiometer.



Food



Pharma



Laboratory



Research &
Development

Calender



The calender from is a versatile laboratory device for the continuous production of films, tapes or tablets directly from the still hot extrudate. Since only a short preparation time is required and the process can be started with the input of a few parameters, it is possible, for example, to produce 10,000 tablets within one day.



Pharma



Laboratory



Research &
Development

Stuffer feeder



Stuffer feeders are used for the reliable feeding of very poorly feedable or very cohesive and very light products into an extruder. With the stuffer feeder, products are pressed into the barrel of the extruder from above.

Side feeder



Side feeders are used for the forced feeding of powders and granules into an extruder. Three-Tec manufactures side feeders for all extruder sizes and throughput ranges.



Special machinery

Three-Tec develops and manufactures a wide variety of special machinery according to customer requirements. Thanks to our many years of experience, we can find a suitable solution for every requirement. Examples of special machinery that Three-Tec has manufactured:

- > Isolator High Containment
- > Filling systems
- > Multiple feeding system for the pharmaceutical sector
- > Four screw feeding system with flat-tray
- > System with integrated dust extraction
- > Battery production feeding systems completely insulated
- > Feeding extruder combination unit with flat-tray feeding
- > Feeding system without metal contact of the feeding material

ISOLATOR HIGH CONTAINMENT

A complete production line in high containment according to ISO 14644-7: a feeder, an extruder, a conveyor belt with cooling and a pelletizer are integrated in the isolator. This means that the process from powder mixing to the finished granulate takes place in a protected and controlled environment, which eliminates the need to set up a complete clean room. The equipment can also all be removed individually from the isolator. This frees up space for other machines or applications as needed. The isolator thus becomes a multi-purpose device.

The built-in machines are specially designed for handling with gloves and can be easily disassembled and cleaned by one operator. The working chamber as well as all product-contacting parts of the machines integ-



rated in the isolator are made of stainless steel 1.4404 (316 L) with a surface finish of $Ra \leq 0.8 \mu m$.

Features

- > Project specific design
- > Integration process equipment
- > Integration transfer systems
- > Contamination-free filter change systems
- > Generous free space for further process steps and peripheral devices



FILLING SYSTEM

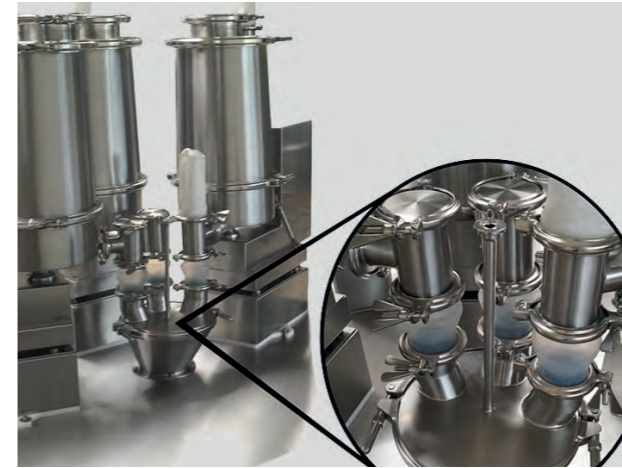
The filling system was developed and produced at the request of a customer for whose old equipment spare parts could no longer be supplied. With a simple system that convinced both the planners and the users, Three-Tec was able to replace the old equipment.

The filling system manufactured by Three-Tec produces sixty 1 kg and 1.5 kg cans per minute, which is double the output of the previous system. In addition, the dosing accuracy has been improved from 2 to 0.5 % and dust emissions have been virtually eliminated compared to the old system. Thanks to the user-friendly control system, start-up times have been significantly reduced. Overall, productivity on the line has been significantly increased.

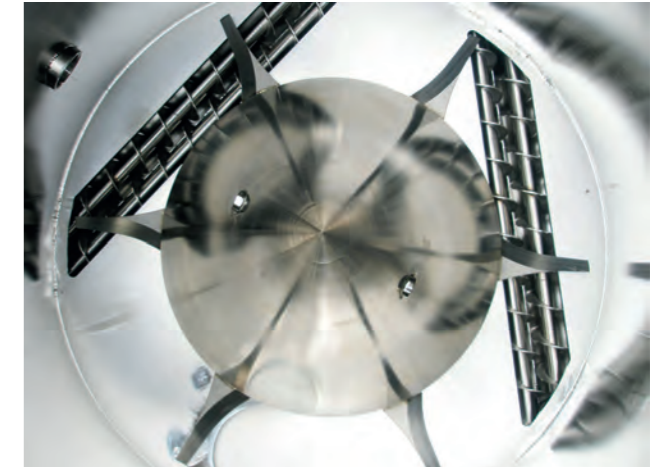


OTHER SPECIAL MACHINERY

Other special machinery are developed and produced upon customer request. Some examples of special machinery that Three-Tec has produced:



Multiple feeding system for the pharmaceutical sector



Four screw feeding system with flat-tray



System with integrated dust extraction



Battery production feeding systems completely insulated



Feeding extruder combination unit with flat-tray



Feeding system without metal contact of the feeding



Services

In addition to products with the highest quality standards, we offer our customers a wide range of additional services:

- > Individual consulting & support
- > Individual development according to customer requirements
- > Feeding and extrusion tests in the internal test laboratory
- > Commissioning and acceptance in house or at the customer's site
- > Regular maintenance of the equipment
- > Individual development and programming of complete control systems
- > Short delivery times of spare parts due to internal production and warehouse
- > Complete documentation
- > Introductions and training on our products

TEST LABORATORY

In our test laboratory, we offer our customers the perfect environment to carry out tests with their original products and our know-how to achieve the best possible results.

The test lab with various equipment can also be rented for process development and feasibility studies or contract manufacturing.

The use of the test lab is also possible at short notice as well as via video call.

The range of services in our test laboratory

- > Gravimetric and volumetric feeding
- > Extrusion: melt extrusion, wet and melt pelletizing
- > Mixing
- > Contract manufacturing
- > Process development
- > Feasibility studies



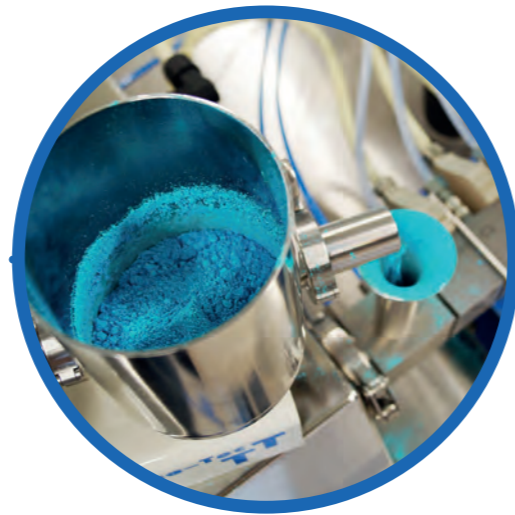
HOW YOUR THREE-TEC DEVICE IS CREATED

Only with the right process, high-quality products and precisely fitting individual parts, the best feeding and extrusion results can be achieved. We offer our customers everything from a single source so that they receive the perfect product for their needs: From development to manufacturing, programming, testing in our test lab, service and support. Most of our devices are developed and produced according to specific requirements of the customers especially for their purposes and are unique pieces.



1. Your requirements

You tell us your requirements, we advise you individually and together we find the right solution.



2. Tests

Together, we conduct tests in our test lab with your original products to accurately define the device.



3. Development

Our specialists develop the feeding device or extruder according to your requirements using Autodesk Inventor 3D and create an acceptance drawing.



4. Manufacturing & assembly

In our workshop all parts are made of high quality materials and are assembled by specialists.



8. Spare parts & maintenance

We guarantee the availability of spare parts for at least 10 years from purchase and service your device worldwide.



7. Documentation

You will receive detailed documentation from us for your device according to your requirements.



6. Commissioning

The commissioning of the device is carried out either at our premises or at the customer's site, depending on the customer's wishes.



5. Control system

The careful construction of the control system is carried out in-house, as is the individual programming.

About us

Three-Tec is the specialist for the development and production of feeding systems, extruders and process equipment in process technology. Our family-owned company, now in its second generation, was founded in 2000, employs about 40 people and is based in Seon AG. We offer our international customers from all demanding industrial sectors a comprehensive

range of quality products, rounded off by competent advice and fast, reliable and individual service. The distribution is carried out by independent, experienced sales organizations. We strive for long-term cooperation with our customers, suppliers and employees and value them as important partners.

GLOBALLY PRESENT

Devices from Three-Tec are used by our customers in more than 35 countries on six continents. Customers from all demanding industries and the research and development sector rely on Three-Tec's high-quality devices: Our customers are active in the pharmaceutical industry, medical technology, food industry, cosmetics industry, chemicals and plastics production, building materials industry, power generation, bat-

tery production, tobacco industry and recycling industry. In addition, we can count many universities, colleges and testing laboratories among our customers. We manufacture many devices specifically according to the requirements of our customers.

Discover a selection of our customers on our website at

www.three-tec.ch/references



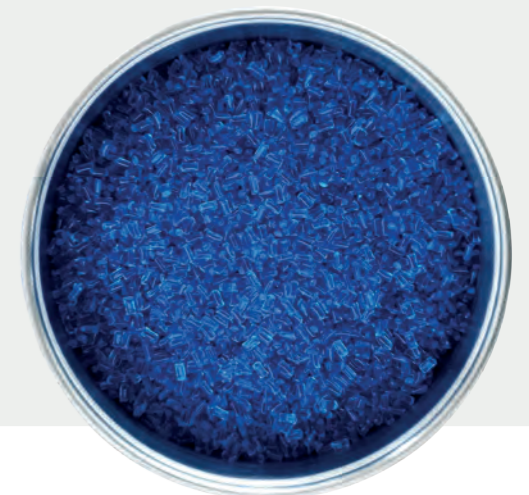
DISTRIBUTION

With our own sales organization, we distribute our products worldwide. In some countries, selected partners take over the distribution. On our website you will find the contacts of our partners and their sales regions under www.three-tec.ch/contact

MATERIALS

We find solutions for feeding and extrusion of all materials. A selection of the materials processed with devices from Three-Tec:

- > Pharmaceutical matrix substances for the binding of active ingredients with timed release function
- > Polymers such as EUDRAGIT®, Kollidon, Solupus, EVA
- > Synthetic polymers such as polylactides (PLA), polyamides (PA), polyethylenes (PE), etc.
- > High density polyethylene (HDPE)
- > Biopolymers such as thermoplastic starch
- > Paraffin
- > Coating materials such as AQOAT
- > Film coating like Kollicoat®
- > Ceramic materials
- > Metallic powder
- > Vegetable proteins such as meat substitutes
- > Expanded snack products and pet food



CERTIFICATIONS & GUIDELINES

ATEX (explosion protection)

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

Devices for zone 2/22 and 1/21

Devices for zone 0/20 on request

CE

Our devices meet the requirements of EC Regulation No. 765/2008.

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. At the customer's request, we document all FDA relevant parts used and compile a clear list with the corresponding FDA certificates.

Parts in contact with the product

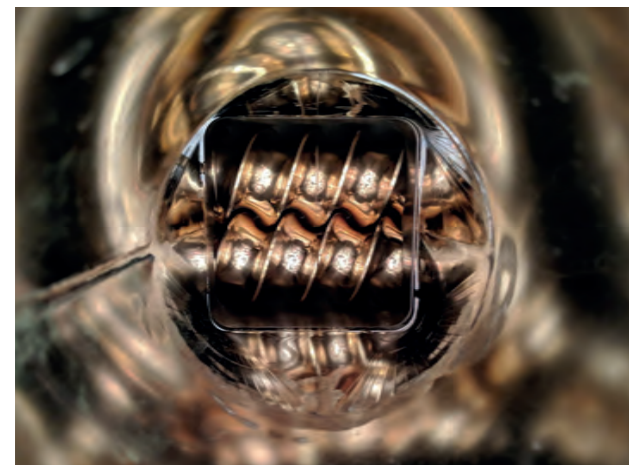
Stainless steel, Pharma Grade 1.4404 (AISI 316L) or according to customer specification.

Seals

PTFE, silicone, all seals are FDA suitable according to standard CFR 21 177-2600 and regulation EC 1935/2004.

Surface treatment

Different surface treatments are carried out according to customer requirements.



GMP

Production is carried out in accordance with GMP guidelines including documentation.

IP protection class

As standard, our devices are protected according to IP 54: Protection against dust in damaging quantity as well as protection against splash water from all sides. We can offer higher protection classes on request.

ISO

Three-Tec operates in accordance with the ISO 9001:2008 quality standard and is currently in the process of obtaining ISO 9001:2015 certification.

Material certificates EN 10204

For all stainless steel parts in contact with the product, test certificates can be issued according to customer requirements. You can choose between the works certificate 2.1, the tool certificate 2.2 or the acceptance test certificates 3.1. In the case of test certificates 2.1 and 2.2, we document all stainless steels that come into contact with the product; in the case of acceptance test certificate 3.1, we also prepare a clear list with the associated material certificates.

NAMUR NA 40 (dosing accuracy)

To achieve reproducible dosing results, Three-Tec adheres to the NAMUR worksheet NA 40 «Dosing accuracy of continuous scales».

Roughness measurements / protocols

At the customer's request, we carry out roughness measurements of the elements in contact with the product and prepare a clear report.

CORPORATE CULTURE

Three-Tec delivers quality products combined with competent advice and fast, reliable service. Even after the completed order, we are there for our customers and partners. Partnership-based, long-term relationships with suppliers and customers, which are characterized by respect and trust, enable short decision-making processes and rapid and cost-optimized order processing.

As a family business, our employees and their development opportunities are close to our hearts. We see them as capable people and encourage them to help shape our company, to take on responsibility and competencies within the scope of

their abilities and to develop individually. For this purpose, we offer them a varied and challenging range of tasks and progressive working conditions. To achieve our goals, we work with flat hierarchies and a flexible organization.

Three-Tec is strongly committed to vocational training for young people. We train apprentices who are fully integrated into production at an early stage and can thus take on responsibility and work independently at an early stage. In addition, we offer motivated people the opportunity to start their career with an internship or a trial apprenticeship.



CONTACT

We look forward to hearing from you. You will find direct contact persons for your concerns and further contact options on our website under www.three-tec.ch/contact



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