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Cone Screw Dryer



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HEINKEL DRYING AND SEPARATION GROUP

The companies making up the HEINKEL DRYING AND SEPARATION GROUP between them have over 130 years of experience, offering innovative and dependable solutions in filtration and centrifugal technology, nutsche and vacuum drying and mixing.

Our brands BOLZ-SUMMIX, COMBER, ELLERWERK, GFT and HEINKEL have excellent reputation around the world.

This group of international companies boasts one of the widest product ranges for the pharmaceuticals, fine chemicals, chemical and food products industries:

- Lab Centrifuges
- Vertical Centrifuges
- Sedimentation and Classifying Centrifuges
- Horizontal Peeler Centrifuges
- Inverting Filter Centrifuges
- Tubular Filter and Ball Segment Valves
- Nutsche Filters and Filter Dryers
- Paddle Dryers
- Pan Dryers and Central Shaft Dryers
- Conical Screw Dryers

We are specialized in designing, manufacturing, selling and providing comprehensive aftersales service for high quality components and full systems for separating solids from liquids.

Our global sales and aftersales service network gives you the benefit of direct sales, dedicated sales organizations and well established sales partners in many different countries.

You can benefit from our professionalism, our staff expertise that has been built up over many years, and the financial strength of an international group coupled with the flexibility and rapid response of an small and medium sized enterprise.

From day one of testing your product on our laboratory equipment to the point at which you are ready to commission and launch the system, our team of experts will be there to support you all the way.

After these stages our aftersales service staff, with their many years of experience will take over to ensure that your production system is available in a consistent and sustainable way.

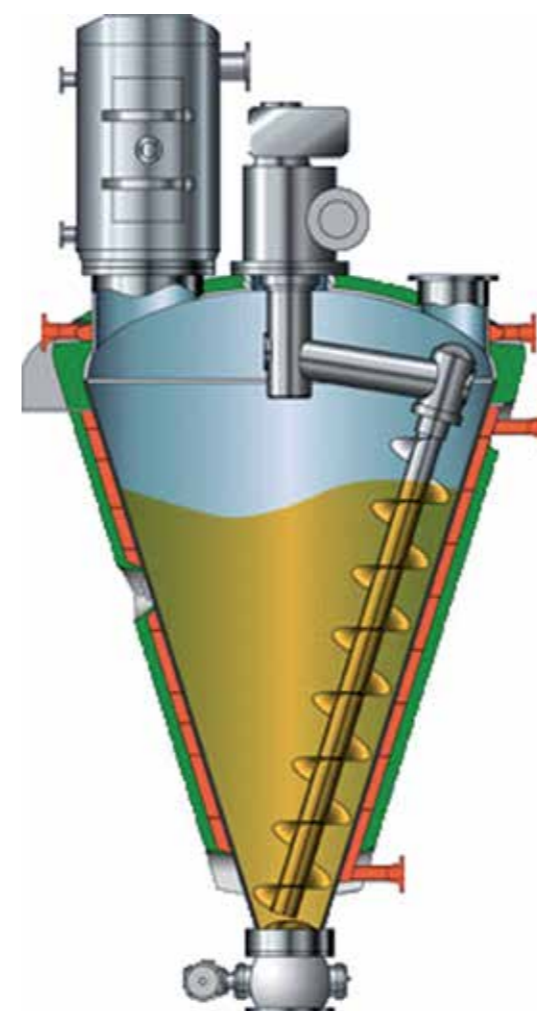
Complete system solutions comprising of a centrifuge, dryer and specific process equipment, with common control system can be integrated seamlessly for you by the Heinkel Group in our role as general supplier.

Your thorough understanding of both product and process combined with our long standing know-how in the areas of process engineering and the manufacture of process equipment and systems are the two essential ingredients for joint success.



Cone Screw Dryer

Typical processes – mechanical and thermal product treatment



The conical screw dryer is a vacuum contact dryer that is particularly suitable for drying hazardous and toxic products containing solvents or water, to a very low final moisture content, due to its closed design and indirect product heating.

As a result of its unique, very gentle mixing characteristics, even mechanically sensitive products are not destroyed; the product quality after the drying process is reproducible and as good as that of the initial product, whereas the driving force required is very low. The achievable, high vacuum ensures low drying temperatures (a clear advantage when drying temperature-sensitive products), good heat transfer and short drying times, while at the same time requiring little energy. The short drying times and the high level of the fully closed system make the conical dryer the best choice in cases in which environmental and/or product requirements are strict.

A directly fitted filter retains the dust particles in the processing space. Complete discharge and easy output ensure that you can continue to process your valuable products without a loss. Not just the solids, but also humidity and solvents can be recycled by the vacuum unit that has been integrated into the closed containment system.

Benefits:

- Fully cantilevered and tapered mixing screw
- Gentle product agitation with good product circulation
- Low mechanical shear forces
- High accuracy, perfect mixing and good reproducibility
- Suited for multiple industrial products and purposes
- Flexible during partial load (10 to 100%) without adverse effect on the product quality
- Cplt. residue free discharge of solids and cleaning fluids
- High efficient and easy CIP cleaning with full drain
- Completely closed and fully contained system
- Safe and proven sealing concept with various mech. seals
- Short drying times on a low energy level
- Low energy consumption for agitation and drying
- No contaminated gases exposed to the environment
- Speeds adapted to the product characteristics
- Shortened drying time with a heated mixing screw
- High level safety for product, operator and environment
- Flexible and can be used for multiple products and purposes

Preferred products:

- Free-flowing products such as: Powder, granulate, crystals
- Humid, crystallised active agents
- Mechanically and temperature sensitive products
- Products that decompose as a result of oxidation
- Dangerous products (toxic, carcinogenic, etc.)
- Flammable and explosive dusts
- Products wetted with various flammable solvents



Major characteristics at a glance:



- A conical container with a domed roof, an external drive unit and an internal mixing screw, guided by an orbital swivel arm. The head room is used to expand the vapours and to settle the dust.
- The drying heat is supplied via the conical heating system (as well as via the heated screw), the cover and the dust filter, which are temperature-controlled to prevent condensation or the formation of lumps.
- Complete closed, welded, robust stainless steel insulation jacket with various insulation materials in a stress-free design.
- A self-supporting mixing screw without floor attachment, with unimpeded, free, central product discharge for optimisation of residue-free discharge with an homogeneous and controllable product flow.
- The form and design of the screw allows for individual adaptation to the process/product.
- A conically expanded mixing screw to optimise mixing, minimising the mixing force and ensuring gentle mechanical treatment of the products to maintain excellent product quality.
- The short distance of the mixing screw from the wall and the reduction of dead space; when combined with optimised speeds, this ensures the best possible heat transfer with the shortest drying times and minimal wall deposits.
- Available in a special sanitary, GMP-compatible version with automated CIP.
- Various static and dynamic process seals, adapted to the process, product and designed for optimal reliability. Shaft-sealing systems ranging from a PTFE rotary shaft seal to a complex, monitored floating ring seal in cartridge or modular form.
- Speed-adjustable drives for flexible adaptation to individual applications.
- Modular drive system, exchangeability of various equivalent systems.
- Spherical segment valve as a closed output and input valve with an inflatable sanitary seal that is easy to clean. No dead space, with CIP nozzle.



Components:

- Heated dust and vapour filter, isolated with pressure surge cleaning
- Modular heating and cooling system
- Modular vacuum system with condensate/solvent recovery
- CIP installation and supply systems
- Closed product handling in containment systems
- System and process controls via SPS
- System instrumentation and process sensors incl. PAT
- Quality management and reliable validation of the entire system
- Ball segment valve at product inlet or outlet
- Product sampler, gas/liquid injection ring etc.
- Various screw designs, sanitary ribbon type, heated mixing screw

Cone Screw Dryer

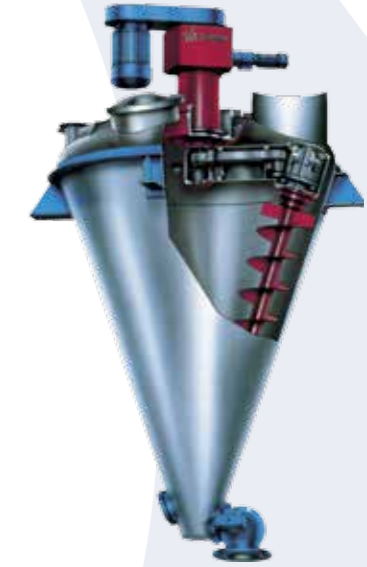
Drive concepts



Bevel gear drive (BOLZ)

The transmission of force from the screw motor to the screw takes place via a shaft and bevel gears.

- Safety chamber with leakage indicator
- Traditionally reliable bevel gear construction
- Option: The mixing screw can be heated to reduce the drying time and to avoid deposits

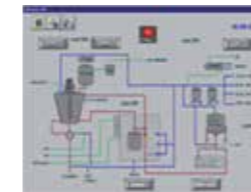


Belt drive (SUMMIX)

The transmission of force to the screw takes place via an arm and an oil-free drive belt at the upper end.

- With an easily exchanged, modular, pre-mounted cartridge for sealing and storage
- The principle of a high speed with a low torque
- Option: System sealing outside the container

Drying system



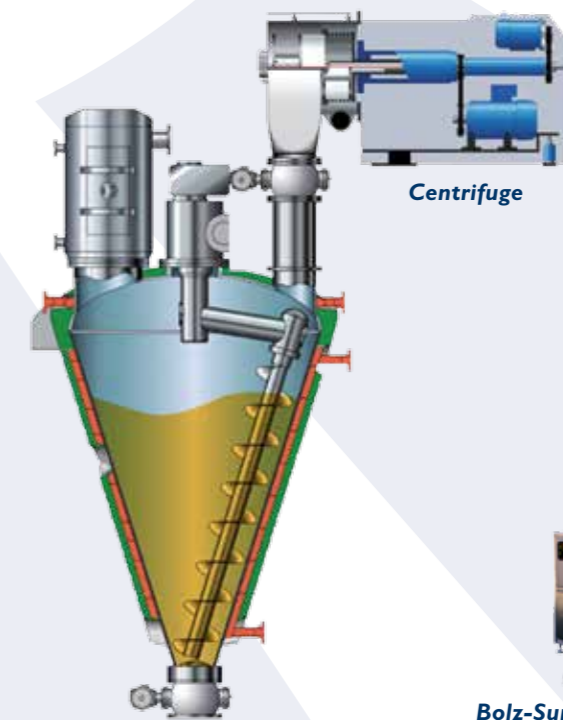
Control



Vacuum system / Solvent recovery



Heating / Cooling



Ball segment valve



Centrifuge

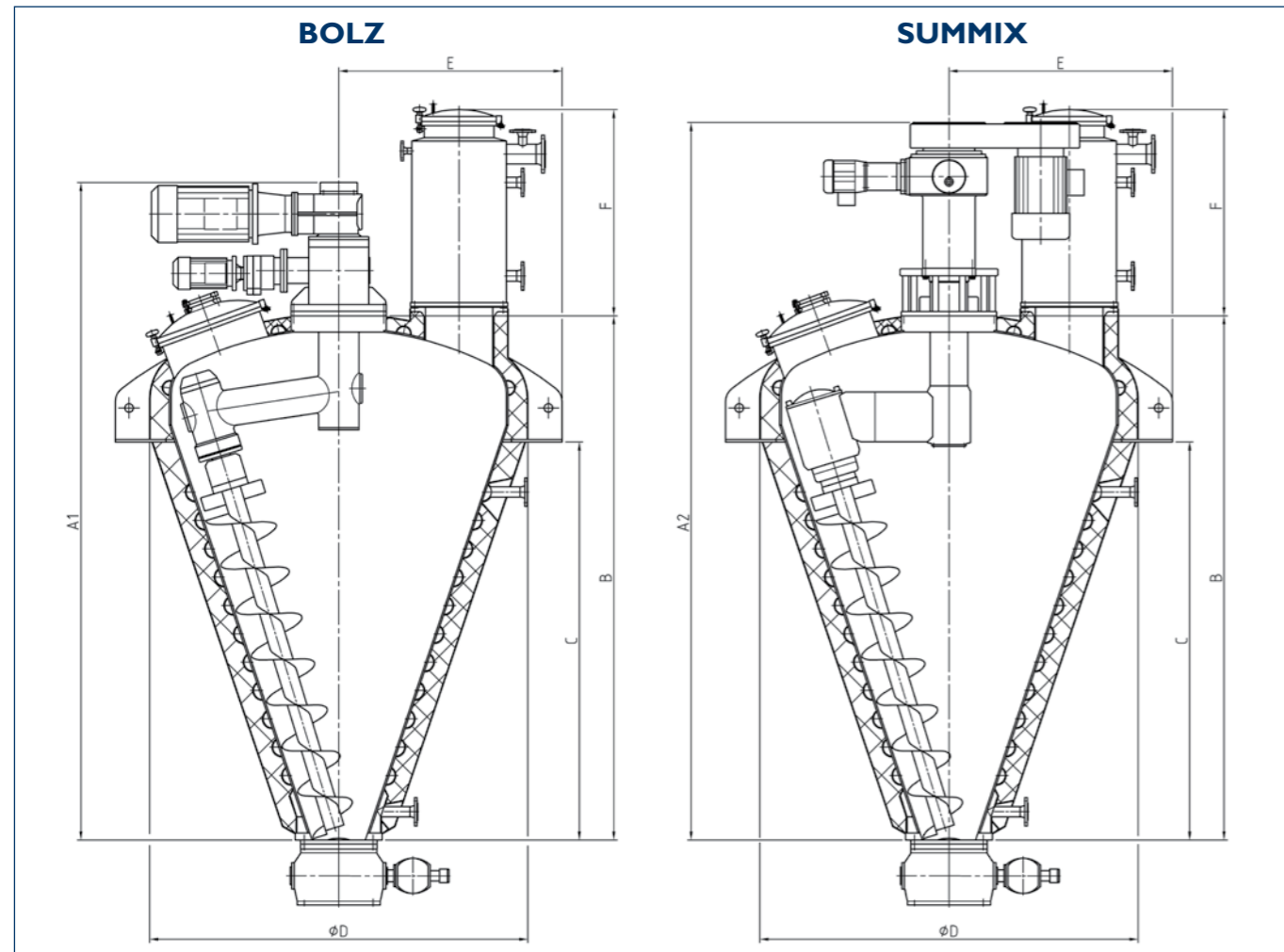


CIP system



Bolz-Summix discharge system

Measure table / Conus Screw Dryer



Usable volume	100 ltr	160 ltr	250 ltr	400 ltr	630 ltr	1000 ltr	1600 ltr	2000 ltr	2500 ltr	3200 ltr	4000 ltr	5000 ltr	6300 ltr	8000 ltr	10000 ltr
A1 BOLZ	1.540	1.650	2.430	2.770	3.310	3.550	3.930	4.300	4.490	4.850	5.140	5.280	5.670	6.000	6.270
A2 SUMMIX	1.840	1.950	2.510	3.130	3.550	3.790	4.330	4.700	4.890	5.030	5.630	5.770	6.160	6.490	6.760
B	1.100	1.210	1.770	2.110	2.530	2.770	3.150	3.520	3.710	3.850	4.140	4.280	4.670	5.000	5.270
C	780	870	1.300	1.540	1.980	2.220	2.330	2.600	2.780	2.900	3.120	3.330	3.600	3.840	4.090
D	850	1.000	1.350	1.550	1.850	2.050	2.200	2.350	2.450	2.600	2.750	2.900	3.050	3.300	3.450
E	530	600	830	930	1.130	1.230	1.300	1.380	1.430	1.500	1.630	1.700	1.780	1.900	1.980
F	480	480	700	700	1.040	1.040	1.200	1.200	1.480	1.480	1.700	1.700	1.840	1.840	1.840

Typical design data

Versions:	Optimized for pharmaceutical or chemical application
Design:	<ul style="list-style-type: none"> Constructed and tested according all pressure vessel rules like PED and ASME GMP and cGMP-compliant, pharmaceutical and sanitary design Customized surface finish for internal/external surfaces
Operating data:	According customer requirement/specification
Materials:	All stainless steels and special alloys like Hastelloy C 22 or Alloy 59, Titanium, etc.
EX-classification:	ATEX compliant according Directive 94/9/EG or according NEC
Heated areas:	All product wetted vessel components, optional heated screw

After Sales Service

Product Support

Wearing and spare parts

Worldwide delivery ex stock and web-shop for orders

Engineering support

Solutions for all mechanical, control and process engineering questions

Repairs

Worldwide on-site within 24/7

Solution Support

Conversions and retrofits

ATEX upgrades, cGMP upgrades, retrofitting of pressurised filling pipes, controllers, displays, drive system replacements, safety services

Maintenance contracts

After sales service with individually specified scope

Process engineering optimisation

Optimisation of comprehensive process engineering processes

Sales Support

Installation / commissioning

On-site installation
Mechanical and electrical testing, test runs

Training

Staff training on operation, control and trouble-shooting

Maintenance

Remote maintenance and on-site maintenance

Business Support

Used machines

Partial or full refurbishing of used machines from all manufacturers

Rental and pilot systems

for rapid compensation of broken down systems and basic tests

Financing

Hire-purchase, leasing



Service to us means doing everything so that your centrifuge, dryer, mixer and fittings will work reliably and safely for producing an optimum product.

We feel responsible for our machines and systems - from initial consulting through delivery, installation and maintenance up to the end of the entire life cycle.

Through the partnership-like cooperation with our customers around the world we jointly provide top performance, contributing significantly to your success.

In a world in which markets and people move together even more closely, our group of companies can assist you by providing top quality products, services and staff.

As one of the international leading vendors we endeavour to be as close as possible to our customers thereby ensuring utmost satisfaction

Firmly embedded on all levels of our company, we endeavour to provide high quality, accuracy and reliability every day.

Our staff is continually trained so as to meet all aspects of the high process engineering and statutory requirements of the pharmaceutical, chemistry and metal industries.

