Laboratory and pilot production machine for the pharmaceutical industry

WP 120 Pharma

Alexanderwerk

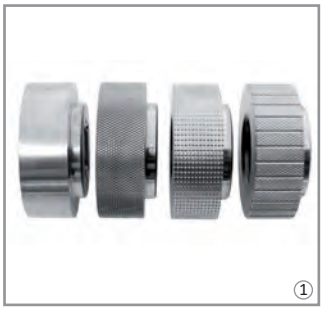
WP 120 Pharma:

Laboratory and pilot production machine for the pharmaceutical industry

With the introduction of the WP 120 Pharma, Alexanderwerk offers a roller compactor designed to meet the highest requirements and standards in pharmaceutical research and development. On this machine small amounts of as little as 5 g to a maximum up to 50 kg/h (Lactose) can be processed with the standard roller width of 40 mm into granulates of varying sizes. This enables realistic and fully controlled production condi-tions when processing special products, producing small batches in laboratory or at the lower production levels.

Because of its modular design, the process technology can be almost completely disassembled without special tools. Due to its canter lever bearing design the rollers can be easily cleaned or replaced. The mobile design provides great flexibility during compaction feasibility studies and allows an easy maintenance.

The WP 120 Pharma is designed to meet cGMP and its mobility is ensured due to its compact design and fully integrated control and operator panel. Moreover, previously determined process parameters can easily be scaled up to larger production machines.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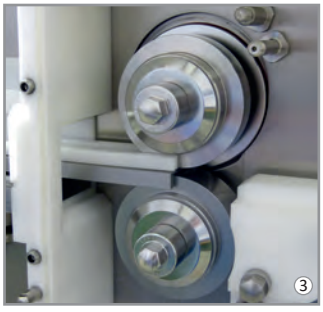
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The design and construction are orientated on the strict requirements of pharmaceutical industry and provide the following advantages:

- cGMP design
- consistent separation between process material and technical equipment
- rollers in cantilever design
- integrated two-stage rotor fine granulators in Diagonal-Design®
- made completely of high quality stainless steel
- non-metallic parts FDA approved
- automated PLC
- URS-conformity as required
- tool free disassembly
- easy and accurate Scale-up
- mobile machine base

Options

- micro compaction unit (3) for small quantities
- mini compaction unit with smaller screw (25 mm Ø) and narrower rollers (25 mm width) (2)
- circumferential side seals
- WIP (Wash in Place)
- 21 CFR Part 11
- containment solution with isolator technology
- additional roller surfaces (1) (smooth/grooved/knurled/squared or a desired combination)
- pressure water cooling
- hopper with level limit switch
- pneumatic conveyor for raw material/final granule
- through-the-wall-design
- AGS (Automatic Granulation System)
- Remote Access

Applications

For many years pharmaceutical companies as well as specialized providers all over the world have been using solutions supplied by Alexanderwerk to produce tablets, capsules, life science products, flavours, instant powders, intense sweeteners and many more.

Why Alexanderwerk?

Vertical roller arrangements

Instead of using a plug screw, Alexanderwerk works with a vertical roller arrangement, which allows greater control of feed flow without the influences of gravity. Moreover, side seal losses can be separated from the compacted material and can be added back to the raw material, if required. This leads to a minimization of fine material in the finished product without having any negative influence on the consistency and composition of the batch.

Two-stage granulation in Diagonal-Design®

Rotor screen granulators are commonly used in the chemical, food and pharmaceutical industry for sizing of soft to medium hard products. Alexanderwerk has developed a patented granulator in Diagonal-Design®, which raises the capacity up to 100 % by increasing the effectiveness of the working area of the screen. This leads to a doubling of throughput and in turn to a very gentle granulation with minimal fines generation. Additionally investment costs are reduced and the quality of the final product is increased.

All-round support

Beginning with the manufacture and followed by delivery, installation supervision, implementation, maintenance and on-site assistance – Alexanderwerk is at your service.

Keeping at the forefront of technology

The processing of pharmaceutical products places extremely high demands on the techniques used and must often be linked with individual and innovative solutions. For many years international pharmaceutical companies have been relying on the planning, construction and production of our advanced machines and customized designs as well as on our individual adaptations. In addition, we can also support our customers in the area of plant construction. To offer the best possible solution for our customers, we provide the combination of our own and third-party components from a single source. We are ready to face the challenge!

Trial/Test center

To guarantee the optimal processing of each product, Alexanderwerk offers its test center for different tests and process developments. This can be done in the presence of the customer as well as independently through Alexanderwerk. In both cases the customer is given a detailed test report to provide a better basis for further decisions.

Please feel free to contact us – we will be pleased to support you!

Functions and features of WP 120 Pharma

The processing principle of roller compaction and granulation is relatively straight forward. However, only the use of modern production technology in connection with highly-developed feeding and control technology enables an accurate and economic production of high-quality granules.

Interface for comprehensive control

The modern control and advanced technology of WP 120 Pharma enables a stable, fully controlled, continuous process whereby the compaction pressure and roller gap are kept constant while the automatic feed control will compensate any physical fluctuations in the product. Process parameters such as throughput, flake density, compacting pressure, roller RPM and others can be precisely and repeatable adjusted.

AGS (Automatic Granulation System)

The AGS (filed for patent) is an electro-technical adjustment of the screen basket for an exact and accurate repeatable positioning of the screen basket towards the rotor of the granulator. This adjustment is done fully automatic, it is reproducible and so grants continuous production results. Optional, defined settings can be stored in recipes and assigned to different products.

Two-stage granulation for small tolerances

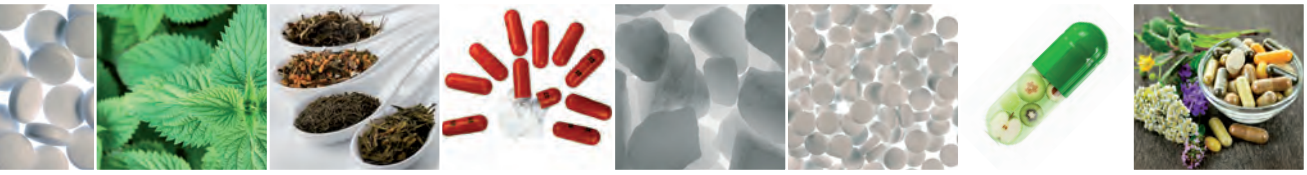
After pre-crushing the flakes are much larger than the oversize of the end product. Only in the Diagonal-Design®, two-stage granulation unit consisting of pre-granulation and fine-granulation, the final size of the granules can be achieved within previously defined tolerances. Moreover, it provides a very gentle granulation as well as an optimal utilization of an increased working area.

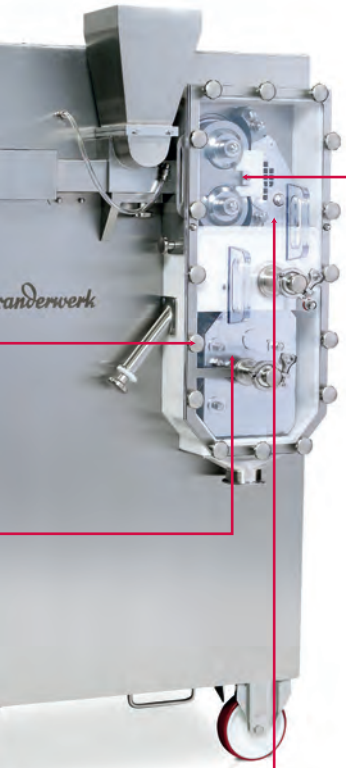
Pre-crushing for optimal further processing

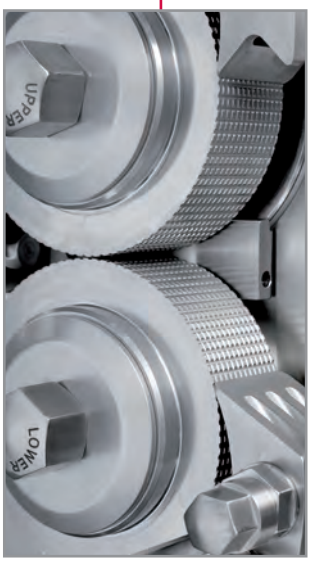
Granules are characterized by a defined grain size, which varies between a fixed upper and lower limit (undersize and oversize). Depending on product properties the compacted product often leaves the compaction area as flakes. The pre-crusher breaks the large flakes into smaller pieces suitable for handling in the downstream granulator.

Remote Access

The remote access by Secomea allows Alexanderwerk specialized staff, upon request and approval by the customer, to access the machine remotely via Internet. So we can online install immediate changes or support the customer in his control of the process. This might reduce expenses for service at site by our engineers.







Product feed hopper and accurate screw feeder for maximum throughput

The raw material is fed via a product feed hopper with a horizontal stirrer into the horizontal screw feeder unit. In most cases for this machine the product feed is carried out manually. The height of the powder column above the feed hopper does not affect the performance of the screw feeder. The function of the screw feeder is to accurately feed products to the rollers. Various special designs and materials ensure that a constant product feed is guided to the compaction unit without being pre-compacted. Close to the end of the screw feeder, just before entering the compaction zone, there is a vacuum area, which improves throughput and facilitates the processing of fluidizing products of low bulk density.

Individualized compaction unit

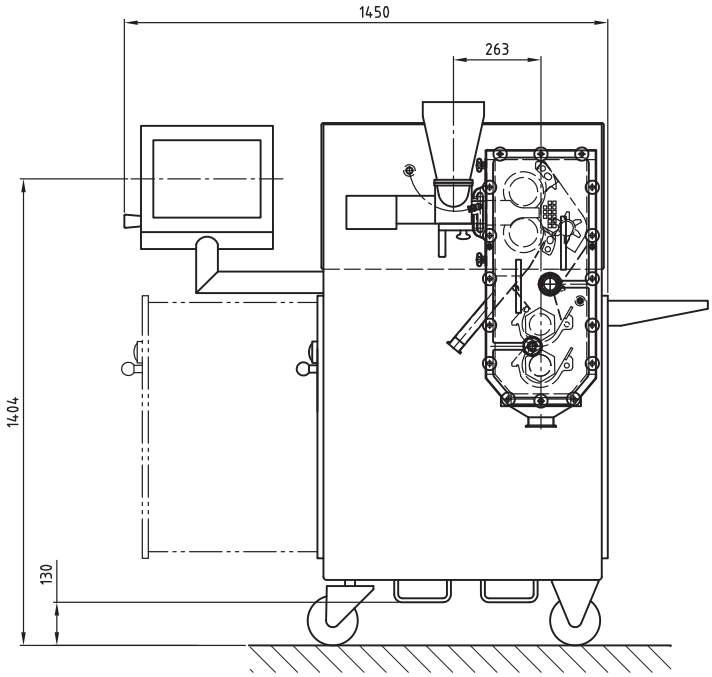
The thickness of the flakes (compacted material) produced on the roller compactor is measured by position transducers and kept constant by a roller gap control unit. The pressure force, a reference value for the degree of compaction, is variably adjustable by the hydraulic system. In case of possible fluctuations in the bulk weight, these are compensated by the screw speed. Furthermore, there are different roller combinations available to ensure the optimal compaction. Depending on the product, roller patterns (knurled, grooved, knurled and grooved, smooth and squared) in different widths are available. An optional circumferential side seal design prevents excessive side seal powder leakage during compaction, which can lead to an increased quality of the granule and a minimization of undersize, fine material.

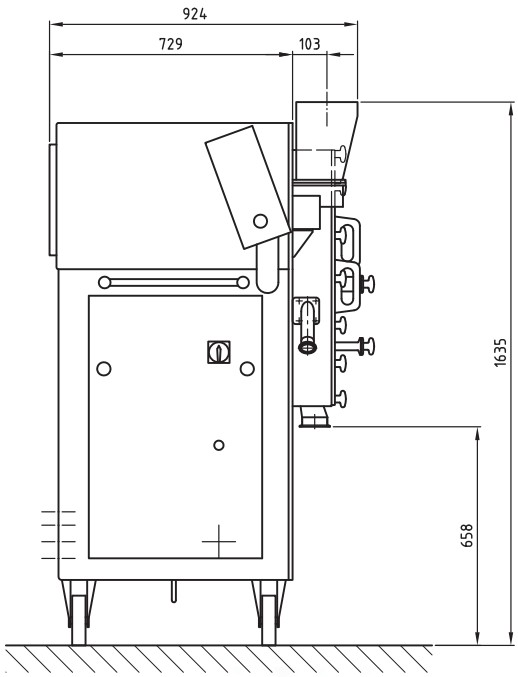
Remote Control

By an App, remote control via WIFI is possible with protected login on any current type smartphone or tablet. With a valid user authorization, he has access to all actual process data or view the actual panel display. Precondition is an existing network into which the machine can be integrated by LAN and which has got WIFI access. If this is not available, or if the user prefers a stand-alone solution without integrating the machine into the company network, we offer a control version which makes the Roller Compactor an Access Point.

Technical data

roller diameter	120 mm
roller width	40 mm/25 mm
throughput in batch mode	≥ 5 g
throughtput, continuous operation	8 to 50 kg/h (Lactose)
maximal pressure force	20 kN/cm
maximal roller gap	4 mm
maximal roller speed	15 rpm
weight (incl. control system)	approx. 825 kg
dimensions	1,635 mm x 1,450 mm x 924 mm





Alexanderwerk: The Compaction People

Alexanderwerk is a world leader in producing advanced compaction and granulation solutions for the pharmaceutical and chemical industry. For over 125 years Alexanderwerk has been dedicated to its customers and offers a wide range of custom made solutions. From stand-alone equipment to complete integrated, state of the art compaction plants – we aim to exceed our customer expectations by meeting the markets growing demand for higher quality and higher performance equipment.

So, whatever you need, just ask the people behind the technique.

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