

# Compaction and granulation machine for the chemical industry

PP 150 C



*Alexanderwerk*

## PP 150 C:

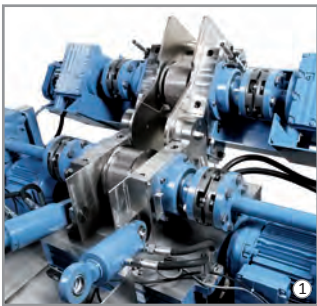
### Compaction and granulation machine for the chemical industry

The Alexanderwerk PP 150 C is especially designed as a machine which meets the highest requirements and standards of the chemical industry. As the smallest Alexanderwerk model for the chemical sector it provides a roller diameter of 150 mm and a roller width of 75 mm. With a throughput up to 400 kg/h the PP 150 C can be used in a test center, for the research and development as well as for the production.

Through the double sided bearing of the rollers and a robust construction a maximum pressure force of 30kN/cm can be assured. Moreover, previously determined process parameters can easily be scaled up to larger production machines of the Alexanderwerk PP and WP machine series.

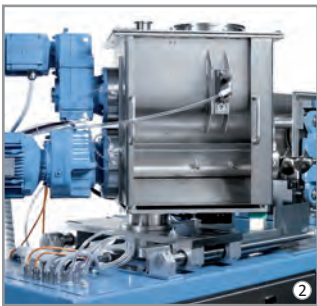
Because of its modular design, great flexibility as well as adaptability to different granule sizes is guaranteed. The basic machine, consisting of feed system and compaction rollers, can be provided either without a crushing step, with a single rotor fine granulator RFG 150 DS or with two rotor fine granulators RFG 150 DS. If required, a later upgrade is possible at any time.

To ensure a compact design, the control system, control cabinet including hydraulics, vacuum pump, cooling water and air distribution system as well as the interface are all integrated into the machine.



The concept and construction of the PP 150 C is orientated on the requirements of chemical industry and provides the following advantages:

- double sided roller bearing to achieve the maximum pressure force
- hinged clam-shell-design for an easy roller removal and maintenance (1)
- product contacting parts are made completely of high-quality stainless steel
- equipped as standard with the patented Combi-Vent-Feeder®
- extendable feed system on a rotary table for easier cleaning (2)
- feed unit with vacuum design as standard
- 4-drive-technology for rollers
- automated PLC
- circumferential side seals
- easy and accurate scale-up



#### Options:

- integrated one-stage or two-stage rotor fine granulators in Diagonal-Design®
- rotor fine granulators on separate extendable drive rail (3)
- additional roller surfaces (smooth/grooved/knurled/squared)
- pressurized cooling for rollers
- hopper with level-limit switch
- substructure available in high-quality stainless steel
- scoop for manual raw material feeding
- Ex-execution according to ATEX
- static flake crusher for reducing the flake
- roller gap measurement
- roller gap control
- pneumatic conveyer for raw material/final granule
- integration with and/or enlargement to a plant concept
- complex control system with batch operation (possibility of data transmission)



#### Applications

For many years chemical companies as well as specialized providers all over the world have been using solutions supplied by Alexanderwerk to produce a large range of products, including textile dye, battery compounds, salt, fertilizer, silicic acid, feedstuff, additives and many more.

## Why Alexanderwerk?

### Vertical roller arrangements

Because of the vertical arrangement of the rollers it is possible to feed the product horizontally to the rollers, which allows greater control of feed flow without the influences of gravity as well as a more gently handling of the product. This leads to a minimization of fine material in the finished product without having any negative influence on the consistency and quality of the batch.

### Combi-Vent-Feeder®

An essential characteristic of the patented Combi-Vent-Feeder®-system are the two chambers, which are located in sequence directly above the feeding screw. In the first chamber the raw material is fed uniformly through the feeding screw into the rollers. The air which is displaced during the compaction process is allowed to escape efficiently through the second chamber of the feed hopper without disruption of the feed. Furthermore the second hopper can be used to recycle undersize and oversize granule, if required, which is homogeneously added to the raw material feed.

### Two-stage granulation in Diagonal-Design® (Option)

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 increases the throughput up to 100 percent by increasing the effectiveness of the working area of the screen. This leads to a doubling of capacity and in turn to a very gentle granulation with minimal fines generation. In contrast to a high-speed crushing unit, the reduced speed of rotation of the Diagonal-Design® leads to a reduction of the required energy and temperature produced.

### All-round support

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

### Keeping at the forefront of technology

The processing of dry compaction products places extremely high demands on the techniques used and need often to be linked with individual and innovative solutions. For many years international chemical 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!







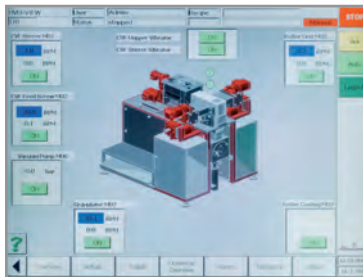
## Functions and features of PP 150 C

The processing principle of roller compaction and granulation is relatively well known. 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 PP 150 C enables a stable and continuous process whereby the compaction pressure and roller gap are kept constant while the automatic feed control will compensate for any physical fluctuations in the product. Process parameters such as throughput, flake density, compacting pressure, roller RPM and others can be precisely and repeatably adjusted.



### Rotor fine granulation for highest possible output (Option)

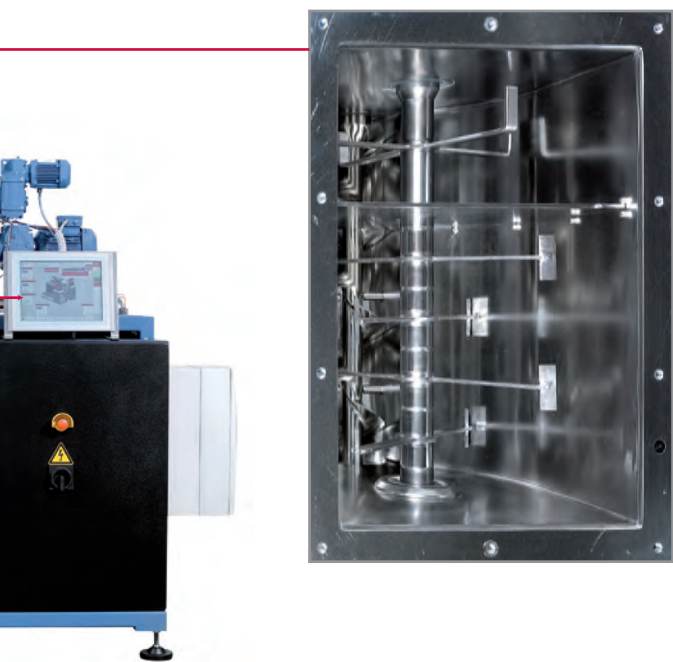
After the optional pre-crushing the flakes are much larger than the oversize of the end product. Only with the granulation unit in the Diagonal-Design® be the final size of the granules achieved within previously defined tolerances. Moreover, it provides a very gentle granulation combined with optimal utilization of the screen.



### Pre-crushing for optimal further processing (Option)

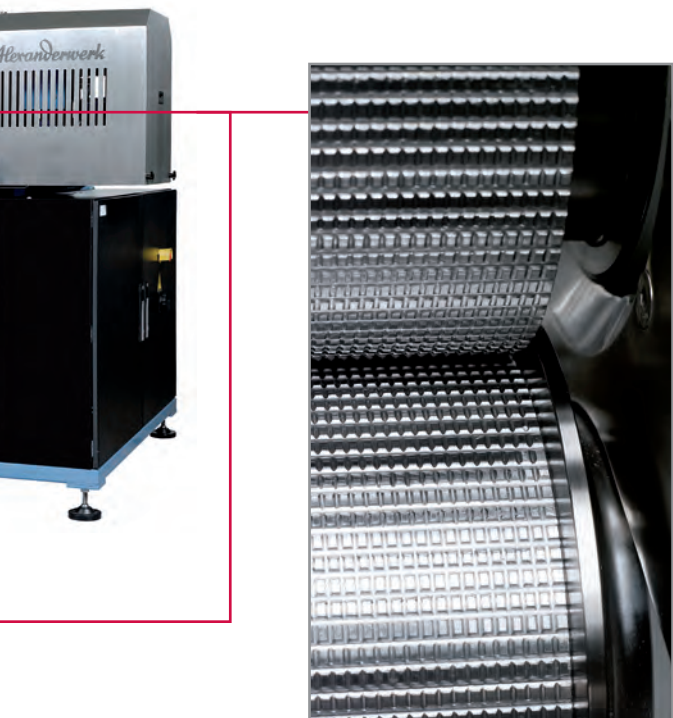
Granules are characterized by a defined grain size which varies between a fixed upper and lower limit (undersize and oversize). Depending on product properties the compacted product often leaves the compaction area as flakes. Without any rotating parts the static flake crusher breaks the large flakes into smaller pieces suitable for handling in the downstream granulator, if fitted.





### Patented screw feeding via Combi-Vent-Feeder®

By feeding using the patented Combi-Vent-Feeder®, the air which is displaced during the compaction process is allowed to escape effectively through the second chamber of the feed hopper without disruption of the feed. This leads to a uniform feed of raw material into the rollers. Furthermore the second hopper can be used to recycle undersize and oversize granule, which can be homogeneously added to the raw material if required. In addition, the feeding unit can be assisted by using a vacuum system which provides a minimal product layer on the inside of the screw casing. This greatly improves the processing of fluidizing products with low bulk density.

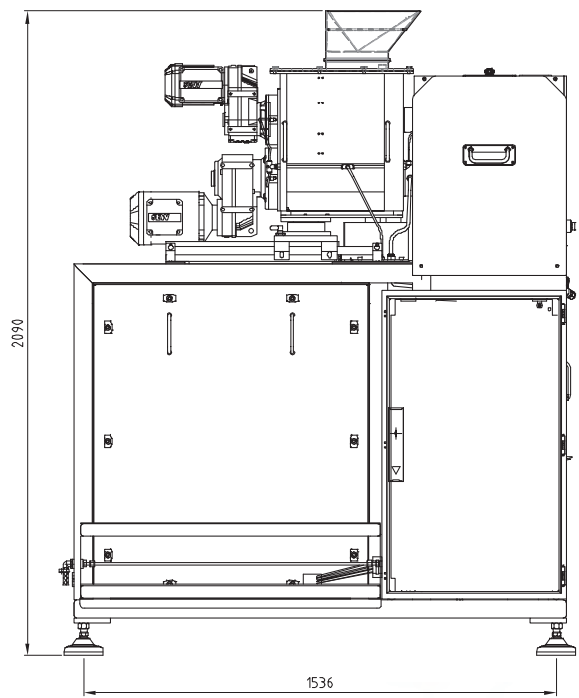
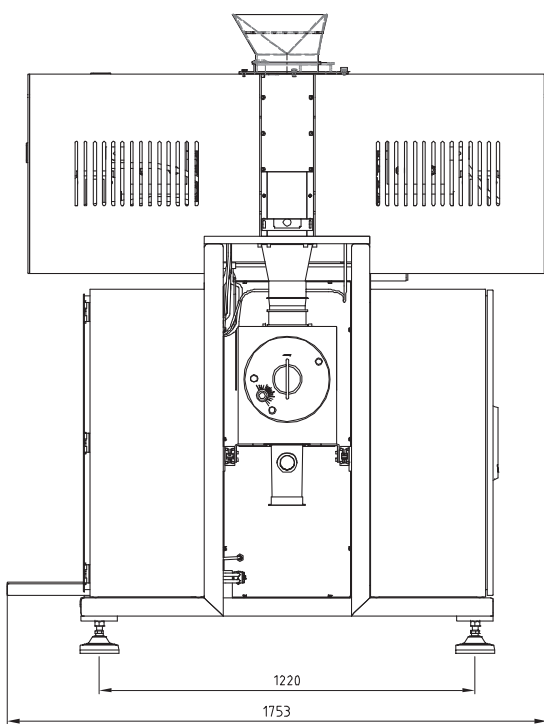


### Individualized compaction unit

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 in different widths are available. Circumferential side seal design prevents excessive side seal powder leakage during compaction which lead to an increased quality of the granule and a minimization of undersize, fine material.

## Technical data

roller diameter	150 mm
roller width	75 mm
throughput, continuous operation	up to 400 kg/h
maximal pressure force	30 kN/cm
maximal roller gap	5 mm
maximal roller speed	36 rpm
weight	approx. 1.500 kg (without RFG) plus approx. 100 kg per RFG 150 DS
dimensions	1.536 mm x 1.753 mm x 2.090 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 technology.*