

Roller compactors for dry granulation



RC 210 Pharma

Roller compactors type RC



RC 250
with pneumatic lift
device and two
stage size reduction

Your powder does not flow and cannot be dosed, you have a problem with dust, the solubility is insufficient, segregation occurs or the bulk density is too low? How do your problems with powder and dust disappear? Quite simply: with granules produced by high-performance roller compactors made by Powtec. We offer you a wide range of various roller compactors for particle size enlargement by press-agglomeration of powder and dust. As individual as your demands: From the laboratory machine for processing a few hundred grams right up to the production machine of more than 4.000 kilograms per hour. The application area of this technology is many fold; it ranges from pharmaceuticals to chemical materials or metal powders right up to flavours for food production.

Your advantages at a glance

- • **Economical:** Dispenses of intermediate processes such as wetting, mixing and drying as compared to wet granulation systems.
- **Variable:** Grain size, bulk density, flowability and solubility of processed granules are adjustable. Blends or Mixtures will be homogenised.
- **Environmentally friendly:** Granulated materials reduce the packaging size, minimise dust burden, avoid cross contaminations and product loss.
- **Space saving and high-grade:** All machines feature a compact design and are manufactured of high grade stainless steel.
- **Easy to clean:** The machines can be easily and quickly cleaned due to a unique, patented roll exchange system. All machine components are easily accessible for inspections.
- **Reliability:** The roller compactors are suitable for hard, continuous operation as well as batch production.
- **Low investment costs:** Modular design, a large variety of models and comprehensive standard variations ensure a considerable reduction in costs. Each machine is tailored to the individual application.

The process

The roller compactor forces fine powders between two counter rotating rolls and presses the raw material into a solid compact or sheet, so called flakes. Finally these flakes are then reduced in size to the desired grain size.

In detail

At the beginning of the process the powdery and fine crystalline materials are fed into the compactor hopper. Here, an integrated screw feeder with stirrer secures an even flow of material. Due to it's design, the screw has a pre-compacting and de-aerating effect on the raw material. The vertical screw feeder feeds the product into the nip area of the compacting rolls. The adjustable speed of the screw directly influences the roller gap and therefore the compaction capacity of the roller compactor.



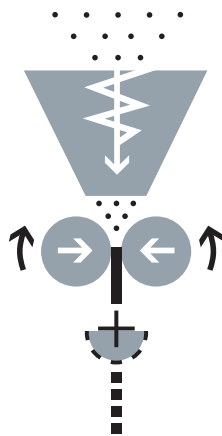
→ roll exchange system



→ Touch panel and feeding screw

The roller compactor then compacts the material into flakes. The feed characteristics of the product are influenced by the surface of the rolls. The retention time of the product within the compaction area is determined by the adjustable speed of the rolls. The necessary compaction pressure is transmitted to the rolls via the hydraulic system. It is infinitely variable within a range. The hydraulic unit keeps the set roll pressure constant, in order to guarantee a homogeneous flake, whilst scrapers keep the rolls clean.

The flake then falls into one or several subsequent rotor sieving mills after compaction. Incoming flakes are reduced in size as carefully as possible in order to prevent the generation of fines. The selected sieve defines the final granule grain size. An integrated screening machine to separate fines is available on request.



Special Features

- • Innovative developments corresponding to the latest state-of-the-art guarantee **maximum throughput capacity**, process stability, reproducibility and product quality.
- Specially constructed pre-compression feeder screws enable efficient processing, even of particularly **light, voluminous and fluidising powders**.
- High accuracy of dose guarantees an **even product feed** across the entire roll width.
- **Roller surfaces of various shapes** improve the product feed behaviour and enables the maximum yield in each application
- A **novel roll seal system** optimises the compacting process, increases the rate of yield and reduces the necessity of separation and recycling of fines.
- Granules with a **consistent hardness** are produced due to constant roll force distribution.
- Drives with adjustable speed and an adjustable hydraulic pressure ensure **high process flexibility**.
- Enclosed **compaction zone** and enclosed mechanical drive area are **isolated** from one another.
- The process results obtained can be **scaled up and down**.



RC 100 Pharma
with integrated separator

Standard Options

- • Chemical-, food- or pharmaceutical executions (in cGMP- design)
- Control system with touch-sensitive panel
- Recipe administration
- DQ/IQ/OQ/PQ- qualification inclusive of FAT and SAT
- Various screw feeders and stirrers
- Water-cooling of the rolls for temperature-sensitive products
- Pneumatically operated lifting device for simple and fast cleaning of the screw feeder
- Various roll surfaces and materials
- Gentle and low-dust high-performance size reduction in one-stage or two-stage design
- Roll gap control
- Integrated sieving machine, with undersized particle re-feed on request
- Special designs for particularly abrasive products such as metal powder or diamond powder compounds
- Designs for operation in hazardous explosive areas according ATEX
- Complete turnkey dry granulation systems

RC 500
production unit



Specifications

Machine	Typical throughput ¹	Press-Force absolute	Electrical power ²	Weight ²
RC 100	 15 kg/h	 49 kN	 2 kW	 300 kg
RC 120	 60 kg/h	 60 kN	 4 kW	 600 kg
RC 150	 120 kg/h	 76 kN	 6 kW	 900 kg
RC 170	 200 kg/h	 116 kN	 8 kW	 1.100 kg
RC 210	 350 kg/h	 186 kN	 12 kW	 1.700 kg
RC 250	 600 kg/h	 269 kN	 20 kW	 2.400 kg
RC 290	 900 kg/h	 402 kN	 25 kW	 3.300 kg
RC 370	 1.600 kg/h	 637 kN	 40 kW	 5.400 kg
RC 500	 4.500 kg/h	 1.127 kN	 80 kW	 9.900 kg

¹ **Throughput:** Dependent on the product to be processed

Note: specifications are subject to change

² **Electrical power and weight :** Specifications vary depending on the design

powtec

Maschinen und Engineering GmbH

Berghauser Strasse 62
D - 42859 Remscheid / Germany
Telefon + 49. 2191. 38 9194
Telefax + 49. 2191. 38 9196
e - mail info@powtec.de
www.powtec.de

We are happy to carry out trials with your materials in our laboratory or for longer periods of evaluation rental machines are available for on-site trials.

Our promise: To meet our customers high demands on quality, economic efficiency, production safety and environmental protection.