



11 Self Boulevard Carteret, New Jersey USA 07008 Phone 631.804.4575 Fax. 732.527.0419

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## **COMPACTION GRANULATION**

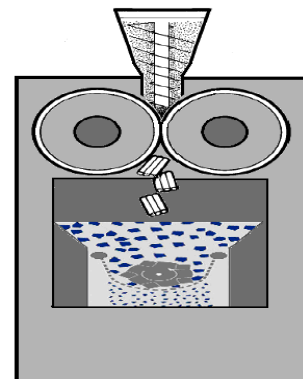
The **PTG Series** is the workhorse of our compactors. These versatile, heavy-duty roll compactors are built for the most rugged of applications. Designed for dry particle agglomeration, these compaction operations can be set up with a variety of configurations to optimize each process. Roll types are also manufactured utilizing a vast array of application metals and alloys to suit your individual process.

**PHARMTEC** compaction machines offer an alternative to agglomeration via wet processing. Instead, high density, free flowing granules are produced directly from the roll compactor. The design employs two-counter rotating rolls force-fed with feed screws. Capacities for our roll compactors range from 5 kg to 200 kgs per hour. Most materials are processed without the addition of moisture or binders, making roll compaction systems among the lowest in operating cost.

At **PTI International** we offer solutions for each situation that call for a granular product, with maximum resistance to attrition and with maximum bulk density. Hard dense sheets produced by roll compactors can be sized and screened to specific particle sizes. Granules made by this method of compaction and granulation offer maximum flow and density.



Compaction Illustration:



**Proposal A2009-0027**  
**PTG-100**

**1.0 Client Process Requirements**

The PTG-100 is part of the Compactor product line recently introduced by Pharmtec.

The PTG roller compactors are specifically designed to increase throughput, ease maintenance and provide access to product contact parts for cleaning

**2.0 Plant & Process Description**

**2.1** The process of dry agglomeration has become an increasing popular solution to the requirement for particle size control and the associated flow characteristics of particulate matter. It is particularly suitable for products sensitive to moisture and heat. Raw material is mechanically compacted into a flake or ribbon and subsequently granulated to a defined size distribution.

The process steps combined in this machine are:

**Feeding-----Compaction-----Size reduction**

**2.2** Raw material is fed to the rollers via the Feed Hopper Screw Assembly, which includes a screw feeder unit.

This vertical screw feeder system allows for the transport of powder into the nip area of the horizontal oriented rollers at a controlled and defined rate.

The compaction of the raw material is accomplished by the two counter rotating rollers under hydraulic pressure.

The operating pressure, an indication for the level of compaction, is infinitely adjustable within the defined range by means of the hydraulic system.

**2.3** The Hydraulic pressured side seals promote reduced side seal leakage and efficient mass transfer of raw product to the roll set. The quality compact is the result of proper feed to the roll set.

- The compact flake thickness is determined by various settings of the feed screw control verses roll speed and hydraulic pressure.
- The roll compactor is a robust design meeting the rigorous demands of the pharmaceutical process industry, yet is easily disassembled to inspect and clean all product contact parts.

**3.0 Scope of Supply**

**3.1 1 Roller Compactor Model Number PTG 100**

Complete assembly per following specification:

1 Roller Unit for compaction of powder:

- Horizontally positioned roller set
- Roller surfaces available as smooth, knurled, or knurled and grooved

- Roller cooling; roll set and shafts are supplied as ready (cooling kit required)
- Speed adjustable by frequency inverter
- Load and speed monitor on the panel
- The compacting pressure is infinitely adjustable within the design limits and is kept constant during the compacting process
- The complete process area of the machine is covered by a protection shroud, allowing visual observation of the compacting process.

**Technical Data:**

- Roller diameter: 8"
- Roller width: 4"
- Pressure range: 80barr

**1 Hydraulic System** for generation of the required pressure, consisting of:

- Accumulator with hydraulic pump and all necessary valves and instruments
- One hydraulic cylinder
- Piping, hoses

**2 Counter acting rotary fine Granulator blades**

- Operation mode: rotation only
- Rotors and screen mesh easily disassembled
- Including a set of standard screens
- Screen clearances adjustable from outside

**1 Machine Frame** for all process units (from raw material feed to flake discharge) and the complete electrical controls

- The hydraulic system and the vacuum pump are located within the machine frame and are easily accessible via doors.
- The machine frame is washable.
- The thermal energy generated in the machine frame is eliminated by forced-air ventilation.
- Control unit integrated in the machine frame, with 5 meter connecting cable.
- Optional, the machine can be installed on castors.

**Set of Tools**

A set of tools for assembly / commissioning is supplied with the machine.

**3.2 2 PLC based controls**

To ensure safe operation and reproducible product quality, a PLC control is provided.

**3.3 Standard Process Options**

- Feed screw and screw feeder housing made of special plastic for processing materials that tend to adhere to stainless steel surfaces
- Water Cooling