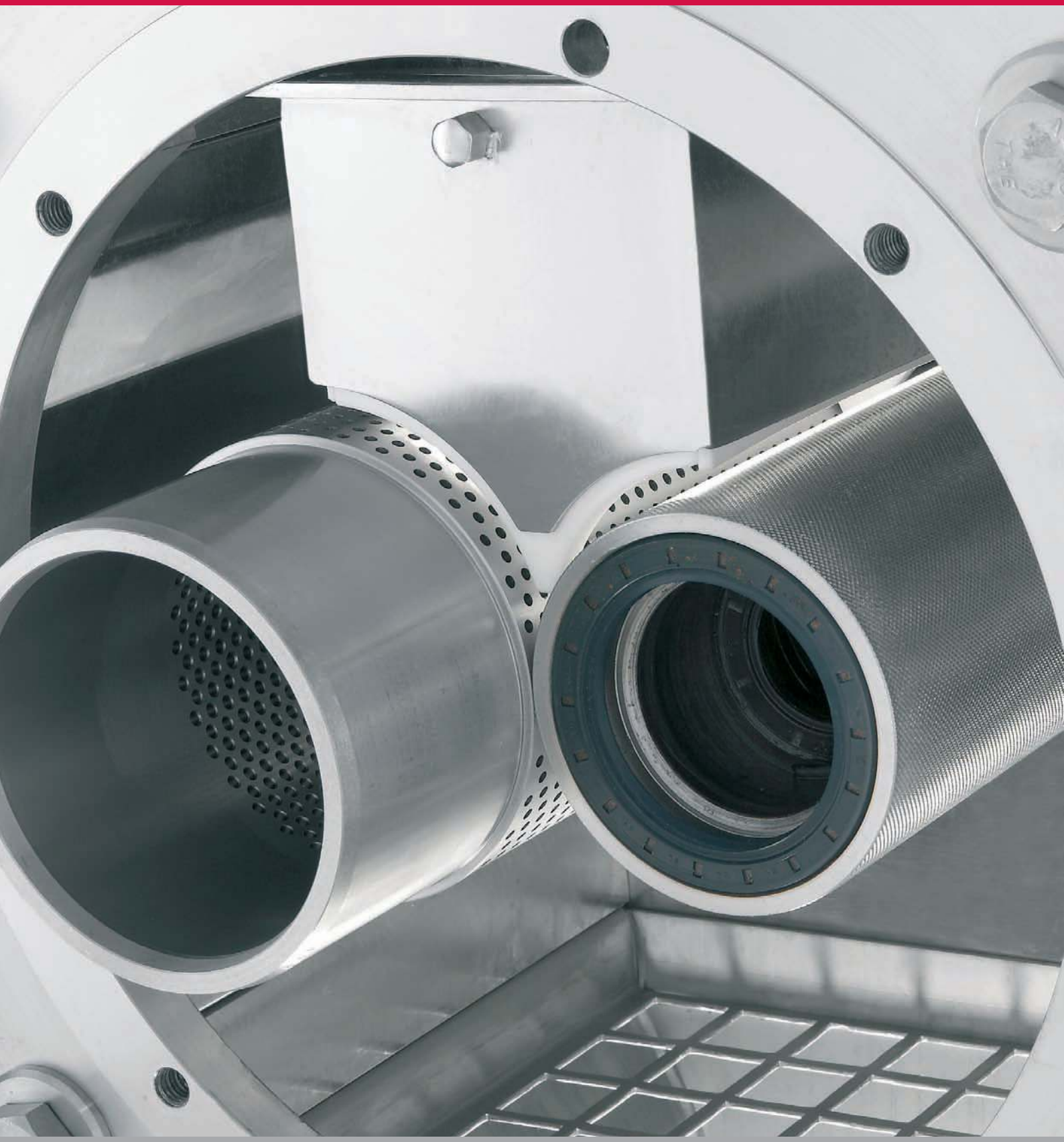
Moist Granulators for the Chemical and Pharmaceutical Industries

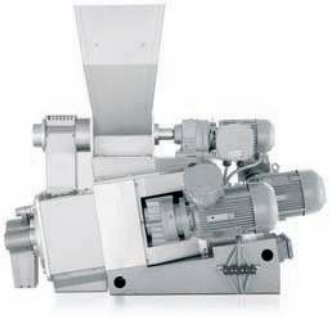


Alexanderwerk

Moist Granulators by Alexanderwerk

Type GA 65 Moist Granulator
The GA 65 has been designed as an attachable unit for operation on a universal drive motor of the UM series made by Alexanderwerk. The UM universal drive motor comes with an integrated quick release cuppling for slip-on attachment of a variety of other process equipment items. These may be optionally a grater/shredder, a rotor fine granulator, or a mixer. Picture shows a GA 65, a universal drive motor, and an optional trolley (the actual design may slightly vary from the picture). Throughput up to 100 kg/hr, granule diameter 1 mm to 5 mm.

Type G 1/100 Moist Granulator
Throughput up to 500 kg/hr, granule diameter 1 mm to 6 mm.



Type G 1/168 Moist Granulator
Throughput up to 1,000 kg/hr, granule diameter 1.5 mm to 8 mm. (Picture shows G1/100).

Type G 1/244 Moist Granulator
Throughput up to 2,000 kg/hr, granule diameter 2 mm to 10 mm.

A variety of special or customized designs is available upon request. The actual design of the machines may slightly vary from the machines shown here due to technical changes or improvements.

Alexanderwerk AG Kippdorfstraße 6–24 42857 Remscheid/Germany
P +49 (0)2191 79 50 F +49 (0)2191 79 53 50 imaschinen@alexanderwerk.com www.alexanderwerk.com

Applications

- Activated carbon
- Aluminium hydroxide
- Aluminium stearate
- Red lead oxide
- Yellow lead oxide
- Effervescent powder
- Calcium fluoride
- Iron oxide powder
- Iron sludge
- Degreasing agent, Industrial grade
- Cooked bones
- Colour pigments
- Fatty alcohol
- Fish paste
- Fluxing agent
- Glutamine
- Yeast
- Ground hay
- Insecticides
- Cacao / powdered sugar mixtures
- Cacao / glucose / powdered sugar mixtures
- Potassium chloride
- Hydrated lime
- Kaolin
- Catalyst materials
- Ceramic materials
- Various herbal powders
- Diatomaceous earth
- Bone flour dust
- Caffeine
- Cryolite
- Laculat dentifrice
- Magnesite dust
- Magnesium peroxide
- Magnesium perchlorate
- Melamine pressing dust
- Sodium perborate
- Sodium salicylate
- Sodium silicate
- Nickel carbonate
- Cellulose nitrate
- Pectin
- Phenol pressing dust
- Polyethylene
- Powdered sugar
- Stearin
- Sulphonamide
- Talcum powder
- Salicylic acid, technical grade
- Carpet cleaning powder
- Clay / feldspar mixtures
- Vulcanisation accelerator
- Washing powder
- Xanthates
- Zinc white
- Zinc sulfide

Sample Products

Paint pigments

Nickel carbonate

Moist Granulators

With its G series of machines, Alexanderwerk offers a range of powerful moist granulators for the production of granulates of defined diameters from moist, pasty substances. The granulators produce what is called a pellet granule. Depending on the machine model and cylinder perforation choosen, throughputs are between 30 kg/hr and 2,000 kg/hr.

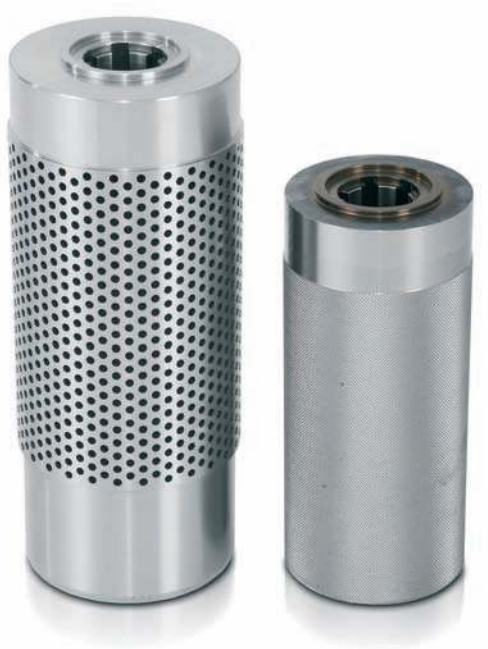
- Production of dimensionally stable granules
- Homogenisation of products from upstream processes (to improve drying properties, for example)

Granulating cylinders with bores from 1.0 mm to 10.0 mm are available to achieve different granule geometries, and the pressure cylinder is knurled (profiled) to enhance feed characteristics.

The G series moist granulators made by Alexanderwerk have been particularly designed for the specific requirements of the chemical and pharmaceutical industries.

A typical feature of machines made by Alexanderwerk: modular and compact machine design. The pressure and granulating cylinders are easy replaceable for cleaning or batch change. The modular design facilitates a whole range of special features, such as a combined arrangement together with an Alexanderwerk grater/shredder. Various customized designs are already available, such as moist granulators made of Hastelloy, machines made according to ATEX, or gas-tight designs.

- Components in contact with the material are made of medical grade stainless steel
- Sloped machine position for increased material discharge
- Granulating head fitted with pressure and granulating cylinders
- Scraper blade inside the granulating cylinder
- Detachable coupling for quick change of drive gears
- Drive via spur gear motor
- Optional: dosing hopper with integrated screw feeder
- Optional: movable design, or comes with a trolley
- Optional: pharmaceutical grade design
- Optional: infinitely variable friction adjustment
- Optional: explosion-proof design according to ATEX
- Optional: gas-tight design
- Optional: water cooling for the pressure cylinder



Granulating cylinder with bores from 1.0 mm to 10.0 mm, knurled pressure cylinder

Moist Granulation

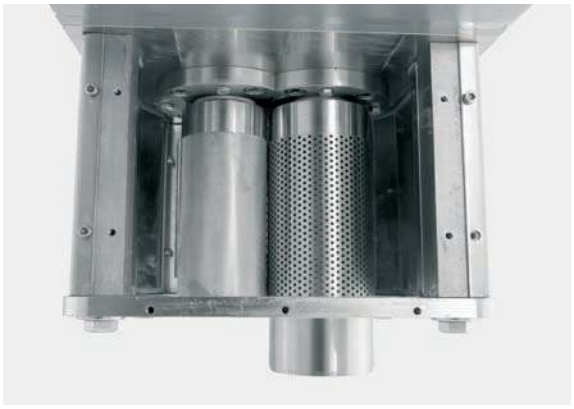
Moist granulation is a continuous process.
Moist, formable and pasty materials are processed to granulates.
Owing to their defined particle size, granules can be better processed than virgin powders. In a moist granulating process, two cylinders counter-rotate, viz. the pressure cylinder and the granulating cylinder. The granulating cylinder has bores and acts as a shaping impression die. The pressure cylinder forces the material into the granulating cylinder through the bores, whereby the material is compacted. The degree of compaction is a function of:

- the ratio between the bore length and bore diameter,
- the ratio of the circumferential speeds of the pressure and granulating cylinders (friction).

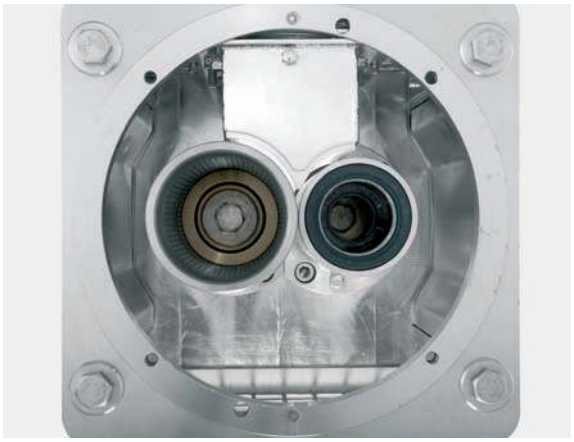
Inside the granulating cylinder, the compacted material is cut off by a scraper.
In many cases, a drying process must be provided downstream of the granulation process to extract moisture from the granules, and to obtain dimensionally stable granules.

A requirement for moist granulation is adequate anti-frictional properties of the moist material. Depending on the consistency of the material, the granulate yield will be between 90 % and 95 % relative to the input volume.

Granulating cylinder (left) and pressure cylinder (right) (Picture shows an open G 1/100 moist granulator).



The pressure cylinder forces the material through the bores of the granulating cylinder.



The ratio between the bore length and bore diameter, and the ratio between the circumferential speeds determine the degree of compaction, and thus the properties of the finished granule.