GEA NIRO® Rotary Atomizer A3D

Atomization of fluid feeds for spray drying.

Engineering for a better world.

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Small, reliable performance, every day

GEA developed the NIRO® Rotary Atomizer A3D to give customers a hygienic, versatile atomization system that meets all cGMP requirements for handling food and dairy products in spray dryers. The GEA NIRO® Rotary Atomizer A3D offers variable speed for great flexibility, so you can fine tune process parameters to meet a wide range of requirements. We've designed the equipment to give you top quality results, confidence in your processes, and the ability to meet different particle and powder property expectations.

Key features:

- Patented direct drive high speed motor.
- Control of rotational speed via frequency converter, to meet process requirements, and achieve desired powder and particle properties.
- High-speed bearings, greased and sealed for life, to help prevent contaminating the product with oil.
- Easy servicing, which reduces time and costs.
- Comprehensive program of easily changed atomizer wheels for either abrasive or non-abrasive feeds.
- Patented wear-resistant GEA WEARSERT® wheel design
- Proprietary GEA VOLUTE feed distributor
- Hygienic design, easy to clean and inspect equipment, EN 1672-2-compliant.
- Internal ATEX zone 22 compliant.

The A3D atomizer monitoring system comprises, as standard:

- Tachometer
- Bearing temperature sensor
- Spindle vibration monitor
- Motor winding temperature sensor

In addition to the standard monitoring equipment, options include:

- Air to wheel monitoring
- Configuration for operating in an external ATEX zone (external ex zone 2/22)

The atomizer wheel

The GEA A3D atomizer can be configured with different 100 mm and 120mm atomizer wheels to match feed characteristics, as well as the desired properties of the finished powder and particles, and production capacity/ throughput. GEA has designed the system to be user friendly for operators.

Straight and curved channels handle non-abrasive feeds, while bushing and pin-type wheels handle abrasive feeds. Parts exposed to feed are abrasion resistant and easily replaceable.

The channel wheel is equipped with either low or high straight channels, or with low or high curved channels. The straight channel wheels are used when there are no specific bulk density requirements in the final product. The curved channel wheels produce a higher bulk density than the straight channel wheels), and so are ideal for organic products, for example.

The atomizer drive

Powered by a high-frequency, high-speed GEA motor, the A3D atomizer comprises an upper part that houses the motor, and a lower part. Motor and spindle are built together, which gives a simpler design with no flexible element in between, and power is transmitted directly into the vertical spindle.

The lower part comprises the support for the guide bearing, feed pipe assembly and liquid distributor, all enclosed by a conical skirt. The flexible spindle design means that fluctuations in feed rate, and other imbalances, are compensated continually, which helps to prevent damage to the spindle and bearings. The precision, high-speed bearings are greased and sealed for life to help prevent any lubricants contaminating the product.

Specifications

Wheel diameter	100 mm or 120 mm
Power	up to 3 kW (depending on rotational speed)
Nominal operational range	10,000 – 36,000 rpm
Nominal feed rate	up to 150-500 kg/h (highly dep. on rotational speed/wheel)
Weight	35 kg (including motor)

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