maag
a DOVER company

automatik scheer
strand
pelletizers

AERO/CENTRO/DURO

Efficient pellet drying technology for any application

Efficient pellet drying is the guarantor for high quality. As different pellets have different properties, process-optimized drying technology is mandatory. Maag Automatik is the only supplier to meet this variety of requirements with its range of dryers consisting of the AERO impact dryer, the CENTRO centrifugal dryer, and the DURO belt dryer. The dryers are applied in combination with the upstream SPHERO® underwater pelletizing system or with the upstream M-USG/P-USG underwater strand pelletizing system to meet the particular requirements for production.

Your benefits

- High drying quality both for virgin polymers, compounds, and products with any fillers or reinforcements and elastomer plastics.
- Drying of spherical and cylindrical pellets and micro-granular compounds
- Wide range of operating capacities, from small quantities up to 40,000 kg/h
- Smooth handling of the pellets
- Low life cycle costs when drying abrasive products
- Energy-efficient

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Processes and machines and systems made by Maag Automatik stand for cost-effectiveness, flexibility, and reliability worldwide. With over six decades of experience and an installed base of currently more than 8,000 pelletizing systems, the company helps its customers to achieve the maximum level of profitability.

DURO belt dryer with SE suction unit

Basic principle of pellet drying

The drying operation as part of the pelletizing process consists of three individual steps:

1. Pre-dewatering: Up to 95 % of the process water is removed by gravitational force.

2. Primary drying: Bigger water drops adhering to the pellets are largely removed through airflow or mechanical movement.

3. Final drying: The residual heat of the pellets is used to evaporate the remaining surface moisture.

Pre-dewateringunit and curved screen inside theAERO impact dryer

Rotor and sieve inside the CENTRO centrifugal dryer

DURO BELT DRYER

The solution for abrasive pellets

The DURO belt dryer in combination with the SPHERO® underwater strand pelletizing system is the perfect solution for the production of abrasive or brittle pellets such as compounds highly filled with fiber glass or minerals. The drying process does not use any rotating parts and thus is a very gentle process reducing costs related to wear to a minimum.

Your benefits

- Most gentle pellet handling due to the lack of relative movements of the pellets against the dryer components
- Minimum dust
- High product quality
- Minimized life cycle costs due to reduced wear and extended life-time of the components in direct contact with the pellets

DURO belt dryer

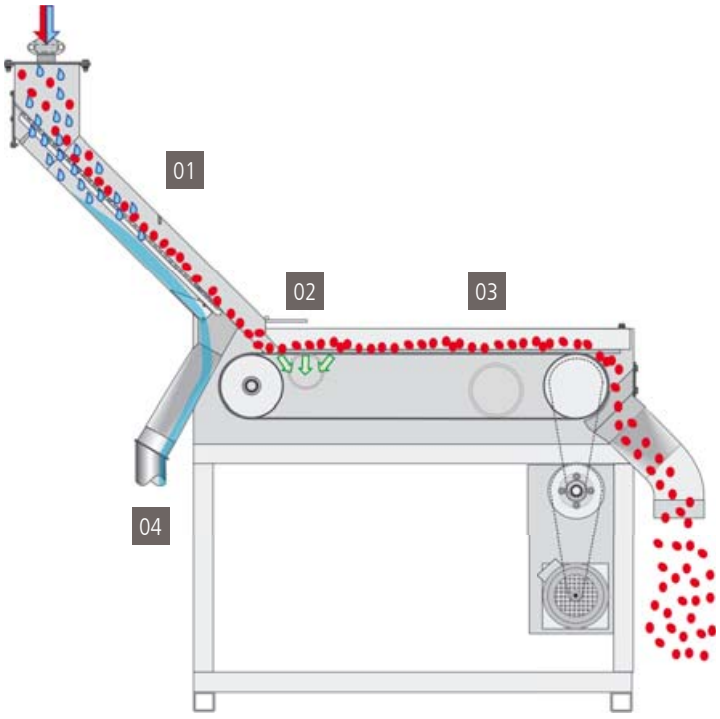
Functioning

The slurry of water and pellets is fed through through the pre-watering chute **01**, which removes up to 95% of the process water.

The pellets are then evenly distributed onto the perforated conveyor belt **02**. Suction through the perforated belt **03** at high airspeed removes surface water from the pellets. The residual heat of the pellets assists in the evaporation of the remaining surface moisture.

The pellets may be further cooled in subsequent components, e.g. a spiral cooling conveyor. The collected water **04** is recirculated back to the process loop.

Conveyor belt with pellets



Functional diagram of DURO belt dryer

AERO IMPACT DRYER

Gentle drying of plastic pellets

The AERO impact dryer provides for gentle, low-impact separation of cooling water in connection with M-USG underwater strand pelletizing systems. As the pellets are conveyed and dried without moving mechanical parts, high pellet quality is guaranteed. Over several decades, many customers have valued the unique benefits of the AERO dryer, in particular for virgin polymer production – consistently high pellet quality, easy handling, and maximum operating availability.

Slotted screen for AERO 800

Your benefits

- Very gentle drying of the pellets
- Minimal residual surface moisture on the pellets
- Recirculation of the process water back into the process loop thus reducing water consumption
- Good access makes cleaning easy
- Optional sound protection hood for the fan

AERO dryers in a production facility

Functioning

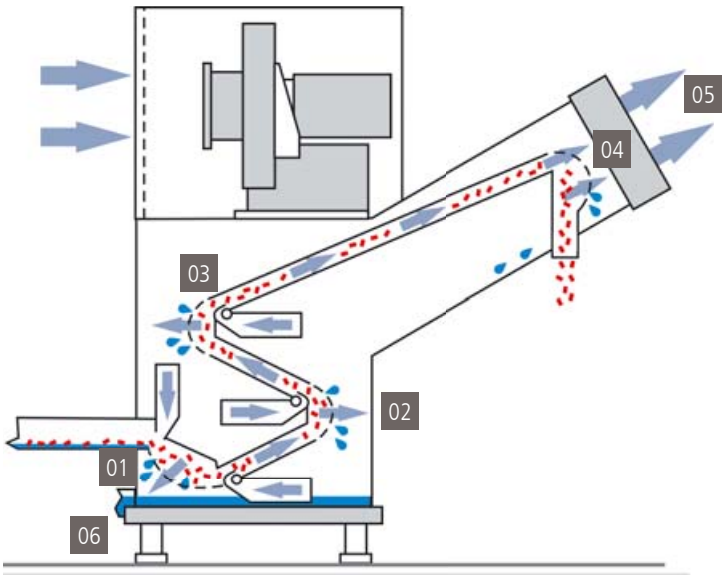
The slurry of pellets and water from the pelletizer is conveyed to a pre-dewatering unit **01** and an air knife. As an initial step, 95% of the water is separated through gravitational force.

The pellets are then moved by a blower-powered airflow and hurled against the downstream curved screens **02**, **03**, and **04**, which take the remaining water from the pellets.

The residual heat of the pellets supports evaporation of the residual surface water.

A drop separator **05** dewaters the exhaust air.

The separated water **06** is recirculated back to the process loop.



Functional diagram of an AERO dryer

CENTRO CENTRIFUGAL DRYER

Energy-efficient drying with minimal required space

The CENTRO series of dryers is suitable for use with both SPHERO® underwater pelletizing and M-USG and P-USG underwater strand pelletizing systems. Well thought-out and highly accessible components, such as the core rotor device, serve to provide excellent operating characteristics and efficient servicing.

Your benefits

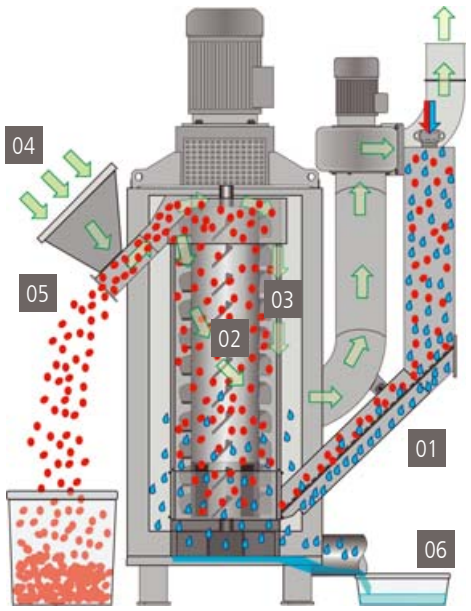
- Excellent pellet quality due to minimal residual moisture
- Compact design providing optimized access for cleaning and maintenance
- Pneumatic interlock of dryer doors for safe and easy servicing
- Integrated pre-dewatering chute provided as standard equipment
- Easy exchange of all parts subject to wear, e.g. rotor blades
- Special design for micro-granular compounds
- Adjustable rotor speed – optional
- Self-cleaning system – optional

Functioning

The slurry of pellets in water from the pelletizer is washed into the dryer either in a horizontal or in a vertical way. As an initial step, 95% of the water is separated through gravitational force **01**.

The spinning rotor with its inclined lifter blades drives **02** the pellets in an upward spiral toward the pellet discharge opening. The adhering process water is hurled away and escapes outward through the cylindrical screen **03**. In addition, an airflow in reverse direction is generated **04**. The negative pressure at the pellet outlet **05** lets the pellets exit the unit and keeps moisture back. The collected water **06** is recirculated back to the process loop.

The combination of centrifugal force, airflow in reverse direction, and the pellet temperature optimized for the hygroscopic properties of the polymer raises the guarantee to achieve high pellet quality.



Functional diagram of a CENTRO centrifugal dryer

Easy access to the rotor for cleaning and servicing

CENTRO 50 centrifugal dryer

AERO/CENTRO/DURO

Efficient pellet drying for any application

Type of dryer:	AERO impact dryers	CENTRO centrifugal dryers	DURO belt dryers
System:	**M-USG**	**M-USG, P-USG or SPHERO®**	**SPHERO®**
Main applications:	All virgin polymers, e.g. PET, PBT, PA, PMMA, PC, PS, etc.	All virgin polymers, compounds, masterbatches, recycling applications, micro-granular compounds, thermoplastic elastomers, etc.	Abrasive or brittle compounds
Pre-dewatering:	Gravitational separation through a slotted screen		
Primary drying:	■ Separation through impact against curved screen sections in a bending flight channel ■ Evaporation of the residual surface moisture due to residual heat of the pellets	■ Separation through impact against surface of rotor blades and of cylindrical screen ■ Airflow in reverse direction ■ Evaporation of the residual surface moisture due to residual heat of the pellets	■ Airflow (suction) through perforated conveyor ■ Evaporation section on the conveyor/spiral conveyor
Pellet conveyance:	Pellets are hurled through the flight channel by blower-powered airflow	Pellets are lifted and hurled by a spinning rotor with inclined lifting blades	Pellets rest on conveyor belt
Throughput rate:	Up to 15,000 kg/h	Up to 40,000 kg/h	Up to 6,000 kg/h

AERO/CENTRO/DURO

Technical data

Impact dryer*:	AERO 500	AERO 500	AERO 800	AERO 1000
Throughput rates:	4,000 kg/h	7,500 kg/h	10,000 kg/h	15,000 kg/h
Water throughput:	20 m^3/h	35 m^3/h	40 m^3/h	50 m^3/h
Motor power (blower):	11 kW	18.5 kW	30 kW	2 x 18.5 kW
Air throughput:	45 m^3/min	90 m^3/min	100 m^3/min	2 x 90 m^3/min
Operating pressure:	800 daPa	800 daPa	1,000 daPa	800 daPa

Centrifugal dryer*:	CENTRO 50	CENTRO 150	CENTRO 300	CENTRO 800
Throughput rates:	500 kg/h	1,500 kg/h	3,000 kg/h	8,000 kg/h
Water throughput:	20 m^3/h	35 m^3/h	45 m^3/h	70 m^3/h
Motor power (rotor):	1.1 kW	4 kW	5.5 kW	7.5 kW
Air throughput (blower):	10 m^3/min	27 m^3/min	27 m^3/min	27 m^3/min
Motor power (blower):	0.13 kW	1.1 kW	1.1 kW	1.1 kW

Centrifugal dryer*:	CENTRO 1600	CENTRO 2200	CENTRO 4000
Throughput rates:	16,000 kg/h	22,000 kg/h	40,000 kg/h
Water throughput:	120 m^3/h	120 m^3/h	250 m^3/h
Motor power (rotor):	11 kW	15 kW	22 kW
Air throughput (blower):	74 m^3/min	74 m^3/min	125 m^3/min
Motor power (blower):	3 kW	3 kW	5.5 kW

Belt dryer*:	DURO 1000	DURO 3000	DURO 6000
Throughput rates:	1,500 kg/h	3,000 kg/h	5,000 kg/h
Water throughput:	25 m^3/h	45 m^3/h	80 m^3/h
Motor power (belt):	1.1 kW	1.1 kW	1.1 kW
Pellet temperature at the end of dryer (with spiral conveyor):	100-140 °C (60-80 °C)		

* Depending on polymer, pellet weight, and pellet size.

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Global contacts, see **www.maag.com**
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