

# HIGH CAPACITY CENTRIFUGAL DRYERS

## Pellet Processing Systems for the Plastics Industry



Model 100 High Capacity Centrifugal Pellet Dryer for processing rates up to 150,000 kg/h

Machinery and systems made by Maag/Gala 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 and drying systems, Maag/Gala helps its customers achieve maximum profitability.

*Maag/Gala is the leading manufacturer of centrifugal dryers in the world.*

### Your benefits

- Safety—timed door interlocks
- Easy access
- FEA supported design
- Vibration monitoring available
- Low noise emissions
- Low energy consumption
- Suitable for various applications
- Minimum floor space
- Proven reliability
- Customization available
- Full scale demonstration available

# HIGH CAPACITY CENTRIFUGAL DRYERS

## Function and Application

### Function of the Gala Centrifugal Drying Systems

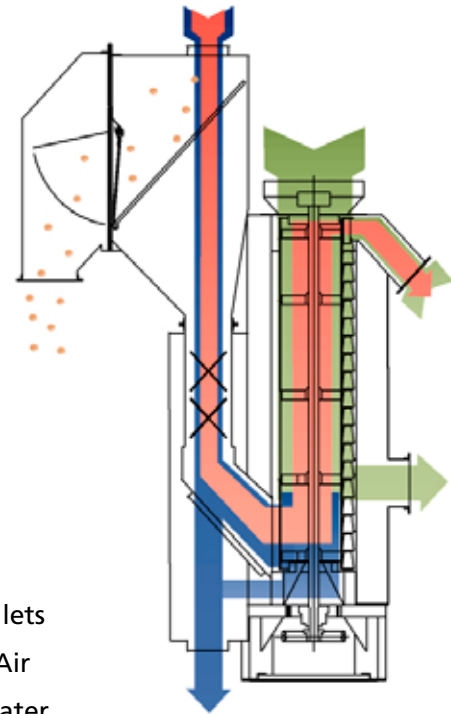
The pellets emerging from the pelletizer are carried by the process water through piping to an agglomerate catcher at the inlet of the centrifugal dryer. The agglomerate catcher protects the dryer by removing larger pellet clusters (agglomerates) that may be produced during start-up before they enter the dryer rotor. Large systems are equipped with a pre-dewatering system in which up to 95% of the process water is separated from the pellets. The pellets and residual water flow into the rotor section of the dryer. Both the speed of rotation and the design of the lifters inside the rotor cause the pellets to move between lifters and screens while being conveyed by centrifugal action in a helical path up the dryer rotor. The water is separated through the screens, and the pellets are continuously conveyed into the upper section of the dryer where they are discharged from the resin outlet.

The drying process reduces the residual moisture, depending on the polymer. Final drying is achieved in the upper two-thirds of the screen surface and in the pellet outlet chute of the dryer. Dry, countercurrent air flow, generated by an external exhaust fan, removes the residual surface moisture from the pellets, assisted by the pellets' latent heat.

The pellets are targeted to exit the dryer continuously at a residual moisture of 0.05% (LDPE). The length of the water transport line impacts the residual moisture of the pellets and determines the pellet temperature entering the dryer. Additional factors that influence residual moisture are pellet size and shape, pellet surface, and hygroscopic characteristics. In some cases, additional cooling, post-drying, or classification may be utilized. Materials of construction are offered in 304L stainless steel (which is standard), 316L Stainless Steel, 2205 duplex Stainless Steel and Hastalloy.

### DESIGN INNOVATIONS FOR HIGH CAPACITY CENTRIFUGAL DRYERS

- Segmented Rotor Designs
- Wedge Wire Rotor Screens
- Circular Wedge Wire Feed Screen
- Wedge Wire Dewatering Screens (Model 70, 100 & 150)
- Heavy Duty Housings (Model 70, 100 & 150)
- Proven designs from full scale testing
- Positive (Face) Seal Agglomerate Catcher
- Four (4) Year Warranty (from time of shipment)



Red = Pellets

Green = Air

Blue = Water

Orange = Agglomerates



Model 100 Solid Rotor

# HIGH CAPACITY CENTRIFUGAL DRYERS

## System Components

### ADVANTAGES OF THE SOLID ROTOR ON MODEL 100 AND 150 DRYERS

- Stronger construction
- Ability to run higher rotor speeds
- One-piece solid shaft
- Easier shaft replacement and alignment
- More efficient conveying from feed section; more pellets flow into rotor
- Built to feed in up to 150 t/h into rotor

### DRYER ROTOR SCREENS

The screens are an integral part of the centrifugal dryer and serve to retain the pellets in the rotor area as they travel up the rotor to the pellet outlet. The surface moisture escapes through the screen openings and drains back into the process water tank. Wedge wire screens are used on high capacity centrifugal dryers for their strength, durability and simplification of the pellet flow path by eliminating screen mounting rings that can impede pellet flow.

Wedge wire screens have continuous slots, which have more usable open area, are stronger, and more durable than wire mesh or perforated metal screens. Each intersection of rod and wire is welded, resulting in longer wear life. Greater strength and durability of these screens reduces the chance of screen failure and loss of pellets, combined with construction features that minimize potential for contamination.

### Benefits:

- More usable dewatering area than punched screens, as center support rings are eliminated
- Better air flow = more efficient pellet drying
- Designed with removable panels = easy access to dryer rotor

### Advantages of wedge wire feed screens and dewatering screens on Models 70, 100 and 150 Dryer):

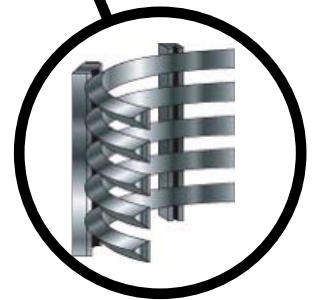
- Cylindrical design absent of support structures
- Greater dewatering ability due to wedge wire construction
- All welded S/S construction = greater strength and extended service life



Solid Rotor



Wedge Wire Rotor Screen



Construction of Wedge Wire Screen



Wedge Wire Dewatering Screen (Models 70, 100, 150)

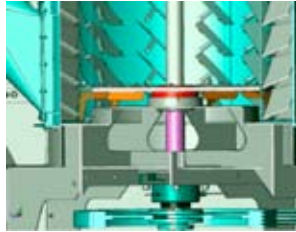


Wedge Wire Feed Screen

# HIGH CAPACITY CENTRIFUGAL DRYERS

## LABYRINTH SEAL OF BOTTOM BEARING

- Leak proof design tested and proven at full rate testing facility
- No mechanical seal required
- Eliminates costly seal maintenance



## B-10 BEARING LIFE

The bearings used on Gala dryers (Rexnord / Sealmaster®) have a calculated B-10 bearing life that meets and exceeds 50,000 hours. The B-10 calculations were performed by following the bearing manufacturer's instructions.

## PELLET DIVERTER VALVE

The purpose of the pellet diverter valve is to divert product (pellets) from the pellet outlet of the centrifugal dryer during start-up, for product sampling, or for filling containers. The pneumatically actuated pellet diverter valve bolts to the pellet outlet of the dryer and is constructed of 304L stainless steel.



Model 100 Centrifugal Dryer

## POSITIVE (Face) SEAL AGGLOMERATE CATCHER (PSAC)

The positive seal agglomerate catcher is bolted to the dryer inlet and is designed to catch and discard oversized pellet clusters (agglomerates) before they engage the dryer rotor. Constructed of 304L stainless steel, the agglomerate catcher includes an inclined grate and a gasketed, pneumatically actuated access door for cleaning. Sealing is outside the pellet path. Features include a recessed flapper door, extended agglomerate grate, and removable grate.



## Advantages—

- Pneumatically actuated gasket seal around the agglomerate catcher gate provides a solid seal to eliminate moisture leaks.
- Gasketed, pneumatically actuated gate seal prevents accidental operator exposure to hot process water.



## TECHNICAL CENTERS

Gala's technical centers are available to customers who wish to evaluate the suitability of a Gala system for purchase, for assistance in product development, for R&D, or for product market sampling.

# HIGH CAPACITY CENTRIFUGAL DRYERS

## Specifications

	Model 60	Model 70	Model 100	Model 150
<b>Drying Capacity (1)</b>	60,000 kg/h (130,000 lbs/hr)	70,000 kg/h (150,000 lbs/hr)	100,000 kg/h (220,000 lbs/hr)	150,000 kg/h (330,000 lbs/hr)
<b>Dewatering Capacity Max. BF (GPM)</b>	90 m3/h (400 GPM)	90 m3/h (400 GPM)	90 m3/h (400 GPM)	90 m3/h (400 GPM)
<b>Dewatering Capacity Max. DW (GPM)</b>	685 m3/h (3,000 GPM)	910 m3/h (4,000 GPM)	1,360 m3/h (6,000 GPM)	1,360 m3/h (6,000 GPM)
<b>Air Flow (CFM)</b>	18,700 Nm3/h (11,000 CFM)	18,700 Nm3/h (11,000 CFM)	21,875 Nm3/h (12,800 CFM)	21,875 Nm3/h (12,800 CFM)
<b>Motor Size</b>	55 kW (75 HP)	55 Kw (75 HP)	93 kW (125 HP)	112 kW (150 HP)
<b>Rotor Screens</b>	wedge wire 1.4mm (0.055") slotted openings	wedge wire 1.4mm (0.055") slotted openings	wedge wire 1.4mm (0.055") slotted openings	wedge wire 1.4mm (0.055") slotted openings
<b>Dewatering Screens</b>	punched 1.9mm (0.075") round openings	wedge wire 1.4 mm (0.055") slotted openings	wedge wire 1.4mm (0.055") slotted openings	wedge wire 1.4mm (0.055") slotted openings
<b>Feed Screen</b>	circular wedge wire 1.4mm (0.055") slotted openings	circular wedge wire 1.4mm (0.055") slotted openings	circular wedge wire 1.4mm (0.055") slotted openings	circular wedge wire 1.4mm (0.055") slotted openings
<b>Rotor Speed</b>	385 RPM	385 RPM	385 RPM	385 RPM
<b>Housing Design</b>	easy access (2)	heavy duty (4)	heavy duty (4)	heavy duty (4)
<b>Rotor Removal</b>	through top (3)	through side (5)	through side (5)	through side (5)
<b>Agglomerate Catcher</b>	Model 18 PSAG	Model 20 PSAG	Model 28 PSAG	Model 28 PSAG
<b>Pellet Diverter Valve</b>	Model 7.14	Model 9.20	Model 9.20	Model 9.20

Specifications are subject to change without notice when products are improved in quality of performance.

(1) Capacity is based on 1/8" (3 mm x 3 mm) round, smooth LDPE pellet

(2) Must be shipped vertically

(3) Needs overhead clearance for rotor removal

(4) Can be shipped horizontally

(5) Needs minimum overhead clearance for rotor removal

## TECHNICAL SUPPORT

Gala has earned its reputation for providing prompt, dependable service — before, during and after the sale. The mobile phone number of every technician is published on our website so they are available 24 hours a day. Every customer call is handled with priority.

<http://www.gala-industries.com/us/contact.php>

## OPERATOR TRAINING

Gala's customers are able to take advantage of classroom and hands-on training for operators and maintenance personnel on all Gala-manufactured equipment, either at the customer's facility or at Gala's Technical Center.



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