

The Insider

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...because it's what's inside that counts

Up a Creek? We've Got the Paddles!



Getting the best performance from your rotary includes selecting the right paddle for both the bin material and your application. Using the proper paddle ensures that the rotary motor will respond promptly when filling and emptying a bin, detecting material and sending an alert to ensure your operation continues to run smoothly and you don't overfill a bin or run out of material. BinMaster offers the widest selection of paddles – 19 different models in all – to meet the needs of all types of powders, pellets, granular and aggregate material.

Let's start with connecting the paddle to the rotary. It is recommended that a coupler is attached between the rotary shaft and the paddle. A solid shaft coupler is used in side mount installations. This short, stainless steel coupler provides shaft stability when material is abruptly dumped onto the paddle as the bin is being filled. For top mount installations, BinMaster offers two different types of

flexible couplers. A flexible stainless steel coupler or a molded neoprene-coated, flexible shaft coupler helps absorb side loads as material rushes in when the bin is being filled from the top and protects the internal components of the rotary.

A coupler is simple to attach to a rotary. Slide the coupler onto the drive shaft, line up the holes, and tap in the roll pin until it is flush. In some cases of side mounting only, a direct connect paddle is used without a coupler. A direct connect paddle lacks the threading on the end of the paddle that screws into the coupler, so the paddle slides directly onto the rotary shaft. Direct connect paddles can be used in light and medium weight materials and save the cost of a shaft coupler. However, BinMaster always recommends the use of a shaft coupler when top mounting a rotary – and the money is well worth protecting the motor and bearings of the rotary.

Another consideration is the construction of the paddle. Most paddles are made of stainless steel, because it is strong, durable, resistant to corrosion, and cleans easily. Plus, stainless steel paddles can be used in food processing operations or other industries that require a sanitary stainless steel device for contact with the bin material. Plastic paddles made of nylon are an alternative paddle material that is very economical. Plastic paddles can be used in non-abrasive, light to medium weight materials that will not bend or scratch the paddle.

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What's Inside



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**Rock Solid Level
Measurement.
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BINMASTER

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Neoprene-coated flexible shaft coupler and flexible stainless steel coupler for top mounting.



Solid shaft coupler for side mounting.

Up a Creek? We've Got the Paddles!

Selecting the proper paddle for a rotary is based on the weight and type of material being detected. The most common paddle is a three-vane paddle that comes in a variety of diameters and widths. Generally, wider paddles of greater diameter that have more surface area are used in light materials to create more resistance. A 7" diameter paddle is often appropriate for light materials, while a 5" diameter paddle is used for medium weight materials. Single-vane or bayonet-style paddles are often used in heavier or coarse materials, such as aggregates, ores, or rocks, because they are more resistant to damage caused by the impact of material as the tank is filling.

Installation of the rotary is possible without entering the bin when using a single-vane, bayonet-style, or collapsible paddle. These paddles are insertable through standard 1-1/4" or 1-1/2" NPT openings, simplifying installation, and eliminating the need to drill a new or larger opening in the bin wall. BinMaster's collapsible paddles feature a spring that allows the vanes of the paddle to be "squeezed" shut and inserted through the narrow opening. The spring then "pops" the paddle open once it enters the bin. BinMaster manufactures a single-blade collapsible paddle and a double-blade collapsible paddle, both of which are available in threaded or direct connect versions.

Paddle selection is one aspect of getting the best performance out of a rotary, but an additional consideration is the type of rotary to which you connect the paddle. One very important consideration is how critical the role of the rotary is in the operation. What this means, is "What is the impact on an operation if a rotary should

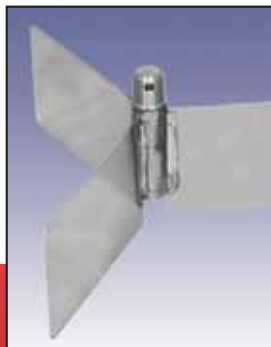
lose power or fail?" This comes into play if a rotary is critical in starting, stopping, or controlling a process, or causing a work stoppage if a bin should become empty. That's why BinMaster offers two different types of rotaries – the BMRX and the MAXIMA+.

Both models of BinMaster rotaries are manufactured in BinMaster's Lincoln, Nebraska plant following ISO 9001:2008 quality processes. Common to both models are external features such as a triple-thread, screw-off, locking cover that provides easy access to electronics, a durable powder-coat finish, and dual conduit entrances. From a mechanical perspective, all BinMaster rotaries feature a "de-energized" motor that automatically shuts down when material is present to extend motor life, DPDT relay outputs, a switch selectable, high/low fail-safe and field adjustable sensitivity. Known for their longevity, BinMaster rotaries also feature a built-in motor slip clutch that protects the drive shaft and a four bearing drive shaft that reduces motor drag during paddle rotation. Both the BMRX and MAXIMA+ are available in multiple voltages and feature hazardous location approval.

When it is crucial to confirm the continuous operation of a rotary, the application calls for the MAXIMA+ genuine fail-safe rotary that continually self diagnoses, and in the event of a failure, sends an immediate warning and instantaneous corrective response. The MAXIMA+ has an LED light as a visual indicator on the unit for monitoring of the motor status. It also features dual independent time delays for covered and uncovered conditions which are programmable up to 28 seconds, allowing for additional fine tuning of the rotary performance for your operation.



The collapsible paddle "squeezes" shut to insert into the bin and then automatically "pops" open.



Most common is a 3-vane, stainless steel paddle.



Plastic paddles are an economical alternative for light to medium weight materials.



A bayonet-style paddle is insertable through a 1-1/4" or 1-1/2" NPT opening.



A very wide paddle that increases resistance is effective in very light materials.



A collapsible paddle allows for installation of the rotary without entering the bin.

Rock Solid Level Measurement



With spring around the corner, construction will start gearing up. That means facilities need to be ready for business, which means keeping inventory moving. To help optimize operations, BinMaster inventory management systems and point level controls will keep your operation rocking. Whether you need to track your inventory of sand, aggregates, gravel, fly ash, potash, and cement – or any other bulk solid – BinMaster has an affordable and reliable solution for you.



If you need to measure or monitor material in multiple silos, such as at a cement batch plant, a SmartBob inventory management system can simplify the process by taking measurements on demand or

at pre-set time intervals throughout the day. A SmartBob2 sensor mounts on the top of each silo and operates much like an “automated tape measure.” When properly mounted about 1/6 of the distance from the outer perimeter of the silo to account for the angle of repose in a center fill, center

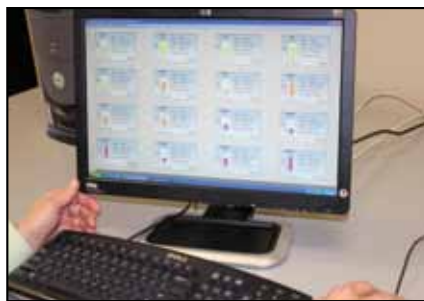


Push-button console

discharge bin, SmartBob is very accurate, taking into account cone-up or cone-down material. Multiple SmartBobs can be networked using RS-485 communications or by utilizing wireless transceivers to reduce wiring and simplify installation.

The measurements taken by SmartBob2 are sent to a display console mounted at ground level at the base of the silos. At the push of a button, levels can be provided as headroom percentage, headroom height, headroom weight, product percentage, and product height. A single SmartBob console can provide measurements for one silo or up to 120 silos at a single operation. This convenient console eliminates the need to walk from silo-to-silo to check levels.

If you prefer to monitor silos from the convenience of an office, BinMaster offers eBob software to install on a personal



eBob Software

computer. eBob is simple to set up and operate, using an intuitive interface. It allows you to view data for an individual vessel, a select group of vessels, or all vessels. With eBob you can view up to 16 silos at once, and color-code the silos for each type of material. The software allows you to activate instant readings or program automatic measurements at pre-set time intervals, such as once an hour. By setting programmable alarms for high/low levels or “time to replenish” alerts, eBob is there

to remind you when levels get critical. It can also send an automated email for alarm notifications or email detailed bin inventories at scheduled times throughout the day.



For point level detection, BinMaster rotaries help eliminate bin overfills and prevent plants from running out of material. Mounted on the top or side of the bin, the rotary paddle turns until material in the bin stops the paddle. When it stops turning, the rotary automatically sends an alert to a light or a horn. Alternatively, rotaries can be wired to a BinMaster light panel for centralized viewing of the status of up to 24 rotaries. All BinMaster rotaries are approved for hazardous locations where there are high levels of dust.

Calendar

See BinMaster® at these upcoming events.

GEAPS

February 27 to March 1, 2011
Booth 1022
Convention Center
Portland, OR USA

International BioMass Conference & Expo

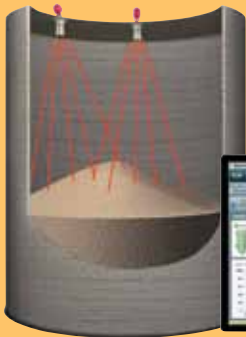
May 2 to 5, 2011
Booth 236
America's Center
St. Louis, MO USA

FEW (Fuel Ethanol Workshop) View

June 27 to 30, 2011
Booth 428
Indianapolis Convention Center
Indianapolis, IN USA

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Rotaries



Diaphragm Switches

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