Gravity Diverters
For Handling
Dry Bulk Material
Gravity Diverters
For Handling
Dry Bulk Material

Gravity

Diverter is not part of a system where vacuum or pressure is used to move material.

Diverter is not attached to a bin where air cannons or air pads are used to assist material flow.
Note:

In our discussion, please keep in mind that these diverters are available – constructed of different metals and choice of actuators (e.g. electric, hand crank, hand wheel, hydraulic, pneumatic . . . ) to address specific environments and materials handled.
Gravity Diverters
For Handling
DryBulk Material

I’m here today to make you aware of different types of diverters, what’s available in the marketplace, what features to look for, and what to shy away from.

Kevin R Peterson
Flapper Diverter

Material is diverted from one source to either of two different destinations by means of an internal blade or flapper.

Available in “A” style (symmetrical) or “K” style (straight through with off leg) configurations.

“K” minimizes wear (central destination)
Flapper Diverter

Pros

An “industry standard” for decades

A better choice for sealing smaller sized material

Cons

Know what features to look for
Flapper Diverter

Features to Avoid

- No internal access without removing from place
- Blade rests on internal housing
- Perimeter blade seals
- Open area beneath blade shaft
Flapper Diverter

Features to Look For

Internal access without removing from place

Ability to inspect / replace parts through access

Leading edge of blade protected from material flow

Full sheet, “sandwiched” blade seal

Blade shaft seal
Flapper Diverter

Required for Abrasive Applications

AR blade / AR body

Replaceable liners
  AR metal, chromium carbide, exotics

Protected shaft
Flapper Diverter

Remember

The flapper diverter is not designed to “shift on the fly” (divert free flowing material)

In many applications, a shut off gate is required to stop material flow through the diverter

Attempting to utilize the blade as a splitter (to send material to both destinations) creates additional issues
Questions
Gravity Vee

Material is diverted from one source to either of two different destinations through the opening and closing of independently actuated slide gates.

Available in symmetrical configuration only.
Gravity Vee

Pros

Additional shut off gate above the diverter is not necessary

Material may be introduced to either destination or both destinations at the same time

Cons

The independent actuators may create height restrictions / installation issues
Gravity Vee

Features to Avoid

Bonnet seals that are not externally replaceable
Gravity Vee

Features to Look For

Bonnet seals that are replaceable without having to take the diverter out of place
Gravity Vee

Required for Abrasive Applications

AR inlet / outlet

AR blade – blanchard ground

Inverted AR “v” (tent) to protect end seal
Gravity Vee

Remember

If the position of the actuators create installation issues, a “dual cylinder” design may be available to reduce overall height.
Bucket Diverter

Material is diverted from one source to either of two different destinations by means of an internal bucket.

Available in “A” style (symmetrical) or “K” style (straight through with off leg) configurations.

Designed for abrasive duty applications.
Bucket Diverter

Pros

Diverter can be modified in many ways to address abrasiveness of material handled

Overall height less than flapper

Cons

Modifications made to address abrasion may make upsizing of diverter necessary
Bucket Diverter

Features to Avoid

No internal access without removing from place
No inlet liners
No bucket end seals
No bucket bottom seal
Bucket Diverter

Features to Look For

- Internal access without removing from place
- Ability to inspect / replace parts through access
- Abrasion resistant inlet liners
- Bucket side and bottom seals
- Optional inlet, bucket, and outlet “rock boxes”
Bucket Diverter

Material Cross-Contamination an issue?

Instead of ordering the diverter with internal rock boxes, consider replaceable AR or chromium carbide liners
Bucket Diverter

Remember

The bucket diverter is not designed to “shift on the fly” (divert free flowing material)

In many applications, a shut off gate is required to stop material flow through the diverter
Pivoting Chute

Material is directed from one source to either of two different destinations by means of an internal chute

Available in “A” style (symmetrical) or “K” style (straight through with off leg) configurations

Designed for abrasive duty applications
Pivoting Chute

Pros

No internal seals to replace

Ability to shift “on the fly”

Can split flow to two destinations

Cons

Lighter material can migrate to off leg

Taller footprint / More expensive
Pivoting Chute

Features to Avoid

No internal access without removing from place

Not being able to remove all maintainable parts through access area
Pivoting Chute

Features to Look For

Internal access without removing from place

Ability to inspect / replace maintainable parts through access

Choice of material for material contact areas
Pivoting Chute

Remember

There are no internal seals in this diverter. It will experience some material migration to the off leg.

In many applications, a shut off gate is required to stop material flow through the diverter.

Inquire if assist rods are available to support removal of heavier chutes for larger sized diverters.
Material Flow

With All Diverters - Keep in Mind

Diverting material to an off leg will reduce material flow

The addition of optional rock boxes to address abrasion from the material handled will significantly reduce material flow
Vortex Global is proud to be an associate member of the IMA-NA

We greatly appreciate our relationship with producer members

Copies of this presentation are available at the Vortex exhibit booth
Thank You!

www.vortexglobal.com – diverters – gates – loading solutions