



# Quantum Leap

**Vortex® News &  
Events from around  
the globe.**



**THE HEAVY DUTY ISSUE!**  
**JUNE-JULY 2010**

- Case histories on Abrasive Duty Diverters
- Powtech and PTXi reviews
- Spotlight on Carlos Rivas
- An unbeatable diverter for abrasive applications
- Jon versus the volcano
- Vortex joins a Battlebot Team
- The Not-So-Serious Desk goes bonkers over the World Cup

**The Global leader in Valves for Dry Bulk Solids**



## Welcome to QL!

Welcome to the “Heavy Duty” edition of *Quantum Leap*! In this issue Kevin Peterson outlines three cases where Vortex® designed and delivered solutions for handling coarse and abrasive materials. You will also find an excellent technical review of Vortex’s Aggregate Diverter™ by Oliver Küng, General Manager of Vortex Valves Europe GmbH. In the *Who’s Who* section, get to know more about Carlos Rivas, Vortex’s General Manager for Latin America. Vortex joins a Battlebot team, while Jon Naylor battles a volcano, and much more! So sit back, relax, and enjoy the latest edition of *Quantum Leap*!



**Jeff Thompson, CEO & President**  
Salina Vortex Corporation

PS. If you don’t want to receive QL in future, just e-mail [quantumleap@vortexvalves.com](mailto:quantumleap@vortexvalves.com) with the words ‘No thanks’ in the title box and we’ll do the rest.



*Vortex’s Corporate Headquarters in Salina, Kansas - USA*

## Abrasive Duty Applications

*By Kevin Peterson, Regional Director of Business Development, Vortex Valves North America*

Applying slide gates and diverting valves for customers that convey abrasive material in gravity flow applications creates many special challenges. A major advantage offered by Vortex® Valves is the ability to address abrasion issues prior to the order being placed. Upon order acceptance, Vortex will manufacture the valve to include any special modifications required that will offer customers increased product longevity and exceptional life-cycle costs. Three cases in point . . .

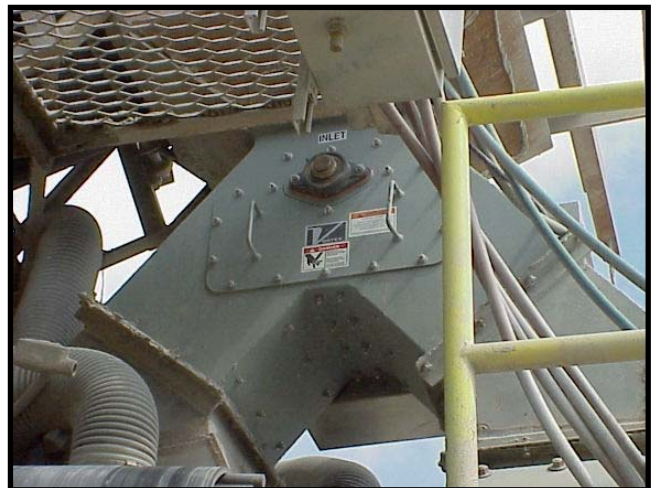


### Case One:

**A manufacturer of masonry repair products** contacted Vortex regarding problems with their bucket diverters. The diverters were handling 60 tons of material (gravel, dryer fines, and sand) an hour, 24 hours a day, 5 days a week. The abrasion was such that the diverters were removed for service monthly and replaced 3-4 times a year.

Vortex provided an Aggregate Diverter™ that included an inlet dead pocket deflector (to minimize wear at the point material enters the diverter), honeycomb bucket and leg liners (to absorb the abrasive impact of the flowing material), and durable, rubber bucket seals (protected from material flow – to aid in sealing material). The front access panel offers easy access to the diverter interior for periodic inspection or maintenance – without having to remove the diverter from place.

The standard Vortex diverter modifications allowed the valve to perform for two years before any maintenance was required.



*continued on page 3*



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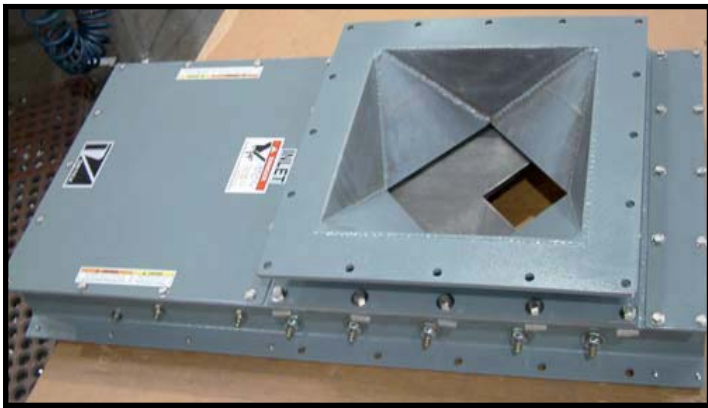


**Case Two:**

**An asphalt shingle manufacturer** was searching for a slide gate that would offer better abrasion resistance and product metering capability for their extremely hard roofing granules (tough, dense, ceramic-coated rock).

Vortex provided special slide gates with “diamond shaped” inlet transitions and a “v notch” blade. The blade and inserts are made of 3/8” (10mm) thick, abrasion resistant plate to address the materials abrasiveness. The square shape of the resulting opening makes it very easy to calibrate material flow as the blade opens and closes.

Labor and maintenance savings during the first year almost paid for the cost of the gates.



**Case Three:**

**An industrial mineral producer** needed a way to divert silica sand (a #7 rank mineral on the hardness scale of 1 - 10) from a silo to four different load out hoppers.

Vortex provided a two-way Aggregate Diverter positioned on top of a 3-way Seal Tite™ Diverter. The honeycomb bucket of the Aggregate Diverter absorbs the initial impact of the sand. Sand is then diverted to one load out hopper or the 3-way diverter. The 3-way Seal Tite is equipped with abrasion resistant flappers and Kryptane blade seals. This diverter directs material to the other three load out hoppers.

The diverter stack up was in service for two and a half years before any required maintenance was performed.



Keep in mind that in addressing abrasive duty applications, Vortex also manufactures special sizes – as represented by these photos of a 72” (1800mm) square Coal Maintenance Gate handling 2” (50mm) minus coal and 7’ (2m) tall flapper-style Diverter Valve handling 8” (200mm) lignite coal.

Producers that deal with abrasive products are cognizant of the fact that from the day new equipment is installed, it is continually maintained and on a fast pace to wear



out quickly. Producers that partner with Vortex Valves are pleasantly surprised at the increased life-cycle costs Vortex slide gates and diverters offer. **QL**

*For more information about Vortex’s Abrasive Duty solutions, please contact one of our global offices:*

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## Powtech 2010 Indicates Industry Optimism

Powtech 2010 welcomed 16,490 visitors from 74 countries into the halls to gather information on new products and innovations during the three days of the exhibition. "It was an excellent platform to launch Vortex Valves Europe GmbH," commented Travis Young, Vice President of Global Business Development. "The exhibition was not only good for our business in Germany, but around the world."

Most exhibitors emphasized the visitors' increasing willingness to invest. "The feedback from the exhibitors reflects the growing optimism that the time of budget freezes and restraint is past," summed up Claus Rättich, member of the Management Board of NürnbergMesse. "We are therefore very pleased that the course of the exhibition underlines the present good development of the industry."



Vortex would like to thank many of our agents, clients, and members of the press that attended its reception on Wednesday, April 27. We hope you had an excellent evening!

## PTXi 2010 Showcases Innovation in Bulk Solids Handling

"PTXi 2010 was a great show for Vortex. It was a great opportunity to showcase our innovative valve solutions to key decision makers in the industry. We are looking forward to another great show in 2012!" Jason Marcotte, Vice President North American Sales, was quoted as saying in the June 2010 issue of *Powder Bulk Solids* magazine.

Nearly all of Vortex's regional and inside sales department had the opportunity to attend the show and meet with customers. Several members of the engineering team were also in attendance. The results were excellent, as several projects were realized from the show.



The great thing about this exhibition is that everyone gets a chance to learn something. Bryon Smith, a newcomer to Vortex's Regional Sales Team, got a swift lesson on how to deal with Chicago's union workers. What's the lesson you ask? Basically, "Don't smart off to them unless you want to be the last one in line to pack up your crates."

Vortex would like to thank everyone that stopped by to see us, as well as, our reps from USA and Canada who helped in the booth during the show. **QL**

## Who's Who at Vortex

### Carlos Rivas, Director Regional Desarrolla de Negocios, Vortex Valves Latin America

Carlos Rivas is the Regional Manager Representative for Mexico and South America. Born in Mexico City, Carlos's entire family moved to the US when he was a child. In fact his sister Sonia also works at Vortex, living proof that employing family members is a great idea. Carlos had his first child in November 2009, a lovely little girl called Ariana who he loves to spoil. He will be celebrating his tenth anniversary working with Vortex in October 2010.



#### What circumstances led to you working at Vortex?

I attended the Computer Aided Drafting course at Salina Votech and, after finishing the course, was hired on the spot by Shawn Werner as a Draftsman (Draughtsman if you're reading QL in Europe) in the engineering department.

#### What does your job involves on a daily basis?

My job's extremely varied. On a daily basis I deal with application engineering via phone calls and emails to customers. I also work closely with representatives and spend time researching open markets for future new opportunities.

#### What is your role's place in the overall process?

This year is my third year as Regional Sales Manager for Latin America. My role involves developing Latin America by researching and hiring quality new representatives in open markets. I work closely with existing representatives and also spend a fair amount of time networking with multinational companies.

#### What do you like best about your job?

I love travelling so it's great to have the opportunity to travel throughout Latin America. I get a kick out of working with new customers, people who have never seen valves like ours. It's like an "Aha" moment when I show them how efficiently and effectively Vortex valves perform, and how much time, money and hassle they save.

#### What are your long term ambitions?

I'm really looking forward to exceeding my long term goals as Regional Sales Manager. It'll be satisfying to see the whole of Latin America set up with sales and support, knowing that my role has had a dramatic and positive effect on the region's success. We don't just sell valves. We sell the opportunity for businesses in the dry bulk handling industry to increase profits.

#### Is there anything else you'd like to tell the world?

If you get the chance to visit Latin America, prepare to fall in love with some rare and very tasty foods. So take every opportunity to give your taste buds a unique treat! **QL**



## Unbeatable Aggregate Diverter™ Solutions for Superb Abrasion Resistance

Oliver Küng, General Manager, Vortex Valves Europe GmbH

If you're dealing with highly abrasive materials, it's worth considering our range of straight line aggregate diverters. We've found intelligent solutions to the trickiest issues people like you encounter with difficult-to-convey materials including sand, gravel, whole grains, coal and more.

How? Via our range of economical, maintenance friendly straight line aggregate diverters, built with tough, abrasion resistant wear liners and a removable access door. The result? Easy access, inspection and maintenance plus impressive levels of durability. In short, our straight line aggregate diverters are designed specifically to avoid the excessive wear and tear typically associated with bucket diverters.



Gravity flow straight line aggregate diverters, also called K style diverters, handle heavy duty, abrasive materials extremely efficiently.

While ordinary diverters don't provide a positive seal across the closed chute – allowing material to pass through gaps between the bucket and

chute – ours utilizes highly durable rubber bucket seals to provide a positive material shut-off at the leading edge of the bucket. Because the diverter's inlet is designed to divert flow away from these seals, the rubber seals avoid abrasion. At the same time, the diverter's internal mechanisms are spared abrasion. And, last but not least, the straight line feature also minimizes abrasion for long lasting performance.

Our straight line Aggregate Diverters are also maintainable while the valve is in-line. Traditional bucket diverters require removal and system downtime for rebuilding and maintenance. But the Vortex diverter features a removable access panel to allow for quick and easy access to the bucket, inlet and special liners. The complete bucket and seal can also be removed and replaced through the side panel, minimizing downtime.



Standard gate construction allows for 82°C (180°F) service and modification for temperatures up to 315°C (600°F). The gravity flow diverter can be applied to divert material flow from one source

to two destinations and it comes with a wide choice of round or square inlets or outlets. Sizes range from 150mm (6") to 450mm (18"). Vortex Aggregate Diverters are also available in an A style and can even be custom built, tailored to suit your particular application.

Adapting any Vortex Aggregate Diverter to meet system requirements is made easy with a wide selection of actuators, position indication switches, flanges and tube stubs.

Like all our valves, our gravity flow diverter is precision engineered for dependability, durability and easy maintenance, designed to provide proven solutions to material handling and process efficiency problems.



- heavy duty construction
- seals and body protected from abrasion
- access door for internal inspection, cleaning and maintenance
- easy installation and maintenance
- air cylinder model includes magnetic piston

### Vortex Straight Line Aggregate Diverter Specifications

**Flexible size/bore options:** 150mm (6") to 600mm (24") diameter round or square

**Media:** aggregates, coal, minerals

**Connection options:** Vortex standard flange, ANSI, DIN, JIS, or custom flanges

**Media temperature:** up to 139°C (250°F) continuous to 167°C (300°F) intermittent service, modifications allow up to 204°C (400°F) continuous to 222°C (450°F) intermittent service

**Media pressure:** 0 bar (0 psig), gravity flow only

**Metal construction options:** carbon steel

**Seal/seat material options:** chute rubber, Kryptane, and/or silicon rubber

**Drive/actuation options:** double acting air cylinder with solenoid operated air control valve, electric actuator or hand lever

**Position confirmation:** magnetic reed switch, proximity switch, or mechanical switch

**Compliance/approvals:** CE, ATEX

**Industry use:** plastics, petrochemicals, chemicals, minerals, textiles, agriculture, mining

**Want to find out more or talk to an expert about our straight line aggregate diverters? We'll be delighted to hear from you. Head over to page 3 for contact details in your region. QL**



[www.vortexvalves.com](http://www.vortexvalves.com)



## Jon Versus the Volcano

By Jon Naylor, Managing Director, Vortex Valves Europe Ltd.

On April 14th, 2010, the Eyjafjallajokull volcano in Iceland erupted beneath its glacier ice cap, which by midmorning was spewing out a substantial stream of steam and ash. By midday the surrounding rivers had risen by three metres and a plume of ash had risen through the air to four miles in the sky. Europe, and the world, could never have predicted what would follow.



It was all going so well. Oliver and I had enjoyed an excellent after-sales follow up meeting in France and I was heading back to Zurich to visit Vortex's Swiss office. Everything was going smoothly... what could possibly go wrong?

I'd woken that morning to news of the Icelandic volcano but thought nothing more of it until Oliver and I turned up at Lyon's airport... only to find flights being cancelled left, right and centre. We drove to Zurich, but the situation only became more ominous.

When I entered the hotel in Zurich, A Swiss TV reporter and cameraman rushed up to me asking, "Have you been affected by the volcano?" to which I had to reply honestly, "Not yet but I have a strong feeling I'm about to be." And I was right... I was stuck.

Calls to our wonderful travel agent, Lindsey at SAT Business Travel, bore little fruit. Nobody was flying anywhere. It seemed like an overland journey was my only option to get back to the UK, but hiring a car would be daunting. With luck, Lindsey managed to book the very last car at Zurich airport!

I appeared triumphant from the mayhem around the Hertz desk, key in hand, slightly bruised, and hit the road to Lille.

Nine hours and 600 miles later, my mobile phone was at death's door from lack of charging and I didn't have anywhere to stay in Lille.

My phone drew its final breath as I spotted a service station on the horizon... an oasis in the desert. After a frantic search I tracked down a phone charger that delivered enough power to pick up my e-mails and find me a bed for the night.

I stumbled into the hotel, while the logistical challenges ahead of me were still very unclear. After a few calls, it was evident that no Channel ferry tickets were to be found. The only real option was to drive to Calais and beg, steal or borrow a ticket.

Waking at 6am I headed for Calais totally focused on the task in hand. I arrived to see hope vanish as I spotted the massive queue trailing out of the ferry terminal door like an angry snake, the longest queue I've ever seen! I was just about to turn tail and drive on to the Netherlands when something made me decide to have a go. The queue turned out to be for people waiting to board the next ferry, so I managed to find the ticket counter and purchased one of the last tickets as a foot passenger.

Within a couple of hours I was headed for Dover. The sheer joy of seeing those famous white cliffs was beyond compare. Lindsey came to my rescue again as she bagged the last hire car in Dover too! I headed straight for Birmingham airport to collect my own car for the final journey home.

It was a long trek, but I consider myself very lucky, as thousands were stranded for many more days! This event was a true testament to the power mother nature has over us all!

QL



The Eyjafjallajokull volcano in Iceland



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## Vortex sponsors Team Shrapnel

Vortex recently sponsored Team Shrapnel, a group of talented youngsters, in their efforts to build a world-beating Battlebot. We talked to Cody Yost, son of Vortex employee Mike Yost, about the event, the machine and its performance. Cody will be attending Kansas State University next fall majoring in Engineering.

### When and where was the Battlebot competition held?

In Miami, Florida. The team left on Monday, April 12th, and got home on the 18th. The arena was a 32 square foot enclosed arena, raised 2 feet off the ground, with I-beams and a floor of square meter steel tiles.



### What was the most challenging part of designing your battlebot?

The most challenging part of the design process was figuring out the different dimensions to build our bot. Initially we started out with a cone-like shell but we soon changed it to a cylindrical type shell. With the frame on the inside, we designed webbing on the bot's walls to decrease its weight. All of this was virtual and intangible, so it was pretty difficult to make decisions.

### How did your battlebot perform?

Because it was a double elimination tournament with twelve teams taking part, there wasn't a winner. Just a bunch of people having fun! We lost both our matches, and so did several of the other bots, so we're not sure how well we did overall.

### How was Vortex involved?

We designed the shell and interior frame in Autodesk Inventor™ and then sent them Vortex for production and manufacture.



### The science bit

For those of you who love gadgets and enjoy an intellectual challenge, here's a few facts about the spec, the challenges Team Shrapnel faced and the weapon itself... a mean-looking machine!

### Battlebot spec

- 2 Motor, 4-wheel chain drive system
- 7.14:1 Gear Ratio
- 24v, 3hp, 6000rpm, and 123 lbs. torq



### The challenges, and our solutions

- Solving gear size and ratio problems, weight and space issues
- Inventing an efficient way to spin the weapon
- Optimising the pulley / belt system
- Identifying a strong shell shape that was also practical to make
- Calculating optimum speeds and the correct amperage / voltage
- Building a speed controller with high enough amp spikes, and receiver programming

### Technical limitations

- Must have an active weapon
- The weapon must come to a complete stop in 30 seconds
- Weapon limitations: no flamethrowers, no EMPs, no projectiles unless attached (ie. no harpoons)

### The weapon

- 6061 aluminum shell
- S7 tool steel teeth
- S28-400 MagMotor
- 6061 aluminum pulley
- 4:1 gear ratio from motor to shell **QL**

## Vortex Cares: Giving back to the community

In the last edition of QL, we featured Vortex's efforts to establish a library at the Korongoni Primary School in Moshi, Tanzania. The books have been packaged and will be sent to the school this month. We will keep you updated on the results in our next issue.

Project Salina is an annual food drive to support local food banks, schools, and shelters in the Salina, Kansas area. Vortex employees donated over 1000 boxes of macaroni and cheese in this year's drive. Project Salina has seen a greater need for food than previous years, as increased fuel prices and economic concerns have made it more difficult for some families to put food on the table.

For more information on how you or your company can contribute to either cause, please contact:

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## Industry Affiliations & Events:



## THE WOLFSON CENTRE for Bulk Solids Handling Technology



**BulkSolids  
Europe2010**



## Powder and Bulk Engineering



## EuroBulkSystems

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## From the Not-So-Serious Desk

Here at the Not-So-Serious Desk, we love football (soccer, fútbol, le foot, voetbal, fußball, or whatever you want to call it)! In fact, we are in the grips of World Cup mania and can barely control our sanity!

Will Brazil dominate? Will England regain its respect? Does the USA stand a chance? Will Frenchmen unleash more fury on smack-talking Italians? Will Maradona manage to score another goal with his hand, even though he's just the coach?

Even if football makes you cry with boredom, we hope you enjoy the Not-So-Serious Desk's take on the "Beautiful Game".



*The editor of the Not-So-Serious Desk gets his game face on.*

## Rejected Vortex Ad of the Month!

If you've seen any of us at Vortex, it would be immediately evident that we have no football/soccer handling skills. On the other hand, our valve products are excellent at handling a wide variety of things, from coal to carbon black.

**We may be rubbish at handling a football,  
but you should see us handle carbon black.**



**Football**  
22 Centimetres



**Carbon Black**  
8 Nanometres



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## Ten Completely Useless Football/Soccer Quotes

1. *"Well, Clive, it's all about the two M's - movement and positioning."* – Ron Atkinson
2. *"Sometimes, you lose and sometimes the other team wins."* – Otto Rehhagel
3. *"If Chelsea drop points, the cat's out in the open. And you know what cats are like - sometimes they don't come home."* – Sir Alex Ferguson
4. *"We didn't underestimate them. They were a lot better than we thought."* – Bobby Robson
5. *"At one point of the match we felt like we were at the edge of a cliff... but we managed to do the right thing and stepped forward."* – Joao Pinto
6. *"The beauty of Cup football is that Jack always has a chance of beating Goliath."* – Terry Butcher
7. *"Away from home our fans are fantastic, I'd call them the hardcore fans. But at home they have a few drinks and probably the prawn sandwiches, and they don't realise what's going on out on the pitch."* – Roy Keane
8. *"Alex Ferguson is the best manager I've ever had at this level. Well, he's the only manager I've actually had at this level. But he's the best manager I've ever had."* – David Beckham
9. *"He can't kick with his left foot, he can't tackle, he can't head the ball and he doesn't score many goals. Apart from that, he's all right."* – George Best (On David Beckham)
10. *"This is an unusual Scotland side because they have good players."* – Javier Clemente

## "Write Your Own Caption"

The World Cup is the world's most anticipated sporting event. In celebration of the 2010 World Cup in South Africa, we bring you this edition's "Write Your Own Caption".

Send your caption ideas to:

[quantumleap@vortexvalves.com](mailto:quantumleap@vortexvalves.com)

We will choose the winner and publish it in the next issue!



Your caption here



**The April/May Caption Contest Winner....**

***One more reason not to make waves.***

**Congratulations to:  
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