



ITT

EXTRAMILE

A newsletter for the distributors of Engineered Valves products
Fall 2006



Letter from Jerry

In an introductory letter last year for The Extra Mile, I reported to our distributor community on the progress of Engineered Valves' growth strategies. As I have visited with our channel partners this year, I am delighted to hear the positive feedback and success stories that have resulted from the joint promotion in our target market segments.

Early this year we launched our Power MRO initiative, together with new products targeted at this important customer segment. The key success factor for this initiative is the leverage that comes from distributor/customer relationships in local markets. These relationships both engender customer confidence and avail critical "Voice of the Customer", which is the key to continued improvement at Engineered Valves.

We are proud of the accomplishments of all of our distributors and committed to maintaining the strength of these important bonds through continued focused support in target markets and using the Voice of the Customer to insure an active pipeline of new products and improvement initiatives.

Read on to learn more about important trends in the Power Market and some fresh new promotional tools. Good Selling!
- Jerry King, Director Sales & Marketing

Valve Selection for Flue Gas Desulfurization

by Dan Ellis, Segment Manager – Power

As new coal-fired power plants come on line to meet rising demand for electricity in the U.S. and around the world, there is a growing need to scrub plant emissions to meet clean air regulations. Special valves help to efficiently run these scrubbers and handle the abrasive slurries used in the Flue Gas Desulfurization process.



A 6" PVDF coated automated diaphragm valve on an absorber recycle pump drain line.

With all the technological advancements over the last century in developing new sources of energy, one thing that has not changed much is our reliance on fossil fuels, and coal in particular, to generate electricity. More than half of the electricity generated in the United States comes from coal.

One result of burning coal in power plants is the release of sulfur dioxide (SO₂) gas. As the SO₂ reacts with rain, the result is acid rain and its devastating effects on lakes and rivers far downwind from power plants.

With approximately 140 new coal fired power plants on the drawing boards for the U.S. alone, the concern for meeting clean air regulations here and around the world, is leading new plants, as well as existing plants, to be equipped with advanced emissions "scrubbing" systems. SO₂ is now being removed from flue gases by a variety of methods commonly known as Flue Gas Desulfurization (FGD). According to the Energy Information Administration which provides energy statistics for the U.S. Government, power companies are projected to add FGD equipment to 141 gigawatts of capacity in order to comply with State or Federal initiatives.

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Engineered for life

Innovative Ideas

Skotch® MRO - When Past Purchases Equals Future Sales

by Mark Young, Skotch Product Manager

In April 2006, ITT Engineered Valves launched the Power MRO (Maintenance Repair Overhaul) Initiative. Each Power MRO Channel Partner was provided a CD that contains valuable application information in different areas of the power plant. The Skotch MRO section lists the installation data and MRO history for each Skotch user and provides guidelines for repair and proper operation of Skotch valves. ITT tasked each Power MRO Channel Partner with communicating this information to the Skotch end users.

Recently an electrical utility company from Pennsylvania called ITT Skotch Application Specialist Bob Granger about the recommended mesh size for the strainers located upstream of the Skotch gas valves they had installed. Before responding to the question, Bob researched the customer's account history from the data found on the Power MRO CD and saw very little activity. The customer had installed 64 Skotch gas valves (two boilers) in 1996 and conducted little maintenance over the past ten years.

Along with his reply to the customer's strainer question (40 mesh is the answer), Bob reminded them that little maintenance had been done. He then informed the customer of the recommended guidelines found in the Power MRO CD. The guidelines recommend periodic leak check of these critical safety devices.

A week passed and the customer called ITT asking more questions about the leak test. ITT offered their services to consult during the leak test. Skotch Product Manager Mark Young and Tri-State Sales Engineer Jack Martin, provided technical assistance during the test. Each Skotch gas valve is supplied with a leak test port to assist in the testing and the field tests revealed the valves were beginning to show signs of leakage.

A detailed proposal was created for the customer including replacement parts, new valves, rework of valves at ITT Lancaster, PA facility and ITT Field Repair Services. As a result, the customer recently purchased six new valves to go along with the two spare valves they have in stock. The eight new valves will be part of a rotation cycle as the customer plans to refurbish all 64 valves in the next two years. ITT Engineered Valves will rework 16 valves during the Fall outage. The remaining valves will be reworked by ITT or will be refurbished directly by the customer.

There are similar opportunities in every region in the U.S. During the mid-1990's, Skotch gas valve installations peaked with the addition of Low NO_x burners and with the addition of natural gas as a fuel source. The history of each installation is found in the Skotch data section of the Power MRO CD. The recommended maintenance guidelines are also found on the Power MRO CD and must be reviewed before visiting each plant. Remember, the guidelines for repair are simplified and vary depending on the environment and quality of fuel and instrument air. Nonetheless, periodic leak tests must be conducted to confirm the integrity of these critical safety devices.

Skotch oil valves are also located in every region of the U.S. Review the guidelines for repair and recommend that periodic leak checks be provided similar to the gas valves. The leak test procedures can be found on the Power MRO CD or on the Skotch Maintenance Manual section of the website (www.engvalves.com/Skotch.html). Should you need further assistance, please contact your local Technical Sales Representative.



The Checkered Flag

ITT Helps EPC Firm Meet EPA Mandated Start-up Dates

In March of 2006, a well known EPC (Engineer, Design and Construct) firm contacted ITT Engineered Valves with a request for valves to be used on an FGD Blow Down Service. The service was in support of the FGD Scrubbers being built for two electrical utility power plants located in West Virginia. The EPC firm needed 200 valves, 70 which were automated, to be delivered by mid September. ITT's lead-time was to ship part of the order in 8 weeks ARO (after receipt & release of order) with a complete shipment in 18 weeks ARO. However, the end user delayed the order placement and when the order was placed they asked ITT to expedite the order and ship the first group of valves in 4 weeks ARO and the balance in 8 weeks. ITT agreed to ship as many valves as possible in 4 weeks ARO and complete shipment in 8 weeks ARO. These deadlines were critical in allowing the EPC firm to meet their EPA mandated start-up dates.

Accounts Manager Dale Selan wrote a specification for the EPC firm including XS150-ULV valves with 2205 trim. All the valves were spring to close with manual overrides and lock-out mechanisms. Normally this valve assembly has a fairly long lead time because the actuation arrangement is not typical of systems using Knife Gate Valves. This fact, coupled with the customer's requirement for over 200 valves with 2205 trim, meant that ITT had their work cut out for them.

Customer Satisfaction Representative Mark Williams spearheaded the project at the Fabri-Valve manufacturing facility in Amory, MS. Mark worked with several departments (Engineering, Purchasing, Production, and Quality Assurance) to reduce an 18 week shipment schedule to 8 weeks. ITT's Engineering department expedited drawings for the customer so they could review dimensional specifications while the Purchasing department ordered the raw materials necessary. Castings were flown in from suppliers and actuator shipments were expedited to decrease the turn around time for the XS150-ULV's.

Constant communications between ITT and the EPC firm were key in identifying required alterations and bottlenecks. Additionally, inter-department communications between the Fabri-Valve manufacturing facility in Amory, MS and the ITT sales and marketing team in Lancaster, PA was a critical factor in obtaining the order and meeting the customer's delivery expectations. By providing this type of service for the customer ITT was able to capture this significant opportunity.



Accounts Manager,
Dale Selan



Customer Satisfaction
Representative,
Mark Williams

On the Highway

New Diaphragm Valve Product Selection Guide

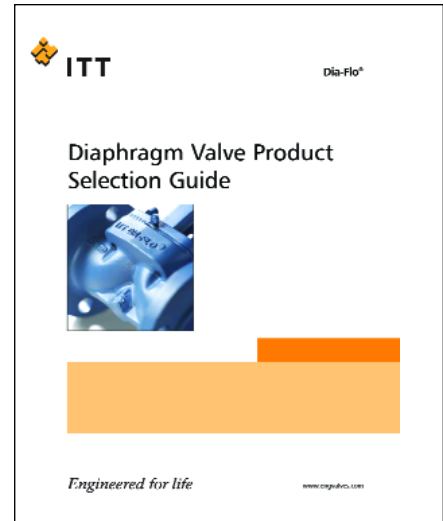
In the coming weeks stay tuned for the release of a new Dia-Flo® Diaphragm Valve Product Selection Guide. This is the first major reconstruction of this book in thirty plus years. The format and content of this 186 page selection guide includes input from distributors, inside sales, field sales and Engineering. Included are sections

on markets, services and applications, product features, actuation, accessories, technical information and more. Improvements include:

1. The addition of many application and new product photos
2. More logical flow and presentation of information
3. Faster and easier information updates
4. Inclusion of: PFA lined valves, ANSI

dimension valves, new accessories section to include fieldbus communications protocol 5. Easier to read sizing charts and much more

The guide will be printed in a binder format and will also be available in pdf format via CD's and the engvalves.com website. Stay tuned for more details regarding the release of this new literature piece.



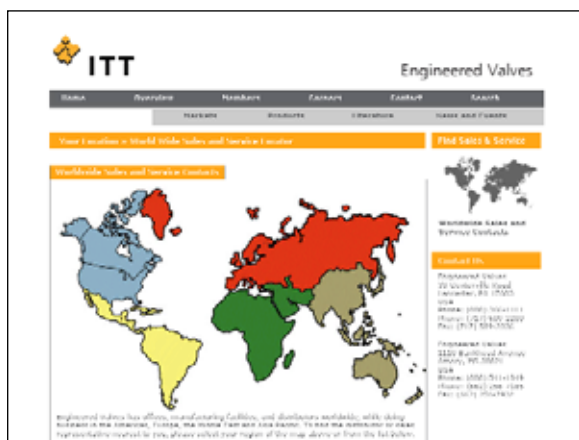
Updates at engvalves.com

ITT Engineered Valves announced their newly renovated website engvalves.com on July 20, 2006. The website redesign includes visual elements that draw upon the strengths of the ITT brand as well as complete information on Engineered Valves' market leading

portfolio of industrial valves. Website navigation is also vastly improved through the use of top and side navigational bars. You now have an extensive knowledge resource at your fingertips at engvalves.com. Market and application data, product specifica-

tions, materials of construction, photos, and product brochures are now a click away. A new feature of particular interest to Distributors is the worldwide locator, which allows visitors to easily find their local distributor for Engineered Valves

products. Take a look today and to find your company listing. Check out the new engvalves.com and send your ideas for future website improvements to heather.sandoe@itt.com



Road Crew

Tom Donovan Joins Engineered Valves as Global Product Manager

In June, 2006 Tom Donovan joined ITT Engineered Valves as the Global Product Manager. Throughout his career, Tom has worked in Sales, Marketing, Engineering and Product Management. He has a BS in Plastics Engineering from the University of Massachusetts at Lowell and also attended the University of Dayton School of Business. Tom is a senior member of the Society of Plastics Engineers (SPE), a TAPPI member and past member of AICHE and AMA.

Tom chose to become a Product Manager because of his involvement in the process industries and he enjoys helping customers find the right solutions for their specific processes. In his current position, Tom enjoys the variety that each product line and plant brings to the Engineered Valves Industrial product mix. There is no typical day on the job, since it requires interaction with a full spectrum of customers, both internally (Customer Service, Engineering, Finance, Operations, Quality Assurance and Sales) and externally. Tom works on projects such as design changes, installation problems, cost/price analysis, application sizing, new product development and marketing. Tom's motivation comes from making a difference and helping to promote a successful organization, especially when it enhances the customer service image.

In a recent customer interaction Tom, as a member of a Cam-Tite troubleshooting team, had an opportunity to address a potentially damaging issue and make a difference for the customer. The team needed to address an assembly quality issue at ITT with a major end-user. They openly shared the ITT procedures and testing process used to identify the in-house quality issue. In describing the problem and providing the solutions, the team was able to help the customer identify shortcomings in their own in-house procedures. In the end, ITT was able to improve their process and the customer gained confidence in ITT and in their own internal processes.

Outside of work, Tom enjoys time with his family and observing his children's sports and extra-curricular activities. He also enjoys an occasional round of golf, NHL and College athletics, and home improvement projects.



Lancaster Customer Service Team Welcomes Brian Sweet



Brian Sweet joined the Customer Service team in Lancaster, PA on March 13, 2006. Brian received an Associates degree from Orange County Community College in Middletown, NY and a Bachelor's degree from Ramapo College of NJ in Mahwah, NJ. Brian is extremely friendly and approachable so he enjoys the new relationships he has developed with co-workers and distributors.

Brian covers the west coast, so on a typical day there are faxes and e-mails waiting for him in the morning. Brian responds to these requests during the early morning "quiet" time and then works on them in-between phone calls during the rest of the day. Since he is new to the valve business, some of his challenges involve not knowing answers off of the top of his head. However, Brian is a highly motivated individual who strives to do his best and never let others down.

Brian recently got married to Brenda on November 30th of 2005. He and his wife have four cats and one dog and are expecting their first child in January of 2007. Brian enjoys hiking, camping, racquetball and softball. Depending on the time of the year, he may spend way too much time watching the NY Yankees and NY Giants!

Valve Selection for FGD (cont.)

From Sulfur Dioxide to Recyclable Materials

FGD systems can use either a dry or wet process. The wet FGD process most commonly employed uses a scrubbing liquid, typically a limestone slurry, to absorb SO_2 present in the exhaust gas stream. A wet FGD process will remove in excess of 90% of the SO_2 in the flue gas as well as particulate matter. In a simple chemical reaction, as the limestone slurry reacts with the flue gas in the absorber, the limestone in the slurry is converted to calcium sulfite. In a number of FGD installations, air is blown into a section of the absorber and oxidizes the calcium sulfite into calcium sulfate which then may be easily filtered and dewatered to form a drier and more stable material that can be disposed of in a landfill or has the potential to be sold as a product to make cement, gypsum wallboard, or as a fertilizer additive.

Valve Considerations for FGD

Depending on size and layout, the FGD process in coal fired power plants typically require in excess of 500 valves. In the process of transporting and handling the limestone and gypsum slurry, valves up to 60 inches in diameter may be needed. Because the limestone slurry is abrasive on the front end of the FGD process and slightly caustic after reacting with the flue gas, valves used in FGD are required to have upgraded materials including corrosion resistant materials and replaceable wear components.

Applications

FGD applications (primarily limestone slurry and gypsum slurry) can be categorized as either abrasive or corrosive or both. Special care needs to be taken to incorporate the correct valve materials and the correct valve type for these demanding applications.

The acid/chloride environment that develops inside an FGD scrubber can be extremely aggressive. The acid comes from the absorption of the SO_2 and the small amounts of SO_3 . The SO_2 and SO_3 form acids with water making the condensate highly corrosive. Sulphur content varies based mostly on load and coal type. FGD systems typically operate over a sulphur content range from 2% to 4%.

Chloride is introduced by the coal or the water in the lime or limestone absorption slurry. This



A 10" actuated knife-gate valve (Model XS150-ULV) from ITT on a gypsum slurry line for FGD service.

environment tends to cause crevice corrosion, pitting, abrasion and erosion-corrosion. Many factors influence the corrosiveness of FGD slurry including chloride level, temperature, and pH. Because coals contain chlorides, their exhaust gases contain hydrogen chloride (HCl). When the temperature of the exhaust gas falls below the dew point, moisture condenses on the metals surfaces and the acids formed with water accelerate the wet SO_2 corrosion. Chlorides are also present in the scrubbing water and make-up water, and concentrate due to evaporation and slurry recirculation. In a closed single-loop system where all liquid waste streams are returned to a single reaction tank, the chloride level can build up to levels as high as 50,000 ppm, making the resulting chloride solution extremely corrosive.

Concentrations of fluorides up to 3,000 ppm have been found in the coal in FGD systems. Fluorides also build up due to recirculation. In particular, fluorides tend to collect under scale deposits, aggravating the acid crevice corrosion on stainless steels. The selection of the correct wetted material is essential, especially for corrosive applications.

Valve Selection for FGD (cont.)

To further complicate valve selection you must also match corrosion protection against abrasion protection. Typical non-metals considered as acceptable for abrasion resistance and chloride applications up to 50,000 ppm are EPDM, Urethane, Butyl, and Hard Rubber. Note that maximum temperature limits of material must be considered during the selection process.

Within the industry there is much debate around the selection of the correct metal for high chloride gypsum slurry applications, such as FGD. The debate revolves around the effects of temperature, chloride content, and pH. Couple this with the cost implications of high alloys and the debate becomes further heated. Common alloy selection can range from 316 stainless steel to Hastelloy® C276. It is always best to consult with the manufacturer before making final material selection.

Process Details

Limestone slurry found on the front end of the process is abrasive but typically not corrosive. Typical process conditions found from the limestone preparation area to the absorber are under 150 psi, ambient temperature, neutral pH (7-9), under 1,000 ppm Cl_2 , solids less than 45%.

Gypsum slurry found after the scrubbing process. Typical process conditions for gypsum slurry are under 150 psi, under 180°F (typically 150°F), varying pH (5-7 typical) can be as low as pH 1, varying Cl_2 chloride concentration (12,000 ppm typical) but can be 50,000 ppm, solids less than 20%. Addition valve consideration should be given to gypsum slurry applications as gypsum slurry tends to de-water and if not properly accounted for can lead to sealing problems. Filtrate and reclaim water is the water removed from primary and secondary dewatering of the gypsum slurry and is slightly abrasive and can be corrosive to highly corrosive. It maintains the following properties: under 100 psi, under 160°F, varying pH (5-7 typical), varying Cl_2 chloride concentration (12,000 ppm typical), solids less than 5%.

Water (Process, Service, Blend, Raw, Pond, Slurry Pump Flush, and Absorber Wash) is clean and non-corrosive and maintains the following properties: under 100 psi, under 120°F, neutral pH, under 200 ppm Cl_2 , solids less 0.5%.

Typical Valves Used in FGD

Diaphragm Valves are used in abrasive and corrosive applications. They are best used in smaller line sizes and are primarily of the straightway version lined with rubber. Diaphragm valves provide a reliable and economic solution in FGD slurry applications. They can be manual, pneumatic, or electrically operated. On occasion you will see diaphragm valves used in larger sizes for control applications where they would perform better than a butterfly valve in abrasive control applications. Typical services for diaphragm valves include limestone slurry, gypsum slurry, filtrate, and reclaim water.

Knife Gate Valves are considered the workhorse within the FGD market. They are capable of handling most applications and provide the most reliable service. Typical designs are either full rubber lined or urethane lined to handle the abrasive/corrosive nature of the process. Sizes can range from 2" up to 60" for the absorber slurry pump isolation lines. Valves will be manual, pneumatic (double acting or spring assist), electric, or hydraulic on larger valves. Most knife gate valves are specified with a number of options including open/close switches, rob boots, filter regulators, speed control, solenoids, and junction boxes. Typical services for knife gate valves include limestone slurry, gypsum slurry, filtrate, and reclaim water.

For FGD slurry applications, additional considerations for knife-gate valves include specifying a product with a robust seal design that does not discharge media to the environment as well as a scraper design that cleans the gate during operation and prevents media build up in the chest area.

Butterfly, ball and plug valves are typically used on less severe applications where abrasion or corrosion is not as much of an issue. Typical services include process water, service water, blend water, raw water, pond water, slurry pump flush, and absorber wash.

Signal Ahead

Distributor Advisory Council Update

The Engineered Valves' Distributor Advisory Council (DAC) now consists of five executive representatives from our distributor community. The Engineered Valves Council was re-chartered late last year following several years as a combined council with the ITT Pure-Flo group, in order to bring greater focus to the collaborative improvement opportunities. The new council will hold its next working meeting in late November to coincide with the PowerGen exhibition in Orlando, FL.

Council President, Fred Freeman of Tri-State Technical Sales in Malvern, PA recently wrote in a letter to all Engineered Valves distributors, "ITT has provided for an open forum where no topic is off limits and constructive suggestions are welcome. I want to encourage you to take the time to review your company's position with each of the Engineered Valves brands and let me or your council representatives know what impediments you are encountering to grow sales and/or market share."

You are encouraged to direct your comments or suggestions to:

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Minutes and actions from all DAC meetings are distributed at the close of each meeting to the official Executive Contact of each Engineered Valves distributor.

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