

# CONTROL SIGNAL

A publication of Gilson Engineering Sales, Inc.

Volume 10 Issue 2

October 2005

## Jordan Improves Pressure Regulators

For years, Jordan Valve has offered the metal SST diaphragm as standard in the MK50 and MK60 series valves. While SST has been a viable choice for many circumstances in the past, it is no longer the best option available for diaphragm material. We currently offer a much better alternative for virtually all applications and service conditions. What is it? Our Jorlon diaphragm.

Jorlon is a PTFE-based material that can hold up indefinitely on steam, liquid, and gas service. Jorlon is rated up to a temperature of 450°F. We



Jordan MK60 Pressure regulator

have tested this material in our lab at pressures greater than 1200 psi. We have not had a single field complaint. In fact, we are still searching for a way to cause this diaphragm to fail.

Jorlon can more than pay for itself. Look at what you get for your money:

### Durability

This is one tough material!. A SST diaphragm in our regulator will be reliable for approximately 12,000 full cycles. We have been unable to rupture Jorlon diaphragms in tests; over 1 Million cycles on air and 250,000 cycles on steam and still counting. This material will hold up beyond any set point offered in the MK50 and MK60.

*Continued on page 6)*

## Hot New Products

### Automated Test Station for Portable Gas Monitor

Portable gas detection equipment is one of the most important pieces of equipment owned by a plant. They are used to de-classify a potentially explosive environment prior to opening an electrical enclosure. They are used to ensure a confined space has adequate oxygen prior to personnel entering the space. They save lives. The International Safety Equipment Association (ISEA) says "A bump test or full calibration of direct-reading portable gas monitors should be made before each day's use". Unfortunately, this is not always done, either because of lack of training or complacency.

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Jorlon diaphragm, and sliding gate seat set

## Inside This Issue

**Flow Sensor for Solids**

**Measuring Level with Pressure**

## Tom Hearing Joins Gilson Engineering

The latest addition to the Cleveland, Ohio sales office is Tom Hearing. Since graduating from Cleveland State University in 1991 with a degree in Electrical Engineering, Tom has held several positions in engineering, sales and marketing. After a stint working on instrumentation upgrades at Commonwealth Edison in Chicago, he returned to Cleveland and concentrated on sales. Tom was a Regional Sales Manager for Lufan, Inc., a semi-conductor equipment manufacturer, and National Sales Manager for Crystaloid, Inc., a maker of LCDs. Most recently, Tom was working as a Manufacturer's Representative, selling into the Northern Ohio territory.



Although Tom already had a good deal of general instrumentation knowledge, he has really learned a lot on specific products through his participation in what is now called the "Gilson Boot Camp". This concentrated training took place over the first few weeks that he was with Gilson at the Pittsburgh headquarters. He continues to have weekly sessions with Shawn Gilson in the Cleveland office, and says he enjoys the insight he is garnering.

Tom and his wife Chris, an ICU nurse at Metro Hospital in Cleveland, reside in Cleveland Heights. They both enjoy sailing, scuba diving and gourmet cooking. Tom also enjoys woodworking, a skill he learned from his late father, and gets to practice it often on their 65 year old house.

## Non-Intrusive Flow Sensor for Solids

The SITRANS AS 100 is an acoustic sensor used for Solids flow detection. It detects changes in high frequency from equipment and materials that are moving. The AS 100 detects and reacts instantly to changes in solids flow. This allows an operator to take early preventative action and avoid costly damage.

Operating with a SITRANS CU 02 control unit, the system can detect conditions of high flow, low flow, or no flow. The CU 02 has two relays which are fully programmable and independent of each other which can be used to operate an alarm or control device. It also has a 4-20mA output that



AS100 acoustic sensor



CU-02 acoustic controller

can be tied into a control loop.

The sensor has no moving parts, is non-invasive, and is made of 304 or 303 stainless steel that is sealed against dust and moisture. This unit requires little or no maintenance and has a dual operating range which handles a wide range of application capabilities. Ways to install the sensor include screw in, bolt on, weld or bond in place. It is non-intrusive and can be welded or threaded on a pipe and will detect extremely low flows. One application is flyash broken bag detection. It will alarm if a small hole opens up in the bag as it will detect very low flow of fly-ash.

Other common applications include pellets, powders, and most bulk solids in pipes, chutes, vibratory feeders, pneumatic conveyors or aerated gravity flow systems.

## General News, Schedule of Events

### Pittsburgh, New Employees

Don Sabo, Inside Sales

### Pittsburgh

February 21-23, 2006.

March 28, 2006

Erie Engineers Show, Erie Civic Center

Pittsburgh ISA Show, Heinz Field

### Florida

We are excited to announce that Gilson Engineering is now the new exclusive representative for Jordan Valve. Even though Jordan is new to Florida, Gilson has represented Jordan for 25+ years in its Northern Territory. You will find the same technical support for this product as you have experienced

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

## Some Rules for Reading Level with Head Pressure

In an age with advanced technologies available for level measurement such as Radar, TDR (Time Domain Reflectometry/ “Radar on a Rope”) Ultrasound, and RF admittance, the pressure/DP (differential pressure) solution to liquid level still stands as a viable solution to many applications. In some applications, as where thick conductive foam is present, but liquid level only is desirable, Pressure/DP offers clear advantages over more sophisticated technologies. The following is review of some simple application rules that may help in planning your next application with successful results.

### WHERE IS D/P REQUIRED

When a tank has an open top, or is vented to atmosphere, it is important to remember that the pressure seen at the bottom of the tank is a result of the liquid level PLUS that of atmospheric pressure. Water at 68 deg F will result in 1 psi for every 2.77” of head above the measuring point. The Specific Gravity must be considered when determining the desired span of level. With an oil that has an SG=.85 (lighter than water), the transmitter would be spanned to 85” H<sub>2</sub>O to measure the 100” of oil level.

When a tank has a closed top, and there is any pressure above the liquid level greater than atmospheric pressure such as a purged tank with a positive pressure of air, steam, or another gas to displace air above the liquid, a true differential pressure transmitter is required with the low side plumbed to the top of the tank. As the name indicates, the transmitter reports the true results of the head pressure only by subtracting the effects of the false head created by the purge as follows:

**HIGH SIDE PRESSURE (LIQ HD + PURGE) – LOW SIDE (PURGE ONLY) = LIQ HD**

### OPEN TOP OR VENTED TANKS

A GAGE pressure transmitter

can be used for a vented or open top tank. Gage transmitters in the low ranges will be vented to atmosphere to compensate for changes in atmospheric pressure, so in fact, they make a differential measurement, with only one process connection.

When very low ranges are to be measured, it may be advantageous to move to a differential body simply for a larger diaphragm area. A gage transmitter is more compact, but offers less surface area for the smaller pressure to affect.

### INSTALLING GAGE TRANSMITTERS

If using the GAGE transmitter for level, it is advisable to mount the transmitter above an elevation where potential sludge accumulation could result in plugging of the diaphragm and sensing port. Installing a pipe tee off the tank and elbowing vertically to a block and bleed valve before the transmitter allows the release of entrapped air in the line at startup, and allows safe isolation of the unit, for release of the pressure should the unit need removed.

If the material being measured is thick, or has a tendency to stick or freeze in sensing lines, a remote seal may be added to the transmitter. Directly mounted to the transmitter, or separated from the seal with a capillary, the seal may have a larger diaphragm such as in the case of a 3” flange mounted seal that can be installed to the side of tank with a slender profile gate valve keeping the diaphragm close to the process so the sensing lines don’t plug, but still allowing isolation should the unit need removed. If plugging is a big issue, the seal may be equipped with a flushing ring where pressurized water or solvent that is compatible with the process can be injected to free minor process buildup in the adjoining mounting pipe, or on the seal itself.

The transmitter only has the ability to measure pressure above the elevation where the unit is mounted. A 30ft tall tank with a transmitter mounted 4 ft up from the bottom of the tank can only cover a 26 foot span. Some tricks in selecting the span can allow the 4-20 to cover the 30 ft, but the dependable measurable pressure will only cover 4 ft through 30 ft.

### INSTALLING DIFFERENTIAL TRANSMITTERS

The same rule of mounting above potential accumulating sludge holds true, and the transmitter will only read from the elevation at which it is mounted. If the differential transmitter with it larger diaphragms is being used due to a narrow range measurement span, and the low side is just vented to atmosphere with no gaseous pressure above the liquid level, the same simple block and bleed can be installed as in the case of the gage transmitter. If there is a positive pressure above the liquid, requiring connection to the low pressure side, a three-valve manifold can be used. Fitting on the face of the trans-



*Flanged pressure transmitter for level*

mitter, a three-valve manifold has one isolation valve for both the high and low sides of the DP, as well as a valve in the center interconnecting high and low sides. Once the high and low are shut off of the process, the center valve may be opened to equalize to the same pressure to allow zeroing of the transmitter. Because it is a true differential, all that is required is that high and low are equal pressure, even if it is a positive static pressure.

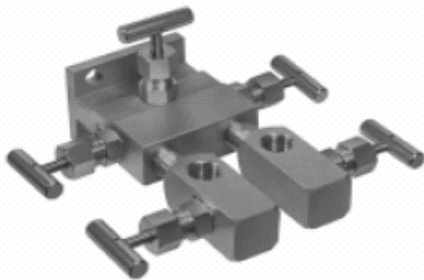
If the material being measured is dirty, and may tend to plug the sensing lines, a five valve blowdown manifold would be used. The process lines usually come down vertically to the five-valve manifold with process line connections facing upward. With the isolating valves shut, the two additional blowdown valves may be opened to

allow the positive process pressure to blow out the process lines. The spillage of this “blowdown” may have to be captured and contained so tubing can be connected to the bottom of the two blowdown valves.

If a very viscous material is being measured, or where a tank and its sensing lines are exposed to freezing temperatures, the DP may also be equipped with remote seals. The application must be looked at closely, especially where the process is hot and the transmitter is in a cooler or possibly cold area. Temperature affects fill fluid. Application review is suggested in these installations especially where a narrow range of measurement is in-



*Three valve manifold for differential pressure transmitters*



*Blow-down five-valve manifold for differential pressure transmitters*

involved. Errors due to temperature fluctuations in the fill fluid must be calculated to see if the results will be satisfactory.

#### **INSTALLING SUBMERSIBLE TRANSMITTERS**

Submersible transmitters are GAGE transmitters with a water tight cable attached containing not only the



*Remote seals can have flush diaphragms, or extended diaphragms*

two conductors for the 4-20mA loop powered output, but also containing a breather tube. This allows the back side of the diaphragm to read atmospheric pressure. Compact in design, they are used frequently in water wells, or with a more open front end around the sensing diaphragm and with an Intrinsically safe design, installed with safety barriers to measure sewage lift station or wetwell levels. They are ideal for industrial application like in ground con-



*Submersible pressure transmitter with sealed cable*

crete tanks with many obstructions or with heavy foam like in carwash water recycle pits. Slightly elevated temperatures are acceptable, but the rating of the internal 4-20mA transmitter, and potential condensation in the breather tube may be limiting factors.

#### **AVOID PROBLEMS BEFORE THEY START**

While head pressure measurement for level has been around forever, and it may not have the flashy appeal of some of the newer technologies, it is still an important tool in the arsenal of level measurement solutions. We take our jobs seriously at Gilson Engineering, to help find the best possible solution for your application, with the widest offering of level measurement solutions available.

## **Rep and Principal Compliment Each Other**

*Excerpts from September 2005 Agency Sales Magazine*

Visitors to the web site for MANA member Gilson Engineering Sales, Inc., Pittsburgh, PA, will find the agency’s mission statement: “Gilson Engineering will always treat their employees, principals, and customers with the highest degree of honesty and integrity.”

It would appear from what Chris Gilson has to say that fulfilling that mission a bit easier when you go to market with a principal such as Jordan Valve, a division of Richards Industries. The Cincinnati, OH based company manufactures a variety of products including pressure regulators, back pressure regulators, temperature regulators, pneumatic and electric control valves, sanitary valves, and accessories. Jordan Valve customers include leading companies in the chemical, petrochemical, pharmaceutical, and food process industries. Other sectors include paper products, tire and rubber, machinery and electrical equipment, transportation equipment and energy industries.

According to Gilson, “The executives of a privately-held company are inherently involved in the relations with their reps. Their chairman gets involved in everything and makes it a point to contact reps regularly with the goal of improving business and working more effectively with their outside sales force.”

Offering an illustration of how the company works with it’s reps, he explains that “any philosophy that a company adopts starts from the top and works its way down. That’s the way it is with Jordan Valve. I’ll have some form of contact from them on a day-to-day basis, and they always make time to meet with me and the heads of other rep agencies during industry shows. They support their communication to us via a regularly published newsletter, and they’re always looking for input from us.”

Gilson notes that his agency has worked with Jordan Valve for two dec-

*(Continued on page 5)*

*(Rep and Principal, Continued from page 4)* ades, and the manufacturer only sells through reps.

If Chris Gilson is effusive in his praise for how Jordan Valve works so well with its reps, then Gilbert Richards, the manufacturers chairman of the board, sounds an echo of the rep's views. According to Richards, "If you called me and asked that I identify the characteristics of the ideal manufacturer's representative, then I'd have to point directly at Chris Gilson and his agency. They are one of the real all-time professional rep firms."

He adds that when he took over the operation of the company, it had a track record of working with a few reps. "Because of the obvious cost restraints of going to market any other way, we decided to pursue that avenue."

In following that path, Richards emphasizes that something he realized from the very beginning in the manufacturer-rep relationship is that you have "to make a commitment to your reps. It's a little bit like a marriage—you have to learn to respect and rely on each other."

With that as his and his company's foundation for the relationship, Richards continues, "If it hadn't been for the reps we worked with at the beginning, we wouldn't be in business today. At the beginning, we were just a tiny organization, with little to offer anyone. No one had heard of us and our major competitors already had years of experience in the market. The few reps we had showed faith in us. They went out and hustled and sold for us and kept us going. Today we're a company of more than 200 employees, and we've experienced growth every year. We've learned how important is it to show the same loyalty to our reps that they showed to us from the beginning. We view them as a critical ingredient to our success. They are a group of people who have gambled their time, money and effort on us, and it has paid off for all of us.

The heart of the matter is strong personal contact. I tell our people that it's critical to establish regular personal contact with the rep and form personal friendships with the rep and his salespeople. If you can't build those relationships, it's not going to work."

*(MSA, Continued from page 1)*

MSA's Galaxy Automated Test System was designed to eliminate this problem. Simply place your MSA portable gas detector in the Galaxy, close the lid, touch one button, and a full, automatic calibration will be performed on your gas monitor. An LED will indicate whether the calibration passed or failed. No computer or network connection is required, the system is completely standalone.

#### **Setup and Expandability**

All gas tubing is preconnected within each Galaxy test stand and optional cal gas cylinder holder. In addition, up to ten Galaxy units can be interconnected. All tubing and electrical connections are pre-linked inside each Galaxy test stand, meaning no wiring or tubing will be exposed.

#### **Instrument Charging**

Another great option to the Galaxy system is the instrument charge function. The instrument charge will automatically begin after each successful calibration. **THINK OF THIS SAFETY IMPROVEMENT.** At the end of each day, place your portable gas monitor in the Galaxy Test Stand and the next day your instrument will be fully charged and calibrated, ready for use.

#### **Calibration Documentation**

After any property or personnel injury incident involving a portable gas detector, you will be asked to show your calibration documentation. Do you have this documentation? You will with the Galaxy system. The Galaxy has an industry standard optional flash memory card. This card holds more than 1000 individual calibration records. If the worst-case scenario happens, will you be rifling through a hand written calibration history (where the calibrations may or may not have actually been performed), or will you have a documented electronic history of calibrations?

The Galaxy Automated Test System is your solution. It provides simplicity, incredible performance, and the ability to withstand the harshest environments. The system incorporates MSA quality at an affordable price.

## **Low Cost Gas Flow Meter from FCI**

**T**he ST75 is an accurate, no moving parts, direct mass flow measurement and monitoring solution for flue gases, air, compressed air, inert and other gas flows within industrial processes. It is available in nine different sizes for direct, in-line installation in line sizes from 1/4 to 2 inch [ 6 to 51mm].

By combining precision lithography structured platinum RTD sensors embedded in FCI's equal mass thermowells with microprocessor elec-



*ST75 in-line flow meter*

tronics and precise actual gas calibration, the ST75 achieves outstanding flow measurement performance. Using FCI's proven thermal dispersion technology, the ST75's direct mass flow measurement, eliminates the cost and space of additional sensors required by inferred technologies. With its 100:1 turndown and flow ranges from 0.01 to 838 SCFM [0.01 to 1425 NCMH], the ST75 measures over a wide flow range, from low to high flow conditions. The ST75 is available in specific calibrations for most gases including natural gas, methane and other hydrocarbon gases, as well as, nitrogen, CO<sub>2</sub>, argon and all inert gases, compressed air and more.

*(Continued from page 1)*

**Uptime**

Downtime is expensive for today's system operators. The labor cost of replacing just one diaphragm can be many times more than the original cost of the entire valve — sometimes simply due to the process having to stop. Jorlon diaphragms will not fatigue.

**Performance**

Regulation will be noticeably improved over a SST diaphragm due to the increased flexibility of Jorlon. Ask to see our droop curves for more infor-

mation.

**Compatibility**

Jorlon will have almost the same material compatibility as Teflon, but with outstanding steam resistance properties. It can be used for steam service on pressures up to 400 psi (27.6 bar). The next time you need a regulator, remember Jordan sliding gate regulators with Jorlon diaphragms.

**To promote the increased use of Jorlon, Jordan has lowered the pricing for the Jorlon in our Sliding Gate regulators, as follows, effective immediately:**

**Jorlon Diaphragm Pricing**

MK50/60	Upgrade from SST	Spare Part Price
< 3/4"	\$ 61	\$ 85
1"-2"	\$ 87	\$135
2.5"-4"	\$303	\$452



**GILSON ENGINEERING SALES, INC. LOCATIONS:**

**PITTSBURGH, PA**

535 Rochester Road  
Pittsburgh, PA 15237-1747  
412-369-0100 OR 800-860-4499  
FAX 412-366-1728

**COLUMBUS, OH**

2697 Sawbury Boulevard  
Columbus, OH 43235-4582  
800-860-4499  
FAX 614-889-6038

**CLEVELAND, OH**

16722 West Park Circle Drive  
Chagrin Falls, OH 44023  
440-543-0300  
FAX 440-543-1230

**CHARLESTON, WV**

505 Capitol Street  
Charleston, WV 25301-1221  
304-342-0012  
FAX 304-342-0085

**TOLEDO, OH**

26953 Mingo Drive  
Perrysburg, OH 43551-1071  
419-874-1178 OR 800-860-4499  
FAX 419-874-5333

**ORLANDO, FL**

721 Mendez Way  
Longwood, FL 32750-6509  
800-860-4499  
FAX 407-332-4969

**TAMPA, FL**

828 Walsingham Way  
Valrico, FL 33594-4013  
800-860-4499  
FAX 813-655-3513

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Address Service Requested  
PGH, PA 15237-1747  
535 Rochester Road

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