



2019
COMPANY PROFILE

LEVEL 1 BBBEE CONTRIBUTOR

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TABLE OF CONTENTS

01 VALVES	6-14
02 TEMPERATURE MEASUREMENT	14-17
03 MANIFOLDS	17-19
04 ENCLOSURES	19
05 PRESSURE MEASUREMENT	20-21
06 CONSISTENCY METERS	21-22
07 GAS DETECTION	22-23
08 FLOW MEASUREMENT	23-24
09 LEVEL MEASUREMENT	25
10 TANK GUAGING AND INTERFACE SYSTEMS	26-27



ABOUT US

Graecor Agencies cc was established in 1993 by Mr Graeme Williams. It is predominantly an Industrial Instrumentation and Valves sales company operating in the Kwazulu Natal region. Graecor strives to supply high quality Instrumentation and industrial Valves to the following industries: Petrochemical, Pulp and Paper, Sugar, Water purification and distribution, Metal and Mining to mention a few.

In Late 2018 Mr Graeme Williams Retired and the company was acquired by a group of Engineers who brought a wealth of experience in the industry together with a number of agencies ranging from Manufacturers of Flowmeters, tank level systems, tank leak detectors, Gas detection, refractometers,, consistency measurement, analysers, samplers and Air Dryers. PLC, Scada, telemetry systems, level measuring equipment's just to mention a few. Adding to our quiver, additional services now include E&I Engineering, loop drawings, construction, commissioning, plant audits, calibrations and certifications (in short full turnkey options are offered). We are now a level 1 B-BBEE contributor.

The company's personnel boast with over thirty years of experience in the field. This allows us to be competitive in our pricing as well as offering after sales service.

We are also branching out into the renewable energy market with the Waaree range of Solar equipment and packages.



OUR VISION

We strive to partner with customers to provide a complete solution from inception to completion.



OUR MISSION

To give the best to the best in the industry always.



OUR PRODUCTS

1. VALVES
2. TEMPERATURE MEASUREMENT
3. MANIFOLDS
4. ENCLOSURES
5. PRESSURE MEASUREMENT
6. CONSISTENCY METERS-KPM KAJAANI
7. GAS DETECTION- DETCON AND OLDHAM
8. FLOW MEASUREMENTS-FLOWMETERS
9. LEVEL MEASUREMENTS- FUTURE INSTRUMENTS
10. TANK GAUGING AND INTERFACE SYSTEMS

Each of our products are listed over the next few pages with descriptions of each. Should there be any specific product not listed here, please contact us and we will do our best to assist.



1. VALVES

SAMSON Group top guided and cage guided globe control valves are suited for multiple applications in many industries. Manufactured with a modular design, the valves meet ANSI, API, ASME, ISO, DIN, and JIS standards.

Our valves can be ordered in globe, angle, and three-way bodies in a wide range of sizes and pressure classes made of standard, exotic, or PFA/PTFE lined materials with welded, threaded, or flanged ends. Depending on your need, the valves can be modified for continuous control or on/off with added limit switches or solenoid valves that meet SIL requirements.

SAMSON globe control valves provide measured control of your fluid processes such as non-corrosive, corrosive and erosive media, and steam, hygienic and

aseptic fluids. Using pneumatic or electric actuators and digital positioners, the valves integrate with diagnostic control systems through HART, Profibus, and Foundation Fieldbus protocols.

Even under the most extreme conditions, SAMSON valves maintain their reputation for high quality. Rising costs must be monitored and controlled. Regulations and laws become more restrictive and complex. You, our customers, rightfully expect improving technology to meet your process needs. We at SAMSON continue to innovate while maintaining high quality and service.

STANDARD INDUSTRIAL APPLICATIONS



3241
Globe Control Valve

Size: 1/2" to 12"
 ANSI Class: 125 to 300
 Std. Materials: Cast Iron, Carbon Steel, Stainless Steel, Monel, Hastelloy, (Special Materials on Request)
 Temperature Range: -325 to 842°F (-196 to 450°C)

The Type 3241 threaded seat globe valve is designed for general service applications up to the limits of the ANSI 300 pressure class rating. These general service applications include process events such as erosion, abrasion, corrosion, cavitation, and flashing found in most process control industries.

The Type 3241 has several standard options such as temperature extensions, metal bellows seals, heating jacket, high performance metal sealing trim, soft sealing trim, noise attenuation and cavitation prevention trim sets. In addition to these options the valves can be specialized to meet the exact process needs such as NACE version for sour gas service, cleaned for specific service (e.g. Oxygen, Chlorine, High Purity, etc.), or the pressure swing adsorption (PSA) design.

The Type 3241 can be assembled with a pneumatic, electric, hydraulic, or electro-hydraulic actuator also offered by the SAMSON group to complete the control valve construction. These control valves are designed according to the modular assembly principle, can be equipped with SAMSON GROUP actuators and valve accessories such as positioners, limit switches, and solenoid valves.



3244
3-Way Control Valve

Size: 1/2" to 6"
 ANSI Class: 150 to 300
 Std. Materials: Carbon Steel, Stainless Steel
 Temperature Range: -325 to 842°F (-196 to 450°C)

The Type 3244 threaded seat three-way control valve is designed for general service applications up to the limits of the ANSI 300 pressure class rating. These general service applications include both the mixing and diverting of process fluids found in most process control industries.

The Type 3244 control valve has several standard options such as temperature extensions, metal bellows seals, and heating jacket. In addition to these options the valves can be specialized to meet the exact process needs such as NACE version for sour gas service and cleaned for specific service (e.g. Oxygen, Chlorine, High Purity, etc.).

The Type 3244 can be assembled with a pneumatic, electric, hydraulic, or electro-hydraulic actuator also offered by the SAMSON group to complete the control valve construction. These control valves are designed according to the modular assembly principle, can be equipped with SAMSON GROUP actuators and valve accessories such as positioners, limit switches, and solenoid valves.



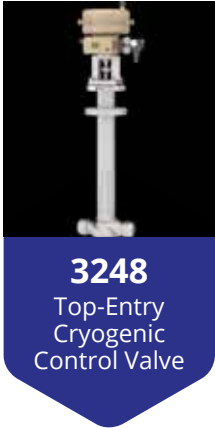
3246
Cryogenic Control Valve

Size: 1/2" to 10"
 ANSI Class: 150 to 900
 Std. Materials: Cast Stainless Steel (A351 CF8)
 Temperature Range: -325 to 149°F (-196 to 65°C)

The Type 3246 threaded seat globe control valve is designed for cryogenic service applications up to the limits of the ANSI 900 pressure class rating. Also included is a long insulating section as well as a circulation inhibitor to minimize the effects of the medium flow in the insulating section.

The Type 3246 cryogenic control valve has standard options such as an angle version for ANSI 300 pressure class and below as well as a perforated plug design.

The Type 3246 can be assembled with a pneumatic, electric, hydraulic, or electro-hydraulic actuator also offered by the SAMSON group to complete the control valve construction. These control valves are designed according to the modular assembly principle, can be equipped with SAMSON GROUP actuators and valve accessories such as positioners, limit switches, and solenoid valves.



3248
Top-Entry
Cryogenic
Control Valve

Size: 1" to 6"
ANSI Class: 150 to 600
Std. Materials: Cast Stainless Steel (A351 CF8)
Temperature Range: -425 to 149°F (-254 to 65°C)

The Type 3248 top entry threaded seat globe and angle style control valve is designed for cryogenic service applications up to the limits of the ANSI 600 pressure class rating.

The Type 3248 cryogenic valve is specifically designed to meet the requirements of cryogenic applications with the addition of a cryogenic extension bonnet cover plate to allow for installation in vacuum insulated pipelines, and air separation plants as well as standardizing on a metal bellows with a cryogenic length extension bonnet in order to meet emission requirements and minimize heat leaks. The top entry design allows for valve maintenance without removal from pipeline.

The Type 3248 can be assembled with a pneumatic, electric, hydraulic, or electro-hydraulic actuator also offered by the SAMSON group to complete the control valve construction. These control valves are designed according to the modular assembly principle, can be equipped with SAMSON GROUP actuators and valve accessories such as positioners, limit switches, and solenoid valves.



3249
Aseptic
Control Valve

Size: 1/2" to 4"
ANSI Class: 150
Std. Materials: Forged Stainless Steel A182 F316
Temperature Range: 32 to 320°F (0 to 160°C)

The Type 3249 aseptic angle control valve is designed for the strict sanitary requirements of the food, beverage, and pharmaceutical industries such as FDA and EHEDG. The valve body is designed without cavities, having a smooth, polished, satin, or mirror finish on internal and external surfaces, and the stem guide is sealed by a diaphragm. A test connection enables the diaphragm to be monitored for leakages. This design can be cleaned and sterilized using the CIP or SIP methods.

The Type 3249 can be assembled with a pneumatic, electric, hydraulic, or electro-hydraulic actuator also offered by the SAMSON group to complete the control valve construction. These control valves are designed according to the modular assembly principle, can be equipped with SAMSON GROUP actuators and valve accessories such as positioners, limit switches, and solenoid valves.



3347
Hygienic
Angle Control
Valve

Size: 1/4" to 5"
Maximum Pressure: 580 psi
Std. Materials: Cast & Forged Stainless Steel
Temperature Range: 32 to 300°F (0 to 150°C)

The Type 3347 hygienic angle control valve is designed for the strict sanitary requirements of the food, beverage, and pharmaceutical industries such as FDA, 3A, and EHEDG. The valve body is designed free of dead space and having a smooth, polished, satin, or mirror finish on internal and external surfaces. PTFE bushings are used to seal body and bonnet as well as bonnet and plug stem. An additional steam line connection is available for stricter purity requirements. This design can be cleaned using the CIP method.

The Type 3347 can be assembled with a pneumatic, electric, hydraulic, or electro-hydraulic actuator also offered by the SAMSON group to complete the control valve construction. These control valves are designed according to the modular assembly principle, can be equipped with SAMSON GROUP actuators and valve accessories such as positioners, limit switches, and solenoid valves.



3349
Aseptic Angle
Control Valve

Size: 1/2" to 4"
Maximum Pressure: 150 psi
Std. Materials: 316L Stainless Steel
Temperature Range: 32 to 320°F (0 to 160°C)

The Type 3349 aseptic angle control valve is designed for the strict sanitary requirements of the food, beverage, and pharmaceutical industries that includes the use of USP-VI diaphragm. The valve body is designed without cavities, having a smooth, polished, satin, or mirror finish on internal and external surfaces, and the stem guide is sealed by a diaphragm. A test connection enables the diaphragm to be monitored for leakages. This design can be cleaned and sterilized using the CIP or SIP methods.

The Type 3349 can be assembled with a pneumatic, electric, hydraulic, or electro-hydraulic actuator also offered by the SAMSON group to complete the control valve construction. These control valves are designed according to the modular assembly principle, can be equipped with SAMSON GROUP actuators and valve accessories such as positioners, limit switches, and solenoid valves.



3351
On/Off Globe
Valve

Size: 1/2" to 4"
ANSI Class: 150 to 300
Std. Materials: Carbon Steel, Stainless Steel
Temperature Range: -58 to 482°F (-50 to 250°C)

The Type 3351 threaded seat pneumatic on/off valve is used for tight closing applications for liquids, gases and vapors. The Type 3351 on/off control valve has standard options such as temperature extensions, and metal bellows seals.

The Type 3351 on/off valve is assembled with a pneumatic actuator and an optional hand wheel can be added to the control valve construction. These control valves are designed according to the modular assembly principle, can be equipped with various accessories associated with on/off control such as limit switches and solenoid valves.

Our range also covers heavy duty Industrial applications, light Industrial Applications and HVAC applications

ROTARY VALVES

SAMSON Group manufactures ball, segmented ball, butterfly, and eccentric rotary plug valves for non-corrosive, corrosive, and erosive media that conform to rigid ANSI, API, and ASME standards for both on/off and throttling service.

The valves are made in a variety of materials (ceramic, PFA/PTFE lined, carbon steel, alloy steel, stainless steel, Duplex, Monel, titanium, Hastelloy, Inconel, SMO, bronze, etc.) for use in many industries, such as oil and gas, chemical, petrochemical, pulp and paper, nuclear and conventional power, waste water, and mining and extraction. Rotary valves are offered in low or high pressure classes for light or heavy industrial applications.

BALL VALVES

SAMSON Group manufactures top and side entry, floating and trunnion ball valves in sizes from one-half inch up to forty-two inches or larger depending on your need. Ball valves can be ordered with metal, graphite or soft seats and different sealing options to suit the requirements of your processes.

BUTTERFLY VALVES

SAMSON Group high performance, centric, double eccentric and triple eccentric butterfly valves range in sizes from two inches up

to one hundred inches or larger, if needed, for better control or tight shut-off. Valves are offered in a selection of materials. Customized butterfly valves specially designed for cryogenic applications, anti-surge requirements, or with low noise trim are also available.

ECCENTRIC ROTARY PLUG VALVES

Rotary plug valves are a combination of a ball valve, butterfly valve and a classic globe control valve with an unobstructed flow path that is free of dead space and maintains control of high pressure drops. Cost saving occurs when ordering plug valves because the Cv coefficients can reach up to 200% higher than those of globe valves. A smaller valve can be used to maintain control of the flow. SAMSON Group eccentric rotary plug valves are manufactured in sizes one inch to twenty inches for throttling or on/off service.

SAMSON offers a wide selection of rotary valves to provide you with the valve that best meets your needs to maintain control in your processes while reducing costs, meeting mechanical and safety requirements, and limiting your process down time.

ROTARY PLUG & SEGMENTED BALL VALVES



3310
Cryogenic
Control Valve

Size: 1" to 12"
ANSI Class: 150 to 300
Std. Materials: Carbon Steel, Stainless Steel
Temperature Range: -50 to 842°F (-46 to 450°C)

The Type 3310 segmented ball control valve is designed for general service applications up to the limits of the ANSI 300 pressure class rating. These general service applications include process events such as erosion and abrasion found in most process control industries.

The segmented ball design increases flow capacities but also reduces the pressure recovery factor making the design more susceptible to cavitation, flashing, and flow noise generation. The Type 3310 segmented ball control valve has several standard options such as temperature extensions, heating jacket, metal sealing trim, soft sealing trim, etc. The Type 3310 can be assembled with a pneumatic, electric, hydraulic, or electro-hydraulic actuator also offered by the SAMSON group to complete the control valve construction.

These control valves are designed according to the modular assembly principle, can be equipped with SAMSON GROUP actuators and valve accessories such as positioners, limit switches, and solenoid valves.



Size: 1" to 8"
 ANSI Class: 150 to 300
 Std. Materials: Carbon Steel, Low temp. Carbon Steel, Stainless Steel
 Temperature Range: -76 to 428°F (-60 to 220°C)

The Vetec 62.7 double eccentric rotary plug control valve is designed for basic general service applications up to the limits of the ANSI 300 pressure class rating. These general service applications include process events such as erosion, abrasion, corrosion, cavitation, and flashing found in most process control industries. The double eccentric rotary plug design increases flow capacities with only minor reduction in the pressure recovery factor making the design an ideal replacement for linear globe control valves even with cavitation and flashing process conditions present.

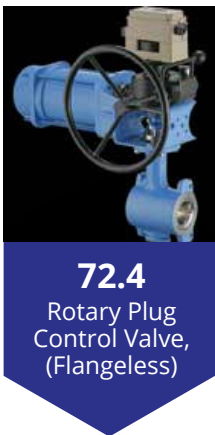
The Vetec 62.7 can be assembled with a pneumatic, electric, hydraulic, or electro-hydraulic actuator also offered by the SAMSON group to complete the control valve construction. These control valves are designed according to the modular assembly principle, can be equipped with SAMSON GROUP actuators and valve accessories such as positioners, limit switches, and solenoid valves.



Size: 1" to 24"
 ANSI Class: 150 to 300
 Std. Materials: Carbon Steel, Stainless Steel
 Temperature Range: -148 to 932°F (-100 to 500°C)

The Vetec 72.3 double eccentric rotary plug control valve is designed for general service applications up to the limits of the ANSI 300 pressure class rating. These general service applications include process events such as erosion, abrasion, corrosion, cavitation, and flashing found in most process control industries. The double eccentric rotary plug design increases flow capacities with only minor reduction in the pressure recovery factor making the design an ideal replacement for linear globe control designs even with cavitation and flashing process conditions present.

The Vetec 72.3 control valve has several standard options such as temperature extensions, heating jacket, special packing designs, noise attenuation and cavitation prevention trim sets, etc. The Vetec 72.3 can be assembled with a pneumatic, electric, hydraulic, or electro-hydraulic actuator also offered by the SAMSON group to complete the control valve construction. These control valves are designed according to the modular assembly principle, can be equipped with SAMSON GROUP actuators and valve accessories such as positioners, limit switches, and solenoid valves.



Size: 1" to 12"
 ANSI Class: 150 to 300
 Std. Materials: Carbon Steel, Stainless Steel
 Temperature Range: -148 to 752°F (-100 to 400°C)

The Vetec 72.4 double eccentric rotary plug control valve is designed for general service applications up to the limits of the ANSI 300 pressure class rating. These general service applications include process events such as erosion, abrasion, corrosion, cavitation, and flashing found in most process control industries. The double eccentric rotary plug design increases flow capacities with only minor reduction in the pressure recovery factor making the design an ideal replacement for linear globe control designs even with cavitation and flashing process conditions present.

The Vetec 72.4 control valve has several standard options such as temperature extensions, heating jacket, special packing designs, noise attenuation and cavitation prevention trim sets, etc. The Vetec 72.4 can be assembled with a pneumatic, electric, hydraulic, or electro-hydraulic actuator also offered by the SAMSON group to complete the control valve construction. These control valves are designed according to the modular assembly principle, can be equipped with SAMSON GROUP actuators and valve accessories such as positioners, limit switches, and solenoid valves.



Size: 1" to 20"
 ANSI Class: 600 and 900
 Std. Materials: Carbon Steel, Stainless Steel, Low Temp Carbon Steel, (Special Materials on Request)
 Temperature Range: -148 to 752°F (-100 to 400°C)

The Vetec 73.7 double eccentric rotary plug control valve is designed for heavy duty and severe service applications up to the limits of the ANSI 900 pressure class rating. These heavy duty and severe service applications include process events such as erosion, abrasion, corrosion, cavitation, and flashing found in most process control industries. The double eccentric rotary plug design increases flow capacities with only minor reduction in the pressure recovery factor making the design an ideal replacement for linear globe control designs even with cavitation and flashing process conditions present.

The Vetec 73.7 control valve has several standard options such as temperature extensions, heating jacket, special packing designs, noise attenuation and cavitation prevention trim sets, etc. The Vetec 73.7 can be assembled with a pneumatic, electric, hydraulic, or electro-hydraulic actuator also offered by the SAMSON group to complete the control valve construction. These control valves are designed according to the modular assembly principle, can be equipped with SAMSON GROUP actuators and valve accessories such as positioners, limit switches, and solenoid valves.



82.7
 Rotary Plug
 Control Valve

Size: 1" to 12"
 ANSI Class: 150 to 300
 Std. Materials: Carbon Steel, Stainless Steel, Low Temp Carbon Steel, (Special Materials on Request)
 Temperature Range: -320 to 1022°F (-196 to 550°C)

The Vetec 82.7 double eccentric rotary plug control valve is designed for standard and critical service applications, including process events such as erosion, abrasion, corrosion, cavitation, and flashing. The double eccentric rotary plug design increases flow capacities with only minor reduction in the pressure recovery factor making the design an ideal replacement for linear globe control designs even with cavitation and flashing process conditions present.

The Vetec 82.7 control valve has several standard options such as temperature extensions, heating jacket, special packing designs, noise attenuation and cavitation prevention trim sets, etc. The Vetec 82.7 can be assembled with a pneumatic, electric, hydraulic, or electro-hydraulic actuator also offered by the SAMSON group to complete the control valve construction. These control valves are designed according to the modular assembly principle, can be equipped with SAMSON GROUP actuators and valve accessories such as positioners, limit switches, and solenoid valves.

BUTTERFLY VALVES



14a
 High
 Performance
 Wafer Style
 Butterfly
 Valve

Size: 3" to 20"
 ANSI Class: 150
 Std. Materials: Carbon Steel, Stainless Steel
 Temperature Range: 14 to 392°F (-10 to 200°C)

The Pfeiffer BR14a double eccentric control butterfly valve is designed for general service applications up to the limits of the ANSI 150 pressure class rating. These general service applications include process events such as erosion, abrasion, and corrosion. The Pfeiffer BR14a design increases flow capacities but also reduces the pressure recovery factor making the design more susceptible to cavitation, flashing, and flow noise generation. The double eccentric design of this butterfly valve will reduce the breakaway torques required from the actuator.

The Pfeiffer BR14a control butterfly valve has standard options such as low and high temperature version. The Pfeiffer BR14a and BR14b can be assembled with a pneumatic, electric, hydraulic, or electro-hydraulic actuator also offered by the SAMSON group to complete the control valve construction. These control valves are designed according to the modular assembly principle, can be equipped with SAMSON GROUP actuators and valve accessories such as positioners, limit switches, and solenoid valves.



14a
 High
 Performance
 Wafer Style
 Butterfly
 Valve

Size: 2" to 20"
 ANSI Class: 150 to 300
 Std. Materials: Carbon Steel, Stainless Steel
 Temperature Range: -76 to 662°F (-60 to 350°C)

The Pfeiffer BR14b double eccentric control butterfly valve is designed for general service applications up to the limits of the ANSI 300 pressure class rating. These general service applications include process events such as erosion, abrasion, and corrosion. The Pfeiffer BR14b design increases flow capacities but also reduces the pressure recovery factor making the design more susceptible to cavitation, flashing, and flow noise generation. The double eccentric design of this butterfly valve will reduce the breakaway torques required from the actuator.

The Pfeiffer BR14b control butterfly valve has standard options such as low and high temperature version. The Pfeiffer BR14a and BR14b can be assembled with a pneumatic, electric, hydraulic, or electro-hydraulic actuator also offered by the SAMSON group to complete the control valve construction. These control valves are designed according to the modular assembly principle, can be equipped with SAMSON GROUP actuators and valve accessories such as positioners, limit switches, and solenoid valves.

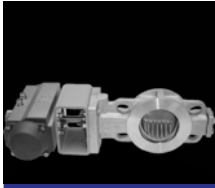


14p
 Butterfly
 Valve (PSA)

Size: 3" to 16"
 ANSI Class: 150 to 300
 Std. Materials: Carbon Steel, Stainless Steel
 Temperature Range: -4 to 356°F (-20 to 180°C)

Pressure swing adsorption (PSA) is a method used to separate a gas from a gas mixture as well as to dry or clean gases. The purity and quantity of the gas to be extracted strongly depends on the control valves used in this process.

The control valves used in PSA applications must shut-off tightly, have short opening and closing times as well as a high level of operational reliability. SAMSON has developed the double-eccentric 14p butterfly control and shut-off valve to meet these challenging requirements



3331
Centric
Butterfly
Control Valve

Size: 4" to 16"
ANSI Class: 150 to 300
Std. Materials: Carbon Steel, Stainless Steel
Temperature Range: 14 to 752°F (-10 to 400°C)

The Type 3331 centric control butterfly valve is designed for general service applications up to the limits of the ANSI 300 pressure class rating. These general service applications include process events such as erosion, abrasion, and corrosion. The Type 3331 design increases flow capacities but also reduces the pressure recovery factor making the design more susceptible to cavitation, flashing, and flow noise generation. The centric design of this butterfly valve will increase breakaway torques required from the actuator.

The Type 3331 control butterfly valve has several standard options such as swing through, step seated, angle seated, or low noise disc design, and temperature extensions. The Type 3331 can be assembled with a pneumatic, electric, hydraulic, or electro-hydraulic actuator also offered by the SAMSON group to complete the control valve construction. These control valves are designed according to the modular assembly principle, can be equipped with SAMSON GROUP actuators and valve accessories such as positioners, limit switches, and solenoid valves.



LTR43
Triple Offset
Butterfly
Valve

Size: 3" to 80"
ANSI Class: 150 to 250
Std. Materials: Carbon Steel, Stainless Steel
Temperature Range: -325 to 1832°F (-196 to 1000°C)

The Leusch LTR 43 triple offset butterfly valve is designed for general service applications up to the limits of the ANSI 2500 pressure class rating. These general service applications including process events such as erosion, abrasion, corrosion, cavitation, and flashing. The Leusch LTR 43 design increases flow capacities with the reduced pressure recovery factor compensated by special optional design features that address cavitation, flashing, and noise generation. The triple eccentric design of this butterfly valve will reduce the breakaway torques required from the actuator to nothing.

The Leusch LTR 43 control butterfly valve has standard options such as low and high temperature version, heating jacket, NACE materials, etc. The Leusch LTR 43 can be assembled with a pneumatic, electric, hydraulic, or electro-hydraulic actuator also offered by the SAMSON group to complete the control valve construction. These control valves are designed according to the modular assembly principle, can be equipped with SAMSON GROUP actuators and valve accessories such as positioners, limit switches, and solenoid valves.

BALL VALVES



26a
Two-Piece
Floating Ball
Valve

Size: 1/2" to 8"
ANSI Class: 150 to 300
Std. Materials: Stainless Steel
Temperature Range: 14 to 392°F (-10 to 200°C)

The Pfeiffer BR26a stainless steel tight closing ball valves are designed for general service applications up to the limits of the ANSI 300 pressure class rating. These general service applications include process events such as erosion, abrasion, and corrosion. The Pfeiffer BR26a design increases flow capacities but also reduces the pressure recovery factor making the design more susceptible to cavitation, flashing, and flow noise generation.

The Pfeiffer BR26a can be assembled with a pneumatic, electric, hydraulic, or electro-hydraulic actuator also offered by the SAMSON group to complete the control valve construction. These control valves are designed according to the modular assembly principle, can be equipped with SAMSON GROUP actuators and valve accessories such as positioners, limit switches, and solenoid valves.



26d
Two-Piece
Floating Ball
Valve

Size: 1/2" to 4"
ANSI Class: 150 to 300
Std. Materials: Stainless Steel
Temperature Range: -76 to 392°F (-60 to 200°C)

The Pfeiffer BR26d stainless steel tight closing ball valves are designed for general service applications up to the limits of the ANSI 300 pressure class rating. These general service applications include process events such as erosion, abrasion, and corrosion. The Pfeiffer BR26d design increases flow capacities but also reduces the pressure recovery factor making the design more susceptible to cavitation, flashing, and flow noise generation.

The Pfeiffer BR26d can be assembled with a pneumatic, electric, hydraulic, or electro-hydraulic actuator also offered by the SAMSON group to complete the control valve construction. These control valves are designed according to the modular assembly principle, can be equipped with SAMSON GROUP actuators and valve accessories such as positioners, limit switches, and solenoid valves.



26s
 Heavy Duty
 Trunnion
 Mounted Ball
 Valve

Size: 1" to 32"
 ANSI Class: 150 to 300
 Std. Materials: Carbon Steel, Stainless Steel
 Temperature Range: -325 to 1022oF (-196 to 550oC)

The Pfeiffer BR26s is a floating or trunnion mounted high performance ball valve designed for general service applications up to the limits of the ANSI 300 pressure class rating. These general service applications include process events such as erosion, abrasion, and corrosion. The Pfeiffer BR26s design increases flow capacities but also reduces the pressure recovery factor making the design more susceptible to cavitation, flashing, and flow noise generation.

The Pfeiffer BR26s can be assembled with a pneumatic, electric, hydraulic, or electro-hydraulic actuator also offered by the SAMSON group to complete the control valve construction. These control valves are designed according to the modular assembly principle, can be equipped with SAMSON GROUP actuators and valve accessories such as positioners, limit switches, and solenoid valves.



**Master
 Star**

Size: 1/4" to 2"
 ANSI Class: 150 to 800
 Std. Materials: A105, LF2, 316, 316L
 Temperature Range: -328 to 500oF (-200 to 260oC)

Strictly adhering to the practices that made the Italian forged steel ball valve industry great, STARLINE has been making Ball Valves since 1985. Now part of the SAMSON Group, STARLINE distributes its valves all over the world.

Our high quality ball valves have retained many features that other manufactures have abandoned to save cost. STARLINE has fortunately stayed true to its roots of quality manufacturing which delivers Low Total Cost of Ownership to the End User.

Can be assembled with a pneumatic, electric, hydraulic, or electro-hydraulic actuator also offered by the SAMSON group to provide a complete solution from a single source.



**Mega
 Star**

Size: 1/4" to 2"
 ANSI Class: 900 to 2500
 Std. Materials: A105, LF2, 316, 316L
 Temperature Range: -150 to 482oF (-101 to 250oC)

Strictly adhering to the practices that made the Italian forged steel ball valve industry great, STARLINE has been making Ball Valves since 1985. Now part of the SAMSON Group, STARLINE distributes its valves all over the world.

Our high quality ball valves have retained many features that other manufactures have abandoned to save cost. STARLINE has fortunately stayed true to its roots of quality manufacturing which delivers Low Total Cost of Ownership to the End User.

Can be assembled with a pneumatic, electric, hydraulic, or electro-hydraulic actuator also offered by the SAMSON group to provide a complete solution from a single source.



Spilt Star

Size: 1/2" to 8"
 ANSI Class: 150 to 30
 Std. Materials: A105, LF2, 316

Strictly adhering to the practices that made the Italian forged steel ball valve industry great, STARLINE has been making Ball Valves since 1985. Now part of the SAMSON Group, STARLINE distributes its valves all over the world.

Our high-quality ball valves have retained many features that other manufactures have abandoned to save cost. STARLINE has fortunately stayed true to its roots of quality manufacturing which delivers Low Total Cost of Ownership to the End User.

Can be assembled with a pneumatic, electric, hydraulic, or electro-hydraulic actuator also offered by the SAMSON group to provide a complete solution from a single source.



**Super
 Star**

Size: 1/4" to 4"
 ANSI Class: 150 to 900
 Std. Materials: A105, LF2, 316, 316L
 Temperature Range: -328 to 842oF (-200 to 450oC)

Strictly adhering to the practices that made the Italian forged steel ball valve industry great, STARLINE has been making Ball Valves since 1985. Now part of the SAMSON Group, STARLINE distributes its valves all over the world.

Our high quality ball valves have retained many features that other manufactures have abandoned to save cost. STARLINE has fortunately stayed true to its roots of quality manufacturing which delivers Low Total Cost of Ownership to the End User.

Can be assembled with a pneumatic, electric, hydraulic, or electro-hydraulic actuator also offered by the SAMSON group to provide a complete solution from a single source.



Size: 1/4" to 20"
 ANSI Class: 150 to 2500
 Std. Materials: A105, LF2, 316, F51, F44
 Temperature Range: -328 to 662oF (-200 to 350oC)

Strictly adhering to the practices that made the Italian forged steel ball valve industry great, STARLINE has been making Ball Valves since 1985. Now part of the SAMSON Group, STARLINE distributes its valves all over the world.

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SELF OPERATED REGULATORS

SAMSON self-operated regulators for liquids, gases and vapors use the process medium to function. Auxiliary energy is not required. SAMSON offers self-operated regulators for pressure, temperature, differential pressure, flow, as well as combination regulators.

SAMSON sanitary pressure reducing regulators are suitable for

liquids from freezing to 320°F. The wetted inside surface with polished or smooth finish and cavity free body design is manufactured with FDA approved materials for CIP/SIP. These regulators can be ordered from one-half inch to two inch with a set point range of 5 psi – 90 psi.

MEASUREMENT, CONTROL & OPERATION

Many tasks which used to be performed on site are now carried out on the monitor in the control room. Complex operations and processes demand quick reactions. As a result, maximum plant safety and process visualization are essential. In today's fast-paced environment, user-friendly equipment, compact work stations and standardized communication systems are indispensable.

SAMSON's answer to these challenges is: "TROVIS". Using TROVIS equipment, new ideas can be realized in process engineering as well as in the automation of plants and buildings. Simple compact controllers as well as modular systems using standardized communication systems offer solutions to any automation problem in process engineering. TROVIS equipment and systems by SAMSON are used successfully in a wide range of industries, for example,

food and beverage, pharmaceutical, waste management, and other automation and control systems.

For the HVAC industry, the main considerations are economy and energy savings without compromising comfort.

All automation tasks in building management as well as large district heating systems can be solved efficiently and conveniently with the user-friendly TROVIS equipment.

Responsible for the complete automation systems, individual projects and turnkey installations is SAMSOMATIC, a subsidiary of SAMSON.

I/P AND P/I CONVERTERS



6111
 Electropneumatic Converter (Rail Mount)

Input Signal: 4-20 mA
 Output Signal: 3-15 psi, 6-30 psi, or custom range up to 120 psi

The Type 6111 i/p converter is used to convert a direct-current input signal into a pneumatic output signal for measuring and control tasks. Particularly suitable as intermediate element between electric measuring devices and pneumatic controllers or between electric control devices and pneumatic control valves.



Input Signal: 4-20 mA
Output Signal: 3-15 psi, 6-30 psi, or custom range up to 120 psi

The Type 6116 i/p converter is used to convert a 4-20mA DC input signal into a pneumatic output signal for measuring and control tasks.

Particularly suitable as intermediate element between electric measuring devices and pneumatic controllers or between electric control devices and pneumatic control valves.

6116
Electropneumatic Converter (Field Mount)



The Type 3963 solenoid valve is designed to work in all general industrial applications. The Type 3963 solenoid valves ensure a high level of operational reliability and fast response times for controlling pneumatic actuators in hazardous areas. Intrinsically safe, low-power binary signals issued by automation or fieldbus systems can be used for controlling purposes.

The Type 3963 solenoid valves offer a variety of switching functions, flow rates and connections for all desired applications.

Solenoid valve

2. TEMPERATURE MEASUREMENT

THERMOCOUPLES

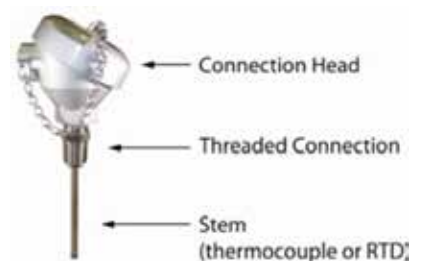
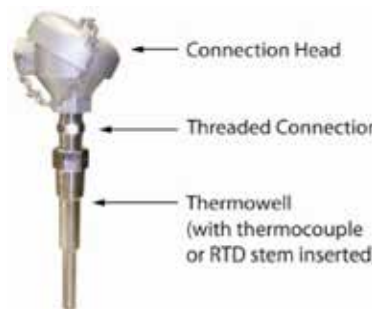
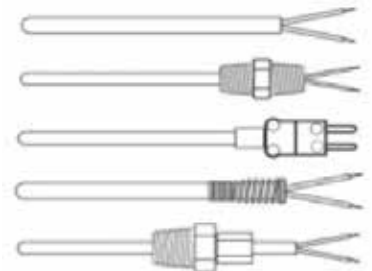
What is a Thermocouple?

A Thermocouple is a sensor used to measure temperature. Thermocouples consist of two wire legs made from different metals. The wires legs are welded together at one end, creating a junction. This junction is where the temperature is measured. When the junction experiences a change in temperature, a voltage is created. The voltage can then be interpreted using thermocouple reference tables to calculate the temperature.

There are many types of thermocouples, each with its own unique characteristics in terms of temperature range, durability, vibration resistance, chemical resistance, and application compatibility. Type J, K, T, & E are "Base Metal" thermocouples, the most common types of thermocouples. Type R, S, and B thermocouples are "Noble Metal" thermocouples, which are used in high temperature applications.

Thermocouples are used in many industrial, scientific, and OEM applications. They can be found in nearly all industrial markets: Power Generation, Oil/Gas, Pharmaceutical, BioTech, Cement, Paper & Pulp, etc. Thermocouples are also used in everyday appliances like stoves, furnaces, and toasters.

Thermocouples are typically selected because of their low cost, high temperature limits, wide temperature ranges, and durable nature.



Thermocouples are available in two basic constructions:

- a) Wire and bead type.
- b) Metal sheathed mineral insulated type.

Various constructions are available, depending on process connections.

Types of Thermocouples:

Thermocouples are often enclosed in a protective sheath to isolate it from the local atmosphere. This protective sheath drastically reduces the effects of corrosion.

Type J Thermocouple

The type J is also very common. It has a smaller temperature range and a shorter lifespan at higher temperatures than the Type K. It is equivalent to the Type K in terms of expense and reliability.

Type J Temperature Range

Type J Thermocouple Grade Wire Thermocouple grade wire, -346 to 1,400F (-210 to 760C)

Extension wire, 32 to 392F (0 to 200C)

Type J Accuracy: Standard: +/- 2.2C or +/- .75%; Special Limits of Error: +/- 1.1C or 0.4%

Diameters available

1mm, 1.5mm, 3mm, 4.5mm, 6mm, 8mm, 9.5mm, 10.8mm 12.7mm and 19mm.

Type K Thermocouple (Nickel-Chromium / Nickel-Alumel)

The type K is the most common type of thermocouple. It's inexpensive, accurate, reliable, and has a wide temperature range.

Temperature Range:

Type K Thermocouple Grade Wire-Thermocouple grade wire, -454 to 2,300F (-270 to 1260C)

Extension wire, 32 to 392F (0 to 200C)

Accuracy (whichever is greater): Standard: +/- 2.2C or +/- .75%, Special Limits of Error: +/- 1.1C or 0.4%

Diameters available

1mm, 1.5mm, 3mm, 4.5mm, 6mm, 8mm, 9.5mm, 10.8mm 12.7mm and 19mm.

Type N Thermocouple (Nicrosil / Nisil):

The Type N shares the same accuracy and temperature limits as the Type K. The type N is slightly more expensive. The type N has better repeatability between 572F to 932F (300C to 500C) compared to the type K.

Type N Temperature Range:

Maximum continuous operating temperature: up to 2,300F (1,260C)

Type N Thermocouple Grade Wire-Short term use: 2,336F (1,280C)

Thermocouple grade wire, -454 to 2300F (-270 to 1,260C);Extension wire, 32 to 392F (0 to 200C)

Type N Accuracy (whichever is greater): Standard: +/- 2.2C or +/- .75%; Special Limits of Error: +/- 1.1C or 0.4%

Diameters available

1mm, 1.5mm, 3mm, 4.5mm, 6mm, 8mm, 9.5mm, 10.8mm 12.7mm and 19mm.

Type T Thermocouple

Type T Thermocouple (Copper/Constantan): The Type T is a very stable thermocouple and is often used in extremely low temperature applications such as cryogenics or ultra-low freezers. It is found in other laboratory environments as well. The type T has excellent repeatability between -380F to 392F (-200C to 200C)

Type T Temperature Range:

Type T Thermocouple Grade Wire-Thermocouple grade wire, -454 to 700F (-270 to 370C)

Extension wire, 32 to 392F (0 to 200C)

Type T Accuracy: Standard: +/- 1.0C or +/- .75%; Special Limits of Error: +/- 0.5C or 0.4%

Diameters available

1mm, 1.5mm, 3mm, 4.5mm, 6mm, 8mm, 9.5mm, 10.8mm 12.7mm and 19mm.

Type E Thermocouple

Type E Thermocouple (Nickel-Chromium/Constantan): The Type E has a stronger signal & higher accuracy than the Type K or Type J at moderate temperature ranges of 1,000F and lower. The type E is also more stable than the type K, which adds to its accuracy.

Type E Temperature Range:

Thermocouple grade wire, -454 to 1600F (-270 to 870C)

Type E Thermocouple Grade Wire-Extension wire, 32 to 392F (0 to 200C)

Type E Accuracy: Standard: +/- 1.7C or +/- 0.5%; Special Limits of Error: +/- 1.0C or 0.4%

Diameters available

1mm, 1.5mm, 3mm, 4.5mm, 6mm, 8mm, 9.5mm, 10.8mm 12.7mm and 19mm.

PT100 platinum resistance thermometers (RTD'S)

Platinum resistance thermometers (PRTs) offer excellent accuracy over a wide temperature range (from -200 to +850 °C). Standard sensors are available with various accuracy specifications and numerous packaging options to suit most applications. Unlike thermocouples, it is not necessary to use special cables to connect to the sensor.

The principle of operation is to measure the resistance of a platinum element. The most common type (PT100) has a resistance of 100 ohms at 0 °C and 138.4 ohms at 100 °C.

The relationship between temperature and resistance is approximately linear over a small temperature range: for example, if you assume that it is linear over the 0 to 100 °C range, the error at 50 °C is 0.4 °C. For precision measurement, it is necessary to linearize the resistance to give an accurate temperature. The most recent definition of the relationship between resistance and temperature is International Temperature Standard 90 (ITS-90).

The Resistance Temperature Detector (RTD) is one of the most accurate temperature sensors available. Unlike thermocouples, RTD's do not de-calibrate (drift), thereby ensuring excellent repeatability.

Our RTD's are available in various diameters, the most common being 6mm. Other diameters available are: 4.5mm, 8mm, 10mm, 12mm and 12.7mm.

Mineral insulated RTD's (up to 350°C) are available in 3mm and 6mm sheaths. As with our thermocouples, any configuration is possible.



THERMOWELLS

Thermowells are used to provide an isolation between a temperature sensor and the environment, either liquid, gas or slurry. A thermowell allows the temperature sensor to be removed and replaced without compromising either the ambient region or the process.

Care must be taken in determining the material used for the thermowell as well as other factors. Thermo Sensors offers design assistance that includes pressure, temperature and or corrosion as well as vibration effects of the fluids. This vibration can cause well stem failure.

Thermo Sensors thermowell materials include:

- Carbon Steel
- 304 & 316 Stainless Steel
- Monel
- Brass

Thermowells are used to shield thermocouple elements against mechanical damage and corrosion. Many variations are available in a variety of materials to meet individual job specifications.

The chemical and physical properties of all standard bar stock materials are rigidly controlled. All bar stock wells are drilled by the gun drilling process. Use of specially designed and constructed measuring equipment enables standard guaranteed bore concentricity to be within ± 10% of wall thickness. Internal threads are within 1/2 turn of standard plug gauge. External threads are within 1/4 turn of standard ring gauge.

If required by customer, your thermowells undergo an internal hydrostatic test as a final precaution against pressure failure. Test pressures and duration are determined by the customer. Radiograph and other tests can be performed, and results furnished upon request.

A variety of alloys suitable for every thermowell requirement is available. Thermowell material should be selected for ability to withstand the process environments, high thermal conductivity and low porosity to gases.

Thermowell types



Thermowell Material guide

Thermowell materials for various average applications are listed in the following table. The list has been carefully prepared and takes into consideration such factors as contamination, electrolysis, catalytic reaction and other variables. Standard materials are recommended wherever possible. Service may vary, however, in industrial use as a result of temperature, pressure, concentration

and impurities in the corrosive medium.

While the recommendations cannot guarantee service, they will serve as an effective guide. Thermo Sensors Corporation can provide consultation for special applications upon request.

INDUSTRY	APPLICATION	CONDITIONS	MATERIAL
Cement and Lime	Kiln hot end (clinker) cool end (flue) Clinker cooler Exit Flue	to 2600 °F 2000-600 °F to 1200 °F	C30 Ceramic %28 Chrome Iron – Inconel 601 Cerampak – %28 Chrome Iron – Inconel 601 Inconel %28 ,601 Chrome Iron – Silicon Carbide, Silicon Nitride
Ceramic	Dryers Kilns-Brick Vitreous enameling Grinding wheels Abrasive grits Porcelain pottery	2200-1800 °F 2000-1600 °F to 500 °F to 2300 °F 2400-2000 °F	Carbon Steel – Silicon Carbide – Silicon Nitride – Wrought Iron C30 Ceramic – Inconel 600 – Silicon Carbide – Silicon Nitride Inconel 600 – Firebrick – 28 % Chrome Iron – Silicon Carbide – Silicon Nitride Wrought Iron C30 Ceramic C30 Ceramic
Chemical	Acetate Solvents Acetic Acid Acetic Anhydride Acetone Acetylene Alcohol Ethyl Alcohol Methyl Aluminum Aluminum Acetate Aluminum Chloride Aluminum Sulphate Ammonia Ammonia Hydroxide Ammonia Liquors Ammonia Phosphate (Dibasic) Ammonia Phosphate (Monobasic) Ammonia Phosphate (Tribasic) Ammonium Chloride Ammonium Nitrate Ammonium Sulphate Amylacetate	Crude or Pure 70-%10 °F 70-%50 °F 212-%50 °F 70-%99 °F 212-%99 °F 212 °F 70 °F 212 °F 70 °F 212 °F Molten Saturated 70-%10 °F Saturated 70 °F 212-%10 °F Saturated 212 °F All concentrations 70 °F All Concentrations 212 °F All Concentrations 70 °F All Concentrations 212 °F 70-%5 °F	Monel – Nickel 304 Stainless Steel 304 Stainless Steel 316 Stainless Steel – Monel Monel Monel Monel – Nickel 304 Stainless Steel 304 Stainless Steel – Monel – Nickel 304 Stainless Steel 304 Stainless Steel 304 Stainless Steel 304 Stainless Steel 304 Stainless Steel Cast Iron 304 Stainless Steel Hastelloy B 304 Stainless Steel 304 Stainless Steel 316 Stainless Steel 316 Stainless Steel 304 Stainless Steel – 316 Stainless Steel -2024T4 Aluminum – 304 Stainless Steel – 316 Stainless Steel

INDUSTRY	APPLICATION	CONDITIONS	MATERIAL
Chemical	Aniline Asphalt Barium Carbonate Barium Chloride Barium Hydroxide Benzaldehyde Benzene Benzine Benzol Boracic Acid Brines Bromine Butadiene Butane Buthlacetate Butyl Alcohol Butylenes	212-~610 °F Saturated 212 °F All Concentrations 70 °F 70 °F 70-~65 °F Saturated 70 °F Aqueous – Hot 70 °F Hot %5 Hot or Cold 70 °F Dry 125 °F ~70F	-2024T4 Aluminum – 304 Stainless Steel – 316 Stainless Steel Monel Phosphor Bronze Monel 316 Stainless Steel 304 Stainless Steel 304 Stainless Steel 304 Stainless Steel 316 Stainless Steel 316 Stainless Steel Monel – 304 Stainless Steel 304 Stainless Steel – Monel C1018 Steel – 304 Stainless Steel – Monel – Nickel 304 Stainless Steel Monel Monel – Hastelloy C 316 Stainless Steel – Hastelloy C C1018 Steel C1018 Steel 304 Stainless Steel C1018 Steel – ~2024T4 Aluminum – Monel – Inconel 600 304 Stainless Steel 304 Stainless Steel Monel Tantalum Sleeved Monel Brass – 304 Stainless Steel 304 Stainless Steel Monel Copper – 304 Stainless Steel C1018 Steel – Phosphor Bronze

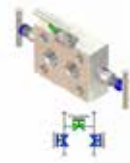
3. MANIFOLDS

MANIFOLDS (DIRECT MOUNT, REMOTE MOUNT AND FLANGED)

Direct Mount Manifolds are perfect for a one stop solution for your manifold requirements. We have many designs available in 2 valves, 3 valves and 5 valves.



Two Way Direct Mount Manifold



3 Way Direct Mount Manifold (Compact Design)

Specifications	
Type	2 Valve Direct Mount Manifold Pipe to Flange
Inlets	Female 1/2" NPT
Outlets	Flanged 'O'-Ring Transmitter Hook-Up
Packing	PTFE Graphite
M.C.W.P. Pressure	6000 psi / 10000 psi
Temperature Range	-30°C (-22°F) to 215°C (420°F) PTFE -30°C (-22°F) to 440°C (824°F) Graphite
Weight	0.80 kg

The L2/D manifold mounts directly to pressure transmitters. It is a small package making it attractive to the space and cost conscious. The angled vent tap design offers sufficient space to be able to operate the valves easily. The vent port is placed on the back face, pointing away from the user. This can be safer when hazardous media is being vented. The manifold is supplied with the transmitter seals as standard, with the bolting kit being included as an option added to the part number.

Features

- Compact and light weight
- Liquid and vapor service
- Vent ports face away from user for maximum safety when venting hazardous media
- Vent tap steeply angled forward, maximising clearance between tap handle and transmitter
- Allows isolation and removal of transmitter as well as calibration
- Full traceability
- 100% pressure tested
- Up-stream venting available
- Various bolting kits available
- Versatile mounting options for horizontal and vertical mounts
- Available in most exotic materials

Specifications	
Type	3 Way Direct Mount DP Manifold Pipe to Flange
Inlets	Female 1/2" NPT
Outlets	Flanged 'O'-Ring Transmitter Hook-Up
Packing	PTFE Graphite
M.C.W.P. Pressure	6000 psi / 10000 psi
Temperature Range	-30°C (-22°F) to 215°C (420°F) PTFE -30°C (-22°F) to 440°C (824°F) Graphite
Weight	1.21 kg

The L3/D manifold mounts directly to standard differential pressure transmitters. It is designed to be the smallest package possible for the space and cost conscious. Placement of transmitter and manifold are made easier due to its compact design. The manifold is supplied with the transmitter seals as standard, with the bolting kit being included as an option added to the part number.

Features

- Ultra compact body
- Maximum cost effectiveness and reduced shipping costs
- Liquid and vapor service
- Equalize tap steeply angled forwards, maximising clearance between tap handle and transmitter
- Allows isolation and removal of transmitter as well as calibration
- Full traceability
- 100% pressure tested
- Up-stream venting available
- Various bolting kits available
- Versatile mounting options for horizontal and vertical mounts

MANIFOLDS (DIRECT MOUNT, REMOTE MOUNT AND FLANGED)

Remote Mount Remote Mount manifolds provide a solution where the user requires the manifold to be mounted remotely from the transmitter. Many options available for a comprehensive choice.



5 Way Direct Mount Manifold (Compact Design)



2 Way DBB Remote Mount Inline Manifold

Specifications

Type	5 Way Direct Mount DP Manifold Pipe to Flange
Inlets	Female 1/2" NPT
Outlets	Flanged "O" Ring Transmitter Hook-Up
Packing	PTFE, Graphite
M.C.W.P. Pressure	6000 psi / 10000 psi
Temperature Range	-30°C (-22°F) to 215°C (420°F) PTFE, -30°C (-22°F) to 440°C (824°F) Graphite
Weight	1.61 kg

Specifications

Type	2 Way DBB Remote Mount Inline Pipe to Pipe
Inlets	Female 1/2" NPT
Outlets	Female 1/2" NPT
Packing	PTFE; Graphite
M.C.W.P. Pressure	6000 psi / 10000 psi
Temperature Range	-30°C (-22°F) to 215°C (420°F) PTFE, -30°C (-22°F) to 440°C (824°F) Graphite
Weight	0.78 kg

The L5/D manifold mounts directly to standard differential pressure transmitters. This body style allows for a wider spacing between the two impulse lines, making installation simpler. Placement of transmitter and manifold are made easier due to its design. The manifold is supplied with the transmitter seals as standard, with the bolting kit being included as an option added to the part number.

The L2/DR DBB remote mount inline manifold is ideal for limited space and panel installations. The Double Block and Bleed design provides maximum safety by ensuring "Positive Energy Isolation" as it utilizes the industry know Isolate Vent Isolate pattern. It is ideal for limited space and panel installations. There are many cost saving aspects to this manifold such as easy installation and reduced installation time. It also reduces the amount of leak paths in the system.

Features

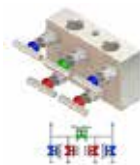
- Compact body
- Liquid and vapor service
- Allows isolation and removal of transmitter as well as zeroing and calibration
- Equalize tap steeply angled forwards, maximising clearance between tap handle and transmitter
- Full traceability
- 100% pressure tested
- Up-stream venting available
- Various bolting kits available
- Versatile mounting options for horizontal and vertical mounts
- Available in most exotic materials

Features

- Lightweight
- Double Block and Bleed Design (DBB)
- Liquid and vapor service
- Venting on the front face
- Reduced cost by eliminating multi valve systems
- Reduces installation time
- Reduced leak paths
- Remote mount and compact allowing flexible system design
- Full traceability
- 100% pressure tested
- Up-stream venting available
- Versatile mounting options for horizontal and vertical mounts
- Available in most exotic materials



3 Way Remote Mount Manifold with All Taps On Top



5 Way Remote Mount Manifold with All Taps On Top

Specifications

Type	3 Way Remote Mount Manifold Pipe to Pipe
Inlets	Female 1/2" NPT
Outlets	Female 1/2" NPT
Packing	PTFE, Graphite
M.C.W.P. Pressure	6000 psi / 10000 psi
Temperature Range	-30°C (-22°F) to 215°C (420°F) PTFE; -30°C (-22°F) to 440°C (824°F) Graphite
Weight	1.24 kg

Specifications

Type	5 Way Remote Mount Manifold Pipe to Pipe
Inlets	Female 1/2" NPT
Outlets	Female 1/2" NPT
Packing	PTFE; Graphite
M.C.W.P. Pressure	6000 psi / 10000 psi
Temperature Range	-30°C (-22°F) to 215°C (420°F) PTFE; -30°C (-22°F) to 440°C (824°F) Graphite
Weight	1.83 kg

The L3/G manifold mounts remotely from differential pressure transmitters. The all taps on top design allows this manifold to be panel mounted for a neat system look.

The L5/G manifold mounts remotely from differential pressure transmitters, gauges or switches. The "all taps on top" design allows this manifold to be panel mounted for a clean system look.

Features

- Lightweight
- Liquid and vapor service
- Venting on process connection face for easy piping
- All taps on top design allows option to panel mount
- Remote mount and compact allowing flexible system design
- 54mm Process and instrument connection PCD's
- Available with and without bleed ports
- Full traceability
- 100% pressure tested
- Up-stream venting available
- Mounting holes for easy installation
- Available in most exotic materials

Features

- Lightweight
- Liquid and vapor service
- Venting on process connection face for easy piping
- All taps on top design allows option to panel mount
- Remote mount and compact allowing flexible system design
- 54mm Process and instrument connection PCD's
- Full traceability
- 100% pressure tested
- Mounting holes for easy installation
- Available in most exotic materials

Flanged T & H Section

All our needle valves are designed and manufactured to stringent international standards. They provide a simple way of allowing safe and reliable shut-off. We have a wide variety of different designs, shapes, and styles for you to choose from.



Isolation Needle Valves / Hand Valves - L1/A

Hand valves are a plug valve design, available in a variety of different shapes, sizes and primarily used for isolation of pressure gauges, switches and pressure transmitters. These high quality items can be purchased with various inlet and outlet connections.

Features

- Superior Valve-head Technology
- Long Service Life
- Metal to metal seat for positive bubble tight shutoff
- Bonnet to body seal below bonnet threads isolating them from the process media
- Space saving compact design
- Accurate flow control at low flow rates for sustained periods for needle valve versions
- Various Cv Ratings available
- Many connection options available. This allows the user great



Male/Female



Tube/Tube

Needle Valves are very similar in design, except they are capable of metering flow rates very accurately. This is achieved with large movements being made to the handle for small changes in flow.

- flexibility and reduces amount of external components needed. Possible connections are male thread, female thread, tube end, butt weld and socket weld
- Tube end design eliminates the requirement for additional compression fittings, thus reducing costs, installation time and potential leak paths
- Full Traceability back to source
- 100% Pressure tested with nitrogen gas
- 2 Times over-pressure safety margins
- Manifold marking to a minimum of MSS-SP-25

4. ENCLOSURES We provide you with all your non-metallic and metallic enclosures, cabinets, air conditioning systems requirements.

SAREL "Thalassa" Enclosures:

Made of glass reinforced, U.V. (ultra-violet radiation) protected polyester resin. One piece moulded body with integral canopies top and bottom. High impact resistance – IK 10 (1kg from 2m). Reversible – door opening to the left or right.

Locks are located outside the protected area – no possibility of dust or liquid ingress around the lock body or lock insert. Selection of lock inserts – double bar, square, triangular and pad lock

Continuous (no joint) foam gasket in a protective groove. Gasket retaining its resilience throughout the life of the enclosure.

Wall mounting brackets either in GR polyester or 304L stainless steel.

Vents/Breathers can be installed in corner chambers – IP X6 is maintained.

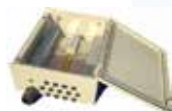
IP 68 condensate drain plugs are available on request.



E Ex e (Increased Safety) Junction Boxes:

Standard junction boxes are supplied in "Thalassa" enclosures with galvanized chassis plate, grey trucking, E Ex e II approved terminals, isolated earth bar and pre-drilled and tapped 6mm thick aluminum gland plate with M8 brass earth stud.

Non-certified general-purpose junction boxes to customer specification are available



Ex i (Intrinsically Safe) Junction Boxes

Standard junction boxes are supplied in "Thalassa" enclosures with galvanized chassis plate, blue trucking, blue Ex I approved terminals, isolated earth bar, pre-drilled 3mm thick aluminum or brass gland plate with brass earth stud M8.

Non-certified general-purpose junction boxes to customer specification are available



"Thalassa" PLM polyester enclosures IP-66

Self-extinguishing, halogen-free. Hot moulded glassfibre reinforced polyester. Smooth finish, Colour RAL7032 grey

- Reversible door opening by inverting enclosure.
- Version with toughened glass glazed door.
- Double insulated (class II) enclosures, degree of protection IP66.
- Temperature resistance: - 50°C to + 130°C.
- Resistance to external mechanical impact:
- enclosures with plain door: IK10 (20 joules),
- enclosures with glazed door: IK08 (5 joules).
- Locks outside sealed zone, ensuring long term IP66 protection.
- Integral top and bottom canopies.
- Wide range of accessories common with Spatial 3D steel enclosure range.

Few more products listed below

- "Thalassa" ABS & Polycarbonate enclosures (IP-66) and accessories or ABS & PC enclosures
- "PLS" polyester enclosures (IP-65)
- "Thalassa" PLM polyester enclosures (IP-66)
- "Spacial SF-PC" industrial computer cabinets (IP-55)
- "Spacial" SD control desks with chassis plates (IP-55) and "Spacial" SDX stainless steel control desks
- "Spacial S3D" steel enclosure system (IP-66) and Enclosures with double doors = IP55

5. PRESSURE MEASUREMENT

SOR SWITCHES

Mechanical level and flow Switches

Options:

- Condensate pots for steam
- ANSI B311 & B31.3 construction
- Replacement switching elements
- Hermetically sealed switches
- Pneumatic switch mechanisms

Features:

- Application compatibility
- Custom switches
- Adjustable set point
- Over ranges up to 12 000 psi(827bar)

Pressure and Vacuum Switches



Options:

- Fire-safe systems
- Manual reset
- Hermetically sealed
- Adjustable deadband
- Agency approvals
- Tamper-proof set point



Differential Pressure Transmitters and Switches

Features:

- Excellent repeatability
- Minimal set point shift
- Adjustable set point
- Corrosion resistant housings

Options:

- Sealed lead adapter
- Manual reset
- Low differential pressure
- Chemical seals
- Hermetically sealed switching elements
- Agency approvals
- Digital display (transmitters only)



Temperature Transmitters and Switches

Features:

- Remote or direct mounting
- Factory calibration
- Ranges to 1000 degrees Fahrenheit
- Wide range of switching elements and housings

Options:

- One or two set points
- 4-20 mA output
- Pipe mounting kit
- Terminal box
- Agency approvals
- Industrial oxygen service cleaning
- Hermetically sealed
- 1-5 VDC output

INDUSTRIAL DEW-POINT SENSORS, DEW-POINT TRANSMITTERS AND DEW-POINT METERS



Easidew Dew-Point Transmitter for Compressed Air

Simple to install and maintain, the Easidew sensor is a moisture meter measuring dew point and moisture content and is available with a range of process connections and electrical connectors. All Easidew dew-point transmitters are available with a service exchange program which reduces the cost of maintenance.

The Advanced Ceramic Moisture Sensor technology based Hygrometers are calibrated to international standards and are delivered with a traceable calibration certificate.

Applications

- Dew point in compressed air
- Dew points in breathing air
- Analyzing moisture in Hydrogen coolant
- Industrial Gases: Inert and bulk
- Moisture content in Glove boxes
- Welding gases
- Dew-Point in I.S. areas
- Trace humidity in oxygen purity



Easidew Portable Hygrometer

The Easidew Portable Hygrometer has been designed to make spot checks of the dew point in air and gases as simple as possible. This completely self-contained instrument weighs only 4kg and is delivered ready to use. Simply connect your sample gas to the Quick Connect fittings, turn on the instrument and it will automatically begin to measure the dew point of the applied sample.

Product Features

- Wide measurement range
- Simple operation
- Integral sampling system
- Rugged industrial case
- $\pm 2^{\circ}\text{C}$ dew-point accuracy
- Traceable to National Standards
- 16 hours of operation between charges
- Lowest cost of ownership due to minimal maintenance



Easidew PRO XP Dew Point Transmitter for Moisture Analysis

The Easidew PRO XP explosion proof dew-point sensor is designed to reliably and accurately measure dew point or moisture content in a wide variety of gas or liquid hazardous analyzer applications. The flexible mechanical design minimises installation time and provides a robust and reliable flameproof transmitter for all global EExd applications. The Easidew sensor can be used in combination with several of Michell’s moisture meters or moisture analyzers.

Applications

- Moisture in natural gas production and processing
- Pipeline drying
- Online fiscal metering of gas
- Dew-Point measurement in LNG production processing
- Petrochemical process liquids
- Trace humidity measurement in polymer production
- Moisture analysis in CNG drying
- IECEX, cCSAus, INMETRO (Br), FM, GOST & ATEX dew-point transmitter

6. CONSISTENCY METERS

KPM- KAJAANI PROCESS MEASUREMENTS LTD.

KPM products comprise applications for consistency control, sampling and sheet break detection – and represent the most progressive solutions of the field. All products are supported by KPM and Lorentzen & Wettre global network of sales and support and of course expert consultancy services. KPM is a part of the ABB Process Automation division.

KPM has key competence concerning applications for consistency transmitters, samplers and sheet break detectors. The products are easy to use, offering several features for a minimum of maintenance and low cost of ownership. KPM’s target is to introduce new revolutionary products to the market continuously, to help customers to improve their processes. KPM’s products will help achieve considerable savings on fibre, energy and chemical costs, while improving production efficiency and paper quality. All products are supported by a global network of sales and support offices, which facilitates immediate support according to customer’s needs.

The best solution for accurate consistency control

KPM consistency transmitters offer an application specific solution to manage and control consistency in the best possible way. From the comprehensive product range (rotary, blade, microwave and optical) the best solution for each application can be selected without compromise. All KPM consistency transmitters are unique innovative products, covered by several patents.

Reliable sheet break detection

KB2 Fibre-Optic Sheet Break Detector is the new generation sheet break detector that with the latest RGB technology enables 50% more light with effective power LED. This allows longer measurement distances and operation in high ambient light conditions. It is the perfect choice for installations in unclean, steamy and high temperature environments or where the space is limited.



KC/7 Microwave Consistency Transmitter

KC/7 Microwave Consistency Transmitter delivers highly accurate total consistency measurement based on true-phase measurement method of microwave signal. True-phase technology is the latest invention in the microwave field, to measure consistency.

KC/7 Microwave Consistency Transmitter is unaffected by variations in pulp grade (fibre length, freeness, kappa, brightness, colour, and shives) unlike other transmitters based on optical and shear force technologies. It is applicable close to the paper machine, after mixing chest and machine chest, and it is especially recommended at paper machines for mixed

furnishes and fillers. In pulp production it is applicable before first bleaching stage, after bleaching before drying machine, at mixed pulps and fillers, broke and recycled pulps. KC/7 Microwave Consistency Transmitter is resistant to changes in process conditions such as flow rate, pressure, temperature, and turbulence.

With no moving parts the transmitter’s reliability can be guaranteed. Self-cleaning ceramic windows reduce contamination and since there is no need for regular preventive maintenance the running costs are low.



KC/5 Rotary Consistency Transmitter

KC/5 Rotary Consistency Transmitter is the most advanced consistency transmitter unit in the market. With its revolutionary direct-drive servo motor, KC/5 is a rotary transmitter that requires no compromises. Excellent consistency measurement performance, light weight design, simple installation and dramatically reduced maintenance makes KC/5 the new standard for rotary consistency transmitters. Its sophisticated maintenance menu includes friction measurement, reverse direction rotation to check zero point and automatically remove foreign objects.

Thanks to its patented built-in gate valve assembly, the transmitter can be installed and removed while the process is running without having to shut down or drain the line. Through KPM’s “state of the art” torque measurement technology the

KC/5 provides quick and accurate consistency measurement. The sensitive and wide-range measurement sensor is applicable to all consistencies between 1,5–16%.

Installation cost is low since it is easily completed compared to traditional transmitters, and less maintenance is required. It does not need a 3-phase power supply neither contactor, nor motor starter in the electric room. All required hardware is included. Only single phase standard AC power supply is needed.

KC/5 is field repairable. No special training or special tools are needed. With no drive belt to change, KPM’s direct-drive servo motor is maintenance-free. KC/5 is easy to use and operate.



KC/3 Blade Consistency Transmitter

KC/3 Blade Consistency Transmitter, is a reliable and maintenance free transmitter. Its patented, shock resistant seal-less transfer mechanism with unbreakable diaphragm makes it the only transmitter in the market with no moving parts, o-rings or seals in the transfer mechanism, making it impossible for process liquid to leak inside sensor. All wetted parts are constructed of titanium. It is a 2-wire transmitter with modern HART® technology, and no external power supply is needed.

KPM- KAJAANI PROCESS MEASUREMENTS LTD.



Optical consistency transmitters are the best choice for low consistencies 0–2%Cs. The measuring principle is based on the ability of suspended particles to absorb and reflect/transmit NIR-light (near infrared). The OC sensors are constructed of 316SS with sapphire glass lenses, to withstand the most aggressive media. The sensor pressure class is PN25 for by-pass sensors and PN16 for in-line



OC Optical Consistency Transmitters

Few more products listed below

- KRT Retention package
- KPM KS/2-4-6 Pulp Sampler
- KB2 Fibre-Optic Sheet Break Detector

7. GAS DETECTION

DETCON

Gas Detection Products

Teledyne Gas & Flame Detection's fixed and portable gas detectors are always application-driven and solution-oriented. Whether for a single application or multiple sites and areas, our durable gas monitoring solutions meet your unique industrial needs. We offer a broad range of gas detectors and

controllers to satisfy most international certification standards such as ATEX, SIL (Safety Integrity Level), CSA, Marine, IECEx and others. Find the controllers, transmitters and accessories you need to effectively protect your people and your environment from hazardous gases.



MicroSafe 500 and 600 Series gas detectors feature a non-intrusive operator interface. Calibration and programming instructions appear in simple intuitive and sequential script on a 16-character backlit display. The transmitter design incorporates extensive fault diagnostics with each condition conveniently identified on the transmitter display.

The 500 Series comes standard with a linear 4–20 mA output, one-man remote calibration, self-adjusting zero and span, and LED indicators for fault and calibration status.

MicroSafe 500/600 Series

The 600 Series includes the same features as the 500 with the addition of 3 alarm relays and an RS-485 serial communications port.

Electrical Classification – Explosion proof

Class I, Div 1, Groups B, C, D



The sensor electronics are completely protected and immune to water ingress and corrosion. The sensor elements are all plug-in components and can easily be replaced in the field. Operator interface is non-intrusive via a small handheld magnet. Configuration and routine calibration is intuitive and menu driven with fully scripted instructions. Sensor status is displayed on a built-in alphanumeric LED display. The 700 Series intelligent sensor modules feature dual redundant outputs, a linear 4–20 milliamp analog signal and a Modbus RS-485 serial output.

Electrical Classification (FP, TP, IR, PI and DM Series)
Class I, Div 1, Groups B, C, D; Class I, Zone 1, Group IIB+H2 (ATEX)
Electrical Classification (DM, O2, PI Series)
Class I, Div 1, Groups A, B, C, D; Class I, Zone 1, Group IIC (ATEX)

Integration Solutions Include:

- Remote Control/Alarm Relay Module (RAM)
- Hart Module

Series 700 Fixed Gas Detectors

Few more Hazardous Area gas detection systems

- Fixed Gas Detector-iTrans2 & Stand Alone
- Meridian-MERIDIAN
- Model 100- Toxic Gas Sensor
- OLCT 60
- OLCT 80
- The GD10 Series
- The Multitox DG7 Series

OLDHAM/GMI (GAS DETECTION)



PS500 Gas Detector

This robust and accurate gas detector provides unrivaled protection in confined space applications.

The PS500 can be tailored to detect up to five gases with its toxic and catalytic sensors, photo ionization detectors, and infrared capabilities. "Plug and Play" option allows the customer to "plug in" a new board with a different gas range.

The PS500 is particularly useful in noisy environments, featuring a very loud (95dBA) penetrating and distinctive

audible alarm together with high visibility large area visual alarm. Pump, diffusion or both together, allowing pumped sample for pre-entry checking and diffusion in confined space working, thus maximising battery life. A robust, moulded, rubberised casing guaranteeing Hi-Impact resistance, the PS500 can be used in the most demanding industrial environments.



CXT Wireless Gas Detection Sensors

- Self-healing mesh network topology
- Universally accepted 2.4 GHz non-licensed frequency
- Low power gas detection sensors with built-in transceivers
- Built-in display for gas sensor/field device HMI
- Disposable battery packs



First Responder Portable Gas Detection

- PPM, LEL and Volume flammable gas ranges for leak detection and general safety monitoring.
- Carbon Monoxide range for internal atmosphere monitoring
- Probe mounted Semiconductor Sensor (Range 0 – 10,000 ppm), providing instant response leak detection with audible / visual 'Ticker' (Geiger) alarm indication
- Simple four button operation allowing access to all features
- Automatic and manual datalogging

The First Responder is a combustible gas indicator designed for emergency response technicians in the gas industry

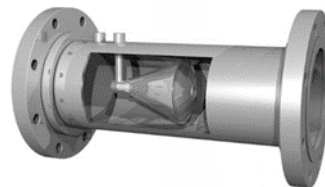
The First Responder detects flammable gas at PPM, LEL and % Vol levels with the addition of carbon monoxide for internal atmosphere monitoring.

An optional external range diffusion probe with high speed semiconductor sensor enables rapid response in detecting small fitting leaks.

8. FLOW MEASUREMENT

MCCROMETER (FLOW METERS)

Differential Pressure Flow Meters



Many people believe cone meters only measure gas. They also measure steam and liquids in many industries including oil/gas, chemical, electric power, food & beverage, HVAC systems, metals and mining, pulp and paper, water and wastewater treatment, and more. As you consider the requirements of what you need to measure, look for solutions that give you accurate results which are compatible with the demanding standards set by the industry.

While it's very common for cone meter's to be called a V-Cone, McCrometer, Inc. invented and patented the first successful cone meter, the one and only V-Cone® Flow Meter, in 1985. Today, there are over 75,000 McCrometer V-Cone Flow meters installed worldwide, and the total number continues to grow each year. V-Cone flow meters have been deployed in the world's highest pressure systems, up to 15,000 psi, and over 1,000 V-Cone flow meters protect gas compressors from dangerous and damaging high pressure surging flow conditions in an application called, "anti-surge." They are found at ocean depths of 10,000 feet in subsea modules, and on satellites in space. And they are robust enough for use aboard

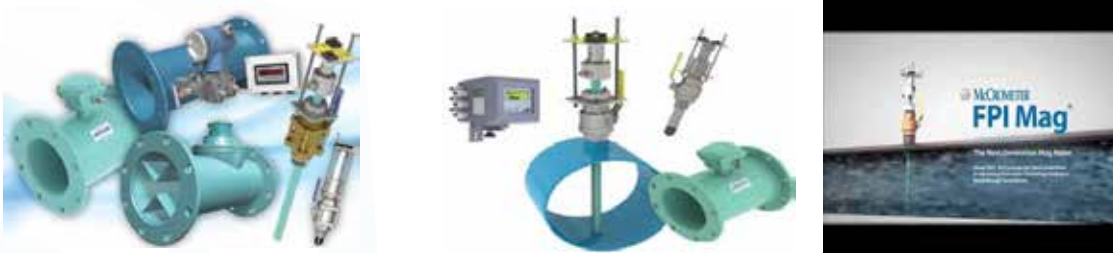
US Naval warships.

The advanced V-Cone flow meter requires only 1-3 straight pipe diameters upstream and 0-1 downstream to operate effectively. And in comparison to traditional DP instruments such as orifice plates and venturi tubes, the V-Cone Flow Meter's design is inherently more accurate because flow conditioning function is built into the basic instrument.

Whenever and wherever you need to measure, the McCrometer V-Cone Flow Meter meets many of the world's most demanding industrial, safety and quality standards.

MCCROMETER (FLOW METERS)

Electromagnetic Flow Meters



What are Electromagnetic Flow Meters?

Electromagnetic flow meters, also called mag meters or magnetic meters, are volumetric flow meters which do not have any moving parts to wear, reducing the need for maintenance or replacement. Accuracy over a wide flow range can be as good as $\pm 0.5\%$ of flow rate or better.

They feature an obstruction-free design which eliminates flow impediment and operate with electrodes embedded on opposite sides of the flow tube or sensor to pick up the signal. Mag meters perform extremely well in many municipal and processing applications, and have become the meter of choice for measuring conductive liquids such as water or slurry.

How Does a Mag Flow Meter Work?

All mag meters operate under the principle of Faraday's Law of Electromagnetic Induction to measure liquid velocity. The principle of operation states that a conductor moving through a magnetic field produces an electric signal within the conductor, which is directly proportional to the velocity of the water moving through the field. In essence, as fluid flows through the magnetic field, conductive particles in the fluid create changes in voltage across the magnetic field. This variation is used to measure and calculate the velocity of water flow through the pipe.

Advantages of using Electromagnetic Flow Meters

The main advantages of using magmeters is that they require less maintenance

and can be ordered for very large line sizes. Some, such as McCrometer's FPI Mag for example, can be installed with a simple hot tap which does not require shutting down the line. Mag meters also have the benefit of adding a level of trust for consumers: they hold the service provider accountable for the actual water being produced and/or billed. These efforts will assist with preservation of our water resources while improving profitability for the utility.

Disadvantages of using Magnetic Flow Meters

It depends on the meter itself. Some flow tube meters have a liner which can separate from the meter causing system damage and requiring maintenance. Look for a meter that does not require a liner, such as McCrometer's Ultra Mag flanged magnetic meter with a NSF-approved, fusion-bonded epoxy liner: the UltraLiner. Mag meters don't work on nonconductive fluids such as oils, steam or gas.

Electromagnetic flow meters are typically the meter of choice when measuring a conductive liquid which is water based, such as drinking water or wastewater, especially important when considering cost, accuracy, and longevity. You can be sure McCrometer has an ideal solution for your application.

Propeller Flow Meters



Agricultural and turf irrigators operate in difficult environments with extreme climates where water flow measurement can be the difference between profit or loss. McCrometer's complete line of dependable and economical propeller meters are ideal for the widest range of applications, from fire hydrant testing and effluent management to farm irrigation and wells. Designed to operate in real-world environments, McCrometer propeller meters can measure turbulent flows and fluids containing debris, suspended solids and other contaminants with an accuracy superior to other technologies.

McCrometer's Mc Propeller flowmeters offer a simple and efficient design. They are easy to install, use and maintain. After over 60 years of installations, it's no wonder these economical workhorses remain the number one choice for so many water management applications.

The Mc Propeller uses a flexible drive-train and sealed ball bearings. The unique design makes it easy to service in the field and requires no external power or batteries. Standard features include an instantaneous flow rate indicator and six-digit totalizer. There are no tight tolerances in the Mc

Propeller. It handles solids suspended in water without clogging. With its high accuracy, this flow meter is also a water management tool, helping to reduce water costs, preventing over-irrigation and reducing leaching of chemicals and fertilizers into the ground.

The Water Specialties Propeller Meter is uniquely designed to meet the flow measurement needs of water and wastewater users. Employed extensively in the water and wastewater industry, it has built a reputation for durability, reliability and high performance.

Whatever the need, McCrometer propeller meters offer unbeatable value in cost of installation and ownership, and set the standard for ease-of-use, reliability and economy. Our leading edge meters offer versatile water flow measurement that's been trusted since 1955.

9. LEVEL MEASUREMENT

FUTURE INSTRUMENTATION TECHNOLOGIES



FT8620 series Smart Turning Fork level switch

The FT8620 serial smart tuning fork level switch is a general-purpose ultrasonic fork point control. It consists of an electronic unit and a furcated sensing element, used for level limitation or alarm. Sensing element material are 304SS or 316SS stainless steel without or with PTFE cover for slight/mid-level corrosion.

Operation Principle

Smart tuning fork switch stimulates the fork sensor through electrical circuit, make it vibrating and then send the signal back to the circuit, bring out resonance. When there is some material touch the mechanical transducer part, the vibration

frequency and amplitude will change till the sensor suffering over-boundary drag, the whole electro-mechanical loop will stop vibration. While the electrical part will send a output signal indicate there is material on the sensor. After the material leaves the sensor, the vibration of the electro-mechanical loop will come back to work automatically, until the amplitude and frequency above the limitation value, the circuit will send another signal indicate there is no material on the sensor



FT8062 series Smart Turning Fork level switch

FT8062 serial smart moisture monitor is comprised of one electronic unit a set of explosion-proof

housing and one rod/coaxial sensing element (or probe), those components can be connected in an integral configuration or a remote configuration. The monitor is mainly used for high dielectric constant content analysis in insulating material, such as water in oil analysis.

Operation Principle

After the moisture monitor is installed in the field, it sets up a concentric circle capacitor between its probe and oil pipe, refer to following figure, one pole is the probe, the other is the pipe wall. According to the theory, the capacitance is:

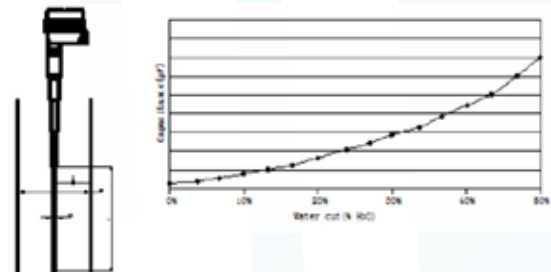
$$C = \frac{A \times \epsilon \times L}{\lg \frac{D_2}{D_1}}$$

C : Capacitance L : active probe length

A : constant coefficient E : Dielectric constant of crude oil(or insulating material)

D2 : diameter of pipe wall D1 : diameter of probe

Normally, dielectric constant of water K=80 but most K value in petroleum materials are around 2 to 2.9. As a result, the K value in crude oil will be increased tremendously along with the water molecule goes in, base on this feature, we could monitor the water content in oil through measuring the capacitances.



FT8051serial RF admittance

FT8051serial RF admittance Well Detector adopts RF admittance plus three-terminal driven-shield technology. It is comprised of one electronic unit, one connecting coaxial cable and one cable sensing element (or probe), either integral or remote installation could be chosen by clients. This product line is mainly used for deep well detection.

Operation Principle

As stems from capacitance level control technology, the Radio frequency admittance technology is a more advanced level control technology with a better coating rejection ability

therefore more reliable operation, higher accuracy and wider application. "Admittance" in Radio Frequency Admittance means the reciprocal of impedance. Under basic electrical theory, it is comprised of the value of resistance, capacitance & inductance. While "Radio frequency" means high frequency radio wave, so the radio frequency admittance could be understood as a method to measure admittance through high frequency radio wave. High frequency sine-wave oscillator sends a stable detect signal to measure the admittance value of the sensing element through the capacitance bridge, under direct working mode, the instrument output will increase along with the level arise.



FT836Xserial two wire Ultrasonic level system

FT836Xserial two wire Ultrasonic level system could be used in most liquid applications. It consists of one electronic unit with one enclosure and one sensing element. FT836X ultrasonic product is a non-contact instrument suitable for many kinds of continuous level measurement.

Operation Principle

Ultrasonic sensor translates the electrical pulse as sound energy and emit out, when the sound reaches the material surface, it will be reflected back. Then the sensor collects the feedback energy transfer it as the electrical signal to

analyse. The time interval from the sending to receiving of the ultrasonic pulse (transmit as sound rating) is directly proportional to the distance between the sensor to process material surface. The relationship between the distance(S), sound rating C and the transmission time(T) could be indicated as: S=C×T/2.

10. TANK GAUGING AND INTERFACE SYSTEMS

OMNTEC (AUTOMATIC TANK GAUGING SYSTEM)

Proteus-X (OEL8000IIX)



The PROTEUS OEL8000IIX is a comprehensive yet robust automatic tank gauging and leak detection system that simultaneously monitors product levels, water levels, temperature, and leaks in up to 16 tanks.

The PROTEUS OEL8000IIX accepts up to 64 of OMNTEC's Bright Eye (BX Series) sensors for distinguishing hydrocarbons from water or for simply detecting the presence of a liquid. A distinct advantage of Bright Eye sensors is that they are networked and utilize a 4 wire bus technology which results in significant savings

on installation costs. A built in microprocessor gives each sensor the ability to identify itself and its location, and is displayed along with alarm conditions on the PROTEUS OEL8000IIX's 7" color touch screen graphic display.

With advanced technology and enhanced features like its user friendly 7" color touch screen, the PROTEUS OEL8000IIX makes it easier than ever to navigate and interface with your Automatic Tank Gauge.

Proteus-X (OEL8000IIX)



We have taken our PROTEUS-K controller with its proven reliability, advanced technology, versatility, scalability, and enhanced features and packaged it with inventory only probes, 2" stainless steel floats, and 2" AST cap assembly kit to offer an economical solution for monitoring above ground storage tanks.

The PROTEUS PK accepts up to 16 of OMNTEC's Bright Eye (BX Series) Sensors for distinguishing product from water or for simply detecting the presence of liquid. A distinct advantage of Bright Eye sensors is they are networked and utilize 4 wire bus technology.

PROTEUS PK does not require sensor or probe input modules, bringing ease to ordering and installation. A built-in microprocessor gives each sensor the ability to identify itself and its location, which is displayed along with alarm conditions on the PROTEUS 7-inch colour touch screen graphic display.

PROTEUS PK does not require additional modules to drive a remote light and horn, as three programmable on-board relays facilitate this function. With OMNTEC's proven reliability, the PROTEUS PK offers an attractive, comprehensive, and user-friendly system that can open doors to endless possibilities.

Proteus-K (OEL8000IIX4 and OEL8000IIX8)



The Proteus-K4 accepts up to 16 of OMNTEC's Bright Eye (BX Series) sensors for distinguishing product from water or for simply detecting the presence of liquid. A distinct advantage of Bright Eye sensors is they are networked and utilize 4 wire bus technology.

PROTEUS does not require sensor or probe input modules, bringing ease to ordering and installation. A built in microprocessor gives each sensor the ability to identify itself and its location, which is displayed along with alarm

conditions on the PROTEUS's 7 inch colour touch screen graphic display.

With OMNTEC's proven reliability, the PROTEUS offers an attractive, comprehensive, and user-friendly system that can open doors to endless possibilities.

FUTURE INSTRUMENTATION TECHNOLOGIES

Proteus-B (OEL8000IIB4 and OEL8000IIB8)



The OEL8000IIB-B is our economical version of the PROTEUS Series. It offers limited features for a low cost solution to gauging, leak detection, and meeting compliance requirements.

The OEL8000IIB-B accepts up to 16 of OMNTEC's Bright Eye (BX Series) sensors for distinguishing product from water or for simply detecting the presence of liquid. A distinct advantage of Bright Eye sensors is they are networked and utilize 4 wire bus technology.

PROTEUS does not require sensor or probe

input modules, bringing ease to ordering and installation. A built in microprocessor gives each sensor the ability to identify itself and its location, which is displayed along with alarm conditions on the PROTEUS's 7 inch color touch screen graphic display.

With OMNTEC's proven reliability, the PROTEUS offers an attractive, comprehensive, and user-friendly system that can open doors to endless possibilities.

OEL8000II (for documentation purposes only)



The OEL8000II is a comprehensive tank-gauging and leak detection system that can simultaneously monitor product levels, water levels, temperatures and leaks in up to eight tanks. With advanced technology and enhanced features, the OEL8000II is suitable for a variety of gauging and leak detection applications.

The OEL8000II accepts up to 44 of OMNTEC's Bright Eye (BX Series) sensors for distinguishing product from water or for simply detecting the

presence of liquid. A distinct advantage of Bright Eye sensors is that they are networked and utilize

4 wire buss technology.

This system does not require sensor or probe input modules, bringing ease to the ordering and installation process. A built in microprocessor gives each sensor the ability to identify itself and its location, which is displayed along with alarm conditions on the OEL8000II's 4 line by 40-character backlit LCD display.

With OMNTEC's proven reliability, the OEL8000II offers a comprehensive and user-friendly system, which includes continuous in-tank leak detection (CITLD) as an upgrade option





2019
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“LIFE-LINE PSALM 23”
LEVEL 1 BBBEE CONTRIBUTOR

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