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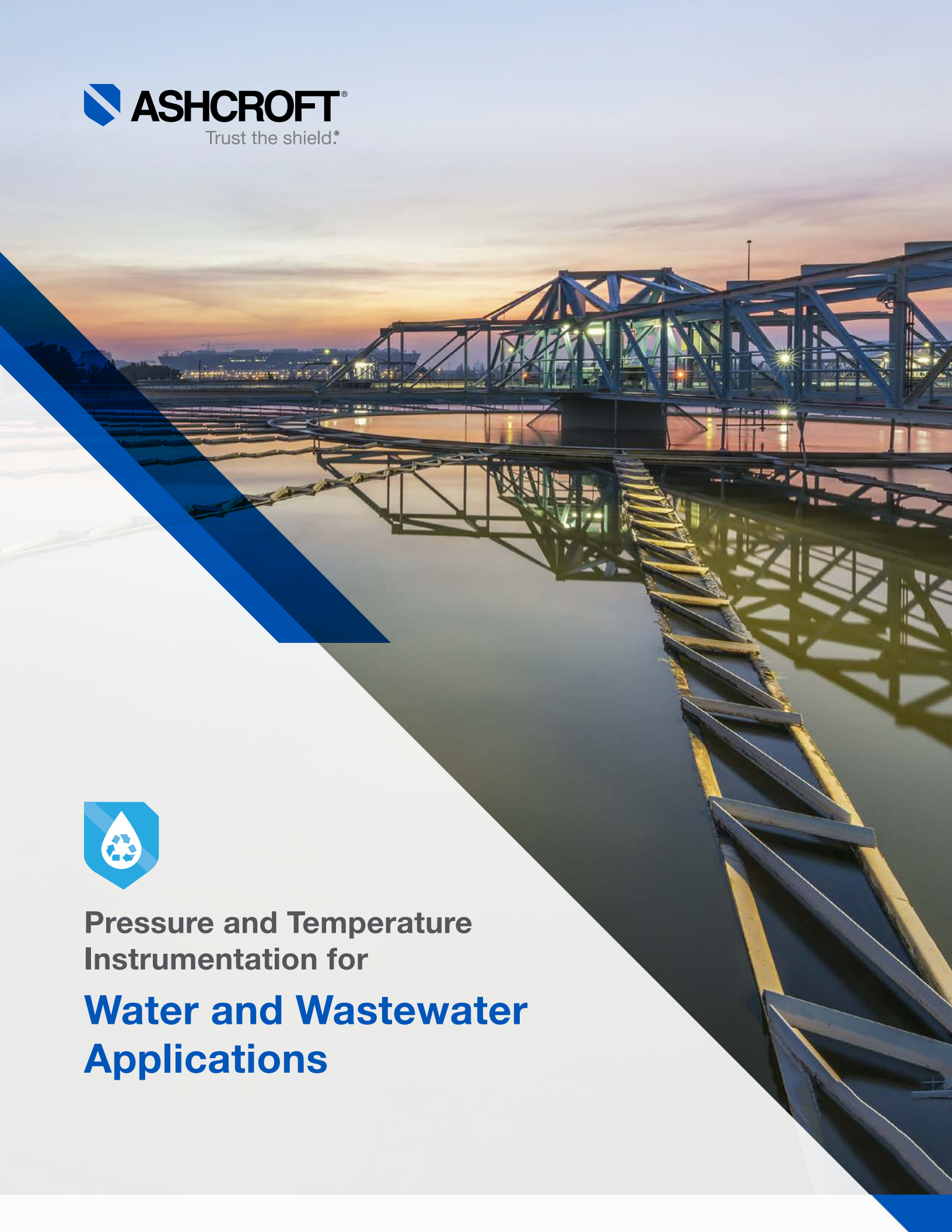

Pressure and Temperature Instrumentation for

Water and Wastewater Applications

Welcome to Ashcroft

Your single-source solution for the safety and protection of your water and wastewater applications.

Your mission is to keep it all moving. Whether it's water, sludge or chemicals, the flow must never stop. There's no time for clogs, instrument failures or inaccurate measurements. The right equipment choices can help you stay ahead of problems and avoid downtime.

Ashcroft has been producing the highest quality pressure and temperature instruments since 1852, and they are a familiar sight in nearly every industry and municipality. The reason for this is simple – we understand your application. Most every challenge you'll face is familiar to us and as your pressure and temperature instrumentation partner, we're ready to help you solve any that may arise.

You can rely on us for the expertise you'll need to make informed choices to protect your people, processes and profits. Our wide selection of instruments, isolators and multi-device assemblies are purpose-built to fulfill your mission. Learn about how you can benefit from partnering with Ashcroft.

Contact us to help you take-on your next project:

info@ashcroft.com
1.800.328.8258
ashcroft.com

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Solve Problems Before They Happen

Water processing systems produce a unique set of conditions that can adversely affect your valuable instrumentation. Choosing the right instrument for the job is a critical decision. To answer the call, Ashcroft provides application-specific expertise and delivers a wide variety of specifically engineered devices.

Each solution will help you to avoid potential problems like:

CLOGGING

Particulates, especially sludge, can accumulate inside pressure instruments and render them inoperable. Attaching an isolation ring or diaphragm seal will eliminate particle traps, allowing the instrument to function properly.

CORROSION

Water, sludge and treatment chemicals can erode metal components resulting in instrument failure. Diaphragm seals properly configured with compatible wetted materials will protect instruments from damage due to corrosion.

OVERPRESSURE

Pressure line spikes and "water hammer" may introduce pressure beyond the operating range of the instrument and cause damage. Installing pressure limiting valves or using a specific pressure measurement instrument designed for overpressure will help to avoid harm.

VIBRATION

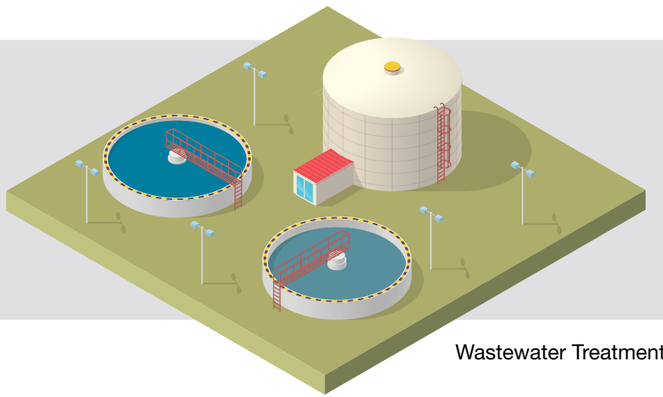
System machinery can cause vibration, which can result in pressure gauge "pointer flutter" and internal pressure gauge wear. Selecting a gauge with liquid fill or with the ***PLUS!***™ **Performance option** will stabilize the gauge movement and pointer, making it easy to read and protecting it from damage.

PULSATION

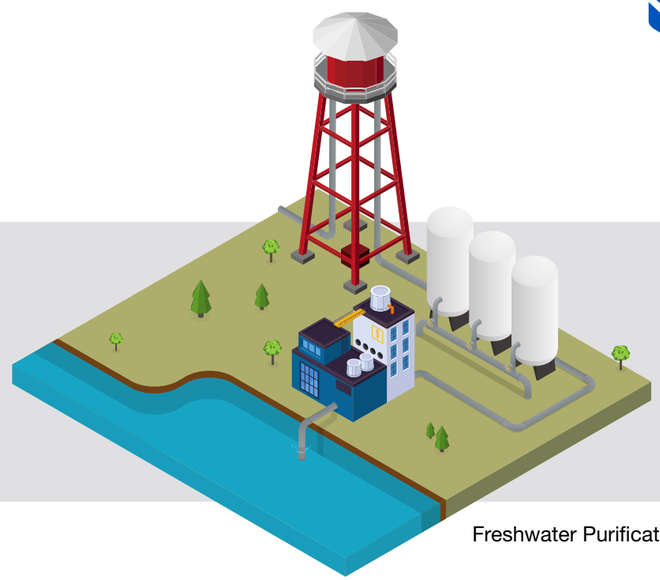
In-line pumps cause pulsation in the pressure line, which can cause pointer flutter and internal pressure gauge wear. It can also result in Bourdon tube fatigue or rupture. A throttle device or pulsation damper slows this effect and stabilizes the pointer for easier reading.

TEMPERATURE

Pressure media at high temperature will affect the elastic element inside the instrument resulting in decreased accuracy. The addition of capillary or a siphon helps to minimize process temperature effect on the instrument and prevent heat damage.



Wastewater Treatment



Freshwater Purification

Explore Common Applications

AQUIFERS

Serving the function of a subterranean reservoir, an aquifer stores water in permeable underground fractures, voids and porosities. Once the well has been surveyed and the depth at different locations has been established, the water level can be determined by measuring the hydraulic head pressure. To accomplish this, a submersible pressure (level) transmitter can be lowered to the bottom of the well through a wellhead or bore hole. Monitoring the level yields important information with regard to the available water supply. It also gives indications of the quality of the water by reporting sudden increases in the water level due to the ingress of harmful leachate.

The **Ashcroft® SL17 submersible level transmitter** is precisely designed for this application. It features a slender 17mm diameter IP68/NEMA 6P watertight housing, all 316 stainless steel construction and a vented polyurethane-jacketed cable. The rugged SL17 will deliver accurate and reliable data throughout an extended service life.

WATER TOWERS

Water towers average 165 ft. in height and support elevated holding tanks for the purpose of pressurizing water distribution systems up to 70 psi. The elevation ensures sufficient hydrostatic pressure and an adequate water supply for daily consumption as well as fire suppression emergencies, even if pumps are inoperable due to a power outage. When the water is released into the system, gravity (or, the potential energy stored in the water due to the elevation) forces the water down into a pipe network for delivery to consumers. The holding tank is continually replenished by water pumps at ground level.

Pressure instrumentation is used to measure the level of the water in the tank. Connecting the instrument to a tap level with the bottom of the tank will yield a reading of the “hydraulic head” (pressure) that has been created at the bottom of the tank by the height of the water above it. Using the conversion factor for psi to feet of fresh water, the pressure reading (in PSI) can be multiplied by a factor of 0.432756 to determine that level in “feet of water”. The Ashcroft **GC51 rangeable indicating pressure transmitter** can be programmed to perform this conversion and report in the desired unit of measure. It is also especially useful because it provides a digital display for local readings as well as a 4-20 mA output for remote monitoring. When mounted at ground level, programming also allows the transmitter to remove (tare) the unwanted hydraulic head pressure from the bottom of the tank down to the ground so that only the liquid height of the water in the tank is displayed. In fresh water applications, no isolation device is required. In addition, the specialized Ashcroft® **TC tank level gauge** provides local indication and is customized to meet requirements for any shape tank or vessel. Regardless of its position relative to the bottom of the tank, it does not need to be offset for head pressure effect. The TC also does not require power and is an ideal primary indicator or backup for electronic devices.

CHEMICAL FEED SYSTEMS

Water treatment requires the addition of specific chemicals for purification, demineralization, pH control and more. The quantity of each chemical introduced into the supply is critical and must be closely monitored. Many of these chemicals in high concentrations are corrosive to common wetted systems, including measurement instruments. **Ashcroft 1259, 1279, 1009, 1209, T5500** and **T6500 pressure gauges** can be used to monitor system input and output pressures. They are available with a variety of wetted materials that may be compatible with the pressure medium, allowing the gauge to be mounted directly to the process. In applications where the pressure medium is too aggressive for the gauge materials, depending on customer requirements, Ashcroft will typically install a **200, 510 threaded** or **DF flanged diaphragm seal** to the gauge. Constructed from compatible wetted materials, these isolators protect the gauge from the hostile media.

Common chemicals, their uses and compatible material suggestions include:

COMMON PROCESSING CHEMICALS AND COMPATIBLE MATERIALS

Chemical	Purpose	Compatible Materials
Aluminum Sulfate	Causes suspended impurities to coagulate into larger particles that can be removed by filtration.	Hastelloy B2, Hastelloy C276, Titanium, Tantalum, Kynar, Halar, Teflon, EPDM, Kalrez 2037
Chlorine	A disinfectant used to remove organic molecules and microorganisms as well as iron, manganese and hydrogen sulfide.	Carp. 20 Cb3, Hastelloy C276, Tantalum, Titanium, PVC, Kynar, Halar, Kalrez 2037
Chlorine Dioxide	Disinfectant and bactericide, also helps to remove, iron, manganese and improve taste, odor and color.	Kynar, Tantalum, PVC and Viton
Fluorosilicic acid	Added in municipal water systems to promote dental health.	Kynar, PVC, Viton
Hydrochloric acid (muriatic acid)	Lowers the pH in drinking water. Also helps to control pipe scaling and corrosion.	Hastelloy B, Tantalum, Kynar, Halar, Viton, Kalrez 2037
Phosphoric acid	Removes unwanted minerals from water, such as iron, manganese, copper and lead. In drinking water, controls scaling and acts as a source of phosphate which inhibits corrosion of the pipes.	316 & 316L Stainless Steel, Carp. 20 Cb3, Nickel, Inconel 600 & 718, Hastelloy C276, Tantalum, PVC, Kynar, Halar, Teflon, EPDM, Viton, Kalrez 2037
Potassium chloride	Water softener, helps to reduce the levels of sodium and enriches the water with potassium as a dietary supplement. Also is an alternative to sodium chloride in IX systems.	Hastelloy C276, Tantalum, Titanium, Kynar, Halar, Teflon, EPDM, Viton, Buna-N, Kalrez 2037
Sodium bicarbonate ($NaHCO_3$, baking soda, bicarbonate of soda)	Raises the pH in drinking water to neutralize acids and help prevent corrosion. When using salt coagulants (not polymers) this alkalinity is necessary for flocculation. The reaction between the coagulants and the bicarbonate (alkalinity) promotes bonding with colloidal particles to form the flocs that trap suspended matter.	403, 410, 304, 316 & 316L Stainless Steel, 17-4 PH, Carp. 20 Cb3, Monel (P or M), Nickel, Inconel 600 & 718, Titanium, PVC, Kynar, Halar, Teflon, EPDM, Viton, Buna-N, Kalrez 2037

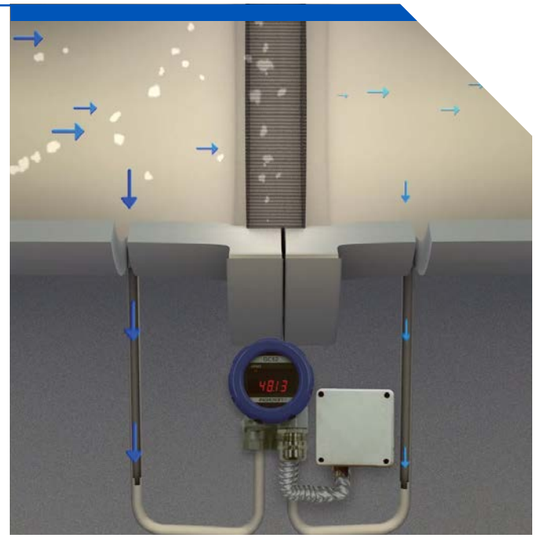
COMMON PROCESSING CHEMICALS AND COMPATIBLE MATERIALS

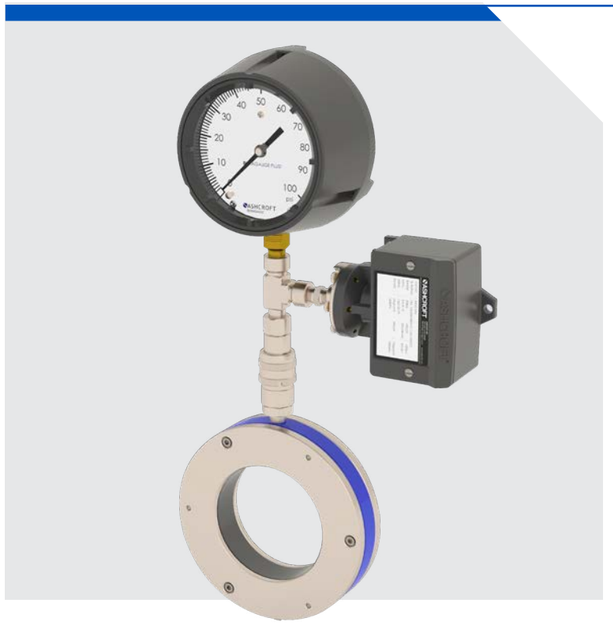
Chemical	Purpose	Compatible Materials
Sodium chlorite	Used to produce chlorine dioxide on site, strong oxidizer.	Tantalum, PVC, Kynar, Viton, Halocarbon fill
Sodium chloride (table salt)	Promote the ion exchange required for the regeneration of polymer resins. Water is filtered through the resins to remove calcium and magnesium that was shed by limestone in the aquifer or well.	Monel, Inconel 600 & 718, Hastelloy C276, Tantalum, Titanium, PVC, Kynar, Halar, Teflon, EPDM, Viton, Buna-N, Kalrez 2037
Sodium fluoride	Added in municipal water systems to promote dental health.	PVC, Kynar, Viton, Teflon
Sodium hydroxide (caustic soda)	A base used to raise the pH, making the water less corrosive to plumbing and helps to reduce toxic metals that have dissolved in drinking water.	17-4-PH, 304, 316 & 316L Stainless Steel, Carp. 20 Cb3, Monel, Nickel, Hastelloy B2, Inconel 600 & 718, Hastelloy C276, Titanium, PVC, Halar, Teflon, EPDM, Buna-N, Kalrez 2037
Sodium hypochlorite (bleach)	Disinfectant and bactericide, used in both potable and wastewater processes. Also helps to control undesirable odors.	Tantalum, Titanium, PVC, Kynar, Halar, EPDM, Kalrez 2037
Sodium permanganate	Disinfectant and oxidizer, assisting in the removal of iron and hydrogen sulfide, thus controlling taste, odors and clarification.	316 & 316L Stainless Steel, Carp. 20 Cb3, Nickel, Hastelloy C276, Tantalum, Titanium, Kynar, Teflon, EPDM, Viton, Kalrez 2037
Ferric Chloride (Iron III Chloride)	Serves as both a flocculant to promote particle “clumping” and a disinfectant to kill germs.	Tantalum, Titanium, PVC, Kynar, Halar, Teflon, EPDM, Viton, Buna N and Kalrez 2037
Polymeric Coagulant	Coagulation and flocculation agent removes iron, suspended solids, organic color, hardness and reduces sludge volume. Also mitigates need for pH adjustment.	316 Stainless Steel, PVC, Kynar, Teflon

FILTER MONITORING

Passing contaminated water through filters and/or strainers to capture solids and particulates is an integral step in wastewater processing. As they become saturated, they will cause a flow restriction in the pipe that will reduce the system's output. This will be evident by an increasing pressure drop on the downstream side of the filter. To monitor the status of the filter, the differential pressure (ΔP or DP) across the filter must be continuously measured. When the ΔP reaches a predetermined threshold, it is time for the filter to be serviced.

By installing taps both before and after the filter, a differential pressure measuring instrument can be connected to detect the high side and low side pressures and display the difference. When specifying a differential pressure instrument, there are two important factors to consider. The first is the DP range, which is based upon the *"most difference"* in pressure that the restriction is likely to produce. The second is the instrument's ability to contain the static pressure, which is simply the maximum pressure in the line. This level can range from 30 up to 300 psi. Differential **pressure gauges like the Ashcroft 1132, 1133,** and **F5509** can be used for local readings, **GC-52 DP transmitter** for remote signaling and **D4 pressure switch** for shutting down pumps when the ΔP exceeds prescribed limits. When multiple functions are required, a custom assembly with a combination of instruments can be constructed.





PIPE PRESSURE MONITORING (SLUDGE)

Solids and particulates in sludge will attach to cavities and obstacles inside piping to produce clogs. Taps installed in the pipes for instrument connection are especially vulnerable. Masses that form in these areas can block the pressurized media from reaching the instrument, impeding its performance. In the worst case, particulates will enter the instrument and clog the sensing element, often forcing the need for replacement. The smoother the inside surface of the vessel, the less likely clogs will form.

The use of an isolation ring will mitigate this problem. The pressure instrument is mounted to the ring which has an inside surface made of a flexible elastomer. The instrument/isolation ring combination is filled with an incompressible liquid that transmits pressure to the instruments. By installing the ring in between pipe sections, the inside surface of the ring aligns with the inside surface of the piping, creating a nearly contiguous surface for the media to pass through. When the pipe is pressurized, the medium will exert force on the elastomer wall, which will flex and force the liquid fill into the instrument to activate it. **Ashcroft 80 (wafer), 81 (bolt thru)** and **82 (threaded) isolation rings** coupled to Ashcroft gauges, Ashcroft switches, Ashcroft transmitters or customer-supplied Smart transmitters are the dependable solution for sludge applications. They ensure accurate pressure measurement without the need for constant maintenance. The **SQR™ safe quick release** allows the instrument to be disconnected from the ring during installation, without loss of the liquid fill. It also lets the user turn the instrument in any rotation for easier visibility, without compromising the liquid seal.

PREVENTING PUMP DAMAGE

Moving heavy waste material is hazardous duty for pumps. This is especially true in settling and sedimentation tanks, where solids separate by sinking to the bottom and are then pumped to the next processing stage in the form of sludge or slurry. Even though they are specifically designed for this work, these pumps can be easily damaged if inadequately monitored and controlled.

The greatest threat to pumps is cavitation. This phenomenon occurs when the suction side of the pump is starved, usually due to a blockage in the line. This lowers the suction pressure below the fluid's saturated vapor pressure point, causing bubbles to form. As the bubbles are carried over to the discharge side where the impeller has raised the pressure, the bubbles will collapse. These implosions will cause shockwaves that will damage the impeller, shaft and the inside of the housing. The same consequence occurs when high discharge pressures cause the fluid to circulate inside the pump, intensifying the fluid velocity between the impeller and the housing causing bubbles to form.

To avoid cavitation, keep pipes, screens and inlets clear of clogs. Monitor the pump's suction and discharge pressures. This can be achieved by installing an instrument assembly that includes an **80, 81** or **82** isolation ring or diaphragm seal with a flush port (such as the type **201**) or a flush mounted **DF seal**. Instrumentation can include a **1279 Duragauge® pressure gauge**, a **GC-51 transmitter** for remote monitoring and a **B4 pressure switch** to send an alarm signal to safely shut down the pump in case an alarm condition occurs.

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Select the Right Equipment

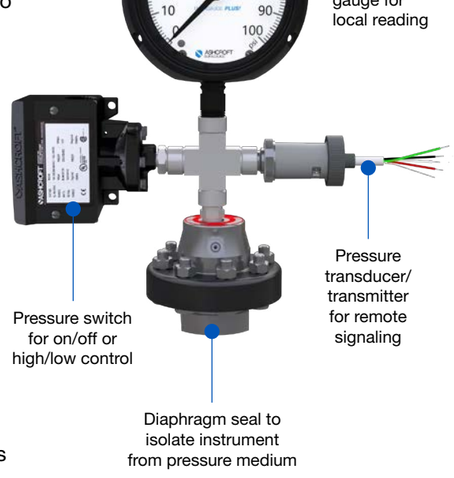
It's not easy to choose the right equipment — there are so many concerns. Your selection will affect installation, proper function and will help you to avoid the possibility of future malfunctions and failures.

Here are the top five factors to consider:

1 MULTIPLE MEASUREMENT AND CONTROL FUNCTIONS

When one port is available to pressurize several instruments with unique functions, Ashcroft will construct a **custom instrument assembly** to consolidate all of the instrumentation onto one platform. This provides several important benefits:

- All the instruments are activated through a single port, saving space
- Instead of attaching each instrument to its own diaphragm seal, only one seal may be necessary to protect the entire assembly, saving money
- Ashcroft will construct assemblies with the smart transmitter of your choice
- Each instrument can be calibrated after assembly and filling to ensure accuracy
- Procuring instruments and assemblies designed and built by one manufacturer ensures proper performance and cooperation between instruments and other devices
- Efficient configuration designs reduce piping and volume to minimize temperature effects and improve instrument responsiveness



2 ENSURE STABLE READINGS

Gauges that exhibit pointer flutter due to pump pulsation or machine vibration are difficult to read and may suffer a reduced service life. This can be remedied by dampening the movement to stabilize the pointer or adding an external dampener. Consider these options:

- **Liquid Fill:** Filling the gauge with a viscous liquid stabilizes the pointer when the gauge is subjected to vibration and pulsation. Choose from a variety of liquids depending upon the anticipated operating temperature and process compatibility in the event of a breach.
- ***PLUS!*™ Performance option:** An engineered dampening media encapsulates the gauge's pinion to slow down unwanted pointer motion caused by vibration. Precludes the need for liquid fill in many applications.
- **Pulsation Dampener:** An external device that protects the instrument from significant pressure pulses. Threaded onto the gauge's inlet connection, a pulsation dampener will soften extreme pressure inputs to stabilize readings while extending an instrument's service life. The **1106 pulsation dampener** is designed for this purpose.
- **Snubber:** An external device that protects the instrument from significant pressure pulses or fluctuations by limiting the rate of flow. Threaded onto the gauge's inlet connection, a snubber will soften extreme pressure inputs to stabilize readings while extending an instrument's service life. **1112** and **PD02 snubbers** are recommended.

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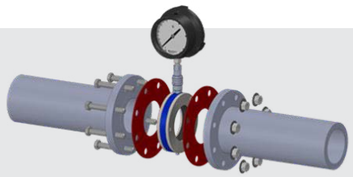
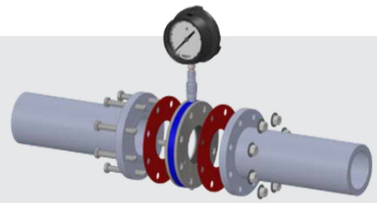
3 KEEP INSTRUMENTS FROM CLOGGING

To separate instruments from particulate-laden pressure media, isolation rings are mounted in between pipe segments so the ring's inside surface is contiguous with the inside surface of the pipes. This eliminates cavities or obstructions that will accumulate media particulates to form clogs. The inside surface of the ring is a 360° elastomer that flexes under pressure, forcing fill-fluid into the pressure instrument, which is mounted to the outer surface of the ring. Three mounting styles, wafer, bolt thru and threaded and the optional **Safe Quick Release (SQR™)** should be considered before purchasing.

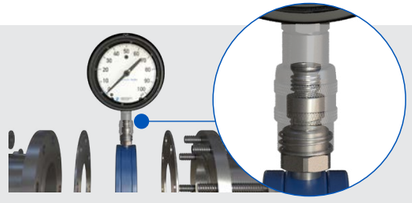


Wafer: "Sandwiched" in between two flanges, the **80 isolation ring** is a smaller diameter than the flanges bolt pattern. This type of connection is used when space is limited, usually when parallel pipes are very close. Although lighter weight, installation of this design requires a centering gauge (included with every wafer type isolation ring). It is compatible with ANSI/ASME B16. 5, 150 and 300-class flanges.



Bolt thru: Also compressed between two flanges, the **81 isolation ring** is the same diameter as the pipe flanges, and flange bolts pass through it. It is heavier but easier to install as no centering is required. Also compatible with ASME B16.5 flanges.

Threaded: For smaller piping, the **82 isolation ring** has threaded ends and an inside diameter that matches the pipe ID.



Instrument quick release connection: The **SQR™ safe quick release** located between the ring (or diaphragm seal) and the instrument enables the instrument to be rotated for easy viewing. Also, it allows removal of the instrument during shipping, installation or calibration, without losing the liquid fill in both the ring and the instrument.

4 CONTROL INFLOW TO YOUR INSTRUMENTS

Controlling pressure to your instruments allows for easier maintenance, protection from spikes and overpressure, safer system operation and more stable readings. They are useful with individual instruments or designed into instrument assemblies.

- **Pressure limiting valve (PLV):** Automatically closes when the pressure reaches a factory-set, field adjustable specified limit, isolating the instrument and preventing damage due to overpressure. The **PL02 pressure limiting valve** is recommended.
- **Valves:** Single shut-off, block & bleed and multi valve manifolds are installed to allow instrument removal, manual shutdown, pressure relief and pressure equalization in DP applications. **V01, V02, V03 series valves** are recommended.

5 ISOLATE INSTRUMENTS FROM HARSH MEDIA

Offered in a variety of resistant materials, diaphragm seals provide the ultimate protection by isolating pressure instruments from harsh or corrosive process media. View the **Ashcroft corrosion guide** for media compatibility with instrument or isolator wetted parts. They are available in various styles and configurations. Before making a selection, consider these factors:

- What is the instrument it will be attached to?
- What is the pressure range?
- How does it mount to the process?
  - Threaded fitting **(Types 100, 101, 200, 201)**
  - Flanged **(Types DF, 102, 103, 202, 203)**
  - In-line (flow-through) **(Types 104, 105, 106, 107, 108, 204, 205, 206, 207)**
- What is the process medium? (necessary to **determine required wetted materials**)
- Do you need corrosion resistant non-wetted parts to protect from environmental corrosives?
- What are the ambient temperatures? (affects both diaphragm and fill fluid selections)
- Does it require a flushing connection? (used if particulate media can cause clogging) **(Types 101, 103, 201, 203, 301, 303, 312, 315, 401, 403, 501, 511)**
- If a flushing connection is specified, will it also require a factory installed shut off valve? **(Type V02 ball valve)**
- Does it need to be "all welded"? (often applies to chemical systems) **(Types 400, 401, 402, 403, 501, 511)**
- Does it need to be welded to the instrument? (prevents possible leak path due to inadvertent gauge rotation)

Recommended Ashcroft® Products

Ashcroft offers a complete line of instruments and other devices specifically intended for water and wastewater applications. Here is a quick summary of their specifications:

Assemblies

OVERVIEW

Ashcroft offers the **assembly** of SMART transmitters to our diaphragm seals and isolation rings, ensuring that your pressure assemblies are tested for accuracy and leak integrity prior to shipment. Our transmitter assembly service helps take the guesswork out of specifying the correct pressure instrumentation and assembly orientation, while our Ashcroft instrumentation experts ensure that the instruments are compatible and properly calibrated to suit your application.

Documentation & Tagging

The most common documentation and tags include the following codes:

CODE	DESCRIPTION
CD-1	Standard Certificate of Conformance to Specifications and/or Drawings
C4	Individual Certified Calibration Chart per ASME B 40.100:2013, N.I.S.T traceable
C3	Actual Material Certification per EN 10204 3.1
CD-6	Typical Material Certification per EN 10204 2.2
1H	Hydrostatic/Pneumatic Testing of Pressure Gauge Assemblies
HY	Hydrostatic/Pneumatic Testing of Instrument System
ML	Mass Spectrometer Leak Test
MQ	Positive Material Identification (PMI)
W2	Dye Penetrant Test of Bourdon Tube
NH	Wired Stainless Steel Tag

See datasheets at ashcroft.com for complete product specifications.

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Gauges

		Process Gauges	Stainless Steel Case Gauges (open front, ASME)	Stainless Steel Case Gauges (solid front, ASME)
Model		1259, 1279	25-35 1009, 45-60 1009	1209
Specifications	Accuracy	±0.5% of span (ASME B40.100 Grade 2A)	±1% of span (ASME B40.100 Grade 1A)	±0.5% of span (ASME B40.100 Grade 2A)
	Sizes	4½″	2½″, 3½″, 4½″, 6″	4½″
Ranges	Pressure	Vacuum, compound, 15 to 20,000 psi	Vacuum, compound, 15 to 30,000 psi	Vacuum, compound, 15 to 30,000 psi

		Stainless Steel Case Gauges (EN), open/solid front (EN837-1)	Differential Gauges	Differential Gauges
Model		T5500, T6500	1130, 1140	F5509, F6509
Specifications	Accuracy	Standard: ±1% full scale (class 1); Optional 0.5% full scale	±2% ascending pressure full scale differential	±1.6% of span
	Sizes	100mm or 160mm, Open front (T5500)/Solid front (T6500)	2″, 2½″, 3½″, 4″, 4½″, 6″ Stainless Steel	100mm, 160mm Stainless Steel
Ranges	Pressure	Vacuum, Compound, -30 in hg – 0, 0-20,000 psi	0-5 psid to 150 psid	0-10 in. H_20 diff to 400 psid

		Tank Level Gauge	Industrial Digital Gauge
Model		TC	2074, 2174
Specifications	Accuracy	±1.6% of span	±0.25% full scale terminal point
	Sizes	160mm	3″, 4½″
Ranges	Pressure	60 in. H_20 to 360 in. H_20	Vacuum to 20,000 psi

See datasheets at ashcroft.com for complete product specifications.

Recommended Ashcroft® Products

Switches

		B-Series Pressure Switch	B-Series Differential Switch	L-Series Pressure Switch	L-Series Differential Pressure Switch
Model		**B4**	**D4**	**LP**	**LD**
Specifications	Enclosure	Watertight epoxy coated aluminum NEMA 4, 4X, IP66	Watertight epoxy coated aluminum NEMA 4, 4X, IP66	NEMA 4X/IP66	NEMA 4X/IP66
	Function	Single setpoint, fixed deadband, SPDT (or) single setpoint, fixed deadband, (2) SPDT (DPDT action)	Single setpoint, fixed deadband, SPDT (or) single setpoint, fixed deadband, (2) SPDT (DPDT action)	Dual independent setpoints, fixed deadband Single setpoint, adjustable deadband Single setpoint, fixed deadband	Dual independent setpoints, fixed deadband Single setpoint, adjustable deadband Single setpoint, fixed deadband
Ranges	Pressure	Vacuum to 3,000 psi	10 in. H_20 diff thru 600 psid	Vac to 3,000 psi	10 in. H_20 diff thru 400 psid

Seals

		Flush Flanged Diaphragm Seals	Threaded Diaphragm Seals	Flanged Diaphragm Seals
Model		**DF**	**100, 200, 300**	**102, 202, 302**
Specifications	Diaphragm Material	Variety of metallic wetted materials	Variety of metallic and elastomeric materials	Variety of metallic and elastomeric materials
	Bottom Housing Material	Flush design eliminates the need for a bottom housing	Variety of metallic and non-metallic materials	Variety of metallic and non-metallic materials
Ranges	Pressure Ratings	150 to 2500 class ASME flanges	500, 2500 and 5000 psi	150 to 1500 class ASME flanges

		All-Welded Seals, Threaded, Flanged	All-Welded Seals, Threaded	Isolation Rings, Wafer, Flanged, Threaded
Model		**400**	**510, 511**	**80, 81, 82**
Specifications	Diaphragm Material	Variety of metallic wetted materials	Variety of metallic diaphragms	Variety of elastomeric liners
	Bottom Housing Material	Variety of metallic materials	Variety of metallic materials	Variety of metallic and non-metallic end plates
Ranges	Pressure Ratings	4,400 psi, 150-1500 class ASME flanges	1500 psi (10,000 psi optional)	150 to 300 class ASME flanges

See datasheets at ashcroft.com for complete product specifications.

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Transmitters

		Pressure Transmitter	Low Pressure Differential Pressure Transmitter	General Purpose Industrial Pressure Transducer	Submersible Pressure Transmitter
Model		**GC51**	**GC52**	**E2G**	**SL17**
Specifications	Accuracy	±0.25% of span (URL)	±0.25% of span (URL)	±0.25%, ±0.50%, and ±1.0% of span	±0.25% of span for ranges > 1.5 psi, ±0.5% for 1.5 psi
	Output	4-20mA (2 wire)	4-20mA (2 wire)	4-20mA, 20-4mA, 1-5Vdc, 1-6Vdc, 0-5Vdc, 0-10Vdc, 1-11Vdc, 0.1-5Vdc, 0.1-10Vdc, and 0.5-4.5Vdc	4-20 mA
Ranges	Pressure	Ranges: 50 psi to 7500 psi, 15# & VAC to 50# & VAC (Compound)	Unidirectional: 4 in. H_20 to 400 in. H_20 D, Bidirectional ±4 in. H_20 to ±200 in. H_20 diff	15-300 psi absolute, compound to 300 psi gauge,1.5-20,000 psi gauge	1.5 to 300 psi or 700 ft. H_20
	Operating Temperature	14°F to 140°F (-10°C to 60°C)	14°F to 140°F (-10°C to 60°C)	-40°C to 257°F (-40°C to 125°C)	14°F to 104°F (-10°C to 40°C)

Accessories

		1 Valve Manifold	2 Valve Manifold	3 Valve Manifold	Monoflange
Model		**V01**	**V02**	**V03**	**Monoflange-V02**
Specifications	Materials	316L Stainless Steel	316L Stainless Steel	316L Stainless Steel	316L Stainless Steel
	Connections	Process Conn: ½ NPTM or ½ NPTF, Instrument Conn: ½ NPTF	Process Conn: ½ NPTM, Instrument Conn: ½ NPTF	Process Conn: ¼ NPTF or ½ NPTF	Flanged Process Connection: ½″ - 3″ raised face, ring joint, ½″ - 3″ raised face, ring joint
Ranges	Maximum Pressure	6000psi at 100°F (38°C)	6092 psi at 140°F (60°C)	6000 psi at 100°F (38°C)	6092 psi at 220°F (104°C)

		Pulsation Dampener	Snubber	Pressure Limiting Valve (PLV)	Ball Valve
Model		**1106**	**1112, PD02**	**PL02**	**V02**
Specifications	Materials	Brass, Steel, Stainless Steel	Brass, Stainless Steel, Monel	316Ti Stainless Steel	316 Stainless Steel
	Connections	¼″ and ½″	¼″ and ½″	¼ NPT, ½ NPT	½ NPTF
Ranges	Maximum Pressure	5,000 psi	15,000 psi	14,500 psi	6092 psi

See datasheets at ashcroft.com for complete product specifications.

Recommended Ashcroft® Products

Temperature

		Bi-metal Thermometers	Gas Actuated Thermometers	RTD Probes	Thermocouple Probes
Model		**Model E**	**Duratemp® / S5500**	**AR10, AR20**	**AT10, AT20, AT30**
Specifications	Accuracy	±1.0% of span	±0.5% of span ±1.0% of span ±1.6% of span	Class A Class B	Class 1 Class 2 Class 3 Standard Special
	Size & Case Features	2″, 3″, 5″ Stainless Steel, Hermetically Sealed	4½″, 100mm, 160mm, Stainless Steel	N/A	N/A
	Stem Lengths	2½″ to 60″	Direct 6″ to 36″, Remote 5′ to 80′	2″ to 120″ 51 mm to 3,048 mm	2″ to 120″ 51 mm to 3,048 mm
Ranges	Temperature	-80°F to 1000°F, -50°C to 500°C	-320°F to 1500°F, -195°C to 815°C	Pt 100 -200 to +600°C Pt 1000 -40 to +600°C	Type J -40 to +750°C Type E -200 to +800°C Type K -200 to +1100°C Type N -200 to +1100°C"

		Thermowell	Thermowell	Thermowell
Model		**Flanged**	**Threaded**	**Sanitary**
Specifications	Process Connection	1″, 1.5″, 2″, 3″, & 4″ Pipe Size	½, ¾, 1 NPT	1″, 1.5″, & 2″ Tri-Clamp
	Overall Length	Min U dimension 2″	Min U dimension 1″	Min U dimension 1″
	Materials	Variety of metallic materials	Variety of metallic materials	304 & 316SS

		Thermowell	Thermowell	Thermowell
Model		**Socket Weld**	**Weld-In**	**Van Stone**
Specifications	Process Connection	¾″ & 1″ Pipe Size	1.5″ Pipe Size	1″, 1.5″, 2″, 3″, & 4″ Pipe Size
	Overall Length	Min U dimension 1"	Min U dimension 1″	Min U dimension 2″
	Materials	Variety of metallic materials	Variety of metallic materials	Variety of metallic materials

See datasheets at ashcroft.com for complete product specifications.

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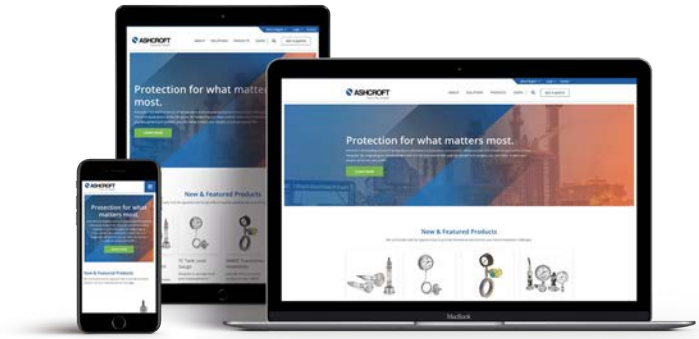

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Support Solutions for EPC and Large Projects

80/81/82 Isolation Rings

SL17 Submersible Pressure Transmitter

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